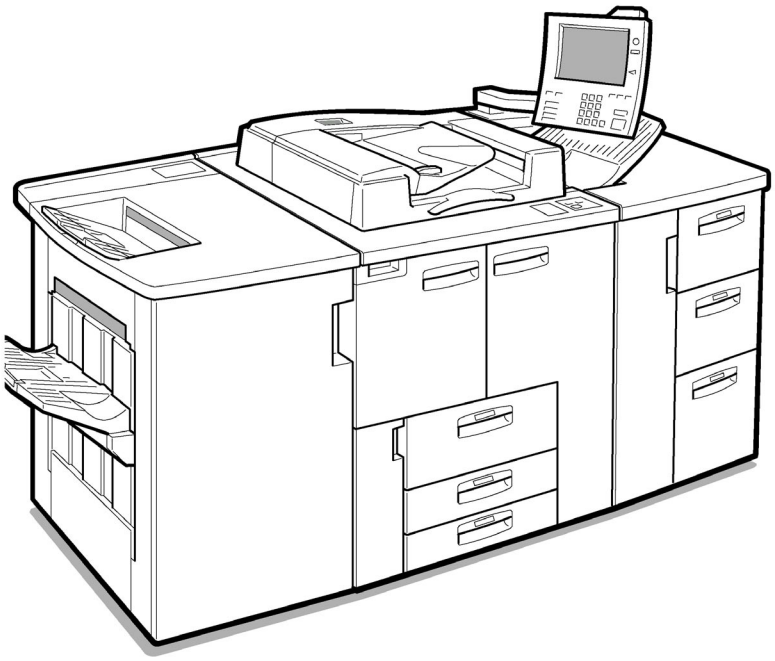
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Ricoh Corporation

LEGEND

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⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the copier power cord is unplugged.
2. The wall outlet should be near the copier and easily accessible.
3. Note that some components of the copier and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the Start key is pressed before the copier completes the warm-up period (the Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The NVRAM on the SICU has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM must be handled in accordance with local regulations.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:



Rev. 9/2001

OVERALL INFORMATION A294/A295
LARGE CAPACITY TRAY B303
TAB POSITION 1

DETAILED DESCRIPTIONS A294/A295
A3/DLT TRAY KIT B331
TAB POSITION 2

INSTALLATION A294/A295
DIFFERENCES FROM A294 I/A295 I
TAB POSITION 3

SERVICE TABLES A294/A295
TAB POSITION 4

PREVENTIVE MAINTENANCE A294/A295
TAB POSITION 5

REPLACEMENT AND ADJUSTMENT A294/A295
TAB POSITION 6

TROUBLESHOOTING A294/A295
TAB POSITION 7

3,000-SHEET FINISHER B302
TAB POSITION 8

OVERALL INFORMATION

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

1.1.1 COPIER ENGINE

Configuration:	Console
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet/Book
Original Size:	Maximum: A3/11" x 17" Minimum: A5, 5 1/2"x 8 1/2" (using ADF)
Original Alignment:	Rear left corner
Paper Size/Weight:	
Size:	Mainframe, Tray 1 (Tandem Tray): A4 sideways and LT sideways Mainframe, Trays 2 and 3 (Universal Trays): Europe/Asia: A5 sideways - A3 lengthwise, 8-kai sideways, 16-kai N. America: 5 1/2" x 8 1/2" sideways - 11" x 17" lengthwise LCT, Trays 4 ~ 6: A4 sideways, B5 sideways, LT sideways, A5, HLT Duplex Tray: A5/HLT (lengthwise or sideways) to A3/DLT, except that tab paper cannot be used
Weight:	Mainframe, Trays 1 to 3: 52 to 163 g/m^2 16 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab) LCT, Trays 4 and 5: 52 to 216 g/m^2 16 to 40 lbs Bond 50 to 80 lbs Cover 90 to 110 lbs Index LCT, Tray 6: Same as Mainframe, Trays 1 to 3 Duplex Tray: 64 to 163 g/m^2 20 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab)

Reproduction Ratios: 7 reduction and 5 enlargement

	Metric Version	Inch Version
Enlargement	400% 200% 141% 122% 115%	400% 200% 155% 129% 121%
Full Size	100%	100%
Reduction	93% 82% 75% 71% 65% 50% 25%	93% 85% 78% 73% 65% 50% 25%

Zoom: 25 ~ 400%

Copy Speed: A294: Max. 85 CPM (A4/8 1/2" x 11" sideways)
A295: Max. 105 CPM (A4/8 1/2" x 11" sideways)

Resolution: Scanning: 600 dpi
Printing: 600 dpi

Gradation: 256 levels

Warm-up Time: Less than 360 s (from Off mode)

First Copy Time:
(1st Tray, A4 sideways)
Finisher upper tray: face down
A294: Less than 5.4 s
A295: Less than 4.9 s
Finisher upper tray: face up
A294: Less than 4.1 s
A295: Less than 3.8 s
Copier: face down
A294: Less than 4.5 s
A295: Less than 4.2 s
Copier: face up
A294: Less than 3.2 s
A295: Less than 2.9 s

Copy Number Input: Ten-key pad, 1 to 9999

Copy Paper Capacity: 1st Tray: 1,000 sheets (2,000 when used as a tandem tray)
2nd/3rd Tray: 500 sheets each
4th/5th Tray (LCT): 1,000 sheets each
6th Tray (LCT): 2,500 sheets

Memory Capacity: A294: RAM: 48 MB x 2, HDD: 4.3 GB x 2
A295: RAM: 48 MB x 2, HDD: 6.8 GB x 2

Toner Replenishment: Cartridge exchange (1,450 g/cartridge)

Toner Yield: 53 k copies, 20% recycled
(A4 sideways, 6% full black, 1 to 25 copying)

Power Source: North America: 220 ~ 240 V, 60 Hz, 20 A
Europe/Asia: 220 ~ 240 V, 50Hz/60 Hz, 16 A

Note: For USA installations, standard 220V (+/- 10%) wall voltage is acceptable.

Power Consumption:

A294: N. America Version

	Mainframe Only	Full System *1
Warm-up	about 1.96 kW	about 1.98 kW
Stand-by	about 0.79 kW	about 0.8 kW
Copying	about 2.24 kW	about 2.3 kW
Maximum	less than 2.35 kW	less than 2.38 kW

A295: N. America Version

	Mainframe Only	Full System *1
Warm-up	about 2.51 kW	about 2.52 kW
Stand-by	about 0.93 kW	about 0.95 kW
Copying	about 2.67 kW	about 2.68 kW
Maximum	less than 2.77 kW	less than 2.84 kW

A294: Europe Version

	Mainframe Only	Full System *1
Warm-up	about 1.89 kW	about 1.9 kW
Stand-by	about 0.75 kW	about 0.77 kW
Copying	about 2.14 kW	about 2.18 kW
Maximum	less than 2.24 kW	less than 2.26 kW

A295: Europe Version

	Mainframe Only	Full System *1
Warm-up	about 2.38 kW	about 2.39 kW
Stand-by	about 0.89 kW	about 0.9 kW
Copying	about 2.52 kW	about 2.54 kW
Maximum	less than 2.64 kW	less than 2.7 kW

*1: Mainframe with the finisher, large capacity tray

Noise Emission *1: A294

Sound Power Level

	Mainframe Only	Complete System *3
Warm-up	about 74 dB (A)	78 dB (A)
Stand-by	about 59 dB (A)	58 dB (A)

Sound Pressure Level *2

	Mainframe Only	Complete System *3
During printing	59 dB (A)	68 dB (A)

*1: The above measurements made ISO 7779 are actual value.
*2: It is measured at the position of the bystander or the operator. During Printing.
*3: Mainframe with the full options.

Noise Emission *1: A295

Sound Power Level

	Mainframe Only	Complete System *3
Warm-up	75 dB (A)	78 dB (A)
Stand-by	59 dB (A)	58 dB (A)

Sound Pressure Level *2

	Mainframe Only	Complete System *3
During printing	61 dB (A)	67 dB (A)

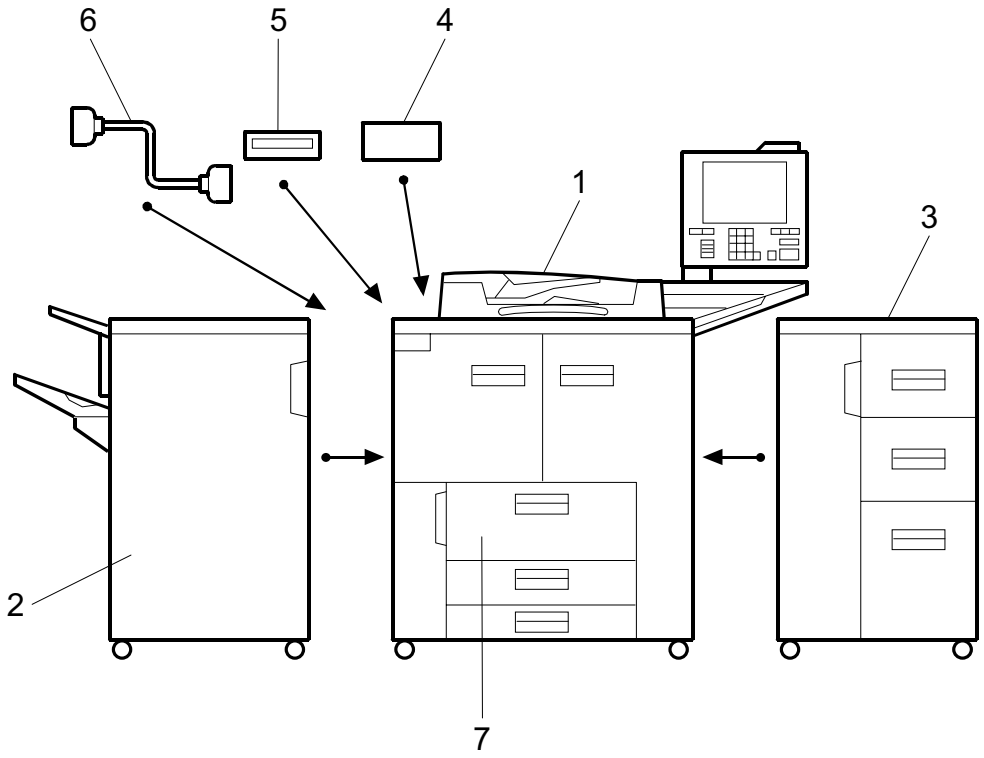
*1: The above measurements made ISO 7779 are actual value.
*2: It is measured at the position of the bystander or the operator. During Printing.
*3: Mainframe with the full options.

Dimensions: (W x D x H)	870 x 735 x 1,476 mm (34.3" x 28.9" x 58.1") (without options)
Weight:	252 kg (without options)
Optional Equipment:	Refer to Machine Configuration

1.1.2 ADF

Original Size:	Normal Original Mode: A3 to B6, DLT to HLT Thin Original Mode: A3 to B6 sideways, DLT to HLT Duplex Original Mode: A3 to A5, DLT to HLT
Original Weight:	Normal Original Mode: 52 ~ 156 g/m^2, 14 ~ 42 lb Thin Original Mode: 40 ~ 156 g/m^2, 11 ~ 42 lb Duplex Original Mode: 52 ~ 128 g/m^2, 14 ~ 34 lb
Table Capacity:	100 sheets (80 g/m^2, 20 lb)
Original Feeding Speed:	72 cpm (A4/LT sideways, 1 to 1)
Original Standard Position:	Rear left corner
Separation:	FRR
Original Transport:	One flat belt
Original Feed Order:	From the top original
Power Source:	DC 24 V and DC 38 V from the copier
Power Consumption:	145 W
Dimensions (W x D x H):	680 x 560 x 150 mm

1.2 MACHINE CONFIGURATION

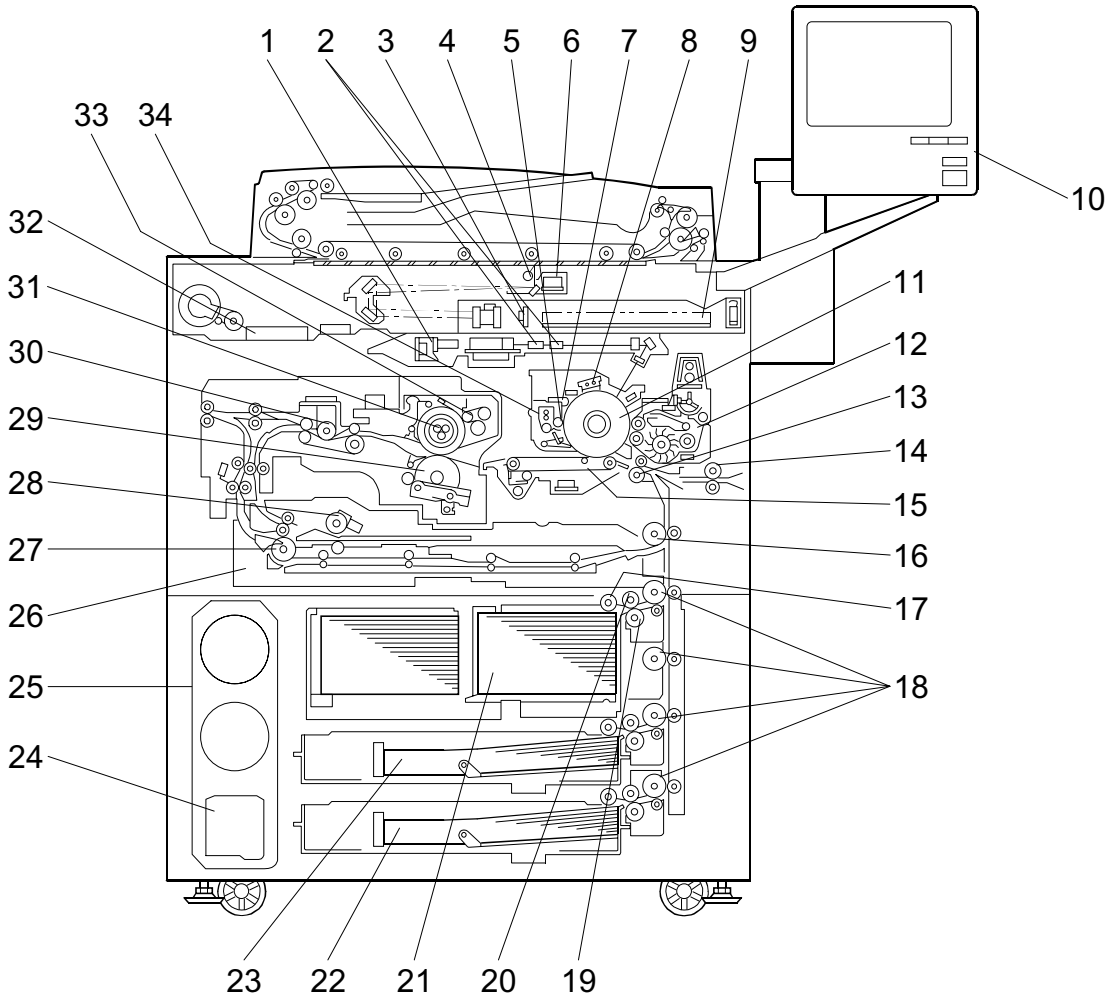


Item	Machine Code	No.
Mainframe	A294 / A295	1
Finisher	B302	2
LCT	B303	3
Interface Kit Type 850: *	B327	4
A3/DLT Tray Kit Type 850	B331	7 Replaces the tandem LCT
CD-RW (CDROM reader/writer): *	B334	5
Punch Unit	A812-30, 31, 32, 57, 67	Inside the Finisher
Connector (for the Tandem Copy feature): *	B328	6

*: When the CD-RW and/or the copy connector cable are/is installed, the interface kit is required.

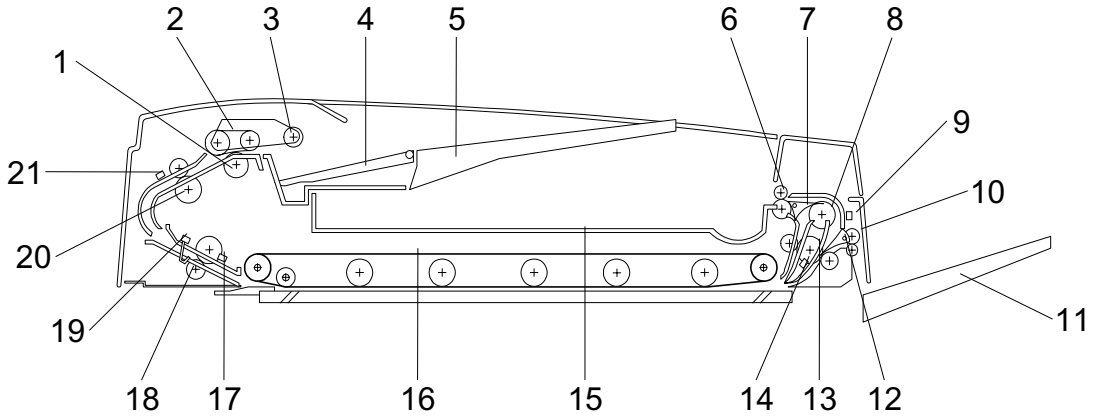
1.3 COMPONENT LAYOUT

1.3.1 COPIER ENGINE



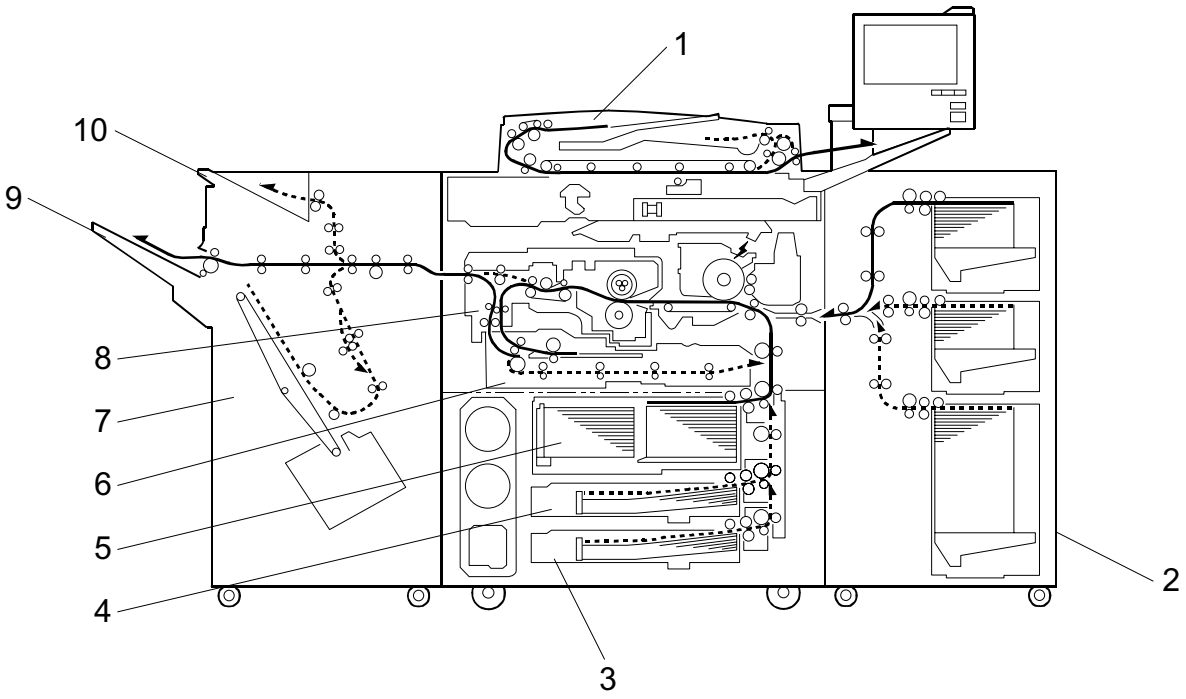
1. Laser Diode Board
2. fθ Lenses
3. Sensor Board Unit
4. Exposure Lamp
5. Cleaning Brush
6. Lamp Regulator
7. Cleaning Blade
8. Charge Corona Unit
9. System Image Control Unit
10. Color LCD
11. Drum
12. Development Unit
13. Registration Roller
14. LCT Relay Roller
15. Transfer Belt Unit
16. Relay Roller
17. Pick-up Roller
18. Vertical Transport Rollers
19. Separation Roller
20. Feed Roller
21. 1st Tray (Tandem, 1,000 sheets each)
22. 2nd Tray (500 sheets)
23. 3rd Tray (500 sheets)
24. Used Toner Bottle
25. Toner Bank Unit
26. Duplex Tray
27. Inverter Unit Paper Exit Roller
28. Inverter Feed Roller
29. Pressure Roller
30. Paper Cooling Pipe
31. Hot Roller
32. Motor Control Unit
33. Oil Supply & Cleaning Web
34. Drum Unit

1.3.2 ADF



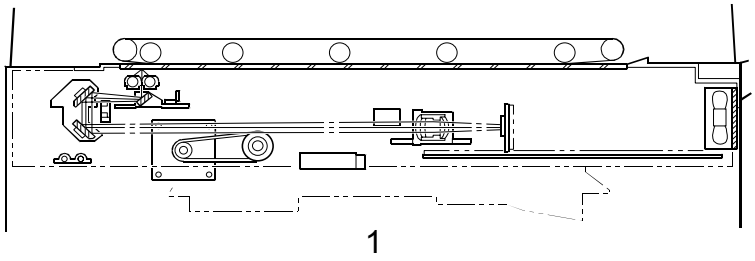
1. Separation Roller
2. Feed Belt
3. Pick-up Roller
4. Bottom Plate
5. Original Tray
6. Upper Tray Exit Roller
7. Inverter Gate
8. Inverter Guide Roller
9. Inverter Sensor
10. Right Tray Exit Roller
11. Right Exit Tray
12. Exit Gate
13. Inverter Roller
14. Exit Sensor
15. Upper Exit Tray
16. Transport Belt
17. Registration Sensor
18. Lower Transport Roller
19. Width Sensor
20. Upper Transport Roller
21. Entrance Sensor

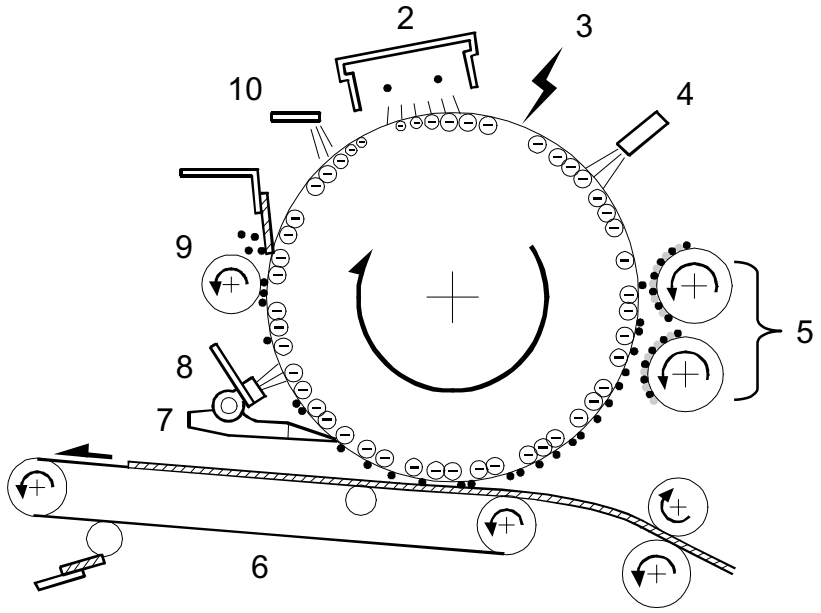
1.4 PAPER PATH



1. ADF
2. Optional LCT
3. Tray 3 (500-sheet)
4. Tray 2 (500-sheet Tray)
5. Tray 1 (Tandem Tray)
6. Duplex Unit
7. Finisher
8. Inverter Unit
9. Shift Tray
10. Upper Tray

1.5 COPY PROCESS





1. EXPOSURE

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, where it is converted into an analog data signal. This data is converted to a digital signal, processed, and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once only and stored to the hard disk.

2. DRUM CHARGE

An OPC (organic photoconductor) drum is used in this machine. In the dark, the charge corona unit gives a negative charge to the drum. The grid plate ensures that corona charge is applied uniformly. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

3. LASER EXPOSURE

The processed data from the scanned original is retrieved from the hard disk and transferred to the drum by four laser beams, which form an electrostatic latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam intensity, which is controlled by the laser diode board (LDB).

4. DRUM POTENTIAL SENSOR

The drum potential sensor detects the electric potential on the drum to correct various process control elements.

5. DEVELOPMENT

The magnetic developer brush on the development rollers comes in contact with the latent image on the drum surface. Toner particles are electrostatically attracted to the areas of the drum surface where the laser reduced the negative charge on the drum.

6. IMAGE TRANSFER

Paper is fed to the area between the drum surface and the transfer belt at the proper time to align the copy paper and the developed image on the drum. Then, the transfer bias roller and brush apply a high positive charge to the reverse side of the paper through the transfer belt. This positive charge pulls the toner particles from the drum to the paper. At the same time, the paper is electrically attracted to the transfer belt.

7. PAPER SEPARATION

Paper separates from the drum as a result of the electrical attraction between the paper and the transfer belt. The pick-off pawls also help separate the paper from the drum.

8. ID SENSOR

The laser forms a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern. The output signal is one of the factors used for toner supply control.

9. CLEANING

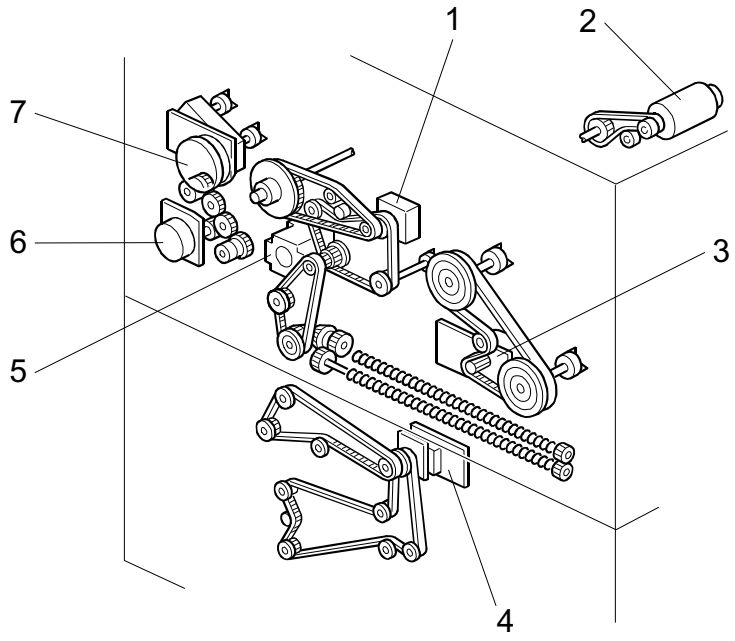
The cleaning brush removes toner remaining on the drum after image transfer and the cleaning blade scrapes off all remaining toner.

10. QUENCHING

The light from the quenching lamp electrically neutralizes the charge on the drum surface.

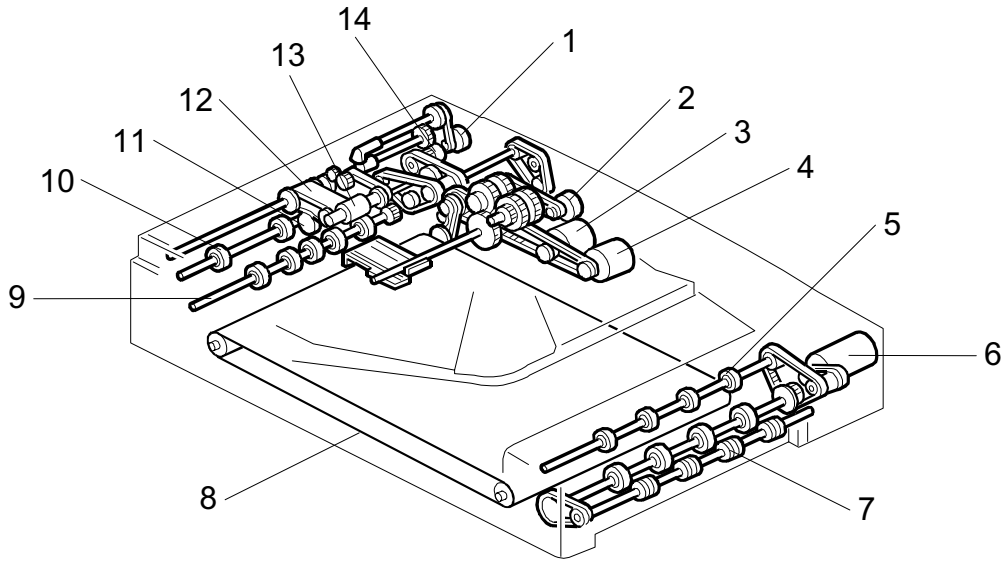
1.6 DRIVE LAYOUT

1.6.1 COPIER ENGINE



1. Drum Motor
2. Scanner Motor
3. Fusing/Duplex Motor
4. Paper Feed Motor
5. Registration Motor
6. Relay Motor
7. Development Motor

1.6.2 ADF



1. Pick-up Motor
2. Bottom Plate Motor
3. Feed-in Motor
4. Transport Motor
5. Upper Exit Roller
6. Feed-out Motor
7. Right Exit Roller
8. Transport Belt
9. Lower Transport Roller
10. Upper Transport Roller
11. Separation Roller
12. Feed Belt
13. Pick-up Roller
14. Feed-in Clutch

1.7 ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout in the plastic pouch for the location of the components using the symbols and index numbers.

1.7.1 COPIER ENGINE

Symbol	Name	Function
Motors		
M1	Scanner	Drives the 1st and 2nd scanners.
M2	Polygonal Mirror	Turns the polygonal mirror.
M3	Drum	Drives the drum, cleaning unit, and transfer belt unit.
M4	Development	Drives the development unit.
M5	Toner Supply	Supplies the toner to the toner hopper.
M6	Toner Bank	Drives the toner transport coil, which feeds fresh toner from the toner bank to the toner supply cylinder.
M7	Upper Toner Bottle	Rotates the upper toner bottle to supply toner to the toner entrance tank.
M8	Upper Bottle Cap	Opens and closes the inner cap of the upper toner bottle.
M9	Lower Toner Bottle	Rotates the lower toner bottle to supply toner to the toner entrance tank.
M10	Lower Bottle Cap	Opens and closes the inner cap of the lower toner bottle.
M11	Charge Corona Wire Cleaner	Drives the charge corona wire cleaner.
M12	Fusing/Duplex	Drives the fusing unit, duplex unit, inverter unit, and paper exit rollers.
M13	Paper Feed	Drives the paper feed, separation, pick-up, lower relay, and vertical transport rollers.
M14	Relay	Drives the upper relay roller and the LCT relay roller.
M15	1st Tray Lift	Raises and lowers the bottom plate in the 1st paper tray.
M16	2nd Tray Lift	Raises and lowers the bottom plate in the 2nd paper tray.
M17	3rd Tray Lift	Raises and lowers the bottom plate in the 3rd paper tray.
M18	Registration	Drives the registration rollers.
M19	Oil Supply/Cleaning Web	Drives the oil supply/cleaning web.
M20	Rear Fence Drive	Moves the paper stack in the left tandem tray to the right tandem tray.
M21	Jogger	Drives the jogger fences to square the paper stack in the duplex unit.
M22	Optics Cooling Fan	Removes heat from the scanner optics unit.
M23	Polygonal Mirror Motor Cooling Fan	Removes heat from around the polygonal mirror motor.
M24	LDB Cooling Fan	Removes heat from around the LDB.

Symbol	Name	Function
M25	SICU Cooling Fan	Removes heat from around the SICU.
M26	Drum Cooling Fan	Removes heat from the drum.
M27	Development Unit Cooling Fan 1	Removes heat from the development unit.
M28	Development Unit Cooling Fan 2	Removes heat from the development unit.
M29	Paper Cooling Pipe Fan	Removes heat from the paper cooling pipe.
M30	Duplex Cooling Fan	Removes heat from around the duplex unit.
M31	Exhaust Fan	Removes heat from around the fusing unit.
M32	Steam Removal Fan	Removes water vapor from around the fusing unit.
M33	PSU Cooling Fan 1	Removes heat from the PSU.
M34	PSU Cooling Fan 2	Removes heat from the PSU.
Sensors		
S1	Scanner HP	Informs the CPU when the 1st and 2nd scanners are at home position.
S2	Original Width	Detects original width. This is one of the APS (Auto Paper Select) sensors.
S3	Original Length 1	Detects original length. This is one of the APS (Auto Paper Select) sensors.
S4	Original Length 2	Detects original length. This is one of the APS (Auto Paper Select) sensors.
S5	Drum Potential	Detects the drum surface potential.
S6	Toner Density (TD)	Detects the amount of toner in the developer.
S7	Image Density (ID)	Detects the density of the ID sensor pattern on the drum.
S8	Toner Hopper	Detects toner in the toner hopper.
S9	Toner Supply Motor	Monitors the toner supply motor.
S10	Upper Toner Bottle	Detects when the upper toner bottle is set.
S11	Lower Toner Bottle	Detects when the lower toner bottle is set.
S12	Upper Bottle Inner Cap	Detects when the inner cap of the upper toner bottle is opened.
S13	Lower Bottle Inner Cap	Detects when the inner cap of the lower toner bottle is opened.
S14	Toner Collection Bottle	Detects when the waste toner collection bottle is set.
S15	Toner Overflow	Detects when the waste toner collection bottle is full.
S16	Toner Near End	Detects toner near end in the toner bank unit.
S17	1st Paper Feed	Controls the 1st paper feed clutch on/off timing and the 1st pick-up solenoid off timing.
S18	2nd Paper Feed	Controls the 2nd paper feed clutch on/off timing and the 2nd pick-up solenoid off timing.
S19	3rd Paper Feed	Controls the 3rd paper feed clutch on/off timing and the 3rd pick-up solenoid off timing.
S20	1st Tray Lift	Detects when the paper in tray 1 is at the correct height for paper feed.

Symbol	Name	Function
S21	2nd Tray Lift	Detects when the paper in tray 2 is at the correct height for paper feed.
S22	3rd Tray Lift	Detects when the paper in tray 3 is at the correct height for paper feed.
S23	1st Paper End	Informs the CPU when tray 1 runs out of paper.
S24	2nd Paper End	Informs the CPU when tray 2 runs out of paper.
S25	3rd Paper End	Informs the CPU when tray 3 runs out of paper.
S26	Rear Fence HP	Informs the CPU when the tandem tray rear fence is in the home position.
S27	Rear Fence Return	Informs the CPU when the tandem tray rear fence is in the return position.
S28	Front Side Fence Open	Detects whether the tandem tray front side fence is opened.
S29	Front Side Fence Closed	Detects whether the tandem tray front side fence is closed.
S30	Rear Side Fence Open	Detects whether the tandem tray rear side fence is opened.
S31	Rear Side Fence Closed	Detects whether the tandem tray rear side fence is closed.
S32	Base Plate Down	Detects when the bottom plate is completely lowered, to stop the 1st tray lift motor.
S33	1st Tray Paper Height 1	Detects the paper height in the 1st tray.
S34	1st Tray Paper Height 2	Detects the paper height in the 1st tray.
S35	1st Tray Paper Height 3	Detects the paper height in the 1st tray.
S36	1st Tray Paper Height 4	Detects the paper height in the 1st tray.
S37	Left 1st Tray Paper	Detects whether there is paper in the left side of the 1st tray.
S38	Right 1st Tray Paper	Detects whether there is paper in the right side of the 1st tray, allowing the tray to lift if paper is present.
S39	Duplex Inverter	Detects misfeeds.
S40	Duplex Entrance	Detects the leading and trailing edges of the paper to determine the reverse roller solenoid on or off timing.
S41	Duplex Transport 1	Detects the position of paper in the duplex unit.
S42	Duplex Transport 2	Detects the position of paper in the duplex unit.
S43	Duplex Transport 3	Detects the position of paper in the duplex unit.
S44	Duplex Jogger HP	Detects if the duplex jogger fences are at the home position or not.
S45	LCT Relay	Detects misfeeds.
S46	Relay	Detects misfeeds.
S47	Registration	Detects misfeeds and controls registration clutch on/off timing.
S48	Guide Plate Position	Detects whether the registration guide plate is open or closed.

Symbol	Name	Function
S49	Oil Supply/Cleaning Web End	Detects when the oil supply/cleaning web has been used up.
S50	Fusing Exit	Detects misfeeds.
S51	Exit	Detects misfeeds.
Switches		
SW1	Main Power	Provides power to the machine. If this is off, there is no power supplied to the machine.
SW2	Right Front Door Safety 1	Cuts the +24 V dc power line for the fusing/duplex motor.
SW3	Right Front Door Safety 2	Detects if the front door is open or not, and cuts the +24 V dc power line for the IOB.
SW4	Right Front Door Safety 3	Cuts the +5 V LD dc power line.
SW5	Right Front Door Safety 4	Cuts the +5 V LD dc power line.
SW6	Left Front Door Safety 1	Cuts the +24 V dc power line for the fusing/duplex motor.
SW7	Left Front Door Safety 2	Detects if the front door is open or not, and cuts the +24 V dc power line for the IOB.
SW8	Left Front Door Safety 3	Cuts the +5 V LD dc power line.
SW9	Left Front Door Safety 4	Cuts the +5 V LD dc power line.
SW10	2nd Tray Paper Size	Determines the size of paper in tray 2. Also detects when the tray has been placed in the machine.
SW11	3rd Tray Paper Size	Determines the size of paper in tray 3. Also detects when the tray has been placed in the machine.
Solenoids		
SOL1	Transfer Belt Lift	Controls the up-down movement of the transfer belt unit.
SOL2	1st Pick-up	Controls the up-down movement of the pick-up roller in tray 1.
SOL3	2nd Pick-up	Controls the up-down movement of the pick-up roller in tray 2.
SOL4	3rd Pick-up	Controls the up-down movement of the pick-up roller in tray 3.
SOL5	1st Separation Roller	Controls the up-down movement of the separation roller in tray 1.
SOL6	2nd Separation Roller	Controls the up-down movement of the separation roller in tray 2.
SOL7	3rd Separation Roller	Controls the up-down movement of the separation roller in tray 3.
SOL8	Front Side Fence	Opens and closes the front side fence in the tandem tray.
SOL9	Rear Side Fence	Opens and closes the rear side fence in the tandem tray.

Symbol	Name	Function
SOL10	Tandem Tray Connect	Connects/disconnects the two halves of the tandem tray.
SOL11	Left 1st Tray Lock	Locks the left tandem tray while paper is being transported from left tray to right tray.
SOL12	Duplex Inverter Gate	Moves the junction gate to direct copies to the duplex tray or to the paper exit.
SOL13	Reverse Roller	Controls the up-down movement of the reverse roller in the duplex unit.
SOL14	Inverter Guide Plate	Controls the up-down movement of the inverter feed guide plate in the duplex unit.
SOL15	Guide Plate	Opens the guide plate when a paper misfeed occurs around this area.
SOL16	Inverter Gate	Moves the junction gate to direct copies to the duplex/inverter unit or to the paper exit unit.
Magnetic Clutches		
MC1	Toner Supply Coil	Transfers drive from the toner bank motor to the toner transport coil, to transport toner towards the hopper.
MC2	Toner Supply Roller	Turns the toner supply roller to supply toner from the toner hopper to the development unit.
MC3	1st Paper Feed	Starts paper feed from tray 1.
MC4	2nd Paper Feed	Starts paper feed from tray 2.
MC5	3rd Paper Feed	Starts paper feed from tray 3.
MC6	Inverter Exit Roller	Releases the drive from the inverter exit roller in the duplex unit.
MC7	Duplex Transport	Drives the duplex transport rollers to transport the paper to the duplex feed rollers.
MC8	Duplex Feed	Starts paper feed out of the duplex tray back into the machine via to the relay rollers.
MC9	1st Vertical Transport	Drives the 1st vertical transport rollers.
MC10	2nd Vertical Transport	Drives the 2nd vertical transport rollers.
MC11	3rd Vertical Transport	Drives the 3rd vertical transport rollers.
MC12	Upper Relay	Drives the upper relay rollers (between tray1 and the registration rollers)
MC13	LCT Relay	Drives the relay rollers for paper feed into the machine from the LCT.
MC14	Lower Relay	Drives the lower relay rollers (between paper trays 1 and 2).
PCBs		
PCB1	BCU (Base Engine Control Unit)	Controls all base engine functions both directly and through other control boards.
PCB2	SICU (Scanner Image Control Unit)	Controls image processing, the laser diode, and the polygonal mirror motor.

Symbol	Name	Function
PCB3	PSU (Power Supply Unit)	Provides dc power to the system and ac power to the fusing lamp and heaters.
PCB4	IOB (Input/Output Board)	Controls the paper feed components.
PCB5	SBU (Sensor Board Unit)	Contains the CCD, and outputs a video signal to the SBICU board.
PCB6	MCU (Motor Control Unit)	Drives the scanner motor.
PCB7	Lamp Regulator	Provides dc power to the exposure lamp.
PCB8	Polygonal Mirror Motor Control	Drives and controls the polygonal mirror motor.
PCB9	LDB	Controls the laser diode.
PCB10	AC Drive	Drives the ac components.
PCB11	Operation Panel	Controls the components of the operation panel.
PCB12	Operation Key	Controls the operation switch.
Lamps		
L1	Exposure Lamp	Applies high intensity light to the original for exposure.
L2	Fusing Lamp 1	Provides heat to the hot roller.
L3	Fusing Lamp 2	Provides heat to the hot roller.
L4	Fusing Lamp 3	Provides heat to the hot roller.
L5	Quenching	Neutralizes any charge remaining on the drum surface after cleaning.
Power Packs		
PP1	Charge/bias/grid	Provides high voltage for the charge corona wires, grid plate, and the development roller.
PP2	Transfer	Provides high voltage for the transfer belt.
Others		
CB1	Circuit Breaker	Provides back-up high current protection for the electrical components.
H1	Optics Anti-Condensation (option)	Turns on when the main switch is off to prevent moisture from forming on the optics.
H2	Drum (option)	Turns on when the main switch is off to prevent moisture from forming around the drum.
H3	Tray Heater 1 (option)	Turns on when the main switch is off to keep paper dry in the paper tray.
H4	Tray Heater 2 (option)	Turns on when the main switch is off to keep paper dry in the paper tray.
HDD1	HDD	Scanned image data is compressed and held here temporarily.
HDD2	HDD	Scanned image data is compressed and held here temporarily.
NF1	Noise Filter	Removes noise from the power line.

Symbol	Name	Function
SD1	Laser Synchronization Detector	Detects the laser beam at the start of the main scan.
TC1	Total Counter	Counts the number of copies.
TF1	Fusing Thermofuse	Opens the fusing lamp circuit if the fusing unit overheats.
TH1	Fusing Thermistor	Detects the temperature of the hot roller.

1.7.2 ADF

Symbol	Name	Function	Index No.
Motors			
M1	Pick-up	Moves the pick-up roller up and down.	3
M2	Feed-in	Drives the feed belt, and the separation, pick-up, and transport rollers.	8
M3	Transport Belt	Drives the transport belt.	9
M4	Feed-out	Drives the exit and inverter rollers.	14
M5	Bottom Plate	Moves the bottom plate up and down.	7
Sensors			
S1	APS Start	Informs the CPU when the DF is opened and closed (for platen mode) so that the original size sensors in the copier can check the original size.	12
S2	DF Position	Detects whether the DF is lifted or not.	13
S3	Original Set	Detects whether an original is on the table.	19
S4	Bottom Plate HP	Detects whether the bottom plate is in the down position or not.	20
S5	Bottom Plate Position	Detects when the original is at the correct position for feeding.	4
S6	Pick-up Roller HP	Detects whether the pick-up roller is up or not.	2
S7	Entrance	Detects when to restart the pick-up motor to lift up the pick-up roller, detects when to change the feed motor direction, detects the trailing edge of the original to finish checking the original length, and checks for misfeeds.	26
S8	Registration	Detects the leading edge of the original to check the original length, detects when to stop the original on the exposure glass, and checks for misfeeds.	21
S9	Original Width 1	Detects the original width.	22
S10	Original Width 2	Detects the original width.	23

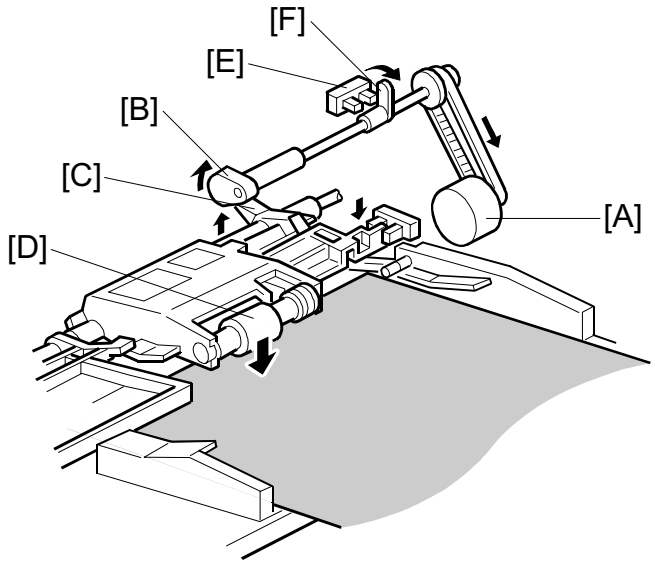
Symbol	Name	Function	Index No.
S11	Original Width 3	Detects the original width.	24
S12	Original Length	Detects the original length.	25
S13	Exit	Detects when to stop the transport belt motor and checks for misfeeds.	18
S14	Inverter	Detects when to turn the inverter gate and exit gate solenoids off and checks for misfeeds.	17
S15	Feed Cover	Detects whether the feed cover is open or not.	5
S16	Exit Cover	Detects whether the exit cover is open or not.	15
Solenoids			
SOL1	Exit Gate	Opens and closes the exit gate.	16
SOL2	Inverter Gate	Opens and closes the inverter gate.	11
Magnetic Clutches			
MC1	Feed-in	Drives the feed belt, separation roller, and pick-up roller.	1
PCBs			
PCB1	DF Main	Controls the DF and communicates with the main copier boards.	10
PCB2	DF Indicator	Indicates whether an original has been placed in the feeder, and indicates whether SADF mode has been selected.	6

DETAILED DESCRIPTIONS

2. DETAILED SECTION DESCRIPTIONS

2.1 DOCUMENT FEEDER

2.1.1 PICK-UP ROLLER RELEASE

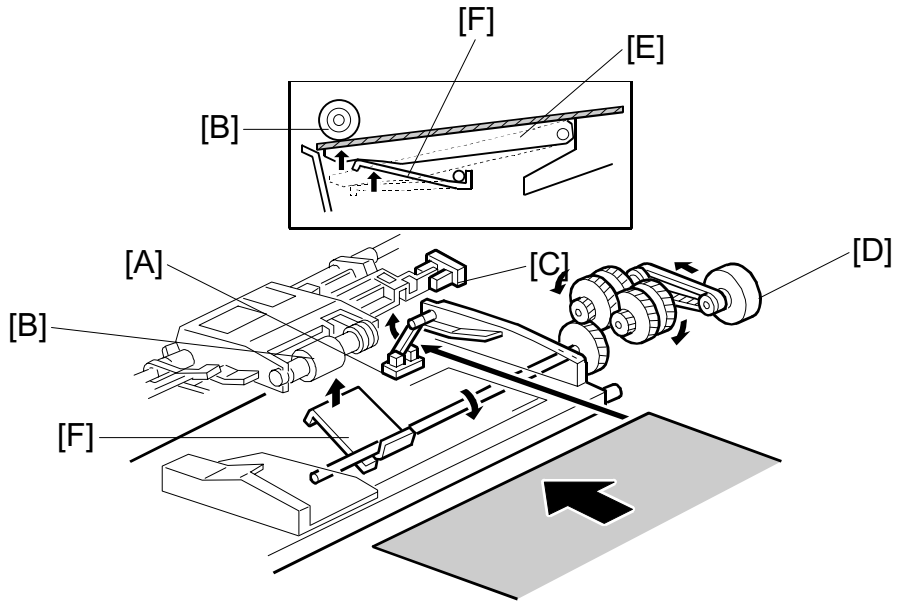


When the original set sensor is off (no original on the original tray), the pick-up roller stays in the up position.

When the original set sensor turns on (or when the trailing edge of a page passes the entrance sensor while pages remain on the original tray), the pick-up motor [A] turns on. The cam [B] rotates away from the pick-up roller release lever [C]. The lever then rises and the pick-up roller [D] drops onto the original.

When the original reaches the entrance sensor, the pick-up motor turns on again. The cam pushes the lever down, and the pick-up roller rises until the pick-up roller HP sensor [E] detects the actuator [F].

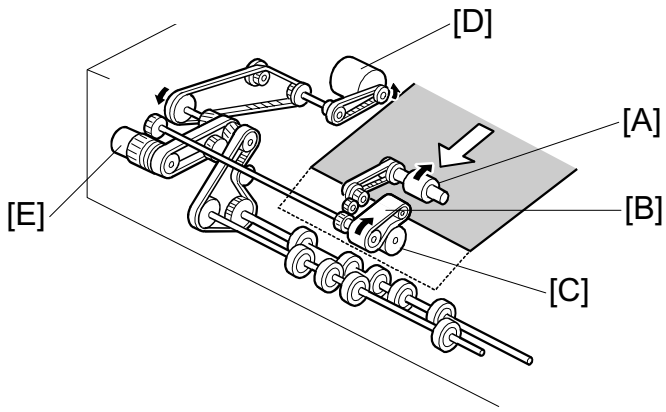
2.1.2 BOTTOM PLATE LIFT

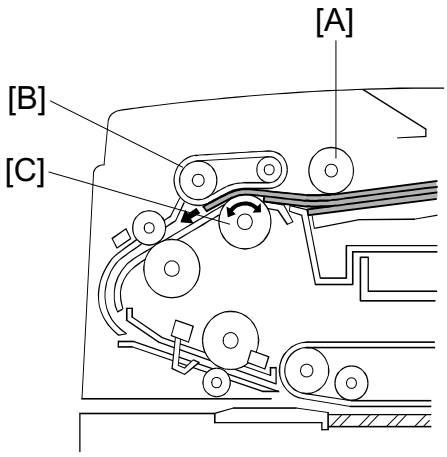


When an original is placed on the original tray, the original set sensor [A] turns on, the pick-up roller [B] drops on to the original, and the bottom plate position sensor [C] turns off. Then the bottom plate motor [D] turns on and lifts the bottom plate [E] by raising the lift lever [F] until the bottom plate position sensor turns on.

The level of the pick-up roller drops as the stack of originals becomes smaller, and eventually, the bottom plate position sensor [C] turns off. Then, the bottom plate motor turns on and lifts the bottom plate until the bottom plate position sensor turns on. This keeps the original at the correct height for feeding.

2.1.3 PICK-UP AND SEPARATION



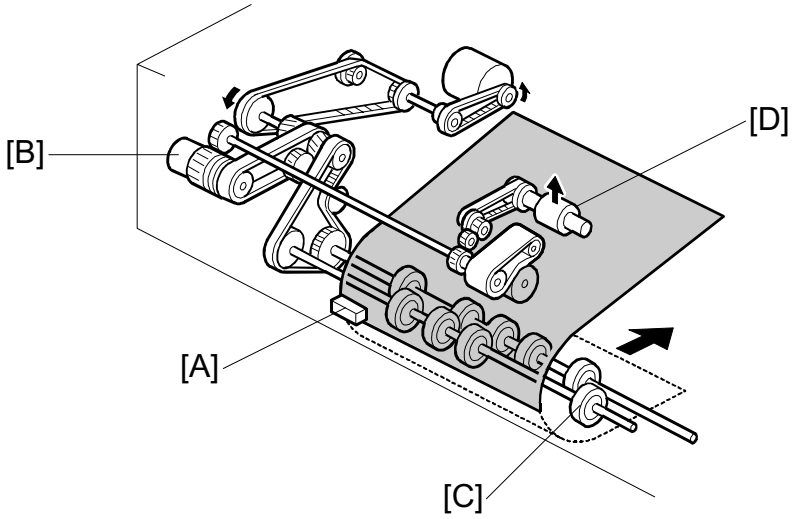


The original separation system is a Feed and Reverse Roller (FRR) system. The pick-up roller [A], feed belt [B], and separation roller [C] are driven by the feed-in motor [D].

To drive this mechanism, the feed-in motor [D] and feed-in clutch [E] turn on.

When two sheets of originals are fed by the pick-up roller, the separation roller turns in the opposite direction to the feed belt and the 2nd sheet is pushed back to the original tray. When there is only one sheet between the feed belt and separation roller, the separation roller rotates in the same direction as the feed belt. This is because the separation roller contains a torque limiter.

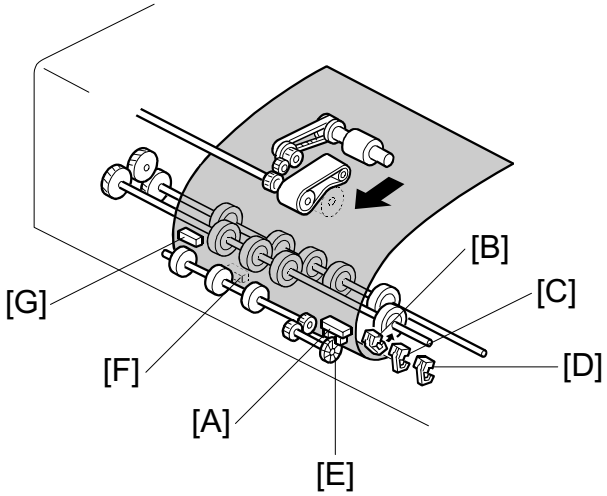
2.1.4 ORIGINAL FEED

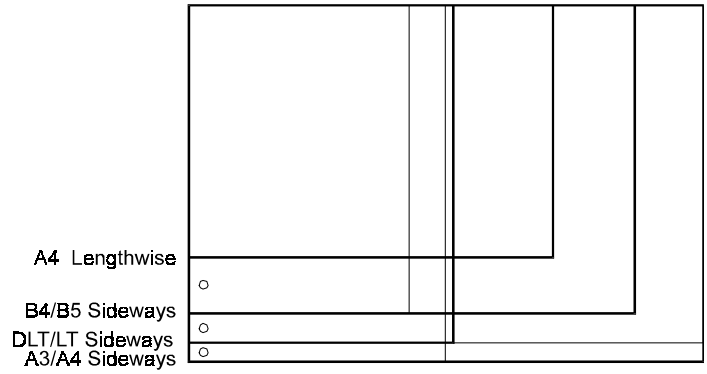


When the leading edge of the original turns the entrance sensor [A] on, the feed-in clutch [B] turns off and the drive for the feed belt is released. The original is fed by the transport rollers [C].

At the same time, the pick-up motor starts again and the pick-up roller [D] is lifted up. When the pick-up roller HP sensor turns on, the pick-up motor stops (see Pick-up Roller Release).

2.1.5 ORIGINAL SIZE DETECTION





The DF detects the original size by combining the readings of original length sensor [A], and original width sensors-1 [B], -2 [C], and -3 [D].

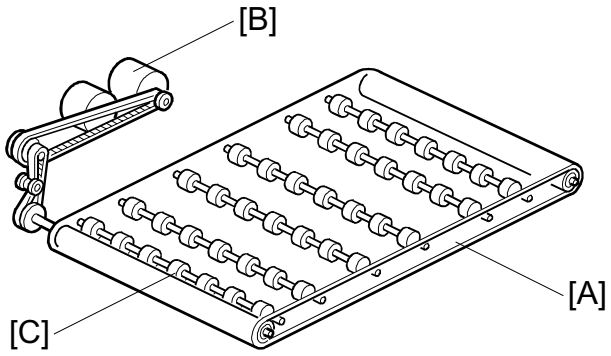
Original Length

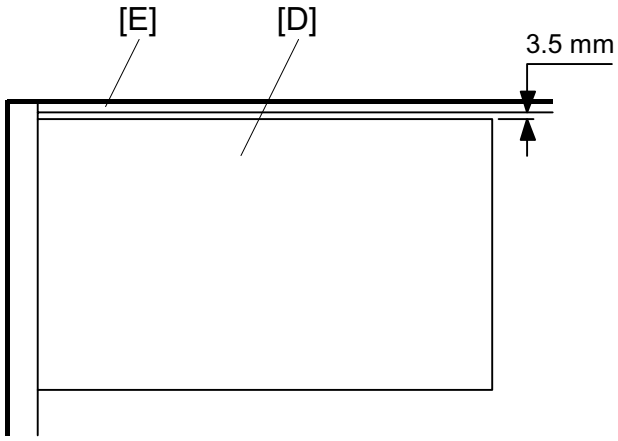
The original length sensor and the disk [E] (connected to the transport roller) generate a pulse signal. The CPU counts pulses, starting when the leading edge of the original turns on the registration sensor [F], until the trailing edge of the original turns off the entrance sensor [G].

Original Width

The CPU detects original width using three original width sensors -1, -2, -3 as shown above. Three small circles on the diagram indicate the positions of the sensors.

2.1.6 ORIGINAL TRANSPORT





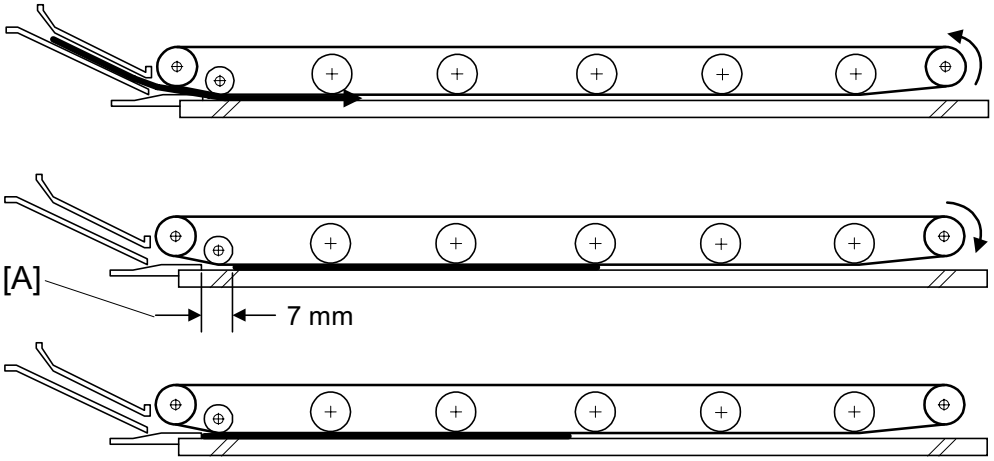
The transport belt [A] is driven by the transport belt motor [B]. The transport belt motor starts when the copier sends an original feed-in signal.

Inside the transport belt are six pressure rollers which maintain the correct pressure between the belt and original. The pressure roller [C] closest to the left original scale is made of rubber for the stronger pressure needed for thick originals. The other rollers are sponge rollers.

Normally, originals are manually placed at the left rear corner, so an original [D] fed from the DF must also be at this position. But if the original is fed along the rear scale [E], original skew, jam, or wrinkling may occur.

To prevent such problems, the original transfer position is set to 3.5 mm away from the rear scale as shown. The 3.5 mm gap is compensated for by changing the starting position of the main scan.

2.1.7 ORIGINAL SKEW CORRECTION



The transport belt motor remains energized to carry the original about 7 mm past the left scale [A] (see the middle drawing). Then the motor stops and reverses to feed the original back against the left scale (see the bottom drawing). This forces the original to hit the left scale, which aligns the trailing edge to minimize original skew on the exposure glass.

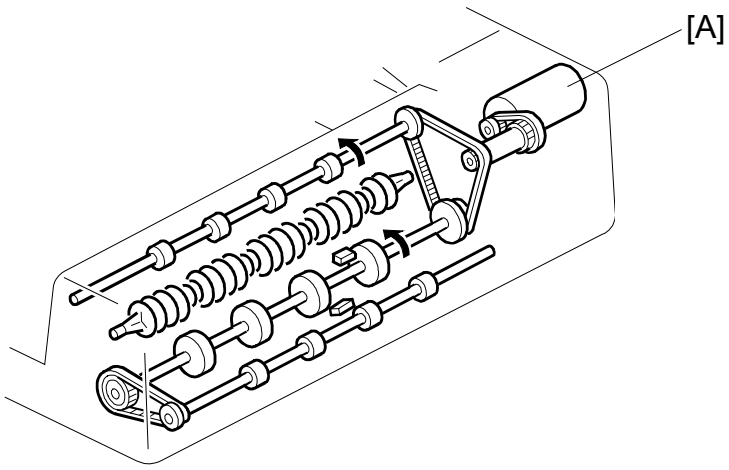
If thin original mode is selected, the original is not forced back against the left scale. This is to prevent damage to the original.

After a two-sided original has been inverted to copy the 2nd side, it is fed in from the inverter against the left scale (see the bottom drawing; the top two drawings do not apply in this mode).

The amount of reverse feed against the left scale can be adjusted with SP modes.

2.1.8 ORIGINAL INVERSION AND FEED-OUT

General Operation



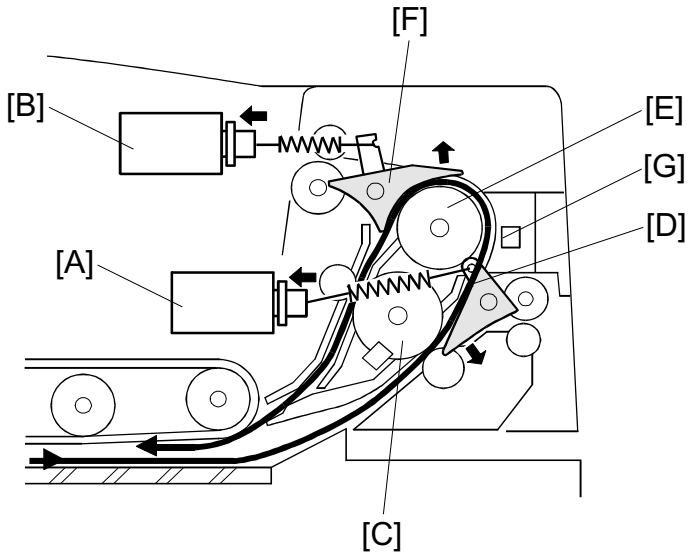
When the scanner reaches the return position, the copier's CPU sends the feed-out signal to the DF. When the DF receives the feed-out signal, the transport belt motor and feed-out motor [A] turn on. The original is then fed out to the exit tray or fed back to the exposure glass after reversing in the inverter section.

This DF has two exit trays. For single-sided original mode, the original is fed out to the right exit tray and for double-sided original mode, the original is fed out to the upper exit tray.

This causes the originals to be fed out in the correct order on the exit trays and allow the maximum one-to-one copy speed for each mode.

⇒

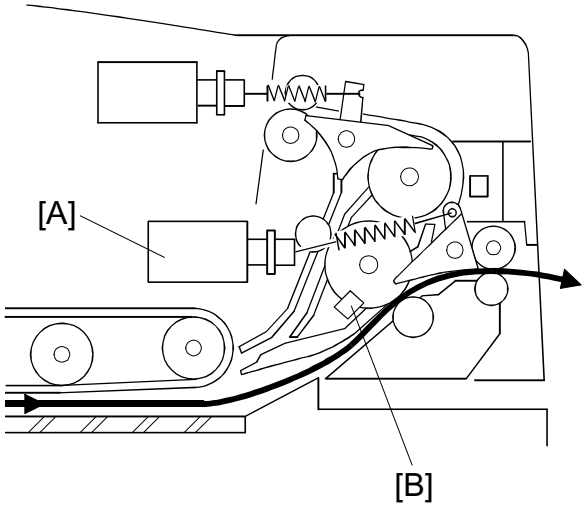
Original Inversion



When the DF receives the original invert signal from the copier, the transport belt motor, feed-out motor, exit gate solenoid [A], and inverter gate solenoid [B] turn on and the original is fed back to the exposure glass through the inverter roller [C], exit gate [D], inverter guide roller [E], inverter gate [F], and inverter roller.

The transport belt motor turns in reverse shortly after the leading edge of the original turns on the inverter sensor [G], and feeds the original to the left scale.

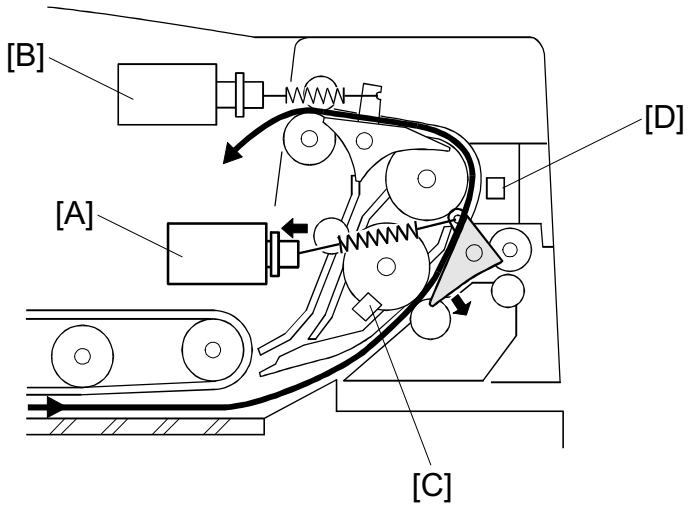
Original Exit (Single-Sided Original Mode)



The exit gate solenoid [A] remains off and the original is fed out to the right exit tray. The transport belt motor turns off after the exit sensor [B] turns off.

To stack the originals neatly on the exit tray, the feed-out motor speed is reduced about 30 mm before the trailing edge of the original turns off the exit sensor.

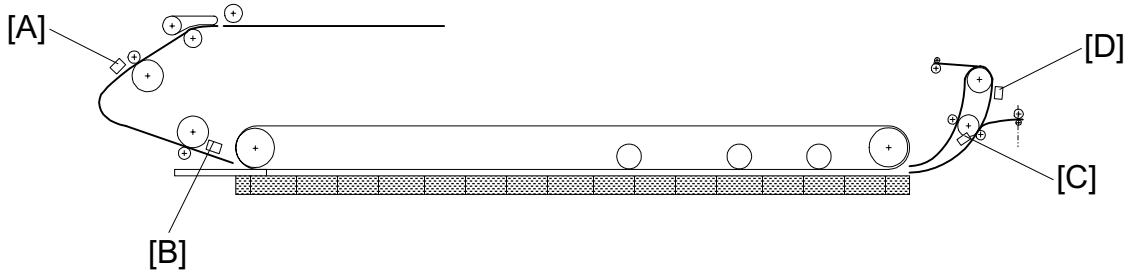
Original Exit (Double-Sided Original Mode)



The exit gate solenoid [A] turns on and the inverter gate solenoid [B] remains off, and the original is fed out to the upper tray. The transport belt motor turns off when the trailing edge of the original passes through the exit sensor [C].

To stack the originals neatly on the upper tray, the feed-out motor speed is reduced shortly after the trailing edge of the original turns off the inverter sensor [D].

2.1.9 JAM CONDITIONS



Feed-in

1. The entrance sensor [A] is still off 500 ms after the feed-in motor turned on.
2. The registration sensor [B] is still not off 300 ms after the feed-in motor speed increased.
3. The entrance sensor is still on when the feed-in and transport motors have fed the original 442 mm after the registration sensor turned on.

Feed-out

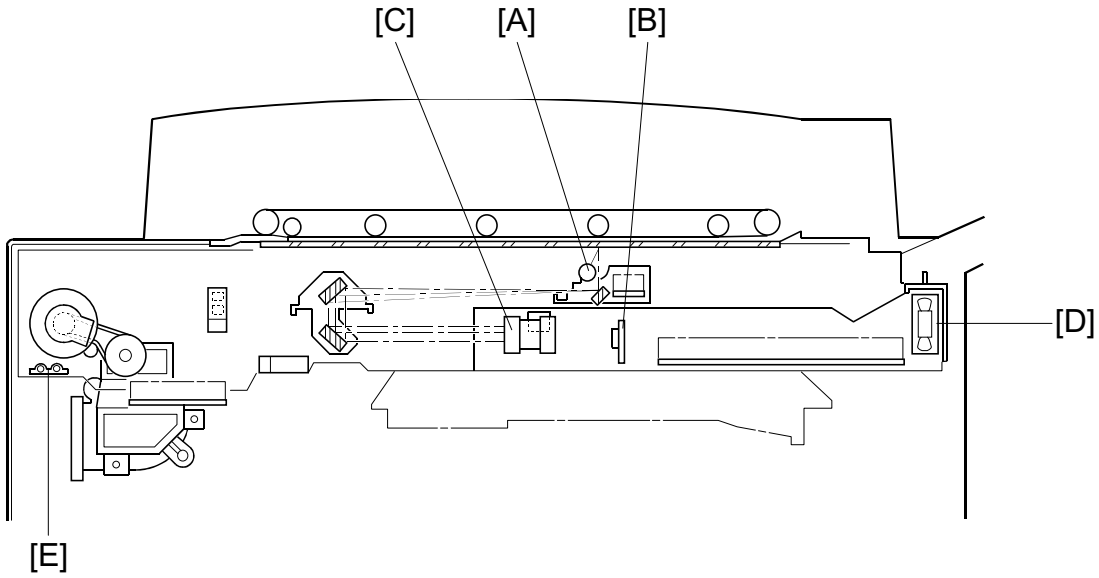
4. The registration sensor is still on when the feed-in and transport motors have fed the original 751 mm after the registration sensor turned on.
5. The exit sensor [C] is still off when the transport and feed-out motors have fed the original 129 mm after the feed-out motor turned on.
6. The exit sensor is still on when feed-out motor has fed the original X mm (X = original length x 1.3) after the exit sensor turned on.

Inversion

7. The exit sensor is still off when the transport and exit motors have fed the original 198 mm after the transport motor turned on to feed the original to the inverter section.
8. The exit sensor is still on when the feed-out motor has fed the original X mm (X = original length x 1.3) after the exit sensor turned on.
9. The inverter sensor [D] is still off when the transport and feed-out motors have fed the original 96 mm after the exit sensor turned on.
10. The inverter sensor is still off when the transport and feed-out motors have fed the original 96 mm to the exposure glass after the exit sensor turned off.

2.2 SCANNING

2.2.1 OVERVIEW



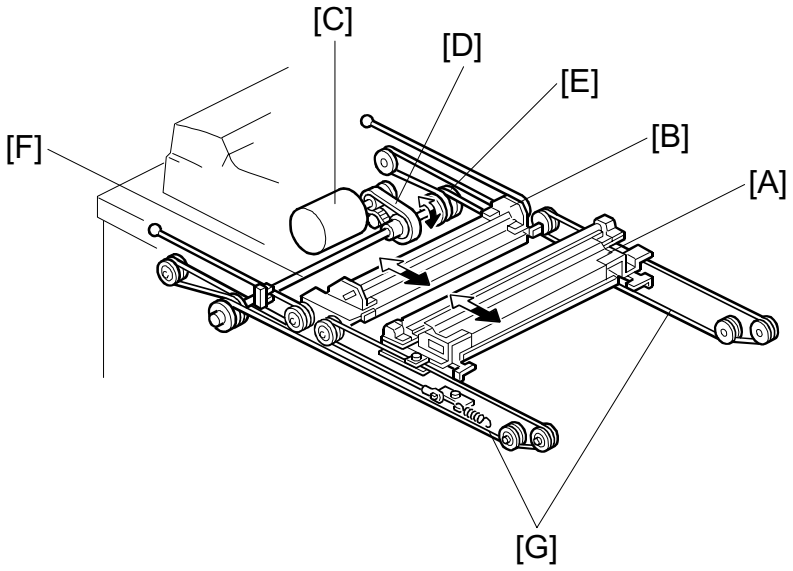
The original is illuminated by the exposure lamp (a xenon lamp) [A]. The image is reflected onto a CCD (Charge Coupled Device) [B] via the 1st, 2nd, and 3rd mirrors, and through the lens [C].

The 1st scanner consists of the exposure lamp, the lamp regulator and the 1st mirror.

There are two fans, optics cooling fan [D] and the SICU cooling fan on the right side of the optics cavity to draw cool air inside. The hot air exits through the vents in the upper cover. The optics cooling fan is turned on when the scanner motor starts and it turns off 10 seconds after the scanner motor turns off. The SICU cooling fan operates whenever the operation switch is on.

If the optional optics anti-condensation heater [E] is installed, it turns on while the main switch is off, to prevent moisture from forming on the optics.

2.2.2 SCANNER DRIVE



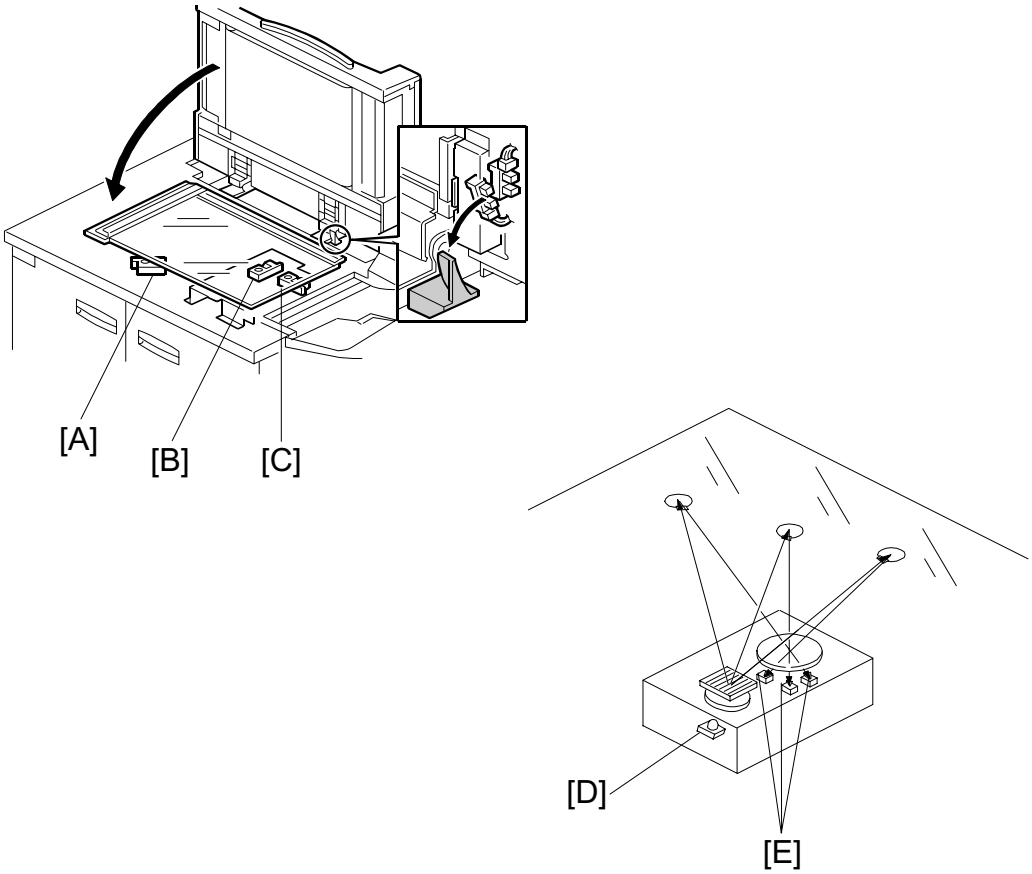
The scanner drive motor is a dc servo motor. The 1st and 2nd scanners [A, B] are driven by the scanner drive motor [C] through the timing belt [D], scanner drive pulley [E], scanner drive shaft [F], and two scanner wires [G].

The MCU board controls the scanner drive motor. In full size mode, the 1st scanner speed is 425 mm/s during scanning. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length is changed in the sub scan direction by changing the scanner drive motor speed, and in the main scan direction it is changed by image processing on the SICU board.

Magnification in the sub-scan direction can be adjusted by changing the scanner drive motor speed using SP4-008.

2.2.3 ORIGINAL SIZE DETECTION IN BOOK MODE



There are three reflective sensors in the optics cavity for original size detection. The original width sensor [A] detects the original width, and the original length sensor-1 [B] and original length sensor-2 [C] detect the original length. These are the APS (Auto Paper Select) sensors.

Inside each APS sensor, there is an LED [D] and either three photoelectric devices [E] (for the width sensor) or one photoelectric device (for each length sensor). In the width sensor, the light generated by the LED is separated into three beams and each beam scans a different point of the exposure glass (in each length sensor, there is only one beam). If the original or DF cover is present over the scanning point, the beam is reflected and each reflected beam exposes a photoelectric device and activates it.

While the main switch is on, these sensors are active and the original size data is always sent to the main CPU. However, the main CPU checks the data only when the DF is being closed.

Original Size		Length Sensor		Width Sensor			SP4301 Display
A4/A3 Version	LT/DLT Version	2	1	3	4	5	
A3	11" x 17"	❍	❍	❍	❍	❍	00011111
B4	10" x 14"	❍	❍	❍	❍	✗	00011110
F4	8 1/2" x 14" (8" x 13")	❍	❍	❍	✗	✗	00011100
A4-L	8 1/2" x 11"	✗	❍	❍	✗	✗	00001100
B5-L	—	✗	❍	✗	✗	✗	00001000
A5-L	5 1/2" x 8 1/2"	✗	✗	✗	✗	✗	00000000
A4-S	11" x 8 1/2"	✗	✗	❍	❍	❍	00000111
B5-S	—	✗	✗	❍	❍	✗	00000110
A5-S	8 1/2" x 5 1/2"	✗	✗	❍	✗	✗	00000100

-L: Lengthwise -S: Sideways ❍:High (Paper Present) ✗: Low

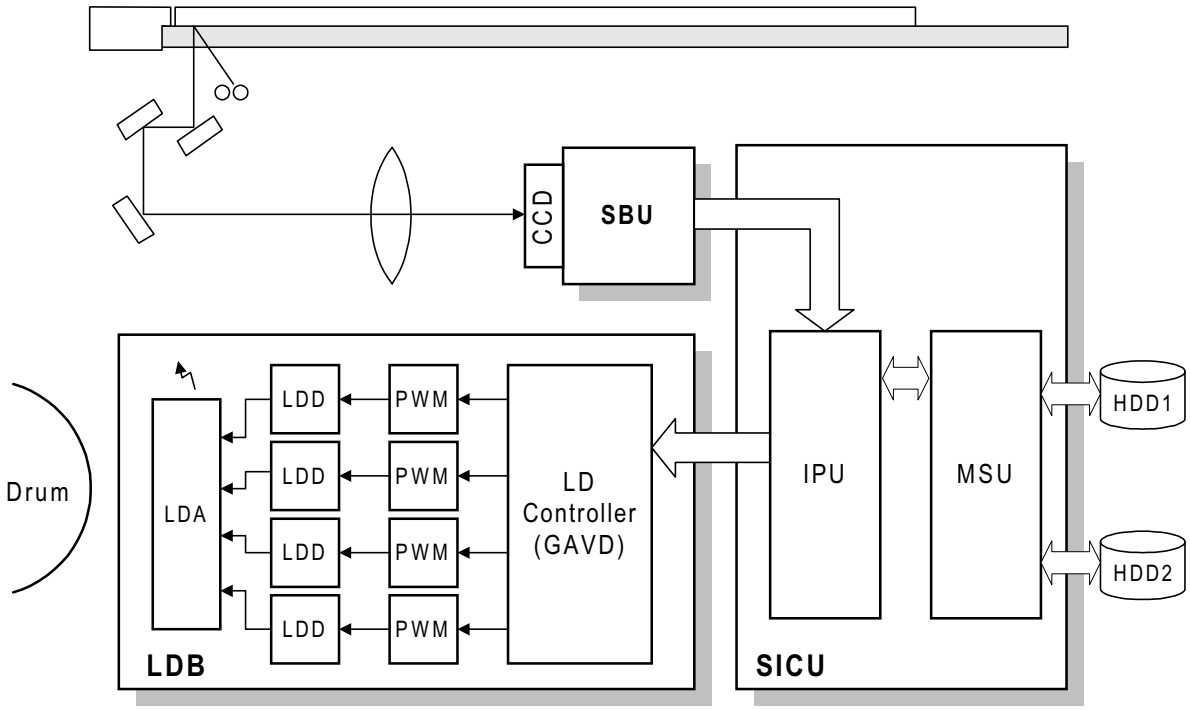
The original size data is taken by the main CPU when the DF position sensor is activated. This is when the DF is positioned about 12 cm above the exposure glass. At this time, only the sensor(s) underneath the original receive the reflected light and switch on. The other sensor(s) are off. The main CPU recognizes the original size from the on/off signals from the five sensors.

If the copy is made with the ADF open, the main CPU decides the original size from the sensor outputs when the Start key is pressed.

The above table shows the outputs of the sensors for each original size. This original size detection method eliminates the necessity for a pre-scan and increases the machine productivity.

2.3 IMAGE PROCESSING

2.3.1 OVERVIEW



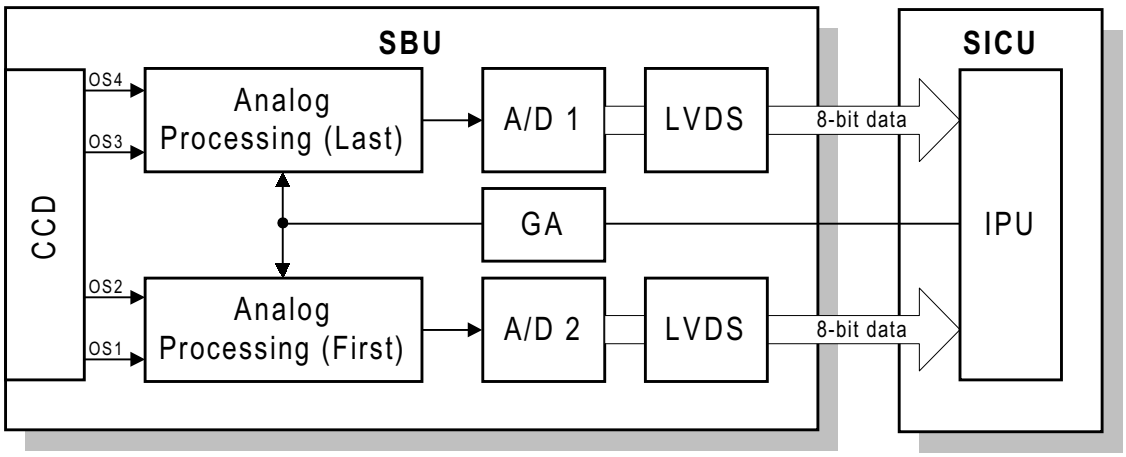
The CCD generates an analog video signal. The SBU (Sensor Board Unit) converts the analog signal to an 8-bit digital signal, then it sends the digital signal to the SICU (Scanner and Image Processing Control Unit) board.

The SICU board can be divided into two image processing blocks: the IPU (Image Processing Unit) and the MSU (Memory Supercharger Unit). These two ICs mainly do the following:

- **IPU:** Auto shading, filtering, magnification, γ correction, gradation processing, and video path control
- **MSU:** Image compression, image rotation, interface with HDD controller, image repeat, and combine originals

Finally, the SICU board sends the video data to the laser diode array (LDA) on the LD drive board (LDB).

2.3.2 SBU



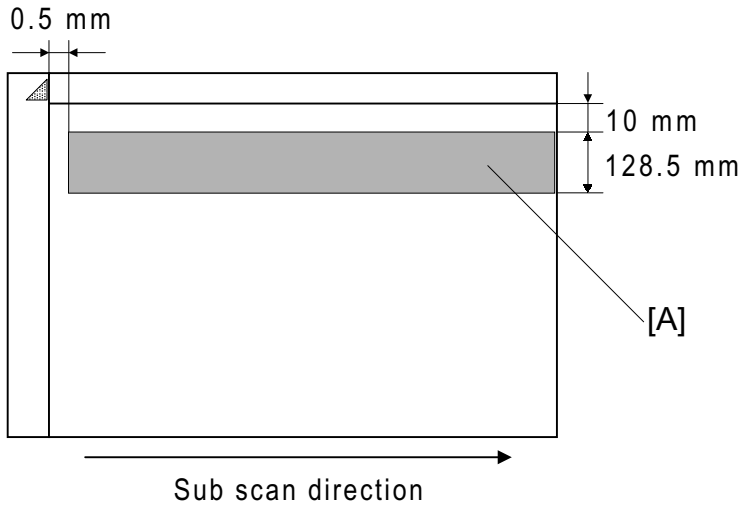
The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,500 pixels and the resolution is 600 dpi (23.6 lines/mm).

The CCD has four output lines: OS1, OS2, OS3, and OS4. OS1 and OS2 are for the first half of the scan line (Non-operation side), and OS3 and OS4 are for the last half of the scan line (Operation side). There are two analog processing ICs; one handles the first half line (OS 1 and OS2) and the other handles the last half line (OS3 and OS4). The analog processing IC performs the following operations:

1) Combines the odd and even signals into one line signal.
2) Adjust the black reference level of each CCD output channel.
3) Amplifies the analog signal from the CCD.

After the above processing, the analog signals are converted to 8-bit signals by the A/D converter. This gives a value for each pixel on scale of 256 grades. Then, the two 8-bit signals are sent to the SICU board through the LVDS (Low Voltage Differential Signaling). The LVDS is a noise-resistant interface.

2.3.3 AUTO IMAGE DENSITY (ADS)



This mode prevents the background of an original from appearing on copies.

The copier scans the auto image density detection area [A]. This corresponds to a narrow strip at one end of the main scan line, as shown in the diagram. As the scanner scans down the page, the IPU on the SICU detects the peak white level for each scan line, within this narrow strip only. From this peak white level, the IPU determines the reference value for A/D conversion for the scan line. Then, the IPU sends the reference value to the A/D controller on the SBU.

When an original with a gray background is scanned, the density of the gray area is the peak white level density. Therefore, the original background will not appear on copies. Because peak level data is taken for each scan line, ADS corrects for any changes in background density down the page.

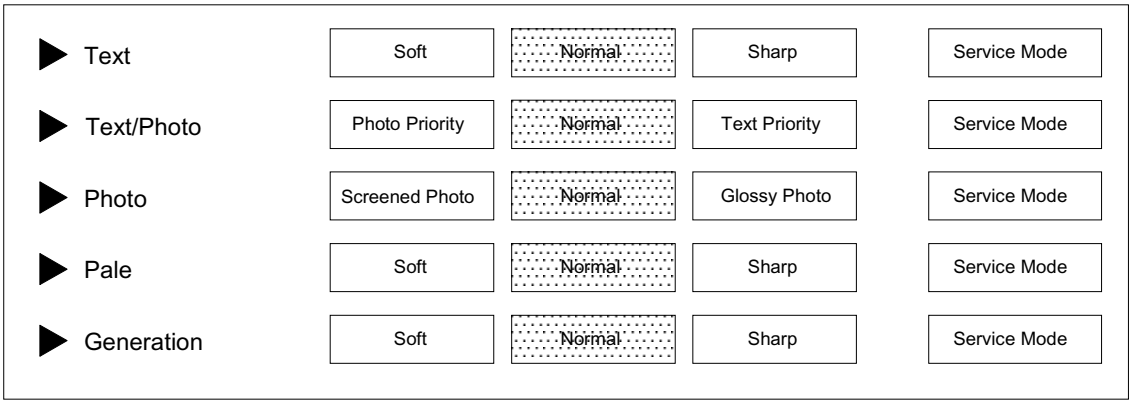
As with previous digital copiers, the user can select manual image density when selecting auto image density mode and the machine will use both settings when processing the original.

2.3.4 IMAGE PROCESSING STEPS AND RELATED SP MODE

The following tables shows the image processing path and the related SP modes used for each image processing mode.

The user can adjust many of the image processing parameters with a UP mode (Copy/Document Server Features – General Features – Original Mode Level), using fixed settings such as Sharp, Normal, and Soft. Each of these fixed settings has different parameter settings. The user's changes do not affect the SP mode settings.

If the user is not satisfied with any of the available settings for this UP mode, the technician can adjust the SP modes. However, the SP mode settings are not used unless the user selects 'Service Mode' with the UP Mode.



For more details about the settings available for the user, see Service Tables – Image Quality Setting by UP Mode.

Text Mode

MTF filtering is used in text mode. The MTF filtering coefficient and strength can be adjusted individually for both main and sub scan. Low density originals are produced better when a stronger MTF filter is selected, but in this case, moiré tends to appear.

With UP Mode (Copy/Document Server Features – General Features – Original Mode Level), the user can select 'Soft', 'Normal', 'Sharp', and 'SP Mode Changed'. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects 'Service Mode'.

	Image Processing Steps	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-065 * (Scanner Gamma Threshold Level) • SP4903-070 * (Background Erase Level)
	Independent Dot Erase	• SP4903-060 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-010 to 011 * (Pre-Filter Coefficient) • SP4903-020 to 035 * (MTF Filter Strength)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	• SP4903-84 * (Scanner gamma setting)
Gradation	Error Diffusion/ Line Width Correction	• SP4903-78 to 80 *, 4904-20 (Line Width Correction Type)

Photo Mode

Normally, the smoothing filter is used in photo mode but MTF filtering can also be selected with SP mode.

With UP Mode (Copy/Document Server Features – General Features – Original Mode Level), the user can select 'Screen Printed', 'Normal', 'Continuous Tone', and 'SP Mode Changed'. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects 'Service Mode'.

When the user selects "Normal Paper" and "Continuous Tone", error diffusion is used for the gradation process. However, if the user selects "Screen Printed", dither processing is used.

	Image Processing Path	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-66 * (Scanner Gamma Thresh Level) • SP4903-071 * (Background Erase Level)
Filtering	Smoothing/MTF	• SP4903-012 * (Pre Filter Coefficient) • SP4903-009 * (Filter Type Selection) • SP4903-036 to 038 * (Smoothing/MTF Filter Coefficient Level in Photo Mode) • SP4904-006 (Smoothing Filter Level)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Error Diffusion/ Dither Matrix	• SP4904-002 * (Grayscale Process Selection: Dither or Error Diffusion)

Text/Photo Mode

MTF filtering is used for text/photo mode.

With UP Mode (Copy/Document Server Features – General Features – Original Mode Level), the user can select 'Photo Mode', 'Normal', 'Text Mode', and 'SP Mode Changed'. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects 'Service Mode'.

	Image Processing Path	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4930-67 * (Scanner Gamma Thresh Level) • SP4903-072 * (Background Erase Level) • SP4906 * (On/Off in Text/Photo Mode)
	Independent Dot Erase	• SP4903-062 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-013 to 014 * (Pre Filter Coefficient) • SP4903-039 to 054 * (Filter Level and Strength) • SP4904-007 (Texture Erase Filter Level)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	• SP4903-85 * (Scanner gamma setting)
Gradation	Error Diffusion/ Line Width Correction	• SP4904-003, 005 * (Error Diffusion) • SP4903-81 to 83 *, SP4904-22 (Line Width Correction Type)

Pale Mode

The image processing for pale mode is basically the same as in text mode. However, the contrast of the original is low. So, to preserve details, a stronger MTF filter is used. Also, the independent dot erase level is set at a lower level, so that only the faintest of dots are deleted; this ensures that dotted lines and periods are not deleted.

With UP Mode (Copy/Document Server Features – General Features – Original Mode Level), the user can select 'Soft', 'Normal', 'Sharp', and 'SP Mode Changed'. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects 'Service Mode'.

	Image Processing Path	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-068 * (Scanner Gamma Thresh Level) • SP4903-73 * (Background Erase Level)
	Independent Dot Erase	• SP4903-063 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-015 * (Pre Filter) • SP4903-055 to 056 * (MTF Filter Coefficient – Pale Originals)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Grayscale Processing/ Line Width Correction	• SP4904-23 (Line Width Correction Type)

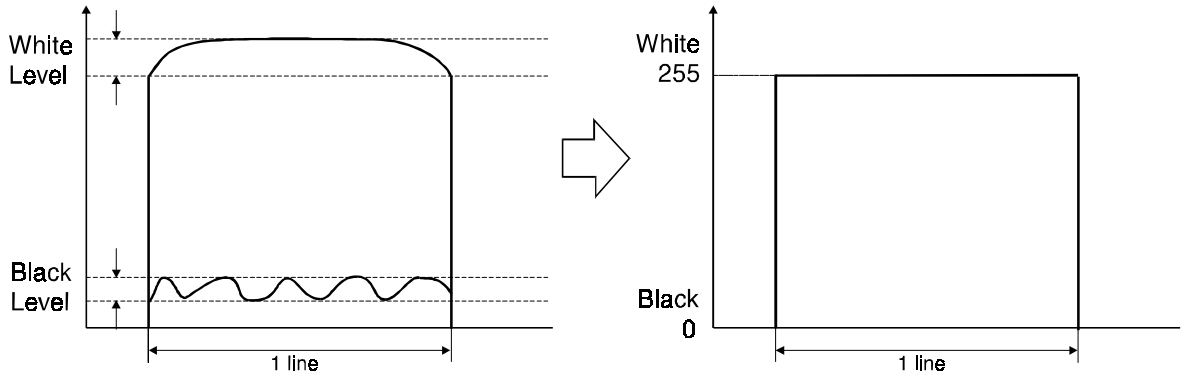
Generation Copy Mode

The image processing for generation mode is basically the same as in text mode, except that in order to prevent lines in the main scan direction from being reproduced too thickly, line width correction is applied for the final gradation treatment. Also, to reduce unwanted black dots, a weaker MTF filter is used; this ensures that isolated dots do not get bigger, and are spread out. These dots will then be deleted by the independent dot erase feature. This feature, however, is kept at a low setting to ensure that important details such as dotted lines and periods are not deleted.

With UP Mode (Copy/Document Server Features – General Features – Original Mode Level), the user can select 'Soft', 'Normal', 'Sharp', and 'SP Mode Changed'. The settings of the SP modes indicated with an asterisk (*) are not used unless the user selects Service Mode.

	Image Processing Path	Related SP Modes
Input Correction 1	Auto Shading	
Input Correction 2	Background Erase	• SP4903-069 * (Scanner Gamma Thresh Level) • SP4903-074 * (Background Erase Level)
	Independent Dot Erase	• SP4903-064 (Independent Dot Erase Level)
Filtering	MTF	• SP4903-016 * (Pre Filter Coefficient) • SP4903-057 to 058 * (MTF Filter Coefficient – Generation Copy)
Magnification	Main Scan Magnification	• SP2909-001 (Main Scan Magnification)
ID Control	γ Correction	
Gradation	Grayscale Processing/ Line Width Correction	• SP4903-75 to 77*, SP4904-24 (Line Width Correction Type)

2.3.5 AUTO SHADING



Two things happen during auto shading.

Black Level Correction

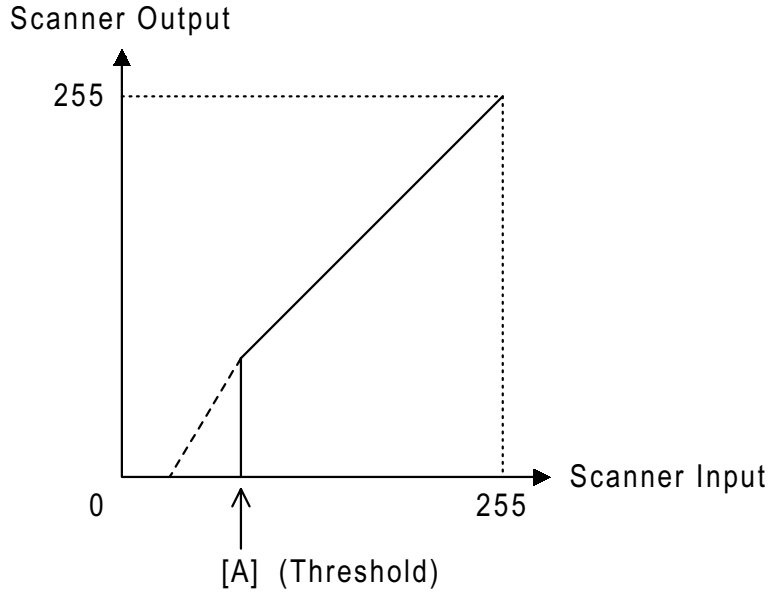
The black level is zeroed for each scan line of data by reading the dummy elements at the end of the CCD signal for each scan line, which should be black.

White Level Correction

The data is corrected for variations in white level across the main scan. To do this, a white reference plate is scanned before each original (book mode) or every 30 s (ADF mode). This corrects for the following effects on each pixel:

- Loss of brightness at the ends of the exposure lamp and the edges of the lens
- Variations in sensitivity among the CCD elements
- Distortions in the light path

2.3.6 BACKGROUND ERASE



Background Erase

The background erase process is used only when setting of SP 4-903-70 to 74 is changed from the default setting (the default is 'disabled').

Usually, dirty background is erased using Auto Image Density (ADS). Background Erase should be used when ADS cannot fully erase the dirty background.

There are two Background Erase modes. The one that is being used depends on the SP mode setting. Setting 2 has a stronger effect than setting 1, but setting 2 may cause sudden changes in the data around the threshold level.

Setting 1: MTF correction is not applied to any low image density data that remains after auto shading if the data is lower than a threshold level [A]. The overall effect is to reduce the background in a similar way to that shown by the dotted line in the diagram. This process can be applied for each image mode (except for photo mode) by changing the setting of SP4-903-70, 72, 73 or 74.

Setting 2: Any low image density data that remains after auto shading will be treated as "0" if the data is lower than a threshold level [A]. The background is cut off as shown by the solid vertical line in the diagram at [A]. This process can be applied for each image mode by changing the setting of SP4-903-70, 71, 72, 73 or 74.

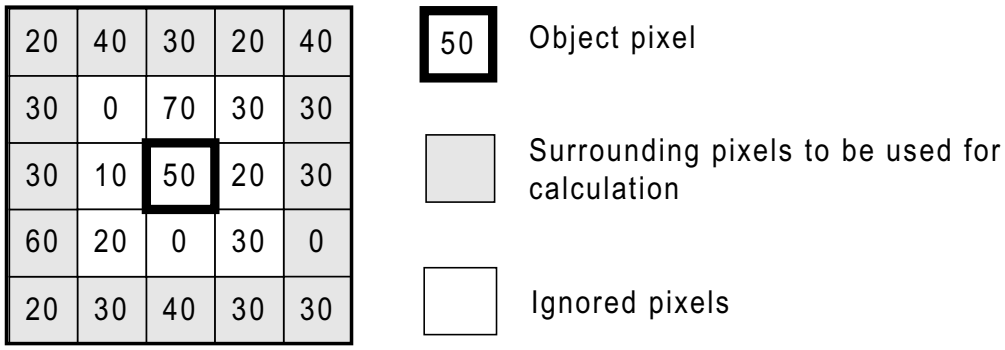
The thresholds can be changed with SP4-903-65 to 69.

2.3.7 INDEPENDENT DOT ERASE

By default, this process is used in all image processing modes except for photo mode. This function allows independent black dots appearing on copies to be erased.

As shown in the drawing below, the software compares each pixel with the pixels in the surrounding 5 x 5 area (except for the immediately adjacent pixels).

If all of the surrounding pixels are white, and the difference between the value of the object pixels and the average of the surrounding pixel is larger than the threshold level, the object pixel is either changed to 0 (white) or reduced in density. The combination of the threshold value and the pixel data reduction ratio depends on the setting of SP4-903-60, 62, 63 or 64. If a larger number is selected, the effect of independent dot erase will be stronger. If 0 is selected, independent dot erase is disabled.



2.3.8 FILTERING, MAIN SCAN MAGNIFICATION/REDUCTION

Overview

After auto shading, the image data is processed by both filtering and main scan magnification. However, to reduce the occurrence of moiré in the image, the processing order depends on the reproduction ratio, as follows.

1. 64% reduction or less
   Main Scan Reduction → Filtering
2. 65% reduction or higher
   Filtering → Main Scan Magnification

Filtering

By default, an individual MTF filter is used for each image processing mode, to enhance the desired image qualities. (For Photo mode, smoothing filter is selected as the default setting.)

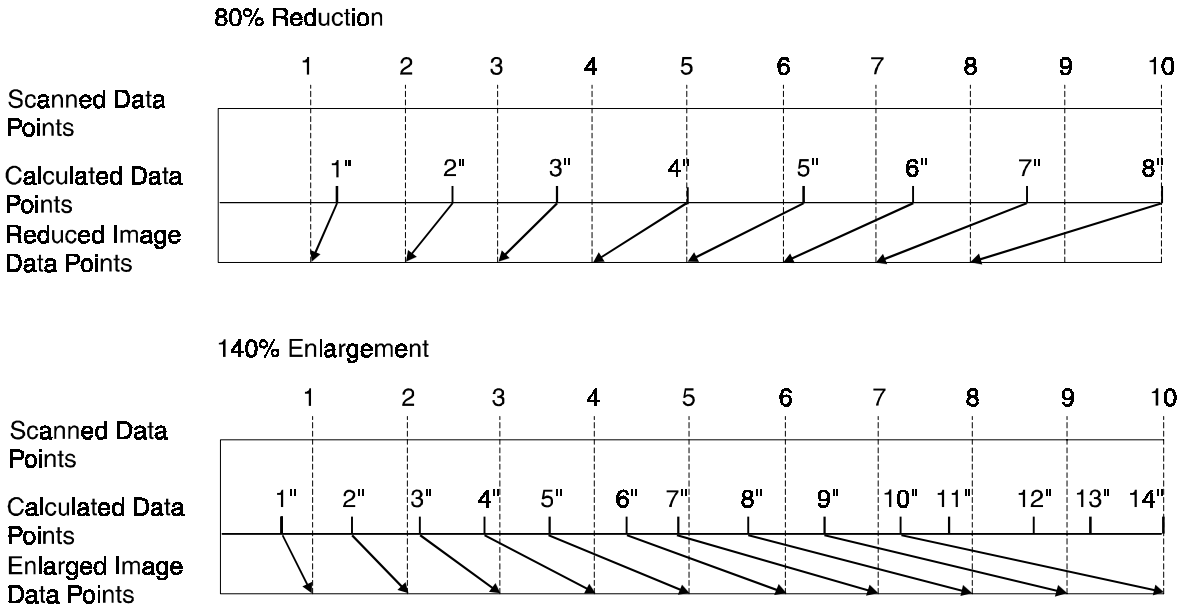
A stronger MTF filter emphasizes sharpness and leads to better reproduction of low image density areas, but may leads to the occurrence of moiré in the image.

The MTF filter strength can be changed by changing the coefficient (MTF Filter Level) and strength of the MTF filter in combination using SP mode. Refer to the combination chart in 'Image Quality Setting by UP Mode' in section 4. The filter coefficient and strength can be adjusted in the main scan and sub scan directions individually. This allows the copy quality to be adjusted more precisely, to match the originals normally scanned by a particular customer.

Example: In a case when vertical lines (sub scan) are reproduced clearly, but horizontal lines (main scan) are not reproduced clearly, the technician can adjust the main scan filter only.

For photo mode, the smoothing filter is the default filter, but the MTF filter may be selected by SP mode 4-903-9. This is effective when putting more weight on improving the resolution when copying from "continuous tone" originals.

Main Scan Magnification/Reduction



However, reduction and enlargement in the main scan direction are handled by the IPU chip on the SICU board.

Scanning and laser writing are done at a fixed pitch (the CCD elements cannot be squeezed or expanded). So, to reduce or enlarge an image, imaginary points are calculated that would correspond to a physical enlargement or reduction of the image. The correct image density is then calculated for each of the imaginary points based on the image data of the nearest four true points. The calculated image data then becomes the new (reduced or enlarged) image data.

Main scan magnification can be disabled with SP4-903-5 to test the IPU chip.

Sub Scan Magnification

When the selected magnification is 50% or larger, the image magnification in the sub scan direction is changed by changing the scanner speed. (As the magnification ratio increases, the scanner speed is reduced.)

However, when a magnification ratio smaller than 50% is selected, the required scanner speed exceeds the limit of the scanner motor. So, the scanner speed is reduced to half of the required speed for that reduction ratio. As a result, there are twice as many scan lines as needed. So alternate lines are removed.

For example, if a 49% magnification ratio is selected, the scanner speed is the same as the speed of 98% magnification, but the number of sub scan lines used for the image is half of that for 98% magnification.

2.3.9 GAMMA (γ) CORRECTION

Gamma correction ensures accurate generation of the various shades in the gray scale from black to white, accounting for the characteristics of the scanner and printer.

Scanner gamma correction corrects the data output to the IPU to account for the characteristics of the scanner (e.g., CCD response, scanner optics).

Printer gamma correction corrects the data output from the IPU to the laser diode to account for the characteristics of the printer (e.g., the characteristics of the drum, laser diode, and lenses).

The scanner and printer gamma settings can be changed for the 'Service Mode' original type of text and text/photo modes, using SP4-903-84 and 85.

2.3.10 GRADATION PROCESSING

Various processes are available to try to reproduce various types of original as faithfully as possible.

The following processes are used in combination depending on the image mode settings.

1) Three-gradation processing
2) Four-gradation processing
3) Error diffusion
4) Dithering

These three processes are used as follows:

Text Mode:	Error diffusion + line width correction and four-gradation processing
Text/Photo Mode:	Error diffusion + line width correction and four-gradation processing
Photo Mode:	Error diffusion or dithering, and three-gradation processing
Generation Copy Mode:	Error diffusion + line width correction, and three-gradation processing
Pale Mode:	Error diffusion and four-gradation processing

Three-gradation Processing

This mode is used in Photo mode.

The image density data after gamma correction is changed into three-gradation data (full dot, half dot, or blank) using two thresholds. With this processing, halftone images are reproduced smoother than with four-gradation processing because of stable dot image reproduction due to only one intermediate density level.

Four-gradation Processing

This process is used in Text mode and Text/Photo mode.

The image density data after gamma correction is changed into 2-bit data using 3 thresholds. The four gradations are reproduced by laser power control. This process is suitable for reproducing fine originals which do not include halftone areas.

Error Diffusion and Dithering

Error diffusion reduces the difference in contrast between light and dark areas of a halftone image. Each pixel is corrected using the difference between it and the surrounding pixels. The corrected pixels are then corrected using an error diffusion matrix.

With dithering, each pixel is compared with a pixel in a dither matrix. Several matrixes are available, to increase or decrease the detail on the copy.

Comparing with dithering, error diffusion gives a better resolution, and is more suitable for “continuous toned” originals. On the other hand, dithering is more suitable for “screen printed” originals.

In Photo mode, when the user selects “Normal Paper” or “Continuous Tone”, error diffusion is used. However, if the user selects “Screen Printed”, dither processing is used. If the user selects “SP Mode Changed”, then error diffusion or one of three types dither matrix can be selected with SP4-904-002. There are three types of dither matrix, 8" x 8", 6" x 6", and 4" x 4". A larger dither matrix causes halftone areas to become coarser.

2.3.11 LINE WIDTH CORRECTION

This function is effective for Text, Text/Photo and Generation modes.

The software compares each pixel with adjacent pixels. If the differences between the object pixel and adjacent pixels are more than a threshold, the software judges that the pixel is on a line edge, and line width correction is applied.

The line width correction setting can be changed separately for Text, Text/Photo and Generation modes. The widths of vertical and horizontal lines can be corrected separately.

- Thinner 1: If the pixel is on the edge of a line, its density is multiplied by 0.75
- Thinner 2: If the pixel is on the edge of a line its density is multiplied by 0.5
- Thicker: If the pixel is on the edge of a line, 48 is added to its density

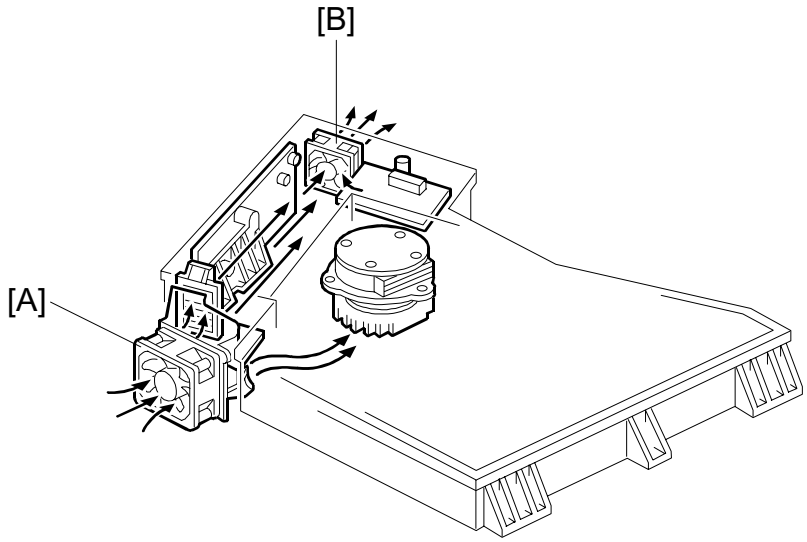
The threshold for detecting edges of lines can also be changed separately for vertical lines and horizontal lines.

Use SP4-903-75 to 83 to adjust the line width correction settings.

Line width can also be corrected by adjusting the laser output (SP4904-20 to 24).

2.4 LASER EXPOSURE

2.4.1 OVERVIEW



This machine uses four laser diodes to produce electrostatic images on an OPC drum. The four parallel beams write four lines at once.

The laser diode unit converts image data from the SICU board into laser pulses, and the optical components direct these pulses to the drum.

Exposure of the drum by the laser beam creates the latent image. The laser beam makes the main scan while drum rotation controls the sub scan.

The strength of each beam is 10 mw on the drum surface at a wavelength of 785 nm.

The polygon motor speed is 29,528 rpm.

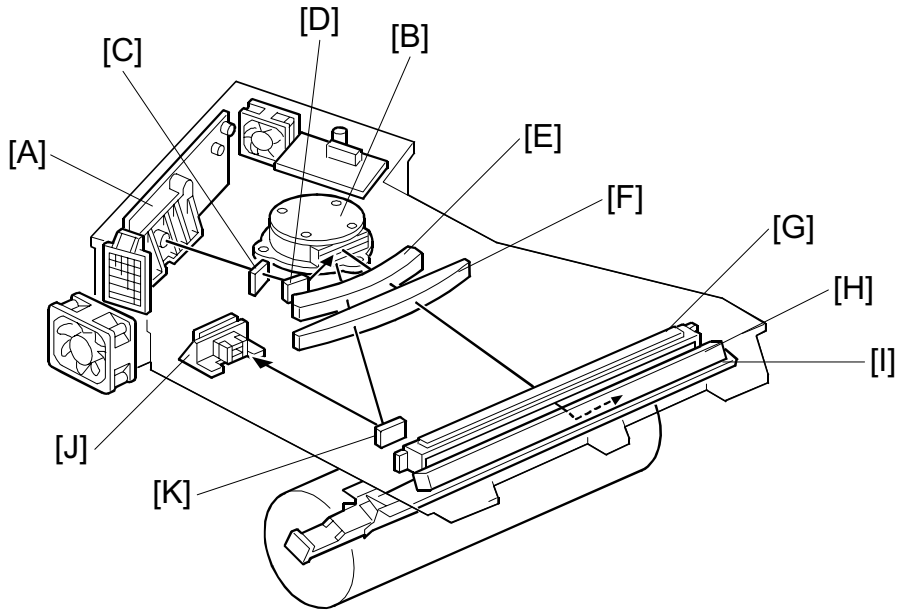
There are up to 4 image density levels for each pixel. To realize this, this machine uses a form of pulse width modulation. In this machine, pulse width modulation consists of the following processes:

- Laser diode pulse positioning
- Laser diode power/pulse width modulation

Laser diode power and pulse width modulation is done by the laser diode drive board (LDR). Briefly, the width of the laser pulse for a pixel depends on the output level (from 0 to 3) required for the pixel.

There are two fan motors, the polygonal motor cooling fan [A] and LDB cooling fan [B], for removing heat in the laser unit.

2.4.2 OPTICAL PATH



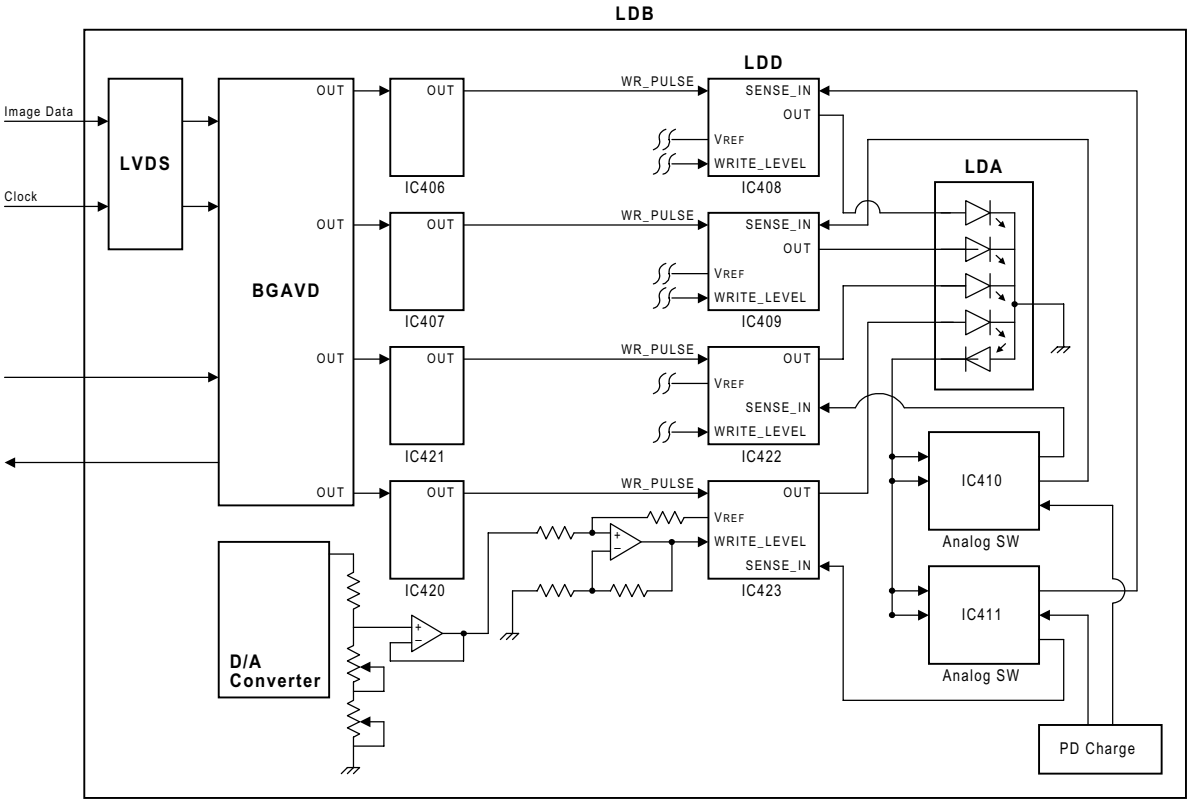
The output path from the laser diode to the drum is shown above.

The LD unit [A] outputs four laser beams to the polygonal mirror [B] (six mirror surfaces) through the cylindrical lens [C] and the 1st mirror [D].

Each surface of the polygon mirror reflects four full main scan lines. The laser beams go to the F-theta lens 1 [E], F-theta lens 2 [F], BTL (barrel toroidal lens) [G], and mirror [H]. Then these laser beams go to the drum through the toner shield glass [I].

The laser synchronizing detector [J] determines the main scan starting position. This board generates and sends a synchronization signal when the laser synchronization detector mirror [K] reflects the laser beam to the detector as the laser beam starts its sweep across the drum. The detector detects only the uppermost beam (channel 1) of the four.

2.4.3 AUTO POWER CONTROL (APC)



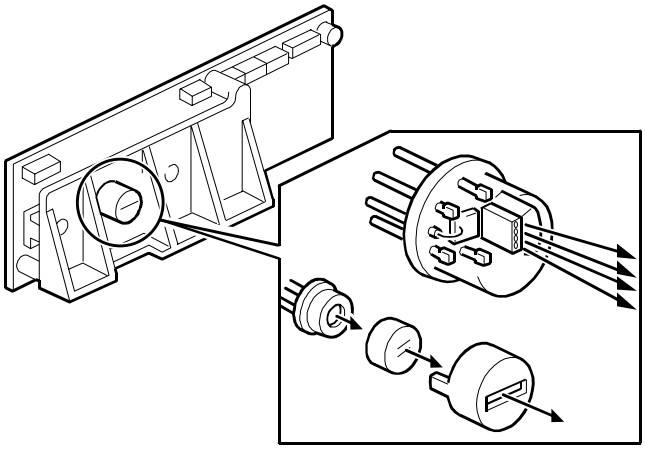
There are four LD drivers (IC408, IC409, IC422 and IC423) on the LDB (Laser diode Drive Board). The LD drivers control the laser diodes on the 4-channel laser diode array. Even if a constant electric current is applied to the laser diode, the intensity of the output light changes with the temperature. The intensity of the output decreases as the temperature increases.

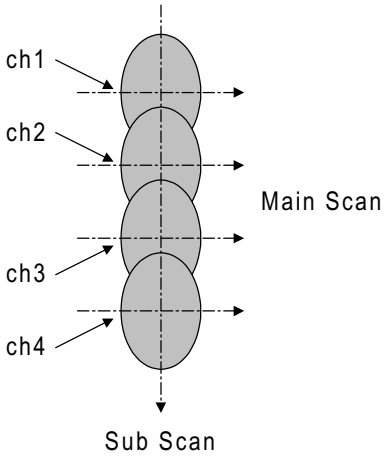
In order to keep the output level constant, IC410 and IC411 monitor the current passing through the photodiode (PD). Then they increase or decrease the current to the laser diode as necessary, comparing it with the reference levels (VREF). To apply APC separately to each laser diode using only one photo diode, the monitor current is sent in turn to each laser diode.

This auto power control is done just after the machine is turned on and during printing while the laser diode is active.

The reference levels are adjusted on the production line. Do not touch the variable resistors on the LDB in the field.

2.4.4 FOUR BEAM LASER WRITING



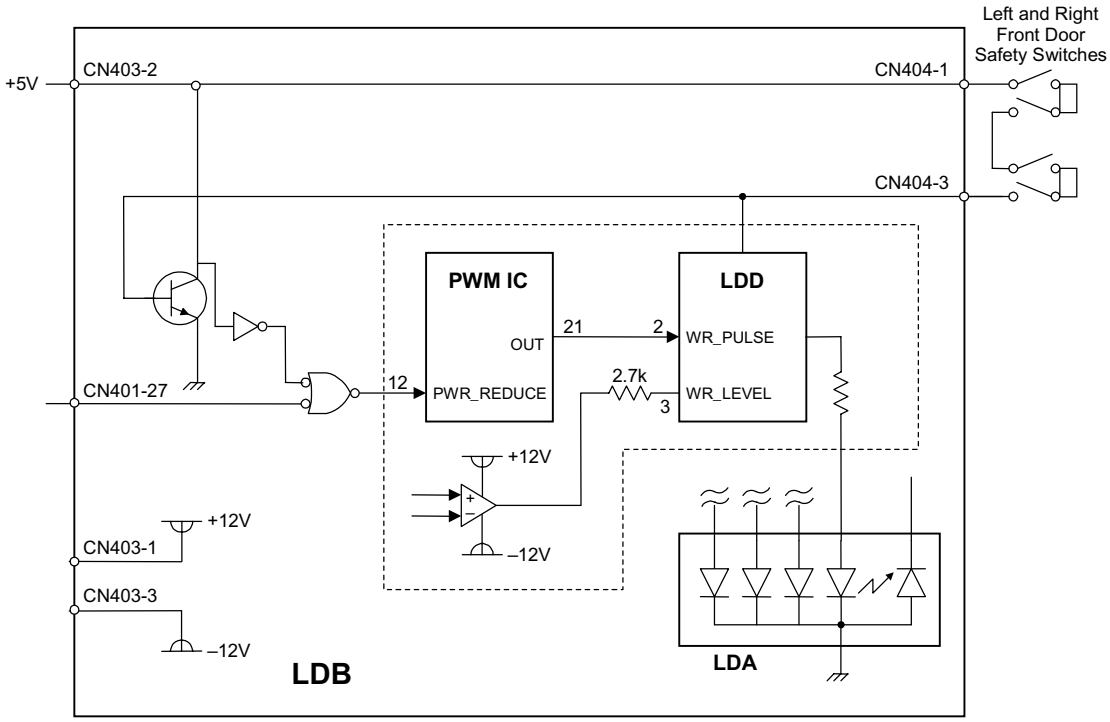


This laser unit has four LD diodes for writing the image. This means that each surface of the polygonal mirror motor writes four main scan lines, and 24 main scan lines are produced when the polygonal mirror rotates once. Due to this multi beam writing, the polygonal mirror motor speed can be reduced, thus the noise generated by the polygonal mirror motor can be reduced.

The four laser beams are transferred to the polygonal mirror through a collimating lens. When the four laser beams arrive on the drum surface, the diameter of the beam spot is 50 x 60 (main scan direction x sub scan direction) μm, and the distance between each pixel is approximately 42 μm. So the beam spots overlap each other as shown above.

The laser diode array is assembled and adjusted in the factory, and no adjustment can be done in the field.

2.4.5 LD SAFETY SWITCHES



To ensure technician and user safety and to prevent the laser beam from inadvertently switching on during servicing, there are four safety switches inside the front cover.

When one of the front covers is open, the 5 V line connecting to the LD drivers (LDD) is disconnected. The above diagram shows one LD and driver circuit as an example. There are four of these on the LDB board. Additionally, the OUT terminal of the PWM IC is automatically set at a low level to prevent any power from being supplied from the PWM IC to the LDD.

Even if 12 V is supplied from the op amp which controls the LD power level, the power will be less than the minimum power required for LD lighting (5 mA) due to the 2.7 kΩ resistor.

2.5 DRUM UNIT

2.5.1 PROCESS CONTROL

Overview

The drum potential will gradually change because of the following factors.

- Dirty charge corona casing and grid plate
- Changes in drum sensitivity

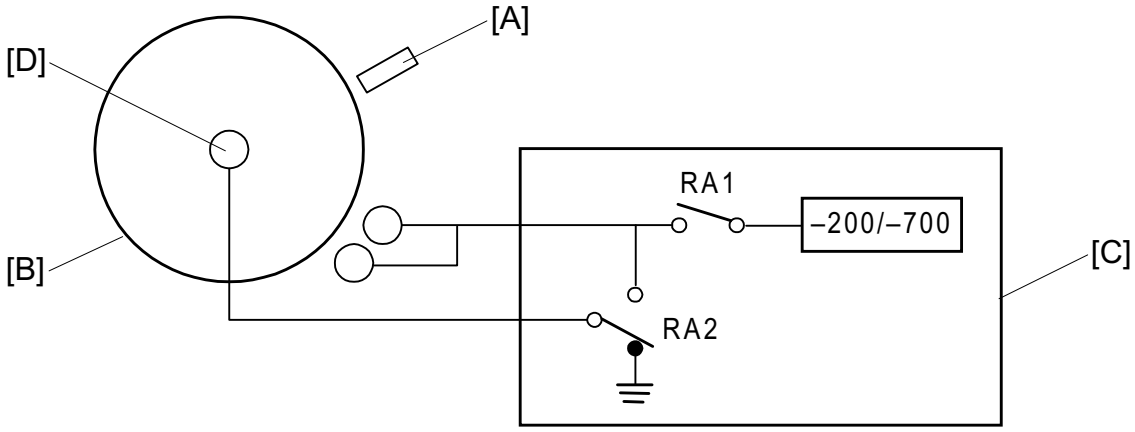
To maintain good copy quality, the machine does the following just after the main switch has been turned on (if the fusing temperature is less than 100 °C and SP3-901 is on).

1) Potential Sensor Calibration
2) V_{SG} Adjustment
3) V_G (Grid Voltage) Adjustment
4) LD Power Adjustment
5) V_{REF} Update

This process is known as 'Process Control Initial Setting'. The rest of this section will describe these steps in more detail.

Processes 1, 3, and 4 in the above list compensate for changes in drum potential. Processes 2 and 5 are for toner density control; see the "Toner Density Control" section for more details.

Drum Potential Sensor Calibration



The drum potential sensor [A] detects the electric potential of the drum surface [B].

Since the output of the sensor is affected by environmental conditions, such as temperature and humidity, the sensor needs recalibration at times. This is done during process control initial setting.

The charge/bias/grid power pack [C] has two relay contacts. Usually RA2 grounds the drum. However, to calibrate the sensor, the BCU switches RA2 and RA1 over, which applies the power pack output voltage to the drum shaft [D].

The machine automatically calibrates the drum potential sensor by measuring the output of the sensor when –200 V and –700 V are applied to the drum. From these two readings, the machine can determine the actual drum potential from the potential sensor output that is measured during operation. To prevent toner attraction to the drum during calibration, –200 V and –700 V are also applied to the development rollers.

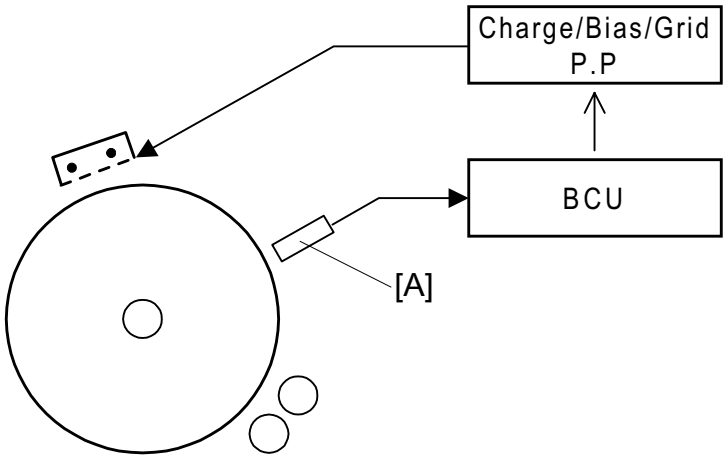
During calibration, if the rate of change in drum potential sensor response to applied voltage is out of the target range, an SC310 or SC311 is logged and auto process control turns off. The V_G and LD power adjustments are skipped; V_G is set to the value stored in SP2-001-01, and LD power is set to the values stored in SP2-103.

V_{SG} Adjustment

This calibrates the ID sensor output for a bare drum to 4.0 ± 0.2 V. It does this by changing the intensity of the light shining on the drum from the sensor. This is done automatically during process control initial setting, and it can also be done manually with SP3-001-002.

If the ID sensor output cannot be adjusted to within the standard, an SC353 or 354 is logged and the light intensity is set to the previous accepted value.

VG Adjustment



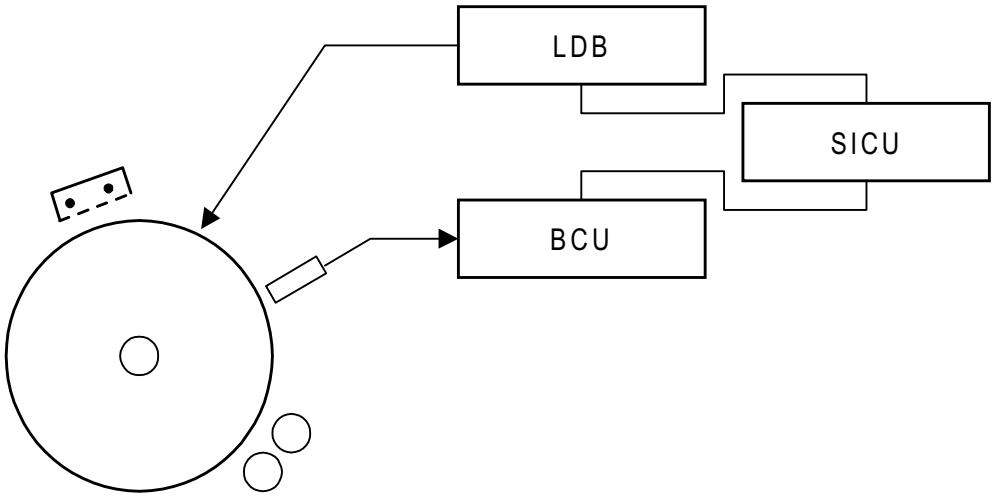
The potential on unexposed areas of the drum (V_D) gradually changes during drum life. To keep V_D constant, the grid voltage (V_G) is adjusted during process control initial setting.

The BCU checks V_D using the drum potential sensor [A]. If it is not within the target range (–900 V ± 20 V), the BCU adjusts V_G (Grid Voltage) through the charge/bias/grid power pack to get the correct target voltage.

The most recently detected values can be displayed with SP3-902-2 (V_D) and 3-902-4 (V_G).

If the CPU cannot get V_D within the target range by changing V_G, V_G is set to the value stored in SP2-001-01 and LD power is set to the value stored in SP2-103. Then SC312, SC313, or SC315 is logged.

LD Power Adjustment



This adjustment uses the drum potential sensor to keep the ID sensor pattern at the same density, so that V_{REF} will be updated correctly (see the next page).

The V_H pattern is developed using the current LD power (the density is the same as the ID sensor pattern). The drum potential sensor detects the potential on this pattern. The LD power is adjusted until V_H becomes –265 V ± 20 V.

This is done only during process control initial setting.

The latest V_H can be displayed using SP3-902-3. The size of the correction applied to the LD power can be displayed using SP3-902-5 (the default is stored in SP2-103-1-4).

If V_H cannot be adjusted to within the standard within 20 attempts, LD power is set to the latest value (the one used for the 20th attempt) and SC314 or SC316 is logged.

VREF Update

The TD sensor reference voltage (VREF) is updated to stabilize the concentration of toner in the development unit as follows;

New VREF = Current VREF + ΔVREF

ΔVREF is determined using the following table.

VSP/VSG	ΔVREF
≤ 3/40	+0.08
≤ 9/100	+0.04
≤ 21/200	+0.00
≤ 1/8	–0.06
≤ 4/25	–0.12
≤ 41/200	–0.18
≤ 1/2	–0.24
> 1/2	Previous VREF

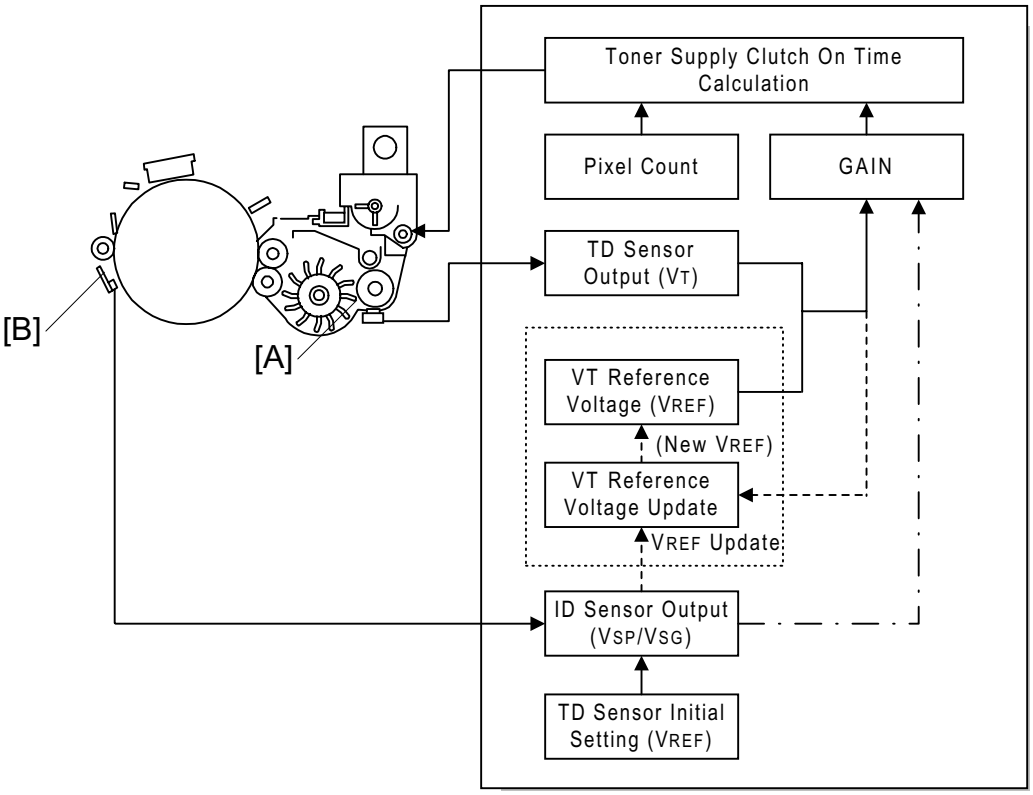
When SC353 or SC354 is generated, VREF is not updated. The machine uses the current value.

VREF is updated during process control initial setting. It is also updated at the end of the copy job, if 10 or more copies have been made since the last VREF update. It is not updated at the start of a job or at any time during a job.

2.5.2 TONER DENSITY CONTROL

Overview

There are two modes for controlling toner supply: sensor control mode and image pixel count control mode. The mode can be selected with SP2-208. The factory setting is sensor control mode. Image pixel count mode should only be used if the TD or ID sensor is defective and cannot be replaced immediately.



Sensor Control Mode

Introduction

In sensor control mode, the machine varies toner supply for each copy to maintain the correct proportion of toner in the developer and to account for changes in drum reflectivity over time. The adjustment depends on two factors.

- Amount of toner needed to print the page (based on the black pixel amount for the page).
- Readings from the TD sensor [A] and ID sensor [B].

Sensor control mode has two phases, called 'ID sensor control' and 'TD sensor control. In ID sensor control, VSP/VSG from the most recent ID sensor pattern check determines the GAIN factor in the toner supply calculation (see later in this section). In TD sensor control mode, GAIN depends on the current TD sensor output also (VT – VREF is used).

The phase that is used depends on the number of copies since the start of the job. See the table below for details.

Number of copies in the job	Copy no.	Control method
10 or fewer	1 to 10	ID Sensor Control
More than 10	First 10	ID Sensor Control
	From 11	TD Sensor Control

Toner Density Sensor Initial Setting

When new developer is installed, TD sensor initial setting must be done using SP2-801. This sets the sensor output to 2.5 V. This value will be used as the TD sensor reference voltage (VREF).

If the sensor output cannot be adjusted to within the standard, SC341 or SC342 is logged and the toner density control is set to the pixel count control.

VSP and VSG Detection

The ID sensor detects the following voltages.

- VSG: The ID sensor output when checking the drum surface
- VSP: The ID sensor output when checking the ID sensor pattern

In this way, the reflectivity of both the drum and the pattern on the drum are checked.

The ID sensor pattern is made on the drum with the charge corona and laser diode.

VREF Update

To update VREF (the TD sensor reference voltage), VSP/VSG is detected at the end of the copy job, if 10 or more copies have been made since the last VREF update. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface. The 10 copy interval can be changed using SP2-210.

VREF is also updated during process control initial setting.

If the reading of the ID sensor becomes abnormal while checking the ID sensor pattern, SC350, SC351, or SC352 is logged and the toner density control is done using TD sensor only.

See “VREF Update” in the Process Control section for more details.

VT Detection

The toner density in the developer is detected once every copy cycle, after the trailing edge of the image passes the development roller.

If the reading from the TD sensor becomes abnormal during a copy job, the machine holds the GAIN factor constant to allow toner supply to vary with only the pixel count for the rest of the copy job. Then at the end of the job, SC340 is generated and the machine must be repaired.

If the TD sensor needs to be replaced and none is available, the toner supply mode can be set to image pixel count mode using SP2-208.

Image Pixel Count

For each copy, the CPU adds up the value of each pixel and converts the sum to a value between 0 and 255. (The value would be 255 if the page was all black.)

Gain Determination

GAIN is another factor in the toner supply clutch on time calculation. Its value can be 0, 1, 1.5, 2, 3, or 4. It is calculated either using V_{SP}/V_{SG} if ID sensor control is being used, or every copy using "$V_T - V_{REF}$" if TD sensor control is being used (see Sensor Control Mode – Overview for more on TD and ID sensor control).

ID Sensor Control	
V_{SP}/V_{SG}	GAIN
≤ 3/40	0
≤ 9/100	0
≤ 21/200	1
≤ 1/8	1.5
≤ 4/25	2
≤ 41/200	3
≤ 1/2	4
> 1/2	1

TD Sensor Control	
$a = V_T - V_{REF}$	GAIN
$a < 0.00$	0
$0.00 \le a < 0.02$	1
$0.02 \le a < 0.08$	2
$0.08 \le a < 0.14$	3
$0.14 \le a$	4

Toner Supply Clutch On Time Calculation

The toner supply clutch on time for each copy is decided using the following formula: (GAIN x Image pixel count x 0.7mg/cm^2/Toner Supply Rate) + 50 ms

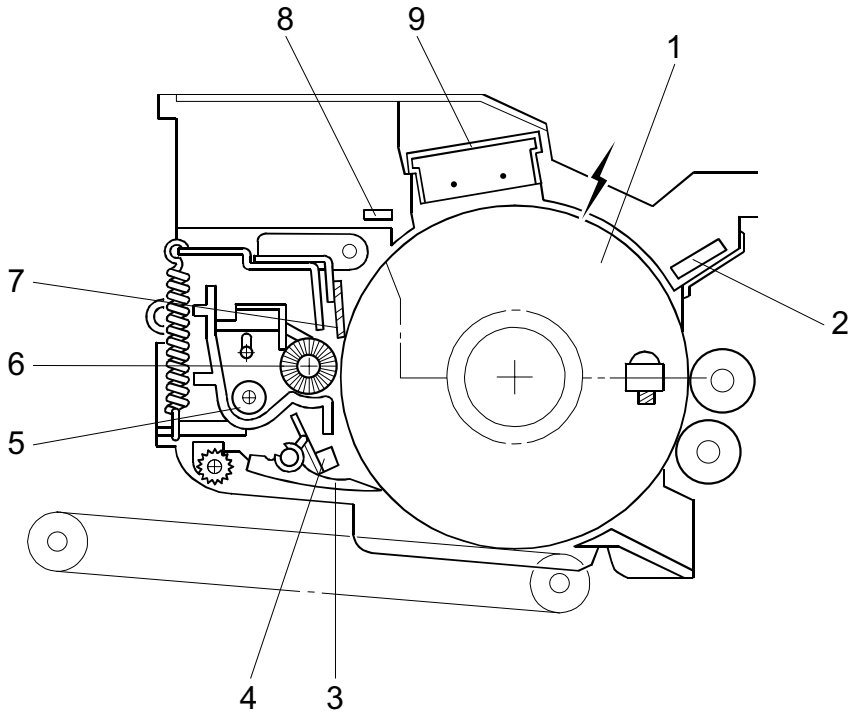
When GAIN is "0", the above 50 ms is set to "0".

The toner supply rate can be changed using SP2-209.

Image Pixel Count Control

This mode should only be use as a temporary countermeasure while waiting for replacement parts, such as a TD sensor. This mode controls the toner supply using the same formula for the toner supply clutch on time. However, the GAIN value is fixed at 0.7.

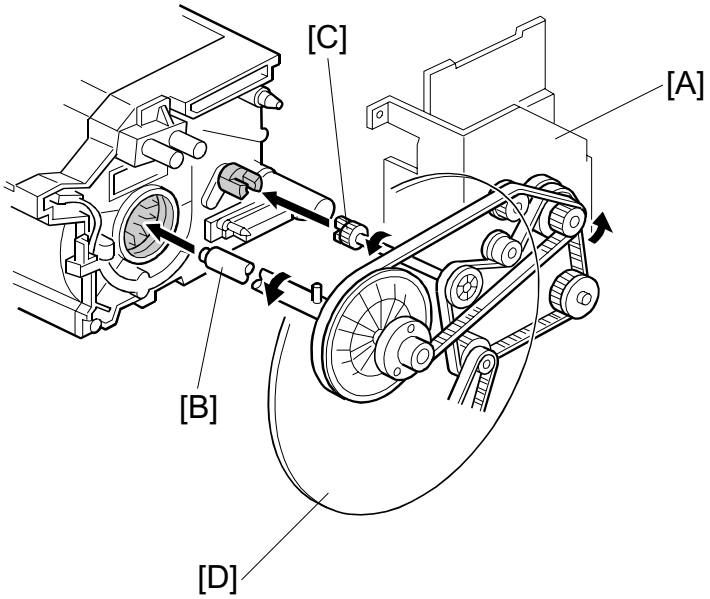
2.5.3 DRUM UNIT COMPONENTS



The drum unit consists of the components shown in the above illustration. An organic photoconductor drum (diameter: 100 mm) is used for this model.

1. OPC Drum
2. Drum Potential Sensor
3. Pick-off Pawl
4. Image Density Sensor
5. Toner Collection Coil
6. Cleaning Brush
7. Cleaning Blade
8. Quenching Lamp
9. Charge Corona Unit

2.5.4 DRIVE



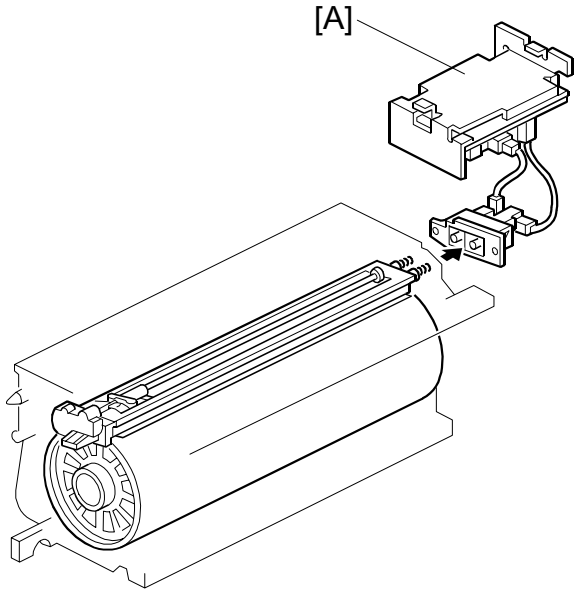
The drive from the drum motor [A] is transmitted to the drum and the cleaning unit through some timing belts, gears, the drum drive shaft [B], and the cleaning unit coupling [C].

The drum motor has a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

The fly-wheel [D] on the end of the drum drive shaft stabilizes the rotation speed.

2.5.5 DRUM CHARGE

Overview

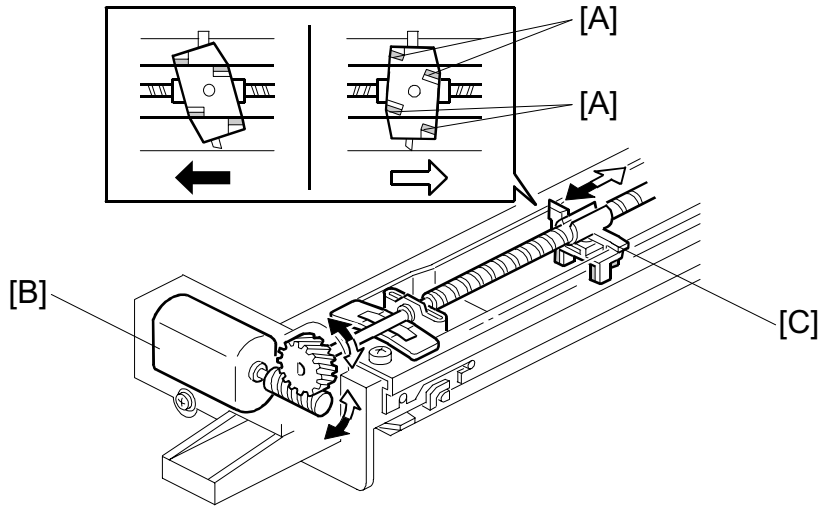


This copier uses a double corona wire scorotron system to charge the drum. Because of the high speed of this copier, two corona wires are needed to give a sufficient negative charge to the drum surface. The stainless steel grid plate makes the corona charge uniform and controls the amount of negative charge on the drum surface by applying a negative voltage to the grid.

The charge/bias/grid power pack [A] gives a constant corona current to the corona wires (–1,200 μA).

The voltage to the grid plate is automatically controlled to maintain the correct image density in response to changes in drum potential caused by dirt on the grid plate and charge corona casing. This is described in the Process Control section in more detail.

Charge Corona Wire Cleaning



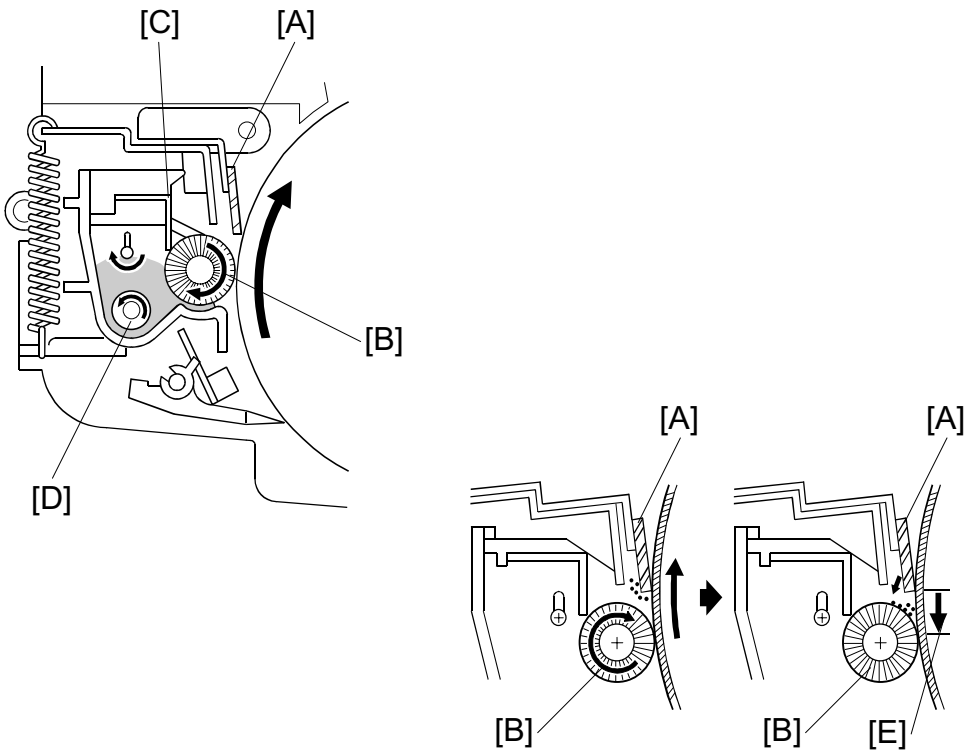
Air flowing around the charge corona wire may deposit toner particles on the corona wires. These particles may interfere with charging and cause low density bands on copies.

The wire cleaner pads [A] automatically clean the wires to prevent such a problem.

The wire cleaner is driven by a dc motor [B]. Normally the wire cleaner [C] is at the front end (this is the home position). Just after the main switch is turned on, the wire cleaner motor turns on to bring the wire cleaner to the rear and then back to the home position. When the wire cleaner moves from the rear to the home position (black arrow in the illustration), the wire cleaner pads clean the wires. Cleaning is done at auto process control, if 5,000 copies were made since the wires were cleaned last, but only if the fusing temperature is less than 100°C.

2.5.6 DRUM CLEANING

Overview



This copier uses a counter blade system to clean the drum. In a counter blade system, the drum cleaning blade [A] is angled against drum rotation. The counter blade system has the following advantages:

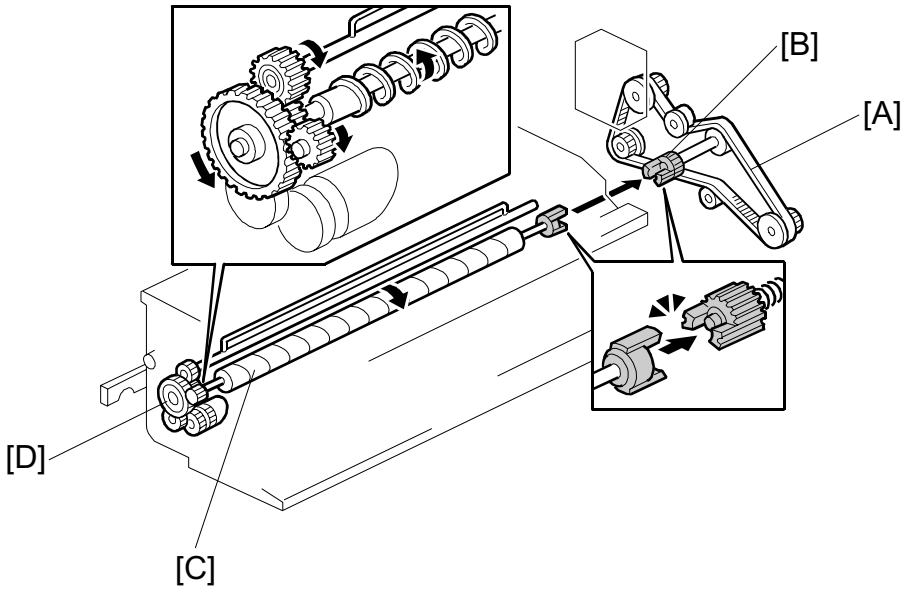
- Less wearing of the cleaning blade edge
- High cleaning efficiency

Due to the high efficiency of this cleaning system, the pre-cleaning corona and cleaning bias are not used for this copier.

The cleaning brush [B] helps the cleaning blade. The brush removes toner from the drum surface and any remaining toner is scraped off by the cleaning blade. Toner on the cleaning brush is scraped off by the mylar [C] and falls onto the toner collection coil [D]. The coil transports the toner to back to the toner entrance tank in the toner bank unit for recycling.

To remove any accumulated toner at the edge of the cleaning blade, the drum turns in reverse for about 4 mm [E] at the end of every copy job. The accumulated toner is deposited on the drum and is removed by the cleaning brush.

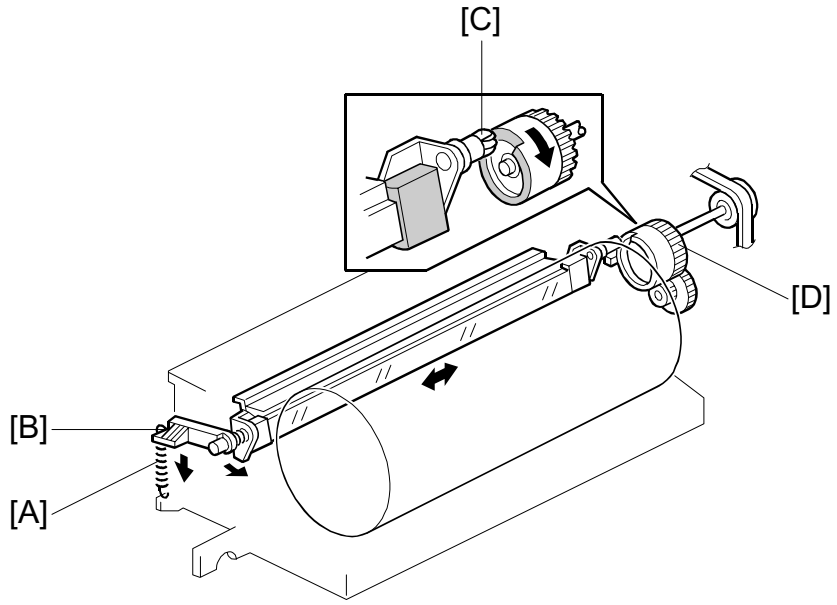
Cleaning Unit Drive



Drive from the drum motor is transmitted to the cleaning unit drive gear via the timing belt [A] and the cleaning unit coupling [B]. This coupling drives the cleaning brush [C] directly. The cleaning brush then transmits the drive to the gear at the front, which drives the toner collection coil gear [D].

Toner recycling is described in the Toner Supply and Recycling section.

Cleaning Blade Pressure and Side-to-Side Movement

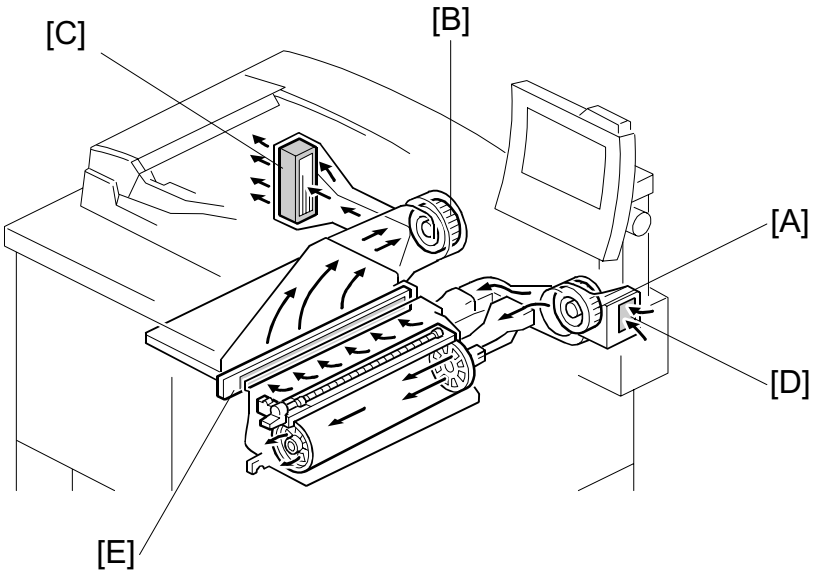


The spring [A] always pushes the cleaning blade against the drum. The cleaning blade pressure can be manually released by pushing up the release lever [B]. To prevent cleaning blade deformation during transportation, the release lever must be locked in the pressure release (upper) position.

The guide roller [C] at the rear end of the cleaning blade holder touches the cam gear [D], which moves the blade from side to side. This movement helps to disperse accumulated toner to prevent early blade edge wear.

2.5.7 OTHERS

Air Flow Around the Drum



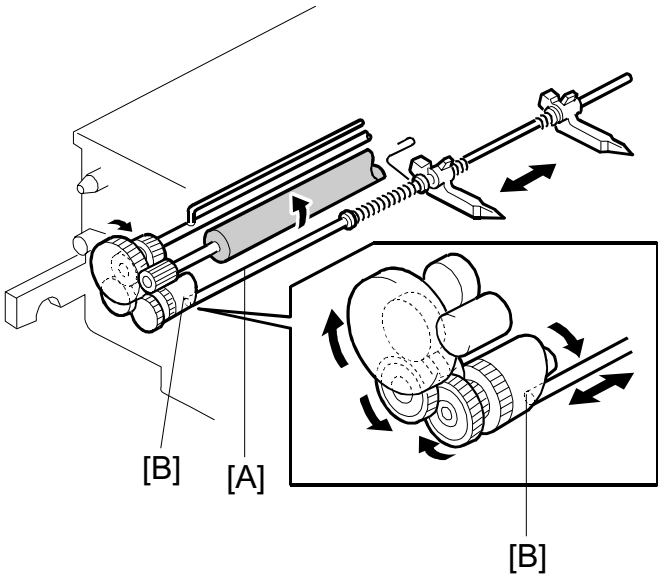
The drum cooling fan [A] provides air flow into the drum to cool the drum and the charge corona unit to prevent uneven build-up of negative ions that can cause uneven drum surface charge. The exhaust fan [B] located above the fusing unit causes air to flow out of the machine.

An ozone filter [C] absorbs the ozone around the drum.

To keep the temperature inside the machine constant, the drum cooling fan and the exhaust fan turn slowly during stand-by, and turn quickly during copying.

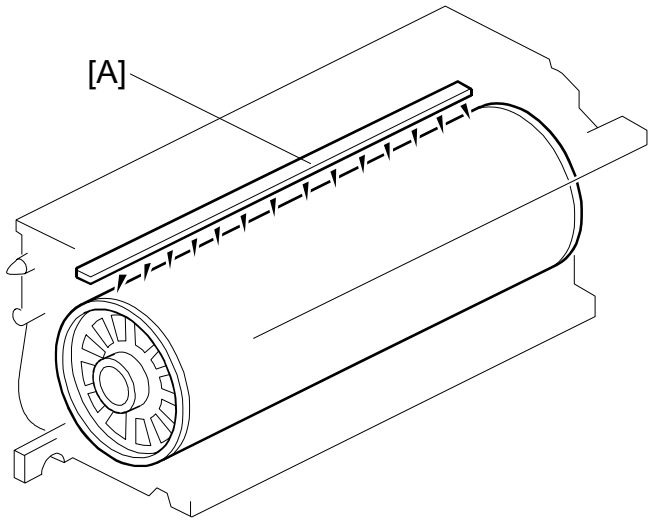
To prevent foreign matter from entering the copier inside, there is a dust protection filter in the entrance [D] of the duct. Another dust filter [E] prevents dust from reaching the ozone filter.

Pick-off Pawls



The pick-off pawls always contact the drum surface using a light spring pressure. They move from side to side during the copy cycle to prevent drum wear at any particular location. This movement is made via a shaft [A] and a cam [B].

Quenching

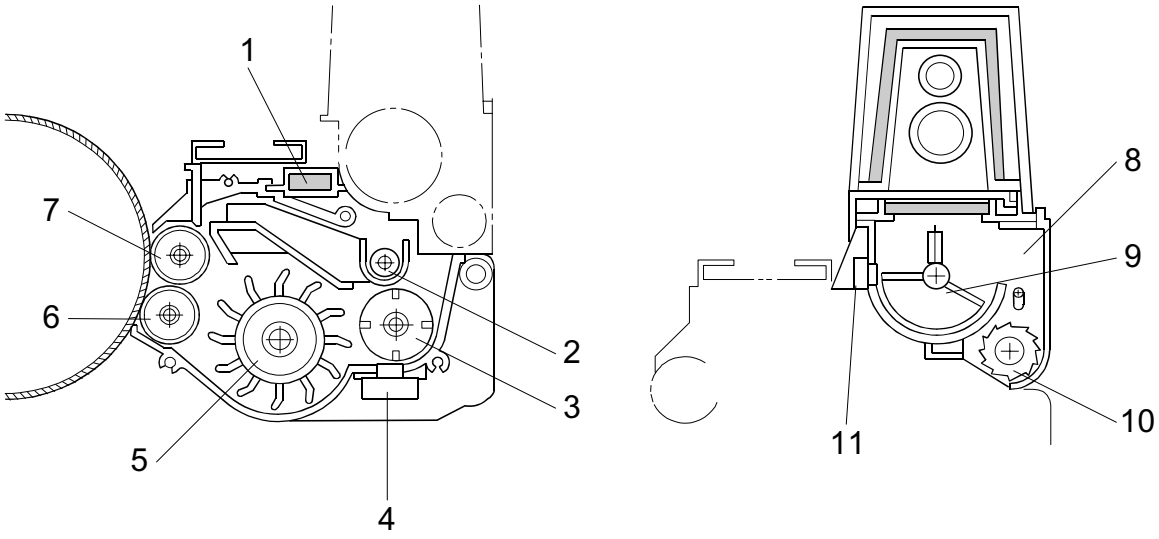


In preparation for the next copy cycle, light from the quenching lamp [A] neutralizes any charge remaining on the drum.

The quenching lamp consists of a line of 16 red LEDs extending across the full width of the drum.

2.6 DEVELOPMENT

2.6.1 OVERVIEW



1. Development Filter
2. Toner Auger
3. Developer Agitator
4. Toner Density Sensor
5. Paddle Roller
6. Lower Development Roller
7. Upper Development Roller
8. Toner Hopper
9. Toner Agitator
10. Toner Supply Roller
11. Toner Hopper Sensor

This copier uses a double roller development (DRD) system. Each roller has a diameter of 20 mm.

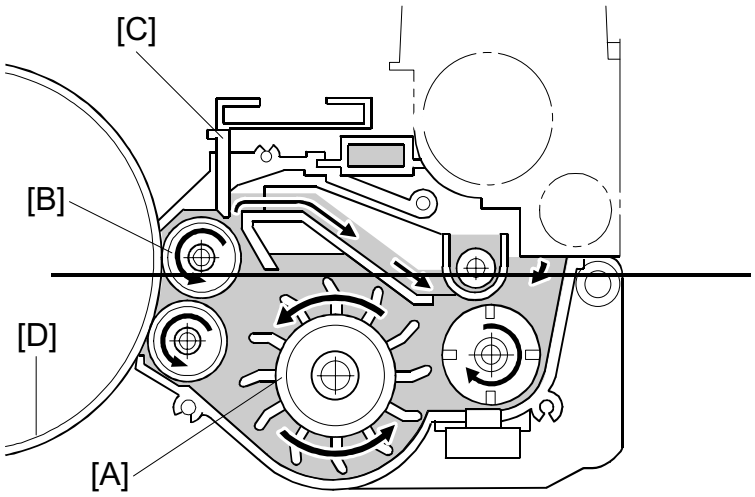
This system differs from single roller development systems in that:

- It develops the image in a narrower area
- It develops the image twice
- The relative speed of each development roller against the drum is reduced.

The particle diamaters are about 9.5 μm for toner, and about 70 μm for developer. Both the DRD system and new consumables improve the image quality, especially of thin horizontal lines, the trailing edges of the half-tone areas, and black cross points.

The machine contains a toner recycling system. Toner recycled from the drum cleaning unit is transferred to the toner hopper with fresh toner, where they are mixed by the toner agitator. The mechanism is explained in the Toner Supply and Recycling section.

2.6.2 DEVELOPMENT MECHANISM



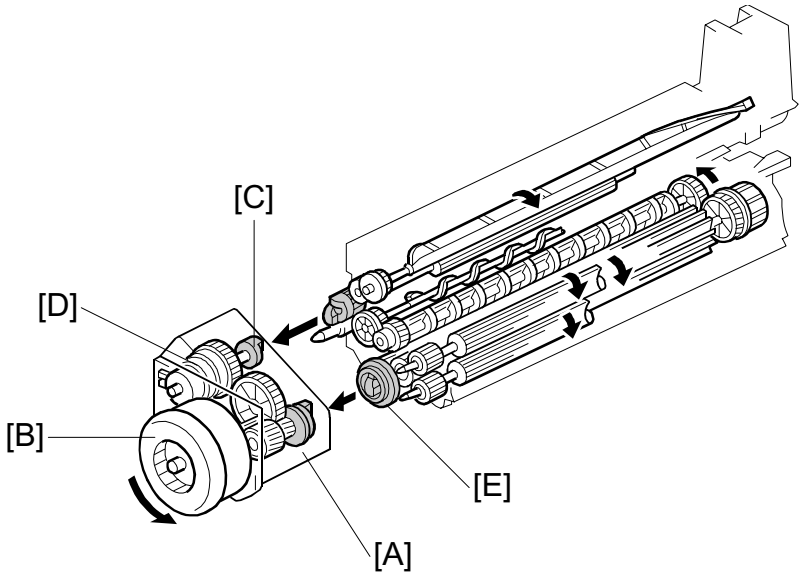
The paddle roller [A] picks up developer and transports it to the upper development roller [B]. Internal permanent magnets in the development rollers attract the developer to the development roller sleeve. The upper development roller carries the developer past the doctor blade [C]. The doctor blade trims the developer to the desired thickness and creates backspill to the cross mixing mechanism.

In this machine, black areas of the latent image are at a low negative charge (about –150 V) and white areas are at a high negative charge (about –950 V).

The development roller is given a negative bias to attract negatively charged toner to the black areas of the latent image on the drum.

The development rollers continue to turn, carrying the developer to the drum [D]. When the developer brush contacts the drum surface, the low-negatively charged areas of the drum surface attract and hold the negatively charged toner. In this way, the latent image is developed.

2.6.3 DRIVE

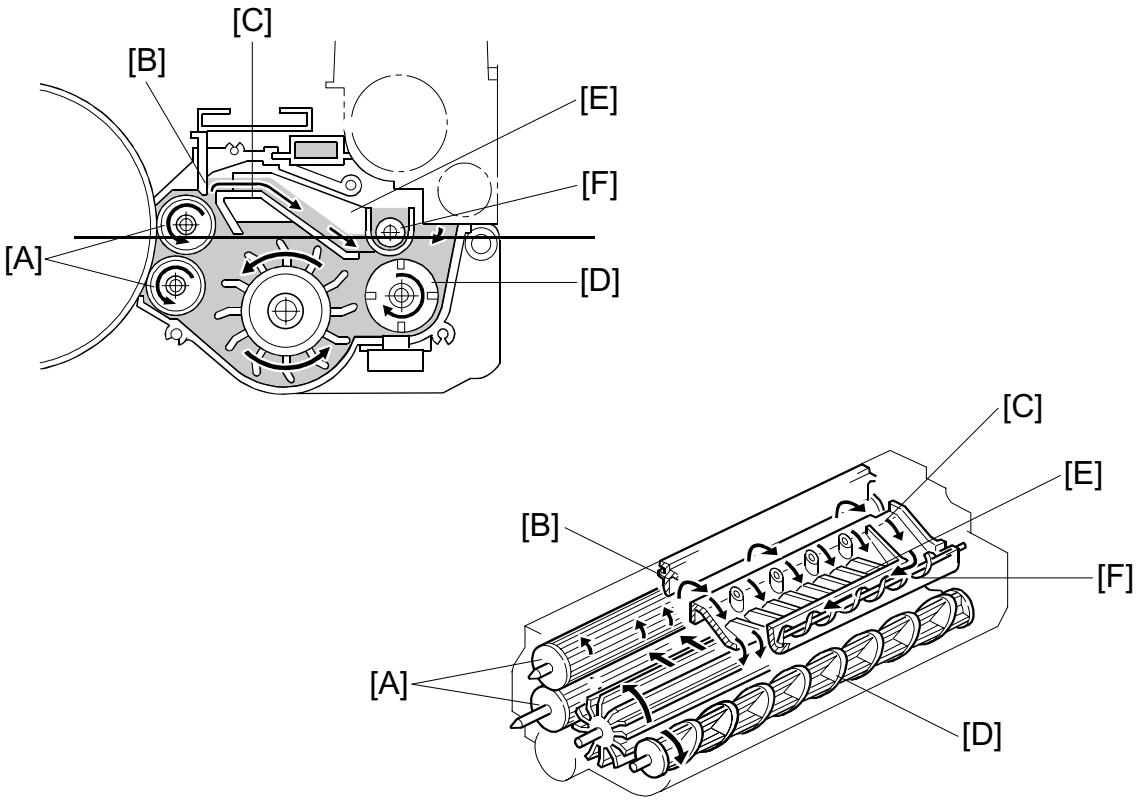


The gears in the development unit are driven by the development drive gear [A] when the development motor [B] (a dc servomotor) turns.

The gears in the toner hopper are driven by the toner supply roller drive gear [C] when the toner supply roller clutch [D] activates.

The above gears are helical gears. Helical gears are more quiet than normal gears. The teeth of the development drive gear are chamfered so that they smoothly engage the development roller gear [E] when the unit is installed.

2.6.4 CROSSMIXING



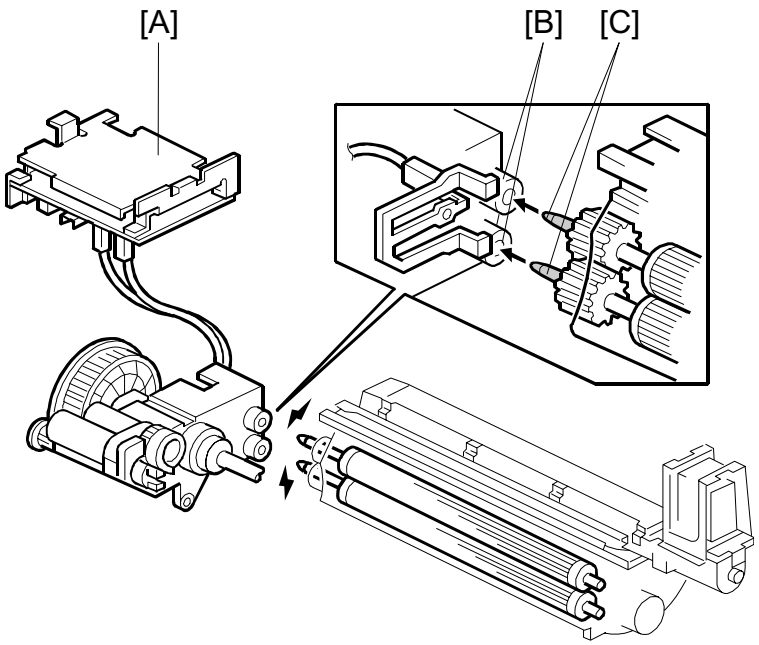
This copier uses a standard cross-mixing mechanism to keep the toner and developer evenly mixed. It also helps agitate the developer to prevent developer clumps from forming and helps create the triboelectric charge.

The developer on the turning development rollers [A] is split into two parts by the doctor blade [B]. The part that stays on the development rollers forms the magnetic brush and develops the latent image on the drum. The part that is trimmed off by the doctor blade goes to the backspill plate [C].

As the developer slides down the backspill plate to the agitator [D], the mixing vanes [E] move it slightly toward the rear of the unit. Part of the developer falls into the auger inlet and is transported to the front of the unit by the auger [F].

The agitator moves the developer slightly to the front as it turns, so the developer stays level in the development unit.

2.6.5 DEVELOPMENT BIAS



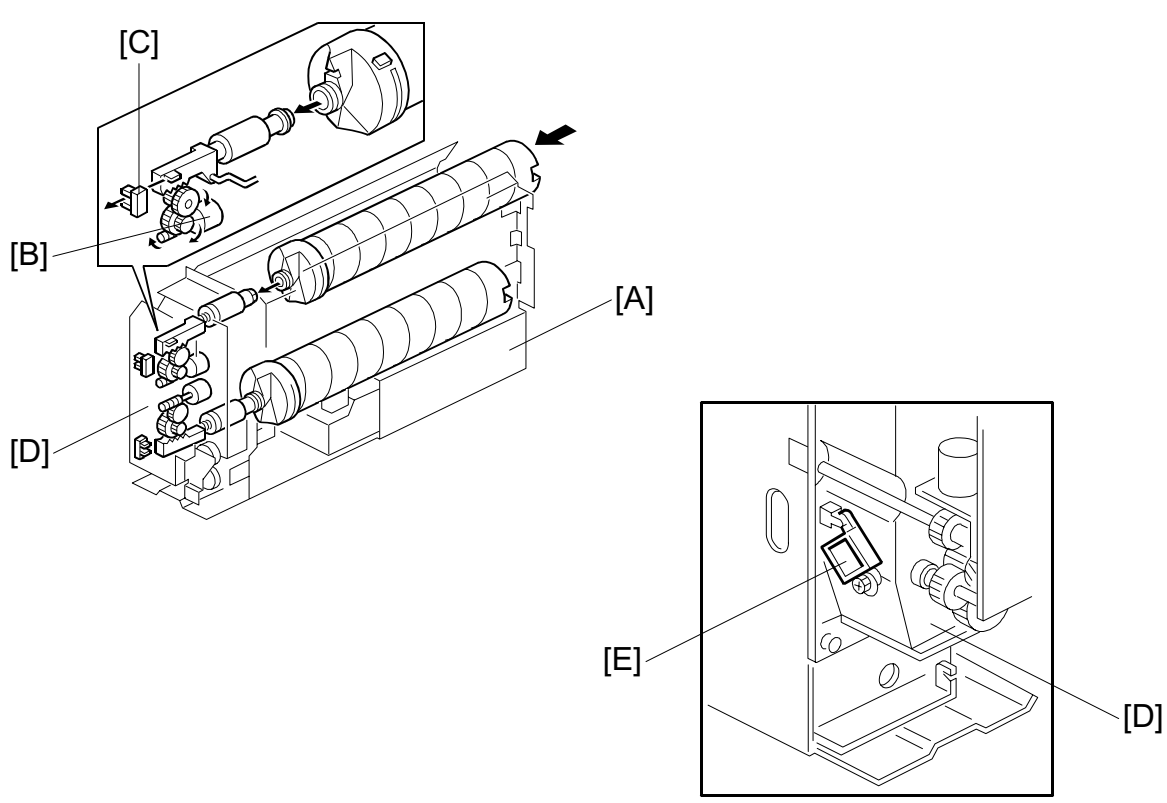
The charge/bias/grid power pack [A] applies the negative development bias to both the lower sleeve roller and upper sleeve roller through the receptacles [B] and the sleeve roller shafts [C].

⇒ The development bias (-550V) prevents toner from being attracted to the non-image areas on the drum where there is residual voltage. In addition, the development bias is applied to the lower portion of the developer housing to prevent toner from being re-attracted back from the drum.

2.7 TONER SUPPLY AND RECYCLING

2.7.1 TONER BANK

Overview

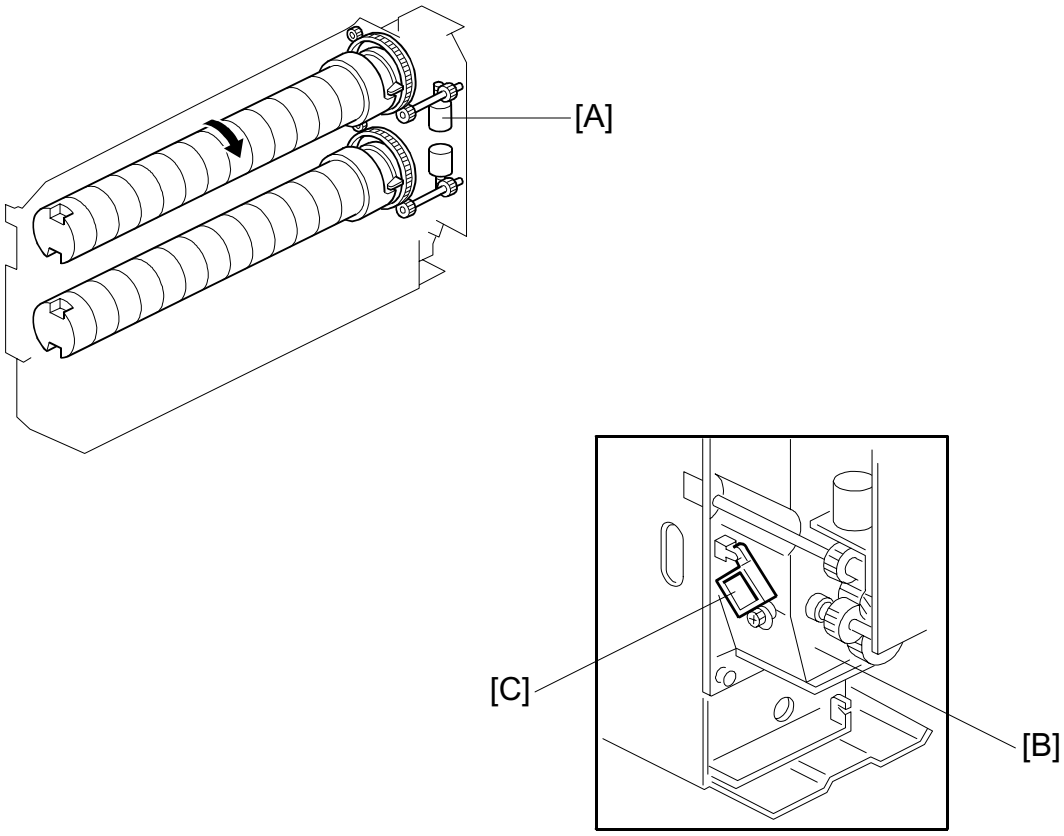


Toner is supplied from a toner bank unit, which is in a different part of the machine from the development unit.

The toner bank [A] holds two toner bottles. The machine works even if there is only one bottle installed. Toner can be supplied from either the upper or lower toner bottle (not from both at the same time). When the upper toner bottle is supplying toner, the upper bottle cap motor [B] pulls out the toner bottle cap. The upper bottle inner cap sensor [C] detects the actuator in the toner bottle opening rod.

Toner is supplied from the toner bottle to the toner entrance tank [D]. The toner near end sensor [E] (at the rear right of the toner bank unit) checks for the presence of toner in the toner entrance tank.

Toner Near-end and End Detection/Bottle Replacement



An empty toner bottle can be replaced during printing.

The toner near-end sensor detects toner as it falls from the toner bottle into the toner entrance tank [B]. If the toner near end sensor [C] detects that no toner has come out of the toner bottle, the toner bottle enters the toner near-end condition.

The toner bottle motor [A] then rotates the toner bottle up to 15 times to try to supply toner to the toner entrance tank [B]. If the sensor detects toner more than 5 times, the near-end condition is cleared. However, if the toner near end sensor [C] fails to detect toner 10 consecutive times, 200 more copies can be made from that bottle, then the machine declares it to be empty.

When the bottle is empty, the machine switches to the second toner bottle. The first toner bottle cap motor closes the bottle cap and the second toner bottle cap motor pulls out the second bottle cap. The motors operate until the first bottle inner cap sensor does not detect the actuator and the second bottle inner cap sensor does detect the actuator.

The second toner bottle is then rotated up to 15 times. If the near-end sensor detects toner after 5 times, the machine can print from that bottle.

Meanwhile, the machine indicates that the first bottle is empty. When the user takes out the old bottle, and puts in a new one, this is detected by the toner bottle sensor (see the next page for more about the toner bottle sensors). However, this bottle is not tested until the second bottle is empty.

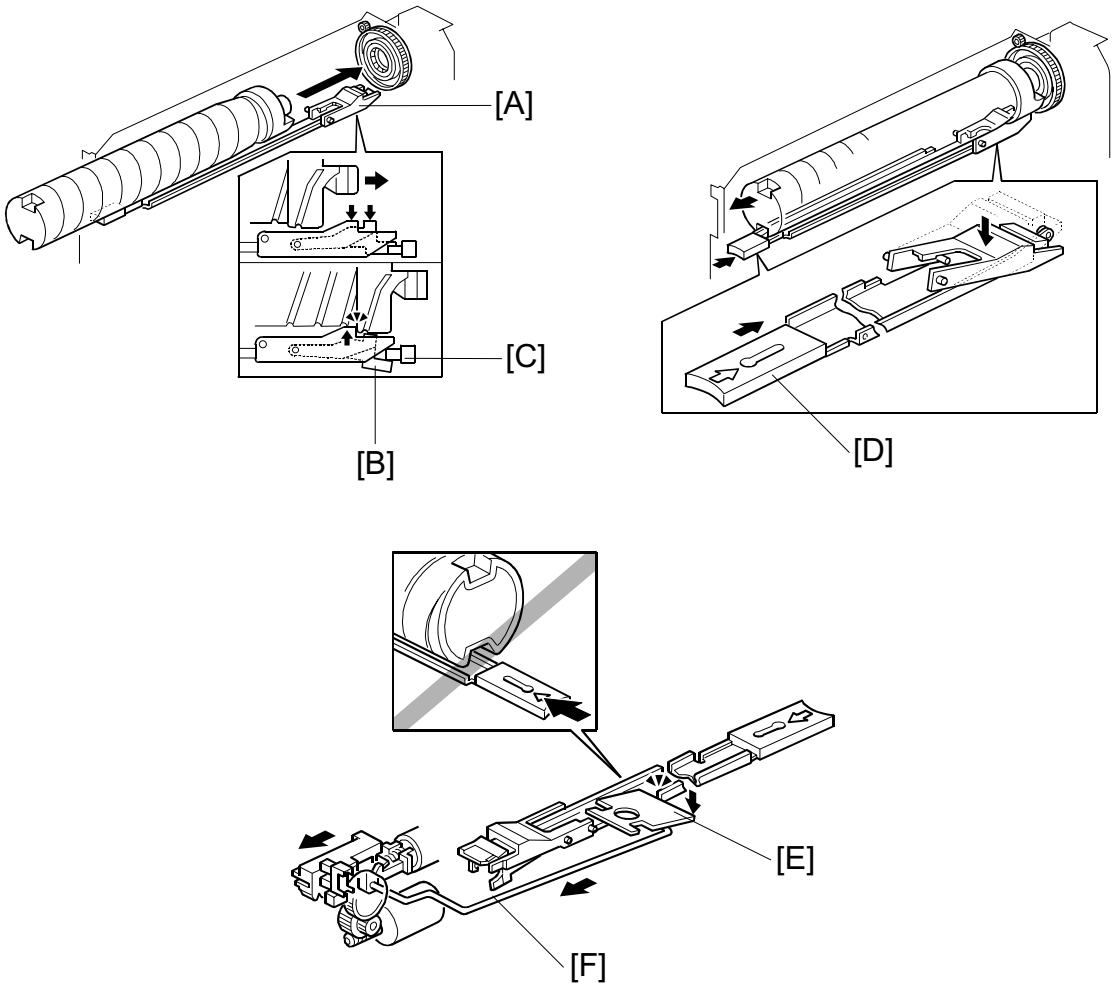
NOTE: If an empty bottle is not replaced, and the other bottle becomes empty (no toner detected 10 consecutive times, as described above), 200 more copies can be made. Then the machine enters the 'system toner end condition' (both bottles are empty), and this is indicated in the operation panel display.

When the second bottle is empty, the machine switches back to the first bottle.

The first bottle is tested now, by rotating it 15 times as usual. If this bottle is also found to be empty, the machine enters the system toner end condition. This time, the machine cannot print until one of the toner bottle sensors detects that a new toner bottle has been inserted (the machine does not allow the 200 extra copies).

When both bottles are empty and a new toner bottle is placed in the toner bank, the new toner bottle is rotated 15 times to supply toner to the toner entrance tank. If the toner near end sensor then detects toner in the toner entrance tank, the system toner end condition is cleared. If the toner near end sensor detects there is still no toner in the toner entrance tank, the bottle cap motor closes the toner bottle cap. The system toner end condition continues and printing is not possible.

Toner Bottle Sensors

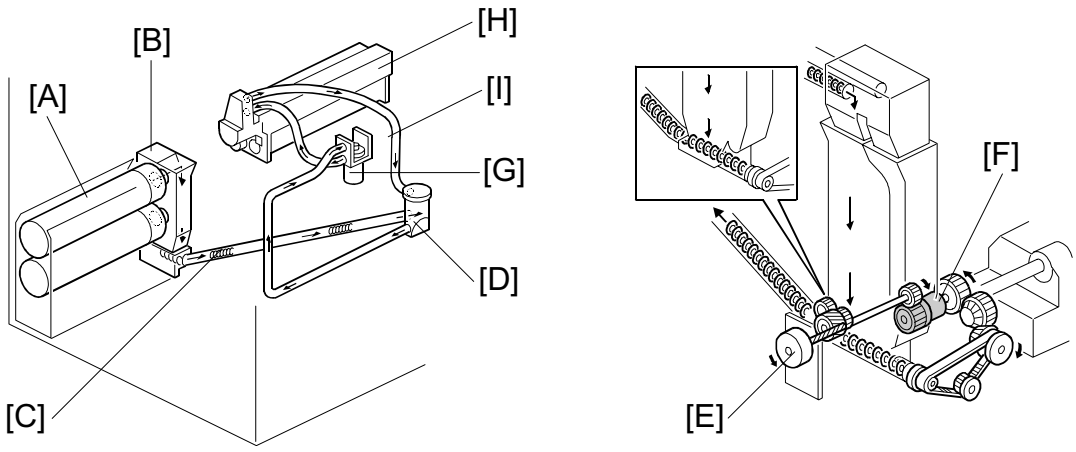


When placing a toner bottle in the toner bank, the toner bottle pushes the lock arm [A] downwards. Then the lock arm catches the toner bottle. Also, lever [B] is pushed down, which causes the toner bottle sensor [C] to detect that a bottle has been installed (the actuator leaves the toner bottle sensor while the bottle is being inserted in the holder).

When replacing a toner bottle, push the toner bottle release lever [D] to release the lock mechanism. When a toner bottle is being used to supply toner, the toner bottle opening rod is pulled to the rear and the lock plate [E] is lowered by the link [F] so that the toner bottle release lever cannot be pushed. Therefore, the toner bottle that is supplying toner is locked in place.

Normally the user cannot pull out the bottle until it is empty but the bottle can also be removed when the operation button is pressed (unit off) or when the unit enters Energy Saver or Auto Off modes. During these periods the bottle is released and the plug is replaced.

2.7.2 SUPPLYING TONER TO THE DEVELOPMENT UNIT



The toner bottle motor turns the toner bottle, causing toner to leave the toner bottle [A] and drop into the toner entrance tank [B]. Recycled toner in the tube from the drum cleaning unit also enters the toner entrance tank, and is mixed with fresh toner from the toner bottle.

The toner transport coil [C] in the toner transport tube transports toner to the toner supply cylinder [D]. The toner bank motor [E] drives the toner transport coil via the toner supply coil clutch [F].

The toner supply motor [G] pushes air toward the toner hopper. Toner in the toner supply cylinder is transported from the toner supply cylinder to the toner hopper [H]. The toner hopper has two air pressure release filters and an air return tube [I] connected to the toner supply cylinder. Air returns to the toner supply cylinder from the toner hopper.

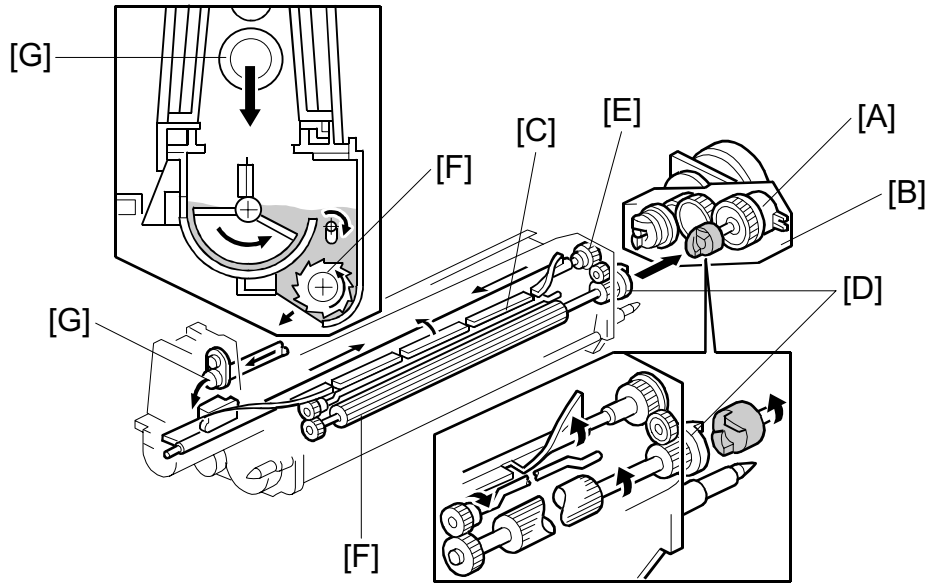
If the toner hopper sensor (in the toner hopper – see 'Toner Hopper') detects that there is insufficient toner in the hopper, the toner bank mechanism is started up. If there is toner in the toner entrance tank (detected by the toner near end sensor in the toner bank), the toner supply coil clutch turns on for 2 seconds. The toner supply motor turns on for 7 seconds at the same time as the toner supply coil clutch. After this, if the toner hopper sensor still does not detect toner, the toner supply coil clutch turns on for two seconds again until the toner hopper sensor detects toner (this is done for a maximum of 10 times). When the toner hopper sensor detects toner, the toner supply motor turns off 1 second after the toner supply coil clutch turns off.

If the toner hopper sensor does not detect toner in the toner hopper after the toner supply coil clutch has turned on ten times, the operation panel indicates SC495 (toner bank error).

The toner supply motor sensor monitors the toner supply motor. If the sensor detects that the motor does not rotate during the toner supply process, the operation panel indicates SC591 (toner supply motor lock).

2.7.3 TONER HOPPER

Toner Supply

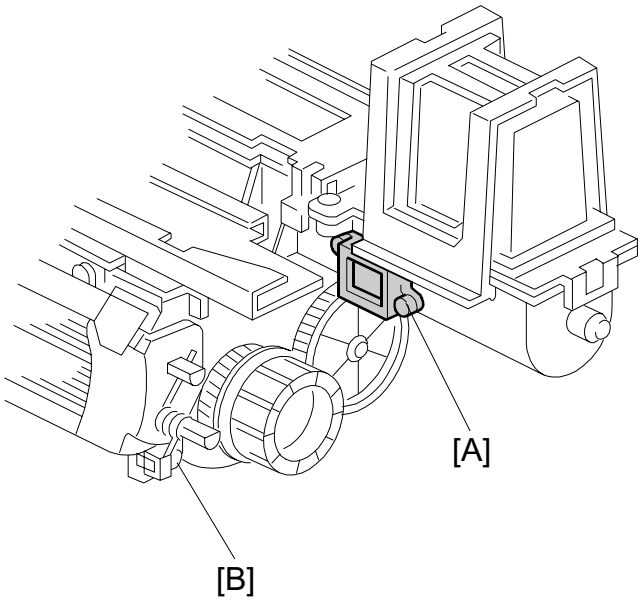


When the toner supply roller clutch [A] (inside the development motor unit [B]) turns on, the agitator [C] mixes the toner transported by the air tube [G] from the toner bank (the toner from the toner bank is new toner mixed with recycled toner). Then it moves the toner from front to rear and sends it to the toner supply roller. Toner is caught in the grooves in the toner supply roller [F]. Then, as the grooves turn past the opening, the toner falls into the development unit.

The toner supply roller clutch [A] transfers drive from the development motor to the toner supply roller gear [D], which drives the agitator gear [E].

For details about Toner Supply Control, see Drum Unit – Toner Supply Control.

Toner Hopper Empty Detection

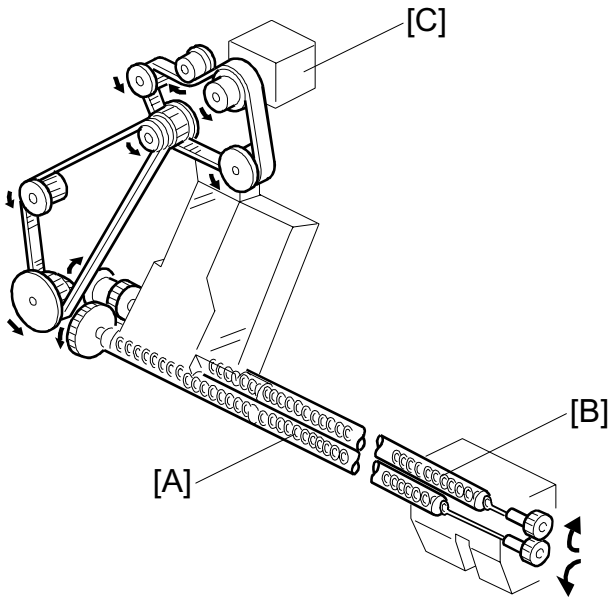


The toner hopper sensor [A] detects whether there is enough toner in the toner hopper. The toner hopper sensor checks for toner once when the toner supply roller clutch turns on. When there is only a small amount of toner inside the toner hopper and pressure on the toner hopper sensor becomes low, the toner hopper sensor outputs a pulse signal (once per copy). Then the toner bank mechanism supplies more toner to the toner hopper, as explained in previous sections.

Spring [B] applies development bias from the developer rollers to the lower case of the developer unit, to prevent toner from being re-attracted back to the drum.

2.7.4 TONER RECYCLING AND WASTE TONER COLLECTION

Overview

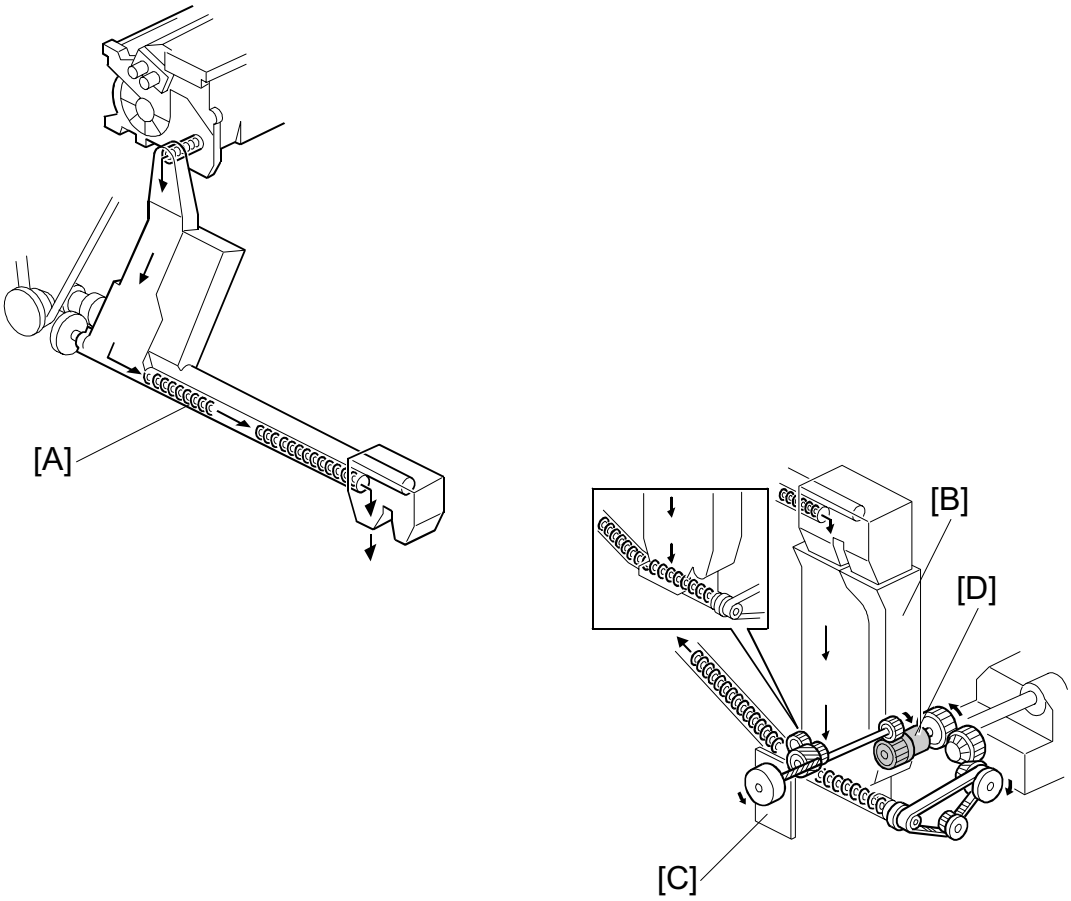


Recycling: The toner recycling coil in the tube [A] transports the toner collected by the drum cleaning to the toner entrance tank for recycling.

Waste toner collection: The toner collection coil in the tube [B] transports the toner collected by the transfer belt unit to the waste toner collection bottle.

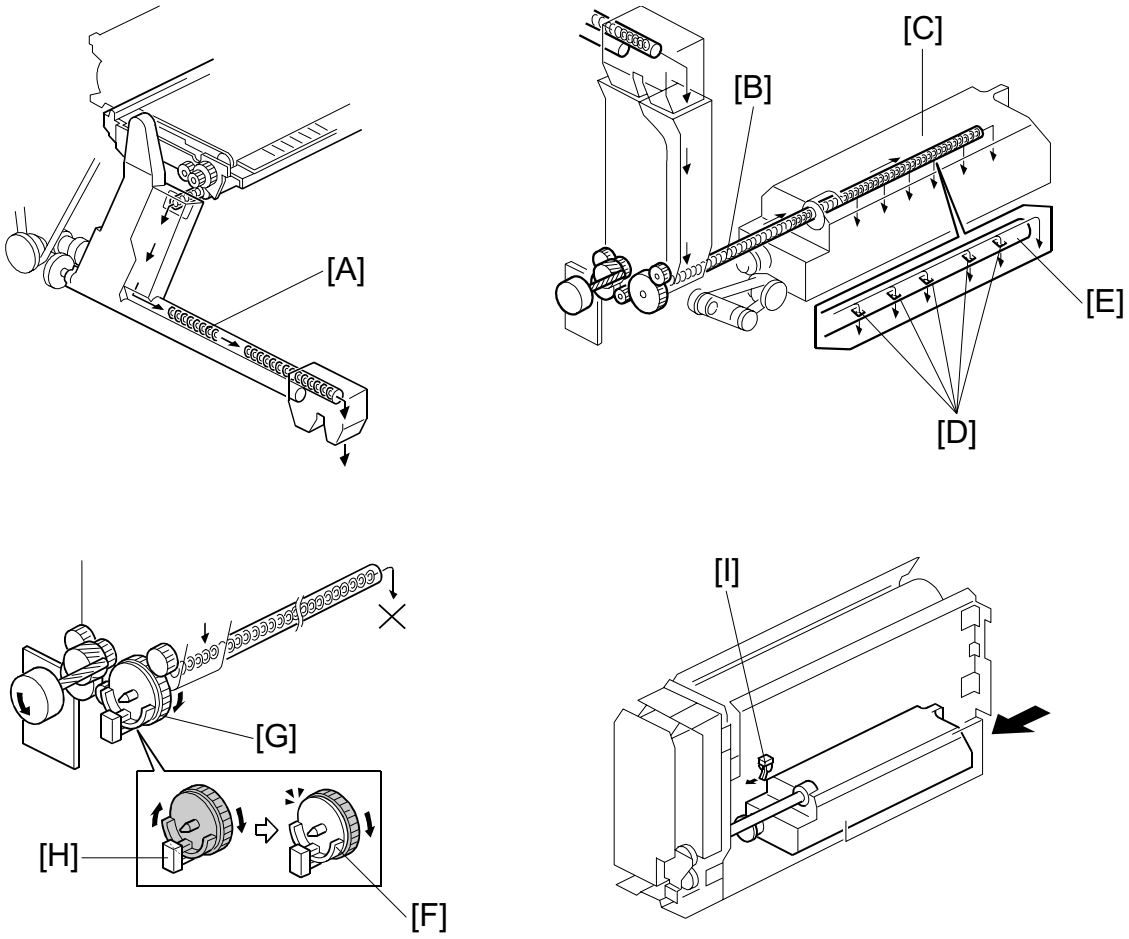
The drum motor [C] drives the toner recycling coil [A] via timing belts and gears, whose rotation in return drives the toner collection coil [B] via gears.

Toner Recycling



The toner recycling coil in the tube [A] transports the toner collected by the drum cleaning unit to the toner entrance tank [B] for recycling. This toner is dropped into the toner entrance tank and mixed with fresh toner from the toner bottle. The toner bank motor [C] drives the toner transport coil via the toner supply coil clutch [D].

Waste Toner Collection



The toner collection coil in the tube [A] transports the toner collected by the transfer belt unit to the waste toner collection bottle. This toner contains paper dust and cannot be recycled.

The waste toner coil [B] transports the waste toner dropped from the toner collection coil tube to the waste toner collection bottle [C]. The waste toner coil tube has five holes [D] and the end [E] of the tube is open. The waste toner drops from these holes.

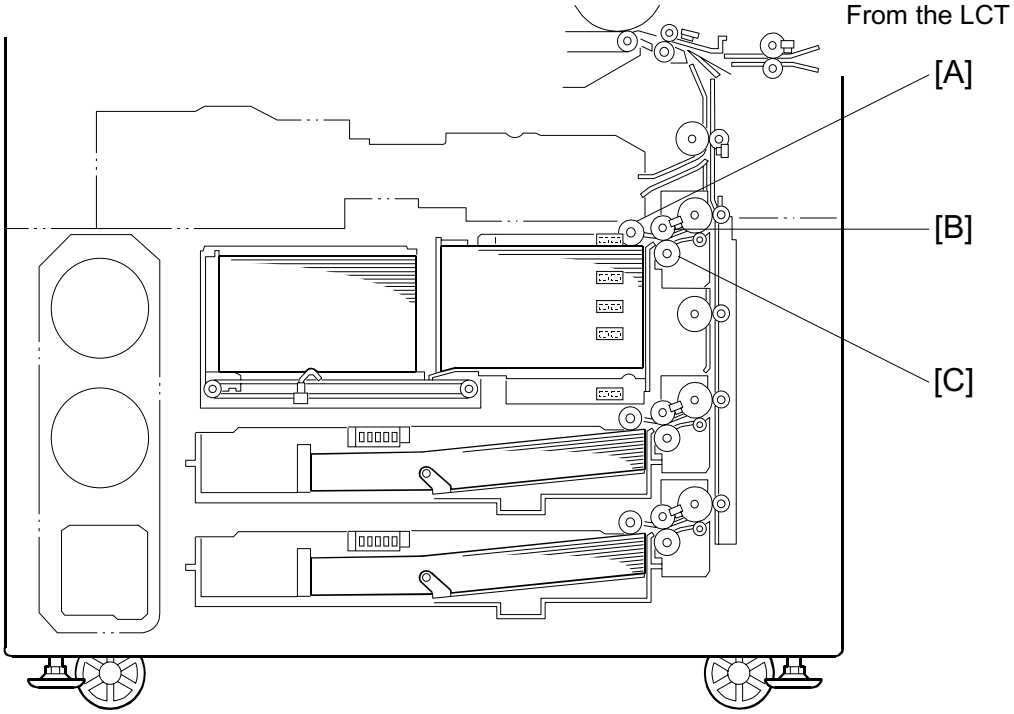
When the waste toner collection bottle fills up, the pressure in the bottle increases and the waste toner coil becomes harder to turn. Then, the actuator plate [F] does not rotate because the waste toner coil drive gear [G] has a torque limiter, and the output of the toner overflow sensor [H] becomes constant. In this condition, the operation panel LCD indicates “Waste Toner Full” and printing is disabled.

The bottle contains 1,000 g to 1,200 g of waste toner. The amount of waste toner from the transfer belt unit is around 3 g per 10 k copies. Three to four million copies (3,000 to 4,000 k) can be made before the waste toner bottle becomes full.

If the waste toner bottle is not properly placed inside the toner bank, the operation panel LCD indicates SC496 (toner collection bottle error). The toner collection bottle sensor [I] detects this condition.

2.8 PAPER FEED

2.8.1 OVERVIEW



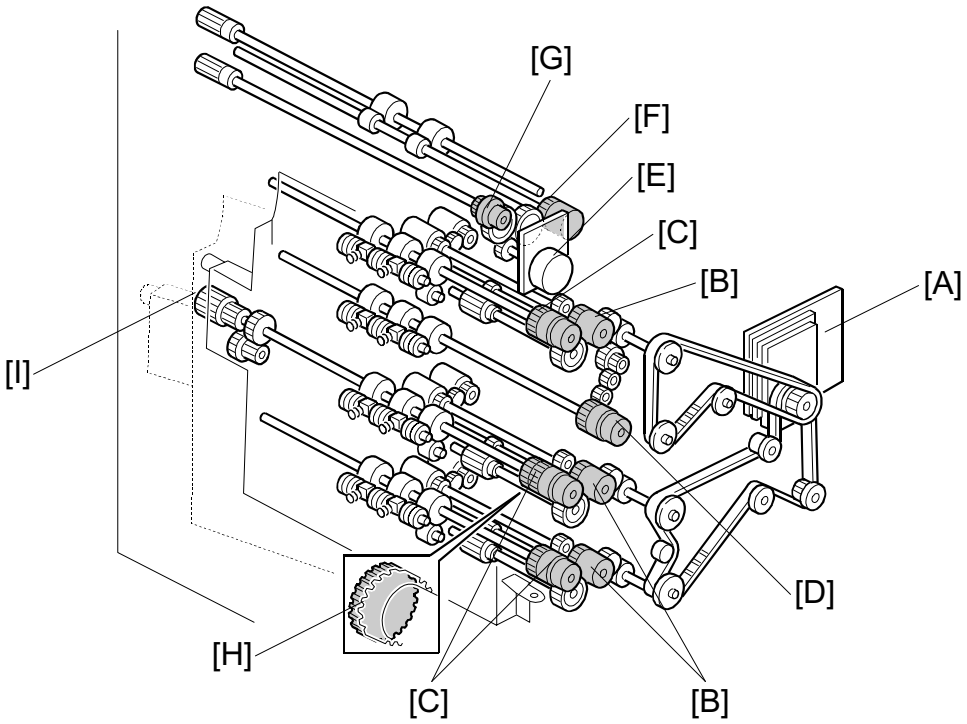
This model has three paper tray feed stations.

The 1st tray is the tandem feed tray. It can hold 2,000 sheets of paper (1,000 sheets x 2 stacks). It can be converted to a 1,000-sheet tray for larger paper sizes with an optional kit.

The 2nd and 3rd trays are universal trays. They can each hold 500 sheets of paper.

All feed stations use an FRR feed system. Rotation of the pick-up roller [A] drives the top sheet of paper to the feed [B] and separation [C] rollers. These rollers then take over the paper drive. If the pick-up roller feeds more than one sheet, the separation rollers rotate in the opposite direction and prevent all but the top sheet from passing through to the registration rollers.

2.8.2 DRIVE



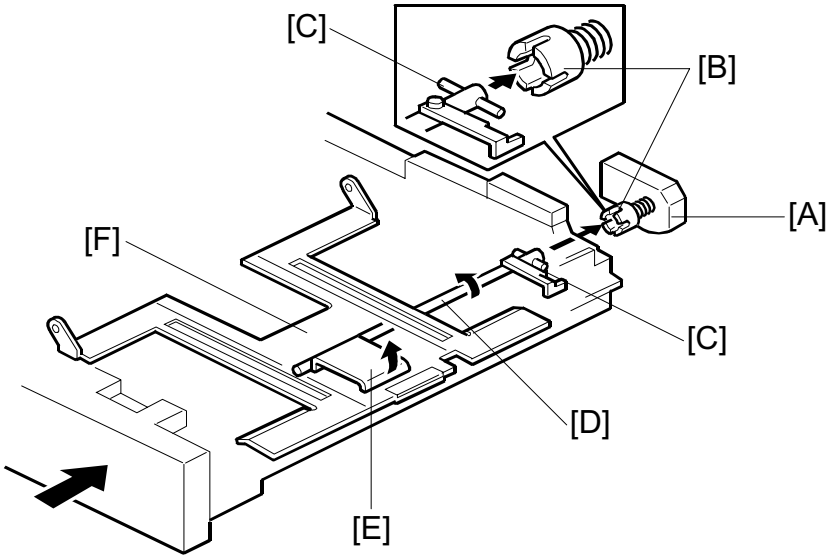
[A]: Paper Feed Unit Motor
[B]: Paper Feed Clutches 1 to 3
[C]: Vertical Transport Clutches 1 to 3
[D]: Lower Relay Clutch
[E]: Relay Motor
[F]: Upper Relay Clutch
[G]: LCT Relay Clutch

The paper feed motor [A] drives feed, pick-up, and separation rollers in trays 1, 2, and 3 via timing belts, clutches [B], and gears. The paper feed motor also drives the vertical transport rollers and the lower relay roller. Drive is transferred to each of the three vertical transport rollers by a vertical transport clutch [C], and to the lower relay roller by the lower relay clutch [D].

The relay motor [E] drives the upper relay roller and LCT relay roller via gears and clutches [F] and [G].

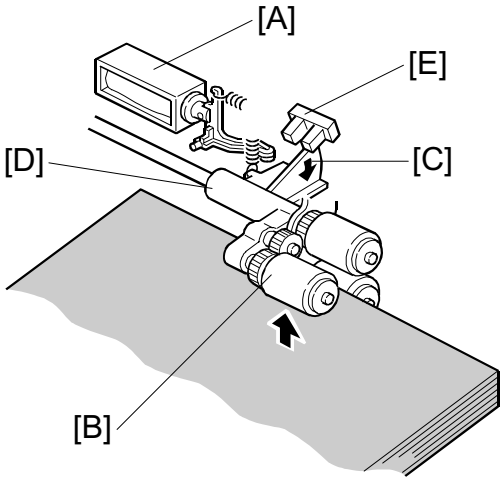
The 2nd vertical transport clutch has a one-way-gear [H]. This prevents the clutch from slipping when the knob [I] is turned to remove jammed paper in the paper feed tray and vertical transport area.

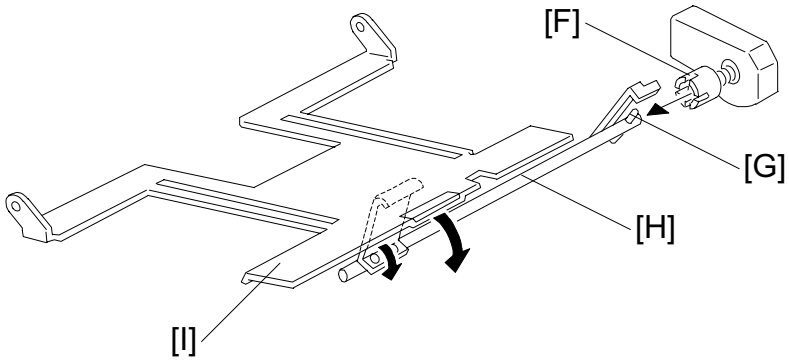
2.8.3 PAPER LIFT – TRAYS 2 & 3



The machine detects when a tray has been placed in the machine by a signal from the paper size switch. When this is detected, the lift motor [A] turns on. The coupling gear [B] on the tray lift motor engages the pin [C] on the lift arm shaft [D], then it turns the tray lift arm [E] to lift the tray bottom plate [F].

For tray 1, an electrical signal from the tray connector automatically informs the cpu when the tray has been placed in the machine.





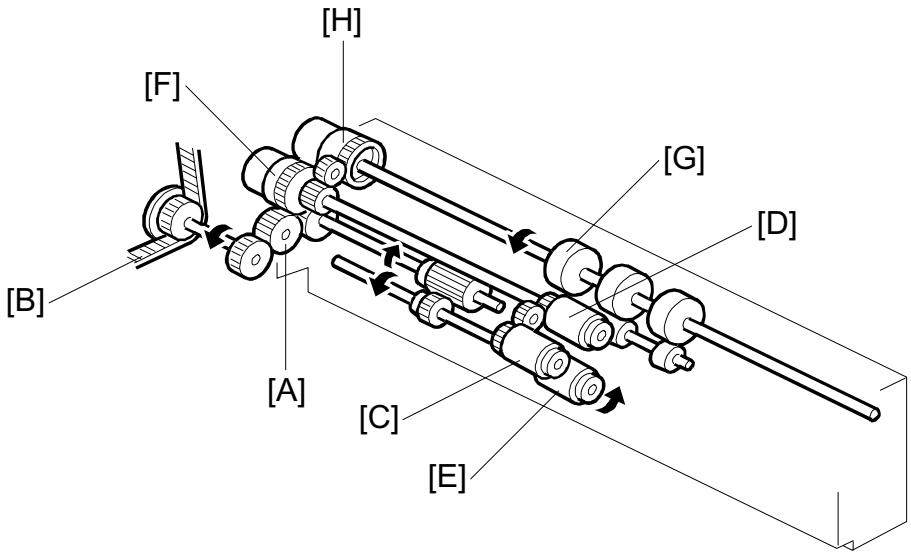
When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the correct height for paper feed, the paper pushes up the pick-up roller, and the actuator [C] on the pick-up roller supporter [D] leaves the lift sensor [E]. Then, the lift motor stops.

After several paper feeds, the paper level gradually lowers and the lift sensor is de-activated. Then the lift motor turns on again until the lift sensor detects the actuator again.

When the tray is drawn out of the feed unit, the lift motor coupling gear [F] disengages the pin [G] of the lift arm shaft [H], then the tray bottom plate [I] drops under its own weight.

2.8.4 PICK-UP AND FEED – TRAYS 1 TO 3

Overview

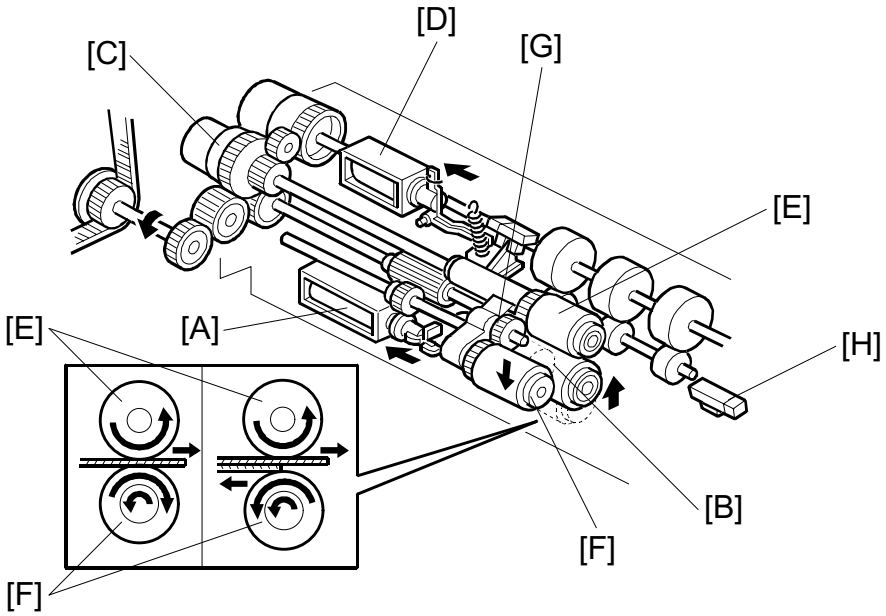


Drive from the paper feed motor is transmitted to the gear [A] in the paper feed unit via the timing belt [B].

Then the gear [A] transmits this drive to the pick-up [C], paper feed [D] and separation [E] rollers via gears and the paper feed clutch [F].

The gear [A] also transmits this drive to the vertical transport roller [G] via gears and the vertical transport clutch [H].

Pick-up and Feed



If a paper feed station is not selected, its separation roller solenoid [A] de-activates and the separation roller [B] can turn freely in the opposite direction to paper feed.

When the paper feed station is selected and the start key is pressed, the feed clutch [C], separation roller solenoid [A], and the pick-up solenoid [D] all turn on.

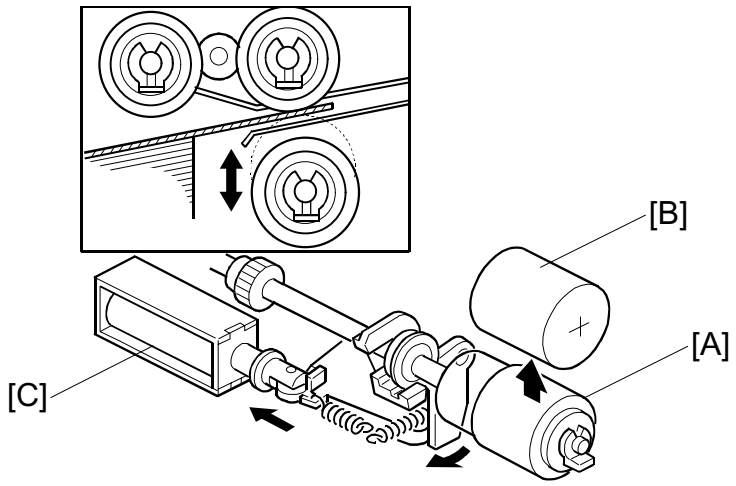
When the feed clutch [C] activates to transfer drive to the feed roller [E], the pick-up roller [F] also turns because it is linked to the feed roller by an idle gear [G].

When the separation roller solenoid [A] turns on, the separation roller [B] contacts the paper feed roller [E] and turns with the feed roller in spite of the torque limiter in the separation roller, which forces it in the opposite direction.

When the pick-up solenoid [D] activates, the pick-up roller [F] lowers to contact the top sheet of the paper stack and send it to the paper feed and separation rollers.

When the paper feed sensor [H] detects the leading edge of the paper, the pick-up solenoid de-energizes to lift the pick-up roller [F], and the vertical transport clutch [I] energizes to feed the paper to the vertical paper feed section.

Separation Roller Release



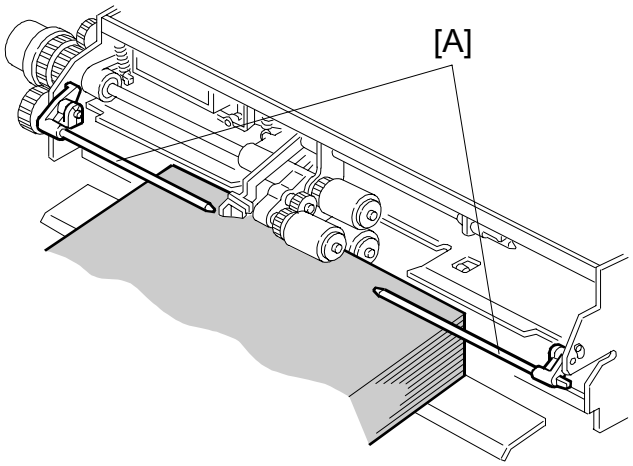
The separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] contacts the separation roller with the feed roller as explained on the previous two pages.

This contact/release mechanism has the following three advantages:

1. When the paper feed motor turns on, all the separation rollers in the three feed stations rotate. If the separation roller is away from the feed roller, it reduces the load on the paper feed motor and drive mechanism, and it also reduces wear to the rubber surface of the separation roller caused by friction between the separation roller and the feed roller.
2. After paper feed is completed, paper sometimes remains between the feed and separation rollers. If the feed tray is pulled out in this condition, this paper might be torn. When the separation roller is away from the feed roller, the remaining paper can be removed from between the rollers.
3. When paper misfeeds occur around this area, the user can easily pull out the jammed paper between the feed and the separation rollers if the separation roller is away from the feed roller.

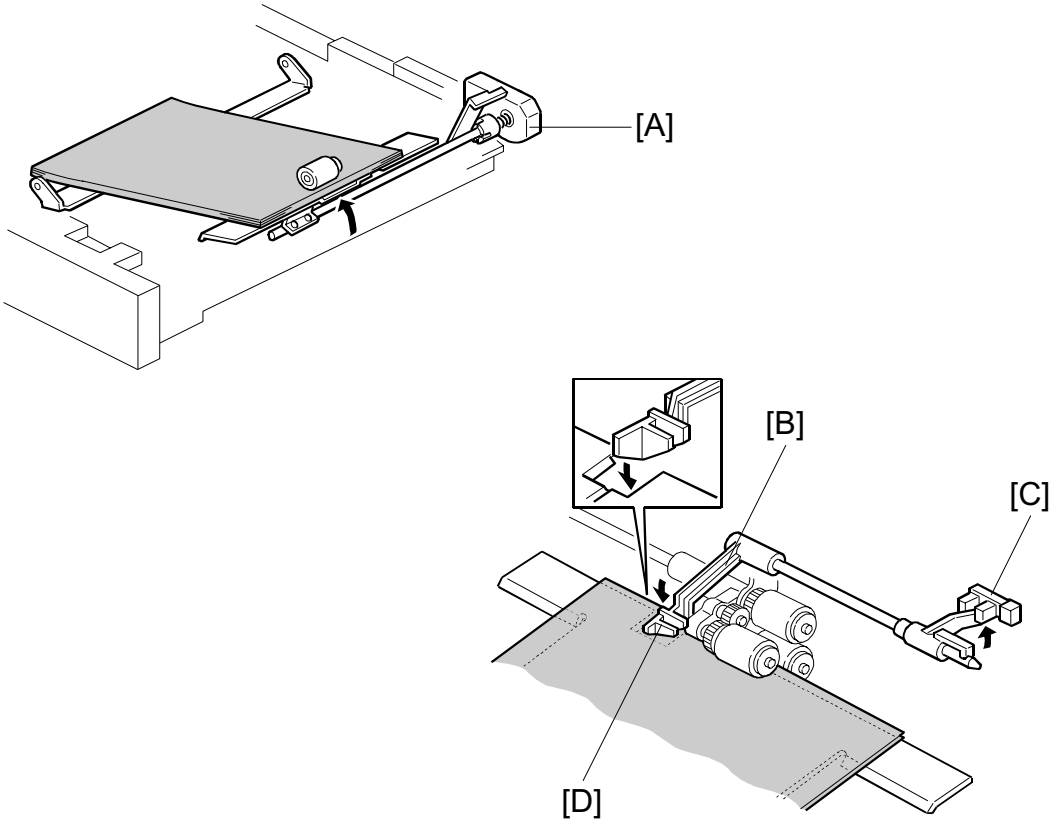
After paper feed and the paper feed clutch tuns off, the paper feed motor still turns the separation roller [A] in reverse. The separation roller, still contacting the feed roller, turns the feed roller in reverse for 100 ms. Then the separation solenoid turns off.

Paper Skew Prevention



The paper press arms [A] on each side press down both sides of the paper, especially if the paper is curled. This helps to prevent paper skew or jams.

2.8.5 REMAINING PAPER/PAPER END DETECTION – TRAYS 2 & 3



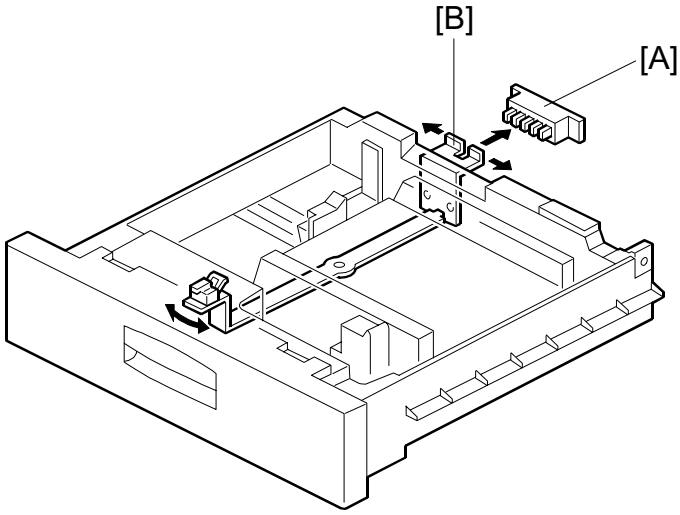
Remaining Paper Detection

The lift motor [A] rotates when the tray is pushed in. The machine's CPU detects the remaining paper by monitoring the lift motor rotation angle (4 levels).

End Detection

If there is paper in the tray, the paper stack lifts the paper end feeler [B] and the paper end sensor [C] is deactivated. When the paper tray runs out of paper, the paper end feeler drops into the cutout [D] in the tray bottom plate and the paper end sensor is activated.

2.8.6 PAPER SIZE DETECTION – TRAYS 2 & 3



Paper Size Switch	Paper Size	
	A4/A3 Version	LT/DLT Version
01111	A3-L	11" x 17"-L
00111	8 1/4" x 13"	8 1/2" x 14"-L
10011	A4-L	8 1/2" x 11"-L
01001	A4-S	8 1/2" x 11"-S
00100	8 1/2" x 13"	5 1/2" x 8 1/2"-L
00010	A5-L	5 1/2" x 8 1/2"-S
00001	A5-S	8" x 10 1/2"-L
10000	8 k-L (Taiwan version only)	8" x 10"-L
11000	16 k-L (Taiwan version only)	8" x 13"-L
11100	16 k-S (Taiwan version only)	10" x 14"-L
11110	*	*

Actuated - 0 De-actuated - 1 L: Lengthwise S: Sideways

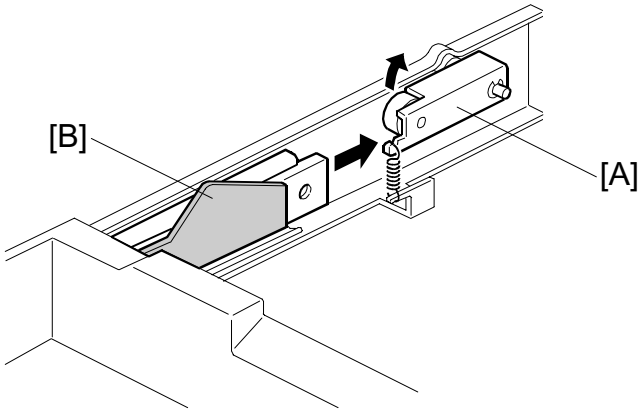
For the 1st feed tray, the paper size has to be stored with SP5-019-001.

For the 2nd and 3rd feed tray (universal trays), the paper size switch [A] detects the paper size. The paper size switch contains five microswitches. The paper size switch is actuated by an actuator plate [B] at the rear of the tray. Each paper size has its own unique combination as shown in the table and the CPU determines the paper size by the combination.

Using the asterisk setting (*), a wider range of paper sizes can be used, but the size has to be entered with a UP mode.

	Metric version	Inch version
Main Scan Direction	148 mm ~ 297 mm	5.9" ~ 11.8"
Sub Scan Direction	210 mm ~ 432 mm	8.3" ~ 17.0"

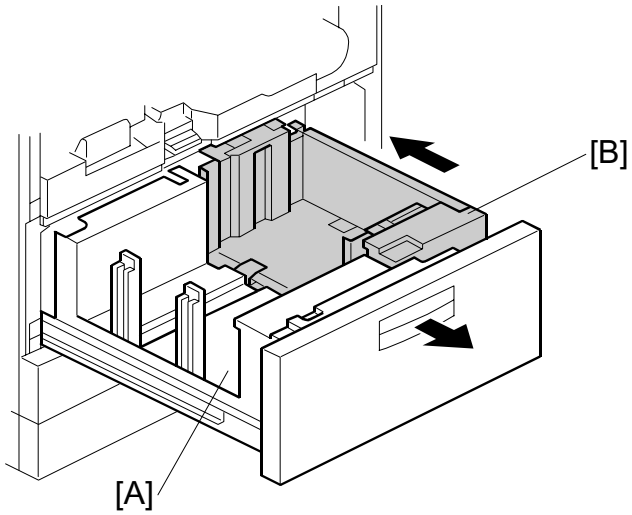
2.8.7 TRAY LOCK – TRAYS 2 & 3



When the tray is placed in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the support bracket to lock the tray in the proper position.

2.8.8 TANDEM FEED – TRAY 1

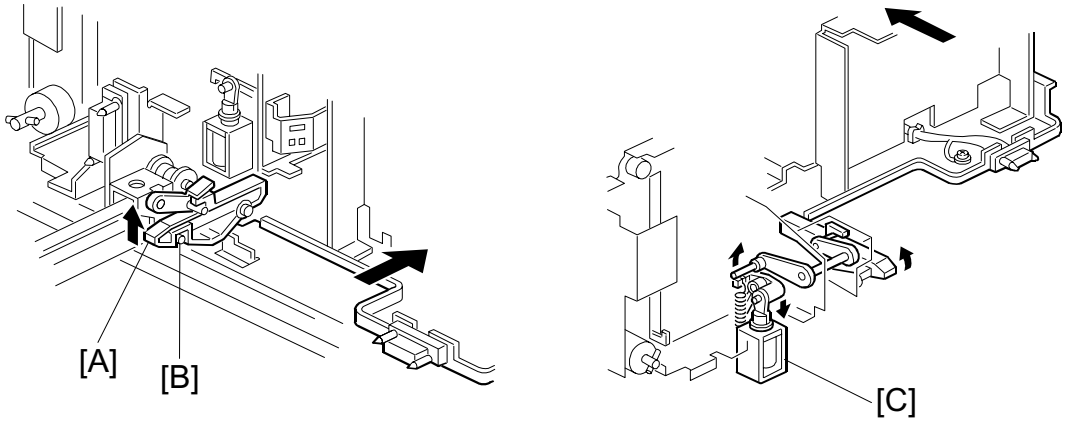
Overview

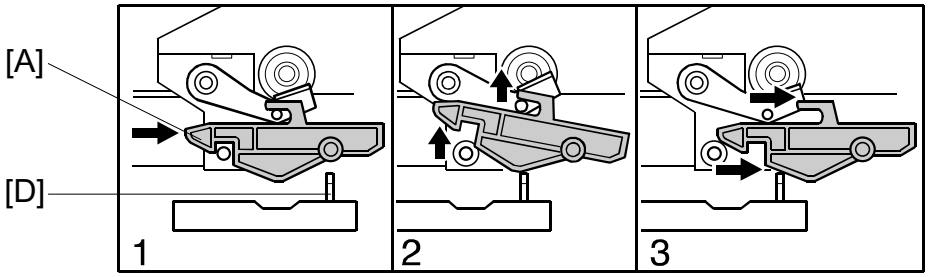


1,000 sheets of paper can be set in each of the left [A] and right trays [B]. Paper is fed from the right tray. When the paper in the right tray runs out, the paper in the left tray automatically transfers to the right tray. After the paper transfer to the right tray, paper feeding resumes.

Normally both the right and the left trays are joined together. However, during copying, if there is no paper in the left tray, the left tray can be pulled out to load paper. During that time, the right tray stays in the machine and paper feed continues.

Connecting the Left and Right Sides of the Tray



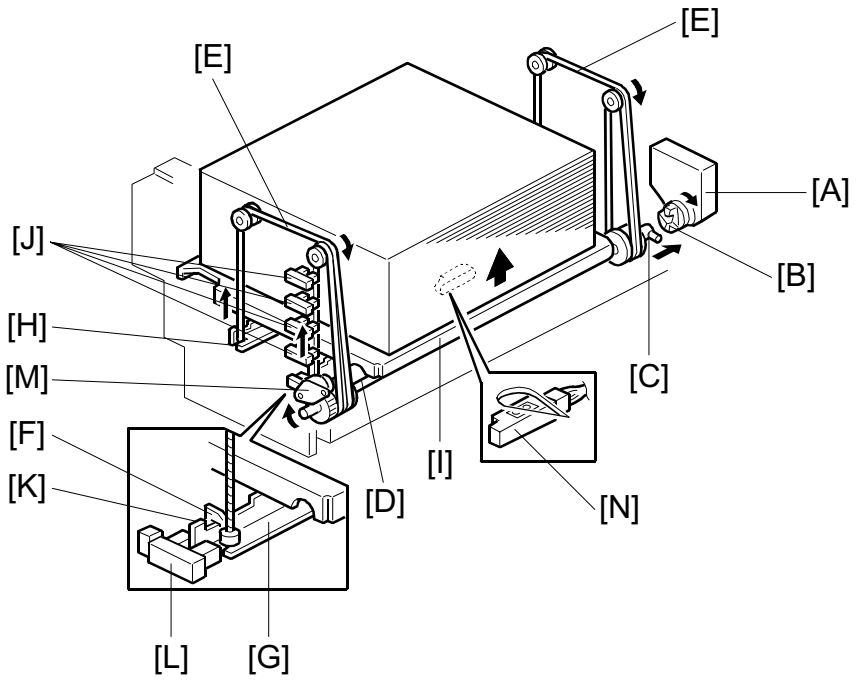


Normally the left tray lock lever [A] in the left tray catches the pin [B] in the right tandem tray. During copying, if there is no paper in the left tray, the tandem tray connect solenoid [C] turns on to release the tray lock lever so that the left tray separates from the right tray. Therefore, the left tray can be pulled out to load paper while paper is still being fed into the machine from the right tray.

When the tandem tray is drawn out fully, the projection [D] pushes up the left tray lock lever [A] so that both trays separate for easier paper loading.

Paper Lift/Remaining Paper Detection

The machine detects when the 1st tray has been placed in the machine by monitoring the tray set signal through the connector.



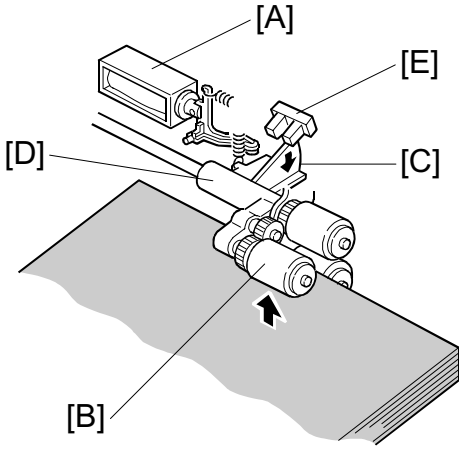
When the machine detects that the 1st paper tray is set in the machine, the right 1st tray paper sensor [N] (under the tray) checks whether there is paper in the right tandem tray.

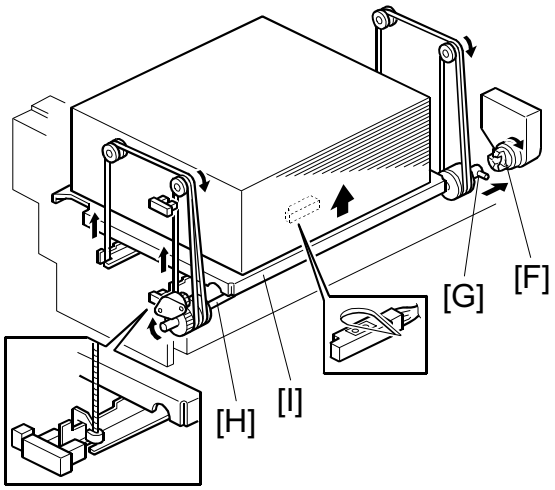
NOTE: The right half of the tray holds up to 1,000 sheets. So, if the right 1st tray paper sensor was not present and the tray was empty, the bottom plate would have to lift up fully until the paper end sensor at the top of the tray detected that there was no paper, and this would waste several seconds.

If paper is detected, the lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift shaft [D]. The tray wires [E] are fixed in the slots [F] at the ends of the tray support rods [G, H]. When the lift motor rotates clockwise, the tray support rods and the tray bottom plate [I] move upward. The tray goes up until the top paper pushes up the pick-up roller and the lift sensor in the 1st feed unit is activated, and the paper end sensor at the top of the tray is deactivated.

When the actuator [K] on the front end of the right support rod [G] activates the paper height sensors [J], the remaining paper capacity is detected (4 levels).

When removing the tray, the coupling gear [B] separates from the pin [C], so that the tray bottom plate moves downward. The tray lowers until the actuator activates the tray down sensor [L]. The damper [M] lets the tray bottom plate drop down slowly.





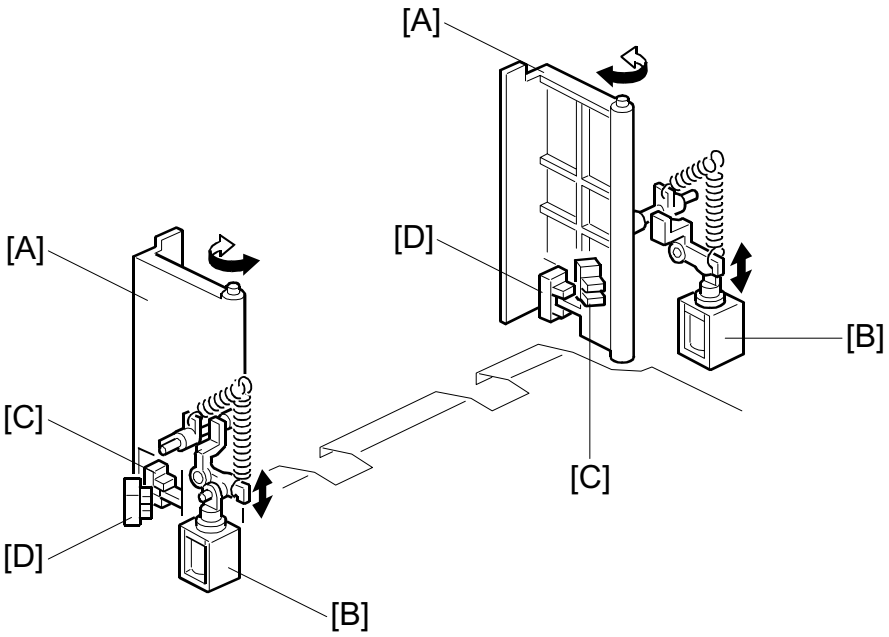
When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the correct height for paper feed, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers then the lift sensor is de-activated and the lift motor turns on again until the lift sensor is activated again.

When the tray is drawn out of the feed unit, the lift motor coupling gear [F] disengages the pin [G] of the lift shaft [H], then the tray bottom plate [I] drops (the damper slows the fall, as explained on the previous page).

There is also a paper end sensor for the 1st tray, which works in the same way as the sensor in the 2nd and 3rd trays.

Side Fence Drive

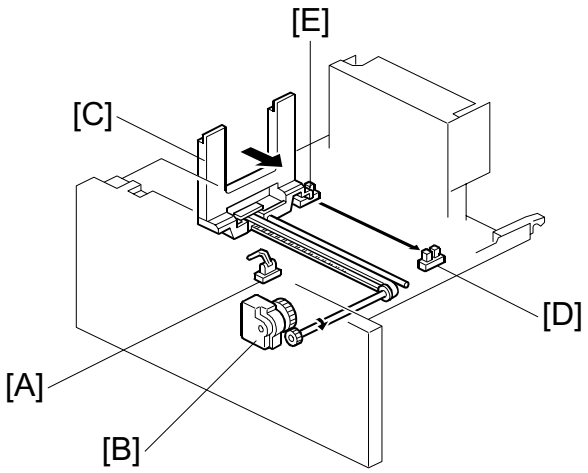


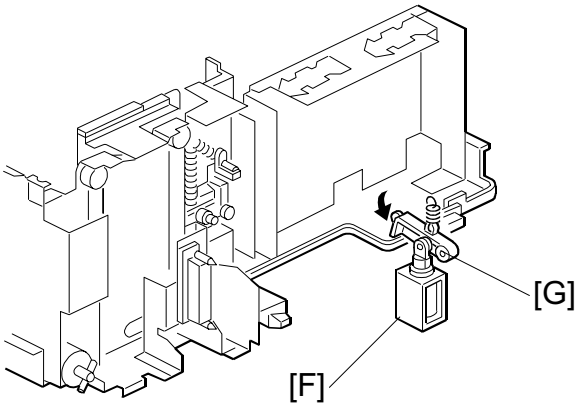
The side fences [A] of the right tray are normally closed. They open only when paper in the left tray is moving to the right tray.

The side fence solenoids [B] drive the side fences. When the paper loaded in the left tray transfers to the right tray, the side fence solenoids turn on to open the side fences until the side fence open sensors [C] activate.

When the rear fence in the left tray has pushed the stack of paper into the right tray, the side fence solenoids turn off to close the side fences. Then, when the side fence closed sensors [D] actuate, the LCD displays a message advising the user to load some paper into the left side of the tandem tray.

Rear Fence Drive



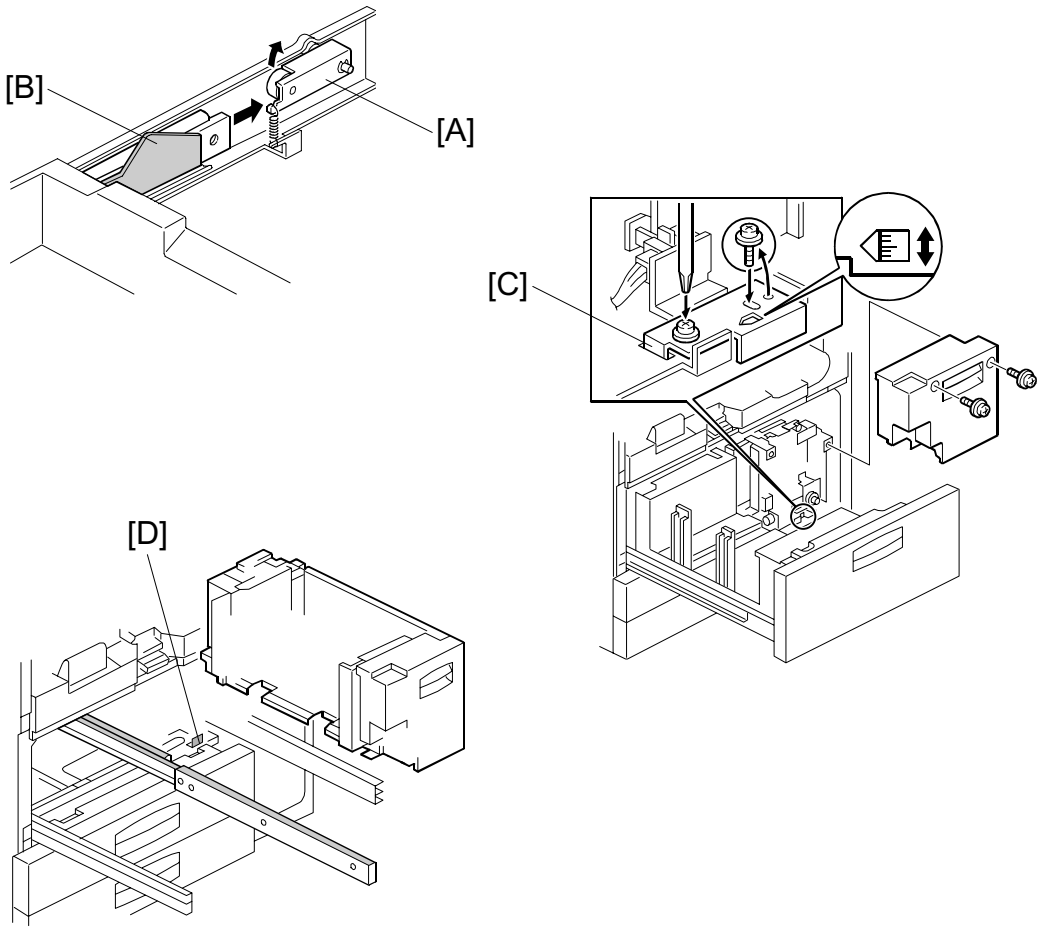


When the left 1st tray paper sensor [A] detects paper but the right 1st tray paper sensor does not, the rear fence drive motor [B] (a DC motor) in the left tray turns counter-clockwise causing the rear fence [C] to push the paper stack into the right tray.

When the actuator on the rear fence activates the rear fence return position sensor [D], the rear fence drive motor turns clockwise until the actuator activates the rear fence HP sensor [E].

While the rear fence is moving, the left 1st tray lock solenoid [F] turns on and the lock lever [G] locks the left tray.

Tray Positioning



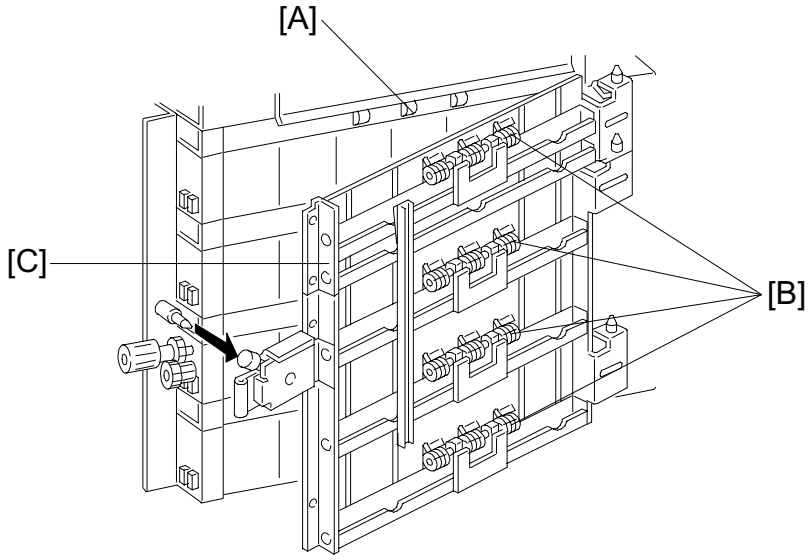
Tray Lock

When the feed tray is set in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the Accuride support bracket to lock the tray in the proper position.

Side-to-side Positioning

When the feed tray is set in the paper feed unit, the side-to-side positioning plate [C] presses the feed tray against the stopper [D]. By moving the positioning plate, the tray position can be changed to adjust the side-to-side registration.

2.8.9 VERTICAL TRANSPORT

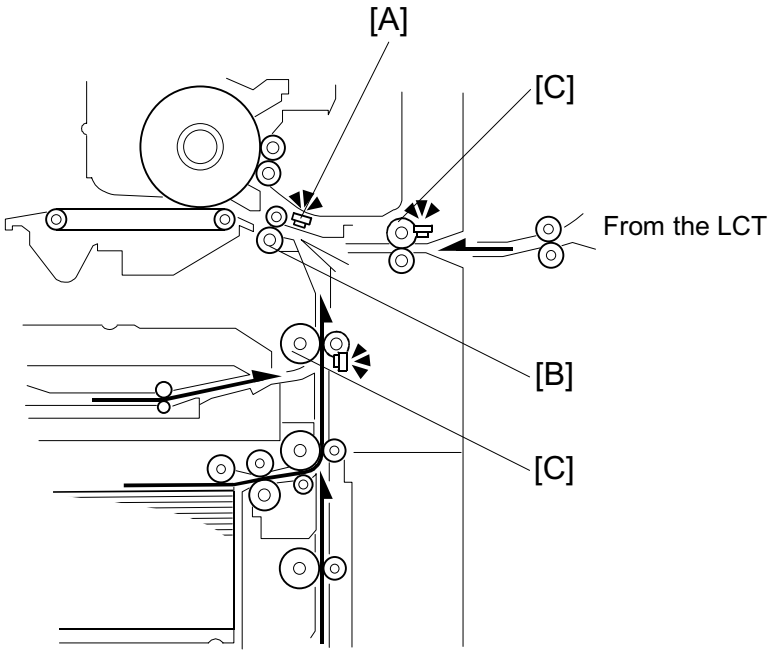


The vertical transport rollers [A] in each feed unit are all driven by the paper feed motor. The vertical transport rollers and the vertical transport idle rollers [B], on the inner and outer vertical guide plates, transport the paper up from each feed unit towards the relay and registration rollers.

The vertical transport guides [C] can be opened to remove jammed paper in the vertical transport area.

2.8.10 PAPER REGISTRATION

Overview

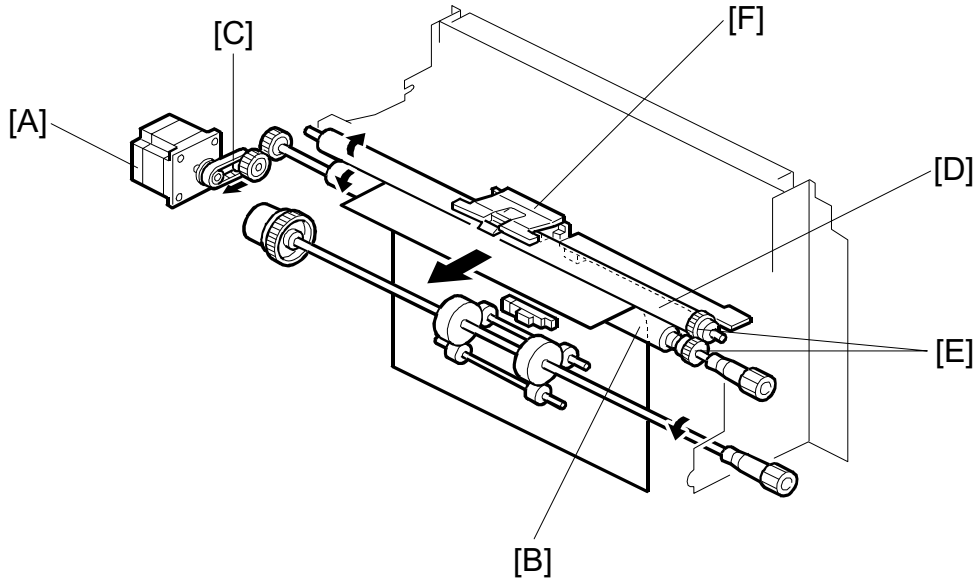


The registration sensor [A] is positioned just before the registration rollers [B].

When the paper leading edge activates the registration sensor, the registration motor is off and the registration rollers are not turning. However, the upper relay roller (or LCT relay roller for feed from the LCT) [C] stays on for a bit longer. This delay allows time for the paper to press against the registration rollers and buckle slightly to correct skew. Then, the registration motor energizes and the relay clutch re-energizes at the proper time to align the paper with the image on the drum. The registration and relay rollers feed the paper to the image transfer section.

The registration sensor is also used for paper misfeed detection.

Registration Drive

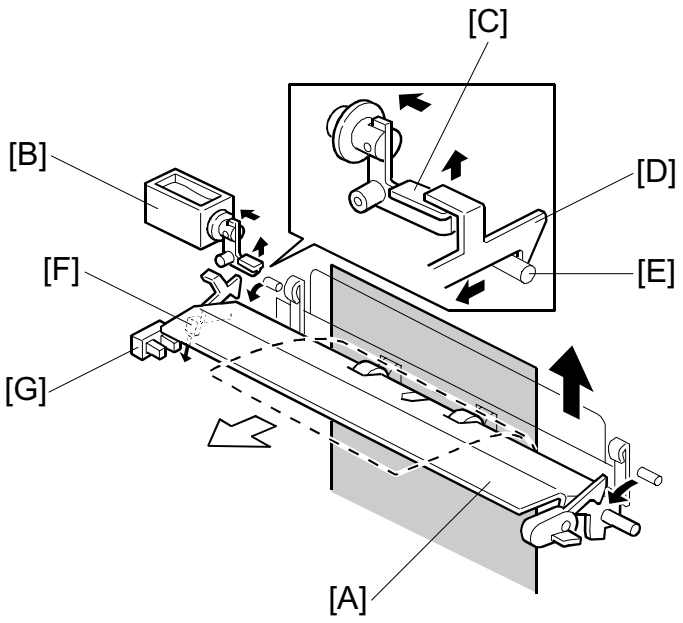


The registration motor [A] drives the lower registration roller [B] through a timing belt [C] and some gears. Drive is transmitted to the upper registration roller [D] via two gears [E] at the front.

There is a paper dust remover [F] at the center of the upper registration roller [D]. This is in line with the feed rollers, where most paper dust is generated.

NOTE: Clean the dust remover every PM visit.

Guide Plate Release



When a paper misfeed occurs between the vertical transport rollers and the registration rollers, the lower paper guide plate [A] automatically opens.

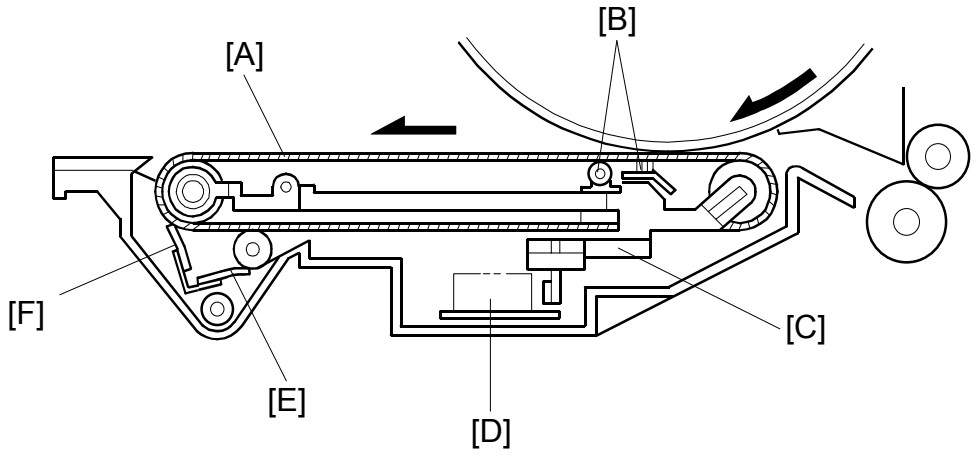
When the registration sensor is not activated at a certain jam check timing, the guide plate solenoid [B] turns on. The lever [C] raises the lock lever [D] on the guide plate to release it from the pin [E] on the rear side frame. Then the guide plate falls open.

The actuator [F] on the guide plate activates the guide plate position sensor [G] when the guide plate opens.

The user must close this guide plate manually after removing the jam, To prevent the guide plate from being left open, if the guide plate position sensor is activated, copying is disabled and a caution is displayed on the LCD panel.

2.9 IMAGE TRANSFER AND PAPER SEPARATION

2.9.1 OVERVIEW



The transfer belt unit consists of the following parts:

[A]: Transfer belt
A belt (length: 321 mm) with high electrical resistance which holds a high positive electrical potential to attract toner from the drum to the paper. Also, the electrical potential attracts the paper itself and helps the paper to separate from the drum.

⇒ To compensate for the increased copy speed of the A295, a higher transfer current is applied.

[B]: Transfer bias roller and transfer belt bias brush
Applies transfer voltage to the transfer belt.

[C]: Transfer belt lift lever (driven by a solenoid)
Lifts the transfer belt into contact with the drum.

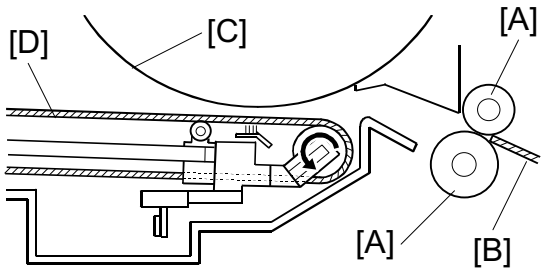
[D]: Transfer power pack
Generates a constant transfer current.

[E]: Cleaning roller and cleaning roller cleaning blade
Removes toner remaining on the transfer belt to prevent the rear side of the paper from getting dirty.

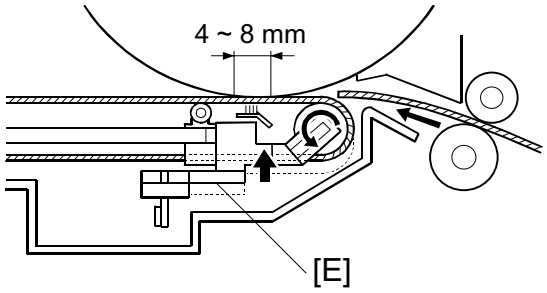
[F]: Transfer belt cleaning blade
Removes toner from the transfer belt. Any toner that is not removed by this blade is removed by the cleaning roller [E].

2.9.2 IMAGE TRANSFER AND PAPER SEPARATION

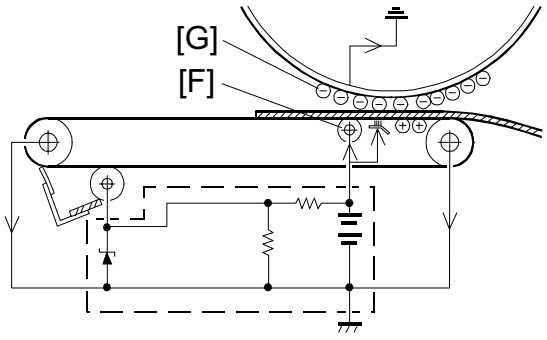
The registration rollers [A] feed the paper [B] to the gap between the drum [C] and the transfer belt [D].



As soon as the leading edge of the first sheet reaches the gap between the transfer belt and the drum, the transfer belt lift lever [E] raises the transfer belt into contact with the drum. The lift lever is driven by a solenoid.



Then a positive charge is applied to the transfer bias roller [F] and transfer belt bias brush to attract the negatively charged toner [G] from the drum. It also attracts the paper and separates it from the drum.



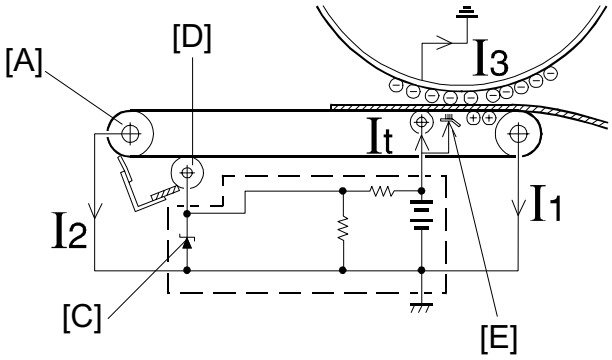
After the image transfer is completed, the charge on the transfer belt holds the paper to the transfer belt. After separating the paper from the transfer belt, the transfer belt is discharged by the transfer belt drive roller [A].

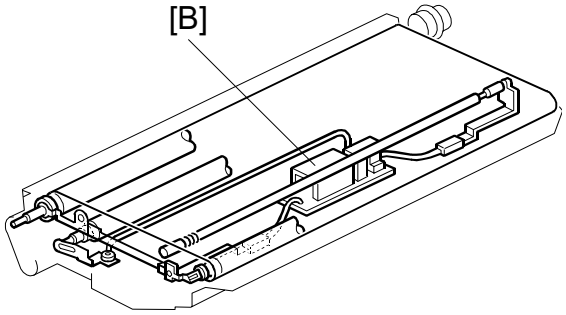
The transfer power pack [B] inside the transfer belt unit monitors the current (I_1 and I_2) fed back from the drive rollers at each end of the transfer belt to adjust the transfer current.

Then, the power pack adjusts I_t to keep the current through the drum (I_3) constant, even if the paper, environmental conditions, or transfer belt surface resistance change.

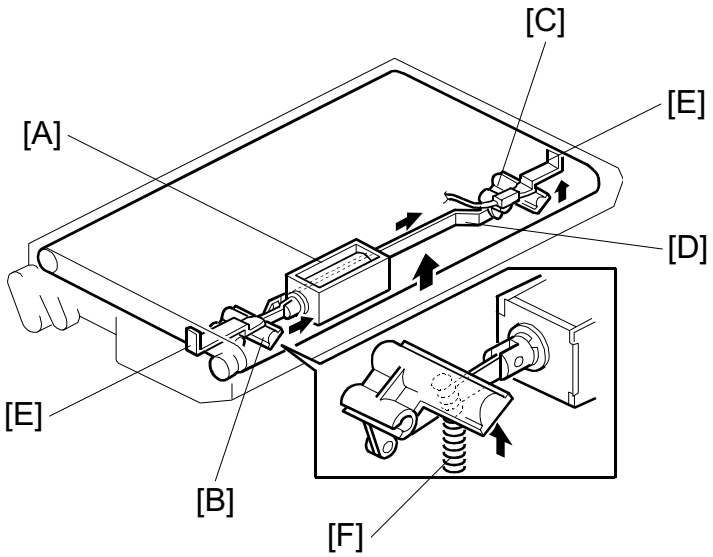
The varistor [C] keeps the voltage at the cleaning bias roller [D] constant.

To apply a higher current to the transfer belt without a higher voltage, the bias brush [E] has been incorporated near the nip between drum and belt. This ensures that enough transfer current is applied for this machine, which has a higher copy volume.





2.9.3 TRANSFER BELT UNIT LIFT



The transfer belt lift solenoid [A] inside the transfer belt unit turns on to raise the transfer belt into contact with the drum. The front lever [B] and the rear lever [C] are connected to the solenoid by links [D], and they push up the stays [E] when the solenoid turns on.

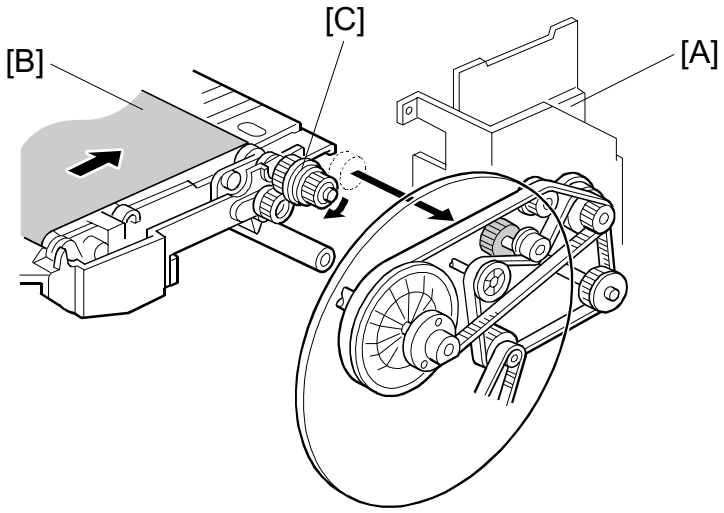
The support spring [F] helps the solenoid to raise the transfer belt.

The solenoid turns off after the copy job is finished.

The transfer belt must be released from the drum for the following reasons:

1. To prevent the ID sensor pattern on the drum from being rubbed off by the transfer belt, because the transfer belt is located between the development unit and the ID sensor.
2. To decrease the load on the bias roller cleaning blade, it is better to prevent toner on non-image areas (for example V_D, V_H, ID sensor patterns developed during process control data initial setting) from being transferred onto the transfer belt.
3. To prevent drum characteristics from being changed by remaining in contact with the rubber belt.

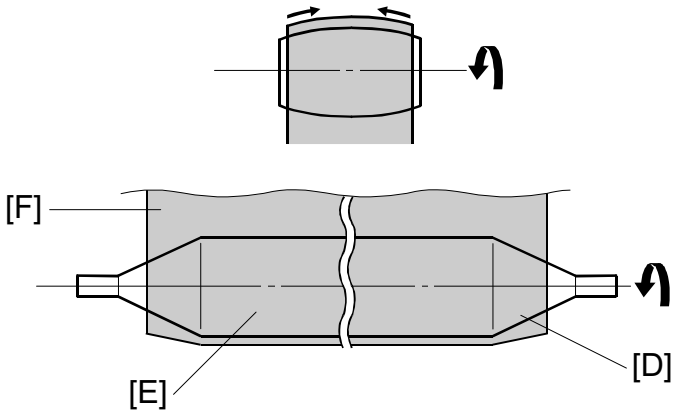
2.9.4 PAPER TRANSPORTATION AND BELT DRIVE



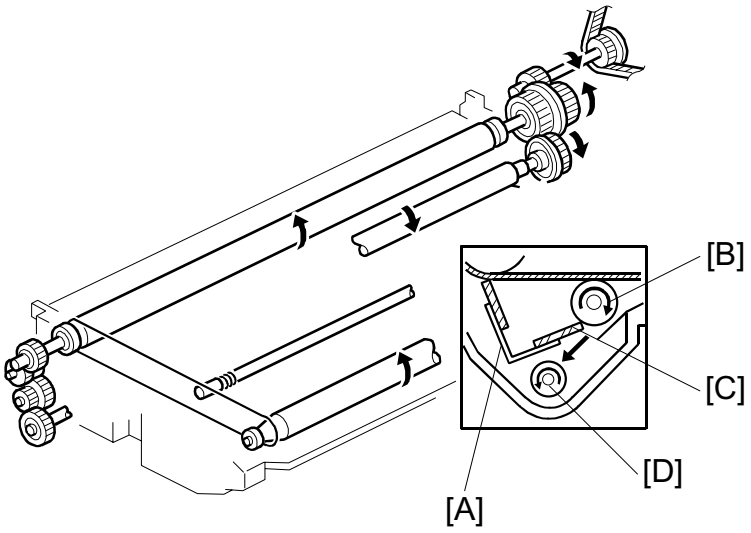
The drum motor [A] drives the transfer belt through belts and gears. Since the transfer belt electrically attracts the paper [B], a transport fan is not required.

At the turn in the transfer belt, the transfer belt drive roller [C] discharges the belt to reduce paper attraction, and the paper separates from the belt as a result of its own stiffness.

The tapered parts [D] at both ends of the roller [E] help keep the transfer belt [F] in the center, so that it does not run off the rollers.



2.9.5 TRANSFER BELT CLEANING



Some toner may adhere to the transfer belt when paper jams occur. The adhered toner must be removed to prevent the rear side of the copy paper from getting dirty.

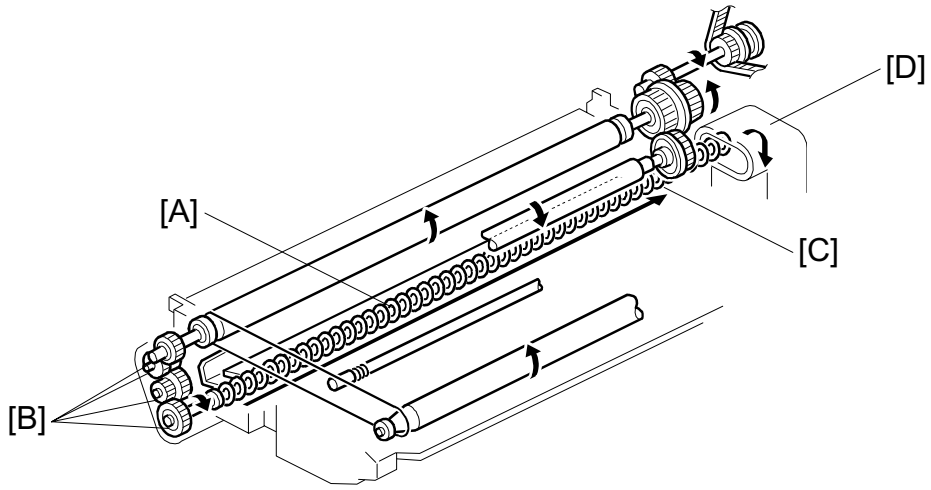
The cleaning blade [A] scrapes off any toner remaining on the transfer belt. This is a counter blade system.

Even if the toner is not completely removed due to paper dust stuck on the transfer belt cleaning blade [A], the positively charged cleaning bias roller [B] attracts the remaining toner. The bias roller cleaning blade [C] scrapes toner off the cleaning bias roller.

The surface of the transfer belt is coated to make it smooth and prevent the transfer belt from flipping the cleaning blade.

The toner collection coil [D] transports toner cleaned off the transfer belt to the waste toner collection bottle (see Toner Supply and Recycling for more on this).

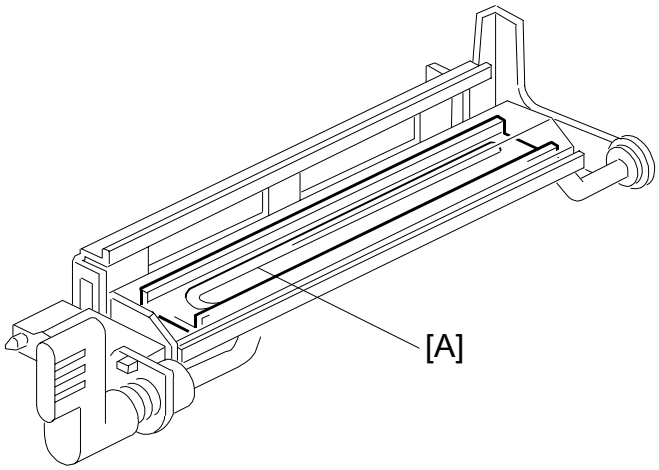
2.9.6 TONER COLLECTION



Transfer belt drive is transmitted to the toner collection coil [A] through idle gears [B]. The toner collection coil [C] transports the collected toner to the toner recycling unit [D] and from there it goes to the waste toner collection bottle.

See Toner Supply and Recycling for details.

2.9.7 TRANSFER ANTI-CONDENSATION HEATER

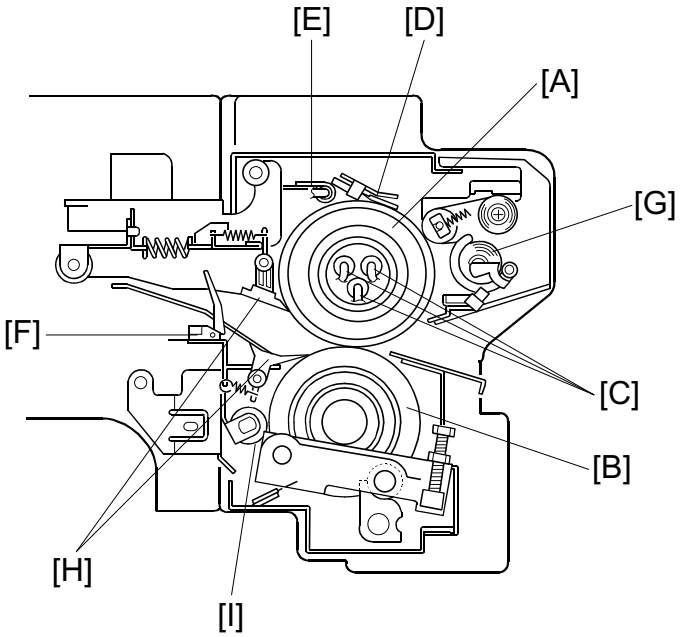


The transfer anti-condensation heater [A] is located under the transfer belt unit. It turns on when the main switch is off to prevent moisture from forming on the transfer belt.

The heater is included in the machine at the factory, but the connector is not connected.

2.10 FUSING

2.10.1 OVERVIEW



After transferring the image, the copy paper enters the fusing unit. A heat and pressure process using a hot roller [A] and a pressure roller [B] fuses the image to the copy paper.

There are three identical fusing lamps [C] inside the hot roller, 530 W each for the A294 and 630W each for the A295. They are turned on and off to maintain the standby temperature, 173°C for the A294 and 178°C for the A295. During a copy cycle, the operating temperature is maintained at 188°/183°C for the A294 and 198°/193°C for the A295. The CPU monitors the hot roller surface temperature through a thermistor [D], which is in contact with the hot roller's surface. A thermofuse [E] protects the fusing unit from overheating.

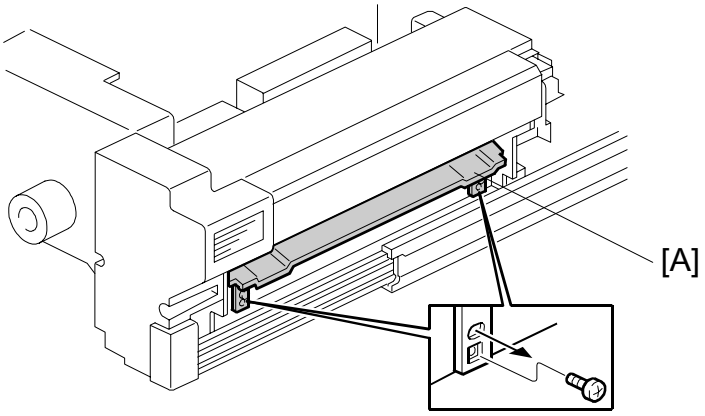
The fusing exit sensor [F] monitors the progress of the copy paper through the fusing unit and acts as a mis-feed detector while the exit rollers drive the copy paper to the inverter section.

The oil supply roller and cleaning web [G] applies a light coat of silicone oil to the hot roller. It also removes the paper dust on the hot roller.

The hot roller and pressure roller have stripper pawls [H] to prevent wrap-around jams.

The pressure roller is cleaned by a steel cleaning roller [I]. Toner adheres to steel more readily than to silicone rubber.

2.10.2 FUSING ENTRANCE GUIDE



The entrance guide [A] for this machine is adjustable for thick or thin paper by changing the screw position from the upper to the lower.

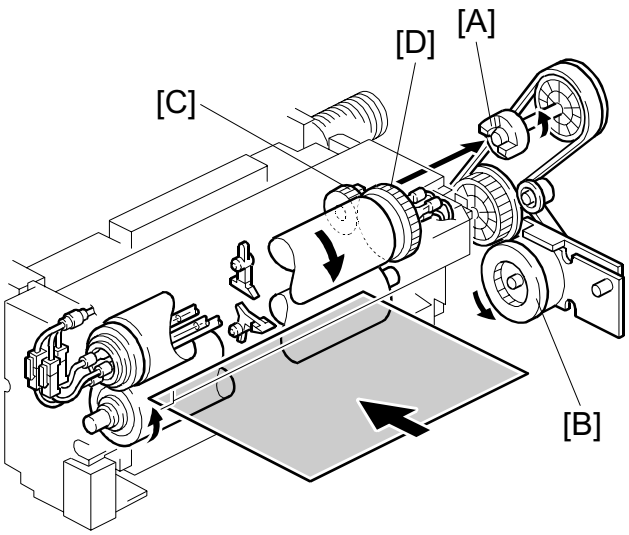
With thin paper, set the entrance guide in the upper position. This slightly lengthens the paper path, which prevents the paper from creasing in the fusing unit.

With thick paper, set the entrance guide in the lower position. This is because thick paper does not bend as easily, and is therefore less prone to creasing. In addition, the lower setting allows more direct access to the gap between the hot and pressure rollers. This prevents thick paper from buckling against the hot roller, which can cause blurring at the leading edge of the copy.

In this model, the transfer belt improves paper transport and stabilizes the paper path to the fusing entrance. This reduces the chance of paper creasing due to paper skews in the fusing unit.

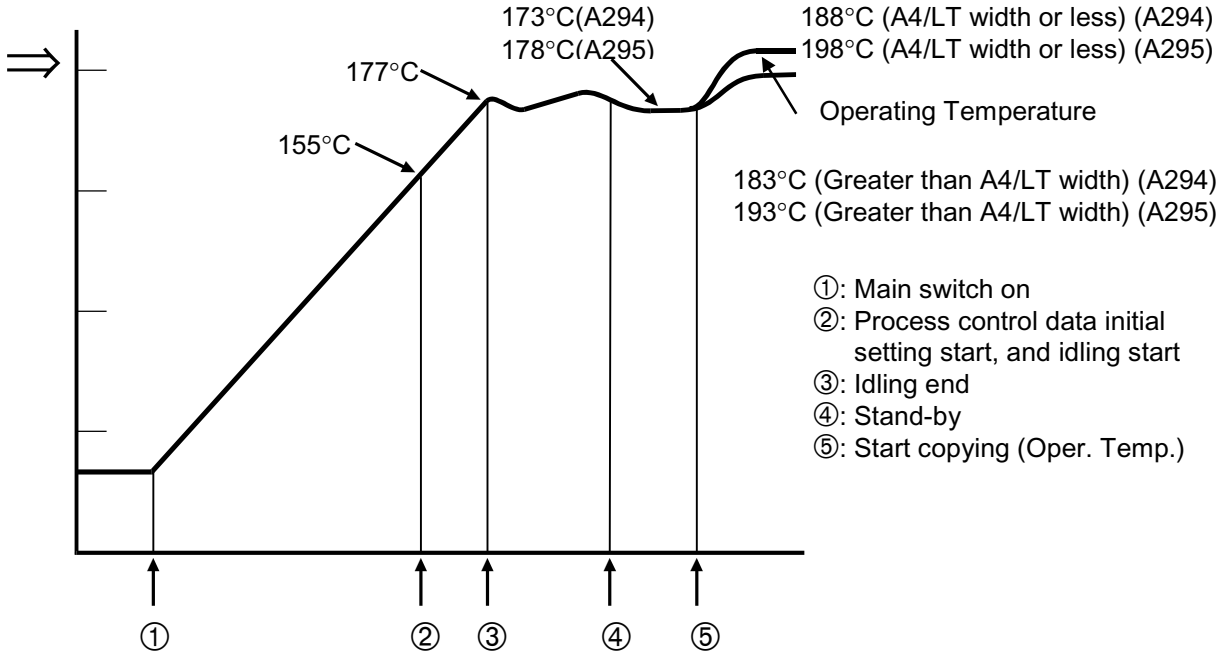
Use the screws to adjust the guide plate position. Since there are very few reasons to change the guide plate position, there is no guide plate position adjustment lever for customer use.

2.10.3 FUSING UNIT DRIVE



The fusing drive gear [A] transmits drive from the fusing/duplex drive motor [B] to the gear [C], which drives the hot roller gear [D]. Rotation passes from the gear [C] through an idle gear to the exit roller drive section. The pressure roller is driven by the friction between the hot and pressure rollers.

2.10.4 FUSING LAMP CONTROL



After turning the main switch on, the CPU turns on all three fusing lamps one at a time, with a 1 second interval between each lamp turning on. This prevents the power on the AC line from dropping suddenly.

When the fusing temperature reaches 155°C, the machine starts the process control data initialization. If the fusing temperature was already above 100°C when the main switch was turned on, the process control initial setting is not done.

⇒ When the fusing temperature reaches 155°C, the copier starts fusing idling. If the fusing temperature was already above 100°C at power on, fusing idling is not done.

⇒ When the temperature has reached 177°C, the warm-up period is completed and the “Ready” indicator turns on. After this, the machine maintains a fusing temperature of 173°C (A294) or 178°C (A295).

⇒ In stand-by mode, one of the fusing lamps turns on alternately to maintain the ready temperature. During the copy cycle, the three fusing lamps maintain the operating temperature of 188°/183°C (A294) or 198°/193°C (A295). If they have to turn on, they turn on one at time, with a 1 second interval between each lamp.

The CPU changes the fusing lamp on period depending on the temperature measured by the thermistor, to keep the fusing temperature as close as possible to the target temperature.

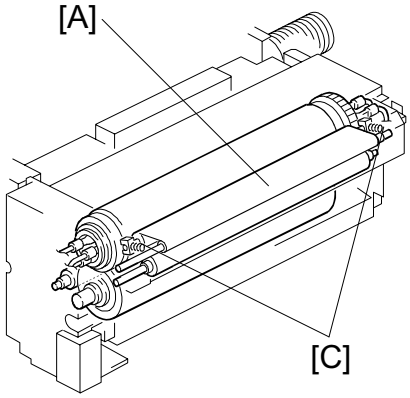
If one lamp breaks during copying, the machine still works. But, if it discovers a broken lamp just after being switched on, an SC occurs and copying is impossible.

The machine uses on-off control mode to maintain the fusing temperature.

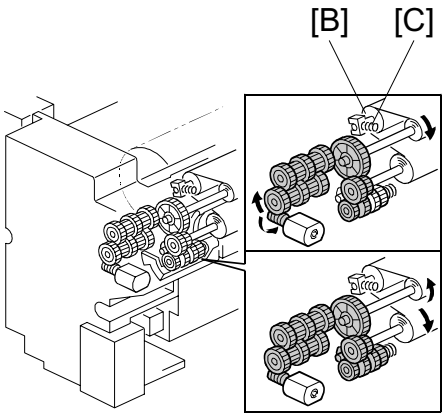
Even if thick paper mode is selected, fusing temperature control does not change.

2.10.5 OIL SUPPLY AND CLEANING

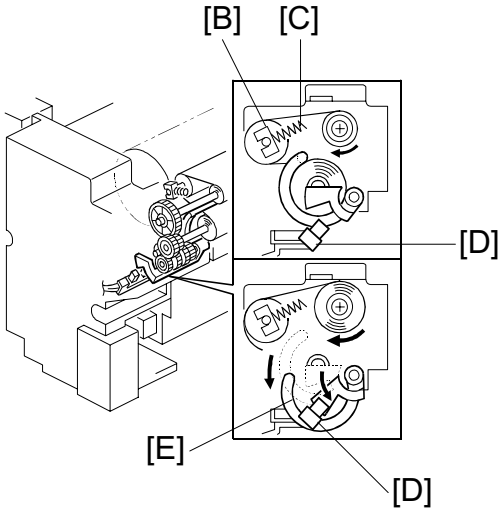
The oil supply and cleaning web [A] feeds the web felt soaked with silicone oil. The roller [B] contacting the web felt also contacts the hot roller because of pressure from springs [C]. It applies a light coat of silicone oil to the hot roller and removes paper dust from the hot roller. A spring clutch inside the mechanism pulls the web to take up the slack, to prevent it getting pulled in between the fusing rollers.



⇒ Every 42 s (A294) or 34 s (A295) during printing, the oil supply/cleaning web motor turns for 0.8 s to move the oil supply and cleaning web felt. This 42 or 34 second interval starts when the first copy reaches the fusing exit sensor, and ends 2 s after the last copy has passed this sensor. SP1-902-2 & 3 adjust the motor rotation interval and rotation time.



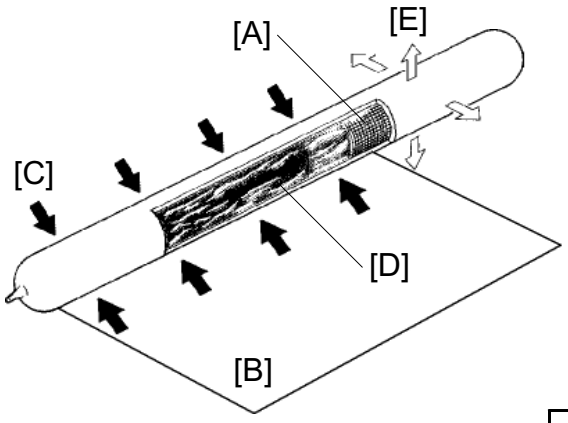
SP1-902-1 displays the web consumption. When the web consumption exceeds the value set with SP1-902-4 (web near-end), the machine indicates web near-end on the operation display. The machine still works until the oil supply/cleaning web end sensor [D] detects when the feeler [E] drops from the web. At this time, SC550 is indicated in the operation panel display. In this condition, a technician must install a new oil supply and cleaning web, and return SP1-902-1 to 0. Then, the SC will be cleared.

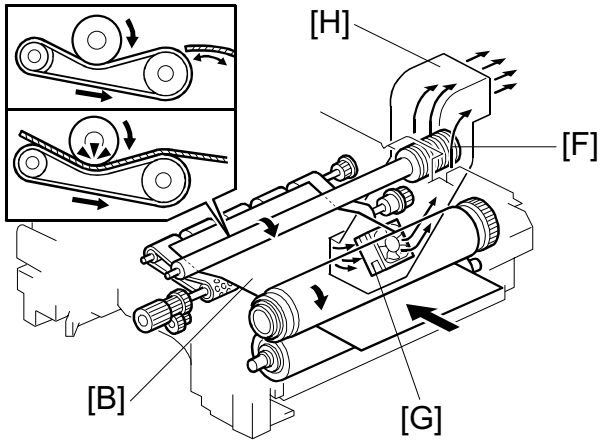


Adjust SP1-902-4 (web near-end) to change the near-end period. The default is 100%. With this setting, about 300 k copies can be made before the near-end message is displayed. After that, another 40 k can be made until the web ends. If

⇒ this SP is changed to 80%, about 240 k copies can be made before the near-end message is displayed. After that, another 100 k can be made until the web ends. These figures assume that 80% of the user's output is A4 sideways.

2.10.6 PAPER COOLING





The paper cooling pipe cools the copy paper after it has gone through the fusing unit. This prevents the temperature around the drum from increasing in duplex mode.

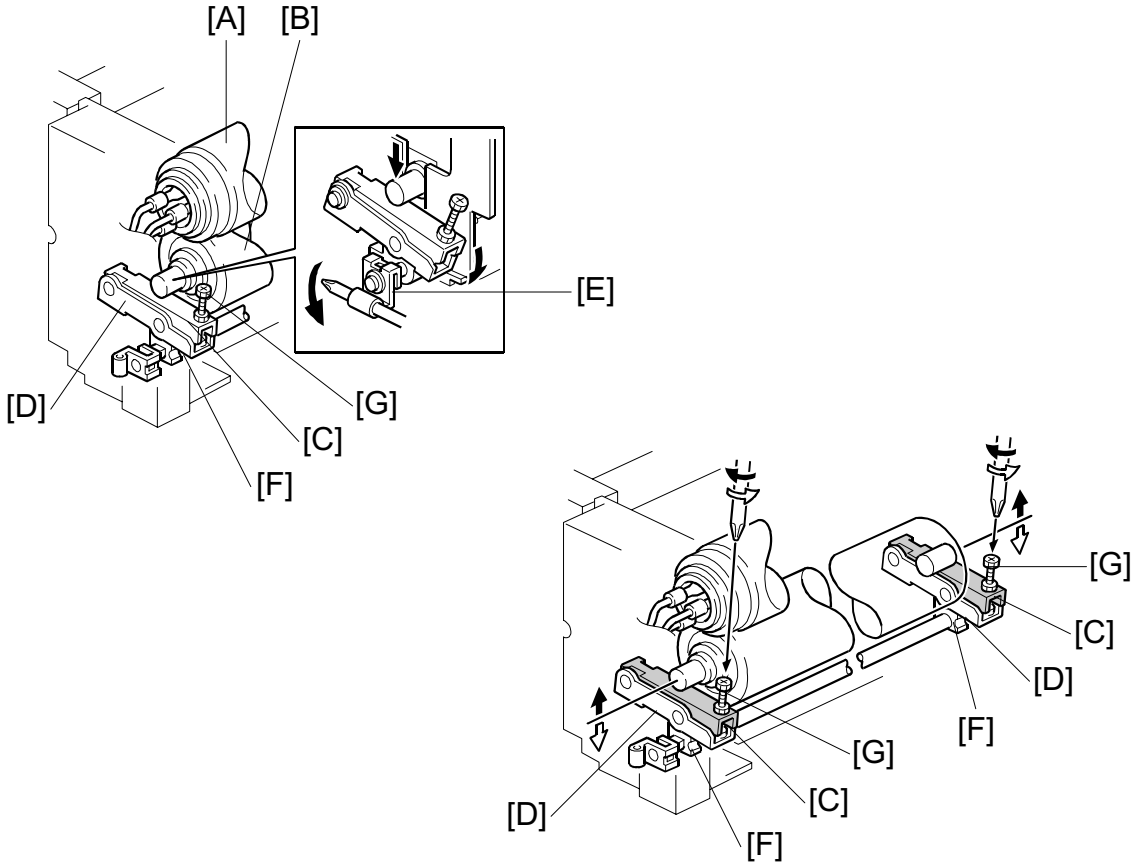
The paper cooling pipe has fins at the rear end. A fan cools the fins.

The paper cooling pipe has a hollow metal tube inside. Water capillary tubes [A] run along the inside of the paper cooling pipe, and these transfer heat within the pipe. The hot paper [B] leaving the fusing unit heats the parts of the cooling pipe that it touches (black arrows [C]), causing the water in the pipe to vaporize. This creates a high-speed flow of steam [D] to the ends of the pipe, which are cooler, and especially to the rear end [E], which is well away from the paper feed path, and has the cooling fins [F] attached to it. When the steam reaches that area, it cools and condenses. The condensed water is returned to the heated part of the pipe by capillary action.

This cycle (vaporization → steam transfer → condensation) repeats again and again. The paper cooling pipe transfers heat from the paper to the fins continuously.

The paper cooling pipe fan [G] in the duct [H] at the machine rear side cools the fins [F].

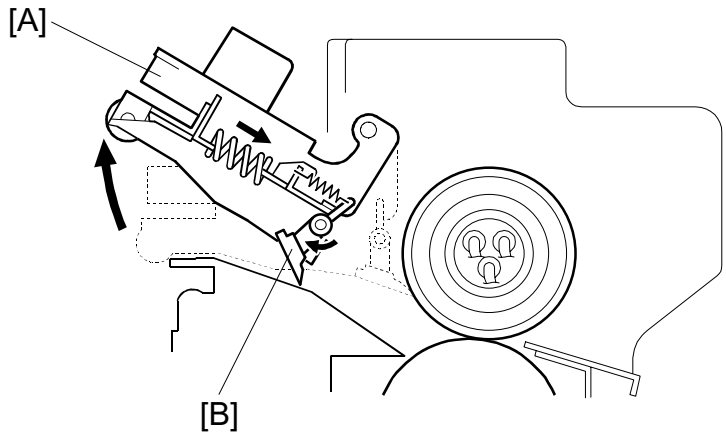
2.10.7 FUSING PRESSURE



Fusing pressure is constantly applied between the hot roller [A] and pressure roller [B] by the upper pressure lever [C] and lower pressure lever [D], which are lifted by the fusing unit release lever [E] via the pressure cam [F]. The pressure can be adjusted by using the pressure adjustment screw [G].

The fusing pressure is released by turning the fusing unit release lever counterclockwise.

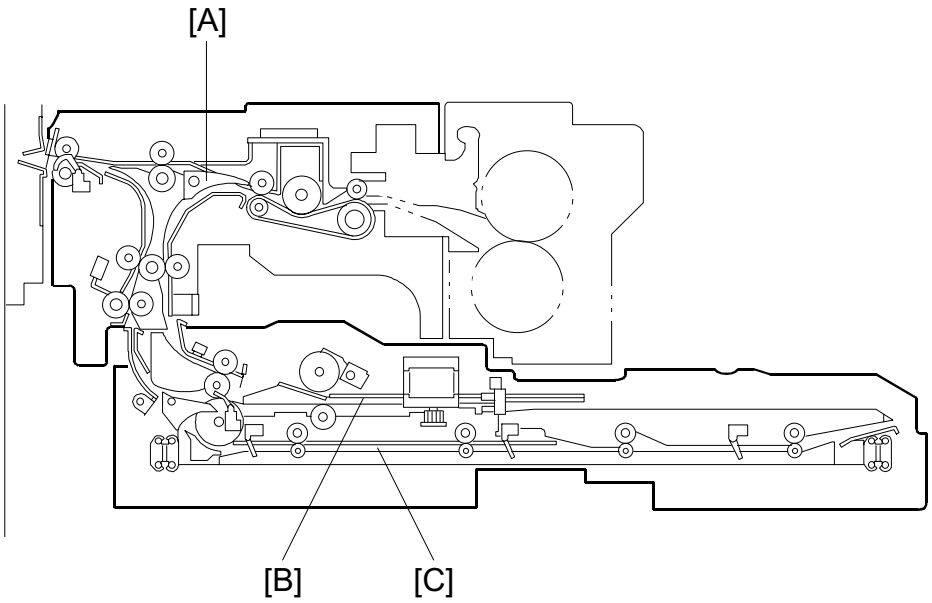
2.10.8 HOT ROLLER STRIPPER RELEASE



For easier jam removal, when the hot roller stripper unit [A] is opened, the stripper pawls [B] turn clockwise to expand the jam removal area.

2.11 PAPER EXIT/DUPLEX

2.11.1 OVERVIEW

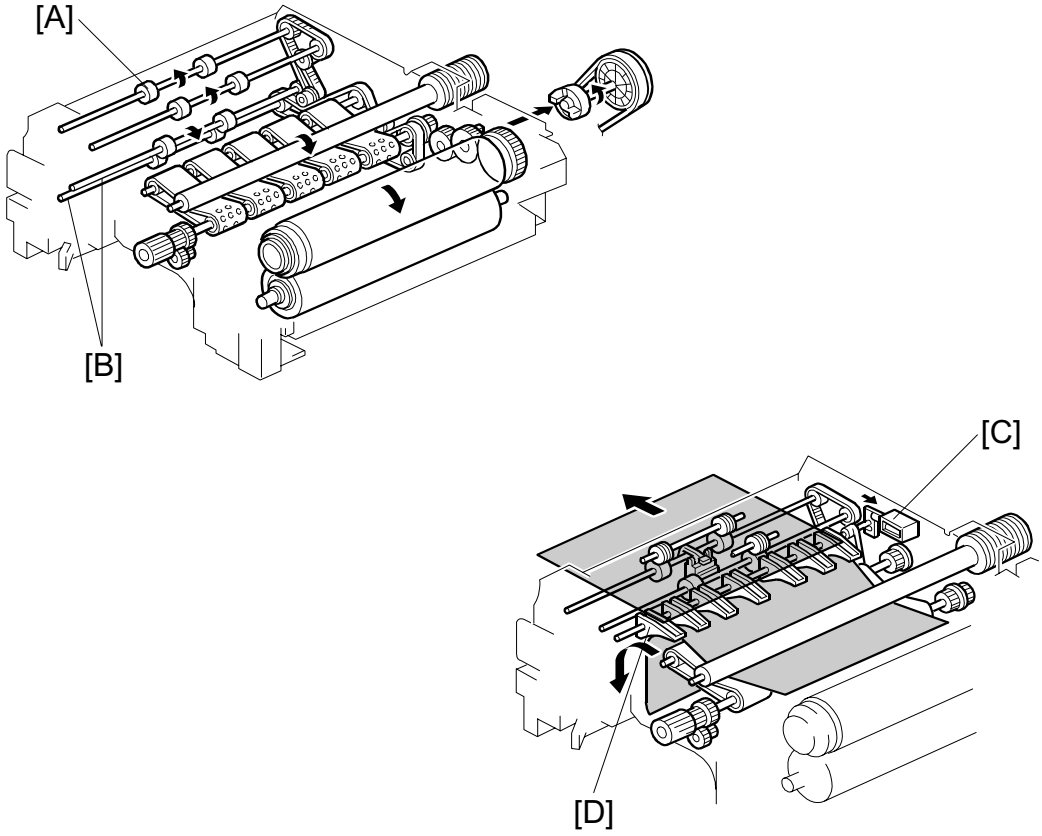


The printed page from the fusing unit goes either straight through to the output tray or finisher, or downward through to the inverter or duplex unit, depending on the position of the inverter junction gate [A].

If the page is fed out directly, it arrives on the tray face-up. If the user selected face-down output, the page goes to the inverter [B] before being fed out.

If the user selects duplex mode, the page is directed to the duplex tray [C] after inverting, and back to the machine for printing the second side.

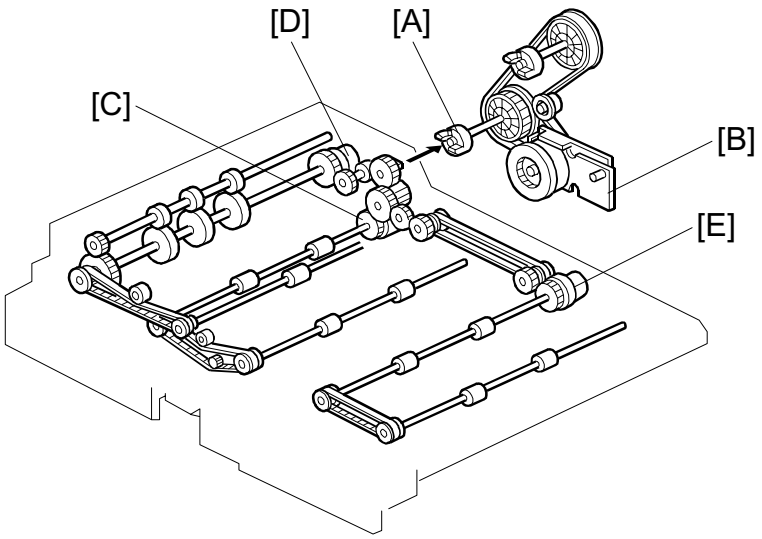
2.11.2 PAPER EXIT MECHANISM



Drive from the fusing/duplex motor is transmitted to the paper exit roller [A] and transport rollers [B].

To feed the printed page from the fusing unit straight through to the output tray or finisher, the inverter gate solenoid [C] is energized to lower the inverter junction gate [D]. To feed the page to the inverter and duplex unit, the solenoid stays off.

2.11.3 DUPLEX DRIVE MECHANISM



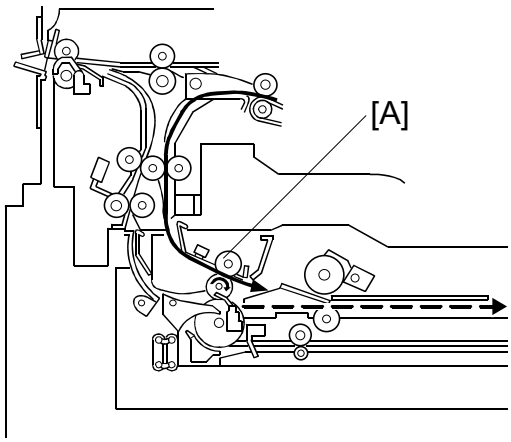
The duplex drive coupling gear [A] transmits drive from the fusing/duplex drive motor [B] to the duplex unit.

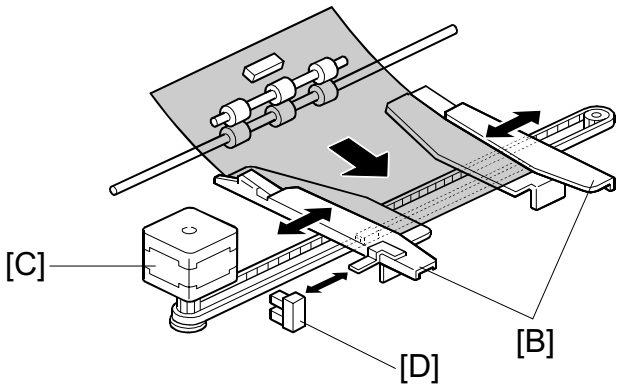
The duplex transport clutch [C] transmits this drive to the duplex transport section, the inverter exit roller clutch [D] transmits it to the duplex inverter exit section, and the duplex feed clutch [E] transmits it to the duplex paper feed-out section.

The inverter exit roller clutch engages the drive (i.e., the roller turns) while the clutch is not energized. This clutch disengages the drive when the clutch is turned on. This prevents the clutch from being energized for a long time.

2.11.4 INVERTER

Feed-in and Jogging





The inverter feed roller [A] feeds paper to the jogger section. After the trailing edge of the paper passes through the inverter feed roller, the jogger fences [B] move to square the paper. This happens every page.

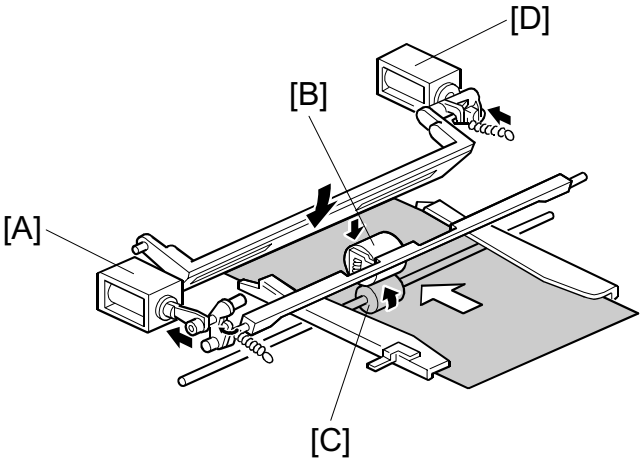
The jogger motor (a stepper motor) [C] moves the jogger fences [B] inward or outward.

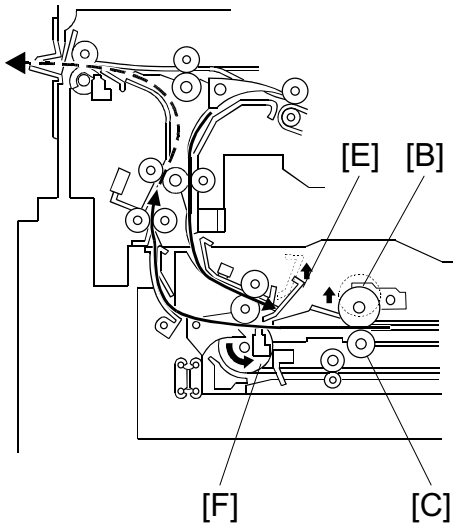
When the main switch is turned on, the jogger motor places the jogger fences at the home position, which is determined by monitoring the signal from the jogger home position sensor [D].

When the start key is pressed, the jogger motor positions the jogger fences 15 mm away from the selected paper size to wait for the paper.

When the paper is delivered to the jogger fences, the jogger fences move inward to square the paper. After this, the jogger fences move back to the previous position (15 mm away from the paper).

Feed-out

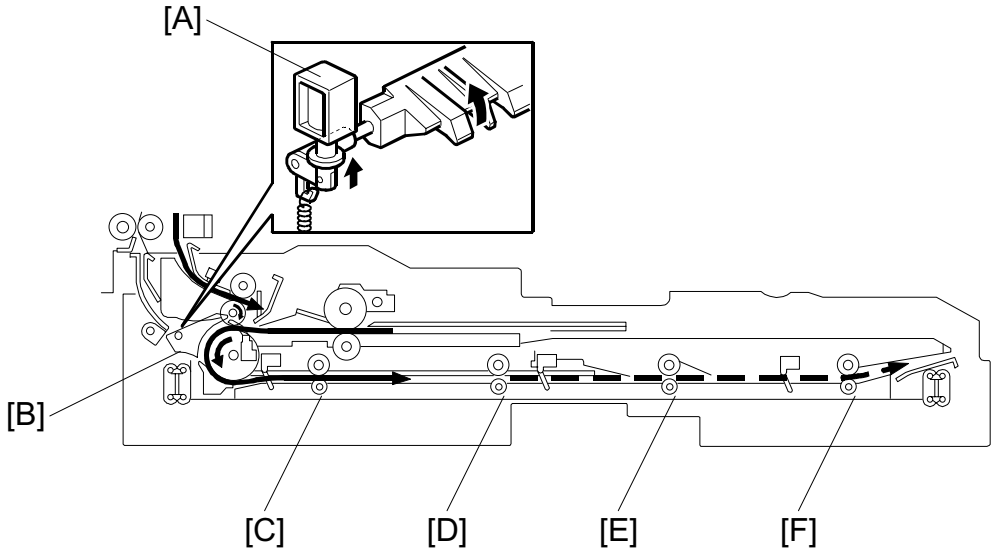




After jogging, the reverse roller solenoid [A] energizes to push down the reverse trigger roller [B]. The reverse roller [C] turns counterclockwise continuously, so the paper starts to reverse when the reverse trigger roller is down and catches the paper between the rollers. The inverter guide plate solenoid [D] energizes to lower the inverter guide plate [E], so that the paper is guided by the inverter guide plate. The next sheet waits at the inverter guide plate.

The paper is fed from the reverse roller to the inverter exit roller [F]. After the paper starts to be fed by the inverter exit roller, the reverse trigger roller and inverter guide plate move back up.

2.11.5 DUPLEX TRAY FEED MECHANISM



In duplex mode, after the paper leaves the inverter, the duplex inverter gate solenoid [A] switches the duplex inverter junction gate [B] to direct the paper to the duplex tray. The paper is fed through the duplex tray by duplex transport rollers 1 [C], 2 [D], 3 [E], and the duplex feed roller [F].

If duplex mode is not selected, the solenoid does not switch the duplex inverter junction gate, and the paper goes to the output tray or finisher face down.

2.11.6 BASIC DUPLEX FEED OPERATION

To improve the productivity of duplex copying, a non-stacking style duplex mechanism is adopted. This type of mechanism allows more than one page to be processed at once, in a process called 'interleaving'. Examples of this are given below.

For paper lengths up to A4/Letter sideways, the top duplex speed is possible, with the duplex unit processing four sheets of copy paper at the same time.

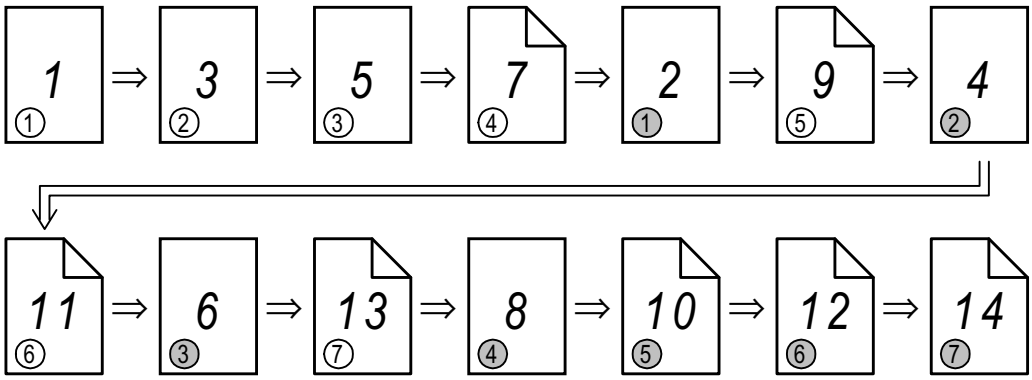
For paper longer than this, the duplex tray can process two sheets of copy paper at once.

For a single-set duplex copy job, the duplex unit stores only one sheet of copy paper. For a multi-set duplex job, the job is stored first, then the first set is made using inerleaving.

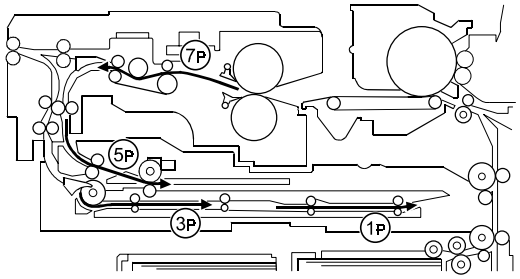
Length up to A4/Letter Sideways

The duplex unit can process four sheets of copy paper

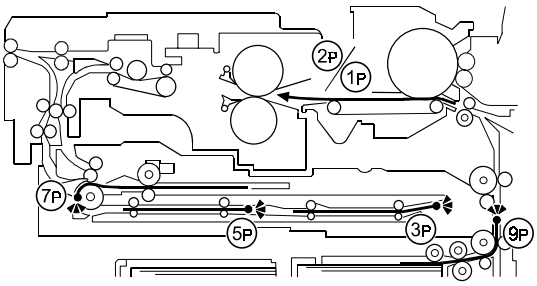
Example: A 14-page copy. The large numbers in the illustration show the order of pages. The small numbers in circles show the order of sheets of copy paper (if shaded, this indicates the second side).



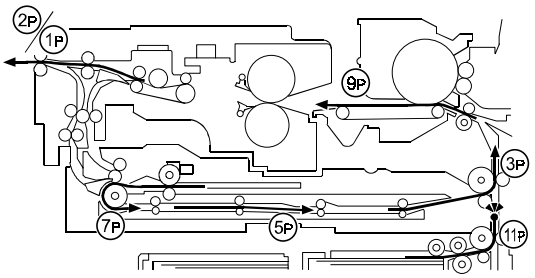
1. The first 4 sheets are fed and printed.
   1) 1st sheet printed (1st page)
   2) 2nd sheet printed (3rd page)
   3) 3rd sheet printed (5th page)
   4) 4th sheet printed (7th page)



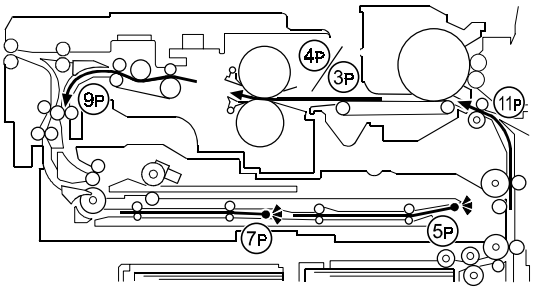
2. The back of the 1st sheet is printed (2nd page).
3. The 2nd, 3rd, 4th sheets (3rd, 5th, and 7th pages) go into the duplex unit.
4. The 5th sheet (9th page) is fed in.



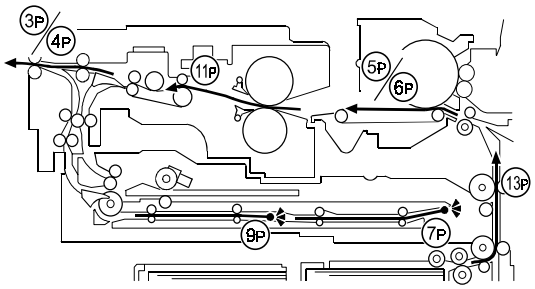
5. The 5th sheet is printed (9th page).
6. The 1st sheet is fed out (1st and 2nd pages printed).



7. The 5th sheet (9th page) is directed to the duplex unit.
8. The 6th sheet (11th page) is fed.
9. The back of the 2nd sheet is printed (4th page).



10. The 2nd sheet is fed out (3rd and 4th pages printed).
11. The 6th sheet is printed (11th page) and directed to the duplex unit.
12. The back of the 3rd sheet (6th page) is printed.
13. The 7th sheet is fed and printed (13th page).
14. The back of the 4th sheet is printed (8th page) and fed out (7th and 8th page).

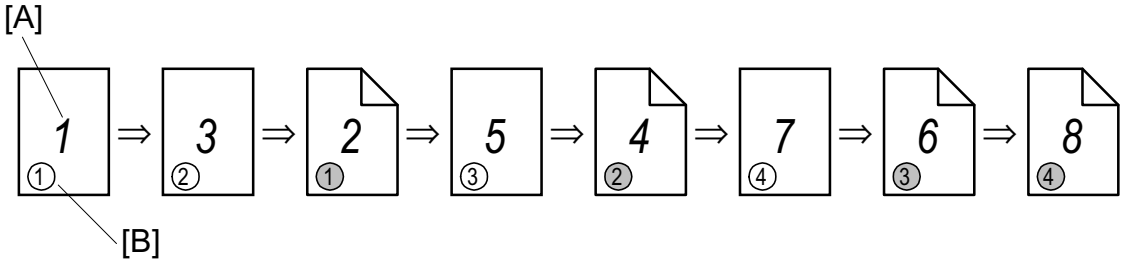


15. The back of the 5th sheet is printed (10th page) and fed out (9th and 10th pages).
16. The back of the 6th sheet is printed (12th page) and fed out (11th and 12th pages).
17. The back of the 7th sheet is printed and fed out (13th and 14th pages).

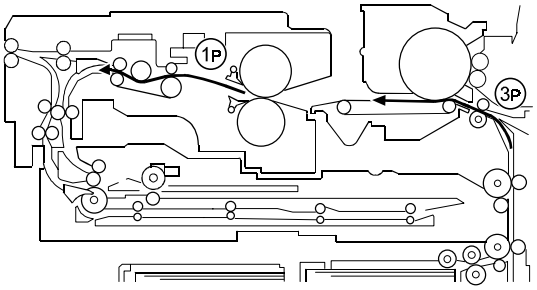
Longer than A4/Letter Sideways

The duplex unit can process two sheets of copy paper

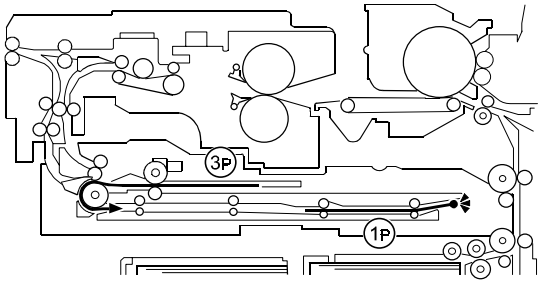
Example: 8 pages. The number [A] in the illustration shows the order of pages. The number [B] in the illustration shows the order of sheets of copy paper (if shaded, this indicates the second side).



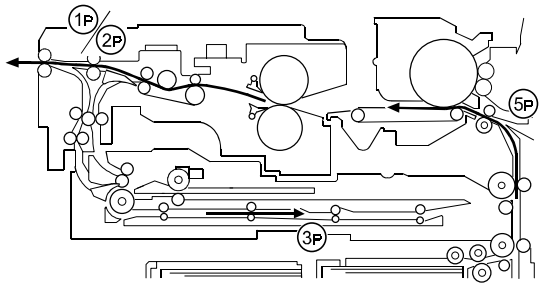
1. The first 2 sheets are fed and printed.
   1) 1st sheet printed (1st page)
   2) 2nd sheet printed (3rd page)



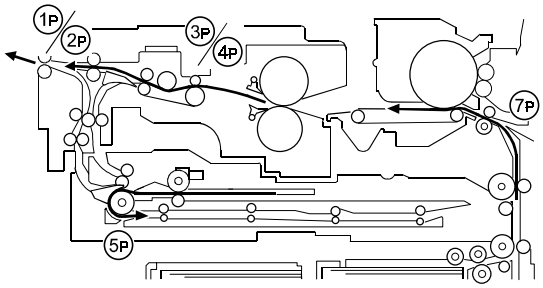
2. The first 2 sheets go into the duplex unit.



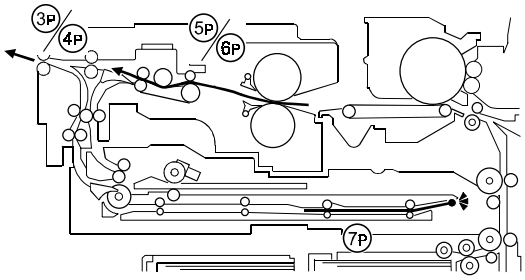
3. The back of the 1st sheet (2nd page) is printed.
4. The 3rd sheet (5th page) is fed and printed.



5. The 1st sheet (1st and 2nd pages) is fed out.
6. The back of the 2nd sheet (4th page) is printed.
7. The 4th sheet (7th page) is fed and printed.



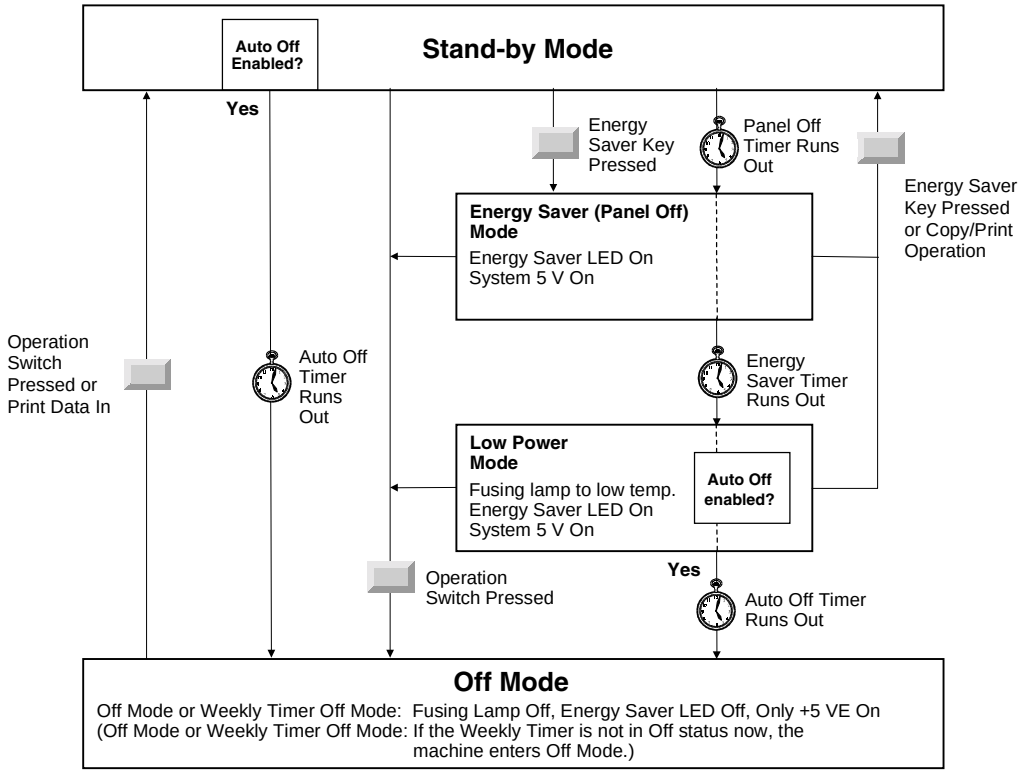
8. The 2nd sheet (3rd and 4th pages) is fed out.
9. The back of the 3rd sheet (6th page) is printed.



10. The 3rd sheet (5th and 6th pages printed) is fed out.
11. The back of the 4th sheet (8th page) is printed.
12. The 4th sheet (7th and 8th pages) is fed out.

2.12 ENERGY SAVER MODES

2.12.1 OVERVIEW



When the machine is not used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has three energy saver modes.

1) Energy saver (Panel off) mode
2) Low power mode
3) Off mode (this has two modes, Auto Off Mode and Weekly Timer Off Mode)

These modes are controlled by the following UP modes.

- Panel off timer: The machine enters energy saver (panel off) mode when this runs out
- Energy saver timer: The machine enters low power mode when this runs out
- Auto off timer: The machine enters auto off mode when this runs out
- Weekly timer programming: Programs a timer for the machine to switch itself on and off (this is for Weekly Timer Off Mode)
- Auto off mode disabling (User Tools – System Setting – Count Manager – AOF) If auto off mode is disabled, the machine will never enter auto off mode. The fusing lamps will always stay on, but the machine will still be able to enter energy saver and low power modes.

The way that the machine operates depends on the combination of installed equipment (copier only, copier/printer).

2.12.2 ENERGY SAVER (PANEL OFF) MODE

Entering Energy Saver (Panel Off) Mode

The machine enters energy saver mode (also known as 'panel off mode') when one of the following is done.

- The panel off timer runs out after the end of a job.

  NOTE: If the panel off timer is 0, the machine will wait for the energy saver timer to run out, and then it will go straight to low power mode (see Low Power Mode).

- The Energy Saver key is held down for a second.

What Happens in Energy Saver (Panel Off) Mode

When the machine enters energy saver (panel off) mode, the fusing unit temperature stays at 173°C and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED. There is only one energy saver level.

If the CPU receives the image print out command from an application (e. g. to print data from a PC), the fusing temperature rises to print the data. However, the operation panel stays off.

Return to Stand-by Mode

If one of the following is done, the machine returns to stand-by mode:

- The Energy Saver key is pressed
- Any key on the operation panel is pressed
- An original is placed in the ADF
- The ADF is lifted

The recovery time from energy saver to rise the fusing temperature is about **0 s**.

NOTE: The polygon motor needs 10 seconds to reach the correct speed.

Mode	Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
Energy Saver	On	On	173°C	On	On

2.12.3 LOW POWER MODE

Entering Low Power Mode

The energy saver timer runs out after the end of a job.

NOTE: The energy saver timer cannot be cancelled.

What Happens in Low Power Mode

The fusing lamp drops to 143°C. The other conditions are the same as for energy saver (panel off) mode.

Return to Stand-by Mode

The machine returns to standby mode in exactly the same way as from energy saver (panel off) mode.

Recovery Time	Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
About 40 seconds	On	On	143°C	On	On

2.12.4 OFF MODE

Off mode has two separate modes.

- Auto Off Mode (Sleep mode)
- Weekly Timer Off Mode

Off Mode (Sleep Mode)

Entering Off Mode

The machine enters off mode when one of the following is done.

- The auto off timer runs out after the end of a job
- The operation switch is pressed to turn the power off

What Happens in Off Mode

When the machine enters auto off mode, the operation switch turns off automatically. The fusing lamp and all dc supplies except +5 VE (+5 V for energy saver mode) turns off. At this time, only the main power LED is lit.

Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
Off	Off	Room Temp. (Fusing lamp off)	Off	On

NOTE: Only +5 VE is supplied to the SICU.
LED (+5 V) is supplied to the operation panel from the SICU.

Returning to Stand-by Mode

The machine returns to stand-by mode when the operation switch is pressed.

Printing Incoming Data

If the machine receives print data from a PC, the fusing temperature rises to print the data. However, the operation panel stays off. After completing the print job, the machine returns to off mode (sleep mode).

Weekly Timer Off Mode

Weekly Timer

The user can program 'on periods' and 'off periods' for each day of the week.

Entering Weekly Timer Off Mode

The machine enters this mode when:

- The auto off timer runs out after the end of a job, and the weekly timer has already reached the start of an off period
- The operation switch is pressed to turn the power off, and the weekly timer has already reached the start of an off period
- The weekly timer reaches the start of an off period while in Off Mode.

What Happens in Weekly Timer Off Mode

When the machine enters this mode, the operation switch turns off automatically. The fusing lamp and all dc supplies except +5VE (+5V for energy saver mode) turn off. At this time, only the main power LED is lit.

Operation Switch	Energy Saver LED	Fusing Temp.	System +5 V	Main Power LED
Off	Off	Room Temp. (Fusing lamp off)	Off	On

NOTE: Only +5 VE is supplied to the SICU.
LED (+5 V) is supplied to the operation panel from the SICU.

Returning to Stand-by Mode

If a weekly timer code (Key Operator Code for Off Setting - UP mode) is set, the machine returns to stand-by mode when the operation switch is pressed and the weekly timer code is entered.

If a weekly timer code is not set, the machine returns to stand-by mode when the operation switch is pressed.

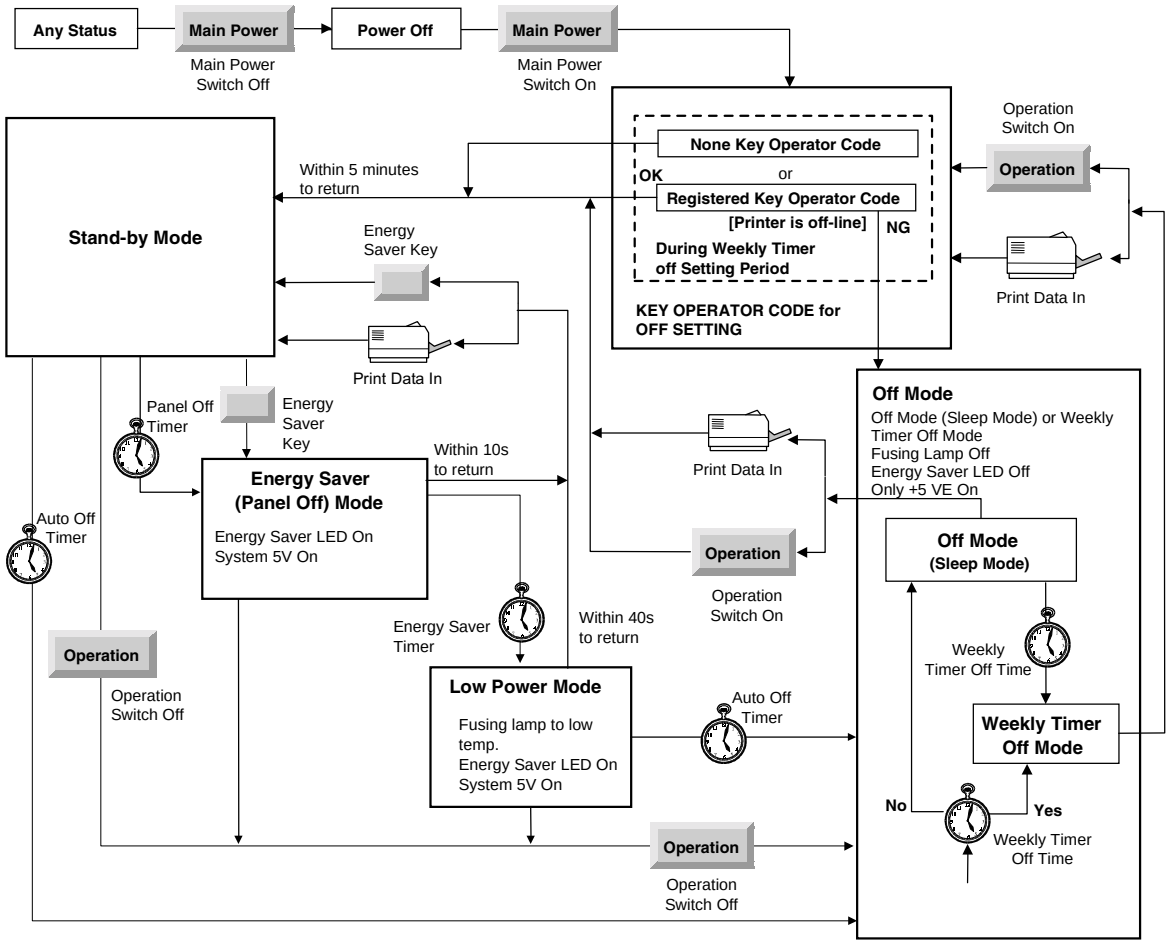
Printing Received Data

If no weekly timer code is set:
If the machine receives print data from a PC, the fusing temperature rises to print the data. However, the operation panel stays off. After completing the print job, the machine returns to weekly timer off mode.

If a weekly timer code is set:
When print data is sent from a PC, the printer stays off-line. After someone enters the weekly timer code, the printer will go on-line and print the data.

2.12.5 SUMMARY

For reference, the following flow chart summarizes the various energy saver modes, and their entry and exit conditions.



Anti-condensation Heaters

All the anti-condensation heaters are unplugged. The transfer anti-condensation (drum) heater is still on the machine. However, the tray heaters and optics anti-condensation heater are not mounted on the machine (option).

2.13 OTHERS

2.13.1 OPERATION UNIT

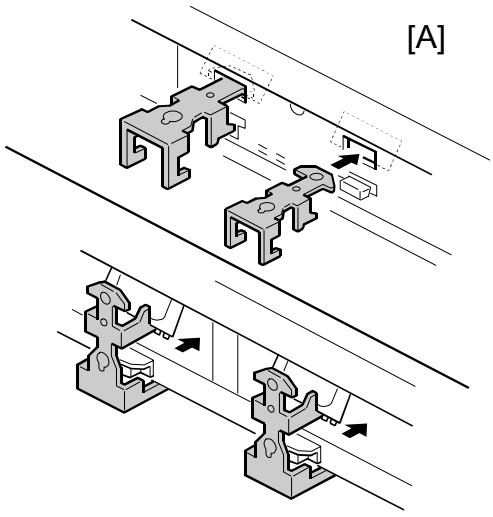
The operation unit consists of the LCD, touch panel, hard keys, back light (cold cathode tube) and the status indicator lamp. A 10.4 inch full color LCD (640 x 480 dot) is used for the operation panel. This operation panel is controlled by the LCD controller on the SICU board inside the copier.

The information on the LCD can be displayed in 256 colors using an 8-bit color scheme (3 bits for R, 3 bits for G, and 2 bits for B).

The status indicator on the top of the operation unit shows the condition of the machine as follows:

- Off: The machine is ready.
- Green (lights): Copying
- Green (blinks): Scanning originals
- Red (blinks): Toner is running out.
- Red (lights): The machine has a problem.

2.13.2 DOOR SAFETY SWITCH LOCK TOOLS



[B]

There are two service tools are initially placed on the rear side of the left tandem tray. These tools can be used to hold the front door safety switches when the front doors are opened.

1. When the inner cover is installed, the front door safety switches can be held as shown in the illustration [A].
2. When the inner cover is removed, the front door safety switches can be held as shown in the illustration [B].

2.13.3 HDD CONTROL

These models have two hard disks to store image data. This allows scanned images to be stored to one hard disk while image data is printed from the other hard disk. Because of this, printing speed does not drop if printing and scanning are done at the same time.

⇒ When using the A295 it is necessary to use a hard disk with a faster rotation speed in order to conform to the higher copy speed of the machine. The hard disks used for both models are as follows:

	Seek time	Rotation Velocity	Capacity
⇒ A294 (85 CPM)	9.5 ms	5400 rpm	4.3GB
A295 (105 CPM)	8.5 ms	7200 rpm	6.8GB

There are two modes (selected with the 'Memory Allocation' UP mode) which determine how the hard disks are shared between normal copy jobs and copy server jobs. The initial setting is "Copier Priority" and the data for copy server jobs is stored only on HDD 1 (this is the disk at the front side).

The following table shows the capacity of the hard disks used for each function.

UP Setting for "Memory Allocation"	HDD 1 (Front)	HDD 2 (Rear)
⇒ Copier Priority	Copy Jobs: 0.82 GB Copy Server Jobs: 3.08 GB (A294) 5.00 GB (A295) Printer Jobs: 0.20 GB	Copy Jobs: 3.35 GB Copy Server Jobs: Not used Printer Jobs: 0.76 GB
Max. Memory for Document Server	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB (A294) 5.00 GB (A295) Printer Jobs: 0.31 GB	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB (A294) 5.00 GB (A295) Printer Jobs: 0.31 GB

When a Copy Job is Done

Basically, the scanned image is stored on the hard disk that has the largest remaining capacity. (If the remaining capacity is the same, the image is stored in HDD 1.) If one hard disk is already being used for printing or while transporting image data from a hard disk to the CD-RW, the other hard disk is used to store new data regardless of the remaining capacity.

Even if the selected hard disk becomes full, data storage continues using the other hard disk. If both hard disks becomes full, data storage stops and a message is displayed on the screen.

When a Copy Server Job is Done

Initially, “Copier Priority” is selected for “Memory Allocation” in UP mode. In this setting, only HDD 1 is used for copy server jobs. If “Max. Memory for Document Server” is selected, HDD 1 and HDD 2 each have the same areas for normal copy jobs and copy server jobs. The hard disk with the greater remaining capacity is selected to store the image if neither hard disk is being used (same as for a copy job).

The image files stored in the hard disks are managed in the NVRAM on the SICU. When the NVRAM is replaced or a memory clear is done, all the copy server files are deleted.

If one of the hard disks is replaced or if SP4-911-1 (HDD 1 Media Check) or SP4-912-1 (HDD 2 Media Check) is performed, the file data in the NVRAM is updated and the deleted files (in the replaced HDD) will not be displayed.

Limitation when “Max. Memory for Document Server” is Selected

Magazine mode cannot be used for a copy server job if “Max. Memory for Document Server” is selected. This is because parts of a data file could be stored on separate hard disks, and the image data cannot be combined if that happens.

Machine Operation when Hard Disk(s) is Defective

If one of the hard disks is defective, copying is done using the other hard disk. There is no disabled function but the productivity will be reduced when image scanning is done during printing.

If both of the hard disks are defective, functions which need a hard disk (duplex, sort, next job, etc.) are disabled.

If HDD 1 is defective, copy server functions cannot be used in “Copier Priority” mode. An SC code is displayed when a copy server function is selected, but the machine can be operated if that function is not selected. If “Max. Memory for Document Server” is selected, copy server functions can be operated using the remaining hard disk.

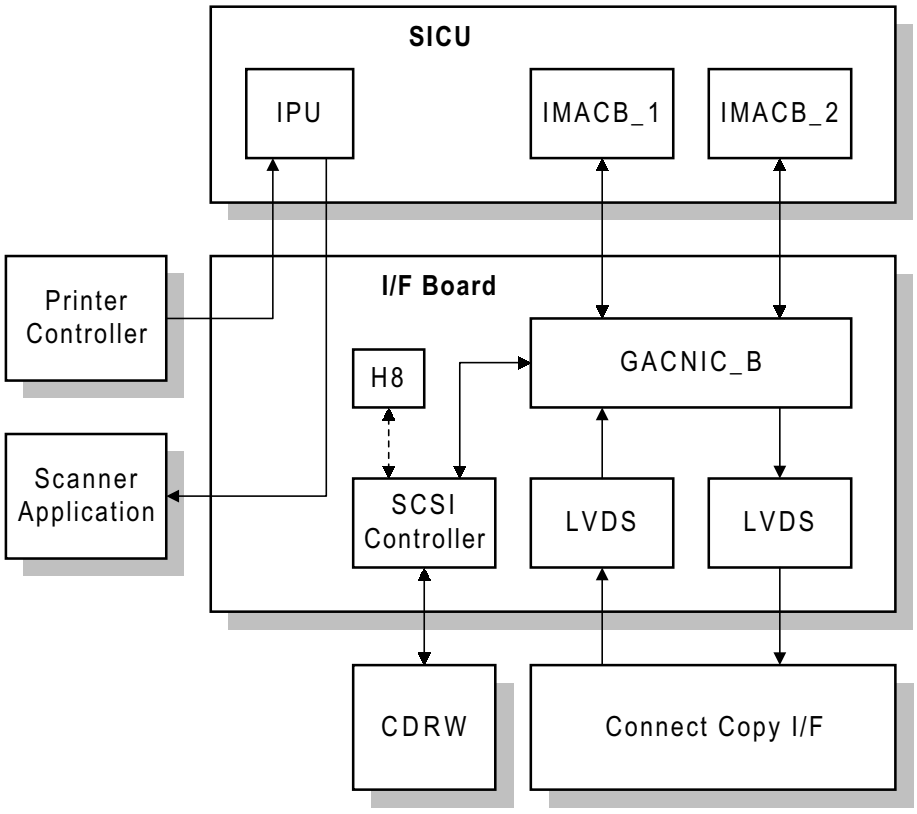
Stamp Function

Preset stamp data is stored in the hard disks in the factory. The data is stored in both of the hard disks, so that the data can be read regardless of which hard disk is used for other functions. When a user stamp is programmed, the stamp data is stored in both of the hard disks.

If SP4-911-1 (HDD 1 Media Check) or SP4-912-1 (HDD 2 Media Check) is performed, the preset stamp data and user stamp data are erased from both of the hard disks. (This is because the stamp data on each disk must be exactly the same, and if only one set of data is erased, it is possible that different data will become stored on each disk.) The stamp data must be reinstalled using a flash memory card after one of the hard disks is replaced. Refer to Stamp Data Installation in section 4.

2.13.4 DATA PATH THROUGH THE INTERFACE BOARD

When the connect copy kit, CD-ROM reader/writer, or printer controller is used, the image data are transferred through the interface board as shown in the diagram below.



GACNIU_B: An ASIC which handles the data transmission between the memories in the SICU and CD-ROM reader/writer or the connect copy interface.

LVDS: A noise-resistant interface

IMACB: AN ASIC which controls data memory

H8: A CPU which controls the SCSI controller

INSTALLATION

3. INSTALLATION PROCEDURE

3.1 INSTALLATION REQUIREMENTS

3.1.1 ENVIRONMENT

1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight or strong light)
4. Ventilation: Room air should turn over at least 3 times per hour
5. Ambient Dust: Less than 0.10 mg/m^3 (2.7 x 10^{-6} oz/yd^3)
6. If the place of installation is air-conditioned or heated, do not place the machine where it will be:
   1) Subjected to sudden temperature changes
   2) Directly exposed to cool air from an air-conditioner
   3) Directly exposed to heat from a heater
7. Do not place the machine where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the copier on a strong and level base.
10. Do not place the machine where it may be subjected to strong vibrations.

3.1.2 MACHINE LEVEL

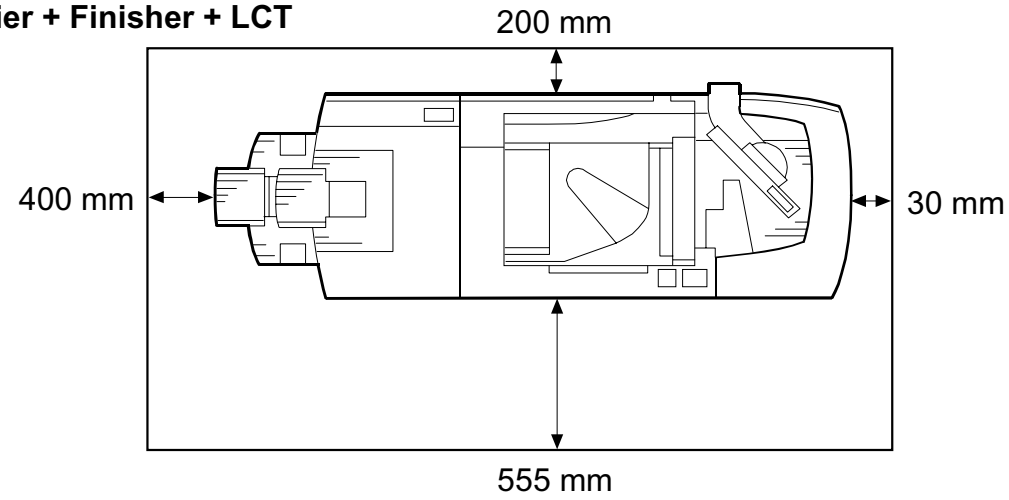
1. Front to back: Within 5 mm (0.2") of level
2. Right to left: Within 5 mm (0.2") of level

The machine legs may be raised or lowered in order to level the machine. Set a carpenter's level on the exposure glass.

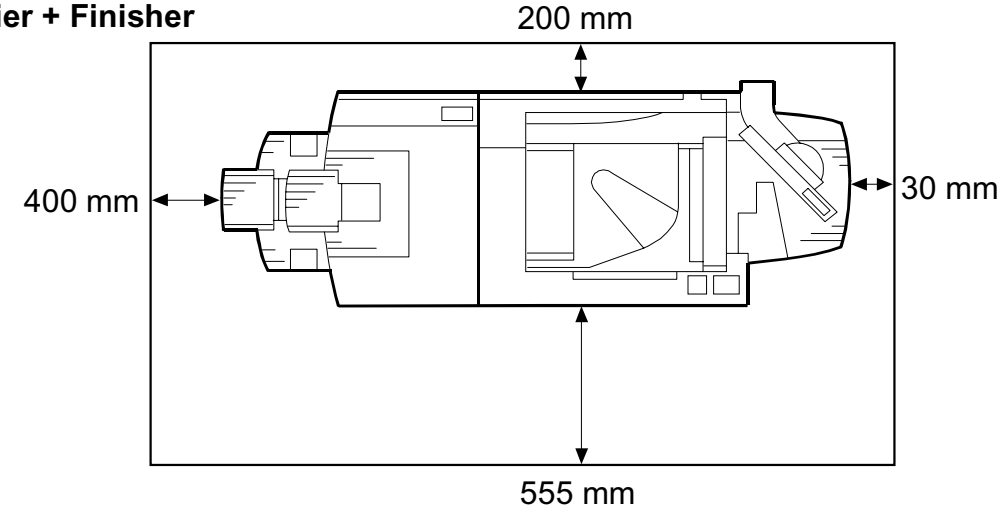
3.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, providing clearance as shown below. The same amount of clearance is necessary when optional equipment is installed.

Copier + Finisher + LCT



Copier + Finisher



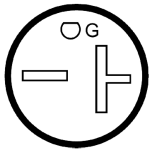
3.1.4 POWER REQUIREMENTS

⚠CAUTION
1. Make sure the plug is firmly inserted in the outlet.
2. Avoid multi-wiring.
3. Do not set anything on the power cord.

Input voltage level:

North America (NEMA 6-20R Receptacle)
220~240V (+/-10%), 60 Hz: More than 10A (A294)
220~240V (+/-10%), 60 Hz: More than 12A (A295)
Europe/Asia (Receptacle market specific)
220~240V (+/-10%), 50/60 Hz: More than 10A (A294)
220~240V (+/-10%), 50/60 Hz: More than 12A (A295)
NOTE: For USA installations, standard 220V (+/-10%) wall voltage is acceptable.

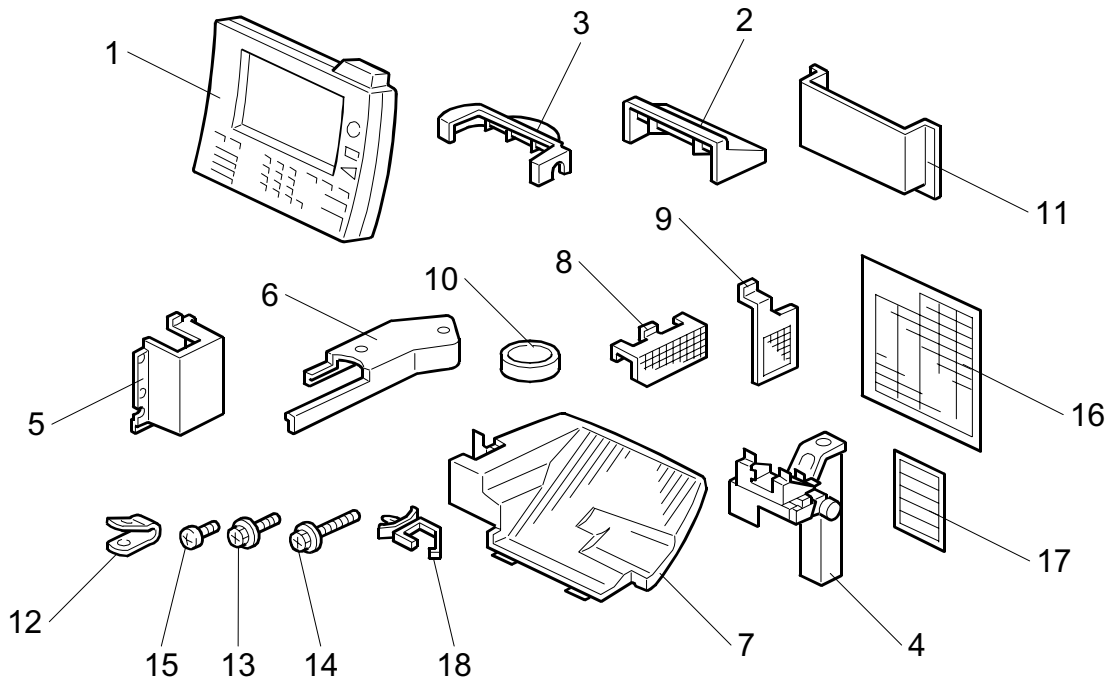
⇒



NEMA 6-20R

3.2 COPIER (A294)

3.2.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Operation Unit	1
2. Upper Cover - Operation Unit Holder	1
3. Lower Cover - Operation Unit Holder	1
4. Operation Unit Arm	1
5. Right Arm Cover	1
6. Arm Upper Cover	1
7. ADF Exit Tray	1
8. Optics Dust Filter	1
9. Dust Filter	1
10. Leveling Shoe	4
11. Operating Instruction Holder	1
12. Metal Cable Clamp	1

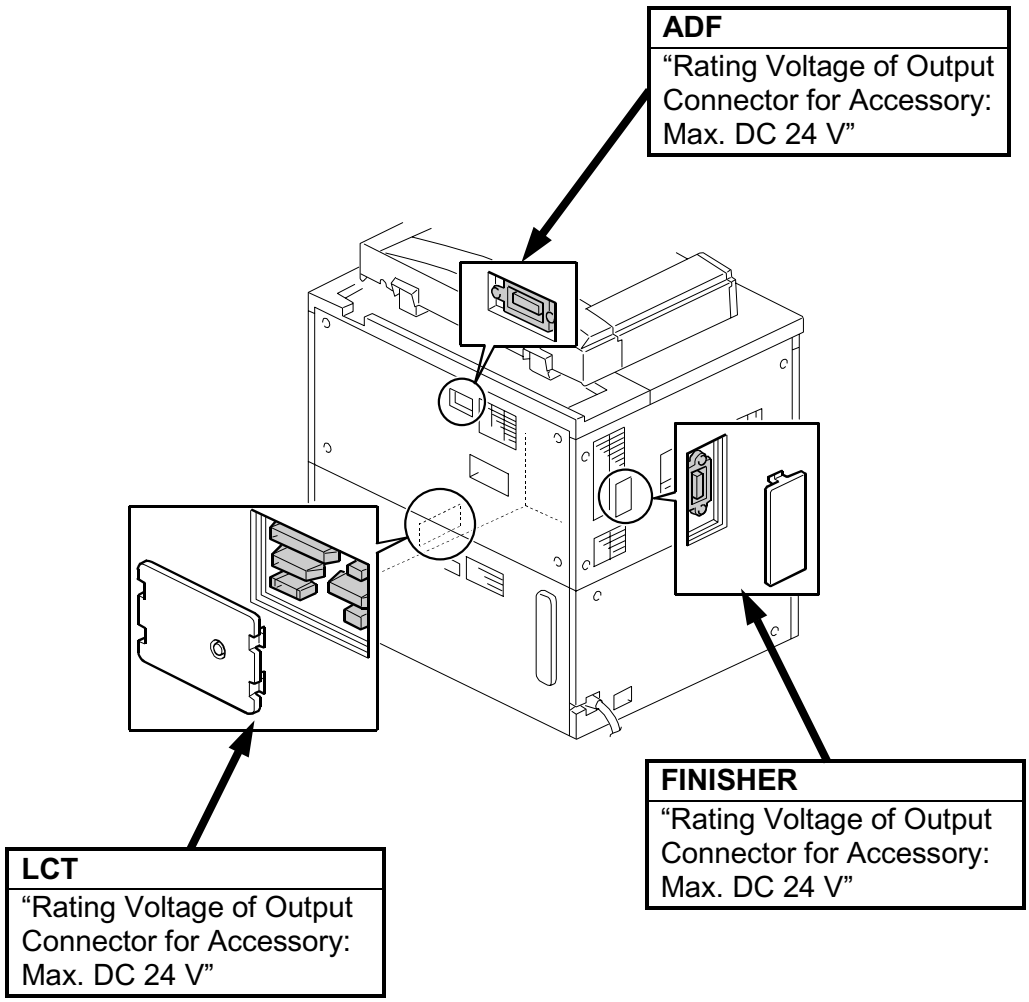
13. Tapping Screw - M4 x 8 25
14. Tapping Screw - M4 x 12 2
15. Philips Pan Head Screw - M4 x 6 1
16. Paper Size Decal 1
17. Decal – Face Up 1
18. Nylon Clamp 1
19. White Toner Hopper Drive Gear 1
20. Model Name Plate (-10, -15, -22 machines) – not shown 1
21. Operating Instructions – not shown 2

3.2.2 INSTALLATION PROCEDURE

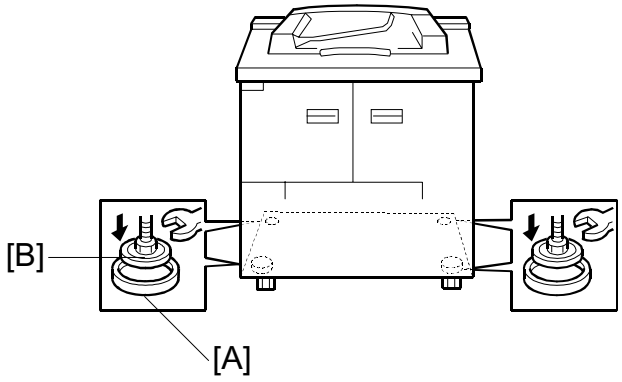
⚠CAUTION

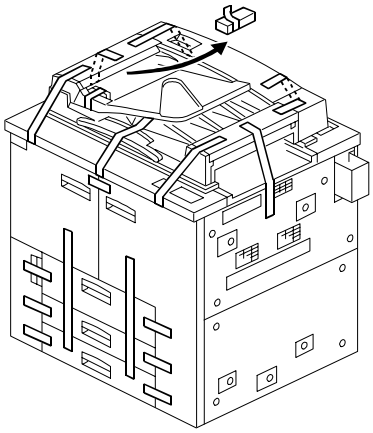
Rating Voltage for Peripherals

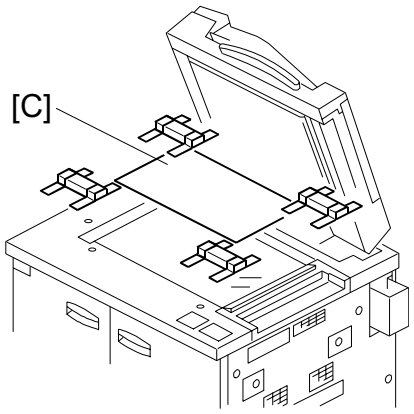
Make sure to plug the cables into the correct sockets.

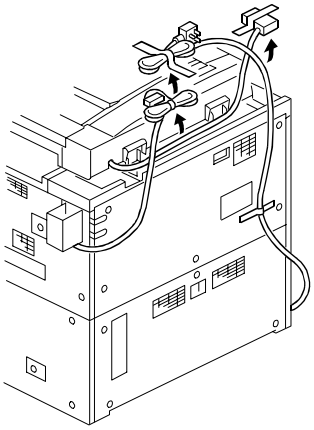


Since the installation procedure is not packed with the copier as an accessory, always bring this manual with you.







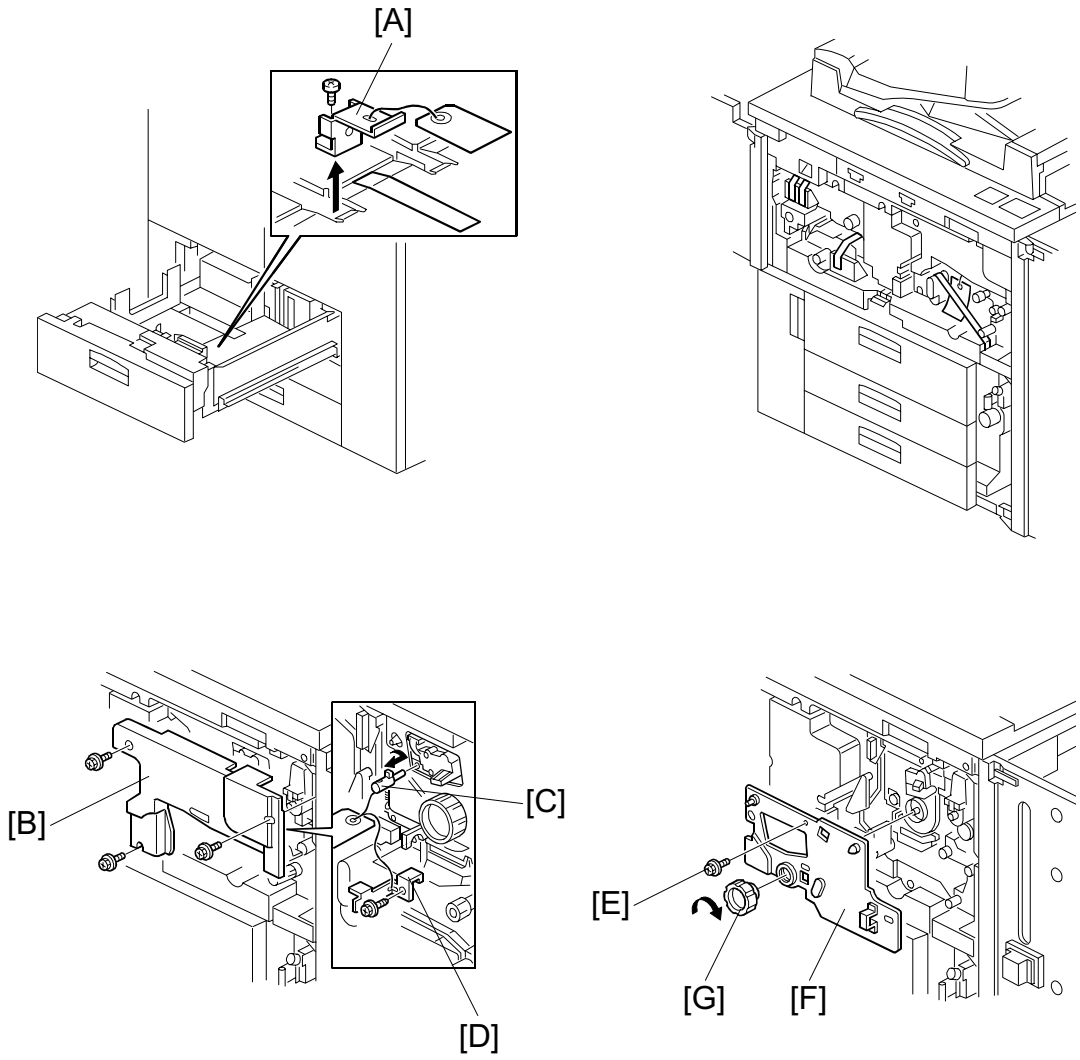


⚠CAUTION

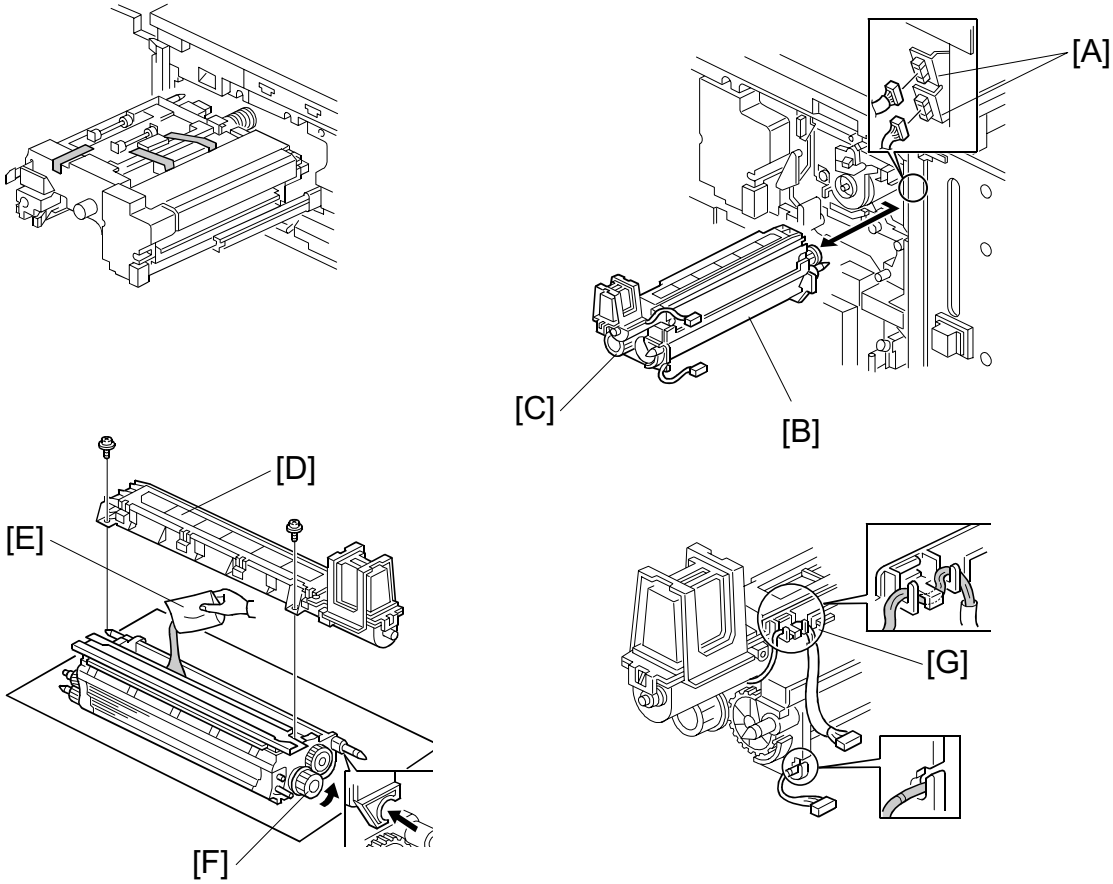
Keep the power cord unplugged when starting the following procedure.

NOTE: 1) Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.
2) Insert the leveling shoes [A] under the leveling feet [B], and level the machine before starting the installation.

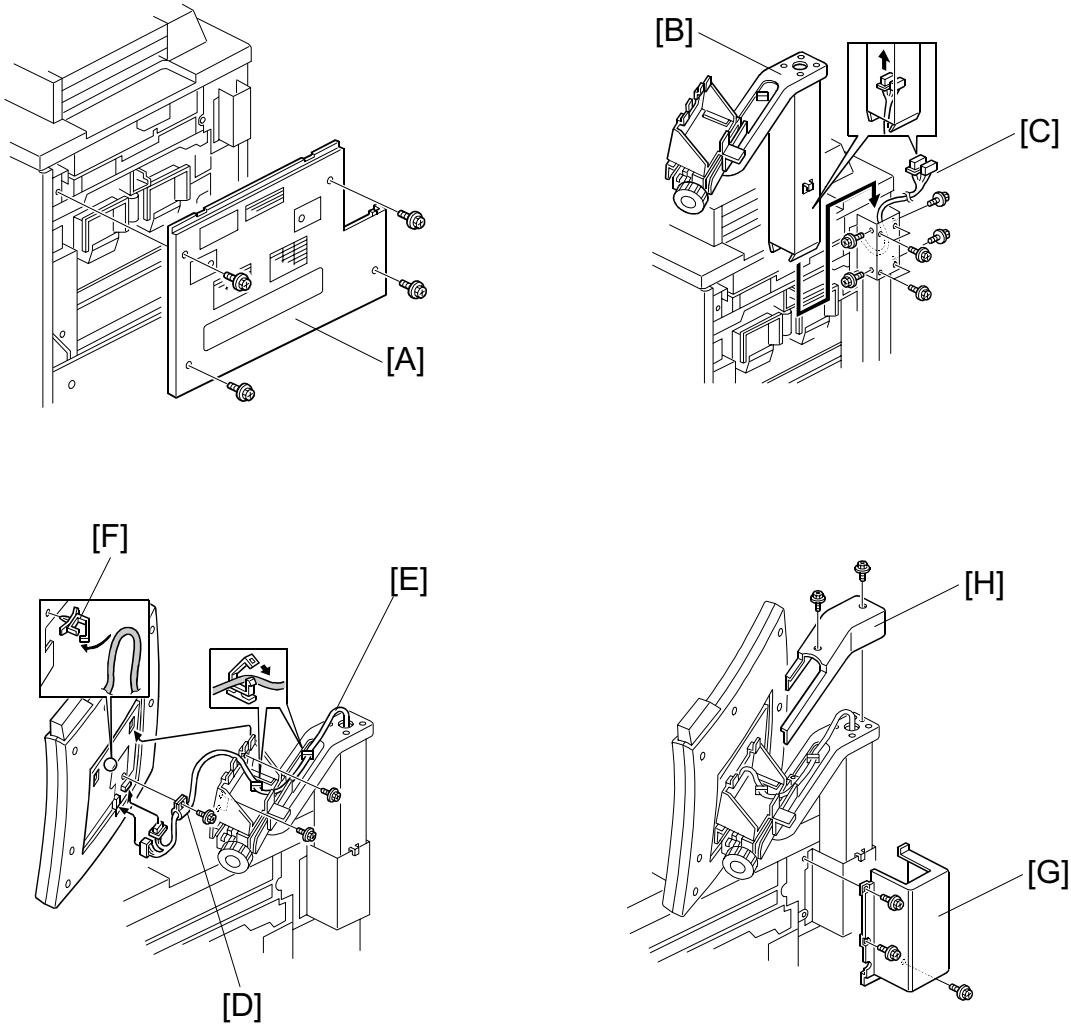
1. Remove all strips of tapes as shown above.
2. Keep the factory data sheet [C] for future use.



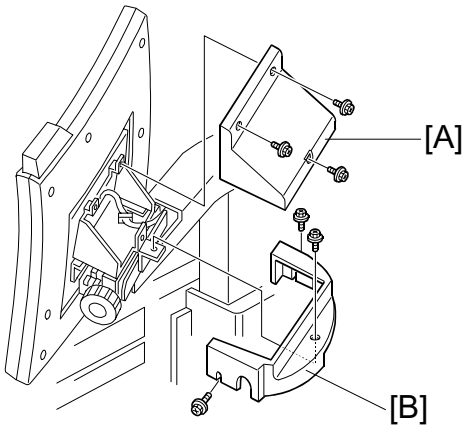
3. Pull out the tandem tray and remove the tray lock plate [A] (1 screw) and 1 cushion between trays.
4. Pull out the foam cushion between trays 2 and 3.
5. Open the front door and remove the strips of tape.
6. Remove the inner cover [B] (3 screws).
7. Remove the blade release pin [C] and the transfer belt lock plate [D] (1 screw).
8. Remove the screw [E] that holds the drum stay [F].

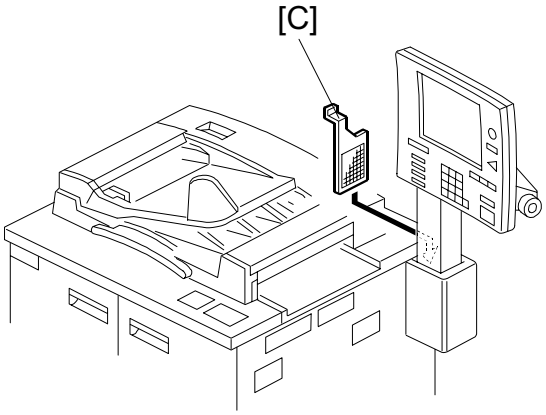


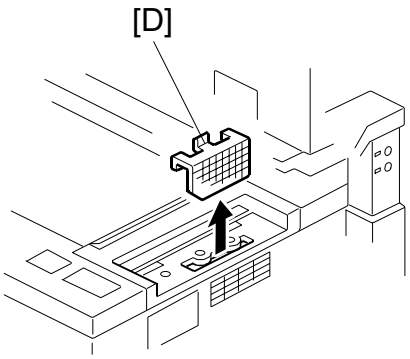
9. Remove the drum stay knob [G] and the drum stay (turn the knob clockwise to remove it).
10. Remove the tape and foam cushion from fusing unit.
11. Disconnect the two connectors [A].
12. Pull out the development unit [B] as shown.
    NOTE: 1) To prevent scratches on the drum, push the development unit to the right while pulling it out.
    2) When pulling out the development unit, do not pull the knob [C].
    3) Place the development unit on a clean sheet of paper, to prevent foreign matter from being attracted to the sleeve rollers.
13. Remove the toner hopper [D] (2 screws).
14. Pour in one pack of developer [E] while turning the knob [F]. Distribute the developer evenly along the development unit.
15. Attach the toner hopper to the development unit.
16. Install the development unit in the machine and connect two connectors.
    NOTE: When reinstalling the development unit, confirm that the harness layout is as shown [G].
17. Attach the drum stay and attach the drum stay knob and one screw.
18. Remove the right upper cover [A] (4 screws).

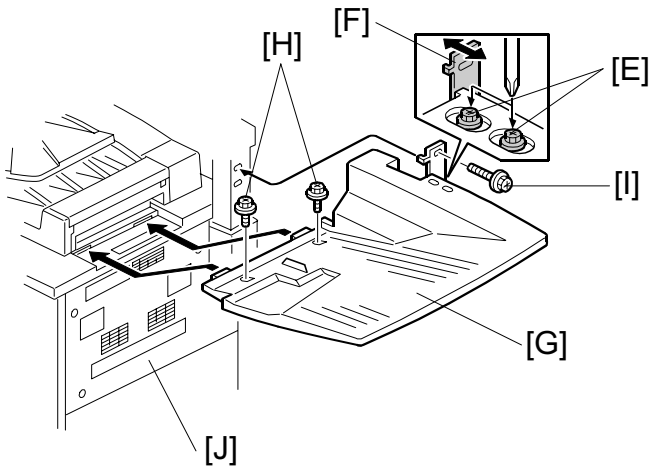


19. Remove the right upper cover [A] (4 screws).
20. Pass the harness through the operation unit arm [B], and install the arm as shown (9 screws).
21. Connect the 2 connectors [C] of the operation unit.
22. Secure the harness clamp [D] on the operation unit (one M4 x 6 pan head screw). Pass the harness [E] through the clamps as shown. Then install the operation unit on the arm (4 screws).
23. Set the nylon clamp [F].
24. Install the right arm cover [G] (3 screws) and the arm upper cover [H] (2 screws).

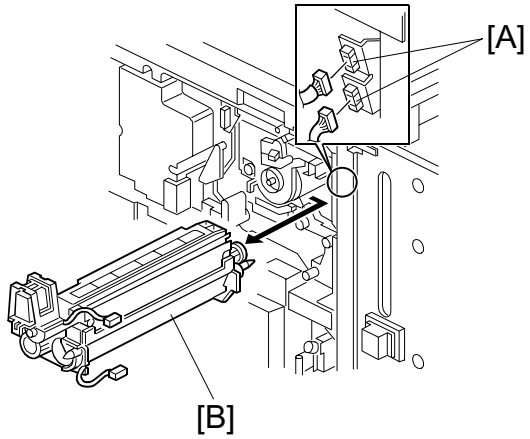


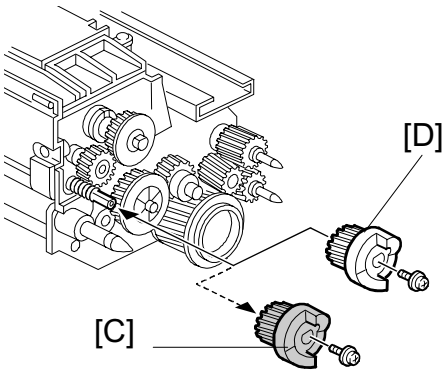






25. Install the upper [A] (3 screws) and lower [B] (3 screws) covers of the operation unit holder.
26. Set the dust filter [C] as shown.
27. Set the optics dust filter [D] as shown.
28. Loosen the two screws [E] of the bracket [F]. Then set the original exit tray [G].
29. Secure the original exit tray with 2 - M4 x 12 screws [H] and 1 M4 x 8 screw [I].
    NOTE: Do not use these M4 x 12 screws for securing the other exterior covers. They might hit a moving part inside the machine and damage that part.
30. Secure the bracket [F] to the operation unit arm with screw [I]. Then retighten the two screws [E] to secure the bracket to the original exit tray.
31. Reinstall the right upper cover [J].
32. Plug in the power cord and turn the main switch on. Put toner bottle(s) in the toner bank.





33. When the machine is ready, enter SP mode as follows:
    1) Press the clear modes key.
    2) Enter “107”.
    3) Hold down the clear key for more than 3 seconds.
34. Press “Copy SP” on the LCD, and perform the TD initial setting as follows:
    1) Select SP No. 2-801
    2) Press the “Start key” on the LCD.
    NOTE: This SP mode performs the TD initial setting. It will stop automatically in about 1 minute.
35. Supply toner from the toner bank to the toner hopper as follows:
    1) Select SP2-207-2 (Toner Bank Toner Supply)
    2) Press the “Start key” on the LCD.
    NOTE: By performing this SP mode, the toner is distributed into the toner hopper and the toner transport path. It will stop automatically in about 7 minutes. If SP2-207-2 fails after SP2-801 is completed (an SC code is displayed), repeat only SP2-207-2 again.

⟹ **NOTE:** When replacing the toner hopper unit, perform SP2-207-2 using the red gear. Because the new toner hopper does not contain any toner, using the red gear will fill the toner hopper but will not add toner to the developer. Therefore, replace the white gear from the new toner hopper unit with the red gear. After performing SP2-207-2, reinstall the white gear. **IMPORTANT-** do not discard the red gear after completing this installation. It will be necessary if you need to replace the toner hopper unit.

36. Remove the screw that holds the drum stay.
37. Remove the drum stay knob and the drum stay (turn the knob clockwise to remove it).
38. Disconnect the two connectors [A].
39. Pull out the development unit [B] as shown.
40. Remove the red toner hopper drive gear [C] (1 screw) and replace with the white gear [D] supplied with the accessories.
    NOTE: The red gear is used only to prime to toner supply system. Failing to replace the red gear with the white gear will result in a lack of toner delivery from the toner hopper to the developer unit.

NOTE: Early production units used snap rings to hold the gear in place.

⇒ Please note the following "Necessary Actions" following each activity listed in the table below:

Service Activity	Necessary action for adding toner to the toner hopper	Remarks
Developer Replacement	No further action is required. The white gear is in the toner hopper unit.	Toner can be supplied from the toner hopper.
Toner Hopper Unit replacement (empty toner hopper installation).	Refer to the procedure described in the NOTE: section of step 35.	Toner is not in the toner hopper. If the proper action is not carried out, SC495 will be displayed.
Toner Transport Tube cleaning (before and after machine transportation).	No further action is required. The white gear is in the toner hopper unit.	Toner is already inside the development unit and toner hopper.

41. Install the development unit in the machine and connect two connectors [A].
42. Attach the drum stay and attach the drum stay knob and one screw.
43. Reinstall the inner cover.
44. Change the paper size for all paper trays to suit the customer's request.
45. Attach the appropriate paper size decals, which are included as accessories, to each paper tray.
46. Attach the face-up decal to the ADF.
47. Check copy quality and machine operation.

The first time that the ADF is used, dust on the ADF transport belt will transfer to the exposure glass. To remove this dust, perform SP6-008-3 (DF Output Check) for 3 minutes, and then remove the dust on the exposure glass if necessary.

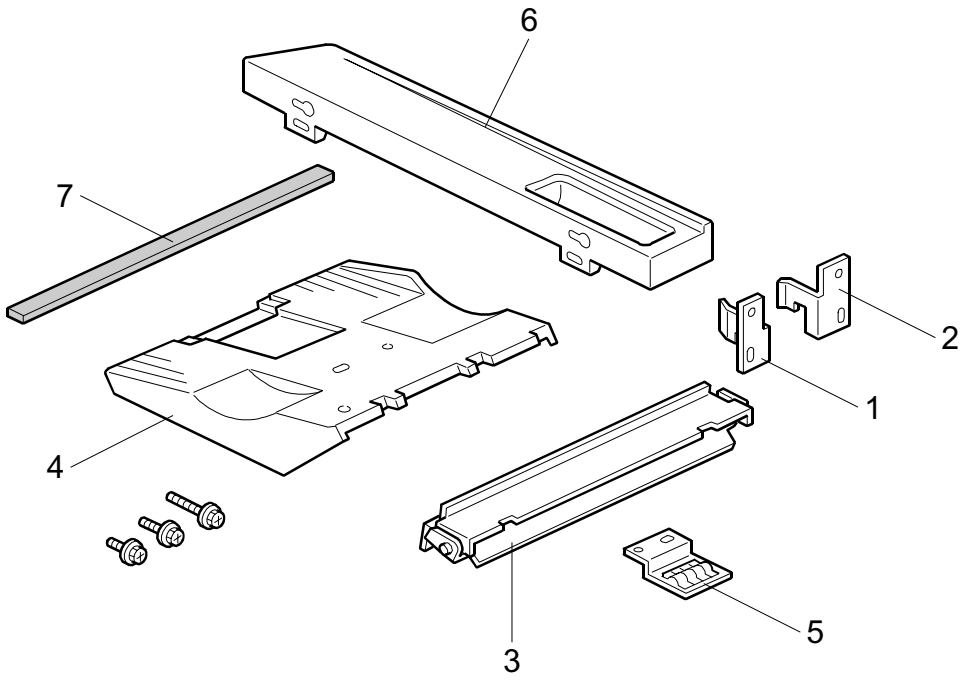
48. Initialize the electrical total counter using SP7-825, if required.

NOTE: For SP2-207-2
Occasionally, SP2-207-2 finishes within about 2 seconds. If this happens, perform SP2-207-2 again. This mode should normally run for about 5 minutes.

Reason: The Mylar attached to the agitator in the toner hopper cleans the surface of the toner hopper sensor. This is done so that the sensor detects toner in the hopper when SP2-207-2 is initiated, the SP mode will not be carried out. This is to prevent toner from being mistakenly supplied. However, when the Mylar is rotated to clean the sensor surface, the sensor may sometimes detect the Mylar and judge that there is still toner present. This may occur even if there is no toner in the hopper.

3.3 FINISHER INSTALLATION (B302)

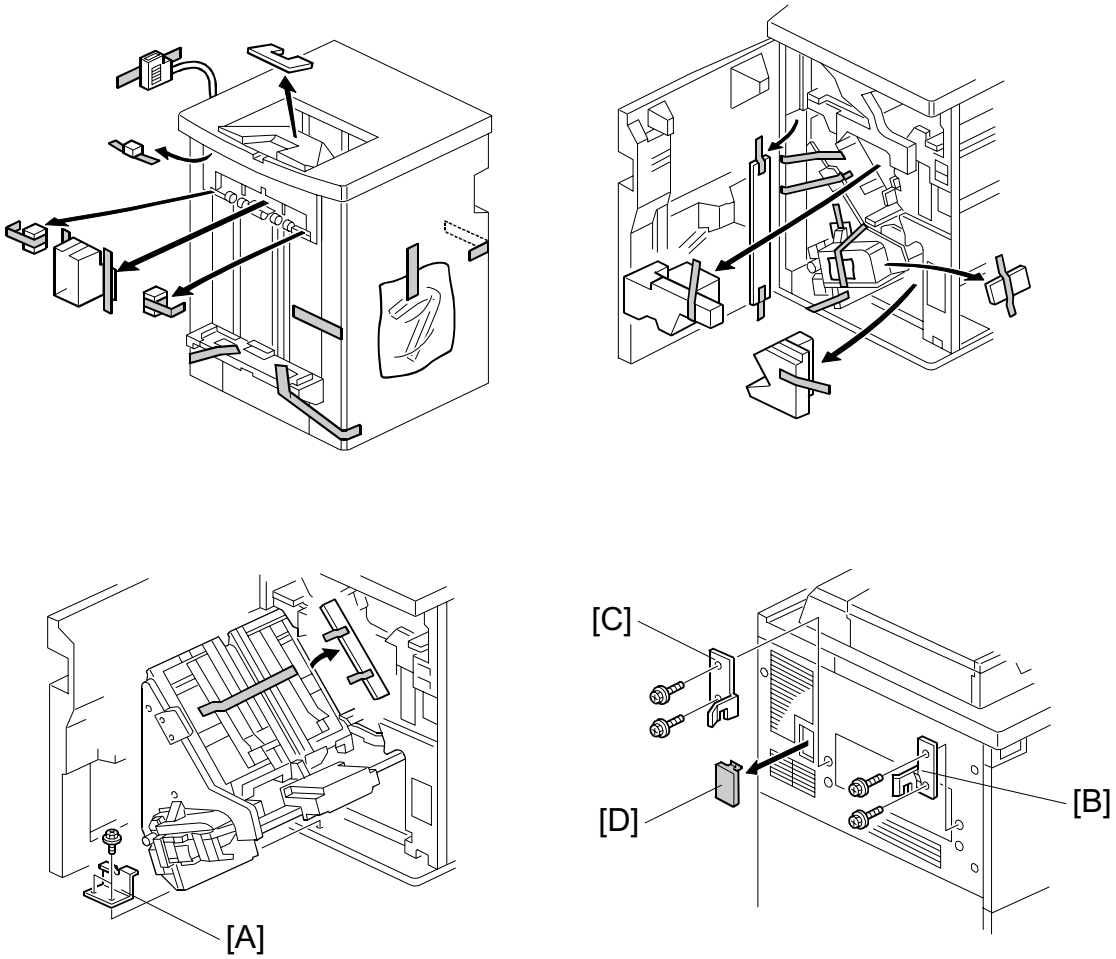
3.3.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Front Joint Bracket	1
2. Rear Joint Bracket	1
3. Entrance Guide Plate	1
4. Shift Tray	1
5. Grounding Plate	1
6. Table Extension	1
7. Cushion	1
8. Tapping Screw - M3 x 6	4
9. Tapping Screw - M3 x 8	4
10. Tapping Screw - M4 x 14	4
11. Tapping Screw - M4 x 8	2
12. Installation Procedure	1

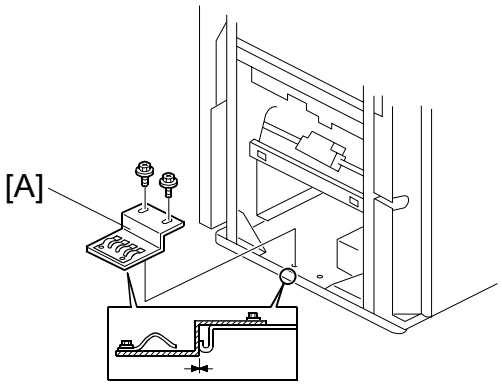
3.3.2 INSTALLATION PROCEDURE

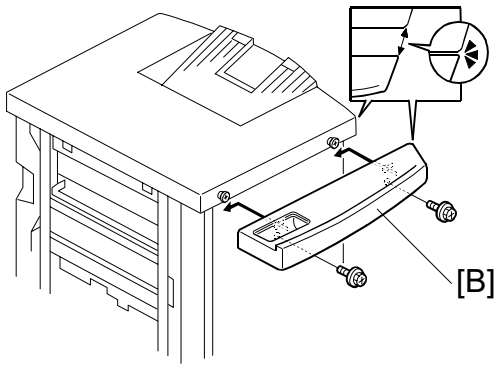


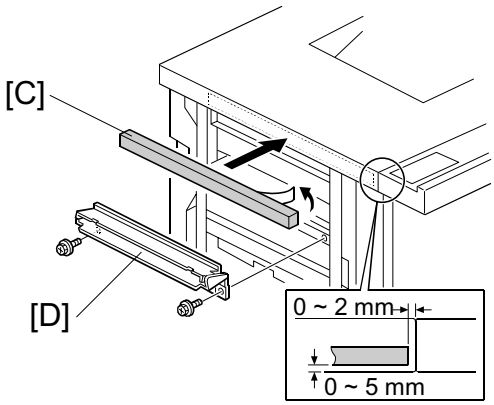
⚠CAUTION

Unplug the machine power cord before starting the following procedure.

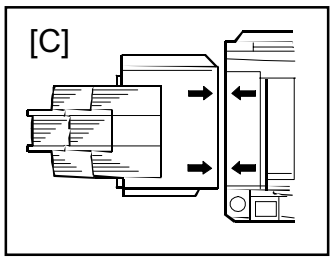
1. Unpack the finisher and remove the tapes and shipping retainers as shown above.
2. Open the front door and remove the shipping retainers. Remove the bracket [A] (2 screws) securing the stapler unit.
3. Install the front joint bracket [B] and rear joint bracket [C] (two M4 x 14 screws each) on the left side of the copier.
4. Remove the connection plate [D].

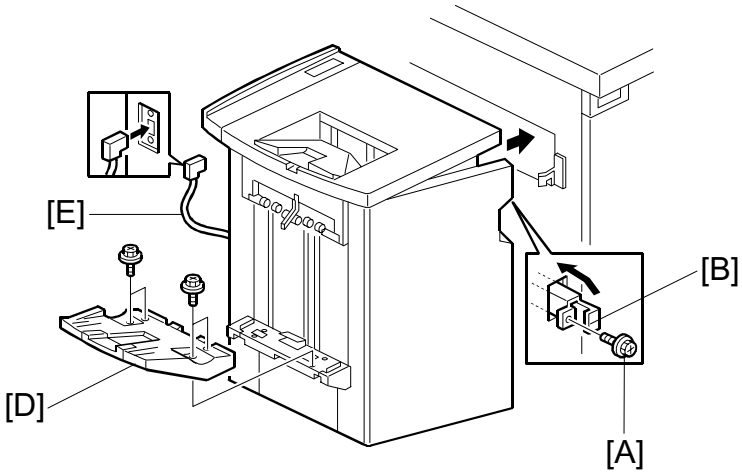






5. Install the grounding plate [A] (two M3 x 6 screws).
   NOTE: Set the grounding plate so that there is no gap between the grounding plate and the bottom frame of the finisher (as shown).
6. Install the rear tray as shown [B] (two M4 x 8 screws).
   NOTE: The edge of the rear tray should be aligned with the edge of the finisher (as shown).
7. Attach the cushion [C] to the right side of the upper cover.
8. Install the entrance guide plate [D] (two M3 x 6 screws).

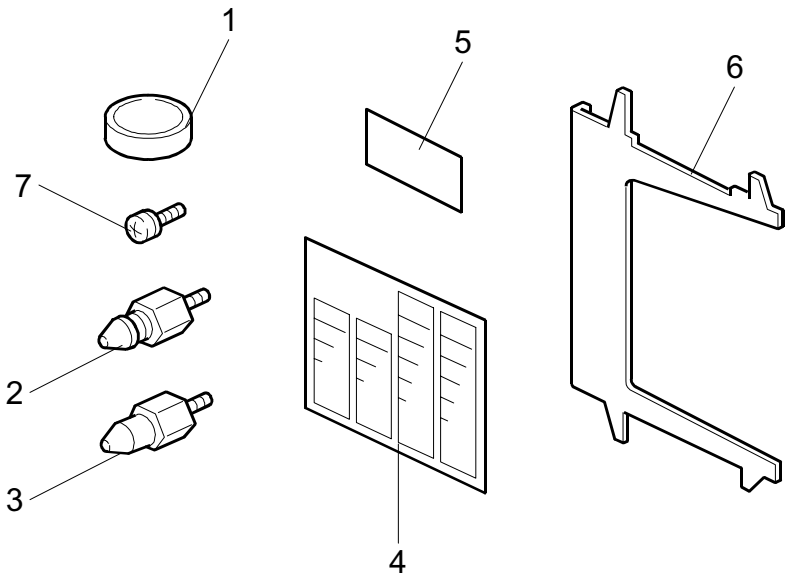




9. Open the front door of the finisher, and remove the screw [A] which secures the locking lever. Then pull the locking lever [B].
10. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever [B].
    NOTE: Before securing the locking lever, make sure that the top edges of the finisher and the copier are parallel from front to rear as shown [C].
11. Secure the locking lever (1 screw) and close the front door.
12. Install the shift tray [D] (four M3 x 8 screws).
13. Connect the finisher cable [E] to the copier.

3.4 LCT INSTALLATION (B303)

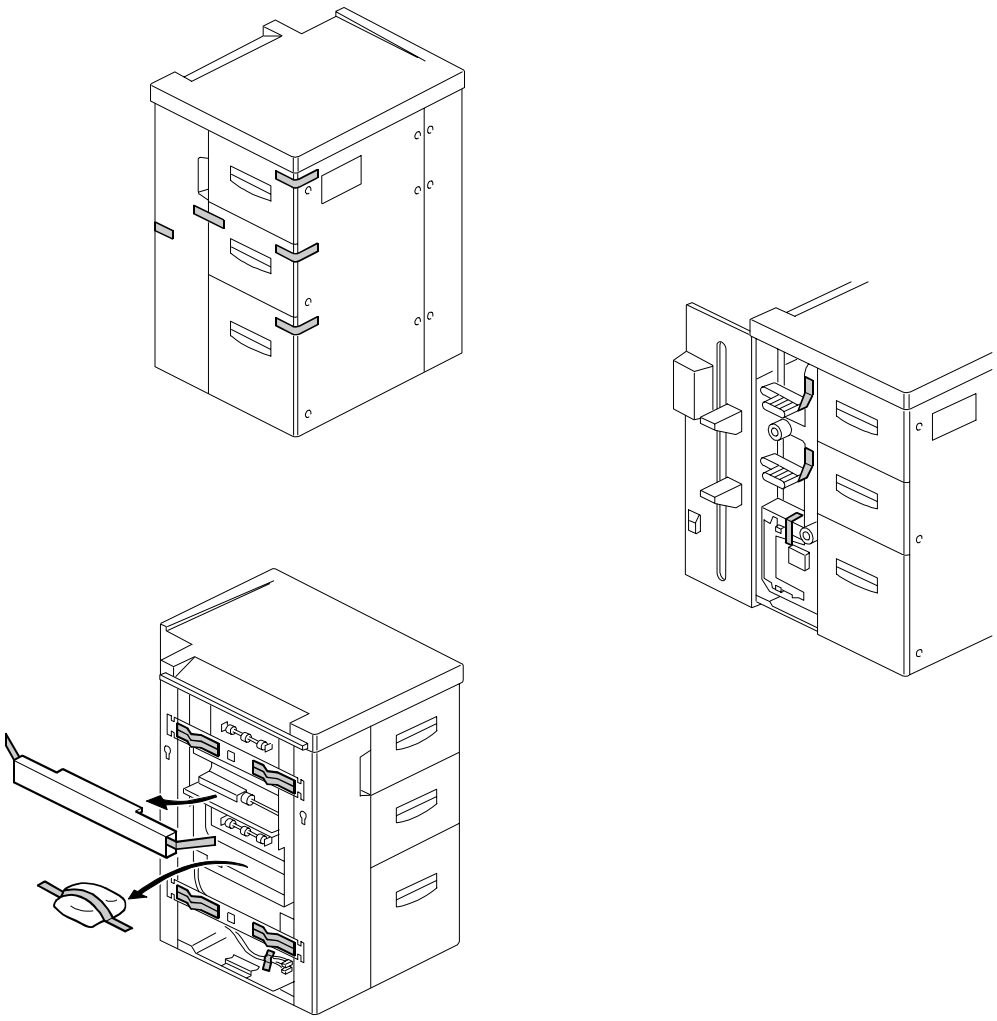
3.4.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Leveling Shoe	3
2. Upper Joint Pin	2
3. Lower Joint Pin	2
4. Decal - Paper Size	1
5. Decal - Tab Paper End Fence	1
6. Tab Paper End Fence	1
7. Philips Screw - M4 x 8	1
8. Installation Procedure (English)	1

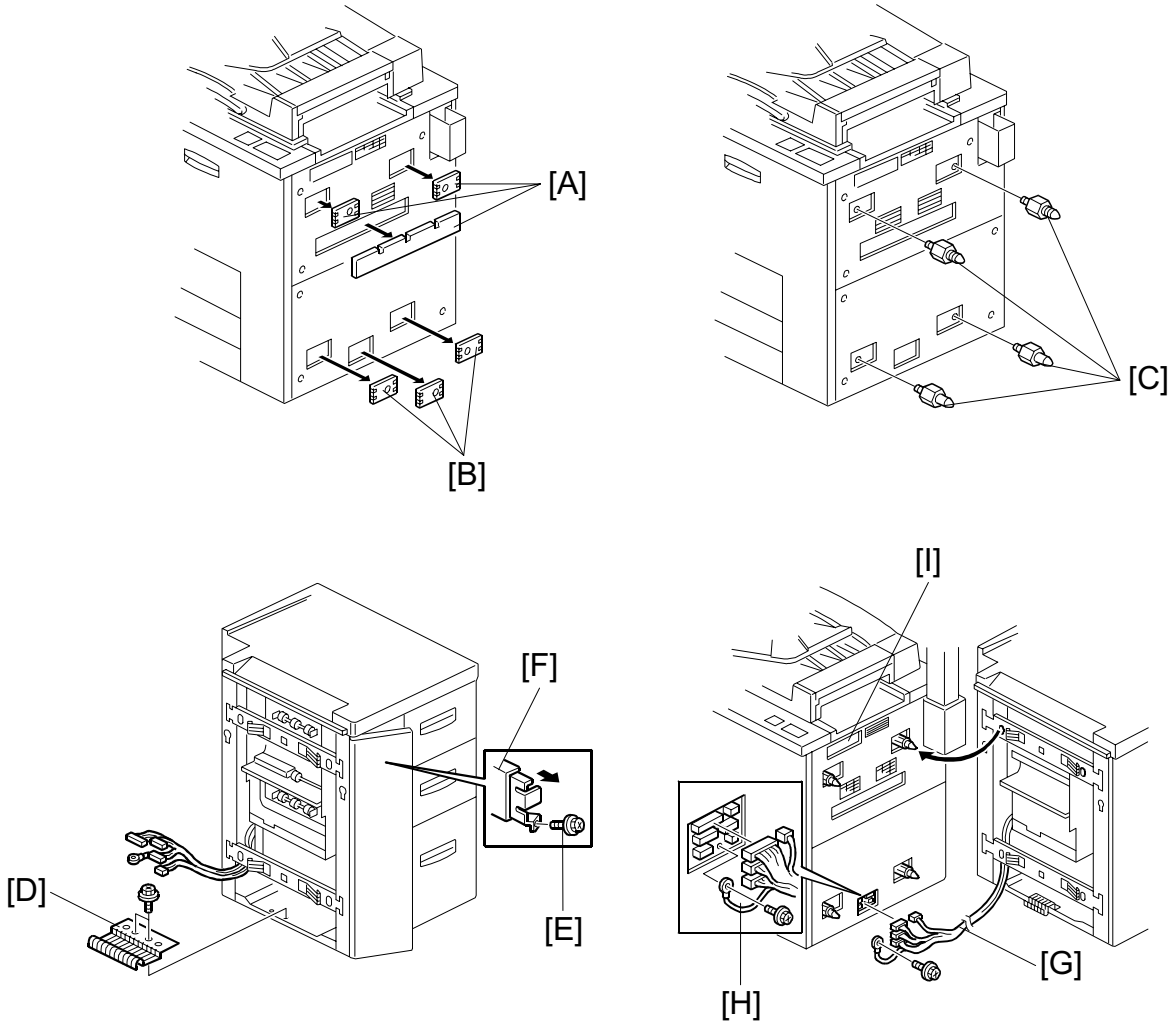
3.4.2 INSTALLATION PROCEDURE



⚠CAUTION

Unplug the power cord before starting the following procedure.

1. Remove the strips of tape on the covers (shown in the top position of the illustration).
2. Open the LCT left door and remove the strips of tape holding the levers.



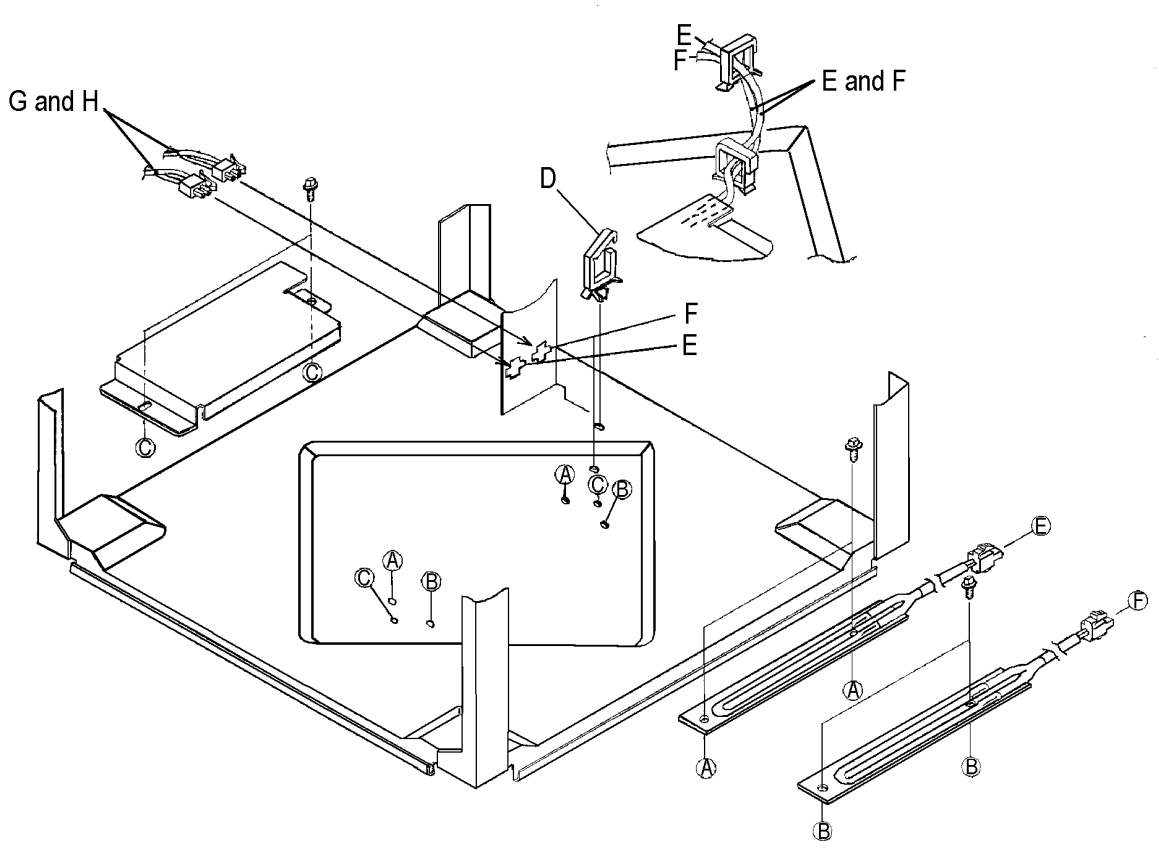
3. Remove the three small covers [A] from the upper right side cover.
   NOTE: Small cover [I] can be removed at this time, to facilitate software upgrade using a flash card.
4. Remove the three small covers [B] from the lower right side cover.
5. Install the four joint pins [C] on the right side of the copier. The pins with slots in them should be used for the upper right side cover.
6. Remove the two screws that secure the grounding plate [D]. Turn the plate 180 degrees (so that left becomes right, and vice-versa) and secure it with the two screws.
7. Remove the screw [E], which secures the locking lever [F]. Slide the locking lever toward you (about 1/2 inch).
8. Connect the four connectors [G] and secure the grounding wire [H] (1 screw).
9. Align the LCT on the joint pins, and lock it in place with the locking lever.
10. Insert the leveling shoes under the leveling feet and level the LCT.

⇒

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⇒ 3.4.3 INSTALLATION PROCEDURE FOR THE TRAY HEATER KIT (OPTIONAL)

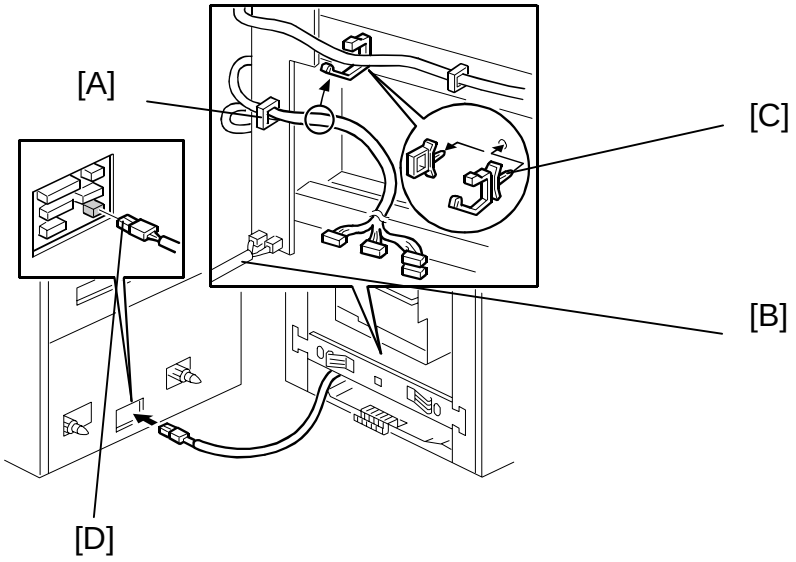
1. Remove the LCT unit from the main copier and remove the LCT right cover.
2. Attach the two anti-condensation heaters [A and B] (2 screws each) to the LCT bottom plate.
3. Attach the heater cover [C] (2 screws).
4. Attach the two harness clamps [D] to the LCT bottom plate as shown.
5. Run the heater harnesses [E and F] through the harness clamps. Insert the connectors into the connector bracket holes shown below.
6. Connect the interface harness connectors [G and H] to the connectors that were just inserted into the connector bracket holes (step 5).



⇒ For steps 7-10, refer to the second illustration below.

Note: In accordance with safety standards, the connecting harness [A] must not be touching the interface harness [B] when the optional LCT tray heaters are installed. Therefore, be sure to perform steps 7-10 so that the harnesses remain separated.

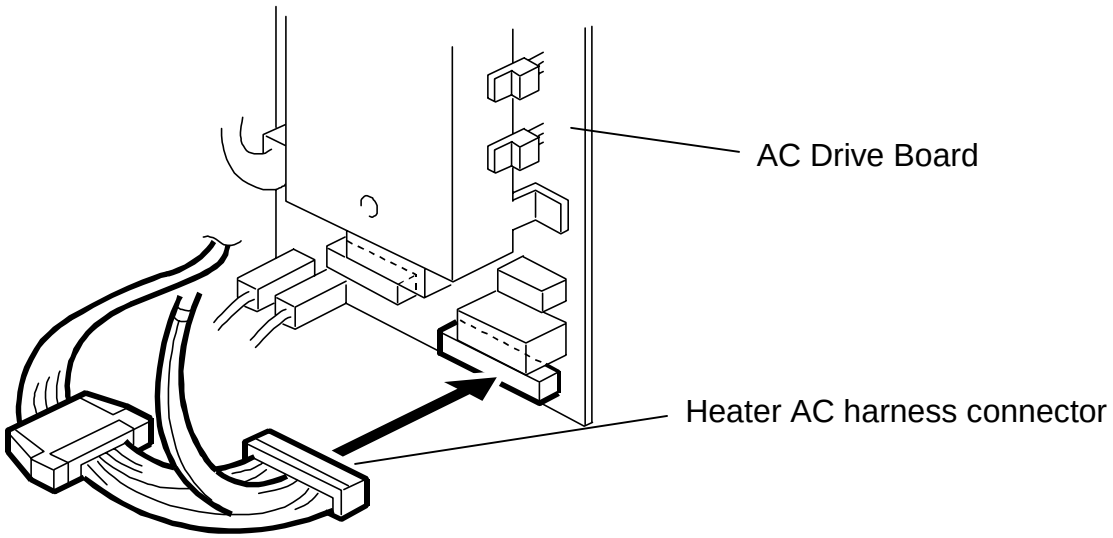
7. Replace the wire saddle with the new one ([C] P/N: 11050292), which is included in the optional tray heater kit.
8. Run the connecting harness [A] as shown.
9. Connect the connector [D] of the interface harness to the mainframe interface.
10. Return all parts.



⇒ As mentioned in section 2.12.5 of the Service Manual, all anti-condensation heaters are disconnected from the AC drive board before being shipped.

If the main switch is off when the heater AC harness connector [A] is connected to the AC drive board, the transfer anti-condensation (drum) heater will be turned on along with the other optional heaters.

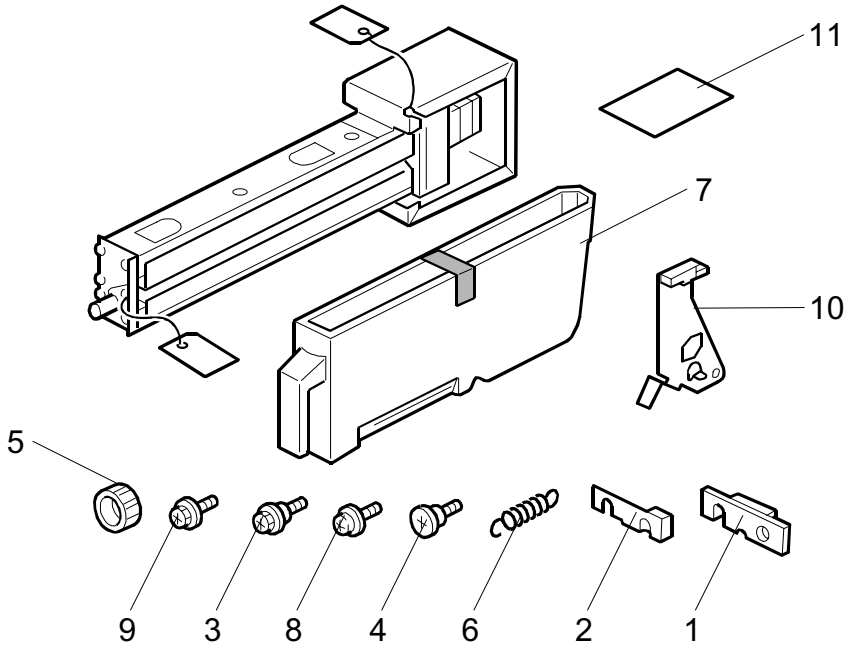
⚠**Caution:** Before the heater AC harness connector is plugged in, be sure to turn off the main switch and unplug the copier power cord.



NOTE: The heater AC harness connector is hung on the clamp under the AC drive board.

3.5 PUNCH UNIT INSTALLATION (A812)

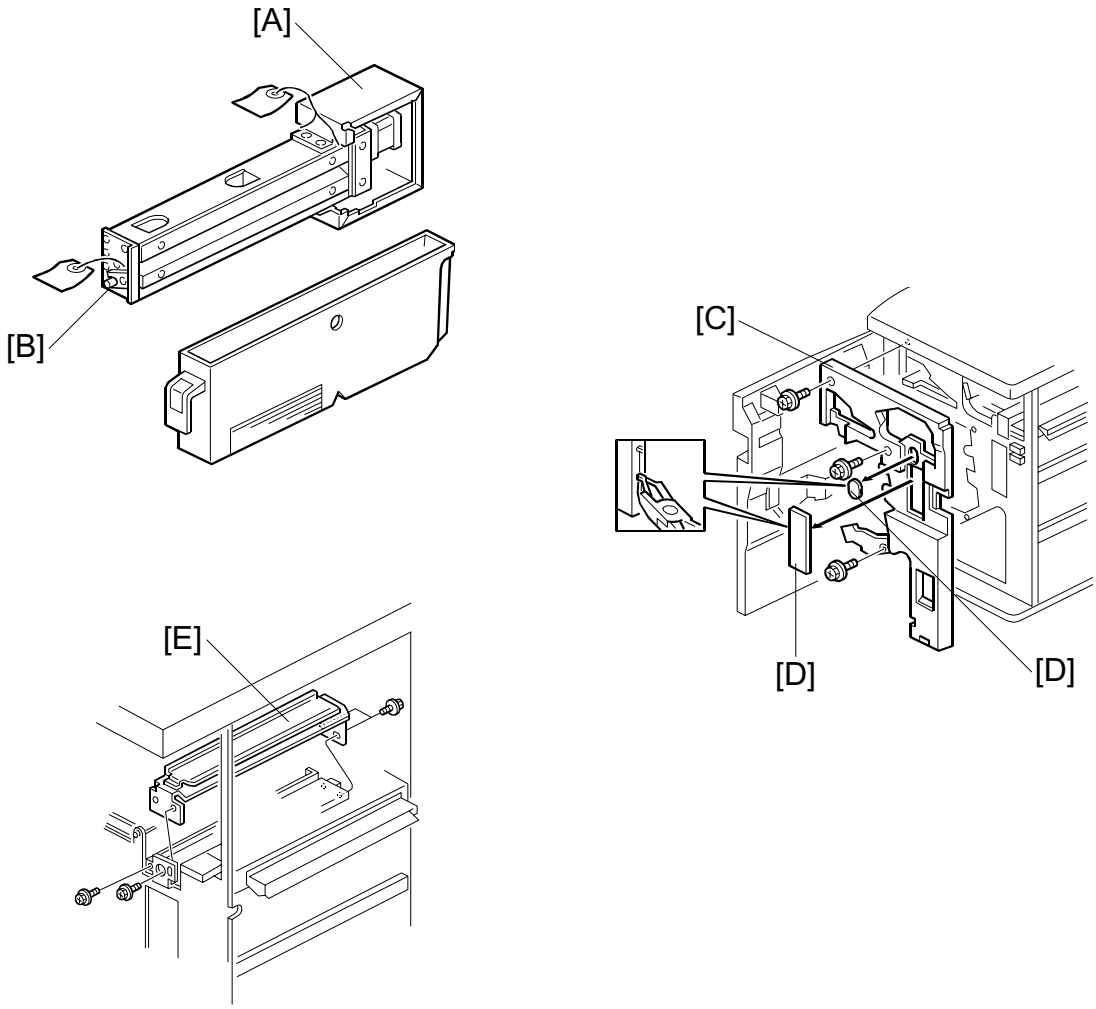
3.5.1 ACCESSORY CHECK



Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. Spacer - 2 mm	1
2. Spacer - 1 mm	2
3. Stepped Screw - Short	1
4. Stepped Screw - Long	1
5. Punch Unit Knob	1
6. Spring	1
7. Hopper	1
8. Tapping Screw - M4 x 10	2
9. Screw with Flat Washer - M4 x 6	1
10. Sensor Bracket	1
11. Punch Position Decal	1

3.5.2 PUNCH UNIT INSTALLATION

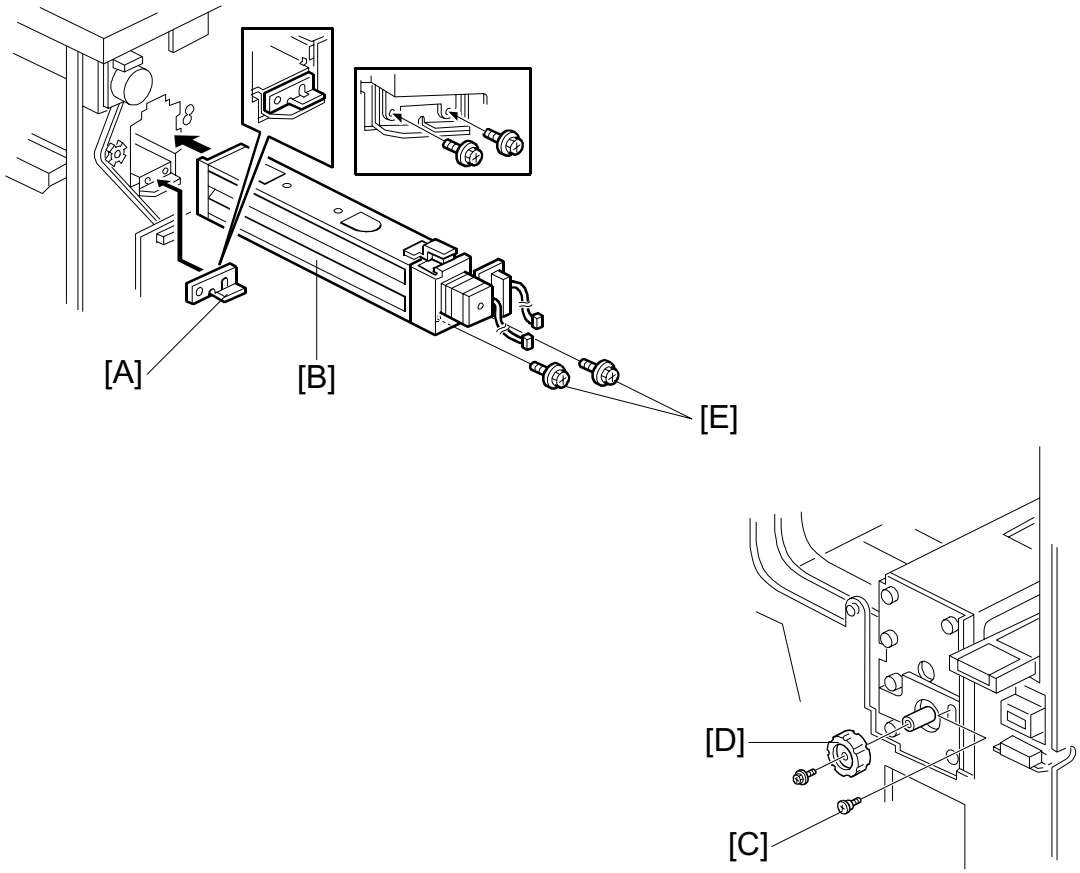


⚠CAUTION

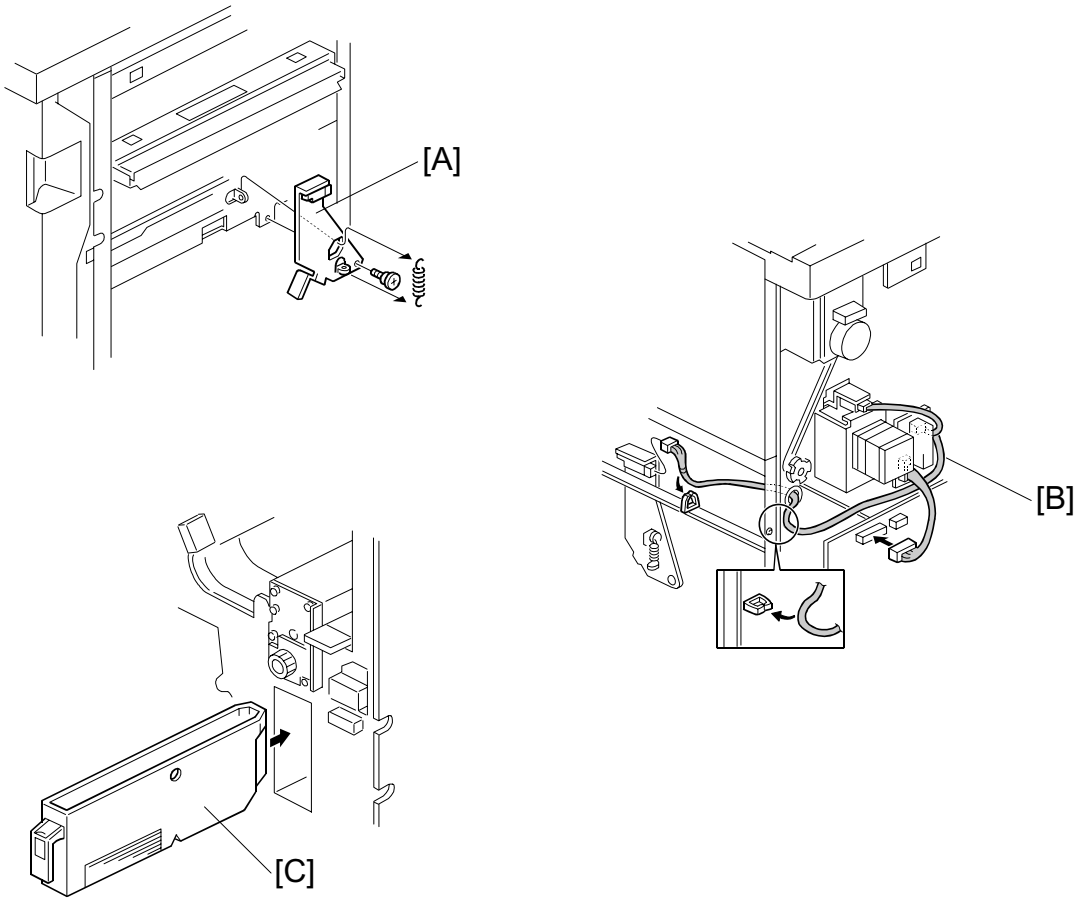
Unplug the copier power cord and remove the finisher from the copier before starting the following procedure.

Unpack the punch unit and remove the shipping retainers [A] (4 screws) and [B] (1 screw)

1. Remove the inner cover [C] of the finisher and remove the caps [D].
2. Remove the rear cover of the finisher (2 screws) and remove the transport guide plate [E] (4 screws).



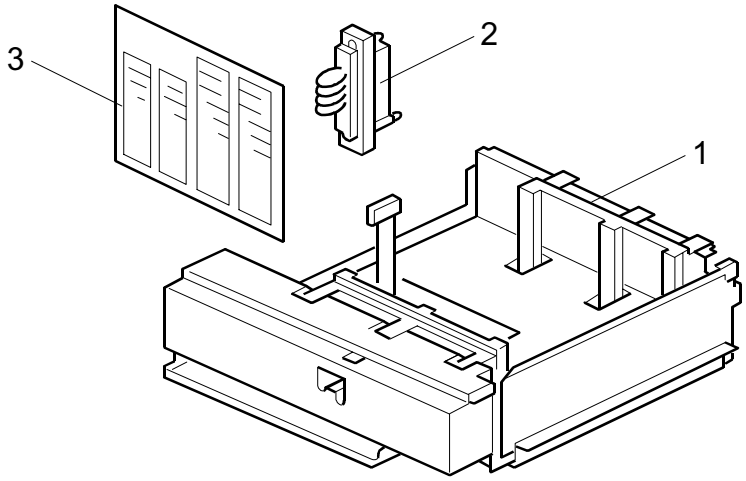
3. Install the spacer [A] (thickness = 2 mm).
   NOTE: There are three spacers in the accessory box. Do not lose the other two spacers (1 mm), because they are used for adjusting the punch hole position.
4. Reinstall the inner cover.
5. Install the punch unit [B] and secure it with a long stepped screw [C].
6. Install the punch unit knob [D] (1 screw).
7. Secure the rear of the punch unit (2 screws [E]).



8. Install the sensor bracket [A] (1 short stepped screw, 1 spring).
9. Connect the cables [B] as shown.
10. Slide the hopper [C] into the finisher.
11. Reassemble the finisher and attach it to the copier. Then check the punch unit operation.

3.6 A3/DLT TRAY (B331)

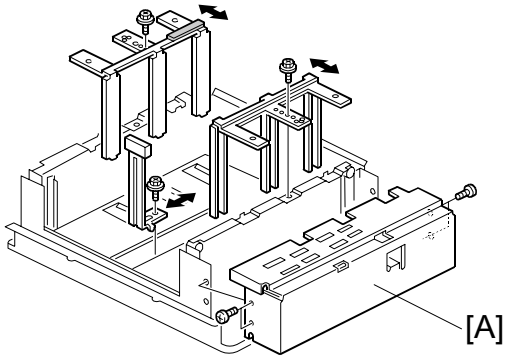
3.6.1 ACCESSORY CHECK

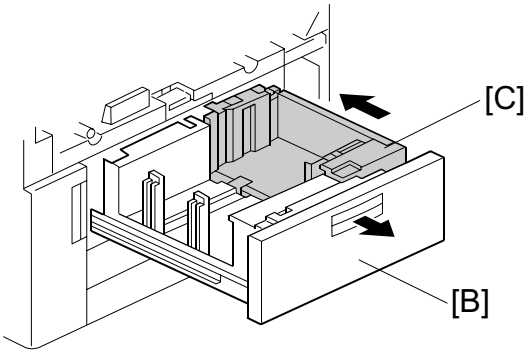


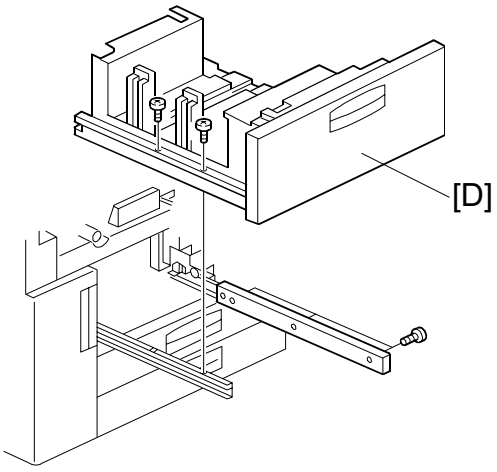
Check the quantity and condition of the accessories in the box against the following list:

Description	Quantity
1. A3/DLT Tray	1
2. Short Connector	1
3. Paper Size Decal	1

3.6.2 INSTALLATION PROCEDURE





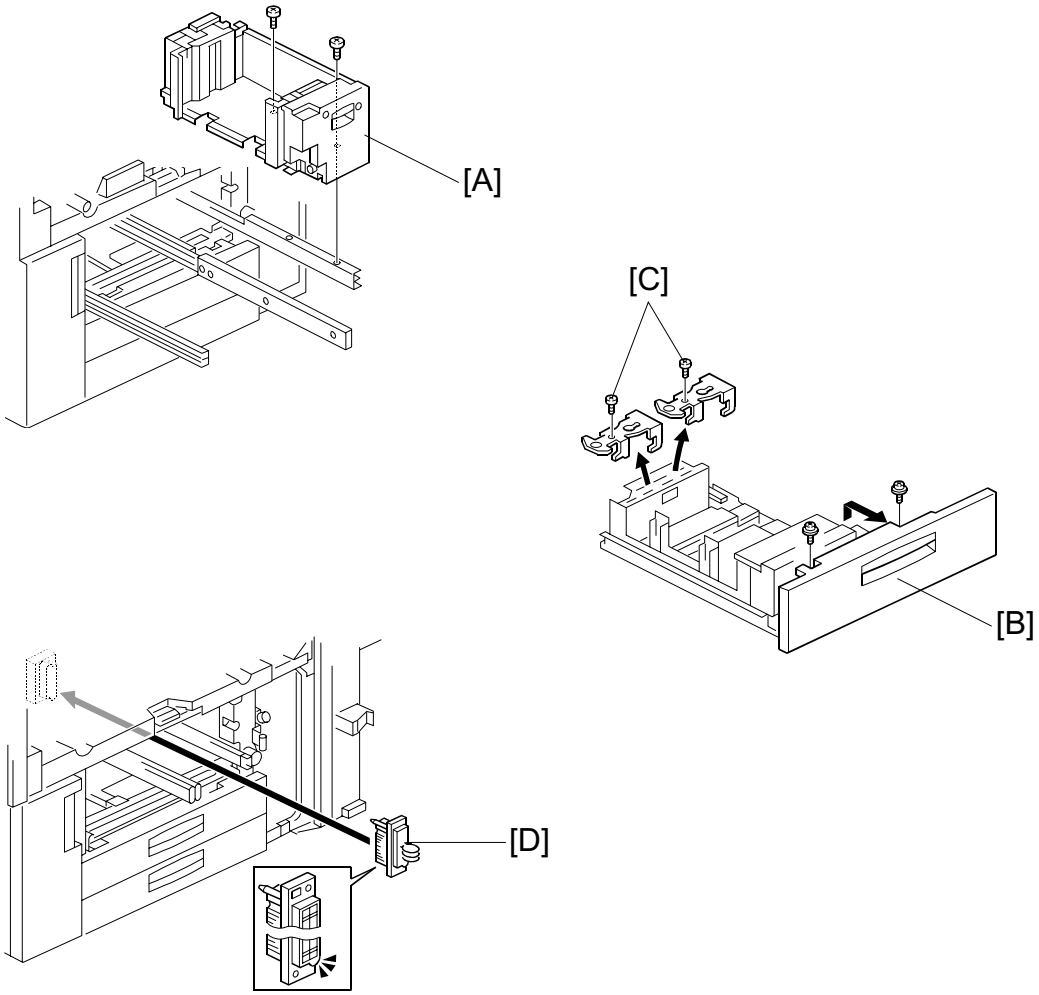


⚠CAUTION

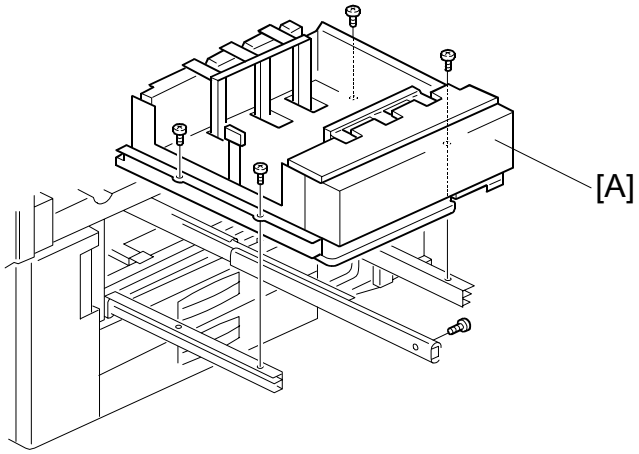
Unplug the machine before starting the following procedure.

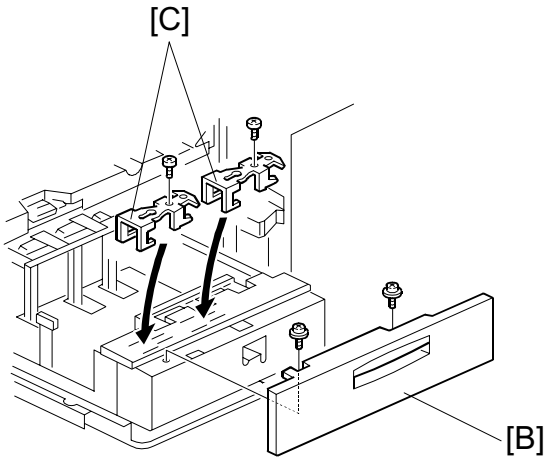
If necessary, remove the front frame [A] (4 screws) and change the side fence positions (1 screw each).

1. Open the front cover.
2. Draw out the tandem feed tray [B] fully to separate the right tandem tray [C] from the left.
3. Push in the right tandem tray.
4. Remove the left tandem tray [D] (5 screws).



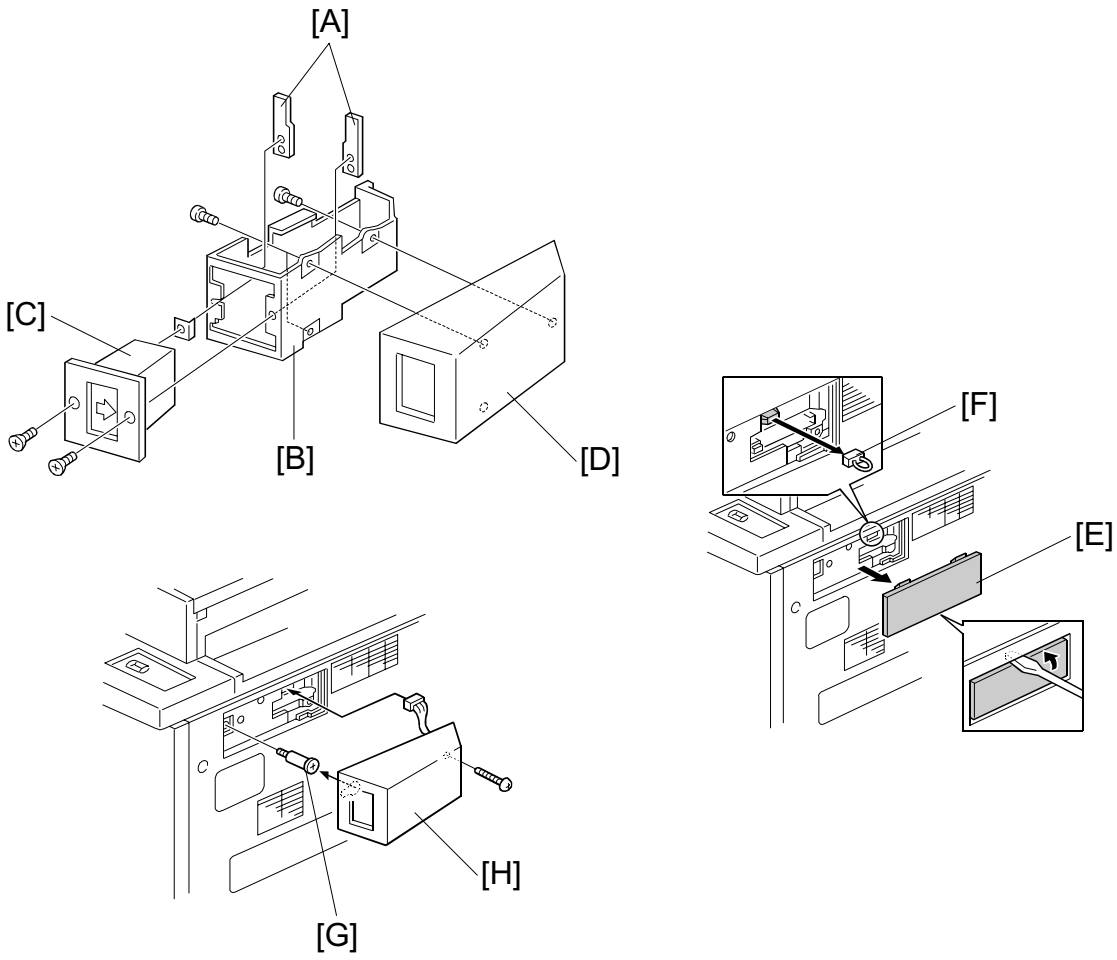
5. Remove the right tandem tray [A] (2 screws).
6. Remove the front cover [B] (2 screws).
7. Remove the safety switch holders [C] (1 screw each).
8. Connect the short connector [D] to the terminal for the right tandem tray as shown.





9. Install the A3/DLT tray [A] using the screws removed in steps 4 and 5.
10. Install the front cover [B] and safety switch holders [C] removed in steps 6 and 7.
11. Access SP5-019-001, and change the paper size setting to the size required by the user.

3.7 KEY COUNTER INSTALLATION



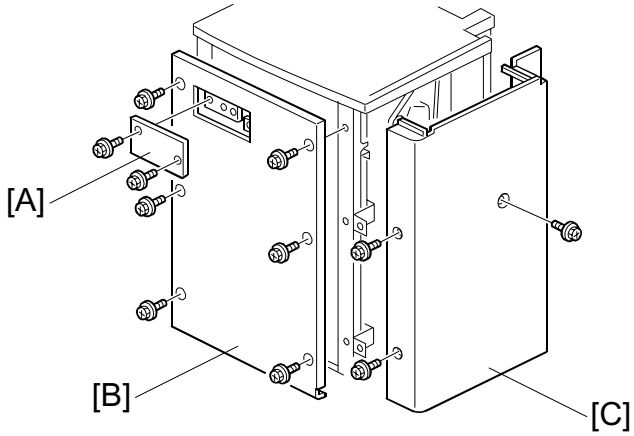
Common Steps

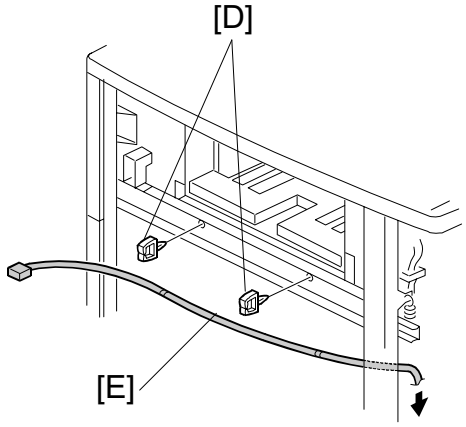
1. Hold the key counter plates [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
2. Secure the key counter holder to the bracket (2 screws).
3. Attach the key counter cover [D] (2 screws).
4. Remove the small cover [E] on the right side of the copier as shown.
5. Remove the jumper connector [F].

If the optional LCT is not installed:

The following steps 6 to 8 are for installing the key counter without the optional LCT. If the LCT is installed, skip steps 6 to 8, and go to step 9.

6. Install the stepped screw [G].
7. Install the key counter assembly [H] (1 screw).
8. Instruct the user's key operator to enable the key counter with the user tools (User Tools – System Settings – Count Manager – Key Counter).



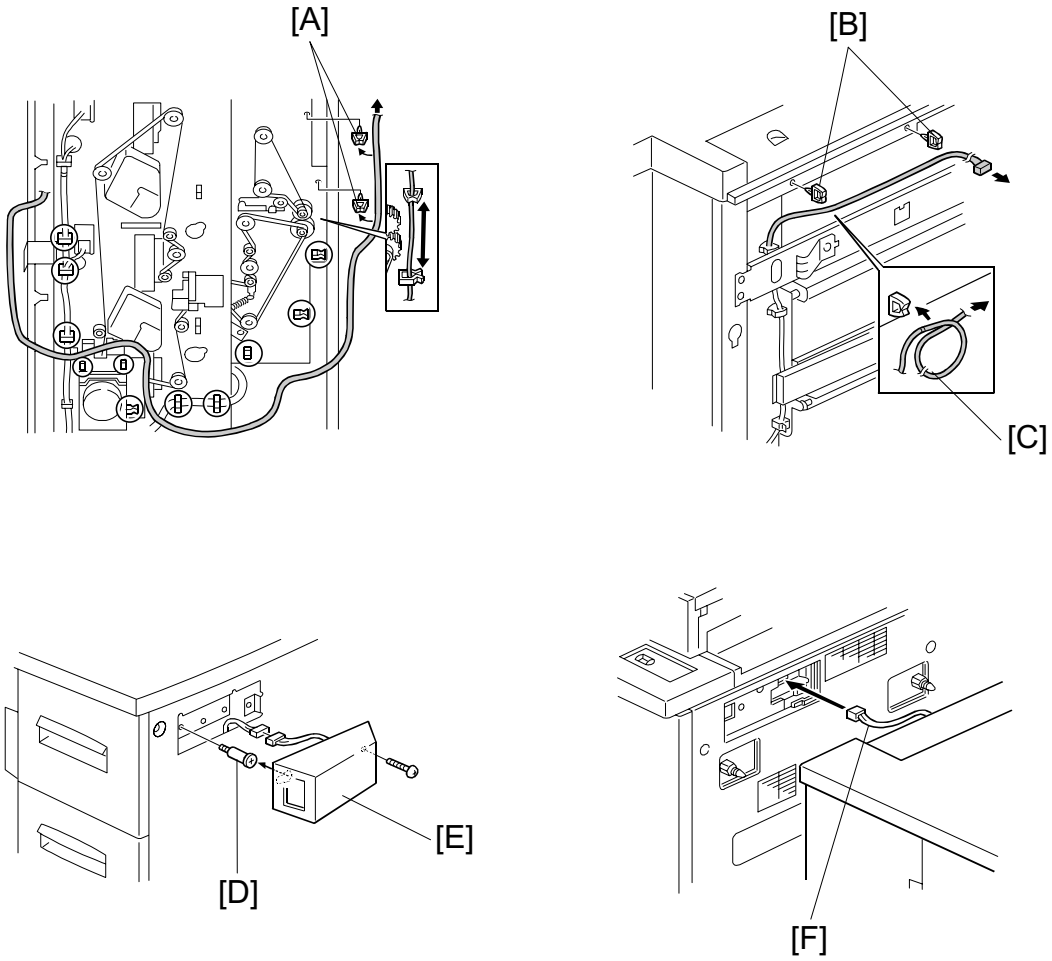


If the optional LCT is installed:

The following steps are required when the key counter is installed with the optional LCT.

The extension cable is required to install the key counter with the LCT. The cable is supplied with 6 clamps as a service part.

9. Remove the small cover [A] (2 screws) on the LCT right cover.
10. Remove the LCT right cover [B] (6 screws) and rear cover [C] (3 screws).
11. Install 2 clamps [D] on the right side of the LCT, then set the cable [E] in the clamps.

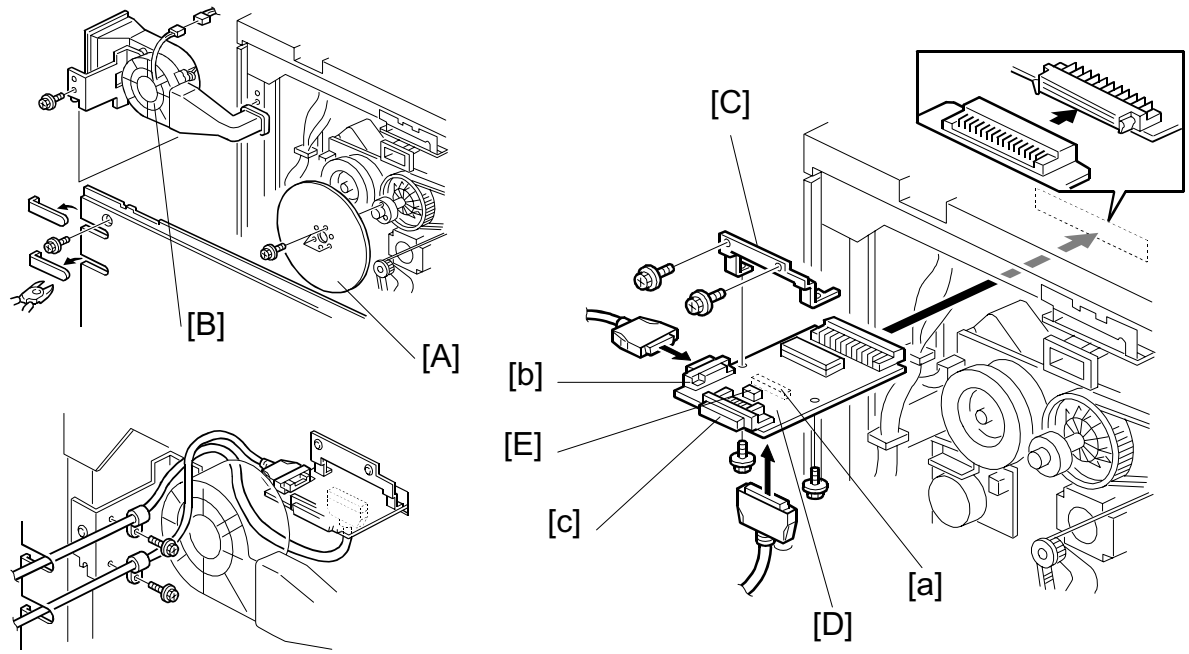


12. Install 2 clamps [A] on the rear side of the LCT. Route the cable as shown.
13. Install 2 clamps [B] on the left side of the LCT. Route the cable as shown.
    NOTE: If the cable coming from the right cover opening is too long, make a loop [C] to adjust the length.
14. Install the stepped screw [D].
15. Install the right LCT cover, then install the key counter assembly [E] (1 screw) that was assembled in steps 1 to 3.
16. Connect the cable [F] from the LCT to the connector in the copier. Then join the LCT to the copier.
17. Instruct the user's key operator to enable the key counter with the user tools (User Tools – System Settings – Count Manager – Key Counter).

3.8 INTERFACE BOARD (CD-RW/TANDEM COPY KIT/PRINTER CONTROLLER)

3.8.1 INSTALLATION PROCEDURE

The interface control board is needed to use the optional CD-ROM writer (CD-RW), optional printer controller, or the tandem copy kit.



1. Remove the upper rear cover of the copier.
2. Remove the fly wheel [A] (3 screws) and the drum cooling fan [B].
3. Install the support bracket [C] (2 screws) on the interface board [D].

⇒ **NOTE:** ***When the CD-RW is installed, remove the short connector [E] installed on TB101.***

4. Connect the interface board to the connector on the SICU. Then secure the support bracket to the copier (2 screws).
5. Connect the cable of the optional equipment to the terminal of the interface board.
   1) When the CD-RW is installed, connect the cable from the CD-RW to the connector [a] and route the cable as shown. Secure the cable with the upper clamp.
   2) When the cable for the tandem copy kit is installed, connect the cable to the connector [b] and route the cable as shown. Secure the cable with the lower clamp.

   NOTE: The connector [c] is for the printer controller.

6. Reinstall the drum cooling fan and the fly wheel removed in step 2.
7. Reinstall the upper rear cover of the copier.

⟹3.8.2 INSTALLATION NOTES FOR CD-R/RW

The optional interface board is required when installing the CD-R/RW.

1. Remove the shorting connector [E] from connector TB101 of the interface board.
2. In order to use the CD-R/RW, firmware version 7.31.3 (suffix J) or newer must be installed in the copier.

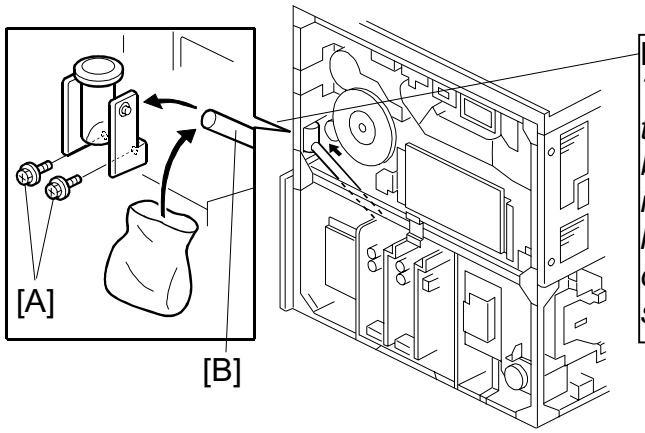
Switch Settings

The switches on the rear face of the CD-R/RW should not be changed from the factory settings.

Switch	Setting
SCSI ID SW (rotary SW)	Keep the setting a "0"
Option SW (DIP SW)	No. 1 to 4 Should be OFF No. 5 should be ON

3.9 TRANSPORTATION REMARKS

To prevent toner in the toner transport tube from becoming blocked due to the vibrations during the machine transportation, please note the following remarks and perform the procedures when the machine is transported.



NOTE (For Step 6 below):
Take extra caution not to bend the toner transport coil tube [B]. If it is bent, it may cause the coil (auger) inside the tube to be overloaded, locked or damaged. SC592 will be displayed and the coil (auger) inside should be replaced.

3.9.1 TONER TRANSPORT TUBE CLEANING

NOTE: 1) When transporting the machine, perform the following operations. Otherwise, the path of toner may be blocked.

2) Be careful not to drop the toner.

3) If this procedure is not carried out, SC592 (Toner Bank Motor Error) or SC495 (Toner Bottle Unit Error) could be displayed and the toner transport tube and screw should be replaced.

Procedure before transportation (Removing toner from the toner transport tube):

1. Close the toner bottle cap using SP5-804-62 (upper bottle) or -63 (lower bottle) Then remove the toner bottles from the toner bank.
2. Remove the upper rear and lower rear covers.
3. Remove the upper left cover, lower left cover, upper right cover.
4. Remove the two screws [A] securing the toner supply cylinder.

NOTE: Keep the end of the toner supply air tube up, to prevent dropping toner.

5. Cover the end of the toner transport coil tube [B] with a plastic bag.

See note for Step 6 in the above illustration.

6. Turn the toner bank motor and toner supply coil clutch on for 2 minutes using SP5-804-61 and -64 to remove more of the toner.
7. Return all removed parts except for the toner bottles.

Make sure that three tubes are connected to the toner supply cylinder when putting it back.

Procedure after transportation (loading toner into the toner transport tube):

1. Load the toner bottles into the toner bank.
2. Remove the upper right cover. Open the cylinder top cover and clean the inner surface of the cylinder with a cloth to check the toner supplying at step 6. Then close the cylinder top cover.
3. Energize the toner bank motor using SP5-804-61.
4. Energize the toner bottle motors for 5 to 6 seconds using SP5-804-59, -60.
5. Energize the toner supply coil clutch using SP5-804-64.
6. 50 to 60 seconds later, toner is supplied to the toner supply cylinder. Make sure that toner is properly supplied to the cylinder.
7. Turn off the toner supply coil clutch and then the toner bank motor.
8. Return all removed parts.

Do not energize the toner bottle for long periods of time, otherwise toner overflow in the toner entrance tank may occur.

SERVICE TABLES

4. SERVICE TABLES

4.1 GENERAL CAUTIONS

Do not turn off either of the power switches while any of the electrical components are active. Doing so might cause damage to units such as the transfer belt, drum, and development unit when they are pulled out of or put back into the copier.

4.1.1 DRUM

An organic photoconductor (OPC) drum is more sensitive to light and ammonia gas than a selenium drum. Follow the cautions below when handling an OPC drum.

1. Never expose the drum to direct sunlight.
2. Never expose the drum to direct light of more than 1,000 Lux for more than a minute.
3. Never touch the drum surface with bare hands. When the drum surface is touched with a finger or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with wet cotton.
4. Never use alcohol to clean the drum; alcohol dissolves the drum surface.
5. Store the drum in a cool, dry place away from heat.
6. Take care not to scratch the drum as the drum layer is thin and is easily damaged.
7. Never expose the drum to corrosive gases such as ammonia gas.
8. Always keep the drum in the protective sheet when keeping the drum unit, or the drum itself, out of the copier. Doing so avoids exposing it to bright light or direct sunlight, and will protect it from light fatigue.
9. Dispose of used drums in accordance with local regulations.
10. When installing a new drum, do the Auto Process Control Data Adjustment (SP 2-962).

4.1.2 DRUM UNIT

1. Before pulling out the drum unit, place a sheet of paper under the drum unit to catch any spilt toner.
2. Make sure that the drum unit is set in position and the drum stay is secured with a screw before the main switch is turned on. If the drum unit is loose, poor contact of the drum connectors may cause electrical noise, resulting in unexpected malfunctions (RAM data change is the worst case).
3. To prevent drum scratches, remove the development unit before removing the drum unit.

4.1.3 TRANSFER BELT UNIT

1. Never touch the transfer belt surface with bare hands.
2. Take care not to scratch the transfer belt, as the surface is easily damaged.
3. Before installing the new transfer belt, clean all the rollers and the inner part of the transfer belt with a dry cloth to prevent the belt from slipping.

4.1.4 SCANNER UNIT

1. When installing the exposure glass, make sure that the white paint is at the rear left corner.
2. Clean the exposure glass with alcohol or glass cleaner to reduce the amount of static electricity on the glass surface.
3. Use a cotton pad with water or a blower brush to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

4.1.5 LASER UNIT

1. Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
3. The polygon mirror and F-theta lenses are very sensitive to dust. Do not open the optical housing unit.
4. Do not touch the glass surface of the polygon mirror motor unit with bare hands.

4.1.6 CHARGE CORONA

1. Clean the corona wires with a dry cloth. Do not use sandpaper or solvent.
2. Clean the charge corona casing with water first to remove NOx based compounds. Then clean it with alcohol if any toner still remains on the casing.
3. Clean the end block with a blower brush first to remove toner and paper dust. Then clean with alcohol if any toner still remains.
4. Do not touch the corona wires with bare hands. Oil stains from fingers may cause uneven image density on copies.
5. Make sure that the wires are correctly between the cleaner pads and that there is no foreign material (iron filings, etc.) on the casing.
6. When installing new corona wires, do not bend or scratch the wire surface. Doing so may cause uneven charge. Also be sure that the corona wires are correctly positioned in the end blocks. (See Charge Corona Wire Replacement)
7. Clean the grid plate with a blower brush (not with a dry cloth).
8. Do not touch the charge grid plate with bare hands. Also, do not bend the charge grid plate or make any dent in it. Doing so may cause uneven charge.

4.1.7 DEVELOPMENT

1. Be careful not to nick or scratch the development roller.
2. Place the development unit on a sheet of paper after removing it from the copier.
3. Never disassemble the development roller assembly. The position of the doctor plate is set with special tools and instruments at the factory to ensure the proper gap between the doctor blade and the development roller.
4. Clean the drive gears after removing used developer.
5. Dispose of used developer in accordance with local regulations.
6. Never load types of developer and toner into the development unit other than specified for this model. Doing so will cause poor copy quality and toner scattering.
7. Immediately after installing new developer, the TD sensor initial setting procedure should be performed to avoid damage to the copier. Do not perform the TD sensor initial setting with used developer. Do not make any copies before doing the TD sensor initial setting.
8. When using a vacuum cleaner to clean the development unit casing, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.
9. When replacing the TD sensor, the developer should be replaced and then the TD sensor initial setting procedure (SP2-801) should be done, followed by process control initialization (SP2-962).

4.1.8 CLEANING

1. When servicing the cleaning section, be careful not to damage the edge of the cleaning blade.
2. Do not touch the cleaning blade with bare hands.
3. Before disassembling the cleaning section, place a sheet of paper under it to catch any toner falling from it.

4.1.9 FUSING UNIT

1. After installing the fusing thermistor, make sure that it is in contact with the hot roller and that it is movable.
2. Be careful not to damage the edges of the hot roller strippers or their tension springs.
3. Do not touch the fusing lamp and rollers with bare hands.
4. Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

4.1.10 PAPER FEED

1. Do not touch the surface of the pick-up, feed, and separation rollers.
2. To avoid paper misfeeds, the side fences and end fence of the paper tray must be positioned correctly to align with the actual paper size.

4.1.11 USED TONER

1. We recommend checking the amount of used toner at every EM.
2. Dispose of used toner in accordance with local regulations. Never throw toner into an open flame, for toner dust may ignite.

4.2 SERVICE PROGRAM MODE

4.2.1 SERVICE PROGRAM MODE OPERATION

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

Service Program Access Procedure

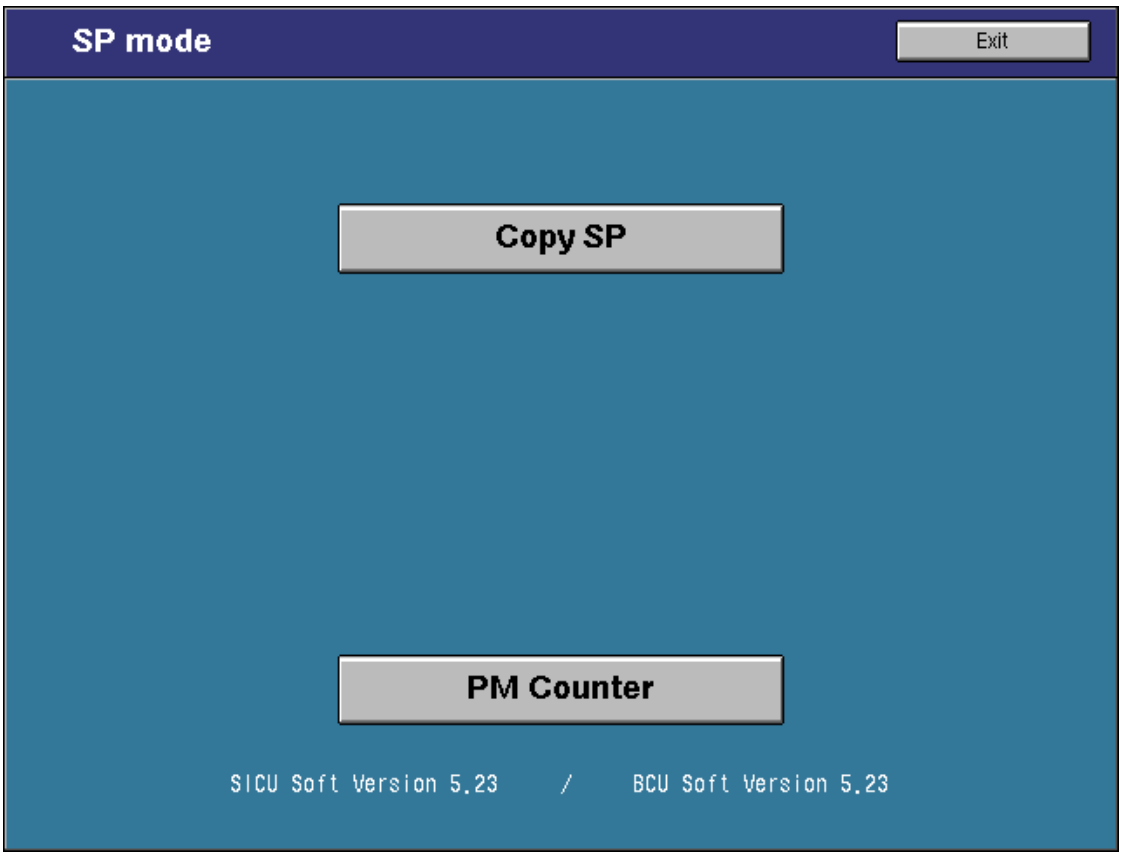
Entering SP mode

1) Press the following keys in sequence.

C/⊘ → 1 → 0 → 7 → C

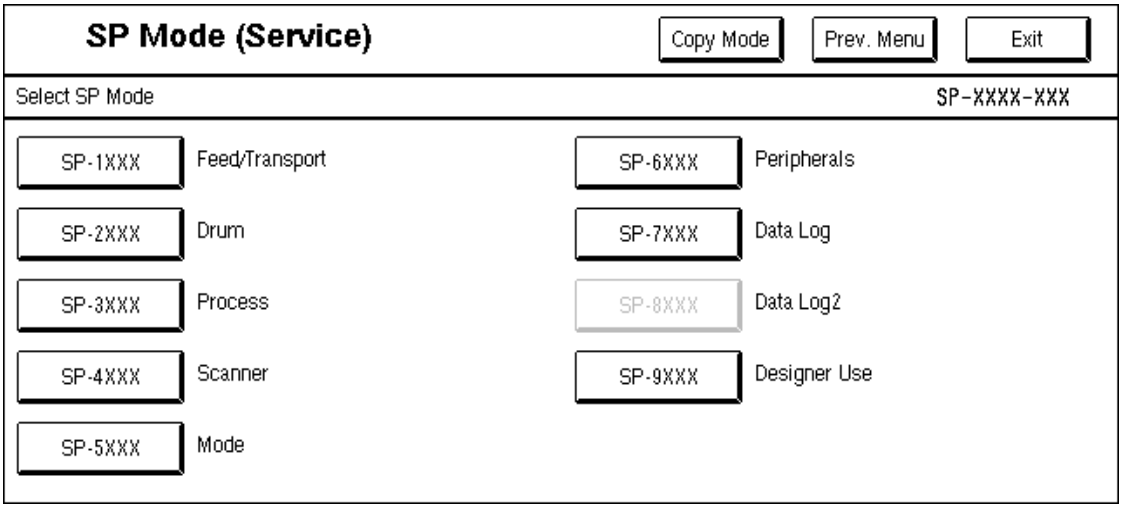
Hold the C key for more than 3 seconds.

2) A menu of SP modes is displayed on the LCD.



NOTE: The installed applications appear as Copy SP and Printer SP. If the printer application is not installed, its name does not appear.

3) Touch the application which you need. Then, the application's SP mode display will appear, as shown.

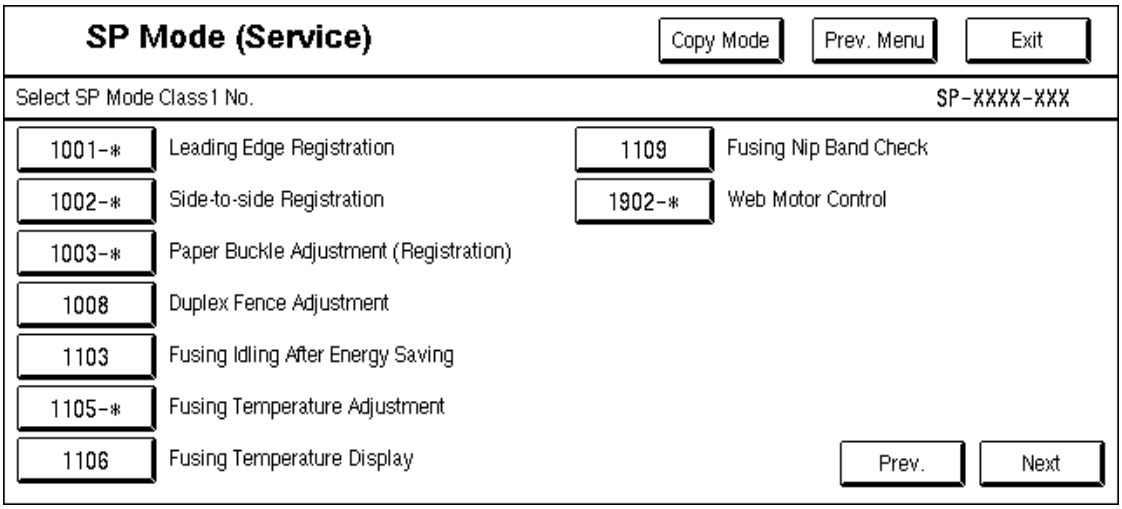


Exiting SP mode

1) Touch the "Exit" keys to return to the standby mode display.

Accessing Copy Mode from within an SP Mode

1) Touch the “Copy Mode” key.



2) Select the appropriate copy mode and make trial copies.

3) To return to the SP mode, touch the “SP mode” key.



Service Tables

Selecting the Program Number

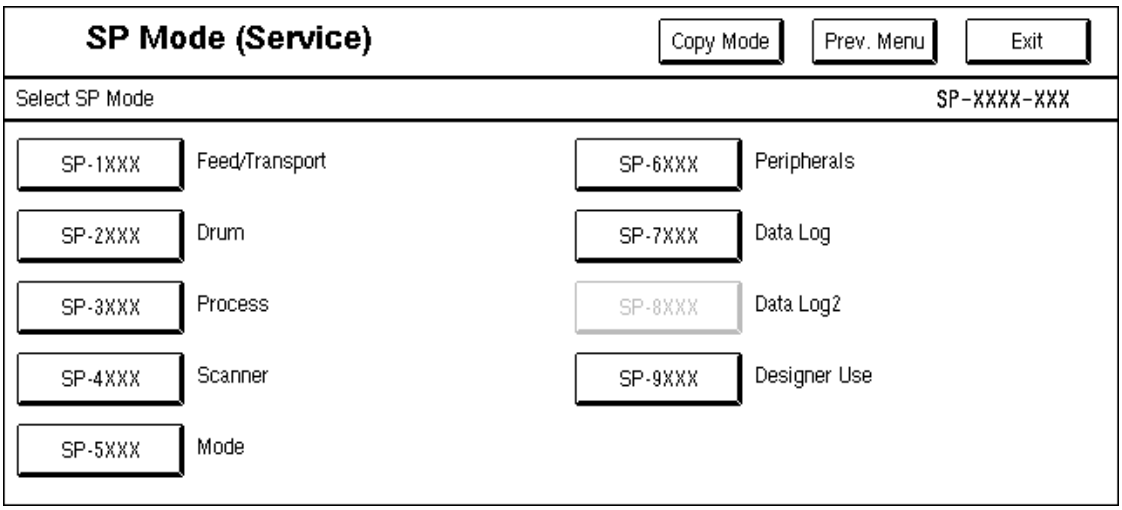
Program numbers are composed of two or three levels.
There are two ways to select the program number.

Ten-key Pad

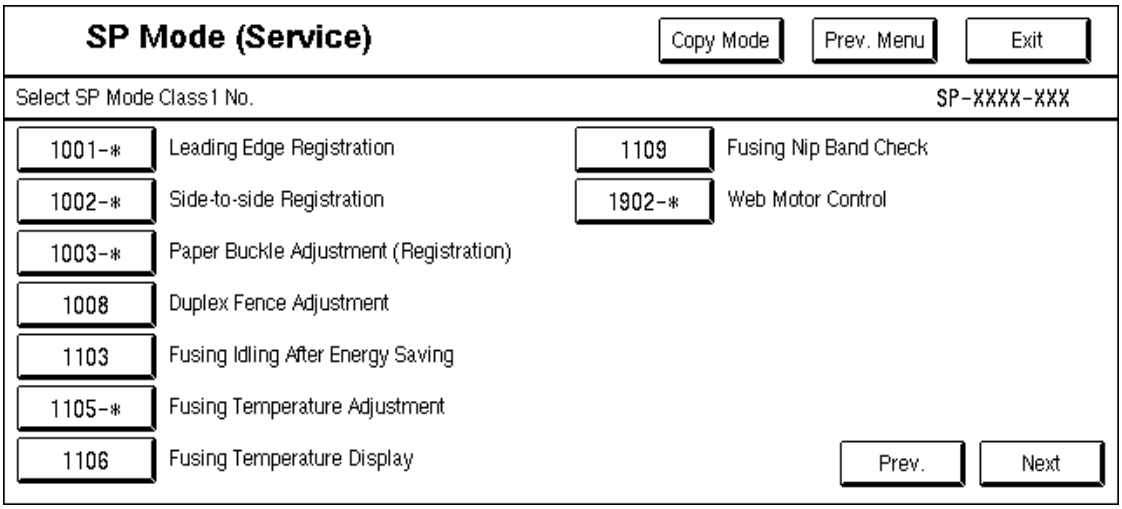
Input the required program number.

Touch Panel

1) Touch the 1st level program.

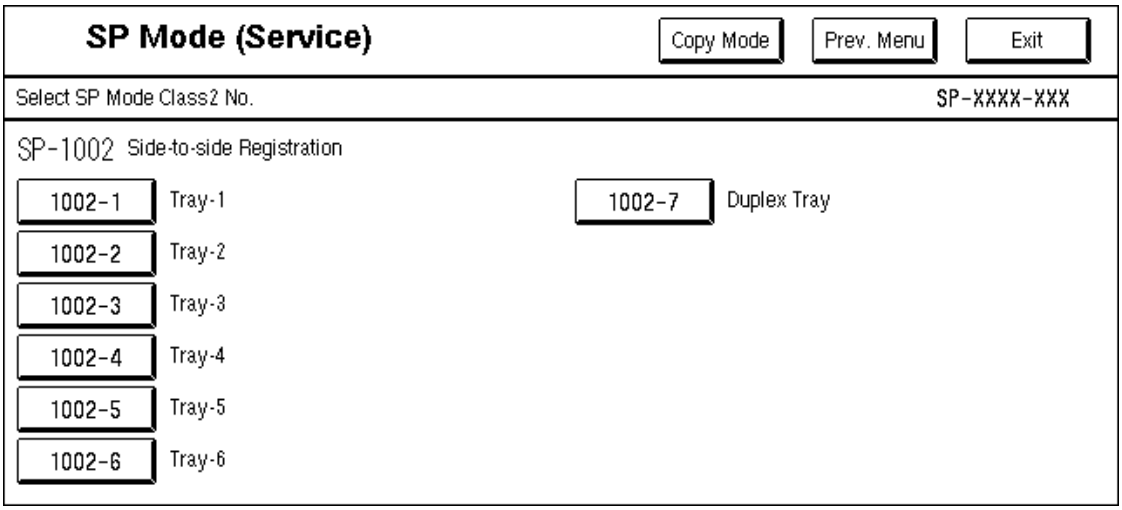


2) Touch the 2nd level program.



NOTE: A "*" mark indicates that there are 3rd level programs.

3) Touch the 3rd level program.


SP Mode (Service)
Copy Mode
Prev. Menu
Exit
Select SP Mode Class2 No.
SP-XXXX-XXX
SP-1002 Side-to-side Registration
1002-1 Tray-1
1002-2 Tray-2
1002-3 Tray-3
1002-4 Tray-4
1002-5 Tray-5
1002-6 Tray-6
1002-7 Duplex Tray

Inputting a Value or Setting for an SP Mode

1. Select the required program mode as explained on the previous page.
2. Enter the required setting using the ten-key pad, then touch the “Start” key or OK key or # key.

   NOTE: 1) If you forget to touch the “Start” key or OK key, the previous value remains.
   2) Change between “+” and “–” using the “•” key before entering the required value.
3. Exit SP mode.

4.2.2 SERVICE PROGRAM MODE TABLES

NOTE: 1) In the Function column, comments are in italics.
2) In the Settings column, the default value is in bold letters.
3) S and B in the right hand side of the mode number column means that this mode is stored in the NVRAM on the SICU (S) or BCU (B). If you do a RAM reset, all these SP modes will be reset to their factory settings.
4) [A294 I], [A295 I], [A294 II] and [A295 II] in the Settings column mean the following product types:
[A294 I]: Existing 85 cpm model. [A295 I]: Existing 105 cpm model.
[A294 II]: Enhanced 85 cpm model. [A295 II]: Enhanced 105 cpm model.

Mode No. (Class 1, 2 and 3)				Function	Settings
1-001	Leading Edge Registration				
	1	Paper Tray (Copier and LCT)	B	Adjusts the printing leading edge registration for feeding from the trays using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	+9 ~ –9 0.1 mm/step **+3.0 mm**
	2	Duplex Tray	B	Adjusts the printing leading edge registration for the duplex feeding using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	
1-002	Side-to-Side Registration				
	1	Tray-1	B	Adjusts the printing side-to-side registration from the 1st paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *See "Replacement and Adjustment – Copy Image Adjustments" for details on SP1-002.*	+9 ~ –9 0.1 mm/step **–1.5 mm**
	2	Tray-2	B	Adjusts the printing side-to-side registration from the 2nd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–1.5 mm**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-002	Side-to-Side Registration				
	3	Tray-3	B	Adjusts the printing side-to-side registration from the 3rd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–1.5 mm**
	4	Tray-4 (LCT)	B	Adjusts the printing side-to-side registration from the 4th paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**
	5	Tray-5 (LCT)	B	Adjusts the printing side-to-side registration from the 5th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**
	6	Tray-6 (LCT)	B	Adjusts the printing side-to-side registration from the 6th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**
	7	Duplex Tray	B	Adjusts the printing side-to-side registration from the duplex tray using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **–3.0 mm**
1-003	Paper Buckle Adjustment (Registration)				
	1	Copier Paper Tray	B	Adjusts the relay clutch timing at registration. The relay clutch timing determines the amount of paper buckle at registration. (A +ve setting leads to more buckling.)	+9 ~ –9 1 mm/step **+4.0 mm**
	2	LCT Tray	B		
	3	Duplex Tray	B		
1-008	Duplex Fence Adjustment				
			B	Adjusts the distance between the front and rear fences.	+4 ~ –4 0.5 mm/step **0.0 mm**
1-103	Fusing Idling After Low Power Mode				
			B	Selects whether fusing idling is done or not when recovering from the low power mode.	**0: Not done** 1: Done

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
1-105	Fusing Temperature Adjustment				
	1	Fusing Temperature in Waiting Condition	B	Adjusts the fusing temperature for stand-by.	[A294 I & II] 168 ~ 178 1°C/step **173°C** [A295 I & II] 173 ~ 178 1°C/step **178°C**
	2	Fusing Temperature Lower Limit	B	Adjusts the fusing temperature lower limit. When the fusing unit falls below this temperature, the machine stops copying. Copying automatically restarts when the fusing temperature recovers. ***This SP mode is for designer's use only.***	[A294 I & II] 157 ~ 163 1°C/step **163°C** [A295 I & II] 157 ~ 167 1°C/step **167°C**
	3	Fusing Temperature Correction (<A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on A4/LT or smaller width paper.	+0 ~ +20 1°C/step [A294 I & II] **+15°C** [A295 I & II] **+20°C**
	4	Fusing Temperature Correction (A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on paper of A4/LT width.	–5 ~ +20 1°C/step [A294 I] **+10°C** [A295 I] **+15°C** [A294 II] **+5°C (US)** **+10°C (EU)** [A295 II] **+5°C (US)** **+15°C (EU)**
1-106	Fusing Temperature Display				
				Displays the fusing temperature.	
1-109	Fusing Nip Band Check				
				Feeds a sheet from a paper tray and stops the sheet when it is between the hot roller and the pressure roller. Use an OHP sheet. After keeping the sheet there for 30 seconds, the sheet is automatically fed out. For details, see Replacement and Adjustment – Fusing.	
1-901	Fusing Exit Sensor Layout				
				Factory use only. Do not change the value.	

Mode No. (Class 1, 2 and 3)				Function	Settings
1-902	Web Motor Control				
	1	Web Consumption	B	Displays the percentage of the web consumption in 1% steps (0% ~ 107%). The value can be manually input using number keys.	
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	[A294/A295 I] 15 ~ 130 1 s/step **[A294 I] 42 s** **[A295 I] 34 s** [A294/A295 II] 3 ~ 130 1 s/step [A294 II] **11 s (EU)** **21 s (US)** [A295 II] **9 s (EU)** **17 s (US)**
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	[A294/A295 I] 0.1 ~ 3.0 0.1 s/step **0.8 s** [A294/A295 II] 0.3 ~ 3.5 0.1 s/step **2.8 s**
	4	Web Near End Setting	B	Changes the web consumption ratio at which web near end is displayed. About 40k A4 copies can be made after the web consumption reaches 100%.	0 ~ 105 1%/step [A294/A295 I] **100%** [A294/A295 II] **86% (EU)** **90% (US)**
1-906	Duplex Stop Position – Right				
			B	Changes the paper stop position in the duplex unit after passing duplex transport sensor 2. ***For designer use only.***	–10 ~ 10 2 mm/step **–8 mm**
2-001	Charge Corona Bias Adjustment				
	1	Image Area (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is **off**. *Normally, there is no need to adjust this. If there is an ID or TD sensor problem, the machine goes into fixed toner supply mode. After replacing the drum or charge corona wire, change this value to the default.*	–600 ~ –1,300 10 V/step **–1,000 V**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-001	Charge Corona Bias Adjustment				
	2	ID Sensor Pattern (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off. *Normally, there is no need to adjust this. If the user wants high density copies, the sensor pattern must be lighter, so this voltage must be a higher negative voltage.*	–600 ~ –1,300 10 V/step **–800 V**
	3	Image Area (Auto Process Control ON)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is switched **on**. This voltage changes every time auto process control starts up (every time the machine is switched on)	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,000 V** [A294/A295 II] **–950 V**
	4	Grid Voltage for Transparent Sheet	B	Adjusts the voltage applied to the grid plate when translucent mode is selected. Use this if there is a copy quality problem when making copies on translucent paper. Normally there is no need to adjust this. See 2-001-1.	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,070 V** [A294/A295 II] **–950 V**
	5	Total Corona Current	B	Adjusts the current applied to the charge corona wire except for Photo mode.	–1,400 ~ –2,800 100μA/step **–1,400 μA**
	6	Total Corona Current (Photo mode)	B	Adjusts the current applied to the charge corona wire for Photo mode.	1,400 ~ –2,800 100μA/step **–1,600 μA**
	7	V_D (Auto Process Control)	B	Adjusts the target V_D voltage for Process Control Initial Setting.	–800 ~ –1,000 10 V/step [A294/A295 I] **–970 V** [A294/A295 II] **–850 V**
2-101	Printing Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin. *See "Replacement and Adjustment – Copy Image Adjustments" for more on SP2-101.*	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin.	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	3	Left	S	Adjusts the left side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
	4	Right	S	Adjusts the right side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
2-103	LD Power Adjustment				
	1	LD1 - 600dpi	B	Adjusts the power of LD1. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-103	LD Power Adjustment				
	2	LD2 - 600dpi	B	Adjusts the power of LD2. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	3	LD3 - 600dpi	B	Adjusts the power of LD3. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	4	LD4 - 600dpi	B	Adjusts the power of LD4. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	5	LD1 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	6	LD2 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	7	LD3 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	8	LD4 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
2-104	LD Power Adjustment (for ID pattern)				
			B	Selects the LD power for making the ID pattern when auto process control is switched on. Do not use unless advised.	0 ~ 7 1/step **4**
2-114	Printer Dot Edge Parameter Setting				
	1	Leading Dot Level Setting (Left Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	2	Trailing Dot Level Setting (Right Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	3	Multiple Dot Level Setting	S	Changes the LD power level for continuous pixels in printer mode, if FCI is off.	20 ~ 100% 1% step **100%**
	4	Independent Dot Level Setting	S	Changes the LD power level for independent dots in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
2-201	Development Bias Adjustment				
	1	Image Area	B	Adjusts the development bias for copying. *This can be adjusted as a temporary measure if faint copies appear due to an aging drum.*	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-201	Development Bias Adjustment				
	2	ID Sensor Pattern	B	Adjusts the development bias for making the ID sensor pattern for V_{SP} measurement when the auto process control is set to off. *This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.*	–200 ~ –700 10 V/step **–400 V**
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
	4	ID Sensor Development Potential	B	Adjusts the development potential for making the ID sensor pattern for V_{SP} measurement when the auto process control is set on.	180 ~ 380 1 V/step **280 V**
2-207	Forced Toner Supply				
	1	Forced Toner Supply		Forces toner supply for 7 seconds from the toner bank through the toner hopper to the development unit. *This mode finishes automatically after the toner is supplied 7 times (1 s for each time).*	Start
	2	Toner Bank Toner Setup		Turns on the main motor, development motor, development bias, toner supply motor and charge corona. Then turns on the toner supply coil clutch to supply toner to the toner hopper, but not to the development unit. It takes about 7 minutes. *This mode should be used to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.*	Start
2-208	Toner Supply Mode				
			B	Selects the toner supply mode. *Use image pixel count mode only as a temporary countermeasure if the ID or TD sensor is defective.*	**Sensor Control** Pixel Count Control
2-209	Toner Supply Rate				
			B	Adjusts the toner supply rate from the hopper. *Increasing this value reduces the toner supply roller clutch on time. Use a lower value if the user tends to make lots of copies that have a high proportion of black.*	100 ~ 2,000 10 mg/s/step [A294 I & II] **800 mg/s** [A295 I & II] **1000 mg/s**
2-210	ID Sensor Pattern Interval				
			B	Changes the interval for making the ID sensor pattern (V_{SP}/V_{SG} detection). *If the user normally makes copies with a high proportion of black, reduce the interval.*	0 ~ 500 1 copy/step **10 copies**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-220	VREF Manual Setting				
			B	Adjusts the TD sensor reference voltage (VREF). *Change this value after replacing the development unit with another one that already contains toner.* *For example, when using a development unit from another machine for test purposes, do the following:* *1. Check the value of SP2-220 in both the machine containing the test unit and the machine that you are going to move it to.* *2. Install the test development unit, then input the VREF for this unit into SP2-220.* *3. After the test, put back the old development unit, and change SP2-220 back to the original value.*	0 ~ 5.0 0.01 V/step **2.5 V**
2-223	VT Display				
			B	Displays the current TD sensor output voltage.	
2-226	Toner Bank Toner Discharge				
				This SP removes toner from the toner bank to the toner hopper. After turning the toner supply motor and the toner bank motor on, the toner supply coil clutch turns on and off at 2 second intervals. The motors and clutch stop when the toner near-end sensor (in the toner bank unit) detects no toner. Even if the sensor continues to detect toner, this operation stops when the clutch has been turned on and off 10 times, so this SP may have to be repeated to clean out the system completely.	Start
2-227	Toner Supply Mode Display				
				Displays the toner supply mode used for the last copy. 1: ID Sensor and TD Sensor (from the 11th copy, using VT – VREF) 2: ID Sensor and TD Sensor (using VSP/VSG) – before the 10th copy of a job 3: TD Sensor – temporary mode when ID sensor output is abnormal 4: Image Pixel Count	
2-301	Transfer Current Adjustment				
	1	1st Copy Side	B	Adjusts the current applied to the transfer belt during copying on the 1st side of the paper. If the user uses thicker paper, the current may have to be increased to ensure sufficient transfer of toner.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-301	Transfer Current Adjustment				
	2	Thick Paper	B	Adjusts the current applied to the transfer belt during copying on thick paper. *See above.*	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	3	OHP Sheet	B	Adjusts the current applied to the transfer belt during copying on OHP sheet. See above. If the user normally feeds thicker paper from the bypass tray, use a higher setting.	10 ~ 200 1 μA/step **140 μA**
	4	Transparent Paper	B	Adjusts the current applied to the transfer belt during copying on translucent paper.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	5	2nd Copy	B	Adjusts the current applied to the transfer belt during copying on the 2nd side of the paper.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	6	Between Pages	B	Adjusts the current applied to the transfer belt between the pages.	10 ~ 200 1 μA/step **20 μA**
2-506	Cleaning Interval – Multiple Copy				
	1	On/Off	B	Selects whether multiple copy jobs are stopped at regular intervals for the following purposes. 1. Stop and turn the drum motor in reverse to clean the cleaning blade edge 2. Make an ID sensor pattern to correct the toner density control. The interval depends on SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during a long job. Normally keep at 'No', because the 'Yes' setting causes the machine to stop copying every 15 minutes, which may cause problems for the customer.	1: No **2: Yes**
	2	Interval	B	Selects the interval at which multi copy jobs are stopped.	1 ~ 100 1 minute/step **30 minutes**
2-801	TD Sensor Initial Setting				
			B	Performs the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 2.5 V. After finishing this, the TD sensor output voltage is displayed. *Use this mode only after changing the TD sensor or the developer.*	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
2-803	Corona Wire Cleaner On				
				Turns on the corona wire cleaner manually. *When copy density across the paper is uneven at EM, clean the wire with this mode.*	Start
2-804	Charge Corona Cleaner Setting				
	1	Corona Wire Cleaner Operation Setting	B	Selects when automatic corona wire cleaning is done. 0: Corona wire cleaning is not done. 1: When process control initial setting is done, if the copy number after the last cleaning operation is over the number set in SP2-804-2. 2: At the period set in SP2-804-2.	[A294/A295 I] 0: Not done **1: Done** 2:Periodically [A294/A295 II] 0: Not done 1: Done **2:Periodically**
	2	Operation Interval	B	Selects the interval for automatic corona wire cleaning.	100 ~ 10,000 100 print/step **5,000**
2-813	Printer Gamma Setting				
			S	Select if printer gamma correction is applied or not. *This SP mode is for designer use only.*	**0: Applied** 1: Not applied
2-902	Printing Test Pattern				
	2	IPU Test Pattern Selection (for Scanner)		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns. *This SP mode is useful for finding whether the SICU or the SBU is defective. If the printout is not OK, the SICU is defective.*	
	3	Printing Test Pattern		Prints the printer test patterns. See section 4.2.3. for how to print test patterns. Example: 15. Trimming Area *This SP mode is useful for finding whether the LDDR or the SICU is defective. If the printout is not OK, the LDDR is defective.*	
	4	Outer I/F Block Test Pattern		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns. *This SP mode is useful for finding whether the SICU or the printer application is defective. If the printout is not OK, the SICU is defective.*	
	5	Frequency Pattern Density		Designer use only.	
2-906	Vcont Manual Setting				
			B	***Factory use only.***	**9.7 V**
2-909	Main Scan Magnification				
	1	Copier	S	Adjusts the magnification in the main scan direction for copy mode. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–2.0 ~ +2.0 0.1%/step **+0.0%**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-909	Main Scan Magnification				
	2	Printer	S	Adjusts the magnification in the main scan direction when printing from a personal computer. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–2.0 ~ +2.0 0.1%/step **+0.0%**
2-910	Writing Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–1.0 ~ +1.0 0.1%/step **+0.0%**
2-911	Transfer Current On/Off Timing				
	1	La (ON)	B	Adjusts the transfer current on timing at the leading edge.	–30 ~ +30 1 mm/step **0 mm**
	2	Lb (On/Off exchange timing)	B	Adjusts the transfer current on/off exchange timing. (A294/A295 II models only)	[A294/A295 II] 0 ~ +60 1 mm/step **+45 mm**
	3	Lc (OFF)	B	Adjusts the transfer current off timing (for example: –5 mm is 5 mm after the trailing edge).	–30 ~ +30 1 mm/step **0 mm**
2-912	Drum Reverse Rotation Interval				
			B	**This SP mode is for designer use only. Do not change the value.**	0 ~ 10 1/step **2**
2-913	Test Pattern ID Adjustment				
				Adjusts the image density for printing test patterns (with SP2-902). Usually this SP mode is only used by designers. *The value is cleared when the main power switch is turned off and on.*	0 ~ 15 1/step **15**
2-920	LD Off Check				
				Checks whether the LD turns off or on when the front door is opened. 0: On 1: Off ***Factory use only.***	**0: ON** 1: OFF
2-930	Transfer Pre-cleaning				
				Designer use only	
2-940	Leading Edge Transfer Current Adjustment				
	1	Tray-1	B	Adjusts the leading edge transfer current for each paper feed station. (A294/A295 II models only)	10 ~ 200 1 μA/step [A294 II] **120 μA** [A295 II] **140 μA**
	2	Tray-2			
	3	Tray-3			
	4	Tray-4 (LCT)			
	5	Tray-5 (LCT)			
	6	Tray-6 (LCT)			
	7	Duplex Tray			

Mode No. (Class 1, 2 and 3)			Function	Settings
2-941	Transfer Current for Semi-thick Paper			
		B	Determines that the transfer current for semi-thick paper is handled as Plain paper or Thick paper	**0: Plain paper** 1: Thick paper
			• *Setting this mode to "Thick paper" is effective when image at the leading edge is not good.* • *To use this mode, "Recycled paper" should be selected in the User Tools for semi-thick paper.* • *Selecting "Thick paper" in the User Tools is the same effect as this mode. But selecting "Thick paper" in the User Tools does not allow the duplex or punch mode.*	
2-961	Developer Initialization (Factory)			
			Factory use only.	
2-962	Auto Process Control			
		B	Automatically adjusts the following process control factors. 1. Drum potential sensor 2. ID sensor 3. Charge grid voltage (by changing V_D) 4. LD power (by changing V_H) Before using this SP, auto process control should be on (SP3-901).	Start
			After changing the drum, ID sensor, drum potential sensor, LD unit, charge corona wires, or toner density sensor, this SP should be used.	
2-966	Periodical Auto Process Control			
		B	Selects whether auto process control is done after the first job since 24 hours is finished. This setting is required for a customer who keeps the main switch on all day.	**ON** OFF
2-967	Auto Image Density Adjustment			
		B	Selects whether auto image density adjustment is done during machine warm up. This mode is to counter dirty background that occurs when a machine is used in an area that contains ammonia.	**OFF** ON
			If Periodical Auto Process Control (SP2-966) is used, this adjustment is done also after the auto process control is finished.	

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-968	Toner Density Correction				
			B	To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), VREF is changed by – 0.06 V every (100 X (SP2-974 value + 1)) prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) X (SP2-974 value +1)" has been made.	0 ~ 20 k 1 k prints/step **0**
2-969	ID Sensor Pattern Interval – Multicopy				
			B	Twenty ID patterns are made in a 1-minute interval during a continuous copy process just after the process control is completed. Image density will be stabilized. However, the printing productivity will be decreased.	**OFF** ON
2-970	Toner Suction System				
				Displays whether the toner suction system is installed in order to distinguish between A294/A295 I and A294/A295 II.	[A294/A295 I] 0: Not installed [A294/A295 II] 1: Installed
2-971	Collected Toner Level Check				
	Check this mode when "Waste toner full" pop-up message comes up or "Near full" message is displayed.				
	1	Left Toner Collection Bottle		Display whether the used toner collection bottle is full or not.	0: Not full 2: Full
	2	Toner Collection Bottle		Display whether the sucked toner collection bottle is full or not. (A294/A295 II models only)	0: Not full 1: Near full 2: Full
	3	Toner Suction Motor		Displays whether the toner suction motor needs to be replaced or not. (A294/A295 II models only)	0: Not needed 1: Needed soon 2: Needed
2-972	Sucked Toner Collection Bottle Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the sucked toner collection bottle replacement. <Preset Values> Near full: 280 hours, Full: 300 hours *Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.*	XXX hours
2-973	Toner Suction Motor Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the toner suction motor replacement. <Preset Values> Near full: 570 hours, Full: 600 hours *Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.*	XXX hours

Mode No. (Class 1, 2 and 3)				Function	Settings
2-974	Toner Supply Interval				
				Adjusts the interval of toner supply. (Once every how many prints) • *The operation of SP2-968 has been changed.* • *The VREF update interval has been changed from "every 100 prints" to "every (100 X (SP2-974 value + 1)) prints".*	0: 1/1 (every print) **1: 1/2 (every 2 prints)** 2: 1/3 (every 3 prints) 3: 1/4 (every 4 prints)
3-001	ID Sensor Initial Setting				
	1	ID Sensor PWM Setting	B	This SP mode is added to recover the machine when an SC condition occurs because ID Sensor Initial Setting is not done after doing an NVRAM Clear or replacing the NVRAM. Reset this SP to the factory setting in this case. *The PWM data is stored when ID Sensor Initial Setting is done.*	0 ~ 255 1/step **72**
3-001	ID Sensor Initial Setting				
	2	Initialization	B	Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2 V. *This SP mode should be performed after:* *1. Replacing or cleaning the ID sensor* *2. Replacing the NVRAM or doing an NVRAM clear.*	Start
3-103	ID Sensor Output Display				
	1	VSG	B	Displays the current VSG and VSP output. *If the ID sensor does not detect the ID pattern, "VSP = 5.0 V/VSG = 5.0 V" is displayed and an SC code is generated.* *If the ID sensor does not detect the bare area of the drum, "VSP = 0.0 V/VSG = 0.0 V" is displayed and an SC code is generated.*	
	2	VSG Initial (Designer Use)			
	3	VSP			
	4	VSP Initial (Designer Use)			
3-901	Auto Process Control Setting				
			B	Decides whether or not the machine checks and corrects the drum potential (VD) and LD power when the fusing temperature is lower than 100°C at power-up.	**ON** OFF
3-902	Process Control Data Display				
	1	Auto Process Control (O: OFF, 1: ON)	B	Displays whether auto process control is on or off.	
3-902	Process Control Data Display				
	2	VD	B	Displays the drum potential.	
	3	Half Tone VH	B	Displays the drum potential in areas illuminated by the laser during LD power adjustment (auto process control).	
	4	VG	B	Displays the charge grid voltage which resulted from the latest VD adjustment.	

Mode No. (Class 1, 2 and 3)				Function	Settings
3-902	Process Control Data Display				
	5	LD Power (Correction)	B	Displays the LD power correction value which resulted from the latest V_H adjustment.	
	6	VID	B	Displays the latest drum surface voltage measured on the ID sensor pattern.	
	7	VM200	B	Displays the drum potential sensor output when 200 V is applied during potential sensor correction.	
	8	VM700	B	Displays the drum potential sensor output when 700 V is applied during potential sensor correction.	
	9	V_D Correction	B	Displays whether the V_D correction is being performed. The target value of the V_D correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0: Not performed 1: Performed
3-903	V_D Correction Counter				
			B	Adjusts the starting point for the V_D Correction. Displays whether the V_D correction is being performed. The target value of the V_D correction is "SP2-001-7 value + 50". (A294/A295 II models only) *The counter to control the V_D correction is automatically reset to 0 (zero) when SP2-801 is performed.*	0 ~ 999 1 k prints/step **100 k prints**
4-008	Scanner Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction for scanning. If this value is changed, the scanner motor speed is changed. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–0.9 ~ +0.9 0.1 %/step **+0.0 %**
4-010	Scanner Side-to-Side Registration				
			S	Adjusts the leading edge registration for scanning. *(–): The image moves in the direction of the leading edge* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–9.0 ~ +9.0 0.1 mm/step **+0.0 mm**
4-011	Scanner Side-to-Side Registration				
			S	Adjusts the side-to-side registration for scanning. *(–): The image disappears at the left side.* *(+): The image appears at the left side.* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–6.0 ~ +6.0 0.1 mm/step **+0.0 mm**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-012	Scanner Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin for scanning. *Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	3	Right	S	Adjusts the right side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	4	Left	S	Adjusts the left side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
4-013	Scanner Free Run				
				Performs a scanner free run with the exposure lamp on.	**0: Stop** 1: Start
4-015	Scanner Speed Adjustment				
			S	Displays the value of the scanner speed fine adjustment. This setting can be changed using the number keys. *The scanner speed fine adjustment is automatically done when the main switch is turned on, and the current setting is overwritten.*	–20 ~ +20 1/step **0**
4-301	APS Sensor Output Display				
				Displays the APS sensor output signals when an original is placed on the exposure glass	
4-303	APS A5/HLT Size Original Detection				
			S	Selects whether or not the copier determines that the original is A5/HLT size when the APS sensor does not detect the size. *If "A5 length/5 1/2" x 8 1/2"" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise or 5 1/2" x 8 1/2".* *If "Not detected" is selected, "Cannot detect original size" will be displayed.*	**0: Not detected** 1: A5 length/ 5 1/2" x 8 1/2" 2: Not detected 3: A5 length/ 5 1/2" x 8 1/2" (Setting 2 or 3 is required if 267 x 390 and 267 x 195 paper is used.)
4-428	Scanner Adjustment				
	1	Flag Display	S	Displays whether or not the standard white level adjustment has been done.	Adjusted **Not adjusted**
	2	Standard		Corrects the standard white level from the white plate. ***This SP mode is for factory use only. Do not use this SP mode.***	Start

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	1	Image data Path Setting	S	Changes the image data path in the SBU. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~5 1/step **0**
	2	ASIC ID Display		Displays the ASIC ID of the SBU. ***This SP mode is for factory use only.***	
	3	E/O Adjustment - First Side	S	Checks the difference value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	4	E/O Adjustment - Last Side	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	7	Black Level - First Side	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	8	Black Level - Last Side	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	15	Range Adjustment - First Side	S	Checks the AGC gain range of the white level for the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	16	Gain Range Adjustment - Last Side	S	Checks the AGC gain value of the white level for the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	19	Gain Adjustment - First Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	20	Gain Adjustment - First Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	21	Gain Adjustment - Last Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	22	Gain Adjustment - Last Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	25	Reference Voltage Adjustment	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~ 255 1/step **117**
	31	E/O Adjustment - First Side (Memory)	S	Checks the difference value of the black level for the First side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	32	E/O Adjustment - Last Side (Memory)	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	35	Black Level - First Side (Memory)	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	36	Black Level - Last Side (Memory)	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	43	Range Adjustment - First Side (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	44	Range Adjustment - Last Side (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	47	Gain Adjustment - F/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	48	Gain Adjustment - F/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	49	Gain Adjustment - L/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	50	Gain Adjustment - L/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	53	Reference Voltage Adjustment (Memory)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	59	Standard White Level		Checks either the maximum or minimum white shading data. ***This SP mode is for designer use only.***	0: Maximum 1: Minimum
	61	Range F (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	62	Gain Adjustment - First Side O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	65	Range L (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	66	Gain F-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	67	Gain L/F ch (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	68	Gain L-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	71	Reference Voltage (Factory Setting)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	75	Overflow Flag		Checks the overflow flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	76	Time Out Flag		Checks the time out flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	78	SBU Reset Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 15 1/step **0**
	79	Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	80	E/O Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	81	Black Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	82	Gain F/L Difference Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	83	Black Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	84	White Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	85	Retry Error Fault Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	86	Retry Error Success Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	87	White Reading Value - F/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	88	White Reading Value - F/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	89	White Reading Value - L/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	90	White Reading Value - L/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	91	BIPU IO	S	***This SP mode is for designer use only.***	
4-903	Filter Setting				
	5	Full Size Mode		Selects whether the copy is always in full size mode even if the magnification ratio has been changed. *Set to 1 when checking the magnification in the main scan direction. If the magnification is not 100%, something is wrong with the image processing circuits.*	**0: Normal operation** 1: Always full size mode
	7	Image Shift in Magnification		Adjusts the pixel shift amount in the main scan direction in magnification mode. ***This SP mode is for designer use only.***	0 ~ 8191 1/step **0**
	9	Filter Type Selection - Photo Mode	S	Selects the filter type for Photo mode. *Coefficients used:* *0: SP4-903-36 1: SP4-903-37* *If "0" is selected, the image will be sharper. However, dot screen areas will be faint.* *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0: MTF **1: Smoothing**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	10	Pre-filter Type (Text mode 25% ~ 49%)	S	Selects the pre-filter type. 0: None 1: Smoothing (Normal) 2: Smoothing (Weak) 3 ~ 5: Special smoothing filters which reduce moiré but do not weaken the edges of low contrast text. A suitable filter should be selected depending on the original type. 6: MTF (Weak) 7: MTF (Normal) 8 ~ 10: Special smoothing filters only for the main scan direction. These filters should be used if the edges of lines that are parallel to the sub scan line are weakened when a filter from 3 ~ 5 is selected. A suitable filter should be selected depending on the original type. This SP is ignored unless the user selects 'Service Mode' in UP mode.	0 ~ 10 1/step **1**
	11	Pre-filter Type (Text mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	12	Pre-filter Type (Photo mode)	S		0 ~ 10 1/step **1**
	13	Pre-filter Type (Text/Photo mode 25% ~ 49%)	S		0 ~ 10 1/step **1**
	14	Pre-filter Type (Text/Photo mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	15	Pre-filter Type (Pale mode)	S		0 ~ 10 1/step **1**
	16	Pre-filter Type (Generation mode)	S		0 ~ 10 1/step **1**
	20	Filter Level - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	21	Filter Level - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	22	Filter Strength - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6:Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	23	Filter Strength - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	24	Filter Level - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	25	Filter Level - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	26	Filter Strength - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **2**
	27	Filter Strength - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text mode. 0: Weak 6: Strong. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	28	Filter Level - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	29	Filter Level - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	30	Filter Strength - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	31	Filter Strength - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	32	Filter Level - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 256% ~ 400% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	33	Filter Level - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	34	Filter Strength - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**
	35	Filter Strength - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	36	MTF Filter in Photo Mode	S	Selects the MTF filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	37	Smoothing Filter in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if smoothing is enabled for this mode with SP4-903-9. 0: Weak 4: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 1/step **1**
	38	Filter Strength in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	39	Filter Level - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	40	Filter Level - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	41	Filter Strength - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	42	Filter Strength - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	43	Filter Level - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	44	Filter Level - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	45	Filter Strength - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	46	Filter Strength - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	47	Filter Level - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	48	Filter Level - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	49	Filter Strength - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	50	Filter Strength - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	51	Filter Level - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	52	Filter Level - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	53	Filter Strength - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	54	Filter Strength - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	55	Filter Level in Pale Mode	S	Selects the table of the MTF filter coefficient for pale original mode Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	56	Filter Strength in Pale Mode	S	Selects the table of the MTF filter strength for pale original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	57	Filter Level in Generation Mode	S	Selects the table of the MTF filter coefficient for pale original mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	58	Filter Strength in Generation Mode	S	Selects the table of the MTF filter strength for generation original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	60	Independent Dot Erase - Text Mode	S	Selects the independent dot erase level for text mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	62	Independent Dot Erase - Text/Photo Mode	S	Selects the independent dot erase level for text/photo mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	63	Independent Dot Erase - Pale Mode	S	Selects the independent dot erase level for pale mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	64	Independent Dot Erase - Generation Copy Mode	S	Selects the independent dot erase level for generation copy mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	65	Scanner Gamma Thresh Level - Text	S	Adjust the threshold level for the background erase function in letter mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-70.*	0 ~ 255 1/step **0**
	66	Scanner Gamma Thresh Level - Photo	S	Adjust the threshold level for the background erase function in photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-71.*	0 ~ 255 1/step **0**
	67	Scanner Gamma Thresh Level - Text/Photo	S	Adjust the threshold level for the background erase function in text/photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-72.*	0 ~ 255 1/step **0**
	68	Scanner Gamma Thresh Level - Pale	S	Adjust the threshold level for the background erase function in pale mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-73.*	0 ~ 255 1/step **0**
	69	Scanner Gamma Thresh Level - Generation	S	Adjust the threshold level for background erase in generation copy mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-74.*	0 ~ 255 1/step **0**
	70	Background Erase Mode Text	S	Selects the background erase function setting in text mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-65.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-65.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	71	Background Erase Mode Photo	S	Selects the background erase function setting in photo mode. 0: Not done 1: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-66.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 1 1/step **0**
	72	Background Erase Mode Text/Photo	S	Selects the background erase function setting in text/photo mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-67.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-67.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	73	Background Erase Mode Pale	S	Selects the background erase function setting in pale mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-68.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-68.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	74	Background Erase Mode Generation	S	Selects the background erase function setting in generation mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-69. 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-69. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

<table>
<tr><th colspan="4">Mode No.
(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
<tr><td>4-903</td><td colspan="5">Filter Setting</td></tr>
<tr><td></td><td>75</td><td>Line Thickness Correction - Setting in Generation Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table><tr><th></th><th>Main Scan</th><th>Sub Scan</th></tr><tr><td>0:</td><td>No Correction</td><td>No Correction</td></tr><tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr><tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr><tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr><tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr><tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr><tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr><tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr><tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr><tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr><tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr><tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr><tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr><tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr><tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr><tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr></table>Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
Refer ‘Line Width Correction’ in section 2.</td><td>0 ~ 15
1/step
5</td></tr>
<tr><td></td><td>76</td><td>Line Thickness Correction Threshold - in Generation Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>77</td><td>Line Thickness Correction - Generation Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
</table>

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	78	Line Thickness Correction - Setting in Text Mode	S	Selects the line thickness setting in generation mode. 0: Main Scan: No Correction; Sub Scan: No Correction 1: Main Scan: No Correction; Sub Scan: Thinner 1 2: Main Scan: No Correction; Sub Scan: Thinner 2 3: Main Scan: No Correction; Sub Scan: Thicker 4: Main Scan: Thinner 1; Sub Scan: No Correction 5: Main Scan: Thinner 1; Sub Scan: Thinner 1 6: Main Scan: Thinner 1; Sub Scan: Thinner 2 7: Main Scan: Thinner 1; Sub Scan: Thicker 8: Main Scan: Thinner 2; Sub Scan: No Correction 9: Main Scan: Thinner 2; Sub Scan: Thinner 1 10: Main Scan: Thinner 2; Sub Scan: Thinner 2 11: Main Scan: Thinner 2; Sub Scan: Thicker 12: Main Scan: Thicker; Sub Scan: No Correction 13: Main Scan: Thicker; Sub Scan: Thinner 1 14: Main Scan: Thicker; Sub Scan: Thinner 2 15: Main Scan: Thicker; Sub Scan: Thicker Line Thickness: Thicker > No Correction > Thinner 1 > Thinner 2 *Refer 'Line Width Correction' in section 2.*	0 ~ 15 1/step **5**
	79	Line Thickness Correction - Threshold in Text Mode - Main Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.	0 ~ 5 1/step **2**
	80	Line Thickness Correction - Threshold in Text Mode - Sub Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.	0 ~ 5 1/step **2**

Service Tables

<table>
<tr><th colspan="4">Mode No.
(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
<tr><td>4-903</td><td colspan="5">Filter Setting</td></tr>
<tr><td></td><td>81</td><td>Line Thickness Correction - Setting in Text/Photo Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table><tr><th></th><th>Main Scan</th><th>Sub Scan</th></tr><tr><td>0:</td><td>No Correction</td><td>No Correction</td></tr><tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr><tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr><tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr><tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr><tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr><tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr><tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr><tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr><tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr><tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr><tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr><tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr><tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr><tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr><tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr></table>Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
Refer ‘Line Width Correction’ in section 2.</td><td>0 ~ 15
1/step
5</td></tr>
<tr><td></td><td>82</td><td>Line Thickness Correction Threshold in Text/Photo Mode - Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>83</td><td>Line Thickness Correction Threshold in Text/Photo Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>84</td><td>Scanner Gamma Setting in Text Mode</td><td>S</td><td>Selects the scanner and printer gamma settings used when ‘Service Mode’ for Text mode is selected.
0: Scanner gamma for ‘Soft’ is used.
1: Scanner gamma for ‘Normal’ is used.
2: Scanner gamma for ‘Sharp’ is used.</td><td>0 ~ 5
1/step
1</td></tr>
<tr><td></td><td>85</td><td>Scanner Gamma Selection in Text/Photo Mode</td><td>S</td><td>Selects the scanner and printer gamma settings used when ‘Service Mode’ for Text/Photo mode is selected.
0: Scanner gamma for ‘Photo Priority’ is Sused.
1: Scanner gamma for ‘Normal’ is used.
2: Scanner gamma for ‘Text Priority’ is used.</td><td>0 ~ 5
1/step
1</td></tr>
</table>

Mode No. (Class 1, 2 and 3)				Function	Settings
4-904	IPU Setting-1				
	2	Gradation Processing Selection - Photo	S	Selects the gradation processing procedure. 0: Three-gradation error diffusion 1: Four-gradation error diffusion 2: 8" x 8" dither matrix 3: 6" x 6" dither matrix 4: 4" x 4" dither matrix *A larger dither matrix gives coarser reproduction of halftones. This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 **1**
	4	Forced Binary Mode	S	1: Binary processing is done for all image modes.	**0: No** 1: Yes
	6	Smoothing Filter Level in Photo Mode	S	Selects the smoothing filter level in photo mode. 0: None 1: Weak 5: Strong	0 ~ 5 **2**
	7	Texture Erase Filter Level in Text/Photo Mode	S	Selects the strength of the filter for erasing texture from the image in text/photo mode. 0: None 1: Weak 2: Strong	0 ~ 2 **0**
	20	Thin Line Mode in Laser Writing - Text	S	Selects thin line mode level in laser writing for text mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	22	Thin Line Mode in Laser Writing - Text/Photo	S	Selects thin line mode level in laser writing for text/photo mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	23	Thin Line Mode in Laser Writing - Pale	S	Selects thin line mode level in laser writing for pale mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**
	24	Thin Line Mode in Laser Writing - Generation	S	Selects thin line mode level in laser writing for generation mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-905	Image Data Path				
	1	Image Data Path - Filtering/ Magnification	S	Selects one of the following video data outputs, which will be used for printing. 0: Magnification → Filtering 1: Filtering → Magnification 2: Pre-filter → Magnification → Filtering 3: Pre-filter → Filtering → Magnification **4: Normal operation**	
				Do not change the value.	
	4	Printout Type selection	S	Selects one of the following video data outputs, which will be used for the printer controller **0: Normal operation** 1: Black/White 2: Not printed out 3: Application through	
				Do not change the value.	
4-906	Image Processing Priority in Text/Photo Mode				
			S	Selects either text priority or photo priority for text/photo mode. Photo priority: Background erase is off Letter priority: Background erase is on.	0: Photo priority **1: Text priority**
				This SP is ignored unless the user selects 'Service Mode' in UP mode.	
4-907	Image Process Priority in Photo Mode				
				Selects whether the ADS mode is set. 0: When the Photo mode is set, the ADS mode is automatically set to Off. But operator can manually set the ADS mode to On. 1: When the Photo mode is set, the ADS mode is automatically set to On. But operator can manually set the ADS mode to Off.	**0: Photo** 1: Text
4-909	IPU Setting-2				
			S	**Designer use only. Do not change the value.**	
4-910	Data Compression				
	3	ABS Core	S	***Designer use only. Do not change the value.***	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-911	HDD 1 Front (Black)				
	1	HDD 1 Media Check	S	Checks for bad sectors on hard disk 1 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.** *This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation.* *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC364 will be generated. At this time, use SP4-911-2.*	
	2	HDD 1 Formatting	S	Formats hard disk 1. This takes 4 minutes. ***Do not turn off the main power switch during this process.***	Start
	6	HDD 1 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM. *This SP should be used when the hard disk is replaced.*	
	7	HDD 1 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 1. *If the machine detects a total of over 50 bad sectors on the disk, SC364 will be generated. At this time, use SP4-911-2.*	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
	8	HDD 1 Model Name Display		Displays the model name of HDD 1. *If the HDD is not installed or the HDD connector is not connected, SC360 will be displayed. However, the user can make single copies.*	

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-912	HDD 2 Rear (Gray)				
	1	HDD 2 Media Check		Checks for bad sectors on hard disk 2 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.** *This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation.* *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC365 will be generated. At this time, use SP4-912-2.*	
	2	HDD 2 Formatting		Formats hard disk 2. This takes 4 minutes. ***Do not turn off the main power switch during this process.***	Start
	6	HDD 2 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM. *This SP should be used when the hard disk is replaced.*	
	7	HDD 2 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 2. *If the machine detects a total of over 50 bad sectors on the disk, SC365 will be generated. At this time, use SP4-912-2.*	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
	8	HDD 2 Model Name Display		Displays the model name of HDD 2. *If the HDD is not installed or the HDD connector is not connected, SC361 will be displayed. However, the user can make single copies. (See Detailed Section Descriptions – Others for details on the use of the two hard disks.)*	
4-913	HDD Interface Type Selection				
			S	***Designer use only. Do not change this setting.***	**0: Ultra DMA/33 I/F** 1: Multiword DMA I/F
4-914	Forced HDD Selection				
				Designer use only. Do not change this setting.	**0: Default** 1: HDD1 2: HDD2
4-915	CD-RW				
	1	CD-RW Model Name Display		Displays the CD-RW model name.	
	2	CD-RW F/W Version Display		Displays the CD-RW firmware version.	

Mode No. (Class 1, 2 and 3)				Function	Settings
5-019	Tray Paper Size Selection				
	1	1st Tray	B	Selects the paper size in the 1st tray.	A4 8 1/2" x 11" A3 B4 A4R 11" x 17" 8 1/2" x 14"R 8 1/2" x 11"R
	6	6th Tray	B	Selects the paper size in the 6th tray (tray 3 of the optional LCT).	A4 B5 A5 A5R 8 1/2" x 11" 5 1/2" x 8 1/2" 5 1/2" x 8 1/2"R
5-024	mm/inch Display Selection				
			S	Selects what unit is used. *After selecting the unit, turn the main power switch off and on.*	**0: mm** 1: inch
5-038	Job Memory in Sample Copy				
			S	Selects whether the next copy job can be stored in memory before the sample copy cycle of the previous job is finished.	0: No **1: Yes**
5-104	A3/DLT Double Count				
			S	Specifies whether the counter is doubled for A3/11" x 17" paper. *If "1" is selected, the total counter and the current user code counter count up twice when A3/11" x 17" paper is used.*	**NO** YES
5-106	ID Level Setting				
	6	ADS Level Selection	S	Selects the image density level that is used in ADS mode.	1 ~ 9 1 notch/step **5**
5-112	Non-standard Paper Selection				
			S	Selects whether a non-standard paper size can be input for trays 2 and 3 (universal tray) or not. *If "Yes" is selected, the customer will be able to input a non-standard paper size using a UP mode.*	**NO** YES
5-113	Optional Counter Type				
			S	***This SP is for Japan only. Do not change the value.***	0 ~ 5 1/step **0**
5-118	Disable Copying				
			S	Disables copying. *The setting should always be "0".*	**0: No** 1: Yes
5-120	Mode Clear-Opt. Controller Removal				
			S	*This function is for Japanese machines only.*	**0: Yes** 1: Stand-by 2: No

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
5-121	Counter Up Timing				
			S	Determines the key counter count up timing. 0: The key counter counts up at paper feed timing. 1: The key counter counts up when the paper exits to the finisher tray. *This setting does not affect the timing of the copier total counter.*	**0: Feed** 1: Exit
5-127	APS Mode				
			S	Selects the availability of APS mode. 0: APS can be used 1: APS cannot be used	**0: Yes** 1: No
5-131	Paper Size Type Selection				
			B	Selects the paper size type (for originals and copy paper). (The default setting depends on the settings of DIP SW 1 and 2 on the SICU.) *After changing the value, turn the main power switch off and on.*	0: Japan **1: North America** **2: Europe** **3: China**
5-212	Paper Print Setting				
	3	Page Print Position Side - Side to Side	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (To the right) ~ 10 (To the left)	–10 ~ 10 mm 1 mm/step **0**
	4	Page Print Position Up and Down	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (Upper) ~ 10 (Lower)	–10 ~ 10 mm 1 mm/step **0**
5-501	PM Alarm Interval				
			S	Set the PM alarm interval. A message is displayed on the screen when the PM counter reaches this value x 1,000. *The message can be turned off by the following procedure: Clear Modes key – 0 – Clear key – 0 – Clear key (hold for more than 3 seconds). However, the PM counter is not cleared. To clear the PM counter, use SP7-804.*	0 ~ 999 (k) **0 (No PM Alarm)**
5-504	Jam Alarm Interval (RDS Function)				
	1	Jam Alarm Level	S	***Japanese version only. Do not change the setting.***	0: Z 1: L 2: M **3: H**
	2	Jam Alarm Long Time	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
5-505	Error Alarm (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 255 (k) **30 k**

Mode No. (Class 1, 2 and 3)				Function	Settings
5-513	PM Call Interval (RDS Function)				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
5-514	PM Call On/Off Setting				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0: No **1: Yes**
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	**0: No** 1: Yes
5-590	Auto Call Setting (RSS Function)				
	2	Door Open	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
	3	Paper Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	4	Staple Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	5	Toner Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
5-801	Memory All Clear				
	1	ALL		Resets all correction data for process control and all software counters. Also, returns all modes and adjustments to the default settings. Settings for the SICU and BCU can be cleared separately (marked with an S or a B in the Mode No column of this table). See the “Memory All Clear” section for how to use this SP mode correctly. Touch “Start” for over 3 seconds, then turn the main power switch off and on.	Start
	2	SICU			
	3	BCU			
				Normally, this SP mode should not be used. *It is used only after replacing the NVRAM, or when the copier malfunctions due to a damaged NVRAM.* *The LCD coordinates are also cleared, see “Touch Screen Calibration”.*	
5-802	Printer Free Run				
				Press “On” on the display, then go to copy mode. Input the required settings, then press the “Start” key to start the free run. The free run stops when the simulation for the set number of copies is finished.	
				Before starting the free run, disconnect the finisher connector. Otherwise, a paper jam is detected.	
5-803	Input Check				
				Displays the signals received from sensors and switches. See the “Input Check” section for details.	

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
5-804	Output Check				
				Turns on the electrical components individually for test purposes. See the "Output Check" section for details.	ON OFF
5-811	Machine Serial Number				
	1	Machine Serial Number	S	Displays the machine serial number. The number can be reinput using the number keys.	
	3	ID 2 Code	S	*This function is for Japanese machines only.*	
5-812	Phone No. Setting for Servicing				
	1	Phone No. for Servicing	S	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs.) *Press the "•" key to input a pause.* *Press the "Clear modes" key to delete the telephone number.*	
	2	Fax No. for SMC Report	S	Use this to input the telephone number of the service representative. This number is printed on the SMC print.	
5-816	CSS Function (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	
5-821	CSS PI Device Code (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 4 **0**
5-907	Plug and play				
				This SP mode is for designer use only.	
5-914	Printer Counter Display				
			S	Selects whether or not the total printer counter is displayed in the UP mode.	**Off** On
5-915	Mechanical Counter Detection				
				Checks whether the mechanical counter inside the inner cover is connected or not.	0: Not detected 1: Detected 2: Unknown
5-917	GPC Counter				
				Japanese version only. Do not change the setting.	
5-918	A3/DLT Counter Display				
			S	Selects whether the A3/DLT counter is displayed in UP mode or when the "Total Counter" key is pressed.	
5-921	Optional Counter Output Port				
			S	Selects whether the 4-pin key counter connector is connected to an optional counter like key card system, coin lock, etc.	**0: Off** 1: Key Counter CN

Mode No. (Class 1, 2 and 3)				Function	Settings
5-922	Subtract Optional Counter Setting				
			S	Selects whether machine immediately stops when credit becomes 0 (zero). 0: Machine immediately stops. 1: Papers, which already started when credit becomes 0 (zero), can be fed out.	**0: Normal** 1: Productivity
5-923	Border Erase Area Selection				
			S	Selects the standard for edge erase. 0: The margin is erased from the original data. 1: The margin is erased from the data sent to the laser diode. Note: The output resulting from each of the settings will be different when reduction/enlargement is used.	**0: Original Standard** 1: Copy Standard
5-924	Margin Per Original				
	1	Margin Per Original	S	Margin adjustment for each scanned original can be adjusted when the settings of the following SP modes. This change was a result of special requests from the Japanese domestic market. The following remarks will be added as machine limitations. As a general rule, the settings should not be changed. • Printing productivity for the 1st set of originals will be decreased after the margin is adjusted. • The margin in Magazine Mode and in Combine Mode cannot be adjusted in this SP mode. • After scanning an original in the sample copy mode or after select setting key is pressed when printing file using the document server, the margin adjust key can be changed. However, the key changed will not affect any margin adjustment. • When different margins are selected for the front original and rear original in Designate or Chapter Mode (Duplex copy), copying may not meet the expectation. • When the margin is changed in Tab Sheet in Tab Mode, copying may not meet the expectation.	**NO** YES
	2	Per Original Priority	S		**0: OFF** 1: ON
5-954	Copy Server Password Check				
			S	If “1” is selected, when a file in the copy server is selected, the password for that file is displayed.	**0: Normal** 1: Display the password.
5-965	Delete All the Saved Files				
				Deletes all the copy server files stored in the HDD.	

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
5-967	Copy Server: Disable Function				
			S	If "1" is selected, the copy server function is disabled. *Turn the main switch off and on after changing the setting.*	**0: Normal** 1: Disable copy server
5-968	Delete All the Stored Files in CD				
				Deletes all the copy server files stored in the CD currently in the CD-RW.	
5-970	Printer Installed				
			S		**0: No** 1: Yes
5-990	SMC Print				
	1	All		Prints all the system parameter lists. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	2	SP		Prints the SP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	3	User Program		Prints the UP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	4	Logged Data		Prints the machine status history data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
6-006	DF Registration Adjustment				
	1	Side-to-Side	B	Adjusts the printing side-to-side registration in the ADF mode. *Use the "•" key to toggle between + and –.*	–3 ~ +3 0.1 mm/step **+0.0 mm**
	2	Leading Edge (Thin Original)	B	Adjusts the original stop position. *Use the "•" key to toggle between + and –.*	–10 ~ +10 0.13 mm/step **+0.0 mm**
	3	Leading Edge (Duplex-1st)	B	Adjusts the original stop position against the original left scale in one-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
	4	Leading Edge (Duplex-2nd)	B	Adjusts the original stop position against the original left scale in two-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
6-007	ADF Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-008	ADF Output Check				
				Turns on the electrical components of the ADF individually for test purposes. See the "Output Check" section for details.	
6-009	DF Free Run (Two-sided Original)				
				Performs an ADF free run in two-sided original mode. Press "1" to start.	**OFF** ON
				This is a general free run controlled from the copier. For more detailed free run modes, see the 'Test Points/Dip Switches/LEDs' section.	
6-016	ADF Motor Speed Adjustment				
				After pressing the Start key, the machine automatically adjusts the speeds of the ADF motors in the following order: Feed-in motor → Transport Belt Motor → Feed-out Motor (High) → Feed-out Motor (Low)	
6-105	Staple Position Adjustment				
			B	Adjusts the stapling position in the main scan direction	–1~ +3.5 0.5 mm/step **+0.0 mm**
				Use the "•" key to toggle between + and –. A larger value causes the stapling position to shift outward.	
6-107	Finisher Free Run				
	1	Staple Mode		The finisher simulates staple mode operation. Press [1] to start the free run. To stop the free run, press [0].	
	2	Shift Mode		The finisher simulates staple mode free run with tray shifting (without stapling). Press [1] to start the free run.	
6-113	Punch Hole Position Adjustment				
			B	Adjusts the punch hole position in the sub-scan direction for the punch unit.	–7.5 ~ +7.5 0.5 mm/step **0 mm**
				Use the "•" key to toggle between + and –. A larger value shifts the punch holes towards the edge of the paper.	
6-116	Sheet Conversion (Thick Paper)				
			B	Multiply the normal limit by this number to determine the staple limit number for thick paper mode.	1 ~ 3 **3**
6-117	Finisher Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-117	Finisher Input Check				
	4	Group 4		Displays the signals received from sensors and switches of the finisher. See the “Input Check” section for details.	
6-118	Finisher Output Check				
				Turn on the electrical components of the finisher individually for test purposes. See the “Output Check” section for details.	
6-119	Punch Function Enabled (Thick Paper)				
			B	Determines whether punch mode is enabled or not in thick paper mode.	**0: No** 1: Yes
6-120	Staple Jogger Adjustment				
	1	A3	S	Adjusts the staple jogger positions for each paper size.	+1.5 ~ –1.5 0.5mm/step **0 mm**
	2	B4			
	3	A4 L			
	4	A4 S			
	5	B5 L			
	6	B5 S			
	7	DLT L			
	8	LG L			
	9	LT L			
	10	LT S			
	11	Others			
6-801	Communication Test - Tandem Job				
				This SP mode is for designer use only.	
6-901	Original Non-wait Time				
				Factory use only. Do not change this value.	
6-902	2 Staples in Center Folding				
			S	Select “Yes” when a booklet finisher of Plockmatic is installed. The center folding can be done when selecting “Front” in the operation panel as the stapled position.	**0: No** 1: Yes
7-001	Main Motor (Drum Motor) Operation Time				
			B	Displays the total drum rotation time.	Min.
7-002	Original Counter				
	1	Total	S	Displays the total number of fed originals.	
	2	Copy	S	Displays the total number of fed originals in copy mode.	
	3	Copy Server	S	Displays the total number of fed originals in copy server mode.	
7-003	Copy/Printer Counter				
	1	Total Count	S	Displays the total number of prints in all modes.	
	2	Copy	S	Displays the total number of prints in copy mode.	
	4	Printer	S	Displays the total number of prints in printer mode.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-006	GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-009	Rental GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-101	Copy Counter by Paper Size				
	5	A4 Sideways	S	Displays the total number of prints by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S	Displays the total number of prints by paper size.	
7-201	Total Scan Count				
			S	Displays the total number of scanned originals.	
7-202	Original Counter by Size				
	4	A3	S	Displays the total number of scanned originals by original size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Sizes	S		
7-204	Copy Counter by Paper Tray				
	1	1st Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
	2	2nd Paper Tray	S		
	3	3rd Paper Tray	S		
	4	4th Paper Tray	S		
	5	5th Paper Tray	S		
	6	6th Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
7-205	Total ADF Counter				
			S	Displays the total number of originals fed by the ADF.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-206	Staple Counter				
			S	Displays the total number of staples used.	
7-207	Punch Counter				
			S	Displays the total number of hole punch operations.	
7-301	Total Copies By Reproduction Ratio				
	1	32% ~ 49%	S	Displays the total number of prints by reproduction ratio.	
	2	50% ~ 99%	S		
	3	100%	S		
	4	101% ~ 200%	S		
	5	201% ~ 400%	S		
	6	Direct Mag.	S		
	7	Direct Size Mag.	S		
	8	Size Mag.	S		
	9	Fixed Mag.	S		
7-304	Total Copies By Copy Mode				
	1	Letter	S	Displays the total number of prints by copy mode.	
	2	Letter/Photo	S		
	3	Photo	S		
	4	Generation	S		
	5	Pale	S		
	6	Punch	S		
	7	Multiple Copy	S		
	8	Sort	S		
	9	Staple	S		
	10	Combine	S		
	11	Erase Copy	S		
	12	Duplex Copy	S		
	13	ADF	S		
	14	Double	S		
	15	2-sided Original	S		
	16	Interrupt	S		
	17	Combine Mode - 1 Side	S		
	18	Combine Mode - 2 Side	S		
	19	Mini Book Mode	S		
	20	Magazine Mode	S		
	21	Batch (SADF) Mode	S		
	22	Mixed Size Mode	S		
	23	Thin Original	S		
7-305	Total Copies in Multiple Copy Mode				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-305	Total Copies in Multiple Copy Mode				
	6	1 to 51 ~ 100	S	Displays the total number of prints by multiple copy quantity.	
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-306	Copy: Each Mode Job				
	1	Sort	S	Displays the total number of copy jobs that have been done for various modes.	
	2	Staple	S		
	3	Punch	S		
	4	Next Job	S		
	5	Sample Copy	S		
7-320	Copy Server: Scanned Storage				
	1	Number of Scan	S	Displays the total number of stored originals in the copy server.	
7-321	Copy Server: Original Counter by Size				
	4	A3	S	Displays the total number of stored originals in the server by size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Size	S		
7-323	Copy Server: Each Size of Copies				
	5	A4 Sideways	S	Displays the total number of prints made from the copy server by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-324	Copy Server: Print Job Counter				
	1	Duplex Job	S	Displays the total number of copy jobs made from the copy server.	
	2	Sort Job	S		
	3	Staple Print Job	S		
	4	Punch Print Job	S		
	5	Sample Copy	S		
	6	First Page Print	S		

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
7-325	Copy Server: Print Job Page Distribution				
	1	1	S	Displays the number of jobs by number of pages, made from the copy server.	
	2	2	S		
	3	3 - 5	S		
	4	6 - 10	S		
	5	11 -	S		
7-326	Copy Server: Print Job File Distribution				
	1	1	S	Displays the number of jobs by the number of consecutive files in the job, made from the copy server.	
	2	2 - 5	S		
	3	6 - 10	S		
	4	11 -	S		
7-327	Copy Server: Print Job Set Distribution				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity, using the copy server.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		
	6	1 to 51 ~ 100	S		
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-328	Copy Server: Copy Number of Each Job				
	1	Duplex Copy	S	Displays the total number of duplex prints of one-sided originals from the copy server.	
	2	Duplex Original	S	Display the total number of prints of two-sided originals from the copy server	
7-330	Tandem Job				
			S	Displays the number of jobs made as the master in tandem mode.	0
7-331	Tandem: Copy				
	1	Master: Copy	S	Displays the number of copies made in tandem mode as the master.	
	2	Slave: Copy	S	Displays the number of copies made in tandem mode as the slave.	
7-332	Tandem/Master: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each master mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		
	9	Staple	S		
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-332	Tandem/Master: Copy				
	13	ADF Mode	S	Displays the number of copies made in each master mode.	
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-333	Tandem/Slave: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each slave mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		
	9	Staple	S		
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		
	13	ADF Mode	S		
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-401	Total SC Counter				
			S	Displays the total number of service calls that have occurred.	
7-403	SC History				
	1	Latest	S	Displays the latest 10 service call codes.	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-403	SC History				
	6	Latest 5th	S	Displays the latest 10 service call codes.	
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
7-501	Total Jam Counter				
			S	Displays the total number of copy jams and original jams.	
7-502	Total Copy Jam Counter				
			S	Displays the total number of copy jams.	
7-503	Total Original Jam Counter				
			S	Displays the total number of original jams.	
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper does not activate the sensor.				
	1	At Power On	S	Displays the total number of copy jams by location. The information in brackets shows the sensors that are used to detect these jams.	
	3	1st Paper Tray	S	(1st Paper Feed Sensor)	
	4	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	5	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	6	4th Paper Tray	S	(4th Paper Feed Sensor)	
	7	5th Paper Tray	S	(5th Paper Feed Sensor)	
	8	6th Paper Tray	S	(6th Paper Feed Sensor)	
	9	LCT Relay Sensor	S		
	10	LCT Exit Sensor	S		
	12	Relay Sensor	S		
	13	Registration Sensor	S		
	15	Fusing Exit Sensor	S		
	16	Exit Sensor	S		
	19	Duplex Entrance Sensor	S		
	20	Duplex Transport Sensor 1	S		
	21	Duplex Transport Sensor 2	S		
	22	Duplex Transport Sensor 3	S		
	23	Inverter Tray Paper Sensor	S		
	25	Entrance Sensor - Fin.	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper does not activate the sensor.				
	26	Upper Tray Exit Sensor - Fin.	S		
	27	Shift Tray Exit Sensor - Fin.	S		
	28	Stapler Tray Entrance Sensor - Fin.	S		
	29	Stapler Tray Paper Sensor - Fin.	S		
	35	Entrance Sensor - FIN Staple Tray	S		
	These are jams when the paper stays at the sensor.				
	53	1st Paper Tray	S	(1st Paper Feed Sensor)	
	54	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	55	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	56	4th Paper Tray	S	(4th Paper Feed Sensor)	
	57	5th Paper Tray	S	(5th Paper Feed Sensor)	
	58	6th Paper Tray	S	(6th Paper Feed Sensor)	
	59	LCT Relay Sensor	S		
	60	LCT Exit Sensor	S		
	62	Relay Sensor	S		
	63	Registration Sensor	S		
	65	Fusing Exit Sensor	S		
	66	Exit Sensor	S		
	69	Duplex Entrance Sensor	S		
	70	Duplex Transport Sensor 1	S		
	71	Duplex Transport Sensor 2	S		
	72	Duplex Transport Sensor 3	S		
	73	Inverter Tray Paper Sensor	S		
7-505	Original Jam Counter by Jam Location				
	1	At Power On	S		
	3	ADF Feed-in Sensor	S	Detected by the entrance and registration sensors.	
	4	ADF Feed-out Sensor	S	Detected by the exit and inverter sensors.	

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
7-506	Jam Counter by Copy Size				
	5	A4 Sideways	S		
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Size	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4 Lengthwise	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S	Displays the total number of copy jams by paper size.	
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-507	Jam History				
	1	Copy: Latest	S	Displays the following items for the most recent 10 jams. 1. Last 5 digits of the total counter value 2. Paper size 3. Detected position 4. Stuck or not fed	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		
	6	Latest 5tht	S		
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
	11	Original: Latest	S		
	12	Latest 1st	S		
	13	Latest 2nd	S		
	14	Latest 3rd	S		
	15	Latest 4th	S		
	16	Latest 5th	S		
	17	Latest 6th	S		
	18	Latest 7th	S		
	19	Latest 8th	S		
	20	Latest 9th	S		
7-617	Parts PM Alarm Counter Display				
	1	Copy Paper Standard	S	***This counter is used for the Japanese market only.***	
	2	Original Paper Standard		***This counter is used for the Japanese market only.***	
7-618	Parts PM Alarm Counter Clear				
	1	Copy Paper Standard		Clears the counter of SPS7-617-1.	
	2	Original Paper Standard		Clears the counter of SPS7-617-2.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-801	ROM Version Display				
				Displays the ROM versions. 001: SICU 002: BCU 003: CSS (P1) – Japan only 004: HDC (Hard disk controller) 005: Scanner 006: ADF 007: Finisher 008: Printer	
7-803	PM Counter Display				
			S	Displays the PM counter since the last PM.	
7-804	PM Counter Reset				
				Resets the PM counter.	Start
7-807	SC/Jam Counter Reset				
				Resets the SC and jam counters. Press “Start” to reset.	Start
7-808	Counter Clear				
				Resets all counters, except for the total counters (SP 7-003): Press “Start” to reset.	Start
7-810	Access Code Clear				
				Resets both the key operator code and the weekly timer code (‘key operator code for off setting’). Press “Start” to reset.	Start
7-816	Copy Counter Clear- Paper Tray				
	1	Paper Tray 1		Resets the total copy counter by paper tray. These SP modes can be used after replacing the pick-up, feed, and separation rollers in the paper feed stations.	Start
	2	Paper Tray 2			
	3	Paper Tray 3			
	4	Paper Tray 4			
	5	Paper Tray 5			
	6	Paper Tray 6			
7-817	Total ADF Counter Reset				
				Resets the ADF Counter (SP7-205). Press “Start” to reset.	Start
7-822	Copy Counter Clear - Magnification				
				Resets all counters of SP7-301.	Start
7-825	Total Counter Clear				
				Resets the electrical total counter.	Start
				Usually, this SP mode is done at installation. *This SP mode works only once when the counter value is negative.*	
7-826	Option Counter Error Counter				
	1	Total	S	For Japanese version only.	
	2	Staple	S		
7-827	Option Counter Error Counter Clear				
				For Japanese version only.	
7-828	Punch Counter Clear				
				Resets the punch counter (SP7-207)	

Service Tables

Mode No. (Class 1, 2 and 3)			Function	Settings
7-829	Rental GPC Counter Clear			
			For Japanese version only.	
7-902	SC Details			
			Displays details about the latest SCs. Not all SCs have these details. For designer use only.	
7-904	Copy Counter Clear – Copy Mode			
			Resets all counters of SP7-304, 7-331, 7-332, and 7-333.	Start
7-905	Copy Counter Clear – Multiple Copy Mode			
			Resets all counters of SP7-305.	Start
7-906	Original Counter Clear – Size			
			Resets all counters of SP7-202.	Start
7-907	Job Counter Clear			
			Resets all counters of SP7-306, and 7-330.	Start
7-908	Copy: Original Counter Clear			
			Resets SP7-002-2.	Start
7-920	Copy Server: Scanned Storage Counter Clear			
			Resets the counter of SP7-320.	Start
7-921	Copy Server: Original Counter Clear - Size			
			Resets all counters of SP7-321.	Start
7-923	Copy Server: Print Counter Clear			
			Resets all counters of SP7-323.	Start
7-924	Copy Server: Print Job Counter Clear			
			Resets all counters of SP7-324.	Start
7-925	Copy Server Print Job Page Distribution Clear			
			Resets all counters of SP7-325.	Start
7-926	Copy Server: Print Job File Distribution Clear			
			Resets all counters of SP7-326.	Start
7-927	Copy Server: Print Job Set Distribution Clear			
			Resets all counters of SP7-327.	Start
7-928	Copy Server: Copy Counter Clear – Copy Mode			
			For Japanese machines only.	
7-990	SC990 Information			
		S	Designer use only.	

4.2.3 TEST PATTERN PRINTING (SP2-902)

NOTE: Do not operate the machine until the test pattern is printed out completely. Otherwise, an SC may occur.

1. Access the SP mode which contains the test pattern you need.
2. Touch the “Copy Mode” key on the operation panel to access the copy mode display.
3. Select the paper size.
4. Press the “Start” key to print the test pattern.
5. After checking the test pattern, exit copy mode by touching the “SP Mode” key.
6. Exit the SP mode.

NOTE: Test patterns are printed out until the main switch is turned off and on. Use this test pattern to test the printer controller.

Test Pattern Table (SP2-902-2: Test Pattern Printing – IPU)

No.	Test Pattern	No.	Test Pattern
0	None	7	Vertical Strips
1	Vertical Line (1-dot)	8	Grayscale (Vertical)
2	Vertical Line (2-dot)	9	Grayscale (Horizontal)
3	Horizontal Line (1-dot)	10	Cross Pattern
4	Horizontal Line (2-dot)	11	Argyle Pattern
5	Alternating Dot Pattern	12	Frequency (Horizontal)
6	Grid Pattern (1-dot)	13	Frequency (Vertical)

Test Pattern Table (SP2-902-3: Test Pattern Printing – Printing)

No.	Test Pattern	No.	Teat Pattern
1	Alternating Dot Pattern (1,024-dot)	15	16 Trimming Area
2	Alternating Dot Pattern (4-dot)	16	Argyle Pattern
3	Alternating Dot Pattern (2-dot)	17	Line Cross Stitch
4	Alternating Dot Pattern (1-dot)	18	Black Band (Vertical)
5	Grid Pattern (1-dot 0 ch)	19	Black Band (Horizontal)
6	Grid Pattern (1-dot 1 ch)	20	Gray Trim
7	Grid Pattern (1-dot 2 ch)	21	Stair Pattern
8	Grid Pattern (1-dot 3 ch)	22	Grayscale Vertical 20 mm
9	Vertical Line (1-dot)	23	Grayscale Vertical 40 mm
10	Horizontal Line (1-dot)	24	Grayscale Vertical 20 mm
11	Vertical Line (2-dot)	25	Grayscale Horizontal 40 mm
12	Horizontal Line (2-dot)	26	Grayscale Horizontal 20 mm
13	Grid Pattern (1-dot)	27	White (Out data mask)
14	Full Dot Pattern	28	Grid Pattern (1-dot) (0 ch mode) (Out data overlay)

4.2.4 INPUT CHECK

Main Machine Input Check (SP5-803)

1. Access SP mode SP5-803.
2. Select the class 3 number that accesses the switch or sensor to be checked.
3. Check the status of the sensor or switch.
   NOTE: To change to another class 3 level, press the "Next" or "Prev." key.
4. The reading ("0" or "1") will be displayed. The meaning of this is as follows.

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	0	0	0	0

5. Press the copy mode to return to the normal screen. Select a quantity, press start and return to SP mode to view the changing bits.

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Not Used		
	6	Not Used		
	5	LCT 3rd Paper End Sensor (6th tray)	Not paper end	Paper end
	4	LCT 2nd Paper End Sensor (5th tray)	Not paper end	Paper end
	3	LCT 1st Paper End Sensor (4th tray)	Not paper end	Paper end
	2	3rd Paper End Sensor	Not paper end	Paper end
	1	2nd Paper End Sensor	Not paper end	Paper end
	0	1st Paper End Sensor	Not paper end	Paper end
2	7	Not Used		
	6	Not Used		
	5	LCT 3rd Paper Feed Sensor (6th tray)	Paper detected	No paper
	4	LCT 2nd Paper Feed Sensor (5th tray)	Paper detected	No paper
	3	LCT 1st Paper Feed Sensor (4th tray)	Paper detected	No paper
	2	3rd Paper Feed Sensor	Paper detected	No paper
	1	2nd Paper Feed Sensor	Paper detected	No paper
	0	1st Paper feed Sensor	Paper detected	No paper
3	7	Not Used		
	6	Duplex Entrance Sensor	Detected	Not detected
	5	Duplex Jogger H.P.	Not detected	Detected
	4	Duplex Transport 3 Sensor	Detected	Not detected
	3	Duplex Transport 2 Sensor	Detected	Not detected
	2	Duplex Transport 1 Sensor	Detected	Not detected

Class 3 No.	Bit No.	Description	Reading	
			0	1
3	1	Inverter Tray Paper Sensor	Detected	Not detected
	0	Duplex Connection	Connected	Not connected
4	7	Not Used		
	6	Not Used		
	5	LCT 3rd Lift Sensor (6th tray)	Lifted	No paper
	4	LCT 2nd Lift Sensor (5th tray)	Lifted	No paper
	3	LCT 1st Lift Sensor (4th tray)	Lifted	No paper
	2	3rd Lift Sensor	Lifted	No paper
	1	2nd Lift Sensor	Lifted	No paper
	0	1st Lift Sensor	Lifted	No paper
5	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Drum Unit set	Set	Not set
	2	Polygon Motor Cooling Fan Lock	No lock	Lock
	1	Toner Hopper Sensor	Toner end	Not toner end
	0	Key Counter Set	Set	Not set
6	7	Drum Motor Lock	No lock	Lock
	6	Fusing/Duplex Motor Lock	No lock	Lock
	5	XFGATE		
	4	Not used		
	3	Development Motor Lock	No lock	Lock
	2	Not used		
	1	Not used		
	0	Toner Supply Motor Sensor	Not interrupted	Interrupted
7	7	Left Front Door Safety Switch	Door closed	Door open
	6	Right Front Door Safety Switch	Door closed	Door open
	5	Paper Feed Motor Lock	No lock	Lock
	4	Guide Plate Position Sensor	In position	Out of position
	3	LCT Relay Sensor	On	Off
	2	Relay Sensor	On	Off
	1	Not Used		
	0	Registration Sensor	On	Off
8	7	Lower Bottle Inner Cap Sensor	Cap closed	Cap opened
	6	Upper Bottle Inner Cap Sensor	Cap closed	Cap opened
	5	Toner Near-end Sensor	Toner end	Toner not end
	4	Toner Collection Bottle Sensor	Bottle set	Bottle not set
	3	Toner Overflow Sensor	No lock	Lock
	2	Toner Bottle Unit Motor Lock	No lock	Lock
	1	Lower Toner Bottle	Bottle set	Bottle not set
	0	Upper Toner Bottle	Bottle set	Bottle not set
9	7	Total Counter Set	Set	Not set
	6			

Class 3 No.	Bit No.	Description	Reading	
			0	1
9	5	Not Used		
	4	Exit Unit Set	Set	Not set
	3	Oil Supply/Cleaning Web End Sensor	Not end	End
	2	Exit Sensor	On	Off
	1	Fusing Exit Sensor	On	Off
	0	Fusing Unit Set	Set	Not set
10 (Duplex)	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	Dip Switch 2 - SICU	On	Off
	0	Dip Switch 1 - SICU	On	Off
11	7	Not used		
	6	Not used		
	5	Not used		
	4	2nd Tray Paper Size 5	See Table 1	
	3	2nd Tray Paper Size 4		
	2	2nd Tray Paper Size 3		
	1	2nd Tray Paper Size 2		
	0	2nd Tray Paper Size 1		
12	7	Not used		
	6	Not used		
	5	Not used		
	4	3rd Tray Paper Size 5	See Table 1	
	3	3rd Tray Paper Size 4		
	2	3rd Tray Paper Size 3		
	1	3rd Tray Paper Size 2		
	0	3rd Tray Paper Size 1		
13	7	Not used		
	6	Not used		
	5	Not used		
	4	Rear Fence Return Sensor	Not detected	Return Position
	3	Front Side Fence Closed Sensor	Open	Closed
	2	Front Side Fence Open Sensor	Open	Closed
	1	Rear Side Fence Closed Sensor	Open	Closed
	0	Rear Side Fence Open Sensor	Open	Closed
14	7	Not used		
	6	Not used		
	5	Not Used		
	4	Rear Fence HP	Not detected	At home position
	3	Left Tandem Tray Set	Set	Not set

Class 3 No.	Bit No.	Description	Reading	
			0	1
14	2	Right Tandem Tray Set	Set	Not set
	1	Left 1st Tray Paper	Detected	Not Detected
	0	Right 1st Tray Paper	Detected	Not Detected
15	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Base Plate Down Sensor	Not detected	Detected
	3	1st Tray Paper Height 4	—	Paper 80 ~ 100%
	2	1st Tray Paper Height 3	—	Paper 50 ~ 80%
	1	1st Tray Paper Height 2	—	Paper 30 ~ 50%
	0	1st Tray Paper Height 1	—	Paper 0 ~ 30%
16	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Toner Supply Motor Lock	No lock	Lock
	3	Not Used		
	2	Not Used		
	1	2nd Tray Paper Height Sensor 2	See Table 2	
	0	2nd Tray Paper Height Sensor 1		
17	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	3rd Tray Paper Height 2	See Table 2	
	0	3rd Tray Paper Height 1		
18	7	Not Used		
	6	Not Used		
	5	Not Used		
18	4	Not Used		
	3	Not Used		
	2	LCT 1st Tray Paper Size Switch 3 (4th tray)	See Table 3	
	1	LCT 1st Tray Paper Size Switch 2 (4th tray)		
	0	LCT 1st Tray Paper Size Switch 1 (4th tray)		
19	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		

Class 3 No.	Bit No.	Description	Reading	
			0	1
19	2	LCT 2nd Tray Paper Size Switch 3 (5th tray)	See Table 3	
	1	LCT 2nd Tray Paper Size Switch 2 (5th tray)		
	0	LCT 2nd Tray Paper Size Switch 1 (5th tray)		
20	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT Motor Lock Signal	Lock	Not Lock
	2	LCT Door Open Switch	Closed	Open
	1	LCT Relay Sensor	On	Off
	0	LCT 3rd Tray Set	Set	Not set
21	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Not Used		
	1	Not Used		
	0	LCT Connection	Connected	Not Connected
22	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 1st Tray Paper Height sensor 4 (4th tray)	—	Paper 80 ~ 100%
	2	LCT 1st Tray Paper Height sensor 3 (4th tray)	—	Paper 50 ~ 80%
	1	LCT 1st Tray Paper Height sensor 2 (4th tray)	—	Paper 30 ~ 50%
	0	LCT 1st Tray Paper Height sensor 1 (4th tray)	—	Paper 0 ~ 30%
23	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 2nd Tray Paper Height sensor 4 (5th tray)	—	Paper 80 ~ 100%
	2	LCT 2nd Tray Paper Height sensor 3 (5th tray)	—	Paper 50 ~ 80%
	1	LCT 2nd Tray Paper Height sensor 2 (5th tray)	—	Paper 30 ~ 50%
	0	LCT 2nd Tray Paper Height sensor 1 (5th tray)	—	Paper 0 ~ 30%

Class 3 No.	Bit No.	Description	Reading	
			0	1
24	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	LCT 3rd Tray Paper Height sensor 4 (6th tray)	—	Paper 80 ~ 100%
	2	LCT 3rd Tray Paper Height sensor 3 (6th tray)	—	Paper 50 ~ 80%
	1	LCT 3rd Tray Paper Height sensor 2 (6th tray)	—	Paper 30 ~ 50%
	0	LCT 3rd Tray Paper Height sensor 1 (6th tray)	—	Paper 0 ~ 30%

Table 1: 2nd and 3rd Tray Paper Size Switch Combination

Class 3 No.	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Paper Size	
						A4/A3 Version	LT/DLT Version
11, 12	0	1	1	1	1	A3-L	11” x 17”-L
	0	0	1	1	1	8 1/4" x 13"	8 1/2" x 14"-L
	1	0	0	1	1	A4 lengthwise	8 1/2" x 11"-L
	0	1	0	0	1	A4 sideways	8 1/2" x 11"-S
	0	0	1	0	0	8 1/2" x 13"	5 1/2" x 8 1/2"-L
	0	0	0	1	0	A5-L	5 1/2" x 8 1/2"-S
	0	0	0	0	1	A5 sideways	8" x 10 1/2"-L
	1	0	0	0	0	8 k lengthwise (Taiwan Version only)	8" x 10"-L
	1	1	0	0	0	16 k lengthwise (Taiwan Version only)	8" x 13"-L
	1	1	1	0	0	16 k sideways (Taiwan Version only)	10" x 14"-L
	1	1	1	1	0	*	*

Table 2: 2nd and 3rd Tray Paper Height Sensor Combination

Class 3 No.	Bit 4	Bit 3	Paper Height
16, 17	1	1	70 ~ 100%
	1	0	30 ~ 70%
	0	1	10 ~ 30%
	0	0	0 ~ 10%

Table 3: LCT 1st and 2nd Paper Size Switch Combination

Class 3 No.	Bit 2	Bit 1	Bit 0	Paper Size
18, 19	1	1	1	A4 Sideways
	1	0	1	B5 Sideways
	0	1	0	A5 Sideways
	1	0	0	B5 Sideways

⟹ *ADF Input Check (SP6-007)*

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Inverter Sensor	No original	Original detected
	6	Exit Sensor	No original	Original detected
	5	Registration Sensor	No original	Original detected
	4	Entrance Sensor	No original	Original detected
	3	Original Width Sensor 3	No original	Original detected
	2	Original Width Sensor 2	No original	Original detected
	1	Original Width Sensor 1	No original	Original detected
	0	Original Set Sensor	No original	Original detected
2	7	ADF Feed-in Motor Encoder Pulse		
	6	Pick-up Roller HP Sensor	At home position	Not home position
	5	Bottom Plate Position Sensor	Detected	Not detected
	4	Bottom Plate HP Sensor	At home position	Not home position
	3	Exit Cover Sensor	Close	Open
	2	Feed Cover Sensor	Close	Open
	1	APS Start Sensor	Start	Off
	0	DF Position Sensor	Down	Up
3	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Original Length Sensor	No original	Original detected
	1	ADF Feed-out Motor Encoder Pulse		
	0	ADF Transport Motor Encoder Pulse		

Finisher Input Check (SP6-117)

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Stack Feed-out Belt HP Sensor	HP	Not HP
	6	Not Used		
	5	Shift Tray Lower Limit 1 Sensor	Off	On
	4	Shift Tray Lower Limit 2 Sensor	Off	On
	3	Stapler Tray Entrance Sensor	Not detected	Detected
	2	Shift Tray Exit Sensor	Detected	Not detected
	1	Upper Tray Exit Sensor	Detected	Not detected
	0	Entrance Sensor	Not detected	Detected
2	7	Not used		
	6	Front Door Safety Switch	Door closed	Door open
	5	Stapler Tray Paper Sensor	Detected	Not detected
	4	Staple End Sensor	End	Not end
	3	Staple Hammer HP Sensor	HP	Not HP
	2	Stapler HP Sensor	Not HP	HP
	1	Shift Tray Half-turn Sensor	HP	Not HP
	0	Jogger Fence HP Sensor	Not HP	HP
3	7	Not Used		
	6	Staple Cartridge Set Sensor	Not set	Set
	5	Stack Height Sensor 2	Off	On
	4	Stack Height Sensor 1	Off	On
	3	Not Used		
	2	Punch Waste Hopper Sensor	Full	Not full
	1	Punch HP Sensor	HP	Not HP
	0	Punch Unit Connection	Not connected	Connected
4	7	Stapler Ready	Ready	Not ready
	6	Stapler Return Sensor	HP	Not HP
	5	Exit Guide Open Sensor	HP	Not HP
	4	Stack Plate HP Sensor	Not HP	HP
	3	Pre-stack Tray Paper Sensor	Not detected	Detected
	2	Staple Waste Hopper Sensor	Not full	Full
	1	Stapler Rotation HP Sensor	Not HP	HP
	0	Upper Tray Paper Limit Sensor	Not full	Full

⟹ 4.2.5 OUTPUT CHECK

NOTE: Motors keep turning in this mode regardless of upper or lower limit sensor signals. To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

Main Machine Output Check (SP5-804)

1. Access SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check.
3. Press [ON], then press # to check that component.
4. Press [OFF], to interrupt the test.
5. If you wish to check another component, press the “Next” or “Prev.” Key.

No.	Description	No.	Description
1	1st Paper Feed Clutch	34	LCT 3rd Tray Lift Motor
2	2nd Paper Feed Clutch	35	Rear Fence Drive Motor
3	3rd Paper Feed Clutch	36	Tandem Tray Connect Solenoid
4	LCT 1st Paper Feed Clutch	37	Front Side Fence Solenoid
5	LCT 2nd Paper Feed Clutch	38	Rear Side Fence Solenoid
6	LCT 3rd Paper Feed Clutch	39	Left Tandem Lock Solenoid
7	1st Pick-up Solenoid	40	Relay Motor
8	2nd Pick-up Solenoid	41	Paper Feed Motor
9	3rd Pick-up Solenoid	42	LCT Motor
10	LCT 1st Pick-up Solenoid	43	Drum Motor
11	LCT 2nd Pick-up Solenoid	44	Fusing/Duplex Motor
12	LCT 3rd Pick-up Solenoid	45	Registration Motor
13	1st Separation Roller Solenoid	46	Oil Supply/Cleaning Web Motor
14	2nd Separation Roller Solenoid	47	Guide Plate Solenoid
15	3rd Separation Roller Solenoid	48	Inverter Gate Solenoid
16	LCT 1st Separation Roller Solenoid	49*	Duplex Transport Clutch **(CL1)**
17	LCT 2nd Separation Roller Solenoid	50*	Duplex Feed Clutch **(DUP. TRANS. CL2)**
18	LCT 3rd Separation Roller Solenoid	51*	Inverter Exit Roller Clutch **(DUP. FD CL)**
19	Lower Relay	52	Inverter Guide Plate Solenoid
20	LCT Transport Clutch	53	Duplex Inverter Gate Solenoid
21	1st Vertical Transport Clutch	54	Reverse Roller Solenoid
22	2nd Vertical Transport Clutch	55	Jogger Motor
23	3rd Vertical Transport Clutch	56	Toner Supply Roller Clutch
24	LCT 1st Grip Clutch	57	Development Motor
25	LCT 2nd Grip Clutch	58	Toner Supply Motor
26	LCT 3rd Grip Clutch	59	Upper Toner Bottle Motor
27	Upper Relay Clutch	60	Lower Toner Bottle Motor
28	LCT Relay	61	Toner Bank Motor
29	1st Tray Lift Motor	62	Upper Toner Cap Motor
30	2nd Tray Lift Motor	63	Lower Toner Cap Motor
31	3rd Tray Lift Motor	64	Toner Supply Coil Clutch
32	LCT 1st Tray Lift Motor	65	ID Sensor LED
33	LCT 2nd Tray Lift Motor	66	Transfer Belt Lift Solenoid

*** DISPLAY SCREEN TEXT**

No.	Description	No.	Description
67	Quenching Lamp	78	Drum Cooling Fan (Low)
68	Charge Corona	79	Drum Cooling Fan (High)
69	Grid Plate	80	Paper Cooling Pipe Fan
70	Development Bias	81	Steam Removal Fan (Low)
71	Transfer Belt Bias	82	Steam Removal Fan (High)
72	Exposure Lamp	83	Development Unit Cooling Fan 1
73	Optics Cooling Fan	84	Development Unit Cooling Fan 2
74	Polygonal Mirror Motor Cooling Fan	85	Duplex Cooling Fan
75	SICU Cooling Fan	86	LDB Cooling Fan
76	Exhaust Fan - Low Speed	87	Not Used
77	Exhaust Fan - High Speed	88	Total Counter

ADF Output Check (SP6-008)

No.	Description
1	Feed-in Motor (High)
2	Feed-in Motor (Low)
3	Transport Motor (Forward)
4	Transport Motor (Reverse)
5	Feed-out Motor
6	Exit Gate Solenoid
7	Inverter Gate Solenoid
8	DF Indicators
9	Pick-up Motor (Forward)
10	Bottom Plate Motor
11	Feed-in Clutch

Finisher Output Check (SP6-118)

No.	Description
1	Upper Transport Motor
2	Shift Tray Exit Motor
3	Tray Junction Gate Solenoid
4	Shift Tray Lift Motor
5	Jogger Motor
6	Stapler Motor
7	Staple Hammer Motor
8	Punch Motor
9	Stapler Junction Gate Solenoid
10	Positioning Roller Solenoid
11	Stack Feed-out Motor
12	Shift Motor
13	Stapler Rotation Motor
14	Lower Transport Motor
15	Exit Guide Motor
16	Stack Plate Motor
17	Pre-stack Junction Gate Solenoid
18	Pre-stack Paper Stopper Solenoid
19	Stapler Return Solenoid

4.2.6 SYSTEM PARAMETER AND DATA LISTS (SMC LISTS)

1. Access the SP mode corresponding to the list that you wish to print.
   1) SP5-990-1: All system parameter list
   2) SP5-990-2: SP mode data list
   3) SP5-990-3: UP mode data list
   4) SP5-990-4: Machine status history data list
2. Touch the “Copy Mode” key to access the copy mode display.
3. Select the paper size and press the “Start” key to print the list.
4. After printing the list, exit the copy mode display by touching the “SP Mode” key.
5. Exit SP mode.

4.2.7 MEMORY ALL CLEAR (SP5-801)

NOTE: Memory All Clear mode resets all the SP mode settings stored in the NVRAMs on the SICU and the BCU to their default settings except for SP7-003-1 (Electrical total counter value).

There are three RAM clear modes which can be selected after entering SP5-801.

1) Clear all data in the NVRAMs on the SICU and BCU.
2) Clear the data in the NVRAM on the SICU.
3) Clear the data in the NVRAM on the BCU.

Among the settings that are reset are the correction data for process control and all the software counters.

Normally, this SP mode should not be used. This procedure is required only after replacing the NVRAM or when the copier malfunctions due to a damaged NVRAM.

1. Print out all SMC Data Lists (SP mode 5-990-1).
2. Access SP mode 5-801, and select 1, 2, or 3 for the required RAM clear mode.
3. Press "Start" on the display. At this time the beeper will sound.
4. A confirmation message will be displayed, then press “Yes” .
5. Turn the main power switch off and back on.
6. Do the printer and scanner registration and magnification adjustments (see Replacement and Adjustment – Copy Image Adjustments).
7. Referring to the SMC data lists, re-enter any values which had been changed from their factory settings.
8. Do SP3-001-2 (ID Sensor Initial Setting). If the SICU data was cleared, also do SP4-911-1 and 4-912-1 (HDD media tests). Note that the HDD media tests will delete copy server and stamp data on the disks.
9. Check the copy quality and the paper path, and do any necessary adjustments.

4.2.8 SOFTWARE RESET

The software can be reset when the machine hangs up. Do either of the following.

Either:

Turn the main power switch off and on.

Or:

Hold down the "#" key and "**.**" key at the same time for over 10 seconds.

4.2.9 SYSTEM SETTING AND COPY SETTING (UP MODE) RESET

System Setting Reset

The system settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the "#" key and touch the "System Setting" key.
4. A confirmation message will be displayed, then press "Yes".

Copy Features Reset

The copy settings in the UP mode can be reset to their defaults using the following procedure.

1. Make sure that the machine is in the copier standby mode.
2. Press the User Tools key.
3. Hold down the "#" key and touch "Copy Features" key.
4. A confirmation message will be displayed, then press "Yes".

4.3 PM COUNTER

Each PM part has a counter which counts up at the appropriate time. (For example, the counter for the hot roller counts up every copy, and the counter for a feed roller counts up when paper is fed from the corresponding tray.) These counters should be used as references for part replacement timing.

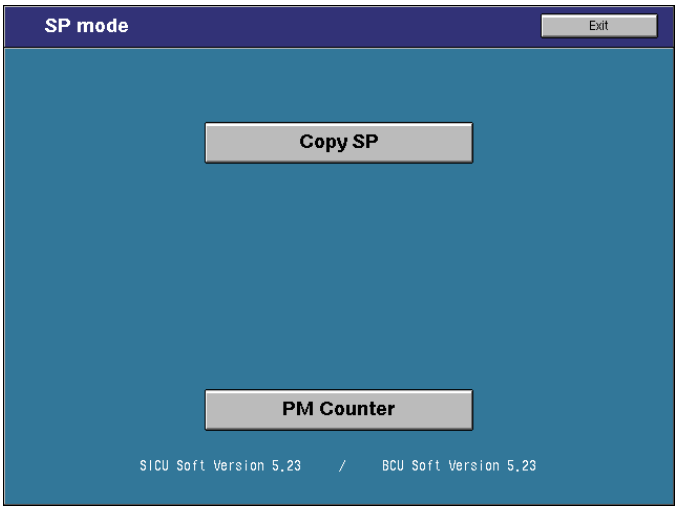
4.1.1 PM COUNTER ACCESS PROCEDURE

1) Press the following keys in sequence.

C/⊘ → 1 → 0 → 7 → C

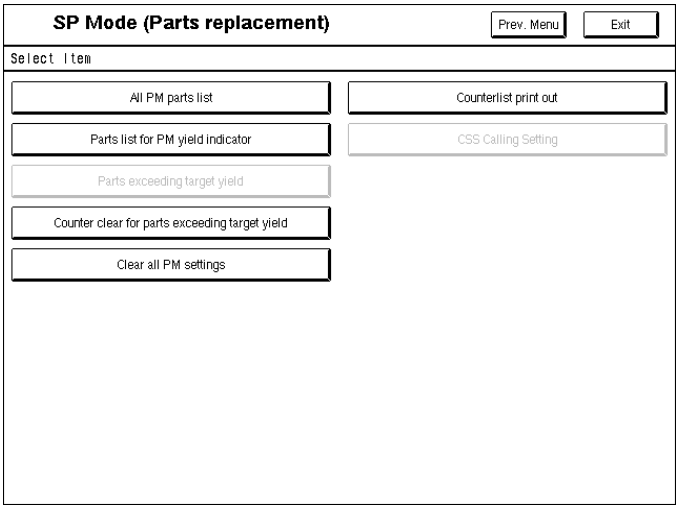
Hold the C key for more than 3 seconds

The SP mode menu is displayed.



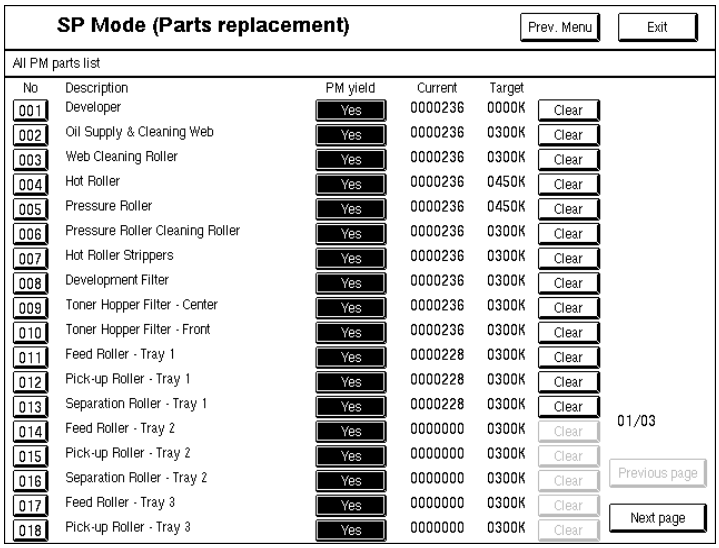
2) Press [PM Counter] on the display.

3) The following menu appears on the display.



1. All PM Parts List

Displays all the counters for PM parts.

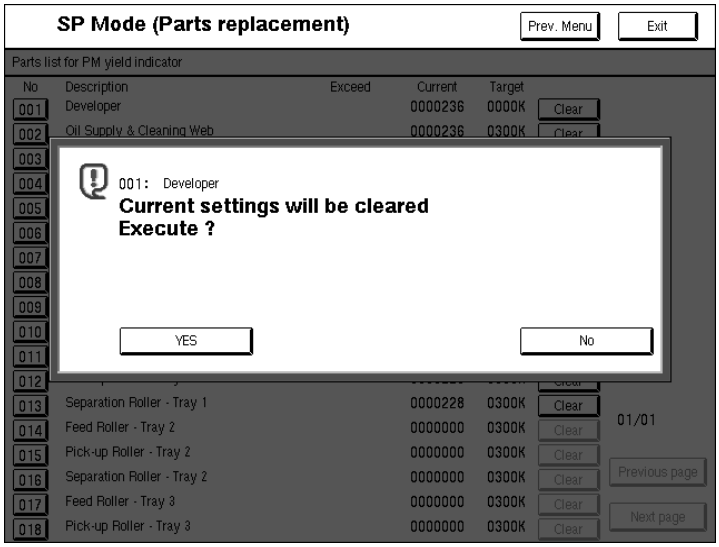


On this screen, the current counter and the target yield of each PM part can be checked.

Additionally, the PM yield indicator setting can be changed. To change the setting press [Yes/No] key in the “PM yield” column.

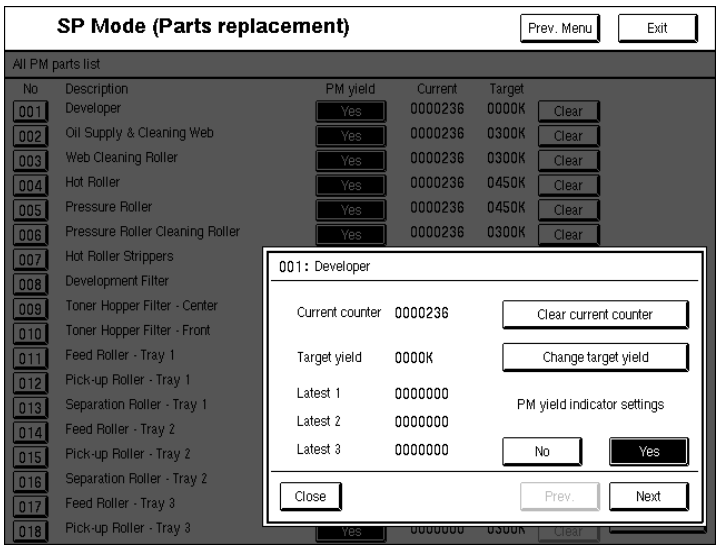
When “Parts list for PM yield” is selected in the parts replacement menu, only the parts with [Yes] in the “PM yield” are listed.

To clear a counter, press [Clear] on the display. The following appears.



Then press [Yes] to clear the counter.

If one of the keys in the “No” column is pressed, the following appears on the display.

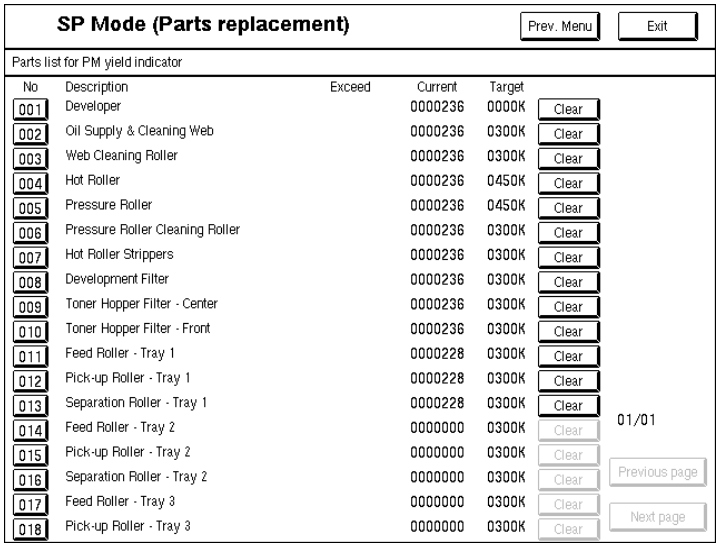


On this screen, the records of the last three part replacements are displayed. When ‘Clear current counter’ is pressed, the current counter is cleared, the current counter is overwritten to “Latest 1”, the Latest 1 counter is overwritten to “Latest 2”, and the Latest 2 counter is overwritten to “Latest 3”.

Additionally, the target yield can be changed on this screen. To change the target yield setting, do the following:

1) Press [Change target yield] on the screen.
2) Input the target yield using the ten-key pad.
3) Press the # key.

2. Parts List for PM Yield Indicator



On this screen, only the parts selected in the “All PM parts list” screen are displayed. Normally, the PM parts counters should be checked on this screen.

If the current counter exceeds the target yield, there is a * mark in the “Exceed” column.

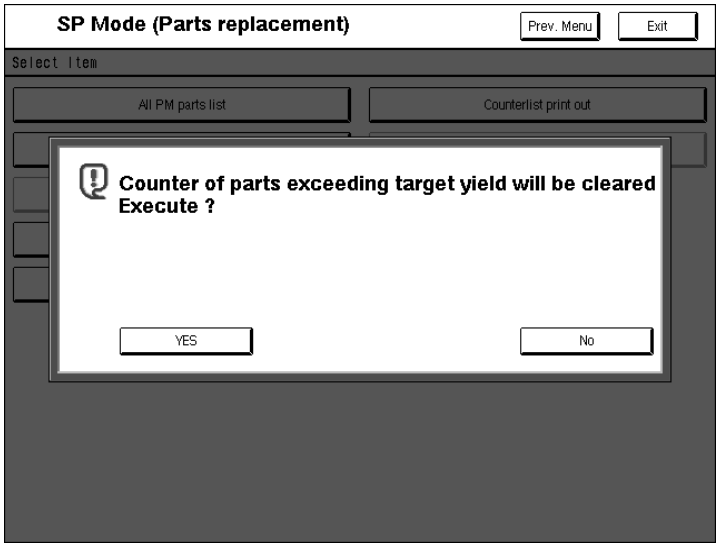
Each counter can also be cleared on this screen. To clear all counters on this screen at once, see ‘Counter Clear for Parts Exceeding Target Yield’ on the next page.

3. Parts Exceeding Target Yield

Only the parts whose counters are exceeding the target yield are displayed. If none of the PM counters is exceeding the target yield, this item cannot be selected from the parts replacement menu.

4. Counter Clear for Parts Exceeding Target Yield

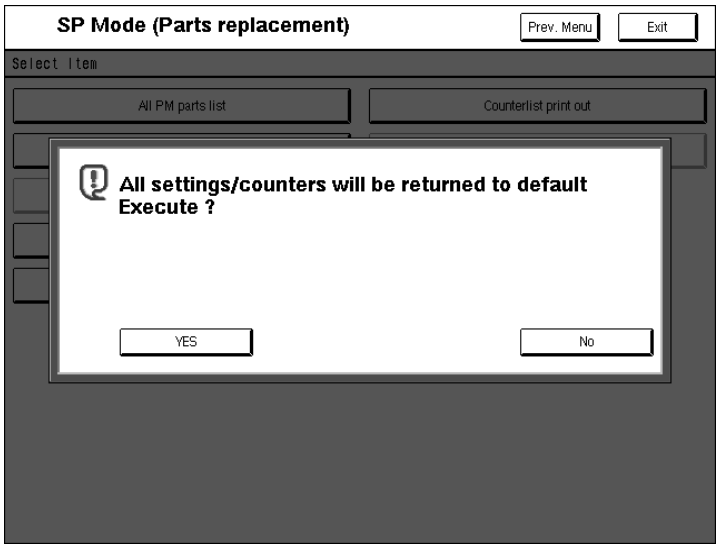
Clears all the counters which are exceeding the target yield. When this item is selected, the following appears on the display.



Press [Yes] to clear the counters.

5. Clear All PM Settings

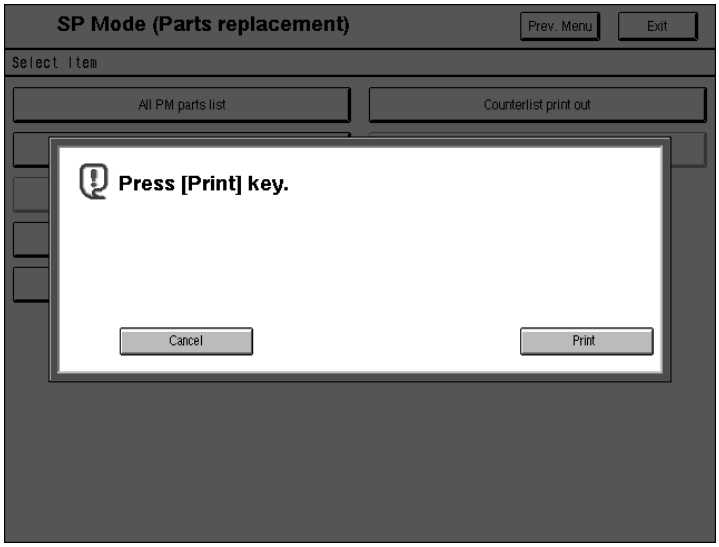
Clears all the PM counters and returns all the settings (PM parts list and target yield) to the defaults. When this item is selected, the following appears.



Press [Yes] to clear the settings.

6. Counter List Print Out

Prints a list of all the PM part counters. When this item is selected, the following appears on the display.



Press [Print] to print out the counter list.

7. CSS Calling Setting (RSS Function)

This function is for Japanese machines only.

4.4 PROGRAM DOWNLOAD

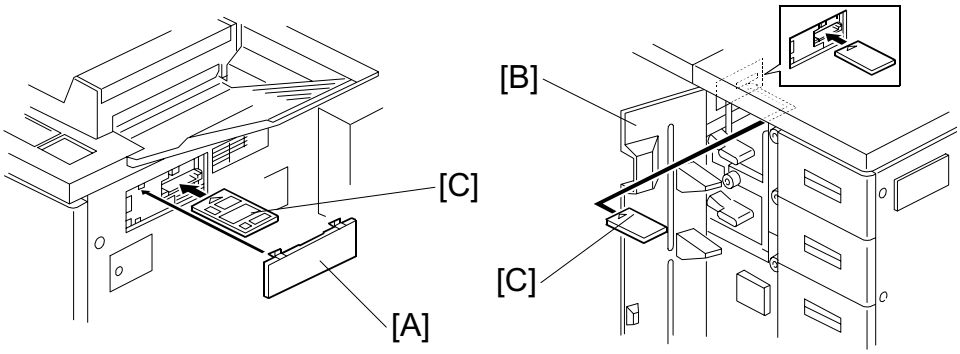
The flash memory card holds two programs, one is for the SICU and the other is for the BCU. Both programs can be downloaded from the slot in the SICU (the program for the BCU is transferred from the SICU).

There is also a function to download the program from the SICU to a flash memory card. However, the BCU program cannot be downloaded to a flash memory card.

NOTE: The procedure for how to write the source software from a flash memory card writer to a flash memory card is described in the SwapBox FTL manual.

Download to the SICU and BCU

NOTE: The program for the SICU and the program for the BCU can be downloaded separately. However, both programs should be updated at the same time to prevent mismatching of the programs.



1. Turn off the main power switch.
2. Remove the flash memory card cover [A]. If the optional LCT is installed, open the left cover [B] of the LCT.
3. Plug the flash memory card [C] into the card slot in the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
4. Turn on the main power switch.
5. Touch “Install” to download the SICU software. The machine erases the current software, then writes the new software to the SICU.
6. Touch “Install” to download the BCU software. The machine erases the current software, then writes the new software to the BCU.

If downloading from the flash card to the SICU failed, an error message appears on the display. At this time, touch the “OK” key to re-try the download.

Download to the BCU

NOTE: This procedure is required only when download from the SICU to the BCU failed for some reason.

1. Turn off the main power switch.
2. Remove the upper rear cover.
3. Plug the flash memory card into the card slot of the BCU.
   NOTE: Set the card so that the surface printed “A” is visible.
4. Turn on the main power switch.
5. Touch “Install” on the display to download the BCU software. The machine erases the current software, then writes the new software to the BCU.
6. Turn the main switch off, then remove the card from the BCU.

Download from SICU to Flash Memory Card

1. Turn off the main switch.
2. Plug a blank flash memory card into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
4. Select [4. Program Upload (SICU)].
5. Press [EXEC] on the display.
6. After download is completed, turn the main switch off and remove the flash memory card.

4.5 NVRAM DATA DOWNLOAD

The NVRAM data in the SICU and BCU can be downloaded to a flash memory card. The downloaded data can be copied back to the machine.

This is useful to save the settings before a RAM clear is done. The procedure is as follows:

NOTE: It is recommended that the current settings are printed out before starting the following procedure, in case the download fails.

Download from the SICU and BCU NVRAMs to the Flash Memory Card

1. Turn the main switch off.
2. Plug a blank flash memory card into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
   NOTE: If the flash memory card contains SICU and BCU firmware, the firmware download screen will now appear. Press [EXIT] on this screen to go on to step 4. (Note that the firmware on the card will be erased by the following steps.)
4. Select [3. NVRAM Upload]
5. Press [EXEC] on the display.
6. After the download is completed, turn the main switch off and remove the flash memory card.

Download from the Flash Memory Card to the NVRAMs

NOTE: The download can be done separately for the BCU or SICU, or for user tool settings only.

1. Turn the main switch off.
2. Plug the flash memory card which contains the NVRAM data into the card slot of the SICU.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn on the main switch.
4. Select [2. NVRAM Download]
5. Select the required menu item from the following.
   [1. All NVRAM Download]: (Downloads all data in the NVRAMs to the SICU and BCU.)
   [2. Mode NVRAM Down load]: (Downloads only UP mode settings)
   [3. SICU NVRAM Down load]: (Downloads the data to the NVRAM on the SICU)
   [4. BCU NVRAM Down load]: (Downloads the data to the NVRAM on the BCU)
6. Press [EXEC] on the display.
7. After the download is completed, turn the main switch off and remove the flash memory card.

4.6 LANGUAGE DATA DOWNLOAD

This machine can use up to two languages for the operation panel display. The stored languages can be replaced with other languages.

1. Turn the main switch off.
2. Connect the flash memory card which contains the language data to the SICU flash card slot.
3. Turn the main switch on.
4. Select the language to be replaced (1st or 2nd), and press [Select] on the screen.
5. Select the language to be installed on the screen. (If the 2nd language is unnecessary, it can be deleted by selecting [0. Delete].)
6. If necessary, repeat steps 4 and 5 to replace another language (1st or 2nd).
7. Press [Install] on the screen, or press # to start overwriting the language(s). The machine erases the current language(s) and writes the new language(s).
8. When the downloading is completed, turn the main switch off and remove the flash memory card.

⇒ **NOTE:** Any two of the following 11 languages can be installed.

1 - Japanese	4 - French	7 - Spanish	10 - Danish
2 - English – UK	5 - German	8 - Dutch	11 - Swedish
3 - English - NA	6 - Italian	9 - Norwegian	

4.7 STAMP DATA DOWNLOAD

Both hard disks contain the stamp data used with the stamp feature. However, if a disk is replaced, the replacement disk does not have this stamp data. The data must be reinstalled from an IC card which contains the stamp data.

1. Turn the main switch off.
2. Connect the flash memory card which contains the stamp data to the SICU flash card slot.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn the main switch on.
   NOTE: If the flash memory card contains SICU and BCU firmware, the firmware download screen will now appear. Press [EXIT] on this screen to go on to step 4. (Note that the firmware on the card will be erased by the following steps.)
4. Select [1. Stamp Data Download].
5. Press [EXEC] on the display.
6. After the download is completed, turn the main switch off and remove the flash memory card.

4.8 USER PROGRAM MODE

4.8.1 HOW TO ENTER AND EXIT UP MODE

The user program (UP) mode is accessed by users, and by sales and service staff. UP mode is used to input the copier's default settings.

Press the User Tools/Counter button, then select the UP mode program. After finishing the UP mode program, touch "Exit" key to exit UP mode.

4.8.2 UP MODE TABLE

NOTE: Each UP mode is explained in the operating instructions.

System Settings

General Features	Function Priority
	Panel tone
	Ready Panel Tone
	Copy Count Display
	System Reset
	Panel Off Timer
	Auto Tray Switching
	Copier/Document Sever Output Tray
	Status Indicator
	Language Priority
	Screen Color Setting
	Paper Tray Priority
	Original: F/F4 Size Setting
Timer Setting	Date
	Time
	Weekly Timer: Monday
	Weekly Timer: Tuesday
	Weekly Timer: Wednesday
	Weekly Timer: Thursday
	Weekly Timer: Friday
	Weekly Timer: Saturday
	Weekly Timer: Sunday
	Key Operator Code for Off Setting

Paper Size Setting	Tray 1: Paper Type
	Tray 2: Paper Type
	Tray 3: Paper Type
	Tray 4: Paper Type
	Tray 5: Paper Type
	Tray 6: Paper Type
	Slip Sheet 1
	Slip Sheet 2
	Slip Sheet 3
	Cover Sheet
	Separation sheet
Key Operator Tools	User Codes: Copier/Document Server
	Key Counter: Copier Access
	Key Operator Access
	User Code Display
	AOF (Keep it on)
	Memory Allocation
	Display/Print Counter

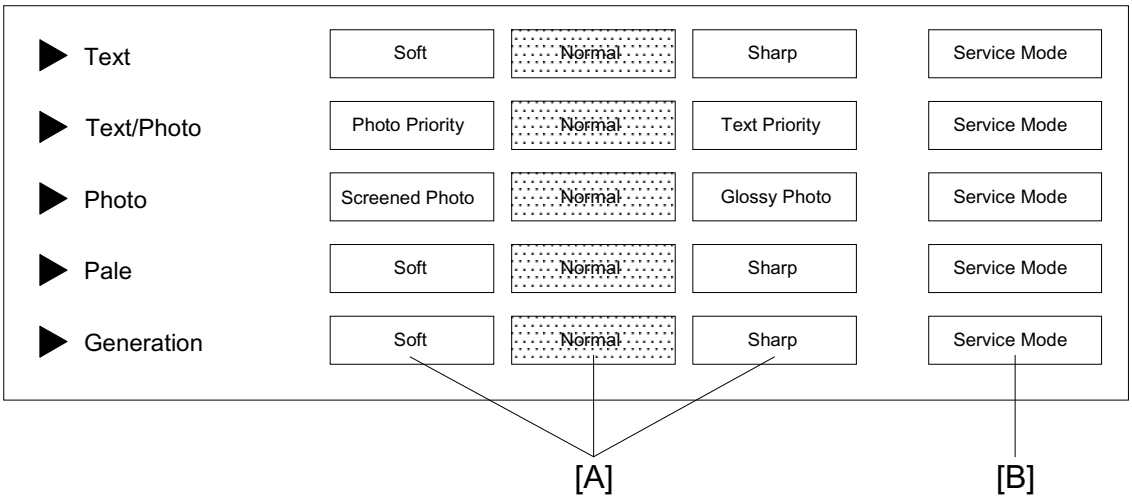
Copy Features Table

Tab	Category	Item
General Features	General Features	Auto Paper Select Priority
		Auto Density Select Priority
		Original Mode Priority
		Paper Tray Priority
		Duplex Mode Priority
		Original Orientation in Duplex Mode
		Copy Orientation in Duplex Mode
		Initial Mode Set
		Maximum Copy Quantity
		Copy Reset Timer
		Job List Screen Timeout
	Set Ratio	Preset Reduce Enlarge Setting
		Ratio Priority
		Shortcut R/E
		Create Margin ration Setting
	Image Quality	Text
		Text/Photo
		Photo
		Pale
		Generation
	Display/Panel Tone	Original Mode Display
		Paper Tray Display
		Other Tab Priority Function Setting
		Image Adjustment Priority
		Stamp Priority
		Staple Format Setting
		Original Tone
		Job End Call
	Adjust Image	Copy Back Cover
		Front Margin: Left/Right
		Back Margin: Left/Right
		Front Margin: Top/Bottom
		Back Margin: Top/Bottom
		1 → Duplex Auto Margin Adjust
		Border Erase Width
		Combine Orig. Shadow Erase
		Center Erase Width
		Repeat Separation Line
		Double Copies Separation Line
		Combine Separation Line
		Copy Orientation in Combine Mode
		Booklet/Magazine Original Orientation
Stamp Setting	Background No. Setting	Background Numbering Size
		Background Numbering Density

Tab	Category	Item
Stamp Setting	Background No. Setting	Background Numbering: Positive Negative
	Preset Stamp Setting	Language Setting
		Stamp Type Priority
		Stamp Layout
		Position Setting
		Size Setting
		Density
		Print Page
		Preset Stamp: Positive/Negative
	User Stamp Setting	Register/Delete Stamp
		Position: Stamp 1-5
	Data Stamp Setting	Type Setting
		Font Setting
		Position Setting
		Size Setting
		Date Stamp: Positive/Negative
	Page Number Setting	Page Numbering type Priority
		Font Setting
		Size setting
		Duplex Back Page Number
		Page Numbering in Combine Mode
		Copy On Slip In Designate Mode
		Page Numbering: Positive/Negative
		Position: P1, P2 Position: 1/5, 2/5 Position: -1-, -2 Position: P.1, P.2 Position: 1, 2 Position: 1-1, 1-2,
Input Output	SADF Auto Reset	
	Rise ADF Orig. Table When	
	Deliver Copies Face Up/Down From Platen	
	Auto Sort Mode	
	Memory Full Auto Scan Restart	
	Shift Print In Sort/Stack Mode	
	Separation Sheet	
Document server	Auto File Delete Period	
	List Display Priority	
	Delete All Stored Files	
Key Operator Tools Count Manager	Print Counter List	
	Reset Counters	
	Reset All	
	Register	
	Change	
	Delete User Code	
	Delete All User Codes	

4.8.3 IMAGE QUALITY SETTING BY UP MODE

'Original Mode Level' in the 'General Features' UP menu is related to the 'MTF Filter Settings' SP mode.



If a setting from the above three columns [A] is selected, the MTF level (coefficient) and MTF strength (SP4-903-20 to 58) are fixed. Any changes to the SP mode settings are not reflected on the copy. To use the settings specified by SP mode, the user must select "Service Mode" [B].

The detailed relationship between the different original modes, the UP modes, and the SP modes are as follows.

Text Mode

Different gamma correction settings are used for "Sharp", "Normal" or "Soft" mode. So, when adjusting the "Service Mode" setting, first select a gamma correction setting for the basic image setting using SP4-903-84.

1. The following tables should be used when 1 (Normal) or 2 (Sharp) is selected in SP4-903-84.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Pre-filter Type – Text SP4-903-010	1	1	1	1	1
Filter Level – Text Main Scan Direction SP4-903-020	13	13	13	13	7
Filter Strength – Text Main Scan Direction SP4-903-022	3	2	1	0	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Pre-filter Type – Text SP4-903-011	0	0	0	0	2
Filter Level – Text Main Scan Direction SP4-903-024	13	13	13	13	13
Filter Strength – Text Main Scan Direction SP4-903-026	3	2	1	0	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Filter Level – Text SP4-903-028	13	13	13	9	7
Filter Strength – Text Main Scan Direction SP4-903-030	2	1	0	0	0

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode		Sharp	Normal		
Filter Level – Text SP4-903-032	13	13	13	9	7
Filter Strength – Text Main Scan Direction SP4-903-034	2	1	0	0	0

2. The following tables should be used when 0 (Soft) is selected in SP4-903-84.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Pre-filter Type – Text SP4-903-010	1	1	1	1	1
Filter Level – Text Main Scan Direction SP4-903-020	3	3	3	3	3
Filter Level – Text Sub Scan Direction SP4-903-021	6	6	6	6	6
Filter Strength – Text Main Scan Direction SP4-903-022	4	3	2	1	1
Filter Strength – Text Sub Scan Direction SP4-903-023	2	2	1	1	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Pre-filter Type – Text SP4-903-011	0	0	0	0	0
Filter Level – Text Main Scan Direction SP4-903-024	3	3	3	3	3
Filter Level – Text Sub Scan Direction SP4-903-025	6	6	6	6	6
Filter Strength – Text Main Scan Direction SP4-903-026	4	3	2	1	1
Filter Strength – Text Sub Scan Direction SP4-903-027	2	2	1	1	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Filter Level – Text Main Scan Direction SP4-903-028	0	0	0	0	0
Filter Level – Text Sub Scan Direction SP4-903-029	2	2	2	2	2
Filter Strength – Text Main Scan Direction SP4-903-030	5	4	2	2	1
Filter Strength – Text Sub Scan Direction SP4-903-031	5	4	4	2	1

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode			Soft		
Filter Level – Text Main Scan Direction SP4-903-032	0	0	0	0	0
Filter Level – Text Sub Scan Direction SP4-903-033	2	2	2	2	2
Filter Strength – Text Main Scan Direction SP4-903-034	5	4	2	2	1
Filter Strength – Text Sub Scan Direction SP4-903-035	5	4	4	2	1

Text/Photo Mode

Initially, the same filter settings are used for Sharp, Normal, and Soft in Text/Photo mode. The difference of each image mode is due to the gamma correction setting. The following filter settings should be changed after selecting the gamma correction setting in SP4-903-85.

Magnification Ratio: 25 ~ 49%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Pre-filter Type – Text/Photo SP4-903-013	1	1	1	1	1
Filter Level – Text/Photo Main Scan Direction SP4-903-039	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-041	2	1	0	0	0

Magnification Ratio: 50 ~ 154%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Pre-filter Type – Text/Photo SP4-903-014	0	0	0	2	1
Filter Level – Text/Photo Main Scan Direction SP4-903-43	13	13	13	13	13
Filter Strength – Text/Photo Main Scan Direction SP4-903-045	2	1	0	0	0

Magnification Ratio: 155 ~ 256%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Filter Level – Text/Photo Main Scan Direction SP4-903-047	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-049	2	1	0	0	0

Magnification Ratio: 257 ~ 400%

MTF Filter Strength	Strong				Weak
UP mode			Photo Priority Normal Text Priority		
Filter Level – Text/Photo Main Scan Direction SP4-903-051	13	13	13	9	7
Filter Strength – Text/Photo Main Scan Direction SP4-903-053	2	1	0	0	0

Photo Mode

Normally the smoothing filter is used in this mode, whether the user selects “Glossy Photo”, “Normal”, or “Screen Printed”.

When a stronger setting is selected, the reproduction of graduations is improved. However, the image tends to go out of focus.

MTF Filter Strength	Strong								Weak
UP mode		Screened Printed			Normal			Glossy Photo	
Pre-filter Type – Photo Mode SP4-903-012		1	2	1	1	1	7	7	10
Smoothing Filter – Photo Mode SP4-903-037		4	4	2	1	0	1	0	0

If the user selects “Service Mode” to use another smoothing filter setting, SP4-903-009 (Filter Type Selection in Photo Mode) should be “1: Smoothing”.

If the user selects “Service Mode” to use an MTF filter setting for photo mode, SP4-903-009 (Filter Type Selection in Photo Mode) should be “0: MTF”.

The following table should be used to change the MTF filter strength for Photo mode.

MTF Filter Strength	Strong				Weak
UP mode					
Pre-filter Type – Photo Mode SP4-903-012	10	10	7	2	1
MTF Filter – Photo Mode SP4-903-36	13	13	13	13	13
MTF Filter Strength – Photo Mode SP4-903-38	2	1	1	1	0

Pale Mode

MTF Filter Strength	Strong						Weak
UP mode		Sharp		Normal		Soft	
Pre-filter Type – Pale Mode SP4-903-015	1	1	1	1	1	1	1
Filter Level – Pale Mode SP4-903-055	3	3	3	3	3	3	1
Filter Strength – Pale Mode SP4-903-056	6	5	4	3	2	1	0

Generation Mode

MTF Filter Strength	Strong						Weak
UP mode		Sharp		Normal		Soft	
Pre-filter Type – Generation Mode SP4-903-016	1	1	1	1	1	1	1
Filter Level – Generation Mode SP4-903-057	13	13	10	13	10	13	7
Filter Strength – Generation Mode SP4-903-058	3	2	2	1	1	0	0

4.8.4 LEDS

SICU

Number	Monitored Signal
LED101	Blinking: Normal Stays on or off: CPU defective
LED102	Off: Normal
LED103	Off: Normal
LED104	Blinking: Normal

BCU

Number	Monitored Signal
LED601 (Green)	Off: Normal Stays on: While downloading the flash memory card.
LED602 (Red)	Blinking: Normal Stays on: While downloading the flash memory card.

I/O Board

Number	Monitored Signal
LED1	Turns on when motor/solenoid drive signal is sent from the BCU to IOB (Normally on).

PSU

Number	Monitored Signal
LED1	On: Normal
LED2	On: Stand-by Off: Energy saver mode
LED3	On: Stand-by Off: Energy saver mode

ADF Main Board ❍: ON ☆: Blinking

LED100	LED101	LED102	
❍	—	—	Entrance Sensor Jam
—	❍	—	Registration Sensor Jam
❍	❍	—	Exit Sensor Jam
—	—	❍	Inverter Sensor Jam
❍	—	❍	Jammed paper not removed: Between entrance sensor + registration sensor
❍	❍	❍	Jammed paper not removed: On the exposure glass
☆	—	—	Feed-in Motor Abnormal
—	☆	—	Transport Motor Abnormal
—	—	☆	Feed-out Motor Abnormal
☆	☆	—	Pick-up Motor Abnormal
—	☆	☆	Bottom Plate Motor Abnormal
☆	☆	☆	DF Position (Open)
☆	—	☆	APS Sensor ON
☆	—	—	Normal

4.9 TEST POINTS/DIP SWITCHES/LEDS

4.9.1 DIP SWITCHES

SICU

Paper size type default (see SP 5-131)

SW101		Destination
1	2	
0	0	Japanese version
1	0	North America version
0	1	Europe version
1	1	Chinese version

ADF Main Board

DPS100				Description
4	3	2	1	
0	0	0	0	Normal operating mode
0	0	0	1	Motor Test: Transport motor – Forward
0	0	1	0	Motor Test: Transport motor – Reverse
0	0	1	1	Motor Speed Adjustment (Automatic)
0	1	0	0	Original stop position adjustment – Single-sided original mode (No original skew correction)
0	1	0	1	Original stop position adjustment – Double sided original mode
1	0	0	0	Free Run: Single-sided original mode with skew correction
1	0	1	0	Free Run: Single-sided original mode without skew correction
0	1	1	0	Free Run: Double-sided original mode
Others				Do not select

"SADF" LED turns on when one of DIP switch turns on.

MCU: All the dip switches should be OFF. Do not change the settings.

4.9.2 TEST POINTS

ADF Main Board

Number	Label	Monitored Signal
TP100	TXD	TXD to the copier
TP101	RXD	RXD from the copier
TP102	GND	Ground
TP103	12 V	+12 V
TP104	5 V	+5 V

BCU

Number	Monitored Signal
TP647	Ground
TP679	Ground

4.9.3 FUSES

ADF Main Board

Number	Description
FU100	Protects the 38 V line
FU101	Protects the 24 V line

PSU

Number	Description
FU401	Protect the ac input line.

I/F Board (Option)

Number	Description
FJ101 (T1A250U)	Protects the 5 V power line. If this fuse is broken, all the related options are not recognized.

4.9.4 VARIABLE RESISTORS

ADF Main Board

Number	Function
VR100	Adjusts the original stop position for the single-sided original at no skew correction mode.
VR101	Adjusts the original stop position for the double-sided original.

Charge/Bias/Grid Power Pack

Number	Function
VRC	For the charge corona PWM. This VR is secured by paintlock. Do not change the setting in the field.
VRG	For the grid PWM. This VR is secured by paintlock. Do not change the setting in the field.

4.10 SPECIAL TOOLS AND LUBRICANTS

4.10.1 SPECIAL TOOLS

Part Number	Description	Q'ty
A2309352	Flash Memory Card - 4MB	1
A2309351	Case - Flash Memory Card	1
A0069104	Scanner Positioning Pin (4 pcs/set)	1
54209516	Test Chart - OS-A3 (10 pcs/Set)	1
A0299387	Digital Multimeter – FLUKE 87	1

4.10.2 LUBRICANTS

Part Number	Description	Q'ty
A0289300	Grease Barrierta JFE 5 5/2	1
52039502	Silicone Grease G-501	1
G0049668	Grease: KS660: SHIN ETSU	1

PREVENTIVE MAINTENANCE

5. PREVENTIVE MAINTENANCE SCHEDULE

5.1 PM PARTS

NOTE: The amount mentioned as the PM interval indicates the number of prints, unless stated otherwise.

Symbol key: **R,** r: Replace on a PM part counter basis (refer to Service Tables – PM Counter)
R: The counter counts up every copy, in the same way as the copy counter
r: The counter only counts up if that part was used for the copy
I: Inspect, and clean and/or lubricate
i: Inspect, and clean and/or lubricate only if necessary

Description	Activity Type	Interval	Note/Remarks
OPTICS			
Exposure Glass	i	300 k	
1st ~ 3rd Mirrors	i	300 k	Optical cloth
APS Sensor	i	300 k	Dry cloth
Scanner Rail	i	300 k	Dry cloth
Scanner Filter	**I**	600 k	Blower brush
Toner Shield Glass	**I**	300 k	Optical cloth
LD Filter	**I**	300 k	Blower brush
White Patch	i	300 k	Dry cloth
DEVELOPMENT UNIT			
Side Seal	**I**	300 k	Blower brush or dry cloth
Development Unit	i	300 k	Blower brush or dry cloth
Development Roller	**I** (Note 1)	300 k	Blower brush and dry cloth
Entrance Seal	**I**	300 k	Blower brush or dry cloth
Toner Hopper (Outside)	i	300 k	Blower brush or dry cloth
Gears (All Gears)	i	300 k	Blower brush
Toner Filter (Center)	r	400 k	
Toner Filter (Front)	r	400 k	
Developer	r	300 k	TD sensor initial setting (SP2-801)
	Note 1:If toner sticks to the development roller, the base voltage will increase in that area. This may in turn cause dirty background on copies. Therefore, the development rollers should be cleaned whenever the developer is replaced.		
Waste Toner Collection Bottle	r	2,400k	A4 6% Chart
Sucked Toner Collection Bottle	r	1,200 k	A4 6% Chart
Development Suction Motor Ass'y	r	2,500 k	A4 6% Chart

Description	Activity Type	Interval	Note/Remarks
AROUND THE DRUM			
Side Seal	i	300 k	Blower brush or dry cloth
Ground Plate/Screw	i	300 k	Electrical connection check Alcohol or water
Drum Filter	**I**	380 k	Blower brush
Cleaning Brush Seal	i	300 k	Blower brush or dry cloth
Cleaning Entrance Seal	**I**	300 k	Blower brush or dry cloth
ID Sensor	**I**	300 k	Blower brush or dry cloth
Transfer Unit Entrance Stay	**I**	300 k	Blower brush or dry cloth
Corona Wire Casing	**I**	300 k	Damp cloth
Drum Potential Sensor	**I**	300 k	Blower brush
Quenching Lamp	**I**	300 k	Blower brush or dry cloth
Cleaning Brush	**R**	300 k	
Toner Filter	**R**	300 k	
Transfer Belt Cleaning Blade	**R**	450 k	
Cleaning Blade	**R**	300 k	
Grid Plate	r	300 k	
Charge Corona Wire	r	300 k	
Wire Cleaner	r	300 k	
Wire Cushion	r	300 k	
Pick-off Pawls	**R**	300 k	
Transfer Belt	**R**	450 k	
Transfer Belt Bias Brush	**I**	450 k	Blower brush
Rear Casing Guide	**I**	300 k	Dry cloth
Exit Bias Plate	**I**	300 k	Blower brush
Belt Drive Roller	**I**	450 k	Alcohol
Belt Roller	**I**	450 k	Alcohol
Cleaning Bias Roller	**I**	450 k	Alcohol
Ozone Filter	r	1,500 k	
Carrier Catcher	i	300 k	
FUSING UNIT			
Pressure Roller Cleaning Roller Bearings	i	600 k	Inspect only
Pressure Roller Cleaning Roller	**R**	600 k	
Fusing Entrance Guide	**I**	300 k	Water or alcohol
Oil Supply & Cleaning Web	**R**	300 k (EU) 600 k (US)	
Hot Roller	r	600 k	
Hot Roller Stripper	**I** (Note 3) r	300 k 600 k	Dry cloth
Pressure Roller Stripper		600 k	Dry cloth
Fusing Exit Roller		600 k	Water or alcohol
Pressure Roller	r	500 k	

Description	Activity Type	Interval	Note/Remarks
Pressure Roller Cleaning Roller Cleaner	r	600 k	
Hot Roller Ball Bearing	i	600 k	Inspect only
Pressure Roller Ball Bearing	i	700 k	Inspect only
Hot Roller Bushing	i	600 k	Inspect only
Pressure Roller Busing	i	700 k	Inspect only
Hot Roller Gear	**l**	300 k	Grease (Barrierta)
Fusing Exit Guide Plates	**l** (Note 2)	300 k	Water or alcohol
Fusing Web Brake Pad	r	600 k	
	Note 2:Paper jams may occur if toner sticks to the lower fusing exit guide. Therefore, the guide should be cleaned at every PM visit. Note 3:If the hot roller stripper becomes dirty with toner or other particles, this may cause the side edge of the copy stack (paper trailing edge) to become dirty. Clean at every PM.		
PAPER FEED			
Relay Roller	**l**	300 k	Damp cloth
Paper Feed Guide Plate	i	300 k	Damp cloth
Registration Rollers	**l**	300 k	Damp cloth
Registration Sensor	**l**	300 k	Blower brush
Relay Sensor	**l**	300 k	Blower brush
Paper Dust Remover	**l**	300 k	Damp cloth
Paper Feed Sensor	**l**	300 k	Blower brush
Paper Feed Rollers	r	300 k	
DUPLEX			
Feed and Transport Rollers	**l**	300 k	Damp cloth
Reverse and Inverter Rollers	**l**	300 k	Damp cloth
Entrance Sensor	**l**	300 k	Blower brush
Entrance Anti-static Brush	i	300 k	Blower brush
Duplex Transport Sensor	**l** (Note 4)	300 k	Dry cloth
Duplex Inverter Sensor	**l** (Note 4)	300 k	Dry cloth
	Note 4:Paper dust on the duplex transport sensors and the duplex inverter can cause paper jams. These sensors should be cleaned with a blower brush at every PM visit.		

Description	Activity Type	Interval	Note/Remarks
ADF			
Transport Belt	r	80 k	Belt cleaner
Feed Belt	r	80 k	Belt cleaner
Separation Roller	r	80 k	Dry or damp cloth

Description	Activity Type	Interval	Note/Remarks
Pick-up Roller	r	80 k	Dry or damp cloth
Sensors	i	80 k	Blower brush
Drive Gears	i	80 k	Grease G501

Description	Activity Type	Interval	Note/Remarks
LCT			
Paper Feed Roller	r	300 k	
Pick-up Roller	r	300 k	
Separation Roller	r	300 k	
Bottom Plate Pad	i	300 k	Dry or damp cloth

Description	Activity Type	Interval	Note/Remarks
3,000-SHEET FINISHER			
Rollers	i	300 k	Clean with water or alcohol.
Brush Roller	i	300 k	Inspect only. Replace if necessary.
Discharge Brush	i	300 k	Clean with a dry cloth.
Sensors	i	300 k	Blower brush
Jogger Fences	i	300 k	Inspect only. Replace if necessary.
Punch Waste Hopper	i	300 k	Empty the hopper.

NOTE: PM parts should be replaced on a PM counter basis. The PM counter corresponding to the replaced part should be cleared (refer to Service Tables – PM Counter).

REPLACEMENT AND ADJUSTMENT

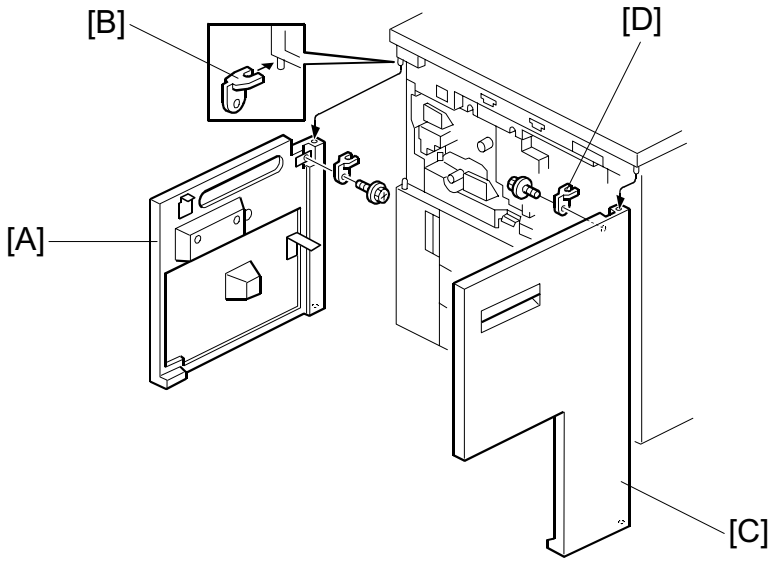
6. REPLACEMENT AND ADJUSTMENT

CAUTION

Turn off the main power switch and unplug the machine before attempting any of the procedures in this section.

6.1 EXTERIOR

6.1.1 FRONT



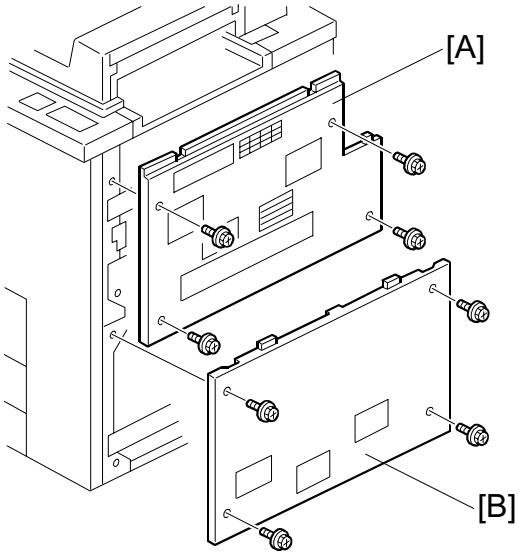
Left Door

1. Open the left door [A].
2. Remove the stopper [B] (1 screw).
3. Lift up the left door and remove it.

Right Door

1. Open the right door [C].
2. Remove the stopper [D] (1 screw).
3. Lift up the right door and remove it.

6.1.2 RIGHT



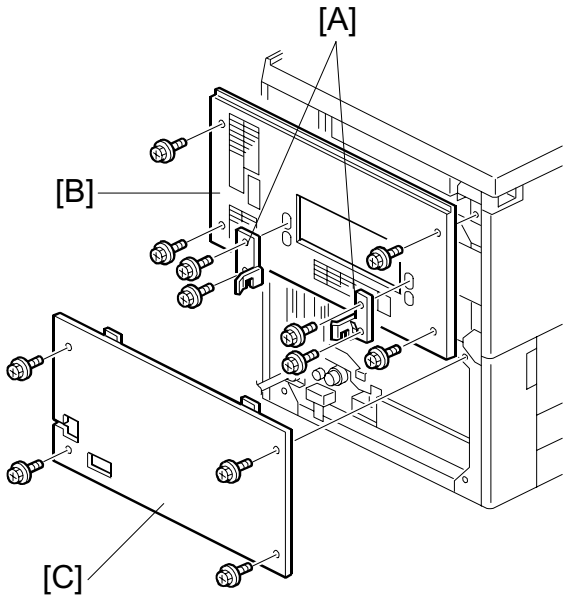
Upper Right Cover

1. Remove the upper right cover [A] (4 screws).

Lower Right Cover

1. Remove the lower right cover [B] (4 screws).

6.1.3 LEFT



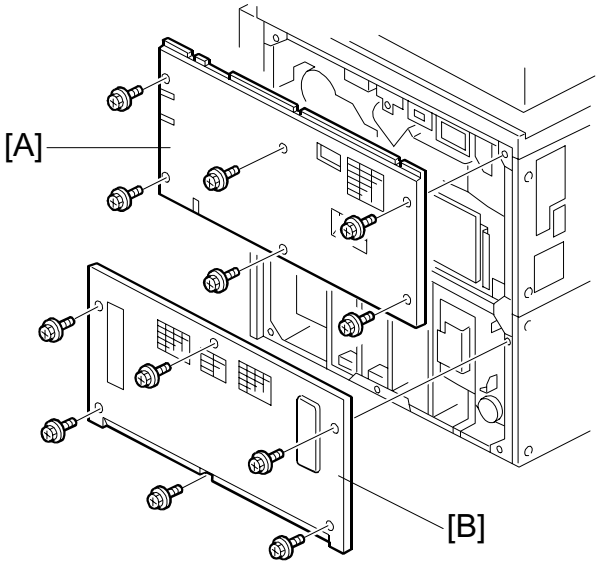
Upper Left Cover

1. Remove the optional finisher, if it is installed.
2. Remove the front and rear joint brackets [A] (2 screws each), if the optional finisher was installed.
3. Remove the upper left cover [B] (4 screws)

Lower Left Cover

1. Remove the lower left cover [C] (4 screws).

6.1.4 REAR



Upper Rear Cover

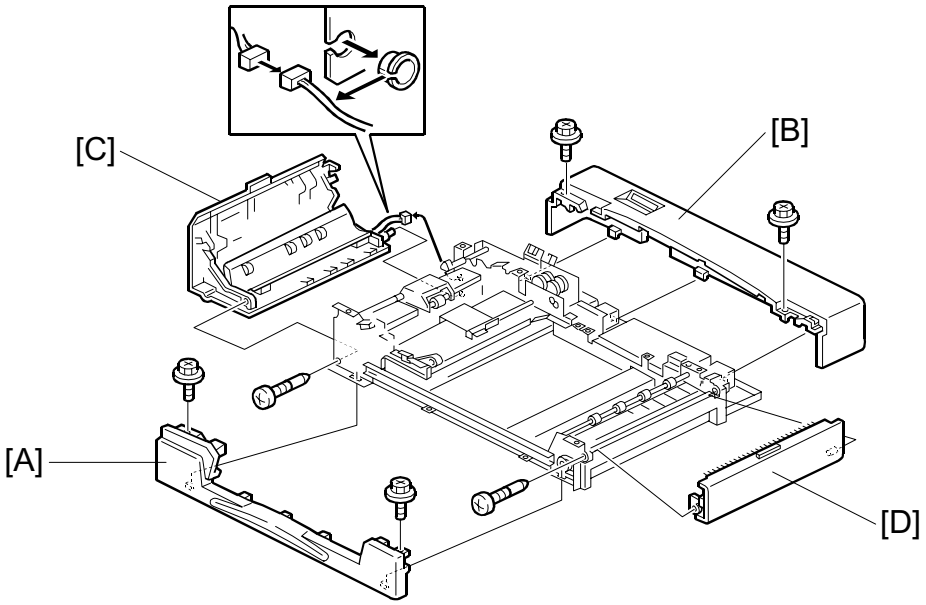
1. Remove the upper rear cover [A] (6 screws).

Lower Rear Cover

1. Remove the lower rear cover [B] (6 screws).

6.2 DOCUMENT FEEDER

6.2.1 COVER REMOVAL



Front Cover Removal

1. Remove the front cover [A] (2 screws).

Rear Cover Removal

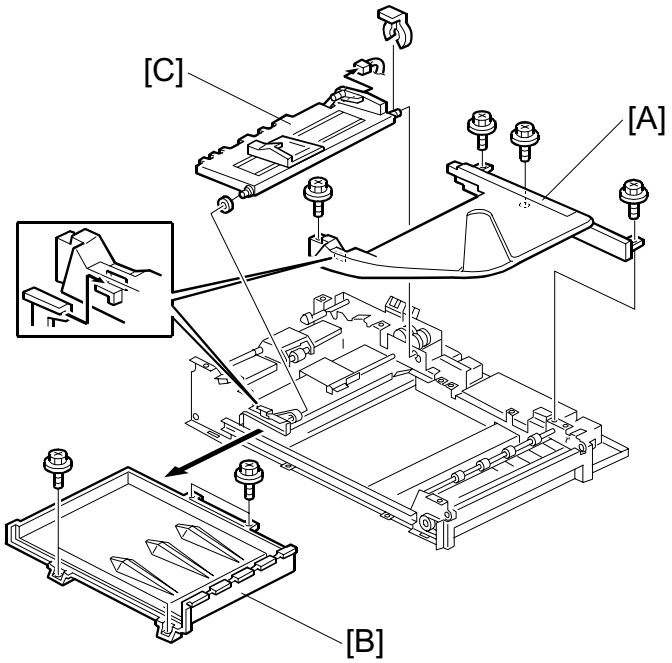
1. Remove the rear cover [B] (3 screws).

Left Cover Removal

1. Remove the front cover.
2. Remove the grounding wire (not shown) (1 screw).
3. Remove the left cover [C] (1 screw, 2 connectors).

Upper Exit Cover Removal

1. Remove the front cover.
2. Remove the upper exit cover [D] (1 screw).



Original Tray Removal

1. Remove the front and rear covers.
2. Remove the original tray [A] (4 screws).

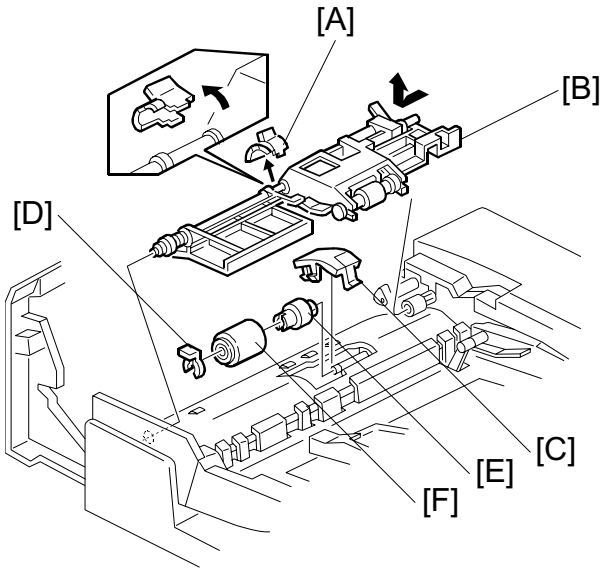
Upper Cover Removal

1. Remove the front and rear covers.
2. Remove the original tray.
3. Remove the upper cover [B] (2 screws).

Bottom Plate Removal

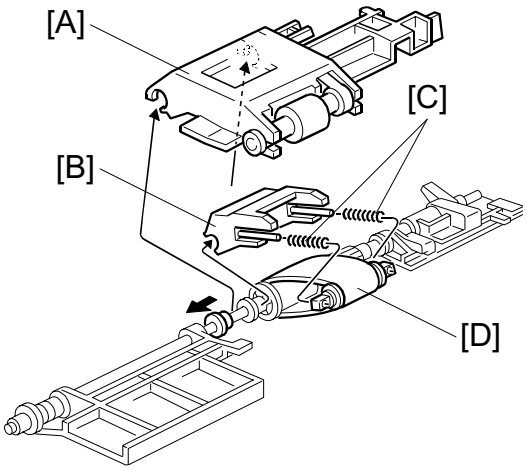
1. Remove the front and rear covers.
2. Remove the original tray.
3. Remove the bottom plate [C] (1 snap ring, 1 connector).

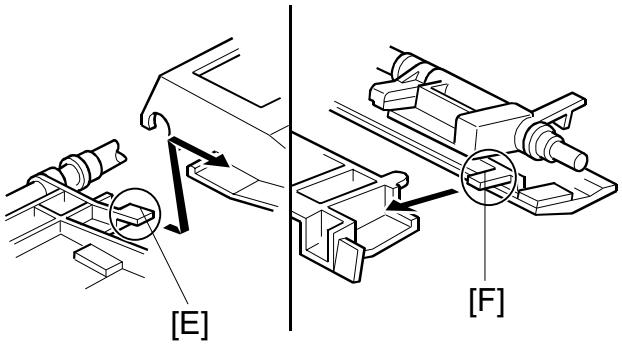
6.2.2 FEED UNIT REMOVAL AND SEPARATION ROLLER REPLACEMENT



1. Open the left cover.
2. Remove the clip [A].
3. Remove the feed unit [B].
   (Pull the feed unit to the front, release the shaft at the rear, and release the front bushing.)
4. Remove the separation roller cover [C].
5. Remove the snap ring [D].
6. Remove the torque limiter [E] and separation roller [F].

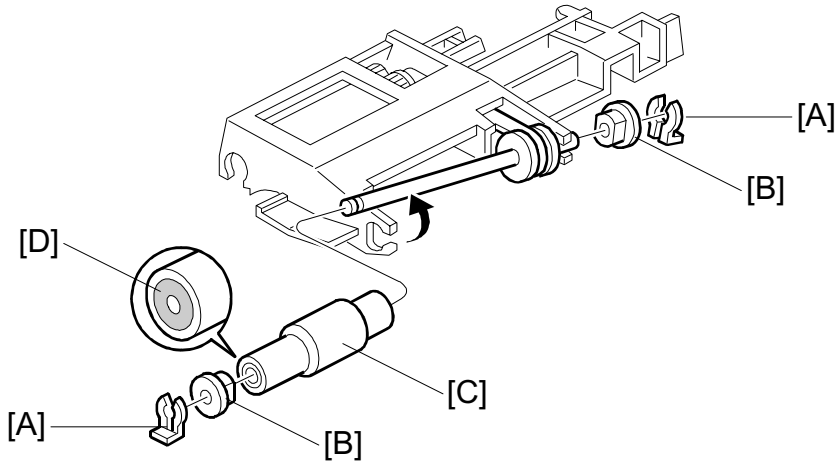
6.2.3 FEED BELT REPLACEMENT





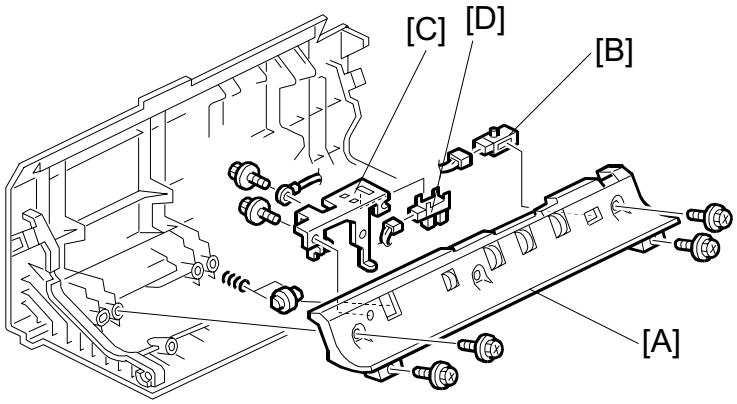
1. Remove the feed unit.
2. Remove the pick-up roller unit [A].
3. Remove the feed belt holder [B].
   NOTE: The springs [C] come off the feed belt cover easily.
4. Replace the feed belt [D].
   NOTE: When reinstalling the pick-up roller unit, make sure that levers [E] and [F] on the front and rear original guides are resting on the pick-up roller unit cover.

6.2.4 PICK-UP ROLLER REPLACEMENT



1. Open the left cover.
2. Remove the two snap rings [A].
3. Remove the two bushings [B].
4. Replace the pick-up roller [C].
   NOTE: When reinstalling the pick-up roller, make sure that the one-way clutch [D] is not at the gear side.

6.2.5 SENSOR REPLACEMENT



1. Remove the left cover.
2. Remove the guide plate [A] (5 screws).

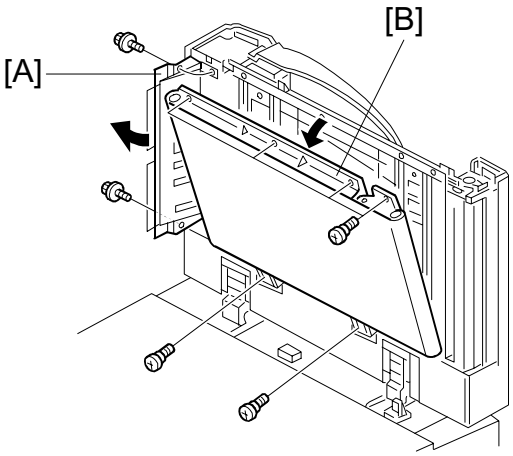
Entrance Sensor

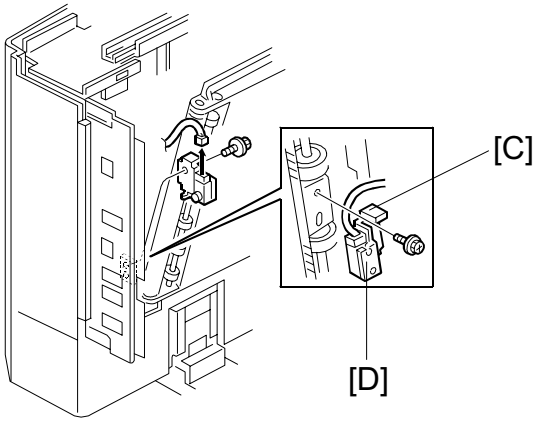
3. Replace the entrance sensor [B] (1 connector).

Length Sensor

3. Remove the length sensor bracket [C] (1 screw).
4. Replace the length sensor [D] (1 connector).

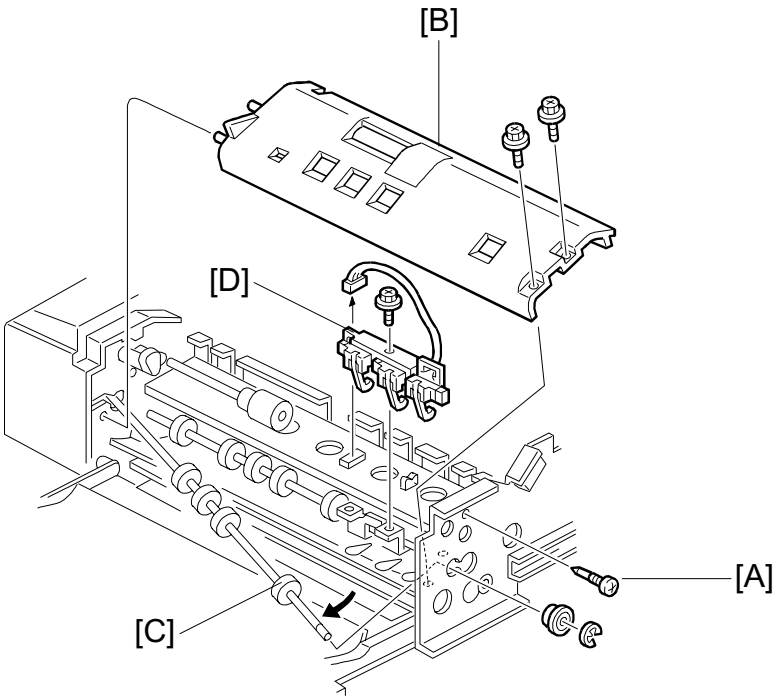
Registration Sensor





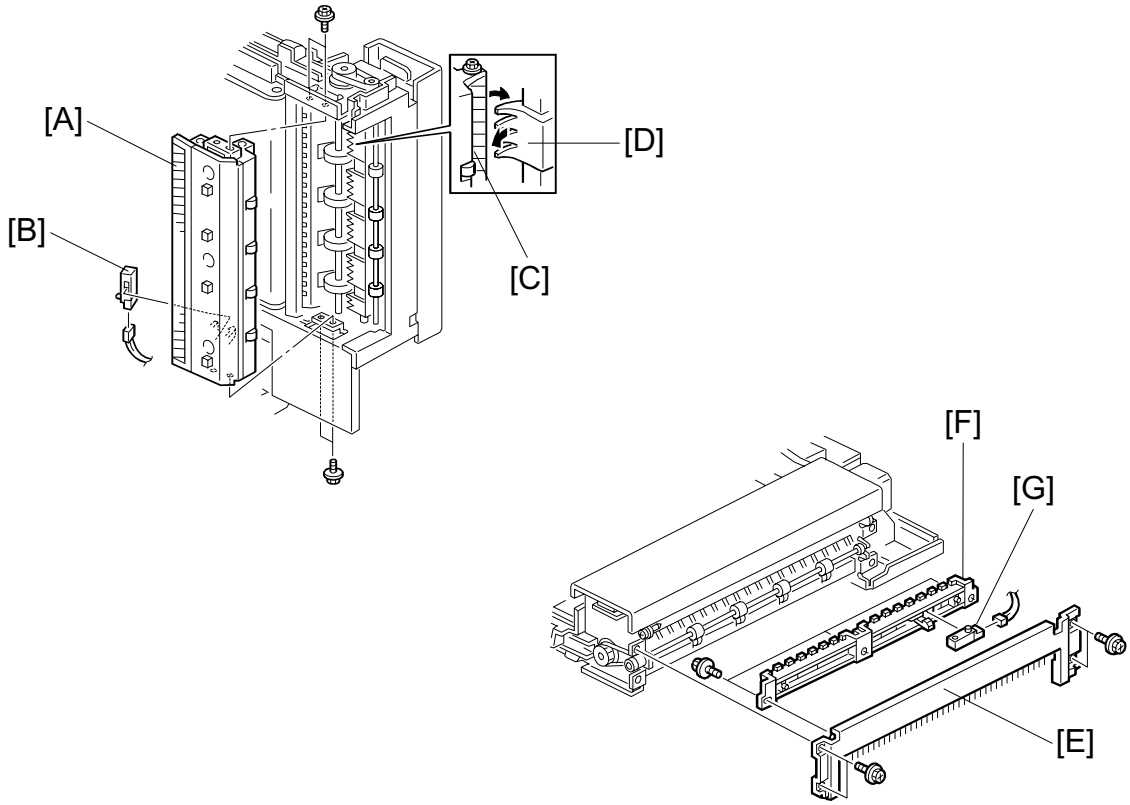
1. Release the entrance guide [A] (2 screws).
2. Release the transport belt unit [B].
3. Remove the sensor bracket [C] (1 screw).
4. Replace the registration sensor [D] (1 connector, 1 screw).

Width Sensor



1. Remove the feed unit.
2. Remove the front cover.
3. Remove the stopper screw [A].
4. Remove the guide plate [B] (2 screws).
5. Release the front end of the upper transport roller [C] (1 bushing, 1 E-ring).
6. Remove the sensor unit [D] (1 screw).
7. Replace the width sensor.

Exit Sensor and Inverter Sensor



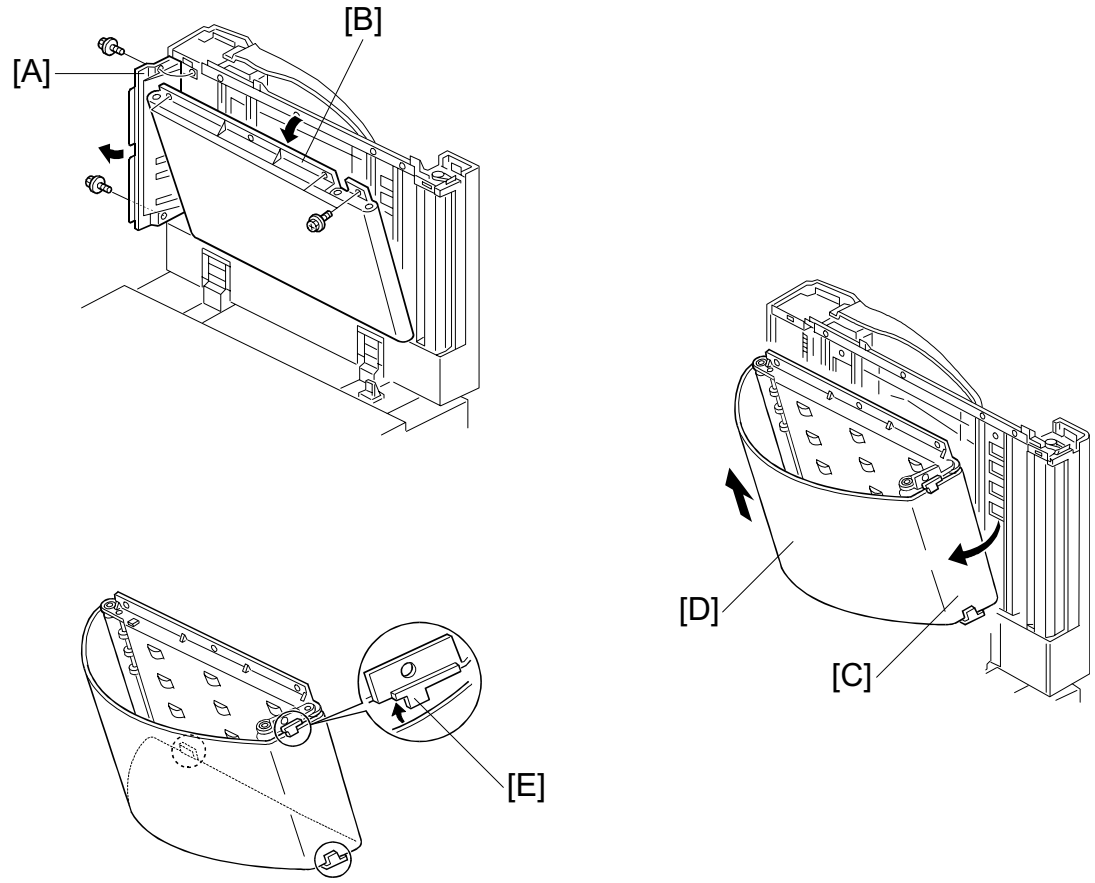
Exit Sensor

1. Remove the front and rear covers.
2. Remove the exit guide unit [A] (4 screws).
3. Replace the exit sensor [B] (1 connector).
   NOTE: When reinstalling the exit guide unit, make sure that the guide plate [C] on the exit unit is over the exit gate [D].

Inverter Sensor

1. Remove the front and rear covers.
2. Remove the right lower cover [E] (4 screws).
3. Remove the guide plate [F] (3 screws).
4. Replace the inverter sensor [G] (1 connector).

6.2.6 TRANSPORT BELT REPLACEMENT

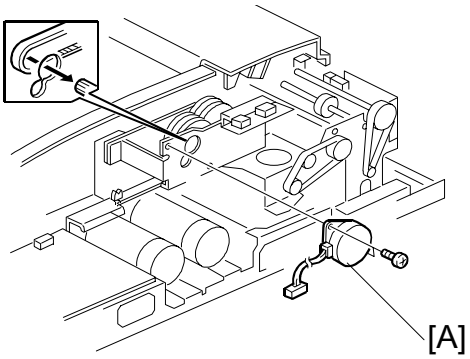


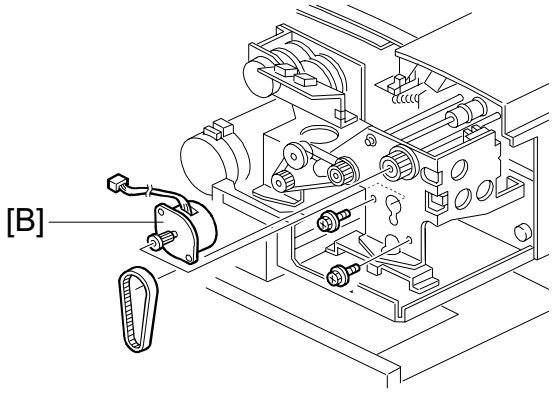
1. Remove the front cover.
2. Release the entrance guide [A] (2 screws).
3. Remove the three screws securing the transport belt assembly [B].
4. Fold up the transport belt assembly extension [C].
5. Pull off the transport belt [D] and replace it.

NOTE: When installing the transport belt, make sure that the belt runs under the upper and lower belt guide spacers [E].

6. Using SP6-009, do a DF free run for 3 minutes. After the free run is finished, clean off any dust that came off the transport belt onto the exposure glass.

6.2.7 MOTOR REPLACEMENT





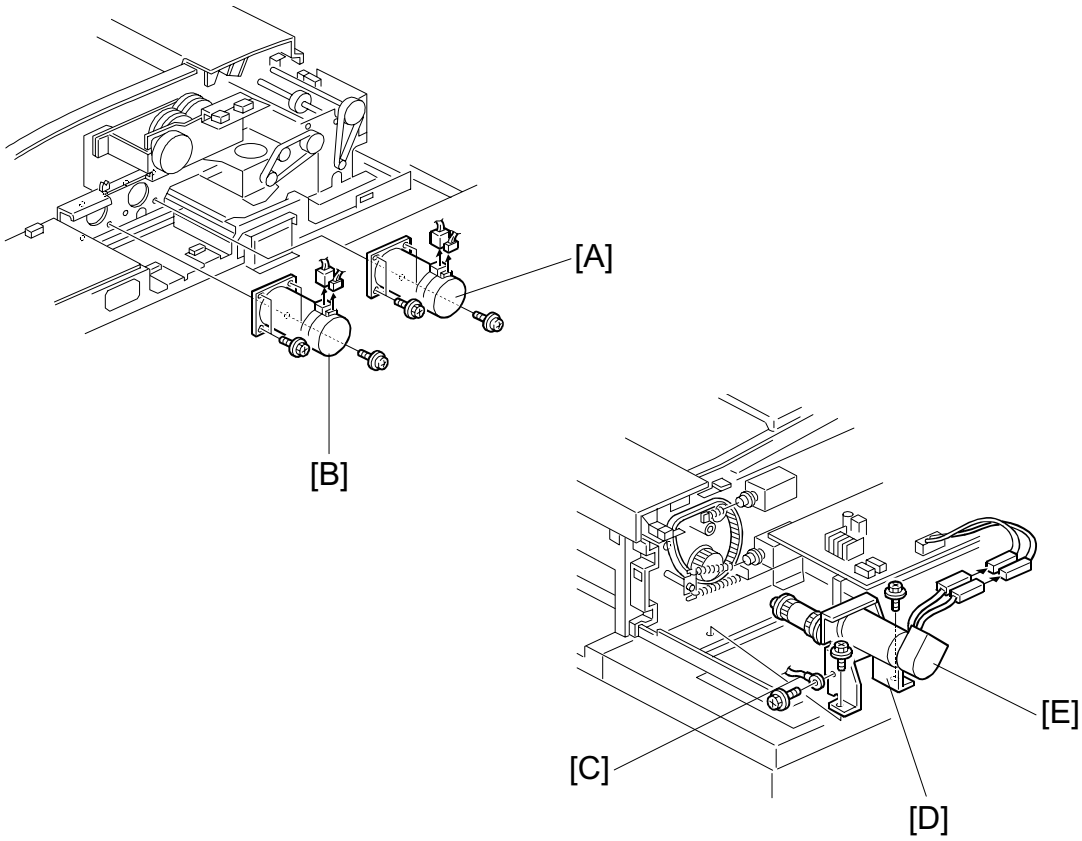
1. Remove the rear cover.

Bottom Plate Motor

2. Replace the bottom plate motor [A] (2 screws, 1 connector).

Pick-up Motor

2. Replace the pick-up motor [B] (2 screws, 1 connector).



1. Remove the rear cover.

Feed-in Motor

2. Replace the feed-in motor [A] (4 screws, 2 connectors).

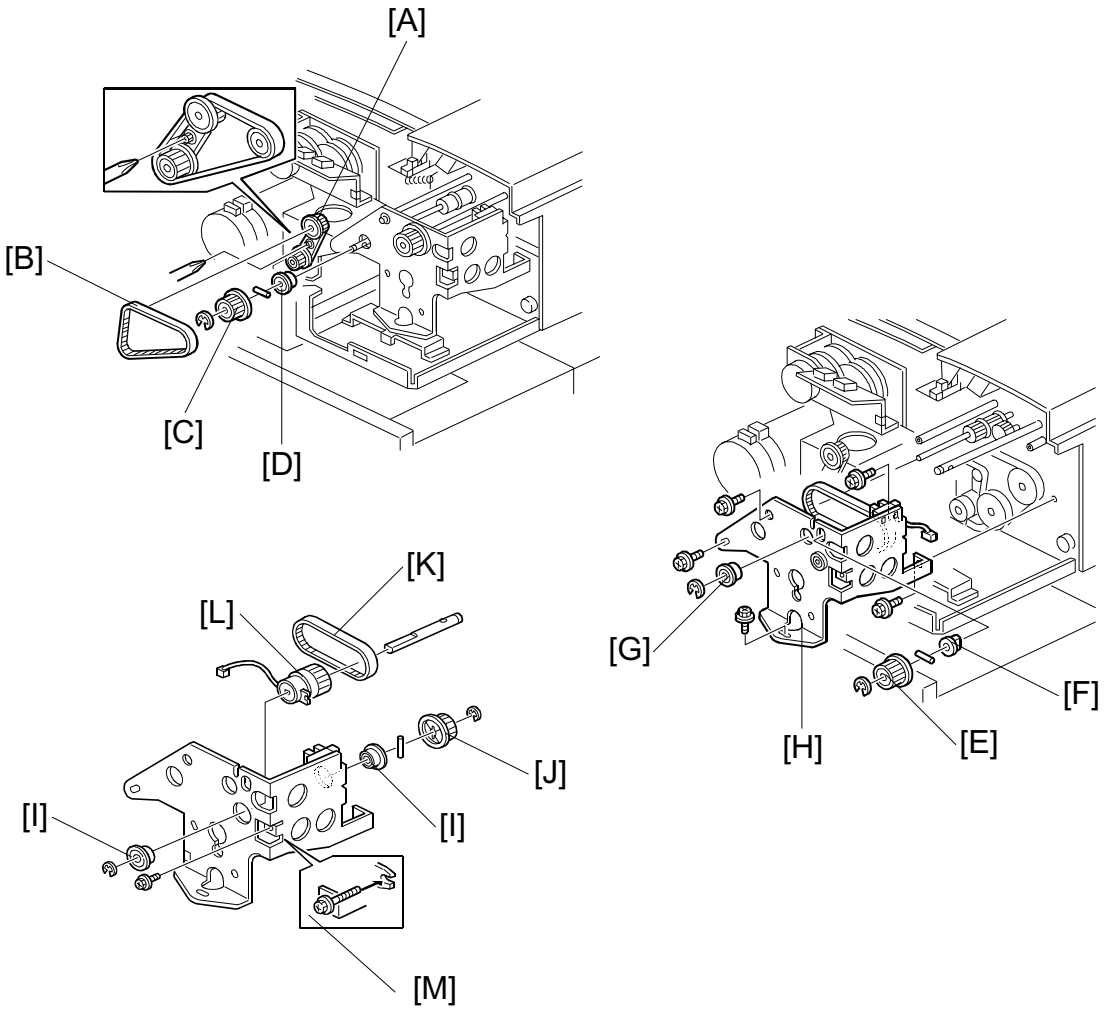
Transport Motor

2. Replace the transport motor [B] (4 screws, 2 connectors).

Feed-out Motor

2. Remove the grounding wire [C] (1 screw).
3. Remove the feed-out motor assembly [D] (2 screws, 2 connectors).
4. Replace the feed-out motor [E] (2 screws).

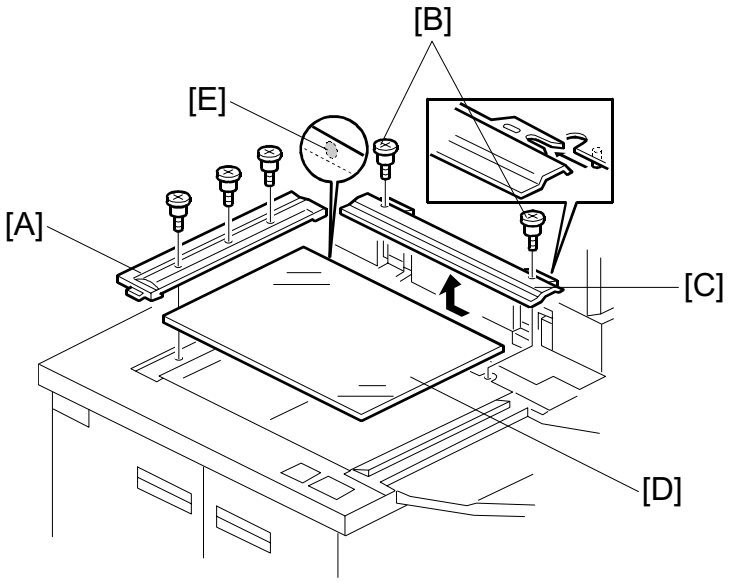
6.2.8 FEED-IN CLUTCH REPLACEMENT



1. Remove the rear cover.
2. Remove a screw from the tightener [A].
3. Remove the timing belt [B].
4. Remove the pulley [C] and ball bearing [D] from the feed-in drive shaft (1 E-ring, 1 pin).
5. Remove the pulley [E] and bushing [F] from the pick-up roller cam shaft (1 E-ring, 1 pin)
6. Remove the ball bearing [G] from the feed belt drive shaft (1 E-ring).
7. Remove the feed-in clutch assembly [H] (5 screws).
8. Remove 2 ball bearings [I] from the feed-in clutch shaft (1 E-ring each).
9. Remove the pulley [J], pin and timing belt [K].
10. Replace the feed-in clutch [L].
    NOTE: When re-installing the feed-in clutch, put the stopper screw [M] in the clutch hook.

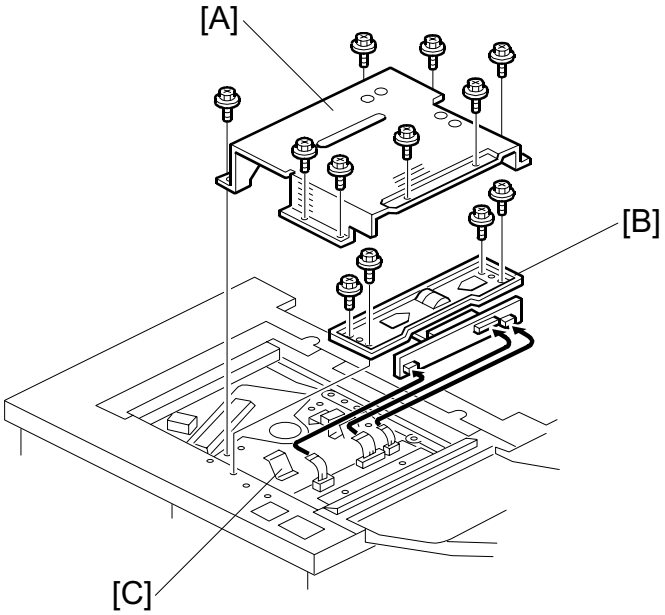
6.3 SCANNER UNIT

6.3.1 EXPOSURE GLASS



1. Remove the left scale [A] (3 screws).
2. Remove the 2 screws [B] holding the rear scale.
3. Slide the rear scale [C] in the direction of the arrow, then remove it.
4. Remove the exposure glass [D].
   NOTE: When reinstalling the exposure glass, make sure that the mark [E] is at the rear left corner, as shown.

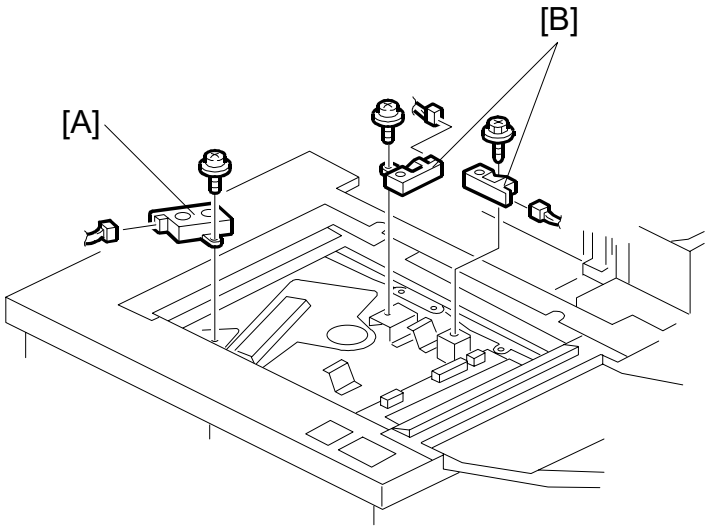
6.3.2 LENS BLOCK



1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the lens cover [A] (8 screws).
3. Remove the lens block [B] (4 screws, 3 connectors).
4. After reassembly, do the scanner and printer copy adjustment. (See Replacement and Adjustment – Copy Image Adjustment.)

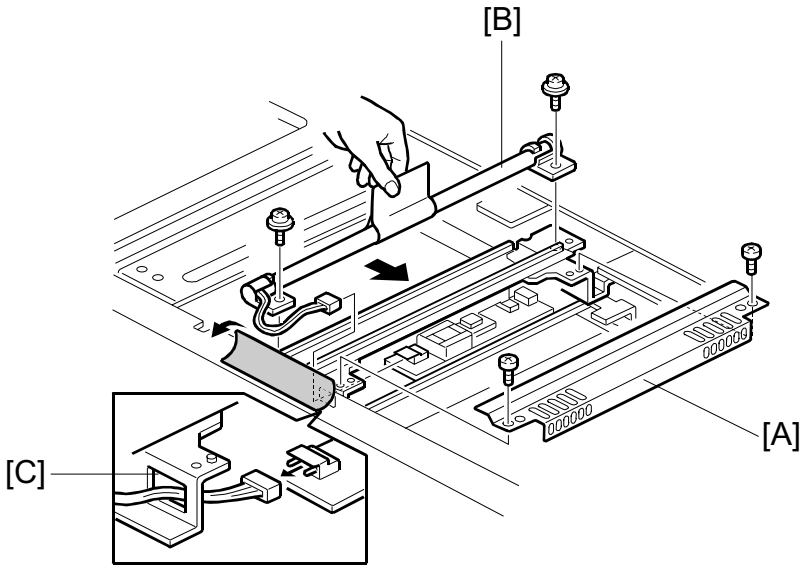
NOTE: Do not drive the scanner unit without the lens cover. The grounding plates [C] will contact the 1st scanner and damage the scanner.

6.3.3 ORIGINAL SIZE SENSORS



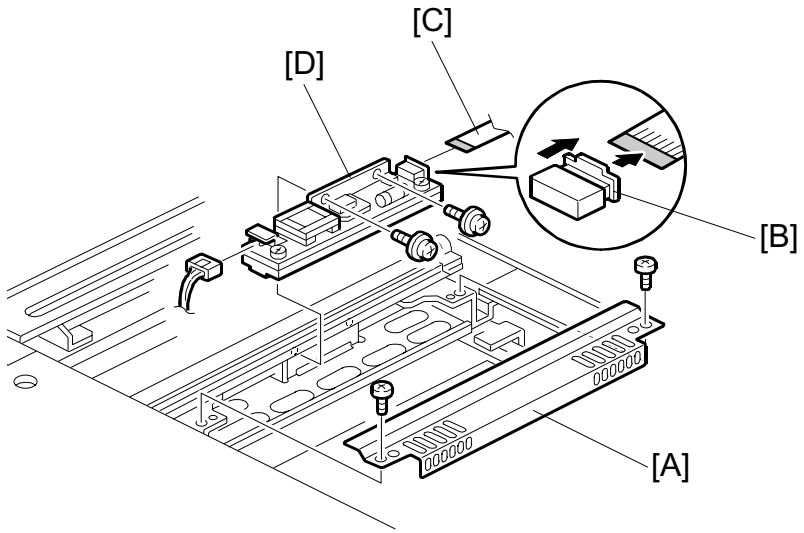
1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the original width sensor [A] (1 screw, 1 connector).
3. Remove the lens cover (8 screws). (See Lens Block.)
4. Remove the original length sensors [B] (1 screw, 1 connector each).

6.3.4 EXPOSURE LAMP



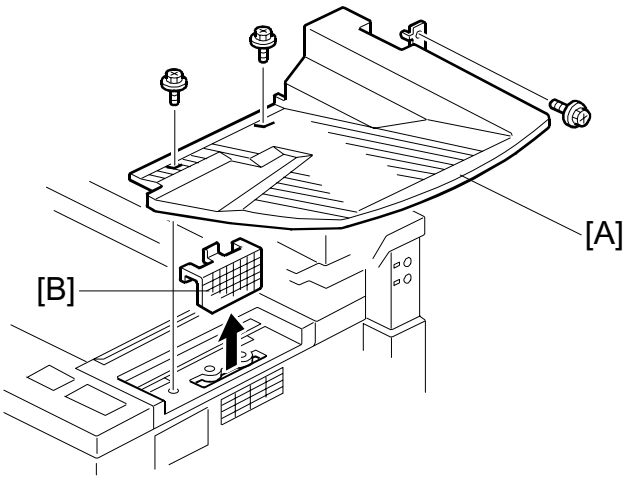
1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the front upper cover (7 screws, 1 connector). See Scanner Motor Removal.
3. Remove the lamp regulator cover [A] (2 screws).
4. Remove the exposure lamp [B] (2 screws, 1 connector).
   NOTE: When reinstalling the exposure lamp, pass the cable through the opening [C] in the bracket.

6.3.5 LAMP REGULATOR



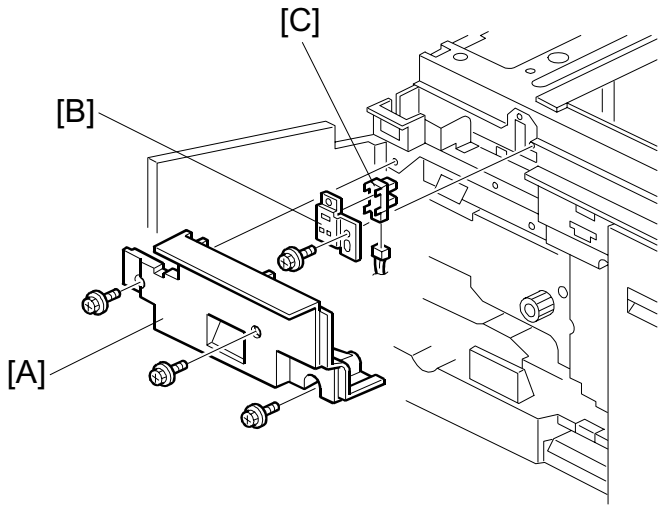
1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the lamp regulator cover [A] (2 screws).
3. Slide the holder [B] in the direction of the arrow. Then disconnect the flat cable [C].
4. Remove the lamp regulator [D] (2 screws, 1 connector).

6.3.6 OPTICS DUST FILTER



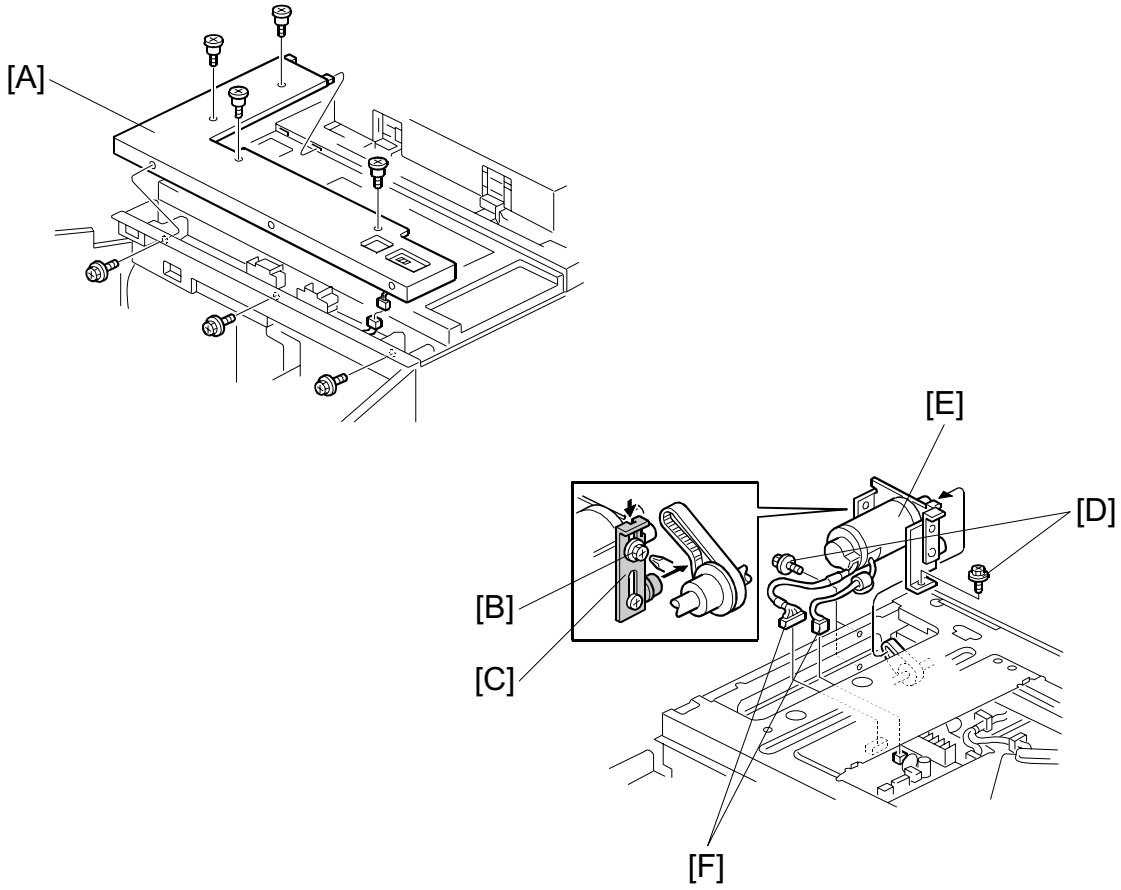
1. Remove the original exit tray [A] (3 screws).
2. Remove the optics dust filter [B].

6.3.7 SCANNER H.P. SENSOR



1. Remove the front upper cover (7 screws, 1 connector). See Scanner Cover Removal.
2. Remove the left upper inner cover [A] (3 screws).
3. Remove the scanner H.P. sensor bracket [B] (1 screw).
4. Remove the scanner H.P. sensor [C] (1 connector).

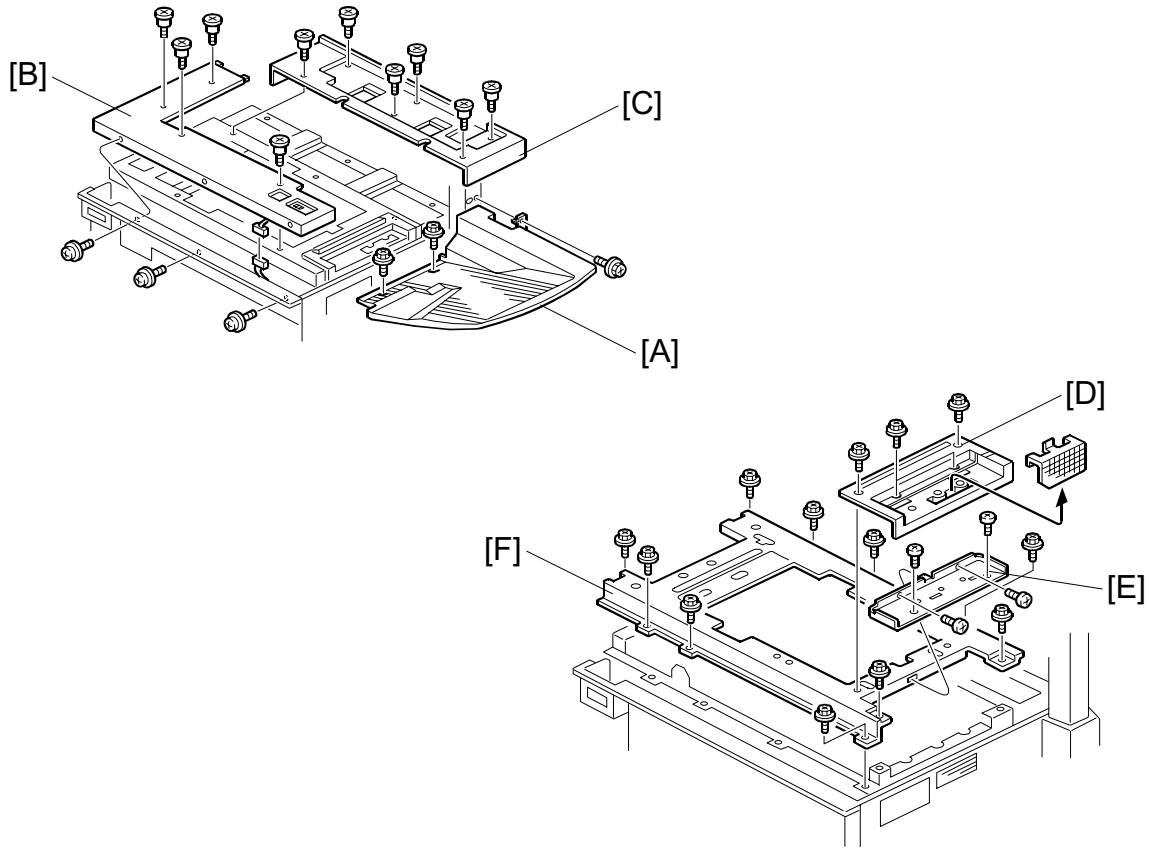
6.3.8 SCANNER MOTOR



1. Remove the exposure glass. (See Exposure Glass.)
2. Remove the upper left cover. (See Exterior.)
3. Remove the front upper cover [A] (7 screws, 1 connector).
4. Loosen the screw [B] holding the belt tension bracket [C].
5. Remove the 3 screws [D] securing the scanner motor assembly [E].
6. Disconnect the two connectors [F] from the MCU.
7. While pushing down the bracket [C] to release belt tension, remove the scanner motor assembly.
8. Remove the scanner motor from the bracket (3 screws) and replace it.
9. After reassembly, do the copy image adjustments.

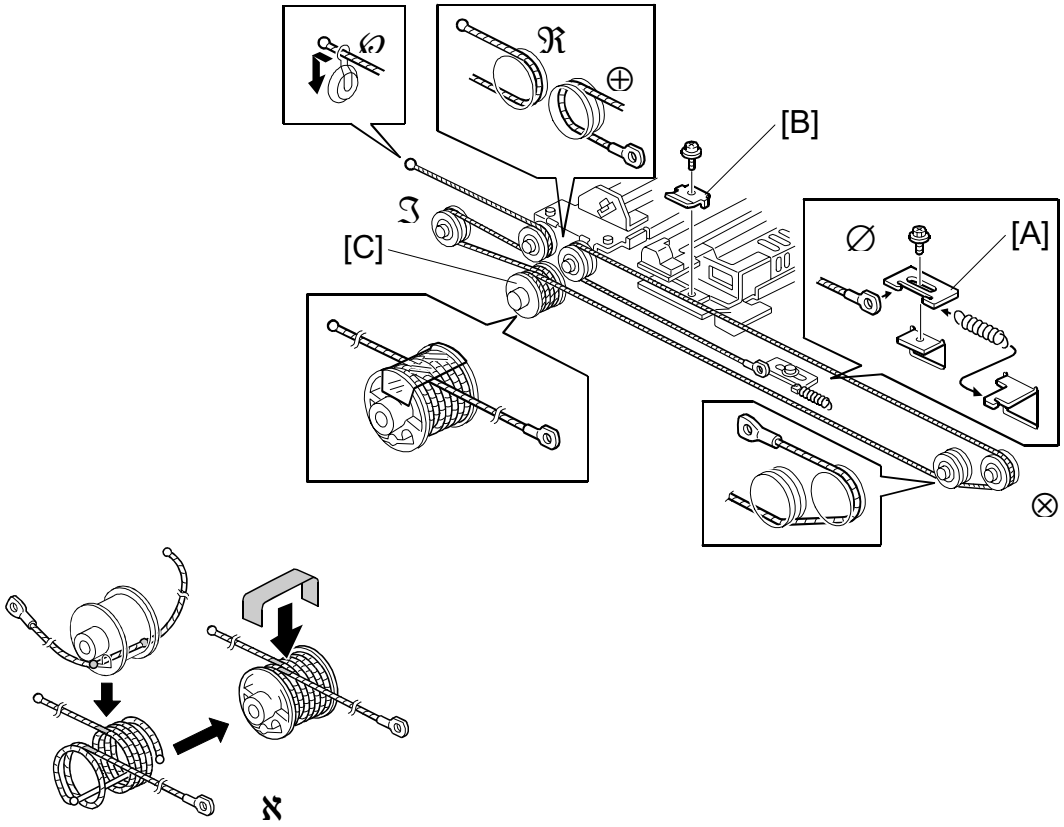
6.3.9 SCANNER DRIVE WIRES

Preparation



1. Remove the ADF.
2. Remove the original exit tray [A] (3 screws).
3. Remove the scanner front cover [B] (7 screws, 1 connector) and the rear upper cover [C] (6 screws).
4. Remove the scanner right cover [D] (4 screws).
5. Remove the bracket [E] (4 screws).
6. Remove the scanner frame [F] (10 screws).

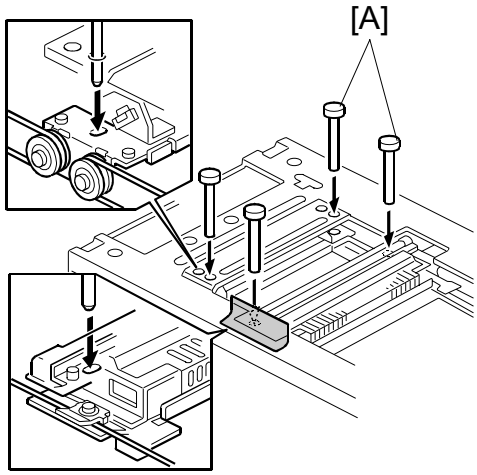
Scanner Drive Wires (Front and Rear)

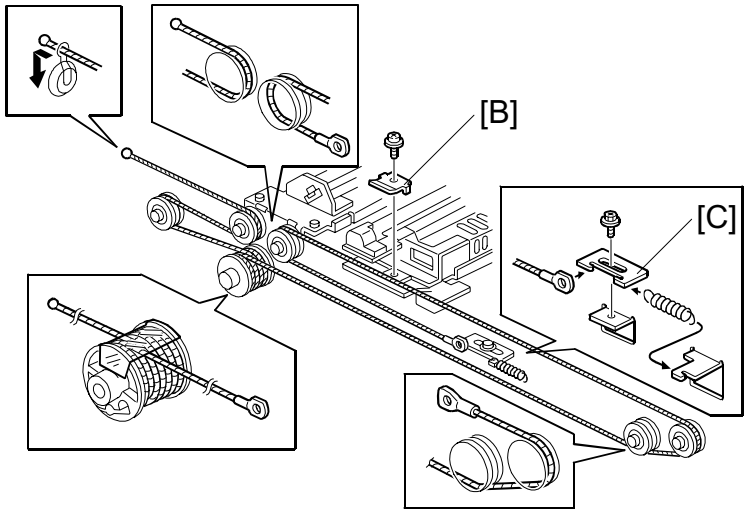


1. Remove the wire tension bracket [A] (1 screw).
2. Remove the front scanner wire bracket [B].
3. Remove the front scanner wire.

Reinstallation

4. Remove the scanner wire pulley [C] (1 screw).
5. While making sure of the direction, place the beads on the middle of the wire on the pulley openings. Then wind the wire (ball side) 3 times and the other side (ring side) once as shown ℵ. Secure the pulley with tape to keep this condition.
6. Install the pulley on the scanner drive shaft (1 screw).
7. Wind the end of the wire with the ball as shown (ℑ, ℜ, and ℘).
8. Wind the end of the wire with the ring as shown (⊗, ⊕, and ∅).
9. Install the tension spring on the tension bracket, and slightly tighten the tension bracket (1 screw).





10. Install the 1st scanner and adjust the position with the positioning tools (P/N A0069104) [A].
11. Secure the 1st scanner with the scanner wire bracket [B] (1 screw).
12. Fully tighten the tension bracket [C].
13. Remove the positioning tools. After sliding the scanner to the right and left several times, set the positioning tools to check the scanner wire bracket and the tension bracket again.
14. Reassemble the scanner and do the scanner and copy adjustments (see Replacement and Adjustment – Copy Image Adjustments).

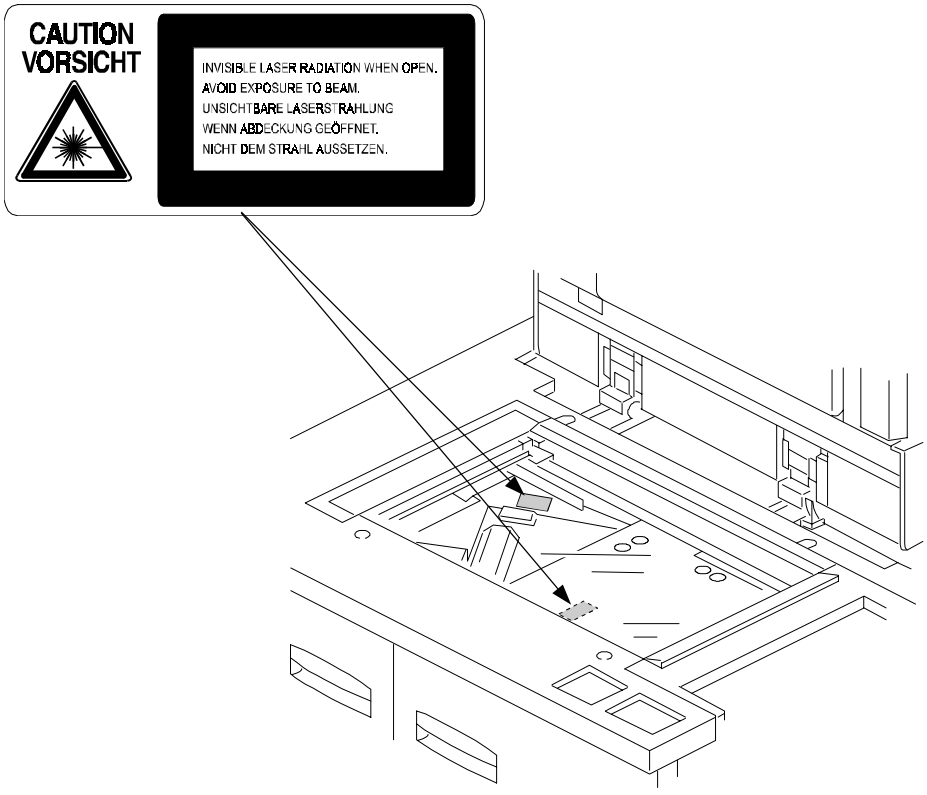
6.4 LASER UNIT

WARNING

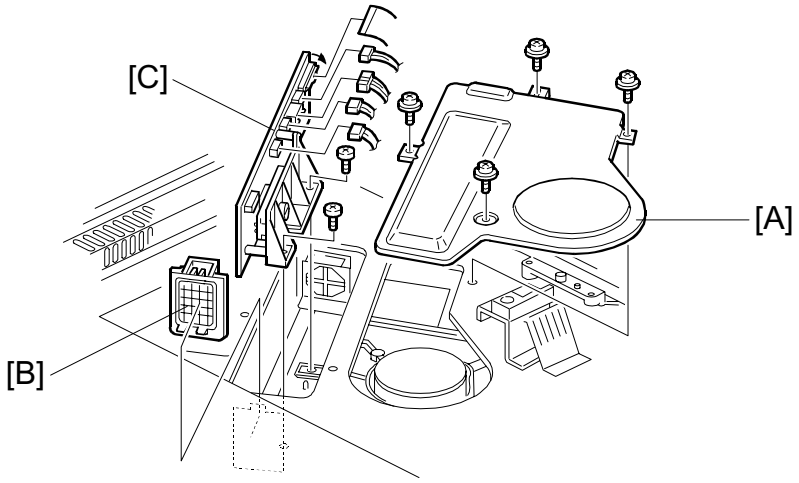
Turn off the main power switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

6.4.1 CAUTION DECAL LOCATIONS

There are two caution decals in the laser section as shown below.



6.4.2 LDB AND LD FILTER REPLACEMENT



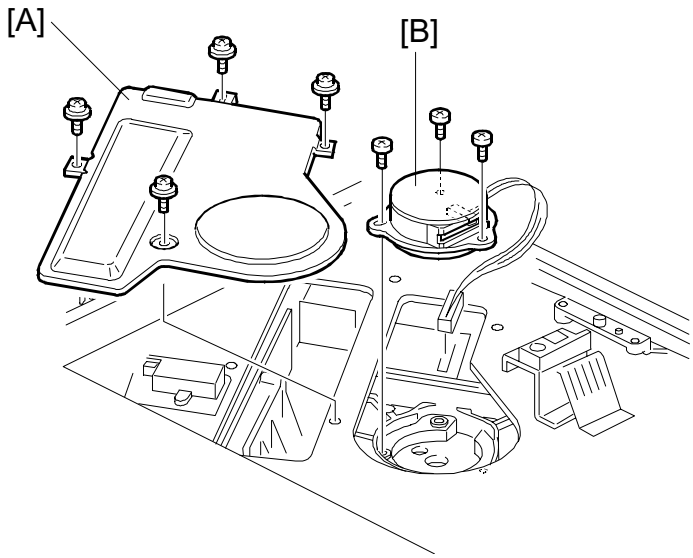
WARNING

Turn off the main power switch and unplug the machine before attempting this procedure. Laser beams can seriously damage your eyes.

NOTE: Do not touch the printed circuit board, to avoid damaging the board with static electricity.

1. Remove the exposure glass. (See Exposure Glass Removal.)
2. Remove the LD cover [A] (4 screws).
3. Remove the LD filter [B].
4. Replace the LDB [C] (2 screws and 5 connectors).
   NOTE: When disconnecting the cables, hold the LD unit.
5. Do SP 2-962 (process control initialization).

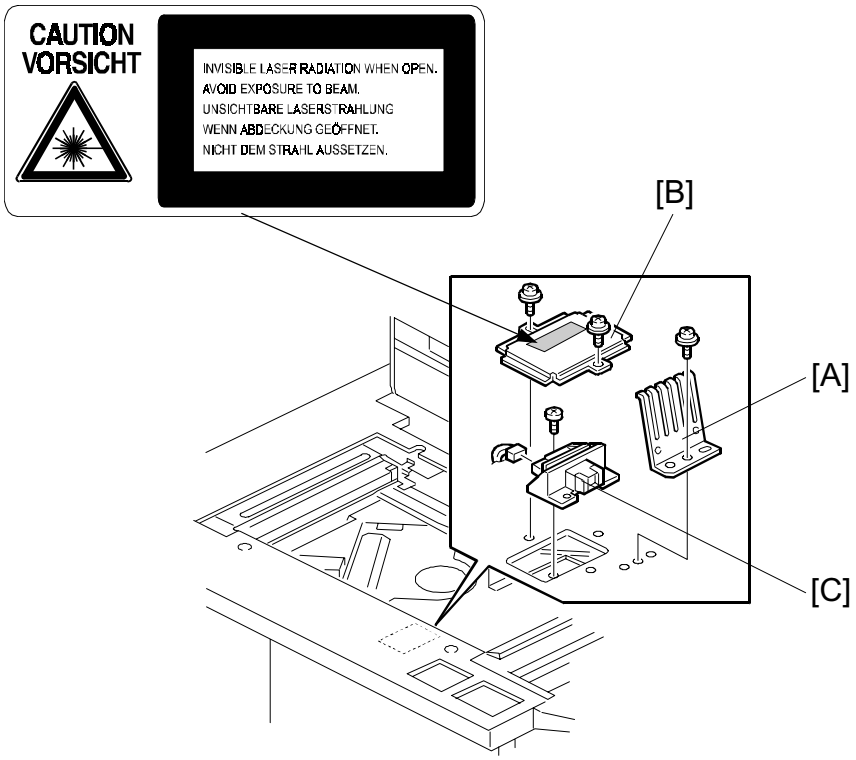
6.4.3 POLYGON MIRROR MOTOR REPLACEMENT



NOTE: Do not remove the polygon mirror motor within 3 minutes after the main switch is turned off (wait until the motor rotation stops). Otherwise, the motor will be damaged.

1. Turn off the main power switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Remove the LD cover [A] (4 screws).
4. Replace the polygon mirror motor [B] (3 screws, 1 connector.)
   NOTE: 1) When reinstalling, make sure that the polygon mirror opening faces the right.
   2) Do not touch the glass surface of the polygon mirror motor with bare hands.
5. After reassembly, do the scanner and printer copy adjustments. (See Replacement and Adjustment – Copy Image Adjustments.)

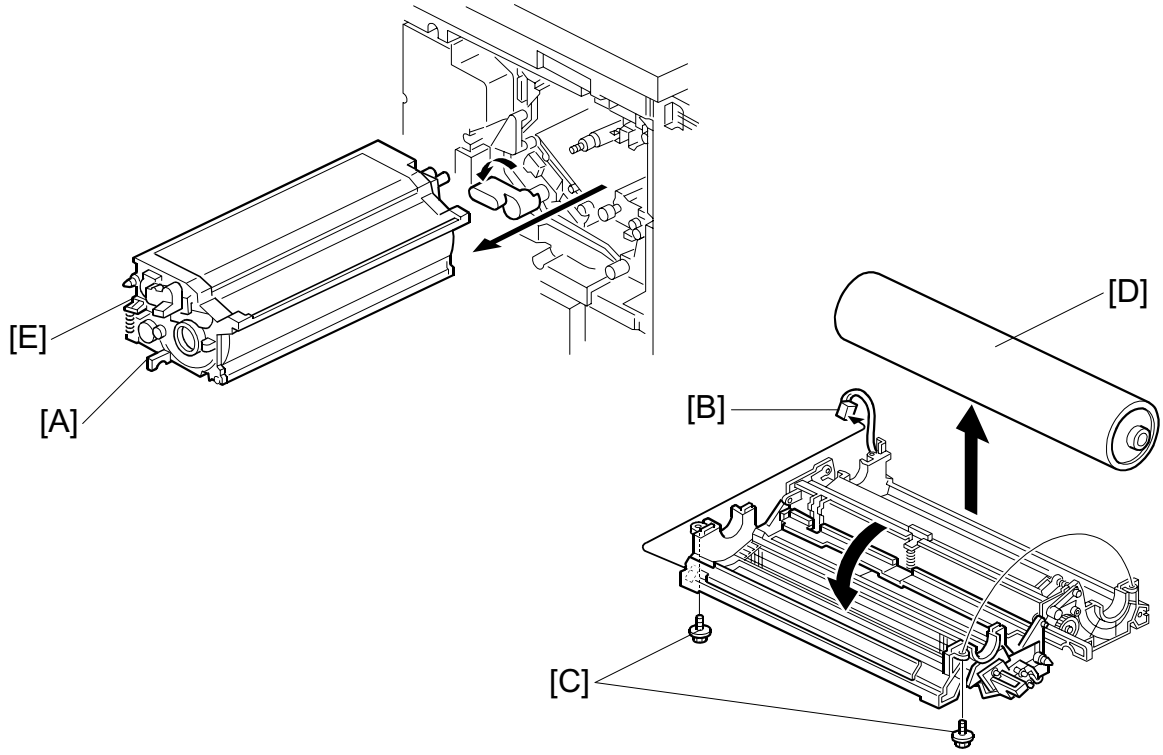
6.4.4 LASER SYNCHRONIZATION DETECTOR REPLACEMENT



1. Turn off the main power switch and unplug the machine.
2. Remove the ground plate [A] (1 screw).
3. Remove the detector cover [B] (2 screws).
4. Replace the laser synchronization detector [C] (1 screw, 1 connector).

6.5 DRUM UNIT

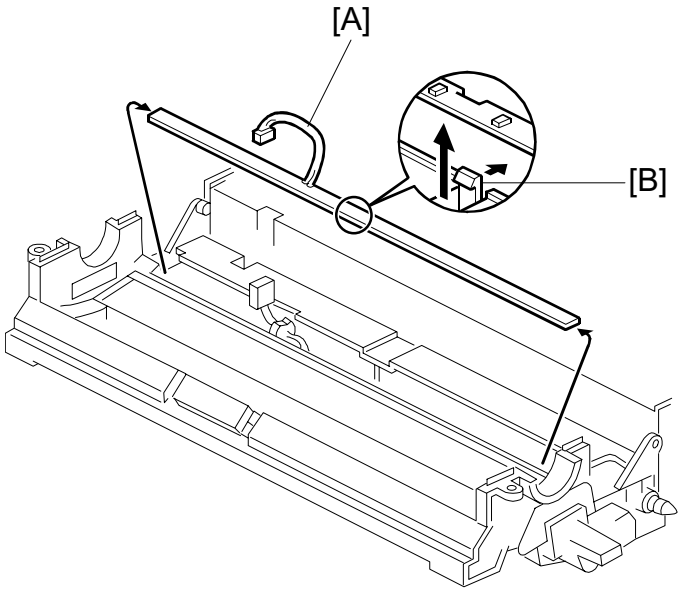
6.5.1 DRUM UNIT REMOVAL AND DRUM REPLACEMENT



1. Take out the development unit. (Refer to Development Unit Removal.)
2. Lower the transfer belt unit.
3. Take out the drum unit by holding the handle [A].
   NOTE: 1) Cover the drum unit with a sheet of paper to protect it from light when the drum unit is left outside the machine for servicing.
   2) Do not touch the drum surface with bare hands.
4. Disconnect the connector of the drum potential sensor [B].
5. Open the upper drum unit (2 screws [C]).
6. Replace the drum [D]. Then remove the drum protective sheet from the new drum.
   NOTE: If it is hard to completely set the drum unit in the machine because the gear is disengaged, push in the drum unit while holding down the cleaning blade release lever [E].

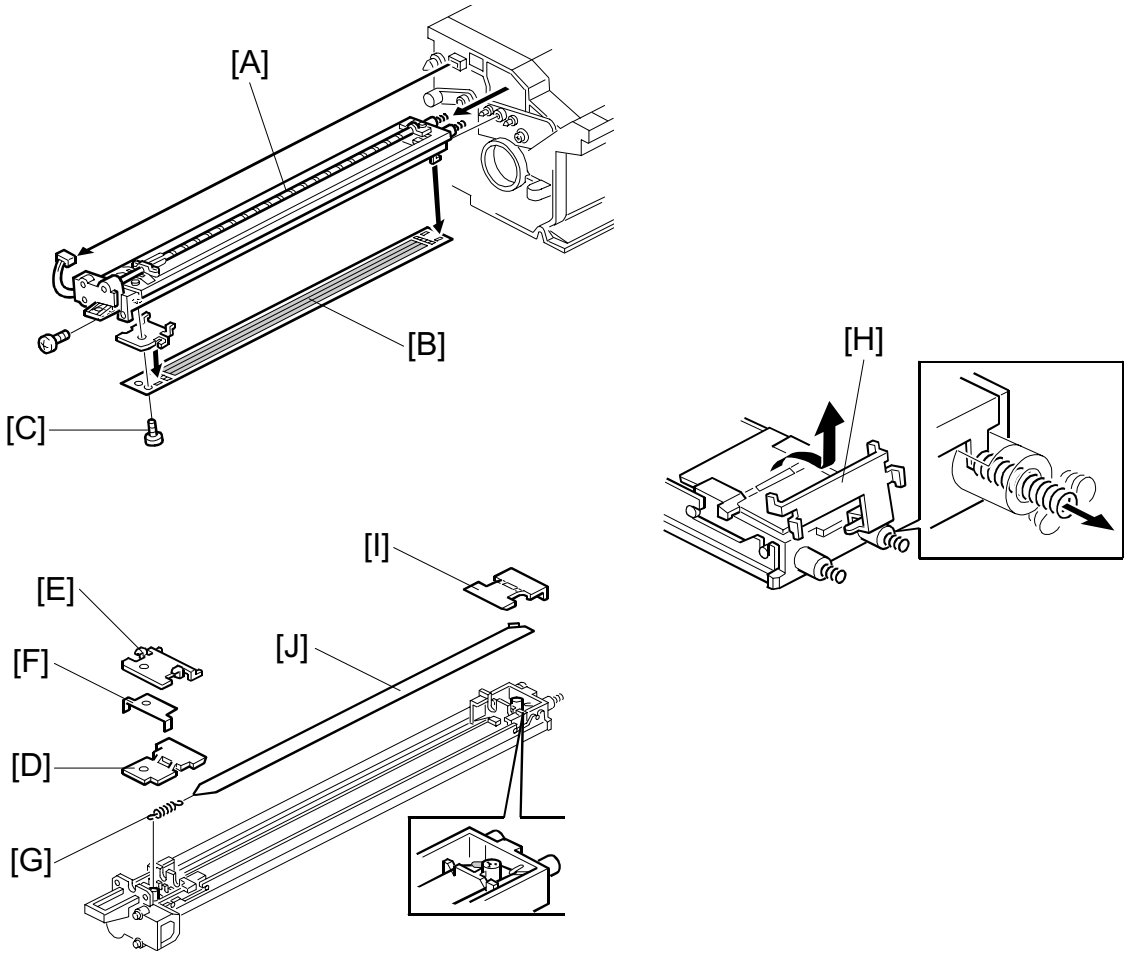
After installing a new drum, do the following SP mode: 2-962 (process control initialization).

6.5.2 QUENCHING LAMP REPLACEMENT

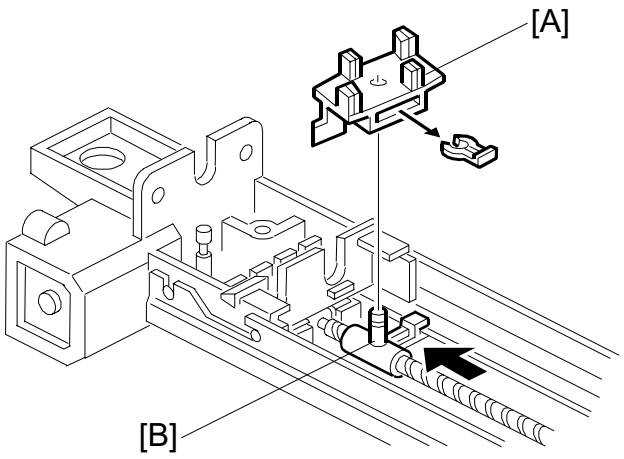


1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
   NOTE: Wrap a protective sheet or a few sheets of paper around the drum to protect it from light.
2. Slightly pull up the quenching lamp cable [A], then release the hook [B] at the center of the quenching lamp.
   NOTE: Do not pull the wire too strongly.
3. Disconnect the connector [A].
4. Replace the quenching lamp.

6.5.3 GRID PLATE/CHARGE CORONA WIRE/WIRE CLEANER REPLACEMENT



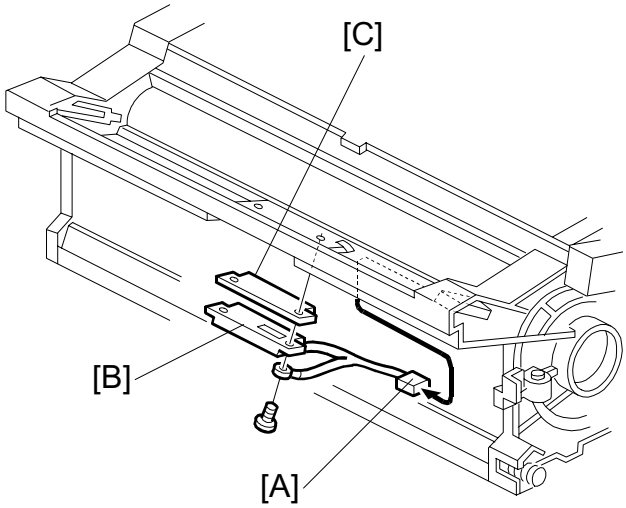
1. Take out the charge corona unit [A] (1 screw, 1 connector).
2. Remove the grid plate [B] (1 plastic screw, 4 hooks).
   NOTE: 1) When installing the grid plate, do not tighten the plastic screw [C] too strongly.
   2) Do not touch the corona wire and grid plate with bare hands.
3. Remove the front grid terminal [D], then the front end block cover [E].
4. Remove the plate [F].
5. Remove the terminal spring [G].
6. Slide the rear grid terminal [H] to the rear and remove it, then remove the rear end block cover [I].
7. Remove the charge corona wire [J].



8. Remove the wire cleaner [A] (1 snap ring).
9. Install the wire cleaner and the charge corona wire.
   NOTE: Locate the joint part [B] of the wire in the rear end block as shown.

After installing new wires, reset SP2-001-1 to 2-001-6 (corona voltage and current) to the defaults. Then do SP2-962 (process control initialization).

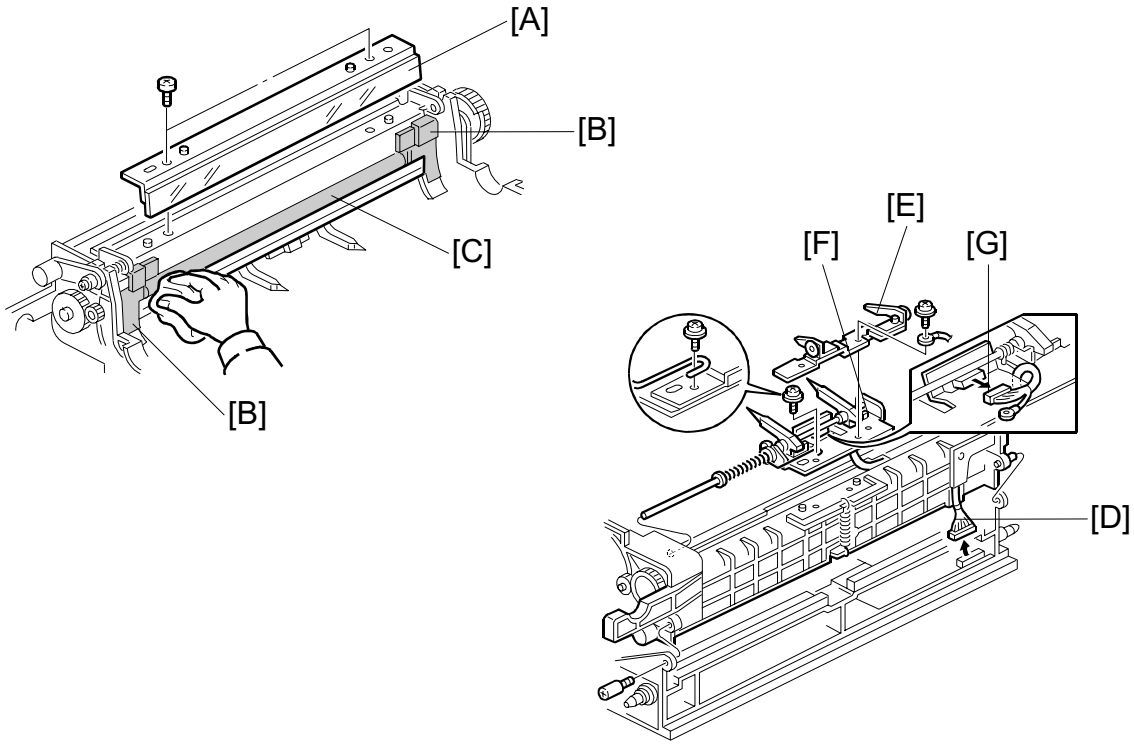
6.5.4 DRUM POTENTIAL SENSOR REPLACEMENT



1. Take out the drum unit. (Refer to Drum Unit Removal.)
2. Disconnect the connector [A].
   NOTE: Before removing the drum potential sensor, put a few sheets of paper between the sensor and the drum to protect the drum surface.
3. Remove the drum potential sensor [B] and the grounding plate [C] (2 screws).
4. Replace the drum potential sensor [B].

CAUTION
After replacing the drum potential sensor, perform the process control data initial setting (SP mode No. 2-962).

6.5.5 CLEANING BLADE/ID SENSOR REPLACEMENT



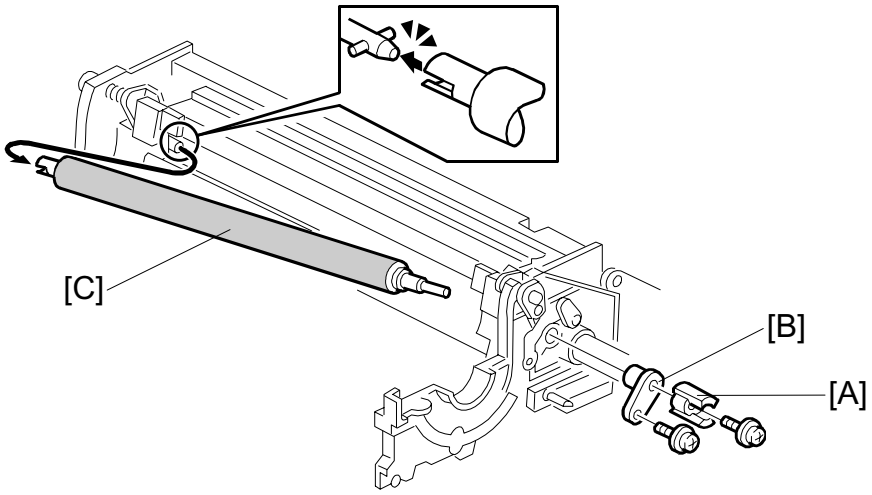
1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
2. Remove the cleaning blade [A] (2 screws).
3. Clean the side seals [B] and cleaning brush [C].

   NOTE: When a vacuum cleaner is used, to protect the electrical parts from static electricity, remove the ID sensor as follows:
   1) Disconnect the 12-pin connector [D].
   2) Separate the upper and lower drum units.
   3) Remove the spur bracket [E] and pick-off pawl bracket [F] (2 screws).
   4) Disconnect the connector [G].
   5) Slide the pick-off pawl bracket to the rear, while turning it counterclockwise (as seen from the front). The ID sensor is on this bracket.

      NOTE: After installing a new ID sensor, do SP3-001-2.
4. Install the new cleaning blade.

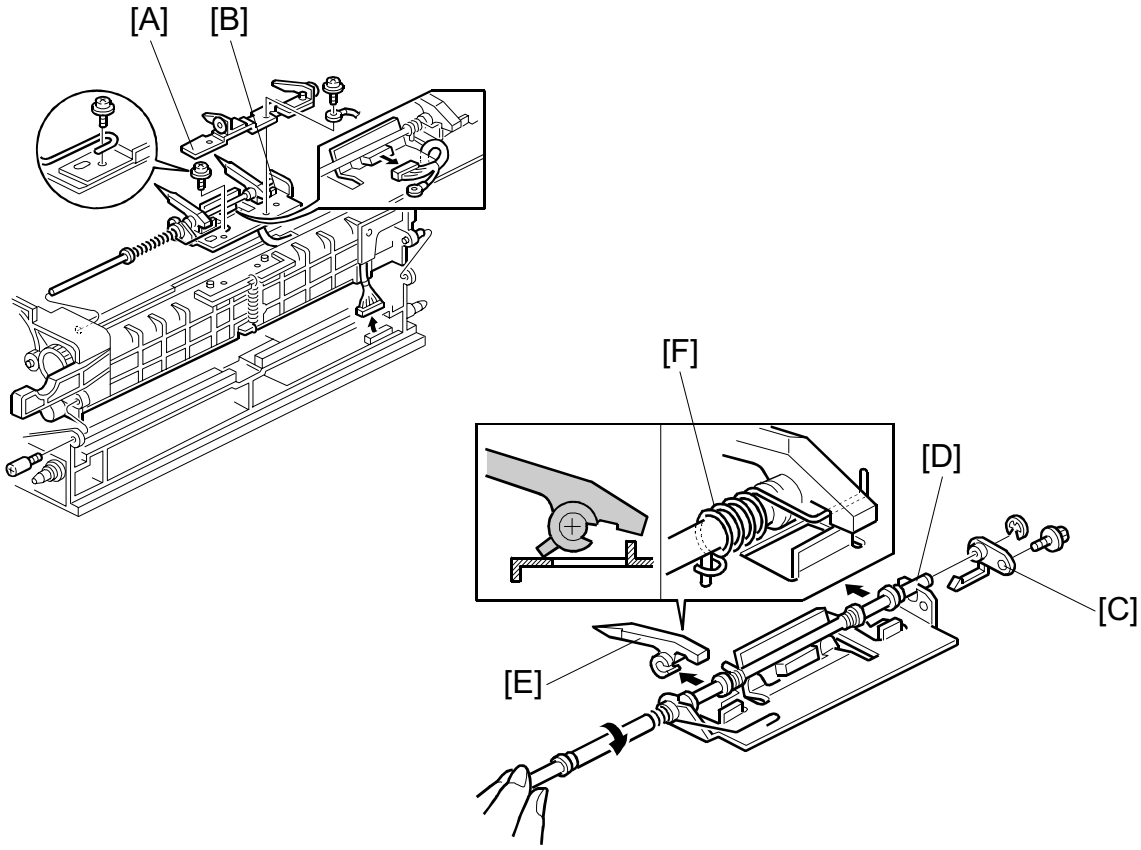
   NOTE: Do not clean the edge of the cleaning blade with a cloth; this damages the edge and causes black lines on copies.
   Do not touch the edge of the new cleaning blade. If some setting powder or toner on the blade edge is removed, apply toner at that place.
   When installing the cleaning blade, do not pinch the side seals.

6.5.6 CLEANING BRUSH REPLACEMENT



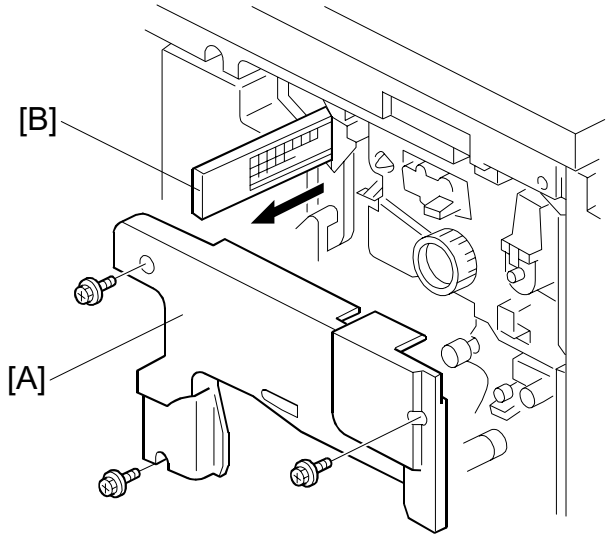
1. Remove the cleaning blade. (Refer to Cleaning Blade Replacement.)
2. Remove the coupling gear [A] (1 screw).
3. Remove the bushing [B] (1 screw).
4. Pull the cleaning brush shaft to the rear to release the cleaning brush [C], then remove the cleaning brush.
   NOTE: Do not touch the cleaning brush with bare hands.
   After replacement, clean the ID sensor surface. Then do SP3-001-2 to initialize the sensor.

6.5.7 PICK-OFF PAWL REPLACEMENT



1. Remove the drum. (Refer to Drum Unit Removal and Drum Replacement.)
2. Remove the spur bracket [A] and pick-off pawl bracket [B] (2 screws).
3. Remove the bushing [C] (1 screw, 1 retaining ring).
4. While pulling the shaft [D] to the rear, turn the pick-off pawl shaft about 45 degrees clockwise (as viewed from the front) in order to move up the pick-off pawl.
5. Replace the pick-off pawl [E].
   NOTE: 1) Do not forget to hook the tension spring [F].
   2) After replacement, check that the pick-off pawl moves smoothly.
   3) Do not touch the pick-off pawl edge.

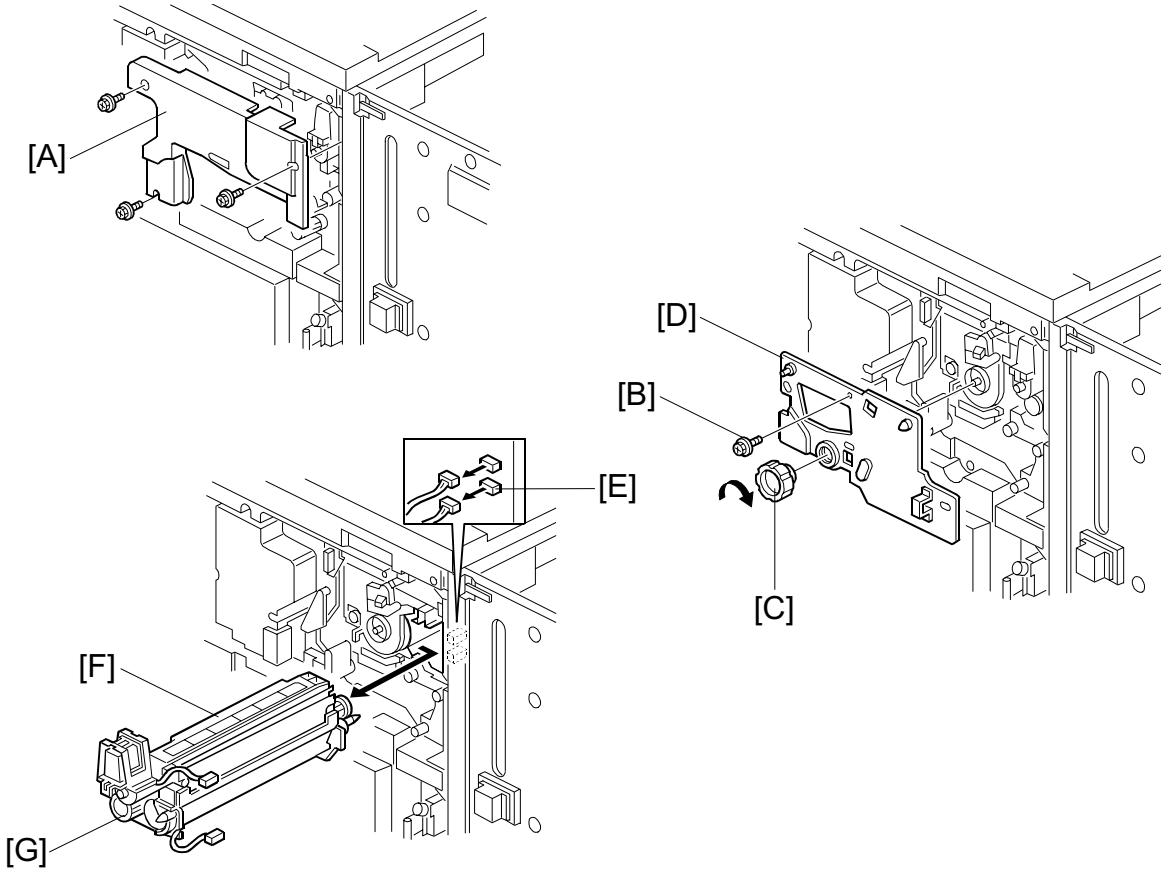
6.5.8 DRUM FILTER REPLACEMENT



1. Open the front doors.
2. Remove the right inner cover [A] (3 screws).
3. Replace the filter unit [B].

6.6 DEVELOPMENT AND TONER SUPPLY

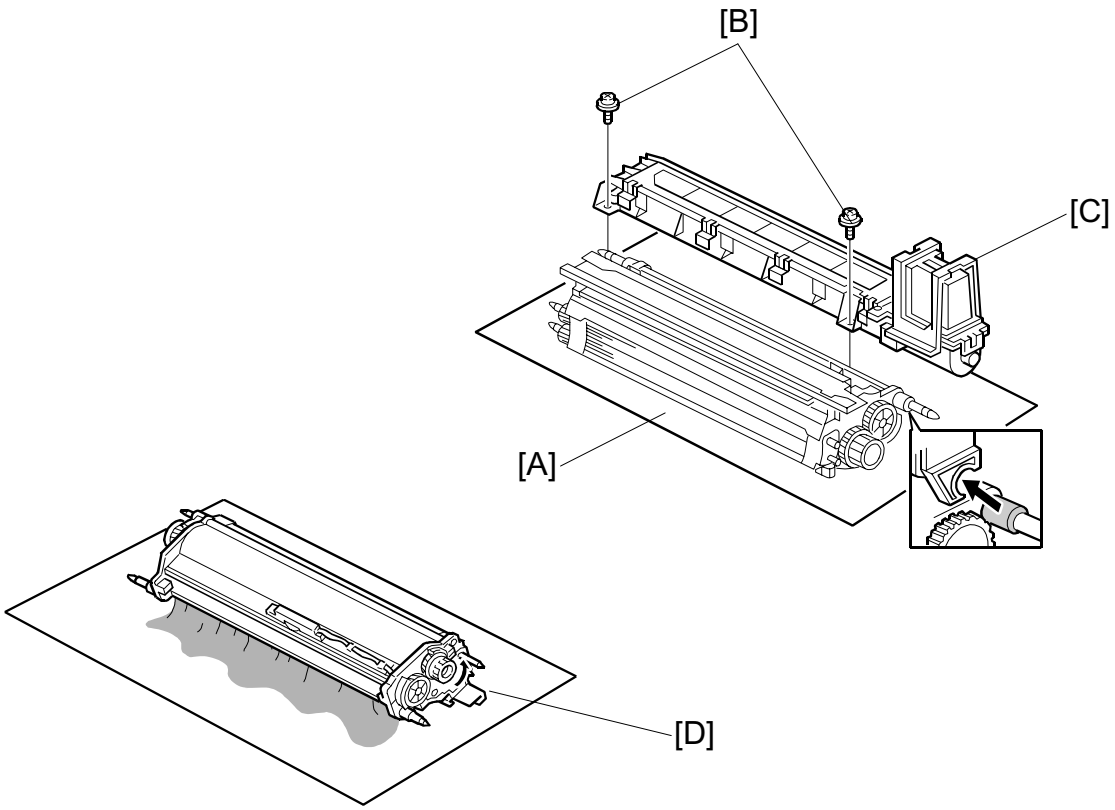
6.6.1 DEVELOPMENT UNIT REMOVAL



1. Turn off the main switch.
2. Open the right door.
3. Remove the right inner cover [A] (3 screws).
4. Remove the screw [B] that holds the drum stay.
5. Remove the drum stay knob [C] then take out the drum stay [D].
6. Disconnect the two connectors [E].
7. Pull out the development unit [F].
   NOTE: 1) To prevent scratches on the drum, push the development unit to the right while pulling it out.
   2) When installing the development unit, do not forget to connect the two connectors [E].
   3) When pulling out the development unit, do not hold the knob [G].
   4) Keep the development unit connector as far as possible away from the development unit when cleaning the unit with a vacuum cleaner.

⇒

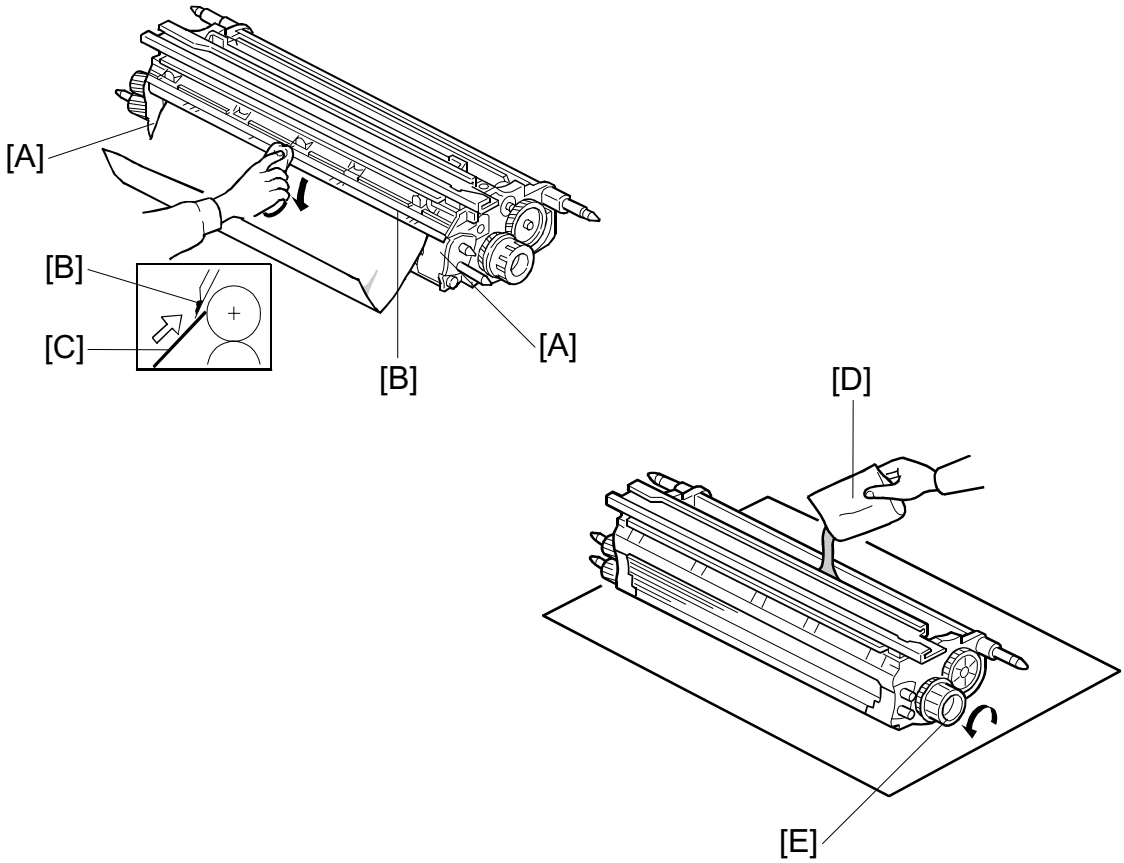
6.6.2 DEVELOPER REPLACEMENT



1. Take out the development unit. (Refer to Development Unit Removal.)
2. Place the development unit on a sheet of paper [A].
3. Remove the two screws [B] that hold the toner hopper [C].
4. Remove the toner hopper from the development unit.
5. Turn over the development unit. Then turn the paddle roller knob [D] to empty the remaining developer onto the sheet. (The knob [D] allows the paddle roller to be turned counterclockwise only.)

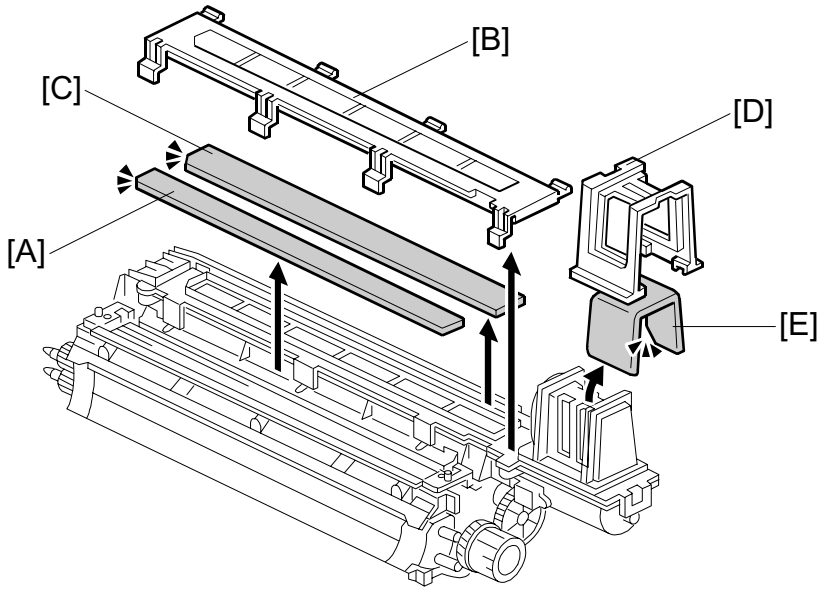
   NOTE: Dispose of used developer in accordance with local regulations. Make sure that no developer remains on the development rollers or in the development unit.

⇒ **NOTE:** When replacing the toner hopper unit, be sure to follow the instructions on pages 3-11 and 12 of the Service Manual.



6. Clean the side seals [A] and entrance seal [B].
   NOTE: Cover the sleeve rollers with a sheet of paper [C] to prevent the used developer from being attracted to the sleeve rollers.
7. Pour in one pack of developer [D] evenly across the width of the development unit, while turning the knob [E].
8. Re-install the toner hopper, then re-assemble the machine.
   NOTE: 1) Be sure to connect the connectors after installing the development unit in the machine.
   2) Tilt the toner hopper so that there is toner near the toner hopper sensor.
9. Turn on the main switch, then do developer initial setting (SP mode No. 2-801).
   NOTE: 1) Do not make any copies with the new developer before completing the developer initial setting, otherwise toner density control will be abnormal.
   2) If the developer initial setting did not complete correctly, you cannot exit the SP mode by pressing the “Quit” key. If this problem occurs, turn the main switch off and on, then perform the initial setting again. If the result is the same, see “SC342” in the troubleshooting section.

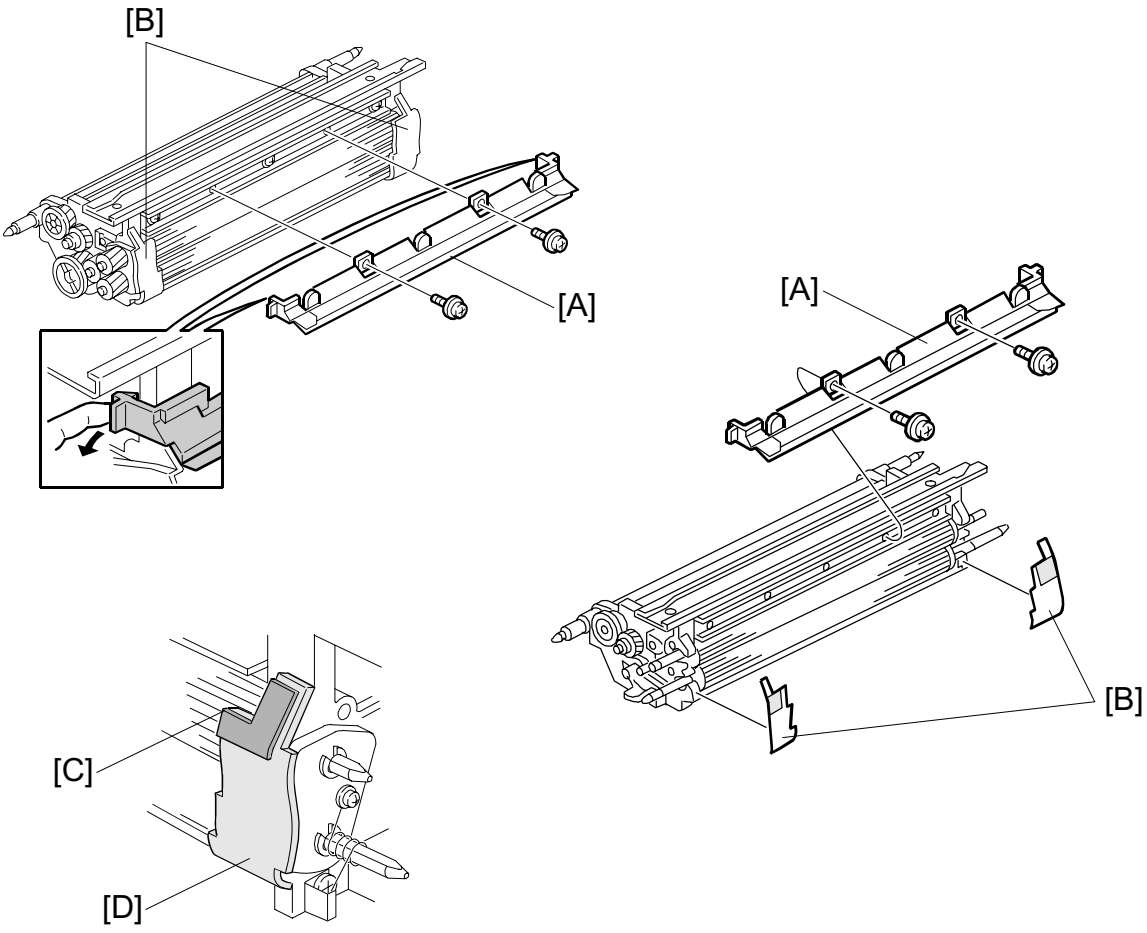
6.6.3 DEVELOPMENT AND AIR DUST FILTER REPLACEMENT



1. Take out the development unit. (Refer to Development Unit Removal.)
2. Remove the toner hopper. (Refer to Developer Replacement.)
3. Replace the development filter [A].
4. Remove the central air dust filter cover [B] (1 hook).
5. Replace the central air dust filter [C].
6. Remove the front air dust filter cover [D].
7. Replace the front air dust filter [E].

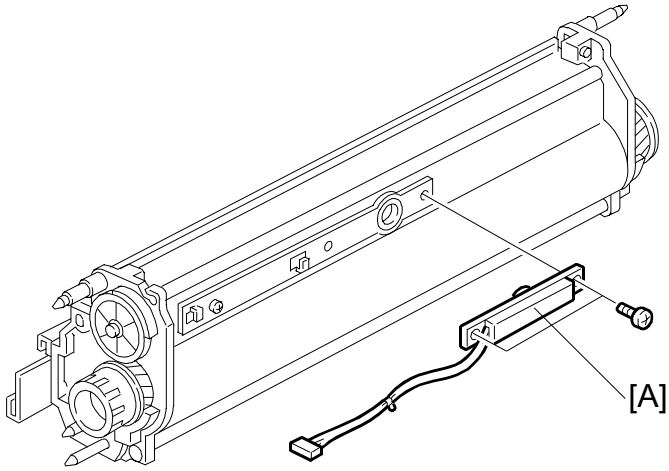
NOTE: Make sure that the air dust filter cover [B] is fully installed.

6.6.4 DEVELOPMENT ENTRANCE, FRONT, AND REAR SIDE SEALS



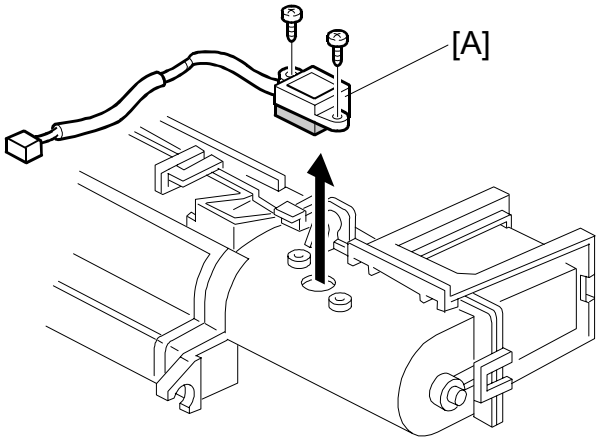
1. Remove the developer. (Refer to Developer Replacement.)
2. Replace the developer entrance seal [A] (2 screws, 2 hooks).
3. Replace the front and rear side seals [B].
   NOTE: When re-assembling the development unit, use new side seals and align the edges of the side seals with the corner [C] and the edge [D] as shown.
   There is no need to change the developer with this procedure.

6.6.5 TONER DENSITY SENSOR REPLACEMENT



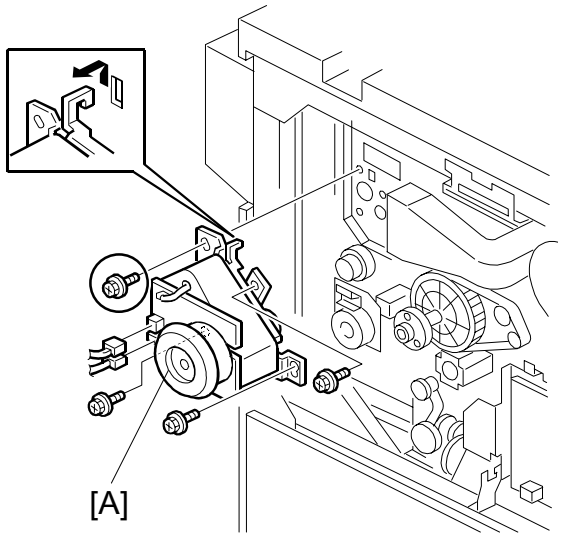
1. Remove the developer. (Refer to Developer Replacement.)
2. Replace the TD sensor [A] (2 screws).
   NOTE: Before installing the TD sensor, clean the development unit well so that no carrier particles remain in the gap between the TD sensor and the development unit casing.
3. Install new developer and reassemble the development unit.
4. Perform the developer initial setting (SP2-801) then process control initialization (SP2-962).
   NOTE: Do not make any copies before completing the developer initial setting (SP2-801).

6.6.6 TONER HOPPER SENSOR REPLACEMENT



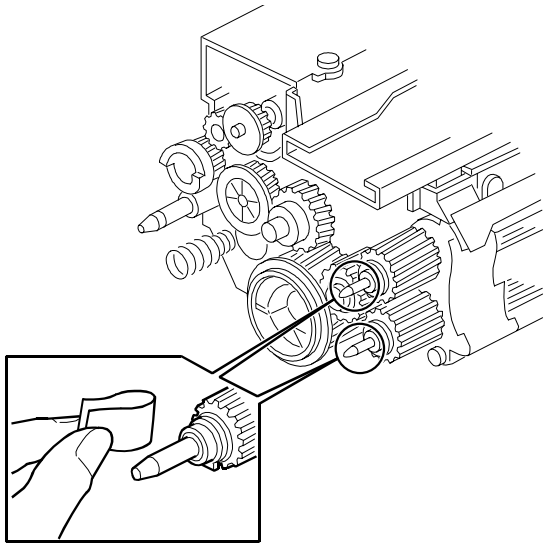
1. Take out the toner hopper. (Refer to Developer Replacement.)
2. Replace the toner hopper sensor [A] (2 screws, 1 connector).

6.6.7 DEVELOPMENT MOTOR REPLACEMENT



1. Turn off the main switch.
2. Remove the rear covers. (Refer to Exterior Cover Removal.)
3. Remove the fly wheel (3 screws).
4. Replace the development motor unit [A] (4 screws, 2 connectors, and 1 hook).

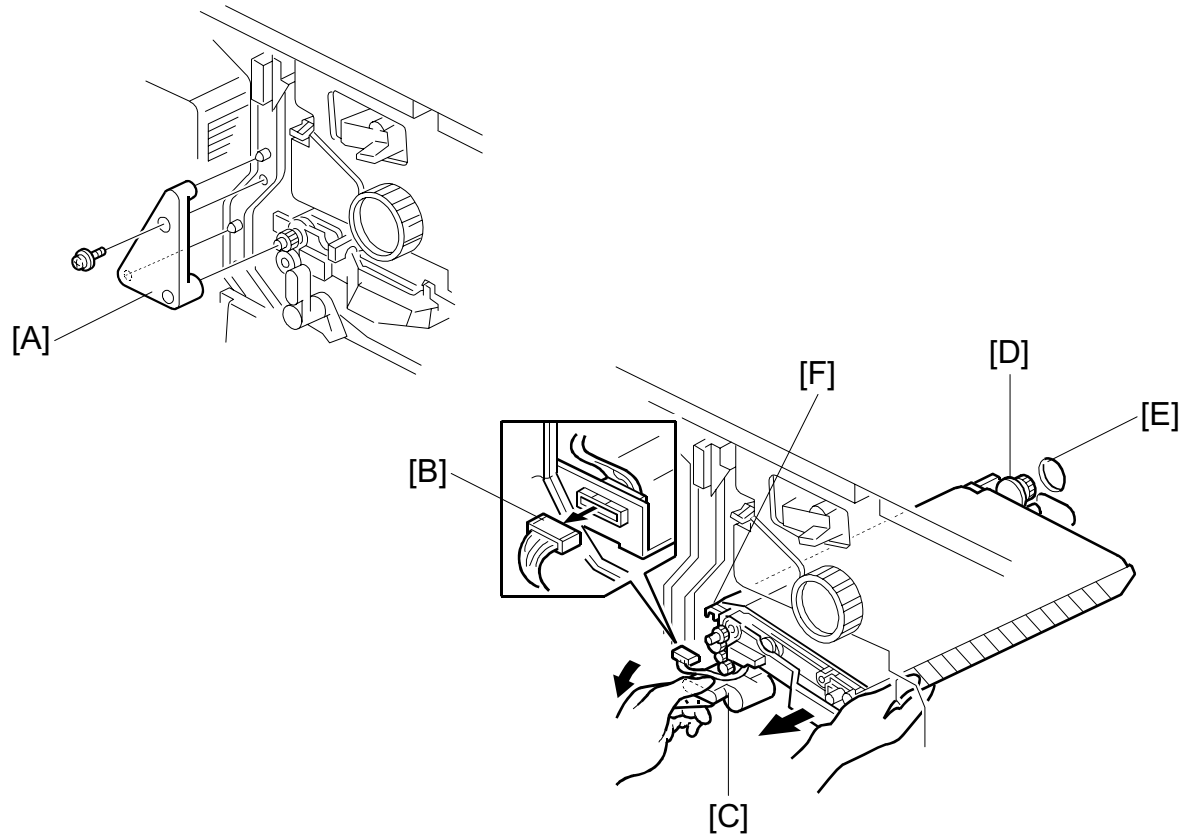
6.6.8 DEVELOPMENT ROLLER SHAFT CLEANING



1. Take out the development unit. (Refer to Development Unit Replacement.)
2. Remove toner and developer from the development roller shafts with teflon tape.

6.7 TRANSFER BELT UNIT

6.7.1 TRANSFER BELT UNIT REMOVAL/INSTALLATION



Removal

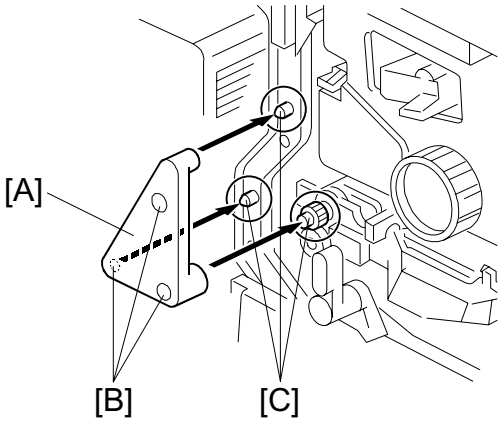
1. Turn off the main switch.
2. Remove the right inner cover (see Development Unit Removal).
3. Remove the transfer belt unit holder [A] (1 screw).
4. Disconnect the connector [B].
5. While turning the lever [C] counterclockwise, take out the transfer belt unit.

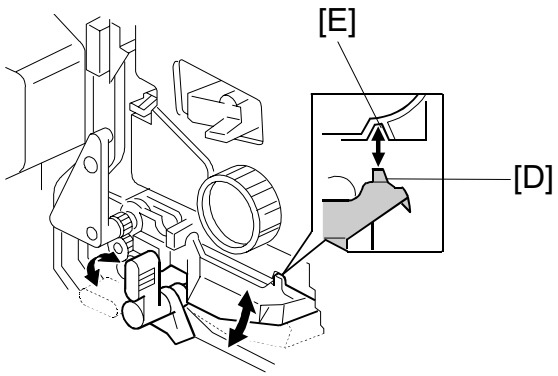
NOTE: 1) Do not touch the transfer belt with bare hands.
2) Take care not to scratch the drum with the transfer belt unit. Be careful when installing the transfer belt unit.

Reassembly

1. While keeping the lever [C] rotated fully counterclockwise, install the transfer belt unit.

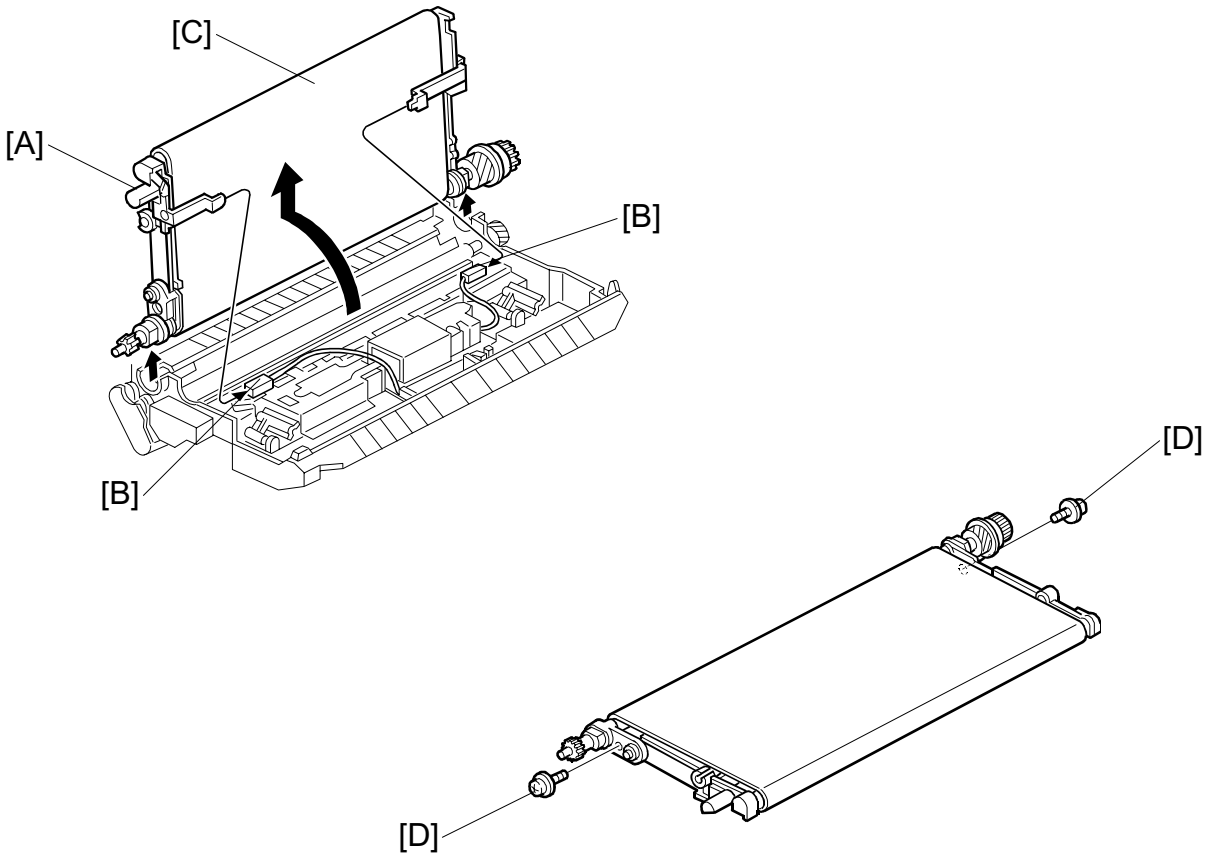
NOTE: 1) Insert the gear [D] into the opening [E] in the rear frame.
2) Place the slot [F] in the transfer belt unit on the rail.



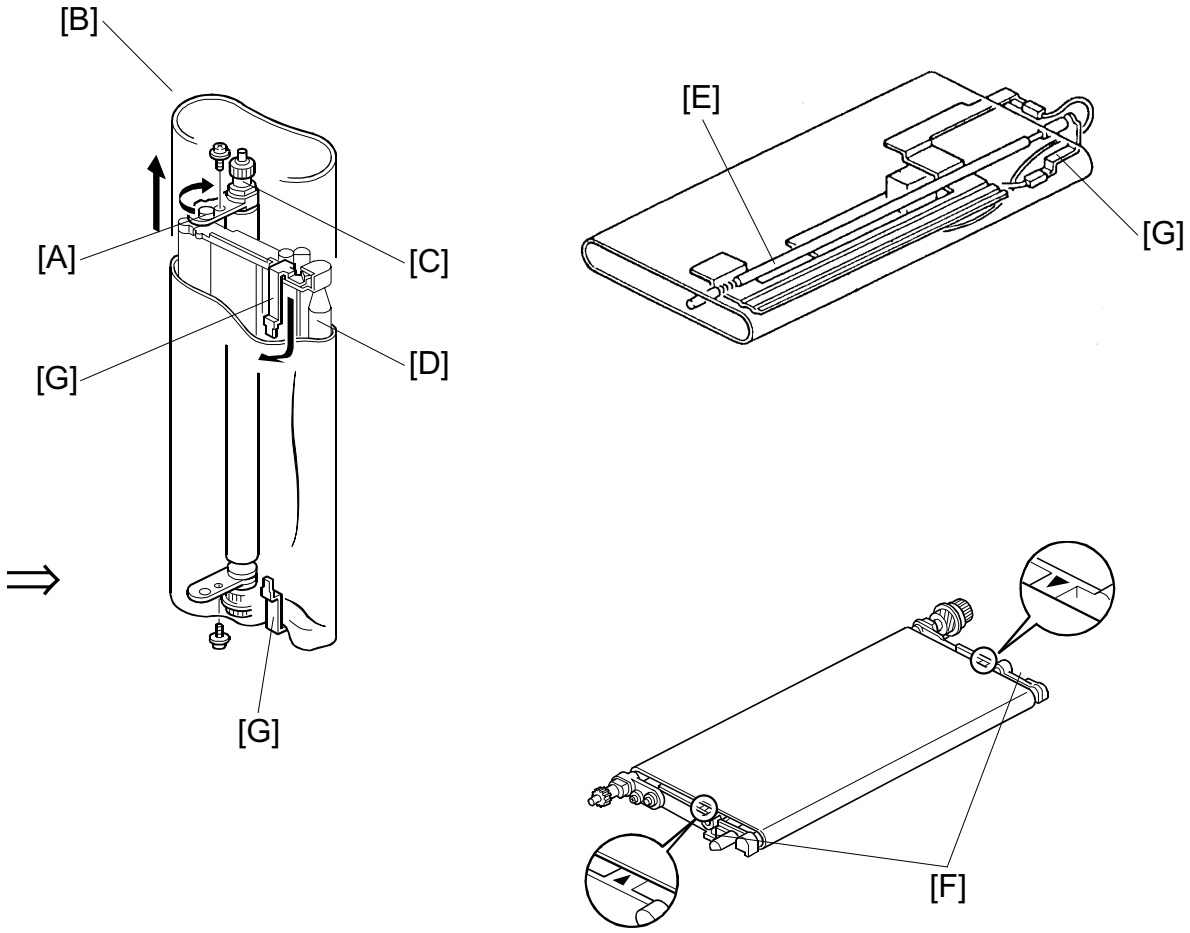


2. Attach the transfer belt unit holder [A] (1 screw).
   NOTE: Align the three holes [B] with the three projections [C].
3. After installation, check the following points:
   1) The transfer belt unit must move up and down smoothly
   2) Part [D] of the transfer belt unit must be behind the drum stay,
   3) Part [D] of the transfer belt unit must be set in the indent [E] in the drum unit casing.

6.7.2 TRANSFER BELT REPLACEMENT

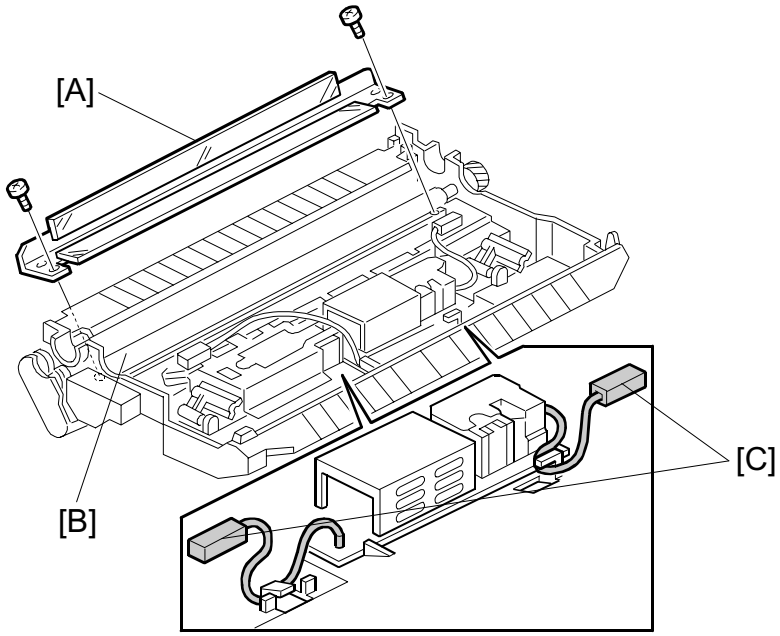


1. Take out the transfer belt unit. (Refer to Transfer Belt Unit Removal.)
2. While raising the knob [A], disconnect the two connectors [B].
3. Turn the transfer belt upper unit [C] 90 degrees counterclockwise, then raise and remove it.
4. Remove the screws [D].



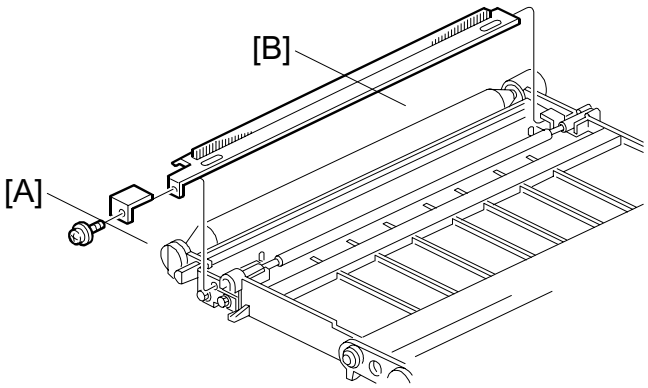
5. Turn the belt drive roller holder [A] clockwise (front view).
6. Replace the transfer belt [B].
   NOTE: 1) Before installing the transfer belt, clean both sides of the transfer belt with a dry cloth (do not use alcohol).
   2) Before installing the transfer belt, clean the following items with alcohol.
      - Belt drive roller [C]
      - Belt roller [D]
      - Bias roller [E]
   3) Position the transfer belt at the center of the belt roller [D]. (Both marks [F] should be visible.)
   4) Set the transfer belt under the bias terminals [G] (see the previous page).

6.7.3 TRANSFER BELT CLEANING BLADE REPLACEMTNT



1. Remove the transfer belt unit. (Refer to Transfer Belt Replacement.)
2. Remove the transfer belt cleaning blade [A].
3. Clean the cleaning bias roller [B].
   NOTE: When using a vacuum cleaner, to protect the transfer power pack from static electricity, remove the power pack connectors [C].
4. Install the new cleaning blade.
   NOTE: Do not touch the edge of the cleaning blade. If some of the setting powder on the blade edge is removed, apply setting powder or toner at that place.

6.7.4 TRANSFER BELT BIAS BRUSH REPLACEMENT

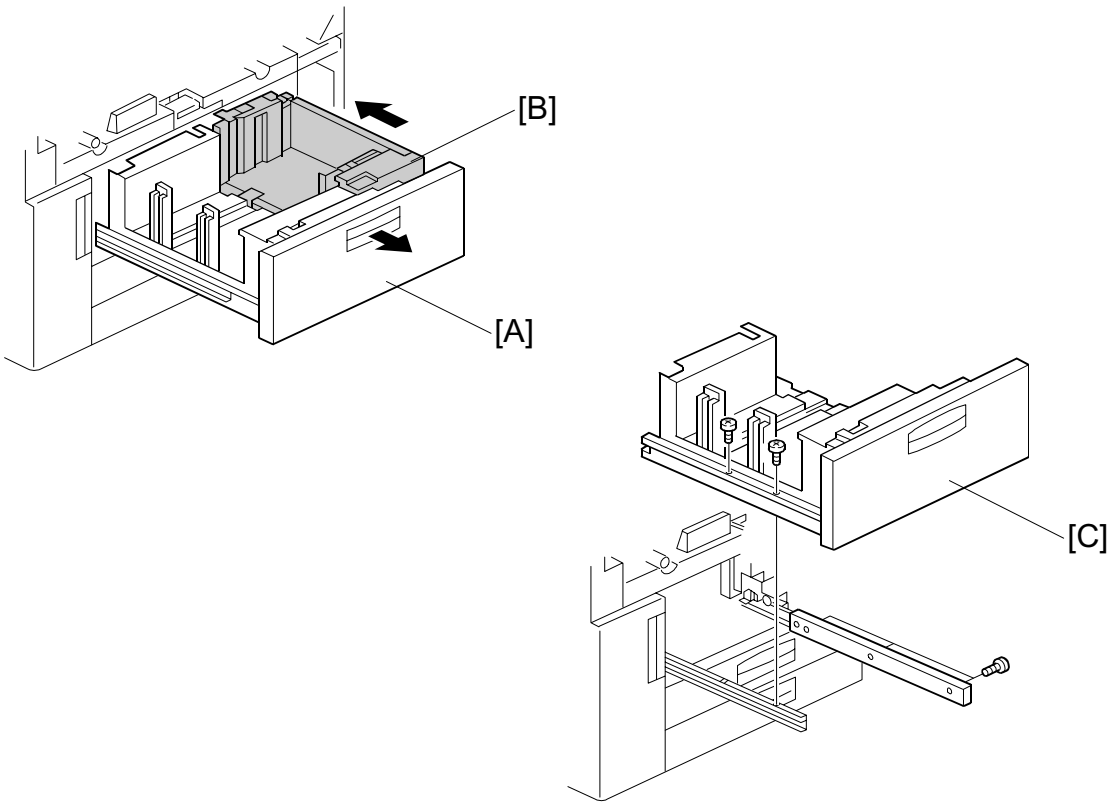


1. Remove the transfer belt.
2. Remove the transfer belt bias brush holder [A] (1 screw).
3. Replace the transfer belt bias brush [B].

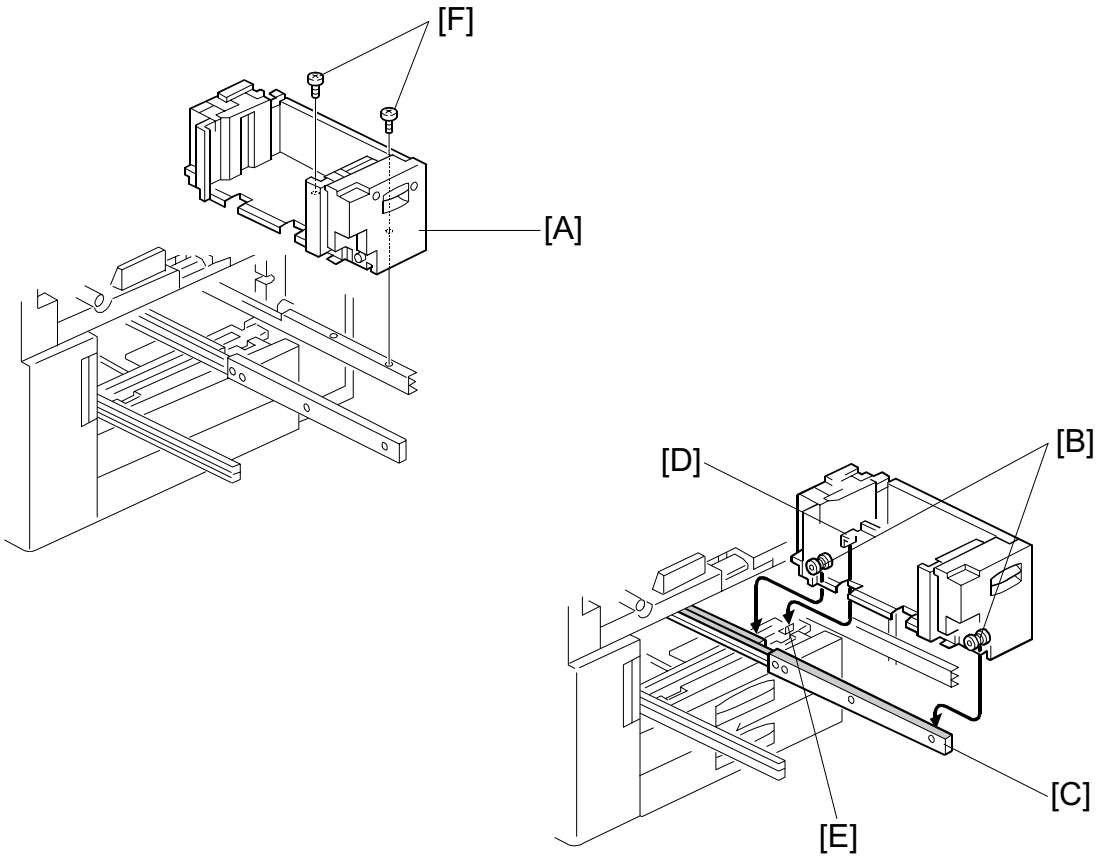
6.8 PAPER FEED

6.8.1 PAPER TRAY REMOVAL

Tandem Tray Removal



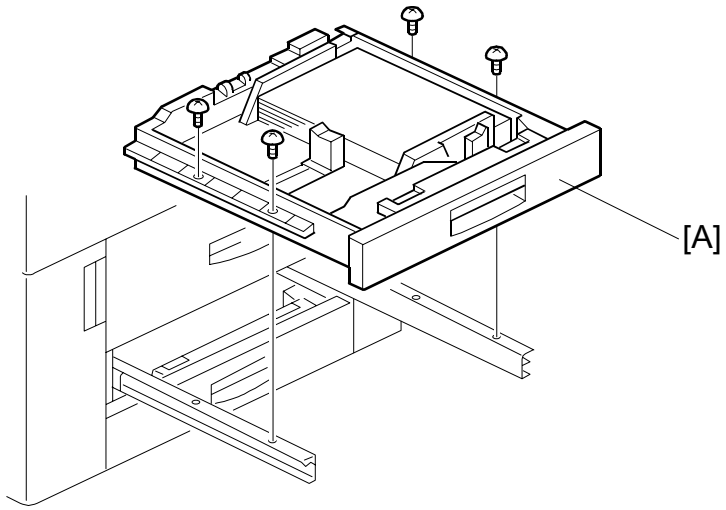
1. Open the front cover.
2. Draw out the tandem feed tray [A] so that the right tandem tray [B] fully separates from the left one.
3. Push in the right tandem tray.
4. Remove the left tandem tray [C] (5 screws).



5. Remove the right tandem tray [A] (2 screws).

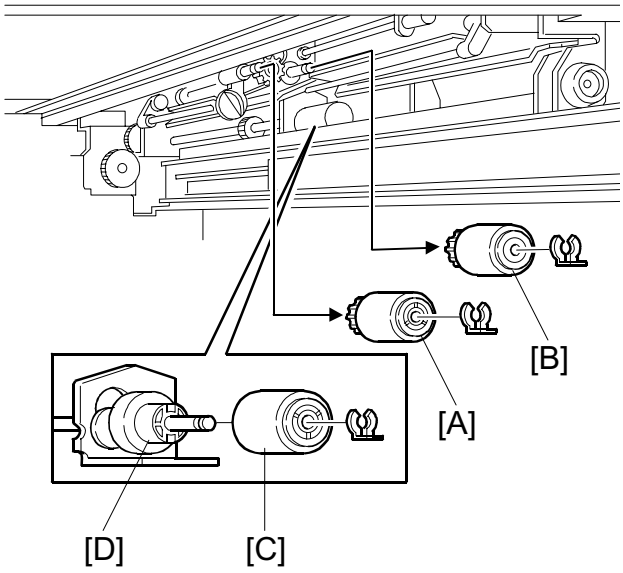
NOTE: 1) When re-installing the right tandem tray, make sure that the wheels [B] ride on the slide rail [C].
2) When re-installing the right tandem tray, make sure that the tandem tray stopper [D] is set behind the stopper [E] on the copier frame.
3) Use M4 x 4 screws [F] for securing the right tandem tray. Screws longer than 4 mm will prevent the right tandem tray from sliding out and in smoothly.

Universal Tray Removal



1. Draw out the tray.
2. Remove the tray [A] from both guide rails, as shown (4 screws).

6.8.2 PAPER FEED ROLLER REPLACEMENT

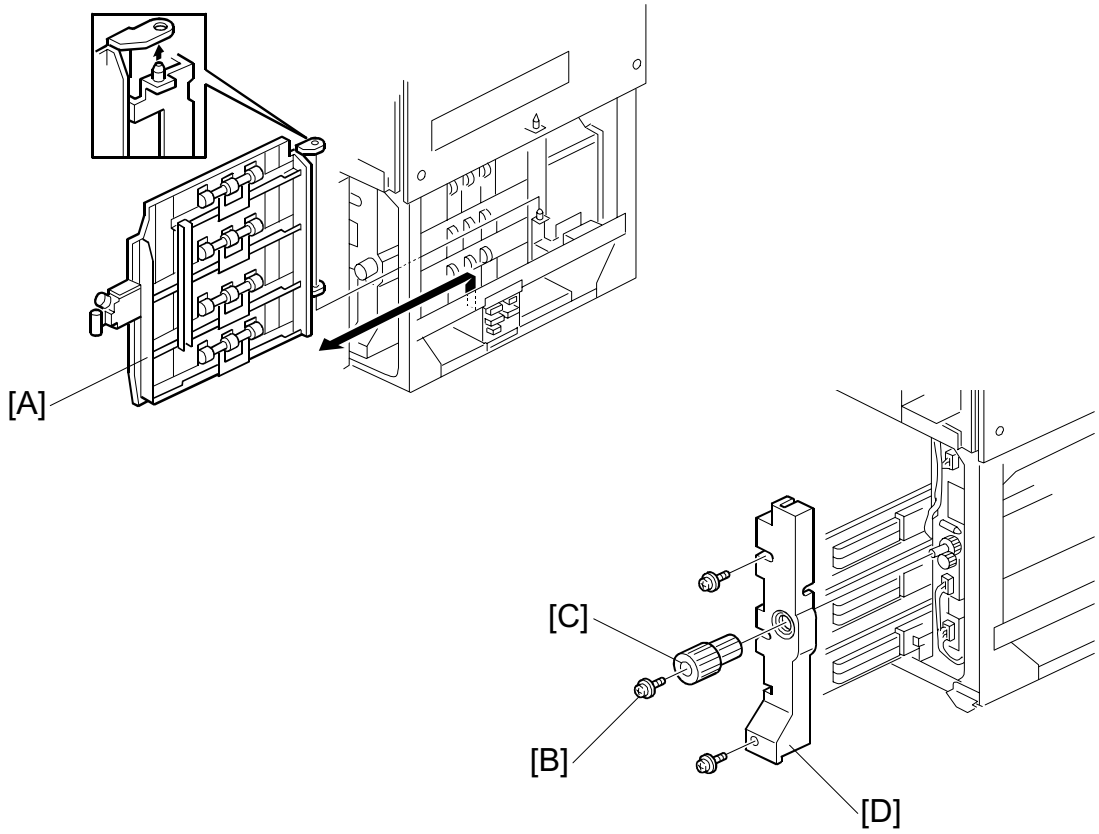


1. Turn off the main switch.
2. Remove the paper tray for the appropriate feed unit. (Refer to Paper Tray Removal.)
3. Remove the pick-up roller [A] (1 snap ring).
4. Remove the feed roller [B] (1 snap ring).
5. Remove the separation roller [C] from the torque limiter [D] (1 snap ring).

NOTE: 1) The paper feed rollers (pick-up, feed, separation) used in the 1st ~ 3rd feed units in the paper tray unit are different from the rollers used in the LCT. They are not interchangeable.
2) Do not touch the surface of the rollers with your bare hands.

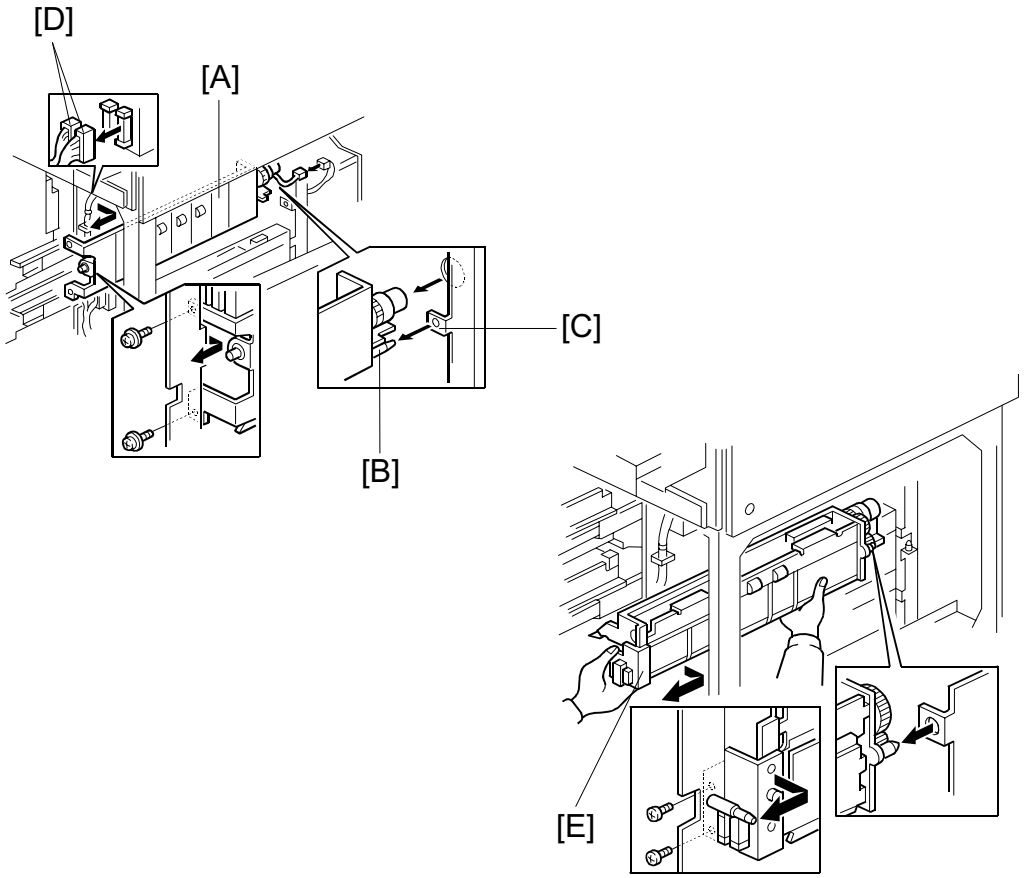
Note that there are counters for these rollers that you may wish to reset after installing a new roller (SP 7-816).

6.8.3 PAPER FEED AND VERTICAL TRANSPORT CLUTCH, AND TRAY LIFT, PAPER FEED, AND PAPER END SENSOR REMOVAL

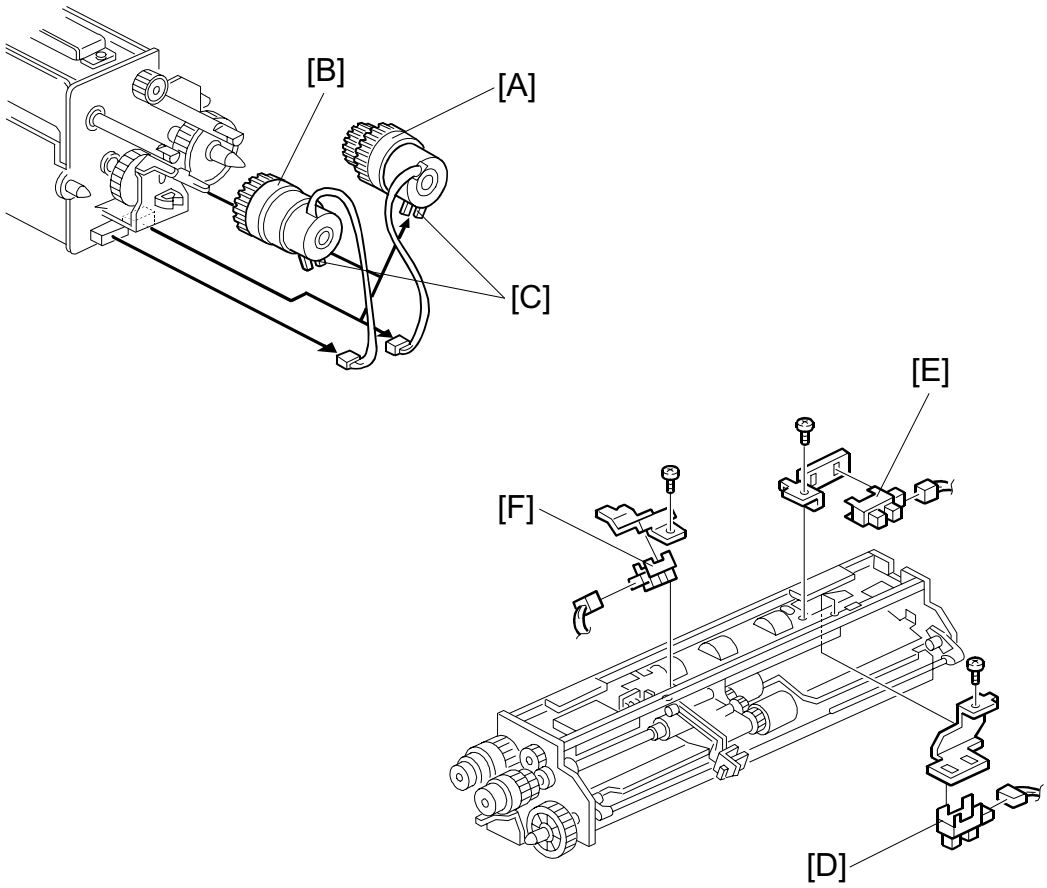


This procedure is described for the 1st feed unit as an example.

1. Turn off the main switch.
2. Remove the right front door.
3. Remove the lower right cover. (Refer to Lower Right Cover Removal.)
   NOTE: If the LCT is installed, remove it from the copier.
4. Remove the feed unit cover. (Refer to Feed Unit Cover Removal.)
5. Slightly lift the vertical transport guide [A] and remove it.
6. Remove the securing screw [B], then remove the knob [C].
7. Pull out the paper trays, then remove the paper tray unit inner cover [D] (2 screws).

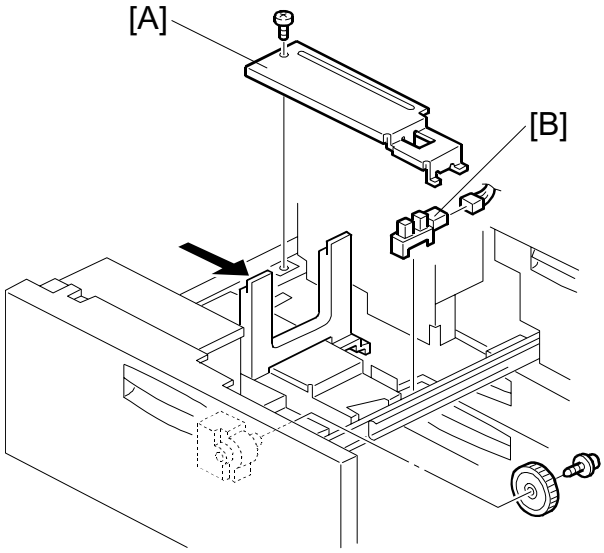


8. Hold the inner vertical transport guide [A] and pull it out (2 screws, 1 connector).
   NOTE: When re-installing the inner vertical transport guide, make sure to set the pin [B] of the inner vertical transport guide into the slot [C] on the main body.
9. Disconnect the two connectors [D].
10. Grasp the 1st or 2nd paper feed unit [E] and pull it out (2 screws).
    NOTE: Before removing the 1st or 2nd paper feed unit, remove the inner vertical transport guide [A]. Otherwise, the 1st or 2nd paper feed unit may be damaged.



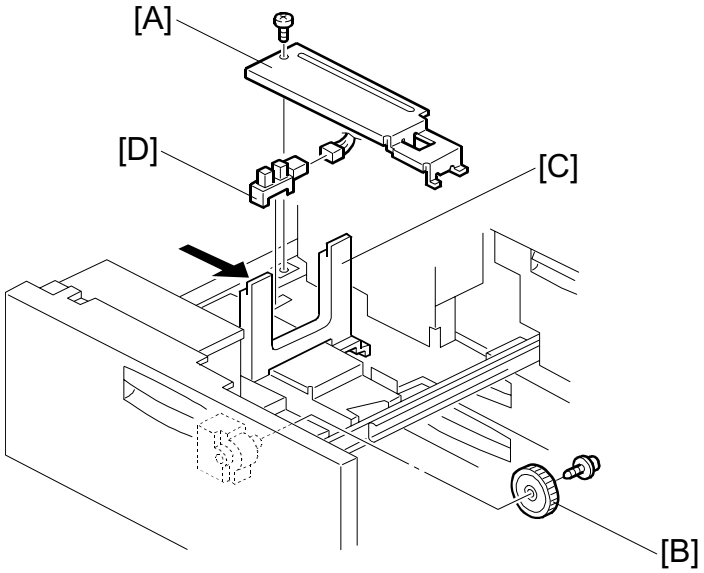
11. Remove the paper feed clutch [A] (1 hook, 1 connector).
12. Remove the vertical transport clutch [B] (1 hook, 1 connector).
13. When re-installing the clutches, put the stopper [C] of each clutch on the correct hook on the bracket.
14. Remove the paper feed [D], paper end [E], or tray lift sensor [F] as required (1 bracket, 1 screw, and 1 connector for each sensor).

6.8.4 REAR FENCE RETURN SENSOR REPLACEMENT



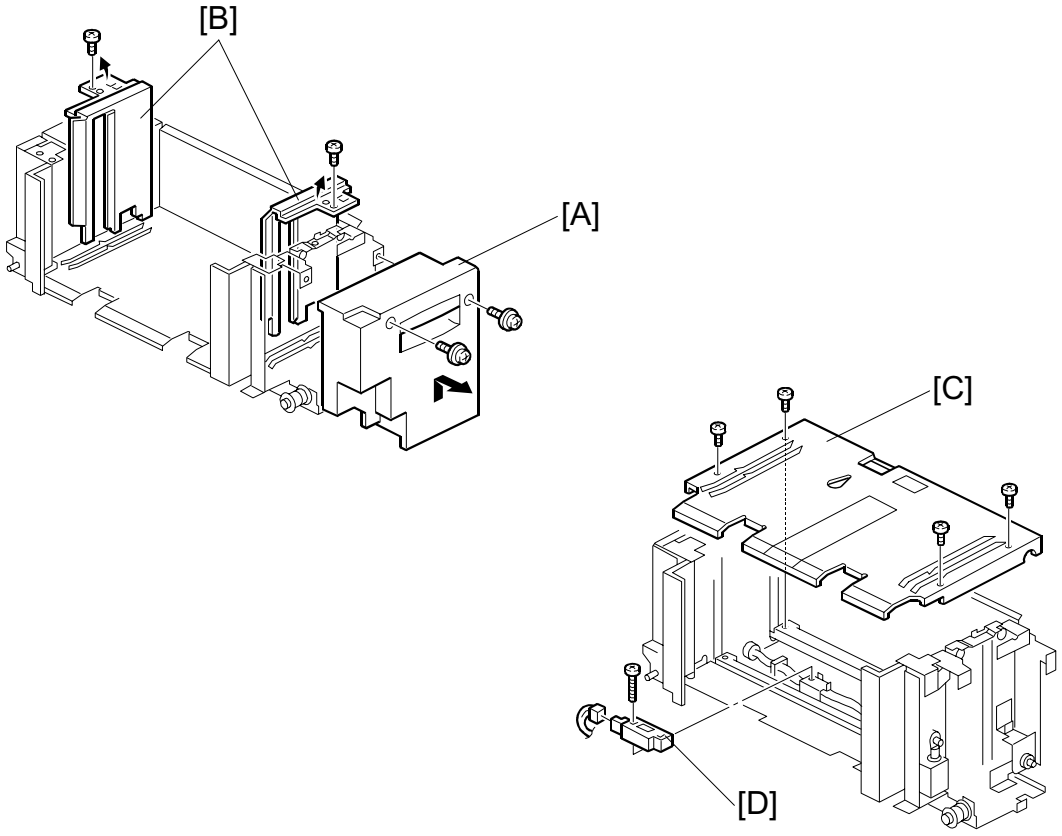
1. Turn off the main switch.
2. Draw out the tandem feed tray.
3. Remove the rear bottom plate [A] (1 screw).
4. Replace the rear fence return sensor [B] (1 connector).

6.8.5 REAR FENCE HP SENSOR REPLACEMENT



1. Turn off the main switch.
2. Draw out the tandem feed tray.
3. Remove the rear bottom plate [A] (1 screw).
4. Remove the rear fence transport gear [B] (1 screw).
5. Move the rear fence [C] to the right.
6. Remove the rear fence HP sensor [D] (1 connector).

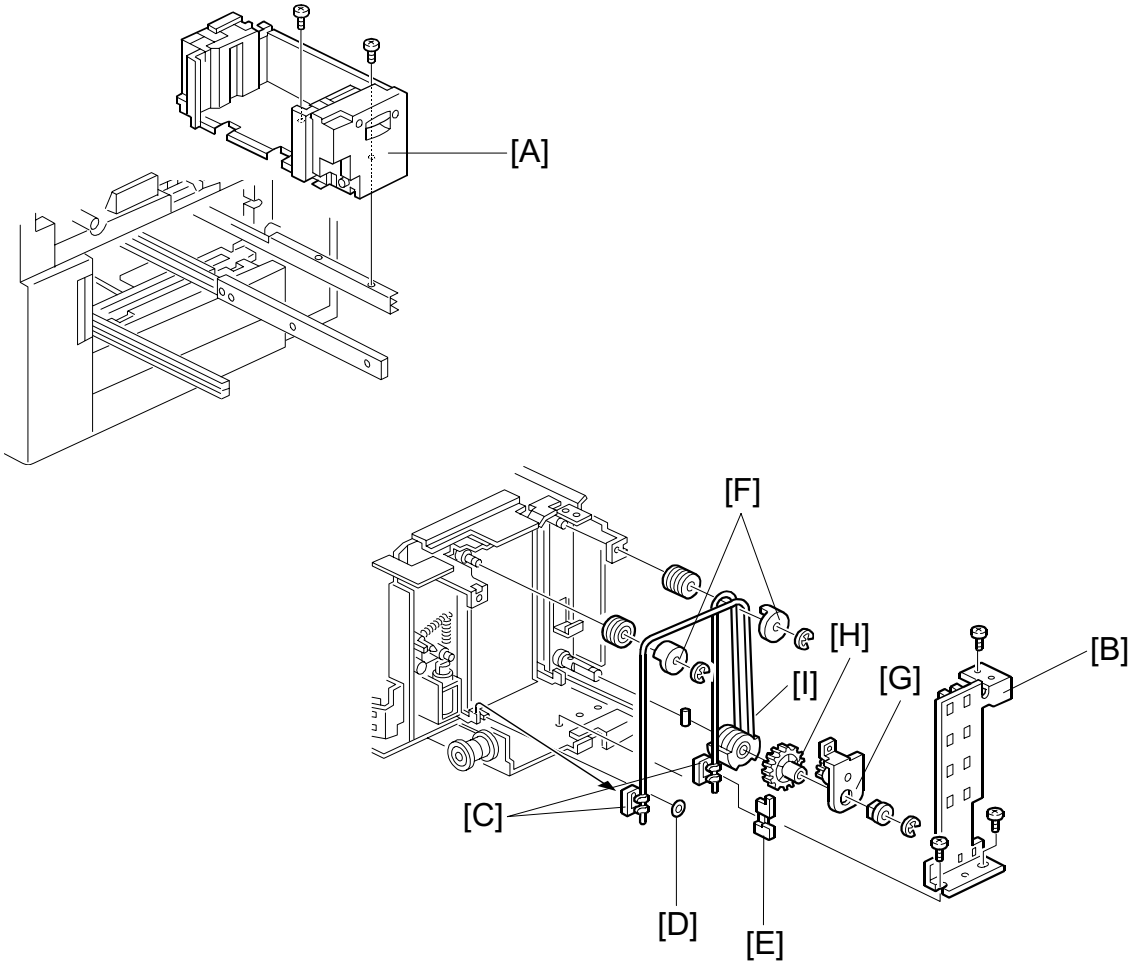
6.8.6 RIGHT 1ST TRAY PAPER SENSOR REPLACMENT



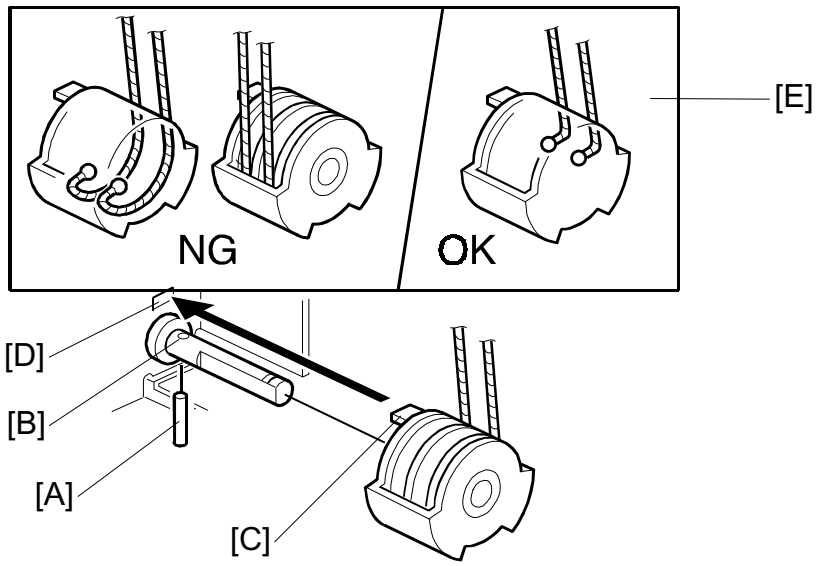
1. Turn off the main switch.
2. Remove the right tandem tray. (Refer to Paper Tray Removal.)
3. Remove the inner cover [A] (2 screws).
4. Remove the side fences [B] (1 screw each).
   NOTE: When putting back the side fences, make sure that the position of the side fences is correct.
   A4: Outer
   LT: Inner
5. Remove the bottom plate [C] (4 screws).
6. Replace the right 1st tray paper sensor [D] (1 screw and 1 connector).

6.8.7 BOTTOM PLATE LIFT WIRE REPLACEMENT

NOTE: Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. The procedure for the two wires is the same.

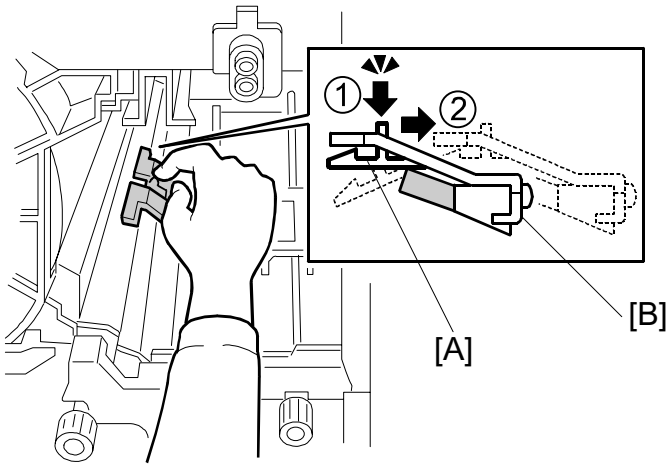


1. Remove the right tandem tray [A]. (Refer to Paper Tray Removal.)
2. Remove the inner cover (2 screws). (See Right 1st Tray Paper Sensor Removal.)
3. Remove the sensor bracket [B] (3 screws).
4. Slightly lift the front bottom plate and unhook the wire stoppers [C] (1 stopper [D] and 1 actuator [E]).
5. Remove the wire covers [F] (1 E-ring each).
6. Remove the bracket [G] (1 screw, 1 E-ring, and 1 bushing).
7. Remove the gear [H].
8. Replace the bottom plate lift wire [I].



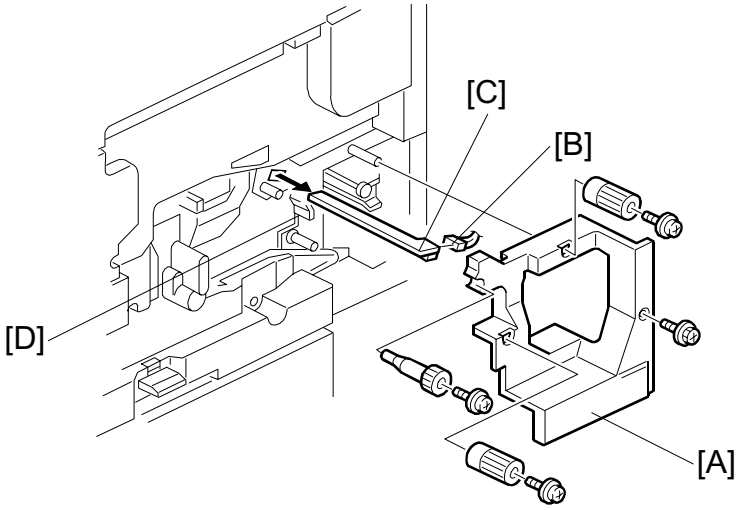
NOTE: When re-installing the bottom plate lift wire:
1) Set the positioning pin [A] in the hole [B] and set the projection [C] in the hole [D].
2) Position the wire as shown [E].
3) Do not cross the wires.

6.8.8 PAPER DUST REMOVER CLEANING



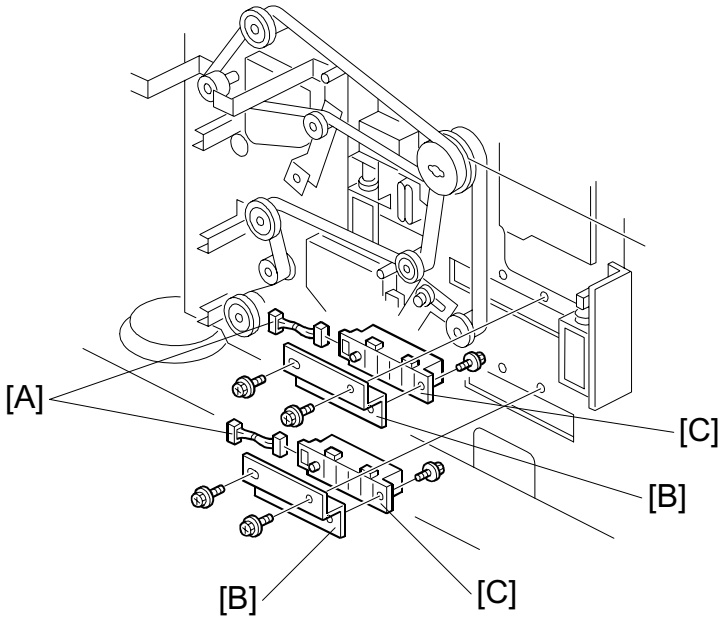
1. Remove the development unit. (Refer to Development Unit Removal.)
2. While pushing down the hook lever [A], remove the paper dust remover [B].
3. Remove the paper dust inside the paper dust remover and clean inside it with a dry cloth or a blower-brush.

6.8.9 REGISTRATION SENSOR CLEANING



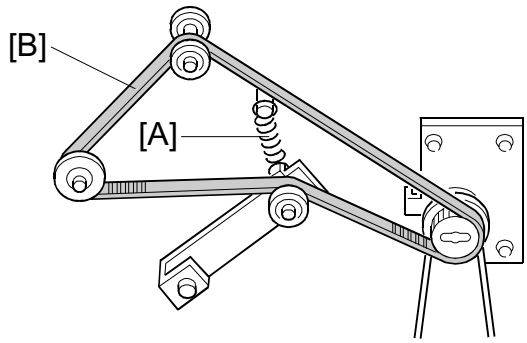
1. Remove the lower right inner cover [A] (4 screws, 3 knobs).
2. Disconnect the connector [B].
3. Pull out the registration sensor assembly [C].
4. Clean the photo sensor [D] with a blower-brush.

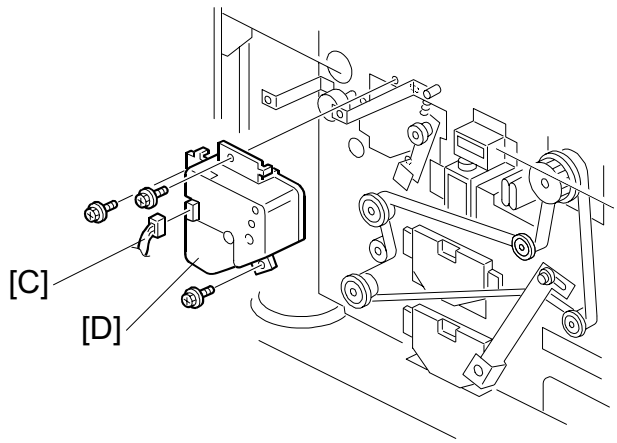
6.8.10 UNIVERSAL TRAY SIZE SWITCH REPLACEMENT



1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors). See Boards and Other Items.
4. Disconnect the connector [A].
5. Remove the tray size switch bracket [B] (2 screws).
6. Replace the universal tray size switch [C] (1 connector).

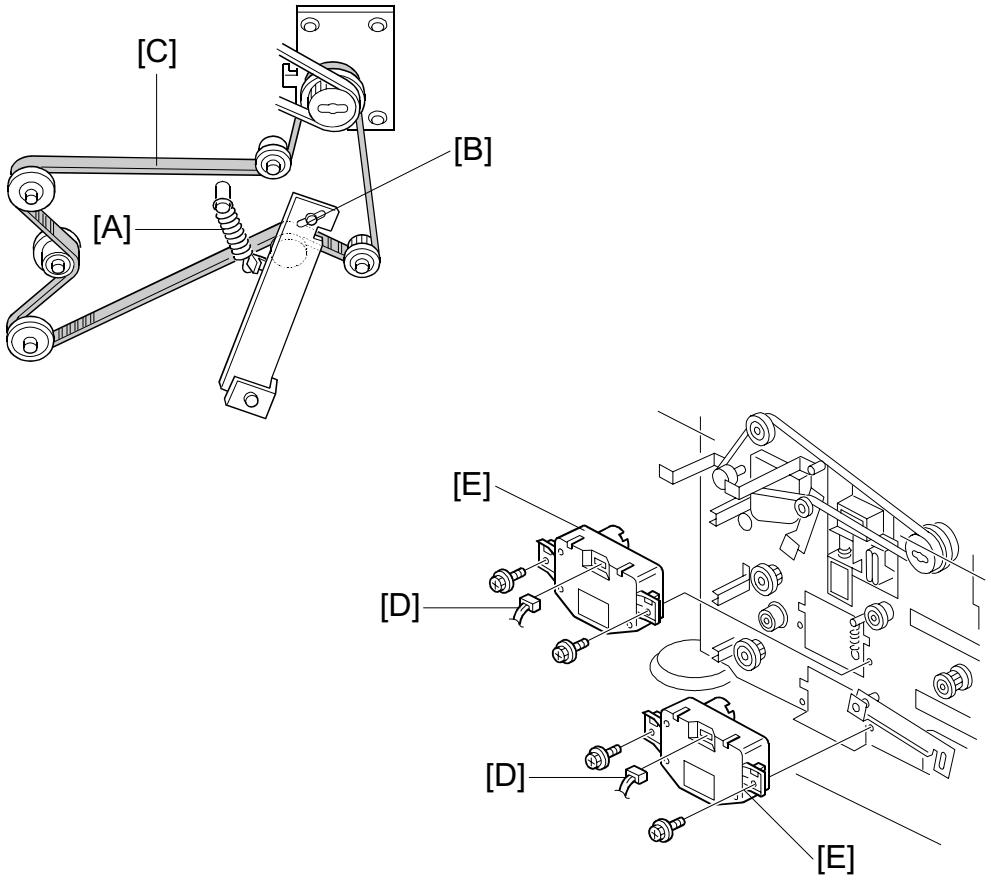
6.8.11 1ST TRAY LIFT MOTOR REMOVAL





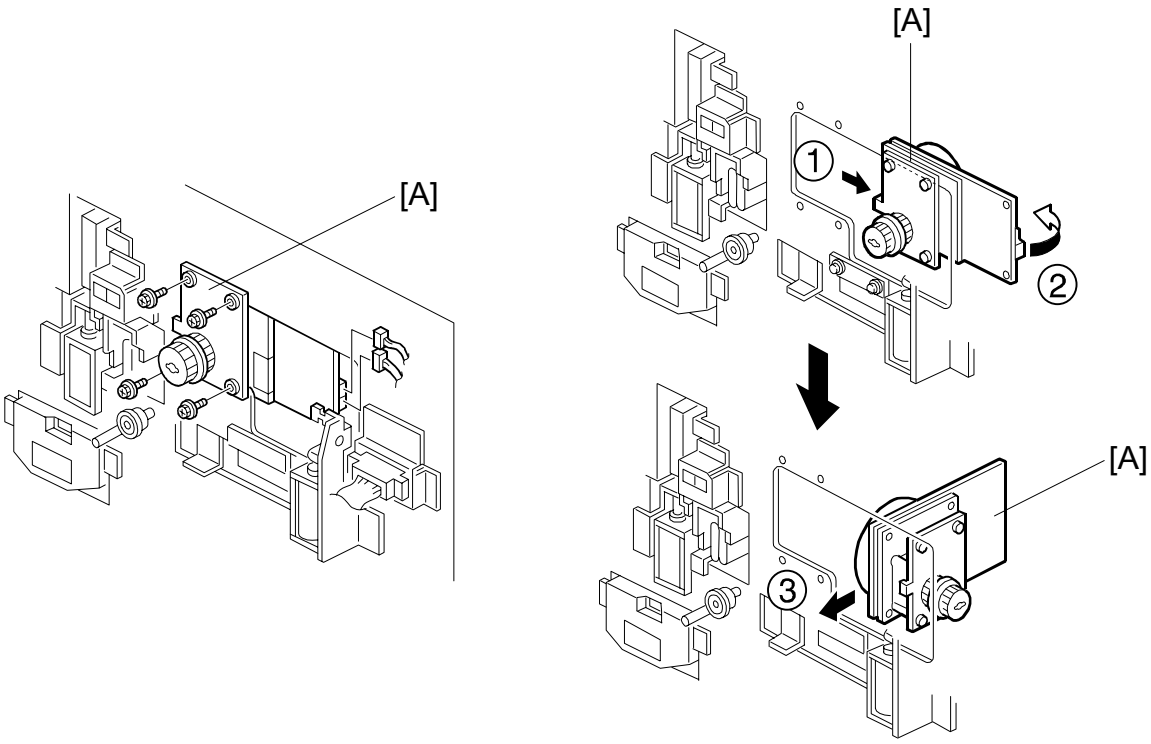
1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors) and IOB board (4 screws, all connectors). See Boards and Other Items.
4. Remove the tension spring [A].
5. Remove the upper timing belt [B].
6. Disconnect the connector [C].
7. Remove the 1st tray lift motor [D] (3 screws).

6.8.12 LIFT MOTOR REMOVAL (2ND & 3RD TRAYS)



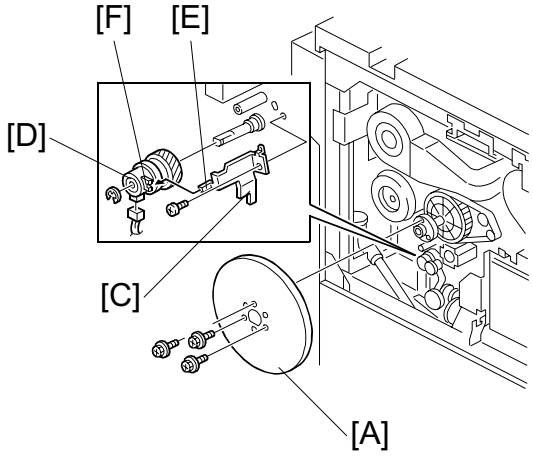
1. Turn off the main switch.
2. Remove the lower rear cover. (See Exterior.)
3. Remove the PSU (5 screws, all connectors) and IOB board (4 screws, all connectors). See Boards and Other Items.
4. Remove the tension spring [A].
5. Remove the screw [B].
6. Remove the lower timing belt [C].
7. Disconnect the connectors [D].
8. Remove the lift motors [E] (2 screws each).

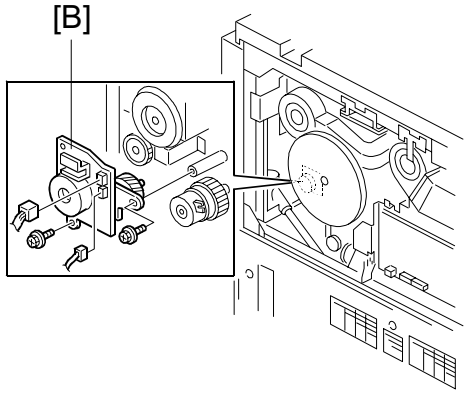
6.8.13 PAPER FEED MOTOR REMOVAL

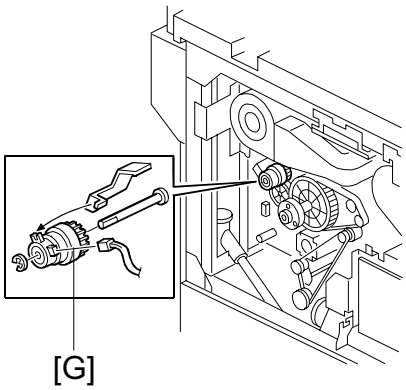


1. Remove the upper and lower timing belts:
   Follow steps from 1 to 5 of 1st tray lift motor removal and from 1 to 6 of 2nd and 3rd lift motor removal.
2. Remove the paper feed motor [A], as shown above (4 screws, 2 connectors).

6.8.14 RELAY MOTOR, UPPER RELAY CLUTCH, LCT RELAY CLUTCH REMOVAL

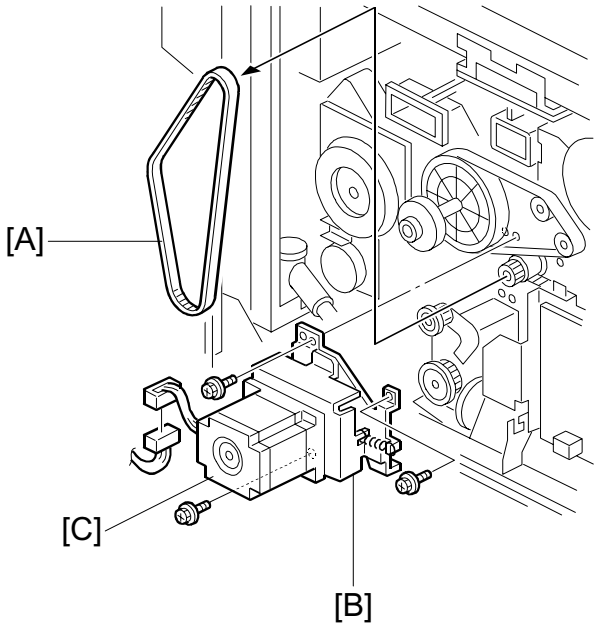






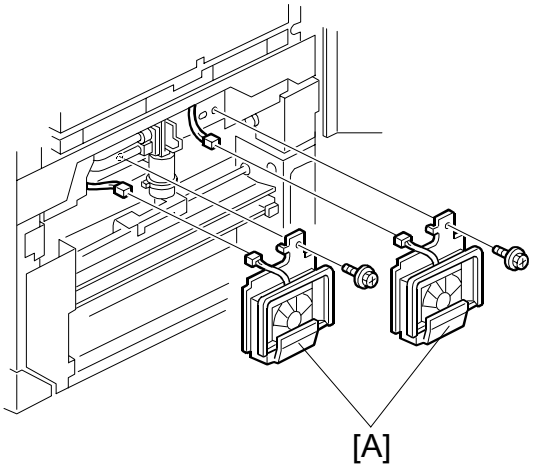
1. Remove the upper rear cover. (Refer to Upper Rear Cover Removal.)
2. Remove the fly wheel [A] (3 screws).
3. Remove the relay motor [B] (2 screws, 2 connectors).
4. Remove the clutch stopper [C] (1 screw).
5. Remove the relay clutch [D] (1 retaining ring, 1 connector).
   NOTE: When re-installing the clutch [D], put the pin [E] in the stopper in the cutout [F] in the clutch.
6. Remove the LCT relay clutch [G] (1 retaining ring, 1 connector).

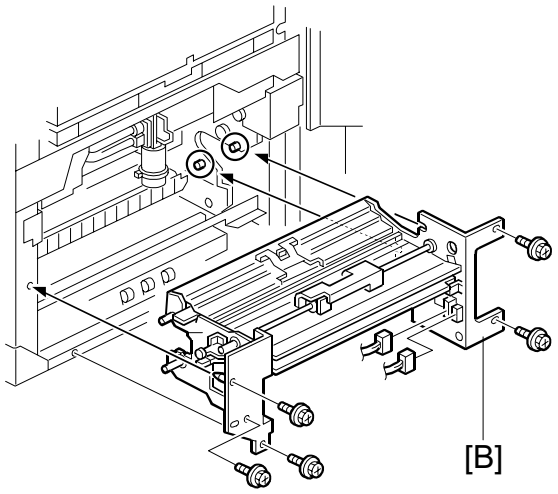
6.8.15 REGISTRATION MOTOR REMOVAL



1. Remove the upper rear cover. (Refer to Cover Removal.)
2. Remove the fly wheel (3 screws).
3. Remove the timing belt [A].
4. Remove the bracket [B] with the motor (3 screws, 1 connector).
5. Remove the registration motor [C] (3 screws, 1 timing belt, and 1 spring).

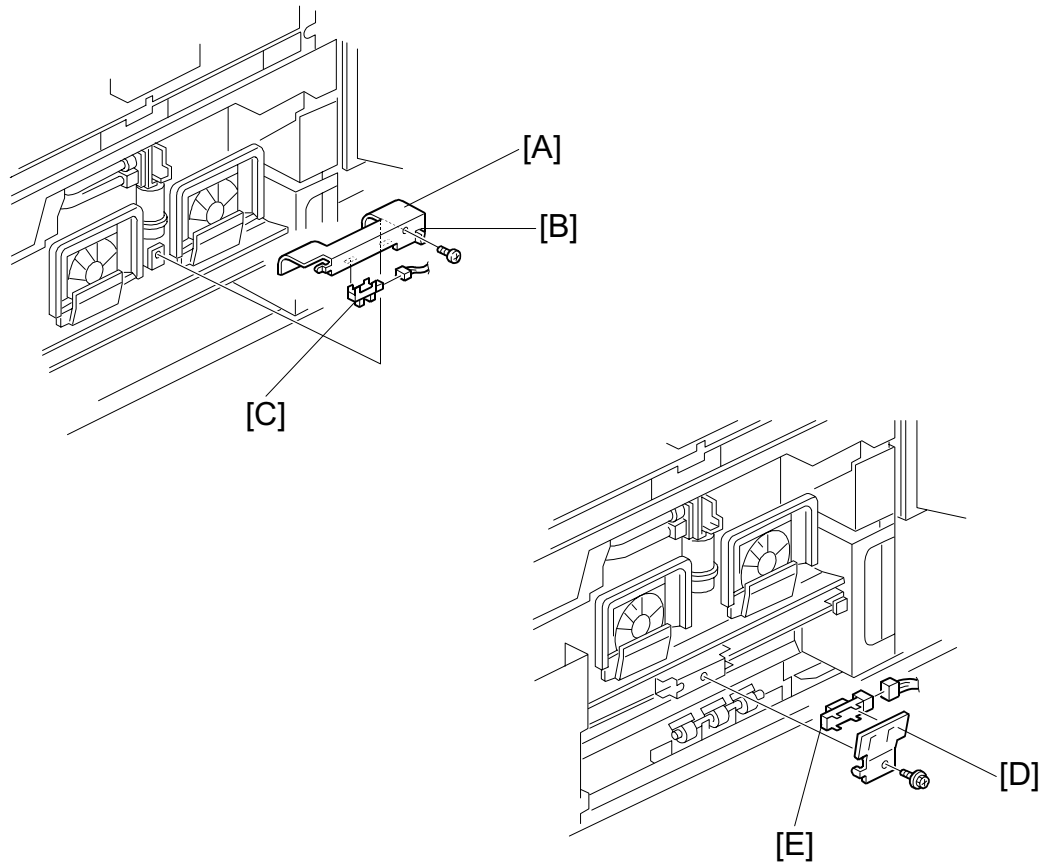
6.8.16 COPIER FEED UNIT/DEVELOPMENT FAN MOTOR REMOVAL





1. Turn off the main switch.
2. Remove the development unit. (Refer to Development Unit Removal.)
3. Remove the lower right inner cover. (Refer to Registration Sensor Cleaning.)
4. Draw out the duplex unit about 10 cm.
5. Remove the LCT relay motor. (Refer to LCT Relay Motor Removal.)
6. Remove the upper right cover. (See Exterior.)
7. Remove the two fan motors [A] (1 screw, 1 connector each).
8. Remove the copier feed unit [B] (5 screws, 2 connectors).

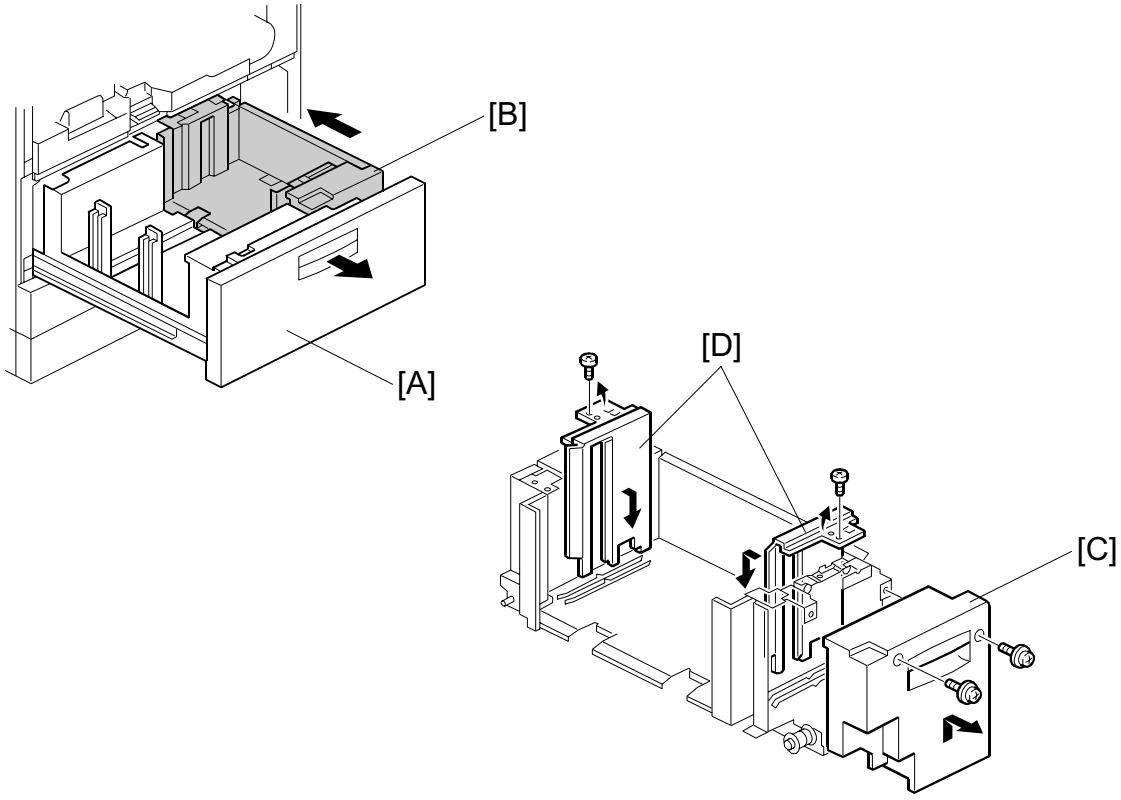
6.8.17 LCT RELAY AND RELAY SENSOR REMOVAL



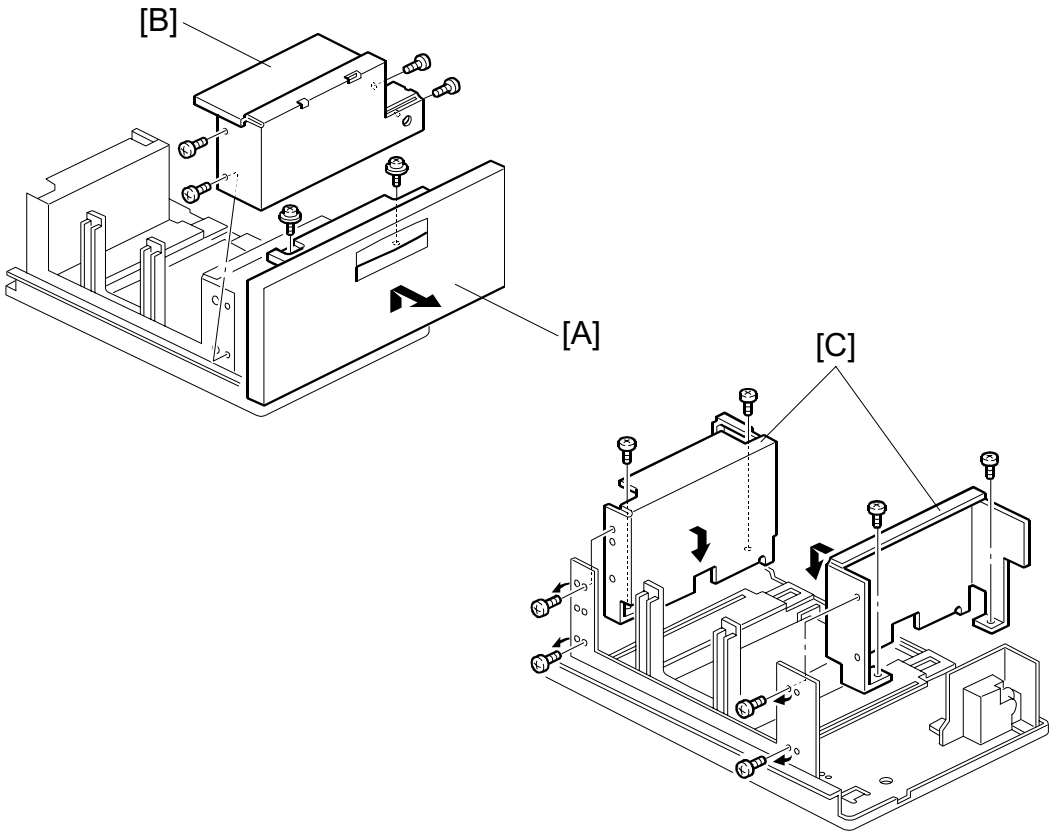
1. Remove the upper right cover. (See Exterior.)
2. Remove the bracket [A] with the LCT relay sensor (1 screw, 1 connector and 1 harness clamp [B]).
3. Remove the LCT relay sensor [C].
4. Remove the bracket [D] with the relay sensor (1 screw, 1 connector).
5. Remove the relay sensor [E].

6.8.18 TANDEM FEED TRAY PAPER SIZE CHANGE

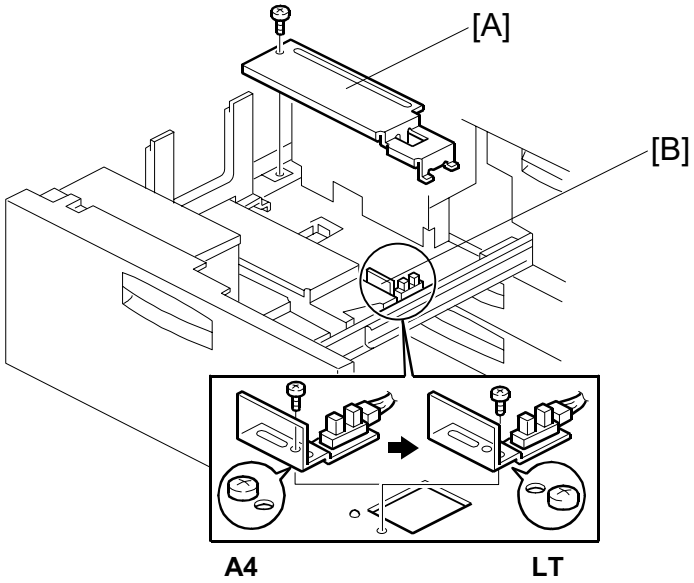
NOTE: At the factory, this tray is set up for A4 or LT sideways. Only A4 or LT sideways paper can be used for tandem feed.



1. Open the front cover.
2. Completely pull out the tandem feed tray [A] so that the right tandem tray [B] separates from the left tandem tray.
3. Remove the right tandem inner cover [C].
4. Re-position the side fences [D] (1 screw each). The outer slot position is used when loading A4 size paper.
5. Re-install the right tandem inner cover [C].

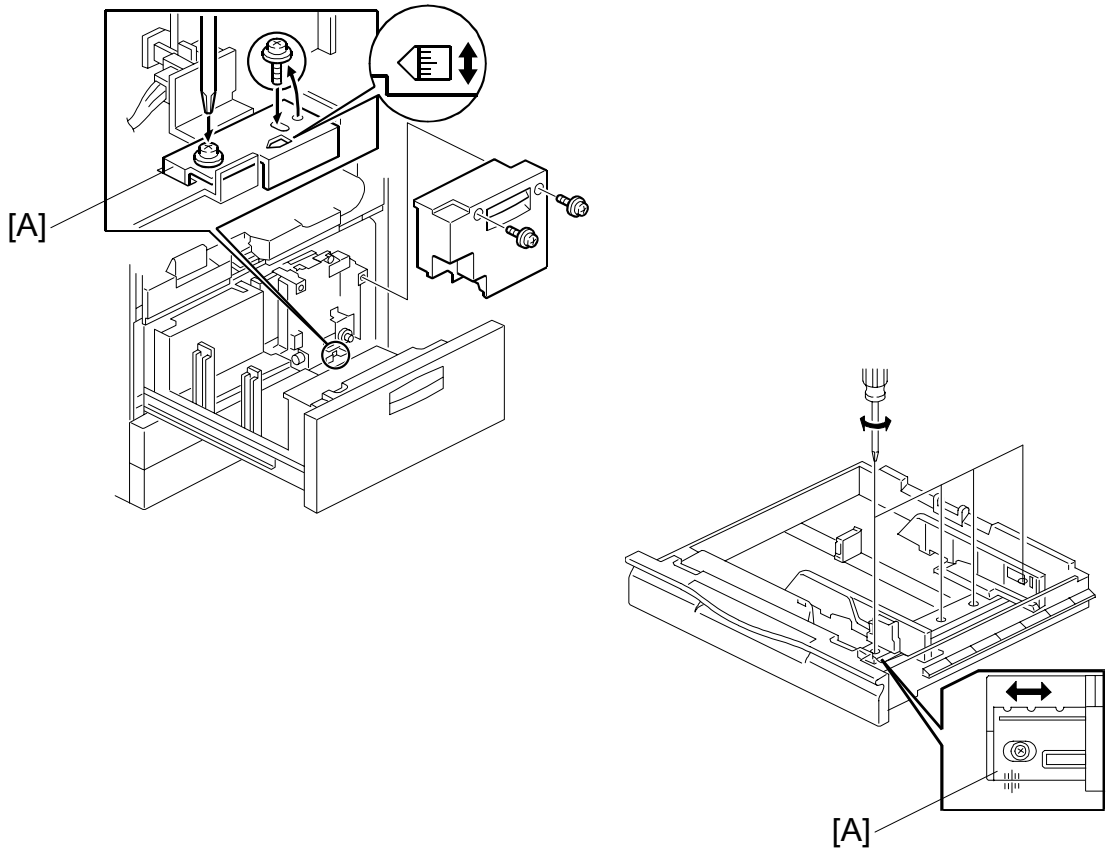


6. Remove the tray cover [A] (2 screws).
7. Remove the motor cover [B] (4 screws).
8. Re-position the side fences [C] (4 screws each). The outer slot position is used when loading A4 size paper.
9. Re-install the motor cover and the tray cover.



10. Remove the rear bottom plate [A] (1 screw).
11. Re-position the return position sensor bracket [B] (1 screw). To use the paper tray for A4 size, put the screw in the left hole as shown. (For LT size, the screw should be placed on the right.)
12. Re-install the rear bottom plate.
13. Change the paper size using SP5-019-001.

6.8.19 MECHANICAL SIDE REGISTRATION ADJUSTMENT



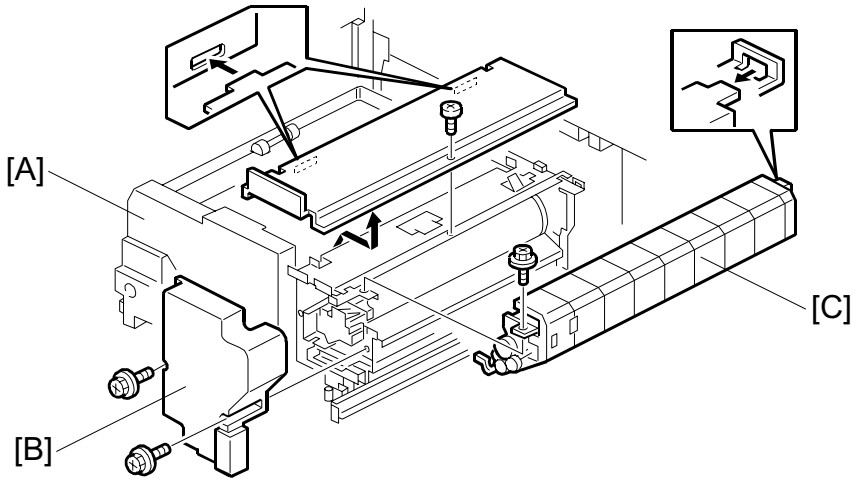
NOTE: Normally the side registration of the image can be adjusted with SP mode. When the punch hole positions are not aligned from a particular feed station, adjusted the side registration by changing the tray cover position for that tray, as described below. Then adjust the side registration of the image with the SP mode.

1. Pull out the tray.
2. Move the plate [A] as shown.

   Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

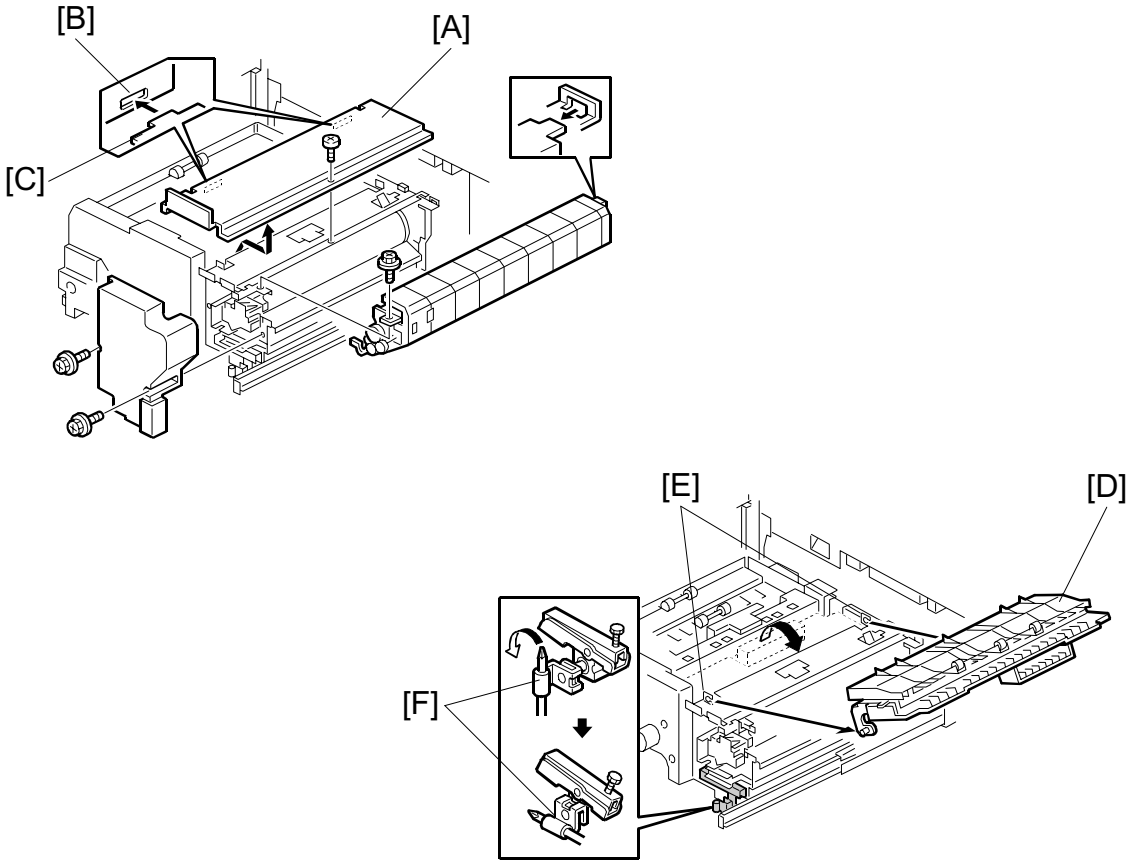
6.9 FUSING UNIT

6.9.1 OIL SUPPLY & CLEANING WEB UNIT REMOVAL

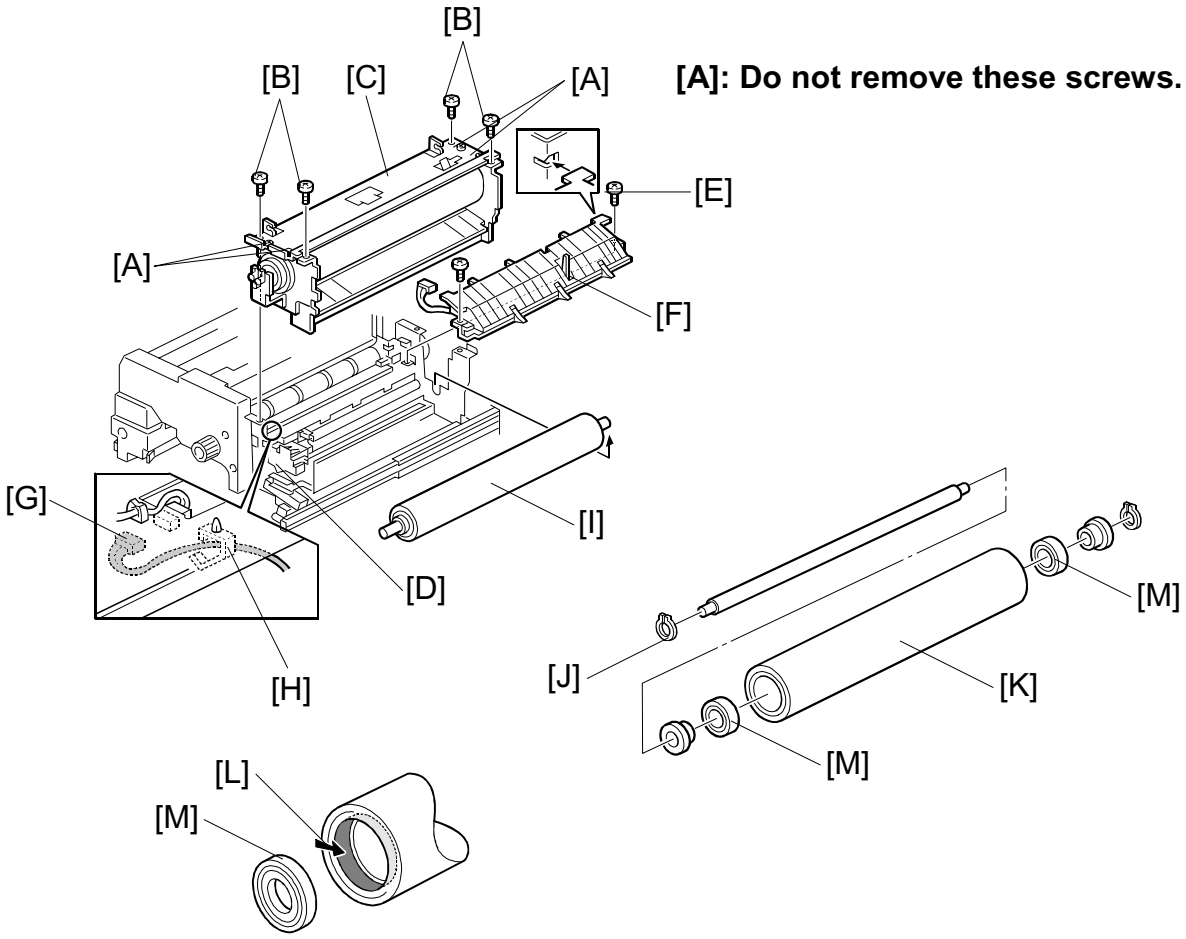


1. Turn off the main switch.
2. Pull out the fusing and exit unit [A].
3. Remove the fusing unit inner cover [B] (2 screws).
   NOTE: The oil supply and cleaning web unit is still hot even if the main switch is turned off for servicing.
4. Remove the oil supply and cleaning web unit [C] (1 screw).
   NOTE: Make sure that the web collecting roller gear engages with the gears on the fusing/exit unit after re-installing the oil supply and cleaning web unit.

6.9.2 HOT ROLLER UNIT REMOVAL AND PRESSURE ROLLER REPLACEMENT



1. Remove the oil supply and cleaning web unit. (See Oil Supply and Cleaning Web Unit Removal.)
2. Remove the top cover [A] of the fusing unit (1 screw).
   NOTE: When re-installing this cover, align the cutouts [B] and projections [C] and slide the cover to the right. Make sure that the cover does not pinch the thermistor and thermofuse cables against the stay.
3. Turn the hot roller stripper unit [D] clockwise approximately 160° and slide the pivot shaft out of the cutout [E].
4. Release the fusing pressure by turning the pressure lever [F] 1/4 of a turn counterclockwise with a screw driver.
   NOTE: If the fusing pressure is still released when re-installing the inner cover of the fusing unit, that cover cannot be installed.

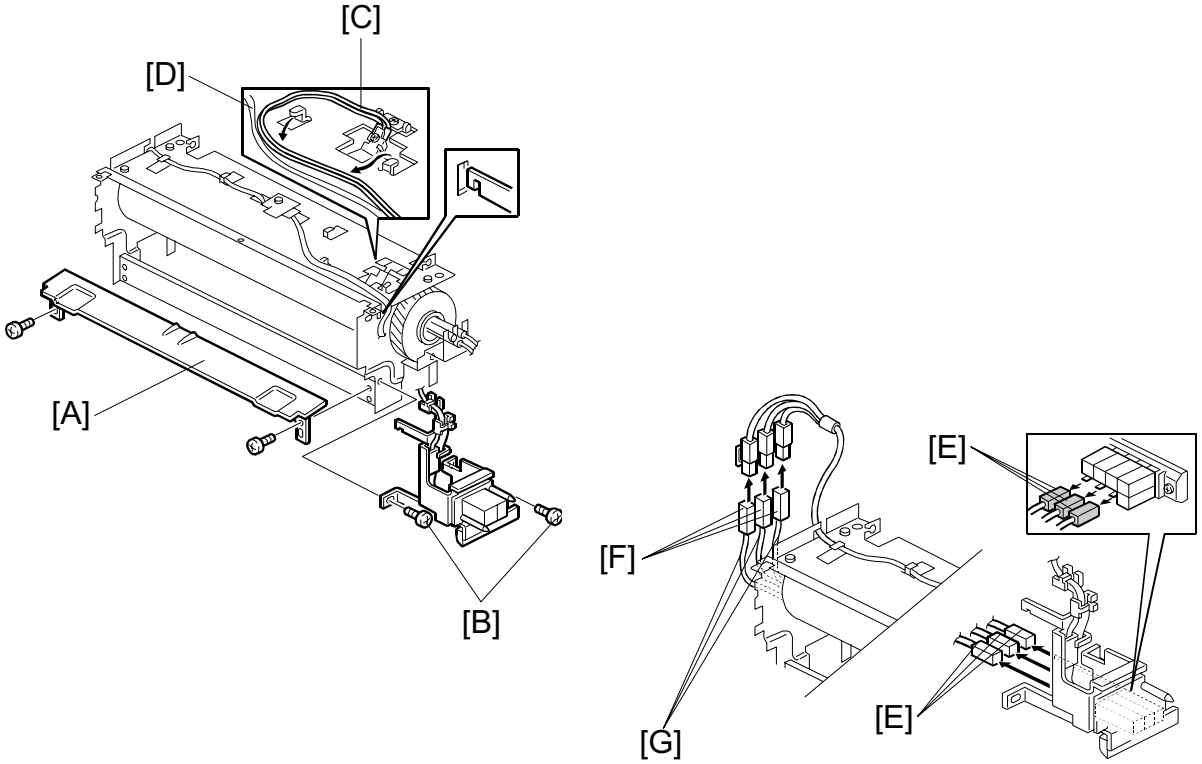


NOTE: Do not remove the four **M4 bind screws** [A] in the next step.

5. Remove the four **M5 pan head screws** [B] and remove the hot roller unit [C].
   NOTE: 1) When re-installing the hot roller unit, make sure that the flanges of the ball bearings in the hot roller unit are set inside the fusing exit side plate [D] and the gear in the hot roller unit is installed on the rear side.
   ⇒ 2) Secure the M5 pan head screws in the following order: left-rear, right-front, right-rear, left-front.
6. Remove the two bind screws [E] securing the pressure roller stripper unit [F].
7. Slide the pressure roller stripper unit [F] to the right while slightly raising the side near the pressure roller (1 connector [G] and 1 clamp [H]).
   NOTE: Be careful not to touch the pressure roller surface during this step.
8. Lift up the pressure roller unit [I].
9. Remove the C-ring [J] from the pressure roller and replace the pressure roller [K] (2 ball bearings, 2 bushings).

NOTE: Lubricate the inner surface [L] of the pressure roller (bearing [M] contact part) with BARRIERTA L55/2 grease when replacing the pressure roller.

6.9.3 HOT ROLLER REPLACEMENT



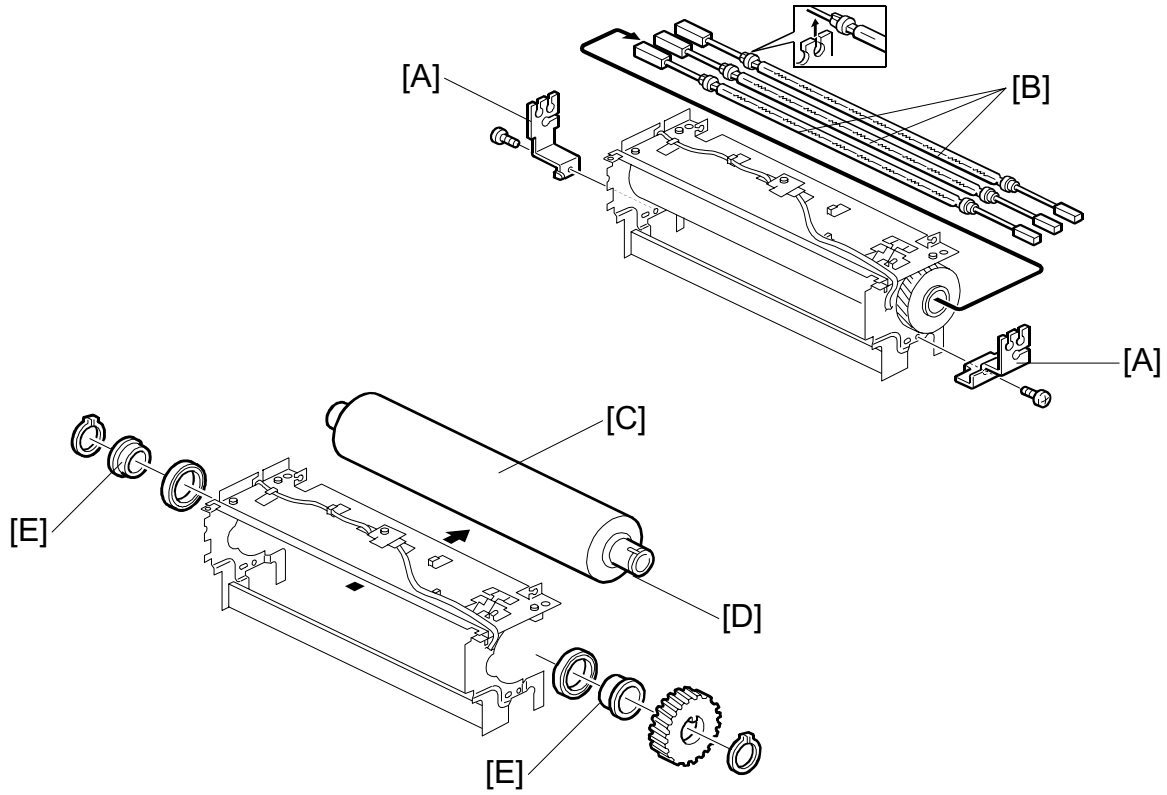
Remove the hot roller unit:
Follow steps 1 to 5 of hot roller unit removal and pressure roller replacement.

1. Remove the fusing entrance guide [A] (2 screws).
2. Remove the two screws [B] securing the harness terminal bracket, and unhook the bracket.
   NOTE: Unhook the thermistor cable [C] and thermofuse cable [D] to prevent them from becoming damaged.
3. Disconnect the three green connectors [E] for the fusing lamp cables from the terminal on the rear side.
4. Disconnect the three white fusing lamp connectors [F] on the front side.

⇒ **NOTE:** To distinguish the 630W (A295) from the 530W (A294) lamps, the color of the front wire harness [G] of the fusing lamp for the 630W (A295) is different from that of the 530W (A294).

A294: 530W, Blue
A295: 630W, Red

The colors of the connectors for both the lamps are the same. The following note for re-assembling does not change.



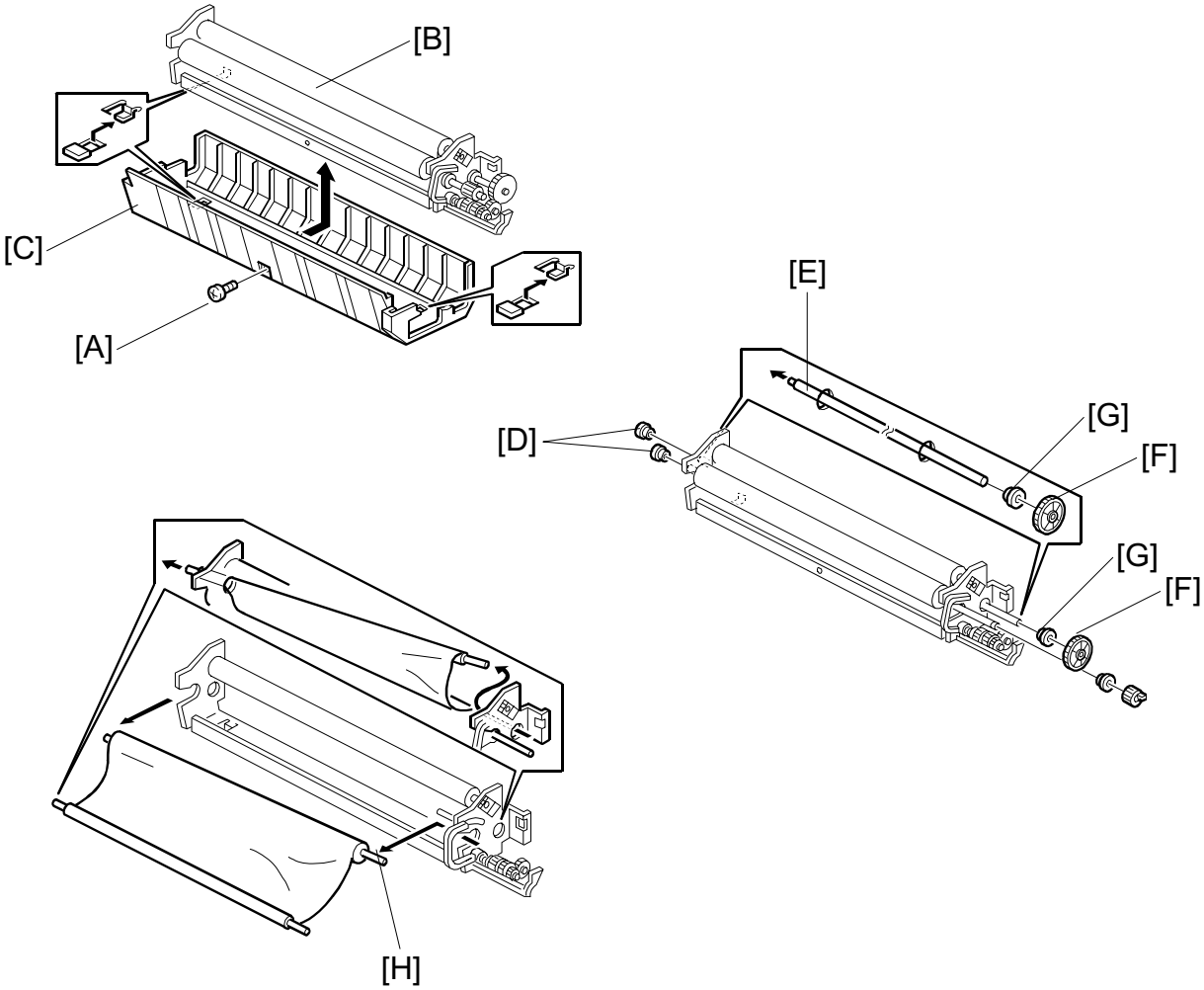
5. Remove the front and rear lamp holders [A] (1 screw each).
6. Remove the three fusing lamps [B] one-by-one.
7. Replace the hot roller [C] (1 gear, 2 C-rings, 2 bushings, and 2 ball bearings).
   NOTE: 1) When replacing the hot roller, make sure that the end with long part of the shaft [D] is at the rear (gear side).
   2) When re-installing the ball bearings and bushings, make sure that the flanges for the bearings and bushings are placed on the outside.
   3) Lubricate the inner and outer surfaces of the bushings [E] with BARRIERTA L55/2 grease when replacing the pressure roller.

When re-installing the three fusing lamps, make sure of the following points:

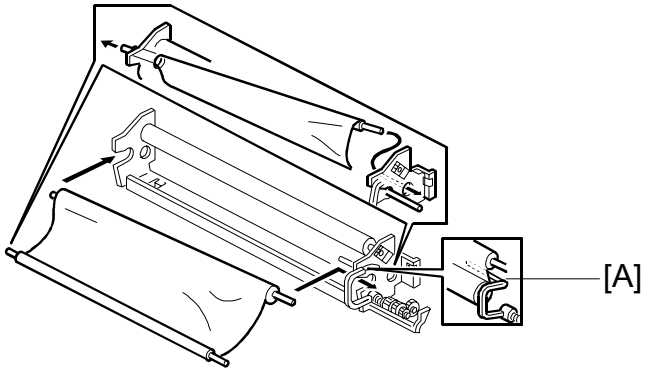
1) The three lamps must be parallel inside the hot roller (DO NOT CROSS THEM).
2) While aligning the three lamps with the cutouts in the front lamp holder, re-install the front and rear lamp holders.
3) At the front, connect the white fusing lamp connectors to the white connectors on the cable. At the rear, connect the green fusing lamp connectors to the green connectors on the cable.
4) Route the thermistor cable and thermofuse cable (refer to [C] and [D] on the previous page).

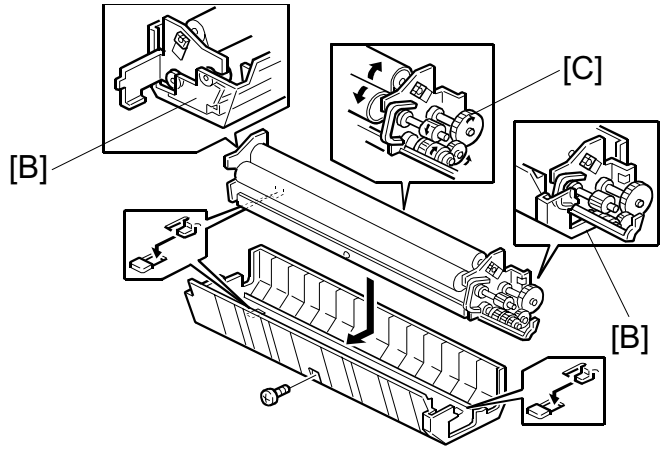
Make sure that the cables are not pinched and do not contact the gears.

6.9.4 OIL SUPPLY & CLEANING WEB REPLACEMENT



1. Remove the oil supply and cleaning web unit. (See Oil Supply And Cleaning Web Unit Removal.)
2. Put the oil supply and cleaning web unit on a stable flat surface (opening side up) as shown.
3. Remove the screw [A] from the oil supply and cleaning web unit cover.
4. Slide the oil supply and cleaning web assembly [B] to the rear while holding the oil supply and cleaning web unit cover [C]. Then, remove the oil supply and cleaning web assembly [B].
5. Remove two bushings [D] from the short shaft side (rear side).
6. Push the web collecting roller shaft [E] to the short shaft side (rear side). Then remove the web collecting roller gear [F] and bushing [G].
7. Replace the oil supply and cleaning web [H] (1 gear and 1 bushing).

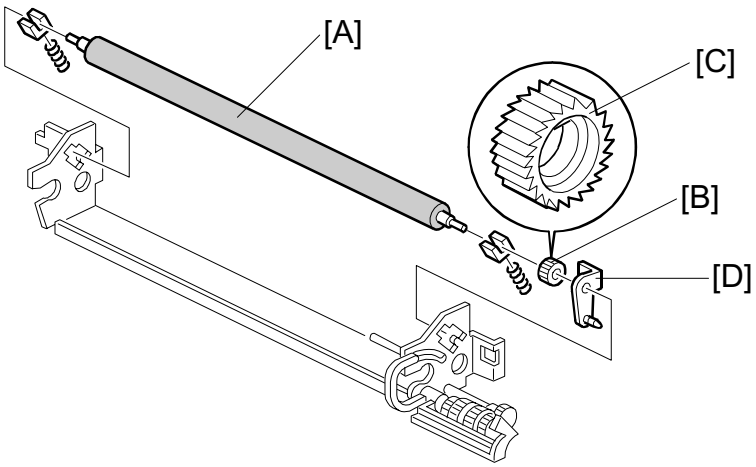




NOTE: 1) When re-installing parts, make sure that the feeler lever [A] for the web end sensor is on the web as shown. Otherwise, after re-installing the parts and turning on the main switch, web end (SC550) will be displayed.
2) When putting back the oil supply and cleaning web assembly, make sure that the flange for the bushings does not ride on the side edges [B] of the oil supply and cleaning web unit cover.
3) If the web has a buckle between the web supply roll and web collecting roll, turn the web collecting roller gear [C] clockwise (front view) until the buckle is pulled straight.

8. Reassemble the fusing unit.
   NOTE: Make sure that the web collecting roller gear engages with the gears on the fusing unit exit unit after re-attaching the oil supply and cleaning web unit.
9. Access SP1-902-1 (web consumption counter), and change the value to 0.
10. Perform reset procedure for level “A” service code.

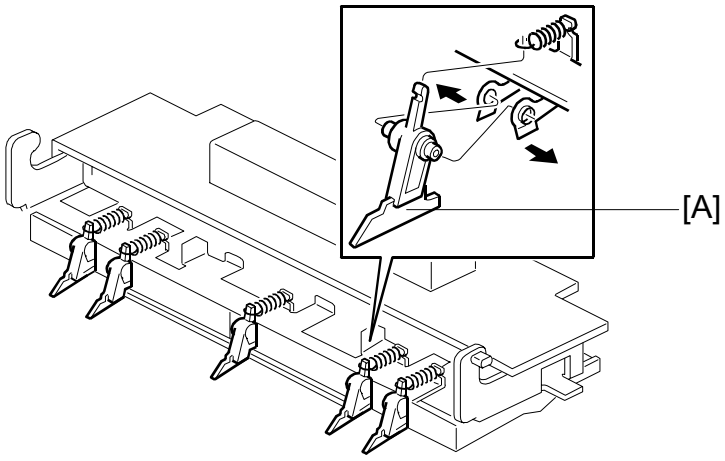
6.9.5 WEB CLEANING ROLLER REPLACEMENT



1. Remove the oil supply and cleaning web.
2. Replace the web cleaning roller [A] (1 gear, 1 bracket, 2 bushings, and 2 springs).

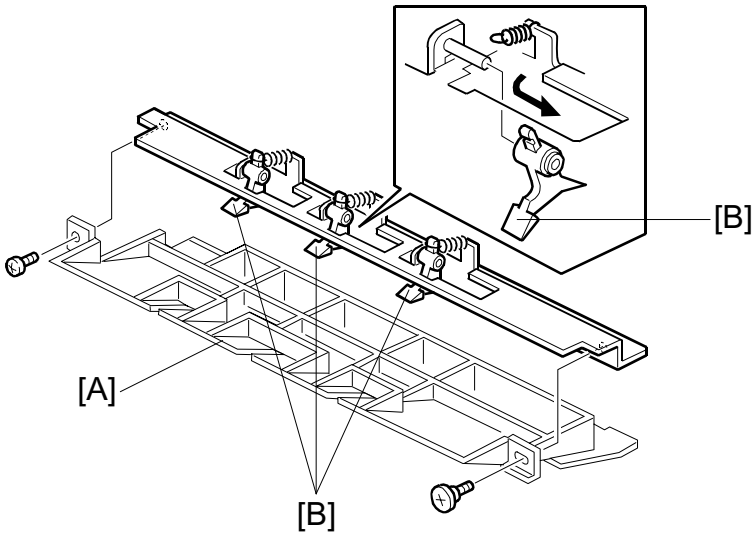
NOTE: When putting back the gear [B], the D-shaped opening in this gear should face the roller shaft side. The circular-shaped opening [C] in the gear should face the bracket side [D].

6.9.6 HOT ROLLER STRIPPER REPLACEMENT



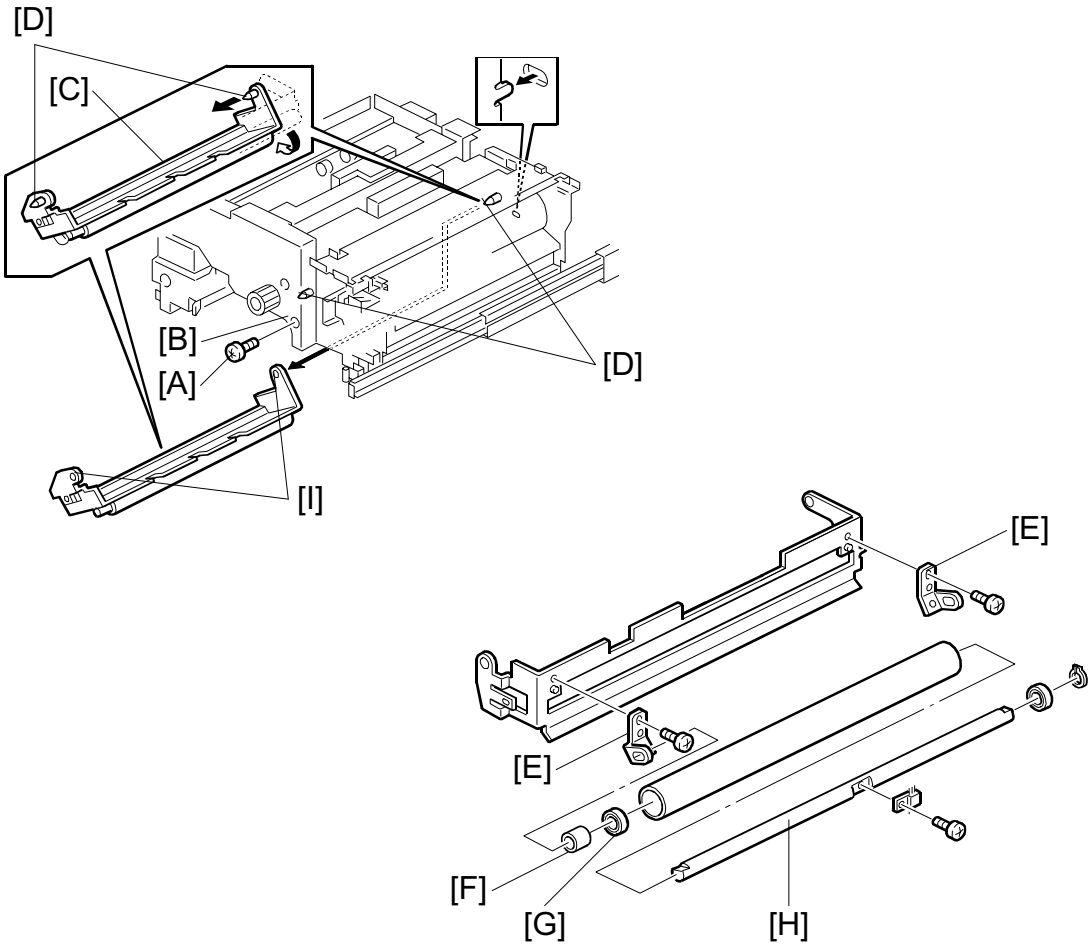
1. Remove the hot roller stripper unit:
   Follow steps 1 to 3 of hot roller unit removal.
2. Replace the hot roller strippers [A].

6.9.7 PRESSURE ROLLER STRIPPER REPLACEMENT



1. Remove the pressure roller stripper unit:
   Follow steps 1 to 7 of hot roller unit removal and pressure roller replacement.
2. Remove the stripper pawl cover [A] (2 screws).
3. Replace the pressure roller strippers [B].

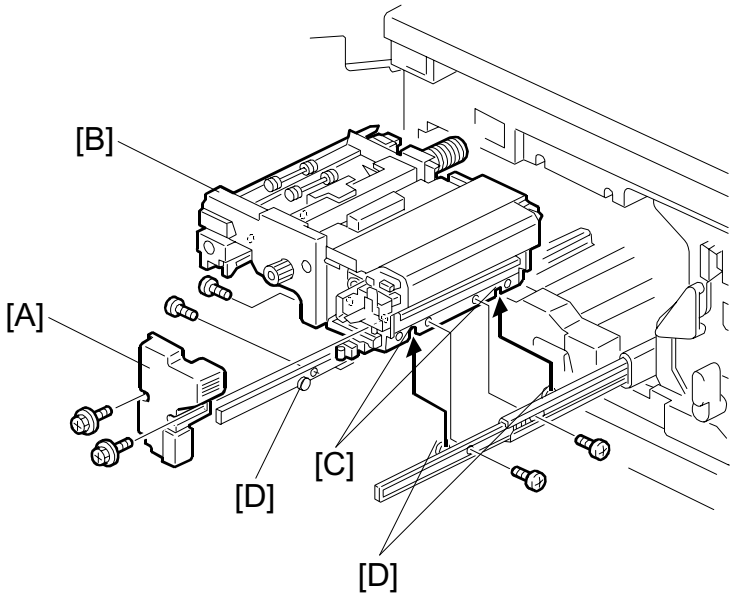
6.9.8 PRESSURE ROLLER CLEANING ROLLER REPLACEMENT



1. Remove the screw [A] through the hole [B] in the fusing unit exit inner cover as shown.
2. Pull the pressure cleaning roller unit [C] to the front, then swing the pressure roller cleaning roller unit down clockwise.
3. Pull out the pressure roller cleaning roller unit again. The pressure roller cleaning roller unit dislodges from the pins [D] on the front and rear side plate of the fusing exit.
4. Remove the two plate springs [E] (2 screws) and replace the pressure roller cleaning roller (1 spacer [F], 1 ball bearing [G] and 1 shaft assembly [H]).

NOTE: When re-installing the pressure roller cleaning roller unit, fit the holes [I] (first the rear, then the front) in the pressure roller cleaning roller unit bracket onto the pins [D] on the rear and front side plates of the fusing unit exit. Then, turn the pressure roller cleaning roller unit counterclockwise, and push the pressure roller cleaning roller unit to the rear. Finally, secure it with the screw [A].

6.9.9 FUSING AND EXIT UNIT REMOVAL

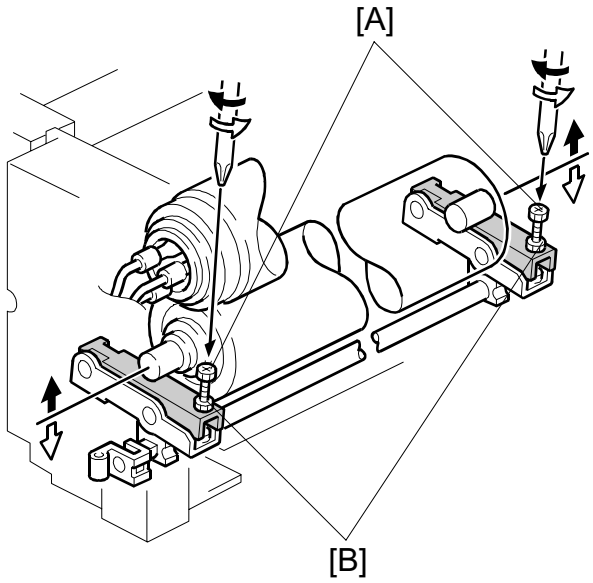


CAUTION
The fusing and exit unit is heavy. Take care not to injure yourself by dropping the fusing and exit unit when removing and installing it.

1. Remove the fusing unit inner cover [A] (2 screws).
2. Remove the fusing and exit unit [B] (4 screws).

NOTE: 1) When putting back the fusing and exit unit, hook the cutouts [C] on the projections [D] on the right and left slide rails.
2) The fusing inner cover prevents the fusing and exit unit from hooking the fusing and exit unit on the slide rails. Put back the fusing and exit unit without the fusing inner cover. Then, put back the fusing inner cover.

6.9.10 FUSING PRESSURE ADJUSTMENT

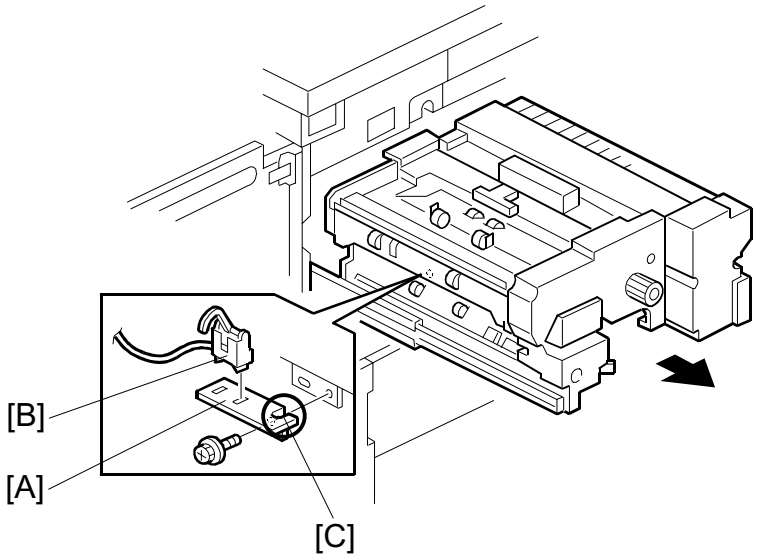


Adjustment standards: Nip width 11.5 ± 0.5 mm (the difference between front and rear measurements should be less than 0.5 mm).

1. Select the fusing nip band check mode (SP1-109).
2. Make a copy using an A4/LT OHP sheet. Copying will start. It will stop in the fusing unit for 30 seconds and then will exit.
   NOTE: If an OHP sheet is not available, use a solid black copy on plain paper (make the copy with the ADF open – the copy will be all black).
3. Measure the nip band width (the shiny band) at both ends.
4. It the nip band width is not within specifications at both ends, release the fusing pressure and adjust it using the adjustment screw [A] (clockwise = increases the pressure, counterclockwise = decreases the pressure).
   NOTE: Loosen the lock nuts [B] before turning the pressure adjustment screw. Re-tighten the nuts after adjusting.
5. Repeat steps 1 to 4 to confirm the nip band width.

6.10 PAPER EXIT/DUPLEX UNIT

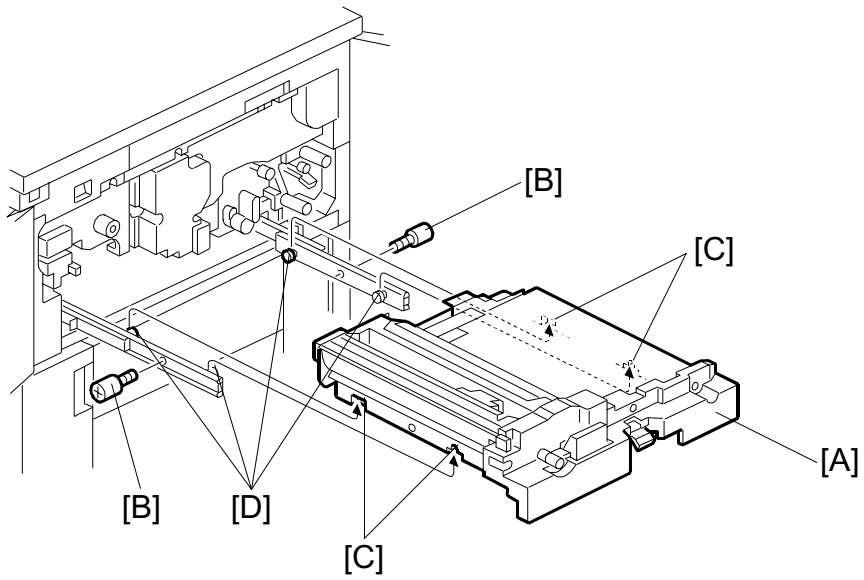
6.10.1 EXIT SENSOR REPLACEMENT



1. Pull out the fusing and exit unit.
2. Remove the sensor bracket [A] with the sensor (1 screw, 1 connector, and 2 clamps).
3. Replace the exit sensor [B].

NOTE: When putting back the sensor bracket, run the cable through the cutout [C] to slacken the cable.

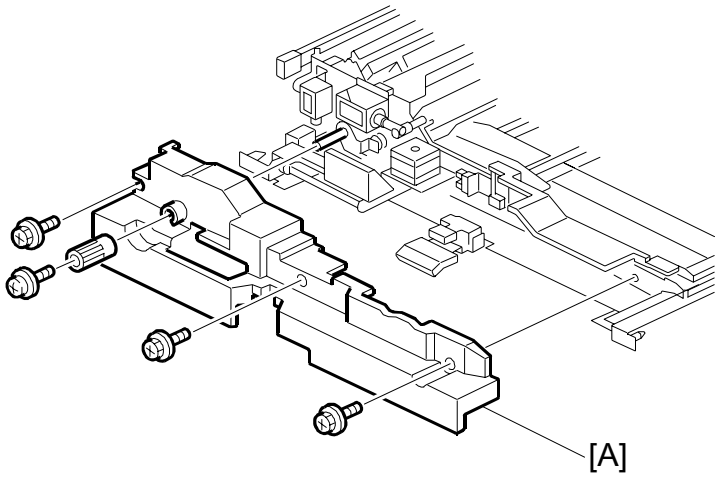
6.10.2 DUPLEX UNIT REMOVAL



1. Open the left and right front doors and pull out the duplex unit [A].
2. Remove the 2 shoulder screws [B].
3. Lift up the duplex unit.

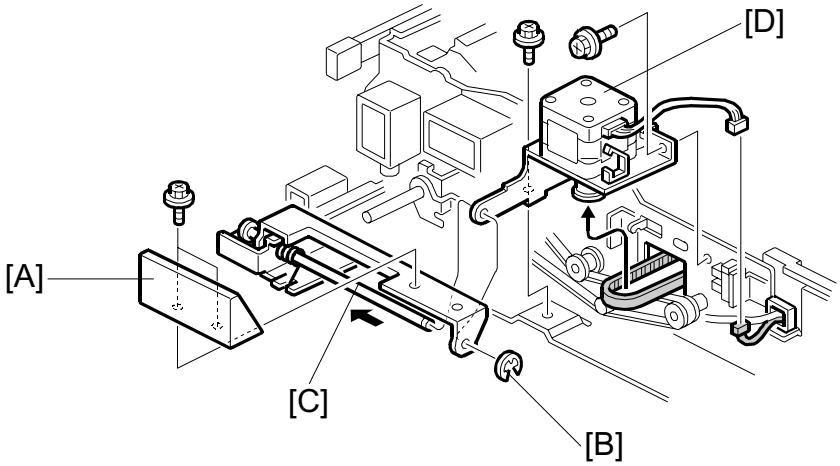
NOTE: When putting back the duplex unit, align the cutouts [C] with the slide rail projections [D].

6.10.3 DUPLEX UNIT INNER COVER REMOVAL



1. Pull out the duplex unit.
2. Remove the duplex unit inner cover [A] (1 knob and 4 screws).

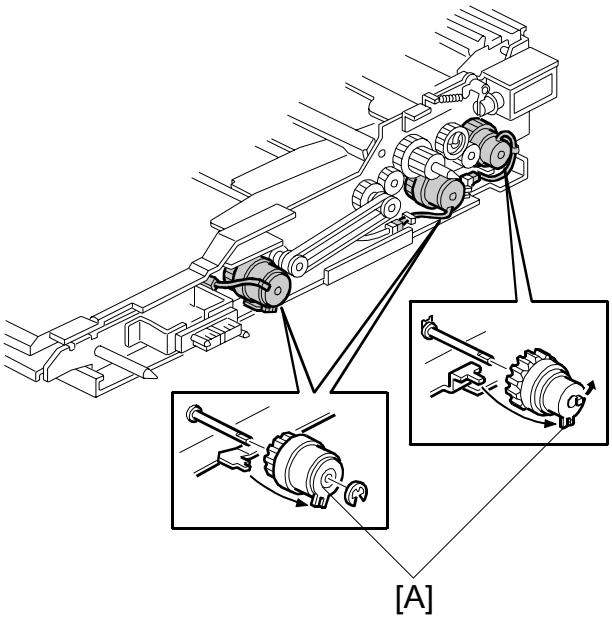
6.10.4 JOGGER MOTOR REPLACEMENT



1. Remove the duplex inner cover. (See Duplex Unit Inner Cover Removal.)
2. Remove the duplex grip [A] (2 screws).
3. Remove the E-ring [B] and slide the duplex grip shaft [C] to the left.
4. Remove the jogger motor [D] (2 screws, 1 connector, 2 clamps).

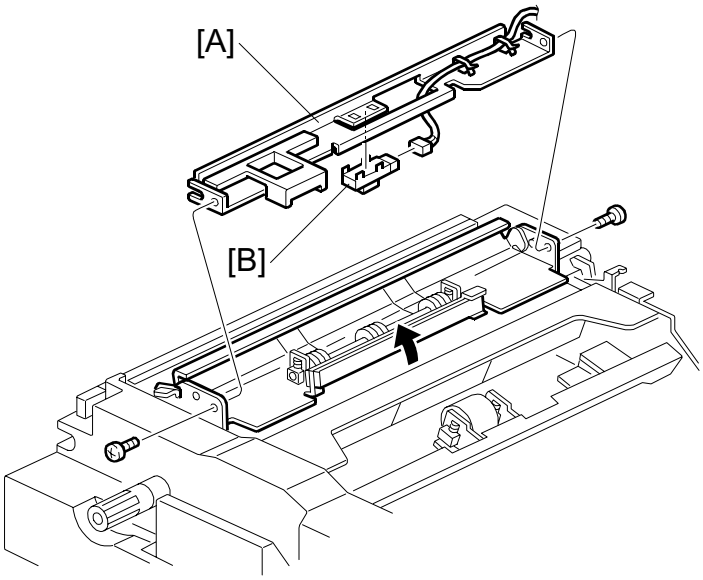
NOTE: When putting back the jogger motor, put back the duplex grip shaft and E-ring first. Then, tighten the screws for the jogger motor.

6.10.5 DUPLEX UNIT CLUTCH REPLACEMENT



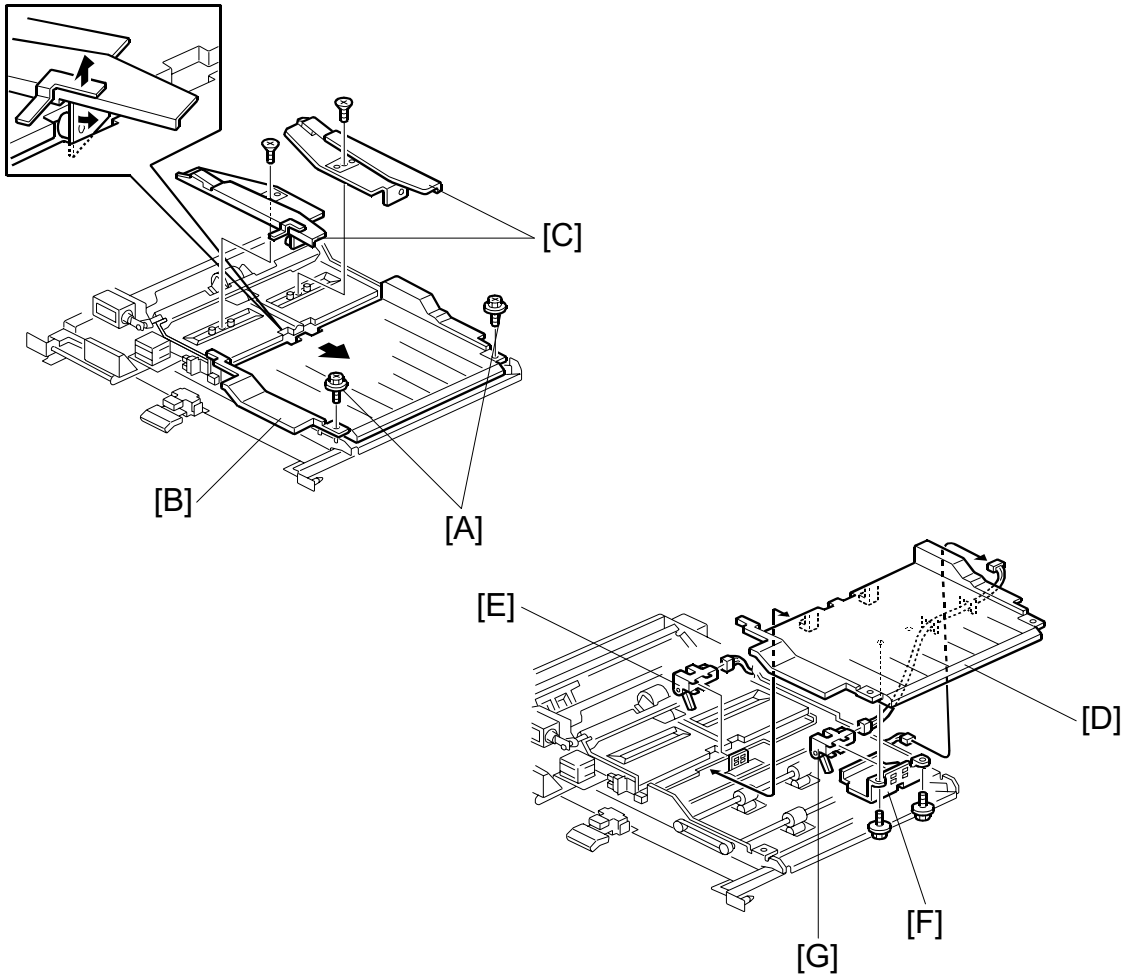
1. Remove the duplex unit.
2. Replace each clutch [A] (1 connector and 1 E-ring or 1 clutch stopper).

6.10.6 DUPLEX ENTRANCE SENSOR REPLACEMENT



1. Pull out the duplex unit.
2. Remove the entrance sensor bracket [A] with the sensor (2 screws).
3. Replace the duplex entrance sensor [B] (1 connector).

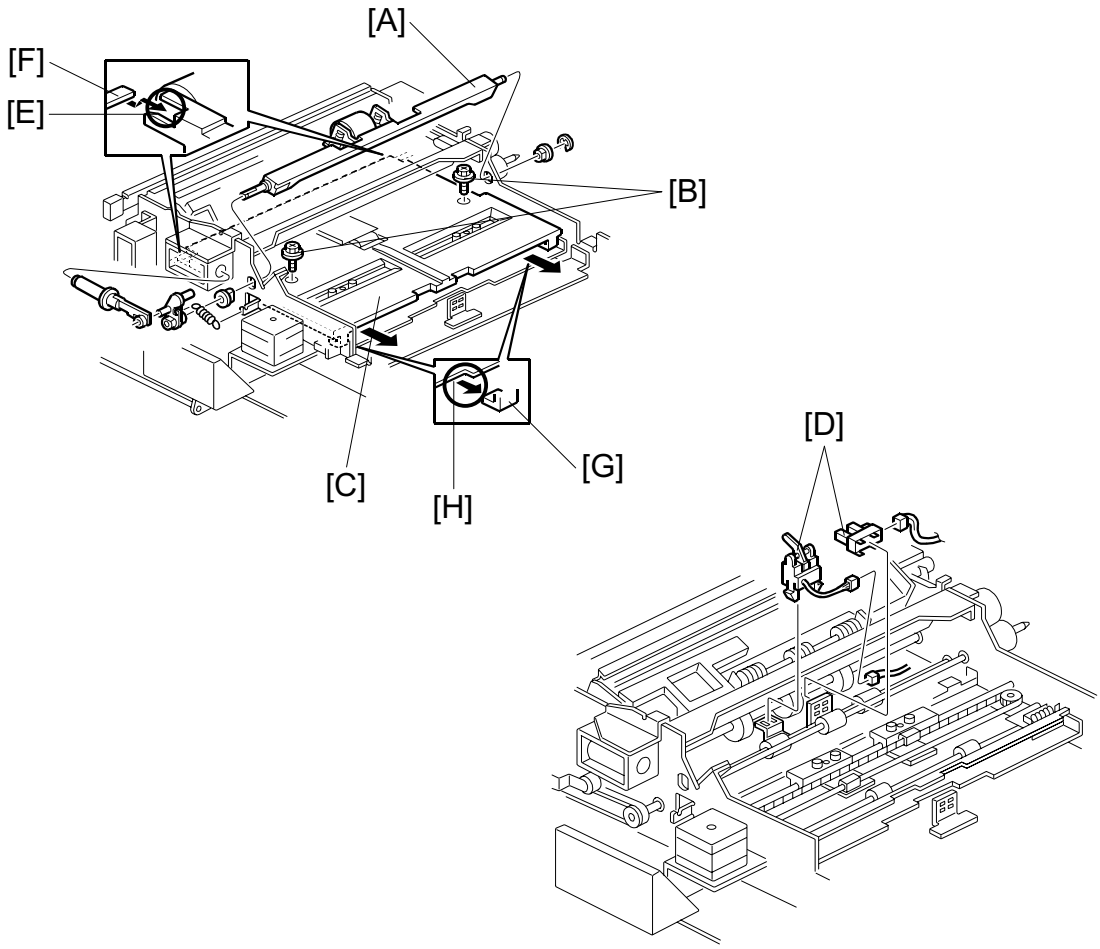
6.10.7 DUPLEX TRANSPORT SENSORS 2 & 3



1. Pull out the duplex unit.
2. Remove the 2 screws [A] (front side: shoulder screw) securing the upper duplex cover and slide the upper duplex cover [B] to the right.
3. Remove both the front and rear jogger fences [C] (1 screw each).
4. Remove the upper duplex cover [D] (1 connector).
5. Replace duplex transport sensor 2 [E] (1 connector).
6. Remove the sensor bracket [F] with duplex transport sensor 3 (2 screws and 1 connector).
7. Replace duplex transport sensor 3 [G].

NOTE: When putting back the jogger fences, re-install both the jogger fences so that they are parallel.

6.10.8 DUPLEX TRANSPORT SENSOR 1/DUPLEX INVERTER SENSOR

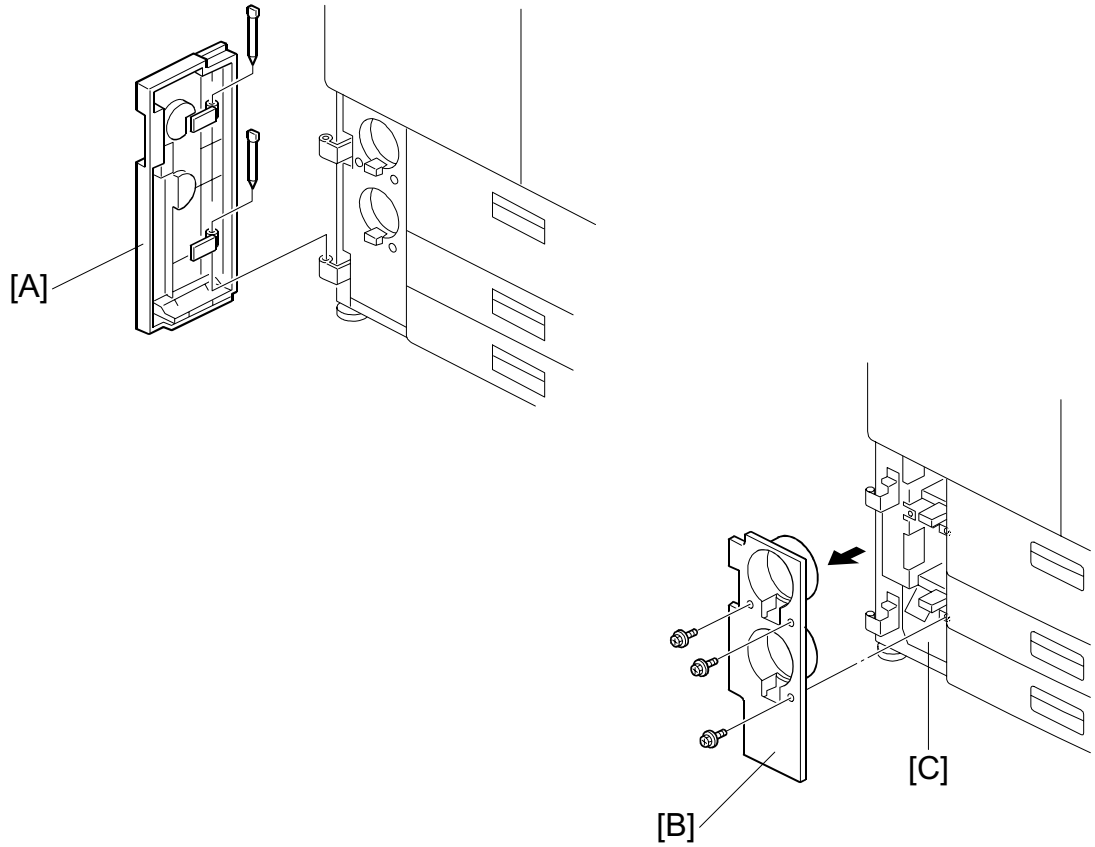


1. Pull out the duplex unit.
2. Remove the upper duplex cover.
3. Remove the reverse trigger roller [A] (1 E-ring, 2 bushings, and 2 solenoid links).
4. Remove the 2 screws [B] (front side: shoulder screw) securing the left upper cover and slide the left upper cover [C] to the right and remove it.
5. Replace each sensor [D] (1 connector each).

NOTE: When putting back the upper left cover, make sure that the cutouts [E] catch the duplex side plate projections [F] and the hooks [G] are underneath the bracket plate [H].

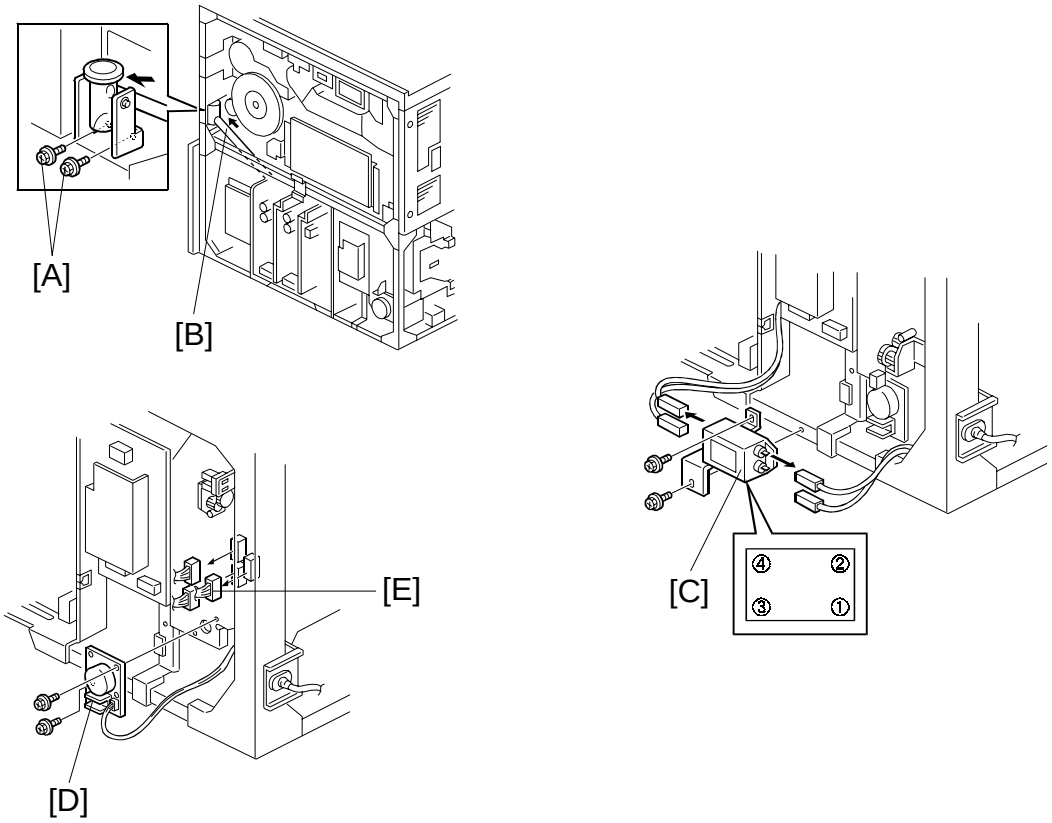
6.11 TONER BANK

6.11.1 WASTE TONER BOTTLE REMOVAL



1. Remove the toner bank cover [A] (2 pins).
2. Remove the toner bank inner cover [B] (3 screws).
3. Remove the waste toner bottle [C].

6.11.2 TONER BANK UNIT REMOVAL

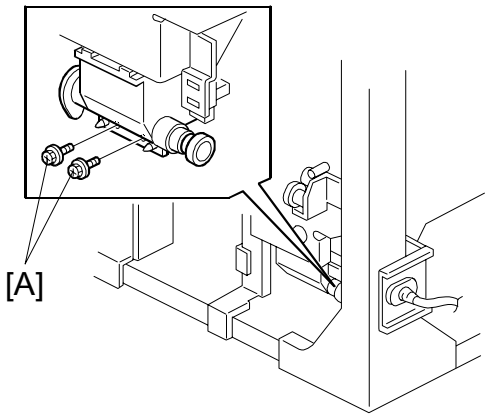


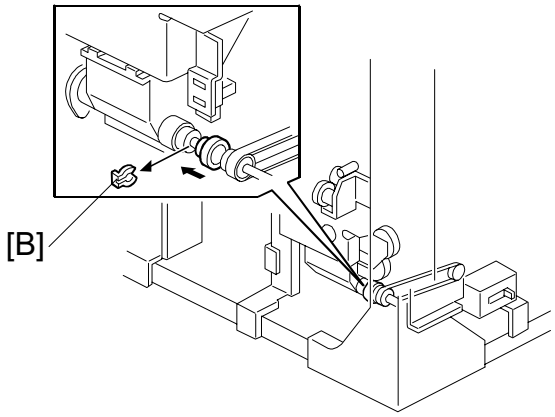
1. Follow steps 1 to 6 of the Transportation Remarks (section 3), (Procedure Before Transportation).
2. Turn off the main switch and unplug the power cord. Follow steps 1 and 2 of the waste toner bottle removal procedure.

⚠CAUTION

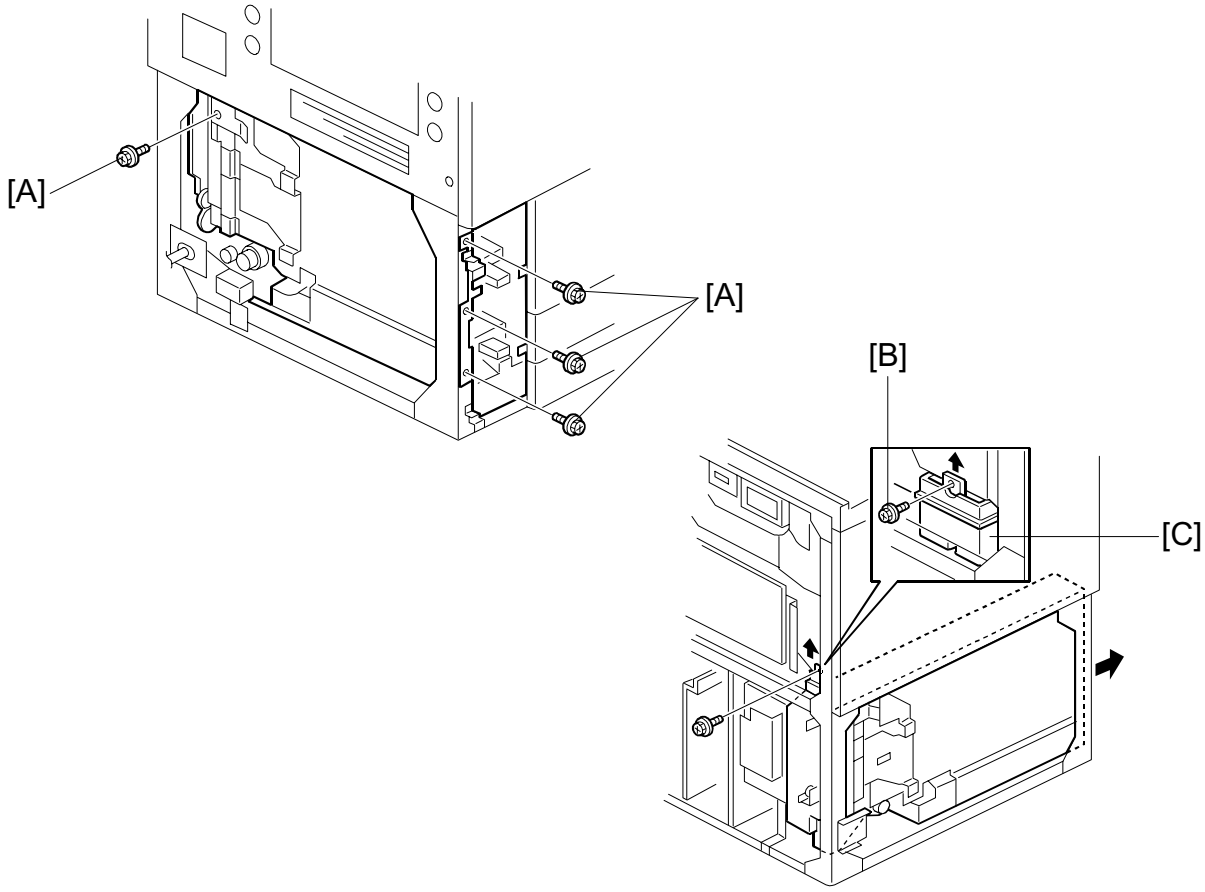
Make sure that the power cord is unplugged before removing the noise filter in the next step.

3. Remove the noise filter [C] (2 screws and 4 connectors; upper: ④, ② white lower: ③, ① yellow) and toner bank motor [D] (2 screws, 1 connector).
4. Disconnect the three connectors [E] from the toner bank unit.





5. Remove the two screws [A] securing the toner transport coil tube.
6. While sliding the toner transport coil tube, remove the snap ring [B].



7. Remove the four screws [A] securing the toner bank unit.

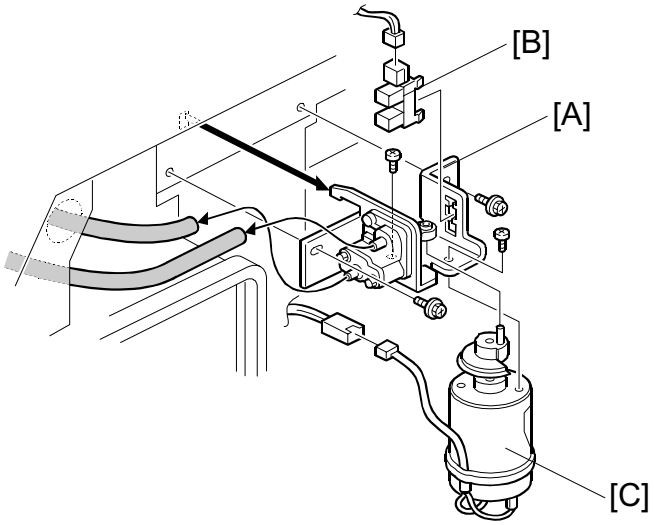
   NOTE: Try not to spill any toner from the toner bank.

8. Remove the screw [B] securing the toner recycling and collection cover [C].
9. While lifting the toner recycling and collection cover [C], pull out the toner bank unit.

   NOTE: When pulling out the toner bank unit, toner may leak out of the junction between the tube and toner bank. Place a cloth on the machine bottom plate so that the plate does not become dirty.

10. Remove the plastic bag from the toner transport coil tube. Re-connnect the toner supply cylinder to the toner transport coil tube (2 screws).
11. Perform procedure described in Transportation Remarks (section 3) (Procedure After Transportation).

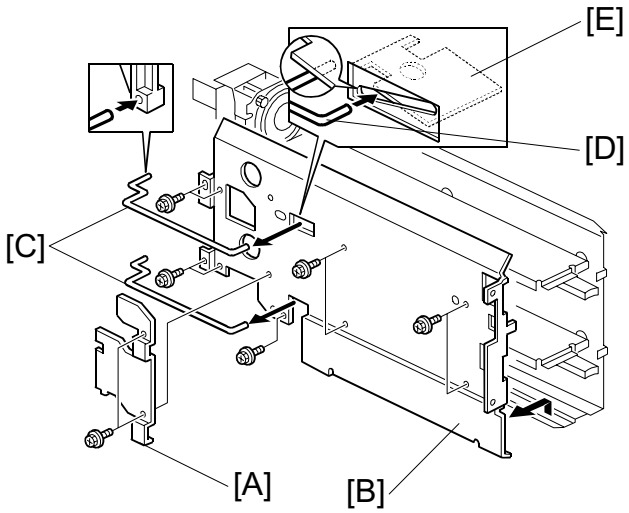
6.11.3 TONER SUPPLY MOTOR AND TONER SUPPLY MOTOR SENSOR REMOVAL

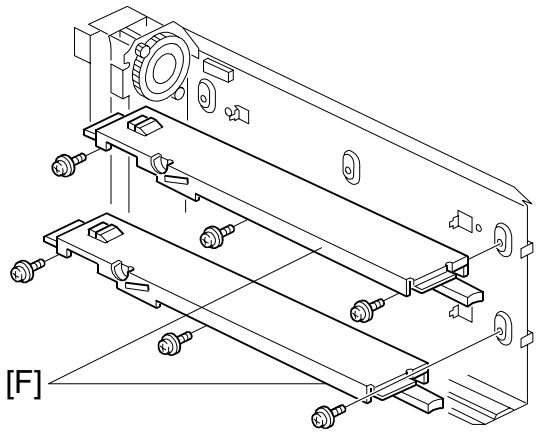


1. Remove the upper right cover.
2. Remove the bracket [A] with the toner supply motor (2 screws, 2 connectors and 2 pipes).
3. Remove the toner supply motor sensor [B].
4. Remove the toner supply motor [C] (2 screws).

NOTE: When putting back the parts, make sure that the 2 pipes are connected at the correct positions, as shown.

6.11.4 ACCESS TO INSIDE THE TONER BANK



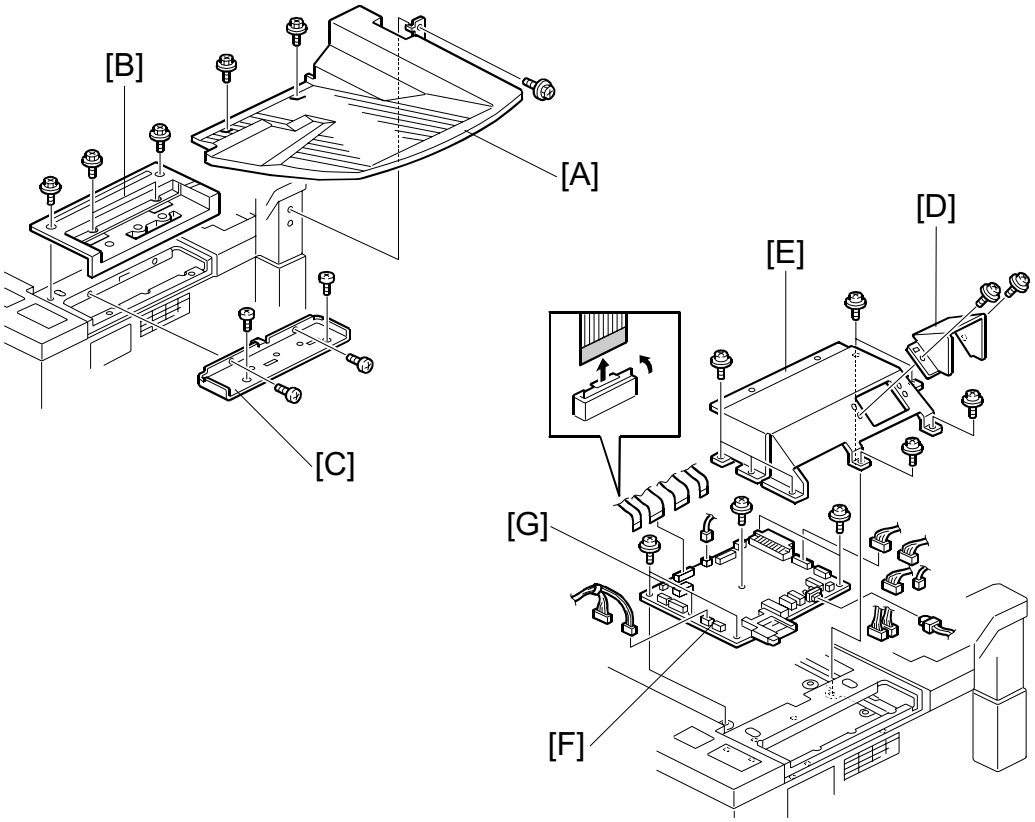


NOTE: The toner bottle sensors and toner collection bottle sensor are inside the toner bank.

1. Remove the toner bank (see Toner Bank Unit Removal).
2. Remove the toner release link bracket [A] (2 screws).
3. Remove the left side plate [B] (9 screws and 2 links [C]).
   NOTE: When putting back the links [C], put the front pin [D] under the lock plate [E].
4. Remove the toner bottle bottom plates [F] (3 screws each).

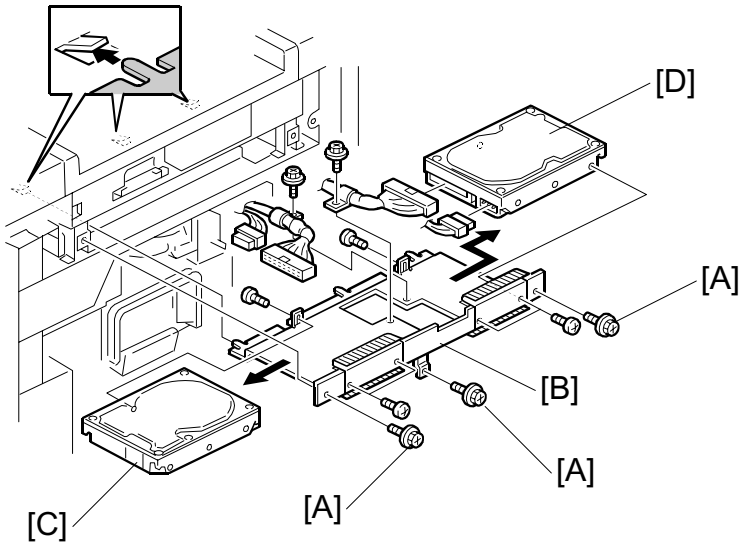
6.12 BOARDS AND OTHER ITEMS

6.12.1 SICU BOARD



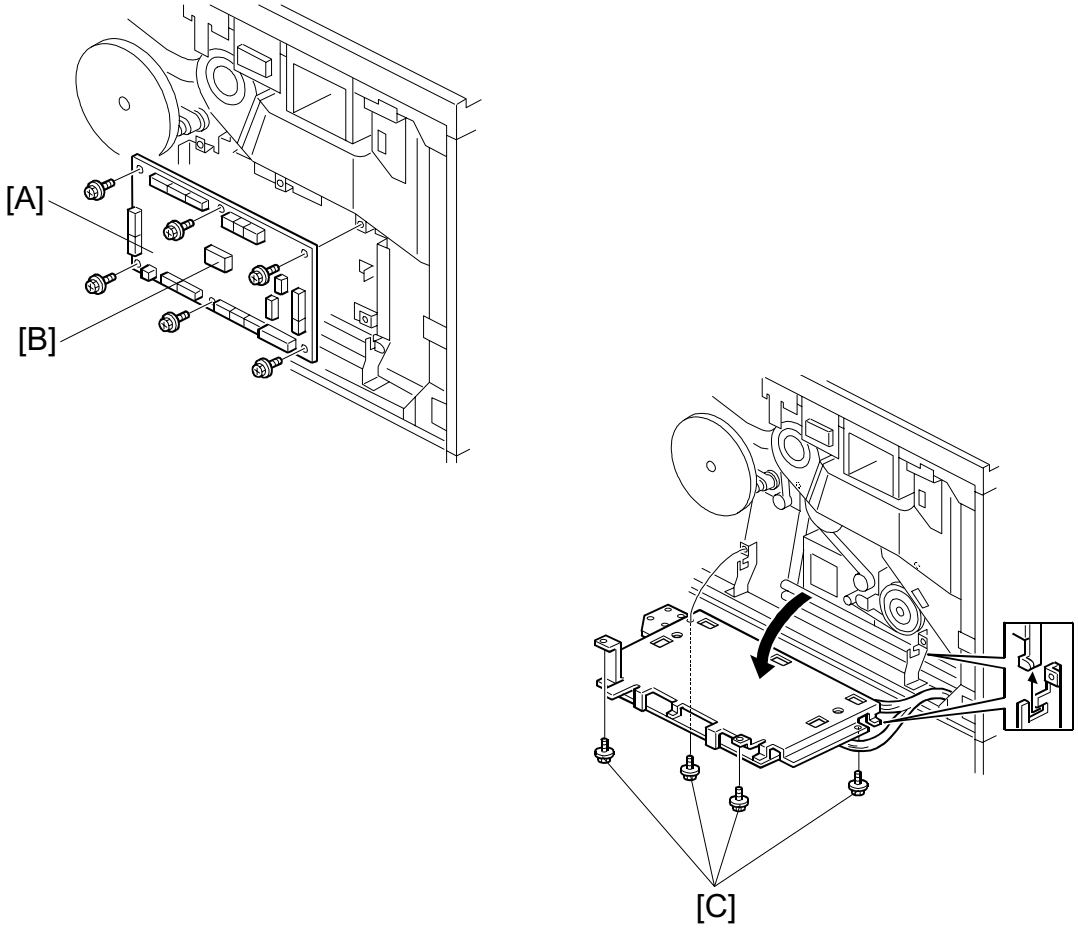
1. Remove the exposure glass (see Exposure Glass).
2. Remove the lens cover (8 screws) (see Lens Block).
3. Remove the original exit tray [A] (3 screws).
4. Remove the scanner right cover [B] (4 screws).
5. Remove the cover bracket [C] (4 screws).
6. Remove the cooling fan bracket [D] (2 screws).
7. Remove the SICU cover bracket [E] (7 screws).
8. Replace the SICU [F] (4 flat cables, 9 connectors, and 7 screws).
9. Remove the NV-RAM [G] from the old SICU and install it on the new board.

6.12.2 HARD DISK DRIVE



1. Remove the upper right cover (4 screws). See Exterior.
2. Remove three screws [A] holding the HDD bracket [B]. Then pull out the HDD assembly.
3. Replace hard disk drive 1 [C] or hard disk drive 2 [D] (2 screws and 2 connectors each).
   NOTE: Connect the black connector to HDD 1, and the gray connector to HDD 2.
4. Turn the main switch on and do SP4-911-6 (for HDD 1) or SP4-912-6 (for HDD 2).
   NOTE: If either SP4-911-1 or SP4-912-1 is done, all the data for pre-set stamps and user stamps are deleted from both disks.
5. Install the stamp data using a flash memory card. (Refer to Stamp Data Installation in section 4.)

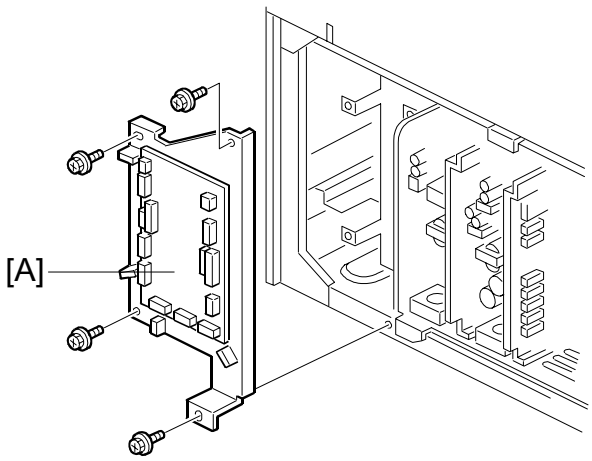
6.12.3 BCU BOARD



1. Remove the upper rear cover (6 screws). See Exterior.
2. Replace the BCU board [A] (6 screws and 20 connectors).
3. Remove the NV-RAM [B] from the old BCU board and install it on the new board.

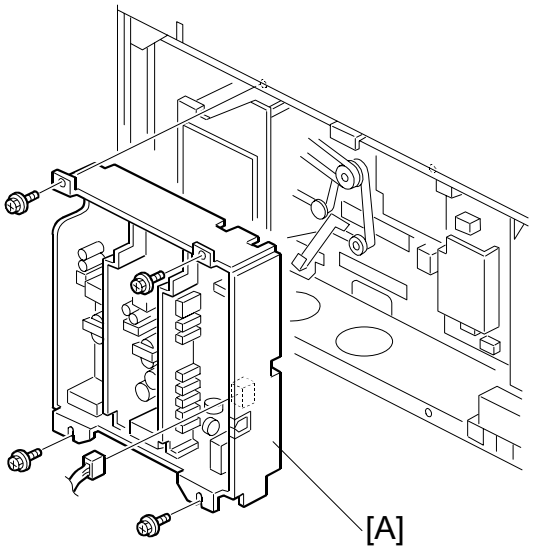
   NOTE: If the screws [C] are removed, the BCU board can be swung out.

6.12.4 I/O BOARD



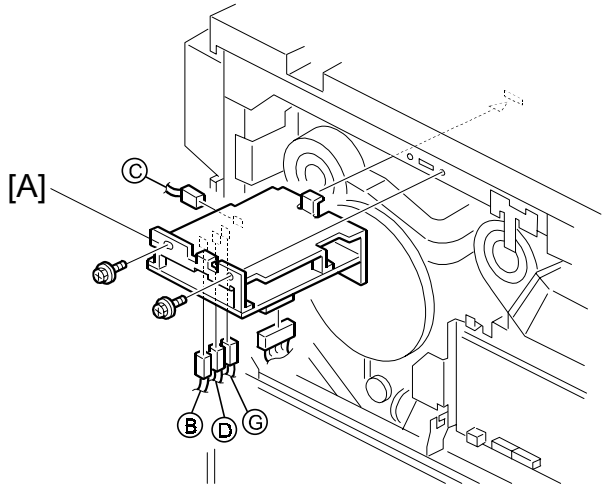
1. Remove the lower rear cover (6 screws). See Exterior.
2. Replace the I/O board [A] (6 screws and 16 connectors).

6.12.5 PSU



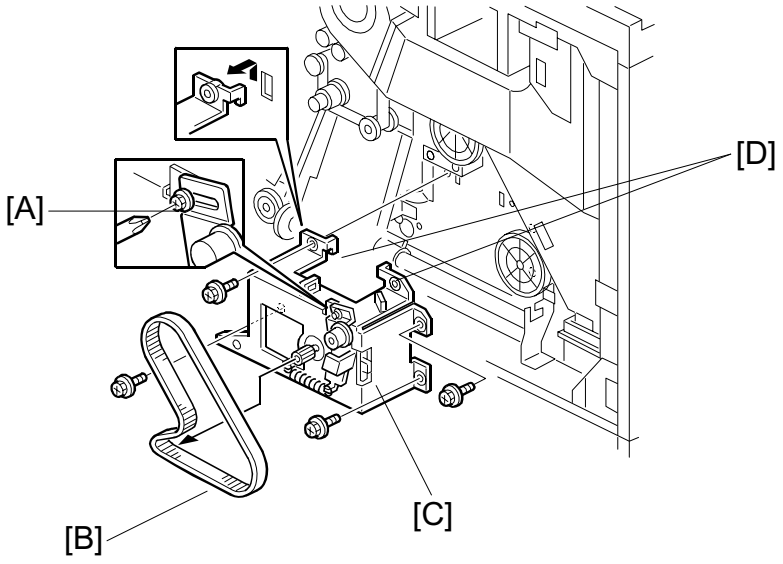
1. Remove the lower rear cover (6 screws). See Exterior.
2. Replace the PSU [A] (4 screws and 8 connectors).

6.12.6 CHARGE/GRID/BIAS POWER PACK



1. Remove the upper rear cover (6 screws). See Exterior.
2. Replace the charge/grid/bias power pack [A] (2 screws and 5 connectors).

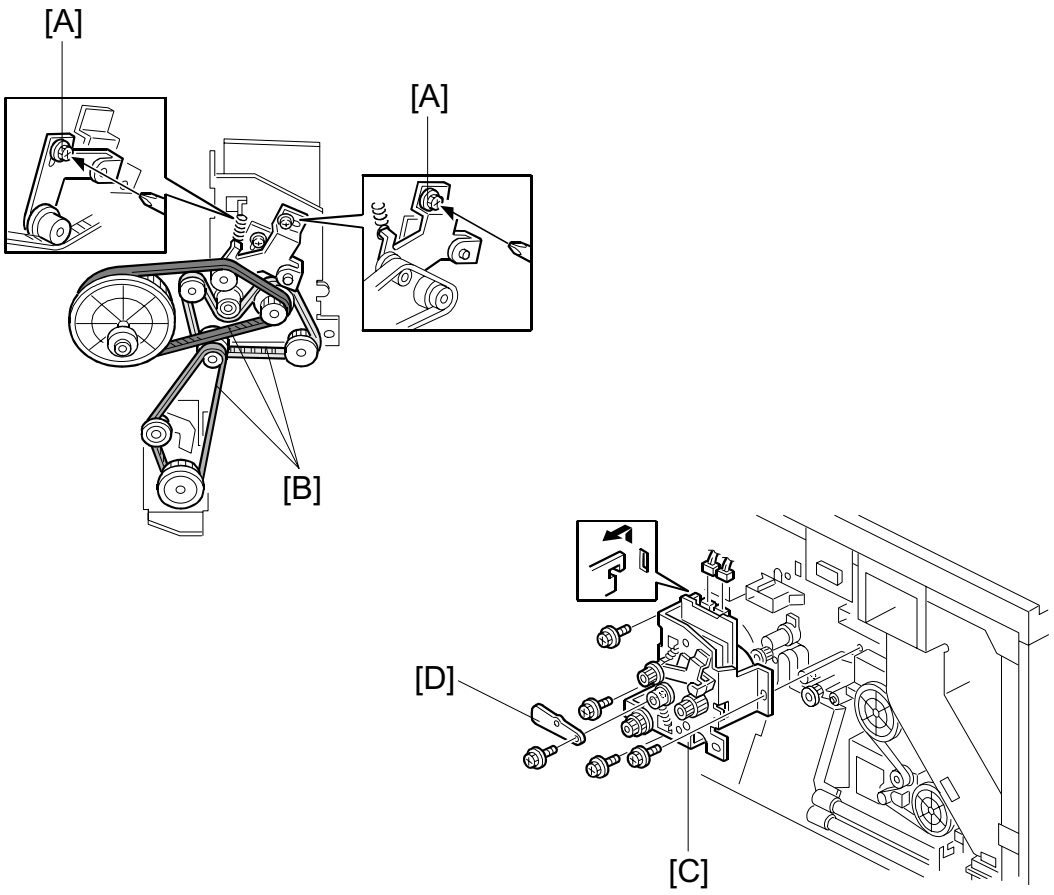
6.12.7 FUSING/DUPLEX MOTOR REPLACEMENT



1. Remove the upper rear cover.
2. Swing out the BCU board. (Refer to the BCU board replacement procedure)
3. Loosen screw [A] to release the belt tension.
4. Remove the timing belt [B].
5. Remove the fusing/duplex motor [C] (4 screws, 2 hooks [D]).

   NOTE: When putting back the parts, hook up the tension spring (this automatically gives the belt the correct tension), then tighten screw [A].

6.12.8 DRUM MOTOR REPLACEMENT



1. Remove the upper rear cover.
2. Remove the fly wheel (3 screws).
3. Lower the BCU board (4 screws).
4. Loosen the screws [A] to loosen the belts, and remove the three timing belts [B].
5. Remove the drum motor [C] (5 screws, 2 connector, 1 hook, and 1 stopper [D]).

NOTE: When putting back the parts, hook up the tension spring (this automatically gives the belt the correct tension), then tighten screw [A].

6.13 COPY IMAGE ADJUSTMENT: PRINTING/SCANNING

NOTE: 1) You need to perform these adjustment(s) after replacing any of the following parts:
- Scanner Wires
- Lens Block
- Scanner Motor
- Polygon Mirror Motor
- Paper Side Fences
- Memory All Clear

2) For more details about accessing SP modes, refer to section 4.

6.13.1 PRINTING

NOTE: 1) Make sure the paper is installed correctly in each paper tray before you start these adjustments.
2) Use the Trimming Area Pattern (SP2-902-3, No.15) to print the test pattern for the following procedures.
3) Set SP2-902-3 to 0 again after completing these printing adjustments.

Registration – Leading Edge

1. Check the leading edge registration using the Trimming Area Pattern, and adjust it using SP1-001 if necessary. The specification is: 3 ± 2 mm.

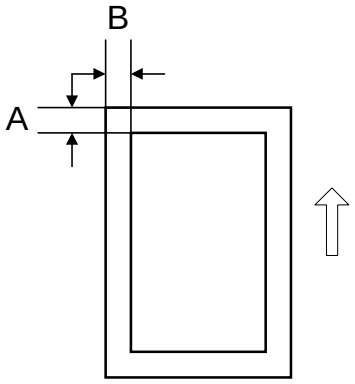
Registration – Side-to-Side

Do the parallel image adjustment after the side-to-side registration adjustment.

Using SP Mode

1. Check the side-to-side registration for each paper feed station using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.

	SP mode	Specification
1st paper feed	SP1-002-1	2 ± 1.5 mm
2nd paper feed	SP1-002-2	
3rd paper feed (Optional PFU tray 1)	SP1-002-3	
4th paper feed (LCT)	SP1-002-4	
5th paper feed (LCT)	SP1-002-5	
6th paper feed (LCT)	SP1-002-6	
Duplex	SP1-002-7	



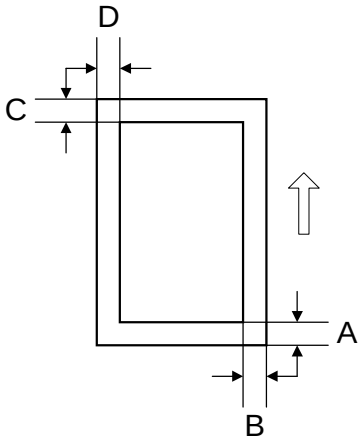
A: Leading Edge Registration
B: Side-to-side Registration

Blank Margin

NOTE: If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the leading/left side edge blank margin.

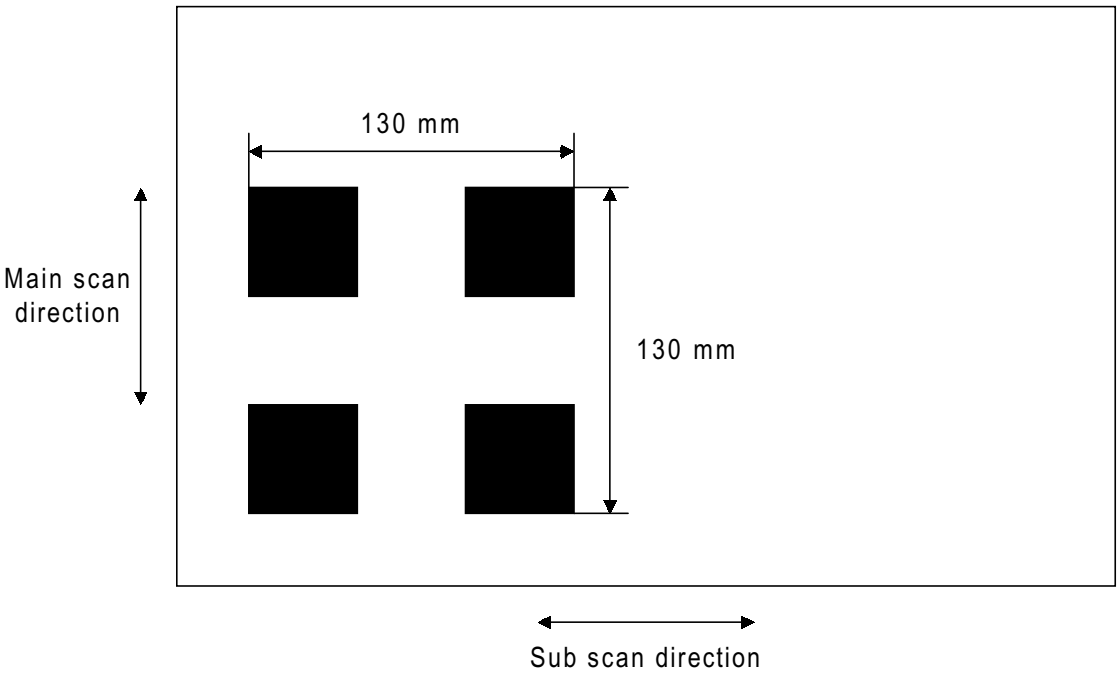
1. Check the trailing edge and right side edge blank margins using the Trimming Area Pattern, and adjust them using the following SP modes if necessary.

	SP mode	Specification
Trailing edge	SP2-101-2	3 ± 2 mm
Right edge	SP2-101-4	More than 0.5 mm
Leading edge	SP2-101-1	3 ± 2 mm
Left edge	SP2-101-3	2 ± 1.5 mm



A: Trailing Edge Blank Margin
B: Right Edge Blank Margin
C: Leading Edge Blank Margin
D: Left Edge Blank Margin

Magnification Adjustment



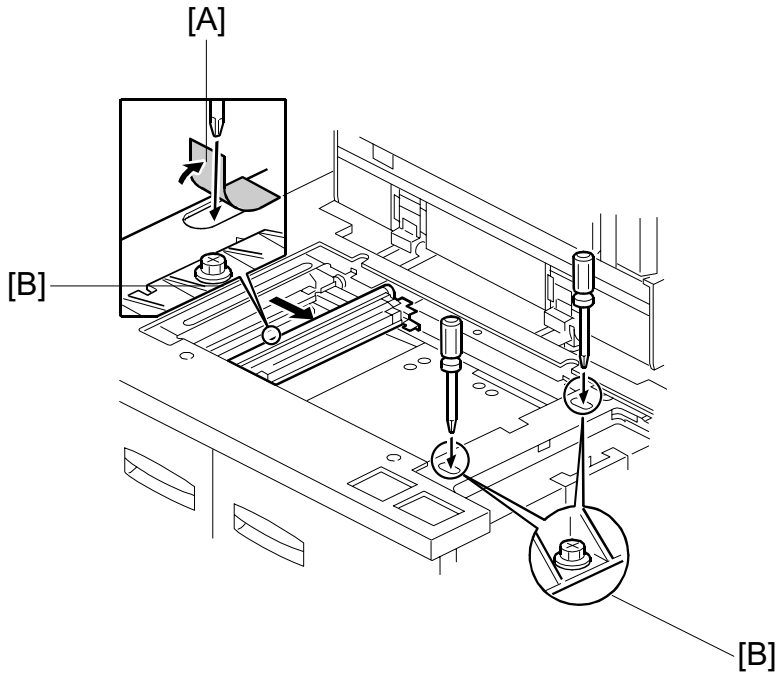
1. Enter SP mode and access SP2-902-3.
2. Select pattern 1 (Alternating Dot pattern – 1,024 dots) and make a print using A3 (DLT) paper.
3. Check the length between the edges of the black squares. The length should be 130 mm.
   1) If the magnification in the main scan direction is not within 100 ± 0.5%, adjust using SP2-909-1.
   2) If the magnification in the sub scan direction is not within 100 ± 1.0%, adjust using SP2-910.

   NOTE: Check the magnification after the paper cools down.

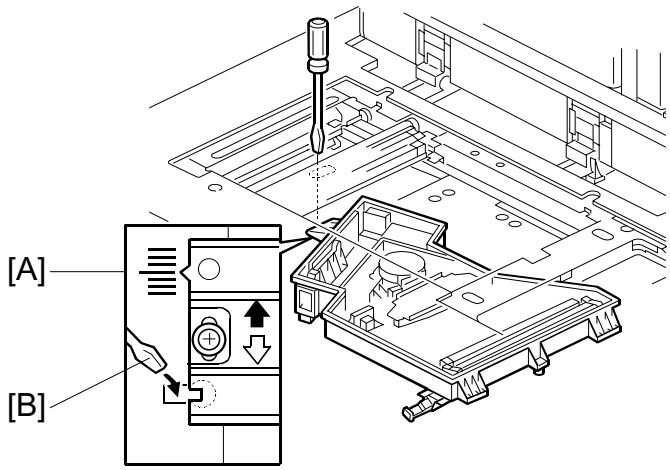
6.13.2 PARALLELOGRAM IMAGE ADJUSTMENT

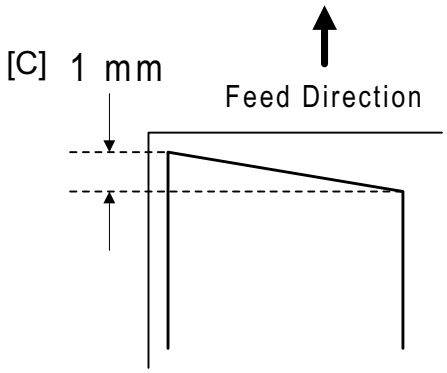
If a parallelogram type image is printed while using a trimming area pattern, do the following to adjust the printing registration or the printing margin.

NOTE: 1) The following procedure should be done after adjusting the side-to-side registration for each paper tray.
2) This adjustment is only effective for a parallelogram image caused by the printer. It should not be applied if the skew is caused by the scanner.



1. Check whether a parallelogram image appears as shown on the next page when printing a trimming area pattern (SP2-902-3, No.15). If it appears, do the following.
2. Remove the exposure glass (see Replacement and Adjustment – Exposure Glass Removal).
3. Remove the original exit tray and the scanner right cover. (see Replacement and Adjustment – Scanner Drive Wires)
4. Peel away the mylar [A] covering the opening in the frame.
5. Loosen the three screws [B] that hold the laser unit.





6. Make a note of the position of the laser unit using the scale [A].
7. Adjust the laser unit position using a flat screwdriver [B] as shown.
   If the right side of the trimming area pattern is down by about 1 mm as shown [C], the laser unit should be rotated about one graduation in the direction of the black arrow. If the opposite side is down, adjust in the opposite direction.
8. Tighten the three screws to secure the laser unit.
9. Print the trimming area pattern to check the image. If it is still the same, repeat steps 2 to 7.

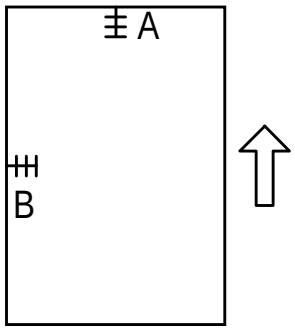
6.13.3 SCANNING

NOTE: 1) Before doing the following scanner adjustments, check the printing registration/side-to-side adjustment and the blank margin adjustment.
2) Use an OS-A3 test chart to perform the following adjustments.

Registration: Platen Mode

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the leading edge and side-to-side registration, and adjust them using the following SP modes if necessary.

	SP mode
Leading Edge	SP4-010
Side-to-side	SP4-011



A: Leading Edge Registration
B: Side-to-side Registration

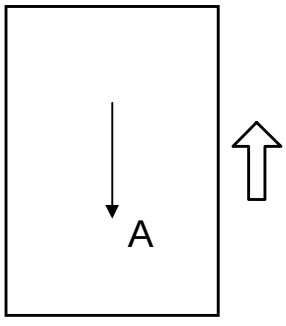
Magnification

NOTE: Use an OS-A3 test chart to perform the following adjustment.

Scanner Sub Scan Magnification

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the magnification ratio, and adjust it using the following SP mode if necessary. The specification is within ±1%.

	SP mode
Scanner Sub Scan Magnification	SP4-008



A: Sub Scan Magnification

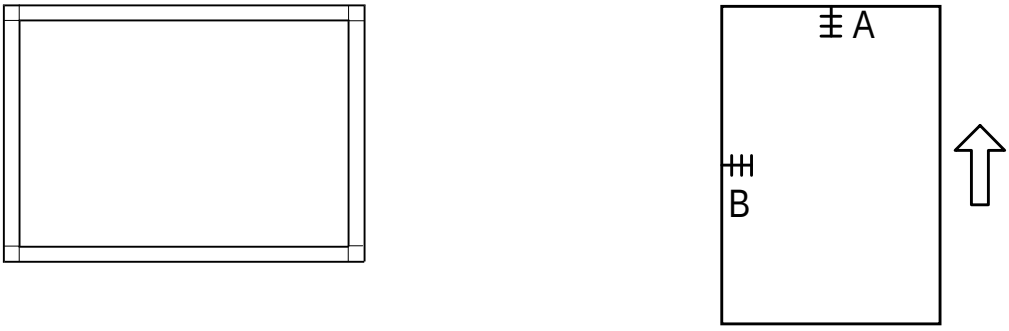
6.13.4 ADF IMAGE ADJUSTMENT

Registration

NOTE: Make a temporary test chart as shown below left, using A3/DLT paper.

1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
2. Check the registration, and adjust using the following SP modes if necessary.

	SP mode
Side-to-side Registration	SP6-006-1
Leading Edge Registration (Thin original mode)	SP6-006-2
Leading Edge Registration (Single-sided/Duplex: front)	SP6-006-3
Leading Edge Registration (Duplex: rear)	SP6-006-4



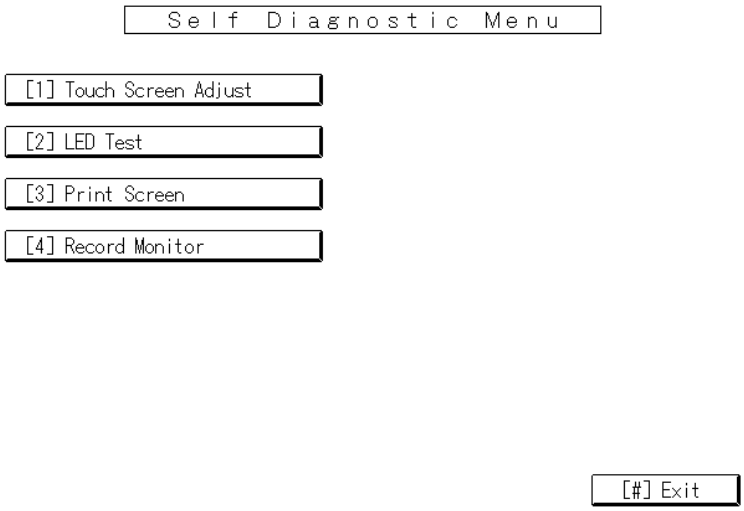
A: Leading Edge Registration
B: Side-to-side Registration

6.14 TOUCH SCREEN CALIBRATION

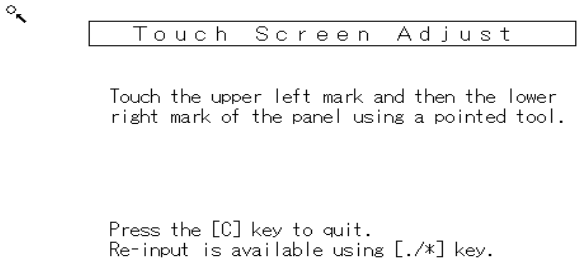
When the touch panel detection mechanism is not working properly, calibrate the touch screen as follows:

1. Press the following keys in sequence to enter operation panel self diagnostic mode.

   [1] → [9] → [9] → [3] → [C] (Press [C] key 5 times)



2. Select "[1] Touch Screen Adjust".
   NOTE: [2] tests the LEDs on the operation unit, not the machine's main operation panel.
   [3] and [4] are for factory use only. Do not use unless directed by senior technical staff.



3. The “Touch Screen Adjustment” calibration screen will appear. Touch the center of the circle in the upper left corner then the lower right corner of the panel using a pointer (but not sharp!) tool.
4. Touch a few spots on the LED touch panel, and confirm that the marker appears on the screen at exactly the same location as where it is touched. If it does not, touch “Re-input” (or press the key) and repeat the calibration procedure.
5. Touch “OK” on the adjustment screen.`
6. Touch “Exit” to exit the self diagnostic mode.

TROUBLESHOOTING

7. TROUBLESHOOTING

7.1 SERVICE CALL CONDITIONS

7.1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative (see the note below). The copier cannot be operated at all.	Enter SP mode, then turn the main power switch off and on.
B	The SC can be reset by turning the main power switch off and on if the SC was caused by incorrect sensor detection.	Turn the operation switch or main power switch off and on. A level B' SC can only be reset by turning the main power switch off and on.
C	The copier can be operated as usual except for the unit related to the service call.	Turn the operation switch off and on.
D	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. All that happens is that the SC history is updated.

NOTE: 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.
3) When a Level A or B SC occurs while in an SP mode, the display does not indicate the SC number. If this occurs, check the SC number after leaving the SP mode. This does not apply to Level B' codes.

7.1.2 SC CODE DESCRIPTIONS

SC101: Exposure Lamp Error

Definition [B]

The standard white level was not detected properly when scanning the white plate.

Possible Causes

- Exposure lamp defective
- Lamp stabilizer defective
- Exposure lamp connector defective
- Dirty standard white plate
- Dirty scanner mirror or scanner mirror out of position
- SBU board defective
- SBU connector defective
- Lens block out of position

SC120: Scanner Home Position Error 1

Definition [B]

The scanner home position sensor does not detect the on condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC121: Scanner Home Position Error 2

Definition [B]

The scanner home position sensor does not detect the off condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner drive motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective
- Scanner drive wire, timing belt out of position

SC124: Scanner Motor Error 1

Definition [B]

The feedback signal from the scanner motor is not detected within 200 ms after the scanner motor turns on.

Possible Causes

- Scanner motor defective
- Poor connection of the connector for the feedback signal
- Poor connection of the connector for the scanner motor power line

SC125: Scanner Motor Error 2

Definition [B]

1) The scanner motor speed is less than 300 mm/s when the scanner home position sensor turns on.
2) The scanner motor stops before scanner home position when the scanner returns.

Possible Causes

- Scanner motor defective
- Large load on the scanner drive

SC126: Scanner Motor Error 3

Definition [B]

The scanner motor does not stop within 12 mm after the scanner home position sensor turns on when the scanner returns.

Possible Causes

- Scanner motor defective
- MCU defective

SC127: Scanner Motor Error 4

Definition [B]

The scanner motor rotates in the opposite direction from the signal from the MCU.

Possible Causes

- Scanner motor defective

SC128: Scanner Motor Error 5

Definition [B]

The scanner motor speed does not reach the target speed within a certain time after the scanner motor starts.

Possible Causes

- Scanner motor defective
- MCU defective
- Scanner drive mechanism defective

SC129: Scanner Motor Error 6

Definition [B]

The scanner motor speed is not controlled properly.

Possible Causes

- Scanner motor defective
- PSU defective
- Scanner unit defective

SC130: SBU Error

Definition [B]

The SICU does not receive the correct signal from the SBU.

Possible Causes

- SICU defective
- SBU defective
- Poor connection between SICU and SBU

SC300: Charge Corona Output Error 1

Definition [B]

A feedback voltage for the charge corona of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC301: Charge Corona Output Error 2

Definition [B]

A feedback voltage for the charge corona of less than 1.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC303: Charge Grid Output Error 1

Definition [B]

A feedback voltage for the grid of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC304: Charge Grid Output Error 2

Definition [B]

A feedback voltage for the grid of less than 1.0 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC305: Charge Corona Wire Cleaner Error 1

Definition [B]

The charge corona wire cleaner does not return to its home position.

Possible Causes

- Charge corona wire cleaner motor defective
- BCU defective

SC306: Charge Corona Wire Cleaner Error 2

Definition [D]

The charge corona wire cleaner motor connector is not connected.

Possible Causes

- Poor connection or disconnected charge corona wire cleaner motor connector

SC310: Drum Potential Sensor Error 1

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the drum potential sensor output voltage is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC311: Drum Potential Sensor Error 2

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the rate of change of drum potential sensor output with voltage on the drum is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC312: Drum Potential Sensor Error 3

Definition- [D]

When adjusting V_D for the unexposed drum during process control initial setting, –1,000 V is applied to the charge grid, but the drum potential sensor detects that V_D is more than –970 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum unit and the BCU
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC313: Drum Potential Sensor Error 4

Definition [D]

When adjusting the drum potential (V_D) during process control initial setting, the drum potential sensor detects that V_D is more than V_G (grid voltage).

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC314: Drum Potential Sensor Error 5

Definition [D]

When adjusting the drum potential (V_H) for LD power adjustment during process control initial setting, the first time the V_H pattern is made, the drum potential sensor detects that V_H is more than 500 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- LDB defective

SC315: Drum Potential Sensor Error 6

Definition [D]

When adjusting V_D for the unexposed drum during process control initial setting, V_D does not reach –900 $\pm$ 20 V even if V_G has been adjusted 5 times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC316: Drum Potential Sensor Error 7

Definition [D]

When adjusting the drum potential (V_H) for half tone during process control initial setting, the drum potential sensor detects that V_H does not become –265 $\pm$ 20 V even though the LD power has been changed twenty times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the IBCU
- BCU defective
- LDB defective
- Poor drum cleaning

SC321: Laser Writing Signal (F-gate) Error

Definition- [B]

The laser writing signal (F-gate) does not go to LOW for more than 15 seconds after the copy paper reaches the registration sensor.

Possible Causes

- SICU board defective
- Poor connection of the printer controller
- Printer controller defective

SC322: Laser Synchronization Error

Definition [B']

The laser synchronization signal cannot be detected from the synchronization detector even if the laser diodes are activated.

Possible Causes

- Poor connection between the laser synchronization detector and the LDB
- Laser synchronization detector out of position
- Laser synchronization detector defective
- LDB defective
- SICU defective
- Front door safety switches defective

SC323: Excessive LD Drive Current

Definition [B']

The LDB applies more than 110 mA to the LD.

Possible Causes

- LDB defective (not enough power, due to aging)
- Poor connection between the LDB and the SICU board
- High temperature of LD on LDB

SC335: Polygonal Mirror Motor Error 1

Definition [B]

The polygonal mirror motor does not reach its operating speed within 20 seconds after the polygonal mirror motor turns on, or the polygonal mirror motor speed is changed.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC336: Polygonal Mirror Motor Error 2

Definition [B]

The SICU does not receive the stop signal from the polygonal mirror motor for more than 20 seconds after the polygonal mirror motor turns off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC337: Polygonal Mirror Motor Error 3

Definition [B]

The polygonal mirror motor status is changed even though no signal is sent from the SICU.

Possible Causes

- Polygonal mirror motor defective
- Electrical noise
- Polygonal mirror motor drive board defective
- SICU board defective

SC338: Polygonal Mirror Motor Error 4

Definition [B]

1) The polygonal mirror motor operating speed does not become stable for 20 seconds after the polygonal mirror motor is turned on, or the polygonal mirror motor speed is changed.
2) The stop signal from the polygonal mirror motor does not become stable for 20 seconds after the polygonal mirror motor is turned off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC340: TD Sensor Error 1

Definition [B]

The TD sensor output voltage is less than 0.5 V or more than 4.0 V 10 times consecutively during copying.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC341: TD Sensor Error 2

Definition [B]

One of the following TD sensor output voltages is detected during TD sensor initial setting.

1) Less than 2.5 V when the maximum PWM (255) is applied to the TD sensor.
2) 2.5 V or more when minimum PWM (0) is applied to the TD sensor.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC342: TD Sensor Error 3

Definition [B]

The TD sensor output voltage is not adjusted to 2.5 ± 0.1 V within 20 seconds during TD sensor initial setting.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC345: Development Bias Leak

Definition [B]

Maximum PWM for the development bias signal is applied 10 times consecutively.

Possible Causes

- Poor connection between the development bias terminal and the charge/bias/grid power pack
- Charge/bias/grid power pack

SC350: ID Sensor Error 1

Definition [D]

One of the following ID sensor output voltages was detected when checking the ID sensor pattern.

1) $V_{SP} \geq 2.5$ V
2) $V_{SP} = 0$ V

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid power pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC351: ID Sensor Error 2

Definition [D]

The following two conditions were detected at the same time when checking the ID sensor pattern.

1) $V_{SG} \leq 2.5$ V or $V_{SG} = 0$ V
2) The ID sensor output voltage is 5.0 V and the PWM signal input to the ID sensor is 0

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC352: ID Sensor Error 3

Definition [D]

The ID sensor pattern edge voltage is not at 2.5 V for 1.5 seconds during the ID sensor pattern check.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC353: ID Sensor Error 4

Definition [D]

One of the following ID sensor output voltages is detected at ID sensor initialization.

1) V_{SG} < 4.0 V when the maximum PWM input (255) is applied to the ID sensor.
2) $V_{SG} \geq$ 4.0 V when the minimum PWM input (0) is applied to the ID sensor.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC354: ID Sensor Error 5

Definition [D]

V_{SG} is not adjusted within the target (4.0 $\pm$ 0.2 V) within 20 seconds during V_{SG} checking.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC355: ID Sensor Voltage Error

Definition [B]

The ID sensor voltage (V_P) exceeds 700 V, 10 times consecutively.

Possible Causes

- Drum potential sensor defective
- IO Board defective
- Poor connection of the drum unit connector
- LD defective
- Poor drum cleaning
- Dirty optics
- Drum wear

SC360: Hard Disk Drive Error 1

Definition [B]

The machine does not detect the connection signal from HDD 1 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC361: Hard Disk Drive Error 2

Definition [C]

The machine does not detect the connection signal from HDD 2 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC362: Hard Disk Drive Error 3

Definition [C]

The machine does not detect the connection signal from HDD 1 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC363: Hard Disk Drive Error 4

Definition [C]

The machine does not detect the connection signal from HDD 2 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC364: Hard Disk Drive Error 5

Definition [C]

The image data stored in HDD 1 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-911-1 (HDD 1 media check), it can be cured by doing SP4-911-2 (HDD 1 formatting).
- HDD 1 defective

SC365: Hard Disk Drive Error 6

Definition [C]

The image data stored in HDD 2 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-912-1 (HDD 2 media check), it can be cured by doing SP4-912-2 (HDD 2 formatting).
- HDD 2 defective

SC366: Hard Disk Drive Error 7

Definition [C]

The number of bad sectors in HDD 1 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 1 defective

SC367: Hard Disk Drive Error 8

Definition [C]

The number of bad sectors in HDD 2 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 2 defective

SC370, 371, 372, 373, 374, 375: IMAC (Image Compression IC) Error 1

Definition [B]

An error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine's components.

Possible Causes

- SICU defective

SC376, 377: IMAC (Image Compression IC) Error 2

Definition [B]

While image data is transferred in tandem mode, an error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine's components.

Possible Causes

- SICU defective

SC380, 381, 382, 383: Image Data Transfer Timeout

Definition [B]

The image data could not be transferred to the memory within 20 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective

SC384, 385: Image Data Transfer Timeout in Tandem Mode

Definition [B]

The image data could not be transferred to the memory within 20 seconds in tandem mode.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective

SC386, 387: Image Data Transfer Timeout (HDD)

Definition [B]

The image data could not be transferred to the HDD within 15 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective
- Harness to print controller unplugged

SC390: Tandem Image Data Transfer Error

Definition [B]

The image data sent from the master does not match the data received by slave.

Possible Causes

- SICU defective
- Interface board defective
- Electrical noise

SC391, 392: Image Storage Address Error

Definition [B]

The SICU receives an image data output request signal for data that is not stored in memory.

Possible Causes

- SICU defective

SC395: CD-R/RW Control CPU Error

Definition [C] (All copier functions can be used except for “Document Editor”).

The CD-R/RW control CPU on the interface board generates an abnormal signal.

Possible Causes:

- Interface board defective

SC397: CD Access Error

Definition [C] (All copier functions can be used except for “Document Editor”).

The CD-R/RW generates an abnormal signal during data transmission between the copier HDD and the CD-R/RW.

Possible Causes:

- CD-R/RW defective
- CD-R/RW media defective

SC398: CD-R/RW Data Transmission Error

Definition [C] (All copier functions can be used except for “Document Editor”).

Data transmission between the copier HDD and the CD-R/RW is not completed within 105 seconds.

Possible Causes:

- CD-R/RW defective
- CD-R/RW media defective

SC400: Transfer Bias Roller Leak

Definition [B]

Abnormal feedback data from the transfer power pack is detected 6 times consecutively.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC401: Transfer roller open error

Definition [B]

The following conditions are detected at the same time 6 times consecutively.

1) The transfer bias roller feedback data is less than the minimum target.
2) Maximum PWM for the transfer bias roller is applied.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC430: Quenching Lamp Error

Definition [D]

When finishing the process control initial setting, the drum potential which is detected by the drum potential sensor is out of the normal range.

Possible Causes

- Quenching lamp defective
- Poor connection between quenching lamp and charge/bias/grid power pack

SC440: Drum Motor Lock

Definition [B]

The drum motor lock signal is longer than 2 seconds while the drum motor is on.

Possible Causes

- Too much load on the drive mechanism
- Drum motor defective
- Poor drum motor connector connection
- BCU defective

SC441: Development Motor Lock

Definition [B]

The development motor lock signal is longer than 2 seconds while the development motor is on.

Possible Causes

- Too much load on the drive mechanism
- Development motor defective
- Poor development motor connector connection
- BCU defective

SC491: Polygonal Mirror Motor Cooling Fan Motor Lock

Definition [B]

The polygonal mirror motor cooling fan motor lock signal is longer than 5 seconds while the polygonal mirror motor cooling fan motor is on.

Possible Causes

- Too much load on the drive mechanism
- Polygonal mirror motor cooling fan motor defective

SC495: Toner Bottle Unit Error

Definition [B]

The toner hopper sensor cannot detect toner even if the toner supply coil clutch turns on for 2 seconds x 10 times during toner supply during copying.

Possible Causes

- Toner supply motor defective
- Toner supply coil clutch defective
- Toner supply motor connector connection
- Toner supply coil clutch connector connection
- Toner near-end sensor (in the toner bank) defective
- Toner hopper sensor defective
- Toner clogged in the supply system

SC496: Toner Collection Bottle Error

Definition [B]

The used toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

Possible Causes

- Used toner collection bottle or sucked toner collection bottle is incorrectly set
- Used toner collection bottle or sucked toner collection bottle connector is loose or sensor defective

SC501: 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 1st tray.

1) The 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 1st lift sensor is already activated when the 1st tray is placed in the machine.

Possible Causes

- 1st lift sensor defective
- 1st tray lift motor defective
- Poor 1st pick-up solenoid connection
- Poor 1st tray lift motor connection

SC502: 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 2nd tray.

1) The 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 2nd lift sensor is already activated when the 2nd tray is placed in the machine.

Possible Causes

- 2nd lift sensor defective
- 2nd tray lift motor defective
- Poor 2nd pick-up solenoid connection
- Poor 2nd tray lift motor connection

SC503: 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 3rd tray.

1) The 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 3rd lift sensor is already activated when the 3rd tray is placed in the machine.

Possible Causes

- 3rd lift sensor defective
- 3rd tray lift motor defective
- Poor 3rd pick-up solenoid connection
- Poor 3rd tray lift motor connection

SC504: LCT 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 1st tray.

1) The LCT 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine.

Possible Causes

- LCT 1st lift sensor defective
- LCT 1st tray lift motor defective
- Poor LCT 1st pick-up solenoid connection
- Poor LCT 1st tray lift motor connection

SC505: LCT 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 2nd tray.

1) The LCT 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine.

Possible Causes

- LCT 2nd lift sensor defective
- LCT 2nd tray lift motor defective
- Poor LCT 2nd pick-up solenoid connection
- Poor LCT 2nd tray lift motor connection

SC506: LCT 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 3rd tray.

1) The LCT 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine.

Possible Causes

- LCT 3rd lift sensor defective
- LCT 3rd tray lift motor defective
- Poor LCT 3rd pick-up solenoid connection
- Poor LCT 3rd tray lift motor connection

SC510: Paper Feed Motor Lock

Definition [B]

A paper feed motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- Paper feed motor defective
- Too much load on the drive mechanism
- Poor paper feed motor connector connection

SC511: LCT Motor Lock (Optional LCT)

Definition [B]

An LCT motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- LCT motor defective
- Too much load on the drive mechanism
- Poor LCT motor connector connection

SC515: Tandem Rear Fence Drive Motor Error

Definition [C]

One of the following conditions is detected in the tandem tray.

1) The rear fence return sensor and the rear fence HP sensor are on at the same time.
2) It takes 10 seconds or more for the rear fence return sensor to detect the on condition after the rear fence drive motor starts.
3) It takes 10 seconds or more for the rear fence HP sensor to detect the on condition after this fence starts moving to the home position.

Possible Causes

- Rear fence drive motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC520: Jogger Motor Error 1

Definition [C]

When the jogger fence moves to the home position, the jogger HP sensor does not turn on even if the jogger fence motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC521: Duplex Jogger Motor Error 2

Definition [C]

When the jogger fence moves from the home position, the jogger fence HP sensor does not turn off even if the jogger motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC531: Fusing/Duplex Motor Lock

Definition [B]

A fusing/duplex motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Fusing/duplex motor defective
- Too much load on the drive mechanism
- Poor fusing/duplex motor connector connection
- BCU defective
- Front door safety switches defective

SC532: Relay Motor Lock

Definition [C]

A relay motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Relay motor defective
- Too much load on the drive mechanism
- Poor relay motor connector connection
- BCU defective

SC541: Fusing Thermistor Open

Definition [A]

The fusing temperature detected by the thermistor was below 7°C for 15 seconds.

Possible Causes

- Fusing thermistor defective or out of position
- Poor thermistor terminal connection

SC542: Fusing Temperature Warming-up Error

Definition [A]

The fusing temperature does not reach the fusing standby temperature within 6 minutes after the main power switch is turned on, or after the front doors are closed.

Possible Causes

- Fusing thermistor defective or out of position
- Fusing lamp open
- Fusing thermofuse open
- BCU defective
- AC drive board defective
- Poor fusing unit connection

SC543: Fusing Overheat Error 1

Definition [A]

A fusing temperature of over 220°C is detected for 5 seconds by the fusing thermistor.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC544: Fusing Overheat Error 2

Definition [A]

The fusing temperature monitoring circuit defects abnormal fusing temperature.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC545: Fusing Overheat Error 3

Definition [A]

The fusing lamp stays on at full power for 45 seconds while in the stand-by condition after warming-up is completed.

Possible Causes

- Fusing thermistor out of position

SC546: Fusing Ready Temperature Malfunction

Definition [A]

The fusing temperature twice consecutively is detected 20°C lower or 20°C higher than the temperature 1 second earlier.

Possible Causes

- Poor thermistor connector connection
- Poor fusing unit connection

SC547: Zero Cross Signal Malfunction

Definition [A]

When one of the following conditions is detected 10 times consecutively.

1) More than 66 or fewer than 45 zero-cross signals in 500 ms.
2) An interval between zero-cross signals shorter than 7.5 ms is detected 3 times in 500 ms.

Possible Causes

- Noise on the ac power line

SC550: Oil Supply/Cleaning Web End

Definition [A]

The oil supply/cleaning web end sensor stays on for 500 ms after the oil supply/web end motor starts.

Possible Causes

- Oil supply/cleaning web end
- Oil supply/cleaning web motor defective

SC591: Toner Supply Motor Lock

Definition [B]

The used toner supply motor sensor status or development suction motor sensor does not change for 1 second while the toner supply motor is energized.

Possible Causes

- Used toner supply motor or development suction motor defective
- Used toner supply motor sensor or development suction motor sensor defective
- BCU defective

SC592: Toner Bank Motor Error

Definition [B]

The BCU receives an abnormal signal from the toner bank motor.

Possible Causes

- Toner bank motor defective
- Too much load on the drive mechanism
- BCU defective

SC601: Communication Error Between SICU and SBU

Definition [B']

The SICU cannot communicate with the SBU board properly.

Possible Causes

- Poor connection between the SICU and SBU
- SBU defective
- SICU defective

SC602: Communication Error Between SICU and HDD Controller

Definition [B]

The SICU cannot communicate with the HDD controller properly.

Possible Causes

- Poor connection between the SICU board and HDD
- SICU board defective

SC620: Communication Error between BCU and ADF 1

Definition [B']

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- Noise on interface cable

SC621: Communication Error between BCU and ADF 2

Definition [B']

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- ADF main board defective
- BCU board defective

SC622: Communication Error between BCU and ADF 3

Definition- [B']
Software error after abnormal user operation.

Possible Causes
- Software error

SC625, 626: Communication Error between BCU and Finisher

Definition [B]
The BCU cannot communicate with the finisher properly.

Possible Causes
- Poor connection between the BCU board and the finisher main board
- Finisher main board defective
- BCU board defective
- Noise on the interface cable

SC630: CSS (RSS) Communication Error between Line Adapter and CSS Center

- Japan only

SC640: Communication Error between SICU and BCU (CH1) 1

Definition [B]
The SICU cannot communicate with the BCU properly.

Possible Causes
- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC641: Communication Error between SICU and BCU (CH1) 2

Definition [A]
The BCU cannot receive the data from the SICU properly.

Possible Causes
- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC642: Communication Error between SICU and BCU (CH1) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC643: Communication Error between SICU and BCU (CH2) 1

Definition [B]

The SICU cannot communicate with the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC644: Communication Error between SICU and BCU (CH2) 2

Definition [A]

The BCU cannot receive the data from the SICU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC645: Communication Error between SICU and BCU (CH2) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC646: SICU Error

Definition [B]

The BICU detects a defective SICU.

Possible Causes

- SICU board defective

SC650: Optional Counter Error 1

- Japanese version only

SC651: Optional Counter Error 2

- Japanese version only

SC652: Optional Counter Error 3

- Japanese version only

SC653: Optional Counter Error 4

- Japanese version only

SC701: ADF Pick-up Roller Release Malfunction

Definition [B']

The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.

Possible Causes

- Pick-up roller HP sensor defective
- Pick-up motor defective
- ADF main board defective

SC702: ADF Feed-in Motor Error

Definition [B]

The feed-in motor does not turn properly.

Possible Causes

- Feed-in motor defective
- ADF main board defective
- Poor connection between the feed-in motor and ADF main board
- Too much load

SC703: ADF Transport Belt Motor Error

Definition [B]

The transport belt motor does not turn properly.

Possible Causes

- Transport belt motor defective
- ADF main board defective
- Poor connection between the transport motor and ADF main board
- Too much load

SC704: ADF Feed-out Motor Error

Definition [B']

The feed-out motor does not turn properly

Possible Causes

- Feed-out motor defective
- ADF main board defective
- Poor connection between the feed-out motor and ADF main board
- Too much load

SC705: ADF Original Table Lift Malfunction

Definition [B]

One of the following conditions was detected.

1) The bottom plate position sensor does not activate when the original table motor lifts the original table.
2) The bottom plate HP sensor does not activate when the bottom plate motor lowers the original table.

Possible Causes

- Bottom plate H.P sensor defective
- Bottom plate motor defective
- ADF main board defective
- Bottom plate position sensor defective

SC720: Finisher Lower Transport Motor Error

Definition [B']

The lower transport motor does not turn properly

Possible Causes

- Lower transport motor defective
- Finisher main board defective
- Poor connection between the lower transport motor and finisher main board
- Too much load

SC722: Finisher Jogger Motor Error

Definition [B]

1) The finisher jogger HP sensor remains de-activated for more than a certain time when returning to home position.
2) The finisher jogger HP sensor remains activated for more than a certain time when moving away from home position.

Possible Causes

- Jogger H.P sensor defective
- Jogger motor defective
- Poor connection between the jogger motor and finisher main board
- Too much load

SC724: Finisher Staple Hammer Motor Error

Definition [B]

Stapling does not finish within a certain time after the staple hammer motor turned on.

Possible Causes

- Staple hammer motor defective
- Staple jam
- Too much load on the stapling mechanism
- Poor hammer motor cable connection

SC725: Finisher Stack Feed-out Motor Error

Definition [B]

The stack feed-out belt HP sensor does not activate within a certain time after the stack feed-out motor turned on.

Possible Causes

- Stack feed-out HP sensor defective
- Stack feed-out motor defective
- Too much load
- Poor stack feed-out motor cable connection

SC726: Finisher Shift Motor Error

Definition [B]

The shift tray half-turn sensor status does not change within 1 second after the shift motor turns on.

Possible Causes

- Shift motor defective
- Shift tray half-turn sensor defective
- Too much load

SC727: Finisher Stapler Rotation Motor Error

Definition [B]

1) Stapler rotation does not finish within a certain time after the stapler rotation motor turned on.
2) The stapler does not return to its home position within a certain time after stapling finished.

Possible Causes

- Stapler rotation motor defective
- Poor stapler rotation motor connection
- Staple rotation HP sensor defective
- Too much load

SC729: Finisher Punch Motor Error

Definition [B]

The punch HP sensor is not activated within a certain time after the punch motor turned on.

Possible Causes

- Punch motor defective
- Punch HP sensor defective
- Poor punch motor connection

SC730: Finisher Stapler Motor Error

Definition [B]

1) The stapler HP sensor stays on for longer than normal when the stapler motor turns on to return the stapler to its home position.
2) The stapler HP sensor does not turn on within a certain time after the stapler motor turned on to move the stapler away from home position.

Possible Causes

- Stapler motor defective
- Stapler HP sensor defective
- Poor stapler motor connection

SC735: Finisher Paper Stack Plate Motor Error

Definition [B]

The stack plate HP sensor does not turn on within a certain time after the stack plate motor turned on.

Possible Causes

- Stack plate motor defective
- Stack plate HP sensor defective
- Poor stack plate motor connection

SC736: Finisher Exit Guide Motor Error

Definition [B]

The exit guide open sensor does not change within 750 mm after the exit guide motor is energized.

Possible Causes

- Exit guide motor defective
- Exit guide open sensor defective
- Poor exit guide motor connection

SC737: Full Finisher Staple Hopper

Definition [B]

The staple waste hopper is full.

Possible Causes

- Full staple waste hopper
- Staple waste hopper sensor defective

SC738: Finisher Shift Tray Lift Motor Error

Definition [B]

The stack height sensor does not activate within a certain time after the shift tray lift motor turned on.

Possible Causes

- Shift tray lift motor defective
- Too much load

SC900: Electrical Total Counter Error

Definition [A]

The total counter contains something that is not a number.

Possible Causes

- NVRAM defective

SC901: Mechanical Total Counter Error

Definition [B]

The mechanical total counter is disconnected.

Possible Causes

- Mechanical total counter defective

SC951: F-gate Signal Error

Definition [B']

When the IPU has already received the F-gate signal (laser writing start trigger signal), the IPU receives another F-gate signal.

Possible Causes

- SICU defective

SC953: Scanner Image Setting Error

Definition [B']

The settings that are required for image processing using the scanner are not sent from the IPU.

Possible Causes

- Software defective

SC954: Printer Image Setting Error

Definition [B']

The settings that are required for image processing using the printer controller are not sent from the IPU.

Possible Causes

- Software defective

SC955: Memory Setting Error

Definition [B']

The settings that are required for image processing using the memory are not sent from the IPU.

Possible Causes

- Software defective

SC964: Printer Ready Error

Definition [B']

The print ready signal is not generated for more than 17 seconds after the IPU received the print start signal.

Possible Causes

- Software defective

SC966: Polygon Mirror Motor Ready Error

Definition [B]

The polygon mirror motor does not reach ready status within 15 seconds after the copy paper is detected by the registration sensor.

Possible Causes:

- Polygon mirror motor defective
- Poor connection between the polygon mirror motor drive board and SICU board
- Polygon mirror motor drive board defective
- SICU board defective

SC970: Scanner Ready Error

Definition [B']

The scan ready signal is not generated by the MCU for more than 10 seconds after the read start signal is sent to the MCU.

Possible Causes

- Poor connection between SICU and MCU
- MCU software error

SC980: HDD Access Error

Definition [B]

Incorrect parameter sent to the HDD controller.

Possible Causes

- Software defective
- SICU defective

SC982: HDD Construction Error

Definition [B']

A HDD that does not have the correct specifications has been installed.

Possible Causes

- HDD defective
- Incorrect HDD type

SC984: HDD 1 Data Transfer Error 1

Definition [B']

The data transfer from the DRAM to HDD 1 is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC985: HDD 2 Data Transfer Error 1

Definition [B']

The data transfer from the DRAM to HDD 2 is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC986: HDD 1 Data Transfer Error 2

Definition [B']

The data transfer from HDD 1 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC987: HDD 2 Data Transfer Error 2

Definition [B']

The data transfer from HDD 2 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC990: Software Performance Error

Definition [B']

The software performs an unexpected function.

Possible Causes

- Software defective

7.2 ELECTRICAL COMPONENT DEFECTS

7.2.1 SENSORS

Component (Symbol)	CN	Condition	Symptom
Scanner Home Position (S1)	CN555-2 (MCU)	Stays On	SC121 is displayed.
		Stays Off	SC120 is displayed.
Original Width (S2)	CN555-6.7.8 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE (Auto Reduce/Enlarge) do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 1 (S3)	CN555-11 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 2 (S4)	CN555-14 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Drum Potential Sensor (S5)	CN609-10 (BCU)	Open	The machine quits auto process control and goes to auto process control off mode.
		Shorted	
Toner Density (S6)	CN610-B6 (BCU)	Stays On	SC340 is displayed.
		Stays Off	SC340 is displayed.
Image Density (S7)	CN609-5 (BUC)	Open	SC350 is displayed after copying.
		Shorted	SC350 is displayed after copying.
Toner Supply Motor (S9)	CN613-B8 (BCU)	Stays On	SC591 is displayed.
		Stays Off	
Upper Toner Bottle (S10)	CN623-A2 (BCU)	Stays On	A toner bottle is detected in the upper position even if there is no toner bottle there.
		Stays Off	The toner bottle in the upper position is not detected.
Lower Toner Bottle (S11)	CN623-B2 (BCU)	Stays On	A toner bottle is detected in the lower position even if there is no toner bottle there.
		Stays Off	The toner bottle in the lower position is not detected.
Upper Bottle Inner Cap (S12)	CN623-A5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	
Lower Bottle Inner Cap (S13)	CN623-B5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	

Component (Symbol)	CN	Condition	Symptom
Toner Near End (S16)	CN610-B9 (BCU)	Open	"Toner End" is displayed even if there is enough toner in the toner entrance tank.
		Shorted	"Toner End" is not displayed even if there is no toner in the toner entrance tank.
Toner Collection Bottle (S14)	CN624-11 (BCU)	Stays On	The machine cannot detect a no toner collection bottle condition.
		Stays Off	SC496 is displayed.
Toner Overflow (S15)	CN624-8 (BCU)	Stays On	"Waste Toner Bottle Full" is detected and printing is disabled.
		Stays Off	"Waste Toner Bottle Full" is detected and printing is disabled.
Toner Hopper (S8)	CN624-14 (BCU)	Stays On	SC495 is displayed.
		Stays Off	Toner is not supplied to the toner hopper, and toner end is detected even if there is enough toner in the toner bottle.
1st Paper Feed (S17)	CN514-2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
2nd Paper Feed (S18)	CN511-A2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
3rd Paper Feed (S19)	CN511-B2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
1st Tray Lift (S20)	CN514-8 (IOB)	Stays On	SC501 is displayed.
		Stays Off	SC501 is displayed.
2nd Tray Lift (S21)	CN511-A8 (IOB)	Stays On	SC502 is displayed.
		Stays Off	SC502 is displayed.
3rd Tray Lift (S22)	CN511-B8 (IOB)	Stays On	SC503 is displayed.
		Stays Off	SC503 is displayed.
1st Paper End (S23)	CN514-5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 1st paper tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 1st paper tray.
2nd Paper End (S24)	CN511-A5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 2nd tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 2nd tray.
3rd Paper End (S25)	CN511-B5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 3rd tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 3rd tray.
Rear Fence HP (S26)	CN515-5 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed

Component (Symbol)	CN	Condition	Symptom
Rear Fence Return (S27)	CN515-9 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed
Front Side Fence Open (S28)	CN516-A3 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Front Side Fence Closed (S29)	CN516-A6 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Open (S30)	CN516-A9 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Closed (S31)	CN516-A12 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Base Plate Down (S32)	CN516-B13 (IOB)	Stays On	The bottom plate lift lever locks at the lowest position.
		Stays Off	The bottom plate is not lowered when paper on the left tray needs to be moved to the right tray and paper is set in the incorrect position.
1st Tray Paper Height 1 (S33)	CN516-B10 (IOB)	Stays On	“Paper Near End” is not displayed even if the tray is almost empty.
		Stays Off	“Paper Near End” is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 2 (S34)	CN516-B8 (IOB)	Stays On	“Paper Near End” is not displayed even if the tray is almost empty.
		Stays Off	“Paper Near End” is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 3 (S35)	CN516-B7 (IOB)	Stays On	“Paper Near End” is not displayed even if the tray is almost empty.
		Stays Off	“Paper Near End” is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 4 (S36)	CN516-B6 (IOB)	Stays On	“Paper Near End” is not displayed even if the tray is almost empty.
		Stays Off	“Paper Near End” is displayed even if there is enough paper in the paper tray.
Left 1st Tray Paper (S37)	CN516-B10 (IOB)	Stays On	The rear fence moves back and forth continuously.
		Stays Off	The paper in the left tray is not moved to the right tray.
Right 1st Tray Paper (S38)	CN515-12 (IOB)	Stays On	“Paper Jam” is displayed after the last sheet is fed from the right 1st tray.
		Stays Off	Paper end is detected in the 1st tray even if there is paper in the tray. If there is paper in the left tray, the rear plate locks and SC515 is displayed.
Inverter Tray Paper (S39)	CN611-A3 (BCU)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
Duplex Entrance (S40)	CN611-A11 (BCU)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.

Component (Symbol)	CN	Condition	Symptom
Duplex Transport 1 (S41)	CN611-A5 (BCU)	Stays On	“Paper Jam” is displayed whenever a copy is made.
		Stays Off	“Paper Jam” is displayed even if there is no paper.
Duplex Transport 2 (S42)	CN611-A7 (BCU)	Stays On	“Paper Jam” is displayed whenever a copy is made.
		Stays Off	“Paper Jam” is displayed even if there is no paper.
Duplex Transport 3 (S43)	CN611-A9 (BCU)	Stays On	“Paper Jam” is displayed whenever a copy is made.
		Stays Off	“Paper Jam” is displayed even if there is no paper.
Duplex Jogger HP (S44)	CN611-A10 (BCU)	Stays On	SC521 is displayed.
		Stays Off	SC520 is displayed.
LCT Relay (S45)	CN602-A7 (BCU)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
Relay (S46)	CN602-A4 (BCU)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
Registration (S47)	CN602-A9 (BCU)	Stays On	“Paper Jam” is displayed even if there is no paper.
		Stays Off	“Paper Jam” is displayed whenever a copy is made.
Guide Plate Position (S48)	CN602-4 (BCU)	Stays On	A paper jam will occur when the guide plate is opened.
		Stays Off	“Guide Plate Close” is displayed after the front door is closed even if the guide plate is closed.
Oil Supply/ Cleaning Web End (S49)	CN603-A6 (BCU)	Stays On	Cleaning web end is not detected.
		Stays Off	SC550 is displayed.
Fusing Exit (S50)	CN602-A11 (BCU)	Stays On	“Paper Jam” is displayed whenever a copy is made.
		Stays Off	“Paper Jam” is displayed even if there is no paper.
Exit (S51)	CN602-A14 (BCU)	Stays On	“Paper Jam” is displayed whenever a copy is made.
		Stays Off	“Paper Jam” is displayed even if there is no paper.
Toner Suction Motor (S52)	CN517-A2 (IOB)	Stays On	SC591 is displayed
		Stays Off	SC591 is displayed.
Sucked Toner Collection Bottle (S53)	CN517-B5 (IOB)	Stays On	The machine cannot detect a no toner collection bottle condition.
		Stays Off	SC496 is displayed.

For a photointerrupter, “Stays on” means that the actuator is in the sensor.

7.2.2 SWITCHES

Component (Symbol)	CN	Condition	Symptom
Main Power (SW1)	CN703-1, 3 (PSU)	Open	The machine does not turn on.
		Shorted	The machine does not turn off.
Right Front Door Safety 1 (SW2)	CN625-1 (BCU)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Right Front Door Safety 2 (SW3)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 3 (SW4)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 4 (SW5)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
Left Front Door Safety 1 (SW6)	CN625-3 (BUC)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Left Front Door Safety 2 (SW7)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 3 (SW8)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 4 (SW9)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
2nd Tray Paper Size (SW10)	CN510-A8, A9, A10, A11, A12	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	
3rd Tray Paper Size (SW11)	CN510-A2, A3, A4, A5, A6	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	

7.3 BLOWN FUSE CONDITIONS

Fuses are not used for the output lines from the PSU. An electronic current cut-off method is used instead.

The PSU consists of three converters; 1st converter, 2nd converter, and Energy saver converter. Each converter has an LED which indicates the status of the converter.

LED No.	**LED 1**	**LED 2**	**LED 3**
Converter	Energy saver	1st Converter	2nd Converter
Output	Vcc1	Vcc2, Vmm	Vaa, Vca, Vcb
In Stand-by Condition	On	On	On
In Energy Saver Mode	On	Off	Off
LED status when a converter is defective			
Energy saver	Off	Off	Off
1st	On	Off	Off
2nd	On	On	Off

When the 1st converter is defective, the output of the 2nd converter is also stopped. When the energy saver converter is defective, all the outputs are stopped.

There is a circuit breaker CB1 on the PSU which cuts all the power from the PSU when excess current flows.

Additionally, there is a fuse only for the AC input line of the energy saver converter.

Fuse	**Symptom when turning on the main power switch**
Power Supply Board	
FU404	No response

7.4 FIRMWARE HISTORY

7.4.1 A294 / A295 FIRMWARE MODIFICATION HISTORY

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
First release of the firmware	A2945610 **A**	From first production	6.3.1
Details of Errors and modification (Ver. 7.1) 1. SC990 Prevention SC990 was rarely indicated in the following situations. This problem was caused by data transfer failure from SICU to BCU: • During 2-sided to 2-sided copying • 1 sided to 2 sided copying with A3 paper • When changing pages in SP mode 2. SC304 Prevention SC304 was misdetected while the charge corona is off. After changing the Firmware, SC conditions related to the grid voltage are ignored while the charge corona is off.	A2945610 **B**	From Dec, 99 production	7.1
Details of Errors and modification (Ver. 7.8.1) 1. SC990 Prevention SC990 was displayed when 1000 staples are continuously made in one job. 2. PM Counter Description Correction • Item No. 023 “Toner Shield Glass” has been changed to “Toner Filter”. • Item No. 044 to 046 “Original Feed Counter” has been changed to “Paper Feed Counter”. 3. Extra Counter Error Counters of item No. 044 to 046 (Extra counters) did not count up. 4. PM Alarm Interval (SP5-501) The maximum number of SP5-501 setting has been changed from 255(k) to 999(k). 5. Dog Ear Curl Prevention To minimize the dog ear curl when tab sheet is used, inverter timing in tab mode has been changed.	A2945610 **C**	From Jan, 00 production	7.8.1 **Continued..**

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
6. SC 495 Prevention When only one toner bottle is set and a long job is done using high image density original, the system toner end is not detected and SC495 is displayed. 7. SC 495 Prevention (at installation) Enough toner was not supplied to the toner hopper when performing SP2-207 at installation. The toner supply time in SP2-207 has been extended			
Details of Errors and modification (Ver. 7.19) 1. SP6-113 Error SP6-113 setting is reset when the main switch is turned off and on if the value is changed to minus area. 2. SC515 Prevention SC515 was displayed if the main switch is turned off and on when the tandem rear fence is fully shifted to the right. This occurs because the machine recognized that the end fence is between the Rear Fence Return Position sensor and the Rear Fence HP Sensor even if the end fence is at the right side of the Rear Fence Return Position sensor. To counter this, the rear fence is moved to the left for 1 second if both sensors do not detect the fence when the main switch is turned on. 3. SP6-119 description correction The description was incorrect. Incorrect: 0: Enabled 1: Disabled Corrected: 0: Disabled 1. Enabled 4. SMC Print Missing Items The following SP modes were not printed out by SMC print: SP5-038 SP5-212-3, 4 SP5-967 5. 1st Tray Movement Error After moving tandem end fence using SP5-804, the 1st tray does not work until the main switch is turned off and on.	A2945610 **D**	From Feb, 00 production	7.19 **Continued..**

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
1. SP6-120 Jogger Position Adjustment To correspond to various paper types, a function to adjust jogger movement towards paper has been added. To enable this adjustment, a modified finisher ROM (B3025103C) or later is required. However, at this moment the SP6-120 was not displayed in SP mode. Refer to Ver.7.23.2. 2. Spanish Language Spanish has been released for 2nd language of NA (-17) model. 1st Language: English (NA) 2nd Language: Spanish			
Note: The part numbering system for the firmware has been changed. Beginning with version 7.23.2, the part numbers for the SICU and BCU firmware will be written continuously, as one part number (A2945604F/A2945264F). This is to avoid any confusion with the internal handling of the firmware.			
Corrections (Ver. 7.23.2) 1. SC990 Prevention After the setting of SP2-506 is changed to "On", SC990 occurs in Cover/Slip Sheet Mode if a blank sheet is fed when drum cleaning begins. 2. Image Density Drop in Magazine Mode In Magazine Mode, image density drops in 1 out of 10 sheets of the first set. 3. SP6-120 display title missing The title for SP6-120 "Staple Jogger Adjustment" is not displayed. This correction makes only SP6-120 be displayed in the SP mode. SP6-120 adjustment becomes effective when the Finisher firmware is updated to C version or later together with updating mainframe firmware. 1. SP4-915 SP modes have been added that will display the CD-R/RW model name and firmware version. SP4-915-1: CD-RW Model Name Display SP4-915-2: CD-RW F/W Version Display 2. CD-R/RW Function The option CD-R/RW can be used from ver 7.23.2	A2945604 **F** / A2945264 **F**	From Mar, 00 production	7.23.2

Trouble-shooting

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
Corrections (Ver. 7.28.1) 1. SP6-119 Display The displays of the SP6-119 have been corrected as follows: Previous New 0: Enabled to Disabled 1: Disabled to Enabled . 2. New SP mode SP2-969 for ID pattern making during copy process. Twenty ID patterns are made in a 1 minute interval during a copy process just after the process control is completed. 3. System settings in the user tool. Thick paper and the tab stock can be selected independently for tray 4 or 5. Previously, Index paper (Tab paper) means Thick paper. This is a first step for the selecting plain index paper. Plain index paper function does not become effective with this modification. Tab Stock key and Thick Paper key are indicated in the User Tool. Only selecting Tab stock key does not make any plain index paper copy. The selected tab stock function will return to Non selected condition when the machine's off condition(main switch or power switch off). If you like to select the past "Thick paper Tab copy function, select both Tab Stock and Thick paper keys. The tab stock function for plain paper becomes effective by firmware V7.31.3 or later. 4. SP2-506 default settings change The default settings of the SP2-506(Cleaning interval –multiple copy) have been changed as follows: SP2-506-1 (On/Off): from No to Yes SP2-506-2 (Interval): from 15min to 30min	A2945604 **G** / A2945264 **G**	From Mar, 00 production	7.28.1

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrections (Ver. 7.30.1) 1. SC990 in Platen + Two sided to Two sided + Chapter modes. Corrects this miss-detection. 2. SC990 in Platen + interrupt modeTwo sided to Two sided + Chapter modes SC990 is displayed mistakenly after returning from the interrupt and platen modes when "left original" is indicated in the operation LCD. Bug correction. 3. Bugs correction for printer option Bugs found in the printer option test in Ricoh laboratory were corrected for the future launch. 4. SP5-823 Unnecessary SP mode (5-823) is displayed. 5. Suffix indication still old when the BICU Firmware is installed. Suffix indication was still old when pressing the OK key just after the BICU Firmware was installed.	A2945604 **H** / A2945264 **H**	From Middle of March 2000 production	7.30.1
Corrections (Ver. 7.31.3) 1. SC990 in 2 sheets staple + A5S, B5S, A4, HLTS, and/or LTS feed from 3rd, 4th, or, 6th feed tray. Corrects this mis-detection. 2. Changing the parameters for the Process Control, drum charge and development bias Background appears on the copies. The parameters for Process Control need to be improved to consistently prevent the appearance of copy background. The target VD value for the process control data initialization has been changed from 900V to 970V. In addition, this value can be changed in SP mode (SP2-001-7). The value of the development bias for the image area has been changed from 550V to 530V.	A2945604 **J** / A2945264 **J**	From Apr, 00 production	7.31.3

Continued..

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
In order to activate the new default settings after you have installed the firmware, you must enter the SP modes and manually change the settings to the following new default values. After this has been done, the machine will recognize these settings as default. Development Bias Image area: SP2-201-1(550 to 530). Development Bias Transparent Sheet: SP2-201-3 (550 to 530). Charge Corona Bias Grid Voltage for transparent sheet: SP2-001-4 (1000 to 1070). 3. Instructing the operator to set the lower toner bottle first. The open/close mechanism for the lower toner bottle cap does not work properly. In some cases, the mechanism does not return the cap to the bottle, which causes the toner to spill when the bottle is removed. This symptom occurs only with the lower toner bottle. If the upper toner bottle is set first, the machine LCD will instruct the operator to set the lower toner bottle first. 4. System settings in User Tools. Thick paper and tab stock can be selected at the same time for tray 4 or 5. Firmware version 7.28.1 did not make this function. The plain paper index can be selected (punch function enable). Index tab paper and thick paper can be selected when the two keys are pressed. 5. Margin adjustment per original can be adjusted by changing the original margin adjustment by the user tool to that of by SP mode. Margins for each scanned original can be adjusted using the SP modes, that have been added with this release. SP5-924-1 (Margin Per Original, default :No) SP5-924-2 (Per Original Priority, default 0:Off) This change was a result of requests from the Japanese domestic market. The following remarks will be added as machine limitations. As a general rule, the settings should not be changed. • Printing productivity for the 1st set of originals will be decreased after the margin is adjusted.			**Continued..**

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• The margin in Magazine Mode and in Combine Mode cannot be adjusted in this SP mode. • After scanning an original in the sample copy mode or after select setting key is pressed when printing file using the document server, the margin adjust key can be changed. However, the key changed will not affect any margin adjustment. • When different margins are selected for the front original and rear original in Designate or Chapter Mode (Duplex copy), copying may not meet the expectation. • When the margin is changed in Tab Sheet in Tab Mode, copying may not meet the expectation. 6. Increase tolerance against registration motor torque. A Registration sensor jam (SP7-504-63) with duplex tray feed has been reported from the Japanese domestic field. When the paper buckle (adjustment: SP1-003-3) in the registration nip is too high, Z fold jams may occur. The tolerance against the registration motor torque has been increased by this firmware update. After updating the firmware, check the registration from the duplex tray (SP1-001-2). 7. Illuminating SC306 detection Mis-detection of SC306 (Charge corona wire cleaner connector is not connected). Illuminating the unnecessary detection (SC306:Charge corona wire cleaner connector is not connected). This condition can be detected with updating the firmware by SC305 (Charge corona wire cleaner error 1). SC306 was detected by malfunction in the Japanese domestic field. The wire cleaner was stopped in the middle of the charge corona unit. Thus, the black line appeared in the copy image. After the opening and closing the copier door or switching off and on the main switch, the cleaner was returned to the home position.			**Continued..**

Trouble-shooting

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
8. Default setting for SP1-002 We have learned that the new settings of SP 1-002 (side-to-side registration) meets better the actual adjustment. In order to activate the new default settings after you have installed the firmware, you must enter the SP modes and manually change the settings to the following new default values. After this has been done, the machine will recognize these settings as default. If the side-to side registration is within the specifications (2±1.5 mm), you do not have to change the settings.			

	0	0	0	4th (LCT)	5th (LCT)	6th (LCT)	Duplex
Old	**-1.5**	**-1.5**	**-1.5**	**0**	**0**	**0**	**0**
New				**-2.5**	**-2.5**	**-2.5**	**-3.0**

9. Transparencies & Translucent Sheet As a result of a request from the field, the terms used to describe OHP and tracing paper in SP Mode descriptions have been changed. Specifically: Old / New: OHP: transparencies tracing paper: Translucent sheet Old Titles: SP2-001-4 "Grid Voltage for Transparent Sheet" SP2-201-3 "Transparent Sheet" SP2-301-3 "OHP Sheet" SP2-301-4 "Transparent Sheet" (translation mistake) New Titles: SP2-001-4 "Grid Voltage for Transparencies" SP2-201-3 "Transparencies" SP2-301-3 "Transparencies" SP2-301-4 Translucent Sheet" 10. 1st release for the printer controller The 1st release for the mass production machines of the printer controller. When the printer controller unit is installed, it is necessary to update the firmware. The language card must also be updated to A2945125A (V7.31.3).			

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**Title**	**SERIAL NUMBER**	**SOFTWARE VERSION**
Software modified so that it can also be used with the A295. (all versions from 7.40 can be used on both A294 and A295B).	For use with the A295 (105cpm)	A2945604 **K** / A2945264 **K**	**7.40**
To make it possible to use the "Margin per Original" function, the following 2 SP modes have been added: 5924-1 (Margin per Original): Yes/No (default: No). 5924-2 (Per Original Priority): On/Off (default: Off).	Margin per Original		
Software changed so that the Web End condition will not be detected until the display for SP1902-1 (Web Consumption) has reached 102%.	Web End detection improved		
The display for Directional Size Magnification has been changed from mm to inches for N.A. models.	Inch display for Directional Size Magnification (N.A. machines only)		
Software changed so that "Set the lower toner bottle" is displayed at Toner Near End and Toner End.	Solution for detached upper toner bottle cap	A2945604 **L** / A2945264 **L**	**7.44**
When printing out print documents saved on the Copy Server onto index paper, part of the image may be cut off. To correct this, the software has been changed.	Copy Server index paper printing	A2945604 **M** / A2945264**M**	**7.47**
The setting ranges for fusing temperature-related SP modes have been changed to the following: SP1105-1 (Fusing Temperature in Waiting Condition): 85cpm (Bellini A): 168 to 178 105cpm (Bellini B): 173 to 178 SP1105-4 (Fusing Temperature Correction): 85/105cpm: -5 to +20	Fusing temp. setting ranges changed	A2945604 **N** / A2945264 **N**	**7.49**
Software changed so that paper on the left tray will not be shifted to the right tray after it is pulled out while its bottom plate is lifting (resulting in a Paper End mis-detection).	SC515 (Tandem Rear Fence Drive Motor Error)		
Software modified so that SP2114 will take on the correct default value for each destination after SP5801 (Memory All Clear) is performed. Previously, the NVRAM was properly initialized following memory all clear and power Off/On, however SP2114 was set to the same value for all destinations (value for Japanese models).	SP2114 (Printer Dot Edge Parameter Setting) initialization correction		

After Copier Priority has been selected in UP Mode – Memory Allocation, SC990 or a panel display reset occurs with large-volume, continuous print jobs (A4 LEF, LT LEF or smaller; 1000 pages or more). The timing of the HDD 1 to HDD2 changeover at memory full has been optimized to ensure the error/reset does not occur.	SC990 or display reset with large-volume, continuous print jobs		
When the 105cpm machine main power is turned on, the HDD does not come on line fast enough, and the mainframe informs the (Peerless) printer controller that there is no hard drive present, resulting in SC990. To correct this, the software has been changed.	SC990 at power On (105cpm)		
1. When the 200th page is scanned to be stored in the document server, the scanning stops and a message is displayed stating that 1000 is the maximum number of storable pages for a document. 2. SC990 is displayed when the machine starts printing out the pages stored in the document server, even if the number of pages is less than 200. The above problems occur only with version 7.49	The copy server can not store more than 200 originals	A2945604 **P /** A2945264 **P**	**7.50**
The papers on the left tandem tray does not move to right if the left tray is installed when the right tray is empty.	Papers on left tandem tray not move to right	A2945604 **Q/** A2945264 **Q**	**7.51**
When original jams occur, SC numbers in SC history of the SMC print may be changed. The occurrence ratio is high when the number of original jams is high or the SC counter is often reset.	SC numbers in SC history of SMC print are changed		
A print job does not start when the drum unit is not properly set, even after scanning original is done.	Print not start when drum unit is not completely set		
While the fusing rollers rotate just after the main power switch is on, the toner on the pressure roller cleaning roller is transferred to the pressure roller and web roller. Then, the toner may damage the hot roller. To prevent it, the web roller rotate once every 10 seconds while the fusing rollers rotate just after the main power switch is on.	Web roller movement change		
The lower limit of Vref is newly set as 1 V. This is to prevent the Vref becomes too low causing toner scattering or dirty background when increasing the image density by changing the bias for the ID sensor pattern development. The A295 model already has this limit	Lower limit of Vref (A294 model only)		
SC990 is displayed when the SICU received an unexpected signal (noise).	SC990 (FILE:timer.c)		

"Copying" display appears. Nothing is changed even if the "Stop" key is pressed but the display is changed when the doors are opened/closed.	"Copying" display appears		
With this version, when a custom (non-standard) size is in a tray "Custom" is indicated in the printer mode and the paper direction icon disappears.	"Custom" size in printer mode		
The display of "10 x 14" is indicated when the printer controller type A is installed.	10 x 14 inches size on printer controller type A		
All the copies and prints are currently counted as copies. With the new version, the prints from the document server, which are sent from a PC, can be selected as copies or prints by changing the setting of SP5972. Please refer to the table of SP5972 below.	Copy/Print count in document server	A2945604 **R/** A2945264 **R**	**7.53**
Abnormal SMC image appears when printing on LT lengthwise papers due to a lack of memory size. There are no problems when printing on LT sideways or A4 papers.	Abnormal SMC print on LT lengthwise		
If the main switch is kept on for a long period of time, the memory full condition comes during scanning or SC990 occurs. The cause is that the memory clearance is not done properly.	Memory full after a long period of time when the main switch is kept on		
The saddle stitching was available only with the magazine and duplex to duplex modes. With the new version, the saddle stitching is available with the duplex printing in the document server and with the simplex to duplex copying in the copy mode.	Duplex + Booklet maker (Biwako) saddle stitching		
The machine is reset or SC990 occurs if Vsg is 0 during the process control.	SC990 during process control		
The machine stops during copying with the following conditions: 1. The printer controller is installed. 2. The print priority is set to "Printer". Or, it is set to "Display" and the printer LCD is displayed during copying. 3. The staple mode is selected. 4. Copy in the copy mode or print in the document server is being done. The stapling is done after 256, 512, 768, 1024, … sheets are copied. (i.e.: if the number of originals is 2, the machine stops after 128 sets are copied (total 256 sheets). If the number of originals is 40, the machine stops after 32 sets are copied (total 1280 sheets).	Machine stops during copying with staple mode		

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A294 / A295 FIRMWARE MODIFICATION HISTORY				
	Title		**SERIAL NUMBER**	**SOFTWARE VERSION**
6	Machine stops during copying with staple mode	The machine stops during copying with the following conditions: 1. The printer controller is installed. 2. The print priority is set to “Printer”. Or, it is set to “Display” and the printer LCD is displayed during copying. 3. The staple mode is selected. 4. Copy in the copy mode or print in the document server is being done. The stapling is done after 256, 512, 768, 1024, … sheets are copied. (i.e.: if the number of originals is 2, the machine stops after 128 sets are copied (total 256 sheets). If the number of originals is 40, the machine stops after 32 sets are copied (total 1280 sheets).		

SP5972

Setting	Output Mode	Input Mode	Count As
0	Copy	Scanned	Copy
	Document server	Scanned	Copy
		Sent from PC	Copy
	Print	Sent from PC	Print
1	Copy	Scanned	Copy
	Document server	Scanned	Copy
		Sent from PC	Print
	Print	Sent from PC	Print

A294 / A295 FIRMWARE MODIFICATION HISTORY

No.	Title	DESCRIPTION OF MODIFICATION	SERIAL NUMBER	SOFTWARE VERSION
1	A294-II/A295-II models	This version onward should be installed on the A294-II/A295-II models. This firmware is commonly used on both A294/A295 and A294-II/A295-II models. The new I/O board can recognize what the model is and automatically uses the appropriate software for the model.	A2945609/ A2945269	8.2
2	Slip sheet does not function properly when using more than 256 pages in connect copy mode	When using more than 256 pages of original in the connect copy mode, the slip sheet does not function properly for Page 256 and later on the sub-unit only.		
3	Slip sheet does not function properly when using specified trays in chapters mode	When you specify the tray for 2 chapters consecutively in the chapters mode and the 1-side to 2-side duplex mode. The first page of the second chapter is printed on the back side of the last page of the first chapter if the number of pages for the first chapter is odd.		
4	Productivity improvement when using LCT	The feeding timing of the LCT has been improved when changing the tray to another within the LCT.		
5	Improvement of “B4: registration” paper misfeed removal	When a paper misfeed occurs at the fusing or paper exit section, the paper just fed out from the LCT stops at registration with an accordion shape. It is difficult to remove it. So, the LCT relay clutch does not turn on when such a jam occurs to prevent the paper stopping at registration from becoming an accordion shape.		
6	Tray 1 (tandem tray): paper mis-set detection	When the right tray of Tray 1 is only set, the machine does not check the positions of the fences, so that even if papers are wrongly set and the fences are not at the closing positions, the bottom tray is lifted up. It should be checked and “Please re-set papers” message should be displayed.		
				Continued

Trouble-shooting

A294 / A295 FIRMWARE MODIFICATION HISTORY				
No.	**Title**	**DESCRIPTION OF MODIFICATION**	**SERIAL NUMBER**	**SOFTWARE VERSION**
7	SC398 just after turning on new CD-R/RW	When the new CD-R/RW is turned on with the following conditions, SC398 is displayed. • The CD-R/RW is the new model MP7122SE. There is no problem with the model MP7040. • A media is in the CD-R/RW. • The CD-R/RW and engine are turned on in order. <Instruction to customers> Please instruct customers with the following procedure: 1. Turn on the CD-R/RW 2. Wait until the LED for the drive access is turned off. 3. Turn on the engine.		
8	LEF (long edge feed) in booklet and APS modes on Plokmatic Booklet Finisher	On the Plokmatic Booklet Finisher, when the booklet and APS modes are selected, a paper with LEF direction is fed prior to SEF. This is because the engine does not recognize that the Plokmatic Booklet Finisher is installed. <Solution> • Set SP6902 (Booklet staple) to “Yes”. • Set User Tools -> Copier/Document Server Features -> General Features -> Display/Panel Tone -> Staple Position to “Bottom”. The above 2 settings make the engine recognize that the “Bottom” staple means the “Booklet” staple. The indication of “Bottom” on the operation panel is not changed.		
The following are additions and changes to the printer mode				
9	Danish Names of buttons are not correct	Some Danish names of buttons have been corrected. Please install the language software (A2945125F, version 8.2) at the same time.		
10	Staple end message	“Staple end. Please add staples” message has been added.		
11	Full punch Dust hopper message	“Punch dust hopper is full. Please throw it away” massage has been added.		
12	Finisher shift mode	A message to set a shift mode to “for each job and copy set”, “for each job” or “no shift”, has been added to the SP mode.		

A294 / A295 FIRMWARE MODIFICATION HISTORY

No.	Title	DESCRIPTION OF MODIFICATION	SERIAL NUMBER	SOFTWARE VERSION
1	Default setting in SP1902-4 (Web Near End Setting) (A294-II/A295-II only)	The default setting of SP1902-4 for the new A294-II/A295-II models is 90% for US and 86% for Europe/Asia.	A2945609 **A**/ A2945269 **A**	8.3
2	300 dpi print from document server (out of specifications)	600 dpi images are printed out from the document server when 300 dpi images are stored using the EFI controller and PCL language. The specification is that 300 dpi prints are allowed in the direct print mode. As a special solution, the software has been changed to allow 300 dpi images out from the document server. However, there are limitations that abnormal images appear when using stamps.		
3	Paper jam in 2nd copy set with duplex, 2-position staple and rear cover modes	A paper jam occurs in the 2nd set of copies when using the duplex, 2-position staple and rear cover modes. The jam location number is 62 (Relay sensor (stay on)). E.g. A jam occurs under the following conditions: ● Number of originals: 6 sheets (A4/LT long edge feed) ● Duplex: 1 side to 2 sides ● Staple: 2 positions ● Cover sheet: Back cover (blank) ● Number of copies: 5 sets		

NOTE: The default settings for display languages are as follows:
USA version: 1st: English (NA), 2nd: Spanish
European version: 1st:English (UK), 2nd: No selection

Updating the language Firmware is overwriting the 1st and 2nd language areas. Also, updating the SICU & BCU firmware is overwriting the 1st and 2nd language areas with the default language. When the different languages are selected from the default setting, the language Firmware should be re-installed after updating SICU & BCU firmware.

3,000-SHEET FINISHER
B302

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

The punch unit is an option for this machine.

Paper Size:

No punch mode
- Shift Tray: A3 to A5/DLT to HLT
- Upper Tray: A3 to A5, A6 lengthwise, B6 lengthwise/ DLT to HLT

Punch mode
- 2 holes: A3 to A5/DLT to HLT
- 3 holes: A3, B4, A4 sideways, B5 sideways DLT, LT sideways
- 4 holes (Europe): A3 to A5 DLT to LT, HLT sideways
- 4 holes (North Europe): A3 to B5, A5 sideways DLT to LT, HLT sideways

Staple Mode
- A3 to B5/DLT to LT

Paper Weight:

No punch mode
- No staple mode: 52 g/m^2 ~ 216 g/m^2, 14 ~ 42 lb
- Staple mode: 64 g/m^2 ~ 80 g/m^2, 17 ~ 21 lb

Punch mode
- 2 holes: 52 g/m^2 ~ 163 g/m^2, 14 ~ 42 lb
- 3 holes: 52 g/m^2 ~ 163 g/m^2, 14 ~ 42 lb
- 4 holes: 52 g/m^2 ~ 128 g/m^2, 14 ~ 34 lb

Paper Capacity:

Shift tray/no staple mode (80 g/m^2, 20 lb):

	Punch mode	No punch mode
B5 sideways A4 sideways LT sideways	2,500 sheets	3,000 sheets
Other sizes	1,500 sheets	1,500 sheets

Shift tray/staple mode/punch mode (80 g/m^2, 20 lb):

	Pages/set	Sets
B5 sideways A4 sideways LT sideways	2 to 9	150
	10 to 80	200 to 30
Other sizes	2 to 9	100
	10 to 40	150 to 30

Shift tray/staple mode/no punch mode (80 g/m^2, 20 lb):

	Pages/set	Sets
B5 sideways A4 sideways LT sideways	2 to 9	150
	10 to 100	200 to 30
Other sizes	2 to 9	150
	10 to 50	150 to 30

Upper tray (80 g/m^2, 20 lb):

	Punch mode	No punch mode
A4/LT or smaller	400 sheets	500 sheets
Larger than A4/LT	200 sheets	250 sheets

Stapler Capacity (pages/set, 80 g/m^2, 20 lb paper):

	Punch mode	No punch mode
B5 sideways A4 sideways LT sideways	80 sheets	100 sheets
Other sizes	40 sheets	50 sheets

Staple Position: 5 positions (4 positions shown, 1 position selectable(*) with in user tools)
1-staple: 3 positions (Front(*), Rear, Rear-Oblique)
2-staple: 2 position (double top, double rear(*))

Staple Replenishment: Cartridge (5,000 staples)

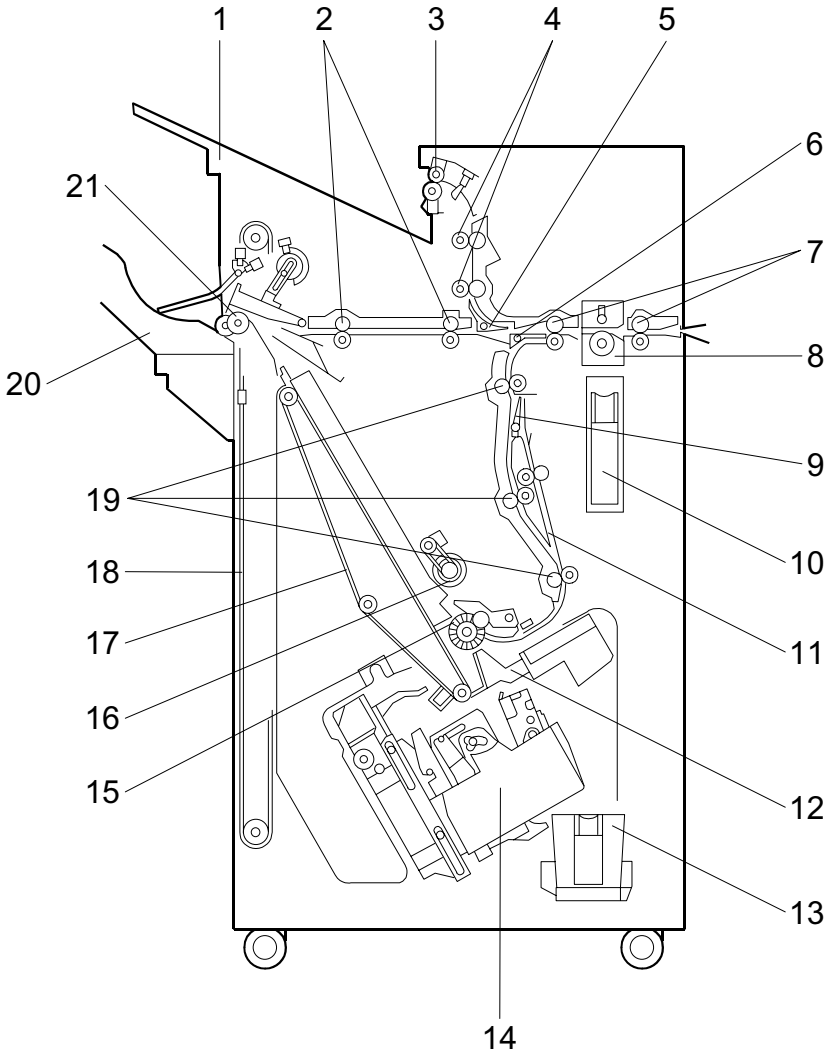
Power Source: 24 Vdc (from copier)

Power Consumption: 120 W

Weight: 60 kg

Size (W x D x H): 800 mm x 730 mm x 980 mm

1.2 MECHANICAL COMPONENT LAYOUT



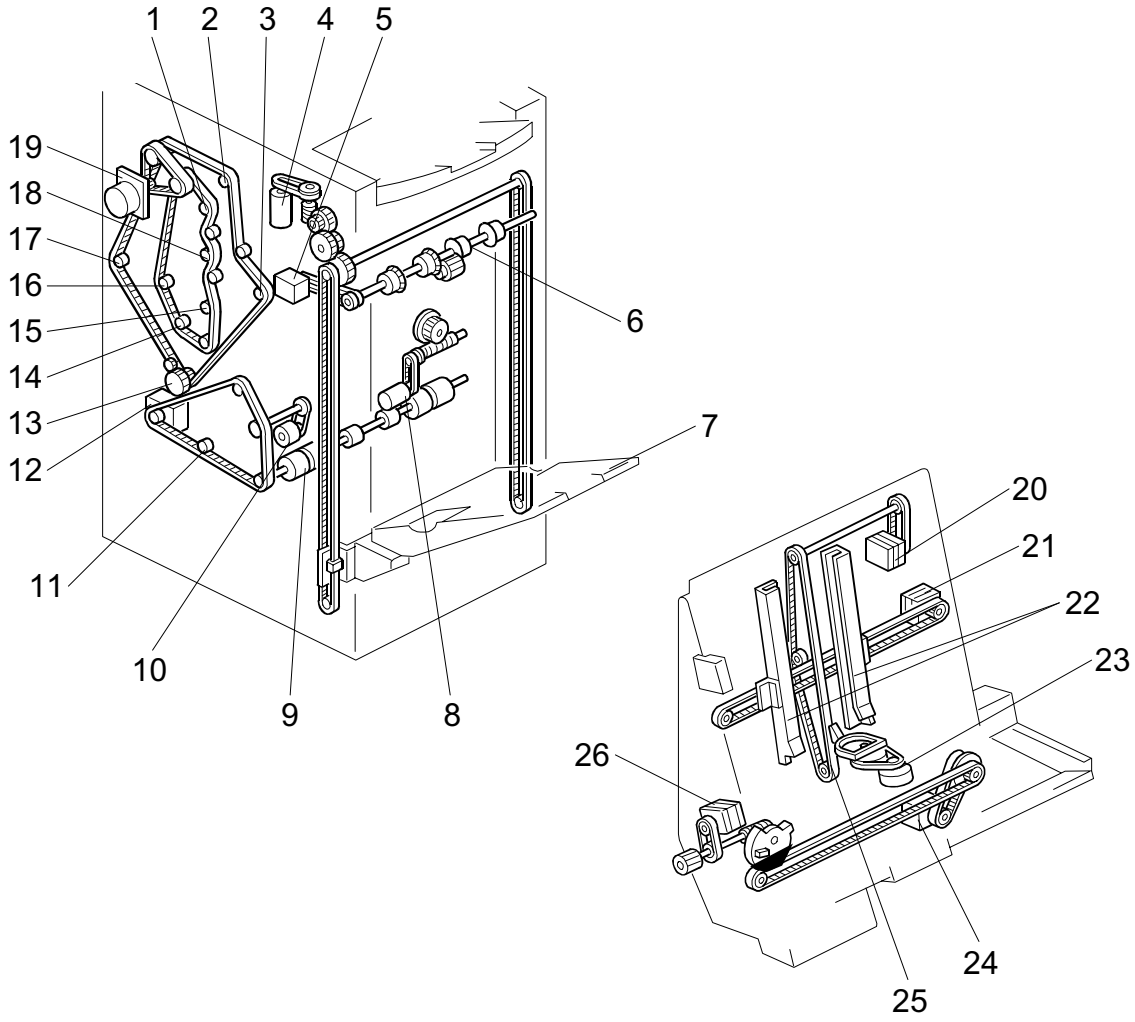
1. Upper Tray
2. Middle Transport Rollers
3. Upper Tray Exit Roller
4. Upper Transport Rollers
5. Tray Junction Gate
6. Stapler Junction Gate
7. Entrance Rollers
8. Punch Unit
9. Pre-stack Junction Gate
10. Punch Waste Hopper
11. Pre-stack Tray
12. Stack Plate
13. Staple Waste Hopper
14. Stapler
15. Alignment Brush Roller
16. Positioning Roller
17. Stack Feed-out Belt
18. Shift Tray Drive Belt
19. Lower Transport Rollers
20. Shift Tray
21. Shift Tray Exit Roller

1.3 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function
Motors		
M1	Upper Transport	Drives the entrance rollers, the middle and upper transport rollers, and upper tray exit roller.
M2	Lower Transport	Drives the lower transport rollers, the alignment brush roller, and the positioning roller.
M3	Jogger	Moves the jogger fence.
M4	Stack Plate	Drives the stack plate.
M5	Stapler	Moves the staple unit from side to side.
M6	Stapler Rotation	Rotates the stapler 45 degrees.
M7	Staple Hammer	Drives the staple hammer.
M8	Stack Feed-out	Drives the stack feed-out belt.
M9	Exit Guide	Opens and closes the upper exit guide.
M10	Shift Tray Exit	Drives the exit roller for the shift tray.
M11	Shift	Moves the shift tray from side to side.
M12	Shift Tray Lift	Moves the shift tray up or down.
M13	Punch	Drives the punch shaft and roller.
Sensors		
S1	Entrance	Detects the copy paper entering the finisher and checks for misfeeds.
S2	Pre-stack Tray Paper	Determines when to turn off the pre-stack paper stopper solenoid.
S3	Stapler Tray Entrance	Detects the copy paper entering the stapler tray and checks for misfeeds.
S4	Jogger Fence HP	Detects the home position of the jogger fence.
S5	Stapler Tray Paper	Detects the copy paper in the stapler tray.
S6	Stack Plate HP	Detects the home position of the stack plate.
S7	Stapler HP	Detects the home position of the staple unit for side-to-side movement.
S8	Stapler Rotation HP	Detects the home position of the stapler unit for 45-degree rotation.
S9	Staple Hammer HP	Detects the home position of the staple hammer.
S10	Cartridge Set	Detects the staple cartridge in the stapler.
S11	Staple End	Detects the staples in the cartridge.
S12	Staple Waste Hopper	Detects when the staple waste hopper is full.
S13	Stack Feed-out Belt HP	Detects the home position of the stack feed-out belt.
S14	Exit Guide Open	Detects whether the guide plate is opened or not.
S15	Shift Tray Exit	Checks for misfeeds at the shift tray.
S16	Stack Height 1	Detects when the top of the copy paper stack in the shift tray is at the correct position.
S17	Stack Height 2	Detects when the top of the copy paper stack in the shift tray has become too high.
S18	Upper Tray Exit	Checks for misfeeds at the upper tray.

Symbol	Name	Function
S19	Upper Tray Paper Limit	Detects when the paper stack height in the upper tray is at its upper limit.
S20	Shift Tray Half-turn	Detects the return position for side-to-side movement of the shift tray.
S21	Shift Tray Lower Limit 1	Detects when the shift tray is nearly at its lower limit.
S22	Shift Tray Lower Limit 2	Detects when the shift tray is at its lower limit.
S23	Punch Waste Hopper	Detects when the punch waste hopper is full and detects when the punch tray is set.
S24	Punch HP	Detects the home position of the punch shaft and roller.
S25	Stapler Return	Detects the on timing of the stapler return solenoid.
Switches		
SW1	Front Door Safety	Cuts the dc power when the front door is opened.
SW2	Shift Tray Upper Limit	Cuts the power to the shift tray lift motor when the shift tray position is at its upper limit.
Solenoids		
SOL1	Stapler Junction Gate	Drives the stapler junction gate.
SOL2	Tray Junction Gate	Drives the tray junction gate.
SOL3	Pre-stack Junction Gate	Drives the pre-stack junction gate.
SOL4	Pre-stack Paper Stopper	Drives the pre-stack paper stopper.
SOL5	Positioning Roller	Moves the positioning roller against the stapling tray.
SOL6	Stapler Return	Returns the stapler to its guide from the user operation position.
PCBs		
PCB1	Main	Controls the finisher and communicates with the copier.
PCB2	Punch	Passes signals between the punch unit and the finisher main board.

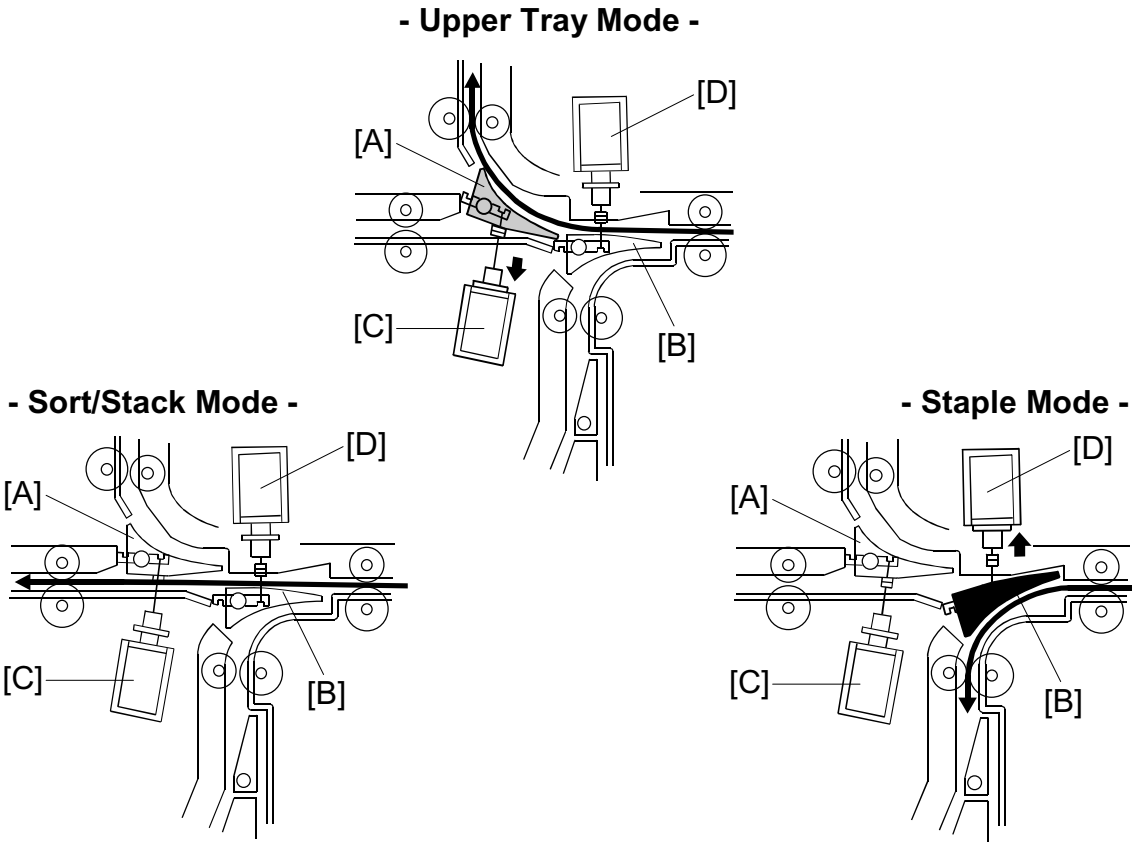
1.4 DRIVE LAYOUT



1. Upper Transport Roller 2
2. Upper Tray Exit Roller
3. Lower Transport Roller 2
4. Shift Tray Lift Motor
5. Shift Tray Exit Motor
6. Shift Tray Exit Roller
7. Shift Tray
8. Shift Motor
9. Staple Tray Exit Roller
10. Positioning Roller
11. Lower Transport Roller 3
12. Lower Transport Motor
13. Lower Transport Rollers 2
14. Lower Transport Roller 1
15. Transport Roller 1
16. Entrance Roller 2
17. Entrance Roller
18. Upper Transport Roller 1
19. Upper Transport Motor
20. Stack Feed-out Motor
21. Jogger Motor
22. Jogger Fence
23. Stack Plate Motor
24. Stapler Motor
25. Stack Feed-out Belt
26. Stapler Rotation Motor

2. DETAILED DESCRIPTIONS

2.1 TRAY AND STAPLER JUNCTION GATE



Depending on the finishing mode, the copies are directed up, straight through, or down by the combination of the tray junction gate [A] and stapler junction gate [B]. These gates are controlled by the tray junction gate solenoid [C] and stapler junction gate solenoid [D].

Upper Tray Mode

The stapler tray junction gate solenoid remains off and the tray junction gate solenoid turns on. The copies go up to the upper tray.

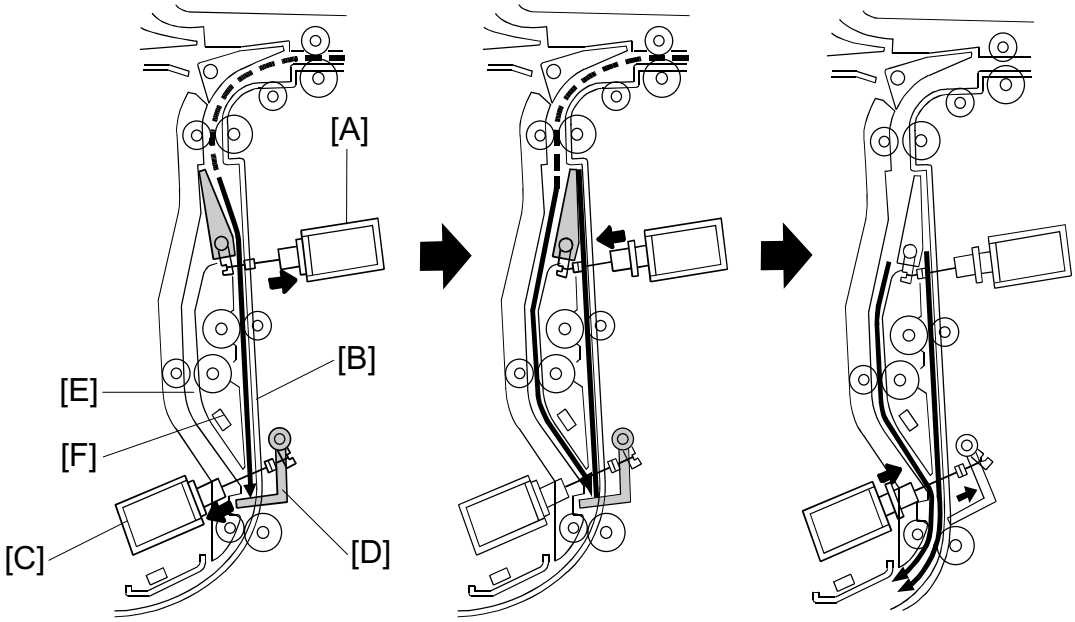
Sort/Stack Mode

The tray junction gate solenoid and the stapler junction gate solenoid remain off. The copies are sent to the shift tray directly.

Staple Mode

The stapler junction gate solenoid turns on. The copies go downwards to the jogger unit.

2.2 PAPER PRE-STACKING



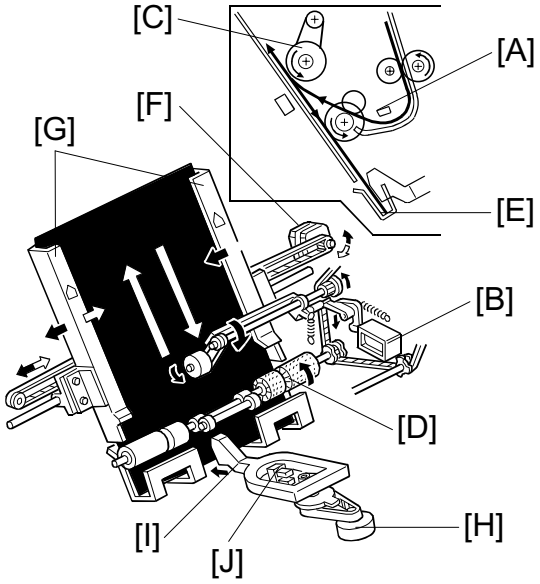
This mechanism improves productivity in staple mode. It is only used when copying on A4, LT, or B5 (all sideways).

During stapling, the copier has to wait. This mechanism reduces the wait by holding the first two sheets of a job while the previous job is still being stapled. It only works during the second and subsequent sets of a multi-set copy job.

The pre-stack junction gate solenoid [A] turns on about 230 ms after the 1st sheet of paper turns on the entrance sensor, and this directs the sheet to the pre-stack tray [B]. (This sheet cannot be fed to the stapler yet, because the first set is still being stapled.) The pre-stack paper stopper solenoid [C] turns on about 680 ms after the 1st sheet turns on the entrance sensor. The pre-stack paper stopper [D] then stops the paper.

The pre-stack junction gate solenoid turns off 450 ms after the trailing edge of the 1st sheet passes through the entrance sensor, and the 2nd sheet is sent to the paper guide [E]. The pre-stack paper stopper is released about 50 ms after the 2nd sheet turns on the pre-stack stopper sensor [F], and the two sheets of copy paper are sent to the stapler tray. All sheets after the 2nd sheet go to the stapler tray via the paper guide [E].

2.3 JOGGER UNIT PAPER POSITIONING



In staple mode, each sheet of copy paper is vertically and horizontally aligned when it arrives in the jogger unit.

Vertical Paper Alignment

Approximately 60 ms after the trailing edge of the copy passes the staple tray entrance sensor [A], the positioning roller solenoid [B] is energized to push the positioning roller [C] into contact with the paper. The positioning roller and alignment brush roller [D] rotate to push the paper back and align the trailing edge of the paper against the stack stopper [E].

Horizontal Paper Alignment

When the print key is pressed, the jogger motor [F] turns on and the jogger fences [G] move to the waiting position, which is approximately 7 mm wider on both sides than the selected paper.

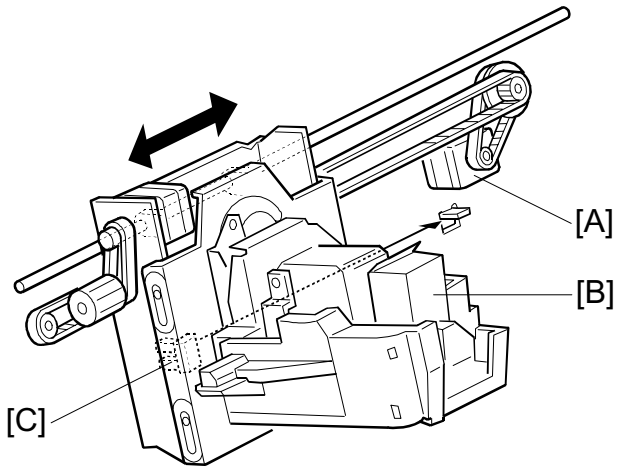
When the trailing edge of the paper passes the staple unit entrance sensor, the jogger motor turns on for approximately 32 ms (4.7 mm) to move the jogger fences approximately 5 mm towards the paper. After a short time, the jogger motor turns on again approximately 18 ms (3.0 mm) for the horizontal paper alignment then goes back to the waiting position.

Paper Stack Correction

After the paper is aligned in the stapler tray, the stack plate motor turns [H] on for short time to correct the paper stack and the stack plate [I] push the paper against the staple tray.

When the next copy paper turns on the stapler tray entrance sensor, the stack plate motor turns on gain to return to its home position. The home position is detected by stack plate HP sensor [J].

2.4 STAPLER UNIT MOVEMENT

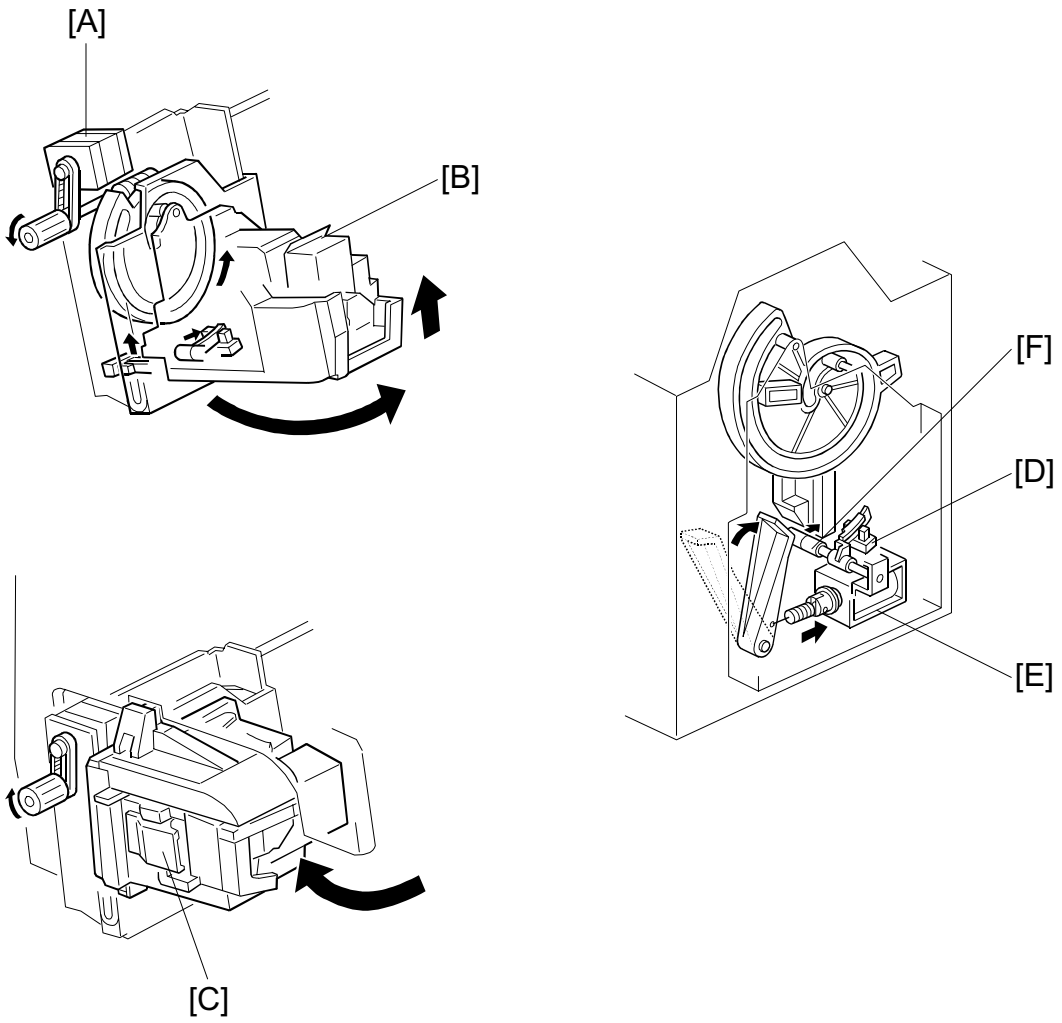


Side-to-Side

The stapler motor [A] moves the stapler [B] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.

If two-staple-position mode is selected, the stapler moves to the front stapling position first, then moves to the rear stapling position. However, for the next copy set, it staples in the reverse order (at the rear side first then at the front side).

After the job is completed, the stapler moves back to its home position. This is detected by the stapler HP sensor [C].



Rotation (1)

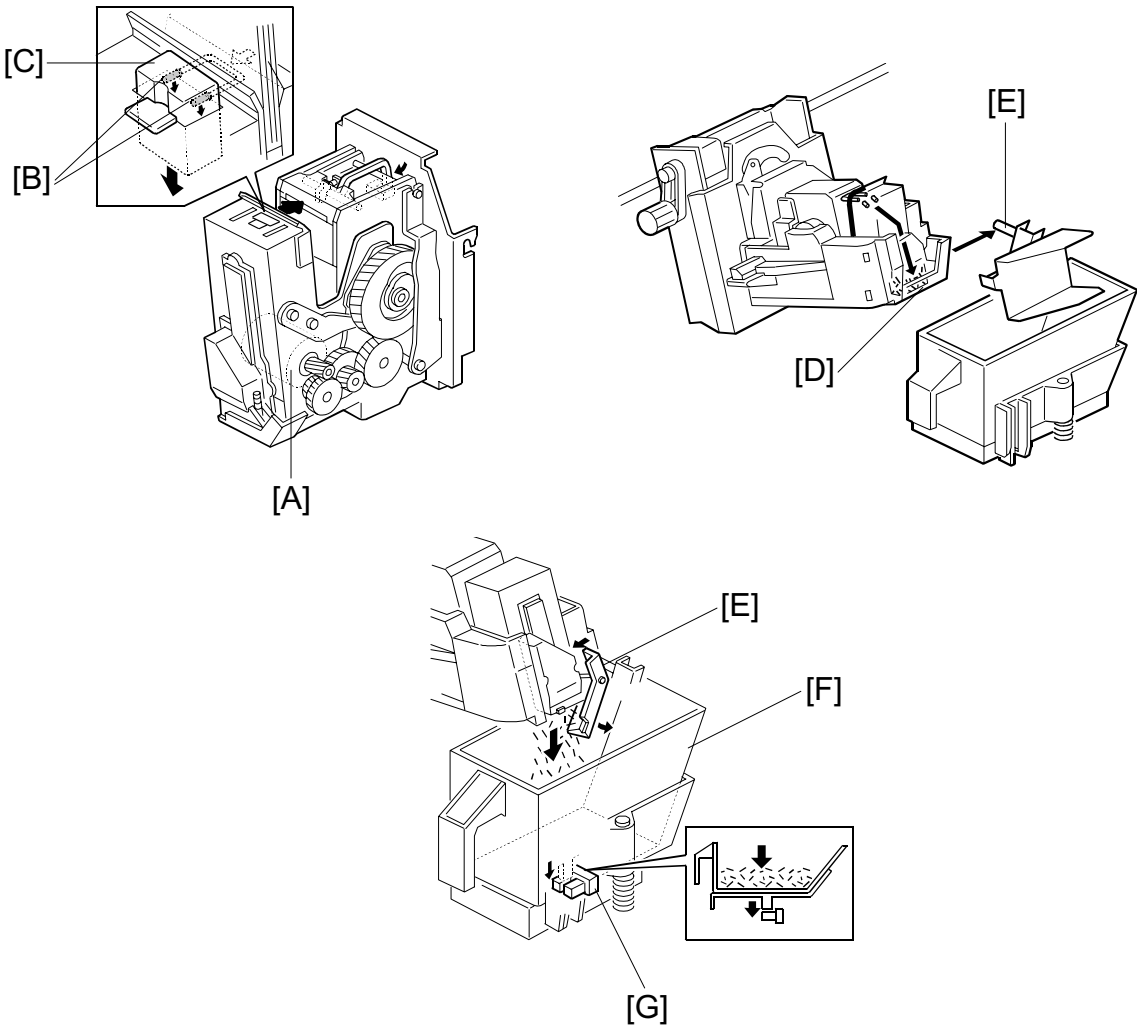
In the oblique staple position mode, the stapler rotation motor [A] rotates the stapler units [B] 45° to counterclockwise after it moves to the stapling position.

Rotation (2)

When the staple end condition arises, the stapler motor moves the stapler to the front and the stapler rotation motor rotates the stapler unit to clockwise to remove the staple cartridge [C]. This allows the user to add new staples.

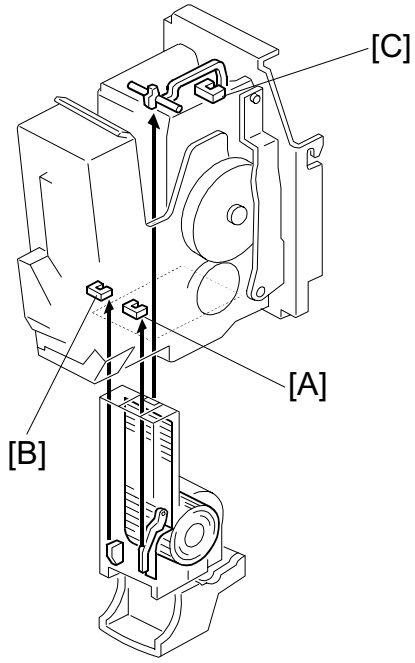
Once the staples have been installed, and the front door closed, the stapler unit returns to its home position. As the stapler unit is returning to the home position, the stapler return sensor [D] is activated, the return solenoid [E] turns on and it assists the guide roller [F] to return to its guide (this guide directs the stapler during rotation).

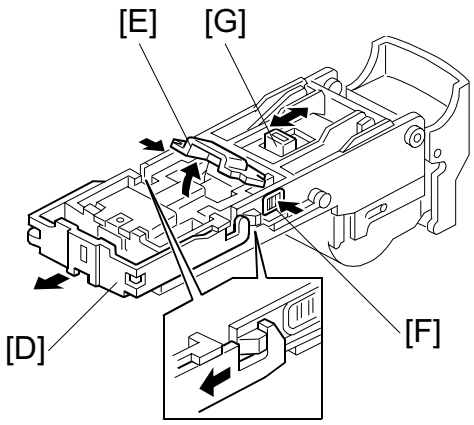
2.5 STAPLER



When the aligned copies are brought to the stapling position by the positioning roller and jogger fences, the staple hammer motor [A] starts stapling.

During stapling, the stapler trims off the excess length [B] of the staples by lowering the cutter [C]. This excess length depends on the number of copies in the set; there will be very little for a stack containing 100 sheets. The staple waste drops into the tray [D] in the stapler. When the stapler unit returns to its home position, the tray hits the shaft [E] and the tray opens. The staple waste drops into the staple waste hopper [F]. When the staple waste hopper is full, the actuator on its base activates the staple waste hopper sensor [G]. An SC is displayed.





The stapler has a staple end sensor [A], cartridge set sensor [B] and staple hammer HP sensor [C].

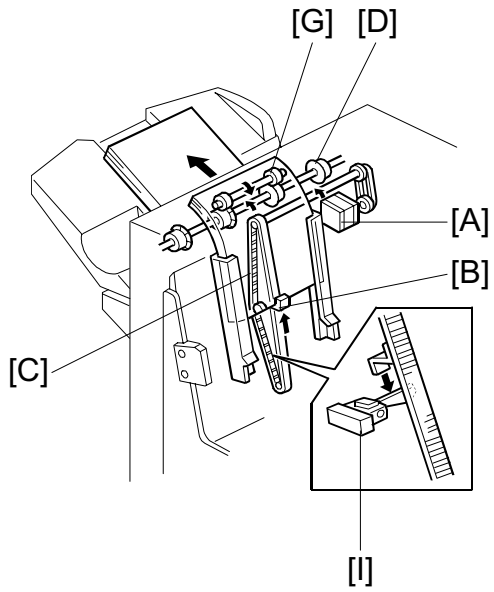
When a staple end or no cartridge condition is detected, a message is displayed advising the operator to install a staple cartridge. If this condition is detected during a copy job, the indication will appear, and the copy job will stop.

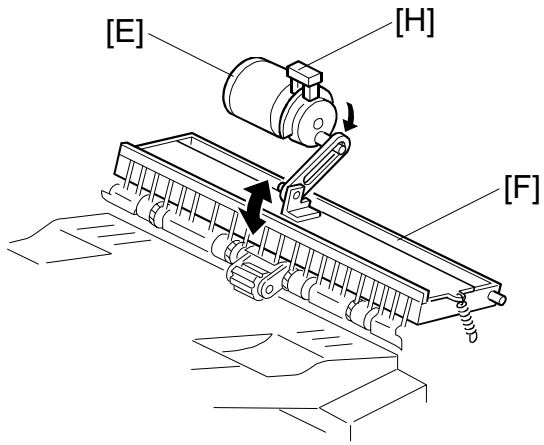
The staple cartridge has a clinch area [D], in which jammed staples are left. Operators can remove the jammed staples from this area.

When the operator lifts the release lever [E], the clinch area is released from the cartridge by pushing the holders [F]. The jammed staples can be removed.

The staple sheet can be feed manually by sliding the knob [G].

2.6 FEED-OUT



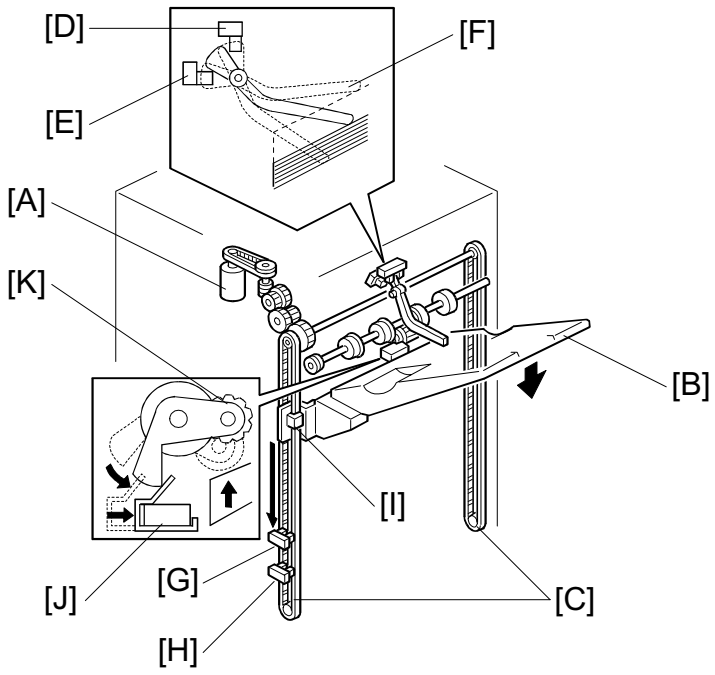


After the copies have been stapled, the stack feed-out motor [A] starts. The pawl [B] on the stack feed-out belt [C] transports the set of stapled copies up and feeds it to the shift tray exit roller [D]. When stapling starts, the exit guide motor [E] opens the upper exit guide [F], which includes the upper shift tray exit roller [G], in order to feed out the leading edge of the copy set smoothly. The exit guide motor turns on again a certain time after stapling is complete, and the upper exit guide plate is lowered. Then the shift tray exit roller takes over the stack feed-out.

The on-off timing of the exit guide motor is detected by the exit guide open sensor [H].

The stack-feed-out motor turns off when the pawl actuates the stack feed-out belt home position sensor [I].

2.7 SHIFT TRAY UP/DOWN MOVEMENT



The shift tray lift motor [A] controls the vertical position of the shift tray [B] through gears and timing belts [C]. When the main switch is turned on, the tray is initialized at the upper position. The tray is moved up until stack height sensor 1 [D] is de-actuated.

In sort/stack mode, if stack height sensor 2 [E] is actuated for 2 seconds, the shift tray lift motor lowers the shift tray for 20 ms.

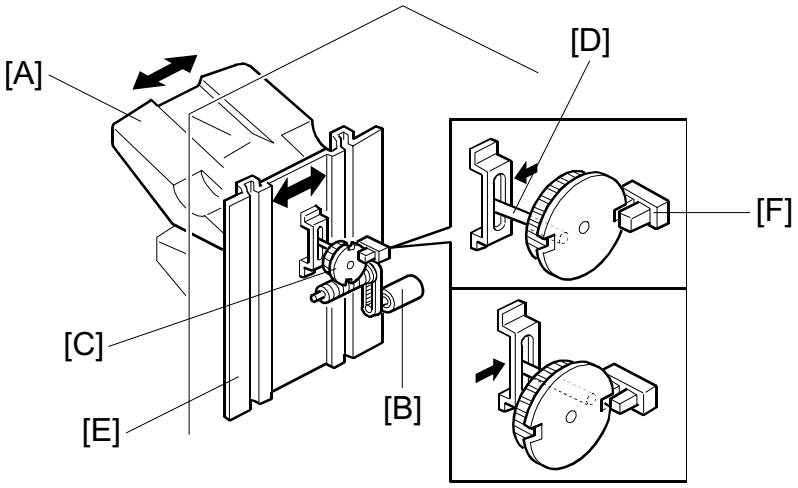
In staple mode, when the pawl on the stack feed-out belt reaches the upper position of the staple unit, the shift tray lift motor lowers the shift tray for 400 ms and stops for 200 ms. Then, it lifts the shift tray until stack height sensor 1 is de-actuated by the feeler [F]. This means the tray lowers earlier in staple mode, to prevent the next copy suddenly exceeding the space currently available on the tray.

For both modes, the shift tray will rise until stack height sensor 1 is de-actuated when the user takes the stack of paper from the shift tray.

This machine has two shift tray lower limit sensors 1 [G], 2 [H]. Shift tray lower limit sensor 1 detects the near lower limit and sensor 2 detects the lower limit. When the actuator [I] enters sensor 1, a message will be displayed and copying will continue. When the actuator enters sensor 2, a message will be displayed and copying will stop.

The shift tray upper limit switch [J] prevents the drive gear from being damaged if stack height sensor 1 fails. When the shift tray pushes up the shift tray positioning roller [K], the switch will cut the power to the shift tray lift motor.

2.8 SHIFT TRAY SIDE-TO-SIDE MOVEMENT

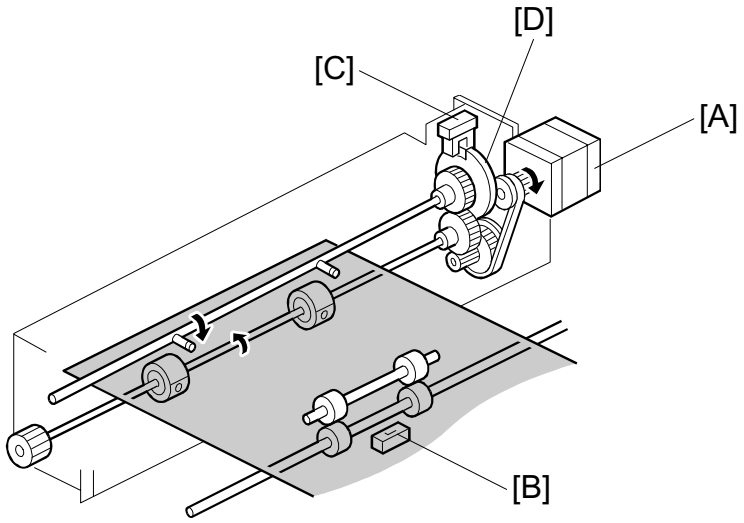


In sort/stack mode, the shift tray [A] moves from side to side to separate the sets of copies.

The horizontal position of the shift tray is controlled by the shift motor [B] and shift gear disk [C]. After one set of copies is made and delivered to the shift tray, the shift motor turns on, driving the shift gear disk and the shaft [D]. The end fence [E] is positioned by the shaft, creating the side-to-side movement.

When the shift gear disk has rotated 180 degrees (when the shift tray is fully shifted across), the cut-out in the shift gear disk turns on the shift tray half-turn sensor [F] and the shift motor stops. The next set of copies is then delivered. The motor turns on, repeating the same process and moving the tray back to the previous position.

2.9 PUNCH UNIT DRIVE



The punch unit makes 2 or 3 holes (depending on the type of punch unit) at the trailing edge of the paper.

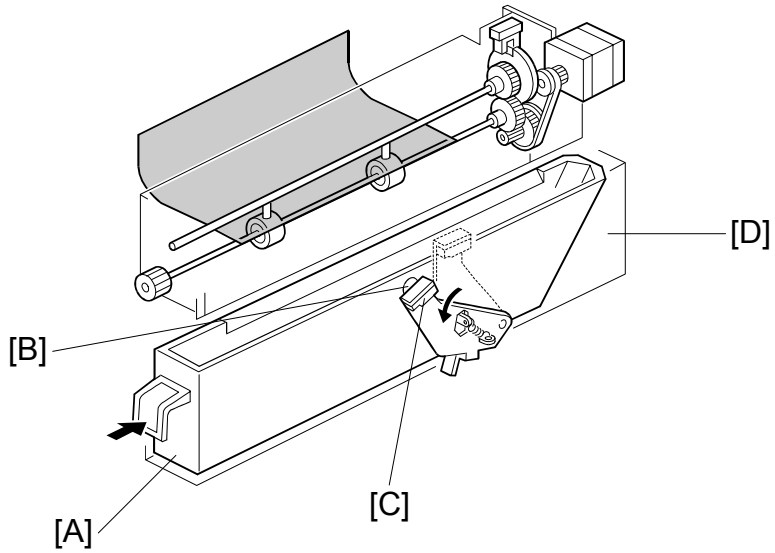
The punch unit is driven by the punch motor [A]. The punch motor turns on 78 ms after the trailing edge of the paper passes through the entrance sensor [B], and makes the punch holes.

The home position is detected by the punch HP sensor [C]. When the cut-out in the punch shaft gear disk [D] enters the punch HP sensor, the punch motor stops.

The punch position is adjusted as follows:

- Right to left: SP mode
- Front to rear: Spacers

2.10 PUNCH WASTE COLLECTION



The punch waste is collected in the punch waste hopper [A], which is under the punch unit.

When the punch waste covers the hole [B] in the hopper, the punch waste hopper sensor [C] turns on and a message will be displayed in the operation panel LCD. Then, the copy job will be stopped. After emptying the punch waste and returning the punch waste hopper [A] to the finisher, the copy job will be resumed.

The punch waste hopper sensor also works as the hopper set sensor. If the punch waste hopper is not set, the sensor stays away from the hole in the hopper holder [D] and a message is displayed. This message is the same as for the hopper full condition.

2.11 JAM CONDITIONS

1. The entrance sensor does not turn on when the copier has fed paper 426 ms after the copier exit sensor turned off.
2. The entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
3. The upper tray exit sensor does not turn on when the upper transport motor has fed paper 574 ms after the entrance sensor turned on.
4. The upper tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
5. In sort/stack mode, the shift tray exit sensor does not turn on when the upper transport motor has fed paper 783 ms after the entrance sensor turned on.
6. In sort/stack mode, the shift tray exit sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
7. In staple mode, the stapler tray entrance sensor does not turn on when the upper and lower transport motor have fed paper 835 ms after the entrance sensor turned on.
8. In staple mode, the stapler tray entrance sensor does not turn off when the upper transport motor has fed paper 1.5 times the paper's length after it turned on.
9. In staple mode, the stapler tray paper sensor does not turn off within 250 pulses of the stack feed-out motor after it started.
10. In staple mode, the shift tray exit sensor does not turn off within 1,260 ms after the stack feed-out motor started.

3. SERVICE TABLES

3.1 DIP SWITCHES

DPS100				Description
1	2	3	4	
0	0	0	0	Default
1	0	0	0	Free run: A4 sideways, staple mode
0	1	0	0	Free run: staple and tray shift

NOTE: Do not use any other settings.

3.2 TEST POINTS

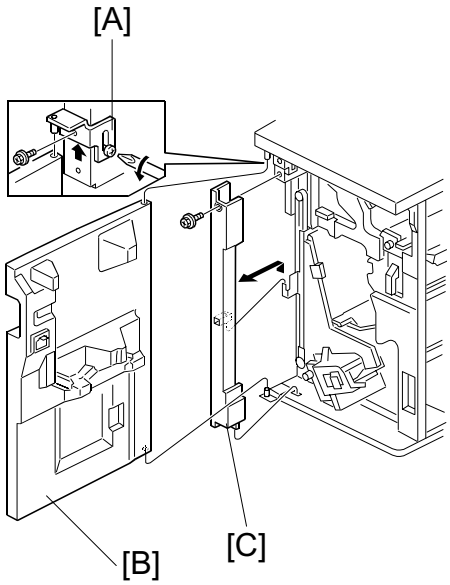
No.	Label	Monitored Signal
TP100	(5V)	+5 V
TP101	(GND)	Ground
TP102	(RXD)	RXD
TP103	(TXD)	TXD

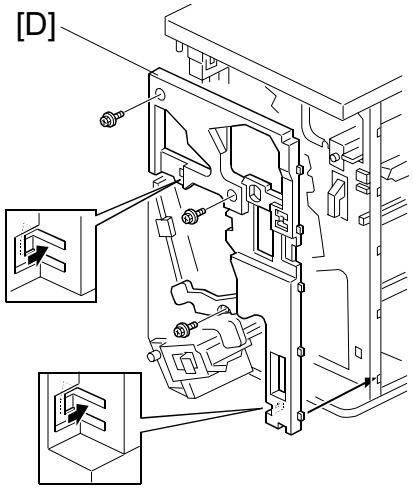
3.3 FUSES

No.	Function
FU100	Protects 24 V.

4. REPLACEMENT AND ADJUSTMENT

4.1 COVER REPLACEMENT





Front Door

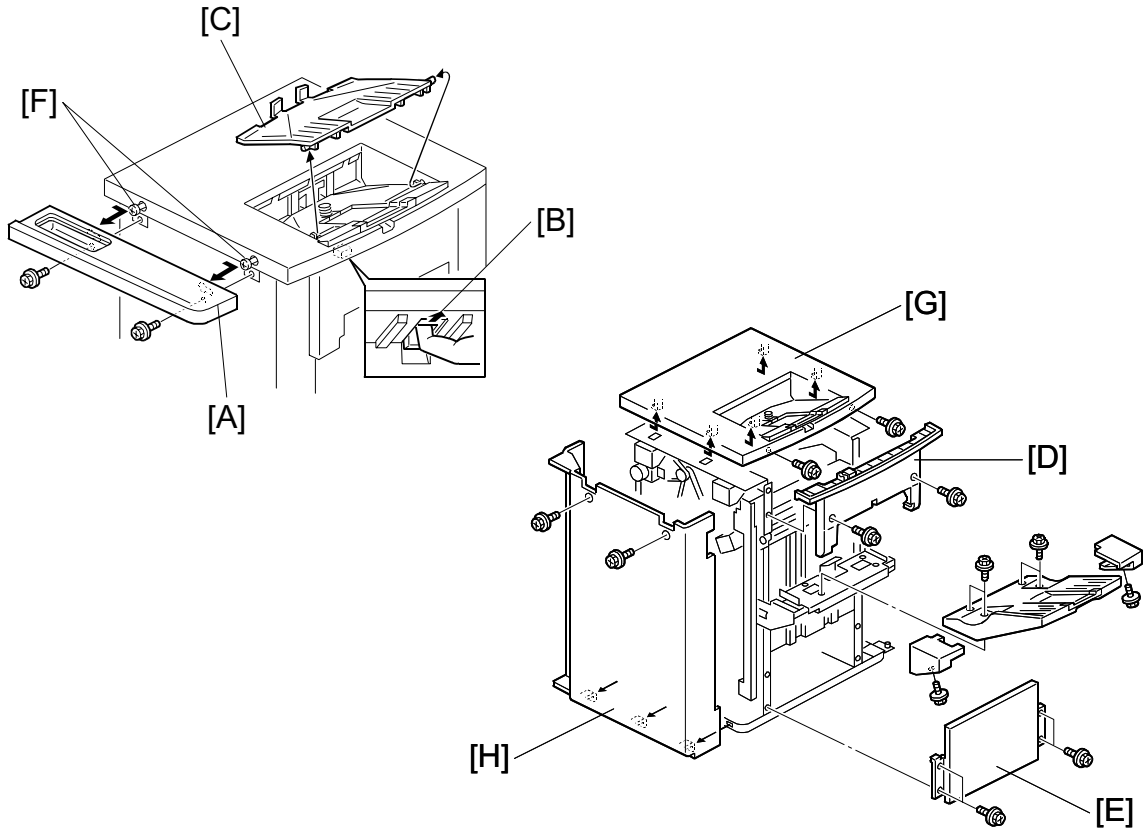
1. Remove one screw and loosen the other screw of the upper hinge for the front door [A].
2. Remove the front door [B].

Left Inner Cover

1. Remove the front door.
2. Remove the left inner cover [C] (1 screw).

Inner Cover

1. Remove the three screws and unhook the pawls.
2. Remove the inner cover [D].



Table

1. Slide the table [A] to the right and remove it (2 screws).

Upper Tray

1. Click the release lever [B].
2. Remove the upper tray [C].

Left Upper Cover

1. Remove the left upper cover [D].

Left Lower Cover

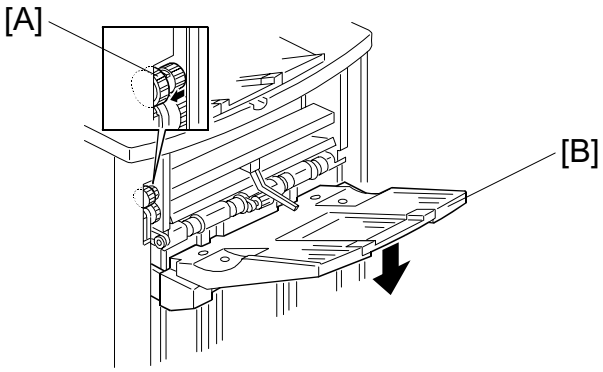
1. Remove the left lower cover [E].

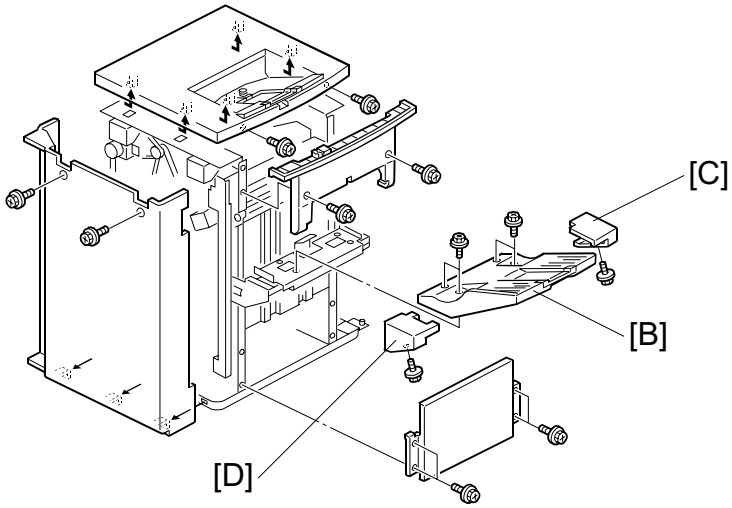
Upper Cover

1. Remove the table.
2. Remove two stepped screws [F].
3. Remove the left upper cover.
4. Slide across the right cover [G] and remove it (2 screws).

Rear Cover

1. Remove the rear cover [H] (2 screws).





Shift Tray

1. Remove the left upper cover.
2. Rotate the shift tray lift gear [A] manually to lower the shift tray [B]
3. Remove the shift tray (4 screws).

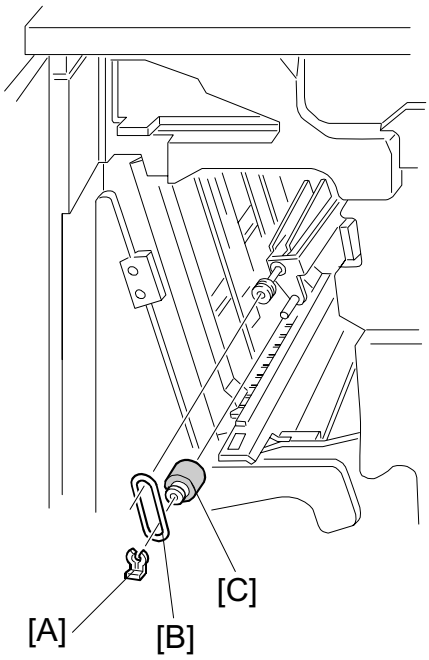
Front Shift Tray Cover

1. Remove the front shift tray cover [C] (1 screw).

Rear Shift Tray Cover

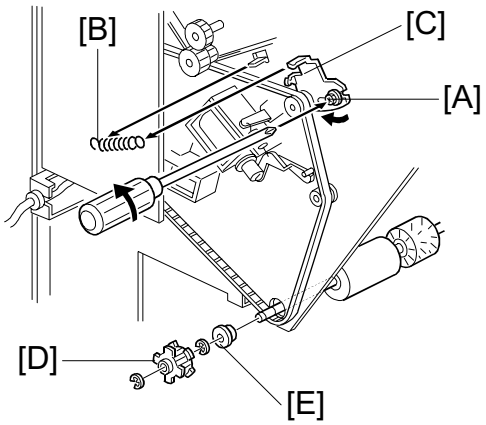
1. Remove the rear shift tray cover [D] (1 screw).

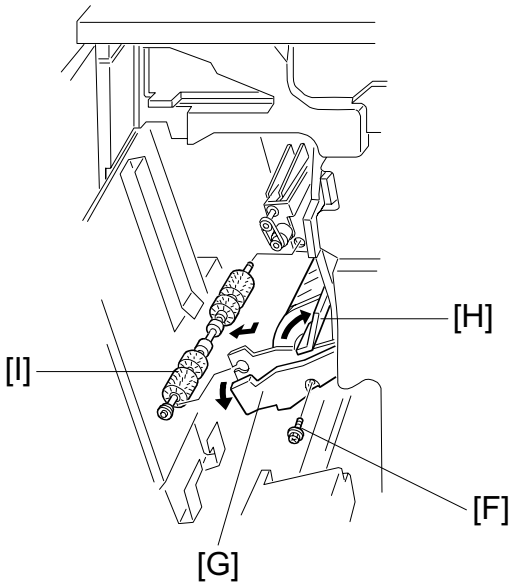
4.2 POSITIONING ROLLER REPLACEMENT



1. Open the front door.
2. Remove the snap ring [A].
3. Release the rubber belt [B].
4. Replace the positioning roller [C].

4.3 ALIGNMENT BRUSH ROLLER REPLACEMENT

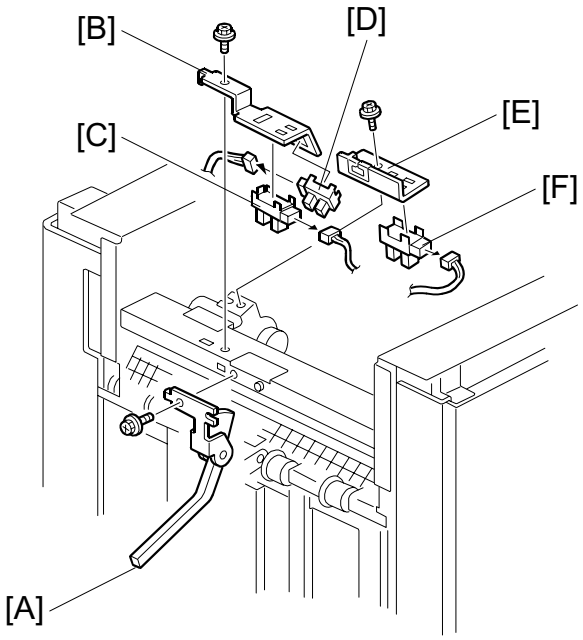




1. Open the front door and pull out the staple unit.
2. Remove the rear cover.
3. Remove the screw [A] and a tension spring [B] for the tension bracket [C], and release the tension of the timing belt.
4. Remove the pulley [D] and ball bearing [E] (1 E-ring each).
5. Remove screw [F] of the inner cover [G].
6. Open the guide [H] and a part of the inner cover, and remove the alignment brush roller assembly [I] (1 E-ring).
7. Replace the alignment brush roller (1 E-ring, 1 ball bearing).

4.4 SENSOR REPLACEMENT

4.4.1 STACK HEIGHT 1, 2 AND EXIT GUIDE OPEN SENSOR



1. Remove the upper cover.

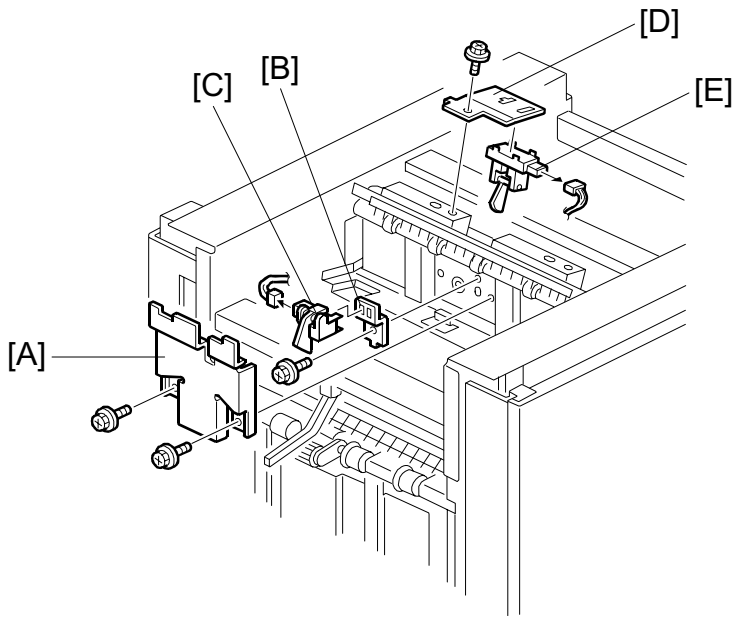
Stack Height Sensors 1 and 2

2. Remove the sensor feeler [A] (1 screw).
3. Remove the sensor bracket [B] (1 screw).
4. Replace the stack height sensor 1 [C] or 2 [D] (1 connector each).

Exit Guide Open Sensor

2. Remove the sensor bracket [E] (1 screw).
3. Replace the exit guide open sensor [F] (1 connector).

4.4.2 UPPER TRAY PAPER LIMIT AND EXIT SENSOR



1. Remove the upper cover.

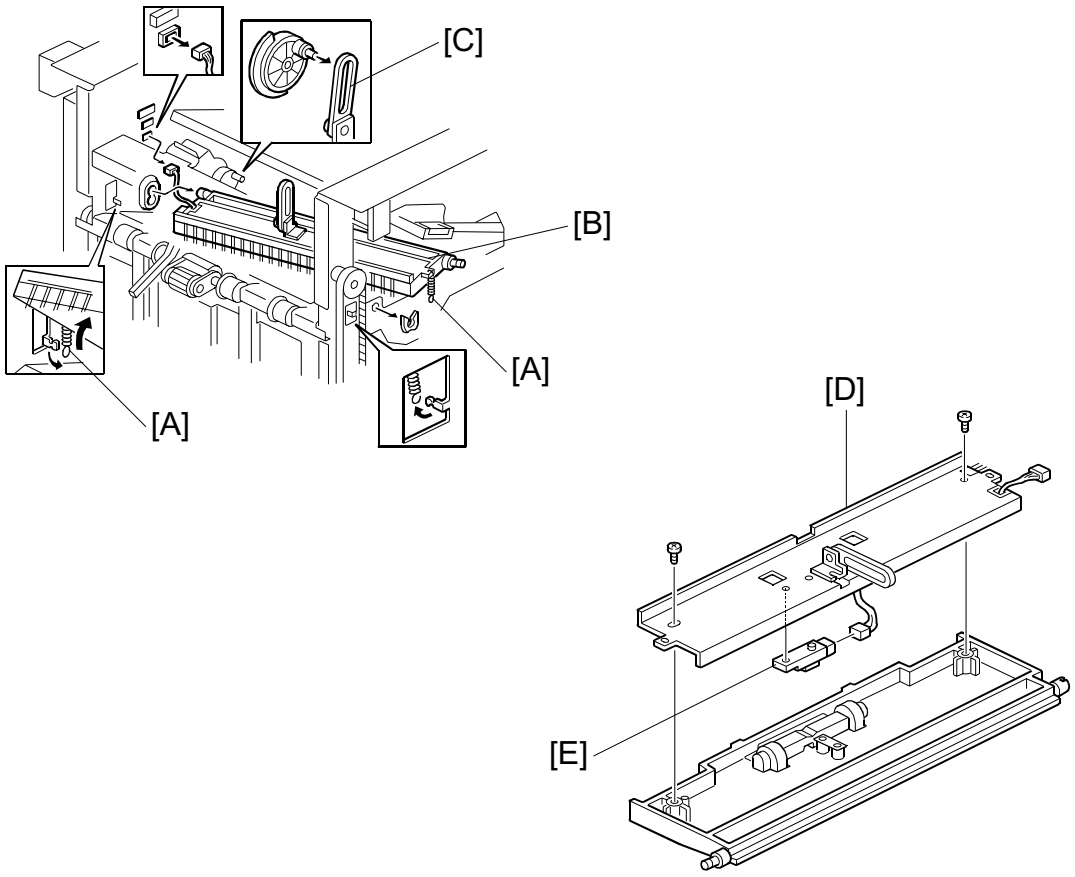
Upper Tray Paper Limit Sensor

2. Remove the sensor cover [A] (2 screws).
3. Remove the sensor bracket [B] (1 screw).
4. Replace the upper tray paper limit sensor [C] (1 connector).

Upper Tray Exit Sensor

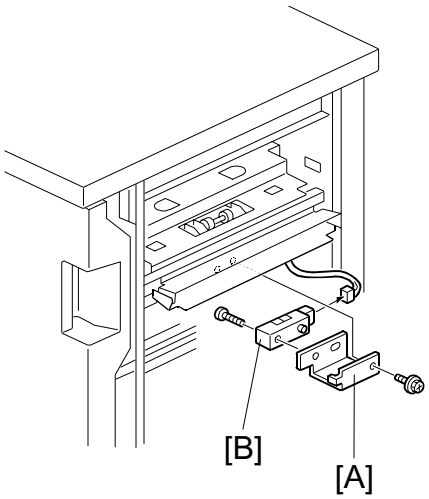
2. Remove the sensor bracket [D] (1 screw).
3. Replace the upper tray exit sensor [E] (1 connector).

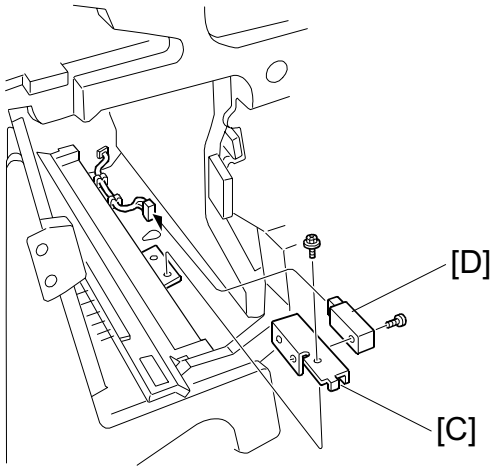
4.4.3 SHIFT TRAY EXIT SENSOR



1. Remove the upper cover.
2. Open the front door.
3. Remove the inner cover.
4. Release two springs [A] of the upper exit guide [B].
5. Release the link [C] from the cam and remove the upper exit guide (1 plastic clip, 1 connector).
6. Remove the guide stay [D] (2 screws).
7. Replace the shift tray exit sensor [E] (1 screw, 1 connector).

4.4.4 ENTRANCE AND STAPLER TRAY ENTRANCE SENSORS





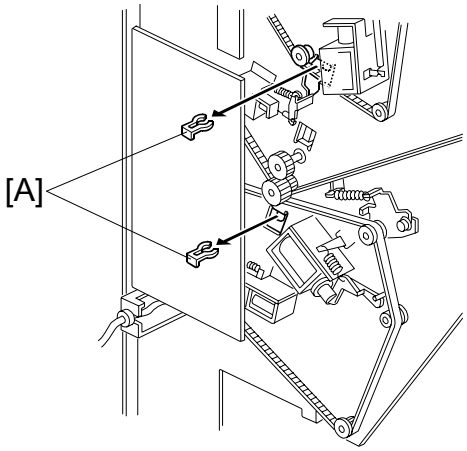
Entrance Sensor

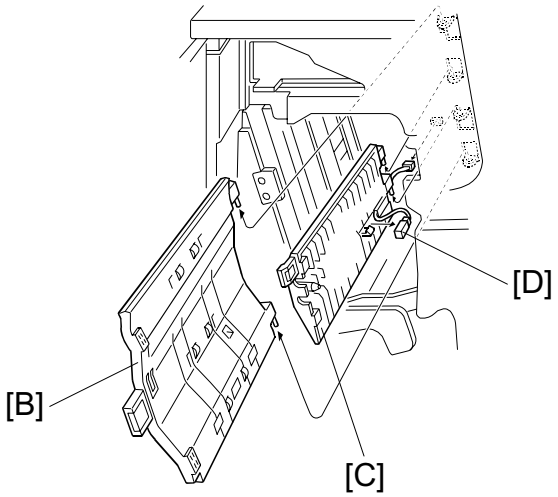
1. Remove the finisher from the copier.
2. Remove the sensor bracket [A] (1 screw).
3. Replace the entrance sensor [B] (1 screw, 1 connector).

Stapler Tray Entrance Sensor

1. Open the front door.
2. Remove the sensor bracket [C] (1 screw).
3. Replace the stapler tray entrance sensor [D] (1 screw, 1 connector).

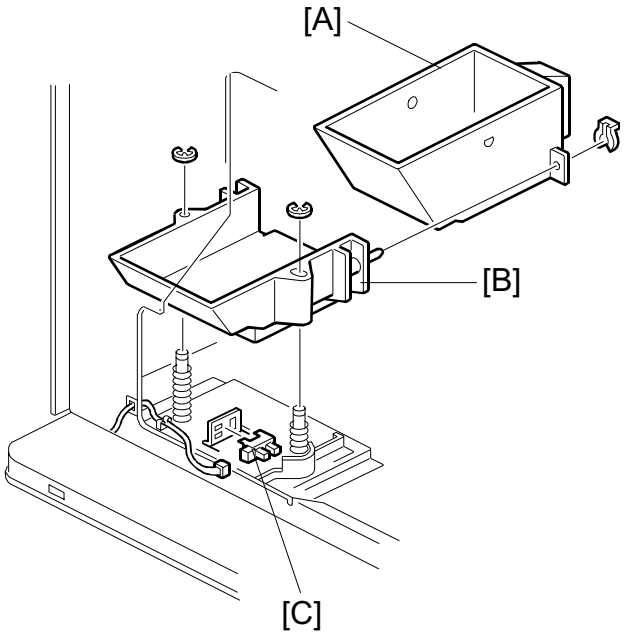
4.4.5 PRE-STACK STOPPER SENSOR





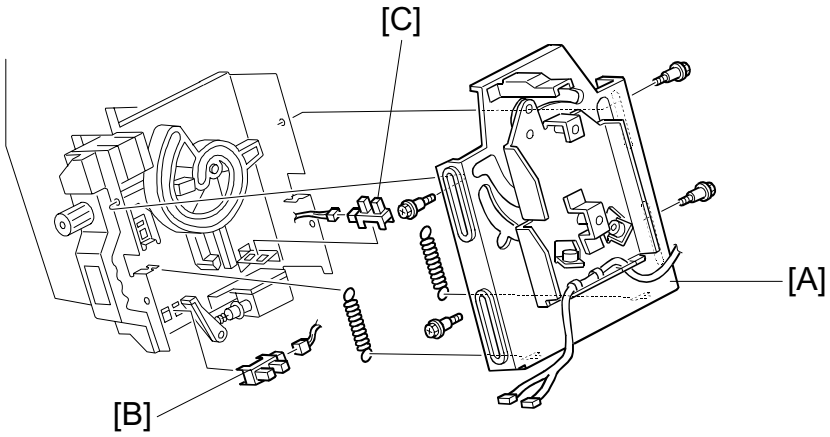
1. Remove the rear cover.
2. Remove two plastic clips from the guide [A].
3. Open the front door.
4. Remove the left vertical transport guide [B].
5. Remove the middle vertical transport guide [C] (1 connector).
6. Replace the pre-stack paper sensor [D] (1 connector).

4.4.6 STAPLE WASTE HOPPER SENSOR



1. Open the front door and pull out the stapler unit.
2. Remove the staple waste hopper [A] (1 plastic clip).
3. Remove the hopper holder [B] (2 E-rings).
4. Replace the staple waste hopper sensor [C] (1 connector).

4.4.7 STAPLER ROTATION HP AND STAPLER RETURN SENSORS



1. Remove the stapler unit.
2. Remove the stapler bracket [A] (4 screws, 2 springs).

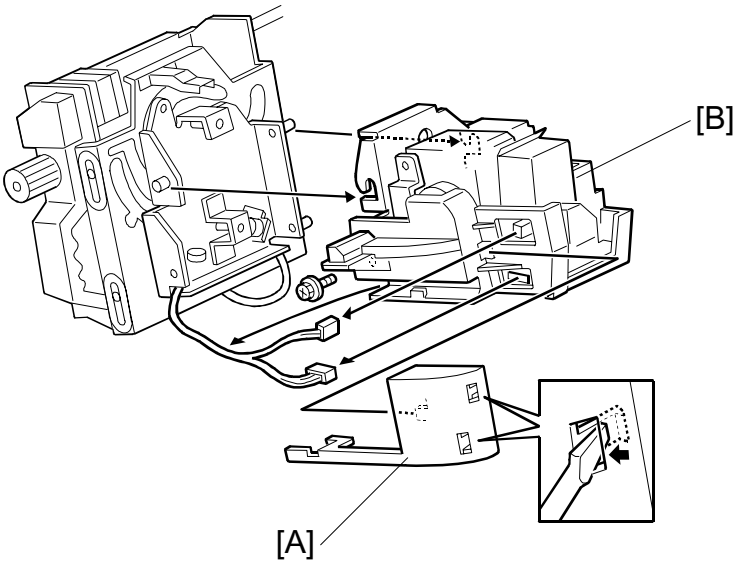
Stapler Rotation HP Sensor

3. Replace the stapler rotation HP sensor [B] (1 connector).

Stapler Return Sensor

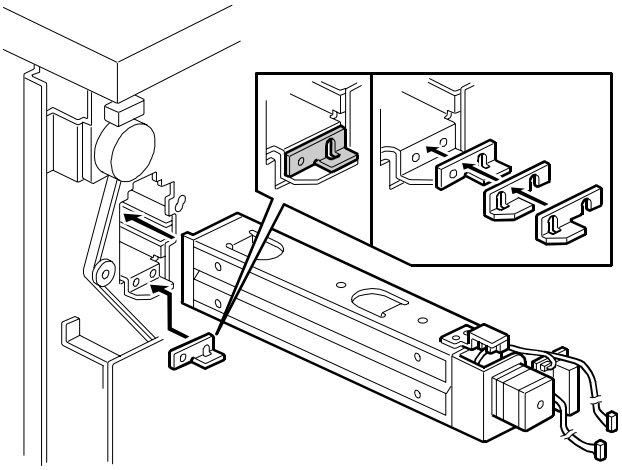
3. Replace the stapler return sensor [C] (1 connector).

4.5 STAPLER REMOVAL

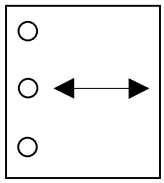


1. Open the front door and pull out the staple tray.
2. Remove the stapler unit harness cover [A].
3. Remove the stapler [B] (1 screw, 2 connectors).

4.6 PUNCH POSITION ADJUSTMENT



Right to Left



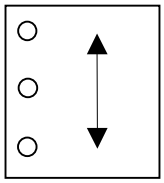
This position is adjusted by SP modes.

Front to Rear

The optional punch units have the following 3 spacers as accessories.

1 mm thickness: 2 pcs
2 mm thickness: 1 pc

The punch position can be adjusted by up to 4 mm by combinations of the 3 spacers.



4.7 ROM HISTORY

4.7.1 FIRMWARE MODIFICATION HISTORY

<table>
<tr><th colspan="6">B302 FINISHER FIRMWARE MODIFICATION HISTORY</th></tr>
<tr><th colspan="5">DESCRIPTION OF MODIFICATION</th><th>FIRMWARE LEVEL</th><th>SERIAL NUMBER</th></tr>
<tr><td colspan="5">First Production</td><td>B3025103 B</td><td>From 1st production</td></tr>
<tr><td colspan="5">Corrects the following:
• SP6-120 Staple Jogger Adjustment was missing. The staple jogger positions for each paper size can be adjusted by SP6-120. This modification becomes effective when the mainframe firmware is updated to version 7.23.2 (F) or later.</td><td>B3025103 C</td><td>February ’00 production</td></tr>
<tr><td>6-120</td><td colspan="4">Staple Jogger Adjustment</td><td colspan="2"></td></tr>
<tr><td></td><td>1</td><td>A3</td><td>S</td><td rowspan="11">Adjusts the staple jogger positions for each paper size.</td><td colspan="2" rowspan="11">+1.5 ~ -1.5
0.5 mm/step
0 mm</td></tr>
<tr><td></td><td>2</td><td>B4</td><td></td></tr>
<tr><td></td><td>3</td><td>A4 L</td><td></td></tr>
<tr><td></td><td>4</td><td>A4 S</td><td></td></tr>
<tr><td></td><td>5</td><td>B5 L</td><td></td></tr>
<tr><td></td><td>6</td><td>B5 S</td><td></td></tr>
<tr><td></td><td>7</td><td>DLT L</td><td></td></tr>
<tr><td></td><td>8</td><td>LG L</td><td></td></tr>
<tr><td></td><td>9</td><td>LT L</td><td></td></tr>
<tr><td></td><td>10</td><td>LT S</td><td></td></tr>
<tr><td></td><td>11</td><td>Others</td><td></td></tr>
<tr><td colspan="5">Corrects the following:
• Door open is indicated after a staple job
• After a staple job, the Staple Unit does not move to the staple supplying position in the staple end condition.
• Stapled sheets of paper fed out incorrectly when the interrupt function is used during printing.
• (A295 w/B302 only) Mistake-stapling, mistake-jogging, R2 Jam, R6 Jam.</td><td>B3025103 D</td><td>March ’00 production</td></tr>
<tr><td colspan="5">Corrects the following:
• (A295 w/B302 only) Tab paper stack failure, exit paper jam in different paper length paper shift.</td><td>B3025103 E</td><td>April ’00 production</td></tr>
</table>

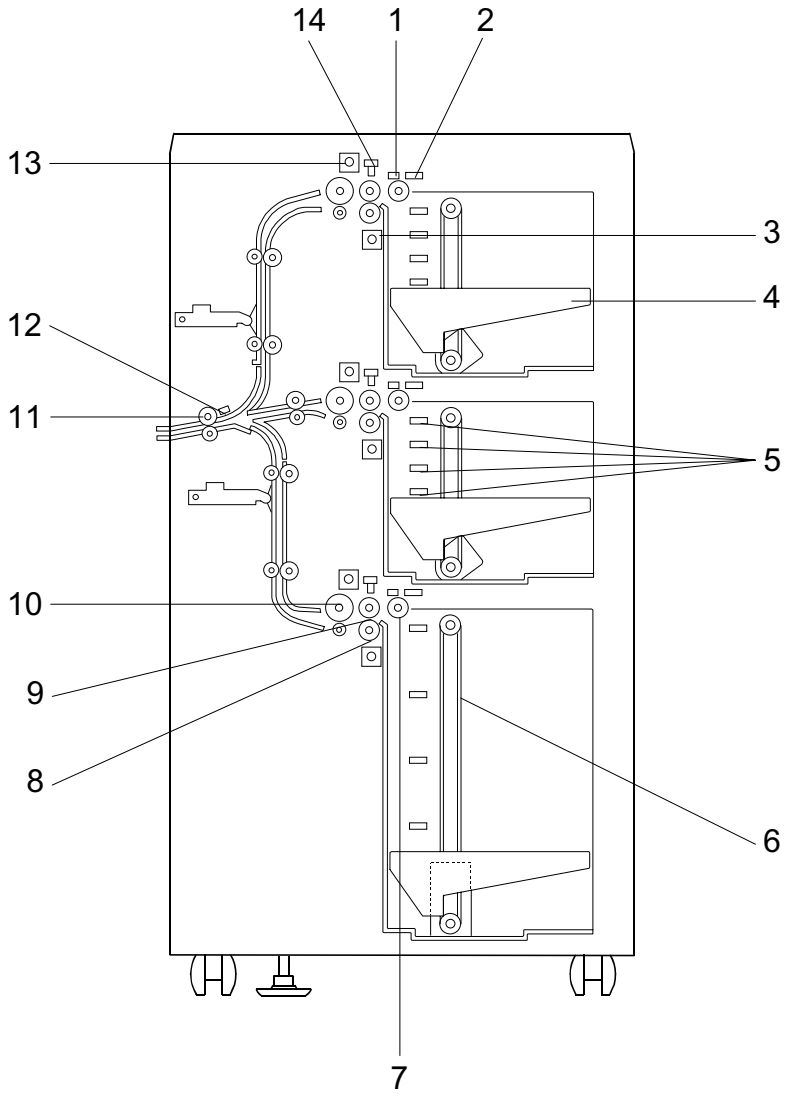
LARGE CAPACITY TRAY
B303

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Paper Size:	A4 sideways, B5 sideways, LT sideways, A5, HLT
Paper Weight:	Upper & Middle Tray: 52 to 216 g/m^2 16 to 40 lbs Bond 50 to 80 lbs Cover 90 to 110 lbs Index Lower Tray: 52 to 163 g/m^2 16 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab)
Tray Capacity:	Upper & Middle Tray: 1,000 sheets (80 g/m^2, 20lb) Lower Tray: 2,550 sheets (80 g/m^2, 20lb)
Tab Sheet:	Available from the upper or middle trays
Paper Feed System:	FRR
Remaining Paper Detection:	4 steps
Power Source:	24 Vdc, 5 Vdc (from copier)
Power Consumption:	55 W
Weight:	78.8 kg
Size (W x D x H):	540 mm x 730 mm x 980 mm

1.2 MECHANICAL COMPONENT LAYOUT



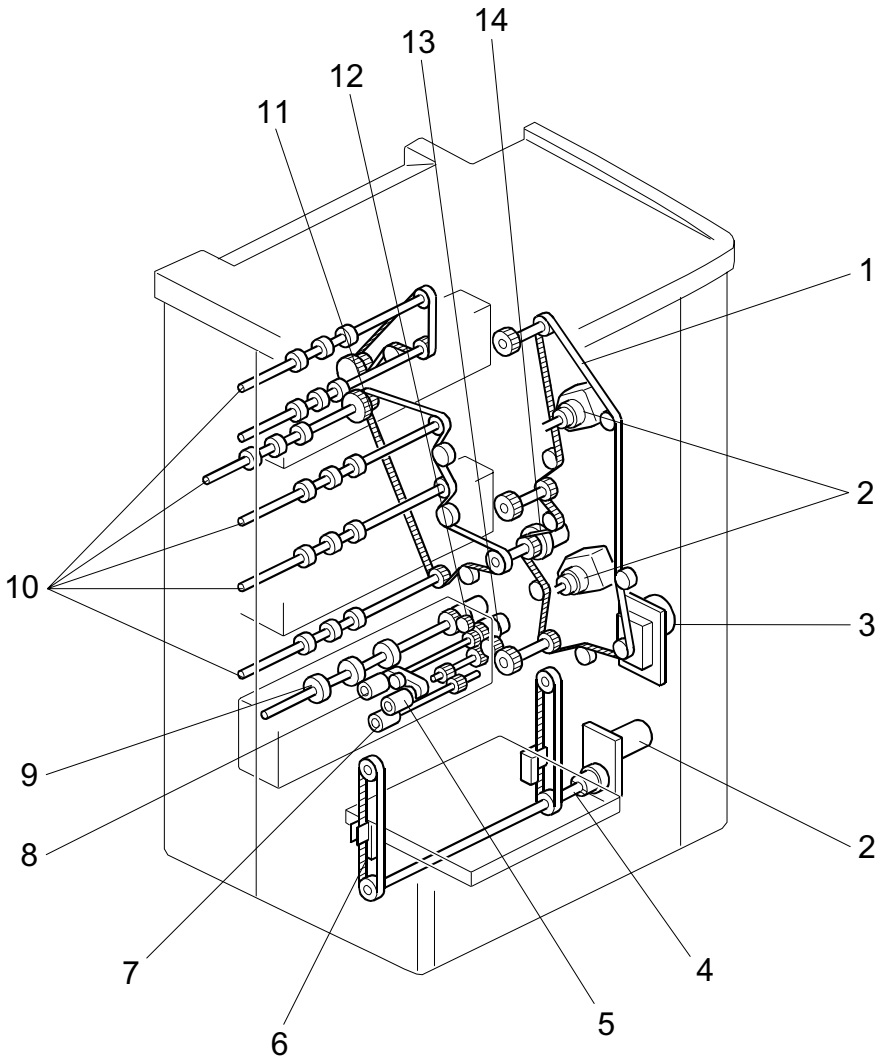
1. Paper Feed Sensor
2. Paper End Sensor
3. Separation Roller Solenoid
4. Paper Tray
5. Paper Height Sensors
6. Tray Drive Belt
7. Pick-up Roller
8. Separation Roller
9. Paper Feed Roller
10. Grip Roller
11. Relay Roller
12. Relay Sensor
13. Pick-up Solenoid
14. Lift Sensor

1.3 ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function
Motors		
M1	LCT	Drives all rollers.
M2	1st Lift	Drives the 1st paper tray up or down.
M3	2nd Lift	Drives the 2nd paper tray up or down.
M4	3rd Lift	Drives the 3rd paper tray up or down.
Sensors		
S1	1st Paper Feed	Detects the copy paper coming to the 1st paper feed roller and checks for misfeeds.
S2	2nd Paper Feed	Detects the copy paper coming to the 2nd paper feed roller and checks for misfeeds.
S3	3rd Paper Feed	Detects the copy paper coming to the 3rd paper feed roller and checks for misfeeds.
S4	1st Lift	Detects when the paper in the 1st tray is at the correct paper feed height.
S5	2nd Lift	Detects when the paper in the 2nd tray is at the correct paper feed height.
S6	3rd Lift	Detects when the paper in the 3rd tray is at the correct paper feed height.
S7	1st Paper End	Informs the copier when the paper in the 1st tray has run out.
S8	2nd Paper End	Informs the copier when the paper in the 2nd tray has run out.
S9	3rd Paper End	Informs the copier when the paper in the 3rd tray has run out.
S10	1st Paper Height 1	Detects the paper height in the 1st tray.
S11	1st Paper Height 2	Detects the paper height in the 1st tray.
S12	1st Paper Height 3	Detects the paper height in the 1st tray.
S13	1st Paper Height 4	Detects the paper height in the 1st tray.
S14	2nd Paper Height 1	Detects the paper height in the 2nd tray.
S15	2nd Paper Height 2	Detects the paper height in the 2nd tray.
S16	2nd Paper Height 3	Detects the paper height in the 2nd tray.
S17	2nd Paper Height 4	Detects the paper height in the 2nd tray.
S18	3rd Paper Height 1	Detects the paper height in the 3rd tray.
S19	3rd Paper Height 2	Detects the paper height in the 3rd tray.
S20	3rd Paper Height 3	Detects the paper height in the 3rd tray.
S21	3rd Paper Height 4	Detects the paper height in the 3rd tray.
S22	Relay	Checks for misfeeds.
Switches		
SW1	Front Door Safety	Detects whether the tray cover is opened or not.
SW2	1st Paper Size	Detects the paper size in the 1st tray, and whether the 1st tray is in the machine.
SW3	2nd Paper Size	Detects the paper size in the 2nd tray, and whether the 2nd tray is in the machine.
SW4	3rd Paper Size	Detects whether the 3rd tray is in the machine.

Symbol	Name	Function
Magnetic Clutches		
MC1	1st Paper Feed	Drives the paper feed roller in the 1st tray.
MC2	2nd Paper Feed	Drives the paper feed roller in the 2nd tray.
MC3	3rd Paper Feed	Drives the paper feed roller in the 3rd tray.
MC4	1st Grip	Drives the grip roller in the 1st tray.
MC5	2nd Grip	Drives the grip roller in the 2nd tray.
MC6	3rd Grip	Drives the grip roller in the 3rd tray.
MC7	Transport	Drives the transport rollers.
Solenoids		
SOL1	1st Pick-up	Controls up-down movement of the pick-up roller in the 1st tray.
SOL2	2nd Pick-up	Controls up-down movement of the pick-up roller in the 2nd tray.
SOL3	3rd Pick-up	Controls up-down movement of the pick-up roller in the 3rd tray.
SOL4	1st Separation Roller	Controls up-down movement of the separation roller in the 1st tray.
SOL5	2nd Separation Roller	Controls up-down movement of the separation roller in the 2nd tray.
SOL6	3rd Separation Roller	Controls up-down movement of the separation roller in the 3rd tray.
PCBs		
PCB1	Main	Controls the LCT and communicates with the copier.

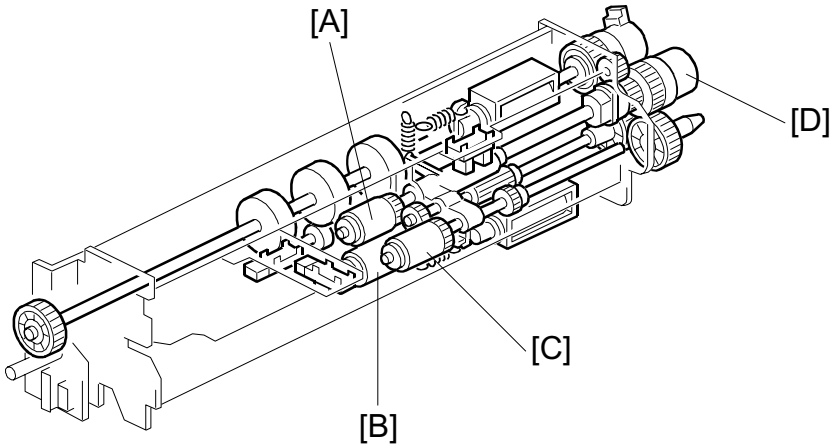
1.4 DRIVE LAYOUT



1. Main Drive Belt
2. Tray Lift Motors
3. LCT Motor
4. Tray Drive Shaft
5. Pick-up Roller
6. Tray Drive Belt
7. Separation Roller
8. Paper Feed Roller
9. Grip Roller
10. Transport Rollers
11. Relay Roller Drive Belt
12. Grip Roller Clutch
13. Paper Feed Clutch
14. Transport Clutch

2. DETAILED DESCRIPTIONS

2.1 PAPER FEED



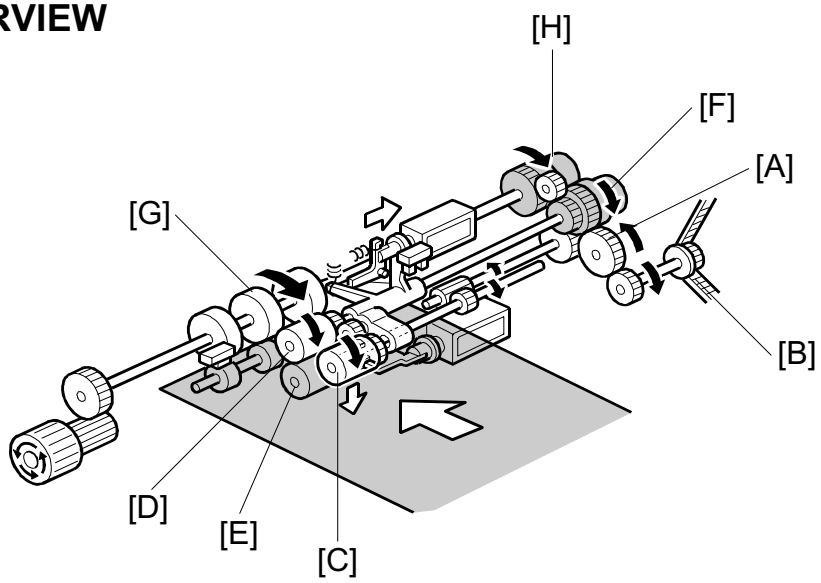
This LCT has three paper tray feed stations.

The upper and middle trays can each hold 1,000 sheets of paper. The lower tray can hold 2,500 sheets of paper.

All feed stations use an FRR paper feed system (paper feed roller [A], separation roller [B], pick-up roller [C]), and those rollers are driven by the LCT motor via the paper feed clutch [D].

2.2 PICK-UP AND FEED

2.2.1 OVERVIEW

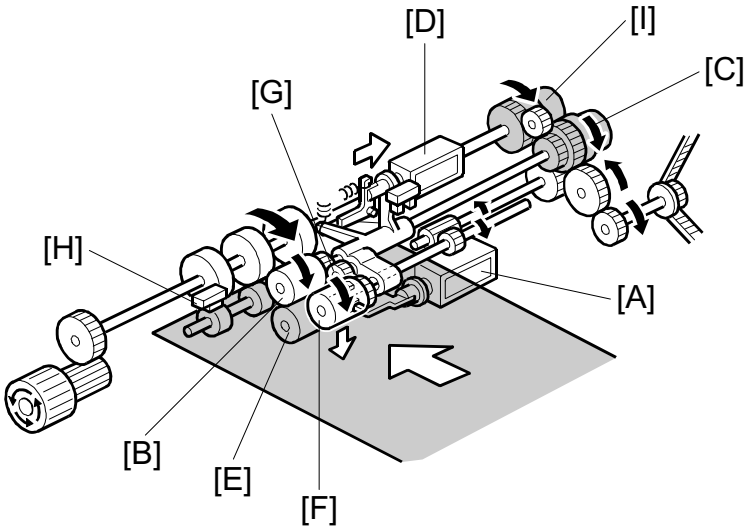


Drive from the LCT motor is transmitted to the gear [A] in the paper feed unit via the timing belt [B].

Then the gear [A] transmits the drive to the pick-up [C], paper feed [D] and separation [E] rollers via gears and the paper feed clutch [F].

The gear [A] also transmits the drive to the grip roller [G] via gears and the grip roller clutch [H].

2.2.2 PICK-UP AND FEED



If a paper feed station is not selected, its separation roller solenoid [A] is de-activated and the separation roller [B] can turn freely in the opposite direction to paper feed.

When the paper feed station is selected and the start key is pressed, the feed clutch [C], separation roller solenoid [A], and the pick-up solenoid [D] all turn on.

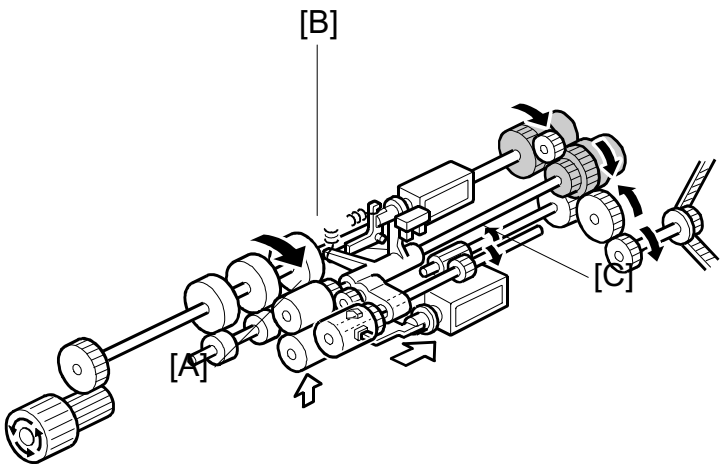
When the feed clutch [C] activates to transfer drive to the feed roller [E], the pick-up roller [F] also turns because it is linked to the feed roller by an idle gear [G].

When the separation roller solenoid [A] turns on, the separation roller [B] contacts the paper feed roller [E] and turns with the feed roller in spite of the torque limiter in the separation roller, which forces it in the opposite direction.

When the pick-up solenoid [D] activates, the pick-up roller [F] lowers to contact the top sheet of the paper stack and send it to the paper feed and separation rollers.

When the paper feed sensor [H] detects the leading edge of the paper, the pick-up solenoid de-energizes to lift the pick-up roller [F], and the grip roller clutch [I] energizes to feed the paper out of the tray.

2.2.3 SEPARATION ROLLER RELEASE



The separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] contacts the separation roller with the feed roller as explained on the previous two pages.

This contact/release mechanism has the following three advantages:

1. When the LCT motor turns on, all the separation rollers in the three feed stations rotate. If the separation roller is away from the feed roller, it reduces the load on the paper feed motor and drive mechanism, and it also reduces wear to the rubber surface of the separation roller caused by friction between the separation roller and the feed roller.
2. After paper feed is completed, paper sometimes remains between the feed and separation rollers. If the feed tray is removed at this time, this paper might be torn. When the separation roller is away from the feed roller, the remaining paper can be removed from between the rollers.
3. When paper misfeeds occur around this area, the user can easily pull out the jammed paper between the feed and the separation rollers if the separation roller is away from the feed roller.

After paper feed, the paper feed clutch tuns off, but the LCT motor still turns the separation roller [A] in reverse. The separation roller, still contacting the feed roller, turns the feed roller in reverse for 100 ms. Then the separation solenoid turns off.

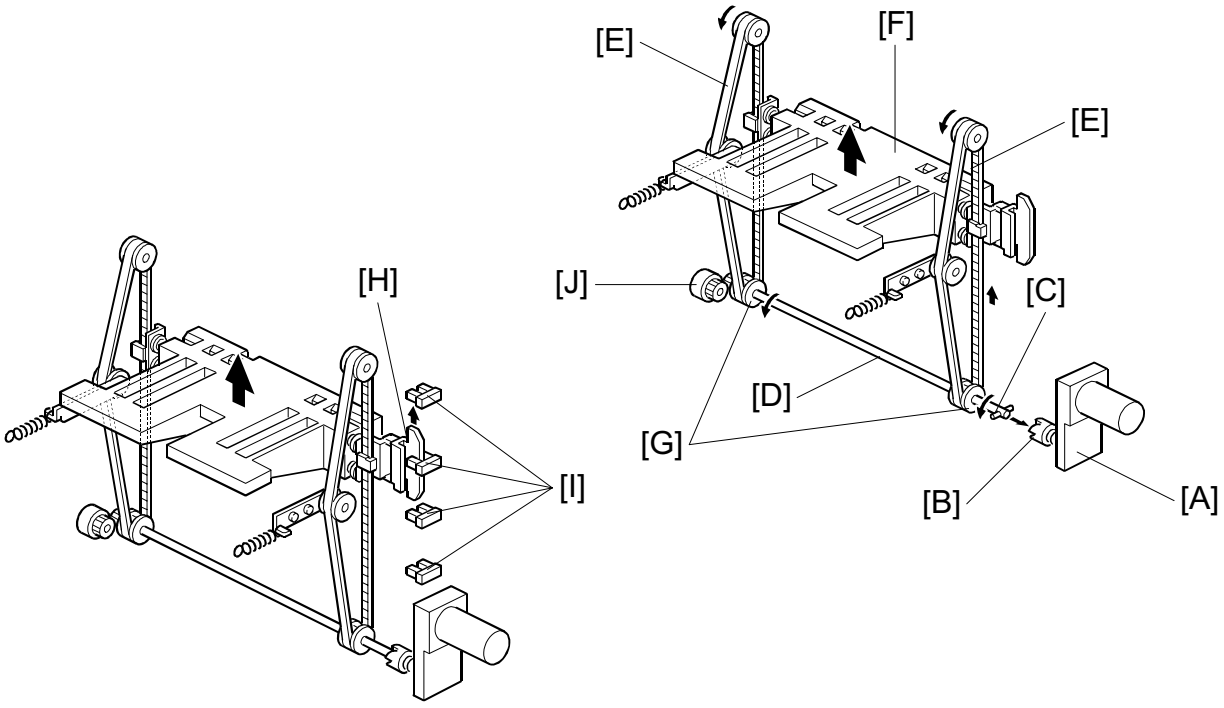
2.3 PAPER LIFT

2.3.1 TRAY DETECTION

When the tray is placed in the machine, the way that the machine detects this depends on the tray.

The upper tray and middle tray are detected when any one of the paper size switch signals is low. The lower tray is detected when the switch 1 signal of the paper size switch is low.

2.3.2 LIFT MECHANISM

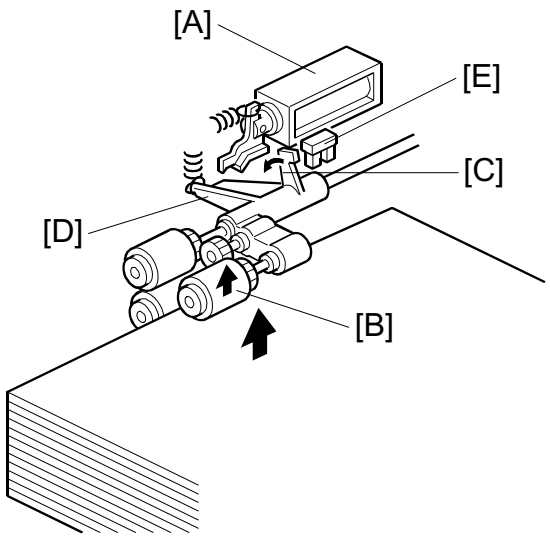


When the machine detects that the paper tray is set in the machine, the tray lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift drive shaft [D]. The tray drive belts [E] are connected to the tray bottom plate [F] and are driven by the tray lift motor via the lift drive shaft [D] and tray drive pulleys [G]. When the lift motor turns counterclockwise, the tray bottom plate [F] moves up. The tray goes up until the top of the paper stack pushes up the pick-up roller and the lift sensor in the feed unit is activated.

When the actuator [H] on the rear end of the bottom plate activates the paper height sensors [I], the remaining paper capacity is detected (4 levels).

When pulling out the tray, the coupling gear [B] separates from the pin [C], so that the tray bottom plate moves downward. In the bottom tray, the damper [J] lets the tray bottom plate drop slowly.

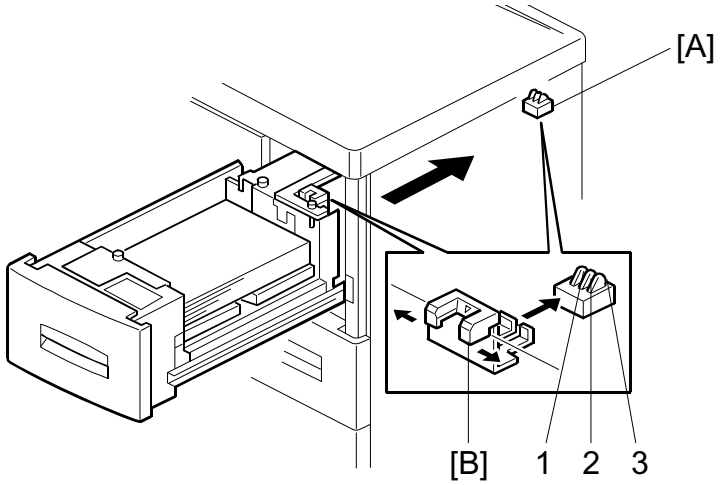
2.3.3 LIFT SENSOR



When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the proper paper feed level, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers then the lift sensor is de-activated and the lift motor turns on again until the lift sensor is activated again.

2.4 PAPER SIZE DETECTION



	A4-S	B5-S	A5-S	A5-L	LT-S	HLT-S	HTL-L
SW1	0	1	0	0	0	1	1
SW2	1	0	1	0	0	0	1
SW3	1	1	0	1	0	0	0

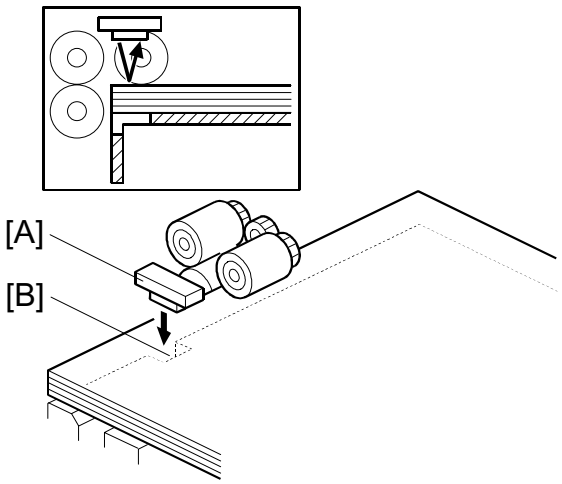
1: HI 0: LOW -S: Sideways -L: Lengthwise

For the bottom tray, the paper size has to be stored with SP5-019-006.

For the top and middle trays, the paper size switch [A] detects the paper size. The paper size switch contains three microswitches. The paper size switch is actuated by an actuator plate [B] at the rear of the tray. Each paper size has its own unique combination as shown in the table and the CPU determines the paper size by the combination.

The bottom tray has the same switch as the top and middle trays. However, it is only used for detecting when the tray is pushed in.

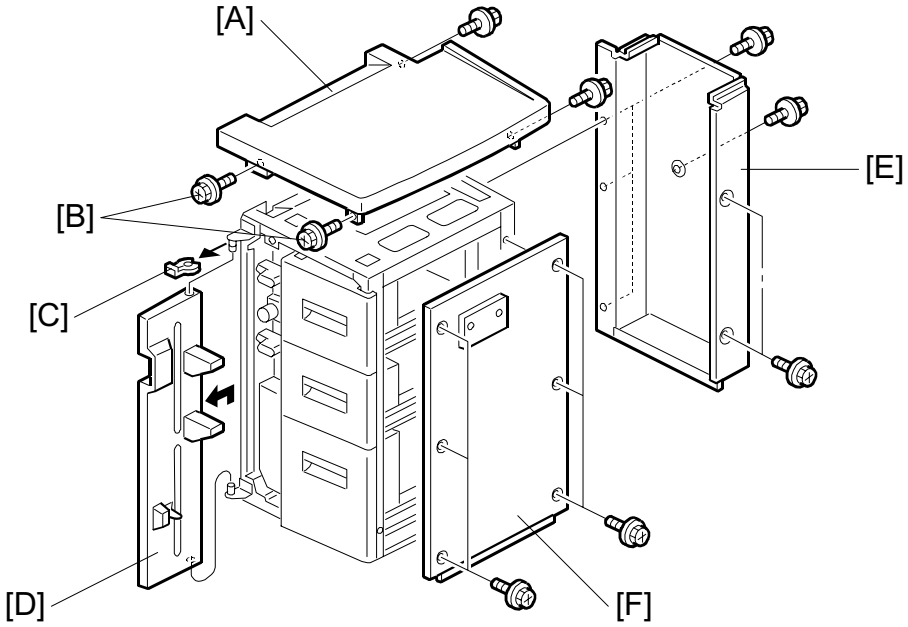
2.5 PAPER END DETECTION



The paper end sensor [A] detects the top sheet of the paper in the tray by monitoring the reflected light. When the paper tray runs out of paper, the paper end sensor does not receive the reflected light due to the cutout [B]. Then, the tray lift motor rotates backwards 2 seconds to drop the tray bottom plate.

3. REPLACEMENT AND ADJUSTMENT

3.1 EXTERIOR COVER REMOVAL



Top Cover

1. Remove the top cover [A] (4 screws).

Front Door

1. Remove the two screws [B] securing the front side of the top cover.
2. While lifting the top cover, remove the snap ring [C] and front door [D].

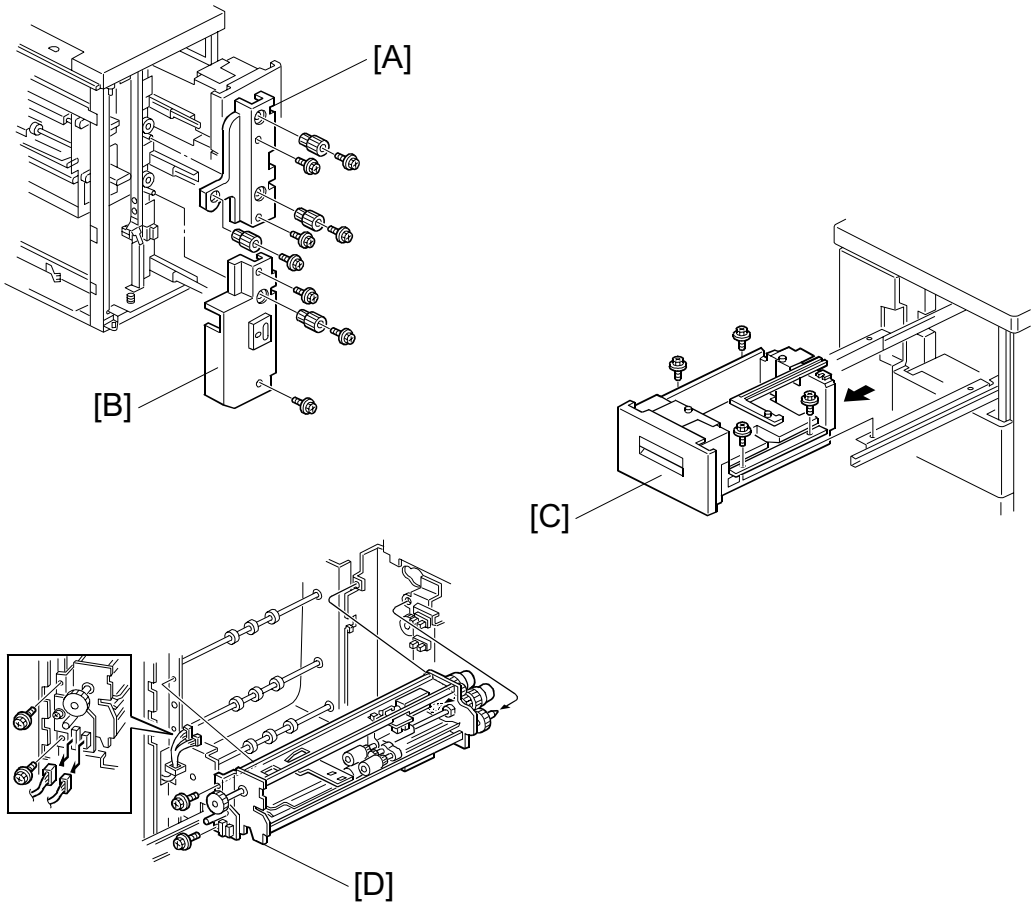
Rear Cover

1. Remove the rear cover [E] (6 screws).

Right Cover

1. Remove the right cover [F] (6 screws).

3.2 INNER COVER REMOVAL



Upper Inner Cover

1. Open the front door and remove the upper inner cover [A] (5 screws and 3 knobs).

Lower Inner Cover

1. Open the front door and remove the lower inner cover [B] (3 screws and 1 knob).

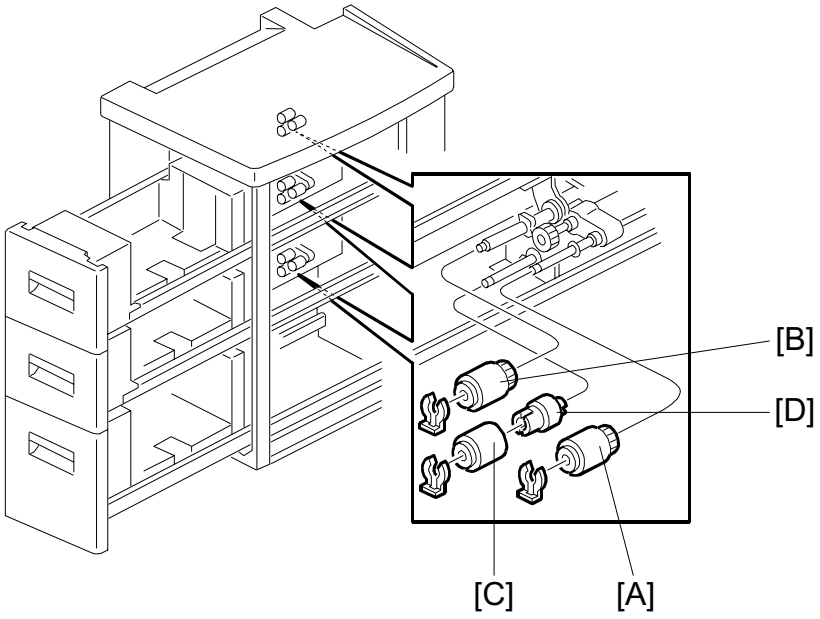
Tray Removal

1. Pull out the tray [C] and remove it (4 screws).

Paper Feed Unit Removal

1. Remove the right cover.
2. Remove the tray for the paper feed unit that will be removed.
3. Remove the upper and lower inner covers.
4. Remove the paper feed unit [D] (2 connectors and 2 screws).

3.3 PAPER FEED ROLLER REPLACEMENT

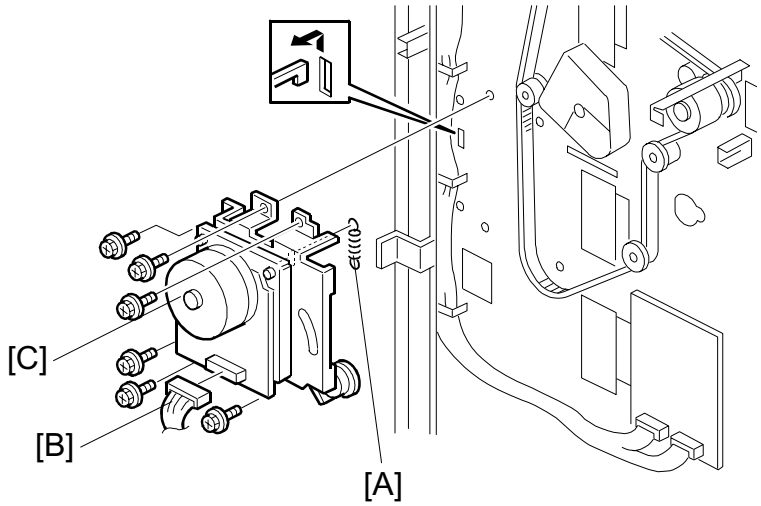


1. Remove the right cover.
2. Pull out the paper trays.
3. Remove the pick-up roller [A] (1 snap ring).
4. Remove the feed roller [B] (1 snap ring).
5. Remove the separation roller [C] from the torque limiter [D] (1 snap ring).

NOTE: 1) The paper feed (pick-up, feed, separation) rollers used in the 1st ~3rd feed units in the paper tray unit are different from the feed rollers used in the LCT. They are not interchangeable.
2) Do not touch the surface of the rollers with bare hands.

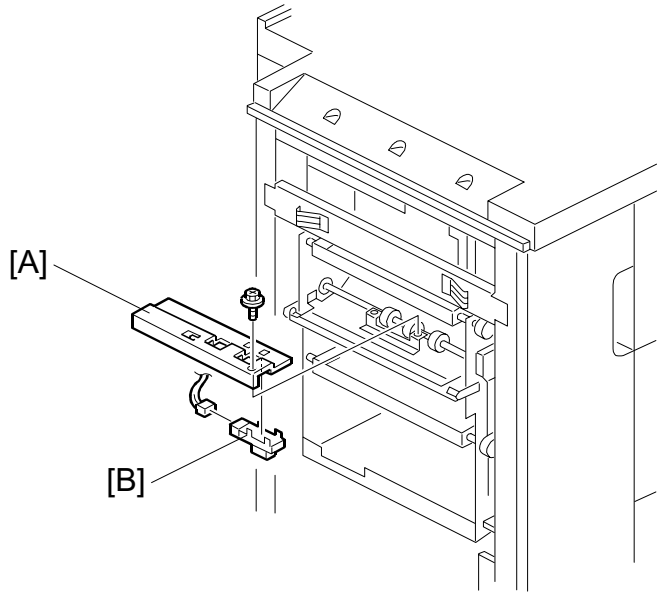
Note that there are counters for these rollers that you may wish to reset after installing a new roller (A294: SP 7-816).

3.4 LCT MOTOR REPLACEMENT



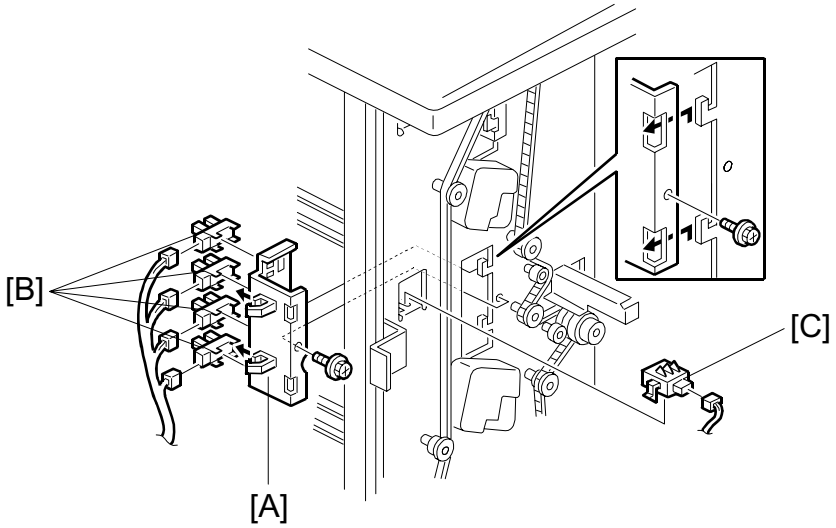
1. Remove the rear cover.
2. Remove the spring [A] and disconnect the connector [B].
3. Remove the motor bracket with the LCT motor [C] (6 screws).

3.5 RELAY SENSOR REPLACEMENT



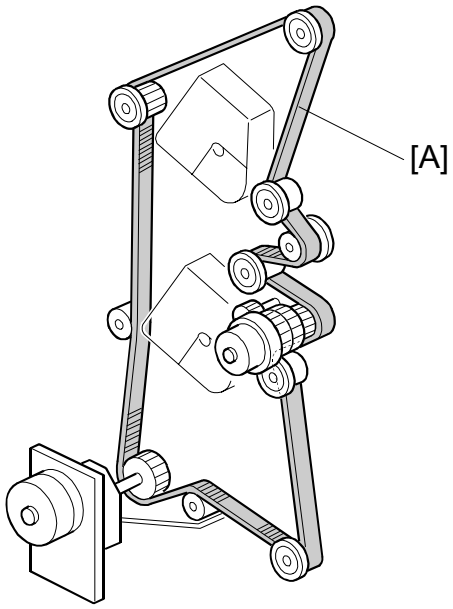
1. Disconnect the LCT from the copier.
2. Remove the bracket [A] (1 screw).
3. Replace the relay sensor [B] (1 connector).

3.6 PAPER HEIGHT SENSOR AND PAPER SIZE SWITCH REPLACEMENT



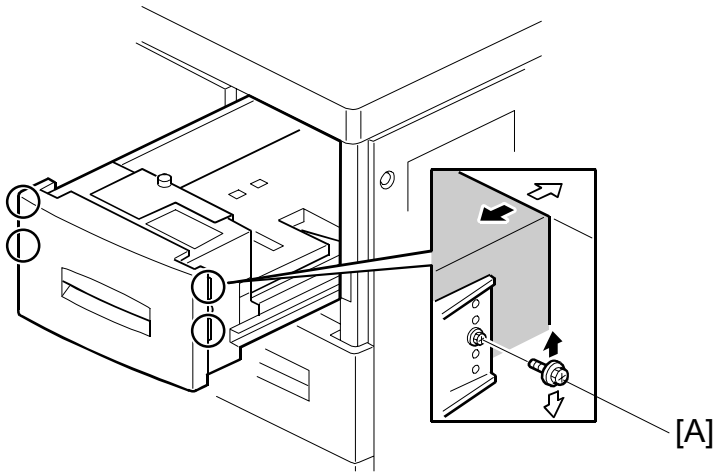
1. Remove the rear cover.
2. Remove the right cover.
3. Remove the bracket [A] (1 screw and 4 connectors) with the paper height sensors.
4. Replace the paper height sensors [B].
5. Replace the paper size switch [C] (1 connector).

3.7 MAIN DRIVE BELT REPLACEMENT



Route the main drive belt [A] as shown in the illustration, when the main drive belt is removed.

3.8 SIDE REGISTRATION ADJUSTMENT



NOTE: Normally the side registration of the image can be adjusted with SP mode. When the punch hole positions are not aligned from a particular feed station, adjusted the side registration by changing the tray cover position for that tray, as described below. Then adjust the side registration of the image with the SP mode.

1. Pull out the tray.
2. Change the screw positions [A] at both the right and left sides as shown.

   Adjustment range: 0 ± 2.0 mm adjustment step: 1.0 mm/step

A3/DLT TRAY KIT
B331

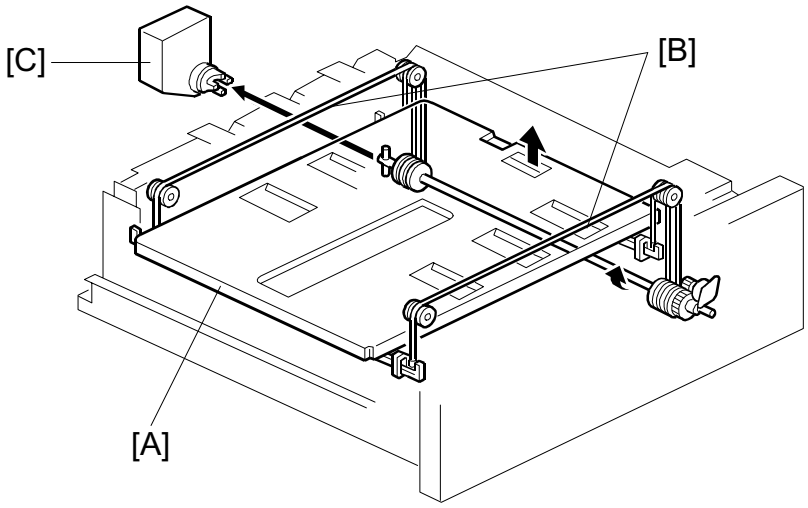
1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Paper Size:	A3/B4/DLT/LG Lengthwise, A4/LT
Paper Weight:	52 to 163 g/m^2 16 to 40 lbs Bond 50 to 60 lbs Cover 90 lbs Index (no Tab)
Tray Capacity:	1,000 sheets (80 g/m^2, 20lb)
Remaining Paper Detection:	No detection

2. DETAILED DESCRIPTIONS

2.1 SECTIONAL DESCRIPTION

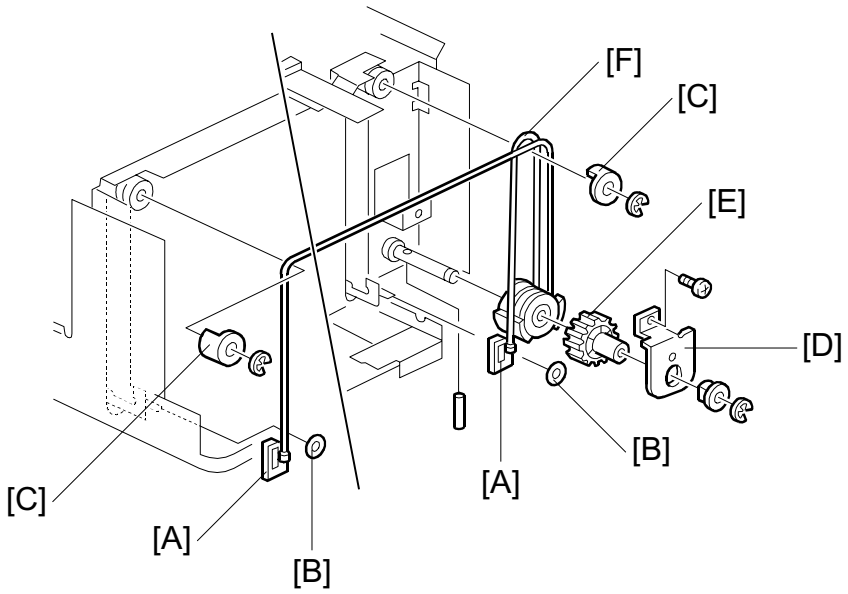


This tray mechanism is basically same as the tandem LCT. This tray bottom plate [A] is lifted through the tray wires [B] by the lift motor [C] rotation. There is no remaining paper capacity detection. The operation panel LCD displays “full” whether there is paper in the tray. Except for the above matter, refer to the main copier tandem LCT section for details.

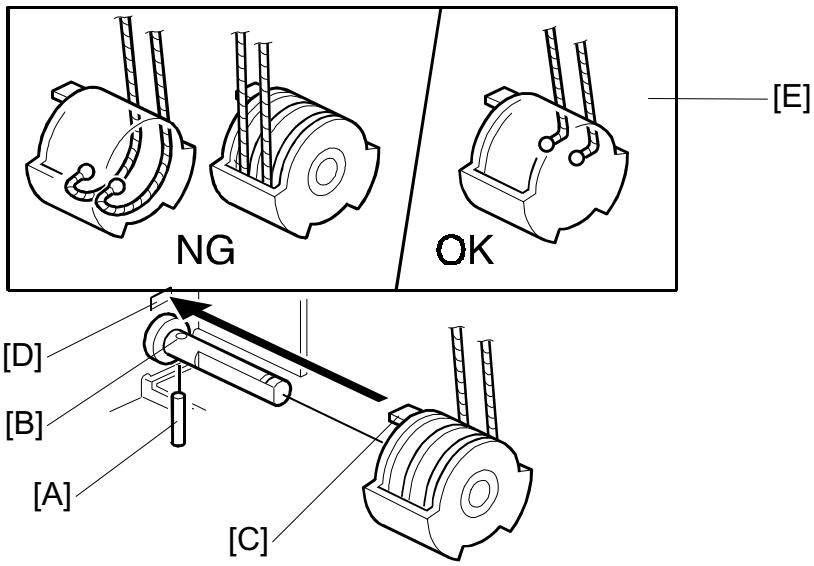
3. REPLACEMENT AND ADJUSTMENT

3.1 BOTTOM PLATE LIFT WIRE REPLACEMENT

NOTE: Before replacing the rear bottom plate lift wire, remove the front bottom plate lift wire. The procedure for the two wires is the same.



1. Remove the tray.
2. Remove the inner cover (2 screws).
3. Slightly lift the front bottom plate and unhook the wire stoppers [A] (2 stoppers [B]).
4. Remove the wire cover [C] (1 E-ring each).
5. Remove the bracket [D] (1 screw, 1 E-ring, and 1 bushing).
6. Remove the gear [E].
7. Replace the bottom plate lift wire [F].



NOTE: When re-installing the bottom plate lift wire:

1) Set the positioning pin [A] in the hole [B] and set the projection [C] in the hole [D].
2) Position the wire as shown [E].
3) Do not cross the wires.

DIFFERENCES FROM THE A294 I/A295 I MODELS

DIFFERENCES FROM THE A294 I / A295 I MODELS

1. DETAILED SECTION DESCRIPTIONS

1.1 TONER AND DEVELOPER

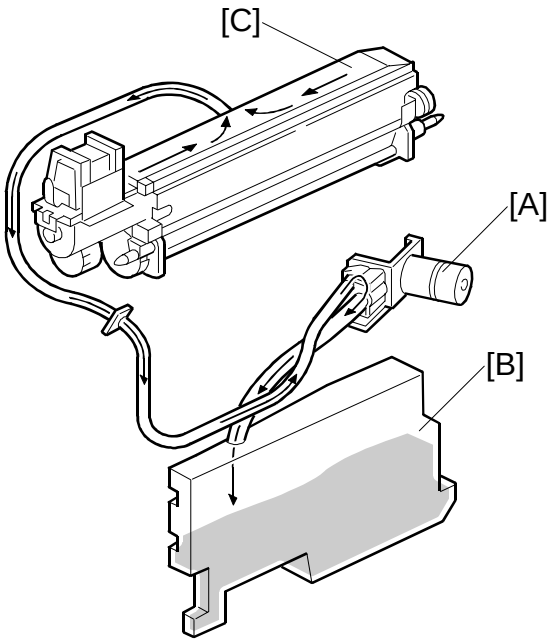
The toner and developer have been changed over to a finer-grained type.

	A294 I / A295 I	A294 II / A295 II
Toner	9.5µ	6.8µ
Developer	80µ	65µ

These changes were made to maximize the reproduction in halftone areas and the evenness of the image density in black solid areas.

1.2 NEWLY ADDED: DEVELOPMENT SUCTION MOTOR AND SUCKED TONER COLLECTION BOTTLE

In order to ensure that the new granular toner does not scatter, a development suction motor [A] has been added to decrease the pressure inside the development unit [B]. This motor is on whenever the development motor is on. When air is sucked out of the development unit by the motor, there is also some toner included (although very minimal). A sucked toner collection bottle [C] has been added to collect this toner.



The new bottle and motor have Near End/End and replacement time conditions, respectively. The display for the existing waste toner bottle Near End/End is used. As the alerts can only be displayed for one component at a time, when displayed, use SP2971 to confirm which component it is referring to.

The target replacement intervals are as follows:

	Target Replacement Interval
Development Suction Motor	600 hours (corresponding to 2,400K prints)
Sucked Toner Collection Bottle	300 hours (corresponding to 1,200K prints)

NOTE: The End condition alert is a pop-up window, and the Near End alert is a 1-line display.

1.3 DEVELOPMENT UNIT

1. Grounding of the development roller doctor blade.
   This is to further ensure that the development roller surface stays clean, i.e. the development bias is properly maintained at the target level.
2. Thinning of the development unit entrance seals.
   This is to further ensure that vertical black lines do not occur.
3. Increased reliability of the development unit.
   To ensure that the new fine-grained toner does not cause a shaft lock, fluorine-type seals are now used around the roller shaft.
4. Air tube newly added (development unit filter deleted).
   This tube has been added to carry the air and toner sucked out by the new development suction motor.
   The air tube has been attached in the area where the development filter was, and so this filter has been deleted.
5. SP mode newly added for controlling the toner supply interval.
   SP2974 (Toner Supply Interval) determines the copy interval for toner supply.

Settings	0	1 (default)	2	3
Interval	1/1	1/2	1/3	1/4

This SP mode normally does not need to be used. However, depending on the customer's operating conditions and installation environment, the following two symptoms can occur. SP2974 could then be utilized to solve them:

- If the following symptoms appear with a setting of 1, changing the setting to 2 can minimize them:
  1) Dirty background near the leading edge
  2) The leading edge (face) of the copy stack is dirty with toner

NOTE: Please use setting 3 only when these two symptoms occur on most of the extremely low image area originals used by the customer.

- If the following symptoms appear with a setting of 1, changing the setting to 0 can minimize them:
  1) Low image density in originals with a large image area
  2) Low image density when Vsp has stabilized at 0.5 or higher.

Reference: With the addition of SP2974, the operation of SP2968 (Toner Density Correction) has been changed as follows:

1. Number of copies

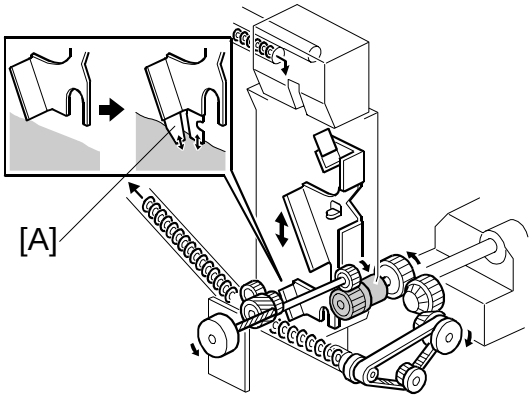
   Previous: Applied to number of copies set in SP2968
   New: *Applied to (number of copies set in SP2968) X (SP2974 value + 1)*

2. Vref

   Previous: Vref changed every 100 copies
   New: *Vref changed every (100) X (SP2974 value + 1) copies*

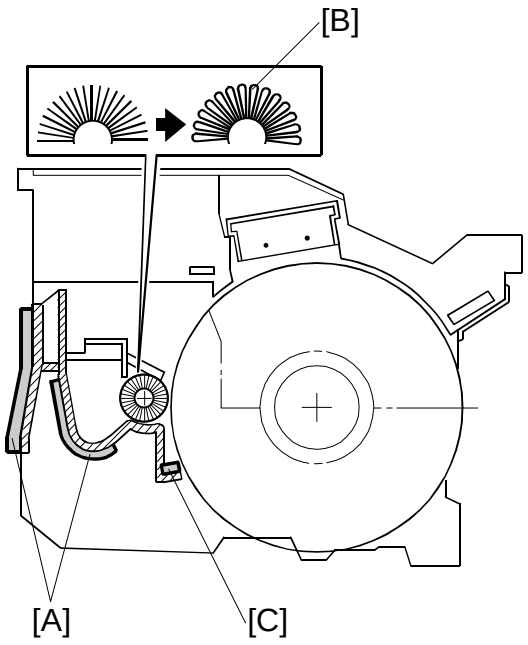
1.4 TONER BANK UNIT

1. The toner bottle gear has been modified so that it is not possible to set the existing toner bottle. Only the new bottle can be set.
2. To ensure that toner clumps or blockage do not occur in the toner bank unit, mylars [A] have been added to the toner agitator.



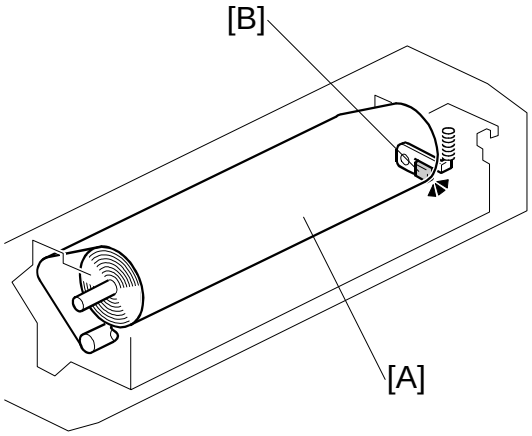
1.5 CLEANING UNIT

1. Insulating layers added
   To ensure that small white spots do not occur, which can result from the affect of the heat from the fusing unit on the cleaning unit, insulating layers [A] have been added.
2. Cleaning brush modification
   To ensure that Medaka images (black spots) do not occur, the cleaning brush [B] has been changed to a looped fiber type, increasing the efficiency of brush.
3. Magnet added
   To ensure that carrier is not attracted to the drum, a magnet [C] has been added to the cleaning unit. This will attract the carrier particles toward the unit instead.
   The magnet can be removed to clean if necessary. (The recommended interval to check and clean is every 300K prints.)
4. Shape change in transfer unit entrance stay
   To minimize toner and other particles on the drum surface, the gap between the drum and stay has been increased.

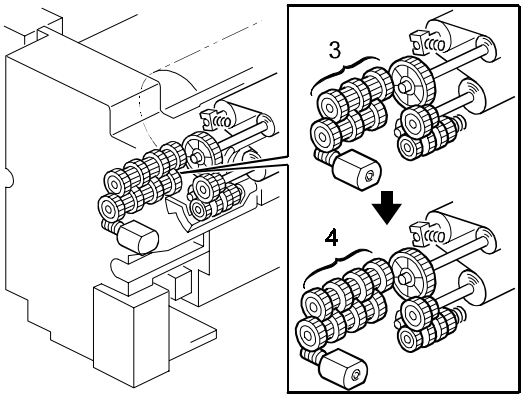


1.6 FUSING UNIT

1. Web length increased
   The length of the web [A] has been increased from 10m to 20m. This new 20m web cannot be installed on the A294/A295 models, as there have been changes in the machine's frame. In addition, a stopper (Web Break Pad) [B] made of rubber has been added to the web unit shaft to ensure that slack does not develop in the 20m web while rolling (Web Break Pad is a 600K replacement part). Note that this part is only for the 20m web. Also note that the upgrade kit uses a 14m web.



2. Web drive modification
   With the increased length of the web, the number of gears has been increased from 6 to 8 in order to maintain the balance between motor rotation (unchanged) and the amount of web that is rolled/unrolled.
   In addition, these gears allow the machine to switch over to a fine-precision drive control when the web is full and when it has run out.



3. Web rolling/unrolling control modification
   - SP1902-2 (Web Motor Drive Interval)

		Interval	
Destination	**PPM**	**A294 I / A295 I**	**A294 II / A295 II**
US	85	42 sec	21 sec
	105	34 sec	17 sec
Europe, Asia	85	42 sec	11 sec
	105	34 sec	9 sec

   - SP1902-3 (Web Motor Drive Time)

A294 I / A295 I	**A294 II / A295 II**
0.8 sec	2.8 sec

4. Pressure roller changed from a nonconductive to a conductive type.
   Since the new toner is more sensitive to static electricity, which can lead to black spots on copies, the pressure roller has been changed to one with a conductive surface to ensure this does not occur. The new roller has a black surface with visible wrinkles, however these wrinkles have no effect on image quality.

1.7 NEW ADDITIONS TO TRANSFER CURRENT CONTROL

With the adoption of the new toner, the transfer current for the leading edge has been decreased to further ensure that separation pawls do not leave marks on copies. Compared to the 2 predecessor A294 I / A295 I models, this can have the effect of slightly reducing the image density in solid image areas 10mm from the leading edge (no effect on text and halftone). However, since this tends to occur with certain types of paper (relatively smooth but not stiff), a new SP mode (SP2940) has been added so that the leading edge transfer current can be set individually for each paper feed tray.

Since OHP transparencies and thick paper have a relatively high stiffness and are therefore not prone to pawl marks, leading edge transfer current control is disabled when either of these paper types is selected in User Tools. Also, an additional SP mode (SP2941) has been added so that leading edge transfer current control can be performed (or not performed) when using semi-thick paper with which the duplex and punch modes can be selected. In order to do this, please select “Thick” in SP2941 and “Recycle” in User Tools.

Please use SP2941 when the leading edge transfer current for semi-thick paper seems to be insufficient. The machine will then treat the paper the same as if it were thick paper. Note that if “Thick” were selected in User Tools, the machine imposes functional restrictions (cannot use duplex, punch-hole, etc.).

1.8 CHARGE CORONA UNIT

Since changes made to the development bias have the effect of decreasing the consistency of the charge applied to the drum, the following charge corona unit modifications were applied to ensure even charging:

1. The material of the charge wire cleaner pad has been changed to ensure more efficient physical removal of particles on wire.
2. Changed the default value of SP2804 (Charge Corona Cleaner Setting) from 1 to 2 so that cleaning is performed every 5000 prints. However, the cleaning is only performed at the end of a job. Copying is inhibited during this operation however original scanning is possible.

	A294 I / A295 I	**A294 II / A295 II**
SP2804-1	1: Done	2: Periodically
SP2804-2	5,000	5,000

3. Drum charge is increased by +50V once a certain number of copies have been made (default: 100K). To control this, the following SP modes have been added:

   *SP3903 (Charge Bias (Vd) Correction Start Setting):
   Sets the starting print counter for performing Vd correction.

   *SP3902-9 (Charge Bias (Vd) Correction Display):
   Displays whether or not the machine is currently operating with the +50V correction. (0: Not applied, 1: Applied).

NOTE: The firmware contains a counter that keeps track of the number of prints made and then compares this value with the value set in SP3903, however the counter value is cleared to 0 when SP2801 (Developer Initialization) is performed at developer replacement.

1.9 ELECTRICAL COMPONENTS

The I/O board has been modified to accommodate the connector necessary for the new toner suction motor. Please note that if the new I/O board is used on the 2 predecessor models, this will cause SC496 (Toner Collection Bottle Error).

In addition, a harness has been added to the DC harness group.

1.10 SOFTWARE

The firmware is common for the new and predecessor models. The modified I/O board detects whether or not the machine is an A294 I / A295 I or an A294 II / A295 II.

Please note the following 3 points:

1. Since the software is common between the A294 I / A295 I and A294 II / A295 II models, the default settings of the target values of the PM parts list in the SP mode are for the A294 II / A295 II models.

   When performing “clear PM settings” on an A294 I / A295 I model, the target values are returned to the default settings which are for the A294 II / A295 II models. Therefore, please manually change these values.

   The target values for the oil supply & cleaning roller and web cleaning roller are initially set to "0" and the PM yield indicators for these parts are set to "not indicated". Please manually set the PM target values according to the following figures:

Model	Target
A294 I / A295 I (10m roll)	All: 300K
A294 I / A295 I + Enhancement kit (14m roll)	US: 360K, EU: 180K
A294 II / A295 II (20m roll)	US: 600K, EU: 300K

2. SC496 (Toner Collection Bottle Error) and SC591 (Toner Supply Motor Lock).

   These 2 SP modes exist on the predecessor machines as well, however with the addition of the new development suction motor and sucked toner collection bottle, the new parts have been incorporated into the detection conditions/possible causes for SC496 and SC591. Input and output checks can be used to trace down the cause.

   SP496 (Toner Collection Bottle Error):

   Definition:

   The waste toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

   Possible causes:

   - Waste toner collection bottle or Sucked toner collection bottle is set incorrectly.
   - Waste toner collection bottle or Sucked toner collection bottle connector is loose or sensor defective.

SC591 (Toner Supply Motor Lock):

Detection:

The toner supply pump sensor status or development suction pump sensor does not change for 1 second while drive is being supplied to one of the pumps.

Possible causes:

- Toner supply pump or development suction pump defective
- Toner supply pump sensor or development suction pump sensor defective
- BCU defective

3. Change in Photo Mode processing (Default Setting → Image Adjustment).
   The image processing for Glossy Photo mode of Photo mode in the user tools has been changed so that it produces a sharper image.
   NOTE: No change made to any other modes.

2. SERVICE TABLES

2.1 SERVICE PROGRAM MODE

NOTE: 4) [A294 I], [A295 I], [A294 II] and [A295 II] in the Settings column mean the following product types:
[A294 I]: Existing 85 cpm model. [A295 I]: Existing 105 cpm model.
[A294 II]: Enhanced 85 cpm model. [A295 II]: Enhanced 105 cpm model.

Mode No. (Class 1, 2 and 3)				Function	Settings
1-105	Fusing Temperature Adjustment				
	4	Fusing Temperature Correction (A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on paper of A4/LT width.	–5 ~ +20 1°C/step [A294 I] **+10°C** [A295 I] **+15°C** [A294 II] **+5°C (US)** **+10°C (EU)** [A295 II] **+5°C (US)** **+15°C (EU)**
1-902	Web Motor Control				
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	[A294/A295 I] 15 ~ 130 1 s/step **[A294 I] 42 s** **[A295 I] 34 s** [A294/A295 II] 3 ~ 130 1 s/step [A294 II] **11 s (EU)** **21 s (US)** [A295 II] **9 s (EU)** **17 s (US)**
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	[A294/A295 I] 0.1 ~ 3.0 0.1 s/step **0.8 s** [A294/A295 II] 0.3 ~ 3.5 0.1 s/step **2.8**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-902	Web Motor Control				
	4	Web Near End Setting	B	Changes the web consumption ratio at which web near end is displayed. About 40k A4 copies can be made after the web consumption reaches 100%.	0 ~ 105 1%/step [A294/A295 I] **100%** [A294/A295 II] **86% (EU)** **90% (US)**
2-001	Charge Corona Bias Adjustment				
	3	Image Area (Auto Process Control ON)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is switched **on**. This voltage changes every time auto process control starts up (every time the machine is switched on)	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,000 V** [A294/A295 II] **–950 V**
	4	Grid Voltage for Transparent Sheet	B	Adjusts the voltage applied to the grid plate when translucent mode is selected. Use this if there is a copy quality problem when making copies on translucent paper. Normally there is no need to adjust this. See 2-001-1.	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,070 V** [A294/A295 II] **–950 V**
	7	V_D (Auto Process Control)	B	Adjusts the target V_D voltage for Process Control Initial Setting.	–800 ~ –1,000 10 V/step [A294/A295 I] **–970 V** [A294/A295 II] **–850 V**
2-201	Development Bias Adjustment				
	1	Image Area	B	Adjusts the development bias for copying. *This can be adjusted as a temporary measure if faint copies appear due to an aging drum.*	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
2-804	Charge Corona Cleaner Setting				
	1	Corona Wire Cleaner Operation Setting	B	Selects when automatic corona wire cleaning is done. 0: Corona wire cleaning is not done. 1: When process control initial setting is done, if the copy number after the last cleaning operation is over the number set in SP2-804-2. 2: At the period set in SP2-804-2.	[A294/A295 I] 0: Not done **1: Done** 2:Periodically [A294/A295 II] 0: Not done 1: Done **2:Periodically**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-911	Transfer Current On/Off Timing				
	2	Lb (On/Off exchange timing)	B	Adjusts the transfer current on/off exchange timing. (A294/A295 II models only)	[A294/A295 II] 0 ~ +60 1 mm/step **+45 mm**
2-940	Leading Edge Transfer Current Adjustment				
	1	Tray-1	B	Adjusts the leading edge transfer current for each paper feed station. (A294/A295 II models only)	10 ~ 200 1 µA/step [A294 II] **120 µA** [A295 II] **140 µA**
	2	Tray-2			
	3	Tray-3			
	4	Tray-4 (LCT)			
	5	Tray-5 (LCT)			
	6	Tray-6 (LCT)			
	7	Duplex Tray			
2-941	Transfer Current for Semi-thick Paper				
			B	Determines that the transfer current for semi-thick paper is handled as Plain paper or Thick paper	**0: Plain paper** 1: Thick paper
				• *Setting this mode to "Thick paper" is effective when image at the leading edge is not good.* • *To use this mode, "Recycled paper" should be selected in the User Tools for semi-thick paper.* • *Selecting "Thick paper" in the User Tools is the same effect as this mode. But selecting "Thick paper" in the User Tools does not allow the duplex or punch mode.*	
2-968	Toner Density Correction				
			B	To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), VREF is changed by –0.06 V every (100 X (SP2-974 value + 1)) prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) X (SP2-974 value +1)" has been made.	0 ~ 20 k 1 k prints/step **0**
2-970	Toner Suction System				
				Displays whether the toner suction system is installed in order to distinguish between A294/A295 I and A294/A295 II.	[A294/A295 I] 0: Not installed [A294/A295 II] 1: Installed
2-971	Collected Toner Level Check				
	Check this mode when "Waste toner full" pop-up message comes up or "Near full" message is displayed.				
	1	Left Toner Collection Bottle		Display whether the used toner collection bottle is full or not.	0: Not full 2: Full
	2	Toner Collection Bottle		Display whether the sucked toner collection bottle is full or not. (A294/A295 II models only)	0: Not full 1: Near full 2: Full

Mode No. (Class 1, 2 and 3)				Function	Settings
2-971	Collected Toner Level Check				
	3	Toner Suction Motor		Displays whether the toner suction motor needs to be replaced or not. (A294/A295 II models only)	0: Not needed 1: Needed soon 2: Needed
2-972	Sucked Toner Collection Bottle Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the sucked toner collection bottle replacement. <Preset Values> Near full: 280 hours, Full: 300 hours	XXX hours
				Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.	
2-973	Toner Suction Motor Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the toner suction motor replacement. <Preset Values> Near full: 570 hours, Full: 600 hours	XXX hours
				Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.	
2-974	Toner Supply Interval				
				Adjusts the interval of toner supply. (Once every how many prints)	0: 1/1 (every print) **1: 1/2 (every 2 prints)** 2: 1/3 (every 3 prints) 3: 1/4 (every 4 prints)
				• *The operation of SP2-968 has been changed.* • *The VREF update interval has been changed from "every 100 prints" to "every (100 X (SP2-974 value + 1)) prints".*	
3-902	Process Control Data Display				
	9	VD Correction	B	Displays whether the VD correction is being performed. The target value of the VD correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0: Not performed 1: Performed
3-903	VD Correction Counter				
			B	Adjusts the starting point for the VD Correction. Displays whether the VD correction is being performed. The target value of the VD correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0 ~ 999 1 k prints/step **100 k prints**
				The counter to control the VD correction is automatically reset to 0 (zero) when SP2-801 is performed.	

3. PREVENTIVE MAINTENANCE SCHEDULE

3.1 PM PARTS

Symbol key: **R,** r: Replace on a PM part counter basis (refer to Service Tables – PM Counter)
R: The counter counts up every copy, in the same way as the copy counter
r: The counter only counts up if that part was used for the copy
I: Inspect, and clean and/or lubricate
i: Inspect, and clean and/or lubricate only if necessary

3.1.1 NEWLY ADDED PM PARTS

Description	Activity Type	Interval	Note/Remarks
Sucked Toner Collection Bottle	r	1,200 k	A4 6% Chart
Development Suction Motor Ass'y	r	2,500 k	A4 6% Chart
Ozone Filter	r	1,500 k	
Carrier Catcher	i	300 k	
Hot Roller Gear	**I**	300 k	Grease (Barrierta)
Fusing Web Brake Pad	r	600 k	

3.1.2 PM PARTS WITH NEW INTERVAL VALUES

Description	Activity Type	Interval	Note/Remarks
Developer	r	300 k	TD sensor initial setting (SP2-801)
Grid Plate	r	300 k	
Charge Corona Wire	r	300 k	
Wire Cleaner	r	300 k	
Wire Cushion	r	300 k	
Oil Supply & Cleaning Web	**R**	300 k (EU) 600 k (US)	See below
Pressure Roller	r	500 k	

NOTE: The target value on the PM parts list in the SP mode is initially set to "0". Please manually change the value to an appropriate one at installation or when the enhancement kit is installed.

The PM yield indicator for this part is initially set to "not indicated". Please manually change the setting to "indicated" when necessary.

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SC CODE DESCRIPTIONS

SC496: Toner Collection Bottle Error

Definition [B]

The used toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

Possible Causes

- Used toner collection bottle or sucked toner collection bottle is incorrectly set
- Used toner collection bottle or sucked toner collection bottle connector is loose or sensor defective

SC591: Toner Supply Motor Lock

Definition [B]

The used toner supply motor sensor status or development suction motor sensor does not change for 1 second while the toner supply motor is energized.

Possible Causes

- Used toner supply motor or development suction motor defective
- Used toner supply motor sensor or development suction motor sensor defective
- BCU defective

TECHNICAL SERVICE BULLETINS

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 – 001 **04/28/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

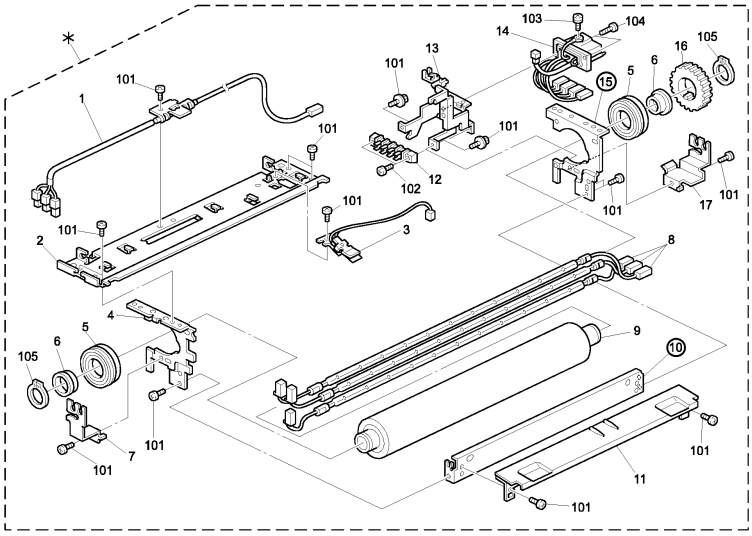
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294 Parts Catalogs (Sections).

- **UPDATE 1:** **Rear Fusing Plate & Right Lower Fusing Stay –** To reduce the possibility of an audible resonance during copying, the Rear Fusing Plate and the Lower Fusing Stay have been changed. Refer to the Service Manual page 6-85 for the proper method of securing the Rear Fusing Plate.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944054	A2944094	Rear Fusing Plate	1	3/S	105	15
A2944059	A2944099	Right Lower Fusing Stay	1	3/S	105	10

UNITS AFFECTED:

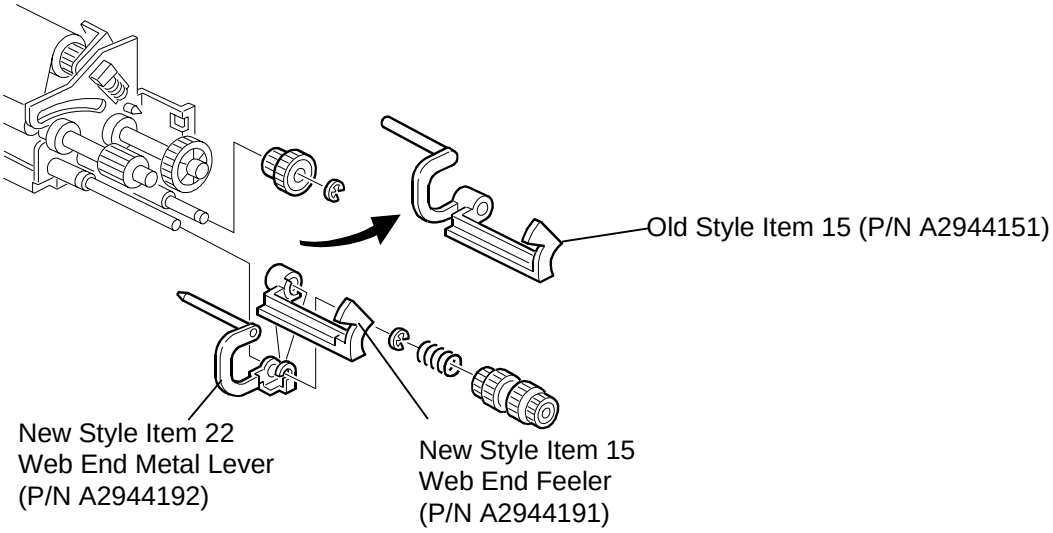
All A294 copiers manufactured after the Serial Numbers listed below will have the new style Rear Fusing Plate and Right Lower Fusing Stay installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600200180
Ricoh AFICIO 850	H3600200220
Savin 2085DP	H3600200180

Continued…

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- **UPDATE 2:** **Oil Supply & Cleaning Web Unit –** The Web End Feeler (Item 15) has been modified into two individual parts, a Web End Metal Lever (new item 22) and Web End Feeler (Item 15). The following parts corrections are being issued for all A294 Parts Catalogs. Please update your Parts Catalogs with the following information.



				REFERENCE	
INCORRECT PART NO.	**CORRECT PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2944140	A2944134	Oil Supply & Cleaning Web Unit	1	101	3
A2944151	A2944191	Web End Feeler	1	101	15
	A2944192	Web End Metal Lever	1	101	22 *
A2944206	A2944209	Fusing/Paper Exit Unit – 240V USA	1	103	✳
A2944207	A2944011	Fusing/Paper Exit Unit – 230V	1	103	✳

* Denotes new item number.

UNITS AFFECTED:

A294 Serial Number cut-in not available at time of publication.

- **UPDATE 3:** **Toner Hopper Gear –** The Joint Gear – 15z (White – P/N AB013748) which was contained in the old style Toner Supply Unit (P/N A2943200) has been packed in the accessory plastic bag. The Idler Gear – 15z (P/N A2943255) has been installed in the new style Toner Supply Unit (P/N A2943202). Do not discard the red Idler Gear – 15z, it is required if the Toner Supply Unit is replaced in the future. See SM revision pages 3-11 and 12. The following parts corrections are being issued for all A294 Parts Catalogs. Please update your Parts Catalogs with the following information.

Continued…

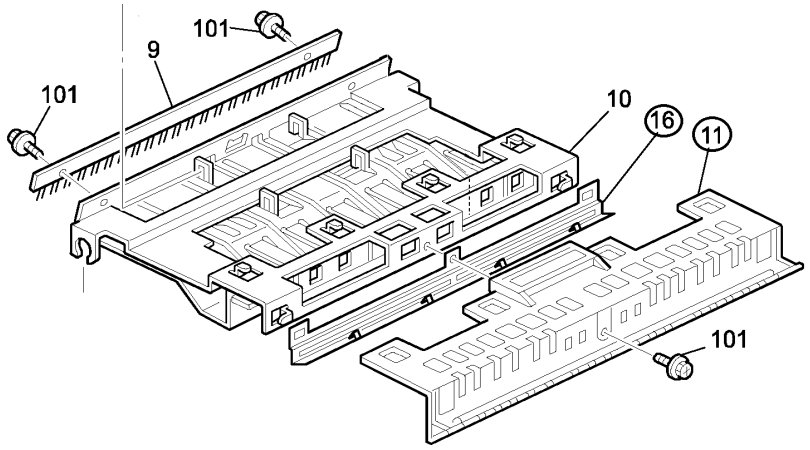
					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943200	A2943202	Toner Supply Unit	1	1	83	*
07270060B		Retaining Ring – C6	-		83	108
	09513006B	Philips Screw with Flat Washer-M3x6	1	-	83	108
	AB013748	Joint Gear – 15Z (White)	1		83	20
	A2943255	Idler Gear – 15Z (Red)	1		83	20

UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Toner Supply Unit installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600300239
Ricoh AFICIO 850	H3600200447
Savin 2085DP	H3600300239

- **UPDATE 4:** **Entrance Guide & Support Guide –** To reduce the occurrence of "dog ears" when using curled paper the Entrance Guide and Support Guide – Entrance Cooling have been changed. Refer to the Service Manual page 6-85 for the proper method of securing the Rear Fusing Plate.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944401	A2944405	Entrance Guide	1	3/S	113	11
A2944403	A2944406	Support Guide – Entrance Cooling	1	3/S	113	16

UNITS AFFECTED:

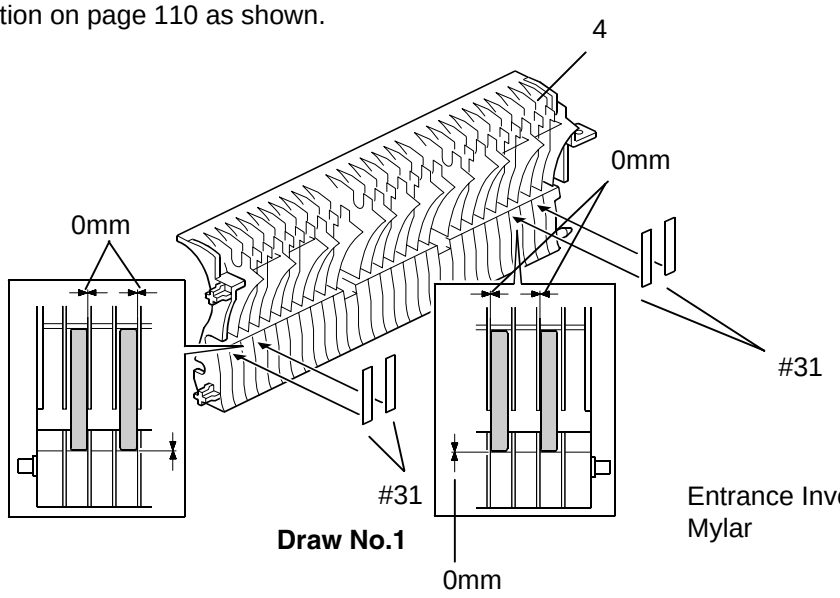
All A294 copiers manufactured after the Serial Numbers listed below will have the new style Entrance Guide and Support Guide – Entrance Cooling installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600300239
Ricoh AFICIO 850	H3600300359
Savin 2085DP	H3600300239

Continued…

- **UPDATE 5:** **Entrance Inverter Guide Mylar –** The following parts corrections are being issued for all A294 Parts Catalogs. Please update your Parts Catalogs with the following information.

Please correct the illustration on page 110 as shown.



Draw No.1

Entrance Inverter Guide Mylar

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
04514011B	04514012B	Tapping Screw – 4x12	3	-	51	105
	A2944288	Entrance Inverter Guide Mylar	4	-	111	31 *

UNITS AFFECTED:

A294 Serial Number cut-in not available at time of publication.

- **UPDATE 6:** **Hard Disk Drive –** Due to a vendor change, the part number has been changed. The following parts corrections are being issued for all A294 Parts Catalogs. Please update your Parts Catalogs with the following

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A6915878	A6915879	Hard Disk Drive	2	0	145	1

UNITS AFFECTED:

A294 Serial Number cut-in not available at time of publication.

Continued…

- **UPDATE 7:** **Key Counter Extension Kit –** The part number for the Key Counter Extension Kit was omitted from the Parts Catalog. The following part correction is being issued for all A294 Parts Catalogs. Please update your Parts Catalogs with the following information.

				REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2949501	Key Counter Extension Kit	1	-	47	❊ *

* Denotes new item number.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 – 002 **04/28/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.



■ SERVICE MANUAL

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

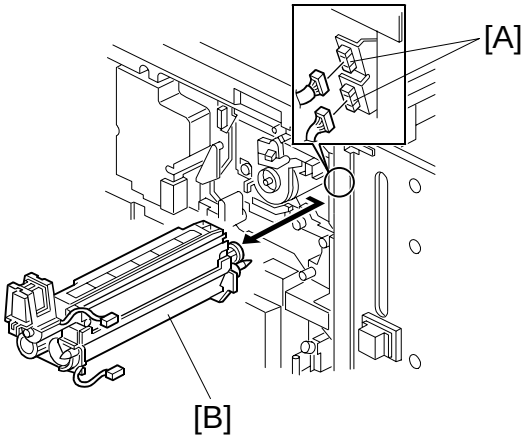
The revised areas have been highlighted by an arrow ⇒.

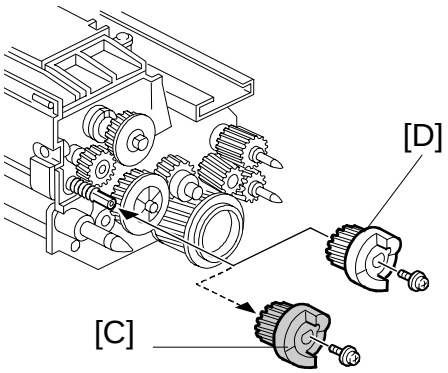
- 3-11 & 12 Updated Information(Installation)
- 4-15 Updated Information (SP2-207-2)
- 6-43 Updated Information (Developer Replacement)

The parts listed below are referred to in the Service Manual pages listed above. The following parts additions are being issued for all A294 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943200	A2943202	Toner Supply Unit	1	1	83	*
07270060B		Retaining Ring – C6	-		83	108
	09513006B	Philips Screw with Flat Washer-M3x6	1	-	83	108
	AB013748	Joint Gear – 15Z (White)	1		83	20
	A2943255	Idler Gear – 15Z (Red)	1		83	20

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33. When the machine is ready, enter SP mode as follows:
    1) Press the clear modes key.
    2) Enter “107”.
    3) Hold down the clear key for more than 3 seconds.
34. Press “Copy SP” on the LCD, and perform the TD initial setting as follows:
    1) Select SP No. 2-801
    2) Press the “Start key” on the LCD.
    NOTE: This SP mode performs the TD initial setting. It will stop automatically in about 1 minute.
35. Supply toner from the toner bank to the toner hopper as follows:
    1) Select SP2-207-2 (Toner Bank Toner Supply)
    2) Press the “Start key” on the LCD.
    NOTE: By performing this SP mode, the toner is distributed into the toner hopper and the toner transport path. It will stop automatically in about 7 minutes. If SP2-207-2 fails after SP2-801 is completed (an SC code is displayed), repeat only SP2-207-2 again.

⇒ **NOTE:** When replacing the toner hopper unit, perform SP2-207-2 using the red gear. Because the new toner hopper does not contain any toner, using the red gear will fill the toner hopper but will not add toner to the developer. Therefore, replace the white gear from the new toner hopper unit with the red gear. After performing SP2-207-2, reinstall the white gear. **IMPORTANT-** do not discard the red gear after completing this installation. It will be necessary if you need to replace the toner hopper unit.

36. Remove the screw that holds the drum stay.
37. Remove the drum stay knob and the drum stay (turn the knob clockwise to remove it).
38. Disconnect the two connectors [A].
39. Pull out the development unit [B] as shown.
40. Remove the red toner hopper drive gear [C] (1 screw) and replace with the white gear [D] supplied with the accessories.
    NOTE: The red gear is used only to prime to toner supply system. Failing to replace the red gear with the white gear will result in a lack of toner delivery from the toner hopper to the developer unit.

NOTE: Early production units used snap rings to hold the gear in place.

⇒ Please note the following “Necessary Actions” following each activity listed in the table below:

Service Activity	Necessary action for adding toner to the toner hopper	Remarks
Developer Replacement	No further action is required. The white gear is in the toner hopper unit.	Toner can be supplied from the toner hopper.
Toner Hopper Unit replacement (empty toner hopper installation).	Refer to the procedure described in the NOTE: section of step 35.	Toner is not in the toner hopper. If the proper action is not carried out, SC495 will be displayed.
Toner Transport Tube cleaning (before and after machine transportation).	No further action is required. The white gear is in the toner hopper unit.	Toner is already inside the development unit and toner hopper.

41. Install the development unit in the machine and connect two connectors [A].
42. Attach the drum stay and attach the drum stay knob and one screw.
43. Reinstall the inner cover.
44. Change the paper size for all paper trays to suit the customer’s request.
45. Attach the appropriate paper size decals, which are included as accessories, to each paper tray.
46. Attach the face-up decal to the ADF.
47. Check copy quality and machine operation.

The first time that the ADF is used, dust on the ADF transport belt will transfer to the exposure glass. To remove this dust, perform SP6-008-3 (DF Output Check) for 3 minutes, and then remove the dust on the exposure glass if necessary.

48. Initialize the electrical total counter using SP7-825, if required.

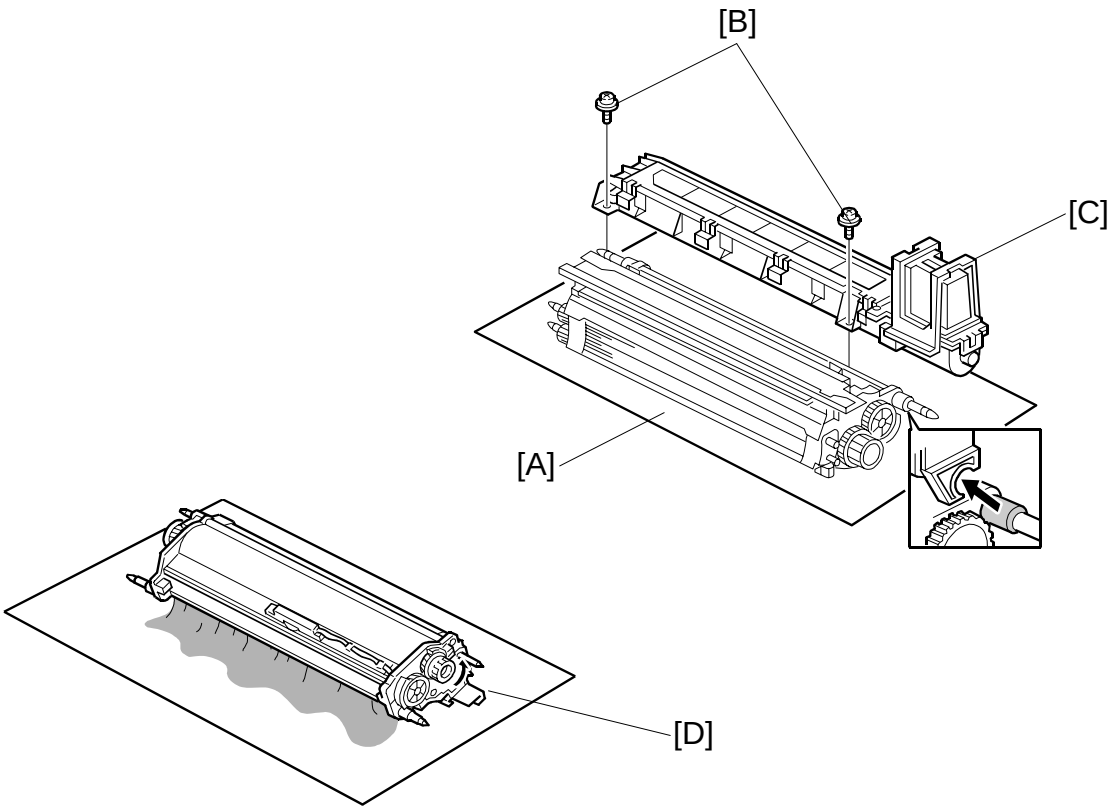
NOTE: For SP2-207-2
Occasionally, SP2-207-2 finishes within about 2 seconds. If this happens, perform SP2-207-2 again. This mode should normally run for about 5 minutes.

Reason: The Mylar attached to the agitator in the toner hopper cleans the surface of the toner hopper sensor. This is done so that the sensor detects toner in the hopper when SP2-207-2 is initiated, the SP mode will not be carried out. This is to prevent toner from being mistakenly supplied. However, when the Mylar is rotated to clean the sensor surface, the sensor may sometimes detect the Mylar and judge that there is still toner present. This may occur even if there is no toner in the hopper.

Mode No. (Class 1, 2 and 3)				Function	Settings
2-201	Development Bias Adjustment				
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step **–550 V**
	4	ID Sensor Development Potential	B	Adjusts the development potential for making the ID sensor pattern for VSP measurement. Do not adjust.	–140 ~ –380 1 V/step **–280 V**
2-207	Forced Toner Supply				
	1	Forced Toner Supply		Forces toner supply for 7 seconds from the toner bank through the toner hopper to the development unit. *This mode finishes automatically after the toner is supplied 7 times (1 s for each time).*	Start
⇒	2	Toner Bank Toner Setup **NOTE:** Refer to page 3-11 and 12 for important instructions.		Turns on the main motor, development motor, development bias, toner supply motor and charge corona. Then turns on the toner supply coil clutch to supply toner to the toner hopper, but not to the development unit. It takes about 5 minutes. *This mode should be used to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.*	Start
2-208	Toner Supply Mode				
			B	Selects the toner supply mode. *Use image pixel count mode only as a temporary countermeasure if the ID or TD sensor is defective.*	**Sensor Control** Pixel Count Control
2-209	Toner Supply Rate				
			B	Adjusts the toner supply rate from the hopper. *Increasing this value reduces the toner supply roller clutch on time. Use a lower value if the user tends to make lots of copies that have a high proportion of black.*	100 ~ 2,000 10 mg/s/step **800 mg/s**
2-210	ID Sensor Pattern Interval				
			B	Changes the interval for making the ID sensor pattern (VSP/VSG detection). *If the user normally makes copies with a high proportion of black, reduce the interval.*	0 ~ 500 1 copy/step **10 copies**

Service Tables

6.6.2 DEVELOPER REPLACEMENT



1. Take out the development unit. (Refer to Development Unit Removal.)
2. Place the development unit on a sheet of paper [A].
3. Remove the two screws [B] that hold the toner hopper [C].
4. Remove the toner hopper from the development unit.
5. Turn over the development unit. Then turn the paddle roller knob [D] to empty the remaining developer onto the sheet. (The knob [D] allows the paddle roller to be turned counterclockwise only.)

   NOTE: Dispose of used developer in accordance with local regulations. Make sure that no developer remains on the development rollers or in the development unit.

⇒ **NOTE:** When replacing the toner hopper unit, be sure to follow the instructions on pages 3-11 and 12 of the Service Manual.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 – 003 **04/28/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: VERTICAL BLACK LINES

SYMPTOM:

Vertical black lines have a tendency to appear in copies after long continuous copy jobs (approximately 10 hours).

CAUSE:

Toner is not completely removed by the Cleaning Blade due to paper dust that accumulates on the Cleaning Blade after long continuous copying. During continuous copying, the Drum Motor does not stop and turn in reverse to clean the edge of the Cleaning Blade.

SOLUTION:

Starting with the March 2000 production, the SICU and BCU ROM versions have been upgraded so the default settings of SP2-506-1 and 2 have been changed so that the Drum Motor stops and turns in reverse every 30 minutes during continuous copying to clean the blade edge.

The default setting of SP2-506-1 was changed from No to Yes and SP2-506-2 was changed from 15 to 30 minutes.

2-506	Cleaning Interval – Multiple Copy				
	1	On/Off	B	Selects whether multiple copy jobs are stopped at regular intervals for the following purposes: 1. Stop and turn the drum motor in reverse to clean the cleaning blade edge. 2. Make an ID sensor pattern to correct the toner density control. The interval is determined by SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during long copy jobs.	1: No **2: Yes**
	2	Interval	B	Selects the interval at which multi copy jobs are stopped for blade cleaning.	1 ~ 100 1 minute/step **30 minutes**

Continued…

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FIELD COUNTERMEASURE:

Upgrade the SICU and BCU to at least version 7.28.1(G) or later. Then change the SP mode settings as shown in the Table on page 1.

NOTE: *In order to activate the new default settings for SP2-506-1 and 2, after you have installed the firmware, you must enter the SP modes and manually change the settings to the new default settings. After this has been done, the copier will recognize these settings as the default values.*

If you change these two SP mode settings with versions older than 7.28.1(G), SC990 may occur when printing out blank copies with the slip-sheet or chapter sheet functions. Therefore, we recommend that you update the firmware to version 7.28.1(G) or later.

Continuous copy runs are stopped for 5 or 6 seconds every 30 minutes to clean the edge of the Cleaning Blade. However, the Fusing Unit maintains the ready temperature, as the copier's major internal mechanisms are not shut down during this interval.

The PCB ROM revision G (file name A2945604.EXE) can be downloaded through the Ricoh Technical Services FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 - 004 **04/28/2000**

APPLICABLE MODEL:

GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: DOG EARS

SYMPTOM 1:

Copies are “dog eared” at the rear side of the leading edge.

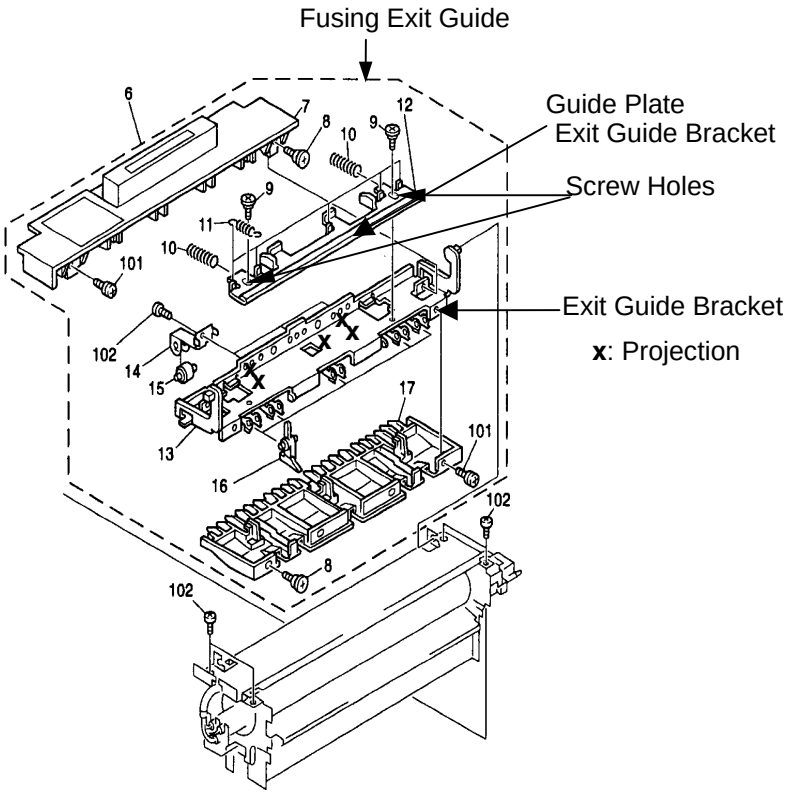
CAUSE 1:

The Fusing Exit Guide is not positioned properly. There is a small gap located at the Rear Magnet Catch. Also, the Hot Roller Strippers are not in the proper position when the Exit Guide is closed. This occurs because there is a mechanical load on the Stripper Sliding Mechanism.

SOLUTION 1:

Starting with the December 1999 production, the mechanical load has been minimized by applying Barrierta Grease (P/N A0289300) to the Stripper Release Mechanism in the following places:

- The two (2) shoulder Screw holes on the Guide Plate
- The five (5) projections on the surface of the Exit Guide Bracket



Continued…

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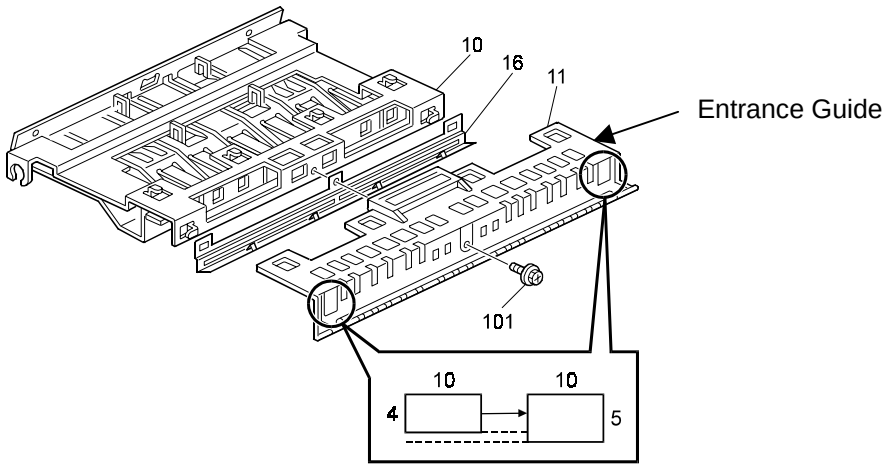
NOTE: *Starting with the March 2000 production, Barrierta Grease is applied to the Stripper Release Slider and the shape of the Exit Guide Plate has been modified to smooth the Stripper Sliding Mechanism. The part number has not been changed.*

SYMPTOM 2:

Copies are “dog eared” when using curled paper.

TEMPORARY SOLUTION 2:

To minimize this, the following modifications have been implemented starting with the serial numbers listed below. The height of the holes have been changed from 4 x 10 mm to 5 x 10 mm, so that the position of the Entrance Guide has been raised by 1 mm. See illustration below:



All A294 copiers manufactured after the Serial Numbers listed below will have the new style Exit Guide Plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600200180
Ricoh AFICIO 850	H3600200220
Savin 2085DP	H3600200180

PERMANENT SOLUTION 2:

The height of the Entrance Guide has been raised by 1mm and the shape of both the Entrance Guide and the Entrance Cooling Guides have been changed. When replacing either of the old style parts, both new parts must be installed as a set.

The following parts updates are being issued for all A294 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944401	A2944405	Entrance Guide	1	3/S	113	11
A2944403	A2944406	Support Guide – Entrance Cooling	1	3/S	113	16

Continued…

UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Entrance Guide and Support Guide – Entrance Cooling installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600300239
Ricoh AFICIO 850	H3600300359
Savin 2085DP	H3600300239

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 – 005 **04/28/2000**

APPLICABLE MODEL:

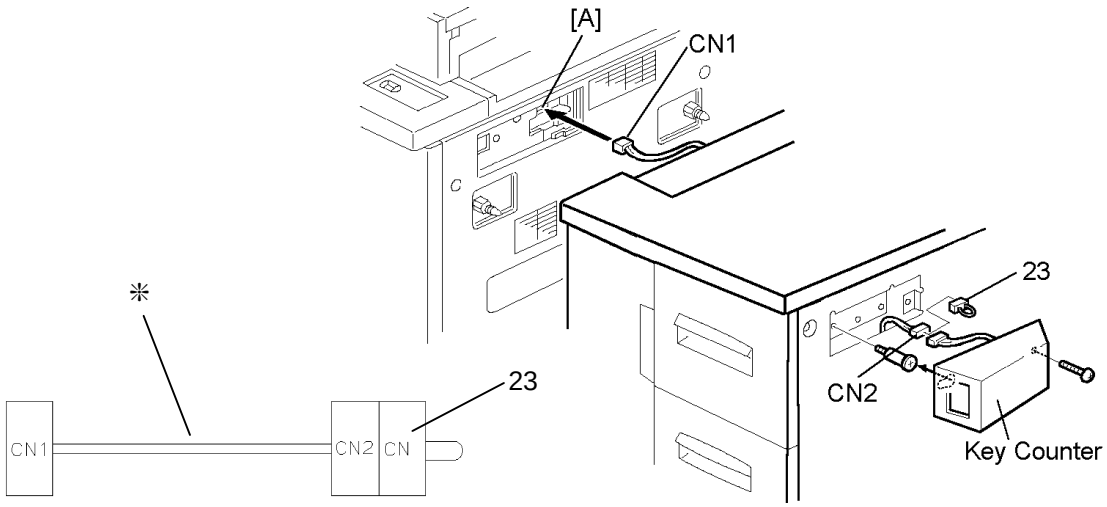
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: KEY COUNTER EXTENSION KIT

GENERAL:

The part number for the Key Counter Extension Kit was omitted for the Parts Catalog. This kit is required when installing the Key Counter with the LCT and it can be ordered as a spare part. For the installation procedure, refer to page 3-28 of the Service Manual. The following part addition is being issued for all A294 Parts Catalogs.



				REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A0965464	Key Counter Short Connector	1	-	47	23
A2949501	Key Counter Extension Kit	1	-	47	✳ *

* Denotes new item number.

NOTE: *CN1 should be connected to connector [A] of the copier harness (P/N A2945098: SICU Connector Harness). With the LCT Extension Kit installed and no Key Counter present, CN2 will have the Key Counter Short Connector [23] installed. The Service Manual procedure for Key Counter Installation has not been changed. In addition, the Service Manual procedure for Key Counter Installation with the LCT remains unchanged.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 – 006 **04/28/2000**

APPLICABLE MODEL:

GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

SUBJECT: NOISE (RESONANCE) DURING COPYING

Note: This copy is intended as a master original for reproduction of additional bulletins.

SYMPTOM:

An audible resonance may occur during copying. To correct this symptom, machines in production have been modified as follows:

TEMPORARY COUNTERMEASURE:

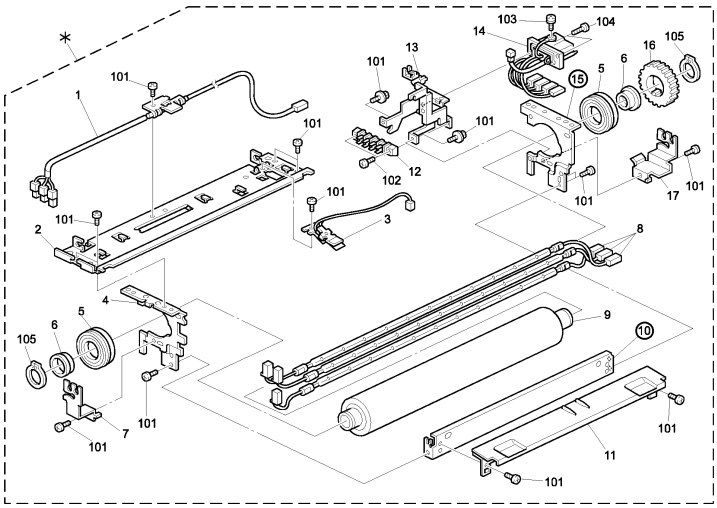
The screws used for attaching the Right Lower Fusing Stay (P/N A2944059) and the Rear Fusing Plate (P/N A2944057) have been inserted from the front side. They were previously inserted from the rear side. This countermeasure has been applied from December 1999 production.

PERMANENT COUNTERMEASURE:

The screw holes in the Rear Fusing Plate have been changed from 4.1 ± 0.1 x 6 mm to 4 mm. The screw holes in the Right Lower Fusing Stay have been changed from 4 mm to 4.1 ± 0.1 mm and 4.1 ± 0.1 x 6 mm. Note, that for the Permanent Countermeasure, the insertion direction of the screws for the Right Lower Fusing Stay and Rear Fusing Plate is from the rear side (the original direction). The Right Lower Fusing Stay and Rear Fusing Plate will be given new part numbers (See the chart below). These parts must be replaced as a set.

GENERAL:

The following parts updates are being issued for all A294 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944054	A2944094	Rear Fusing Plate	1	3/S	105	15
A2944059	A2944099	Right Lower Fusing Stay	1	3/S	105	10

Continued…

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UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Rear Fusing Plate and Right Lower Fusing Stay installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600200180
Ricoh AFICIO 850	H3600200220
Savin 2085DP	H3600200180

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 - 007 **06/14/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: DEVELOPMENT SEAL ENHANCEMENT KIT: P/N A2949901

SYMPTOM:

Toner Dusting in the drum area

CAUSE:

Insufficient Toner Development Unit Seals

SOLUTION:

Modified and newly added Seals

To improve the toner sealing of the development unit, the following seals have been improved and added. The procedure for installing the seals included in the Development Seal Enhancement Kit (P/N: A2949901) are described below.

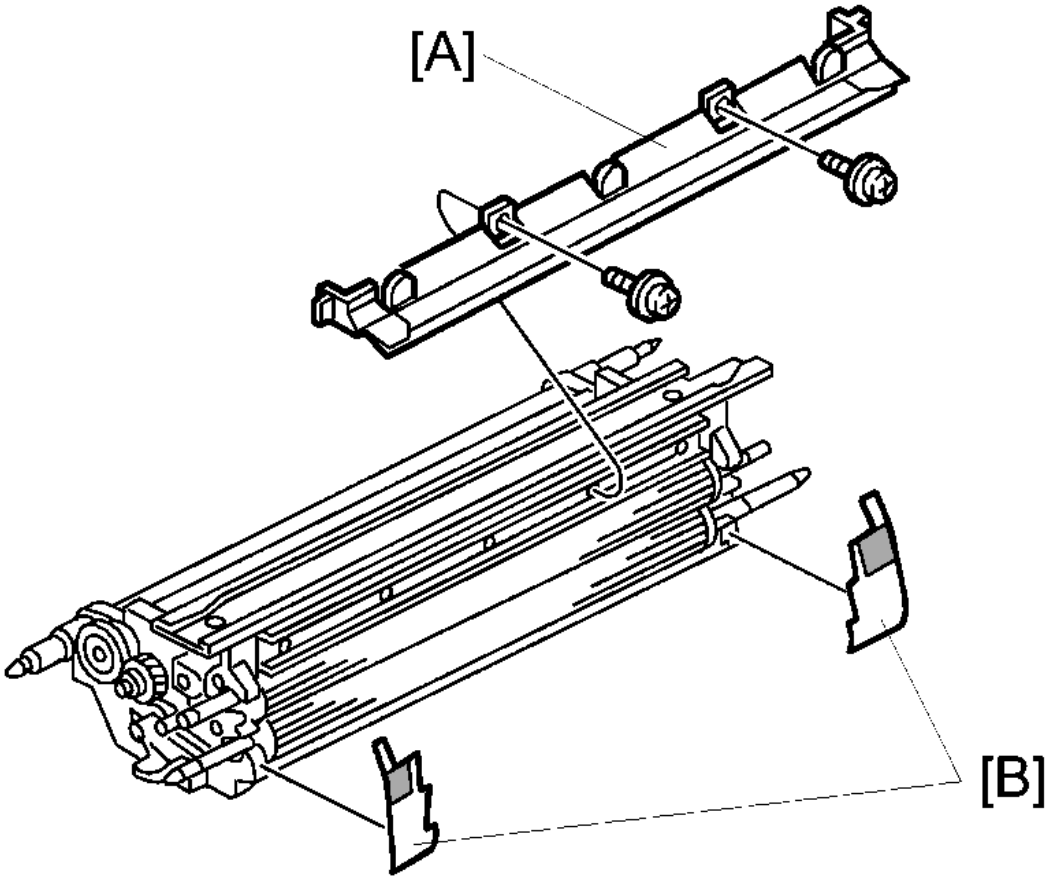
ENHANCEMENT KIT CONTENTS:

		REFERENCE
NEW PART NO.	**DESCRIPTION**	**QTY**
A2943160	Front Development Roller Seal	1
A2943162	Rear Development Roller Seal	1
A2943166	Front Drum Seal	1
A2943167	Rear Drum Seal	1
A2943165	Seal - 325x15x3	1
A2949502	Seal - 5x400x3	1
A2949503	Sheet - 15x47	1
A2949504	Sheet - 15x58	1
A2949505	Seal - 5x203x3	1

Continued…

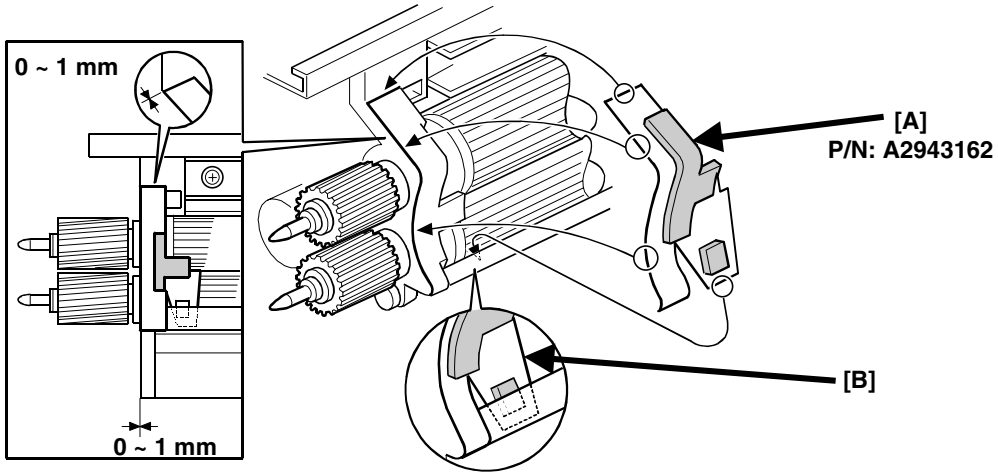
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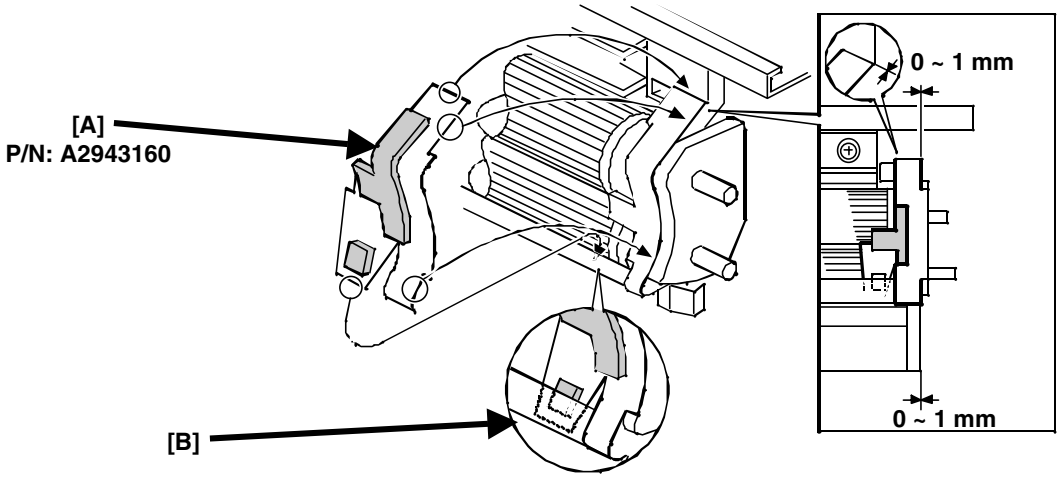
PROCEDURE FOR INSTALLING THE DEVELOPMENT SEALS ENHANCEMENT KIT (P/N: A2949901):



1. Remove the development unit (page 6-42 FSM). Remove the toner hopper from the development unit (refer to development replacement). Remove any developer present.
2. Clean the development unit to completely remove all toner and developer.
3. Remove the developer entrance seal [A] (2 screws, 2 hooks).
4. Remove all the old developer entrance seals [B]. (***2 each*** on front and rear).
5. Clean the areas where the seals were attached with a dry cloth to completely remove any toner and adhesive.

Continued…

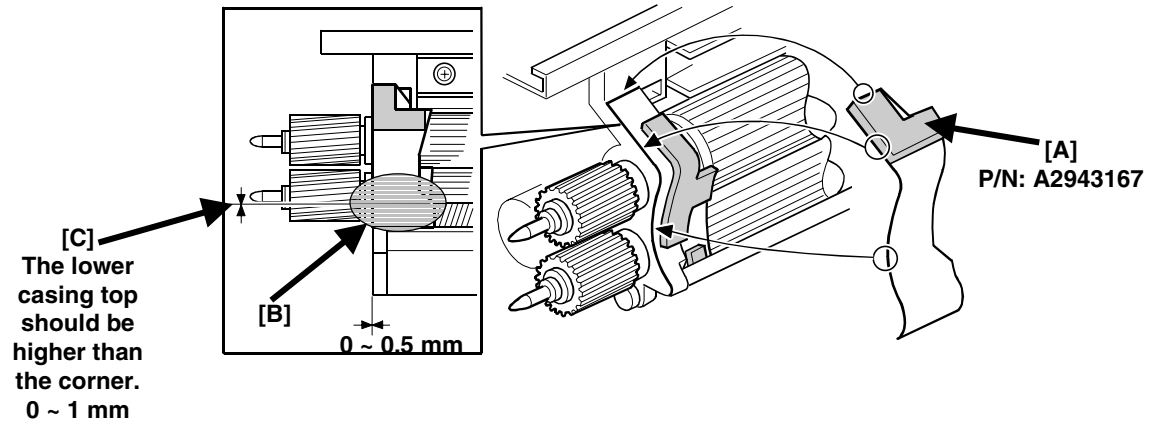


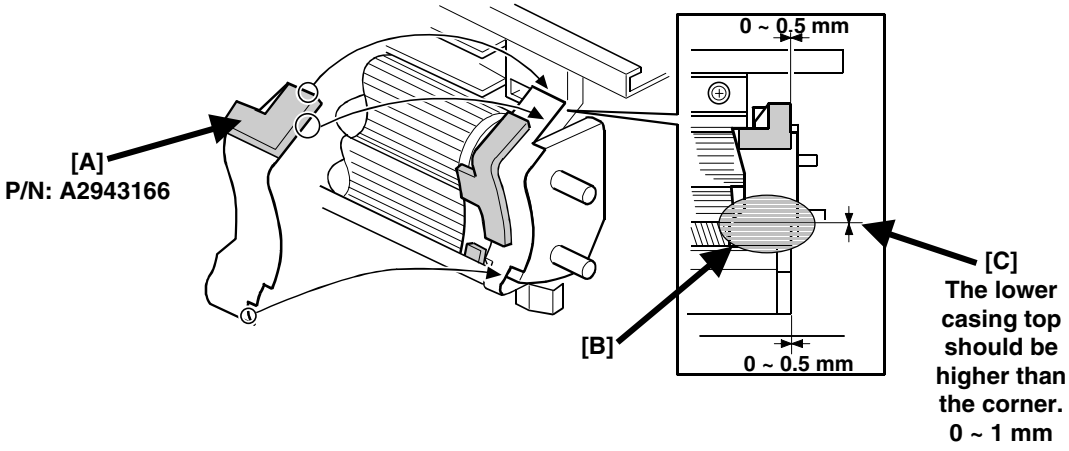


NOTE: *If there is any oil or foreign material on the seals, clean them very carefully with alcohol.*

6. Attach the front and rear development roller seals [A] as shown (rear & front A2943162 & A2943160).
    - Align the edges of the seals with the side plates as shown.
    - Insert the lower part of the seal [B] under the lower development casing.
    - Affix this part to the development unit tightly so that there is no slack or air pockets in the seals.

Continued…





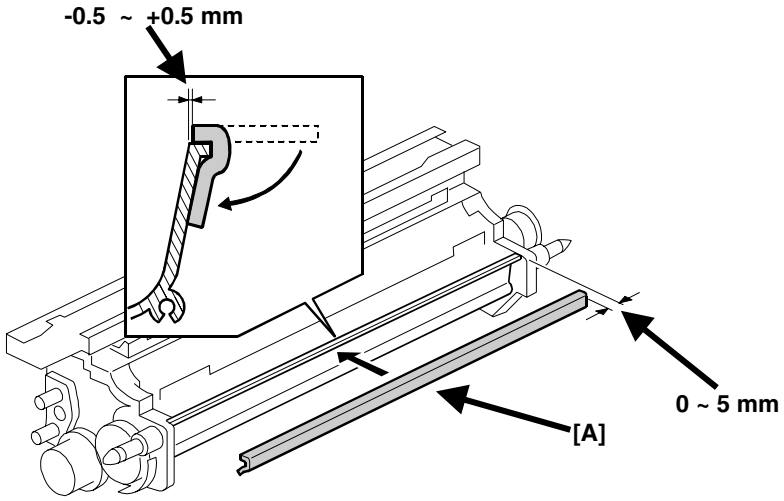
7. • Attach the front and rear drum seals [A] (Rear and Front: A2943167 & A2943166) on top of the seals attached in step 6.

   - Align the corner of the seals with the top of the lower development casing [B] on the both side of the development unit as shown in [C].

     NOTE: *The lower casing top should be higher than the corner*

   - To attach the seals, press the non-sponge area firmly so that there is no slack or air pockets in the seals.

Continued…



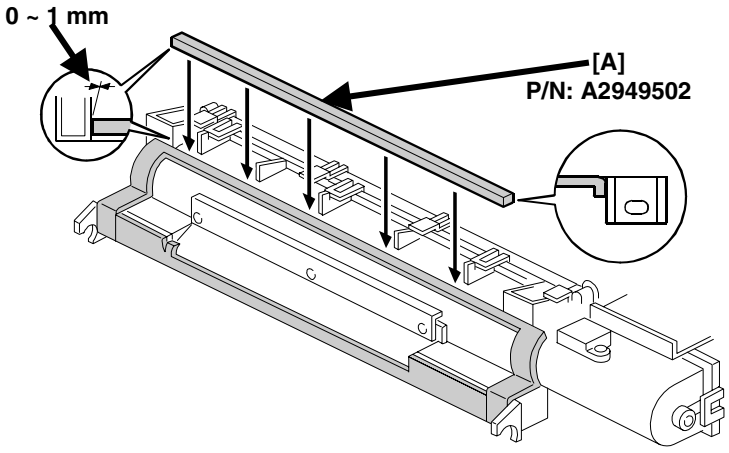
8. Attach the front seal [A] as shown (A2943165: Seal - 325x15x3)

   - Remove the old seal from the development unit.
   - Clean the areas where the seal were attached with alcohol.
   - Attach the new seal [A] (A2943165: SEAL - 325X15X3) to the development unit.

Installing Toner hopper seals (P/N: A2949502, A2949505, A2949503, and A2949504):

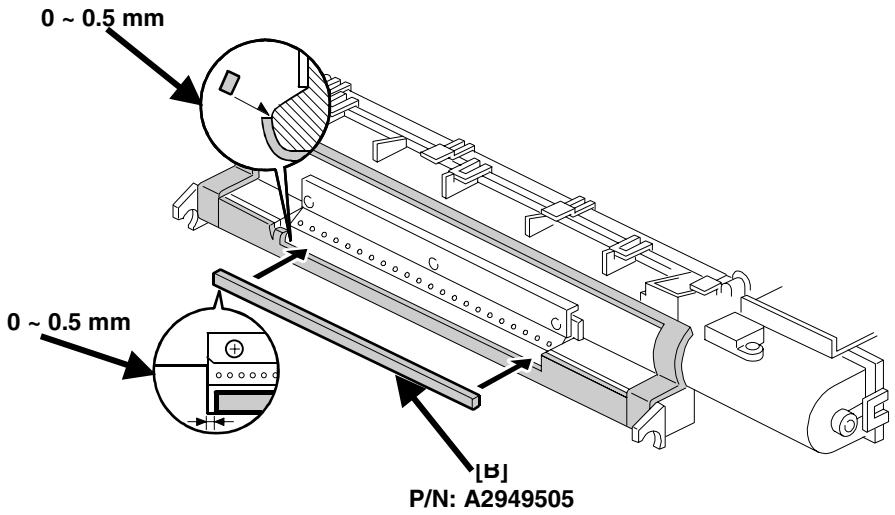
1. Clean the areas where the seals will be attached with a dry cloth.

2. Attach the seals & sheets as shown in the following illustrations..

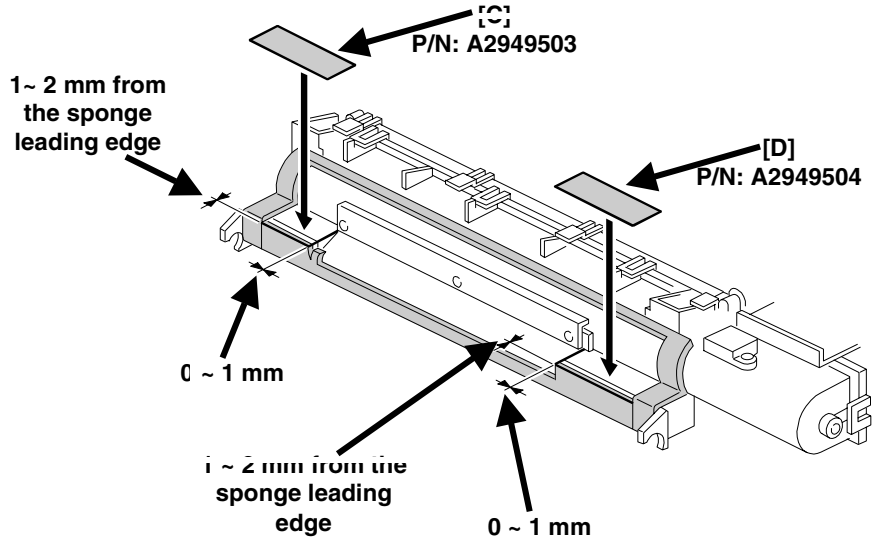


3. Attach the seal [A] (P/N: A2949502 SEAL - 5x400x3).

Continued…



4. Attach the seal [B] (P/N: A2949505 SEAL - 5X203X3).



5. Attach the sheets (P/N: A2949503 SHEETS - 14x47 [C]) & (P/N: A2949504 SHEETS - 15x58 [D]).

Continued…

ALLOCATION:

Each authorized servicing location will receive an automatic 100% of these kits for the affected population. The contents of each "Kit" are available as individual service parts for procurement through normal ordering procedures.

Units currently in inventory will have these Kits added inside the carton box.
These parts should be installed at the time of machine installation

UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Development Unit Seals installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632 ~
Ricoh Aficio 850 Savin 2085DP	H3600400001 ~ H3600400632 ~

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 - 008 **06/14/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: WEB CLEANING ROLLER ENHANCEMENT KIT: P/N A2949900

SYMPTOM:

- Black line on the copy
- Background or offsetting on copies

CAUSE:

Insufficient cleaning of the Hot Roller by the Web Cleaning Roller.

SOLUTION:

To improve the cleaning ability of the Web Cleaning Roller, the shape of the Web Cleaning Roller has been changed and the pressure of the Web Cleaning Roller Springs have been increased.

ENHANCEMENT KIT CONTENTS:

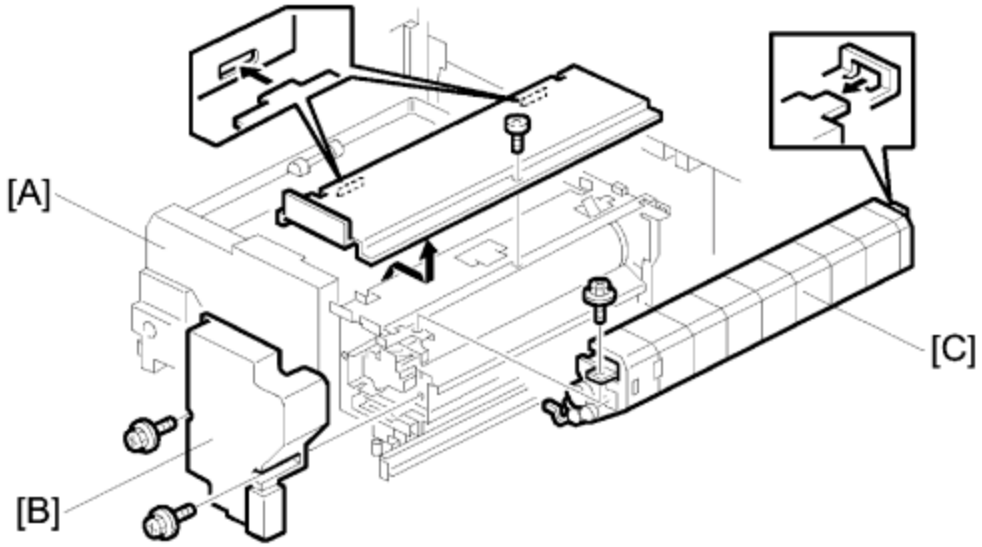
		REFERENCE
PART NUMBER	**DESCRIPTION**	**QTY**
AE040033*	Web Cleaning Roller	1
AA063682*	Cleaning Pressure Spring	2

*** NOTE:** The new parts will be available after July 1, 2000.

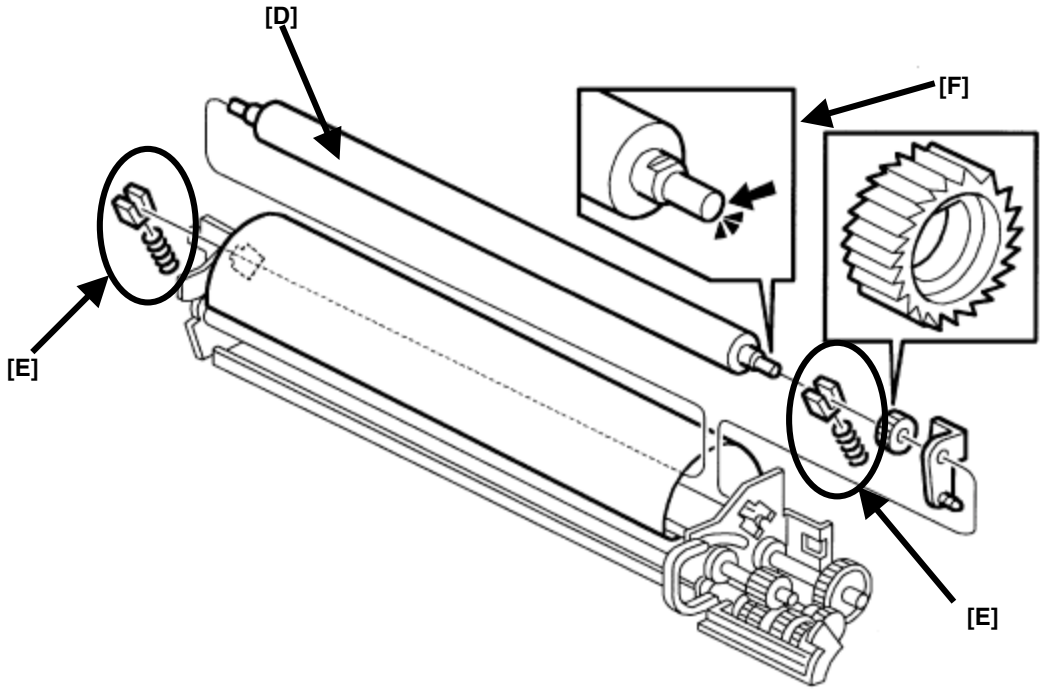
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PROCEDURE FOR INSTALLING THE WEB ROLLER ENHANCEMENT KIT (P/N:A2949900):



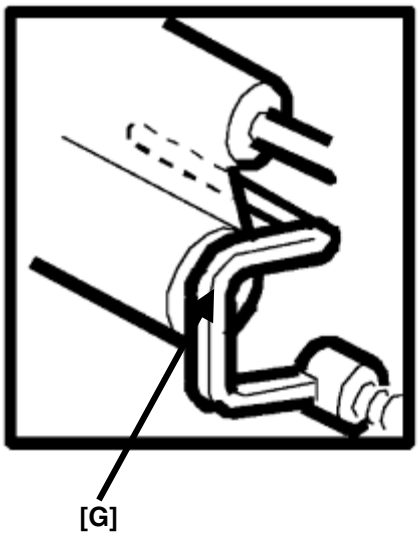
1. Open the left and right doors, and pull out the Fusing and Exit Unit [A].
2. Remove the Fusing Unit Inner Cover [B] (2 screws).
3. Remove the Oil Supply and Cleaning Web Unit [C] (1 screw).

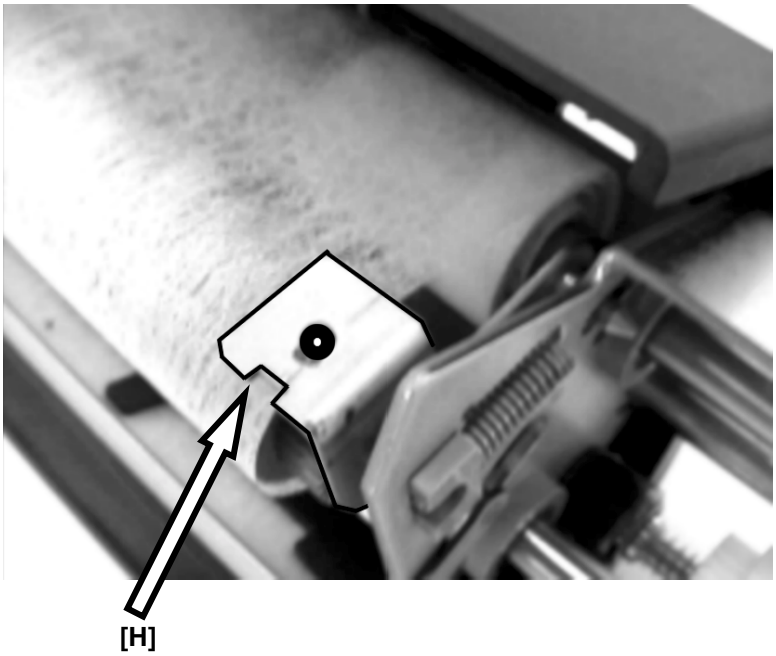


4. Place the Oil Supply and Cleaning Web Unit on a stable, flat surface.
5. Slacken the web out to about 200mm. Then, remove the Web Cleaning Roller [D] (2 bushings, 2 springs [E]).
6. Install the new Web Cleaning Roller and new springs.

NOTE: *To distinguish the new roller from the old one, the shaft of the new roller has been marked black on the front face [F].*

Continued…





7. Reassemble all the parts.

NOTE: *When re-installing parts, make sure that the feeler lever [G] for the web end sensor is on the web as shown. Otherwise, after re-installing the parts and turning on the main switch, web end (SC550) will be displayed. Make sure that the web is under the bracket [H] as shown.*
If there are any buckles in the web between the web supply roll and web collecting roll, turn the web collecting roller gear clockwise (front view) until the buckles are pulled straight.

ALLOCATION:

Each authorized servicing location will receive an automatic 100% of these kits for the affected population. **The contents of each "Kit" are available as individual service parts for procurement through normal ordering procedures.**

Units currently in inventory will have these Kits added inside the carton box.
These parts should be installed at the time of machine installation

UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Web cleaning Roller and springs installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632~
Ricoh Aficio 850	H3600300480~
Savin 2085DP	H3600400632~

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 - 009 **06/29/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER BOTTLE CAP OPEN / CLOSE FAILURE

SYMPTOM:

The open / close mechanism for the Lower Toner Bottle Cap does not work properly. In some cases, the mechanism does not return the Cap to the Bottle, which may cause some of the remaining toner in the Bottle to spill as the Bottle is removed from the machine.

NOTE: *This symptom only occurs with the Lower Toner Bottle.*

This may occur:
1. If the Lower Toner Bottle is not placed in the Toner Bank
2. The Toner End Condition is detected for the Lower Toner Bottle and the Upper Toner Bottle is shaken several times before it is set.
3. If either Toner Bottle is over shaken before it is installed.

CAUSE:

If the operator shakes the Toner Bottle several times and then sets it into the copier, too much toner may be supplied from the Bottle. During normal operation, when the Bottle Cap is opened, approximately 30 to 40 grams of toner are supplied. When the Bottle has been shaken several times, up to 150 grams may be supplied. Also, if the Upper Toner Bottle is shaken prior to installation, toner may get jammed in the Lower Toner Bottle mechanism causing the mechanism to become locked.

PRODUCTION COUNTERMEASURE:

1. Starting with the April 2000 production, the SICU and BCU firmware revision “J” version 7.31.3 will instruct the operator to set the Lower Toner Bottle before setting the Upper Toner Bottle.
2. A Caution Decal [A] (P/N A2941273) has been affixed to the Toner Bank Cover. Also, step 3 of the existing Toner Bank Decal [B] (P/N A2941272) has been changed, instructing the customer to **not** shake the toner cartridge. This decal is attached to the inner face of the Toner Bank Cover. This decal instructs the customer “Do not shake Toner Bottle before installing.” and “Set Lower Toner Bottle first.” See the illustrations on page 2.

FIELD COUNTERMEASURE:

1. Update the SICU and BCU firmware to version 7.31.3. The PCB ROM revision J (file name A2945604.EXE) can be downloaded through the Ricoh Technical Services FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

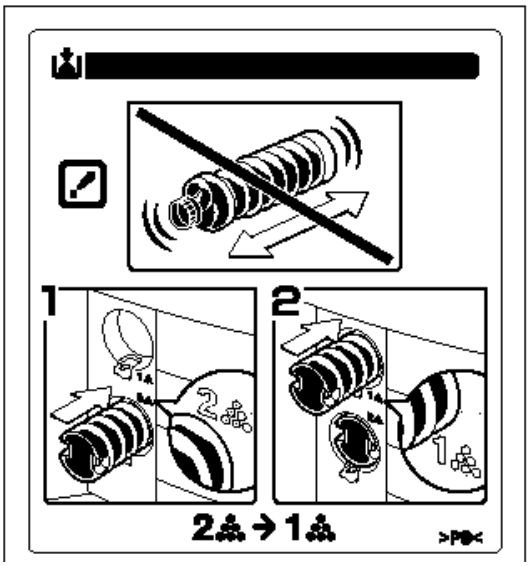
2. Demonstrate to the customer the correct way to set the Toner Bottles. Be sure to indicate the illustrations on the decals.

Continued…

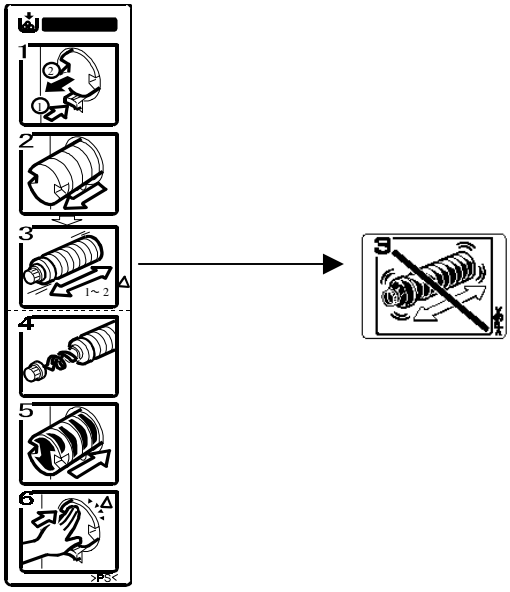
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GENERAL:

The following parts updates are being issued for all A294 Parts Catalogs.



Decal – Caution Toner Supply (P/N A2941273)



Decal - Toner Bank (P/N A2941272)

			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2941273	Decal – Caution Toner Supply	1	181	44 *
A2941272	Decal – Toner Bank	1	181	4

* Denotes new item number.

NOTE: *The part number for the Toner Bank Decal (P/N A2941272) remains the same since the old style Decal was never supplied as a service part.*

UNITS AFFECTED:

All A294 copiers manufactured from the April 2000 production will have the new style Decals installed during production.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 010 **08/14/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: A295 UNIQUE PARTS LISTING

GENERAL:

The following parts additions/corrections are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941771	A2951771	Scanner Lens Unit	1–1	1	43	8
A2941839	---	Ground plate – Under Lens Stay	2–0	--	47	20
09513006B	---	Philips Screw with Flat Washer M3x6	N–2	--	47	101

NOTE: *To meet the EMI (Electro Magnetic Interference) standards, a grounding harness is used for the A295 copier SBU instead of the ground plates (A2941839). The grounding harness is included in the scanner lens unit.*

The following parts have been registered as unique spare parts for the A295.

NEW PART NUMBER	DESCRIPTION	QTY	PAGE	INDEX
A2951285	RIGHT FRONT DOOR (Ricoh only)	1	15	9
A2955094	MCU BOARD HARNESS	1	47	2
A2293899	TRANSFER BELT	1	97	1
A2953810	TRANSFER BELT UNIT	14	97	*
A2954206	FUSING PAPER EXIT UNIT - 240V USA	1	103	*
AX430055	FUSING LAMP - 230V/630W	3	105	8
A2954111	HOT ROLLER UNIT - 230V	1	105	*
A2954066	HOT ROLLER UNIT - 240V USA	1	105	*
A2955172	HARD DISK - FIREBALL PLUS KX	2	145	1
A2957297	COPIER OPERATING INSTRUCTION ENG LT (SAVIN)	1	181	39
A2957207	COPIER OPERATING INSTRUCTIONS LT(RIC)	1	181	39
A2956931	MODEL NAME PLATE - GES	1	181	38
A2956930	MODEL NAME PLATE - SVN	1	181	38
A2958607	SYSTEM OPERATING INSTRUCTIONS- ENG LT (RIC)	1	181	40
A2958697	SYSTEM OPERATING INSTRUCTIONS- ENG LT (SAVIN)	1	181	40

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294 - 011 **08/17/2000**

APPLICABLE MODEL:
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

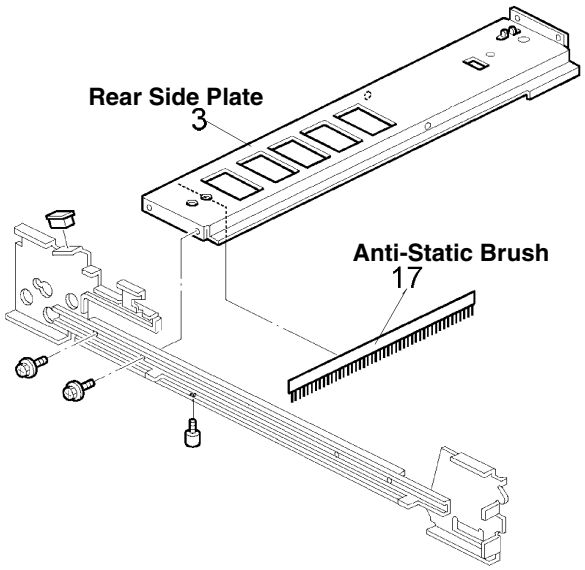
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294 Parts Catalogs.

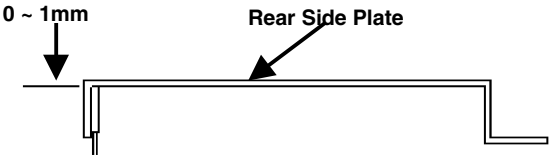
- **UPDATE 1:** **Anti-Static Brush –** The parts Catalog is missing the Item 17 in the illustration on page 40 and the description on page 41 of the parts catalog.

Illustration for Parts Catalog Correction



PART PLACEMENT & LOCATION IN MACHINE





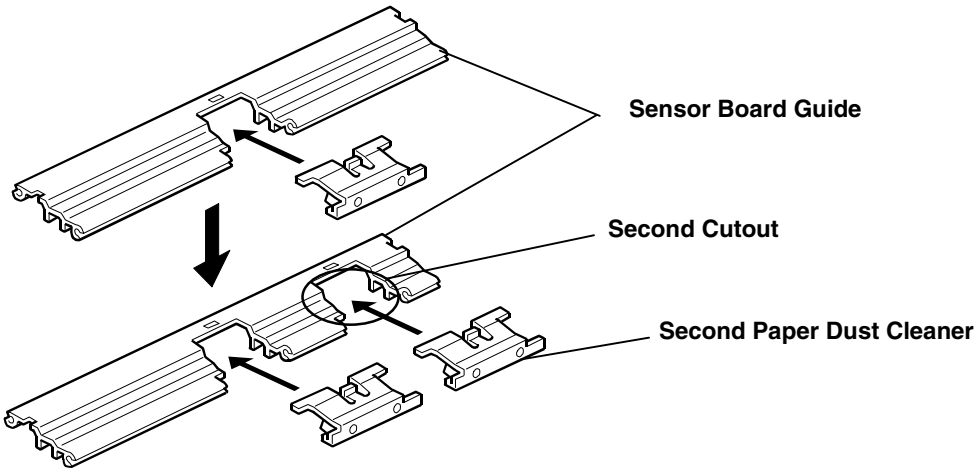
			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B3011134	Anti-Static Brush	1	41	17

Continued…

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- **UPDATE 2:** **Paper Dust Cleaning & Sensor Board Guide –** To improve copy quality, the production machines have been modified as follows:
  1. A second cutout has been added to the Sensor Board Guide (See Illustration).
  2. A second Paper Dust Cleaner has been added to the rear side of the Sensor Board Guide.

  NOTE: *Since there are other parts already attached to the front side, the paper dust cleaner was attached to the rear side.*



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A0962607	----	Paper Dust Cleaner	1-2*	--	69	1
A2292619	A2942619	Sensor Board Guide	1-1	1	71	2

***** *The part number remains the same the quality per assembly has only changed.*

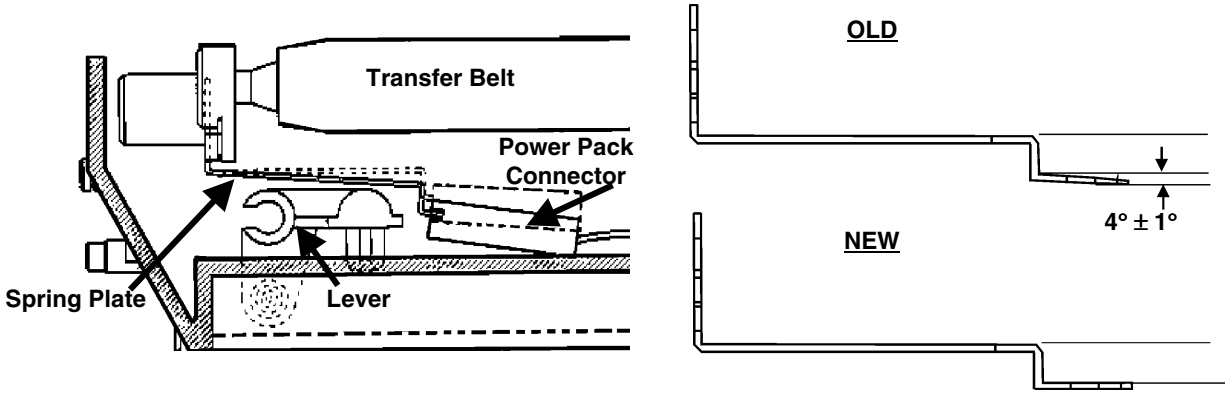
UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Sensor Board Guide and Paper Dust Cleaners installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632
Ricoh Aficio 850	H3600300495
Savin 2085dp	H3600400632

Continued…

- **UPDATE 3:** **Spring Plates –** During testing the Spring Plates were sometimes bent to the lower position causing the Transfer Belt not to release from the Drum after the copy job is finished. To decrease the possibility of this symptom in production machines the shape of the Spring Plates (front & rear) have been modified as illustrated below.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943862	A2943868	Rear Frame Spring Plate	1	1	97	13
A2943865	A2943879	Front Spring Plate	1	1	97	21

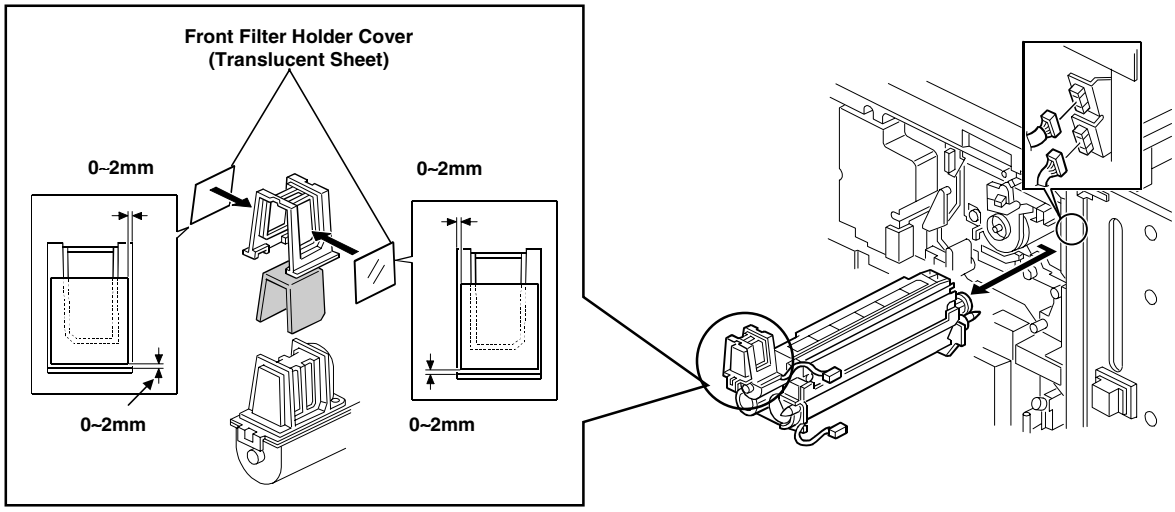
UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Spring Plates installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Ricoh Aficio 850	H3600500347
Savin 2085dp	H3600500197

Continued…

- **UPDATE 4:** **Front Filter Holder Cover –** When removing or re-installing the Development unit during service, the Front Toner Filter should not be touched. If touched the Front Toner Filter may become incorrectly positioned. This may cause toner leaking from its gap. To facilitate servicing, two translucent sheets (A2943264) have been added to the Front Filter holder to cover the holder.



			REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2943264	Filter Holder Cover Front	2	83	36*

*** DENOTES NEW ITEM NUMBER**

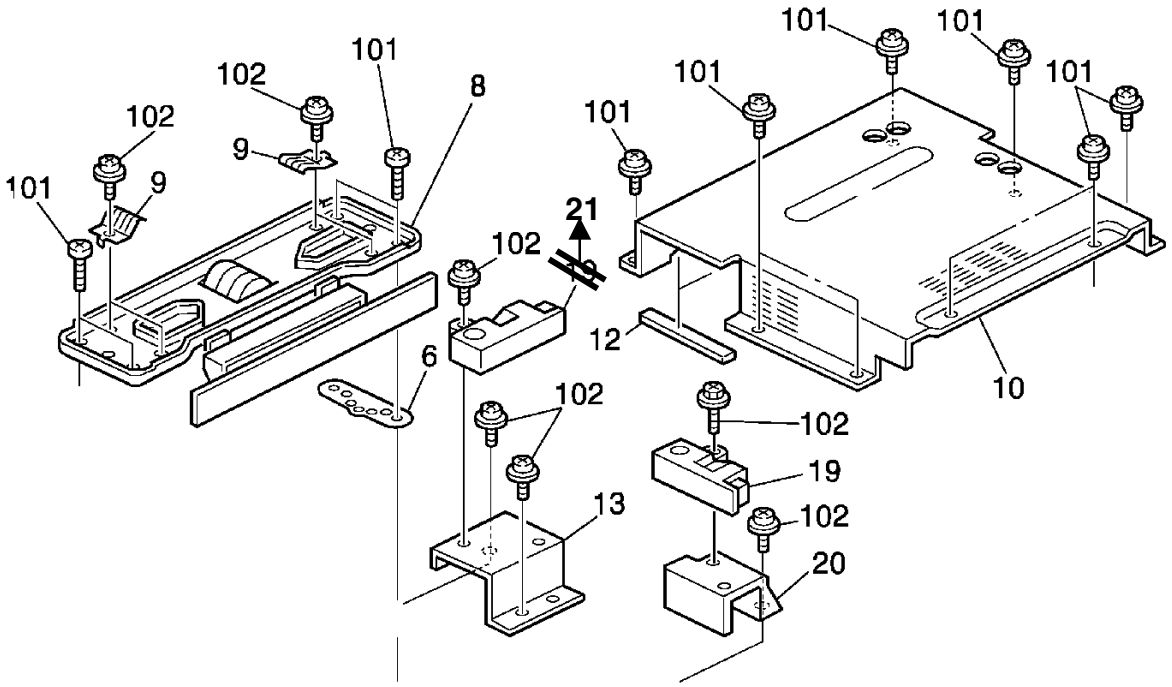
UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new Front Filter Covers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632
Ricoh Aficio 850	H3600300422
Savin 2085dp	H3600400632

Continued…

- **UPDATE 5:** **Original Length Sensor 1 –** It was found in other markets that the use of A4 size sideways originals might be detected as A3 size originals in platen mode. This is caused by grime on the Exposure Glass causing this malfunction. To correct this the Original Length Sensor had a filter added to reduce the sensibility of the sensor.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AW010078		Photosensor H=50	2-1	--	43	19
	A2941843	Photosensor With Filter H50	0-1	1	43	21*

*** DENOTE NEW ITEM NUMBER**

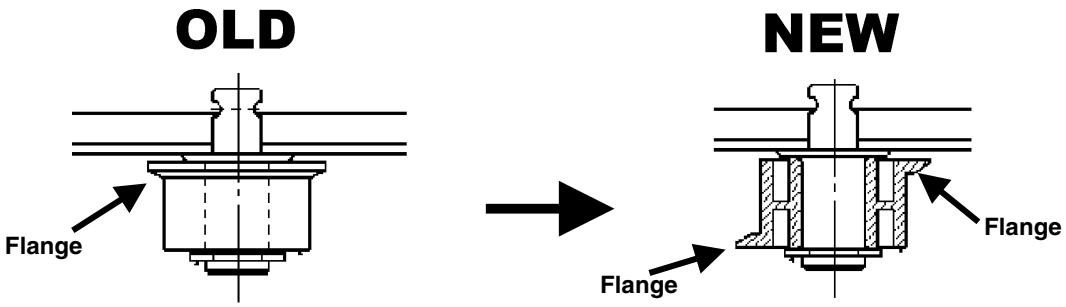
UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Photosensor with Filter H50 installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600300239
Ricoh Aficio 850	H3600300359
Savin 2085dp	H3600400239

Continued…

- **UPDATE 6:** **Pulley M18 –** To prevent the timing belt from coming off the pulley another flange was added to the pulley.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB032716		Idle Pulley – M18	2	--	133	22
	AB032721	Pulley – M18	2	1	133	22

UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Pulley – M18 installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600300239
Ricoh Aficio 850	H3600300359
Savin 2085dp	H3600400239

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 012 **09/13/2000**

APPLICABLE MODEL:

GESTETNER - 3285/32105
RICOH - AFICIO 850/1050
SAVIN - 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: LOADING PAPER DIRECTION

GENERAL:

The Finisher stacking ability depends on the paper load orientation (face-up or face-down). For some paper brands, face-up produces better stacking and for other brands, face down is better. New decals instruct customers to load certain brands of paper either face-up or face-down in order to prevent unnecessary service calls. Therefore, follow the procedure outlined below to evaluate the best orientation for the brands of paper being used by the customer and use the decals for recording the results. Proper training of the customer is required on how to use of the information recorded on the decals.

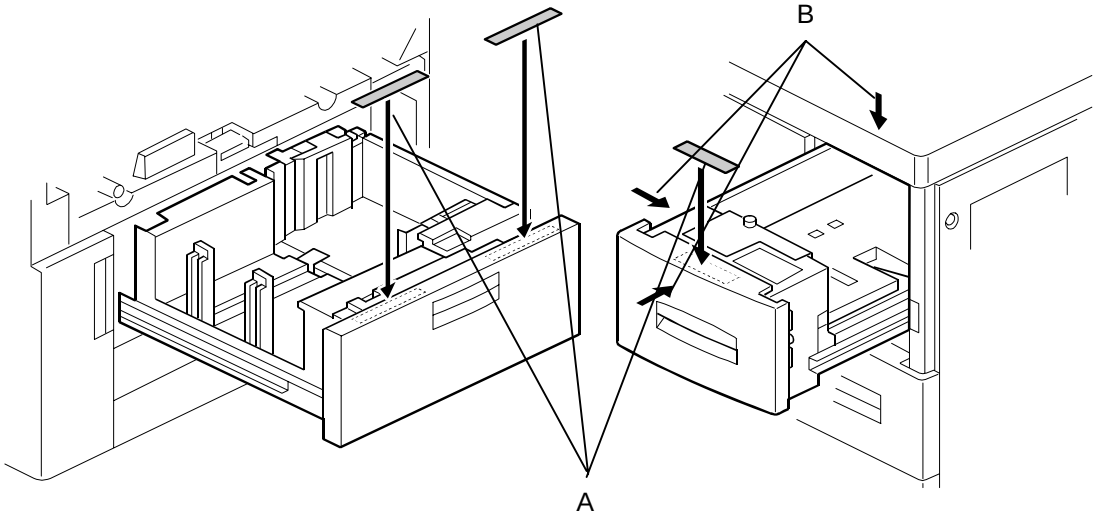
"LOADING PAPER" EVALUATION PROCEDURE:

1. Using the mainframe's Paper Trays, make more than 10 copies of a given paper brand face-up and face-down. Try to use paper that is normally used by the customer.
2. Compare the curl of the two groups of paper by placing them on a flat surface.
3. If the face-down group shows less curling, write that brand name on the face-down label (and vice-versa).
4. Repeat steps 1 to 3 for all the brands of paper normally used by the customer.
5. Repeat steps 1 to 4 while feeding paper from the B303 (Large Capacity Tray).

NOTE: *With the LCT, The paper is not inverted as it is when fed from the copier trays. Therefore, the same brand of paper should yield opposite results. Please confirm this when testing with the LCT and write in the brand name on the appropriate label.*

6. Affix the two decals [A] to the copier Paper Feed Tray and LCT as shown.

Note: Two decals can be attached to each copier feed tray. However, there is only room for one decal on the LCT. Therefore, attach the LCT decal with more brand names onto the LCT itself. Attach the other to one of the areas labeled [B] below, whichever the customer prefers.

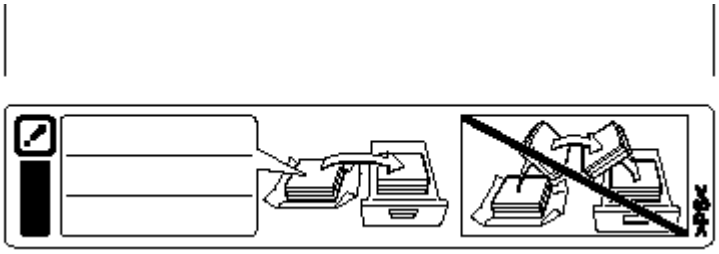


Continued…

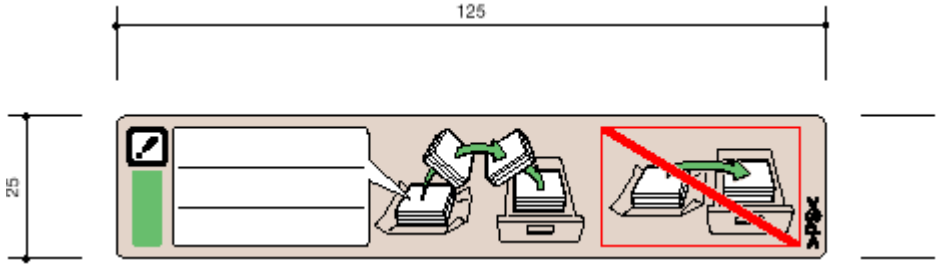
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The following parts additions are being issued for all A294/A295 and B303 (LCT) Parts Catalogs.

[A] Face-up Decal



[B] Face-down Decal



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2941307	Decal - Paper Set Direction (A294/A295)	3	181	43 *
A2941307	Decal - Paper Set Direction (B303)	3	37	18 *

* Denotes new item number.

UNITS AFFECTED:

All A294/A295copiers manufactured after the Serial Numbers listed below will have the new Decal – Paper Set Direction installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Gestetner 32105	From 1st Production
Ricoh AFICIO 850	H3600500347
Ricoh AFICIO 1050	From 1st Production
Savin 2085DP	H3600500197
Savin 2105DP	From 1st Production

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 013 **09/13/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PAPER PATH



■ PARTS

SUBJECT: TIMING BELT SLIPPING OFF

SYMPTOM:

No paper is fed from Trays 2 or 3.

CAUSE:

During rotation, the Lower Timing Belt may slip off the Idler Pulley.

PRODUCTION COUNTERMEASURE:

A Spacer (P/N AA132212) will be added as a flange to prevent the Timing Belt from slipping off the Idler Pulley. Also, the orientation of the Idler Pulley (P/N AB032716) will be reversed. This modification will be applied from the May 2000 production.

FIELD COUNTERMEASURE:

If the problem occurs in the field, install the Spacer – 8x22x1.5 as a flange and reverse the orientation of the Idler Pulley. See Spacer Installation for the Lower Timing Belt (2nd and 3rd Trays) Procedure on page 2 of this bulletin.

GENERAL:

The following part addition is being issued for all A294/A295 Parts Catalogs.

			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
AA132212	Spacer – 8x22x1.5	1	135	23 *

* Denotes new item number.

UNITS AFFECTED:

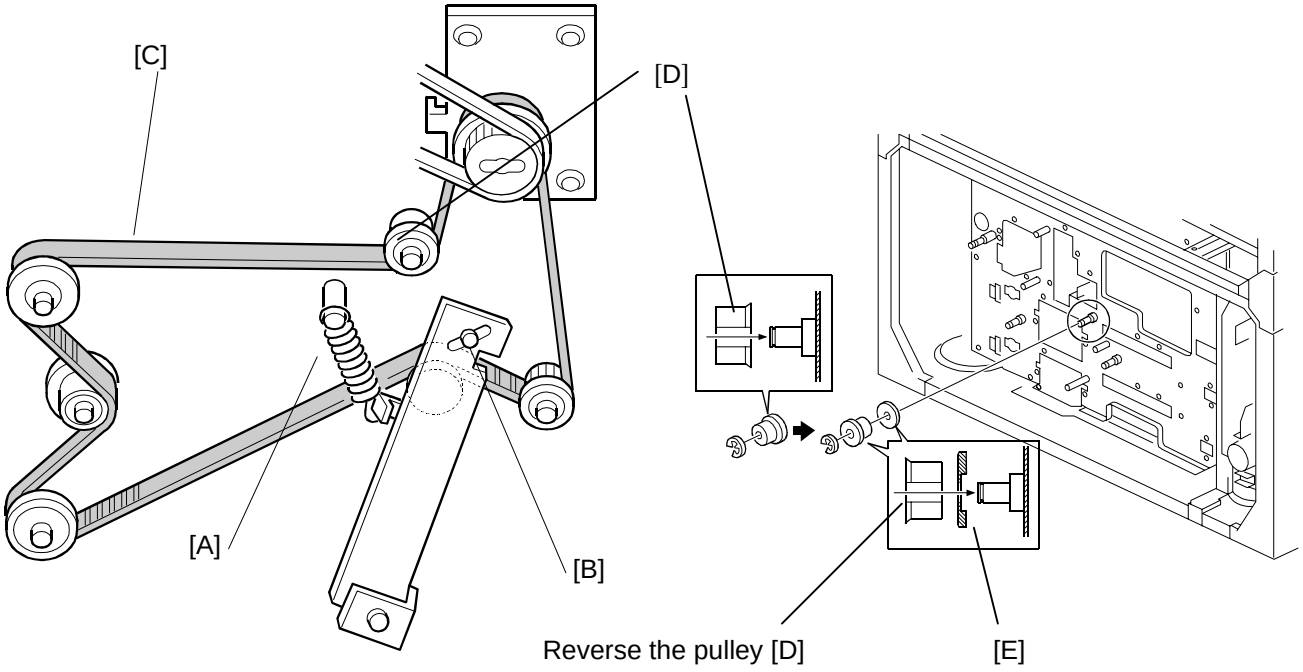
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the Spacer installed and the Idler Pulley reversed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Gestetner 32105	From 1st Production
Ricoh AFICIO 850	H3600500347
Ricoh AFICIO 1050	From 1st Production
Savin 2085DP	H3600500197
Savin 2105DP	From 1st Production

Continued…

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Spacer Installation for the Lower Timing Belt (2ND & 3RD TRAYS)



1. Turn off the Main Switch.
2. Remove the Lower Rear Cover.
3. Remove the PSU (5 screws, all connectors) and IOB Board (4 screws, all connectors). See *Boards and Other Items* in the Service Manual.
4. Remove the Tension Spring [A].
5. Remove the Screw [B].
6. Remove the Lower Timing Belt [C].
7. Remove the Pulley [D] (1 E-Ring).
8. Attach the Spacer [E].
9. Reverse the Pulley [D] and attach it as shown (1 E-Ring).
10. Reinstall all removed parts.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 014 **09/20/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.



SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

Up to two languages can be stored in the A294/A295 SICU as first and second languages. The service manual page listed below contains the list of languages available. The revised SICU/BCU Firmware contains the language software. The SICU/BCU PCB Firmware revision A (file name A2945125A.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 4-81 Updated Information (Language Data Download)

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4.6 LANGUAGE DATA DOWNLOAD

This machine can use up to two languages for the operation panel display. The stored languages can be replaced with other languages.

1. Turn the main switch off.
2. Connect the flash memory card which contains the language data to the SICU flash card slot.
3. Turn the main switch on.
4. Select the language to be replaced (1st or 2nd), and press [Select] on the screen.
5. Select the language to be installed on the screen. (If the 2nd language is unnecessary, it can be deleted by selecting [0. Delete].)
6. If necessary, repeat steps 4 and 5 to replace another language (1st or 2nd).
7. Press [Install] on the screen, or press # to start overwriting the language(s). The machine erases the current language(s) and writes the new language(s).
8. When the downloading is completed, turn the main switch off and remove the flash memory card.

⇒ **NOTE:** Any two of the following 11 languages can be installed.

1 - Japanese	4 - French	7 - Spanish	10 - Danish
2 - English – UK	5 - German	8 - Dutch	11 - Swedish
3 - English - NA	6 - Italian	9 - Norwegian	

4.7 STAMP DATA DOWNLOAD

Both hard disks contain the stamp data used with the stamp feature. However, if a disk is replaced, the replacement disk does not have this stamp data. The data must be reinstalled from an IC card which contains the stamp data.

1. Turn the main switch off.
2. Connect the flash memory card which contains the stamp data to the SICU flash card slot.
   NOTE: Make sure that the surface printed “A” faces upwards.
3. Turn the main switch on.
   NOTE: If the flash memory card contains SICU and BCU firmware, the firmware download screen will now appear. Press [EXIT] on this screen to go on to step 4. (Note that the firmware on the card will be erased by the following steps.)
4. Select [1. Stamp Data Download].
5. Press [EXEC] on the display.
6. After the download is completed, turn the main switch off and remove the flash memory card.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 015 **10/18/2000**

APPLICABLE MODEL:

GESTETNER - 3285, 32105
RICOH - AFICIO 850, 1050
SAVIN - 2085DP, 2105DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

• 2-8	Incorrect information deleted
• 4-13	Updated Information (SP 2-001-7, Vd Auto Process Control)
• 4-45 through 4-48	Additional Information (SP 6-120, pg 4-47), information on remaining pages changed pagination only.
• 8-18	Corrected and updated information

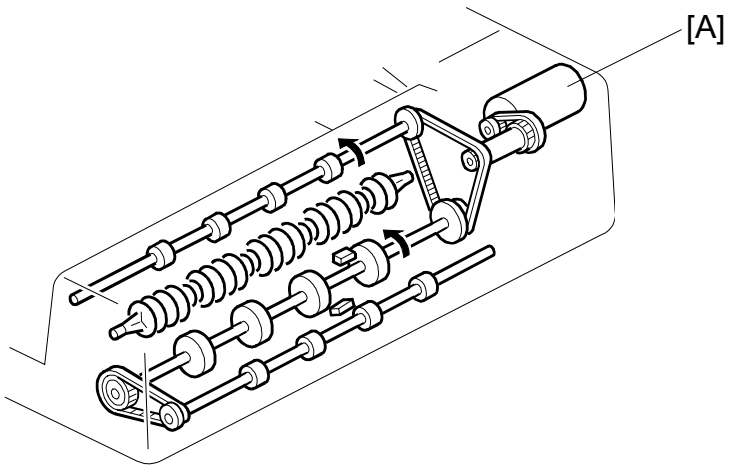
Note: This copy is intended as a master original for reproduction of additional bulletins.

■ SERVICE MANUAL

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2.1.8 ORIGINAL INVERSION AND FEED-OUT

General Operation



When the scanner reaches the return position, the copier's CPU sends the feed-out signal to the DF. When the DF receives the feed-out signal, the transport belt motor and feed-out motor [A] turn on. The original is then fed out to the exit tray or fed back to the exposure glass after reversing in the inverter section.

This DF has two exit trays. For single-sided original mode, the original is fed out to the right exit tray and for double-sided original mode, the original is fed out to the upper exit tray.

This causes the originals to be fed out in the correct order on the exit trays and allow the maximum one-to-one copy speed for each mode.

⇒

Mode No. (Class 1, 2 and 3)				Function	Settings
2-001	Charge Corona Bias Adjustment				
	2	ID Sensor Pattern (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off. *Normally, there is no need to adjust this. If the user wants high density copies, the sensor pattern must be lighter, so this voltage must be a higher negative voltage.*	–650 ~ –1,300 10 V/step **–800 V**
	3	Image Area (Auto Process Control ON)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is switched **on**. This voltage changes every time auto process control starts up (every time the machine is switched on)	–650 ~ –1,300 10 V/step **–1,000 V**
	4	Grid Voltage for Transparent Sheet (OHP)	B	Adjusts voltage applied to grid plate when translucent mode is selected. Use for copy quality problem when making copies on translucent paper. Normally there is no need to adjust this. See 2-001-1.	–650 ~ –1,300 10 V/step **–1,070 V**
	5	Total Corona Current	B	Adjusts the current applied to the charge corona wire except for Photo mode.	–1,400 ~ –2,800 100μA/step **–1,400 μA**
	6	Total Corona Current (Photo mode)	B	Adjusts the current applied to the charge corona wire for Photo mode.	1,400 ~ –2,800 100μA/step **–1,600 μA**
⇒	7	Vd (Auto Process Control)	B	Adjust the targert Vd voltage for Process Control Initial Setting.	-900 ~ –1000 10 V/step **–970 V**
2-101	Printing Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin. *See "Replacement and Adjustment – Copy Image Adjustments" for more on SP2-101.*	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin.	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	3	Left	S	Adjusts the left side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
	4	Right	S	Adjusts the right side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
2-103	LD Power Adjustment				
	1	LD1 - 600dpi	B	Adjusts the power of LD1. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	2	LD2 - 600dpi	B	Adjusts the power of LD2. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
5-804	Output Check				
				Turns on the electrical components individually for test purposes. See the "Output Check" section for details.	ON OFF
5-811	Machine Serial Number				
	1	Machine Serial Number	S	Displays the machine serial number. The number can be reinput using the number keys.	
	3	ID 2 Code	S	*This function is for Japanese machines only.*	
5-812	Phone No. Setting for Servicing				
	1	Phone No. for Servicing	S	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs.) *Press the "•" key to input a pause.* *Press the "Clear modes" key to delete the telephone number.*	
	2	Fax No. for SMC Report	S	Use this to input the telephone number of the service representative. This number is printed on the SMC print.	
5-816	CSS Function (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	
5-821	CSS PI Device Code (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 4 **0**
5-907	Plug and play				
				This SP mode is for designer use only.	
5-914	Printer Counter Display				
			S	Selects whether or not the total printer counter is displayed in the UP mode.	**Off** On
5-915	Mechanical Counter Detection				
				Checks whether the mechanical counter inside the inner cover is connected or not.	0: Not detected 1: Detected 2: Unknown
5-917	GPC Counter				
				Japanese version only. Do not change the setting.	
5-918	A3/DLT Counter Display				
			S	Selects whether the A3/DLT counter is displayed in UP mode or when the "Total Counter" key is pressed.	

Mode No. (Class 1, 2 and 3)				Function	Settings
5-923	Border Erase Area Selection				
			S	Selects the standard for edge erase. 0: The margin is erased from the original data. 1: The margin is erased from the data sent to the laser diode. Note that the output resulting from each of the settings will be different when reduction/enlargement is used.	**0: Original Standard** 1: Copy Standard
5-924	Margin Per Original				
	1	Margin Per Original	S	Margin adjustment for each scanned original can be adjusted when the settings of the following SP modes. This change was a result of special requests from the Japanese domestic market. The following remarks will be added as machine limitations. As a general rule, the settings should not be changed. • Printing productivity for the 1st set of originals will be decreased after the margin is adjusted. • The margin in Magazine Mode and in Combine Mode cannot be adjusted in this SP mode. • After scanning an original in the sample copy mode or after select setting key is pressed when printing file using the document server, the margin adjust key can be changed. However, the key changed will not affect any margin adjustment. • When different margins are selected for the front original and rear original in Designate or Chapter Mode (Duplex copy), copying may not meet the expectation. • When the margin is changed in Tab Sheet in Tab Mode, copying may not meet the expectation.	**NO** YES
	2	Per Original Priority	S		**0: OFF** 1: ON

Mode No. (Class 1, 2 and 3)				Function	Settings
5-954	Copy Server Password Check				
			S	If "1" is selected, when a file in the copy server is selected, the password for that file is displayed.	**0: Normal** 1: Display the password.
5-965	Delete All the Saved Files				
				Deletes all the copy server files stored in the HDD.	
5-967	Copy Server: Disable Function				
			S	If "1" is selected, the copy server function is disabled. *Turn the main switch off and on after changing the setting.*	**0: Normal** 1: Disable copy server
5-968	Delete All the Stored Files in CD				
				Deletes all the copy server files stored in the CD currently in the CD-RW.	
5-990	SMC Print				
	1	All		Prints all the system parameter lists. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	2	SP		Prints the SP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	3	User Program		Prints the UP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	4	Logged Data		Prints the machine status history data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
6-006	DF Registration Adjustment				
	1	Side-to-Side	B	Adjusts the printing side-to-side registration in the ADF mode. *Use the "•" key to toggle between + and –.*	–3 ~ +3 0.1 mm/step **+0.0 mm**
	2	Leading Edge (Thin Original)	B	Adjusts the original stop position. *Use the "•" key to toggle between + and –.*	–10 ~ +10 0.13 mm/step **+0.0 mm**
	3	Leading Edge (Duplex-1st)	B	Adjusts the original stop position against the original left scale in one-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
	4	Leading Edge (Duplex-2nd)	B	Adjusts the original stop position against the original left scale in two-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**

Service Tables

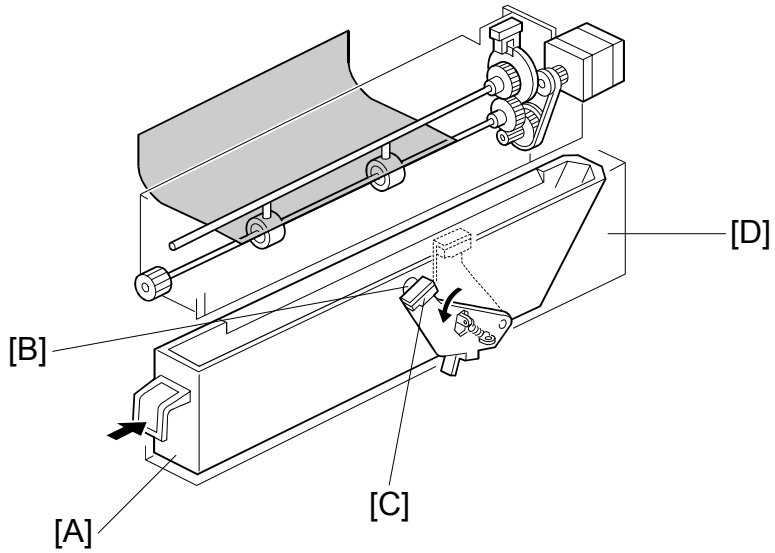
Mode No. (Class 1, 2 and 3)				Function	Settings
6-007	ADF Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
6-008	ADF Output Check				
				Turns on the electrical components of the ADF individually for test purposes. See the "Output Check" section for details.	
6-009	DF Free Run (Two-sided Original)				
				Performs an ADF free run in two-sided original mode. Press "1" to start.	**OFF** ON
				This is a general free run controlled from the copier. For more detailed free run modes, see the 'Test Points/Dip Switches/LEDs' section.	
6-016	ADF Motor Speed Adjustment				
				After pressing the Start key, the machine automatically adjusts the speeds of the ADF motors in the following order: Feed-in motor → Transport Belt Motor → Feed-out Motor (High) → Feed-out Motor (Low)	
6-105	Staple Position Adjustment				
			B	Adjusts the stapling position in the main scan direction	–3.5~ +3.5 0.5 mm/step **+0.0 mm**
				Use the "•" key to toggle between + and –. A larger value causes the stapling position to shift outward.	
6-107	Finisher Free Run				
	1	Staple Mode		The finisher simulates staple mode operation.	
	2	Shift Mode		The finisher simulates staple mode free run with tray shifting (without stapling).	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-113	Punch Hole Position Adjustment				
			B	Adjusts the punch hole position in the sub-scan direction for the punch unit. *Use the "•" key to toggle between + and –. A larger value shifts the punch holes towards the edge of the paper.*	–7.5 ~ +7.5 0.5 mm/step **0 mm**
6-116	Sheet Conversion (Thick Paper)				
			B	Divide the normal limit by this number to determine the staple limit number for thick paper mode.	1 ~ 3 **3**
6-117	Finisher Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
6-117	Finisher Input Check				
	4	Group 4		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
6-118	Finisher Output Check				
				Turn on the electrical components of the finisher individually for test purposes. See the "Output Check" section for details.	
6-119	Punch Function Enabled (Thick Paper)				
			B	Determines whether punch mode is enabled or not in thick paper mode.	**0: No** 1: Yes
6-120	Staple Jogger Adjustment				
⇒	1	A3	S	Adjusts the staple jogger positions for each paper size.	+1.5 ~ –1.5 0.5 mm/step **0 mm**
	2	B4			
	3	A4 L			
	4	A4 S			
	5	B5 L			
	6	B5 S			
	7	DLT L			
	8	LG L			
	9	LT L			
	10	LT S			
	11	Others			
6-801	Communication Test - Tandem Job				
				This SP mode is for designer use only.	
7-001	Main Motor (Drum Motor) Operation Time				
			B	Displays the total drum rotation time.	Min.

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
7-002	Original Counter				
	1	Total	S	Displays the total number of fed originals.	
	2	Copy	S	Displays the total number of fed originals in copy mode.	
	3	Copy Server	S	Displays the total number of fed originals in copy server mode.	
7-003	Copy/Printer Counter				
	1	Total Count	S	Displays the total number of prints in all modes.	
	2	Copy	S	Displays the total number of prints in copy mode.	
	4	Printer	S	Displays the total number of prints in printer mode.	
7-006	GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-009	Rental GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-101	Copy Counter by Paper Size				
	5	A4 Sideways	S	Displays the total number of prints by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
7-101	Copy Counter by Paper Size				
	172	HLT Lengthwise	S	Displays the total number of prints by paper size.	

2.10 PUNCH WASTE COLLECTION



The punch waste is collected in the punch waste hopper [A], which is under the punch unit.

When the punch waste covers the hole [B] in the hopper, the punch waste hopper sensor [C] turns on and a message will be displayed in the operation panel LCD. Then, the copy job will be stopped. After emptying the punch waste and returning the punch waste hopper [A] to the finisher, the copy job will be resumed.

The punch waste hopper sensor also works as the hopper set sensor. If the punch waste hopper is not set, the sensor stays away from the hole in the hopper holder [D] and a message is displayed. This message is the same as for the hopper full condition.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 016 **10/18/2000**

APPLICABLE MODEL:

GESTETNER - 3285, 32105
RICOH - AFICIO 850/1050
SAVIN - 2085DP, 2105DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- viii — Update Information (Table of Contents)
- 7-42 through 7-51 — Additional Information (Firmware History)

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ SERVICE MANUAL

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3,000-SHEET FINISHER B302

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7.4 FIRMWARE HISTORY

7.4.1 A294 / A295 FIRMWARE MODIFICATION HISTORY

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
First release of the firmware	A2945610 **A**	From first production	6.3.1
Details of Errors and modification (Ver. 7.1) 1. SC990 Prevention SC990 was rarely indicated in the following situations. This problem was caused by data transfer failure from SICU to BCU: • During 2-sided to 2-sided copying • 1 sided to 2 sided copying with A3 paper • When changing pages in SP mode 2. SC304 Prevention SC304 was misdetected while the charge corona is off. After changing the Firmware, SC conditions related to the grid voltage are ignored while the charge corona is off.	A2945610 **B**	From Dec, 99 production	7.1
Details of Errors and modification (Ver. 7.8.1) 1. SC990 Prevention SC990 was displayed when 1000 staples are continuously made in one job. 2. PM Counter Description Correction • Item No. 023 “Toner Shield Glass” has been changed to “Toner Filter”. • Item No. 044 to 046 “Original Feed Counter” has been changed to “Paper Feed Counter”. 3. Extra Counter Error Counters of item No. 044 to 046 (Extra counters) did not count up. 4. PM Alarm Interval (SP5-501) The maximum number of SP5-501 setting has been changed from 255(k) to 999(k). 5. Dog Ear Curl Prevention To minimize the dog ear curl when tab sheet is used, inverter timing in tab mode has been changed.	A2945610 **C**	From Jan, 00 production	7.8.1

Continued..

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
6. SC 495 Prevention When only one toner bottle is set and a long job is done using high image density original, the system toner end is not detected and SC495 is displayed. 7. SC 495 Prevention (at installation) Enough toner was not supplied to the toner hopper when performing SP2-207 at installation. The toner supply time in SP2-207 has been extended			
Details of Errors and modification (Ver. 7.19) 1. SP6-113 Error SP6-113 setting is reset when the main switch is turned off and on if the value is changed to minus area. 2. SC515 Prevention SC515 was displayed if the main switch is turned off and on when the tandem rear fence is fully shifted to the right. This occurs because the machine recognized that the end fence is between the Rear Fence Return Position sensor and the Rear Fence HP Sensor even if the end fence is at the right side of the Rear Fence Return Position sensor. To counter this, the rear fence is moved to the left for 1 second if both sensors do not detect the fence when the main switch is turned on. 3. SP6-119 description correction The description was incorrect. Incorrect: 0: Enabled 1: Disabled Corrected: 0: Disabled 1. Enabled 4. SMC Print Missing Items The following SP modes were not printed out by SMC print: SP5-038 SP5-212-3, 4 SP5-967 5. 1st Tray Movement Error After moving tandem end fence using SP5-804, the 1st tray does not work until the main switch is turned off and on.	A2945610 **D**	From Feb, 00 production	7.19

Continued..

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
1. SP6-120 Jogger Position Adjustment To correspond to various paper types, a function to adjust jogger movement towards paper has been added. To enable this adjustment, a modified finisher ROM (B3025103C) or later is required. However, at this moment the SP6-120 was not displayed in SP mode. Refer to Ver.7.23.2. 2. Spanish Language Spanish has been released for 2nd language of NA (-17) model. 1st Language: English (NA) 2nd Language: Spanish			
Note: The part numbering system for the firmware has been changed. Beginning with version 7.23.2, the part numbers for the SICU and BCU firmware will be written continuously, as one part number (A2945604F/A2945264F). This is to avoid any confusion with the internal handling of the firmware.			
Corrections (Ver. 7.23.2) 1. SC990 Prevention After the setting of SP2-506 is changed to "On", SC990 occurs in Cover/Slip Sheet Mode if a blank sheet is fed when drum cleaning begins. 2. Image Density Drop in Magazine Mode In Magazine Mode, image density drops in 1 out of 10 sheets of the first set. 3. SP6-120 display title missing The title for SP6-120 "Staple Jogger Adjustment" is not displayed. This correction makes only SP6-120 be displayed in the SP mode. SP6-120 adjustment becomes effective when the Finisher firmware is updated to C version or later together with updating mainframe firmware. 1. SP4-915 SP modes have been added that will display the CD-R/RW model name and firmware version. SP4-915-1: CD-RW Model Name Display SP4-915-2: CD-RW F/W Version Display 2. CD-R/RW Function The option CD-R/RW can be used from ver 7.23.2	A2945604 **F** / A2945264 **F**	From Mar, 00 production	7.23.2

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrections (Ver. 7.28.1) 1. SP6-119 Display The displays of the SP6-119 have been corrected as follows: Previous New 0: Enabled to Disabled 1: Disabled to Enabled . 2. New SP mode SP2-969 for ID pattern making during copy process. Twenty ID patterns are made in a 1 minute interval during a copy process just after the process control is completed. 3. System settings in the user tool. Thick paper and the tab stock can be selected independently for tray 4 or 5. Previously, Index paper (Tab paper) means Thick paper. This is a first step for the selecting plain index paper. Plain index paper function does not become effective with this modification. Tab Stock key and Thick Paper key are indicated in the User Tool. Only selecting Tab stock key does not make any plain index paper copy. The selected tab stock function will return to Non selected condition when the machine's off condition(main switch or power switch off). If you like to select the past "Thick paper Tab copy function, select both Tab Stock and Thick paper keys. The tab stock function for plain paper becomes effective by firmware V7.31.3 or later. 4. SP2-506 default settings change The default settings of the SP2-506(Cleaning interval –multiple copy) have been changed as follows: SP2-506-1 (On/Off): from No to Yes SP2-506-2 (Interval): from 15min to 30min	A2945604 **G** / A2945264 **G**	From Mar, 00 production	7.28.1

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrections (Ver. 7.30.1) 1. SC990 in Platen + Two sided to Two sided + Chapter modes. Corrects this miss-detection. 2. SC990 in Platen + interrupt modeTwo sided to Two sided + Chapter modes SC990 is displayed mistakenly after returning from the interrupt and platen modes when "left original" is indicated in the operation LCD. Bug correction. 3. Bugs correction for printer option Bugs found in the printer option test in Ricoh laboratory were corrected for the future launch. 4. SP5-823 Unnecessary SP mode (5-823) is displayed. 5. Suffix indication still old when the BICU Firmware is installed. Suffix indication was still old when pressing the OK key just after the BICU Firmware was installed.	A2945604 **H** / A2945264 **H**	From Middle of March 2000 production	7.30.1
Corrections (Ver. 7.31.3) 1. SC990 in 2 sheets staple + A5S, B5S, A4, HLTS, and/or LTS feed from 3rd, 4th, or, 6th feed tray. Corrects this mis-detection. 2. Changing the parameters for the Process Control, drum charge and development bias Background appears on the copies. The parameters for Process Control need to be improved to consistently prevent the appearance of copy background. The target VD value for the process control data initialization has been changed from 900V to 970V. In addition, this value can be changed in SP mode (SP2-001-7). The value of the development bias for the image area has been changed from 550V to 530V.	A2945604 **J** / A2945264 **J**	From Apr, 00 production	7.31.3

Continued..

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
In order to activate the new default settings after you have installed the firmware, you must enter the SP modes and manually change the settings to the following new default values. After this has been done, the machine will recognize these settings as default. Development Bias Image area: SP2-201-1(550 to 530). Development Bias Transparent Sheet: SP2-201-3 (550 to 530). Charge Corona Bias Grid Voltage for transparent sheet: SP2-001-4 (1000 to 1070). 3. Instructing the operator to set the lower toner bottle first. The open/close mechanism for the lower toner bottle cap does not work properly. In some cases, the mechanism does not return the cap to the bottle, which causes the toner to spill when the bottle is removed. This symptom occurs only with the lower toner bottle. If the upper toner bottle is set first, the machine LCD will instruct the operator to set the lower toner bottle first. 4. System settings in User Tools. Thick paper and tab stock can be selected at the same time for tray 4 or 5. Firmware version 7.28.1 did not make this function. The plain paper index can be selected (punch function enable). Index tab paper and thick paper can be selected when the two keys are pressed. 5. Margin adjustment per original can be adjusted by changing the original margin adjustment by the user tool to that of by SP mode. Margins for each scanned original can be adjusted using the SP modes, that have been added with this release. SP5-924-1 (Margin Per Original, default :No) SP5-924-2 (Per Original Priority, default 0:Off) This change was a result of requests from the Japanese domestic market. The following remarks will be added as machine limitations. As a general rule, the settings should not be changed. • Printing productivity for the 1st set of originals will be decreased after the margin is adjusted.			**Continued..**

Trouble-shooting

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
• The margin in Magazine Mode and in Combine Mode cannot be adjusted in this SP mode. • After scanning an original in the sample copy mode or after select setting key is pressed when printing file using the document server, the margin adjust key can be changed. However, the key changed will not affect any margin adjustment. • When different margins are selected for the front original and rear original in Designate or Chapter Mode (Duplex copy), copying may not meet the expectation. • When the margin is changed in Tab Sheet in Tab Mode, copying may not meet the expectation. 6. Increase tolerance against registration motor torque. A Registration sensor jam (SP7-504-63) with duplex tray feed has been reported from the Japanese domestic field. When the paper buckle (adjustment: SP1-003-3) in the registration nip is too high, Z fold jams may occur. The tolerance against the registration motor torque has been increased by this firmware update. After updating the firmware, check the registration from the duplex tray (SP1-001-2). 7. Illuminating SC306 detection Mis-detection of SC306 (Charge corona wire cleaner connector is not connected). Illuminating the unnecessary detection (SC306:Charge corona wire cleaner connector is not connected). This condition can be detected with updating the firmware by SC305 (Charge corona wire cleaner error 1). SC306 was detected by malfunction in the Japanese domestic field. The wire cleaner was stopped in the middle of the charge corona unit. Thus, the black line appeared in the copy image. After the opening and closing the copier door or switching off and on the main switch, the cleaner was returned to the home position.			**Continued..**

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
8. Default setting for SP1-002 We have learned that the new settings of SP 1-002 (side-to-side registration) meets better the actual adjustment. In order to activate the new default settings after you have installed the firmware, you must enter the SP modes and manually change the settings to the following new default values. After this has been done, the machine will recognize these settings as default. If the side-to side registration is within the specifications (2±1.5 mm), you do not have to change the settings.			

	0	0	0	4th (LCT)	5th (LCT)	6th (LCT)	Duplex
Old	**-1.5**	**-1.5**	**-1.5**	**0**	**0**	**0**	**0**
New				**-2.5**	**-2.5**	**-2.5**	**-3.0**

9. Transparencies & Translucent Sheet As a result of a request from the field, the terms used to describe OHP and tracing paper in SP Mode descriptions have been changed. Specifically: Old / New: OHP: transparencies tracing paper: Translucent sheet Old Titles: SP2-001-4 "Grid Voltage for Transparent Sheet" SP2-201-3 "Transparent Sheet" SP2-301-3 "OHP Sheet" SP2-301-4 "Transparent Sheet" (translation mistake) New Titles: SP2-001-4 "Grid Voltage for Transparencies" SP2-201-3 "Transparencies" SP2-301-3 "Transparencies" SP2-301-4 Translucent Sheet" 10. 1st release for the printer controller The 1st release for the mass production machines of the printer controller. When the printer controller unit is installed, it is necessary to update the firmware. The language card must also be updated to A2945125A (V7.31.3).		

A294 / A295 FIRMWARE MODIFICATION HISTORY

DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
NOTE: The default settings for display languages are as follows: USA version: 1st: English (NA), 2nd: Spanish European version: 1st:English (UK), 2nd: No selection Updating the language Firmware is overwriting the 1st and 2nd language areas. Also, updating the SICU & BCU firmware is overwriting the 1st and 2nd language areas with the default language. When the different languages are selected from the default setting, the language Firmware should be re-installed after the updating SICU & BCU firmware.			
Corrections (Ver. 7.31.3) Language Card Modification History Four (4) languages (Italian, Norwegian, Danish, and Swedish) have been released. Language — SUM 1. Japanese — C411 2. English (UK) — 105B 3. English (NA) — 9D8A 4. French — D0B0 5. German — 3765 6. Italian — A38F 7. Spanish — 83FB 8. Dutch — 9CA2 9. Norwegian — 21F2 10. Danish — E2D4 11. Swedish — A997	A2945125 **A**		7.31.3
1. 1st release for the printer controller This is the first release of the printer controller for production machines. When the printer controller unit is installed, it is necessary to update the language. 2. Message correction in French The message displayed when changing the language with the language select key has been changed as follows: Langage en cours de changememt. → Langage en cours de changement. 3. Translation correction in German and French. Translation correction of user ID in Document Server Mode in German and French Code → ID			

A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**FIRMWARE LEVEL**	**SERIAL NUMBER**	**FIRMWARE VERSION**
4. Text corrections / additions - SP Mode • SP6-119 Display Correction: "0:Enabled 1:Disabled"→"0:Disabled 1:Enabled" • SP6-120 Newly added: "Staple Jogger Adjustment" • SP4-915 Newly added: "CD-RW" • SP4-915-1 Newly added "Model Name Display" • SP4-915-2 Newly added "F/W Version Display" • SP2-969 Newly added "ID Sensor Pattern Interval-Multiple Copy" • SP2-001-4 Correction "Grid Voltage for Transparent Sheet"→"Grid Voltage for Transparencies" • SP2-201-3 Correction "Transparent Sheet"→"Transparencies" • SP2-301-3 Correction "OHP Sheet"→"Transparencies" • SP2-301-4 Correction "Transparent Sheet"→"Translucent Sheet" • SP2-001-7 Newly added: Vd (Auto Process Control)" • SP5-924 Newly added "Margin Per Original" • SP5-924-1 Newly added "Margin Per Original" • SP5-924-2 Newly added "Per Original Priority			

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 017 **10/18/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TRAY HEATER KIT & SERVICE MANUAL - INSERT

GENERAL:

The part number for the LCT Tray Heater Kit and the kit components were not listed in the Parts Catalog and the installation procedure was omitted from the Service Manual. Please update your Parts Catalog with the following information.

			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2949500	Tray Heater Kit – 230V 18W	1	33	25 *
AX400053	Anti-Condensation Heater – 230V 18W	2	33	26 *
B3033841	Heater Cover	1	33	27 *
B3035324	Interface Harness	1	33	28 *
11050310	Harness Clamp – LWS-1S	2	33	29 *
11050292	Wire Saddle	1	33	30 *

* Denotes new item number.

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- i through iv — Updated Information (Table of Contents)
- 3-19A through 3-19D — New Information (Installation Procedure for the Tray Heater Kit)

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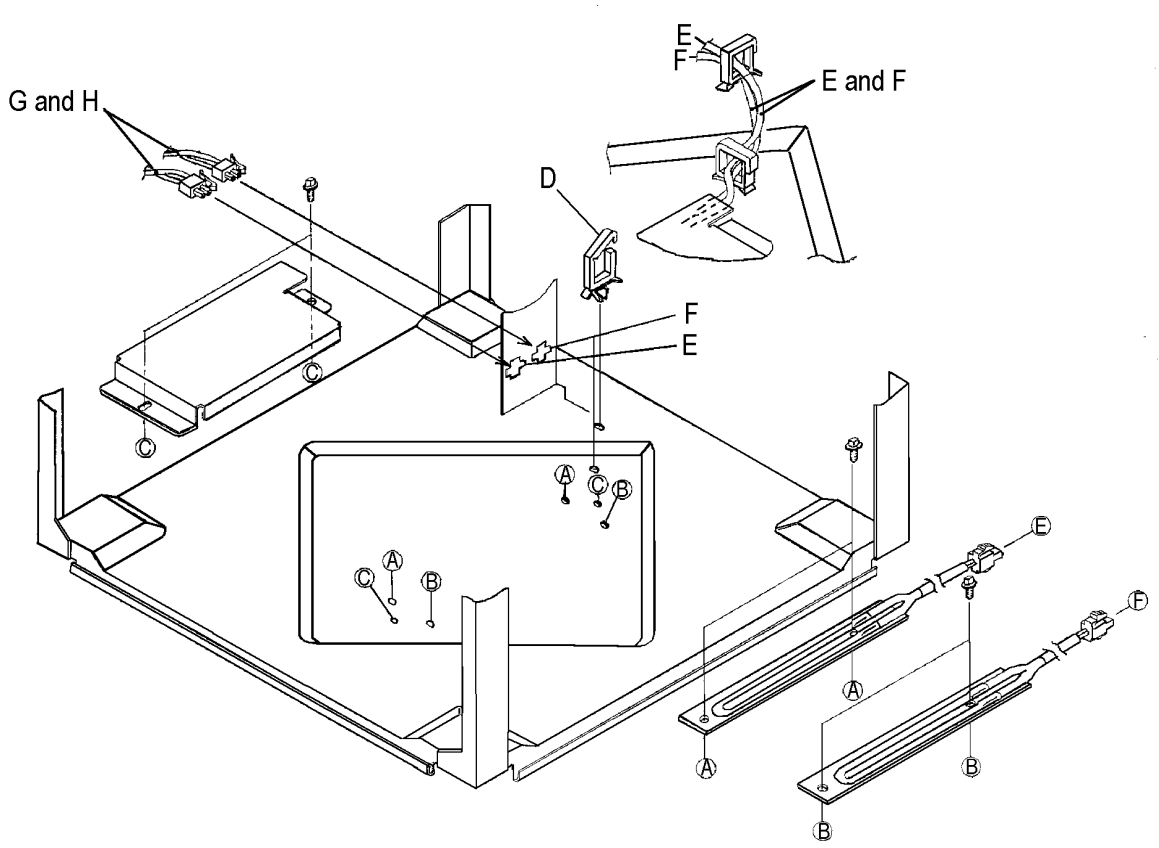
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⇒ 3.4.3 INSTALLATION PROCEDURE FOR THE TRAY HEATER KIT (OPTIONAL)

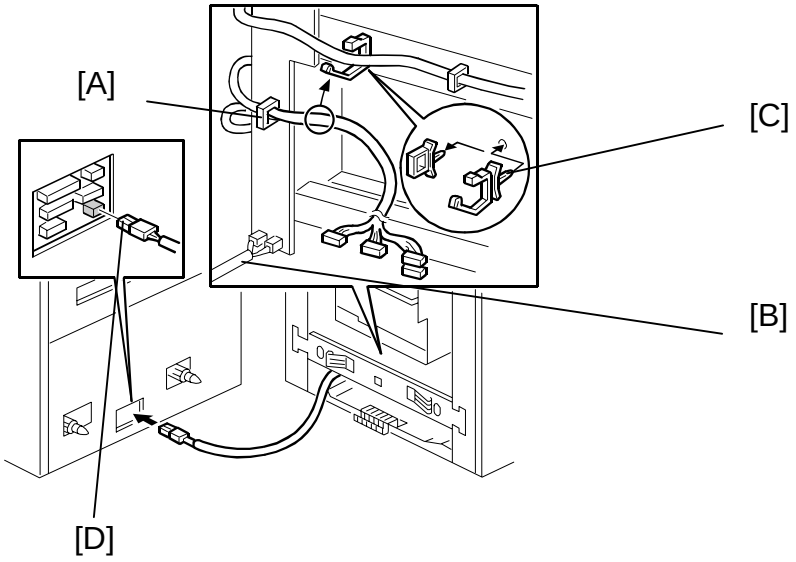
1. Remove the LCT unit from the main copier and remove the LCT right cover.
2. Attach the two anti-condensation heaters [A and B] (2 screws each) to the LCT bottom plate.
3. Attach the heater cover [C] (2 screws).
4. Attach the two harness clamps [D] to the LCT bottom plate as shown.
5. Run the heater harnesses [E and F] through the harness clamps. Insert the connectors into the connector bracket holes shown below.
6. Connect the interface harness connectors [G and H] to the connectors that were just inserted into the connector bracket holes (step 5).



⇒ For steps 7-10, refer to the second illustration below.

Note: In accordance with safety standards, the connecting harness [A] must not be touching the interface harness [B] when the optional LCT tray heaters are installed. Therefore, be sure to perform steps 7-10 so that the harnesses remain separated.

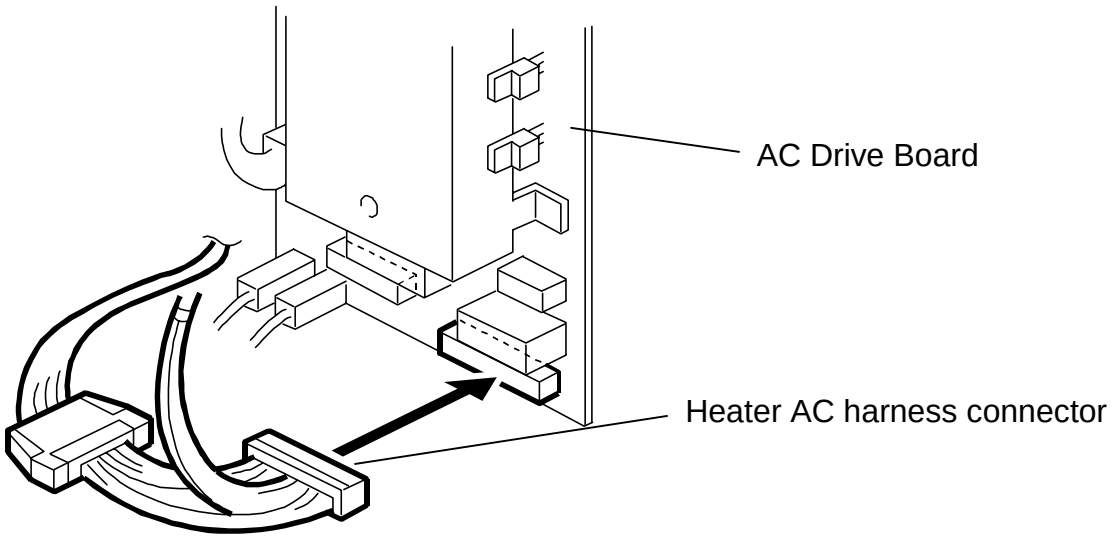
7. Replace the wire saddle with the new one ([C] P/N: 11050292), which is included in the optional tray heater kit.
8. Run the connecting harness [A] as shown.
9. Connect the connector [D] of the interface harness to the mainframe interface.
10. Return all parts.



⇒ As mentioned in section 2.12.5 of the Service Manual, all anti-condensation heaters are disconnected from the AC drive board before being shipped.

If the main switch is off when the heater AC harness connector [A] is connected to the AC drive board, the transfer anti-condensation (drum) heater will be turned on along with the other optional heaters.

⚠**Caution:** Before the heater AC harness connector is plugged in, be sure to turn off the main switch and unplug the copier power cord.



NOTE: The heater AC harness connector is hung on the clamp under the AC drive board.

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 018 **10/18/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: ADF MAIN CONTROL BOARD

GENERAL:

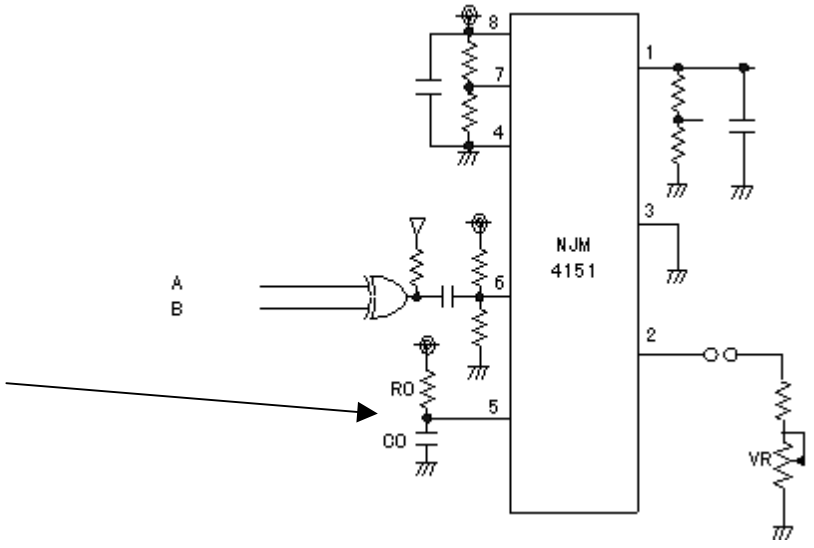
The following changes have been made to the ADF Main Control Board:

1. If the Motor locks, a surge of current flows through the Motor Driver Circuit on the ADF Main Control Board, which may cause damage to the circuit. The current capacitance of the circuit has been increased to protect the circuit in the event of a surge. The following components were modified:
   - IC121: P/N 14010919 has been removed.
   - IC121 (Heat Sink) P/N 59365221 has been removed.
   - Q101: P/N 14011066 has been changed to P/N 14011104. New index No.195.
   - Q116,117: Newly added. P/N 14011104, index No. 195.
   - R105, R106: P/N 16001683 has been changed to P/N 16000830. New index No.194.
   - C174,C175: P/N 16604102 has been changed to P/N 16604222. Index No. 187.
   - Q118, Q119: Newly added: P/N 14010886. New index 193.
   - Q116,Q117,Q118, Q119: Newly added. P/N B3015580, new index No. 3.

2. During the production process, it was found that some ADF Main Control Boards had a relatively narrow adjustment range for the Transport Drive Motor speed. In some cases, the Motors could not reach the target adjustment speed. The defective boards were not installed in the ADF Units. Therefore, the same symptom will not occur on production machines released from the factory. To ensure good function of the ADF Main Control Board, IC #NJM4151 on the ADF Main Control Board has been modified as follows:

Old
R_0; 6.2kΩ±5%
C_0 ;0.0047µF±10%

New
R_0; 8.2kΩ±5%
C_0; 0.0022µF±10%



Continued…

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The following parts updates are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3015500	B3015510	ADF Main Control Board	1	1	39	22
					175	❊
	B3015580	Heat Sink - Main Control	1		175	3 *
	14010886	Transistor - 2SK1286	2		175	193 *
14011066		FET - 2SJ176	1→0		175	126
	14011104	FET - 2SJ303	0→3		175	195 *
	16000830	Nonflamable Resistor - 0.47Ω 3W	0→2		175	194 *
16001683		Resistor - 0.22 Ω +-5% 2W	2→0		175	151
14010919		MOSFET Array - 4AM14	1→0		175	124
59365221		Heat Sink	1→0		175	191
	10050843	Heat Sink – OSH2425SP	1		175	192 *

* Denotes new item number.

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style ADF Main Control Board corrected for current surges installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Gestetner 32105	From 1st Production
Ricoh AFICIO 850	H3600400287
Ricoh AFICIO 1050	From 1st Production
Savin 2085DP	H3600500197
Savin 2105DP	From 1st Production

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style ADF Main Control Board corrected for Transport Drive Motor Speed installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700600075
Ricoh AFICIO 850	H3600600058
Ricoh AFICIO 1050	H3700600081
Savin 2085DP	H3600700244
Savin 2105DP	H3700600075

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 019 **10/18/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PAPER EXIT SECTIONS 2 & 3

GENERAL:

The following parts were incorrectly listed in the Vertical Transport Section and Paper Exit Sections 2 and 3. The following parts corrections are being issued for all A294/A295 Parts Catalogs.

Illustration Correction Page 110

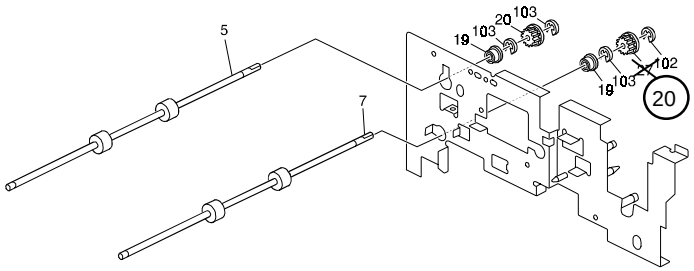
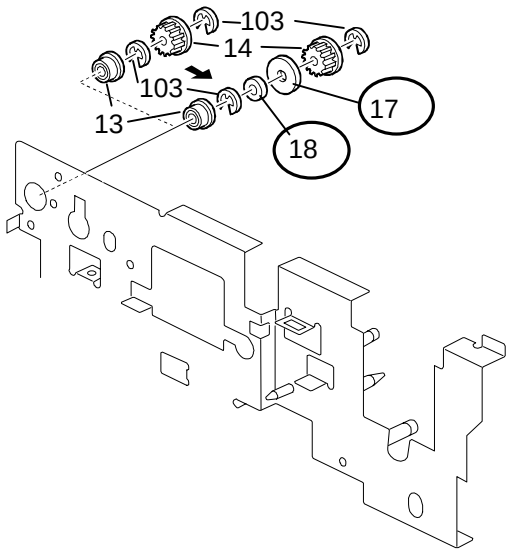


Illustration Correction Page 112



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
11050210	11050310	Harness Clamp - LWS-1S			67	106
AF020491	AF020493	Inverter Exit Roller	1		111	5
AF020492	AF020491	Inverter Entrance Roller	1		111	7
AB030650		Pulley - 20z	1→0		111	27
	AB030081	Pulley - 20z	4→2		111	20
AF020493	AF020492	Exit Drive Roller	1		113	4
AB030081	AB030650	Pulley - 20z	1		113	14
	AA132152	Spacer - 8x20x1	1		113	17 *
	54462901	Collar - 8mm	1		113	18 *

* Denotes new item number.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 020 **10/30/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

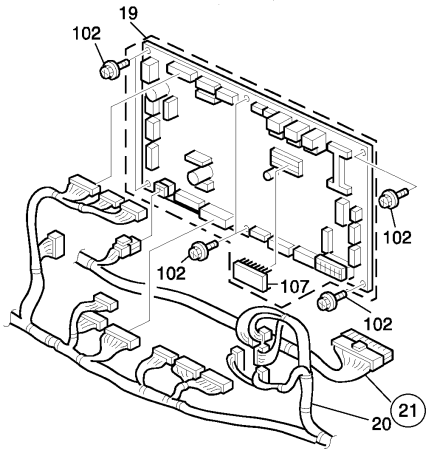
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **DC Harness - Power Supply –** Instantaneous current may be generated when the Door is closed and the Door Switch is activated. This may cause an SC985 to occur from the resulting electrical noise. To correct this, a mesh-metal covering has been used for the DC Harness. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2945453	A2945454	DC Harness – Power Supply	1	1	139	21

UNITS AFFECTED:

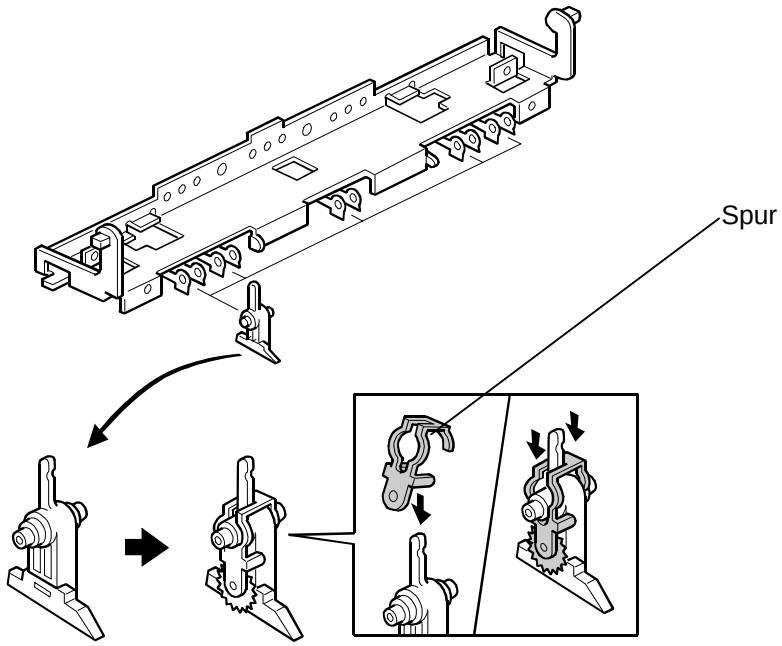
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style DC Harness – Power Supply installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600540
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600600058
Ricoh AFICIO 1050	H3700600081
Savin 2085DP	H3600600540
Savin 2105DP	H3700700042

Continued…

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- **UPDATE 2:** **Hot Roller Stripper –** Copy paper that tends to curl easily can touch the Hot Roller Strippers when exiting the Duplex Unit the second time. As a result, some toner may be left on the surface of the Strippers and rub off onto the next copy. Therefore, black lines may appear on the face side of the copy stack. To improve copier performance, a spur has been attached to each Hot Roller Stripper (See illustration below). Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A0969500	A2949506	Hot Roller Stripper – 5 pcs/set	1	1	103	16

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Hot Roller Strippers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	From 1st Production
Ricoh AFICIO 850	H3600600001
Ricoh AFICIO 1050	From 1st Production
Savin 2085DP	H3600600531
Savin 2105DP	From 1st Production

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 021 **10/30/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SC550 / WEB END DETECTED PREMATURELY

SYMPTOM:

Web End Condition (SC550) is detected prematurely.

CAUSES:

1. The Oil Supply and Cleaning Web End Feeler sometimes drops if the Web Felt is twisted towards the center.
2. The Web End Feeler is not set properly.

SOLUTION:

With Firmware version 7.40 (K), the maximum display value for SP1-902-1 (Web Consumption) has been increased from 100% to 102%. This is because 102% web consumption has been added as a detection condition for SC550 (Web End). Therefore, the Web End Condition is activated when SP1-902-1 reaches 102% and the feeler drops.

NOTE: *When temporarily installing the Oil Supply and Cleaning Web from another machine, be sure to input the same web consumption value from SP1-902-1used in the other machine. If this is not done, the Oil Supply and Cleaning Web End Condition may not be detected, even if the feeler drops to activate Web End.*

GENERAL:

Firmware revision K (file name A2945604K.EXE) or newer can be downloaded through the Technology Solutions Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

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Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 022 **10/30/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

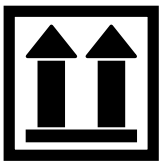
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE REMARKS – OIL SUPPLY & CLEANING WEB

GENERAL:

The Oil Supply and Cleaning Web cartons should always be laid horizontal (level) when being shipped or stacked in warehouses. If it is stacked vertically, Silicone Oil may leak from the lower end of the Oil Supply and Cleaning Web carton. The "Stacking Indicator" symbol below will appear on the Oil Supply and Cleaning Web cartons indicating the proper orientation for stacking:

Stacking Indicator



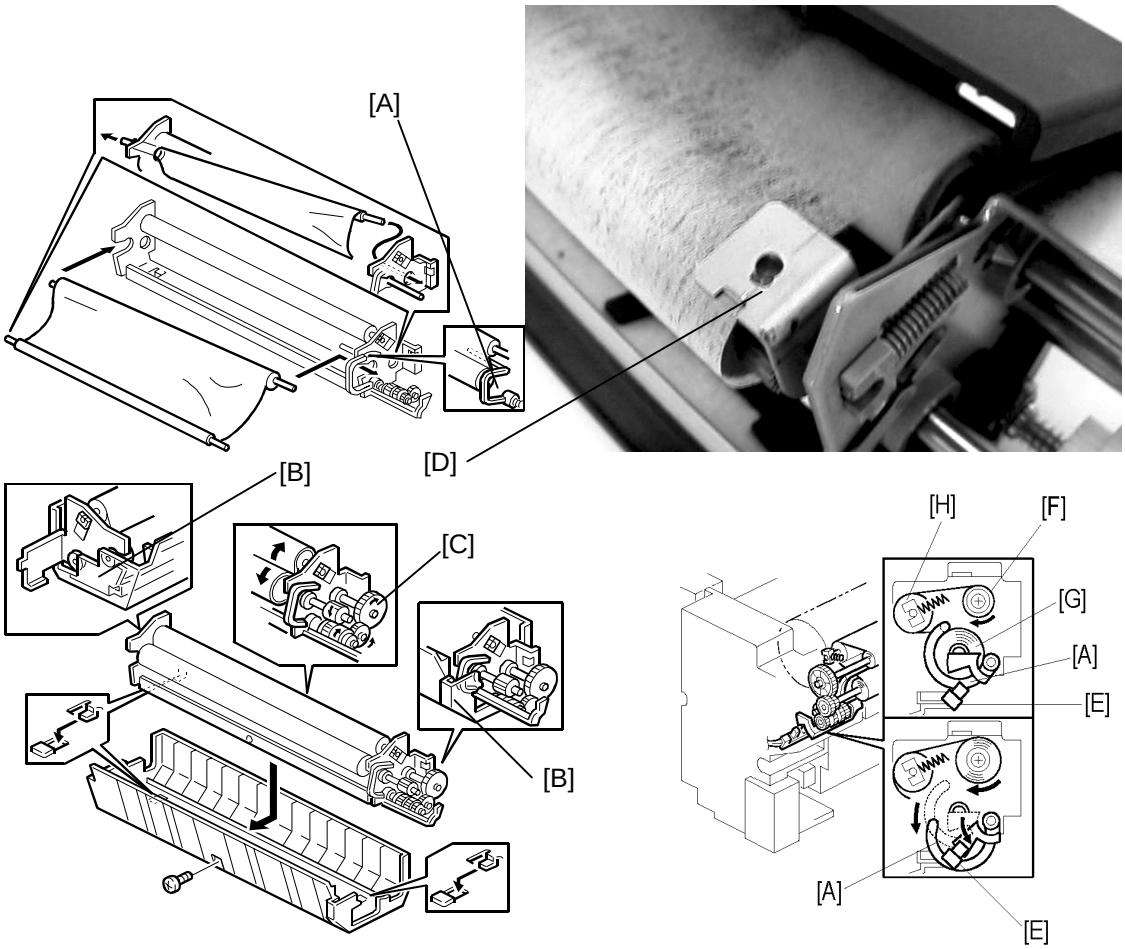
Oil Supply & Cleaning Web Replacement

There have been cases reported in which the Oil Supply and Cleaning Web are replaced incorrectly. This is probably due to the fact that some technicians are not accustomed to replacing this part yet, as it is a unique item for this machine. We ask that all technicians not familiar with this replacement procedure carefully read and practice the Oil Supply & Cleaning Web Replacement Procedure in the Service Manual. Your cooperation is essential to preventing any further incorrect installations and is greatly appreciated.

The Check Points from the Service Manual are shown on the following page.

Continued…

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Check Points for re-installing parts (Page 2-105 & 6-89 in the Service Manual)

NOTE: *1) When re-installing parts, make sure that the Feeler Lever [A] for the Web End Sensor [E] is on the Web between the Web Supply Roller and the Web Pressure Roller [H], as shown above. Otherwise, after re-installing the parts and turning on the Main Switch, Web End (SC550) will be displayed. Make sure that the Web is under the Bracket [D] as shown.*

2) When putting back the Oil Supply and Cleaning Web Assembly, make sure that the flange for the bushings does not ride on the side edges [B] of the Oil Supply and Cleaning Web Unit Cover.

3) *If the Web has a buckle between the Web Supply Roller [G] and Web Collecting Roller [F], turn the Web Collecting Roller Gear [C] clockwise (front view) until the buckle is pulled straight.*

1. Reassemble the Fusing Unit.

NOTE: *Make sure that the Web Collecting Roller Gear engages with the gears on the Fusing Unit Exit Unit after re-attaching the Oil Supply and Cleaning Web Unit.*

2. Access SP1-902-1 (Web Consumption Counter), and change the value to 0.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 023 **11/20/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294 and A295 Parts Catalogs.

- **UPDATE 1:** **Transport Belts–** During long, continuous Duplex copy jobs, the Transport Belts in the Fusing Exit Section receive heat from the copy paper. This can cause the rubber belts to become slacked, which in turn can cause the belts to come off the rollers. To increase the durability of the Transport Belts the belt material has been changed to a heat-resistant silicon rubber.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944253	A2944254	Transport Belt – Paper Exit	5	1	109	1

UNITS AFFECTED:

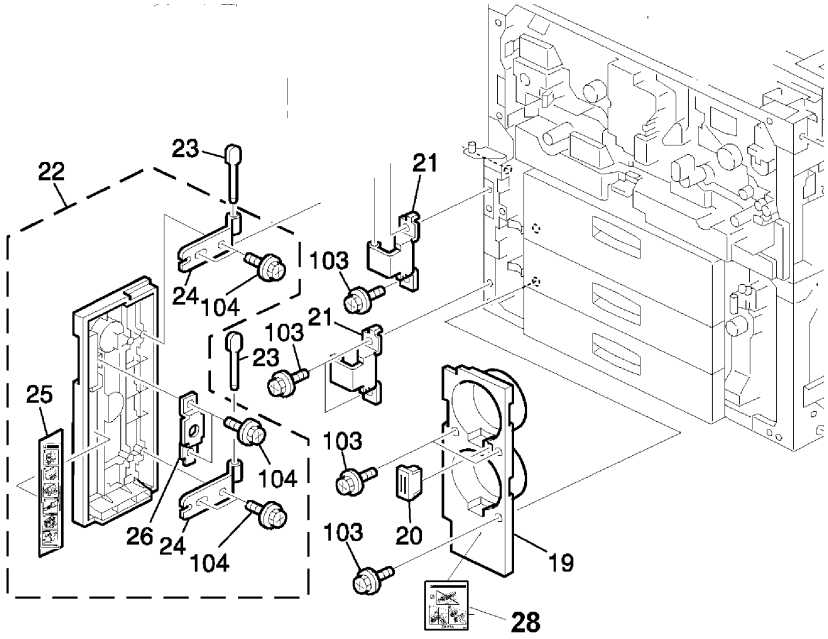
All A294 and A295 copiers manufactured after the Serial Numbers listed below will have the new Paper Exit Transport Belts installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	From 1st Production
Ricoh Aficio 850	H3600700347
Ricoh Aficio 1050	From 1st Production
Savin 2085DP	H3600700244
Savin 20105DP	From 1st Production

Continued…

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- **UPDATE 2:** **Toner Bank Inner Cover & Caution Decal –** The Toner Bank decal has been changed and a Caution Toner Supply Decal has been added to the Toner Bank Inner Cover. For more information referring to the decals, please refer to "Technical Service Bulletin A294/A295 - 009, Dated 06/29/2000."



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943491	A2943490	Inner Cover – Toner Bank	1	1	17	19
----------	A2941273	Caution Decal – Toner Supply	1	--	17	28*

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294 and A295 copiers manufactured after the Serial Numbers listed below will have the new Decals installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632
Gestetner 32105	From 1st Production
Ricoh Aficio 850	H3600400001
Ricoh Aficio 1050	From 1st Production
Savin 2085DP	H3600400632
Savin 20105DP	From 1st Production

Continued…

- **UPDATE 3:** 1) **Web Cleaning Roller and Cleaning Pressure Springs –**Please update your Parts Catalog as shown below.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA063850	AA063851	Pressure Spring	2-1	-	101	14
AA063851	AA063850	Cleaning Pressure Spring	1-2	-	101	6

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA063850	AA063862	Cleaning Pressure Spring	2	3	101	6
AE040029	AE040033	Web Cleaning Roller	1	3	101	7
A2944134	A2944132	Oil Supply & Cleaning Web Unit	1	1	101	3

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 024 **11/20/2000**

APPLICABLE MODEL:

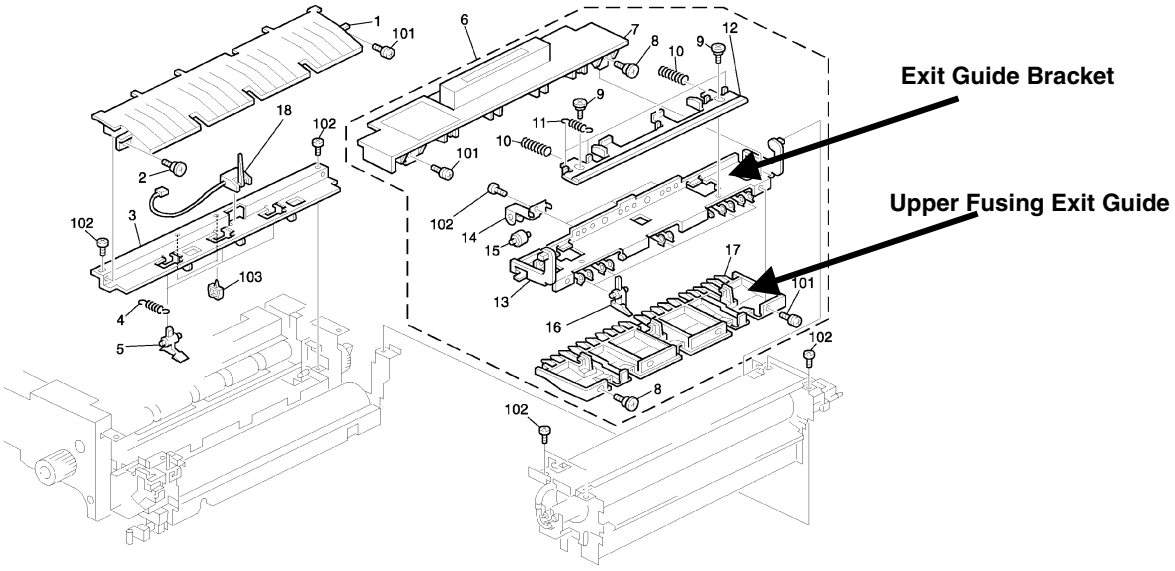
GESTETNER – 3285
RICOH – AFICIO 850
SAVIN – 2085DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: FUSING EXIT GUIDE

GENERAL:

The Upper Fusing Exit Guide (A2944161) and the Fusing Exit Guide (A2944159) and Exit Guide Bracket (A29444165) were not manufactured correctly in accordance with specifications during the early stages of production. The Production Division made corrections to the Upper Fusing Exit Guide and Exit Guide Bracket by welding or gluing the spacer correctly and they now function normally in combination. If either of the two parts needs to be replaced in the field, it may be impossible to replace the part individually. To prevent this, the part numbers for both items have been changed. Therefore, when either of the old parts needs to be replaced in the field, they should both be replaced together as a set. For part control, the old part numbers (A2944161 and A2944165) are not available.
The following parts corrections are being issued for all A294 and A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944159	A2944118	Fusing Exit Guide	1	0	103	6
A2944161	A2944170	Upper Fusing Exit Guide	1	3/S	103	17
A2944165	A2944178	Exit Guide Bracket	1	3/S	103	13

Continued…

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UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style Fusing Exit Guide installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600100157
Ricoh Aficio 850	H3691200075
Savin 2085DP	H3600100157

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 025 **12/05/2000**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

SUBJECT: TONER BOTTLE INNER CAP REMAINS IN MACHINE

Note: This copy is intended as a master original for reproduction of additional bulletins.

SYMPTOM:

The Toner Bottle Inner Cap remains in the Toner Chuck when the Bottle is removed. This problem can occur if a customer sets the Upper Toner Bottle first at toner end and then removes the Bottle according to the display instructions. From Firmware Version J, a message is displayed instructing the user to, "Set the Lower Toner Bottle first, at toner end".

CAUSE:

The Inner Bottle Cap can get caught by the Toner Chuck when the Bottle is lifted upward and removed.

SOLUTIONS:

1. Firmware version 7.44 (suffix L) or above will displays the following **"Caution Message"** when the machine reaches toner end. **"Set or replace the lower toner bottle first."**

NOTE: Firmware version P is the most current firmware available at date of publication.

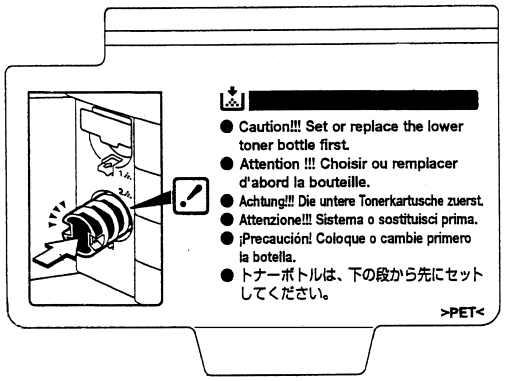
PCB ROM revision P (file name A2945604P.EXE) can be downloaded through the Technology Soutions Center web Site at http://tsc.ricohcorp.com.

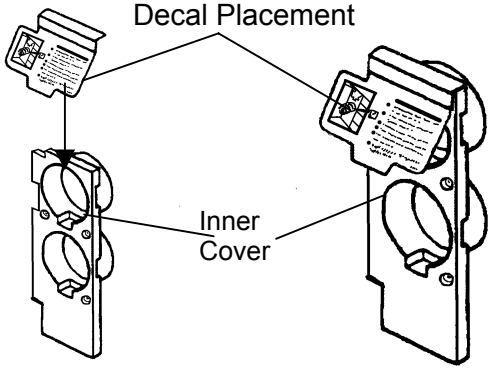
NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site. Refer to Publications Bulletin #023.*

2. An adhesive backed Caution Decal has been added to the top edge of the Toner Bank Inner Cover, as a temporary countermeasure.
3. This decal has been registered as a service part. The part number is A2949903

GENERAL:

The following part addition is being issued for all A294/A295 Parts Catalogs.





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			REFERENCE	
NEW PART NO.	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2949903	Decal	1	181	45 *

* Denotes new item number.

UNITS AFFECTED:

All A294/A295 copiers manufactured from the Serial Numbers listed below will have the new Decal installed during production.

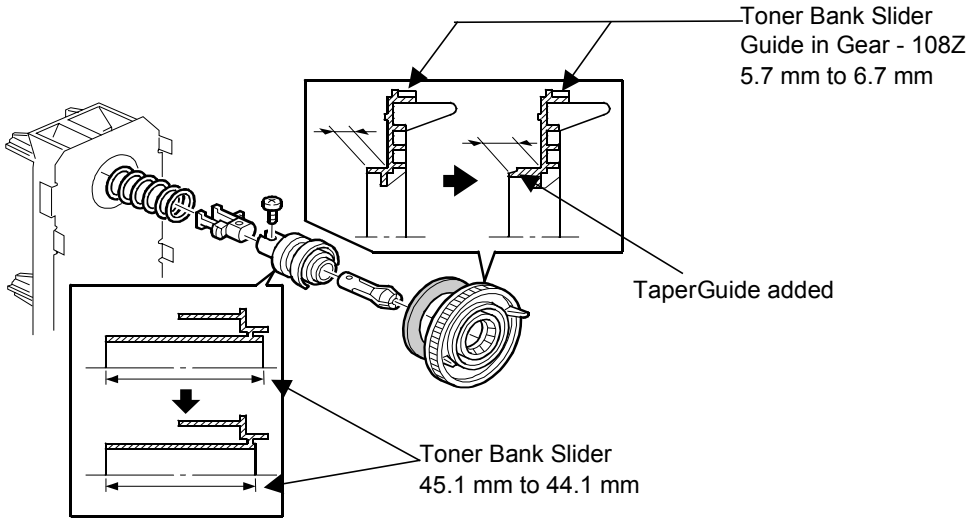
NOTE: When permanent countermeasure is cut in Decal will be removed from production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600700244
Gestetner 3285	H3600700244
Ricoh Aficio 850	H3600700347
Savin 2105DP	H3700700042
Gestetner 32105 Ricoh Aficio 1050	H3700700042 H3700700056

PERMANENT PRODUCTION COUNTERMEASURE:

To prevent the Bottle Cap from getting caught by the Toner Chuck when the Bottle is tilted upward and removed, the production machines have been modified as follows:

1. The length of the Toner Bank Slider has been decreased from 45.1mm to 44.1mm.
2. The length of the Toner Bank Slider Guide in gear 108Z has been increased from 5.7mm to 6.7mm.
3. A Taper Guide has been added to each Toner Bank Slider and to Gear-108Z.
4. Due to this modification, the part numbers of the Toner Bank Unit have been changed.



NOTE: *When replacing the old Toner Bank Slider or the Gear in the field, be sure to install both parts together as a set.*

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943276	A2943294	Gear - 108Z USA (RIC)	2	3/S	79	1
A2943277	A2943296	Gear - 108Z EU (RIC)	2	3/S	79	1
A2943278	A2943297	Gear - 108Z OEM (NRG/SVN)	2	3/S	79	1
A2943279	A2943298	Gear - 108Z OEM2 (INF/LAN)	2	3/S	79	1
A2943290	A2943292	Toner Bank Slider	2	3/S	81	16
A2943308	A2943046	Toner Bank Unit - USA(RIC)	1	1	75	*
A2943309	A2943047	Toner Bank Unit - EU (RIC)	1	1	75	*
A2943272	A2943048	Toner Bank Unit (NRG/SVN)	1	1	75	*
A2943282	A2943049	Toner Bank Unit (INF/LAN)	1	1	75	*

UNITS AFFECTED:

All A294/A295 copiers manufactured from the Serial Numbers listed below will have the new Gear and Toner Bank Unit installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600900169
Gestetner 3285	H3600900169
Ricoh Aficio 850	H3601000107
Savin 2105DP	H3700900033
Gestetner 32105	H3700900033
Ricoh Aficio 1050	H3700900080

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 026 **12/05/2000**

APPLICABLE MODEL:

GESTETNER - 3285/32105
RICOH - AFICIO 850/1050
SAVIN - 2085DP/2105DP

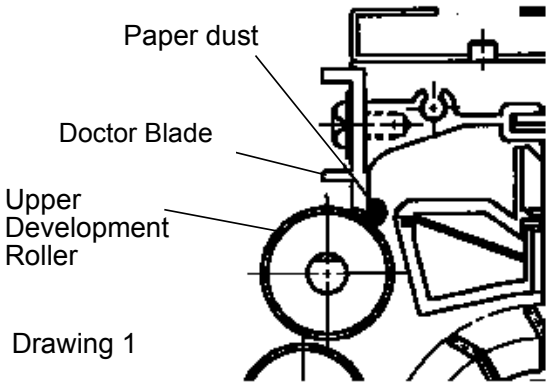
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER DUSTING
SYMPTOM:

Toner dusting from the edges of the Development Unit.

CAUSE:

Paper dust is gathered at the front and rear sides of the Doctor Gap in the Development Unit. This gap becomes narrower, causing a drop in the airflow from the Development Lower Casing. This can cause toner dusting from both edges of the Development Unit. See Drawing 1.



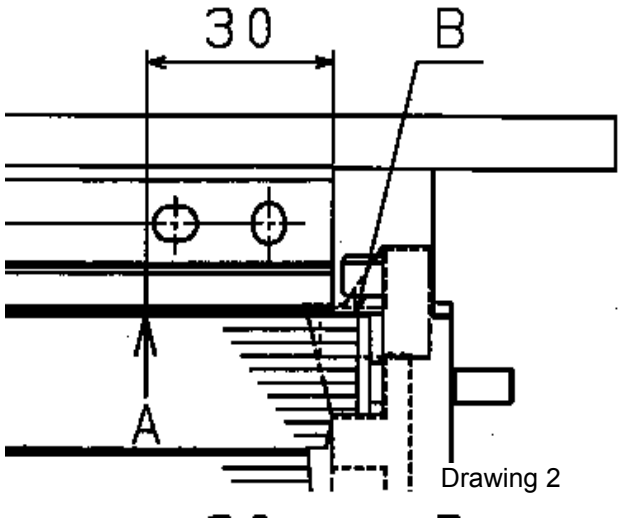
Drawing 1

SOLUTION:

When replacing the Developer, perform the following:

1. Prepare a sheet of paper 5mm x 50mm x 0.5mm (or thinner). This will be used in step 4 below.
2. Remove the Toner Hopper (2 screws).
3. Turn the Development Unit upside-down and rotate the Paddle Roller Knob to empty the remaining Developer

Steps 4-6 should be performed several times for each side of the Development Unit (one at a time). Continue until the paper dust is completely removed.



Drawing 2

4. Turn the development unit right side up.
5. Center the sheet of paper from step 1 at 30mm from both edges of the Doctor Gap (A, Drawing 2). Insert the sheet approximately 8mm. See Drawing 3, page 2 of 2.
6. Move the sheet toward the edge to force the paper dust out of the Doctor Gap (B, Drawing 2). Repeat this action several times.

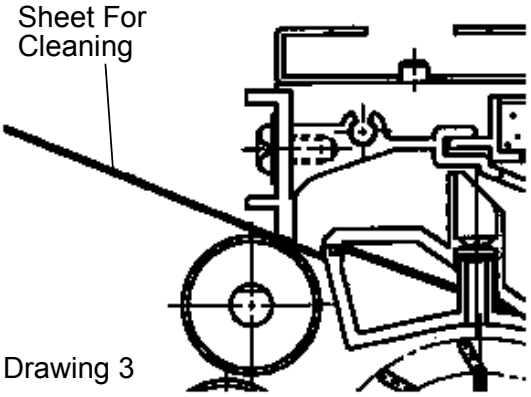
Continued…

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CAUTION: Do not loosen screws with white paint. This is a factory adjustment and can not be reset in the field.

7. Rotate the Upper Development Roller 10mm forward and remove the paper dust together with Developer using a vacuum cleaner or magnetic screwdriver.

8. After steps 4-6 have been performed several times on each side, turn the Development Unit upside-down and shake it gently to remove the remaining paper dust.



Drawing 3

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 027 **12/05/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PSU DAMAGED

SYMPTOMS:

1. Machine cannot be powered on.
2. No display on the Operation Panel.
3. LEDs on the Power Supply Board do not light.

CAUSE:

PSU damaged: The high voltage line is shorted to the low voltage line by Anti-Static Brush Fibers drawn into the PSU by the Cooling Fan.

FIELD COUNTERMEASURE:

Field units (Units produced prior to the attached serial numbers or units containing the old PSU.)

- Install the Filters (P/N A2949450) to seal the two Cooling Fan holes .
- The Filters are available as Service Parts, P/N: A2949450 - Filters. Two Filters to a set. See page 2 of 2 for Installation Procedure.

PRODUCTION COUNTERMEASURE:

High voltage areas of the PSU circuit were insulated by silicone resin to protect the circuit from conductive fibers like those of the Anti-Static Brush.

- The PSU part number has been changed from AZ250012 to AZ250013.
- Serial number cut-ins for AZ250013 are on the next page.

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AZ250012	AZ250013	Power Supply Unit - 819W 200-240V	1	1	141	1
--	A2949450	Filter (PSU)	2		141	11 *

* Denotes new item number.

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured **after** the Serial Numbers listed below will have the new style PSU installed during production.

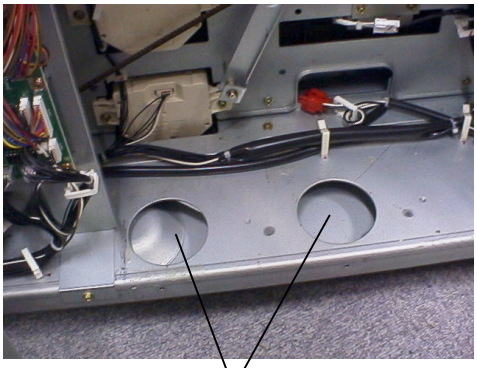
Although the countermeasure (PSU silicone coating) was implemented from June 2000 production, the P/N of the PSU was changed from September production. The cut-in serial numbers below are from June production, and the Filter is only required for field units produced before these numbers.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600600058
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700600081

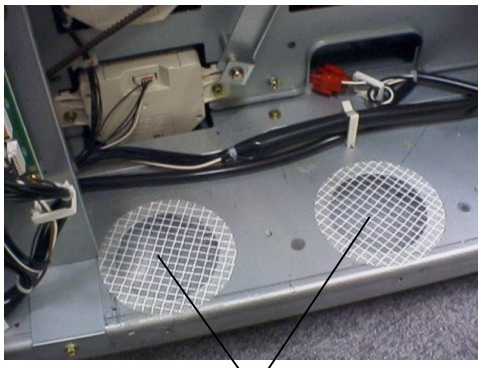
FILTERS INSTALLATION PROCEDURE:

1. Turn off the Main Switch.
2. Pull the Power Plug out and wait for 5 minutes until the charge remaining in the PSU is discharged.
3. Remove the machine Lower Rear Cover.(6 screws).
4. Remove the PSU. (4 screws and connectors).
5. Install the Filters as shown in the illustration.

NOTE: Clean out the dust and oil on the Frame before installing Filters.



Cooling Fan Holes



Filters

6. Reassemble the unit.

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 027 REISSUE ★ **04/19/2002**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PSU DAMAGED

SYMPTOMS:

1. Machine cannot be powered on.
2. No display on the Operation Panel.
3. LEDs on the Power Supply Board do not light.

CAUSE:

PSU damaged: The high voltage line is shorted to the low voltage line by Anti-Static Brush Fibers drawn into the PSU by the Cooling Fan.

FIELD COUNTERMEASURE:

Field units (Units produced prior to the attached serial numbers or units containing the old PSU.)

- Install the Filters (P/N A2949450) to seal the two Cooling Fan holes .
- The Filters are available as Service Parts, P/N: A2949450 - Filters. Two Filters to a set. See page 2 of 2 for Installation Procedure.

★ PRODUCTION COUNTERMEASURE:

High voltage areas of the PSU circuit were insulated by silicone resin to protect the circuit from conductive fibers like those of the Anti-Static Brush.

- Three seals have been added to the PSU unit.
- The PSU part number has been changed from AZ250013 to AZ250014.
- Serial number cut-ins for AZ250014 are on the next page.

★ GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AZ250013	AZ250014	Power Supply Unit - 819W 200-240V	1	1	141	1
--	A2949450	Filter (PSU)	2		141	11 *

* Denotes new item number.

Continued…

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★ UNITS AFFECTED:

All A294/A295 copiers manufactured **after** the Serial Numbers listed below will have the new style PSU installed during production.

Although the countermeasure (PSU silicone coating) was implemented from June 2000 production, the P/N of the PSU was changed from November production. The Filter is only required for field units produced before the June production

June

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600600058
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700600081

Serial Numbers for Filter (A2949450)

November

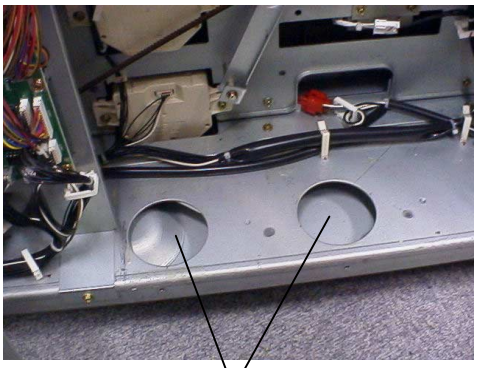
MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3601100129
Gestetner 3285	H3601100129
Ricoh Aficio 850	H3601100197
Savin 2105DP	H3701100032
Gestetner 32105	H3701100032
Ricoh Aficio 1050	H3701100075

Serial Numbers for PSU (AZ250014)

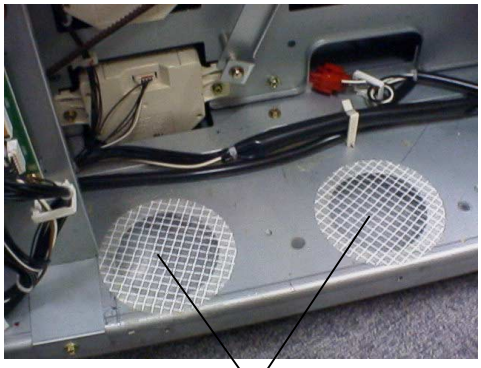
FILTERS INSTALLATION PROCEDURE:

1. Turn off the Main Switch.
2. Pull the Power Plug out and wait for 5 minutes until the charge remaining in the PSU is discharged.
3. Remove the machine Lower Rear Cover.(6 screws).
4. Remove the PSU. (4 screws and connectors).
5. Install the Filters as shown in the illustration.

NOTE: Clean out the dust and oil on the Frame before installing Filters.



Cooling Fan Holes



Filters

6. Reassemble the unit.

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 028 **01/30/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

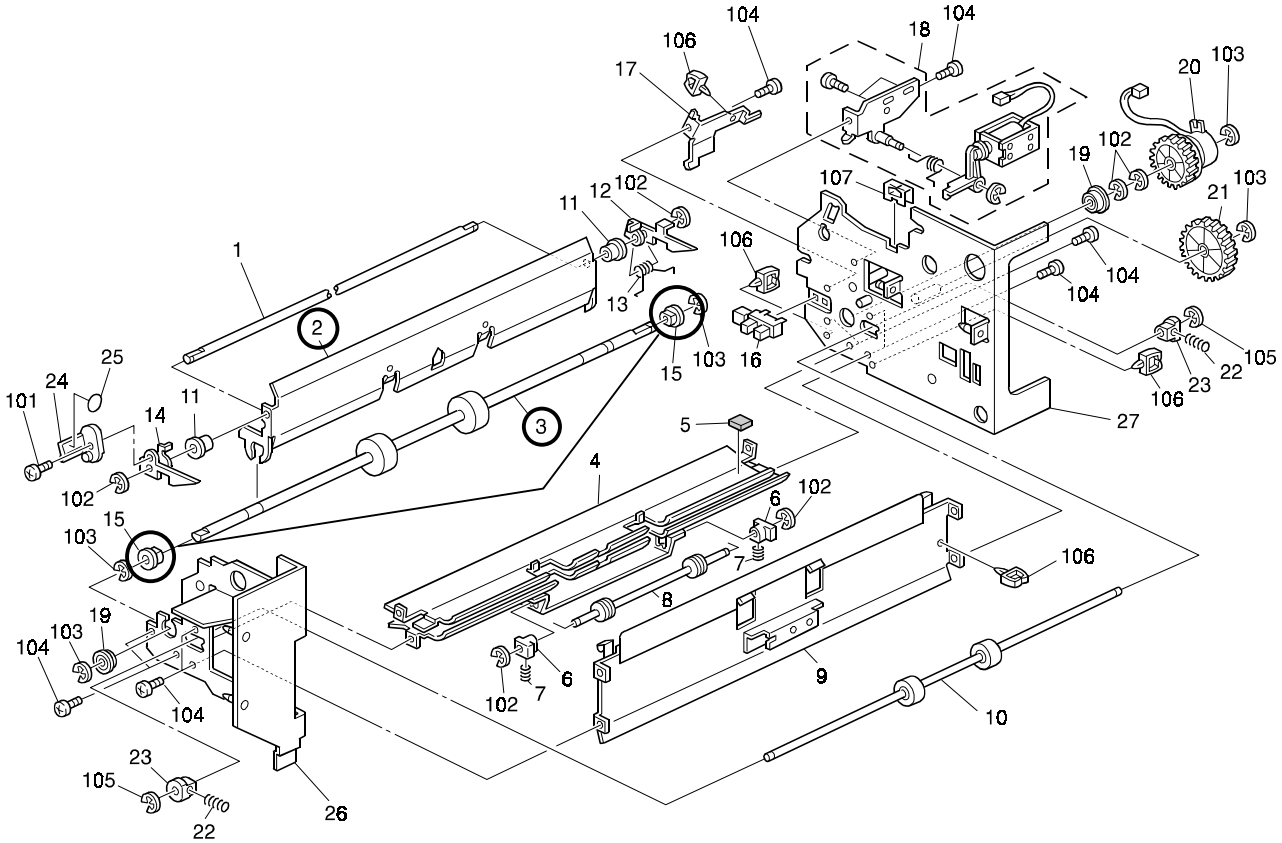
SUBJECT: MAINFRAME RELAY ROLLER

GENERAL:

To minimize a noise generated by the Bushings of the Transport Roller in the Registration area, the Bushings have been changed to Ball Bearings.

Due to this modification, the shape of the Transport Roller Shaft and Bushing Holder on the Transport Guide has also been changed.

The following parts corrections are being issued for all A294/A295 Parts Catalogs.



Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
50530223A	A2323566A	Ball Bearing – 8X16X5	2-2	3/S	73	15
A2292648A	A2942645	Transport Guide	1-1	3/S	73	2
A2942643	A2942647	Transport Roller	1-1	3/S	73	3

NOTE: The Interchangeability for these parts when installed as a set is 1.

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Mainframe Relay Roller installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh Aficio 850	H3600600001
Ricoh Aficio 1050	H3700500001
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 029 **12/13/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

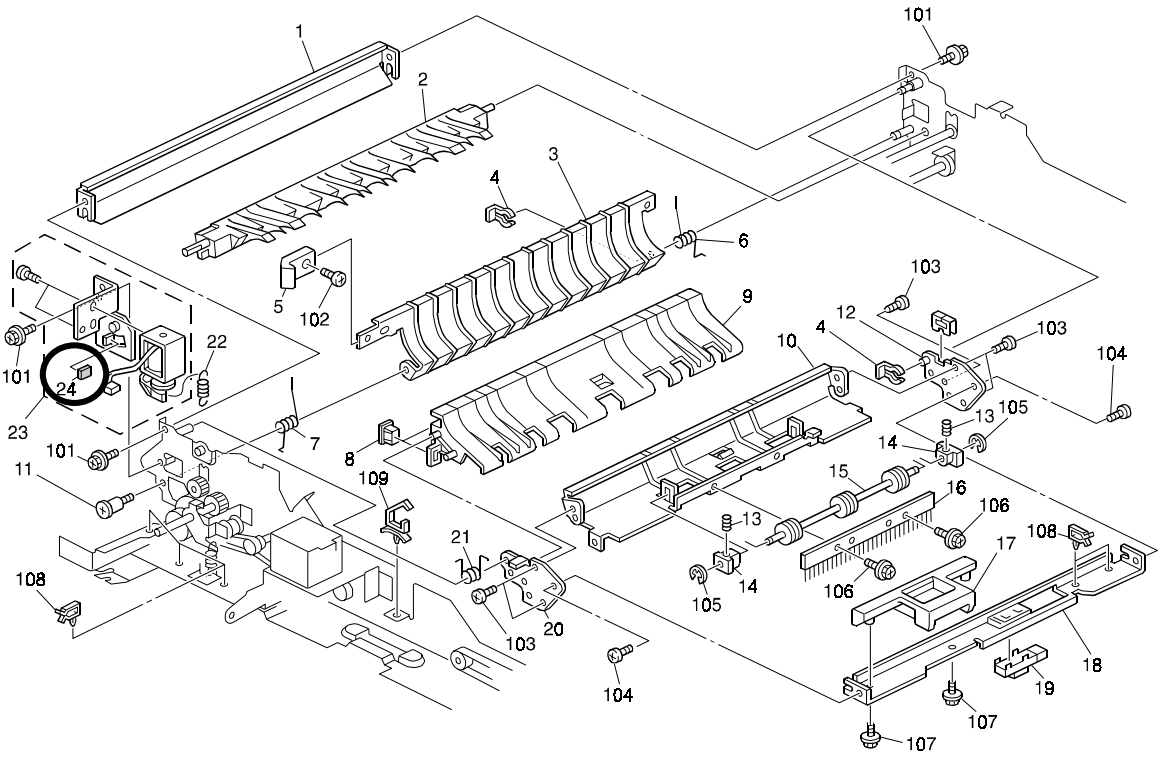
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: CUSHION - DUPLEX JUNCTION GATE SOLENOID

GENERAL:

Previously, the Cushion for the Junction Gate Solenoid was attached to a bracket using double-sided tape to correct a noise generated by the Duplex Junction Gate. Since in some cases the tape gradually peels off, the Cushion has been changed from a stick-on type to one with a slit that fits over the bracket.

The following part correction is being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944665	A2944668	Cushion Junction Gate Solenoid	1	1	121	24

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Cushion Junction Gate Solenoid installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600800217
Gestetner 32105	H3700800041
Ricoh AFICIO 850	H3600700401
Ricoh AFICIO 1050	H3700800053
Savin 2085DP	H3600800217
Savin 2105DP	H3700800041

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 030 **12/22/2000**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Entrance Guide –** The edge of the Entrance Guide (Mylar) has been made smoother to reduce paper dust from the original. Please update your Parts Catalog with the following information.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3011246	B3011247	Entrance Guide	1	1	29	25

UNITS AFFECTED:

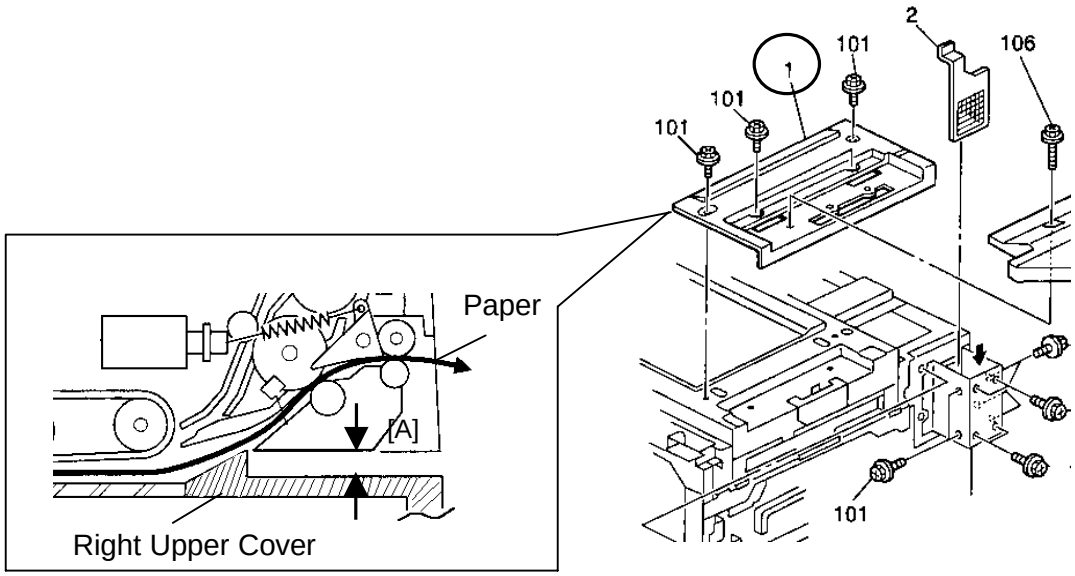
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Entrance Guide installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600800217
Gestetner 32105	H3700800041
Ricoh AFICIO 850	H3600700470
Ricoh AFICIO 1050	H3700800053
Savin 2085DP	H3600800217
Savin 2105DP	H3700800041

Continued…

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- **UPDATE 2:** **Right Upper Cover –** The area indicated by [A] in the illustration below of the Upper Right Cover has been increased by 2 mm to ensure that originals are transported properly. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941264	A2941262	Cover – Right Upper	1-1	1	19	1

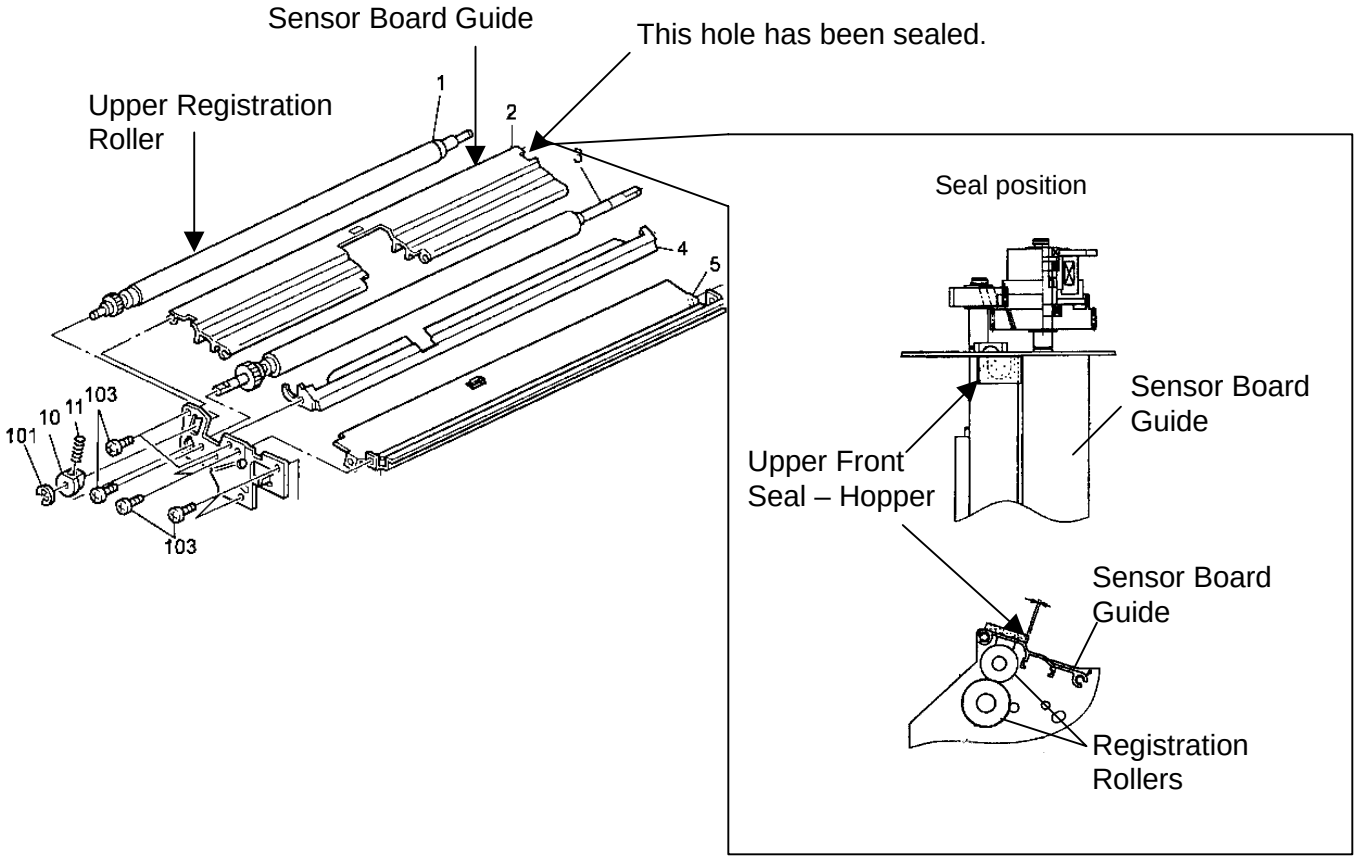
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Right Upper Cover installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh AFICIO 850	H3600600001
Ricoh AFICIO 1050	H3700600081
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

Continued…

- **UPDATE 3:** **Hopper Upper Front Seal –** A foam seal (Hopper Upper Front Seal) has been added to the Sensor Board Guide to prevent scattered toner from dropping onto the Registration Rollers. This part is used on other models, therefore the description may not seem appropriate. Please update your Parts Catalog with the following information.



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
AA151676	Upper Front Seal – Hopper	1	71	18 *

* Denotes new item number.

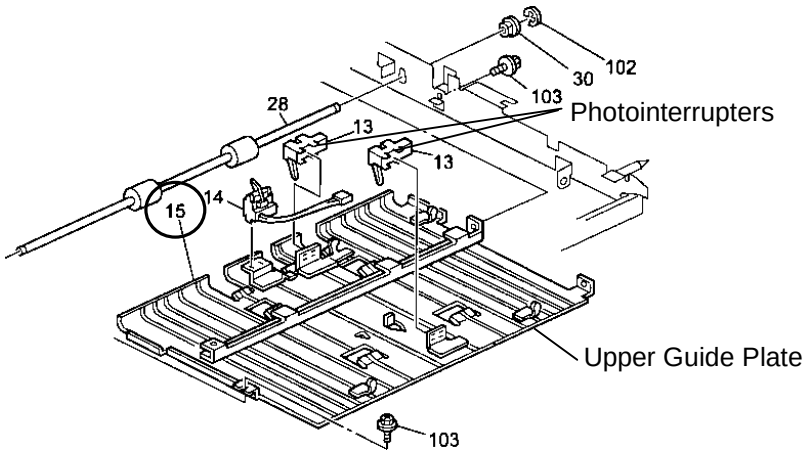
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new Hopper Upper Front Seal installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Gestetner 32105	H3700600056
Ricoh AFICIO 850	H3600500347
Ricoh AFICIO 1050	H3700500001
Savin 2085DP	H3600500197
Savin 2105DP	H3700600056

Continued…

- **UPDATE 4:** **Upper Guide Plate –** The cut-outs on the Upper Guide Plate for the Photointerrupter Feelers have been narrowed to ensure that the Feelers are not broken off. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944621	A2944611	Upper Guide Plate	1	1	125	15

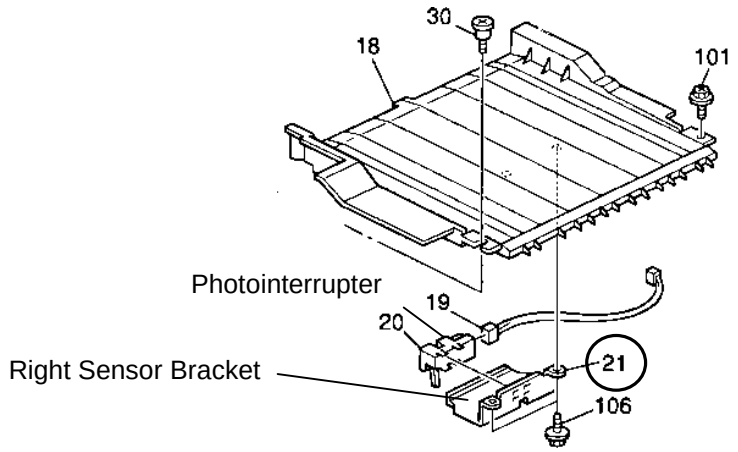
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Upper Guide Plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600600316
Ricoh AFICIO 1050	H3700700056
Savin 2085DP	H3600700244
Savin 2105DP	H3700700042

Continued…

- **UPDATE 5:** **Right Sensor Bracket –** The cut-out on the Right Sensor Bracket for the Photointerrupter Feeler has been narrowed to ensure that the Feeler is not broken off. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A0964732	A2944745	Right Sensor Bracket	1	1	117	21

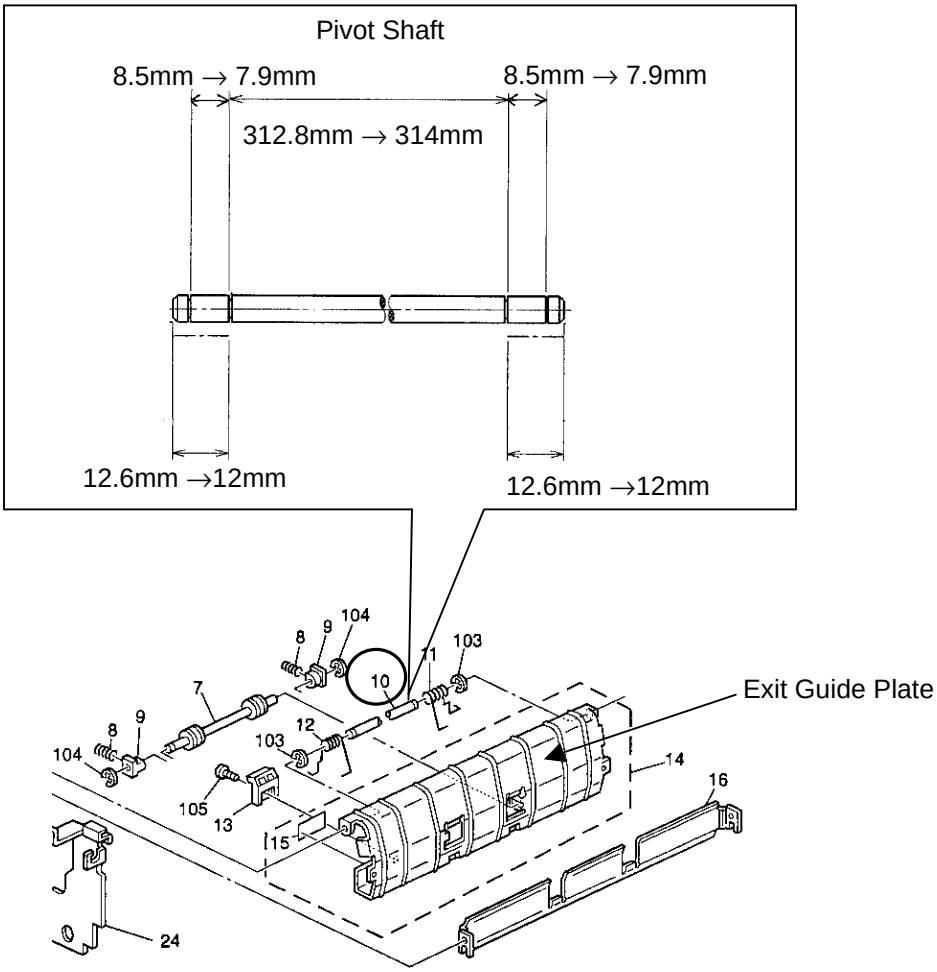
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Right Sensor Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600600316
Ricoh AFICIO 1050	H3700700056
Savin 2085DP	H3600700244
Savin 2105DP	H3700700042

Continued…

- **UPDATE 6:** **Pivot Shaft –** The positions of the E-Rings on the Pivot Shaft have been changed to reduce the side to side play of the Exit Guide Plate. See the illustration below for changes to the Pivot Shaft. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA140724	AA140739	Pivot Shaft	1	1	115	10

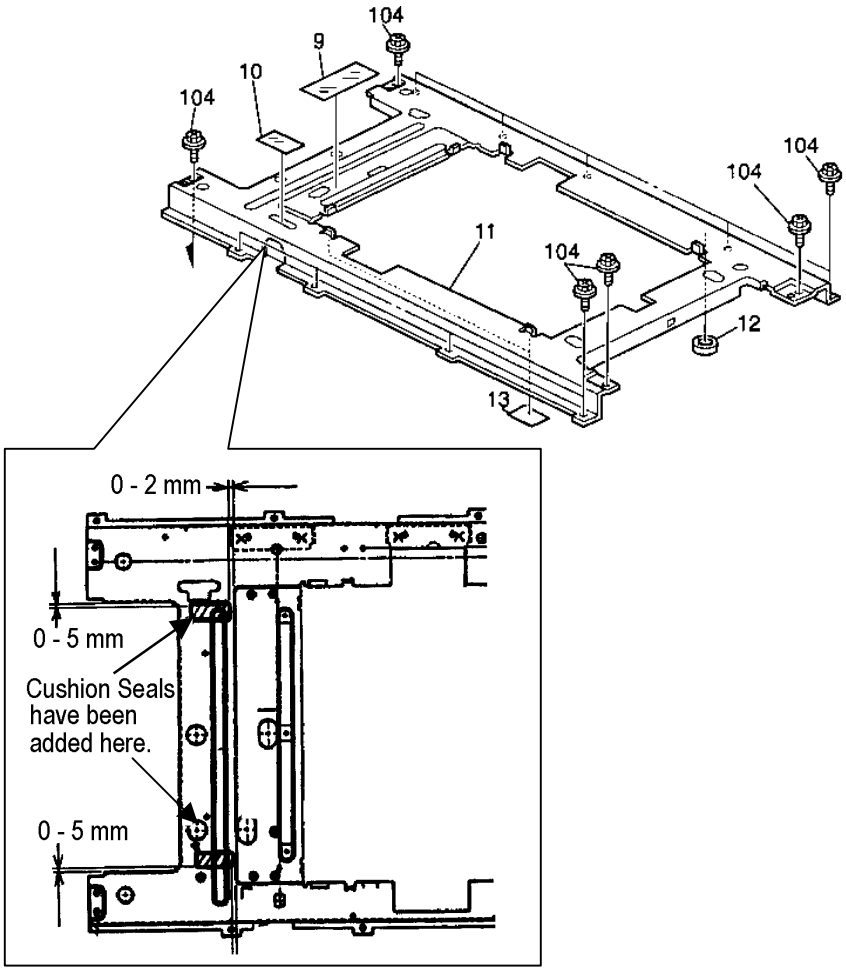
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Pivot Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600600205
Ricoh AFICIO 1050	H3700700056
Savin 2085DP	H3600700244
Savin 2105DP	H3700700042

Continued…

- **UPDATE 7:** **Cushion Seals –** Two Cushion Seals have been added to the Optical Housing Frame to prevent damage to the Frame during transportation. Please update your Parts Catalog with the following information.



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2941793	Cushion Seal – 20x50x4	2	45	30 *

* Denotes new item number.

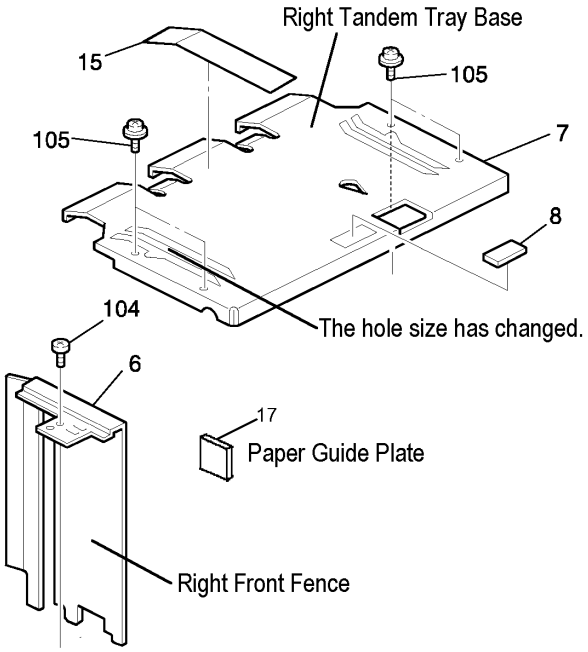
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new Cushion Seal installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600500197
Gestetner 32105	H3700600056
Ricoh AFICIO 850	H3600500629
Ricoh AFICIO 1050	H3700500001
Savin 2085DP	H3600500197
Savin 2105DP	H3700600056

Continued…

- **UPDATE 8:** **Right Front Fence –** A Paper Guide Plate (Mylar with cushion) has been added to the Right Front Fence to ensure paper feed. The shape of the Right Front Fence has been changed to make room for the Paper Guide Plate. The size of the Fence set holes on the Tray Base have also been changed. Please update your Parts Catalog with the following information.



NOTE: *The new style Right Front Fence (P/N A2946739) includes the Paper Guide Plate (P/N A0966671).*

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2946736	A2946739	Right Front Fence	1	3/S	55	6
A2936680	A2946670	Base – Right Tandem Tray	1	3/S	55	7
	A0966671	Paper Guide Plate	1	-	55	17 *

* Denotes new item number.

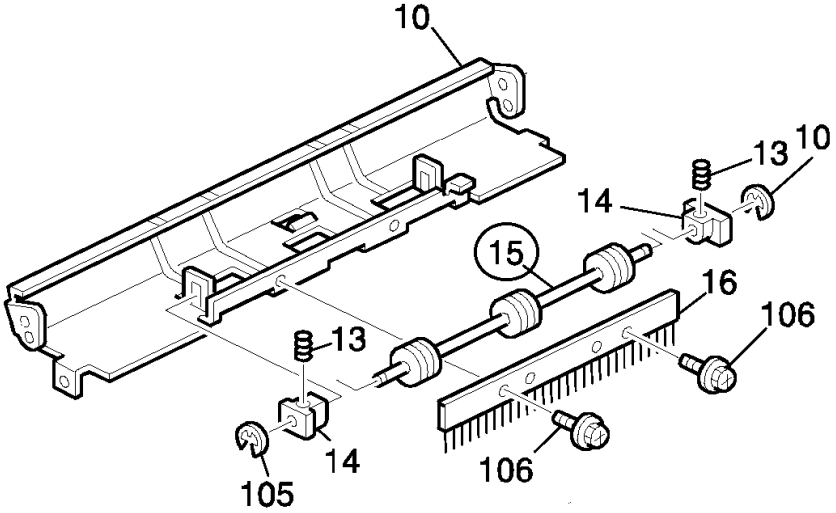
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Right Front Fence and Right Tandem Tray Base installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600600108
Ricoh AFICIO 1050	H3700700065
Savin 2085DP	H3600700244
Savin 2105DP	H3700700042

Continued…

- **UPDATE 9:** **Duplex Driven Roller –** The surface of the Duplex Driven Roller has been made smoother to prevent the edge of the paper from getting caught on the rollers. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AF022114	AF022133	Duplex Driven Roller	1-1	1	121	15

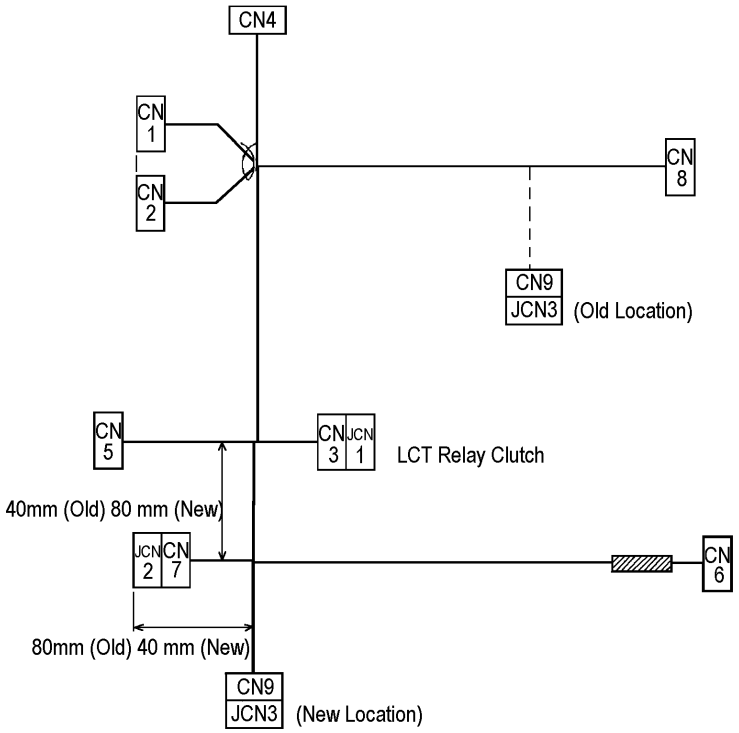
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Duplex Driven Roller installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Gestetner 32105	H3700700042
Ricoh AFICIO 850	H3600700347
Ricoh AFICIO 1050	H3700700056
Savin 2085DP	H3600700244
Savin 2105DP	H3700700042

Continued…

- **UPDATE 10:** **Paper Feed Unit Harness –** The Paper Feed Unit Harness has been changed as shown in the illustration below to prevent the Harness from being pinched under the lower left hand corner of the Development Drive Motor. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2945481	A2945482	Harness – Paper Feed Unit	1	1	69	4

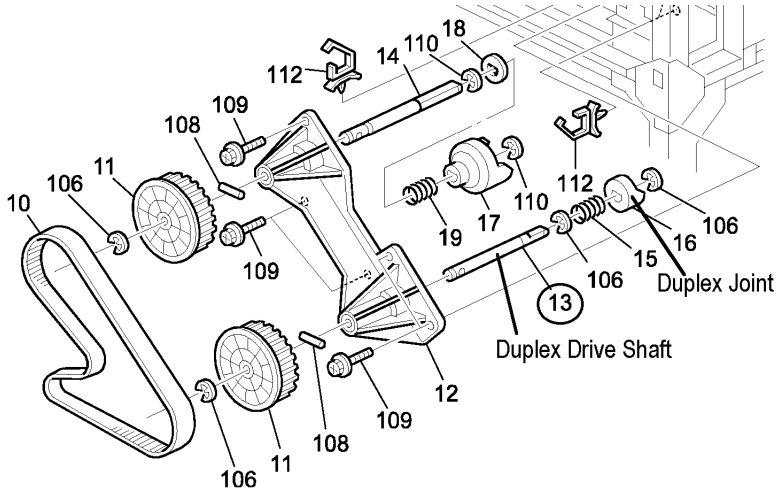
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Paper Feed Unit Harness installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh AFICIO 850	H3600600001
Ricoh AFICIO 1050	H3700500001
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

Continued…

- **UPDATE 11:** **Duplex Drive Shaft–** The surface of the Duplex Drive Shaft has been improved to make the movement of the Duplex Joint smoother. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941136	A2941144	Shaft – Duplex Drive	1	1	127	13

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Duplex Drive Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600800217
Gestetner 32105	H3700800041
Ricoh AFICIO 850	H3600700509
Ricoh AFICIO 1050	H3700800053
Savin 2085DP	H3600800217
Savin 2105DP	H3700800041

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 031 **01/30/2001**

APPLICABLE MODEL:

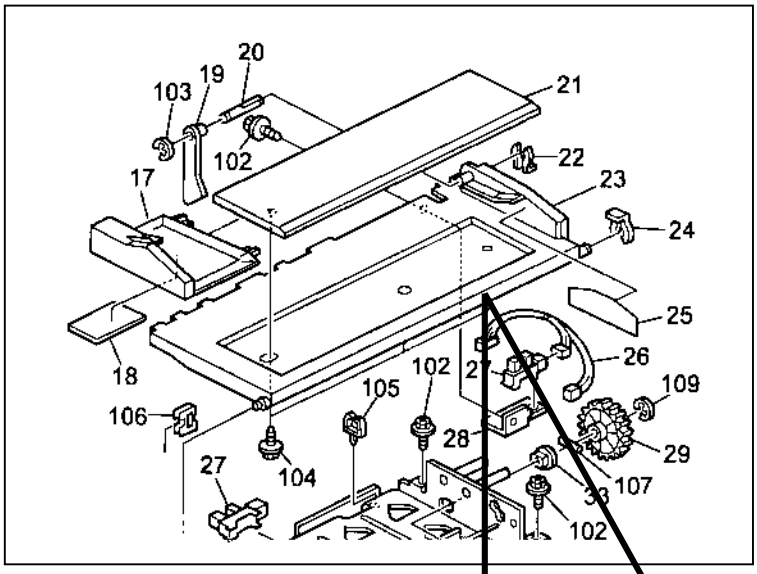
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

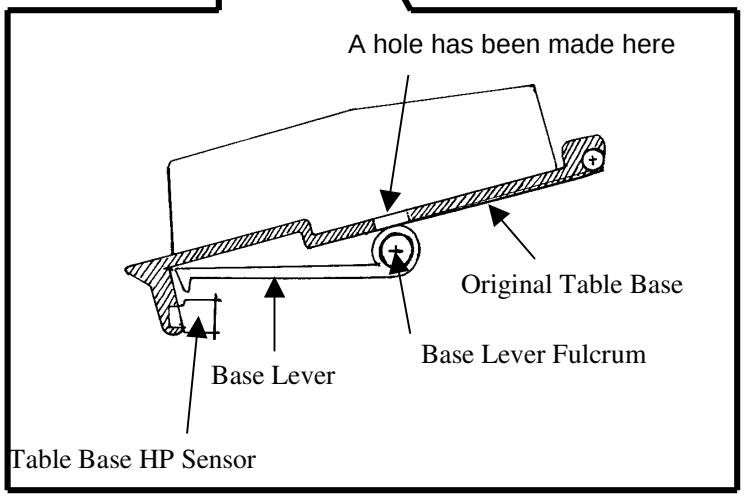
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: DF ORIGINAL TABLE BASE

GENERAL:

A hole has been made in the Original Table Base to prevent the Original Table Base from hitting the Base Lever Fulcrum and ensuring that the Table Base HP Sensor is capable of being actuated.
The following parts correction is being issued for all A284/A295 Parts Catalogs.





Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A8061861	A8061852	Original Table Base	1-1	1	25	23

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Original Table Base installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601000106
Gestetner 32105	H3701000006
Ricoh 850	H3601000212
Ricoh 1050	H3701000040
Savin 2085DP	H3601000106
Savin 2105DP	H3701000006

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 032 **02/06/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

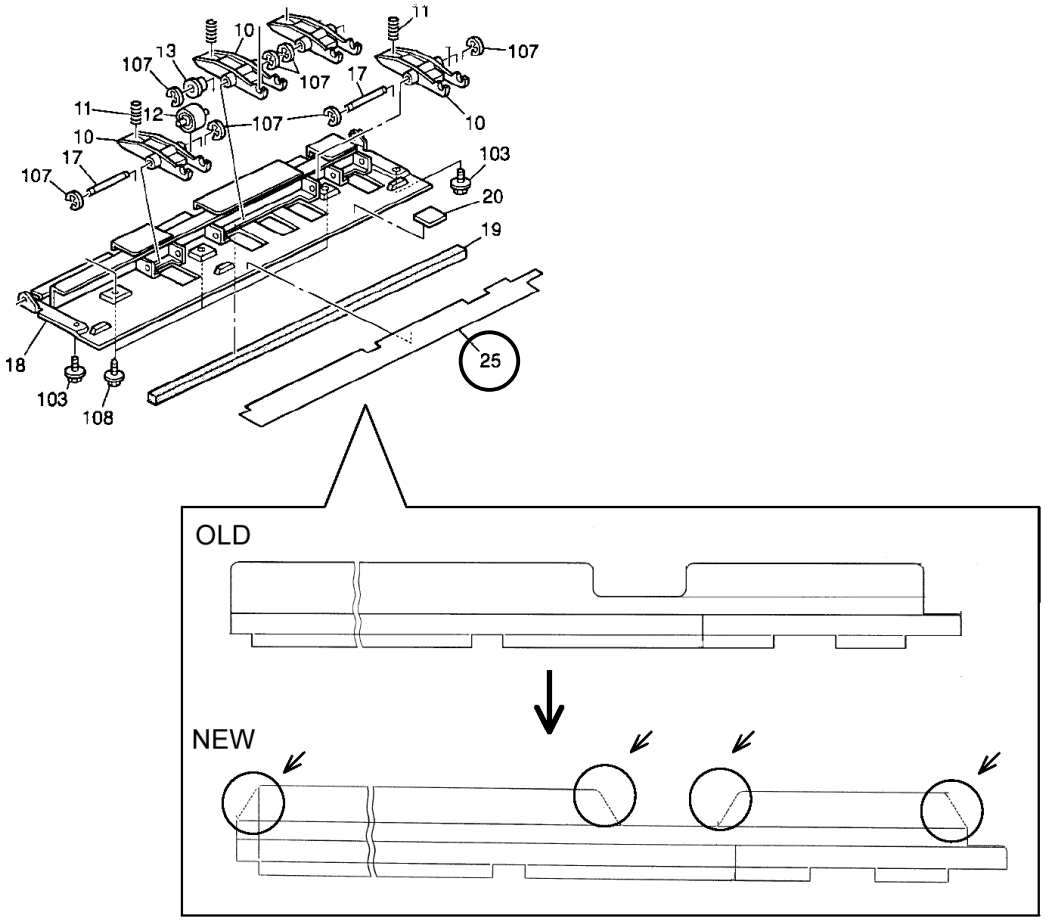
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATE

GENERAL:

The following parts correction is being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Entrance Guide** - The shape of the ADF Original Entrance Guide has been changed to reduce paper dust from the original.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3011245	B3011247	Entrance Guide	1	1	29	25

Continued…

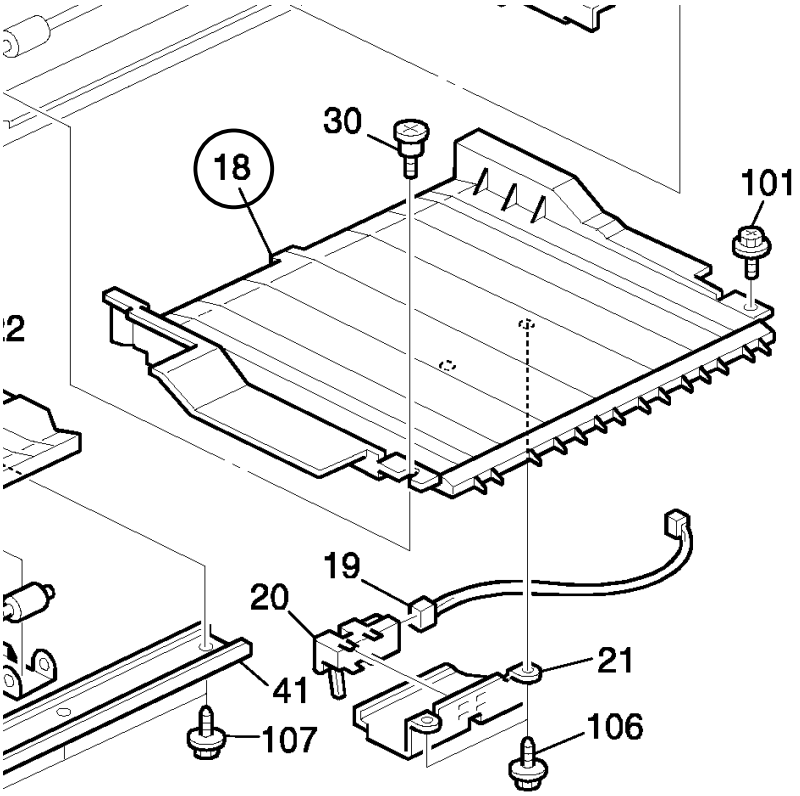
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UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Entrance Guide installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600500197
Gestetner 3285	H3600500197
Ricoh Aficio 850	H3600400287
Savin 2105DP	From 1st Production
Gestetner 32105	From 1st Production
Ricoh Aficio 1050	From 1st Production

- **UPDATE 2:** **Right Duplex Table** - Two ribs have been added to the Right Duplex Table to prevent skew of DLT paper.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944742	A2944744	Right Duplex Table	1	1	117	18

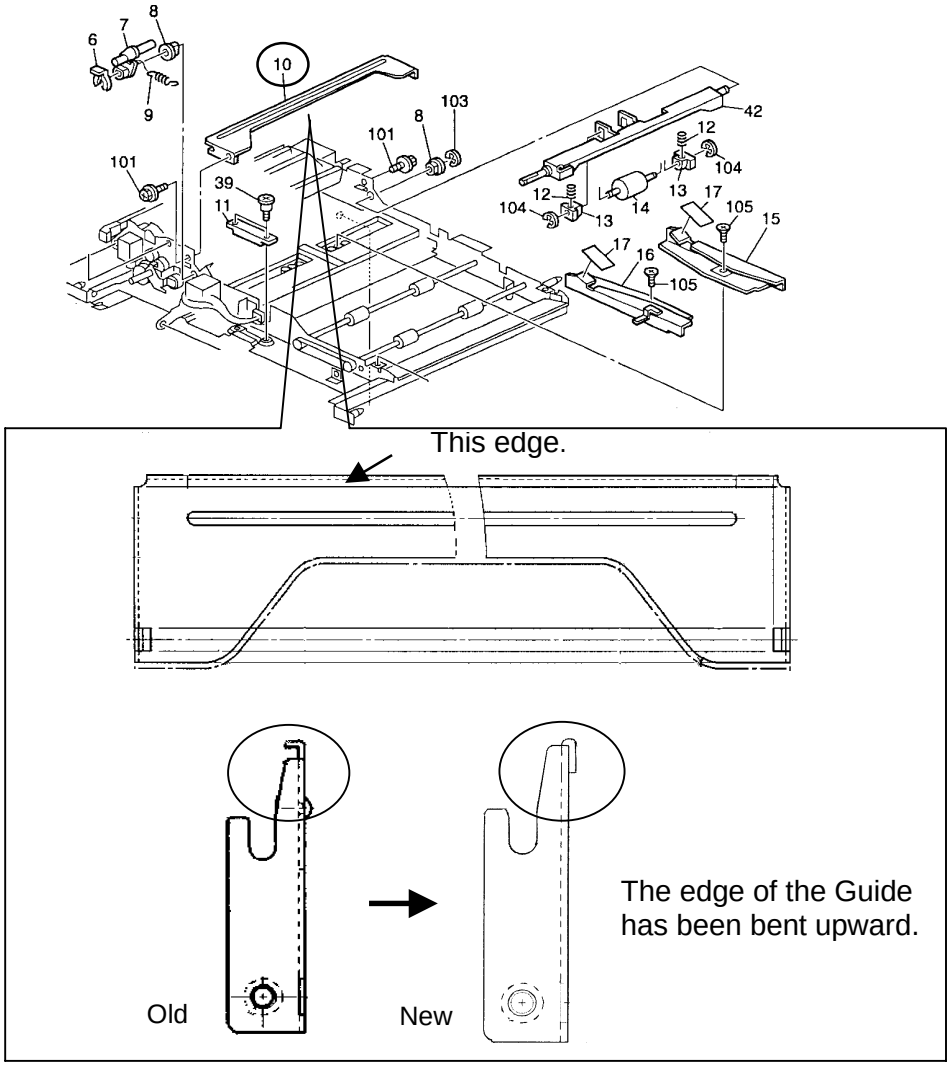
Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Right Duplex Table installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600500197
Gestetner 3285	H3600500197
Ricoh Aficio 850	H3600500347
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700500001

- **UPDATE 3:** **Upper Duplex Stay** - The shape of the Upper Duplex Stay has been changed as shown in the illustration below to reduce the noise when the Entrance Guide (Page 119, Index 18) contacts the stay.



Continued…

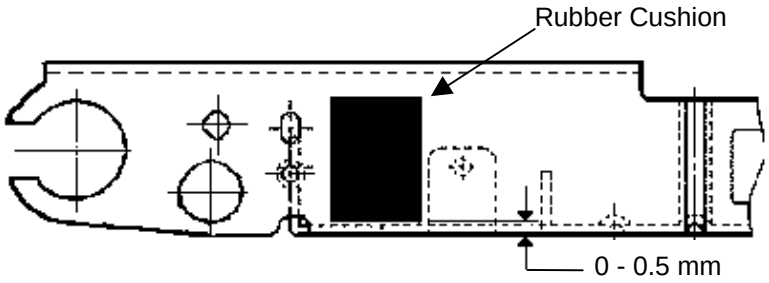
					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944836	A2944837	Upper Duplex Stay	1	1	117	10

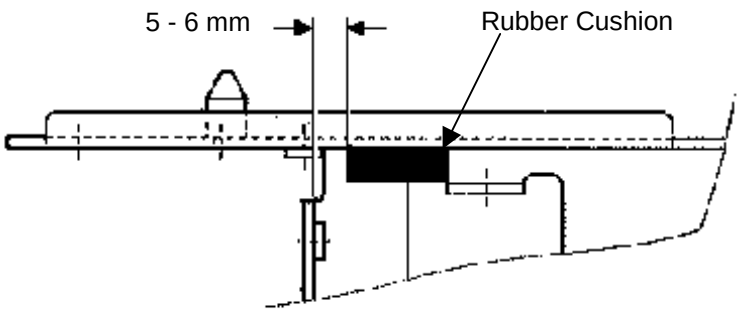
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Upper Duplex Stay installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600500425
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700500001

- **UPDATE 4:** **Transport Belt Unit** - A Rubber Cushion (B3011141) has been added to the Transport Belt Unit to absorb noise from Transport Belt Rear Stopper. The Rubber Cushion is positioned at the left against the inside surface of the Transport Belt Plate (B3011412).





Continued…

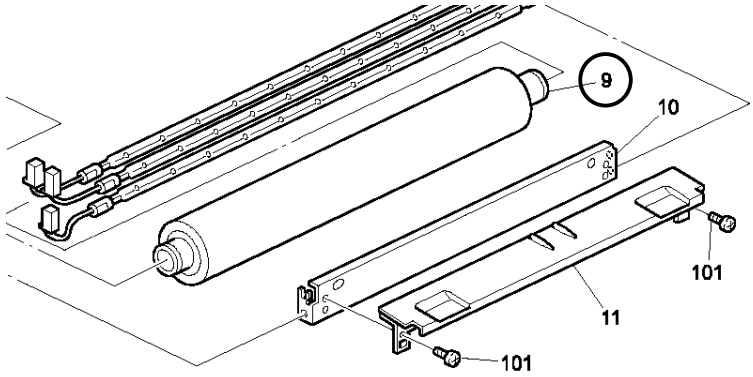
				REFERENCE	
NEW PART NO.	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3011141	Rubber Cushion	1	-	31	29

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new Rubber Cushion installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600200180
Gestetner 3285	H3600200180
Ricoh Aficio 850	H3600200238
Savin 2105DP	NA
Gestetner 32105	NA
Ricoh Aficio 1050	H3700500001

- **UPDATE 5:** **Hot Roller -** The surface of the Hot Roller has been made slightly smoother.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AE011049	AE011056	Hot Roller	1	0	105	9

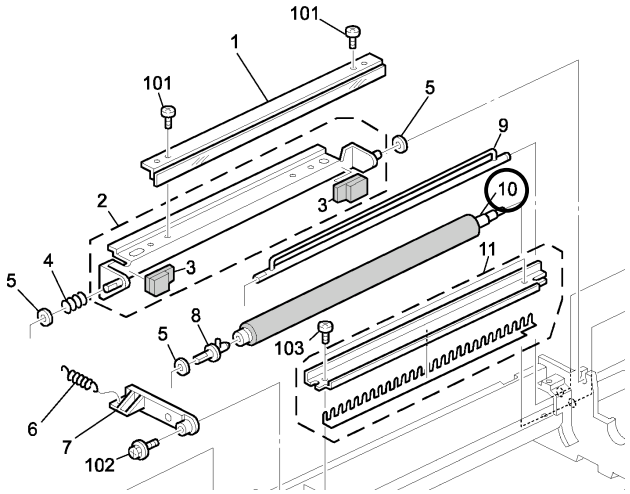
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Hot Roller installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600600001
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700600081

Continued…

- **UPDATE 6:** **Cleaning Brush -** The cleaning ability of the Cleaning Brush has been slightly increased by changing the brush material.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AD042032	AD042039	Cleaning Brush	1-1	0	93	10

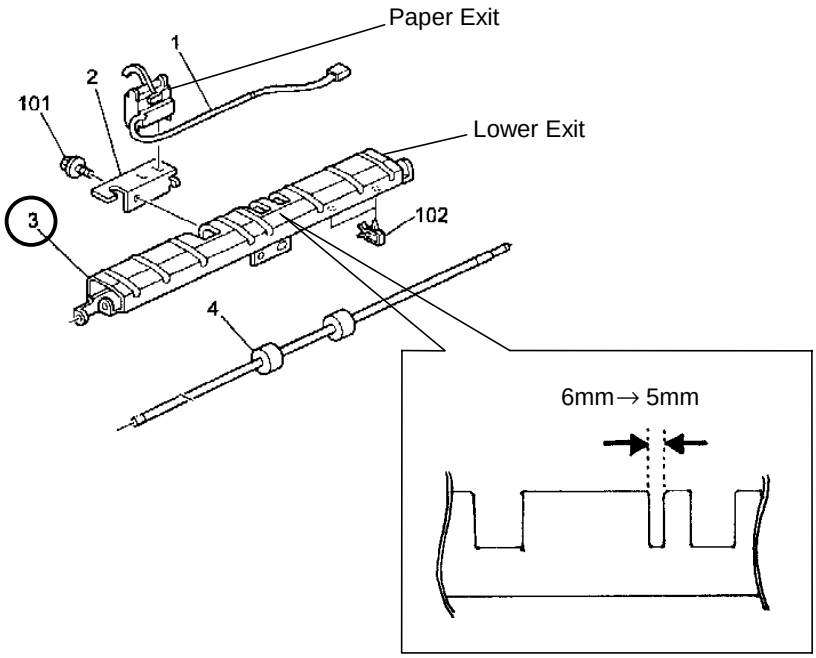
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Cleaning Brush installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600600001
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700500001

Continued…

- **UPDATE 7:** **Lower Exit Guide -** The cut-out on the Lower Exit Guide for the Paper Exit Sensor Feeler has been narrowed to ensure that the feeler is not broken off during removal of jammed paper.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944309	A2944407	Lower Exit Guide	1-1	1	113	3

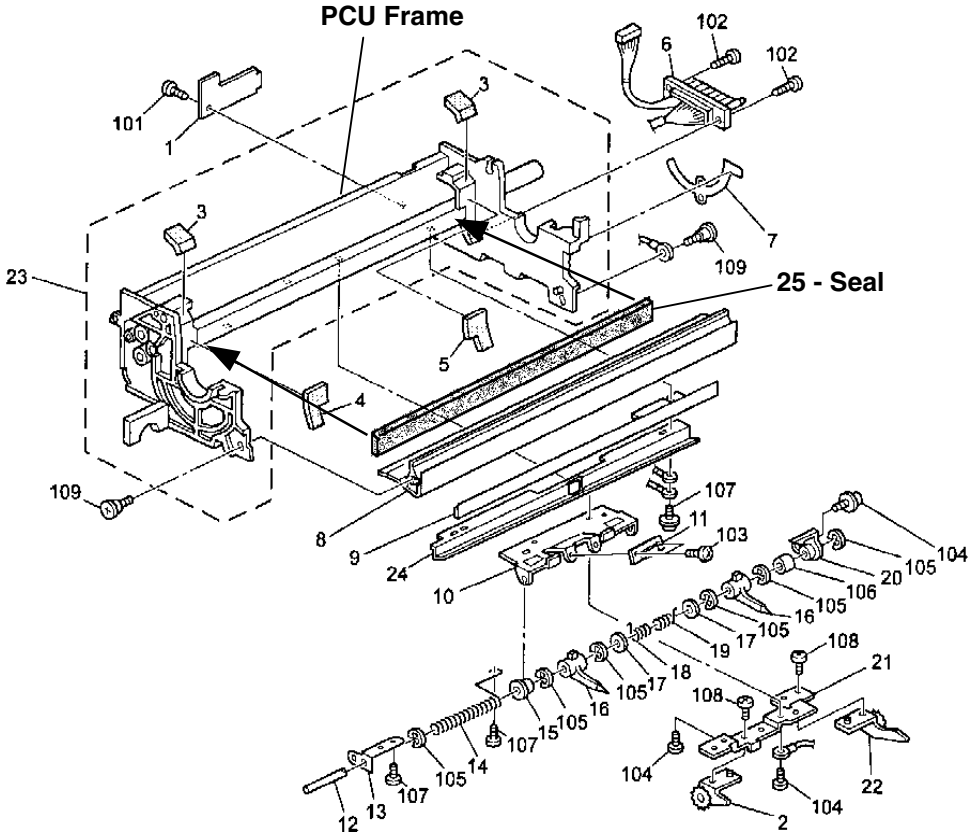
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Lower Exit Guide installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600600531
Gestetner 3285	H3600600531
Ricoh Aficio 850	H3600600001
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700500001

Continued…

- **UPDATE 8:** **Seal On PCU Frame -** A sponge Seal has been added to the PCU Frame to ensure that toner does not drop from the gap between the frame and the drum.



			REFERENCE	
NEW PART NO.	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
AA153088	Seal – 3x345x2	0-1	95	25 *

*** Denotes new part number.**

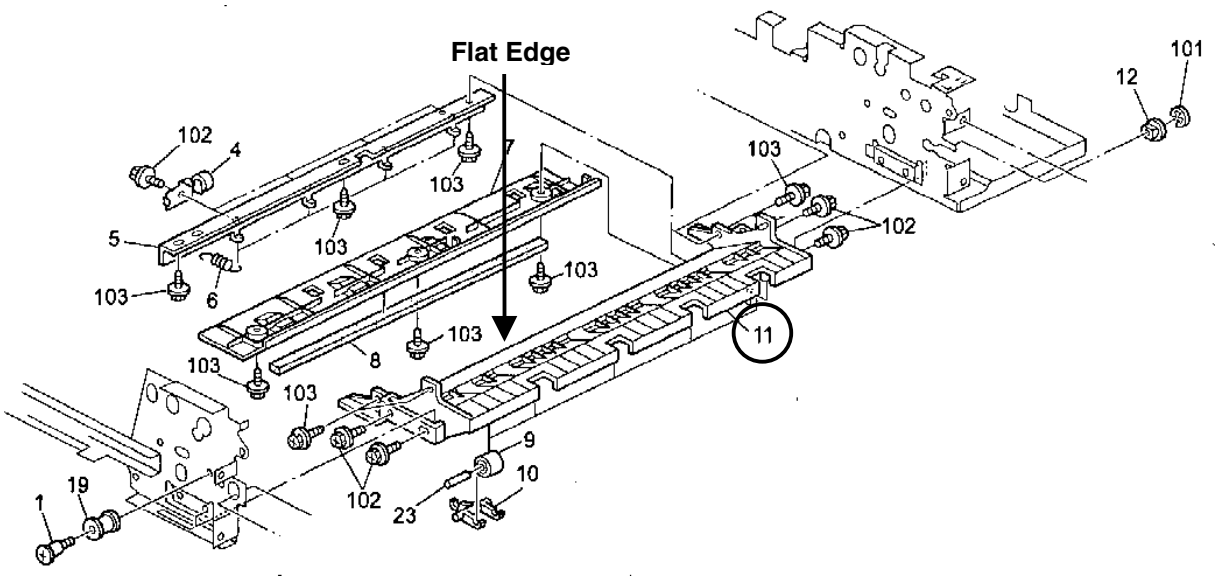
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new Seal installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3691200059
Gestetner 3285	H3691200059
Ricoh Aficio 850	H3691200074
Savin 2105DP	NA
Gestetner 32105	NA
Ricoh Aficio 1050	H3700500001

Continued…

- **UPDATE 9:** **Lower Guide Plate -** The design specifications of the Lower Guide Plate (11) have been changed to improve the flatness of the edge shown below..



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3013131	B3013132	Lower Guide Plate	1-1	1	33	11

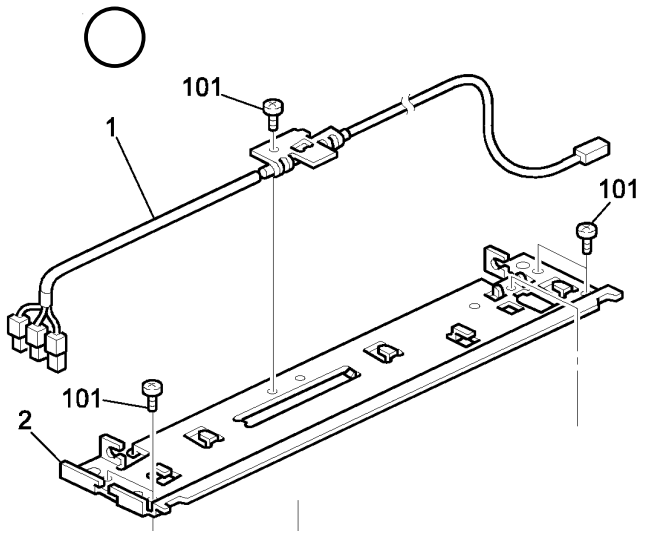
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Lower Guide Plate installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP	H3600500197
Gestetner 3285	H3600500197
Ricoh Aficio 850	H3600500347
Savin 2105DP	H3700600056
Gestetner 32105	H3700600056
Ricoh Aficio 1050	H3700400287

Continued…

- **UPDATE 10:** **Thermofuse Assembly -** The part number for the Thermofuse assembly has been changed.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944065	A2944465	Thermofuse Assembly	1-1	0	105	1

UNITS AFFECTED:

A294/A295 Serial Number cut-in not available at time of publication.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 033 **02/22/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: LOW ID / POOR SOLID FILL

SYMPTOM:

Low ID / Poor Solid Fill.
Perform the procedures below when:
1. The customer is not satisfied with the image density in a continuous copy run.
2. The customer is not satisfied with the Solid Fill quality in a continuous copy run.
3. The customer is not satisfied with the image density or Solid Fill quality, or text characters have fuzzy edges.

CAUSE:

INFORMATION:
The effectiveness of these countermeasures will depend on the type of original used. Specifically the effectiveness may be lower than customer expectations with originals that have solid image areas along either side. The ID in these areas tends to be low: with an original containing solid image areas along either side.

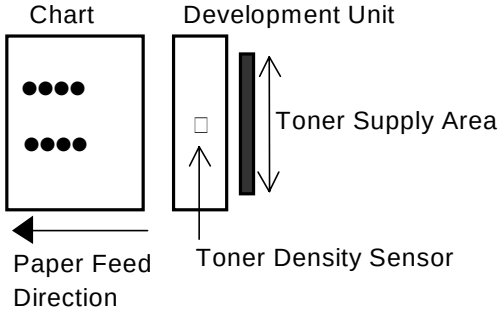


Illustration 1.

DETAILS OF ILLUSTRATION 1.

The Toner Density Sensor, which controls the amount of Toner supplied, is located in the middle of the Development Unit. However, there is no image in the center of the original chart. The images are concentrated in the two areas between the center and left/right edges. During continuous copying, the Toner density is regulated by the output of the Toner Density Sensor so that the target level is maintained. The amount of Toner supplied to the Development Unit is then determined by the Sensor's output and the original image ratio. When you make continuous copies using an original with an image area to correspond to 100mg of Toner per sheet, the machine activates the Toner Supply Clutch and supplies 100mg of toner. The Toner is evenly distributed inside the Development Unit, but the supply area is slightly narrower than the original density width (as shown in the illustration above). Therefore, if you make continuous copies of the original containing solid image area along either side shown in illustration 1,the following may result

Continued

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- The Toner consumption in areas where the images are concentrated tends to be higher than the Toner supplied (sides).
- The Toner consumption in areas where there are no images tends to be lower than the Toner supplied (center).

When the image ratio and therefore Toner consumption are completely different from one area to another, the Toner is not properly distributed across the copy. This causes areas with particularly high image ratios to experience an ID drop.

SOLUTION:

THIS BULLETIN CONTAINS TWO PROCEDURES FOR POOR SOLID FILL. PERFORM PROCEDURE #1 FIRST, RUN 100 COPIES AND CHECK COPY QUALITY. IF MORE FILL IS NEEDED THEN FOLLOW PROCEDURE #2.

ADJUSTMENT PROCEDURE

- Perform the following both before and after any adjustments are made:
- Print out the SMC sheets (SP5990-1).
- Make several copies and check the Image Density.

PROCEDURE #1 TO IMPROVE THE ID / SOLID FILL:

1. Check TD sensor output (SP2-223: Vt Display)

- If Vt is lower than 3.3V, go directly to step 2.
- If Vt is equal to or greater than 3.3V, perform the following:
- A. Check the Drum. Replace the Drum if there appears to be a white film on the area corresponding to the width of the paper.
- B. Replace the developer. Perform the TD Sensor initial setting (SP2801) after replacing developer. This is because a Vt value of 3.3V often indicates that the developer has deteriorated.

2. Make sure that the Firmware is version 7.51 or newer.

3. Change the following SP mode settings:

- SP2201-004: from 280V(default) to 240V (ID sensor development potential)
- SP2201-001: from 530V(default) to 620V (Development bias)

Note: The Development Rollers require to be cleaned using a dry cloth at 300K interval.
Make sure that SP2967 is set to OFF (Auto Image Density adjustment).

4. Change SP2969 from Off to On, <u>OR</u> Change the value of SP2968 from 0 to 2 . Do not change both.

NOTE:

SP2969 is for checking Toner concentration by ID pattern 20 times every 70 seconds in a continuous copy run after the machine power is turned on. This results in a productivity decrease from 85CPM to 77CPM.

SP2968 is for shifting Vt reference 0.06V every 100 copies during a 2K copy run after the machine power is turned on.

NOTE: The above procedure is to prevent an ID decrease during continuous copy runs made following a long idle period (e.g. first thing in the morning).

Continued…

5. Image processing for copier function.
Press the following keys in the listed order:
1. User Tools Key
2. Copier/Document Server Features Key
3. General Feature Key
4. Original Mode Level.
5. Select the setting of the Text to Soft.
6. Change the value of SP 4904-20 from 1 to 0.

NOTE: *As a side effect, text characters will tend to appear thicker. If the customer is not satisfied with this, please return the settings in step 5 back to their original values.*

6. Image processing change for Printer function
Enter SP mode. Press Printer SP and then Setting. Change the setting of the printer dot edge parameters from Normal to Mode.

Confirm the following Printer Dot Edge Parameter settings:
- SP2114-001: 80%
- SP2114-002: 80%
- SP2114-003: 100%
- SP2114-004: 80%

NOTE: *Regarding the image process condition setting of the printer driver, open the Print Quality Screen and confirm that the following Print Quality Settings are displayed:*
*Edge smoothing should be **OFF**.*
*Toner saver should be **OFF**.*

PROCEDURE #2 TO IMPROVE THE ID / SOLID FILL:

ADJUSTMENT PROCEDURE
- Perform the following both before and after any adjustments are made :
- Print out the SMC sheets (SP5990-1).
- Make several copies and check the Image Density

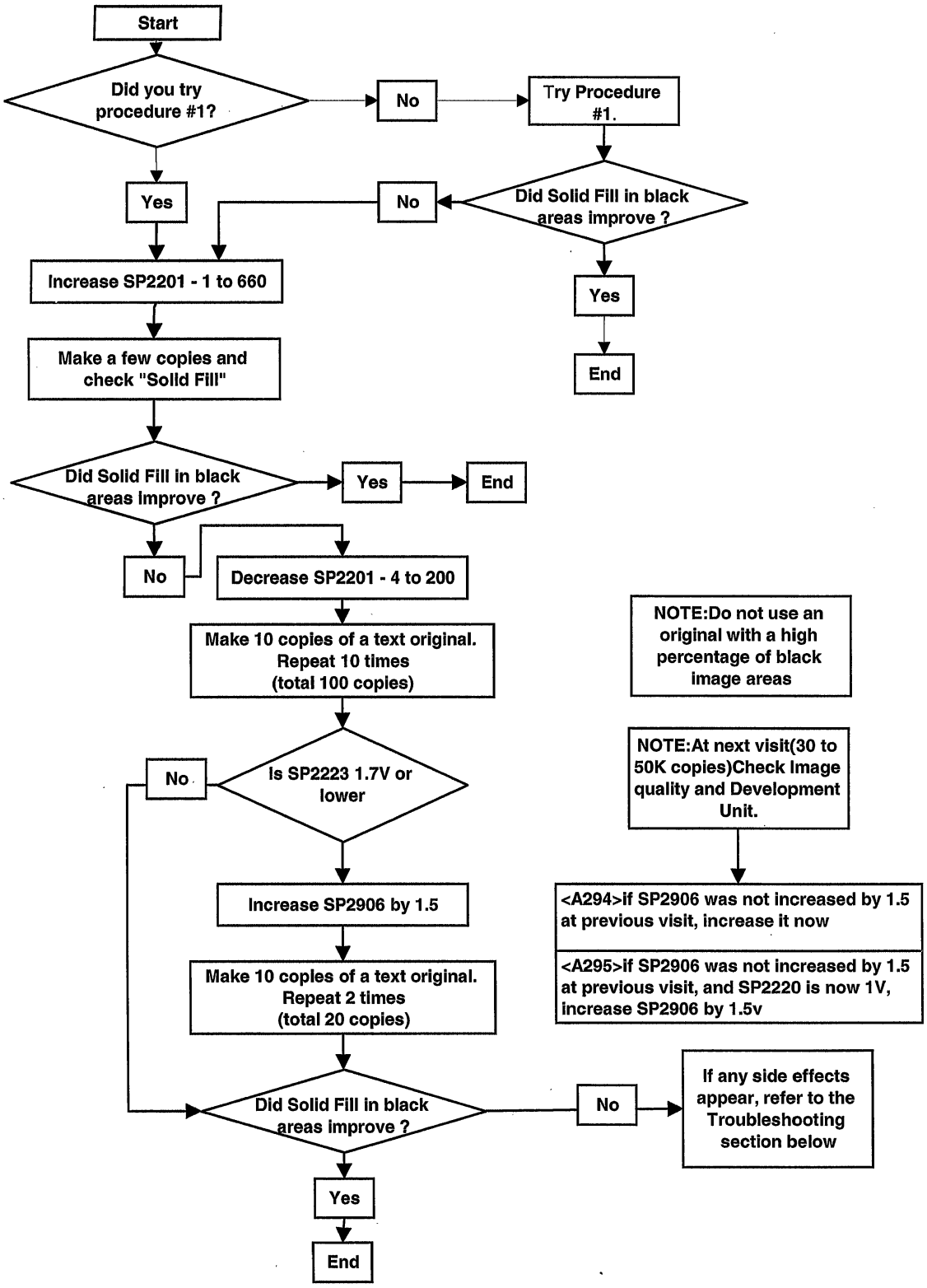
. POINTS TO KEEP IN MIND

1. MAINTENANCE
Some parts will require regular cleaning, because of the amount of Toner increase after these adjustments. Please be sure to follow the points outlined in the MAINTENANCE section below.

2. TROUBLESHOOTING
After performing the adjustment procedure #2, any one or more of the following symptoms may appear as a side effect. If any of these occur, refer to the TROUBLESHOOTING section below.
- Black spots
- Dirty background on entire copy
- Dirty background with bands

3. APPENDIX
Refer to the S .M. section 4 - 14 for an explanation of the Development Bias (SP2201-1) and ID Sensor Development Bias (SP2201-4) Adjustment Procedure.

Continued…


Start
Did you try procedure #1?
No
Try Procedure #1.
Did Solid Fill in black areas improve ?
No
Yes
Yes
End
Increase SP2201 - 1 to 660
Make a few copies and check "Solid Fill"
Did Solid Fill in black areas improve ?
Yes
End
No
Decrease SP2201 - 4 to 200
Make 10 copies of a text original. Repeat 10 times (total 100 copies)
NOTE:Do not use an original with a high percentage of black image areas
NOTE:At next visit(30 to 50K copies)Check Image quality and Development Unit.
No
Is SP2223 1.7V or lower
Increase SP2906 by 1.5
<A294>if SP2906 was not increased by 1.5 at previous visit, increase it now
<A295>if SP2906 was not increased by 1.5 at previous visit, and SP2220 is now 1V, increase SP2906 by 1.5v
Make 10 copies of a text original. Repeat 2 times (total 20 copies)
Did Solid Fill in black areas improve ?
No
If any side effects appear, refer to the Troubleshooting section below
Yes
End

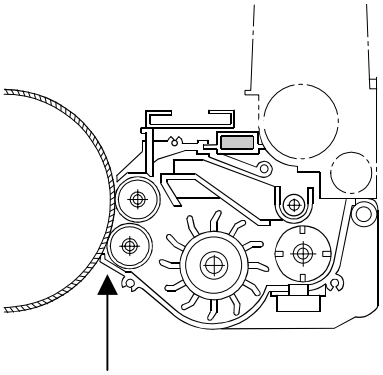
Continued…

MAINTENANCE

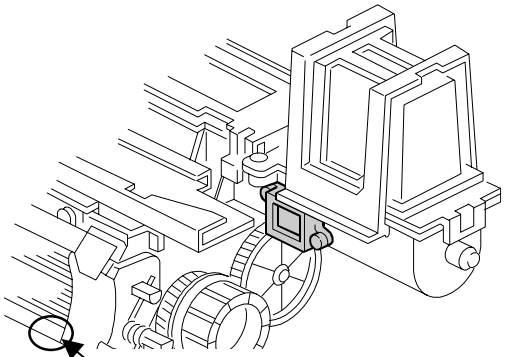
Check the following parts at every service call and remove any residual Toner.

1. Lower Casing of Development Unit (especially at front and rear).
2. Transfer Entrance Stay of Drum Unit (all surfaces).

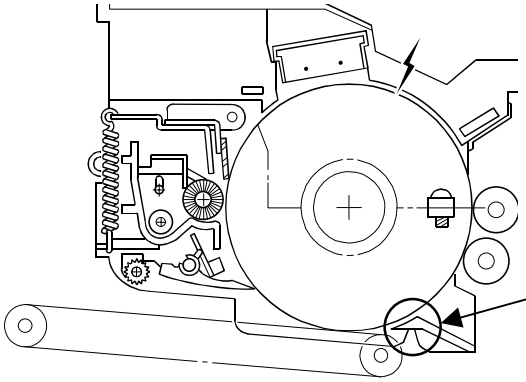
Note: a) The cleaning of the Stay can be done when the Drum is removed.
b) If Toner is not thoroughly cleaned off these parts, some of the Toner may drop onto prints/copies (especially with thick paper).



Lower Casing



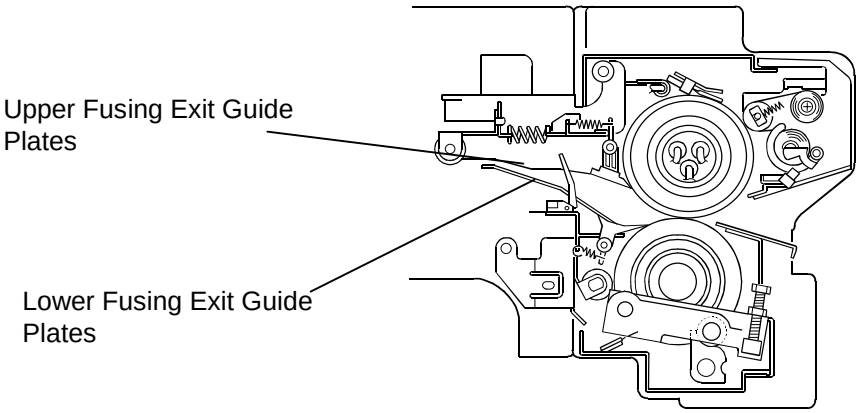
Especially at front and rear ends



Transfer
Entrance Stay

3. Upper and Lower Fusing Exit Guide Plates

Note: If Toner is not cleaned off this part, it may cause a paper jam



Upper Fusing Exit Guide Plates

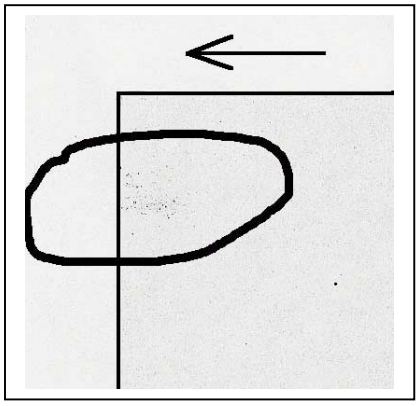
Lower Fusing Exit Guide Plates

Continued…

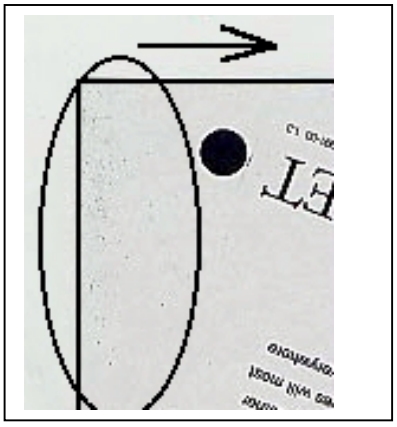
TROUBLESHOOTING

Please follow the flowchart below if any of the following symptoms appear**.**

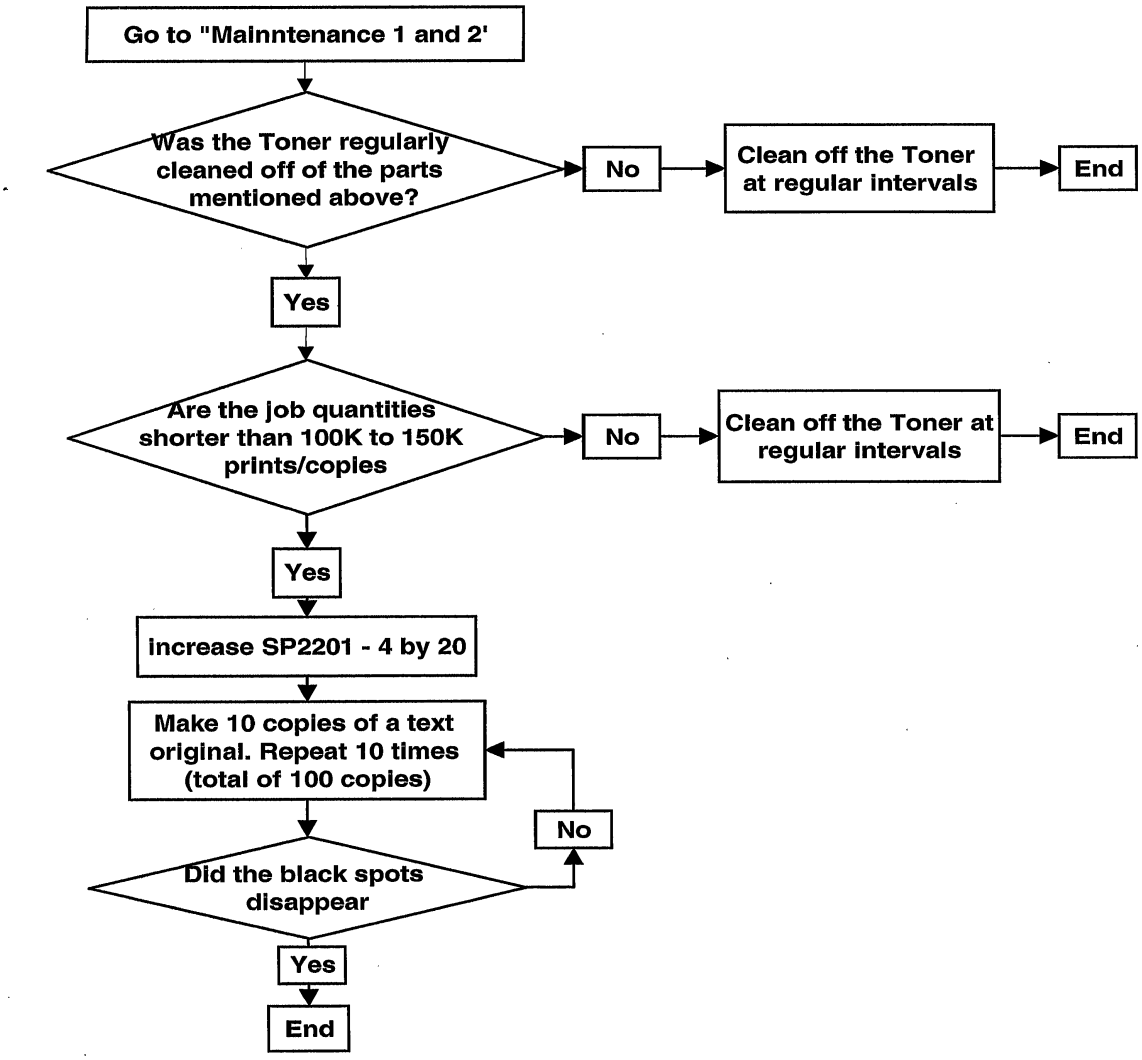
1. Black Spots



<Sample 1>



<Sample 2>

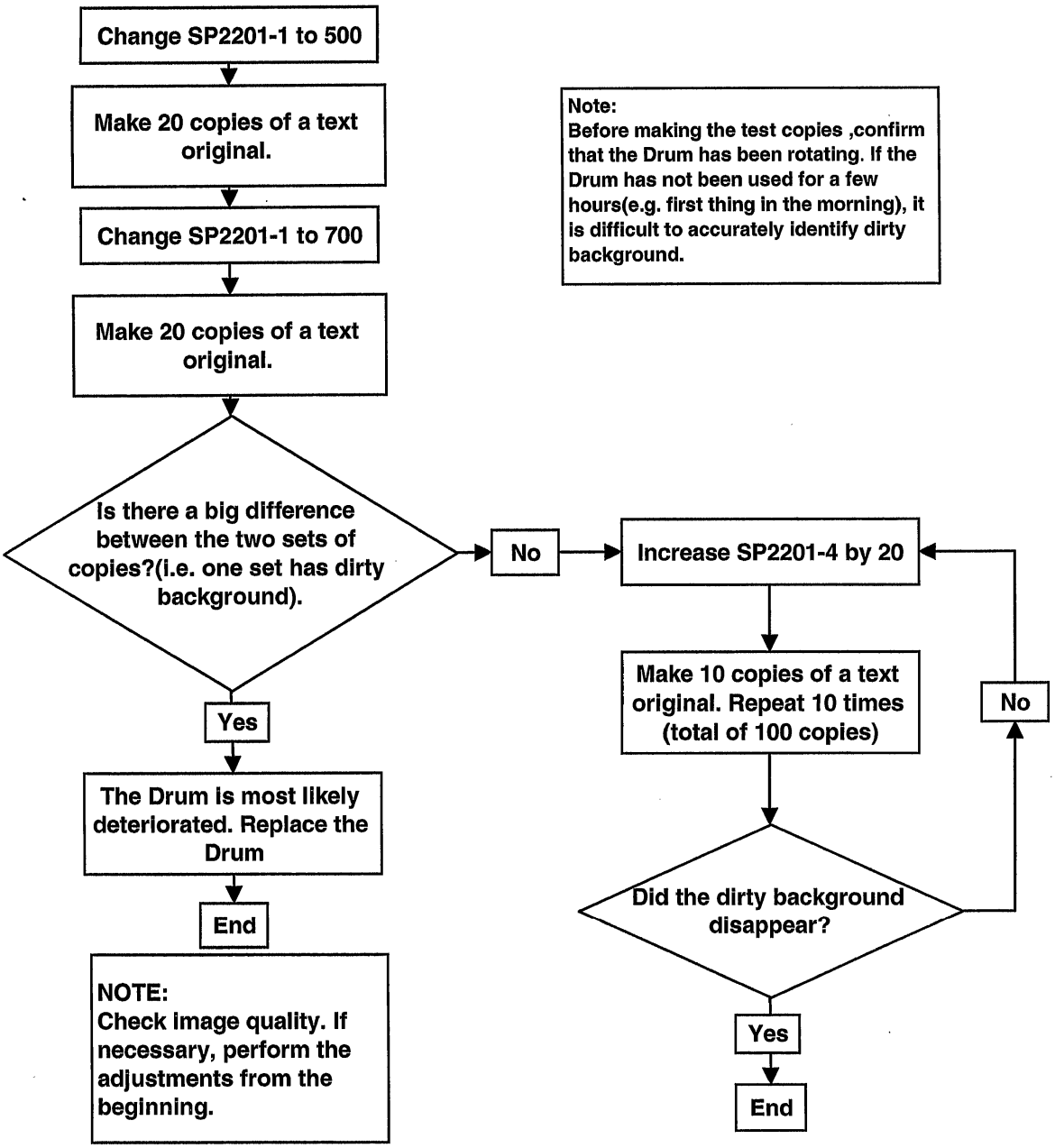


Continued…

2. Dirty Background on Entire Copy

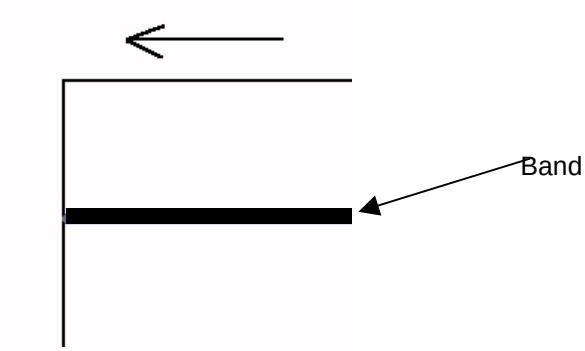
There are two possible causes for this condition. Use the following procedure to determine which one is the possible cause.

1) The Drum has deteriorated.
2) The value of SP2201-4 is too low.



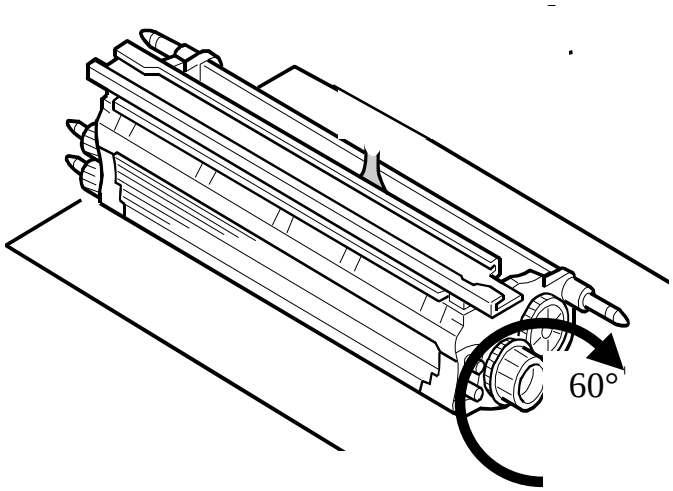
Continued…

3. Dirty Background with Bands



The most likely cause is that the Development Roller surface has become dirty with Toner. Clean the surface by following the steps below.
If the Developer is not in the Development Unit, steps 1) and 2) below can be skipped.
It is strongly recommended that you perform this cleaning whenever you are replacing the Developer.

1) Remove the Development Unit
2) Tilt the unit 60° to the right so that the Development Roller surfaces face up.
   Note: Be careful not to tilt the unit to a horizontal (90°) position.
3) Rotate the rollers so that the Developer separates from the roller surfaces.
4) Clean the roller surface by wiping it firmly with a dry cloth.
5) Repeat steps 3 and 4 until the entire surface of each roller is clean.
6) Reinstall the Development Unit.
7) Make 10 sky-shot copies.
8) Make 10 copies using a text original.
9) Check output copies for dirty background.



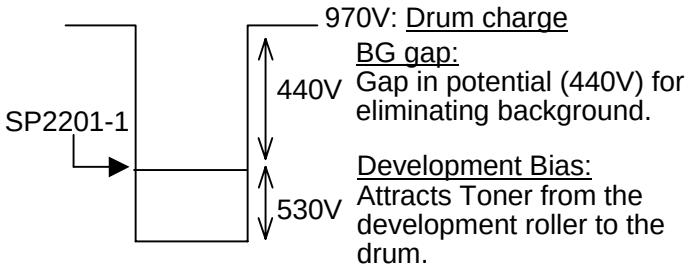
Continued…

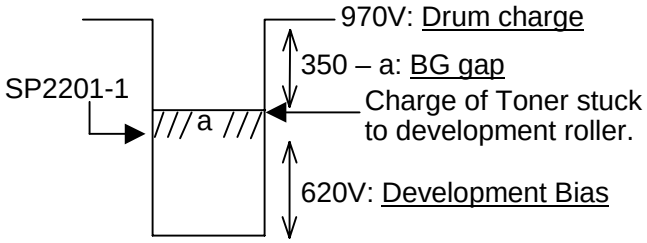
• Increasing the Toner concentration in the Development Unit by decreasing the value of SP2201-4 (ID Sensor Development Potential).

Side Effects:
Although various machine settings and copy conditions also play a part, there is a greater tendency for Toner scattering and dirty background to occur as the Sensor Bias is decreased. Toner that sticks to the Development Roller surface causes dirty background.

• Increasing the development bias (SP2201-1)

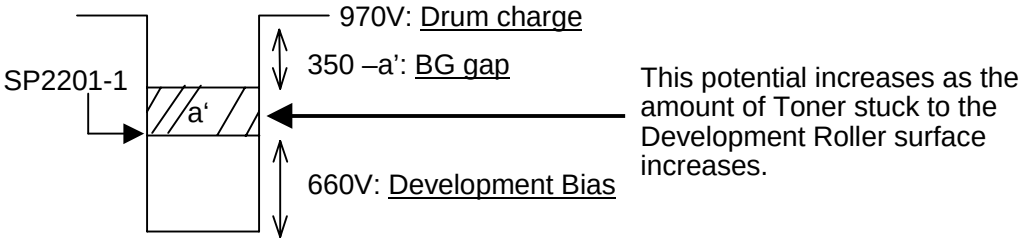
The following was announced as a method to increase the image density. Generally, as the Development Bias increases, so does the ID.





If the ID is still too low for the customer, the Development Bias can be increased to a maximum of 660V

* Note: The charge of the Toner stuck to the Development Roller surface (a and a') does not depend on the Development Bias setting. Rather, it increases as more and more copies are made (i.e. with a higher copy volume).



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 034 **02/26/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied.
Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 4-68 Updated Information added for Output Check

Note: This copy is intended as a master original for reproduction of additional bulletins.

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⟹ 4.2.5 OUTPUT CHECK

NOTE: Motors keep turning in this mode regardless of upper or lower limit sensor signals. To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

Main Machine Output Check (SP5-804)

1. Access SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check.
3. Press [ON], then press # to check that component.
4. Press [OFF], to interrupt the test.
5. If you wish to check another component, press the “Next” or “Prev.” Key.

No.	Description	No.	Description
1	1st Paper Feed Clutch	34	LCT 3rd Tray Lift Motor
2	2nd Paper Feed Clutch	35	Rear Fence Drive Motor
3	3rd Paper Feed Clutch	36	Tandem Tray Connect Solenoid
4	LCT 1st Paper Feed Clutch	37	Front Side Fence Solenoid
5	LCT 2nd Paper Feed Clutch	38	Rear Side Fence Solenoid
6	LCT 3rd Paper Feed Clutch	39	Left Tandem Lock Solenoid
7	1st Pick-up Solenoid	40	Relay Motor
8	2nd Pick-up Solenoid	41	Paper Feed Motor
9	3rd Pick-up Solenoid	42	LCT Motor
10	LCT 1st Pick-up Solenoid	43	Drum Motor
11	LCT 2nd Pick-up Solenoid	44	Fusing/Duplex Motor
12	LCT 3rd Pick-up Solenoid	45	Registration Motor
13	1st Separation Roller Solenoid	46	Oil Supply/Cleaning Web Motor
14	2nd Separation Roller Solenoid	47	Guide Plate Solenoid
15	3rd Separation Roller Solenoid	48	Inverter Gate Solenoid
16	LCT 1st Separation Roller Solenoid	49*	Duplex Transport Clutch **(CL1)**
17	LCT 2nd Separation Roller Solenoid	50*	Duplex Feed Clutch **(DUP. TRANS. CL2)**
18	LCT 3rd Separation Roller Solenoid	51*	Inverter Exit Roller Clutch **(DUP. FD CL)**
19	Lower Relay	52	Inverter Guide Plate Solenoid
20	LCT Transport Clutch	53	Duplex Inverter Gate Solenoid
21	1st Vertical Transport Clutch	54	Reverse Roller Solenoid
22	2nd Vertical Transport Clutch	55	Jogger Motor
23	3rd Vertical Transport Clutch	56	Toner Supply Roller Clutch
24	LCT 1st Grip Clutch	57	Development Motor
25	LCT 2nd Grip Clutch	58	Toner Supply Motor
26	LCT 3rd Grip Clutch	59	Upper Toner Bottle Motor
27	Upper Relay Clutch	60	Lower Toner Bottle Motor
28	LCT Relay	61	Toner Bank Motor
29	1st Tray Lift Motor	62	Upper Toner Cap Motor
30	2nd Tray Lift Motor	63	Lower Toner Cap Motor
31	3rd Tray Lift Motor	64	Toner Supply Coil Clutch
32	LCT 1st Tray Lift Motor	65	ID Sensor LED
33	LCT 2nd Tray Lift Motor	66	Transfer Belt Lift Solenoid

*** DISPLAY SCREEN TEXT**

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 035 **02/26/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

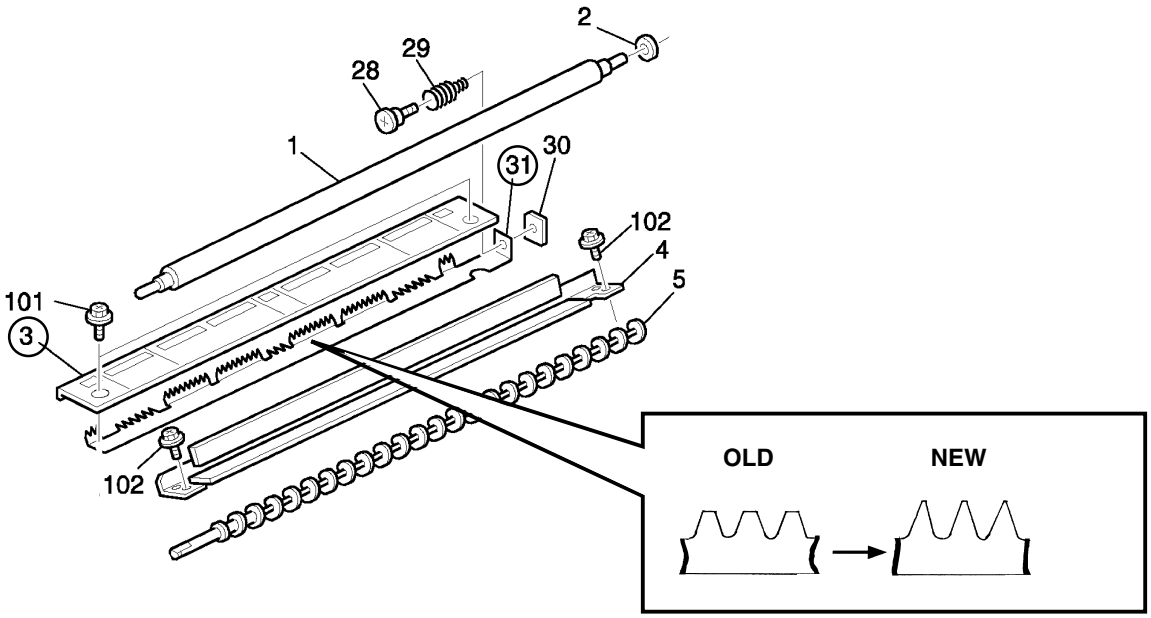
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294 and A295 Parts Catalogs.

- **UPDATE 1:** **Casing Guide/Electrode –** The material of the Rear Casing Guide and the shape of the Exit Electrode Plate have been changed to prevent a dirty side edge on the copy. The old parts can be individual, replaced with the new ones, but to prevent a dirty side edge on the copy image, these parts should be replaced as a set. The detail of the shape change of the electrode is shown below.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943892	A2943951	Rear Casing Guide	1	3	99	3
A2943895	A2943956	Exit Electrode Plate – Transfer Belt	1	3	99	31

Continued…

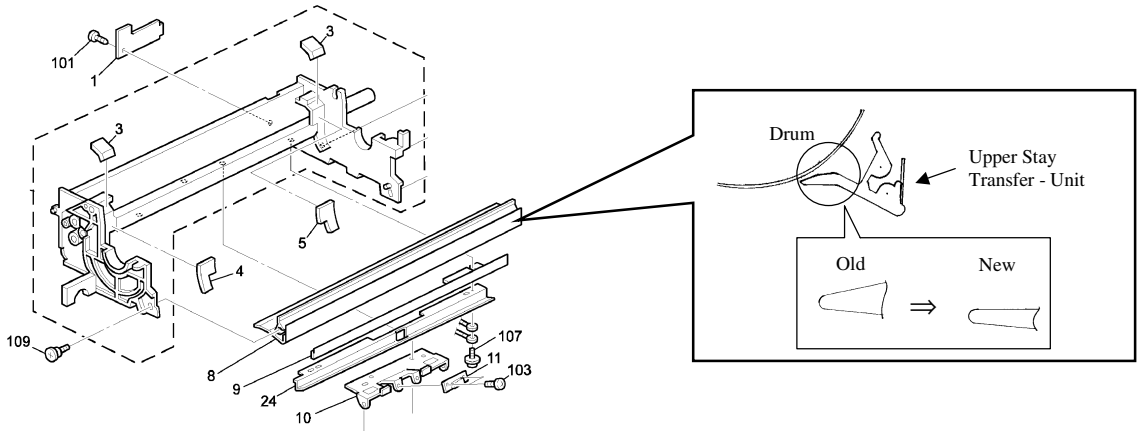
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UNITS AFFECTED:

All A294 and A295 copiers manufactured after the Serial Numbers listed below will have the new style Rear Casing Guide and Exit Electrode Plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh Aficio 850	H3600500557
Ricoh Aficio 1050	H3700500001
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

- **UPDATE 2:** **Transfer Unit Upper Stay -** The edge shape of the Transfer Unit Upper Stay has been changed to increase the clearance between the edge of the upper stay and Drum surface. This is to prevent the toner from accumulating on the edge of the upper stay.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2943563	A2943569	Upper Stay – Transfer Unit	1-1	1	95	8

UNITS AFFECTED:

All A294 and A295 copiers manufactured after the Serial Numbers listed below will have the new style Transfer Unit Upper Stay installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh Aficio 850	H3600600001
Ricoh Aficio 1050	H3700500001
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

Continued…

- **UPDATE 3:** **Transfer Belt –** The Transfer Belt for the A294/A295 models has been standardized. The new belt will have a lower resistance then before similar to the Transfer Belt used for the A295 machine. This compensates for the greater tendency of black lines to appear in half-tone areas. Also, the thickness of the Transfer Belt coating has been increased to ensure that the cleaning blade does not catch on the belt and get pulled out position.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2293852		Transfer Belt (A294)	1-0	0	97	1
A2293899		Transfer Belt (A295)	1-0	0	97	1
	A2943962	Transfer Belt (A294/A295)	2-1	0	97	1

UNITS AFFECTED:

All A294 and A295 copiers manufactured after the Serial Numbers listed below will have the new style Transfer Belt installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600800217
Gestetner 32105	H3700900033
Ricoh Aficio 850	H3600800088
Ricoh Aficio 1050	H3700800053
Savin 2085DP	H3600800217
Savin 2105DP	H3700900033

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

Gestetner RICOH savin

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 036 **03/20/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

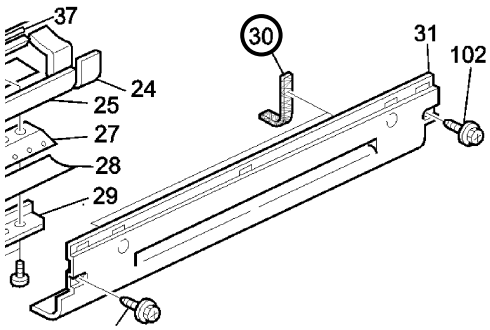
SUBJECT: DEVELOPMENT UNIT SEALS UPDATES

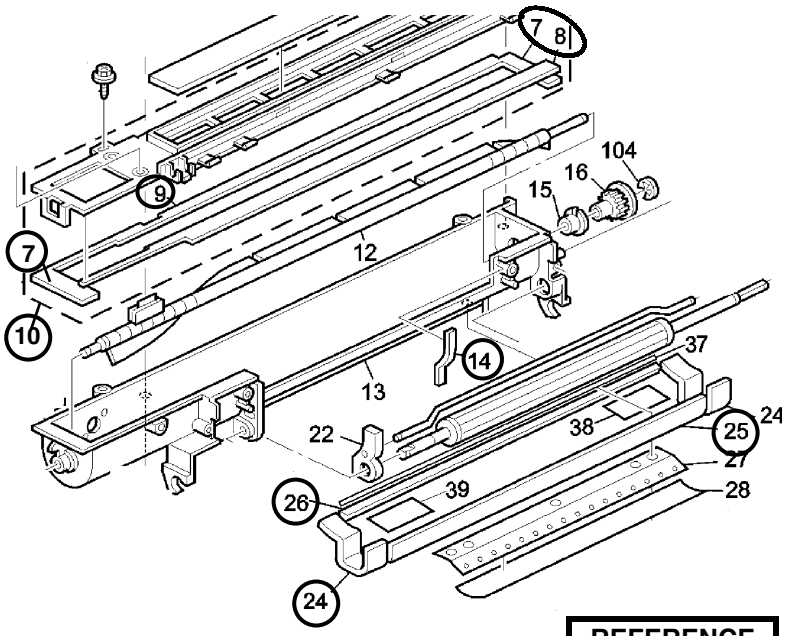
GENERAL:

The following parts updates are being issued for all A294 and A295 Parts Catalogs.
To minimize toner dusting, the following parts have been modified to the Development Unit and Toner Supply Unit.

- **UPDATE 1:**

To ensure that toner does not leak from the Toner Supply Unit Casing, the seals material has been changed to a high-density sponge type. Also, the shape and size of the seals have also changed.



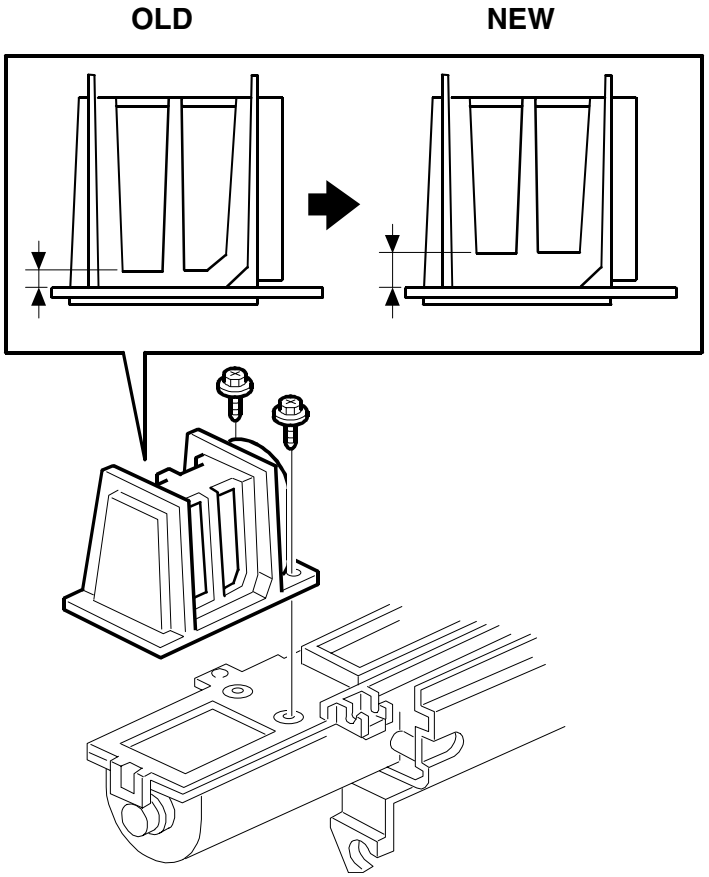


					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943217		Seal – 12.5x45x3	1-1	1	83	7
	A2943223	Seal -- 45x12.5x3	0-2	1	83	7
A2943216	A2943222	Upper Case Seal – Right	1-1	1	83	8
A2943215	A2943221	Upper Case Seal – Left	1-1	1	83	9
A2943210	A2943220	Upper Toner Hopper Case	1-1	1	83	10
AA151787		Seal – 5x52x2	2-0	1	83	14
	A2943234	Seal - 52x5x2	0-2	1	83	14
AA151792	A2943236	Seal - 3x15x85	2-2	1	83	24
AA151793		Seal – 3x35x211	1-0	1	83	25
	A2943237	Seal - 33x324x4	0-1	1	83	25
AA151794		Seal - 3x5x322	1-0	1	83	26
	A2943238	Seal - 3x10x322	0-1	1	83	26
A2943252	A2943256	Seal 8x68x2	2-2	1	83	30

Continued…

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- **UPDATE 2:** To ensure that toner does not leak from the Toner Hopper Joint, the shape of the Toner Hopper Joint has been modified as shown below.

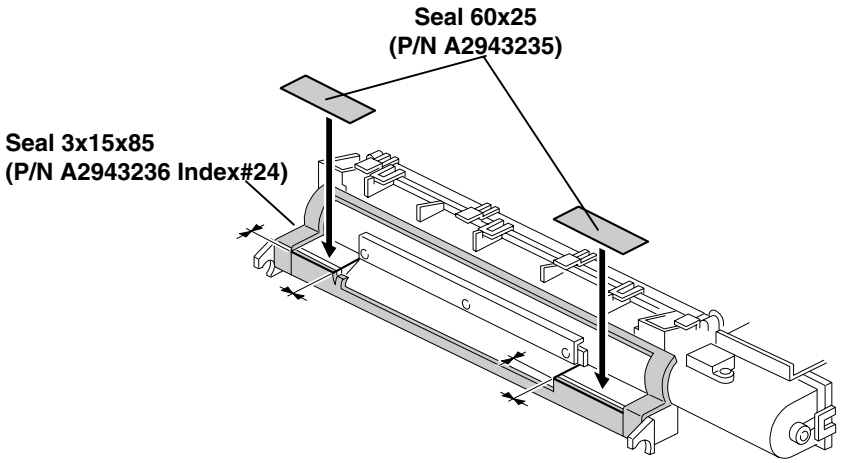


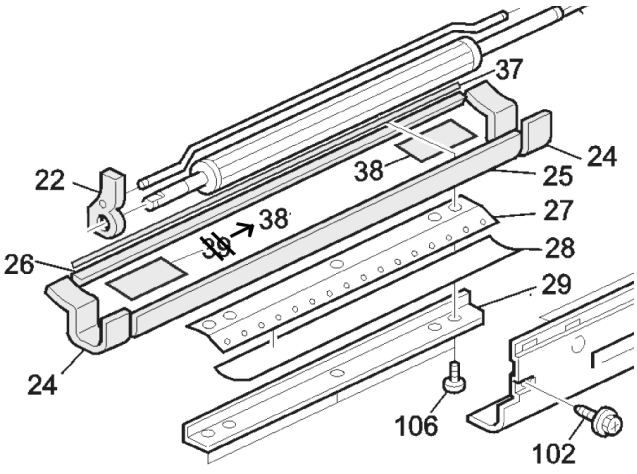
					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943261	A2943258	Toner Hopper Joint	1-1	1	83	3

Continued…

- **UPDATE 3:** Two Seals 15x47 & 15x58 (index number 38) that have been added during the Enhancement Kit (A29449901) to prevent toner escaping have been changed. The new seal's size has changed to 60x25mm to improve the seal between the Toner Supply Unit and Development Unit. When the seals are installed at the factory the A2943235 seal is under A2943236 seal (see the illustration below), so when replacing this seal in the field you may have to cut one of the A2943235 seals to 47mm.

  NOTE: *Note: for further information on the Enhancement Kit refer to Technical Service Bulletin A294/A295 – 007; Dated 06/07/2000.*

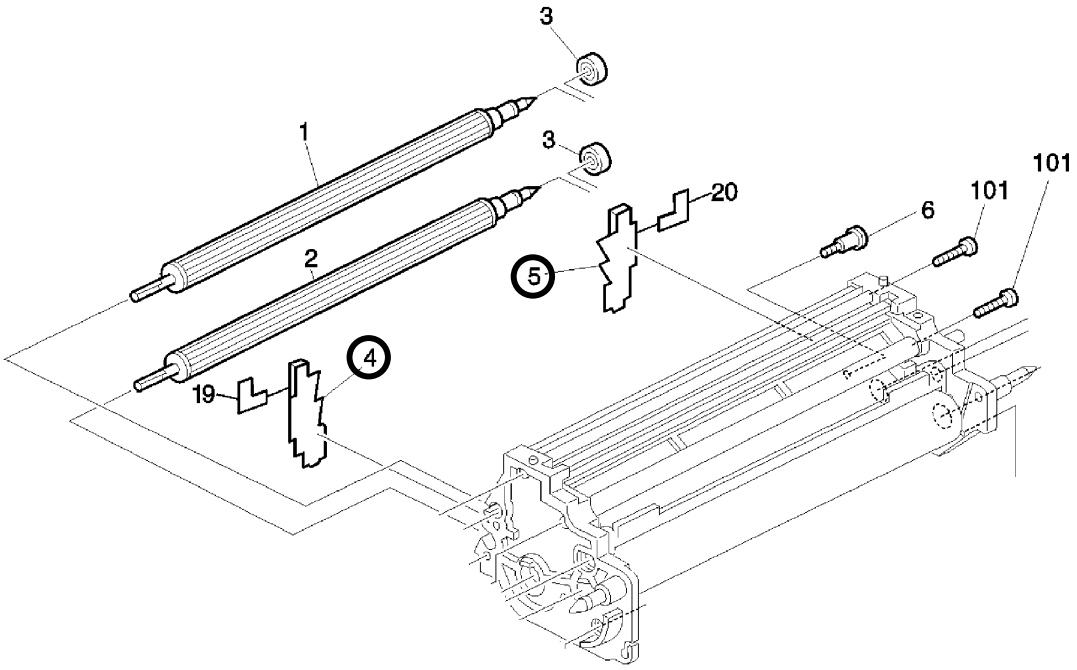




					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2949503		Seal 15x47	1-0	1	83	38
A2949504		Seal 15x58	1-0	1	83	39
	A2943235	Seal 60x25	0-2	1	83	38

Continued…

- **UPDATE 4:** **Front and Rear Drum Seals –** To minimize toner dusting from the front and rear sides of the Development Unit, the material of the seal has been changed.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943160		Front Development Roller Seal	1-0	1	87	4
	A2643168	Front Drum Seal	0-1	1	87	4
A2943162		Rear Development Roller Seal	1-0	1	87	5
	A2943169	Rear Drum Seal	0-1	1	87	5

Continued…

- **UPDATE 5:** **Development Unit/Toner Supply Unit –** Since the changes of the previous updates the part number of the Development Unit and Toner Supply Unit Assembly's have been changed.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943202	A2943203	Toner Supply Unit	1-1	1	83	*
A2943100	A2943102	Development Unit	1-1	1	85 & 87	*

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new updated Development Unit and Toner Supply Unit installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600400632
Gestetner 32105	H3700600056
Ricoh Aficio 850	H3600400001
Ricoh Aficio 1050	H3700500001
Savin 2085DP	H3600400632
Savin 2105DP	H3700600056

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 037 **03/20/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: IMAGE QUALITY OF HALF TONE AND GRAY SCALE

GENERAL:

The following procedure was developed in responds to end users who require greater sharpness in halftone and grayscale areas of a copy.

NOTE: *The results of image quality will vary, depending on the original type, application used and parameters in the table below. These parameters can be changed to attain the maximum sharpness level for each original.*

	Parameter	Function	a) Who changes b) where
1	Printer Language (PCL5e, PCL6 or PostScript)	Different dither patterns are used, which can make the output vary.	a) Customer b) Application
2	Settings in Printer Driver (a) "Edge Smoothing": Set to OFF. (b) "Halftone": Select "Photographic Images".	• False shadow does not appear. • Photo images can be improved.	a) Customer b) Printer driver
3	Printer Dot Edge Parameter (when Edge Smoothing is set to off). (thicker or thinner)	• Thicker: Pixels in lighter image areas will be darker (clearer). • Thinner: The image becomes smoother but lighter overall.	a) Service Rep. b) SP mode (Printer SP and Copy SP)
4	Fusing Temperature and Nip Band (Note: Some limitations exist.)	Pixels become more uniform, making halftone areas and photo images smoother.	a) Service Rep. b) Fusing unit and SP mode (Copy SP)

PARAMETER 1:

[A}. PRINTER LANGUAGE

Please recommend an appropriate printer language to customers for printing out, as printer languages such as PCL5e, PCL6 and PostScript3 use different dither patterns.

Continued…

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PARAMETER 2:

PRINTER DRIVER SETTINGS

[A]. Edge Smoothing

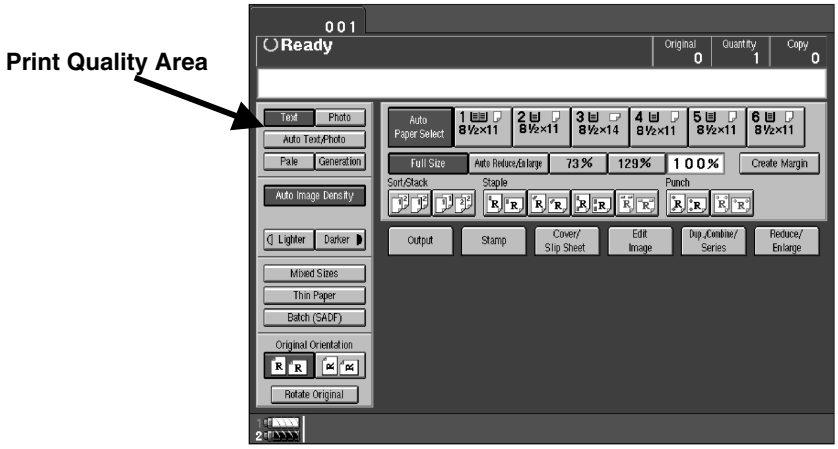
Recommend that customers turn the Edge Smoothing function to "OFF."
This is located in the Print Quality tab of the printer driver.

The Edge Smoothing default values for each driver language and controller type is as follows:

Printer Language	Controller Type A	Controller Type B
PCL5e	ON	OFF
PCL6	ON	OFF
PostScript3	OFF	OFF

[B]. Halftones

Please recommend to the end user to use the most appropriate setting for "Photographic Images", "Line Art" or "Scanned Images" in the print quality area on the operation panel.



PARAMETER 3:

[A]. PRINTER DOT EDGE PARAMETER

If customer requires a thicker line, perform the procedures below.

NOTE: *Note: This change is effective only when the "Edge Smoothing" function in the printer driver is set to **"OFF".***

1. Change the printer dot edge parameter in Printer SP Modes (Printer SP – Settings – Printer Dot Edge Parameter) from "Normal" (default) to "SP Mode".

NOTE: *With this change, the lines printed will be thickened.*

Continued…

2) Change Copy SP2114 (Printer dot edge parameter setting) to the following settings:

SP Number	Set to:
SP2114-1	80
SP2114-2	80
SP2114-3	100
SP2114-4	80

3) If the customer would like the lines to be made thicker than this, change Copy SP2114 (Printer dot edge parameter setting) from the settings in #2 above to the thicker settings.

SP Number	Thinner Setting	Settings in #2 Above	Thicker Setting
SP2114-1	50	80	100
SP2114-2	50	80	100
SP2114-3	80	100	100
SP2114-4	50	80	100

NOTE: *Only these three combinations above should be used. These SP settings are valid only when the Edge Smoothing function is set to "OFF" and the Printer Dot Edge Parameter in the printer SP mode is set to "SP Mode".*

PARAMETER 4:

There are some limitations to the settings listed below. Please be careful and consider the best fusing settings for each customer before performing the procedures below.

1. Change the fusing nip band from 11.5 to 9.0 mm (± 0.5 mm). Do this by rotating the adjustment screws **counterclockwise** approx. two rotations.

2. Change the fusing temperature settings in SP Mode (SP1105-001 and -004) to the recommended values in the table below.

SP Number	Function	Default	Recommended
SP1105-1	Temperature in standby condition	173°C	178°C
SP1105-4	Temperature in copying condition	+10°C (178°C)	-5°C (173°C)

NOTE: *The following are the reasons why the temperature in standby is 5 °C higher than that during copying:*
- *The target temperature in the copying condition is 173 °C.*
- *The hot roller temperature may drop by 5 °C just after a copy job begins when the machine has not been used for a certain time. This is because the pressure roller temperature can drop during this time, which causes it to draw more heat from the hot roller when the next copy job begins.*

NOTE: *The value of -5 °C in SP1105-4 cannot be set with firmware below level **'N 7.49'** because the setting range is between 0 and +25 °C. Level **'N 7.49'** includes the expanded setting range.*

Continued…

LIMITATIONS:

- Since an offset image may appear with thick paper, we do not recommend the above settings when using thick paper.
- Incomplete fusing may occur with a long print job of A5 or 8.5" x 5.5" paper. (e.g.: 400 to 500 sheets or more).
- Also, incomplete fusing may occur just after the machine reaches the copy ready condition or when the room temperature is low.
- Dirty background near the leading edge may occur or the lifetime of the hot roller, pressure roller and cleaning roller may be reduced. In this case, please increase the nip band.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 038 **03/20/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

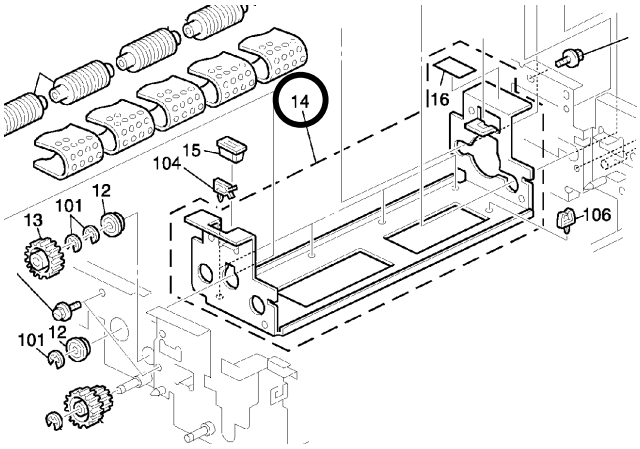
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Fusing Unit Stay –** To prevent the magnetic catch form coming off the Paper Cooling Stay. The size of the hole to mount the magnetic catch has been decreased.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944267	A2944268	Paper Cooling Stay	1	1	109	14

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Paper Cooling Stay installed during production.

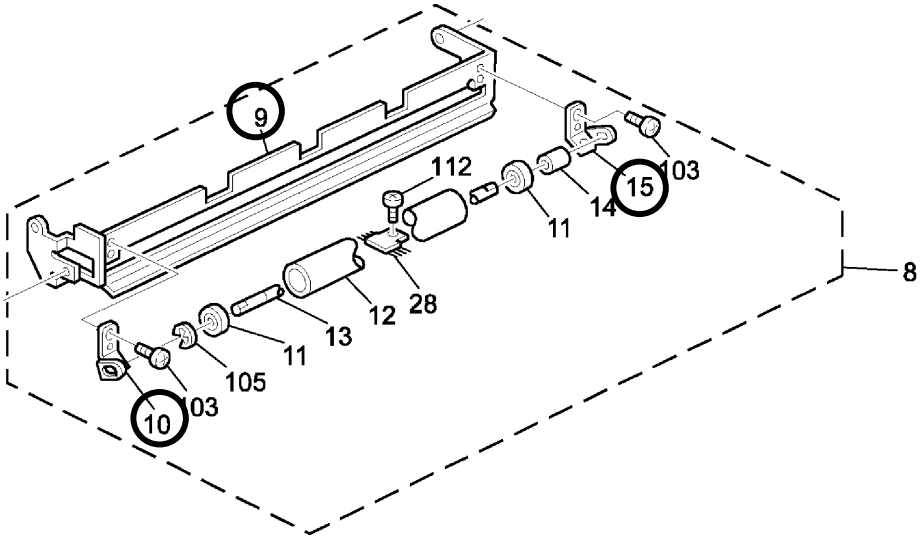
MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600900169
Gestetner 32105	H3700900033
Ricoh Aficio 850	H3601000212
Ricoh Aficio 1050	H3700900080
Savin 2085DP	H3600900169
Savin 2105DP	H3700900033

Continued…

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- **UPDATE 2:** **Pressure Roller Cleaning Roller Holders –** To prevent the left or right holder from breaking in the middle portion, the following modification have been made.

  1. The shape of the Pressure Roller Cleaning Roller Holders has been changed to increase its strength by 1.65 times.
  2. The shape of the Cleaning Roller Bracket has been changed to prevent the Pressure Roller Cleaning Roller from contacting the bracket even if the diameter of the Pressure Roller becomes larger.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944072	A2944083	Cleaning Roller Bracket	1	1	107	9
A0974126	A2944077	Left Holder	1	1	107	10
A0974129	A2944078	Right Holder	1	1	107	15

NOTE: *These parts can be individually replaced, however the production modification will be implemented with all three parts.*

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new Cleaning Roller Bracket and Holders installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601100129
Gestetner 32105	H3701100032
Ricoh Aficio 850	H3601000383
Ricoh Aficio 1050	H3701100075
Savin 2085DP	H3601100129
Savin 2105DP	H3701100032

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 039 **03/28/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

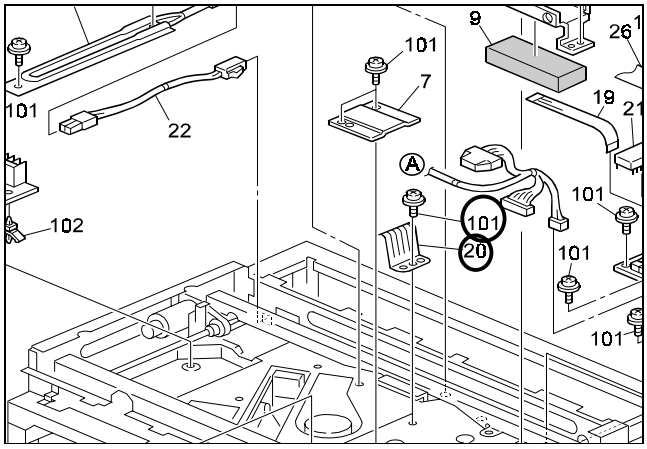
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SCANNER LENS UNIT

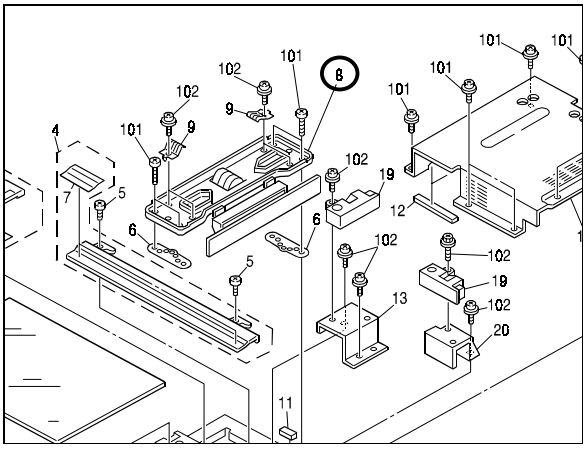
GENERAL:

Due to parts standardization, the scanner lens unit has been changed. A grounding harness is now used for both the 85cpm and 105cpm machines instead of the ground plates (A2941839). The grounding harness is included in the scanner lens unit.
Refer to TSB A294/A295 - 010 (105cpm version machine information).

The following parts corrections are being issued for all A295/A295 Parts Catalogs.



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				REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A2941771	A2951771	Scanner Lens Unit	1 - 1	43	8
A2941839		Ground Plate - Under Lens Stay	**2 - 0**	47	20
09513006B		Philips Screw with Flat Washer – 3x6	N-2	47	101

Continued…

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UNITS AFFECTED:

All A294 copiers manufactured after the Serial Numbers listed below will have the new style scanner lens unit installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600700244
Ricoh AFICIO 850	H3600600058
Savin 2085DP	H3600700244

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 040 **03/28/2001**

APPLICABLE MODEL:

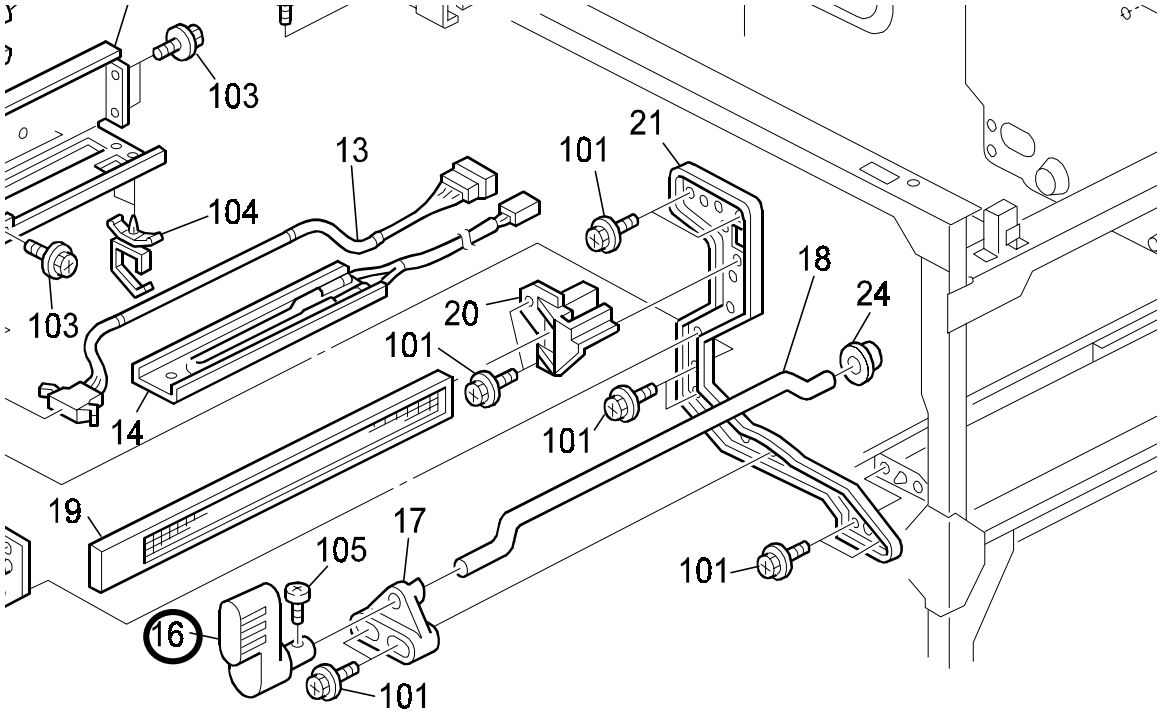
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: BELT UNIT KNOB

GENERAL:

Due to parts standardization, the belt unit knob part number has been changed. The following correction is being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A0963960	A2933960	Belt Unit Knob	1	0	153	16

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style belt unit knob installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H30700600056
Ricoh AFICIO 850	H3600600058
Ricoh AFICIO 1050	H3700600081
Savin 2085DP	H3600600531
Savin 2105DP	H30700600056

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 041 **03/28/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

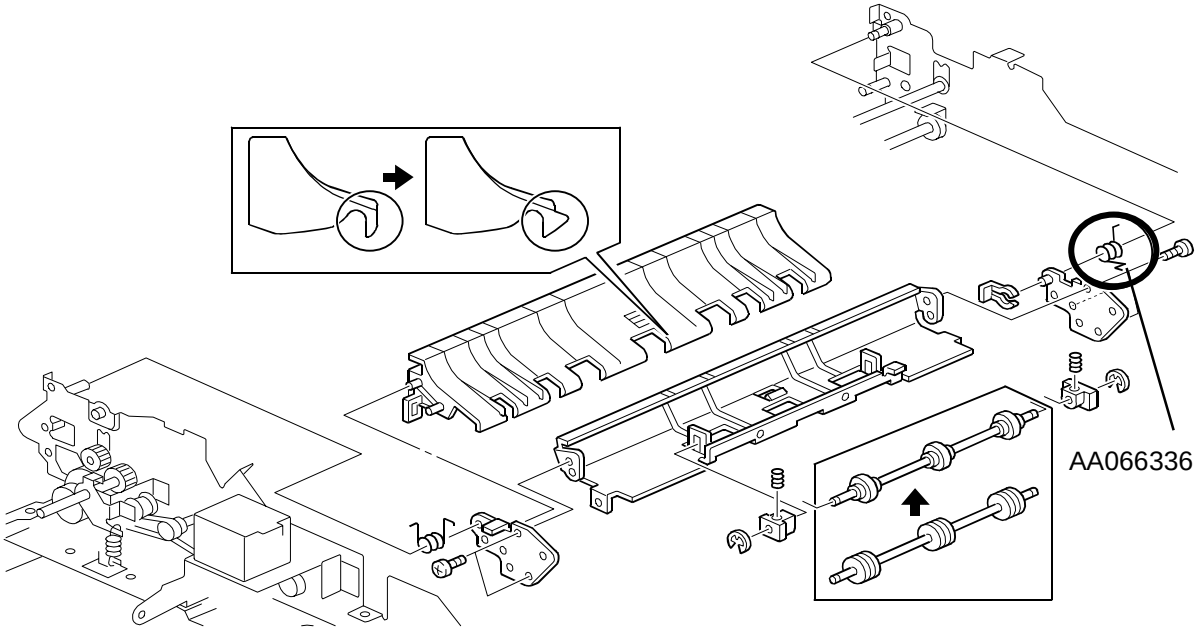
SUBJECT: DUPLEX DRIVEN UNIT MODIFICATION

GENERAL:

Black lines may appear on the edges of stacked copies.. To ensure good copy quality, the production machines have been modified as follows:

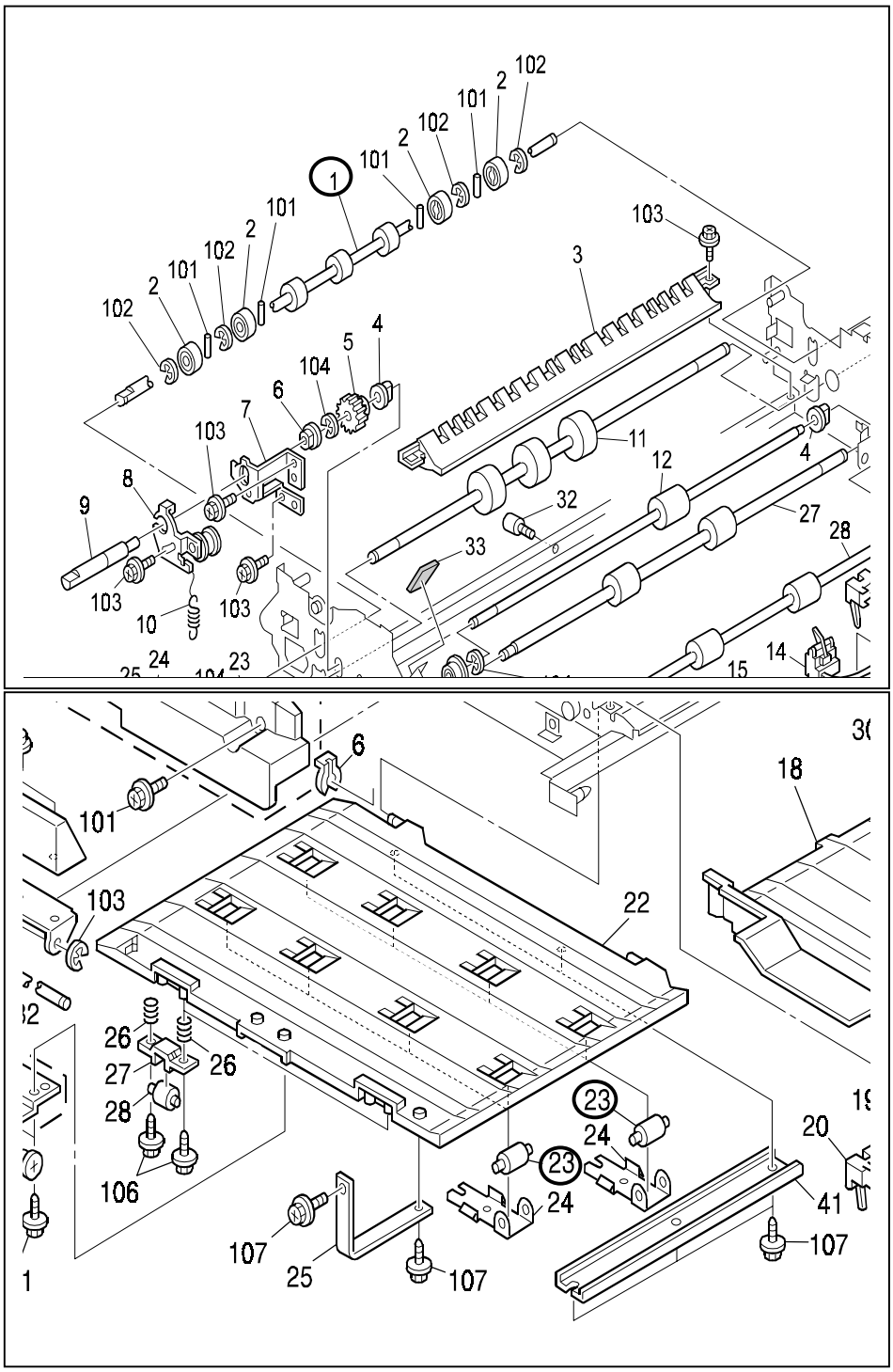
The material and shape of several rollers have been changed.
The spring pressure has been strengthened and its color has been changed from silver to black to distinguish between old and new springs.
The shape of the lower duplex guide has been changed.
The torsion spring (AA066336) has recently been added to apply more pressure to the lower duplex guide.
The duplex driven unit modification is most effective when all the new parts are installed at the same time.

The following parts corrections are being issued for all A294/A295 Parts Catalogs.



Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA063344	AA063350	Pressure Spring–Duplex Entrance	2	3	121	13
AF022114	AF022129	Duplex Driven Roller	1	3	121	15
A2944813	A2944814	Lower Duplex Guide	1	3	121	9
	AA066336	Torsion Spring Duplex Entrance	1		121	25*
AF020482	A2944652	Driven Duplex Roller Ass'y	1	3	125	1
06320080G	06320100G	Pin - 2X10mm	4	0	125	101
AF022077	AF022130	Driven Roller	8	1	117	23

***DENOTES NEW ITEM NUMBER**

Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style modified parts installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600600531
Gestetner 32105	H3700600056
Ricoh AFICIO 850	H3600500425
Ricoh AFICIO 1050	H3700500001
Savin 2085DP	H3600600531
Savin 2105DP	H3700600056

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 042 **05/21/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

■ COPY QUALITY

SUBJECT: DIRTY BACKGROUND (PROCESS CONTROL TURNS OFF)

SYMPTOM:

Dirty background appears on the entire face of the copy.
Process control off mode is automatically selected. **"0"** is displayed in SP3902-1 and an SC code (310 to 314) is logged.

CAUSE:

Due to a number of possible factors such as drum deterioration, auto process control fails and process control off mode is automatically used. SP3902-1 to display "0" and the SC code to be logged.

The auto process control turns off in the following conditions:

1. When calibrating the drum potential sensor during process control initial setting, the drum potential sensor output voltage is out of specification (SC310).
2. When calibrating the drum potential sensor during process control initial setting, the rate of change of drum potential sensor output with voltage on the drum is out of specification (SC311).
3. When adjusting VD for the unexposed drum during process control initial setting, -1000V is applied to the charge grid, but the drum potential sensor detects that VD is more than -970V (SC312).
4. When adjusting the drum potential (VD) during process control initial setting, the drum potential sensor detects that VD is more than VG (grid voltage) (SC313).
5. When adjusting the drum potential (VH) for LD power adjustment during process control initial setting, the first time the VH pattern is made, the drum potential sensor detects that VH is more than 500V (SC314).

When one of the above conditions occur, the machine sets Vg to the reference value stored in SP2-001-01 (default 1000V) and LD power is set to the value stored in SP2-103. As these values are the design target for new drums and no compensation is applied, dirty background may appear if the drum has already been deteriorated.

SOLUTION:

Check the SMC printout to see if SC310, 311, 312, 313 or 314 are logged in SP7403 or 7402. Take the appropriate action according to the possible causes listed for each SC code (example: worn drum, defective potential sensor, dirty corona wire). In addition, check to see that SP3902 has been set to 1 (Auto Process Control ON).

Then, perform SP2962 (Auto Process Control) and confirm that SP3902-1 is still set to **"1",** which indicates that Process Control, was successful.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 043 **05/21/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER ON THE HOT ROLLER

SYMPTOMS:

- Lines or marks on the copies.
- Dirty background.

CAUSE:

Toner adheres to the hot roller.

NOTE *It may not be so noticeable that toner is adhering to the hot roller surface, so that the creation of the lines or marks and dirty background problem is caused by the dirty hot roller.*

SOLUTION:

Change the cleaning pressure springs to part number AA063550 and the firmware to the version 7.51.

- **Spring AA063550:** This is to increase the web roller pressure.
- **Firmware Version 7.51:** The web drive motor is on every 10 seconds when the hot roller rotates in the warm up condition just after the main switch is turned **"ON".** When the springs AA063550 are used on the web unit, firmware version 7.51 is required. If it is not used, the hot roller might be slightly scratched by the web cloth itself.

NOTE *It is recommended you use the hot roller cleaner (P/N: A1539530) at an EM call to remove the adhered toner on the hot roller surface.*

The firmware version 7.51 (A2945604Q.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

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Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 043 REISSUE ★ **09/19/2001**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER ON THE HOT ROLLER

SYMPTOMS:

- Lines or marks on the copies.
- Dirty background.
- Offset Images

CAUSE:

Toner adheres to the hot roller.

NOTE *It may not be so noticeable that toner is adhering to the hot roller surface, so that the creation of the lines or marks and dirty background problem is caused by the dirty hot roller.*

★ SOLUTION:

Replace the cleaning pressure springs and web cleaning roller to the newer parts shown below.
Also, upgrade the firmware to version 7.51 or higher.

- **Spring AA063552:** This is to increase the web roller pressure.
- **Firmware Version 7.51 or Higher:** The web drive motor is on every 10 seconds when the hot roller rotates in the warm up condition just after the main switch is turned **"ON".** When the springs AA063552 are used on the web unit, firmware version 7.51 or higher is required. If it is not used, the hot roller might be slightly scratched by the web cloth itself.
- **Web Cleaning Roller AE040039:** The diameter of the shaft of the roller has been widened from 6mm to 10mm to apply a more even pressure to the oil supply and cleaning web rollers.

NOTE *It is recommended you use the hot roller cleaner (P/N: A1539530) at an EM call to remove the adhered toner on the hot roller surface.*

The firmware version 7.51 (A2945604Q.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

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Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 043 REISSUE ★ **10/25/2001**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER ON THE HOT ROLLER

SYMPTOMS:

- Lines or marks on the copies.
- Dirty background.
- Offset Images

CAUSE:

Toner adheres to the hot roller.

NOTE *It may not be so noticeable that toner is adhering to the hot roller surface, so that the creation of the lines or marks and dirty background problem is caused by the dirty hot roller.*

★ SOLUTION:

Replace the cleaning pressure springs and web cleaning roller to the newer parts shown below.
Also, upgrade the firmware to version 7.51 or higher.

- **Spring AA063652:** This is to increase the web roller pressure.
- **Firmware Version 7.51 or Higher:** The web drive motor is on every 10 seconds when the hot roller rotates in the warm up condition just after the main switch is turned **"ON".** When the springs AA063552 are used on the web unit, firmware version 7.51 or higher is required. If it is not used, the hot roller might be slightly scratched by the web cloth itself.
- **Web Cleaning Roller AE040039:** The diameter of the shaft of the roller has been widened from 6mm to 10mm to apply a more even pressure to the oil supply and cleaning web rollers.

NOTE *It is recommended you use the hot roller cleaner (P/N: A1539530) at an EM call to remove the adhered toner on the hot roller surface.*

The firmware version 7.51 (A2945604Q.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 043 REISSUE ★ **12/18/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER ON THE HOT ROLLER

SYMPTOMS:

- Lines or marks on the copies.
- Dirty background.
- Offset Images

CAUSE:

Toner adheres to the hot roller.

NOTE: *It may not be so noticeable that toner is adhering to the hot roller surface, and that the dirty hot roller is causing the creation of the lines or marks and dirty background problem.*

★ SOLUTION:

- **Change to the new web roller springs (P/N to AA063652) and update the firmware to version 7.51 or higher.**

- **Spring AA063652:** This is to increase the web roller pressure.
- **Firmware Version 7.51 or Higher.**
- The web drive motor is on every 10 seconds when the hot roller rotates in the warm up condition just after the main switch is turned **"ON".** When the springs AA063652 are used on the web unit, firmware version 7.51 or higher is required. If it is not used, the hot roller might be slightly scratched by the web cloth itself.

  To distinguish the new and old parts, the color for the spring has been changed from Silver to Black (AA063652: Black, AA063550: Silver). The spring strength is the same.
- **Web Cleaning Roller AE040039:** The diameter of the roller shaft has been widened from 6mm to 10mm to apply a more even pressure to the oil supply and cleaning web rollers.

  NOTE: *It is recommended you use the hot roller cleaner (P/N A1539530) at an EM call to remove the adhered toner on the hot roller surface*. We also recommend that the hot roller be replaced when performing the above temporary countermeasure.
- The latest firmware version can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

  NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

- **Decrease the Web Motor Drive Interval (SP1-902-002).**
  This is to clean the hot roller with the web more frequently.
  NOTE: When the data in SP1-902-002 is decreased, the time until Web near End will be shortened.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 044 **07/12/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SMALL BLACK SPOTS ON THE COPIES

SYMPTOM:

Tiny black spots appear on the copy image.

CAUSE:

Paper dust may mix with the toner from the cleaning unit during the recycling procedure. Then the recycled toner and paper is mixed in with the developer and new toner.

SOLUTION:

Reduce the toner-recycling ratio.

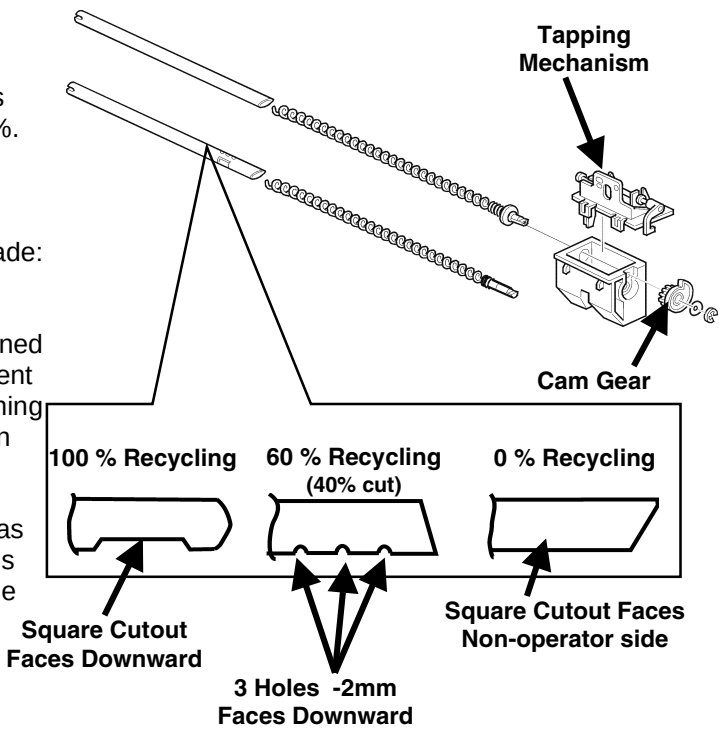
We would like to recommend a 40% cut in toner recycling. Under this system, 60% of the toner would be recycled and the remaining 40% would then be routed to the toner waste bottle. This has the effect of reducing the amount of spots by 90%.

To enable a 60% toner recycling (40% cut), the toner recycling mechanism has been modified. Specifically, the following changes have been made:

1. Three holes have been added to the toner recycling pipe. When the recycling pipe is positioned with the holes facing down, 60% of the toner is sent to the toner bank to be recycled, while the remaining 40% drops from the holes into the toner collection bottle.

2. A mechanism to tap the toner recycling pipe has been added to the upper case. This mechanism is necessary to prevent used toner from blocking the holes when 40% toner cut is selected.

3. In order to drive the tapping mechanism, the upper 17Z gear has been changed to one with a cam. Also, the transport screw has been changed to fit the cam gear.



Continued…

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Procedure - Installation of the Toner Collection Pipe:

1. Remove the upper rear cover.
2. Remove the drum inner cover and drum stay. Slide the drum unit out 50mm. (Picture 1)

Picture 1



3. Remove the flywheel (3 screws).
4. Remove the 4 BCU fixing screws and tilt out the BCU toward you. (Picture 2)

Picture 2



5. Remove the BCU hinge brackets (one on each side, one screw each).
6. The picture shows the right bracket being removed. (Picture 3)

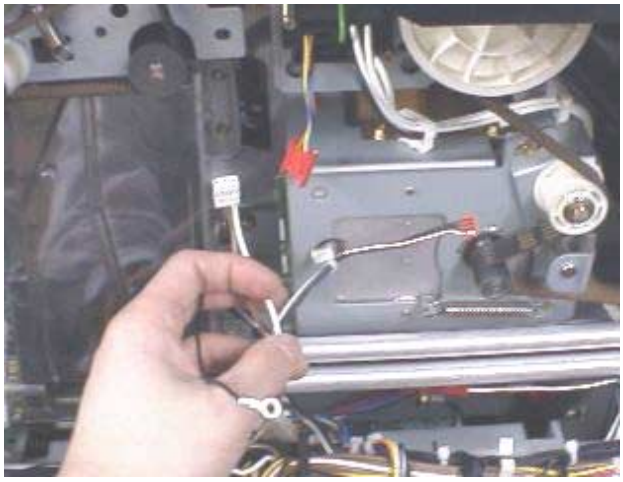
Picture 3



Continued…

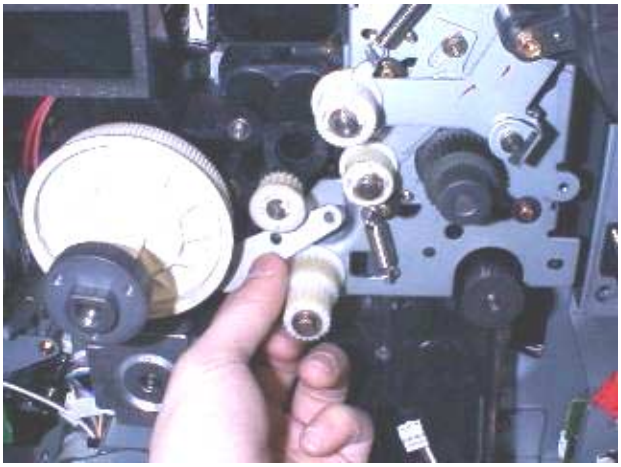
7. Disconnect the three fusing unit connectors and ground wire (1 screw).
8. These 3 harnesses run above the pipe. (Picture 4)

Picture 4

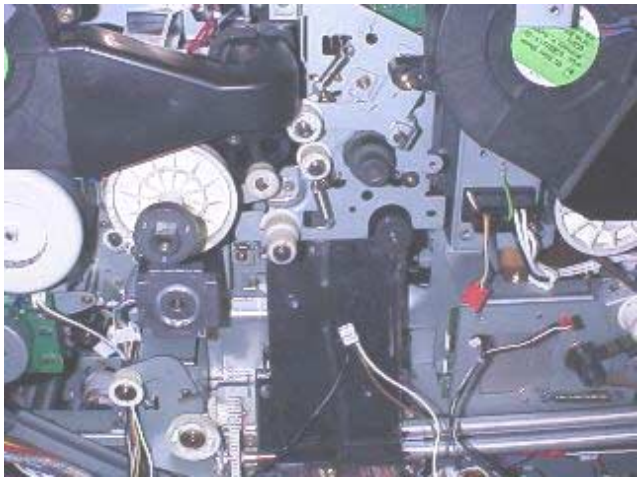


9. As shown in picture 4, remove the support plate located near the main motor (1 screw). Loosen the 2 screws of the tightener bracket and remove the tightener tension spring. Next, remove the three timing belts as shown in the two pictures 5 & 6.

Picture 5



Picture 6



Continued…

10. Remove the exhaust fan duct, located to the left of the main motor (no screws).

NOTE *It is easier to remove the duct if you loosen the fan bracket fixing screw first. This screw is located to the left of the duct. (Picture 7)*

Picture 7



11. Remove the main motor (4 screws) and remove the two connectors.

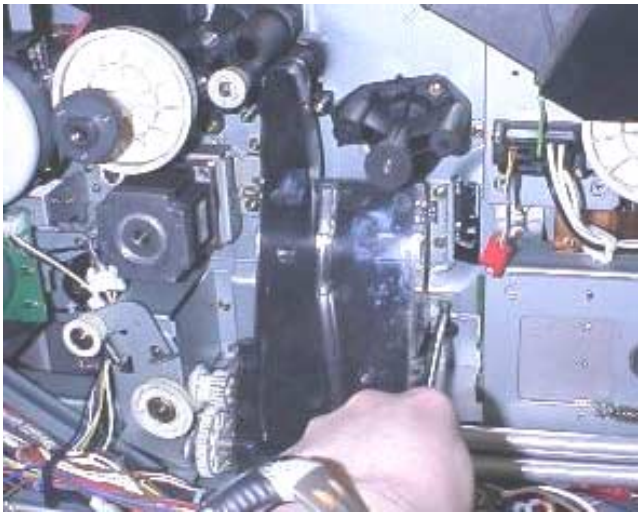
NOTE *Tilt the bottom face of the motor toward you when removing it from the machine. (Picture 8)*

Picture 8



12. Remove the 2 fixing screws for the collection case. (Picture 9)

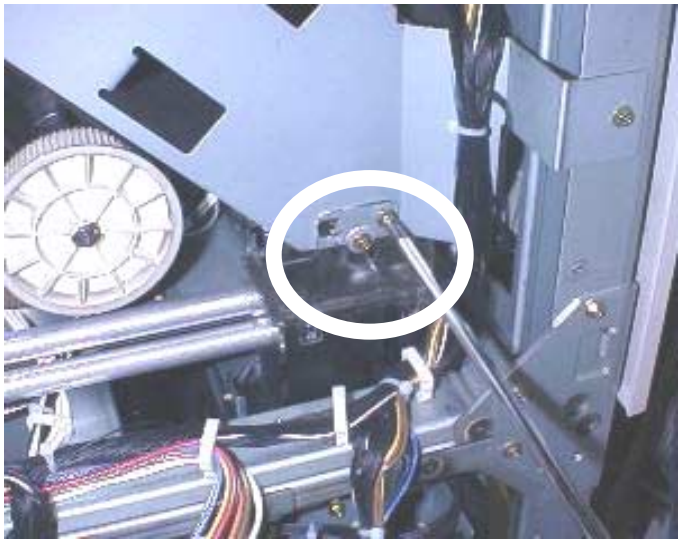
Picture 9



Continued…

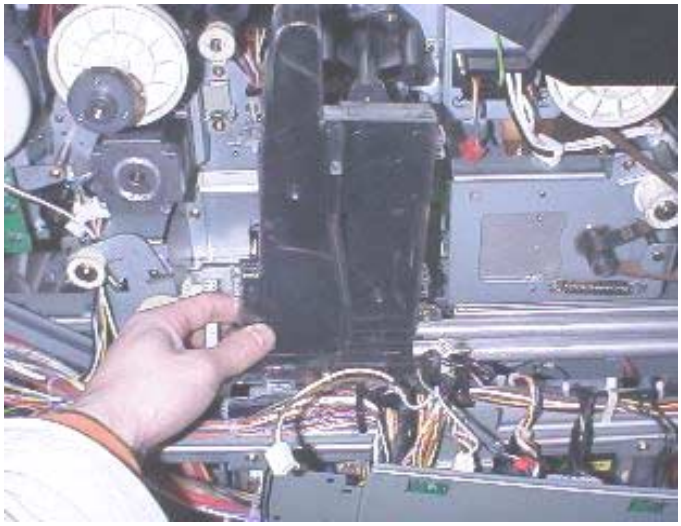
13. Remove the screw for the distribution case (the only M4X10 screw). (Picture 10)

Picture 10



14. Slide the toner collection unit to the right, disconnect the screw drive shaft from the bushing and remove the unit. (Picture 11)

Picture 11



15. The toner collection unit after it has been removed. (Picture 12)

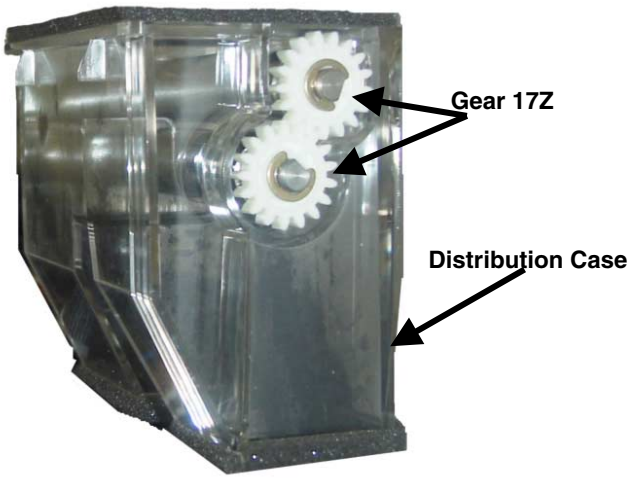
Picture 12



Continued…

16. Remove the two gears shown in picture 13.

Picture 13



17. Loosen the two screws of the toner collection case and remove the used toner collection pipe (lower one).

18. Remove the upper cover of the distribution case.

19. Remove the used toner transport screw (upper one).

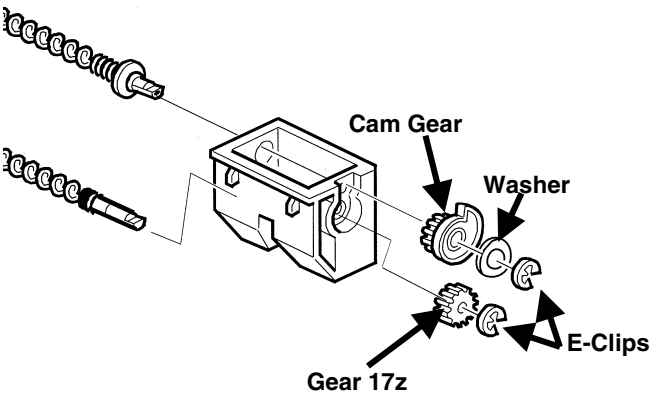
20. Install the new style used toner transport screw (A2942424).

21. Install the new style toner-recycling pipe (A2943638).

Make sure the toner drop holes are facing downwards. You can check this by looking at the pipe from the front, you should barely see the holes if it is in the proper position. In addition, make sure that the U-groove on the left face of the pipe is properly lined up with the projection on the case.
It is also possible for a zero percent of toner recycling. To do this, set the pipe so that the square opening is facing the non-operation side. Since the tapping function is not necessary here, do not remove the tapping arm screw.

22. Install the new cam gear washer and e-clips as shown in picture 14.

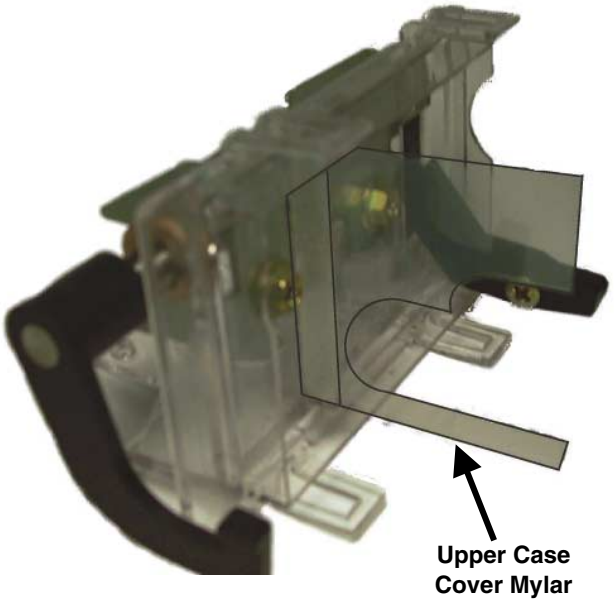
Picture 14



Continued…

Picture 14

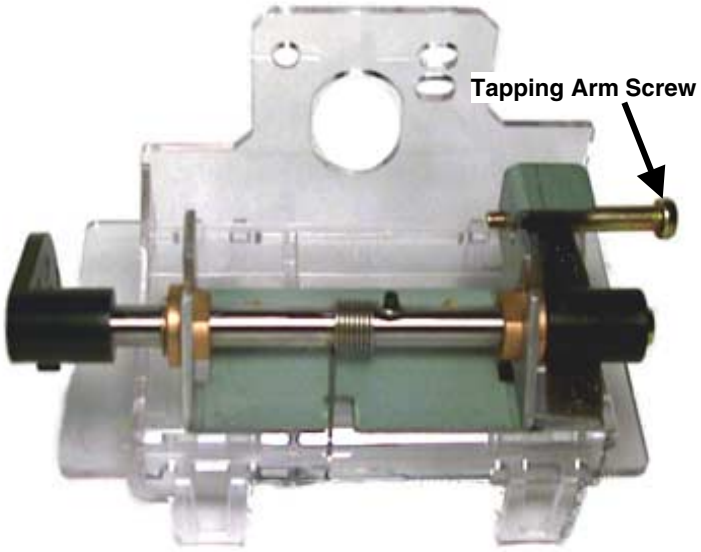
23. Make sure the new upper case cover mylar is installed as shown in Picture 14



Picture 15

24. Remove the tapping arm screw and install the new upper cover case onto the toner collection case.

NOTE: *If zero percent of toner recycling is selected, do not remove the tapping arm screw.*



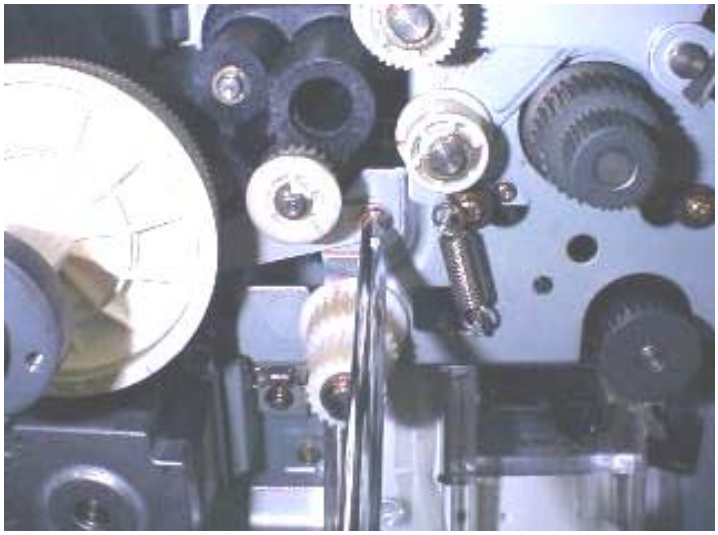
Continued…

Reinstall the parts in the reverse order in which they were removed.

NOTE *Please follow the procedure below when reinstalling the three timing belts (step 5):*

1. *Attach the support plate (see picture).*
2. *Attach the belts.*
3. *Turn the belts several times in the motor rotation direction.*
4. *Tighten the 2 screws of the tightener bracket.*

Picture 15



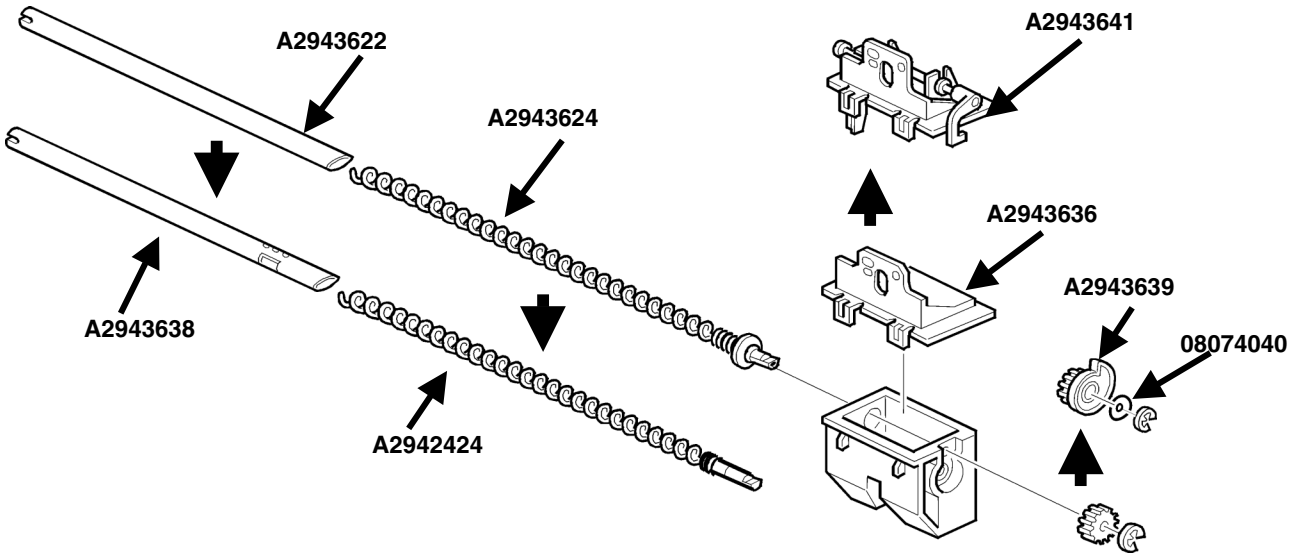
Replace the developer in the development unit and clean the unit.
Refer to the service manual for detail instructions on developer replacement.

NOTE *There will be an immediate reduction in fiber spots on the copy. It will take time for the paper fibers to be completely removed from the toner path. Please wait unit the next preventive maintenance visit before making a final determination on the effectiveness.*

Continued…

GENERAL:

The following part number corrections are being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943624	A2942424	Transport Screw – Used Toner	1-1	3/S	131	23
A2943626		Gear – 17z	2-1	0	131	30
	A2943639	Cam Gear – 17z	0-1	3/S	131	43*
	08074040	Washer - 6.5mm	0-1	3/S	131	106*
A2943622	A2943638	Toner Recycling Pipe – M 14mm	1-1	1	131	22
A2943636	A2943641	Upper Case – Ass'y	1-1	1	131	27

***DENOTES NEW ITEM NUMBER**

Continued…

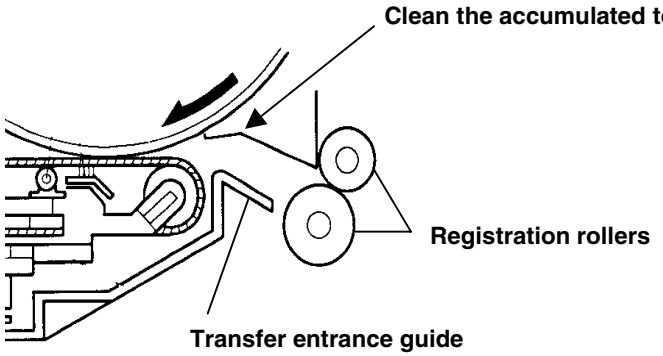
OTHER CAUSES OF TINY SPOTS ON THE COPY:

Two other types of black spots can also occur. The causes and action for both are as follows:

NOTE *The new toner pipe (A2943638) and accompanying parts are required for this action.*

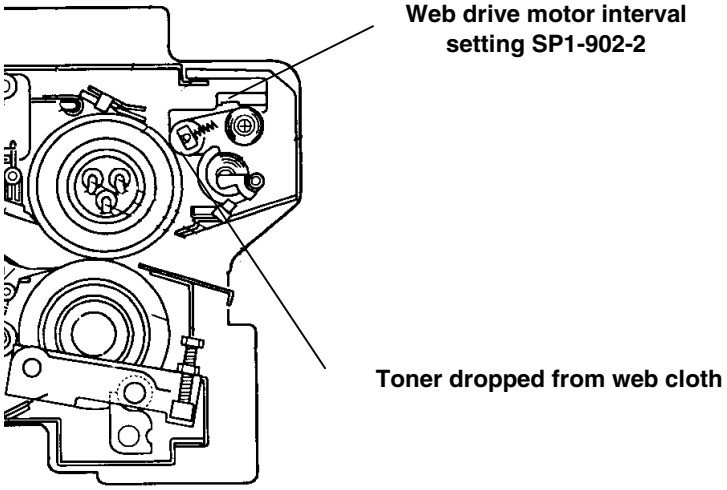
1-TONER SCATTERING:

Clean off the toner that has accumulated on the drum stay located above the registration rollers/transfer entrance guide.



2-TONER DROPS FROM WEB CLOTH:

Reduce the setting of the web motor drive interval (SP 1-902-2). However, note that if the interval setting is reduced from 40sec to 20sec, the web cloth yield will be reduced in half.



Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new toner recycling parts installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3600900265
Gestetner 32105	H3701000006
Ricoh Aficio 850	H3601000212
Ricoh Aficio 1050	H3700900080
Savin 2085DP	H3600900265
Savin 2105DP	H3701000006

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 045 **07/13/2001**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

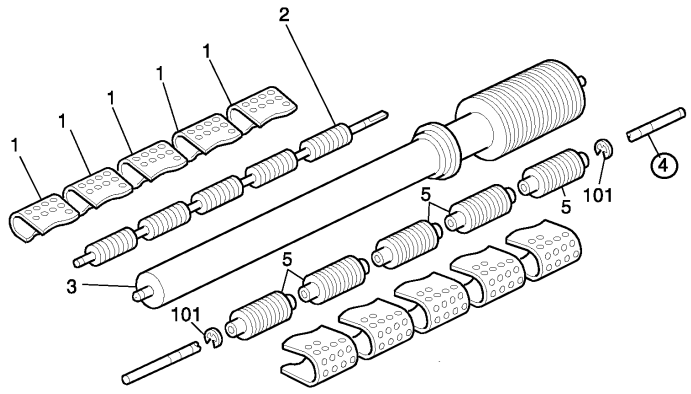
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Cooling Roller Shaft –** To prevent premature wearing of the cooling roller shaft bushing area, the material of the shaft has been strengthened. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AA140723	AA140747	Cooling Roller Shaft	1	1	109	4

UNITS AFFECTED:

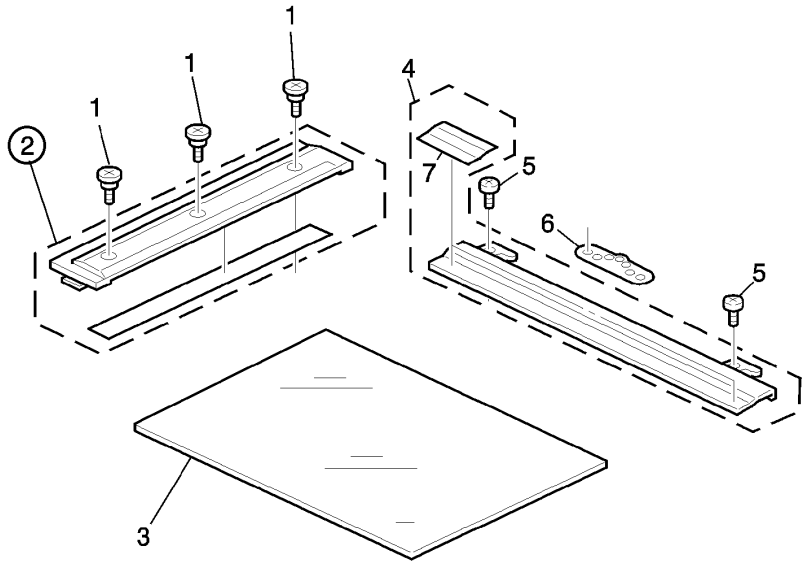
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style cooling roller shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601200077
Gestetner 32105	H3701200059
Ricoh AFICIO 850	H3601200120
Ricoh AFICIO 1050	H3701200095
Savin 2085DP	H3601200077
Savin 2105DP	H3701200059

Continued…

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- **UPDATE 2:** **Left Scale –** To ensure that curled originals do not ride on to the left scale after being fed from the document feeder, the edge of the scale now has a sharper angle preventing the original from riding on to the scale. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941791	A2941794	Left Scale	1	1	43	2

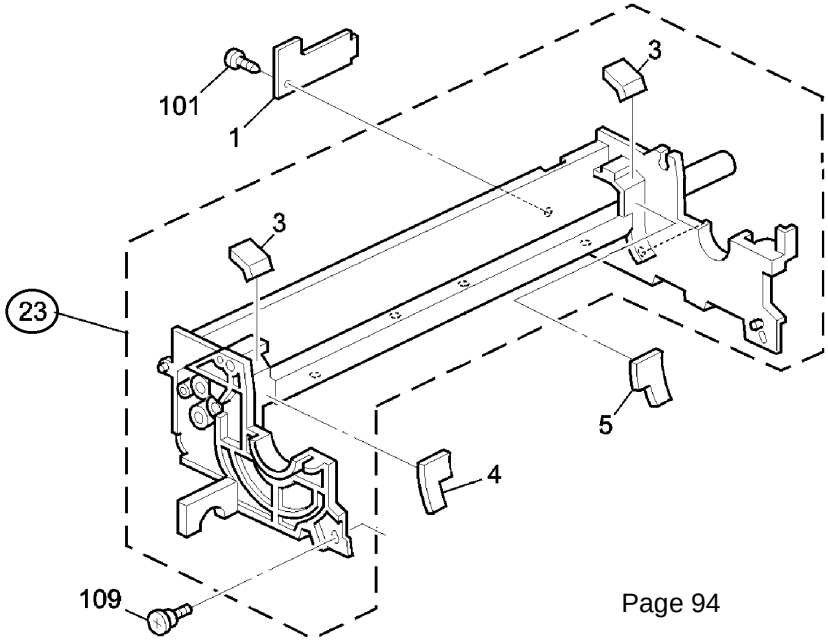
UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style left scale installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610100027
Gestetner 32105	H3710200073
Ricoh AFICIO 850	H3610100102
Ricoh AFICIO 1050	H3710100073
Savin 2085DP	H3610100027
Savin 2105DP	H3710200073

Continued…

- **UPDATE 3:** **PCU Frame –** If the internal temperature of the cleaning unit is too high, the toner tends to stick to the side wall facing the fusing unit. It is possible for this toner to detach and be recycled into the copy process. To ensure the proper internal temperature and avoid toner adhering to the side wall, the shape of the wall facing the fusing unit has been changed. Please update your Parts Catalog with the following information.



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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943510	A2943511	Lower Drum Unit	1	1	93	*
A2943550	A2943554	PCU Frame	1	1	95	23

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style lower drum unit and PCU frame installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610100027
Gestetner 32105	H3710100001
Ricoh AFICIO 850	H3610100102
Ricoh AFICIO 1050	H3710100023
Savin 2085DP	H3610100027
Savin 2105DP	H3710100001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 046 **07/23/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

■ COPY QUALITY ■ PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: ENHANCEMENT KIT (B479)

GENERAL:

Ricoh Company Ltd. has developed a new toner formula to enhance page output with increased density and improved half tone reproduction for the PFP/CRD environment. The new toner is unique and not compatible with the existing A294/A295 products.

With the release of the AFICIO 1105, Savin 25105 and Gestetner 10502, the Ricoh Family Group will also release an **Enhancement Kit** for customer's to update their existing A294/A295 models with the new toner technology. The new toner has a smaller particle size that requires the modification of several major subassemblies to accommodate the new toner formula. It should be noted that the toner bottle configuration is different and the new toner bottle will not fit into the existing A294/A295 products unless the Enhancement Kit is installed.

The Installation Procedure for the Enhancement Kit is attached to this document. Also included in this bulletin is the Enhancement Kit parts list as well as the dealer supplied consumable parts list. The firmware required for installation of the Enhancement Kit should be version 8.3 or higher.

The firmware revision "A" version 8.3 (file name A294ver_8.3_A.exe) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

The following consumable parts are unique to the Enhancement Kit.

PART NO.	DESCRIPTION	Replacement	QTY
A2942011	Corona Wire Cleaner	300K	1
AD042038	Cleaning Brush	300K	1
AE020117	Pressure Roller	500K	1
AE045045	Cleaning Web (14M)	360K	1

The following table lists the supplies for the **Enhanced Machines.**

	EDP Code	Supply Model Name
Ricoh Toner	888156	Ricoh Toner Type 8105D Black
Ricoh Developer	888164	Ricoh Developer Type 21 Black
Savin Toner	9866	Savin Toner Type 815 Black
Savin Developer	9867	Savin Developer Type 815 Black
Gestetner Toner	89866	Gestetner Toner Type DT37BLK
Gestetner Developer	89867	Gestetner Developer Type DD8BLK

Enhancement Kit (Model B479)

Serial Number prefix	H98xxxxxxx
EDP Code	411037MIU

NOTE: *Update to the A294/A295 Technical Documentation will be released in September, 2001.*

Continued…

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Please use the following checklist, which contains the criteria to qualify for assistance and a 100% credit on the Enhancement Kit.

✓ **ENHANCEMENT KIT CHECKLIST**

- ❑ Product must be installed at the end user's site prior to **7/20/01**. Products installed after the announcement of the Enhancement Kit should be sold with the kit for PFP/CRD environments.
- ❑ Product must be in a PFP/CRD environment. As a result of our surveys the Walk Up Environments do not require the Enhancement Kit.
- ❑ Average Monthly Copy Volume must be greater than 200K per month in accordance with the definition of PFP/CRD by Industry Analyst Inc. The Ricoh Family Group has relaxed the criteria from greater than 250K to 200K outputs per month.
- ❑ Technician installing the kit must by Ricoh Certified on the Ricoh Digital A294/A295 products.
- ❑ The installation must be completed before submission of a credit request.
- ❑ The SP Data Sheets must be produced before and after Kit installation, then submitted to the Technology Solutions Group.
- ❑ Service Call Report must be signed by the end user and submitted to the respective Ricoh Family Group and must indicate the Enhancement Kit was installed at No Charge.
- ❑ Sample Copies before Kit installation indicating the reason for the enhancement along with sample copies after kit installation must be submitted to the Technology Solutions Group.

ORDERING PROCEDURE:

To obtain a credit for the Enhancement Kit (B479), please complete and mail this form to:

Ricoh Corporation
19 Chapin Road Building C
Pine Brook, NJ
07058
Attention: Technical Services (Enhancement Program)

Allocation:

Authorized servicing locations will be eligible for a credit for each affected unit meeting the above criteria. To obtain a credit, complete this form and mail the request form to TSD. **This Enhancement Kit will be available, for credit, until 9/30/2001**. After 9/30/2001, the parts will be available as individual service parts for procurement through normal parts ordering procedures.

NOTE: ***The Enhancement Kits will be available for a credit until 9/30/2001.***

PLEASE TYPE OR PRINT CLEARLY

DEALER NAME:		
ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**
ATTENTION:	**DEPT:**	
PHONE #:	**FAX #:**	
DEALER ACCOUNT NUMBER:		

ENHANCEMENT KIT
(Machine Code: B479)

INSTALLATION PROCEDURE
For Machine Code: A294/A295 Copier

NOTE: THE ENHANCEMENT KIT MUST BE INSTALLED BY A CUSTOMER SERVICE REPRESENTATIVE WHO HAS COMPLETED THE TRAINING COURSE AND HAS BEEN CERTIFIED ON THE A294/A295 COPIERS.

Introduction

The following information details the parts and procedures necessary for the installation of the A294/A295 Enhancement Kit (B479). The installation and associated Service Program changes and adjustments should take the experienced A294/A295 technician approximately 2.5 hours. Allow more time if this procedure is to be done at the same time as a scheduled PM.

Enhancement Kit (B479) Parts Check List

Item	Part No.	Description	Qty.
1	A2943190	Development Duct Assembly	1
2	A2943103	Development Unit Assembly	1
3	A2943016	Tube Joint Assembly	1
4	A2943720	Air Pump Assembly	1
5	A2943731	Vacuum Tube Joint	1
6	A2943732	Collection Bottle Tube	1
7	A2943700	Collection Bottle Assembly	1
8	A2943710	Guide Rail- Collection Bottle	1
9	A2943713	Stopper - Collection Bottle	1
10	A2943045	Toner Bank	1
11	A2943203	Toner Supply Unit Assembly	1
12	11050412	Clamp	1
13	A2944490	Oil Supply/Cleaning Web Unit	1
14	A2944493	Cleaning Drive Unit Assembly	1
15	AE020114	Pressure Roller	1
16	A2943512	Lower Drum Unit	1
17	A2942011	Corona Wire Cleaner	1
18	A2945340	I/0 Board	1
19	B4795450	Harness	1
20	A2941526	Harness Cover	1

Dealer Supplied Parts / Consumables

Depending on the interval between the installation of the Enhancement Kit and the next PM it may be advisable to replace all 300k PM parts not included with the enhancement kit. The following is a short list of parts recommended for replacement with the kit.

Item	Part No.	Description	Qty.
1	A0962057	Charge Corona Grid	1
2	AD020053	Charge Corona Wire	1
3	A2949510	OPC Drum	1
4	AE011056	Hot Roller	1
5	AE042042	Pressure Roller Cleaning Roller	1

The following table lists the supplies for the **Enhanced Machines.**

	EDP Code	Supply Model Name
Ricoh Toner	888156	Ricoh Toner Type 8105D Black
Ricoh Developer	888164	Ricoh Developer Type 21 Black
Savin Toner	9866	Savin Toner Type 815 Black
Savin Developer	9867	Savin Developer Type 815 Black
Gestetner Toner	89866	Gestetner Toner Type DT37BLK
Gestetner Developer	89867	Gestetner Developer Type DD8BLK

1. Existing Toner Removal

From machine front side

1. Remove the B302 Finisher and the B303 Large Capacity Tray
2. Remove the upper/lower right side covers, the upper/lower rear covers, and the lower left side cover.
3. Remove the development unit, lower the transfer unit and remove the drum unit.

Note: Dispose of development unit according to local regulations.

4. Remove the toner bottles. (Upper: SP 5804-62, Lower: SP 5804-63)

From machine rear side

5. Turn on the drum motor (SP 5804-43) for 2 minutes to remove the toner in the toner collection unit.
6. More toner can be removed by tapping the plastic case of the toner collection unit for 20 to 30 seconds. The screwdriver at right indicates the toner collection unit.

Caution: The flywheel and other moving parts can be dangerous. Use care when working in this area.



7. On the right side of the unit remove the paper feed connectors as shown in the photo at right.



Toner transport tube cleaning

1. **If you have a vacuum cleaner**, an alternative to steps 2, 3 and 4 below would be to remove the round plastic cap from the toner supply cylinder and place a vacuum directly over the cylinder. In this way you can remove the toner from the toner supply cylinder, the toner transport tube and the three 6mm tubes at the same time. You will also prevent possible damage to the toner transport coil

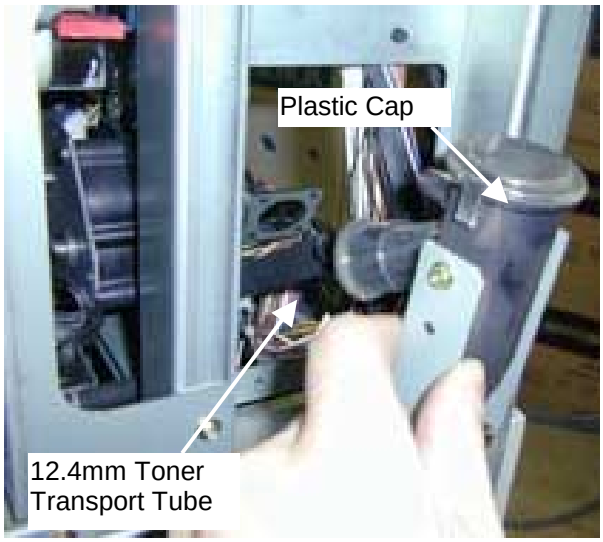
If a vacuum cleaner is not available

2. On the right side of the copier main frame remove the toner supply cylinder at the end of the 12. 4 mm diameter silicon toner transport tube (2 screws, 2 tubes 6mm, 1 tube 12.4mm).

Note: Make sure the tube is not bent 30° or more in any place.

3. Cover the 12.4mm end of the silicon tube with a plastic bag.

Note: For additional information see A294/A295 Service Manual pages 3-33 and 3-34.



4. When the two 6mm tubes have been removed, hook the upper tube on the machine frame, as shown at right, to prevent toner dropping into the unit.

5. Run the toner bank motor (SP5804-61) and the supply clutch (SP5804-64) for about 4 - 6 minutes.

Note: When running the toner bank motor (SP5804-61) and the supply clutch (SP5804-64) tapping the various tubes will loosen accumulated or clumped toner.

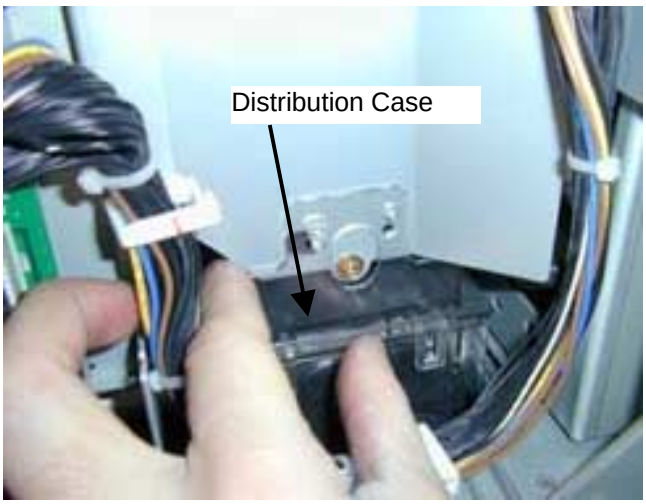


2. Toner Bank Unit Replacement

1. Turn off the main switch and unplug the power supply cord.

From machine rear side

2. Remove the screw from the distribution case on the upper part of the toner bank unit, and then slide the case up.



NOTE: Be sure that the power supply cord is removed.

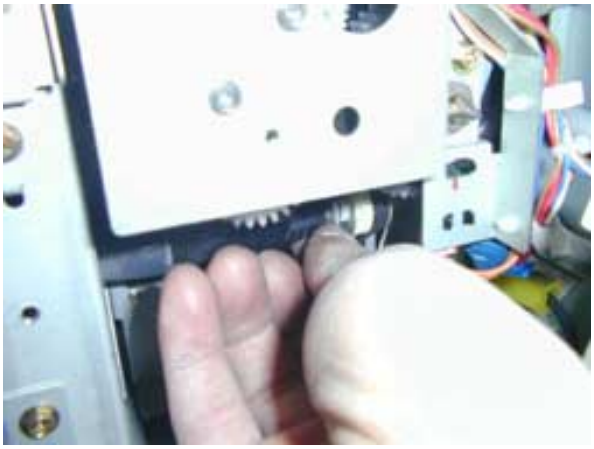
3. Pull off the four connectors and remove the noise filter (2 screws).

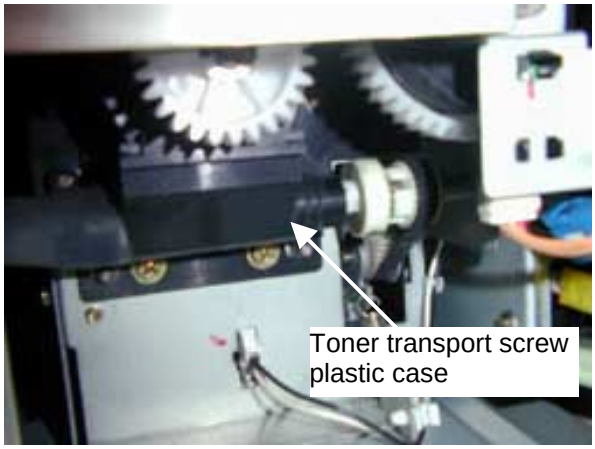


4. Remove the motor DC-5.1W. (1 connector, 2 screws)



5. Remove the snap ring of the toner transport screw and slide the toner transport screw joint to the left.





NOTE: When the toner transport screw case is removed, toner remaining inside the toner bank will fall out.

6. Remove the toner transport screw case. (2 screws)



7. Remove the 1 screw on the side of the toner bank unit.



8. Disconnect the toner bank harness in 3 places.

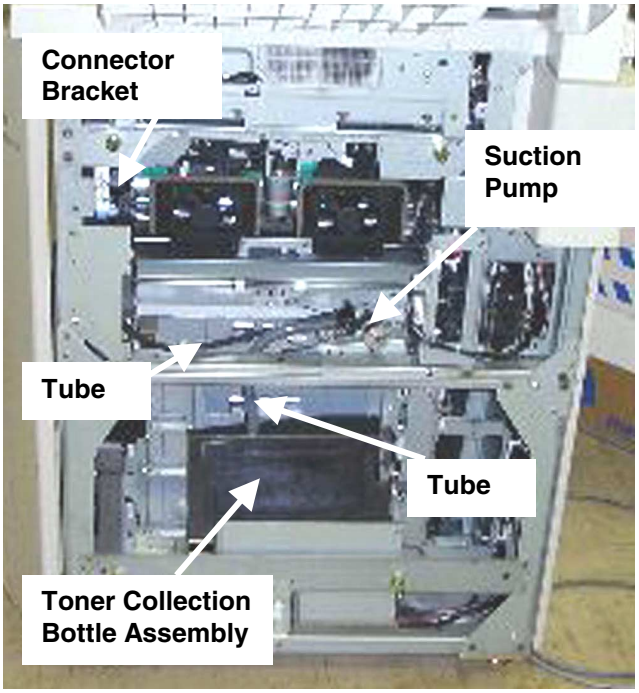


From machine front side

9. Remove the outer and inner covers of the toner bank unit (3 screws).
10. Remove the 3 screws on the front of the toner bank unit.
11. Slowly pull out the toner bank unit from the mainframe (toward the front).
12. Replace the toner bank with new type toner bank.
13. To re-assemble, reverse the above procedure.

3. Suction Motor and Toner Collection Bottle Installation

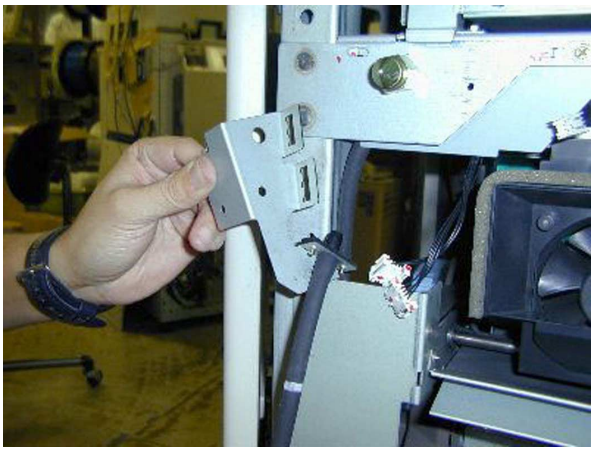
The picture at right is an overview of some of the parts that need to be added during this Enhancement Kit installation. This is a view from the right side of the machine.

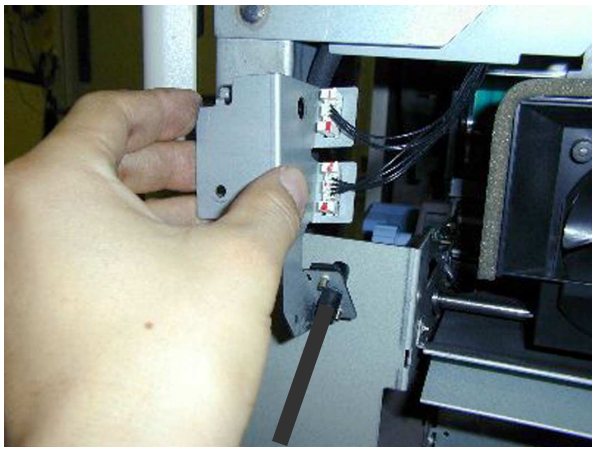


1. Remove the existing connector bracket from the copier frame and unplug the two connector housings from the bracket.

2. Attach the tube (6mm diameter, 515mm long) and 2 connectors removed from the original bracket to the new development unit connector bracket.

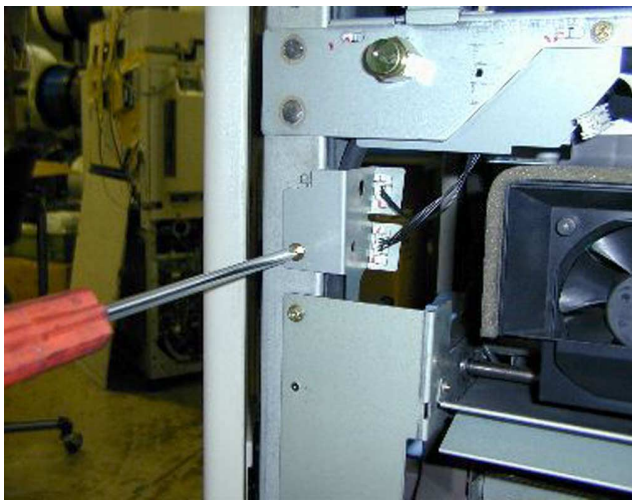
NOTE: This is easier to perform if you connect the tube to the joint before securing it to the mainframe.



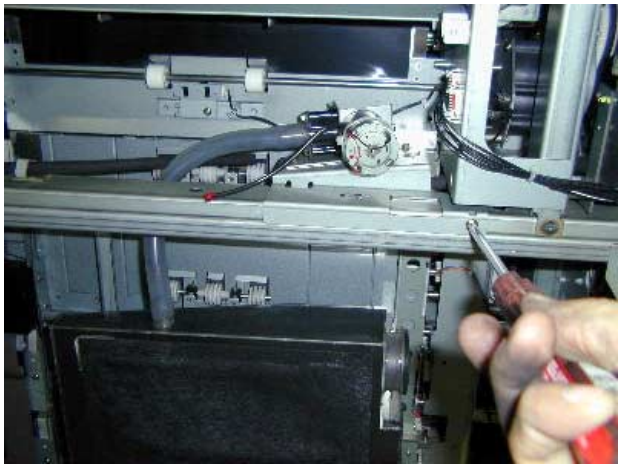


NOTE: Later in the installation two additional connectors and a tube from the new development unit will be mounted on the other side of this bracket.

3. Install the new development unit connector bracket to the mainframe. (1 screw).



4. From the right side of the machine, install the pump unit. (1 M4x8 tapping screw with washer)



5. Remove the vertical transport unit door and harness inner cover.



6. Attach the guide rail in the enhancement kit to the new harness inner cover in the mainframe, then install the two-part assembly into the mainframe (see photo).

NOTE: Align the guide rail edge to the harness inner cover edge as shown in the photo.



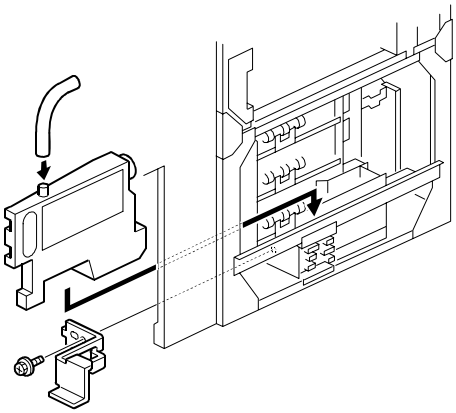
7. After installing the guide rail (A2943710) to the new harness inner cover (A2941526), secure the harness inner cover to the mainframe (2 screws).



8. Reinstall the vertical transport unit door.



9. Set the toner collection bottle assembly (A2943700) in the mainframe and attach the (12mm diameter) tube to the top.





10. From the front of the machine, fasten screws of the toner collection bottle stopper (A2943713).

NOTE: the production level stopper will have foam to cushion the collection bottle and may have two hole not shown in the photo.



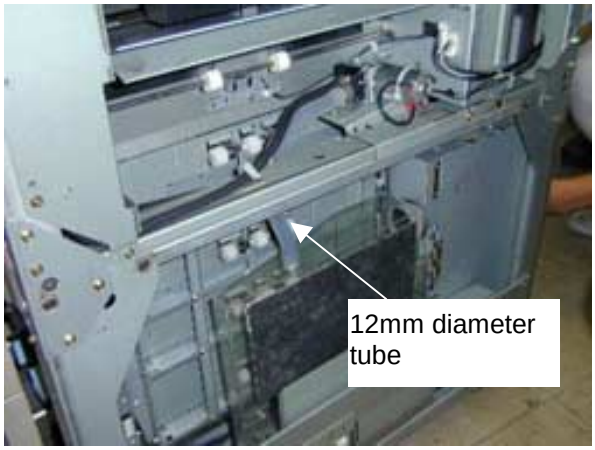
11. Attach one end of the black tube (6mm diameter) from the development unit connector bracket to the pump unit, as shown in the illustrations at right.

12. Attach the remaining end of the semi-transparent tube (12mm diameter) to the pump unit, the other end of this tube has been attached to the collection bottle.



13. Fasten the black tube in place by adding one clamp from the kit.

NOTE: Make sure there are no bends or excessive slack in the tubes.



4. I/O Board Replacement and Harness Routing

The following are additional parts needed for the I/O board modification procedure:

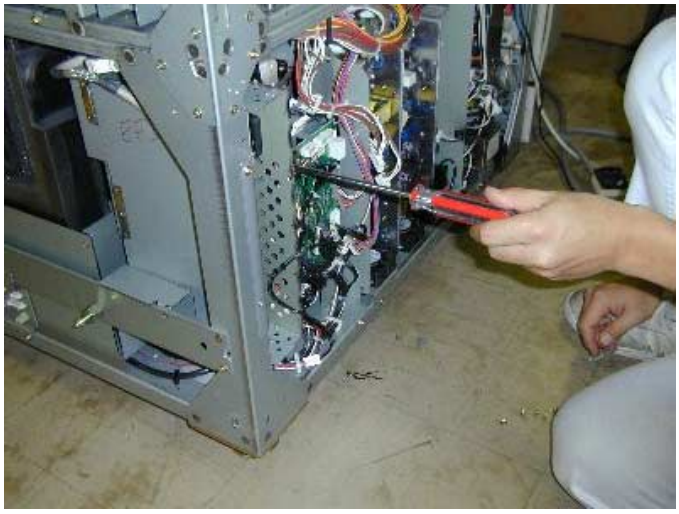
- New style I/O Board
- New harness for pump unit and toner collection bottle set detection sensor.



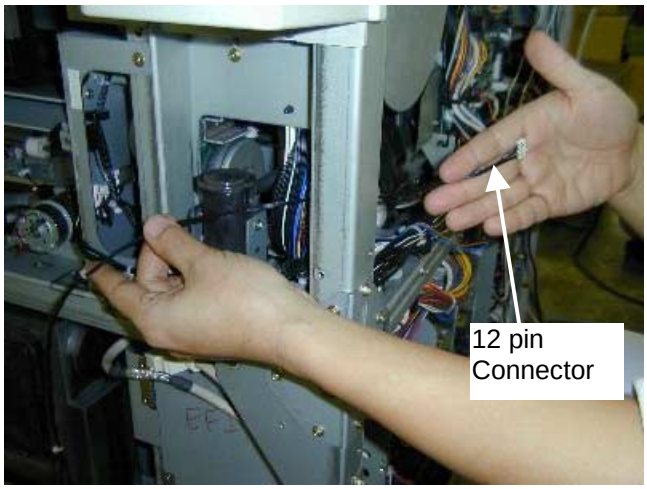


1. Remove the existing I/O board, located in the rear of the vertical paper feed section, and replace it with the new style I/O board.

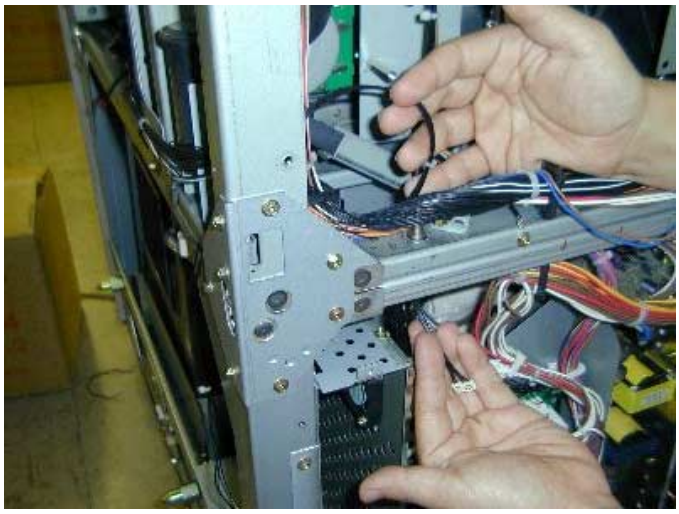
NOTE: The new I/O board has one new connector (CN517) added to the upper right side.



2. Position the new harness so that the end with the white/gray 12 pin connector goes to the back of the unit. Pass the harness inside the right rear vertical frame support as shown.



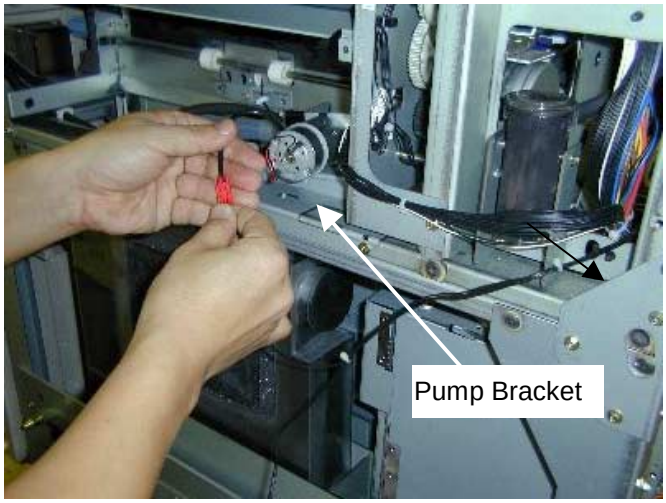
3. Pass the white/gray 12 pin connector end of the harness downward on the inside of the rear frame until it reaches the I/O board.



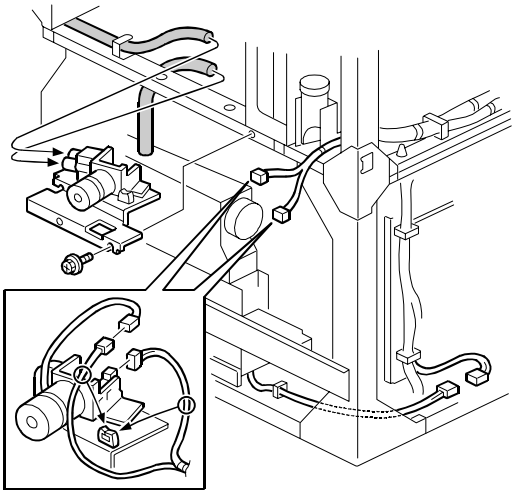
4. Connect the white/gray 12 pin connector end of the harness to connector CN517 of the new I/O board.



5. At the other end of the pump harness, remove the pump bracket (1 screw) and connect the red connector to the pump motor harness.

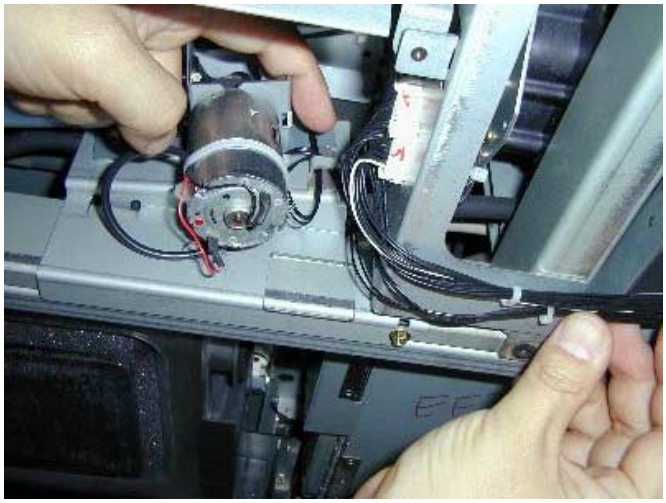


6. Connect the small white connector to the connector to the pump unit drive sensor (photointerruptor type). Reinstall the pump bracket.

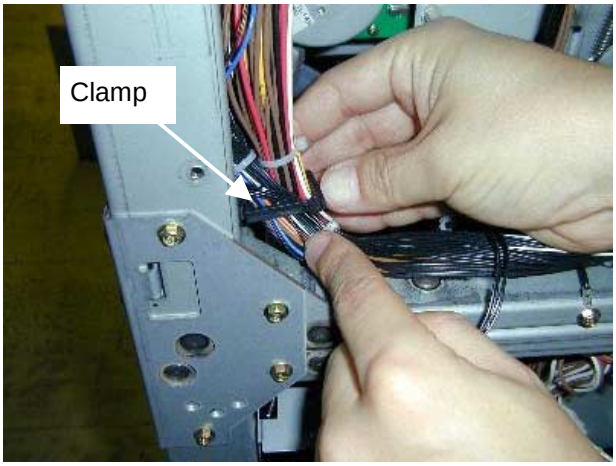


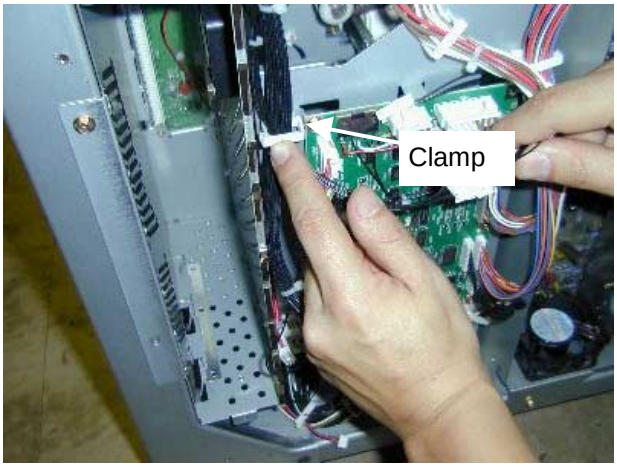


7. Fasten the pump unit drive sensor harness with the pump unit clamp. If necessary, use clamps to take up the extra slack in the harness.

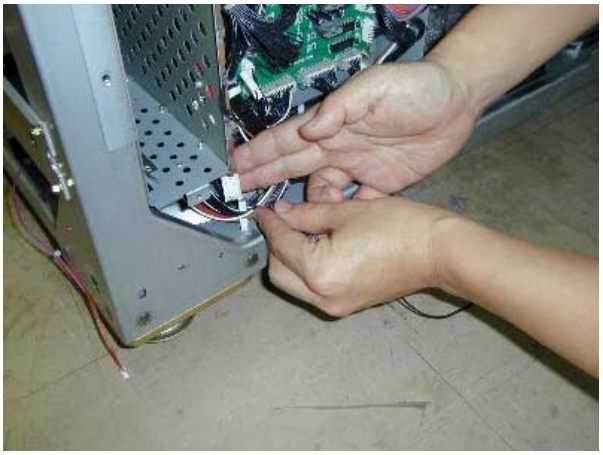


8. Fasten the new harness with the 2 existing clamps near the harness. To prevent the harness from getting pinched between moving parts or other components, remove the slack from the harness with the clamps if necessary.





9. Using the clamp near the rear vertical frame support and the clamp underneath the I/O board fasten the harness in place.

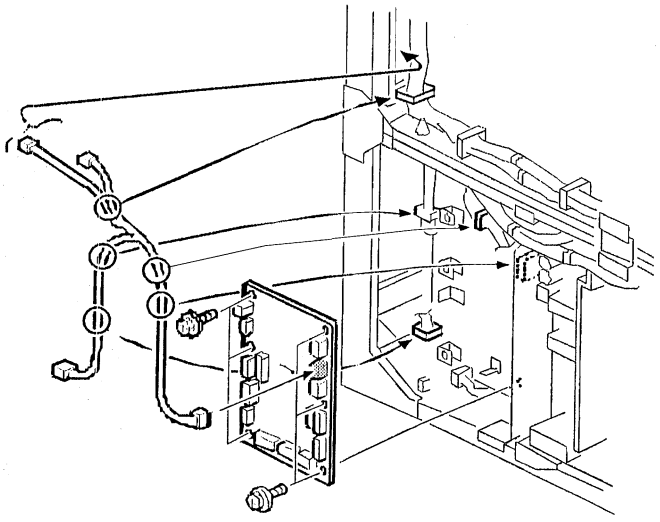




NOTE: The bottle set sensor is part of the new toner collection bottle guide rail assembly. It can be found below the I/O board mounting bracket.

10. Connect the bottle set sensor connector to the remaining white connector, located on the back of the mainframe. To prevent the harness from getting pinched between moving parts or other components, remove the slack from the harness with the clamps as necessary.

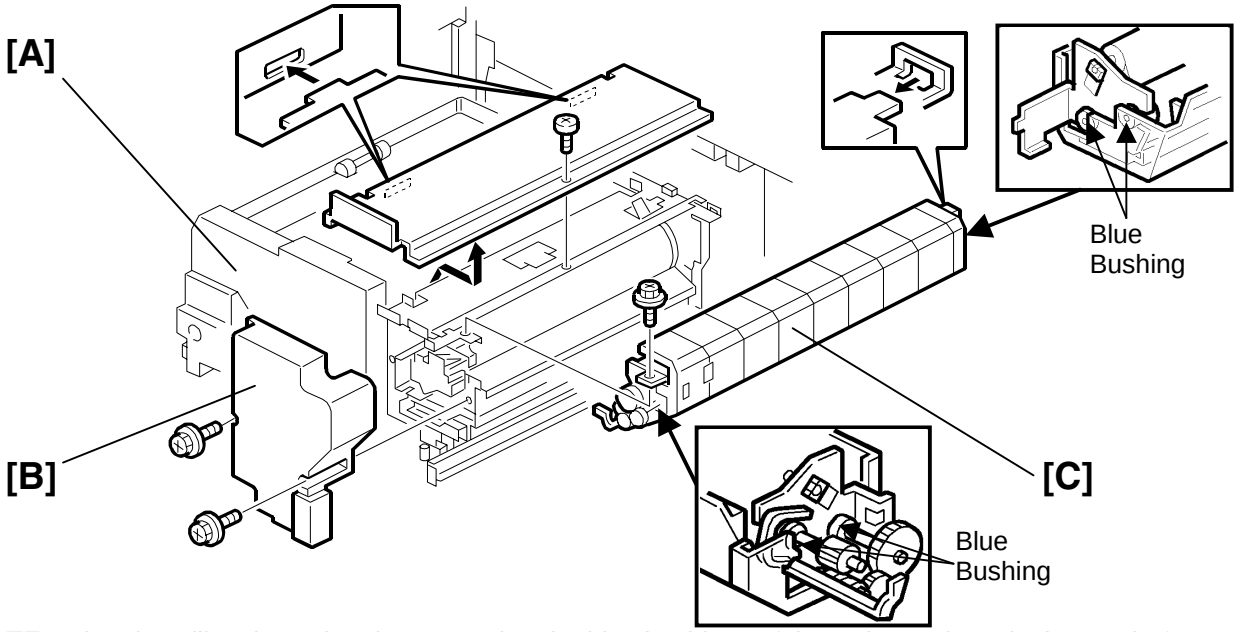




5. Pressure Roller and Cleaning Web Unit Replacement

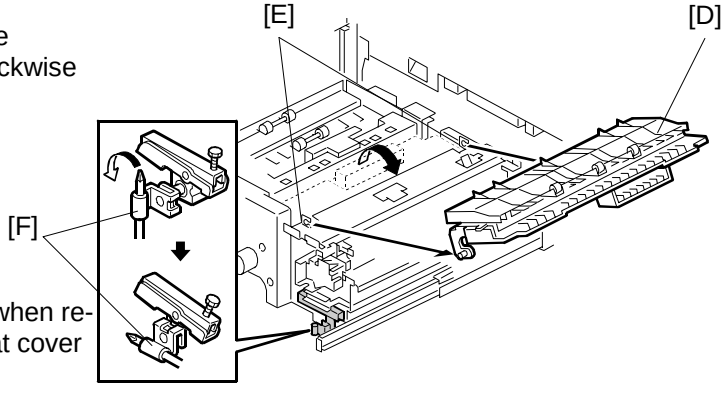
1. Pull out the fusing and exit unit [A].
2. Remove the fusing unit inner cover [B] (2 screws).
3. Remove the oil supply and cleaning web unit [C] (1 screw).

Caution: The oil supply and cleaning web unit may be hot even if the main switch is turned off for service.



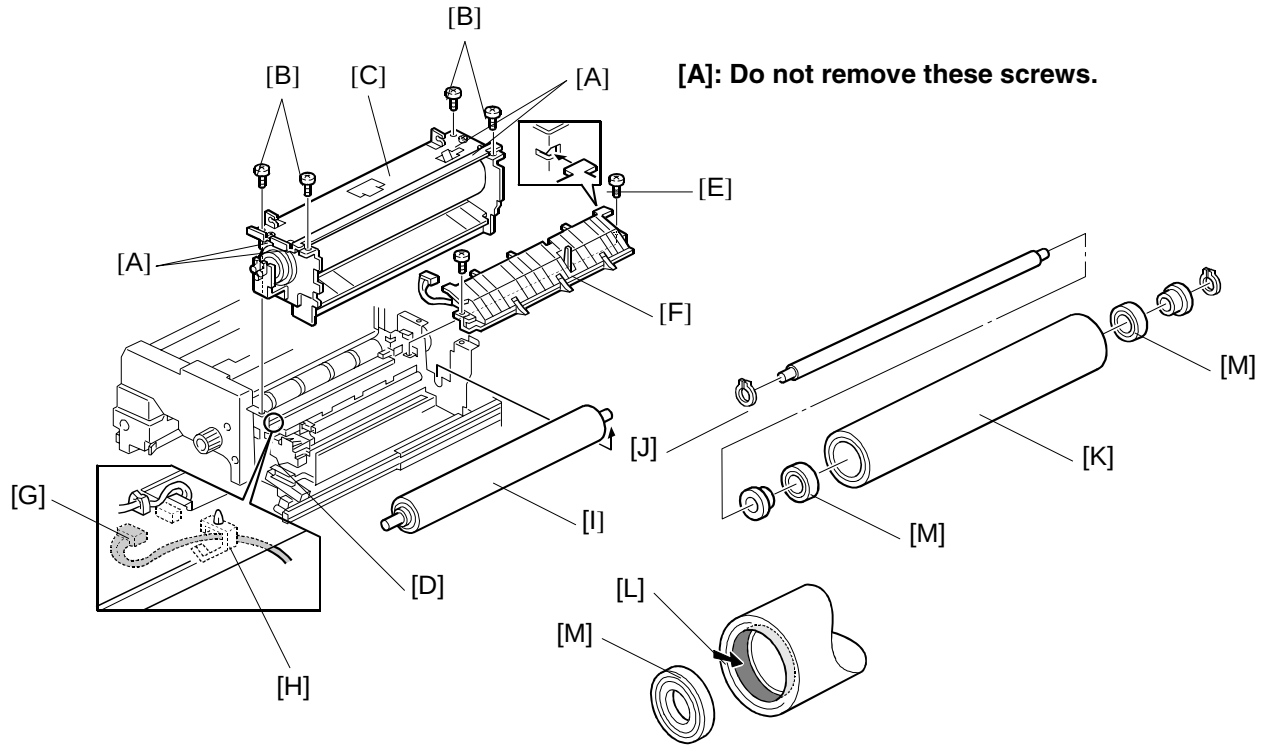
NOTE: When installing the web unit, ensure that the blue bushings of the web supply and take-up shafts are properly positioned, under the web unit cover.

4. Turn the hot roller stripper unit [D] clockwise approximately 160° and slide the pivot shaft out of the cutout [E].
5. Release the fusing pressure by turning the pressure lever [F] 1/4 of a turn counterclockwise with a screw driver.



NOTE: If the fusing pressure is still released when re-installing the inner cover of the fusing unit, that cover cannot be installed.

NOTE: Do not remove the four **M4 bind screws** [A] in the next step.



6. Remove the four **M5 pan head screws** [B] and remove the hot roller unit [C].

NOTE: 1) When re-installing the hot roller unit, make sure that the flanges of the ball bearings in the hot roller unit are set inside the fusing exit side plate [D] and the gear in the hot roller unit is installed on the rear side.
2) Secure the M5 pan head screws in the following order: left-rear, right-front, right-rear, left-front.

7. Remove the two bind screws [E] securing the pressure roller stripper unit [F].

8. Slide the pressure roller stripper unit [F] to the right while slightly raising the side near the pressure roller (1 connector [G] and 1 clamp [H]).

NOTE: Be careful not to touch the pressure roller surface during this step.

9. Lift up the pressure roller unit [I].

10. Remove the C-ring [J] from the pressure roller and replace the pressure roller [K] (2 ball bearings, 2 bushings).

11. Lubricate the inner surface [L] of the pressure roller (bearing [M] contact part) with BARRIERTA L55/2 grease when replacing the pressure roller.

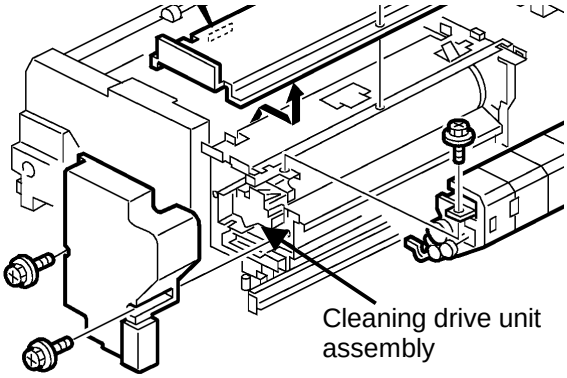
12. Reassemble the pressure roller, hot roller unit and hot roller strippers, by reversing the above procedures.

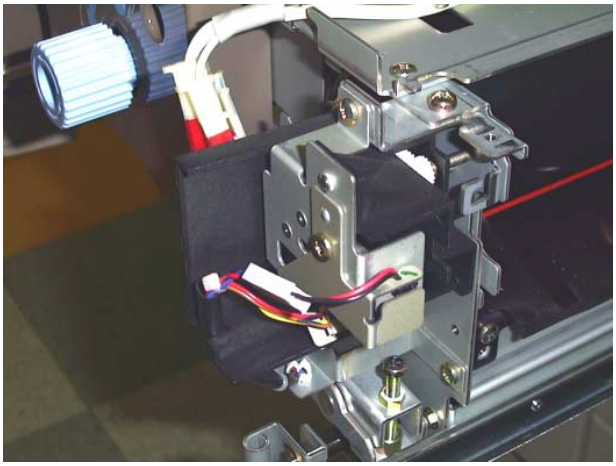
13. Locate the web cleaning drive unit assembly on the fusing unit.

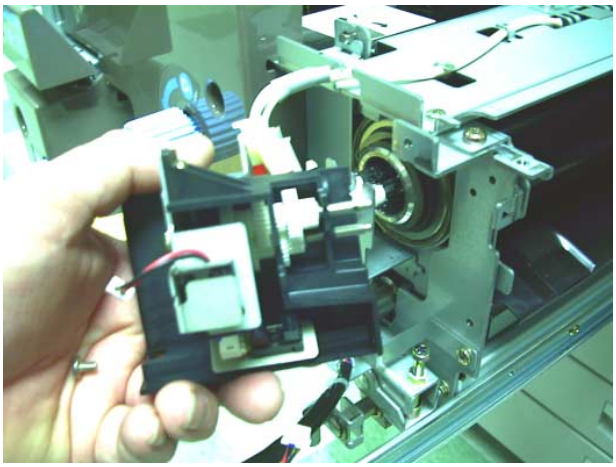
14. Remove the connectors (2) from the fusing oil supply/cleaning web motor and end sensor

15. Remove the web cleaning drive unit assembly from the fusing unit (1 screw).

16. Remove the black plastic cover and install it on the new web cleaning drive unit. Then replace the unit and the two connectors.





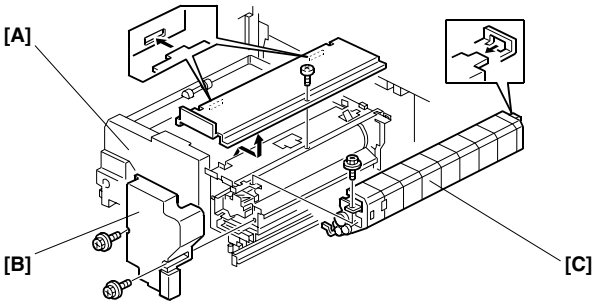


17. Replace the oil supply and cleaning web unit [C] (1 screw).

18. Replace the fusing unit inner cover [B] (2 screws).

NOTE: Make sure that the web collecting roller gear engages the gears on the fusing/exit unit properly when re-installing the new style oil supply and cleaning web unit.

Note: When the unit has been completely reassembled set SP1902-1 (Web Consumption) to zero (0).



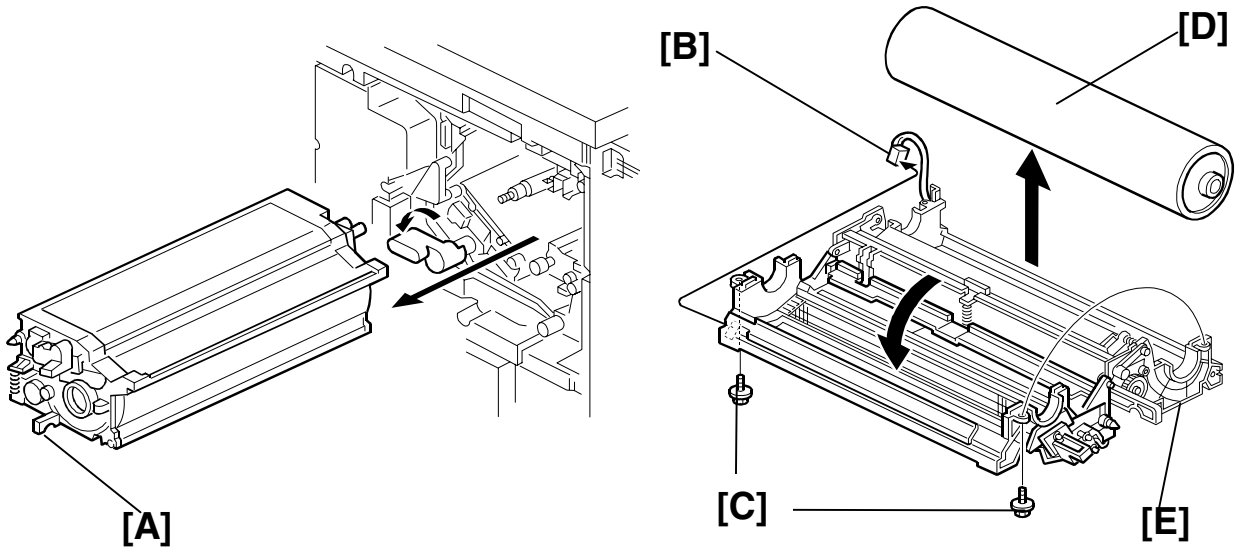
6. Lower Drum Unit, Corona Cleaner & Development Unit Installation

Preparing the Drum Unit

1. If it has not already been done, take out the drum unit by holding the handle [A].
2. Disconnect the connector of the drum potential sensor [B].
3. Open the upper drum unit (2 screws [C]).
4. Remove the drum [D].

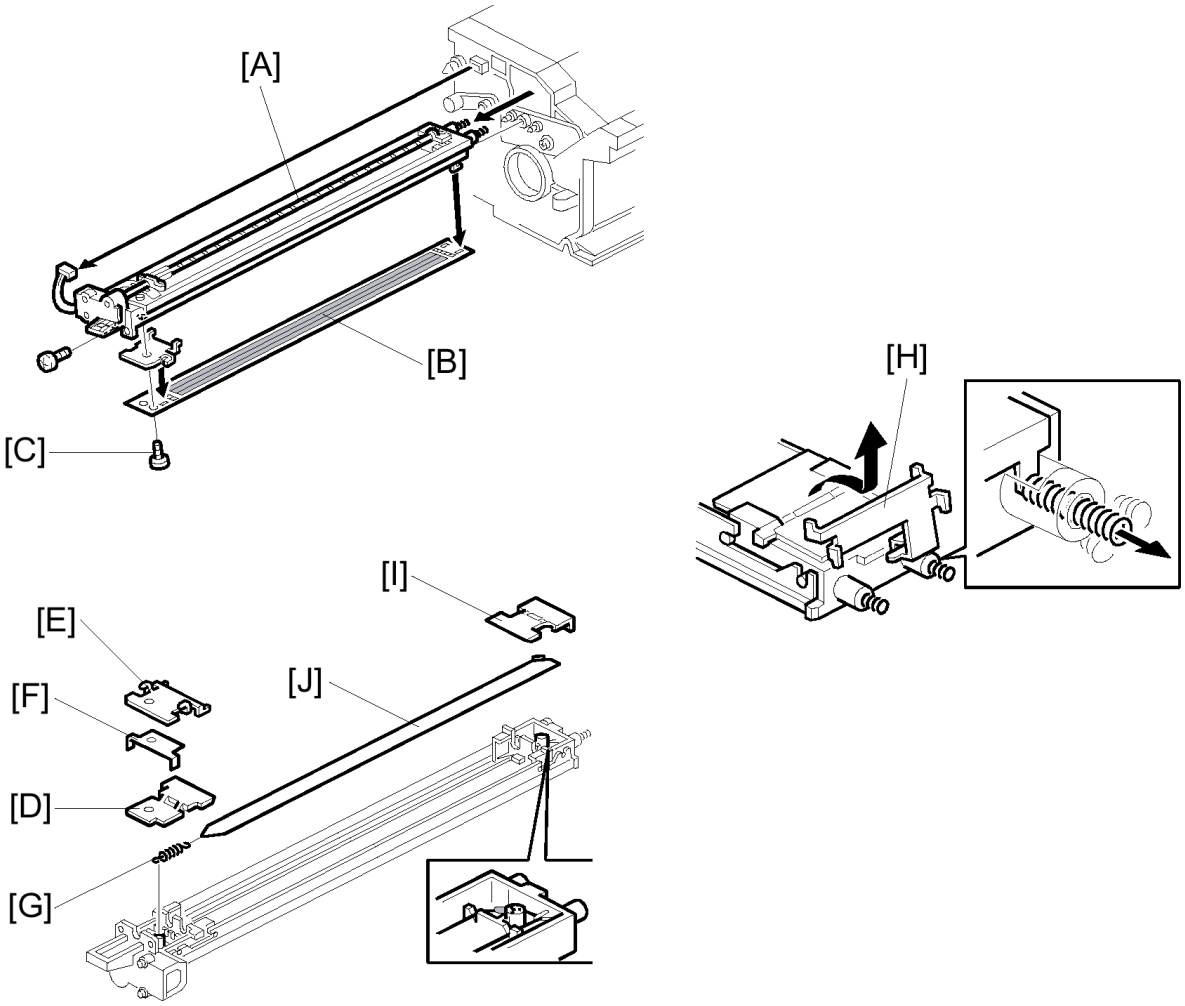
NOTE: Cover the drum with several sheets of paper to protect it from light when the unit is left outside the machine for servicing. Do not touch the drum surface with bare hands.

5. Replace the lower drum unit [E].
6. Reverse the above procedure to reassemble the drum unit.



Preparing the Charge Corona Unit

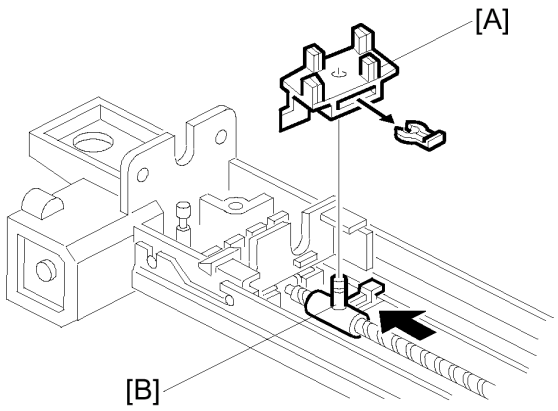
A new corona cleaner is supplied with the Enhancement Kit. When installing the new corona cleaner, it may be necessary to replace the corona wire and the grid at the same time.



1. Take out the charge corona unit [A] (1 screw, 1 connector).
2. Remove the grid plate [B] (1 plastic screw, 4 hooks).

NOTE: 1) When installing the grid plate, do not over tighten the plastic screw [C].
2) Do not touch the corona wire and grid plate with bare hands.

3. Remove the front grid terminal [D], then the front end block cover [E].
4. Remove the plate [F].
5. Remove the terminal spring [G].
6. Slide the rear grid terminal [H] to the rear and remove it, then remove the rear end block cover [I].
7. Remove the charge corona wire [J].



8. Remove the wire cleaner [A] (1 snap ring).

9. Install the new wire cleaner, charge corona wire and grid plate.

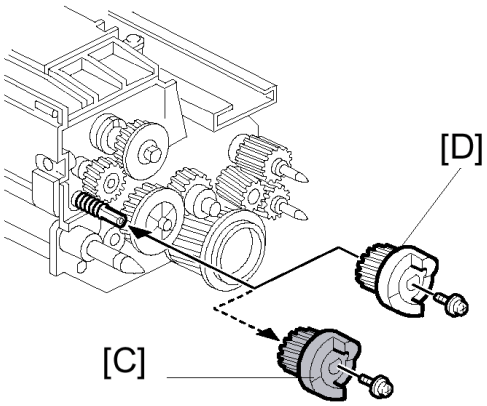
NOTE: Locate the joint part [B] of the wire in the rear end block as shown.

NOTE: Later in the installation, SP2-001-1 and 2-001-4 (corona voltage and current) will be reset to the defaults and SP2-962 (process control initialization) will also be performed.

Preparing the Development Unit

1. Attach the cover with the tube onto the new development unit.

2. Pour one bag of developer into the development unit and attach the new toner hopper with the special red gear [c] below.







3. Temporarily, hook the tube from the cover onto the clamp in front of the hopper.

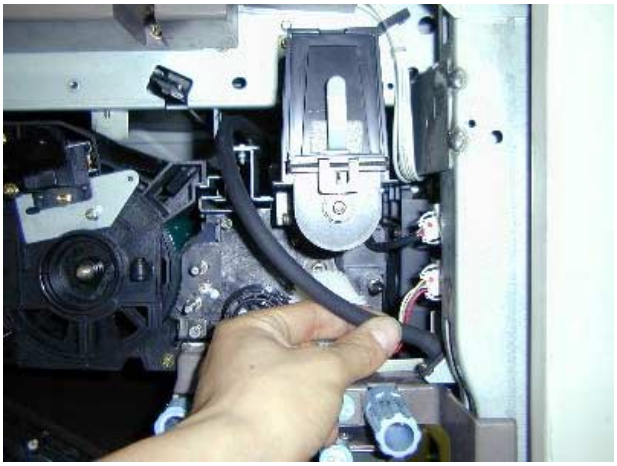
NOTE: In the future when the development unit needs service this clamp can be used to prevent toner spills during removal.

4. Set the development unit in the machine.

5. Connect the tube and 2 connectors to the proper places in the mainframe.

NOTE: This is the other side of the development unit connector bracket installed during previous procedures.





6. Attach the drum stay. Then, position the tube between the development unit and the drum stay, as shown, so that it does not get caught or pinched between the plate and hopper.



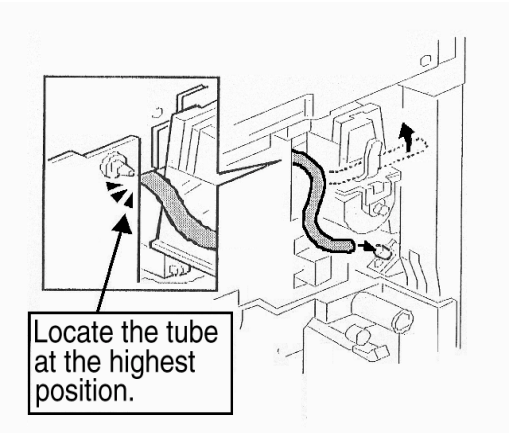


7. Plug in the power cord and turn the main switch on.

8. Put toner bottle(s)in the toner bank. If only one bottle is installed it must go in to the lower position.

9. When the machine is ready, enter SP mode as follows:
   1)Press the clear modes key.
   2)Enter “107 ”.
   3)Hold down the clear key for more than 3 seconds.

10. Press “Copy SP ” on the LCD, and perform the TD initial setting as follows:
    1)Select SP No.2-801
    2)Press the “Start key ” on the LCD.



NOTE: This SP mode performs the TD initial setting. It will stop automatically in about 1 minute.

11. Supply toner from the toner bank to the toner hopper as follows:
    1) Select SP2-207-2 (Toner Bank Toner Supply)
    2) Press the “Start key ” on the LCD.

NOTE: By performing this SP mode, the toner is distributed into the toner hopper and the toner transport path. It will stop automatically in about 7 minutes. If SP2-207-2 fails after SP2-801 is completed (an SC code is displayed), repeat only SP2-207-2 again.

NOTE: When replacing the toner hopper unit, perform SP2-207-2 using the red gear. Because the new toner hopper does not contain any toner, using the red gear will fill the toner hopper but will not add toner to the developer. Therefore, replace the white gear from the new toner hopper unit with the red gear. After performing SP2-207-2, reinstall the white gear.

IMPORTANT- Do not discard the red gear after completing this installation. It will be necessary if you need to replace the toner hopper unit in the future. Store the red gear in the box on the inside of the units right front door.

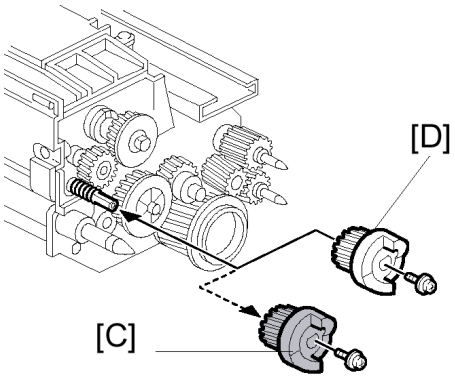
13. Remove the screw that holds the drum stay.

14. Remove the drum stay knob and the drum stay (turn the knob clockwise to remove it).

15. Disconnect the two connectors and the new rubber tube.

16. Pull out the development unit.

17. Remove the red toner hopper drive gear [C] (1 screw)and replace with the white gear [D] supplied.



NOTE: The red gear is used only to prime to toner supply system. Failing to replace the red gear with the white gear will result in a lack of toner delivery from the toner hopper to the developer unit.

NOTE: Early production units used snap rings to hold the gear in place.

Please note the following “Necessary Actions ” following each activity listed in the table below:

Service Activity	Necessary action for adding toner to the toner hopper	Remarks
Developer Replacement	No further action is required. The white gear is in the toner hopper unit.	Toner can be supplied from the toner hopper.
Toner Hopper Unit replacement (empty toner hopper installation).	Refer to the procedure described in the NOTE: section of step 11.	Toner is not in the toner hopper. If the proper action is not carried out, SC495 will be displayed.
Toner Transport Tube cleaning (before and after machine transportation).	No further action is required. The white gear is in the toner hopper unit.	Toner is already inside the development unit and toner hopper.

18. Install the development unit in the machine and re-connect two connectors and the rubber tube.

19. Attach the drum stay and attach the drum stay knob and one screw.

20. Reinstall the inner cover.

⚠ IMPORTANT INFORMATION ⚠

The SP mode setting procedures on the following page are critical steps in the installation of the A294/A295 Enhancement Kit. These SP modes are very important and must be done carefully and in the order indicated. When complete, check copy quality and machine operation before proceeding to Decal Attachment.

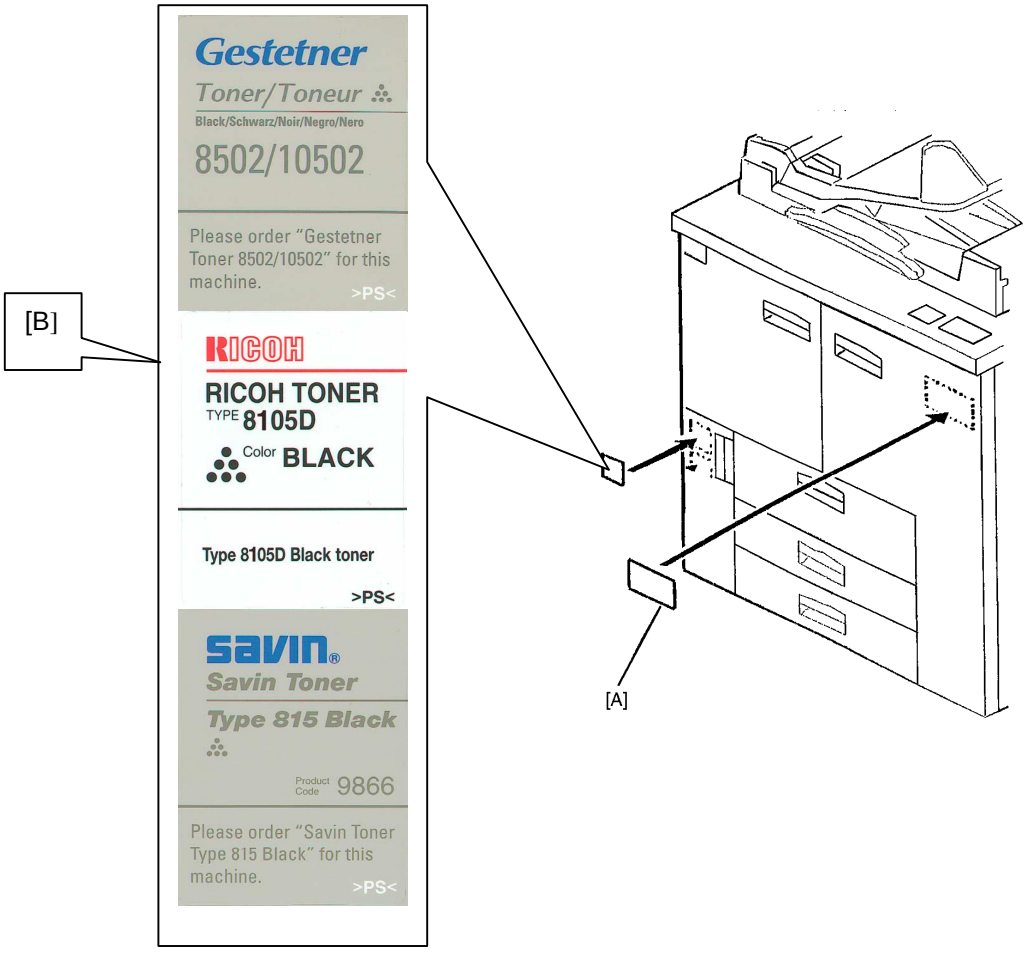
7. SP Mode Settings

NOTE:
- Before performing the following SP settings, be sure that the engine firmware is Ver. 8.3 or higher. If not load data from IC Card (Flash Memory Card) Ver. 8.3 supplied with the Enhancement Kit.
- Perform SP2962 as the last step of the SP settings before making copies/prints.
- The asterisk mark (*) indicates new SP numbers.

SP Mode.	Description	Version		Setting
1105-4	Fusing Temperature Correction	US, 85ppm		+5°C
	(A4/LT)	US, 105ppm		+5C
		EU, 85ppm		+10°C
		EU, 105ppm		+15°C
1902-1	Web Consumption			0
1902-2	Web Motor Drive Interval	US, 85ppm		21 sec
		US, 105ppm		17 sec
		EU, 85ppm		11 sec
		EU, 105ppm		9 sec
1902-3	Web Motor Drive Time	All		2.8 sec
1902-4	Web Near End Setting	All		53%
Reference	Web Near End/End	US		360K / 420K
		EU		100K / 140K
2001-1	Change Corona Bias Adjustment	All		-1000V
2001-4	Grid Voltage for Transparent Sheet	All		950
2001-7	Charge corona current (When Process Control setting is ON)	All --		850
2201-1	Image Area	All		650
2201-3	Transparent Sheet	All		650
2201-4	ID Sensor Development Potential	All		280
2804-1	Corona Wire Cleaner Operation Setting	All		2
2911-1	Transfer Current On/OFF Timing La	All		0 mm
'* 2911-2	Transfer Current On/OFF Timing Lb	All		45 mm (0 to 60 by 1 step)
2911-3	Transfer Current On/Off Timing Lc	All		0 mm
* 2940-1 to 6	Lead Edge Transfer Current for Tray 1 to 6	85ppm		120µA (10 to 200 by 1 step)
		105ppm		140µA (10 to 200 by 1 step)
* 2940-7	Lead Edge Transfer Current for Duplex Tray	85ppm		120µA (10 to 200 by 1 step)
		105ppm		140µA (10 to 200 by 1 step)
* 2941	Transfer Current for Recycled Paper	All		**0:** Plain paper (1: Thick paper)
* 2972	Operation Time of Toner Collection Bottle (Toner from Dev. Unit)	All		0 (0 to 300 by 1 step)
* 2973	Operation Time of Toner Suction Motor	All		0 (0 to 600 by 1 step)
2962	Auto Process Control	All		Start

8. Decal Attachment

Attach the new model name decal [A] and the new toner type decal [B] on the machine covers as shown below. Attach the Enhancement Kit Serial Number to the Right Upper Inner Cover above the machine's serial number plate. The Right Upper Inner Cover is located inside the unit behind the Right Front Door.



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 046 REISSUE ★ **09/28/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

■ COPY QUALITY ■ PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: ENHANCEMENT KIT (B479)

GENERAL:

Ricoh Company Ltd. has developed a new toner formula to enhance page output with increased density and improved half tone reproduction for the PFP/CRD environment. The new toner is unique and not compatible with the existing A294/A295 products.

With the release of the AFICIO 1105, Savin 25105 and Gestetner 10502, the Ricoh Family Group will also release an **Enhancement Kit** for customer's to update their existing A294/A295 models with the new toner technology. The new toner has a smaller particle size that requires the modification of several major subassemblies to accommodate the new toner formula. It should be noted that the toner bottle configuration is different and the new toner bottle will not fit into the existing A294/A295 products unless the Enhancement Kit is installed.

The Installation Procedure for the Enhancement Kit is attached to this document. Also included in this bulletin is the Enhancement Kit parts list as well as the dealer supplied consumable parts list. The firmware required for installation of the Enhancement Kit should be version 8.3 or higher.

The firmware revision "A" version 8.3 (file name A294ver_8.3_A.exe) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM/Flash Card Exchange program.*

The following consumable parts are unique to the Enhancement Kit.

PART NO.	DESCRIPTION	Replacement	QTY
A2942011	Corona Wire Cleaner	300K	1
AD042038	Cleaning Brush	300K	1
AE020117	Pressure Roller	500K	1
AE045045	Cleaning Web (14M)	360K	1

The following table lists the supplies for the **Enhanced Machines.**

	EDP Code	Supply Model Name
Ricoh Toner	888156	Ricoh Toner Type 8105D Black
Ricoh Developer	888164	Ricoh Developer Type 21 Black
Savin Toner	9866	Savin Toner Type 815 Black
Savin Developer	9867	Savin Developer Type 815 Black
Gestetner Toner	89866	Gestetner Toner Type DT37BLK
Gestetner Developer	89867	Gestetner Developer Type DD8BLK

Enhancement Kit (Model B479)

Serial Number prefix	H98xxxxxxx
EDP Code	411037MIU

NOTE: *Update to the A294/A295 Technical Documentation will be released in September, 2001.*

Continued…

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Please use the following checklist, which contains the criteria to qualify for assistance and a 100% credit on the Enhancement Kit.

✓ **ENHANCEMENT KIT CHECKLIST**

- ❑ Product must be installed at the end user's site prior to **7/20/01**. Products installed after the announcement of the Enhancement Kit should be sold with the kit for PFP/CRD environments.
- ❑ Product must be in a PFP/CRD environment. As a result of our surveys the Walk Up Environments do not require the Enhancement Kit.
- ❑ Average Monthly Copy Volume must be greater than 200K per month in accordance with the definition of PFP/CRD by Industry Analyst Inc. The Ricoh Family Group has relaxed the criteria from greater than 250K to 200K outputs per month.
- ❑ Technician installing the kit must by Ricoh Certified on the Ricoh Digital A294/A295 products.
- ❑ The installation must be completed before submission of a credit request.
- ❑ The SP Data Sheets must be produced before and after Kit installation, then submitted to the Technology Solutions Group.
- ❑ Service Call Report must be signed by the end user and submitted to the respective Ricoh Family Group and must indicate the Enhancement Kit was installed at No Charge.
- ❑ Sample Copies before Kit installation indicating the reason for the enhancement along with sample copies after kit installation must be submitted to the Technology Solutions Group.

ORDERING PROCEDURE:

To obtain a credit for the Enhancement Kit (B479), please complete and mail this form to:

Ricoh Corporation
19 Chapin Road Building C
Pine Brook, NJ
07058
Attention: Technical Services (Enhancement Program)

Allocation:

Authorized servicing locations will be eligible for a credit for each affected unit meeting the above criteria. To obtain a credit, complete this form and mail the request form to TSD. **This Enhancement Kit will be available, for credit, until 9/30/2001**. After 9/30/2001, the parts will be available as individual service parts for procurement through normal parts ordering procedures.

NOTE: ***The Enhancement Kits will be available for a credit until 9/30/2001.***

PLEASE TYPE OR PRINT CLEARLY

DEALER NAME:		
ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**
ATTENTION:	**DEPT:**	
PHONE #:	**FAX #:**	
DEALER ACCOUNT NUMBER:		

ENHANCEMENT KIT
(Machine Code: B479)

INSTALLATION PROCEDURE
For Machine Code: A294/A295 Copier

NOTE: THE ENHANCEMENT KIT MUST BE INSTALLED BY A CUSTOMER SERVICE REPRESENTATIVE WHO HAS COMPLETED THE TRAINING COURSE AND HAS BEEN CERTIFIED ON THE A294/A295 COPIERS.

Introduction

The following information details the parts and procedures necessary for the installation of the A294/A295 Enhancement Kit (B479). The installation and associated Service Program changes and adjustments should take the experienced A294/A295 technician approximately 2.5 hours. Allow more time if this procedure is to be done at the same time as a scheduled PM.

★ *Enhancement Kit (B479) Parts Check List*

Item	Part No.	Description	Qty.
1	A2943190	Development Duct Assembly	1
2	A2943105	Development Unit Assembly	1
3	B4793094	Connector Bracket	1
4	A2943725	Air Pump Assembly	1
5	A2943731	Vacuum Tube Joint	1
6	A2943732	Collection Bottle Tube	1
7	A2943700	Collection Bottle Assembly	1
8	A2943711	Vacuum Supporter	1
9	A2943713	Stopper - Collection Bottle	1
10	A2943022	Toner Bank	1
11	A2943204	Toner Supply Unit Assembly	1
12	11050412	Clamp	1
13	A2944490	Oil Supply/Cleaning Web Unit	1
14	A2944493	Web Cleaning Drive Unit Assembly	1
15	Ae020117	Pressure Roller	1
16	A2943512	Lower Drum Unit	1
17	A2942011	Corona Wire Cleaner	1
18	A2945340	I/0 Board	1
19	B4795450	Harness	1
20	A2941526	Harness Cover	1

Dealer Supplied Parts / Consumables

Depending on the interval between the installation of the Enhancement Kit and the next PM it may be advisable to replace all 300k PM parts not included with the enhancement kit. The following is a short list of parts recommended for replacement with the kit.

Item	Part No.	Description	Qty.
1	A0962057	Charge Corona Grid	1
2	AD020053	Charge Corona Wire	1
3	A2949510	OPC Drum	1
4	AE011056	Hot Roller	1
5	AE042042	Pressure Roller Cleaning Roller	1

The following table lists the supplies for the **Enhanced Machines.**

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Savin Developer	9867	Savin Developer Type 815 Black
Gestetner Toner	89866	Gestetner Toner Type DT37BLK
Gestetner Developer	89867	Gestetner Developer Type DD8BLK

1. Existing Toner Removal

From machine front side

1. Remove the B302 Finisher and the B303 Large Capacity Tray
2. Remove the upper/lower right side covers, the upper/lower rear covers, and the lower left side cover.
3. Remove the development unit, lower the transfer unit and remove the drum unit.

Note: Dispose of development unit according to local regulations.

4. Remove the toner bottles. (Upper: SP 5804-62, Lower: SP 5804-63)

From machine rear side

5. Turn on the drum motor (SP 5804-43) for 2 minutes to remove the toner in the toner collection unit.
6. More toner can be removed by tapping the plastic case of the toner collection unit for 20 to 30 seconds. The screwdriver at right indicates the toner collection unit.

Caution: The flywheel and other moving parts can be dangerous. Use care when working in this area.



7. On the right side of the unit remove the paper feed connectors as shown in the photo at right.



Toner transport tube cleaning

1. **If you have a vacuum cleaner**, an alternative to steps 2, 3 and 4 below would be to remove the round plastic cap from the toner supply cylinder and place a vacuum directly over the cylinder. In this way you can remove the toner from the toner supply cylinder, the toner transport tube and the three 6mm tubes at the same time. You will also prevent possible damage to the toner transport coil

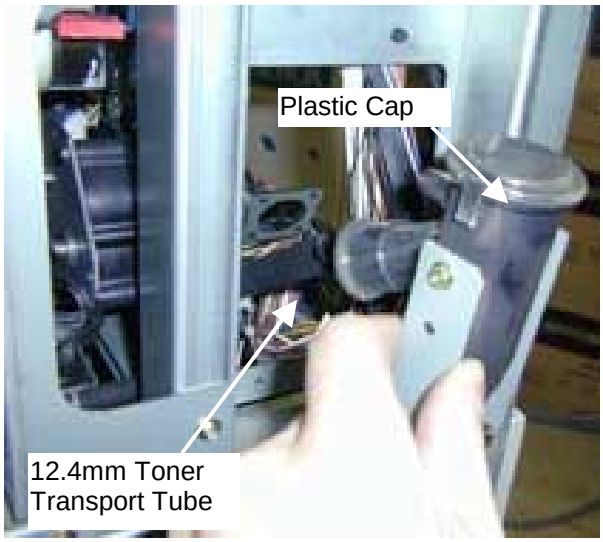
If a vacuum cleaner is not available

2. On the right side of the copier main frame remove the toner supply cylinder at the end of the 12. 4 mm diameter silicon toner transport tube (2 screws, 2 tubes 6mm, 1 tube 12.4mm).

Note: Make sure the tube is not bent 30° or more in any place.

3. Cover the 12.4mm end of the silicon tube with a plastic bag.

Note: For additional information see A294/A295 Service Manual pages 3-33 and 3-34.



4. When the two 6mm tubes have been removed, hook the upper tube on the machine frame, as shown at right, to prevent toner dropping into the unit.

5. Run the toner bank motor (SP5804-61) and the supply clutch (SP5804-64) for about 4 - 6 minutes.

Note: When running the toner bank motor (SP5804-61) and the supply clutch (SP5804-64) tapping the various tubes will loosen accumulated or clumped toner.

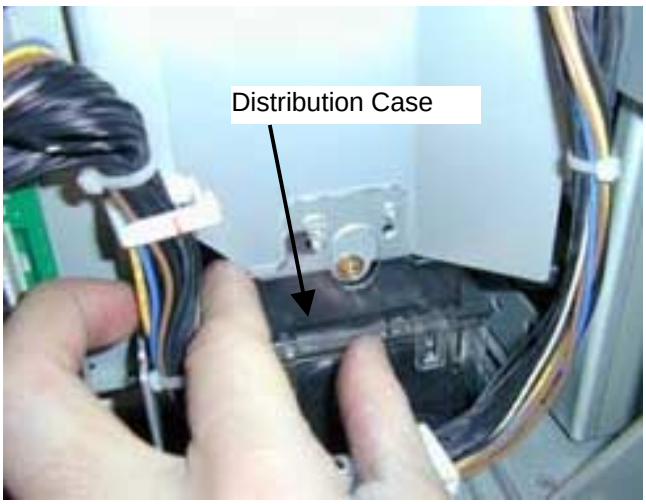


2. Toner Bank Unit Replacement

1. Turn off the main switch and unplug the power supply cord.

From machine rear side

2. Remove the screw from the distribution case on the upper part of the toner bank unit, and then slide the case up.



NOTE: Be sure that the power supply cord is removed.

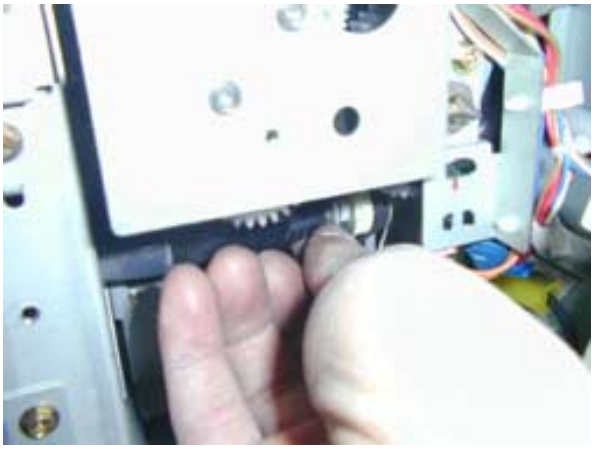
3. Pull off the four connectors and remove the noise filter (2 screws).

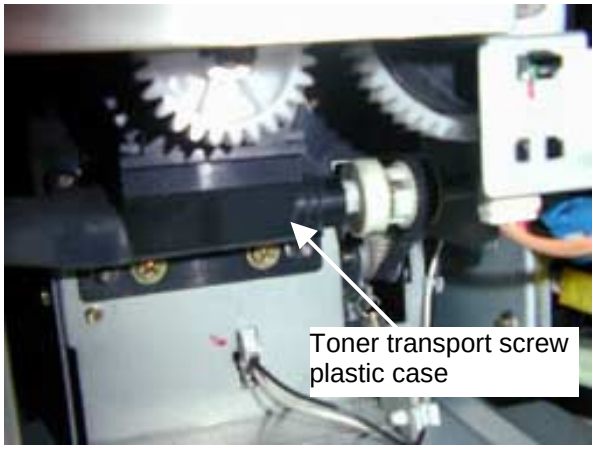


4. Remove the motor DC-5.1W. (1 connector, 2 screws)



5. Remove the snap ring of the toner transport screw and slide the toner transport screw joint to the left.





NOTE: When the toner transport screw case is removed, toner remaining inside the toner bank will fall out.

6. Remove the toner transport screw case. (2 screws)



7. Remove the 1 screw on the side of the toner bank unit.



8. Disconnect the toner bank harness in 3 places.

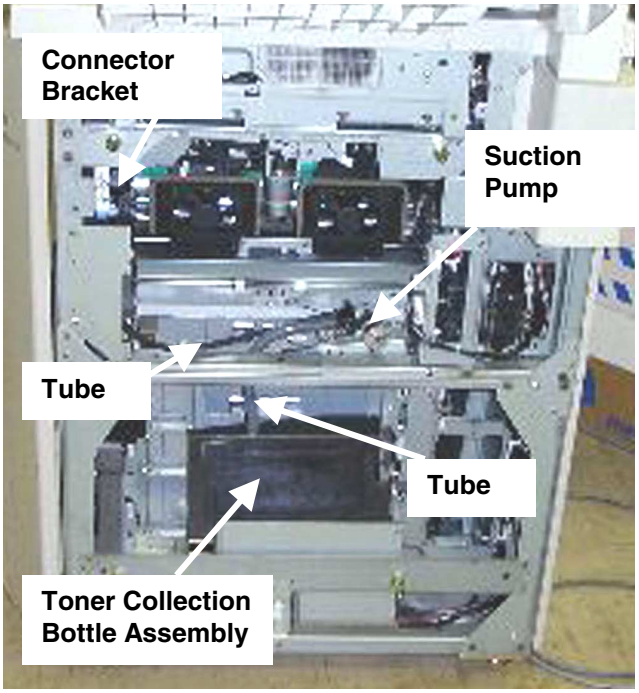


From machine front side

9. Remove the outer and inner covers of the toner bank unit (3 screws).
10. Remove the 3 screws on the front of the toner bank unit.
11. Slowly pull out the toner bank unit from the mainframe (toward the front).
12. Replace the toner bank with new type toner bank.
13. To re-assemble, reverse the above procedure.

3. Suction Motor and Toner Collection Bottle Installation

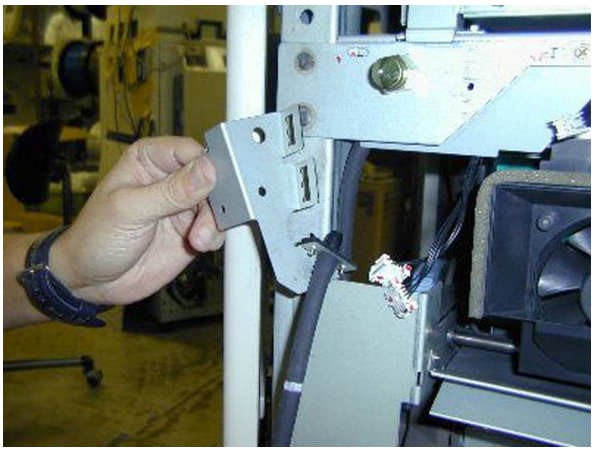
The picture at right is an overview of some of the parts that need to be added during this Enhancement Kit installation. This is a view from the right side of the machine.

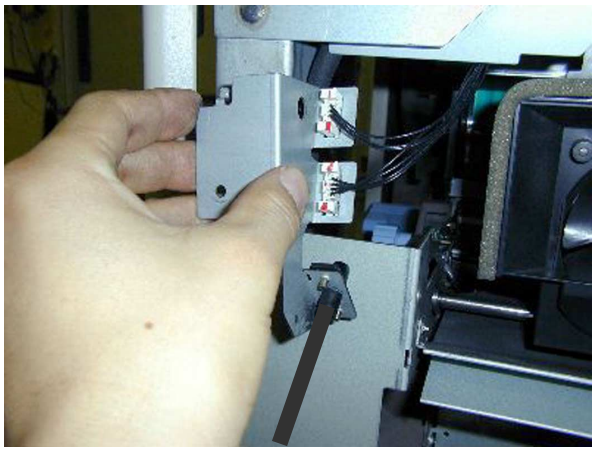


1. Remove the existing connector bracket from the copier frame and unplug the two connector housings from the bracket.

2. Attach the tube (6mm diameter, 515mm long) and 2 connectors removed from the original bracket to the new development unit connector bracket.

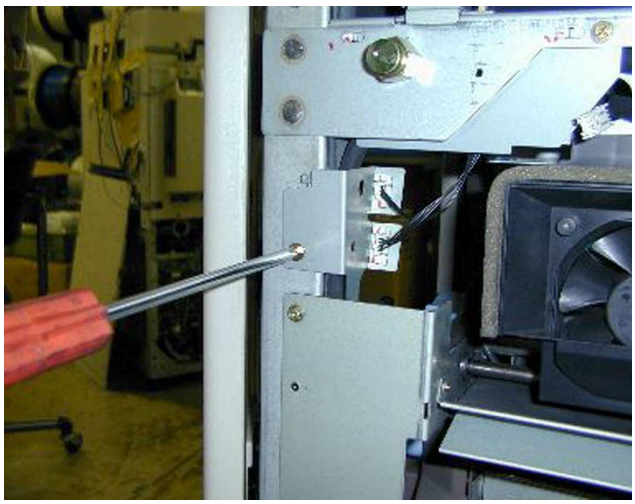
NOTE: This is easier to perform if you connect the tube to the joint before securing it to the mainframe.



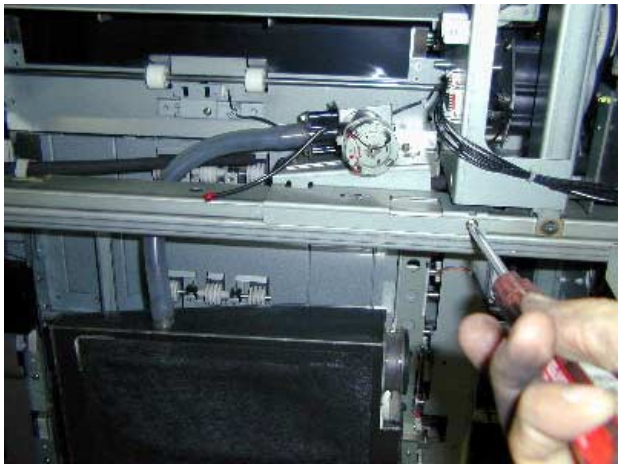


NOTE: Later in the installation two additional connectors and a tube from the new development unit will be mounted on the other side of this bracket.

3. Install the new development unit connector bracket to the mainframe. (1 screw).



4. From the right side of the machine, install the pump unit. (1 M4x8 tapping screw with washer)



5. Remove the vertical transport unit door and harness inner cover.



6. Attach the guide rail in the enhancement kit to the new harness inner cover in the mainframe, then install the two-part assembly into the mainframe (see photo).

NOTE: Align the guide rail edge to the harness inner cover edge as shown in the photo.



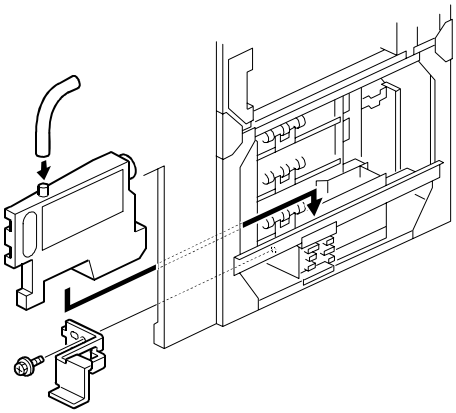
7. After installing the guide rail (A2943710) to the new harness inner cover (A2941526), secure the harness inner cover to the mainframe (2 screws).



8. Reinstall the vertical transport unit door.



9. Set the toner collection bottle assembly (A2943700) in the mainframe and attach the (12mm diameter) tube to the top.





10. From the front of the machine, fasten screws of the toner collection bottle stopper (A2943713).

NOTE: the production level stopper will have foam to cushion the collection bottle and may have two hole not shown in the photo.



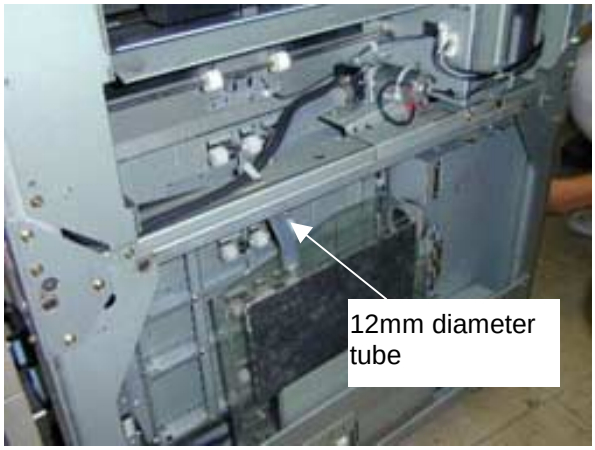
11. Attach one end of the black tube (6mm diameter) from the development unit connector bracket to the pump unit, as shown in the illustrations at right.

12. Attach the remaining end of the semi-transparent tube (12mm diameter) to the pump unit, the other end of this tube has been attached to the collection bottle.



13. Fasten the black tube in place by adding one clamp from the kit.

NOTE: Make sure there are no bends or excessive slack in the tubes.



4. I/O Board Replacement and Harness Routing

The following are additional parts needed for the I/O board modification procedure:

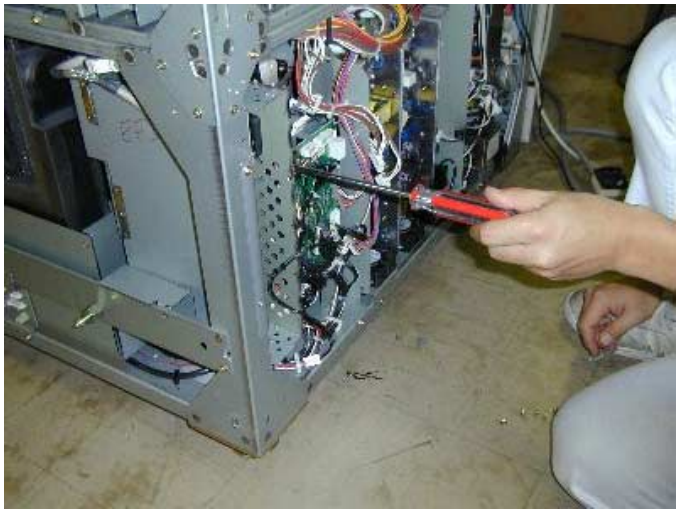
- New style I/O Board
- New harness for pump unit and toner collection bottle set detection sensor.



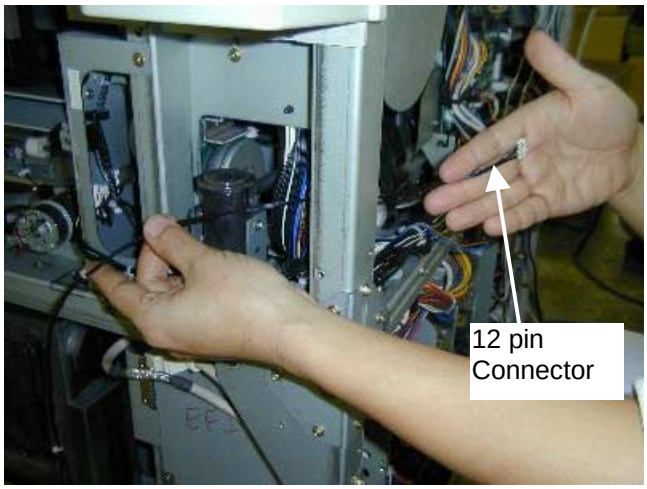


1. Remove the existing I/O board, located in the rear of the vertical paper feed section, and replace it with the new style I/O board.

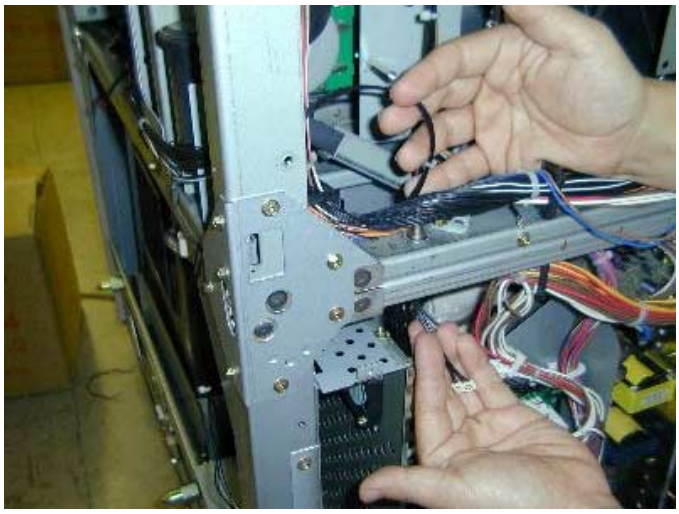
NOTE: The new I/O board has one new connector (CN517) added to the upper right side.



2. Position the new harness so that the end with the white/gray 12 pin connector goes to the back of the unit. Pass the harness inside the right rear vertical frame support as shown.



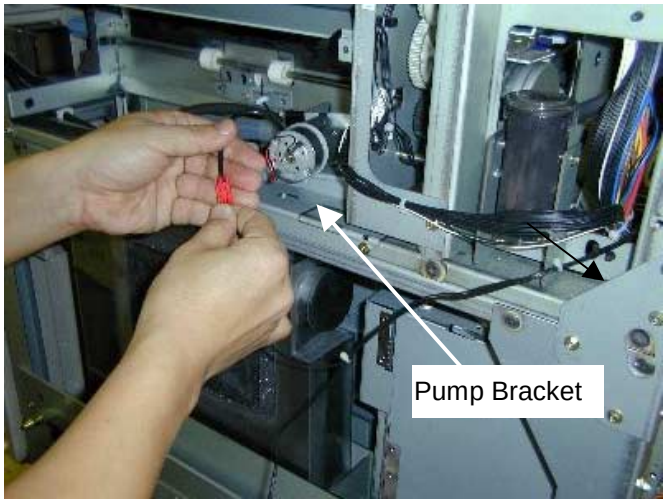
3. Pass the white/gray 12 pin connector end of the harness downward on the inside of the rear frame until it reaches the I/O board.



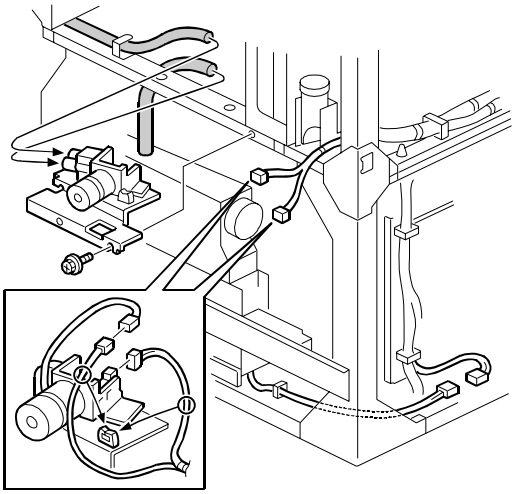
4. Connect the white/gray 12 pin connector end of the harness to connector CN517 of the new I/O board.



5. At the other end of the pump harness, remove the pump bracket (1 screw) and connect the red connector to the pump motor harness.

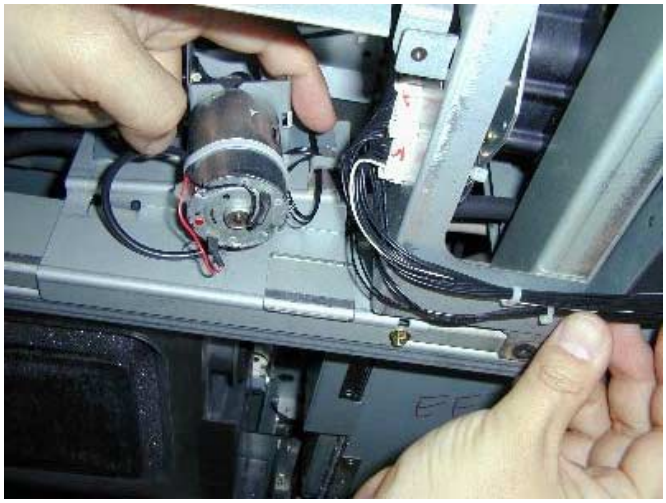


6. Connect the small white connector to the connector to the pump unit drive sensor (photointerruptor type). Reinstall the pump bracket.

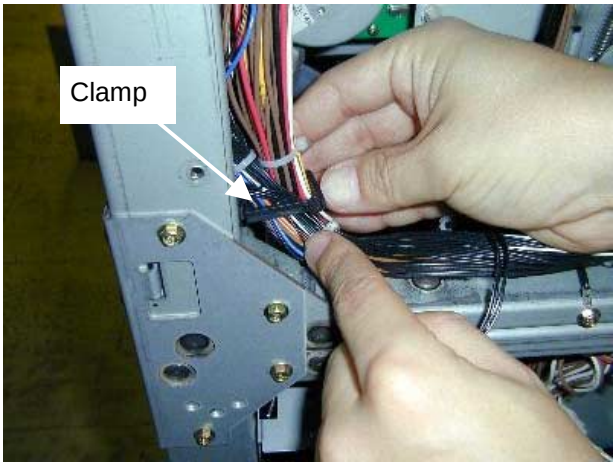


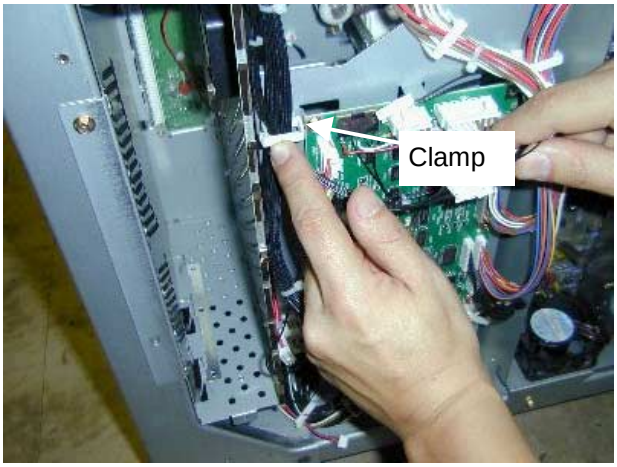


7. Fasten the pump unit drive sensor harness with the pump unit clamp. If necessary, use clamps to take up the extra slack in the harness.

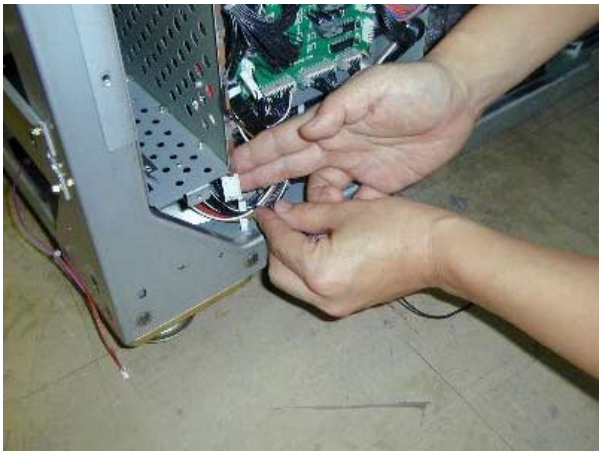


8. Fasten the new harness with the 2 existing clamps near the harness. To prevent the harness from getting pinched between moving parts or other components, remove the slack from the harness with the clamps if necessary.





9. Using the clamp near the rear vertical frame support and the clamp underneath the I/O board fasten the harness in place.

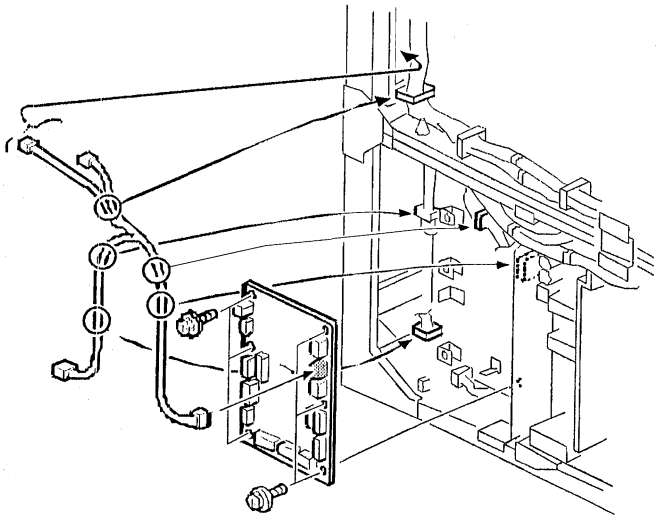




NOTE: The bottle set sensor is part of the new toner collection bottle guide rail assembly. It can be found below the I/O board mounting bracket.

10. Connect the bottle set sensor connector to the remaining white connector, located on the back of the mainframe. To prevent the harness from getting pinched between moving parts or other components, remove the slack from the harness with the clamps as necessary.

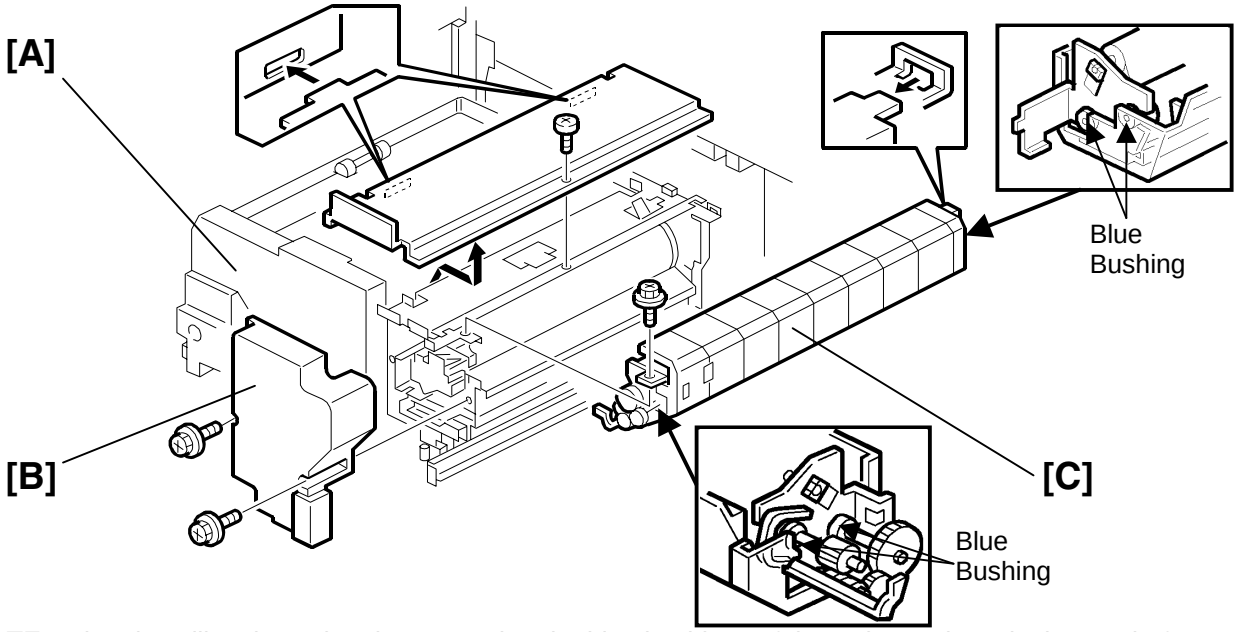




5. Pressure Roller and Cleaning Web Unit Replacement

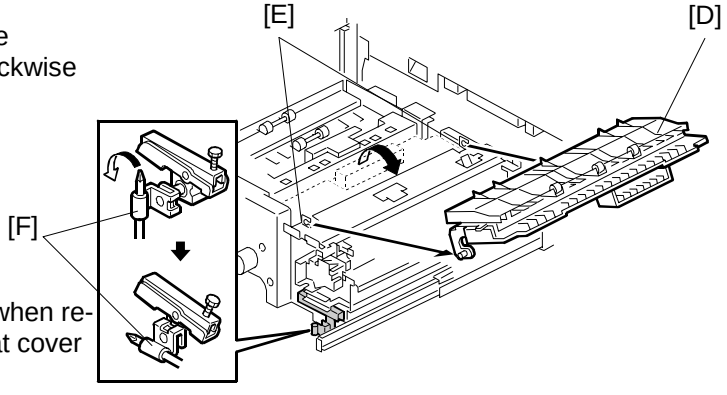
1. Pull out the fusing and exit unit [A].
2. Remove the fusing unit inner cover [B] (2 screws).
3. Remove the oil supply and cleaning web unit [C] (1 screw).

Caution: The oil supply and cleaning web unit may be hot even if the main switch is turned off for service.



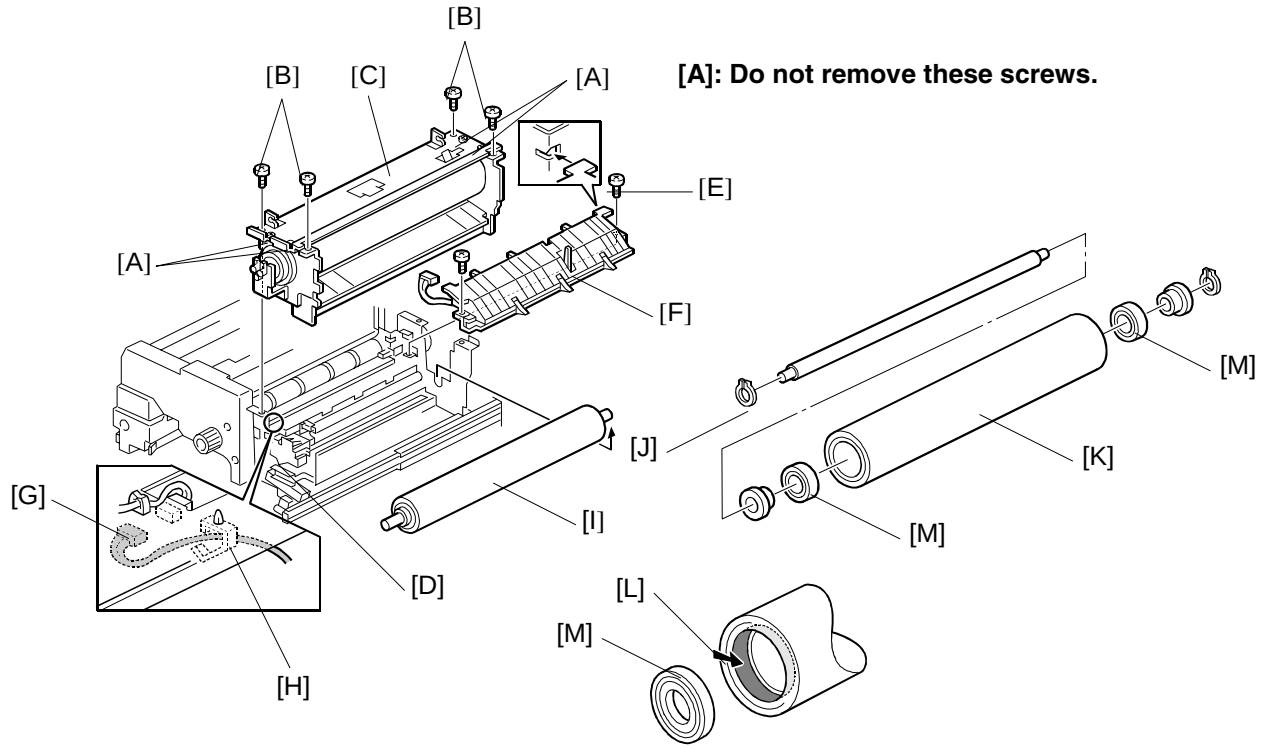
NOTE: When installing the web unit, ensure that the blue bushings of the web supply and take-up shafts are properly positioned, under the web unit cover.

4. Turn the hot roller stripper unit [D] clockwise approximately 160° and slide the pivot shaft out of the cutout [E].
5. Release the fusing pressure by turning the pressure lever [F] 1/4 of a turn counterclockwise with a screw driver.



NOTE: If the fusing pressure is still released when re-installing the inner cover of the fusing unit, that cover cannot be installed.

NOTE: Do not remove the four **M4 bind screws** [A] in the next step.



6. Remove the four **M5 pan head screws** [B] and remove the hot roller unit [C].

NOTE: 1) When re-installing the hot roller unit, make sure that the flanges of the ball bearings in the hot roller unit are set inside the fusing exit side plate [D] and the gear in the hot roller unit is installed on the rear side.
2) Secure the M5 pan head screws in the following order: left-rear, right-front, right-rear, left-front.

7. Remove the two bind screws [E] securing the pressure roller stripper unit [F].

8. Slide the pressure roller stripper unit [F] to the right while slightly raising the side near the pressure roller (1 connector [G] and 1 clamp [H]).

NOTE: Be careful not to touch the pressure roller surface during this step.

9. Lift up the pressure roller unit [I].

10. Remove the C-ring [J] from the pressure roller and replace the pressure roller [K] (2 ball bearings, 2 bushings).

11. Lubricate the inner surface [L] of the pressure roller (bearing [M] contact part) with BARRIERTA L55/2 grease when replacing the pressure roller.

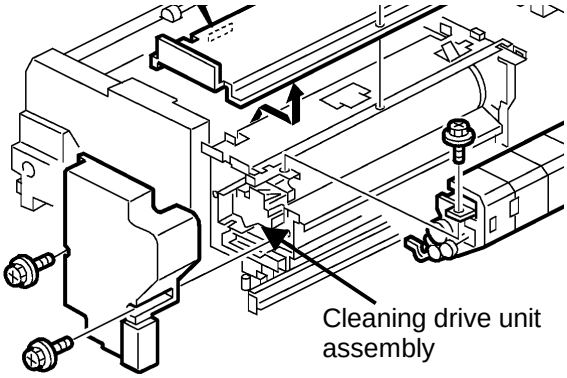
12. Reassemble the pressure roller, hot roller unit and hot roller strippers, by reversing the above procedures.

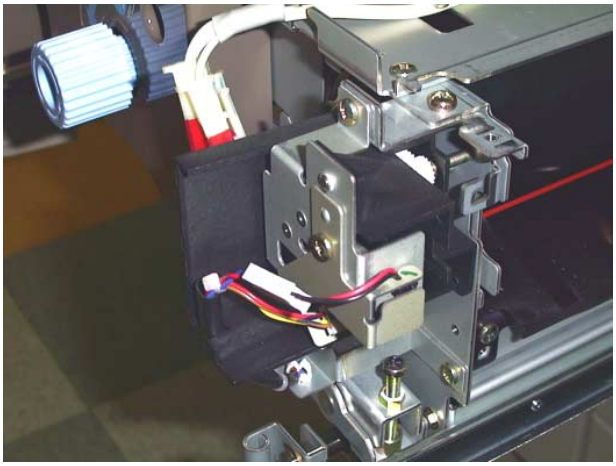
13. Locate the web cleaning drive unit assembly on the fusing unit.

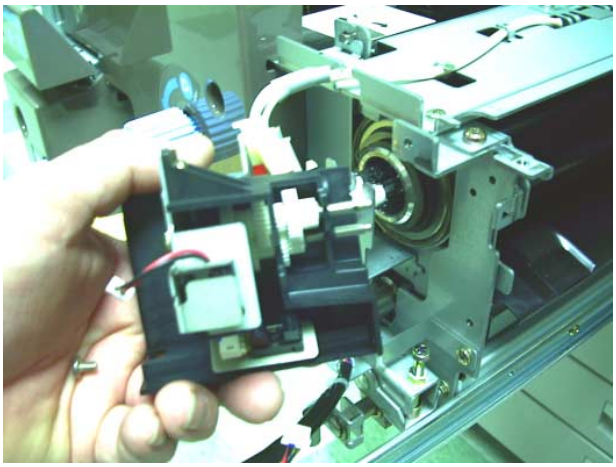
14. Remove the connectors (2) from the fusing oil supply/cleaning web motor and end sensor

15. Remove the web cleaning drive unit assembly from the fusing unit (1 screw).

16. Remove the black plastic cover and install it on the new web cleaning drive unit. Then replace the unit and the two connectors.





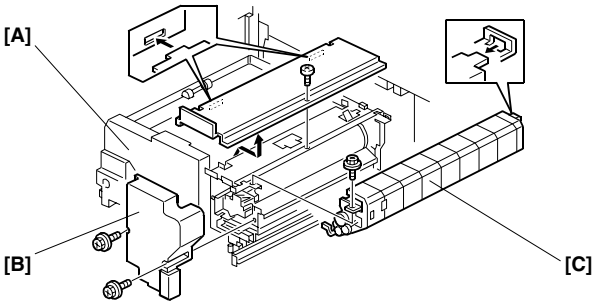


17. Replace the oil supply and cleaning web unit [C] (1 screw).

18. Replace the fusing unit inner cover [B] (2 screws).

NOTE: Make sure that the web collecting roller gear engages the gears on the fusing/exit unit properly when re-installing the new style oil supply and cleaning web unit.

Note: When the unit has been completely reassembled set SP1902-1 (Web Consumption) to zero (0).



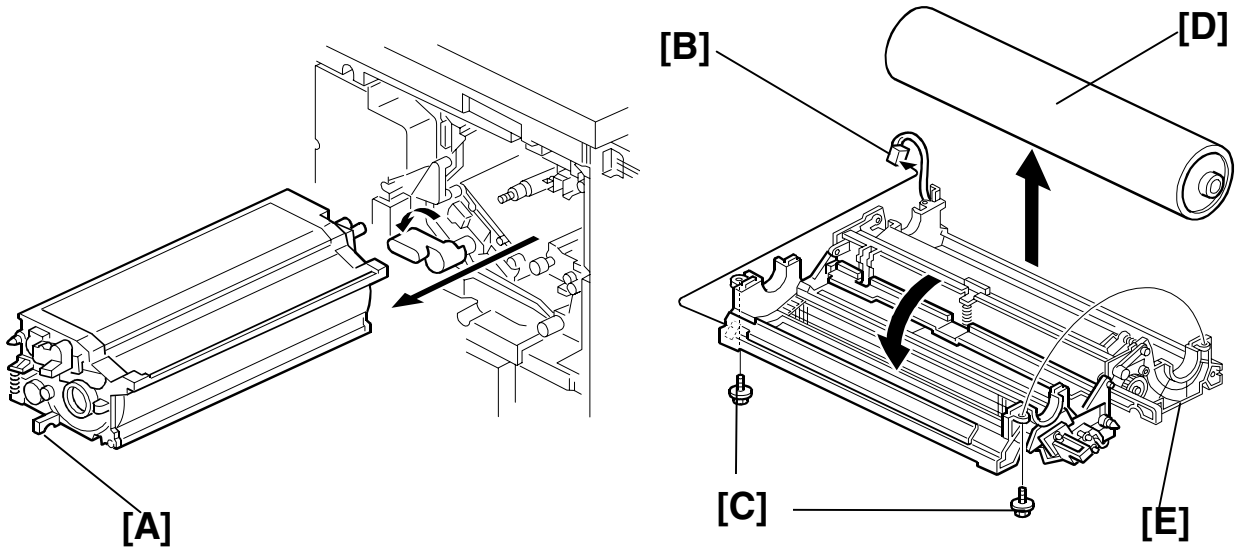
6. Lower Drum Unit, Corona Cleaner & Development Unit Installation

Preparing the Drum Unit

1. If it has not already been done, take out the drum unit by holding the handle [A].
2. Disconnect the connector of the drum potential sensor [B].
3. Open the upper drum unit (2 screws [C]).
4. Remove the drum [D].

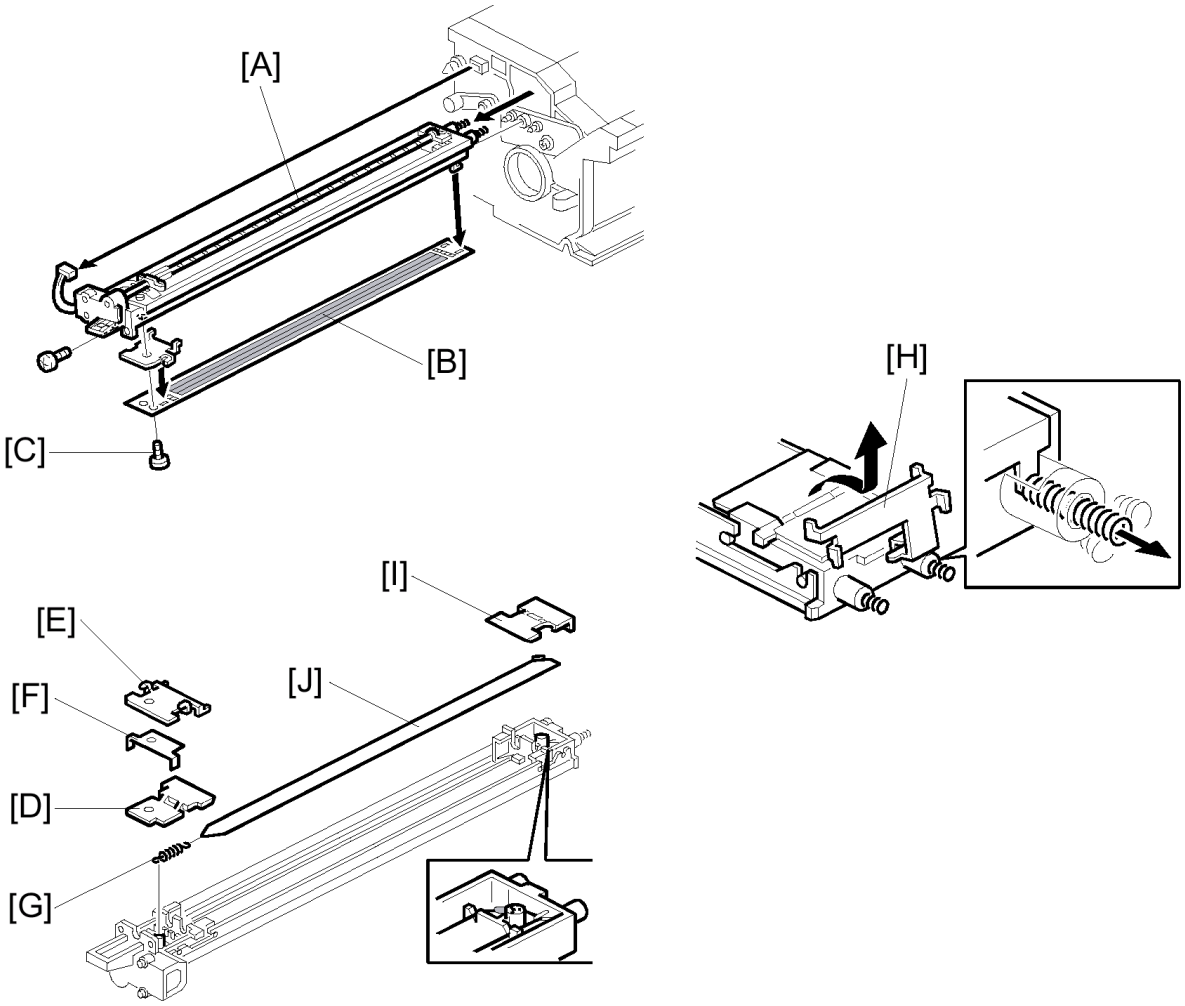
NOTE: Cover the drum with several sheets of paper to protect it from light when the unit is left outside the machine for servicing. Do not touch the drum surface with bare hands.

5. Replace the lower drum unit [E].
6. Reverse the above procedure to reassemble the drum unit.



Preparing the Charge Corona Unit

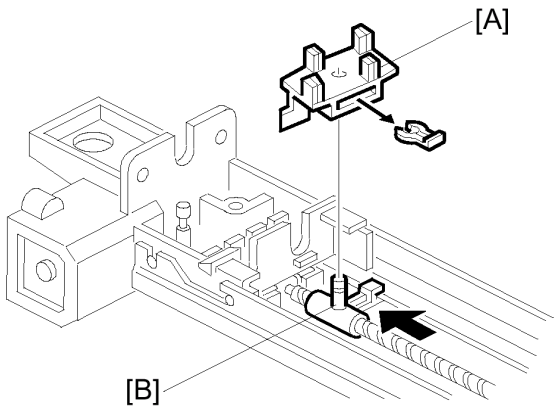
A new corona cleaner is supplied with the Enhancement Kit. When installing the new corona cleaner, it may be necessary to replace the corona wire and the grid at the same time.



1. Take out the charge corona unit [A] (1 screw, 1 connector).
2. Remove the grid plate [B] (1 plastic screw, 4 hooks).

NOTE: 1) When installing the grid plate, do not over tighten the plastic screw [C].
2) Do not touch the corona wire and grid plate with bare hands.

3. Remove the front grid terminal [D], then the front end block cover [E].
4. Remove the plate [F].
5. Remove the terminal spring [G].
6. Slide the rear grid terminal [H] to the rear and remove it, then remove the rear end block cover [I].
7. Remove the charge corona wire [J].



8. Remove the wire cleaner [A] (1 snap ring).

9. Install the new wire cleaner, charge corona wire and grid plate.

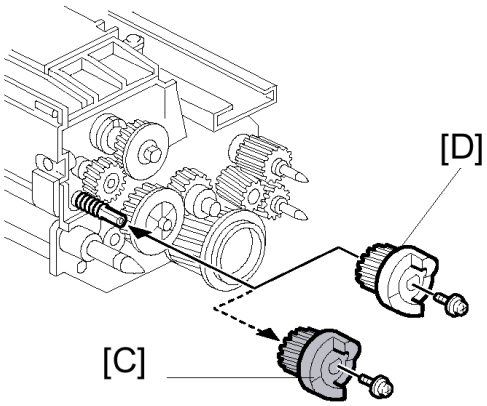
NOTE: Locate the joint part [B] of the wire in the rear end block as shown.

NOTE: Later in the installation, SP2-001-1 and 2-001-4 (corona voltage and current) will be reset to the defaults and SP2-962 (process control initialization) will also be performed.

Preparing the Development Unit

1. Attach the cover with the tube onto the new development unit.

2. Pour one bag of developer into the development unit and attach the new toner hopper with the special red gear [c] below.







3. Temporarily, hook the tube from the cover onto the clamp in front of the hopper.

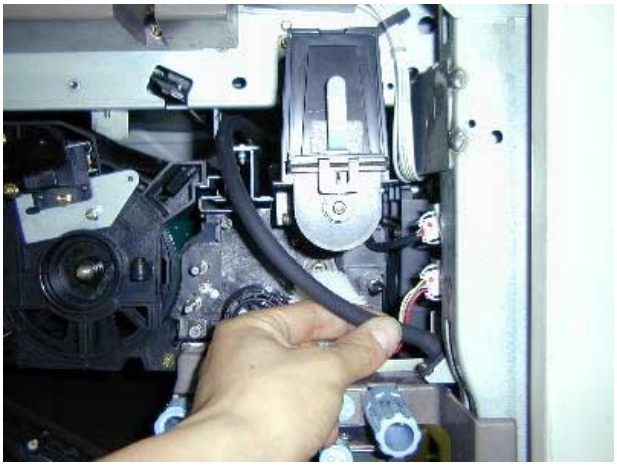
NOTE: In the future when the development unit needs service this clamp can be used to prevent toner spills during removal.

4. Set the development unit in the machine.

5. Connect the tube and 2 connectors to the proper places in the mainframe.

NOTE: This is the other side of the development unit connector bracket installed during previous procedures.





6. Attach the drum stay. Then, position the tube between the development unit and the drum stay, as shown, so that it does not get caught or pinched between the plate and hopper.



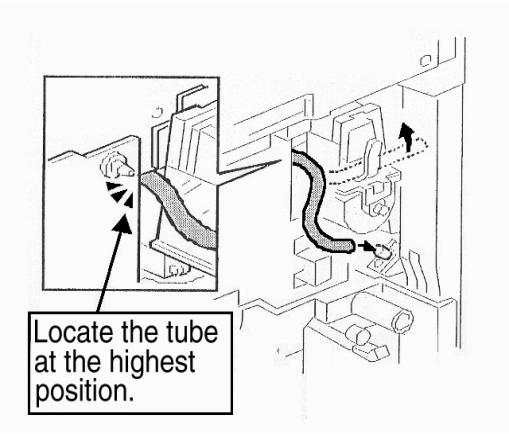


7. Plug in the power cord and turn the main switch on.

8. Put toner bottle(s)in the toner bank. If only one bottle is installed it must go in to the lower position.

9. When the machine is ready, enter SP mode as follows:
   1)Press the clear modes key.
   2)Enter “107 ”.
   3)Hold down the clear key for more than 3 seconds.

10. Press “Copy SP ” on the LCD, and perform the TD initial setting as follows:
    1)Select SP No.2-801
    2)Press the “Start key ” on the LCD.



NOTE: This SP mode performs the TD initial setting. It will stop automatically in about 1 minute.

11. Supply toner from the toner bank to the toner hopper as follows:
    1) Select SP2-207-2 (Toner Bank Toner Supply)
    2) Press the “Start key ” on the LCD.

NOTE: By performing this SP mode, the toner is distributed into the toner hopper and the toner transport path. It will stop automatically in about 7 minutes. If SP2-207-2 fails after SP2-801 is completed (an SC code is displayed), repeat only SP2-207-2 again.

NOTE: When replacing the toner hopper unit, perform SP2-207-2 using the red gear. Because the new toner hopper does not contain any toner, using the red gear will fill the toner hopper but will not add toner to the developer. Therefore, replace the white gear from the new toner hopper unit with the red gear. After performing SP2-207-2, reinstall the white gear.

IMPORTANT- Do not discard the red gear after completing this installation. It will be necessary if you need to replace the toner hopper unit in the future. Store the red gear in the box on the inside of the units right front door.

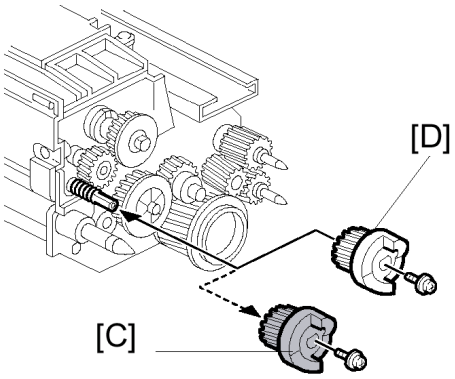
13. Remove the screw that holds the drum stay.

14. Remove the drum stay knob and the drum stay (turn the knob clockwise to remove it).

15. Disconnect the two connectors and the new rubber tube.

16. Pull out the development unit.

17. Remove the red toner hopper drive gear [C] (1 screw)and replace with the white gear [D] supplied.



NOTE: The red gear is used only to prime to toner supply system. Failing to replace the red gear with the white gear will result in a lack of toner delivery from the toner hopper to the developer unit.

NOTE: Early production units used snap rings to hold the gear in place.

Please note the following “Necessary Actions ” following each activity listed in the table below:

Service Activity	Necessary action for adding toner to the toner hopper	Remarks
Developer Replacement	No further action is required. The white gear is in the toner hopper unit.	Toner can be supplied from the toner hopper.
Toner Hopper Unit replacement (empty toner hopper installation).	Refer to the procedure described in the NOTE: section of step 11.	Toner is not in the toner hopper. If the proper action is not carried out, SC495 will be displayed.
Toner Transport Tube cleaning (before and after machine transportation).	No further action is required. The white gear is in the toner hopper unit.	Toner is already inside the development unit and toner hopper.

18. Install the development unit in the machine and re-connect two connectors and the rubber tube.

19. Attach the drum stay and attach the drum stay knob and one screw.

20. Reinstall the inner cover.

⚠ IMPORTANT INFORMATION ⚠

The SP mode setting procedures on the following page are critical steps in the installation of the A294/A295 Enhancement Kit. These SP modes are very important and must be done carefully and in the order indicated. When complete, check copy quality and machine operation before proceeding to Decal Attachment.

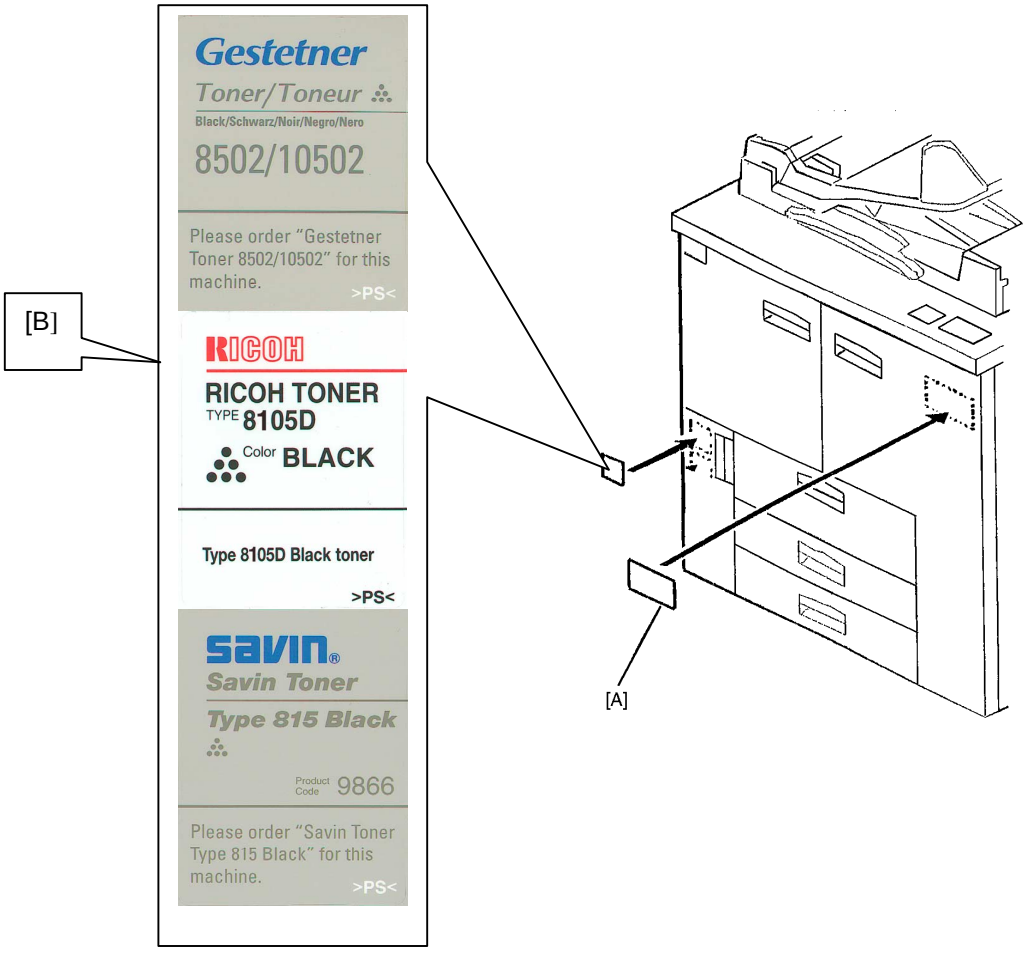
7. SP Mode Settings

NOTE:
- Before performing the following SP settings, be sure that the engine firmware is Ver. 8.3 or higher. If not load data from IC Card (Flash Memory Card) Ver. 8.3 supplied with the Enhancement Kit.
- Perform SP2962 as the last step of the SP settings before making copies/prints.
- The asterisk mark (*) indicates new SP numbers.

SP Mode.	Description	Version		Setting
1105-4	Fusing Temperature Correction	US, 85ppm		+5°C
	(A4/LT)	US, 105ppm		+5C
		EU, 85ppm		+10°C
		EU, 105ppm		+15°C
1902-1	Web Consumption			0
1902-2	Web Motor Drive Interval	US, 85ppm		21 sec
		US, 105ppm		17 sec
		EU, 85ppm		11 sec
		EU, 105ppm		9 sec
1902-3	Web Motor Drive Time	All		2.8 sec
1902-4	Web Near End Setting	All		53%
Reference	Web Near End/End	US		360K / 420K
		EU		100K / 140K
2001-1	Change Corona Bias Adjustment	All		-1000V
2001-4	Grid Voltage for Transparent Sheet	All		950
2001-7	Charge corona current (When Process Control setting is ON)	All --		850
2201-1	Image Area	All		650
2201-3	Transparent Sheet	All		650
2201-4	ID Sensor Development Potential	All		280
2804-1	Corona Wire Cleaner Operation Setting	All		2
2911-1	Transfer Current On/OFF Timing La	All		0 mm
'* 2911-2	Transfer Current On/OFF Timing Lb	All		45 mm (0 to 60 by 1 step)
2911-3	Transfer Current On/Off Timing Lc	All		0 mm
* 2940-1 to 6	Lead Edge Transfer Current for Tray 1 to 6	85ppm		120µA (10 to 200 by 1 step)
		105ppm		140µA (10 to 200 by 1 step)
* 2940-7	Lead Edge Transfer Current for Duplex Tray	85ppm		120µA (10 to 200 by 1 step)
		105ppm		140µA (10 to 200 by 1 step)
* 2941	Transfer Current for Recycled Paper	All		**0:** Plain paper (1: Thick paper)
* 2972	Operation Time of Toner Collection Bottle (Toner from Dev. Unit)	All		0 (0 to 300 by 1 step)
* 2973	Operation Time of Toner Suction Motor	All		0 (0 to 600 by 1 step)
2962	Auto Process Control	All		Start

8. Decal Attachment

Attach the new model name decal [A] and the new toner type decal [B] on the machine covers as shown below. Attach the Enhancement Kit Serial Number to the Right Upper Inner Cover above the machine's serial number plate. The Right Upper Inner Cover is located inside the unit behind the Right Front Door.



TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295-047 **08/06/2001**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

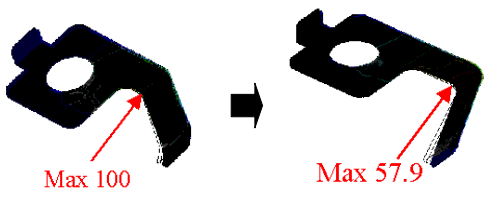
The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Drive Wire Pulley Cover** – The description for the drive wire pulley cover has been changed to the wire pulley ass'y. The part number remains unchanged**.**

				REFERENCE	
PART NO.	OLD DESCRIPTION	NEW DESCRIPTION	QTY	PAGE	ITEM
A2946688	Drive Wire Pulley Cover	Wire Pulley Ass'y	2	57	19

- **UPDATE 2:** **Stopper Bracket** - The spring plate, contained in the stopper bracket, can sometimes break due to the plate's load distribution. The plate's shape has been changed as shown below (rounding, lengthening and angle change in area shown), in order to more evenly distribute the load
In addition to increasing reliability, this modification will also dramatically increase the lifetime of the part.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944132	A2944117	Oil Supply & Cleaning Web Unit	1	1	101	3
A2944112	A2944104	Stopper Bracket	1	1	101	20



Continued…

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All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style oil supply & cleaning web unit and stopper bracket installed during production

UNITS AFFECTED:

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610300115
Gestetner 32105	H3710300063
Ricoh AFICIO 850	H3610300156
Ricoh AFICIO 1050	H3710300101
Savin 2085DP	H3610300115
Savin 2105DP	H3710300063

- **UPDATE 3:**

Fusing Paper Exit Unit - To facilitate the production process, the material for the cooling roller shaft has been changed. There is no change in the roller's function.
In accordance with this change, the part numbers for the fusing paper exit units have been changed as shown below**.**

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944011	A2944014	Fusing Paper Exit Unit - 230V	1	0	103	*
A2944209	A2944013	Fusing Paper Exit Unit - 240V USA	1	0	103	*

- **UPDATE 4:**

On Off Detector Harness - To facilitate assembly, the DF position sensor harness has replaced the On-Off Detector Harness**,** with an interchangeability of 1.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A8065755		On-Off Detector Harness	1	1	41	14
	B3015380	DF Position Sensor Harness				

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 048 **09/05/2001**

APPLICABLE MODEL:
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: FUSING KNOB SLIPS

SYMPTOM:

The hot roller does not rotate even though the fusing knob is being turned. This symptom tends to occur around 3,000 K copies.

CAUSE:

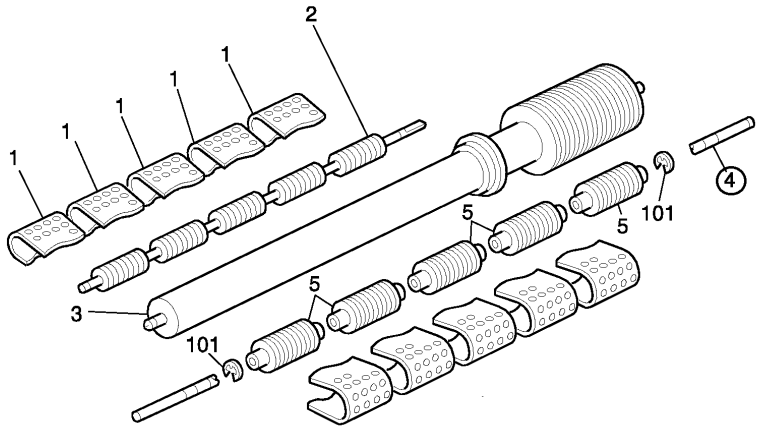
The cooling roller shaft has worn, which has caused the roller drive gear to slip.

SOLUTION:

Replace the old style cooling roller shaft (P/N AA140723) with the new style shaft (P/N AA140747). The new style shaft has been strengthened to prevent premature wear of the shaft bushing area. You should replace the cooling roller shaft when the pressure roller is replaced during the PM.

GENERAL:

The following part update is being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA140723	AA140747	Cooling Roller Shaft	1	1	109	4

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style cooling roller shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601200077
Gestetner 32105	H3701200059
Ricoh AFICIO 850	H3601200120
Ricoh AFICIO 1050	H3701200095
Savin 2085DP	H3601200077
Savin 2105DP	H3701200059

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 049 **09/28/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

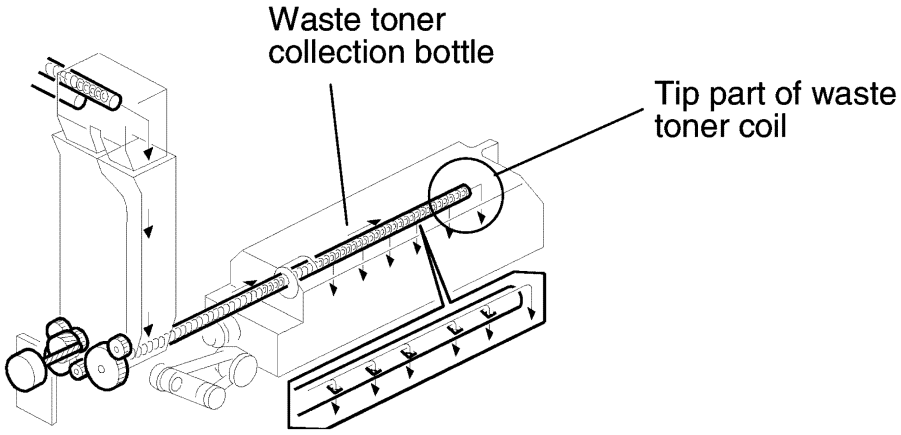
SUBJECT: TONER BOTTLE FULL CONDITION CANNOT BE RESET

SYMPTOM:

The waste toner full condition cannot be reset even after the waste toner collection bottle is replaced with a new one.

CAUSE:

The tip of the waste toner coil located in the toner bottle is blocked with hardened toner. The hardened toner is not broken up even when the coil rotates after a new waste toner collection bottle has been installed.



SOLUTION:

Field Countermeasure:

1. Remove the waste toner collection bottle.
2. Place a sheet of 11”x17” paper below the waste toner coil.
3. Break up the hardened toner in the coil using a screwdriver until you can see the tip of the waste toner coil.

CAUTION: Some pieces of the hardened toner can chip off randomly. Please use adequate eye protection when performing this procedure.

4. Reinstall the waste toner collection bottle.

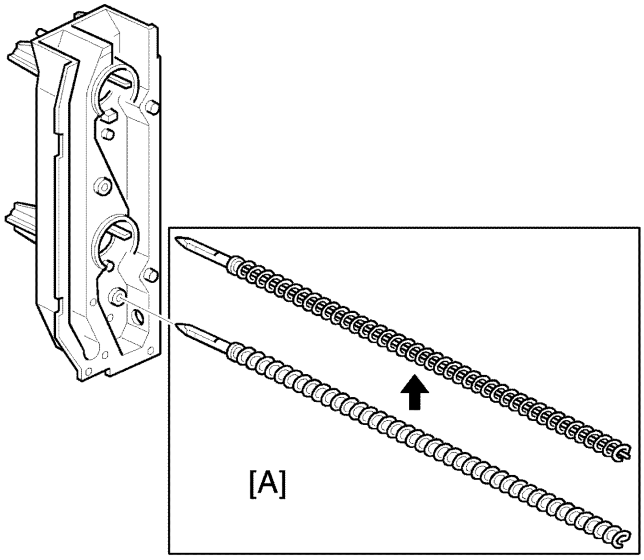
Continued…

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NOTE: *It is recommend checking the waste toner collection bottle at every visit, before the bottle becomes full.*

Production Countermeasure:

The length of the toner collection coil [A] has been increased, and a center shaft has been added to increase the strength of the coil.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943411	A2943285	Toner Collection Coil	1	1	81	22

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style toner collection coil installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601100129
Gestetner 32105	H3701100032
Ricoh 850	H3601000212
Ricoh 1050	H3701100075
Savin 2085DP	H3601100129
Savin 2105DP	H3701100032

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 050 **09/28/2001**

APPLICABLE MODEL:

GESTETNER – 3285/321058502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

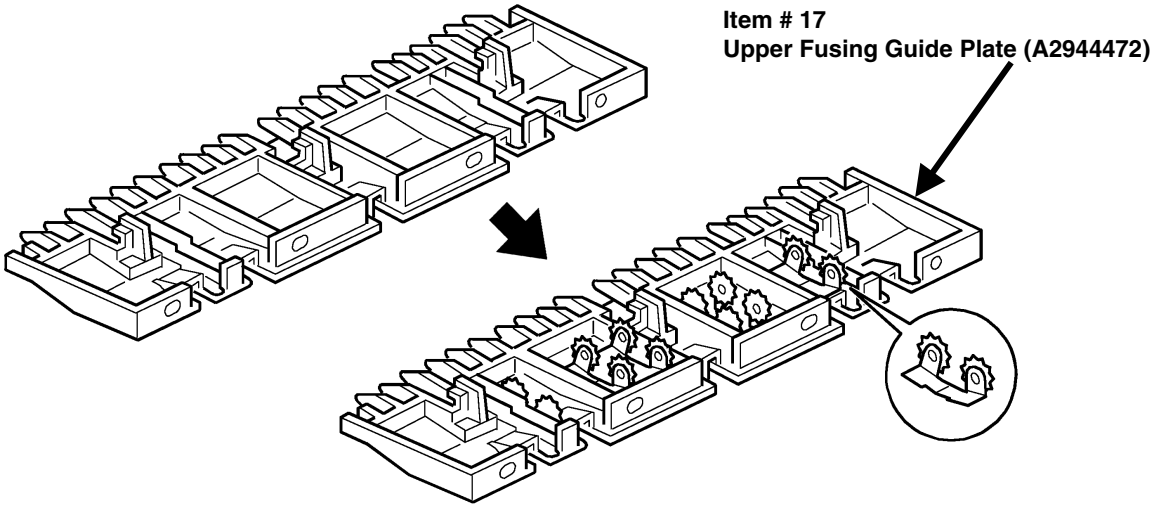
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Upper Fusing Guide Plate –** When 11x17 inch copies are made, toner may transfer to the upper fusing guide plate due to the larger paper buckle. To prevent toner from being transferred to the guide plate, twelve spurs have been added to the upper fusing guide plate. This symptom may be visible on the side face of stacked copies.

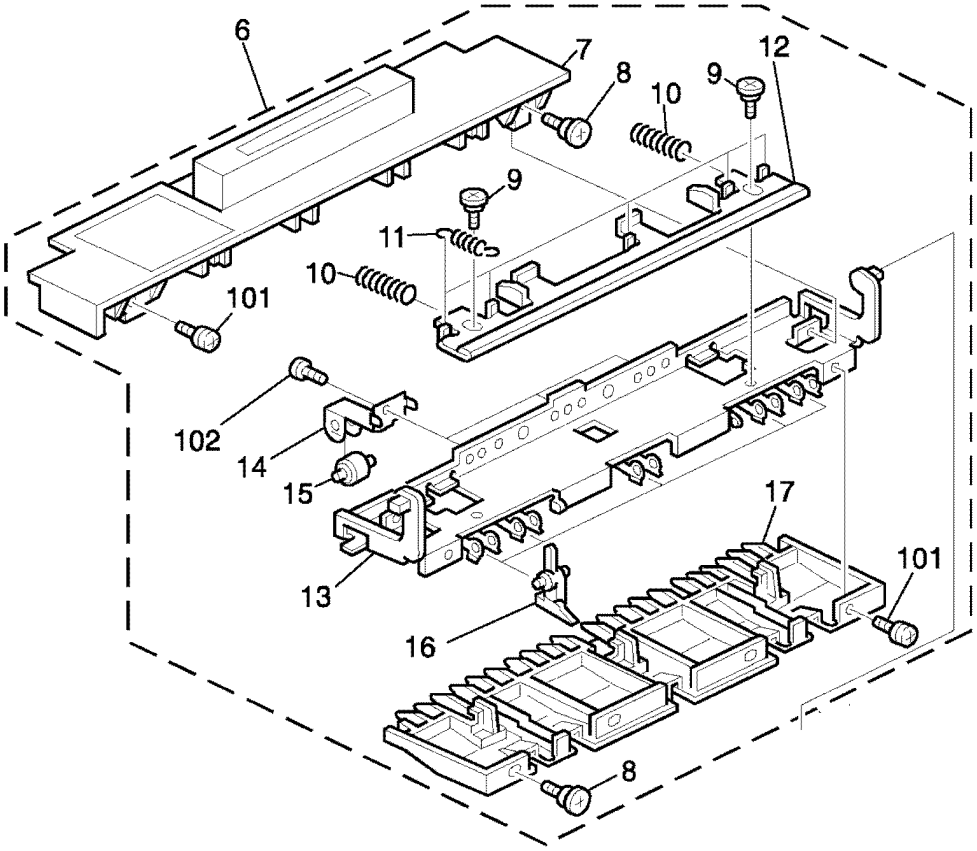


					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2944118	A2944470	Fusing Guide Plate Assembly	1	1	103	6
A2944170	A2944472	Upper Fusing Guide Plate	1	1	103	17

Continued…

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- **UPDATE 2:** **Hot Roller Strippers –** To ensure the proper surface smoothness of the hot roller stripper's only one vender will be used for manufacturing.



OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	REFERENCE			
				INT		PAGE	ITEM
				A294	A295		
A2949506	A2949507	Hot Roller Stripper - 5 pcs/set	1	0	1	103	16
A2954206	A2954212	Fusing Paper Exit Unit - 240V	1	1	1	103	*

Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new hot roller strippers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3601000106
Gestetner 32105	H3701000006
Ricoh 850	H3601000212
Ricoh 1050	H3701000040
Savin 2085DP	H3601000106
Savin 2105DP	H3701000006

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 051 **11/16/2001**

APPLICABLE MODEL:
GESTETNER –32105
RICOH – AFICIO 1050
SAVIN –2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: HARD DISK DRIVE FIREBALL PLUS LM

GENERAL:

Due to a vendor change, the HDD for this machine has been changed.
Note: There is no change in the function or performance of the HDD.

The following parts corrections are being issued for all A294/295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2955173	A2955174	HDD FIREBALL PLUS LM	2	0	145	1

UNITS AFFECTED:

All A295 copiers manufactured after the Serial Numbers listed below will have the new style (HDD FIREBALL PLUS LM) installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 32105	H3710200073
Ricoh Aficio 1050	H3710100058
Savin 2105DP	H3710200073

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 052 **11/16/2001**

APPLICABLE MODEL:

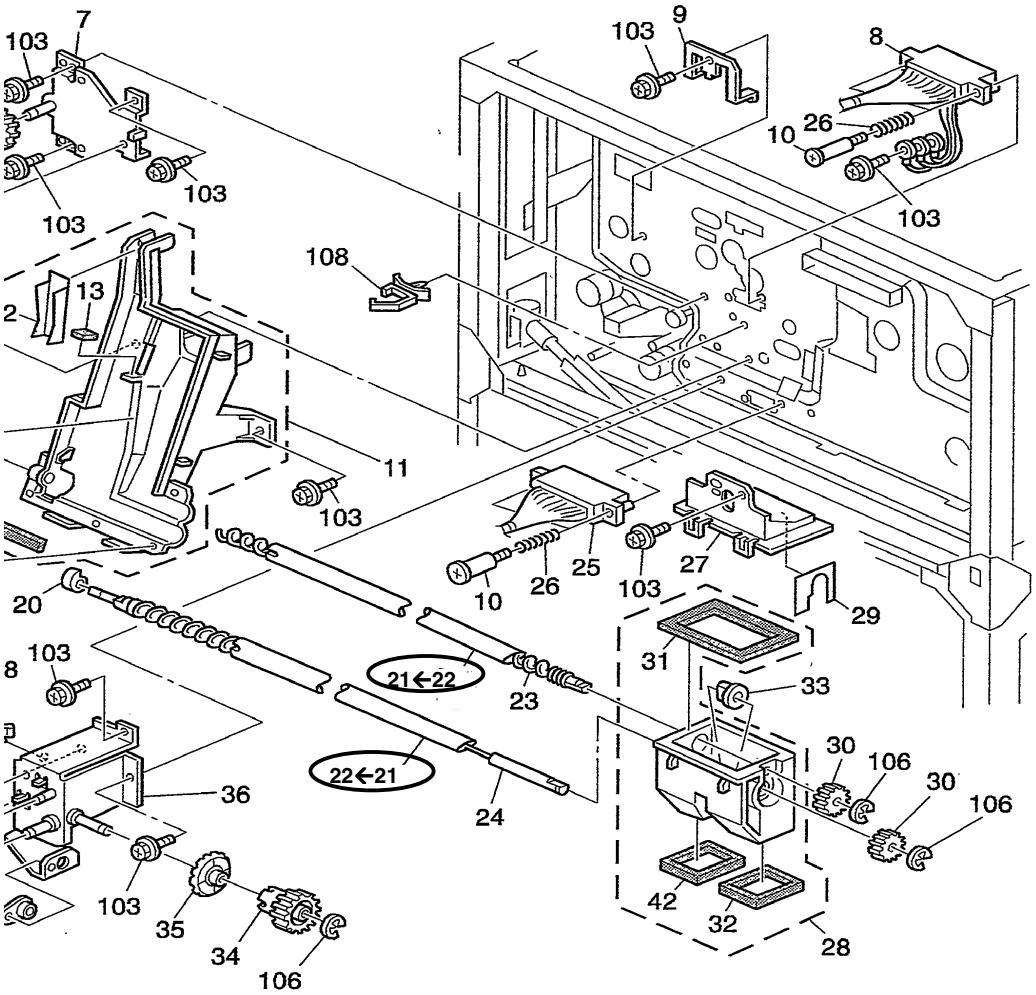
GESTETNER – 3285/32105
RICOH – AFICIO 850/1050
SAVIN – 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG INDEX CHANGE

GENERAL:

Please change the following index numbers in your Parts Catalogs. The following parts corrections are being issued for all A294/A295 Parts Catalogs.



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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 053 **11/30/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

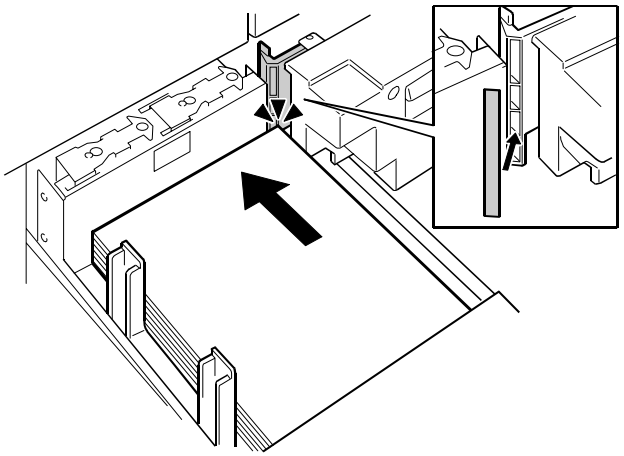
SUBJECT: FRONT SIDE FENCE BROKEN

SYMPTOM:

Front side fence of the tandem tray is damaged.

CAUSE:

The customer sets the paper in the left tray incorrectly (in cases where the right tray is still being used for copying). After the paper stack is shifted from the left to the right tray, the customer may open the left tray to load more paper. At this time, if the paper is not set flush against the left side, a gap is created between the paper and left end fence. In this condition, the right rear of the paper stack will hit the hollow portion of the front side fence when the tray is pushed in. The excess load on the fence causes it to bend inward, which can prevent the bottom plate from lifting up.



SOLUTION:

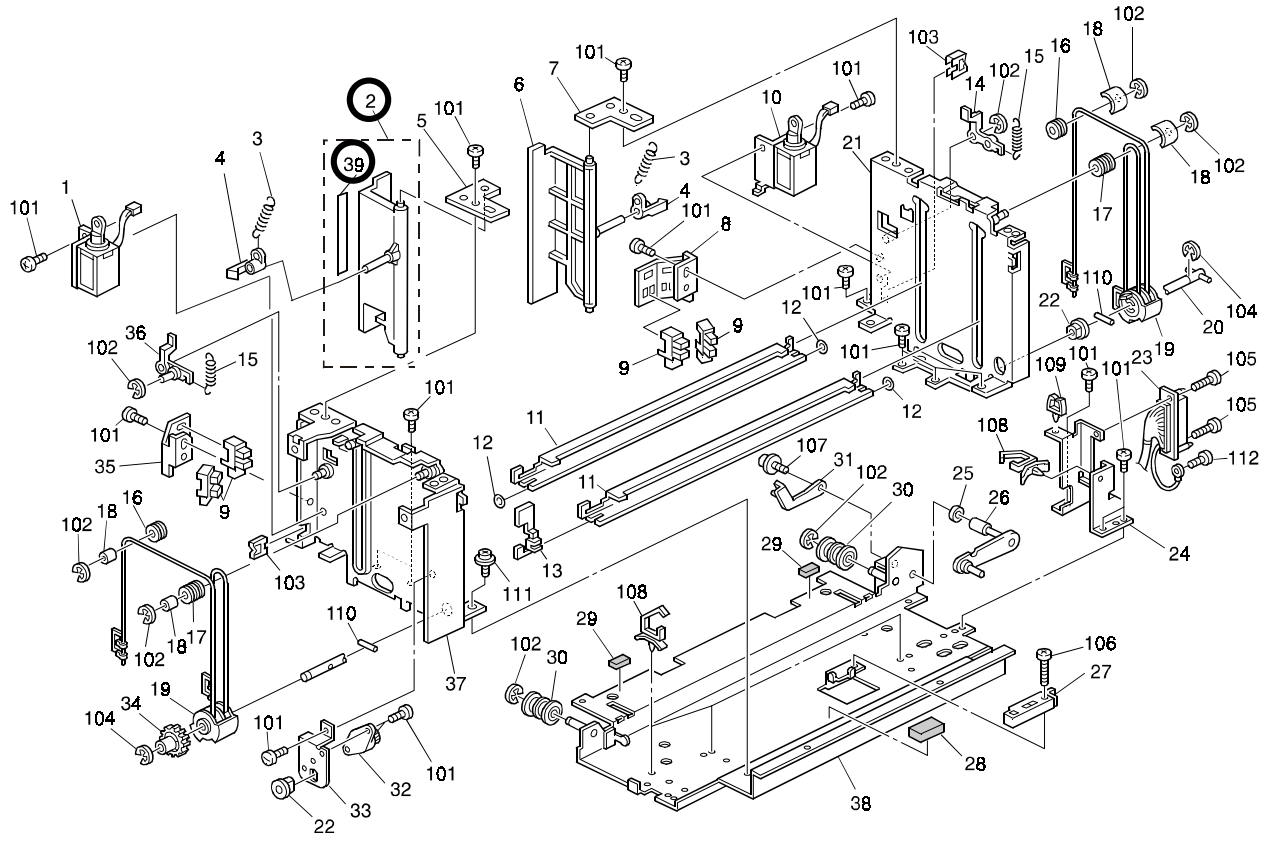
Attach a mylar (A2946713) to the hollow portion of the front side fence. This will ensure that the paper stack does not hit and damage the fence, even if the paper is set incorrectly.

Continued…

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GENERAL:

The following parts corrections are being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2946711	A2946712	Front Side Fence	1	1	57	2
	A2946713	Shield - Front Side Fence	1	--	57	39*

***DENOTES NEW ITEM NUMBER**

Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new front side fence shield installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part Only
Gestetner 32105	Service Part Only
Gestetner 8502	H3610900084
Gestetner 10502	H3710900120
Ricoh Aficio 850	Service Part Only
Ricoh Aficio 1050	Service Part Only
Ricoh Aficio 1085	H3610900298
Ricoh Aficio 1105	H3711000001
Savin 2085DP	Service Part Only
Savin 2105DP	Service Part Only
Savin 2585	H3610900084
Savin 25105	H3710900120

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

Gestetner RICOH savin

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 054 **12/12/2001**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.



■ MECHANICAL



■ ELECTRICAL

SUBJECT: SERVICE CODE 592

SYMPTOM:

SC592 is displayed on the operation panel.

CAUSES:

There are several possible causes for SC592. The cause of the SC592 falls into one of the following two categories:

- Transport Screw / Air Pump Motor failure
- Toner Bank Unit component(s) failure

This bulletin provides troubleshooting flowcharts and procedures for determining the root cause, as well as the best course of action. It is divided into two main sections, one for each cause.

Continued…

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TROUBLESHOOTING SOLUTION:

SC592 appears

↓

Turn main switch off

↓

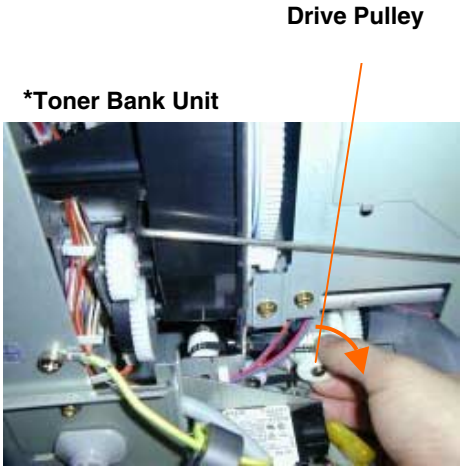
Remove the left lower cover

↓

Try turning the drive pulley on the toner bank unit clockwise (manually). <fig.1>
Does the drive pulley rotate easily?

YES → Go to section 2

NO → Go to section 1



<fig.1>

*From left side view

SECTION 1: TRANSPORT SCREW/AIR PUMP MOTOR FAILURE:

Open the top cover of the toner transport joint. Confirm whether toner reaches the top cover. <fig.2>
Does toner reach the top cover?

NO → Go to Procedure 2

YES → Go to Procedure 1



<fig.2>

*From right side view

Continued…

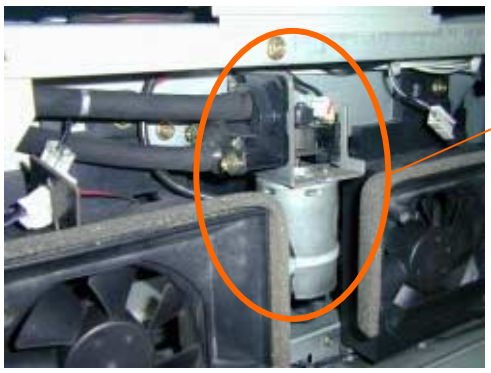
PROCEDURE 1:

POSSIBLE CAUSE:

The toner transport screw (coil) has locked due to a toner block in the air pump motor.

ACTION

1. Thoroughly clean the entire toner transport tube and transport screw (coil). If necessary replace the parts (e.g., if the transport screw is bent).
2. Replace the air pump motor. <fig.3>



<fig.3>

***From right side view**

NOTE: *After performing these 2 steps, perform the following check on the toner discharge area of the PCU frame. <fig.4>. This will further ensure the symptom does not reoccur.*

- Check for any deformation of the toner transport screw on the PCU.
- Check for any toner blocks/clumping.

If either or both above items is **"YES"**, replace the PCU and throroughly clean the entire toner transport path.



<fig.4>

Continued…

PROCEDURE 2

POSSIBLE CAUSE

The toner transport screw (coil) has locked due to a toner block in the toner transport tube.

NOTE: *This is a very likely cause with machines that have been moved (transported) with toner still inside the toner transport path.*

ACTION

Thoroughly clean the entire toner transport tube and transport screw (coil). If necessary replace the parts (e.g., if the transport screw is bent).

Continued…

SECTION 2: TONER BANK UNIT COMPONENT FAILURE:

Very gently, try turning the toner bank motor counterclockwise <fig.5>
Does the toner bank motor rotate?

CAUTION: Do not turn clockwise.

YES → **Go to procedure 3**

NO

Using a small screwdriver, turn the spring shaft cam clockwise just a bit <fig.6>. Then, try turning the toner bank motor <fig.5>.
Does toner bank motor rotate?

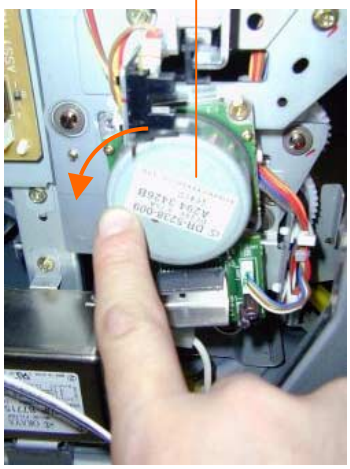
YES → **Go to procedure 4**

NO

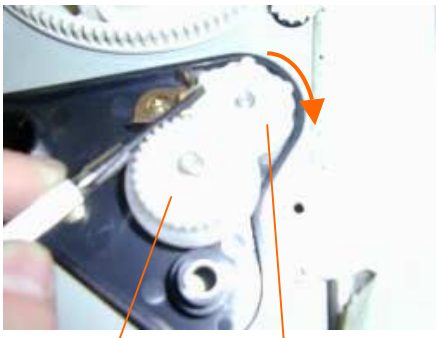
Check the other drive parts of the toner bank unit.
Are any of these parts broken?

YES → **Replace with new parts.**

NO → **Replace the toner bank unit**



<fig.5>



<fig. 6>

Continued…

PROCEDURE 3:

POSSIBLE CAUSE:
Aside of the ones mentioned previously, in theory SC592 can occur due to other (unknown) causes. In which case, please take the following action.

ACTION TAKEN:
Try activating the toner bank motor with SP5804-61.
Then, try using the machine to make some copies. Even if SC592 does not occur following this, we recommend to keep watching or replace the toner bank unit to prevent the future occurrences.

If SC592 still occurs, try turning the toner bank motor again.

Refer to Section 2 main flowchart.

PROCEDURE 4:

POSSIBLE CAUSE:
Toner is blocked in the bushing area of the spring shaft, causing the gear and spring shaft cam to lock (spring shaft does not rotate smoothly).

ACTION
Apply grease to the 2 bushings of the spring shaft.
Then, replace the spring shaft and cam stopper with the modified ones.

Refer to the Grease Application procedure on the next page (incl. description of modified parts).

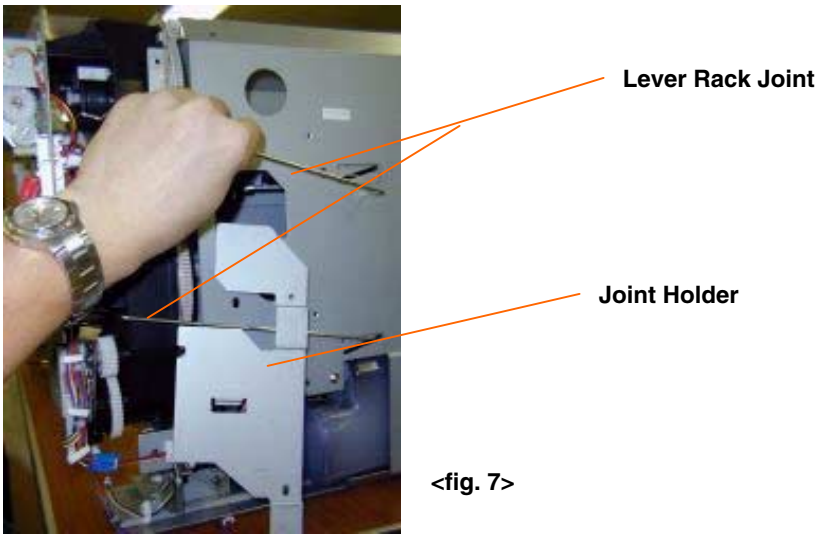
Continued…

GREASE APPLICATION PROCEDURE:

Please note that a lot of toner can spill from the unit during this procedure.
Please make sure to collect the toner using a vacuum.

A. PREPARATION --PARTS REMOVAL:

1. Remove the toner bank unit.
   (Refer to; *Toner Bank Unit Removal*, Service Manual pg.6-105).
2. Remove the joint holder and lever rack joint. <fig.7>
   (Refer to; Service Manual pg. 6-109, Steps 1-3).



<fig. 7>

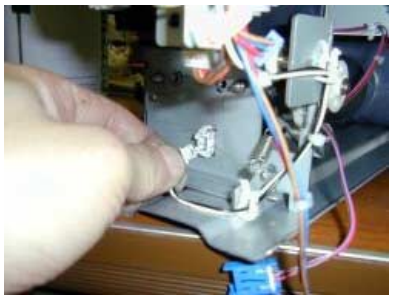
3. Disconnect the three kinds of connectors. <fig.8.9.10>



<fig. 8>



<fig. 9>

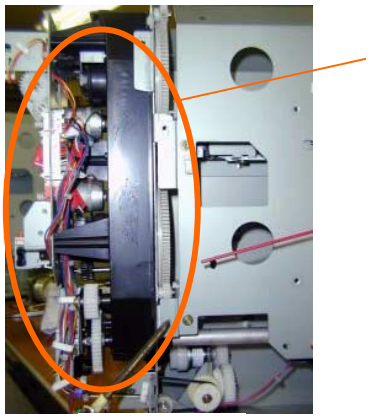


<fig.10>

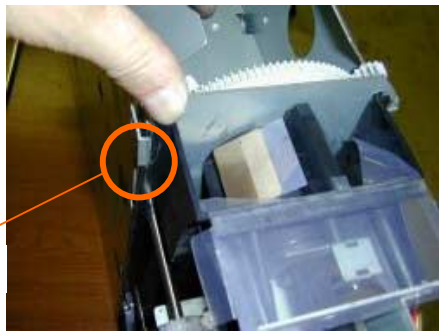
Continued…

4. Remove the drive section from the toner bank unit (5 screws) <fig. 11>.

NOTE: *Disconnect by unhooking the hook shown in <fig.12>.*

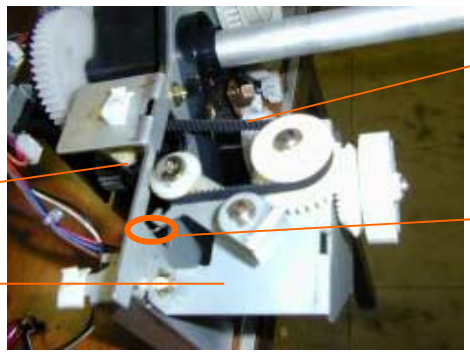


<fig.11>



<fig.12>

5. Remove the pulley, timing belt and spring.
   Next, remove the clutch bracket (3 screws, 1 connector). <fig,13



<fig.13>

6. Remove the gear (1 e-ring), spring shaft cam and cam stopper. <fig.14>
7. Remove the drive case and spring shaft. <fig. 14.15>

<fig.14>



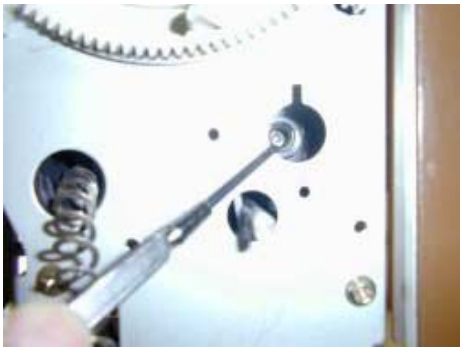
<fig.15>



Continued…

B APPLYING THE GREASE:

1. With a small screwdriver, break up any toner clumped around the bushing and collect it using a vacuum. Then, apply the grease to the bushing <fig.16>.



<fig.16>

2. Replace the spring shaft and cam stopper with the modified parts. <fig.17>
   (See below for description of modified parts).

NOTE: *When reinstalling the spring shaft, turn it several times so that the grease is distributed evenly.*

Modified cam stopper.
(changed → A2943195).



Modified spring shaft.
***(No P/N change).**
***New shaft is longer and has an e-ring groove.**

<fig.17>

3. Apply grease to the drive case as well. <fig.18>



<fig.18>

4. Re-assemble the removed parts.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 055 **02/13/2002**

APPLICABLE MODEL:
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: OPERATION PANEL AND SC990

SYMPTOM:

Operation Panel blanks out and SC990 is displayed.

CAUSE:

As the original is being scanned, more current is consumed and the 5V-line voltage fluctuates. If this fluctuation exceeds a certain level, the clock signal of the LCD controller IC becomes unstable and the LCD goes blank. At the same time, electrical noise affects the SDRAM data, resulting in SC990.

Note: This does not occur on machines with a controller interface. This is because the circuitry on the interface board has the effect of increasing the capacitance of the SICU capacitors for the 5V line.

SOLUTIONS:

Countermeasure For Mass-Production Units:

Increasing the capacitance of the SICU capacitors for the 5V line, will prevent the voltage fluctuation. The following changes have been made to improve reliability:

- Two capacitors on the SICU board have been changed to ensure that the operation panel backlight does not flicker.
- The SICU firmware has been changed for standardization with the A294 II /A295 II models.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2945600	A2945605	SICU Board – 240V USA	1	1	47	14

INTERCHANGEABILITY CHART:

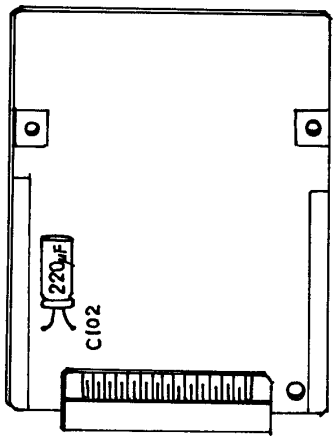
0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

Continued…

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Countermeasure For Field Units:

A custom Interface Board is now available which contains a 220µfd capacitor and is stripped of all unrelated components
The part number for the board is P/N A2949520. It can now be ordered from your local SPC as a countermeasure for SC990.



UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **SICU Board** installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	From first production H3610500154
Gestetner 32105	Service parts only	Gestetner 10502	From first production H3710600272
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	From first production H3610500001
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	From first production H3710500001
Savin 2085DP	Service parts only	Savin 2585	From first production H3610500154
Savin 2105DP	Service parts only	Savin 25105	From first production H3710600272

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 056 **02/13/2002**

APPLICABLE MODEL:
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalog.

- **UPDATE 1:** **Drum Inner Cover & Frame Channel**– The following two parts were used from the beginning of mass production on the A294/A295 II, and have also been adopted for the A294/A295 I for purposes of parts standardization.
Note: The old parts can still be used on the A294/A295 I.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A294 3699	A294 3698	Drum Inner Cover	1	1	15	8
A294 1083	A294 1082	Frame Channel	1	1	153	21

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Drum Inner Cover & Frame Channel** installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	SERIAL NUMBER	MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service parts only	Gestetner 8502	From first production H3610500154
Gestetner 32105	Service parts only	Gestetner 10502	From first production H3710500087
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	From first production H3610500001
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	From first production H3710500001
Savin 2085DP	Service parts only	Savin 2585	From first production H3610500154
Savin 2105DP	Service parts only	Savin 25105	From first production H3710500087

Continued…

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- **UPDATE 2:** I/**O Board –** The I/O Board and the following I/O board components for the A294/A295 I have been changed for purposes of parts standardization with the A294/A295 II.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2945300	A2945310	I/O Board	1	0	143 171	1 *
11001474	11010429	Test Pin	1	0	171	101
14073168	14075569	IC-TC74HC251AF	5	0	171	122
14073245	14075376	IC-SN74LV32APW	1	1	171	124
14073257	14075351	IC-SN74LV14APW	1	1	171	125
14073305	14075375	IC-TC74HC157AF	1	1	171	126
16118751	16504751	Resistor - 750OHM +-5% 1/10W	1	1	171	133
16303102	16504102	Resistor - 1KOHM +-5% 1/10W	18	1	171	134
16303103	16504103	Resistor - 10KOHM +-5% 1/10W	4	1	171	135
16303472	16504472	Resistor - 4.7KOHM +-5% 1/10W	3	1	171	136
16603471	16051137	Capacitor - 470PF +-10% 50V	1	1	171	138
16605102		Capacitor - 1000PF +-10% 50V	40		171	139
16605102	16606103	Capacitor - 10000PF - 80% - 20%50V	2	1	171	140
16609104	16608104	Capacitor - 0.1uF +80-20% 25V	16	1	171	141
	16330000	Resistor - 0 0HM 1/10W	1		171	142*
	1660 4102	Capacitor - 1000PF +-10% 50V	33		171	143*

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Parts in the above table** installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service parts only
Gestetner 32105	Service parts only
Ricoh Aficio 850	Service parts only
Ricoh Aficio 1050	Service parts only
Savin 2085DP	Service parts only
Savin 2105DP	Service parts only

Continued…

- **UPDATE 3:** **Nylon Clamp – EMT – 2N** – For purposes of parts standardization, the following Nylon Clamp has been adopted for the A294/A295 II and I models.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
1105 0295	1105 0528	Nylon Clamp – EMT – 2N	1	0	47	104

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Nylon Clamp – EMT – 2N** installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service parts only
Gestetner 32105	Service parts only
Ricoh Aficio 850	Service parts only
Ricoh Aficio 1050	Service parts only
Savin 2085DP	Service parts only
Savin 2105DP	Service parts only

- **UPDATE 4:** The following parts have been changed for purposes of parts standardization with the A294/A295 II.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944117	A2944480	Oil Supply & Cleaning Web Unit	1	0	101	3
A2944155	A2944426	Web Spring Plate	2	3/S	101	4
A2944136	A2944423	Web Bracket	1	3/S	101	10
A2944149	A2944428	Web Unit Cover	1	3/S	101	11
A2944191	A2944425	Web End Feeler	1	0	101	15

UNITS AFFECTED:

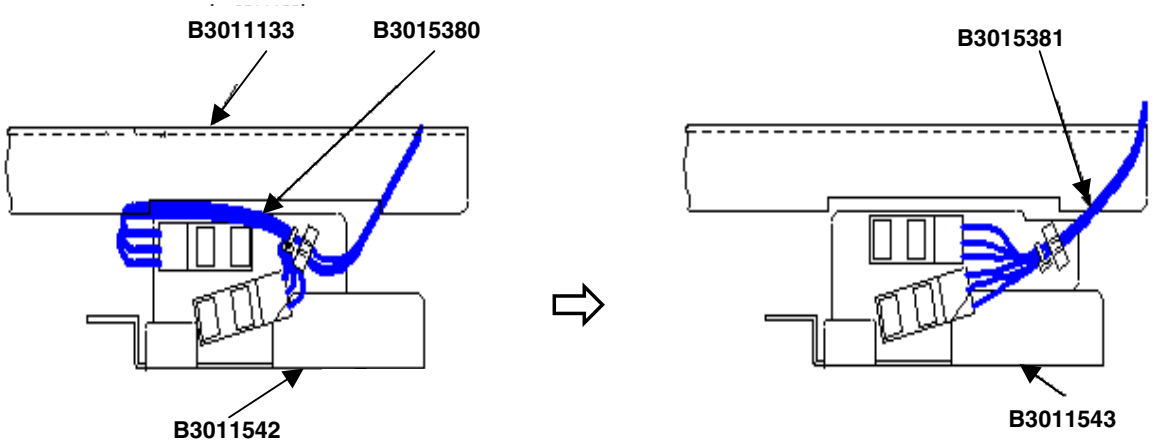
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Parts in the above table** installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service parts only
Gestetner 32105	Service parts only
Ricoh Aficio 850	Service parts only
Ricoh Aficio 1050	Service parts only
Savin 2085DP	Service parts only
Savin 2105DP	Service parts only

Continued…

- **UPDATE 5:**

Sensor Bracket & DF Position Sensor Harness - To prevent contact with right stay (B3011133), at installation the direction of the DF position sensor harness has been changed as shown below.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3011542	B3011543	Sensor Bracket	1	3S	41	1
B3015380	B3015381	DF Position Sensor Harness	1	3S	41	14

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Sensor Bracket & DF Position Sensor Harness** installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610200067
Gestetner 32105	H3710200073
Ricoh Aficio 850	H3610200147
Ricoh Aficio 1050	H3710200141
Savin 2085DP	H3610200067
Savin 2105DP	H3710200073

Continued…

- **UPDATE 6:**

Cleaning Pressure Spring - To provide greater latitude against occurrences of offset images, the tension of the Cleaning Pressure Spring has been increased from 8N to 13.6N, effectively increasing the contact pressure of the Web Cleaning Roller on the Oil Supply & Cleaning Web**.**

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA063862	AA063652	Cleaning Pressure Spring	2	1	101	6

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Cleaning Pressure Spring** installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610300115
Gestetner 32105	H3710300063
Ricoh Aficio 850	H3610300156
Ricoh Aficio 1050	H3710300101
Savin 2085DP	H3610300115
Savin 2105DP	H3710300063

- **UPDATE 7:**

Cam Stopper - To improve reliability, the Cam Stopper has been strengthened. In accordance with this change, the P/N for the Toner Bank Unit has also been changed.
This new Cam Stopper can be effective in reducing some cases of SC592.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943046	A2943186	Toner Bank Unit – US (RIC)	1	1	75	*
A2943393	A2943195	Cam Stopper	1	1	79	24

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Toner Bank Unit & Cam Stopper** installed during production.

Continued…

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	From first production H3610500154
Gestetner 32105	Service parts only	Gestetner 10502	From first production H3710500087
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	From first production H3610500005
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	From first production H3710500001
Savin 2085DP	Service parts only	Savin 2585	From first production H3610500154
Savin 2105DP	Service parts only	Savin 25105	From first production H3710500087

- **UPDATE 8:**

Upper Stay – Transfer Unit - To facilitate the new, finer-particle toner used on the A294 II / A295 II, the Upper Stay has been changed for both the A294 II / A295 II and the Enhancement Kit. This change is also to facilitate parts standardization of the Upper Stay with the A294 I / A295 I.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943589	A2943559	Upper Stay – Transfer Unit	1	0 1	95	8

Note: 0 is the interchangeability for the A294 I / A295 I, and
1 is the interchangeability for the A294 II / A295 II or Enhancement Kit.

UNITS AFFECTED:

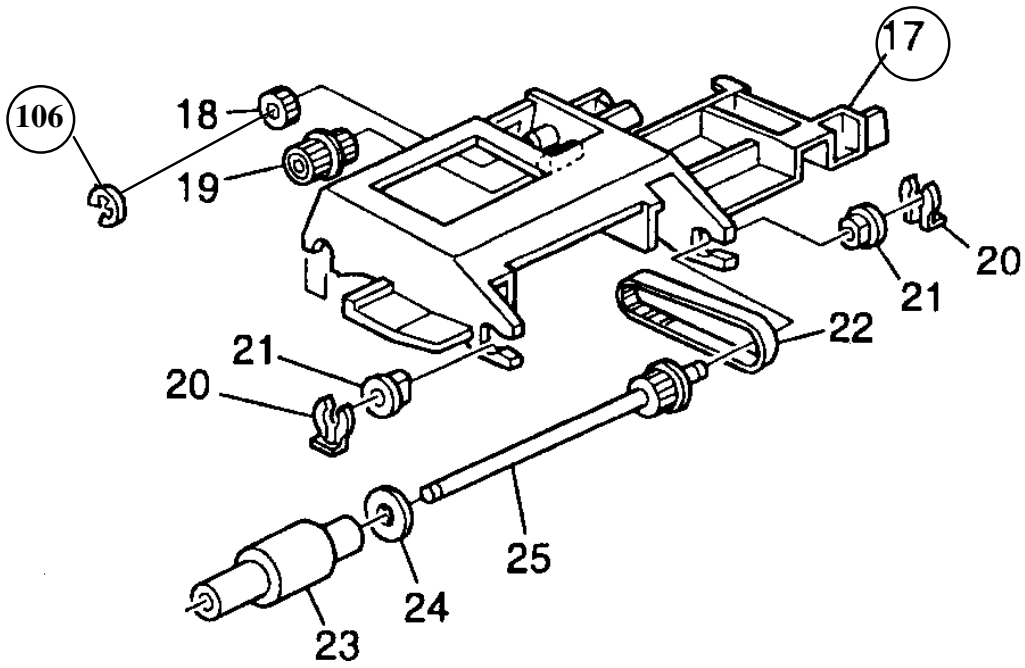
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Upper Stay – Transfer Unit** installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only		
Gestetner 32105	Service parts only		
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	H3610600405
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	H3710600219
Savin 2085DP	Service parts only	Savin 2585	H3610800113
Savin 2105DP	Service parts only	Savin 25105	H3710700047

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NO.
85/105ppm MFP Enhancement Kit	---	All	B479-17	From first production H9810500001

Continued…

- **UPDATE 9:** **Pick-up Roller Bracket & Retaining Ring – M3 -** To improve reliability, the material of one of the drive gear shafts has been changed from resin to metal, and an e-ring has been added to the shaft.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A8061314	B3011314	Pick-up Roller Bracket	1	1	27	17
	07200030B	Retaining Ring – M3	1		27	106*

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Pick-up Roller Bracket & Retaining Ring – M3** installed during production.

A294/A295 I		**A294/A295 II**	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	H3610600233
Gestetner 32105	Service parts only	Gestetner 10502	H3710600272
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	H3610600305
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	H3710600147
Savin 2085DP	Service parts only	Savin 2585	H3610600233
Savin 2105DP	Service parts only	Savin 25105	H3710600272

Continued…

- **UPDATE 10:**

BCU Board - The following modification has been made to improve reliability:

- BCU firmware has been changed for standardization with the A294 II /A295 II models and the part number has been changed.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2945261	A2945266	BCU Board	1	1	139 167	19 *

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **BCU Board** installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	From first production H3610500154
Gestetner 32105	Service parts only	Gestetner 10502	From first production H3710600272
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	From first production H3610500001
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	From first production H3710500001
Savin 2085DP	Service parts only	Savin 2585	From first production H3610500154
Savin 2105DP	Service parts only	Savin 25105	From first production H3710600272

Continued…

- **UPDATE 11:** **Web Cleaning Roller -** The diameter of the Web Cleaning Roller shaft has been increased from 6 mm to 10mm to minimize hot roller offset images.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AE040033	AE040039	Web Cleaning Roller	1	1	101	7

UNITS AFFECTED:

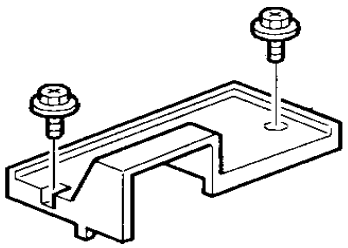
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style **Web Cleaning Roller** installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	H3610600233
Gestetner 32105	Service parts only	Gestetner 10502	H3710600272
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	H3610500286
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	H3710500120
Savin 2085DP	Service parts only	Savin 2585	H3710600272
Savin 2105DP	Service parts only	Savin 25105	H3710500272

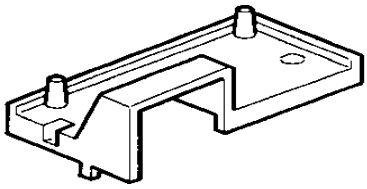
Continued…

- **UPDATE 12:** **Harness Cover -** To facilitate easier installation, the shape of the Harness Cover has been changed as shown below.

Old



New



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941524	**A2941526**	**Harness cover**	**1**	**1**	**67**	**16**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Harness cover installed during production.

A294/A295 I		A294/A295 II	
MODEL NAME	**SERIAL NUMBER**	**MODEL NAME**	**SERIAL NUMBER**
Gestetner 3285	Service parts only	Gestetner 8502	H3610500154
Gestetner 32105	Service parts only	Gestetner 10502	H3710500087
Ricoh Aficio 850	Service parts only	Ricoh Aficio 1085	H3610500001
Ricoh Aficio 1050	Service parts only	Ricoh Aficio 1105	H3710500001
Savin 2085DP	Service parts only	Savin 2585	H3610500154
Savin 2105DP	Service parts only	Savin 25105	H3710500087

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 057 **03/19/2002**

APPLICABLE MODEL:
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

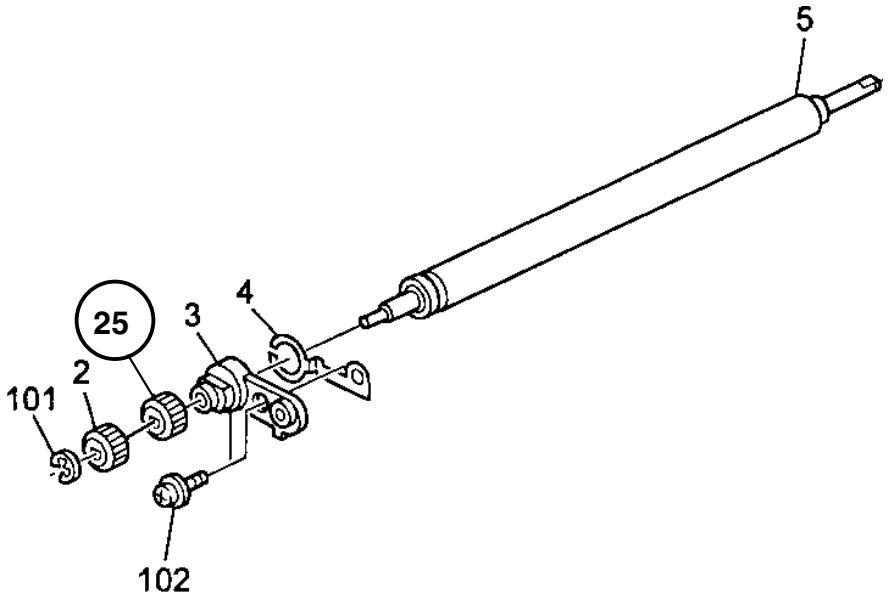
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SPACER IN TRANSPORT BELT UNIT

GENERAL:

In order to ensure proper contact between the front end of the drive roller and grounding plate a spacer has been added between the front arm and gear as shown below.
Note: Poor contact can cause a noise to be heard, as well as abnormal TD sensor output (which leads to dirty background).

The following parts addition is being issued for all A295/A295 Parts Catalogs.



				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
	A356 2748	Spacer – 0.5mm	1	97	25*

***DENOTES NEW ITEM NUMBER**

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Spacer installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 1085	H3610600336
Ricoh Aficio 1105	H3710600182
Ricoh Aficio 850	Service parts only
Ricoh Aficio 1050	Service parts only
Savin 2085DP	Service parts only
Savin 2105DP	Service parts only
Savin 2585	H3610600238
Savin 2105	H3710600272

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 058 **04/30/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL - INSERT



SERVICE MANUAL

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 4-66 Updated Information (Bit data changed)

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Table 3: LCT 1st and 2nd Paper Size Switch Combination

Class 3 No.	Bit 2	Bit 1	Bit 0	Paper Size
18, 19	1	1	1	A4 Sideways
	1	0	1	B5 Sideways
	0	1	0	A5 Sideways
	1	0	0	B5 Sideways

⟹ *ADF Input Check (SP6-007)*

Class 3 No.	Bit No.	Description	Reading	
			0	1
1	7	Inverter Sensor	No original	Original detected
	6	Exit Sensor	No original	Original detected
	5	Registration Sensor	No original	Original detected
	4	Entrance Sensor	No original	Original detected
	3	Original Width Sensor 3	No original	Original detected
	2	Original Width Sensor 2	No original	Original detected
	1	Original Width Sensor 1	No original	Original detected
	0	Original Set Sensor	No original	Original detected
2	7	ADF Feed-in Motor Encoder Pulse		
	6	Pick-up Roller HP Sensor	At home position	Not home position
	5	Bottom Plate Position Sensor	Detected	Not detected
	4	Bottom Plate HP Sensor	At home position	Not home position
	3	Exit Cover Sensor	Close	Open
	2	Feed Cover Sensor	Close	Open
	1	APS Start Sensor	Start	Off
	0	DF Position Sensor	Down	Up
3	7	Not Used		
	6	Not Used		
	5	Not Used		
	4	Not Used		
	3	Not Used		
	2	Original Length Sensor	No original	Original detected
	1	ADF Feed-out Motor Encoder Pulse		
	0	ADF Transport Motor Encoder Pulse		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 059 **05/06/2002**

APPLICABLE MODEL:
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

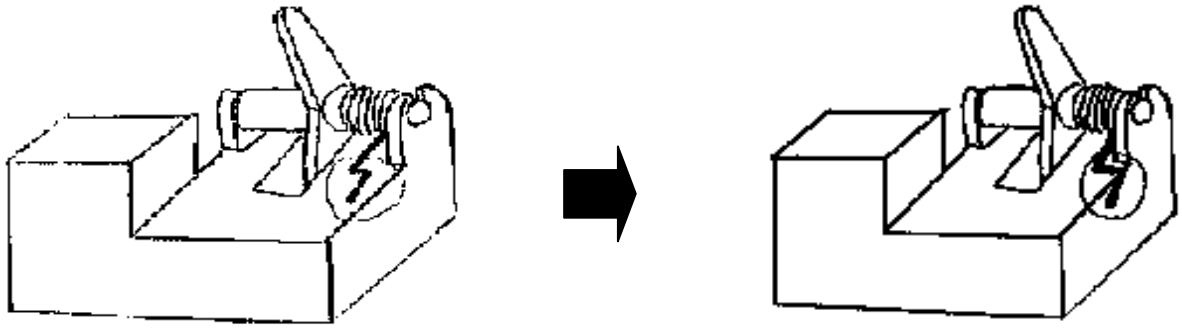
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Photointerrupter** – The extension of the Photointerrupter spring (duplex transport upper guide plate) can sometimes move freely on the Photointerrupter case surface, causing the spring body to bend from the load. This causes the movement of the Photointerrupter to worsen, leading to a paper jam. To ensure proper movement of the Photointerrupter, the shape of spring arm has been changed.

  Note :
  For the Aficio 850/1050, Afficio 551/700 and Aficio 650, the Photointerrupter must be replaced with the new one.
  Both parts can be used for all other machines, however when using the old Photointerrupter, be sure to hook the spring arm on the side of the resin case as shown below.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AW020102	AW020126	Photointerrupter	1	1 2	117 125	20 13

Continued…

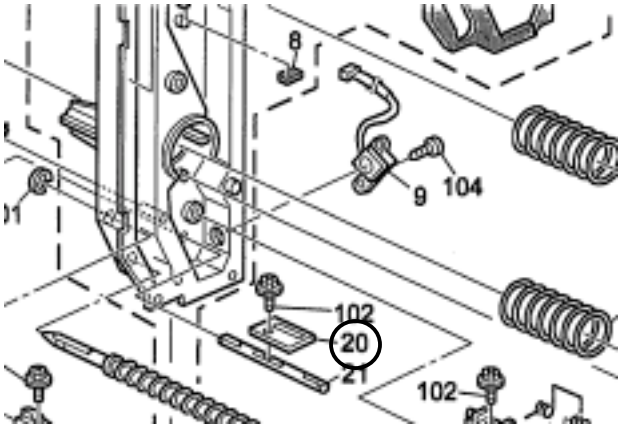
Copyright © 2002 RICOH Corporation. All rights reserved. **CONTROL NO 131ABW**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Photointerrupter installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610400016
Gestetner 32105	H3710400007
Ricoh Aficio 850	H3610400054
Ricoh1050	H3710400030
Savin 2085DP	H3610400016
Savin 2105DP	H3710400007

- **UPDATE 2:** **Toner Bank Agitator –** The shape of the Toner Bank Agitator has been changed to optimize performance with the new type of toner**.**



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2943334	A2943331	Toner Bank Agitator	1	1	81	20

UNITS AFFECTED:

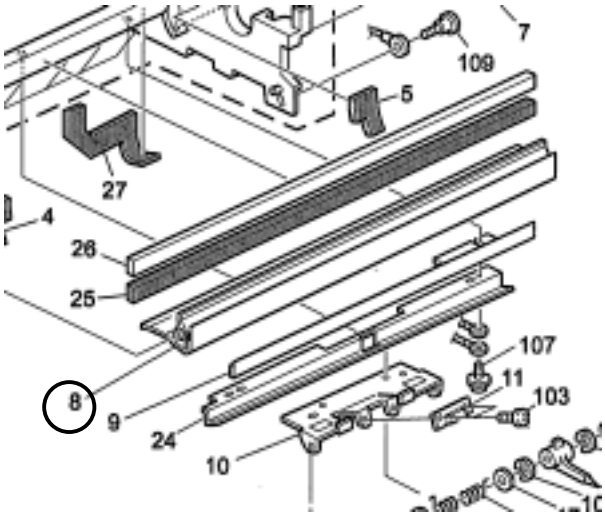
All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Toner Bank Agitator installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	H3610300115
Gestetner 32105	H3710300063
Ricoh Aficio 850	H3610300156
Ricoh Aficio 1050	H3710300101
Savin 2085DP	H3610300115
Savin 2105DP	H3710300063

Continued…

- **UPDATE 3:**

Upper Stay – Transfer Unit –To further improve reliability for both the A294 II / A295 II and the Enhancement Kit, this part has been changed again as shown below. This change is also to facilitate parts standardization of the Upper Stay with the A294 I / A295 I**.**



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943589	A2943559	Upper Stay – Transfer Unit	1	0 1	95	8

Note: 0 is the interchangeability for the A294 I / A295 I, and 1 is the interchangeability for the A294 II / A295 II or Enhancement Kit.

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Upper Stay – Transfer Unit installed during production

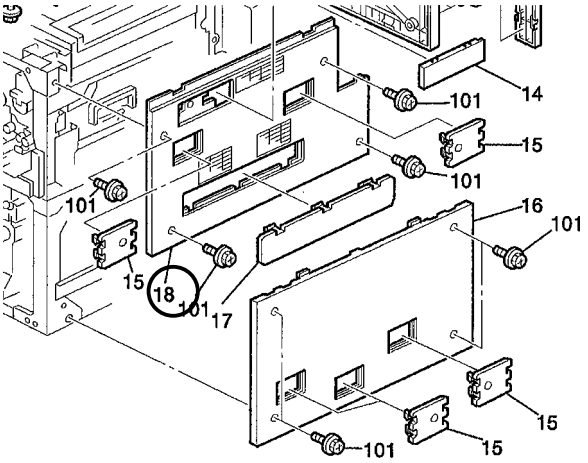
MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part only
Gestetner32105	Service Part only
Ricoh Aficio 850	Service Part only
Ricoh Aficio 1050	Service Part only
Savin 2085DP	Service Part only
Savin 2105DP	Service Part only

MODEL NAME	SERIAL NUMBER
Gestetner 8502	H3610800113
Gestetner 10502	H3710700047
Ricoh Aficio 1085	H3610600405
Ricoh Aficio 1105	H3710600219
Savin 2085	H3610800113
Savin 25105	H3710700047

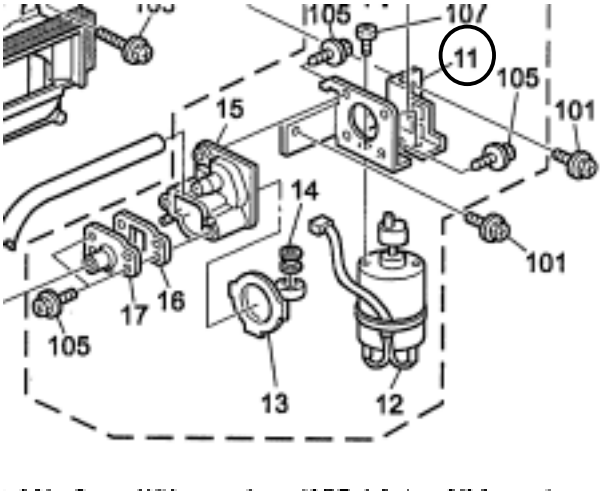
Continued…

- **UPDATE 4:**

Air Pump Bracket & Cover - Right Upper- As part of the upgrade to the new models, the shape of the Air Pump Bracket has been changed to facilitate the attachment of new parts.
To facilitate the bracket change, the shape of the Right Upper Cover has also been modified**.**



Page 17



Page 145

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941310	A2941311	Cover - Right Upper	1	1	17	18
A2943064	A2943069	Air Pump Bracket	1	1	145	11

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Air Pump Bracket and Cover - Right Upper installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part only
Gestetner 32105	Service Part only
Ricoh Aficio 850	Service Part only
Ricoh Aficio 1050	Service Part only
Savin 2085DP	Service Part only
Savin 2105DP	Service Part only

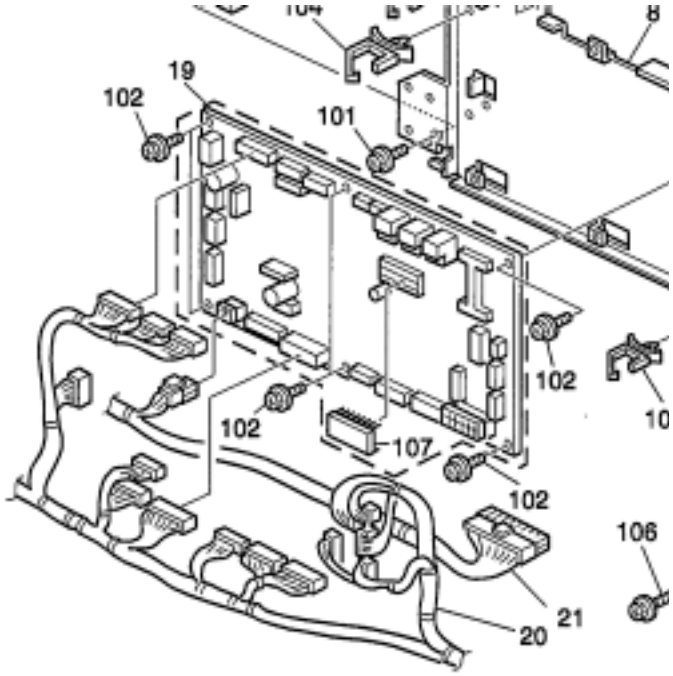
MODEL NAME	SERIAL NUMBER
Gestetner 8502	H3610500154
Gestetner 10502	H3710500087
Ricoh Aficio 1085	H3610500001
Ricoh Aficio 1105	H3710500001
Savin 2585	H3610500154
Savin 25105	H3710500087

Continued…

- **UPDATE 5:**

BCU Board: - When the front door is closed, the PSU normally generates a certain amount of surge current. Due to a variation in PSU properties, this surge current tends to be relatively high (into the abnormal range) when the machine temperature is high. This abnormality is common just following a long copy run.

Therefore to minimize the detection frequency, the value of Capacitor C606 on the BCU board has been changed from 1000 to 330uF. This will decrease the actual level of surge current produced by the PSU.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2945266	A2945271	BCU Board	1	1	139 167	19 *
16044506		Capacitor - 1000µF±20% 50V	N-1	1	168	182
	16044517	Capacitor - 330µF±20% 50V	1	-	169	*252

***DENOTES NEW ITEM NUMBER**

Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style BCU Board installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part only
Gestetner 32105	Service Part only
Ricoh Aficio 850	Service Part only
Ricoh Aficio 1050	Service Part only
Savin 2085DP	Service Part only
Savin 2105DP	Service Part only

MODEL NAME	SERIAL NUMBER
Gestetner 8502	H3610800113
Gestetner 10502	H3710800120
Ricoh Aficio 1085	H3610800001
Ricoh Aficio 1105	H3710800184
Savin 2585	H3610800113
Savin 25105	H3710800120

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 060 **06/11/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: BATES STAMP - CUSTOMIZED ROM

GENERAL:

The following is a brief explanation and description of the BATES STAMP - CUSTOMIZED ROM and how it will enable customers to modify their machines.

Purpose:

The Bates Customized ROM is a product of the Ricoh Customization Group. It was designed to add additional value for the Aficio 850/1050 and Aficio1085/1105 customers in the high-end legal environments.

What is Bate Stamping:

1. Bate Stamping is a major requirement of the legal marketplace which has the need to apply a sequential stamp to hard copy originals that are scanned into the Aficio 850/1050 and Aficio 1085/1105 Systems.

2. The stamp is normally comprised of both Alpha and Numeric digits (Ex : ABCD000000001).

3. Bate Stamping is used to help the legal customer identify specific case documents for both internal file control as well as for use with providing those documents for disclosure.

The Ricoh Solution:

- Our solution to the customer's requirement is to provide custom firmware, available as a "**flash**" ROM via the ***Ricoh Technical Support Center Website.***
- Since this feature is the product of the ***Ricoh Customization Group***, it will be fully supported by both the ***Ricoh Technical Support Center*** and ***Ricoh Company Limited (Japan)***.

- This customized "**flash**" ROM is separate from production firmware. When installed, it will permanently modify the page numbering and date stamping feature of the Aficio 850/1050 and Aficio 1085/1105 and convert the feature into a "**Bates Stamping**" feature.
- **Standard page numbering and date stamping will no longer be available**.
- The new "**Bates Stamping**" feature will enable the customer to:
  1. Add up to a 4 digit "**Alpha**" character that is combined with up to a nine digit "**Sequential Numerical**" character field.
  2. Batch Mode can be used in order to apply "**Bate Stamping**" to more than 100 sheets.

Continued…

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How to program a "Bate Stamp":

1. Select the "Stamp" feature.
2. Select "Page numbering".
3. Select "File Number" key.
4. Alpha matrix will appear (can select up to 4 alpha characters).
5. Select positioning.
6. Select "Batch Mode" if you need to apply sequential numbering across several jobs.

Installing the Bates Stamp Firmware:

- The Bates Stamp firmware is mainframe (BCU & SICU) firmware and is installed the same way as previous versions of the mainframe firmware.
- If non-–Bates stamp firmware is installed over the Bates Stamp firmware, the Bates Stamp feature will be erased.

The Bates Stamp firmware (Bates Stamp.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 061 **05/23/2002**

APPLICABLE MODEL:

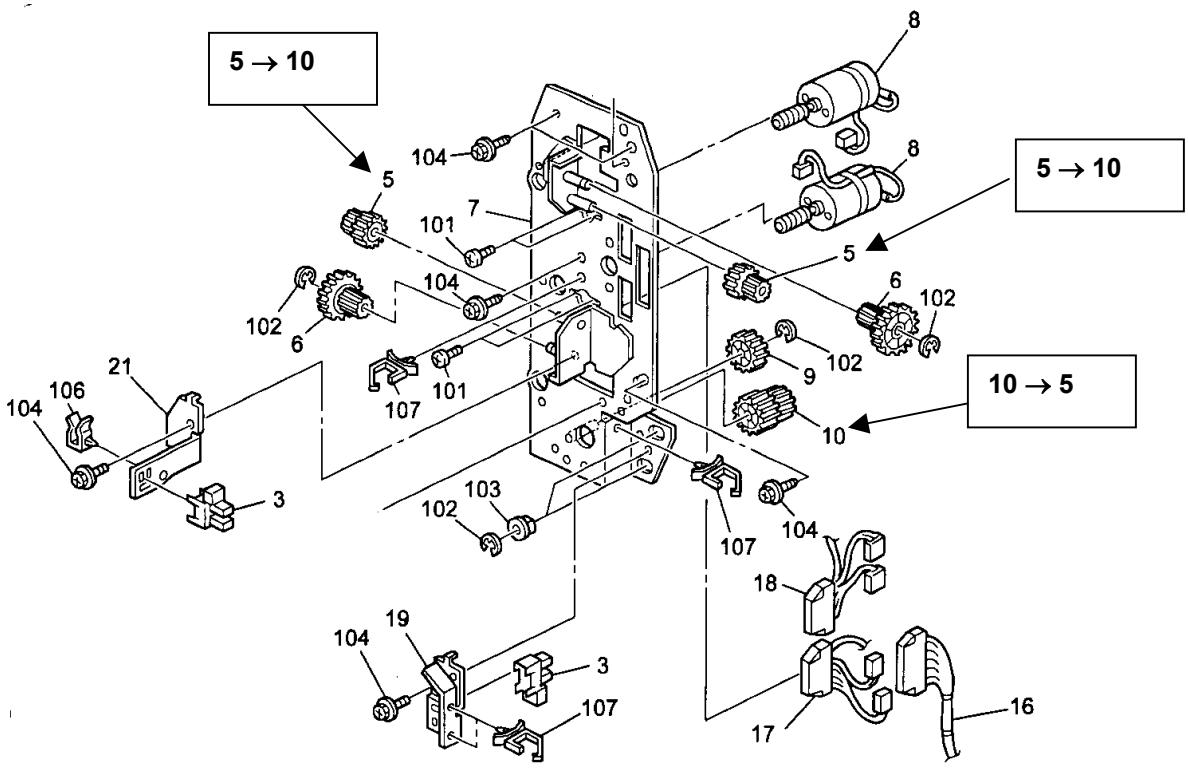
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG CORRECTIONS

GENERAL:

The following parts corrections are being issued for all A294/A295 Parts Catalogs. Please update your Parts Catalog with the following corrections.



PART NUMBER	DESCRIPTION	QTY	INT	REFERENCE PAGE	REFERENCE ITEM Old	REFERENCE ITEM New
AB017513	Double Gear – 16/47Z	2→1	-	77	5	10
AB017515	Double Gear – 12/23Z	1→2	-	77	10	5

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 062 **06/27/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105



■ MECHANICAL

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER TRANSPORT SCREW LOCK

SYMPTOM:

The toner transport coil is bent, causing the drive motor in the toner bank unit to lock, resulting in a SC592 to be displayed.

CAUSE:

Toner slowly builds up inside the toner transport tube. This buildup inhibits the turning of the transport coil, which places an excessive torque on the coil. This in turn can cause the coil to bend.

SOLUTION:

PRODUCTION COUNTERMEASURE:

To ensure this symptom does not occur, the following countermeasures have been applied. The routing and the length of the toner collection tube have been changed. In addition, to protect the toner transport coil the pulley has been changed to a torque limiter and the main engine firmware has been updated to version 8.5 or newer.

FIELD COUNTERMEASURE:

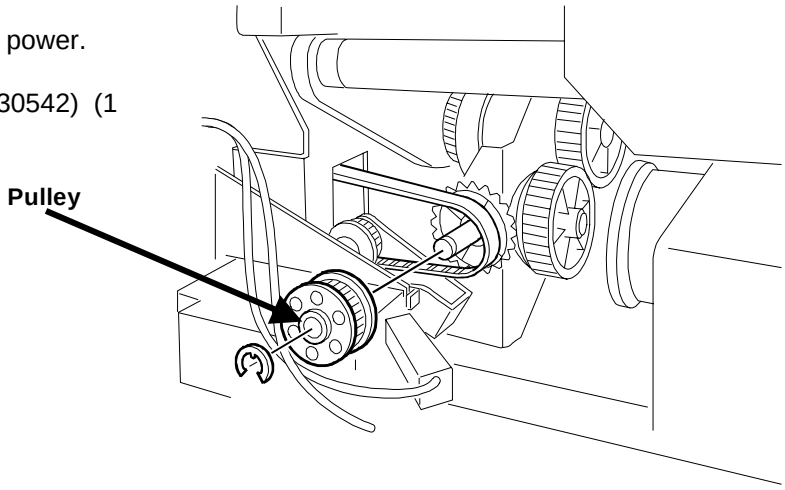
As a preventative measure, we recommend that all of the following countermeasures also be applied to machines in the field. After applying them, make sure to update the engine main firmware to V8.5 or newer.

Continued…

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Pulley to Torque Limiter Replacement Procedure:

1. Turn **"OFF"** the machine main power.
2. Remove the pulley - 36Z (AB030542) (1 retaining ring).



3. Install the torque limiter (A2943424). Be careful so that the belt tension spring does not come out of place.

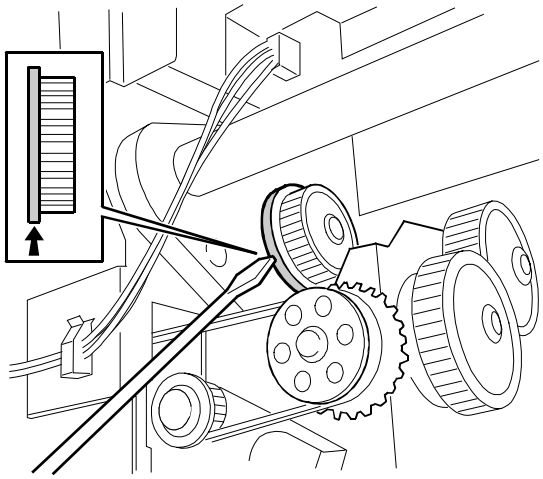
NOTE: ***Mechanism of the Torque Limiter:*** *Under normal operating conditions, the torque limiter transmits drive from the motor to the timing belt. Under abnormal conditions, the torque limiter cuts off the supply of drive, preventing excessive torque from being applied to the coil. In addition, the torque limiter also performs the function of the pulley, and the two are virtually identical in shape and size.*

Lubricate The Edge of Gear - 32Z:

NOTE: *If the machine already has the new cam stopper (A2943195) installed, there is no need to lubricate the edge of the gear.*

4. Lubricate the edge of gear - 32Z (A2943391) with Silicon Grease G-501 (52039502) to reduce the friction between this edge and the Spring Shaft Cam (A2943390).

NOTE: *Make sure to lubricate only the gear's edge, not the surface.*

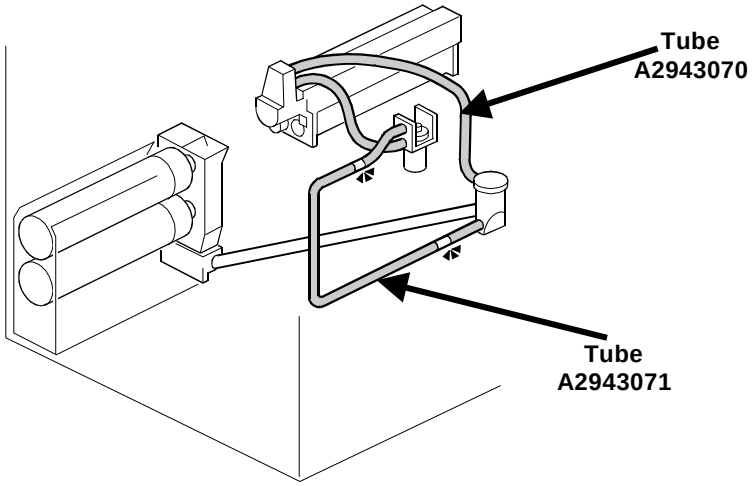


Continued…

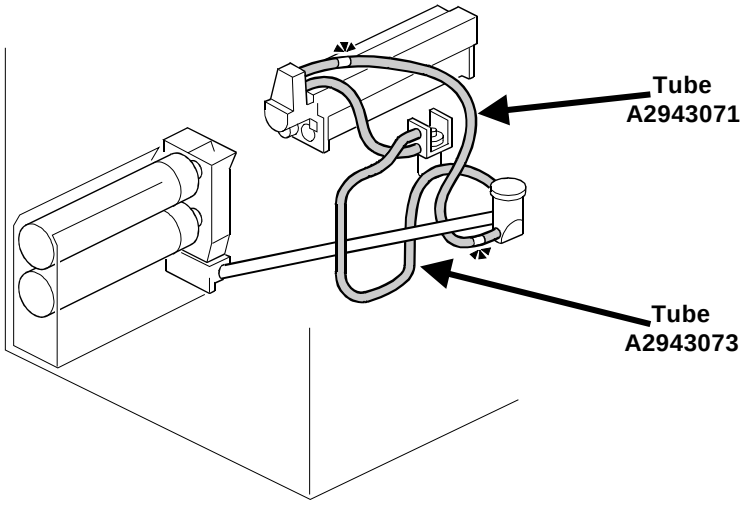
Change the Routing of the Air Pump Motor Tubes:

TUBE DESCRIPTIONS					
Route	**Before Countermeasure**		**After Countermeasure**		Remarks
	Part Number	Length	Part Number	Length	
Between toner hopper and toner transport joint.	A2943070	740mm	A2943071	1000mm	
Between toner transport joint and air pump motor.	A2943071	1000mm	A2943073	1150mm	A2943073 New part
Between air pump motor and toner hopper.	A2943072	170mm	A2943072	170mm	No change

Old Layout - Before Countermeasure:



New Layout - After Countermeasure



Continued…

Tube Rerouting Procedure:

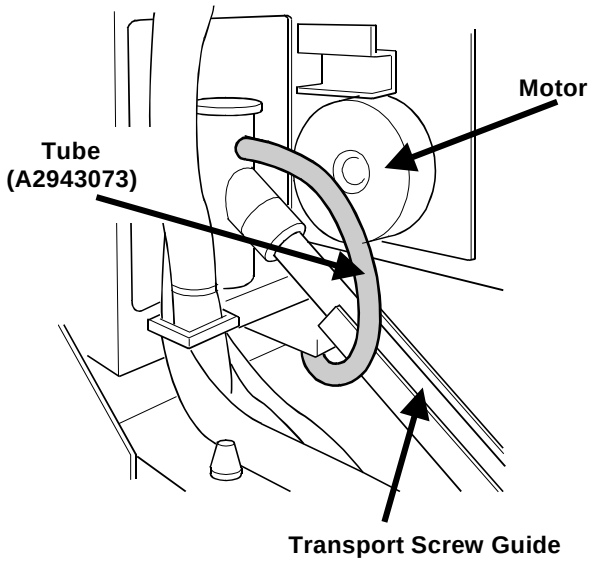
Location - Between the Transport Joint & Air Pump Motor:

1. Remove tube – 6x9x1000 (A2943071) that runs between the air pump motor and lower joint of the transport joint.

NOTE: *Keep the tube it will be reinstalled later in step 5.*

2. Install tube – 6x9x1150 (A2943073) between the air pump motor and upper joint of the transport joint.

NOTE: *To ensure that the tube does not contact the motor, lead it under the transport screw guide as shown below in the illustration.*



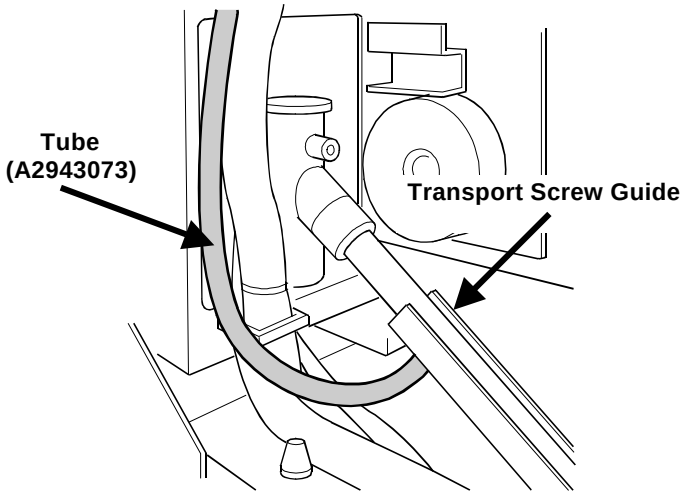
Location - Between the Toner Hopper & Transport Joint:

3. Remove tube – 6x9x740 (A2943070) that currently runs between the toner hopper and upper joint of the transport joint.

4. Clean the insides of tube A2943071 (removed in step1).

5. Re-install tube A2943071 so that it runs between the toner hopper and lower joint of the transport joint.

NOTE: *Lead the tube under the transport coil guide as shown in the illustration.*



6. Update the main engine firmware to version 8.5 or higher. The firmware increases the air pump on time from 1sec to 5sec after the coil drive is off.

The main engine firmware version 8.5 or newer (file name **A294VER8.5C.EXE**) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 and Publication Bulletin #023 for more information about the FTP Internet Web Site and EPROM / Flash Card Exchange program.*

Continued…

GENERAL:

The following parts corrections are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB030542		Pulley – 36Z	1-0	--	79	20
	A2943424	Torque Limiter	0-1	3/S	79	20
A2943070		Tube – 6x9x740	1-0	--	145	21
	A2943073	Tube – 6x9x1150	0-1	3/S	145	21

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new torque limiter and tube installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part Only
Gestetner 32105	Service Part Only
Gestetner 8502	H3620200257
Gestetner 10502	H3720200128
Ricoh Aficio 850	Service Part Only
Ricoh Aficio 1050	Service Part Only
Ricoh Aficio 1085	H3620200001
Ricoh Aficio 1105	H3720200001
Savin 2085DP	Service Part Only
Savin 2105DP	Service Part Only
Savin 2585	H3620200257
Savin 25105	H3720200128

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 063 **07/09/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.



SERVICE MANUAL

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

An arrow has highlighted the revised areas ⇒.

PAGES:

- 7- 51 Updated Information SICU and BICU Firmware Modification History
- 7- 52 Updated Information SICU and BICU Firmware Modification History
- 7- 53 Updated Information SICU and BICU Firmware Modification History
- 7- 54 Updated Information SICU and BICU Firmware Modification History
- 7- 55 Updated Information SICU and BICU Firmware Modification History
- 7- 56 Updated Information SICU and BICU Firmware Modification History
- 7- 57 Updated Information SICU and BICU Firmware Modification History

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A294 / A295 FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	**Title**	**SERIAL NUMBER**	**SOFTWARE VERSION**
Software modified so that it can also be used with the A295. (all versions from 7.40 can be used on both A294 and A295B).	For use with the A295 (105cpm)	A2945604 **K** / A2945264 **K**	**7.40**
To make it possible to use the "Margin per Original" function, the following 2 SP modes have been added: 5924-1 (Margin per Original): Yes/No (default: No). 5924-2 (Per Original Priority): On/Off (default: Off).	Margin per Original		
Software changed so that the Web End condition will not be detected until the display for SP1902-1 (Web Consumption) has reached 102%.	Web End detection improved		
The display for Directional Size Magnification has been changed from mm to inches for N.A. models.	Inch display for Directional Size Magnification (N.A. machines only)		
Software changed so that "Set the lower toner bottle" is displayed at Toner Near End and Toner End.	Solution for detached upper toner bottle cap	A2945604 **L** / A2945264 **L**	**7.44**
When printing out print documents saved on the Copy Server onto index paper, part of the image may be cut off. To correct this, the software has been changed.	Copy Server index paper printing	A2945604 **M** / A2945264**M**	**7.47**
The setting ranges for fusing temperature-related SP modes have been changed to the following: SP1105-1 (Fusing Temperature in Waiting Condition): 85cpm (Bellini A): 168 to 178 105cpm (Bellini B): 173 to 178 SP1105-4 (Fusing Temperature Correction): 85/105cpm: -5 to +20	Fusing temp. setting ranges changed	A2945604 **N** / A2945264 **N**	**7.49**
Software changed so that paper on the left tray will not be shifted to the right tray after it is pulled out while its bottom plate is lifting (resulting in a Paper End mis-detection).	SC515 (Tandem Rear Fence Drive Motor Error)		
Software modified so that SP2114 will take on the correct default value for each destination after SP5801 (Memory All Clear) is performed. Previously, the NVRAM was properly initialized following memory all clear and power Off/On, however SP2114 was set to the same value for all destinations (value for Japanese models).	SP2114 (Printer Dot Edge Parameter Setting) initialization correction		

After Copier Priority has been selected in UP Mode – Memory Allocation, SC990 or a panel display reset occurs with large-volume, continuous print jobs (A4 LEF, LT LEF or smaller; 1000 pages or more). The timing of the HDD 1 to HDD2 changeover at memory full has been optimized to ensure the error/reset does not occur.	SC990 or display reset with large-volume, continuous print jobs		
When the 105cpm machine main power is turned on, the HDD does not come on line fast enough, and the mainframe informs the (Peerless) printer controller that there is no hard drive present, resulting in SC990. To correct this, the software has been changed.	SC990 at power On (105cpm)		
1. When the 200th page is scanned to be stored in the document server, the scanning stops and a message is displayed stating that 1000 is the maximum number of storable pages for a document. 2. SC990 is displayed when the machine starts printing out the pages stored in the document server, even if the number of pages is less than 200. The above problems occur only with version 7.49	The copy server can not store more than 200 originals	A2945604 **P /** A2945264 **P**	**7.50**
The papers on the left tandem tray does not move to right if the left tray is installed when the right tray is empty.	Papers on left tandem tray not move to right	A2945604 **Q/** A2945264 **Q**	**7.51**
When original jams occur, SC numbers in SC history of the SMC print may be changed. The occurrence ratio is high when the number of original jams is high or the SC counter is often reset.	SC numbers in SC history of SMC print are changed		
A print job does not start when the drum unit is not properly set, even after scanning original is done.	Print not start when drum unit is not completely set		
While the fusing rollers rotate just after the main power switch is on, the toner on the pressure roller cleaning roller is transferred to the pressure roller and web roller. Then, the toner may damage the hot roller. To prevent it, the web roller rotate once every 10 seconds while the fusing rollers rotate just after the main power switch is on.	Web roller movement change		
The lower limit of Vref is newly set as 1 V. This is to prevent the Vref becomes too low causing toner scattering or dirty background when increasing the image density by changing the bias for the ID sensor pattern development. The A295 model already has this limit	Lower limit of Vref (A294 model only)		
SC990 is displayed when the SICU received an unexpected signal (noise).	SC990 (FILE:timer.c)		

"Copying" display appears. Nothing is changed even if the "Stop" key is pressed but the display is changed when the doors are opened/closed.	"Copying" display appears		
With this version, when a custom (non-standard) size is in a tray "Custom" is indicated in the printer mode and the paper direction icon disappears.	"Custom" size in printer mode		
The display of "10 x 14" is indicated when the printer controller type A is installed.	10 x 14 inches size on printer controller type A		
All the copies and prints are currently counted as copies. With the new version, the prints from the document server, which are sent from a PC, can be selected as copies or prints by changing the setting of SP5972. Please refer to the table of SP5972 below.	Copy/Print count in document server	A2945604 **R/** A2945264 **R**	**7.53**
Abnormal SMC image appears when printing on LT lengthwise papers due to a lack of memory size. There are no problems when printing on LT sideways or A4 papers.	Abnormal SMC print on LT lengthwise		
If the main switch is kept on for a long period of time, the memory full condition comes during scanning or SC990 occurs. The cause is that the memory clearance is not done properly.	Memory full after a long period of time when the main switch is kept on		
The saddle stitching was available only with the magazine and duplex to duplex modes. With the new version, the saddle stitching is available with the duplex printing in the document server and with the simplex to duplex copying in the copy mode.	Duplex + Booklet maker (Biwako) saddle stitching		
The machine is reset or SC990 occurs if Vsg is 0 during the process control.	SC990 during process control		
The machine stops during copying with the following conditions: 1. The printer controller is installed. 2. The print priority is set to "Printer". Or, it is set to "Display" and the printer LCD is displayed during copying. 3. The staple mode is selected. 4. Copy in the copy mode or print in the document server is being done. The stapling is done after 256, 512, 768, 1024, … sheets are copied. (i.e.: if the number of originals is 2, the machine stops after 128 sets are copied (total 256 sheets). If the number of originals is 40, the machine stops after 32 sets are copied (total 1280 sheets).	Machine stops during copying with staple mode		

⇒

A294 / A295 FIRMWARE MODIFICATION HISTORY				
	Title		**SERIAL NUMBER**	**SOFTWARE VERSION**
6	Machine stops during copying with staple mode	The machine stops during copying with the following conditions: 1. The printer controller is installed. 2. The print priority is set to “Printer”. Or, it is set to “Display” and the printer LCD is displayed during copying. 3. The staple mode is selected. 4. Copy in the copy mode or print in the document server is being done. The stapling is done after 256, 512, 768, 1024, … sheets are copied. (i.e.: if the number of originals is 2, the machine stops after 128 sets are copied (total 256 sheets). If the number of originals is 40, the machine stops after 32 sets are copied (total 1280 sheets).		

SP5972

Setting	Output Mode	Input Mode	Count As
0	Copy	Scanned	Copy
	Document server	Scanned	Copy
		Sent from PC	Copy
	Print	Sent from PC	Print
1	Copy	Scanned	Copy
	Document server	Scanned	Copy
		Sent from PC	Print
	Print	Sent from PC	Print

A294 / A295 FIRMWARE MODIFICATION HISTORY

No.	Title	DESCRIPTION OF MODIFICATION	SERIAL NUMBER	SOFTWARE VERSION
1	A294-II/A295-II models	This version onward should be installed on the A294-II/A295-II models. This firmware is commonly used on both A294/A295 and A294-II/A295-II models. The new I/O board can recognize what the model is and automatically uses the appropriate software for the model.	A2945609/ A2945269	8.2
2	Slip sheet does not function properly when using more than 256 pages in connect copy mode	When using more than 256 pages of original in the connect copy mode, the slip sheet does not function properly for Page 256 and later on the sub-unit only.		
3	Slip sheet does not function properly when using specified trays in chapters mode	When you specify the tray for 2 chapters consecutively in the chapters mode and the 1-side to 2-side duplex mode. The first page of the second chapter is printed on the back side of the last page of the first chapter if the number of pages for the first chapter is odd.		
4	Productivity improvement when using LCT	The feeding timing of the LCT has been improved when changing the tray to another within the LCT.		
5	Improvement of “B4: registration” paper misfeed removal	When a paper misfeed occurs at the fusing or paper exit section, the paper just fed out from the LCT stops at registration with an accordion shape. It is difficult to remove it. So, the LCT relay clutch does not turn on when such a jam occurs to prevent the paper stopping at registration from becoming an accordion shape.		
6	Tray 1 (tandem tray): paper mis-set detection	When the right tray of Tray 1 is only set, the machine does not check the positions of the fences, so that even if papers are wrongly set and the fences are not at the closing positions, the bottom tray is lifted up. It should be checked and “Please re-set papers” message should be displayed.		
				Continued

Trouble-shooting

A294 / A295 FIRMWARE MODIFICATION HISTORY				
No.	**Title**	**DESCRIPTION OF MODIFICATION**	**SERIAL NUMBER**	**SOFTWARE VERSION**
7	SC398 just after turning on new CD-R/RW	When the new CD-R/RW is turned on with the following conditions, SC398 is displayed. • The CD-R/RW is the new model MP7122SE. There is no problem with the model MP7040. • A media is in the CD-R/RW. • The CD-R/RW and engine are turned on in order. <Instruction to customers> Please instruct customers with the following procedure: 1. Turn on the CD-R/RW 2. Wait until the LED for the drive access is turned off. 3. Turn on the engine.		
8	LEF (long edge feed) in booklet and APS modes on Plokmatic Booklet Finisher	On the Plokmatic Booklet Finisher, when the booklet and APS modes are selected, a paper with LEF direction is fed prior to SEF. This is because the engine does not recognize that the Plokmatic Booklet Finisher is installed. <Solution> • Set SP6902 (Booklet staple) to “Yes”. • Set User Tools -> Copier/Document Server Features -> General Features -> Display/Panel Tone -> Staple Position to “Bottom”. The above 2 settings make the engine recognize that the “Bottom” staple means the “Booklet” staple. The indication of “Bottom” on the operation panel is not changed.		
The following are additions and changes to the printer mode				
9	Danish Names of buttons are not correct	Some Danish names of buttons have been corrected. Please install the language software (A2945125F, version 8.2) at the same time.		
10	Staple end message	“Staple end. Please add staples” message has been added.		
11	Full punch Dust hopper message	“Punch dust hopper is full. Please throw it away” massage has been added.		
12	Finisher shift mode	A message to set a shift mode to “for each job and copy set”, “for each job” or “no shift”, has been added to the SP mode.		

A294 / A295 FIRMWARE MODIFICATION HISTORY

No.	Title	DESCRIPTION OF MODIFICATION	SERIAL NUMBER	SOFTWARE VERSION
1	Default setting in SP1902-4 (Web Near End Setting) (A294-II/A295-II only)	The default setting of SP1902-4 for the new A294-II/A295-II models is 90% for US and 86% for Europe/Asia.	A2945609 **A**/ A2945269 **A**	8.3
2	300 dpi print from document server (out of specifications)	600 dpi images are printed out from the document server when 300 dpi images are stored using the EFI controller and PCL language. The specification is that 300 dpi prints are allowed in the direct print mode. As a special solution, the software has been changed to allow 300 dpi images out from the document server. However, there are limitations that abnormal images appear when using stamps.		
3	Paper jam in 2nd copy set with duplex, 2-position staple and rear cover modes	A paper jam occurs in the 2nd set of copies when using the duplex, 2-position staple and rear cover modes. The jam location number is 62 (Relay sensor (stay on)). E.g. A jam occurs under the following conditions: ● Number of originals: 6 sheets (A4/LT long edge feed) ● Duplex: 1 side to 2 sides ● Staple: 2 positions ● Cover sheet: Back cover (blank) ● Number of copies: 5 sets		

NOTE: The default settings for display languages are as follows:
USA version: 1st: English (NA), 2nd: Spanish
European version: 1st:English (UK), 2nd: No selection

Updating the language Firmware is overwriting the 1st and 2nd language areas. Also, updating the SICU & BCU firmware is overwriting the 1st and 2nd language areas with the default language. When the different languages are selected from the default setting, the language Firmware should be re-installed after updating SICU & BCU firmware.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 064 **08/01/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

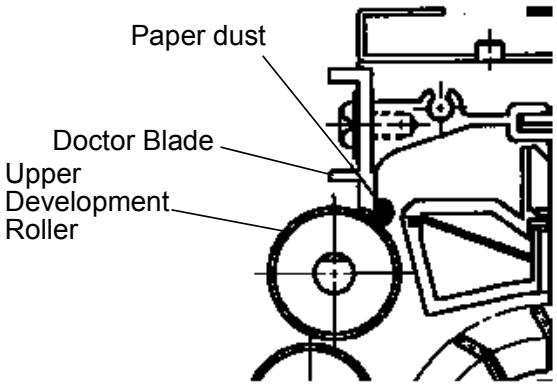
SUBJECT: TONER DUSTING/WHITE LINES

SYMPTOMS:

- Toner scattering from both edges of the Development Unit.
- White line appears on the printed image.

CAUSE:

Paper dust gathers at the front and rear sides of the doctor gap in the development unit. The gap then becomes narrower, decreasing the airflow from the lower development casing. See the illustration to the right.



FIELD ACTION:

> ⚠ **CAUTION:** Do not remove the Doctor Blade or loosen any of the screws on the Development Unit, as it would be impossible to readjust the doctor gap in the field (leading to image quality problems).

Follow the procedure described on the next page. Clean the entire length of the doctor blade, especially in the following cases:

- At every PM visit, or whenever replacing the developer
- When toner scattering from development unit occurs
- When low image density lines appear, especially on the edges of the paper

NOTE: *To prevent occurrences with paper containing a large amount of paper dust, please perform the cleaning more often than the PM cycle.*

Continued…

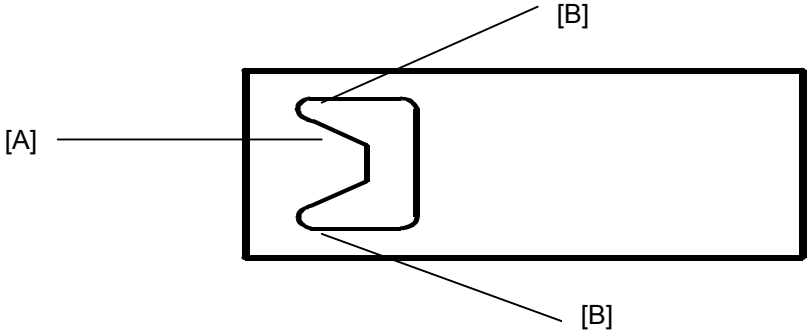
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Special Tool for doctor gap cleaning

Part Number	Description
A2949560	Paper Dust Cleaner - 5pcs/set

NOTE: *The tool is made of flexible plastic, please make sure that it is not bent.*

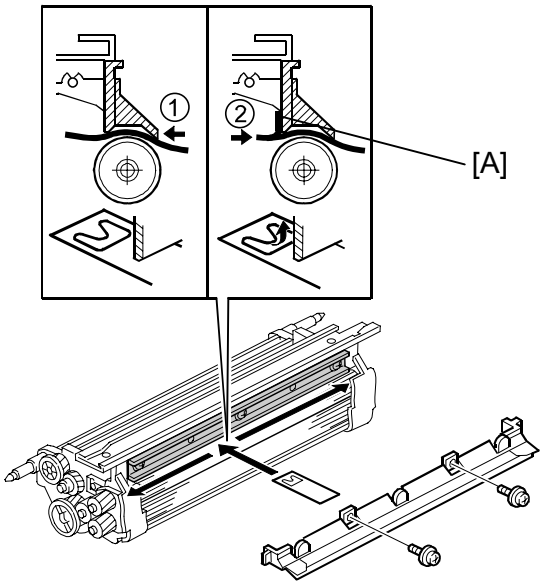
[A]: Mountain-shaped portion that cleans the rear side of the blade
[B]: Side portions that clean between the blade and upper development roller



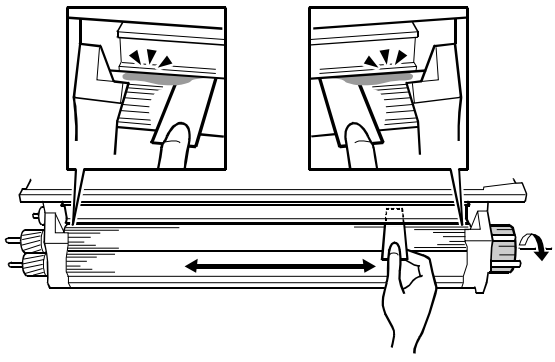
Cleaning Procedure

⚠ **IMPORTANT:** Make sure that the machine main power is **OFF.**

1. Remove the Development Unit.
2. Remove the developer and Entrance Seal (2 screws) from the Development Unit.
3. Insert the tool into the gap between the Doctor Blade and Upper Development Roller past point [A], then pull it back so that the mountain-shaped part hooks on the rear side of the blade.



4. Slide the tool left-to-right several times as shown in the illustration below.

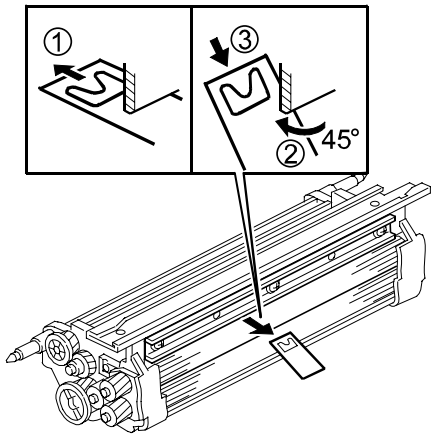


Continued…

5. Rotate the Development Roller toward you (as shown on page 2) about 10 mm, then vacuum the fallen paper dust and developer.

NOTE: *Be sure to thoroughly collect all the dust and developer, and be careful that it does not touch the Development Roller surface again.*

6. Repeat Steps 4 and 5 approximately 5 times.
7. Remove the tool as shown below.



8. Holding the Development Unit upside-down, gently shake the unit to remove any remaining paper dust.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 065 **08/12/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: LOWER EXIT GUIDE PLATE

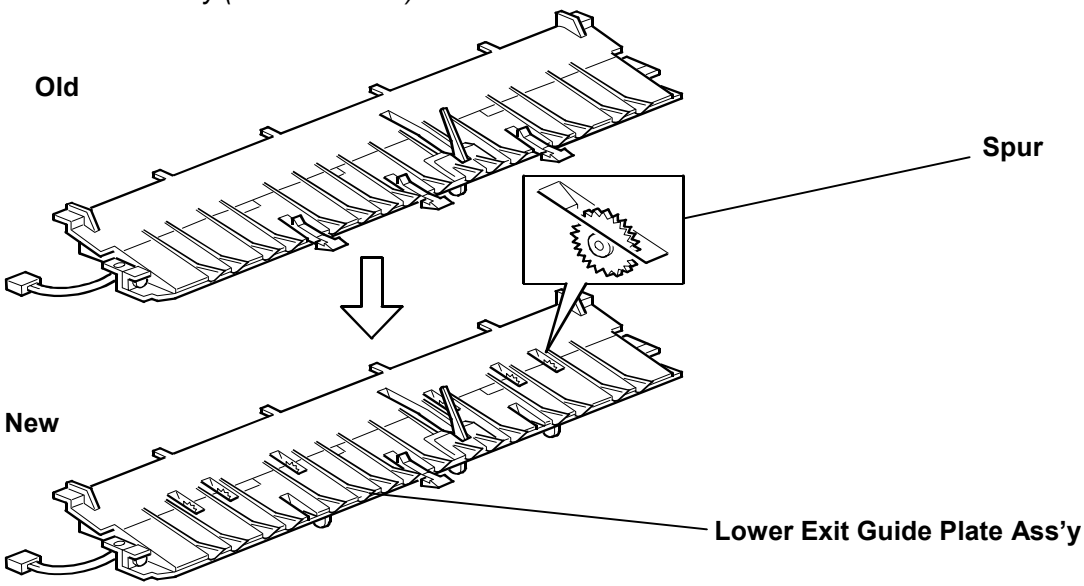
GENERAL:

The following changes have been made to the A294/A295 to minimize the amount of toner that tends to adhere to the Lower Exit Guide Plate when performing large copy volumes.

The Lower Exit Guide Plate has been changed as follows:

1. Position of the plate lowered to avoid contact with the paper.
2. Spurs added to increase paper transportability.

NOTE: *Please note that the interchangeability differs from part to part. Since the old style Lower Exit Guide Plate (P/N A2944076) is no longer available as a Service Part, if this part requires replacing in the field, please install the new style Lower Exit Guide Plate Assembly (P/N B0704063).*



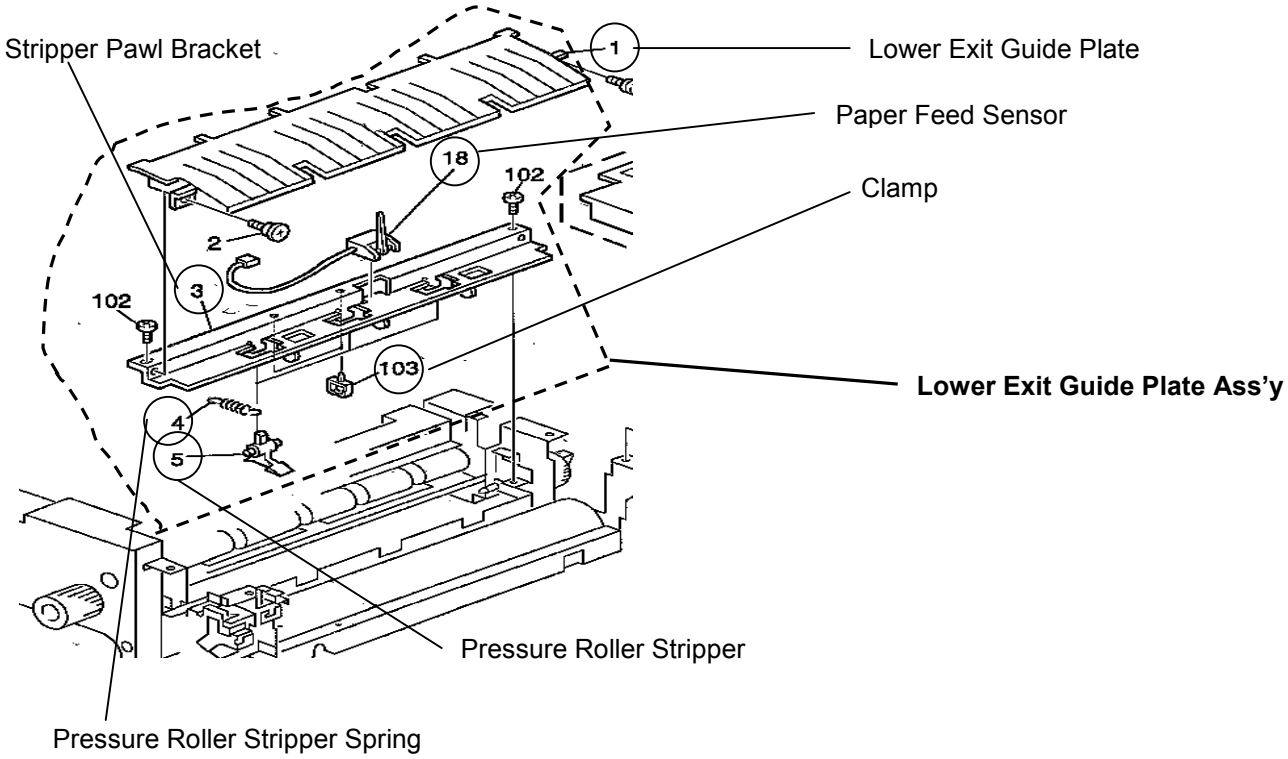
The following parts updates are being issued for all A294/A295 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944076	B0704075	Lower Exit Guide Plate	1	3/S	103	1
A2944079	B0704079	Stripper Pawl Bracket	1	3/S	103	3
AE044010	AE044042	Pressure Roller Stripper	3→1	3/S	103	5
	B0704063	Lower Exit Guide Plate Ass'y	1		103	*19
AW200007	AW200008	Paper Feed Sensor – Fusing Exit	1	1	103	18
54464235		Spring – Hot Roller Stripper	3→0		103	4
	AA060923	Spring – Pressure Roller Stripper	1	0	103	4
11050199		Clamp	2→0		103	103
	11050511	Harness Clamp – LWS-0303ZC	2	0	103	103

Continued…

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Other Parts changed as follows:
1. In accordance with the Plate modification, the Stripper Pawl Bracket (shape change), Pressure Roller Stripper (shape/qty change) and Paper Feed Sensor (type) have also been changed.
2. Due to parts standardization, the Spring for the Pressure Roller Stripper and Clamp have been changed.



UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Lower Exit Guide Plate Assembly installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part only
Gestetner 32105	Service Part only
Gestetner 8502	H3620400153
Gestetner 10502	H3720500001
Ricoh AFICIO 850	Service Part only
Ricoh AFICIO 1050	Service Part only
Ricoh AFICIO1085	H3620400156
Ricoh AFICIO1105	H3720800020
Savin 2085DP	Service Part only
Savin 2105DP	Service Part only
Savin 2585	H3620400153
Savin 25105	H3720500001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 066 **08/12/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

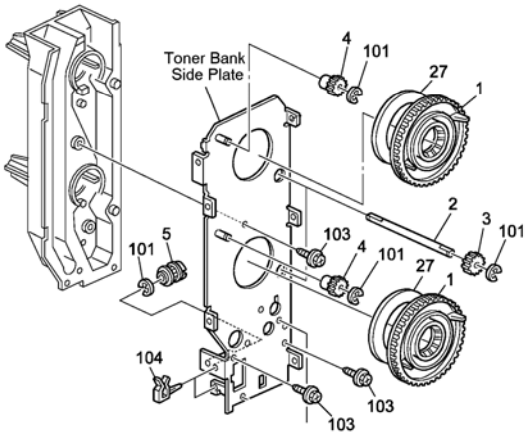
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TONER BANK UNIT

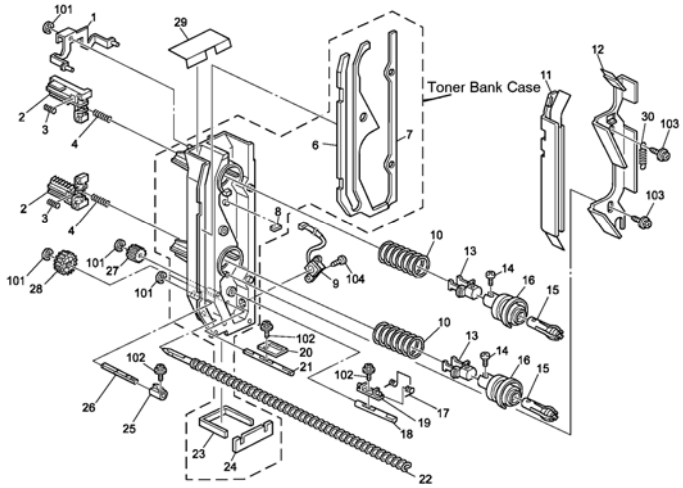
GENERAL:

Due to parts standardization with newer models, the following parts have been changed. The following parts updates are being issued for all A294/A295 Parts Catalogs.

Toner Supply Unit 1



Toner Supply Unit 2



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943022	B0703310	Toner Bank Unit	1	3/S	75	* [1]
A2943471	B0703471	Toner Transport Screw Case		3/S	133	15 [1]
A2943313	B0703313	Toner Bank Case		3/S	81	5 [2]
A2943346	B0703346	Toner Bank Side Plate		3/S	79	29 [2]
A2943362	B0703362	Toner Bottle Bracket		1	77	7
A2945491	B0705480	Toner Bank Harness – 10P White		1	77	18
A2945492	B0705481	Toner Bank Harness – 10P Red		1	77	17
A2945493	B0705482	Toner Bank Harness – 15P		1	77	16
A2943436	B0703436	Left Side Plate – Toner Bank		1	75	15
A2943713	B0703713	Stopper – Collection Bottle		1	67	37
A2943321 →	▶ B0703321	Long Case Seal (See Note 3)		3/S	81	23 [3]
A2943322	-	Short Case Seal (See Note 3)			81	24 [3]

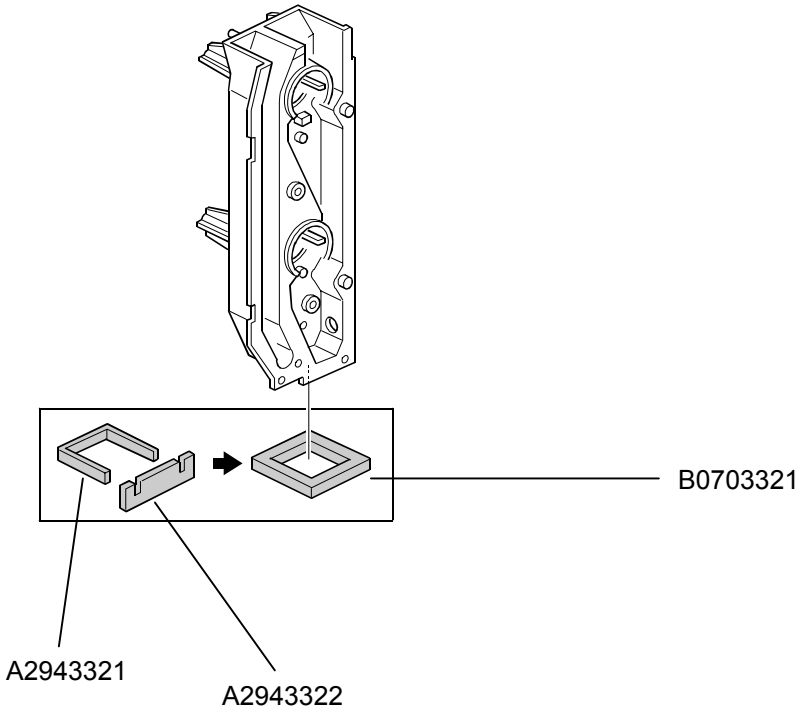
[1] **NOTE:** These parts should be replaced as a set, because the shape of the Screw Case has changed. The old style case cannot be installed on the new style Toner Bank Unit.

[2] **NOTE:** The old parts (A2943313 and A2943346) are no longer available as Service Parts. When they need replacing, install the new style Toner Bank Unit (B0703022) and Toner Transport Screw Case (B0703471).

Continued…

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[3] **NOTE:** The shape and size of the Seal has been changed as shown in the illustration below:



UNITS AFFECTED:

All A294/A295 copiers manufactured after the Serial Numbers listed below will have the new style Toner Bank Unit installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service Part only
Gestetner 32105	Service Part only
Gestetner 8502	H3620600001
Gestetner 10502	H3720600001
Ricoh AFICIO 850	Service Part only
Ricoh AFICIO 1050	Service Part only
Ricoh AFICIO1085	H3620600063
Ricoh AFICIO1105	H3720800020
Savin 2085DP	Service Part only
Savin 2105DP	Service Part only
Savin 2585	H3620600001
Savin 25105	H3720600001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 067 **10/30/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TROUBLESHOOTING FOR DIRTY BACKGROUND

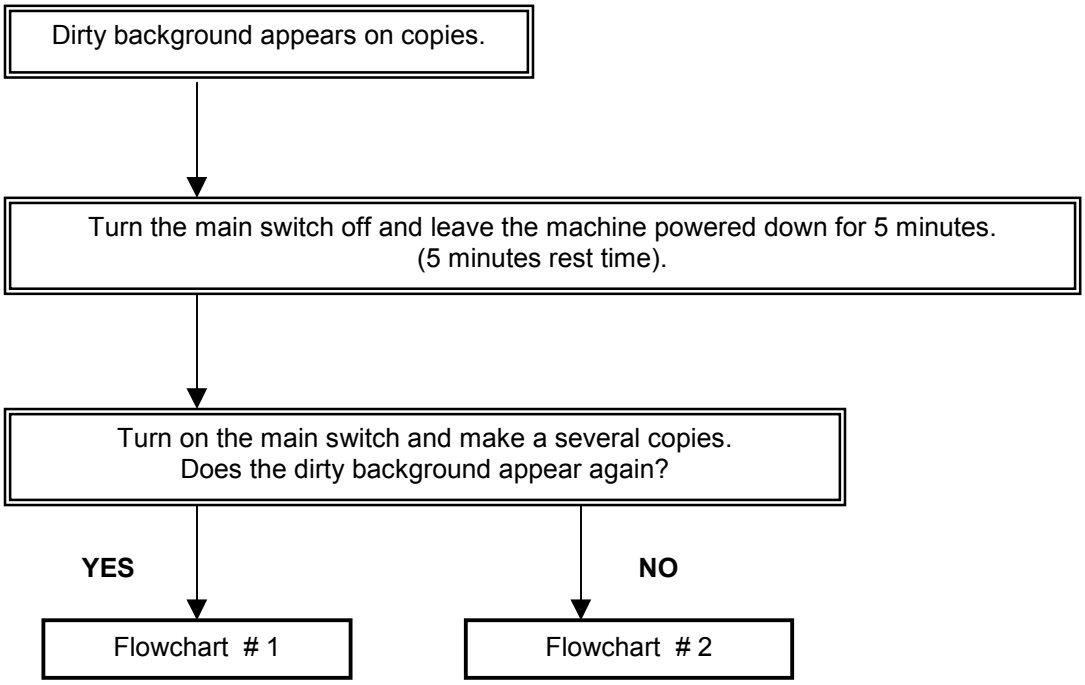
SYMPTOM:

Dirty background appears on the entire copy.

CAUSE:

There are several possible causes for dirty background. This bulletin provides troubleshooting for determining the root cause as well as the best course of action.

TROUBLESHOOTING:



NOTE: *If background does not appear during the first few copies, but appears further in the copy job, go to Flowchart # 2.*

Continued…

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Flow chart #1

Possible Cause 1:

Paper fibers from the copy paper have mixed in with the recycled toner in the development unit.

↓

Check/Perform TSB A294/A295-044

Possible Cause 2:

Deterioration of the developer.

↓

Replace the developer.

Flow chart # 2

Possible Cause 1:

Toner adhered to the development roller surface.

↓

Clean the development roller with a dry cloth.

If the problem is still exists, after cleaning the development roller surface, go to Possible Cause 2.

Possible Cause 2:

Drum fatigue with a certain drum lot #, with unit running in a high volume environment.

↓

Replace the drum. **(P/N A2949510)**

- **Affected Lot Numbers:**
  Lot # on the rear flange of the drum: from XXXX**2073**XXXX to XXX**2165**XXXX
  Lot # on the drum box (6 drums/carton): from XXXX**2074**XXXX to XXX**2168**XXXX

- **High Volume Environment:**
  High volume customers generating a monthly volume of more than 300K copies
  Long copy/print jobs of 3K to 10K
  This problem occurs on the A294/A295II models, and the enhanced A294/A295I models only.

NOTE: *The same drum is used for A229/A292/A293, however, this issue **does not affect these models** because their cleaning systems and bias voltages are different and prevent this symptom.*

Continued...

PRODUCTION COUNTERMEASURE:

The humidity of the production facilities environment was not optimal during the treating process of the drum materials used during the manufacturing process.

The suspected drum lot # range is as follows:

- Lot # on the rear flange of the drum: XXX**2073**XXXXX to XXX**2165**XXXXX
- Lot # on the drum case box (6 drum/box): XXX**2074**XXXXX to XXX**2168**XXXXX

❖ The lot number on the rear flange is different from that on the case box; lot number XXX2073XXXX on the flange corresponds to XXX2074XXXXX on the box.

❖ The 4th digit of the lot # designates the calendar year. The 5th-7th digits designate the day of production, as expressed in the number of days since Jan 1.
*For example, XXX**2073**XXXXX indicates a drum production date March 14, 2002.*

As of Aug 31, 2002 the drum materials production has been transferred to a different vendor and the humidity of the production facility environment has been changed to optimum levels.

The cut-in lot numbers for this vendor change are as follows:

- Lot #'s on the rear flange of the drum: from XXX**2243**XXXX onward
- Lot #'s on the drum case box (6 drum/box): from XXX**2246**XXXX onward

FIELD COUNTERMEASURE:

New drums P/N A2949510 currently in dealer stock in the lot # range of XXX**2073**XXXXX to XXX**2165**XXXXX, *should not be returned for credit*. These drums should be labeled for use only in the **A229/A292/A293 models.** This backgrounding symptom does not occur on these models.

Dealers will receive prorated credit only for those failed drums which:

- Are in the lot # range of XXX**2073**XXXXX to XXX**2165**XXXXX
- Have not met their estimated life of 360K
- Have been installed on a A294/A295I enhanced model or a A294/A295II model, and has been found to be the cause of the Background symptom

In order to receive prorated credit for failed drums. Please fax the following completed form to the National Reclaimation Center at (973) 808-9613 to obtain an RMA Number. ***Once an RMA number has been issued, write the number on the form and send it along with the following items . All of these items are required to be shipped prepaid to the National Reclaimation Center at the address below.***

- Copy of Completed Form with RMA Number
- Failed Drum
- SMC Copy Management Report printout
- Complete Machine Service History with highlighted meter/date of drum replacement
- Copy Samples showing dirty background

This drum credit program will end on February 28, 2003

Continued...

A294/A295 DRUM CLAIM FORM

Fax this entire page in "Detail Mode" ATTN: National Reclamation Center to obtain an RMA Number.

RMA # _____

Fax Number (973) 808-9613

Please list machine serial numbers along with affected drum lot numbers that were installed on those machines.

Serial Number(s)		
A294/A295		Drum Lot #
1		
2		
3		
4		
5		

Please ship all of the following items prepaid to the National Reclaimation Center at the address below to receive credit.

- Copy of this completed form with issued RMA number from NRC
- Failed Drum used on a A294/A295
- SMC Copy Management Report printout for each unit
- Complete Machine Service History each unit, meter/date of drum replacement
- Copy Samples showing dirty background for each drum.

Ship the above items prepaid to:

National Reclamation Center
10 Old Bloomfield Ave.
Pine Brook, NJ 07058
Attn: RMA # _____

PLEASE TYPE OR PRINT CLEARLY.

DEALER NAME:		
ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**
ATTN:		
PHONE # :	**FAX # :**	
DEALER ACCOUNT NUMBER:		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 068 **11/05/2002**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: SERVICE MANUAL – INSERT

GENERAL:

The Service Manual page listed below must be replaced with the page supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 2-93 Updated Information (Image Transfer and Paper Separation)

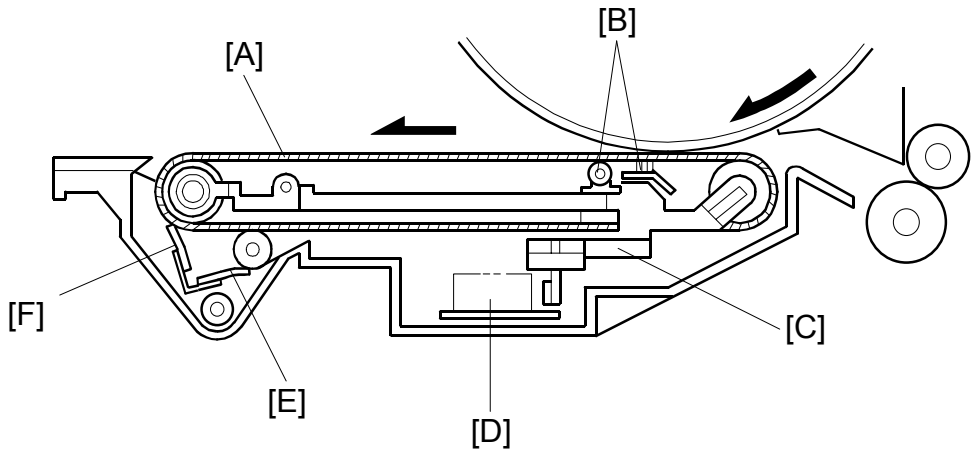
Note: This copy is intended as a master original for reproduction of additional bulletins.

SERVICE MANUAL

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2.9 IMAGE TRANSFER AND PAPER SEPARATION

2.9.1 OVERVIEW



The transfer belt unit consists of the following parts:

[A]: Transfer belt
A belt (length: 321 mm) with high electrical resistance which holds a high positive electrical potential to attract toner from the drum to the paper. Also, the electrical potential attracts the paper itself and helps the paper to separate from the drum.

⇒ To compensate for the increased copy speed of the A295, a higher transfer current is applied.

[B]: Transfer bias roller and transfer belt bias brush
Applies transfer voltage to the transfer belt.

[C]: Transfer belt lift lever (driven by a solenoid)
Lifts the transfer belt into contact with the drum.

[D]: Transfer power pack
Generates a constant transfer current.

[E]: Cleaning roller and cleaning roller cleaning blade
Removes toner remaining on the transfer belt to prevent the rear side of the paper from getting dirty.

[F]: Transfer belt cleaning blade
Removes toner from the transfer belt. Any toner that is not removed by this blade is removed by the cleaning roller [E].

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 069 **11/17/2003**

APPLICABLE MODEL:

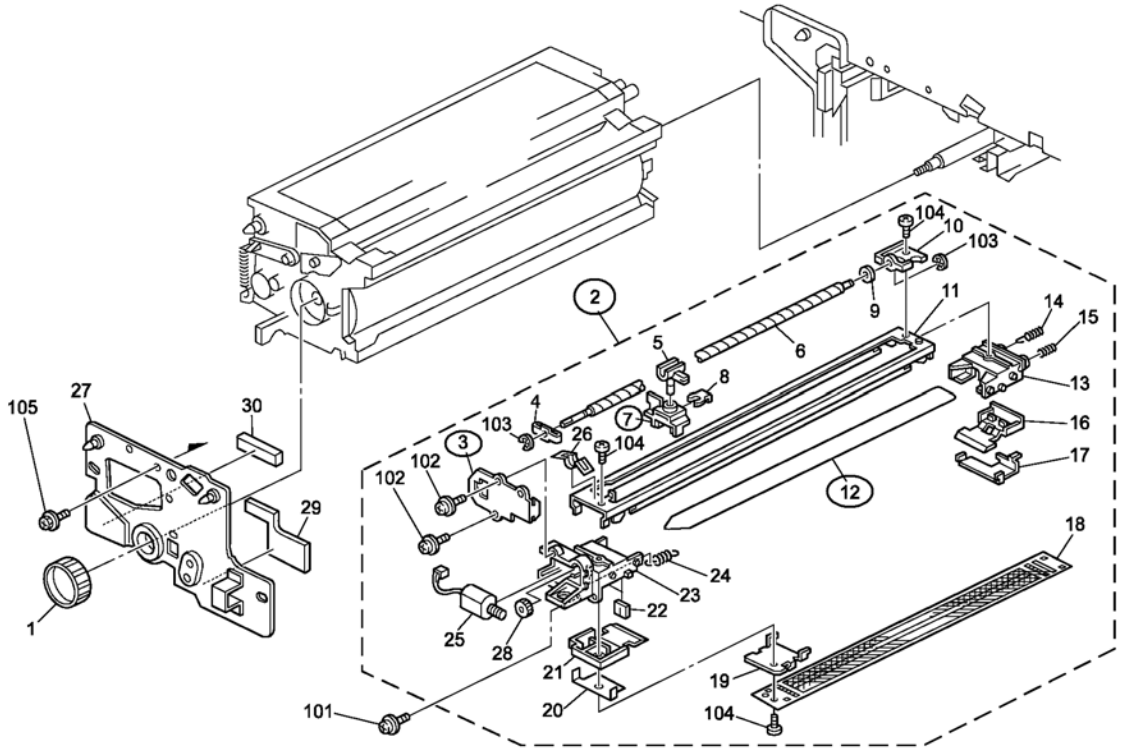
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: CHARGE CORONA UNIT

GENERAL:

To improve the image quality in halftone areas, the Charge Corona Wire has been gilded. In accordance with this change, the Corona Wire Cleaner has also been changed. To visually distinguish between the old style and the new style Charge Corona Units, the color of the unit's motor cover has been changed from black to the color of the A294/A295 Inner Cover (purplish-brown ■). The following parts updates are being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2942010	B0702010	Charge Corona Unit	1	1	89	2
AD020053	B0702364	Charge Corona Wire	1	3/S	89	12 *
A2942011	A0962063	Corona Wire Cleaner	1	3/S	89	7 *
A0962053	B0702365	Cleaner Motor Cover	1	1	89	3

***** These parts should be changed as a set.

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Charge Corona Unit installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Gestetner 8502	H3620500001
Gestetner 10502	H3720500001
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3620400156
Ricoh AFICIO 1105	H37205xxxxx
Savin 2085DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620500001
Savin 25105	H3720500001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 070 **01/27/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SICU BOARD

GENERAL:

To facilitate servicing, the blank NV-RAM previously attached to the board has been deleted from the SICU board service part. This is because the blank NVRAM is unnecessary when installing a new board. Normally at replacement, the existing NV-RAM is removed from the old board and reattached onto the new board. The following parts updates are being issued for all A294/A295 Parts Catalogs.

- Old SICU Board: Contains blank RAM
- New style SICU Board: **does not** contain a blank RAM

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2945605	A2945606	SICU Board – 240V USA	1	0	47	14
A2945655	A2945656	SICU Board –230V	1	0	47	14

NOTE: *The NV-RAM is still available as an individual Service Part (P/N A2949099).*

UNITS AFFECTED:

The new style SICU Board is only available as a service part.

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 071 **03/10/2003**

APPLICABLE MODEL:
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

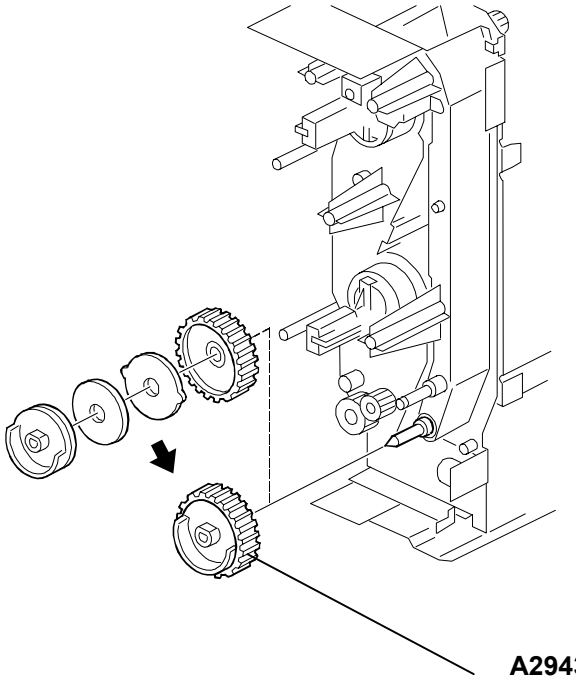
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

To increase the reliability of the Toner-Full detection mechanism, the following 4 parts have been deleted and replaced with a Torque Limiter. The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:** **Torque Limiter – Toner Collection**-To increase the reliability of the Toner-full detection mechanism, the following four parts have been deleted and replaced with a Torque Limiter.



A2943423

Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB012012		Gear – 51Z	1	1	77	12
A2943414		Toner Collection Coil Joint	1	1	77	15
A2943416		Toner Recycling Magnet	1	1	77	14
A2943419		Joint Disk	1	1	77	13
	A2943423	Torque Limiter – Toner Collection	1	1	77	*22

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Torque Limiter – Toner Collection installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37204xxxxx
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620400153
Savin 2105	H3720500001

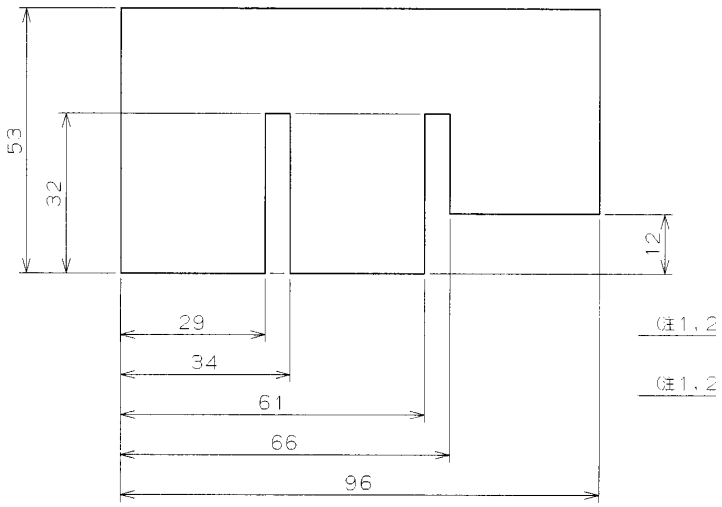
- **UPDATE 2:** **Torque Limiter – 53mnxm –** The Torque Limiter has been modified to increase its durability.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2472900	A2946700	Torque Limiter – 53mnxm	1	1	27	27
A2472900	A2946700	Torque Limiter – 53mnxm	1	1	65	4

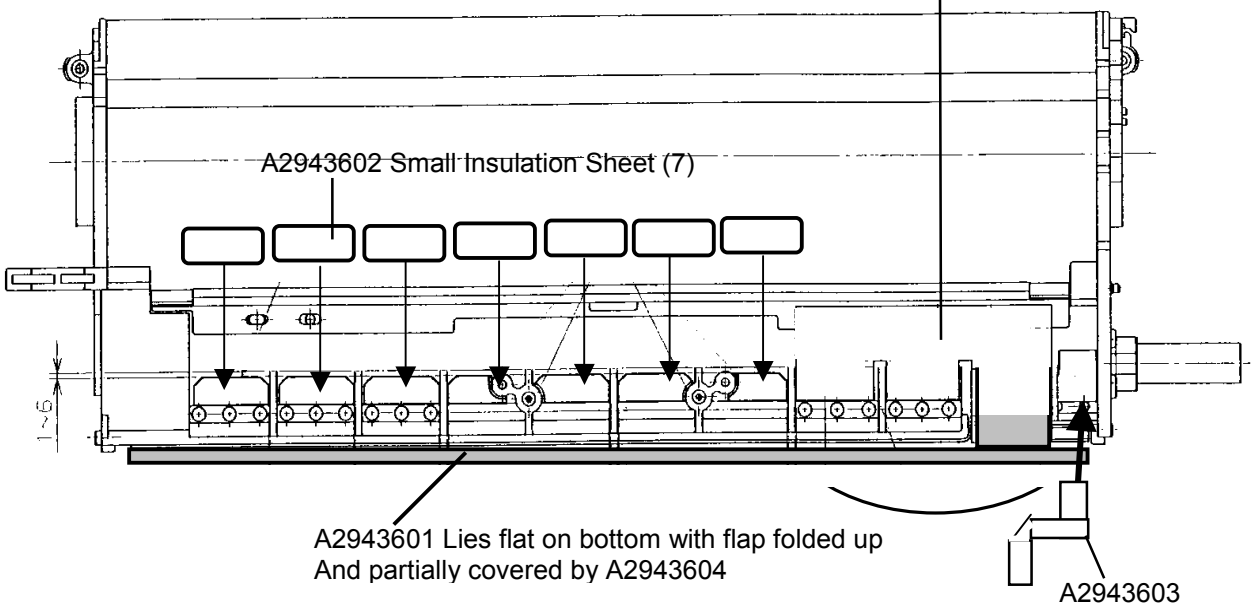
Continued….

- **UPDATE 3:** **Lower Drum Unit** – To decrease the temperature in the Cleaning Unit, the thickness of the Insulation Sheets have been increased, and a new Heat Insulation Sheet has been added.

A2943604



Note: The new A2943604 Sheet is attached directly over A2943601.



Continued…

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943512	A2943513	Lower Drum Unit	1	1	93	✳
A2943573	A2943603	Medium Insulation Sheet	1	1	95	27
A2943574	A2943602	Small Insulation Sheet	7	1	95	28
A2943576	A2943601	Large Insulation Sheet	1	1	95	29
-	A2943604	Heat Insulation Sheet	1	-	95	*32

***DENOTES NEW ITEM NUMBER**

- **UPDATE 4:** **Scanner Drive Shaft** – Due to parts standardization with the B064/B065, the fixing screw for the Scanner Drive Shaft and Front/Rear Drive Pulleys has been changed from an M3 to an M4 type. In accordance with this change, the Shaft and Pulleys have also been changed.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941757	AB032069	Pulley – Front Drive	1	3/S	49	23
A2941758	AB032070	Pulley – Rear Drive	1	3/S	49	10
A2931713		Hexagon Headless Set Screw – M3x8	-			
	B0651718	Screw – M4x8	2	3/S	49	32
A2941749	B0701749	Shaft – Scanner Drive	1	3/S	49	8

Note: These parts should be replaced as a set (interchangeability is 3/S).

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Scanner Drive Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37205xxxxx
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620400153
Savin 25105	H3720500001

Continued…

- **UPDATE 5:** **Pulley – T82**– The T82 Pulley has been strengthened to improve its reliability.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB030642	AB030754	Pulley – T82	2	1	127	11

- **UPDATE 6:** **Collection Bottle Tube -** The material of the Collection Bottle Tube has been changed to increase its reliability. The color has also been changed from milky-white to gray for visual distinction.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A29443732	A2943733	Collection Bottle Tube	1	1	67	35

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Collection Bottle Tube installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3611200013
Ricoh Aficio 1105	H3711200281
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3711200044

Continued…

- **UPDATE 7:** **Timing Pulley -** If the spacers listed below wear down and break, this may cause the Timing Belt to slip off the pulley. To ensure that the belt does not slip off the pulley, the spacers have been deleted and the timing pulleys and idle pulley have been fitted with stoppers on both ends.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2941757	-	Spacer	2→0	-	135	9
A2941758	-	Spacer	1→0	-	135	23
AB030364	AB030750	Timing Pulley – 18T	2	1	135	10
AB030391	AB030751	Timing Pulley – 22T	3	1	135	1
AB032716	AB030752	Idle Pulley – M18	2	1	135	21

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Timing Pulley installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37204XXXXX
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720500001

Continued…

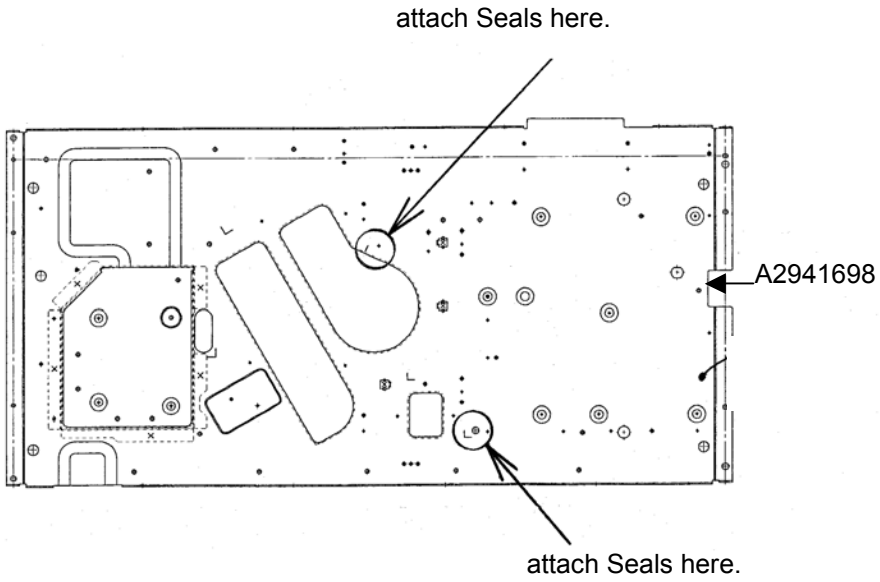
- **UPDATE 8:** **Base Frame -** The following have been changed due to parts standardization.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
	AA150332	Seal – 0.19x18x22	5→7	3/S	49*	17
A2941661	A2941697	Base Frame	1	3/S	49	29
A2941811	A2941846	Cover – LD Unit	1	0	47	3
A2941780	A2941775	Cover – Lens Unit	1	0	43	10

*** DENOTES NEW ITEM NUMBER**

Note: **These parts should be replaced as a set (interchangeability is 3/S).**

Note**:** When installing the Base Frame, attach the Seals to the areas shown by the arrows in the illustration below**.**



Continued…

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Base Frame installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37203XXXXX
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720300015

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 071 REISSUE ★ **04/16/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

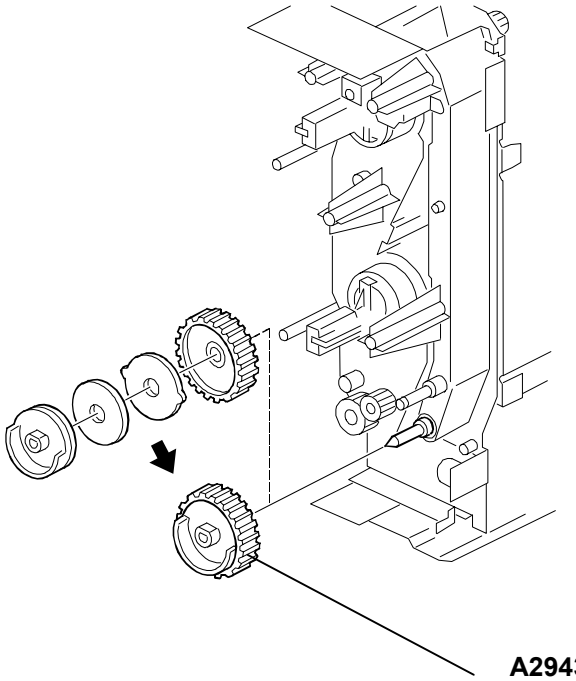
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

To increase the reliability of the Toner-Full detection mechanism, the following 4 parts have been deleted and replaced with a Torque Limiter. The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:**

Torque Limiter – Toner Collection-To increase the reliability of the Toner-full detection mechanism, the following four parts have been deleted and replaced with a Torque Limiter.



A2943423

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB012012		Gear – 51Z	1	1	77	12
A2943414		Toner Collection Coil Joint	1	1	77	15
A2943416		Toner Recycling Magnet	1	1	77	14
A2943419		Joint Disk	1	1	77	13
	▶A2943423	Torque Limiter – Toner Collection	1	1	77	*22

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Torque Limiter – Toner Collection installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37204xxxxx
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620400153
Savin 2105	H3720500001

● UPDATE 2:

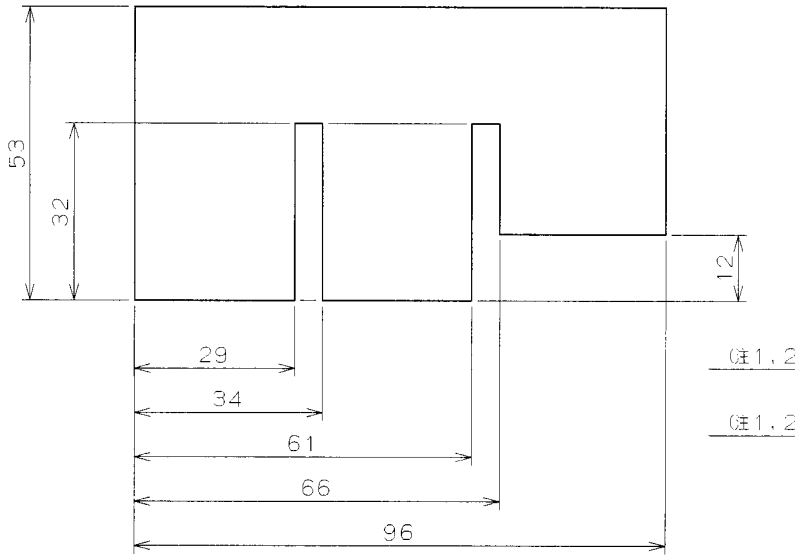
Torque Limiter – 53mnxm – The Torque Limiter has been modified to increase its durability.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2472900	A2946700	Torque Limiter – 53mnxm	1	1	27	27
A2472900	A2946700	Torque Limiter – 53mnxm	1	1	65	4

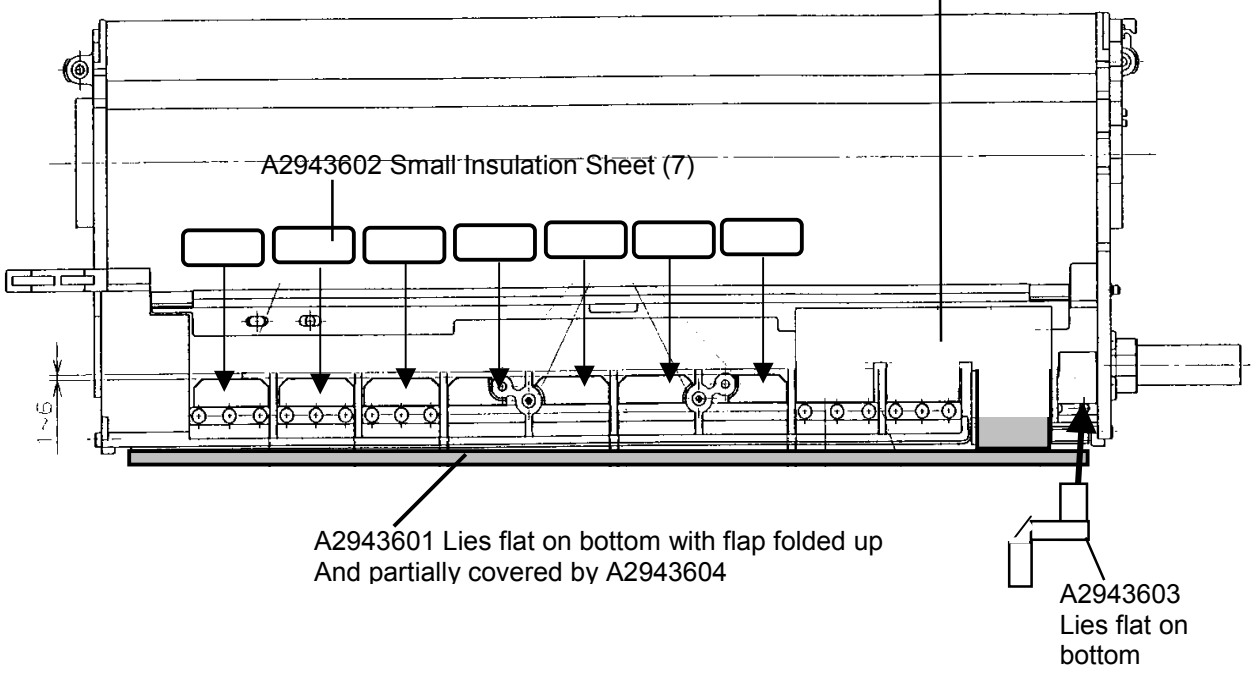
- **UPDATE 3:**

Lower Drum Unit – To decrease the temperature in the Cleaning Unit, the thickness of the Insulation Sheets have been increased, and a new Heat Insulation Sheet has been added.

A2943604



Note: The new A2943604 Sheet is attached directly over A2943601.



OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	REFERENCE PAGE	REFERENCE ITEM
A2943512	A2943513	Lower Drum Unit	1	1	93	✳
A2943573	A2943603	Medium Insulation Sheet	1	1	95	27
A2943574	A2943602	Small Insulation Sheet	7	1	95	28
A2943576	A2943601	Large Insulation Sheet	1	1	95	29
-	A2943604	Heat Insulation Sheet	1	-	95	*32

***DENOTES NEW ITEM NUMBER**

- **UPDATE 4:**

Scanner Drive Shaft – Due to parts standardization with the B064/B065, the fixing screw for the Scanner Drive Shaft and Front/Rear Drive Pulleys has been changed from an M3 to an M4 type. In accordance with this change, the Shaft and Pulleys have also been changed.

OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	REFERENCE PAGE	REFERENCE ITEM
A2941757	AB032069	Pulley – Front Drive	1	3/S	49	23
A2941758	AB032070	Pulley – Rear Drive	1	3/S	49	10
A2931713		Hexagon Headless Set Screw – M3x8	-			
	B0651718	Screw – M4x8	2	3/S	49	32
A2941749	B0701749	Shaft – Scanner Drive	1	3/S	49	8

Note: These parts should be replaced as a set (interchangeability is 3/S).

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Scanner Drive Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37205xxxxx
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620400153
Savin 25105	H3720500001

- **UPDATE 5:**

Pulley – T82– The T82 Pulley has been strengthened to improve its reliability.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB030642	AB030754	Pulley – T82	2	1	127	11

- **UPDATE 6:**

Collection Bottle Tube - The material of the Collection Bottle Tube has been changed to increase its reliability. The color has also been changed from milky-white to gray for visual distinction.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A29443732	A2943733	Collection Bottle Tube	1	1	67	35

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Collection Bottle Tube installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3611200013
Ricoh Aficio 1105	H3711200281
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3711200044

● UPDATE 7:

Timing Pulley - If the spacers listed below wear down and break, this may cause the Timing Belt to slip off the pulley. To ensure that the belt does not slip off the pulley, the spacers have been deleted and the timing pulleys and idle pulley have been fitted with stoppers on both ends.

						REFERENCE	
	OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
★	AA132152	-	Spacer	2→0	-	135	9
	AA132212	-	Spacer	1→0	-	135	
	AB030364	AB030750	Timing Pulley – 18T	2	1	135	10
	AB030391	AB030751	Timing Pulley – 22T	3	1	135	1
	AB032716	AB030752	Idle Pulley – M18	2	1	135	21

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Timing Pulley installed during production.

MODEL NAME	SERIAL NUMBER
Lanier 5485AG	Service part only
Lanier 5505AG	Service part only
Lanier 5685	L065204xxxx
Lanier 5705	L0662050001
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37204XXXXX
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720500001

● UPDATE 8:

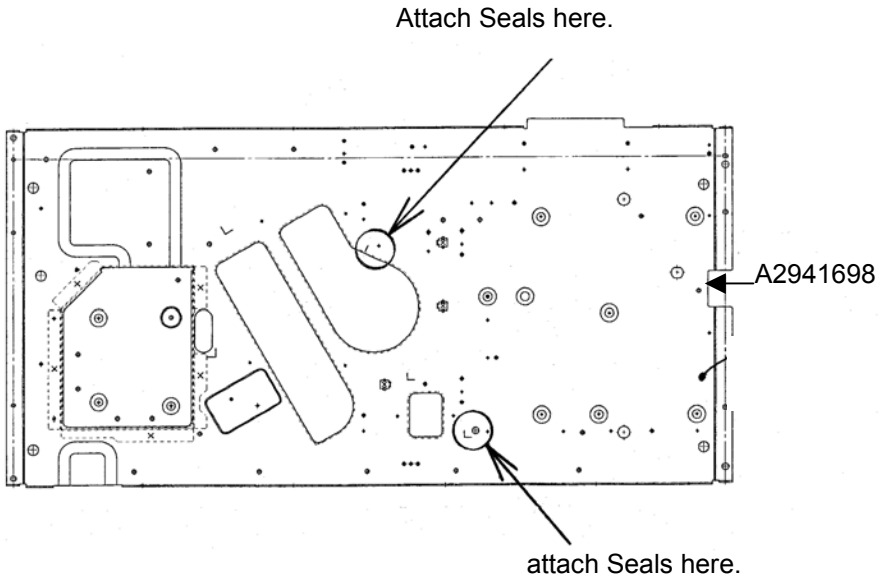
Base Frame - The following have been changed due to parts standardization.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
	AA150332	Seal – 0.19x18x22	5→7	3/S	49*	17
A2941661	A2941697	Base Frame	1	3/S	49	29
A2941811	A2941846	Cover – LD Unit	1	0	47	3
A2941780	A2941775	Cover – Lens Unit	1	0	43	10

*** DENOTES NEW ITEM NUMBER**

Note: **These parts should be replaced as a set (interchangeability is 3/S).**

Note**:** When installing the Base Frame, attach the Seals to the areas shown by the arrows in the illustration below**.**



UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Base Frame installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620400156
Ricoh Aficio 1105	H37203XXXXX
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720300015

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 072 **03/10/2003**

APPLICABLE MODEL:

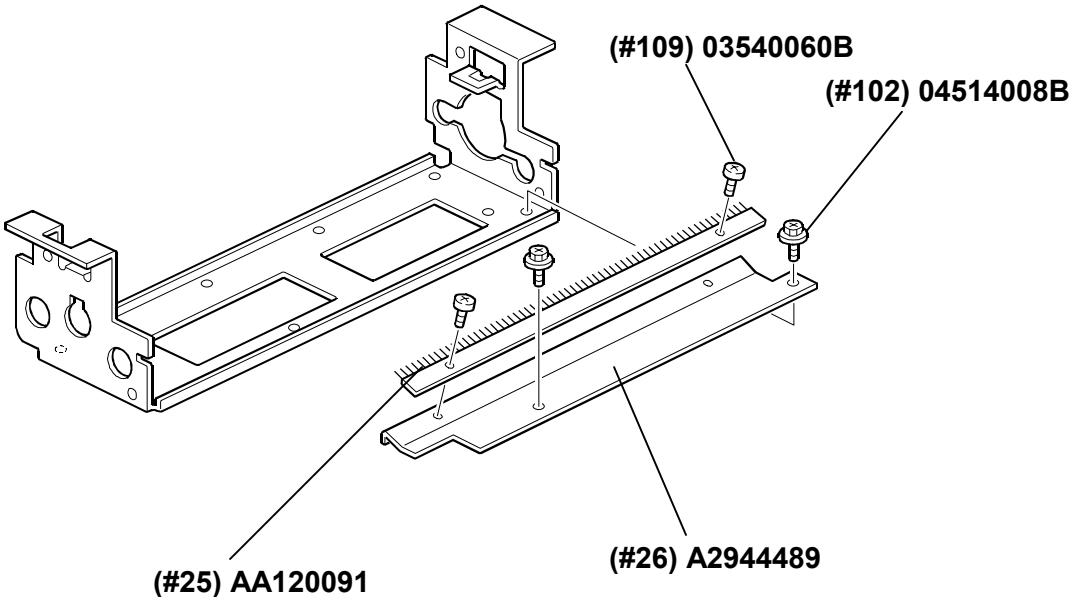
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: ANTISTATIC BRUSH

GENERAL:

To minimize electrical noise from the Fusing Unit caused by electrostatic buildup, an Antistatic Brush has been added. The brush requires a new Bracket, new Binding Screw and an existing Tapping Screw.
The following parts updates are being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
-	AA120091	Antistatic Brush	1	-	109	*25
-	A2944489	Bracket – Antistatic Brush	1	-	109	*26
-	03540060B	Binding Screw - M4X6	2	-	109	*109
(04514008B)	(04514008B)	Tapping Screw – M4X8	2	-	109	102

*** DENOTES NEW ITEM NUMBER**

Continued…

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Antistatic Brush installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1085	H3620100049
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1105	H3720100091
Savin 2085DP	Service part only
Savin 2105DP	Service part only
Savin 25105	H3720100035
Savin 2585	H3620200257

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 073 **03/10/03**

APPLICABLE MODEL:

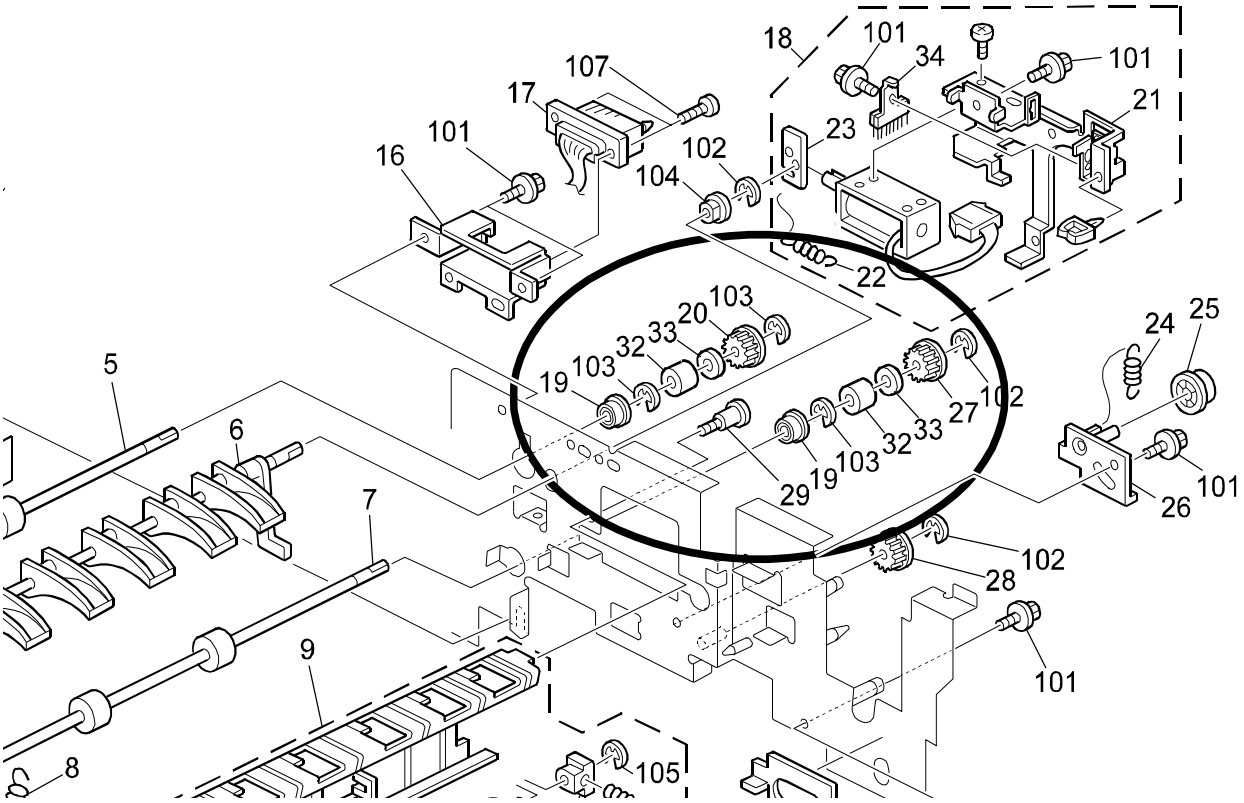
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SPACER AND COLLAR

GENERAL:

To prevent the timing belt from slipping off the pulleys, the spacers and collars have been added as shown below. The following parts updates are being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
-	AA132152	Spacer – 8x20x1	2	-	111	33*
-	54462901	Collar – 8mm	2	-	111	32*

* DENOTES NEW ITEM NUMBER

Continued…

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UNITS AFFECTED:

All 294/A295 copiers manufactured after the serial numbers listed below will have the new style Spacer and Collar installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620100049
Ricoh Aficio 1105	H3720100041
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720100001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 074 **03/12/2003**

APPLICABLE MODEL:

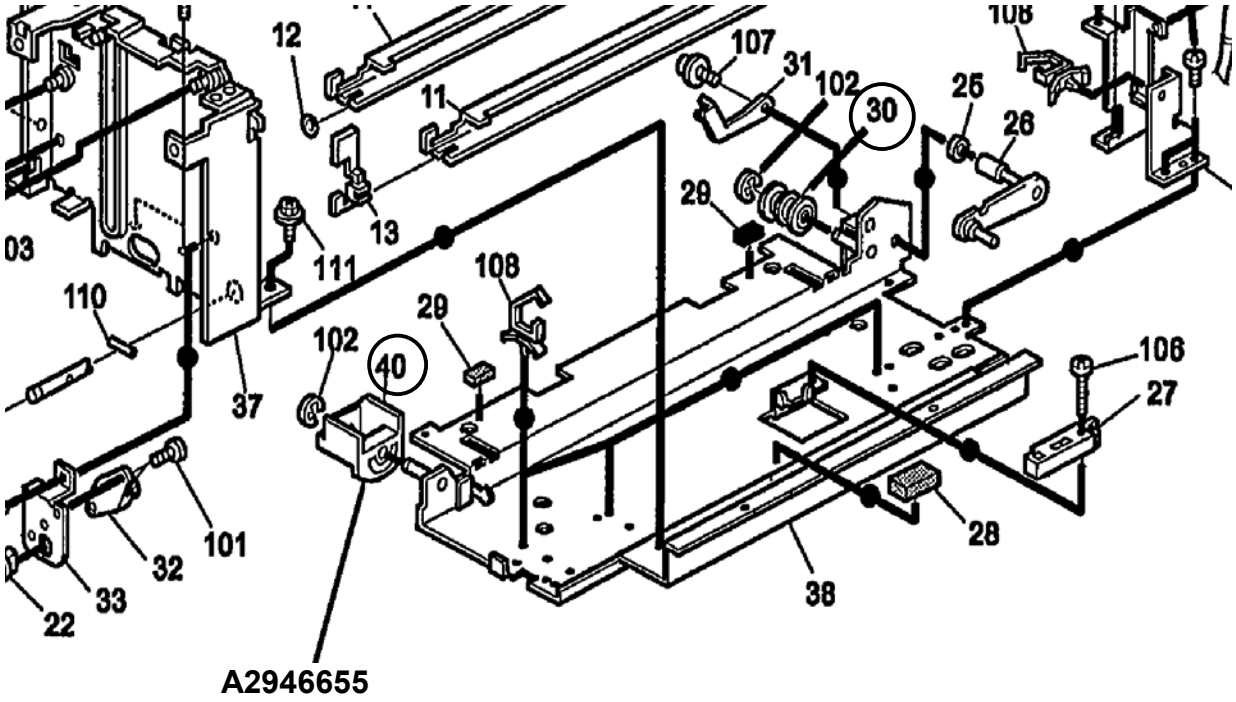
GESTETNER – 3285/32105/8502/10502
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: ROLLER – SLIDE RAIL

GENERAL:

The Slide Rail Roller can sometimes come off the rail when the customer pulls out the right tray. This may cause damage to other components if the tray is pushed back in this condition. To ensure that the rollers re-engage the rail when the tray is pushed back in (even if they derail), one of the two Slide Rail Rollers has been deleted, and a Slide Rail Front Roller has been added.
The following parts corrections are being issued for all A294/A295 Parts Catalogs.



A2946655

Continued…

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				REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
AF022105	AF022105	Roller – Slide Rail	2→1	57	30
	A2946655	Roller – Slide Rail Front	1	57	*40

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All A292/A293 copiers manufactured after the serial numbers listed below will have the new style Roller – Slide Rail Front installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620100049
Ricoh Aficio 1105	H3720100041
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620100001
Savin 25105	H3720100001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 075 **03/25/2003**

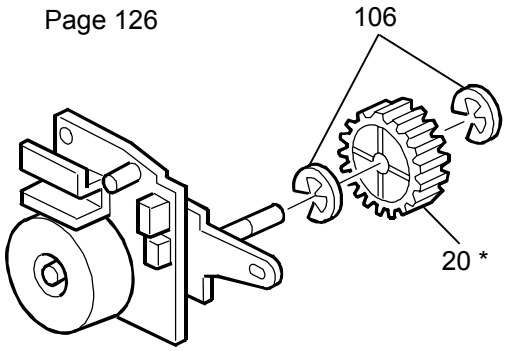
APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: GEAR ON PAPER FEED MOTOR

GENERAL:

The Gear on the Paper Feed Motor has been registered as a part so it can be replaced. Please update your parts catalog with the following information. Also. Please update the illustration on page 126 as shown below. The following parts updates are being issued for all A294/A295 Parts Catalogs.



			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
AB011131	Gear 48Z	1	127	20 *
07200060B	Retaining Ring – M6	-	127	106

*** DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

The Gear 48Z is available as a service part only.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 076 **04/08/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

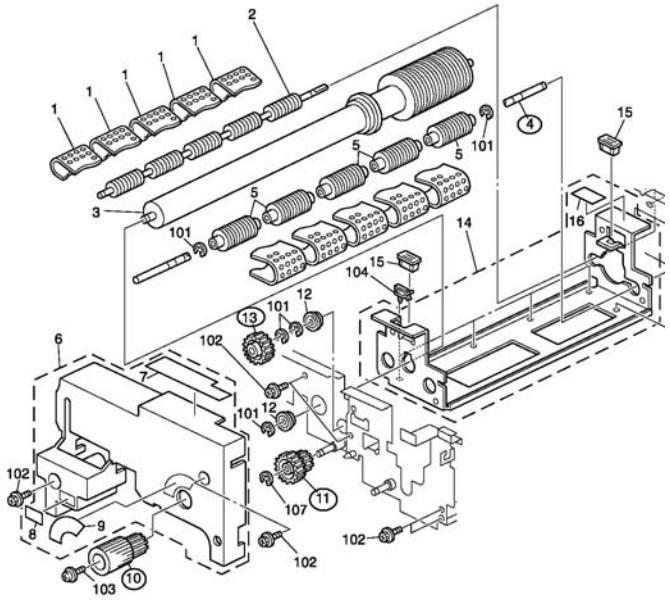
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:**

Transport Roller Knob – To improve jam removal, the Transport Roller Knob has been attached directly to the Cooling Roller Shaft. These parts should be replaced as a set (Interchangeability: 3/S). To install the new Knob (P/N: AG050092), the Cooling Roller Shaft needs to be replaced with the new part (P/N: B0704254) and the two gears (P/N: AB013780 & AB014152) need to be removed. Please update your A294/A295 Parts Catalog with the following information.

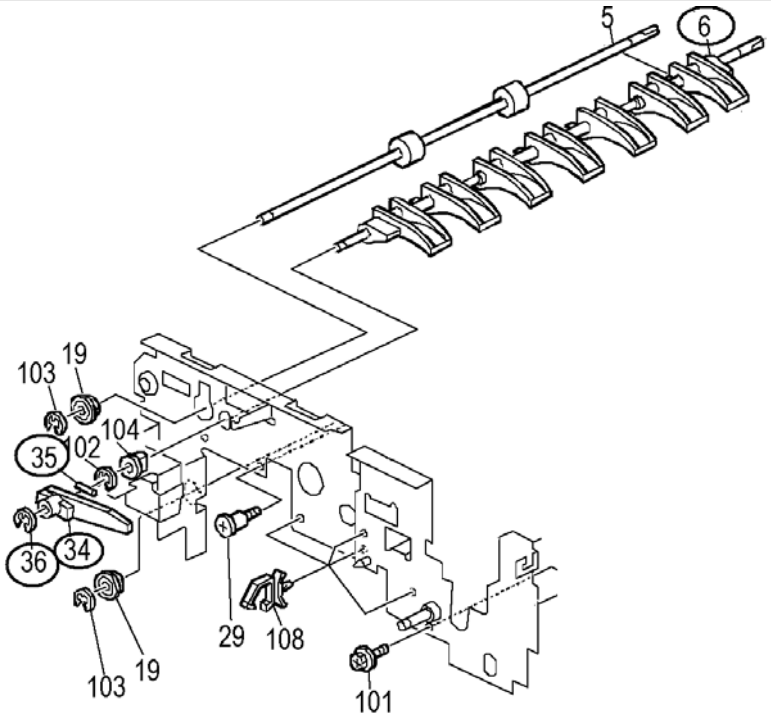


					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AG050067	AG050092	Knob – Transport Roller	1	3/S	109	10
AA140747	B0704254	Cooling Roller Shaft	1	3/S	109	4
AB013780	-	Gear	1	3/S	109	11
AB014152	-	Gear – 32Z	1	3/S	109	13

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- **UPDATE 2:**

Inverter Junction Pawl– To allow printing of 12”x18” size paper, the width of the paper transport route has been increased. In accordance with this change, the Inverter Junction Pawl has been changed as follows. Also, the stopper has been separated and the Front and Rear side plates have been changed. Please update your A294/A295 Parts Catalog with the following information.

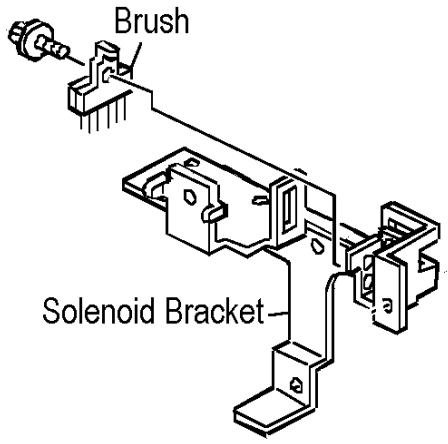


					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AF025039	▶ B0704267	Inverter Junction Pawl	1	3/S	111	6
	▶ B0704268	Stopper – Inverter Junction Pawl	1	3/S	111	34 *
	▶06320140G	Spring Pin – 2x14	1	3/S	111	35 *
	▶07200040B	Retaining Ring – M4	1	3/S	111	36 *
A2944342	B0704231	Front Side Plate – Fusing Exit	1	3/S	115	24
A2944311	B0704241	Rear Side Plate – Fusing Exit	1	3/S	115	25
A2944272	B0704271	Inverter Guide Plate	1	3/S	111	9

*** DENOTES NEW ITEM NUMBER**

- **UPDATE 3:**

Solenoid Bracket – The Solenoid Bracket has been replaced by the bracket used on the B070. This piece has the Brush Bracket mounted onto the Solenoid Bracket. Please update your A294/A295 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944336		Brush Bracket	1→0	1	109	18
A2944280	▶ B0704293	Solenoid Bracket	1		111	21

- **UPDATE 4:**

Cushion – 6x6x2 – The Cushions mounted on the Front Side Plate have been changed to match the B070. Please update your A294/A295 Parts Catalog with the following information.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944665		Cushion – 6x6x2	2	3/S	115	27
	▶ B0704237	Cushion – 6x6x2	2			

- **UPDATE 5:**

Bushing – 4x5x7 – The Bushings mounted on the Inverter Guide Plate and the Exit Guide Plate have been changed. Please update your A294/A295 Parts Catalog with the following information.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA080034	AA082126	Bushing – 4x5x7	1	1	111	2
AA080034	AA082126	Bushing – 4x5x7	1	1	115	9

• UPDATE 5:

Miscellaneous Parts – The following miscellaneous parts have been changed. Please update your A294/A295 Parts Catalog with the following information.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2944429	B0704321	Oil Supply & Cleaning Web Unit	1	0	101	3
A2944449	B0704418	Web Brake Pad	1	0	101	23
A2949507	B0709507	Hot Roller Stripper – 5pcs/set	1	0	103	16
A2944472	B0704472	Upper Fusing Exit Guide	1	1	103	17
A2944190	B0704190	Front Bracket	1	0	107	20
A2944447	B0704447	Sensor Bracket	1	0	107	5
A2944281	B0704299	Inverter Lever	1	0	111	23
AF020491	AF020574	Inverter Entrance Roller	1	0	111	7
AF020490	AF020575	Inverter Relay Roller	1	0	115	6
AF020493	AF020576	Inverter Exit Roller	1	0	111	5
AF020492	AF020577	Exit Drive Roller	1	0	113	4
A2944254	B0704251	Transport Belt – Paper Exit	5	0	109	1

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style parts listed in this Technical Service Bulletin installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service parts only
Lanier 5485AG	Service parts only
Ricoh Aficio 850	Service parts only
Gestetner 32105 Savin 2105DP	Service parts only
Lanier 5505AG	Service parts only
Ricoh Aficio 1050	Service parts only
Gestetner 8502 Savin 2585	H3620600001
Lanier 5685	L0652070001
Ricoh Aficio 1085	H3620500113
Gestetner 10502 Savin 25105	H3720600001
Lanier 5705	L0662060001
Ricoh Aficio 1050	H3720800020

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 077 **05/06/2003**

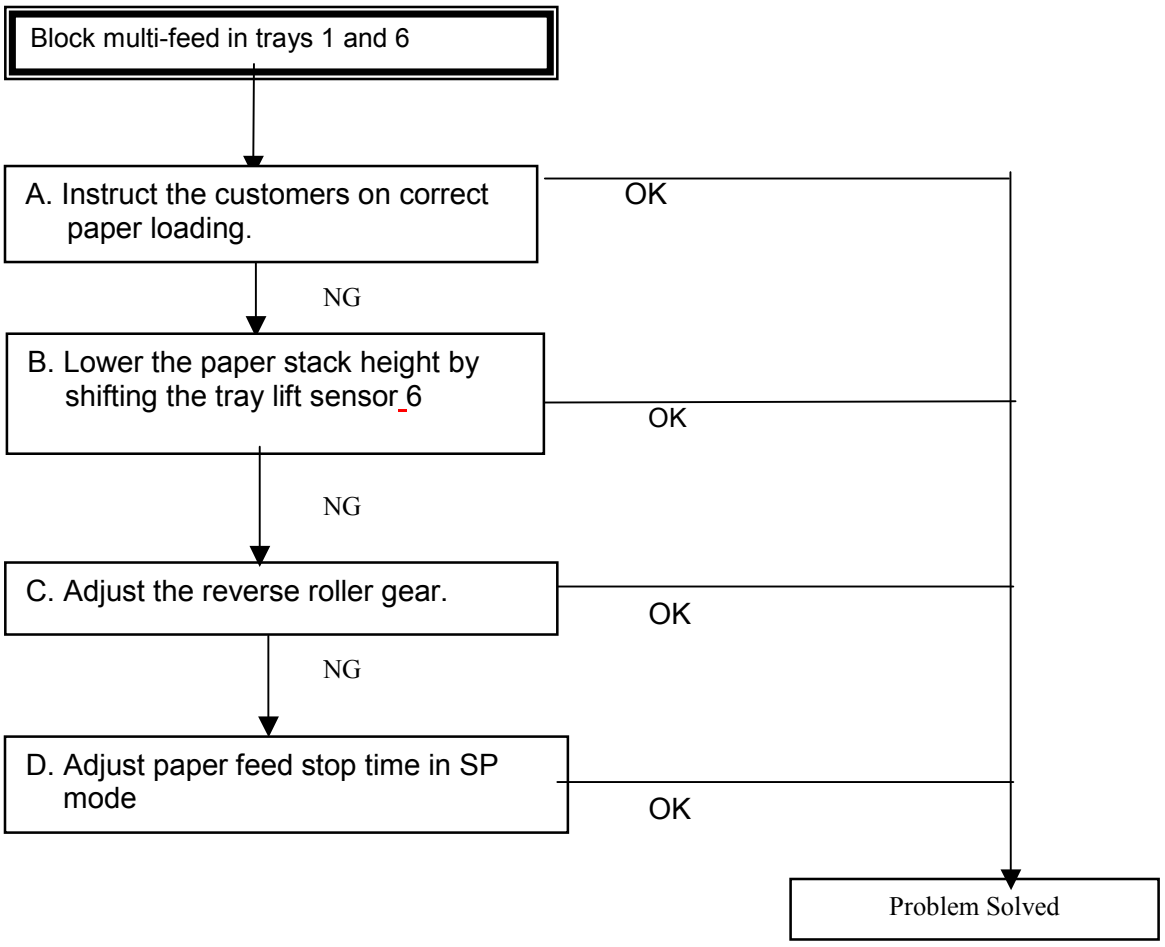
APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: SOLUTIONS FOR BLOCK MULTI –FEEDING IN TRAYS 1 AND 6

GENERAL:

Flow Chart:
Please follow the flow chart as shown below:



Continued….

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A. Paper loading

1) Fan the leading edges of the top and bottom 50-100 sheets of the paper ream gently.
2) As shown in Fig. 1, remove the lowermost sheet of the top ream, as well as the topmost sheet of the lower ream.
3) Then, load the papers in tray.

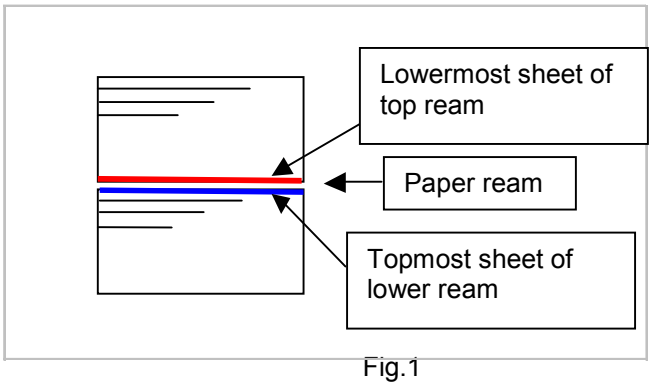


Fig.1

B. Lower the paper stack height by shifting the tray lift sensor.
(Refer to Technical Service Bulletin B303 – 004)

C. Adjust the reverse roller gear. Increase the separation pressure, preventing blocks from forming in the feed and separation nips:
Move the reverse roller gear toward the separation roller, until it contacts the D-cut section as shown in fig. 2.

Note: This is only effective for block multi-feeds, i.e. not for multi-feeds of just a few sheets.

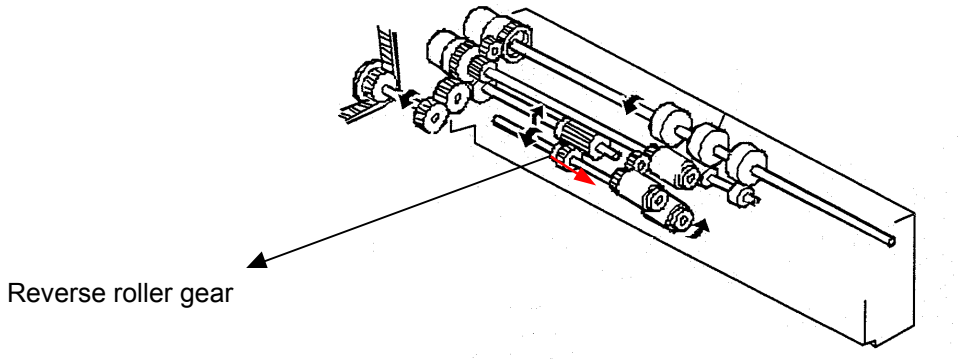


Fig 2

Continued….

D. Adjust the paper feed stop time in SP mode.
We have prepared the firmware (SICU_BCU: V8.8) to change the paper feed stop time by the following SP mode as a countermeasure to the block multi-feed problem of field machines

New SP mode:

SP 1907 – 001 to 006 (Paper feed stop time adjustment) [0 -100/**0**/1x10msec.]

Note: For correct setting multiply the step X 10msec

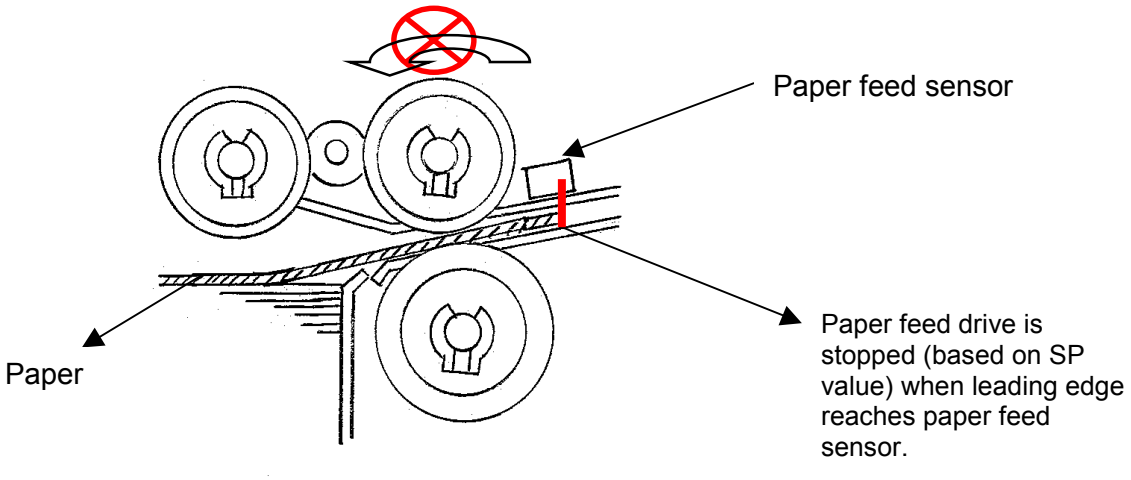
Example: 1 X10 =10msec(Input "1")

5 X10=50msec(input "5")

20 X10=200msec(input "20")

1907	Paper feed Timing Adjustment		Specifies when to stop the feed clutch once a sheet of paper reaches the feed sensor and switches it on. [0~100 / **0** / 10msec] *This SP mode is used as a multi-feed Countermeasure. However, copy (print) speed is slightly reduced*.
	001	Tray 1	
	002	Tray 2	
	003	Tray 3	
	004	Tray 4 (LCT Tray 1)	
	005	Tray 5 (LCT Tray 2)	
	006	Tray 6 (LCT Tray 3)	

To change this data, the machine stops the paper once the leading edge reaches the paper feed sensor, increasing separation efficiency and making it difficult for block multi-feeds to occur.



Continued….

Procedure:

1. Increase the data of SP1907 – 001 to 006 by 1X10msec, then, confirm the result.

2. If it does not succeed, increase by 10msec again until you eliminate this issue.

Note: As a side effect, this will reduce the CPM in all paper feed stations.

LT sideways/85cpm:	LT sideways/105cpm:
0.1sec□74.5cpm	0.1sec□89.4cpm
0.2sec□66.2cpm	0.2sec□77.8cpm
0.3sec□59.6cpm	0.3sec□68.9cpm
0.4sec□54.3cpm	0.4sec□61.8cpm
0.5sec□49.8cpm	0.5sec□56.0cpm
1.0sec□35.2cpm	1.0sec□38.2cpm

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 077 REISSUE ★ **05/09/2003**

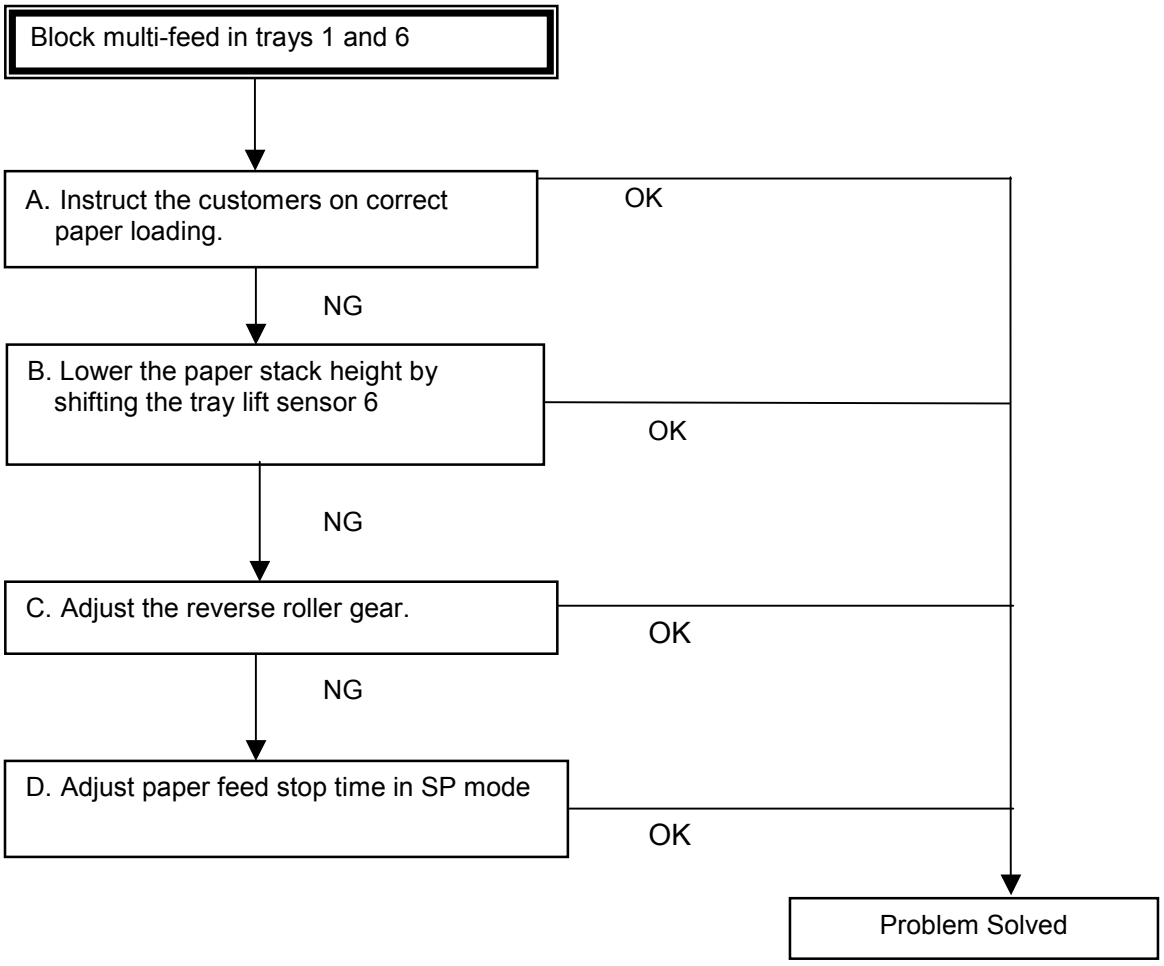
APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: SOLUTIONS FOR BLOCK MULTI–FEEDING IN TRAYS 1 AND 6

GENERAL:

Flow Chart:
Please follow the flow chart as shown below:



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A. Paper loading

1) Fan the leading edges of the top and bottom 50-100 sheets of the paper ream gently.
2) As shown in Fig. 1, remove the lowermost sheet of the top ream, as well as the topmost sheet of the lower ream.
3) Then, load the papers in tray.

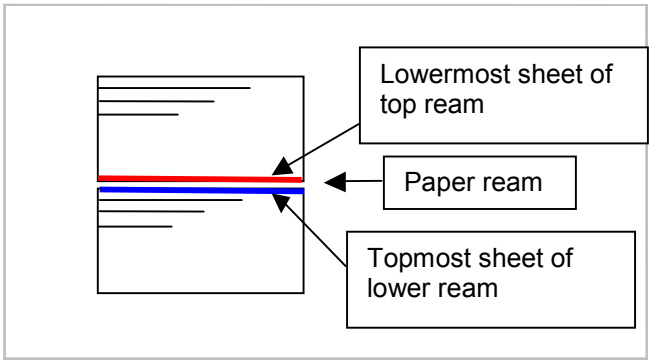


Fig.1

B. Lower the paper stack height by shifting the tray lift sensor.
(Refer to Technical Service Bulletin B303 – 004)

C. Adjust the reverse roller gear. Increase the separation pressure, preventing blocks from forming in the feed and separation nips:
Move the reverse roller gear toward the separation roller, until it contacts the D-cut section as shown in fig. 2.

Note: This is only effective for block multi-feeds, i.e. not for multi-feeds of just a few sheets.

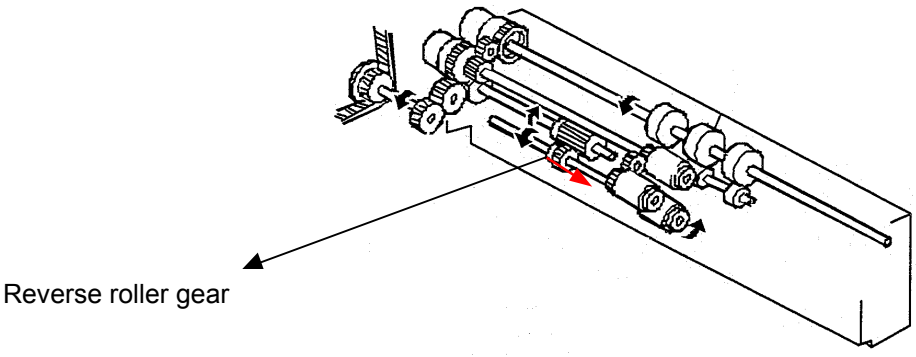


Fig 2

D. Adjust the paper feed stop time in SP mode.

We have prepared the firmware (SICU_BCU: V8.8) to change the paper feed stop time by the following SP mode as a countermeasure to the block multi-feed problem of field machines.

New SP mode:

SP 1907 – 001 to 006 (Paper feed stop time adjustment) [0 -100/**0**/1x10msec.]

Note: For correct setting multiply the step X 10msec

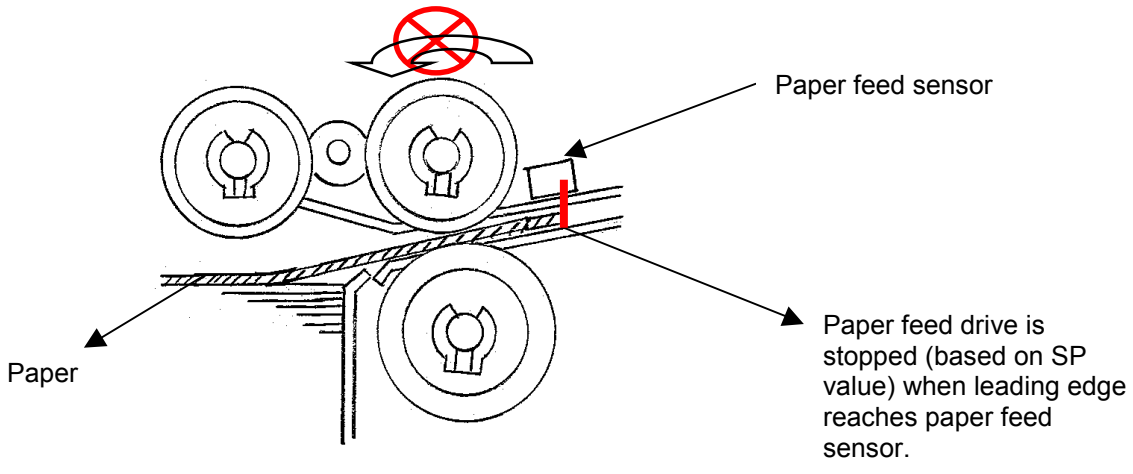
Example: 1 X10 =10msec(Input "1")

5 X10=50msec(input "5")

20 X10=200msec(input "20")

1907	Paper feed Timing Adjustment		Specifies when to stop the feed clutch once a sheet of paper reaches the feed sensor and switches it on. [0~100 / **0** / 10msec] *This SP mode is used as a multi-feed Countermeasure. However, copy (print) speed is slightly reduced.*
	001	Tray 1	
	002	Tray 2	
	003	Tray 3	
	004	Tray 4 (LCT Tray 1)	
	005	Tray 5 (LCT Tray 2)	
	006	Tray 6 (LCT Tray 3)	

To change this data, the machine stops the paper once the leading edge reaches the paper feed sensor, increasing separation efficiency and making it difficult for block multi-feeds to occur.



Procedure:
1. Increase the data of SP1907 – 001 to 006 by 1X10msec, then, confirm the result.
2. If it does not succeed, increase by 10msec again until you eliminate this issue.

Note: As a side effect, this will reduce the CPM in all paper feed stations.

★

LT sideways/85cpm:	LT sideways/105cpm:
0.1sec → 74.5cpm	0.1sec → 89.4cpm
0.2sec → 66.2cpm	0.2sec → 77.8cpm
0.3sec → 59.6cpm	0.3sec → 68.9cpm
0.4sec → 54.3cpm	0.4sec → 61.8cpm
0.5sec → 49.8cpm	0.5sec → 56.0cpm
1.0sec → 35.2cpm	1.0sec → 38.2cpm

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 078 **05/21/2003**

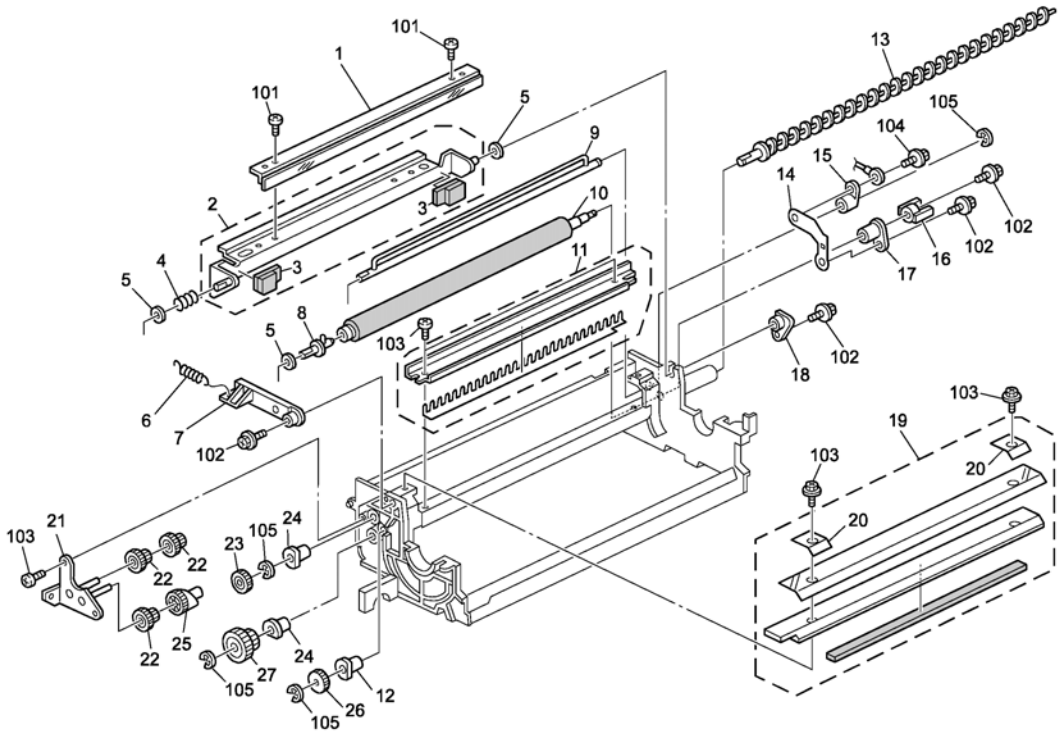
APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: TONER COLLECTION COIL

GENERAL:

The shapes of the toner collection coil and holder have been changed to maximize toner collection efficiency inside the cleaning unit. The following part update is being issued for all A294/A295 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943566	A2943586	Holder - Toner Collection Coil	1 - 1	3/S	93	11
AD043065	A2943582	Toner Collection Coil	1 - 1	3/S	93	13

*** DENOTES NEW ITEM NUMBER**

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new toner collection coil holder and toner collection coil installed during production.

MODEL NAME	SERIAL NUMBER
Savin 2085DP Gestetner 3285	H3601100129
Savin 2105DP Gestetner 32105	H3701100032
Savin 2585	From 1st Production
Savin 25105	From 1st Production
Lanier 5485AG	L0650110001
Lanier 5505AG	L0660110003
Lanier 5685	From 1st Production
Lanier 5705	From 1st Production
Ricoh Aficio 850	H3601100197
Ricoh Aficio 1050	H3701100075
Ricoh Aficio 1085	From 1st Production
Ricoh Aficio 1105	From 1st Production

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 - 079 **05/21/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: FUZZY BORDERS BETWEEN LARGE WHITE TEXT

COPY QUALITY

SYMPTOM:

Fuzzy borders between large white text, and solid image areas, or large solid text and white backgrounds.

CAUSE:

When printing out these types of originals, electrostatics causes the toner on the border areas to "bleed over" into the surrounding area after being attracted to the drum.

SOLUTION:

Perform the following SP adjustments:

Models	GESTETNER – 3285/32105 LANIER – 5485/5685 RICOH – AFICIO 850/1050 SAVIN – 2085DP/2105DP	GESTETNER –8502/10502 LANIER – 5505/5705 RICOH – AFICIO 1085/1105 SAVIN – 2585/25105
Solution	• Change SP2201-4 (ID Sensor potential) from:280v to **240v** • Make sure SP2001-7 (Drum potential) is still at **970v** • Change SP2201-1 (Development bias) from:530v to **620v**	Change SP2201-4 (ID Sensor potential) from:280v to **240v** Make sure SP2001-7 (Drum potential) is still at **850v** Change SP2201-1 (Development bias) from:650v to **700v** Change SP3903 (Vd Correction interval) from:100K to **990K**.

Clean the development roller more frequently then the PM interval:

As a side effect of increasing the development bias, the development roller becomes slightly coated with toner. Therefore, in addition to the above adjustment, please be sure to clean the development roller more frequently than the PM interval.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 080 **05/21/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

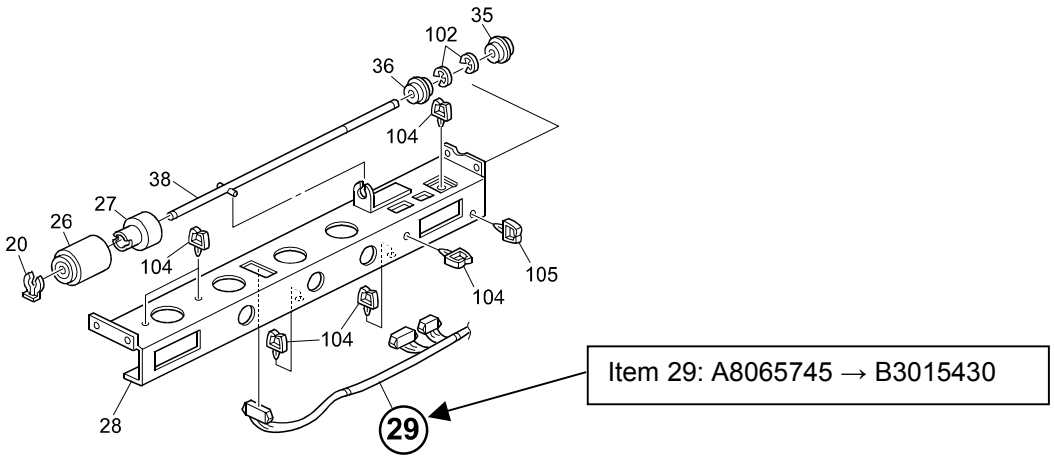
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:**

DC Harness – The DC Harness was incorrectly listed in the parts catalog. Please correct your A294/A294 Parts Catalog with the following information.

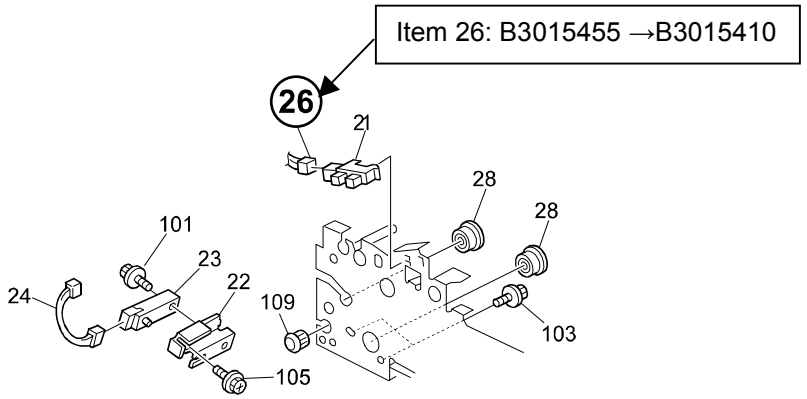


INCORRECT PART NO.	CORRECT PART NO.	DESCRIPTION	QTY	REFERENCE PAGE	REFERENCE ITEM
A8065745		Paper Size Sensor Harness	1	27	29
	B3015430	DC Harness	1	27	29

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• UPDATE 2:

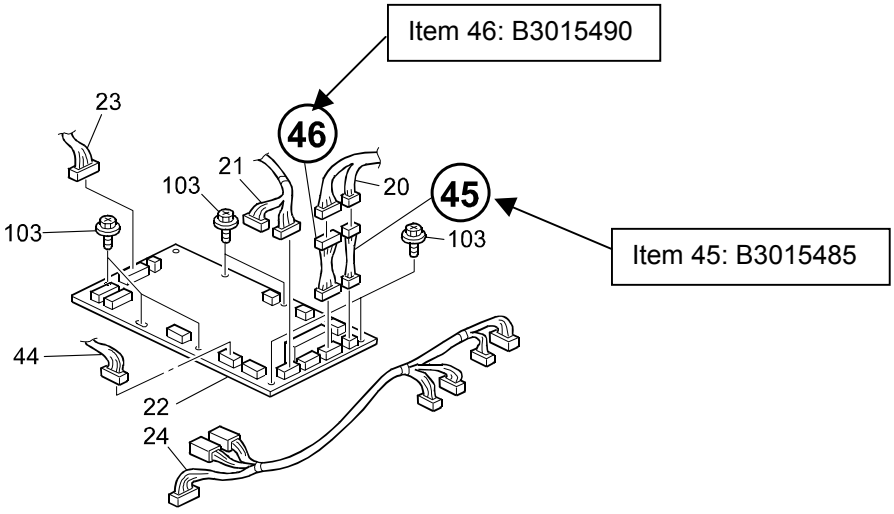
Harness: Connecting : Paper Feed – The Harness: Connecting: Paper Feed was incorrectly listed in the parts catalog. Please correct your A294/A294 Parts Catalog with the following information.



				REFERENCE	
INCORRECT PART NO.	**CORRECT PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B3015455		DC Relay Harness	1	29	26
	B3015410	Harness: Connecting: Paper Feed	1	29	26

• UPDATE 3:

Harness: Connecting : Spring Clutch and Sensor Base – The Spring Clutch and Sensor Base Connecting Harnesses were omitted from the parts Catalog. Please update your A294/A294 Parts Catalog with the following information.

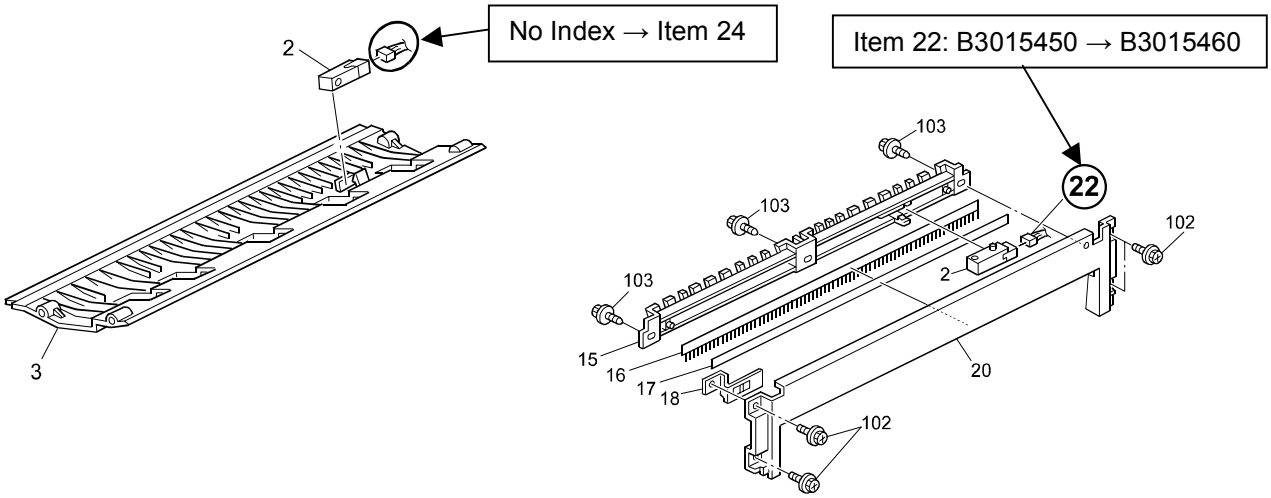


			REFERENCE	
NEW PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B3015485	Harness: Connecting: Spring Clutch	1	39	45 *
B3015490	Harness: Connecting: Sensor: Base	1	39	46 *

*** DENOTES NEW ITEM NUMBER**

• UPDATE 4:

DC Relay Harness – The DC Relay Harness was incorrectly listed in the parts catalog. Please correct your A294/A294 Parts Catalog with the following information.

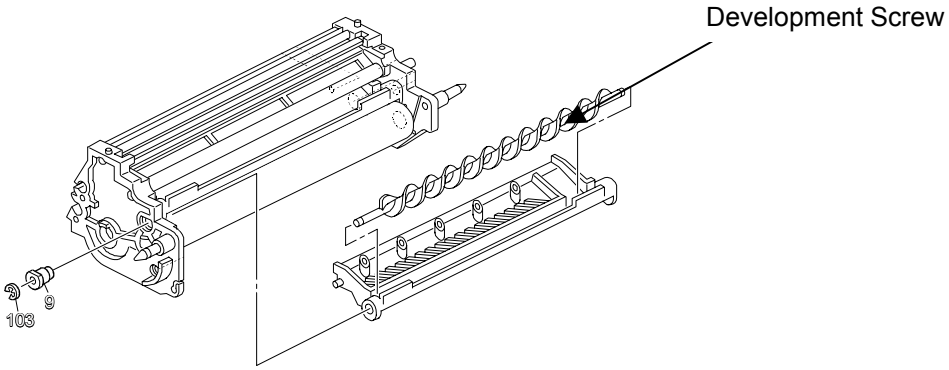


INCORRECT PART NO.	CORRECT PART NO.	DESCRIPTION	QTY	REFERENCE PAGE	REFERENCE ITEM
B3015450		DC Relay Harness	1	33	22
	B3015460	DC Relay Harness	1	33	22
	B3015455	DC Relay Harness	1	33	24 *

*** DENOTES NEW ITEM NUMBER**

• UPDATE 5:

Development Screw – The Development Screw was omitted from the parts Catalog. Please update your A294/A294 Parts Catalog with the following information.



NEW PART NUMBER	DESCRIPTION	QTY	REFERENCE PAGE	REFERENCE ITEM
A2943119	Development Screw	1	87	22 *

*** DENOTES NEW ITEM NUMBER**

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 081 **06/25/2003**

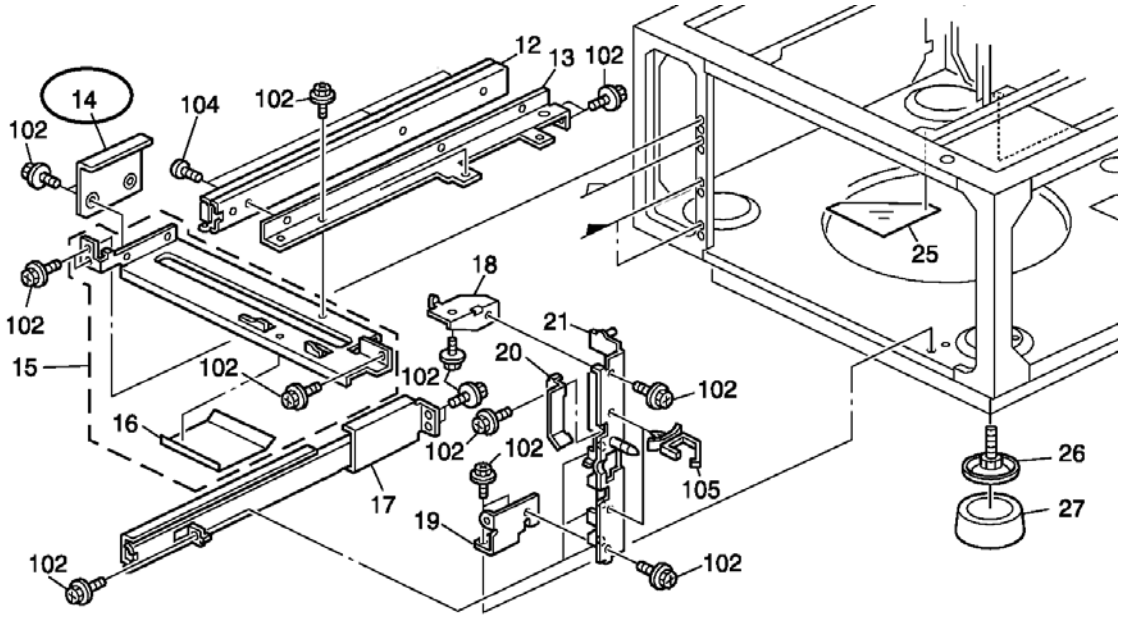
APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: SUPPORTING STAY

GENERAL:

The material for the Supporting Stay has been changed to a stronger type. The following part update is being issued for all A294/A295 Parts Catalogs. Please update your parts catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2486775	B0656777	Supporting Stay	1	1	157	14

*** DENOTES NEW ITEM NUMBER**

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UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Supporting Stay installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Lanier 5485AG Ricoh Aficio 850 Savin 2085DP	Service parts only
Gestetner 32105 Lanier 5505AG Ricoh Aficio 1050 Savin 2105DP	Service parts only
Gestetner 8502	Not Available
Lanier 5685	L0652070046
Ricoh Aficio 1085	H3620800041
Savin 2585	H3620800001
Gestetner 10502	Not Available
Lanier 5705	L0662070021
Ricoh Aficio 1105	H3720800020
Savin 25105	H3720800001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 082 **07/07/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:**

Upper and Lower Registration Roller – The gears of the following rollers have been hardened (materials change) to ensure that noise is not generated when toner falls on the gears and increases the load.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2292617	A2942617	Lower Registration Roller	1	3	71	3
A2292618	A2942616	Upper Registration Roller	1	3	71	1

Items 1, and 3 should be replaced together as a set. Interchangeability as a set is 1

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Rollers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3620900180
Savin 25105	H3720800017
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L0652080041
Lanier 5705	L0662080041
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3620800116
Ricoh AFICIO 1105	H3720800064

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- **UPDATE 2:**

Rear Side Fence - A support rib has been added to the Rear Side Fence to ensure that the fence is not damaged when the tray is pushed in hard.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2296541	A2936541	Rear Side Fence	1	3	59	19
A2296545	A2936545	Side Fence Plate – LT	1	3	59	22
A2296544	A2936544	Side Fence Plate – A4	1	3	59	22

NOTE: *Items 19, & 22 should be replaced together as a set*

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Rear Side Fence installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3610900065
Savin 25105	H3720900082
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L0651100001
Lanier 5705	L0661110001
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3610900298
Ricoh AFICIO 1105	H3711000001

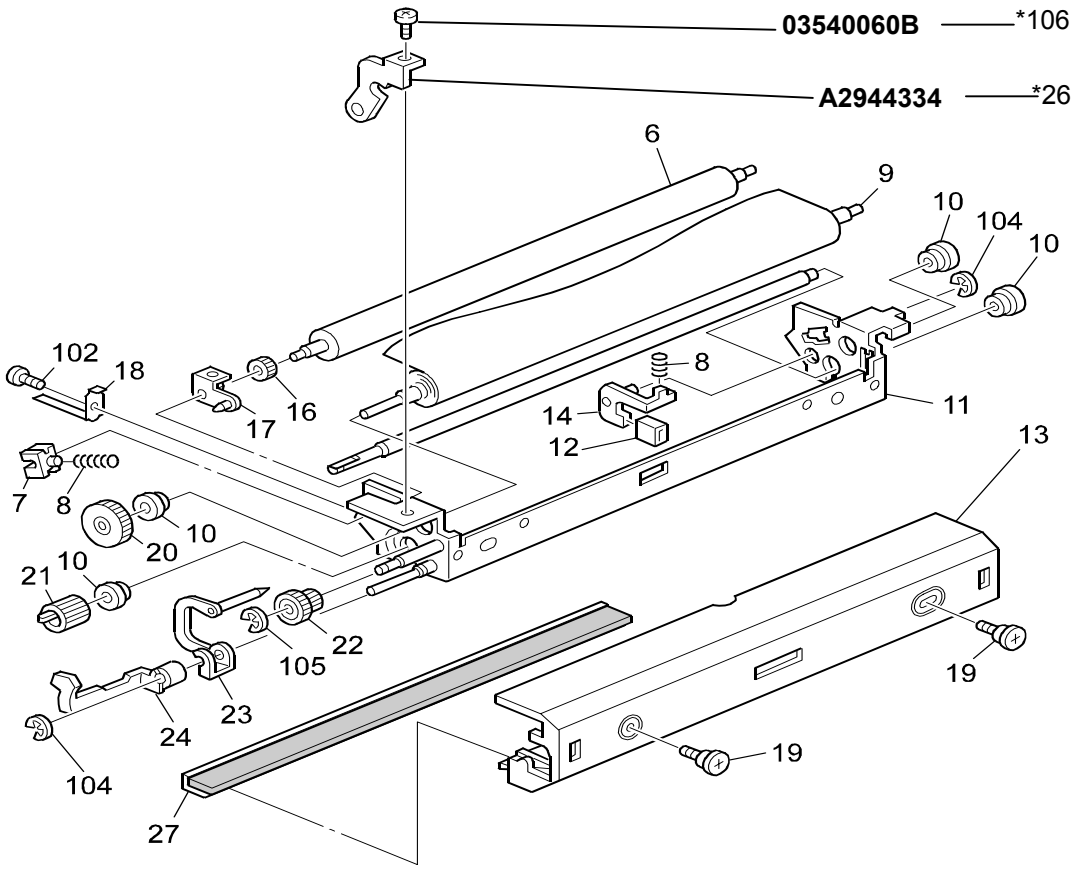
- **UPDATE 3:**

Web Positioning Plate – The following have been added to facilitate web assembly.

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
	A2944334	Web Positioning Plate	1	-	101	*26
	03540060B	Tapping Screw – M3x6	1	-	101	*106

*** DENOTES NEW ITEM NUMBER**



UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Web Positioning Plate and Tapping Screw installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3620800001
Savin 25105	H3720800001
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L0652080001
Lanier 5705	L0662080001
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3620800041
Ricoh AFICIO 1105	H3720800020

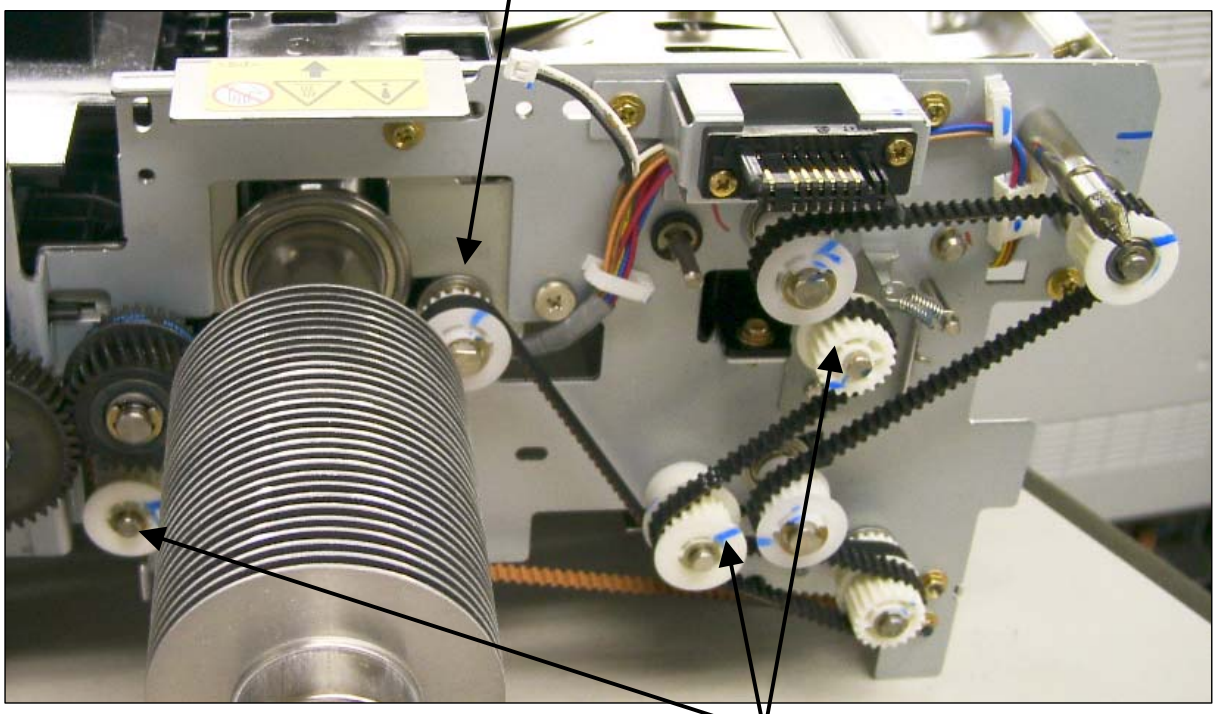
- **UPDATE 4:**

Pulley – 20Z – The following pulley has been changed (to one with belt retainers on both sides of the pulley) and two spacers added to ensure that the timing belt does not contact the rear side plate of the fusing exit unit, which can wear down the edge of the belt. Refer to the photograph below.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AB030674	AB030755	Pulley – 20Z	3	1	111 115	28 21
-	AA132152	Spacer – 8	1	-	111	*37
-	08075076	Spacer – 8	1	-	111	*38

***** DENOTES NEW ITEM NUMBER

- Added 08075076 to the side facing the rear side plate.
- Added AA132152 to the side facing the pulley.



These pulleys have been changed (From AA030674 to AA030755).

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Pulley and Spacers installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3620900180
Savin 25105	H3720900082
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L0652090004
Lanier 5705	L0662090001
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3620900001
Ricoh AFICIO 1105	H3720900001

UPDATE 5:

Registration Area – To increase the durability of the registration area, the width of the Timing Belt has been increased from 6mm to 9mm, and the bushing for the Upper Registration Roller has been changed over to a ball bearing.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
AA043269	AA043308	Timing Belt	1	1	131	5
A2942605	A2942604	Rear Side Plate	1	3	73	27
A2942600	A2942614	Front Side Plate	1	3	73	26
54422754	AA063658	Spring – Registration Roller	2	3	71	11
52052697		Bushing–Upper Registration Roller	2	3	73	23
	B0702625	Ball Bearing – 6x10x3				

NOTE: *Items 11,23,26 and 27 should be replaced together as a set. . Interchangeability as a set is 1*

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Timing Belt and Bushings installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3620900180
Savin 25105	H3720800017
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L0652080041
Lanier 5705	L0662080041
Ricoh AFICIO 850	Service part only
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1085	H3620800116
Ricoh AFICIO 1105	H3720800064

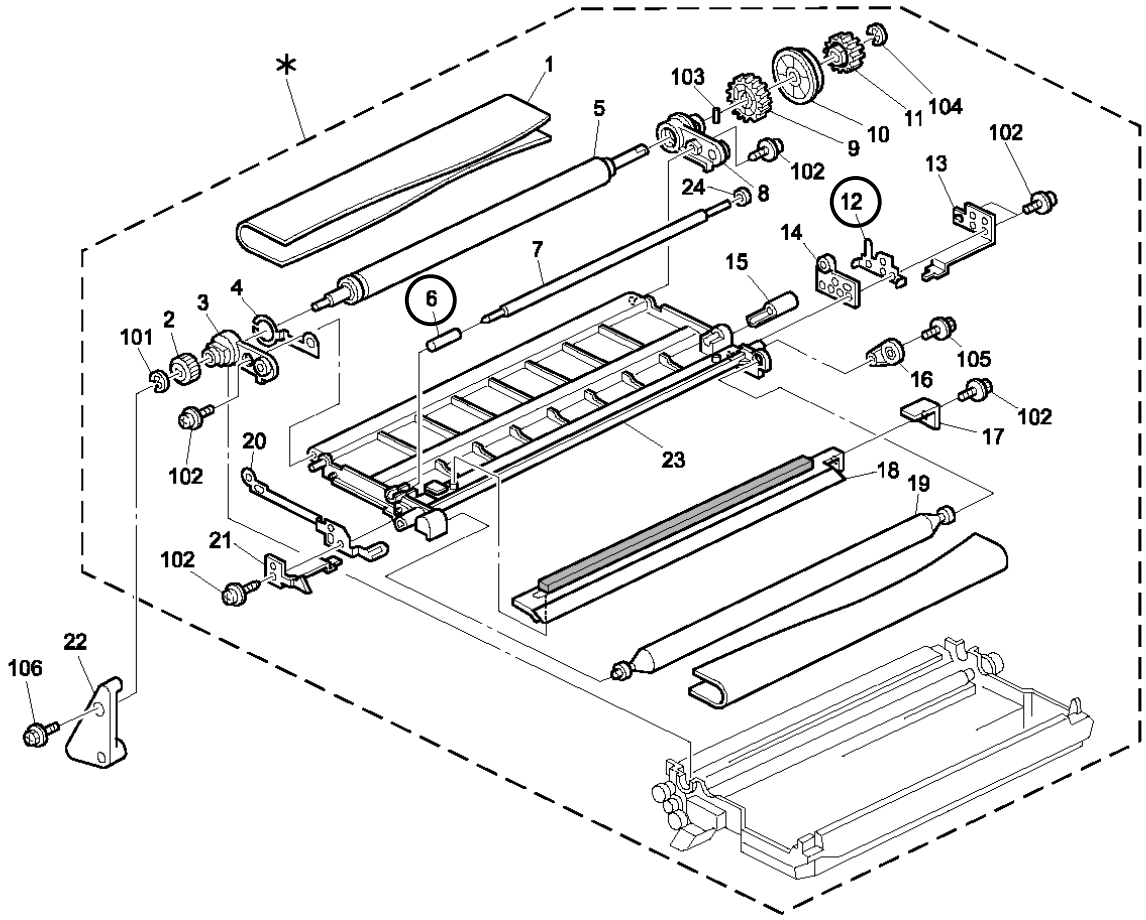
UPDATE 6:

Bias Roller Terminal – Electrical noise may be generated at the Bias Roller Terminal area caused by poor contact between the Bias Roller Terminal and Bias Roller. To ensure proper electrical contact between these two parts, the pressure of the spring plate for the terminal has been increased.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2943885	A2943930	Bias Roller Terminal	1	1	97	12
A0963867	A2943935	Front Bushing – 4.5x6x21	1	1	97	6

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		



UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style, Bias Roller Terminal and Front Bushing installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Savin 2085DP	Service part only
Savin 2585	H3620200257
Savin 25105	H3720200128
Gestetner 32105 Savin 2105DP	Service part only
Lanier5485AG	Service part only
Lanier5505AG	Service part only
Lanier5685	L065202xxxx
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 850	H3620200001
Ricoh AFICIO 1050	Service part only
Ricoh AFICIO 1105	H3720100145

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 083 **07/22/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A294/A295 Parts Catalogs.

- **UPDATE 1:**

Right Tandem Tray Ass'y – The Right Tandem Tray Assembly part numbers have been changed, as the suffix has reached "Z." Please update your parts catalog with the following information.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2946610	A2946616	Right Tandem Tray Ass'y – A4	1	1	55	*
A2946612	A2946618	Right Tandem Tray Ass'y – LT	1	1	55	*

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Right Tandem Tray Assembly installed during production.

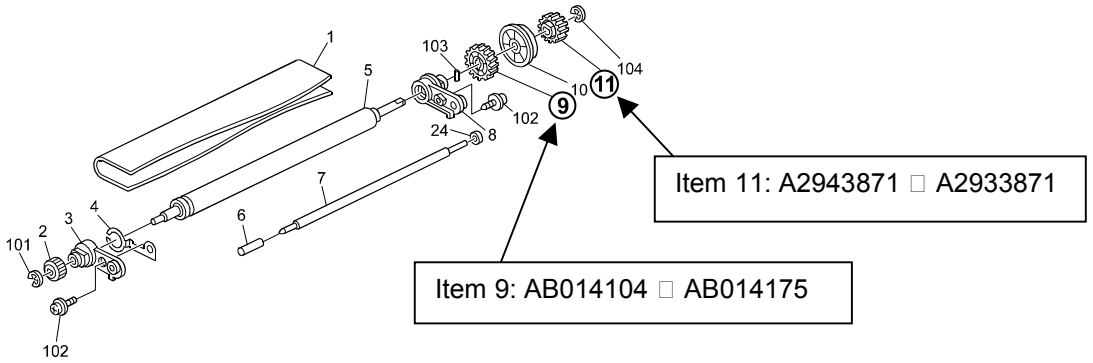
MODEL NAME	SERIAL NUMBER
Gestetner 3285 Lanier 5485AG Ricoh Aficio 850 Savin 2085DP	Service Parts only
Gestetner 32105 Lanier 5505AG Ricoh Aficio 1050 Savin 2105DP	Service Parts only
Gestetner 8502 Savin 2585	H3620900180
Lanier 5685	L0652090004
Ricoh Aficio 1085	H3620900005
Gestetner 10502 Savin 25105	H3720900082
Lanier 5705	L0662090001
Ricoh Aficio 1105	H3720900001

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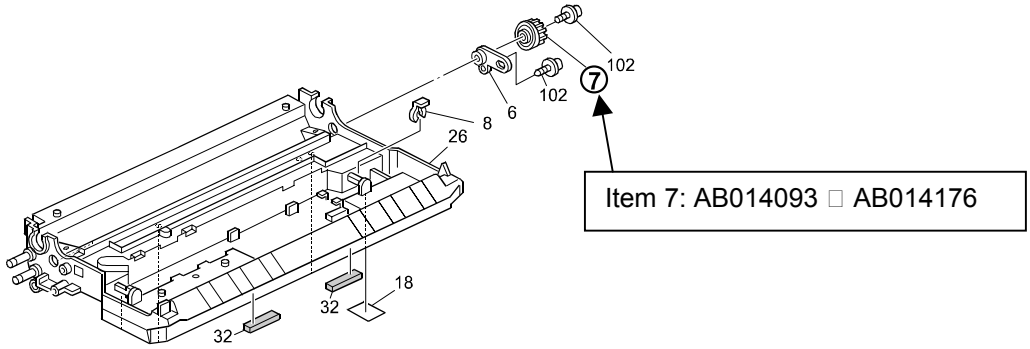
- **UPDATE 2:**

Gears – The following gears have been changed due to parts standardization with the B070/B071. Please update your parts catalog with the following information.

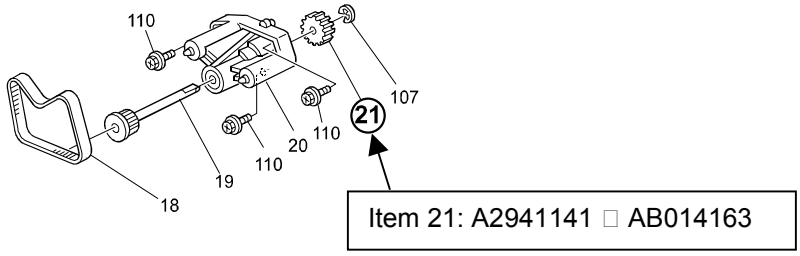
TRANSFER BELT UNIT 1 (A294)



TRANSFER BELT UNIT 2 (A294)



DRIVE SECTION 2 (A294)



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
A2943871	A2933871	Gear - 20Z	1	0	97	11
AB014104		Cleaning Roller Gear	1	3/S	97	9
	AB014175	Gear - 50Z				
AB014093		Cleaning Roller Gear	1	3/S	99	7
	AB014176	Cam Gear - 37Z				
A2941141		Gear - 24Z	1	1	129	21
	AB014163	Drive Gear – Transfer Belt				

UNITS AFFECTED:

All A294/A295 copiers manufactured after the serial numbers listed below will have the new style Gears installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285 Lanier 5485AG Ricoh Aficio 850 Savin 2085DP	Service Parts only
Gestetner 32105 Lanier 5505AG Ricoh Aficio 1050 Savin 2105DP	Service Parts only
Gestetner 8502 Savin 2585	H36304xxxxx
Lanier 5685	L065304xxxx
Ricoh Aficio 1085	H36304xxxxx
Gestetner 10502 Savin 25105	H37304xxxxx
Lanier 5705	L066304xxxx
Ricoh Aficio 1105	H37304xxxxx

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 084 **08/08/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

COPY QUALITY

SUBJECT: AUTO PROCESS CONTROL SUMMARY

SCOPE:

The following is a summary of Auto Process Control on the A294/A295/A294II/A295II. Please note that the information supplied in this TSB is also relevant for the B070/B071.

Please note the following abbreviations are used throughout this bulletin:

Vsp	ID sensor output when reading the solid image areas of the ID sensor pattern.
Vsg	ID sensor output when reading the bare drum around the ID sensor pattern.
Vt	TD sensor output
VL	Drum potential sensor output when reading the solid image exposed areas on the drum.
VH	Drum potential sensor output when reading the halftone exposed areas on the drum.
VD	Drum potential sensor output when reading the unexposed areas on the charged drum
VG	Grid voltage (charge voltage)
VB	Development bias
Vref	The threshold value used for supplying toner to the development unit.

GENERAL:

The purpose of Auto Process Control is to calibrate the ID and drum potential sensors and update the values of Vref, VG and LD light intensity so that the machine is able to maintain the proper image density during normal operation.

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Auto Process Control: A294/A295/A294II/A295II

NOTE: *The following explanation applies to the A294/A295/A294II/A295II and B070/B071, except for the values that differ from model to model mentioned in Section 4.*

① EXECUTION CONDITIONS

There are three separate cases in which the machine performs Auto Process Control:

1. When it is executed manually from SP2962 (Auto Process Control Execution).
2. When SP3901-001 (Auto Process Control Setting) has been set to ON, and the fusing temperature is detected at 100°C or less at power up.

NOTE: *If the fusing temperature is higher than 100°C at this time, the previous auto process control data is used.*

3. When all of the following conditions have been met:

   a.) SP2966 (Periodical Auto Process Control) has been set to ON

   b.) 24hrs has passed since the last time Auto Process Control was performed

   c.) The main power has been ON during this 24hr period

* Auto Process Control is then performed at the end of the job following the 24hr mark.

② WHAT HAPPENS DURING AUTO PROCESS CONTROL

Auto Process Control is performed in the following order (Steps 1–5).

Step	Item	Purpose	What Happens	SC Issued If Fails	Related Display SP	Reference Manual Page	Comments
1	Drum potential sensor calibration	To calibrate the drum potential sensor so that it will correctly detect VD and VH in Steps 3 and 4.	The machine applies –200V then –700V to the OPC surface, and the drum potential sensor takes readings both times.	SC310, 311	SP3902-7: VM200 SP3902-8: VM700	P6-67	
2	ID sensor adjustment	To adjust Vsg to within the target range for Vref calculation in Step 5.	Adjusts Vsg to within 4±0.2V.	SC353, 354	SP3001-1: ID Sensor PWM Setting SP3103-2: Vsg Initial	P6-68	
3	VG adjustment	To determine the VG (grid voltage) that will be used during copying\printing. This is necessary as the sensitivity of the OPC surface can change when not used for an extended period, and because the charge casing and grid plate can become dirtied.	Adjusts VG until VD falls within -800±20V.	SC312, 313, 315	SP3902-2: VD SP3902-4: VG SP3902-9: VD Correction	P6-68	VD target value is the value of SP2001-7 (default: 800), plus 50V when VD correction is applied. (See **Note** below)

Step	Item	Purpose	What Happens	SC Issued If Fails	Related Display SP	Reference Manual Page	Comments
4	LD power adjustment	To determine the LD light intensity that will be used for halftone areas during copying/printing.	Adjusts the LD light intensity until VH falls within 260±20V.	SC314, 316	SP3902-3: VH SP3902-5: LD Power (Correction)	P6-68	
5	ID pattern creation, detection	To update Vref for accurate toner density control.	An ID sensor pattern is created on the drum surface (exposed and developed). The ID sensor then checks the image density of the developed areas (output=Vsp) and bare drum (output=Vsg), and the TD sensor checks the toner concentration in the developer (output=Vt). Vref is then recalculated based on these values.	SC350, 351, 352, 340	SP3902-6: V ID SP3103-1: Vsg SP3103-3: Vsp SP2223: Vt Display	P6-69	

NOTE ON VD CORRECTION:
As the development sleeve accumulates toner over time, the gap between VD and VB decreases, which makes it easier for dirty background to occur. To compensate for this, the machine increases the target VD value to -850±20V when the number of copies exceeds the value set with SP3903-1: VD Correction Counter, (default: 200K). As a result, VD increases and the VD-VB gap is maintained. This value is cleared when the developer is replaced and initialized.

③ CONFIRMING THE SUCCESS OR FAILURE OF PROCESS CONTROL

Use SP3902-1 (Process Control Data Display – Auto Process Control) to determine whether automatic process control has succeeded or failed:

- If this SP returns a “0” (OFF), auto process control has failed.
- If this SP returns a “1” (ON), auto process control has succeeded.

④ VALUES THAT DIFFER AMONG MODELS

Please note the following differences in the target values for process control parameters:

SP Mode	A294/A295	A294II/A295II	B070/B071
SP2001-7: VD	-970	-850	-800
SP2201-1: VB	-530	-650	-550
SP2201-3: Development bias for OHP transparencies	-530	-650	-400
SP2201-4: VBp (development bias used when creating the ID sensor pattern)	-280	-280	-240
Target VH	-290±20	-290±20	-260±20

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: A294/A295 – 085 **08/08/2003**

APPLICABLE MODEL:

GESTETNER – 3285/32105/8502/10502
LANIER – 5485/5685/5505/5705
RICOH – AFICIO 850/1050/1085/1105
SAVIN – 2085DP/2105DP/2585/25105

COPY QUALITY

SUBJECT: TROUBLESHOOTING FOR LIGHT IMAGE

SCOPE:

This bulletin has been issued as a troubleshooting guide for light images on the A294/A295/A294II/A295II.

As there are several causes that can lead to light images, please use the table on the next page to identify the specific conditions and then apply the action recommended.

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TROUBLESHOOTING FOR LIGHT COPIES

In the Action column, please perform all items listed.

			Action			
Step	**Specific type, conditions**	**Check points If Yes, take action in right column**	**A294/A295**	**A294II/A295II**	**Notes/Remarks**	**Cause of Symptom**
1	Light copies w/low amount of sets per job (Type 1)	● SP2223: Vt > 3.3 ● SC340 (triggered when Vt > 4.0)	● Perform SP2801 (TD sensor initial setting). ● Change the value of SP2201-4: 280v to 240v	(Same as A294/A295)	When SP2967 is ON, both the TD sensor and toner concentration adjustments are performed during process control.	When the machine is left unused for an extended period, it shifts into a low-ID control mode, which causes the ID on the outputs to temporarily appear light when the machine is then used again. This is not developer deterioration. Note: When the machine is left unused like this, the TD sensor output can rise above 4V, at which time the machine shifts to a fixed-amount toner supply mode.

			Action			
Step	**Specific type, conditions**	**Check points If Yes, take action in right column**	**A294/A295**	**A294II/A295II**	**Notes/Remarks**	**Cause of Symptom**
2	Light copies w/low amount of sets per job (Type II)	● SP3103-3: Vsp > 0.6	● Set SP2969: ON OR Change the value of SP2506-2: 30 to 1 ● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v	● Change the value of SP2974 (Toner supply interval): 1 to 0 ● Set SP2969: ON OR Change the value of SP2506-2: 30 to 1 **Note**: Changing the value of SP2506-2 to 1 will decrease machine productivity. ● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v	For machines primarily used for low volume jobs, and occasionally for continuous printing, the charge on the developer can change, which can cause the toner concentration to fluctuate. This fluctuation can be minimized by frequently performing ID sensor patterns. With machines which are not used primarily for long, continuous jobs, turning SP2629 ON should be enough to control the symptom. However for extra latitude, SP2506-2 can be set to 1. Please note that in this case, productivity with continuous copy jobs will decrease.	
3	Light copies w/high image coverage ratios	● SP3103-3: Vsp > 0.6	● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v	● Change the value of SP2974 (Toner supply interval): 1 to 0 ● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v		Image coverage ratio is high, and the toner supply system cannot compensate quickly enough.

			Action			
Step	**Specific type, conditions**	**Check points If Yes, take action in right column**	**A294/A295**	**A294II/A295II**	**Notes/Remarks**	**Cause of Symptom**
4	Light copies w/high amount of sets per job of low-coverage images	**Note:** In such a case, Vt should be > 3.3 (SP2223), however this can occur even when Vt is normal.	● Replace the developer **Note:** ● Instead of replacing the developer, disabling toner recycling or decreasing the cleaning interval (SP2506-2) can be effective in increasing developer yield.	(Same as A294/A295)	This is effective for ID fluctuations during continuous copy runs.	The toner supplied to the development unit goes unused and is continually mixed inside the unit. This decreases its flow and development performance.
5	Image density drop in solid areas at edges	● Shift the original on the glass so that the edge solid images are brought to the center of the copy. OR Take sky shot copies	● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v. ● Keep SP2001-7 (Vd) at 970v. ● Increase the value in SP2201-1 (Development bias): 530v to 620v . If this is not improved enough, try again with SP2201-4 at 200v, and SP2201-1 at 660v.	● Change the value of SP2201-4 (ID Sensor potential): 280v to 240v ● Increase the value of SP2001-7 (Vd): 850v to 900v ● Increase the value of SP2201-1 (Development bias): 650v to 700v	As a general rule, SP2001-7 and SP2201-1 should be changed together as a set.	When the original contains solid areas on its edges, farther out than the width of the toner hopper, it is difficult for the necessary amount of toner to reach these areas. In addition, paper dust accumulates more easily at the edges of the doctor gap, making it more difficult for the toner to attach there.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 001 **08/02/2000**

APPLICABLE MODEL:

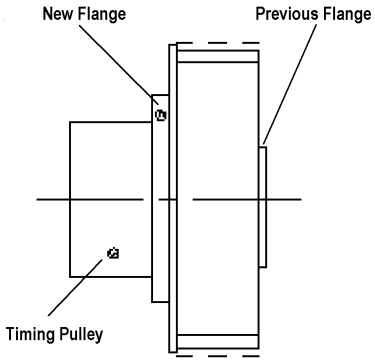
GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TIMING PULLEY - 28Z

GENERAL:

To ensure the proper rotation of the Shift Tray Sponge Roller Timing Belt, a second flange has been attached the Timing Pulley. The following part update is being issued for all B302 Parts Catalogs. Please update your Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B3022318	B3022304	Timing Pulley - 28Z	1	1	33	18

UNITS AFFECTED:

All B302 Finishers manufactured after the Serial Number listed below will have the new style Timing Pulley - 28Z installed during production.

MODEL NAME	SERIAL NUMBER
SR810	H3891200001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 002 **08/02/2000**

APPLICABLE MODEL:
GESTETNER - SR810 for 3285/32105
RICOH - SR810 for AFICIO 850/1050
SAVIN - SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TAB PAPER STACK FAILURE



■ PAPER PATH



■ FIRMWARE

SYMPTOM:

When performing a large copy job, the copier stops with 3,000 sheets on the B302 Finisher Tray. As the operator removes the copies, the copier restarts immediately, while the Finisher Tray is still in the down position. This causes the copies to "fly out" of the Finisher Tray. By pushing the Stop key, the Finisher Tray moves upward to the correct position.

CAUSE:

Once the Finisher detects that the Tray is in the bottom position, it takes 1.5 seconds for the Finisher to send the Mainframe the signal to stop the copy job.

SOLUTION:

The Firmware for the Finisher has been altered. The Finisher now sends the Stop Signal to the Mainframe at the same time it detects that the tray is in the bottom position. B302 Firmware revision E corrects this symptom.

PART NUMBER	REVISION	DESCRIPTION
B3025103	E	B302 Finisher ROM

The PCB ROM revision E (file name B3025103E.EXE) can be downloaded through the Technology Solution Center FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 003 **08/02/2000**

APPLICABLE MODEL:

GESTETNER - SR810 for 3285/32105
RICOH - SR810 for AFICIO 850/1050
SAVIN - SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SERVICE MANUAL - INSERT



SERVICE MANUAL

GENERAL:

The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 8-35 Updated Information (ROM History B302 Finisher)

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4.7 ROM HISTORY

4.7.1 FIRMWARE MODIFICATION HISTORY

<table>
<tr><th colspan="6">B302 FINISHER FIRMWARE MODIFICATION HISTORY</th></tr>
<tr><th colspan="5">DESCRIPTION OF MODIFICATION</th><th>FIRMWARE LEVEL</th><th>SERIAL NUMBER</th></tr>
<tr><td colspan="5">First Production</td><td>B3025103 B</td><td>From 1st production</td></tr>
<tr><td colspan="5">Corrects the following:
• SP6-120 Staple Jogger Adjustment was missing. The staple jogger positions for each paper size can be adjusted by SP6-120. This modification becomes effective when the mainframe firmware is updated to version 7.23.2 (F) or later.</td><td>B3025103 C</td><td>February ’00 production</td></tr>
<tr><td>6-120</td><td colspan="4">Staple Jogger Adjustment</td><td colspan="2"></td></tr>
<tr><td></td><td>1</td><td>A3</td><td>S</td><td rowspan="11">Adjusts the staple jogger positions for each paper size.</td><td colspan="2" rowspan="11">+1.5 ~ -1.5
0.5 mm/step
0 mm</td></tr>
<tr><td></td><td>2</td><td>B4</td><td></td></tr>
<tr><td></td><td>3</td><td>A4 L</td><td></td></tr>
<tr><td></td><td>4</td><td>A4 S</td><td></td></tr>
<tr><td></td><td>5</td><td>B5 L</td><td></td></tr>
<tr><td></td><td>6</td><td>B5 S</td><td></td></tr>
<tr><td></td><td>7</td><td>DLT L</td><td></td></tr>
<tr><td></td><td>8</td><td>LG L</td><td></td></tr>
<tr><td></td><td>9</td><td>LT L</td><td></td></tr>
<tr><td></td><td>10</td><td>LT S</td><td></td></tr>
<tr><td></td><td>11</td><td>Others</td><td></td></tr>
<tr><td colspan="5">Corrects the following:
• Door open is indicated after a staple job
• After a staple job, the Staple Unit does not move to the staple supplying position in the staple end condition.
• Stapled sheets of paper fed out incorrectly when the interrupt function is used during printing.
• (A295 w/B302 only) Mistake-stapling, mistake-jogging, R2 Jam, R6 Jam.</td><td>B3025103 D</td><td>March ’00 production</td></tr>
<tr><td colspan="5">Corrects the following:
• (A295 w/B302 only) Tab paper stack failure, exit paper jam in different paper length paper shift.</td><td>B3025103 E</td><td>April ’00 production</td></tr>
</table>

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 004 **08/14/2000**

APPLICABLE MODEL:

GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: FINISHER ROM INTERCHANGEABILITY

GENERAL:

With the production of the A295(105cpm) machine the finisher Main Board ROM version must be a suffix **"E"** or later to support the A295 machines.

The Finisher Main Board ROM revision **"E"** (file name B3025103E.EXE) can be downloaded through the Ricoh Technical Services FTP Site http://tsc.ricohcorp.com.

NOTE: *Refer to Facts Line Bulletin # FL002 for more information about the FTP Internet Web Site.*

UNITS AFFECTED:

All B302 finishers manufactured after the Serial Numbers listed below will have ROM level **"E"** or later installed during production.

MODEL NAME	SERIAL NUMBER
SR810	H3800400001

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 005 **08/28/2000**

APPLICABLE MODEL:

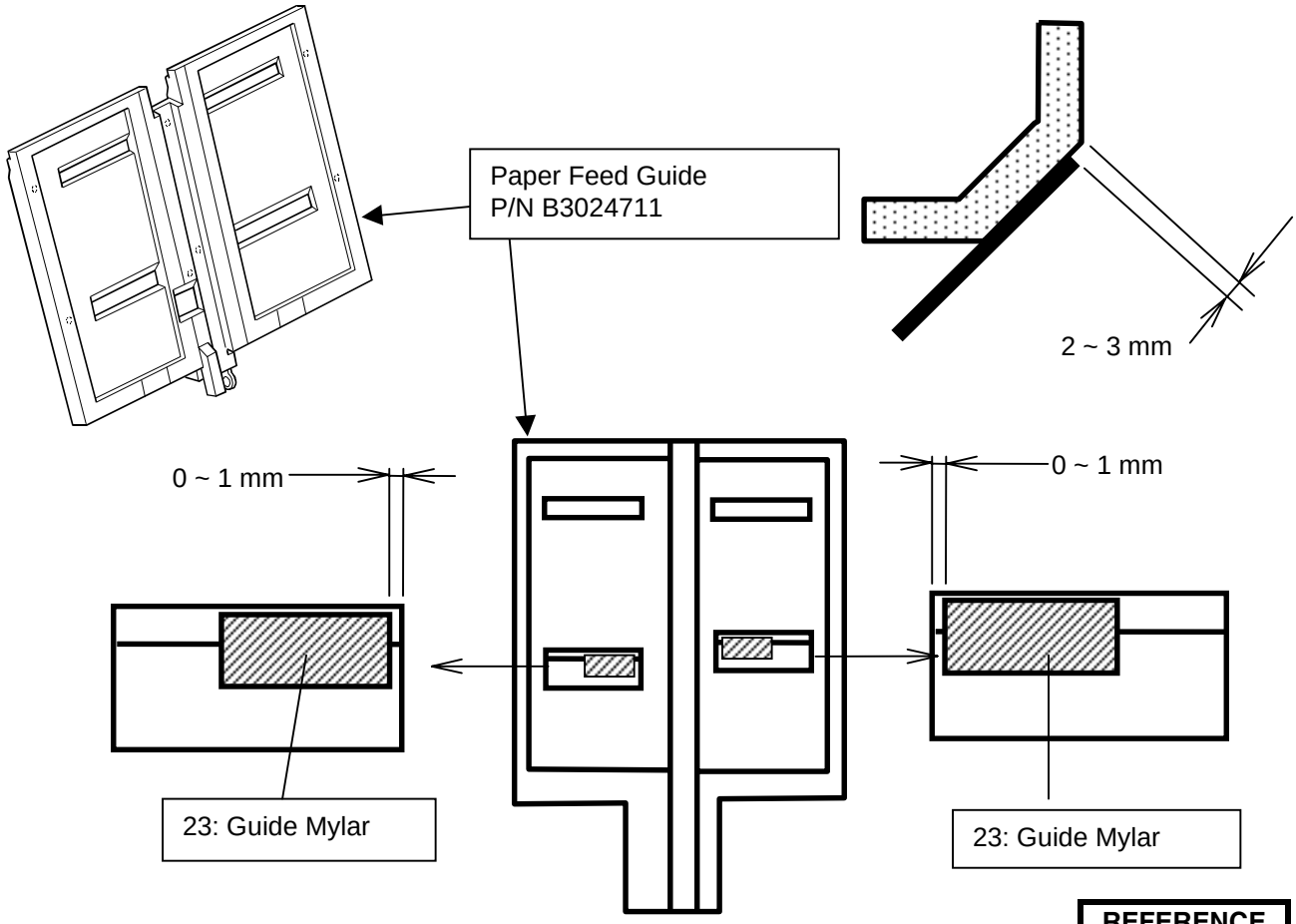
GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: GUIDE MYLAR

GENERAL:

Add the two pieces of Guide Mylar to the parts list and illustration as indicated below. Use the illustration below for proper positioning of the Guide Mylars on the Paper Feed Guide. The following part update is being issued for all B302 Parts Catalogs (Sections).



			REFERENCE	
PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B3024776	Guide Mylar – 17x60	2	11	23 *

* Denotes new item number.

UNITS AFFECTED:

B302 Serial Number cut-in not available at time of publication.

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 006 **11/20/2000**

APPLICABLE MODEL:

GESTETNER – SR850 for 3285/32105
RICOH – SR850 for AFICIO 850/1050
SAVIN – SR850 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: POOR FRONT COVER SHEET POSITIONING - FINISHER

SYMPTOM:

When stapling more than 50-70 documents with front and rear cover sheets, the front cover is not squared before stapling. The alignment is within standards. However, some customers requested a finer alignment.

CAUSES:

1. The exact position where the jogger stops differs from paper to paper. It is necessary to adjust the staple jogger position for each type.
2. The trailing edge of paper with a large curl may not be aligned with the Stack Stopper in the Jogger Unit.

SOLUTIONS:

Solution 1 (Staple Jogger Span Adjustment):

SP 6-120 adjustment becomes effective when the Finisher firmware is updated to version **'C'** or later and the mainframe firmware is updated to version **'7.23.2 (F)'** or later. If the mainframe firmware is updated without the Finisher firmware, SP 6-120 will be displayed in SP Mode but will not be effective.

The staple jogger positions for each paper size can be adjusted by SP6-120 as shown.

6-120	Staple Jogger Adjustment				
	1	A3	S	Adjusts the staple jogger positions for each paper size. The higher the setting, the narrower the jogger span. **Specifications:** 2 to 30 sheets staple: 2mm 31 to 100 sheets staple: 3mm.	+1.5 ~ 0 0.5mm/step **0 mm**
	2	B4			
	3	A4 L			
	4	A4 S			
	5	B5 L			
	6	B5 S			
	7	DLT L			
	8	LG L			
	9	LT L			
	10	LT S			
	11	Others			

3. Increase the SP Mode value by 1 step and make copies to confirm that the symptom is corrected.
4. If the symptom still appears, repeat step 1 (maximum value 1.5 mm).

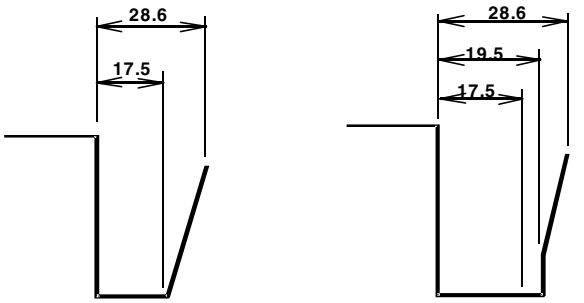
Continued…

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SOLUTION 2 (Widening The Positioning Fences):

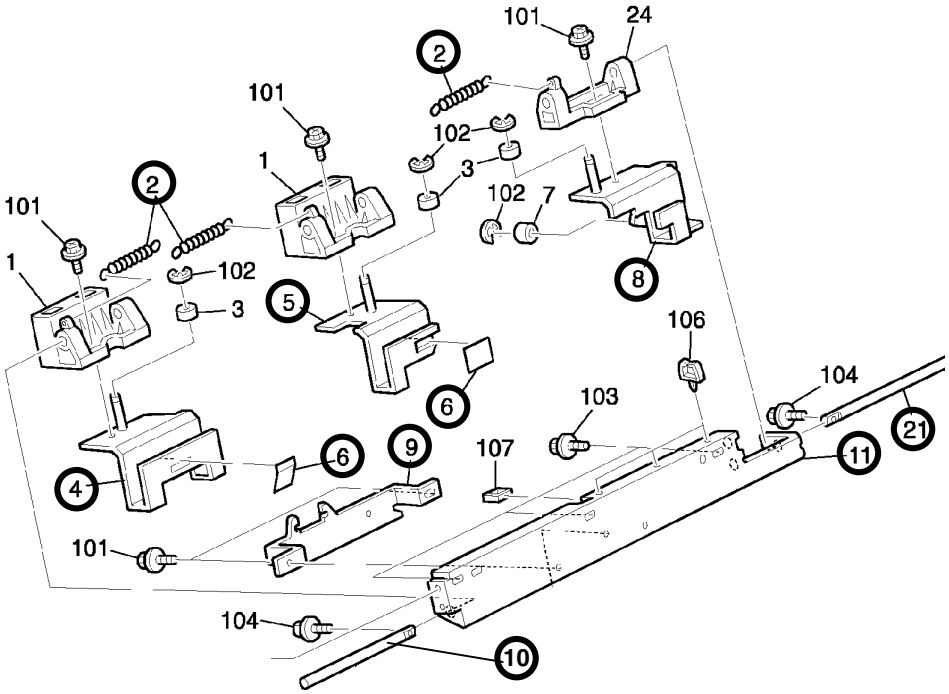
To improve the stacking ability of the Jogger Unit, the width of the Front, Middle, and Rear Positioning Fences has been increased in production machines. See the illustration below.

Old Fences **New Fences**



Replacement Procedure:

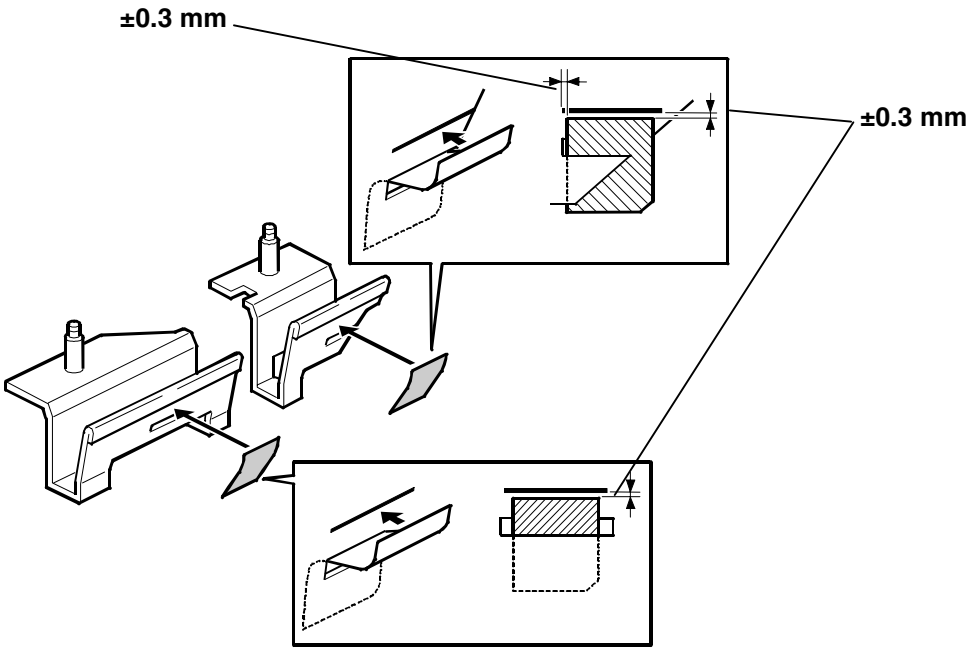
NOTE: *In addition to installing the three new fences, it is necessary to attach Mylar Guides (B3024517, Index 6) to the Front and Middle Positioning Fences.*



1. Remove the two springs (index 2) hooked on the Slide Holder Shaft Bracket (B3024742: Index 9).
2. Remove the securing screws for the front and rear shafts (B3024541: Front Shaft - Slide Holder, Index 10 & B3014542: Rear Shaft - Slide Holder, Index 21).
3. Slide out the front and rear shafts from the Staple Unit Lower Stay (B3024741: Index 11).
4. Remove the old positioning fences (Index 4,5, and 8).

Continued…

5. Attach the Mylar Guides (B3024517: Index 6) to the Front and Middle Positioning Fences as shown in the illustration below.

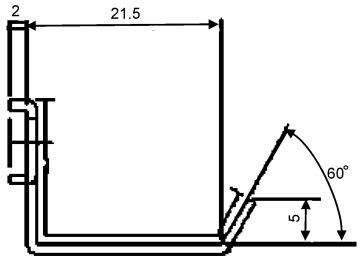


6. Install the new positioning fences (front, middle, and rear).
7. Return all removed parts.

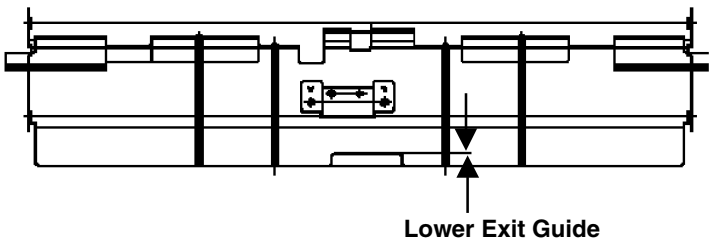
NOTE: *Make sure that the two springs are put back correctly.*

Additional Information:

1. In addition to widening the three positioning fences, the shape of the Paper Exit Pawl and Lower Exit Guide have been changed to improve transportation of the stapled copies.



Paper Exit Pawl



Continued…

GENERAL:

The following parts corrections are being issued for all A302 Parts Catalog Sections.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3024511	B3024518	Front Positioning Fence	1	3/S	13	4
B3024521	B3024528	Middle Positioning Fence	1	3/S	13	5
B3024531	B3024537	Rear Positioning Fence	1	3/S	13	8
B3024771	B3024773	Paper Exit Pawl	1	3/S	13	18
B3022333	B3022338	Lower Exit Guide	1	3/S	33	22

Note 1: *When replacing either of the old fences in the field, install all three new parts as a set.*

Note 2: *When replacing either of the old parts in the field, install both new parts as a set.*

UNITS AFFECTED:

All A302 Finishers manufactured after the Serial Numbers listed below will have the new style Positioning Fences, Paper Exit Pawl, and Lower Exit Guide installed during production

MODEL NAME	SERIAL NUMBER
Gestetner SR810	H3800400001
Ricoh SR810	H3800400001
Savin SR810	H3800400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

Gestetner RICOH SAVIN

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 006 REISSUE ★ **09/28/2001**

★ APPLICABLE MODEL:

GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: POOR FRONT COVER SHEET POSITIONING - FINISHER

SYMPTOM:

When stapling more than 50-70 documents with front and rear cover sheets, the front cover is not squared before stapling. The alignment is within standards. However, some customers requested a finer alignment.

CAUSES:

1. The exact position where the jogger stops differs from paper to paper. It is necessary to adjust the staple jogger position for each type.
2. The trailing edge of paper with a large curl may not be aligned with the Stack Stopper in the Jogger Unit.

SOLUTIONS:

Solution 1 (Staple Jogger Span Adjustment):

SP 6-120 adjustment becomes effective when the Finisher firmware is updated to version **'C'** or later and the mainframe firmware is updated to version **'7.23.2 (F)'** or later. If the mainframe firmware is updated without the Finisher firmware, SP 6-120 will be displayed in SP Mode but will not be effective.

The staple jogger positions for each paper size can be adjusted by SP6-120 as shown.

6-120	Staple Jogger Adjustment				
	1	A3	S	Adjusts the staple jogger positions for each paper size. The higher the setting, the narrower the jogger span. **Specifications:** 2 to 30 sheets staple: 2mm 31 to 100 sheets staple: 3mm.	+1.5 ~ 0 0.5mm/step **0 mm**
	2	B4			
	3	A4 L			
	4	A4 S			
	5	B5 L			
	6	B5 S			
	7	DLT L			
	8	LG L			
	9	LT L			
	10	LT S			
	11	Others			

3. Increase the SP Mode value by 1 step and make copies to confirm that the symptom is corrected.
4. If the symptom still appears, repeat step 1 (maximum value 1.5 mm).

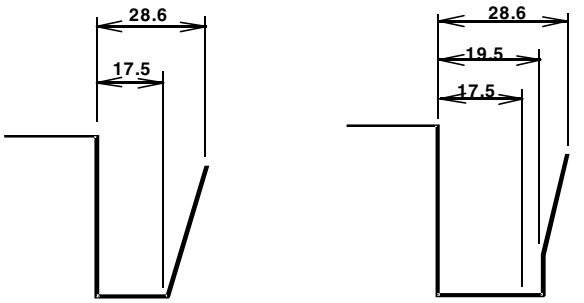
Continued…

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SOLUTION 2 (Widening The Positioning Fences):

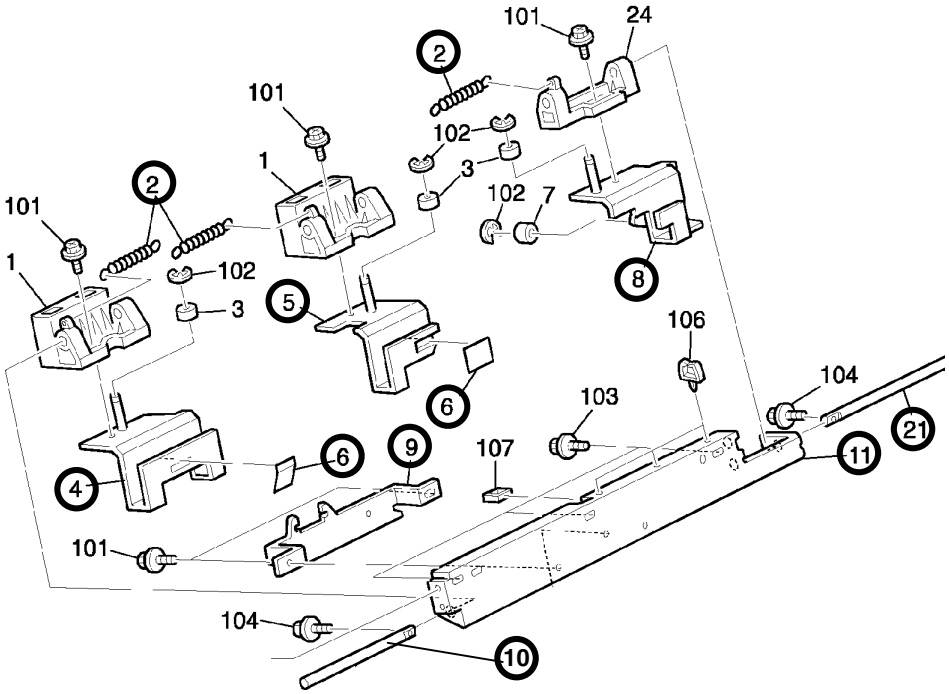
To improve the stacking ability of the Jogger Unit, the width of the Front, Middle, and Rear Positioning Fences has been increased in production machines. See the illustration below.

Old Fences **New Fences**



Replacement Procedure:

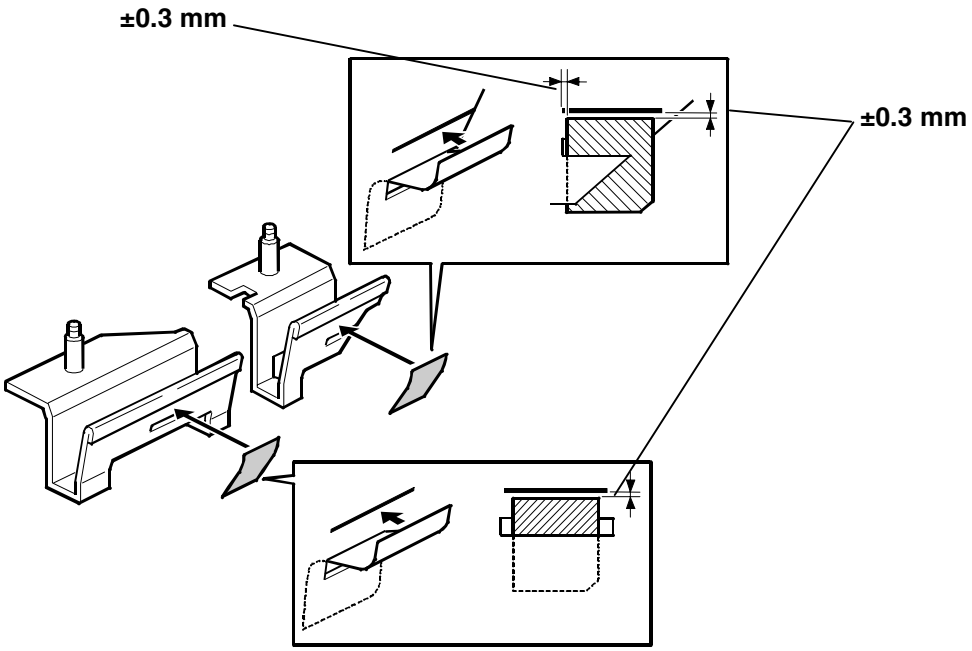
NOTE: *In addition to installing the three new fences, it is necessary to attach Mylar Guides (B3024517, Index 6) to the Front and Middle Positioning Fences.*



1. Remove the two springs (index 2) hooked on the Slide Holder Shaft Bracket (B3024742: Index 9).
2. Remove the securing screws for the front and rear shafts (B3024541: Front Shaft - Slide Holder, Index 10 & B3014542: Rear Shaft - Slide Holder, Index 21).
3. Slide out the front and rear shafts from the Staple Unit Lower Stay (B3024741: Index 11).
4. Remove the old positioning fences (Index 4,5, and 8).

Continued…

5. Attach the Mylar Guides (B3024517: Index 6) to the Front and Middle Positioning Fences as shown in the illustration below.

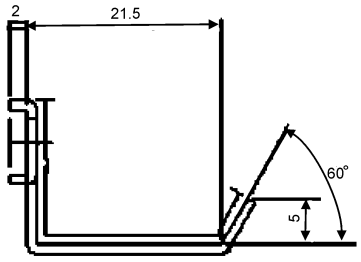


6. Install the new positioning fences (front, middle, and rear).
7. Return all removed parts.

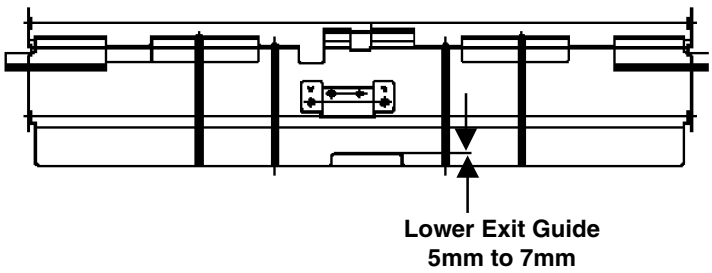
NOTE: *Make sure that the two springs are put back correctly.*

Additional Information:

1. In addition to widening the three positioning fences, the shape of the Paper Exit Pawl and Lower Exit Guide have been changed to improve transportation of the stapled copies.



Paper Exit Pawl



Continued…

GENERAL:

The following parts corrections are being issued for all A302 Parts Catalog Sections.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3024511	B3024518	Front Positioning Fence	1	3/S	13	4
B3024521	B3024528	Middle Positioning Fence	1	3/S	13	5
B3024531	B3024537	Rear Positioning Fence	1	3/S	13	8
B3024771	B3024773	Paper Exit Pawl	1	3/S	13	18
B3022333	B3022338	Lower Exit Guide	1	3/S	33	22

Note 1: *When replacing either of the old fences in the field, install all three new parts as a set.*

Note 2: *When replacing either of the old parts in the field, install both new parts as a set.*

UNITS AFFECTED:

All A302 Finishers manufactured after the Serial Numbers listed below will have the new style Positioning Fences, Paper Exit Pawl, and Lower Exit Guide installed during production

MODEL NAME	SERIAL NUMBER
Gestetner SR810	H3800400001
Ricoh SR810	H3800400001
Savin SR810	H3800400001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 – 007 **03/28/2001**

APPLICABLE MODEL:

GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

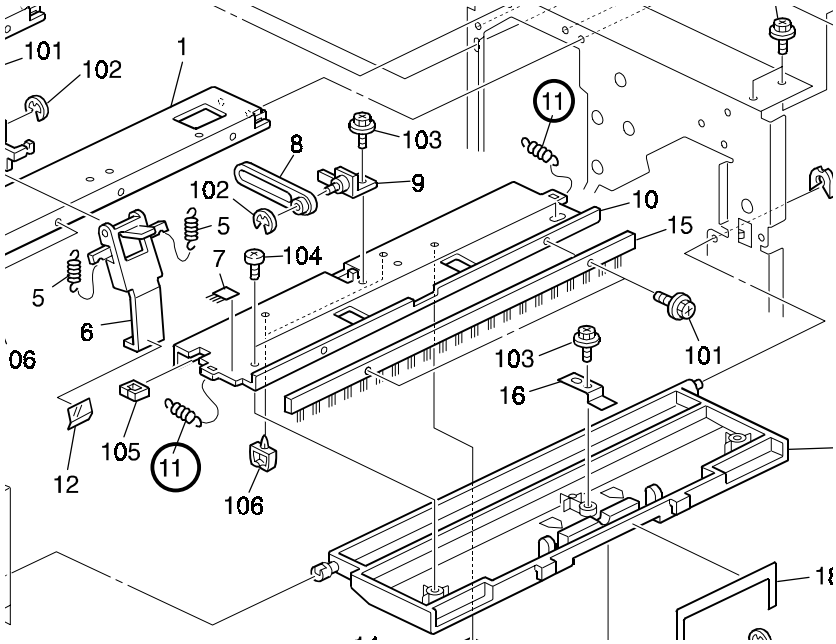
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: EXIT GUIDE SHIFT SPRING

GENERAL:

To prevent the exit guide shift spring from coming off, the shape of the spring has been changed as follows:

Whole Length: 19.4 mm to 18.2 mm
Spring Diameter: 0.35 mm to 0.4 mm
Inner Coil Diameter: 2.8 mm to 4 mm



The following parts corrections are being issued for all B302 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3022327	B3022328	Exit Guide Shift Spring	2	1	29	11

Continued…

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UNITS AFFECTED:

All B302 finishers manufactured after the Serial Numbers listed below will have the new style springs installed during production

MODEL NAME	SERIAL NUMBER
Gestetner SR810	H3800500001
Ricoh SR810	H3800500001
Savin SR810	H3800500001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 – 008 **08/14/2001**

APPLICABLE MODEL:

GESTETNER – FINISHER(SR810) FOR 3285/32105
RICOH – FINISHER (SR810) FOR AFICIO 850/1050
SAVIN – FINISHER (SR810) FOR 2085DP/2105DP

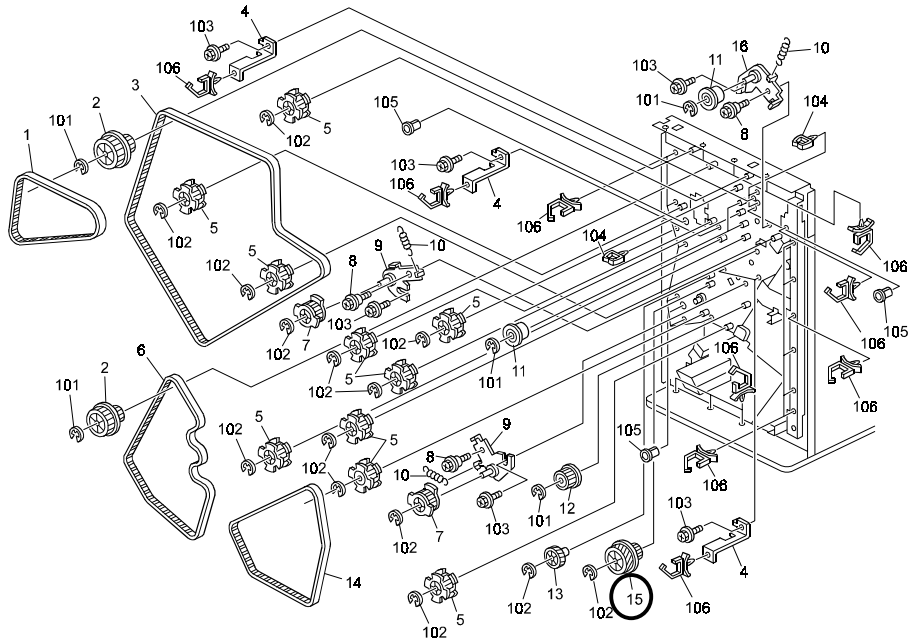
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: GEAR AND PULLEY

GENERAL:

The description and part number for the following item was printed incorrectly on page 37 (Item 15). Please correct your Parts Catalogs accordingly**.**

The following parts corrections are being issued for all B302 Parts Catalog Sections.



INCORRECT PART NUMBER	CORRECT PART NUMBER	DESCRIPTION	QTY	REFERENCE PAGE	REFERENCE ITEM
AB030522		Timing Pulley – T14P3M	1- 0	37	15
	B3021522	Gear & Pulley	0-1	37	15

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 – 009 **08/24/2001**

APPLICABLE MODEL:

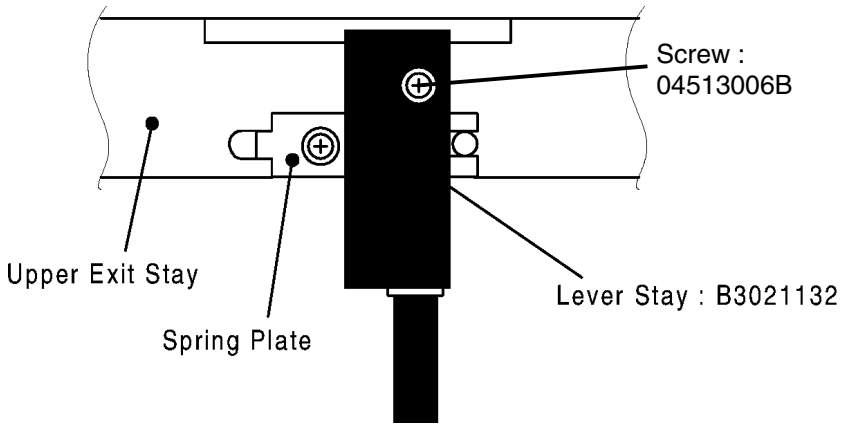
GESTETNER – SR810 for 3285/32105
RICOH – SR810 for AFICIO 850/1050
SAVIN – SR810 for 2085DP/2105DP

SUBJECT: UPPER EXIT STAY & LEVER STAY

Note: This copy is intended as a master original for reproduction of additional bulletins.

GENERAL:

To increase the reliability and prevent any deformation of the spring plate, a lever stay has been added to the upper exit stay. In order to mount the lever stay a new style upper exit stay is also required. See the illustration below. The following parts updates are being issued for all B302 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B3021141	B3021131	Upper Exit Stay	1	3/S	27	20
-	B3021132	Lever Stay	1	3/S	27	23 *

* Denotes new item number.

UNITS AFFECTED:

All B302 finishers manufactured after the Serial Numbers listed below will have the new style Upper Exit Stay and Lever Stay installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner SR 810	H38010001
Ricoh SR810	H38010001
Savin SR810	H38010001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 – 010 **09/12/2002**

APPLICABLE MODEL:

GESTETNER – SR810 for 3285/32105/8502/10502
RICOH – SR810 for AFICIO 850/1050/1085/1105
SAVIN – SR810 for 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: FINISHER ROM

GENERAL:

To enable the SR85 Bookletmaker to function properly when connected to the B302, a special ROM was required. The part number for ROM version 1.86 is now available. The following parts update is being issued for the B302.

PART NUMBER	DESCRIPTION	QTY	INT
VRC11173	Finisher Prom version 1.86	1	-

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B302 - 011 **10/24/2002**

APPLICABLE MODEL:

GESTETNER – SR810 for 3285/32105/8502/10502
RICOH – SR810 for AFICIO 850/1050/1085/1105
SAVIN – SR810 for 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

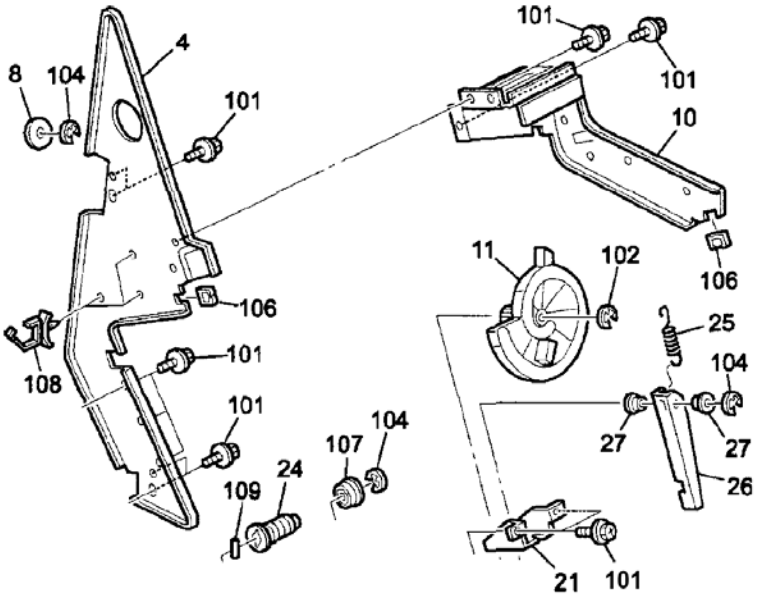
SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following part catalog updates are being issued for all B302 Parts Catalogs Sections.

- **UPDATE 1:**

Part Catalog Correction - Correct the mistakes to the part number and description as shown in the table below.

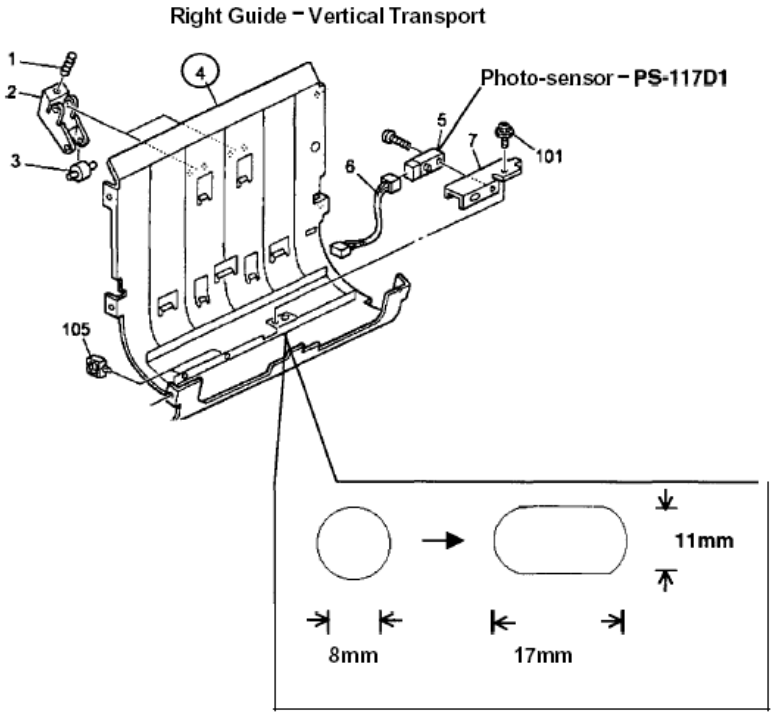


				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
B3024291		Belt Holder Bracket	1	15	11
	B3024271	Drive Cam - Staple Unit			

Continued…

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- **UPDATE 2:** **Vertical Transport Unit Right Guide** -The size and shape of the photo-sensor window on the vertical transport right guide has been changed from 8mm round to 11x17mm oblong. This is to prevent the sensor malfunction by the punch waste.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3022421	B3022436	Right Guide - Vertical Transport	1-1	1	25	4

UNITS AFFECTED:

All B302 finishers manufactured after the serial numbers listed below will have the new Vertical Transport Right Guide installed during production.

MODEL NAME	SERIAL NUMBER
SR810	H3800500001

TECHNICAL SERVICE BULLETINS

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 001 **08/02/2000**

APPLICABLE MODEL:

GESTETNER – RT42 for 3285/32105
RICOH – RT42 for AFICIO 850/1050
SAVIN – RT42 for 2085DP/2105DP

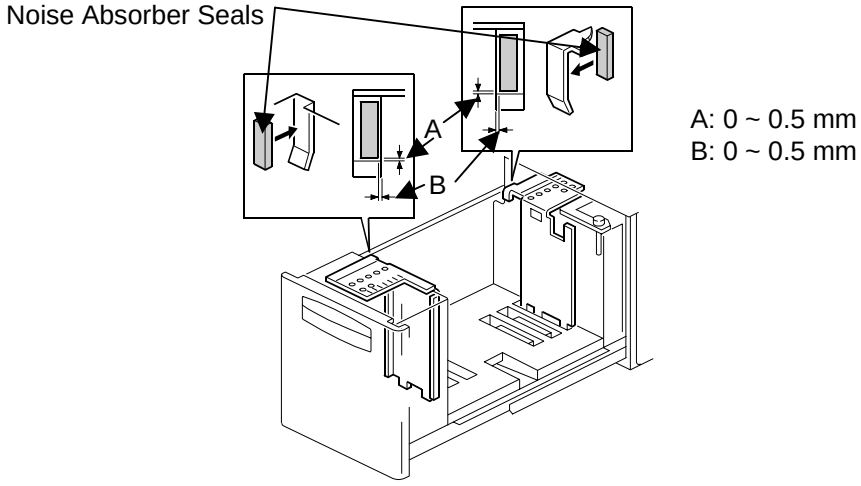
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all B303 Parts Catalogs.

- **UPDATE 1:** **Noise Absorber Seal –** To minimize noise while feeding from the B303, a Noise Absorber Seal has been applied to the reverse side of each Side Fence (3 Feed Trays: Front and Rear for a total of 6 pcs.). Please update your Parts Catalog with the following information.



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
B3032645	Noise Absorber Seal 16.5 x 4.2 x 3	2	13	20 *
B3032645	Noise Absorber Seal 16.5 x 4.2 x 3	4	9	24 *

* Denotes new item number.

UNITS AFFECTED:

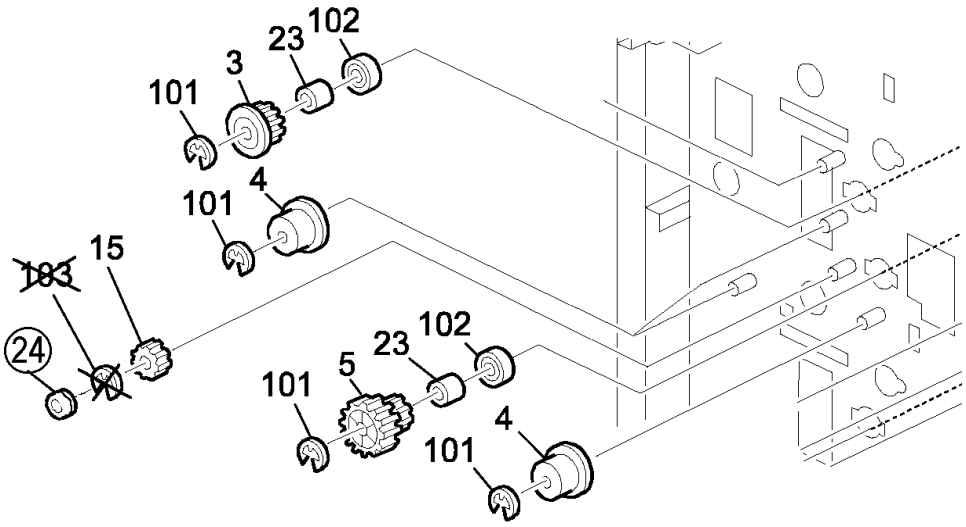
All B303 Large Capacity Trays manufactured after the Serial Number listed below will have the Noise Absorber Seals installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3991200001

Continued…

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- **UPDATE 2:** **Felt Wick Spacer –** When the B303 is connected to the A295, noise may be generated from the thrust gap between the Relay Clutch and the Idler Gear because of the higher paper feed speed. To correct this, a Felt Wick Spacer has been added and the Retaining Ring has been removed. The Idler Gear (P/N AB013000) is now supported by the Stopper Plate instead of the Retaining Ring. Please update your Parts Catalog with the following information.



				REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
-	AA160020	Felt Wick Spacer - 6x12x2	1	27	24 *
07200040E	-	Retaining Ring - M4	n→n-1	27	103

* Denotes new item number.

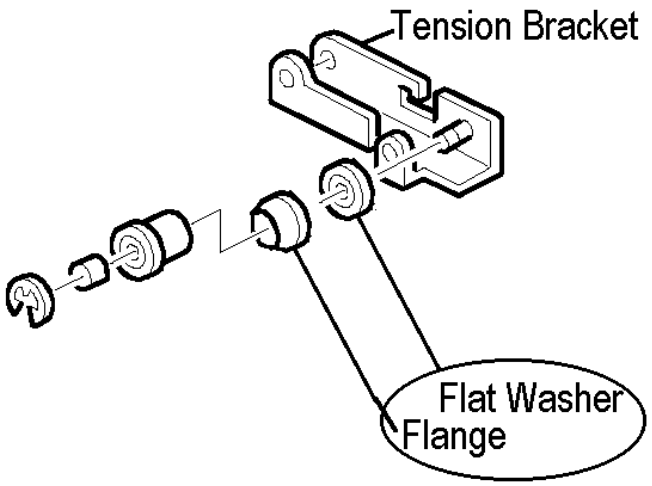
UNITS AFFECTED:

All B303 Large Capacity Trays manufactured after the Serial Number listed below will have the Felt Wick Spacer installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3900300001

Continued…

- **UPDATE 3:** **Flange - 23 –** When the B303 is connected to the A295, the Timing Belts may slip off the Idler Pulley. To correct this, a Flange and a Flat Washer have been added to each Tension Bracket (P/N B3031571 page 27 - item 14 and page 29 - item 15). Please update your Parts Catalog with the following information.



			REFERENCE	
PART NUMBER	**DESCRIPTION**	**QTY**	**PAGE**	**ITEM**
A3544221	Flange - 23	2	27	25 *
A3544221	Flange - 23	1	29	35 *
07010100B	Flat Washer - 10	2	27	107 *
07010100B	Flat Washer - 10	1	29	113 *

* Denotes new item number.

UNITS AFFECTED:

All B303 Large Capacity Trays manufactured after the Serial Number listed below will have the Flange -23 and Flat Washer - 10 installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3900300001

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 002 **10/27/2000**

APPLICABLE MODEL:

GESTETNER – RT42 for 3285/32105
RICOH – RT42 for AFICIO 850/1050
SAVIN – RT42 for 2085DP/2105DP

■ MECHANICAL

■ PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PAPER GUIDE FENCE

SYMPTOM:

The End Fence may detach due to vibration during transport.

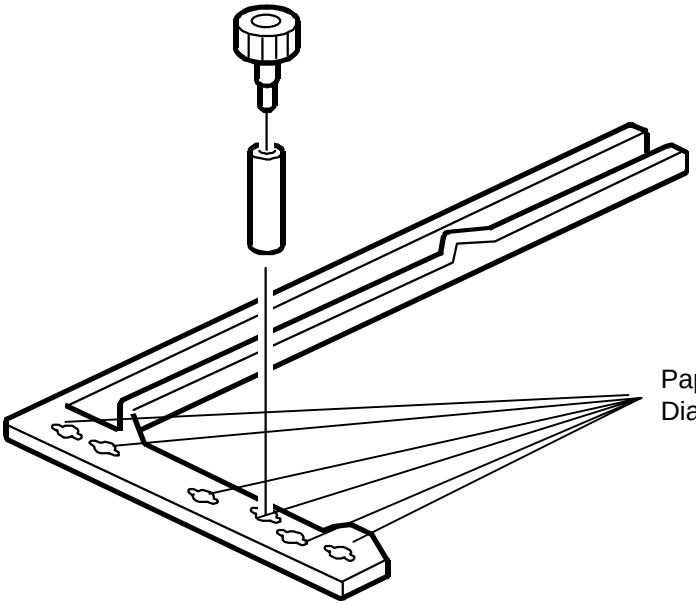
CAUSE:

The diameter of the mounting holes in the Paper Guide Fence for inserting the End Fence were slightly too large for the Knob Screw and Rubber Tube.

SOLUTIONS:

PERMANENT PRODUCTION COUNTERMEASURE:

The diameter of the holes in the Paper Guide Fence for inserting the End Fence have been reduced from 5.5 mm to 4.5 mm. See illustration below.



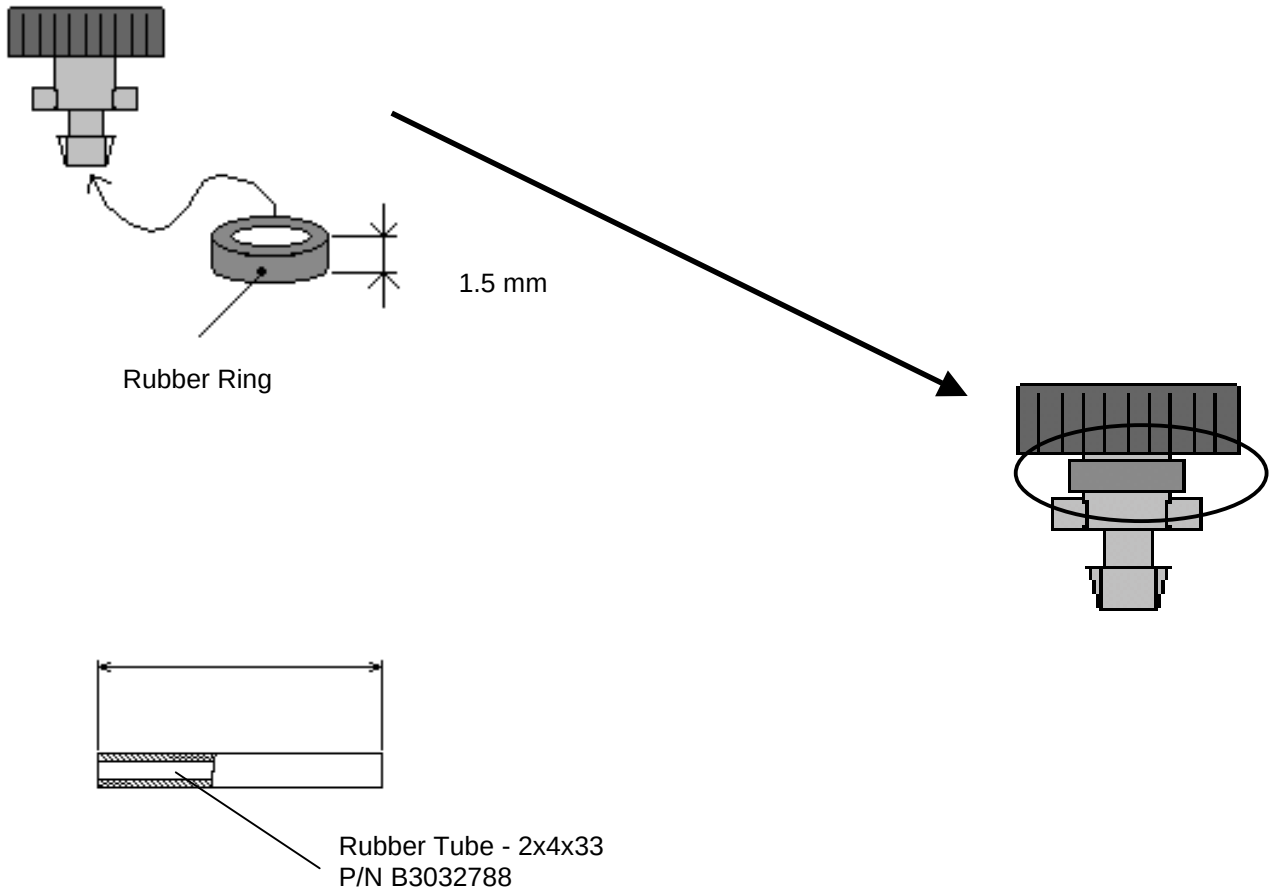
Paper Guide Fence
Diameter: 5.5 mm to 4.5 mm

Continued…

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TEMPRORARY PRODUCTION COUNTERMEASURE:

An extra Rubber Ring (1.5 mm) has been attached to the End Fence to prevent it from dropping. This Rubber Ring is made by cutting the Rubber Tube (P/N B3032788) in the production line to 1.5 mm thickness. See illustration below.



NOTE: *When the new Paper Guide Fence (P/N B3032789) is installed in machines with the extra Rubber Ring, it is not necessary to remove the Rubber Ring from the End Fence.*

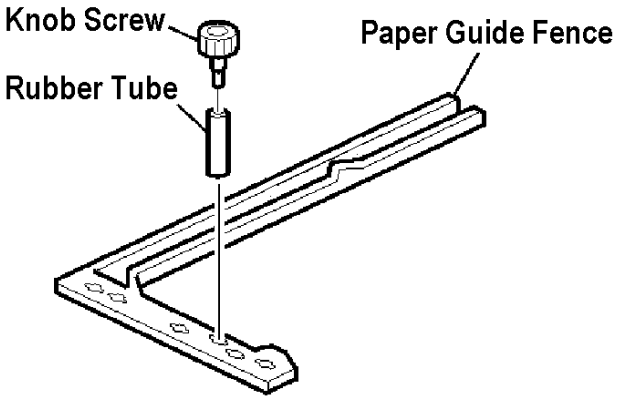
NOTE: *The Temporary Countermeasure has been applied at the factory from the same cut-in serial numbers listed in UNITS AFFECTED on page 3, except for the 33 machines listed in the table below. These units had already been shipped and did not contain the countermeasures. It is estimated that the occurrence rate will be very low. Please reattach the End Fence if it has come off during transport.*

SERIAL NUMBER RANGE
H3900400592 to H3900400624

Continued…

GENERAL:

The following parts updates are being issued for all B303 Parts Catalogs.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3032781	B3032789	Paper Guide Fence	2	3/S	9	15
B3032782	B3032787	Knob Screw	2	3/S	9	16
B3032784	B3032788	Rubber Tube – 2x4x33	2	3/S	9	17
B3032781	B3032789	Paper Guide Fence	1	3/S	13	16
B3032782	B3032787	Knob Screw	1	3/S	13	14
B3032784	B3032788	Rubber Tube – 2x4x33	1	3/S	13	15

UNITS AFFECTED:

All B303 Large Capacity Trays manufactured after the Serial Numbers listed below will have the new style Paper Guide Fence installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3900400624
Ricoh RT42	
Savin RT42	

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 003 **11/20/2000**

APPLICABLE MODEL:

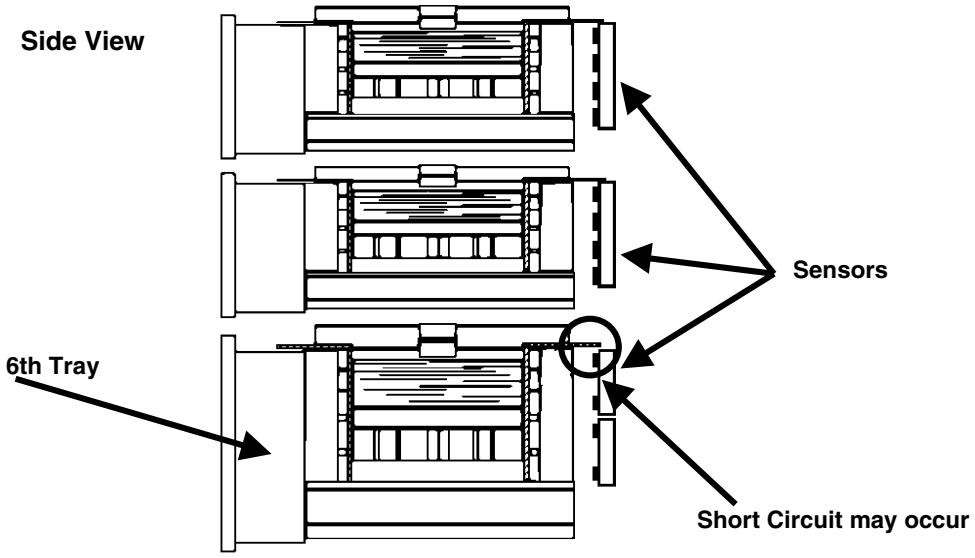
GESTETNER – RT42 for 3285/32105
RICOH – RT42 for AFICIO 850/1050
SAVIN – RT42 for 2085DP/2105DP

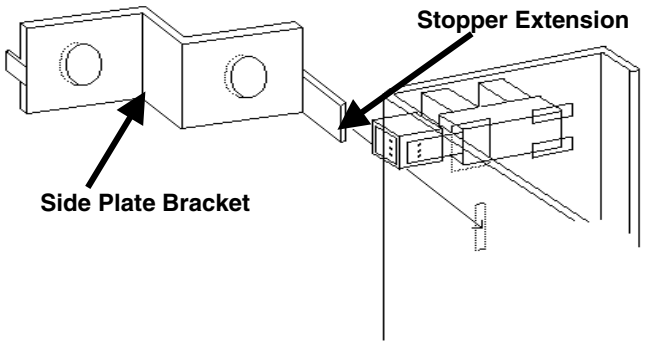
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SIDE PLATE BRACKET

GENERAL:

If Tray 6 (2550 sheet tray) is forcedly push into the main body with large amount of paper. The rear LCT Side Plate may bend. This may cause the Side Plate Bracket to touch the Paper Height Sensors, which can sometimes, result in a short circuit or damage to the sensors. To correct this, a Stopper Extension has been added to the Side Plate Bracket. Therefore, even if the above situation occurs, the Side Plate Bracket is stopped by the Stopper Extension. This will ensure that the bracket does not touch the sensors.
The following part correction is being issued for all B303 Parts Catalog Sections.





Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3032724		Bracket	2-0	0	15	16
	B3032736	Side Plate Bracket	0-2	1	15	16

UNITS AFFECTED:

All B303 LCT's manufactured after the Serial Numbers listed below will have the new style Side Plate Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3900400592
Ricoh RT42	
Savin RT42	

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 004 **12/05/2000**

APPLICABLE MODEL:

GESTETNER - LARGE CAPACITY TRAY (RT42) for 3285/32105
RICOH - LARGE CAPACITY TRAY (RT42) for AFICIO 850/1050
SAVIN - LARGE CAPACITY TRAY (RT42) for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: MULTI-FEEDING FROM LCT

SYMPTOM

Multi feeding from LCT.

CAUSE

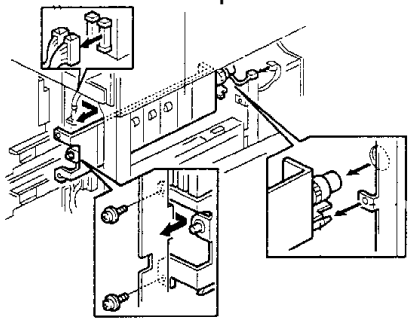
Paper stack height is too high.

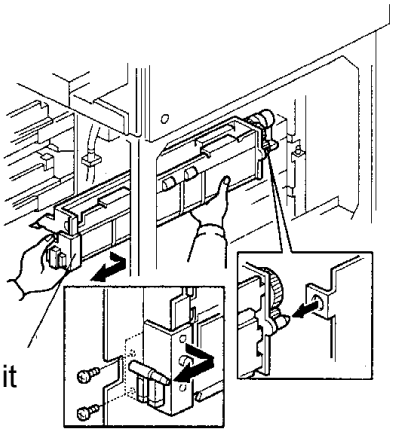
SOLUTION

Lower the paper stack height by shifting the Tray Lift Sensor. The procedure is as follows:

1. Remove the LCT right cover and inner cover and pull out the tray.
2. Remove the Paper Feed Unit. Refer to the Service Manual page 9-15 for Paper Feed Unit removal.

Paper Feed Unit





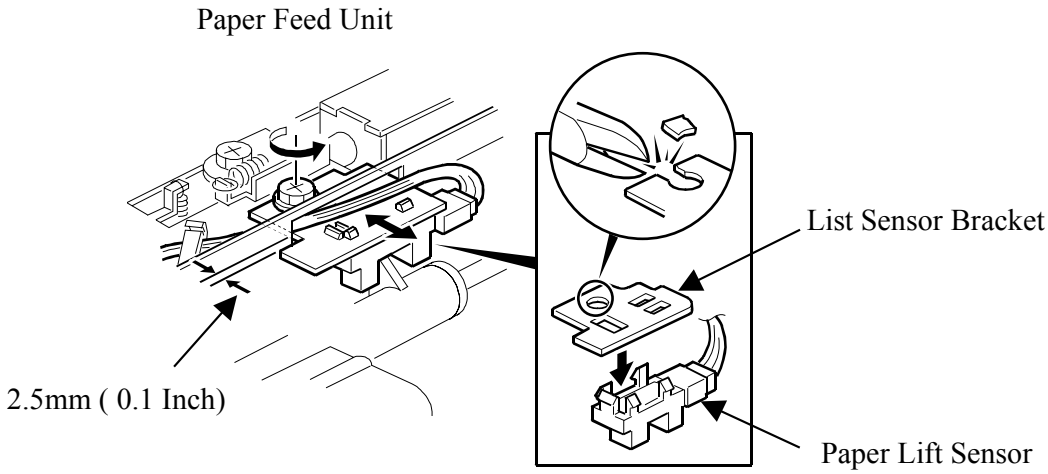
Paper Feed Unit

Continued…

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3. Remove the Sensor Bracket.
4. Remove the Paper Lift Sensor.
5. Remove the cut-out from the Sensor Bracket with pair of wire cutters as shown in the illustration.

NOTE: *Do not make the cut wider than the original hole.*



6. Install the Paper Lift Sensor on the bracket.
7. Install the Sensor Bracket as shown in the illustration. The gap between the bracket and unit is 2.5mm (0.1 Inch).

NOTE: *If the customer uses thicker paper and non-feeding problems occur, shift the Sensor Bracket to reduce the gap.*

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 – 005 **02/27/2001**

APPLICABLE MODEL:

GESTETNER – LARGE CAPACITY TRAY (RT42) for 3285/32105
RICOH – LARGE CAPACITY TRAY (RT42) for AFICIO 850/1050
SAVIN – LARGE CAPACITY TRAY (RT42) for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

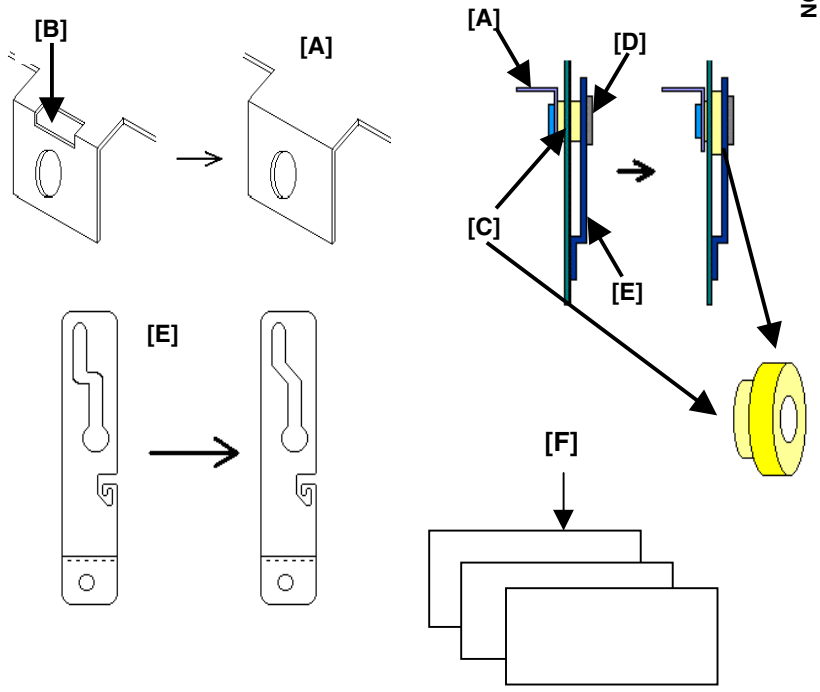
SUBJECT: LCT GUIDE PLATE KIT

GENERAL:

The following parts corrections are being issued for all A294 and A295 Parts Catalogs.
To increase the durability of the LCT Guide Plate open/close mechanism (for U3 jam removal), the following modifications have been applied:

1. The length of the Guide Plate [A] has been expanded by 1mm. This will remove the play between the Guide Plate and the frame. Also, the cutout [B] has been removed to strengthen the plate.
2. The collar [C] and the Stepped Screw [D] have been changed to remove the space between the frame and the Linkage Bracket [E].

The shape of the Linkage Bracket [E] has been changed to ensure smoother movement of the Guide Plate. Also, the tension of the Tighten Spring has been increased. B3031330 [F] includes three decals, which will be stuck on the LCT Inner Cover from November production.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B3033645	B3033646	Guide Plate	1	3/S	25	6
B3033681	B3033680	Linkage Bracket	1	3/S	27	9
AA060817	AA060830	Tighten Spring	1	3/S	27	10
B3033684	B3033685	Link Spacer	1	3/S	27	11
AA143444	68032273	Stepped Screw	1	3/S	27	8

NOTE: Must be installed as a set on units manufactured prior to the S/N cut-in.

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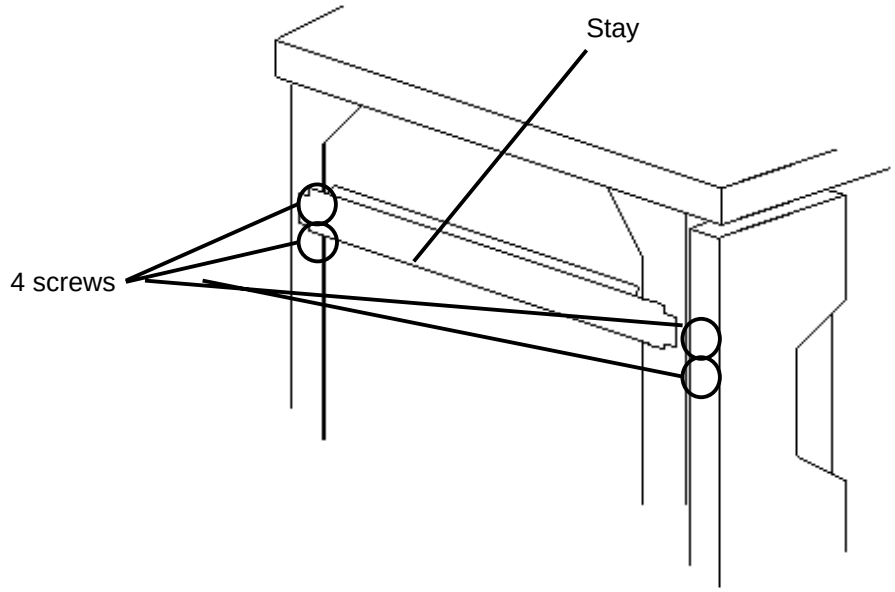
UNITS AFFECTED:

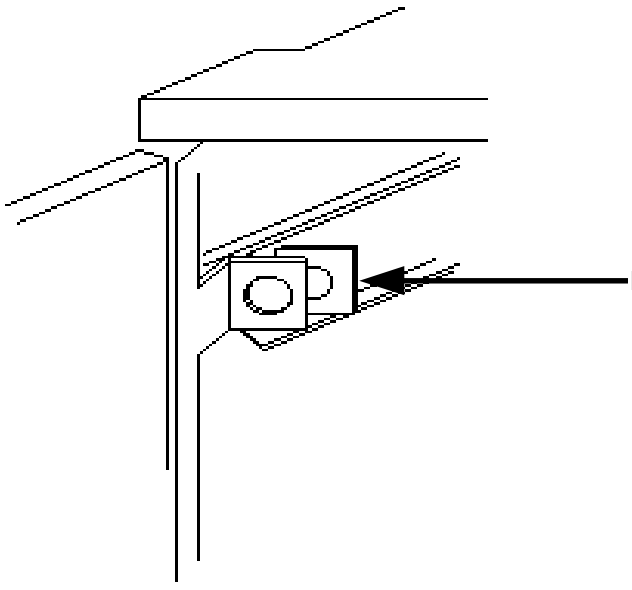
All B303 LCT's manufactured after the Serial Numbers listed below will have the new parts installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3900700001

Guide Plate Installation Procedure:

1. Removal of Relay Transport Unit from the LCT.
(1) Remove the stay from the LCT. (4 screws)



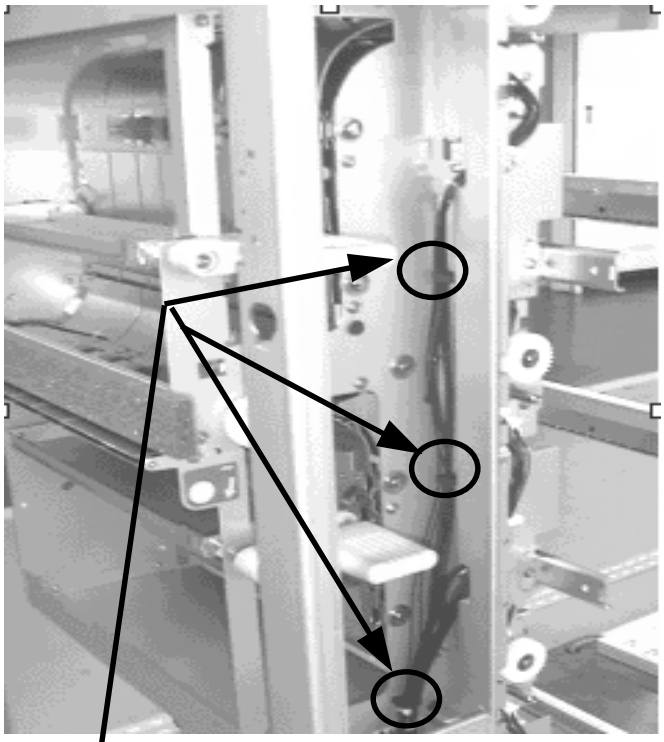


Note: When removing the stay, be careful not to deform the part indicated in the illustration at left.

Continued…

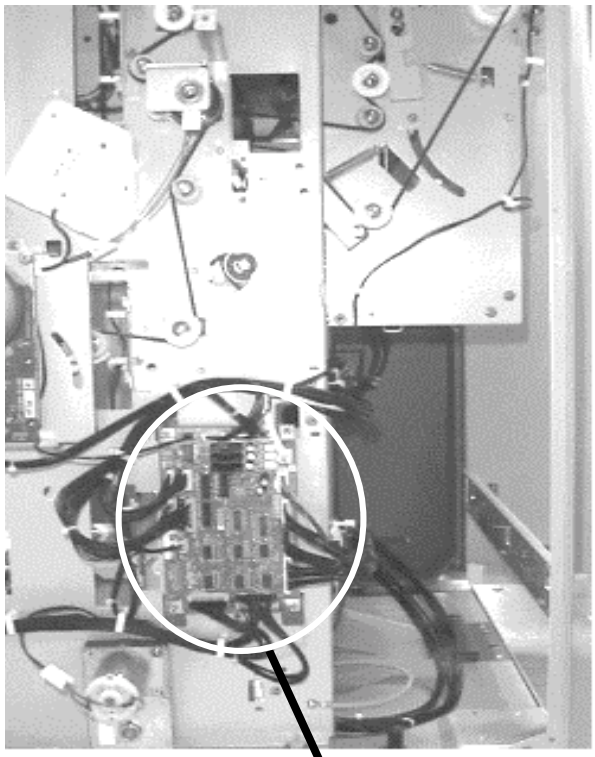
(2) Remove the harness around the Relay Transport Unit from the harness clamps and disconnect from the board.

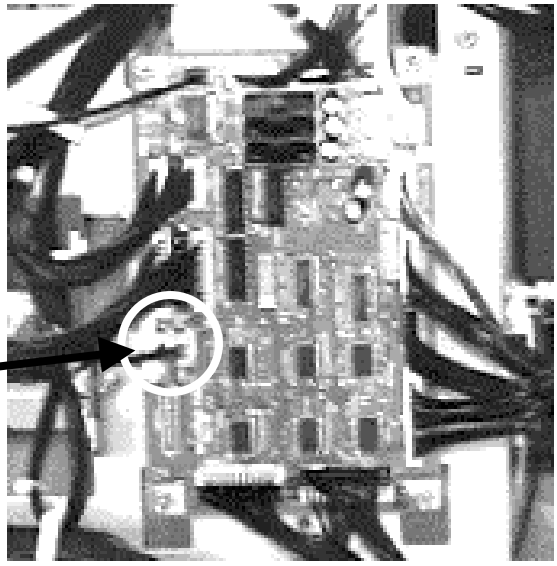
[Front view of Relay Transport Unit]



Remove Harness from clamps

[Rear view of Relay Transport Unit]





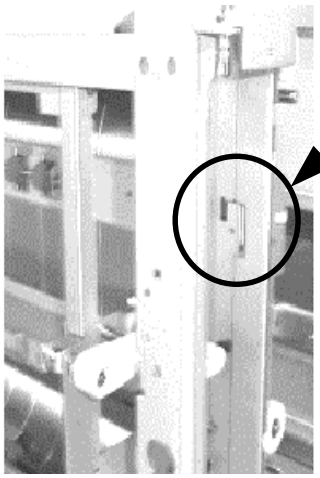
Remove this connector

Continued…

(1) Remove the Relay Transport Unit from the LCT (4 screws).

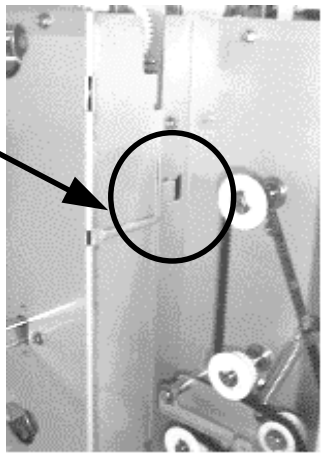
Note: The Relay Transport Unit is resting on hooks, please lift and remove the Relay Transport Unit.

Front view of Relay Transport Unit []



Hooks

[Rear view of Relay Transport Unit]

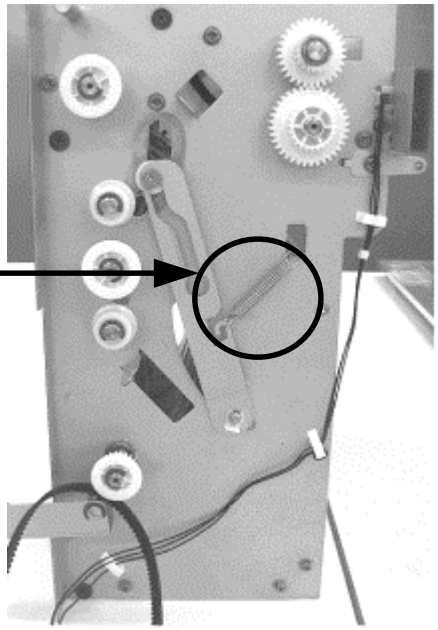


Caution: Please be careful when you handle the Relay Transport Unit because there are sharp edges present.

(2) Removal of Old Parts on Relay Transport Unit

(1) Remove the Tension Spring.

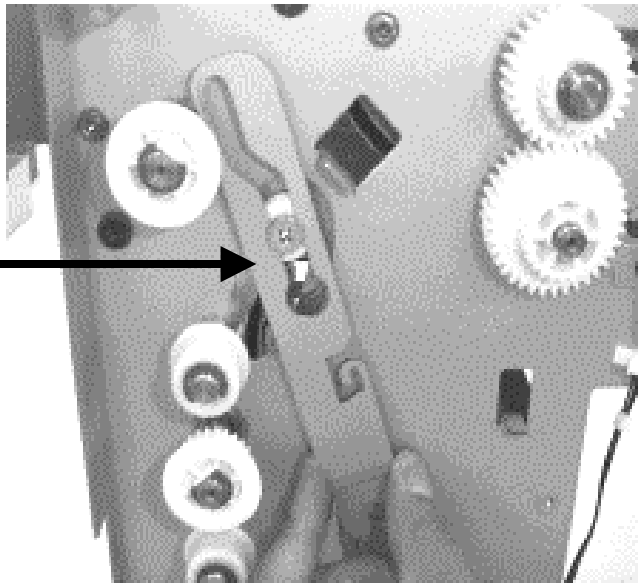
AA060817
Tighten spring



Continued…

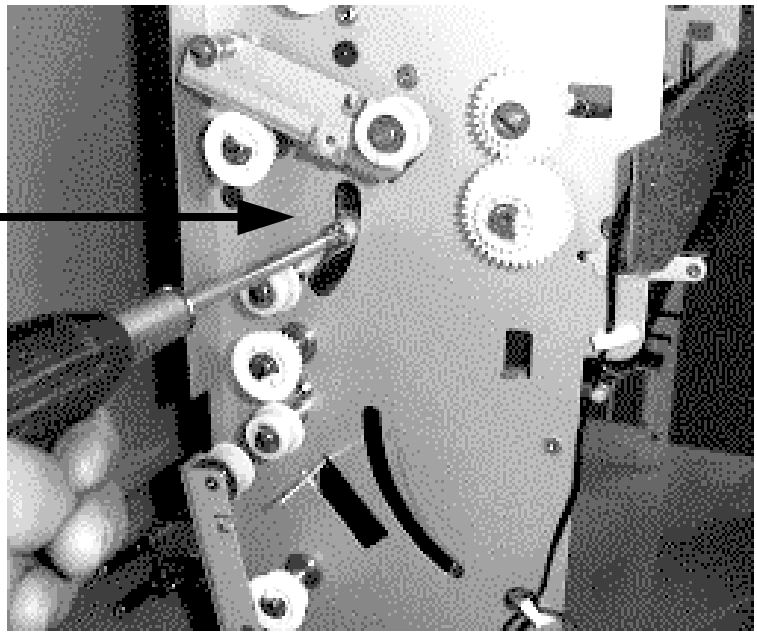
(2) Remove the Linkage Bracket.

B3033681
Linkage Bracket



(3) Remove the Stepped Screw.

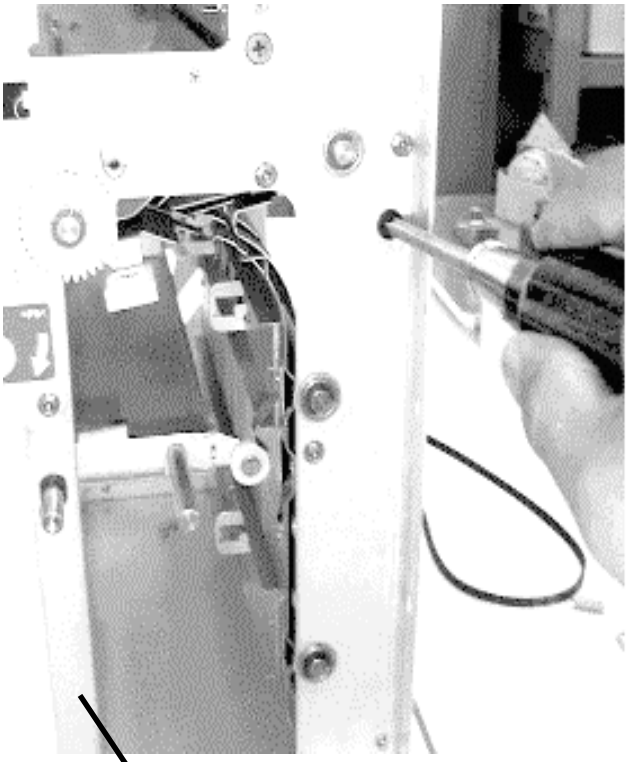
AA143444
Stepped Screw



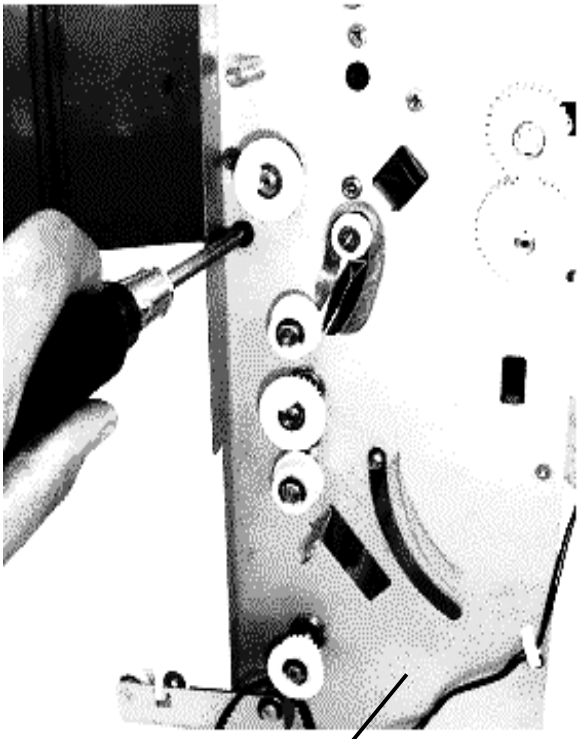
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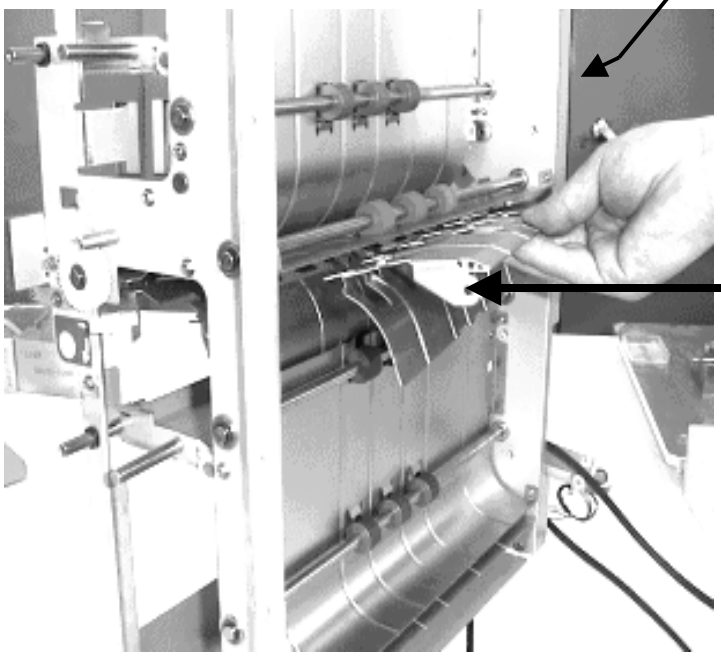
(4) Remove the Guide Plate (2 stepped screws).

[Front view of Relay Transport Unit]



[Rear view of Relay Transport Unit]





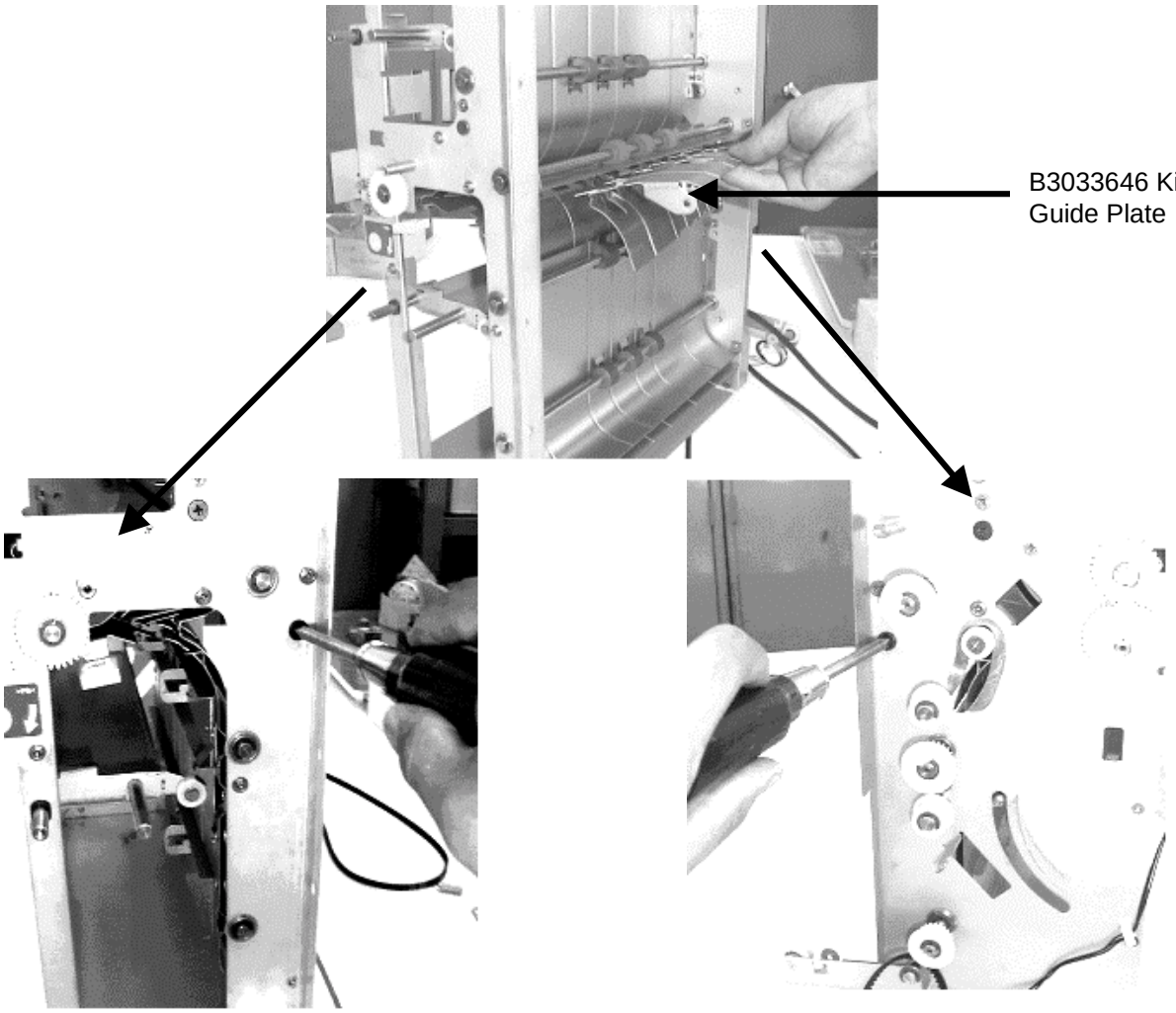
B3033645
Guide Plate

Continued…

3. Installation of Guide Plate Kit Parts on Relay Transport Unit

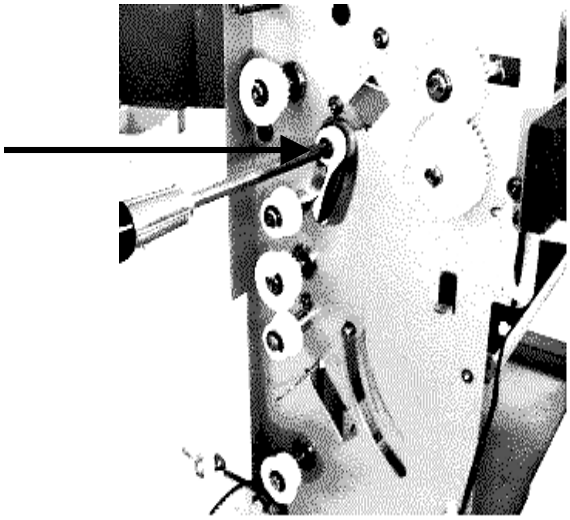
(1) Install the Kit Guide Plate (B3033646) (2 stepped screws)

[Front view of Relay Transport Unit] [Rear view of Relay Transport Unit]



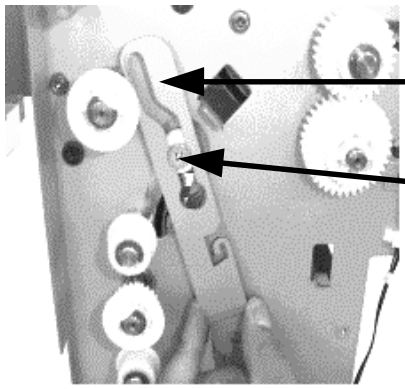
(2) Install the collar (B3033685) with the stepped screw (68032273)

Collar (B3033685)

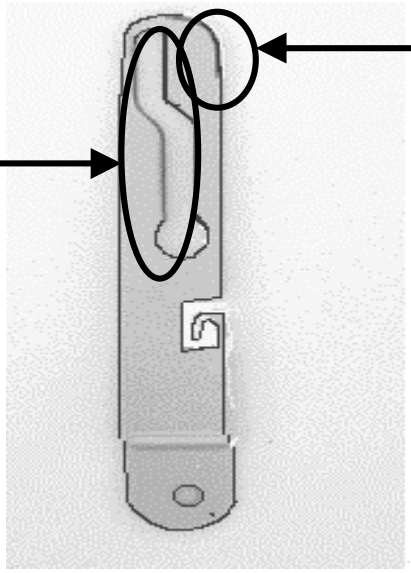


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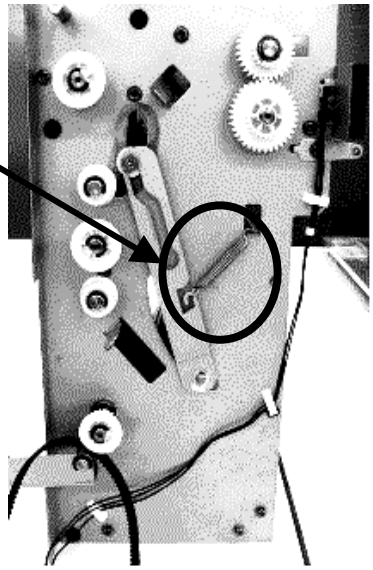
(3) Install the Linkage Bracket by inserting the Stepped Screw up through the rounded end of the slot and moving bracket downwards.



4) Lubricate with Silicone Grease G501 (52039502) the parts indicated in the photo that are in contact with other moving parts.



5) Install the Tighten Spring (AA060830)



6) Re-install the Relay Transport Unit.
7) Re-assemble the LCT.

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 – 006 **03/28/2001**

APPLICABLE MODEL:

GESTETNER – LARGE CAPACITY TRAY (RT42) for 3285/32105
RICOH – LARGE CAPACITY TRAY (RT42) for AFICIO 850/1050
SAVIN – LARGE CAPACITY TRAY (RT42) for 2085DP/2105DP

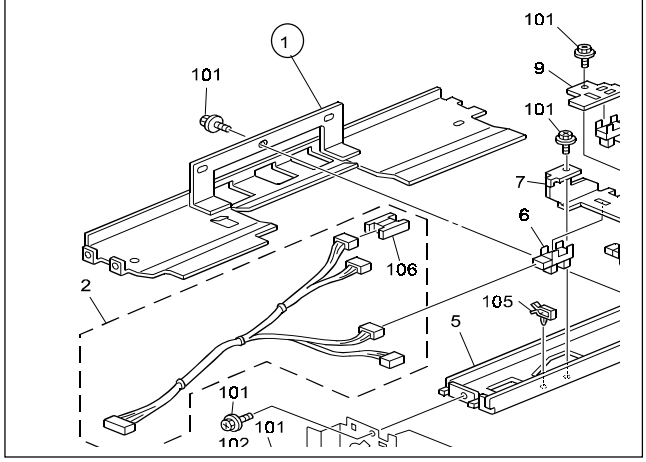
SUBJECT: GUIDE PLATES

Note: This copy is intended as a master original for reproduction of additional bulletins.

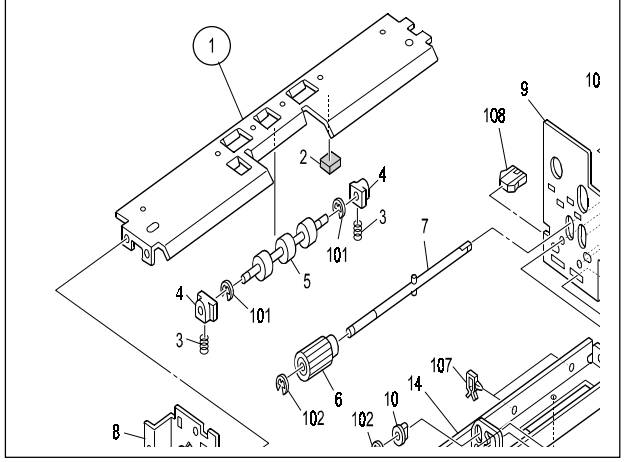
GENERAL:

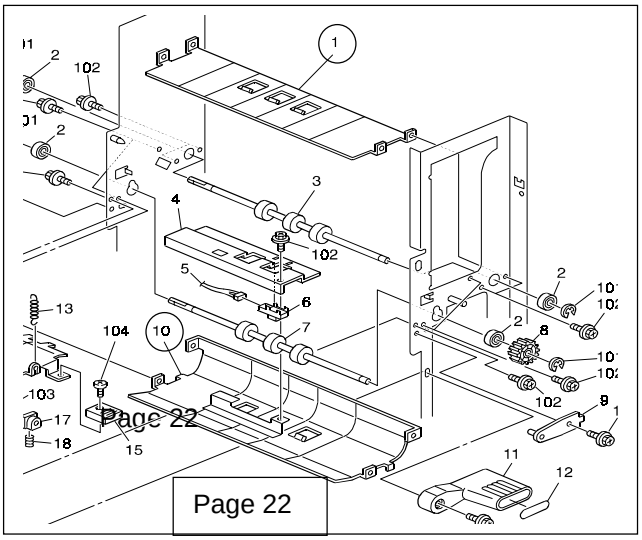
To increase the strength of the guide plates, the screw holes in the plates have been modified. The following parts corrections are being issued for all B303 Parts Catalogs.

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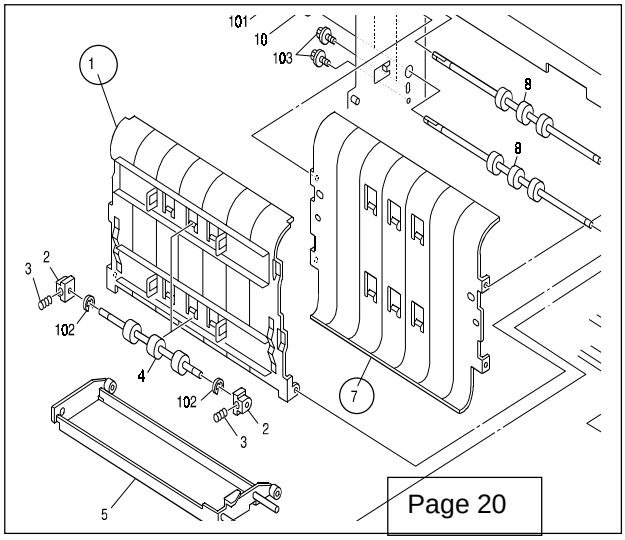
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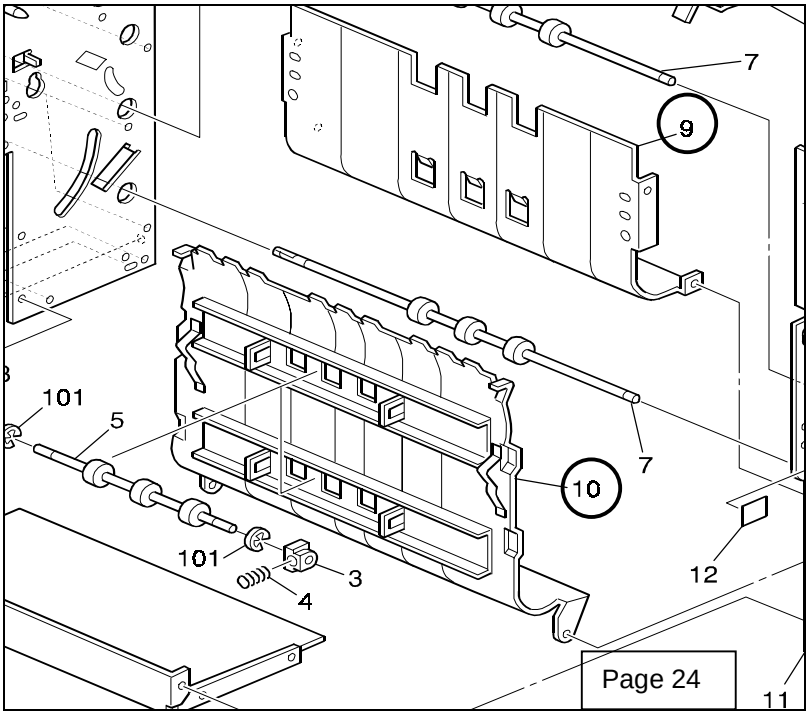
Page 22



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Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3032583	B3032530	Feed Guide Plate	1	1	17	1
B3032585	B3032535	Reverse Guide Plate	1	1	19	1
B3033615	B3033691	Guide Plate	1	1	21	1
B3033610	B3033690	Guide Plate	1	1	21	7
B3033640	B3033698	Guide Plate	1	1	23	1
B3033630	B3033696	Guide Plate	1	1	23	10
B3033620	B3033693	Guide Plate	1	1	25	9
B3033625	B3033694	Guide Plate	1	1	25	10

UNITS AFFECTED

All B303 LCT's manufactured after the Serial Numbers listed below will have the new style Guide Plates installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3900900079
Ricoh RT42	H3900900079
Savin RT42	H3900900079

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 – 007 **08/14/2001**

APPLICABLE MODEL:

GESTETNER – RT 42 for 3285/32105
RICOH – RT 42 for AFICIO 850/1050
SAVIN – RT 42 for 2085DP/2105DP

Note: This copy is intended as a master original for reproduction of additional bulletins.

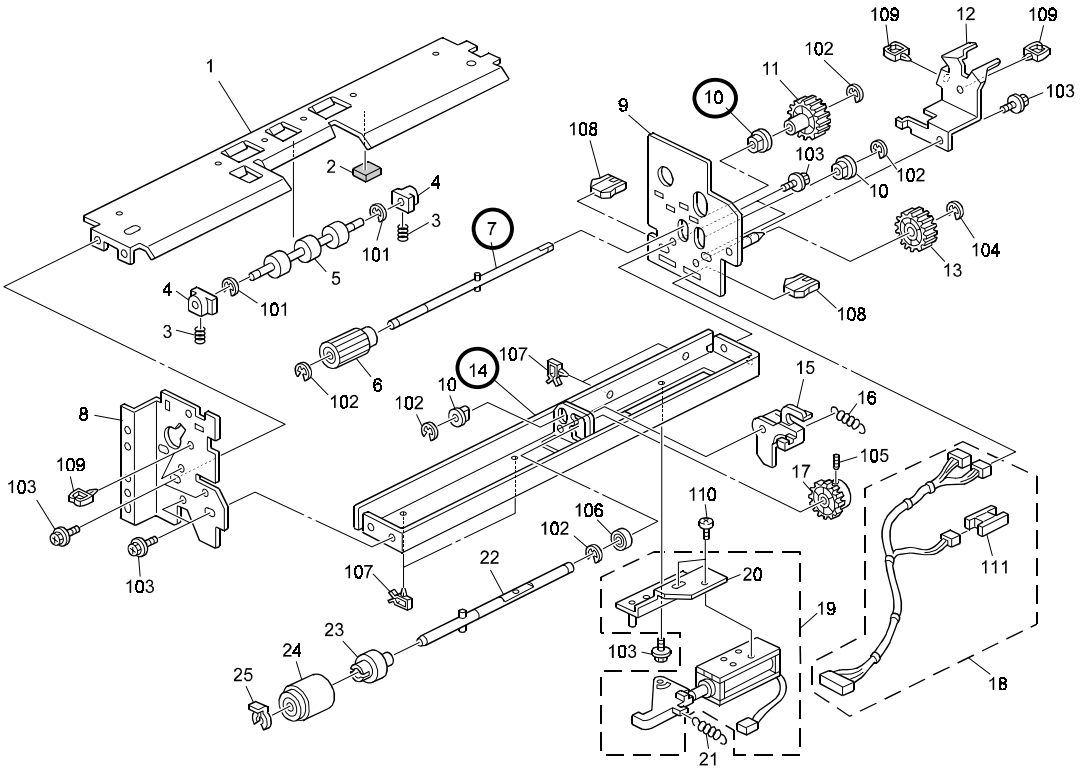
SUBJECT: PAPER FEED UNIT

GENERAL:

When the feed roller contacts the separation roller, the resulting vibration is transmitted to the reverse drive shaft bushing area, which causes a noise. To ensure that this noise does not occur, the AA082046 bushing has been replaced with a ball bearing (07413706).

To accommodate the new bearing, the length of the Reverse Drive Shaft has been increased slightly and the shape of the bearing area of the Feed Stay has been changed.

Please be sure to replace all three parts as a set, as there is very little visual difference between the old and new shafts and stays.



Continued…

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The following parts corrections are being issued for all B303 Parts Catalog Sections.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3032552B	B3032541	Feed Stay	1	3S	19	14
A2296306	B3036306	Reverse Drive Shaft	1	3S	19	7
AA082046	07413706	Ball Bearing – 6x10x3	1	3S	19	10

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

UNITS AFFECTED:

All B303 RT42's manufactured after the serial numbers listed below will have the new style feed stay, reverse drive shaft, ball bearing – 6x10x3 installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT 42	H3901000172
Ricoh RT 42	H3901000172
Savin RT 42	H3901000172

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 008 **02/07/2002**

APPLICABLE MODEL:

GESTETNER – RT 42 for the 3285/32105/8502/10502
RICOH – RT 42 for the AFICIO 850/1050/1085/1105
SAVIN – RT 42 for the2085DP/2105DP/2585/25105

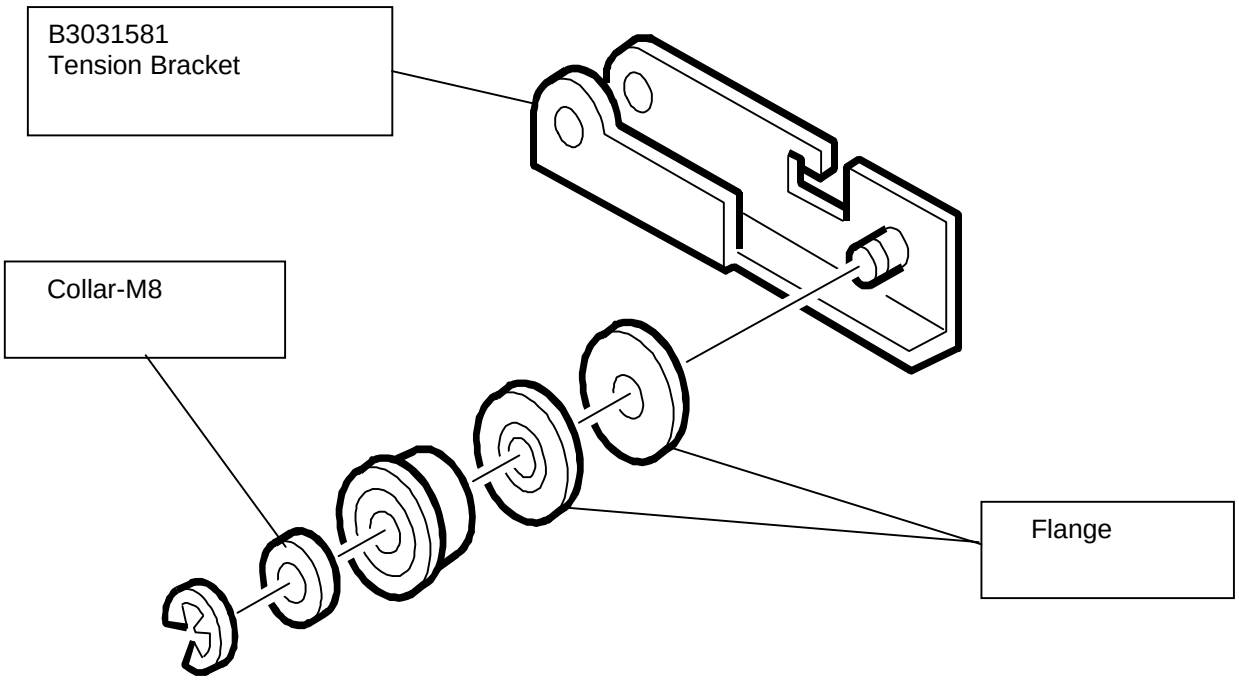
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TENSION BRACKET

GENERAL:

When the LCT is used, a noise is generated when the tension bracket contacts the flat washer.
To correct this:
1. The flat washer has been changed to a flange, so that two flanges are now used.
2. The bushing has been changed to a collar.
3. The shape of the tension bracket has been modified.

The following parts corrections are being issued for all B303 Parts Catalogs.



Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
07010100B		Flat Washer – 10	*2-0* *1-0*	-	27 29	107 113
	A3544221	Flange - 23	2-4 1-2	-3S 3S	27* 29*	25 35
B3031571	B3031581	Tension Bracket	2 1	3S 3S	27 29	14 15
07078040B		Bushing - 8X4MM	2-0 1-0	-	27 29	106 112
	B3031535	Collar – M8	2 1	3S 3S	27 29	108* 114*

***DENOTES NEW ITEM NUMBER**

UNITS AFFECTED:

All B303 copiers manufactured after the Serial Numbers listed below will have the new style Tension Bracket, Collar and Flange installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3901000135
Ricoh RT42	H3901000135
Savin RT42	H3901000135

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 009 **02/07/2002**

APPLICABLE MODEL:

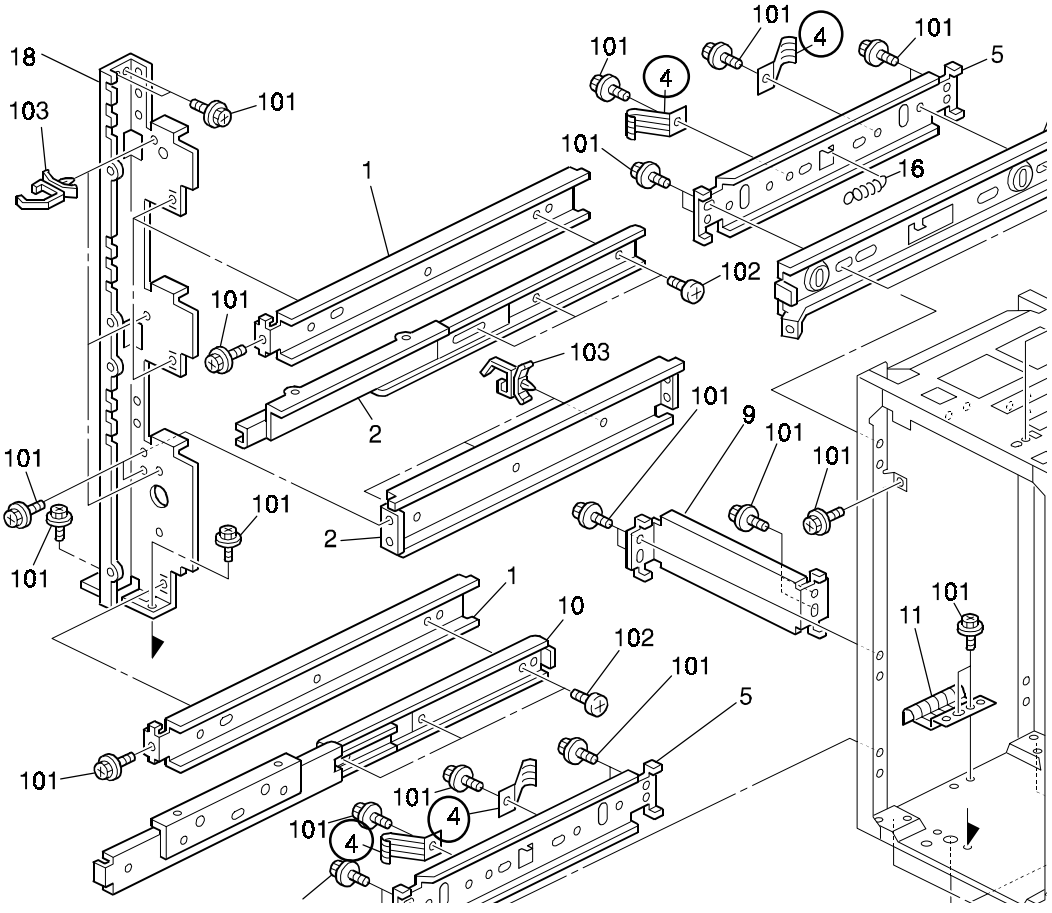
GESTETNER – RT 42 for the 3285/32105/8502/10502
RICOH – RT 42 for the AFICIO 850/1050/1085/1105
SAVIN – RT 42 for the 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: GROUNDING PLATE

GENERAL:

The shape of the Grounding Plates have been changed to further ensure the proper safety during machine servicing**.**
The following parts corrections are being issued for all B303 Parts Catalogs.



Continued…

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					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3031113	B3031116	Grounding Plate	4	1	33	4

UNITS AFFECTED:

All B303 LCT's manufactured after the Serial Numbers listed below will have the new style Grounding Plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3901200544
Ricoh RT42	H3901200544
Savin RT42	H3901200544

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 010 **02/07/2002**

APPLICABLE MODEL:

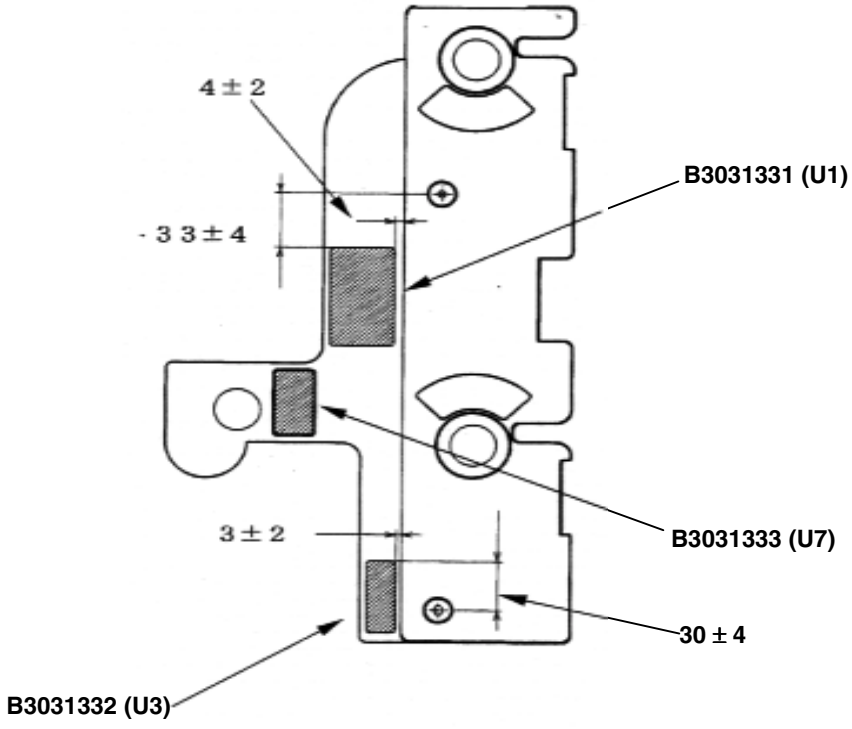
GESTETNER – RT 42 for the 3285/32105/8502/10502
RICOH – RT 42 for the AFICIO 850/1050/1085/1105
SAVIN – RT 42 for the 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: DECALS

GENERAL:

To make sure that customers turn the jam removal levers in the correct direction, the following decals have been added.



The following parts corrections are being issued for all B303 Parts Catalogs.

					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3031321	B3031333	Decal – U7	1	3S	31 37	2 16
	B3031331	Decal Misfeed U1	1	3S	31	27*
	B3031332	Decal Misfeed U3	1	3S	31	28*

***DENOTES NEW ITEM NUMBER**

Continued…

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UNITS AFFECTED:

All B303 Large Capacity Tray's manufactured after the Serial Numbers listed below will have the new style Decals installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3901000157
Ricoh RT42	H3901000157
Savin RT42	H3901000157

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 – 011 **05/20/2002**

APPLICABLE MODEL:

GESTETNER – RT42 for 3285/32105/8502/10502
RICOH – RT42 for AFICIO 850/1050/1085/1105
SAVIN – RT42 for 2085DP/2105DP/2585/25105

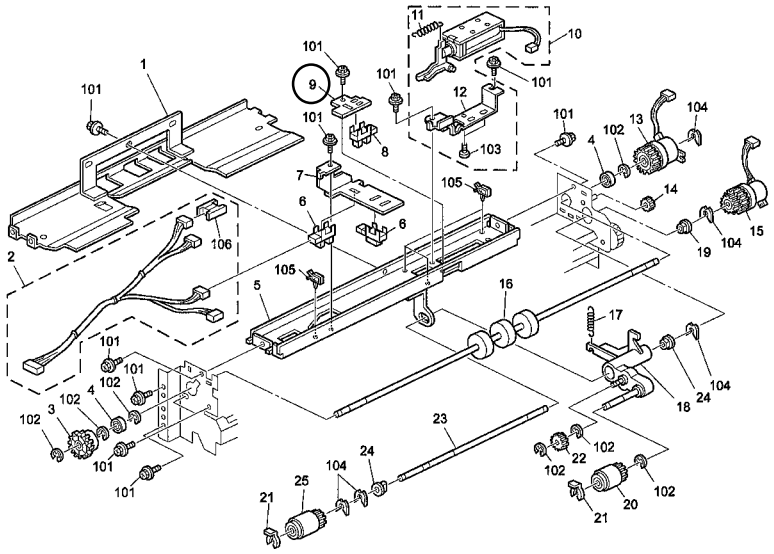
Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: SENSOR BRACKET

GENERAL:

The shape of the Sensor Bracket has been changed to further improve paper transport reliability.

The following parts corrections are being issued for all B303 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B3032577	B3032677	Sensor Bracket	1	1	17	9

UNITS AFFECTED:

All RT42 Large Capacity Trays manufactured after the Serial Numbers listed below will have the new style Sensor Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner RT42	H3910200001
Ricoh RT42	H3910200001
Savin RT42	H3910200001

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TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 - 012 **10/23/2002**

APPLICABLE MODEL:

GESTETNER – RT42 for 3285/32105/8502/10502
RICOH – RT42 for AFICIO 850/1050/1085/1105
SAVIN – RT42 for 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following part catalog updates are being issued for all B303 Parts Sections.

- **UPDATE 1:** **Support Stay -** The support stay and plates may be deformed when the misfeed removal knob is operated to remove paper jams. To prevent the support stays from deforming, the shape of the support stay and front and rear side plates have been modified to increase their strength.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
B3033650	B3033750	Support Stay	1	1	21	5
B3033660	B3033760	Support Stay	1	1	23	21
B3033815	B3033825	Front Side Plate	1	1	25	11
B3033820	B3033850	Rear Side Plate	1	1	25	13

UNITS AFFECTED:

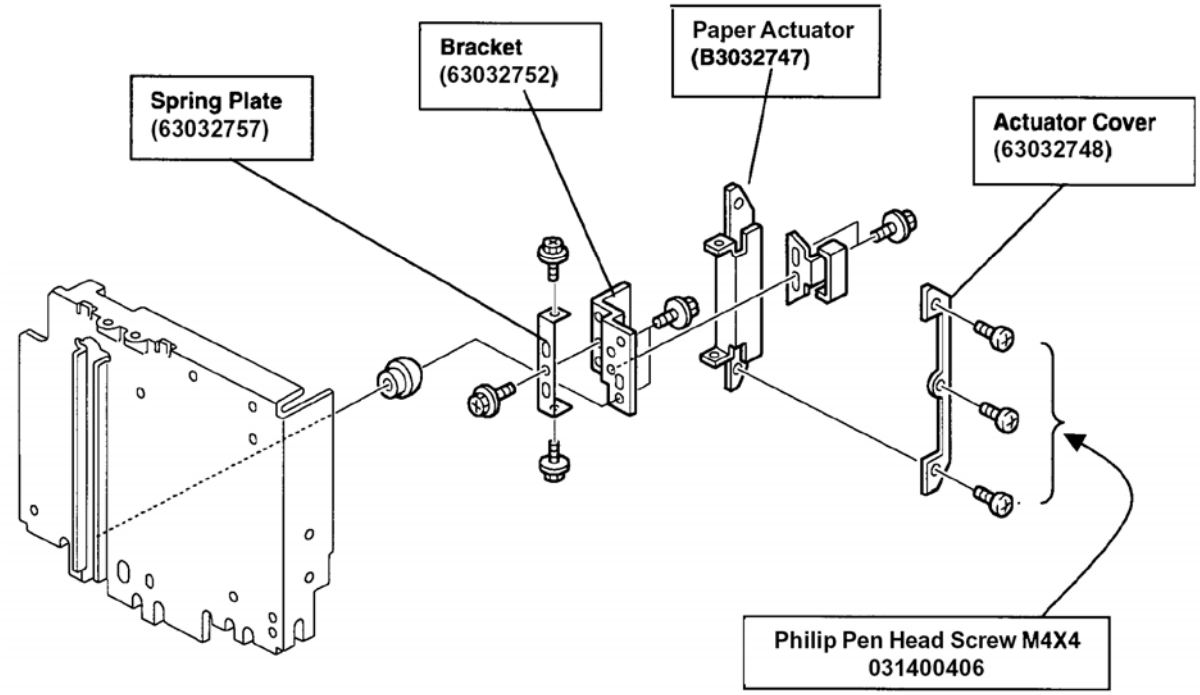
All B303 large capacity trays manufactured after the serial numbers listed below will have the new style support stay and side plates installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3901000157

Continued…

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- **UPDATE 2:** **Paper Actuator -** To prevent the spring plate from being damaged an actuator cover has been added to the paper actuator.



					REFERENCE	
OLD PART NO.	**NEW PART NO.**	**DESCRIPTION**	**QTY**	**INT**	**PAGE**	**ITEM**
B3032743	B3032752	Bracket	1	3/S	11	14
					15	18
B3032744	B3032747	Paper Actuator	1	3/S	11	15
					15	19
B3032745	B3032757	Spring Plate	1	3/S	11	13
					15	17
	B3032748	Actuator Cover	0-1	3/S	11	20*
					15	26*
	03140040B	Philips Pan Head Screw M4x4	0-3	3/S	11	107*
					15	109*

***DENOTES NEW ITEM NUMBER**

Continued…

UNITS AFFECTED:

All B303 large capacity trays manufactured after the serial numbers listed below will have the new bracket, paper actuator, spring plate, and actuator installed during production.

MODEL NAME	SERIAL NUMBER
RT42	H3900900176

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

TECHNICAL SERVICE BULLETIN

BULLETIN NUMBER: B303 – 013 **03/12/2003**

APPLICABLE MODEL:

GESTETNER – RT42 for 3285/32105/8502/10502
RICOH – RT42T for AFICIO 850/1050/1085/1105
SAVIN – RT42 for 2085DP/2105DP/2585/25105

Note: This copy is intended as a master original for reproduction of additional bulletins.

SUBJECT: TORQUE LIMITER

GENERAL:

The Torque Limiter has been modified to increase its durability. The following parts update is being issued for all B303 Parts Catalogs.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2472900	A2946700	Torque Limiter– 53mnxm	1	1	19	23

UNITS AFFECTED:

All A294/A295 RT42's manufactured after the serial numbers listed below will have the new style Torque Limiter installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3285	Service part only
Gestetner 32105	Service part only
Ricoh Aficio 850	Service part only
Ricoh Aficio 1050	Service part only
Ricoh Aficio 1085	H3620600063
Ricoh Aficio 1105	H3720800020
Savin 2585DP	Service part only
Savin 2105DP	Service part only
Savin 2585	H3620600001
Savin 2105	H3720600001

INTERCHANGEABILITY CHART:

0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts CAN NOT be used in OLD machines.
3/S	Must be installed as a set on units manufactured prior to the S/N cut-in. On units manufactured after the S/N cut-in or previously modified, use the new part numbers individually.		

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