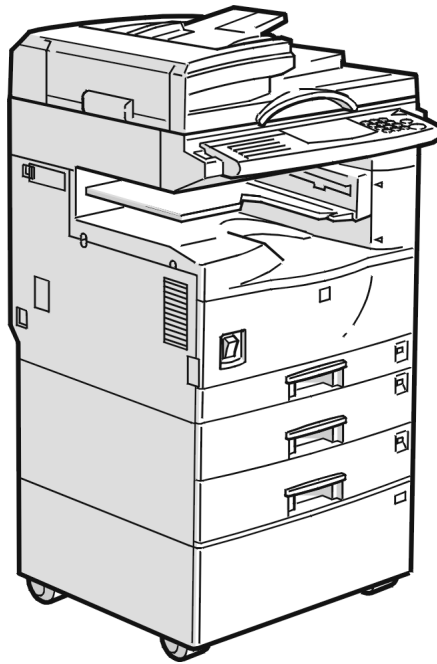


***Gestetner* RICOH SAVIN**



A250/B001
SERVICE MANUAL

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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. Always replace the ozone filters with the specified ones at the specified intervals.
2. Toner is non-toxic, but if you get it 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 danger of explosion exists if batteries on the FCU and JBIG are incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate AIO cartridge. Toner dust may ignite suddenly when exposed to and open flame.
2. Dispose of used AIO cartridge in accordance with local regulations. (This is 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.

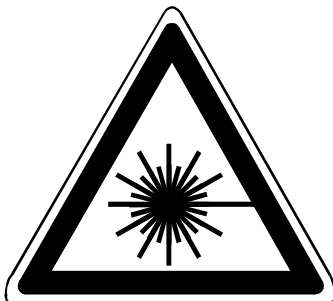
WARNING

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

WARNING FOR LASER UNIT

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:



**CAUTION
VORSICHT**



INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.

UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.

NICHT DEM STRAHL AUSSETZEN.

OVERALL INFORMATION	
PAPER TRAY UNIT A860	
SwapFTL™ Binary Utility	
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B001 SERVICE MANUAL	
INSTALLATION	
1-BIN SORTER A869	
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TAB POSITION 5
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TAB POSITION 8

OVERALL MACHINE INFORMATION

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Configuration:	Desktop
Copy Process:	Dry electrostatic transfer system
Originals:	Sheet/Book
Original Size:	Maximum A3/11" x 17"
Copy Paper Size:	Maximum A3/11" x 17" Minimum A5/8 1/2" x 5 1/2" sideways (Paper tray) B6 lengthwise/5 1/2" x 8 1/2" (By-pass) Custom sizes in the by-pass tray: Width: 90 ~ 305 mm (3.5" ~ 12.0") Length: 148 ~ 1,260 mm (5.8" ~ 49.6")
Copy Paper Weight:	Paper Tray: 60 ~ 90 g/m ² , 16 ~ 24 lb By-pass: 60 ~ 162 g/m ² , 16 ~ 43 lb
Reproduction Ratios:	3 Enlargement and 3 Reduction

	A4/A3 Version	LT/DLT Version
Enlargement	200%	155%
	141%	129%
	122%	121%
Full Size	100%	100%
Reduction	93%	93%
	71%	78%
	50%	65%

Zoom:	50% to 200% in 1% steps
Power Source:	120 V, 60 Hz: More than 10 A (for North America) 220 ~ 240 V, 50/60 Hz More than 6 A (for Europe/Asia) 110 V, 50/60 Hz More than 11 A (for Taiwan)

SPECIFICATIONS

Power Consumption:

	Mainframe Only		Full System	
	120 V	220 ~ 240 V	120 V	220 ~ 240 V
Maximum	Less than 1.1 kW	Less than 1.1 kW	Less than 1.2 kW	Less than 1.3 kW
Copying	Approx. 450 W	Approx. 450 W	Approx. 460 W	Approx. 460 W
Warm-up	Approx. 860 W	Approx. 760 W	Approx. 870 W	Approx. 770 W
Stand-by	Approx. 110 W	Approx. 110 W	Approx. 130 W	Approx. 130 W
Energy Saver Level 1	Approx. 60 W	Approx. 60 W	Approx. 60 W	Approx. 60 W
Energy Saver Level 2	Approx. 30 W	Approx. 30 W	Approx. 30 W	Approx. 30 W
Auto Shut off	0 W	0 W	0 W	0 W

NOTE: 1) Full system: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit
2) Without the optional heaters, fax unit, and printer controller

Noise Emission (Sound Power Level):

Stand-by (Mainframe only):	US/Asia Model: 42 dB(A) Europe Model: 30 dB(A)
Operating (Mainframe only):	US/Asia Model: 60 dB(A) Europe Model: 66 dB(A)
Operating (Full System):	66 dB(A)
Off Mode:	30 dB(A)

NOTE: 1) The above measurements were made in accordance with ISO 7779.
2) Full System: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit

Dimensions (W x D x H): 550 x 575 x 460 mm (21.7" x 22.7" x 18.2")

NOTE: Measurement Conditions

- 1) With by-pass feed table closed
- 2) Without the ADF

Weight: Less than 35 kg (78 lb)
Not including ADF, Platen Cover, and AIO

Copying Speed in Multicopy mode (copies/minute):

	A4 sideways/ 11" x 8 1/2"	A3/11" x 17"	B4/8 1/2" x 14"
Non-memory copy mode	15	10	11
Memory copy mode	18	10	12

NOTE: Measurement Conditions

- 1) Not APS mode
- 2) A4/LT copying
- 3) Full size

Warm-up Time: Less than 30 seconds (20°C, 68°F): 115 V machine
Less than 40 seconds (20°C, 68°F): 230 V machine

First Copy Time: Less than 6.5 seconds

NOTE: Measurement Conditions

- 1) When polygonal mirror motor is spinning.
- 2) Not APS mode
- 3) A4/LT copying
- 4) Full size

Copy Number Input: Ten-key pad, 1 to 99 (count up or count down)

Manual Image Density: 7 steps

Automatic Reset: 60 seconds is the standard setting; it can be changed with a User Tool.

Automatic Shut Off: 15 minutes is the standard setting; it can be changed with a User Tool.

Copy Paper Capacity: Paper Tray:
250 sheets
Optional Paper Tray Unit:
500 sheets x 1, or 500 sheets x 2
By-pass Tray:
100 sheets (A4, B5, A5, B6, 8 1/2" x 11", 5 1/2" x 8 1/2")
10 sheets (A3, B4, 11" x 17", 8 1/2" x 13")
1 sheets (non-standard sizes)

NOTE: Copy weight: 80g/m² (20 lb).

Toner Replenishment: All-in-one toner cassette cartridge (750 g/cartridge)

Toner Yield: 12 k copies (A4 sideways, 6% full black, 1 to 1 copying, ADS mode)

Optional Equipment:

- Platen cover
- Auto document feeder
- Paper tray unit (1 tray)
- Paper tray unit (2 trays)
- 1-bin sorter
- Tray heater
- Optics anti-condensation heater
- Drum heater
- Copier feature expander (48 MB memory)
- Key Counter

Copy Capacity:

Copy Tray: 250 sheets (without 1-bin sorter),
125 sheets (with 1-bin sorter)
1-bin Sorter: 125 sheets

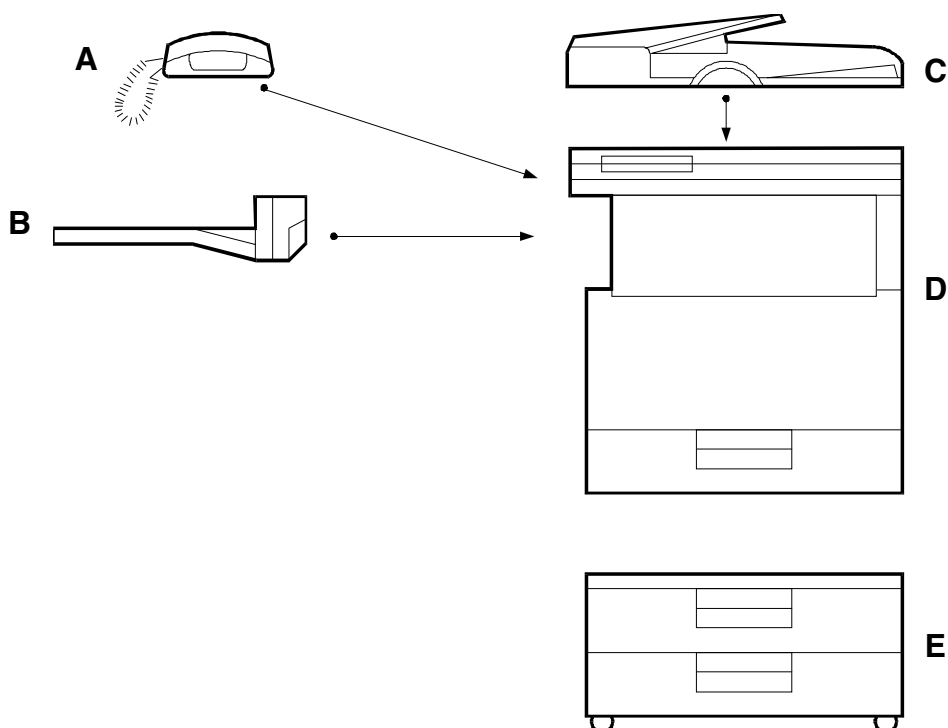
Memory Capacity:

		Standard (16 MB)	Optional (+48 MB)
Sort, Rotate Sort	A4, 8 1/2" x 11"		
	B4, 8 1/2" x 14"		
	A3, 11" x 17"		
Number of pages	A4 6%	80 sheets	99 sheets
	A4 ITU-T#4 12%	35 sheets	99 sheets

: Available

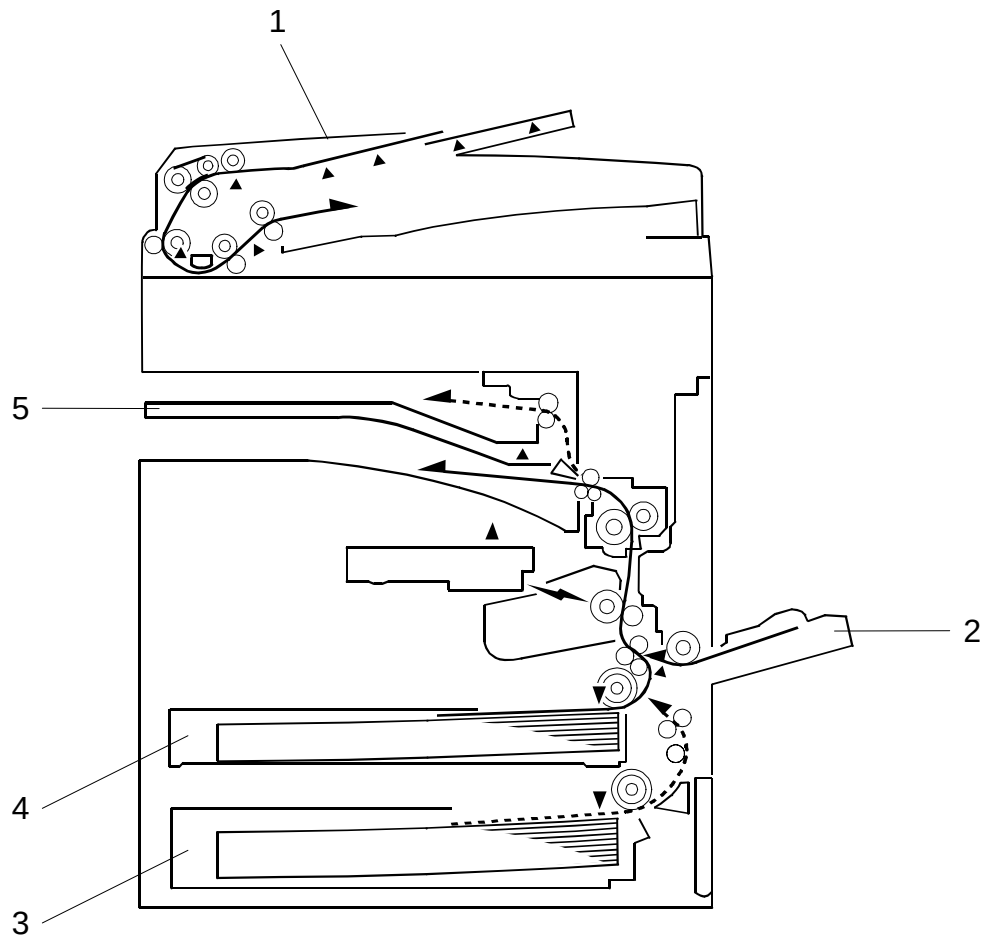
NOTE: The paper sizes that can be used with Rotate Sort are A4/8 1/2" x 11" and B5 only.

1.2 MACHINE CONFIGURATION



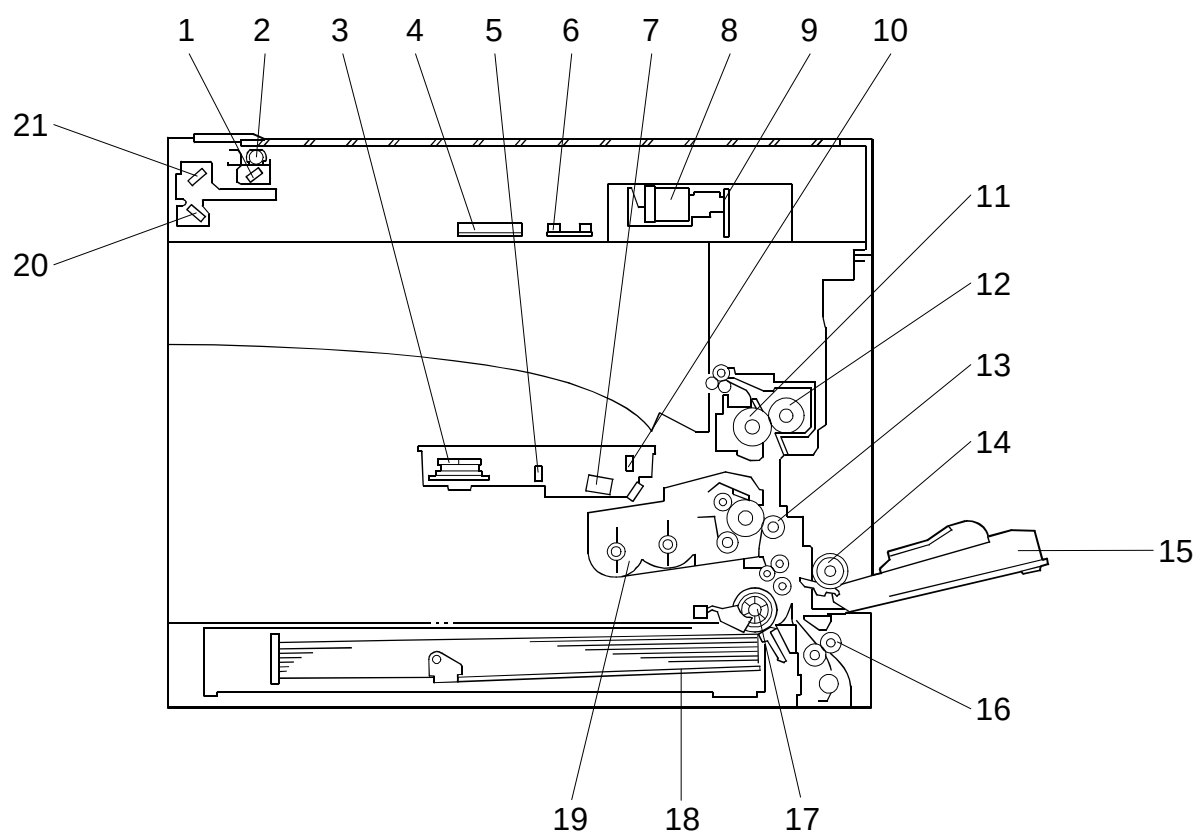
Version	Item	Machine Code	No.
Copier	Copier	A250	D
	ADF (Optional)	A859	C
	Platen Cover (Optional)	A893	
	Paper Tray Unit - 1 tray (Optional)	A861	
	Paper Tray Unit - 2 trays (Optional)	A860	E
	1-bin Sorter (Optional)	A869	B
	Memory 48 MB (Optional)	A887	
	Key Counter	A674-03	
Fax	Fax Controller (Optional)	A891	
	Telephone (Optional)	H160	A
	ISDN (Optional)	A890	
	PC Fax Expander (Optional)	A894	
	Fax Function Expander (Optional)	A892	
Printer	Printer Controller (Optional)	B305	
	PS Option (Optional)	B308	
	HDD (Optional)	G690	
	NIB (Optional)	B307	
	Memory 32 or 64 MB (Optional)	G688	

1.3 PAPER PATH



1. Optional ADF
2. By-pass feed tray
3. Optional paper tray (1 tray)
4. Paper tray
5. Optional 1-bin sorter

1.4 MECHANICAL COMPONENT LAYOUT



1. 1st mirror (scanner)	12. Pressure roller
2. Exposure lamp	13. Transfer roller
3. Polygonal mirror motor	14. By-pass feed roller
4. Original width sensor	15. By-pass table
5. 1st mirror (laser unit)	16. Vertical transport roller
6. Original length sensor	17. Paper feed roller
7. Barrel toroidal lens (BTL)	18. Bottom plate
8. Lens	19. All-in-one cartridge (AIO cartridge)
9. SBU board	20. 3rd mirror
10. F-theta mirror	21. 2nd mirror
11. Hot roller	

1.5 ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the reverse side of the point-to-point diagram for the location of the components, using the symbols and index numbers.

1.5.1 COPIER ENGINE

Symbol	Name	Function	Index No.
Motors			
M1	Scanner	Drives the 1st and 2nd scanners.	4
M2	Polygonal Mirror	Turns the polygonal mirror.	28
M3	Main	Drives the main unit components.	12
M4	Exhaust Fan	Removes heat from around the fusing unit.	46
Magnetic Clutches			
MC1	Paper Feed	Starts paper feed from the tray.	14
MC2	By-pass Feed	Starts paper feed from the by-pass table.	15
MC3	Vertical Transport	Drives the vertical transport rollers.	18
MC4	Registration	Drives the registration rollers.	13
Switches			
SW1	Main	Provides power to the machine. If this is off, there is no power supplied to the machine.	40
SW2	Right Door Switch 1	Cuts the +5 V LD dc power line.	30
SW3	Right Door Switch 2	Detects if the front door is open or not, and cuts the +24 V dc power line for the main motor and power pack.	31
SW4	Vertical Transport Cover Switch	Detects if the front door is open or not, and cuts the +24 V dc power line for the vertical transport clutch.	25
SW5	Paper Size	Detects paper size.	24
Sensors			
S1	Scanner HP	Informs the CPU when the 1st and 2nd scanners are at home position.	3
S2	Original Width	Detects original width. This is one of the APS (Auto Paper Select) sensors.	37
S3	Original Length 1	Detects original length. This is one of the APS (Auto Paper Select) sensors.	6
S4	Original Length 2	Detects original length. This is one of the APS (Auto Paper Select) sensors.	6
S5	Toner Near-End	Detects toner near-end.	21
S6	Paper End	Informs the CPU when the tray runs out of paper.	23
S7	Paper Near-End	Informs the CPU when the paper in the tray is almost finished. The printer controller uses this sensor.	19

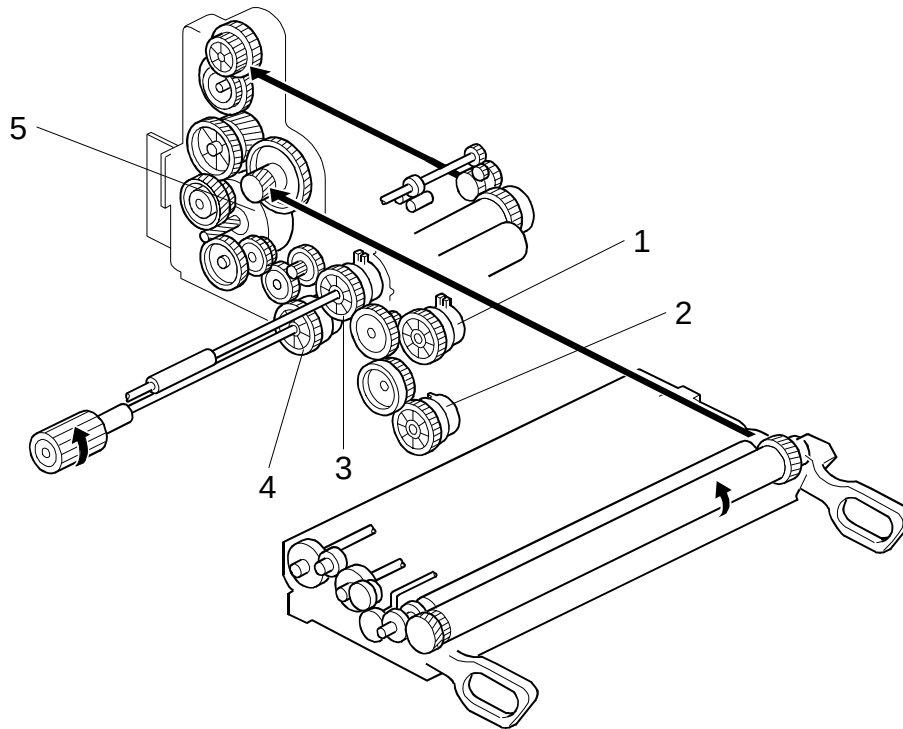
ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function	Index No.
S8	By-pass Tray Paper	Informs the CPU that there is paper in the by-pass feed table.	16
S9	By-pass Paper Size	Detects the paper size in the by-pass tray.	20
S10	Vertical Transport	Detects misfeeds.	22
S11	Registration	Detects misfeeds and controls registration clutch off-on timing.	17
S12	Fusing Exit	Detects misfeeds.	35
S13	Exit Tray Paper	Detects if there is paper on the exit tray or not.	27
S14	Platen Cover	Informs the CPU that the platen cover is in the up or down position (related to the APS/ARE functions).	5
S15	AIO Set	Informs the CPU that an AIO is installed.	33
PCBs			
PCB1	BICU	Controls all base engine functions both directly and through other control boards.	44
PCB2	PSU	Provides dc power to the system and ac power to the fusing lamp and heaters.	39
PCB3	IOB	Controls the fusing lamp and the mechanical parts of the machine.	45
PCB4	SBU	Contains the CCD, and outputs a video signal to the BICU board.	8
PCB5	Lamp Stabilizer	Stabilizes the power to the exposure lamp.	7
PCB6	LD Unit	Controls the laser diode.	26
PCB7	Operation Panel	Controls the operation panel.	36
PCB8	Memory (Option)	Expands memory capacity.	—
PCB9	Printer Controller (Option)	Receives print data from a PC.	42
PCB10	FCU (Option)	Controls all fax communications and fax features, in cooperation with the BICU.	43
PCB11	NCU (Option)	Switches the analog line between the fax unit and the external telephone.	47
Lamps			
L1	Exposure Lamp	Applies high intensity light to the original for exposure.	2
L2	Fusing Lamp	Heats the hot roller.	10
Heaters			
H1	Anti-condensation (Option)	Turns on when the main switch is off to prevent moisture from forming on the optics.	1
H2	Drum (Option)	Turns on when the main switch is off to prevent moisture from forming around the drum.	—

ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function	Index No.
Others			
TF1	Fusing Thermofuse	Opens the fusing lamp circuit if the fusing unit overheats.	9
TH1	Fusing Thermistor	Detects the temperature of the hot roller.	11
PP1	C/B/T Power Pack	Provides high voltage for the charge, development and transfer rollers.	38
LSD 1	Laser Synchronization Detector	Detects the laser beam at the start of the main scan.	29
CO1	Total Counter	Keeps track of the total number of prints made.	48
CO2	Key Counter (Option)	Used for control of authorized use. If this feature is enabled for coping, coping will be impossible until it is installed.	—
LED1	Exit Tray	Indicates if there is paper on the exit tray.	32
LED2	1-bin Sorter	Indicates if there is paper on the 1-bin sorter. 1-bin sorter is option.	34
SP1	Speaker	Turns on during fax communication.	41

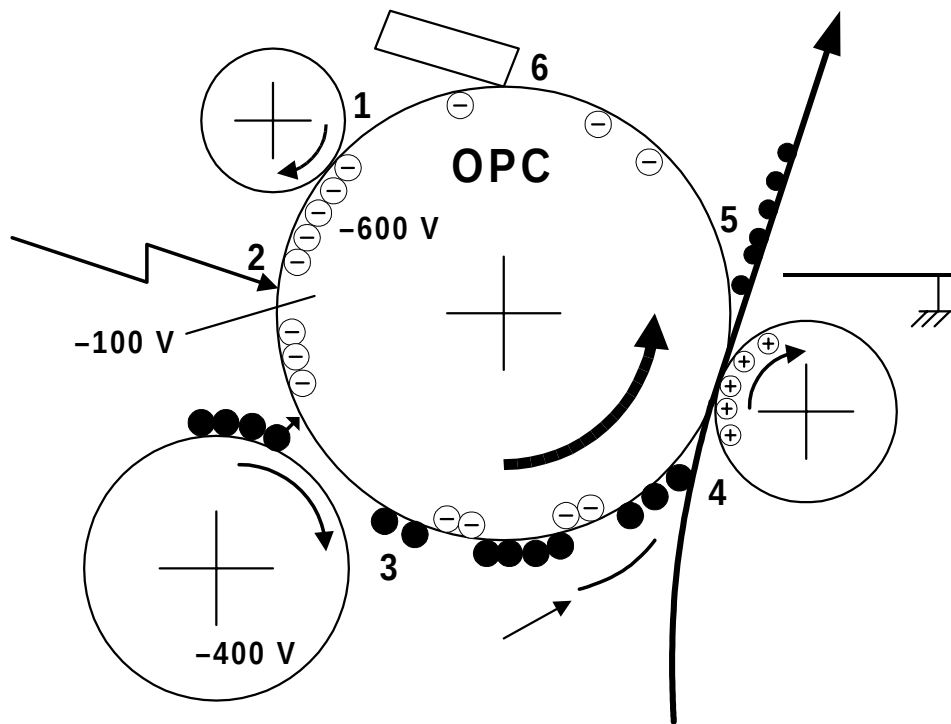
1.6 DRIVE LAYOUT



1. By-pass feed clutch
2. Vertical transport clutch
3. Registration clutch
4. Paper feed clutch
5. Main motor

1.7 COPY PROCESS

1.7.1 OVERVIEW



1. DRUM CHARGE

In the dark, the charge roller gives a negative charge of -600 volts to the organic photo-conductive (OPC) drum. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

2. LASER EXPOSURE

The processed data, scanned from the original, is retrieved from the memory and transferred to the drum by a laser beam which forms an electrical latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam intensity, about -100 volts, which is controlled by the BICU board.

3. DEVELOPMENT

The development roller charges the toner with a negative bias of -400 volts. Toner particles jump across to the drum and electrostatically attach to the areas of the drum surface where the laser reduced the negative charge on the drum.

4. IMAGE TRANSFER

Paper is fed to the area between the drum surface and the transfer roller at the proper time for aligning the copy paper and the developed image on the drum surface. Then, the transfer roller applies a high positive charge to the reverse side of the paper. This positive charge pulls the toner particles from the drum surface onto the paper. At the same time, the paper is electrostatically attracted to the transfer roller.

5. PAPER SEPARATION

Paper separates from the drum as a result of the electrostatic attraction between the paper and the transfer roller. The discharge plate helps separate the paper from the drum.

6. CLEANING

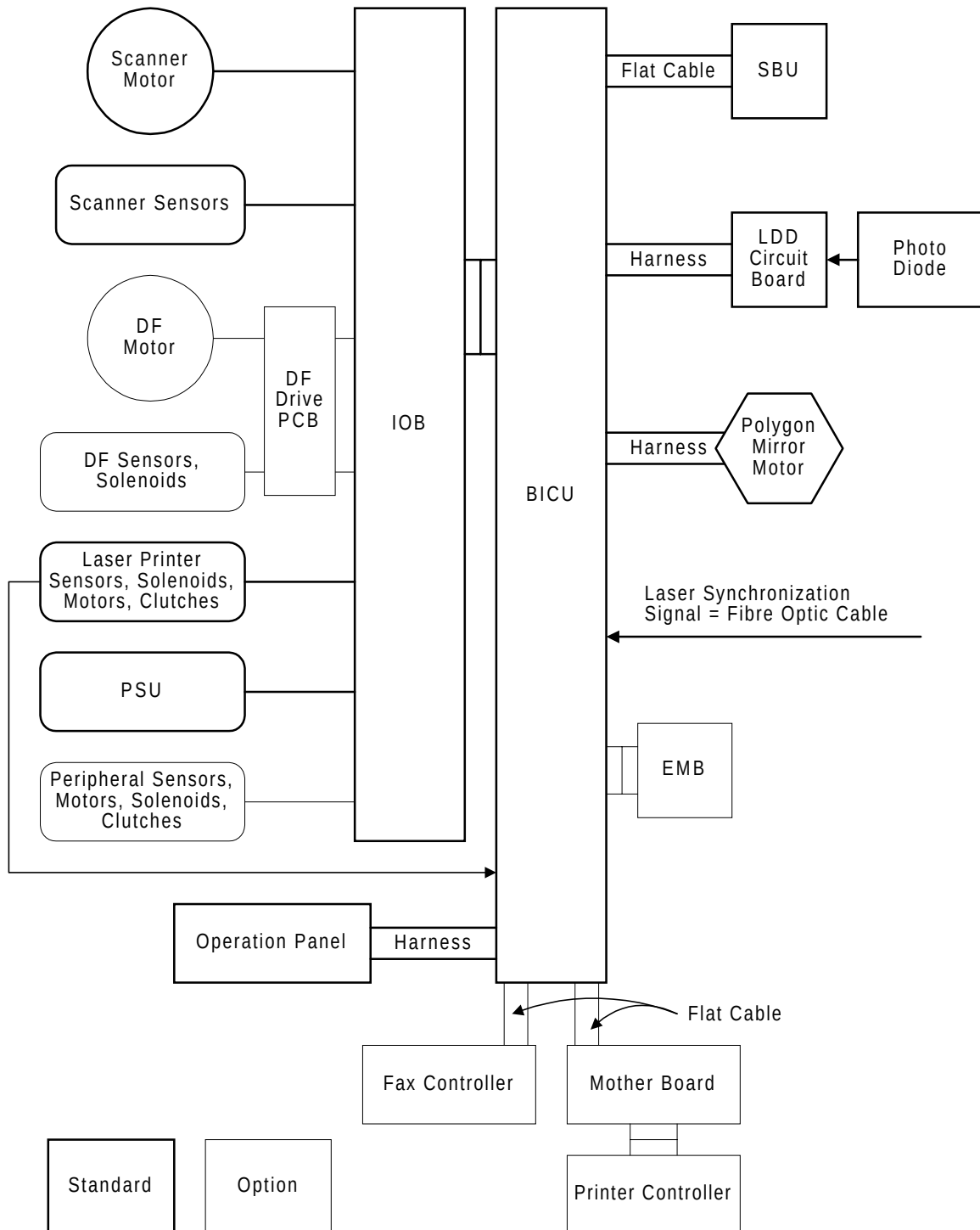
The cleaning blade removes any toner remaining on the drum surface after the image transfers to the paper.

7. QUENCHING

There is no quenching lamp. The power supply board applies 1.6 kVp-p (1.05 mA) 1 kHz AC to the charge roller. This current removes any remaining voltage on the drum surface.

1.8 BOARD STRUCTURE

1.8.1 OVERVIEW



1.8.2 DESCRIPTION

1. BICU (Base Engine and Image Control Unit)

The main board controls the following functions:

- Engine sequence
- Scanner, laser printer engine
- Timing control for peripherals
- Image processing, video control
- Operation control
- Various application boards (fax, printer)
- Machine control, system control

2. IOB (I/O Board)

The IOB handles the following functions:

- Drive control for the sensors, motors, and solenoids of the printer and scanner
- High voltage control board control
- Serial interfaces with peripherals
- Fusing control

3. SBU (Sensor Board Unit)

The SBU deals with the analog signals from the CCD and converts them into digital signals.

4. EMB (Extended Memory Board) (Option)

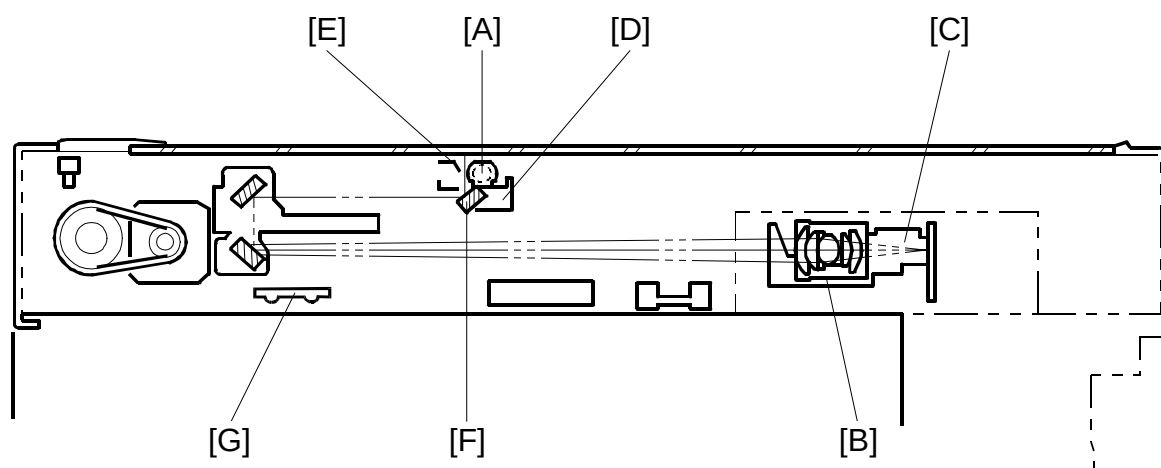
The EMB stores the image data. An extra 48 MB of memory can be added. This increases the number of pages that can be stored.

DETAILED SECTION DESCRIPTIONS

2. DETAILED SECTION DESCRIPTIONS

2.1 SCANNING

2.1.1 OVERVIEW



Detailed
Descriptions

An exposure lamp [A], a xenon lamp in this model, illuminates the original. The 1st, 2nd, 3rd mirrors, and lens [B] reflect the image onto the CCD (charge coupled device) [C]. The SBU (Sensor Board Unit) consists of the CCD and the lens.

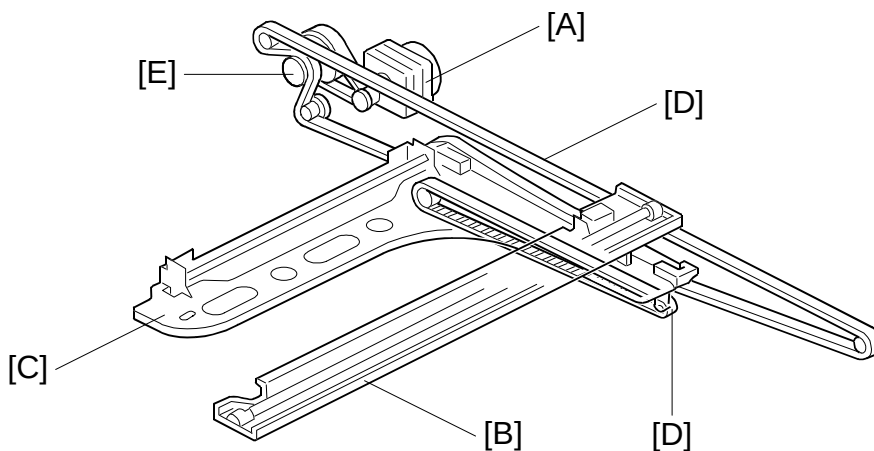
The 1st scanner [D] consists of the exposure lamp, a reflector [E], and the 1st mirror [F].

The exposure lamp is energized by a DC supply to avoid uneven light intensity as the 1st scanner moves in the sub-scan direction. The entire exposure lamp surface is frosted to ensure even exposure in the main scan direction.

The light reflected by the reflector is of almost equal intensity to the light from the exposure lamp, to reduce shadows on pasted originals.

An optics anti-condensation heater [G] is available as an option. It can be installed on the left side of the scanner unit. It turns on whenever the power cord is plugged in and the machine is in off condition.

2.1.2 SCANNER DRIVE



The scanner drive motor [A] (a stepper motor) drives the 1st and 2nd scanners [B, C] through the timing belts [D], scanner drive pulley [E], and the Accuride rail at the rear.

Book Mode

The main CPU controls and operates the scanner drive motor. In full size mode, the 1st scanner speed is 92 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 (M: 0.5 to 2.00). The returning speed is always the same, whether in full size or magnification mode.

Changing the scanner drive motor speed changes the magnification in the sub-scan direction. Use SP mode (SP4-101) to adjust this.

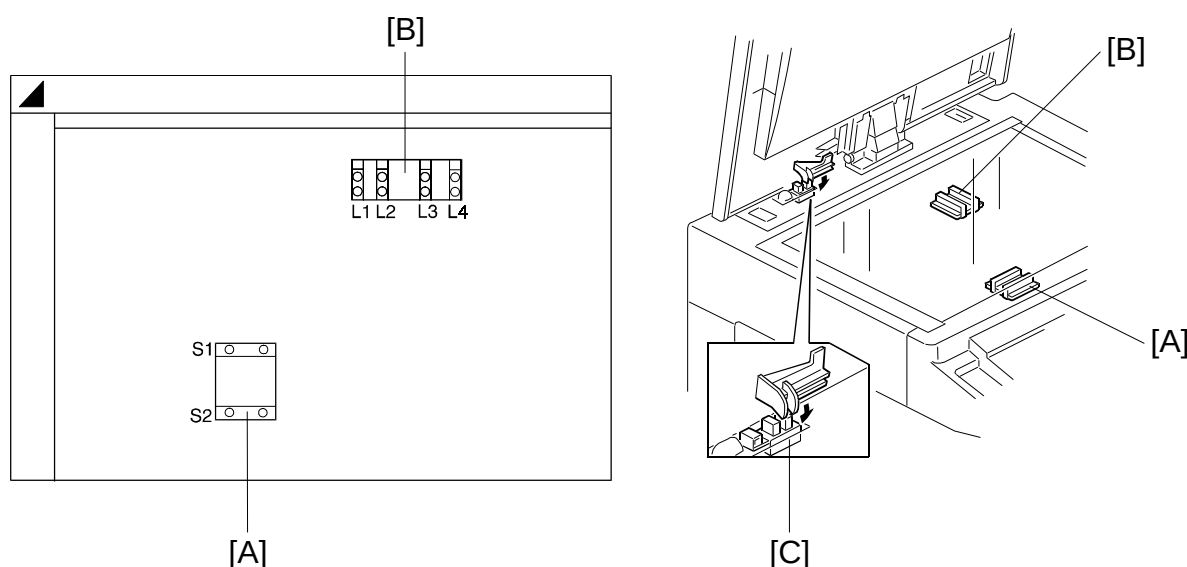
In the main scan direction, magnification is done by image processing on the BICU (Base Engine Image Control Unit) board. Adjust magnification in the main scan direction with SP4-008.

ADF Mode

The scanners remain in their home position (the scanner H.P sensor detects the 1st scanner) to scan the original. The ADF motor feeds the original through the ADF.

In reduction/enlargement mode, changing the ADF motor speed adjusts the image length in the sub-scan direction (adjust with SP6-007). The BICU board adjusts the magnification in the main scan direction, in the same way as in book mode (adjust with SP4-008).

2.1.3 ORIGINAL SIZE DETECTION IN PLATEN MODE



Detailed
Descriptions

In the optics cavity, there are four reflective sensors in the 115 V machines, and six reflective sensors in the 230 V machines. These are the original width sensors [A] and the original length sensors [B], and they detect the length and width of the original. They are also known as the APS (Auto Paper Selection) sensors.

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

The main CPU takes the original size data when the platen cover sensor [C] activates. This is when the platen is about 15 cm above the exposure glass. At this time, only the sensor(s) located underneath the original receive the reflected light and switch on. The other sensor(s) remain off. The main CPU can recognize the original size from the on/off signals from the APS sensors.

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

SCANNING

Original Size		Length Sensors				Width Sensors	
A4/A3 version	LT/DLT version	L1	L2	L3	L4	S1	S2
A3	11" x 17"	○	○	○	○	○	○
B4	10" x 14"	○	○	○	○	○	✗
F4	8 1/2" x 14" (8" x 13")	○	○	○	✗	✗	✗
A4-L	8 1/2" x 11"	○	○	✗	✗	✗	✗
B5-L	—	○	✗	✗	✗	✗	✗
A4-S	11" x 8 1/2"	✗	✗	✗	✗	○	○
B5-S	—	✗	✗	✗	✗	○	✗

○: ON ✗: OFF

NOTE: The length sensors L1 and L2 are used only for 230 V machines.

For other combinations, the operation panel will display "CANNOT DETECT ORIG. SIZE".

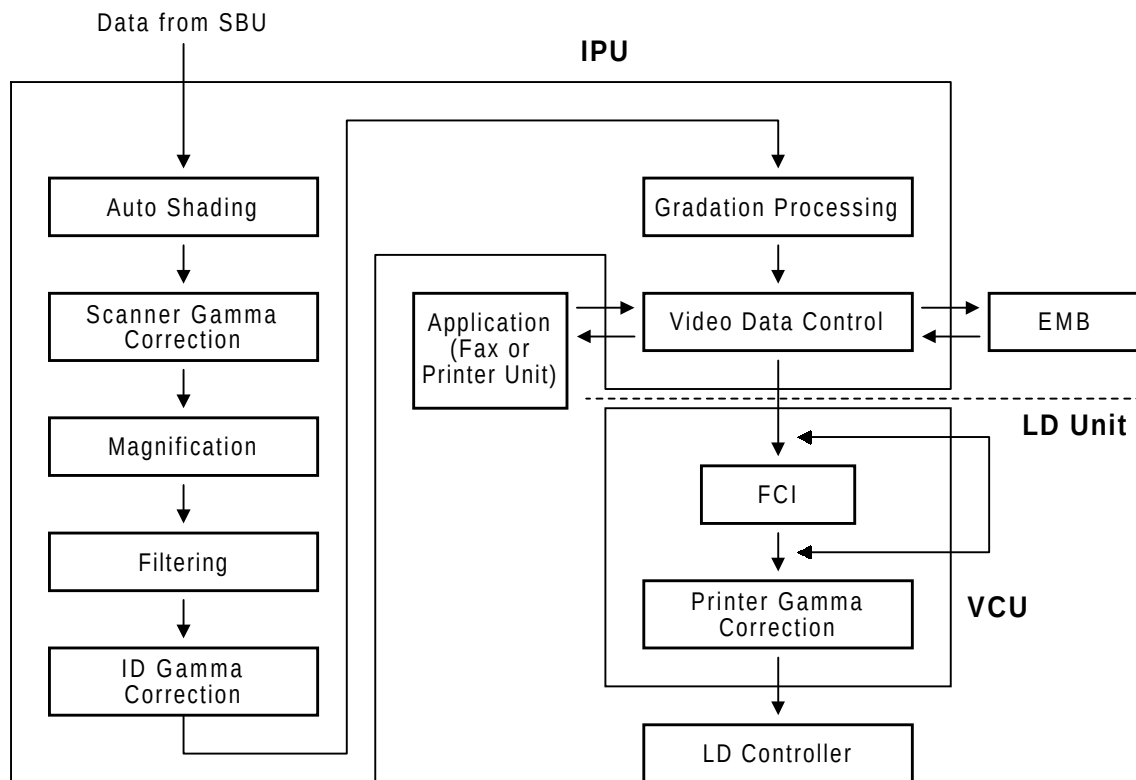
The above table shows the sensor output for each original size. This original size detection method eliminates the necessity for pre-scanning and increases the machine's productivity.

However, if the by-pass feed table is used, note that the machine assumes that the copy paper is lengthwise. For example, if A4 sideways paper is placed on the by-pass tray, the machine assumes it is A3 paper and scans a full A3 area, disregarding the original size sensors. However, for each page, the data signal to the laser diode is stopped to match the copy paper length detected by the registration sensor. This means that copy time for the first page may be slower (because of the longer time required for scanning), but it will be normal for the rest of the job.

2.2 IMAGE PROCESSING

2.2.1 OVERVIEW

Circuit



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 BICU (Base-engine and Image Control Unit) board.

The BICU board is divided into two image processing blocks; the IPU (Image Processing Unit), and memory.

- IPU: Auto shading, filtering, magnification, gamma (γ) correction, and gradation processing

Finally, the BICU board sends the video data to the LD unit at the correct time.

LD unit is divided into two blocks, VCU (Video Control Unit) and LD controller.

- VCU: FCI (Fine Character Image) – Smoothing, Printer gamma (γ) correction
- LD controller: LD print timing control

Image Quality Adjustments

The user can select text, text/photo, and photo mode, as usual. However, each of these original modes have a range of different types, as follows.

Image adjustment (08) in the user tools

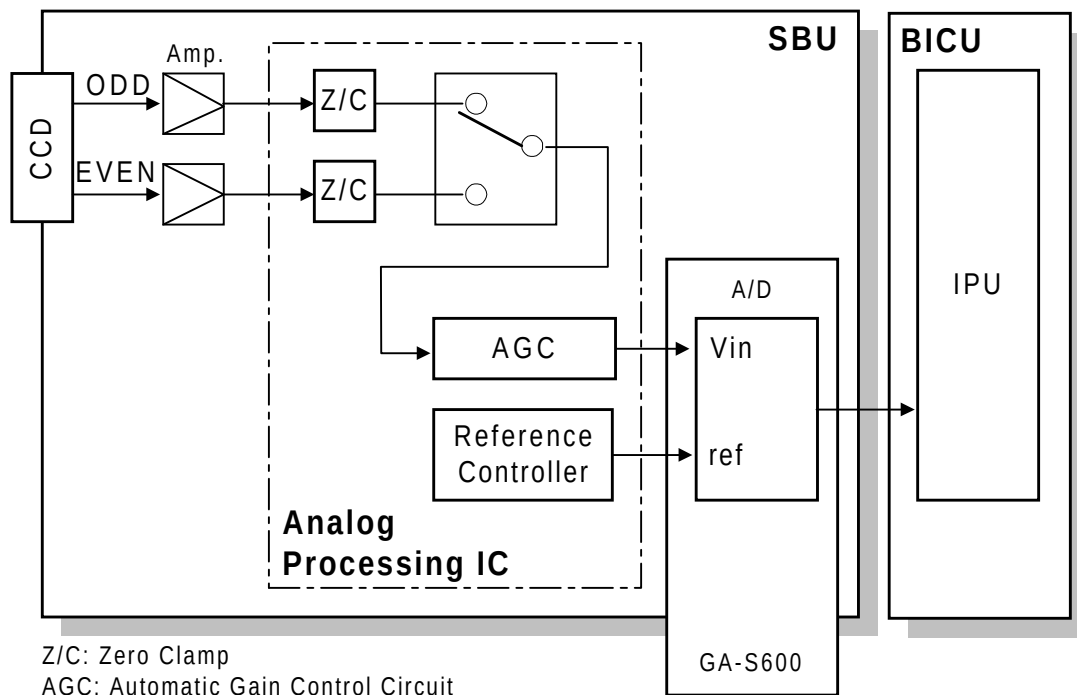
Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

The user can select the mode that best suits their original with the following user tool: User Tools - General Features - 08. Image Adjustment.

Notice that there is a “Service Mode” for each of the text, text/photo, and photo original modes. This is a customizable mode, with a range of SP modes that can be adjusted to meet user requirements that are not covered by the other original modes.

For details of the SP modes that can be used to adjust the image quality for all the original modes, see the Image Processing Summary section.

2.2.2 SBU (SENSOR BOARD UNIT)



Detailed
Descriptions

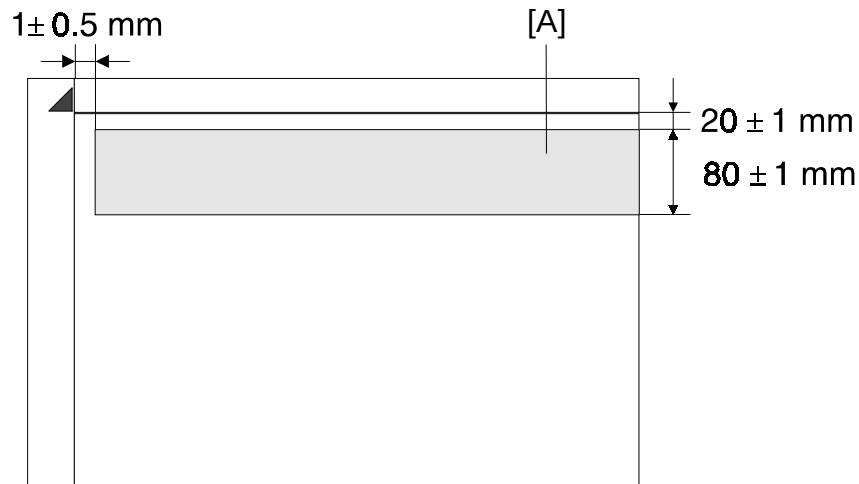
The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,450 pixels and the resolution is 600 dpi (23.6 dots/mm).

The CCD has two output lines, for odd and even pixels, to the analog processing IC. The analog processing IC does the following to the signals from the CCD:

1. **Z/C (Zero Clamp):**
Adjusts the black level reference for even pixels to match the odd pixels.
2. **Signal Composition:**
A switching device merges the analog signals for the odd and even pixels from the CCD.
3. **Signal Amplification:**
Operational amplifiers in the AGC circuit amplify the analog signal. The CPU on the BICU board controls the maximum gains of the operational amplifiers.

After the processing mentioned above, the A/D converter converts the analog signals to 8-bit signals. This gives a value to each pixel on a scale of 256 grades. Then, the digitized image data goes to the BICU board.

2.2.3 AUTO IMAGE DENSITY (ADS)



In the SBU

ADS prevents the background of an original from appearing on copies.

The copier scans the image density area [A] detected by the ADS sensor as shown in the diagram. This corresponds to a few mm at one end of the main scan line. As the scanner scans down the page, the IPU on the BICU detects the peak white level for each scan line. The IPU determines the reference value for the A/D conversion for a particular scan line using the peak white level for that scan line. Then, the IPU sends the reference value to the reference controller circuit on the SBU.

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

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.

In the IPU

After the SBU process, the IPU board removes more background by adjusting the white level.

If the user selects a "Service Mode" original type with the user tools, these two ADS processes can be either enabled or disabled (SP4-936, SP4-937), and the amount of white level change can be adjusted (SP4-938).

2.2.4 IMAGE PROCESSING UNIT (IPU)

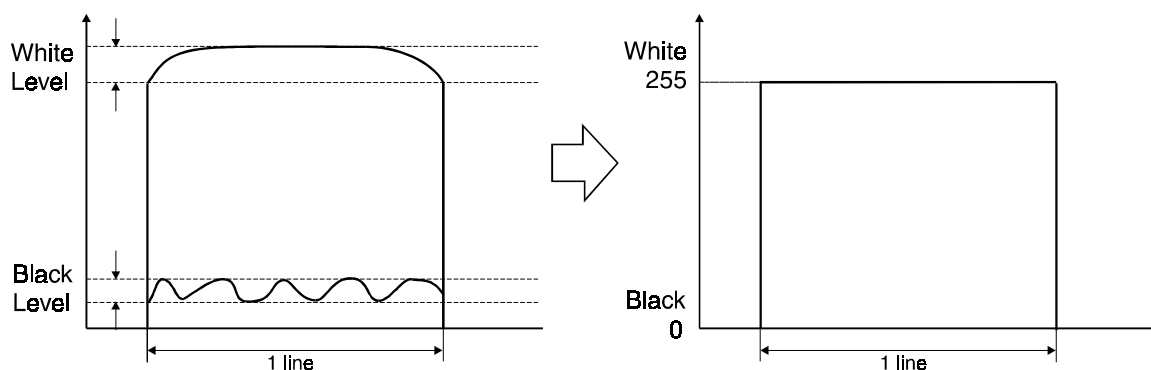
Overview

The image data from the SBU goes to the Image Processing Unit (IPU) IC on the BICU board, which carries out the following processes with the image data:

- Auto shading
- Scanner gamma (γ) correction
- Magnification
- Filtering (MTF and smoothing)
- ID gamma (γ) correction
- Binary picture processing
- Error diffusion
- Dithering
- Video path control
- Test pattern generation

The image data then goes to either the LD controller or the FCI depending on the selected copy modes.

Auto Shading



As with previous digital copiers, there are two auto shading methods. One is black level correction and the other is white level correction. Auto shading corrects errors in the signal level for each pixel.

Black Level Correction

The CPU reads the black dummy data from one end of the CCD signal (32 pixels at the end are blacked off) and takes the average of the black dummy data. Then, the CPU deletes the black level value from each image pixel.

White Level Correction

Before scanning the original, the machine reads a reference waveform from the white plate. The average of the white video level for each pixel is stored as the white shading data in the FIFO memory in the IPU chip.

The video signal information for each pixel obtained during image scanning is corrected by the IPU chip.

Auto shading for the first original is done before the scanning.

After scanning every page, auto shading is done to prepare for the next page.

If the copy image density or the original mode is changed during copy run, the auto shading for the next scan is done before the scanning to respond to the mode changed.

White Line Erase Compensation

During the white level correction, if extremely low CCD output is detected in some parts of the line, the machine assumes this is due to abnormal black lines on the white plate. This low output is corrected using neighboring pixels. To switch off this correction, use SP4-918 (for the original modes known as "Service Mode") and SP4-942 (other original modes).

Black Line Erase Compensation

In ADF mode, if extremely low CCD output is detected on the scanning line before the leading edge of original arrives there, this is attributed to abnormal black dots on the exposure glass. This low output is corrected using neighboring pixels. To adjust or switch off this correction, use SP4-919 (for the original modes known as "Service Mode") and SP4-943 (other original modes).

Scanner Gamma (γ) Correction

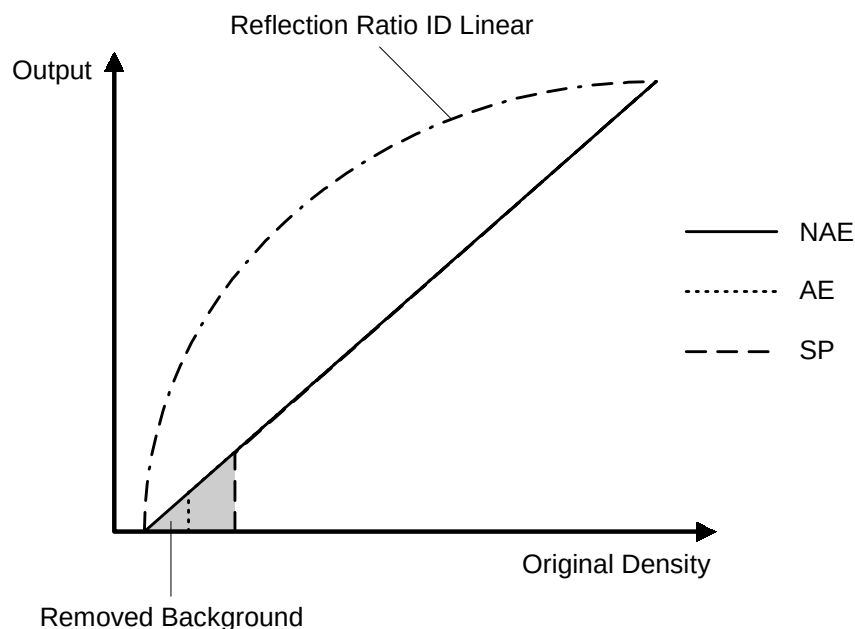
The CCD output is not proportional to the quantity of the light received. Scanner gamma (γ) correction corrects the CCD output so that grayscale data is proportion to the quantity of the light received.

The machine has four possible scanner gamma curves. The curve used by the machine depends on the original type selected by the user (at the operation panel and with 08. Image Adjustment in the user tools). If the user selects one of the original modes known as "Service Mode", the gamma curve can be selected with SP4-928.

If "0" is selected with SP 4-928, the scanner gamma curve is either AE or NAE, depending on the selected original mode (text, photo, etc.).

The four gamma (γ) correction curves and their characteristics are as follows:

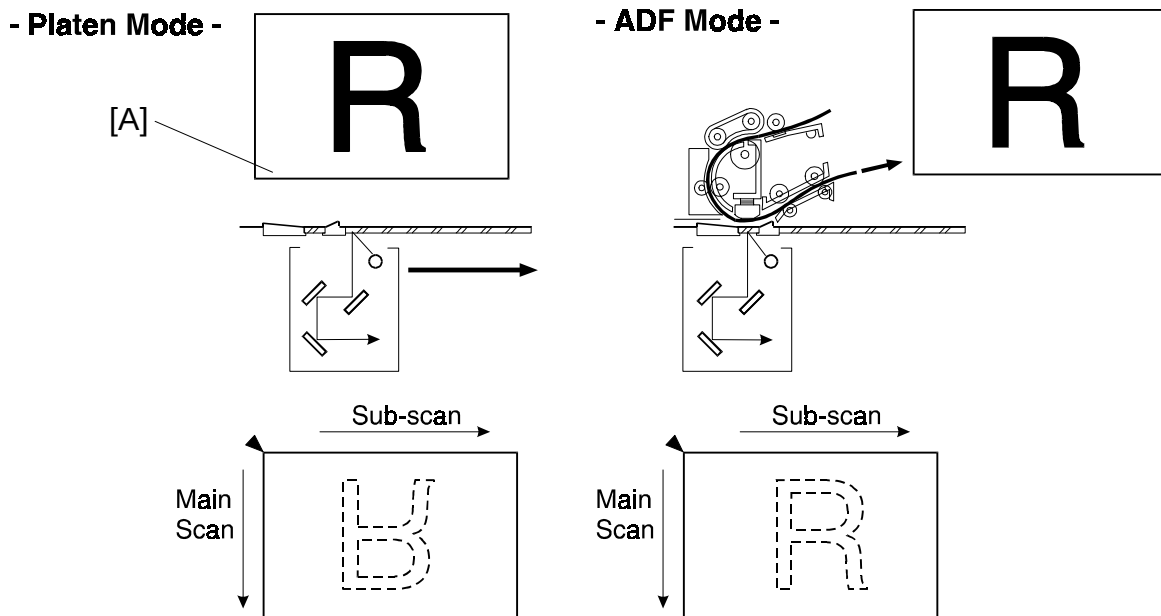
- Non Auto Exposure ID linear (NAE): Corrects the image data in proportion to the original density.
- Auto Exposure ID linear (AE): Removes the background from the image data to some extent and corrects the rest of the image data in proportion to the original density.
- Reflection Ratio ID Linear (Linear): Uses the image data without correction.
- Removed background (SP): Removes the background area completely and corrects the rest of the image data in proportion to the original density.



Main Scan Magnification/Reduction

Main Scan Magnification/Reduction

Changing the scanner speed enables reduction and enlargement in the sub-scan direction. However, the IPU chip handles reduction and enlargement in the main scan direction. The processing for main scan magnification/reduction is the same as in the previous digital machines.



When making a copy using the ADF, the magnification circuit creates a mirror image. This is because the scanning starting position in the main scan direction is at the other end of the scan line in ADF mode (compared with platen mode). In platen mode, the original is placed face down on the exposure glass, and the corner at [A] is at the start of the main scan. The scanner moves down the page. In ADF mode, the ADF feeds the leading edge of the original to the DF exposure glass, and the opposite top corner of the original is at the main scan start position. To create the mirror image, the CPU stores each line a LIFO (Last In First Out) memory.

Filtering

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

Overview

There are some software filters for enhancing the desired image qualities of the selected original mode. These filters are the MTF filter, the smoothing filter, and independent dot erase.

The MTF filter emphasizes sharpness and is used in Text and Text/Photo modes.

The smoothing filter is used in Photo mode, except for Glossy Photo mode (Glossy Photo mode is one of the photo modes that can be selected with User Tools - General Features - 08. Image Adjustment). In Glossy Photo mode, the MTF filter is used.

Independent dot erase removes unwanted dots from the image.

MTF Filter Adjustment - Text and Text/Photo Modes

When the user selects "Service Mode" for either Text or Text/Photo original type (User Tools - General Features - 08. Image Adjustment), the MTF filter and coefficient can be adjusted with SP4-915 and 4-916.

It is difficult to simply explain the relationships between the filter coefficient and filter strengths. Refer to the following charts to determine how to make the filters weaker or stronger. A large black dot indicates the default setting.

⇒ When the filter is stronger in the sub - scan direction, lines parallel to the feed direction are emphasized. When the filter is stronger in the main scan direction, lines at right angles to the feed direction are emphasized. A stronger MTF filter can make a low ID image visible but moiré may become more visible. Moiré is reduced using a smoothing filter specially designed for this purpose (see "Smoothing Filter Adjustment - Text/Photo").

1. Text in Service Mode

Level		Week <-----> Strong																							
SP		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Main Scan: Filter Coefficient		0	1	3	1	3	1	3	3	4	1	3	15	3	1	1	15	4	15	3	3	3	15	3	3
Sub-scan: Filter Coefficient		0	2	3	2	3	2	2	3	4	2	2	11	3	1	2	11	4	13	2	8	3	13	2	3
Main Scan: Filter Strength		0	2	2	3	3	4	4	4	4	5	5	2	5	0	0	3	5	3	0	0	0	3	0	0
Sub-scan: Filter Strength		0	2	2	3	3	4	4	4	4	5	5	3	5	6	0	3	5	3	0	5	0	4	6	6
Text in Service Mode																									
(50% ~ 95%)							●																		
Main • Coefficient: 4-915-001							1																		
Sub • Coefficient: 4-915-005							2																		
Main • Strength: 4-916-001							4																		
Sub • Strength: 4-916-005							4																		
(96% ~ 125%)										●															
Main • Coefficient: 4-915-002										1															
Sub • Coefficient: 4-915-006										2															
Main • Strength: 4-916-002										5															
Sub • Strength: 4-916-006										5															
(126% ~ 159%)														●											
Main • Coefficient: 4-915-003													3												
Sub • Coefficient: 4-915-007													3												
Main • Strength: 4-916-003													5												
Sub • Strength: 4-916-007													5												
(160% ~ 200%)																	●								
Main • Coefficient: 4-915-004																	4								
Sub • Coefficient: 4-915-008																	4								
Main • Strength: 4-916-004																	5								
Sub • Strength: 4-916-008																	5								

2. Text/Phot in Service Mode

Level		Week <-----> Strong																							
SP		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Main Scan: Filter Coefficient		0	1	3	1	3	1	3	3	4	1	3	15	3	1	1	15	4	15	3	3	3	15	3	3
Sub-scan: Filter Coefficient		0	2	3	2	3	2	2	3	4	2	2	11	3	1	2	11	4	13	2	8	3	13	2	3
Main Scan: Filter Strength		0	2	2	3	3	4	4	4	4	5	5	2	5	0	0	3	5	3	0	0	0	3	0	0
Sub-scan: Filter Strength		0	2	2	3	3	4	4	4	4	5	5	3	5	6	0	3	5	3	0	5	0	4	6	6
Text in Service Mode																									
(50% ~ 89%)						●																			
Main • Coefficient: 4-915-009						3																			
Sub • Coefficient: 4-915-014						3																			
Main • Strength: 4-916-009						3																			
Sub • Strength: 4-916-014						3																			
(90% ~ 95%)						●																			
Main • Coefficient: 4-915-010						3																			
Sub • Coefficient: 4-915-015						3																			
Main • Strength: 4-916-010						3																			
Sub • Strength: 4-916-015						3																			
(96% ~ 125%)										●															
Main • Coefficient: 4-915-011										1															
Sub • Coefficient: 4-915-016										2															
Main • Strength: 4-916-011										5															
Sub • Strength: 4-916-016										5															
(126% ~ 159%)										●															
Main • Coefficient: 4-915-012										1															
Sub • Coefficient: 4-915-017										2															
Main • Strength: 4-916-012										5															
Sub • Strength: 4-916-017										5															
(160% ~ 200%)										●															
Main • Coefficient: 4-915-013										1															
Sub • Coefficient: 4-915-018										2															
Main • Strength: 4-916-013										5															
Sub • Strength: 4-916-018										5															

Detailed Descriptions

Smoothing Filter Adjustment - Photo Mode

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

When the user selects “Service Mode” for Photo original type (User Tools - General Features - 08. Image Adjustment), the smoothing filter can be changed with SP4-927. A stronger smoothing filter makes the image more blurred (1: Weak ~ 8: Strong).

Smoothing Filter Adjustment - Text and Text/Photo Modes

To reduce the possibility of moiré, a small-matrix smoothing filter is used after scanner gamma (γ) correction in the Text and Text/Photo mode. The level of smoothing can be adjusted with SP4-921 (0: Weak, 1: Normal, 2: Strong, 3: Disabled).

This is only used when the user selects “Service Mode” for either Text or Text/Photo original type (User Tools - General Features - 08. Image Adjustment).

Independent Dot Erase

In Text mode and in Text/Photo mode, independent dots are detected using a 7 x 9 matrix and erased from the image.

The independent dot detection level can be adjusted with SP4-917 (for the original modes known as “Service Mode”) and SP4-944 (other original modes – on/off only; no adjustment). With a larger SP setting, more dots are detected as independent dots and erased, even if the dot's density is high. However, dots in mesh-like images may be detected as independent dots mistakenly.

Independent Dot Erase after Binary Picture Processing

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

Normally, independent dot erase is done in the filtering stage. However, when the user selects “Service Mode” for Text original type (User Tools - General Features - 08. Image Adjustment), independent dots may reappear in the image after the binary picture processing. These independent dots are erased after gradation processing.

SP4-939 changes the filter that is used for this process, and it can be also used to disable this feature. A smaller matrix is more likely to remove dots.

ID Gamma (γ) Correction

ID Gamma (γ) Correction

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

The machine automatically selects the most appropriate ID gamma correction based on the selected original type (and the user tool Image Adjustment setting) and ID setting made at the operation panel.

When the user selects “Service Mode” for any original type (User Tools - General Features - 08. Image Adjustment), you can use SP4-940 to change ID correction in service mode. The types that can be selected with SP4-940 are different for each original mode (Text, Text/Photo, or Photo).

Gradation Processing

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

Overview

The 8-bit image data is converted into 1-bit data (there is no 8-bit greyscale processing, only the 1-bit process known as binary picture processing).

However, different techniques are used, depending on the selected original type (text, text/photo, photo) and user tool Image Adjustment setting.

These techniques are simple binary picture processing, error diffusion, and dithering. To see which process is used, see the flow charts in the Image Processing Summary section.

- Simple binary picture processing: Each video signal pixel is converted from 8-bit to 1-bit (black and white image data) in accordance with a threshold value.
- Error diffusion: Error diffusion is a more complex process using a threshold value and the values of nearby pixels in an 8 x 8 matrix. In text/photo mode, error diffusion reduces the difference in contrast between light and dark areas of a halftone image. In text mode, it prevents parts of low contrast text from disappearing from the copy.
- Dithering: Each pixel is compared with a pixel in a dither matrix.

In error diffusion or simple binary picture processing, there are two possible types of threshold: constant threshold, and dynamic threshold.

- The type that is used depends on the selected original type (text, text/photo, photo) and user tool Image Adjustment setting.
- However, if the user selects “Service Mode” for either Text or Text/Photo original type (User Tools - General Features - 08. Image Adjustment), the thresholding type can be changed with SP4-922.

Dithering is only used in Photo mode (except for Glossy Photo, in which error diffusion is used).

Constant Threshold Value

If the constant threshold method is used, the threshold remains the same all the time.

The threshold can be adjusted with SP 4-923 when the user selects “Service Mode” for the Text original type (User Tools - General Features - 08. Image Adjustment).

Decreasing the threshold value creates a darker image.

Dynamic Threshold Value

Overview

Dynamic thresholding is designed to clearly separate text/vector graphic objects from the background.

When used with simple binary picture processing (Sharp Text mode)

The software compares each pixel with the pixels immediately surrounding it. It is tested in four directions: horizontal, vertical, and in the two diagonal directions. If the image density difference between the object pixel and the surrounding pixels is more than a certain value in any one of these directions, the pixel is determined to be on an edge.

Pixels on the edge are treated with dynamic thresholding. The threshold is calculated by averaging the densities of pixels in the surrounding 7 x 7 area. However, the calculated threshold cannot exceed maximum and minimum limits; if it does, the upper or lower limit is used.

Pixels that are not on an edge are treated with a constant threshold value.

As a side-effect of the dynamic threshold process, copies of originals where the rear side is visible through the paper or the background is dark, may tend to have dirty background. In this case it is necessary to adjust the image density level with the image density key on the operation panel.

Instead of sharp text mode, if the user selects “Service Mode” for Text original type (User Tools - General Features - 08. Image Adjustment), some adjustments can be made.

- Edge detection: SP4-931 (vertical direction), 4-932 (horizontal direction), 4-933 (diagonal from top right to bottom left), 4-934 (diagonal from top left to bottom right). Decreasing the SP mode value causes a lighter line to be detected as an edge.
- Threshold limits for edges, and the threshold for non-edge pixels: SP4-924 (Max), 4-925 (Min), and 4-926 (Center, used for non-edge pixels). The closer that the upper or lower limit is adjusted to the center threshold, the fewer stains appear. However, a low ID contrast image cannot be copied.

When used with error diffusion (Normal Text)

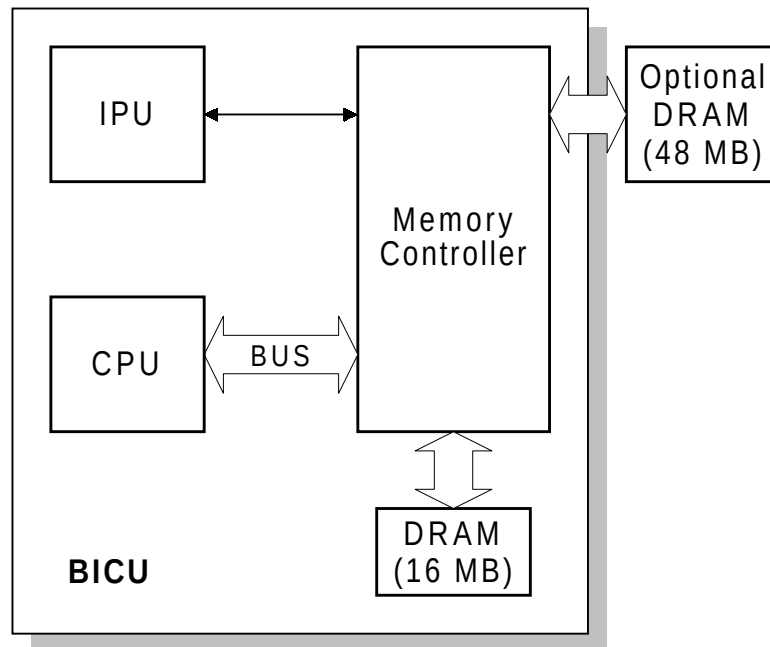
After error diffusion processing, dynamic thresholding uses 64 threshold values in an 8 x 8 matrix. This process prevents low contrast text from disappearing.

If the user selects "Service Mode" for Text/Photo original type and the thresholding type is changed from constant to dynamic, an error diffusion filter can be selected with SP4-929-1 (No.1: 4 x 4 matrix and No.2: 8 x 8 matrix). The two selections are prepared for future use to match original types which are not supported currently. Therefore, at this moment SP4-929-1 should not be used.

Dithering

If the user selects "Service Mode" for Text/Photo original type, the dither matrix can be selected with SP4-929-2. A larger value for this SP mode increases the number of gradations. However, the image will not have much contrast.

2.2.5 MEMORY CONTROLLER AND EXTENDED MEMORY BOARD (EMB)



The BICU consists of the memory controller and the DRAM. The functions of each device are as follows.

Memory Controller: Compressing the 1-bit image data
 Image rotation
 Image data transfer to the DRAM

DRAM (standard 16MB): Stores the compressed data
 Working area

The data goes to the memory controller after binary picture processing. The data is first compressed and then stored in the DRAM. When printing, the data from the DRAM goes back to the memory controller, where it is decompressed and image editing is done (e.g., image rotation, repeat image).

The memory capacity changes after installing optional memory on the BICU board, as follows.

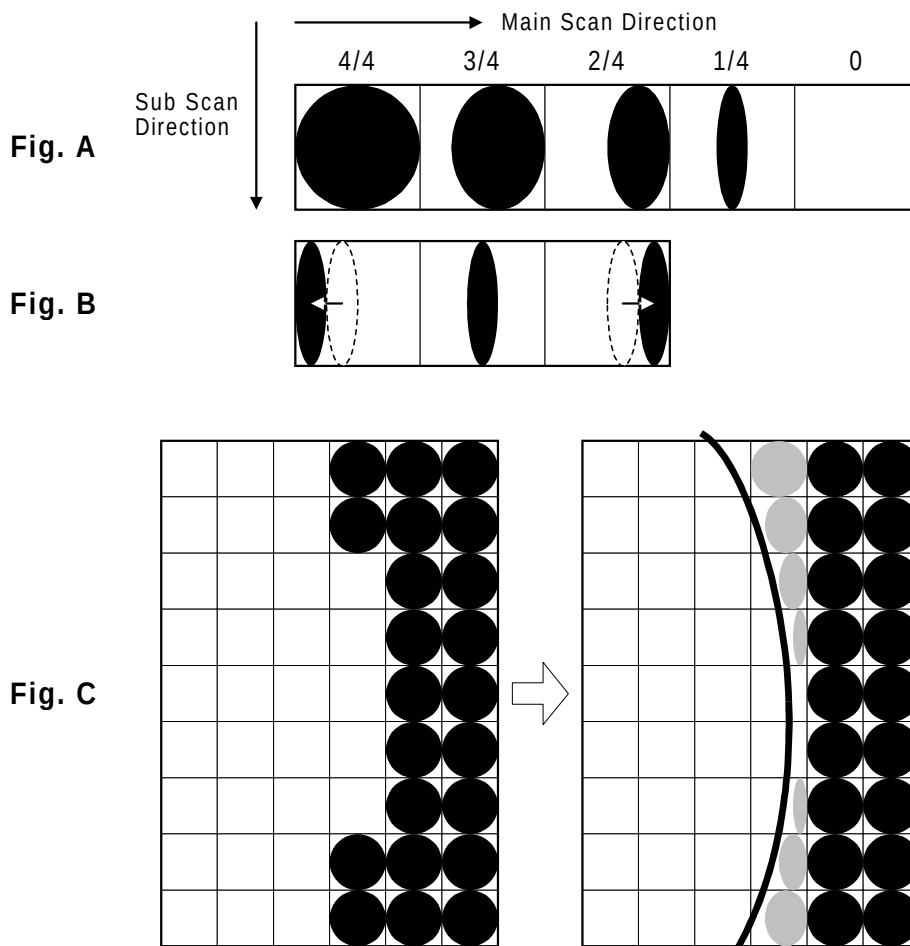
		Standard (16 MB)	16 MB + Optional (64 MB total)
Number of pages	A4 6%	80	99
	ITU-T#4 (12% black)	35	99

2.2.6 VIDEO CONTROL UNIT (VCU)

Fine Character and Image (FCI)

The FCI performs image smoothing and line width correction. These functions only affect binary picture processed images in sharp text mode.

Smoothing



Usually, binary picture processing generates jagged edges on characters, as shown in the above illustration. These are reduced using edge smoothing. The FCI changes the laser pulse duration and position for certain pixels.

Fig. A shows the four possible pulse durations, and Fig. B shows how the laser pulse can be in one of three positions within the pixel. Fig. C shows an example of how edge smoothing is used.

SP2-902 switches FCI smoothing on or off.

Toner Saving in Text Mode

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

When toner saving in text mode is selected in the image adjustment sub-menu (08) of the user tools menu, an 8 x 8 matrix filter reduces the number of black dots in the image. As a result, less toner is used to create the latent image on the drum.

Printer Gamma (γ) Correction

Printer 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 machine chooses the most suitable gamma curve for the original type selected by the user. There is no SP adjustment for this.

2.2.7 IMAGE PROCESSING SUMMARY

Text (Normal)

This mode decreases moiré and prevents parts of low contrast text from disappearing from the copy.

Recommended Originals: Normal text originals

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS) • Small Smoothing Filter	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	MTF (Medium) Independent Dot Erase	• SP4-944
ID Control	ID Gamma Correction (Normal Text)	
Gradation	Error Diffusion Process (Dynamic Threshold)	
Printer Gamma Correction	Printer Gamma Correction (Text)	

The “Toner Saving” setting uses the above processes, and also uses the toner saving matrix.

Text (Sharp)

This mode prevents the rear side of a thin original from being visible, and the copy will have a lot of contrast.

Recommended Originals: Newspaper, originals through which the rear side is visible.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS) • Small Smoothing Filter	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	MTF (Strong) Independent Dot Erase	• SP4-944
ID Control	ID Gamma Correction (Sharp Text)	
Gradation	Simple Binary Picture Processing (Dynamic Threshold)	
Printer Gamma Correction, and Others	FCI Smoothing Line Width Correction Printer Gamma Correction (Text)	• SP2-902

Text (Service Mode)

For special text originals that need custom settings to produce the required copy quality.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS ↓ - Auto Shading - White/Black Line Erase Correction - Scanner Gamma Correction (Linear) - Small Smoothing Filter	- SP4-936-1 - SP4-937-1 - SP4-938-1 - SP4-918-1, 4-919-1 - SP4-928-1 - SP4-921-1
Magnification	Main Scan Magnification ↓	SP4-008
Filtering	MTF (Strong) ↓ Independent Dot Erase ↓	- SP4-915-1 ~ 8 - SP4-916-1 ~ 8 - SP4-917-1
ID Control	ID Gamma Correction (Sharp Text) ↓	SP4-940-1
Gradation	Simple Binary Picture Processing (Dynamic Threshold) ↓	- SP4-922-1 - SP4-923 - SP4-924, 4-925, 4-926 - SP4-931 to 934
Printer Gamma Correction and Others	Independent Dot Erase Line Width Correction ↓ Printer Gamma Correction (Text)	- SP4-939 - SP4-935-1

Text/Photo (Photo Priority)

This mode emphasizes gradation and picture reproduction.

Recommended Originals: Text/photo originals which contain mainly photo areas.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS) • Small Smoothing Filter	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	MTF (Weak) Independent Dot Erase	• SP4-944
ID Control	ID Gamma Correction (Photo Priority)	
Gradation	Error Diffusion (Constant Threshold)	
Printer Gamma Correction	Printer Gamma Correction (Text/Photo)	

Text/Photo (Text Priority)

This mode maintains gradation and prevents characters in text from being deformed.

Recommended Originals: Text/photo originals which contain mainly text areas.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS) • Small Smoothing Filter	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	MTF (Medium) Independent Dot Erase	• SP4-944
ID Control	ID Gamma Correction (Text Priority)	
Gradation	Error Diffusion (Constant Threshold)	
Printer Gamma Correction	Printer Gamma Correction (Text)	

Text/Photo (Service Mode)

For special text/photo originals that need custom settings to produce the required copy quality.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS ↓ • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS or Non-ADS by key selection of the image density mode) • Small Smoothing Filter	• SP4-936-2 • SP4-937-2 • SP4-938-2 • SP4-918-2 • SP4-919-2 • SP4-928-2 • SP4-921-2
Magnification	Main Scan Magnification ↓	• SP4-008
Filtering	MTF (Medium) ↓ Independent Dot Erase ↓	• SP4-915-9 ~ 18 • SP4-916-9 ~ 18 • SP4-917-2
ID Control	ID Gamma Correction (Text Priority) ↓	• SP4-940-2
Gradation	Error Diffusion (Constant Threshold) ↓	• SP4-922-2 • SP4-929-1
Printer Gamma Correction and Others	Line Width Correction ↓ Printer Gamma Correction (Text)	• SP4-935-2

Photo (Coarse Print)

This mode emphasizes contrast of photo images, and results in coarse gradation.

Recommended Originals: Large-image printed originals, with no text.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	• Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (Non-ADS) • Small Smoothing Filter	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	Smoothing Filter	
ID Control	ID Gamma Correction (Coarse Print)	
Gradation	Dithering (Matrix 53 Lines)	
Printer Gamma Correction	Printer Gamma Correction (Photo)	

IMAGE PROCESSING

Photo (Press Print)

This mode emphasizes contrast of photo images, and results in medium gradation

Recommended Originals: Fine-image printed originals, with no text.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	• Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (Non-ADS)	• SP4-942, 4-943
Magnification	↓ Main Scan Magnification	• SP4-008
Filtering	↓ Smoothing Filter	
ID Control	↓ ID Gamma Correction (Press Print)	
Gradation	↓ Dithering (Matrix 105 Lines)	
Printer Gamma Correction	↓ Printer Gamma Correction (Photo)	

Photo (Glossy Photo)

This mode maintains the resolution of the original and reproduces the fine gradations.

Recommended Original: Glossy photos

	Image Processing Flow	Related SP Modes
Scanning Image Correction	• Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (Non-ADS)	• SP4-942, 4-943
Magnification	Main Scan Magnification	• SP4-008
Filtering	MTF (Weakest)	
ID Control	ID Gamma Correction (Glossy Photo)	
Gradation	Error Diffusion Process (Constant Threshold)	
Printer Gamma Correction	Printer Gamma Correction (Photo)	

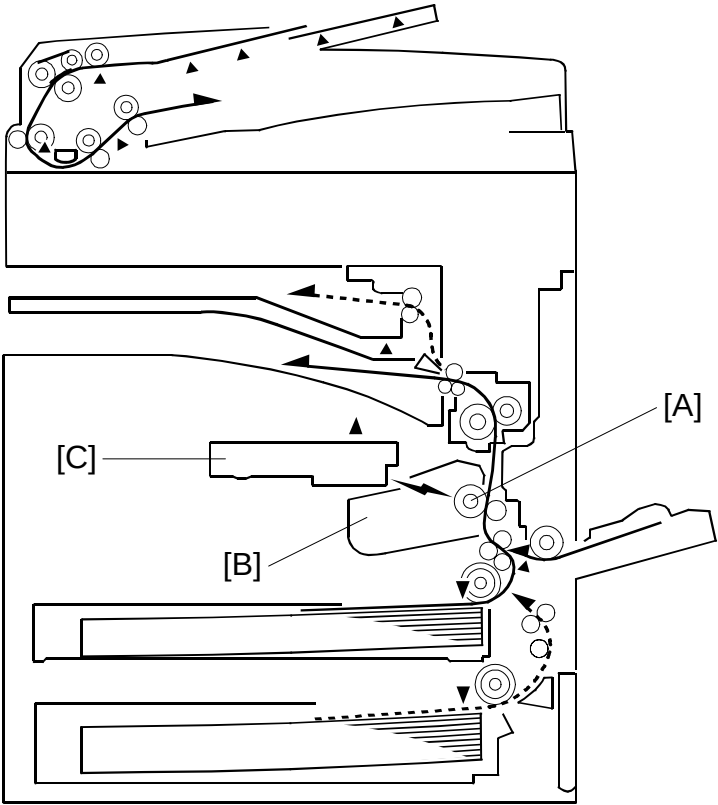
Photo (Service Mode)

For special photo originals that need custom settings to produce the required copy quality.

	Image Processing Flow	Related SP Modes
Scanning Image Correction	ADS ↓ • Auto Shading • White/Black Line Erase Correction • Scanner Gamma Correction (ADS or Non-ADS by key selection of the image density mode)	• SP4-936-3 • SP4-937-3 • SP4-938-3 • SP4-918-3, 4-919-3 • SP4-928-3
	↓	
Magnification	Main Scan Magnification ↓	• SP4-008
Filtering	Smoothing Filter ↓	• SP4-927-1 ~ 5
ID Control	ID Gamma Correction (Coarse Print) ↓	• SP4-940-3
Gradation	Dithering (Matrix 105 Lines) ↓	• SP4-929-2
Printer Gamma Correction, and Others	Line Width Correction ↓	• SP4-935-3
	Printer Gamma Correction (Photo)	

2.3 LASER EXPOSURE

2.3.1 OVERVIEW



Detailed
Descriptions

This machine uses a laser diode to produce electrostatic images on the OPC drum [A] in the all-in-one cartridge [B]. The laser diode unit [C] converts image data from the BICU board into laser pulses, and the optical components direct these pulses to the drum.

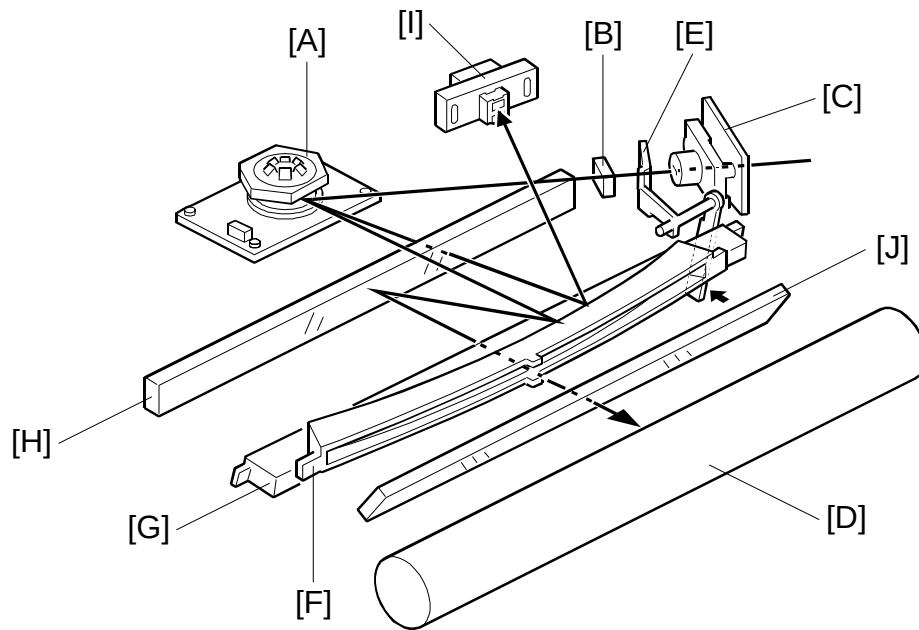
Laser beam exposure on the drum creates the latent image. The laser beam makes the main scan while drum rotation controls the sub-scan.

Strength of the beam output	5 mW
Strength of the beam on the drum	0.636 mW
Printing	Binary

Polygon mirror motor speed:

Resolution (dpi)	Motor Speed (rpm)	Data Frequency (MHz)
600	22478.22	22.0926

2.3.2 OPTICAL PATH



[A]: Polygonal mirror
 [B]: Cylindrical lens
 [C]: LD drive board
 [D]: Drum
 [E]: LD shutter
 [F]: F-theta mirror

[G]: BTL (Barrel Toroidal Lens)
 [H]: 1st mirror
 [I]: Laser synchronization detector
 [J]: Toner shield glass

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

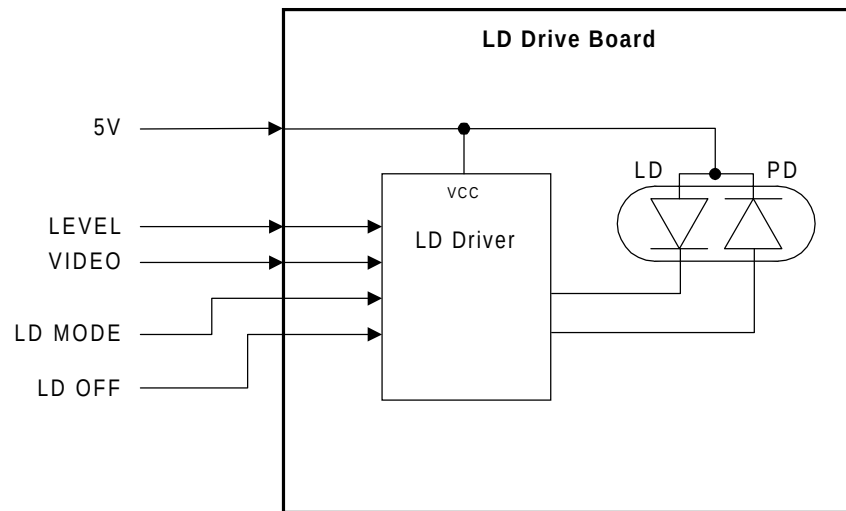
The LD drive board [C] outputs the laser beam to the polygonal mirror [A] through the cylindrical lens [B], which focus the laser beam.

The laser beam goes to the F-theta mirror [F], 1st mirror [H] and BTL [G]. Then, the beam reaches the drum [D] through the toner shield glass [J].

The beam reflected by the polygonal mirror writes the pixels of the latent image on the drum. The F-theta mirror [F] ensures constant intervals between the pixels. The BTL [G] corrects for irregularities in the polygonal mirror faces.

The laser synchronization detector [I] synchronizes the start of the main scan.

2.3.3 AUTO POWER CONTROL (APC)



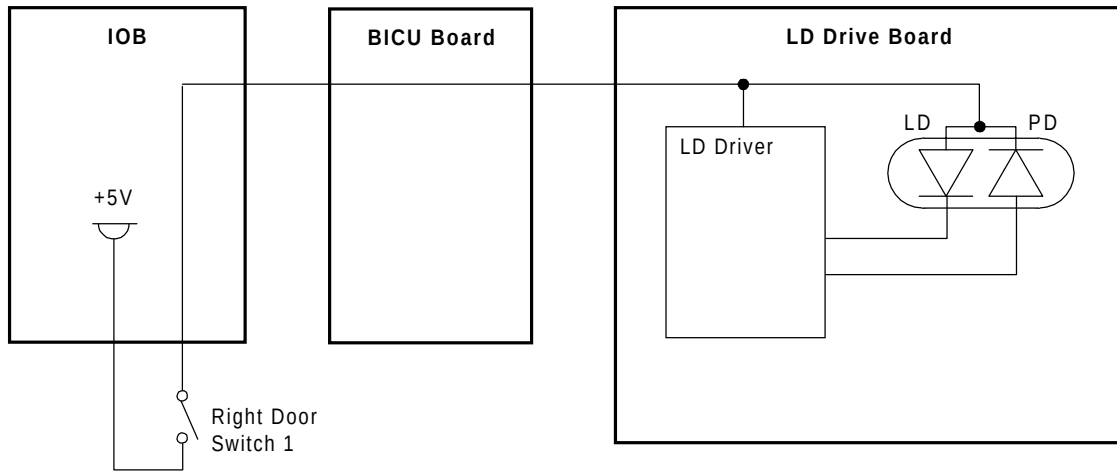
Detailed
Descriptions

To prevent the intensity of the laser beam from changing because of the temperature, the machine monitors the laser beam with a photodiode (PD). The PD is enclosed in the laser diode. The PD passes an electrical current to the LD driver IC and this IC adjusts its output level to keep the laser diode output constant.

The laser diode power level is adjusted on the production line.

CAUTION: Do not touch the variable resistors on the LD unit in the field.

2.3.4 LD SAFETY SWITCH



Right Door Switch 1

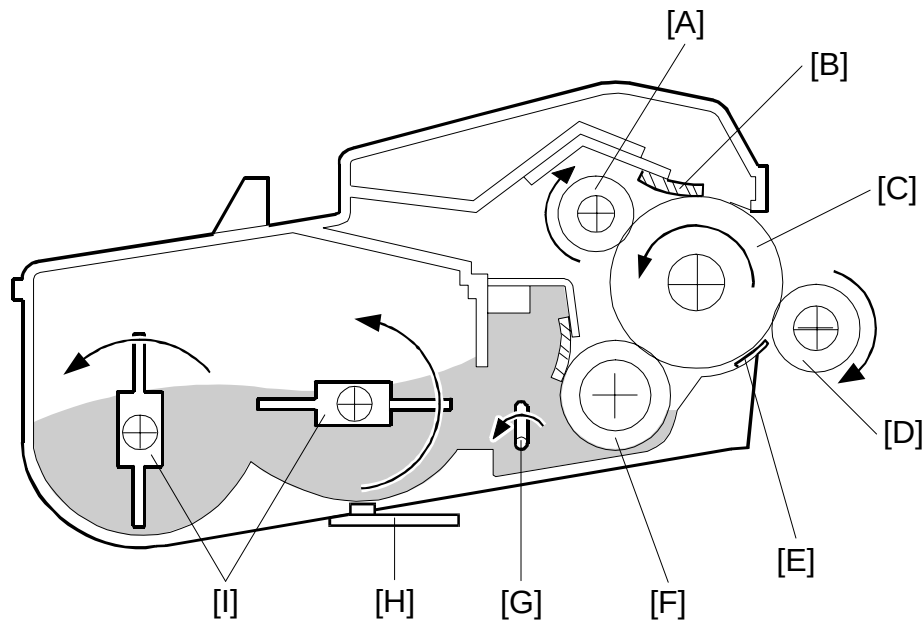
To ensure that the laser beam does not inadvertently switch on during servicing, there is a safety switch inside the right door. The switch is in series on the LD 5 V line coming from the IOB through the BICU board.

Mechanical Laser Shutter

When the all-in-one cartridge is removed, the laser shutter is released and this interrupts the laser beam.

2.4 ALL-IN-ONE CARTRIDGE (AIO CARTRIDGE)

2.4.1 OVERVIEW



Detailed
Descriptions

The AIO cartridge (all-in-one cartridge) consists of the components shown above. It contains the OPC drum and the toner cassette, and includes the mechanisms for drum charge, development, and cleaning. The drum is 30 mm in diameter.

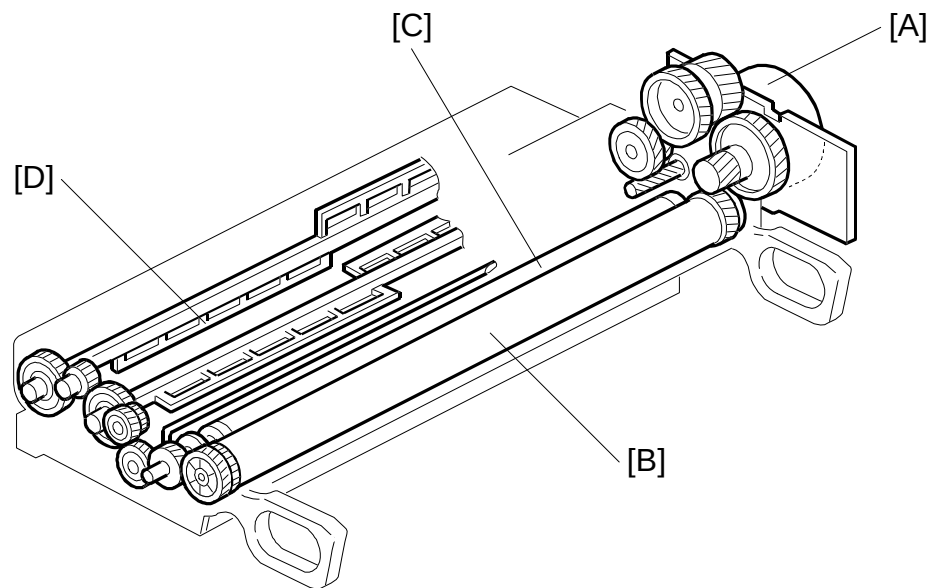
[A]: Charge roller
[B]: Cleaning blade
[C]: OPC drum
[D]: Transfer roller
[E]: Transfer blade

[F]: Development roller
[G]: Mixing blade
[H]: Toner near-end sensor
[I]: Agitator

The main motor drives the rollers in the AIO cartridge. The charge roller [A] charges the drum [C]. Monocomponent toner is used. The cleaning blade [B] cleans the drum surface.

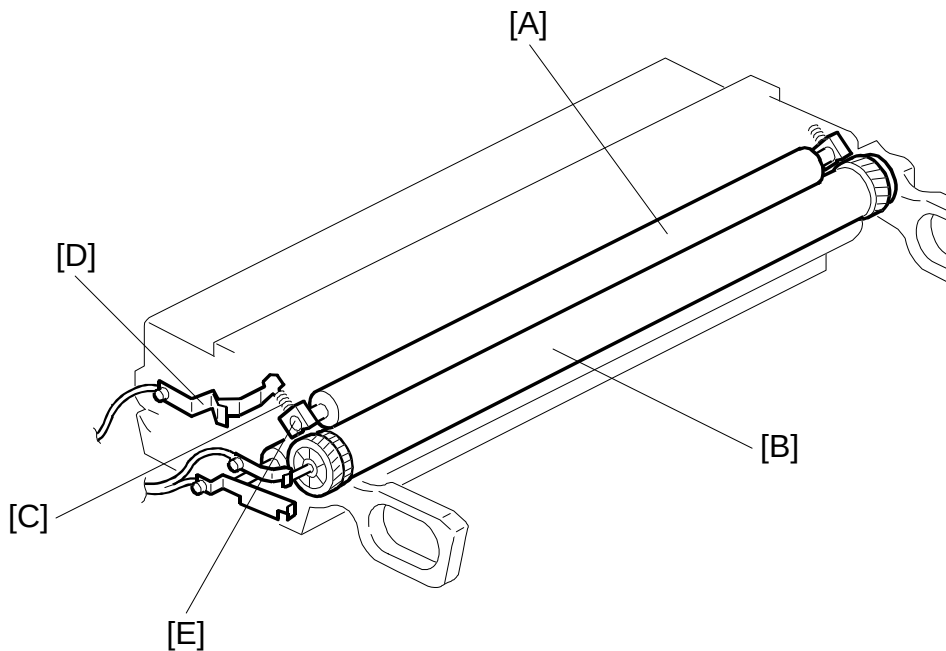
ALL-IN-ONE CARTRIDGE (AIO CARTRIDGE)

2.4.2 DRIVE



The main motor [A] drives the drum [B], the development roller [C], and agitators [D] through a series of gears. The BICU controls the main motor speed.

2.4.3 DRUM CHARGE



This machine uses a drum charge roller instead of a scorotron corona wire to charge the drum. The drum charge roller [A] is always in contact with the surface of the drum [B] because of the charge roller pressure springs [C], and it gives a negative charge to the drum surface. While the drum is rotating, the drum charge roller also turns because of friction between the roller and the drum.

The drum charge roller system generates less ozone than a scorotron corona wire charge. Consequently, this machine does not have an ozone filter.

The power supply board supplies a negative DC voltage to the drum charge roller through the charge roller terminal [D], pressure spring [C], and bushing [E]. This gives the drum surface a negative charge (−600 V).

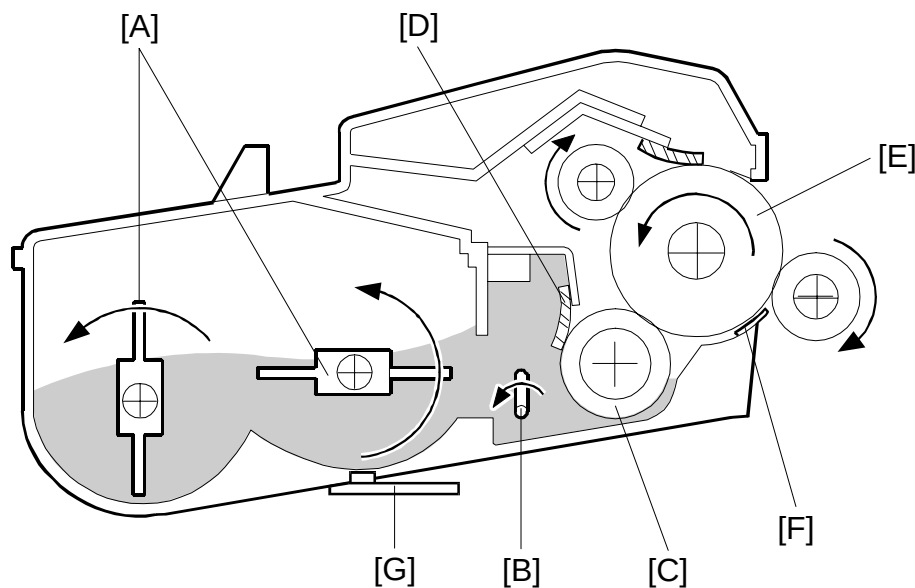
To remove any remaining voltage on the drum surface, the laser diode periodically discharges the OPC drum. The interval can be changed with SP2-901. The default setting is every 25 pages; the machine will wait until the current job is finished.

The power supply board also applies AC voltage (1.6 kVp-p 1 kHz) to the charge roller. This AC removes any remaining voltage on the drum.

The AIO cartridge does not have a cleaning pad, temperature control, or a contact mechanism for the drum charge roller. The material the drum charge roller is made of enables the AIO cartridge to be a simple mechanism. The drum charge roller is part of the AIO cartridge, so when the toner runs out, the drum charge roller is changed at the same time. This happens before the drum charge roller gets dirty.

2.4.4 DEVELOPMENT

Overview



This machine uses monocomponent toner. There are two agitators [A] in the AIO cartridge (shown above).

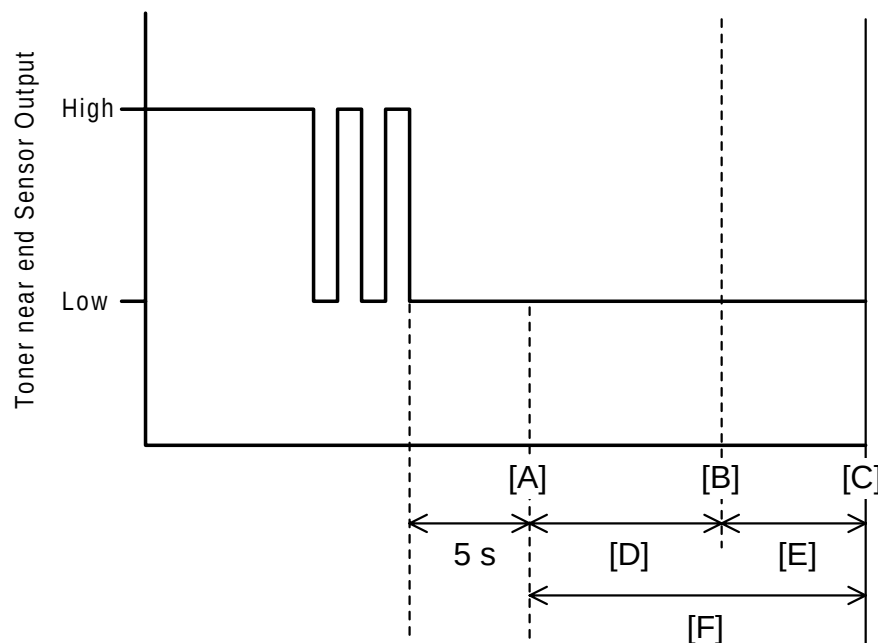
The agitator(s) [A] and the mixing blade [B] mix the toner in the AIO cartridge and transport it to the development roller [C]. Friction between the transported toner and the doctor blade [D] gives the toner a negative charge.

Internal permanent magnets in the development roller attract the toner to the development roller sleeve. The doctor blade trims the toner to the desired thickness on the development roller sleeve. The development roller does not contact the drum [E]. There is a small gap between the toner on the surface of the development roller sleeve and the drum. Toner jumps across this gap to develop the latent image.

The development bias consists of AC and DC components. The AC component improves the transfer of toner.

The transfer blade [F] is charged to the same voltage as the development bias. This helps to keep the toner on the drum.

The toner near-end sensor [G] is located under the toner cartridge.

Toner End Detection

Detailed Descriptions

There is no toner end sensor in this machine. Instead, toner end is detected using the toner near-end sensor.

When the toner near-end sensor detects a low toner condition for five seconds continuously [A], the machine starts the toner near-end copy counter.

From this point, toner near-end/end detection depends on the settings of SP2-213 and 2-214. The following describes what happens with the default settings.

If the toner concentration is still low after 210 copies, the machine detects a toner near-end condition [B]. The number of copies between starting the counter and toner near end [D] can be changed with SP2-214.

If the toner concentration is still too low 150 copies after toner near-end was determined, the machine detects a toner end condition [C]. If toner end is detected, the machine stops and copying/printing is disabled. The number of copies between toner near-end and toner end [E] can be changed with SP2-213.

The total number of copies between starting the copy counter and toner end [F] depends on the SP2-214 and SP2-213 settings. The default is $150 + 210 = 360$ copies.

ALL-IN-ONE CARTRIDGE (AIO CARTRIDGE)

The following table shows how the two SP modes can be used to customize the toner near-end and end intervals.

SP2-213 setting (near-end to end)	SP2-214 setting (count start to near-end)		
	0: Normal	1: Low	2: High
0: 150 sheets	Start → near-end: 210 Near-end → end: 150 Total: 360	Start → near-end: 350 Near-end → end: 150 Total: 500	Start → near-end: 0 Near-end → end: 150 Total: 150
1: 50 sheets	Start → near-end: 310 Near-end → end: 50 Total: 360	Start → near-end: 450 Near-end → end: 50 Total: 500	Start → near-end: 70 Near-end → end: 50 Total: 120
2: 250 sheets	Start → near-end: 110 Near-end → end: 250 Total: 360	Start → near-end: 250 Near-end → end: 250 Total: 500	Start → near-end: 0 Near-end → end: 250 Total: 250

Notes on how to customize the settings

- A higher 'Total' means that the user can use the cartridge for longer. However, copy quality may deteriorate before the toner end warning occurs.
- With a smaller number of copies between starting the counter and near-end, the user has an earlier warning that the toner is running out.

When the toner near-end sensor has detected a high toner condition for five continuous seconds, the machine does not check for toner end/near-end condition just after the main switch is turned on, or after the right door is opened and closed. The near-end copy count continues.

If the sensor detects a high toner condition for more than 30 seconds, the machine stops the near-end copy count. The counter is then reset and the near-end or end condition is changed.

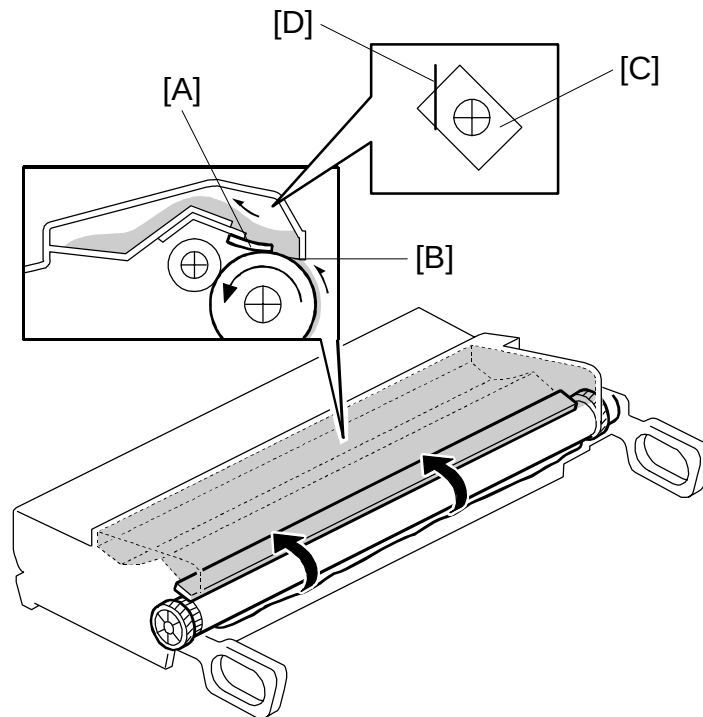
Toner Supply

The AIO cartridge agitators and mixing blade mix the toner in the AIO cartridge. The toner near-end sensor is not used to control toner supply. When the machine is turned on or the right door is closed, the agitators and the mixing blade rotate to mix the toner for a brief period.

Development Bias

The high voltage supply unit gives the development roller a charge of –400 V DC and an AC component of 1.6 kVp-p 1 kHz. To prevent toner from transferring to non-image areas on the drum, the development bias is different for image and non-image areas.

2.4.5 DRUM CLEANING



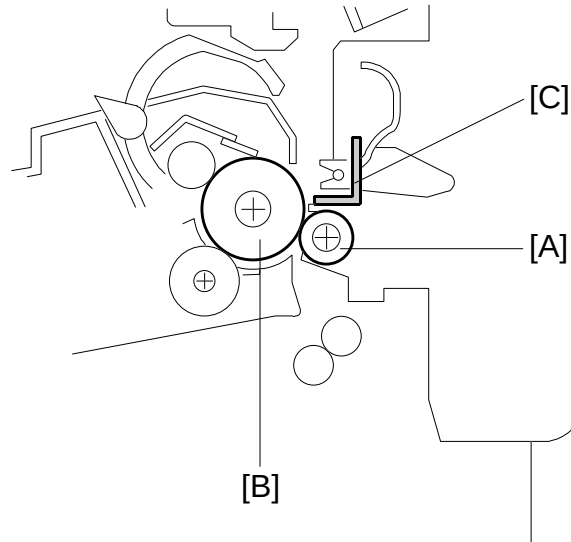
The cleaning blade [A] removes any toner remaining on the drum after the image is transferred to the paper. The cleaning blade scrapes off the remaining toner on the drum automatically transferring it to the collection area. The mylar sheet [B] prevents the toner from dropping out of the cleaning unit.

The toner cartridge in the AIO cartridge has a toner collection coil [C] and scraper [D]. These improve the collection of waste toner.

There is no toner recycling mechanism.

2.5 IMAGE TRANSFER AND PAPER SEPARATION

2.5.1 OVERVIEW



The machine uses a transfer roller [A], which touches the surface of the drum [B]. The Power Pack - B/C/T supplies a positive current to the transfer roller, which attracts the toner from the drum onto the paper. The current depends on the paper width, paper type, and paper feed tray.

Drive from the drum through a gear turns the transfer roller. The antistatic brush [C] helps the paper to separate from the drum. The antistatic brush is grounded.

Use SP2-301 to adjust the transfer current. Note that when adjusting SP2-301-2 (by-pass tray), the transfer currents for both normal and thick paper are changed (but not the setting for "Special" paper - adjust that with SP2-301-5).

2.5.2 TRANSFER CURRENT SETTINGS

NOTE: 'Special' paper in the SP modes appears as "Dry" paper in the user tools.

Paper Size	Paper Tray		By-pass Feed		
	Normal Paper	Special Paper	Normal Paper	Thick Paper	Special Paper
A3/11" x 17", A4/8 1/2 x 11"sideways	11 μ A	25 μ A	12 μ A	5 μ A	25 μ A
B4	11 μ A	25 μ A	13 μ A	5 μ A	25 μ A
A4/11" x 8 1/2 lengthwise, A5/5 1/2 x 8 1/2 sideways	11 μ A	25 μ A	14 μ A	7 μ A	25 μ A
A5/8 1/2 x 5 1/2 lengthwise, A6 sideways	11 μ A	25 μ A	17 μ A	17 μ A	25 μ A

Be careful when increasing the transfer current. This might cause a ghosting effect, in which part of the image at the top of the page is repeated lower down the page at a lower density. It may also damage the OPC drum in the worst case.

Notes on the 'Normal', 'Thick', and 'Special' paper settings

The by-pass tray allows a wider range of paper thickness, and the 'Normal' setting covers paper that is thicker than allowed in the standard tray

At normal temperatures, thicker paper needs a higher current for sufficient toner transfer.

However, at low and high temperatures, image problems occur. A lower current has been found to solve these problems (use the 'Thick' setting).

- Low temperatures: Blurred image
- High temperatures: Insufficient toner transfer

To summarize:

- Normal: Normal paper; also for thick paper at normal temperatures
- Thick: Thick paper at low and high temperatures, if those image problems occur

Note that the fusing temperature increases if the 'Thick' setting is used.

Special paper

The 'Special' paper setting is for use when a high transfer current is needed, to solve certain copy quality problems. It is not normally a good idea to use a high current, for the reason stated earlier, just below the table.

2.5.3 TRANSFER ROLLER CLEANING

If the paper size is smaller than the image, or if a paper jam occurs during printing, toner may be transferred to the roller surface. To prevent the toner from transferring to the back side of the printouts, the transfer roller requires cleaning before the next printing run.

During transfer roller cleaning, the high voltage supply unit supplies a negative cleaning voltage to the transfer roller. Any negatively charged toner on the transfer roller is then transferred back to the drum. Then a positive cleaning voltage is applied to the transfer roller to push back to the drum any positively charged toner on the transfer roller.

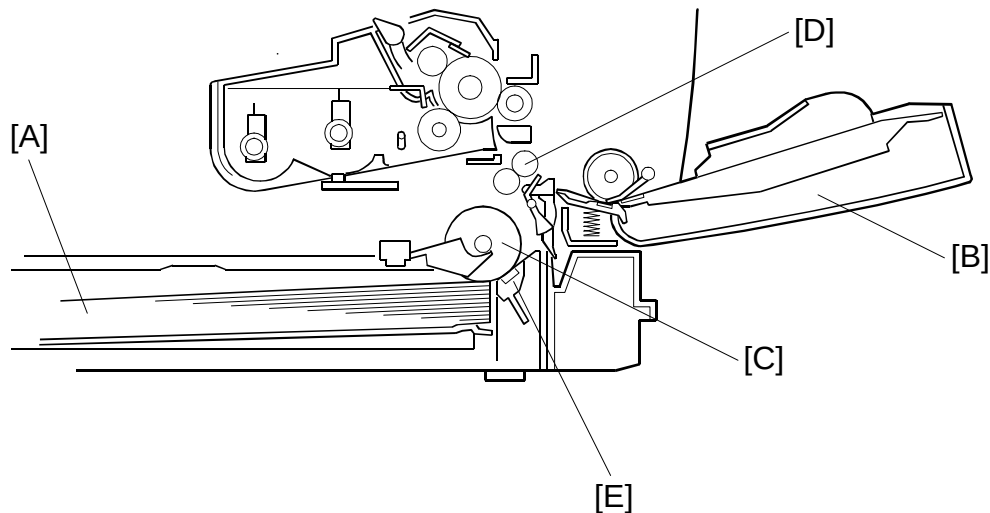
The machine goes through the cleaning mode in the following conditions:

- After a paper jam has been cleared.
- Just after the power is switched on.
- After 10 or more sheets of paper have been copied and the copy job has finished.

SP 2-910 determines how often the transfer roller is cleaned. If this is set to 1, the transfer roller is cleaned after every job. If it is set to 0, the roller is cleaned every 10 copies (the machine waits until the end of the job).

2.6 PAPER FEED

2.6.1 OVERVIEW



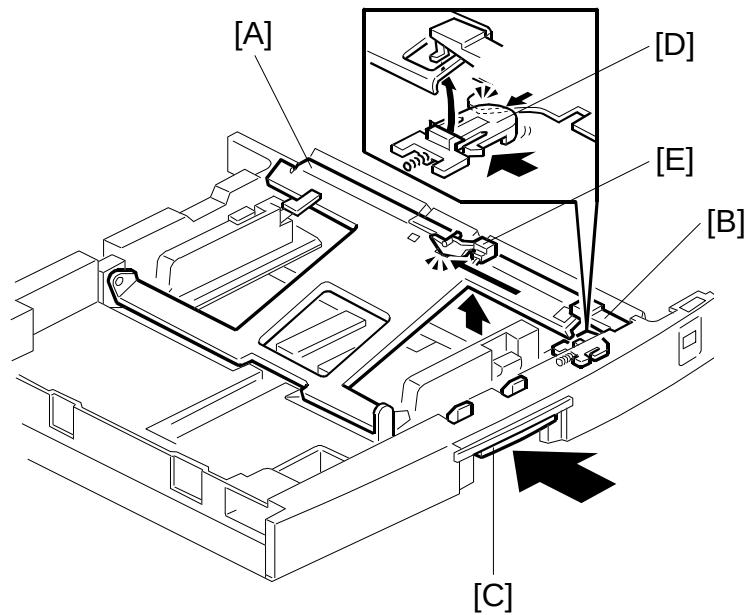
There is a built-in paper tray (tray 1) [A] and a by-pass tray [B].

The paper tray holds 250 sheets. The by-pass tray can hold 100 sheets of paper. The paper feed roller [C] drives the top sheet of paper from the paper tray to the registration rollers [D].

The paper tray has a friction pad [E] that allows only one sheet to feed at a time.

When the paper tray is closed after the paper is loaded, the paper size actuator (behind the paper size indicator located at the front right of the tray) pushes the tray paper size switch. This informs the CPU that the tray is in place and what paper size is in the tray.

2.6.2 BUILT-IN TRAY



Bottom Plate Lift

The tray bottom plate [A] is lifted by a compressed spring, and it lifts the paper to the paper feed roller.

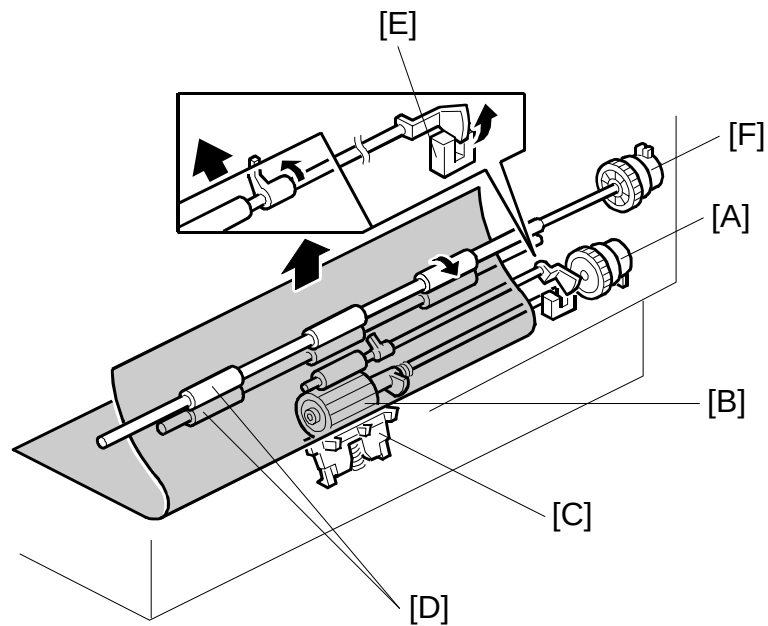
When the cassette is being pulled out, the tray bottom plate is dropped by the cassette arm [B], which is connected to the cassette lever (handle) [C], and is locked by the stopper [D].

When the cassette is put in the machine, the stopper is released and the tray bottom plate moves up.

Paper End Detection

When the paper tray runs out of paper, the actuator for the paper end sensor [E] drops into the cutout in the tray bottom plate, activating the paper end sensor.

The paper near end sensor is on the machine frame above the back right corner of the cassette tray. The sensor is only used in printer mode.

Paper Feed Drive

Detailed Descriptions

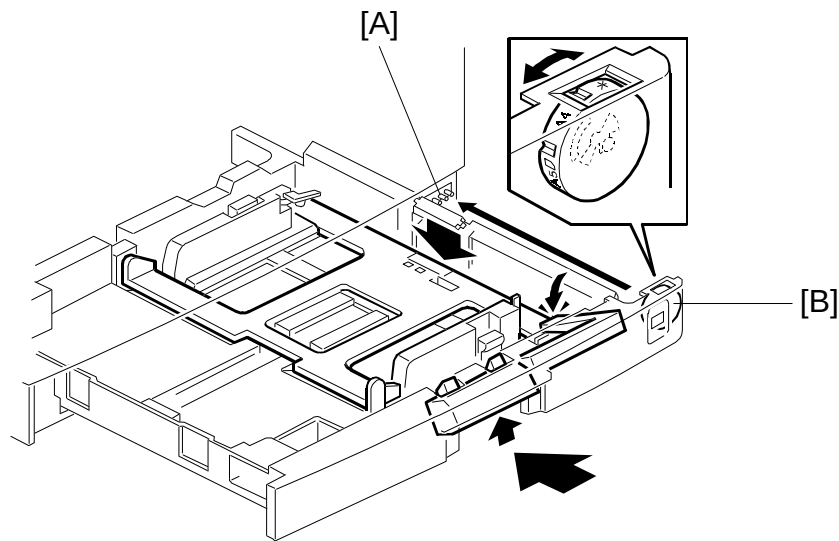
The main motor drives the pick-up and feed mechanism. The tray paper feed clutch [A] transfers drive from the main motor to the paper feed roller [B].

This machine uses a feed roller and friction pad mechanism. The friction pad [C] only allows the top sheet to feed. Therefore, during paper feed, the top sheet of paper is separated from the stack and fed to the registration rollers [D].

When the paper actuates the registration sensor [E], the tray paper feed clutch turns off. When the paper reaches a certain position, the registration clutch [F] turns on to transfer drive from the main motor to the registration rollers. Then the registration rollers feed the paper to the image transfer area.

PAPER FEED

Paper Size Detection



The paper size switch [A] includes three sensors (microswitches). Actuators on a dial [B] behind the paper size indicator plate actuate the sensors.

Each paper size has its own actuator, with a unique combination of notches. To determine the paper size, the CPU reads which switches the actuator has turned off.

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the printer control board recognizes that the paper tray is not installed.

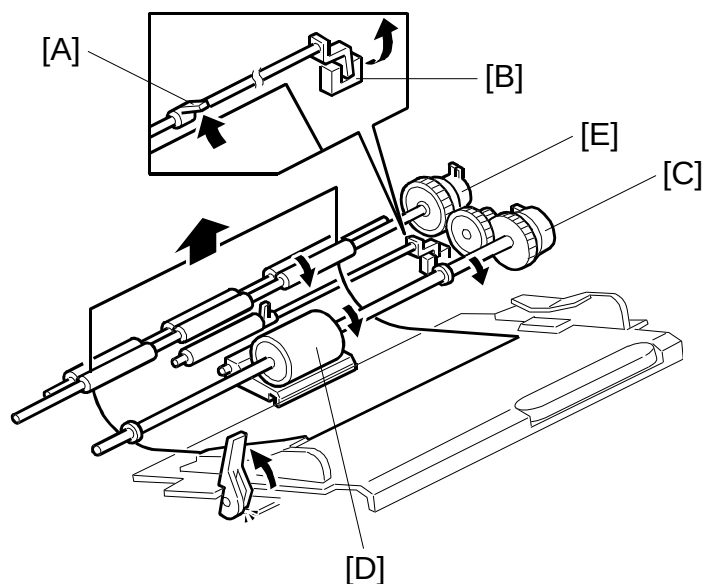
When the paper size actuator is at the “*” mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using a user tool at the machine’s operation panel.

Models		Switch Location		
North America	Europe	Left	Center	Right
8 1/2" x 14" ☐	A5 ☐	OFF	OFF	ON
A4 ☐	A4 ☐	ON	OFF	OFF
8 1/2" x 11" ☐	A4 ☐	ON	ON	OFF
*	*	OFF	ON	ON
8 1/2" x 13" ☐	8 1/2" x 13" ☐	ON	ON	OFF
8 1/2" x 11" ☐	8 1/2" x 11" ☐	ON	OFF	ON
11" x 17" ☐	A3 ☐	ON	ON	ON

ON: Pushed OFF: Not Pushed

2.6.3 BY-PASS TRAY

Drive



When paper is placed on the tray, the by-pass tray paper feeler [A] is pushed up and the actuator leaves the by-pass tray paper sensor [B].

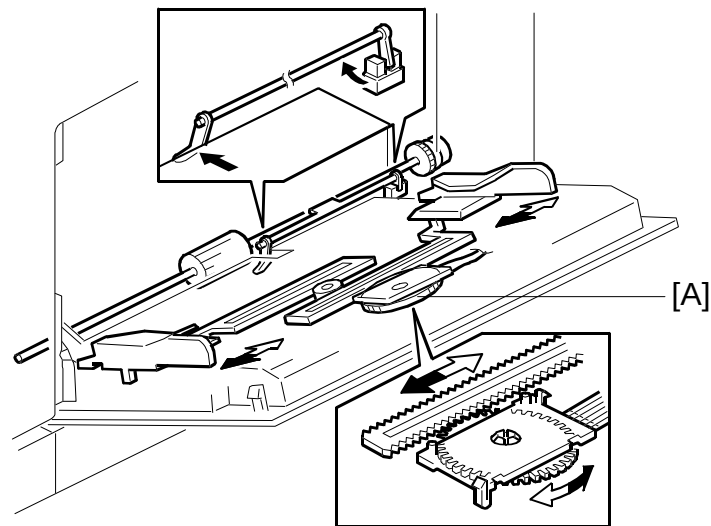
The by-pass tray paper feed clutch [C] transfers drive from the main motor to the by-pass feed roller [D].

This machine uses a feed roller and friction pad mechanism, with drive from the main motor transmitted when the by-pass feed clutch turns on. The friction pad only allows the top sheet to feed to the registration rollers.

When the paper leading edge activates the registration sensor, the registration clutch [E] turns on.

PAPER FEED

Paper Size Detection



The by-pass feed paper width sensor [A] monitors the paper width. The side fence is connected to the terminal plate gear. When the side fences move to match the paper width, the circular terminal plate rotates over the wiring patterns on the rectangular part of the width sensor. The patterns for each paper width on the paper width detection sensor are unique.

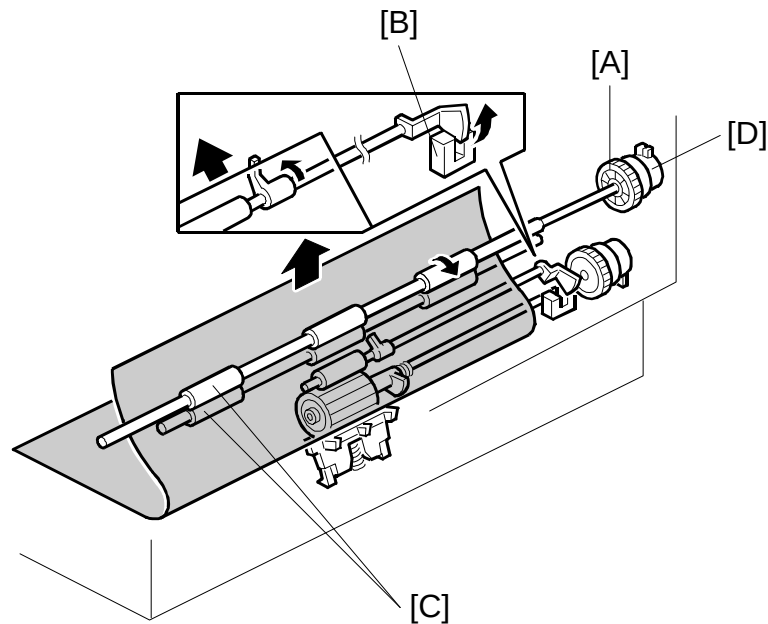
North America

CN No. (IOB)	DLT	LG	8" x 13"	HLTR
CN 321-1	H	H	L	L
CN 321-2	H	H	H	H
CN 321-3 (GND)	L	L	L	L
CN 321-4	L	H	H	H
CN 321-5	L or H	L	L	H

Europe

CN No. (IOB)	A3	B4	A4R	8" x 13"	A5R
CN 321-1	H	H	H	L	L
CN 321-2	H	H	H	H	H
CN 321-3 (GND)	L	L	L	L	L
CN 321-4	L	L	H	H	H
CN 321-5	H	L	L	L	H

2.6.4 PAPER REGISTRATION



Main motor rotation is transmitted to the registration clutch gear [A].

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

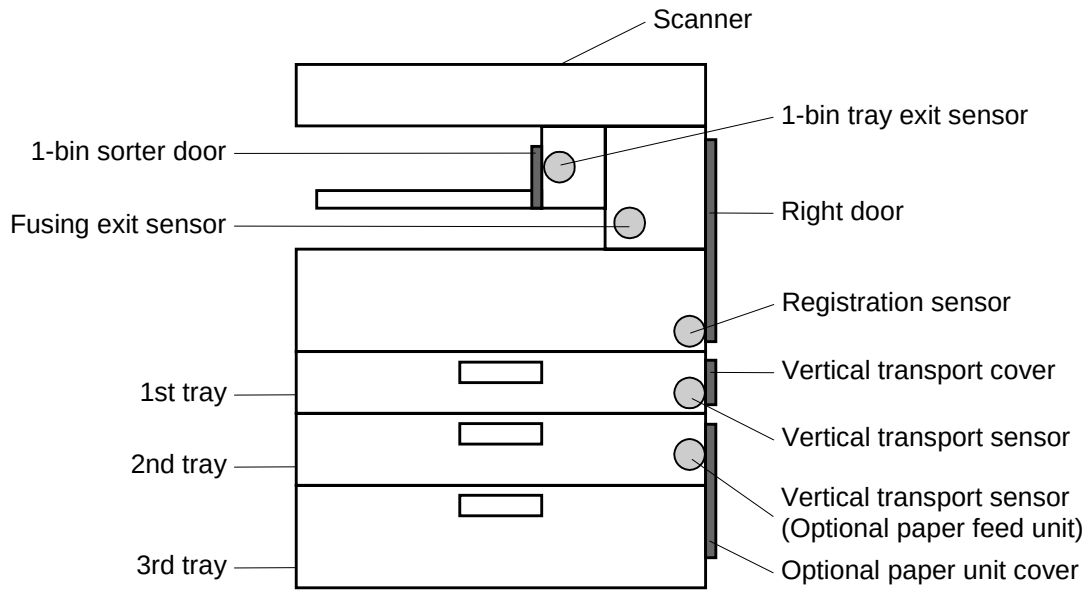
When the paper leading edge activates the registration sensor, the registration clutch [D] turns on and the registration rollers start turning a little bit afterward. However, the tray paper feed roller clutch stays on for a bit longer. This delay allows time for the paper to press against the registration rollers and buckle slightly to correct skew. Use SP1-003 to adjust the amount of paper buckle.

The registration clutch then energizes at the proper time to align the paper with the image on the drum. The registration rollers feed the paper to the image transfer area.

The registration sensor is also used for paper misfeed detection.

PAPER FEED

2.6.5 MISFEED DETECTION



Misfeed	Operation panel	Vertical transport cover	Right cover	Optional paper unit	1 bin sorter door
Registration sensor ON check (By-pass feed, 1st tray)	A	✓			
Registration sensor OFF check	B	✓	✓		
Paper stuck at the registration sensor	B	✓	✓		
Fusing exit sensor ON check	C	✓			
Fusing exit sensor OFF check	C	✓			
Paper stuck at the fusing exit sensor	C	✓			
Registration sensor ON check (2nd, 3rd tray)	Y1		✓	✓	
Vertical transport sensor OFF check (when feeding from the 2nd tray)	Y1		✓	✓	
Vertical transport sensor ON check (when feeding from the 2nd tray)	Y1		✓	✓	
Paper stuck at the vertical transport sensor	Y1		✓	✓	
Vertical transport sensor OFF check (when feeding from the 3rd tray)	Y2		✓	✓	
Vertical transport sensor ON check (when feeding from the 3rd tray)	Y2		✓	✓	
Vertical transport sensor (optional PFU) OFF check	Y2		✓	✓	
Vertical transport sensor (optional PFU) ON check	Y2		✓	✓	
Paper stuck at the optional paper sensor	Y2		✓	✓	
Exit tray paper sensor ON check	R				✓
Exit tray paper sensor OFF check	R				✓
Paper stuck at the exit tray paper sensor	R				✓

Y1: Y jam displayed and the 2nd tray LED blinks
Y2: Y jam displayed and the 3rd tray LED blinks

✓: Open this cover to clear the jam

Registration sensor ON check

When the registration sensor does not turn on within a certain time after the paper feed clutch turns on (1st tray: 2.0 s, 2nd tray: 1.3 s, 3rd tray: 1.7 s).

Registration sensor OFF check

During multi-page printing, the registration sensor is not turned off by the trailing edge of the current page after the paper feed clutch turns on to feed the next page.

After the registration sensor turns on, it does not turn off within 0.8 seconds after the expected time, which is calculated from the paper length.

Fusing exit sensor ON check

When the fusing exit sensor does not turn on within 2.5 seconds after the registration clutch turns on.

Fusing exit sensor OFF check

During multi-page printing, the fusing exit sensor is not turned off by the trailing edge of the previous page after the designated time.

The fusing exit sensor does not turn off within 0.9 seconds after the sensor-off time occurs. This time is calculated from the paper length.

Vertical transport sensor ON check

When the vertical transport sensor does not turn on within 1.5 seconds after the 2nd paper feed clutch turns on.

Vertical transport sensor OFF check

When the vertical transport sensor does not turn on within 1.8 seconds after the vertical transport sensor (optional PFU) turns on.

Vertical transport sensor (optional PFU) ON check

When the vertical transport sensor (optional PFU) does not turn on within 1.5 seconds after the 3rd paper feed clutch turns on.

Vertical transport sensor (optional PFU) OFF check

During multi-page printing, the vertical transport sensor (optional PFU) is not turned off by the trailing edge of the previous page after the designated time.

PAPER FEED

1 bin tray exit sensor ON check

When the 1 bin tray exit sensor does not turn on within 1.8 seconds after the fusing exit sensor turns on.

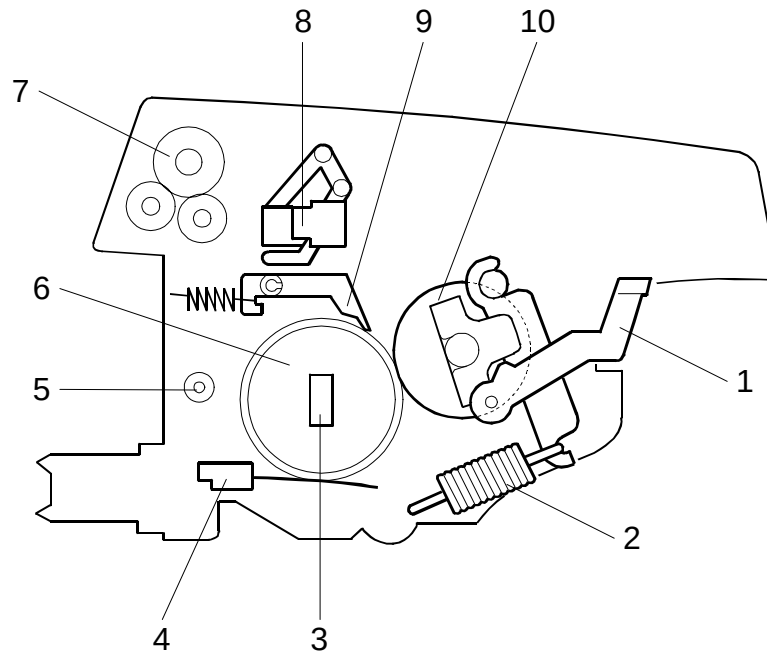
1 bin tray exit sensor OFF check

During multi-page printing, the 1-bin tray exit sensor is not turn off by the trailing edge of the previous page after the designated time.

The sensor does not turn off within 1.0 seconds after the sensor-off time occurs. This time is calculated from the paper length.

2.7 IMAGE FUSING

2.7.1 OVERVIEW

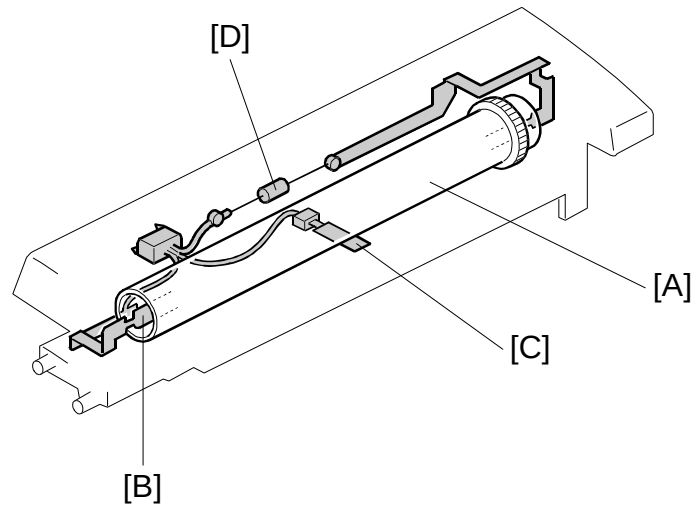


Detailed
Descriptions

The fusing unit consists of the following parts.

1. Pressure Roller Release Lever	6. Hot Roller
2. Pressure Spring	7. Exit Roller
3. Fusing Lamp	8. Fusing Exit Sensor
4. Fusing Thermistor	9. Hot Roller Strippers
5. Thermofuse	10. Pressure Roller

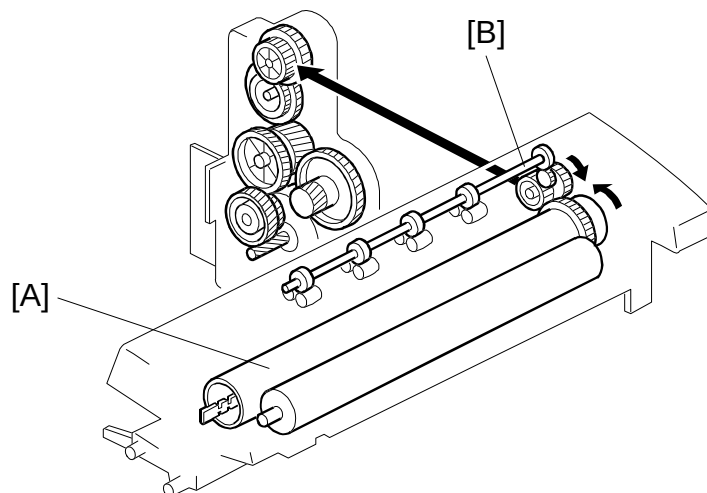
IMAGE FUSING



After the image has been transferred, the paper enters the fusing unit. The image is fused to the paper by applying heat and pressure through the combined use of the hot roller [A], fusing lamp [B], and pressure roller.

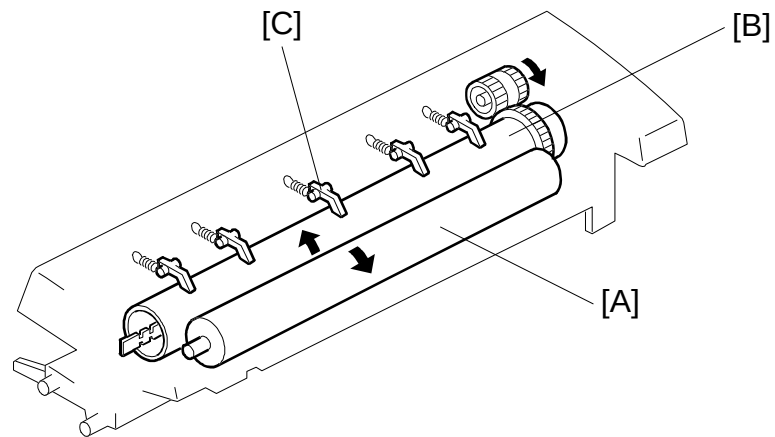
The CPU monitors the hot roller temperature through the fusing thermistor [C], which is in contact with the hot roller surface. The thermofuse [D] protects the fusing unit from overheating.

2.7.2 FUSING UNIT DRIVE



The main motor drives the hot roller [A] through a train of gears. The hot roller drives the exit roller [B] through a gear.

2.7.3 PRESSURE ROLLER/PAPER EXIT

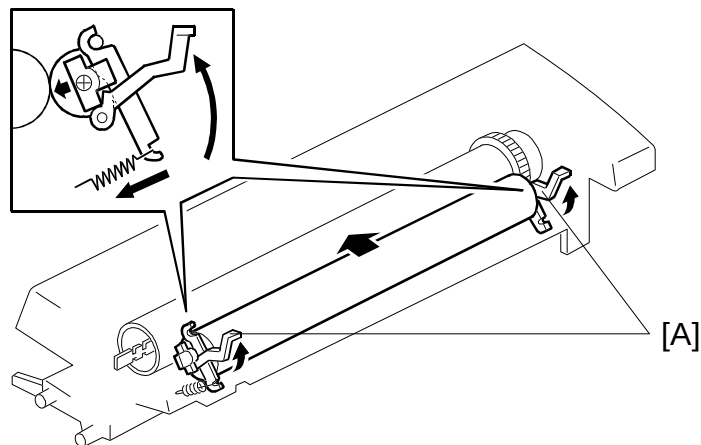


Detailed
Descriptions

During printing, the pressure roller [A] is pressed against the hot roller [B] by springs.

The hot roller strippers [C] separate the paper from the hot roller and direct it to the exit roller. Then the exit roller feeds the paper to the paper tray.

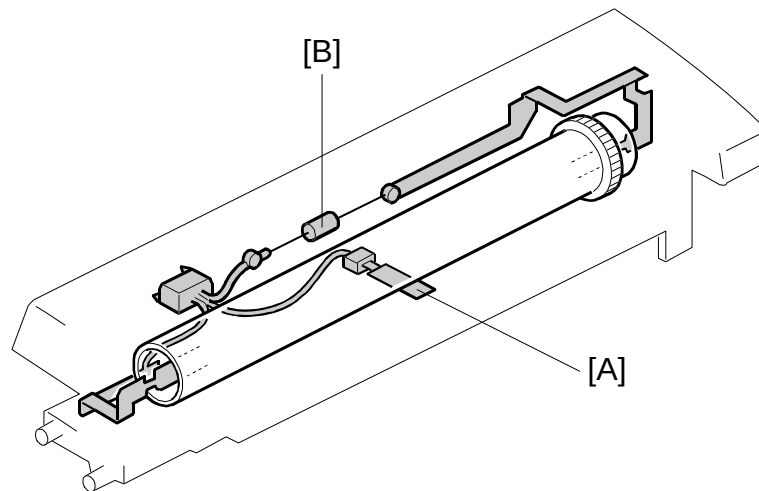
2.7.4 FUSING UNIT DRIVE RELEASE



When the pressure roller release levers [A] are pushed down, the pressure roller moves away so jammed paper can be removed.

2.7.5 FUSING TEMPERATURE CONTROL

Overview



The fusing temperature is controlled using the fusing thermistor [A].

The CPU checks the output from the fusing thermistor once a second. The CPU compares the current and previous temperature, then decides the power-on ratio for the next second. To maintain the target temperature, the CPU controls the fusing lamp power-on ratio as shown in the following table (the temperature control algorithm only works with whole numbers).

Initializing

Sampling cycle: 1 second

Soft start setting: 6 cycles

Previous minus Current	Current minus Target				
	-3°C or more	-2°C or -1°C	0	+1°C or +2°C	+3°C or more
-3°C or more	100%	50%	0%	0%	0%
-2°C or -1°C	100%	50%	0%	0%	0%
0	100%	50%	0%	0%	0%
+1°C or +2°C	100%	50%	0%	0%	0%
+3°C or more	100%	50%	0%	0%	0%

Ratio (%): The proportion of time that the fusing lamp power is on

Copying (North America Model)

Sampling cycle: 1 second

Soft start setting: 6 cycles

Previous minus Current	Current minus Target				
	-3°C or more	-2°C or -1°C	0	+1°C or +2°C	+3°C or more
-3°C or more	100%	100%	100%	100%	0%
-2°C or -1°C	100%	70%	70%	70%	0%
0	100%	50%	30%	30%	0%
+1°C or +2°C	100%	30%	0%	0%	0%
+3°C or more	100%	0%	0%	0%	0%

Ratio (%): The proportion of time that the fusing lamp power is on

Copying (Europe Model)

Sampling cycle: 1 second

Soft start setting: 10 cycles

Previous minus Current	Current minus Target				
	-3°C or more	-2°C or -1°C	0	+1°C or +2°C	+3°C or more
-3°C or more	100%	100%	100%	0%	0%
-2°C or -1°C	100%	100%	100%	0%	0%
0	100%	100%	100%	0%	0%
+1°C or +2°C	100%	100%	100%	100%	0%
+3°C or more	100%	100%	100%	100%	0%

Ratio (%): The proportion of time that the fusing lamp power is on

Standby

Sampling cycle: 1 second (Europe model: 3 seconds)

Soft start setting: 6 cycles (Europe model: 20 cycles)

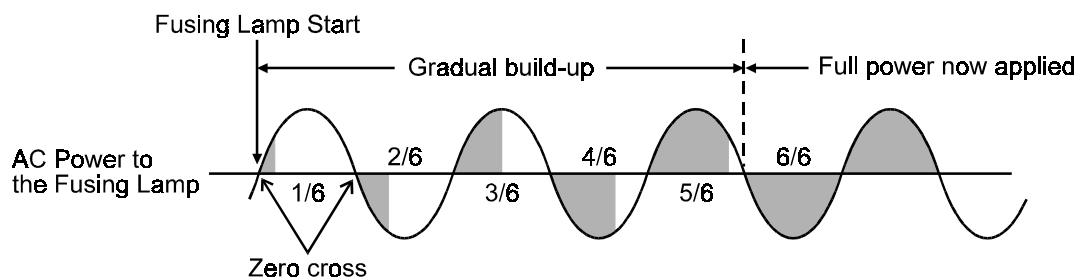
Previous minus Current	Current minus Target				
	-3°C or more	-2°C or -1°C	0	+1°C or +2°C	+3°C or more
-3°C or more	100%	100%	0%	0%	0%
-2°C or -1°C	100%	100%	0%	0%	0%
0	100%	100%	0%	0%	0%
+1°C or +2°C	100%	100%	100%	0%	0%
+3°C or more	100%	100%	100%	0%	0%

Ratio (%): The proportion of time that the fusing lamp power is on

Fluorescent Lamp Flicker

Starting and stopping the fusing lamp power every second causes fluorescent lighting in the room to flicker. To reduce this flickering, use SP1-108 to change the cycle from 1 second to 3 seconds.

In addition, full power is applied to the fusing lamp gradually, not all at once. This prevents the power in the room from dropping suddenly. This feature is known as "Soft Start". The machine does this by gradually allowing more power to the fusing lamp over a number of zero-cross cycles of the ac supply. The diagram below shows full power being applied gradually over the duration of 6 zero-cross cycles. With SP1-107, this number can be set to 6, 10, or 20.



Fusing Temperature Control for Thick Paper at the By-pass Tray

When thick paper mode is selected, the machine changes the target fusing temperature from 180°C to 190°C.

This also happens when the machine detects A6 size. This is because the machine automatically assumes that the A6 paper is a post card, and post cards should be treated as thick paper.

Pre-heat Mode (Fusing Idling)

When the machine is powered on, or the right door is closed, the hot roller turns for 10 seconds.

If the SP1-103 setting is 1 (Yes), when the fusing thermistor detects a temperature lower than 60°C, the hot roller turns for 60 seconds (instead of for just 10 s) after the machine is powered on, or the right door is closed. This maintains conditions for fusing copies made on thick paper during cold weather conditions.

To Prevent Offset when Making Multiple Copies on Small Paper

This prevents the temperature at the ends of the hot roller from being higher than at the center.

If the smallest copy paper width detected during a one-minute interval is less than 220 mm, the machine lowers the target fusing temperature by 10°C.

Then, during the next minute, if the smallest width detected is less than 220 mm again, the machine lowers the target temperature by another 5°C.

2.7.6 OVERHEAT PROTECTION

If the hot roller temperature becomes greater than 230°C for more than 1 second, the CPU cuts off the power to the fusing lamp. At this time, the LCD will display an SC543 error.

Even if the thermistor overheat protection fails, there is a thermofuse in series with the common ground line of the fusing lamp. If the temperature of the thermofuse reaches 169°C, the thermofuse opens, removing power from the fusing lamp. At this time, the printer stops.

2.7.7 ENERGY SAVER MODE

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

Entering Energy Saver Mode and Auto Shut Off Mode

Energy saver mode starts after the machine has been idle for a certain time. The user specifies this time. The following choices are available.

- Off (energy saver mode never activates)
- 1 minutes to 240 minutes

This feature is adjusted using the user tools at the operation panel. Then, when the Auto Off timer (SP5-904, or a user tool setting) runs out, the machine turns off the main power switch.

Auto Shut Off mode can be disabled with a user tool (System Settings - 10. AOF).

Copier

Mode	Main Switch	Energy Saver LED	Fusing Lamp	System +5 V	Note
Energy Saver Level 1	On	On	140°C	On	The machine returns to standby mode if the ADF/Platen is lifted or an original is placed in the ADF.
Energy Saver Level 2	On	On	80°C	On	
Auto Shut Off Mode	Off	Off	Off	Off	The machine returns to standby mode only if the main switch is turned on.

Fax, Printer

Mode	Main Switch	Energy Saver LED	Fusing Lamp	System +5 V	Note
Energy Saver Level 1	On	On	140°C	On	The machine returns to standby mode if the ADF/Platen is lifted or an original is placed in the ADF.
Energy Saver Level 2	On	On	80°C	On	
Auto Shut Off Mode	On	Off	Off	On	The machine returns to standby mode only if the operation switch is turned on.

Returning to Standby Mode

From Energy Saver Level 1 or 2

If one of the following is done, the machine returns to standby mode.

- Pressing the Energy Saver key
- Opening and closing the tray cover
- Placing an original in the ADF
- Lifting up the ADF

From Auto Shut Off Mode

The machine returns to the ready condition when the main switch is turned back on.

INSTALLATION

3. INSTALLATION

⚠ CAUTION

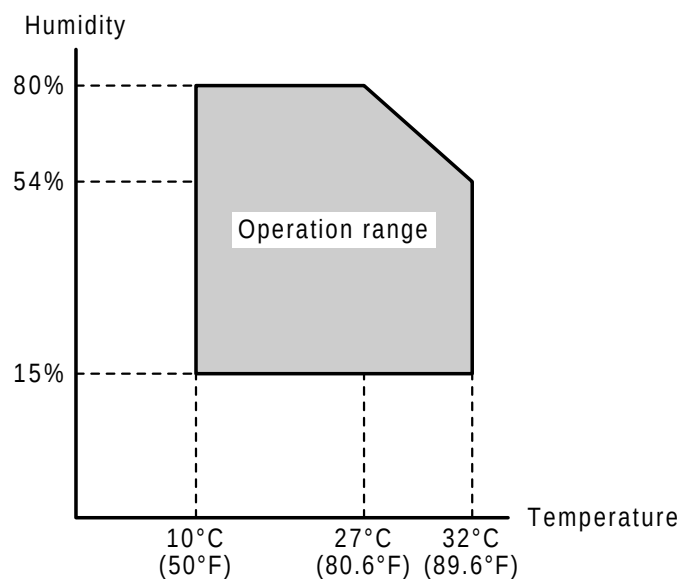
Before installing options, do the following:

1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
2. If there is a printer option in the machine, print out all data in the printer buffer.
3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.

3.1 INSTALLATION REQUIREMENTS

3.1.1 ENVIRONMENT

- Temperature and Humidity Chart -



1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH

INSTALLATION REQUIREMENTS

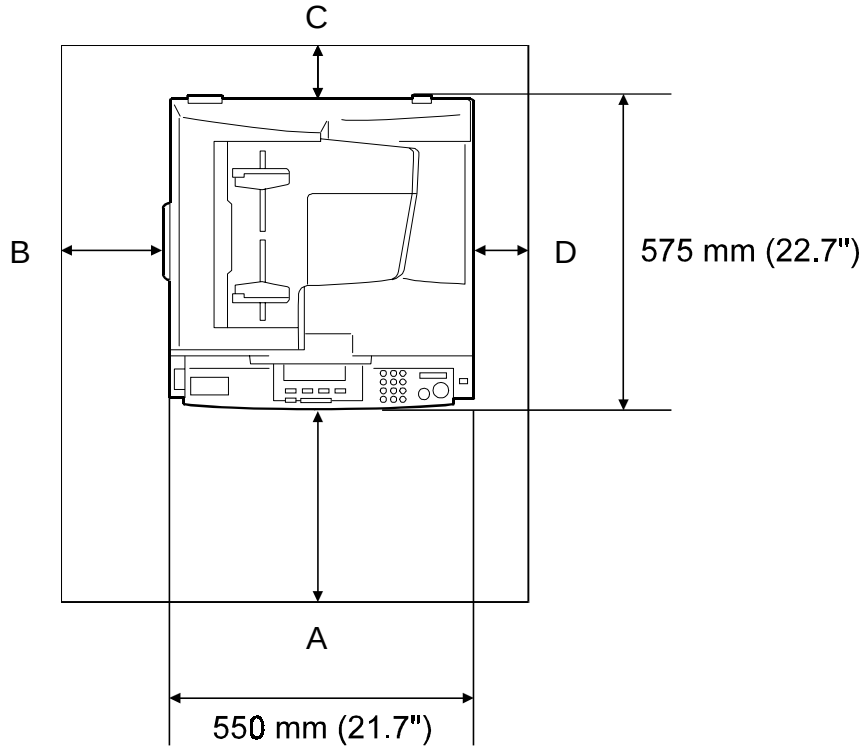
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight.)
4. Ventilation: Room air should turn over at least 30 m³/hr/person
5. Ambient Dust: Less than 0.10 mg/m³ (2.7 x 10⁻⁶ oz/yd³)
6. Avoid areas exposed to sudden temperature changes. This includes:
 - 1) Direct exposure to cool air from an air conditioner.
 - 2) Direct exposure to heat from a heater.
7. Do not place the machine in an area where there are corrosive gasses.
8. Do not install the machine at any location over 2,000 m (6,500 ft.) above sea level.
9. Place the copier on a strong and level base. (Inclination on any side should be no more than 5 mm.)
10. Do not place the machine where it may experience 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

3.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, providing clearance as shown:



A: In front : Over 750 mm (29.6")

C: To rear: Over 10 mm (0.4")

B: Left: Over 20 mm (0.8")

D: Right: Over 10 mm (0.4")

- NOTE:**
- 1) The 750 mm recommended for the front space is for pulling out the paper tray only. If an operator stands in front of the copier, more space is clearly necessary.
 - 2) The 20 mm recommended for the left space is when the user does not use A3/11" x 17" paper . If a user uses A3/11" x 17" paper with optional 1-bin sorter, more than 60 mm of space is necessary.
 - 3) The 10 mm recommended for the right space is for installation only. If an operator fixes a paper jam, uses the by-pass tray, or changes the AIO, more space is necessary.

INSTALLATION REQUIREMENTS

3.1.4 POWER REQUIREMENTS

CAUTION: 1) Make sure that the wall outlet is near the copier and easily accessible. Make sure the plug is inserted firmly in the outlet.
2) Avoid multi-wiring.
3) Be sure to ground the machine.

1. Input voltage level: 120 V, 60 Hz: More than 10 A (North America)
220 ~ 240 V, 50/60 Hz: More than 6 A (Europe/Asia)
110 V, 50/60 Hz: More than 11 A (Taiwan)

3.2 COPIER INSTALLATION

3.2.1 ACCESSORY CHECK

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

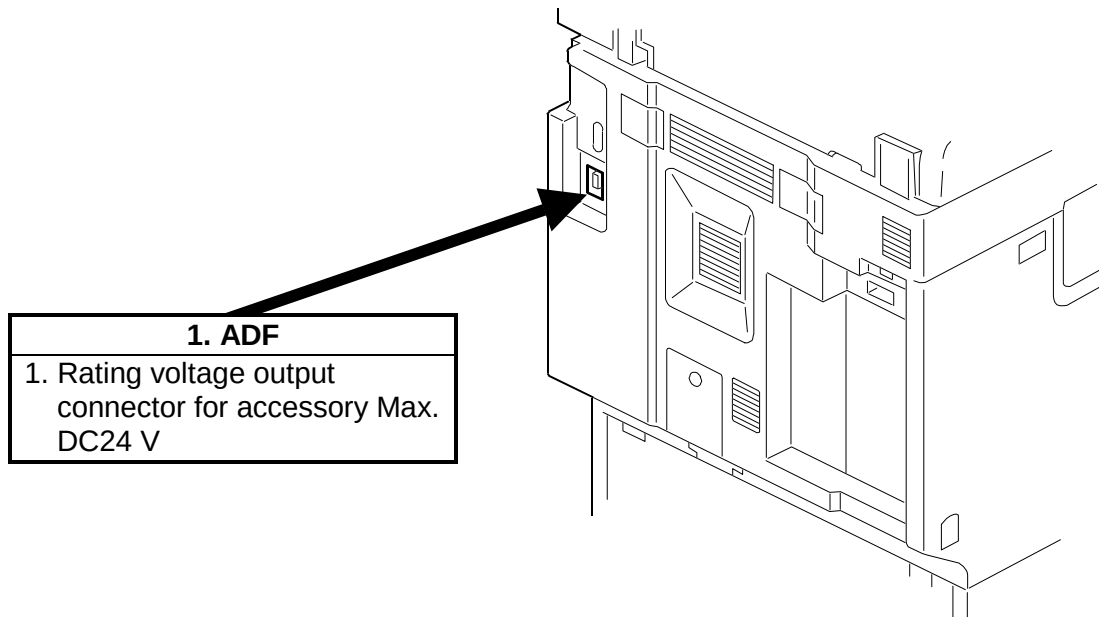
Description	Quantity
1. Operation Instructions - System Setting	1
2. Operation Instructions - Copy Reference	1
3. Operation Instructions - Copy Quick Guide	1
4. User Survey Card (-17 machine)	1
5. NECR - English (-17 machine)	1
6. NECR - Multi-language (-19, -27, -29, -69).....	1
7. Model Name Decal (-10, -15, -22)	1

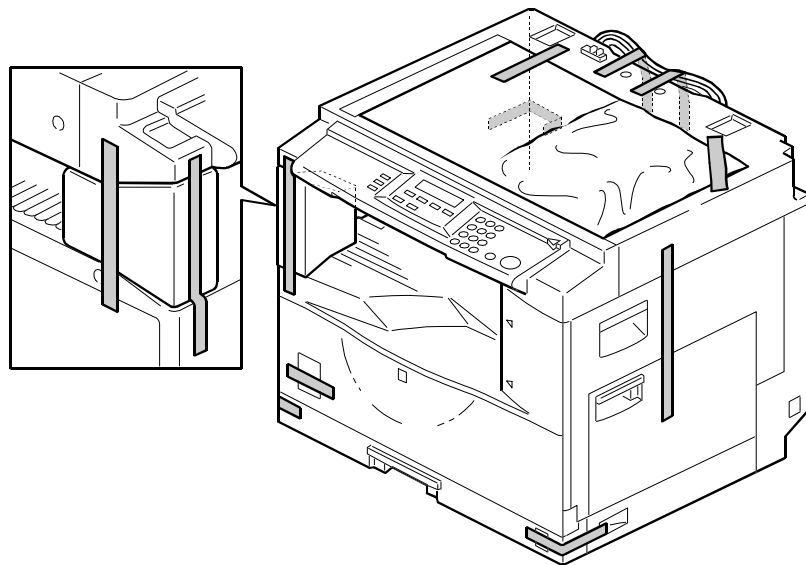
3.2.2 COPIER INSTALLATION PROCEDURE

⚠ CAUTION

Rating voltage for peripherals

Make sure to plug the cables into the correct sockets.





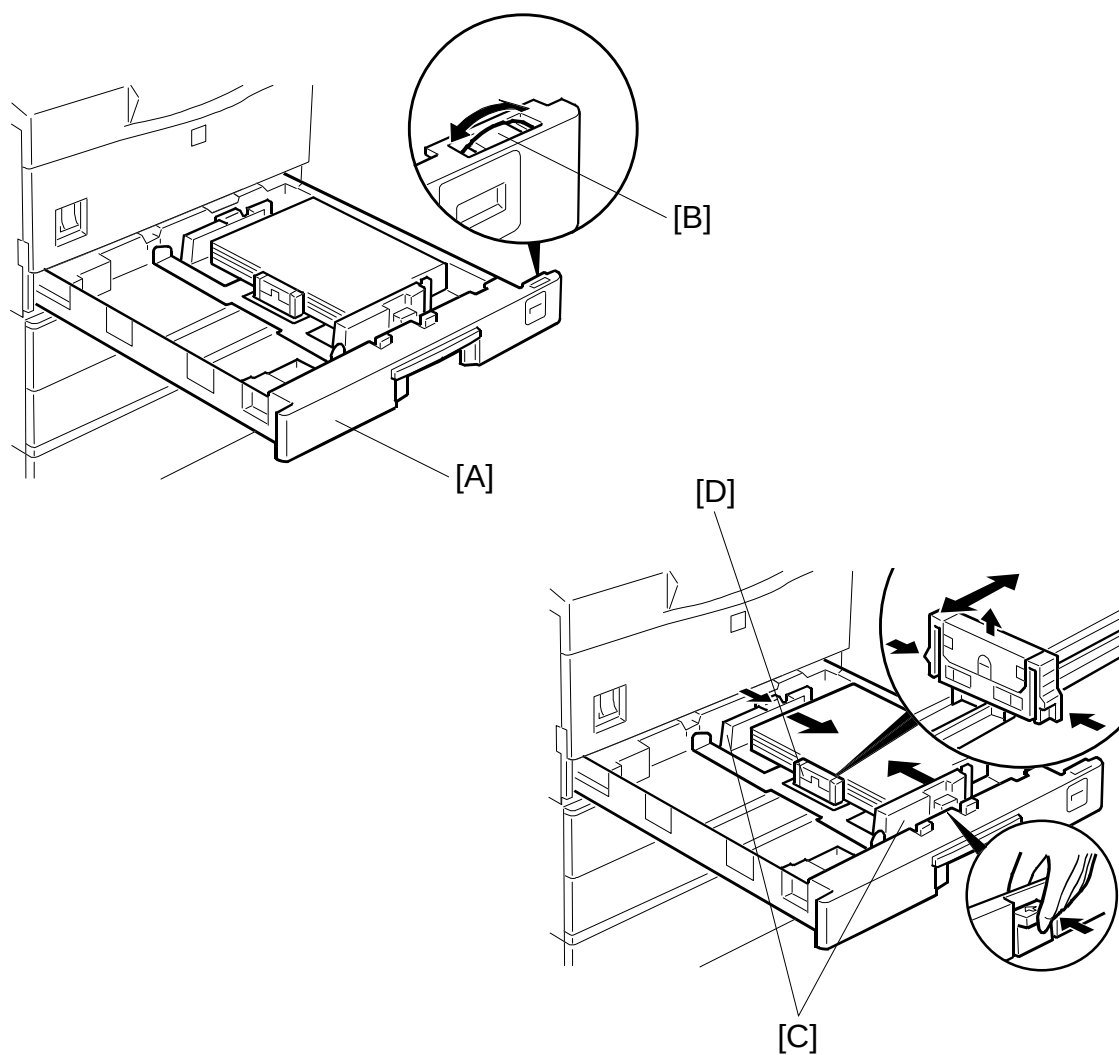
NOTE: Since the installation procedure is not a copier accessory, always bring this manual with you.

⚠ CAUTION

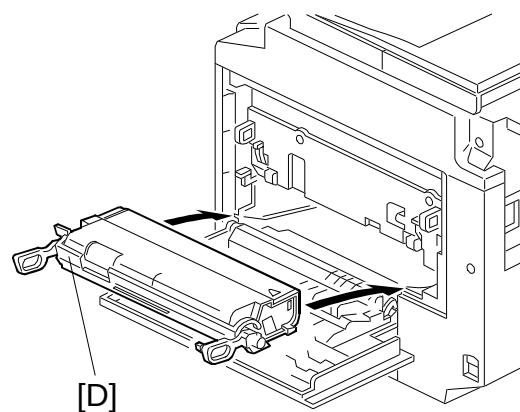
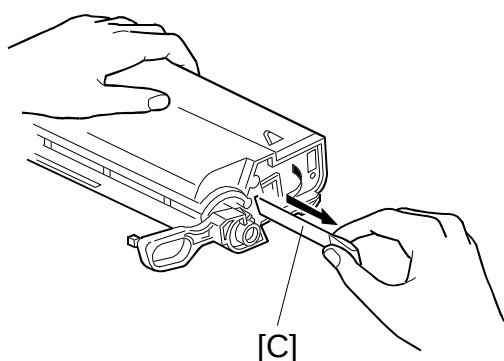
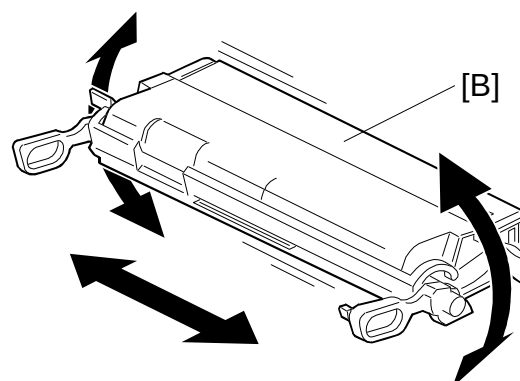
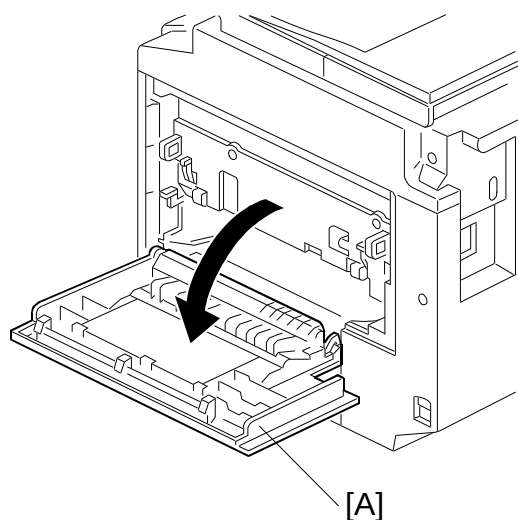
When installing the copier, make sure to keep the power cord unplugged.

1. Remove the tape strips.

COPIER INSTALLATION



2. Pull the paper tray [A] out and turn the paper size dial [B] to select the appropriate size. Adjust the side guides [C] and end guide [D] to match the paper size.



3. Open the right door [A].
4. Shake the toner cartridge [B] well several times.
5. Pull out horizontally and remove the tape [C] inside the toner cartridge, as shown.
6. Install the toner cartridge [D] in the copier.
7. Close the right door.
8. Install the ADF (refer to ADF Installation, section 3.3) or platen cover (refer to Platen Cover Installation, section 3.7).
9. Turn the operation and main switches on, and check the copy quality and copying functions.
10. Initialize the electrical total counter using SP7-825.

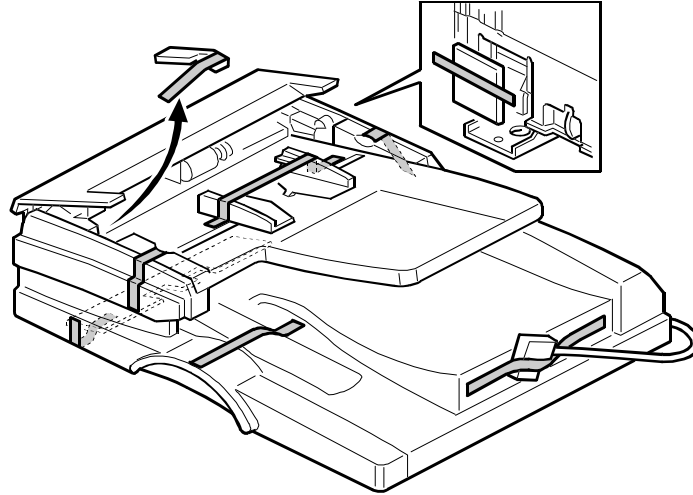
3.3 ADF INSTALLATION

3.3.1 ACCESSORY CHECK

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

Description	Quantity
1. Stepped Screw	2
2. Knob Screw	2
3. Driver Tool	1
4. DF Exposure Glass	1
5. Decal - Exposure Glass	1
6. Decal - Scale - mm	1
7. Decal - Scale - inch	1
8. Scale Guide	1
9. Installation Procedure	1

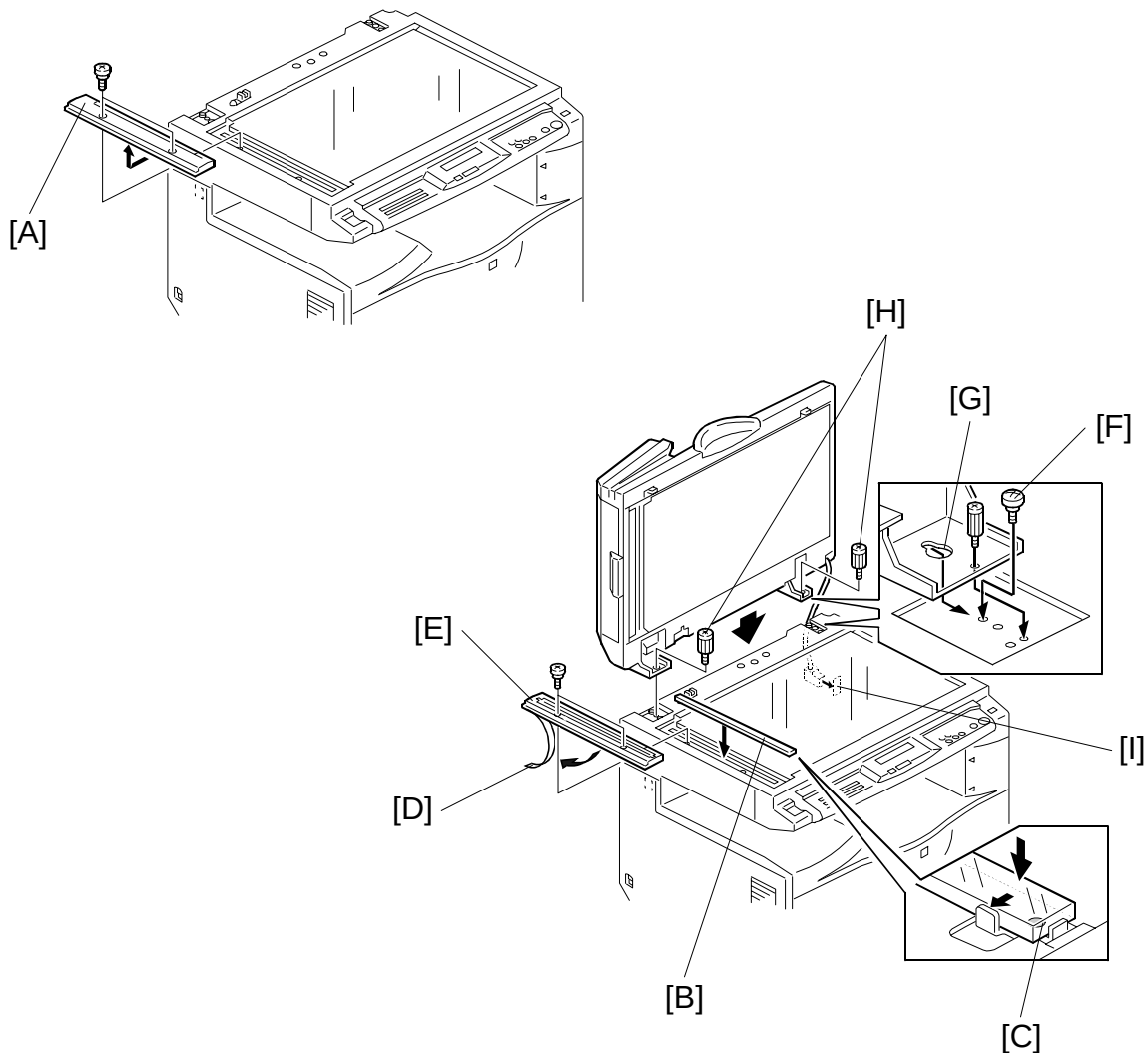
3.3.2 ADF INSTALLATION PROCEDURE



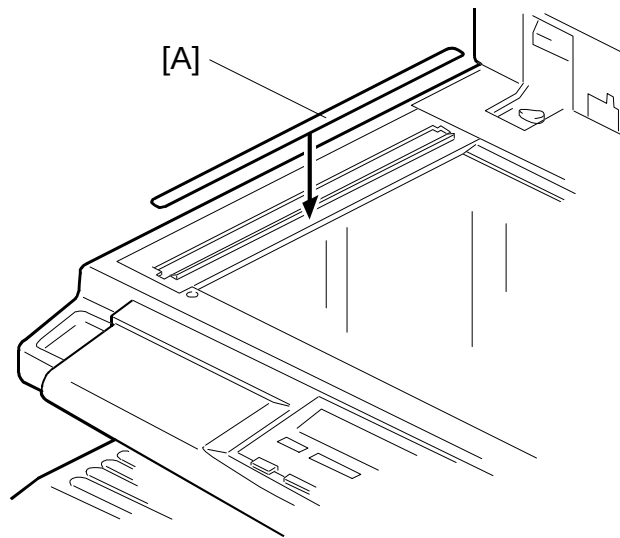
Installation

1. Remove the strips of tape.

ADF INSTALLATION



2. Remove the left scale [A] (2 screws).
3. Place the DF exposure glass [B] on the glass holder.
NOTE: When installing the DF exposure glass, make sure that the white point [C] is positioned at the lower front side, as shown.
4. Peel off the backing [D] of the double side tape attached to the rear side of the scale guide [E], then install the scale guide (2 screws removed in step 2).
5. Install the two stud screws [F].
6. Mount the DF by aligning the holes [G] in the DF with the stud screws, then slide the DF to the front as shown.
7. Secure the DF unit with two screws [H].
8. Connect the cable [I] to the copier.



9. Attach the decal [A] as shown.
10. Plug in the power cord, then turn the main switch on.
11. Make a full size copy from the 1st tray using the ADF. Then check to make sure the side-to-side and leading edge registrations are correct. If they are not, adjust their values (SP6-006).

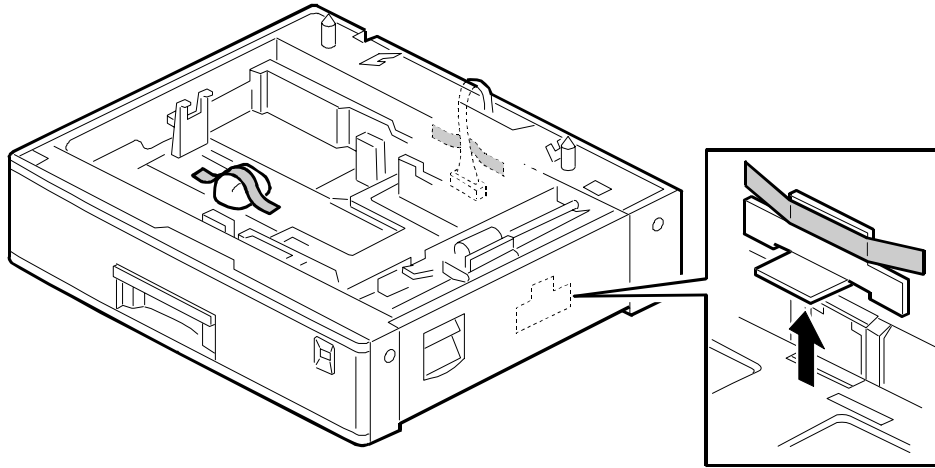
3.4 PAPER TRAY UNIT (1 TRAY) INSTALLATION

3.4.1 ACCESSORY CHECK

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

Description	Quantity
1. Screw - M4 x 10.....	4
2. Joint Bracket.....	2
3. Installation Procedure	1

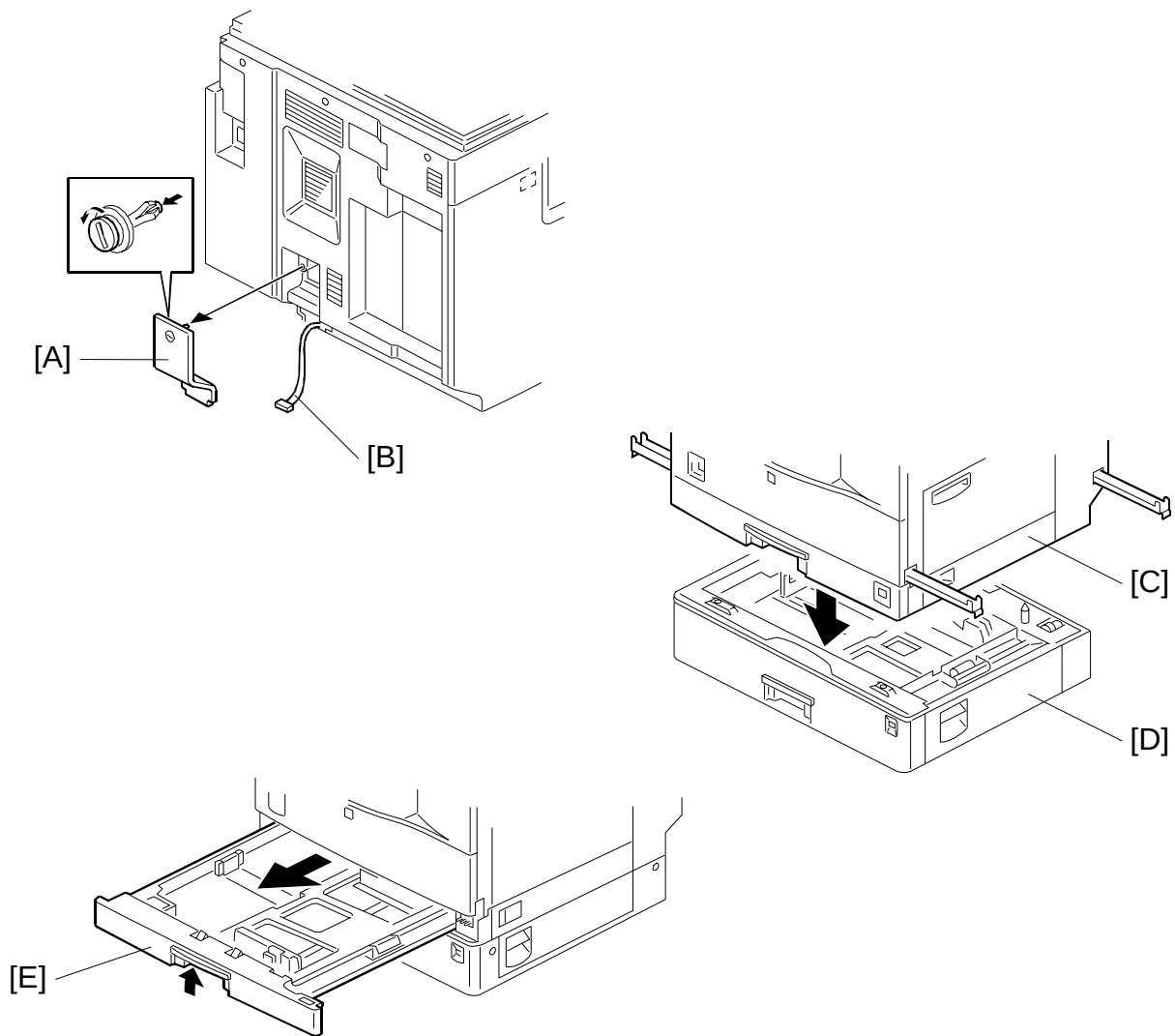
3.4.2 PAPER TRAY UNIT INSTALLATION PROCEDURE



Installation

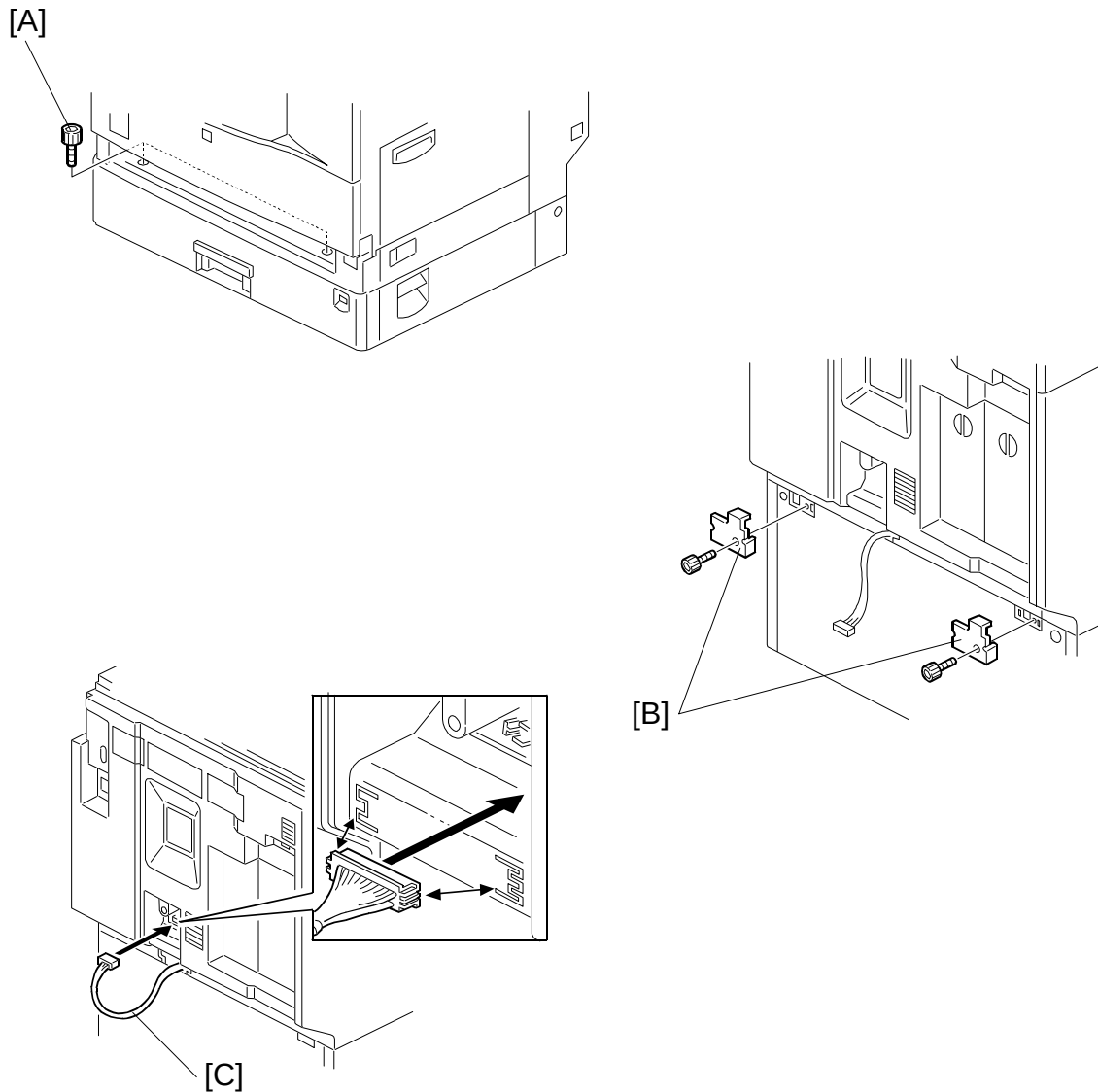
1. Remove the strips of tape.

PAPER TRAY UNIT (1 TRAY) INSTALLATION



2. Remove the cover [A] (1 screw) and pull out the cable [B].
3. Set the copier [C] on the paper tray unit [D].
NOTE: When installing the copier, be careful not to pinch the cable [B].
4. Remove the 1st cassette tray [E].

PAPER TRAY UNIT (1 TRAY) INSTALLATION



Installation

5. Install the two stepped screws [A].
6. Re-install the 1st cassette tray.
7. Install the two brackets [B] (1 screw each).
8. Connect the cable [C] to the copier, as shown.
NOTE: There are cutouts on both sides of the connector. The left side has one cutout and the right side has two.
9. Re-install the cover removed in step 2 (1 screw).
10. Make a full size copy from the 2nd tray. Then check that the side-to-side registration is correct. If it is not, adjust the value (SP1-002).

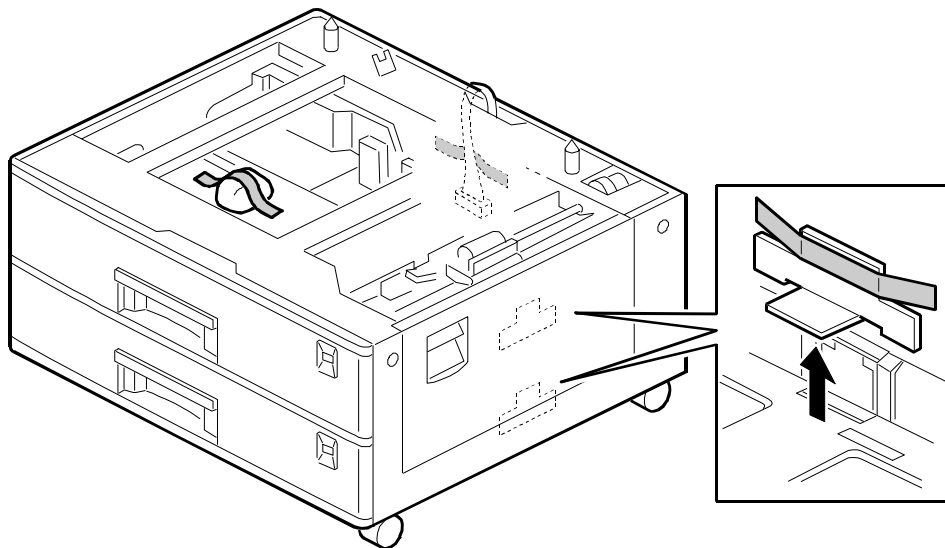
3.5 PAPER TRAY UNIT (2 TRAYS) INSTALLATION

3.5.1 ACCESSORY CHECK

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

Description	Quantity
1. Screw - M4 x 10.....	4
2. Screw - M4 x 5.....	8
3. Joint Bracket.....	2
4. Unit Holder.....	4
5. Installation Procedure	1

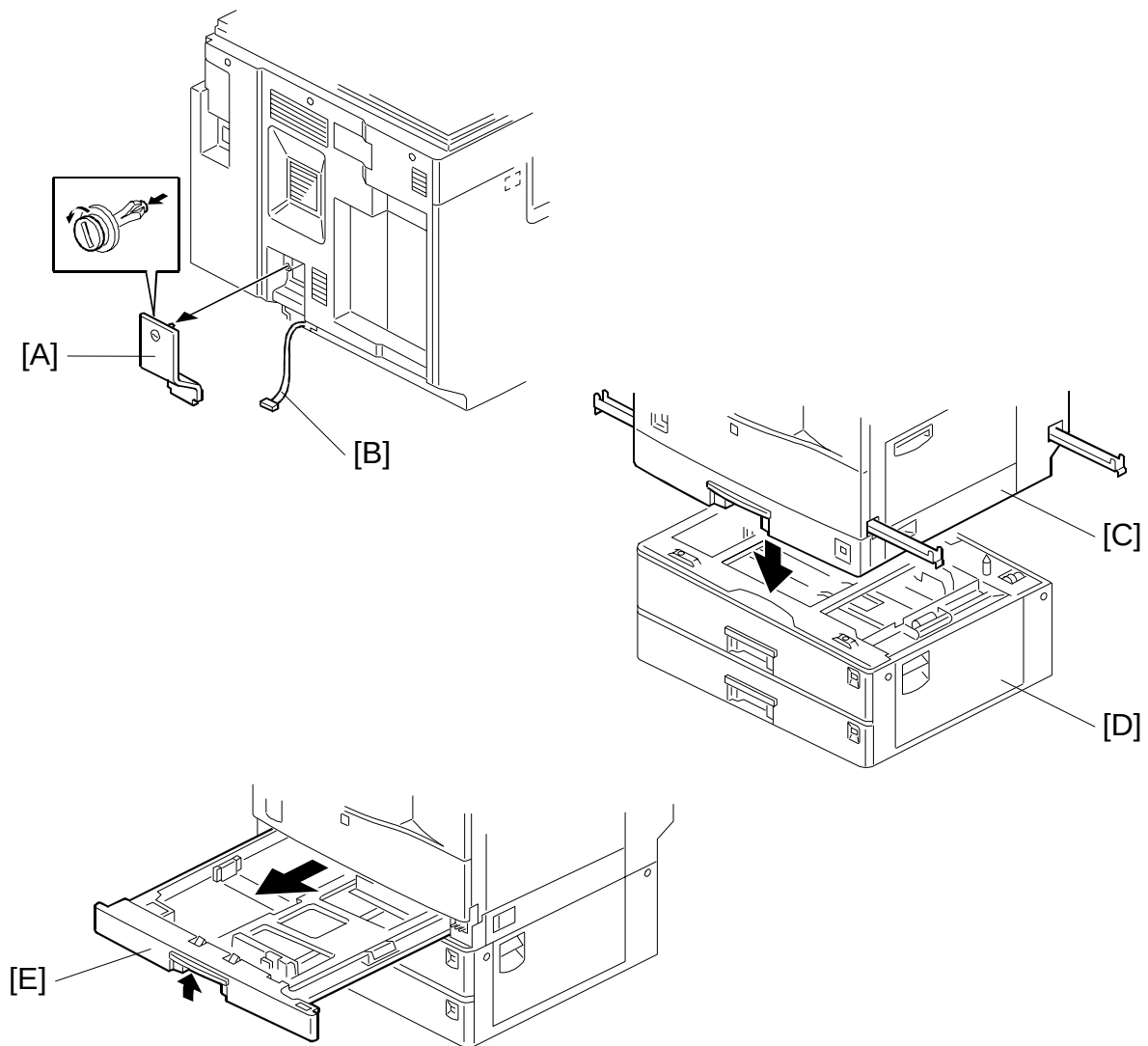
3.5.2 PAPER TRAY UNIT INSTALLATION PROCEDURE



Installation

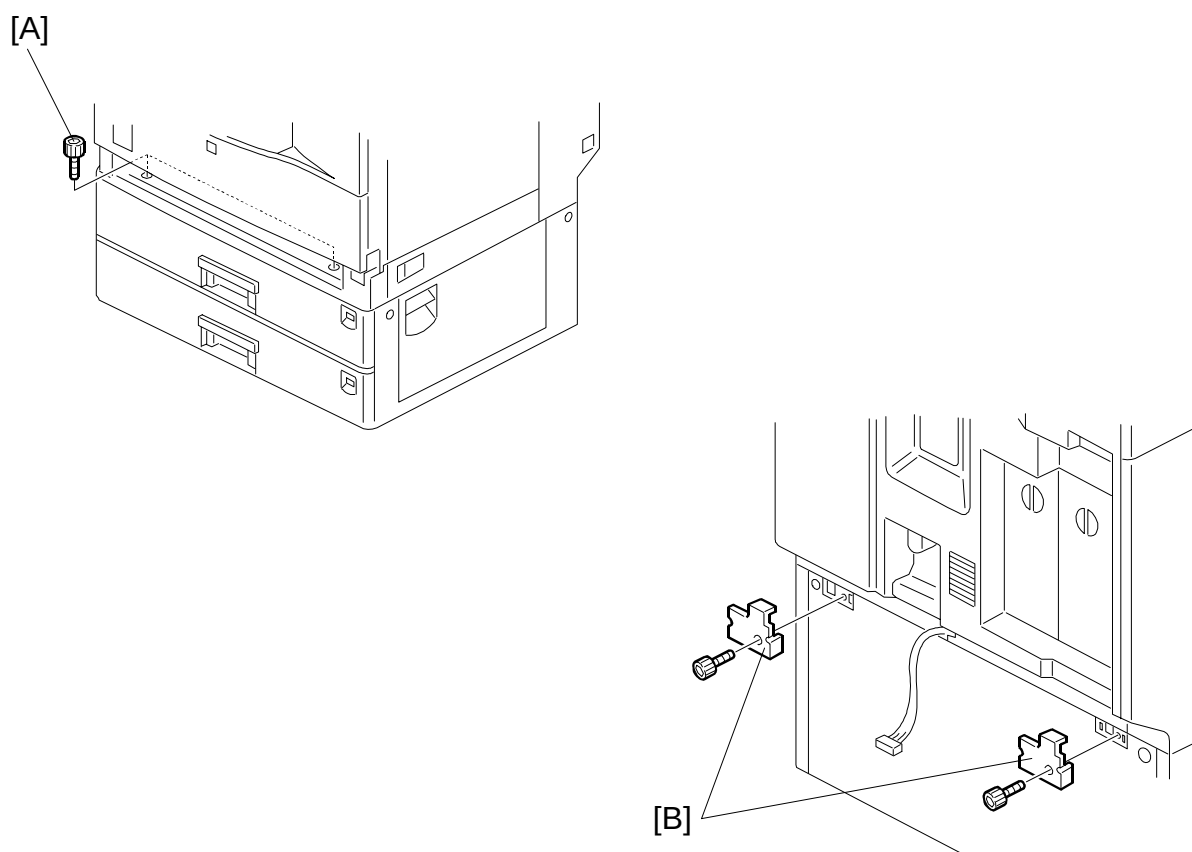
1. Remove the strips of tape.

PAPER TRAY UNIT (2 TRAYS) INSTALLATION



2. Remove the cover [A] (1 screw) and pull out the cable [B].
3. Set the copier [C] on the paper tray unit [D].
NOTE: When installing the copier, be careful not to pinch the cable [B].
4. Remove the 1st cassette tray [E].

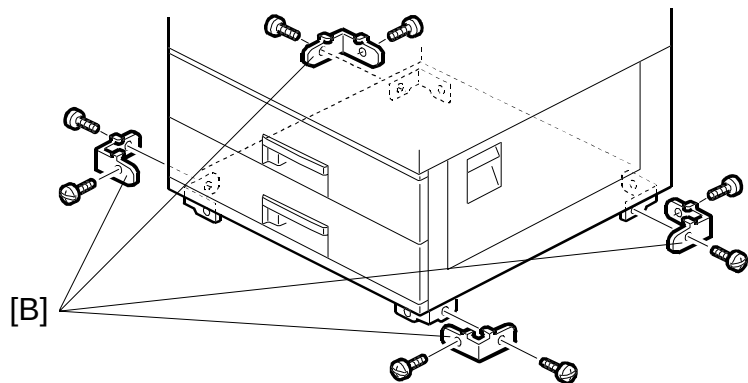
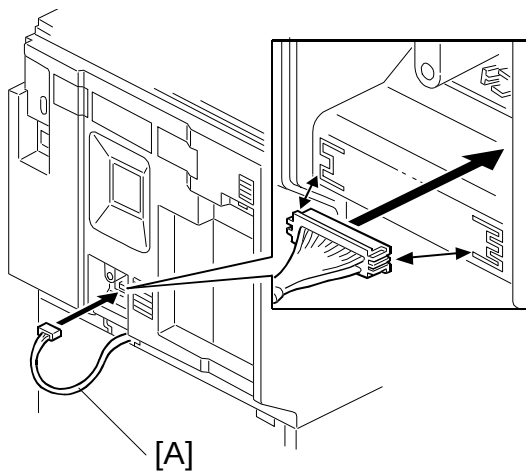
PAPER TRAY UNIT (2 TRAYS) INSTALLATION



Installation

5. Install the two stepped screws [A].
6. Re-install the 1st tray cassette.
7. Install the two brackets [B] (1 screw each).

PAPER TRAY UNIT (2 TRAYS) INSTALLATION



8. Connect the cable [A] to the copier, as shown.
NOTE: There are cutouts on both sides of the connector. The left side has one cutout, and the right side has two.
9. Re-install the cover removed in step 2 (1 screw).
10. Install the four brackets [B] (2 screws each).
11. Make a full size copy from the 2nd and 3rd trays. Then check that the side-to-side registration is correct. If it is not, adjust the value (SP1-002).

3.6 1-BIN SORTER INSTALLATION

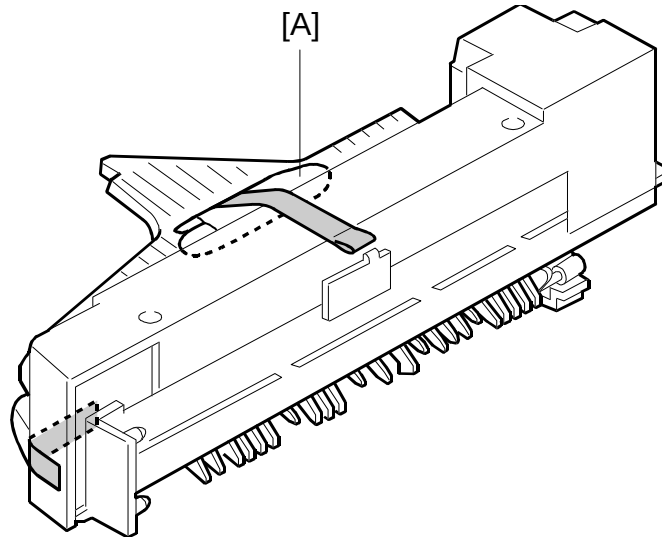
3.6.1 ACCESSORY CHECK

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

Description	Quantity
1. Screw - M3 x 6.....	1
2. Installation Procedure	1

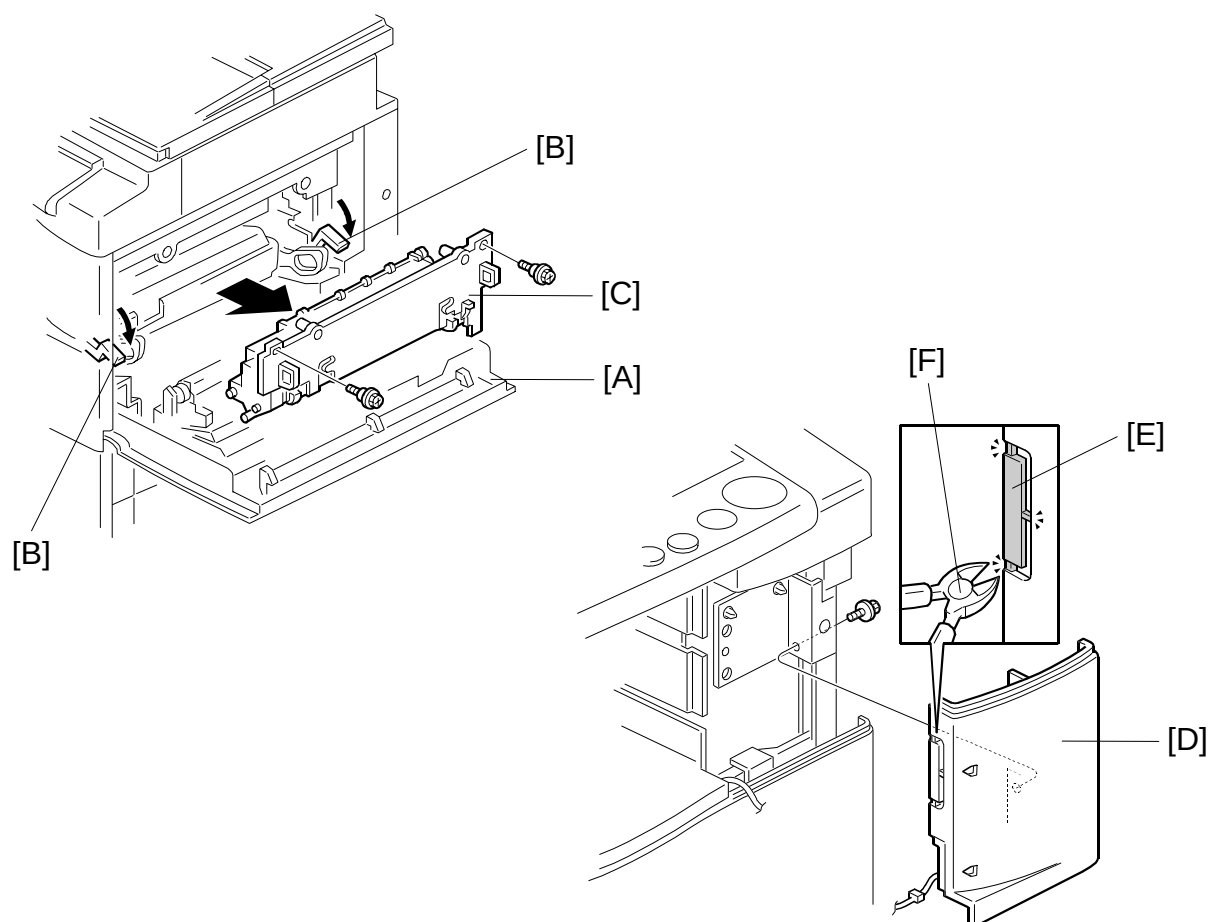
1-BIN SORTER INSTALLATION

3.6.2 1-BIN SORTER INSTALLATION PROCEDURE



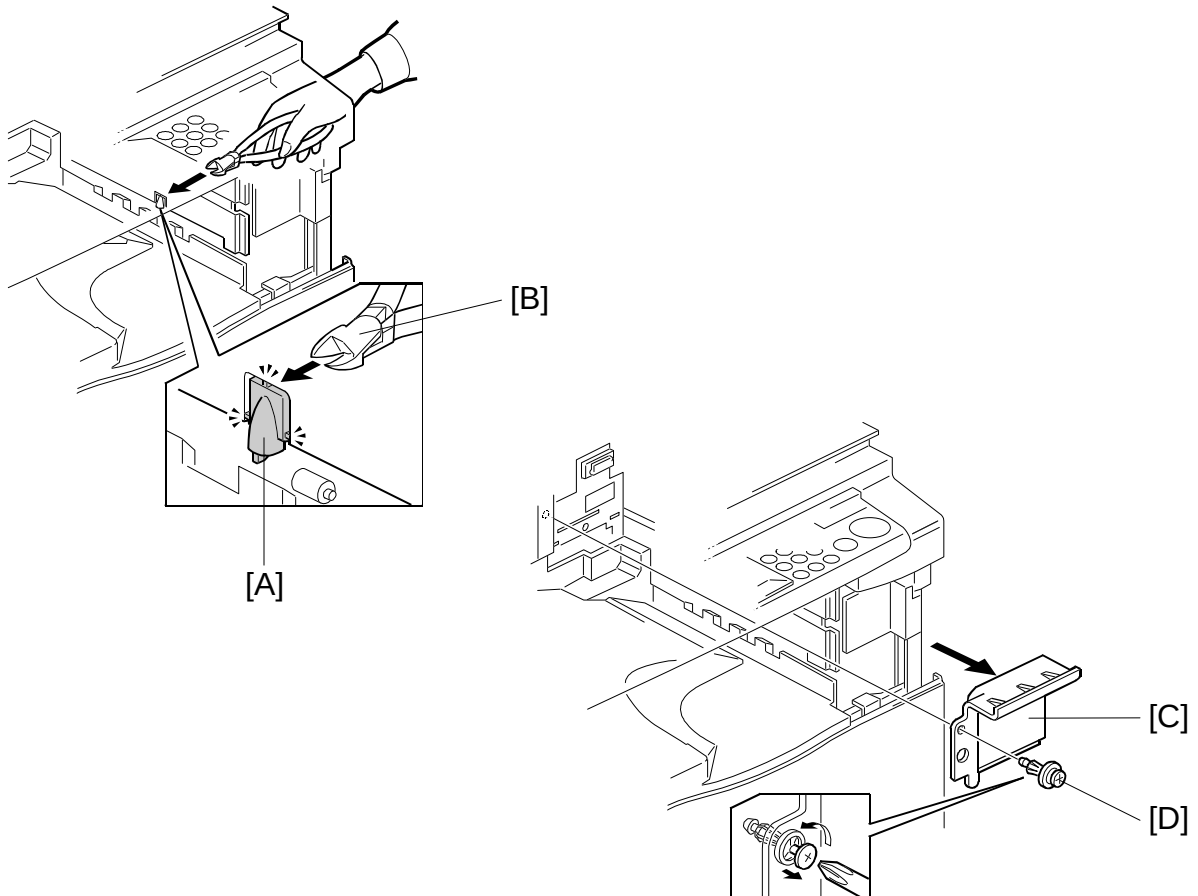
1. Remove the strips of tape.

NOTE: There is a screw in the plastic bag [A].



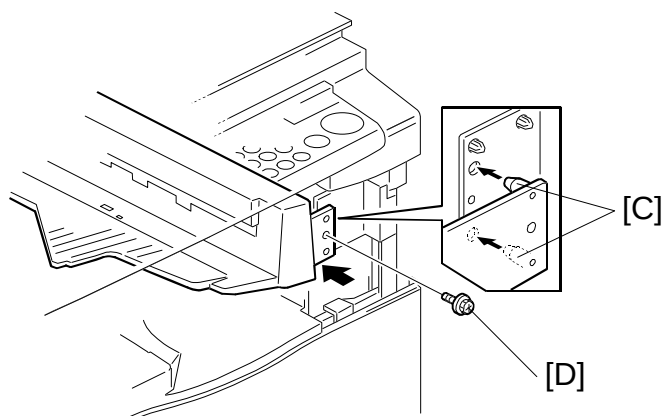
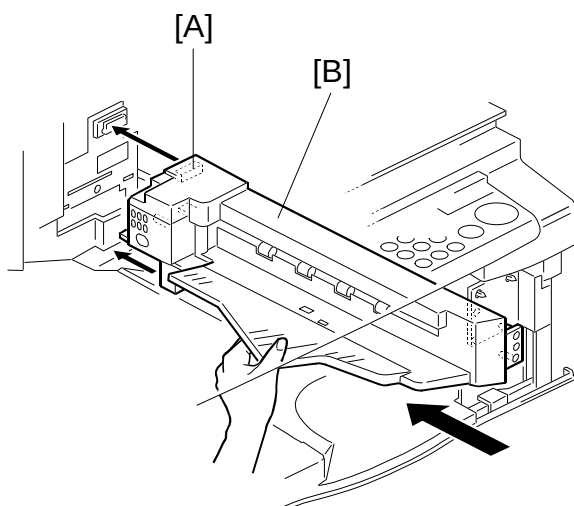
2. Open the right door [A].
3. Release the levers [B] and remove the fusing unit [C] (2 screws).
4. Remove the small front cover [D] (1 screw).
5. Remove the cap [E] with a wire cutter [F].

1-BIN SORTER INSTALLATION



6. Remove the cap [A] with a wire cutter [B].
7. Remove the cover [C] (1 rivet [D]) located inside the 1 bin sorter area.

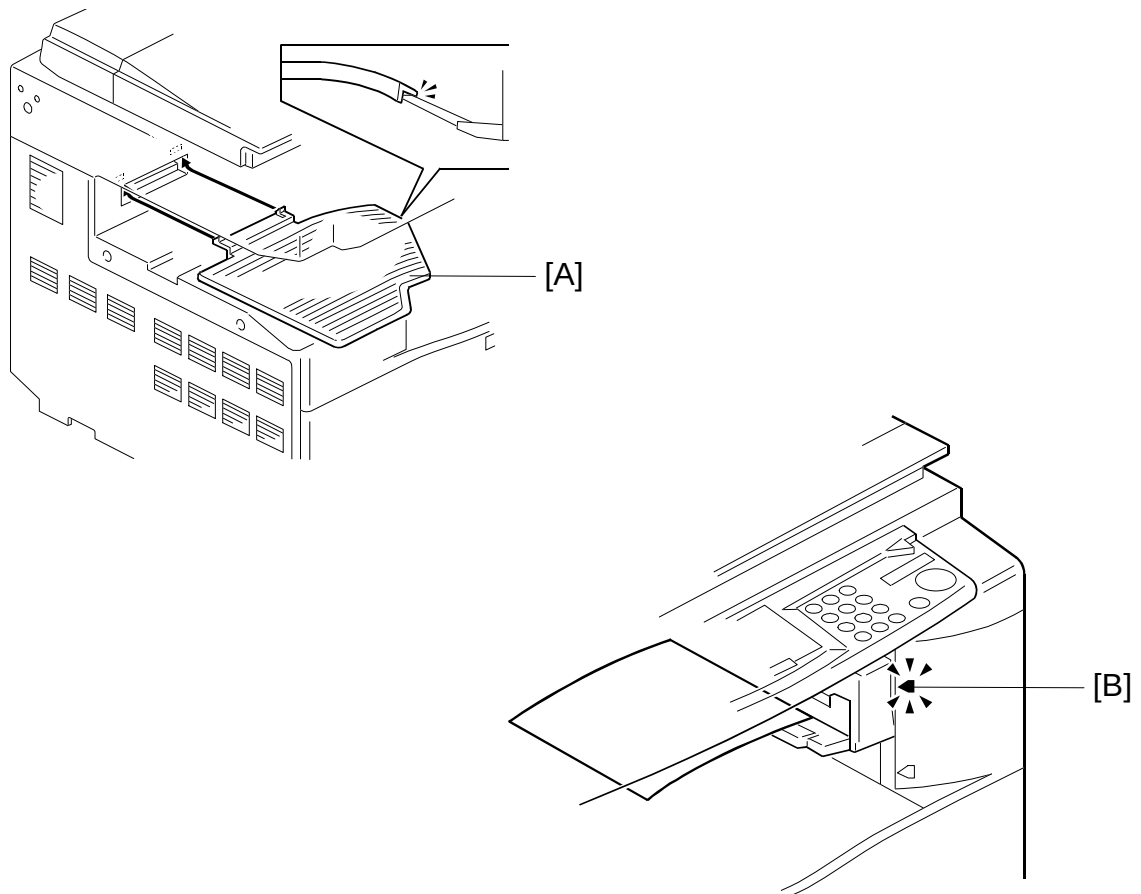
1-BIN SORTER INSTALLATION



Installation

8. Connect the connector [A] for the 1-bin sorter unit [B], as shown.
NOTE: Before installing the 1-bin sorter unit, check that the component under the connector [A] is not bent.
9. Set the pins [C] for the 1-bin sorter unit and secure the unit with the screw from the accessories [D].

1-BIN SORTER INSTALLATION



10. Install the bin [A], as shown.

NOTE: Mount the bin on the 1-bin sorter unit.

11. Re-install the small front cover and fusing unit.

NOTE: When re-installing the small front cover, be careful not to pinch the cable.

12. Close the right door.

13. Plug in the copier and turn on the main switch.

14. Place the paper on the 1-bin sorter and check that the LED [B] is green.

15. Set output tray priority, to customer preference, using User Tool system14. 1 bin sorter is identified as internal tray 2.

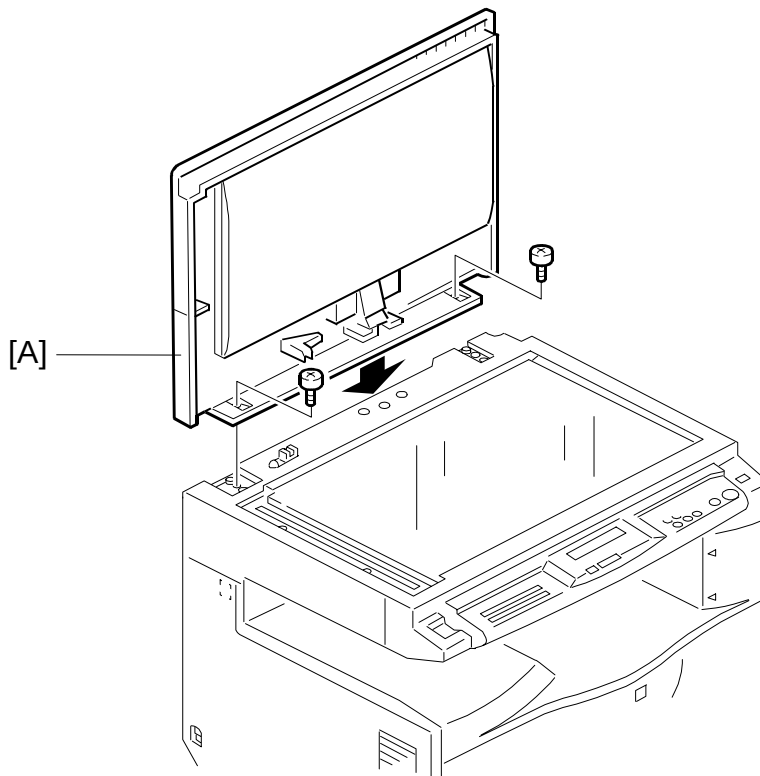
3.7 PLATEN COVER INSTALLATION

3.7.1 ACCESSORY CHECK

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

Description	Quantity
1. Stepped Screw	2

3.7.2 PLATEN COVER INSTALLATION PROCEDURE



1. Install the platen cover [A] (2 screws).

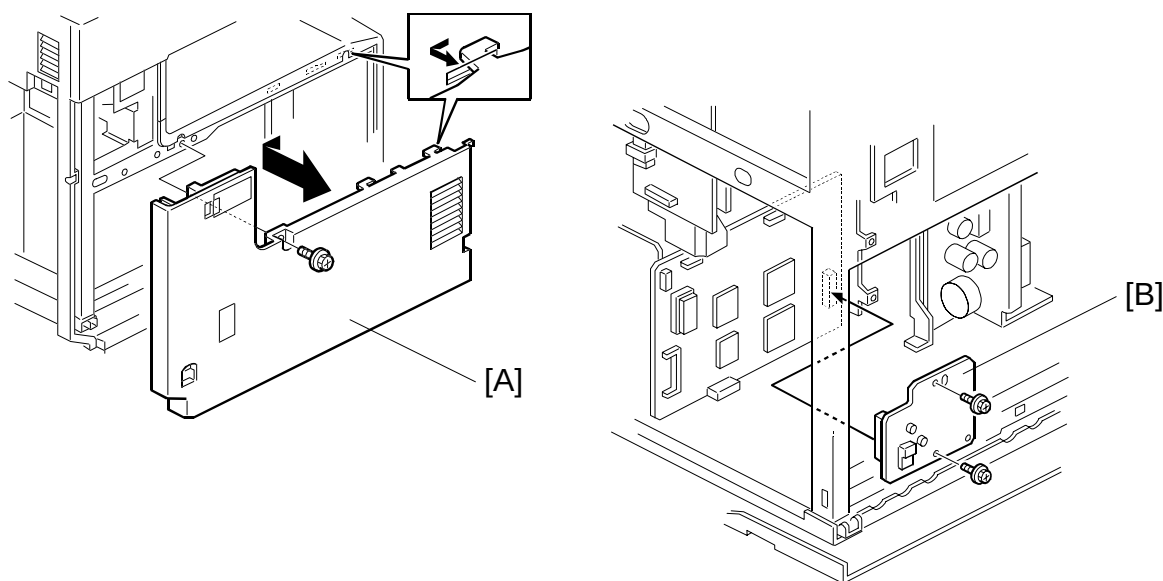
3.8 EXTENDED MEMORY BOARD INSTALLATION

3.8.1 ACCESSORY CHECK

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

Description	Quantity
1. Screw - M3 x 6 (two of these are not for use with A250).....	4
2. Bracket (not for A250).....	1
3. Installation procedure.....	1

3.8.2 EXTENDED MEMORY BOARD INSTALLATION PROCEDURE



⚠ CAUTION

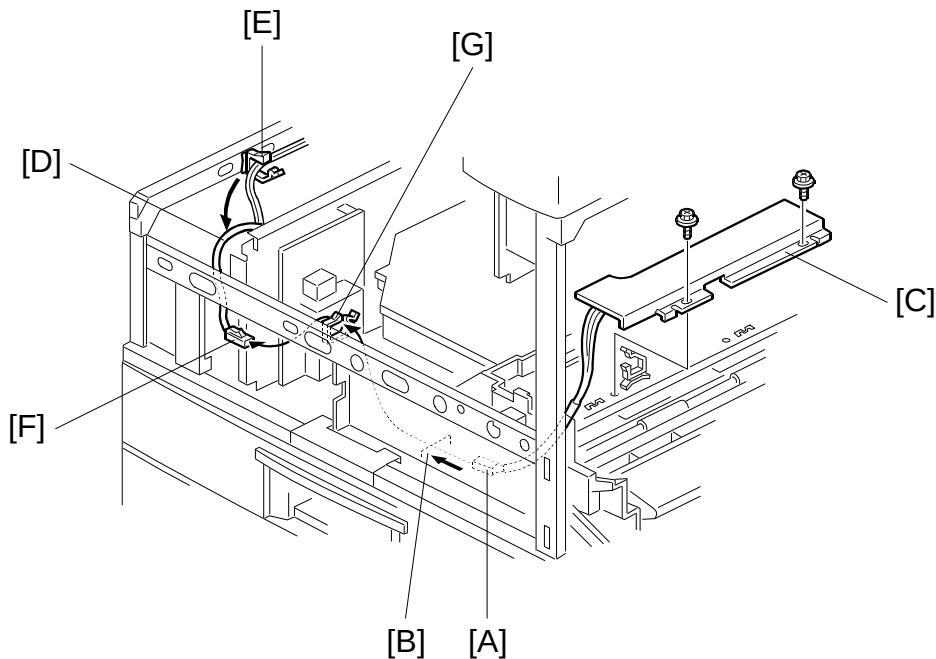
Before installing this option, do the following:

1. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
2. If there is a printer option in the machine, print out all data in the printer buffer.
3. Turn off the main switch and disconnect the power cord, the telephone line, and the network cable.

NOTE: If a printer unit, fax unit, or ISDN G4 unit was installed, remove them before installing the extended memory board.

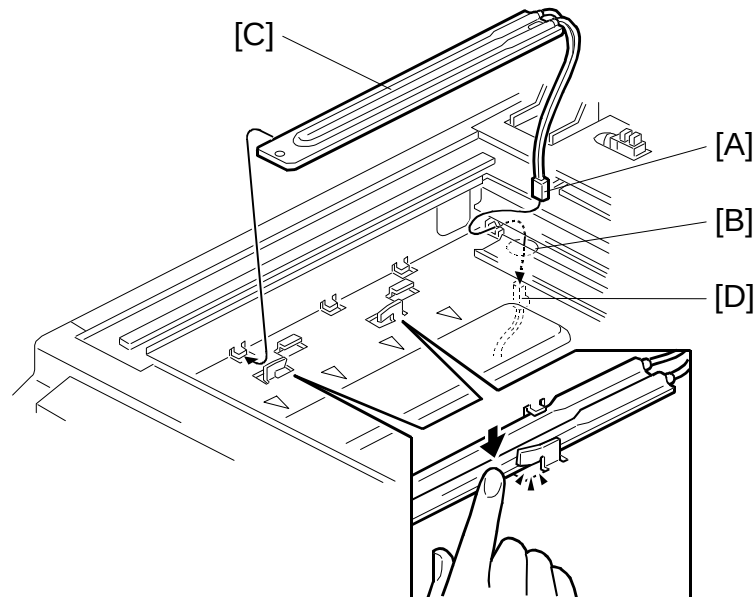
1. Remove the left cover [A], as shown (1 screw).
2. Install the extended memory board [B] (2 screws).
3. Re-install the left cover.

3.9 DRUM HEATER INSTALLATION (OPTION)



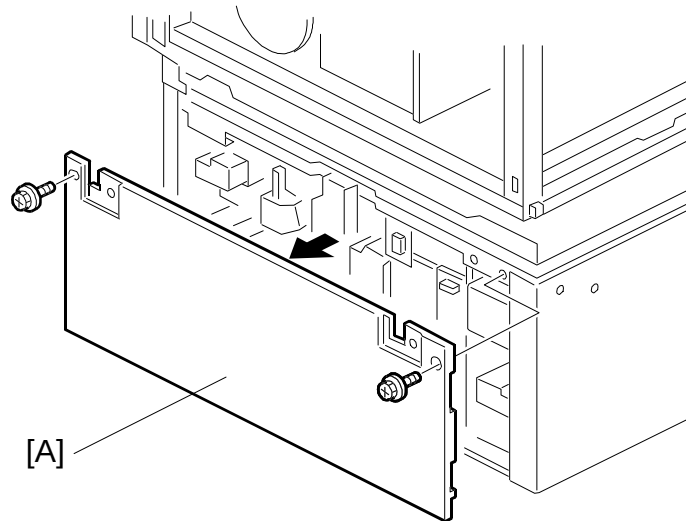
1. Remove the left cover, copy tray, and front cover. (See Exterior Removal, section 6.1.)
2. Remove the AIO cartridge.
3. Remove the fusing unit. (Refer to Fusing Unit Removal, section 6.5.1.)
4. Pass the connector [A] through the opening [B] under the LD unit.
5. Install the anti-condensation heater [C] (2 screws - M3 x 6).
6. Remove the cable [D] from the clamp [E], then join the connectors [A, F].
7. Clamp the cable to the clamp [G].
8. Re-install the fusing unit, AIO cartridge, left cover, copy tray and front cover.

3.10 OPTICS ANTI-CONDENSATION HEATER INSTALLATION (OPTION)



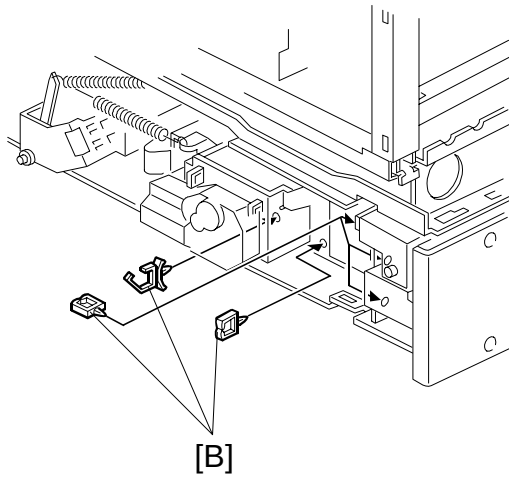
1. Remove the exposure glass. (See Exposure Glass Removal, section 6.2.1.)
2. Remove the rear cover. (See Rear Cover Removal, section 6.1.1.)
3. Pass the connector [A] through the opening [B].
4. Install the optics anti-condensation heater [C], as shown.
5. Join the connectors [A, D].
6. Re-install the exposure glass.

3.11 TRAY HEATER INSTALLATION

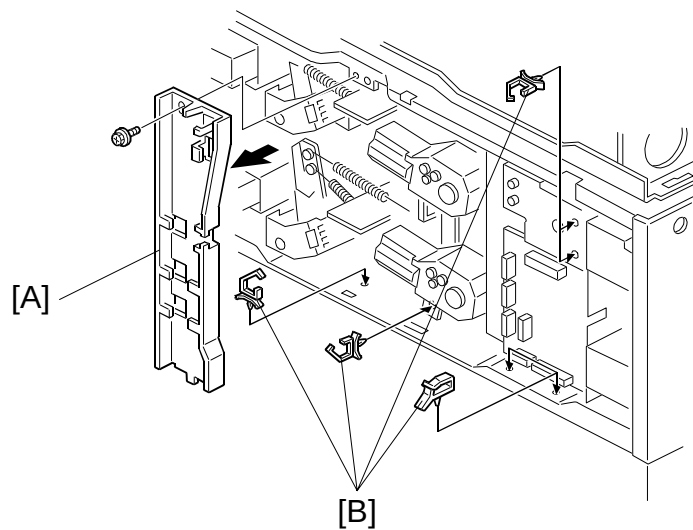


1. Remove the rear cover for the paper tray unit [A] (2 screws).

- 1-tray paper feed unit -



- 2-tray paper feed unit -

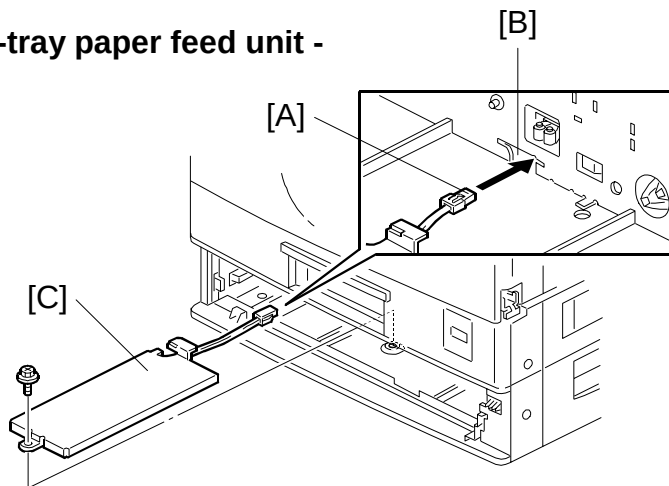


Installation

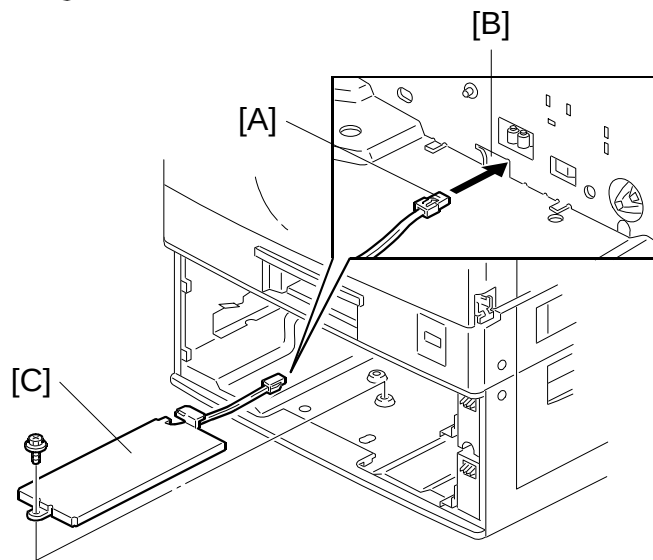
2. Two-tray unit only: Remove the cable guide [A] (1 screw).
3. Install the clamps [B].

TRAY HEATER INSTALLATION

- 1-tray paper feed unit -

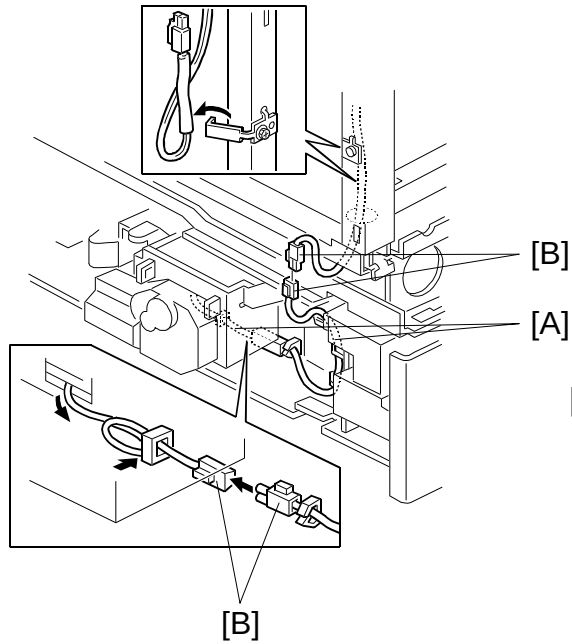


- 2-tray paper feed unit -

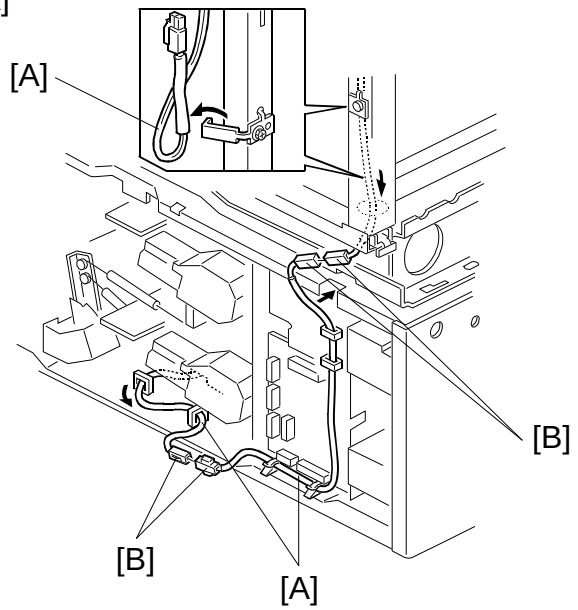


4. Pass the connector [A] through the opening [B].
5. Install the tray heater [C] (1 screw).

- 1-tray paper feed unit -



- 2-tray paper feed unit -

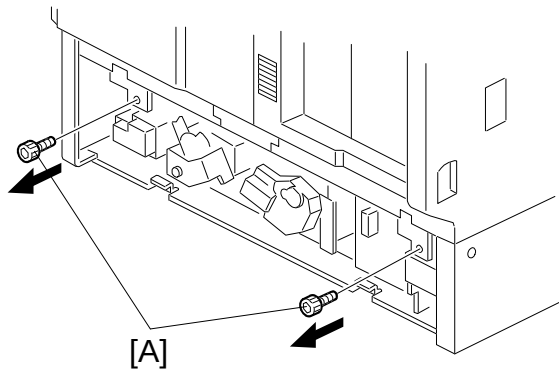


Installation

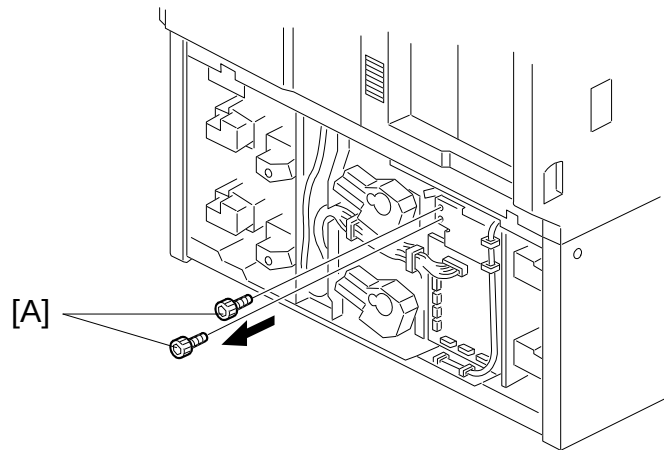
6. Clamp the cables [A], as shown.
7. Join the connectors [B].
8. Two-tray unit only: Re-install the cable guide.

TRAY HEATER INSTALLATION

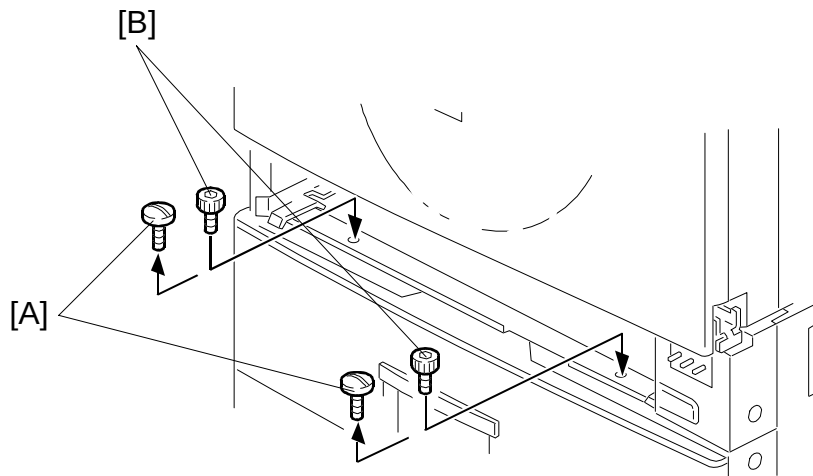
- 1-tray paper feed unit -



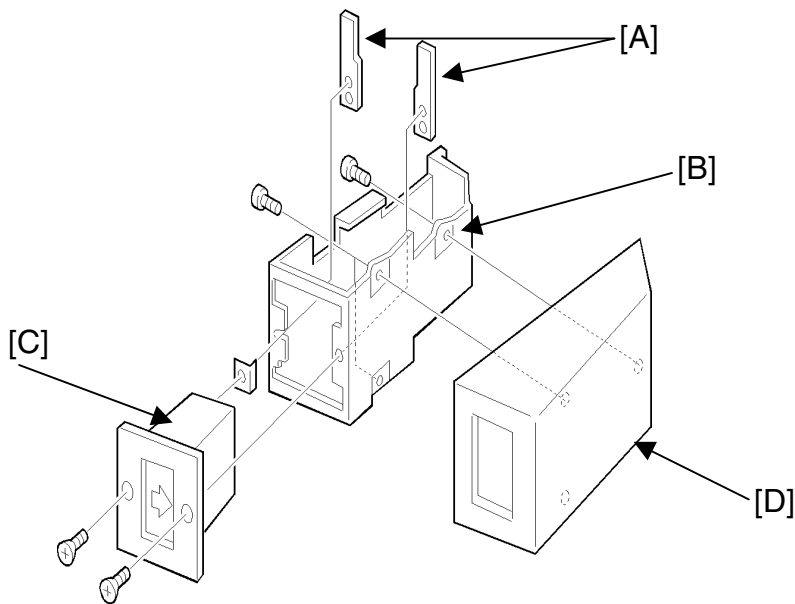
- 2-tray paper feed unit -



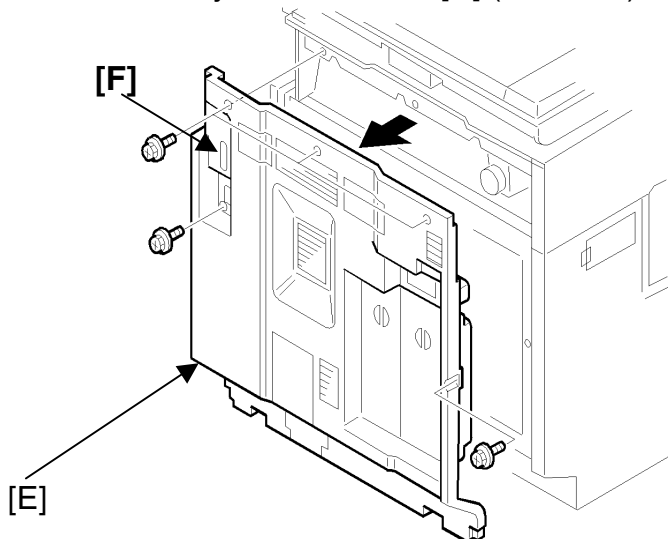
9. Remove the two screws [A] from the rear side of the paper feed unit.



10. Remove the 1st tray.
11. Remove the two screws [A] and install the two screws [B] which were removed in step 9.
12. Re-install the 1st tray and rear cover.

⇒ 3.12 KEY COUNTER INSTALLATION

1. Hold the key counter plate nuts [A] on the 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. Install the key counter cover [D] (3 screws).

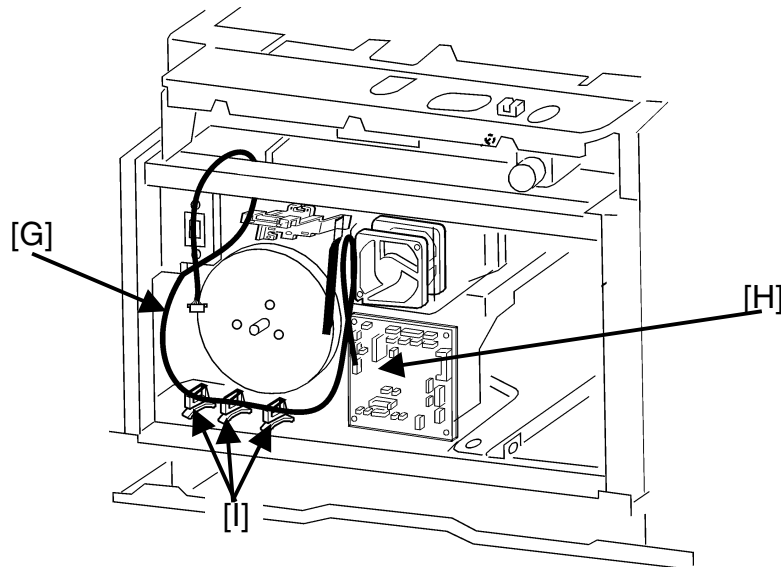


4. Remove the rear cover [E] (5 screws).
5. Using a pair of pliers, remove the oblong cover [F].

6. Connect the key counter cable [G] to connector CN326 on the I/O board [H].
7. Route the key counter cable as shown in the illustration below.

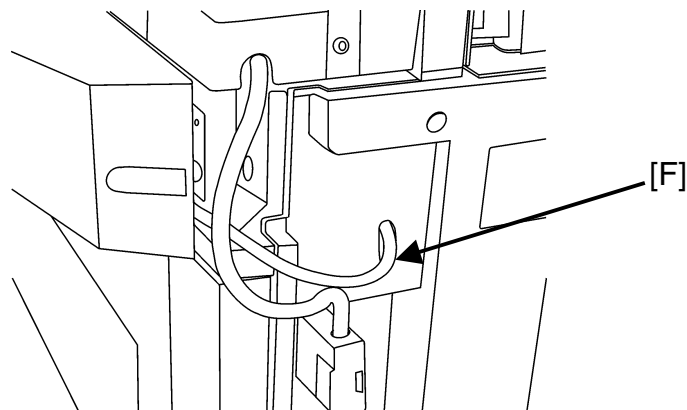
CAUTION: The cable must be properly routed to prevent the cable from contacting the rotating flywheel.

8. Secure the key counter cable under the cable fasteners [I].



9. Feed the key counter cable through the oblong opening [F].
10. Re-install the rear cover.
11. Connect the key counter cable to the key counter.
12. Attach the double-sided tape to the key counter bracket.
13. Adhere the key counter assembly to the left side of the scanner unit as shown below.

NOTE: When attaching the key counter assembly, press the assembly firmly against the scanner cover.



14. Enter the Service Program Mode and set 5-113 to 1. Refer to page 4-26.

SERVICE TABLES

4. SERVICE TABLES

4.1 GENERAL CAUTION

Do not turn off the main switch while any of the electrical components are active. Doing so might cause damage to units, such as the AIO, when they are pulled out of or put back into the copier.

4.1.1 AIO CARTRIDGE (ALL-IN-ONE CARTRIDGE)

The AIO cartridge consists of the OPC drum, development unit, charge roller, cleaning blade, toner supply mechanism, and toner collection area. Follow the cautions below when handling an AIO cartridge.

1. Store the AIO cartridge in a cool, dry place away from heat.
2. Dispose of used AIO cartridges in accordance with local regulations.

4.1.2 TRANSFER ROLLER UNIT

1. Never touch the transfer roller surface with bare hands.
2. Take care not to scratch the transfer roller as the surface is easily damaged.

4.1.3 SCANNER UNIT

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

GENERAL CAUTION

4.1.4 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 mirror are very sensitive to dust.
4. Do not touch the glass surface of the polygon mirror motor unit with bare hands.

4.1.5 FUSING UNIT

1. After installing the fusing thermistor, make sure that it is in contact with the hot roller and that it rotates freely.
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.

4.1.6 PAPER FEED

1. Do not touch the surface of the paper feed roller.
2. The side fences and end fences of the paper tray must be positioned correctly to align with the actual paper size to avoid paper misfeeds.

4.1.7 OTHERS

1. If the optional tray, drum, and optics anti-condensation heaters have been installed, keep the copier power cord plugged in, even when the copier main switch is turned off. This keeps the heaters energized.

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

How to Enter the SP Mode

Press the following keys in sequence.

☐ → ① → ⑦ → ⑦ → C/Ⓢ

- Hold the C/Ⓢ (Clear/Stop) key for more than 3 seconds.

How to Exit SP Mode

Press the “Back” and “Exit” keys or ☐ (Clear Modes) key until the standby mode display appears.

Accessing Copy Mode from within an SP Mode

1. Press the ⏏ (Interrupt) key.
2. Select the appropriate copy mode and make trial copies.
3. To return to SP mode, press the ⏏ (Interrupt) key again.

How to Select the Program Number

Program numbers are composed of two or three levels.

To input the required program number, select each program level in sequence.

1. Select the 1st level program number on the numeric keypad and press the # key or “OK” key.
NOTE: The 1st level program number can be selected using the “Prev.” or “Next” key.
2. Select the 2nd level program number at the numeric keypad and press the # key or “OK” key.
NOTE: The 2nd level program number can be selected using the “Prev.” or “Next” key.
3. If there are any 3rd level programs in SP mode, they can be selected in the same way as the 1st and 2nd level SP modes.
NOTE: The 3rd level program number can be selected using the “Prev.” or “Next” key.

SERVICE PROGRAM MODE

To input a value or setting for an SP mode

1. Enter the required program mode as explained above.
2. Enter the required setting using the numeric keys, then press the $\textcircled{\#}$ key or "OK" key.

NOTE: 1) If you forget to press the $\textcircled{\#}$ key or "OK" key, the previous value remains.
 2) Change between "+" and "-" using the $\textcircled{+/-}$ 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 Setting column, the default value is in **bold** letters.
 3) An asterisk "*" after the mode number means that this mode is stored in the NVRAM. If you do a RAM reset, all these SP modes will be return to their factory settings.
 4) SP4-915 to 4-941: When the SP mode name has a prefix of "P-", the adjustment is only effective when the user selects an original type of "Service Mode" (User Tools - General Features - 08. Image Adjustment).

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-001*	1	Leading Edge Regist. (Paper Tray Feed)	Adjusts the printing leading edge registration from the paper tray feed using the Trimming Area Pattern (SP5-902, No.10). <i>Use the $\textcircled{+/-}$ key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	+9 ~ -9 0.1 mm/step +0.0 mm
	2	Leading Edge Regist. (By-pass Feed)	Adjusts the printing leading edge registration from the by-pass feed using the Trimming Area Pattern (SP5-902, No.10). <i>Use the $\textcircled{+/-}$ key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	+9 ~ -9 0.1 mm/step +0.0 mm

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-002*	1	Side-to-Side Regist. (1st Paper Feed)	Adjusts the printing side-to-side registration from the 1st paper feed station using the Trimming Area Pattern (SP5-902, No.10).	+9 ~ -9 0.1 mm/step +0.0 mm
			Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.	
	2	Side-to-Side Regist. (2nd Paper Feed)	Adjusts the printing side-to-side registration from the 2nd paper feed station using the Trimming Area Pattern (SP5-902, No.10).	+9 ~ -9 0.1 mm/step +0.0 mm
			Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.	
1-002*	3	Side-to-Side Regist. (3rd Paper Feed)	Adjusts the printing side-to-side registration from the 3rd paper feed station using the Trimming Area Pattern (SP5-902, No.10).	+9 ~ -9 0.1 mm/step +0.0 mm
			Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.	
	4	Side-to-Side Regist. (By-pass Feed)	Adjusts the printing side-to-side registration from the by-pass paper feed station using the Trimming Area Pattern (SP5-902, No.10).	+9 ~ -9 0.1 mm/step +0.0 mm
			Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.	
1-003*	1	Paper Feed Timing (1st Paper Feed)	Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.)	0 ~ 30 1 mm/step 7 mm
	2	Paper Feed Timing (2nd Paper Feed)		0 ~ 30 1 mm/step 8 mm
	3	Paper Feed Timing (3rd Paper Feed)		0 ~ 30 1 mm/step 8 mm
	4	Paper Feed Timing (By-pass Feed)		0 ~ 30 1 mm/step 11 mm
1-007		By-pass Paper Size Display	Displays the by-pass paper width sensor output.	

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-103*		Fusing Idling	Selects whether fusing idling is done or not.	0: No 1: Yes
			<i>Normally disabled in this machine. However, if fusing is incomplete on the 1st and 2nd copies, switch it on. This may occur if the room is cold. Refer to "Detailed Section Descriptions - Fusing Temperature Control" for more details.</i>	
1-105*	1	Fusing Temp. Adj. (Stand-by)	Adjusts the fusing temperature for standby mode.	100 ~ 190 1°C/step 180°C
	2	Fusing Temp. Adj. (Energy Saver Level 2)	Adjusts the fusing temperature for energy saver level 2. <i>With a lower value, the machine takes more time to reach the ready condition.</i>	0 ~ 140 1°C/step 80°C
1-106		Fusing Temp. Display	Displays the fusing temperature.	
			<i>Press the  (Clear Modes) key to exit the display.</i>	
1-107*		Fusing Soft Start Adjustment	Adjusts the number of zero-cross cycles of the fusing lamp ac supply needed for the fusing lamp power to reach 100%. Use a higher number if the customer complains about sudden power dropouts.	0: 6 times 1: 10 times 2: 20 times
			<i>See "Detailed Descriptions - Fusing Unit" for details on SP1-107. Models other than European models</i>	
	1	Fusing Soft Start Adjustment (Stand-by)	Adjusts the number of zero-cross cycles of the fusing lamp ac supply needed for the fusing lamp power to reach 100% when raising the temperature to the standby temperature. Use a higher number if the customer complains about sudden power dropouts.	0: 6 times 1: 10 times 2: 20 times
			<i>See "Detailed Descriptions - Fusing Unit" for details on SP1-107. European model only</i>	
	2	Fusing Soft Start Adjustment (Copying)	Adjusts the number of zero-cross cycles of the fusing lamp ac supply needed for the fusing lamp power to reach 100% when raising the temperature during copying. Use a higher number if the customer complains about sudden power dropouts.	0: 6 times 1: 10 times 2: 20 times
			<i>See "Detailed Descriptions - Fusing Unit" for details on SP1-107. European model only</i>	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-108*		Fusing Soft Start Setting	Selects whether the fusing temperature control cycle is 1 or 3 seconds.	0: 1 sec 1: 3 sec
			<i>If this is "1", the power supply fluctuates less when the fusing lamp turns on. See "Detailed Descriptions - Fusing Unit" for details.</i>	
1-901		Auto Re-start Interval	Adjusts the auto re-start time.	0 ~ 9999 1 s/step 0 s
			Do not change the value.	
1-902		AC Frequency Display	Displays the fusing lamp power control frequency which is detected by the zero cross signal generator.	
			<i>Under "54" equals 50 Hz. Otherwise, 60 Hz.</i>	
1-908*	1	Paper Tray Adj. (N Size Back Time - 1)	Optional Paper Tray Unit Only: If a middle size threshold is not stored with SP1-908-9, this SP adjusts the upper lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-8. If a middle size threshold is stored with SP1-908-9, then this SP adjusts the motor reverse time for sizes larger than the middle size. <i>See "Option - Paper Tray Unit" for details on SP1-908.</i>	0 ~ 9000 1 ms/step 300 ms
	2	Paper Tray Adj. (S Size Back Time - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor reverse time for paper of the same size as or smaller than the small size threshold set with SP1-908-8. <i>See "Option - Paper Tray Unit" for details on SP1-908.</i>	0 ~ 9000 1 ms/step 600 ms
	3	Paper Tray Adj. (M Size Back Time - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-8, up to and including the middle size threshold set with SP1-908-9. If a middle size threshold is not stored with SP1-908-9, this SP is not used (with the default settings, this SP is not used in this machine). <i>See "Option - Paper Tray Unit" for details on SP1-908.</i>	0 ~ 9000 1 ms/step 100 ms

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	4	Paper Tray Adj. (S Size Comeback T - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor forward rotation time for paper of the same size as or smaller than the small size threshold set with SP1-908-8. The motor rotates forward when the remaining paper is lower than the value of SP1-908-6.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	5	Paper Tray Adj. (M Size Comeback T - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor forward rotation time for paper sizes larger than the small size threshold set with SP1-908-8, up to and including the middle size threshold set with SP1-908-9. The motor rotates forward when the remaining paper is lower than the value of SP1-908-7. If a middle size threshold is not stored with SP1-908-9, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 0 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	6	Paper Tray Adj. (S Size Ret. Amount - 1)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-4.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	7	Paper Tray Adj. (M Size Ret. Amount - 1)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-5. With the default settings, this SP is not used in this machine.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	8	Paper Tray Adj. (S Size Setting - 1)	Optional Paper Tray Unit Only: Selects the small size threshold for the upper tray. "0" means that this setting is not used.	0: Non (Not use) 1: HLT/A5
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.	2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4





Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	9	Paper Tray Adj. (M Size Setting - 1)	Optional Paper Tray Unit Only: Selects the middle size threshold for the upper tray. "0" means that this setting is not used. With the default settings, this SP is not used in this machine.	0: Non (Not use) 1: HLT/A5 2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	<i>The value must be larger than the small size threshold (SP1-908-8). The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.</i>	
	10	Paper Tray Adj. (N Size Back Time - 2)	Optional Paper Tray Unit Only: If a middle size threshold is not stored with SP1-908-18, this SP adjusts the lower lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-17. If a middle size threshold is stored with SP1-908-18, then this SP adjusts the motor reverse time for sizes larger than the middle size.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	11	Paper Tray Adj. (S Size Back Time - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor reverse time for paper of the same size as or smaller than the small size threshold set with SP1-908-17.	0 ~ 9000 1 ms/step 600 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	12	Paper Tray Adj. (M Size Back Time - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-17, up to and including the middle size threshold set with SP1-908-18. If a middle size threshold is not stored with SP1-908-18, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 100 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	13	Paper Tray Adj. (S Size Comeback T - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor forward rotation time for paper of the same size as or smaller than the small size threshold set with SP1-908-17. The motor rotates forward when the remaining paper is lower than the value of SP1-908-15.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	14	Paper Tray Adj. (M Size Comeback T - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor forward rotation time for paper sizes larger than the small size threshold set with SP1-908-17, up to and including the middle size threshold set with SP1-908-18. The motor rotates forward when the remaining paper is lower than the value of SP 1-908-16. If a middle size threshold is not stored with SP1-908-18, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 0 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	15	Paper Tray Adj. (S Size Ret. Amount - 2)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-13.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	16	Paper Tray Adj. (M Size Ret. Amount - 2)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-14. With the default settings, this SP is not used in this machine.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	17	Paper Tray Adj. (S Size Setting - 2)	Optional Paper Tray Unit Only: Selects the small size threshold for the lower tray. "0" means that this setting is not used.	0: Non (Not use) 1: HLT/A5
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.	2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4





Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	18	Paper Tray Adj. (M Size Setting - 2)	Optional Paper Tray Unit Only: Selects the middle size threshold for the lower tray. "0" means that this setting is not used. With the default settings, this SP is not used in this machine.	0: Non (Not use) 1: HLT/A5 2: A4T 3: Lg, LTT 4: DLT, LT 5: A3, A4
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	<i>The value must be larger than the small size threshold (SP1-908-17). The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.</i>	
1-909*		Tray Motor Reverse Time	Adjusts the tray motor reverse time.	0 ~ 9000 1 ms/step 1700 ms
			<i>The tray motor reverses when the tray is pulled out. The tray can be put back in the machine without damage while the motor reverses. See "Option - Paper Tray Unit" for details on SP1-908.</i>	
2-001*		Charge Roller Bias Adjustment	Adjusts the voltage applied to the charge roller.	0 ~ -1500 1 V/step -600 V
			Do not change the value.	
2-101*	1	Erase Margin Adjustment (Leading Edge)	Adjusts the leading edge erase margin. <i>The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
	2	Erase Margin Adjustment (Trailing Edge)	Adjusts the trailing edge erase margin. <i>The specification is more than 0.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 3 mm
	3	Erase Margin Adjustment (Left Side)	Adjusts the left edge erase margin. <i>The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
	4	Erase Margin Adjustment (Right Side)	Adjusts the right edge erase margin. <i>The specification is more than 0.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
2-103*		LD Power Adjustment	Adjusts the LD power.	0 ~ 255 1 /step 129
			Do not change the value.	
2-106*		ID Adj. for Test Pattern	Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP5-902).	0 ~ 255 1 /step 255

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
2-201*		Development Bias Adjustment	Adjusts the development bias during copying. <i>This can be adjusted as a temporary measure if faint copies appear due to an aging drum.</i>	0 ~ -1000 1 V/step -400 V
2-213*		Copies after Near End	Selects the number of copies after toner near-end has been detected. See Detailed Descriptions - Development for details.	0: 150 pages 1: 50 pages 2: 250 pages
2-214*		Copies before Near End	Selects the number of copies before toner near-end has been detected. The value depends on the setting of SP2-213. See Detailed Descriptions - Development for details.	0: Normal 1: Low 2: High
2-301*	1	Transfer Current (Paper Tray Feed)	Adjusts the current applied to the transfer roller during copying from paper tray when the user uses the "Normal" paper setting. <i>If the user normally feeds thicker paper from the paper tray, use a higher setting.</i>	0: -2 μ A 1: 0 μA 2: +2 μ A 3: +4 μ A
		Transfer Current (By-pass Feed)	Adjusts the current applied to the transfer roller during copying from by-pass tray when the user uses the "Normal" or "Thick" paper setting. <i>If the user normally feeds thicker paper from the by-pass tray, use a higher setting.</i>	0: -2 μ A 1: 0 μA 2: +2 μ A 3: +4 μ A
	3	Transfer Current (Cleaning)	Adjusts the current applied to the transfer roller during roller cleaning. <i>If toner remains on the roller after cleaning, increase the current.</i>	0 ~ -10 1 μ A/step -3 μA
		Transfer Current (Input)	This is for the designer's test purposes. Do not change the value.	0 ~ 30 1 μ A/step 0 μA
	5	Transfer Current (Special Paper)	Adjusts the current applied to the transfer roller during copying on "special" paper. <i>If the user selects "Dry" paper with User Tools - System Settings - 17. Paper Status, the current set with this SP mode is used. If there are white spots on the copy, use a higher setting if possible.</i>	0: 25 μA 1: 22 μ A 2: 20 μ A
		LD Discharge Interval	Selects the interval at which the LD discharges the OPC drum. <i>See "Detailed Descriptions - AIO cartridge" for details.</i>	0: 25 pages 1: 50 pages 2: 100 pages
		FCI Smoothing	Selects whether the FCI smoothing function to remove jagged edges is enabled or disabled. <i>FCI smoothing is only used with the Sharp Text setting in text mode.</i>	0: No (Disabled) 1: Yes (Enabled)

Mode No.			Function	Settings
Class 1 and 2	Class 3			
2-905*		Gradation Type	This is for the designer's test purposes. Do not change the value.	
2-910		Transfer Roller Cleaning	Determines how often the transfer roller is cleaned. <i>0: The machine cleans the transfer roller every 10 copies (it waits for the job to finish). 1: The machine cleans the transfer roller after every job.</i>	0: No 1: Yes
2-915*		Polygon Motor Idling Time	Selects the polygon motor idling time. <i>If the user sets original, touches a key, or opens the platen cover/DF, the polygon motor starts idling to make a faster first copy. However, with the default (25 s), the motor stops if the user does nothing for 25 s, and stops 25 s after the end of a job. If set at "0", the polygon motor never turns off during stand-by. However, when the machine goes into energy saver mode, the polygon motor turns off regardless of this timer.</i>	0: Non 1: 15 sec 2: 25 sec
2-998*		Printer Main Magnification	Adjusts the magnification in the main scan direction for the printer. <i>Use the  key to toggle between + and - before entering the value. The specification is ± 0.5%. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 0.5 ~ + 0.5 0.1 %/step 0.0%
⇒ 4-008*		Main Scan Magnification	Adjusts the magnification in the main scan direction for scanning. <i>Use the  key to toggle between + and - before entering the value. The specification is ± 0.5%. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 1.0 ~ + 1.0 0.1 %/step 0.0%
⇒ 4-010*		Leading Edge Registration	Adjusts the leading edge registration for scanning in platen mode. <i>(-): The image moves in the direction of the leading edge. Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 2.0 ~ + 9.0 0.1 mm/step 0.0 mm

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-011*		Side-to-side Registration	Adjusts the side-to-side registration for scanning in platen mode. <i>(-): The image disappears at the left side. (+): The image appears. Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 9.0 ~ + 6.0 0.1 mm/step 0.0 mm
4-012*	1	Erase Margin (Leading Edge)	Adjusts the leading edge margin for scanning. <i>Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</i>	0 ~ 9.0 0.1 mm/step 1.0 mm
	2	Erase Margin (Trailing Edge)	Adjusts the trailing edge margin for scanning. <i>Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</i>	0 ~ 9.0 0.1 mm/step 1.0 mm
	3	Erase Margin (Left Side)	Adjusts the left side margin for scanning. <i>Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</i>	0 ~ 9.0 0.1 mm/step 1.0 mm
	4	Erase Margin (Right Side)	Adjusts the right side margin for scanning. <i>Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.</i>	0 ~ 9.0 0.1 mm/step 1.0 mm
4-013		Scanner Free Run	Performs a scanner free run with the exposure lamp on. <i>After selecting "1", press "OK" or the  key twice to start this feature. Press the  (Clear/Stop) key to stop.</i>	0: No 1: Yes
4-015*	1	White Plate Scanning (Start Position)	Adjusts the scanning start position on the white plate for auto shading. <i>The default is 6 mm from the leading edge. The setting specifies how far scanning starts from the default position.</i>	- 3.0 ~ + 3.0 0.1 mm/step 0.0 mm

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-015*	2	White Plate Scanning (Scanning Area)	Adjusts the width of the area on the white plate (in the sub scan direction) that is scanned for auto shading.	– 3.0 ~ + 3.0 0.1 mm/step 0.0 mm
			<i>The default is 5 mm. The current setting specifies the difference from this default.</i>	
4-101*		Sub Scan Magnification	Adjusts the magnification in the sub scan direction for scanning. If this value is changed, the scanner motor speed is changed.	– 0.9 ~ + 0.9 0.1%/step 0.0%
			<i>Use the  key to toggle between + and - before entering the value. The specification is ± 0.5%. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	
4-301		APS Data Display	Displays the status of the APS sensors and platen/DF cover sensor.	
			<i>See "APS and Platen/ADF Cover Sensor Output Display" after the SP mode table.</i>	
4-303*		APS Small Size Original	Selects whether the copier determines that the original is A5 size when the APS sensor cannot detect the size.	0: No (Not detected) 1: Yes (A5 lengthwise)
			<i>If "A5 lengthwise" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise. If "Not detected" is selected, "Cannot detect original size" will be displayed.</i>	
4-403*		Image Mode Selection	This is for the designer's test purposes.	0: No 1: Yes
			Do not change the value.	
4-412*		IPU Image Data Path	Selects one of the following video data outputs, which will be used for printing. 0. N: Normal video processing 1. S: After auto shading processing 2. M: After magnification processing 3. F: After MTF processing 4. G: After gamma correction 5. T: Data straight through (no video processing)	
			Do not change the value.	

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-417		IPU/SBU Test Pattern	Prints test patterns from the IPU or SBU video data outputs. (1 ~ 13: IPU, 14 ~ 16: SBU) 0. No Print 1. Vertical Line - 1 dot 2. Horizontal Line - 1 dot 3. Vertical Line - 2 dot 4. Horizontal Line - 2 dot 5. Alternating Dot Pattern 6. Grid Pattern - 1 dot 7. Vertical Bands 8. Grayscale - Horizontal 9. Grayscale - Vertical 10. Patch Pattern 11. Cross Pattern 12. Slant Pattern 13. Trimming Area 14. Vertical Line - 2 dot 15. Grid Pattern - 2 dot 16. 16-grayscale	
			<i>Change to the copy mode display by pressing the  (Interrupt) key, then print the test pattern.</i>	
4-902		Exposure Lamp ON	Turns on the exposure lamp.	0: No (Off)
			<i>To turn off the exposure lamp, select "0".</i>	1: Yes (On)
4-904	1*	SBU Gain Adjustment (EVEN)	Checks the difference value of the black level for the EVEN channel after adjusting the black level at power-up.	0 ~ 255 1/step 40
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
	2*	SBU Gain Adjustment (ODD)	Checks the difference value of the black level for the ODD channel after adjusting the black level at power-up.	0 ~ 255 1/step 40
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
	3	SBU Gain Adjustment (Adjusted EVEN)	Checks the difference value of the black level for the EVEN channel after adjusting the black level at SBU Auto Adjustment (SP4-908).	0 ~ 255 1/step 40
			Do not change the value.	
	4	SBU Gain Adjustment (Adjusted ODD)	Checks the difference value of the black level for the ODD channel after adjusting the black level at SBU Auto Adjustment (SP4-908).	0 ~ 255 1/step 40
			Do not change the value.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-905*	1	SBU DC Cont Adjustment (EVEN)	Adjusts the coefficient of the D/A converter for the AGC gain curve for DC cont for the EVEN channel.	0 ~ 255 1/step 25
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
	2	SBU DC Cont Adjustment (ODD)	Adjusts the coefficient of the D/A converter for the AGC gain curve for DC cont for the ODD channel.	0 ~ 255 1/step 25
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
4-906	1	SBU Ref. Value Adjustment (Current Value)	Adjusts the coefficient of the D/A converter for the AGC gain curve for scanning the white plate.	0 ~ 255 1/step 147
			Do not change the value.	
	2	SBU Ref. Value Adjustment (Loop)	Displays the number of convergences for SBU reference control.	0 ~ 255 1/step 147
			Do not use in the field.	
4-907*	1	SBU Offset Value Adjustment (EVEN)	Adjusts the coefficient of the D/A converter for the offset (Z/C) for the analog image data processing for EVEN.	0 ~ 255 1/step 180
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
	2	SBU Offset Value Adjustment (ODD)	Adjusts the coefficient of the D/A converter for the offset (Z/C) for the analog image data processing for ODD.	0 ~ 255 1/step 180
			Do not change the value. <i>However, after performing the memory all clear (SP5-801), use it to re-input the previous value.</i>	
4-908		SBU Auto Adjustment	Performs the auto scanner adjustment.	0: No (Normal operation) 1: Yes (Start the adjustment)
			<i>Using this SP mode after replacing the white plate or erasing the memory on the BICU board. See "Replacement and Adjustment - Standard White Density Adjustment" for details on how to do this.</i>	
4-909		SBU AE Cont Adjustment	Adjusts the background density when ADS mode is not being used.	0 ~ 255 1/step 209
			Do not change the value.	

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-910*		Scanner Motor Control	Selects the scanner motor control method.	0: Normal 1: Special
			<i>If "1" is selected, the current for the scanner motor will be reduced and jitter copy image problems will be alleviated. However, copy speed will be reduced.</i> Normally do not change the value.	
4-913*		DF Shading Interval Time	Adjusts the interval for shading processing in DF mode.	0 ~ 60 1 s/step 30 s
			<i>Light and heat may affect the scanner response. If copy quality indicates that white level is drifting during a DF copy job, reduce this setting. This setting is only effective when the setting of SP4-950 is "ADAM".</i>	
4-915*	1	P - MTF Coefficient (Text Main 50%~95%)	This adjustment is only effective for the "Service Mode" original type setting. Selects the MTF filter coefficient. See "Detailed Descriptions - Image Processing" for details. T/P: Text/Photo	0 ~ 15 1/step 1
	2	P - MTF Coefficient (Text Main 96%~125%)		0 ~ 15 1/step 1
	3	P - MTF Coefficient (Text Main 126%~159%)		0 ~ 15 1/step 3
	4	P - MTF Coefficient (Text Main 160%~200%)		0 ~ 15 1/step 4
	5	P - MTF Coefficient (Text Sub 50%~95%)		0 ~ 13 1/step 2
	6	P - MTF Coefficient (Text Sub 96%~125%)		0 ~ 13 1/step 2
	7	P - MTF Coefficient (Text Sub 126%~159%)		0 ~ 13 1/step 3
	8	P - MTF Coefficient (Text Sub 160%~200%)		0 ~ 13 1/step 4
	9	P - MTF Coefficient (T/P Main 50%~89%)		0 ~ 15 1/step 3
	10	P - MTF Coefficient (T/P Main 90%~95%)		0 ~ 15 1/step 3
	11	P - MTF Coefficient (T/P Main 96%~125%)		0 ~ 15 1/step 1
	12	P - MTF Coefficient (T/P Main 126%~159%)		0 ~ 15 1/step 1

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-915*	13	P - MTF Coefficient (T/P Main 160%~200%)	This adjustment is only effective for the “Service Mode” original type setting. Selects the MTF filter coefficient. See “Detailed Descriptions - Image Processing” for details. T/P: Text/Photo	0 ~ 15 1/step 1
	14	P - MTF Coefficient (T/P Sub 50%~89%)		0 ~ 13 1/step 3
	15	P - MTF Coefficient (T/P Sub 90%~95%)		0 ~ 13 1/step 3
	16	P - MTF Coefficient (T/P Sub 96%~125%)		0 ~ 13 1/step 2
	17	P - MTF Coefficient (T/P Sub 126%~159%)		0 ~ 13 1/step 2
	18	P - MTF Coefficient (T/P Sub 160%~200%)		0 ~ 13 1/step 2
4-916*	1	P - MTF Strength (Text Main 50%~95%)	This adjustment is only effective for the “Service Mode” original type setting. Selects the MTF strength using grayscale processing. See “Detailed Descriptions - Image Processing” for details. Weak Strength 1-2-3-4-5-0(x1)-6-7 T/P: Text/Photo	0 ~ 7 1/step 4
	2	P - MTF Strength (Text Main 96%~125%)		0 ~ 7 1/step 5
	3	P - MTF Strength (Text Main 126%~159%)		0 ~ 7 1/step 5
	4	P - MTF Strength (Text Main 160%~200%)		0 ~ 7 1/step 5
	5	P - MTF Strength (Text Sub 50%~95%)		0 ~ 7 1/step 4
	6	P - MTF Strength (Text Sub 96%~125%)		0 ~ 7 1/step 5
	7	P - MTF Strength (Text Sub 126%~159%)		0 ~ 7 1/step 5
	8	P - MTF Strength (Text Sub 160%~200%)		0 ~ 7 1/step 5
	9	P - MTF Strength (T/P Main 50%~89%)		0 ~ 7 1/step 3
	10	P - MTF Strength (T/P Main 90%~95%)		0 ~ 7 1/step 3
	11	P - MTF Strength (T/P Main 96%~125%)		0 ~ 7 1/step 5

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-916*	12	P - MTF Strength (T/P Main 126%~159%)	This adjustment is only effective for the “Service Mode” original type setting. Selects the MTF strength using grayscale processing. See “Detailed Descriptions - Image Processing” for details. Weak Strength 1-2-3-4-5-0(x1)-6-7 T/P: Text/Photo	0 ~ 7 1/step 5
	13	P - MTF Strength (T/P Main 160%~200%)		0 ~ 7 1/step 5
	14	P - MTF Strength (T/P Sub 50%~89%)		0 ~ 7 1/step 3
	15	P - MTF Strength (T/P Sub 90%~95%)		0 ~ 7 1/step 3
	16	P - MTF Strength (T/P Sub 96%~125%)		0 ~ 7 1/step 5
	17	P - MTF Strength (T/P Sub 126%~159%)		0 ~ 7 1/step 5
	18	P - MTF Strength (T/P Sub 160%~200%)		0 ~ 7 1/step 5
4-917*	1	P - Independent Dot Erase (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Selects the independent dot erase level. See “Detailed Descriptions - Image Processing” for details. With a larger SP setting, more dots are detected as independent dots and erased. However, dots in mesh-like images may be detected as independent dots mistakenly. If “0” is selected, independent dot erase is disabled.</i>	0 ~ 7 1/step 3
	2	P - Independent Dot Erase (Text/Photo)		
4-918*	1	P - White Line Erase (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Selects whether or not white line erase is done. See “Detailed Descriptions - Image Processing” for details.</i>	0: No 1: Yes
	2	P - White Line Erase (Text/Photo)		
	3	P - White Line Erase (Photo)		
4-919*	1	P - Black Line Erase (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Selects the black line erase level. See “Detailed Descriptions - Image Processing” for details.</i>	0: Disable 1: Strong 2: Weak
	2	P - Black Line Erase (Text/Photo)		
	3	P - Black Line Erase (Photo)		

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-921*	1	P - Smoothing - Main Scan (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Selects the smoothing pattern for the small filter used to remove moiré. (0: Weak, 1: Normal, 2: Strong, 3: Disabled). See “Detailed Descriptions - Image Processing” for details.</i> Normally do not change the value.	0: Pat-1 1: Pat-2 2: Pat-3 3: Through (Disable)
	2	P - Smoothing - Main Scan (Text/Photo)		
4-922*	1	P - Binary Selection (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Selects the thresholding type used during gradation processing (dynamic or constant). See “Detailed Description - Image Processing” for details.</i> Normally do not change the value.	0: Dynamic 1: Static
	2	P - Binary Selection (Text/Photo)		0: Dynamic 1: Static
4-923*		P - Binary Threshold	Adjusts the constant threshold used during gradation processing. This adjustment is only effective for the “Text - Service Mode” original type setting. <i>If “Static” is selected with SP4-922-1, this SP is effective. See “Detailed Descriptions - Image Processing” for details.</i>	0 ~ 255 1/step 96
4-924*		P – Binary Threshold - MAX	Adjusts the maximum value of the dynamic binary threshold used during gradation processing. This adjustment is only effective for the “Text - Service Mode” original type setting. <i>If “Dynamic Binary” is selected with SP4-922-1, this SP is effective. See “Detailed Descriptions - Image Processing” for details.</i>	0 ~ 255 1/step 160
4-925*		P – Binary Threshold - MIN	Adjusts the minimum value of the dynamic binary threshold used during gradation processing. This adjustment is only effective for the “Text - Service Mode” original type setting. <i>If “Dynamic Binary” is selected with SP4-922-1, this SP is effective. See “Detailed Descriptions - Image Processing” for details.</i>	0 ~ 255 1/step 96

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-926*		P - Binary Threshold - Center	Adjusts the threshold in dynamic binary mode for pixels not on edges of text/graphic elements.	0 ~ 255 1/step 96
			This adjustment is only effective for the “Text - Service Mode” original type setting. <i>If “Dynamic Binary” is selected with SP4-922-1, this mode is enabled. See “Detailed Descriptions - Image Processing” for details.</i>	
4-927*	1	P - Smoothing Filter (50%~89%)	This adjustment is only effective for the “Service Mode” original type setting for Photo mode. Adjusts the smoothing filter level. If “0” is selected, smoothing is disabled. See “Detailed Descriptions - Image Processing” for details.	0 ~ 8 1/step 7 1: Weakest 8: Strongest
	2	P - Smoothing Filter (90%~95%)		
	3	P - Smoothing Filter (96%~125%)		
	4	P - Smoothing Filter (126%~159%)		
	5	P - Smoothing Filter (160%~200%)		
4-928*	1	P - Scanner Gamma (Text)	This adjustment is only effective for the “Service Mode” original type setting. Selects the scanner gamma curve. If “0” is selected, the scanner gamma curve is either ADS or Non ADS, depending on the selected original mode (text, photo, etc.). See “Detailed Descriptions - Image Processing” for details. Normally do not change the value.	0: By key (as selected) 1: ADS 2: Non-ADS 3: Linear 4: SP
	2	P - Scanner Gamma (Text/Photo)		0: By key (as selected) 1: ADS 2: Non-ADS 3: Linear 4: SP
	3	P - Scanner Gamma (Photo)		0: By key (as selected) 1: ADS 2: Non-ADS 3: Linear 4: SP
4-929*	1	P - Matrix Filter (Text/Photo)	Selects the error diffusion matrix filter in text/photo mode (this SP is used only with dynamic thresholding).	6: No.1 7: No.2
			This adjustment is only effective for the “Service Mode” original type setting. <i>See “Detailed Descriptions - Image Processing” for details.</i> Normally do not change the value.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-929*	2	P - Matrix Filter (Photo)	Selects the dither matrix filter in photo mode. A larger number increases the number of gradations, but may reduce the contrast. 5: Error diffusion (same as matrix No 1 in 4-929-1) - reproduction of fine lines is emphasized	0: 53 1: 105 2: 143 3: 210 4: 270 5: H
			This adjustment is only effective for the "Service Mode" original type setting. <i>See "Detailed Descriptions - Image Processing" for details.</i>	
4-931*		P - Edge Threshold - Vertical	Adjusts the threshold for edge detection in the vertical direction for dynamic thresholding.	0 ~ 255 1/step 63
			This adjustment is only effective for the "Text - Service Mode" original type setting. <i>If "Dynamic Binary" is selected with SP4-922-1, this SP mode is effective. See "Detailed Descriptions - Image Processing" for details.</i> Normally do not change the value.	
4-932*		P - Edge Threshold - Horizontal	Adjusts the threshold for edge detection in the horizontal direction for dynamic thresholding.	0 ~ 255 1/step 63
			This adjustment is only effective for the "Text - Service Mode" original type setting. <i>If "Dynamic Binary" is selected with SP4-922-1, this SP mode is effective. See "Detailed Descriptions - Image Processing" for details.</i> Normally do not change the value.	
4-933*		P - Edge Threshold - Right	Adjusts the threshold for edge detection in the diagonal direction from top right to bottom left (for dynamic thresholding).	0 ~ 255 1/step 63
			This adjustment is only effective for the "Text - Service Mode" original type setting. <i>If "Dynamic Binary" is selected with SP4-922-1, this SP mode is effective. See "Detailed Descriptions - Image Processing" for details.</i> Normally do not change the value.	

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-934*		P - Edge Threshold - Left	Adjusts the threshold for edge detection in the diagonal direction from top left to bottom right (for dynamic thresholding).	0 ~ 255 1/step 63
			This adjustment is only effective for the "Text - Service Mode" original type setting. <i>If "Dynamic Binary" is selected with SP4-922-1, this SP mode is effective. See "Detailed Descriptions - Image Processing" for details.</i> Normally do not change the value.	
4-935*	1	P - Line Width Correction (Text)	This adjustment is only effective for the "Service Mode" original type setting.	0 ~ 7 1/step 0
	2	P - Line Width Correction (Text/Photo)	Adjusts the line width (1: Produces the thinnest lines, 7: Produces the thickest lines) If "0" is selected, this mode is disabled. See "Detailed Descriptions - Image Processing" for details.	0 ~ 7 1/step 6
	3	P - Line Width Correction (Photo)		0 ~ 7 1/step 0
4-936*	1	P - SBU ADS Setting (Text)	This adjustment is only effective for the "Service Mode" original type setting. <i>Selects whether the SBU ADS process is done. If "0" is selected, it depends on whether the user selects ADS at the operation panel.</i> See "Detailed Descriptions - Image Processing" for details. Normally do not change the value.	0: By key 1: ON 2: OFF
	2	P - SBU ADS Setting (Text/Photo)		
	3	P - SBU ADS Setting (Photo)		
4-937*	1	P - IPU ADS Setting (Text)	This adjustment is only effective for the "Service Mode" original type setting. <i>Selects whether the IPU ADS process is done. If "0" is selected, it depends on whether the user selects ADS at the operation panel. The value of SP4-938 is subtracted from the white video level.</i> See "Detailed Description - Image Processing" for details. Normally do not change the value.	0: By key 1: ON 2: OFF
	2	P - IPU ADS Setting (Text/Photo)		
	3	P - IPU ADS Setting (Photo)		

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-938*	1	P - IPU ADS Adjustment (Text)	This adjustment is only effective for the “Service Mode” original type setting. <i>Decides how much is subtracted from the white video level. In SP4-937, if “By key” is selected and the user selects ADS mode, or if “ON” is selected, this value is subtracted from the white video level. See “Detailed Description - Image Processing” for details.</i> Normally do not change the value.	0 ~ 15 1/step 8
	2	P - IPU ADS Adjustment (Text/Photo)		
	3	P - IPU ADS Adjustment (Photo)		
4-939*		P - Binary Filter	Selects the binary filter for the independent dot erase that is done after image processing in text mode. This adjustment is only effective for the “Service Mode” original type setting for text mode. <i>If “0” is selected this mode is disabled. See “Detailed Descriptions - Image Processing” for details.</i>	0: Non 1: 3 x 3 2: 4 x 4 3: 5 x 5
4-940*	1	P - ID Gamma Adjustment (Text)	Selects the ID gamma curve. This adjustment is only effective for the “Service Mode” original type setting. <i>See “Detailed Descriptions - Image Processing” for details.</i> Normally do not change the value.	0: B&W (Sharp text) 1: Linear (Normal text)
		P - ID Gamma Adjustment (Text/Photo)	Selects the ID gamma curve for error diffusion. This adjustment is only effective for the “Service Mode” original type setting. See “Detailed Descriptions - Image Processing” for details. Normally do not change the value.	
	2	P - ID Gamma Adjustment (Photo)	This adjustment is only effective for the “Service Mode” original type setting. See “Detailed Descriptions - Image Processing” for details. Normally do not change the value.	1: Norm (Text) 2: ch (Text Priority) 3: ph (Photo Priority) 4: ph2 (Glossy Photo)
				5: 53 (Coarse Print) 6: 105 (Press Print)
	3	P - ID Gamma Adjustment (Photo)	This adjustment is only effective for the “Service Mode” original type setting. See “Detailed Descriptions - Image Processing” for details. Normally do not change the value.	
4-941*	1	P - Positive/Negative (Text)	This is for the designer's test purposes. Do not change the value.	0: No 1: Yes
	2	P - Positive/Negative (Text/Photo)		
	3	P - Positive/Negative (Photo)		

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-942*		White Line Erase	Selects whether or not white line erase is done (without "Service Mode"). <i>See "Detailed Descriptions - Image Processing" for details.</i>	0: Normal 1: Disable
4-943*		Black Line Erase	Selects the black line erase level (without "Service Mode"). <i>See "Detailed Descriptions - Image Processing" for details.</i>	0: Strong 1: Disable 2: Weak
4-944*		Independent Dot Erase	Selects whether or not independent dot erase is done (without "Service Mode"). <i>See "Detailed Descriptions - Image Processing" for details.</i>	0: Normal 1: Disable
4-950*		Shading Mode Selection	Selects the scanner shading method in DF mode. 1. Stinger (Do the shading every page.) 2. ADAM (Do the shading at the time specified by SP4-913.) 3. None (This is for the designer's test purposes. Do not select this value.) <i>This is for the designer's test purposes.</i> Do not change the value.	
5-001		All Indicators On	Turns on all indicators on the operation panel. <i>Press "OK" or the (Ⓢ) key to check. Press the (☒) (Clear Modes) key to exit this SP mode. The LCD blinks all on and all off every 2 seconds.</i>	
5-103*		Auto Paper Tray Shift	Selects whether or not auto paper tray shift is done.	0: No 1: Yes
5-104*		A3/DLT Double Count	Specifies whether the counter is doubled for A3/11" x 17" paper. <i>If "Yes" is selected, the total counter (mechanical counter) and the current user code counter counts up twice when A3/11" x 17" paper is used.</i>	0: No 1: Yes
5-106*		ADS Level Selection	Selects the image density level that is used in ADS mode.	1 ~ 7 1 notch/step 4
5-113*		Option Counter Type	Selects the optional counter type. <i>After installing the optional key counter, this SP must be set to "1".</i>	0: Non 1: Key Counter
⇒ 5-116*		Key Counter Up Timing	Determines whether the key counter counts up at paper feed-in or at paper exit.	0: Feed In 1: Exit
5-120*		Opt. Counter Reset Setting	This SP is for Japan only. Do not change the value.	0: Yes 1: Stand-by 2: Non



Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-401*	1	User Code Mode (Copier)	Selects whether the user code feature is enabled in copy mode or not. <i>If this value is changed, the user tool setting is also changed.</i>	0: No 1: Yes
	2	User Code Mode (Fax)	This SP is for Japan only. Do not change the value. <i>If this value is changed, the user tool setting is also changed.</i>	
	3	User Code Mode (Printer)	This SP is for Japan only. Do not change the value. <i>If this value is changed, the user tool setting is also changed.</i>	
5-504*		Jam Alarm Setting	This SP is for Japan only. Do not change the value.	
5-507*	1	Paper/Toner Alarm (Paper)	This SP is for Japan only. Do not change the value.	
	2	Paper/Toner Alarm (Toner)		
5-508*	1	CE Call (Jam Level 1)	This SP is for Japan only. Do not change the value.	
	2	CE Call (Jam Level 2)		
	3	CE Call (Door Open)		
5-801		Memory All Clear	Resets all software counters. Also, returns all modes and adjustments to the default settings. See the "Memory All Clear" section for how to use this SP mode correctly.	
			Normally, this SP mode should not be used. <i>It is used only after replacing the NVRAM or when the copier malfunctions due to a damaged NVRAM.</i>	
5-802		Free Run	Performs a free run for both the scanner and the printer. <i>After selecting "1", press "OK" or the (Ⓢ) key twice to start this feature. Press the (Ⓢ) (Clear/Stop) key to stop.</i>	0: No 1: Yes
5-803		Input Check	Displays signals received from sensors and switches. <i>Press the (Ⓢ) (Clear Modes) key to exit the program. See the "Input Check" section for details.</i>	
5-804		Output Check	Turns on electrical components individually for test purposes. <i>See the "Output Check" section for details.</i>	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-808*		Display Language	Selects the display language. See "Display language" for details.	
5-809*		mm/inch Selection	Selects whether mm or inches are used in the display.	0: mm (Europe/Asia model) 1: inch (American model)
⇒ 5-810		SC Code Reset	Resets the service call condition of Level "A" (see "Troubleshooting - Service Call Conditions"). After performing this SP mode, turn the machine main switch off and on.	0: No 1: Yes
			See "Troubleshooting - Service Call Conditions" for how to use this mode. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.	
5-811		Serial Number Input	Use to input the machine serial number. (Normally done at the factory.)	
			This serial number will be printed on the system parameter list. See the "Serial Number Input" section for details.	
⇒ 5-812*	1	Service Telephone Number (Telephone)	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs).	
			Press the  key if you need to input a pause (-). Press the  (Clear/Stop) key to delete the telephone number.	
	2	Service Telephone Number (Facsimile)	Use this to input the fax number of the service representative (Displayed in the SMC and counter printouts).	
			Press the  key if you need to input a pause (-). Press the  (Clear/Stop) key to delete the telephone number.	
5-816*		CSS Function	This SP is for Japan only. Do not change the value.	
5-817	1	CE Start/Finish Call (CE Start Call)	This SP is for Japan only. Do not change the value.	
	2	CE Start/Finish Call (CE Finish Call)		
5-821		CSS-PI Device Code	This SP is for Japan only. Do not change the value.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-824		NVRAM Data Upload	Uploads SP and UP mode data (except for counters and the serial number) from the flash memory on the BICU board to a flash memory card.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "NVRAM Data Upload" section for details.</i>	
5-825		NVRAM Data Download	Downloads SP mode data from a flash memory card to the flash memory on the BICU board.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "NVRAM Data Download" section for details.</i>	
5-826		Program Upload	Uploads the system program from the flash memory on the BICU board to a flash memory card.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "Program Upload" section for details.</i>	
5-827		Program Download	Downloads the system program from a flash memory card to the flash memory on the BICU board.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "Program Download" section for details.</i>	
5-901		Printer Free Run	Performs a printer free run.	0: No 1: Yes
			<i>After selecting "1", press "OK" or the (Ⓢ) key twice to start this feature. Press the (C/Ⓢ) (Clear/Stop) key to stop.</i>	
5-902		Test Pattern Print	Prints a test pattern.	
			<i>See the "Test Pattern Printing" section for how to print a test pattern. Change to the copy mode display by pressing the (⏏) (Interrupt) key, then print out the test pattern.</i>	
5-903*		LCD Contrast Adjustment	Adjusts the contrast of the LCD on the operation panel.	0 ~ 7 1 /step 3
5-904*		Auto Off Timer Setting	Adjusts the auto off mode timer.	1 ~ 240 1 min/step 30 min
			<i>If this value is changed, the user tool setting is also changed.</i>	
5-905*		CSS 25 Hours Off Detection	This SP is for Japan only. Do not change the value.	



Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-906*		Exhaust Fan Control Timer	Inputs the fan control timer for energy saver mode.	30 ~ 120 1 s/step 30 s
			<i>The fan slows down after this time has passed since the end of a job. The fan stops after this time has passed since any of the following conditions occurred: After entering sleep mode (fax/prINTER installed) After entering an SC condition.</i>	
5-907		Plug & Play Setting	Selects the brand name and the production name for the Plug and Play function of Windows 95/98. These are registered in the NVRAM. If the NVRAM is defective, these names should be registered again.	
			<i>Press the "Photo mode" key and then the "OK" key or (Ⓢ) key at the same time to register the setting. If the setting was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	
5-908*		Maintenance LED Display	Selects whether the maintenance LED blinks when the PM interval expires.	0: No 1: Yes
			<i>When installing the machine, if the customer requires that the maintenance LED blinks, select "Yes". The PM alarm interval is set with SP5-912.</i>	
5-911*		APS A4/LT Sideways Priority	Specifies whether the machine selects LT sideways paper if the original is A4. In inch models, if "Yes" is selected, LT sideways is selected automatically when the APS sensors detect an A4 sideways original. In mm models, if "Yes" is selected, A4 sideways is selected automatically when the APS sensors detect an LT sideways original.	0: No 1: Yes
5-912*		Maintenance Alarm Interval	Inputs the PM alarm interval.	1 ~ 255 1 k sheets/step 100 k sheets
			<i>When the machine reaches the value, the Maintenance LED will light to inform the user. The value is used SP5-908.</i>	
5-913		UP Mode Data Reset	Resets the user tool data.	0: No 1: Yes
			<i>Except for the user codes, key operator code, and key operator printer counter.</i>	
5-914*		Printer Counter Display	Selects whether the printer counter is displayed in the LCD or not.	0: No 1: Yes
			<i>If this is "0", it does not display or print out in the counter print out.</i>	
5-925		Serial Number Display	Displays the serial number.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-930*		Fax Forwarding Mode	Selects whether the fax mode key is accepted when an SC has occurred. <i>When an SC occurs while there are received fax messages in the SAF memory, change the value to "1". Then access facsimile mode. Then forward the incoming data to another fax machine by using the fax mode bit switches.</i>	0: No 1: Yes
5-940*		Image Rotation Mode	Selects whether the image can be rotated or not.	0: Enabled 1: Disabled
5-944*		APS Mode Setting	Selects whether APS mode is selected as the power-up default.	0: Disabled 1: Enabled
5-946*		Auto Off Disabling	Selects whether auto shut off is disabled when there are sheets in the exit tray. <i>If the LED does not light when paper enters the tray, the user cannot see easily if paper is there or not.</i> <i>1: For machines with no fax/printer option, the machine does not do auto shut off (with the fax/printer option, the machine will go to sleep mode but the LED still works).</i> <i>0: For machines with a fax/printer option, the machine does not light the exit tray LED even in sleep mode.</i>	0: No 1: Yes
5-950*		By-pass LG Size Detection	Selects whether the machine can detect LG paper or not in the by-pass tray.	0: No 1: Yes
5-951*		Inter Leaves Count Setting	Selects the interleave count when interleave mode is selected with User Tool (System Settings - Print Priority). In interleave mode, the machine will print 5 pages of one job, then 5 pages of the other job, and so on.	1 ~ 20 1 pages/step 5 pages
5-955	1	8K/16K Detection (A3/B4 → 8K)	Specifies whether the machine selects 8K paper if the original is A3 or B4. If "Yes" is selected, 8K is selected automatically when the APS sensors detect an A3 or B4 original.	0: No 1: Yes
	2	8K/16K Detection (B5T/A4T → 16KT)	Specifies whether the machine selects 16K lengthwise paper if the original is B5 or A4 lengthwise. If "Yes" is selected, 16K lengthwise is selected automatically when the APS sensors detect a B5 or A4 lengthwise original.	0: No 1: Yes
	3	8K/16K Detection (B5Y/A4Y → 16KY)	Specifies whether the machine selects 16K sideways paper if the original is B5 or A4 sideways. If "Yes" is selected, 16K sideways is selected automatically when the APS sensors detect a B5 or A4 sideways original.	0: No 1: Yes
5-991		VRAM Data Download	This is for the designer's test purposes. Do not change the value.	0: No 1: Yes
5-992		SMC Printing	Prints the machine status history data list. See the "System Parameter And Data Lists" section for how to print the lists. <i>"5" is for facsimile transmission.</i>	1: SP 2: UP 3: Log 4: All 5: Big Font

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
6-006*	1	ADF Registration (Side-to-Side)	Adjusts the side-to-side registration in the ADF mode. <i>Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	–5.5 ~ +9.5 0.1 mm/step 0.0 mm
		ADF Registration (Leading Edge)	Adjusts the leading edge registration in the ADF mode. <i>Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	–5.0 ~ +5.0 0.1 mm/step 0.0 mm
	3	ADF Registration (Trailing Edge)	Adjusts the trailing edge erase margin in the ADF mode. <i>Use the  key to toggle between + and - before entering the value. The specification is more than 0.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	–3.0 ~ +3.0 0.1 mm/step 0.0 mm
6-007*		ADF Sub-scan Magnification	Adjusts the magnification in the sub-scan direction for ADF mode. <i>Use the  key to toggle between + and - before entering the value. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	–0.9 ~ +0.9 0.1%/step 0.0%
6-009		ADF Free Run	Performs an ADF free run. <i>After selecting "1", press "OK" or the  key twice to start this feature. Press the  (Clear/Stop) key to stop.</i>	0: No 1: Yes
6-010*		Stamp Position Adjustment	Adjusts the stamp position in the sub-scan direction in fax mode.	–10 ~ +10 1 mm/step 0 mm
6-901		ADF APS Data Display	Displays the status of the original size sensors in the ADF. <i>See the "DF APS Original Sensor Output Display" section.</i>	
6-902*		ADF Scanning Method	Selects the original scanning method in ADF mode. Do not change the setting.	0: Doc (original) 1: Mag (copy paper size + magnification)
6-910		ADF/Printer Free Run	Performs both an ADF and a printer free run. <i>After selecting "1", press "OK" or the  key twice to start this feature. Press the  (Clear/Stop) key to stop.</i>	0: No 1: Yes



Mode No.			Function	Settings
Class 1 and 2	Class 3			
6-911*		Binding Hole Range	Adjusts the maximum binding hole size for originals. If the original set sensor in the ADF detects a gap wider than this, it assumes that a new page has just started to feed in.	0 ~ 20 1 mm/step 12 mm
7-001*		Total Operation Time	Displays the total operation time (total drum rotation time).	
7-002*	1	Total Original Counter (All Modes)	Displays the total number of scanned originals (all modes).	
	2	Total Original Counter (Copier)	Displays the total number of scanned originals (copy mode only).	
	3	Total Original Counter (Fax)	Displays the total number of scanned originals (fax mode only).	
7-003*	1	Total Print Counter (All Modes)	Displays the total number of prints (all modes).	
	2	Total Print Counter (Copier)	Displays the total number of prints (copier mode).	
	3	Total Print Counter (Fax)	Displays the total number of prints (fax mode).	
	4	Total Print Counter (Printer)	Displays the total number of prints (printer mode).	
	5	Total Print Counter (A3/DLT)	Displays the total number of prints (A3/11" x 17" mode).	
7-004*		CE Counter Reset	This SP is for Japan only. Do not change the value.	
7-101*	1	Copy Counter - Paper Size (A3)	Displays the total number of copies by paper size.	
	2	Copy Counter - Paper Size (B4)		
	3	Copy Counter - Paper Size (A4)		
	4	Copy Counter - Paper Size (B5)		
	5	Copy Counter - Paper Size (DLT)		
	6	Copy Counter - Paper Size (LG)		
	7	Copy Counter - Paper Size (LT)		
	8	Copy Counter - Paper Size (HLT)		
	9	Copy Counter - Paper Size (Others)		
7-102*	1	Copy Counter - By-pass (Special Paper)	Displays the total number of copies made from the by-pass tray, by paper type.	
	2	Copy Counter - By-pass (Thick Paper)		
7-201*		Total Scan Counter	Displays the total number of scanned originals.	

SERVICE PROGRAM MODE

Mode No.			Function	Settings
Class 1 and 2	Class 3			
7-204*	1	Copy Counter - Paper Tray (1st)	Displays the total number of copies fed from each paper feed tray.	
	2	Copy Counter - Paper Tray (2nd)		
	3	Copy Counter - Paper Tray (3rd)		
	4	Copy Counter - Paper Tray (By-pass)		
7-205*		Total ADF Counter	Displays the total number of originals fed by the ADF.	
7-301*	1	Copy Counter - Mag. (50%~99%)	Displays the total number of copies by reproduction ratio.	
	2	Copy Counter - Mag. (Full Size)		
	3	Copy Counter - Mag. (101%~200%)		
7-301*	4	Copy Counter - Mag. (Auto Reduce/Enlarge)	Displays the total number of copies for auto reduce/enlarge mode.	
7-304*	1	Copy Counter - Copy Mode (Text)	Displays the total number of copies by copy mode.	
	2	Copy Counter - Copy Mode (Text/Photo)		
	3	Copy Counter - Copy Mode (Photo)		
	4	Copy Counter - Copy Mode (ADF)		
	5	Copy Counter - Copy Mode (Series Copy)	Displays the total number of copies by image editing mode.	
	6	Copy Counter - Copy Mode (Sort)		
	7	Copy Counter - Copy Mode (Combine Originals)		
7-305*	1	Copy Counter - Copy Q'ty (1 to 1)	Displays the total number of series copies.	
	2	Copy Counter - Copy Q'ty (1 to 2 ~ 5)		
	3	Copy Counter - Copy Q'ty (1 to 6 ~ 10)		
	4	Copy Counter - Copy Q'ty (1 to 11 ~ 20)		
	5	Copy Counter - Copy Q'ty (1 to 20 ~ 99)		
7-401*		Total SC Counter	Displays the total number of service calls that have occurred.	
7-402*		Each SC Code Counter	Displays the total number of each service call that has occurred.	0: No 1: Yes
7-501*		Total Jam Counter	Displays the total number of jams.	
7-502*		Total Paper Jam Counter	Displays the total number of paper jams.	
7-503*		Total Original Jam Counter	Displays the total number of original jams.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
7-504*	1	Total Jams by Location (A Jam)	Displays the total number of paper jams by location.	
	2	Total Jams by Location (B Jam)		
	3	Total Jams by Location (C Jam)		
	4	Total Jams by Location (R Jam)		
	5	Total Jams by Location (Y Jam)		
	6	Total Jams by Location (1st)		
	7	Total Jams by Location (2nd)		
	8	Total Jams by Location (3rd)		
7-504*	9	Total Jams by Location (By-pass)	Displays the total number of paper jams by location.	
7-801	1	ROM Version/Connection (Main Control)	Displays the ROM version.	
	2	ROM Version/Connection (BiCU)		
	3	ROM Version/Connection (FAX Control)		
	4	ROM Version/Connection (Printer Control)		
	5	ROM Version/Connection (ADF Control)		
	6	ROM Version/Connection (PI)	Displays the whether an option is connected or not. NOTE: SP7-801-6 is used only for the Japanese version.	
	7	ROM Version/Connection (Memory)		
	8	ROM Version/Connection (1 Bin Tray)		
	9	ROM Version/Connection (Paper Tray Unit)		
7-807		SC/Jam Counter Reset	Resets the SC and jam counters. <i>Press down the "Photo mode" key and then the "OK" or  key at the same time to reset the counters. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes

Mode No.			Function	Settings
Class 1 and 2	Class 3			
⇒ 7-808		Resets Counters	Resets the counters except for the total counter (SP7-003) and the timer counter (SP7-991). <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counters. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-810		Key Operator Code Reset	Resets the key operator code. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the code. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-825		Total Counter Reset	Resets the electrical total counter. <i>Usually, this SP mode is done at installation. This SP mode is effective only once, when the counter has a negative value. Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-901*		SC History Display	Displays the last twenty SC codes that have occurred.	0: No 1: Yes
⇒ 7-902		SC History Clear	Resets the SC history. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-903*		Copy Jam History Display	Displays the copy jams that have occurred.	0: No 1: Yes
⇒ 7-904		Copy Jam History Clear	Resets the copy jam history. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-905		Orig. Jam History Display	Displays the original jams that have occurred.	0: No 1: Yes

Mode No.			Function	Settings
Class 1 and 2	Class 3			
⇒ 7-906		Orig. Jam History Clear	Resets the original jam history. <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-907		Timer Counter Reset	Resets the timer counter (SP7-991). <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-908*		Maintenance Count. Display	Displays the value of the maintenance counter (number of copies since the last PM).	
⇒ 7-909		Maintenance Count. Reset	Resets the maintenance counter. <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-991*		Timer Counter Display	Displays the total time that the main switch has been turned on.	

4.2.3 TEST PATTERN PRINTING (SP5-902)

1. Input the level 3 number for the test pattern you need.
2. Press the  (Interrupt) key on the display to access the copy mode display.
3. Select the required copy features such as paper size, image density, and reproduction ratio.
4. Press the  key to print the test pattern.
5. After checking the test pattern, exit copy mode by pressing the  (Interrupt) key again.
6. Exit SP mode.

Test Pattern Table (SP5-902: Test Pattern Printing)

No.	Test Pattern
0	No Print
1	Vertical Lines (single dot)
2	Horizontal Lines (single dot)
3	Vertical Lines (double dots)
4	Horizontal Lines (double dots)
5	Grid Pattern (single dot)
6	Grid Pattern (double dots)
7	Alternating Dot Pattern
8	Full Dot Pattern
9	Black Band
10	Trimming Area
11	Argyle Pattern
12	
13	16 Grayscales (Horizontal)
14	16 Grayscales (Vertical)
15	16 Grayscales (Vert./Hor.)
16	16 Grayscales (Vert./Hor. Overlay)
17	16 Grayscales with white lines (Horizontal)
18	17 Grayscales with white lines (Vertical)
19	18 Grayscales with white lines (Vert./Hor.)
20	

No.	Test Pattern
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	8 Grayscales (Horizontal, Odd)
32	8 Grayscales (Vertical, Odd)
33	8 Grayscales with white lines (Horizontal, Odd)
34	8 Grayscales with white lines (Vertical, Odd)
35	8 Grayscales (Horizontal, Even)
36	8 Grayscales (Vertical, Even)
37	8 Grayscales with white lines (Horizontal, Even)
38	8 Grayscales with white lines (Vertical, Even)
39	
40	

4.2.4 INPUT CHECK (SP5-803)

[Serviceman P-Mode]

Input Check

Code: 5

Prev.
Next
OK
Back

1. Access SP mode 5-803.
2. Select the number that will access the switch or sensor you wish to check (see the table below).
3. Check the status of the sensor or switch.
4. If you wish to check the signal during a copy cycle, select the required copy modes, then press the Start key. After that, re-enter the SP mode to monitor the signal.
5. The LCD panel will display "00H" or "01H". The meaning of the display is as follows.

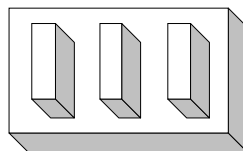
Input Check Table

Number	Description	Reading	
		00H	01H
0 ~ 1	Not used		
2	Right door switch - LD5 V	Closed	Opened
3	Right door switch - +24 V	Closed	Opened
4	Vertical transport cover switch	Closed	Opened
5	Tray cover switch (Optional paper tray unit)	Closed	Opened
6	Not used		
7	Bin tray open switch (Optional 1-bin sorter)	Closed	Opened
8 ~ 16	Not used		
17	Vertical transport sensor	Paper not detected	Paper detected
18	Vertical transport sensor (Optional paper tray unit)	Paper not detected	Paper detected
19	Registration sensor	Paper not detected	Paper detected
20	Fusing exit sensor	Paper not detected	Paper detected
21	Exit sensor (Optional 1-bin sorter)	Paper not detected	Paper detected
22 ~ 25	Not used		
26	By-pass tray paper sensor	Paper not detected	Paper detected
27	By-pass paper size sensor	See Table 3	

SERVICE PROGRAM MODE

Number	Description	Reading	
		00H	01H
28 ~ 30	Not used		
31	Paper end sensor	Paper not detected	Paper detected
32	Not used		
33	Paper size switch	See Table 1	
34	Not used		
35	Paper near-end sensor	See Table 4	
36 ~ 40	Not used		
41	Upper paper end sensor (Optional paper tray unit)	Paper not detected	Paper detected
42	Lower paper end sensor (Optional paper tray unit)	Paper not detected	Paper detected
43	Upper paper size switch (Optional paper tray unit)	See Table 2	
44	Lower paper size switch (Optional paper tray unit)	See Table 2	
45	Upper paper height sensor (Optional paper tray unit)	See Table 5	
46	Lower paper height sensor (Optional paper tray unit)	See Table 5	
47	Upper lift sensor (Optional paper tray unit)	Down	Up
48	Lower lift sensor (Optional paper tray unit)	Down	Up
49	Paper sensor (Optional 1-bin sorter)	Paper not detected	Paper detected
50	Exit tray paper sensor	Paper not detected	Paper detected
51 ~ 54	Not used		
55	Paper tray unit set sensor (Optional paper tray unit)	See Table 6	
56	Not used		
57	1-bin sorter installed	Not installed	Installed
58	BICU installed	Not installed	Installed
59 ~ 62	Not used		
63	Fusing unit installed	Not installed	Installed
64 ~ 65	Not used		
66	AIO set sensor	Not set	Set
67	Not used		
68	Toner near end sensor	Toner near end	Toner remains
69 ~ 70	Not used		
71	Main motor lock	Off	On
72	Polygonal mirror motor lock	Off	On
73	Tray motor lock (Optional paper tray unit)	Off	On
74 ~ 75	Not used		
76	Total counter installed	Not installed	Installed
77	Key card installed (Optional key card)	Not installed	Installed

Number	Description	Reading	
		00H	01H
78	Key counter installed (Optional key counter)	Not installed	Installed
79 ~ 89	Not used		
90	DF open sensor (Optional ADF)	Closed	Opened
91	Feed cover open sensor (Optional ADF)	Closed	Opened
92	Original set sensor (Optional ADF)	Paper not detected	Paper detected
93	Registration sensor (Optional ADF)	Paper not detected	Paper detected
94	Original trailing edge sensor (Optional ADF)	Paper not detected	Paper detected
95 ~ 98	Not used		
99	Platen cover sensor	Closed	Opened

Table 1: Paper Size Switch (Main Frame)

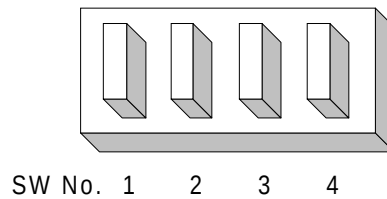
SW No. 1 2 3

Number	SW 1	SW 2	SW 3	SP Value	Paper Size	
					inches	mm
31	0	0	0	00H	—	
	0	0	1	04H	8 1/2" x 14"	A5 Sideways
	0	1	0	02H	8 1/2" x 13"	
	0	1	1	06H	* (Asterisk)	
	1	0	0	01H	A4 Sideways	
	1	0	1	05H	11" x 8 1/2"	
	1	1	0	03H	8 1/2" x 11"	A4 Lengthwise
	1	1	1	07H	11" x 17"	A3

1: Pushed

SERVICE PROGRAM MODE

Table 2: Paper Size Switch (Optional Paper Tray Unit)



Number	SW 1	SW 2	SW 3	SW 4	SP Value	Paper Size
43, 44	0	0	0	0	00H	—
	0	0	1	0	04H	A4 Sideways
	0	0	1	1	0CH	A4 Lengthwise
	0	1	0	1	0AH	11" x 17"
	0	1	1	1	0EH	11" x 8 1/2"
	1	0	0	0	01H	8 1/2" x 11"
	1	0	1	0	05H	* (Asterisk)
	1	1	0	0	03H	8 1/2" x 14"
	1	1	1	1	0FH	A3

1: Pushed

Table 3: By-pass Paper Size Sensor

Number	SP Value	Paper Size	
		mm	inches
27	01H	A3	11" x 17"
	03H	—	11" x 17"
	02H	A4 Lengthwise	8 1/2" x 11"
	06H	8" x 13"	—
	04H	A5 Lengthwise	5 1/2" x 8 1/2"
	0CH	—	—
	08H	—	—

Table 4: Paper Near-end Sensor (Main Frame)

Number	SP Value	Paper Amount
35	00H	Near-end
	01H	Not near-end

Table 5: Paper Height Sensor (Optional Paper Tray Unit)

Number	SP Value	Paper Amount
45, 46	00H	100%
	01H	70 ~ 75%
	02H	Near-end
	03H	25 ~ 30%

Table 6: Paper Tray Unit Set Sensor

Number	SP Value	Unit Installed
55	00H	None
	20H	Paper tray unit (1 tray)
	30H	Paper tray unit (2 trays)

4.2.5 OUTPUT CHECK (SP5-804)

[Serviceman P-Mode]			
Output Check			
Code:	0	Data:	0
Prev.	Next	OK	Back

A250M502.WMF

CAUTION: To prevent mechanical or electrical damage, do not keep an electrical component on for a long time.

1. Access SP mode 5-804.
2. Select the SP number that corresponds to the component you wish to check (see the table below), then press "OK" or the $\text{\textcircled{\#}}$ key.
3. Press "1", then press "OK" or the $\text{\textcircled{\#}}$ key to check that component.
4. To interrupt the test, exit the SP mode.
5. If you wish to check another component, re-enter the SP mode.

Output Check Table

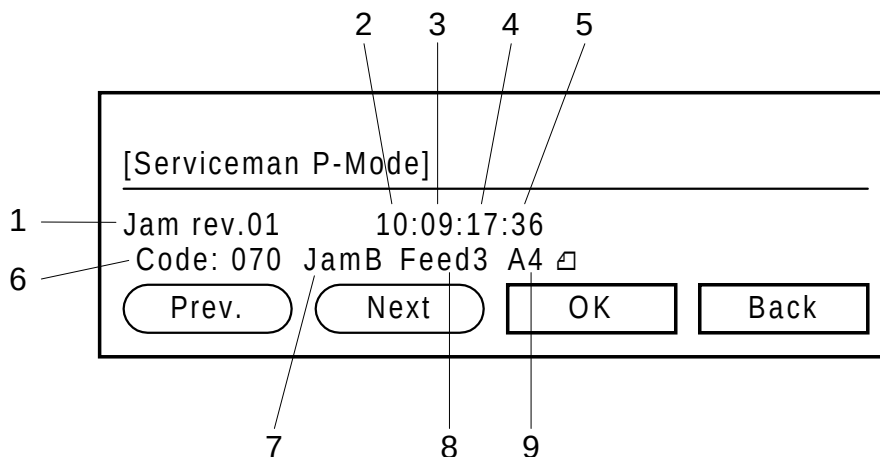
NOTE: Pull out the tray before performing the output checks from 29 to 32.

Number	Description
0	Not used
1	Main motor
2	Not used
3	Registration clutch
4 ~ 6	Not used
7	Exhaust fan (High Speed)
8	Exhaust fan (Low Speed)
9 ~ 11	Not used
12	By-pass feed clutch
13	Paper feed clutch
14 ~ 20	Not used
21	Vertical transport clutch
22	Relay clutch (Optional paper tray unit)
23 ~ 25	Not used
26	Upper paper feed clutch (Optional paper tray unit)
27	Lower paper feed clutch (Optional paper tray unit)
28	Tray motor (Optional paper tray unit)
29	Upper lift motor (Up) (Optional paper tray unit)

Number	Description
30	Lower lift motor (Up) (Optional paper tray unit)
31	Upper lift motor (Down) (Optional paper tray unit)
32	Lower lift motor (Down) (Optional paper tray unit)
33 ~ 48	Not used
49	Exit tray LED
50	1-bin tray LED
51	Polygonal mirror motor
52	Polygonal mirror motor and laser diode
53	Laser diode
54	Junction gate solenoid (Optional 1-bin Sorter)
55 ~ 77	Not used
78	Key counter count up (Optional Key Counter)
79 ~ 89	Not used
90	DF transport motor (Optional ADF)
91	DF feed clutch (Optional ADF)
92	DF pick-up solenoid (Optional ADF)
93	Stamp solenoid (Optional ADF)
94 ~ 99	Not used

4.2.6 COPY JAM HISTORY DISPLAY (SP7-903)

After entering the SP mode, select "1" and press the "OK" or (#) key. The LCD panel will display the following message.



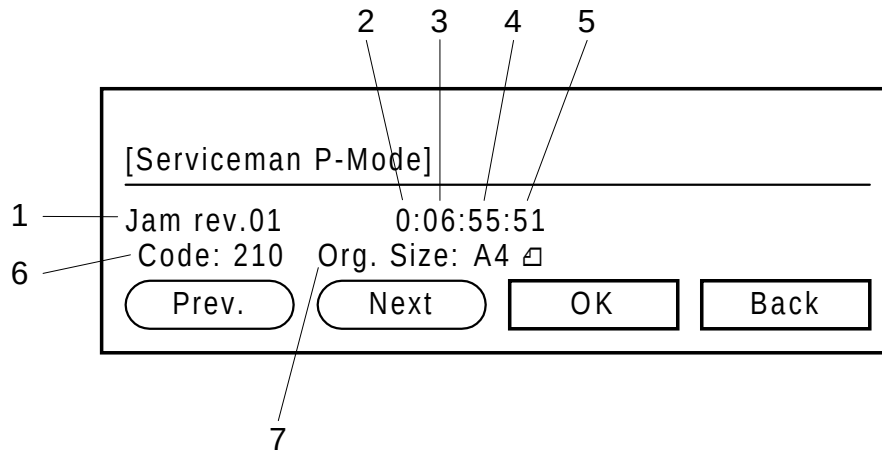
1. Jam history number
2. Main motor operating time: Date
3. Hour
4. Minute
5. Second
6. Jam code (see the table below)
7. Jam location
8. Paper feed station
9. Paper size

Jam Code	Meaning
010	Registration sensor not activated (from paper tray).
030	Vertical transport sensor not activated.
031	Vertical transport sensor (optional paper tray unit) not activated.
050	Registration sensor not activated (from by-pass tray).
070	Registration sensor remained activated by paper.
122	Fusing exit sensor not activated.
123	Fusing exit sensor remained activated by paper.
149	Exit sensor (optional 1-bin sorter) not activated.
150	Exit sensor (optional 1-bin sorter) remained activated by paper.

NOTE: The NVRAM can store data for up to 10 copy jams. If more than 10 copy jams occur, the oldest data is erased.

4.2.7 ORIGINAL JAM HISTORY DISPLAY (SP7-905)

After entering the SP mode, select "1" and press the "OK" or (#) key. The following message is displayed.



1. Jam history number
2. Main motor operating time: Date
3. Hour
4. Minute
5. Second
6. Jam code (see the table below)
7. Original size

Jam Code	Meaning
210	Registration sensor not activated.
211	Registration sensor remained activated by paper.
216	Registration sensor activated interval between originals is too small.

NOTE: The NVRAM can store data for up to 10 copy jams. If more than 10 copy jams occur, the oldest data will be erased.

4.2.8 SYSTEM PARAMETER AND DATA LISTS (SP5-992)

- ⇒ 1. Access SP mode 5-992 and select the number corresponding to the list that you wish to print.
2. Press the  (Interrupt) key on the operation panel to access the copy mode display.
3. Select the paper size.
4. Press the  (Start) key on the operation panel to print the list.
5. After printing the list, exit copy mode by pressing the  (Interrupt) key on the operation panel.
6. Exit SP mode.

4.2.9 MEMORY ALL CLEAR (SP5-801)

NOTE: Memory All Clear mode resets all the settings and counters stored in the NVRAM to the defaults, except for the following:

- Electrical total counter value (SP7-003)
- Machine serial number (SP5-811)
- Plug & Play brand name and production name setting (SP5-907)
- Some SBU settings (SP4-904-3, SP4-904-4, SP4-906, SP4-909)

Normally, this SP mode should not be used. This procedure is necessary only after replacing the NVRAM, or when the copier malfunctions because the NVRAM is damaged.

Using a Flash Memory Card

1. Upload the NVRAM data to a flash memory card (see NVRAM Data Upload).
2. Print out all SMC data lists (SP mode 5-992).
NOTE: Be sure to print out all the lists. If the NVRAM data upload was not completed, it is necessary to change the SP mode settings by hand.
3. Access SP mode 5-801.
- ⇒ 4. Depress the "Photo Mode" key and then the "OK" or (#) key at the same time. (If the operation was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.)
5. Turn the main switch off and back on.
6. Download the NVRAM data from a flash memory card (see NVRAM Data Download).

Without Using a Flash Memory Card

If there is no flash memory card, follow the steps below.

1. Print out all SMC Data Lists (SP mode 5-992).
2. Access SP mode 5-801.
- ⇒ 3. Depress the "Photo Mode" key and then the "OK" or (#) key at the same time. (If the operation was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.)
4. Turn the main switch off and back on.
5. Do the printer and scanner registration and magnification adjustments (see Replacement and Adjustment - Copy Adjustments).
6. Referring to the SMC data lists, re-enter any values that differ from the factory settings. In particular, the values for SP4-904-1, SP4-904-2, SP4-905, and SP4-907 must be re-entered.
7. Do the standard white level adjustment (SP4-908). (See Replacement and Adjustment – Standard White Density Adjustment for details.)
8. Check the copy quality and the paper path, and do any necessary adjustments.

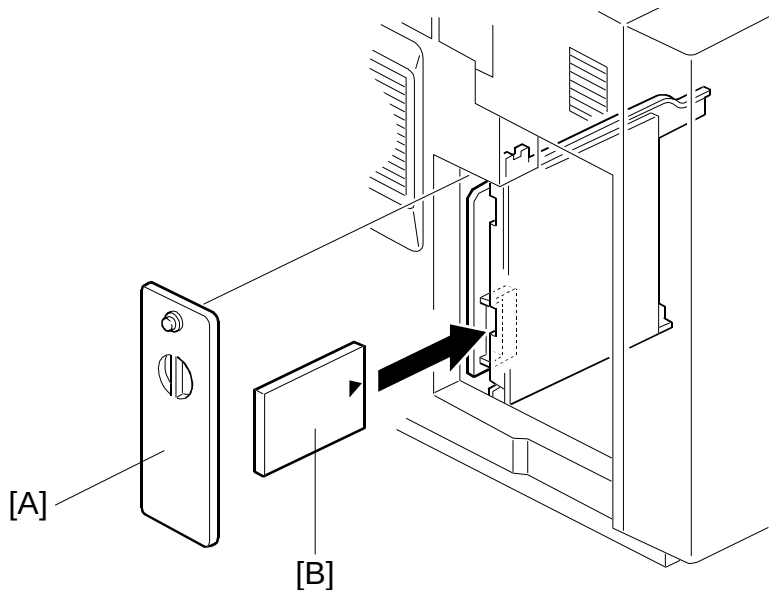
4.2.10 PROGRAM UPLOAD/DOWNLOAD

In this machine, the BICU software is upgraded using a flash memory card.

There are two program download procedures.

- SP5-826: Uploads from the BICU to a flash memory card.
- SP5-827: Downloads from a flash memory card to the BICU.

Program Download (SP5-827)



1. Turn off the main switch.
2. Remove the cover [A] (1 rivet).
3. Plug the flash memory card [B] into the card slot.
NOTE: Make sure that the surface printed "A" faces the left side of the machine (as viewed from the front of the machine).
4. Hold the ⏻ (Energy Saver) key and turn on the main switch.
5. Access SP mode 5-827.
6. The machine erases the current software, then writes the new software to the BICU. This takes about 60 seconds. If downloading failed, an error message appears, as follows. At this time, repeat the download procedure.

10 June 1999

SERVICE PROGRAM MODE

Display during writing

[Serviceman P-Mode]				
Program Download				
Status: 1-02254	2.08	NA	04/1	11:02

Display when the download is complete

[Serviceman P-Mode]				
Program Download				
Loading completed			04/1	11:02

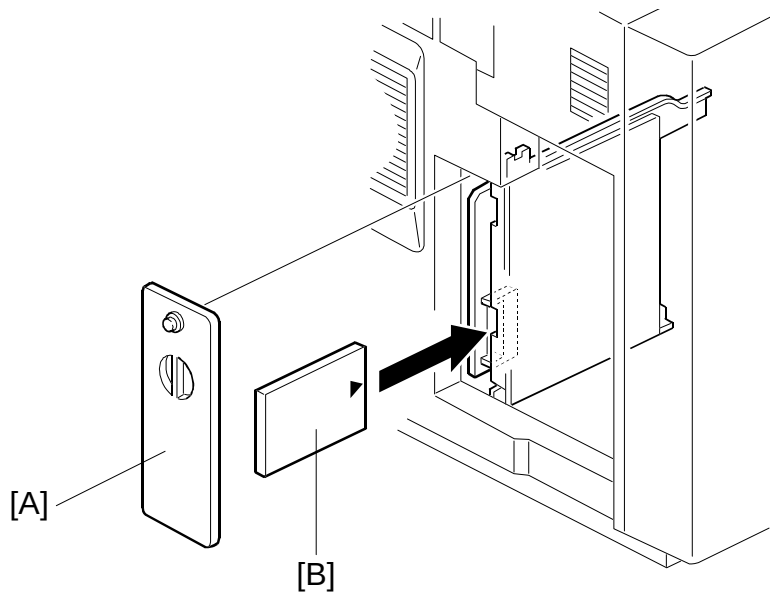
Display if writing failed

[Serviceman P-Mode]				
Program Download				
Loading error!!!			04/1	11:02

Service
Tables

SERVICE PROGRAM MODE

Program Upload (SP5-826)



1. Turn off the main switch.
2. Remove the cover [A] (1 rivet).
3. Plug the flash memory card [B] into the card slot.
NOTE: Make sure that the surface printed "A" faces the left side of the machine (as viewed from the front of the machine).
4. Turn on the main switch.
5. Access SP mode 5-826.
6. The machine erases the current software, then writes the new software to the flash memory card. This takes about 60 seconds. If uploading failed, an error message appears (see "Program Download"). At this time, repeat the upload procedure.

4.2.11 NVRAM DATA DOWNLOAD

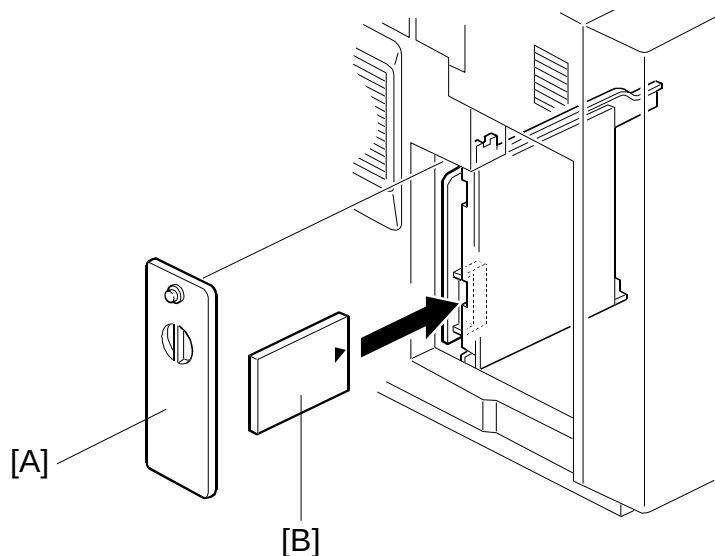
After doing the memory all clear procedure, NVRAM data will be reset to their default settings. So it is necessary to upload the NVRAM data before clearing the NVRAM, and to download the NVRAM data afterwards.

- SP5-824: Uploads from the BICU to a flash memory card.
- SP5-825: Downloads from a flash memory card to the BICU.

NVRAM Data Download (SP5-825)

NOTE: This procedure downloads all the settings stored in the NVRAM except for the following items:

- Electrical total counter value (SP7-003)
- Machine serial number (SP5-811, SP5-920, SP5-925)
- Plug & Play brand name and production name setting (SP5-907)
- Some SBU settings (SP4-904-3, SP4-904-4, SP4-906, SP4-909)



1. Turn off the main switch.
2. Remove the cover [A] (1 rivet).
3. Plug the flash memory card [B] into the card slot.
NOTE: Make sure that the surface printed "A" faces the left side of the machine (as viewed from the front of the machine).
4. Turn on the main switch.
5. Access the SP mode 5-825.
6. The machine erases the current settings, then writes the new settings onto the NVRAM on the BICU board. If downloading failed, an error message appears (see "Program Download"). At this time, repeat the download procedure.

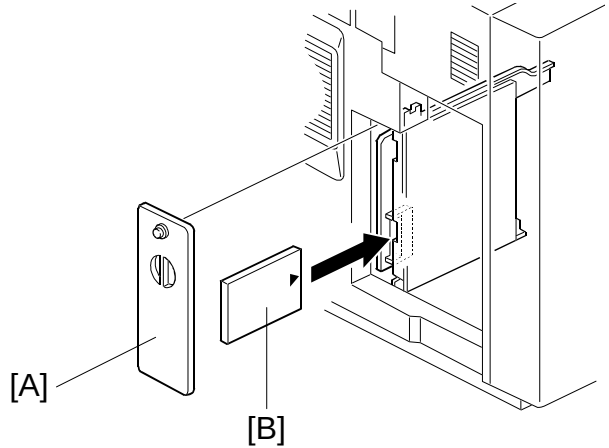
SERVICE PROGRAM MODE

NVRAM Data Upload (SP5-824)

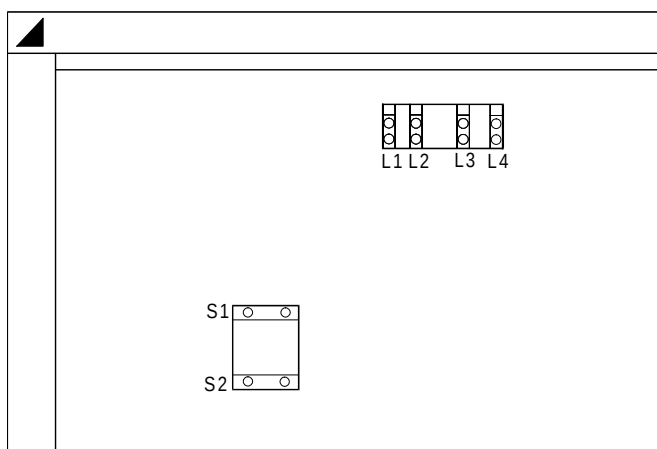
1. Turn off the main switch.
2. Remove the cover [A] (1 rivet).
3. Plug the flash memory card [B] into the card slot.

NOTE: Make sure that the surface printed “A” faces the left side of the machine (as viewed from the front of the machine).

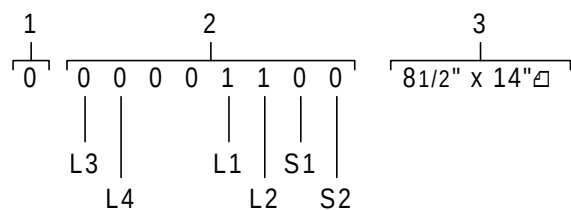
4. Turn on the main switch.
5. Access SP mode 5-824.
6. The machine erases the current settings, then writes the machine’s settings to the flash memory card. This takes about 60 seconds. If uploading failed, an error message appears (see “Program Download”). At this time, repeat the upload procedure.



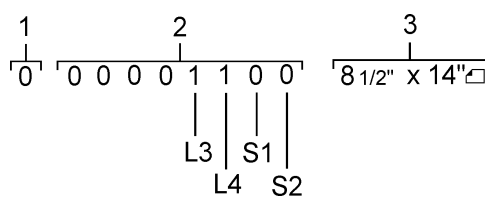
4.2.12 APS AND PLATEN/DF COVER SENSOR OUTPUT DISPLAY (SP4-301)



[A4/A3 version machines]

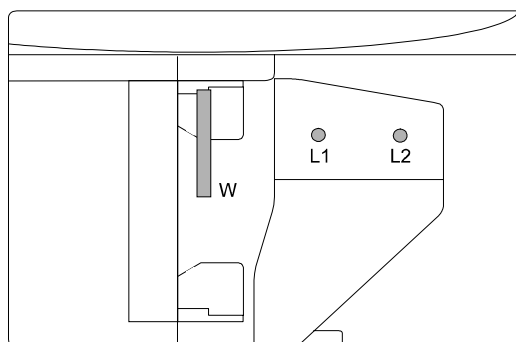


[LT/DLT version machines]

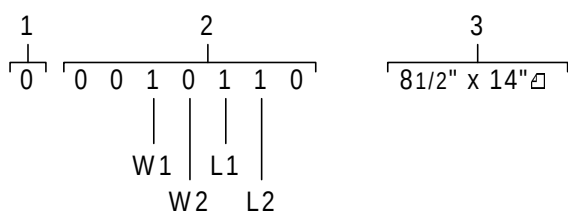


NOTE: The length sensors L1 and L2 are used only for A4/A3 version machines.

1. Platen cover sensor status	1 = Closed
2. APS sensor status	1 = Paper detected
3. Paper size display	

4.2.13 DF APS SENSOR OUTPUT DISPLAY (SP6-901)

	Large	←————→		Small
W1	0	0	1	1
W2	0	1	0	1



1. Original set sensor status 1 = Paper detected
2. APS sensor status 1 = Paper detected
3. Paper size display

L1	L2	W1	W2	Paper Size	
				inches	mm
0	0	0	0	8 1/2" x 11" Sideways	A4 Sideways
0	0	0	1	-	B5 Sideways
0	0	1	0	8 1/2" x 5 1/2" Sideways	A5 Sideways
0	0	1	1	5 1/2" x 8 1/2" Lengthwise	A5 Lengthwise
1	0	1	0	8 1/2" x 11" Lengthwise	A4 Lengthwise
1	0	1	1	-	B5 Lengthwise
1	1	0	0	11" x 17"	A3
1	1	0	1	10" x 14"	B4
1	1	1	0	8 1/2" x 14"	8 1/2" x 13"

1: Detected

4.2.14 DISPLAY LANGUAGE (SP5-808)

⇒

	US/Asia	Europe (standard)	Europe (option 1)	Europe (option 2)
0	NA	UK	UK	UK
1	FR	DE	DE	DE
2	ES	FR	FR	FR
3		IT	IT	IT
4		ES	ES	ES
5		NL	SE	CZ
6			NO	PL
7			DK	PT
8			FI	HU

NA: English

UK: English

DE: German

FR: French

IT: Italian

ES: Spanish

NL: Dutch

SE: Swedish

NO: Norwegian

DK: Danish

FI: Finnish

CZ: Czech

HU: Hungarian

PL: Polish

PT: Portuguese

4.2.15 SERIAL NUMBER INPUT (SP5-811)

Used to input the machine serial number. (Normally done at the factory.) The numeric keypad has 12 buttons. Use the first 11 buttons ① to ⑨, ☒ and ⑩ to input the serial number (Ⓢ is not used). Each button stands for one digit of the serial number. The first 4 buttons allow you to scroll through number 0 to 9 and "A" to "Z". Buttons 5 to 11 only scroll through numbers 0 to 9.

①	②	③
1st digit	2nd digit	3rd digit
④	⑤	⑥
4th digit	5th digit	6th digit
⑦	⑧	⑨
7th digit	8th digit	9th digit
☒	⑩	Ⓢ
10th digit	11th digit	(Not used)

4.3 USER TOOLS

The User Tools are accessed by users and key operators, and by sales and service staff. User Tools are used to input or change the copier's default settings.

4.3.1 HOW TO ENTER AND EXIT USER TOOLS

Press the User Tools button, then select the User Tools program. After finishing the User Tools program, press the User Tools button to exit User Tools.

4.3.2 USER TOOLS TABLE

System Setting Table

1. System	1. Function Priority	
	2. Panel Tone	
	3. Copy Count Display	
	4. System Reset	
	5. Function Reset	
	6. Panel Off Timer	
	7. Energy Saver Level	
	8. Energy Saver Timer	
	9. Auto Off Timer	
	10. AOF (Keep It On.)	
	11. Special Pap. Size	Tray 1
		Tray 2
		Tray 3
	12. Pap. Tray Priority	
	13. Auto Tray Switch	
	14. Output Tray Prio.	Copier Paper Tray
		Copier Bypass Tray
		FAX Paper Tray
		FAX Bypass Tray
		Printer Paper Tray
		Printer Bypass Tray
	15. Print Priority	
	16. Display Contrast	
	17. Paper Status	
	18. Key Op. Tools	Show/Print Counter
		Print Counter List
		Key Op. Access
		Prog. Key Op. Code
		Restricted Access

Copy Setting Table

2. Copier	1. General Features	1. APS Priority
		2. ADS Priority
		3. Original Priority
		4. Max. Copy Q'ty
		5. Set Ratio
		6. En. Ratio Priority
		7. Re. Ratio Priority
		8. Image Adjustment
		9. Copy Auto Reset
		10. Initial Mode Set
		11. Original Tone
		12. Reset Bypass Set
		13. Key Op. Tools
	2. ADF/Sorter	1. Comb. Auto Eject
		2. Original Count
		3. SADF Auto Reset
		4. R.Srt.AutPap.cont
		5. Sort

LEDS

4.4 LEDS

BICU

Number	Function
LED 101	Monitors the +5 V line for the slave CPU. Usually, this LED is blinking.
LED 102	Monitors the +5 V line. Usually, this LED is lit.

IOB

Number	Function
LED 100	Monitors the connection between the IOB and the BICU. Usually, this LED is blinking.

4.5 SPECIAL TOOLS AND LUBRICANTS

4.5.1 SPECIAL TOOLS

Part Number	Description	Q'ty
54209516	Test Chart - OS-A3 (10 pcs/set)	1
A0069104	Scanner Positioning Pin (4 pcs/set)	1
A0299387	Digital Multimeter - FLUKE 87	1
A2309351	Case - Flash Memory Card	1
A2309352	Flash Memory Card - 4MB	1
A2509099	NVRAM - Minus Counter	1

4.5.2 LUBRICANTS

Part Number	Description	Q'ty
A0289300	Grease Barrierta - JFE 5 5/2	1
52039501	Silicone Grease G-501	1

⇒ 4.6 ROM HISTORY

Description (P/N A2505532)	Ver.	Serial #
Initial Production	2.09 A	1 st Mass Prod.
1. The default setting for the maintenance LED (SP5-908) has been changed to 1 (Yes) from 0 (No). 2. When the value of the total counter is over 9999 or a negative value, the SC history is displayed incorrectly (out of order). 3. If the machine receives a fax during a print or copy job (with rotate-sort), the polygon motor does not stop after the job is completed. 4. The machine occasionally required the Interrupt key to be depressed more than once to produce a response.	2.12 C	May '99 Prod.
1. The machine cannot determine the 8k and 16k when auto-enlarge / auto-reduce is performed. 2. When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop as it should. 3. When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). 4. The firmware was changed so that a SC620 is displayed when an ADF from another machine is installed.	2.14 D	June '99 Prod.
1. The default setting of the Printer Main Magnification (SP2-998) has been changed to 0.2% from 0.0%. 2. Sometimes SC620 is not cleared when the machine goes into sleep mode. 3. SC101 is sometimes displayed when the ADF stamp is activated. 4. If the remaining amount of paper shifts to the next lowest value while the counter report is being printed, the print job is canceled.	2.19 G	July '99 Prod.
1. When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. 2. Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	2.21 H	Aug. '99 Prod.

Description (P/N A2505532)	Ver.	Serial #
⇒ 1. When the Energy Saver Mode key is pressed while a print job is being done in the background, the machine will go into Energy Saver Mode. However when the operator releases the mode and returns to the system settings or copy features (both inside user tools), a message is displayed asking the operator to wait and the machine returns to the main copy screen (although it is still in user tools). The LED for the user tools key is lit, and all indicators except the LCD report that the machine is still in user tools. 2. After the operator exits either of the following screens with the User Tools key and starts a copy job, the first sheet is printed out as the counter list. • System Settings : Key Operator Tools : Counter list printing • Copy Features : Key Operator Tools : Counter list printing 3. If a jam occurs while printing out a counter report, the jam indication is displayed but soon disappears. The machine then returns to the counter display screen. In addition, if the paper end condition occurs while the paper is being fed (after the start key is pressed), the machine returns to the counter display screen without properly displaying "Set A4 (81/2 X 11) paper in tray". 4. When a printer sort job and counter list job overlap each other the counter list is not printed out. 5. When the memory becomes full during a copy job using the "combine" function, the image being printed at that time will contain errors. 6. After setting several originals in the ADF and scanning a fax cover sheet using Auto Document, the operator exits the mode but cannot make copies using the ADF. 7. Abnormal image occurs when an A5 sideways original is enlarged to 8K (tray 3) using Auto-Enlarge. A5 lengthwise prints out normally.	2.27 J	Oct. '99 Prod.

Description (P/N A2505532)	Ver.	Serial #
⇒ 1. The detection conditions for SC546 have been changed as follows: Old: - Detection during warm-up, standby and Energy Saver Mode. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5-second detection intervals. New: - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. 2. Previously, it was necessary to enter SP Mode to clear SC547. It is now possible to clear the code by turning the main power switch OFF and ON.	2.33 K	May '00 Prod.

PREVENTIVE MAINTENANCE

5. PREVENTIVE MAINTENANCE SCHEDULE

5.1 PM TABLE

NOTE: 1) After carrying out PM, clear the maintenance counter (SP7-909).
2) The amount mentioned as the PM interval indicates the number of prints.

Symbol key: C: Clean R: Replace L: Lubricate I: Inspect

	EM	100k	200k	300k	NOTE
OPTICS					
Reflector	C	C	C	C	Optics cloth
1st mirror	C	C	C	C	Optics cloth
2nd mirror	C	C	C	C	Optics cloth
3rd mirror	C	C	C	C	Optics cloth
Scanner guide rails	C	C	C	C	Do not use alcohol.
Platen sheet cover	I	I	I	I	Replace the platen sheet, if necessary. Dry cloth or alcohol
Exposure glass	C	C	C	C	Dry cloth or alcohol
Toner shield glass	C	C	C	C	Dry cloth
APS sensor	C	C	C	C	Dry cloth
PAPER FEED					
Paper feed roller		R	R	R	
Friction pad		R	R	R	
Bottom plate pad		R	R	R	
Registration rollers	C	C	C	C	Clean with water or alcohol.
Relay rollers	C	C	C	C	Dry cloth
Paper feed guides	C	C	C	C	Dry cloth
Paper dust mylar	C	C	C	C	Dry cloth
FUSING UNIT					
Hot roller		R	R	R	
Pressure roller		R	R	R	
Hot roller bushing - front		R	R	R	
Hot roller bushing - rear		R	R	R	
Pressure roller bushing - front		R	R	R	
Pressure roller bushing - rear		R	R	R	
Hot roller strippers		R	R	R	
Upper exit roller		R	R	R	
OTHERS					
Transfer roller		R	R	R	

	EM	100k	200k	300k	NOTE
ADF					
Feed belt	C	R	R	R	Clean with water or alcohol.
Separation roller	C	R	R	R	Clean with water or alcohol.
Pick-up roller	C	R	R	R	Clean with water or alcohol.
Stamp	I				Replace if necessary
White plate	C	C	C	C	Clean with water or alcohol.
DF exposure glass	C	C	C	C	Clean with water or alcohol.
Platen cover	C	C	C	C	Clean with water or alcohol.

The PM interval for the ADF is the number of prints (as for other units), not the number of originals.

	EM	100k	200k	300k	NOTE
PAPER TRAY UNIT					
Paper Feed Rollers	C	R	R	R	Dry or damp cloth
Bottom Plate Pad	C	C	C	C	Dry cloth
Paper Feed Guides	C	C	C	C	Clean with water or alcohol.
Friction Pad	C	R	R	R	Dry or damp cloth

5.2 HOW TO CLEAR THE MAINTENANCE COUNTER

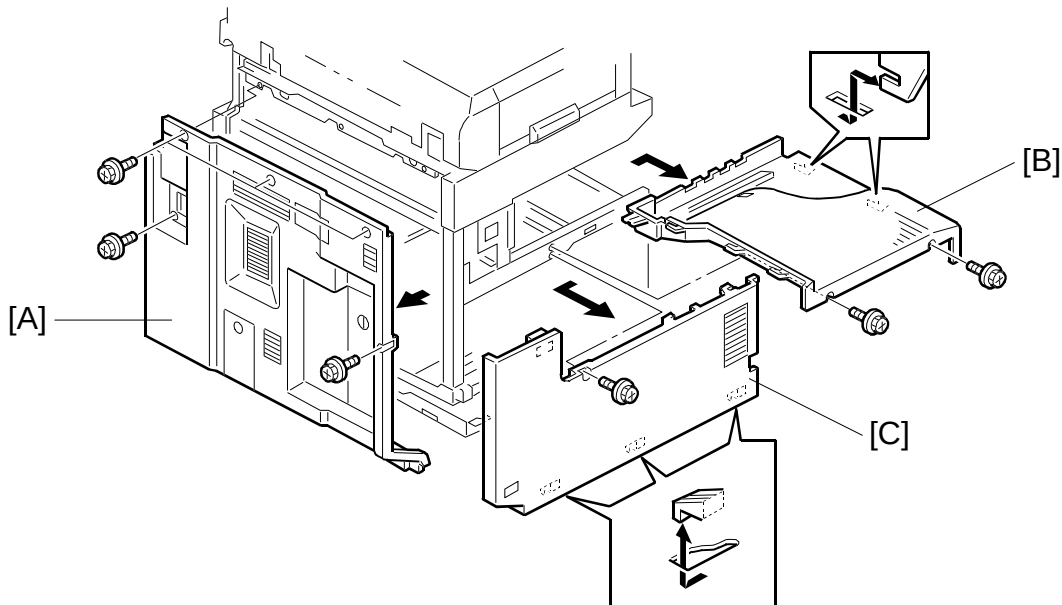
After PM, perform the maintenance counter clear (SP7-909).

1. Access SP mode 7-909.
2. Press down the "Photo mode" key and the "OK" or  key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.

REPLACEMENT AND ADJUSTMENT

6. REPLACEMENT AND ADJUSTMENT

6.1 EXTERIOR REMOVAL



6.1.1 REAR COVER

1. Remove the rear cover [A] (5 screws)

6.1.2 COPY TRAY

1. Remove the copy tray [B], as shown (2 screws).

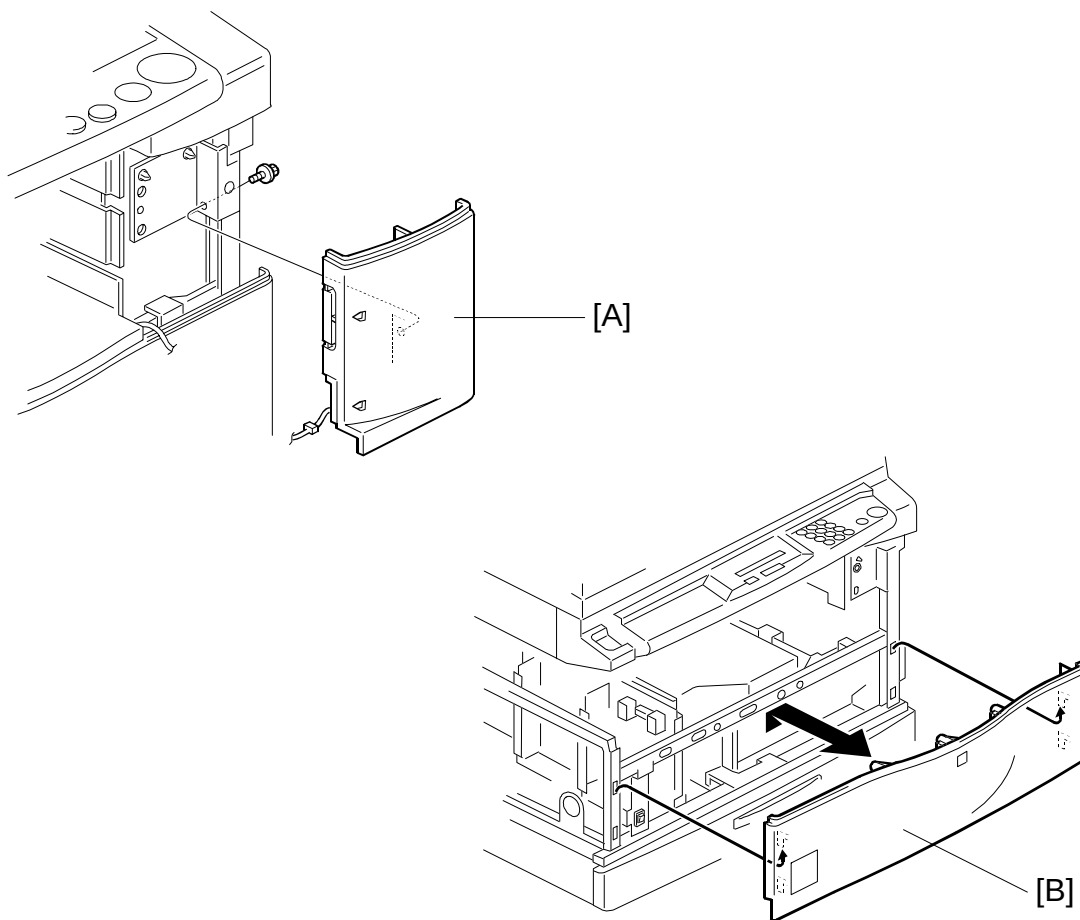
NOTE: If a 1-bin sorter is installed, remove it before removing the copy tray.

6.1.3 LEFT COVER

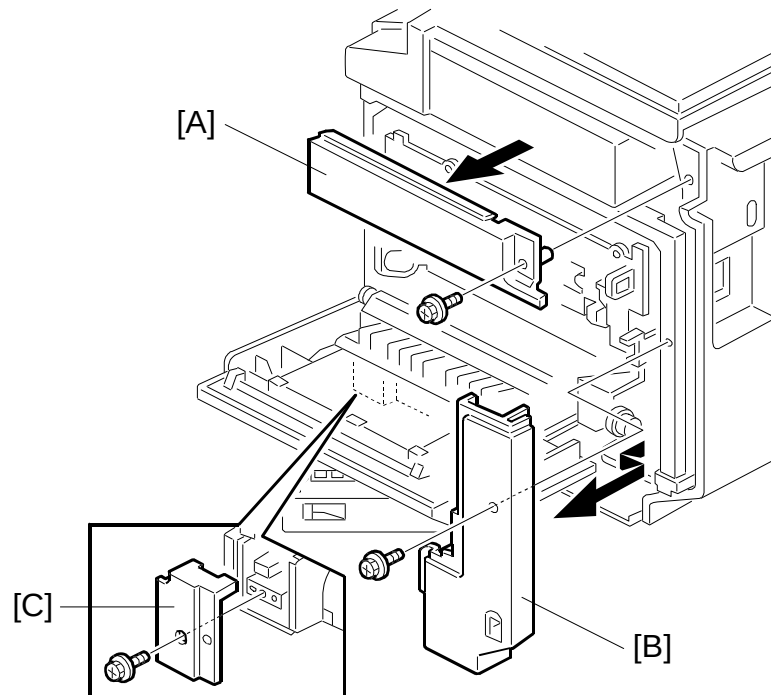
1. Remove the left cover [C], as shown (1 screw).

EXTERIOR REMOVAL

6.1.4 FRONT COVER



1. Remove the copy tray. (Refer to Copy Tray Removal, section 6.1.2.)
2. Remove the small front cover [A] (1 screw).
3. Remove the front cover [B], as shown.



6.1.5 UPPER RIGHT COVER

1. Remove the upper right cover [A] (1 screw).

6.1.6 LOWER RIGHT COVER

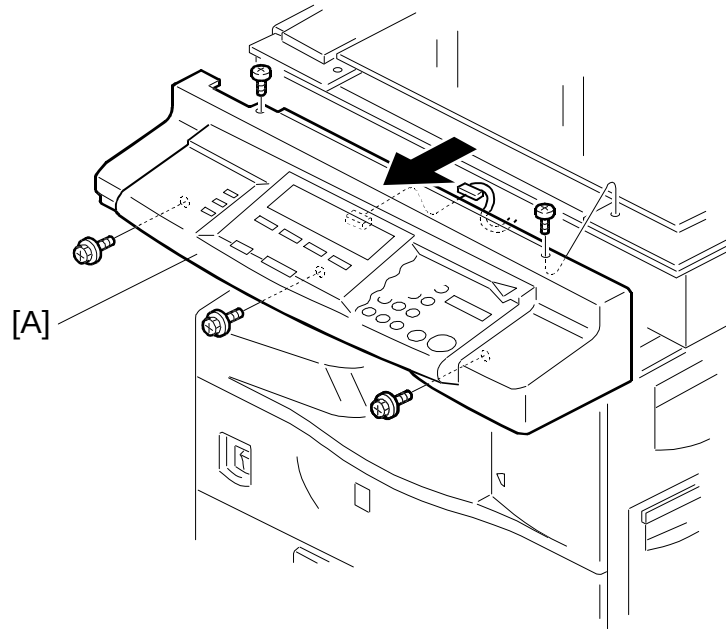
1. Remove the upper right cover.
2. Remove the lower right cover [B] (1 screw).

6.1.7 RIGHT SMALL COVER

1. Remove the right small cover [C] (1 screw).

EXTERIOR REMOVAL

6.1.8 OPERATION PANEL

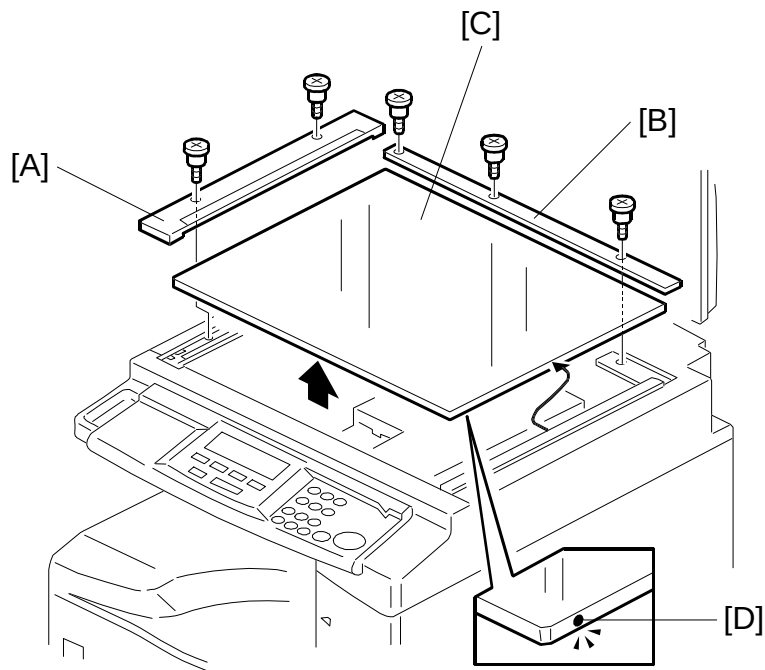


1. Remove the operation panel [A] (5 screws and 1 connector).

6.2 SCANNER

6.2.1 EXPOSURE GLASS REMOVAL

Platen Cover Model



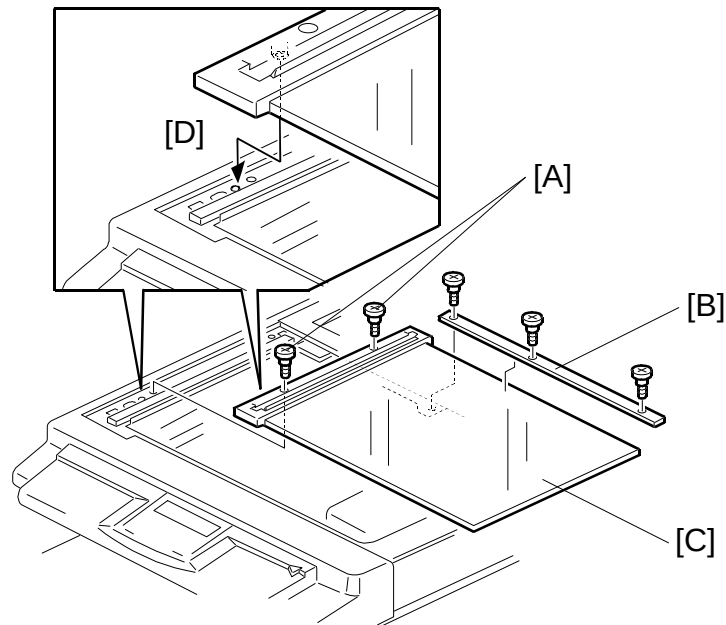
1. Remove the left scale [A] (2 screws).
2. Remove the rear scale [B] (3 screws).
3. Remove the exposure glass [C].

NOTE: When re-installing the exposure glass, place it so that the mark [D] is in the right front position.

Replacement
and
Adjustment

SCANNER

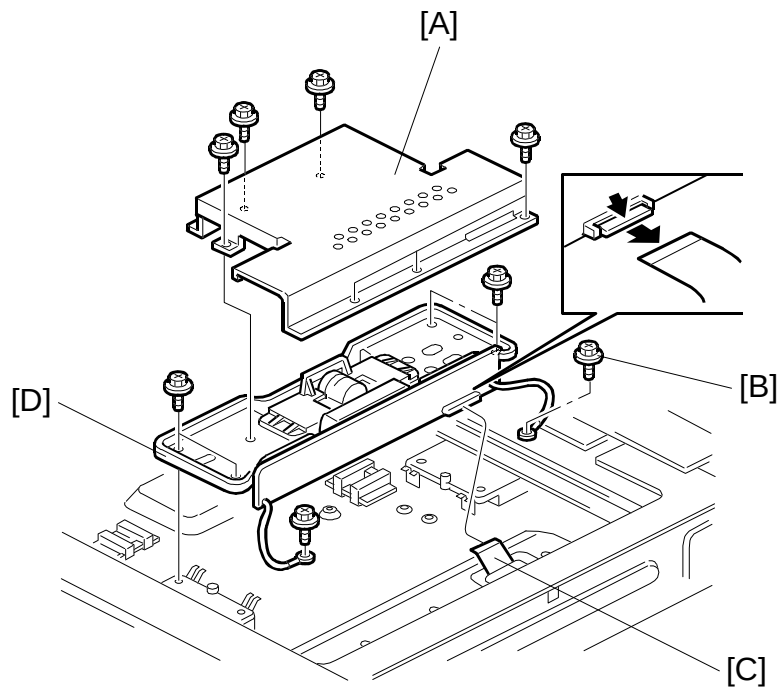
ADF Model



1. Remove the upper right cover. (See Upper Right Cover Removal, section 6.1.5.)
2. Remove the two screws [A].
3. Remove the rear scale [B] (3 screws).
4. Remove the exposure glass [C] with left scale.

NOTE: When re-installing the exposure glass, make sure that the left scale is inserted into the two pegs [D] on the edge holder.

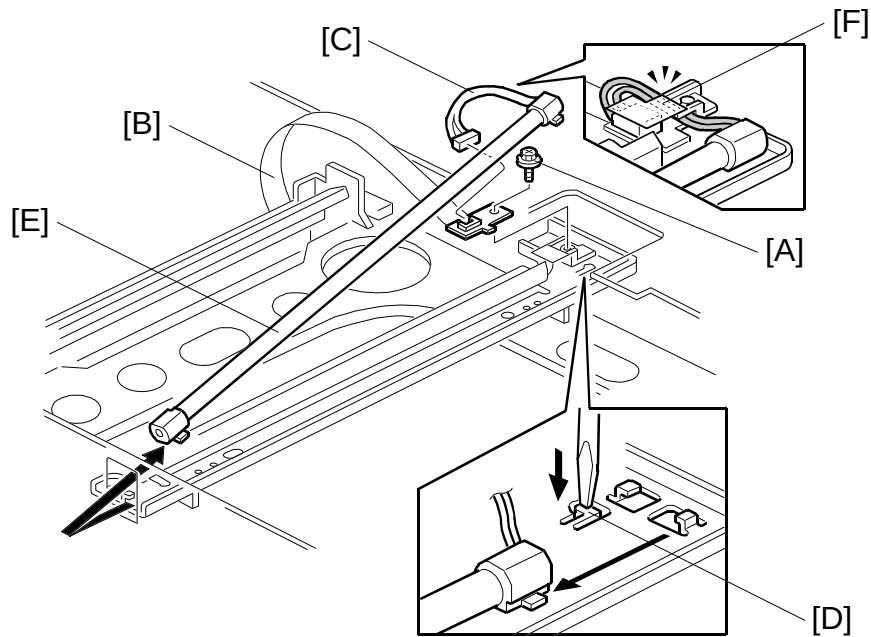
6.2.2 LENS BLOCK REMOVAL



1. Remove the exposure glass.
2. Remove the lens cover [A] (6 screws).
3. Remove the screw [B] securing the grounding wire, and disconnect the flat cable [C].
4. Remove the lens block [D] (4 screws).

Replacement
and
Adjustment

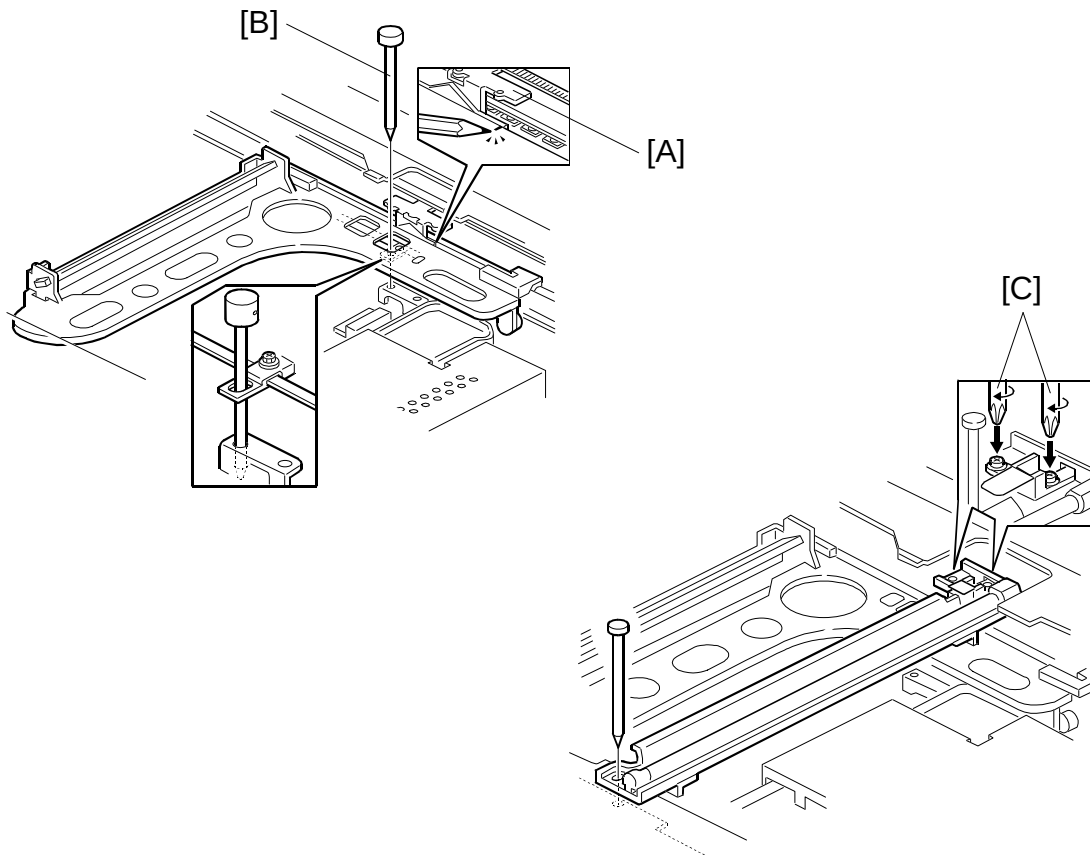
6.2.3 EXPOSURE LAMP REPLACEMENT



1. Remove the exposure glass.
2. Remove the platen cover (2 screws) and remove the upper rear cover (2 screws).
3. Remove the operation panel (5 screws and 1 connector).
4. Move the 1st scanner to the opening in the center of the frame.
5. Remove the screw [A] securing the flat cable [B] and disconnect the connector [C].
6. Press the hook [D] down to release it. Then slide the exposure lamp [E] in the direction of the arrow to remove it.

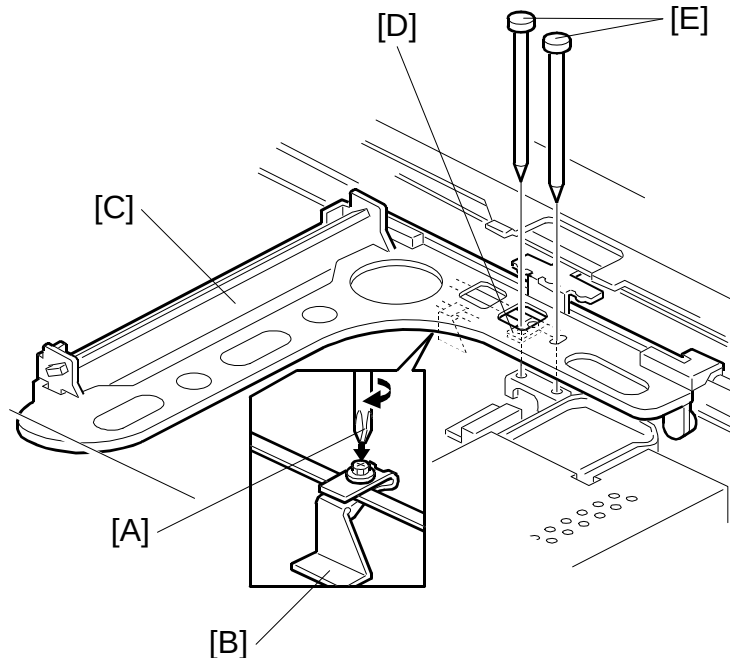
NOTE: When installing the exposure lamp, route the cable under the mylar [F] as shown.

6.2.4 1ST SCANNER ALIGNMENT ADJUSTMENT



1. Remove the exposure glass.
2. Remove the platen cover (2 screws) and remove the upper rear cover (2 screws).
3. Remove the operation panel (5 screws and 1 connector).
4. Move the 1st scanner to the opening in the center of the frame.
5. Remove the screw securing the flat cable of the exposure lamp, and disconnect the exposure lamp connector.
6. Remove the 1st scanner (2 screws).
7. Position the 1st scanner bracket [A] so that the positioning tool [B] can fit smoothly into the holes as shown. Mark the position of the 1st scanner bracket and remove the tool.
8. While keeping the 1st scanner bracket in the same position, set the 1st scanner on the 1st scanner bracket and adjust the 1st scanner alignment so that the positioning tool fits smoothly into the front hole.
9. Secure the two screws [C] to fix the 1st scanner position.

6.2.5 2ND SCANNER POSITION ADJUSTMENT



1. Remove the exposure glass.
2. Remove the platen cover (2 screws) and remove the upper rear cover (2 screws).
3. Remove the operation panel (5 screws and 1 connector).
4. Move the 1st scanner to the opening in the center of the frame.
5. Remove the screw securing the flat cable of the exposure lamp, and disconnect the exposure lamp connector.
6. Remove the 1st scanner (2 screws).
7. Loosen the screw [A] securing the belt to the bracket [B].
8. Position the 2nd scanner [C] and the 1st scanner bracket [D] so that the tools [E] can be smoothly set as shown.
9. Tighten the screw [A].

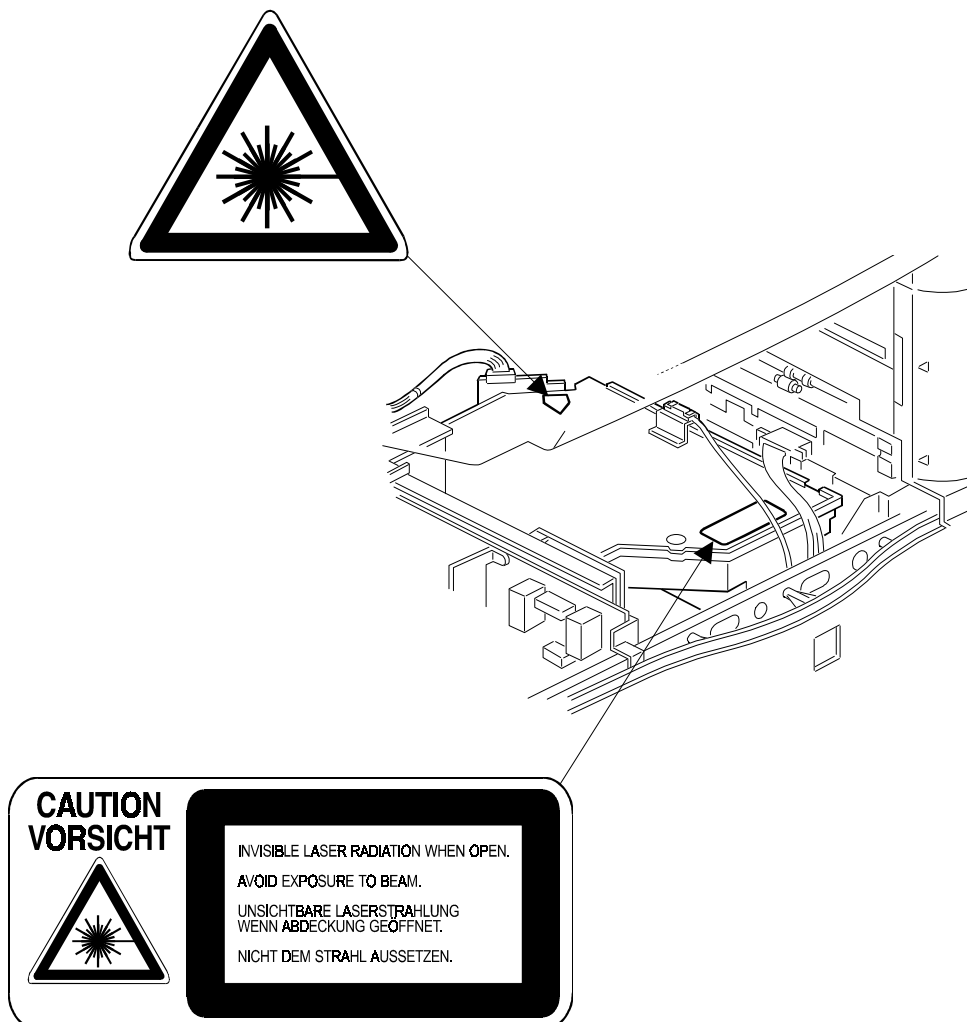
6.3 LASER UNIT

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.

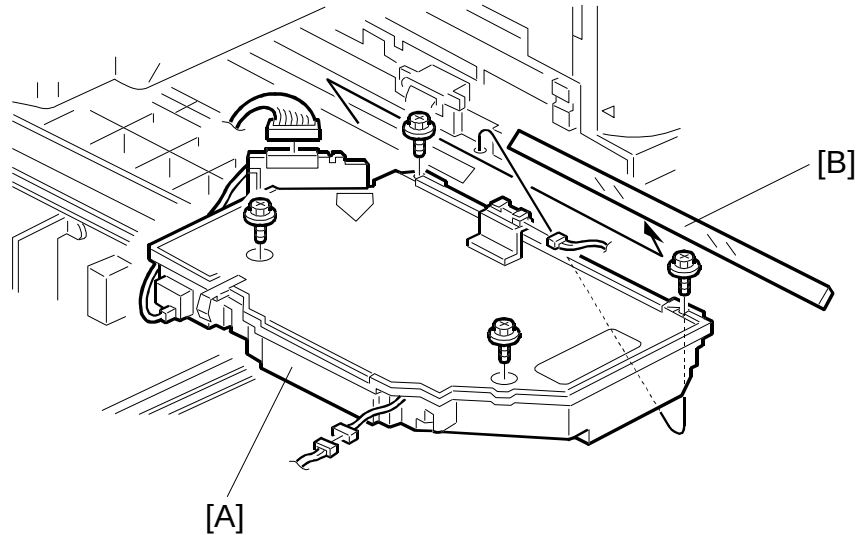
6.3.1 CAUTION DECAL LOCATIONS

Caution decals are located in the laser section as shown below.



Replacement
and
Adjustment

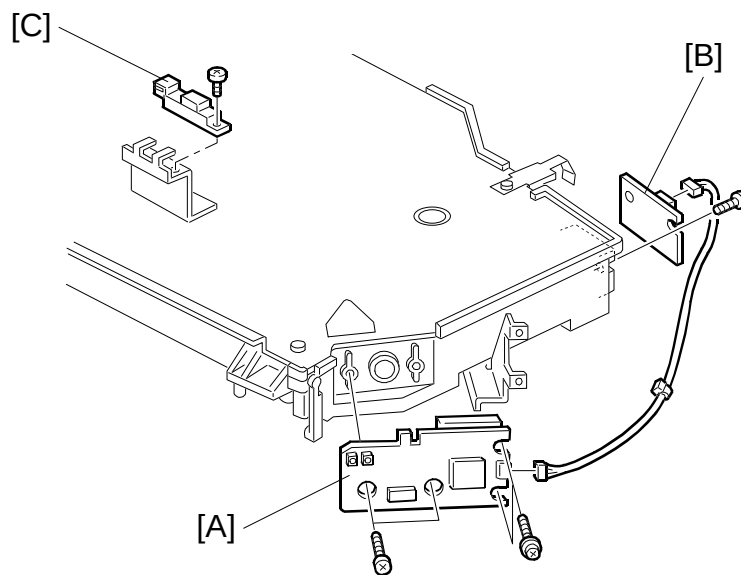
6.3.2 LASER UNIT/TONER SHIELD GLASS REMOVAL



1. Remove the AIO.
2. Remove the paper exit tray (2 screws).
3. Remove the laser unit [A] (4 screws and 3 connectors).
4. After removing the laser unit, remove the toner shield glass [B].

NOTE: When reinstalling the laser unit, be careful not to damage the actuator of the shutter.

6.3.3 LD UNIT/LASER SYNCHRONIZATION DETECTOR REMOVAL

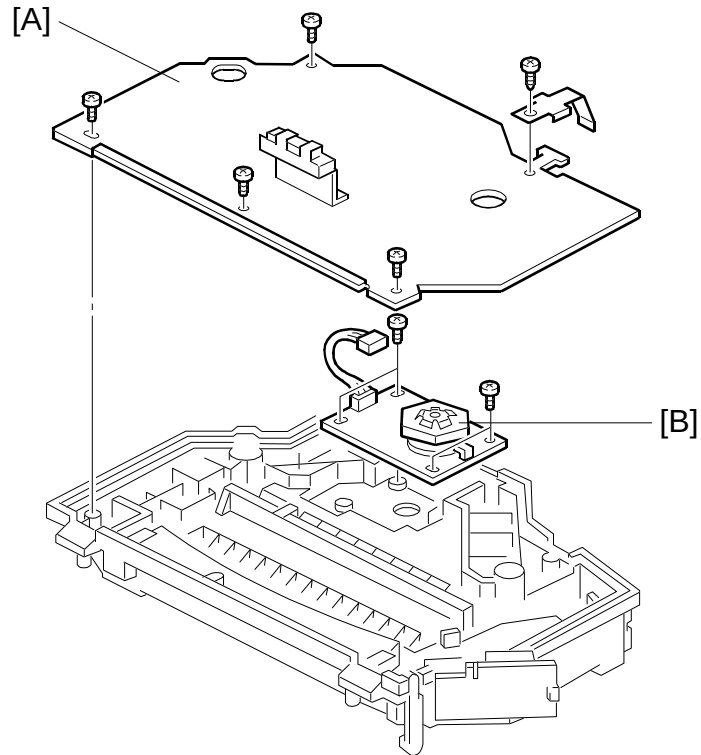


1. Remove the paper exit tray (2 screws).
2. Remove the laser unit.
3. Remove the LD unit [A] (4 screws and 1 connector).
4. Remove the laser synchronization detector [B] (2 screws and 1 connector).

6.3.4 EXIT TRAY PAPER SENSOR REMOVAL

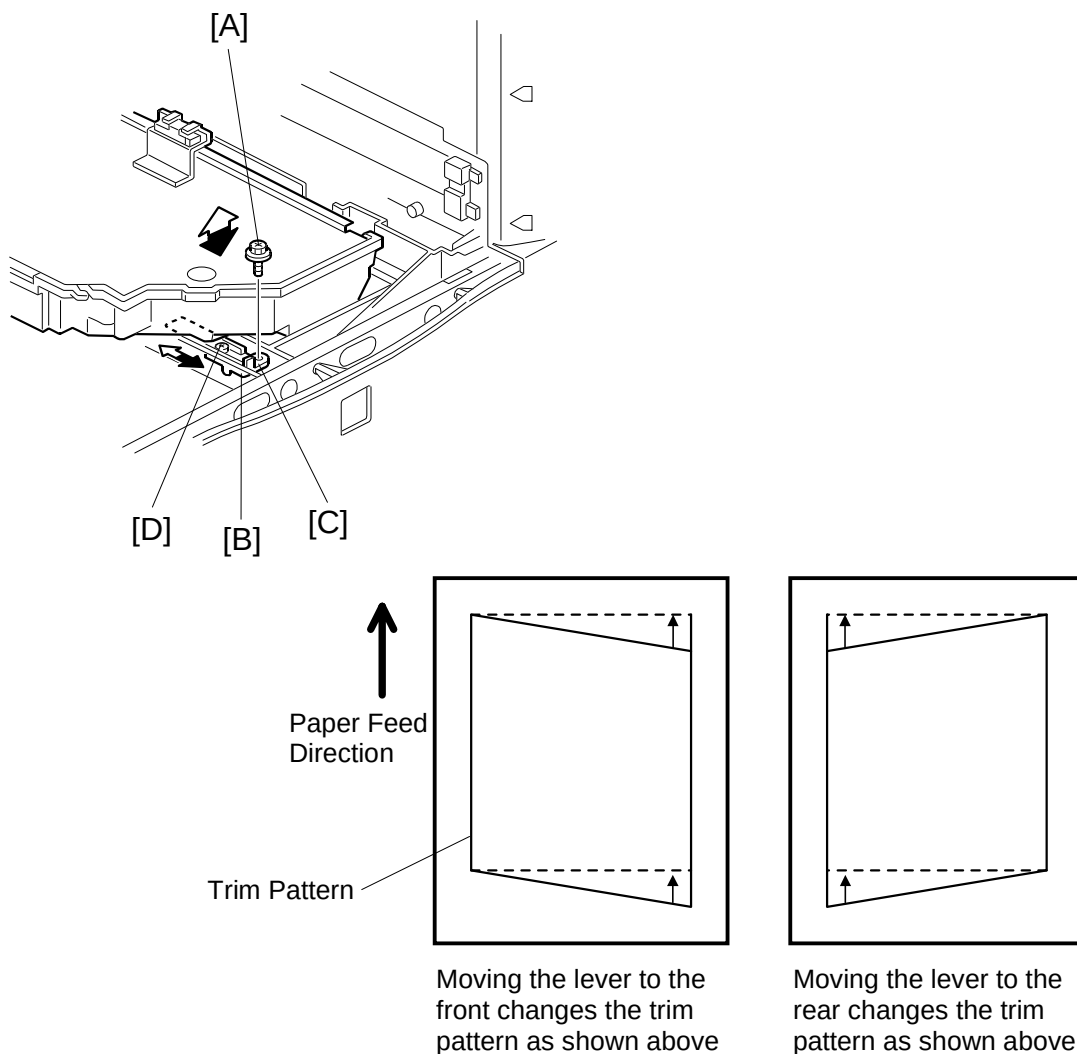
1. Remove the paper exit tray (2 screws).
2. Remove the exit tray paper sensor [C] (1 screw and 1 connector).

6.3.5 POLYGONAL MIRROR MOTOR REMOVAL



1. Remove the paper exit tray (2 screws).
2. Remove the laser unit cover [A] (5 screws).
3. Remove the polygonal mirror motor [B] (4 screws and 1 connector).

6.3.6 LASER UNIT ALIGNMENT ADJUSTMENT



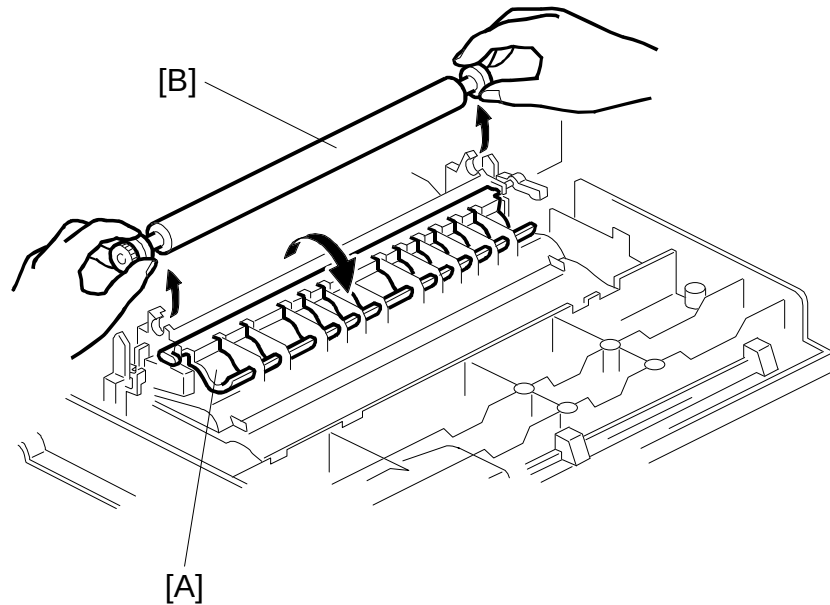
1. Output the trim pattern using SP5-902 (pattern 10).
2. Remove the paper exit tray.
3. Loosen the 4 screws securing the laser unit.
4. Remove the screw [A] securing the adjustment lever [B] from the factory installation position [C]. Then reinstall the screw at the adjustment position [D].
5. Adjust the position of the lever [B] so that a square trim pattern is output with SP5-902.
6. Tighten the screw [A].
7. Tighten other 3 screws.

6.4 IMAGE TRANSFER

6.4.1 TRANSFER ROLLER REMOVAL

Preparation

- 1) Turn off the main switch.
- 2) Open the right side cover.



1. Open the transfer roller cover [A].
2. Remove the transfer roller [B].

NOTE: Do not touch the transfer roller surface with bare hands.

6.5 FUSING

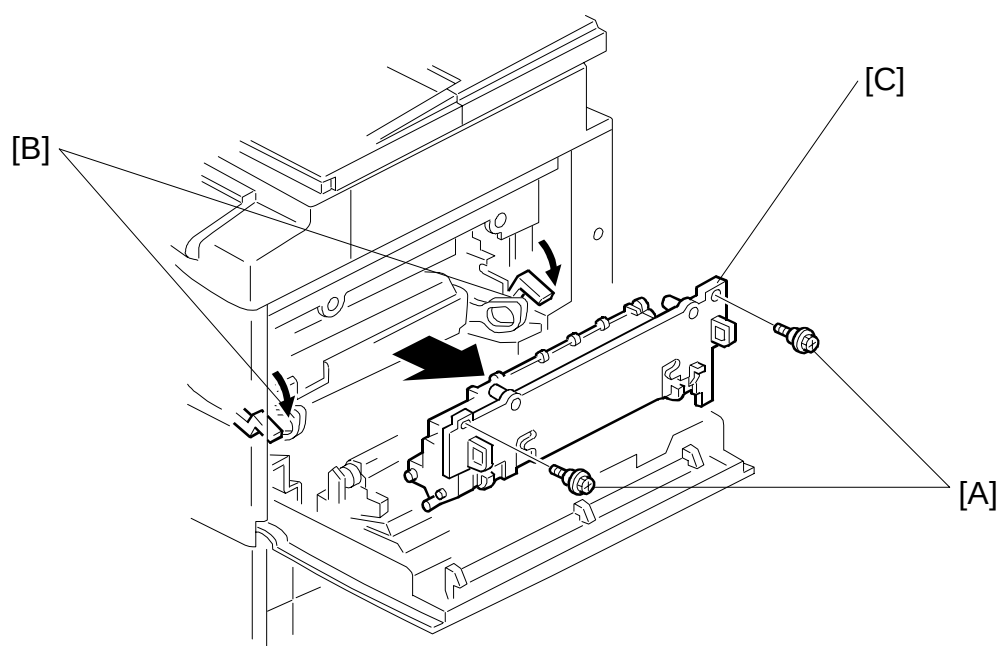
6.5.1 FUSING UNIT REMOVAL

Preparation

- 1) Turn off the main switch.
- 2) Open the right side cover.

⚠ CAUTION

Be careful when removing the fusing unit, because it could be very hot.



1. Remove the two screws [A].
2. Release the levers as shown [B].
3. Remove the fusing unit [C].

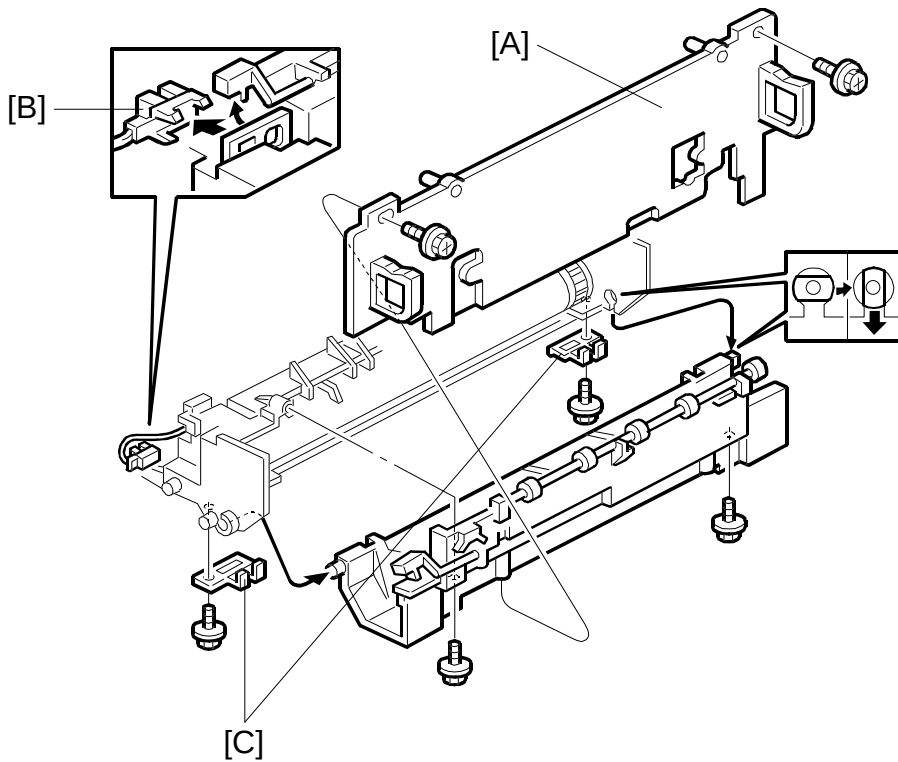
Replacement
and
Adjustment

FUSING

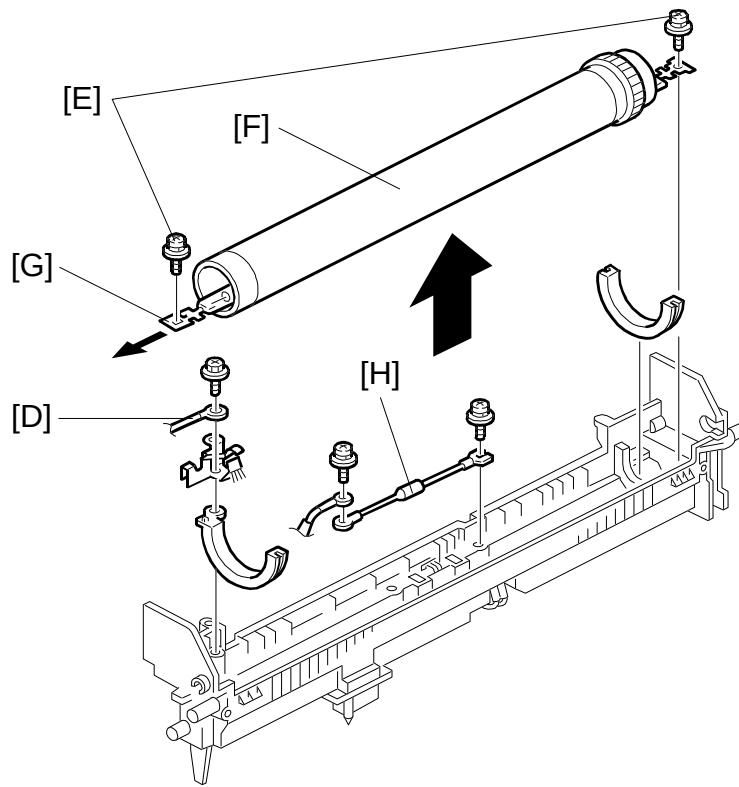
6.5.2 HOT ROLLER, FUSING LAMP AND THERMOFUSE REPLACEMENT

Preparation

- 1) Remove the fusing unit. (Refer to Fusing Unit Replacement, section 6.5.1.)



1. Remove the fusing cover [A] (2 screws).
2. Remove the fusing exit sensor [B].
3. Remove the two brackets [C] (2 screws).
4. Separate the fusing unit (2 screws).



5. Disconnect the hot roller stripper pawl springs (see Hot Roller Stripper Pawl Removal, section 6.5.5.)
6. Remove the hot roller grounding terminal [D] (1 screw).
7. Remove the two screws securing the fusing lamp terminals [E].
8. Replace the hot roller [F].
9. Replace the fusing lamp [G].
10. Replace the thermofuse [H] (2 screws).

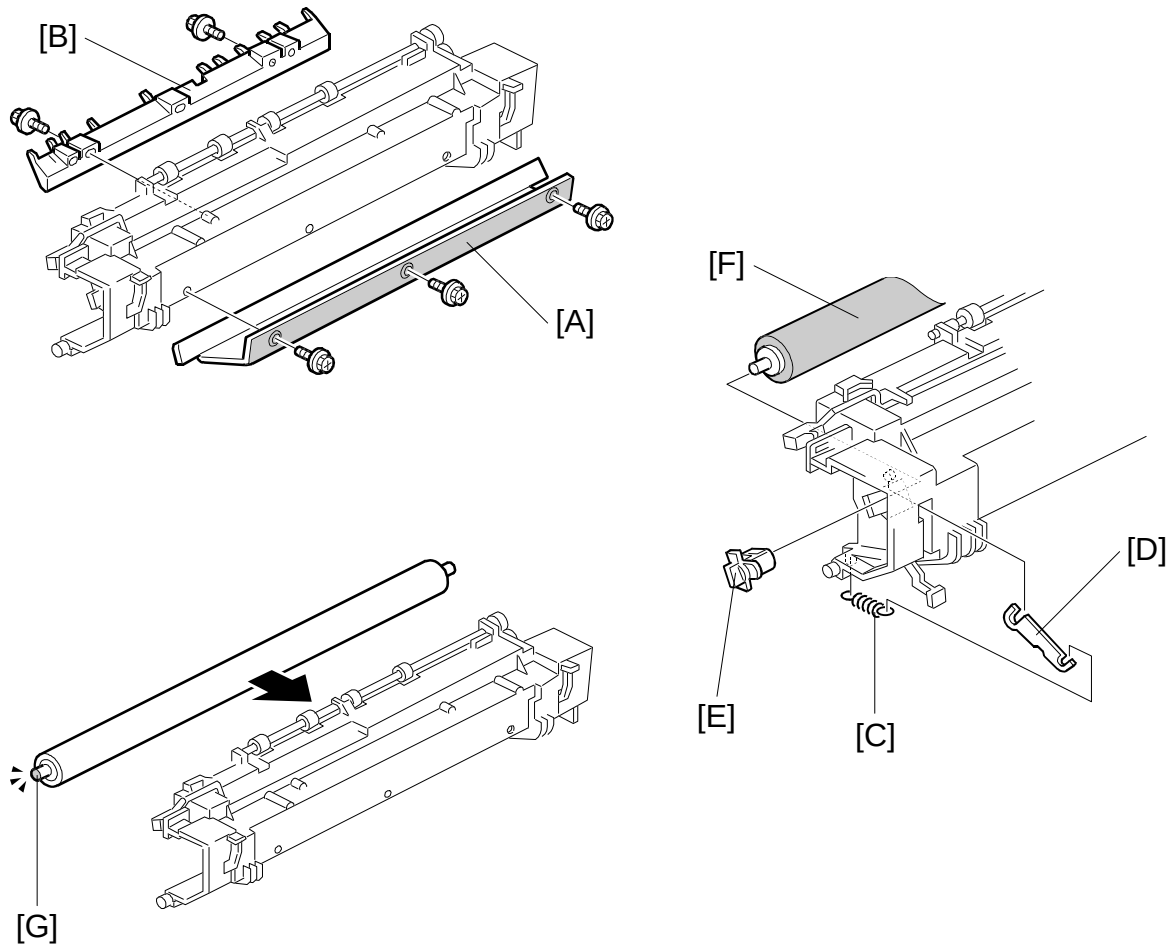
NOTE: 1) Do not touch the hot roller with your bare hands.
 2) Do not touch the fusing lamp with your bare hands.

FUSING

6.5.3 PRESSURE ROLLER REPLACEMENT

Preparation

- 1) Remove the fusing unit and separate the fusing unit. (Refer to Hot Roller, Fusing Lamp and Thermofuse Replacement, section 6.5.2.)



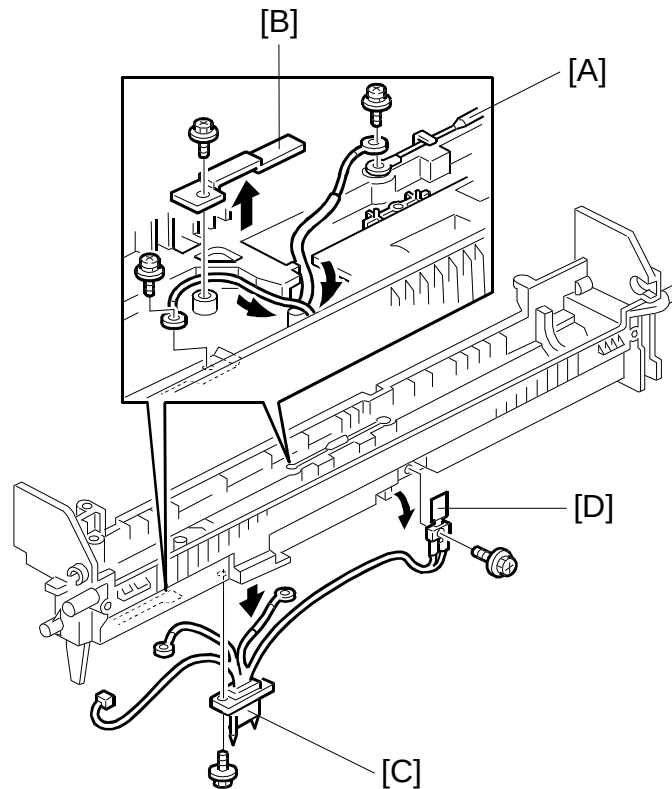
1. Remove the paper entrance guide [A].
2. Remove the paper exit guide [B].
3. Remove the two pressure springs [C].
4. Remove the pressure arms [D]
5. Remove the two bushings [E].
6. Replace the pressure roller [F].

NOTE: 1) When reinstalling the pressure roller, make sure that the green pin [G] is on the left side, as shown (near the fusing exit sensor).
2) Do not touch the pressure roller with your bare hands.

6.5.4 FUSING THERMISTOR REPLACEMENT

Preparation

- 1) Remove the hot roller. (Refer to Hot Roller and Fusing Lamp and Thermofuse Replacement, section 6.5.2.)



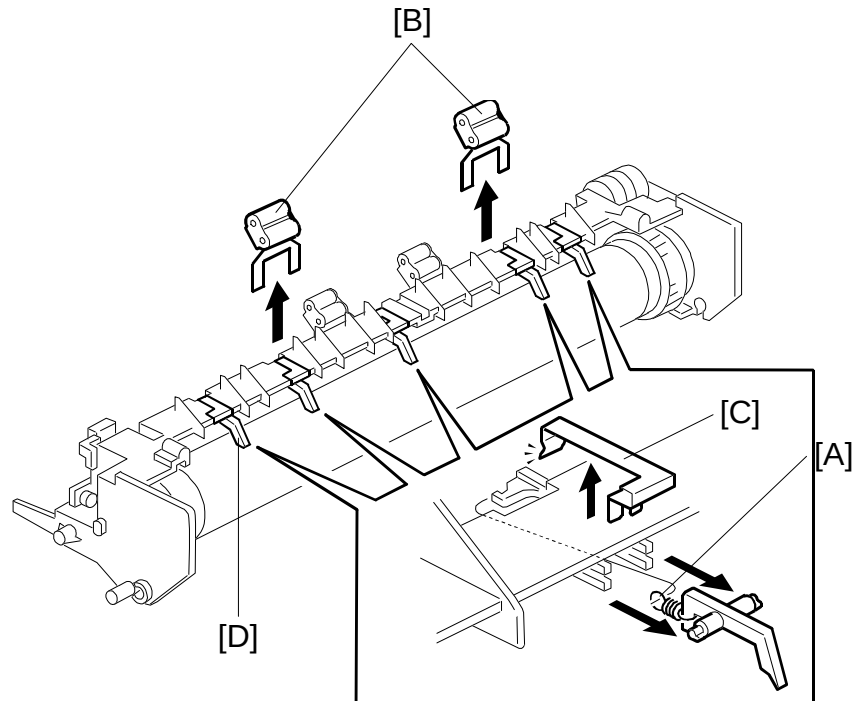
1. Remove the thermofuse [A].
2. Remove the cable cover (1 screw) [B].
NOTE: When reinstalling the cable cover, secure the cable under the cover correctly.
3. Replace the drawer connector (1 screw) [C] and fusing thermistor (1 screw) [D].

FUSING

6.5.5 HOT ROLLER STRIPPER PAWL REPLACEMENT

Preparation

- 1) Remove the fusing unit and separate the fusing unit. (Refer to Hot Roller, Fusing Lamp and Thermofuse Replacement, section 6.5.2.)



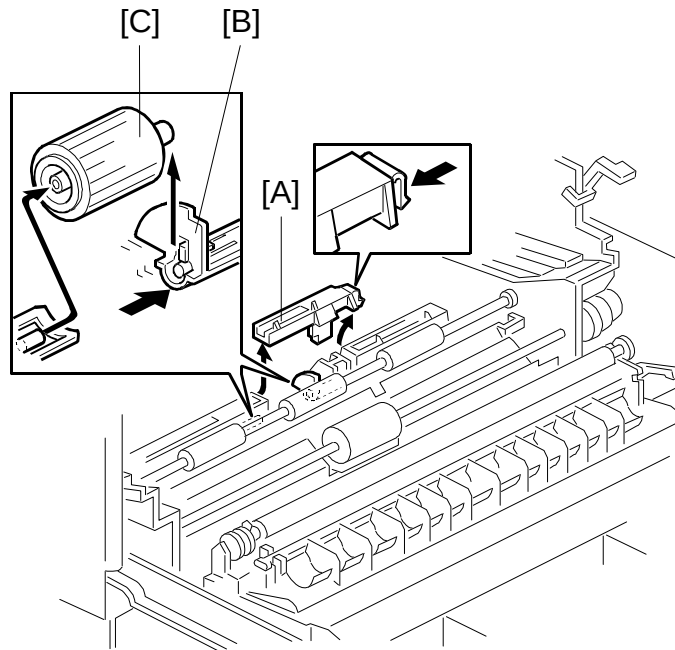
1. Disconnect the hot roller stripper pawl springs [A] (5 springs).
2. Remove the two outer exit rollers [B].
3. Remove the hot roller stripper pawl stoppers (5 stoppers) [C].
4. Replace the five hot roller stripper pawls [D].

6.6 PAPER FEED

6.6.1 PAPER FEED ROLLER REPLACEMENT

Preparation

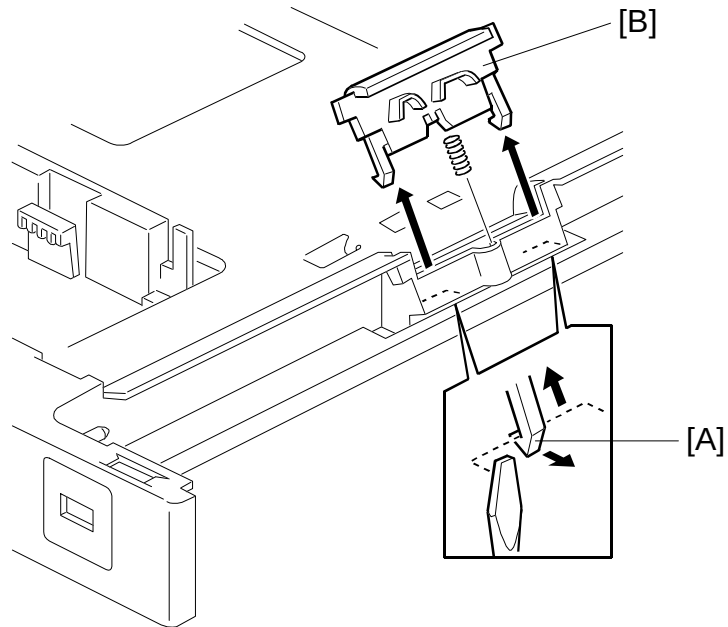
- 1) Remove the fusing unit. (Refer to Fusing Unit Replacement, section 6.5.1.)
- 2) Remove the AIO.



1. Draw out the first paper cassette.
2. Remove the center paper feed roller guide [A].
3. While releasing the spring mechanism [B], remove the paper feed roller [C].

NOTE: Do not touch the paper feed roller with your bare hands.

6.6.2 FRICTION PAD REPLACEMENT

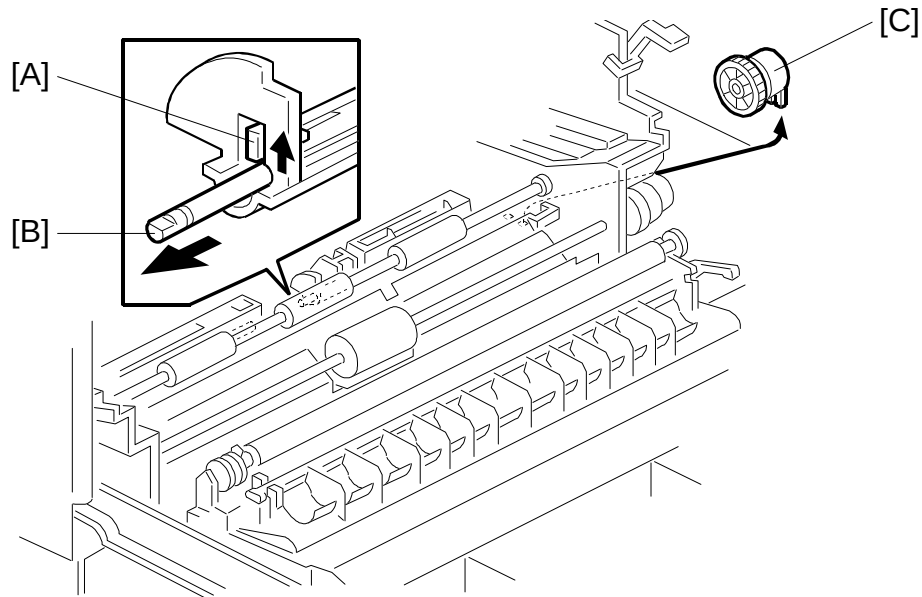


1. Draw out the paper cassette.
2. While unhooking the hooks [A], remove the friction pad [B], as shown.
NOTE: Be sure to unhook the hooks or they may break.

6.6.3 STANDARD TRAY PAPER FEED CLUTCH REPLACEMENT

Preparation

- 1) Remove the rear cover. (Refer to Rear Cover Removal, section 6.1.1.)
- 2) Remove the main motor and gear box. (Refer to Main Motor/Gear Box Replacement, section 6.7.1.)
- 3) Remove the AIO.

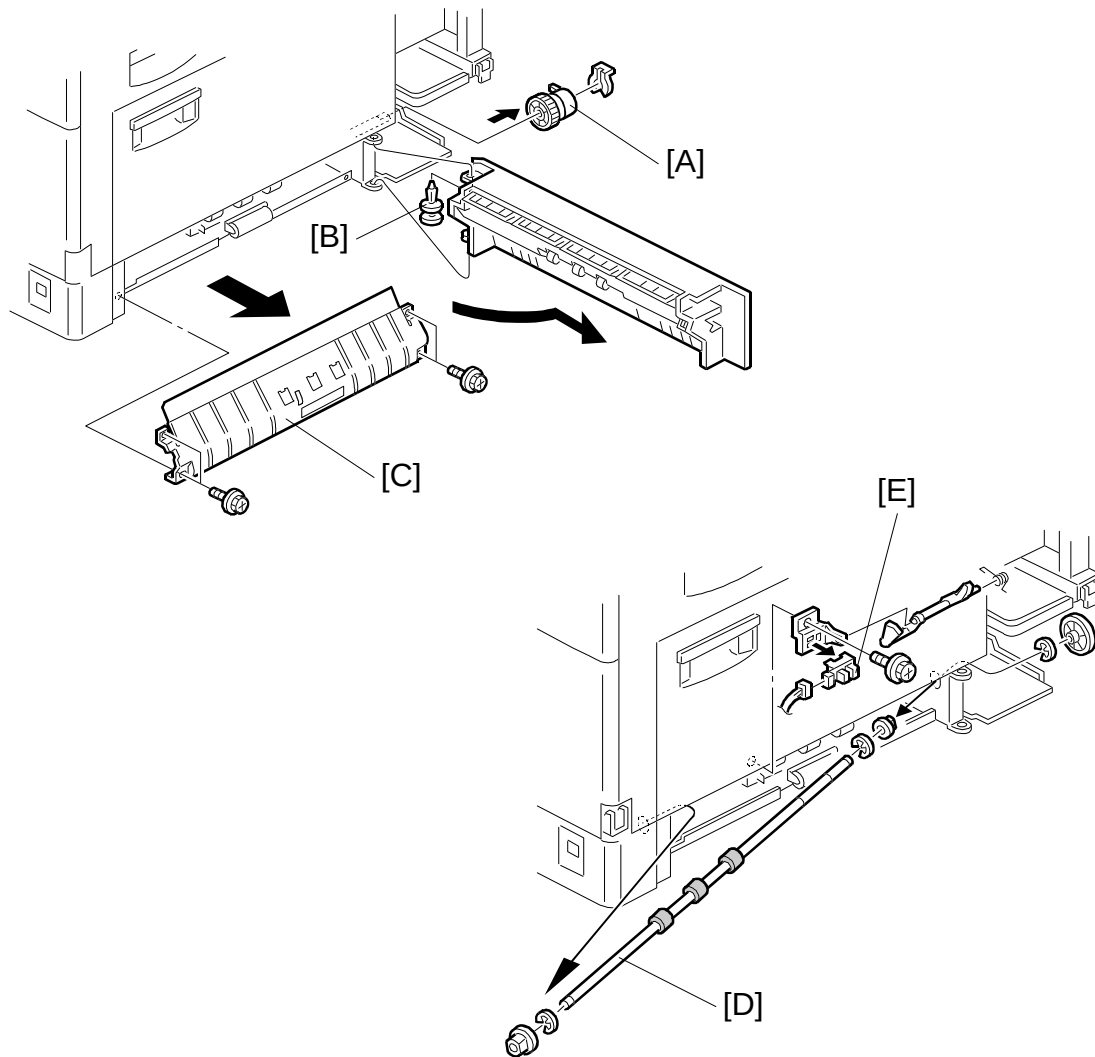


1. Remove the paper feed roller. (Refer to Paper Feed Roller Replacement, section 6.6.1.)
2. While unhooking the hook [A], pull the shaft [B] out to the left.
3. Replace the tray paper feed clutch [C] (1 connector on the engine control board).

NOTE: Do not remove the bushing for the paper feed roller shaft at the rear, because it may not be possible to reinstall it.

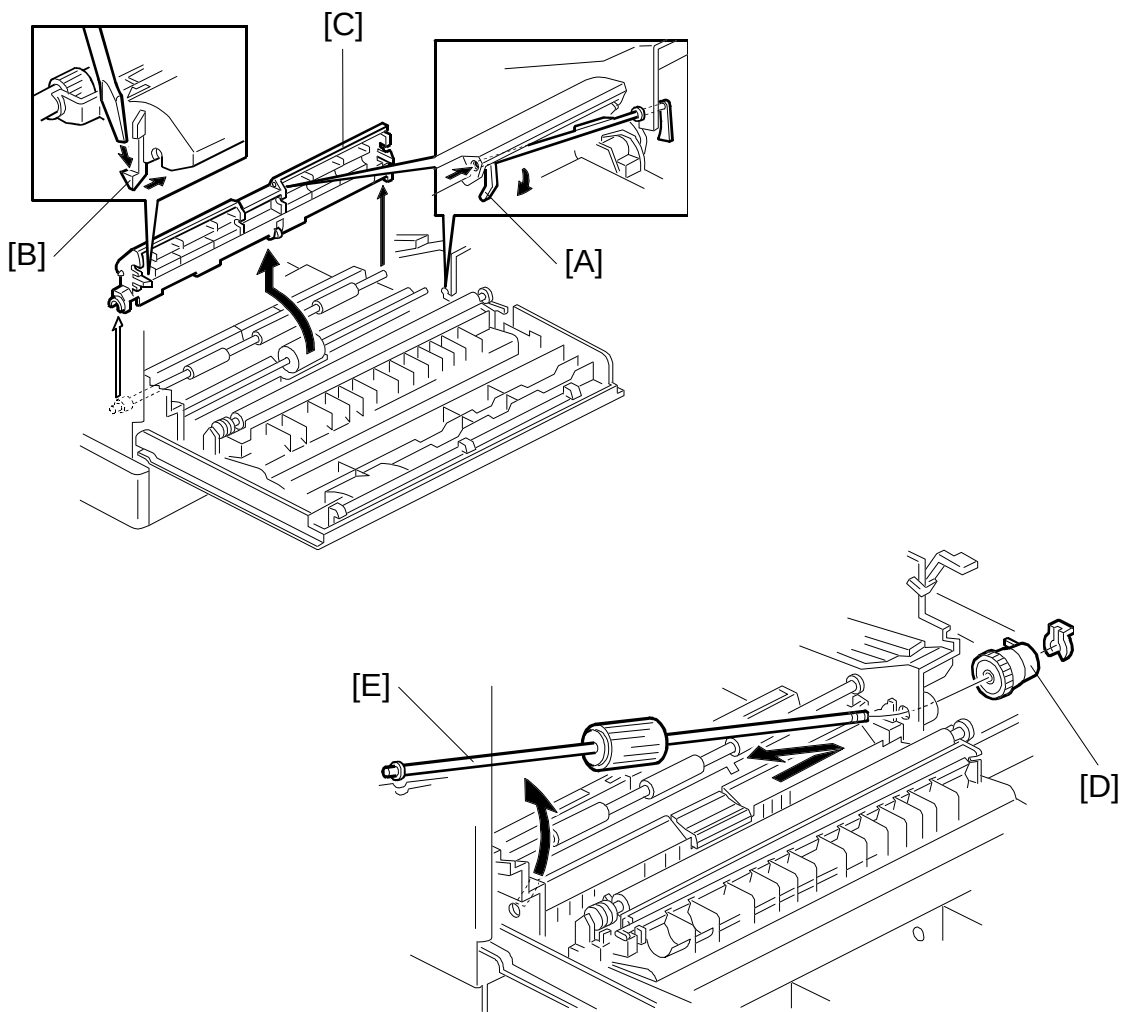
Replacement
and
Adjustment

6.6.4 VERTICAL TRANSPORT ROLLER/SENSOR/CLUTCH REPLACEMENT



1. Remove the rear right cover.
2. Replace the vertical transport clutch [A] (1 snap ring).
3. Open the vertical transport cover and remove the pin [B].
4. Remove the vertical transport guide [C] (2 screws).
5. Remove the vertical transport roller [D] (3 E-rings, 2 bushings)
6. Remove the vertical transport sensor with bracket (1 screw).
7. Replace the vertical transport sensor [E].

6.6.5 BY-PASS FEED ROLLER REPLACEMENT

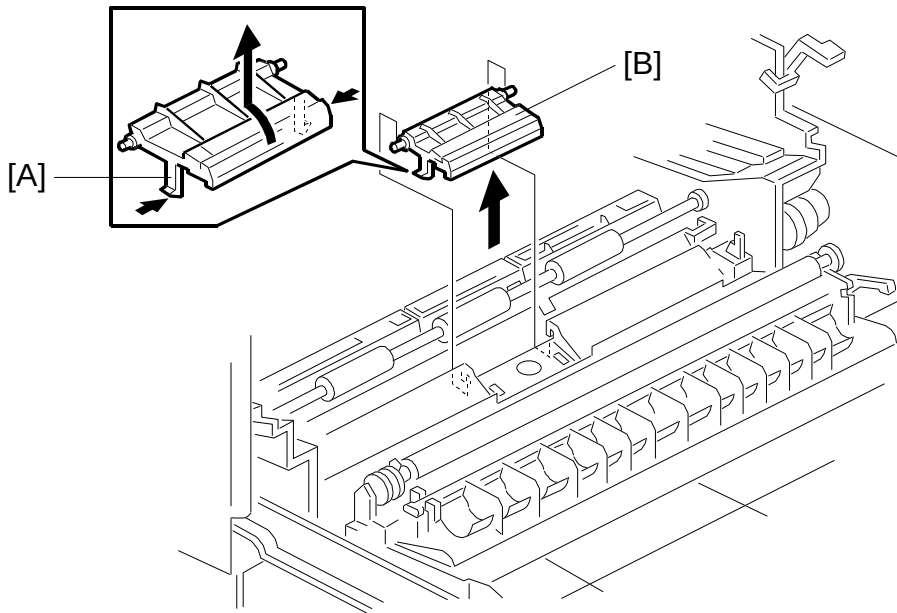


1. Remove the rear right cover.
2. Remove the AIO cartridge and the fusing unit.
3. Release the by-pass feed sensor feeler [A] by pushing the left side of the feeler shaft, as shown.
4. While releasing the hook [B] at each side, remove the by-pass feed roller cover [C], as shown.
NOTE: Remove the by-pass feed roller cover carefully (it is attached tightly). Otherwise, the feeler [A] may be damaged.
5. Remove the by-pass feed clutch [D] (1 snap ring).
6. Remove the by-pass feed roller [E], as shown.
NOTE: Do not touch the by-pass feed roller with your bare hands.

6.6.6 BY-PASS FEED FRICTION PAD REPLACEMENT

Preparation

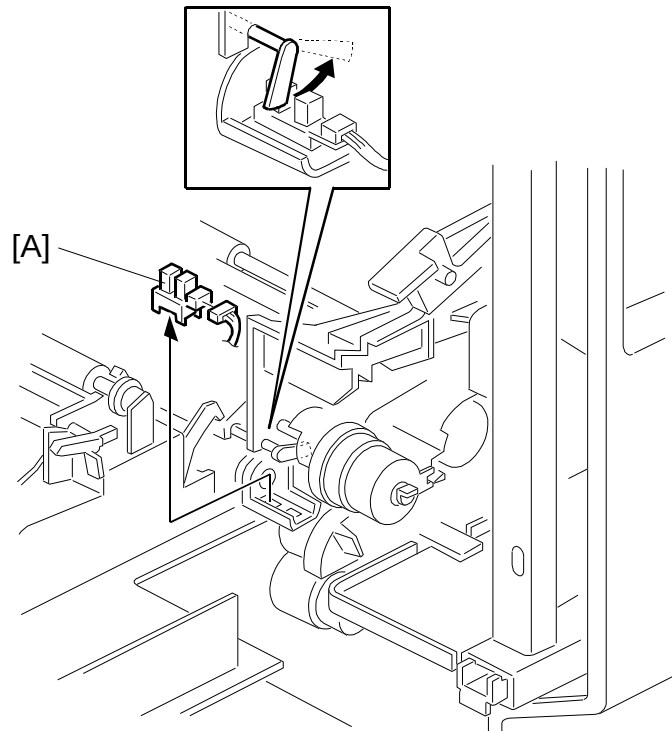
- 1) Remove the by-pass feed roller. (Refer to By-pass Feed Roller Removal, section 6.6.5.)



1. While unhooking the hooks [A], remove the friction pad [B], as shown.

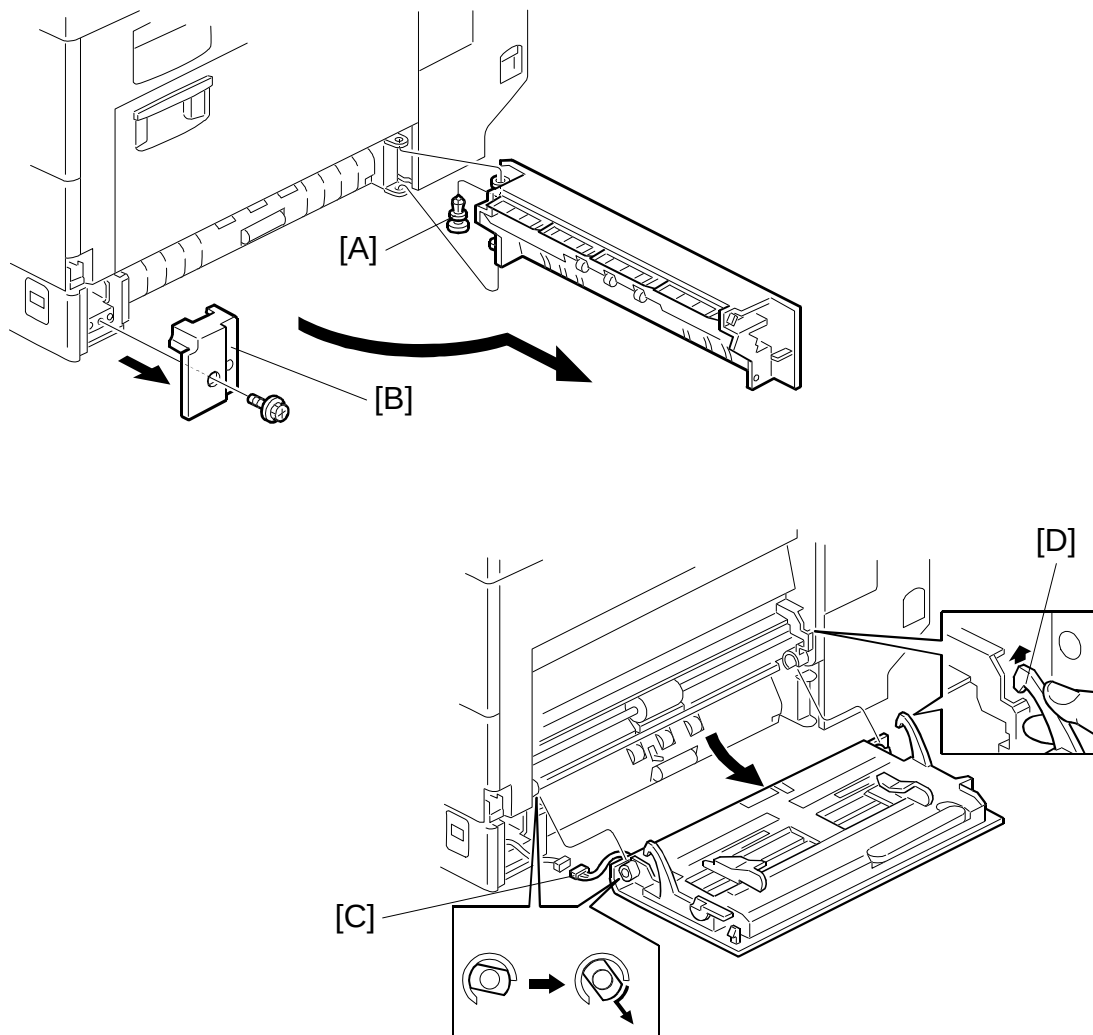
NOTE: Be sure to unhook the hooks or they may break.

6.6.7 BY-PASS FEED SENSOR REPLACEMENT



1. Remove the rear right cover.
2. Replace the by-pass feed sensor [A], as shown.

6.6.8 BY-PASS TRAY REMOVAL



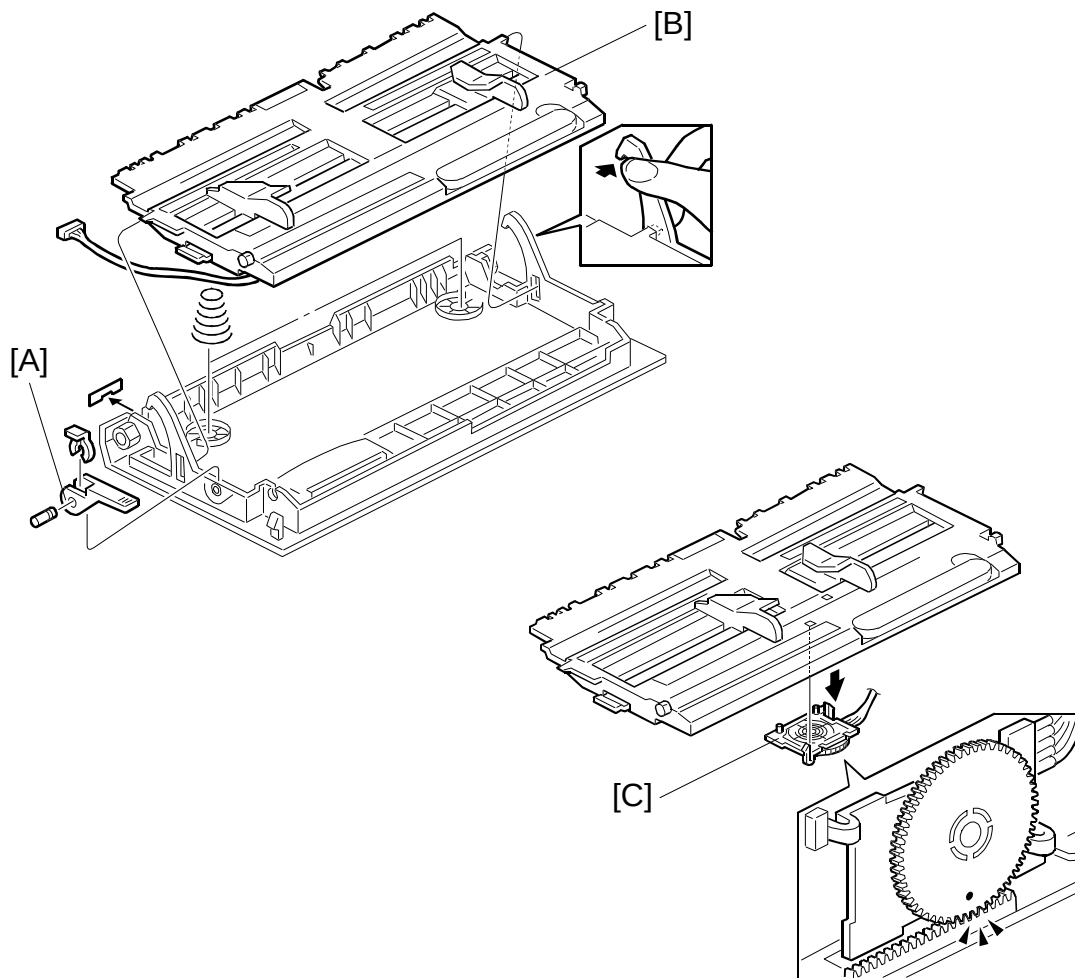
1. Open the vertical transport cover and remove the pin [A].
2. Remove the front right cover [B] (1 screw).
3. Disconnect the by-pass tray sensor connector [C].
4. While lifting the hook [D] upward, lower the by-pass tray and remove it as shown.

NOTE: Be sure to unhook the hooks or they may break.

6.6.9 BY-PASS FEED PAPER WIDTH SENSOR REMOVAL

Preparation

- 1) Remove the by-pass tray (Refer to By-pass Tray Removal, section 6.6.8.).



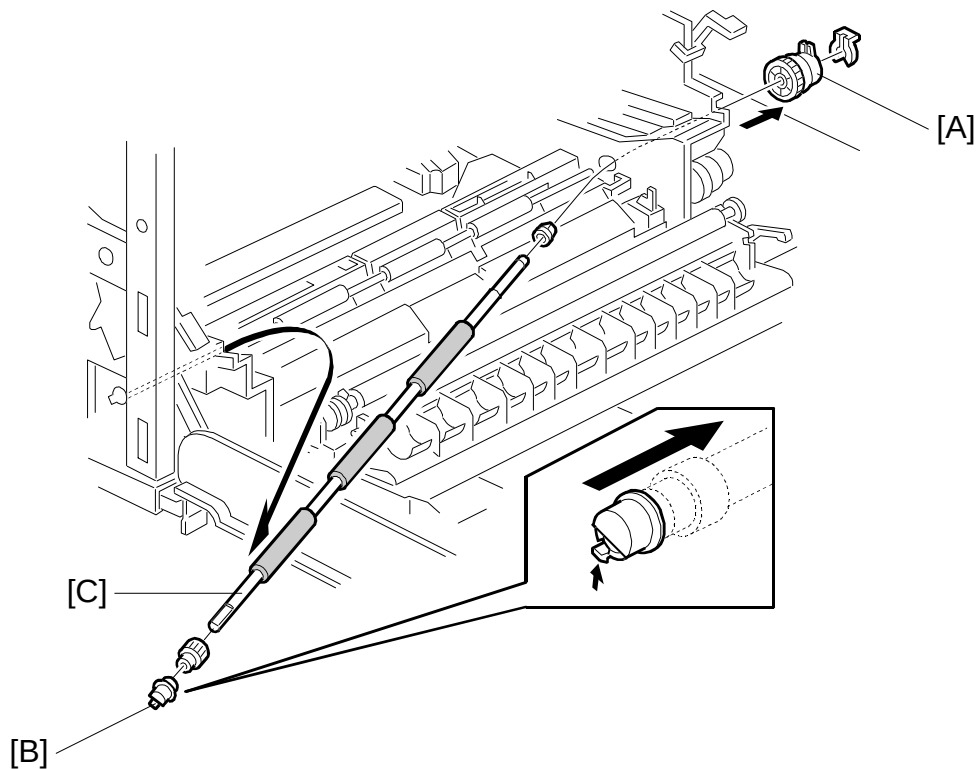
1. Remove the tray lever [A] (1 snap ring and 1 pin).
2. Remove the upper by-pass tray [B] (1 mylar and 2 hooks).
3. Replace the by-pass feed paper width sensor [C].

NOTE: 1) Be sure to unhook the hooks or they may break.
 2) When reinstalling the by-pass feed paper width sensor, move the paper guides to the center position.
 Adjust the position of the hole in the sensor gear as shown when installing the paper width sensor.

6.6.10 REGISTRATION ROLLER REMOVAL

Preparation

- 1) Remove the by-pass paper feed roller cover. (Refer to By-pass Paper Feed Roller Removal, section 6.6.5.)
- 2) Remove the rear cover. (Refer to Exterior Removal, section 6.1.)
- 3) Remove the main motor and gearbox. (Refer to Main Motor and Gearbox Removal, section 6.7.)

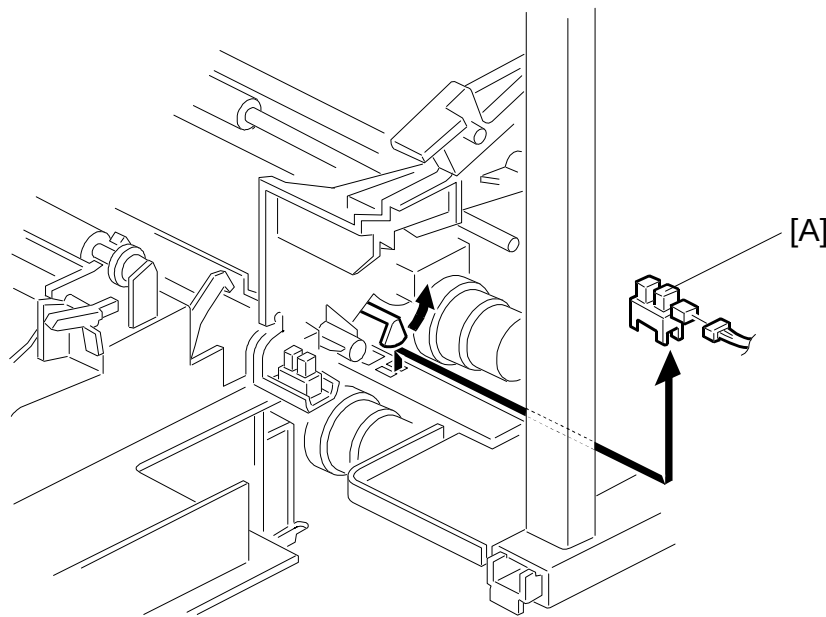


1. Remove the registration roller clutch [A] (1 snap ring).
2. Remove the bushing, as shown [B].
3. Replace the registration roller [C].

6.6.11 REGISTRATION SENSOR REPLACEMENT

Preparation

- 1) Remove the gearbox. (Refer to Main Motor and Gearbox Removal, section 6.7.)

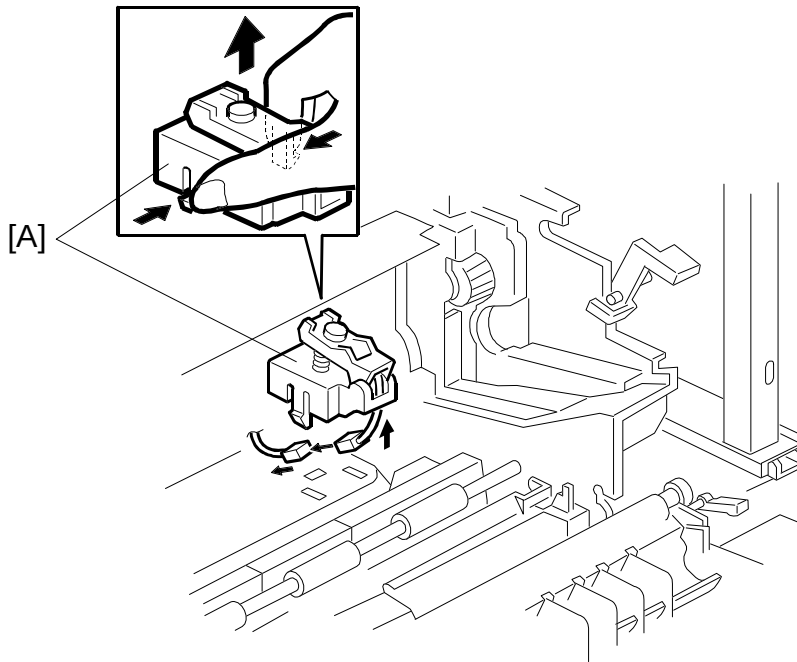


1. Remove the registration sensor connector.
2. Replace the registration sensor [A], as shown.

6.6.12 TONER END SENSOR REPLACEMENT

Preparation

- 1) Remove the AIO cartridge.



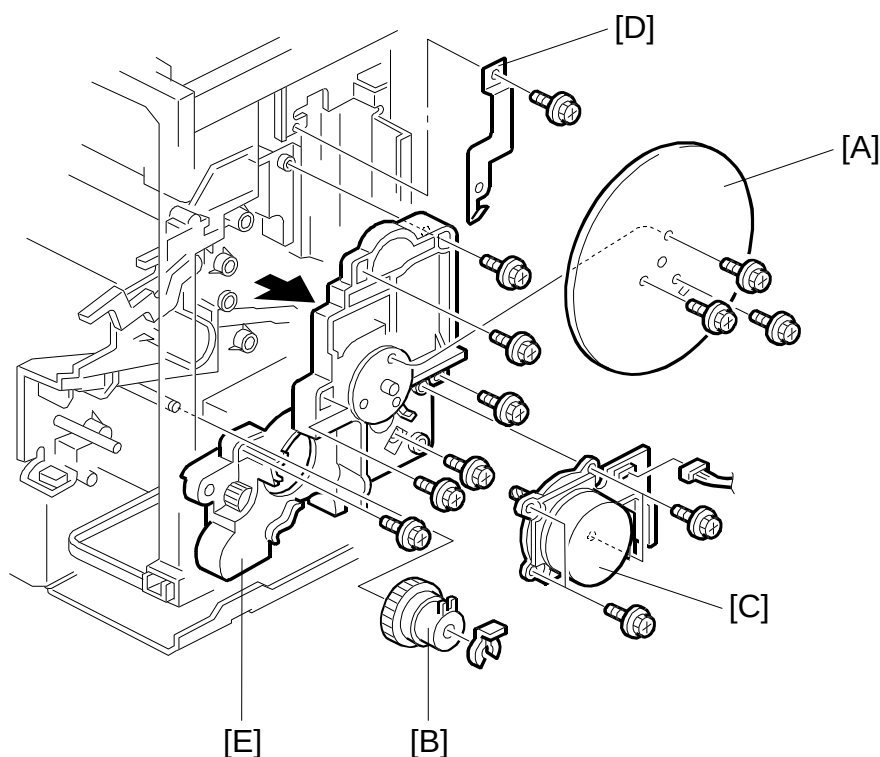
1. Replace the toner end sensor [A], as shown (1 connector).

6.7 OTHERS

6.7.1 MAIN MOTOR/GEAR BOX REPLACEMENT

Preparation

- 1) Remove the rear cover.
- 2) Remove the by-pass feed roller (refer to By-pass Feed Roller Replacement, section 6-6-5).



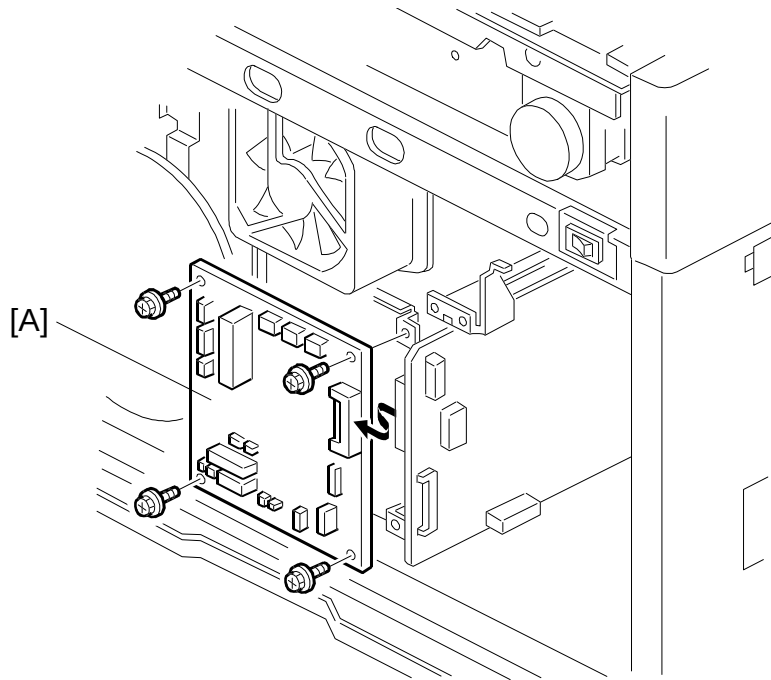
1. Remove the flywheel [A] (3 screws).
2. Remove the registration roller clutch [B].
3. Remove the main motor [C] (1 connector and 4 screws).
4. Remove the grounding plate [D] (1 screw).
5. Remove the gear box [E] (6 screws).

OTHERS

6.7.2 IOB (INPUT OUTPUT BOARD) REPLACEMENT

Preparation

- 1) Remove the rear cover.

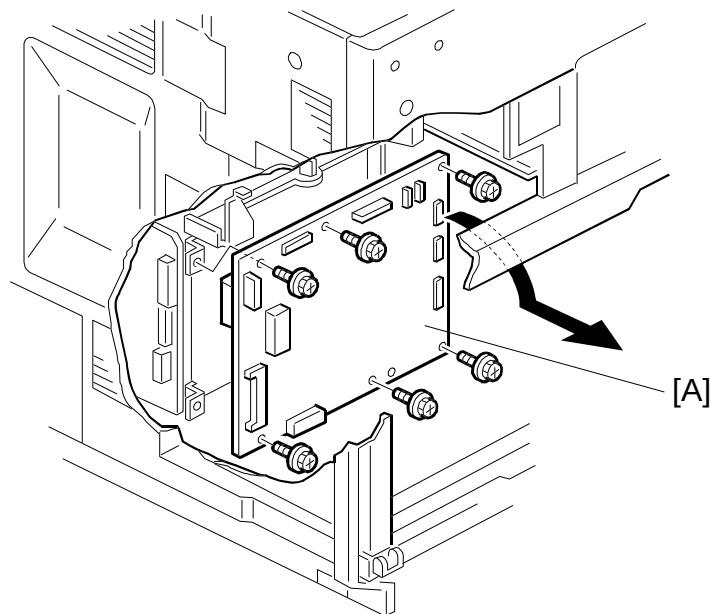


1. Replace the input output board [A] (4 screws and all connectors).

6.7.3 BICU (BASE-ENGINE IMAGE CONTROL UNIT) REPLACEMENT

Preparation

- 1) Remove the left cover.

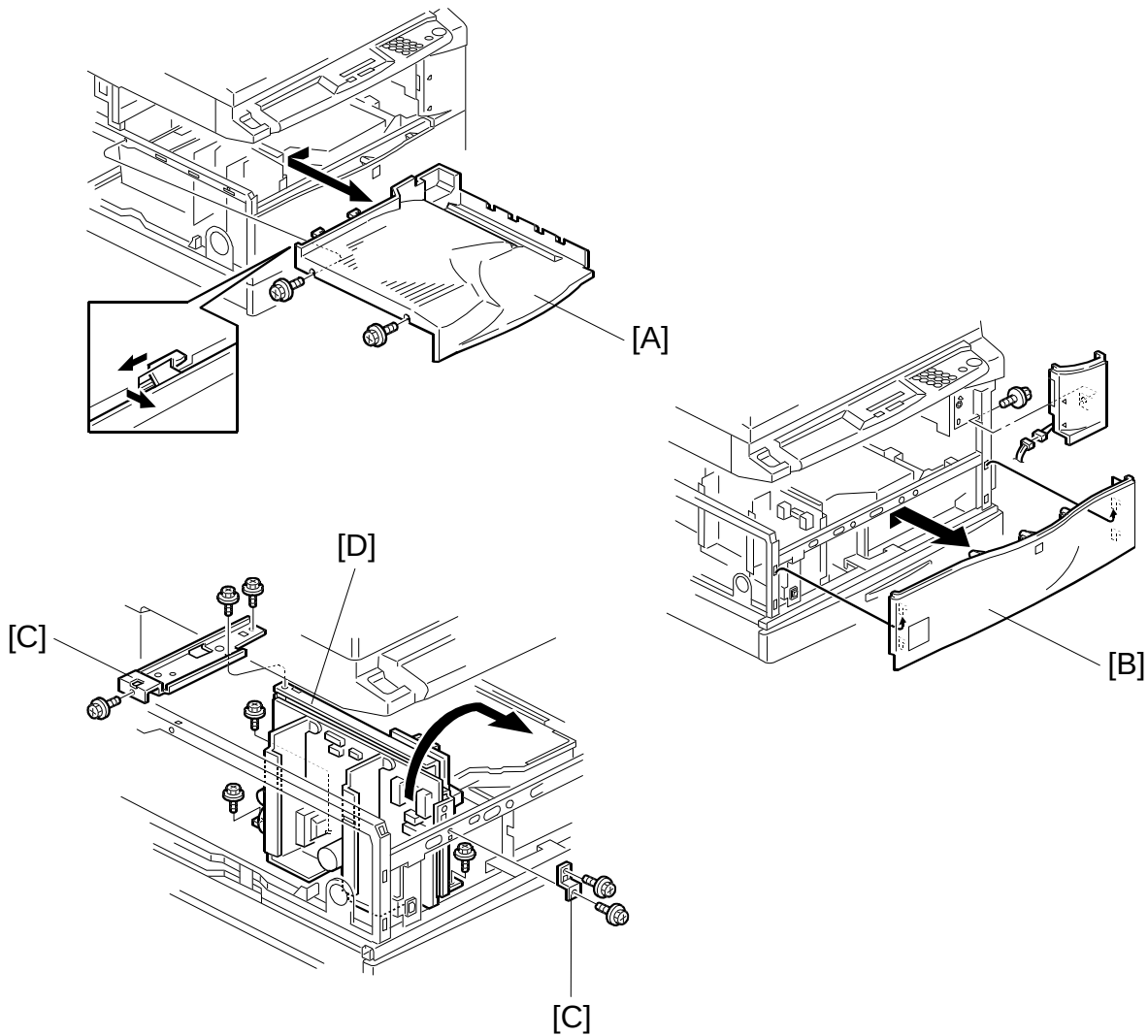


1. Remove the base-engine image control unit [A] (6 screws and all connectors).
2. Re-install the NVRAM from the old board in the socket on the new board.

6.7.4 POWER SUPPLY UNIT AND B/C/T POWER PACK REPLACEMENT

Preparation

- 1) Remove the left cover.



1. Remove the exit tray [A] (2 screws).
2. Remove the front cover [B].
3. Remove all connectors.
4. Remove the two bracket holders [C] (5 screws).
5. Remove the power supply unit and B/C/T power pack [D] (3 screws).
NOTE: Both boards are in this assembly. Take out whichever board needs replacing.

6.8 STANDARD WHITE DENSITY ADJUSTMENT

This is to adjust the standard white density level.

Perform this adjustment in any of the following conditions:

- After replacing the standard white plate.
- After replacing the NVRAM on the BICU. (If only the BICU is replaced, this adjustment is not necessary, as long as the NVRAM from the old BICU is put on the new BICU.)
- After performing a memory all clear (SP5-801).

Procedure:

1. Place 10 sheets of new A4 sideways or A3 paper on the exposure glass and close the platen cover or the ADF.
2. Enter SP4-908 and select "1: YES". The standard white density is automatically adjusted.

6.9 COPY ADJUSTMENT PRINTING/SCANNING

NOTE: 1) You need to perform these adjustment(s) after replacing any of the following parts:

- Scanner
- Lens Block/SBU Assembly
- Scanner Drive Motor
- Polygon Mirror Motor
- Paper Trays
- Paper Side Fence
- Memory All Clear

2) For more details about accessing SP modes, refer to section 4.

6.9.1 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 (SP5-902, No.10) to print the test pattern for the following procedures.

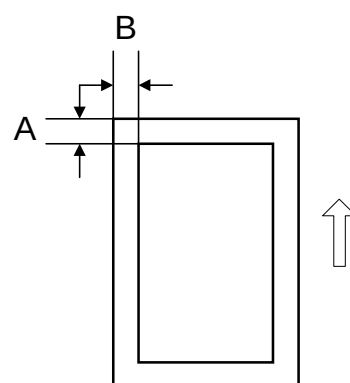
3) Set SP 5-902 to 0 again after completing these printing adjustments.

Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration, and adjust it using SP1-001. The specification is 2 ± 1.5 mm
2. Check the side-to-side registration for each paper feed station, and adjust them using the following SP modes.

	SP mode	Specification
1st paper feed	SP1-002-1	2 ± 1.5 mm
2nd paper feed (Optional PFU tray 1)	SP1-002-2	2 ± 1.5 mm
3rd paper feed (Optional PFU tray 2)	SP1-002-3	2 ± 1.5 mm
By-pass feed	SP1-002-4	2 ± 1.5 mm

A: Leading edge registration
B: Side-to-side registration



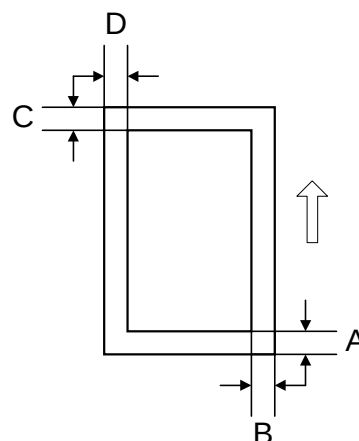
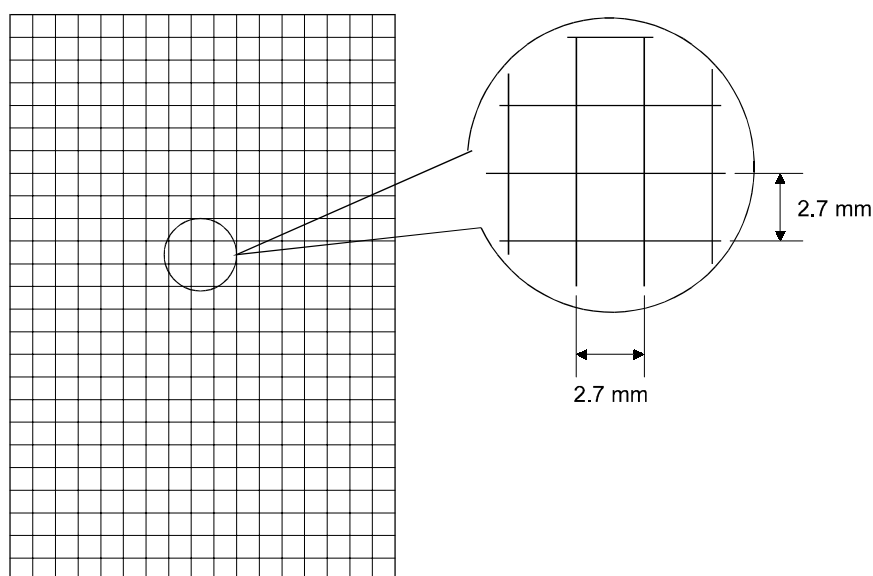
Blank Margin

NOTE: If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the blank margin for the leading/left side edge.

1. Check the trailing edge and blank margin for the right side edge. Adjust them using the following SP modes.

	SP mode	Specification
Trailing edge	SP2-101-2	More than 0.5 mm
Right side edge	SP2-101-4	More than 0.5 mm
Leading edge	SP2-101-1	2 ± 1.5 mm
Left side edge	SP2-101-3	2 ± 1.5 mm

A: Blank margin for the trailing edge
 B: Blank margin for the right side edge
 C: Blank margin for the leading edge
 D: Blank margin for the left side edge

**Main Scan Magnification**

1. Print the Grid Pattern (SP5-902, No.5).
2. Check the magnification (the grid size should be 2.7 mm), and adjust the magnification using SP2-998 if necessary. The specification is $\pm 0.5\%$.

6.9.2 SCANNING

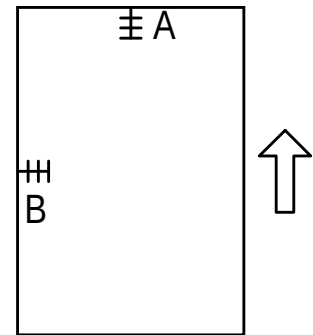
- NOTE:** 1) Before doing the following scanner adjustments, check and adjust the printing registration/side-to-side adjustment and the blank margin adjustment,
2) Use an OS-A3 test chart to perform the following adjustments.

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.

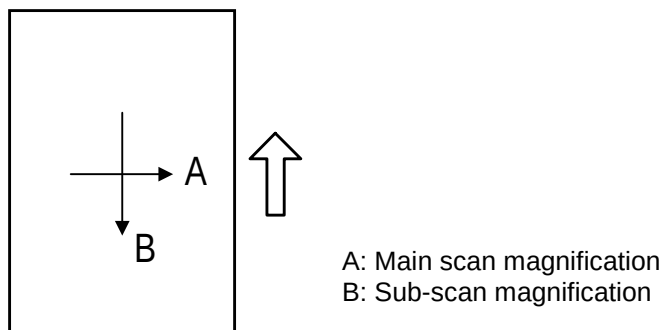
	SP mode
Leading edge	SP4-010
Side-to-side edge	SP4-011

A: Leading edge registration
B: Side-to-side registration



Magnification

NOTE: Use an OS-A3 test chart to perform the following adjustment.

**Main 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 $\pm 0.5\%$.

	SP mode
Main Scan Magnification	SP4-008

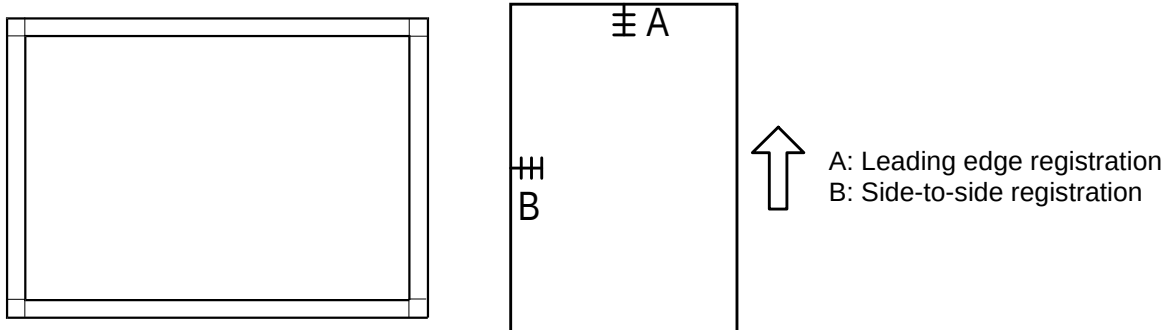
Sub-scan Magnification

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 $\pm 0.5\%$.

	SP mode
Sub-scan magnification	SP4-101

6.9.3 ADF IMAGE ADJUSTMENT

Registration and Blank Margin

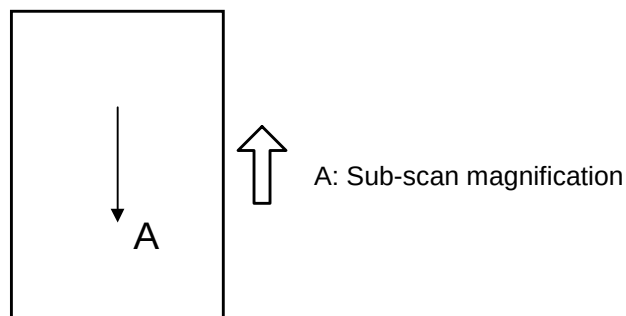


NOTE: Make a temporary test chart as shown above using A3/11" x 17" paper.

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 it using the following SP modes if necessary.

	SP mode
Side-to-side registration	SP6-006-1
Leading edge registration	SP6-006-2
Blank margin for the trailing edge	SP6-006-3

Sub-scan Magnification



NOTE: Make a temporary test chart as shown above using A3/11" x 17" 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 SP 6-007 if necessary. The specification is $\pm 0.5\%$.

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 notes below). The copier is not operational.	Enter SP mode, then turn the main power switch off and on.
B	Turning the main power switch off and on can reset the SC if incorrect sensor detection caused the SC.	Turn the operation switch or main power switch off and on. Turning the main power switch off and on can only reset a level B SC.
C	The copier works normally except for the unit related to the service call.	Turn the operation switch off and on.
D	The SC history is updated. The machine operates as usual.	The SC is not 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) To reset a level "A" SC, enter SP5-810 (SC code reset) and select "1". Next, depress the "Photo mode" key. While depressing the "Photo mode" key, depress the (Ⓢ) key at the same time and hold both keys for at least 3 seconds (it is not necessary to turn the main switch off and on). If the machine beeps 5 times, the reset was successful. If it only beeps twice, the reset failed, and you need to try the reset procedure again. If the machine displays a SC 547 and has firmware level "K" or later. The service code can be cleared by turning the main switch "off" then "on"

4) When a level A or B SC occurs while in SP mode, the display does not indicate the SC number. If this occurs, check the SC number after exiting 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
- Scanner mirror dirty or 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 off condition during initialization or copying.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor 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 on condition during initialization.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC122: Scanner Home Position Error 3

Definition: [B]

The scanner home position sensor detects the on condition while the scanner returns to the home position.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor defective
- Exposure lamp connector defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC123: Scanner Home Position Error 4

Definition: [B]

The scanner home position sensor does not detect the on condition after the scanner returns to the home position.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC192: Automatic SBU Adjustment Error

Definition: [B]

An error is detected during automatic SBU adjustment (SP4-908).

Possible Causes:

- SBU defective
- BICU board defective
- Exposure lamp regulator defective
- Exposure lamp defective
- Dirty white plate

SC194: IPU White Level Detection Error

Definition: [B]

The level of the white standard pattern detected by the IPU (on the BICU board) is too low.

Possible Causes:



- Exposure lamp defective
- BICU board defective
- Incorrect position of the white standard pattern
- Dirty white plate
- SBU board defective

SC302: Charge Roller Current Leak

Definition: [B]

A current leak signal for the charge roller is detected.

Possible Causes:

- Charge roller damaged
- Power pack-B/C/T
- Poor connection of the OPC drum in the all-in-one cartridge

SC320: Polygonal Mirror Motor Error

Definition: [B]

The lock signal for the polygon mirror motor is not detected within 4 seconds after the polygon motor on signal, or the lock signal is not activated for more than 200 ms after the polygon motor lock signal.

Possible Causes:

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor driver and the BICU board
- BICU board defective

SC321: No Laser Writing Signal (F-GATE) Error

Definition: [B]

The laser writing signal (F-GATE) is still not LOW when the laser writing area +5 mm has passed since the laser writing start position on the drum.

Possible Causes:

- BICU board defective
- MSU board defective
- The fax controller or printer controller has a poor connection.
- Fax controller or printer controller defective

SC322: Laser Synchronization Error

Definition: [B]

The laser synchronization signal cannot be detected by the main scan synchronization detector board for more than 5 consecutive 100 intervals.

Possible Causes:

- The cable between the laser synchronization detector board and the BICU board has a poor connection.
- Laser synchronization detector board out of position
- Laser synchronization detector board defective
- BICU board defective
- LD unit defective

SC324: LD Drive Current Over

Definition: [B]

The LD drive board applies more than 100 mA to the LD.

Possible Causes:

- LD unit defective (not enough power, due to aging)
- Poor connection of the cable between the LD unit and the BICU board
- BICU board defective

SC391: Development Bias Leak

Definition: [B]

A development bias leak signal is detected.

Possible Causes:

- Defective development roller in the all-in-one cartridge.
- Power pack-B/C/T defective

SC401: Transfer Roller Positive Current Error**SC402: Transfer Roller Negative Current Error**

Definition: [B]

A current leak signal for the transfer roller is detected.

The current feedback signal for the transfer roller is not detected.

Possible Causes:

- Power pack-B/C/T defective
- Transfer unit set incorrectly
- Poor connection of the drum unit in the all-in-one cartridge
- Transfer roller damaged

SC500: Main Motor Lock

Definition: [B]

The main motor lock signal is not detected for more than 700 ms after the main motor starts to rotate, or the lock signal is not detected for more than 700 ms during rotation after the last lock signal.

Possible Causes:

- Too much load on the drive mechanism
- Main motor defective

SERVICE CALL CONDITIONS

SC502: 2nd Tray Lift Malfunction

SC503: 3rd Tray Lift Malfunction

Definition: [C]

The paper lift sensor is not activated after the tray lift motor has been on for 13 seconds.

Possible Causes:

- Tray upper lift sensor defective
- Tray lift motor defective
- Poor tray lift motor connection
- Too much load on the drive mechanism

SC506: Paper Tray Motor Lock (Optional Paper Tray Unit Only)

Definition: [C]

A motor lock signal is not detected for more than 1.5 s after the motor starts rotation, or the lock signal is not detected for more than 1.0 s after the last lock signal detection.

Possible Causes:

- Paper tray motor defective
- Too much load on the drive mechanism

SC542: Fusing Temperature Warm-up Error

Definition: [A]

After the main switch is turned on, the fusing temperature either does not reach 130°C within 50 seconds, or does not reach the printing temperature within 70 seconds.

Possible Causes:

- Fusing thermistor defective or out of position
- Fusing lamp open
- Fusing thermofuse open
- Power supply unit defective
- Poor connection of the fusing unit

SC543: Fusing Overheat Error

Definition: [A]

A fusing temperature of over 231°C is detected for 1 second by the fusing thermistor.

Possible Causes:

- Fusing thermistor defective
- Power supply unit defective

SC544: Fusing Low Temperature Error

Definition: [A]

A fusing temperature of less than 100°C is detected for 1 second by the fusing thermistor.

Possible Causes:

- Fusing thermistor defective
- Power supply unit defective

SC546: Unstable Fusing Temperature

Definition: [A]

The fusing temperature does not rise 3°C or more within 5 seconds after the fusing lamp has been on 8 seconds.

Possible Causes:

- Thermistor defective
- Poor connection of the fusing unit
- Power supply unit defective

SC547: Zero Cross Signal Malfunction

Definition: [A]

Zero-cross signals are not detected within a certain period.

Possible Causes:

- Power supply unit defective
- Input output board
- BICU defective

SC620: Communication Error between BICU and ADF

Definition: [B]

The BICU cannot receive a response from the ADF main board for 4 seconds or more.

Possible Causes:

- Poor connection between the BICU board and ADF main board (DF connector)
- ADF main board defective
- BICU board defective

SC630: [D] CSS (RSS) Communication Error between Line Adapter and CSS Center

Japanese version only

⇒ SC691: Communication Error between BICU and Fax Controller Unit

Definition: [B]

The BICU board cannot communicate with the fax control unit properly.

Possible Causes:

- The cable between the BICU board and the fax control unit has a poor connection
- BICU board defective
- Fax control unit defective

SC692: Communication Error between BICU and Printer Controller Board

Definition: [B]

The BICU board cannot communicate with the printer controller board properly.

Possible Causes:

- The cable between the BICU board and the mother board has a poor connection.
- The connection between the mother board and the printer controller board is poor.
- BICU board defective
- Printer controller board defective
- Mother board defective

SC760: ADF Gate Abnormal

Definition: [B]

The ADF Gate signal line between the ADF main board and the input/output board is disconnected.

Possible Causes:

- ADF main board defective
- Input/output board defective
- The connection (ADF Gate line) between the ADF main board and the input/output board is poor.

SC900: Electrical Total Counter Error

Definition: [B]

The electrical total counter is not working properly.

Possible Causes:

- NVRAM defective

SC901: Mechanical Total Counter

Definition: [B]

The mechanical total counter is not working properly.

Possible Causes:

- Mechanical total counter defective
- Input/output board defective
- Disconnected mechanical total counter

SC921: MSU Hardware Error

Definition: [B]

The hardware of the MSU is defective.

Possible Causes:

- MSU defective
- BICU defective

SC980: Program Loading Error

Definition: [A]

The program cannot load properly.

Possible Causes:

- The connection between the BICU and the ROM board is poor.
- BICU board defective
- ROM board or the program defective

NOTE: This SC should be cleared by trying to download again from an IC Card.

⇒ SC981: NV-RAM Error

Definition: [B]

The NV-RAM is defective.

Possible Causes:

- The NV-RAM is defective.
- BICU board is defective

SC990: Communication Error between BICU and Input Output Board

Definition: [B]

The BICU board cannot communicate with the input/output board.

Possible Causes:

- The connection between the BICU board and the input/output board is poor.
- BICU board defective
- Input/output board defective

SC999: Program Version Error

Definition: [B]

The incorrect type of main software was downloaded.

Possible Causes:

- The main software for another machine was downloaded to this machine.

7.2 BLOWN FUSE TABLE

Fuse	Rating		Symptom when tuning on the main switch
	115 V	220 ~ 240 V	
FU1	15 A/250 V	—	No response.
FU2	8 A/125 V	3.15 A/250 V	No response.
FU3	3.15 A/125 V	3.15 A/250 V	Normal operation. But optional heater is not working (when turning off the main switch).
FU4	4 A/125 V	4 A/250 V	"Doors/Covers Open" LED is displayed then SC901 is displayed.
FU5	4 A/125 V	4 A/250 V	The original jam will be occurred whenever a copy is made.
FU6	2 A/125 V	2 A/250 V	"Doors/Covers Open" and "Paper Jam" LEDs are displayed then SC990 is displayed.

7.3 ELECTRICAL COMPONENT DEFECTS

7.3.1 SWITCHES

Symbol	Description	CN No.	Condition	Symptom
SW1	Main		Open	The copier does not turn on.
			Short	The copier does not turn off.
SW2	Right Door Switch 1	306-6	Open	Doors/Covers open is displayed even if the right door is closed.
			Short	LD5 V line is not cut even if the right door is opened.
SW3	Right Door Switch 2	306-4	Open	Doors/Covers open is displayed even if the right door is closed.
			Short	Doors/Covers open is not displayed even if the right door is opened.
SW4	Vertical Transport Cover Switch	306-2	Open	Doors/Covers open is displayed even if the right door is closed.
			Short	Doors/Covers open is not displayed even if the right door is opened.
SW5	Paper Size	323-1, 2, 4	Open	The CPU cannot detect proper paper size, and misfeeds may occur when a copy is made.
			Short	

7.3.2 SENSORS

Symbol	Description	CN No.	Condition	Symptom
S1	Scanner HP	327-8	Open	SC194 is displayed.
			Short	SC120 is displayed.
S2	Original Width	320-8, 9	Open	The CPU cannot detect proper original size.
S3	Original Length 1	320-3, 4		
S4	Original Length 2	324-3, 4		
S5	Toner Near-End	322-2	Open	Toner end is displayed even if there are toner in the AIO cartridge.
			Short	Toner near end condition cannot be detected in toner near end condition.
S6	Paper End	325-2	Open	Paper end condition even if paper is loaded in the tray.
			Short	Paper end condition cannot be detected even if there is no paper in the tray, paper jam occurs.
S8	By-pass Tray Paper	309-5	Open	Paper cannot be detected when paper is placed in the by-pass table.
			Short	By-pass paper misfeed occurs.
S9	By-pass Paper Size	321-2, 4, 5	Open	The CPU cannot detect proper paper size in the by-pass tray.
			Short	
S10	Vertical Transport	321-7	Open	Misfeed is detected after paper pass through the vertical transport sensor.
			Short	Misfeed is detected even if there is no paper.
S11	Registration	309-2	Open	Misfeed is detected after paper pass through the registration sensor.
			Short	Misfeed is detected even if there is no paper.
S12	Fusing Exit	303-6	Open	Misfeed is detected after paper pass through the fusing exit sensor.
			Short	Misfeed is detected even if there is no paper.
S13	Exit Tray Paper	321-10	Open	Exit tray LED does not turn on even if there is paper left in the exit tray.
			Short	Exit tray LED turns on even if there is no paper in the exit tray.
S14	Platen Cover	327-5	Open	Original size cannot be detected.
			Short	The correct original size may not be detected.
S15	AIO Set	323-6	Open	"Reset the toner cartridge" is displayed even if the AIO cartridge is installed.
			Short	SC402 is displayed.

7.4 COPY QUALITY

7.4.1 LOW IMAGE DENSITY

BACKGROUND:

The A250 represents one of the latest shifts in technology for Ricoh family products. An extensive market investigation of print requirements was performed during the design phase of the A250. Market research defined a need for an economical copier product that had increased gray scale and graphic capability due to the market's movement toward documentation with increased usage of photographs, charts, clips, etc. The result was the A250. The A250 is based on a printer engine technology, with certain unique print characteristics. The A250 image output has been created to maximize the overall appearance of the document. The A250 processes the image differently from past analog copiers, (as explained in the technical portion of this document) and produces an image with modified features.

Since the A250 has certain unique output appearances and characteristics, it is important that Service Technicians are educated on and made aware of the differences of the A250 so that they can properly evaluate the output of the A250. The Service Technician should not expect or compare the output of an analog product with the A250, using typical comparisons and black fill characteristics. The A250 uses different parameters in image capture from analog copiers. It is important that the design criteria are kept in mind when comparing the A250 output with that of analog products. The current test charts may not adequately demonstrate the print quality features and benefits of the A250. The Technical Support Division is currently investigating the possibility of creating a new test chart that highlights the improved characteristics of the Digital Products.

Unfortunately, the A250 has been released without enough emphasis or explanation to the Service Technician of the differences in the copy appearance. The result has been numerous concerns on the part of Service Technicians at the time of installation. This information has been created to address those concerns, provide a better understanding of the A250 output and to correct misconceptions of the A250 output and to further educate the Service Technician on the A250.

SYMPTOM:

1. The image density is relatively low when a sky-shot copy is made in default, Auto Exposure mode.
2. The overall image density is initially low.

DETAILED DESCRIPTIONS:

1. The Auto Exposure mode of the A250 is aimed at producing copies "true to the original". The machine will attempt to not only reproduce the image on the original, but also any dust or other particles present on the platen glass. In order to produce a copy true to the original, the background value used for the copy is derived from the scanned 'white data' (or whitest area on the original). With a sky-shot copy, the machine views any dust or particles on the contact glass as this white data (i.e. whitest areas). The value obtained from scanning these small white areas is selected as the background density level and the black areas on the image are then output accordingly. Therefore, with sky-shot copies, the image density of the main black area may appear lighter than expected and white spots may be very visible (as the machine has set this white data value as the background). Further, when making copies from an original, the machine will also attempt to reproduce any small, white spots present inside the black areas.

For the purpose of confirming the image quality of black areas, please do not use the sky-shot copy. However, if producing a sky shot becomes necessary, the Manual Image Density (Non Auto Exposure) mode should be used (which turns off the background removing function). The image density of black areas in Manual Image Density mode is higher than that of Auto Exposure mode. Also, dust or other particles present on the contact glass will not result in white spots on the copy.

2. This symptom is also related to the mono-component toner developing system used by the A250.

There are two causes:

- A. Image density is determined by the amount of charge that the toner holds. However, regardless of whether the charge held by the toner is too low or too high, the resulting image density will drop. If the charge is too low, the necessary static electricity and therefore the amount of toner used will also be low, causing a lower image density. If the charge is too high, the developed toner will neutralize the charged image on the OPC drum-causing the static charge necessary for development will be relatively low. This will cause the amount of toner used to be low, resulting in lower image density.

The reason for the initial low image density is therefore not related to the dual-component development system. Rather, it results from a low initial static charge on the toner due to the use of a development system where the uncharged toner is directly supplied to the development roller.

- B. Generally, toner is initially supplied to the development roller starting with the smallest particles. If the particles are relatively small, the image density will be relatively low not only because the toner density is visibly low, but also because the amount of charge in the toner is higher. In the A250, image density begins to increase after the smallest toner particles have been used up, approximately 100 to 250 copies. This symptom is not limited to the A250, and is present in machines of other companies that employ the same type of development system.

It has been proposed that in order to increase the image density (i.e. improve the initial performance of the toner), the development roller should be run idle. However, since the toner is not being used (as there are no copies being made), the same toner will remain on the roller as it turns, subjecting the toner to stress (which will cause the image density to drop). Therefore, although the symptom produces copies with slightly low image density, it is limited to the first 100 to 250 copies, after which the image quality will improve.

A countermeasure will therefore not be applied to these symptoms. In addition, a test for image density was performed using a new cartridge (AIO) followed by 10 days of no use. After testing, no change in image density was observed.

7.5 FIRMWARE HISTORY

7.5.1 A250 FIRMWARE MODIFICATION HISTORY

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
1st Mass Production	A2505532 A	1st Mass Production	2.09
- The default setting for the maintenance LED display (SP5-908) has been changed as follows. NEW: 1 (Yes) OLD: 0 (No) - When the value of the total counter is over 9999 or a negative value, the SC history and jam histories are displayed incorrectly (out of order). - If the machine receives a fax message during a print or copy job (with rotate-sort), the polygonal motor does not stop after the job has been completed. - It is occasionally required to press the interrupt key more than once to produce a response.	A2505532 C	May 1999 Production	2.12
- The machine can not determine the 8k and 16k when auto- enlarge / auto-reduce is performed. - When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop (as it should). - When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). - The firmware will be modified so that SC620 will be displayed when an ADF from another machine is installed.	A2505532 D	June 1999 Production	2.14

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
• (For Asia/Taiwan only): • The following is printed incorrectly on the counter value report: OK: <Counter NG: Xounter • The default setting of the Printer Main Magnification (SP2-998) has been changed as follows. NEW: 0.2 % OLD: 0.0 % • Sometimes SC620 is not cleared when the machine goes into sleep mode. • SC101 is sometimes displayed when the ADF stamp is activated. • If the remaining amount of paper shifts to the next lowest value while the counter report is being printed out, the print job is canceled.	A2505532 G	July 1999	2.19
• When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. • Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	A2505532 H	August 1999 Production	2.21
• When the Energy Saver Mode key is pressed while a print job is being done in the background, the machine will go into Energy Saver Mode. However when the operator releases the mode and returns to the system settings or copy features (both inside user tools), a message is displayed asking the operator to wait and the machine returns to the main copy screen (although it is still in user tools). The LED for the user tools key is lit, and all indicators except the LCD report that the machine is still in user tools.	A2505532 J	October 1999 Production	2.27
Continued Next Page			

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Continued Previous Page • After the operator exits either of the following screens with the User Tools key and starts a copy job, the first sheet is printed out as the counter list. • System Settings • Key Operator Tools • Counter list printing • Copy Features • Key Operator Tools • Counter list printing • If a jam occurs while printing out a counter report, the jam indication is displayed but soon disappears. The machine then returns to the counter display screen. In addition, if the paper end condition occurs while the paper is being fed (after the start key is pressed), the machine returns to the counter display screen without properly displaying "Set A4 (8 1/2 X 11) paper in tray". • When a printer sort job and counter list job overlap each other the counter list is not printed out. • When the memory becomes full during a copy job using the "combine" function, the image being printed at the time contains errors. • After setting several originals in the ADF and scanning a fax cover sheet using Auto Document, the operator exits the mode but cannot make copies using the ADF. • Abnormal image occurs when an A5 sideways original is enlarged to 8K (tray 3) using Auto-Enlarge. A5 lengthwise prints out normally.	A2505532 J	October 1999 Production	2.27

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
- The detection conditions for SC546 have been changed as follows: Old: - Detection during warm-up, standby and Energy Saver Mode. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5-second detection intervals. New: - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. - Previously, it was necessary to enter the SP Modes to clear SC547. It is now possible to clear the code by turning the main power switch "off" then "on".	A2505532 K	May 2000 Production	2.33
- There are two detection's for SC546. 1. After the Fusing Lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. 2. The fusing temperature does not reach 74 degrees within 22 seconds of the start of main power warm-up or recovery from Energy Saver/Low Power Mode. The machine did not clear the timer for condition 2 when the Fusing Lamp was heated up to 100%.	A2505532 L	May 2000 Production	2.34
⇒ IMPORTANT: Any BICU that is installed with firmware level 3.05 or higher may not be downgraded to firmware level 2.34 or lower.	A2505532 M	Oct. 2001 Production	3.05

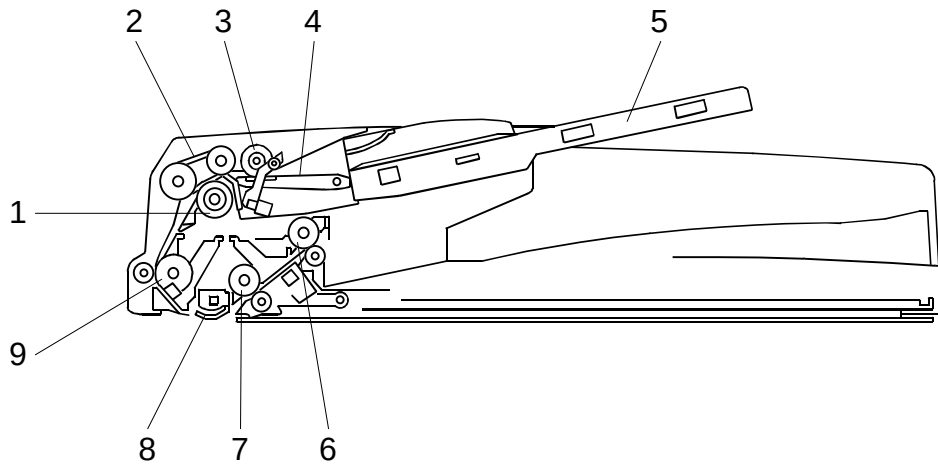
DOCUMENT FEEDER A859

1. OVERALL INFORMATION

1.1 SPECIFICATIONS

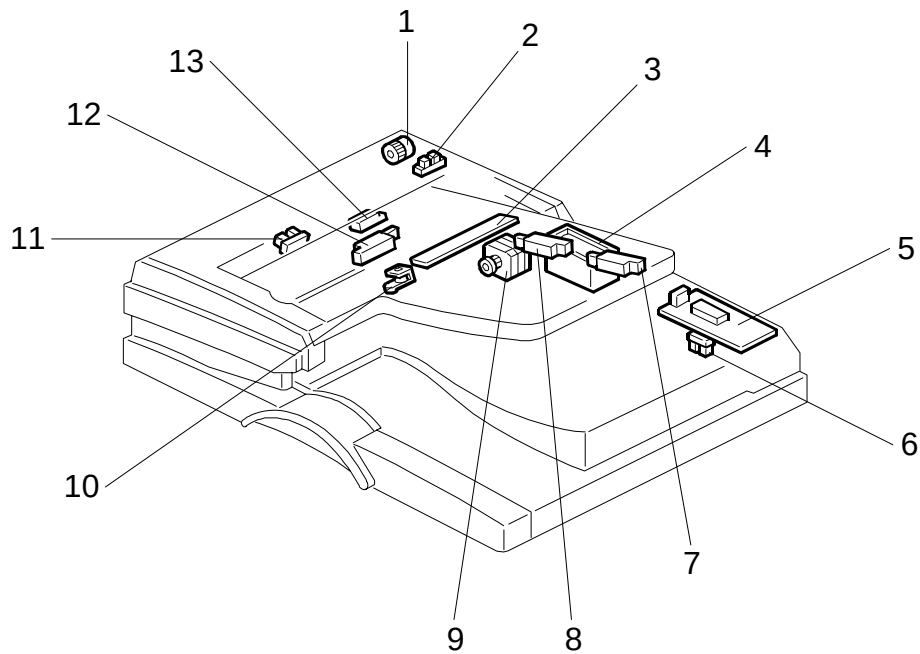
Original Size:	Standard Size (Single-sided Mode only): A3 to A5, DLT to HLT Non-standard Size (Single-sided Mode only): Max. width 297 mm Min. width 105 mm Max. length 1,260 mm Min. length 128 mm
Original Weight:	40 ~ 128 g/m ² (10 ~ 34 lbs.)
Table Capacity:	50 sheets (80 g/m ² , 22 lbs.)
Original Standard Position:	Center
Separation:	FRR
Original Transport:	Roller transport
Original Feed Order:	From the top original
Reproduction Range:	50 ~ 200%
Power Source:	24 & 5 VDC from the copier
Power Consumption:	25 W
Dimensions (W x D x H):	550 mm x 470 mm x 130 mm
Weight:	9 kg or less

1.2 MECHANICAL COMPONENT LAYOUT



1. Separation roller	6. Original exit roller
2. Original feed belt	7. 2nd transport roller
3. Pick-up roller	8. Original exposure guide
4. Original entrance guide	9. 1st transport roller
5. Original table	

1.3 ELECTRICAL COMPONENT LAYOUT

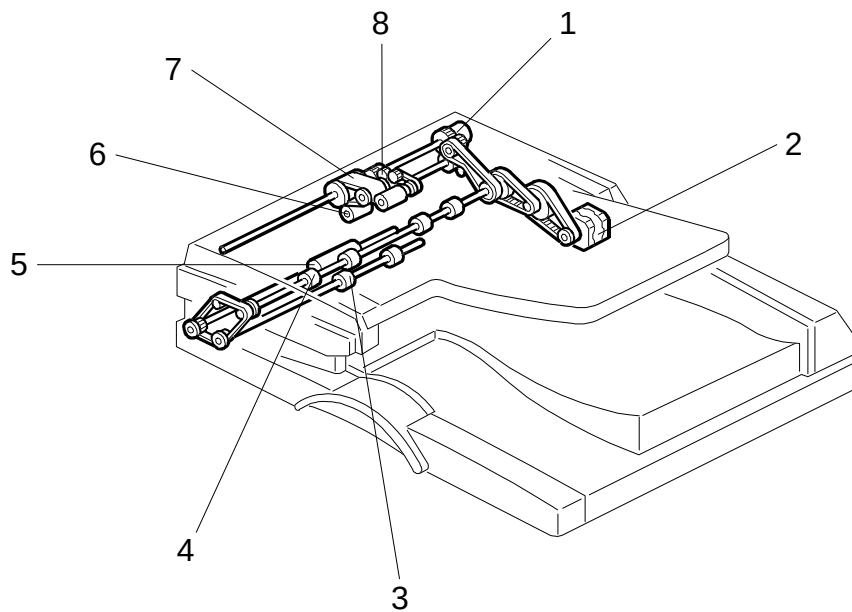


1. DF feed clutch	8. Original length sensor 1
2. Feed cover open sensor	9. DF transport motor
3. Original width sensor	10. Stamp solenoid
4. DF pick-up solenoid	11. Original set sensor
5. DF drive board	12. Original trailing edge sensor
6. DF open sensor	13. Registration sensor
7. Original length sensor 2	

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	DF Transport	Drives the transport and exit rollers	9
Sensors			
S1	DF Open	Informs the CPU of the DF when the DF is opened and closed (for platen mode).	6
S2	Registration	Detects the leading edge of the original to determine when to turn off the DF transport motor and expose the original, and checks for original misfeeds.	13
S3	Feed Cover Open Sensor	Detects whether the feed-in cover is open or not.	2
S4	Original Width	Detects the original width.	3
S5	Original Length 1	Detects the original length.	8
S6	Original Length 2	Detects the original length.	7
S7	Original Set	Detects the original is on the feed table.	11
S8	Original Trailing Edge	Detects the trailing edge of the last original to stop copy paper feed and to turn off the transport motor, and checks for original misfeeds.	12
Solenoids			
SOL1	DF Pick-up	Controls the up-down movement of the original table.	4
SOL2	Stamp	Energizes the stamp to mark the original.	10
Clutches			
MC1	DF Feed	Transfers transport motor drive to the pick-up roller and feed belt.	1
PCBs			
PCB1	DF Drive	Interfaces the sensor signals with the copier, and transfers the magnetic clutch, solenoid, and motor drive signals from the copier.	5

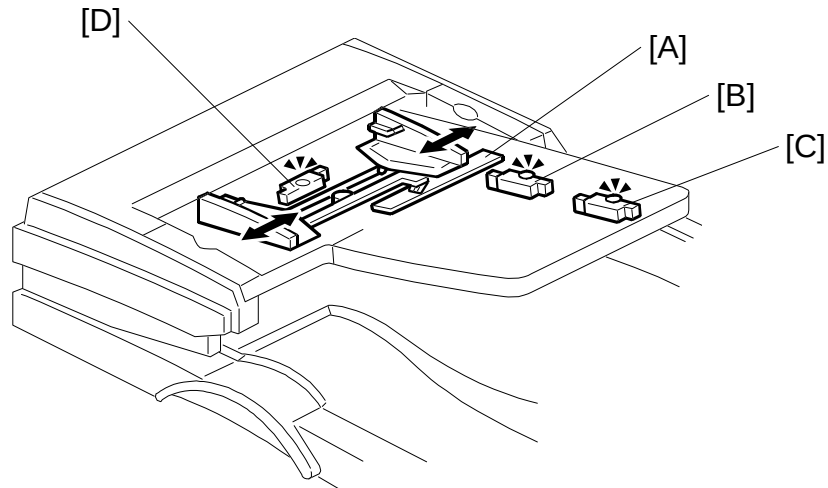
1.5 DRIVE LAYOUT



1. DF feed clutch	5. 1st transport roller
2. DF transport motor	6. Separation roller
3. 2nd transport roller	7. Original feed belt
4. Exit roller	8. Pick-up roller

2. DETAILED SECTION DESCRIPTIONS

2.1 ORIGINAL SIZE DETECTION



The DF has one width sensor [A] to detect the original width and two original length sensors (-1 [B] and -2 [C]) to detect the original length. The DF detects the original size through the combination of inputs from those sensors as shown in the table on the next page.

When using an original of a non-standard size, the user needs to input the original length at the operation panel.

The original width sensor [A] has four possible outputs (P1 to P4). The output depends on the position of the sliding electrode on the original rear fence.

During one-to-one copying, copy paper is fed to the registration roller in advance, to increase the copy speed. The original exit trailing edge sensor monitors the stack of originals in the feeder, and detects when the trailing edge of the last page has been fed in. This stops the ADF from feeding an unwanted extra sheet of copy paper.

ORIGINAL SIZE DETECTION

		NA	EU	Original Length 1	Original Length 2	P1	P2	P3	P4
1	A3 L (297 x 420)	X	○	ON	ON	—	—	—	ON
2	B4 L (257 x 364)	X	○	ON	ON	—	—	ON	—
3	A4 L (210 x 297)	X	○	ON	—	—	ON	—	—
4	A4 S (297 x 210)	X	○	—	—	—	—	—	ON
5	B5 L (182 x 257)	X	○	ON	—	ON	—	—	—
6	B5 S (257 x 182)	X	○	—	—	—	—	ON	—
7	A5 L (148 x 210)	X	○	—	—	ON	—	—	—
8	A5 S (210 x 148)	X	○	—	—	—	ON	—	—
11	11" x 17" L (DLT)	● ₁	X	ON	ON	—	—	—	ON
12	11" x 15" L	○ ₁	X	ON	ON	—	—	—	ON
13	10" x 14" L	○	X	ON	ON	—	—	ON	—
14	8 1/2" x 14" L (LG)	● ₂	X	ON	ON	—	ON	—	—
15	8 1/2" x 13" L (F4)	X	● ₄	ON	ON	—	ON	—	—
16	8" x 13" L (F)	○ ₂	○ ₄	ON	ON	—	ON	—	—
17	8 1/2" x 11" L (LT)	● ₃	X	ON	—	—	ON	—	—
18	8 1/2" x 11" S (LT)	○	X	—	—	—	—	—	ON
19	10" x 8" L	○ ₃	X	ON	—	—	ON	—	—
20	5 1/2" x 8 1/2" L (HLT)	○	X	—	—	ON	—	—	—
21	5 1/2" x 8 1/2" S (HLT)	○	X	—	—	—	ON	—	—

L: Lengthwise S: Sideways X: No ○: Yes ON: Paper present

○₁, ●₁: If the original is 11" x 15" L, it will always be detected as 11" x 17" L (DLT).

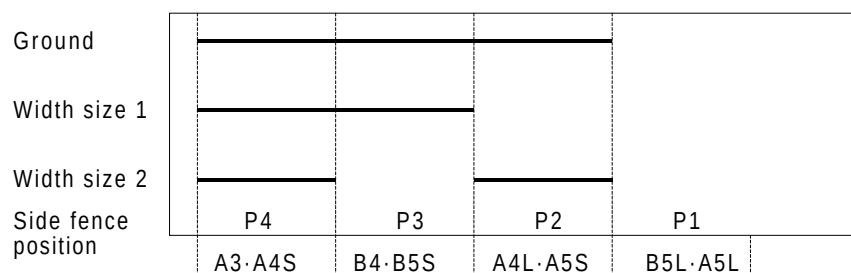
○₂, ●₂: In North American models, if the original is 8" x 13" L (F size), it will always be detected as 8 1/2" x 14" L (LG).

○₃, ●₃: If the original is 10" x 8" L, it will always be detected as 8 1/2" x 11" L (LT).

○₄, ●₄: In Europe/Asia models, if the original is 8" x 13" L (F size), it will always be detected as 8 1/2" x 13" L (F4 size).

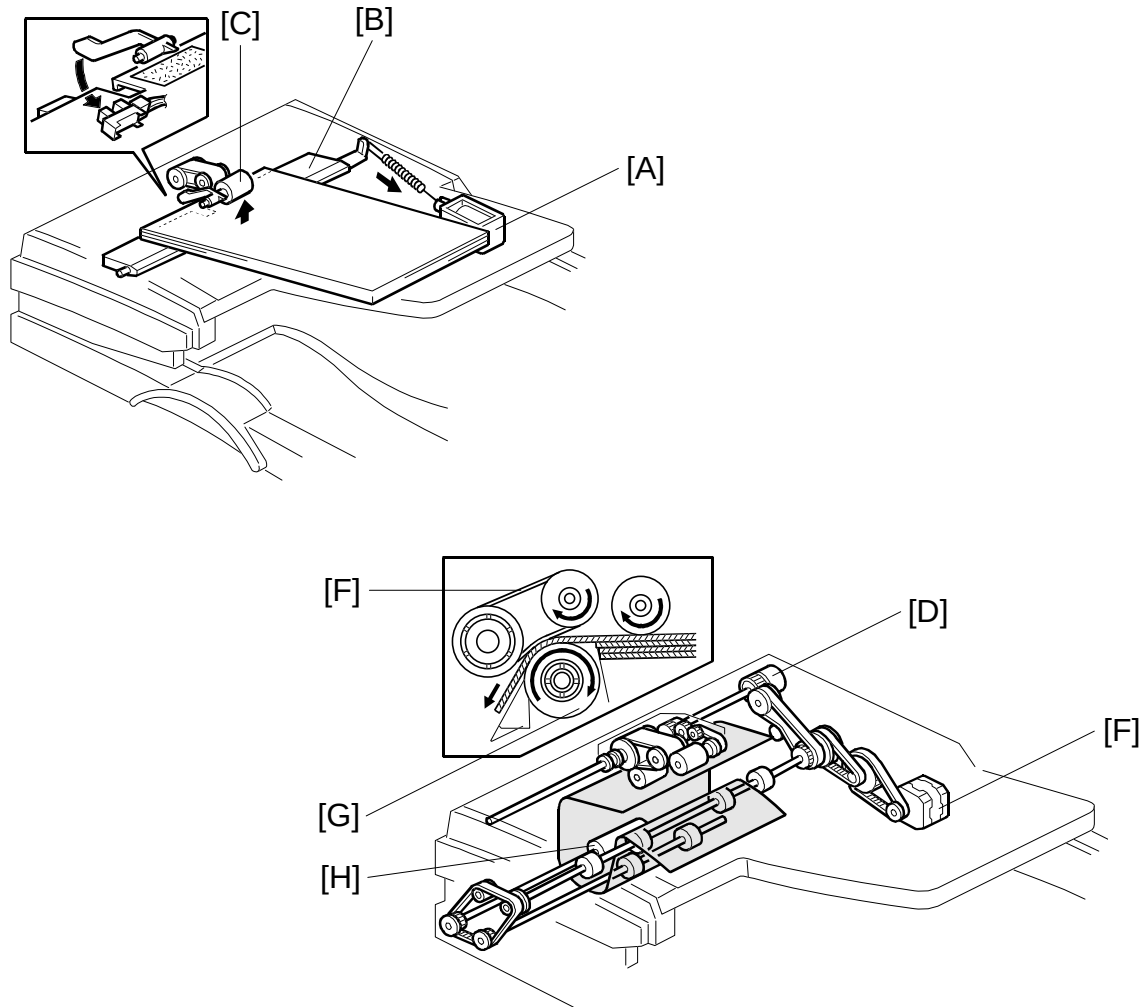
NA: North America, EU: Europe

- Original Width Sensor -



A859D512.WMF

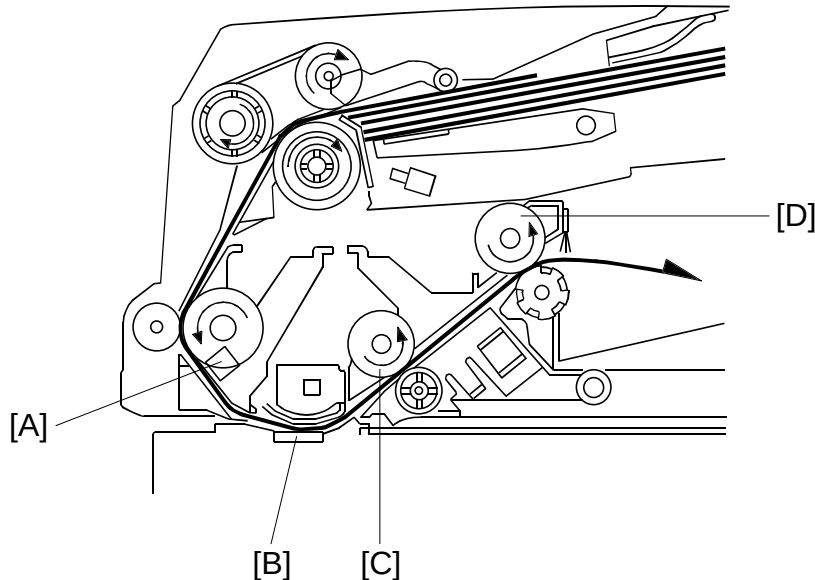
2.2 PICK-UP AND SEPARATION



When the print key is pressed, the DF pick-up solenoid [A] turns on and the entrance guide [B] lifts up the originals to the pick-up roller [C]. At the same time, the DF feed clutch [D] turns on.

200 ms after this, the DF transport motor [E] turns on. The original is fed to the paper feed belt [F] from the top page. The pages are separated by the separation roller [G] and the top sheet of the original is fed to the 1st transport roller [H]. The original separation system uses an FRR system.

2.3 ORIGINAL TRANSPORT AND EXIT MECHANISM

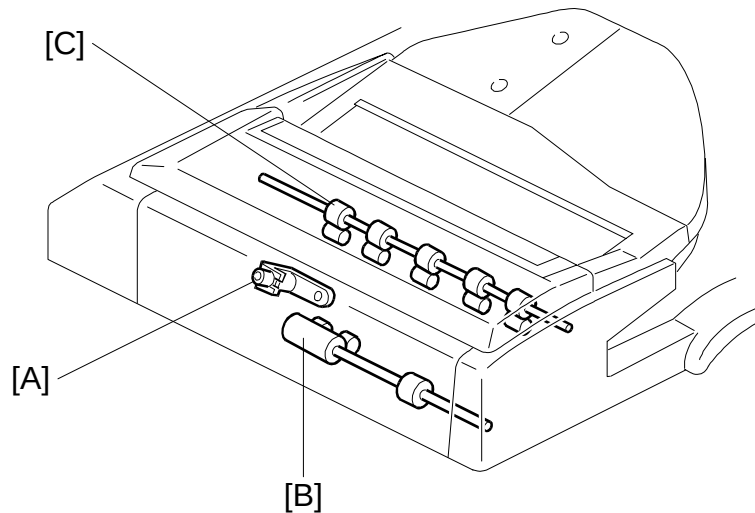


When the leading edge of the original reaches the registration sensor [A], the DF transport motors turn off. After a short time the DF transport motors turn on again. The original is fed past the DF exposure glass [B], where it is scanned. The original is fed through to the 2nd transport roller [C] and fed out by the exit roller [D].

The DF transport motor speed, while feeding the original to the registration sensor, is constant. However, when the motor turns on again to feed the original to the exposure glass, the speed depends on the selected reproduction ratio. At 100%, it is 90 mm/s.

STAMP

2.4 STAMP



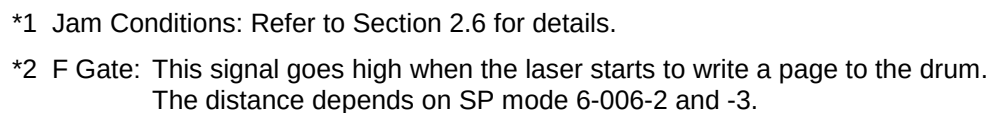
This function is only for fax mode. The fax unit includes the stamp.

There is a stamp [A] between the 2nd transport roller [B] and the exit roller [C], and the copier controls this solenoid directly.

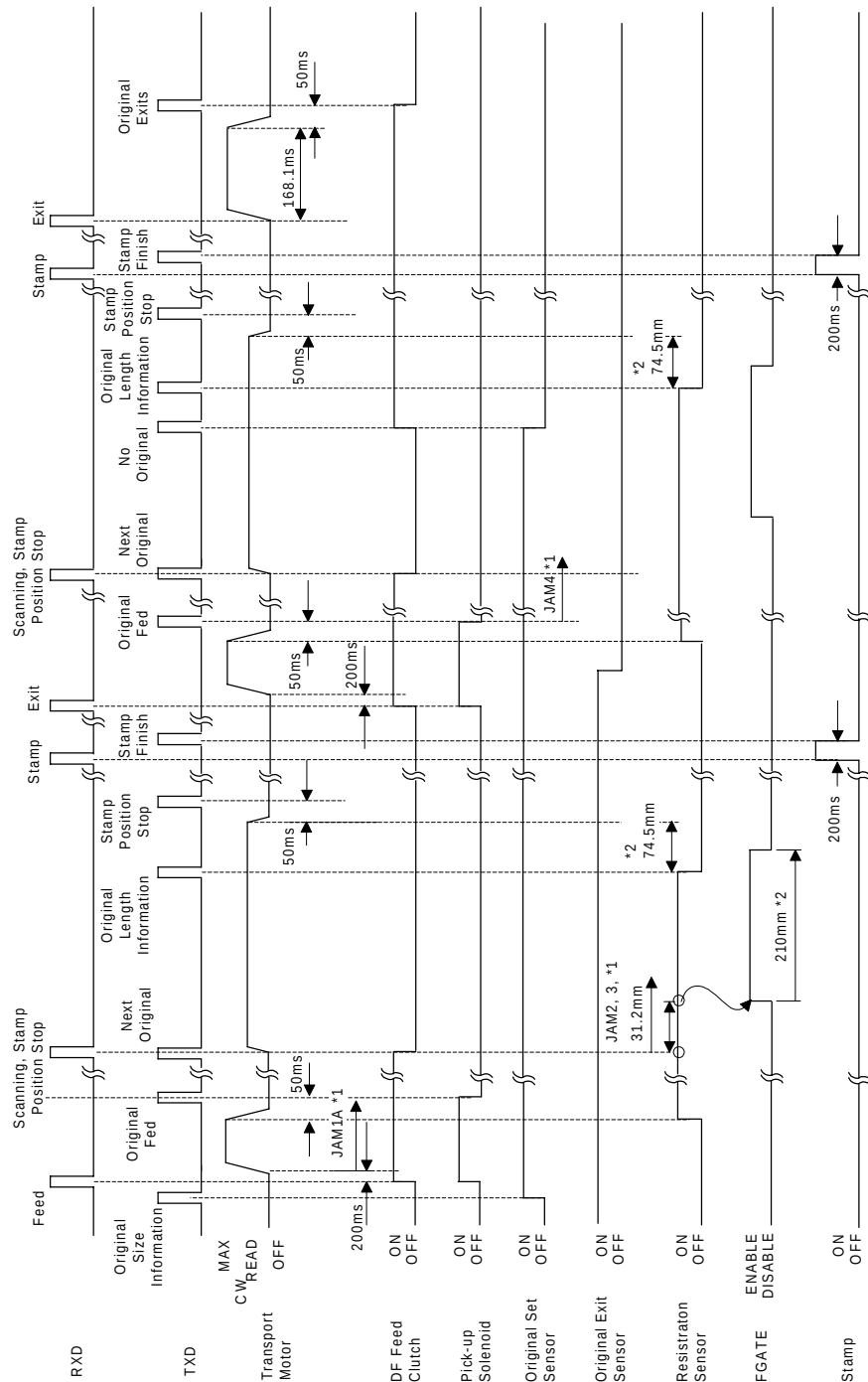
When the original reaches the stamp position, the DF transport motor stops. 300 milliseconds after stopping the DF transport motor, the stamp solenoid turns on if the page was sent successfully (immediate transmission) or stored successfully (memory transmission). After stamping, the DF transport motor starts again to feed out the document, and its speed is about 1.3 times the normal speed.

Adjusting SP6-010 can change the stamping position on the original.

2.5.1 A4 SIDEWAYS



2.5.2 A4 SIDEWAYS, STAMP MODE



*1 Jam Conditions: Refer to Section 2.6 for details.

*2 F Gate: This signal goes high when the laser starts to write a page to the drum.
The distance depends on SP mode 6-006-2 and -3.

2.6 JAM DETECTION

JAM 1: If the registration sensor does not turn on within x_1 ms since the DF transport motor turned on to feed the original from the original tray.

$$x_1 = (114 \times 1.1) / \text{original speed} + 2,000 \text{ ms}$$

JAM 2: If the registration sensor does not turn off within x_2 ms since the DF transport motor turned on to feed the original from the original tray.

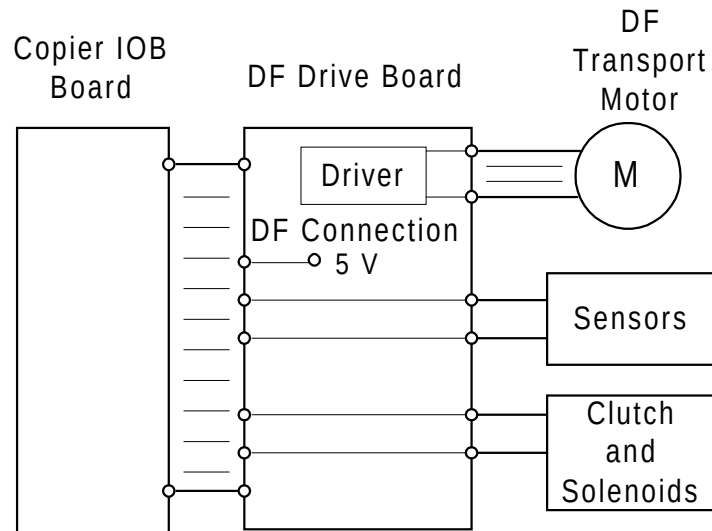
$$x_2 = (\text{original length} / \text{original speed}) + 2,000 \text{ ms}$$

JAM 3: If the registration sensor turns off while the original is being scanned.

JAM 4: If the original has not passed the scanning position, although the leading edge of the next original has been detected and has stopped at the registration sensor (F gate still off).

JAM 5: If the cover is opened or DF is lifted up during a DF job.

2.7 OVERALL ELECTRICAL CIRCUIT

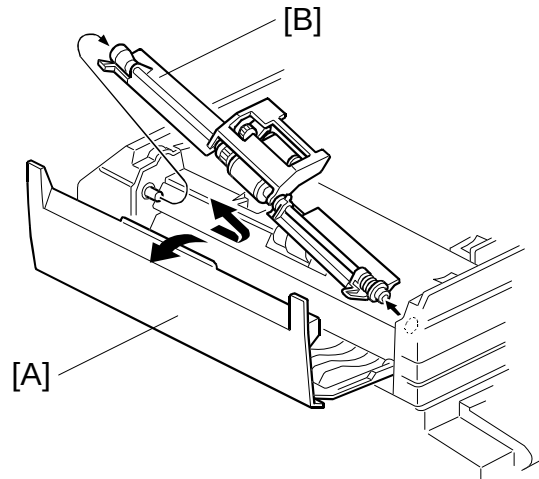


The copier directly controls the DF pick-up solenoid, stamp solenoid, and DF feed clutch through the DF drive board. The sensor signals are directly sent to the copier through the DF drive board. The DF drive board has a driver for the DF transport motor and the drive signals are sent from the copier.

When the DF connector is connected to the copier IOB board, the DF connection signal to the copier goes to 5 V. Then the copier detects that the DF is connected.

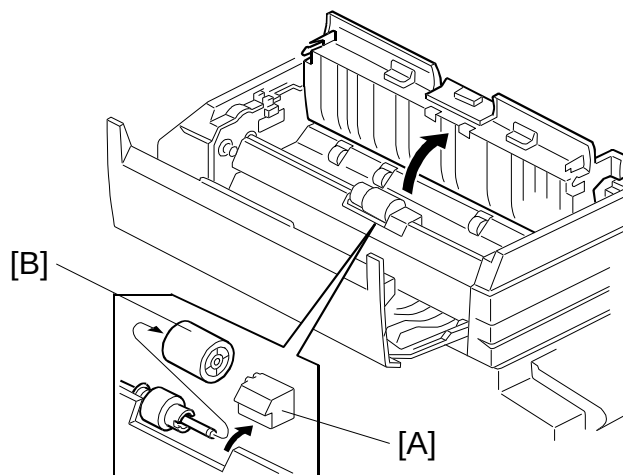
3. REPLACEMENT AND ADJUSTMENT

3.1 FEED UNIT REMOVAL



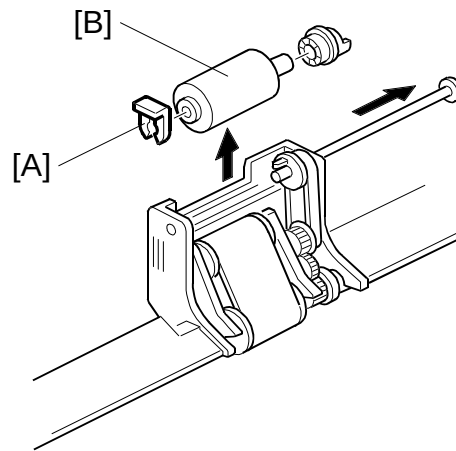
1. Open the DF feed cover [A].
2. Slide the feed unit [B] in the direction of the arrow, then remove it.

3.2 SEPARATION ROLLER REPLACEMENT



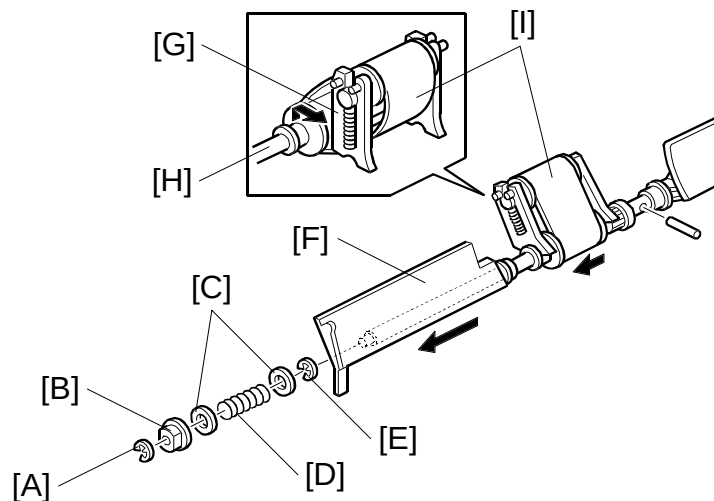
1. Remove the feed unit.
2. Remove the separation roller cover [A].
3. Replace the separation roller [B].

3.3 PICK-UP ROLLER REPLACEMENT



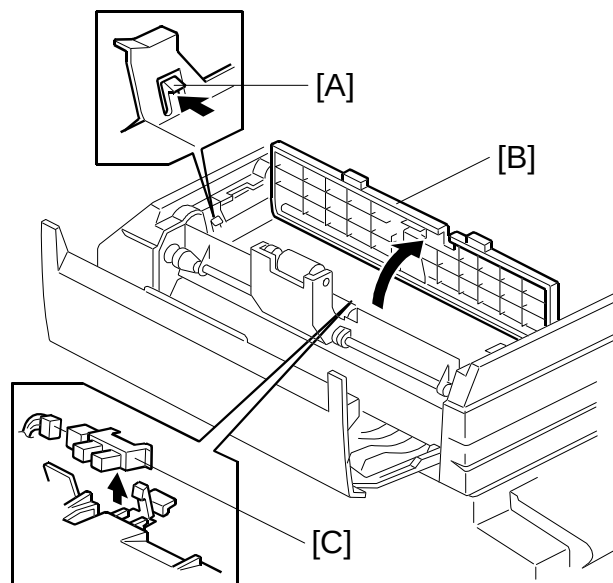
1. Remove the feed unit.
2. Remove the snap ring [A].
3. Replace the pick-up roller [B].

3.4 FEED BELT REPLACEMENT



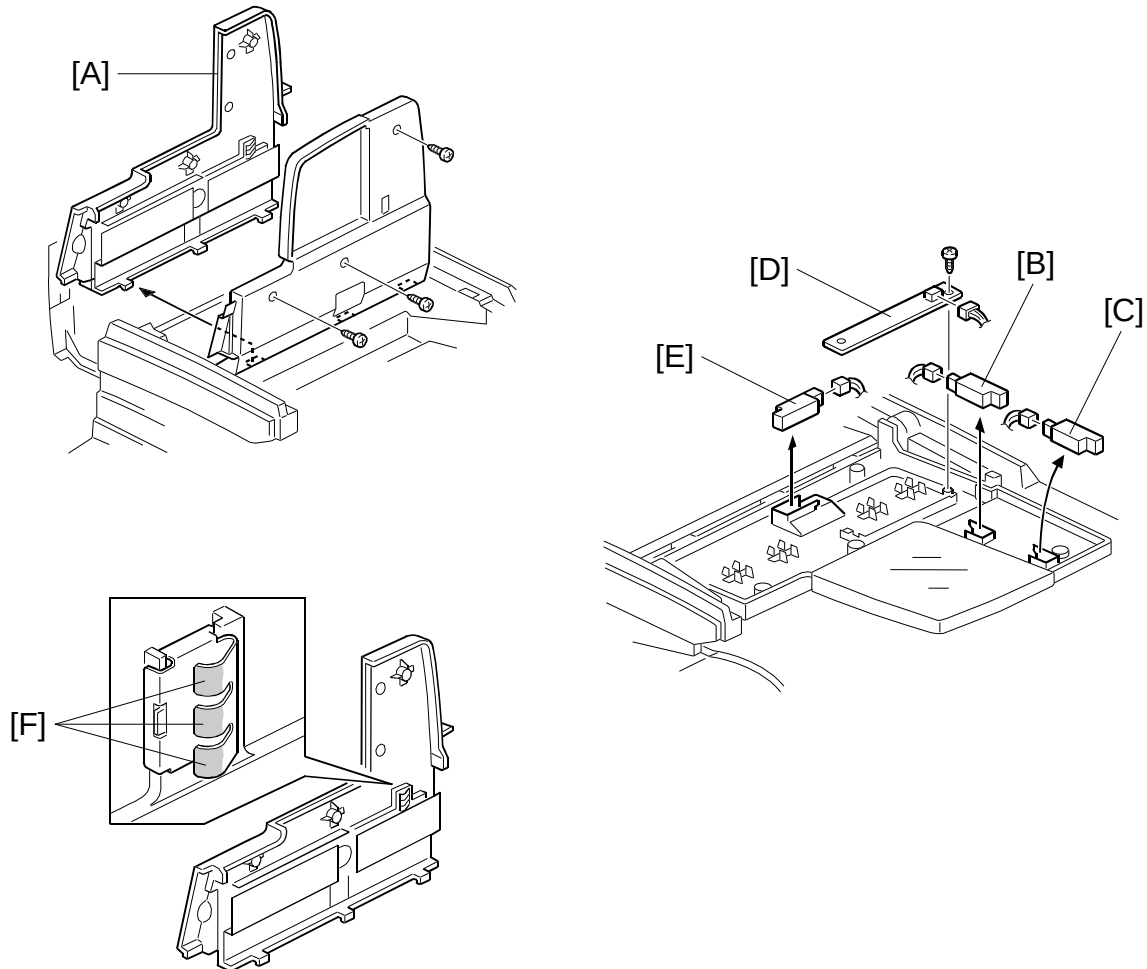
1. Remove the feed unit.
2. Remove the E-ring [A], bearing [B], washers [C], and spring [D].
3. Remove the E-ring [E], and remove the original guide [F].
4. Release the idle roller holder [G] from the drive roller shaft [H], then release the idle roller.
5. Replace the feed belt [I].

3.5 ORIGINAL SET SENSOR REPLACEMENT



1. Remove the DF feed cover.
2. While releasing the front and rear stoppers [A], open the transport guide [B].
3. Replace the original set sensor [C].

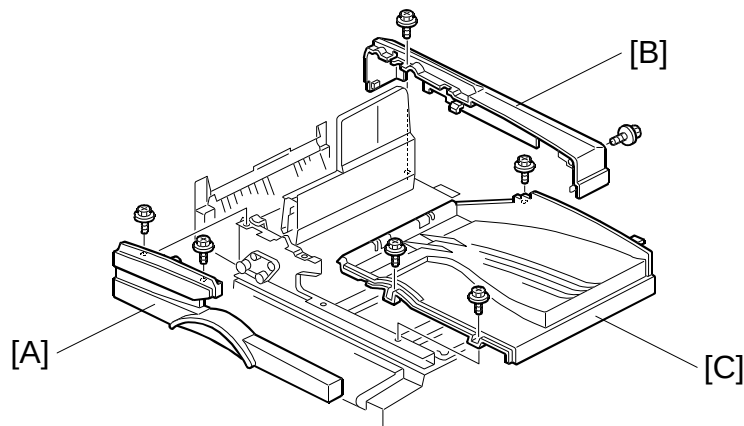
3.6 ORIGINAL WIDTH/LENGTH/TRAILING EDGE SENSOR REPLACEMENT



1. Open the original table.
2. Remove the original guide [A] (3 screws).
3. Replace the following sensors:
 - Original length sensor 1 [B]
 - Original length sensor 2 [C]
 - Original width sensor (1 screw) [D]
 - Original trailing edge sensor [E]

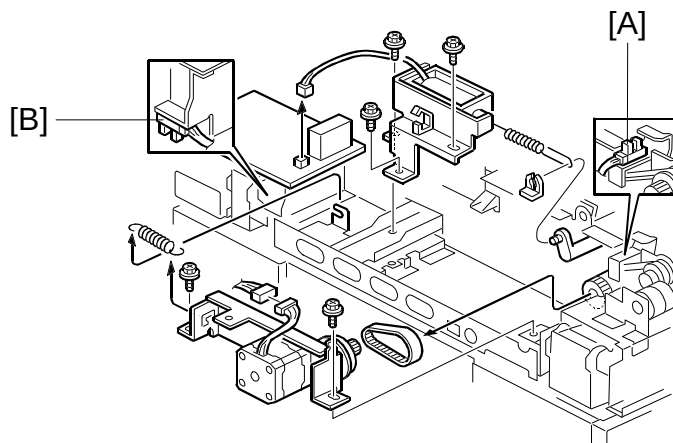
NOTE: To prevent incorrect size detection, clean the electrode [F] of the original width sensor using alcohol or a dry cloth. Then apply conductive grease KS-660 (G0049668).

3.7 ORIGINAL EXIT TRAY/FRONT COVER/REAR COVER REMOVAL



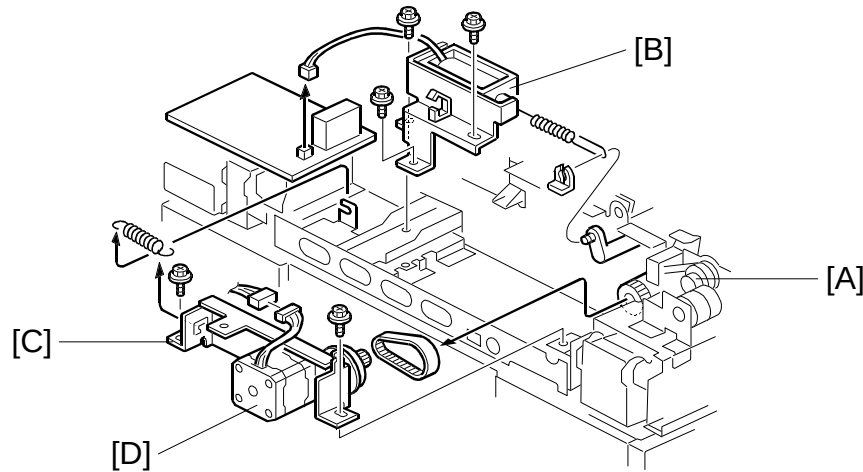
1. Open the DF feed cover.
2. Open the original table.
3. Remove the front cover [A] (2 screws).
4. Remove the rear cover [B] (2 screws).
5. Remove the original exit tray [C] (3 screws).

3.8 FEED COVER OPEN SENSOR/DF OPEN SENSOR REPLACEMENT



1. Remove the rear cover (2 screws).
2. Replace the following sensors:
 - Feed cover open sensor [A].
 - DF open sensor [B]

3.9 FEED CLUTCH/PICK-UP SOL/TRANSPORT MOTOR REPLACEMENT



1. Remove the rear cover (2 screws).

- Feed Clutch -

2. Replace the feed clutch [A] (1 E-ring and 1 connector).

- Pick-up Solenoid -

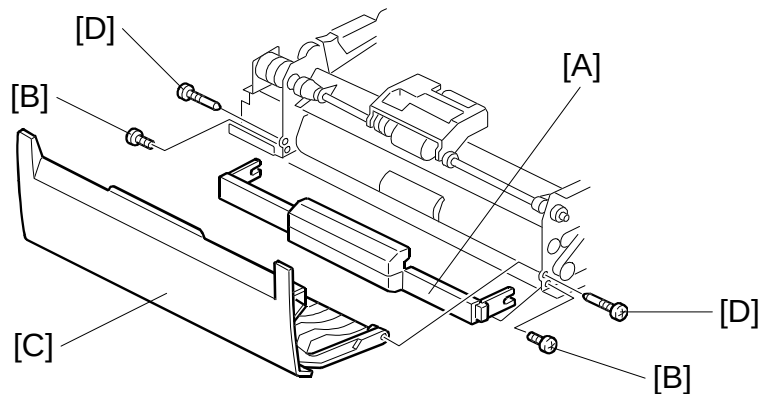
3. Replace the pick-up solenoid [B] (3 screws and 1 connector).

- Transport Motor -

4. Remove the transport motor bracket [C] (2 screws).

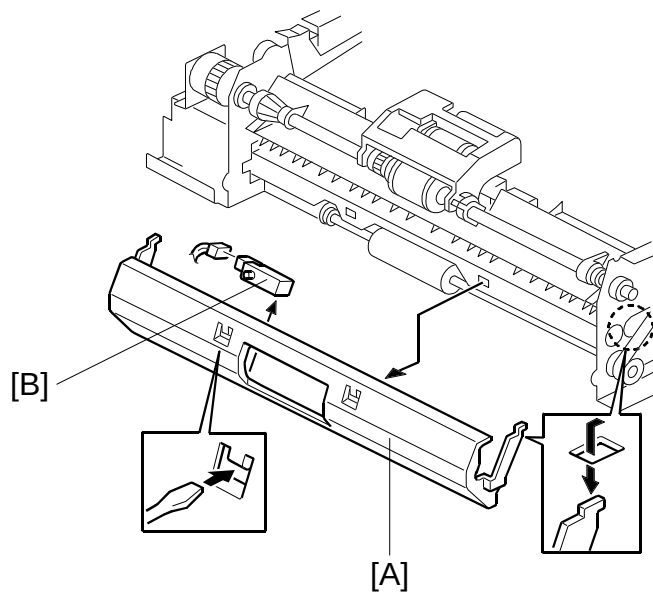
5. Remove the transport motor [D] (2 screws, 1 connector).

3.10 DF FEED COVER REMOVAL



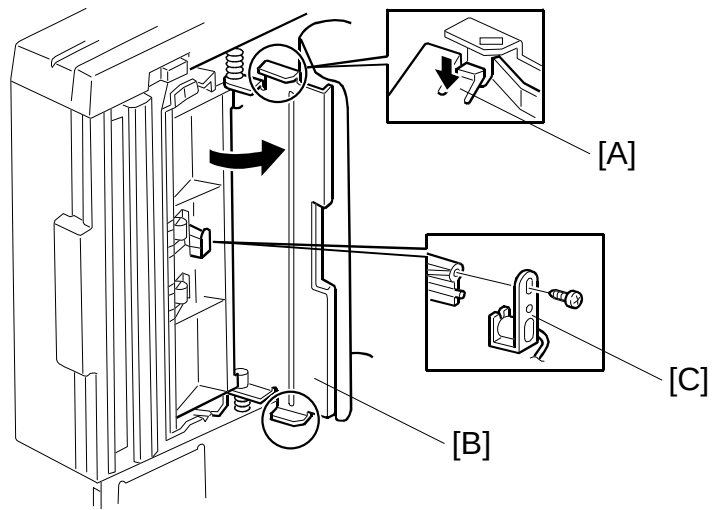
1. Remove the front cover (2 screws) and the rear cover (2 screws).
2. Remove the turn guide [A] (2 screws [B]).
3. Remove the DF feed cover [C] (2 screws [D]).

3.11 REGISTRATION SENSOR REPLACEMENT



1. Remove the front cover (2 screws) and the rear cover (2 screws).
2. Remove the transport guide [A].
3. Replace the registration sensor [B].

3.12 STAMP SOLENOID REPLACEMENT



1. Remove the rear cover (2 screws).
2. Lift the DF unit and open the exit guide. Release the front and rear hooks [A] and open the cover [B].
3. Replace the stamp solenoid [C] (1 screw and 1 connector).

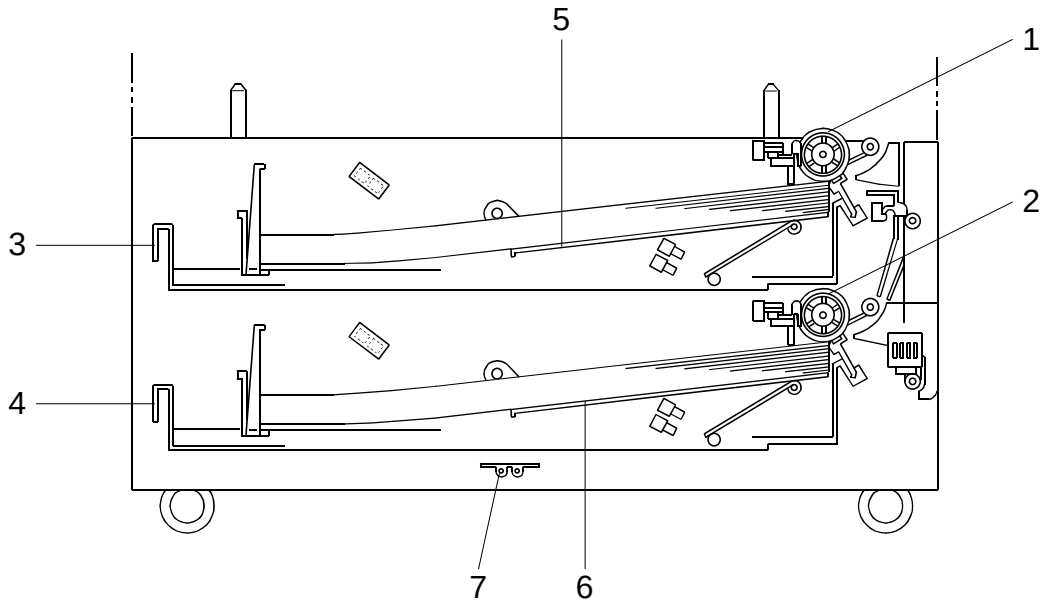
PAPER TRAY UNIT A860

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

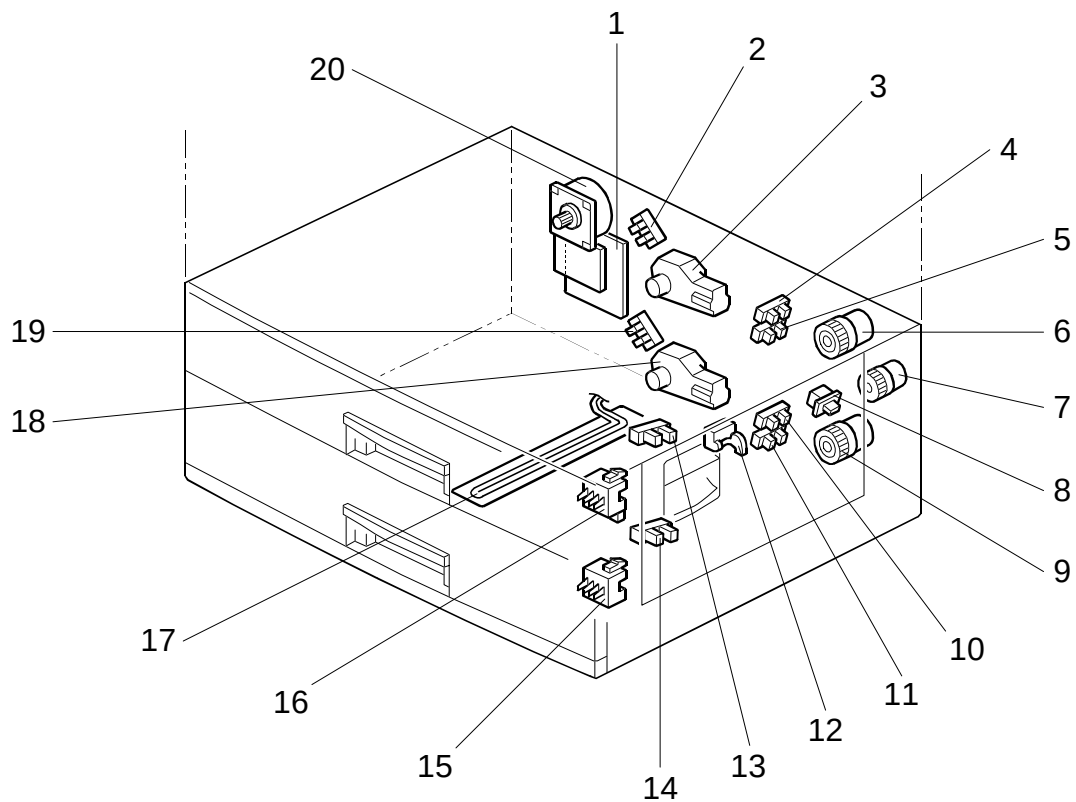
Paper Size:	A5 to A3 HLT lengthwise to DLT
Paper Weight:	60 ~ 105 g/m ² , 16 ~ 28 lbs.
Tray Capacity:	500 sheets (80 g/m ² , 20 lbs.) x 2 trays
Paper Feed System:	Feed roller and friction pad
Paper Height Detection:	4 steps (100%, 70%, 30%, Near end)
Power Source:	24 VDC, 5 VDC (from the copier) 120 Vac: 120 V version, from the copier when the optional tray heater is installed 220 ~ 240 Vac: 230 V version, from the copier when the optional tray heater is installed
Power Consumption:	Max: 30 W (Copying) 23 W (Optional Tray Heater On) Average: 17 W (Copying) 15 W (Optional Tray Heater On)
Weight:	25 kg
Size (W x D x H):	550 mm x 520 mm x 271 mm

1.2 MECHANICAL COMPONENT LAYOUT



1. Upper paper feed roller	5. Upper bottom plate
2. Lower paper feed roller	6. Lower bottom plate
3. Upper tray	7. Optional tray heater
4. Lower tray	

1.3 ELECTRICAL COMPONENT LAYOUT

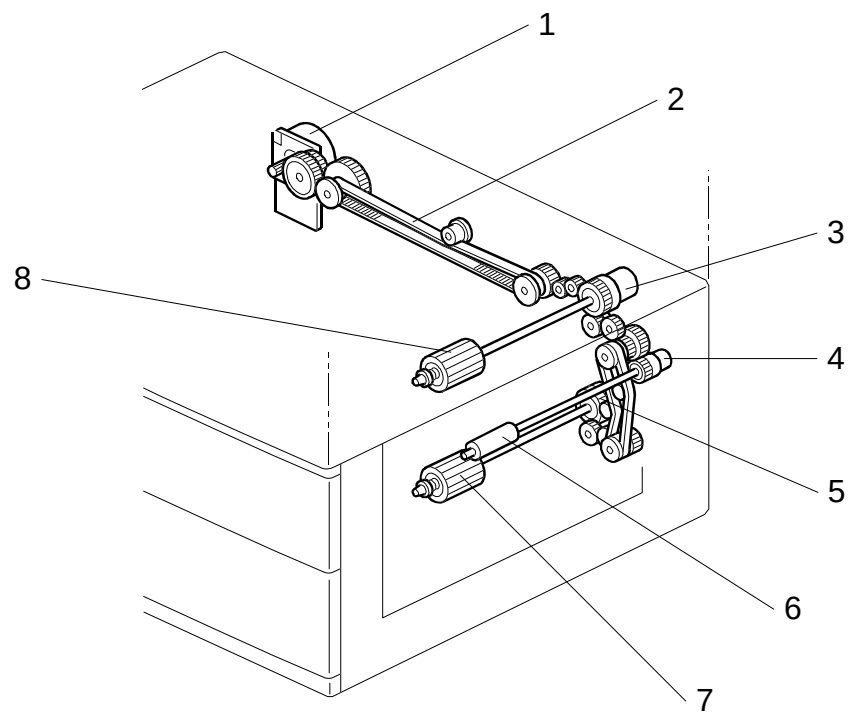


1. Tray main board	11. Lower paper height 1 sensor
2. Upper lift sensor	12. Vertical transport sensor
3. Upper lift motor	13. Upper paper end sensor
4. Upper paper height 2 sensor	14. Lower paper end sensor
5. Upper paper height 1 sensor	15. Lower paper size switch
6. Upper paper feed clutch	16. Upper paper size switch
7. Relay clutch	17. Optional tray heater
8. Tray cover switch	18. Lower lift motor
9. Lower paper feed clutch	19. Lower lift sensor
10. Lower paper height 2 sensor	20. Tray motor

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	Tray	Drives all rollers.	20
M2	Upper Lift	Lifts the upper tray bottom plate.	3
M3	Lower Lift	Lifts the lower tray bottom plate.	18
Sensors			
S1	Upper Lift	Detects when the paper in the upper tray is at the correct feed height.	2
S2	Lower Lift	Detects when the paper in the lower tray is at the correct feed height.	19
S3	Upper Paper End	Informs the copier when the upper tray runs out of paper.	13
S4	Lower Paper End	Informs the copier when the lower tray runs out of paper.	14
S5	Vertical Transport	Detects misfeeds.	12
S6	Upper Paper Height 1	Detects the amount of paper in the upper tray.	5
S7	Upper Paper Height 2	Detects the amount of paper in the upper tray.	4
S8	Lower Paper Height 1	Detects the amount of paper in the lower tray.	11
S9	Lower Paper Height 2	Detects the amount of paper in the lower tray.	10
Switches			
SW1	Tray Cover	Detects whether the tray cover is opened or not.	8
SW2	Upper Paper Size	Determines what paper size is in the upper tray.	15
SW3	Lower Paper Size	Determines what paper size is in the lower tray.	16
Magnetic Clutches			
MC1	Upper Paper Feed	Starts paper feed from the upper tray.	6
MC2	Lower Paper Feed	Starts paper feed from the lower tray.	9
MC3	Relay	Drives the relay rollers.	7
PCBs			
PCB1	Tray Main	Controls the paper tray unit and communicates with the copier.	1
Others			
H1	Optional Tray Heater	Removes humidity from the paper in the trays.	17

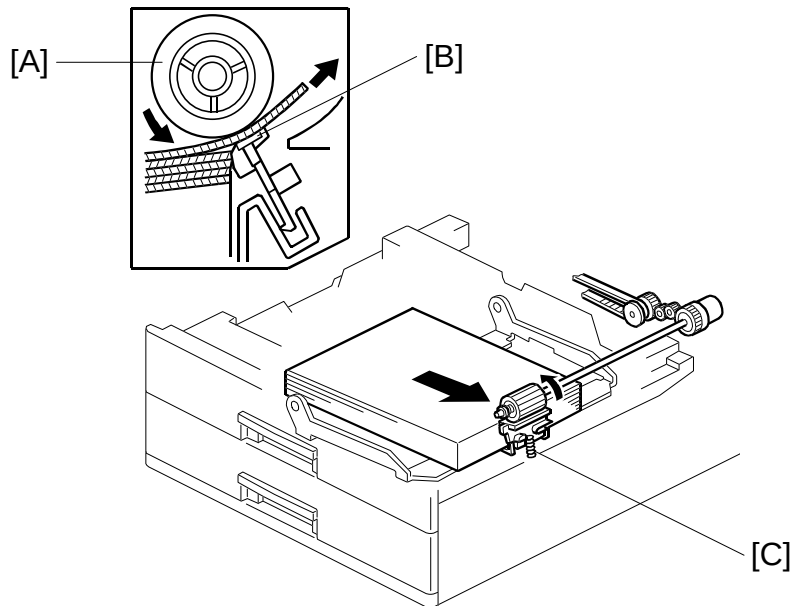
1.5 DRIVE LAYOUT



1. Tray motor	5. Lower paper feed clutch
2. Drive belt	6. Relay roller
3. Upper paper feed clutch	7. Lower paper feed roller
4. Relay clutch	8. Upper paper feed roller

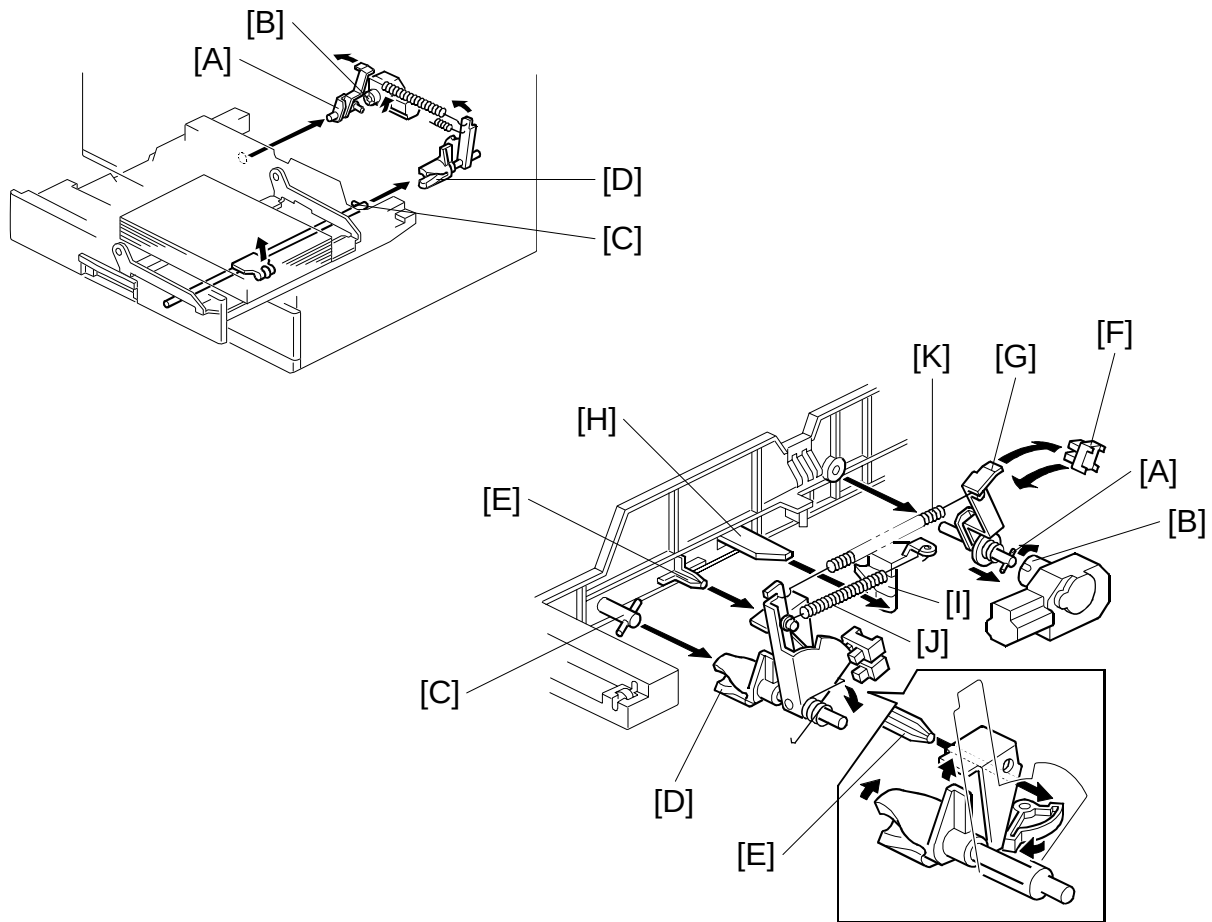
2. DETAILED DESCRIPTIONS

2.1 PAPER FEED AND SEPARATION MECHANISM



The paper tray holds 500 sheets. The paper feed roller [A] drives the top sheet of paper from the paper tray to the copier. The friction pad [B] allows only one sheet to feed at a time. The friction pad applies pressure to the feed roller with a spring [C].

2.2 PAPER LIFT MECHANISM



The paper size switch detects when the tray is pushed in.

When the paper tray is pushed into the machine, the pin [A] for the lift motor pressure shaft engages the lift motor coupling [B] and the pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D]. The pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor turns on, and turns clockwise as viewed on the diagram. The main pressure spring [K] pulls the bottom plate pressure lever, and this lifts the tray bottom plate.

When the top of the stack touches the feed roller, the motor cannot pull up the plate any more, so it pulls the actuator [G] into the lift sensor [F].

The pressure of the feed roller on the paper is now too high, so the lift motor reverses to reduce this pressure. It reverses for 300 ms or 600 ms, depending on the paper size. For smaller paper, it reverses the larger amount (600 ms) to reduce the pressure more.

PAPER LIFT MECHANISM

The paper size thresholds for this feature depend on SP1-908-8, 9, 17, and 18. (Note that there are two paper size thresholds for each tray: small and middle. Some models only use the small threshold.) The amount of reverse depends on SP 1-908-1, 2, 3, 10, 11, and 12. (See the table later in this section for details of how these SP modes work.)

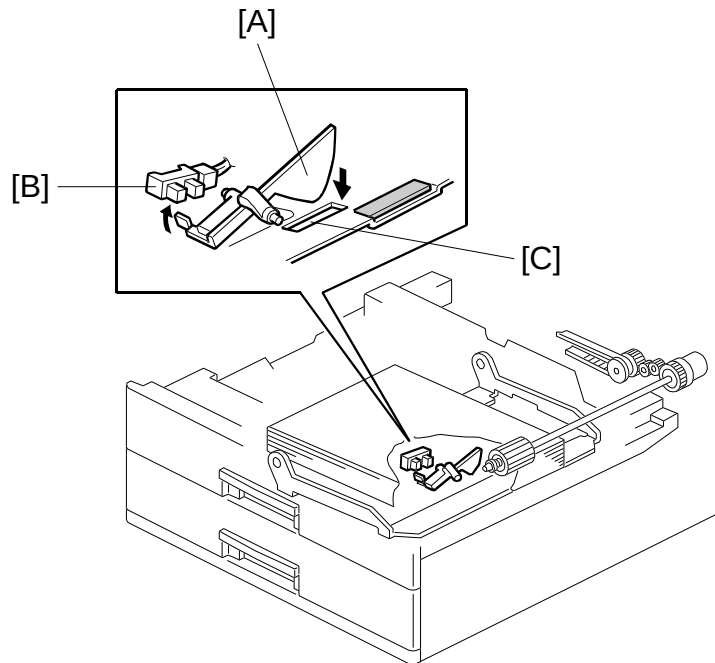
For A4-width paper or wider, a projection [H] on the side fence engages the secondary pressure spring [J] through a lever [I] . Then, the secondary pressure spring [J] applies paper feed pressure in addition to the main pressure spring [K], to ensure that extra pressure is applied to wider paper.

As stated earlier, various SP modes control this mechanism. The following table summarizes them.

No Middle Size Programmed (Default for A250)	With Middle Size Programmed
Paper width: Tray 1: More than 1-908-8 Tray 2: More than 1-908-17 (Default: Wider than HLT) Amount of reverse: Tray 1: 1-908-1 Tray 2: 1-908-10 (Default 300 ms)	Paper width: Tray 1: More than 1-908-9 Tray 2: More than 1-908-18 Amount of reverse: Tray 1: 1-908-1 Tray 2: 1-908-10
Paper width: Tray 1: 1-908-8 or less Tray 2: 1-908-17 or less (Default: HLT or narrower) Amount of reverse: Tray 1: 1-908-2 Tray 2: 1-908-11 (Default: 600 ms)	Paper width: Tray 1: More than 1-908-8, up to and including 1-908-9 Tray 2: More than 1-908-17, up to and including 1-908-18 Amount of reverse: Tray 1: 1-908-3 Tray 2: 1-908-12
	Paper width: Tray 1: 1-908-8 or less Tray 2: 1-908-17 or less Amount of reverse: Tray 1: 1-908-2 Tray 2: 1-908-11

When the paper tray is pulled out, the pins [A, C] disengage from the couplings [B, D], and the bottom plate drops. To make it easier to push the tray in, the lift motor rotates backwards 1.7 seconds to return the bottom plate pressure lever coupling [D] to the original position.

2.3 PAPER END DETECTION

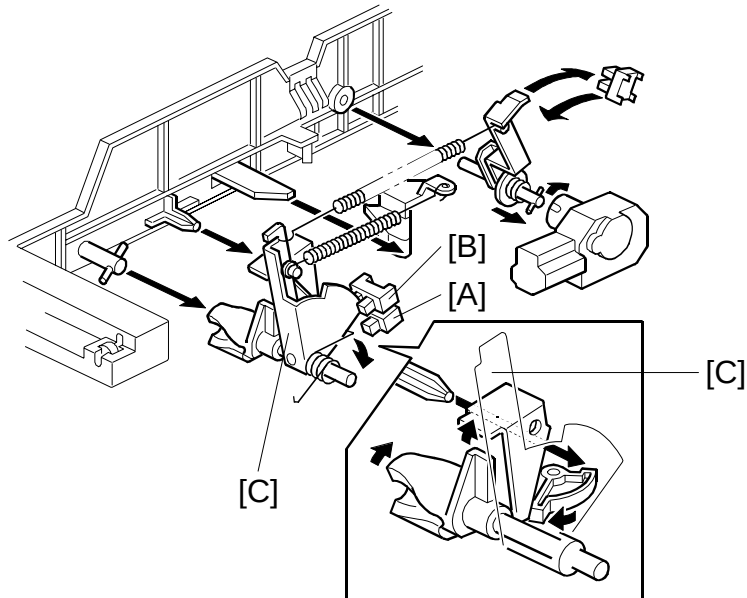


If there is some paper in the paper tray, the paper stack raises the paper end feeler [A] and the paper end sensor [B] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [C] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out with no paper in the tray, the shape of the paper end feeler causes it to lift up.

2.4 PAPER HEIGHT DETECTION



The amount of paper in the tray is detected by the combination of on/off signals from two paper height sensors [A] and [B].

When the amount of paper decreases, the bottom plate pressure lever [C] moves the actuator up.

The following combination of sensor signals is sent to the copier.

Amount of Paper	Paper Height Sensor 1	Paper Height Sensor 2
Near End	OFF	ON
30%	ON	ON
70%	ON	OFF
100%	OFF	OFF

When the tray contains paper of a small width, the paper feed pressure may become too low when the thickness of the remaining stack of paper has decreased. The lift motor rotates forward 300 ms after the sensor detects a certain amount of paper remaining in the tray to increase paper feed pressure, simulating the pressure generated by a full tray.

The amount of remaining paper depends on SP modes 1-908-6, 7, 15, and 16. The amount of forward rotation depends on SP1-908-4, 5, 13, and 14. Note that there are two paper size thresholds for each tray: small and middle (this is the same as for the paper lift mechanism described earlier). Some models only use the small threshold. The paper size thresholds depend on SP1-908-8, 9, 17, and 18.

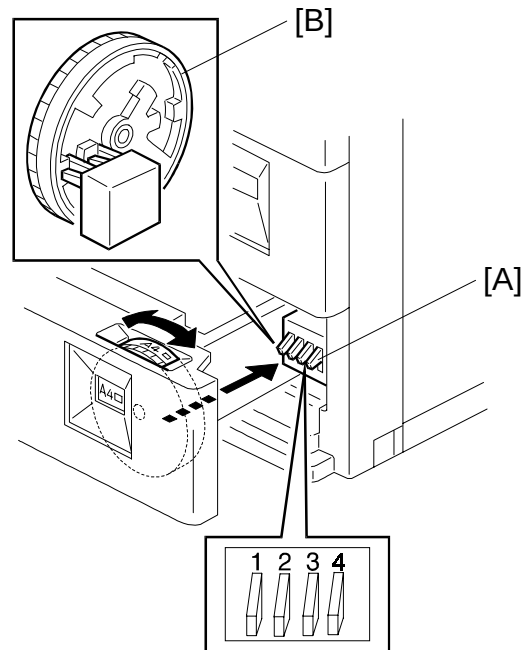
The following table summarizes how these SP modes work.

No Middle Size Programmed (Default for A250)	With Middle Size Programmed
Paper width: Tray 1: More than 1-908-8 Tray 2: More than 1-908-17 (Default: Wider than HLT) Amount of forward rotation: None	Paper width: Tray 1: More than 1-908-9 Tray 2: More than 1-908-18 Amount of forward rotation: None
Paper width: Tray 1: 1-908-8 or less Tray 2: 1-908-17 or less (Default: HLT or narrower) Amount of remaining paper: Tray 1: 1-908-6 Tray 2: 1-908-15 (Default: When near-end is detected) Amount of forward rotation: Tray 1: 1-908-4 Tray 2: 1-908-13 (Default: 300 ms)	Paper width: Tray 1: More than 1-908-8, up to and including 1-908-9 Tray 2: More than 1-908-17, up to and including 1-908-18 Amount of remaining paper: Tray 1: 1-908-7 Tray 2: 1-908-16 Amount of forward rotation: Tray 1: 1-908-5 Tray 2: 1-908-14
	Paper width: Tray 1: 1-908-8 or less Tray 2: 1-908-17 or less Amount of remaining paper: Tray 1: 1-908-6 Tray 2: 1-908-15 Amount of forward rotation: Tray 1: 1-908-4 Tray 2: 1-908-13

2.5 PAPER SIZE DETECTION

Size	SW	1	2	3	4
A3, F (8 1/2" x 13")		●	●	●	○
A4 Lengthwise		●	○	●	○
A4 Sideways		●	○	○	○
A5 Sideways, 11" x 17"		●	●	○	○
B4, 8 1/2" x 14"		○	●	○	○
B5 Sideways, 8 1/2" x 11"		○	○	○	○
B5 Lengthwise, 11" x 8 1/2"		○	○	●	○
* (Asterisk)		○	○	●	●

●: ON (Not pushed)
○: OFF (Pushed)



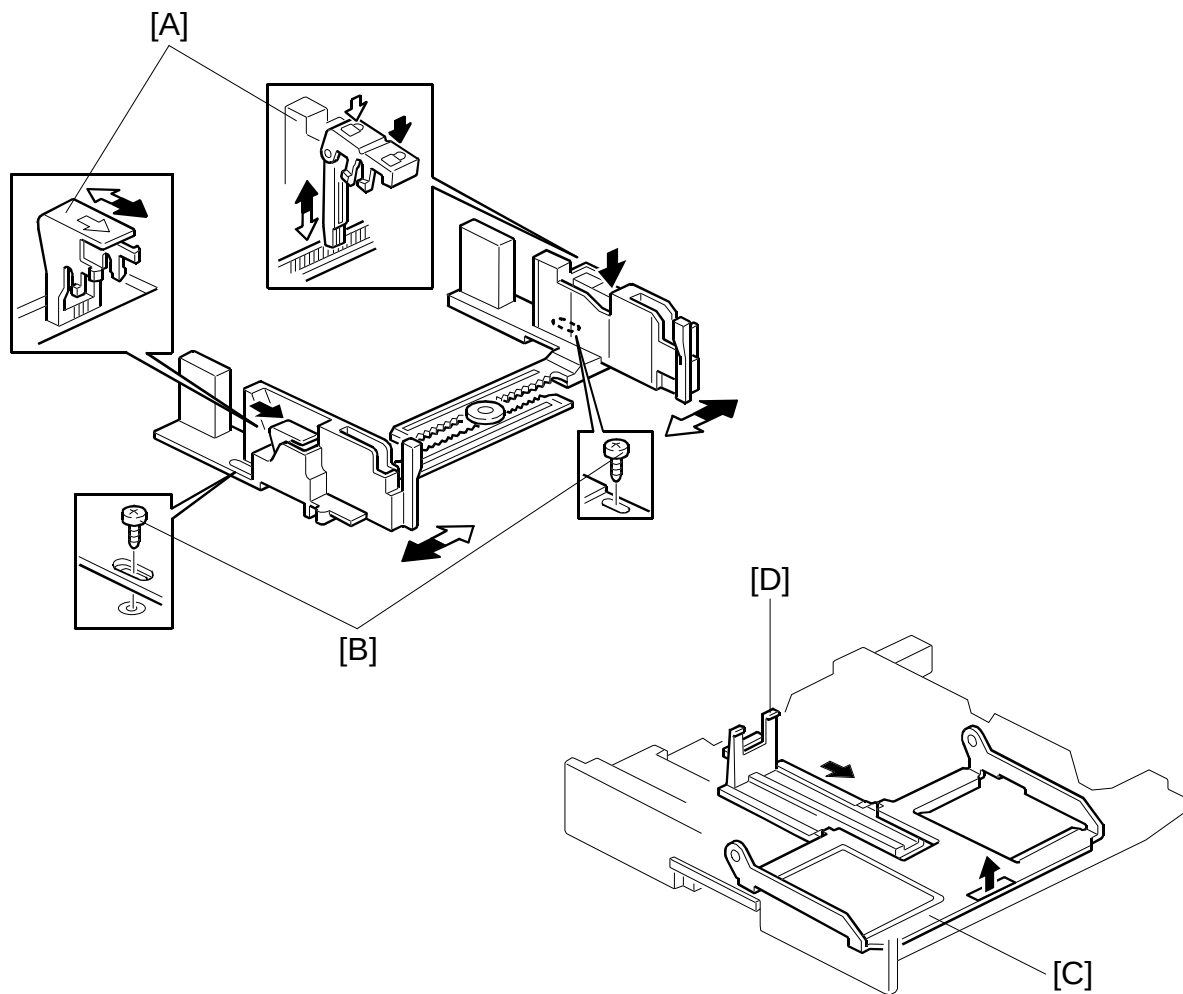
There are four paper size microswitches [A] on the front right plate of the paper tray unit. The switches are actuated by a paper size actuator [B] behind the paper size indicator plate, which is on the front right of the tray.

Each paper size has its own actuator, with a unique combination of notches. To determine which size has been installed, the CPU reads which microswitches the actuator has switched off.

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the Add Paper indicator will light.

When the paper size actuator is at the "*" mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using user tools. If the paper size for this position is changed without changing the user tool setting, a paper jam will result.

2.6 SIDE AND END FENCES



Side Fences

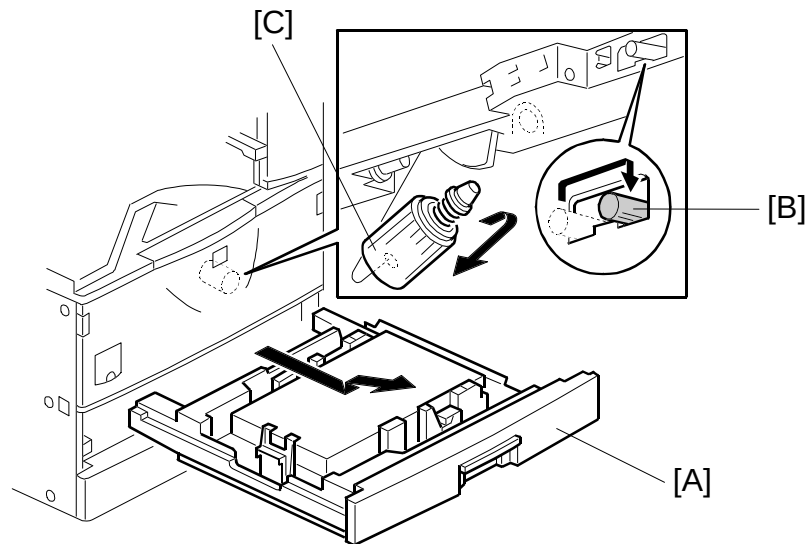
If the tray is full of paper and it is pushed in strongly, the fences may deform or bend. This may cause the paper to skew or the side-to-side registration to be incorrect. To correct this, each side fence has a stopper [A] attached to it. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

End Fence

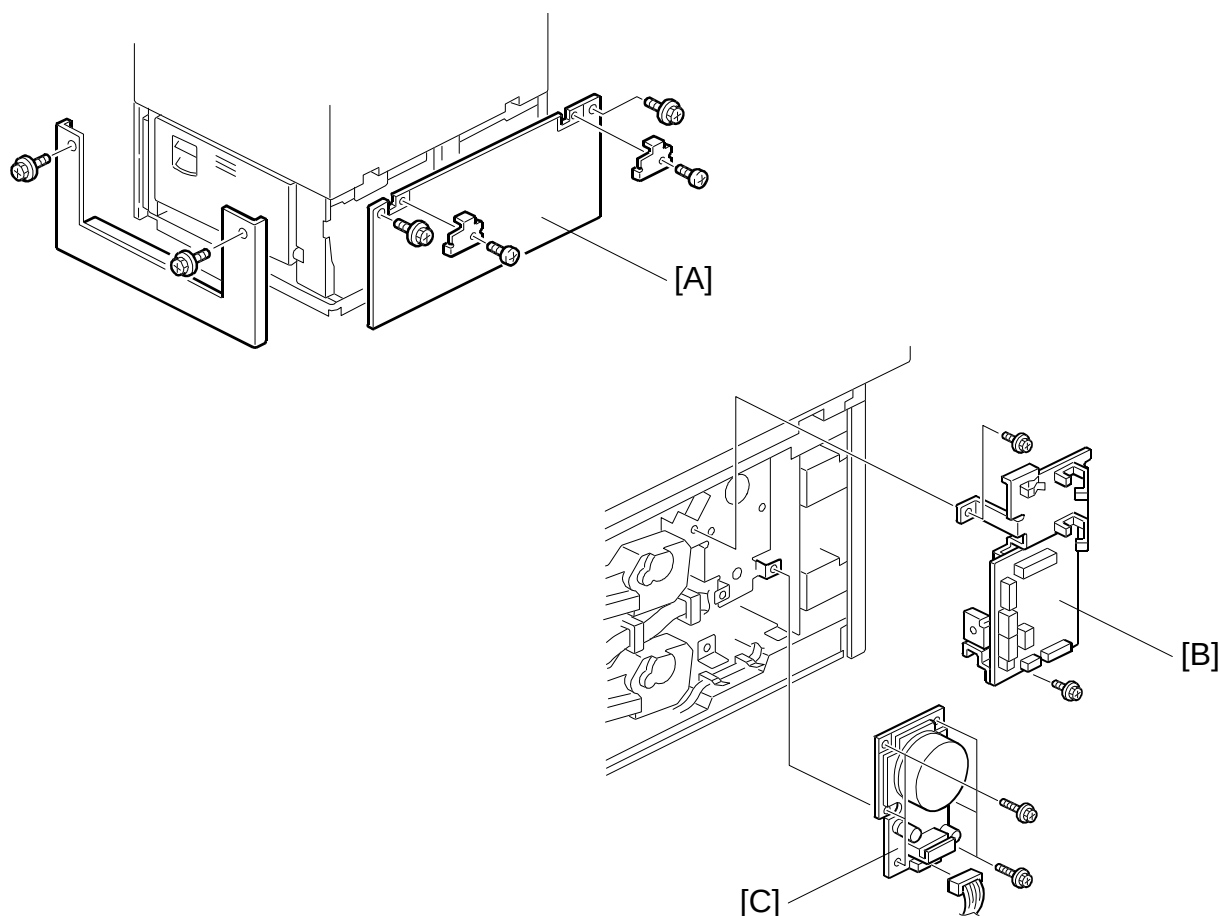
As the amount of paper in the tray decreases, the bottom plate [C] lifts up gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it squared up.

3. REPLACEMENT AND ADJUSTMENT

3.1 FEED ROLLER REPLACEMENT



1. Remove the paper tray [A].
2. Move the release lever [B] to the front.
3. Pull the feed roller [C] to the operation side and remove it.
4. Replace the feed roller.



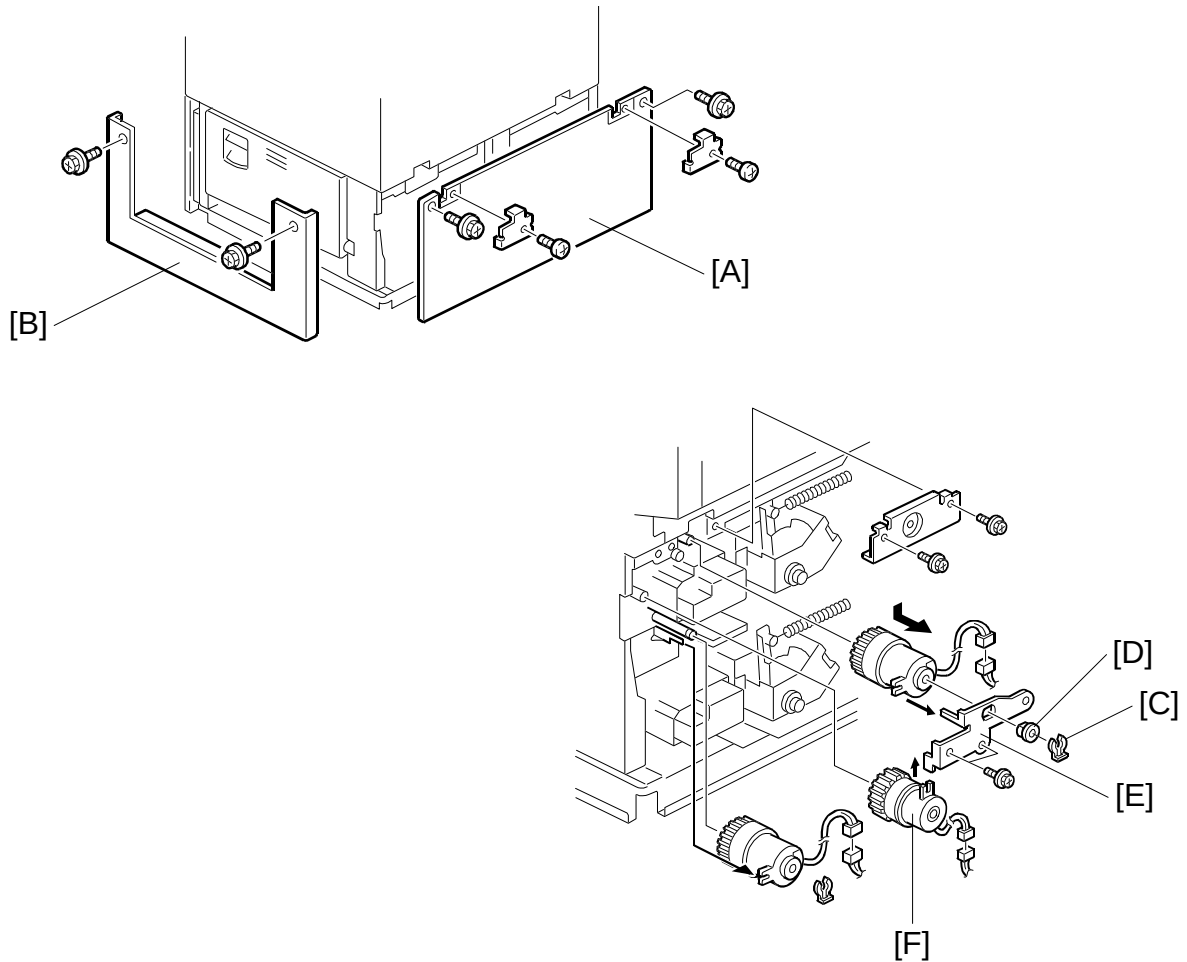
3.2 TRAY MAIN BOARD REPLACEMENT

1. Remove the rear cover [A] (4 screws).
2. Replace the tray main board [B] (4 screws and 8 connectors).

3.3 TRAY MOTOR REPLACEMENT

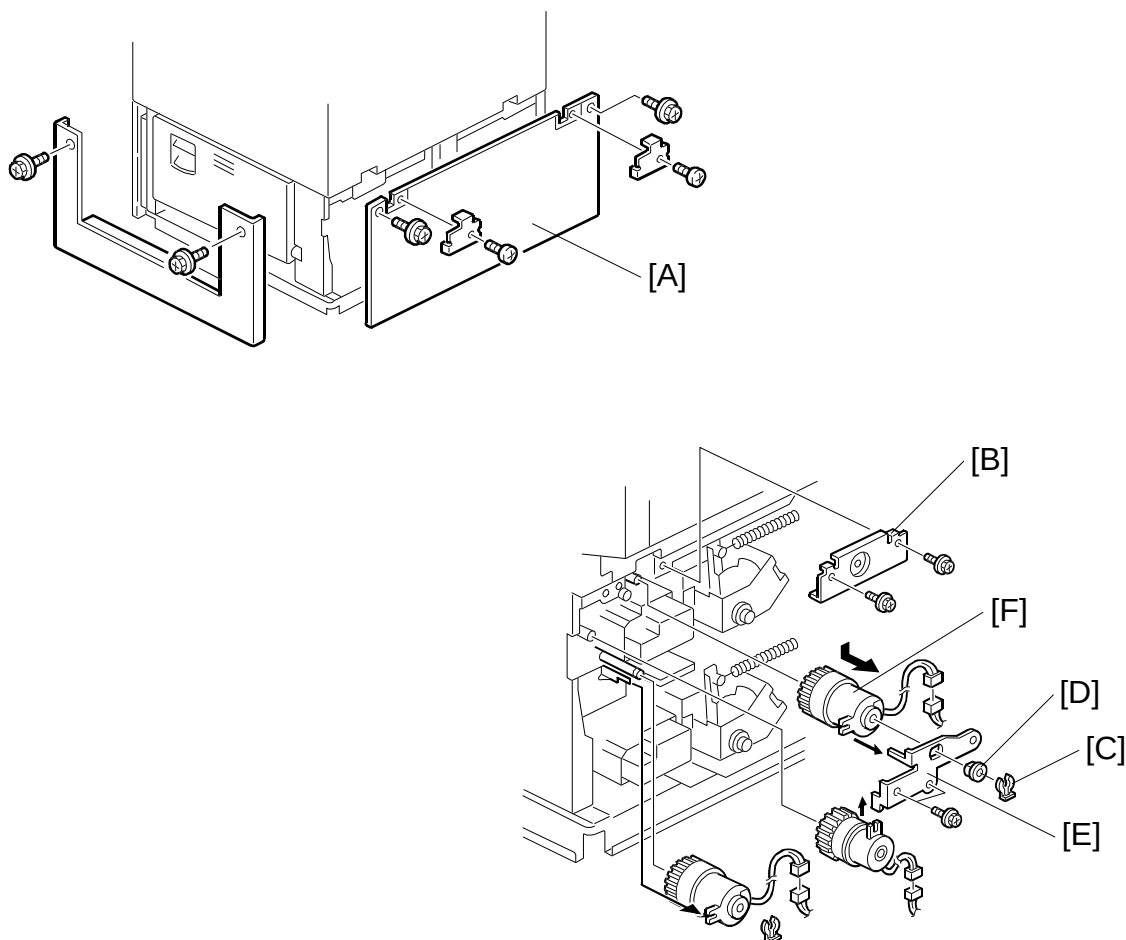
1. Remove the rear cover (4 screws).
2. Disconnect 8 connectors from the tray main board [B].
3. Remove the tray main board with the bracket (2 screws).
4. Remove the tray motor [C] (6 screws and 1 connector).

3.4 RELAY CLUTCH REPLACEMENT



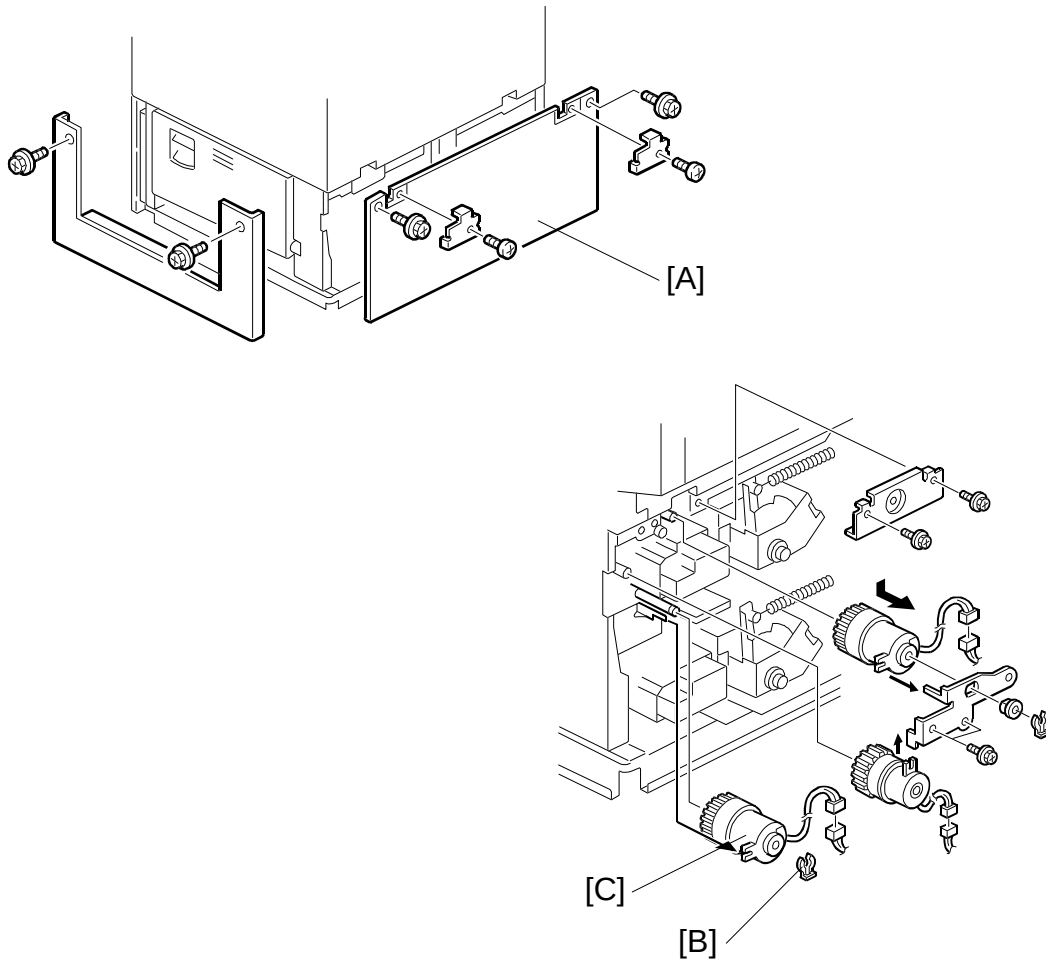
1. Remove the rear cover [A] (4 screws).
2. Remove the right cover [B] (2 screws).
3. Remove the snap ring [C].
4. Remove the bushing [D].
5. Remove the stopper bracket [E] (2 screws).
6. Replace the relay clutch [F] (1 connector).

3.5 UPPER PAPER FEED CLUTCH REPLACEMENT



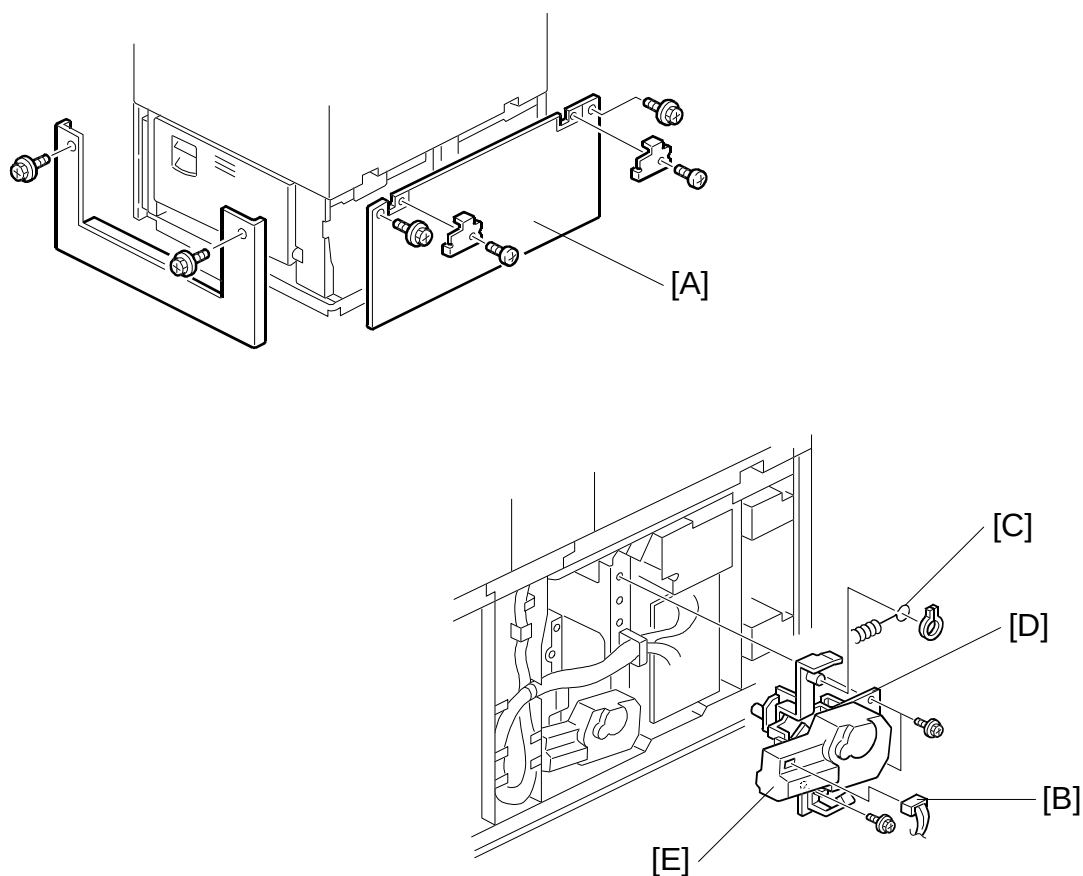
1. Remove the rear cover [A] (4 screws).
2. Remove the bracket [B] (2 screws).
3. Remove the snap ring [C].
4. Remove the bushing [D].
5. Remove the stopper bracket [E] (2 screws).
6. Replace the upper paper feed clutch [F] (1 connector).

3.6 LOWER PAPER FEED CLUTCH REPLACEMENT



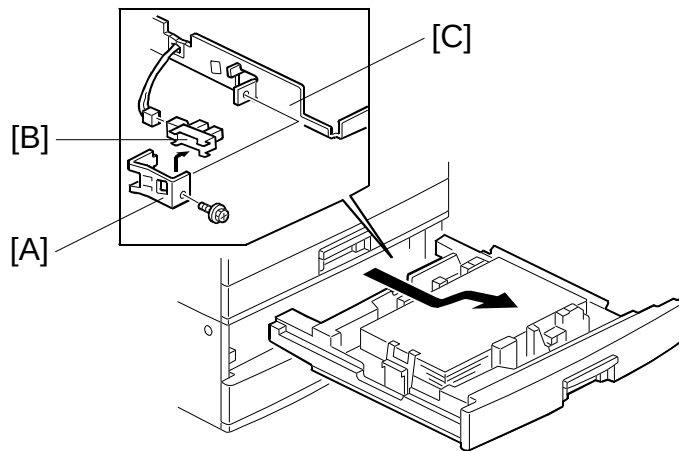
1. Remove the rear cover [A] (4 screws).
2. Remove the snap ring [B].
3. Replace the lower paper feed clutch [C].

3.7 LIFT MOTOR REPLACEMENT



1. Pull out the paper tray.
2. Remove the rear cover [A] (4 screws).
3. Disconnect the 2P connector [B].
4. Remove the spring [C].
5. Remove the lift motor unit [D] (3 screws).
6. Remove the lift motor [E] (2 screws).

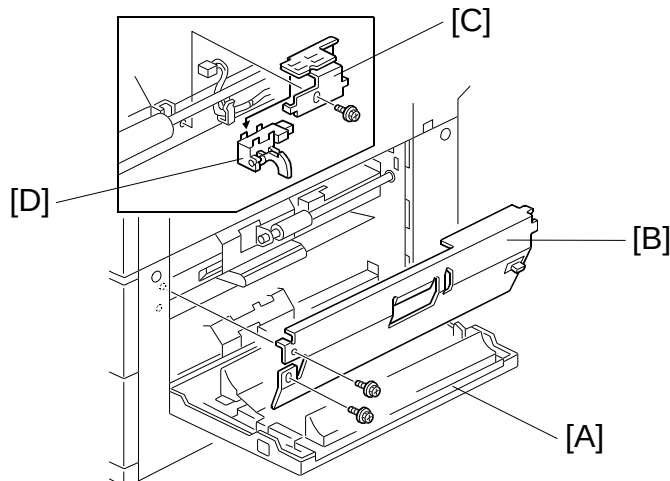
3.8 PAPER END SENSOR REPLACEMENT



1. Remove the paper tray.
2. Remove the paper end sensor bracket [A] (1 screw and 1 connector).
3. Replace the paper end sensor [B].

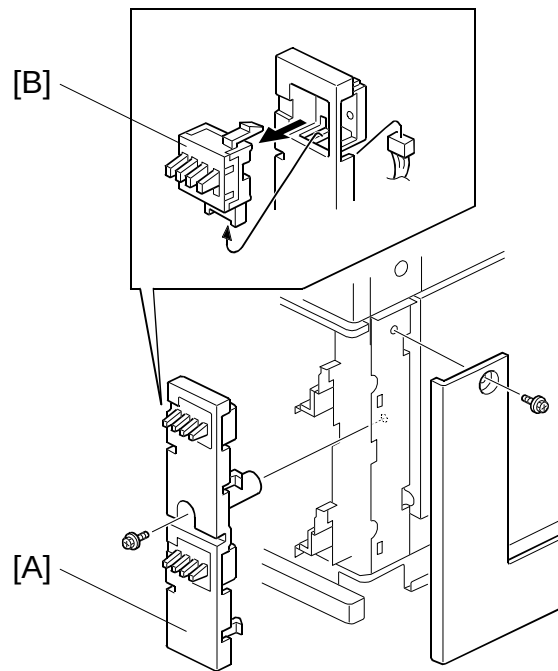
NOTE: After replacing the sensor, pull the sensor cable towards the right side of the frame [C] so that it does not touch the paper in the tray.

3.9 VERTICAL TRANSPORT SENSOR REPLACEMENT



1. Open the right door [A].
2. Remove the right guide plate [B] (2 screws).
3. Remove the vertical transport sensor bracket [C] (1 screw and 1 connector).
4. Replace the vertical transport sensor [D].

3.10 PAPER SIZE SWITCH REPLACEMENT



1. Remove the upper and lower paper trays.
2. Remove the inner cover [A] (2 screws).
3. Replace the paper size switch [B] (1 connector).

PAPER TRAY UNIT A861

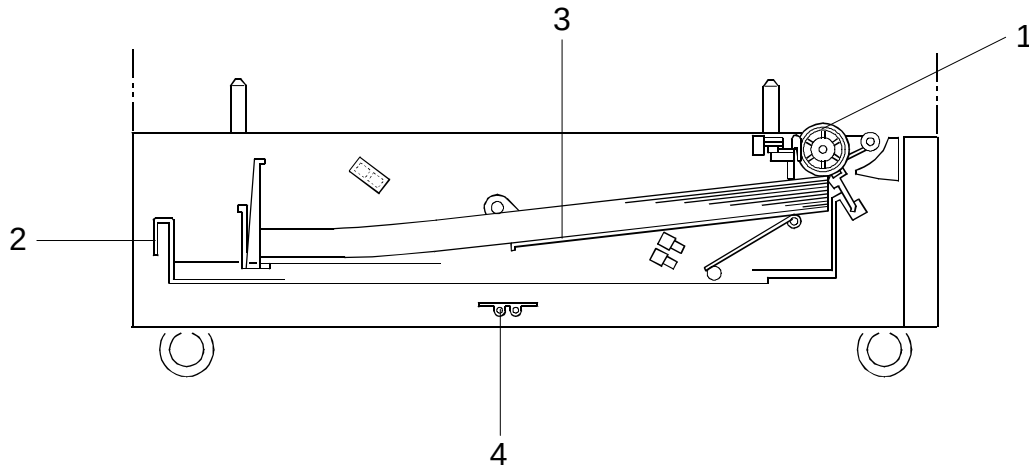
1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Paper Size:	A5 to A3 HLT lengthwise to DLT
Paper Weight:	60 ~ 105 g/m ² , 16 ~ 28 lbs.
Tray Capacity:	500 sheets (80 g/m ² , 20 lbs.) x 1 tray
Paper Feed System:	Feed roller and friction pad
Paper Height Detection:	4 steps (100%, 70%, 30%, Near end)
Power Source:	24 VDC and 5VDC (from the copier): 120 Vac: 120 V version, from the copier when the optional tray heater is installed 220 ~ 240 Vac: 230 V version, from the copier when the optional tray heater is installed
Power Consumption:	Max: 20 W (Copying) 23 W (Optional Tray Heater On) Average: 13 W (Copying) 15 W (Optional Tray Heater On)
Weight:	12 kg
Size (W x D x H):	550 mm x 520 mm x 134 mm

Paper Tray
Unit A861

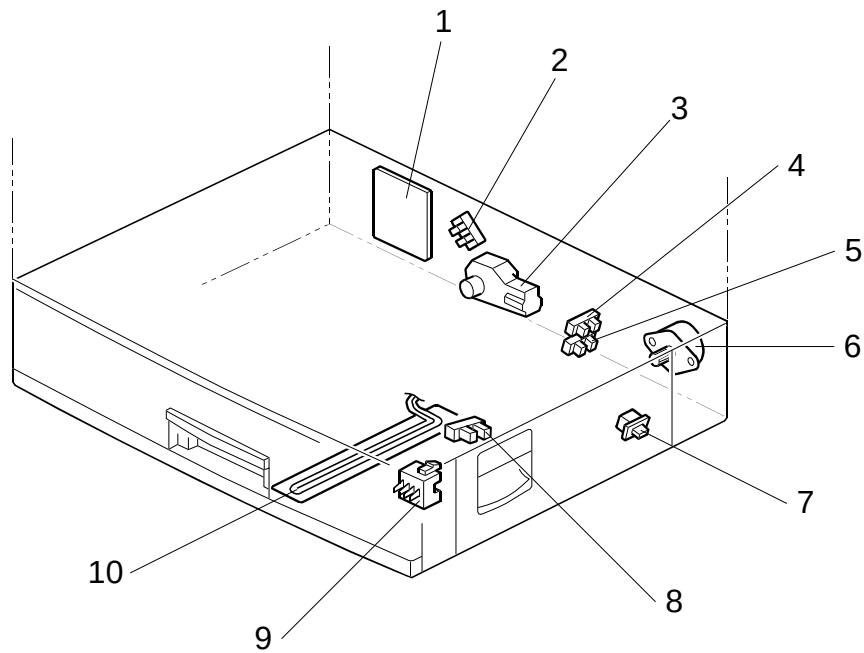
1.2 MECHANICAL COMPONENT LAYOUT



- 1. Paper Feed Roller
- 2. Tray

- 3. Bottom Plate
- 4. Optional Tray Heater

1.3 ELECTRICAL COMPONENT LAYOUT



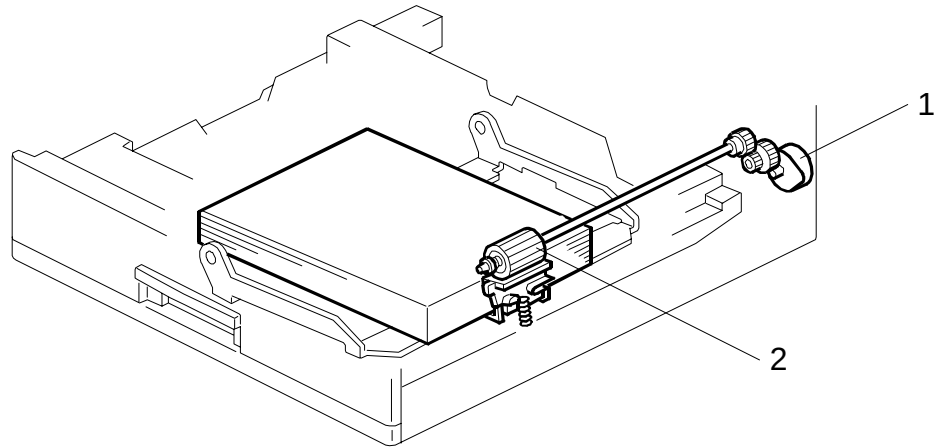
Paper Tray
Unit A861

1. Tray Main Board	6. Paper Feed Motor
2. Lift Sensor	7. Tray Cover Switch
3. Lift Motor	8. Paper End Sensor
4. Paper Height 2 Sensor	9. Paper Size Switch
5. Paper Height 1 Sensor	10. Optional Tray Heater

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	Paper Feed	Drives the paper feed roller.	6
M2	Lift	Lifts the tray bottom plate.	3
Sensors			
S1	Lift	Detects when the paper in the tray is at the correct feed height.	2
S2	Paper End	Informs the copier when the tray runs out of paper.	8
S3	Paper Height 1	Detects the amount of paper in the tray.	5
S4	Paper Height 2	Detects the amount of paper in the tray.	4
Switches			
SW1	Tray Cover	Detects whether the tray cover is opened.	7
SW2	Paper Size	Determines what paper size is in the tray.	9
PCBs			
PCB1	Tray Main	Controls the paper tray unit and communicates with the copier.	1
Others			
H1	Optional Tray Heater	Removes humidity from the paper in the tray.	10

1.5 DRIVE LAYOUT



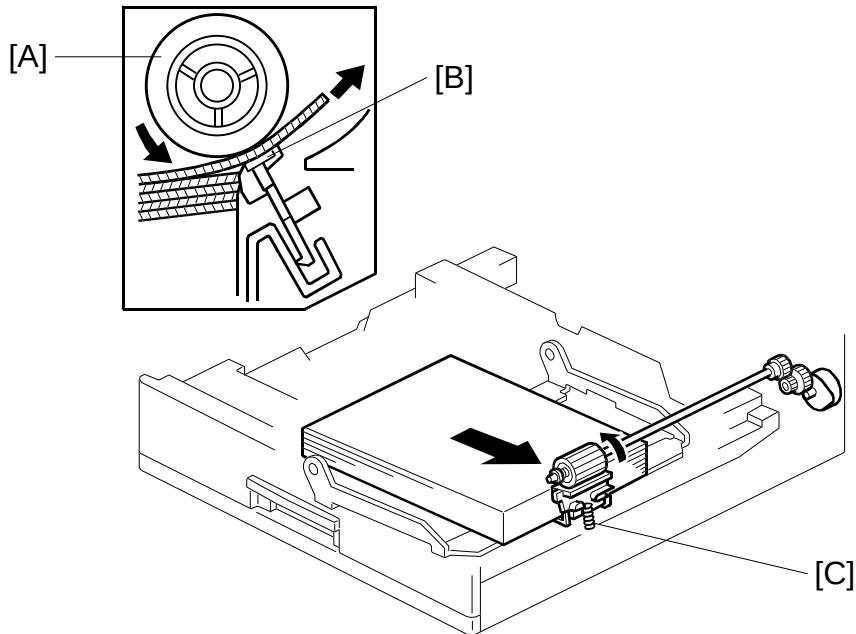
Paper Tray
Unit A861

1. Paper Feed Motor

2. Paper Feed Roller

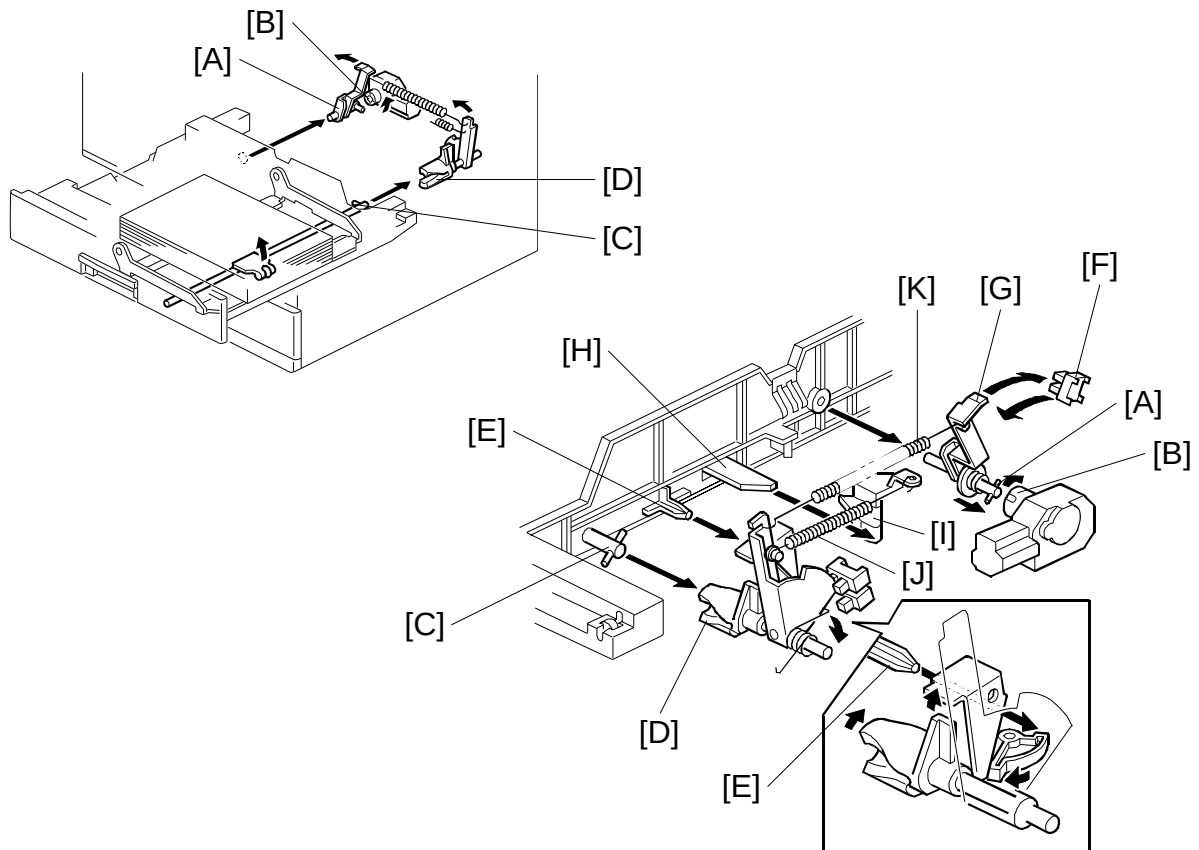
2. DETAILED DESCRIPTIONS

2.1 PAPER FEED AND SEPARATION



The paper tray holds 500 sheets. The paper feed roller [A] drives the top sheet of paper from the paper tray to the copier. The friction pad [B] allows only one sheet to feed at a time. The friction pad applies pressure to the feed roller with a spring [C].

2.2 PAPER LIFT MECHANISM



The paper size switch detects when the tray is pushed in.

When the paper tray is pushed into the machine, the pin [A] for the lift motor pressure shaft engages the lift motor coupling [B] and the pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D]. The pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor turns on, and turns clockwise as viewed on the diagram. The main pressure spring [K] pulls the bottom plate pressure lever, and this lifts the tray bottom plate.

When the top of the stack touches the feed roller, the motor cannot pull up the plate any more, so it pulls the actuator [G] into the lift sensor [F].

The pressure of the feed roller on the paper is now too high, so the lift motor reverses to reduce this pressure. It reverses for 300 ms or 600 ms, depending on the paper size. For smaller paper, it reverses the larger amount (600 ms) to reduce the pressure more.

PAPER LIFT MECHANISM

The paper size thresholds for this feature depend on SP1-908-8 and 9. (Note that there are two paper size thresholds: small and middle. Some models only use the small threshold.) The amount of reverse depends on SP 1-908-1, 2, and 3. (See the table later in this section for details of how these SP modes work.)

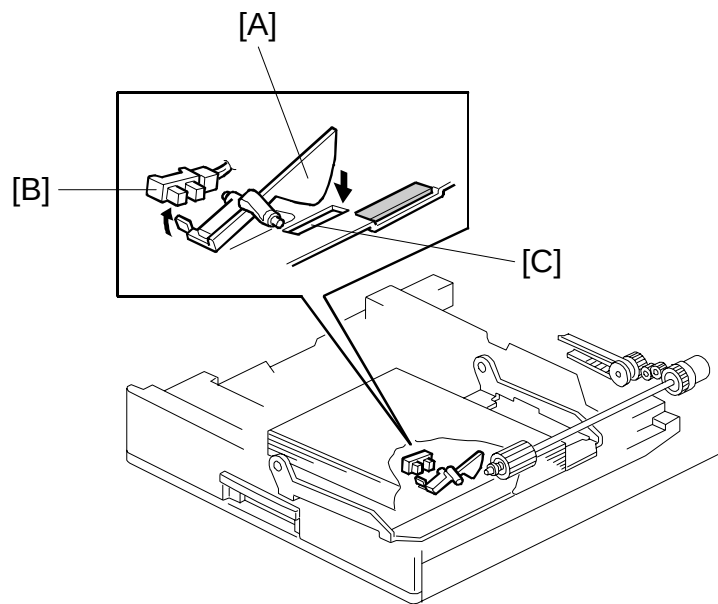
For A4-width paper or wider, a projection [H] on the side fence engages the secondary pressure spring [J] through a lever [I] . Then, the secondary pressure spring [J] applies paper feed pressure in addition to the main pressure spring [K], to ensure that extra pressure is applied to wider paper.

As stated earlier, various SP modes control this mechanism. The following table summarizes them.

No Middle Size Programmed (Default for A250)	With Middle Size Programmed
Paper width: More than 1-908-8 (Default: Wider than HLT) Amount of reverse: 1-908-1 (Default 300 ms)	Paper width: More than 1-908-9 Amount of reverse: 1-908-1
Paper width: 1-908-8 or less (Default: HLT or narrower) Amount of reverse: 1-908-2 (Default: 600 ms)	Paper width: More than 1-908-8, up to and including 1-908-9 Amount of reverse: 1-908-3
	Paper width: 1-908-8 or less Amount of reverse: 1-908-2

When the paper tray is pulled out, the pins [A, C] disengage from the couplings [B, D], and the bottom plate drops. To make it easier to push the tray in, the lift motor rotates backwards 1.7 seconds to return the bottom plate pressure lever coupling [D] to the original position.

2.3 PAPER END DETECTION

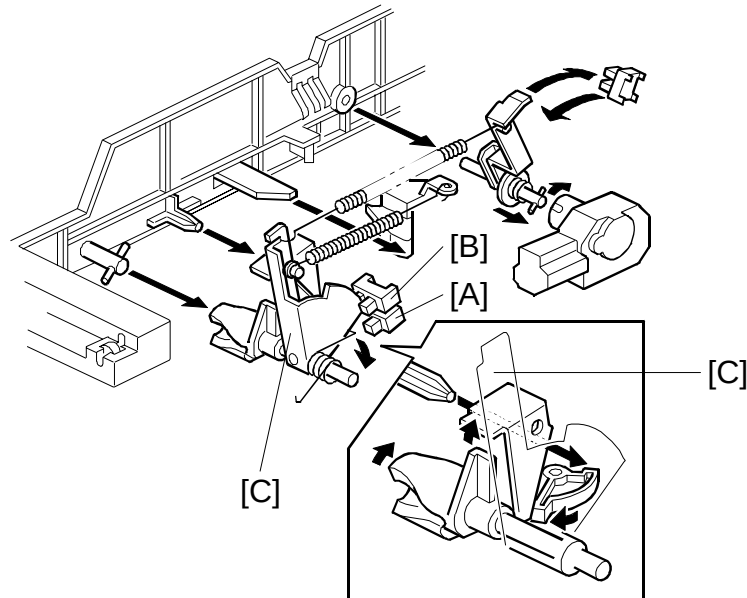


If there is some paper in the paper tray, the paper stack raises the paper end feeler [A] and the paper end sensor [B] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [C] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out with no paper in the tray, the shape of the paper end feeler causes it to lift up.

2.4 PAPER HEIGHT DETECTION



The amount of paper in the tray is detected by the combination of on/off signals from two paper height sensors [A] and [B].

When the amount of paper decreases, the bottom plate pressure lever [C] moves the actuator up.

The following combination of sensor signals is sent to the copier.

Amount of Paper	Paper Height Sensor 1	Paper Height Sensor 2
Near End	OFF	ON
30%	ON	ON
70%	ON	OFF
100%	OFF	OFF

When the tray contains paper of a small width, the paper feed pressure may become too low when the thickness of the stack of remaining paper has decreased. The lift motor rotates forward 300 ms after the sensor detects a certain amount of paper remaining in the tray to increase paper feed pressure, simulating the pressure generated by a full tray.

The amount of remaining paper depends on SP modes 1-908-6 and 7. The amount of forward rotation depends on SP1-908-4 and 5. Note that there are two paper size thresholds: small and middle (this is the same as for the paper lift mechanism described earlier). Some models only use the small threshold. The paper size thresholds depend on SP1-908-8 and 9.

PAPER HEIGHT DETECTION

The following table summarizes how these SP modes work.

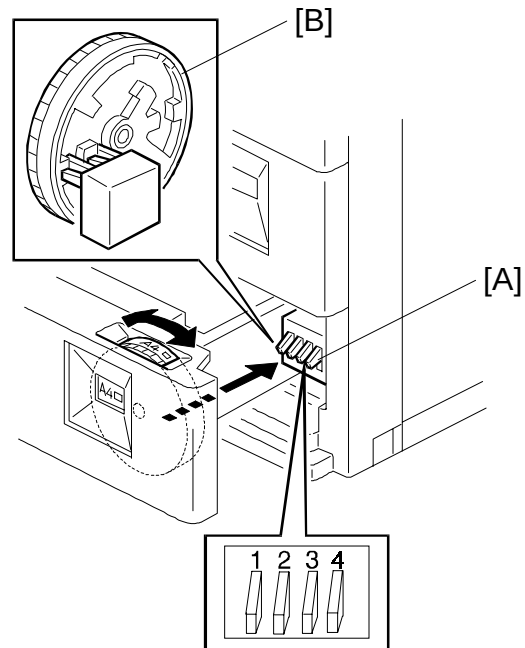
No Middle Size Programmed (Default for A250)	With Middle Size Programmed
Paper width: More than 1-908-8 (Default: Wider than HLT) Amount of forward rotation: None	Paper width: More than 1-908-9 Amount of forward rotation: None
Paper width: 1-908-8 or less (Default: HLT or narrower) Amount of remaining paper: 1-908-6 (Default: When near-end is detected) Amount of forward rotation: 1-908-4 (Default: 300 ms)	Paper width: More than 1-908-8, up to and including 1-908-9 Amount of remaining paper: 1-908-7 Amount of forward rotation: 1-908-5
	Paper width: 1-908-8 or less Amount of remaining paper: 1-908-6 Amount of forward rotation: 1-908-4

Paper Tray
Unit A861

2.5 PAPER SIZE DETECTION

Size	SW	1	2	3	4
A3, F (8 1/2" x 13")		●	●	●	○
A4 Lengthwise		●	○	●	○
A4 Sideways		●		○	○
A5 Sideways, 11" x 17"		●	●	○	○
B4, 8 1/2" x 14"		○	●	○	○
B5 Sideways, 8 1/2" x 11"		○	○	○	○
B5 Lengthwise, 11" x 8 1/2"		○	○	●	○
* (Asterisk)		○	○	●	●

●: ON (Not pushed)
○: OFF (Pushed)



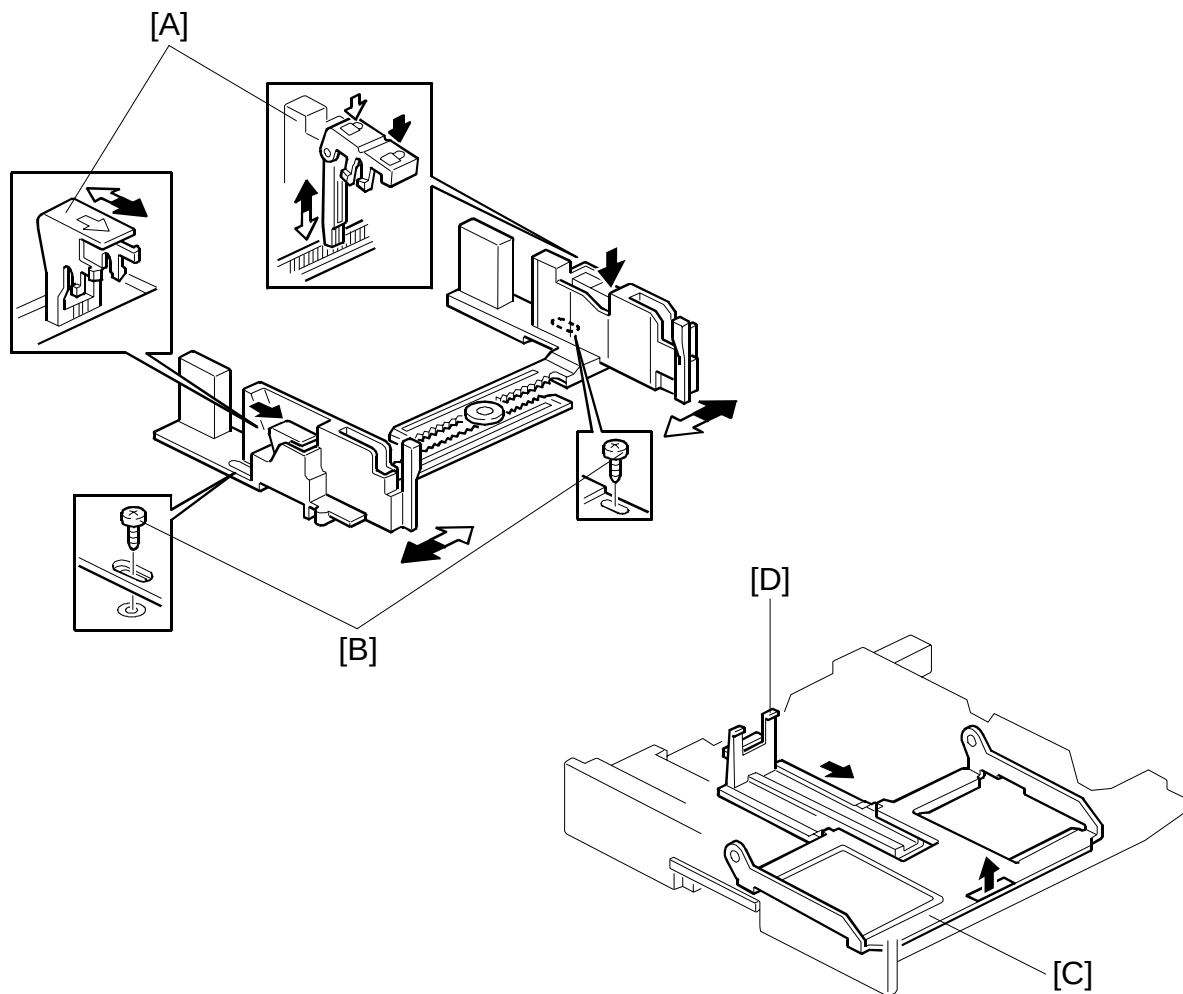
There are four paper size microswitches [A] on the front right plate of the paper tray unit. The switches are actuated by a paper size actuator [B] behind the paper size indicator plate, which is on the front right of the tray.

Each paper size has its own actuator, with a unique combination of notches. To determine which size tray has been installed, the CPU reads which microswitches the actuator has switched off.

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the Add Paper indicator will light.

When the paper size actuator is at the "*" mark, the paper tray can be set up to accommodate one of a wider range of paper sizes by using user tools. If the paper size for this position is changed without changing the user tool setting, a paper jam will result.

2.6 SIDE AND END FENCES



Paper Tray
Unit A861

Side Fences

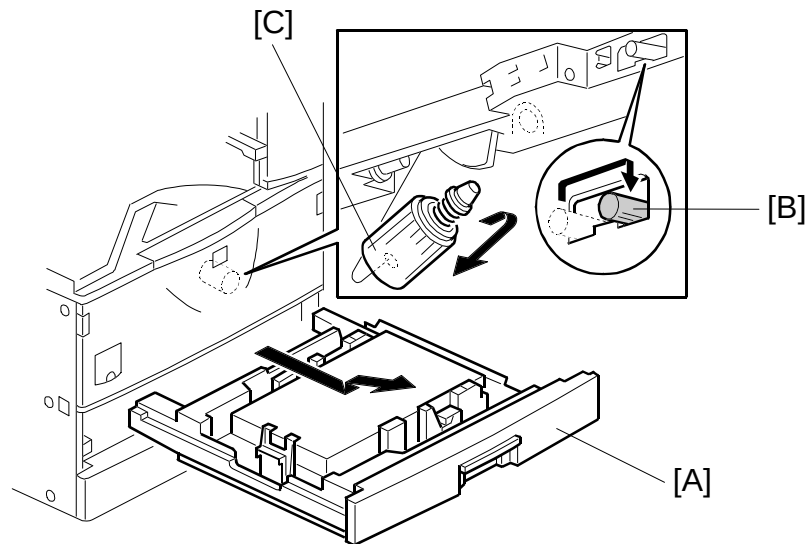
If the tray is full of paper and it is pushed in strongly, the fences may deform or bend. This may cause the paper to skew or the side-to-side registration to be incorrect. To correct this, each side fence has a stopper [A] attached to it. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

End Fence

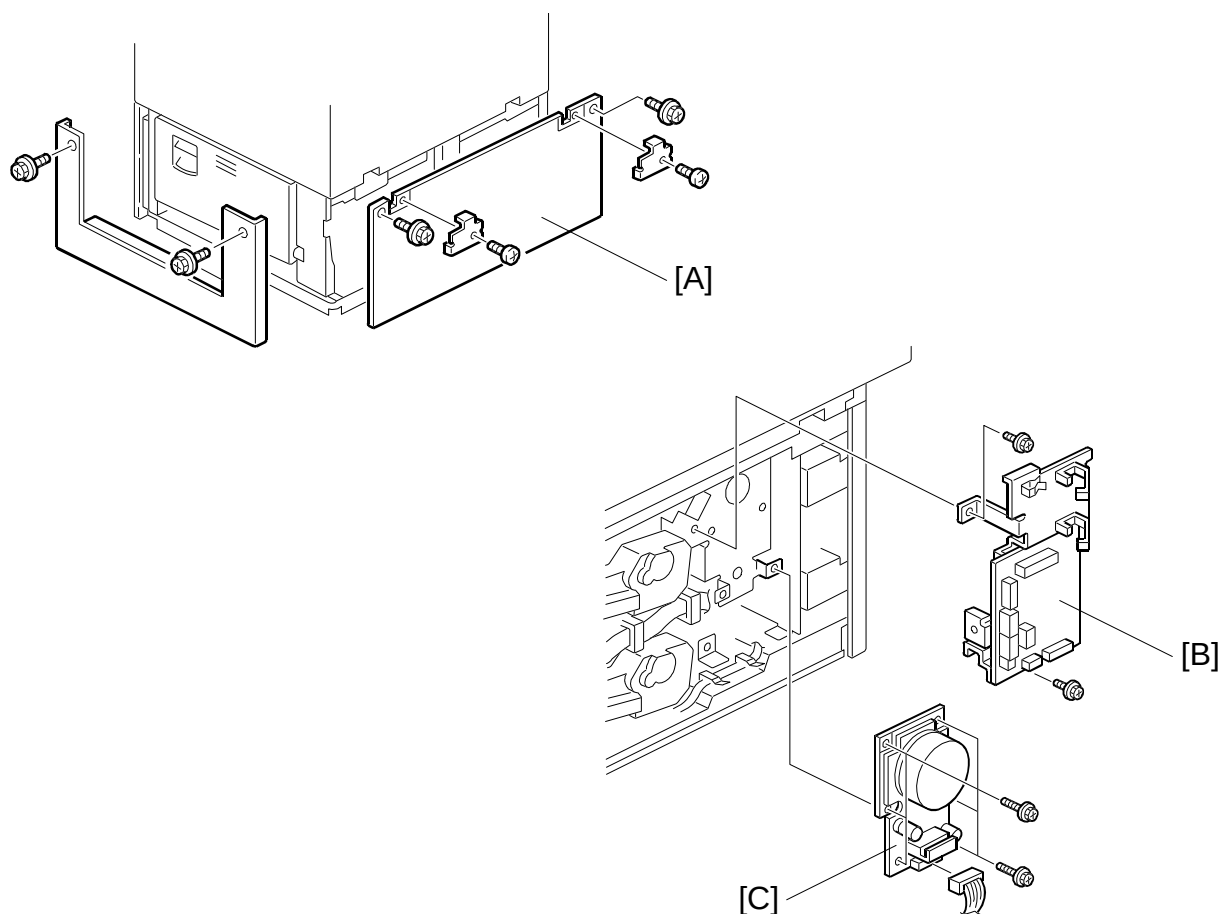
As the amount of paper in the tray decreases, the bottom plate [C] lifts up gradually. The end fence [D] is connected to the bottom plate. When the tray rises, the end fence moves forward and pushes the back of the paper stack to keep it squared up.

3. REPLACEMENT AND ADJUSTMENT

3.1 FEED ROLLER REPLACEMENT



1. Remove the paper tray [A].
2. Move the release lever [B] to the front.
3. Pull the feed roller [C] to the operation side and remove it.
4. Replace the feed roller.



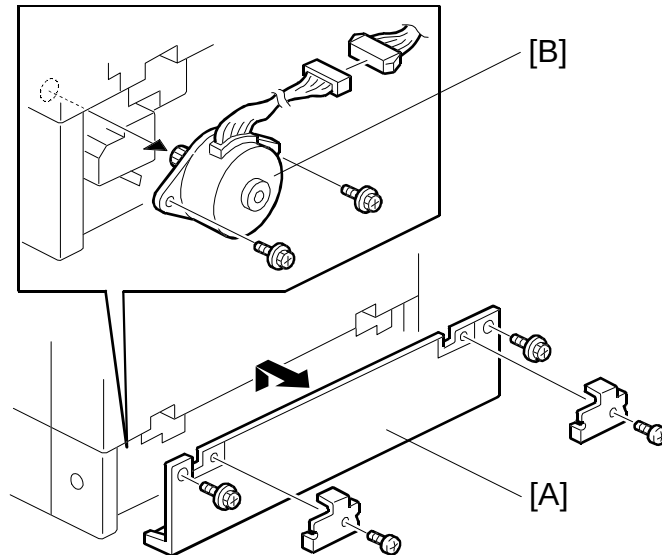
3.2 TRAY MAIN BOARD REPLACEMENT

1. Remove the rear cover [A] (4 screws).
2. Replace the tray main board [B] (4 screws and 8 connectors).

3.3 TRAY MOTOR REPLACEMENT

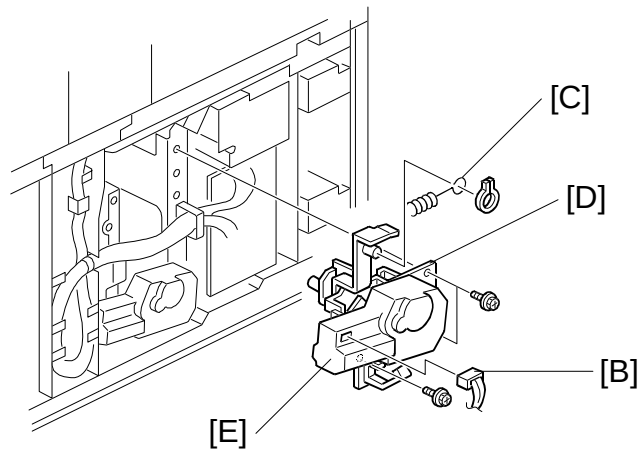
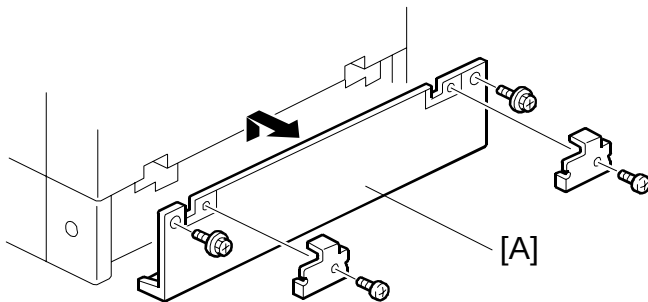
1. Remove the rear cover (4 screws).
2. Disconnect 8 connectors on the tray main board [B].
3. Remove the tray main board with the bracket (2 screws).
4. Remove the tray motor [C] (6 screws and 1 connector).

3.4 TRAY MOTOR REPLACEMENT



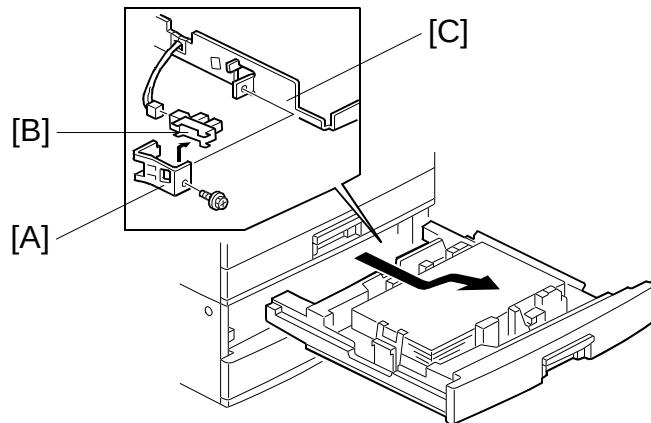
1. Remove the rear cover [A] (4 screws).
2. Replace the tray motor [B] (2 screws and 1 connector).

3.5 LIFT MOTOR REPLACEMENT



1. Pull out the paper tray.
2. Remove the rear cover [A] (4 screws).
3. Disconnect the 2P connector [B].
4. Remove the spring [C].
5. Remove the lift motor unit [D] (3 screws).
6. Remove the lift motor [E] (2 screws).

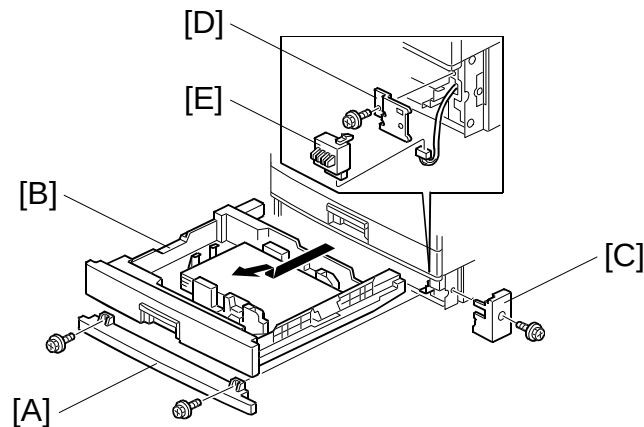
3.6 PAPER END SENSOR REPLACEMENT



1. Remove the paper tray.
2. Remove the paper end sensor bracket [A] (1 screw and 1 connector).
3. Replace the paper end sensor [B].

NOTE: After replacing the sensor, pull the sensor harness to the right side of the frame [C] so that the harness does not touch the paper in the tray.

3.7 PAPER SIZE SWITCH REPLACEMENT



1. Remove the lower tray cover [A] (2 screws).
2. Remove the paper tray [B].
3. Remove the right front cover [C] (1 screw).
4. Remove the paper size switch bracket [D] (1 screw).
5. Replace the paper size switch [E].

1-BIN SORTER A869

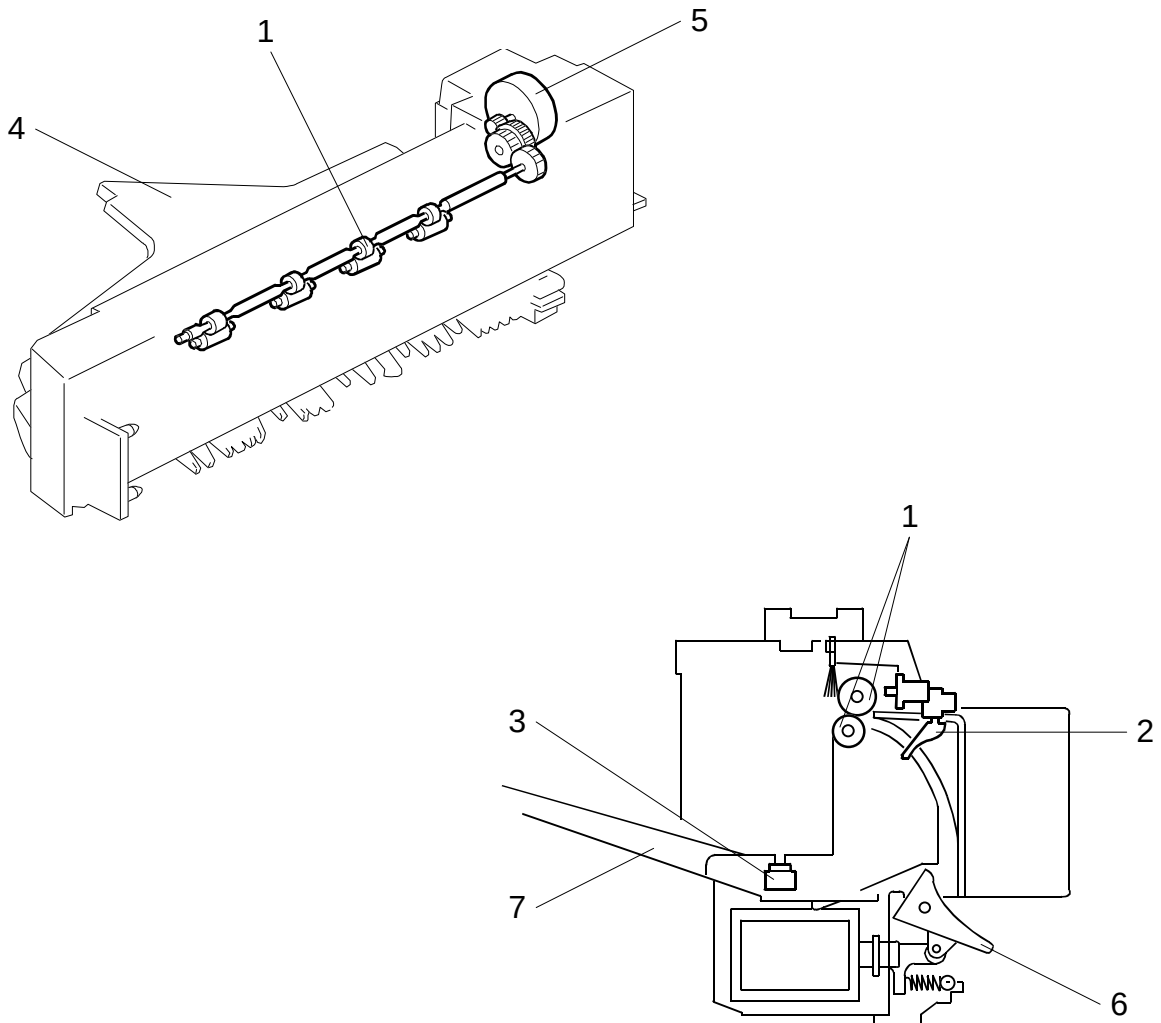
1. OVERALL INFORMATION

1.1 SPECIFICATIONS

Paper Size:	Standard Size: A5 to A3 HLT to DLT Non-standard Size: Paper Width: 90 ~ 297 mm Paper Length: 148 ~ 432 mm
Paper Weight:	60 ~ 105 g/m ² , 16 ~ 28 lbs.
Tray Capacity:	125 sheets (80 g/m ² , 20 lbs.)
Power Source:	5 VDC, 24 VDC (from the copier)
Power Consumption:	17 W
Weight:	1.5 kg
Size (W x D x H):	447 mm x 456 mm x 122 mm

1-Bin Sorter
A869

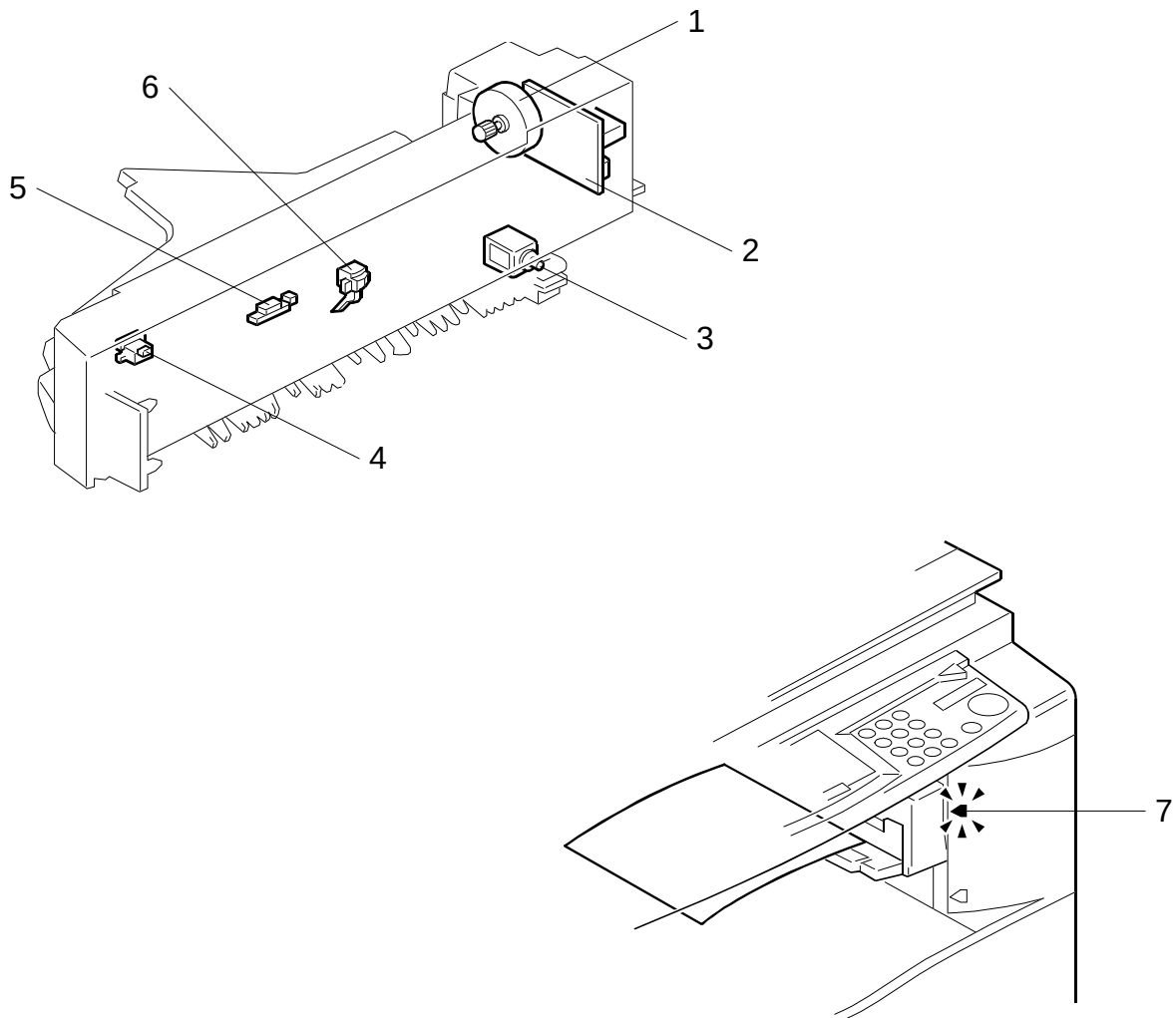
1.2 MECHANICAL COMPONENT LAYOUT



- 1. Exit rollers
- 2. Exit sensor
- 3. Paper sensor
- 4. Paper tray

- 5. Tray motor
- 6. Junction gate
- 7. Bin

1.3 ELECTRICAL COMPONENT LAYOUT



1-Bin Sorter
A869

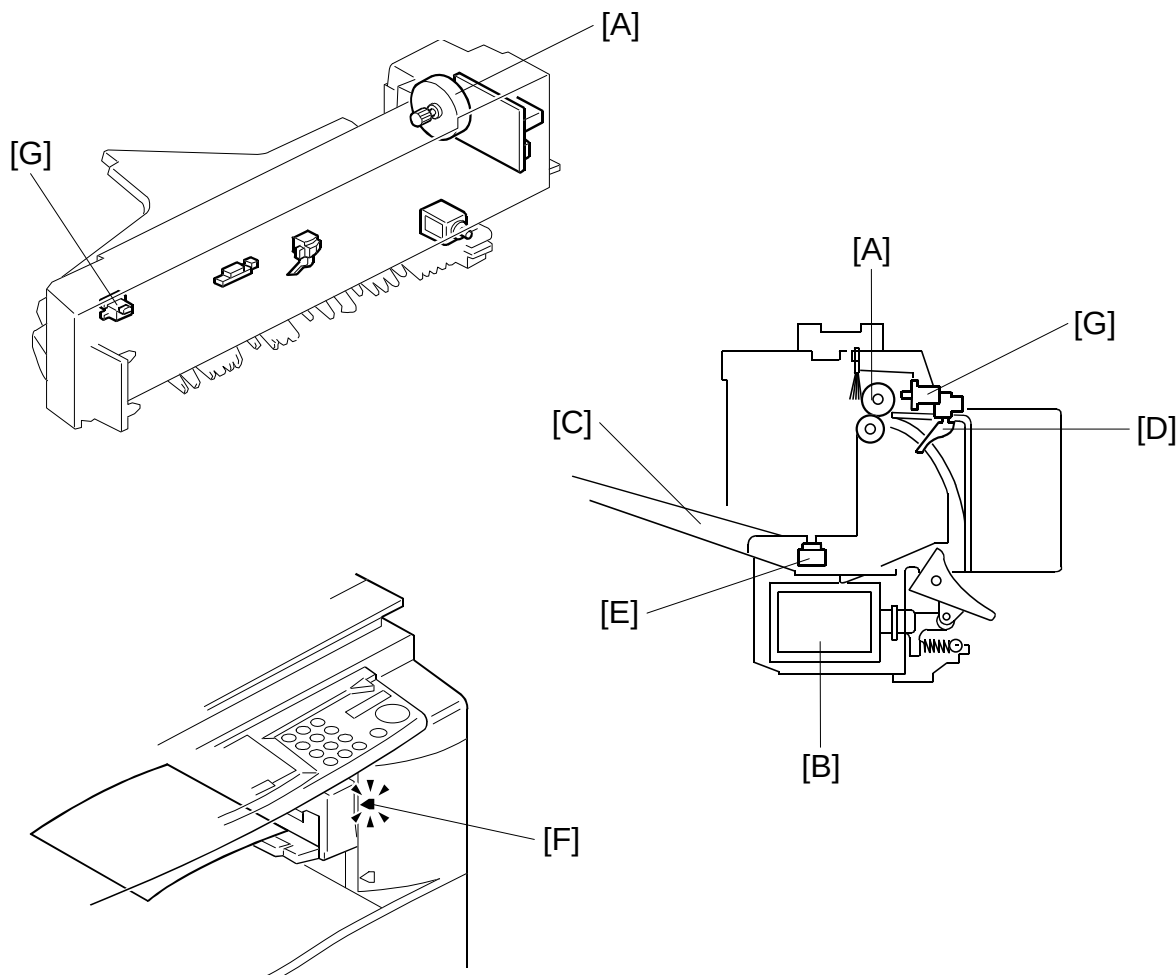
1. Tray motor	5. Paper sensor
2. 1-bin sorter board	6. Exit sensor
3. Junction gate solenoid	7. 1-bin sorter exit tray LED (located in the copier)
4. Tray open switch	

1.4 ELECTRICAL COMPONENT DESCRIPTION

Symbol	Name	Function	Index No.
Motors			
M1	Tray	Drives the exit rollers.	1
Solenoids			
SOL1	Junction Gate	Directs paper to the 1-bin tray.	
Sensors			
S1	Exit	Checks for misfeeds.	6
S2	Paper	Detects whether there is paper on the tray.	5
Switches			
SW1	Tray Open	Detects whether the bin tray is open.	4
PCBs			
PCB1	1 Bin Sorter	Controls the 1-bin sorter and communicates with the copier.	2
LEDs			
LED1	1 Bin Exit Tray	Indicates when there is paper in the tray. This sensor is located in the copier.	7
Solenoid			
SOL1	Junction Gate	Directs paper to the bin tray.	3

2. DETAILED SECTION DESCRIPTIONS

2.1 BASIC OPERATION



1-Bin Sorter
A869

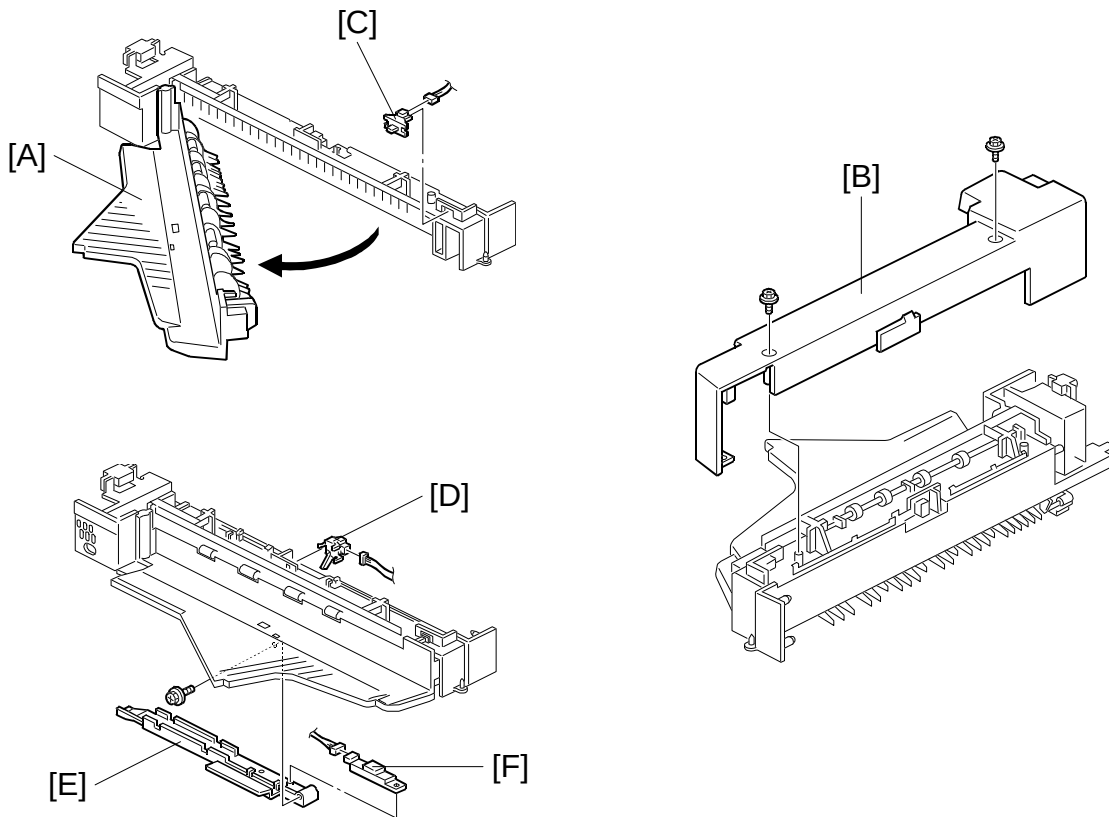
At the appropriate time, after the leading edge of the first sheet of copy paper reaches the copier's registration roller, the tray motor [A] starts and the junction gate solenoid [B] turns on to direct the paper to the tray [C].

The junction gate solenoid turns off at the appropriate time after the paper is directed to the tray. The tray motor stops after the final sheet passes through the bin exit sensor [D].

The paper sensor [E] turns on when there is paper in the tray, and the paper indicator [F] turns on.

The tray can be opened for easier jam removal by swinging the tray to the left. The tray open switch [G] detects whether the bin tray is opened.

3. REPLACEMENT AND ADJUSTMENT



3.1.1 TOP COVER REMOVAL

1. Remove the 1-bin sorter unit from the copier.
2. Swing the tray [A] to the left.
3. Remove the top cover [B] (2 screws).

3.1.2 TRAY OPEN SWITCH REPLACEMENT

1. Remove the top cover (2 screws).
2. Replace bin tray open switch [C] (1 connector).

3.1.3 PAPER SENSOR AND EXIT SENSOR REPLACEMENT

1. Remove the top cover.
2. Remove the exit sensor [D] (1 connector).
3. Remove the cable cover [E] (1 screw).
4. Remove the paper sensor [F] (1 connector.)

SwapBOX™ and SwapFTL™
INSTALLATION MANUAL

1 INTRODUCTION

1.1 PRECAUTIONS

1.1.1 SWAPBOX AND SOFTWARE

If you purchase SwapBox from an authorized SCM Microsystems dealer, do not use the software enclosed with the SwapBox. You need to purchase the required software and license additionally from Ricoh.

The software part number is: **A2309353**

1.1.2 SOFTWARE LICENSE AGREEMENT

Before you use the software, you must agree to the SCM software license agreement that is enclosed in either the SwapBox or the software.

Users must be responsible for the agreement with SCM Microsystems Inc. Ricoh Co., Ltd. is not responsible for any legal problems caused by user's actions contrary to the agreement.

1.2 SYSTEM REQUIREMENTS

- An IBM PC-AT compatible computer with ISA Plug & Play BIOS
- One empty ISA bus slot (SBI-C2P and SBI-D2P)
- One empty 3.5" drive bay (SBI-D2P)
- Microsoft® Windows® 95 operating system 4.00.950a or later version installed (Refer to section 1.4 for more details.)
- At least 2MB of free disk space on the system partition (the partition where Windows 95 is installed) for SwapFTL software installation

1.3 ITEMS TO PREPARE BEFORE INSTALLATION

- Computer hardware user's manual
- Windows 95 installation disks or CD-ROM
- Windows 95 service pack (Refer to section 1.4 for more details.)
- SCM SwapBox SBI-C2P or SBI-D2P

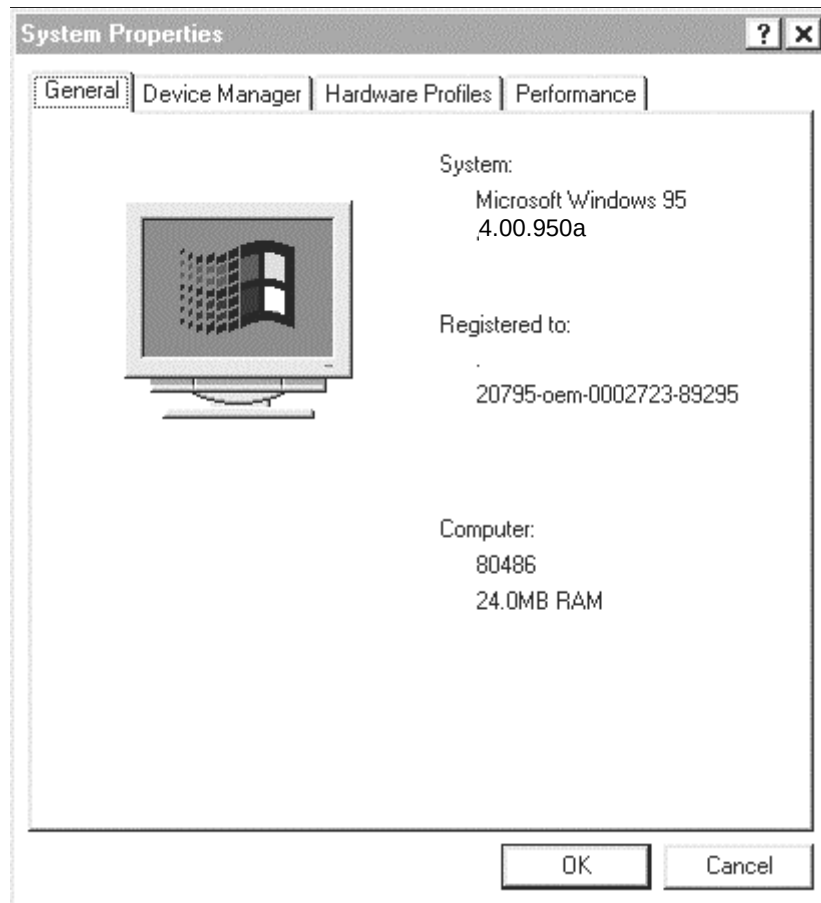
SCM/RCH SwapFTL + SwapUTI (rev. 2.01 or later) software diskette, and a software license

1.4 WINDOWS 95 VERSION CONFIRMATION

Windows 95 has several different versions as shown in the following table.

Version	Description	Remarks
4.00.950	First version	Not suitable for SwapBox and SwapFTL installation.
4.00.950a	First version (4.00.950) plus service pack 1	Install service pack 1 (SP1) into Windows 95 version 4.00.950. SP1 is available from Microsoft's web site.
4.00.950B	So called "OSR2 (<u>O</u> EM <u>S</u> ervice <u>R</u> elease <u>2</u>)"	Only computers with Windows 95 pre-installed have had this version since 1997.
4.00.950C	So called "OSR2.5 (<u>O</u> EM <u>S</u> ervice <u>R</u> elease <u>2.5</u>)"	Only computers with Windows 95 pre-installed have had this version since 1998.

Check the Windows 95 version first, just by clicking the "System" icon in the Windows Control Panel. If you see 4.00.950 in the box shown below, though the example version is 4.00.950a, install "Service Pack 1" into the current Windows operating system. Refer to the next page for how to get "Service Pack 1".



If the version is 4.00.950B or 4.00.950C, install SwapBox and SwapFTL without updating Windows.

“Service Pack 1” is available from the Microsoft web site.

For the detailed information, refer to the following Internet address.

<http://www.microsoft.com/windows95/info/service-packs.htm>

The service pack file can be downloaded from the following Internet location.

Choose the one that is suitable for your Windows version.

Language	Internet Location
US English	http://www.microsoft.com/windows95/info/service-packs.htm
Chinese (Simplified)	Not available.
Chinese (Traditional)	http://www.microsoft.com/windows/software/localize/tw-eu.htm
Czech	http://www.microsoft.com/windows/software/localize/cz-eu.htm
Danish	http://www.microsoft.com/windows/software/localize/dan-eu.htm
Dutch	http://www.microsoft.com/windows/software/localize/dut-eu.htm
Finnish	http://www.microsoft.com/windows/software/localize/fin-eu.htm
German	http://www.microsoft.com/windows/software/localize/frn-eu.htm
Greek	http://www.microsoft.com/windows/software/localize/ger-eu.htm
Hungarian	http://www.microsoft.com/windows/software/localize/grk-eu.htm
Italian	http://www.microsoft.com/windows/software/localize/itn-eu.htm
Japanese (PCAT)	http://www.microsoft.com/windows/software/localize/jpcat-eu.htm
Korean	http://www.microsoft.com/windows/software/localize/kr-eu.htm
Norwegian	http://www.microsoft.com/windows/software/localize/nor-eu.htm
Pan-European	http://www.microsoft.com/windows/software/localize/pan-eu.htm
Polish	http://www.microsoft.com/windows/software/localize/pl-eu.htm
Portuguese (Brazilian)	http://www.microsoft.com/windows/software/localize/brz-eu.htm
Portuguese (Iberian)	http://www.microsoft.com/windows/software/localize/pt-eu.htm
Russian	http://www.microsoft.com/windows/software/localize/ru-eu.htm
Slovenian	http://www.microsoft.com/windows/software/localize/slv-eu.htm
Spanish	http://www.microsoft.com/windows/software/localize/spa-eu.htm
Swedish	http://www.microsoft.com/windows/software/localize/swe-eu.htm
Thai	http://www.microsoft.com/windows/software/localize/thai2.htm
Turkish	http://www.microsoft.com/windows/software/localize/trk-eu.htm

2 SWAPBOX INSTALLATION

2.1 HARDWARE INSTALLATION

- CAUTION:** 1) Before installing the SwapBox in a computer, turn off the computer and disconnect the power cable.
- 2) This manual does not explain how to install an ISA board in your computer. Refer to your computer's users manual for how to do it.

Install the SwapBox as explained in Chapter 1 to 3 of the SwapBox Manual that is enclosed in the SwapBox package.

Then go on to the next section below for the driver installation.

2.2 DRIVER INSTALLATION

- CAUTION:** 1) Do not use the software disks that are enclosed with the SwapBox.
- 2) Ensure that you have Windows 95 - 4.00.950a or a later version installed in your computer. (Refer to section 1.4 for more details.)

1. Turn on the computer. "SCM SwapBox" may appear during boot-up.
2. When Windows 95 starts, it finds the SwapBox automatically and installs the necessary driver files from the Windows installation diskette(s) or CD-ROM.
3. After Windows starts, choose "PCCard" from the Control Panel.
 - If PCCard Properties is displayed, driver installation has finished. You can go on to the next section.
 - If PCCard Wizard is displayed, go on to the next step.
4. In the PCCard Wizard, choose all the default settings to finish the wizard, then reboot the computer.
5. After Windows 95 has restarted, choose "System" from the Control Panel.
6. Choose "Device Manager" and confirm that "SCM SwapBox Family Plug and Play PCMCIA Controller" is listed in the PCMCIA socket category.
7. Double-click "SCM SwapBox Family Plug and Play PCMCIA Controller" and confirm that the SwapBox is working properly.

3 SOFTWARE (SWAPFTL) INSTALLATION

- CAUTION:**
- 1) If you purchased SwapBox from an authorized SCM dealer, do not use the software diskettes that are enclosed in the SwapBox package.
 - 2) Use the software diskette which is labeled "SwapBox Software/ RCH SwapFTL + SwapUTI".
 - 3) A software license is required to **install** a software package on a computer.
 - 4) The SwapFTL software may not work with some PC Card (PCMCIA), CardBus, or ZV port controllers installed in notebook computers.

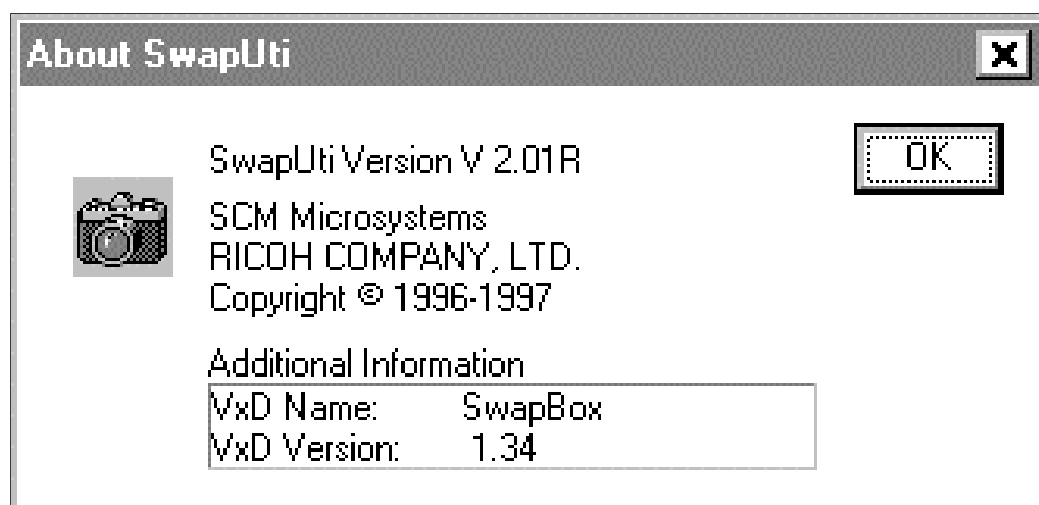
3.1 SWAPFTL SOFTWARE INSTALLATION

1. Ensure that the SwapBox has been installed and configured under the Windows 95 environment.
2. Insert the software diskette in the floppy disk drive.
3. Choose "Run" from the Start menu.
4. Type "A:\setup" and click OK.
5. Follow the instructions on the display.
6. Reboot the computer after installation has finished.

3.2 VERIFICATION

3.2.1 SOFTWARE VERSION

1. Choose "SwapFTL Binary Utility" from the "SCMSwapFTL" program group.
2. After the utility starts, choose [Help] – [About SwapUti..].
3. Confirm that the version information is as follows:

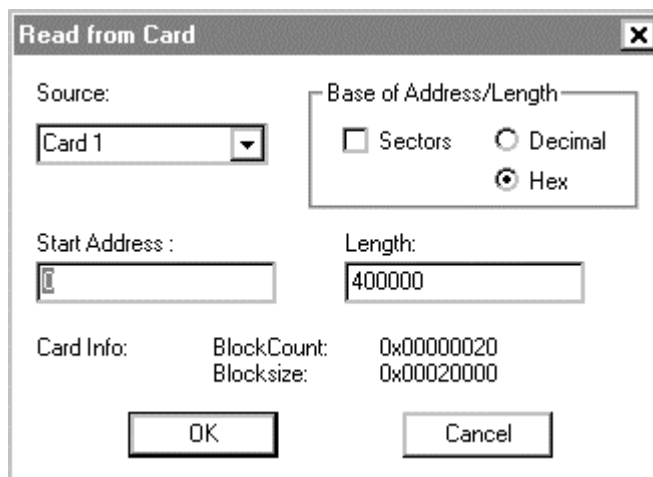


3.2.2 FLASH MEMORY CARD AUTOMATIC DETECTION

1. Insert the 4MB flash memory card supplied from Ricoh into a card slot.
2. Windows 95 automatically detects the card, if this is the first time a flash card has been used, Windows 95 installs the necessary drivers, and the “Found new hardware” dialog box should appear automatically.
3. Wait about 30 s, then choose “SwapFTL Binary Utility” from the “SCMSwapFTL” program group.



4. After the utility software starts, choose [Image] – [Read].
If “Failed to open PCCard” appears, see Troubleshooting.



5. Click OK to read the card.
If this works successfully, a new file is created as a temporary file, and this can be stored on the computer.

4 TROUBLESHOOTING

4.1 SWAPBOX RESOURCE CONFLICT

An ISA device must not share resources (IRQ, I/O address, and memory address) with another device.

ISA plug and play BIOS automatically assigns necessary resources to ISA boards. However, this could cause a problem if an ISA board requires specific resources. The SwapBox requires a specific memory address range to activate card services. So, if another ISA device or PCI device occupies this memory address range, the SwapBox and SwapFTL will not work.

4.1.1 IRQ AND I/O ADDRESS

To identify whether an IRQ or I/O address has a conflict with another device, check the SwapBox properties in the Windows device manager. If you find a conflict, follow the instructions given by Windows Help.

4.1.2 MEMORY ADDRESS

The SwapBox and card services require a memory Window between 0xC8000 to 0xD3FFF.

The SwapBox properties do not tell you if the memory address is in conflict with others. To identify whether the memory address is in conflict with another device, do the following:

1. Choose "Computer" in the Windows device manager, and click "Properties".
2. Choose "Memory" in the "View resources" tab.
3. Check if any other device is using the address range from **0xC8000** to **0xD3FFF**. If it is a PCI device, you need to adjust the plug and play BIOS settings. If it is an ISA device, you need to remove the device from the system.

Conflict with a PCI device

1. Shut down Windows and reboot the computer.
2. Enter BIOS setup during system boot-up.
NOTE: How to enter BIOS setup and BIOS setup options depends on your system.
3. Find the ISA plug and play settings in the BIOS setup.
4. Adjust the settings so that the BIOS does not allocate the SwapBox memory range to PCI devices.

Example: Award BIOS

1. Press the "DEL" key during boot-up to gain access to BIOS setup.
2. Choose "PNP AND PCI SETUP" from the main menu.

3 Change the “ISA MEM BLOCK BASE” setting as follows:

- ISA MEM BLOCK BASE: No/ICU → **D000**
- ISA MEM BLOCK SIZE: **8k**

4 Press “Esc” to exit “PNP AND PCI SETUP”.

5 Choose “SAVE & EXIT SETUP”.

Conflict with a plug and play ISA device

1. Shut down the computer.
2. Remove the ISA device that is in conflict with the SwapBox.
3. Restart the computer and see if the SwapBox and the SwapFTL work under the Windows environment.

Conflict with a legacy ISA device

Either remove the ISA device that is in conflict with the SwapBox to change its jumper settings, or run the setup utility of the device to change the setting.

4.2 “FAILED TO OPEN PCCARD” ERRORS

4.2.1 TIMELAG TO LOADING DRIVER

Windows requires a certain time, which depends on system performance, to enable card services for a flash memory card after inserting it in a PC card socket.

If you try to read, erase, or write to the card before the card service is ready, you receive a “Failed to open PCCard” error.

Wait for about 30 s, then try again.

4.2.2 PCCARD NOT CONFIGURED

If the PCCard icon in the Windows Control Panel is not configured, you receive a “Failed to open PCCard” error when you try to access the card.

Configure the PCCard icon using Control Panel as explained in the driver installation procedure.

4.2.3 RESOURCE CONFLICT

If you receive a “Failed to open PCCard” error even if the SwapBox looks correctly configured in the device manager, a memory address conflict is causing the error. Refer to section 4.1.2 to solve the problem.

4.3 "INVALID DYNAMIC LINK CALL FROM SWAPENUM..." ERROR

A blue screen error with a message *"Invalid dynamic link call from SwapEnum to device xxxx service x"* may happen, if SwapFTL software was installed before SwapBox had been activated.

Once this happens, follow the procedure below.

1. Uninstall SwapFTL (choose "SwapFTL Uninstall" from "SCM SwapFTL" program menu).
2. Reboot the computer.
3. After Windows has restarted, double-click "System" icon in the Control Panel.
4. Choose "Device Manager" tab and double-click "SCM SwapBox" in the "PCMCIA sockets" category.
5. If the device was not activated, activate it.
6. Reboot the computer.
7. After Windows has restarted, re-install SwapFTL.

4.4 SWAPFTL PROBLEM WITH NOTEBOOK COMPUTERS

4.4.1 WINDOWS AND PC CARD DRIVER VERSION

Before installing the SwapFTL software into a notebook computer, ensure the following.

- Windows 95 OSR2 is installed or Service Pack 1 is installed.
For how to identify the version of Windows 95, refer to section 1.4 for details.
- The latest PC Card driver is installed.
Contact your computer manufacturer or PC Card controller vender.

4.4.2 SYSTEM SUMMERY

If you still have problems after updating Windows and the drivers, send your computer's system summary to the support database.

To prepare the system summary as a PostScript file, do the following.

1. Install a PostScript printer (e.g., HP LaserJet 4 PS).
2. Double-click the "System" icon in the Control Panel.
3. Choose the "Device manager" tab, and select "Computer" in the device map.
4. Click the "Print" button.
5. Choose the PostScript printer using the "Setup" button, choose "All devices and system summary" as the report type, and check the "Print to file" box.
6. Click OK to make a PostScript print file.

4.5 COMPLETE UNINSTALL

If the SwapBox and the SwapFTL software do not work due to unsuccessful configuration, the following process helps you to restart Windows plug and play from the beginning.

This procedure uninstalls all the software and drivers that were installed for the SwapBox, as well as deleting the Windows registry settings.

1. Uninstall the SCM SwapFTL programs.
Choose "SwapFTL uninstall" from the Start menu.
2. Delete the following files from the \Windows\System directory.
 - SOCKETSV.VXD
 - FLS2MTD.VXD
 - FLS1MTD.VXD
 - SRAMMTD.VXD
 - CARDDRV.EXE
 - CSMAPPER.SYS
 - PCCARD.VXD
3. Delete "SCM SwapBox Family Plug and Play PCMCIA Controller" from the Windows device manager.
(Choose 'System" from the Control panel to access the device manager.)
4. Shutdown and restart Windows.
Windows starts the plug & play process again to install the SwapBox.

SwapFTL™ Binary Utility

OPERATION MANUAL

1. OVERVIEW

Microsoft and Windows are registered trademarks of Microsoft Corp.
SwapBox and SwapFTL are trademarks of SCM Microsystems Inc.

This software allows a flash memory card to be used as an intermediate medium between a flash ROM (or RAM) on the machine and a Windows 95 based computer.

The basic procedure is as follows:

1. You receive ROM files from a database either via network or via physical medium, and save them onto your computer's local hard disk.

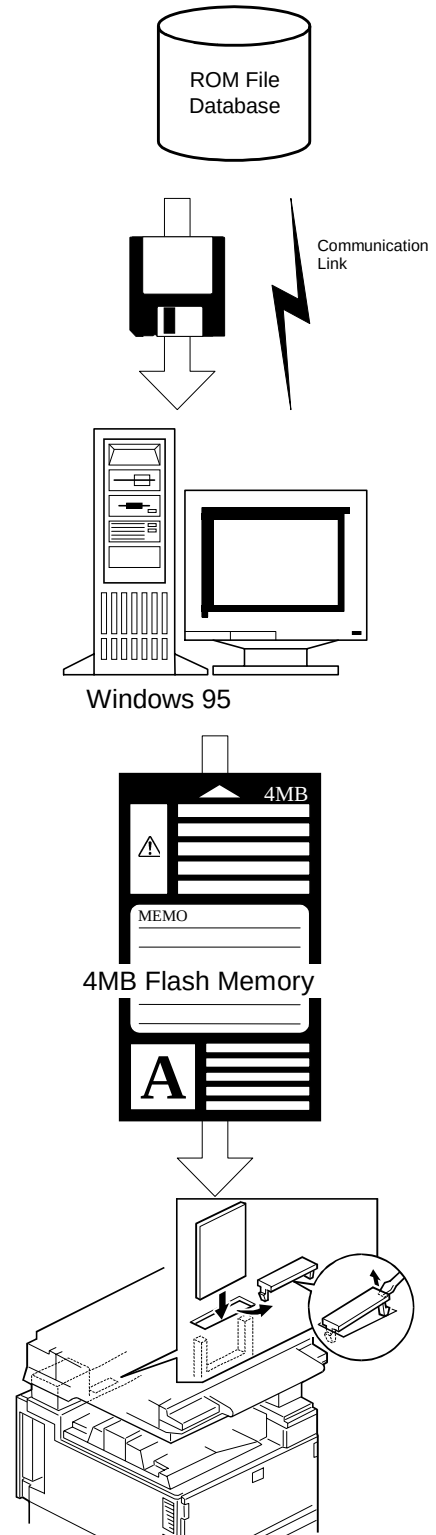
NOTE: Your computer works as a flash memory card programmer after you install SwapBox and SwapFTL software (this software).

2. You program the ROM file to a flash memory card using this software.

3. You carry the programmed card to a machine site and download the ROM data from the card to the machine's internal flash ROM.

NOTE: The 4MB flash memory card that is customized for this application is available from SPC.
You cannot use other types of flash memory card.

4. After downloading ROM data to one machine, you can use the same card with another machine of the same type.



2. OPERATION

2.1. PROGRAMMING A FLASH MEMORY CARD

2.1.1 GETTING A SOURCE FILE

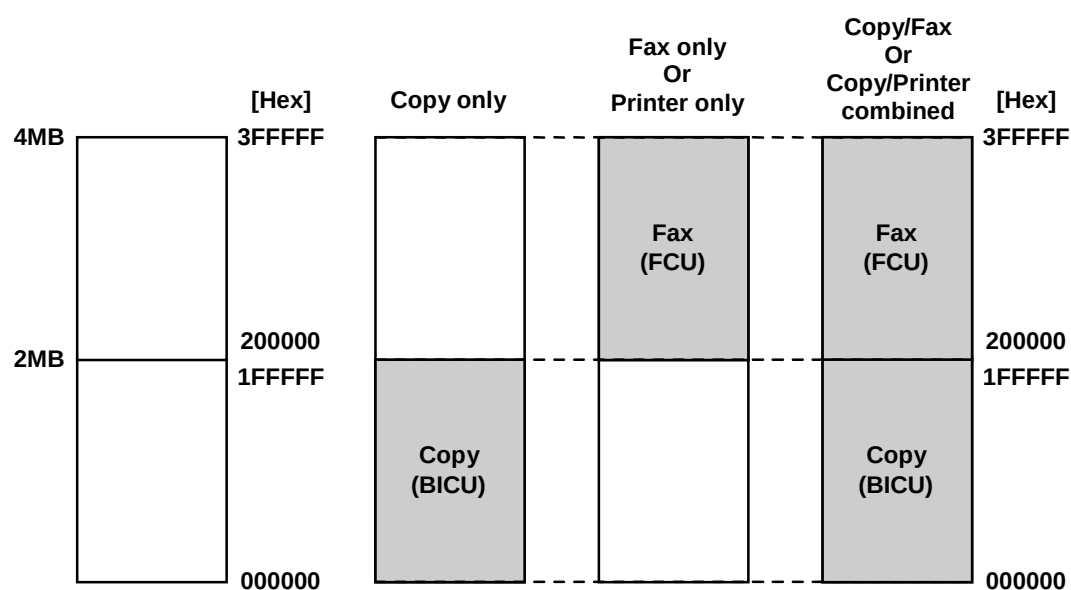
You can (or will be able to) obtain the source firmware file(s) in one of the following ways.

- Notes mail or through a Notes database
- Internet-mail
- BBS
- Floppy disk
- Flash memory card (you need to save the data on the card as a file on a PC before using the data.)
- Others (as yet unspecified)

2.1.2 PROGRAMMING A CARD WITH THE SOURCE

A250 Copy, and Fax or Printer Main Firmware

You can program copy and fax or copy and Printer firmware together onto one 4MB flash memory card, as shown below.



Start Address (Hex)	0	200000
Length (Hex)	200000	200000
Size (kB)	2,000 (2MB)	2,000 (2MB)

Fax Modem Firmware and Fax SRAM Backup

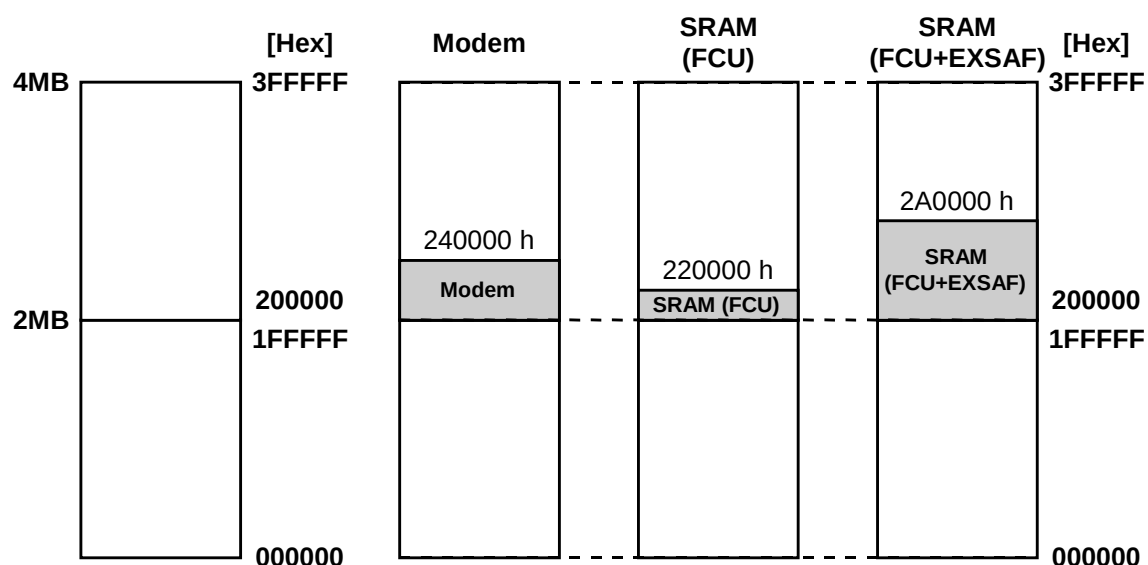
Modem

Program modem firmware using the address and length settings as shown below. You cannot program other data on the card once the modem firmware has been programmed.

SRAM

Using Fax SP mode, you can make a backup of SRAM data onto the 4MB flash memory card. This will help you set up multiple machines with fax options with the same settings, or will help you restore user data if the SRAM data has been erased accidentally.

To save the SRAM backup data from a fax unit on a 4MB flash memory card as a file, or to program a backup file from a PC onto a 4MB flash memory card, use the address and length settings as shown below.



Start Address (Hex)	200000	200000	200000
Length (Hex)	40000	20000	A0000
Size (kB)	256	128	128 + 512

OPERATION

2.2 DOWNLOADING TO A MACHINE

Refer to the machine's service manual for how to download its firmware to the flash ROM inside it.

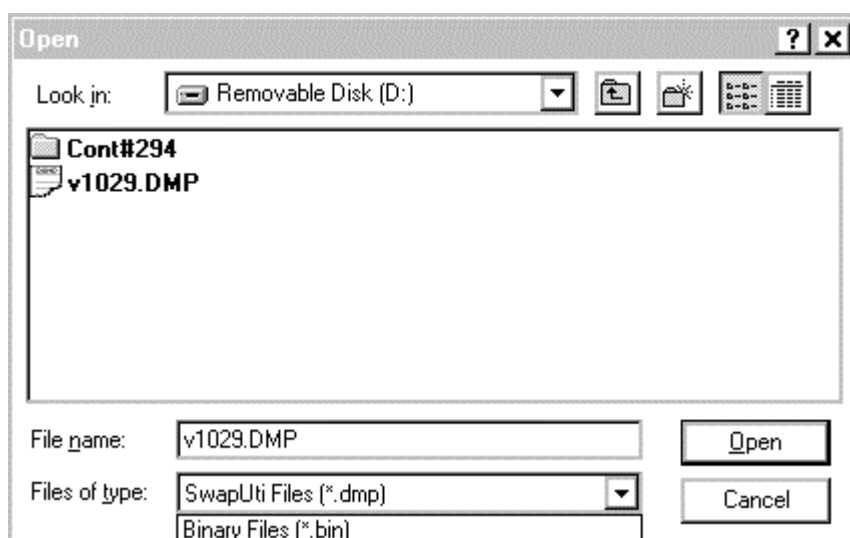
2.3 SAVING DATA TO A FILE

Some machines can upload an internal flash ROM image to a flash memory card. To save the image on the flash memory card as a computer file, read the card with a specific address range setting that was mentioned in section 2.1.2, and save the read data as a file.

3. FUNCTIONS

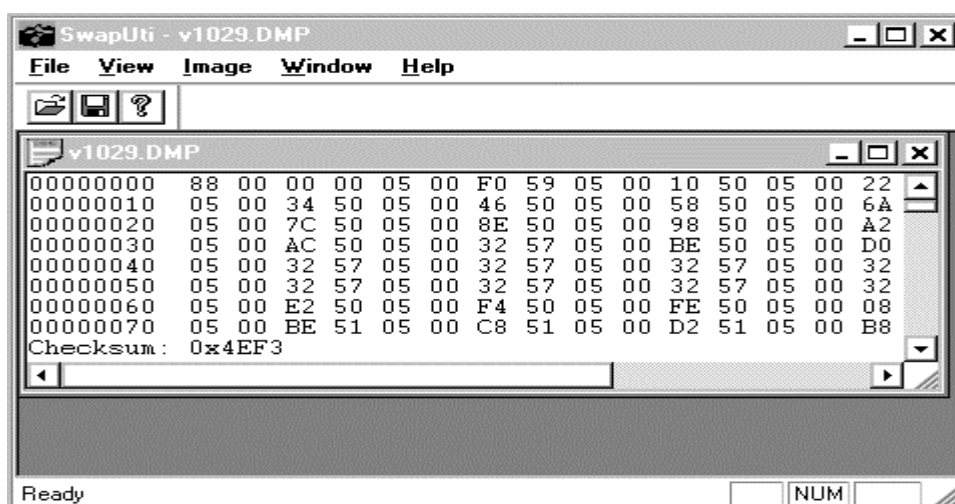
3.1 FILE MENU

3.1.1 [FILE] – [OPEN]



This opens a binary file.

Use “Binary Files (*.bin)” or “SwapUti Files (*.dmp)”. Do not use the others. The default setting is “Binary Files (*.bin)”.



An 8-bit checksum is displayed at the lower left corner of the opened file.

3.1.2 [FILE] – [CLOSE]

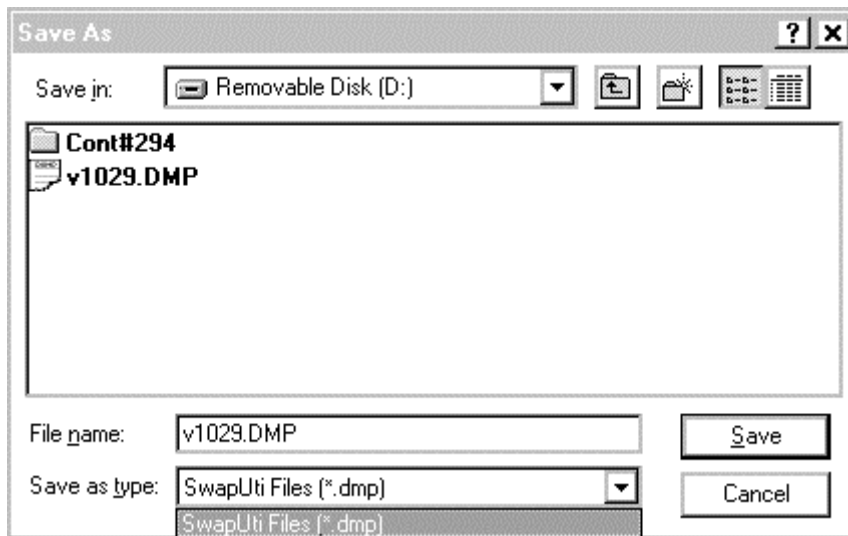
This closes an active file that has been opened.

3.1.3 [FILE] – [SAVE]

This saves an active file with the same name.

FUNCTIONS

3.1.4 [FILE] – [SAVE AS]



This saves an active file with a different name from the original.

3.2 VIEW MENU

3.2.1 [VIEW] – [TOOLBAR]

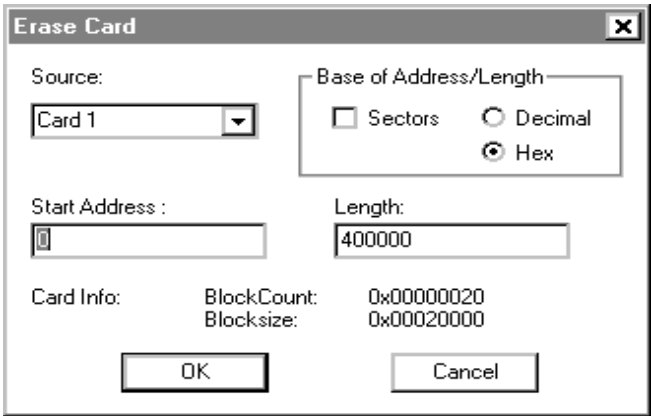
This switches on the toolbar display.

3.2.2 [VIEW] – [STATUS BAR]

This switches on the status bar display.

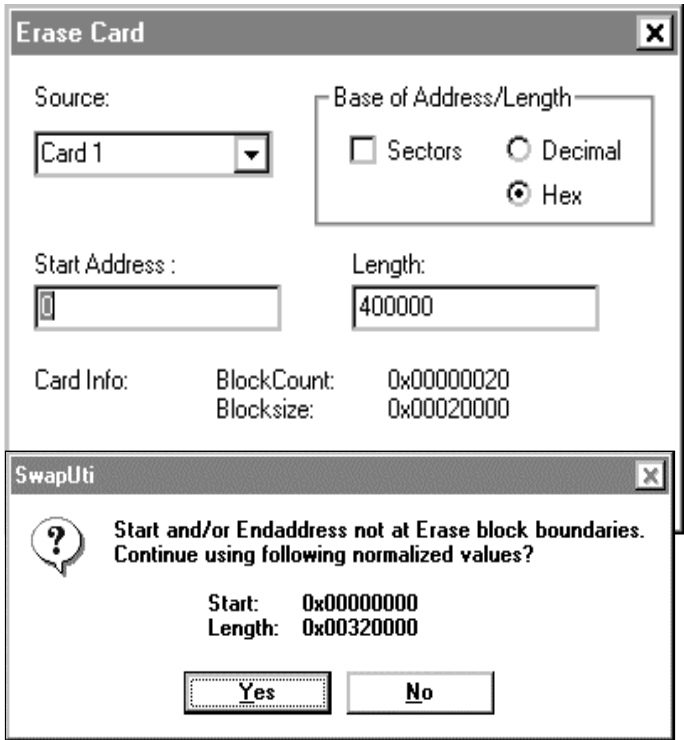
3.3 IMAGE MENU

3.3.1 [Image] – [Erase]



Field	Description
Source	Card slot number that has a flash memory card currently installed.
Start Address	A “0 (zero)” appears at default. To erase the whole card, do not change the setting
Length	Hexadecimal length of the card appears at default. To erase the whole card, do not change the setting
Base of Address/ Length	Do not change the settings. The default setting is “Hex”.

NOTE: If the specified start address and length do not coincide with block boundaries on the flash memory card, the message below appears.



FUNCTIONS

3.3.2 [IMAGE] – [READ]

Read from Card

Source: Card 1

Base of Address/Length:
☐ Sectors ☐ Decimal ☒ Hex

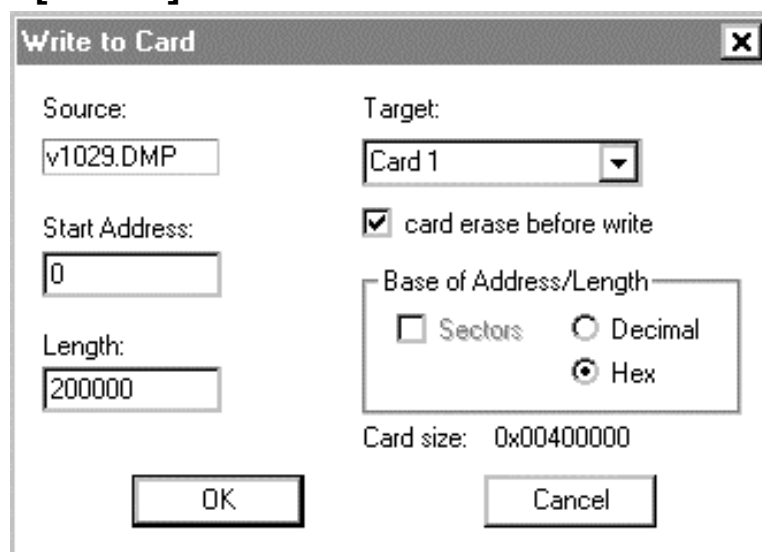
Start Address : 0 Length: 400000

Card Info: BlockCount: 0x00000020
Blocksize: 0x00020000

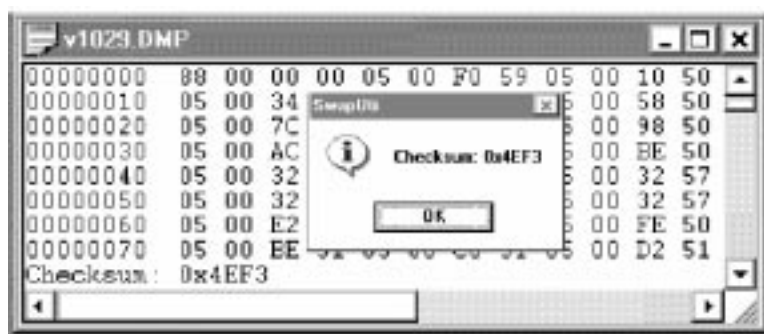
OK Cancel

Field	Description
Source	Card slot number that has a flash memory card currently installed.
Start Address	A "0 (zero)" appears at default. Change this setting if necessary.
Length	Hexadecimal length of the card appears at default. Change this setting if necessary.
Base of Address/ Length	Do not change the settings. The default setting is "Hex".

3.3.3 [IMAGE] – [WRITE]



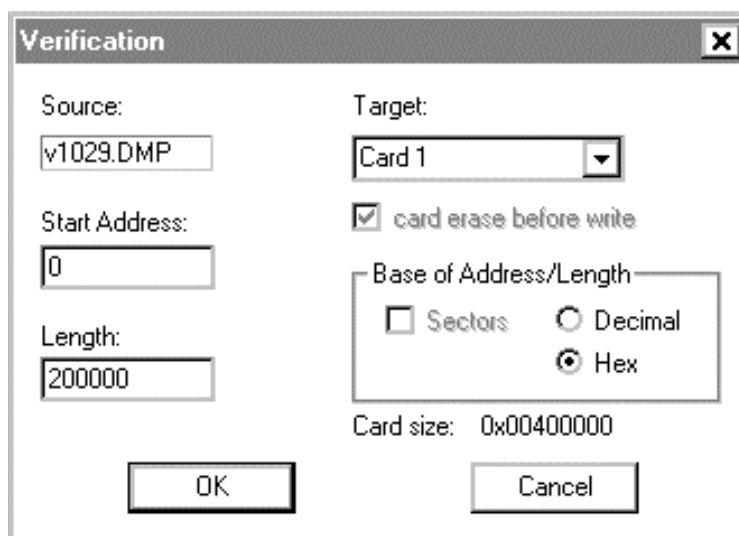
Field	Description
Source	Source file name that is currently active in the application.
Target	Card slot number that has a flash memory card currently installed.
Card erase before write	If this is checked, the application erases the whole card before writing data from the source file. The default setting is checked (= erase).
Start Address	A "0 (zero)" appears at default. Change this setting if necessary.
Length	Hexadecimal length of the source file appears at default. Do not change the setting.
Base of Address/Length	Do not change the settings. The default setting is "Hex".



After writing the data to a flash memory card, an 8-bit checksum ① pops up, so that you can compare it with the checksum ② of the source file.

FUNCTIONS

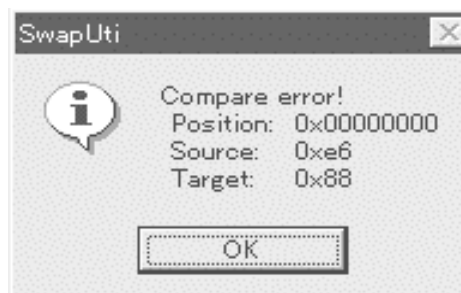
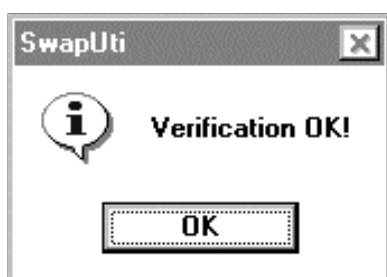
3.3.4 [Image] – [Verification]



Field	Description
Source	Source file name that is currently active in the application.
Target	Card slot number that has a flash memory card currently installed.
Start Address	A "0 (zero)" appears at default. Change this setting if necessary.
Length	Hexadecimal length of the source file appears at default. Do not change the setting.
Base of Address/ Length	Do not change the settings. The default setting is "Hex".

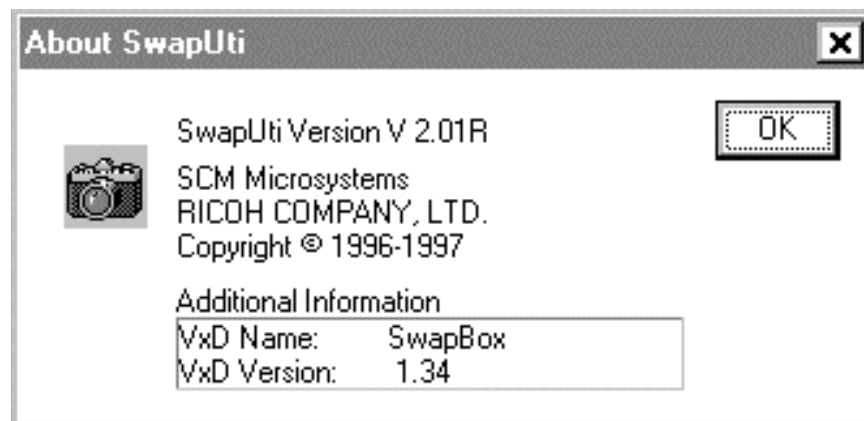
If verification was successful, a 'Verification OK!' message pops up.

If verification was not successful, a "Compare error !" message pops up with the source and target addresses.



3.4 HELP MENU

3.4.1 [HELP] – [ABOUT SWAPUTI...]



FAX UNIT A891

This manual explains the Fax Unit, as well as the following.

- ❑ EXFUNC board - Fax Function Expander (Machine Code: A892)
- ❑ Handset (Machine Code: A646)
- ❑ PCFE board - PC Fax Expander(Machine Code: A894)
- ❑ ISDN kit (Machine Code: A890) :Europe model only
- ❑ (EXMEM board – Expansion Memory)

Lithium Batteries

CAUTION

The danger of explosion exists if batteries on the FCU and EXMEM boards are incorrectly replaced.

Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

CE 0682 X

The interface complies with the requirements for Council Decision 98/482/EC.

98/482/EC:

Council Decision of 20 July 1998 on a common technical Regulation for the requirements for connection to the analogue public switched telephone networks (PSTNs) of terminal equipment (excluding terminal equipment supporting the voice telephony justified case service) in which network addressing, if provided, is by means of dual tone multi-frequency (DTMF) signaling.

Network compatibility declaration for the EU.

Fax Option Type 185 is designed to work on all EU networks.

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Type

Desktop type transceiver

Circuit

PSTN, PABX, ISDN (Europe model only)

Connection

Direct couple

Original Size (Book)

Maximum Length: 432 mm [17 ins]

Maximum Width: 297 mm [11.7 ins]

Original Size (ADF)

Length: 128 - 1200 mm [5.0 – 47.2 ins]

Width: 105 - 297 mm [4.1 - 11.7 ins]

Thickness: 40 - 128 g/m² [10 - 34 lbs]

Scanning Method

Flat bed, with CCD

Scan Width

210 mm [8.3 ins] ± 1% (A4)

216 mm [8.5 ins] ± 1% (8.5" x 11")

256 mm [10.1 ins] ± 1% (B4)

279 mm [11.0 ins] ± 1% (11" x 17")

297 mm [11.7 ins] ± 1% (A3)

Resolutions

8 x 3.85 lines/mm (G3 only)

8 x 7.7 lines/mm (G3 only)

8 x 15.4 lines/mm (G3 only)

16 x 15.4 lines/mm (G3 only)

200 x 100 dpi

200 x 200 dpi

400 x 400 dpi

Note:

To use the 8 x 15.4 lines/mm, 16 x 15.4 lines/mm and 400 x 400 dpi resolutions, an optional EXMEM is required.

Memory Capacity

ECM: 128 Kbytes

SAF:

Standard: 2 Mbytes (160 pages)

With optional memory board (EXFUNC + EXMEM) :

30 Mbytes (3000 pages)

Measured using an ITU-T #1 test document (Slerexe letter)

Compression

MH, MR, MMR

JBIG (EXFUNC is required, G3/IG3 only)

(MMR only with ECM and G4)

SAF storage for memory tx: MMR and/or raw data

Protocol

Group 3 with ECM

Group 4 (ISDN unit required)

Modulation

V.34, V.33, V.17 (TCM), V.29 (QAM),

V.27ter (PHM), V.8, V.21 (FM)

Data Rate (bps)

G3:

33600/31200/28800/26400/24000/21600/
19200/16800/14400/12000/9600/7200/4800
/2400, Automatic fallback

G4 (option): 64 kbps/56 kbps

I/O Rate

With ECM: 0 ms/line

Without ECM: 2.5, 5, 10, 20, or 40 ms/line

Transmission Time

G3: 3 s at 28800 bps; Measured with G3 ECM using memory for an ITU-T #1 test document (Slerexe letter) at 8 x 3.85 l/mm resolution

G4 (option): 3 s at 64 kbps; Measured with an ITU-T #1 test document (Slerexe letter) at 200 x 200 dpi resolution

FEATURES

1.2 FEATURES

1.2.1 FEATURES LIST

KEY:

O = Used, X = Not Used,

(A = Optional EXMEM required)

B = Optional EXFUNC required

C = Optional PCFE required

D = Optional ISDN unit required
(only available in the Europe)

Video Processing Features	
Automatic image density selection	O
Contrast	O
Halftone (Basic & Error Diffusion)	O
JBIG compression	B
MTF	O
Reduction before tx	O
Scanning Resolution – Standard	O
Scanning Resolution – Detail	O
Scanning Resolution – Fine	A
Scanning Resolution – Superfine	A
Smoothing to 400 x 400 dpi when printing	O

Communication Features – Automatic	
Automatic fallback	O
Automatic redialing (Memory tx only)	O
Dual Access	O
Length Reduction	O
Resolutions available for reception	
Detail	O
Fine	A
Superfine	A
Substitute reception	O
V34 communication	O

Communication Features - User Selectable	
90° Image Rotation before tx	O
Action as a transfer broadcaster	X
AI Redial (last ten numbers)	O
Answering machine interface	X
Authorized Reception	O
Auto Document	O
Automatic dialing (pulse or DTMF)	O
Automatic Voice Message	X
Batch Transmission	O
Book Original tx	O
Broadcasting	O
Chain Dialing	O
Communication Record Display	O
Confidential ID Override	O
Confidential Reception	O
Confidential Transmission	O
Direct Fax Number Entry	O
Economy Transmission	O
Fax on demand	X
Forwarding	O
Free Polling	O
Groups (Standard: 9 groups)	O
Hold	X
ID Transmission	O
Immediate Redialing	O
Immediate Transmission	O
ISDN	D
Keystroke Programs	O
Memory transmission	O
Multi-step Transfer	X
Non-standard original size transmission	O
OMR	X
On Hook Dial	O
Ordering Toner	X
Page Count	O
Page separation mark	O
Parallel memory transmission	O
Partial Image Area Scanning	X

Communication Features - User Selectable	
Personal Codes	O
Personal Codes with Conf. ID	X
Polling Reception	O
Polling Transmission	O
Polling tx file lifetime in the SAF	O
Quick Dial (Standard: 32 stations)	O
Reception modes (Fax, Tel)	O
Remote control features	X
Remote Transfer	X
Restricted Access	O
Secured Polling	O
Secured Polling with Stored ID Override	O
Send Later	O
SEP/SUB/PWD/SID	O
Silent ringing detection	X
Specified Image area	X
Speed Dial (Standard: 100 stations)	O
Stamp	O
Telephone Directory	O
Tonal Signal Transmission	O
Transfer Request	O
Transmission Deadline (TRD)	O
Turnaround Polling	X
Two in one	O
Voice Request (immed. tx only)	X

Communication Features - Service Selectable	
AI Short Protocol	O
Auto-reduction override option	O
Busy tone detection	O
Cable Equalizer	O
Closed Network	O
Continuous Polling Reception	O
Dedicated tx parameters	O
ECM	O
EFC	X
Inch-mm conversion before tx	O
Length Reduction	O
Page retransmission times	O

Communication Features - Service Selectable	
Protection against wrong connection	O
Short Preamble	X

Other User Features	
Area code prefix	X
Center mark	O
Checkered mark	O
Clearing a memory file	O
Clearing a polling file	O
Clock	O
Confidential ID	O
Counters	O
Daylight Saving Time	O
Destination Check	X
Direct entry of names	O
Energy Saver	O
File Retention Time	O
File Retransmission	O
Function Programs (F1 – F4)	O
Hard Disk Filing System	X
ID Code	O
Label Insertion ("To xxx")	O
Language Selection	SP mode
Memory Lock	X
Modifying a memory file (tx)	O
Multi Sort Document Reception	X
Own telephone number	O
Print density control	X
RDS on/off	O
Reception Mode Switching Timer	X
Reception time printing	O
Remaining memory indicator	O
Reverse Order Printing	O
RTI, TTI, CSI	O
Service Report Transmission	O
Speaker volume control	O
Specified Cassette Selection	O
Substitute reception on/off	O
Telephone line type	O
Toner Saving Mode	X
TTI/CIL on/off	O

FEATURES

Other User Features	
User Function Keys (4 keys)	O
User Parameters	O
Wild Cards	O

Reports - Automatic	
Charge Control Report	X
Communication Failure Report	O
Confidential File Report	O
Error Report	O
Fax On Demand Report	X
File Clear Report	O
File Reserve Report	O
Journal	O
Polling Result Report	O
Power Failure Report	O
Transfer Result Report	X
Transmission Result Report	O

Reports - User-initiated	
Authorized Reception List	O
Charge Control Report	X
File List	O
Forwarding List	O
Group List	O
Hard Disk File List	X
Journal	O
Personal Code List	O
Program List	O
Quick Dial Label	O
Quick Dial List	O
Specified Cassette Selection List	X
Speed Dial List	O
Transmission Status Report	X
User Function List	X
User Parameter List	O

Service Mode Features	
Back-to-back test	O
Bit switch programming	O
Cable equalizer	O
Comm. parameter display	O
Counter check	SP mode

Service Mode Features	
Country code	O
DTMF tone test	O
Echo countermeasure	O
Effective term of service calls	O
Error code display	O
Excessive jam alarm	O
File Transfer (all files)	O
LCD contrast adjustment	SP mode
Line error mark	X
Memory file printout (all files)	O
Modem Software Download	X
Modem test (include V.34 / V.8)	O
NCU parameters	O
Periodic service call	O
PM Call	O
Printing all communication records kept in memory	O
Protocol dump list	O
RAM display/rewrite	O
RAM dump	O
RAM test	O
RDS	
- RAM read/write	O
- Dial data transfer (Quick/Speed)	O
- Software transfer	O
Ringer test	O
ROM version display (FCU)	SP mode
Serial number	O
Service monitor report	O
Service station number	O
Software Upload/Download	O
SRAM data backup/restore	O
System parameter list	O
Technical data on the Journal	O

1.2.2 CAPABILITIES OF PROGRAMMABLE ITEMS

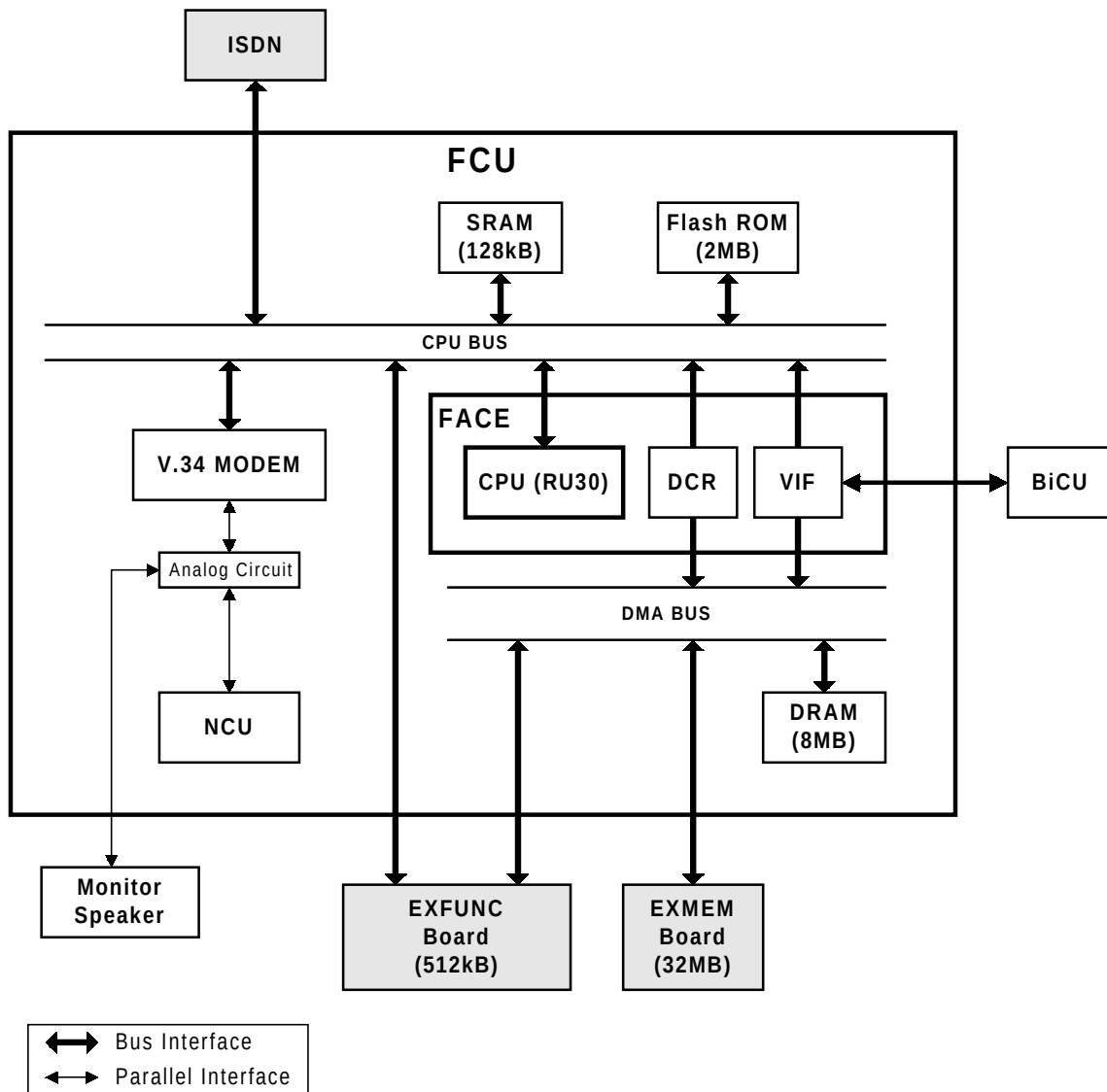
The following table shows how the capabilities of each programmable item will change after the optional function upgrade card is installed.

Item	Standard	With optional function board (EXFUNC)
Maximum number of memory files	200	1000
Maximum number of destinations per file	232	500
Maximum number of destinations overall	300	2000
Maximum number of pages overall	400	3000
Number of Quick Dials	32	32
Number of Speed Dials	100	1000
Number of Groups	9	30
Maximum number of destinations per Group	232	500
Maximum number of destinations dialed from the ten-key pad overall	100	1000
Maximum number of programs	32 (programmed in 32 Quick Dial keys)	32 (programmed in 32 Quick Dial keys)
Maximum number of Auto Documents	6 (programmed in 6 Quick Dial keys)	18 (programmed in 18 Quick Dial keys)
Maximum number of communication records for the TCR (Journal) stored in the memory	100	900
Maximum number of addresses specified for features such as Authorized Reception and Specified Cassette Selection	30	50
Maximum number of user function keys	4	4
Maximum number of personal codes	20	50

OVERALL MACHINE CONTROL

1.3 OVERALL MACHINE CONTROL

1.3.1 SYSTEM CONTROL



The basic fax unit consists of two PCBs: an FCU and an NCU.

The FCU controls all the fax communications and fax features, in cooperation with the base copier's main board, the BiCU. The NCU switches the analog line between the fax unit and the external telephone.

Fax Options

1. EXFUNC board: JBIG compression becomes available. In addition, this expands the system's SRAM capacity to hold programmed telephone numbers, communication records, etc.
2. PC fax expander: Class 2 fax communication from a PC and local printing from a PC fax application become available (PC fax application required). Also, local scanning from the machine's scanner using TWAIN API becomes available (CFM Twain driver required).
3. ISDN unit (Europe model only): This allows the fax unit to communicate over an ISDN (Integrated Services Digital Network) line.
4. EXMEM board: This expands the SAF memory capacity. Also, this expands the page memory capacity to enable 400 dpi communications.)

1.3.2 POWER DISTRIBUTION AND CONTROL

The FCU power is supplied from the base copier's BiCU (+24V, +12V, -12V, and +5V). Refer to the base copier's service manual for details.

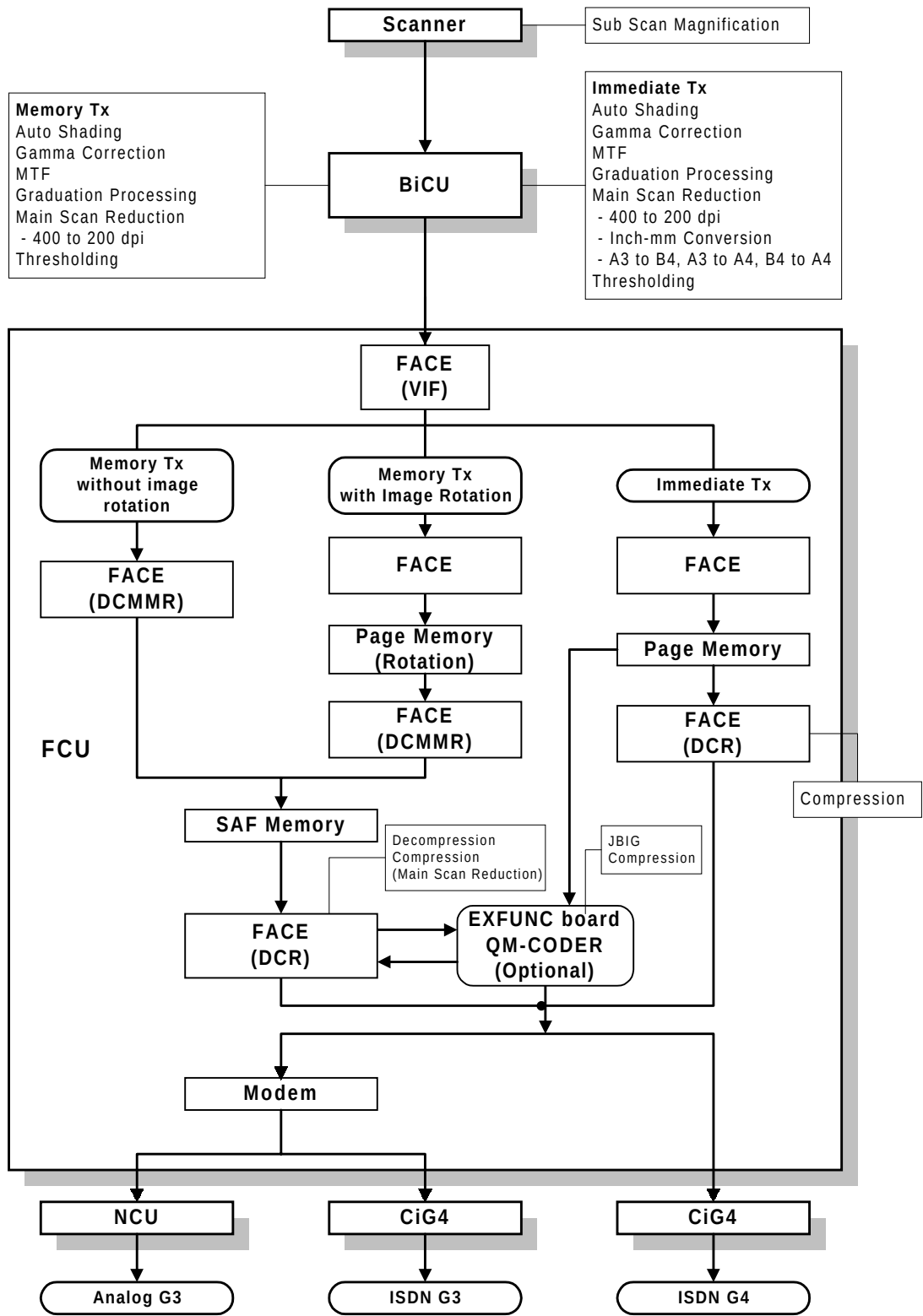
1.3.3 MEMORY BACK-UP

The system parameters and programmed items in the SRAM on the FCU and the EXFUNC board are backed up by batteries (long-term backup), in case the base copier's main switch is turned off.

The SAF memory (DRAM) on the FCU and the EXMEM board are backed up by rechargeable batteries for 1 hour.

1.4 VIDEO DATA PATH

1.4.1 TRANSMISSION



Memory Transmission and Parallel Memory Transmission

The base copier's scanner scans the original at the selected resolution in inch format. The BiCU processes the data and transfers it to the FCU.

NOTE: When scanning a fax original, the BiCU uses the MTF and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then, the FCU converts the data to mm format, and compresses the data in MMR or raw format to store it in the SAF memory. If image rotation is possible, the image is rotated in page memory before compression.

At the time of transmission, the FCU decompresses the stored data, then re-compresses and/or reduces the data if necessary for transmission. Either the NCU or CiG4 (optional) transmits the data to the line.

Immediate Transmission

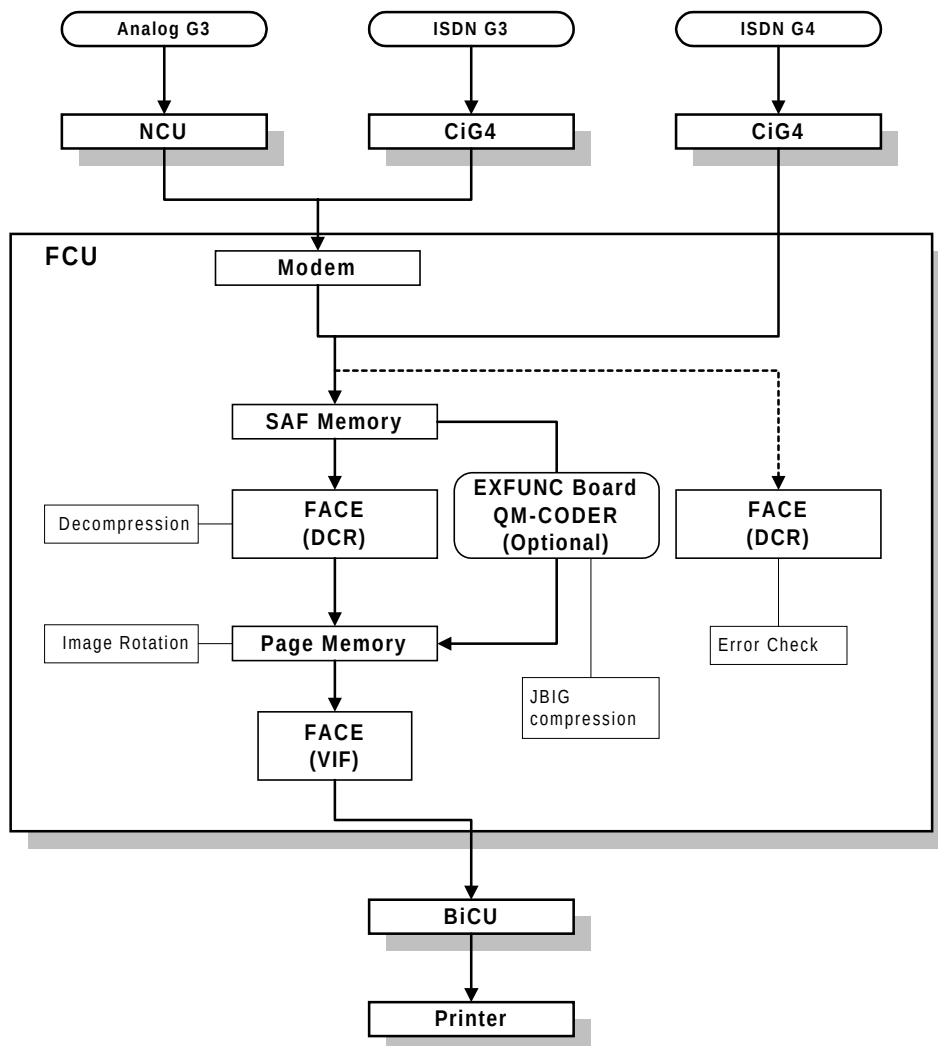
The base copier's scanner scans the original at the resolution agreed with the receiving terminal. The BiCU video processes the data and transfers it to the FCU.

NOTE: When scanning a fax original, the BiCU uses the MTF and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then the FCU stores the data in page memory, and compresses the data for transmission. Either the NCU or CiG4 (optional) transmits the data to the line.

JBIG Transmission

- **Memory transmission:** With memory transmission, if the receiver has JBIG compression, the data goes from the FACE (DCR) to the EXFUNC for JBIG compression. Then either the NCU or CiG4 (ISDN G3) transmits the data to the line.
- **Immediate transmission:** With immediate transmission, if the receiver has JBIG compression, the data goes from the page memory to the EXFUNC for JBIG compression. Then either the NCU or CiG4 (ISDN G3) transmits the data to the line.

1.4.2 RECEPTION

First, the FCU stores the data from either an analog line or an ISDN line to the SAF memory. (The data goes in parallel to the FACE, and is checked for error lines/frames.)

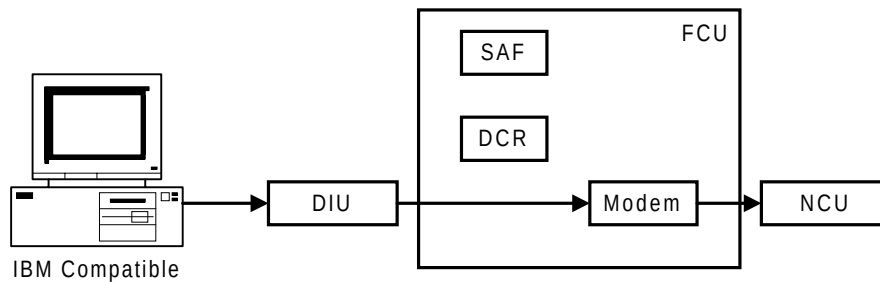
The FCU then decompresses the data and transfers it to page memory. If image rotation is possible, the image is rotated in the page memory. The data is transferred to the BiCU.

JBIG Reception

When the machine receives data compressed with JBIG, the data is sent to EXFUNC for decompression. Then the data is stored in the page memory, and transferred to the BiCU.

1.4.3 PC FAX COMMUNICATION

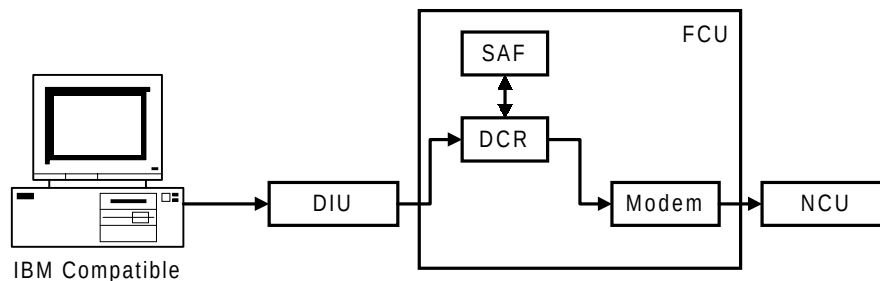
Direct transmission



The host computer sends commands and image data to the machine through the DIU during transmission.

- NOTE:**
- 1) Group dials programmed in the machine cannot be used.
 - 2) T.30 optional protocols (e.g., BFT) are not supported by class 2 fax communication.
 - 3) ISDN G4 numbers programmed in quick or speed dials cannot be used. (Only for Europe model)
 - 4) If ISDN is selected for G3 communication (system switch 0A, bit 6), the G3 numbers must have been programmed in quick or speed dial. (Only for Europe model)

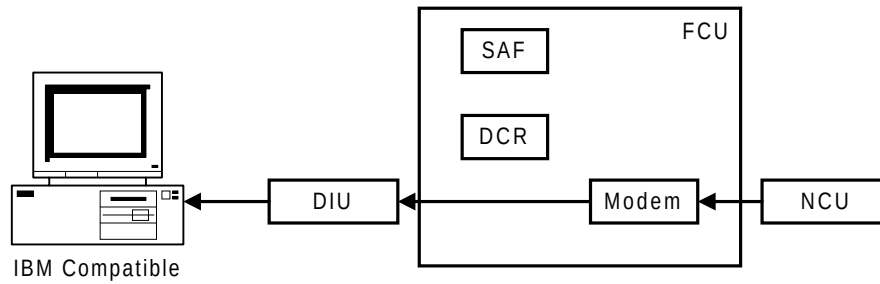
Memory transmission



The host computer sends destination number(s) and image data to the machine through the DIU during transmission. The machine stores the image in the SAF memory, then makes a fax transmission.

- NOTE:**
- 1) If the memory overflows while storing the first page into SAF memory, the machine does not start the transmission.
 - 2) If the memory overflows while storing the second or subsequent page into SAF memory, the machine transmits all the successfully stored pages.
 - 3) When fax numbers programmed in the machine's quick or speed dials are specified using the PC fax application, all the specified numbers must have been programmed in the fax machine.
 - 4) T.30 optional protocols (e.g., BFT) are not supported by class 2 fax communication.

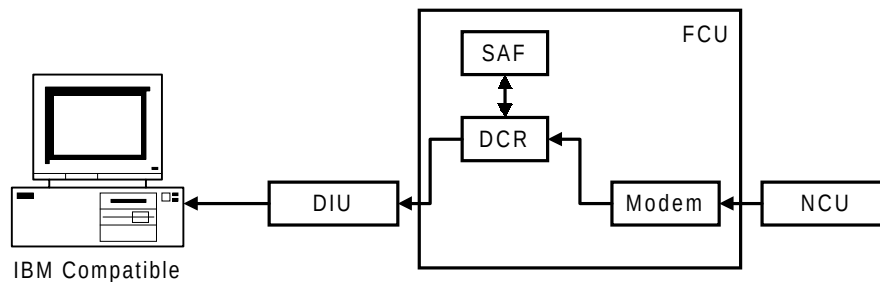
Direct reception



The machine transfers received image data directly to the host PC without storing it into SAF memory.

- NOTE:**
- 1) If the host PC is not ready to receive a fax message, the machine receives the message into SAF memory.
 - 2) Even if the SAF memory is full, the machine starts fax reception. However, the machine will not continue reception if the host computer is not ready to receive a message.
 - 3) The "Number of rings to answer" parameter in the PC fax application must not exceed 4.

Memory reception

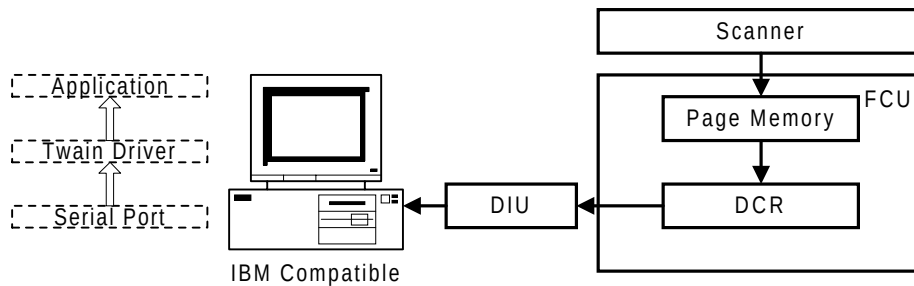


The machine receives a fax message in the SAF memory, then transfers data to the host computer after the reception has finished. The machine prints the received message after transferring data to the host if user parameter 21 – bit 2 is set to "1: Print".

- NOTE:**
- 1) If an error occurs due to cable disconnection, the PC fax application must be restarted to receive the message.
 - 2) Memory reception is not possible when forwarding is enabled.
 - 3) Manual reception from the PC fax application is not supported.
 - 4) The "Number of rings to answer" parameter in the PC fax application must not exceed 4.

1.4.4 SCANNING AND PRINTING

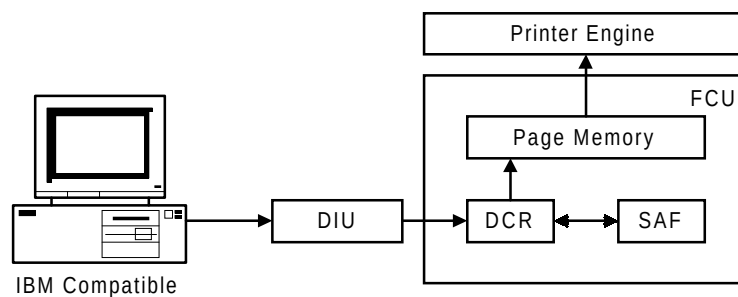
SCANNING



The machine scans an original into page memory, then transfers the data to the host PC. The data is sent to the application through the CFM Twain driver.

NOTE: 1) The maximum resolution is 200 x 200 dpi.

PRINTING



The machine receives print data into SAF memory as fax image data, then prints it after all the data has been transferred from the host PC.

The destination number "0000" informed from the host PC identifies a print job.

- NOTE:**
- 1) If SAF memory runs out while receiving print data, the machine prints up to the successfully received data.
 - 2) The machine cannot receive print data while printing a message from the SAF memory. The data will be received after printing.
 - 3) If a fax destination is specified together with the print destination "0000", the destinations specified after "0000" will be delayed until the machine prints all pages in the message.

2. DETAILED SECTION DESCRIPTIONS

2.1 AUTOMATIC SERVICE CALLS

2.1.1 SERVICE CALL CONDITIONS

The fax unit makes an automatic service call when an SC code other than the codes stored in the following RAM is informed from the base copier's BiCU.

NOTE: The service station's fax number has to be programmed in advance, or the machine cannot make a service call.

Exceptions

Address (H)	Definition	Default	SC code
680DC8	1st SC code - High byte (BCD)	03	329
680DC9	1st SC code - Low byte (BCD)	29	Laser beam pitch adjustment error
680DCA	2nd SC code - High byte (BCD)	03	361
680DCB	2nd SC code - Low byte (BCD)	61	Hard disk drive error 2
680DCC	3rd SC code - High byte (BCD)	03	365
680DCD	3rd SC code - Low byte (BCD)	65	Image storage address error
680DCE	4th SC code - High byte (BCD)	05	548
680DCF	4th SC code - Low byte (BCD)	48	Fusing unit installation error
680DD0	5th SC code - High byte (BCD)	06	630
680DD1	5th SC code - Low byte (BCD)	30	CSS communication error Japan only
680DD2	6th SC code - High byte (BCD)	09	9AA
680DD3	6th SC code - Low byte (BCD)	AA	From 900 to 999
680DD4 to 680DEF	7th SC code - High byte (BCD) to 20th SC code - Low byte (BCD)	FF(H)	Not Programmed

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To add additional SC codes, program them in the blank addresses.

Wild Cards

This function allows 'A' or 'a', to be used as a wild card instead of numbers from 0 to 9. For example, '1AA' or '1aa' means all the SC codes from 100 to 199, and '39A' or '39a' means all the SC codes from 390 to 399.

The fax unit cannot make an automatic service call when a Fax SC code condition has occurred. Refer to the Troubleshooting section for Fax SC code details.

Manual Service Call

If the service station needs a report, the user can make a service call manually, by changing bit 7 of User Parameter 14 (0E) to '1'.

A sample auto service report

```

* * * Auto Service Report (Date and Time) * * *

ProblemReason of the call - "SC Code" or "PM Call"

S C          Latest 10 copier's SC codes
J A M        B J A M 2FEED      000000000000
               |         |           |
               |         |           | Total print counter
               |         |           |
               |         |           | Paper Feed Station
               |         |           |
               |         |           | Jam Location

```

Service Monitor Report Contents

System Parameter List Contents

2.1.2 PERIODIC SERVICE CALL

The periodic service call notifies the service station of the machine's condition. The call is made at a time interval programmed in the following RAM addresses:

Parameters		Address (H)
Call interval: 01 through 15 months (BCD) 00: Periodic service call disabled		6803A1
Date and time of the next call	Day: 01 through 31 (BCD)	6803A4
	Hour: 01 through 24 (BCD)	6803A5

To change these settings after programming, change the call interval. The machine then automatically changes the remaining parameters by referring to the interval and the current date and time.

2.1.3 PM CALL

If PM alarm is enabled with the base copier's SP mode and PM call is enabled with system switch 01, the machine will make an automatic service call when the base copier's PM counter reaches the PM interval.

Cross reference

- PM service call on/off: System switch 01, bit 0
- PM alarm setting: SP mode 5-912 (default: 80K)

2.1.4 EFFECTIVE TERM OF SERVICE CALLS

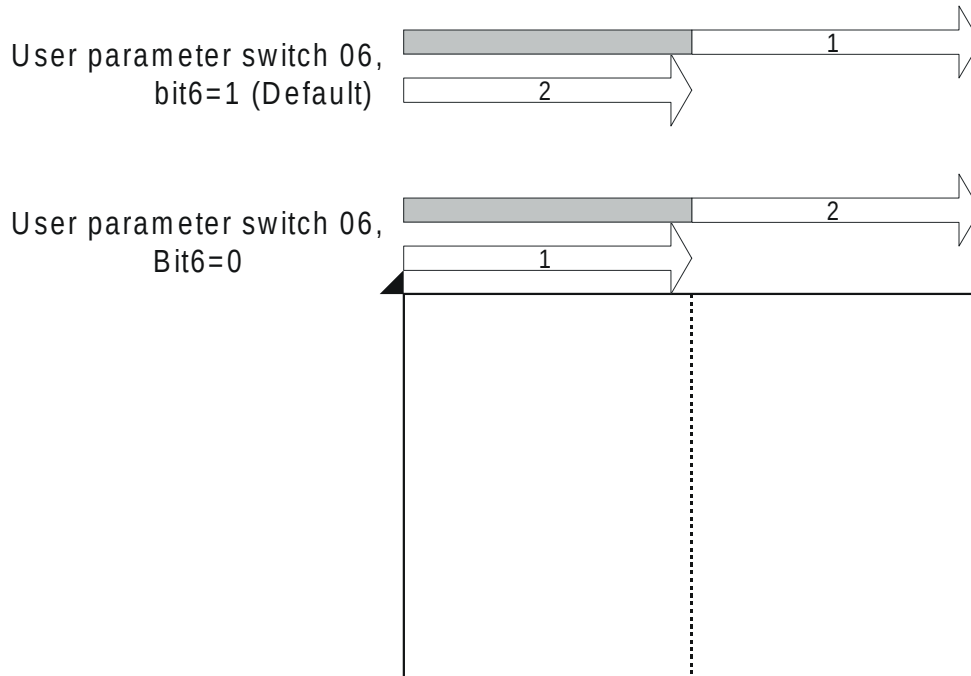
If a time limit for the effectiveness of service calls is programmed, the machine stops making automatic service calls after the time limit.

Program the time limit at the following addresses. This function is disabled when all of these addresses are 00(H).

Parameters	Address (H)
Year: last two digits of the year (BCD)	6803AB
Month: 01 through 12 (BCD)	6803AC
Day: 01 through 31 (BCD)	6803AD

2.2 SCANNING FEATURES

2.2.1 PAGE SPLIT TRANSMISSION (BOOK TRANSMISSION)



This function allows a B4, A4/8.5 x 11", or A3/11 x 17" size book original to be sent as two separate pages.

When this function is selected, the machine scans the original twice and transmits the pages in the same sequence as they were scanned.

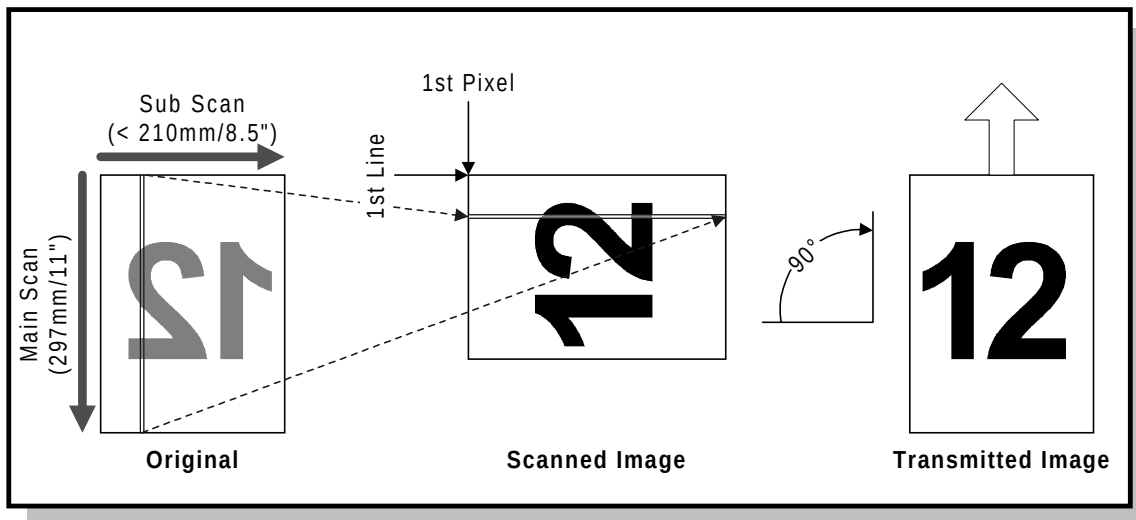
With the default setting, the right page is sent first, then the left page is sent. If the setting is changed, the order is reversed.

Cross Reference

- Scanning start page – User parameter switch 06, bit 6
- Default setting is 1. (Start scan from the right)

NOTE: 1) This function is only possible when sending a book original from the exposure glass.
 2) If this function is used for an A3 or 11 x 17" original, the pages may be transmitted in a lengthwise direction, depending on the setting of "Image Rotation before Transmission" (see the next page).

2.2.2 IMAGE ROTATION BEFORE TRANSMISSION



A4 or 8.5 x 11" sideways

This function avoids the unintentional reduction of an A4 or 8.5 x 11" sideways original. When the machine detects a sideways A4 or 8.5 x 11" original in the ADF or on the exposure glass, the fax unit rotates the scanned image clockwise by 90 degrees before transmission, as shown above.

A5 or HLT lengthwise

This function avoids a blank space in the main scan direction. When the machine detects an A5 or HLT original placed lengthwise in the ADF or on the exposure glass, the fax unit rotates the scanned image clockwise by 90 degrees before transmission, as shown above.

SCANNING FEATURES

- NOTE:**
- 1) Even if Parallel Memory Transmission is enabled, the machine uses normal memory transmission to send an A4 or 8.5 x 11" sideways original.
 - 2) If the machine carries out this function while printing, the machine stops printing until scanning is completed.
 - 3) The machine determines if it will rotate the image after the paper size is determined.
 - 4) This feature is not performed during parallel memory transmission.
 - 5) In Book mode, the machine determines image rotation for each page scanned.
In ADF mode, the machine determines image rotation for the first page. If it is rotated, the machine will check each page. If the first page need not be rotated, the machine will not check the rest of the pages.
 - 6) When this feature is enabled for A5 or HLT lengthwise, 'APS small original detection' must be changed. This allows the machine to detect an A5/HLT size original. With the default setting, the machine does not detect A5 or HLT lengthwise in book mode.

Cross Reference

- Image rotation before Tx A3 or 11" width original on/off
 - Scanner switch 0F, bit 0 (Default setting is enabled)
- Image rotation before Tx A5 or HLT width original on/off
 - Scanner switch 0F, bit 2 (Default setting is disabled)
- Image rotation before Tx B5 width original on/off
 - User Parameter switch 19, bit 3 (Default setting is disabled)
- APS small size original detection
 - Base copier's SP 4-303 (Default setting is "Not detected")
 - Scanner switch 0C, bits 1 and 2
(Default setting is "Depends on the setting of the base copier")

2.3 PRINTING FEATURES

2.3.1 PAPER SIZE SELECTION

This section explains how the FCU selects the appropriate paper size for printing a received fax image.

Width Priority and Length Priority

When 'Width Priority' is selected, a paper size of the same width as the received fax image has a higher priority. The fax image may be printed on several pages.

When 'Length Priority' is selected, a paper size that has enough length to print the received fax image has higher priority. The fax image is printed on one sheet of paper, but the printed fax may have wide margins on the left and right.

Cross Reference

- Paper selection priority - Printer switch 0E, bit 0 (Default: Width)
- Paper size selection priority for an A4 size fax message when A4/LT size paper is not available. - User Parameter switch 16, bit 2
0: A3 has priority (Default setting), 1: B4 has priority

Image Rotation Before Printing

If the machine has the same size paper as the received fax image size, but in sideways orientation, the fax unit rotates the image by 90 degrees clockwise, and prints it sideways.

This feature is only possible when the received fax image is one of the following sizes: A4 lengthwise, 8.5 x 11" lengthwise, B5 lengthwise

NOTE: This function can not be disabled.

Sub-Scan Reduction and Page Separation

Sub-scan Reduction Disabled

When Sub-scan Reduction is disabled, the received fax image is printed unreduced.

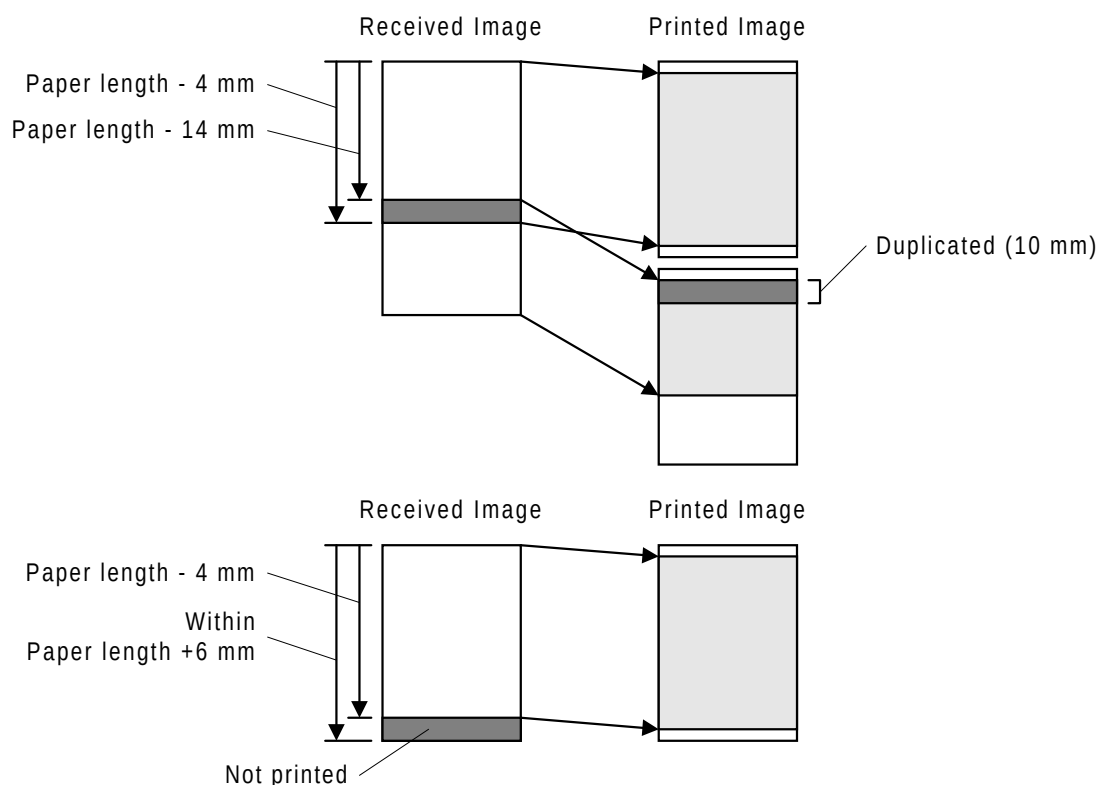
If the image is longer than the paper length + 6 mm, the image is separated onto two pages (see the top drawing below).

If the image is shorter than the paper length + 6 mm but longer than the paper length - 4 mm, the part of the image after paper length - 4 mm will be lost (see the bottom drawing below).

NOTE: The page separation threshold is adjustable between 0 and 15 mm (the default is paper length + 6 mm). Refer to Printer Switch 03, bits 4 to 7 for more details.

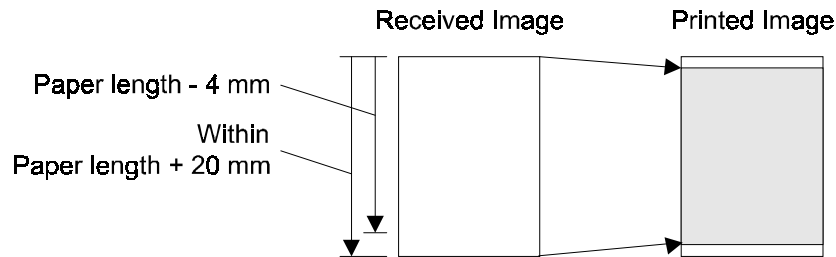
The 2 mm gaps at the leading and trailing edges depend on the leading and trailing edge margin settings.

The 10 mm image duplication can be adjusted or disabled.



Sub-scan Reduction Enabled

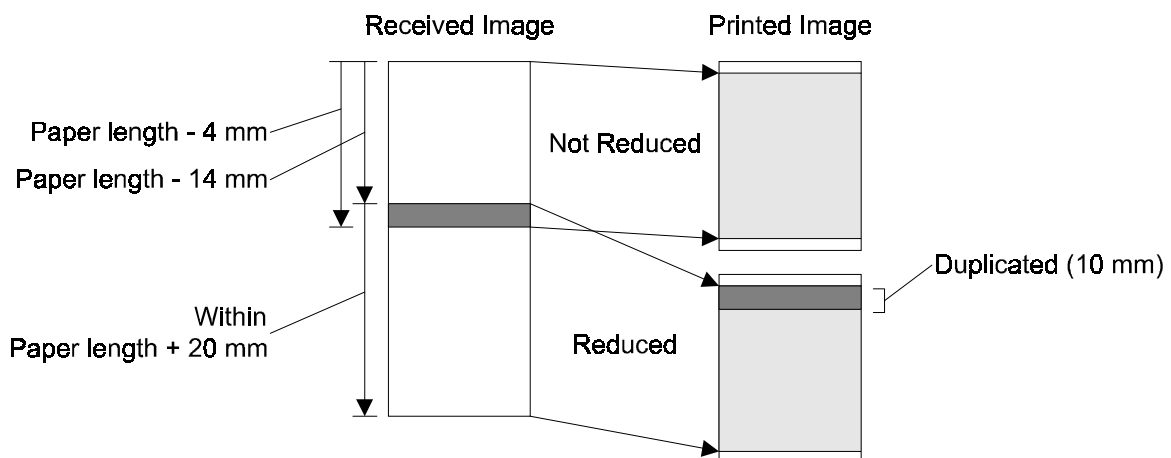
When Sub-scan Reduction is enabled, the received fax image is reduced in the page memory to fit on the selected paper, if the received image length is between [paper length - 4 mm] and [paper length + 20 mm]. See the drawing below.



NOTE: The upper limit (page length + 20 mm) is adjustable between 0 and 155 mm. Refer to Printer Switch 04, bits 0 to 4 for more details.

If the FCU detects that the image must be separated into more than one page after reduction, what happens to the data depends on the Reduction Rate Equalization setting (Printer Switch 0E, bit 7).

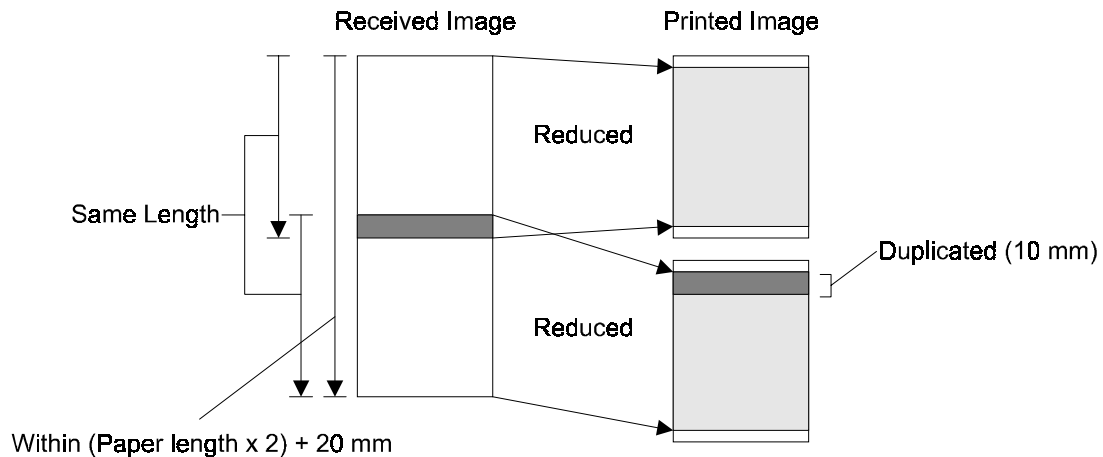
- Reduction Rate Equalization Off (Example Diagram: Two-page Printout) -



1. The data up to [page length - 4 mm] will be printed on page 1, without reduction.
2. The last 10 mm of this data will be repeated at the top of the next page (this length can be adjusted or repetition can be switched off).
3. The remaining data will be printed on page 2, with reduction, if it is within [paper length + 20 mm].
4. If it is longer than this, page separation is done again. Data up to [page length - 4 mm] will be printed on page 2, without reduction.
5. The process for page 3 and subsequent pages will repeat from step 2.

PRINTING FEATURES

- Reduction Rate Equalization On (Example Diagram: Two-page Printout) -



1. The machine determines how many pages will be needed to print the message, taking the following into account:

The final page (n) is such that the received image length is within (paper length x n) + 20 mm

The data must be reduced to fit on pages of length (paper length - 4 mm), with an equal reduction rate for each page.

The last 10 mm of the previous page will be repeated at the top of the next page (this length can be adjusted or repetition can be disabled).

2. The machine prints all the pages, at the same reduction rate.

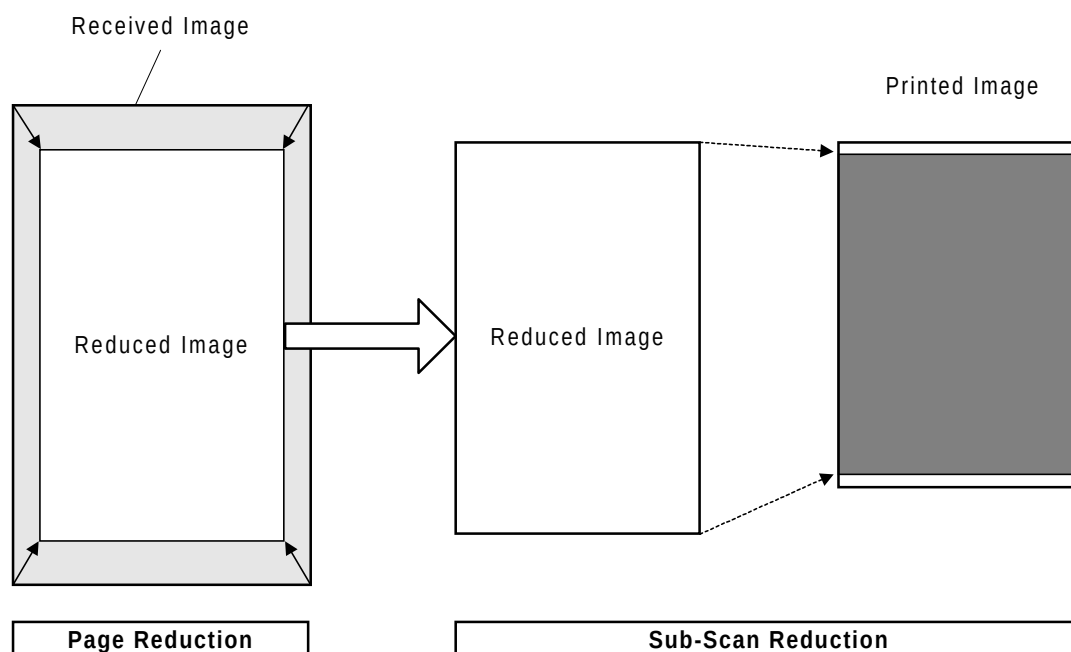
If the customer does not want to receive a fax message on separate pages, page separation can be disabled. However, once it has been disabled, the machine does not print the received fax message until a paper size which can hold the received fax image on one page is set in a cassette. Keep page separation enabled if the customer expects to receive fax messages longer than the installed paper.

Cross Reference

Parameter	Switch	Default Setting
Reduction in sub-scan direction on/off	Printer Switch 03, bit 0	Enabled (except Germany)
Equalizing reduction rate among separated pages	Printer Switch 0E, bit 7	Enabled
Page separation threshold when reduction is disabled	Printer Switch 03, bits 4-7	6 mm
Page separation threshold when reduction is enabled	Printer Switch 04, bits 0-4	20 mm
Page separation on/off	Printer Switch 0E, bit 2	Enabled
Page separation mark on/off	Printer Switch 00, bit 0	Enabled
Image duplication with page separation, on/off	Printer Switch 00, bit 1	Enabled
Length of the repeated image on the next page	Printer Switch 04, bits 5-6	10 mm

Page Reduction

This function allows a received fax image to be printed on paper with less width than the fax image.



First, the received image is reduced by a fixed reduction rate in the main and sub-scan directions. The available reduction rates are as follows:

- 84% - A3 to B4 reduction
- 82% - B4 to A4 lengthwise reduction

Then, the reduced image is further reduced (if necessary) in the sub-scan direction so that it can be printed on one page. However, if the FCU detects that the image does not fit on one page after sub-scan reduction, the FCU cancels the page reduction, but uses normal sub-scan reduction on the received fax image.

NOTE: 1) Sub-scan reduction is automatically enabled when Page Reduction is enabled.
2) A3 to A4 reduction is not available.

Cross Reference

- Page reduction on/off - User parameter 10 (0A), bit 3 (Default: Disabled)

PRINTING FEATURES

Examples

1. When printing a B4 size fax image on 8.5" x 11" lengthwise paper

- Fax image size: 256 x 364 mm (10.7 x 14.3")
- Paper size: 216 x 279 mm (8.5 x 11")
- Reduction rate used: 82%
- Page separation threshold: 20 mm

The received image is printed on one 8.5 x 11" sheet, because the image length after page reduction (364 mm x 82% = 298.5 mm) is shorter than the paper length (279 mm) plus 20 mm.

2. When printing a non-standard size (256 x 400 mm) fax image on 8.5 x 11" lengthwise paper

- Fax image size: 256 x 400 mm (10.7 x 15.7")
- Paper size: 216 x 279 mm (8.5 x 11")
- Reduction rate used: 82%
- Page separation threshold: 20 mm

The received fax image is printed on two 8.5 x 11" sheets after page separation and image rotation, because the image length after page reduction (400 mm x 82% = 328 mm) is longer than the paper length (279 mm) plus 20 mm.

Two In One

This function allows two small pages to be printed on one sheet of paper. However, this function only works when the machine does not have the following size of paper in the cassette.

- The same size of paper as the received image
- Paper which has the same width and sufficient length

Cross Reference

- Two in one on/off - User parameter 10 (0A), bit 1 (Default: Disabled)

2.3.2 JUST SIZE PRINTING

This function restricts the machine so that it can only print a received message on paper with the highest priority paper size.

- NOTE:**
- 1) Example:
 - A: The machine has A4 (lengthwise) and B4.
 - B: The A4 paper tray is empty
 - C: The machine receives an A4 (lengthwise) size message.
 When just size printing is disabled, the machine prints the received image on B4 paper. When just size printing is enabled, the machine will not print on B4 paper. If the machine has A4 (sideways), the machine prints using image rotation.
 - 2) When the paper tray with the highest priority paper size is empty, the machine displays 'Paper designated to print Fax/lists are empty. Refill -- size'.
 - 3) When both page reduction and just size printing are enabled, page reduction is given priority

Cross Reference

- Just size printing on/off – User parameter switch 05, bit 5
Default setting is 0: Just size printing is disabled
- Just size printing while a paper cassette is pulled out – Printer switch 06, bit 0
Default setting is 0: Printing will not start

2.4 FAX COMMUNICATION FEATURES

2.4.1 SEP/SUB/PWD/SID

In 1996, ITU-T introduced the following protocol signals into the T.30 recommendations. These signals enable confidential transmission and secured polling between machines produced by different manufacturers.

SEP (Selective Polling): This signal informs the other terminal of a polling ID to enable secured (ID) polling or to select a document to poll. Up to 20 digits or characters can be sent in a SEP frame.

PWD (Password): This signal informs the other terminal of a password to enable extra security. Up to 20 digits or characters can be sent in a PWD frame.

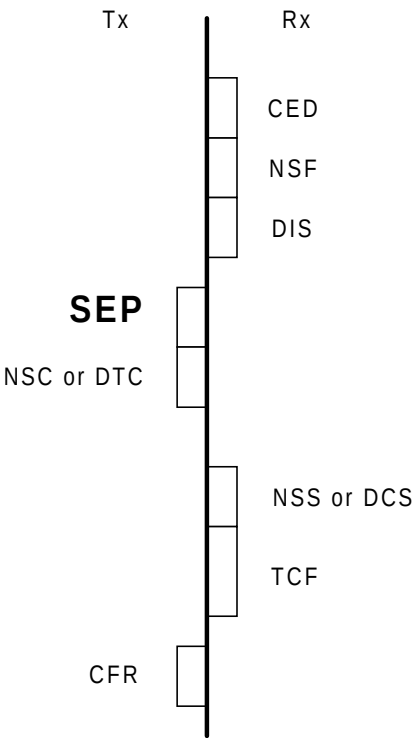
SUB (Sub-address): This signal informs a sub-address of a destination. Some fax servers use this information to route a received fax message to a specific address in the local network. Up to 20 digits or characters can be sent in a SUB frame.

SID (Sender ID): This signal informs the other terminal of the sender ID to identify the transmitter. Up to 20 digits or characters can be sent in a SID frame.

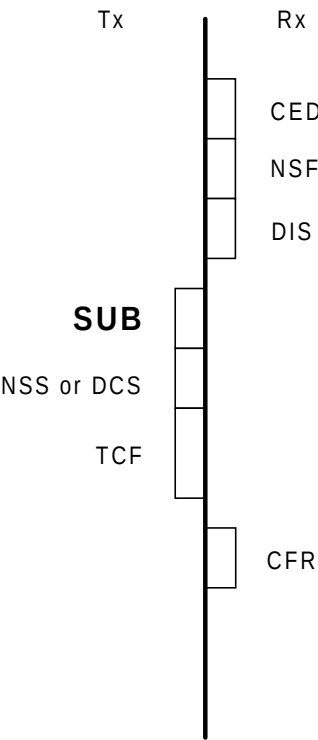
The ITU-T recommendation only clarifies transmission requirements, and does not specify reception requirements. How the receiving terminal treats these signals varies with receiver terminal and manufacturer.

This machine is capable of sending SEP, SUB, PWD and SID codes in transmission or for polling reception, but it is not capable of receiving PWD and SID codes. If the machine receives one of these frames, the machine disconnects.

Selective Polling (SEP/PWD)



Sub-address (SUB)



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2.4.2 JBIG COMPRESSION

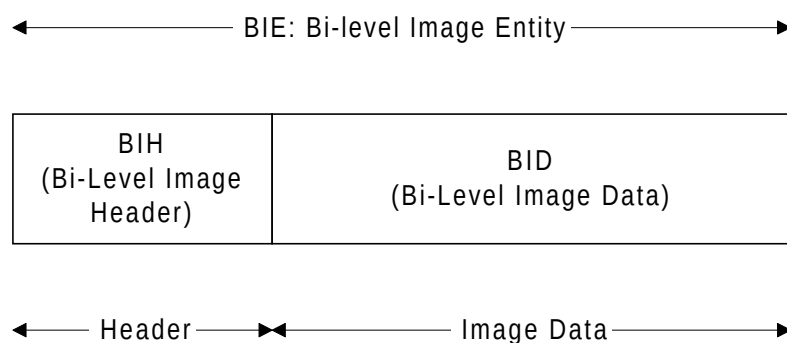
JBIG (Joint Bi-Level Image Coding Expert Group) is a working group which consists of members of ITU-T T.82 and ISO11544. The JBIG compression method allows data compression of approximately 1.2 to 1.3 times the MMR method in text mode, and 2 to 10 times in halftone mode.

JBIG compressed data is referred to as a Bi-level Image Entity (BIE).

The BIE consists of a header frame (BIH: Bi-level Image Header) and a compressed data frame (BID: Bi-level Image Data).

The BIH frame contains information such as main scan width (pixels), sub-scan length, and compression mode (standard/optional).

The BID frame contains the actual data.



The optional EXFUNC board is required for JBIG compression.

JBIG compression is disabled when any of the following conditions occur.

- When JBIG compression is turned off with communication switch 00.
- When ECM is turned off with communication switch 01.
- When the receiving terminal does not have the JBIG feature.
- When the receiving terminal does not have the ECM feature.

There are two modes for JBIG compression.

- Standard mode: one stripe (data block) consists of 128 lines.
- Optional mode: one stripe of one page (transmission speed with this mode is faster).

This machine supports both modes for transmission and reception. The mode used is determined during handshaking.

Cross reference: Section 4.2 Bit switches

- JBIG reception mode : Communication bit switch 00 bit 5
 0: Standard mode only 1: Standard mode and optional mode (default)
- Priority of JBIG mode used for transmission: Communication bit switch 00 bit 6
 0: Standard mode 1: Optional mode (default)

2.4.3 V.8/V.34 PROTOCOL

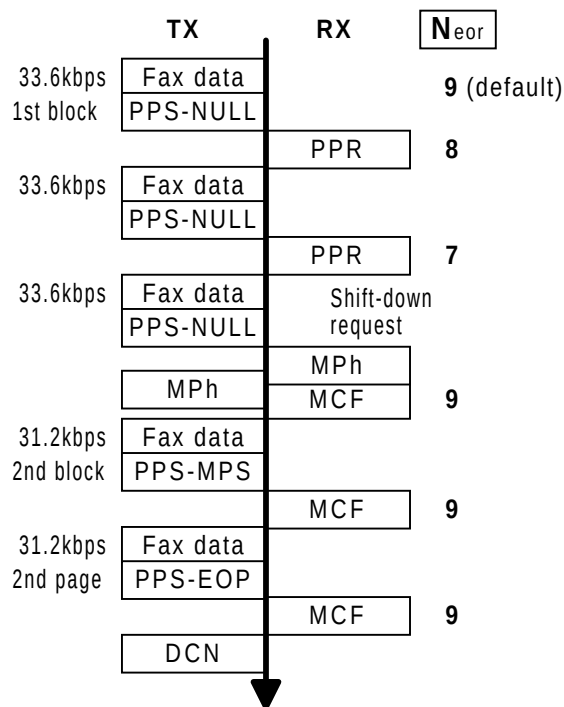
NOTE: 1) Refer to “V.8/V.34 Training Manual” for overall information about V.8/V.34 protocol.
2) This section explains machine specific functions only.

V.8 in Manual Reception

This machine starts the V.8 procedure in order to allow V.34 communication in manual reception, though some other fax machines do not.
Refer to “V.8/V.34 Training Manual – section 3.1” for detailed procedures.

Shift-down Conditions

One-step Shift-Down from the Receiving Terminal



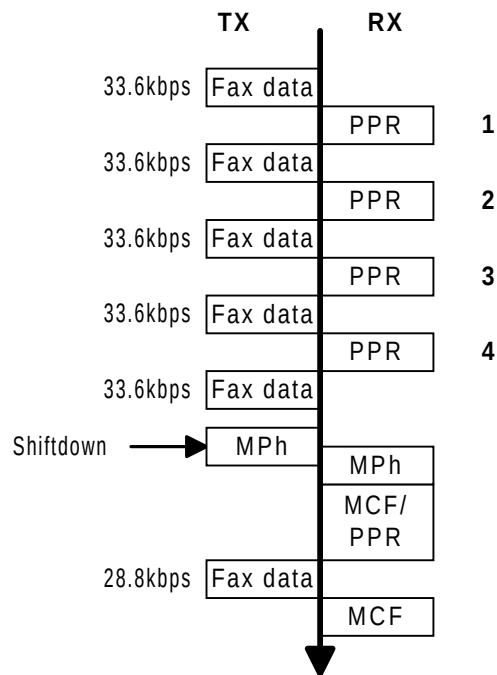
The diagram shows the protocol used by this model acting as the receiving terminal.

If the machine has sent two PPRs for one ECM block, it will request the sending terminal to make a one-step shift-down in the next control channel.

N_{eor} : Number of frame re-transmissions remaining until the Tx terminal sends DCN to terminate the communication. This is fixed at “9”, and is not adjustable.

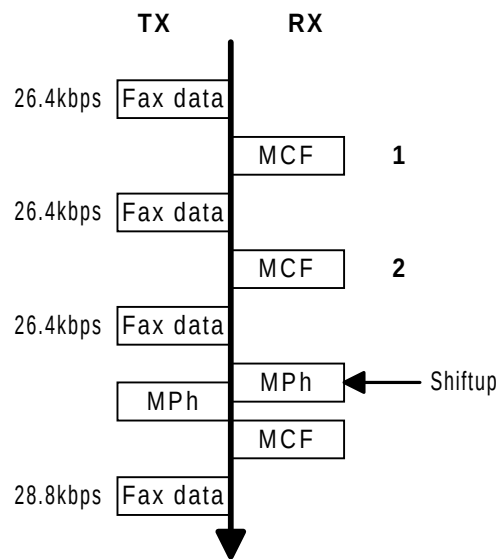
FAX COMMUNICATION FEATURES

Two-step Shift-down from the Sending Terminal



The diagram shows the protocol used by this model acting as the sending terminal.

If this machine has received four PPRs for one ECM block, it will request the receiving terminal to accept a two-step shift-down in the next control channel.

One-step Shift-up from the Receiving Terminal

The diagram shows the protocol used by this model acting as the receiving terminal.

If this machine has sent two consecutive MCFs and it could detect good line condition, it will request the sending terminal to make a one-step shift-up in the next control channel

2.5 LINE TYPE CHANGE

When the machine is initially used only with the PSTN, the line type programmed with phone numbers in Quick Dials and the Speed Dials is stored as PSTN G3. Later, if the line connection is changed so that G3 is to be used only with the ISDN, the communication port for all stored Quick and Speed Dials must be changed to ISDN G3.

This feature allows the communication mode and port to be changed for all stored numbers at once.

Procedure:

- 1) Change the data in the following RAM addresses.

68E8E4(H) - Current line type setting.

68E8E5(H) - Line type to be used after this procedure.

The default setting for the above addresses are FF(H).

- 2) Turn the main switch off and on.

Then, the machine checks all phone numbers stored in Quick Dials, Speed Dials, AI Redial, and Forwarding Stations. If the communication mode and the port setting for a number is the same as specified for the "current setting" in the above address, the machine changes these to the new setting.

- 3) After this procedure, the data programmed automatically returns to FF(H).

Setting:

Bit 0 and 1: Communication mode

Bit	1	0	Setting
	0	0	G3
	0	1	G4
	1	0	Not used

Bit 2 to 4: Communication port

Bit	4	3	2	Setting
	0	0	0	PSTN
	0	0	1	Not used
	0	1	1	ISDN
	1	0	0	Any available port

(This setting can be used only when an optional G3 or G4 unit is installed in the machine.)

Other settings - Not used

Bit 5 to 7: Not used

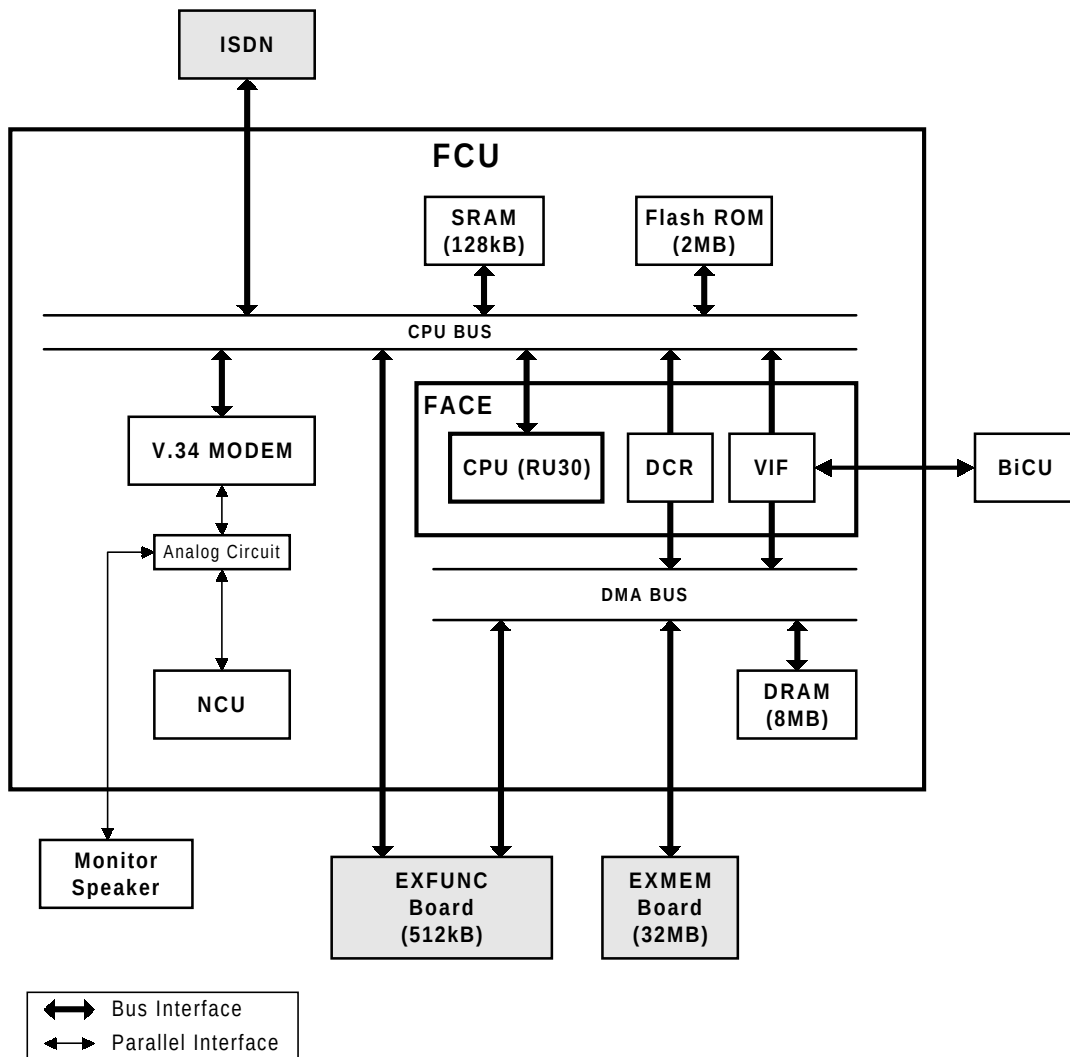
Example:

If you wish to change the port setting from PSTN G3 to ISDN G3, change the data to 00(H) (0000 0000) in the address 68E8E4(H)
change the data to 0C(H) (00001100) in the address 68E8E5(H)

Do not use this procedure if there are any files stored in the memory awaiting transmission.

2.6 PCBS

2.6.1 FCU


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The FCU (Facsimile Control Unit) controls fax communications, the video interface to the base copier's engine, and all the fax options.

FACE

- CPU
- Data compression and reconstruction (DCR)
- DMA control
- Clock generation
- DRAM backup control
- Ringing signal/tone detection
- Video and command interface to the BiCU (VIF)

PCBS

Modem (Rockwell R288F)

- V.34, V17, V.29, V.27ter, V.21, and V.8

ROM

- 2MB (16 Mbit) flash ROM for system software storage

DRAM

- The 8 MB of DRAM is shared between SAF memory, ECM buffer, page memory, working memory, line buffer, and so on.
- The SAF memory (2MB) is backed up by a rechargeable battery.

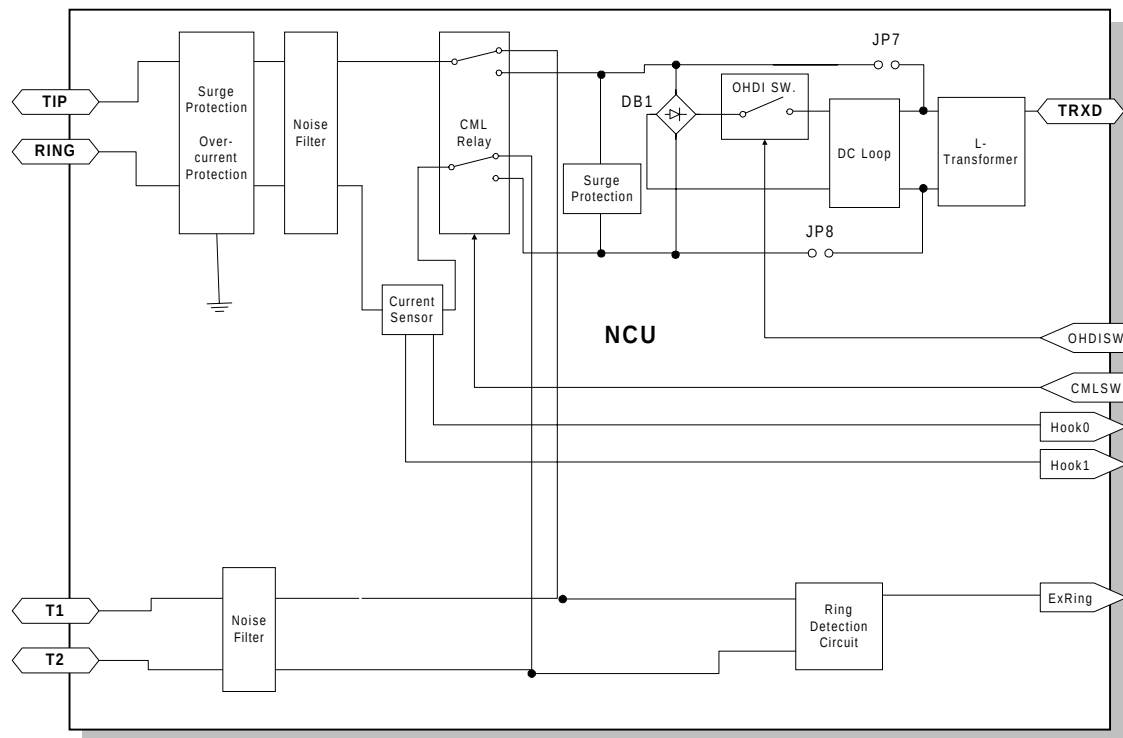
SRAM

- The 128 KB SRAM for system and user parameter storage is backed up by a lithium battery.

Switches

Item	Description
SW1	Switches the data transfer direction between the FCU and the flash memory card
SW2	Reset switch, to reboot the FCU board
SW3	Switches the SRAM backup battery on/off

2.6.2 NCU (US)

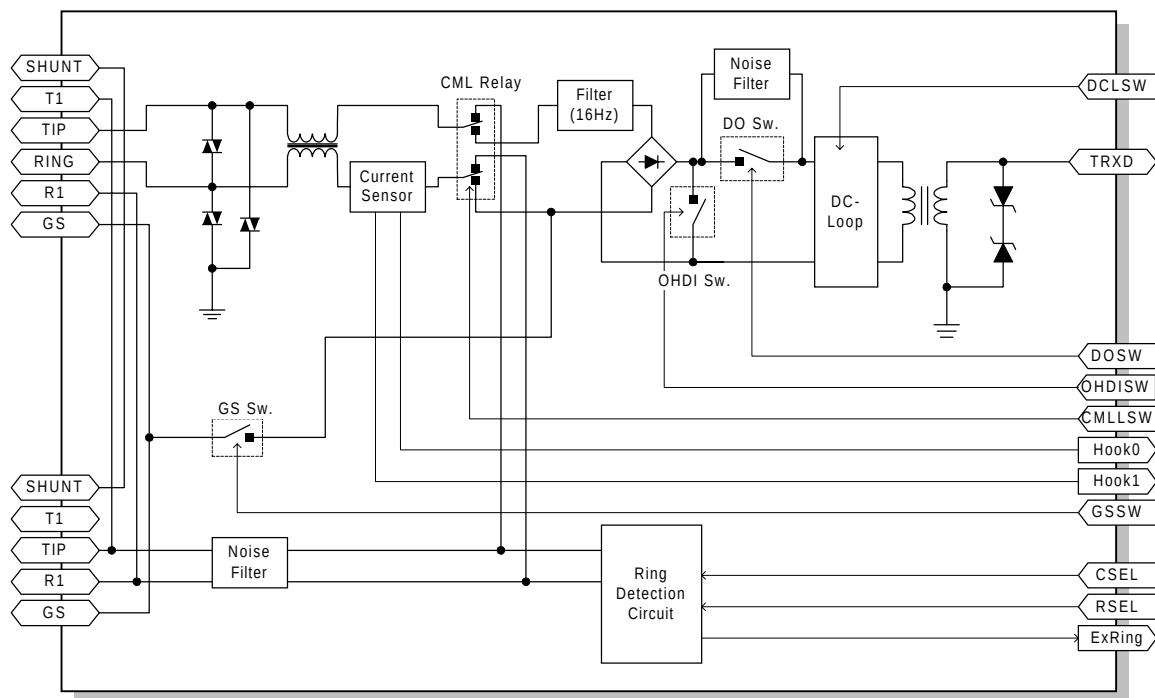


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Jumpers

Item	Description
JP7	These jumpers should be shorted when the machine is connected to a dry line.
JP8	
DB1	Also remove DB1 when the machine is connected to a dry line.

2.6.3 NCU (EUROPE/ASIA)



Control Signals and Jumpers

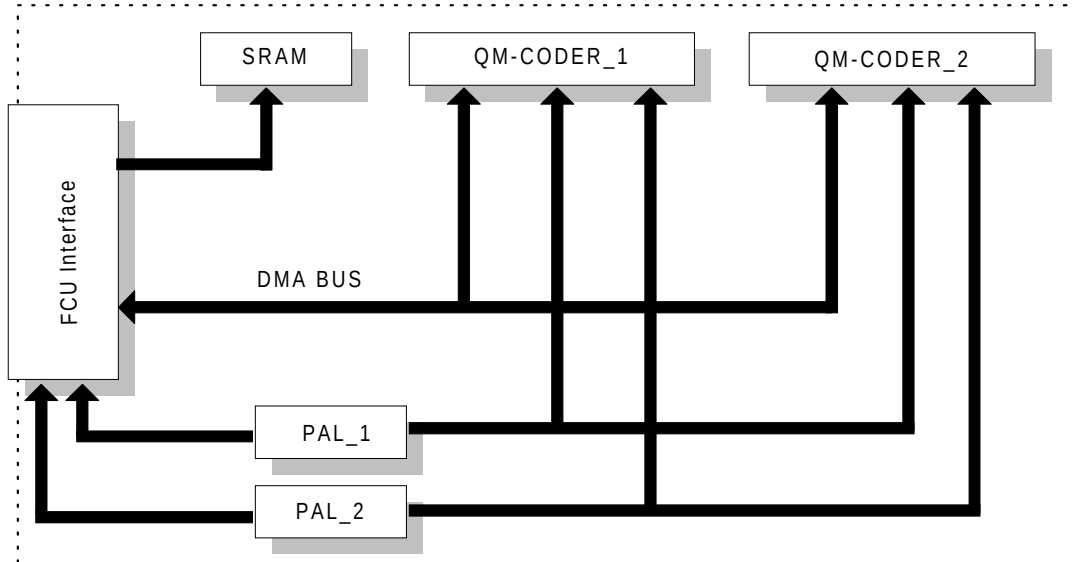
	CSEL1	RSEL
Country	CN2-5	CN1-13
CTR21	H	H
Australia	H	H
South Africa	H	H
Malaysia	H	H
Hong Kong	L	L
New Zealand	L	L
Singapore	L	L
Asia	L	L
	L: Low, H: High	

CTR21 (Common Technical Regulation 21):

France, Germany, UK, Italy, Austria, Belgium, Denmark, Finland, Ireland, Norway, Sweden, Switzerland, Portugal, Holland, Spain, Israel, Greece

2.6.4 EXFUNC BOARD

EXFUNC BOARD



The EXFUNC board allows JBIG compression and some additional features become available. In addition, this board expands the SRAM capacity.

QM Coder

- 2 QM coders for JBIG compression.

PAL (PALCE16V8H-15PC)

- 2 PALs make a strobe control signal. This is used for DMA selection.

SRAM

- 512KB SRAM for telephone numbers and other user parameters.

Lithium battery

- Backs up the SRAM.

Switches

Item	Description
SW1	Switches the backup battery on/off

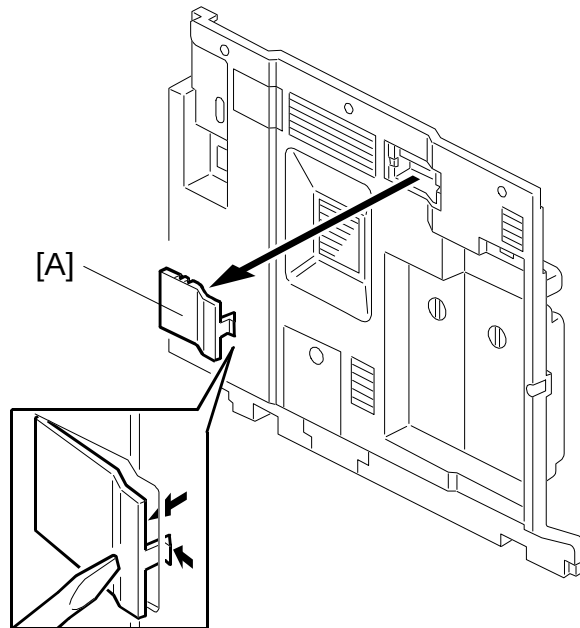
3. INSTALLATION

3.1 FAX UNIT

- NOTE:**
- 1) Never install telephone wiring during a lightning storm.
 - 2) Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
 - 3) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
 - 4) Use caution when installing or modifying telephone lines.
 - 5) Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
 - 6) If there is a gas leak, do not use the telephone in the vicinity of the leak to report it.

CAUTION
1. Before installing the fax unit, switch off the main power and operation switches, and disconnect the power cord. 2. The fax unit contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

FAX UNIT



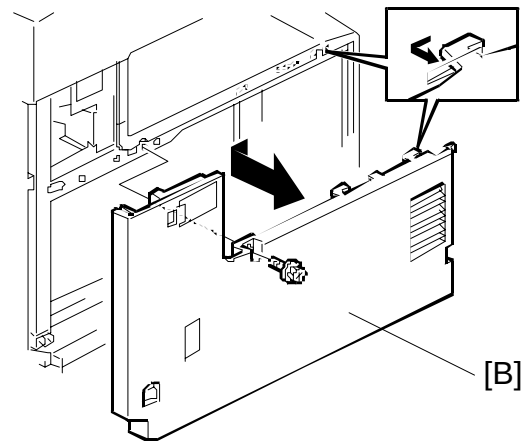
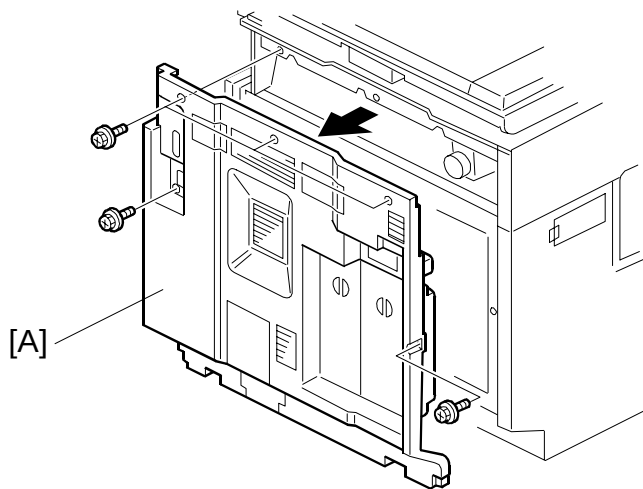
⚠ CAUTION

Before installing this option, do the following:

- 1. If there is a printer option in the machine, print out all data in the printer buffer.**
- 2. Turn off the main switch and disconnect the power cord and the LAN cable.**

If a printer unit was installed, remove it before installing the fax unit.

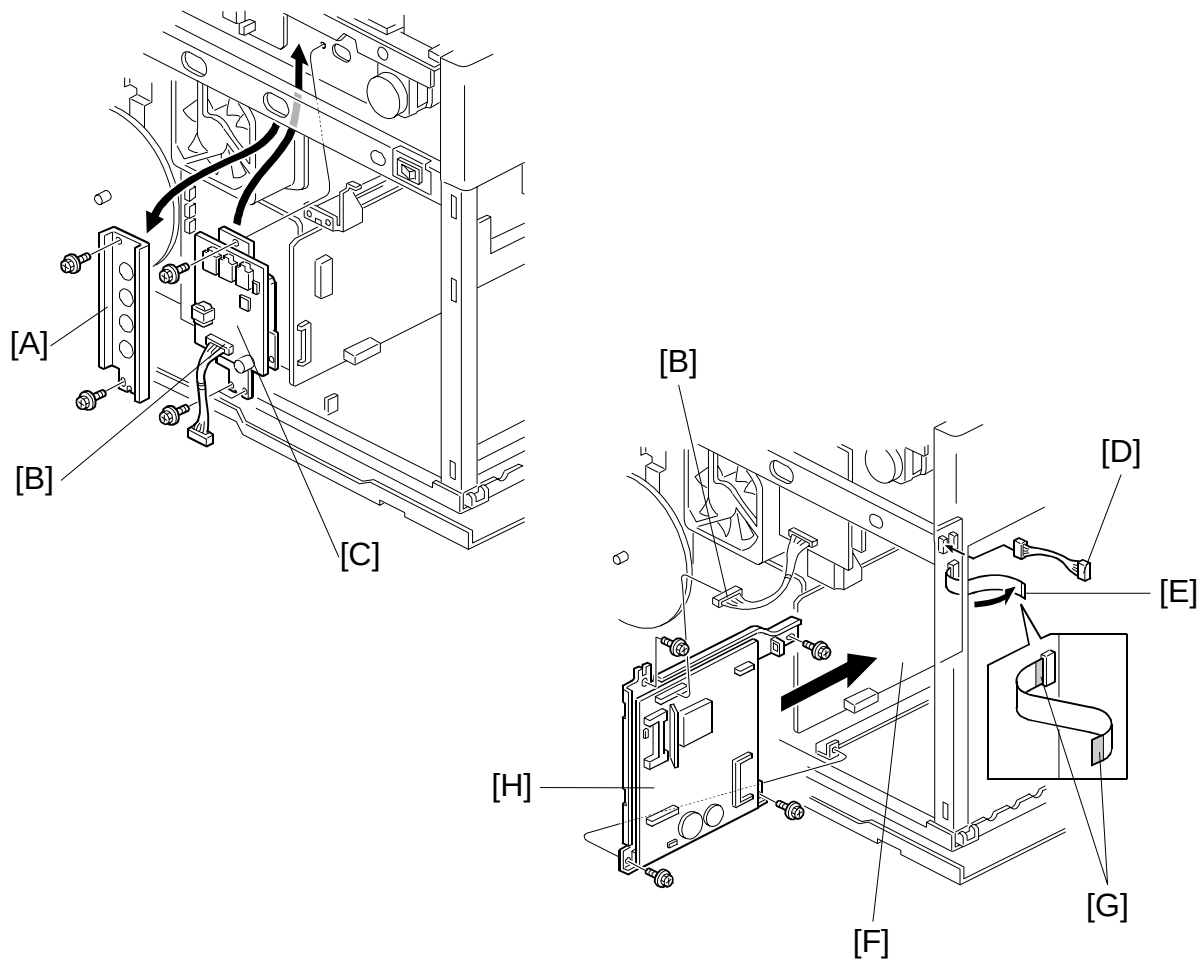
1. Remove the current NCU cover [A] from the copier rear cover.



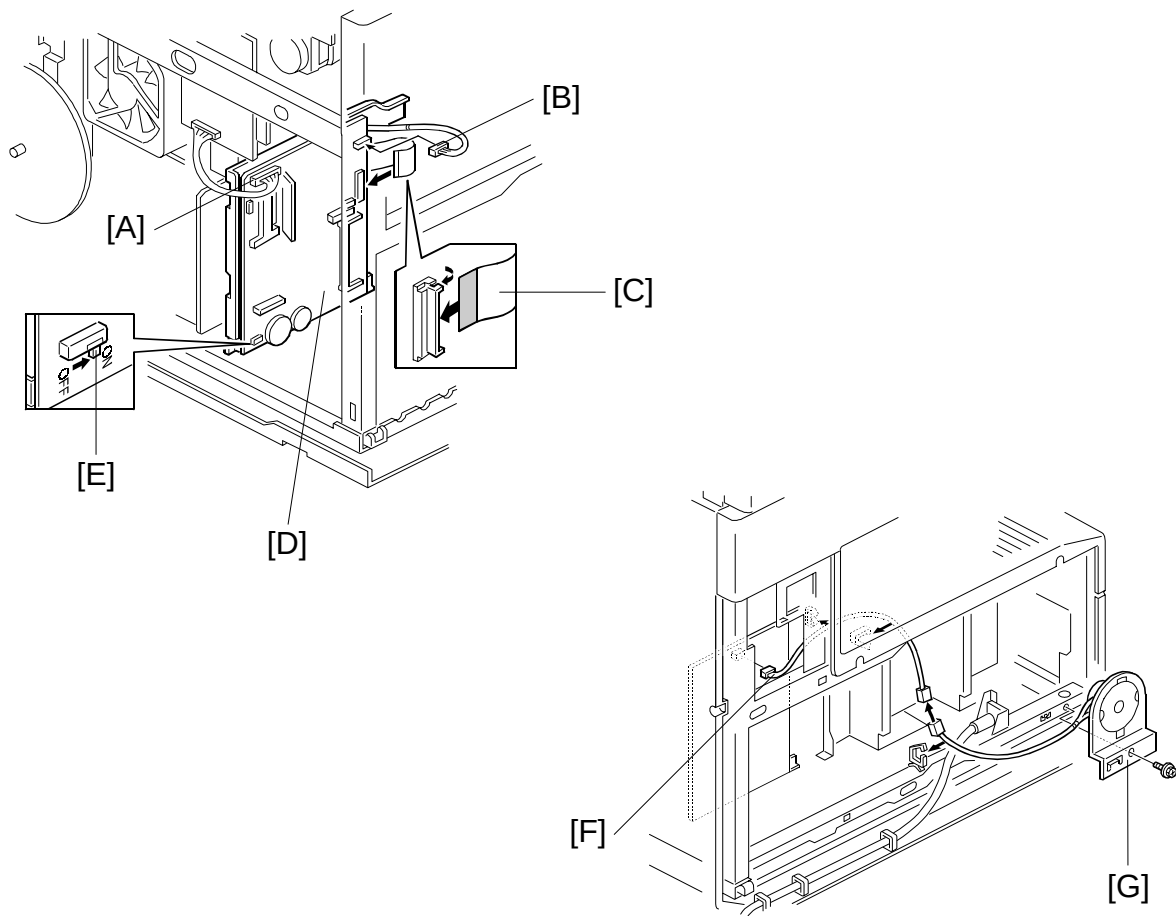
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2. Remove the rear cover [A] (5 screws).
3. Remove the left cover [B], as shown (1 screw).

FAX UNIT



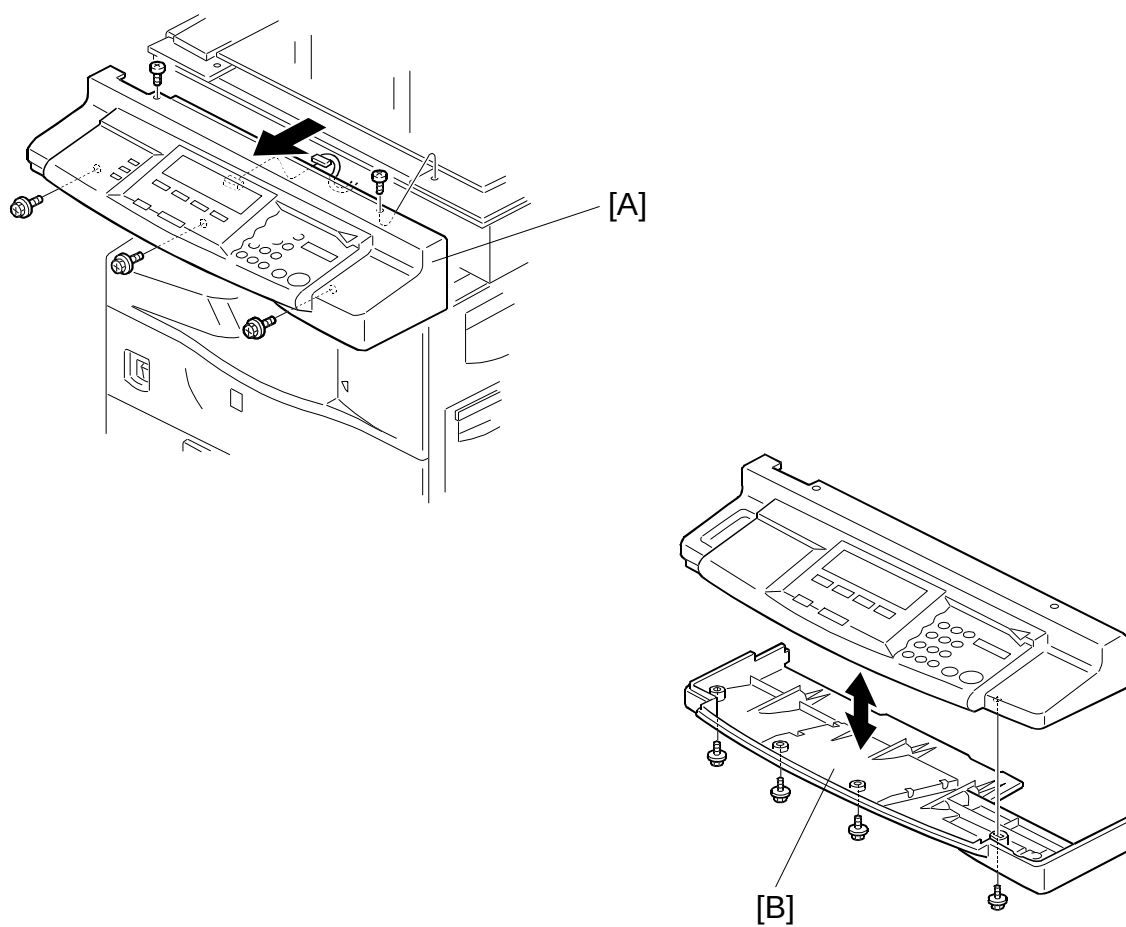
4. Remove the bracket [A].
5. Connect the NCU connector [B] (CN3) to the NCU board [C], and install the NCU board (3 screws).
6. Connect the power supply cable [D] (CN114) and flat cable [E] (CN113) to the BiCU board [F].
Note: When connecting the flat cable, make sure that the blue edges [G] of flat cable face the left side of the machine (i.e., away from the BiCU board).
7. Install the FCU board assembly [H] (4 screws).
Note: When installing the FCU board assembly, make sure not to pinch the harnesses and flat cable.



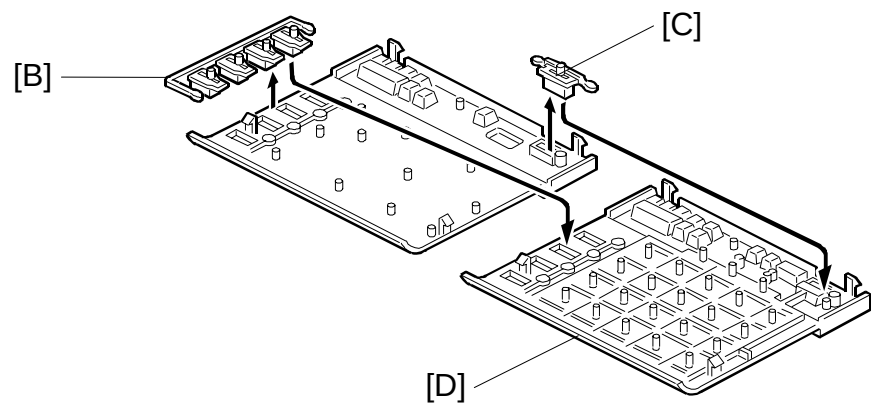
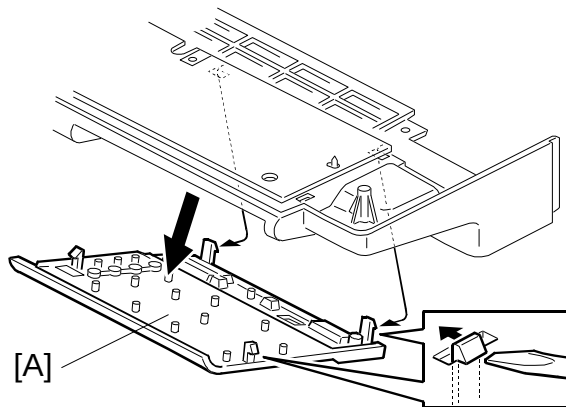
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8. Connect the NCU connector [A] (CN605), FCU connector [B] (CN651), and flat cable [C] (CN650) to the FCU board [D].
9. Turn on the FCU battery switch (SW3) [E].
10. Install the cable [F] (CN607) and the speaker assembly [G] (1 screw and 1 connector), and secure the cables to the clamps, as shown.
11. Re-install the rear and left covers.

FAX UNIT



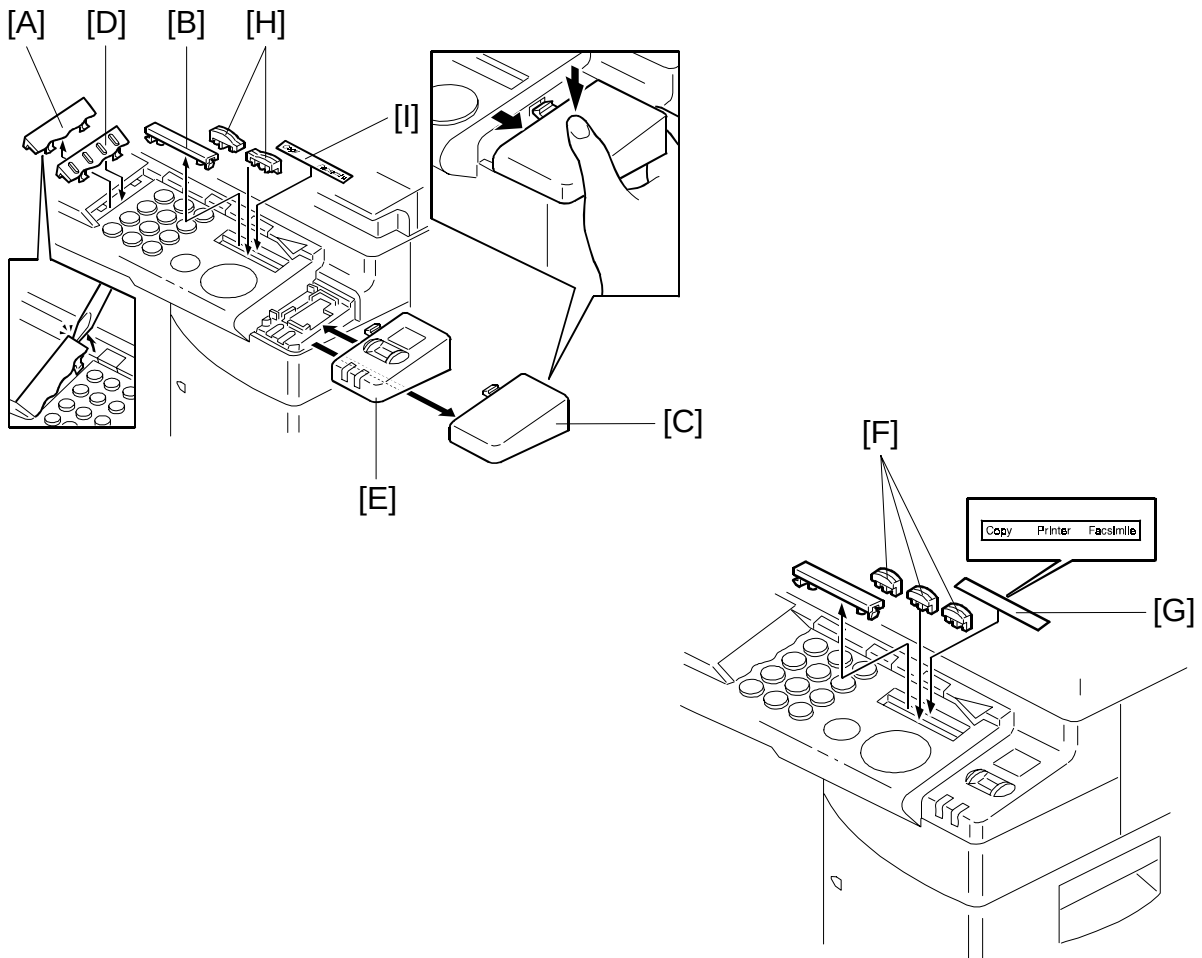
12. Remove the operation panel [A] (5 screws and 1 connector).
13. Remove the lower operation panel cover [B] (4 screws).



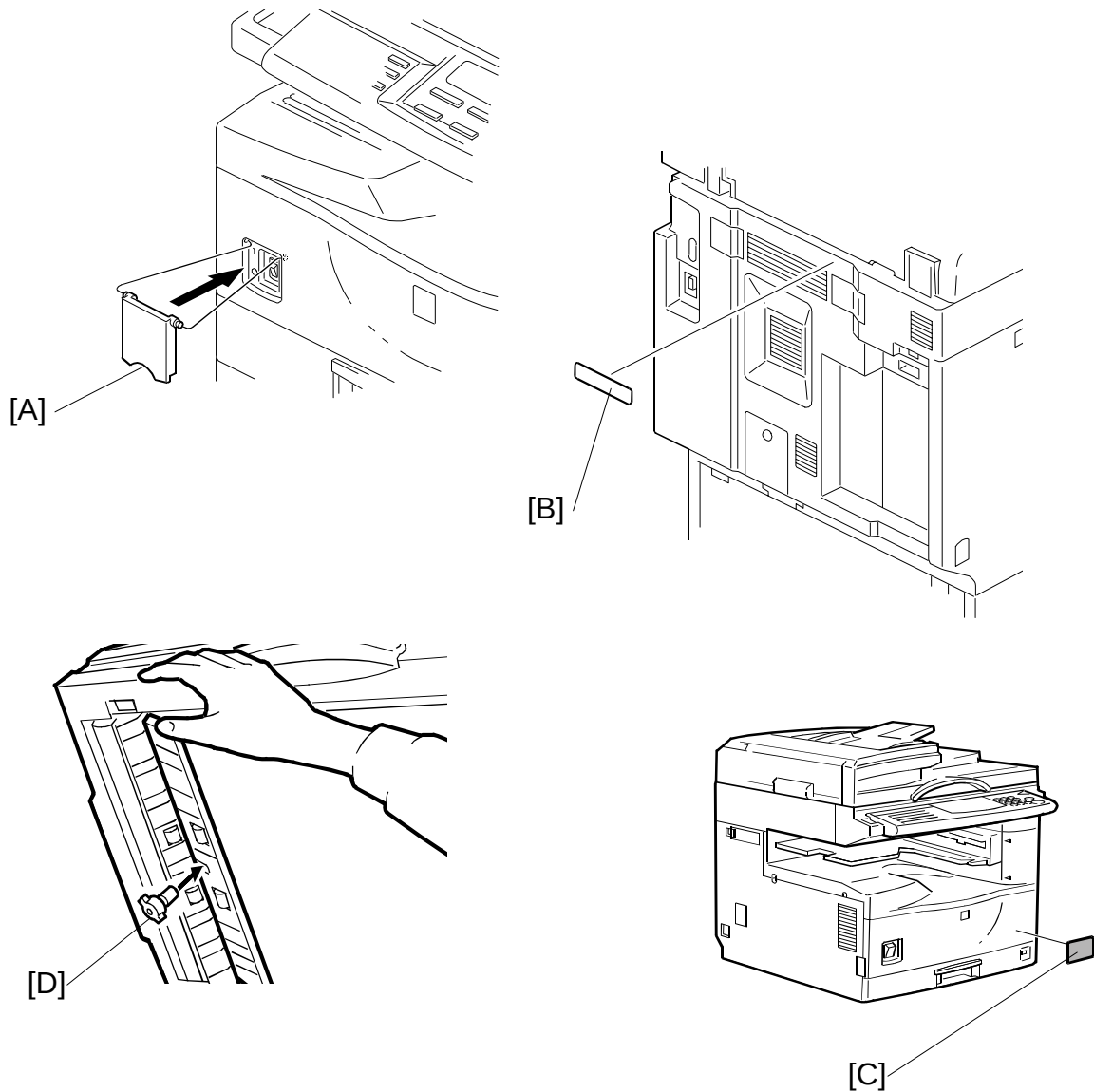
14. Remove the left panel [A] (4 hooks).
15. Remove the parts [B] and [C] from the left panel and install them on the left panel [D] for the fax.
16. Install the left panel.

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FAX UNIT

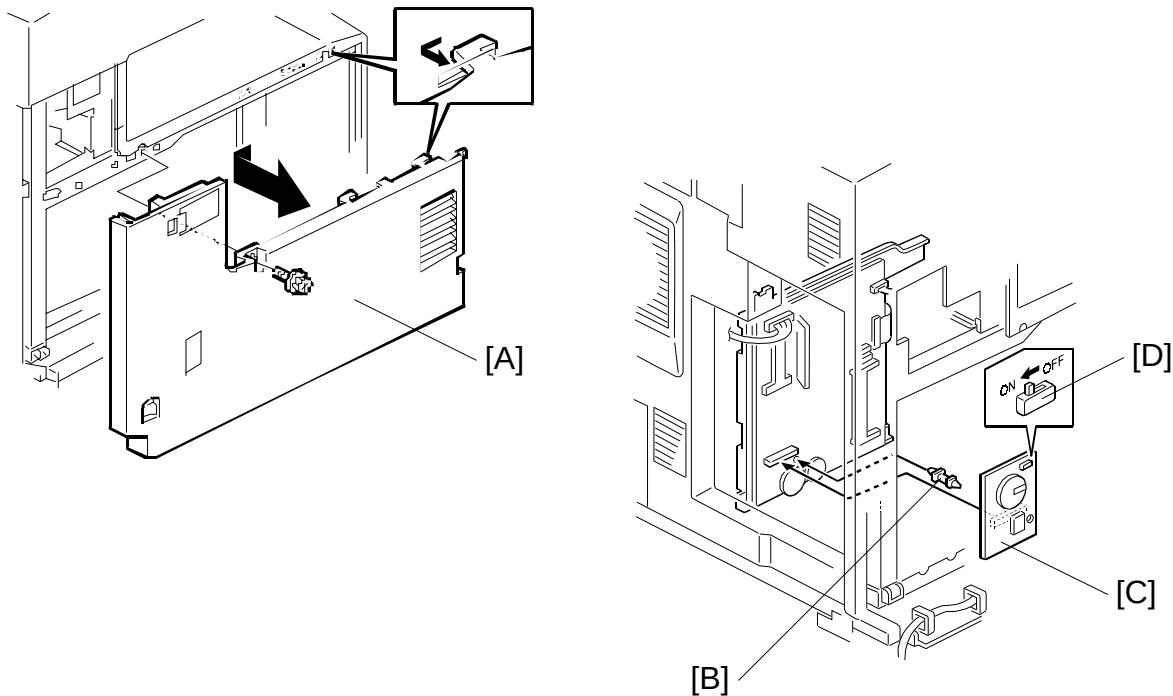


17. Re-install the lower operation panel cover.
18. Re-install the operation panel.
19. Remove parts [A], [B] and [C] from the operation panel.
20. Install parts [D] and [E] on the operation panel.
21. **If the machine has the printer controller option:** Install the keys [F] and the decal [G] (instead of the basic decal) as shown. The decal [G] has "Copy," "Printer," and "Facsimile" on it.
If the machine does not have the printer controller option: Install the keys [H] and the decal [I] as shown. The decal [I] has "Copy" and "Facsimile" on it.



22. Install the main switch cover [A].
23. Attach the FCC decal [B] to the rear cover, and the Super G3 decal [C] to the front cover.
24. Install the stamp [D] as shown.
25. Turn on the machine. The machine displays "SC1201".
NOTE: The machine always displays "SC1201" the first time the fax unit is powered up. Please ignore it.

3.2 EXFUNC BOARD (FAX FUNCTION UPGRADE)



⚠ CAUTION

Before installing this option, do the following:

- 1. Print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.**
- 2. If there is a printer option in the machine, print out all data in the printer buffer.**
- 3. Turn off the main switch and disconnect the power cord, the telephone line, and the LAN cable.**

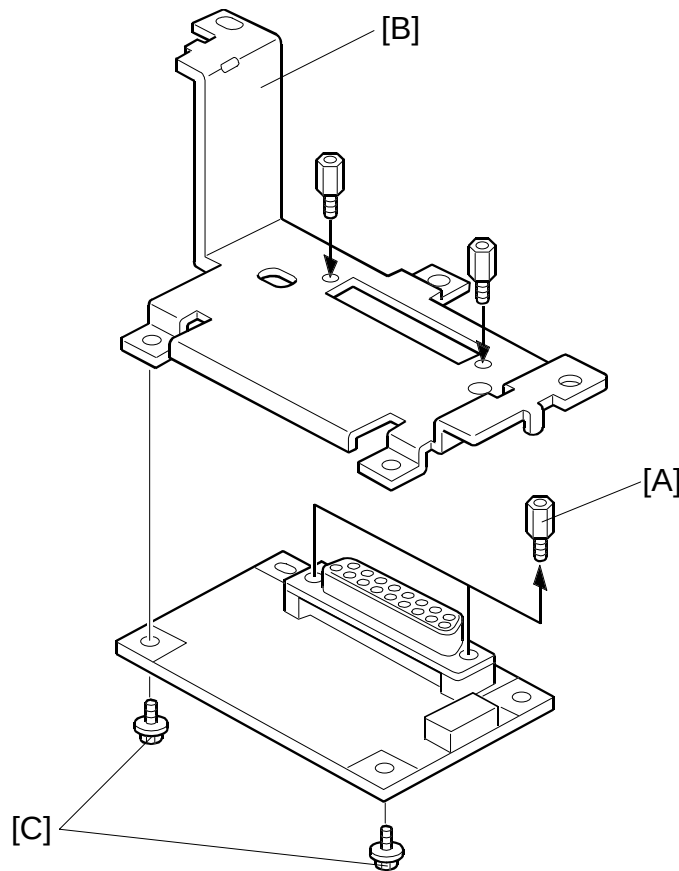
NOTE: 1) If a printer unit was installed, remove it before installing the EXFUNC board.

2) After installing or removing the EXFUNC board, the following message will appear: 'Adding FAX Feature Expander causes data loss. Turn Main Power Switch off and remove it to avoid loss. To continue, press yes.' If the customer does not wish to lose the data stored in the machine so far (such as Speed Dials), do the following:

- a) Do not press Yes. Switch off and take out the EXFUNC card.
- b) Copy the SRAM settings to a flash card (see Removal and Adjustment – SRAM Data Backup and Restore).
- c) Put the EXFUNC card back in and switch on the machine.
- d) When the message appears again, press Yes.
- e) Restore the SRAM settings from the flash card.

1. Remove the left cover [A], as shown (1 screw).
2. Install the locking support [B].
3. Install the EXFUNC board [C].
4. Turn on the battery switch (SW1) [D].
5. Re-install the left cover.
6. Turn on the machine. The machine displays "SC1207".
NOTE: The machine always displays "SC1207" the first time the EXFUNC board is powered up. Please ignore it.

3.3 PCFE UNIT (PC-FAX EXPANDER UPGRADE)



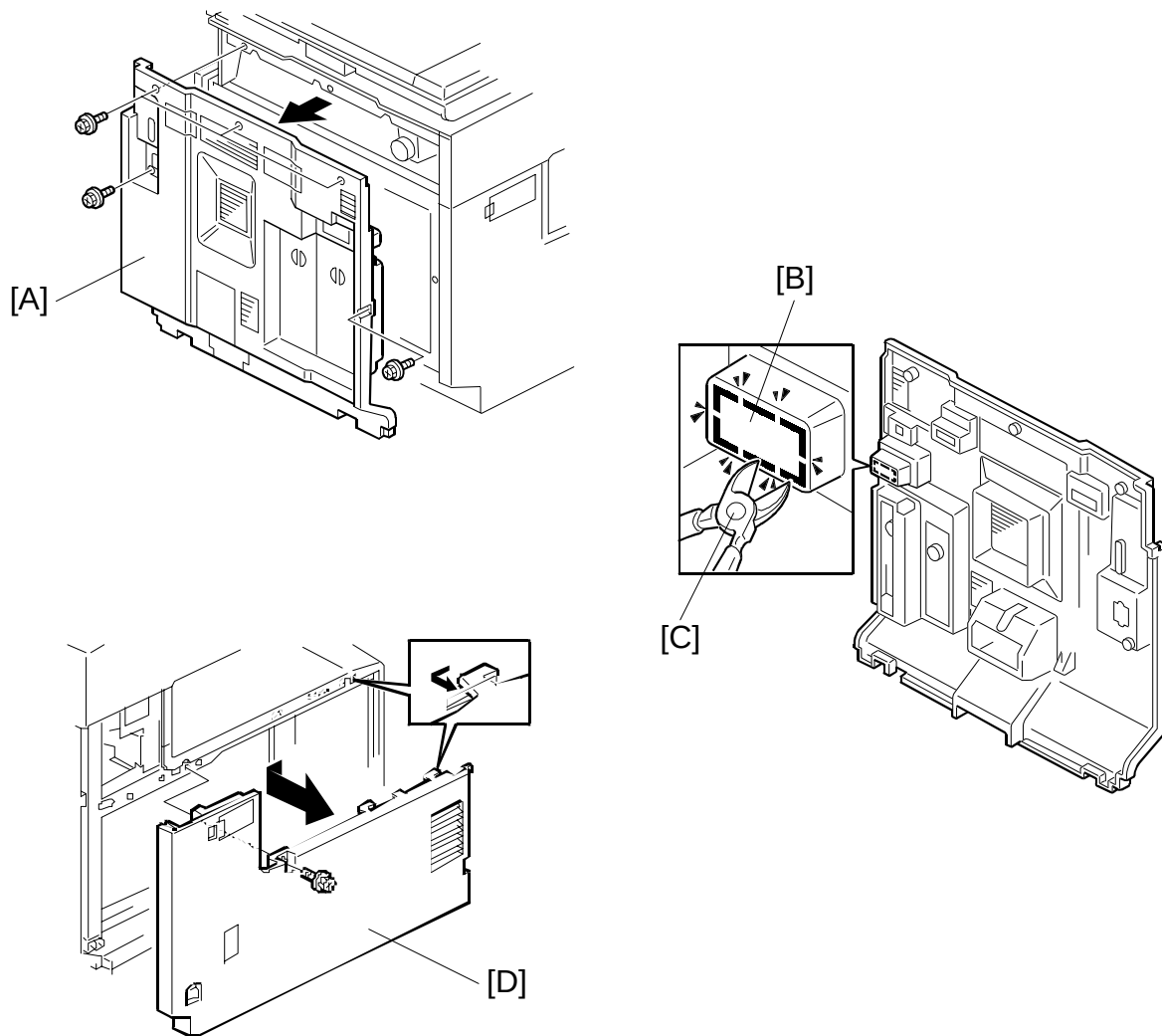
⚠ CAUTION

Before installing this option, do the following:

- 1. Print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.**
- 2. If there is a printer option in the machine, print out all data in the printer buffer.**
- 3. Turn off the main switch and disconnect the power cord, the telephone line, and the LAN cable.**

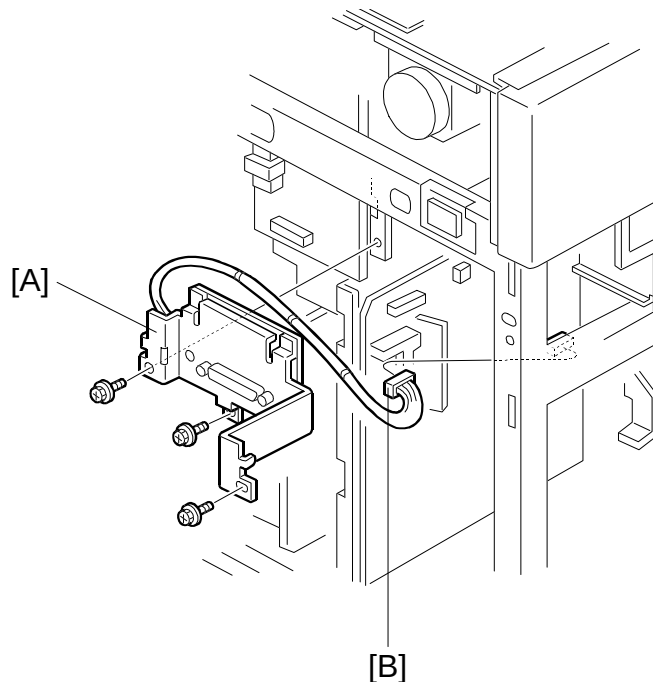
If a printer unit was installed, remove it before installing the PC fax expander.

1. Remove the two screws [A].
2. Install the bracket [B] (4 screws [A] and [C]).



3. Remove the rear cover [A] (5 screws).
4. Remove the cover [B] from the copier rear cover with wire cutters [C].
5. Remove the left cover [D], as shown (1 screw).

PCFE UNIT (PC-FAX EXPANDER UPGRADE)



6. Install the PC fax expander [A] (2 screws).

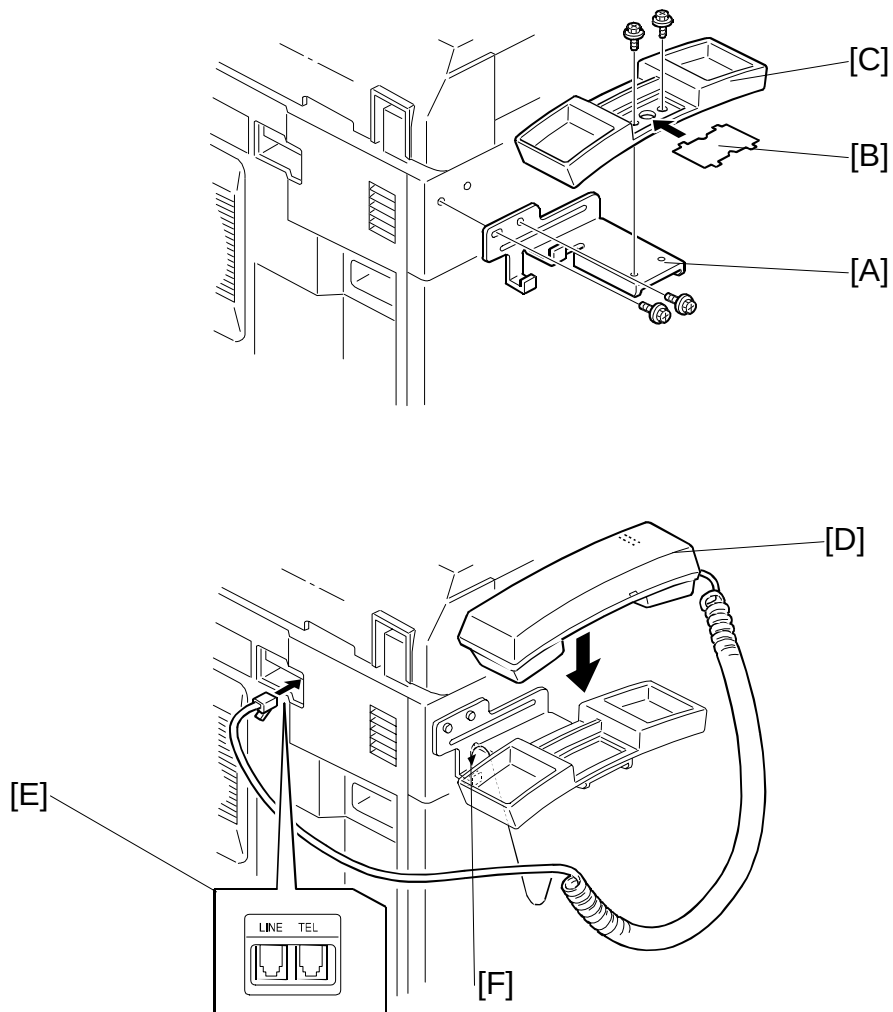
Note: If the printer unit will be installed, install it before installing the PC fax expander.

7. Connect the connector [B] to the FCU board.
8. Re-install the rear and left covers.
9. Plug in the machine and turn on the main switch.
10. Enter SP mode as follows:
 - 1) Press the "Clear Modes" key.
 - 2) Enter "107"
 - 3) Press the "Clear/Stop" key more than 3 seconds.

☐ → ① → ⑦ → ⑦ → ⑦

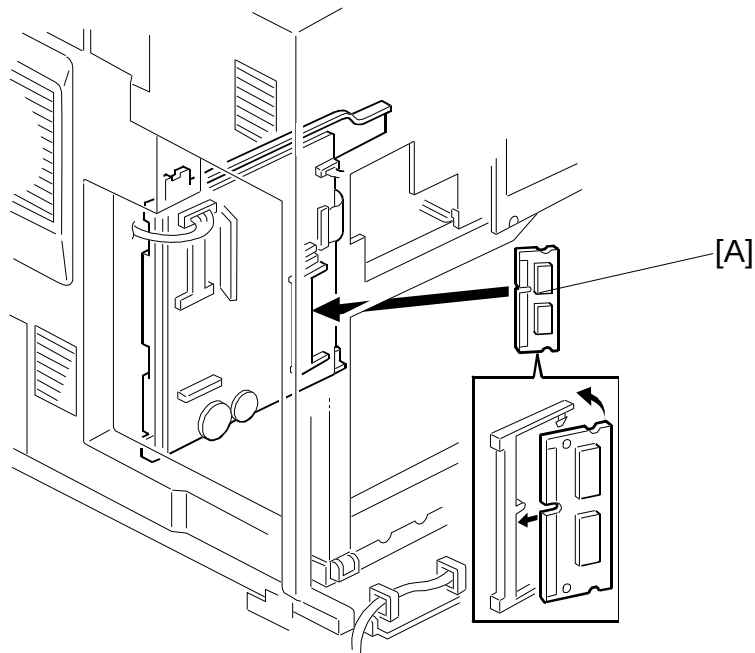
11. Enter "2" (select "Fax").
12. Enter "01" (select "Bit Switches").
13. Enter "1" (select "System Switch").
14. Press the "↑ Switch" key several times and select "Switch 1C".
15. Enter "0" and change bit 0 from 0 to 1.
16. Exit SP mode and turn the main switch off/on.

3.4 HANDSET (USA MODELS ONLY)



1. Attach the bracket [A] (3 screws) to the left cover.
2. Remove the label [B] from the handset cradle [C]. Attach the cradle to the bracket [A] (2 screws), then replace the label [B].
3. Install the handset [D], then connect the cable to the "TEL1" or "TEL2" jack [E] at the rear of the machine, as shown.
4. Hook the curled cord onto the bracket as shown [F].

3.5 EXMEM BOARD (EXPANSION MEMORY)



1. Remove the left cover.
2. Install the EXMEM board [A].
Tilt the EXMEM board so that it is 45 degrees from the FCU, and slide it into the slot as shown.
It should make an audible click as it pops into place.
3. Re-install the left cover.

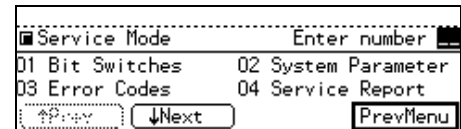
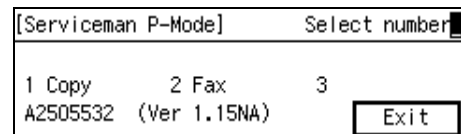
4. SERVICE TABLES

4.1 SERVICE LEVEL FUNCTIONS

4.1.1 HOW TO ENTER AND EXIT THE FAX SERVICE MODE

To Enter Fax Service Mode:

1. Ensure that the machine is in standby mode.
2. Press  ① ⑦, then hold down  for more than 3 seconds.
The SP mode main menu appears.
3. Press  to enter the fax service mode.

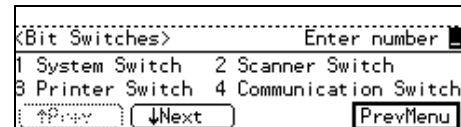


To Exit Fax Service Mode:

1. Press  or 'PrevMenu' until the SP mode main menu appears.
2. Press the  key.

4.1.2 BIT SWITCH PROGRAMMING (FUNCTION 01)

1. Enter the fax service mode.
2. Press  .
3. Press one of the following numbers, as required:
 -  – System bit switches
 -  – Scanner bit switches
 -  – Printer bit switches
 -  – Communication bit switches
 -  – G3 bit switches
 -  – G4 internal switches (Europe model only)
 -  – G4 parameter switches (Europe model only)



NOTE: An optional G4 interface is required to access the G4 internal and G4 parameter bit switches.

SERVICE LEVEL FUNCTIONS

Example:

1. Press **[1]**
2. Scroll through the bit switches.
To increment the bit switch number:
press '↓ Switch'.
To decrement the bit switch number:
press '↑ Switch'.

Example:

To display bit switch 03: Press '↓ Switch' 3 times.

3. Adjust the bit switch.
Example:
To change the value of bit 7, press 7.
4. To adjust more bit switches, go to step 2.
To finish, press 'OK' then 'PrevMenu'.
5. Exit the service mode.

NOTE: After changing any of the G4 bit switches, be sure to turn the main power switch off and back on to activate the new settings.

<Bit Switches>		System Switch	
Switch00	Default :	00000000	
	Current :	00000000	
↑Switch	↓Switch	Cancel	OK

<Bit Switches>		System Switch	
Switch00	Default :	00000000	
	Current :	10000000	
↑Switch	↓Switch	Cancel	OK

4.1.3 SYSTEM PARAMETER LISTS (FUNCTION 02)

1. Enter the fax service mode.
2. Press **[0]** **[2]**
3. Press **[1]**
4. Press **[↕]**

System Parameter List:		Enter number
1 Sys. Para. List	2 ROM Version	
3 Modem Version		
		PrevMenu

5. Exit the service mode.

NOTE: Pages 5 and 6 of the system parameter list are for designer use only. However some information may be useful for service technicians. See the next page.

- An example of the system parameter list (pages 5 and 6) –

```

* * * SYSTEM PARAMETER LIST (Date and Time) * * *
                                                    1)TTI 1
                                                    2)TTI 2

And later is information for a design.

REST ENTRY DATA
  TMP DIAL:1005 One key:30 Speed key:1000 PRG JOB:32 PRG DIAL:2000
  Rest Job file:1003(max:1004) Rest Dial file:2002(max:2002)
Resouece
  Free:0x0FFEFDFD Bad:0x0000001D CCU:0x00 [P1|XX|XX|XX|S|p|H]
SAF CAPACITY
  100%(Rest block:0x1E00)
Receive
  Now status          0x00 OK

CCU TX ERROR

```

```

* * * SYSTEM PARAMETER LIST (Date and Time) * * *
                                                    1)TTI 1
                                                    2)TTI 2

Task Status
ID  TASK  PRI STS  ISP  START  SP  PC
00  idle  20  RDY  0x00800A5E  0x00004530  0x00800A5E  0x00004530
01  :      :      :      :      :      :      :

```

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REST ENTRY DATA

TEMP DIAL: Remaining number of destinations that can be programmed at the ten-key pad.

One key: Remaining number of destinations that can be programmed as Quick Dials

Speed key: Remaining number of destinations that can be programmed as Speed Dials

PRG JOB: Remaining number of keystroke programs that can be programmed

PRG DIAL: Remaining number of destinations that can be used in keystroke programs.

Rest Job file: Number of remaining job files that can be used.

Rest Dial file: Number of remaining destinations that can be used.

SERVICE LEVEL FUNCTIONS

4.1.4 FCU ROM VERSION DISPLAY (FUNCTION 02)

1. Enter the fax service mode.
2. Press **[0]** **[2]** then **[2]**

ROM Version:	
P/N: A2915582B	Date: 99-02-24
Ver: 0x02	Dver: 3.18
Area: ST-USA	sum: F17C
OK	

3. Exit the service mode.

Note: The check-sum value displayed is calculated in 16-bit little endian format.

4.1.5 MODEM PROGRAM VERSION DISPLAY (FUNCTION 02)

1. Enter the fax service mode.
2. Press **[0]** **[2]** then **[3]**

Modem ROM Ver.:	
Parts No.: 3537	
Control: 4241	
DSP: 4241	
OK	

3. Exit the service mode.

4.1.6 ERROR CODE DISPLAY (FUNCTION 03)

1. Enter the fax service mode.
2. Press **[0]** **[3]**
3. Press either Prev. or Next to scroll through the error codes.
4. Exit the service mode.

<Error Codes>	
CODE= 03-10 05 DEC 21:40	
CODE= 07-10 05 DEC 21:40	
PrevMenu	

4.1.7 SERVICE MONITOR REPORT (FUNCTION 04)

1. Enter the fax service mode.
2. Press **[0]** **[4]** then **[↕]**

Service Monitor report	
Press Start to begin	
Cancel	

3. Exit the service mode.

4.1.8 G3 PROTOCOL DUMP LIST (FUNCTION 05)

1. Enter the fax service mode.
2. Press **0** **5**
3. Press **1** then **↵**
4. Exit the service mode.

<Protocol Dump>		Enter number
1	G3 Protocol List	
2	G4 Protocol List	
		PrevMenu

4.1.9 G4 PROTOCOL DUMP LIST (FUNCTION 05)

NOTE: An optional G4 interface is required to print the G4 protocol dump list.

1. Enter the fax service mode.
2. Press **0** **5**
3. Press **2**
4. Press one of the following numbers as required:
 - 1** – D + Bch
 - 2** – Dch
 - 3** – Bch1 Link
 - 4** – Dch Link
5. Exit the service mode.

<Protocol Dump>		Enter number
1	G3 Protocol List	
2	G4 Protocol List	
		PrevMenu

G4 Protocol List		Enter number
1	D+Bch	2 Dch
3	Bch1 LINK	4 Dch LINK
		PrevMenu

SERVICE LEVEL FUNCTIONS

4.1.10 RAM DISPLAY AND REWRITE (FUNCTION 06)

1. Enter the fax service mode.

2. Press **0** **6**

3. Press **1**

<RAM>		Enter number
1 RAM R/W	2 NCU Parameters	
3 G3 Memory Dump	4 G4 Memory Dump	
		PrevMenu

4. Enter the start address of the RAM area to be displayed, then press OK.

RAM R/W:	Input the address
ADDRESS=680000H	
Cancel	OK

5. Move the cursor to the target address using the arrow keys, then enter a new value (0-9: ten-key pad, A-F: Quick Dial keys).

RAM R/W:	
addr. 680000H: 010299022401FFFF	
6800008H: FFFFFFFFFFFFFFFF	
↑Prev.	↓Next
Cancel	OK

6. To scroll through the RAM addresses: press Prev. or Next.
To jump to an another address: press OK, and go back to step 3.

7. Exit the service mode.

4.1.11 NCU PARAMETERS (FUNCTION 06)

1. Enter the fax service mode.

2. Press **0** **6**

3. Press **2**

<RAM>		Enter number
1 RAM R/W	2 NCU Parameters	
3 G3 Memory Dump	4 G4 Memory Dump	
		PrevMenu

4. Move the cursor to the target parameter using the arrow keys, then enter a new value at the ten-key pad.

NCU Parameters:		
C.C = 017	No.01= 009	No.02= 013
No.03= 083	No.04= 255	No.05= 000
↑Prev.	↓Next	Cancel
OK		

5. Exit the service mode.

4.1.12 RAM DUMP (FUNCTION 06)

1. Enter the fax service mode.
2. Press **[0] [6]**
3. Press one of the following numbers as required:
 - [3]** – G3 memory dump list
 - [4]** – G4 memory dump list (Europe model only)

NOTE: An optional G4 interface is required to print the G4 memory dump list.
4. Enter the first four digits of the start and end addresses, then press 'OK'
 Example: Start at 480000, end at 4801FF
[4] [8] [0] [0] [4] [8] [0] [1] 'OK'
5. Press **[↵]**
6. Exit the service mode.

<RAM>		Enter number
1 RAM R/W	2 NCU Parameters	
3 G3 Memory Dump	4 G4 Memory Dump	
		PrevMenu

G3 Memory Dump:	Input the address
ADDRESS = 680000H ...	6800FFH
Cancel OK	

4.1.13 RAM CLEAR (FUNCTION 07)

1. Enter the fax service mode.
2. Press **[0] [7]**
3. Press one of the following numbers, as required:
 - [1]** Initializes the data in the SRAM, files in the SAF memory, and the clock.
 - [2]** Erases all the files stored in the SAF memory.
 - [3]** Resets the bit switches and the user parameters.
 - [4]** Initializes the data in the SRAM and files in the SAF memory.
4. The machine automatically returns to standby mode after self-initialization.

<RAM Clear>		Enter number
1 Initialization	2 Files	
3 Bit Switches	4 Factory Settings	
		PrevMenu

4.1.14 FCU REBOOT

To initialize the fax unit without erasing files or resetting the bit switches, do one of the following:

- Hold down the “Speed Dial” key for more than 10 s, while the machine is in facsimile mode. This initializes the fax unit only.
- Remove the rear cover and press SW2 on the FCU. This initializes the fax unit only.
- Turn off the main power and operation switches and turn them back on. This initializes the whole machine.
- Hold down the **[#]** and **[*]** keys for more than 10 s. This initializes the whole machine.

4.1.15 SERVICE STATION FAX NUMBER (FUNCTION 09)

1. Enter the fax service mode.
2. Press **[0] [9]**
3. Enter the fax number of the service station that will receive Automatic Service Calls from this machine. To use a G4 number, press the 'F4' key.
4. Press OK.
5. Exit the service mode.

4.1.16 SERIAL NUMBER (FUNCTION 10)

1. Enter the fax service mode.
2. Press **[1] [0]**
3. Enter the fax unit's serial number at the keypad, then press OK.
4. Exit the service mode.

4.1.17 MODEM TEST (FUNCTION 11)

1. Enter the fax service mode.
2. Press **[1] [1]**
3. Press one of the following numbers:
[1] – Modem test (analog line)
[3] – Modem test (ISDN line: Europe model only)
NOTE: An optional ISDN interface is required to test a modem on an ISDN line.
4. Press **[1]**
5. Choose a modem signal type at the keypad, then press **[◀]**.
 To stop, press **[C/Ⓢ]**.
6. Exit the service mode.

4.1.18 V.34 MODEM TEST (FUNCTION 11)

1. Enter the service mode.
2. Press **[1]** **[1]** then **[1]**

3. Press **[4]**

<V.34 Test>		Enter number
1 Symbol Rate	2400baud	
2 Data Rate	2400bps	
		Cancel OK

4. Select a symbol rate and a data rate, then press OK.
[1] – Select a symbol rate
[2] – Select a data rate

<Symbol Rate>		Enter number
1 V34 2400baud	2 V34 3000baud	
3 V34 3200baud	4 V34 2800baud	
5 V34 3429baud		
		PrevMenu

5. Press “Start” to start the test.
To stop the test, press “Stop”.
6. Exit the service mode.

<Data Rate>		Enter number
01 V34 2400bps	02 V34 4800bps	
03 V34 7200bps	04 V34 9600bps	
↑Prev	↓Next	PrevMenu

4.1.19 DTMF TEST (FUNCTION 11)

1. Enter the fax service mode.
2. Press **[1]** **[1]**

Tests:		Enter number
1 G3 CCU Tests	2 Memory Tests	
3 IS3 CCU Test		
		PrevMenu

3. Press one of the following numbers:
[1] – DTMF test (analog line)
[3] – DTMF test (ISDN line: Europe model only)

NOTE: A G4 interface is required to test DTMF tones on an ISDN line.

4. Press **[2]**
5. Choose a DTMF signal type at the keypad, then press **[↕]**
To stop the test, press **[C/⊗]**

G3 CCU Tests:		Enter number
1 Modem	2 DTMF	
3 Ringer	4 V.34 Test	
		PrevMenu

<DTMF>	
Select [0]~[9] [*] [#]	
PrevMenu	

4.1.20 RINGER TEST (FUNCTION 11)

1. Enter the fax service mode.
2. Press **[1]** **[1]**

Tests:		Enter number
1 G3 CCU Tests	2 Memory Tests	
3 IG3 CCU Test		
		PrevMenu

3. Press **[1]**

G3 CCU Tests:		Enter number
1 Modem	2 DTMF	
3 Ringer	4 V.34 Test	
		PrevMenu

4. Press **[3]** then **[< >]**
To stop the test, press **[C/⏏]**
5. Exit the service mode.

<Ringer>	
Press the Start key to begin	
Cancel	

4.1.21 MEMORY TEST (FUNCTION 11)

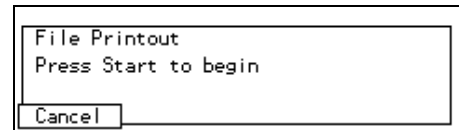
1. Enter the fax service mode.
2. Press **[1]** **[1]**
3. Press **[2]**
4. Press one of the following numbers:
[1] – SRAM test
[2] – DRAM test
5. Press "Start" to start the test.
 To stop the test, press "Stop".
 If the test is successful, the display shows "OK".
 If the test is unsuccessful, the display shows "NG".
6. Exit the service mode.

Memory Tests:		Enter number
1 SRAM	2 DRAM	
		PrevMenu

SRAM	
OK	
Exit	

4.1.22 FILE PRINTOUT (FUNCTION 13)

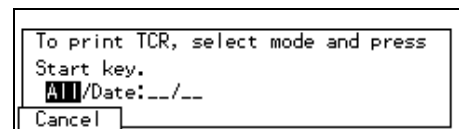
1. Enter the fax service mode.
2. Press **[1]** **[3]** then **[◊]**
The machine prints all the files stored in the SAF memory, including confidential messages.



NOTE: Do not use this function, unless the customer is having trouble printing confidential messages or recovering from a memory lock status.

4.1.23 JOURNAL PRINTOUT (FUNCTION 14)

1. Enter the fax service mode.
2. Press **[1]** **[4]**
3. Either:
Choose All - The machine prints all the communication records on the report. The maximum is 100 records, or 900 records if the optional EXFUNC board is installed.
Specify a date - The machine prints all communication records after the specified date.
4. Exit the service mode.

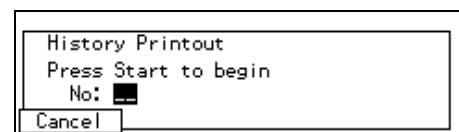


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4.1.24 USAGE LOG PRINTOUT (FUNCTION 15)

The following functions are for designer use only. However, list 5 (SC history) may be useful.

1. Enter the fax service mode.
2. Press **[1]** **[5]**
3. Press the number, then press **[◊]**
[5] – SC history
4. Exit the service mode.



4.1.25 DATA TRANSFER (FUNCTION 16)

This function allows ROM and SRAM data transfer between the FCU inside the machine and an external flash memory card or FCU. Refer to the following sections for details.

- Section 6.4.1 - FCU ROM download from a flash memory card
- Section 6.4.2 - FCU ROM upload to a flash memory card
- Section 6.5.1 - SRAM backup to a flash memory card
- Section 6.3.3 - SRAM restore from a flash memory card
- Section 6.3.2 – SRAM restore from FCU

4.2 BIT SWITCHES

WARNING

Do not adjust a bit switch or use a setting that is described as “Not used”, as this may cause the machine to malfunction or to operate in a manner that is not accepted by local regulations. Such bits are for use only in other areas, such as Japan.

NOTE: Default settings for bit switches are not listed in this manual. Refer to the System Parameter List printed by the machine.

4.2.1 SYSTEM SWITCHES

System Switch 00		
No	FUNCTION	COMMENTS
0-1	Not used	Do not change the settings.
2	Technical data printout on the Journal 0: Disabled 1: Enabled	1: Instead of the personal name, the following data are listed on the Journal for each G3 communication.
	e.g. 0000 32V34 288/264 L01000304 (1) (2)(3) (4) (5) (6) (7)(8)	
	(1): EQM value (Line quality data). The left hand figure is the high byte and the right hand figure is the low byte. A larger number means more errors. (2): Symbol rate (V.34 only) (3): Final modem type used (4): Starting data rate (for example, 288 means 28.8 kbps) (5): Final data rate (6): Rx level (refer to the note after this table for how to read the rx level) (7): Total number of error lines that occurred during non-ECM reception. (8): Total number of burst error lines that occurred during non-ECM reception. Note: EQM and rx level are fixed at "FFFF" in tx mode. The seventh and eighth numbers are fixed at "00" for transmission records and ECM reception records.	
	Rx level calculation Example: 0000 32 V34 288/264 L <u>01</u> <u>00</u> 03 04 The four-digit hexadecimal value (N) after "L" indicates the rx level. The <u>high</u> byte is given first, followed by the <u>low</u> byte. Divide the decimal value of N by -16 to get the rx level. In the above example, the decimal value of N (= 0100 [H]) is 256. So, the actual rx level is 256/-16 = -16 dB	
3-4	Not used	Do not change the settings.
5	G3/G4 communication parameter display 0: Disabled 1: Enabled	This is a fault-finding aid. The LCD shows the key parameters (see below). This is normally disabled because it cancels the CSI display for the user. Be sure to reset this bit to 0 after testing.

BIT SWITCHES

System Switch 00		
No	FUNCTION	COMMENTS
6	Protocol dump list output after each communication 0: Off 1: On	This is only used for communication troubleshooting. It shows the content of the transmitted facsimile protocol signals. Always reset this bit to 0 after finishing testing. The setting of system switch 09 bit 6 determines the types of communication that the list is printed after.
7	Amount of protocol dump data in one protocol dump list printout operation 0: Up to the limit of the memory area for protocol dumping 1: Last communication only	Change this bit to 1 if you want to have a protocol dump list of the last communication only. If bit 6 is turned on, the machine prints a protocol dump list for the last communication only, regardless of this bit setting. If system switch 09 bit 6 is at '1', the list is only printed if there was an error during the communication

G3 Communication Parameters

Modem rate	336: 33600 bps 168: 16800 bps 312: 31200 bps 144: 14400 bps 288: 28800 bps 120: 12000 bps 264: 26400 bps 96: 9600 bps 240: 24000 bps 72: 7200 bps 216: 21600 bps 48: 4800 bps 192: 19200 bps 24: 2400 bps
Resolution	S: Standard (8 x 3.85 dots/mm) D: Detail (8 x 7.7 dots/mm) F: Fine (8 x 15.4 dots/mm) SF: Superfine (16 x 15.4 dots/mm) 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 44: Superfine (400 x 400 dpi)
Compression mode	MMR: MMR compression MR: MR compression MH: MH compression JBO: JBIG compression (Optional mode) JBB: JBIG compression (Basic mode)
Communication mode	ECM: With ECM NML: With no ECM
Width and reduction	A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction A3: A3 (11.7"), no reduction
I/O rate	0: 0 ms/line 10: 10 ms/line 25: 2.5 ms/line 20: 20 ms/line 5: 5 ms/line 40: 40 ms/line Note: "40" is displayed while receiving a fax message using AI short protocol.

G4 Communication Parameters

Compression mode	MMR: MMR compression MR: MR compression MH: MH compression
Resolution	21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 44: Superfine (400 x 400 dpi)
Width and reduction	A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction A3: A3 (11.7"), no reduction
Transfer	T: Transfer - : Other
Confidential	C: Confidential - : Other
Other parameters	The following information is shown in 6-bit format. Bit 1 is the first bit from the left, and bit 6 is at the right end. Bit 1 - Smoothing 0: Off, 1: On (Smoothing is disabled in halftone mode.) Bit 2 - CIL printing 0: On, 1: Off Bit 3 - Not used Bit 4 - mm/inch conversion 0: Off, 1: On Bit 5 - Engine type 0: mm, 1: inches Bit 6 - Document resolution unit 0: mm, 1: inches

System Switch 01		
No	FUNCTION	COMMENTS
0	Automatic Service Call at PM 0: Disabled 1: Enabled	This bit switch determines whether the machine will send an Auto Service Call to the service station when it is time for PM. Cross reference Auto service calls: Section 2.1
1-7	Not used	Do not change the settings.

BIT SWITCHES

System Switch 02		
No	FUNCTION	COMMENTS
0-3	Not used	Do not change the settings.
4	File retention time 0: Depends on User Parameter 24 [18(H)] 1: No limit	1: A file that had a communication error will not be erased unless the communication is successful.
5	Not used	Do not change the settings.
6 7	Memory read/write by RDS Bit 7 6 Setting 0 0 Always disabled 0 1 User selectable 1 0 User selectable 1 1 Always enabled	(0,0): All RDS systems are always locked out. (0,1), (1,0): Normally, RDS systems are locked out, but the user can temporarily switch RDS on to allow RDS operations to take place. RDS will automatically be locked out again after a certain time, which is stored in System Switch 03. Note that if an RDS operation takes place, RDS will not switch off until this time limit has expired. (1,1): At any time, an RDS system can access the machine.

System Switch 03		
No	FUNCTION	COMMENTS
0 to 7	Length of time that RDS is temporarily switched on when bits 6 and 7 of System Switch 02 are set to "User selectable"	00 - 99 hours (BCD). This setting is only valid if bits 6 and 7 of System Switch 02 are set to "User selectable". The default setting is 24 hours.

System Switch 04		
No	FUNCTION	COMMENTS
0-2	Not used	Do not change the settings.
3	Printing dedicated tx parameters on Quick/Speed Dial Lists 0: Disabled 1: Enabled	1: Each Quick/Speed dial number on the list is printed with the dedicated tx parameters (8 bytes each). The last 10 bytes of data are the programmed dedicated tx parameters; 32 bytes of data are printed (the other 22 bytes have no use for service technicians).
4	Not used	Do not change the settings.

System Switch 04		
No	FUNCTION	COMMENTS
5	Memory file transfer operation 0: User level 1: Service level	If the machine is unable to print fax messages due to a mechanical problem, change this bit to 0 to transfer all messages in the memory (including confidential rx messages) to an another terminal. Always reset this bit to 1 after transfer. However, this bit can be left at 0, if the customer's key-operators want to transfer the files themselves. Procedure 1. Enter service mode and change this bit to 0. 2. Exit the service mode. 3. Enter the key-operator mode, and select 'Key-operator settings'. 4. Choose '03' and specify a destination for the machine to transfer all the files to. 5. Press 'Start'. 6. After the machine transfers the memory files, enter the service mode and reset this bit to 1. Otherwise, anybody who knows how to enter the key-operator mode can transfer confidential messages.
6	G3 CSI/G4 Terminal ID programming level 0: User level 1: Service level	1: The CSI and Terminal ID can only be programmed by a technician (in the user tools). The Terminal ID can only be programmed if a Group 4 option is installed.
7	Telephone line type programming mode 0: User level 1: Service level	1: Telephone line type selection (choosing tone dial or pulse dial) can only be programmed by a technician (in the user tools).

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System Switch 05		
No	FUNCTION	COMMENTS
0-1	Not used	Do not change the settings.
2	Display of both RTI and CSI on the LCD 0: Disabled 1: Enabled	1: An RTI will be displayed until phase B of the protocol sequence, and a CSI will be displayed after phase C.
3-7	Not used	Do not change the settings.

System Switch 06		
No	FUNCTION	COMMENTS
0 to 7	Margin setting for Create Margin Transmission	71 to 99 (BCD) %. This setting determines the reduction ratio when the user uses the Create Margin Transmission option. Default setting: 1001 0011 (93%)

BIT SWITCHES

System Switch 07 - Not used (Do not change the factory settings.)
System Switch 08 - Not used (Do not change the factory settings.)

System Switch 09		
No	FUNCTION	COMMENTS
0	Addition of image data from confidential transmissions on the transmission result report 0: Disabled 1: Enabled	If this feature is enabled, the top half of the first page of confidential messages will be printed on transmission result reports.
1	Inclusion of communications on the Journal when no image data was exchanged. 0: Disabled 1: Enabled	0: Communications that reached phase C (message tx/rx) of the T.30 protocol are listed on the Journal. 1: Communications that reached phase A (call setup) of T.30 protocol are listed on the Journal. This will include telephone calls.
2	Automatic error report printout 0: Disabled 1: Enabled	0: Error reports will not be printed. 1: Error reports will be printed automatically after failed communications.
3	Printing of the error code on the error report 0: No 1: Yes	1: Error codes are printed on the error reports.
4	Not used	Do not change the settings.
5	Power failure report 0: Disabled 1: Enabled	1: A power failure report will be automatically printed after the power is switched on if a fax message disappeared from the memory when the power was turned off last.
6	Conditions for printing the protocol dump list 0: Print for all communications 1: Print only when there is a communication error	This switch becomes effective only when system switch 00 bit 6 is set to 1. 1: Set this bit to 1 when you wish to print a protocol dump list only for communications with errors.
7	Priority given to various types of remote terminal ID when printing reports 0: RTI > CSI > Dial label > Tel. number 1: Dial label > Tel. number > RTI > CSI	This bit determines which set of priorities the machine uses when listing remote terminal names on reports. In G4 communication, G4_TID (Terminal ID) is used instead of RTI or CSI. (G4 is for the Europe model only.) Dial Label: The name stored, by the user, for the Quick/Speed Dial number.

System Switch 0A		
No	FUNCTION	COMMENTS
0-2	Not used	Do not change the settings.
3	Continuous polling reception 0: Disabled 1: Enabled	This feature allows a series of stations to be polled in a continuous cycle. This will continue until the polling reception file is erased. The dialing interval is the same as memory transmission.
4	Dialing on the ten-key pad when the external telephone is off-hook 0: Disabled 1: Enabled	0: Prevents dialing from the ten-key pad while the external telephone is off-hook. Use this setting when the external telephone is not by the machine, or if a wireless telephone is connected as an external telephone. 1: The user can dial on the machine's ten-key pad when the handset is off-hook.
5	On hook dial 0: Disabled 1: Enabled	0: On hook dial is disabled.
6	Line used for G3 transmission 0: PSTN 1: ISDN ISDN: Europe model only	If an ISDN unit has been installed, this bit determines whether G3 transmissions go out over the PSTN or the ISDN.
7	Line used when the machine falls back to G3 from G4 if the other end is not a G4 machine 0: PSTN 1: ISDN ISDN: Europe model only	This bit switch has no effect if Communication Switch 07 bit 0 is set to 0.

System Switch 0B - Not used (Do not change the factory settings.)
System Switch 0C - Not used (Do not change the factory settings.)
System Switch 0D - Not used (Do not change the factory settings.)

System Switch 0E		
No	FUNCTION	COMMENTS
0-2	Not used	Do not change the settings.
3	Action when the external handset goes off-hook 0: Manual tx and rx operation 1: Memory tx and rx operation (the display remains the same)	0: Manual tx and rx are possible while the external handset is off-hook. But, memory tx is not possible. 1: The display stays in standby mode even when the external handset is used, so that other people can use the machine for memory tx operation. Note that manual tx and rx are not possible with this setting.
4-7	Not used	Do not change the settings.

BIT SWITCHES

System Switch 0F		
No	FUNCTION	COMMENTS
0 to 7	Country code for functional settings (Hex) 00: France 10: Not used 01: Germany 11: USA 02: UK 12: Asia 03: Italy 13: Japan 04: Austria 14: Hong Kong 05: Belgium 15: South Africa 06: Denmark 16: Australia 07: Finland 17: New Zealand 08: Ireland 18: Singapore 09: Norway 19: Malaysia 0A: Sweden 1A: China 0B: Switz. 1B: Taiwan 0C: Portugal 20: Turkey 0D: Holland 21: Greece 0E: Spain 0F: Israel	This country code determines the factory settings of bit switches and RAM addresses. However, it has no effect on the NCU parameter settings and communication parameter RAM addresses. Cross reference NCU country code: Function 06, parameter C.C.

System Switch 10		
No	FUNCTION	COMMENTS
0 to 7	Threshold memory level for parallel memory transmission	Threshold = N x 128 kbytes + 256 kbytes N can be between 00 - FF(H) Default setting: 02(H) = 512 kbytes

System Switch 11		
No	FUNCTION	COMMENTS
0	TTI printing position 0: Superimposed on the page data 1: Printed before the data leading edge	Change this bit to 1 if the TTI overprints information that the customer considers to be important (G3 transmissions).
1	TSI (G3) or CIL/TID (G4) printing position 0: Superimposed on the page data 1: Printed before the data leading edge	Change this bit to 1 if the TSI (G3) or CIL/TID (G4) overprints information that the customer considers to be important. G4: Europe model only
2	Not used	Do not change the factory settings.
3	TTI used for broadcasting 0: The TTIs selected for each Quick/Speed dial are used 1: The same TTI is used for all destinations	1: The TTI (TTI_1 or TTI_2) which is selected with user switch 01 bit 6 is used for all destinations during broadcasting.

System Switch 11		
No	FUNCTION	COMMENTS
4	Type of TTI used for transmission using the ten-key pad 0: TTI_1 1: TTI_2	1: The machine uses TTI_2 when the user dials the destination using the ten-key pad. It is also used for polling transmission and manual transmission using the handset.
5-6	Not used	Do not change the factory settings.
7	Use of parallel memory transmission with G4 transmission 0: Disabled 1: Enabled G4: Europe model only	This determines whether parallel transmission can be used with a G4 transmission or not. Note that this bit is only effective if Parallel Memory transmission is enabled (User Parameter 07 - bit 2).

System Switch 12		
No	FUNCTION	COMMENTS
0 to 7	TTI/CIL printing position in the main scan direction CIL: Command Information Line (Group 4) G4: Europe model only	TTI/CIL: 08 to 64 (BCD) mm Input even numbers only. This setting determines the print start position for the TTI and CIL from the left edge of the paper. If the TTI is moved too far to the right, it may overwrite the file number which is on the top right of the page. On an A4 page, if the CIL is moved over by more than 60 mm, it may overwrite the page number.

System Switch 13 - Not used (do not change the settings)

System Switch 14 - Not used (do not change the settings)

System Switch 15		
No	FUNCTION	COMMENTS
0	Not used	Do not change the settings.
1	Going into the Night mode automatically 0: Enabled 1: Disabled	1: The machine will restart from the Energy Saver mode quickly, because the +5V power supply is active even in the Energy Saver mode.
2	Protocol dump data backup 0: Disabled 1: Enabled	1: The machine backs up the protocol dump data for approximately one hour when the main switch is turned off, in the same way as image data.
3-7	Not used	Do not change the settings.

BIT SWITCHES

System Switch 16		
No	FUNCTION	COMMENTS
0	Parallel Broadcasting 0: Disabled 1: Enabled	1: When the G4 unit is installed, the machine sends messages simultaneously using both available ports (PSTN/ISDN) for broadcasting, if the job contains both PSTN and ISDN destinations. This is available for the European model only.
1-7	Not used	Do not change the settings.

System Switch 17 - Not used (do not change the settings)
System Switch 18 - Not used (do not change the settings)

System Switch 19		
No	FUNCTION	COMMENTS
0 to 2	Key acknowledgement tone volume adjustment 000 (Min.: OFF)- 111 (Max.) Default setting – 011	This controls the volume of this tone when the machine is in fax mode (it has no effect on the tone when the machine is in copier or printer mode).
3-6	Not used	Do not change the settings.
7	Special Original mode 0: Disabled 1: Enabled	1: If the customer frequently wishes to transmit a form or letterhead which has a colored or printed background, change this bit to “1”. “Special Original” can be selected in addition to the “Text”, “Text/Photo” and “Photo” modes. When this mode is selected, the “Text/Photo” and “Photo” LEDs are both lit. Cross reference ☐ Type of special original mode – Scanner switch 00 bit 0.

System Switch 1A - Not used (do not change the settings)
System Switch 1B - Not used (do not change the settings)

System Switch 1C		
No	FUNCTION	COMMENTS
0	PC-Fax Expander option 0: Not installed 1: Installed	Change this bit to 1 when installing the PC-Fax Expander.
1	To omit the PSTN access code during a PC-Fax transmission 0: Disabled 1: Enabled	1: The machine does not dial the PSTN access code programmed in the PC-Fax application during PC-Fax memory transmission. This function becomes effective only when the PC fax application dials using a Quick/Speed/Group Dial stored in the fax machine. The machine will not omit dialing the PSTN access code when a destination number is programmed manually.
2	Not used	Do not change the settings.
3	Deleting the file when an error occurs during PC data storage to the SAF 0: Not cleared 1: Cleared	This function is effective for PC memory transmission. 0: The pages stored in the SAF will be transmitted from the machine. 1: All data is cleared when an error occurs. However, if the SAF memory becomes full during data storage, the setting of system bit switch 1E bit 1 determines how data is treated. This function is also effective for PC printing.
4	Resolution unit used for PC-Fax communication 0: mm 1: inches	This bit determines the resolution unit used for PC fax communication. This is because the PC fax application cannot automatically adjust the resolution unit. This setting is also effective for PC scanning.
5-6	Not used	Do not change the settings.
7	PC protocol dump list output after each PC communication 0: Off 1: On	1: This is only used for PC communication troubleshooting. ☐ Communications between the DIU (PCFE board) and a host PC are logged on the PC dump list. The setting of system switch 09 bit 6 determines the types of communication that the list is printed after. ☐ PC scan and PC print are printed on the Journal. ☐ The Data-in LED turns on while data is coming in and going out to the PC. Be sure to reset this bit to "0" after a test.

System Switch 1D - Not used (do not change the settings)

BIT SWITCHES

System Switch 1E		
No	FUNCTION	COMMENTS
0	Communication after the Journal data storage area has become full 0: Possible 1: Impossible	This setting is effective only when Automatic Journal printout is enabled. 0: If the buffer memory of the communication records for the Journal is full, fax communications are still possible. But the machine will overwrite the oldest communication records. 1: If the buffer memory of the communication records for the Journal has become full, fax communications will become impossible, to prevent overwriting the communication records before the machine prints them out. Cross Reference ❑ Automatic Journal output - User switch 03 bit 7 ❑ Number of communication records for the Journal: 100 records (standard) 900 records (with the EXMEM board installed)
1	Action when the SAF memory has become full during scanning 0: The current page is erased. 1: The entire file is erased.	0: If the SAF memory becomes full during scanning, the successfully scanned pages are transmitted. 1: If the SAF memory becomes full during scanning, the file is erased and no pages are transmitted. Not applicable to parallel memory transmission
2	RTI/CSI display priority 0: RTI 1: CSI	This bit determines which identifier, RTI or CSI, is displayed on the LCD while the machine is communicating in G3 non-standard mode.
3	File No. printing 0: Enabled 1: Disabled	1: File numbers are not printed on any reports.
4	Action when authorized reception is enabled but authorized RTIs/CSIs are not yet programmed: 0: All fax reception is disabled 1: Faxes can be received if the sender has an RTI or CSI	If authorized reception is enabled but the user has stored no acceptable sender RTIs or CSIs, the machine will not be able to receive any fax messages. If the customer wishes to set up the authorized reception feature in this way, change this bit to "1" before enabling Authorized Reception. Messages from senders that include an RTI or CSI will be received. Otherwise, keep this bit at "0 (default setting)".
5	Address display priority in the AI redial mode. 0: RTI/CSI 1: Telephone number	0: When the machine has both RTI/CSI and the telephone number information, the machine displays RTI/CSI. 1: The machine always displays the telephone number.
6	Not used	Do not change the settings

System Switch 1E		
No	FUNCTION	COMMENTS
7	RAM initialization after the optional EXFUNC board is installed or removed 0: Enabled 1: Disabled	When the machine detects that an EXFUNC board has been installed or removed, the machine shows the following message on the display for the customer. <i>“Adding/Removing FAX Feature Expander causes data loss. Turn Main Power Switch off and remove/replace it to avoid loss. To continue, press Yes.”</i> If Yes is pressed, the machine initializes the RAM to the “with” or “without card” configuration. However, changing this bit to ‘1’ disables this initialization, even if Yes is pressed. Change this bit to 1 after installing the EXFUNC board. 0: When the above message is displayed, the machine initializes the RAM if Yes is pressed. The amount of data lost depends on whether the board is in or out. To avoid losing data, the user must switch off immediately and put the board back in. 1: When the above message is displayed, the machine does not initialize the RAM even if Yes is pressed. However, the fax unit cannot be used until the user switches off, puts the board back in, then switches back on. No data is lost.

BIT SWITCHES

System Switch 1F		
No	FUNCTION	COMMENTS
0	Not used	Do not change the settings.
1	Report printout after an original jam during SAF storage or if the SAF memory fills up 0: Enabled 1: Disabled	0: When an original jams, or the SAF memory overflows during scanning, a report will be printed. Change this bit to "1" if the customer does not want to have report in these cases. Memory tx – Memory storage report Parallel memory tx – Transmission result report
2	Not used	Do not change the settings.
3	Received fax print start timing (G3 reception) 0: After receiving each page 1: After receiving all pages	0: The machine prints each page immediately after the machine receives it. 1: The machine prints the complete message after the machine receives all the pages in the memory.
4	Received fax print start timing (G4 reception) 0: After receiving each page 1: After receiving all pages	
5-6	Not used	Do not change the factory settings.
7	Action when a fax SC has occurred 0: Automatic reset 1: SC code display	0: When the fax unit detects a fax SC code other than SC1201, the fax unit automatically resets itself. 1: When the fax unit detects any fax SC code, the fax unit displays the SC code and stops. Cross Reference Fax SC codes - See "Troubleshooting"

4.2.2 SCANNER SWITCHES

Scanner Switch 00		
No	FUNCTION	COMMENTS
0	Type of special original mode 0: Monotone background 1: Colored background	This setting determines the scanner parameters used for special original mode. 0: This setting is for originals with random background of constant density, such as seen on banknotes (faxing banknotes is not recommended!). 1: This setting is for originals with background of constant density, such as those made on coloured paper. This switch becomes effective only when system switch 19 bit 7 is set to 1.
1-3	Not used	Do not change the settings.
4	OR processing (Text mode) 0: Disabled 1: Enabled	1: Each pair of scan lines goes through OR processing before transmission.
5-7	Not used	Do not change the settings.

Scanner Switch 01		
No	FUNCTION	COMMENTS
0 to 4	Scan density step value (Text mode)	When scan density is adjusted manually away from the Normal setting, the threshold value for binary picture processing changes for each step from the value specified by Scanner Switch 02, by the amount programmed here. For example, with the default setting (14), the threshold value changes as follows. +3 (Darkest) : 77 (= 91 – 14) +2 : 91 (= 105 – 14) +1 : 105 (= 119 – 14) 0 (Normal) : 119 (Scanner Switch 02 setting) -1 : 133 (= 119 + 14) -2 : 147 (= 133 + 14) -3 (Lightest) : 161 (= 147 + 14) The value can be between 00 and 1F(H) [= 31(D)]. For a darker threshold, input a lower value.
5-7	Not used.	Do not change the settings.

Scanner Switch 02		
No	FUNCTION	COMMENTS
0 to 7	Binary picture processing: Threshold for Text mode - Normal setting (center position)	This setting determines the threshold value for binary picture processing in Text mode (when the scan density setting is at the center). The value can be between 01 and FF. For a darker threshold, input a lower value. Default setting: 77(H) = 119(D)

BIT SWITCHES

Scanner Switch 03		
No	FUNCTION	COMMENTS
0 to 7	Binary picture processing: Threshold for Photo and Text/Photo mode - Normal setting (center position)	This setting determines the threshold value for binary picture processing in Text/Photo mode (when the scan density setting is at the center). The value can be between 01 and FF. For a darker threshold, input a lower value. Default setting: 23(H) = 35(D)

Scanner Switch 04 - Not used (do not change the settings)
Scanner Switch 05 - Not used (do not change the settings)

Scanner Switch 06		
No	FUNCTION	COMMENTS
0 to 3	MTF filter level (Text mode) The value can be between 0(Off) and F. For a weaker threshold, input a lower value. Default setting: 7 This setting is independent from the threshold specified by copier SP mode 4-916.	
4 to 7	MTF filter level (Text/Photo mode) The value can be between 0(Off) and F. For a weaker threshold, input a lower value. Default setting: 7 This setting is independent from the threshold specified by copier SP mode 4-916.	

Scanner Switch 07		
No	FUNCTION	COMMENTS
0 to 2	Smoothing filter level (Photo mode)	The value can be between 0(Off) and 7. For a weaker threshold, input a lower value. Default setting: 2 This setting is independent from the threshold setting specified by the copier's SP mode 4-927.
3-7	Not used	Do not change the settings.

Scanner Switch 08 - Not used (do not change the settings)
Scanner Switch 09 - Not used (do not change the settings)

Scanner Switch 0A		
No	FUNCTION	COMMENTS
0 to 2	Isolated dot elimination level (Text modes)	The value can be between 0(Off) and 4. For a higher threshold, input a higher value. Default setting: 2 This setting is independent from the threshold setting specified by the copier's SP mode 4-917.
3-7	Not used	Do not change the settings.

Scanner Switch 0B		
No	FUNCTION	COMMENTS
0 to 3	Scan margin setting (top and bottom margin in book scan mode, and top margin in ADF mode) The setting can be between 0 and F (H) (in mm). Default setting: 3 mm If the scanned image margin is still incorrect after adjustment, the base copier's SP mode settings may be incorrect. Check and adjust SP modes 4-012-1 and 6-006-2.	
4 to 6	Scan margin setting (bottom margin in ADF mode) The setting can be between 0 and 7 (H) (in mm). Default setting: 2 mm If the scanned image margin is still incorrect after adjustment, the base copier's SP mode settings may be wrong. Check and adjust SP modes 4-012-1 and 6-006-2.	
7	Not used	Do not change the settings.

Scanner Switch 0C		
No	FUNCTION	COMMENTS
0	Action when an original jam has occurred while scanning the original into memory for memory tx 0: Continues scanning after recovery 1: Stops scanning and erases all scanned pages for that job	This bit is only effective when parallel memory tx is disabled (user parameter 07 - bit 2). If parallel memory tx is enabled, the machine always erases the scanned pages when an original jam occurs. The machine then asks the user to retry from the first page, even if the parallel memory tx is not actually used. 0: The machine displays a message asking the user to put the jammed page back into the original stack, and continues scanning. The message is displayed for the time period specified by scanner switch 0E, bit 2. 1: The machine erases all the scanned pages and asks the user to retry from the first page.
1 to 2	Setting when an original size cannot be recognized Bit 2 1 Setting 0 0 Depending on the copier's setting 0 1 A5 ☐ 1 0 A5 ☐ 1 1 No original	When both bits are set to "0", the machine recognizes an original size depending on SP4-303 copier's service mode.
3-5	Not used	Do not change the settings.
6	Scan width used for a document set in the ADF when the width is less than 230 mm. 0: A4 (210 mm), 1: LT (216 mm)	This bit is set at "1" when the country code is set to the US.
7	Not used	Do not change the settings.

BIT SWITCHES

Scanner Switch 0D		
No	FUNCTION	COMMENTS
0 1	Scan magnification ratio fine tuning (Main scan direction) $\begin{pmatrix} 0 \\ 0 \end{pmatrix} = 0\%, \begin{pmatrix} 1 \\ 0 \end{pmatrix} = -1.5\%, \begin{pmatrix} 0 \\ 1 \end{pmatrix} = +1.5\%, \begin{pmatrix} 1 \\ 1 \end{pmatrix} = \text{Do not use this setting}$ The actual magnification ratio is the sum of the SP mode 4-008 setting and this setting.	
2 3	Scan magnification ratio fine tuning (Sub scan direction) $\begin{pmatrix} 0 \\ 0 \end{pmatrix} = 0\%, \begin{pmatrix} 1 \\ 0 \end{pmatrix} = -1.5\%, \begin{pmatrix} 0 \\ 1 \end{pmatrix} = +1.5\%, \begin{pmatrix} 1 \\ 1 \end{pmatrix} = \text{Do not use this setting}$ The actual magnification ratio is the sum of the SP mode 4-101 setting and this setting.	
4-6	Not used	Do not change the settings.
7	Scan width for A5 lengthwise or B5 lengthwise originals 0: 210 mm (8.5") 1: Original width	0: The machine scans the original as 210 mm (8.5") width. The transmitted image has a blank area on the right. 1: The machine scans 148 mm (A5) or 182 mm (B5) and centers the scanned data on a 216 mm width transmitted image.

Scanner Switch 0E		
No	FUNCTION	COMMENTS
0	Wait time for the next page when scanning a book original into memory 0: 60 s 1: 30 s	This bit determines how long the machine waits for the next page when scanning a book original for memory transmission. If this timer expires, the machine transmits all the pages scanned so far as one document. Note: In immediate tx or parallel memory tx, the wait time for the next page is 10 s.
1	Scan resolution unit (except standard resolution in book scan mode) 0: mm 1: inches	This bit determines which resolution unit will be used for scanning a fax message. Default setting: mm
2	ADF jam alarm display time 0: 60 s 1: 30 s	The bit is only effective when bit 0 of scanner bit switch 0C is '0'. This bit determines how long the machine displays the ADF jam alarm after a jam occurred.
3-7	Not used	Do not change the settings.

Scanner Switch 0F		
No	FUNCTION	COMMENTS
0	Image rotation before transmission (A4/LT sideways) 0: Disabled 1: Enabled	This bit determines whether the machine rotates the scanned image by 90 degrees before transmission. If this bit is set at 1, A4 (LT) sideways images (297 mm width in the protocol) will be transmitted as A4 (LT) lengthwise images (216 mm width in the protocol). Refer to Image Rotation Before Transmission in chapter 2 for more details.
1	Not used	Do not change the settings
2	Image rotation before transmission (A5/HLT lengthwise) 0: Disabled 1: Enabled	This bit determines whether the machine rotates the scanned image by 90 degrees before transmission. If this bit is set at "1", A5 (HLT) lengthwise images will be transmitted as A4 (LT) width images (216 mm width in the protocol). Refer to Image Rotation Before Transmission in chapter 2 for more details.
3-7	Not used	Do not change the settings.

4.2.3 PRINTER SWITCHES

Printer Switch 00		
No	FUNCTION	COMMENTS
0	Page separation mark 0: Disabled 1: Enabled	0: No marks are printed. 1: If a received page has to be printed out on two sheets, an asterisk inside square brackets is printed at the bottom right hand corner of the first sheet, and a "2" inside a small box is printed at the top right hand corner of the second sheet. This helps the user to identify pages that have been split.
1	Repetition of data when the received page is longer than the printer paper 0: Disabled 1: Enabled	0: The next page continues from where the previous page left off. 1: The final few mm of the previous page are repeated at the top of the next page. The amount of repeated data depends on printer switch 04, bits 5 and 6. See Sub Scan Reduction and Page Separation in section 2 for details.
2	Prints the date and time on received fax messages 0: Disabled 1: Enabled	This switch is only effective when user parameter 02 - bit 2 (printing the received date and time on received fax messages) is enabled. 1: The machine prints the received and printed date and time at the bottom of each received page.
3-7	Not used	Do not change the settings.

Printer Switch 01		
No	FUNCTION	COMMENTS
0-2	Not used	Do not change the settings.
3 4	Maximum print width used in the setup protocol	
5-6	Not used	Do not change the settings.
7	Received message width restriction in the protocol signal to the sender 0: Disabled 1: Enabled	0: The machine informs the transmitting machine of the print width depending on the paper size available from the paper feed stations. Refer to the table on the next page for how the machine chooses the paper width used in the setup protocol (NSF/DIS). 1: The machine informs the transmitting machine of the fixed paper width which is specified by bits 3 and 4 above.

Relationship between available paper sizes and printer width used in the setup protocol

Available Paper Size	Printer width used in the Protocol (NSF/DIS)
A4 or 8.5 x 11"	297 mm width
B5	256 mm width
A5 or 8.5 x 5.5"	216 mm width
No paper available (Paper end)	216 mm width

Printer Switch 02		
No	FUNCTION	COMMENTS
0	1st paper feed station usage for fax printing 0: Enabled 1: Disabled	0: The paper feed station can be used to print fax messages and reports. 1: The specified paper feed station will not be used for printing fax messages and reports. Note: Do not disable usage for the paper feed station which has been specified by User Parameter Switch 0F (15), or which is used for the Specified Cassette Selection feature.
1	2nd paper feed station usage for fax printing 0: Enabled 1: Disabled	
2	3rd paper feed station usage for fax printing 0: Enabled 1: Disabled	
3-7	Not used	Do not change the settings.

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Printer Switch 03		
No	FUNCTION	COMMENTS
0	Length reduction of received data 0: Disabled 1: Enabled	0: Incoming pages are printed without length reduction. (Page separation threshold: Printer Switch 03, bits 4 to 7) 1: Incoming page length is reduced when printing. (Maximum reducible length: Printer Switches 04, bits 0 to 4) Page separation and data reduction: Section 2
1-3	Not used	Do not change the settings

BIT SWITCHES

4 to 7	Page separation threshold (with reduction disabled with switch 03-0 above) If the incoming page is up to x mm longer than the length of copy paper, the excess portion will not be printed. If the incoming page is more than x mm longer than the length of copy paper, the excess portion will be printed on the next page. The value of x is determined by these four bits. <table> <tr> <td>Hex value of bits 4 to 7</td><td>x (mm)</td></tr> <tr> <td>0</td><td>0</td></tr> <tr> <td>1</td><td>1</td></tr> <tr> <td>and so on until</td><td></td></tr> <tr> <td>F</td><td>15</td></tr> </table> Default setting: 6 mm Cross reference Page separation and data reduction: section 2 Length reduction On/Off: Printer Switch 03, Bit 0	Hex value of bits 4 to 7	x (mm)	0	0	1	1	and so on until		F	15
Hex value of bits 4 to 7	x (mm)										
0	0										
1	1										
and so on until											
F	15										

Printer Switch 04																																									
No	FUNCTION					COMMENTS																																			
0 to 4	Maximum reducible length when length reduction is enabled with switch 03-0 above. <Maximum reducible length> = <Paper length> + (N x 5mm) 'N' is the decimal value of the binary setting of bits 0 to 4. <table> <tr> <td>Bit</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>Setting</td></tr> <tr> <td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 mm</td></tr> <tr> <td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>5 mm</td></tr> <tr> <td></td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>20 mm (default setting)</td></tr> <tr> <td></td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>155 mm</td></tr> </table> For A5 sideways and B5 sideways paper <Maximum reducible length> = <Paper length> + 0.75 x (N x 5mm)					Bit	4	3	2	1	0	Setting		0	0	0	0	0	0 mm		0	0	0	0	1	5 mm		0	0	1	0	0	20 mm (default setting)		1	1	1	1	1	155 mm	
Bit	4	3	2	1	0	Setting																																			
	0	0	0	0	0	0 mm																																			
	0	0	0	0	1	5 mm																																			
	0	0	1	0	0	20 mm (default setting)																																			
	1	1	1	1	1	155 mm																																			
5 to 6	Length of the duplicated image on the next page, when page separation has taken place. $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$ = 4 mm $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$ = 10 mm $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$ = 15 mm $\begin{pmatrix} 1 \\ 1 \end{pmatrix}$ = Not used																																								
7	Not used.					Do not change the setting.																																			

Printer Switch 05 - Not used (do not change the settings)

Printer Switch 06		
No	FUNCTION	COMMENTS
0	Printing while a paper cassette is pulled out, when the Just Size Printing feature is enabled. 0: Printing will not start 1: Printing will start if another cassette has a suitable size of paper, based on the paper size selection priority tables.	Refer to Just Size Printing in section 2 for details. Cross reference Just size printing on/off – User switch 05, bit 5
1-7	Not used.	Do not change the settings.

Printer Switch 07		
No	FUNCTION	COMMENTS
0	Reduction for Journal printing 0: Off 1: On	1: The Journal is reduced to 91% to ensure that there is enough to space in the left margin for hole punches or staples.
2-3	Not used.	Do not change the settings.
4	List of destinations in the Communication Failure Report for broadcasting 0: All destinations 1: Only destinations where communication failure occurred	1: Only destinations where communication failure occurred are printed on the Communication Failure Report.
5-7	Not used.	Do not change the settings.

Printer Switch 08 - Not used (do not change the settings)		
Printer Switch 09 - Not used (do not change the settings)		
Printer Switch 0A - Not used (do not change the settings)		
Printer Switch 0B - Not used (do not change the settings)		
Printer Switch 0C - Not used (do not change the settings)		
Printer Switch 0D - Not used (do not change the settings)		

Printer Switch 0E		
No	FUNCTION	COMMENTS
0	Paper size selection priority 0: Width 1: Length	0: A paper size that has the same width as the received data is selected first. 1: A paper size which has enough length to print all the received lines without reduction is selected first.
1	Paper size selected for printing A4 width fax data 0: 8 x 11" size 1: A4 size	This switch determines which paper size is selected for printing A4 width fax data, when the machine has both A4 and 8" x 11" size paper.

BIT SWITCHES

2	Page separation 0: Enabled 1: Disabled	1: If all paper sizes in the machine require page separation to print a received fax message, the machine does not print the message (Substitute Reception is used). After a larger size of paper is set in a cassette, the machine automatically prints the fax message.
3 to 4	Printing the sample image on reports Bit 4 Bit 3 Setting 0 0 The upper half only 0 1 50% reduction in sub-scan only 1 0 Same size 1 1 Not used	"Same size" means the sample image is printed at 100%, even if page separation occurs. User Parameter Switch 19 bit 4 must be set to "0" to enable this switch.
5-6	Not used	Do not change the settings.
7	Equalizing the reduction ratio among separated pages (Page Separation) 0: Enabled 1: Disabled	0: When page separation has taken place, all the pages are reduced with the same reduction ratio. 1: Only the last page is reduced to fit the selected paper size when page separation has taken place. Other pages are printed without reduction.

Printer Switch 0F		
No	FUNCTION	COMMENTS
0 to 1	Smoothing feature Bit 1 Bit 0 Setting 0 0 Disabled 0 1 Disabled 1 0 Enabled 1 1 Not used	(0, 0) (0, 1): Disable smoothing if the machine receives halftone images from other manufacturers fax machines frequently.
2-7	Not used	Do not change the settings.

4.2.4 COMMUNICATION SWITCHES

Communication Switch 00		
No	FUNCTION	COMMENTS
0 to 1	Compression modes available in receive mode Bit 1 0 Modes 0 0 MH only 0 1 MH/MR 1 0 MH/MR/MMR 1 1 MH/MR/MMR/JBIG	These bits determine the compression capabilities to be declared in phase B (handshaking) of the T.30 protocol.
2 to 3	Compression modes available in transmit mode Bit 3 2 Modes 0 0 MH only 0 1 MH/MR 1 0 MH/MR/MMR 1 1 MH/MR/MMR/JBIG	These bits determine the compression capabilities to be used in the transmission and to be declared in phase B (handshaking) of the T.30 protocol.
4	Not used	Do not change the settings.
5	JBIG compression method: Reception 0: Only basic supported 1: Basic and optional both supported	Change the setting when communication problems occur using JBIG compression.
6	JBIG compression method: Transmission 0: Basic mode priority 1: Optional mode priority	Change the setting when communication problems occur using JBIG compression.
7	Closed network (reception) 0: Disabled 1: Enabled	1: Reception will not go ahead if the ID code of the other terminal does not match the ID code of this terminal. This function is only available in NSF/NSS mode.

Communication Switch 01		
No	FUNCTION	COMMENTS
0	ECM 0: Off 1: On	If this bit is set to 0, ECM is switched off for all communications. In addition, V.8 protocol and JBIG compression are switched off automatically.
1	Not used	Do not change the setting.

BIT SWITCHES

Communication Switch 01																			
No	FUNCTION			COMMENTS															
2 to 3	Wrong connection prevention method	<table><tr><th>Bit 3</th><th>Bit 2</th><th>Setting</th></tr><tr><td>0</td><td>0</td><td>None</td></tr><tr><td>0</td><td>1</td><td>8 digit CSI</td></tr><tr><td>1</td><td>0</td><td>4 digit CSI</td></tr><tr><td>1</td><td>1</td><td>CSI/RTI</td></tr></table>	Bit 3	Bit 2	Setting	0	0	None	0	1	8 digit CSI	1	0	4 digit CSI	1	1	CSI/RTI	(0,1) - The machine will disconnect the line without sending a fax message, if the last 8 digits of the received CSI do not match the last 8 digits of the dialed telephone number. This does not work when manually dialed. (1,0) - The same as above, except that only the last 4 digits are compared. (1,1) - The machine will disconnect the line without sending a fax message, if the other end does not identify itself with an RTI or CSI. (0,0) - Nothing is checked; transmission will always go ahead. Note: This function does not work when dialing is done from the external telephone.	
Bit 3	Bit 2	Setting																	
0	0	None																	
0	1	8 digit CSI																	
1	0	4 digit CSI																	
1	1	CSI/RTI																	
4-5	Not used			Do not change the setting.															
6 to 7	Maximum printable page length available	<table><tr><th>Bit 7</th><th>Bit 6</th><th>Setting</th></tr><tr><td>0</td><td>0</td><td>No limit</td></tr><tr><td>0</td><td>1</td><td>B4 (364 mm)</td></tr><tr><td>1</td><td>0</td><td>A4 (297 mm)</td></tr><tr><td>1</td><td>1</td><td>A3 (432 mm)</td></tr></table>	Bit 7	Bit 6	Setting	0	0	No limit	0	1	B4 (364 mm)	1	0	A4 (297 mm)	1	1	A3 (432 mm)	The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).	
Bit 7	Bit 6	Setting																	
0	0	No limit																	
0	1	B4 (364 mm)																	
1	0	A4 (297 mm)																	
1	1	A3 (432 mm)																	

Communication Switch 02																			
No	FUNCTION		COMMENTS																
0	Burst error threshold 0: Low 1: High		If there are more consecutive error lines in the received page than the threshold, the machine will send a negative response. The Low and High threshold values depend on the sub-scan resolution, and are as follows. <table> <tr> <th>Resolution</th><th>100 dpi</th><th>200 dpi</th><th>400 dpi</th></tr> <tr> <td></td><td>3.85 l/mm</td><td>7.7 l/mm</td><td>15.4 l/mm</td></tr> <tr> <td>Low settings</td><td>6</td><td>12</td><td>24</td></tr> <tr> <td>High settings</td><td>12</td><td>24</td><td>48</td></tr> </table>	Resolution	100 dpi	200 dpi	400 dpi		3.85 l/mm	7.7 l/mm	15.4 l/mm	Low settings	6	12	24	High settings	12	24	48
Resolution	100 dpi	200 dpi	400 dpi																
	3.85 l/mm	7.7 l/mm	15.4 l/mm																
Low settings	6	12	24																
High settings	12	24	48																
1	Acceptable total error line ratio 0: 5% 1: 10%		If the error line ratio for a page exceeds the acceptable ratio, RTN will be sent to the other end.																
2	Treatment of pages received with errors during G3 reception 0: Deleted from memory without printing 1: Printed		0: Pages received with errors are not printed.																

Communication Switch 02		
No	FUNCTION	COMMENTS
3	Hang-up decision when a negative code (RTN or PIN) is received during G3 immediate transmission 0: No hang-up, 1: Hang-up	0: The next page will be sent even if RTN or PIN is received. 1: The machine will send DCN and hang up if it receives RTN or PIN. This bit is ignored for memory transmissions or if ECM is being used.
4-6	Not used	Do not change the settings.
7	Method of total error rate calculation 0: Normal method 1: French PTT requirement	0: Error rate is calculated by dividing the number of total lines by the number of error lines. 1: Error rate is calculated by dividing the number of total plus error lines by the number of error lines.

Communication Switch 03		
No	FUNCTION	COMMENTS
0 to 7	Maximum number of page retransmissions in a G3 memory transmission	00 - FF (Hex) times. This setting is not used if ECM is switched on. Default setting - 03(H)

Communication Switch 04 - Not used (do not change the settings)

Communication Switch 05 - Not used (do not change the settings)

Communication Switch 06		
No	FUNCTION	COMMENTS
0	Dialing requirements: Germany 0: Disabled 1: Enabled	These switches are automatically set to the settings required by each country after the country code (System Switch 0F) is programmed.
1	Dialing requirements: Austria 0: Disabled 1: Enabled	
2	Dialing requirements: Norway 0: Disabled 1: Enabled	
3	Dialing requirements: Denmark 0: Disabled 1: Enabled	
4	Dialing requirements: France 0: Disabled 1: Enabled	
5	Dialing requirements: Switzerland 0: Disabled 1: Enabled	
6	Not used	Do not change the settings.
7	Carrier drop display 0: Disabled 1: Enabled	This is an European PTT requirement. This bit is available only for the European models.

BIT SWITCHES

Communication Switch 07		
No	FUNCTION	COMMENTS
0	Fallback from G4 to G3 if the other terminal is not a G4 terminal 0: Disabled 1: Enabled G4: Europe model only	Also see system switch 0A bit 7. Refer to the ISDN G4 option service manual (G4 Internal Switches 17, 18, 1A, 1B, and 1C) for the CPS code set (Cause Value set) that determines G4 to G3 fallback.
1	Not used	Do not change the setting.
2	Use of the date and time provided from the network for the CIL 0: Disabled 1: Enabled G4: Europe model only	0: The date and time programmed in the receiving terminal is used in the CIL. 1: The date and time informed in the document layer from the remote terminal (through the network) is used in the CIL.
3	Fallback from G4 to G3 reflected in programmed Quick/Speed dials 0: Fallback enabled 1: Always start with G4 G4: Europe model only	0: If a communication falls back from G4 to G3, the machine will always start transmission with G3 from the next communication. 1: The machine will always start to transmit with G4.
4	Fallback from G4 to G3 when G4 communication fails on the ISDN B-channel 0: Fallback disabled 1: Fallback enabled	1: Enable this switch only when G4 communication errors occur because the exchanger connects G4 calls to the PSTN. This problem occurs with some types of exchanger. (Europe model only)
5-7	Not used	Do not change the settings.

Communication Switch 08 - Not used (do not change the settings)

Communication Switch 09 - Not used (do not change the settings)

Communication Switch 0A		
No	FUNCTION	COMMENTS
0	Point of resumption of memory transmission upon redialing 0: From the error page 1: From page 1	0: The transmission begins from the page where transmission failed the previous time. 1: Transmission begins from the first page, using normal memory transmission.
1-6	Not used	Do not change the settings.
7	Emergency calls using 999 0: Enabled 1: Disabled	If this bit is at 1, the machine will not allow you to dial 999 at the auto-dialer. This is a PTT requirement in the UK and some other countries.

Communication Switch 0B - Not used (do not change the settings)

Communication Switch 0C - Not used (do not change the settings)

Communication Switch 0D		
No	FUNCTION	COMMENTS
0 to 7	The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled	00 to FF (Hex), unit = 4 kbytes (e.g., 06(H) = 24 kbytes) One page is about 24 kbytes. The machine refers to this setting before each fax reception. If the amount of remaining memory is below this threshold, the machine cannot receive any fax messages. If this setting is kept at 0, the machine will detect ringing signals and go into receive mode even if there is no memory available. This will result in communication failure.

Communication Switch 0E		
No	FUNCTION	COMMENTS
0 to 7	Minimum interval between automatic dialing attempts	06 to FF (Hex), unit = 2 s (e.g., 06(H) = 12 s) This value is the minimum time that the machine waits before it dials the next destination.

Communication Switch 0F		
No	FUNCTION	COMMENTS
0 to 7	Minimum number of times that a destination will dialed when TRD is being used	01 - FE (Hex) times TRD: Transmission Deadline

Communication Switch 10		
No	FUNCTION	COMMENTS
0 to 7	Memory transmission: Maximum number of dialing attempts to the same destination	01 - FE (Hex) times

Communication Switch 11 - Not used (do not change the settings.)

Communication Switch 12		
No	FUNCTION	COMMENTS
0 to 7	Memory transmission: Interval between dialing attempts to the same destination	01 - FF (Hex) minutes

Communication Switch 13 - Not used (do not change the settings.)

BIT SWITCHES

Communication Switch 14																	
No	FUNCTION	COMMENTS															
0	Inch-to-mm conversion during transmission 0: Disabled 1: Enabled	0: In immediate transmission, data scanned in inch format are transmitted without conversion. In memory transmission, data stored in the SAF memory in mm format are transmitted without conversion. Note: When storing the scanned data into SAF memory, the fax unit always converts the data into mm format. 1: The machine converts the scanned data or stored data in the SAF memory to the format which was specified in the set-up protocol (DIS/NSF) before transmission.															
1-5	Not used	Do not change the factory settings.															
6 7	Available unit of resolution in which fax messages are received <table> <tr> <th>Bit 7</th><th>Bit 6</th><th>Unit</th></tr> <tr> <td>0</td><td>0</td><td>mm</td></tr> <tr> <td>0</td><td>1</td><td>inch</td></tr> <tr> <td>1</td><td>0</td><td>mm and inch (default)</td></tr> <tr> <td>1</td><td>1</td><td>Not used</td></tr> </table>	Bit 7	Bit 6	Unit	0	0	mm	0	1	inch	1	0	mm and inch (default)	1	1	Not used	For the best performance, do not change the factory settings. The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).
Bit 7	Bit 6	Unit															
0	0	mm															
0	1	inch															
1	0	mm and inch (default)															
1	1	Not used															

Communication Switch 15 - Not used (do not change the settings)

Communication Switch 16		
No	FUNCTION	COMMENTS
0-1	Not used	Do not change the settings.
2	Optional ISDN unit 0: Not installed 1: Installed	Change this bit to 1 when installing the optional ISDN unit. G4: Europe model only
3-5	Not used	Do not change the settings.
6	G4 Dual communication 0: Enabled 1: Disabled G4: Europe model only	1: The machine uses only one B channel for communication. This enables a customer to occupy another B channel for other purposes such as internet communication.
7	Not used	Do not change the settings.

Communication Switch 17		
No	FUNCTION	COMMENTS
0	SEP reception 0: Disabled 1: Enabled	0: Polling transmission to another maker's machine using the SEP (Selective Polling) signal is disabled.
1	SUB reception 0: Disabled 1: Enabled	0: Confidential reception to another maker's machine using the SUB (Sub-address) signal is disabled.
2-7	Not used	Do not change the settings.

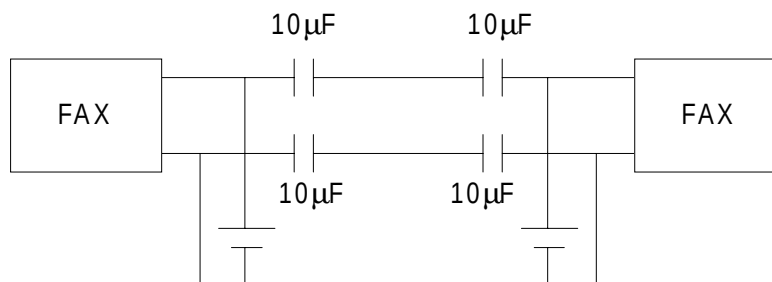
Communication Switch 18 - Not used (do not change the settings)		
Communication Switch 19 - Not used (do not change the settings)		
Communication Switch 1A - Not used (do not change the settings)		
Communication Switch 1B - Not used (do not change the settings)		
Communication Switch 1C - Not used (do not change the settings)		
Communication Switch 1D - Not used (do not change the settings)		

Communication Switch 1E		
No	FUNCTION	COMMENTS
0	Extension access code (0 to 7) to turn V.8 protocol On/Off 0: On 1: Off	If the PABX does not support V.8/V.34 protocol procedure, set this bit to "1" to disable V.8. Example: If "0" is the PSTN access code, set bit 0 to 1. When the machine detects "0" as the first dialed number, it automatically disables V.8 protocol. (Alternatively, if "3" is the PSTN access code, set bit 0 to 1.)
1		
2		
3		
4		
5		
6		
7		

Communication Switch 1F		
No	FUNCTION	COMMENTS
0	Extension access code (8 and 9) to turn V.8 protocol On/Off 0: On 1: Off	Refer to communication switch 1E.
1		Example: If "8" is the PSTN access code, set bit 0 to 1. When the machine detects "8" as the first dialed number, it automatically disables V.8 protocol.
2-7	Not used	Do not change the settings.

4.2.5 G3 SWITCHES

G3 Switch 00		
No	FUNCTION	COMMENTS
0	Monitor speaker during communication (tx and rx)	(0, 0): The monitor speaker is disabled all through the communication.
1	Bit 1 Bit 0 Setting 0 0 Disabled 0 1 Up to Phase B 1 0 All the time 1 1 Not used	(0, 1): The monitor speaker is on up to phase B in the T.30 protocol. (1, 0): Used for testing. The monitor speaker is on all through the communication. Make sure that you reset these bits after testing.
2	Monitor speaker during memory transmission 0: Disabled 1: Enabled	1: The monitor speaker is enabled during memory transmission.
3-6	Not used	Do not change the settings.
7	Back to back test 0: Disabled 1: Enabled	Set this bit to 1 when you wish to do a back to back test. 115 V model: Be sure to connect jumpers JP5 and JP6 on the NCU before doing the test. 220 V model: Be sure to apply dc voltage between wires L1 and L2 on the NCU.



Back-to-Back Connection:

The dc power supplies should be adjusted so that the line current to the NCU is about 30mA.

G3 Switch 01		
No	FUNCTION	COMMENTS
0-3	Not used	Do not change the settings.
4	DIS frame length 0: 10 bytes 1: 4 bytes	1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).
5	Not used	Do not change the setting.
6	CED/ANSam transmission 0: Disabled 1: Enabled	Do not change this setting, unless the communication problem is caused by the CED/ANSam transmission.
7	Not used	Do not change the setting.

G3 Switch 02		
No	FUNCTION	COMMENTS
0	G3 protocol mode used 0: Standard and non-standard 1: Standard only	Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. 1: Disables NSF/NSS signals (these are used in non-standard mode communication)
1-4	Not used	Do not change the settings.
5	Use of modem rate history for transmission using Quick/Speed Dials 0: Disabled 1: Enabled	0: Communications using Quick/Speed Dials always start from the highest modem rate. 1: The machine refers to the modem rate history for communications with the same machine when determining the most suitable rate for the current communication.
6	AI short protocol (transmission and reception) 0: Disabled 1: Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about AI Short Protocol.
7	Short preamble 0: Disabled 1: Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble.

G3 Switch 03		
No	FUNCTION	COMMENTS
0	DIS detection number (Echo countermeasure) 0: 1 1: 2	0: The machine will hang up if it receives the same DIS frame twice. 1: Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line.
1	V.8 protocol in manual reception 0: Disabled 1: Enabled	0: The machine sends CED instead of ANSam when starting a manual reception. 1: The machine sends ANSam during manual reception.
2	V.8 protocol 0: Disabled 1: Enabled	0: V.8/V.34 communications will not be possible. Note: Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower.
3	ECM frame size 0: 256 bytes 1: 64 bytes	Keep this bit at "0" in most cases.

BIT SWITCHES

G3 Switch 03		
No	FUNCTION	COMMENTS
4	CTC transmission conditions 0: After one PPR signal received 1: After four PPR signals received (ITU-T standard)	0: When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. NTransmit- Number of transmitted frames NResend- Number of frames to be retransmitted 1: When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.
5	Modem rate used for the next page after receiving a negative code (RTN or PIN) 0: No change 1: Fallback	1: The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used.
6	V.8 protocol in manual transmission 0: Disabled 1: Enabled	1: The machine detects either ANSam or CED during manual transmission.
7	Not used	Do not change the settings.

G3 Switch 04		
No	FUNCTION	COMMENTS
0 to 3	Training error detection threshold	0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded.
4-7	Not used	Do not change the settings.

G3 Switch 05		
No	FUNCTION	COMMENTS
0 to 3	Initial Tx modem rate Bit 3 2 1 0 Setting (bps) 0 0 0 1 2.4 k 0 0 1 0 4.8 k 0 0 1 1 7.2 k 0 1 0 0 9.6 k 0 1 0 1 12.0 k 0 1 1 0 14.4 k 0 1 1 1 16.8 k 1 0 0 0 19.2 k 1 0 0 1 21.6 k 1 0 1 0 24.0 k 1 0 1 1 26.4 k 1 1 0 0 28.8 k 1 1 0 1 31.2 k 1 1 1 0 33.6 k Other settings - Not used	These bits set the initial starting modem rate for transmission. Use the dedicated transmission parameters if you need to change this for specific receivers. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2
4 to 5	Initial modem type for 9.6 k or 7.2 kbps. Bit 5 Bit 4 Setting 0 0 V.29 0 1 V.17 1 0 Not used 1 1 Not used	These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds.
6-7	Not used	Do not change the settings.

G3 Switch 06		
No	FUNCTION	COMMENTS
0 to 3	Initial Rx modem rate Bit 3 2 1 0 Setting (bps) 0 0 0 1 2.4 k 0 0 1 0 4.8 k 0 0 1 1 7.2 k 0 1 0 0 9.6 k 0 1 0 1 12.0 k 0 1 1 0 14.4 k 0 1 1 1 16.8 k 1 0 0 0 19.2 k 1 0 0 1 21.6 k 1 0 1 0 24.0 k 1 0 1 1 26.4 k 1 1 0 0 28.8 k 1 1 0 1 31.2 k 1 1 1 0 33.6 k Other settings - Not used	These bits set the initial starting modem rate for reception. Use a lower setting if high speeds pose problems during reception. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2

BIT SWITCHES

4 to 7	Modem types available for reception	The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode. If V.34 is not selected, V.8 protocol must be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2
	Bit 7 6 5 4 Setting	
	0 0 0 1 V.27ter	
	0 0 1 0 V.27ter, V.29	
	0 0 1 1 V.27ter, V.29 V.33	
	0 1 0 0 V.27ter, V.29, V.17/V.33	
	0 1 0 1 V.27ter, V.29, V.17/V.33, V.34	
	Other settings - Not used	

G3 Switch 07			
No	FUNCTION	COMMENTS	
0 to 1	PSTN cable equalizer (tx mode: Internal) Bit 1 Bit 0 Setting 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Use the dedicated transmission parameters for specific receivers. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error • Modem rate fallback occurs frequently. Note: This setting is not effective in V.34 communications.	
2 to 3	PSTN cable equalizer (rx mode: Internal) Bit 3 Bit 2 Setting 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. Note: This setting is not effective in V.34 communications.	
4	PSTN cable equalizer (V.8/V.17 rx mode: External) 0: Disabled 1: Enabled	Keep this bit at "1".	
5	PSTN cable equalizer (V.34 rx mode; External)	Keep this bit at "1".	
6-7	Not used	Do not change the settings.	

G3 Switch 08			
	FUNCTION		COMMENTS
0	PABX cable equalizer (tx mode)		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Use the dedicated transmission parameters if you need to change this for specific receivers. Also, try using the cable equalizer if one or more of the following symptoms occurs: • Communication error • Modem rate fallback occurs frequently. Note: This setting is ineffective in V.34 communications.
1	Bit 1	Bit 0	
	0	0	
	0	1	
	1	0	
	1	1	High
2	PABX cable equalizer (rx mode)		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Also, try using the cable equalizer if one or more of the following symptoms occurs: • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. Note: This setting is ineffective in V.34 communications.
3	Bit 3	Bit 2	
	0	0	
	0	1	
	1	0	
	1	1	High
4	PABX external cable equalizer (V.17, V.8 rx mode) 0: Disabled 1: Enabled		Set this bit to 0 when line quality is good. (e.g. for a digital PABX)
5	PABX external cable equalizer (V.34 rx mode) 0: Disabled 1: Enabled		Set this bit to 0 when line quality is good. (e.g. for a digital PABX) The V.34 modem rate may decrease if the equalizer is over-corrected.
6-7	Not used		Do not change these settings.

BIT SWITCHES

G3 Switch 09																			
No	FUNCTION			COMMENTS															
0 to 1	ISDN cable equalizer (tx mode: Internal) <table><tr><th>Bit 1</th><th>Bit 0</th><th>Setting</th></tr><tr><td>0</td><td>0</td><td>None</td></tr><tr><td>0</td><td>1</td><td>Low</td></tr><tr><td>1</td><td>0</td><td>Medium</td></tr><tr><td>1</td><td>1</td><td>High</td></tr></table> ISDN: Europe models only			Bit 1	Bit 0	Setting	0	0	None	0	1	Low	1	0	Medium	1	1	High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Use the dedicated transmission parameters for specific receivers. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error • Modem rate fallback occurs frequently. Note: This setting is not effective in V.34 communications.
Bit 1	Bit 0	Setting																	
0	0	None																	
0	1	Low																	
1	0	Medium																	
1	1	High																	
2 to 3	ISDN cable equalizer (rx mode: Internal) <table><tr><th>Bit 3</th><th>Bit 2</th><th>Setting</th></tr><tr><td>0</td><td>0</td><td>None</td></tr><tr><td>0</td><td>1</td><td>Low</td></tr><tr><td>1</td><td>0</td><td>Medium</td></tr><tr><td>1</td><td>1</td><td>High</td></tr></table> ISDN: Europe models only			Bit 3	Bit 2	Setting	0	0	None	0	1	Low	1	0	Medium	1	1	High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. Note: This setting is not effective in V.34 communications.
Bit 3	Bit 2	Setting																	
0	0	None																	
0	1	Low																	
1	0	Medium																	
1	1	High																	
4	ISDN cable equalizer (V.8/V.17 rx mode: External) 0: Disabled 1: Enabled			Keep this bit at “0” in most cases. ISDN: Europe models only															
5	ISDN cable equalizer (V.34 rx mode: External) 0: Disabled 1: Enabled			Keep this bit at “0” in most cases. ISDN: Europe models only															
6-7	Not used			Do not change the settings.															

G3 Switch 0A		
No	FUNCTION	COMMENTS
0 1	Maximum allowable carrier drop during image data reception Bit 1 Bit 0 Value (ms) 0 0 200 0 1 400 1 0 800 1 1 Not used	These bits set the acceptable modem carrier drop time. Try using a longer setting if error code 0-22 is frequent.
2-3	Not used	Do not change the settings.
4	Maximum allowable frame interval during image data reception. 0: 5 s 1: 13 s	This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end. Try using a longer setting if error code 0-21 is frequent.
5	Not used	Do not change the settings.
6	Reconstruction time for the first line in receive mode 0: 6 s 1: 12 s	When the sending terminal is controlled by a computer, there may be a delay in receiving page data after the local machine accepts set-up data and sends CFR. This is outside the T.30 recommendation. But, if this delay occurs, set this bit to 1 to give the sending machine more time to send data. Refer to error code 0-20. ITU-T T.30 recommendation: The first line should come within 5 s of CFR.
7	Not used	Do not change the settings.

G3 Switch 0B		
No	FUNCTION	COMMENTS
0	Protocol requirements: Europe 0: Disabled 1: Enabled	The machine does not automatically reset these bits for each country after a country code (System Switch 0F) is programmed. Change the required bits manually at installation.
1	Protocol requirements: Spain 0: Disabled 1: Enabled	
2	Protocol requirements: Germany 0: Disabled 1: Enabled	
3	Protocol requirements: France 0: Disabled 1: Enabled	
4	PTT requirements: Germany 0: Disabled 1: Enabled	
5	PTT requirements: France 0: Disabled 1: Enabled	
6	Not used	Do not change the settings.
7	DTS requirements : Germany 0: Disabled 1: Enabled	Change this bit manually if required.

BIT SWITCHES

G3 Switch 0C				
No	FUNCTION			COMMENTS
0	Pulse dialing method			P = Number of pulses sent out, N = Number dialed.
1	Bit 1	Bit 0	Setting	
	0	0	Normal (P=N)	
	0	1	Oslo (P=10 - N)	
	1	0	Sweden (N+1)	
	1	1	Not used	
2-7	Not used			Do not change the settings.

G3 Switch 0D			
No	FUNCTION		COMMENTS
0-1	Not used		Do not change the settings.
2 to 5	Data rate threshold during V.34 reception		The machine changes the modulation parameters in the MPh signal to lower the initial modem rate during V.34 reception. If this switch is set to "0111", the machine lowers the initial speed one step, for example, from 28,800 to 26,400 bps. This switch reduces transmission time if the machine frequently sends PPR signals during V.34 reception.
	Bit 5	4 3 2 Setting	
	0	0 0 0 0 Normal	
		:	
	0	1 1 1 Lower by one step	
		:	Lower by two steps
	1	1 1 1	
6	Not used		Do not change the settings.
7	B signal detection time for V.34 polling transmission 0: 75 ms (default setting) 1: 65 ms		Change this switch only when there are communication errors during V.34 polling transmission to a machine with a Panasonic modem.

G3 Switch 0E - Not used (do not change the settings)

G3 Switch 0F		
No	FUNCTION	COMMENTS
0	Alarm when an error occurred in Phase C or later 0: Disabled 1: Enabled	If the customer wants to hear an alarm after each error communication, change this bit to “1”.
1	Alarm when the handset is off-hook at the end of communication 0: Disabled 1: Enabled	If the customer wants to hear an alarm if the handset is off-hook at the end of fax communication, change this bit to “1”.
2-7	Not used	Do not change the settings.

4.3 NCU PARAMETERS

The following tables give the RAM addresses and the parameter calculation units that the machine uses for ringing signal detection and automatic dialing. The factory settings for each country are also given. Most of these must be changed by RAM read/write (Function 06-1), but some can be changed using NCU Parameter programming (Function 06-2); if Function 06-2 can be used, this will be indicated in the Remarks column. The RAM is programmed in hex code unless (BCD) is included in the Unit column.

Address	Function	Unit	Remarks		
680400	Country code for NCU parameters	Use the Hex value to program the country code directly into this address, or use the decimal value to program it using Function 06-2 (parameter 00).			
		Country	Decimal	Hex	
		France	00	00	
		Germany	01	01	
		UK	02	02	
		Italy	03	03	
		Austria	04	04	
		Belgium	05	05	
		Denmark	06	06	
		Finland	07	07	
		Ireland	08	08	
		Norway	09	09	
		Sweden	10	0A	
		Switzerland	11	0B	
		Portugal	12	0C	
		Holland	13	0D	
		Spain	14	0E	
		Israel	15	0F	
		USA	17	11	
		Asia	18	12	
		Hong Kong	20	14	
		South Africa	21	15	
		Australia	22	16	
		New Zealand	23	17	
		Singapore	24	18	
		Malaysia	25	19	
		China	26	1A	
		Taiwan	27	1B	
		Greece	33	21	
		680401	Line current detection time	20 ms	Line current detection is disabled. Line current is not detected if 680401 contains FF.
		680402	Line current wait time		
		680403	Line current drop detect time		

NCU PARAMETERS

Address	Function	Unit	Remarks
680404	PSTN dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680405	PSTN dial tone frequency upper limit (low byte)		
680406	PSTN dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680407	PSTN dial tone frequency lower limit (low byte)		
680408	PSTN dial tone detection time	20 ms	If 680408 contains FF(H), the machine pauses for the pause time (address 68040D / 68040E). Italy: See Note 2.
680409	PSTN dial tone reset time (LOW)		
68040A	PSTN dial tone reset time (HIGH)		
68040B	PSTN dial tone continuous tone time		
68040C	PSTN dial tone permissible drop time		
68040D	PSTN wait interval (LOW)		
68040E	PSTN wait interval (HIGH)		
68040F	PSTN ring-back tone detection time	20 ms	Detection is disabled if this contains FF.
680410	PSTN ring-back tone off detection time	20 ms	
680411	PSTN detection time for silent period after ring-back tone detected (LOW)	20 ms	
680412	PSTN detection time for silent period after ring-back tone detected (HIGH)	20 ms	
680413	PSTN busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680414	PSTN busy tone frequency upper limit (low byte)		
680415	PSTN busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680416	PSTN busy tone frequency lower limit (low byte)		
680417	PABX dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680418	PABX dial tone frequency upper limit (low byte)		
680419	PABX dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
68041A	PABX dial tone frequency lower limit (low byte)		

Address	Function	Unit	Remarks
68041B	PABX dial tone detection time	20 ms	If 68041B contains FF, the machine pauses for the pause time (680420 / 680421).
68041C	PABX dial tone reset time (LOW)		
68041D	PABX dial tone reset time (HIGH)		
68041E	PABX dial tone continuous tone time		
68041F	PABX dial tone permissible drop time		
680420	PABX wait interval (HIGH)		
680421	PABX wait interval (LOW)		
680422	PABX ringback tone detection time	20 ms	If both addresses contain FF(H), tone detection is disabled.
680423	PABX ringback tone off detection time	20 ms	
680424	PABX detection time for silent period after ringback tone detected (LOW)	20 ms	If both addresses contain FF(H), tone detection is disabled.
680425	PABX detection time for silent period after ringback tone detected (HIGH)	20 ms	
680426	PABX busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680427	PABX busy tone frequency upper limit (low byte)		
680428	PABX busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680429	PABX busy tone frequency lower limit (low byte)		
68042A	Busy tone ON time: range 1	20 ms	
68042B	Busy tone OFF time: range 1		
68042C	Busy tone ON time: range 2		
68042D	Busy tone OFF time: range 2		
68042E	Busy tone ON time: range 3		
68042F	Busy tone OFF time: range 3		
680430	Busy tone ON time: range 4		
680431	Busy tone OFF time: range 4		
680432	Busy tone continuous tone detection time		

NCU PARAMETERS

Address	Function	Unit	Remarks																				
680433	Busy tone signal state time tolerance for all ranges, and number of cycles required for detection (a setting of 4 cycles means that ON-OFF-ON or OFF-ON-OFF must be detected twice). Tolerance ($\pm$) <table> <tr> <td>Bit</td><td>1</td><td>0</td><td></td></tr> <tr> <td></td><td>0</td><td>0</td><td>75%</td></tr> <tr> <td></td><td>0</td><td>1</td><td>50%</td></tr> <tr> <td></td><td>1</td><td>0</td><td>25%</td></tr> <tr> <td></td><td>1</td><td>1</td><td>12.5%</td></tr> </table> Bits 2 and 3 must always be kept at 0. Bits 7, 6, 5, 4 - number of cycles required for cadence detection	Bit	1	0			0	0	75%		0	1	50%		1	0	25%		1	1	12.5%		
Bit	1	0																					
	0	0	75%																				
	0	1	50%																				
	1	0	25%																				
	1	1	12.5%																				
680434	International dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.																				
680435	International dial tone frequency upper limit (low byte)																						
680436	International dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.																				
680437	International dial tone frequency lower limit (low byte)																						
680438	International dial tone detection time	20 ms	If 680438 contains FF, the machine pauses for the pause time (68043D / 68043E). Belgium: See Note 2.																				
680439	International dial tone reset time (LOW)																						
68043A	International dial tone reset time (HIGH)																						
68043B	International dial tone continuous tone time																						
68043C	International dial tone permissible drop time																						
68043D	International dial wait interval (HIGH)																						
68043E	International dial wait interval (LOW)																						
68043F	Country dial tone upper frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.																				
680440	Country dial tone upper frequency limit (LOW)																						
680441	Country dial tone lower frequency limit (HIGH)		If both addresses contain FF(H), tone detection is disabled.																				
680442	Country dial tone lower frequency limit (LOW)																						

Address	Function	Unit	Remarks
680443	Country dial tone detection time	20 ms	If 680443 contains FF, the machine pauses for the pause time (680448 / 680449).
680444	Country dial tone reset time (LOW)		
680445	Country dial tone reset time (HIGH)		
680446	Country dial tone continuous tone time		
680447	Country dial tone permissible drop time		
680448	Country dial wait interval (LOW)		
680449	Country dial wait interval (HIGH)		
68044A	Time between opening or closing the DO relay and opening the OHDI relay	1 ms	See Notes 3 and 6. Function 06-2 (parameter 11).
68044B	Break time for pulse dialing	1 ms	See Note 3. Function 06-2 (parameter 12).
68044C	Make time for pulse dialing	1 ms	See Note 3. Function 06-2 (parameter 13).
68044D	Time between final OHDI relay closure and DO relay opening or closing	1 ms	See Notes 6. Function 06-2 (parameter 14). This parameter is only valid in Europe.
68044E	Minimum pause between dialed digits (pulse dial mode)	20 ms	See Note 3. Function 06-2 (parameter 15).
68044F	Time waited when a pause is entered at the operation panel		Function 06-2 (parameter 16).
680450	DTMF tone on time	1 ms	Function 06-2 (parameter 17).
680451	DTMF tone off time		Function 06-2 (parameter 18).
680452	Tone attenuation level of DTMF signals while dialing	-dBm x 0.5	Function 06-2 (parameter 19). See Note 5.
680453	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-dBm x 0.5	Function 06-2 (parameter 20). The setting must be less than -5dBm, and should not exceed the setting at 680452h above. See Note 5.
680454	PSTN: DTMF tone attenuation level after dialling	-dBm x 0.5	Function 06-2 (parameter 21). See Note 5.
680455	ISDN: DTMF tone attenuation level after dialling	-dBm x 0.5	See Note 5

NCU PARAMETERS

Address	Function	Unit	Remarks
680456	Not used		Do not change the settings.
680457	Time between 68044Dh (NCU parameter 14) and 68044Eh (NCU parameter 15)	1 ms	This parameter takes effect when the country code is set to France.
680458	Not used		Do not change the setting.
680459	Grounding time (ground start mode)	20 ms	The Gs relay is closed for this interval.
68045A	Break time (flash start mode)	1 ms	The OHDI relay is open for this interval.
68045B	International dial access code (High)	BCD	For a code of 100: 68045B - F1 68045C - 00
68045C	International dial access code (Low)		
68045D	PSTN access pause time	20 ms	This time is waited for each pause input after the PSTN access code. If this address contains FF[H], the pause time stored in address 68044F is used. Do not set a number more than 7 in the UK.
68045E	Progress tone detection level, and cadence detection enable flags	Bit 7 Bit 6 Bit 5 dBm 0 0 0 -25.0 0 0 1 -35.0 0 1 0 -30.0 1 0 0 -40.0 1 1 0 -49.0 Bits 2, 0 - See Note 3.	
68045F to 680464	Not used		Do not change the settings.
680465	Long distance call prefix (HIGH)	BCD	For a code of 0: 680465 - FF 680466 - F0
680466	Long distance call prefix (LOW)	BCD	
680467 to 680471	Not used		Do not change the settings.

Address	Function	Unit	Remarks
680472	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz).	Function 06-2 (parameter 02).
680473	Acceptable ringing signal frequency: range 1, lower limit		Function 06-2 (parameter 03).
680474	Acceptable ringing signal frequency: range 2, upper limit		Function 06-2 (parameter 04).
680475	Acceptable ringing signal frequency: range 2, lower limit		Function 06-2 (parameter 05).
680476	Number or rings until a call is detected	1	Function 06-2 (parameter 06). The setting must not be zero.
680477	Minimum required length of the first ring	20 ms	See Note 4. Function 06-2 (parameter 07).
680478	Minimum required length of the second and subsequent rings	20 ms	Function 06-2 (parameter 06-2).
680479	Ringing signal detection reset time (LOW)	20 ms	Function 06-2 (parameter 09).
68047A	Ringing signal detection reset time (HIGH)		Function 06-2 (parameter 10).
68047B to 680480	Not used		Do not change the settings.
680481	Interval between dialing the last digit and switching the Oh relay over to the external telephone when dialing from the operation panel in handset mode.	20 ms	Factory setting: 500 ms
680482	Bits 0 and 1 - Handset off-hook detection time Bit 1 0 Setting 0 0 200 ms 0 1 800 ms Other Not used Bits 2 and 3 - Handset on-hook detection time Bit 3 2 Setting 0 0 200 ms 0 1 800 ms Other Not used Bits 4 to 7 - Not used		
680483 to 6804A0	Not used		Do not change the settings.

NCU PARAMETERS

Address	Function	Unit	Remarks
6804A1	Acceptable CED detection frequency upper limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6804A2	Acceptable CED detection frequency upper limit (low byte)		
6804A3	Acceptable CED detection frequency lower limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6804A4	Acceptable CED detection frequency lower limit (low byte)		
6804A5	CED detection time	20 ms ± 20 ms	Factory setting: 200 ms
6804A6	Acceptable CNG detection frequency upper limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6804A7	Acceptable CNG detection frequency upper limit (low byte)		
6804A8	Acceptable CNG detection frequency lower limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6804A9	Acceptable CNG detection frequency lower limit (low byte)		
6804AA	Not used		Do not change the setting.
6804AB	CNG on time	20 ms	Factory setting: 500 ms
6804AC	CNG off time	20 ms	Factory setting: 200 ms
6804AD	Number of CNG cycles required for detection		The data is coded in the same way as address 680433.
6804AE	Not used		Do not change the settings.
6804AF	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
6804B0	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte)		
6804B1	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte)	Hz(BCD)	If both addresses contain FF(H), tone detection is disabled.
6804B2	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte)		
6804B3	Detection time for 800 Hz AI short protocol tone	20 ms	Factory setting: 360 ms
6804B4	PSTN: Tx level from the modem	- dBm	Function 06-2 (parameter 01).
6804B5	PSTN: 1100 Hz tone transmission level	- N 6804B4 - 0.5N 6804B5 (dB) See Note 7.	
6804B6	PSTN: 2100 Hz tone transmission level	- N6804B4 - 0.5N 6804B6 (dB) See Note 7.	
6804B7	PABX: Tx level from the modem	- dBm	

NCU PARAMETERS

Address	Function	Unit	Remarks
6804B8	PABX: 1100 Hz tone transmission level	- N 6804B7 - 0.5N 6804B8 (dB)	
6804B9	PABX: 2100 Hz tone transmission level	- N 6804B7 - 0.5N 6804B9 (dB)	
6804BA	ISDN: Tx level from the modem	- dBm	The setting must be between -12dBm and -15dBm.
6804BB	ISDN: 1100 Hz tone transmission level	- N 6804BA - 0.5N 6804BB (dB)	
6804BC	ISDN: 2100 Hz tone transmission level	- N 6804BA - 0.5N 6804BC (dB)	
6804BD	Modem turn-on level (incoming signal detection level)	-37-0.5N (dBm)	
6804BE to 6804C6	Not used		Do not change the settings.
6804C7	Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump 0 : Simple, 1 : Detailed (default) Bits 5 to 7 – Not used.		
6804C8 to 6804D9	Not used		Do not change the settings.
6804DA	T.30 T1 timer	1 s	
6804E0 bit 3	Maximum wait time for post message	0 : 12 s 1 : 30 s	1 : Maximum wait time for post message (EOP/EOM/MPS) can be changed to 30 s. Change this bit to “1” if communication errors occur frequently during V.17 reception.

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NOTES

1. If a setting is not required, store FF in the address.
2. Italy and Belgium only

RAM address 68045E: the lower four bits have the following meaning.

Bit 2 - 1: International dial tone cadence detection enabled (Belgium)

Bit 1 - Not used

Bit 0 - 1: PSTN dial tone cadence detection enabled (Italy)

If bit 0 or bit 2 is set to 1, the functions of the following RAM addresses are changed.

680408 (if bit 0 = 1) or 680438 (if bit 2 = 1): tolerance for on or off state duration (%), and number of cycles required for detection, coded as in address 680433.

68040B (if bit 0 = 1) or 68043B (if bit 2 = 1): on time, hex code (unit = 20 ms)

68040C (if bit 0 = 1) or 68043C (if bit 2 = 1): off time, hex code (unit = 20 ms)

3. Pulse dial parameters (addresses 68044A to 68044F) are the values for 10 pps. If 20 pps is used, the machine automatically compensates.
4. The first ring may not be detected until 1 to 2.5 wavelengths after the time specified by this parameter.
5. The calculated level must be between 0 and 10.
The attenuation levels calculated from RAM data are:
High frequency tone: $-0.5 \times N_{680452/680454/680455}$ dBm
Low frequency tone: $-0.5 \times (N_{680452/680454/680455} + N_{680453})$ dBm
Note: N_{680452} , for example, means the value stored in address 680452(H)
6. 68044A: Europe - Between Ds opening and Di opening, France - Between Ds closing and Di opening
68044D: Europe - Between Ds closing and Di closing, France - Between Ds opening and Di closing
7. Tone signals which frequency is lower than 1500Hz (e.g., 800Hz tone for AI short protocol) refer to the setting at 6804B5h. Tones which frequency is higher than 1500Hz refer to the setting at 6804B6h.

4.4 DEDICATED TRANSMISSION PARAMETERS

Each Quick Dial Key and Speed Dial Code has eight bytes of programmable parameters allocated to it. If transmissions to a particular machine often experience problems, store that terminal's fax number as a Quick Dial or Speed Dial, and adjust the parameters allocated to that number.

The programming procedure will be explained first. Then, the eight bytes will be described.

4.4.1 PROGRAMMING PROCEDURE

1. Make sure the machine is in 'Facsimile' mode. Press 'User Tools' key then choose 'Fax'.
2. Press **[1]**, then either choose 'Registering Quick Dial' or 'Registering Speed Dial'.
Example: Change the Parameters in Quick Dial 10.
3. Press Quick Dial key 10.
NOTE: The selected Quick or Speed Dial must be programmed beforehand.
4. When the programmed dial number is displayed, press S - V - C using Quick Dial keys, then press 'Start'.
5. The settings for byte 0 are now displayed. Press a number from 0 to 7 corresponding to the bit that you wish to change.
Example: Change bit 7 to 1: Press 7
6. To scroll through the parameter bytes, either:
 Select the next byte: press '↓ Switch'
 or
 Select the previous byte: press '↑ Switch' until the correct byte is displayed.
 Then go back to step 6.
7. After the setting is changed, press OK.
8. To finish, press 'User Tools'.

DEDICATED TRANSMISSION PARAMETERS

4.4.2 PARAMETERS

The initial settings of the following parameters are all FF(H) - all the parameters are disabled.

Switch 01	
FUNCTION AND COMMENTS	
ITU-T T1 time (for PSTN G3 mode) If the connection time to a particular terminal is longer than the NCU parameter setting, adjust this byte. The T1 time is the value stored in this byte (in hex code), multiplied by 1 second. Range: 0 to 120 s (00h to 78h) FFh - The local NCU parameter factory setting is used. Do not program a value between 79h and FEh.	

Switch 02	
No	FUNCTION
0 to 4	Tx level
	Bit 4 3 2 1 0 Setting
	0 0 0 0 0 0
	0 0 0 0 1 -1
	0 0 0 1 0 -2
	0 0 0 1 1 -3
	0 0 1 0 0 -4
	:
	:
	0 1 1 1 1 -15
	1 1 1 1 1 Disabled
If communication with a particular remote terminal often contains errors, the signal level may be inappropriate. Adjust the Tx level for communications with that terminal until the results are better. If the setting is 'Disabled', the NCU parameter 01 setting is used. Note: Do not use settings other than listed on the left.	
5 to 7	Cable equalizer
	Bit 7 6 5 Setting
	0 0 0 None
	0 0 1 Low
	0 1 0 Medium
	0 1 1 High
	1 1 1 Disabled
Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange when calling the number stored in this Quick/Speed Dial. Also, try using the cable equalizer if one or more of the following symptoms occurs. - Communication error with error codes such as 0-20, 0-23, etc. - Modem rate fallback occurs frequently. Note: Do not use settings other than listed on the left. If the setting is 'Disabled', the bit switch setting is used.	

DEDICATED TRANSMISSION PARAMETERS

Switch 03		
No	FUNCTION	COMMENTS
0 to 3	Initial Tx modem rate	If training with a particular remote terminal always takes too long, the initial modem rate may be too high. Reduce the initial Tx modem rate using these bits. For the settings 14.4 or kbps slower, Switch 04 bit 4 must be changed to 0. Note: Do not use settings other than listed on the left. If the setting is 'Disabled', the bit switch setting is used.
	Bit 3 2 1 0 Setting (bps)	
	0 0 0 0 Not used	
	0 0 0 1 2,400	
	0 0 1 0 4,800	
	0 0 1 1 7,200	
	0 1 0 0 9,600	
	0 1 0 1 12,000	
	0 1 1 0 14,400	
	0 1 1 1 16,800	
	1 0 0 0 19,200	
	1 0 0 1 21,600	
	1 0 1 0 24,000	
	1 0 1 1 26,400	
	1 1 0 0 28,800	
	1 1 0 1 31,200	
	1 1 1 0 33,600	
	1 1 1 1 Disabled	
Other settings: Not used		
4-5	Not used	Do not change the settings.
6	AI short protocol 0: Off 1: Disabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about AI Short Protocol. If the setting is 'Disabled', the bit switch setting is used.
7	Not used	Do not change the settings.

Switch 04		
No	FUNCTION	COMMENTS
0 1	Inch-mm conversion before tx	The machine uses inch-based resolutions for scanning. If "inch only" is selected, the printed copy may be slightly distorted at the other end if that machine uses mm-based resolutions. If the setting is 'Disabled', the bit switch setting is used.
	Bit 1 Bit 0 Setting	
	0 0 Inch-mm conversion available	
	0 1 Inch only	
	1 0 Not used	
2 to 3	DIS/NSF detection method	(0, 1): Use this setting if echoes on the line are interfering with the set-up protocol at the start of transmission. The machine will then wait for the second DIS or NSF before sending DCS or NSS. If the setting is 'Disabled', the bit switch setting is used.
	Bit 3 Bit 2 Setting	
	0 0 First DIS or NSF	
	0 1 Second DIS or NSF	
	1 0 Not used	
	1 1 Disabled	

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Switch 04		
No	FUNCTION	COMMENTS
4	V.8 protocol 0: Off 1: Disabled	If transmissions to a specific destination always end at a lower modem rate (14,400 bps or lower), disable V.8 protocol so as not to use V.34 protocol. 0: V.34 communication will not be possible. If the setting is 'Disabled', the bit switch setting is used.
5	Compression modes available in transmit mode 0: MH only 1: Disabled	This bit determines the capabilities that are informed to the other terminal during transmission. If the setting is 'Disabled', the bit switch setting is used.
6 7	ECM during transmission Bit 7 Bit 6 Setting 0 0 Off 0 1 On 1 0 Not used 1 1 Disabled	For example, if ECM is switched on but is not wanted when sending to a particular terminal, use the (0, 0) setting. Note that V.8/V.34 protocol and JBIG compression are automatically disabled if ECM is disabled. If the setting is 'Disabled', the bit switch setting is used.

Switch 05 - Not used (do not change the settings)

Switch 06 - Not used (do not change the settings)

Switch 07 - Optional ISDN G4 kit required		
No	FUNCTION	COMMENTS
0 to 3	Data rate Bits 3 2 1 0 Setting 0 0 0 0 64 kbps 0 0 0 1 56 kbps 1 1 1 1 Disabled	If the setting is 'Disabled', the current setting of G4 parameter switch 2 (bits 0 and 1) is used.
4-7	Not used	Do not change the settings.

Switch 08 - Optional ISDN G4 kit required		
No	FUNCTION	COMMENTS
0 to 3	Link modulus Bits 3 2 1 0 Setting 0 0 0 0 Modulo 8 0 0 0 1 Modulo 128 1 1 1 1 Disabled	If the setting is 'Disabled', the current setting of G4 parameter switch 3 (bit 0) is used.
4-7	Not used	Do not change the settings.

DEDICATED TRANSMISSION PARAMETERS

Switch 09 - Optional ISDN G4 kit required						
No	FUNCTION				COMMENTS	
0 to 3	Layer 3 protocol				If the setting is 'Disabled', the current setting of G4 parameter switch 6 (bit 0) is used.	
	Bits	3	2	1 0		Setting
	0	0	0	0		ISO 8208
	0	0	0	1		T.70 NULL
	1	1	1	1		Disabled
4 to 7	Packet modulus				If the setting is 'Disabled', the current setting of G4 parameter switch 6 (bit 4) is used.	
	Bits	3	2	1 0		Setting
	0	0	0	0		Modulo 8
	0	0	0	1		Modulo 128
	1	1	1	1		Disabled

Switch 0A - Not used

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4.5 SERVICE RAM ADDRESSES

CAUTION

Do not change the settings which are marked as “Not used” or “Read only.”

680001 to 680004(H) - ROM version (Read only)

680001(H) - Revision number (BCD)

680002(H) - Year (BCD)

680003(H) - Month (BCD)

680004(H) - Day (BCD)

680006 to 680015(H) - Machine's serial number (16 digits - ASCII)

680018(H) - Total program checksum (low)

680019(H) - Total program checksum (high)

680020 to 68003F(H) - System bit switches

680040 to 68004F(H) - Scanner bit switches

680050 to 68005F(H) - Printer bit switches

680060 to 68007F(H) - Communication bit switches

680080 to 68008F(H) - G3 bit switches

6800C0(H) - User parameter switch 00 (SWUER_00)

Bit 0: Stamp home position 0: Disabled, 1: Enabled

Bits 1 to 3: Scanning contrast home position

Bit	3	2	1	Setting
	0	0	0	Automatic
	0	0	1	Position 1 (Lightest)
	0	1	0	Position 2
	0	1	1	Position 3
	1	0	0	Position 4 (Medium)
	1	0	1	Position 5
	1	1	0	Position 6
	1	1	1	Position 7 (Darkest)

Bits 4 and 5: Scanning resolution home position

(This switch is not printed on the user parameter list.)

Bit	5	4	Setting
	0	0	Standard
	0	1	Detail
	1	0	Superfine
	1	1	Superfine

Bit 6: Transmission mode home position

(This switch is not printed on the user parameter list.)

0: Memory tx, 1: Immediate tx

Bit 7: Not used

6800C1(H) - User parameter switch 01 (SWUSR_01)

Bit 0: Label insertion home position 0: Disabled, 1: Enabled
 Bit 1: ID transmission home position 0: Disabled, 1: Enabled
 Bit 2: Automatic reduction (tx) home position 0: Disabled, 1: Enabled
 Bits 3 and 4: Scanning mode LED home position
 (This switch is not printed on the user parameter list.)

Bit	4	3	Setting
	0	0	Text
	0	1	Text/ Photo
	1	0	Photo
	1	1	Special Original (See the note below)

Note: The “Special Original” setting is not explained in the Operator’s Manual, because it can be selected only if System Switch 19 – bit 7 is set to “1”.

Bit 5: TTI print home position 0: Disabled, 1: Enabled
 Bit 6: TTI used for broadcasting; the TTI selected with this switch is used for all destinations during broadcasting.

0: TTI_1, 1: TTI_2

(This switch is not printed on the user parameter list.)

Note: System Switch 11 bit 3 must be set to “1” to enable this switch.

Bit 7: Settings return to home position after scanning 0: Disabled, 1: Enabled

6800C2(H) - User parameter switch 02 (SWUSR_02)

Bit 0: Forwarding mark printing on forwarded messages 0: Disabled, 1: Enabled
 Bit 1: Center mark printing on received copies
 (This switch is not printed on the user parameter list.)

0: Disabled, 1: Enabled

Bit 2: Reception time printing
 (This switch is not printed on the user parameter list.)

0: Disabled, 1: Enabled

Bit 3: TSI print on received messages 0: Disabled, 1: Enabled

Bit 4: Checkered mark printing
 (This switch is not printed on the user parameter list.)

0: Disabled, 1: Enabled

Bit 5: CIL printing (G4) 0: Disabled, 1: Enabled

Bit 6: TID printing (G4) 0: Disabled, 1: Enabled

Bit 7: Not used

6800C3(H) - User parameter switch 03 (SWUSR_03: Automatic report printout)

Bit 0: Transmission result report (memory transmissions) 0: Off, 1: On

Bit 1: Not used

Bit 2: Memory storage report 0: Off, 1: On

Bit 3: Polling reserve report (polling reception) 0: Off, 1: On

Bit 4: Polling result report (polling reception) 0: Off, 1: On

Bit 5: Transmission result report (immediate transmissions) 0: Off, 1: On

Bit 6: Polling clear report 0: Off, 1: On

Bit 7: Journal 0: Off, 1: On

6800C4(H) - User parameter switch 04 (SWUSR_04: Automatic report printout)

Bit 0: Automatic confidential reception report output 0: Off, 1: On
 Bits 1 to 6: Not used
 Bit 7: Inclusion of a sample image on reports 0: Off, 1: On

6800C5(H) - User parameter switch 05 (SWUSR_05)

Bit 0: Substitute reception when the base copier is in an SC condition
 0: Enabled, 1: Disabled
 Bits 1 and 2: Condition for substitute rx when the machine cannot print messages
 (Paper end, Toner end, and Jam during night mode)

Bit	2	1	Setting
	0	0	The machine receives all the fax messages.
	0	1	The machine receives the fax messages with RTI or CSI.
	1	0	The machine receives the fax messages with the same ID code.
	1	1	The machine does not receive anything.

Bit 3: Not used
 Bit 4: Restricted Access using personal codes 0: Off, 1: On
 Bit 5: Just size printing 0: Off, 1: On
 Bit 6: Not used
 Bit 7: Add paper display when a cassette is empty 0: Off, 1: On

6800C6(H) - User parameter switch 06 (SWUSR_06)

Bit 0: Not used
 Bit 1: G3/G4 LED home position 0: G3, 1: G4
 Bits 2 and 3: Not used
 Bit 4: Quick dial label print format
 0: Suitable for white paper, 1: Suitable for transparent paper
 Bit 5: Not used
 Bit 6: Scan sequence in Book transmission
 0: Left page then right page, 1: Right page then left page
 Bit 7: Not used

6800C7(H) - User parameter switch 07 (SWUSR_07)

Bits 0 and 1: Not used
 Bit 2: Parallel memory transmission 0: Off, 1: On
 Bits 3 to 7: Not used

6800C8(H) - User parameter switch 08 (SWUSR_08)

Bits 0 and 1: Not used.
 Bit 2: Authorized reception
 0: Only faxes from senders whose RTIs/CSIs are specified for this feature are accepted.
 1: Only faxes from senders whose RTIs/CSIs are not specified for this feature are accepted.
 Bits 3 to 7: Not used.

6800C9(H) - User parameter switch 09 (SWUSR_09)

Bits 0 to 7: Not used

6800CA(H) - User parameter switch 10 (SWUSR_0A)

Bit 0: Not used

Bit 1: 2 into 1 0: Off, 1: On

Bit 2: Not used

Bit 3: Page reduction 0: Off, 1: On

Bits 4 to 7: Not used

6800CB(H) - User parameter switch 11 (SWUSR_0B)

Bit 0: Not used

Bit 1: Method of transmitting numbers after the "Tone" mark over an ISDN line
0: UUI, 1: Tone

Bits 2 to 5: Not used

Bit 6: Printout of messages received while acting as a forwarding station
0: Off, 1: On

Bit 7: Polling Standby duration 0: Once, 1: No limit

6800CC(H) - User parameter switch 12 (SWUSR_0C)

Bits 0 to 7: Not used

6800CD(H) - User parameter switch 13 (SWUSR_0D)

(This switch is not printed on the user parameter list.)

Bits 0 and 1: PSTN access method from behind a PABX

Bit	1	0	Setting
	0	0	PSTN
	0	1	Loop start
	1	0	Ground start
	1	1	Flash start

Bits 2 to 4: Not used

Bit 5: Action when receiving a SETUP signal containing no called number and the G4 subscriber number was programmed in this machine.

0: Respond to the call, 1: Do not respond to the call

Bit 6: Action when the received HLC (Higher Level Capabilities) is Tel or BC (Bearer Capabilities) is Speech.

0: Do not respond to the call, 1: Respond to the call

This switch determines which information transfer capabilities the machine can accept when receiving a call.

1: When the received HLC is Tel (digital telephone) or BC is Speech (voice), the machine responds to the call. In short, the machine receives every call.

This switch is useful for communication problems when the other terminal informs the above transfer capabilities although it is a fax machine.

Bit 7: Not used

6800CE(H) - User parameter switch 14 (SWUSR_0E)

Bit 0: Message printout while the machine is in Night Timer mode 0: On, 1: Off

Bit 1: Maximum document length detection (Well log)

0: Double letter, 1: 1200 mm (Memory transmission)

Bit 2: Batch transmission 0: Off, 1: On

Bit 3: Setting before mode key (Copy/Fax/Printer) is pressed

0: Not cleared, 1: Cleared

Bits 4 to 6: Not used

SERVICE RAM ADDRESSES

Bit 7: Manual service call (sends the system parameter list to the service station)
0: Off, 1: On

6800CF(H) - User parameter switch 15 (SWUSR_0F)

Bits 0, 1 and 2: Cassette for fax printout

Bit	2	1	0	Setting
	0	0	1	1st paper feed station
	0	1	0	2nd paper feed station
	0	1	1	3rd paper feed station
	Other settings			Not used

Bits 3 and 4: Not used

Bit 5: Using the cassette specified by bits 0, 1 and 2 above only 0: On, 1: Off

Bits 6 and 7: Not used

6800D0(H) - User parameter switch 16 (SWUSR_10)

(This switch is not printed on the user parameter list.)

Bits 0 and 1: Not used

Bit 2: Paper size selection priority for an A4 size fax message when A4/LT size paper is not available.

0: A3 has priority, 1: B4 has priority

Bits 3 to 7: Not used

6800D1(H) - User parameter switch 17 (SWUSR_11)

Bits 0 and 1: Not used

Bit 2: Inclusion of the "Add" button when a sequence of Quick/Speed dials is selected for broadcasting

0: Not needed, 1: Needed

Bits 3 to 7: Not used

6800D2(H) - User parameter switch 18 (SWUSR_12)

Bit 0: TTI date 0: Off, 1: On

Bit 1: TTI sender 0: Off, 1: On

Bit 2: TTI file number 0: Off, 1: On

Bit 3: TTI page number 0: Off, 1: On

Bit 4 to 7: Not used

6800D3(H) - User parameter switch 19 (SWUSR_13)

Bit 0: Not used

Bit 1: Journal format

0: The Journal is separated into transmissions and receptions

1: The Journal is separated into G3 communications and G4 communications

Bit 2: Action when the paper cassette, which was selected by the specified cassette selection feature, becomes empty.

(This switch is not printed on the user parameter list.)

0: The machine will not print any received files until the paper is added.

1: The machine will use other cassettes to print received files that are not specified by this feature.

Bit 3: 90° image rotation during B5 portrait Tx

(This switch is not printed on the user parameter list.)

0: Off, 1: On

Bit 4: Reduction of sample images on reports to 50% in the main scan and sub-scan directions. (This switch is not printed on the user parameter list.)

0: Off, 1: On

SERVICE RAM ADDRESSES

Bit 5: Use of A5 size paper for reports

(This switch is not printed on the user parameter list.)

0: Off, 1: On

Bits 6 and 7: Not used

6800D4(H) - User parameter switch 20 (SWUSR_14)

Bit 0: PC transmission mode

0: Direct Tx, 1: Memory Tx

Bit 1: Addition of fax TTI during PC memory transmission

0: Disabled, 1: Enabled

Bit 2: Checkered mark on printouts during PC printing

0: Disabled, 1: Enabled

Bits 3 and 4: Not used

Bit 5: Communication port for PC memory transmission

(This switch is not printed on the user parameter list.)

0: PSTN, 1: ISDN G4

Bits 6 and 7: Buffer threshold for PC direct transmission

Keep this bit at "0,0" in most cases.

(This switch is not printed on the user parameter list.)

Bit 7	Bit 6	setting
0	0	Minimum (default)
0	1	:
1	0	:
1	1	Maximum

6800D5(H) - User parameter switch 21 (SWUSR_15)

Bit 0: PC fax reception 0: Disabled, 1: Enabled

Bits 1 and 2: PC fax reception mode

Bit 2	Bit 1	Setting
0	0	Direct rx
0	1	Memory rx
1	0	Not used
1	1	Memory rx and print on the fax machine

Bit 3: Automatic reduction when the machine transfers data to the PC from the machine. This switch is effective only for PC memory Tx.

(This switch is not printed on the user parameter list.)

0: Enabled, 1: Disabled

Bits 4 and 5: Scan density for the "Light" setting.

(This switch is effective only when a PC scanner application with the CMF-TWAIN driver is used.)

Bit 5	Bit 4	Setting
0	0	Level 1 (default)
0	1	Level 1
1	0	Level 2
1	1	Level 3

Bits 6 and 7: Scan density for the “Dark” setting.

(This switch is effective only when a PC scanner application with the CMF-TWAIN driver is used.)

Bit 7	Bit 6	Setting
0	0	Level 7 (default)
0	1	Level 5
1	0	Level 6
1	1	Level 7

6800D6(H) to 6800D7 - User parameter switch 22 to 23 (SWUSR_16 to 17)

Bits 0 to 7: Not used

6800D8(H) - User parameter switch 24 (SWUSR_18)

Bits 0 and 1: File retention time (Cross reference: System switch 02 bit4)

Bit	1	0	Setting
	0	0	Disabled
	0	1	24 hours
	1	0	Disabled
	1	1	72 hours

Bits 2 to 7: Not used

6800D9(H) - User parameter switch 25 (SWUSR_19)

Bits 0 to 3: Not used

Bit 4: RDS operation 0: Not acceptable

1: Acceptable for the limit specified by system switch 03

Note: This bit is only effective when RDS operation can be selected by the user.

Bits 5 and 6: Not used

Bit 7: Daylight saving time 0: Disabled, 1: Enabled

6800DA(H) - User parameter switch 26 (SWUSR_1A)

(This switch is not printed on the user parameter list.)

Bit 0: Not used

Bit 1: Dialing type 0: Pulse dialing (10 pps), 1: Tone (DTMF) dialing

Bits 2 to 7: Not used

6800DB(H) - User parameter switch 27 (SWUSR_1B)

PSTN access code from behind a PABX

(This switch is not printed on the user parameter list.)

Access number	Hex value to program (BCD)
0	F0
↓	↓
0	F0
00	00
↓	↓
99	99

6800DC(H) to 6800DF - User parameter switch 28 to 31 (SWUSR_1C to 1F)

Bits 0 to 7: Not used

6800E0 to 6800EF(H) - G4 Parameter Switches

(Refer to the ISDN G4 option service manual for details.)

SERVICE RAM ADDRESSES

6800F0 to 68010F(H) - G4 Internal Switches

(Refer to the ISDN G4 option service manual for details.)

680110 to 68011E(H) - Service station's fax number (Service mode 09)

See 68027C(H) for the type of network used for this number.

68011F to 68012D(H) - Own fax PABX extension number

68012E to 68013C(H) - Own fax number (PSTN)

68013D to 68014B(H) - Own fax number (ISDN G4)

68014C to 68015A(H) - The first subscriber number (ISDN G3)

68015B to 680169(H) - The second subscriber number (ISDN G3)

68016A to 680178(H) - The first subscriber number (ISDN G4)

680179 to 680187(H) - The second subscriber number (ISDN G4)

680188 to 680119B(H) - RTI (Max. 20 characters - ASCII) - See the following note.

6801B0 to 6801EF(H) - TTI 1 (Max. 64 characters - ASCII) - See the following note.

6801F0 to 680229(H) - TTI 2 (Max. 64 characters - ASCII) - See the following note.

680230 to 680243(H) - CSI (Max. 20 characters - ASCII)

680258 to 68026B(H) - ISDN G3 CSI (Max. 20 characters - ASCII)

68026C(H) - Number of CSI characters (Hex)

68026E(H) - Number of ISDN G3 CSI characters (Hex)

NOTE: If the number of characters is less than the maximum (20 for RTI, 64 for TTI), add a stop code (FF[H]) after the last character.

680270(H) - ID code (low - Hex)

680271(H) - ID code (high - Hex)

680272(H) - Confidential ID (low - BCD)

680273(H) - Confidential ID (high - BCD)

68027C(H) - Network type used for the service station number

00(H) - G3 (PSTN)

01(H) - G4 (ISDN)

680280 to 680287(H) - Last power off time (Read only)

680280(H) - 01(H) - 24-hour clock, 00(H) - 12-hour clock (AM), 02(H) - 12-hour clock (PM)

680281(H) - Year (BCD)

680282(H) - Month (BCD)

680283(H) - Day (BCD)

680284(H) - Hour

680285(H) - Minute

680286(H) - Second

680287(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

680294(H) - Optional equipment (Read only – Do not change the settings)

Bits 0 to 2: EXMEM board 0: Not installed, 1: Installed

Bit 3: Not used

Bit 4: EXFUNC board 0: Not installed, 1: Installed

Bit 5 to 7: Not used

680295(H) - Optional equipment (Read only – Do not change the settings)

Bit 0: EXFUNC board 0: Not installed, 1: Installed

Bits 1 to 5: Not used

Bit 6: ISDN unit 0: Not installed, 1: Installed

Bit 7: PC Fax Expander unit 0: Not installed, 1: Installed

680296(H) - Optional equipment (Read only – Do not change the settings)

Bit 0: Paper tray unit 0: Not installed, 1: Installed

Bits 1 to 3: Not used

Bit 4: 1-bin sorter 0: Not installed, 1: Installed

Bits 5 to 7: Not used

680297(H) - Optional equipment (Read only – Do not change the settings)

Bit 0: Not used

Bit 1: Not used

Bit 2: Document feeder 0: Not installed, 1: Installed

Bit 3: Stamp 0: Not installed, 1: Installed

Bits 4 to 7: Not used

6802CC to 6802E3(H) - G4 terminal ID (ASCII - Max. 24 characters)**6802FD to 680300(H)** - ISDN G3 sub-address**680301 to 680304(H)** - ISDN G4 sub-address**680305 to 680309(H)** - CiG4 board ROM information (Read only)

680305(H) - Suffix

680306(H) - Version (BCD)

680307(H) - Year (BCD)

680308(H) - Month (BCD)

680309(H) - Day (BCD)

680314 to 680319(H) - Modem ROM version (Read only)

680314(H) - Part number (low)

680315(H) - Part number (high)

680316(H) - Control (low)

680317(H) - Control (high)

680318(H) - DSP (low)

680319(H) - DSP (high)

68037E(H) - Time for economy transmission (hour in 24h clock format - BCD)**68037F(H)** - Time for economy transmission (minute - BCD)**68039A(H)** - Transmission monitor volume 00 - 07(H)**68039B(H)** - Reception monitor volume 00 - 07(H)**68039C(H)** - On-hook monitor volume 00 - 07(H)**68039D(H)** - Dialing monitor volume 00 - 07(H)**68039E(H)** - Buzzer volume 00 - 07(H)**6803A1 to 6803A5(H)** - Periodic service call parameters

Parameters		Address (H)
Call interval: 01 through 15 month(s) (BCD) 00: Periodic service call disabled		6803A1
Date and time of the next call	Day: 01 through 31 (BCD)	6803A4
	Hour: 01 through 24 (BCD)	6803A5

SERVICE RAM ADDRESSES

6803AB to 6803AD(H) - Effective term of automatic service calls

Parameters	Address (H)
Year: last two digits of the year (BCD)	6803AB
Month: 01 through 12 (BCD)	6803AC
Day: 01 through 31 (BCD)	6803AD

680400 to 6804E0(H) - NCU parameters (Refer to section 4.3 for details)

680DC8 to 680DEF(H) - SC codes NOT for automatic service call

If the fax unit receives a copier engine SC code other than those programmed in these addresses, the fax unit sends an automatic service call report to the programmed service station.

Six SC codes have already been programmed at default, as shown in the table below. Fourteen more SC codes can be programmed, if required (if an address contains FF(H), a code is not programmed in it).

Program a SC code in four-digit BCD format as shown in the example below.

Example 1: SC code '192'

Address (High) - 01 (BCD)

Address (Low) - 92 (BCD)

Wildcard characters "a" or "A" can be used to specify a series of SC codes.

Example 2: SC code '900 to 999'

Address (High) – 09 (BCD)

Address (Low) – aa or AA (Hex)

Example 3: SC code '330 to 339'

Address (High) – 03 (BCD)

Address (Low) – 3a or 3A (Hex)

- Default settings -

High Address (H)	Data (BCD)	Low Address (L)	Data (BCD)	SC code
680DC8	03	680DC9	29	329
680DCA	03	680DCB	61	361
680DCC	03	680DCD	65	365
680DCE	05	680DCF	48	548
680DD0	06	680DD1	30	630
680DD2	09	680DD3	AA	900 to 999
680DD4 to 680DEE	FF(H)	680DD5 to 680DEF	FF(H)	Not Programmed

68849C to 68889B(H) - Dedicated tx parameters for Quick Dial 01 - 32.

There are 32 bytes for each Quick Dial. Only the 23rd to 32nd bytes are used.

6884B2 to 6884BB(H) - Dedicated tx parameters for Quick 01

6884D2 to 6884DB(H) - Dedicated tx parameters for Quick 02

6884F2 to 6884FB(H) - Dedicated tx parameters for Quick 03



688892 to 68889B(H) - Dedicated tx parameters for Quick 32

688B9C to 68981B(H) - Dedicated tx parameters for Speed Dial #00 - #99.

There are 32 bytes for each Speed Dial. Only the 23rd to 32nd bytes are used.

688BB2 to 688BBB(H) - Dedicated tx parameters for Speed #00

688BD2 to 688BDB(H) - Dedicated tx parameters for Speed #01

688BF2 to 688BFB(H) - Dedicated tx parameters for Speed #02



689812 to 68981B(H) - Dedicated tx parameters for Speed #99

68E8E4 to 68E8E5(H) - Line type change (refer to section 2 for more details)

68E8E4(H) - Current line type setting

68E8E5(H) - Line type to be used after the procedure

69CA00 to 69CBFF(H) - Latest 64 error codes (Read only)

One error record consists of 8 bytes of data.

First error record start address – 69CA00(H)

Second error record start address – 69CA08(H)

Third error record start address – 69CA10(H)

:

64th error record start address – 69CBF8(H)

The format is as follows:

1st byte - Minute (BCD)

2nd byte - Hour (BCD)

3rd byte - Day (BCD)

4th byte - Month (BCD)

5th byte - Error code – low (BCD) [If the error code is 1-23, 23 is stored here.]

6th byte - Error code – high (BCD) [If the error code is 1-23, 01 is stored here.]

7th byte - Communication line (Hex)

PSTN: 00(H), PABX: 02(H), ISDN G3: 0C(H), ISDN G4: 0D(H)

8th byte - Not used

SERVICE RAM ADDRESSES

69E134 to 69E813(H) - Latest 20 error communication records (Read only)

One error communication record consists of 88 bytes. The format is as follows:

1st byte - Header

Bit 0: Communication result 0: OK, 1: NG

Bit 1: Document jam 1: Occurred

Bit 2: Power down 1: Occurred

Bit 3: Not used

Bit 4: Technical data printout instead of personal codes 0: No, 1: Yes

Bit 5: Type of technical data 0: Rx level, 1: Measure of error rate

Bit 6: Error report 0: Not printed, 1: Printed

Bit 7: Data validity 0: Not valid, 1: Valid

2nd byte - Not used

3rd to 6th bytes - Date and time when the communication started

3rd byte - Month (BCD)

4th byte - Day (BCD)

5th byte - Hour (BCD)

6th byte - Minute (BCD)

7th and 8th bytes - Communication time

7th byte - Minutes (BCD)

8th byte - Seconds (BCD)

9th and 10th bytes - Number of pages transmitted or received

9th byte - Low byte (Hex)

10th byte - High byte (Hex)

11th and 12th bytes - Personal code or number of total/burst error lines

If bit 4 of the 1st byte is 0:

11th byte - Personal code (low - BCD)

12th byte - Personal code (high - BCD)

If bit 4 of the 1st byte is 1:

11th byte - Number of total error lines (Hex)

12th byte - Number of burst error lines (Hex)

13th byte - File number (low - Hex)

14th byte - File number (high - Hex)

15th and 16th bytes - Rx level or a measure of the error rate

If bit 5 of the 1st byte is 0:

15th byte - Rx level (low - Hex)

16th byte - Rx level (high - Hex)

If bit 4 of the 1st byte is 1:

15th byte - Measure of error rate (low - Hex)

16th byte - Measure of error rate (high - Hex)

17th byte - Final modem rate

Bits 0 to 3: Final modem speed

$$\begin{pmatrix} \text{Bit0} \\ \text{Bit1} \\ \text{Bit2} \\ \text{Bit3} \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix} \left\{ 2.4 \text{ k} \right\} \begin{pmatrix} 0 \\ 1 \\ 0 \\ 0 \end{pmatrix} \left\{ 4.8 \text{ k} \right\} \begin{pmatrix} 1 \\ 1 \\ 0 \\ 0 \end{pmatrix} \left\{ 7.2 \text{ k} \right\} \begin{pmatrix} 0 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ 9.6 \text{ k} \right\} \begin{pmatrix} 1 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ 12.0 \text{ k} \right\} \begin{pmatrix} 0 \\ 1 \\ 1 \\ 0 \end{pmatrix} \left\{ 14.4 \text{ k} \right\} \begin{pmatrix} 1 \\ 1 \\ 1 \\ 0 \end{pmatrix} \left\{ 16.8 \text{ k} \right\}$$

$$\begin{pmatrix} \text{Bit0} \\ \text{Bit1} \\ \text{Bit2} \\ \text{Bit3} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 1 \end{pmatrix} \left\{ 19.2 \text{ k} \right\} \begin{pmatrix} 1 \\ 0 \\ 0 \\ 1 \end{pmatrix} \left\{ 21.6 \text{ k} \right\} \begin{pmatrix} 0 \\ 1 \\ 0 \\ 1 \end{pmatrix} \left\{ 24.0 \text{ k} \right\} \begin{pmatrix} 1 \\ 1 \\ 0 \\ 1 \end{pmatrix} \left\{ 26.4 \text{ k} \right\} \begin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \end{pmatrix} \left\{ 28.8 \text{ k} \right\} \begin{pmatrix} 1 \\ 0 \\ 1 \\ 1 \end{pmatrix} \left\{ 31.2 \text{ k} \right\} \begin{pmatrix} 0 \\ 1 \\ 1 \\ 1 \end{pmatrix} \left\{ 33.6 \text{ k} \right\}$$

Bits 4 to 6: Final modem type

$$\begin{pmatrix} \text{Bit4} \\ \text{Bit5} \\ \text{Bit6} \\ \text{Bit7} \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix} \left\{ \text{V.27ter} \right\} \begin{pmatrix} 0 \\ 1 \\ 0 \\ 0 \end{pmatrix} \left\{ \text{V.29} \right\} \begin{pmatrix} 1 \\ 1 \\ 0 \\ 0 \end{pmatrix} \left\{ \text{V.33} \right\} \begin{pmatrix} 0 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ \text{V.17 (Long)} \right\} \begin{pmatrix} 1 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ \text{V.17 (Short)} \right\}$$

$$\begin{pmatrix} \text{Bit4} \\ \text{Bit5} \\ \text{Bit6} \\ \text{Bit7} \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \\ 0 \\ 1 \end{pmatrix} \left\{ \text{V.34 } 2400 \text{ baud} \right\} \begin{pmatrix} 0 \\ 1 \\ 0 \\ 1 \end{pmatrix} \left\{ \text{V.34 } 3000 \text{ baud} \right\} \begin{pmatrix} 1 \\ 1 \\ 0 \\ 1 \end{pmatrix} \left\{ \text{V.34 } 3200 \text{ baud} \right\} \begin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \end{pmatrix} \left\{ \text{V.34 } 2800 \text{ baud} \right\} \begin{pmatrix} 1 \\ 0 \\ 1 \\ 1 \end{pmatrix} \left\{ \text{V.34 } 3429 \text{ baud} \right\}$$

18th to 20th byte - Not used

21st to 44th byte - Remote terminal's ID (RTI, TSI or CSI) (ASCII)

45th byte - Communication mode #1

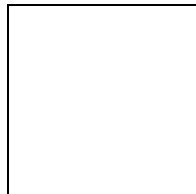
Bits 0 - 1: Network

$$\begin{pmatrix} \text{Bit0} \\ \text{Bit1} \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \end{pmatrix} \left\{ \text{PSTN} \right\} \begin{pmatrix} 0 \\ 1 \end{pmatrix} \left\{ \text{ISDN} \right\}$$

Bit 2: Communication protocol 0: G3, 1: G4

Bit 3: ECM 0: Off, 1: On

Bits 4 to 7: Communication mode used



$$\begin{pmatrix} \text{Bit4} \\ \text{Bit5} \\ \text{Bit6} \\ \text{Bit7} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ \text{Forwarding} \right\} \begin{pmatrix} 1 \\ 0 \\ 1 \\ 0 \end{pmatrix} \left\{ \text{Automatic Service Call} \right\}$$

SERVICE RAM ADDRESSES

46th byte - Communication mode #2

Bit 0: Tx or Rx	0: Tx, 1: Rx
Bit 1: Reduction during Tx	0: Not reduced, 1: Reduced
Bit 2: Batch transmission	0: Not used, 1: Used
Bit 3: Send later transmission	0: Not used, 1: Used
Bit 4: Transmission from	0: ADF, 1: Memory
Bits 5 to 7: Not used	

47th byte - Not used

48th byte - Number of errors during communication (Hex)

49th to 52nd byte - 1st error code and page number where the error occurred

49th byte - Page number where the error occurred (low - Hex)

50th byte - Page number where the error occurred (high - Hex)

51st byte - Error code (low - BCD)

52nd byte - Error code (high - BCD)

53rd to 56th byte - 2nd error code and page number where the error occurred

57th to 60th byte - 3rd error code and page number where the error occurred

61st to 64th byte - 4th error code and page number where the error occurred

65th to 68th byte - 5th error code and page number where the error occurred

69th to 72nd byte - 6th error code and page number where the error occurred

73rd to 76th byte - 7th error code and page number where the error occurred

77th to 80th byte - 8th error code and page number where the error occurred

81st to 84th byte - 9th error code and page number where the error occurred

85th to 88th byte - 10th error code and page number where the error occurred

7644F0 to 76B56F(H) - Dedicated tx parameters for Speed Dial #100 - #999, when the optional EXFUNC board is installed.

There are 32 bytes for each Speed Dial. Only the 23rd to 32nd bytes are used.

764506 to 76450F(H) - Dedicated tx parameters for Speed #100

764526 to 76452F(H) - Dedicated tx parameters for Speed #101

764546 to 76454F(H) - Dedicated tx parameters for Speed #102

↓

76B566 to 76B56F(H) - Dedicated tx parameters for Speed #999

5. PREVENTIVE MAINTENANCE

5.1 SPECIAL TOOLS AND LUBRICANTS

- Flash/SRAM data copy tool (P/N: A1939353)
- Flash Memory Card – 4MB (P/N: A2309352)
- Card Case (P/N: A2309351)

5.2 PM TABLE

No PM necessary for the fax option.

FAX UNIT
A891

6. REMOVAL AND REPLACEMENT

6.1 PRECAUTION

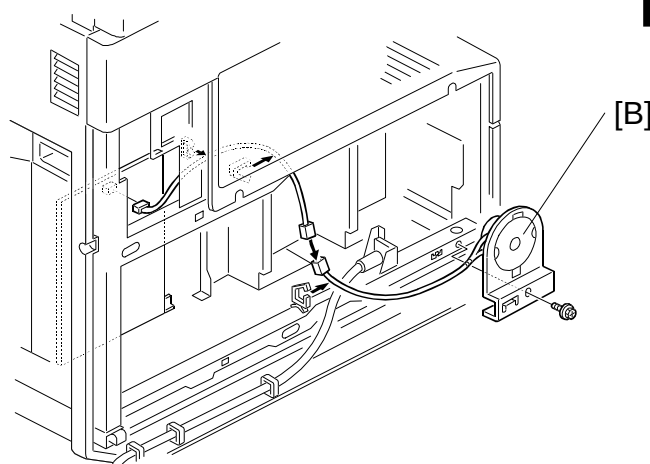
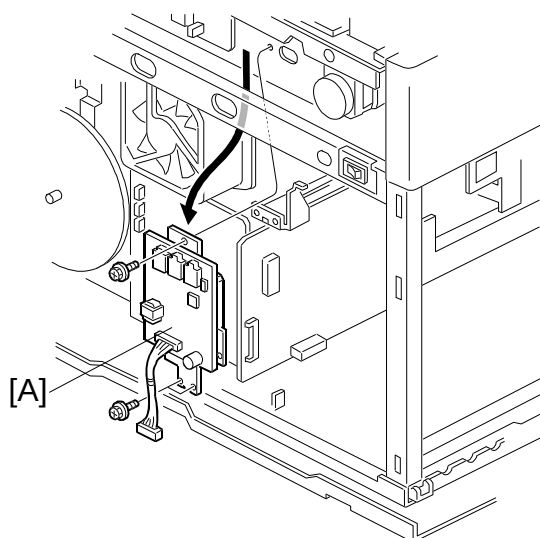
CAUTION

Before starting disassembly, be sure to print all message files in the SAF memory. Then, turn off the main power switch and disconnect the power cord and telephone cable for safety.

Lithium Battery

The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

6.2 NCU AND SPEAKER



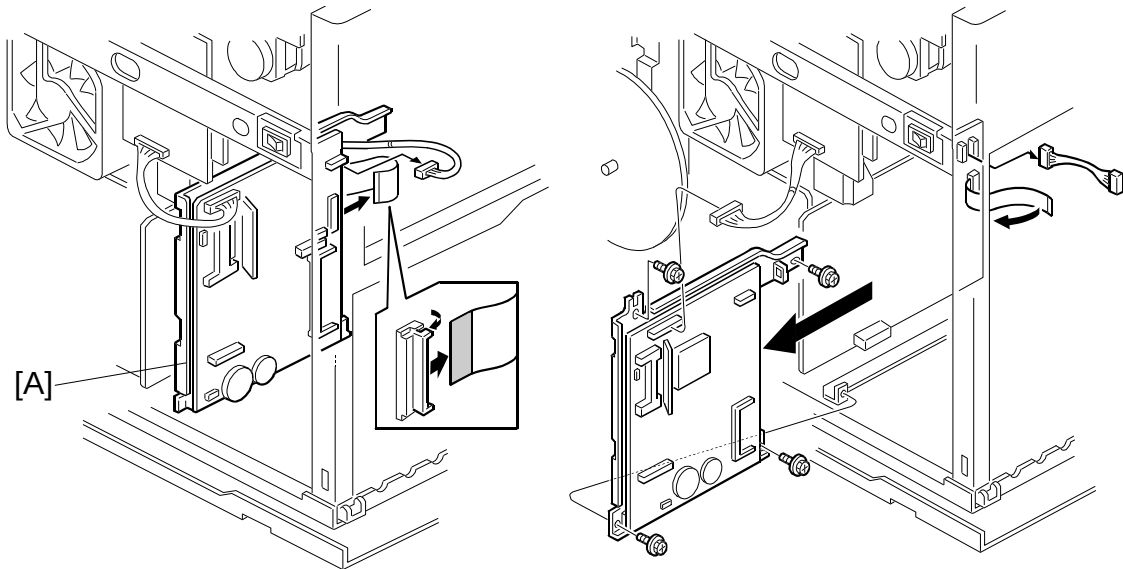
FAX UNIT
A891

1. NCU: Remove the rear cover.
Speaker: Remove the left side cover.
2. Remove the NCU/speaker assembly [A/B].
3. Remove the NCU/speaker from the assembly.

6.3 FCU

6.3.1 REMOVAL

Note: If the machine has an optional printer controller installed, remove it before starting the following procedure.



1. Remove the rear cover and the left side cover.
2. Remove the FCU bracket [A] (4 screws), then the FCU. (6 screws, 4 connectors)
Turn on SW3 and turn off SW1 on the new FCU.
NOTE: Do not turn off SW3 on the old FCU if you will use it to restore SRAM data to the new FCU.
3. Go to one of the following procedures:
 - To restore SRAM data from the old FCU (if you do not have the latest data backup) – Go to section 6.3.2.
 - To restore SRAM data from a flash memory card backup – Go to section 6.3.3.

6.3.2 SRAM DATA RESTORE FROM FCU

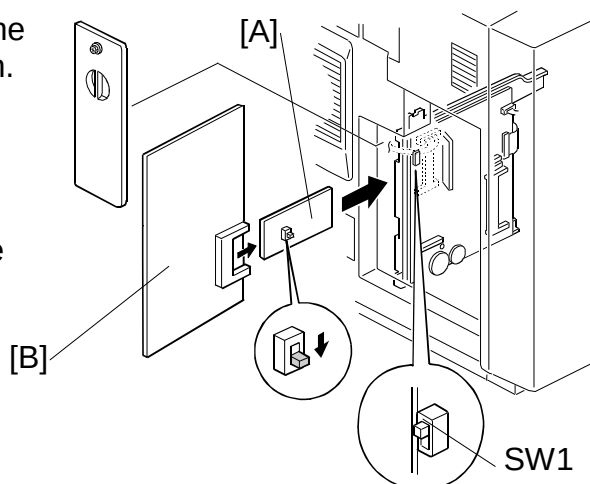
Before restoring the SRAM data, install a new FCU and initialize the SRAM on the new FCU using the following procedure.

1. Install a new FCU in the machine (see section 6.3.1)
Do not put back the EXFUNC and EXMEM boards yet, if they were present.
2. Turn on the machine. The machine displays “SC1201”.
NOTE: The machine always displays “SC1201” the first time a new FCU with no RAM data is installed. Please ignore it.
3. Press YES to initialize the SRAM.

Then, restore the SRAM using the following procedure.

4. Turn off the machine.
5. Connect the data copy tool [A] with the old FCU [B] to the card slot as shown. See the note below for the switch settings.

IMPORTANT: Support the old FCU by hand from now until the end of the download procedure



NOTE: 1) The switch on the data copy tool must be OFF.
 2) SW1 below the card slot must be OFF.
 3) Do not turn off the battery switch on the old FCU.

6. Turn on the machine, and enter the fax service mode.
7. Press **[1]** **[6]** then **[2]**.

Data Transfer:	Enter number
1 FCU ROM	2 Load SRAM Data
PrevMenu	

8. Press **[1]**.

<Load SRAM Data>	Enter number
1 SRAM Restore from FCU	
2 SRAM Backup to Flash Card	
3 SRAM Restore from Backup	Cancel

If the switch settings are correct, the message on the right appears. Then go to the next step.

<SRAM Restore from FCU>
This will transfer the SRAM data to the new FCU. Press "#" -> "Start" to proceed, otherwise "Cancel".
Cancel

If one of the switch settings is wrong, or if the tool is not connected correctly, the message on the right appears. Then turn off the machine and retry the procedure.

<Load SRAM Data>
Turn off the AC switch, correctly insert the FCU and the data copy tool, then turn the AC switch back on.

9. Press **"#"** then **[↕]**.
 If data has been restored successfully, the message on the right appears.

<SRAM Restore from FCU>
Loading Completed
Turn the AC switch off then back on.

FCU

10. Turn off the main power switch then disconnect the tools.
11. Install the EXFUNC and EXMEM boards if they were present.
12. Turn the machine back on.
13. Print the system parameter list to check if the previous settings have been successfully recovered.

6.3.3 SRAM DATA RESTORE FROM FLASH CARD BACKUP

SRAM data can be copied to a flash memory card. For how to do this, refer to section 6.5.

Before restoring the SRAM data, install a new FCU and initialize the SRAM on the new FCU using the following procedure.

1. Install a new FCU in the machine (see section 6.3.1).
2. Turn on the machine. The machine displays "SC1201".
NOTE: The machine always displays "SC1201" the first time the FCU is installed. Please ignore it.
3. Press YES to initialize the SRAM.

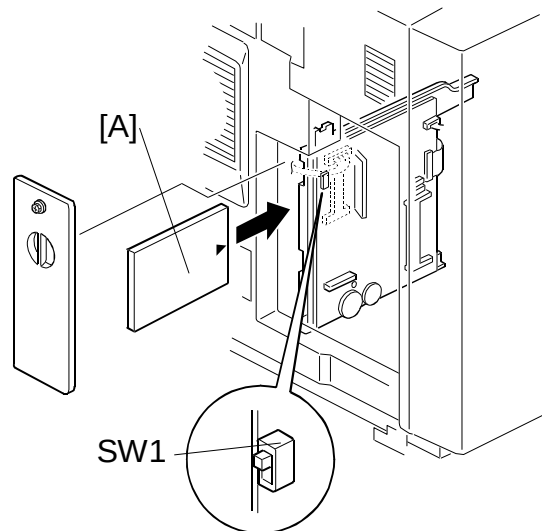
Then, restore the SRAM using the following procedure.

4. Turn off the machine.
NOTE: If the EXFUNC board was present; make sure that a backup of both the EXFUNC and FCU SRAM data is available, then install the EXFUNC.
If the EXFUNC backup is not available, restore the data from the old FCU before installing the EXFUNC board on the new FCU.

5. Connect the flash memory card [A] to the card slot as shown.
See the note below for the switch settings.

NOTE: 1) SW1 below the card slot must be OFF.
2) If the switch setting is wrong, the fax function will not start up.

6. Turn on the machine, and enter the fax service mode.



7. Press **[1]** **[6]** then **[2]**.

```

<Load SRAM Data>      Enter number
1 SRAM Restore from FCU
2 SRAM Backup to Flash Card
3 SRAM Restore from Backup
Cancel
  
```

8. Press **[3]**.

If the switch settings are correct, either of the messages below appears.

```

<SRAM Restore from Backup>Enter number
1 SRAM (FCU) only
2 SRAM (FCU) and extended SRAM (EXSAF)
Cancel
  
```

```

<SRAM Restore from Backup>Enter number
1 SRAM (FCU) only
2 SRAM (FCU) and extended SRAM (EXSAF)
Cancel
  
```

Refer to the table below for which type of backup must be used, depending on the presence of an EXFUNC board.

EXFUNC board	Type of backup	
	FCU SRAM	FCU and EXFUNC SRAM
Not present	OK	Do not use.
Present	Do not use.	OK

9. Press either of the following:

[1] – Standard SRAM only

```

<SRAM Restore from Backup>
This will restore the FCU SRAM from a
backup Card. Press "S" -> "Start" to
proceed, otherwise "Cancel".
Cancel
  
```

[2] – Standard SRAM and SRAM on the EXFUNC.

```

<SRAM Restore from Backup>
This will restore the EXSAF SRAM from
a backup Card. Press "S" -> "Start" to
proceed, otherwise "Cancel".
Cancel
  
```

10. Press "S" then **[◊]**; a confirmation message appears.

```

<SRAM Restore from Backup>
This will restore the SRAM data. Are
you sure ? Press "Start" to proceed,
otherwise press "Cancel".
Cancel
  
```

11. Press Start to restore the SRAM.
If data has been restored successfully, the message on the right appears.

```

<SRAM Restore from Backup>
Loading Completed
Turn the AC switch off then back on.
  
```

12. Turn off the main power switch then disconnect the card.

13. Turn the machine back on.

FIRMWARE UPDATE

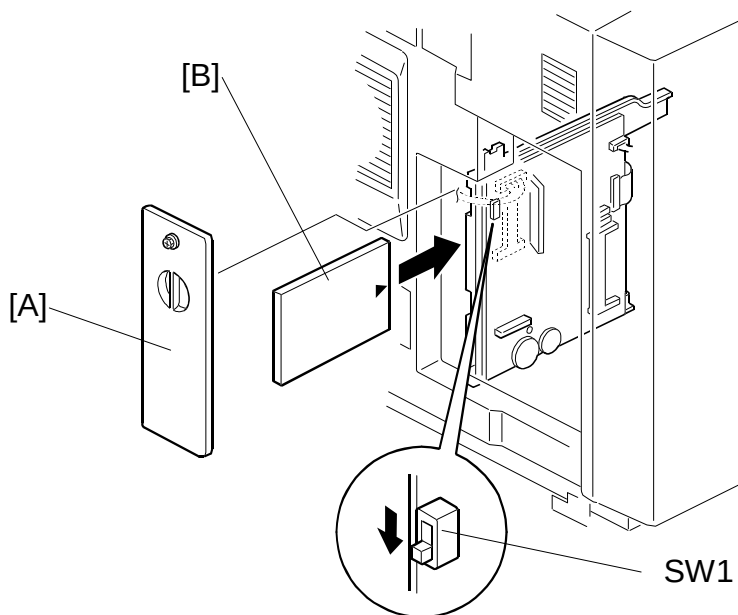
14. Print the system parameter list to check if the previous settings have been successfully recovered.

6.4 FIRMWARE UPDATE

6.4.1 FCU FIRMWARE DOWNLOAD

This function updates the FCU firmware using a flash memory card.

1. Turn off the machine and remove the cover [A].



2. Connect the flash memory card [B] to the card slot as shown.

NOTE: SW1 below the card slot must be **ON**.

3. Turn on the machine and enter the fax service mode.
4. Press **[1]** **[6]** then **[1]**.

<FCU ROM>		Enter number
1	FCU ROM Download	
2	FCU ROM Upload	
		Cancel

5. Press **[1]**.

If the switch setting is correct, the message on the right appears.
Then go to the next step.

<FCU ROM Download>	
Turn off the AC switch, turn on the switch below the card slot, then turn the AC switch back on.	

If the switch setting is wrong, or if the tool is not connected correctly, the message on the right appears. Then turn off the machine and retry the procedure again.

6. Press OK, then check the ROM version. If the card does not contain FCU ROM data, "Please check flash card" appears. Turn off the machine and retry the procedure with the correct card.
7. Press Start.

```

-----
<FCU ROM Download>
Make sure that the switch below the
card slot is ON.
Cancel OK

```

```

FCU ROM Download:
FCU:A2915582B 3.18 New:A2915582B 3.18
This will update the FCU ROM. "Start" to
proceed, otherwise "Cancel".
Cancel

```

```

FCU ROM Download:
ERASING.....
FCU:A2915582B 3.18 New:A2915582B 3.18

```

After the machine updates the ROM data, the message on the right appears.

8. Turn off the main power switch then disconnect the flash memory card.
- ⇒ 9. Turn SW1 off.
10. Turn the machine back on.
11. Print the system parameter list to check if the new ROM version is printed.

```

-----
<FCU ROM Download>
Loading Completed
ROM has been updated. SUM:1E55
Turn the AC switch off then back on.

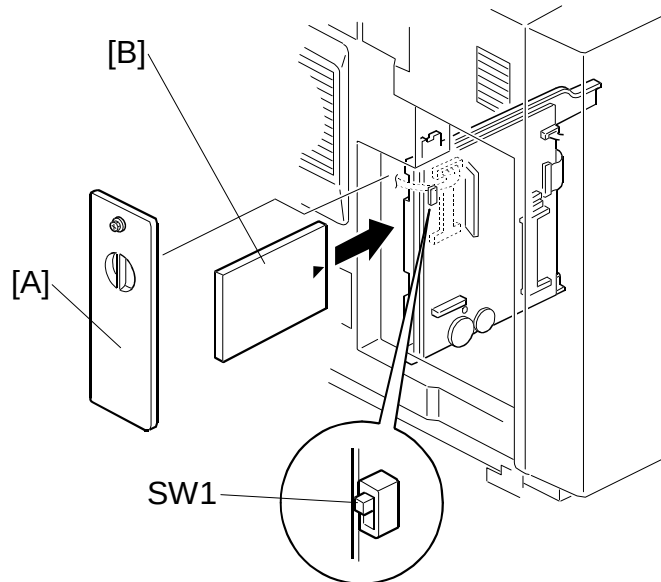
```

6.4.2 FCU ROM UPLOAD

This function makes a copy of the FCU ROM inside the machine onto a flash memory card.

NOTE: This procedure erases the flash memory card completely before uploading ROM data.

1. Turn off the machine and remove the cover [A].



2. Connect the flash memory card [B] to the card slot as shown.

NOTE: SW1 below the card slot must be **OFF**.

3. Turn on the machine and enter the fax service mode.
4. Press **[1]** **[6]** then **[1]**.

<FCU ROM>		Enter number
1	FCU ROM Download	
2	FCU ROM Upload	
		Cancel

5. Press **[2]**.
If the switch setting is correct, the message on the right appears.
Then go to the next step.

<FCU ROM Upload>	
Make sure that the switch below the card slot is OFF.	
Cancel	OK

If the switch setting is wrong, or if the tool is not connected correctly, the message on the right appears. Then turn off the machine and retry the procedure.

<FCU ROM Upload>	
Turn off the AC switch, turn off the switch below the card slot, then turn the AC switch back on.	

FIRMWARE UPDATE

6. Press OK, then check the ROM version.

FCU ROM Upload:
FCU:A2915582B 3.18 Flash Card
This will upload the FCU ROM. "Start" to proceed, otherwise "Cancel".
Cancel

7. Press Start.

FCU ROM Upload:
ERASING.....
FCU:A2915582B 3.18 Flash Card

After the machine updates the ROM data, the message on the right appears.

FCU ROM Upload:
Loading Completed
FCU:A2915582B 3.18 Flash Card SUM:F17C
Turn the AC switch off then back on.

8. Turn off the main power switch then disconnect the flash memory card.
9. Turn the machine back on.

FAX UNIT
A891

6.5 SRAM DATA BACKUP AND RESTORE

6.5.1 SRAM BACKUP TO A FLASH MEMORY CARD

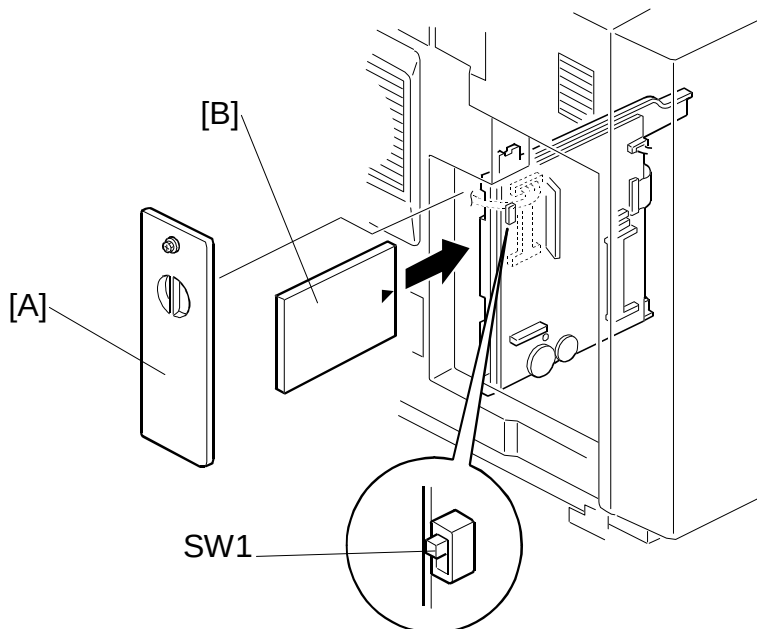
This function makes a backup copy of all the fax SRAM data onto a flash memory card. If a computer-based PC card writer system is available, the backup can be saved as a computer file from the flash memory card.

If the EXFUNC board is not installed, this function makes a backup copy of the standard SRAM on the FCU.

If the EXFUNC board is installed, this function makes a backup copy of the standard SRAM and the SRAM on the optional EXFUNC board.

NOTE: This procedure erases the flash memory card completely before uploading SRAM data.

1. Turn off the machine and remove the cover [A].



2. Connect the flash memory card [B] to the card slot as shown.

NOTE: SW1 below the card slot must be **OFF**.

3. Turn on the machine and enter the fax service mode.

4. Press **[1]** **[6]** then **[2]**.

ROM Version:	
P/N: A2915582B	Date: 99-02-24
Ver: 0x02	Dver: 3.18
Area: ST-USA	sum: F17C OK

5. Press **[2]**.

<SRAM Backup to Flash Card>	
This will backup the SRAM data from the FCU and the EXSAF to a Flash Card. Press "Start" to proceed. Cancel	

6. Press Start.

<SRAM Backup to Flash Card>	
ERASING.....	

After the machine backs up the data to the flash card, the message on the right appears.

<SRAM Backup to Flash Card>	
Loading Completed	
Turn the AC switch off then back on.	

FAX UNIT
A891

7. Turn off the main power switch then disconnect the flash memory card.
8. Turn the machine back on

The data in the flash card can be copied to a PC for safe keeping. This data can then be uploaded from the PC to a flash memory card if the SRAM data has to be restored later.

Refer to the SwapFTL manual for details about how to copy files from flash card to PC and vice versa.

6.5.2 SRAM RESTORE FROM A FLASH MEMORY CARD

This function recovers SRAM data if the FCU is replaced or SRAM data was lost accidentally.

For how to restore the SRAM data from the backup on a flash memory card, refer to section 6.3.3.

7. TROUBLESHOOTING

7.1 ERROR CODES

If an error code occurs, retry the communication. If the same problem occurs, try to fix the problem as suggested below. Note that some error codes appear only in the error code display and on the service report.

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF not detected within 40 s of Start being pressed	• Check the line connection. • Check the NCU - FCU connectors. • The machine at the other end may be incompatible. • Replace the NCU or FCU. • Check for DIS/NSF with an oscilloscope. • If the rx signal is weak, there may be a bad line.
0-01	DCN received unexpectedly	• The other party is out of paper or has a jammed printer. • The other party pressed Stop during communication.
0-03	Incompatible modem at the other end	• The other terminal is incompatible.
0-04	CFR or FTT not received after modem training	• Check the line connection. • Check the NCU - FCU connectors. • Try changing the tx level and/or cable equalizer settings. • Replace the FCU or NCU. • The other terminal may be faulty; try sending to another machine. • If the rx signal is weak or defective, there may be a bad line. Cross reference • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters - Section 4
0-05	Unsuccessful after modem training at 2400 bps	• Check the line connection. • Check the NCU - FCU connectors. • Try adjusting the tx level and/or cable equalizer. • Replace the FCU or NCU. • Check for line problems. Cross reference • See error code 0-04.

ERROR CODES

Code	Meaning	Suggested Cause/Action
0-06	The other terminal did not reply to DCS	• Check the line connection. • Check the FCU - NCU connectors. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. • The other end may be defective or incompatible; try sending to another machine. • Check for line problems. Cross reference • See error code 0-04.
0-07	No post-message response from the other end after a page was sent	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed or run out of paper. • The other end user may have disconnected the call. • Check for a bad line. • The other end may be defective; try sending to another machine.
0-08	The other end sent RTN or PIN after receiving a page, because there were too many errors	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed, or run out of paper or memory space. • Try adjusting the tx level and/or cable equalizer settings. • The other end may have a defective modem/NCU/FCU; try sending to another machine. • Check for line problems and noise. Cross reference • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters - Section 4
0-14	Non-standard post message response code received	• Check the FCU - NCU connectors. • Incompatible or defective remote terminal; try sending to another machine. • Noisy line: resend. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. Cross reference • See error code 0-08.

Code	Meaning	Suggested Cause/Action
0-15	The other terminal is not capable of specific functions.	The other terminal is not capable of accepting the following functions, or the other terminal's memory is full. • Confidential rx • Transfer function • SEP/SUB/PWD/SID
0-16	CFR or FTT not detected after modem training in confidential or transfer mode	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Try adjusting the tx level and/or cable equalizer settings. • The other end may have disconnected, or it may be defective; try calling another machine. • If the rx signal level is too low, there may be a line problem. Cross reference • See error code 0-08.
0-17	Communication was interrupted by pressing the Stop key.	If the Stop key was not pressed and this error keeps occurring, replace the operation panel.
0-20	Facsimile data not received within 6 s of retraining	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Check for line problems. • Try calling another fax machine. • Try adjusting the reconstruction time for the first line and/or rx cable equalizer setting. Cross reference • Reconstruction time - G3 Switch 0A, bit 6 • Rx cable equalizer - G3 Switch 07 (PSTN)
0-21	EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal	• Check the connections between the FCU, NCU, & line. • Check for line noise or other line problems. • Replace the NCU or FCU. • The remote machine may be defective or may have disconnected. Cross reference • Maximum interval between EOLs and between ECM frames - G3 Bit Switch 0A, bit 4

ERROR CODES

Code	Meaning	Suggested Cause/Action
0-22	The signal from the other end was interrupted for more than the acceptable modem carrier drop time (default: 200 ms)	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Defective remote terminal. • Check for line noise or other line problems. • Try adjusting the acceptable modem carrier drop time. Cross reference • Acceptable modem carrier drop time - G3 Switch 0A, bits 0 and 1
0-23	Too many errors during reception	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Defective remote terminal. • Check for line noise or other line problems. • Try asking the other end to adjust their tx level. • Try adjusting the rx cable equalizer setting and/or rx error criteria. Cross reference • Rx cable equalizer - G3 Switch 07 (PSTN) • Rx error criteria - Communication Switch 02, bits 0 and 1
0-30	The other terminal did not reply to NSS(A) in AI short protocol mode	• Check the line connection. • Check the FCU - NCU connectors. • Try adjusting the tx level and/or cable equalizer settings. • The other terminal may not be compatible. Cross reference • Dedicated tx parameters - Section 4
0-32	The other terminal sent a DCS, which contained functions that the receiving machine cannot handle.	• Check the protocol dump list. • Ask the other party to contact the manufacturer.
0-52	Polarity changed during communication	• Check the line connection. • Retry communication.
0-70	The communication mode specified in CM/JM was not available (V.8 calling and called terminal)	• The other terminal did not have a compatible communication mode (e.g., the other terminal was a V.34 data modem and not a fax modem.) • A polling tx file was not ready at the other terminal when polling rx was initiated from the calling terminal.
0-74	The calling terminal fell back to T.30 mode, because it could not detect ANSam after sending CI.	• The calling terminal could not detect ANSam due to noise, etc. • ANSam was too short to detect. • Check the line connection and condition. • Try making a call to another V.8/V.34 fax.

Code	Meaning	Suggested Cause/Action
0-75	The called terminal fell back to T.30 mode, because it could not detect a CM in response to ANSam (ANSam timeout).	- The terminal could not detect ANSam. - Check the line connection and condition. - Try receiving a call from another V.8/V.34 fax.
0-76	The calling terminal fell back to T.30 mode, because it could not detect a JM in response to a CM (CM timeout).	- The called terminal could not detect a CM due to noise, etc. - Check the line connection and condition. - Try making a call to another V.8/V.34 fax.
0-77	The called terminal fell back to T.30 mode, because it could not detect a CJ in response to JM (JM timeout).	- The calling terminal could not detect a JM due to noise, etc. - A network that has narrow bandwidth cannot pass JM to the other end. - Check the line connection and condition. - Try receiving a call from another V.8/V.34 fax.
0-79	The called terminal detected CI while waiting for a V.21 signal.	Check for line noise or other line problems. If this error occurs, the called terminal falls back to T.30 mode.
0-80	The line was disconnected due to a timeout in V.34 phase 2 – line probing.	- The guard timer expired while starting these phases. Serious noise, narrow bandwidth, or low signal level can cause these errors. If these errors happen at the transmitting terminal: - Try making a call at a later time. - Try using V.17 or a slower modem using dedicated tx parameters. - Try increasing the tx level. If these errors happen at the receiving terminal: - Try adjusting the tx cable equalizer setting. - Try adjusting the rx cable equalizer setting. - Try increasing the tx level. - Try using V.17 or a slower modem if the same error is frequent when receiving from multiple senders.
0-81	The line was disconnected due to a timeout in V.34 phase 3 – equalizer training.	
0-82	The line was disconnected due to a timeout in the V.34 phase 4 – control channel start-up.	
0-83	The line was disconnected due to a timeout in the V.34 control channel restart sequence.	
0-84	The line was disconnected due to abnormal signaling in V.34 phase 4 – control channel start-up.	- The signal did not stop within 10 s. - Turn off the machine, then turn it back on. - If the same error is frequent, replace the FCU.
0-85	The line was disconnected due to abnormal signaling in V.34 control channel restart.	- The signal did not stop within 10 s. - Turn off the machine, then turn it back on. - If the same error is frequent, replace the FCU.
0-86	The line was disconnected because the other terminal requested a data rate using MPh that was not available in the currently selected symbol rate.	- The other terminal was incompatible. - Ask the other party to contact the manufacturer.

ERROR CODES

Code	Meaning	Suggested Cause/Action
0-87	The control channel started after an unsuccessful primary channel.	- The receiving terminal restarted the control channel because data reception in the primary channel was not successful. - This does not result in an error communication.
0-88	The line was disconnected because PPR was transmitted/received 9 (default) times within the same ECM frame.	- Try using a lower data rate at the start. - Try adjusting the cable equalizer setting.
2-10	The modem cannot enter tx mode	Replace the FCU.
2-11	Only one V.21 connection flag was received	Replace the FCU.
2-12	Modem clock irregularity	Replace the FCU.
2-13	Modem initialization error	- Turn off the machine, then turn it back on. - Update the modem ROM. - Replace the FCU.
2-20	Abnormal coding/decoding (cpu not ready)	Replace the FCU.
2-23	JBIG compression or reconstruction error	- Turn off the machine, then turn it back on. - Replace the EXFUNC board if the error is frequent.
2-24	JBIG ASIC error	- Turn off the machine, then turn it back on. - Replace the EXFUNC board if the error is frequent.
2-25	JBIG data reconstruction error (BIH error)	- JBIG data error - Check the sender's JBIG function. - Update the FCU ROM.
2-26	JBIG data reconstruction error (Float marker error)	
2-27	JBIG data reconstruction error (End marker error)	
2-28	JBIG data reconstruction error (Timeout)	
2-50	The machine resets itself for a fatal FCU system error	If this is frequent, update the ROM, or replace the FCU.
2-51	The machine resets itself because of a fatal communication error	If this is frequent, update the ROM, or replace the FCU.
3-00	G4 interface board reset	Replace the G4 interface board or FCU.
3-10	Disconnection during ISDN G3 communication	- Check the other terminal and the ISDN line. - The other terminal may have dialed a wrong number.
3-11	Disconnection during ISDN G4 communication	Check the other terminal and the ISDN line.
3-20	A CSA signal was received during ISDN G4 communication	The operator at the other terminal may have interrupted the communication.

Code	Meaning	Suggested Cause/Action
3-21	A CSA signal was sent during ISDN G4 communication, because the Stop key was pressed	The local operator has interrupted the communication.
3-30	Mismatched specifications (rx capability)	Check the receive capabilities requested from the other terminal.
4-01	Line current was cut	- Check the line connector. - Check the connection between FCU and NCU. - Check for line problems. - Replace the FCU or the NCU.
4-10	Communication failed because of an ID Code mismatch (Closed Network) or Tel. No./CSI mismatch (Protection against Wrong Connections)	- Get the ID Codes the same and/or the CSIs programmed correctly, then resend. - The machine at the other end may be defective.
5-00	Data construction not possible	Replace the FCU.
5-01	Data reconstruction not possible	
5-10	DCR timer expired	
5-20	Storage impossible because of a lack of memory	- Temporary memory shortage. - Test the SAF memory. - Replace the FCU or optional EXMEM board
5-21	Memory overflow	
5-22	Mode table overflow after the second page of a scanned document	Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-23	Print data error when printing a substitute rx or confidential rx message	- Test the SAF memory. - Ask the other end to resend the message. - Replace the FCU or optional EXMEM board.
5-24	Memory overflow after the second page of a scanned document	- Try using a lower resolution setting. - Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-25	SAF file access error	Replace the FCU or EXMEM board.
6-00	G3 ECM - T1 time out during reception of facsimile data	- Try adjusting the rx cable equalizer. - Replace the FCU or NCU.
6-01	G3 ECM - no V.21 signal was received	
6-02	G3 ECM - EOR was received	

ERROR CODES

Code	Meaning	Suggested Cause/Action
6-04	G3 ECM - RTC not detected	• Check the line connection. • Check connections from the NCU to the FCU. • Check for a bad line or defective remote terminal. • Replace the FCU or NCU.
6-05	G3 ECM - facsimile data frame not received within 18 s of CFR, but there was no line fail	• Check the line connection. • Check connections from the NCU to the FCU. • Check for a bad line or defective remote terminal. • Replace the FCU or NCU. • Try adjusting the rx cable equalizer Cross reference • Rx cable equalizer - G3 Switch 07 (PSTN)
6-06	G3 ECM - coding/decoding error	• Defective FCU. • The other terminal may be defective.
6-08	G3 ECM - PIP/PIN received in reply to PPS.NULL	• The other end pressed Stop during communication. • The other terminal may be defective.
6-09	G3 ECM - ERR received	• Check for a noisy line. • Adjust the tx levels of the communicating machines. • See code 6-05.
6-10	G3 ECM - error frames still received at the other end after all communication attempts at 2400 bps	• Check for line noise. • Adjust the tx level (use NCU parameter 01 or the dedicated tx parameter for that address). • Check the line connection. • Defective remote terminal.
6-21	V.21 flag detected during high speed modem communication	• The other terminal may be defective or incompatible.
6-22	The machine resets the sequence because of an abnormal handshake in the V.34 control channel	• Check for line noise. • If the same error occurs frequently, replace the FCU. • Defective remote terminal.
6-99	V.21 signal not stopped within 6 s	• Replace the FCU.

Code	Meaning	Suggested Cause/Action
9-40	CRC error during PC fax communication	• Check the serial interface and cable connection between the PC. • Replace the DIU (PCFE board) or FCU.
9-41	Third failure during PC fax communication	
9-42	DCN received unexpectedly during PC fax communication	
9-43	Frame received unexpectedly during PC fax communication	
9-44	Response time over during PC fax communication	
9-45	Frame transmission error during PC fax communication	
9-61	Memory overflow occurs during reception	Check the SAF.
22-00	Original length exceeded the maximum scan length	• Divide the original into a few pages. • Check the resolution used for scanning. Lower the scan resolution if possible. • Add optional page memory.
22-01	Memory overflow while receiving	• Wait for the files in the queue to be sent. • Delete unnecessary files from memory. • Transfer the substitute reception files to an another fax machine, if the machine's printer is busy or out of order. • Add an optional SAF memory card or hard disk.
22-02	Tx or rx job stalled due to line disconnection at the other end	• The job started normally but did not finish normally; data may or may not have been received fully. • Restart the machine.
22-04	The machine cannot store received data in the SAF	• Update the ROM • Replace the FCU.
23-00	Data read timeout during construction	• Restart the machine. • Replace the FCU
25-00	The machine software resets itself after a fatal transmission error occurred	• Update the ROM • Replace the FCU.
F0-xx	V.34 modem error	• Replace the FCU.

7.2 FAX SC CODES

7.2.1 OVERVIEW

When the FCU detects a Fax SC Code condition other than SC1201 and SC1207, it resets itself automatically (default setting). This initializes the FCU without erasing files in the SAF memory or resetting the switches.

NOTE: For details on Fax SC Codes 1201 and 1207, refer to the following sections.

If bit 7 of System Switch 1F is changed to “1”, when the FCU detects a Fax SC Code condition, it displays the code on the display and stops working until the fax unit is initialized using one of the following methods:

- Hold down the “#” and “*” keys for more than 10 s.
- Turn off the main power switch and turn it back on.
- Remove the rear cover, and press SW2 on the FCU.

The fax unit cannot make automatic service calls in reaction to a Fax SC Code, because the fax unit cannot make fax communications in SC Code conditions.

7.2.2 SC1201

When the FCU detects an unrecoverable error in the SRAM, which requires a complete SRAM initialization, the fax unit displays this SC Code and stops. There is no way to recover from this error condition without a complete SRAM initialization (all the user and service programmed data will be erased).

The possible causes are:

- SRAM backup battery defect, or SW1 on the FCU is at the “OFF” position
- SRAM on the FCU has a physical defect
- Flash memory card or data copy tool connection was loose

7.2.3 SC1207

This is the same as SC1201 except the error location is the SRAM on the EXFUNC board.

The possible causes are:

- SRAM backup battery defect, or SW1 on the EXFUNC board is at the “OFF” position.
- SRAM on the EXFUNC has a physical defect.
- The EXFUNC connection was loose.

7.2.4 FAX SC CODE TABLE

SC Code	Description	Suggested Action	Sys Switch 1F bit 7 = 0	Sys Switch 1F bit 7 = 1
1102	Handshake error with BiCU at start-up	Initialize the fax unit. (See section 7.2.1.for the initialization procedure)	Automatic reset	SC Code display
1111	Command TX/RX error to/from the BiCU			
1112	Base copier's engine was reset			
1120	Interface module error			
1201	Unrecoverable FCU - SRAM error	Refer to section 7.2.2.	SC Code display	
1207	Unrecoverable EXFUNC - SRAM error	Refer to section 7.2.3.	SC Code display	
1299	Software error	Turn off and on the main switch.	Automatic reset	
1301	Original size error	Check the scanner mechanism.		
1302	Scanner parameter error	Initialize the fax unit.		
1303	Software error	Initialize the fax unit.		
1304				
1305				
1306				
1308				
1313				
1314				
1316				
1318				
1323				
1324				
1326				
1328				
1334				
1338				
1401	Command timeout error - after scanning	Initialize the fax unit.		
1402	Software error	Initialize the fax unit.		
1403				
1404				
1405	Command timeout error - during storage	Check the connection for the FCU.		
1406	Command timeout error - original feed out	Initialize the fax unit.		
1410	Software error	Initialize the fax unit.		

7.3 ROM HISTORY

7.3.1 ROM HISTORY – A891



Description of Modification	Firmware Level	Serial Number	Firmware Version																	
Corrections: - Corresponding to FCC68. - When the received CSI has only space data, it is ignored by this version firmware.	A2915582 G	Nov. 1999 Prod.	12.01																	
Corrections: - In order to ensure that the NSF/DIS signals (from the machine that is receiving the facsimile) will successfully be received by the sender, the transmission duration of these signals can now be extended as follows:<table><tr><th colspan="2">SW15</th><th rowspan="2">Setting</th></tr><tr><th>2</th><th>3</th></tr><tr><td>1</td><td>0</td><td>40 sec.</td></tr><tr><td>0</td><td>1</td><td>50 sec.</td></tr><tr><td>1</td><td>1</td><td>60 sec.</td></tr><tr><td>0</td><td>0</td><td>32 sec.</td></tr></table> - V29 TCF Receiving problem with EP tone for Echo suppressor. - Jam of 230 mm length original. (Set the original to Non-Standard size.) - FAX Error LED is not turned off in substitute reception and when the unit is going into or going out of pre-heat mode.	SW15		Setting	2	3	1	0	40 sec.	0	1	50 sec.	1	1	60 sec.	0	0	32 sec.	A2915582 F	Aug. 1999 Prod.	8.04
SW15		Setting																		
2	3																			
1	0	40 sec.																		
0	1	50 sec.																		
1	1	60 sec.																		
0	0	32 sec.																		
Initial Production	A2915582 E	1st Prod.	7.02																	

ISDN UNIT A890

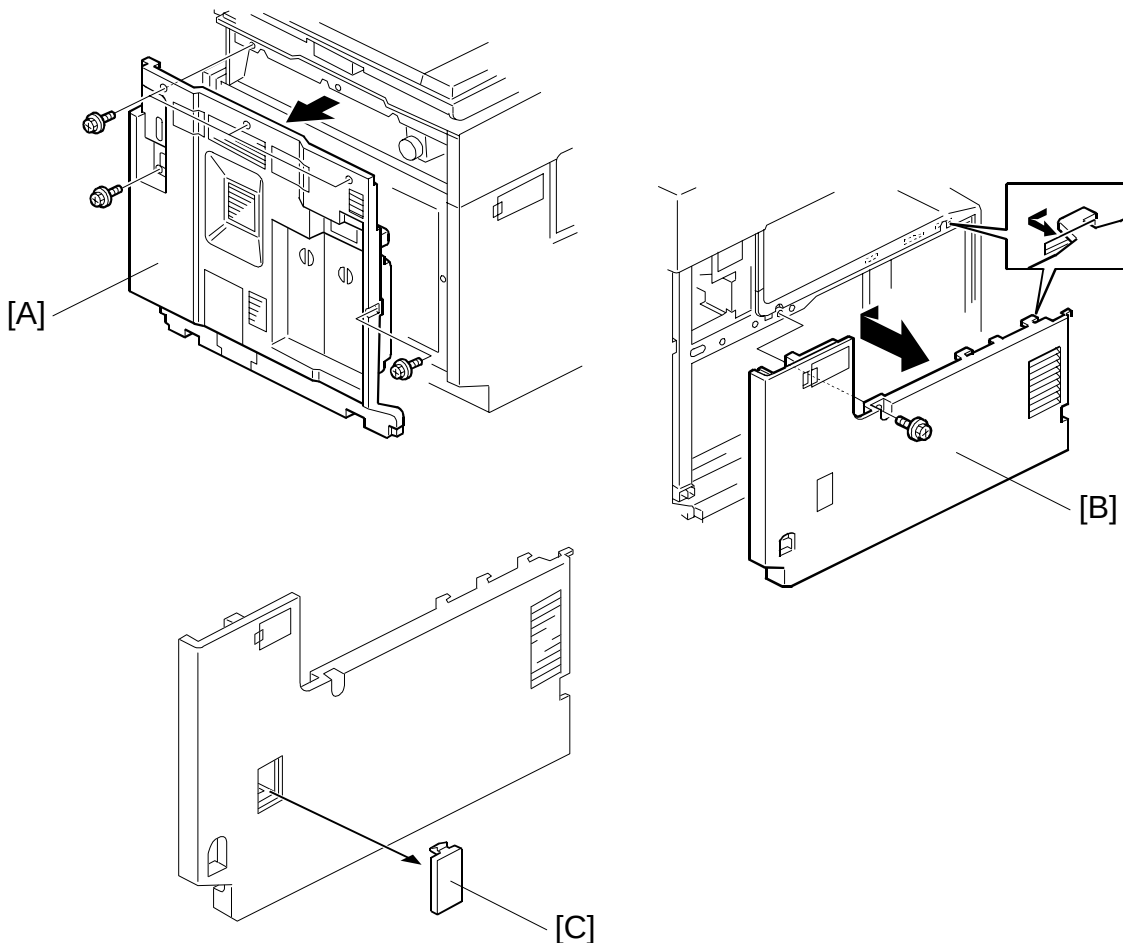
1. INSTALLATION

1.1 INSTALLATION PROCEDURE

⚠ CAUTION

Before installing this option, do the following:

1. Print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
2. If there is a printer option in the machine, print out all data in the printer buffer.
3. Turn off the main switch and disconnect the power cord, the telephone line, and the LAN cable.

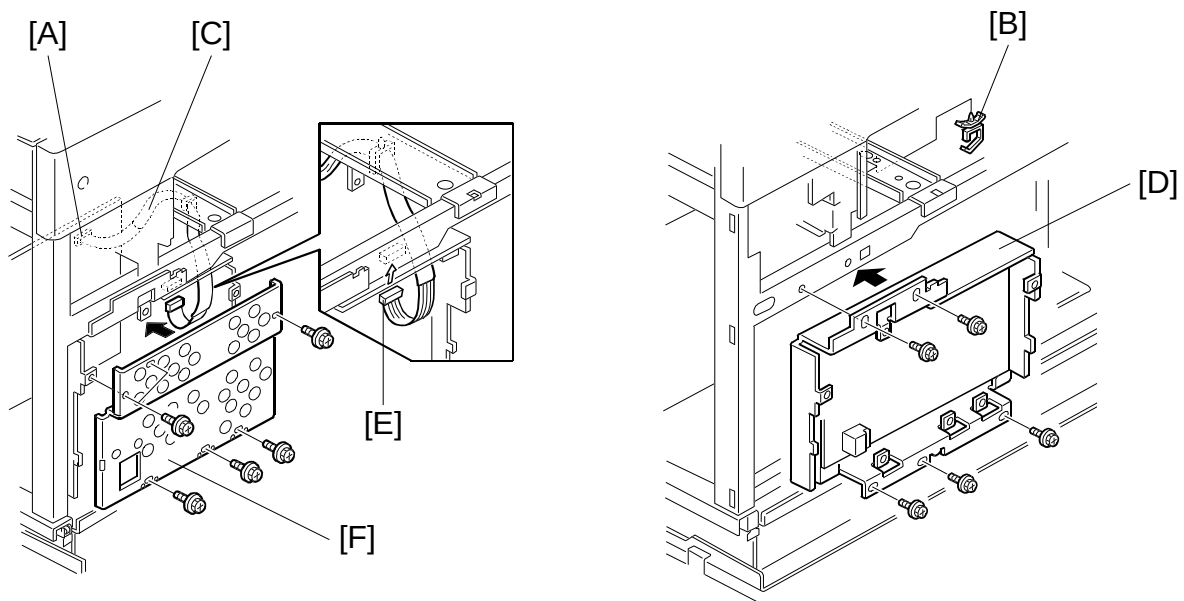


ISDN UNIT
A890

If a printer unit was installed, remove it before installing the ISDN G4 kit.

1. Remove the rear cover [A] (5 screws).
2. Remove the left cover [B], as shown (1 screw).
3. Remove the cover [C] from the left cover.

INSTALLATION PROCEDURE



4. Connect the connector [A] to the FCU board.
5. Install the clamp [B] and secure the cable [C] to the clamp.
6. Install the ISDN G4 bracket [D] (5 screws).
7. Connect the connector [E] to the ISDN G4 board.
Note: When connecting the connector [E], pull out the cable [C] to avoid having the printer controller pinch the cable.
8. Install the ISDN G4 board cover [F] (6 screws).
Note: When installing the ISDN G4 board cover, make sure not to pinch the cable [C].
9. Re-install the rear and left covers.
10. Enter SP mode as follows:
 - 1) Press the "Clear Modes" key.
 - 2) Enter "107"
 - 3) Press the "Clear/Stop" key more than 3 seconds.

⬡ → ① → ⑦ → Ⓢ/Ⓢ
11. Enter "2" (select "Fax").
12. Enter "01" (select "Bit Switches").
13. Enter "4" (select "Communication Switch").
14. Press the "↑ Switch" key several time and select "Switch 16".
15. Press "2" to change bit 2 from 0 to 1.
16. Exit SP mode and turn the main switch off/on.

1.2 USER LEVEL PROGRAMMING

The following items can be programmed by the key operator. Make sure that the items are programmed correctly.

Item	ISDN		PSTN	Remarks
	G4	G3	G3	
Transfer report: G3 direct number			✓	Used for transfer request operations in G3 PSTN communications
Transfer report: G4 fax number	✓	✓		Used for transfer request operations in ISDN communications
G3 analog line: CSI			✓	Used to identify the terminal in G3 DIS/DCS communications over the PSTN.
G3 digital line: Own fax number1		✓		When not using MSN* service: Program the ISDN subscriber number here. If an another terminal is on the same bus from the DSU, identify the terminals using a sub-address. When using MSN* service: Program the dedicated ISDN number for the terminal as the 1st ISDN subscriber number. If the customer wishes the machine to answer calls to two different numbers, program the second number as the 2nd subscriber no.
G3 digital line: Own fax number2		✓		
G3 digital line: Sub-address		✓		Program a sub-address to identify the terminal, if two or more terminals answer the call to the same subscriber number for G3 fax.
G3 digital line: CSI		✓		Used to identify the terminal in G3 communications over an ISDN.
G4 digital line: Own fax number1	✓			When not using MSN* service: Program the ISDN subscriber number here. If an another terminal is on the same bus from the DSU, identify the terminals using a sub-address. When using MSN* service: Program the dedicated ISDN number for the terminal as the 1st ISDN subscriber number. If the customer wishes the machine to answer the calls to two different numbers, program the second number as the 2nd subscriber no.
G4 digital line: Own fax number2	✓			

SERVICE LEVEL PROGRAMMING

G4 digital line: Sub-address	✓			Program a sub-address to identify the terminal, if two or more terminals answer the call to the same subscriber number for G4 fax.
G4 digital line: TID (Terminal ID)	✓			Used to identify the terminal in G4 communications.
Polling ID	✓	✓	✓	Used for secured polling, transfer request operations, and closed network.
Confidential ID	✓	✓	✓	Used for confidential reception. Optional SAF memory required.
RTI		✓	✓	Used to identify the terminal in G3 NSF/NSS communications.
TTI		✓	✓	Printed on each transmitted page in G3 communications.

* MSN = Multiple Subscriber Number; this is also referred to as “Direct Dialing In” in some countries. In this service, more than one number is allocated to one line (one line can have up to 8 units connected to it).

1.3 SERVICE LEVEL PROGRAMMING

Item	Function No.	Remarks
System switches	01 - 1	System Switch 0A - Network used for G3 transmission - Network used for G4-to-G3 fallback
Communication switches	01 - 4	Communication Switch 07 - G4-to-G3 fallback On/Off
G4 internal switches	01 - 6	Change the country code, and reset the machine first. Then change any of the locally required settings and/or the following. Internal Switches 17, 18, 1A, 1B and 1C - G4 to G3 automatic fallback parameters Parameter Switch 01, bits 4 to 6 - Codec attenuation level
G4 parameter switches	01 - 7	

After changing any setting, make sure to turn off the machine, wait for 5 or more seconds, then turn it back on, so that the new settings take effect.

2. SERVICE TABLES AND PROCEDURES

2.1 SERVICE LEVEL FUNCTIONS

Refer to the Fax Unit service manual for how to operate the functions.

Enter SP mode as follows:

- 1) Press the "Clear Modes" key.
- 2) Enter "107"
- 3) Press the "Clear/Stop" key more than 3 seconds.

☐ → ① → ⑦ → ⑦ → ⑦

- 4) Enter "2" (select "Fax").

Function Number	Description
01	Programming G4 Internal and Parameter Switches
02	Printing G4 System Parameter List
05	G4 Protocol Dump Lists
06	G4 RAM read/write and printing G4 Memory Dump List
11	ISDN G3 CCU tests

2.2 BIT SWITCHES

WARNING

Do not adjust a bit switch or use a setting that is described as "Not used", as this may cause the machine to malfunction or to operate in a manner that is not accepted by local regulations. Such bits are for use only in other areas, such as Japan.

NOTE: After changing any of the switches below, turn off the machine, wait for 5 seconds or more, and turn it back on, so that the new settings take effect.

2.2.1 G4 INTERNAL SWITCHES

Bit Switch 00							
No.	FUNCTION					COMMENTS	
0 to 7	Country code						
	Bit	4	3	2	1	0	Country
		0	0	0	0	0	France
		0	0	0	0	1	Germany (1TR6 mode)
		0	0	0	1	0	UK
		0	0	0	1	1	Italy
		0	0	1	0	0	Austria
		0	0	1	0	1	Belgium
		0	0	1	1	0	Denmark
		0	0	1	1	1	Finland
		0	1	0	0	0	Ireland
		0	1	0	0	1	Norway
		0	1	0	1	0	Sweden
		0	1	0	1	1	Switzerland
		0	1	1	0	0	Portugal
		0	1	1	0	1	Netherlands
		0	1	1	1	0	Spain
		0	1	1	1	1	Israel
		1	0	0	0	1	USA
		1	0	0	1	0	Asia
		1	0	0	1	1	Japan
		1	0	1	0	0	Hong Kong
		1	0	1	0	1	South Africa
		1	0	1	1	0	Australia
		1	0	1	1	1	New Zealand
		1	1	0	0	0	Singapore
		1	1	0	0	1	Malaysia
Note: In Germany, use the UK setting for the Euro ISDN lines.							

Bit switches 01 and 02 are not used.

Bit Switch 03		
No.	FUNCTION	COMMENTS
0	Amount of protocol dump data in one protocol dump list 0: Last communication only 1: Up to the limit of the memory area for protocol dumping	Change this bit to 0 if you want to have a protocol dump list of the last communication only. This bit is only effective for the dump list #2 (D + Bch1).
1-7	Not used	Do not change the factory settings.

Bit Switch 04		
No.	FUNCTION	COMMENTS
0-4	Not used	Do not change the factory settings.
5	RCBCTR 0: Not valid 1: Valid	This bit is used in Germany; set it to 1 for German PTT approval tests. 1: RCBCTR counts consecutive R:RNR signals. If the counter reaches the value of N2, the link is disconnected.
6-7	Not used	Do not change the factory settings.

Bit Switch 05		
No.	FUNCTION	COMMENTS
0	Not used	Do not change the factory setting.
1	Logical channel number (LCN) 0: Not controlled 1: Fixed at 01	This bit is normally 0. However, some networks may require a fixed LCN. In such cases, this bit should be 1, and you may have to set a different value for the LCN using G4 Parameter Switch 0A.
2	Protocol ID check 0: Yes 1: No	The Protocol ID is in the CR packet.
3-7	Not used	Do not change the factory settings.

Bit Switch 06		
No.	FUNCTION	COMMENTS
0	Inclusion of the DTE address in the S:CR packet 0: No 1: Yes	When the CR packet format matches ISO8208 protocol, some networks may require this bit to be set at 1. This bit is only effective if bit 0 of G4 Parameter switch 06 is at 0.
1	Calling and called DTE addresses 0: Not used 1: Used	This is only for packet networks. The CR packet should contain the rx side's DTE address, but does not have to include the tx side's; it can include it as an option.
2-7	Not used	Do not change the factory setting.

Bit switches 07 and 08 are not used.

BIT SWITCHES

Bit Switch 09		
No.	FUNCTION	COMMENTS
0	Not used	Do not change the factory setting.
1	New session within the same call 0: Not accepted 1: Accepted	0: If a new R:CSS is received, the machine sends back S:RSSN. 1: If a new R:CSS is received, the machine sends back S:RSSP. Set this bit to 1 for German PTT approval tests.
2-7	Not used	Do not change the factory settings.

Bit switches 0A to 0F are not used.

Bit Switch 10 (Dch. Layer 1)		
No.	FUNCTION	COMMENTS
0	Connection detector 0: Disabled 1: Enabled	In most countries (including Europe), this should be disabled.
1 2	Layer 1 T3 timer Bit 2 1 Time 0 0 5 s 0 1 29 s 1 0 10 s 1 1 Not used	This should be kept at 5 s (both bits at 0) for normal operation. However, you may have to change this during PTT approval tests.
3	Layer 1 T4 timer 0: Not used 1: Used	Set this bit to 1 for French PTT approval tests.
4-5	Not used	Do not change the factory settings.
6	INFO1 signal resend 0: Resend 1: No resend	0: If there is accidental noise in the INFO1 signal, some DSUs may not reply to the INFO1 signal with INFO2. Try changing this bit to 0, to resend INFO1 before the machine displays "CHECK INTERFACE".
7	Loop back 4 mode 0: Disabled 1: Enabled	This is normally kept at 0. However, set it to 1 for British PTT approval tests.

Bit Switch 11 (Dch. Layer 2)		
No.	FUNCTION	COMMENTS
0	Not used	Do not change the factory setting.
1	Type of TEI used 0: Dynamic TEI 1: Static TEI	This is normally fixed at 0. However, some networks may require this bit to be set at 1 (see below). In this case, you may have to change the values of bits 2 to 7.
2 to 7	Static TEI value	Store the lowest bit of the TEI at bit 7 and the highest bit of the TEI at bit 2. Example: If the static TEI is 011000, set bits 3 and 4 to 1 and bits 2, 5, 6, and 7 to 0.

Bit Switch 12 (Dch. Layer 3)		
No.	FUNCTION	COMMENTS
0-7	Not used	Do not change the factory settings.

Bit Switch 13: D channel layer 3 (Attachment IE in S: SETUP)		
No.	FUNCTION	COMMENTS
0-1	Not used	Do not change the factory settings.
2	Attachment of calling ID 0: No 1: Yes	Normally, this bit should be at 0, because most networks add the calling ID to the SETUP signal to the receiver. However, some networks may require the machine to add this ID. Only in this case should this bit be at 1.
3	Attachment of the Lower Layer Capabilities 0: No 1: Yes	This bit determines whether Lower Layer Capabilities are informed in the [SETUP] signal. Keep this bit at 0 in most cases.
4	Attachment of the Higher Layer Capabilities 0: Yes 1: No	This bit determines whether Higher Layer Capabilities are informed in the [SETUP] signal. Keep this bit at 0 in most cases.
5	Attachment of channel information element (L3 CONN) 0: No 1: Yes	This is normally fixed at 0.
6	Attachment of the Higher Layer Capabilities for ISDN G3 0: Refer to bit 4 1: Not attached	This bit determines whether Higher Layer Capabilities are informed in the [SETUP] signal for ISDN G3 transmission. This switch is effective in coping with communication problems with some types of T/A and PBX which do not respond to Higher Layer Capability "G3." When this bit is set to 0, the setting depends on the setting of bit 4.
7	Not used	Do not change the factory settings.

BIT SWITCHES

Bit Switch 14: D channel layer 3 (Selection IE in S: SETUP)		
No.	FUNCTION	COMMENTS
0	ISDN G3 information transfer capability 0: 3.1 kHz audio 1: Speech	In tx mode, this determines the information transfer capability informed in the [SETUP] message. In rx mode, this determines the information transfer capability that the machine can use to receive a call. Set this bit to 1 if the ISDN does not support 3.1 kHz audio. This bit is only used in the USA and the UK.
1-2	Not used	Do not change the factory settings.
3 4	Channel selection in [SETUP] in tx mode Bit 4 3 Setting 0 0 Any channel 0 1 B1 channel 1 0 B2 channel 1 1 Not used	Any channel: When this is informed to the exchanger, the exchanger will select either B1 or B2.
5	Called ID mapping 0: Called party number 1: Keypad facility	0: Called ID is mapped to the called party number. 1: Called ID is mapped to the keypad facility.
6	Numbering plan for the called party number 0: Unknown 1: E.164	E.164: This may be used in Sweden if an AXE10 exchanger is fitted with old software, and in Australia. Unknown: This is the normal setting.
7	Subaddress coding type 0: IA5 (NSAP) 1: BCD (ISO8348)	This is normally kept at 0. However, some networks require this bit to be at 1.

Bit Switch 15: D channel layer 3 (Judgement R: MSG)		
No.	FUNCTION	COMMENTS
0	Action when receiving a [SETUP] signal containing no called subaddress, if the subaddress was included in the dialed number 0: A reply is sent 1: No reply is sent	This bit depends on user requirements. If it is at 1, communication will be halted if the other terminal has not input the subaddress.
1-4	Not used	Do not change the factory settings
5	Global call reference 0: Ignored 1: Global call number is used	Global call reference means 'call reference value = 0'. This bit determines how to deal with such an incoming call if received from the network. Keep this bit at 1 in Germany (1TR6), also in countries where the global call reference is used.
6-7	Not used	Do not change the factory settings.

Bit Switch 16: D channel layer 3 (Approval)		
No.	FUNCTION	COMMENTS
0	Answer delay time	In Germany (1TR6), a time delay to answer a call is required. In other countries, use this switch as follows: If the machine is connected to the same bus from the DSU as a model K200, the machine receives most of the calls because the response time to a call is faster than the K200. If the customer wants the K200 to receive most of the calls, adjust the response time using these bits. If the customer does not want one machine to receive most of the calls, use subaddresses to identify each terminal.
1	Bit 1 0 Setting	
	0 0 No delay	
	0 1 1.0 s delayed (1TR6)	
	1 0 0.5 s delayed	
	1 1 Not used	
2	Action when receiving [SETUP] signal containing user-specific called party subaddress 0: Ignores the call 1: Receives the call	Normally, the 3rd octet of called party subaddress information in the [SETUP] signal is set to NSAP. However, some networks may add "user-specific" subaddress to the [SETUP] signal (UK), and the result of this is that the machine won't answer the call if a subaddress is specified. So, change this bit to 1 to let the machine receive the call if the machine is connected to such a network.
3-4	Not used	Do not change the factory settings.
5	Indicated bearer capabilities 0: 56 kbps 1: 64 kbps	1: 64 kbps calling is indicated in the Bearer Capabilities, but communication is at 56 k. Use this bit if the machine is connected to a network which does not accept a 56 kbps data transfer rate as a bearer capability.
6-7	Not used	Do not change the factory settings.

BIT SWITCHES

Bit Switch 17: CPS Code Used for G4 to G3 Fallback - 1		
No.	FUNCTION	COMMENTS
0 to 6	Condition for fallback from G4 to G3 Bits 0 to 6 of bit switch 17 contain a CPS code, and bits 0 to 6 of bit switch 18 contain another CPS code. If a CPS code is received which is the same as either of these, communication will fall back from ISDN G4 mode to ISDN G3. The CPS codes must be the same as those specified in table 4-13 of ITU-T recommendation Q.931. Examples: Bit 6 5 4 3 2 1 0 1 0 0 0 0 0 1 CPS code 65 1 0 1 1 0 0 0 CPS code 88 For the codes in bits 0 to 6 to be recognized, bit 7 of bit switch 17 must be 1. Also, bit 0 of Communication Switch 07 must be at 0, or fallback from G4 to G3 will be disabled.	
7	This bit determines whether fallback from G4 to G3 occurs on receipt of one of the CPS codes programmed in bit switches 17 or 18, or on receipt of a certain standard code. 0: Fallback occurs on receipt of any of the following CPS codes: UK (EuroISDN mode) - #3, #18, #57, #58, # 63, # 65, #79, #88, and #127 Germany (1TR6 mode) - #3, #31, #53, #58, and #90 Others - #3, #65, and #88 1: Fallback from G4 to G3 occurs on receipt any of above CPS codes or one of the CPS codes programmed in bit switches 17, 18, 1A, 1B, or 1C.	

Bit Switch 18: CPS Code Used for G4 to G3 Fallback - 2		
	FUNCTION	COMMENTS
0 to 6	Condition for fallback from G4 to G3 See the explanation for bits 0 to 6 of bit switch 17	
7	This bit determines the CPS code set for G4 to G3 fallback. 0: Fallback occurs on receipt of the CPS codes specified by bit switch 17 bit 7. 1: The CPS code set depends on bit switch 17, bit 7: If bit switch 17 bit 7 is 0, fallback occurs on receipt of the UK CPS code set (#3, #18, #57, #58, # 63, # 65, #79, #88, and #127) even if another country code is programmed. If bit switch 17 bit 7 is 1, fallback occurs on receipt of the UK CPS code set or one of the CPS codes programmed in bit switches 17, 18, 1A, 1B, or 1C.	

G4 to G3 fallback

Bit 0 of Communication Switch 07 must be at 0, or fallback from G4 to G3 will be disabled.

The CPS codes for which fallback occurs are decided as follows.

- G4 bit switch 17, bit 7 – If set to '0', fallback occurs on receipt of a code from a set that depends on the country code (UK, Germany, or Others). If set to '1', fallback occurs for the 5 CPS codes programmed in bits 0 to 6 of G4 bit switches 17, 18, 1A, 1B, and 1C, in addition to the country code set.
Note that if G4 bit switch 18, bit 7 is set to '1', the country code CPS code set that is used is always the UK set, regardless of the country code setting.

Bit Switch 19		
No.	FUNCTION	COMMENTS
0	Permanence of the link 0: Set/released each LAPD call 1: Permanent	This bit is normally 0, depending on network requirements.
1	Channel used in ISDN L2 (64k) mode 0: B1 1: B2	When making an ISDN L2 back-to-back test, you can select either the B1 or B2 channel with this bit switch.
2	SPID procedure (L2) 0: Disabled 1: Enabled	This is normally fixed at 0.
3	G4 SPID procedure (L2) 0: Disabled 1: Enabled	This is normally fixed at 0.
4-7	Not used	Do not change the factory settings.

Bit Switch 1A: CPS Code Used for G4 to G3 Fallback - 3		
No.	FUNCTION	COMMENTS
0 to 6	Condition for fallback from G4 to G3 See the explanation for bits 0 to 6 of bit switch 17	
7	Not used.	Do not change the setting.

Bit Switch 1B: CPS Code Used for G4 to G3 Fallback - 4		
No.	FUNCTION	COMMENTS
0 to 6	Condition for fallback from G4 to G3 See the explanation for bits 0 to 6 of bit switch 17	
7	Not used.	Do not change the setting.

Bit Switch 1C: CPS Code Used for G4 to G3 Fallback - 5		
No.	FUNCTION	COMMENTS
0 to 6	Condition for fallback from G4 to G3 See the explanation for bits 0 to 6 of bit switch 17	
7	Not used.	Do not change the setting.

Bit switches 1D to 1F are not used. Do not change any of the factory settings.

2.2.2 G4 PARAMETER SWITCHES

Parameter Switch 00		
No.	FUNCTION	COMMENTS
0	Network type	Do not change the default setting.
1	Bit 2 1 0 Type	
2	x 0 0 Circuit switched ISDN	
	Other settings: Not used	
3-7	Not used	Do not change the default settings.

Parameter Switch 01					
No.	FUNCTION			COMMENTS	
0	Voice coding 0: μ law 1: A law			0: This setting is used in Japan, Taiwan, and the USA. 1: This setting is used in Europe and Asia.	
1	Action when a [SETUP] signal without HLC is received 0: Respond to the call 1: Do not respond to the call			If there are several TEs on the same bus and the machine responds to calls for another TE, the call may be without HLC information. Identify the type of calling terminal and change this bit to 1 if the caller is not a fax machine.	
2-3	Not used			Do not change the default settings.	
4 5 6	Signal attenuation level for G3 fax signals received from the ISDN line. If an analog signal comes over an digital line, the signal level after decoding by the TE is theoretically the same as the level at the entrance to the digital line. However, this sometimes causes the received signal level to be too high at the received end. In this case, adjust the decoded signal's attenuation level using these switches. The values in the "Codec" column below show the attenuation level at the G4 interface board. The values in the "Modem" column show the actual attenuation level at the modem, because the signal is attenuated again on the FCU by -6dB.				
	Bit	6	5	4	Codec Modem (Actual attenuation level)
		0	0	0	-4.5dB -10.5dB
		0	0	1	-2.5dB -8.5dB
		0	1	0	-0.5dB -6.5dB
		0	1	1	+1.5dB -4.5dB (default setting)
		1	0	0	+3.5dB -2.5dB
		1	0	1	+5.5dB -0.5dB
		1	1	0	+7.5dB +1.5dB
		1	1	1	+9.5dB +3.5dB
7	Not used			Do not change the default settings.	

Parameter Switch 02		
No.	FUNCTION	COMMENTS
0 1	Data rate (kbps) Bit 1 0 Setting 0 0 64 kbps 0 1 56 kbps	Other settings: Not used
2-3	Not used	
4 5	Transmission mode Bit 5 4 Mode 0 0 CS	Other settings: Not used
6-7	Not used	

Parameter Switch 03		
No.	FUNCTION	COMMENTS
0	Link modulus 0: 8 1: 128	This setting determines whether protocol frame numbering is done using 3 bits (0 to 7 then start again at 0) or 7 bits (0 to 127 then start again at 0). Set this bit switch to match the network's specifications.
1-7	Not used	Do not change the default settings.

Parameter Switch 04 is not used. Do not change any of the default settings.

Parameter Switch 05		
No.	FUNCTION	COMMENTS
0 1 2 3	Link timer (D-channel layer 2 T1 timer) Bit 3 2 1 0 Value 0 0 0 0 0 s 0 0 0 1 1 s 0 0 1 0 2 s and so on until 0 0 1 0 10 s	The link timer is the maximum allowable time between sending a protocol frame and receiving a response frame from the remote terminal.
4-7	Not used	

Parameter Switch 06		
No.	FUNCTION	COMMENTS
0	Layer 3 protocol 0: ISO8208 1: T.70NULL	Set this bit to match the type of layer 3 signalling used by the ISDN. The dedicated parameters have the same setting for specific destinations.
1-3	Not used	Do not change the default settings.
4	Packet modulus 0: 8 1: 128	Do not change the default setting, unless the machine is experiencing compatibility problems.
5-7	Not used	Do not change the default settings.

BIT SWITCHES

Parameter Switch 07		
No.	FUNCTION	COMMENTS
0	Packet size	This value is sent in the CR packet. This value must match the value stored in the other terminal, or communication will stop (CI will be returned). If the other end returns CI, check the value of the packet window size with the other party. Note that this value must be the same as the value programmed for the transport block size (G4 Parameter Switch B, bits 0 to 3). Normally, do not change the default setting.
1	Bit 3 2 1 0 Value	
2	0 1 1 1 128	
3	1 0 0 0 256	
	1 0 0 1 512	
	1 0 1 0 1024	
	1 0 1 1 2048	
4-7	Not used	Do not change the default settings.

Parameter Switch 08		
No.	FUNCTION	COMMENTS
0	Packet window size	This is the maximum number of unacknowledged packets that the machine can send out before having to pause and wait for an acknowledgement from the other end. This should be kept at 7 normally. If the packet modulus (G4 Parameter Switch 6, bit 4) is 8, the packet window size cannot be more than 7. However, if the packet modulus is 128, the window size can be up to 15. Also, if the layer 3 protocol setting (G4 Parameter Switch 6, bit 0) is at IS8208, the packet window size cannot be more than 7.
1	Bit 3 2 1 0 Value	
2	0 0 0 1 1	
3	0 0 1 0 2	
	and so on until	
	1 1 1 1 15	
4-7	Not used	Do not change the default settings.

Parameter Switch 09		
No.	FUNCTION	COMMENTS
0	LCGN	Keep the value of the LCGN at 0.
1	Bit 3 2 1 0 Value	
2	0 0 0 0 0	
3	0 0 0 1 1	
	0 0 1 0 2	
	and so on until	
	1 1 1 1 15	
4-7	Not used	Do not change the default settings.

Parameter Switch 0A		
No.	FUNCTION	COMMENTS
0	LCN	Normally, keep at the value of the LCN at 1.
1	Bit 7 6 5 4 3 2 1 0 Value	
2	0 0 0 0 0 0 0 1 1	
3	0 0 0 0 0 0 1 0 2	
4	0 0 0 0 0 0 1 1 3	
5	and so on until	
6	1 1 1 1 1 1 1 1 255	
7		

Parameter Switch 0B		
No.	FUNCTION	COMMENTS
0	Transport block size	This value must match the value set in the other terminal. Note that this value must be the same as the value programmed for the packet size (G4 Parameter Switch 7, bits 0 to 3). Also, the transport block size is limited by the amount of memory in the remote terminal.
1	Bit 3 2 1 0 Value	
2	0 1 1 1 128	
3	1 0 0 0 256	
	1 0 0 1 512	
	1 0 1 0 1024	
	1 0 1 1 2048	
4-7	Not used	Do not change the default settings.

Parameter Switch 0C is not used. Do not change any of the default settings.

Parameter Switch 0D		
No.	FUNCTION	COMMENTS
0	Back-to-back test mode	When doing a back-to-back test or doing a demonstration without a line simulator, use these bits to set up one of the machines in TE mode, and the other in NT mode. After the test, return both bits to 0. See "Back-to-back Testing" in the Troubleshooting section for full details.
1	Bit 1 0 Setting	
	0 0 Off	
	0 1 Not used	
	1 0 ISDN L2 test mode (TE mode)	
	1 1 ISDN L2 test mode (NT mode)	
2-7	Not used	Do not change the default settings.

BIT SWITCHES

Parameter Switch 0E		
No.	FUNCTION	COMMENTS
0	Troubleshooting mode - real time status codes display 0: Off 1: On	If this is switched on, the status codes will be displayed in the lower two lines of the LCD. Change this bit back to 0 after testing.
1	Saving frames to the protocol dump list 0: Off 1: On	Keep this bit at 1 normally.
2-7	Not used	Do not change the default settings.

2.3 DEDICATED TRANSMISSION PARAMETERS

The following G4 communication parameter bytes have been added for each Quick Dial and Speed Dial. For how to program Dedicated Transmission Parameters, refer to the Service Manual for the base fax unit.

Switches 01 to 04 are for use with Group 3 communication and are explained in the Service Manual for the base fax unit. Switches 5, 6, and 10 are not used.

Switch 07					
No.	FUNCTION				
0	Data rate	Bit 3	2	1	0 Setting
1		0	0	0	0 64 kbps
2		0	0	0	1 56 kbps
3		1	1	1	1 As in Parameter Switch 2, bits 0 and 1 Other settings: Not used
4-7	Not used				

Switch 08					
No.	FUNCTION				
0	Link modulus	Bit 3	2	1	0 Setting
1		0	0	0	0 Modulo 8
2		0	0	0	1 Modulo 128
3		1	1	1	1 As in Parameter Switch 3, bit 0 Other settings: Not used
4-7	Not used				

Switch 09					
No.	FUNCTION				
0	Layer 3 protocol	Bit 3	2	1	0 Setting
1		0	0	0	0 IS8208
2		0	0	0	1 T.70 NULL
3		1	1	1	1 As in Parameter Switch 6, bit 0 Other settings: Not used
4	Packet modulus	Bit 7	6	5	4 Setting
5		0	0	0	0 Modulo 8
6		0	0	0	1 Modulo 128
7		1	1	1	1 As in Parameter Switch 6, bit 4 Other settings: Not used

3. TROUBLESHOOTING

3.1 ERROR CODES

The tables on the following pages show the error codes that will be printed on the Service Monitor Report. See the service manual for the base fax unit for instructions on how to print this report.

The meaning of the numbers in the Action column is as follows.

1. Check Layer 1 signaling with a protocol analyzer to determine the cause of the problem. This may require assistance from a G4 specialist.
2. Repeat the communication. If the problem does not repeat itself, the problem was a temporary one caused by the user connecting the machine to another interface. However, if the problem remains, there is a network problem.
3. There is a network problem.
4. There is a network problem. Do the following:
 - Check the error bit rate of the network. If it is high, contact the network and ask them to improve the line.
 - Check the network speed (is it 56 or 64 kbps), and make sure that the bit switch setting is correct. You may also use the dedicated transmission parameters if this problem only occurs when dialing certain numbers.
 - Check that the user dialed the correct number.
5. There is a network problem, or a problem in the machine at the other end.
6. There is a problem in the machine at the other end; ask a technician to check it.
7. The machine at the other end is not a Group 4 fax terminal.
8. The machine is not compatible with the machine at the other end. A compatibility test is needed.

Error codes related to the errors detected by the FCU are listed in the service manual for the main fax unit.

3.1.1 D-CHANNEL LAYER MANAGEMENT

Code	Probable Cause	Action
7-00	Link reset	2
7-01	Link set-up failed because of a time-out	2
7-02	Link release failed because of a time-out	2
7-03	Link set-up parameter error	2

3.1.2 D-CHANNEL, LAYER 1

Code	Probable Cause	Action
7-10	T3 timeout (layer 1 activation error)	1
7-11	No connection on the S0 interface	1
7-12	Deactivated	1

3.1.3 D-CHANNEL LINK LAYER

Code	Probable Cause	Action
7-20	At the start of link set-up, the machine received an unsolicited S (F=1)	2
7-21	At the start of link set-up, the machine received an unsolicited DM (F=1)	2
7-22	At TEI release, the machine received an unsolicited UA (F=1)	2
7-23	At the start of link set-up, the machine received an unsolicited DM (F=0)	2
7-24	At TEI release, the machine received an unsolicited UA (F=0)	2
7-25	SABME received at the start of network link set-up	No error
7-26	N200 retransmission error for SABME	2
7-27	N200 retransmission error for DISC	2
7-28	N200 retransmission error for situation enquiry (RR)	2
7-29	N(R) sequence number error	3
7-30	N(S) sequence number error	3
7-31	FRMR received	3
7-32	Non-standard frame received	3
7-33	Abnormal frame length	3
7-34	N201 error; information field N in the I frame exceeded N201	3
7-35	T201 timeout; timeout while waiting for checking	3
7-36	T202 timeout; timeout while waiting for ID assignment	3

3.1.4 D-CHANNEL NETWORK LAYER

Code	Probable Cause	Action
7-40	Insufficient mandatory information elements	3
7-41	Abnormal LI for a mandatory information element	3
7-42	T301 timeout; timeout while waiting for R:CONN	3
7-43	T303 timeout; timeout while waiting for R:CALL-PROC etc.	3
7-44	T304 timeout; timeout while waiting for R:CALL-PROC etc.	3
7-45	T305 timeout; timeout while waiting for R:REL	3
7-46	T308 timeout; timeout while waiting for R:REL-COMP	3
7-47	T310 timeout; timeout while waiting for R:ALERT etc.	3
7-48	T313 timeout; timeout while waiting for R:CONN-ACK	3
7-49	Internal error	3
7-51	Release call reference during communication	3

3.1.5 B-CHANNEL LINK LAYER

Code	Probable Cause	Action
7-60	T3 timeout; timeout while waiting for flag	4
7-61	T3 timeout; timeout while waiting for SABM during an incoming call	4
7-62	T1 timeout x N2; timeout while waiting for UA after sending SABM	5
7-63	T1 timeout x N2; timeout while waiting for a response to a transmitted S frame (P=1)	5
7-64	T1 timeout x N2; timeout while waiting for SABM or DISC after sending FRMR	5
7-65	T1 timeout x N2; timeout while waiting for a response to DISC	5
7-66	RNR x N2 (other end busy, RCB counter error)	5
7-67	Invalid (Ad) frame received	5
7-68	Invalid short frame received	5
7-69	Link reset error	5
7-70	FRMR received	5
7-71	Non-standard (Cn) frame received	5
7-72	An S or U frame having an information field was received	5
7-73	A frame longer than the maximum N1 length was received	5
7-74	An S or I frame having an N(R) error was received	5
7-75	CRC error	3

3.1.6 B-CHANNEL NETWORK LAYER

Code	Probable Cause	Action
7-80	A packet having an abnormal GFI was received	6
7-81	A packet was received that had a logical channel number different from the logical channel being used for the communication	6
7-82	A packet containing a format error was received	6
7-83	A packet containing an LI error was received	7
7-84	A CN packet was received that had a PID different from 02	7
7-85	Unsupported packet type received	7
7-86	Abnormal or unsupported facility received	7
7-87	P(s) sequence number error	6
7-88	P(r) sequence number error	6
7-89	A reset using S:RQ or R:RI occurred	6
7-90	A restart using S:RQ or R:SI occurred	6
7-91	Call set-up error; in reply to S:CR, R:CI was received to indicate rejection of the call	7
7-92	T20 timeout; timeout while waiting for an SF packet	6
7-93	T21 timeout; timeout while waiting for a CC packet	6
7-94	T22 timeout; timeout while waiting for an RF packet	6
7-95	T23 timeout; timeout while waiting for a CF packet	6
7-96	T10 timeout; timeout while waiting for the first frame	6

3.1.7 TRANSPORT LAYER

Code	Probable Cause	Action
8-00	Invalid block received	8
8-01	TCC block received	8
8-02	TBR block received	8
8-05	TCR block; block format error	8
8-06	TCR block; block size parameter LI error	8
8-07	TCR block; extended addressing LI error	8
8-08	TCR block; block size length error	8
8-10	TCA block; block format error	8
8-11	TCA block; Tx origin reference data in TCR disagreed with the address reference data in TCA	8
8-12	TCA block; octet 7 did not equal 0	8
8-13	TCA block; extended addressing LI error	8
8-14	TCA block; block size exceeded that set by TCR	8
8-15	TCA block; block size parameter LI error	8
8-20	TDT block; block format error	8
8-21	TDT block; octet 3 did not equal either 00 or 80(H)	8
8-22	TDT block; the end indicator was "Continue" even though there was no field data	8

ERROR CODES

Code	Probable Cause	Action
8-23	TDT block; an end block with no field data was received after an end indicator of "End"	8
8-26	Timeout during state 0.2	8
8-27	Timeout during state 1.1	8
8-28	Timeout during state 0.3	8

3.1.8 SESSION LAYER

Code	Probable Cause	Action
8-30	Invalid frame received	8
8-31	RSSN received	8
8-32	CSA received	8
8-34	Calling terminal identification error in CSS	8
8-35	Date and time error in CSS	8
8-36	Window size error in CSS	8
8-37	Service identification error in CSS	8
8-38	Session user data error in CSS	8
8-39	CSS rejected (new session rejected)	8
8-40	Called terminal identification error in RSSP	8
8-41	Date and time error in RSSP	8
8-42	Date and time in RSSP was not the same as that in CSS	8
8-43	Window size error in RSSP	8
8-44	Service identification error in RSSP	8
8-45	<%2>Session user data error in <%0>RSSP	8
8-47	Message synchronization error inside the CCU	8
8-48	Document task busy	8
8-50	Ti timeout; non-communication surveillance timer (T.62)	8
8-51	T2 timeout; timeout while waiting for a response (T.62)	8
8-52	T3 timeout; CSA timer timeout (T.62)	8
8-53	G4 board load timer timeout; calling side waited too long for a new session	8
8-54	G4 board load timer timeout; calling side waited too long for transport probability	8
8-55	G4 board load timer timeout; called side waited too long for S:RSSP	8
8-56	G4 board load timer timeout; document transmission surveillance timer timeout	8
8-57	G4 board load timer timeout; timeout while waiting for a user abort request after a provider fail	8

3.1.9 DOCUMENT LAYER

Code	Probable Cause	Action
8-60	T.62 coding format error (LI error)	8
8-61	A mandatory PI was absent, or the LI for a mandatory PI was 0	8
8-62	Calling/called terminal identification LI was different from that specified by F.184 (LI = 24)	8
8-63	The LI for session user data exceeded the maximum value (512)	8
8-64	The LI for CDUI was not 0	8
8-65	Checkpoint and document reference numbers LI error, or they were not in T.61 (ASCII) coding	8
8-66	The checkpoint reference number differed from the expected value	8
8-70	RDGR received	8
8-71	A non-standard PDU was received while in calling mode	8
8-72	A non-standard PDU was received while in called mode	8
8-73	Abnormal PDU received while in calling state ds1	8
8-74	15 consecutive CDCL signals received	8
8-75	Session window size control error (size not equal to 0)	8
8-76	Internal error	8

3.1.10 PRESENTATION LAYER

Code	Probable Cause	Action
8-80	X.209 coding error in session user data (LI error)	8
8-81	PV error in session user data	8
8-82	PI error in session user data	8
8-83	The capabilities in the session user data of CDS/CDC were not the same as those in RDCLP	8
8-84	X.209 coding error in the DP (LI error)	8
8-85	X.209 coding error in the SLD (document descriptor/page descriptor) (LI error)	8
8-86	SLD object type absent	8
8-87	PI error in the SLD (document descriptor/page descriptor)	8
8-88	The capabilities in the SLD (document descriptor/page descriptor) are duplicated or are not the same as those in RDCLP	8
8-89	No document descriptor at the start of the document	8
8-90	No page descriptor at the start of the page	8
8-91	Page descriptor PV error	8
8-92	X.209 coding error in the TU (LI error)	8
8-93	The TU was absent	8
8-94	PV error in the TU	8
8-95	TI error	8
8-96	X.209 coding nest level >> 8, or an LI form error	8
8-97	CDPB/CDE received while TU/TI not yet completed, or an unexpected PDU was received while analyzing an SLD	8

3.2 G4CCU STATUS CODES

The display of G4CCU status codes is affected by the Real Time Display On/off setting (G4 Parameter Switch E, bit 0).

- If Real Time Display is off (the bit is 0; this is the default setting), there is no indication on the operation panel.
- If Real Time Display is on (the bit is 1), the codes are fully displayed on the operation panel.

The codes are defined in the following pages.

3.2.1 LAYER 1 (PHYSICAL LAYER)

Code (H)	Status	Code (H)	Status
10	Ready	E0	R: [DISC]
01	S: [SETUP]	E1	S: [REL]
02	R: [CALL_PROC]	E3	R: [REL_COMP]
03	R: [CONN]	E4	R: [STAT]
04	S: [CONN_ACK]	E5	R: [STAT_ENQ]
05	R: [SETUP_ACK]	F0	S: [DISC]
06	R: [ALERT]	F1	R: [REL]
11	R: [SETUP]	F2	S: [REL_COMP]
12	S: [CALL_PROC]	F3	S: [STAT]
13	S: [CONN]		
14	R: [CONN_ACK]		

3.2.2 LAYER 2 (LINK LAYER)

Code (H)	Status	Code (H)	Status
20	S: SABM, or R: SABM	D0	S: DISC, or R: DISC
21	S: UA, or R: UA	D1	S: DM, or R: DM
22	S: FRMR, or R: FRMR		
28	S: SABME, or R: SABME		

3.2.3 NETWORK LAYER (LAYER 3)

Code (H)	Status	Code (H)	Status
30	S: CR	C2	S: SQ
31	R: CC	C3	R: SF
38	R: CN	CA	R: SI
39	S: CA	CB	S: SF
32	S: GF	C4	S: RQ
3A	R: GQ	C5	R: RF
3B	R: GF	CC	R: RI
C0	S: CQ	CD	S: RF
C1	R: CF	C6	R: IT
C8	R: CI	C7	R: IF
C9	S: CF	CE	R: DIAG

3.2.4 TRANSPORT LAYER (LAYER 4)

Code (H)	Status	Code (H)	Status
40	S: TCR, or R: TCR	42	S: TBR, or R: TBR
41	S: TCA, or R: TCA	43	S: TCC or R: TCC

3.2.5 SESSION LAYER, SESSION CONTROL LAYER (LAYER 5)

Code (H)	Status	Code (H)	Status
50	S: CSS, or R: CSS	56	S: RSUI, or R: RSUI
51	S: RSSP, or R: RSSP	A0	S: CSA, or R: CSA
52	S: RSSN, or R: RSSN	A1	S: RSAP, or R: RSAP
53	S: CSCC, or R: CSCC	A2	S: CSE, or R: CSE
54	S: RSCCP, or R: RSCCP	A3	S: RSEP, or R: RSEP

3.2.6 SESSION LAYER, DOCUMENT CONTROL LAYER (LAYER 5)

Code (H)	Status	Code (H)	Status
60	S: CDCL, or R: CDCL	90	S: CDE, or R: CDE
61	S: RDCLP, or R: RDCLP	91	S: RDEP, or R: RDEP
62	S: CDS, or R: CDS	92	S: CDD, or R: CDD
63	S: CDC, or R: CDC	93	S: RDDP, or R: RDDP
64	S: CDPB, or R: CDPB	94	S: CDR, or R: CDR
65	S: RDPBP, or R: RDPBP	95	S: RDRP, or R: RDRP
70	S: CDUI, or R: CDUI (Data phase - layer 6 and facsimile data)	96	S: RDGR, or R: RDGR
		97	S: RDPBN, or R: RDPBN

3.3 LEDS

There are six LEDs on the G4 Interface board, as shown below.

		LED 5	LED 6
LED 1	LED 2	LED 3	LED 4

These LEDs give the following information about the status of the machine.

Initial Settings

Power-up/Reset

O=ON, --=OFF

		O	O
--	--	--	--

Initial setting request from FCU

		--	O
--	--	--	--

Initial setting confirmation to FCU

		--	--
--	--	--	--

Communication

Layer 1 activated

		--	--
O	--	--	--

Layer 2 set

		--	--
O	O	--	--

B channel connected (ISDN G4)

		--	--
O	O	O	--

B channel connected (ISDN G3)

		--	--
O	O	--	O

B channel released

		--	--
O	O	--	--

Layer 2 released

		--	--
O	--	--	--

Layer 1 deactivated

		--	--
--	--	--	--

The following will be displayed if bit 1 of G4 parameter switch E is at 1.

B channel: send I frame (A blinks at this time if bit 1 of G4 parameter switch E is at 1)

		--	A
O	O	O	--

B channel: receive I frame (B blinks at this time if bit 1 of G4 parameter switch E is at 1)

		B	--
O	O	O	--

Note: At the start and end of communication, both A and B will blink.

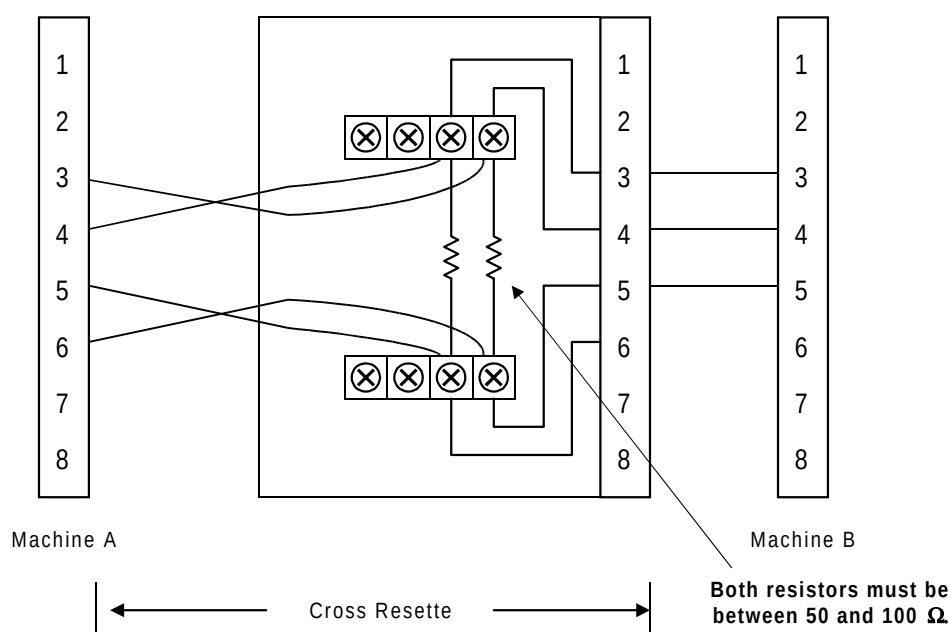
3.4 BACK-TO-BACK TEST

To make a back-to-back test, you need:

- Two machines (both of them must have a CiG4 board)
- Cross rosette

The procedure is as follows.

1. Switch off the machines
2. Connect two machines back-to-back using the cross rosette as follows.



3. Make the following bit switch adjustments:
 - In the machine acting in NT mode, set bits 0 and 1 of G4 parameter switch 0D to 1.
 - In the machine acting in TE mode, set bit 0 of G4 parameter switch 0D to 0 and bit 1 to 1.
4. Reset the machines by switching them off, waiting a few seconds, then switching back on.
5. Place a document in one of the machines, dial a number, then press Start.
6. After you have finished the test, set bits 0 and 1 of G4 parameter switch 0D back to 0, then reset the machine.

NOTE: The following cannot be tested using this procedure:

- ISDN G3 communication
- P to M

PRINTER CONTROLLER B305

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

1.1.1 GENERAL SPECIFICATIONS

Print Speed (Max.)	18 ppm (600 dpi, A4 sideways)
Printer Languages	PCL 6 and PCL 5e PostScript Level 3 (optional) Note: PostScript Level 3 is referred to as "PS3" in this manual.
Print Resolution	PCL 6 – 600 dpi PCL 5e – 300/600 dpi PS3 (optional) – 300/600 dpi
Memory (SDRAM)	16 MB (standard) 80 MB (maximum) Note: There is 1 slot for a 32 or 64 MB SDRAM DIMM.
Memory (Hard Disk)	1.6 GB (optional) Note: The HDD is used for print data spooling, proof print, font storage, and macro (form) storage.
Resident Fonts	PCL: 45 outline fonts and 1 bitmap font PS3 (optional): 136 fonts (24 Type 2 fonts and 112 Type 14 fonts)
Host Interfaces	IEEE1284/ECP parallel interface x 1 (standard) Ethernet 10BaseT/100BaseTX network interface x 1 (optional) Note: Refer to the NIB service manual for details.
Other Interfaces	ROM DIMM interface x 1 (for optional PS3) SDRAM DIMM interface x 1 (for optional memory) PC Card interface x 1 (for upgrading firmware)

SPECIFICATIONS

1.1.2 SUPPORTED PAPER SIZES

Paper	Size (W x L)	Tray 1			Tray 2/3			By-pass
		NA	EU	Asia	NA	EU	Asia	
Ledger	11 x 17"	Y	Y [#]	Y [#]	Y	Y	Y	Y [#]
Legal	8.5 x 14"	Y	Y [#]	Y [#]	Y	Y	Y	Y [#]
Letter SEF	8.5 x 11"	Y	Y	Y	Y	Y	Y	Y [#]
Letter LEF	11 x 8.5"	Y	Y	Y	Y	Y	Y	Y [#]
Half Letter SEF	5.5 x 8.5"	N	N	N	Y [#]	Y [#]	Y [#]	Y [#]
Half Letter LEF	8.5 x 5.5"	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
Executive SEF	7.25 x 10.5"	N	N	N	Y [#]	Y [#]	Y [#]	Y [#]
Executive LEF	10.5 x 7.25"	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
A3	297 x 420 mm	Y [#]	Y	Y	Y	Y	Y	Y [#]
B4	257 x 364 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
A4 SEF	210 x 297 mm	Y [#]	Y	Y	Y	Y	Y	Y [#]
A4 LEF	297 x 210 mm	Y	Y	Y	Y	Y	Y	Y [#]
B5 SEF	182 x 257 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
B5 LEF	257 x 182 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
A5 SEF	148 x 210 mm	N	N	N	Y [#]	Y [#]	Y [#]	Y [#]
A5 LEF	210 x 148 mm	Y [#]	Y	Y	Y [#]	Y [#]	Y [#]	Y [#]
A6 SEF	105 x 148 mm	N	N	N	N	N	N	Y [#]
A6 LEF	148 x 105 mm	N	N	N	N	N	N	N
Folio	8.25 x 13"	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
Foolscap	8.5 x 13"	Y	Y	Y	Y [#]	Y [#]	Y [#]	Y [#]
F	8 x 13"	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
Com10 Env	4.125 x 9.5"	N	N	N	N	N	N	Y [#]
Monarch Env	3.875 x 7.5"	N	N	N	N	N	N	Y [#]
C6 Env	114 x 162 mm	N	N	N	N	N	N	Y [#]
C5 Env	162 x 229 mm	N	N	N	N	N	N	Y [#]
DL Env	110 x 220 mm	N	N	N	N	N	N	Y [#]
8K	267 x 390 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
16K SEF	195 x 267 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
16K LEF	267 x 195 mm	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]	Y [#]
Custom	[Minimum] 90 x 148 mm [Maximum] 297 x 432 mm	N	N	N	N	N	N	Y ^C

Keys:

Y	Supported. The paper size sensor detects this paper size.
Y [#]	Supported. The user has to select the correct paper size for the tray.
Y ^C	Supported. The user has to enter the width and length of the paper.
N	Not supported.

NA: North America version, EU: Europe version

1.2 SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install. The service tools are not provided on the CD-ROM.

1.2.1 PRINTER DRIVERS

Printer Language	Windows 3.1x	Windows 95/98	Windows NT4.0	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes

- NOTE:**
- 1) The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for PowerPC, Alpha, or MIPS platforms.
 - 2) The PS3 drivers are all genuine AdobePS drivers. A PPD file for each operating system is provided with the driver.
 - 3) The PS3 drivers for Macintosh support Mac OS 7.1 or later versions.
 - 4) The PS3 drivers for Windows 3.1x and Windows NT4.0 do not support the "Proof Print" function.

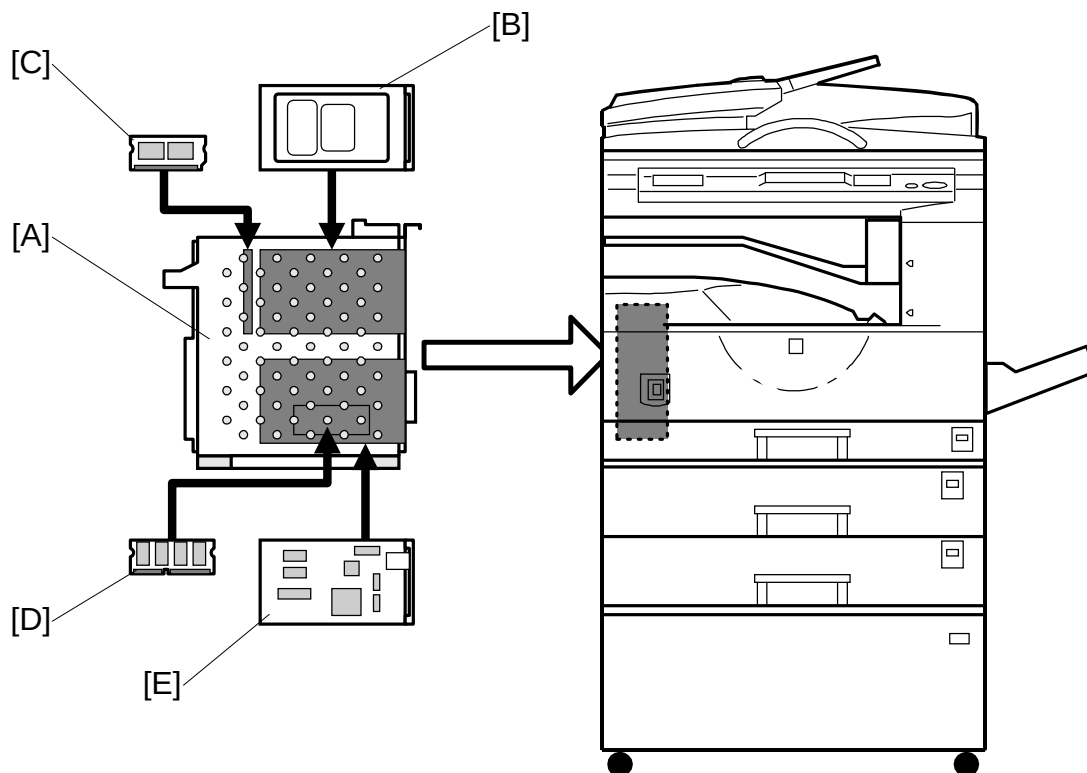
1.2.2 UTILITY SOFTWARE

Software	Description
Afga Font Manager (Win3.1x, 95/98, NT4)	A font management utility with screen fonts for the printer.
Aficio Manager for Admin (Win 95/98, NT4)	A printer management utility for network administrators. NIB setup utilities are also available.
Aficio Manager for Client (Win95/98, NT4)	A printer management utility for client users.
Multi-Direct Print (Win95/98, NT4)	A utility for peer-to-peer printing over a NetBEUI or TCP/IP network.

1.2.3 SERVICE TOOLS

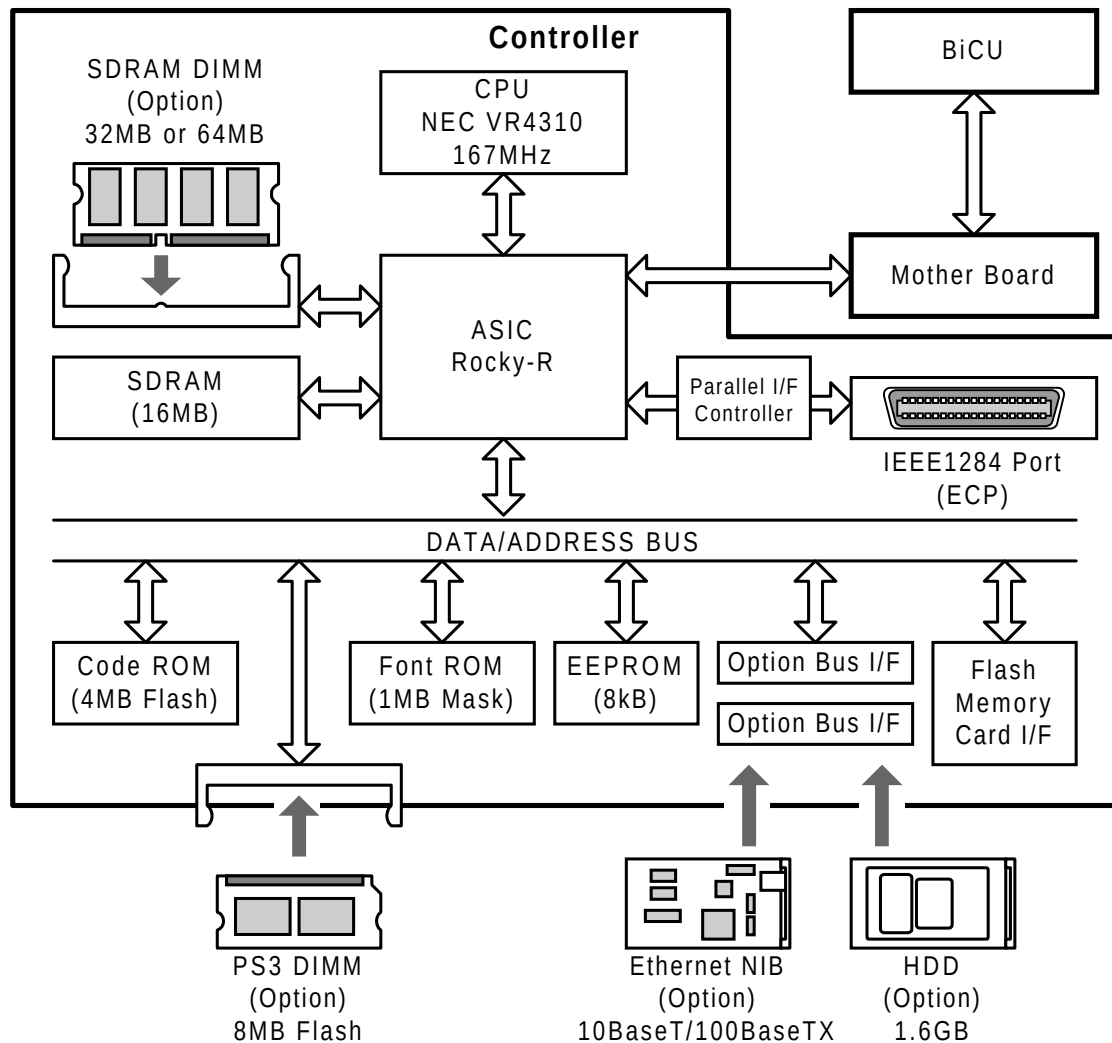
Software	Description
NBTFTP	NIB firmware update utility for use on a NetBEUI network. This utility is not on the Driver and Utilities CD-ROM; it is issued separately as a service tool

1.3 MACHINE OVERVIEW



Ref.	Component	Machine Code
A	Printer Controller	B305
B	Hard Disk (option)	G690
C	PS3 Module (option)	B308
D	SDRAM Module (option)	G688
E	Network Interface Board (option)	B307

1.4 BLOCK DIAGRAM



The controller board contains a CPU (NEC VR4310) and an ASIC (Rocky-R). The ASIC controls the main memory (SDRAM), engine interface, ROM interface, IEEE1284 parallel interface, two option bus interfaces for the NIB and HDD, and an IC card interface for upgrading firmware.

There is one optional memory socket that can have either a 32MB or a 64MB SDRAM DIMM module to increase RAM capacity and enable RAM collation. With the 64MB SDRAM module, the RAM capacity is increased to 80MB. There is another memory socket for the optional PS3 DIMM.

The two option bus interfaces allow the user to install an Ethernet NIB and a hard disk drive (allows the Proof Print, Disk Collation, and font and form download features).

The flash memory card interface allows the firmware for the controller, PostScript, and NIB to be updated.

2. DETAILED SECTIONS DESCRIPTIONS

2.1 ENGINE FUNCTIONS

2.1.1 IMAGE DATA PROCESSING

The controller uses the engine's FCI (Fine Character Image) function for smoothing and toner saving mode, but these two functions do not work at the same time. When toner saving mode is enabled, edge smoothing is automatically disabled. The memory circuit in the engine (MSU) is not used for printing from the controller.

2.1.2 PRINT PRIORITY AND INTERLEAVING

[User Tools] – [System Settings] – [Print Priority] defines how the copy, fax and printer applications share a single print engine.

NOTE: “[User Tools] – [System Settings] – [Print Priority]” indicates that you press the System Tools key, select System from the menu, then select “Print Priority” from the next menu.

Display Priority

A print request from the application (copy, fax, or printer) now displayed on the LCD has the highest priority. For example, the machine is in the middle of a large copy run, and a user wants to print a document from a computer immediately. In this case, pressing the Printer key to switch the LCD display to Printer mode will interrupt the copy run and print the document from the computer, and the copy run will resume after the document has been printed. If the LCD display stays in Copy mode, the user will have to wait until the copy run finishes.

Note that the Interrupt key on the operation panel does not work like the Printer key in the above example. The Interrupt key is for interrupting a copy run to do another copy operation.

Copier, Fax or Printer

The selected application has the highest priority, regardless of which mode the LCD is in. If there are multiple print requests to the print engine, the selected application will print first. Other applications have to wait until the selected application finishes printing.

ENGINE FUNCTIONS

Interleave

All the applications have the same priority. An application can print even while another application is using the printer engine. If there are multiple print requests to the print engine, the engine will adjust its print priorities and the sequence of printed pages.

For example, if a received fax message and a copy job are waiting for printing, the machine prints 5 pages of the fax, then 5 pages of the copy job, then the next 5 pages of the fax, and so on.

Copier SP mode 5-951 determines the number of pages that are printed from one job before switching over to the next. The default is 5 pages.

NOTE: Using the Interleave function is not recommended if the machine does not have multiple output trays. This is because the printouts from copy, fax, and printer applications may be mixed up in a single output tray if the Interleave function is enabled.

2.2 CONTROLLER FUNCTIONS

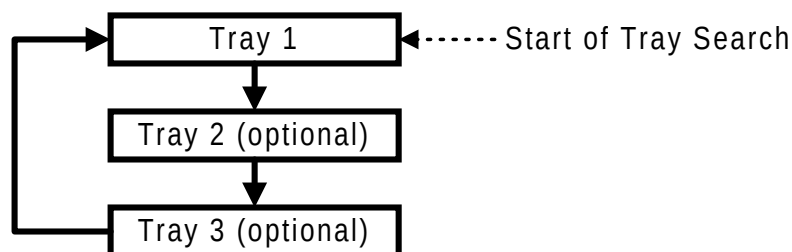
2.2.1 PAPER SIZE DETECTION AND SELECTION

The controller uses the paper sizes detected by the print engine for trays 1, 2 and 3. For the by-pass tray, the user has to specify a paper size using the Job Control menu in the Printer User Tools. Refer to section 1.1.2 for details on supported paper sizes.

When the printer controller receives a print job, the controller uses the paper size specified in the PCL, PCL, or PS commands for printing.

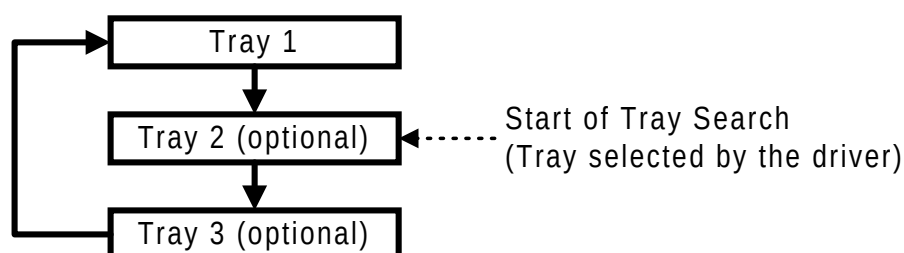
2.2.2 PAPER SOURCE SELECTION

Auto Tray Select



The controller searches for the specified paper size, starting from Tray 1, and uses the first tray that has the specified paper size. If the selected tray is pulled out or paper runs out during printing, the controller searches for another tray with the specific paper size and if found, automatically switches to it. If the controller cannot find another paper tray with the specified paper size, printing stops and the LCD displays the message “Add Paper to Tray 1”.

Manual Tray Select



When the printer driver specifies a tray, the selected tray becomes the first tray checked at the start of the tray search. If the selected tray does not have the size of paper specified by the driver, the controller searches the other trays for the same paper size.

NOTE: Tray Priority in the Job Control menu does not specify the start of the tray search, but specifies the paper size in the selected tray as the default paper size.

Tray Lock

If Tray Lock is enabled for a tray, the controller does not use the “locked” tray in the tray search process. If a tray has, for example, coloured A4 size paper for fax prints, enable tray lock for that tray so that the controller does not select the tray for printing.

If the printer driver selects a “locked” tray, the controller uses the tray for printing only when the specified paper size matches the actual paper size in the tray.

By-pass Tray

The by-pass tray is not part of the automatic tray search. To print from the by-pass tray, the user has to select the by-pass tray. Even if the by-pass tray is empty, the controller will not switch to another tray; the message on the LCD asks the user to add paper to the by-pass tray.

NOTE: Collation is disabled when the by-pass tray is selected.

Paper Size Mismatch

When the controller could not find the specified paper size in any of the trays, the machine displays an error message, e.g., “Load 8 ½ x 11”.

Then the user can either load the requested paper size in a tray or select another tray, e.g., a tray that contains A4 size paper, by pressing the “Form Feed” key.

The controller will print the job if the specified paper size is detected in a tray, or if the user presses the Enter key after selecting a tray.

2.2.3 OUTPUT TRAY SELECTION

Output Tray Priority in the System User Tools specifies the default paper output tray for each application. If a print job does not specify an output tray or the driver specifies the Default Tray, the default tray is used.

If the driver specifies an output tray, this overrides the default tray setting in the user tools.

If the option one-bin tray is selected but it has an error, the standard output tray is used.

2.2.4 COLLATION (SORT)

When the controller has either an optional SDRAM DIMM or an optional HDD installed, collation is enabled.

If the memory or HDD becomes full while storing a job that uses collation, the controller prints the pages that have been stored for collation, empties the memory or HDD, then continues printing the rest of the pages with collation.

Memory Capacity	Collation	Maximum Pages	Note
16MB (standard)	Not possible		
48MB (with 32MB)	Possible	30 pages	Note 1)
80MB (with 64MB)	Possible	50 pages	Note 1)
With HDD	Possible	1500 pages	Note 2)

NOTE: 1) The number of pages is calculated using a sample MS-Word document that contains 5,000 characters of plain text. The sample document takes 409.6kB of memory space per page.

If the document is more complex, the memory can hold fewer pages. If the document is simpler, e.g., 1,000 characters per page, the memory can hold more pages.

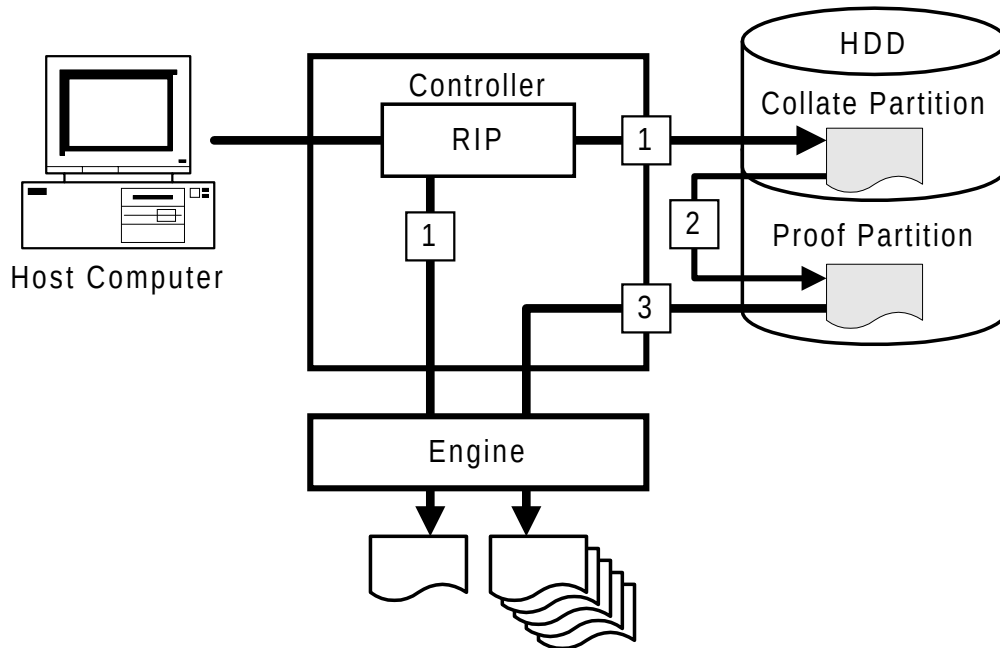
2) This is the maximum number of pages that the controller can handle.

If the document is more complex, the HDD can hold fewer pages. Even if the document is simpler, e.g., 1,000 characters per page, the HDD cannot hold more than 1,500 pages.

To calculate the pages using the same document as specified in Note 1, the HDD can hold up to 1,250 pages.

About 500 MB of disk space is used for collation.

2.2.5 PROOF PRINT



The Proof Print function gives users a chance to check the print results before starting a multiple-set print run.

When printing from a host computer, a print job is sent to the controller with a user ID and the current time. Then the controller executes raster image processing (RIP), stores the image data onto the collation partition of the hard disk, and prints one set of the document (step [1] in the above diagram). Then the controller moves the raster image file to the proof print partition of the hard disk (step [2] in the above diagram).

After the user checks that the print result is OK, the user selects the file using the machine's operation panel, and print the rest of the sets (step [3] in the above diagram). After all sets have been printed, the controller deletes the file automatically.

If the proof print result is not OK, the user must delete the file manually.

If there is no available space for a new file in the proof print partition, the controller deletes the file from the collation partition after printing the first set, even though it cannot copy the file to the proof print partition..

- NOTE:**
- 1) Proof print requires the installation of an optional hard disk.
 - 2) The proof print partition size is about 600 MB. It can hold up to 30 files or 2,000 pages. The maximum number of pages depends on how complex the pages are.
 - 3) Proof print is available with the PCL drivers, the Windows 95/98 PostScript driver, and the Macintosh PostScript driver (with the Proof Print plug-in). The PostScript drivers for Windows 3.x and Windows NT4.0 do not support the proof print function.

2.2.6 RESET OPERATIONS

Job Reset

This resets the job being processed and ignores all incoming data until a data end is received.

If a collate job or a proof print job is being printed, the controller stops printing and deletes the file from the RAM or HDD.

System Reset

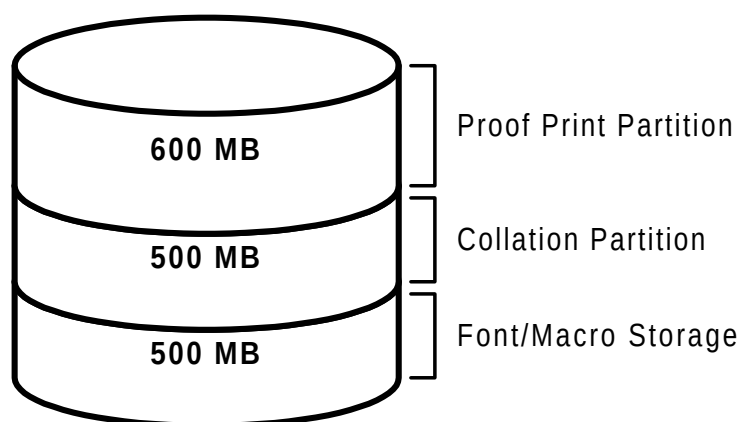
This initializes the collation data, proof print data, fonts and macros downloaded to the RAM. The menu settings, NIB settings, system log data, and error codes remain unchanged.

NOTE: Do not use this when the controller is receiving a print job.

Menu Reset

This resets all the menu settings to their default values, including the NIB settings.

2.2.7 HDD (OPTIONAL)



The optional 1.6 GB HDD has three partitions.

- The Proof Print partition uses 600 MB for Proof Print file storage.
- The Collation partition uses 500 MB for collation data storage.
- The last partition uses 500 MB for font and macro storage.

3. INSTALLATION PROCEDURES

3.1 PRECAUTIONS

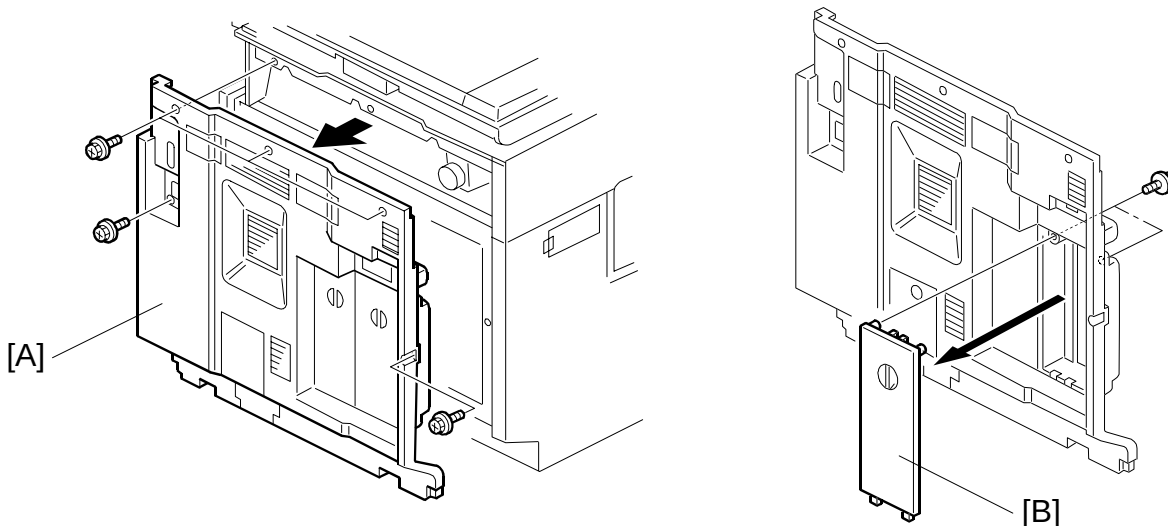
⚠ CAUTION

Before installing this option, do the following:

1. Ensure that an appropriate Plug&Play name has been programmed for the machine using SP5-907.
2. If the data-in lamp on the operation panel is blinking or lit, wait until a document or report is printed, then turn off the machine.
3. If there is a fax unit in the machine, print out all messages stored in the memory, the lists of user-programmed items, and the system parameter list.
4. Turn off the main switch and disconnect the power cord, the telephone cable(s), and the Ethernet cable.
5. If a fax unit, PC fax expander, or ISDN G4 kit is installed, remove them before installing the printer controller.

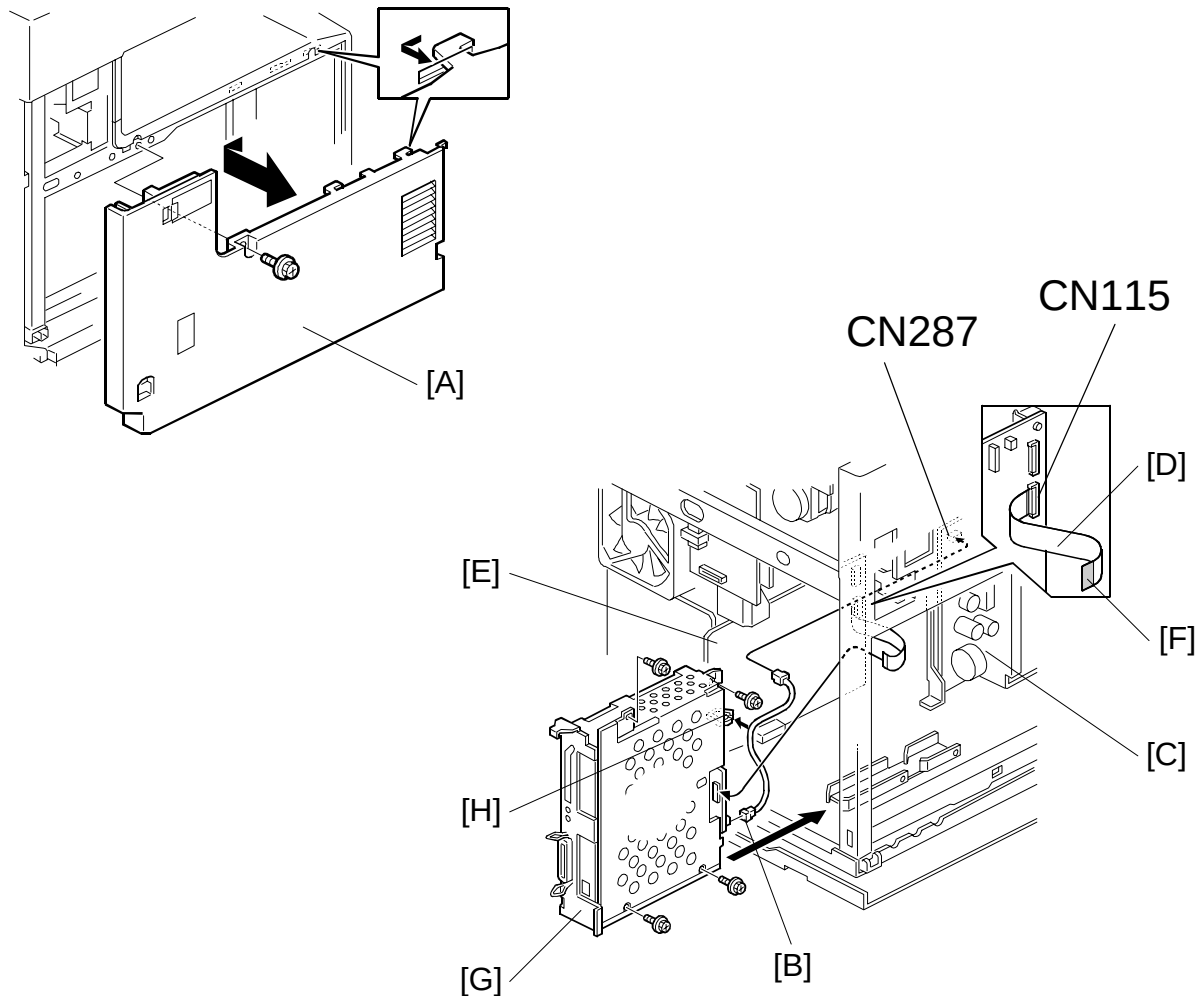
3.2 PRINTER CONTROLLER

NOTE: If there are any optional components for installation, install them on the controller before installing the controller.

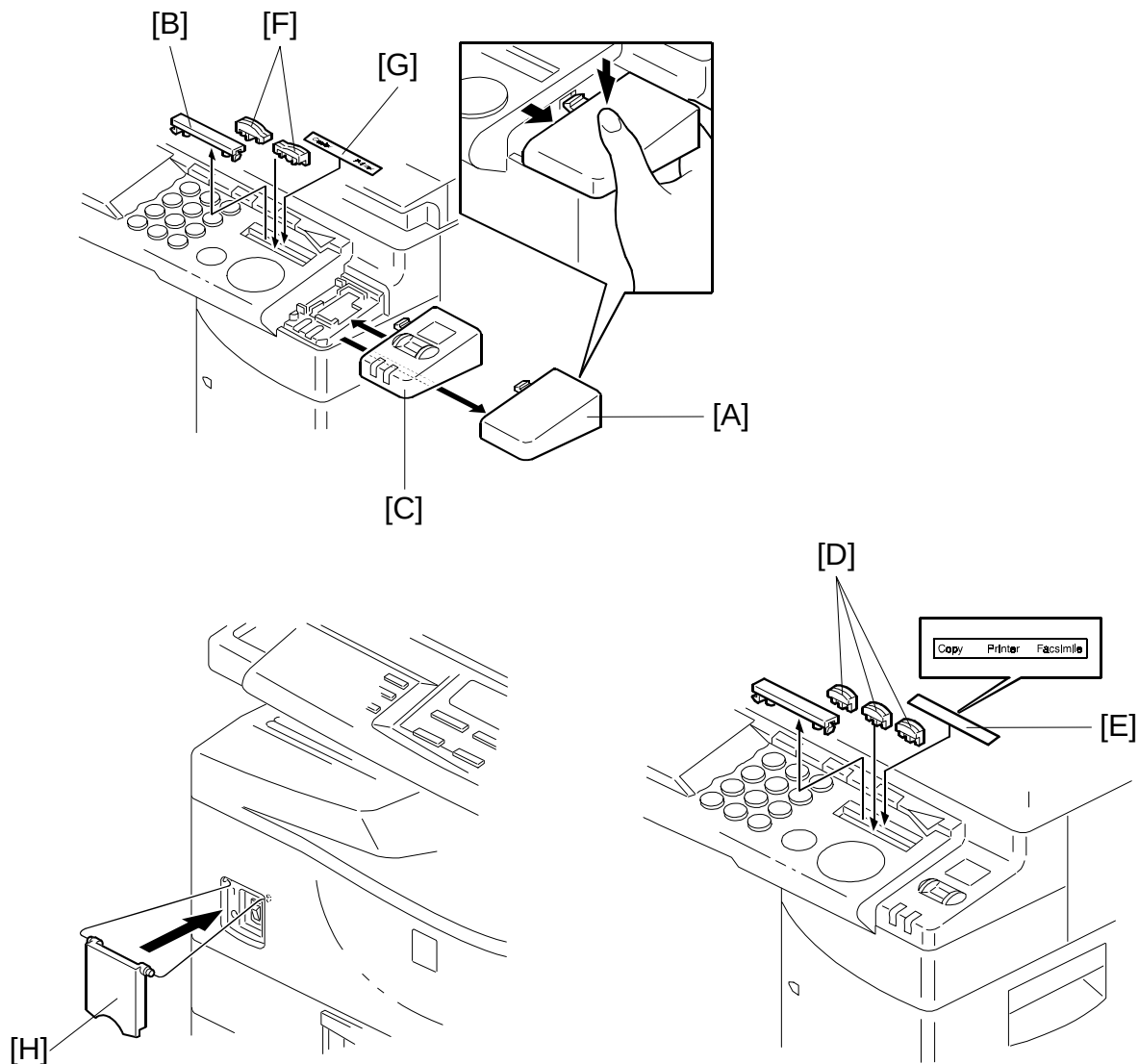


1. Remove the rear cover [A] (5 screws).
2. Remove the interface cover [B] (2 screws).

PRINTER CONTROLLER



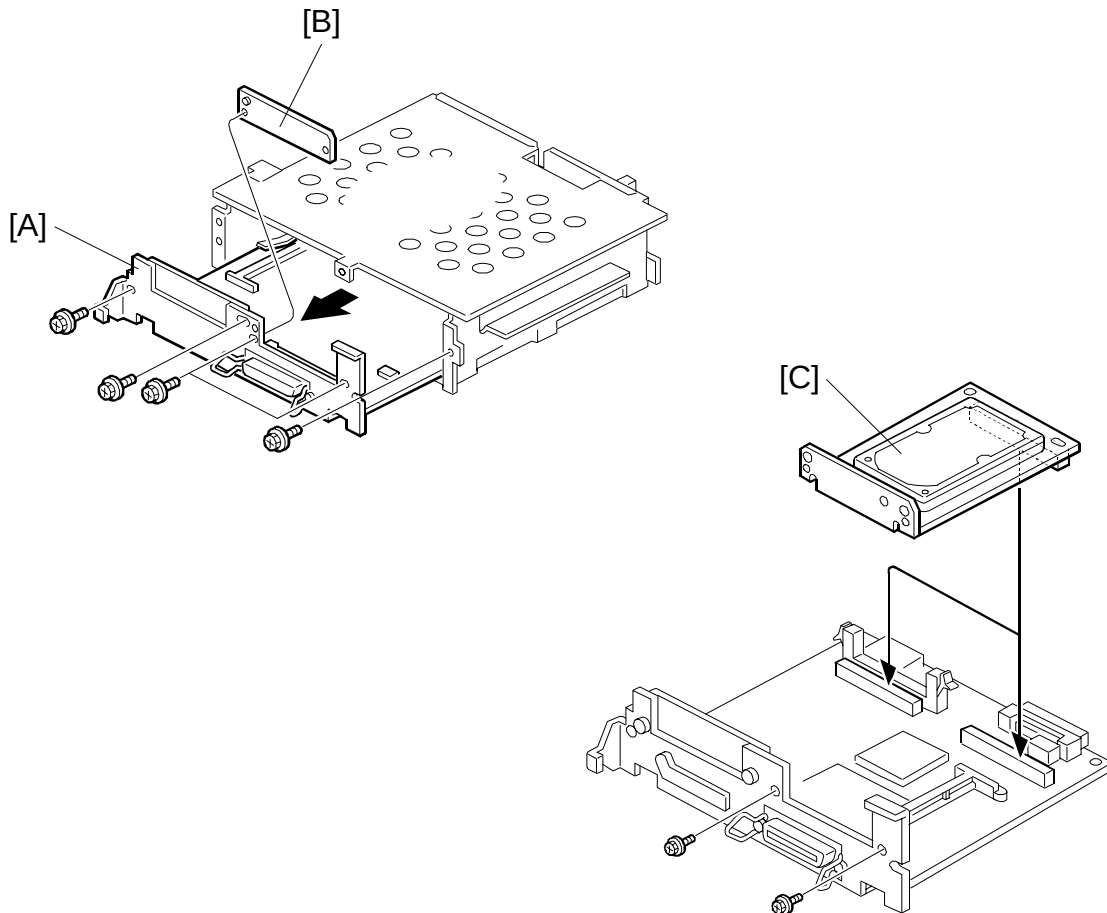
3. Remove the left cover [A], as shown (1 screw).
4. Connect the power supply cable [B] to CN287 on the power supply unit [C].
5. Connect the flat cable [D] to CN115 on the BICU [E].
When connecting the flat cable, make sure that the blue edge [F] of the flat cable faces the left side of the machine (away from the BICU board).
6. Install the printer controller [G] (4 screws).
When installing the printer controller, make sure not to pinch the power supply cable.
7. Connect the power supply cable and the flat cable to the printer controller.
8. Secure the power supply cable to the clamp [H].
9. Re-install the rear and left covers.



10. Remove the covers [A] and [B] from the operation panel.
11. Install the switch cover [C] on the operation panel.
12. If the machine has the fax unit option, install the keys [D] and the decal (instead of the basic decal) [E] as shown. The decal [E] has “Copy”, “Printer”, and “Facsimile” on it.
If the machine does not have the fax unit option, install the keys [F] and the decal [G] as shown. The decal [G] has “Copy” and “Printer” on it.
13. Install the main switch cover [H].
14. Turn on the machine and print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]).
Ensure that the all the installed options are listed on the Configuration Page.

3.3 HARD DISK (HDD)

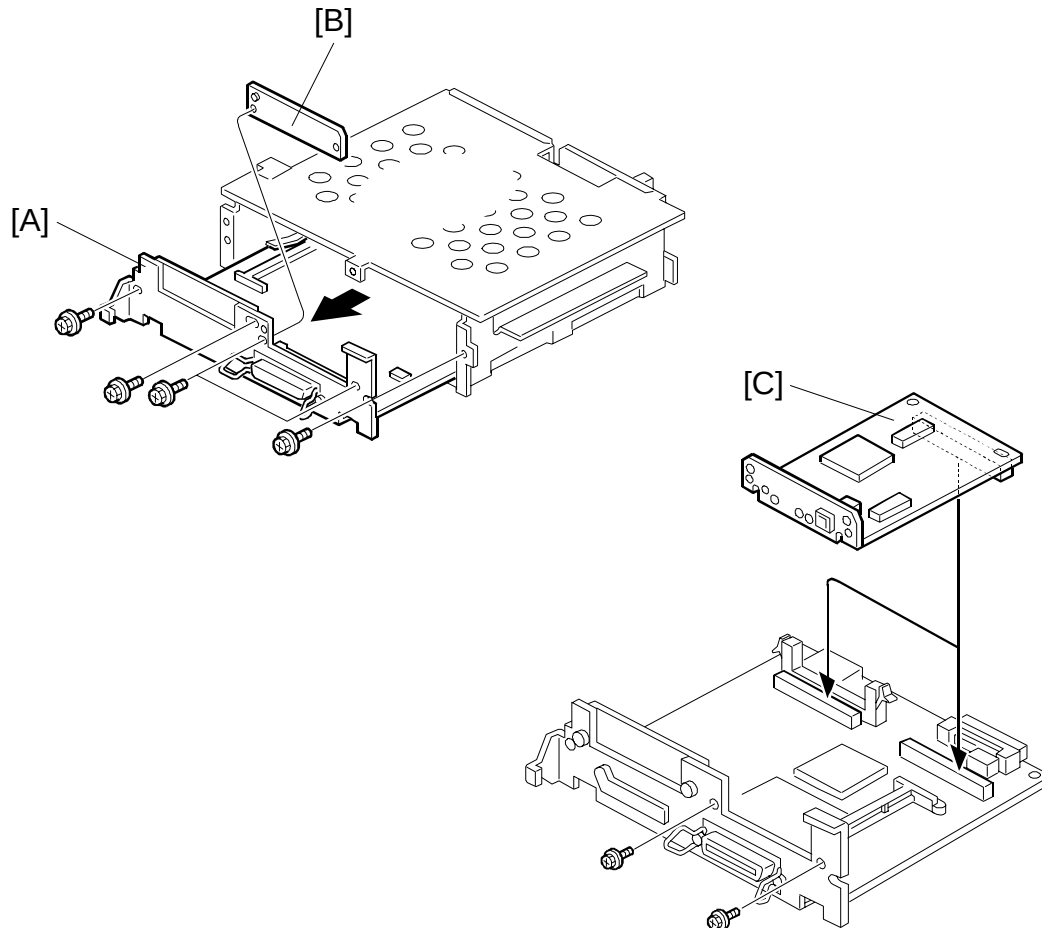
1. Remove the rear cover (5 screws).
2. Remove the left cover (1 screw).



3. Remove the printer controller [A] (3 screws) and cover bracket [B] (2 screws).
4. Attach the hard disk drive [C] to either CN506 or CN507 on the controller, as shown (2 screws removed in step 4, and 1 connector).
NOTE: The controller can have only one optional HDD.
5. Re-install the printer controller.
6. Turn on the machine and print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]). Verify that “Printer Hard Disk Drive” is listed.

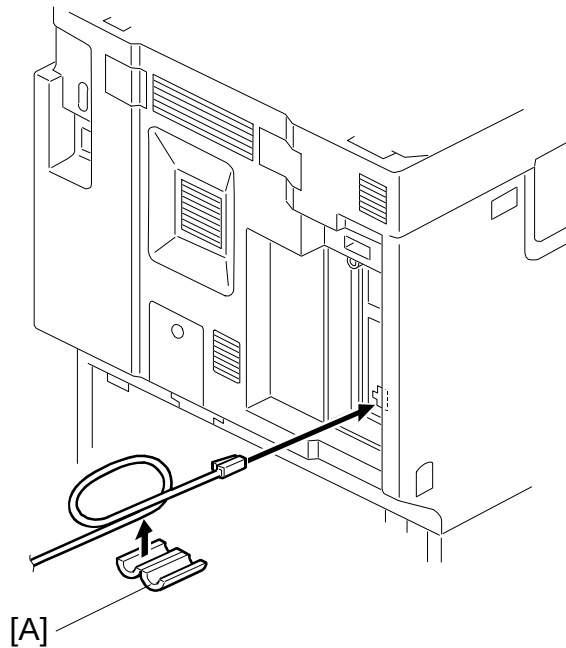
3.4 NETWORK INTERFACE BOARD (NIB)

1. Remove the rear cover (5 screws).
2. Remove the left cover (1 screw).



3. Remove the printer controller [A] (3 screws) and cover bracket [B] (2 screws).
4. Attach the network interface board [C] to either CN506 or CN507 on the controller, as shown (2 screws removed in step 4, and 1 connector).
NOTE: The controller can have only one optional NIB.
5. Re-install the printer controller.

NETWORK INTERFACE BOARD (NIB)



6. Attach the core [A] to the Ethernet cable, as shown. Then connect it to the NIB.

NOTE: 1) An Ethernet cable is not supplied with the NIB option.

2) A STP (Shielded Twisted Pair) cable, category 5 or better, must be used to meet electromagnetic radiation standards.

3) If the ISDN G4 option is installed, make sure not to connect the Ethernet cable to the ISDN port by mistake.

7. Turn on the machine and ensure that the first and the third LEDs from the top are both lit.

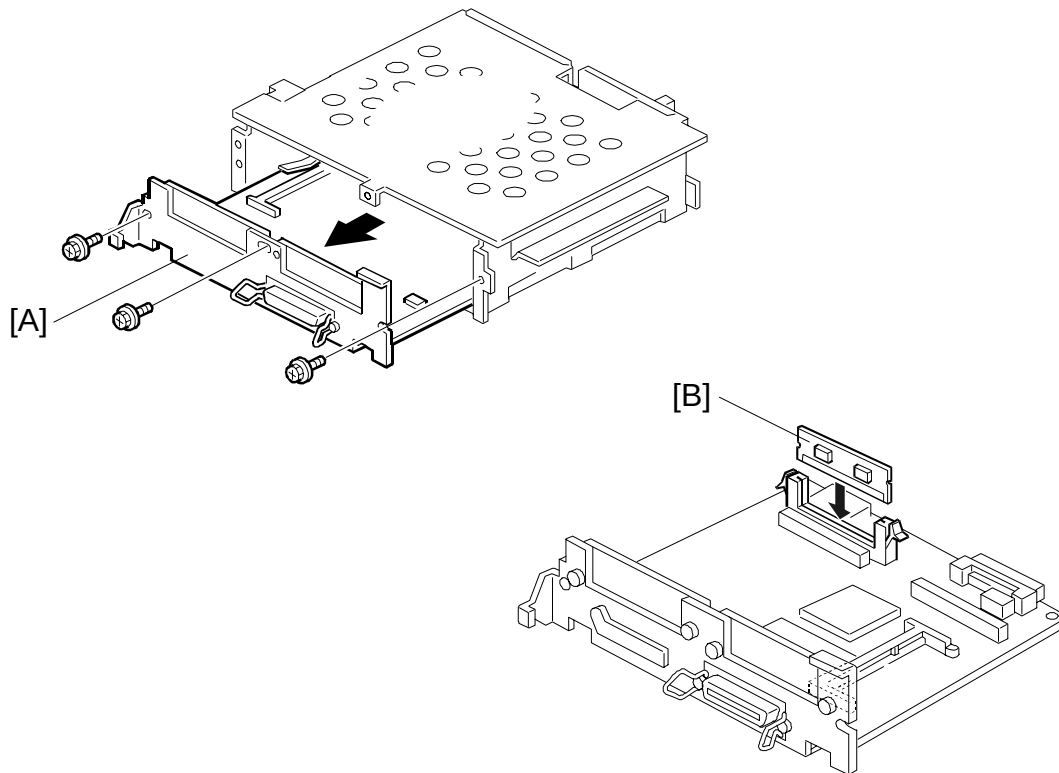
8. Print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]) and confirm that “Network Interface Board” is on the list.

9. Print the NIB configuration sheet by pressing the black button on the NIB for 2 seconds.

For more information about NIB setup, refer to the NIB service manual and the operating instructions.

3.5 POSTSCRIPT DIMM

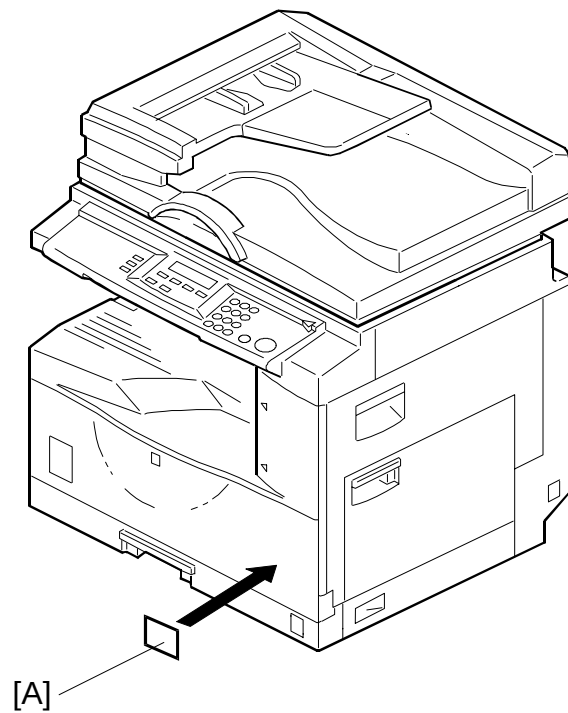
1. Remove the rear cover (5 screws).
2. Remove the left cover (1 screw).



3. Remove the printer controller [A] (3 screws).
4. Attach the PostScript kit [B] to the printer controller.
5. Re-install the printer controller.

Printer
Controller
B305

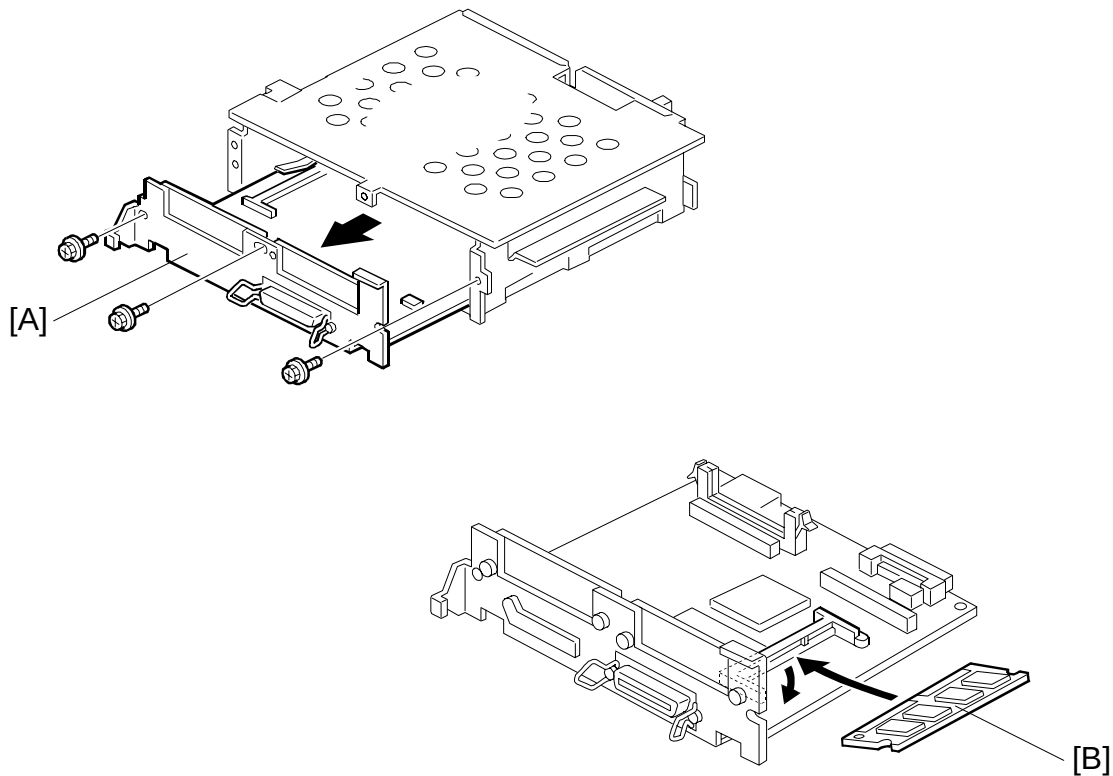
POSTSCRIPT DIMM



6. Attach the PostScript decal [A] to the front cover, as shown.
7. Turn on the machine and print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]). Verify that “Adobe PostScript 3” is on the list.

3.6 MEMORY (SDRAM DIMM)

1. Remove the rear cover (5 screws).
2. Remove the left cover (1 screw).



3. Remove the printer controller [A] (3 screws).
4. Attach the printer memory [B] to the printer controller, as shown.
5. Re-install the printer controller.
6. Turn on the machine and print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]). Verify that the total memory has increased.

4. SERVICE TABLES

4.1 PRECAUTION

Do not turn off the machine, or switch the controller off-line, while the data-in LED is blinking or lit. Some data that the controller has received for raster image processing may be lost.

Check with the customer before maintenance to avoid such data loss.

4.2 SERVICE PROGRAM MODE OVERVIEW

4.2.1 HOW TO ENTER THE SP MODE

Entering and exiting SP mode is the same as for copier and fax, as follows.

NOTE: Before using any of the SP modes, disconnect the parallel and Ethernet cables.

Entering Printer SP mode

 →  →  →  →  (Hold for more than 3 seconds.)

Select “4. Printer”. The Printer SP mode main menu appears.

Exiting SP mode

Select “3. End” from the Printer SP mode main menu, then exit the SP mode main menu.

4.2.2 SP MODE TABLE

SERVICE MENU

	Title	Description
A	BitSw#1 Set	Adjusts bit switch settings. Refer to section 4.3.1 for details. Note: The bit switches are not used at the moment.
B	BitSw#2 Set	
C	BitSw#3 Set	
D	BitSw#4 Set	
E	NVRAM Clear 1	Initializes the controller NVRAM except bit switches, NIB settings, and log data.
F	NVRAM Clear 2	Initializes the NVRAM on the controller.
G	NVRAM Clear 3	Initializes the NVRAM on the NIB.
H	Counter Clear	Initializes all counters to zero.
I	Diag. Error	Displays diagnostics error codes on the LCD.
K	Service Print	Prints the service summary sheet.

SERVICE MENU

SERVICE TOOLS

	Title	Description
H	HDD Test	Verifies the FAT and directory entries on the HDD.
I	HDD Format	Partitions and formats the HDD.
L	NIB Read/Write	Backs up the NIB NVRAM and restores it.

4.3 SERVICE MENU

4.3.1 BIT SWITCH PROGRAMMING

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select A, B, C, or D for the desired bit switch, then press [Enter].
3. Press [Enter] in the “Bit Switch Set” menu.
4. Adjust the bit switch using the following keys.
 -   : Change the switch setting.
 - [UP] [DOWN]: Move to the next bit.
 - [CANCEL]: Exit without saving changes.
 - [ENTER]: Exit and save changes.
5. Press [Enter] to save changes and exit.

BIT SWITCHES

Note: The bit switches are not used at the moment.

4.3.2 NVRAM RESET

CAUTION

Print the service summary report, controller configuration page, and NIB configuration page before resetting the NVRAM(s).

DIAG. ERROR LOG AND PAPER TRAY SETTINGS RESET

This initializes the following settings in the controller NVRAM.

- Controller diagnostics error log
- Paper type settings for trays
- Paper size setting for the by-pass tray

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “E. NVRAM Clear 1”, then press [Enter].
3. Ensure that you have printed the service summary report, then press [Enter].
4. Press [Enter] to execute. Or press [Cancel] to exit.

CONTROLLER NVRAM RESET

This initializes all the data in the controller NVRAM, except the NIB settings.

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “F. NVRAM Clear 2”, then press [Enter].
3. Ensure that you have printed the service summary report and controller configuration page, then press [Enter].
4. Press [Enter] to execute. Or press [Cancel] to exit.

NIB NVRAM RESET

This initializes all the data in the NIB NVRAM.

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “G. NVRAM Clear 3”, then press [Enter].
3. Ensure that you have printed the NIB configuration page, then press [Enter].
4. Press [Enter] to execute. Or press [Cancel] to exit.

COUNTER RESET

This initializes all the print counters in the controller NVRAM. Refer to the service summary report for the counters in the controller NVRAM.

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “H. Counter Clear”, then press [Enter].
3. Press [Enter] to reset all the print counters.
4. Press [Enter] to execute. Or press [Cancel] to exit.

4.3.3 POWER-ON DIAGNOSTICS ERROR DISPLAY

This displays the latest 10 error codes that were found during the power-on self-test. Refer to chapter 6 (Troubleshooting) for details of the error codes.

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “I. Diag. Error”, then press [Enter].
3. Check the error codes on the LCD.
 - [UP] [DOWN]: Move to the previous/next page.
4. Press [Cancel] to exit.

4.3.4 SERVICE SUMMARY

This prints a summary of all the controller settings.

1. Enter the Printer SP mode, and select “1. Service Menu”.
2. Select “K. Service Print”, then press [Enter].
3. Press [Enter] again to print the report.

Model Number / System Version / Unit Number

Lists the machine’s Plug&Play name, controller firmware version, and the controller part number.

Program List

Lists the firmware module version.

Bit Switch

List the current bit switch settings.

Note: The bit switches are not actually used at the moment.

Counter

List all the counters in the controller.

NOTE: Some counters listed in the report are not actually used.
For example, “Duplex Page Count” is listed, but not available.

Exception Information

Lists CPU exception error information. Designer use only.

System Logging / System Logging 2

Lists internal log data. Designer use only.

Option

Lists all the installed optional components.

4.4 SERVICE TOOLS

4.4.1 HDD TEST

This verifies the file and directory entries on the hard disk drive.

1. Enter the Printer SP mode, and select "2. Service Tool".
2. Select "HDD Test", then press [Enter].
3. Specify the number of tests, then press [Enter].
 - If "000" is specified, the test will continue until it is manually cancelled.
 - [UP] [DOWN]: Increment/decrement the digit at the cursor.
 -   : Move the cursor.
 - [Cancel]: Exit without executing the test. Cancels the test even while it is being executed.
 - [Enter]: Execute the test.
4. Check the result of the test, then do the following:
 - If the result is OK, press [Enter] to display the available free space on the HDD. Then press [Enter] again to exit.
 - If the result is NG, press [Enter] to do the test again. Or, press [Cancel] to exit.

Error Display Details	
Number at the top right corner	Indicates that the error was found in the n'th test.
Error Message	"Clstr error" A damaged cluster was found. The damaged cluster was marked as "bad" to avoid future use.

4.4.2 HDD FORMAT

This creates partitions on the HDD and formats them.

1. Enter the Printer SP mode, and select “2. Service Tool”.
2. Select “HDD Format”, then press [Enter].
3. Check the HDD capacity, then press [Enter].
4. Press [Enter] again to start formatting. Or, press [Cancel] to exit.
Note: Once the format has started, it cannot be cancelled.
5. Check the result of the test, then do the following:
 - If the result is OK, press [Enter] to exit.
 - If the result is NG, check the error message, then press [Enter] to exit.

Error Display Details	
Error Messages	“HDD Ident Fail” The controller could not retrieve information from the HDD. “NG Logic Format” Logical format failed. “No Support HDD” Unsupported HDD is detected.

4.4.3 NIB NVRAM BACKUP AND RESTORE

This backs up the NIB NVRAM to the controller, and restores the data to the NIB NVRAM. Use this procedure when replacing a NIB. The following procedure shows how to use this when copying data from one NIB to another.

1. Ensure that the source NIB is installed in the controller.
2. Enter the Printer SP mode, and select “2. Service Tool”.
3. Select “NIB read/write”, then press [Enter].
4. Select the data copy direction “NIB -> CTL”, then press [Enter].
 - [UP] [DOWN]: Select a data copy direction.
 - [Cancel]: Exit.
 - [Enter]: Copy the NIB NVRAM to the controller.**Note:** Once data copying has started, it cannot be cancelled.
5. Check the result, then do the following:
 - If the result is OK, press [Enter] to exit. Go on to the next step.
 - If the result is NG, check the error message, then press [Enter] to exit.

Error Display Details	
Error Message	“NG copying” NIB data copying failed. Try again.

6. Turn off the machine and replace the NIB.

7. Turn on the machine, and ensure that the target NIB is correctly installed.
8. Enter the Printer SP mode, and select "2. Service Tool".
9. Select "NIB read/write", then press [Enter].
10. Select the data copy direction "CTL -> NIB", then press [Enter].
 - [UP] [DOWN]: Select a data copy direction.
 - [Cancel]: Exit.
 - [Enter]: Copy the NIB NVRAM to the controller.**Note:** Once data copying has started, it cannot be cancelled.
11. Check the result, then do the following:
 - If the result is OK, press [Enter] to exit.
 - If the result is NG, check the error message, then press [Enter] to exit.

Error Display Details	
Error Message	"NG copying" NIB data copying failed. Try again.

4.5 FIRMWARE UPDATE

4.5.1 FIRMWARE DOWNLOAD (CONTROLLER, NIB AND PS3)

This procedure is for upgrading the firmware for the controller, the network interface board, and the PS3 DIMM module.

To update the PS3 firmware, the target DIMM module must already contain a version of the PS3 firmware.

CAUTION
Do not turn off the machine while downloading the firmware.

1. Prepare an IC card that contains the required firmware.
2. Turn off the machine and install the card in the IC card slot on the controller.
Note: When you see the machine from the back, the “A” side of the card must face the right side.
3. Turn on the machine and switch the display to “Printer” (use the “Printer” key on the operation panel).
4. Check the firmware version as follows:
 - 1) Controller and NIB Firmware
 - CARD: Firmware version on the card
 - ROM: Current controller or NIB firmware version
 - 2) PS3 DIMM
 - DIMM: Current PS3 firmware version
 - CARD: Firmware version on the card
5. Start downloading the new firmware.
 - 1) Controller and NIB Firmware
 - Press [Install] to download the new firmware.
Note: Do not press [Backup]. [Backup] will copy the firmware from the controller to the card.
 - Press [Cancel] to exit.
 - 2) PS3 DIMM
 - Press [Start] to download.
 - Turn off the machine to cancel.
6. After the firmware download has finished, turn off the machine, and remove the card.
7. Turn on the machine, and print the service summary report to confirm that the new firmware version has been installed.

Error Messages

Message	Description	Controller	NIB	PS3
Erasing Failed ADRS: xxxxxx	Test the on-board flash ROM and retry the download.	Yes	Yes	Yes
Writing Failed ADRS: xxxxxx		Yes	Yes	Yes
Memory Insufficient	Reset the controller and try again.	Yes	Yes	Yes
Melting Failed	The firmware file used to program the card may be damaged. Get a new firmware file and store it on the card.	Yes	Yes	No
DIMM – installable program cannot find	Wrong type of firmware on the card.	No	No	Yes
CRC error: Please retry install	The firmware file used to program the card may be damaged. Get a new firmware file and store it on the card.	No	No	Yes
NIB board is not equipped	Install a NIB on the controller, then try again.	No	Yes	No
Initialization failed	Retry the download.	No	Yes	No
Download mode is disabled	Retry the download.	No	Yes	No

4.5.2 FIRMWARE UPLOAD (CONTROLLER ONLY)

This creates a backup copy of the controller firmware on an IC card.

Note: The target IC card must already contain a version of the controller firmware.

1. Prepare an IC card with a version of controller firmware programmed.
2. Turn off the machine and install the card in the IC card slot on the controller.
Note: When you see the machine from the back, the “A” side of the card must face the right side.
3. Turn on the machine and switch the display to “Printer” (use the “Printer” key on the operation panel).
4. Check the firmware version as follows:
 - CARD: Firmware version on the card
 - ROM: Current controller or NIB firmware version
5. Press [Backup] to upload the firmware to the card.
Note: Do not press [Install]. [Install] will copy the firmware from the card to the controller.
6. After the firmware upload has finished, turn off the machine, and remove the card.
7. Turn on the machine.

Error Messages

Message	Description
Compressing failed	Retry the upload.
Card capacity insufficient	Use the correct IC card.
Card error	Use the correct IC card. The card may be damaged.

4.5.3 ERROR RECOVERY

CONTROLLER

If the controller does not start up after a failed firmware download, use the following procedure. This procedure will force the controller to boot from the IC card.

1. Prepare an IC card with the required controller firmware version on it.
2. Turn off the machine and remove the controller.
3. Change the DIP switch 1 – No. 1 setting to “ON”.
4. Put back the controller and install the card in the IC card slot on the controller.
Note: When you see the machine from the back, the “A” side of the card must face the right side.
5. Turn on the machine.
6. Wait until the LEDs between the IC card slot and the parallel interface are both lit (this may take 1 to 2 minutes.).
7. Turn off the machine, remove the card, and reset the DIP switch 1 – No.1 setting to “OFF”. Then, put back the controller.
Note: The default settings of the DIP switches are all ‘OFF’.
8. Turn on the machine, and print the service summary report.

PS3 DIMM / NIB

If a download attempt failed, try downloading the new firmware again.

4.6 POWER-ON SELF TEST

4.6.1 PARALLEL LOOP-BACK TEST

This tests the standard IEEE1284 parallel interface using a loop-back connector. The loop-back connector (P/#: G0219350) is required for this test.

NOTE: Do not use the loop-back connector (P/#: G0109350). This loop-back connector causes the “Timeout error”.

1. Turn off the machine and attach the loop-back connector to the Centronics parallel interface.
2. Turn on the machine.
 - Regardless of the test result, the controller starts up as normal.
3. Enter the SP mode and check the “Diag. Error” for the error codes 1101 or 1102.
 - Refer to the section 4.3.3 for how to check the error codes.
 - Refer to the section 6.2 for the details of error codes.

4.6.2 OTHER TESTS

The controller tests the following devices at power-on. If an error is detected, an error code is stored in the NVRAM. Refer to the section 4.3.3 for how to check the error codes, and the section 6.2 for the details of error codes.

- Flash ROM (Firmware)
- CPU, Clock and ASIC
- Resident and optional SDRAM
- Centronics interface (if a loop-back connector is present)
- NVRAM
- Font ROM
- Optional HDD

5. REMOVAL AND REPLACEMENT

5.1 PRECAUTIONS

CAUTION

Before removing any of the printer components, do the following:

1. If the data-in lamp on the operation panel is blinking or lit, wait until a document or report is printed, then turn off the machine.
2. If there is a fax unit in the machine, print out all messages stored in the memory, as well as the user-programmed items and the system parameter lists.
3. Turn off the main switch and disconnect the power cord, the telephone cable(s), and the Ethernet cable.
4. If a fax unit, PC fax expander, or ISDN G4 is installed, remove them before removing the printer controller.

5.2 CONTROLLER

NOTE: 1) When replacing the controller board, remove the NVRAM (IC26) from the defective board, then install the NVRAM on the new board.
2) If the controller does not start up after a firmware update, try to boot from the IC card and download the firmware. If that does not work, you may need to replace the controller board. Refer to section 4.5.3 (Error Recovery) for details.

1. Remove the covers.
2. Remove the controller (3 screws).
3. Remove the optional component(s) and the NVRAM from the controller, then install them on the new controller.
4. Install the new controller.
5. Turn on the machine and print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]).
Ensure that all the controller settings are restored.

5.3 NIB

NOTE: 1) Before replacing the NIB, back up the NIB NVRAM to the controller using the “NIB read/write” service tool. Then, replace the NIB. Then restore the NIB NVRAM using the “NIB read/write” service tool. Refer to section 4.4.3 for details.

2) If the NIB does not start up after a firmware update using the NBTFTP utility, try downloading the firmware from an IC card.

1. Back up the NIB NVRAM to the controller using [Service Tool] – [NIB read/write].
2. Remove the covers.
3. Remove the controller (3 screws).
4. Replace the NIB (2 screws).
5. Put back the controller.
6. Turn on the machine and restore the NIB NVRAM using the [Service Tool] – [NIB read/write].
7. Turn off the machine and turn it back on. Then, print the Printer Configuration Page ([User Tools] – [Printer] – [List Print]).
Ensure that all the controller settings are restored.

6. TROUBLESHOOTING

6.1 SC CODES

SC No.	Description	Required Action
2001	Power-on Self-Diagnostics Error	Check the error code using [Service Menu] – [Diag. Error].
2002	FGATE error	Check any SC errors for the engine.

6.2 ERROR CODES

Code	Description	Required Action
0201	On-board SDRAM read/verify failed.	Replace the controller if this error is frequent.
0301	SDRAM DIMM (option) read/verify failed.	Replace the SDRAM DIMM if this error is frequent.
0Fxx	Controller – BiCU interface error.	Check the connectors and cable connections. Replace the motherboard, cable, and/or BiCU.
1101	Data transmission did not finish within the specified time.	An incompatible loop-back connector is connected to the parallel port, or the loop-back connector is not connected. Use the correct loop-back connector (P/#: G0219350) before the test.
1102	Data looped back to the controller is not the same as the data transmitted.	The loop-back connector may be defective. Try using another one.
11xx	Centronics parallel interface error.	Replace the controller if this error is frequent.
1401	The controller NVRAM has a problem.	Replace the NVRAM if this error is frequent.
1402	NVRAM checksum error or the battery has run out.	
1403	NVRAM write error	
1404	NVRAM read error	
1501	RTC error	Replace the controller board if this error is frequent.
1601	Font ROM error	Replace the controller if this error is frequent.
1602	The data in the Font ROM is damaged.	Replace the controller if this error is frequent.
1Bxx	Option bus A (CN506) error	Check the connection to the optional component at CN506. Try replacing the optional NIB or HDD.
1Cxx	Option bus B (CN507) error	Check the connection to the optional component at CN507. Try replacing the optional NIB or HDD.

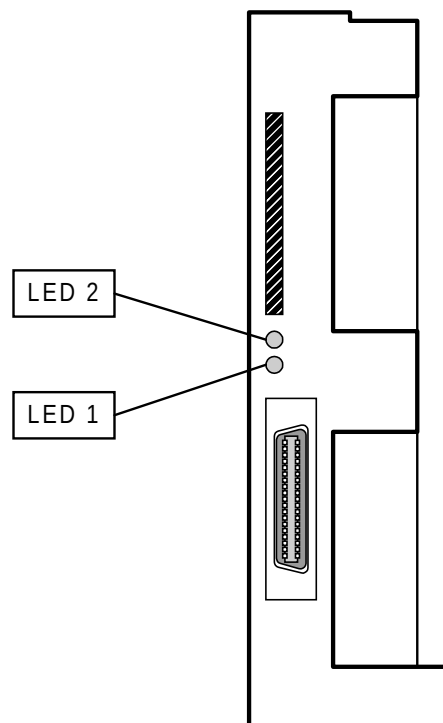
Code	Description	Required Action
2100	NIB self test failed.	Turn off the machine and turn it back on. Replace the NIB if this error is frequent.
21xx	NIB error	
2501	The data in the PS DIMM is damaged.	Replace the PS DIMM if this error is frequent.
2508	The data in the IC card is damaged.	Reprogram the IC card and try again.
3003 or 3004	A damaged cluster was found on the HDD.	The damaged cluster is automatically marked as "bad". If this error is frequent, format the HDD.
47xx	Controller ASIC error.	Replace the controller.



6.3 LED DISPLAY

6.3.1 LOCATION

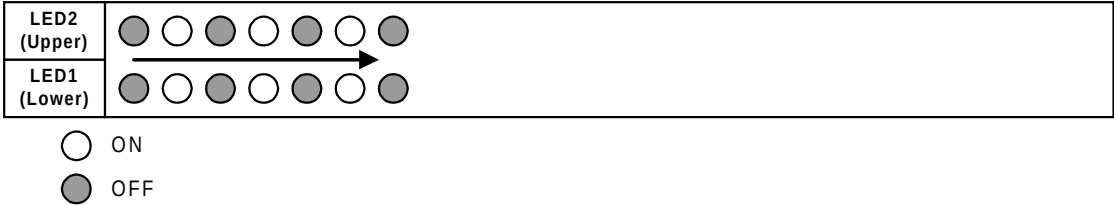
The controller uses two LEDs to display error status even while the LCD message is not active.



6.3.2 FATAL ERROR

If the controller detected a fatal error during the power-on self-test, it uses two LEDs to notify the cause of the error.
If one of the following fatal errors happens, the LED status changes as shown (read from the left of the diagram to the right).

Flash ROM Error



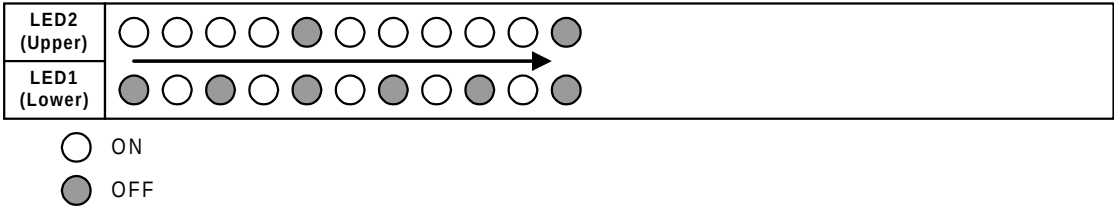
Turn off the machine and turn it back on. If the controller detects the same error, download new firmware from a IC card (refer to section 4.5.3). If the problem still remains, replace the controller.

SDRAM Error



Turn off the machine and turn it back on. If the controller detects the same error, replace the controller.

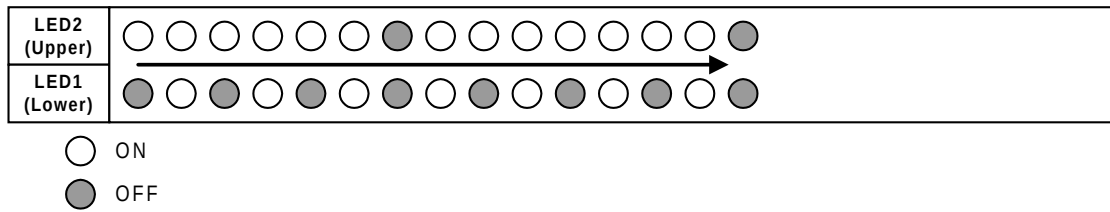
CPU Error



Turn off the machine and turn it back on. If the controller detects the same error, replace the controller.

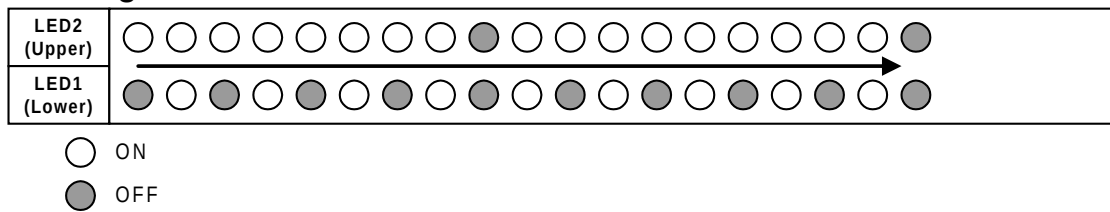
LED DISPLAY

ASIC Error



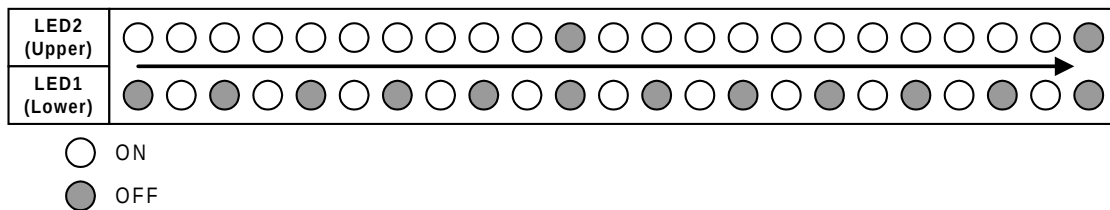
Turn off the machine and turn it back on. If the controller detects the same error, replace the controller.

Other Diagnostic Error



Turn off the machine, check the connection to the optional components, and turn on the machine. If the controller detects the same error, replace the controller or optional HDD/NIB.

APIP Error



Turn off the machine, check the connection to the BiCU, then turn on the machine. If the controller detects the same error, replace the motherboard, controller, or BiCU.

6.4 ROM HISTORY

6.4.1 ROM HISTORY – B305

	Description of Modification	Firmware Level	Serial Number	Firmware Version
⇒	Initial Production	B3055280 A	1st Prod.	NA
	Corrections: • The user cannot initiate energy saver mode while in the middle of a print job. • The language displayed is incorrect if any language other than English has been set. • A software error occasionally occurs when the Enter and Escape keys from the main printer menu display are pushed simultaneously. • After the detection of a paper size mismatch, the error LED turns off if the selected tray is opened and closed. • If there is no paper remaining in the (selected) bypass tray when beginning a print job, the correct paper size is not displayed. • When the correct paper is not available to be fed during a collating job, the corresponding display does not appear on the screen. • Following an R-Jam, the number of copy sets printed out is incorrect. • With PCL5e, three pages of a document are printed out on one page (images overlapping). • Default display for backup mode is changed from "Compressing" to "Processing". • When the tray selected through "tray lock" runs out of paper, the machine begins feeding paper from another tray without prompting the user. The pages are then printed out. • Contrary to specifications, it is possible to set a customized paper size when using the proof print function. • When errors occur with the printer unit, SC error messages are not displayed. • If the Interrupt button is pressed during a print job, the job does not continue after attempting to resume printing • In sort mode, if an error occurs because the paper being used does not fulfill the conditions of sort mode (e.g. paper from the bypass tray, thick paper mode), the entire job is printed out when the job is resumed, including pages that have already been printed out. • Following the installation of the hard drive, even if the printer is selected in function priority, copy jobs receive first priority. Continued...	B3055280 B	Oct. 1999 Prod.	1.2.0

Description of Modification	Firmware Level	Serial Number	Firmware Version
(Continued from previous page) - When an error occurs during a sort job, the corresponding SC number is not displayed. - With a job using various paper sizes, after the machine detects a paper mismatch and displays the corresponding message, it is not possible to continue the job. - If a second printing job is selected while the first job is being printed out (and the first job is then canceled), the second job is printed out prematurely while "ready" is being displayed. - When a paper mismatch is detected with a job using various paper sizes, the alarm LED does not shut off. - On the config. page, a value is displayed for the size of the paper inside a tray that has been removed from the machine. - Although not always, there are cases where data cannot be received when using AXIS. - During a sort job, the proper message indicating the absence of paper is not displayed the second time the tray runs out of paper (i.e. after the job has been reset once). - Incorrect display of "Wingdings" font.	B3055280 B	Oct. 1999 Prod.	1.2.0
Corrections: - The printer controller can now determine if it is installed in a A250 or B001. - If a Postscript driver job is cancelled midway through the job, the image for the next job was not printed out correctly. "Waiting..." was displayed when an error occurred but the machine does not return to normal operating mode (Ready Status). The next job was not printed out. - If two separate jobs of text less than 256 bytes were sent from the network, the two jobs were printed out simultaneously on the same page. - It was possible to print out the HDD Directory List when there was no HDD or PS option installed.	B3055280 C See Note 1	Nov. 1999 Prod.	1.2.7 See Note 2
Corrections: - Firmware modified so that it can be used with printer controllers for China and Taiwan. - Firmware modified so that it will be compatible with new HDD to be used in the printer controller. NOTE: New HDD is identical in function to previous one.	B3055280 D	Jan.2000 Prod.	1.2.9

NOTE 1: This can be viewed at SP Mode 7-801-4.

NOTE 2: This can be viewed on the Printer Configuration page.

Description of Modification	Firmware Level	Serial Number	Firmware Version
- Even when the PjL command is released instructing the machine to exit the paper to tray 2 (1-bin tray), the paper is not output from this tray. - With Overlay printing, the text outside the fixed overlay pattern is printed out as PCL commands (specifically, the ESC sequence). - The paper is not fed from Tray 2, even when the PjL command is released instructing the machine to do so.	B3055280 E	March 2000 Production	1.3.4
- Error message not displayed when an error occurred during collate mode printing. - This new revision disabled the NIB Read/Write Function.	B3055280 F	April 2000 Production	1.3.6
- The printed area was shifted slightly, when "Unit of Measure" was defined using the macro command. - The right edge of the printable area for the raster image may not print. - The right edge for the error Log of the Configuration Page criss-crossed each other in Italian and Spanish. - The title of "Printer Name (NetWare)" on the Configuration Page was changed to "Printer Name".	B3055280 G	Sept. 2000 Production	1.4.0
- Part of the image is missing for the first two pages when printing out with the Unico2000 CAD application. - When printing out with the Microsoft Mini Driver for Windows NT Terminal Server, the image created is sometimes out of specification. - When printing out a file made with certain CAD applications for DOS without using a printer driver, thick lines on the original image appear thin on the output. ** To activate this correction, it is necessary to set Bit SW3, bit 3 to 1 (0=disabled, 1=Enabled). - Firmware modified to meet the functional specifications of the Tray Priority function. - The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to 1 (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to 1 (DAZEL support function disabled). The correction will not be effective if both of these switches are enabled. - Firmware modified so that the controller can connect to and be used with the DAZEL* System. However, the A265/A267 is not yet officially certified by DAZEL Corp. When you enable this function, it is necessary to do the following:	B3055280 H	Nov. 2000 Production	1.4.4

Continued

Description of Modification	Firmware Level	Serial Number	Firmware Version
-Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to 1 (0=Enabled, 1=Disabled).			
• When printing from a certain DOS application, the right part of the internal print pattern is missing. • When using a certain DOS (CAD) application, the paper size and/or paper feed direction are not sent to the controller, and the machine uses the defaults • When printing out with a certain macro, the frame and lower area of the image are missing. • When using the Dazel system, the job cannot be reset after the paper feed tray reaches paper end.	B3055280 J	Dec. 2000 Production	1.4.8
• After an A4 LEF print job is completed and the ON Line key is pressed, it takes a relatively long time to enter OFF Line mode. • The controller stalls when the test document (A4 LEF) for Corel Draw 9 is printed.	B3055280 K	Feb. 2001 Production	1.4.9
⇒ • For Dazel: When a stack job has been cancelled, a mismatch occurs between the actual number of pages printed out and the number reported to the server. • OCR font does not download into the HDD. • With the PS driver, the printer does not print out jobs when the Separator function has been selected. • Configuration Sheet does not print out. • When a job has been sent with the PS driver but the tray has not been specified (w/manual selection), the machine does not inform the Aficio Manager of this error. • When using the PS driver for a collated print job (bypass feed), only the 1st set is printed out. • Buffer size error occurs during data communication over IEEE1284 ECP.	B3055280 L	Sept. 2001 Production	1.5.4



Description of Modification	Firmware Level	Serial Number	Firmware Version
Machine does not print a job sent with a PS driver when the specified paper size is not loaded in the tray and Tray Priority has been disabled.	B3055280 M	Dec. 2001 Production	1.5.6
- Minor bug with Rotate Sort. - Following paper end during a Sort print job, using the Forced Print function will print out the entire job from the beginning instead of just 1 set (specification). - Software modified so that it is possible to perform jobs containing a mixture of PCL and PS commands when printing directly from a host application. - Added Euro Symbol Sets PC858, Latin 9, and Roman 9. - Added Euro currency codes to existing symbol sets MC Text and PS Math. - Changed symbol sets Win3.1 Latin1 8E, 9E, and Win 3.1 Baltic FF so that they appear on outputs the same as with HP printers.	B3055280 N	May 2002 Production	1.5.7

NETWORK INTERFACE BOARD B307

1. OVERALL MACHINE INFORMATION

1.1 SPECIFICATIONS

Type	Internal network interface board
Network Topology	Ethernet 100BaseTX/10BaseT
Network Interface	RJ45 x 1
Cable	STP (Shielded Twisted-Pair) cable, category/type 5 or better Note: A cable is not enclosed with this option.
Protocol	TCP/IP, IPX/SPX, NetBEUI, AppleTalk
Ethernet Frame Types	Ethernet II, IEEE802.3, IEEE802.2, Ethernet_SNAP
SNMP support	IP and IPX SNMP support of MIB-II
Supported NOS	- NetWare 3.x, 4.x, (5.0), Intranetware - Windows NT4.0 - Windows 95/98 - Mac OS 7.1 or later
Other	- Built-in web server - Built-in Telnet server - Built-in LPD daemon - Firmware update over IP network

1.2 SOFTWARE ACCESSORIES

Utility software is provided in the Drivers and Utilities CD-ROM that comes with the base printer.

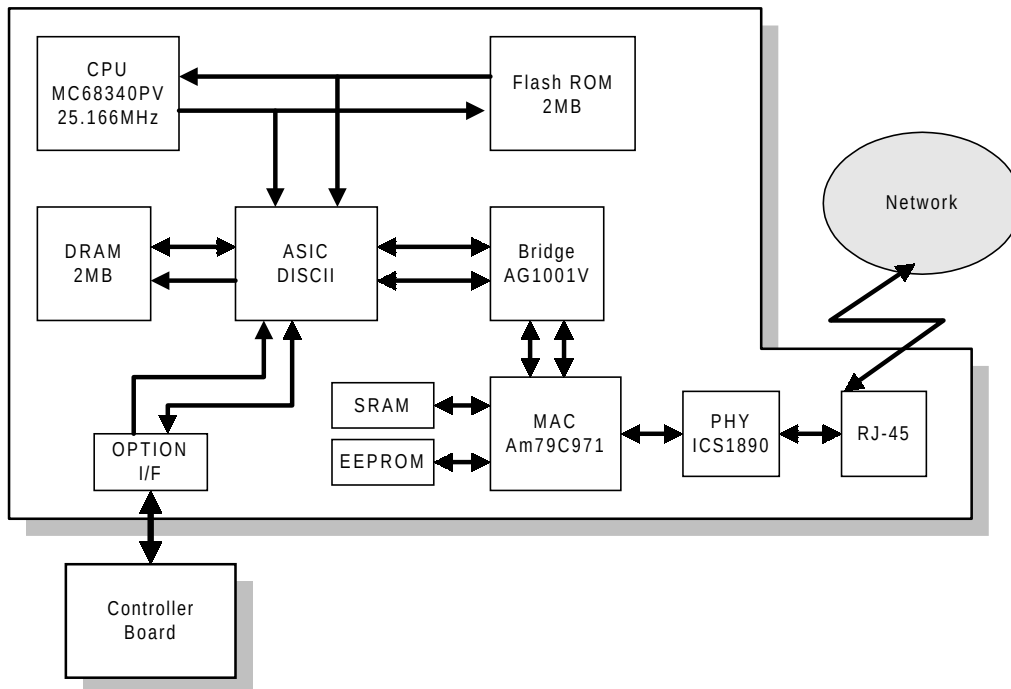
1.2.1 UTILITY SOFTWARE

Software	Description
Aficio Manager for Admin (Win 95/98, NT4)	Printer management software for network administrators. NIB setup utilities are also available.
Aficio Manager for Client (Win95/98, NT4)	Printer management software for client users.
Multi-Direct Print (Win95/98, NT4)	A peer-to-peer print utility for NetBEUI or TCP/IP.

1.2.2 SERVICE TOOLS

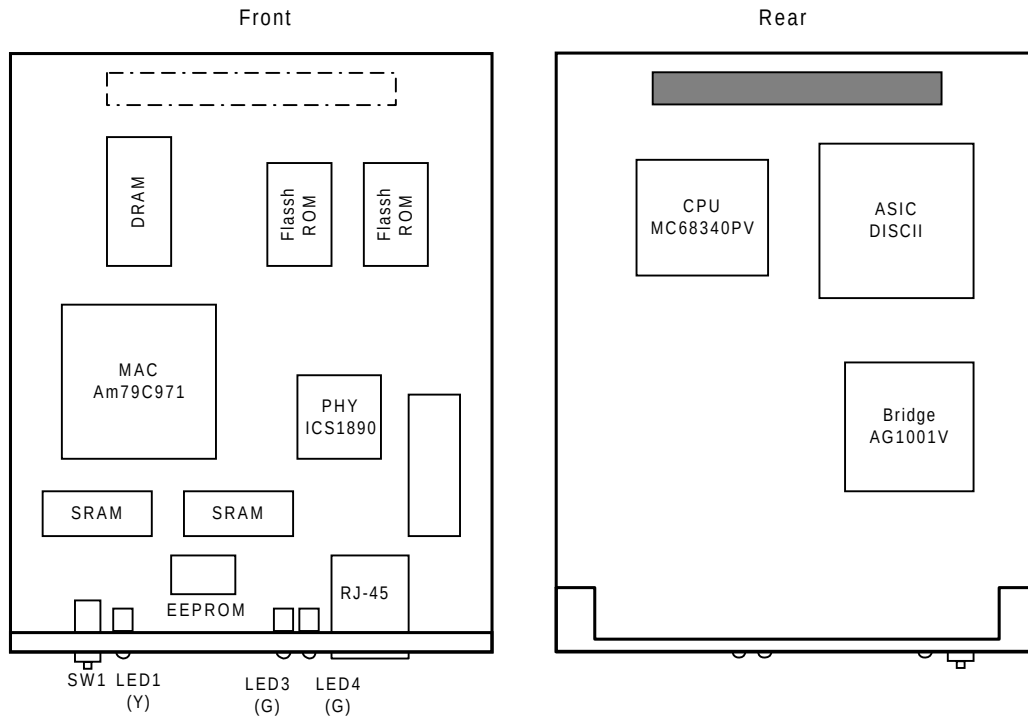
Software	Description
NBTFTP	An NIB firmware update utility for use on a NetBEUI network. This utility is not on the Driver and Utilities CD-ROM; it is issued separately as a service tool.

1.3 BLOCK DIAGRAM



- The Flash ROM contains NIB firmware. The firmware can be upgraded over the network or from an IC card connected to the controller.
- The EEPROM holds all the NIB settings. Before replacing the NIB, the EEPROM data can be backed up in the controller memory, and restored to the new NIB after replacement.

1.4 COMPONENT LAYOUT



- Three LEDs show the status information.
- The push switch (SW1) is used to print reports.

2. INSTALLATION

2.1 HARDWARE INSTALLATION

Refer to the base engine or printer controller installation instructions for how to install the network interface board.

The machine does not print a NIB status sheet automatically. Print the NIB status sheet by pressing the push switch (SW1) on the NIB after installation.

2.2 UTILITY SOFTWARE SETUP

One of the following utilities is required to monitor and set up the NIB. The utilities are on the Drivers and Utilities CD-ROM that comes with the base machine or controller.

2.2.1 PRINTER MANAGER FOR ADMIN

Printer Manager for Admin comes with NIB Setup Tool.

1. Install Printer Manager for Admin from the CD-ROM. (Use Custom Setup when installing the software from the Autorun installation program.)
2. Start the NIB Setup Tool from the menu.

NOTE: Do not use the MAP utility for this type of NIB.

2.2.2 WEB STATUS MONITOR

The built-in web server provides an interface to monitor and manage the NIB from a remote host.

1. Assign an IP address to the NIB.
2. Access "http:// <IP address of the NIB> /" from a web browser.

NOTE: 1) Use Printer User Tools at the machine's operation panel to assign an IP address.
2) Help for the Web Status Monitor is on the Drivers and Utilities CD-ROM. After you can access the NIB web server, set up the "Help URL" parameter in the [Network Config.] – [General] page as follows:

<CD-ROM drive letter>:\HELP\WSHELP\EN\index.htm

2.3 SETTING UP THE NIB FOR VARIOUS NETWORKS

This section gives a summary of how to set up the NIB in various network environments.

NOTE: It is not recommended for service technicians to program network and protocol parameters. Ask the customer's network administrator to program and manage these parameters.

2.3.1 NETWARE NETWORKS

The following parameters are required for NetWare networks.

Parameter	Novell 2.x/3.x/4.x/ (5.0) Bindery Network	Novell 4.x / (5.0) NDS Network
Protocol (Default = Enabled)	Yes	Yes
Operation Mode (Default = Print Server)	Yes (Print Server or Remote Printer)	Yes (Print Server or Remote Printer)
Remote Printer No. (Default = 0)	Yes (Note 1)	Yes (Note 1)
Print Server Name	Yes (Note 2)	Yes (Note 2)
Print Server Password	Cannot be programmed	Cannot be programmed
File Server Name	Yes	No
NDS Context Name	No	Yes
Preferred NDS Tree	No	Yes (Note 3)
Print Queue Scan Rate	Cannot be programmed	Cannot be programmed
Frame Type (Default = Auto-Select)	Yes	Yes
Job Timeout (Default = 15 s)	Yes	Yes
Disable Bindery	Cannot be programmed	Cannot be programmed

NOTE: 1) 'Remote printer number' is necessary only when the "Operation Mode" is "Remote Printer".

2) 'Print server name' is necessary only when the "Operation Mode" is "Print Server". The default name is "RNPxxxxxx" (xxxxxx is the lower 6 digits of the MAC address).

3) The preferred NDS context must be typed in without a starting dot (.).

- OU=Development.O=Corp [OK]
- .OU=Development.O=Corp [NG]
- Development.Corp [OK]
- .Development.Corp [NG]

4) The following utilities can be used to change the settings.

- Printer Manager for Admin
- Web Status Monitor
- (Telnet)

2.3.2 TCP/IP NETWORKS

The following parameters are available for TCP/IP network printing.

Parameter	Description
Protocol (Default = Enabled)	Disable this if TCP/IP is not used.
IP Address (Default = 11.22.33.44)	IP address of the NIB (required)
Subnet Mask (Default = 0.0.0.0)	Subnet mask for the subnet (required)
Default Gateway (Default = 0.0.0.0)	Default gateway of the subnet. This is required when the NIB is accessed from a host in a different subnet.
Access Control Address Access Control Mask	These two parameters are used to allow access to the NIB only to the hosts in the specified subnet. For example, if the Access Control Address is set to "128.1.2.3", access to the NIB is restricted as follows: • When Access Control Mask is "255.0.0.0", hosts in the 128.0.0.0 subnet can access the NIB. • When Access Control Mask is "255.255.0.0", hosts in the 128.1.0.0 subnet can access the NIB. • When Access Control Mask is "255.255.255.0", hosts in the 128.1.2.0 subnet can access the NIB. • When Access Control Mask is "255.255.255.255", only the host that has the IP address 128.1.2.3 can access the NIB.
Network Boot	Use "NONE" when an IP address is specified manually (default), or use "DHCP" if the NIB receives an IP address from a DHCP server. All the other settings may not be used, unless the NIB is installed in, for example, a UNIX network. • RARP + TFTP • BOOTP • RARP + BOOTP • ARP + PING • ARP & RARP • ARP & BOOTP • ARP & RARP & BOOTP
Frame Type	Ethernet II is always used.

Possible Problems with DHCP Parameter Settings

1. IP address conflicts with an another host

If the IP address conflicts with an another host, the NIB does not show any errors. However, the NIB cannot receive any print jobs, because the IP protocol is disabled automatically at startup.

In this case, the other host in conflict with the NIB must have a manually assigned IP address. Find the host using the **PING** and **ARP** commands for example, and assign a suitable address.

2. IP address changes after restarting the machine

The DHCP server may lease a different IP address to the NIB if available IP addresses become in short supply. As a result, the NIB cannot receive any print jobs, because the jobs are sent to the previously assigned IP address.

To solve this problem, reserve an IP address at the DHCP server by allocating an address to the NIB's Ethernet (MAC) Address.

2.3.3 NETBEUI NETWORKS

The following parameters are available for NetBEUI network printing.

In a Microsoft Windows network, the NIB appears like a computer host with a printer connected.

Parameter	Description
Protocol (Default = Enabled)	Disable this if NetBEUI is not used.
Workgroup Name (Default = WORKGROUP)	The name of the workgroup to which the NIB belongs in the Microsoft Windows network.
Computer Name	This appears in, for example, the Network Neighborhood" window to which the printer is connected.
Comment	Comment for the host.
Share Name	The Plug&Play name specified with SP5-907 appears here. This cannot be changed with the utility software.
Notify Print Completion (Default = Disabled)	Enable this if notification is needed after printing (the controller notifies the NIB, then the NIB notifies the client PC).

2.3.4 APPLETALK (ETHERTALK) NETWORKS

The following parameters are available for AppleTalk network printing.

Parameter	Description
Protocol (Default = Enabled)	Disable this if AppleTalk is not used.
Network No.	The network number of the AppleTalk network to which the NIB is connected is displayed.
Printer Name	The Plug&Play name specified with SP5-907 appears here. This can be changed using the Apple Printer Utility.
Printer Type	"LaserWriter" is always displayed.
AppleTalk Zone	The default AppleTalk zone name of the network is displayed. This can be changed by sending the ZoneName PS file to the NIB.

3. SERVICE TABLES AND PROCEDURES

3.1 PRINTING REPORTS

3.1.1 NIB STATUS SHEET

The NIB status sheet has all the current settings for the NIB parameters, as well as the firmware version information.

1. Turn on the machine.
2. Hold down the push switch (SW1) on the NIB for 2 seconds. The NIB status sheet is printed.

3.1.2 NIB LOG LIST

The NIB log list has all the system log information.

1. Turn on the machine.
2. Hold down the push switch (SW1) on the NIB for 5 seconds. The NIB log sheet is printed.

3.2 NVRAM RESET

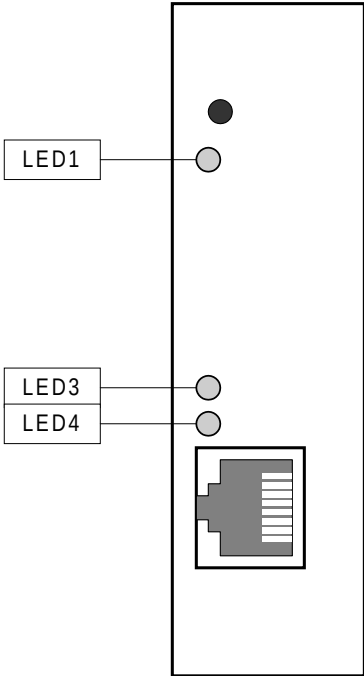
The NIB NVRAM can be reset to the factory defaults using the printer controller's SP modes, or using the following procedure. Refer to the controller service manual for how to use the printer SP mode.

This resets NVRAM (EEPROM) to the factory defaults. All the NIB parameters are initialized to the default settings.

1. Hold down the push switch (SW1) on the NIB while turning on the machine, and keep holding down the switch for 15 seconds.
2. Release the switch for 3 seconds, press it for 3 seconds, and then release it.
3. Turn the main switch off/on to reset the NVRAM.
NOTE: There is a margin of less than 1 second for error. Use a watch to measure the time periods as accurately as possible.
4. Print out the configuration page, and then check the settings. If the procedure failed, the previous settings remain. Repeat the above procedure until the old settings have been cleared.

4. TROUBLESHOOTING

4.1 LED INDICATIONS



LED	Description	On	Off
LED1	Operating status	Ready	Not ready
LED2	Not used		
LED3	Topology	100BaseTX	10BaseT
LED4	Link status	Link success	Link failure

4.2 FIRMWARE HISTORY

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Initial Production Release	G6785839B	Initial Production	3.7.5
Corrects the following: - On the web status monitor, the improper icon was used for "Paper Empty". - If the NIB received 5 simultaneous print jobs, additional print jobs would be lost.	G6785839C	February '99 Production	3.7.7
Corrects the following: The firmware was modified to support A250/B001.	G6785839D	March '99 Production	3.8.6
Corrects the following: - One banner data page of NetWare was split into two pages when using NetWare 3.12 pserver mode. - In NetWare remote printer mode, the NIB consumed a server connection license. To avoid this, the firmware has been modified to disconnect the NCP connection immediately after the remote printer has connected to the server.	G6785839E	April '99 Production	3.8.7
Corrects the following: - On the web status monitor, the wording in German was incorrect. "FreierSpeicher" corrected to "Freier Speicher". - The Web status monitor displays "No Tray/No Paper" error when a tray is not closed completely. The message has been changed to "Other Error". - Disabling (Down) or enabling (Up) AppleTalk protocol from the operation panel sometimes did not take effect after the change. To avoid this, the firmware has been changed to save a new setting to the NVRAM immediately after a change.	G6785839F	June '99 Production	3.8.8
Corrects the following: - When a printer error occurs, the printer information cannot be accessed using Macintosh printer utilities such as Apple Printer Utility. - IPP (Internet Print Protocol) function has been added.	G6785839G	July '99 Production	3.9.2

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The wording "Config Reference" has been changed to "Riferim. Config" for the Italian version of Web status. • The wording "Default Gateway Address" has been changed to "Direcci. Gateway" for the Spanish version of Web status. • A type of Cisco router caused a problem in browsing the NIB in an AppleTalk network. The cause of this was in the Cisco router but the NIB firmware has been modified to correct this.	G6785839H	October '99 Production	3.9.8
Corrects the following: • PCL text filter support has been added. • "RICOH" brand name has been deleted from several functions and reports.	G6785839J	November '99 Production	4.0.0
Corrects the following: • HTTP access has been improved when multiple protocols are used at the same time (e.g. telnet, IPP and HTTP).	G6785839K	April '00 Production	4.0.2
Corrects the following: • Bi-directional communication of "diprint" (using 9100 port of TCP/IP printing) is supported (required for DAZEL system). • The "diprint direct [On/Off]" command using telnet has been implemented for supporting bi-directional communication of diprint (required for DAZEL system). PortNavi and Multidirect Print are not supported if bi-directional communication has been selected. • The spelling of the command "retern" in the UNIX install shell has been corrected to "return". • The DHCP of NetWare5 is supported. • The DHCP relay agent is supported. (This has been confirmed only with Windows NT 4.0 relay agent at this time.) • There may be some minor (character) display errors on the LCD while the NIB firmware is being upgraded. The firmware has been modified to prevent this.	G6785839L	October '00	4.0.6
Corrects the following: • Classless InterDomain Routing (CIDR) is supported. • DHCP of Solaris 2.6 is supported.	G6785839M	February '01	4.0.7



B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
⇒ Corrects the following: Can not connect to NetWare Servers when the servers use NCP Packet Signature Level 2.	G6785839N	August '01 Production	4.0.8
Corrects the following: SNMP security vulnerabilities reported by CERT on Feb.12, 2002 has been tested using the PROTON c06-snmpv1 test suite and we have verified the fixes. -CERT :http://www.cert.org/advisories/CA-2002-03.html -PROTON c06-snmpv1 test Suite :http://www.ee.oulu.fi/research/ouspg/proton/testing/c06/snmpv1/	G6785839P	July '02 Production	4.1.0

B001
SERVICE MANUAL

1. OVERALL MACHINE INFORMATION

1-1. SPECIFICATIONS

NOTE: Only items marked * are different from the A250, base copier.

*Power Source: 120 V, 60Hz
More than 10 A (for North America/Latin America/Canada)
220 ~ 240 V, 50/60 Hz
More than 6 A (for Europe/Hong Kong/Latin America)

*Noise Emission (Sound Power Level):

Stand-by (Mainframe only): 29 dB(A)
Operating (Mainframe only): 59 dB(A)
Operating (Full System): 63 dB(A)
Off Mode: 29 dB(A)

NOTE: 1) The above measurements were made in accordance with ISO 7779.
2) Full System: Mainframe + ADF

*Coping Speed in Multicopy mode (copies/minute)

	A4 sideways/ 11" x 8 1/2"	A3	11" x 17"	B4/8 1/2" x 14"
Non-memory copy mode	15	10	10	11
Memory copy mode	15	11	10	12

NOTE: 1) Measurement Conditions
Not APS mode
Full size

*Copy Paper Capacity: Paper Tray:
250 sheets
By-pass Tray:
100 sheets (A4, B5, A5, B6, 8 1/2" x 11",
5 1/2" x 8 1/2")
10 sheets (A3, B4, 11" x 17", 8 1/2" x 13")
1 sheets (non-standard sizes)

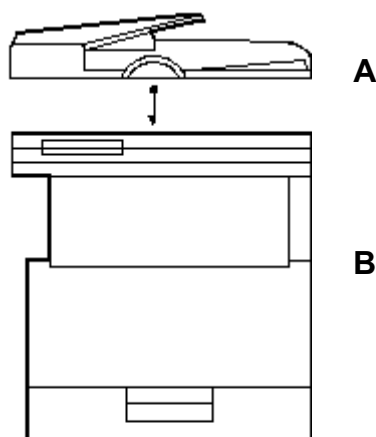
NOTE: Copy weight: 80g/m² (20 lb).

Optional Equipment:

- 1 Platen cover
- 1 Auto document feeder
- 1 Tray heater
- 1 Optics anti-condensation heater
- 1 Drum heater
- 1 Copier feature expander (48 MB memory)

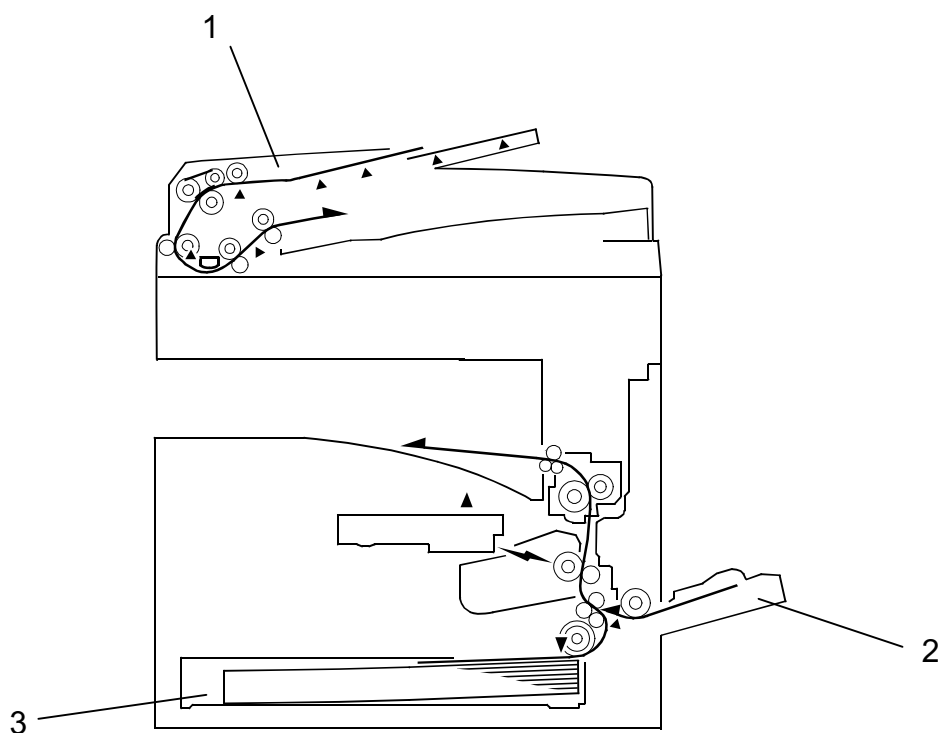
Copy Capacity: Copy Tray: 250 sheets

*1-2. MACHINE CONFIGURATION



Version	Item	Machine Code	No.
Copier	Copier	B001	B
	ADF (Optional)	A859	A
	Platen Cover (Optional)	A893	
	Memory 48 MB (Optional)	A887	
Printer	Printer Controller (Optional)	B305	
	PS Option (Optional)	B308	
	HDD (Optional)	G690	
	NIB (Optional)	B307	
	Memory 32 or 64 MB (Optional)	G688	

*1-3. PAPER PATH



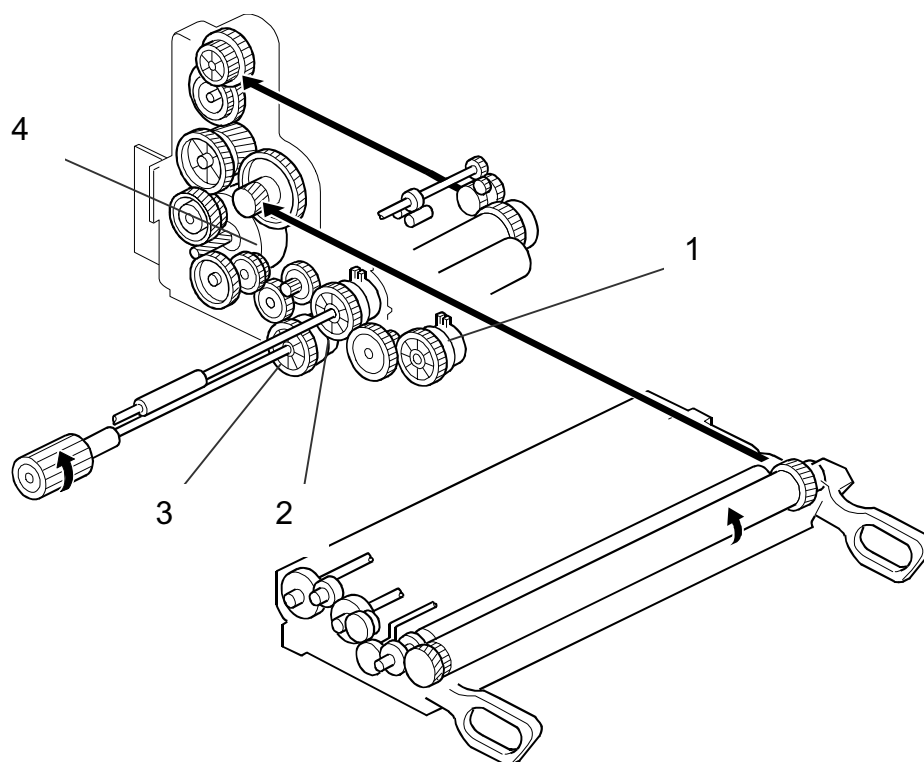
- 1. Optional ADF
- 2. By-pass feed tray
- 3. Paper tray

1-4. ELECTRICAL COMPONENT DESCRIPTIONS

The following items are not included in this machine.

Symbol	Name	Function	Index No.
MC4	Registration	Drives the registration rollers	13
SW4	Vertical Transport Cover Switch	Detects if the front door is open or not, and cuts the +24 V DC power line for the vertical transport clutch.	25
S10	Vertical Transport	Detects misfeeds.	22
PCB10	FCU (Option)	Controls all fax communications and fax features, in cooperation with the BICU.	43
PCB11	NCU (Option)	Switches the analog line between the fax unit and the external telephone.	47
LED1	Exit Tray	Indicates if there is paper on the exit tray.	32
LED2	1-bin Sorter	Indicates if there is paper on the 1-bin sorter. 1-bin sorter is option.	34
SP1	Speaker	Turns on during fax communication.	41

1-5. DRIVE LAYOUT



- 1. By-pass feed clutch
- 2. Registration clutch
- 3. Paper feed clutch
- 4. Main motor

1-6. BOARD STRUCTURE

1-6-1. OVERVIEW

This machine does not have optional fax controller.

2. DETAILED DESCRIPTIONS

2-1. MISFEED DETECTION

The following checks are not included in this machine.

- └ **Vertical transport sensor ON check**
- └ **Vertical transport sensor OFF check**
- └ **Vertical transport sensor (Optional PFU) ON check**
- └ **Vertical transport sensor (Optional PFU) OFF check**
- └ **1 bin tray exit sensor ON check**
- └ **1 bin tray exit sensor OFF check**

3. SERVICE TABLES

3-1. SERVICE PROGRAM MODE TABLES

The following modes are not included in this machine.

Mode No.			Mode No.		
Class 1 and 2	Class 3		Class 1 and 2	Class 3	
1-002	2	Side-to-Side Regist. (2nd Paper Feed)	5-930		Fax Forwarding Mode
	3	Side-to-Side Regist. (3rd Paper Feed)	7-003	3	Total Print Counter (Fax)
1-003	2	Paper Feed Timing (2nd Paper Feed)	7-204	2	Copy Counter – Paper Tray (2nd)
	3	Paper Feed Timing (3rd Paper Feed)		3	Copy Counter – Paper Tray (3rd)
1-908	1 ~ 18	Paper Tray Adj.	7-504	4	Total Jams by Location (R Jam)
1-909		Tray Motor Reverse Time		5	Total Jams by Location (Y Jam)
5-103		Auto Paper Tray Shift		7	Total Jams by Location (2nd)
5-401	2	User Code Mode (Fax)		8	Total Jams by Location (3rd)

3-2. INPUT CHECK TABLE

The following checks are not included in this machine.

Number	Description	Number	Description
4	Vertical transport cover switch	44	Lower paper size switch (Optional paper tray unit)
5	Tray cover switch (Optional paper tray unit)	45	Upper paper height sensor (Optional paper tray unit)
7	Bin tray open switch (Optional 1-bin sorter)	46	Lower paper height sensor (Optional paper tray unit)
17	Vertical transport sensor	47	Upper lift sensor (Optional paper tray unit)
18	Vertical transport sensor (Optional paper tray unit)	48	Lower lift sensor (Optional paper tray unit)
21	Exit sensor (Optional 1-bin sorter)	49	Paper sensor (Optional 1-bin sorter)
41	Upper paper end sensor (Optional paper tray unit)	55	Paper tray unit set sensor (Optional paper tray unit)

Number	Description	Number	Description
42	Lower paper end sensor (Optional paper tray unit)	57	1-bin sorter installed
43	Upper paper size switch (Optional paper tray unit)	73	Tray motor lock (Optional paper tray unit)

3-3. OUTPUT CHECK TABLE

The following checks are not included in this machine.

Number	Description	Number	Description
21	Vertical transport clutch	30	Lower lift motor (Up) (Optional paper tray unit)
22	Relay clutch (Optional paper tray unit)	31	Upper lift motor (Down) (Optional paper tray unit)
26	Upper paper feed clutch (Optional paper tray unit)	32	Lower lift motor (Down) (Optional paper tray unit)
27	Lower paper feed clutch (Optional paper tray unit)	49	Exit tray LED
28	Tray motor (Optional paper tray unit)	50	1-bin tray LED
29	Upper lift motor (Up) (Optional paper tray unit)	54	Junction gate solenoid (Optional 1-bin sorter)

3-4. USER TOOLS

The following settings are not included in this machine.

System Setting

- 12. Pap. Tray Priority
- 13. Auto Tray Switch
- 14. Output Tray Prio.

Copy Setting

- 4. R.Srt.Aut Pap.
- 5. Sort

4. TROUBLESHOOTING

4-1. SC CODE DESCRIPTIONS

The following SC codes are not included in this machine.

SC502: 2nd Tray Lift Malfunction

SC503: 3rd Tray Lift Malfunction

SC506: Paper Tray Motor Lock

SC691: Communication Error between BICU and Fax Controller Unit

5. ROM HISTORY

5-1. FIRMWARE MODIFICATION HISTORY



Description (P/N B00 5532)	Version	Production
Initial Production	1.01 B	1st Production
Corrects the following: A German text character was incorrectly being displayed in the User Tools Menu.	1.03 C	Dec. 99 Production
Corrects the following: - The detection conditions for SC546 have been changed as follows: Old - Detection during warm-up, standby and Energy Saver mode. - After the Fusing Lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5 second detection intervals. New - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10 second detection intervals. - It was necessary to enter SP Mode to clear SC547. It is now possible to clear the code by turning the main power switch off then on.	1.04 D	May '00 Production
Corrects the following: - The detection conditions for SC546 have been changed as follows: - After the Fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10 second detection intervals. - The fusing temperature does not reach 74°C within 22 seconds of the start of main power warm-up or recovery from Energy Saver / low Power Mode. - The machine did not clear Timer Condition 2 when the Fusing lamp was heated up to 100%.	1.05 E	May '00 Production

B308
POSTSCRIPT KIT TYPE 185
SERVICE MANUAL

B308 SERVICE MANUAL

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1. ROM HISTORY

1.1 FIRMWARE MODIFICATION HISTORY

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: The printer controller can now detect whether it is installed in a A250 or B001	B3085280 A	Initial Production	1.0.0
Corrects the following: The PostScript Option firmware has been modified so that it can also be used with the A265/A267.	B3085280 B	October '99 Production	1.2.0
Corrects the following: The PostScript Option firmware was modified so that it can also be used with the B001.	B3085280 C	October '99 Production	1.2.1
Corrects the following: The product names of the B001 PostScript drivers for NRG, Savin and Infotec should be corrected as follows: Incorrect Correct NRG D415s/2815s NRG D415s/2815S /3215s PS3 /3215 PS3 SAVIN 9915DP PS3 SAVIN 2015DP PS3 Infotec PS3 Infotec 4150 MF PS3	B3085280 D	January '00 Production	1.2.2
⇒ Corrects the following: Firmware modified so that the controller can connect to and be used with the DAZEL System. However, the A265/A267 is not yet officially certified by DAZEL Corp. When you enable this function, it is necessary to do the following: -Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to <u>1</u> (0=Enabled, 1=Disabled).	B3085280 E	November '00 Production	1.2.4
			...Continued

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Continued... The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to <u>1</u> (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to <u>1</u> (DAZEL* support function disabled). The correction will not be effective if both of these switches are enabled.			
Corrects the following: - During RAM collate printing, the job cannot be cancelled. - When the job is cancelled, the output paper count is sent to the printer controller (a side-effect of the previous modification made for DAZEL connection). ⇒	B3085280 F	January '01 Production	1.2.6
Corrects the following: - If the machine does not contain the driver paper size when printing the 1st set of a Collate job, and Job Reset is then performed, the "Resetting Job..." display does not clear. - Software modified to ignore a "DD" tag on print data, preventing an undefined error and allowing the job to go through.	B3085280 G	December '01 Production	1.2.7
Corrects the following: Software modified so that it is possible to perform jobs containing a mixture of PCL and PS commands when printing directly from a host application.	B3085280 H	May '02 Production	1.2.8

TECHNICAL SERVICE BULLETINS

BULLETIN NUMBER: A250 - 001

09/21/99

APPLICABLE MODEL:

GESTETNER – 3218

RICOH – AFICIO 180

SAVIN – 9918DP

SUBJECT: LOW IMAGE DENSITY**BACKGROUND:**

The A250 represents one of the latest shifts in technology for Ricoh family products. An extensive market investigation of print requirements was performed during the design phase of the A250. Market research defined a need for an economical copier product that had increased gray scale and graphic capability due to the market's movement toward documentation with increased usage of photographs, charts, clips, etc. The result was the A250. The A250 is based on a printer engine technology, with certain unique print characteristics. The A250 image output has been created to maximize the overall appearance of the document. The A250 processes the image differently from past analog copiers, (as explained in the technical portion of this document) and produces an image with modified features.

Since the A250 has certain unique output appearances and characteristics, it is important that Service Technicians are educated on and made aware of the differences of the A250 so that they can properly evaluate the output of the A250. The Service Technician should not expect or compare the output of an analog product with the A250, using typical comparisons and black fill characteristics. The A250 uses different parameters in image capture from analog copiers. It is important that the design criteria are kept in mind when comparing the A250 output with that of analog products. The current test charts may not adequately demonstrate the print quality features and benefits of the A250. The Technical Support Division is currently investigating the possibility of creating a new test chart that highlights the improved characteristics of the Digital Products.

Unfortunately, the A250 has been released without enough emphasis or explanation to the Service Technician of the differences in the copy appearance. The result has been numerous concerns on the part of Service Technicians at the time of installation. This bulletin has been created to address those concerns, provide a better understanding of the A250 output and to correct misconceptions of the A250 output and to further educate the Service Technician on the A250.

SYMPTOM:

1. The image density is relatively low when a sky-shot copy is made in default, Auto Exposure mode.
2. The overall image density is initially low.

DETAILED DESCRIPTIONS:

1. The Auto Exposure mode of the A250 is aimed at producing copies "true to the original". The machine will attempt to not only reproduce the image on the original, but also any dust or other particles present on the platen glass. In order to produce a copy true to the original, the background value used for the copy is derived from the scanned 'white data' (or whitest area on the original). With a sky-shot copy, the machine views any dust or particles on the contact glass as this white data (i.e. whitest areas). The value obtained from scanning these small white areas is selected as the background density level and the black areas on the image are then output accordingly. Therefore, with sky-shot copies, the image density of the main black area may appear lighter than expected and white spots may be very visible (as the machine has set this

Continued...

Note: This copy is intended as a master original
for reproduction of additional bulletins.



COPY QUALITY

white data value as the background). Further, when making copies from an original, the machine will also attempt to reproduce any small, white spots present inside the black areas.

For the purpose of confirming the image quality of black areas, please do not use the sky-shot copy. However, if producing a sky shot becomes necessary, the Manual Image Density (Non Auto Exposure) mode should be used (which turns off the background removing function). The image density of black areas in Manual Image Density mode is higher than that of Auto Exposure mode. Also, dust or other particles present on the contact glass will not result in white spots on the copy.

2. This symptom is also related to the mono-component toner developing system used by the A250.

There are two causes:

- A. Image density is determined by the amount of charge that the toner holds. However, regardless of whether the charge held by the toner is too low or too high, the resulting image density will drop. If the charge is too low, the necessary static electricity and therefore the amount of toner used will also be low, causing a lower image density. If the charge is too high, the developed toner will neutralize the charged image on the OPC drum-causing the static charge necessary for development will be relatively low. This will cause the amount of toner used to be low, resulting in lower image density.

The reason for the initial low image density is therefore not related to the dual-component development system. Rather, it results from a low initial static charge on the toner due to the use of a development system where the uncharged toner is directly supplied to the development roller.

- B. Generally, toner is initially supplied to the development roller starting with the smallest particles. If the particles are relatively small, the image density will be relatively low not only because the toner density is visibly low, but also because the amount of charge in the toner is higher. In the A250, image density begins to increase after the smallest toner particles have been used up, approximately 100 to 250 copies. This symptom is not limited to the A250, and is present in machines of other companies that employ the same type of development system.

It has been proposed that in order to increase the image density (i.e. improve the initial performance of the toner), the development roller should be run idle. However, since the toner is not being used (as there are no copies being made), the same toner will remain on the roller as it turns, subjecting the toner to stress (which will cause the image density to drop). Therefore, although the symptom produces copies with slightly low image density, it is limited to the first 100 to 250 copies, after which the image quality will improve.

A countermeasure will therefore not be applied to these symptoms. In addition, a test for image density was performed using a new cartridge (AIO) followed by 10 days of no use. After testing, no change in image density was observed.

BULLETIN NUMBER: A250 - 002

10/21/99

APPLICABLE MODEL:

GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: EXIT GUIDE PLATE POSITION

SYMPTOM:

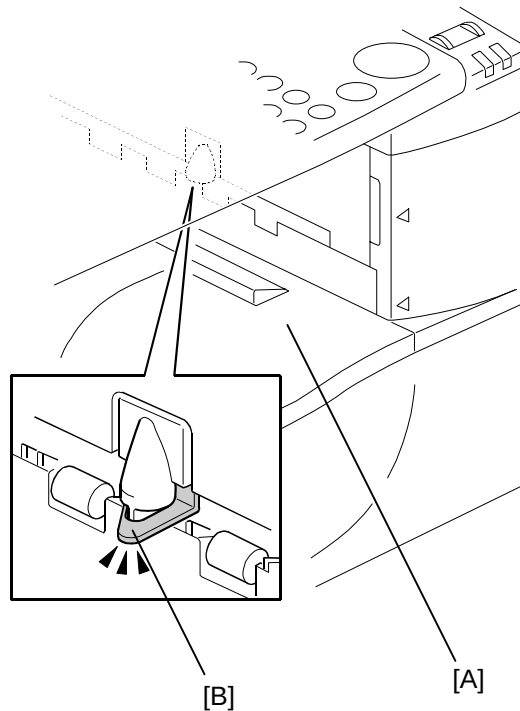
Paper mis-feed at Exit Guide Plate.

CAUSE:

The Exit Cover [A] was **reinstalled** without first pushing up on the Exit Guide Plate [B], causing the Exit Guide Plate to become caught between the Exit Cover and the copier. This causes paper to mis-feed when exiting.

SOLUTION:

When **reinstalling** the Exit Cover, hold up the Exit Guide Plate so that it will be positioned above the Exit Cover.



Note: This copy is intended as a master original for reproduction of additional bulletins.



MECHANICAL

BULLETIN NUMBER: A250 - 003

11/01/99

APPLICABLE MODEL:

GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

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 ⇒.

- iii Updated Information (Table of Contents)
- 4-61 Updated Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



■ SERVICE
MANUAL

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PREVENTIVE MAINTENANCE

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⇒ 4.6 ROM HISTORY

Description (P/N A250 5532)	Version	Serial #
1. When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. 2. Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	2.21 H	H1790900321
1. The default setting of the Printer Main Magnification (SP2-998) has been changed to 0.2% from 0.0%. 2. Sometimes SC620 is not cleared when the machine goes into sleep mode. 3. SC101 is sometimes displayed when the ADF stamp is activated. 4. If the remaining amount of paper shifts to the next lowest value while the counter report is being printed, the print job is canceled.	2.19 G	H1790700001
1. The machine cannot determine the 8k and 16k when auto-enlarge / auto-reduce is performed. 2. When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop as it should. 3. When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). 4. The firmware was changed so that a SC620 is displayed when an ADF from another machine is installed.	2.14 D	H1790600561
1. The default setting for the maintenance LED (SP5-908) has been changed to 1 (Yes) from 0 (No). 2. When the value of the total counter is over 9999 or a negative value, the SC history is displayed incorrectly (out of order). 3. If the machine receives a fax during a print or copy job (with rotate-sort), the polygon motor does not stop after the job is completed. 4. The machine occasionally required the Interrupt key to be depressed more than once to produce a response.	2.12 C	H1790500301
Initial Production	2.09 A	H1790400001

BULLETIN NUMBER: A250 - 004

11/22/99

APPLICABLE MODEL:

GESTETNER - 3218

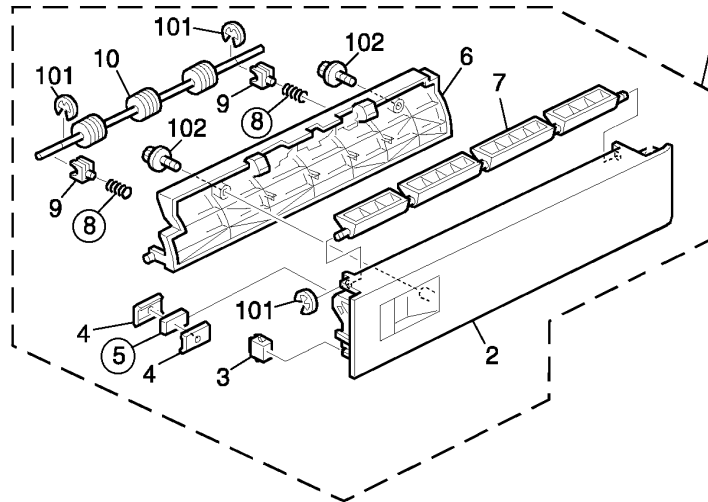
RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: PARTS CATALOG UPDATES

● **UPDATE 1:**

SPRINGS and MAGNET – To improve the Vertical Transport, the Springs and Magnet have been changed. The following parts updates are being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



■ **PARTS**

Note: This copy is intended as a master original for reproduction of additional bulletins.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2502772	A2502780	Spring	2	1	29	8
AG070012	A2502783	Magnet	1	1	29	5

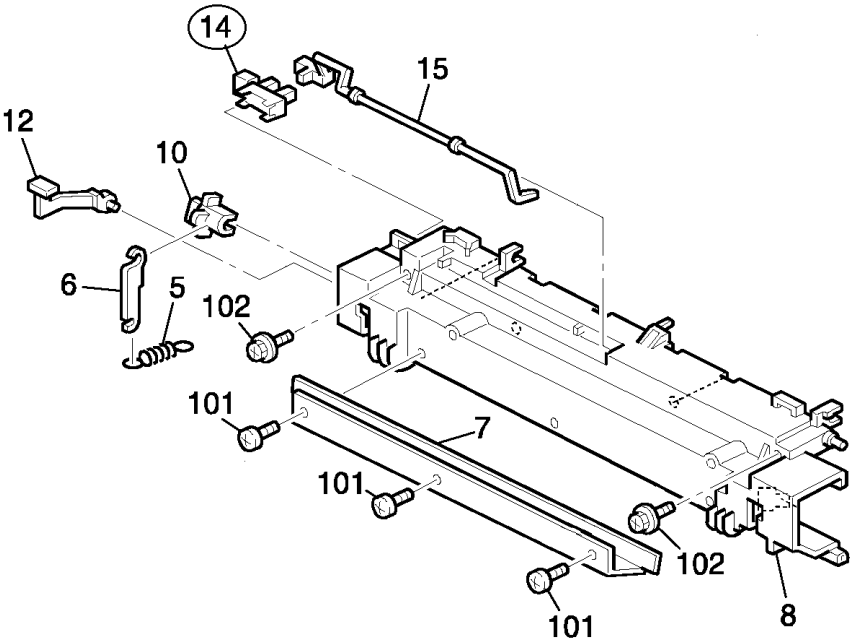
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Springs and Magnet installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	Not Available
Ricoh AFICIO 180	H1790700001
Savin 9918DP	H1790800001

Continued...

- **UPDATE 2:** PHOTOINTERRUPTER – The Photointerrupter may detach due to shock to the unit. The Photointerrupter has been modified to prevent it from detaching. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AW020086	A2504069	Photointerrupter	1	1	21	14

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Photointerrupter installed during production.

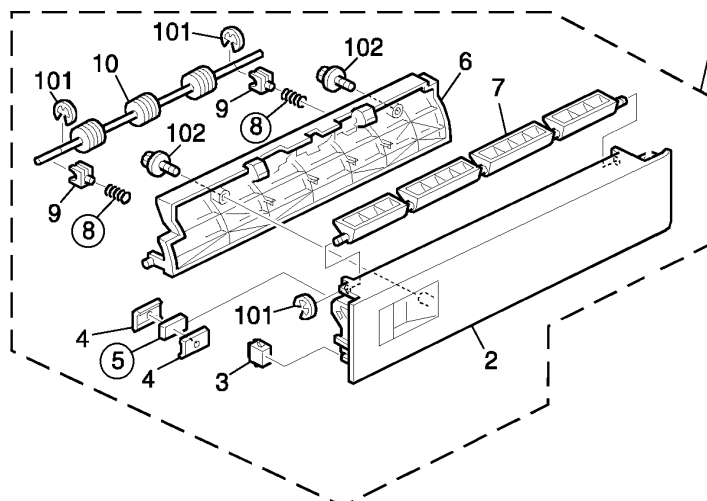
MODEL NAME	SERIAL NUMBER
Gestetner 3218	Not Available
Ricoh AFICIO 180	H1790900321
Savin 9918DP	H1790800001

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.		

BULLETIN NUMBER: A250/B001 – 004 REISSUE ★
06/29/2000
APPLICABLE MODEL:
GESTETNER – 3218
RICOH – AFICIO 180
SAVIN – 9918DP
SUBJECT: PARTS CATALOG UPDATES
● UPDATE 1:

SPRINGS and MAGNET – To improve the Vertical Transport, the Springs and Magnet have been changed. The following parts updates are being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.


PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
A2502772	A2502780	Spring	2	1	29	8	
AG070012	A2502783	Magnet	1	1	29	5	

UNITS AFFECTED:

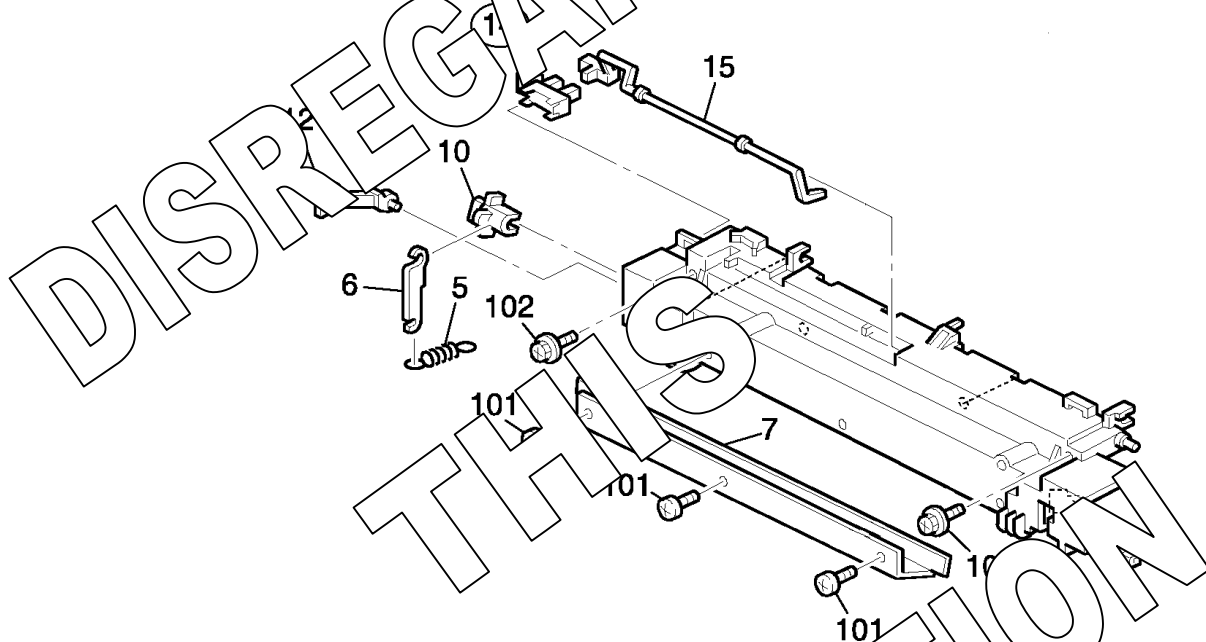
All A250 copiers manufactured after the Serial Numbers listed below will have the new style Springs and Magnet installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	Not Available
Ricoh AFICIO 180	H1790700001
Savin 9918DP	H1790800001

Continued...

★ Please disregard the information in UPDATE 2. The part number for the Photointerrupter has not changed and remains as P/N AW020086.

- **UPDATE 2:** PHOTOINTERRUPTER – The Photointerrupter may detach due to shock to the unit. The Photointerrupter has been modified to prevent it from detaching. The following part update is necessary for all A250 Parts Catalogs. Please update your Parts Catalog with the following information.



				REFERENCE		
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
AW020086	A2504069	Photointerrupter		1	21	14

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Number listed below will have the new style Photointerrupter installed during production.

MODEL	SERIAL NUMBER
Ces 18	Not Available
Ric 20	H1790900321
Sa 98DP	H1790800001

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.		

BULLETIN NUMBER: A250 - 005

12/06/99

APPLICABLE MODEL:

GESTETNER - 3218
RICOH – Aficio 180
SAVIN – 9918DP

SUBJECT: SERVICE MANUAL - CORRECTIONS

GENERAL:

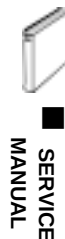
The Service Manual page(s) listed below must be replaced with the page(s) supplied.
Each bulletin package contains 1 set of replacement pages.

PAGES:

- 2 -- 13 Updated Information
- 4 – 13 Updated Information
- 4 – 26 Updated Information
- 4 – 28 Updated Information
- 4 -- 29 Updated Information
- 4 – 30 Updated Information
- 4 – 33 Updated Information
- 4 – 48 Updated Information
- 4 – 57 Updated Information
- 7 – 3 Updated Information

An arrow has highlighted the revised areas ⇒.

Note: This copy is intended as a master original
for reproduction of additional bulletins.



Filtering

Image adjustment (08) in the user tools

Mode		Default		
Text	Toner Saving	Normal	Sharp	(Service Mode)
Text/Photo	—	Photo Priority	Text Priority	(Service Mode)
Photo	Coarse	Press Print	Glossy Print	(Service Mode)

Overview

There are some software filters for enhancing the desired image qualities of the selected original mode. These filters are the MTF filter, the smoothing filter, and independent dot erase.

The MTF filter emphasizes sharpness and is used in Text and Text/Photo modes.

The smoothing filter is used in Photo mode, except for Glossy Photo mode (Glossy Photo mode is one of the photo modes that can be selected with User Tools - General Features - 08. Image Adjustment). In Glossy Photo mode, the MTF filter is used.

Independent dot erase removes unwanted dots from the image.

MTF Filter Adjustment - Text and Text/Photo Modes

When the user selects "Service Mode" for either Text or Text/Photo original type (User Tools - General Features - 08. Image Adjustment), the MTF filter and coefficient can be adjusted with SP4-915 and 4-916.

It is difficult to simply explain the relationships between the filter coefficient and filter strengths. Refer to the following charts to determine how to make the filters weaker or stronger. A large black dot indicates the default setting.

⇒ When the filter is stronger in the sub - scan direction, lines parallel to the feed direction are emphasized. When the filter is stronger in the main scan direction, lines at right angles to the feed direction are emphasized. A stronger MTF filter can make a low ID image visible but moiré may become more visible. Moiré is reduced using a smoothing filter specially designed for this purpose (see "Smoothing Filter Adjustment - Text/Photo").

Mode No.			Function	Settings
Class 1 and 2	Class 3			
2-905*		Gradation Type	This is for the designer's test purposes. Do not change the value.	
2-910		Transfer Roller Cleaning	Determines how often the transfer roller is cleaned. <i>0: The machine cleans the transfer roller every 10 copies (it waits for the job to finish). 1: The machine cleans the transfer roller after every job.</i>	0: No 1: Yes
2-915*		Polygon Motor Idling Time	Selects the polygon motor idling time. <i>If the user sets original, touches a key, or opens the platen cover/DF, the polygon motor starts idling to make a faster first copy. However, with the default (25 s), the motor stops if the user does nothing for 25 s, and stops 25 s after the end of a job. If set at "0", the polygon motor never turns off during stand-by. However, when the machine goes into energy saver mode, the polygon motor turns off regardless of this timer.</i>	0: Non 1: 15 sec 2: 25 sec
2-998*		Printer Main Magnification	Adjusts the magnification in the main scan direction for the printer. <i>Use the  key to toggle between + and - before entering the value. The specification is ± 0.5%. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 0.5 ~ + 0.5 0.1 %/step 0.0%
⇒ 4-008*		Main Scan Magnification	Adjusts the magnification in the main scan direction for scanning. <i>Use the  key to toggle between + and - before entering the value. The specification is ± 0.5%. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 1.0 ~ + 1.0 0.1 %/step 0.0%
⇒ 4-010*		Leading Edge Registration	Adjusts the leading edge registration for scanning in platen mode. <i>(-): The image moves in the direction of the leading edge. Use the  key to toggle between + and - before entering the value. The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	- 2.0 ~ + 9.0 0.1 mm/step 0.0 mm

Mode No.			Function	Settings
Class 1 and 2	Class 3			
4-942*		White Line Erase	Selects whether or not white line erase is done (without "Service Mode").	0: Normal 1: Disable
			See "Detailed Descriptions - Image Processing" for details.	
4-943*		Black Line Erase	Selects the black line erase level (without "Service Mode").	0: Strong 1: Disable 2: Weak
			See "Detailed Descriptions - Image Processing" for details.	
4-944*		Independent Dot Erase	Selects whether or not independent dot erase is done (without "Service Mode").	0: Normal 1: Disable
			See "Detailed Descriptions - Image Processing" for details.	
4-950*		Shading Mode Selection	Selects the scanner shading method in DF mode. 1. Stinger (Do the shading every page.) 2. ADAM (Do the shading at the time specified by SP4-913.) 3. None (This is for the designer's test purposes. Do not select this value.)	
			This is for the designer's test purposes. Do not change the value.	
5-001		All Indicators On	Turns on all indicators on the operation panel.	
			Press "OK" or the  key to check. Press the  (Clear Modes) key to exit this SP mode. The LCD blinks all on and all off every 2 seconds.	
5-103*		Auto Paper Tray Shift	Selects whether or not auto paper tray shift is done.	0: No 1: Yes
5-104*		A3/DLT Double Count	Specifies whether the counter is doubled for A3/11" x 17" paper.	0: No 1: Yes
			If "Yes" is selected, the total counter (mechanical counter) and the current user code counter counts up twice when A3/11" x 17" paper is used.	
5-106*		ADS Level Selection	Selects the image density level that is used in ADS mode.	1 ~ 7 1 notch/step 4
5-113*		Option Counter Type	Selects the optional counter type.	0: Non 1: Key Counter
			After installing the optional key counter, this SP must be set to "1".	
⇒ 5-116*		Key Counter Up Timing	Determines whether the key counter counts up at paper feed-in or at paper exit.	0: Feed In 1: Exit
5-120*		Opt. Counter Reset Setting	This SP is for Japan only. Do not change the value.	0: Yes 1: Stand-by 2: Non

Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-808*		Display Language	Selects the display language. See "Display language" for details.	
5-809*		mm/inch Selection	Selects whether mm or inches are used in the display.	0: mm (Europe/Asia model) 1: inch (American model)
⇒ 5-810		SC Code Reset	Resets the service call condition of Level "A" (see "Troubleshooting - Service Call Conditions"). After performing this SP mode, turn the machine main switch off and on. <i>See "Troubleshooting - Service Call Conditions" for how to use this mode. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
5-811		Serial Number Input	Use to input the machine serial number. (Normally done at the factory.) <i>This serial number will be printed on the system parameter list. See the "Serial Number Input" section for details.</i>	
⇒ 5-812*	1	Service Telephone Number (Telephone)	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs). <i>Press the  key if you need to input a pause (-). Press the  (Clear/Stop) key to delete the telephone number.</i>	
	2	Service Telephone Number (Facsimile)	Use this to input the fax number of the service representative (Displayed in the SMC and counter printouts). <i>Press the  key if you need to input a pause (-). Press the  (Clear/Stop) key to delete the telephone number.</i>	
5-816*		CSS Function	This SP is for Japan only. Do not change the value.	
5-817	1	CE Start/Finish Call (CE Start Call)	This SP is for Japan only. Do not change the value.	
	2	CE Start/Finish Call (CE Finish Call)		
5-821		CSS-PI Device Code	This SP is for Japan only. Do not change the value.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-824		NVRAM Data Upload	Uploads SP and UP mode data (except for counters and the serial number) from the flash memory on the BICU board to a flash memory card.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "NVRAM Data Upload" section for details.</i>	
5-825		NVRAM Data Download	Downloads SP mode data from a flash memory card to the flash memory on the BICU board.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "NVRAM Data Download" section for details.</i>	
5-826		Program Upload	Uploads the system program from the flash memory on the BICU board to a flash memory card.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "Program Upload" section for details.</i>	
5-827		Program Download	Downloads the system program from a flash memory card to the flash memory on the BICU board.	0: No 1: Yes
			<i>This SP can be used when a flash memory card is plugged into the machine. See the "Program Download" section for details.</i>	
5-901		Printer Free Run	Performs a printer free run. <i>After selecting "1", press "OK" or the (Ⓢ) key twice to start this feature. Press the (C/Ⓢ) (Clear/Stop) key to stop.</i>	0: No 1: Yes
5-902		Test Pattern Print	Prints a test pattern. <i>See the "Test Pattern Printing" section for how to print a test pattern. Change to the copy mode display by pressing the (⏏) (Interrupt) key, then print out the test pattern.</i>	
5-903*		LCD Contrast Adjustment	Adjusts the contrast of the LCD on the operation panel.	0 ~ 7 1 /step 3
5-904*		Auto Off Timer Setting	Adjusts the auto off mode timer. <i>If this value is changed, the user tool setting is also changed.</i>	1 ~ 240 1 min/step 30 min
5-905*		CSS 25 Hours Off Detection	This SP is for Japan only. Do not change the value.	



Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-906*		Exhaust Fan Control Timer	Inputs the fan control timer for energy saver mode. <i>The fan slows down after this time has passed since the end of a job. The fan stops after this time has passed since any of the following conditions occurred: After entering sleep mode (fax/prINTER installed) After entering an SC condition.</i>	30 ~ 120 1 s/step 30 s
5-907		Plug & Play Setting	Selects the brand name and the production name for the Plug and Play function of Windows 95/98. These are registered in the NVRAM. If the NVRAM is defective, these names should be registered again. <i>Press down the "Photo mode" key and the "OK" key or (Ⓢ) key at the same time to register the setting. If the setting was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	
5-908*		Maintenance LED Display	Selects whether the maintenance LED blinks when the PM interval expires. <i>When installing the machine, if the customer requires that the maintenance LED blinks, select "Yes". The PM alarm interval is set with SP5-912.</i>	0: No 1: Yes
5-911*		APS A4/LT Sideways Priority	Specifies whether the machine selects LT sideways paper if the original is A4. In inch models, if "Yes" is selected, LT sideways is selected automatically when the APS sensors detect an A4 sideways original. In mm models, if "Yes" is selected, A4 sideways is selected automatically when the APS sensors detect an LT sideways original.	0: No 1: Yes
5-912*		Maintenance Alarm Interval	Inputs the PM alarm interval. <i>When the machine reaches the value, the Maintenance LED will light to inform the user. The value is used SP5-908.</i>	1 ~ 255 1 k sheets/step 100 k sheets
5-913		UP Mode Data Reset	Resets the user tool data. <i>Except for the user codes, key operator code, and key operator printer counter.</i>	0: No 1: Yes
5-914*		Printer Counter Display	Selects whether the printer counter is displayed in the LCD or not. <i>If this is "0", it does not display or print out in the counter print out.</i>	0: No 1: Yes
5-925		Serial Number Display	Displays the serial number.	



Mode No.			Function	Settings
Class 1 and 2	Class 3			
6-911*		Binding Hole Range	Adjusts the maximum binding hole size for originals. If the original set sensor in the ADF detects a gap wider than this, it assumes that a new page has just started to feed in.	0 ~ 20 1 mm/step 12 mm
7-001*		Total Operation Time	Displays the total operation time (total drum rotation time).	
7-002*	1	Total Original Counter (All Modes)	Displays the total number of scanned originals (all modes).	
	2	Total Original Counter (Copier)	Displays the total number of scanned originals (copy mode only).	
	3	Total Original Counter (Fax)	Displays the total number of scanned originals (fax mode only).	
7-003*	1	Total Print Counter (All Modes)	Displays the total number of prints (all modes).	
	2	Total Print Counter (Copier)	Displays the total number of prints (copier mode).	
	3	Total Print Counter (Fax)	Displays the total number of prints (fax mode).	
	4	Total Print Counter (Printer)	Displays the total number of prints (printer mode).	
	5	Total Print Counter (A3/DLT)	Displays the total number of prints (A3/11" x 17" mode).	
7-004*		CE Counter Reset	This SP is for Japan only. Do not change the value.	
7-101*	1	Copy Counter - Paper Size (A3)	Displays the total number of copies by paper size.	
	2	Copy Counter - Paper Size (B4)		
	3	Copy Counter - Paper Size (A4)		
	4	Copy Counter - Paper Size (B5)		
	5	Copy Counter - Paper Size (DLT)		
	6	Copy Counter - Paper Size (LG)		
	7	Copy Counter - Paper Size (LT)		
	8	Copy Counter - Paper Size (HLT)		
	9	Copy Counter - Paper Size (Others)		
7-102*	1	Copy Counter - By-pass (Special Paper)	Displays the total number of copies made from the by-pass tray, by paper type.	
	2	Copy Counter - By-pass (Thick Paper)		
7-201*		Total Scan Counter	Displays the total number of scanned originals.	

4.2.8 SYSTEM PARAMETER AND DATA LISTS (SP5-992)

- ⇒ 1. Access SP mode 5-992 and select the number corresponding to the list that you wish to print.
2. Press the  (Interrupt) key on the operation panel to access the copy mode display.
3. Select the paper size.
4. Press the  (Start) key on the operation panel to print the list.
5. After printing the list, exit copy mode by pressing the  (Interrupt) key on the operation panel.
6. Exit SP mode.

4.2.14 DISPLAY LANGUAGE (SP5-808)

⇒

	US/Asia	Europe (standard)	Europe (option 1)	Europe (option 2)
0	NA	UK	UK	UK
1	FR	DE	DE	DE
2	ES	FR	FR	FR
3		IT	IT	IT
4		ES	ES	ES
5		NL	SE	CZ
6			NO	PL
7			DK	PT
8			FI	HU

NA: English

UK: English

DE: German

FR: French

IT: Italian

ES: Spanish

NL: Dutch

SE: Swedish

NO: Norwegian

DK: Danish

FI: Finnish

CZ: Czech

HU: Hungarian

PL: Polish

PT: Portuguese

4.2.15 SERIAL NUMBER INPUT (SP5-811)

Used to input the machine serial number. (Normally done at the factory.) The numeric keypad has 12 buttons. Use the first 11 buttons ① to ⑨, ☒ and ⑩ to input the serial number (Ⓜ is not used). Each button stands for one digit of the serial number. The first 4 buttons allow you to scroll through number 0 to 9 and "A" to "Z". Buttons 5 to 11 only scroll through numbers 0 to 9.

①	②	③
1st digit	2nd digit	3rd digit
④	⑤	⑥
4th digit	5th digit	6th digit
⑦	⑧	⑨
7th digit	8th digit	9th digit
☒	⑩	Ⓜ
10th digit	11th digit	(Not used)

SC122: Scanner Home Position Error 3

Definition: [B]

The scanner home position sensor detects the on condition while the scanner returns to the home position.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor defective
- Exposure lamp connector defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC123: Scanner Home Position Error 4

Definition: [B]

The scanner home position sensor does not detect the on condition after the scanner returns to the home position.

Possible Causes:

- Scanner home position sensor defective
- Scanner drive motor defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC192: Automatic SBU Adjustment Error

Definition: [B]

An error is detected during automatic SBU adjustment (SP4-908).

Possible Causes:

- SBU defective
- BICU board defective
- Exposure lamp regulator defective
- Exposure lamp defective
- Dirty white plate

SC194: IPU White Level Detection Error

Definition: [B]

The level of the white standard pattern detected by the IPU (on the BICU board) is too low.

Possible Causes:



- Exposure lamp defective
- BICU board defective
- Incorrect position of the white standard pattern
- Dirty white plate
- SBU board defective

BULLETIN NUMBER: A250 - 006

12/06/99

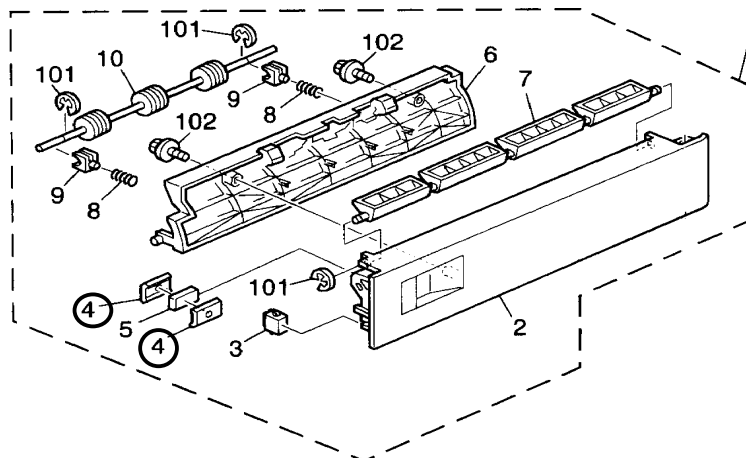
APPLICABLE MODEL:

GESTETNER - 3218
 RICOH – Aficio 180
 SAVIN – 9918DP

SUBJECT: PARTS CATALOG CORRECTION

GENERAL:

To improve vertical transport, the Magnet Brackets will be modified.
 The following Parts Correction is being issued for all Aficio 180 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G6971261	A2502782	Bracket : Magnet	2	1	29	4

UNITS AFFECTED:

All copiers manufactured after the Serial Numbers listed below will have the new style Magnet Brackets installed during production

MODEL NAME	SERIAL NUMBER
Gestetner 3218	Not available
Ricoh Aficio 180	H1790500301
Savin 9918DP	H1790500001

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.		

BULLETIN NUMBER: A250/B001 - 007

01/11/2000

APPLICABLE MODEL:

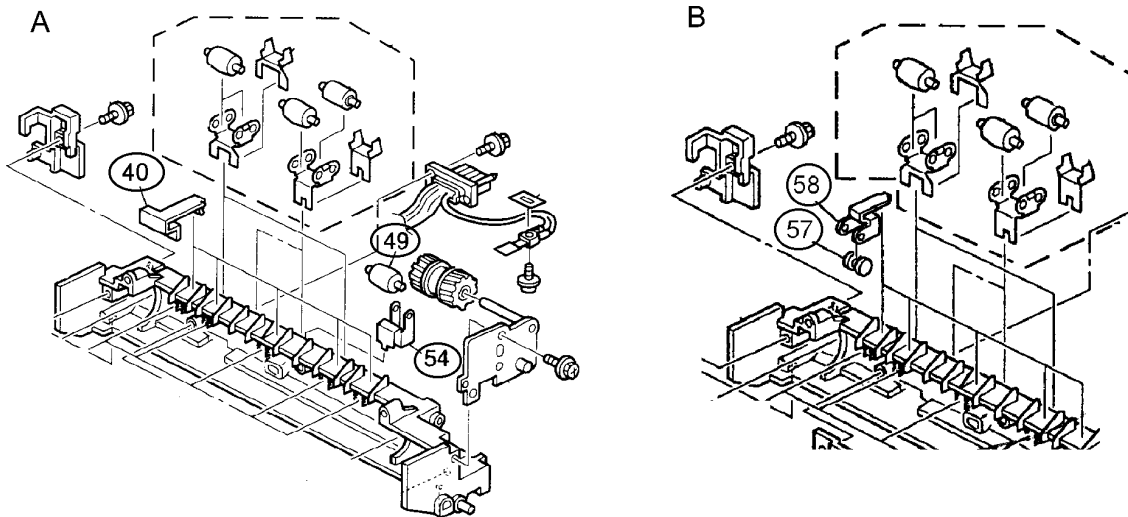
GESTETNER – 3218

RICOH – AFICIO 180

SAVIN – 9918DP

SUBJECT: PARTS CATALOG UPDATES

- **UPDATE 1:** STRIPPER PAWLS - To prevent the five Stripper Pawls from leaving marks on copies, the mechanism has been modified so the Stripper Pawls apply pressure uniformly across the copy. The following parts updates are being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294151		Stripper Pawl Stopper	5	-	21	40
G0294134		Spring Plate	2	-	21	54
G0294176		Turn Roller – Exit Sub-Unit	2	-	21	49
	H3062138	Roller – Stripper Pawls	5	3/S	21	57 *
	H3062139	Stopper – Stripper Pawls –1	5	3/S	21	58 *

* Denotes new item number.

NOTE: If any of the three items in illustration A above (40, 54, or 49) need replacement, they must be removed together and replaced with the two components labeled in illustration B above (57 and 58).

Continued...



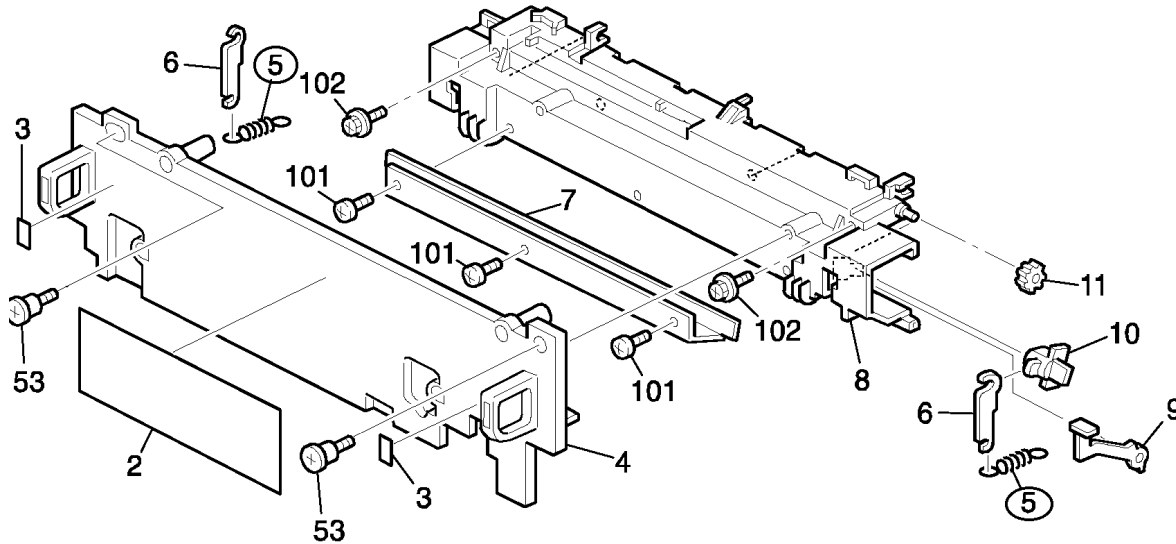
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Roller – Stripper Pawls and Stopper – Stripper Pawls installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790601161
Savin 9918DP	H1790600251

- UPDATE 2:**

SPRING – FUSING - EXP – The tension of the Pressure Roller Springs have been increased to ensure that copies are properly fed through the Heat and Pressure Rollers. The following parts update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504150	A2504156	Spring – Fusing – Exp	2	1	21	5

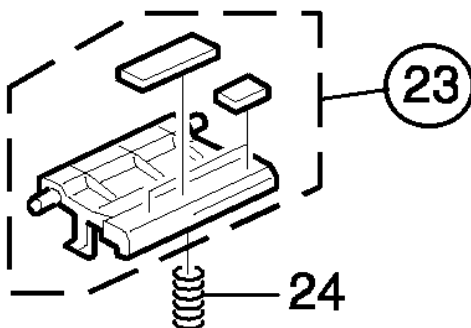
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new Spring – Fusing - Exp installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790601161
Savin 9918DP	H1790600251

Continued...

- **UPDATE 3:** FRICTION PAD – MANUAL FEED – To feed envelopes properly, the Friction Pad has been changed. The following parts update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT		PAGE	ITEM
A2502910	A2502920	Friction Pad – Manual Feed	1	1		23	23

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new Friction Pad – Manual Feed installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790700001
Savin 9918DP	H1790800001

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.		

BULLETIN NUMBER: A250/B001 - 008

01/11/2000

APPLICABLE MODEL:

GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

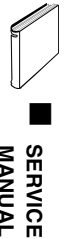
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 4-61, 62 Updated Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



⇒ **4.6 ROM HISTORY**

Description (P/N A250 5532)	Version	Serial #
1. When the Energy Saver Mode key is pressed while a print job is being done in the background, the machine will go into Energy Saver Mode. However when the operator releases the mode and returns to the system settings or copy features (both inside user tools), a message is displayed asking the operator to wait and the machine returns to the main copy screen (although it is still in user tools). The LED for the user tools key is lit, and all indicators except the LCD report that the machine is still in user tools. 2. After the operator exits either of the following screens with the User Tools key and starts a copy job, the first sheet is printed out as the counter list. - System Settings : Key Operator Tools : Counter list printing - Copy Features : Key Operator Tools : Counter list printing 3. If a jam occurs while printing out a counter report, the jam indication is displayed but soon disappears. The machine then returns to the counter display screen. In addition, if the paper end condition occurs while the paper is being fed (after the start key is pressed), the machine returns to the counter display screen without properly displaying "Set A4 (81/2 X 11) paper in tray". 4. When a printer sort job and counter list job overlap each other the counter list is not printed out. 5. When the memory becomes full during a copy job using the "combine" function, the image being printed at the time contains errors. 6. After setting several originals in the ADF and scanning a fax cover sheet using Auto Document, the operator exits the mode but cannot make copies using the ADF. 7. Abnormal image occurs when an A5 sideways original is enlarged to 8K (tray 3) using Auto-Enlarge. A5 lengthwise prints out normally.	2.27 J	NA
1. When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. 2. Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	2.21 H	H1790900321

1. The default setting of the Printer Main Magnification (SP2-998) has been changed to 0.2% from 0.0%. 2. Sometimes SC620 is not cleared when the machine goes into sleep mode. 3. SC101 is sometimes displayed when the ADF stamp is activated. 4. If the remaining amount of paper shifts to the next lowest value while the counter report is being printed, the print job is canceled.	2.19 G	H1790700001
1. The machine cannot determine the 8k and 16k when auto-enlarge / auto-reduce is performed. 2. When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop as it should. 3. When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). 4. The firmware was changed so that a SC620 is displayed when an ADF from another machine is installed.	2.14 D	H1790600561
1. The default setting for the maintenance LED (SP5-908) has been changed to 1 (Yes) from 0 (No). 2. When the value of the total counter is over 9999 or a negative value, the SC history is displayed incorrectly (out of order). 3. If the machine receives a fax during a print or copy job (with rotate-sort), the polygon motor does not stop after the job is completed. 4. The machine occasionally required the Interrupt key to be depressed more than once to produce a response.	2.12 C	H1790500301
Initial Production	2.09 A	H1790400001

BULLETIN NUMBER: A250/B001 – 009

01/11/2000

APPLICABLE MODEL:

GESTETNER –3215S
RICOH – AFICIO 150
SAVIN –2015DP

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 ⇒.

- B001 i Updated Information (Table of Contents for B001)
- B001 5-1 Updated Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



**SERVICE
MANUAL**

B001 SERVICE MANUAL

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⇒ 5. ROM HISTORY**5-1. ROM HISTORY**

Description (P/N B001 5532)	Version	Serial #
Initial Production	1.01 B	1st Production

BULLETIN NUMBER: A250/B001 - 010

01/17/2000

APPLICABLE MODEL:

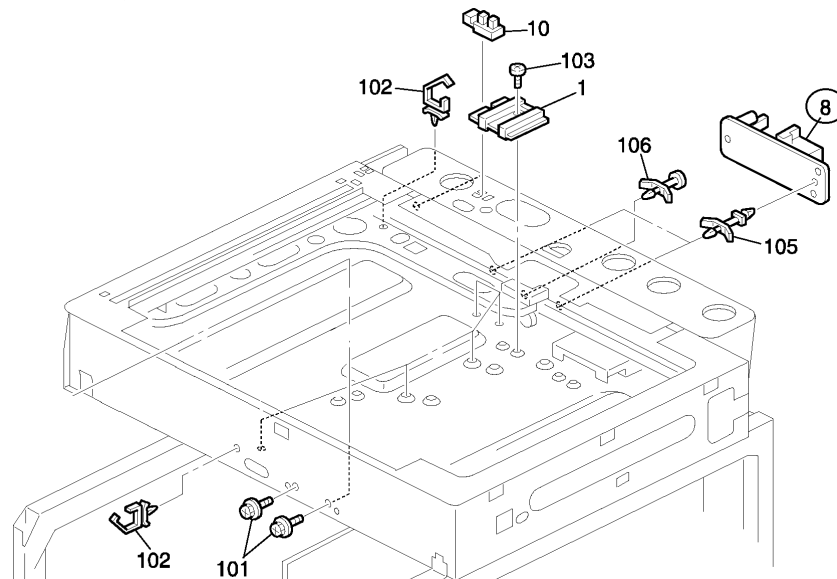
GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: PARTS CATALOG UPDATES

- **UPDATE 1:** LAMP STABILIZER – The Lamp Stabilizer has been reduced in size to aid installation. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2505735	A2505736	Xenon Lamp Stabilizer	1	0	13	8

UNITS AFFECTED:

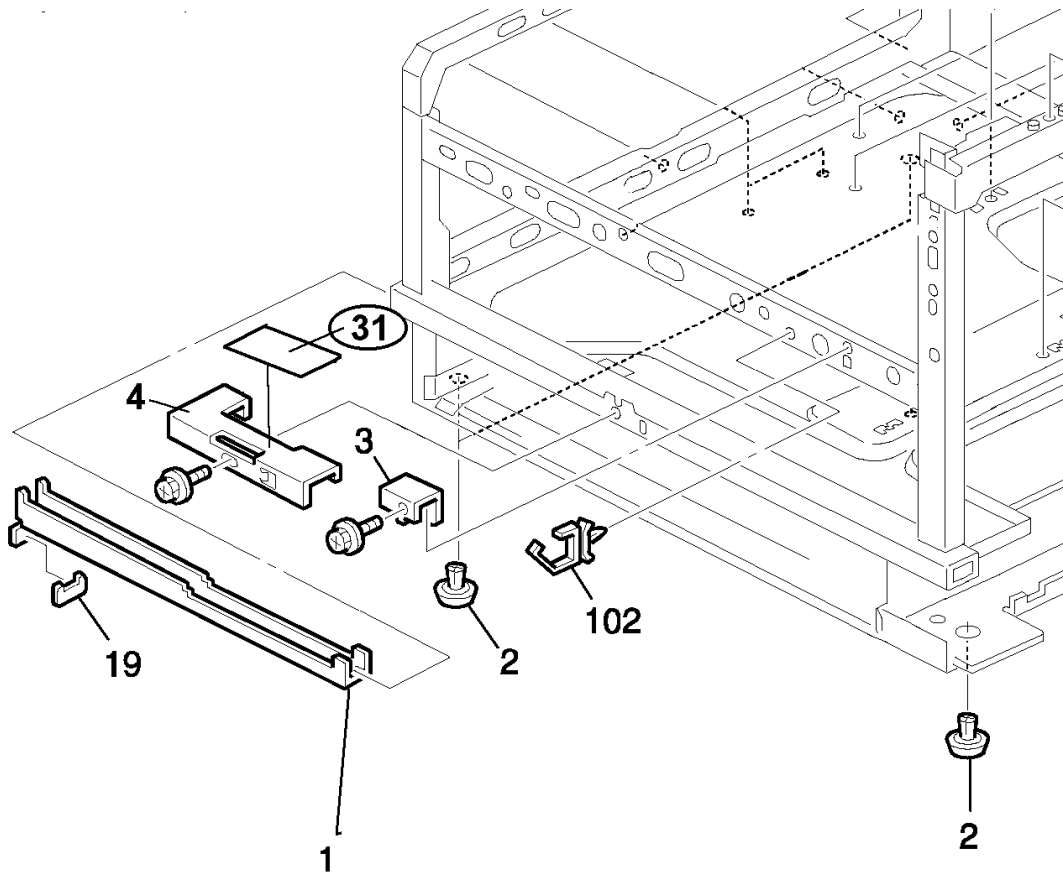
All A250 copiers manufactured after the Serial Numbers listed below will have the new style Xenon Lamp Stabilizer installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790601161
Savin 9918DP	H1790600251

Continued...



- **UPDATE 2:** COVER CUSHION – 5mm – Part of the Bottom Plate Lever Tray was hitting the Front Cover when the Tray was closed. A Cushion has been attached to the Front Cover to prevent any damage. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



			REFERENCE	
PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
A2501058	Cover Cushion – 5mm	1	41	31 *

* Denotes new item number.

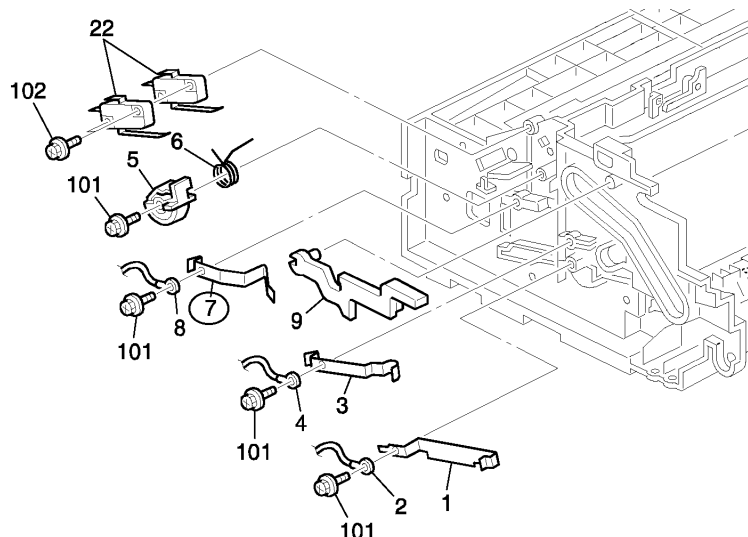
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Cover Cushion – 5mm installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790500701
Savin 9918DP	H1790600001

Continued...

- **UPDATE 3:** GROUNDING PLATE (CHARGE) – The shape of the Grounding Plate (Charge) has been changed to improve the ground connection. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
G0291080	G0291089	Grounding Plate (Charge)	1	1	25	7	

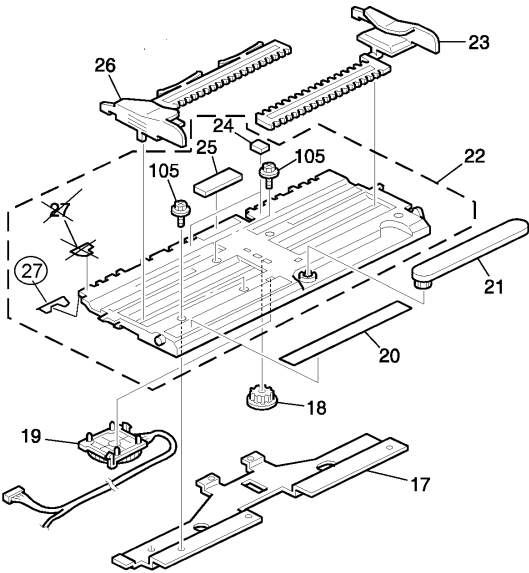
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Grounding Plate (Charge) installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790900321
Savin 9918DP	H1790800001

Continued...

- **UPDATE 4:** SHEET – BYPASS FEED TABLE – The Harness can become caught between the Main Frame and the Bypass Feed Table. The shape of the Sheet for the Bypass Feed Table has been changed to prevent this. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2502958	A2502962	Sheet – Bypass Feed Table	1	1	29	27

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new Sheet - Bypass Feed Table installed during production.

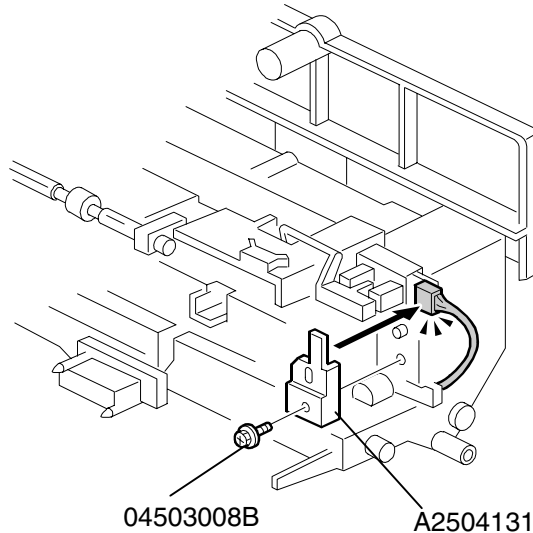
MODEL NAME	SERIAL NUMBER
Gestetner 3218	NA
Ricoh AFICIO 180	H1790600561
Savin 9918DP	H1790600001

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.		

BULLETIN NUMBER: A250/B001 - 011
02/02/2000
APPLICABLE MODEL:
GESTETNER - 3218
RICOH - AFICIO 180
SAVIN - 9918DP
SUBJECT: FUSING EXIT SENSOR
GENERAL:

To prevent dislodging the Exit Sensor, a Retaining Plate and Screw were added to hold the Exit Sensor in place. The following updates are being issued for all A250 Parts Catalogs.



Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

			REFERENCE	
PART NUMBER.	DESCRIPTION	QTY	PAGE	ITEM
A2504131	Plate – Exit Sensor	0 - 1	21	55*

* Denotes new item

UNITS AFFECTED:

All copiers manufactured after the Serial Numbers listed below will have the new style plate and screw installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1790900321
Ricoh Aficio180	H1790800001
Savin 9918DP	H1790900321

BULLETIN NUMBER: A250/B001 - 012

02/02/2000

APPLICABLE MODEL:

GESTETNER - 3218

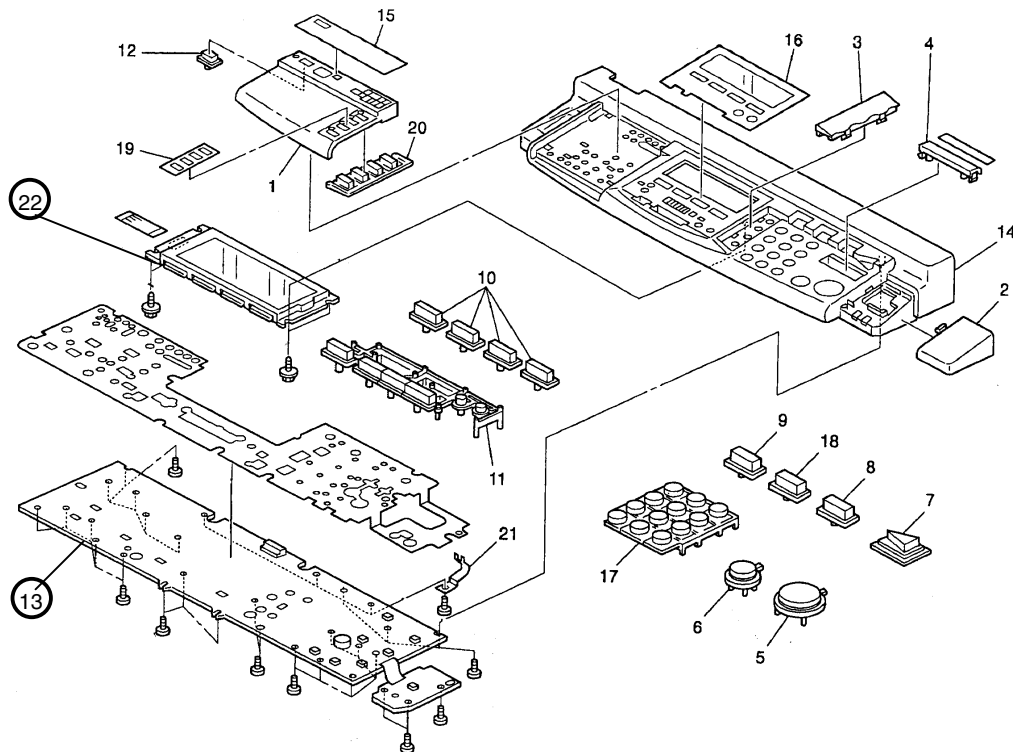
RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: OPERATION PANEL

GENERAL:

The following parts corrections are being issued for all A250 Parts Catalogs.



				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2501470	A2505190	PCB Operation Panel	1	11	13
	A2501490	LCD	1	11	22*
04513008B	04503008B	Tapping Screw – M3x8	1	15	102

* Denotes new item

UNITS AFFECTED:

A250 Serial Number cut-ins not available at time of publication.



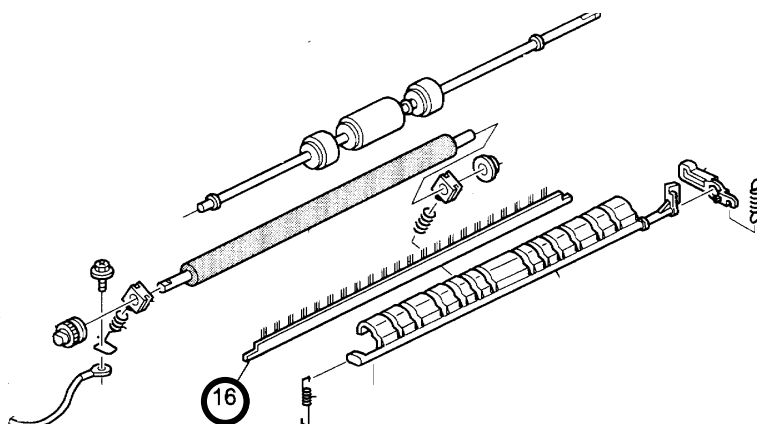
BULLETIN NUMBER: A250/B001 - 013
02/14/2000
APPLICABLE MODEL:

GESTETNER - 3218
RICOH - AFICIO 180
SAVIN - 9918DP

SUBJECT: PARTS CATALOG UPDATES
GENERAL:

The following Corrections are being issued for all A250 Parts Catalogs.

- **UPDATE 1:** **Discharge Brush** – The Discharge Brush part number has changed due to a change in the vendor.



■ PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
G0293863	G0293967	Discharge Brush	1	0	33	16	

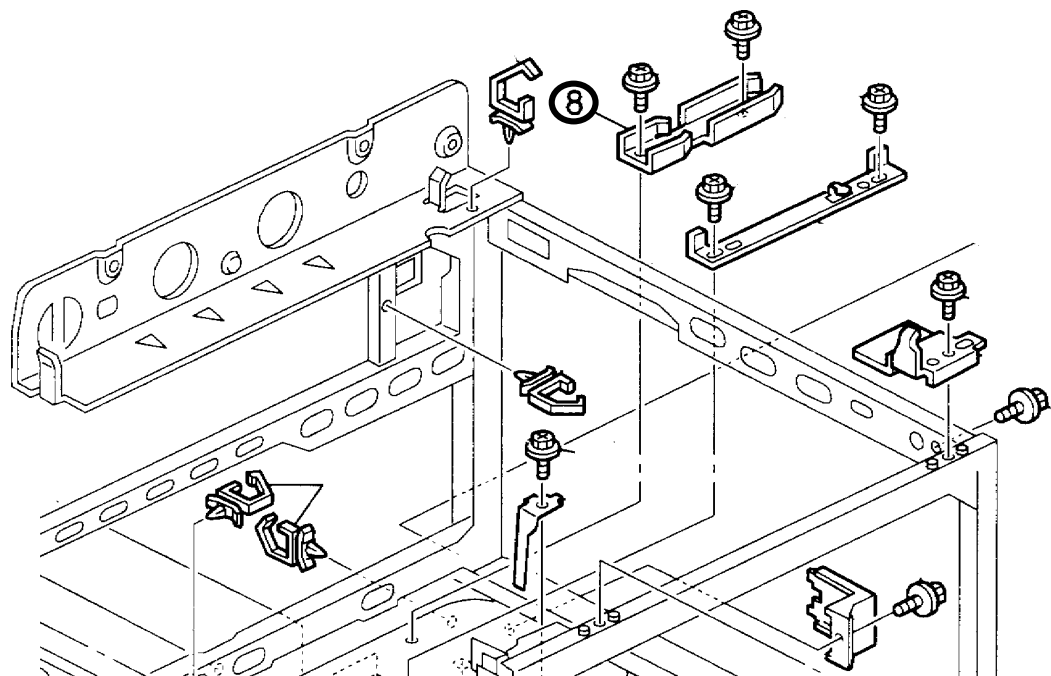
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new Discharge Brush installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1791100001
Ricoh Aficio 180	H1791100251
Savin 9918DP	H1791100001

Continued...

- **UPDATE 1:** **Lower Holder – Printer** – The bracket has been changed to reduce the possibility of noise due to vibration.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501039	A2501050	Lower Holder – Printer	1	1	41	8

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Lower Printer Holder installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1791100001
Ricoh Aficio 180	H1791100251
Savin 9918DP	H1791100001

BULLETIN NUMBER: A250/B001 – 014**02/18/2000****APPLICABLE MODEL:****GESTETNER - 3218****RICOH – AFICIO 180****SAVIN – 9918DP****SUBJECT: STRIPPED SCREW HOLES IN FUSING UNIT****SYMPTOM:**

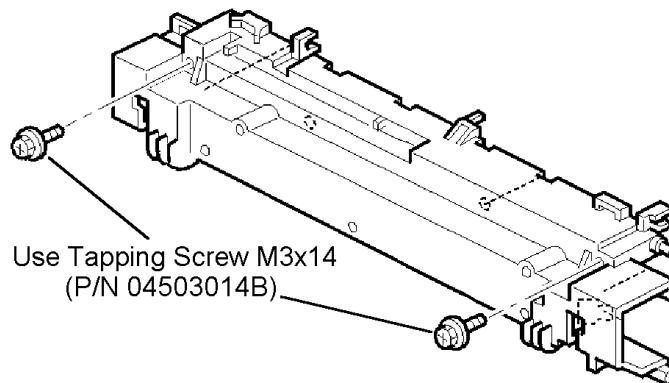
The screw holes in the Pressure Roller Case are stripped after rebuilding the Fusing Unit.

CAUSE:

The Fusing Unit Base is made of plastic. If too much torque is applied to the screws that secure the Pressure Roller Case and Hot Roller Unit, the plastic mountings for the screw holes will become stripped.

SOLUTION:

Since the screw holes in the Pressure Roller Case are now stripped, larger screws need to be used. Replace the Tapping Screws M3x10 with Tapping Screws M3x14 (P/N 04503014B) and apply only sufficient torque to the Screws M3x14 when tightening or loosing them. The metal screws tend to grind or strip the plastic screw holes. Therefore, be careful to apply a gentile amount of torque to these screws.



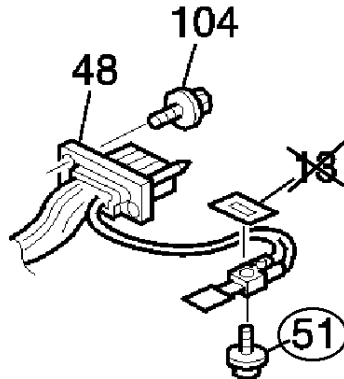
Note: This copy is intended as a master original
for reproduction of additional bulletins.



MECHANICAL

BULLETIN NUMBER: A250/B001 - 015**02/18/2000****APPLICABLE MODEL:****GESTETNER – 3218****RICOH – AFICIO 180****SAVIN – 9918DP****SUBJECT: THERMISTOR SHIELD****GENERAL:**

The Screw for the Thermistor has been modified and given a new part number. The Screw was modified because the screw insert was changed from a molded to a metal type. Because of this modification, the Thermistor Shield is no longer required and has been deleted. The following parts updates are being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



Note: This copy is intended as a master original
for reproduction of additional bulletins.

**■ PARTS**

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294159	G0294158	Screw – M3x3	1	1	21	51
G0294154	Delete	Thermistor Shield	1→0	-	21	13

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Screw – M3x3 installed during production and the Thermistor Shield not installed.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1790500001
Ricoh AFICIO 180	H1790500301
Savin 9918DP	H1790500001

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.		

BULLETIN NUMBER: A250/B001 - 016

02/18/2000

APPLICABLE MODEL:

GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

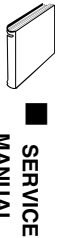
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

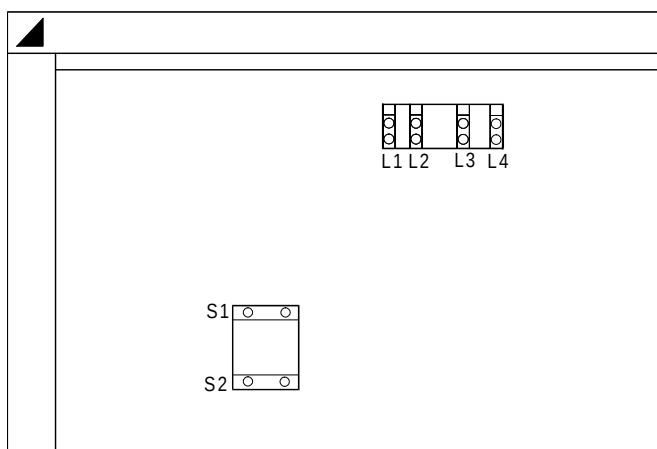
- 4-31 Updated Information (SP5-955)
- 4-55 Updated Information (APS and Platen/DF Cover Sensor Output Display)
- 4-61 & 62 Updated Information (ROM History)
- 7-8 & 9 Updated Information (SC981 – altered 7-8 to fit SC981 on 7-9)

Note: This copy is intended as a master original
for reproduction of additional bulletins.

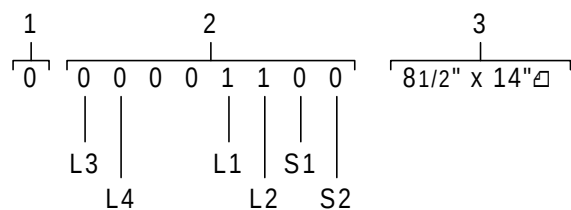


Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-930*		Fax Forwarding Mode	Selects whether the fax mode key is accepted when an SC has occurred. <i>When an SC occurs while there are received fax messages in the SAF memory, change the value to "1". Then access facsimile mode. Then forward the incoming data to another fax machine by using the fax mode bit switches.</i>	0: No 1: Yes
5-940*		Image Rotation Mode	Selects whether the image can be rotated or not.	0: Enabled 1: Disabled
5-944*		APS Mode Setting	Selects whether APS mode is selected as the power-up default.	0: Disabled 1: Enabled
5-946*		Auto Off Disabling	Selects whether auto shut off is disabled when there are sheets in the exit tray. <i>If the LED does not light when paper enters the tray, the user cannot see easily if paper is there or not.</i> <i>1: For machines with no fax/printer option, the machine does not do auto shut off (with the fax/printer option, the machine will go to sleep mode but the LED still works).</i> <i>0: For machines with a fax/printer option, the machine does not light the exit tray LED even in sleep mode.</i>	0: No 1: Yes
5-950*		By-pass LG Size Detection	Selects whether the machine can detect LG paper or not in the by-pass tray.	0: No 1: Yes
5-951*		Inter Leaves Count Setting	Selects the interleave count when interleave mode is selected with User Tool (System Settings - Print Priority). In interleave mode, the machine will print 5 pages of one job, then 5 pages of the other job, and so on.	1 ~ 20 1 pages/step 5 pages
5-955	1	8K/16K Detection (A3/B4 → 8K)	Specifies whether the machine selects 8K paper if the original is A3 or B4. If "Yes" is selected, 8K is selected automatically when the APS sensors detect an A3 or B4 original.	0: No 1: Yes
	2	8K/16K Detection (B5T/A4T → 16KT)	Specifies whether the machine selects 16K lengthwise paper if the original is B5 or A4 lengthwise. If "Yes" is selected, 16K lengthwise is selected automatically when the APS sensors detect a B5 or A4 lengthwise original.	0: No 1: Yes
	3	8K/16K Detection (B5Y/A4Y → 16KY)	Specifies whether the machine selects 16K sideways paper if the original is B5 or A4 sideways. If "Yes" is selected, 16K sideways is selected automatically when the APS sensors detect a B5 or A4 sideways original.	0: No 1: Yes
5-991		VRAM Data Download	This is for the designer's test purposes. Do not change the value.	0: No 1: Yes
5-992		SMC Printing	Prints the machine status history data list. See the "System Parameter And Data Lists" section for how to print the lists. <i>"5" is for facsimile transmission.</i>	1: SP 2: UP 3: Log 4: All 5: Big Font

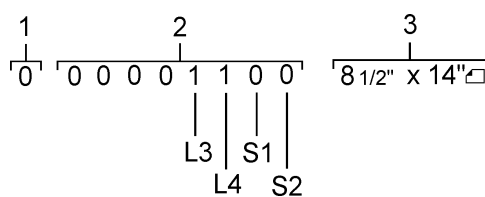
4.2.12 APS AND PLATEN/DF COVER SENSOR OUTPUT DISPLAY (SP4-301)



[A4/A3 version machines]



[LT/DLT version machines]



Service
Tables

NOTE: The length sensors L1 and L2 are used only for A4/A3 version machines.

1. Platen cover sensor status	1 = Closed
2. APS sensor status	1 = Paper detected
3. Paper size display	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	18	Paper Tray Adj. (M Size Setting - 2)	Optional Paper Tray Unit Only: Selects the middle size threshold for the lower tray. "0" means that this setting is not used. With the default settings, this SP is not used in this machine.	0: Non (Not use) 1: HLT/A5 2: A4T 3: Lg, LTT 4: DLT, LT 5: A3, A4
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	Τησ παλυνε μυστ βε λαργερ τηαν τηε σμαλλ σιζε τηρεσηολδ (ΣΠ1-908-17). Τηε σιζε υσεδ βψ ΣΠ1-908 ισ δετερμινεδ βψ παπερ ωιδτη. Σεε Οπτιον - Παπερ Τραψ Υνιτ φορ δεταιλσ ον ΣΠ1-908.	
1-909*		Tray Motor Reverse Time	Adjusts the tray motor reverse time.	0 ~ 9000 1 ms/step 1700 ms
			Τηε τραψ μοτορ ρεωερσεσ ωην τηε τραψ ισ πυλλεδ ουτ. Τηε τραψ χαν βε πυτ βαχκ ιν τηε μαχηινε ωιτηουτ δαμαγε ωηιλε τηε μοτορ ρεωερσεσ. Σεε Οπτιον - Παπερ Τραψ Υνιτ φορ δεταιλσ ον ΣΠ1-908.	
2-001*		Charge Roller Bias Adjustment	Adjusts the voltage applied to the charge roller.	0 ~ -1500 1 V/step -600 V
			Do not change the value.	
2-101*	1	Erase Margin Adjustment (Leading Edge)	Adjusts the leading edge erase margin.	0 ~ 9 1 mm/step 2 mm
			Τηε σπεχιφιχατιον ισ 2 1.5 μμ. Σεε Ρεπλαχεμεντ ανδ Αδφυστμεντ - Χοπψ Αδφυστμεντ φορ δεταιλσ.	
	2	Erase Margin Adjustment (Trailing Edge)	Adjusts the trailing edge erase margin.	0 ~ 9 1 mm/step 3 mm
			Τηε σπεχιφιχατιον ισ μορε τηαν 0.5 μμ. Σεε Ρεπλαχεμεντ ανδ Αδφυστμεντ - Χοπψ Αδφυστμεντ φορ δεταιλσ.	
	3	Erase Margin Adjustment (Left Side)	Adjusts the left edge erase margin.	0 ~ 9 1 mm/step 2 mm
			Τηε σπεχιφιχατιον ισ 2 1.5 μμ. Σεε Ρεπλαχεμεντ ανδ Αδφυστμεντ - Χοπψ Αδφυστμεντ φορ δεταιλσ.	
	4	Erase Margin Adjustment (Right Side)	Adjusts the right edge erase margin.	0 ~ 9 1 mm/step 2 mm
			Τηε σπεχιφιχατιον ισ μορε τηαν 0.5 μμ. Σεε Ρεπλαχεμεντ ανδ Αδφυστμεντ - Χοπψ Αδφυστμεντ φορ δεταιλσ.	
2-103*		LD Power Adjustment	Adjusts the LD power.	0 ~ 255 1 /step 129
			Do not change the value.	
2-106*		ID Adj. for Test Pattern	Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP5-902).	0 ~ 255 1 /step 255

⇒ SC691: Communication Error between BICU and Fax Controller Unit

Definition: [B]

The BICU board cannot communicate with the fax control unit properly.

Possible Causes:

- The cable between the BICU board and the fax control unit has a poor connection
- BICU board defective
- Fax control unit defective

SC692: Communication Error between BICU and Printer Controller Board

Definition: [B]

The BICU board cannot communicate with the printer controller board properly.

Possible Causes:

- The cable between the BICU board and the mother board has a poor connection.
- The connection between the mother board and the printer controller board is poor.
- BICU board defective
- Printer controller board defective
- Mother board defective

SC760: ADF Gate Abnormal

Definition: [B]

The ADF Gate signal line between the ADF main board and the input/output board is disconnected.

Possible Causes:

- ADF main board defective
- Input/output board defective
- The connection (ADF Gate line) between the ADF main board and the input/output board is poor.

SC900: Electrical Total Counter Error

Definition: [B]

The electrical total counter is not working properly.

Possible Causes:

- NVRAM defective

SC901: Mechanical Total Counter

Definition: [B]

The mechanical total counter is not working properly.

Possible Causes:

- Mechanical total counter defective
- Input/output board defective
- Disconnected mechanical total counter

SC921: MSU Hardware Error

Definition: [B]

The hardware of the MSU is defective.

Possible Causes:

- MSU defective
- BICU defective

SC980: Program Loading Error

Definition: [A]

The program cannot load properly.

Possible Causes:

- The connection between the BICU and the ROM board is poor.
- BICU board defective
- ROM board or the program defective

NOTE: This SC should be cleared by trying to download again from an IC Card.

⇒ SC981: NV-RAM Error

Definition: [B]

The NV-RAM is defective.

Possible Causes:

- The NV-RAM is defective.
- BICU board is defective

SC990: Communication Error between BICU and Input Output Board

Definition: [B]

The BICU board cannot communicate with the input/output board.

Possible Causes:

- The connection between the BICU board and the input/output board is poor.
- BICU board defective
- Input/output board defective

SC999: Program Version Error

Definition: [B]

The incorrect type of main software was downloaded.

Possible Causes:

- The main software for another machine was downloaded to this machine.

BULLETIN NUMBER: A250/B001 - 017

02/18/2000

APPLICABLE MODEL:

GESTETNER - 3215S
RICOH - AFICIO 150
SAVIN - 2015DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

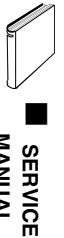
The Service Manual page listed below must be replaced with the page supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

5-1 Updated Information (ROM History)

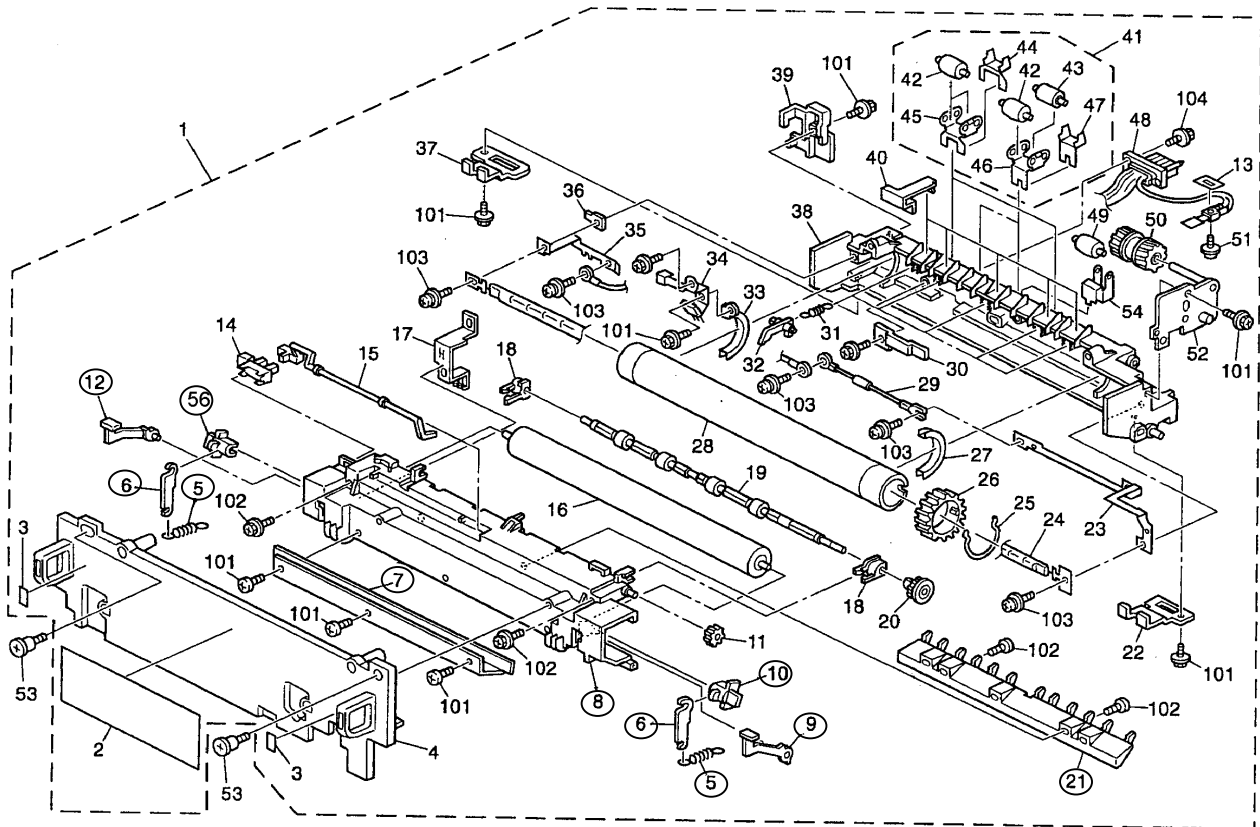
Note: This copy is intended as a master original
for reproduction of additional bulletins.



BULLETIN NUMBER: A250/B001 - 018**03/21/2000****APPLICABLE MODEL:
GESTETNER - 3218
RICOH- AFICIO 180
SAVIN - 9918DP****SUBJECT: TONER MARKS ON TRAILING EDGE****GENERAL:**

To eliminate Toner Marks, the Fusing Unit has been modified so that the paper enters at a reduced angle (changed from 20 degrees to 5 degrees). The following Parts modifications are being issued for all A250 Parts Catalogs..

Note: This copy is intended as a master original
for reproduction of additional bulletins.

**PARTS**

Continued...

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294106	A2504105	Pressure Roller Case	1	3/S	21	8
G0294064	A2504064	Fusing Entrance Guide	1	3/S	21	7
G0294116	A2504116	Ground Plate	1	3/S	21	17
G0294135	A2504135	Pressure Roller Lever	2	3/S	21	6
A2504136	A2504138	Pressure Release Lever – Rear	1	3/S	21	9
A2504137	A2504139	Pressure Release Lever – Front	1	3/S	21	12
G0294150	A2504150	Pressure Spring	2	3/S	21	5
G0294174	—	Pressure Roller Bushing	2	3/S	21	10
	— A2504177	Pressure Roller Bushing – Front	1	3/S	21	10
	— A2504178	Pressure Roller Bushing – Rear	1	3/S	21	56
G0294187	A2504187	Exit Guide Plate	1	3/S	21	21

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style parts installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner Model 3218	H1790600251
Ricoh Aficio 180	H1790601161
Savin Model 9918DP	H1790600251

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.		

BULLETIN NUMBER: A250/B001 – 019

03/28/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

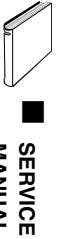
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 4-8, 9, 10, 11, 27, 30, 35, 36 and 37 Updated Information (SP Tables)
- 4-49 Updated Information (Memory All Clear)
- 7-1 Updated Information (Troubleshooting)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	4	Paper Tray Adj. (S Size Comeback T - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor forward rotation time for paper of the same size as or smaller than the small size threshold set with SP1-908-8. The motor rotates forward when the remaining paper is lower than the value of SP1-908-6.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	5	Paper Tray Adj. (M Size Comeback T - 1)	Optional Paper Tray Unit Only: Adjusts the upper lift motor forward rotation time for paper sizes larger than the small size threshold set with SP1-908-8, up to and including the middle size threshold set with SP1-908-9. The motor rotates forward when the remaining paper is lower than the value of SP1-908-7. If a middle size threshold is not stored with SP1-908-9, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 0 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	6	Paper Tray Adj. (S Size Ret. Amount - 1)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-4.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	7	Paper Tray Adj. (M Size Ret. Amount - 1)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-5. With the default settings, this SP is not used in this machine.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	8	Paper Tray Adj. (S Size Setting - 1)	Optional Paper Tray Unit Only: Selects the small size threshold for the upper tray. "0" means that this setting is not used.	0: Non (Not use) 1: HLT/A5
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.	2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4





Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	9	Paper Tray Adj. (M Size Setting - 1)	Optional Paper Tray Unit Only: Selects the middle size threshold for the upper tray. "0" means that this setting is not used. With the default settings, this SP is not used in this machine.	0: Non (Not use) 1: HLT/A5 2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	<i>The value must be larger than the small size threshold (SP1-908-8). The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.</i>	
	10	Paper Tray Adj. (N Size Back Time - 2)	Optional Paper Tray Unit Only: If a middle size threshold is not stored with SP1-908-18, this SP adjusts the lower lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-17. If a middle size threshold is stored with SP1-908-18, then this SP adjusts the motor reverse time for sizes larger than the middle size.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	11	Paper Tray Adj. (S Size Back Time - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor reverse time for paper of the same size as or smaller than the small size threshold set with SP1-908-17.	0 ~ 9000 1 ms/step 600 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	12	Paper Tray Adj. (M Size Back Time - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor reverse time for paper sizes larger than the small size threshold set with SP1-908-17, up to and including the middle size threshold set with SP1-908-18. If a middle size threshold is not stored with SP1-908-18, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 100 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	13	Paper Tray Adj. (S Size Comeback T - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor forward rotation time for paper of the same size as or smaller than the small size threshold set with SP1-908-17. The motor rotates forward when the remaining paper is lower than the value of SP1-908-15.	0 ~ 9000 1 ms/step 300 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	14	Paper Tray Adj. (M Size Comeback T - 2)	Optional Paper Tray Unit Only: Adjusts the lower lift motor forward rotation time for paper sizes larger than the small size threshold set with SP1-908-17, up to and including the middle size threshold set with SP1-908-18. The motor rotates forward when the remaining paper is lower than the value of SP 1-908-16. If a middle size threshold is not stored with SP1-908-18, this SP is not used (with the default settings, this SP is not used in this machine).	0 ~ 9000 1 ms/step 0 ms
			See "Option - Paper Tray Unit" for details on SP1-908.	
	15	Paper Tray Adj. (S Size Ret. Amount - 2)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-13.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	16	Paper Tray Adj. (M Size Ret. Amount - 2)	Optional Paper Tray Unit Only: Selects the remaining paper amount limit for use with SP1-908-14. With the default settings, this SP is not used in this machine.	0: Non (Empty) 1: Near End
			See "Option - Paper Tray Unit" for details on SP1-908.	2: 25% 3: 75%
	17	Paper Tray Adj. (S Size Setting - 2)	Optional Paper Tray Unit Only: Selects the small size threshold for the lower tray. "0" means that this setting is not used.	0: Non (Not use) 1: HLT/A5
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.	2: A4T 3: LG, LTT 4: DLT, LT 5: A3, A4





Mode No.			Function	Settings
Class 1 and 2	Class 3			
1-908*	18	Paper Tray Adj. (M Size Setting - 2)	Optional Paper Tray Unit Only: Selects the middle size threshold for the lower tray. "0" means that this setting is not used. With the default settings, this SP is not used in this machine.	0: Non (Not use) 1: HLT/A5 2: A4T 3: Lg, LTT 4: DLT, LT 5: A3, A4
		NOTE: The "T" after A4 and LT refer to length-wise feeding direction.	<i>The value must be larger than the small size threshold (SP1-908-17). The size used by SP1-908 is determined by paper width. See "Option - Paper Tray Unit" for details on SP1-908.</i>	
1-909*		Tray Motor Reverse Time	Adjusts the tray motor reverse time. <i>The tray motor reverses when the tray is pulled out. The tray can be put back in the machine without damage while the motor reverses. See "Option - Paper Tray Unit" for details on SP1-908.</i>	0 ~ 9000 1 ms/step 1700 ms
2-001*		Charge Roller Bias Adjustment	Adjusts the voltage applied to the charge roller. Do not change the value.	0 ~ -1500 1 V/step -600 V
2-101*	1	Erase Margin Adjustment (Leading Edge)	Adjusts the leading edge erase margin. <i>The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
	2	Erase Margin Adjustment (Trailing Edge)	Adjusts the trailing edge erase margin. <i>The specification is more than 0.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 3 mm
	3	Erase Margin Adjustment (Left Side)	Adjusts the left edge erase margin. <i>The specification is 2 ± 1.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
	4	Erase Margin Adjustment (Right Side)	Adjusts the right edge erase margin. <i>The specification is more than 0.5 mm. See "Replacement and Adjustment - Copy Adjustment" for details.</i>	0 ~ 9 1 mm/step 2 mm
2-103*		LD Power Adjustment	Adjusts the LD power. Do not change the value.	0 ~ 255 1 /step 129
2-106*		ID Adj. for Test Pattern	Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP5-902).	0 ~ 255 1 /step 255



Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-401*	1	User Code Mode (Copier)	Selects whether the user code feature is enabled in copy mode or not. <i>If this value is changed, the user tool setting is also changed.</i>	0: No 1: Yes
	2	User Code Mode (Fax)	This SP is for Japan only. Do not change the value. <i>If this value is changed, the user tool setting is also changed.</i>	
	3	User Code Mode (Printer)	This SP is for Japan only. Do not change the value. <i>If this value is changed, the user tool setting is also changed.</i>	
5-504*		Jam Alarm Setting	This SP is for Japan only. Do not change the value.	
5-507*	1	Paper/Toner Alarm (Paper)	This SP is for Japan only. Do not change the value.	
	2	Paper/Toner Alarm (Toner)		
5-508*	1	CE Call (Jam Level 1)	This SP is for Japan only. Do not change the value.	
	2	CE Call (Jam Level 2)		
	3	CE Call (Door Open)		
5-801		Memory All Clear	Resets all software counters. Also, returns all modes and adjustments to the default settings. See the "Memory All Clear" section for how to use this SP mode correctly.	
			Normally, this SP mode should not be used. <i>It is used only after replacing the NVRAM or when the copier malfunctions due to a damaged NVRAM.</i>	
5-802		Free Run	Performs a free run for both the scanner and the printer. <i>After selecting "1", press "OK" or the (Ⓢ) key twice to start this feature. Press the (Ⓢ) (Clear/Stop) key to stop.</i>	0: No 1: Yes
5-803		Input Check	Displays signals received from sensors and switches. <i>Press the (Ⓢ) (Clear Modes) key to exit the program. See the "Input Check" section for details.</i>	
5-804		Output Check	Turns on electrical components individually for test purposes. <i>See the "Output Check" section for details.</i>	



Mode No.			Function	Settings
Class 1 and 2	Class 3			
5-906*		Exhaust Fan Control Timer	Inputs the fan control timer for energy saver mode.	30 ~ 120 1 s/step 30 s
			<i>The fan slows down after this time has passed since the end of a job. The fan stops after this time has passed since any of the following conditions occurred: After entering sleep mode (fax/prINTER installed) After entering an SC condition.</i>	
5-907		Plug & Play Setting	Selects the brand name and the production name for the Plug and Play function of Windows 95/98. These are registered in the NVRAM. If the NVRAM is defective, these names should be registered again.	
			<i>Press the "Photo mode" key and then the "OK" key or (Ⓢ) key at the same time to register the setting. If the setting was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	
5-908*		Maintenance LED Display	Selects whether the maintenance LED blinks when the PM interval expires.	0: No 1: Yes
			<i>When installing the machine, if the customer requires that the maintenance LED blinks, select "Yes". The PM alarm interval is set with SP5-912.</i>	
5-911*		APS A4/LT Sideways Priority	Specifies whether the machine selects LT sideways paper if the original is A4. In inch models, if "Yes" is selected, LT sideways is selected automatically when the APS sensors detect an A4 sideways original. In mm models, if "Yes" is selected, A4 sideways is selected automatically when the APS sensors detect an LT sideways original.	0: No 1: Yes
5-912*		Maintenance Alarm Interval	Inputs the PM alarm interval.	1 ~ 255 1 k sheets/step 100 k sheets
			<i>When the machine reaches the value, the Maintenance LED will light to inform the user. The value is used SP5-908.</i>	
5-913		UP Mode Data Reset	Resets the user tool data.	0: No 1: Yes
			<i>Except for the user codes, key operator code, and key operator printer counter.</i>	
5-914*		Printer Counter Display	Selects whether the printer counter is displayed in the LCD or not.	0: No 1: Yes
			<i>If this is "0", it does not display or print out in the counter print out.</i>	
5-925		Serial Number Display	Displays the serial number.	

Mode No.			Function	Settings
Class 1 and 2	Class 3			
7-504*	1	Total Jams by Location (A Jam)	Displays the total number of paper jams by location.	
	2	Total Jams by Location (B Jam)		
	3	Total Jams by Location (C Jam)		
	4	Total Jams by Location (R Jam)		
	5	Total Jams by Location (Y Jam)		
	6	Total Jams by Location (1st)		
	7	Total Jams by Location (2nd)		
	8	Total Jams by Location (3rd)		
7-504*	9	Total Jams by Location (By-pass)	Displays the total number of paper jams by location.	
7-801	1	ROM Version/Connection (Main Control)	Displays the ROM version.	
	2	ROM Version/Connection (BiCU)		
	3	ROM Version/Connection (FAX Control)		
	4	ROM Version/Connection (Printer Control)		
	5	ROM Version/Connection (ADF Control)		
	6	ROM Version/Connection (PI)	Displays the whether an option is connected or not. NOTE: SP7-801-6 is used only for the Japanese version.	
	7	ROM Version/Connection (Memory)		
	8	ROM Version/Connection (1 Bin Tray)		
	9	ROM Version/Connection (Paper Tray Unit)		
7-807		SC/Jam Counter Reset	Resets the SC and jam counters. <i>Press down the "Photo mode" key and then the "OK" or  key at the same time to reset the counters. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes

Mode No.			Function	Settings
Class 1 and 2	Class 3			
⇒ 7-808		Resets Counters	Resets the counters except for the total counter (SP7-003) and the timer counter (SP7-991). <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counters. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-810		Key Operator Code Reset	Resets the key operator code. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the code. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-825		Total Counter Reset	Resets the electrical total counter. <i>Usually, this SP mode is done at installation. This SP mode is effective only once, when the counter has a negative value. Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-901*		SC History Display	Displays the last twenty SC codes that have occurred.	0: No 1: Yes
⇒ 7-902		SC History Clear	Resets the SC history. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-903*		Copy Jam History Display	Displays the copy jams that have occurred.	0: No 1: Yes
⇒ 7-904		Copy Jam History Clear	Resets the copy jam history. <i>Press the "Photo mode" key and then the "OK" or (⊕) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-905		Orig. Jam History Display	Displays the original jams that have occurred.	0: No 1: Yes

Mode No.			Function	Settings
Class 1 and 2	Class 3			
⇒ 7-906		Orig. Jam History Clear	Resets the original jam history. <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
⇒ 7-907		Timer Counter Reset	Resets the timer counter (SP7-991). <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-908*		Maintenance Count. Display	Displays the value of the maintenance counter (number of copies since the last PM).	
⇒ 7-909		Maintenance Count. Reset	Resets the maintenance counter. <i>Press the "Photo mode" key and then the "OK" or (#) key at the same time to reset the counter. If the reset was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.</i>	0: No 1: Yes
7-991*		Timer Counter Display	Displays the total time that the main switch has been turned on.	

4.2.9 MEMORY ALL CLEAR (SP5-801)

NOTE: Memory All Clear mode resets all the settings and counters stored in the NVRAM to the defaults, except for the following:

- Electrical total counter value (SP7-003)
- Machine serial number (SP5-811)
- Plug & Play brand name and production name setting (SP5-907)
- Some SBU settings (SP4-904-3, SP4-904-4, SP4-906, SP4-909)

Normally, this SP mode should not be used. This procedure is necessary only after replacing the NVRAM, or when the copier malfunctions because the NVRAM is damaged.

Using a Flash Memory Card

1. Upload the NVRAM data to a flash memory card (see NVRAM Data Upload).
2. Print out all SMC data lists (SP mode 5-992).
NOTE: Be sure to print out all the lists. If the NVRAM data upload was not completed, it is necessary to change the SP mode settings by hand.
3. Access SP mode 5-801.
- ⇒ 4. Depress the "Photo Mode" key and then the "OK" or (#) key at the same time. (If the operation was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.)
5. Turn the main switch off and back on.
6. Download the NVRAM data from a flash memory card (see NVRAM Data Download).

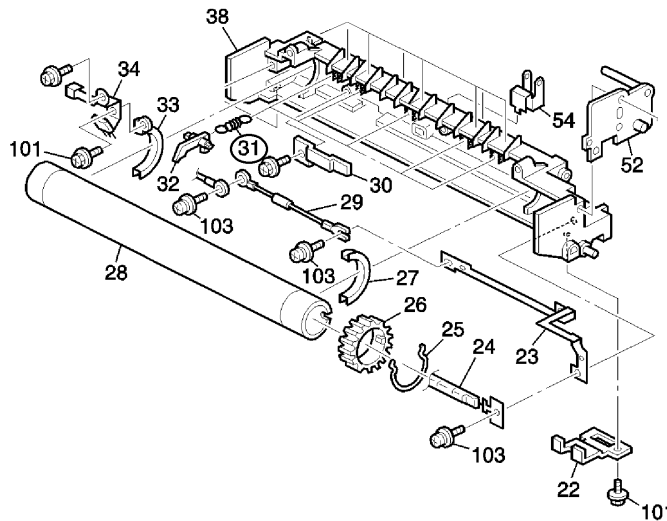
Without Using a Flash Memory Card

If there is no flash memory card, follow the steps below.

1. Print out all SMC Data Lists (SP mode 5-992).
2. Access SP mode 5-801.
- ⇒ 3. Depress the "Photo Mode" key and then the "OK" or (#) key at the same time. (If the operation was successful, the beeper will sound 5 times. If it failed, the beeper will sound only twice.)
4. Turn the main switch off and back on.
5. Do the printer and scanner registration and magnification adjustments (see Replacement and Adjustment - Copy Adjustments).
6. Referring to the SMC data lists, re-enter any values that differ from the factory settings. In particular, the values for SP4-904-1, SP4-904-2, SP4-905, and SP4-907 must be re-entered.
7. Do the standard white level adjustment (SP4-908). (See Replacement and Adjustment – Standard White Density Adjustment for details.)
8. Check the copy quality and the paper path, and do any necessary adjustments.

BULLETIN NUMBER: A250/B001 – 020
03/28/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: PICKOFF PAWL SPRING
GENERAL:

The tension of the Pickoff Pawl Spring has been increased to prevent the copy from being mis-fed at the Fusing Unit. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT		PAGE	ITEM
G0294143	A2504143	Pickoff Pawl Spring	1	1		21	31

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Pickoff Pawl Spring installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700100001
Gestetner 3215S	H4300200013
Ricoh AFICIO 180	H1700100178
Ricoh AFICIO 150	H4300200103
Savin 9918DP	H1700100001
Savin 2015DP	H4300200013

BULLETIN NUMBER: A250/B001 – 020 REISSUE ★

06/14/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

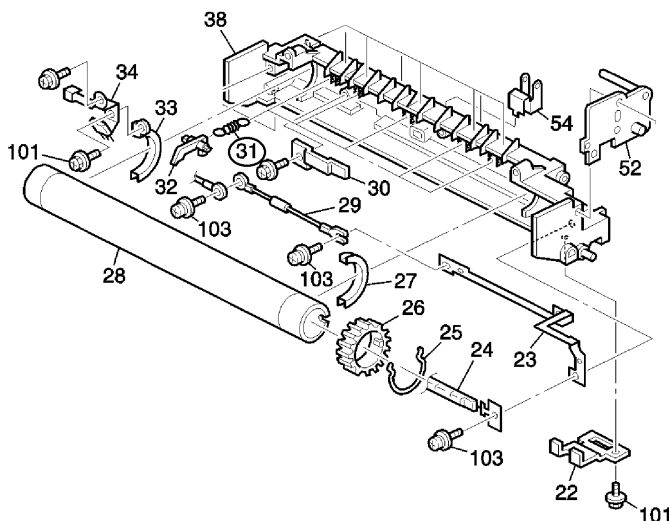
RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: PICKOFF PAWL SPRING

GENERAL:

- ★ The tension of the Pickoff Pawl Spring has been increased to prevent misfeeds (Accordion / Z-Fold Jams) within the Fusing Unit. The following part update is being issued for all A250 Parts Catalogs. Please update your Parts Catalogs with the following information.



						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
★ G0294143	A2504143	Pickoff Pawl Spring	5	1	21	31	

- ★ **NOTE 1:** Bulletins A250/B001 – 002, 007, 011, 014, 015 and 018 reference modifications to the Fusing Unit but these modifications do not address jamming issues. Please reference these bulletins only if you are experiencing the issues addressed by these bulletins.
- ★ **NOTE 2:** Also Bulletin A250/B001 – 022 reference a modification to the Registration Feeler. If the Registration Feeler “hangs up”, it causes a timing issue and the paper will feed just out of the Fusing Unit. Although this looks like a jam in the Fusing Unit, it is not. The paper is also not “Accordion / Z-Folded” as is the symptom with the Pickoff Pawl Spring issue.

Continued...



UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Pickoff Pawl Spring installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700100001
Gestetner 3215S	H4300200013
Ricoh AFICIO 180	H1700100178
Ricoh AFICIO 150	H4300200103
Savin 9918DP	H1700100001
Savin 2015DP	H4300200013

BULLETIN NUMBER: A250/B001 - 021

03/29/2000

APPLICABLE MODEL:

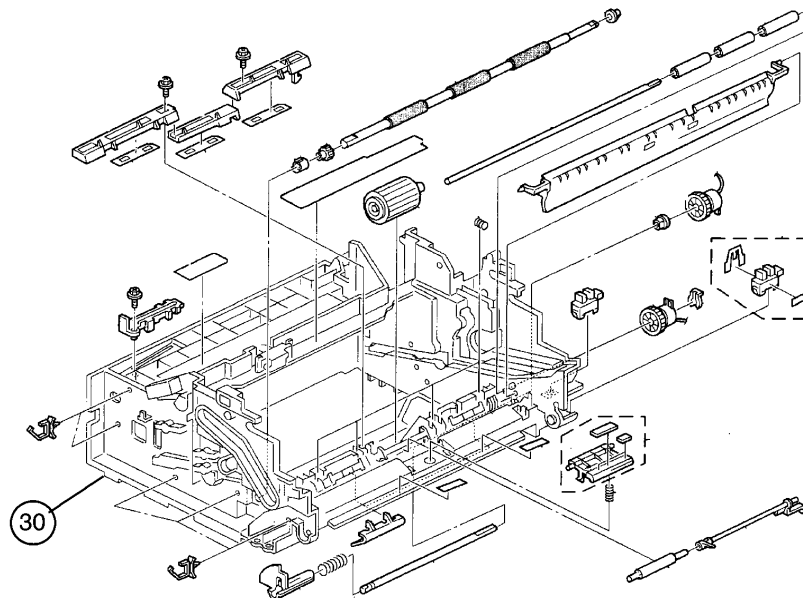
GESTETNER - 3218
RICOH - AFICIO 180
SAVIN - 9918DP

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following Parts Updates are being issued for all A250 Parts Catalogs.

- **UPDATE 1:** **A250 Registration Frame** – Please add the Registration Frame section to your parts catalog.

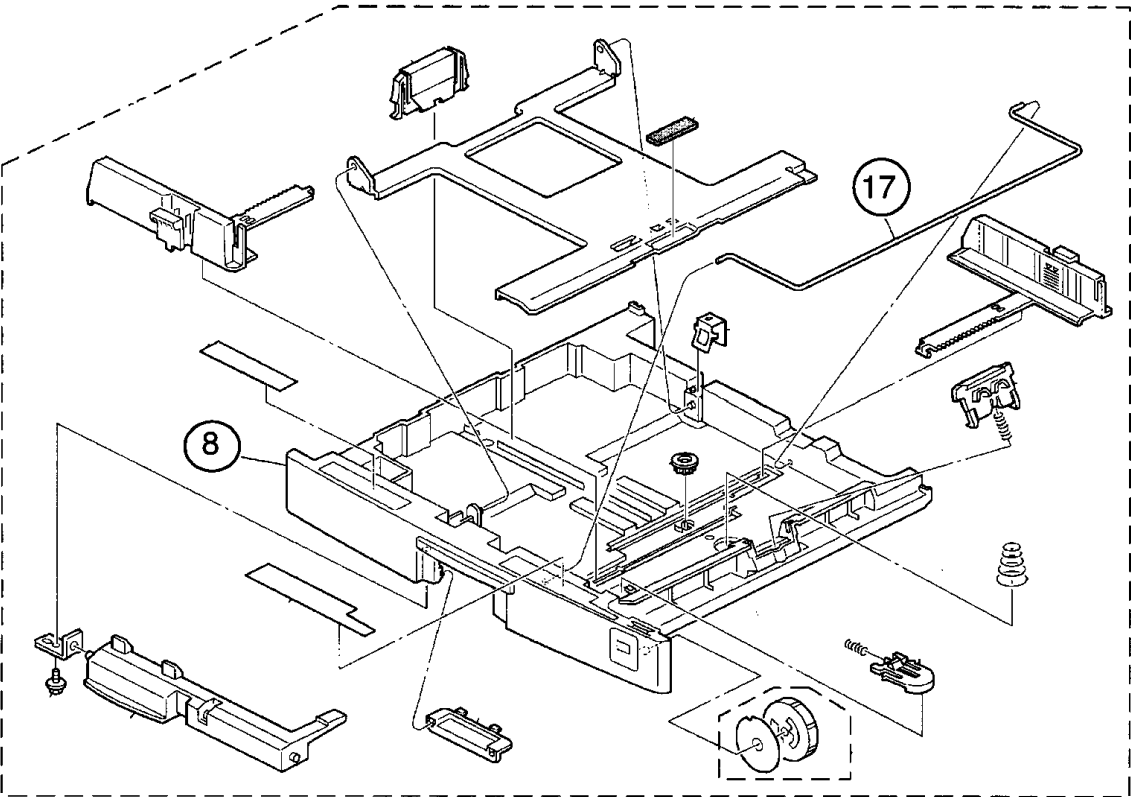


			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
A2501164	Frame Registration	1	23	30

Continued...



- **UPDATE 2:** **Paper Tray** – Due to a vender changed for the Paper Tray and Tray Lift Shaft the part number have also changed.



				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2502815	A2502828	Lift Tray Shaft	1	27	17
A2502800	A2502830	Paper Tray	1	27	8

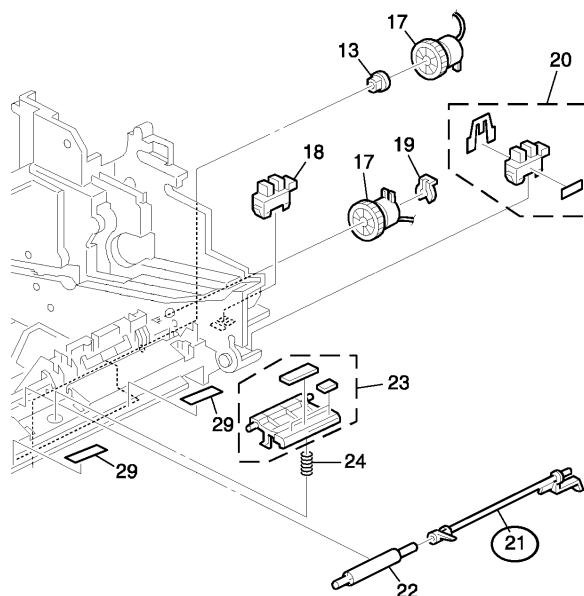
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new Paper Tray and Tray lift Shaft installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1790800001
Ricoh Aficio 180	H1790700001
Savin 9918DP	H1790800001

BULLETIN NUMBER: A250/B001 - 022
04/17/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: REGISTRATION FEELER
GENERAL:

To prevent the Registration Feeler from becoming dislodged, a new style Registration Feeler is now available. The following part update is being issued for all A250/B001 Parts Catalogs. Please update your Parts Catalogs with the following information.



Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT		PAGE	ITEM
G0292556	A2502659	Registration Feeler	1	1		23	21

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Registration Feeler installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700200001
Gestetner 3215S	H4300200013
Ricoh AFICIO 180	H1700200726
Ricoh AFICIO 150	H4300200103
Savin 9918DP	H1700200001
Savin 2015DP	H4300200013

BULLETIN NUMBER: A250/B001 - 023

05/08/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

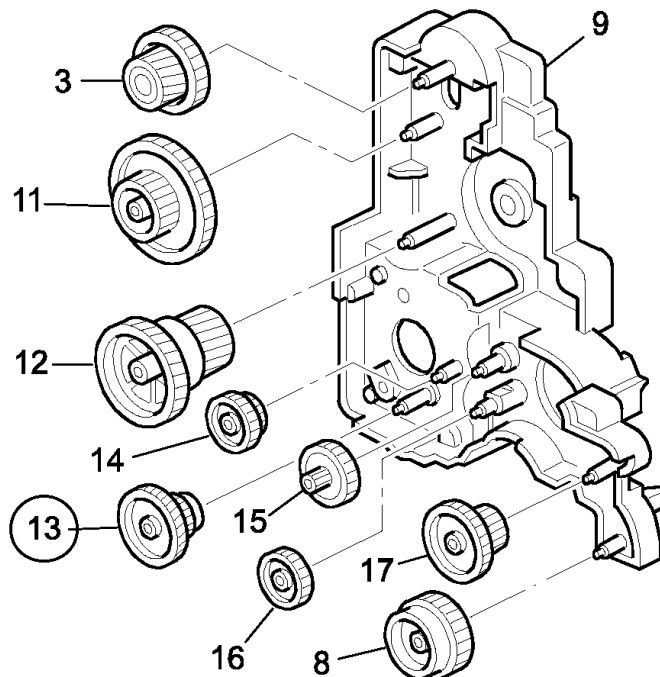
SAVIN – 9918DP/2015DP

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

- **UPDATE 1:** **Gear: C-6** – Gear C-6 has been modified to prevent abnormal sounds. The following part update is being issued for all A250 Parts Catalogs. Please update your parts catalog with the following information.



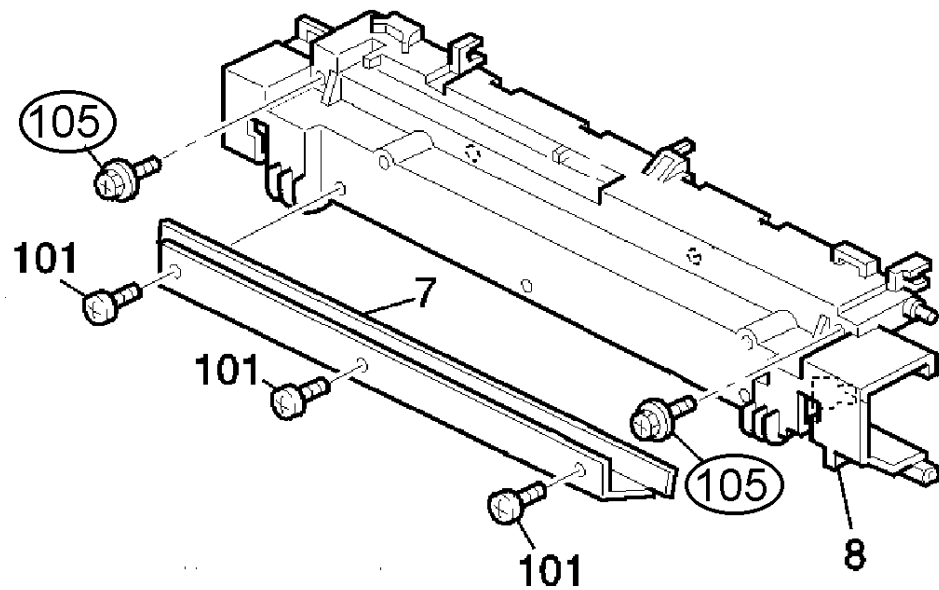
A250 only

OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	REFERENCE	
					PAGE	ITEM
G0291110	G0291120	Gear: C-6	1	0	35	13

Continued...



- **UPDATE 2:** **Tapping Screw – M3x14** – To prevent damage to the plastic screw holes, the length of the Tapping Screw has been increased from 10 to 14 mm. The following part update is being issued for all A250/B001Parts Catalogs. Please update your parts catalog with the following information.



A250 and B001

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
04503010B	04503014B	Tapping Screw – M3x14	2	1	21	105 *

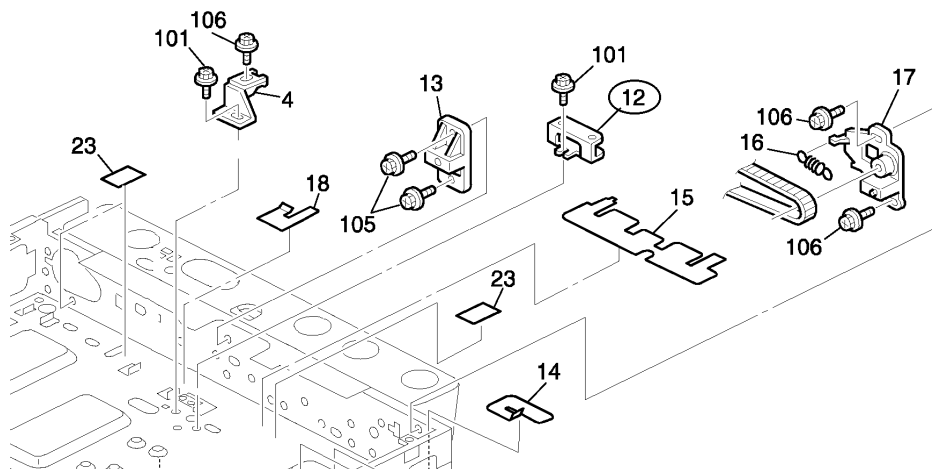
* Denotes new item number.

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Tapping Screw – M3x14 installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700200526
Gestetner 3215s	H430020058
Ricoh AFICIO 180	H1700201786
Ricoh AFICIO 150	H4300200103
Savin 9918DP	H1700200526
Savin 2015DP	H430020058

- **UPDATE 3:** **Positioning Bracket** – The shape of the Positioning Bracket has been modified to facilitate assembly. The following part update is being issued for all A250 Parts Catalogs. Please update your parts catalog with the following information.



A250 only

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501756	A2501830	Positioning Bracket	1	0	17	12

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Positioning Bracket installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1790500001
Ricoh AFICIO 180	H1790500301
Savin 9918DP	H1790500001

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.		

BULLETIN NUMBER: A250/B001 - 024
05/15/2000
APPLICABLE MODEL:

**GESTETNER – 3218
RICOH – AFICIO 180
SAVIN – 9918DP**

SUBJECT: FUSER UNIT
GENERAL:

To prevent the scraping / deformation of the Pressure Release Lever tip, the following part has changed.
The following part corrections are being issued for all A250 Parts Catalogs.


PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504017	A2504018	Fusing Unit – 120V	1	0	21	1
A2504027	A2504028	Fusing Unit – 220V	1	0	21	1

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Fusing Unit installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1791000001
Ricoh Aficio 180	H1791000296
Savin 9918DP	H1791000001

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.		

BULLETIN NUMBER: A250/B001 - 025

05/26/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S
RICOH – AFICIO180/150
SAVIN – 9918DP/2015DP

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:

- v Updated Information (TOC Page)
- vi Updated Information (TOC Page)
- 7-14~17 Additional Information Pages (A250 Firmware Modification History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



**SERVICE
MANUAL**

BULLETIN NUMBER: A250/B001 – 025 REISSUE ★

01/26/2001

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO180/150

SAVIN – 9918DP/2015DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

★ **NOTE:** Please Remove the Firmware History on Pages 4-61 through 4-63.

The Service Manual pages listed below must be replaced with the pages supplied.
Each bulletin package contains 1 set of replacement pages.

PAGES:

- v Updated Information (TOC Page)
- vi Updated Information (TOC Page)
- 7-14~17 Additional Information Pages (A250 Firmware Modification History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



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7.5 FIRMWARE HISTORY

7.5.1 A250 FIRMWARE MODIFICATION HISTORY

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
1st Mass Production	A2505532 A	1st Mass Production	2.09
- The default setting for the maintenance LED display (SP5-908) has been changed as follows. NEW: 1 (Yes) OLD: 0 (No) - When the value of the total counter is over 9999 or a negative value, the SC history and jam histories are displayed incorrectly (out of order). - If the machine receives a fax message during a print or copy job (with rotate-sort), the polygonal motor does not stop after the job has been completed. - It is occasionally required to press the interrupt key more than once to produce a response.	A2505532 C	May 1999 Production	2.12
- The machine can not determine the 8k and 16k when auto- enlarge / auto-reduce is performed. - When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop (as it should). - When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). - The firmware will be modified so that SC620 will be displayed when an ADF from another machine is installed.	A2505532 D	June 1999 Production	2.14

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
• (For Asia/Taiwan only): • The following is printed incorrectly on the counter value report: OK: <Counter NG: Xounter • The default setting of the Printer Main Magnification (SP2-998) has been changed as follows. NEW: 0.2 % OLD: 0.0 % • Sometimes SC620 is not cleared when the machine goes into sleep mode. • SC101 is sometimes displayed when the ADF stamp is activated. • If the remaining amount of paper shifts to the next lowest value while the counter report is being printed out, the print job is canceled.	A2505532 G	July 1999	2.19
• When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. • Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	A2505532 H	August 1999 Production	2.21
• When the Energy Saver Mode key is pressed while a print job is being done in the background, the machine will go into Energy Saver Mode. However when the operator releases the mode and returns to the system settings or copy features (both inside user tools), a message is displayed asking the operator to wait and the machine returns to the main copy screen (although it is still in user tools). The LED for the user tools key is lit, and all indicators except the LCD report that the machine is still in user tools.	A2505532 J	October 1999 Production	2.27
Continued Next Page			

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Continued Previous Page • After the operator exits either of the following screens with the User Tools key and starts a copy job, the first sheet is printed out as the counter list. • System Settings • Key Operator Tools • Counter list printing • Copy Features • Key Operator Tools • Counter list printing • If a jam occurs while printing out a counter report, the jam indication is displayed but soon disappears. The machine then returns to the counter display screen. In addition, if the paper end condition occurs while the paper is being fed (after the start key is pressed), the machine returns to the counter display screen without properly displaying "Set A4 (8 1/2 X 11) paper in tray". • When a printer sort job and counter list job overlap each other the counter list is not printed out. • When the memory becomes full during a copy job using the "combine" function, the image being printed at the time contains errors. • After setting several originals in the ADF and scanning a fax cover sheet using Auto Document, the operator exits the mode but cannot make copies using the ADF. • Abnormal image occurs when an A5 sideways original is enlarged to 8K (tray 3) using Auto-Enlarge. A5 lengthwise prints out normally.	A2505532 J	October 1999 Production	2.27

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
- The detection conditions for SC546 have been changed as follows: Old: - Detection during warm-up, standby and Energy Saver Mode. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5-second detection intervals. New: - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. - Previously, it was necessary to enter the SP Modes to clear SC547. It is now possible to clear the code by turning the main power switch “off” then “on”.	A2505532 K	May 2000 Production	2.33
- There are two detection's for SC546. 1. After the Fusing Lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. 2. The fusing temperature does not reach 74 degrees within 22 seconds of the start of main power warm-up or recovery from Energy Saver/Low Power Mode. The machine did not clear the timer for condition 2 when the Fusing Lamp was heated up to 100%.	A2505532 L	May 2000 Production	2.34

BULLETIN NUMBER: A250/B001 - 026

07/13/2000

APPLICABLE MODEL:

GESTETNER - 3215S

RICOH - AFICIO 150

SAVIN - 2015DP

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 ⇒.

- 5-1 Updated Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



BULLETIN NUMBER: A250/B001 - 027
08/02/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: PARTS CATALOG UPDATES
GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

- **UPDATE 1:** **Operating Instructions** – The Operating Instructions-System LAN has been deleted. Please update your A250 Parts Catalogs with the following information.

A250 only

				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2508637	-	Operating Instructions-system LAN	1→0	53	11

- **UPDATE 2:** **Operating Instructions Descriptions** – The following Operating Instruction descriptions have been changed. Please update your A250 Parts Catalogs with the following information.

A250 only

				REFERENCE	
PART NO.	OLD DESCRIPTION	NEW DESCRIPTION	QTY	PAGE	ITEM
A2507297	Operating Instructions-copy NRG NA	Operating Instructions-copy NRG NA (SVN)	1	53	9
A2508697	Operating Instructions-system NRG	Operating Instructions-system NRG (SVN)	1	53	11

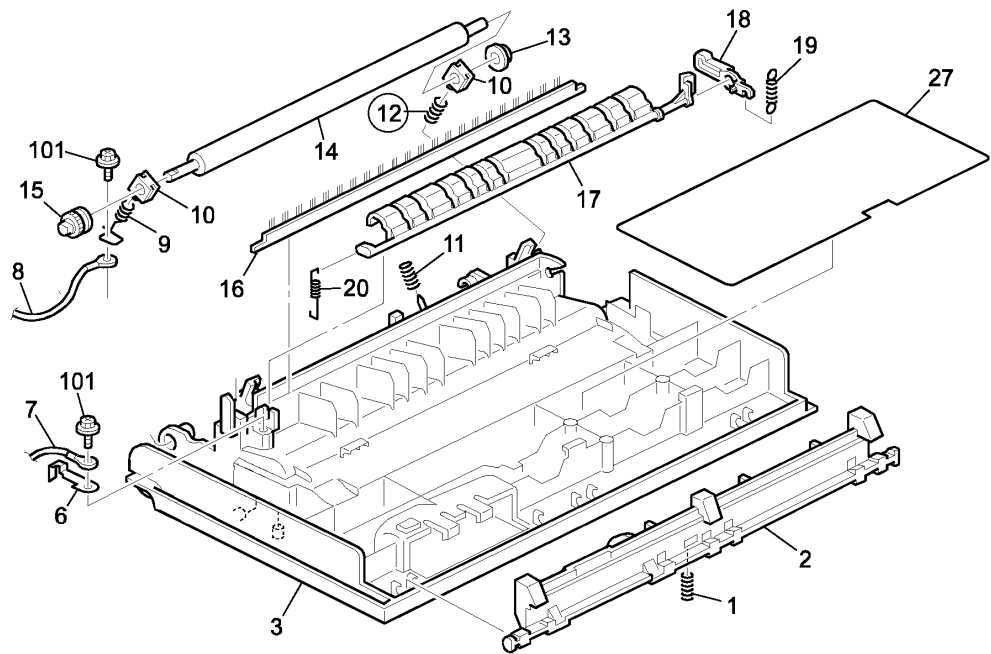
Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

Continued...

- **UPDATE 3:** **Compression Spring** – The tension of the Rear Compression Spring for the Transfer Roller has been increased to prevent the trailing edge of the copy image from not being parallel to the paper edge. Also, the tension has been increased to prevent thin lines from appearing on the bottom edges of the copy. Please update your A250/B001 Parts Catalogs with the following information.



A250/B001					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2503854	G0293854	Compression Spring	1	1	33	12

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Compression Spring installed during production.

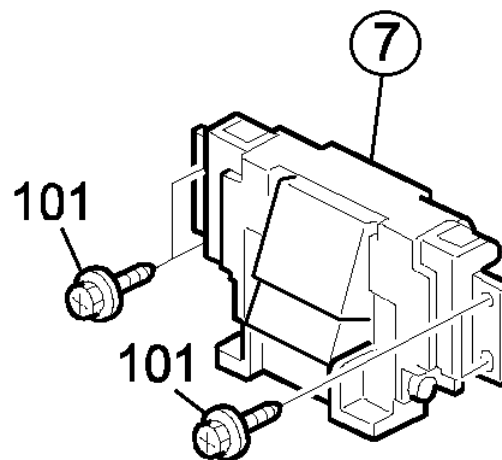
MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1791000001
Gestetner 3215S	H4391100001
Ricoh AFICIO 180	H1791000466
Ricoh AFICIO 150	H4391100146
Savin 9918DP	H1791000001
Savin 2015DP	H4391100001

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.		

BULLETIN NUMBER: A250/B001 - 028
08/23/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: PLATEN COVER HINGE ASSEMBLY
GENERAL:

The lubricant applied to the Platen Cover Hinge Assembly has been changed from oil to grease. Grease is being used because there were incidents where the oil had evaporated creating friction between the Assembly and the Shaft. This would cause the mechanism to lock. The following part update is being issued for all A250/B001 Parts Catalogs.



Note: This copy is intended as a master original for reproduction of additional bulletins.


PARTS

				REFERENCE		
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A1931246	A1931248	Platen Cover Hinge Assembly	1	1	9	7

UNITS AFFECTED:

A250/B001 Serial Number cut-ins were 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.		

BULLETIN NUMBER: A250/B001 - 029

09/13/2000

APPLICABLE MODEL:

GESTETNER - 3218

RICOH - AFICIO 180

SAVIN - 9918DP

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 ⇒.

- 4-61 through 63 Updated Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



⇒ 4.6 ROM HISTORY

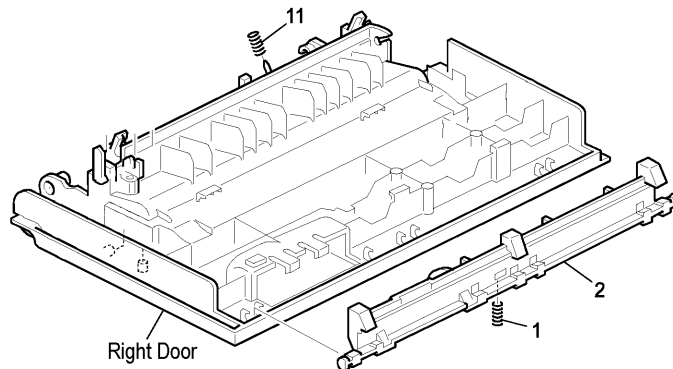
Description (P/N A2505532)	Ver.	Serial #
Initial Production	2.09 A	1 st Mass Prod.
1. The default setting for the maintenance LED (SP5-908) has been changed to 1 (Yes) from 0 (No). 2. When the value of the total counter is over 9999 or a negative value, the SC history is displayed incorrectly (out of order). 3. If the machine receives a fax during a print or copy job (with rotate-sort), the polygon motor does not stop after the job is completed. 4. The machine occasionally required the Interrupt key to be depressed more than once to produce a response.	2.12 C	May '99 Prod.
1. The machine cannot determine the 8k and 16k when auto-enlarge / auto-reduce is performed. 2. When the machine goes into low power mode while warming up, the temperature of the fusing unit does not drop as it should. 3. When clearing the NV-RAM memory, the setting for the polygon motor idling time (SP2-915) is 15 sec (1), although it should be 25 sec (2). 4. The firmware was changed so that a SC620 is displayed when an ADF from another machine is installed.	2.14 D	June '99 Prod.
1. The default setting of the Printer Main Magnification (SP2-998) has been changed to 0.2% from 0.0%. 2. Sometimes SC620 is not cleared when the machine goes into sleep mode. 3. SC101 is sometimes displayed when the ADF stamp is activated. 4. If the remaining amount of paper shifts to the next lowest value while the counter report is being printed, the print job is canceled.	2.19 G	July '99 Prod.
1. When using 8k or 16k sized paper, the logging data report (SMC) is printed out in Japanese. 2. Both edges of the hot roller may be hot when the machine has been running for an extended time in thick paper mode.	2.21 H	Aug. '99 Prod.

Description (P/N A2505532)	Ver.	Serial #
⇒ 1. When the Energy Saver Mode key is pressed while a print job is being done in the background, the machine will go into Energy Saver Mode. However when the operator releases the mode and returns to the system settings or copy features (both inside user tools), a message is displayed asking the operator to wait and the machine returns to the main copy screen (although it is still in user tools). The LED for the user tools key is lit, and all indicators except the LCD report that the machine is still in user tools. 2. After the operator exits either of the following screens with the User Tools key and starts a copy job, the first sheet is printed out as the counter list. • System Settings : Key Operator Tools : Counter list printing • Copy Features : Key Operator Tools : Counter list printing 3. If a jam occurs while printing out a counter report, the jam indication is displayed but soon disappears. The machine then returns to the counter display screen. In addition, if the paper end condition occurs while the paper is being fed (after the start key is pressed), the machine returns to the counter display screen without properly displaying "Set A4 (81/2 X 11) paper in tray". 4. When a printer sort job and counter list job overlap each other the counter list is not printed out. 5. When the memory becomes full during a copy job using the "combine" function, the image being printed at that time will contain errors. 6. After setting several originals in the ADF and scanning a fax cover sheet using Auto Document, the operator exits the mode but cannot make copies using the ADF. 7. Abnormal image occurs when an A5 sideways original is enlarged to 8K (tray 3) using Auto-Enlarge. A5 lengthwise prints out normally.	2.27 J	Oct. '99 Prod.

Description (P/N A2505532)	Ver.	Serial #
⇒ 1. The detection conditions for SC546 have been changed as follows: Old: - Detection during warm-up, standby and Energy Saver Mode. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5-second detection intervals. New: - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. 2. Previously, it was necessary to enter SP Mode to clear SC547. It is now possible to clear the code by turning the main power switch OFF and ON.	2.33 K	May '00 Prod.

BULLETIN NUMBER: A250/B001 - 030
10/05/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: RIGHT DOOR MODIFICATION
GENERAL:

The Right Door has been modified to prevent the Registration Frame from becoming damaged due to excessive stress. A cutout was added to the Door near the hinge area so that the stress will be evenly applied throughout the Cover and not transferred to the Frame. Excessive stress will cause the Cover to break or detach but the Frame will not be damaged. The following part update is being issued for all A250/B001 Parts Catalogs.



Note: This copy is intended as a master original for reproduction of additional bulletins.


PARTS

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT		PAGE	ITEM
A2501264	A2501279	Right Door	1	1		33	3

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Right Door installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	Not Available
Gestetner 3215S	H4300500001
Ricoh AFICIO 180	H1700500801
Ricoh AFICIO 150	H4300500156
Savin 9918DP	H1700500001
Savin 2015DP	H4300500051

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.		

BULLETIN NUMBER: A250/B001 - 031

10/30/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

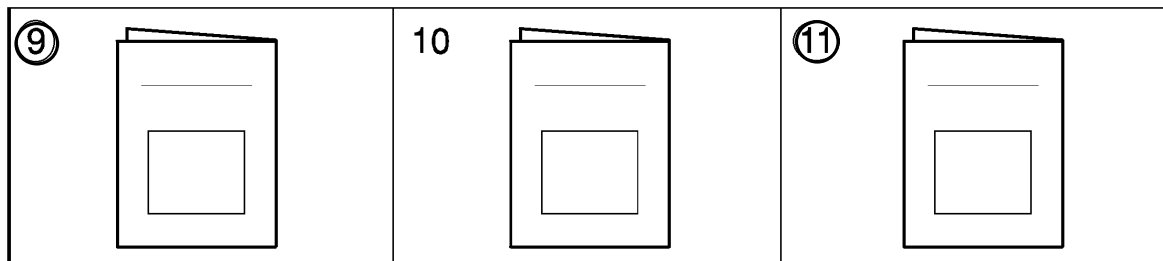
RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: OPERATING INSTRUCTIONS

GENERAL:

The Operating Instructions listed below will no longer be packed with the copier. The following parts updates are being issued for all A250/B001 Parts Catalogs.



				REFERENCE	
PART NUMBER	DESCRIPTION	QTY	INT	PAGE	ITEM
A2507290	Operating Instructions – Copy NRG English	1	-	53	9
A2508690	Operating Instructions – System NRG	1	-	53	11

UNITS AFFECTED:

A250/B001 Serial Number cut-in not available at time of publication.

Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

BULLETIN NUMBER: A250/B001 – 032

11/06/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

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 ⇒.

- 6-7 Updated Information (Firmware History B305)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



■
SERVICE
MANUAL

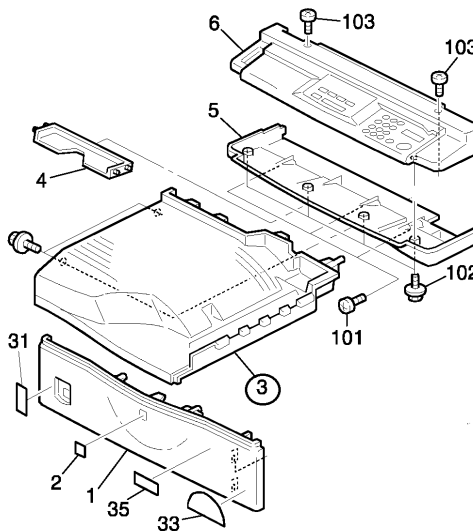
Description of Modification	Firmware Level	Serial Number	Firmware Version
• Even when the PJI command is released instructing the machine to exit the paper to tray 2 (1-bin tray), the paper is not output from this tray. • With Overlay printing, the text outside the fixed overlay pattern is printed out as PCL commands (specifically, the ESC sequence). • The paper is not fed from Tray 2, even when the PJI command is released instructing the machine to do so.	B3055280 E	March 2000 Production	1.3.4
• Error message not displayed when an error occurred during collate mode printing. • This new revision disabled the NIB Read/Write Function.	B3055280 F	April 2000 Production	1.3.6
⇒ • The printed area was shifted slightly, when "Unit of Measure" was defined using the macro command. • The right edge of the printable area for the raster image may not print. • The right edge for the error Log of the Configuration Page criss-crossed each other in Italian and Spanish. • The title of "Printer Name (NetWare)" on the Configuration Page was changed to "Printer Name".	B3055280 G	Sept. 2000 Production	1.4.0

BULLETIN NUMBER: A250/B001 – 033
12/11/2000
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: PARTS CATALOG UPDATES
GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

● UPDATE 1:

Exit Cover – The A250 One-Bin Tray Junction Gate may contact the Mainframe Exit Cover, resulting in accordion jams. To prevent this, the margins of the covers height and positioning angle have been minimized. This results in greater clearance. Please update your A250 Parts Catalog with the following information.


A250 only

A250 only					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501274	A2501281	Exit Cover (NA/TWN/ASIA/CHN)	1	1	7	3
A2501324	A2501325	Exit Cover (EU)	1	1	7	3

UNITS AFFECTED:

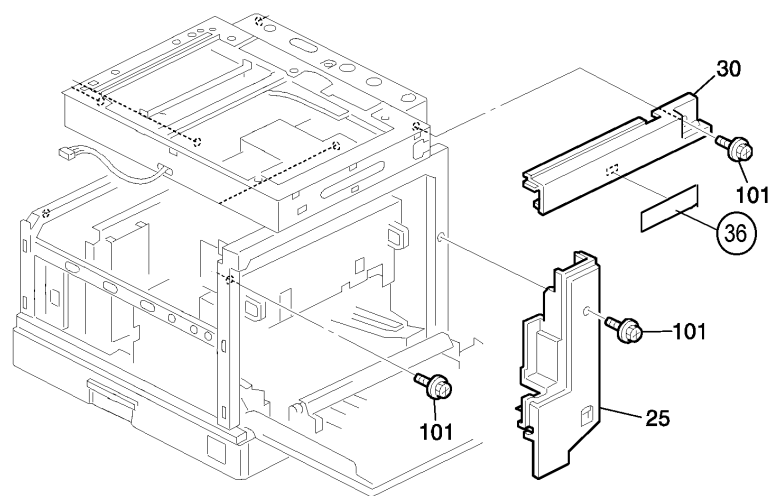
All A250 copiers manufactured after the Serial Numbers listed below will have the new style Exit Cover installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700800001
Ricoh AFICIO 180	H1700800306
Savin 9918DP	H1700800001

Continued...



- **UPDATE 2:** **Decal - Misfeed** – A Misfeed Decal has been added to instruct the users in clearing misfeeds. Please update your A250/B001 Parts Catalog with the following information.



A250/B001					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
-	A2501397	Decal - Misfeed	1	-	7	36 *

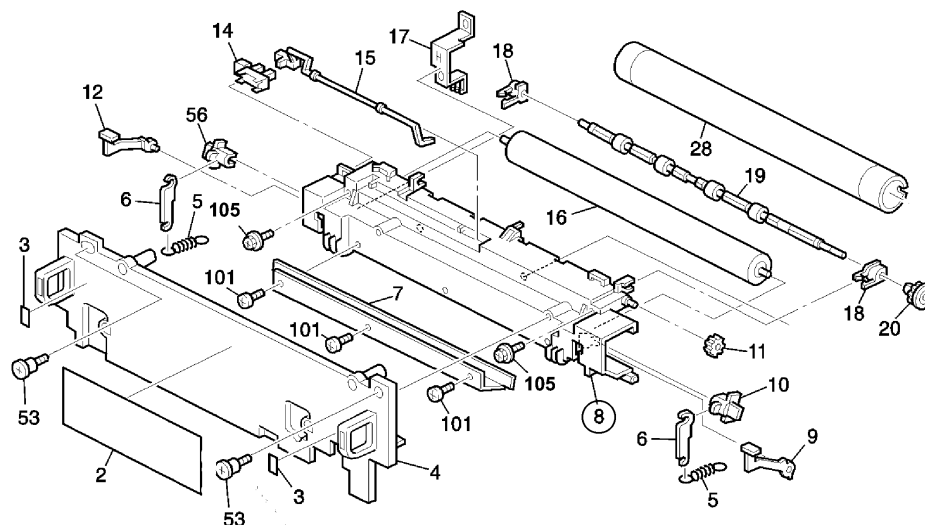
* Denotes new item number.

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the Misfeed Decal installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700600001
Gestetner 3215S	H4300600039
Ricoh AFICIO 180	H1700600460
Ricoh AFICIO 150	H4300600384
Savin 9918DP	H1700600001
Savin 2015DP	H4300600039

- **UPDATE 3:** **Pressure Roller Case** – To ensure that paper feeds properly through the Paper Exit Rollers, two ribs have been added to the A250 Pressure Roller Case. This will help to prevent accordion jams at the Paper Exit area. Please update your A250 Parts Catalog with the following information.



A250 only

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504105	A2504106	Pressure Roller Case	1	1	21	8

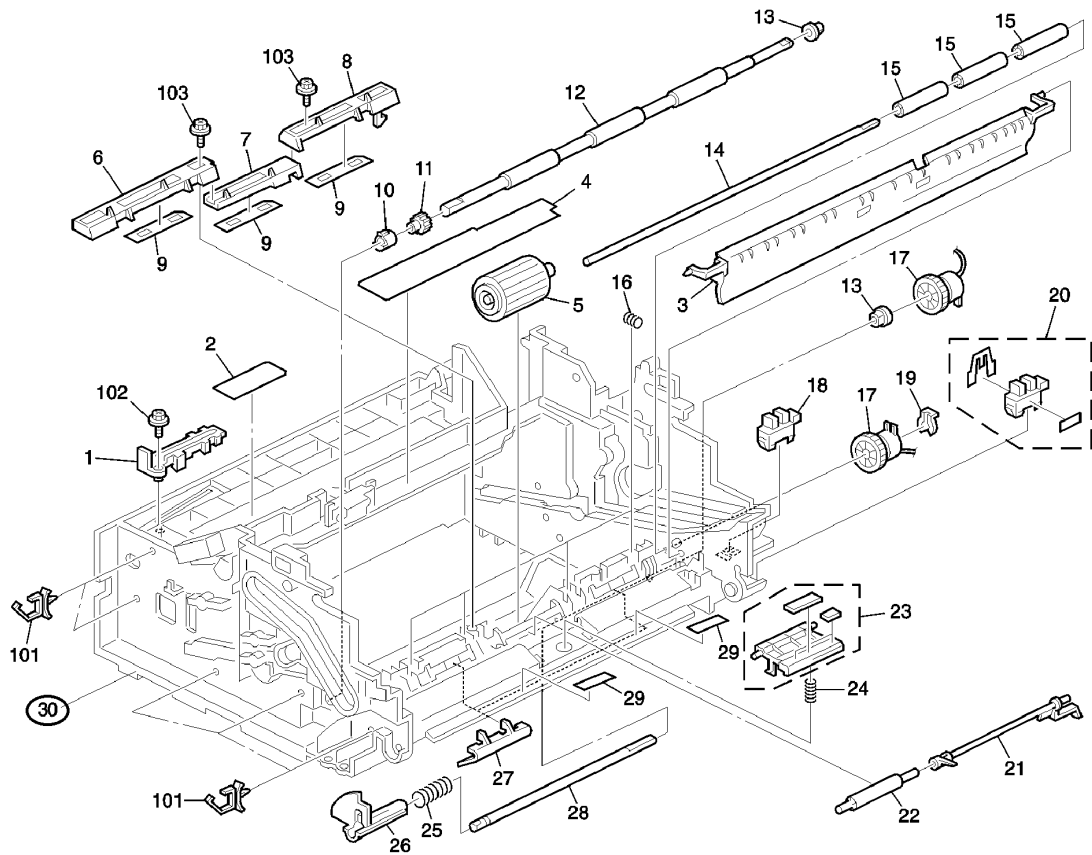
UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Exit Cover installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1790800001
Ricoh AFICIO 180	H1790900321
Savin 9918DP	H1790800001

Continued...

- **UPDATE 4:** **Frame-Registration** – The length of the Registration Frame left Pivot Arm has been increased from 11 mm to 20 mm, increasing the strength of this section by six-fold. This has been done to ensure that cracking and breaking do not occur. Please update your A250/B001 Parts Catalog with the following information.



A250/B001					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501164	A2501167	Frame - Registration	1	1	23	30

* Denotes new item number.

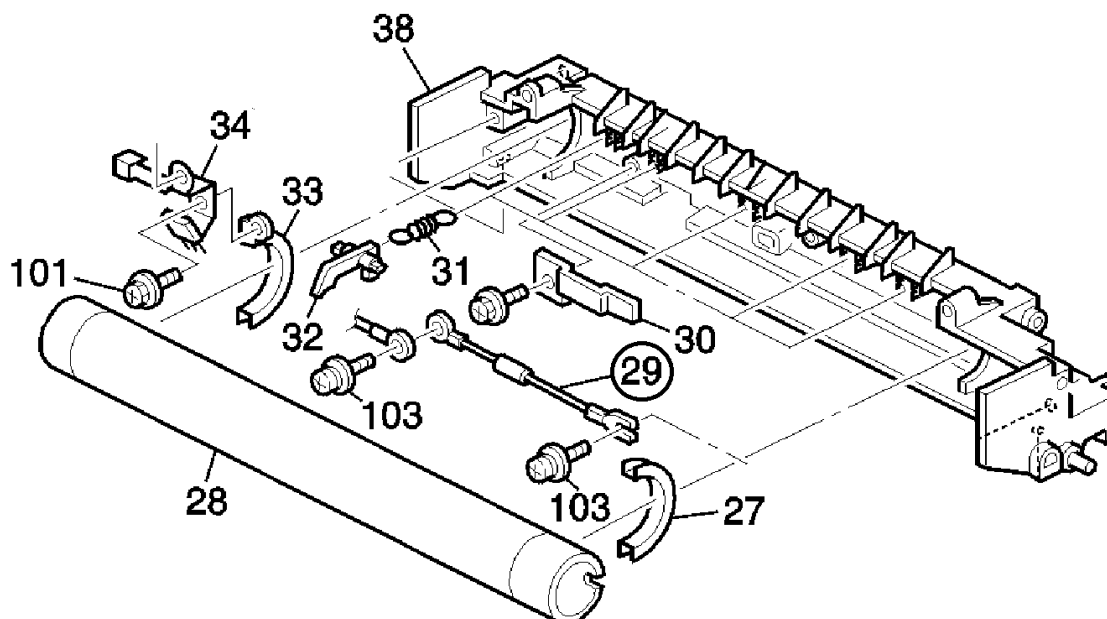
UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Registration Frame installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700700251
Gestetner 3215S	H4300800001
Ricoh AFICIO 180	H1700800306
Ricoh AFICIO 150	H4300800161
Savin 9918DP	H1700700251
Savin 2015DP	H4300800001

Continued...

- **UPDATE 5:** **Thermofuse - 169°C** – The vendor for the Thermofuse - 169°C has been changed. Please update your A250/B001 Parts Catalog with the following information.



A250/B001

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294161	A2804161	Thermofuse - 169°C	1	0	21	29

* Denotes new item number.

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Thermofuse - 169°C installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700700251
Gestetner 3215S	H4300800001
Ricoh AFICIO 180	H1700700631
Ricoh AFICIO 150	H4300800161
Savin 9918DP	H1700700251
Savin 2015DP	H4300800001

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.		

BULLETIN NUMBER: A250/B001 – 034

12/11/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH - AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: FUSER PAPER JAMS

SYMPTOM:

Paper passes underneath the Stripper Pawls and gets caught around the Hot Roller, causing a paper jam.

CAUSE:

Insufficient tension of the Pickoff Pawl Spring (P/N G0294143) allows the paper to get caught around the Hot Roller.

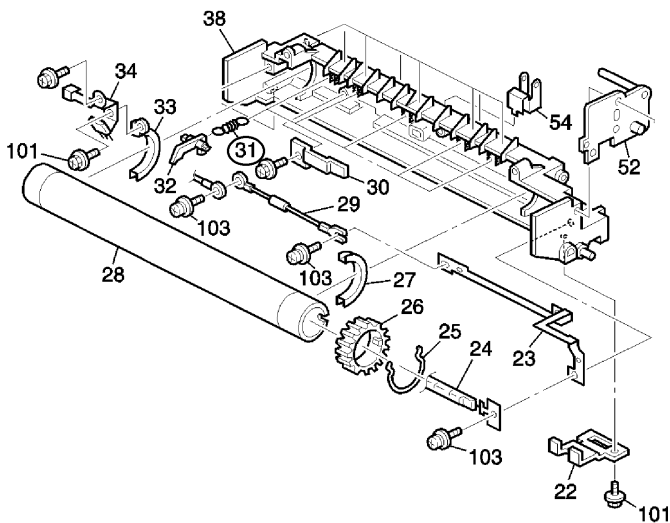
SOLUTION:

The spring tension was increased, and the Pickoff Pawl Spring was changed from P/N G0294143 to P/N A2504143.

If this occurs, please replace the old style spring with new style Pickoff Pawl Spring (P/N A2504143). However, if the tip of the Stripper Pawl (P/N A2504175) appears to be deformed, please replace the Pawl itself along with the Spring.

GENERAL:

Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294143	A2504143	Pickoff Pawl Spring	5	1	21	31

Continued...

Note: This copy is intended as a master original for reproduction of additional bulletins.



MECHANICAL



PARTS

UNITS AFFECTED:

All A250 copiers manufactured after the Serial Numbers listed below will have the new style Pickoff Pawl Spring installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1700100001
Gestetner 3215S	H4300200013
Ricoh AFICIO 180	H1700100178
Ricoh AFICIO 150	H4300200103
Savin 9918DP	H1700100001
Savin 2015DP	H4300200013

NOTE: *When replacing the Pickoff Pawl Springs, it is necessary to remove the Fixing Screws for the Hot Roller Frame and Pressure Roller Frame. When tightening these Screws, please make sure that the Screws do not strip the threads inside the screw holes. This will lead to the Screws coming loose.*

If any of the Screws should happen to become loose because of stripped threads, please replace the Screw with P/N 04503014B only. Please refer to TSB A250/B001 - 014 and TSB A250/B001 - 023 for details.

INTERCHANGEABILITY CHART:

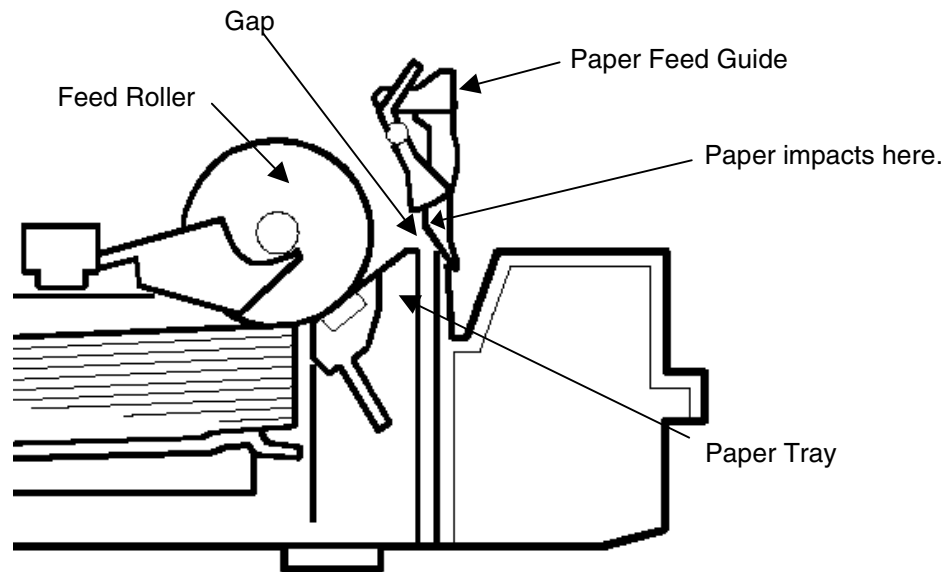
0	OLD and NEW parts can be used in both OLD and NEW machines.	2	NEW parts CAN NOT be used in OLD machines. OLD parts can be used in OLD and NEW machines.
1	NEW parts can be used in OLD and NEW machines. OLD parts CAN NOT be used in NEW machines.	3	OLD parts CAN NOT be used in NEW machines. NEW parts 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.		

BULLETIN NUMBER: A250/B001 – 035**12/11/2000****APPLICABLE MODEL:****GESTETNER – 3218/3215S****RICOH – AFICIO 180/150****SAVIN – 9918DP/2015DP****SUBJECT: DOG EARS / PAPER TRAY JAMS****SYMPTOM:**

Dog ears and/or paper jams occur, especially when using copy paper with one side already printed on (i.e. used paper).

CAUSE:

If paper is used that already has curl to begin with, the leading edge may impact the Paper Feed Guide (P/N A2502725) below the intended area due to the gap between the Paper Tray and the Paper Feed Guide after the paper is fed by the Feed Rollers. This can cause dog ears and/or a paper jam to occur. See illustration A below.

**Illustration A****SOLUTION:**

Two strips of Mylar (P/N A2502831) are added to the Paper Feed Tray, as shown in illustration C on page 2. This will ensure that the leading edge will not run into the guide and the paper will be properly fed, even if the paper is curled to begin with. See illustrations B and C on page 2.

Continued...

**MECHANICAL****PARTS**

PROCEDURE:

The procedure for attaching the two Mylars in the field is as follows. Please refer to illustration C.

1. Clean the attachment surface with alcohol.
2. Peel off the double-sided tape of the Mylars.
3. Line up the Mylars with surface [A]. Make sure that the cut corner [B] is facing down.
4. Line up the folded line [C] of the Mylars with the folded edge [D] of the Tray.
5. Attach the strip of Mylar to both surfaces by pressing down firmly on the double-sided tape area.

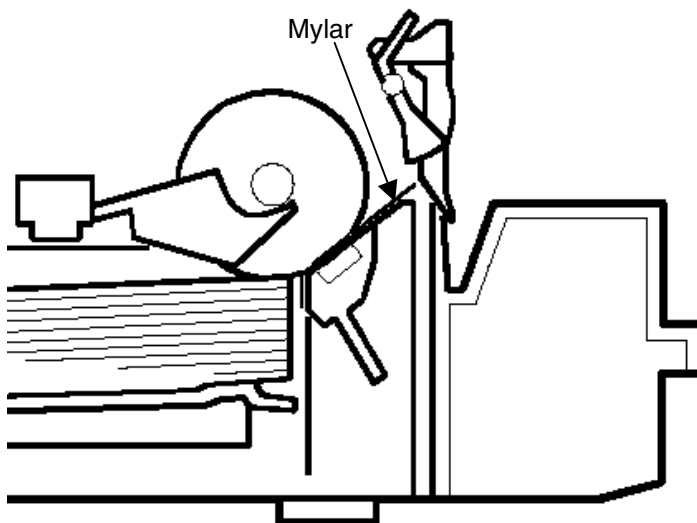


Illustration B

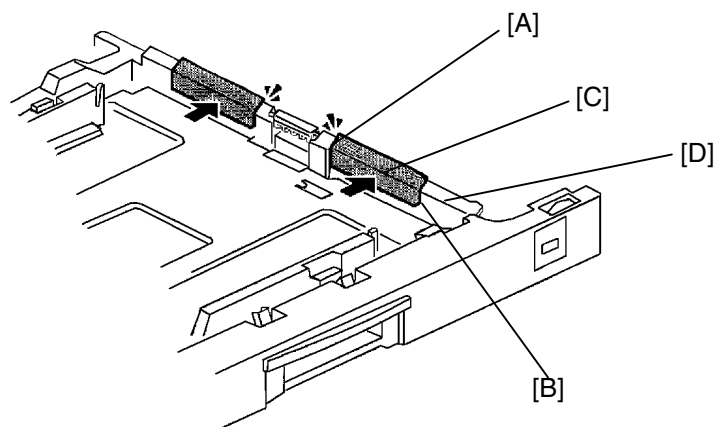
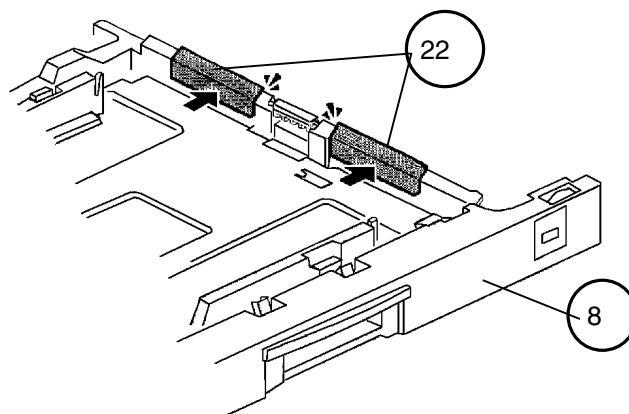


Illustration C

Continued...

GENERAL:

Please update your Parts Catalogs with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2502830	A2502850	Paper Tray	1	1	27	8
	A2502831	Mylar – Paper Feed	2		27	22 *

* Denotes new item number.

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Paper Tray with Paper Feed Mylars installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1701000001
Gestetner 3215S	H4301000076
Ricoh AFICIO 180	H1700901320
Ricoh AFICIO 150	H4301000211
Savin 9918DP	H1701000001
Savin 2015DP	H4301000076

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.		

BULLETIN NUMBER: A250/B001 – 036

12/11/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

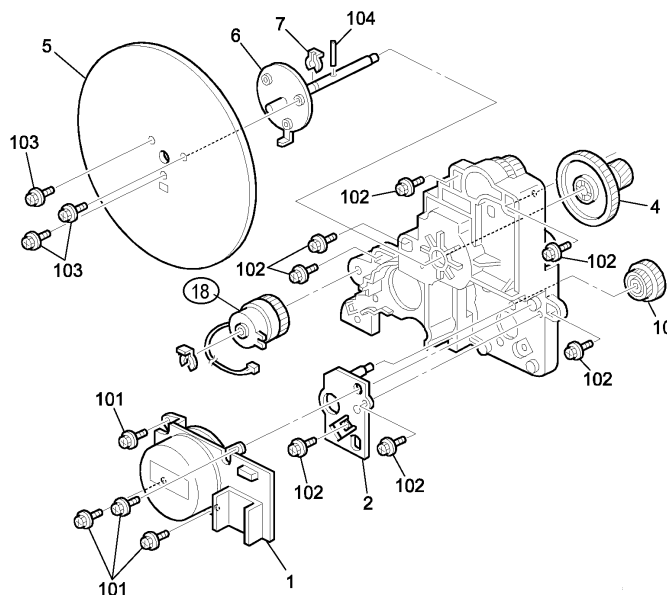
SAVIN – 9918DP/2015DP

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

- **UPDATE 1:** **Magnet Clutch – 40Z** – The part number and the item number on the illustration for the Magnet Clutch were omitted from the Parts Catalog. Please update your Parts Catalog with the following information.



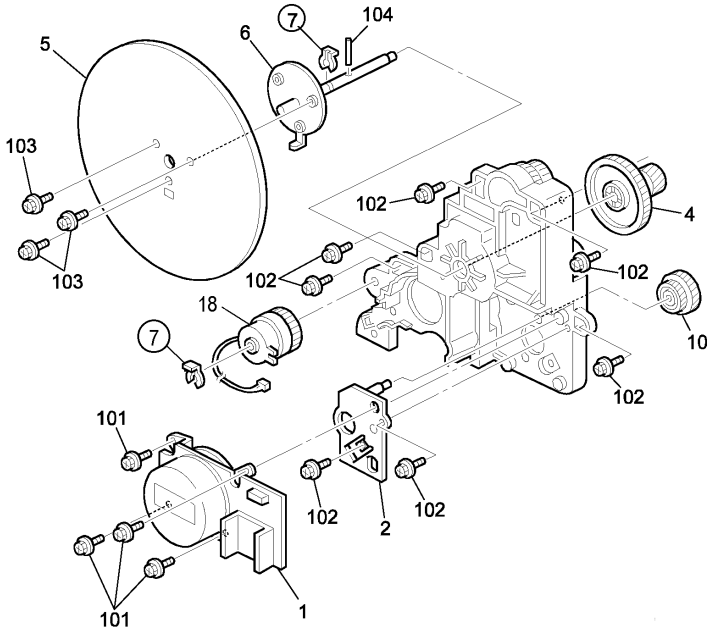
			REFERENCE	
PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
A2502604	Magnet Clutch – 40Z	1	35	18 *

* Denotes new item number.

Continued...



- **UPDATE 2:** **C-Ring – Paper Feed Roller** – The quantity was incorrect and the item number on the illustration for the C-Ring – Paper Feed Roller was omitted from the Parts Catalog. Please update your Parts Catalog with the following information.



				REFERENCE	
PART NUMBER	DESCRIPTION	OLD QTY	NEW QTY	PAGE	ITEM
H5213355	C-Ring - Paper Feed Roller	1	2	35	7

- **UPDATE 3:** **Operating Instructions** – The B001 descriptions for the Operating Instructions were incorrect. Please correct your B001 Parts Catalog with the following information.

B001 only				REFERENCE	
PART NO.	INCORRECT DESCRIPTION	CORRECT DESCRIPTION	QTY	PAGE	ITEM
A2507297	Operating Instructions-copy (SVN/LA)	Operating Instructions-copy (SVN)	1	53	9
A2507307	Operating Instructions-cs English (NA/LA)	Operating Instructions-cs English (SVN)	1	53	10
A2508697	Operating Instructions-system (SVN/LA)	Operating Instructions-system (SVN)	1	53	11

BULLETIN NUMBER: A250/B001 - 037

12/13/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: NOISE FROM THE EXIT ROLLERS**SYMPTOM:**

A noise can be heard from the Exit Rollers. Sometimes the noise occurs with Exit Roller (P/N A2504180), and sometimes with Exit Rollers (P/N G8004854/G0294181).

CAUSE:

A. Exit Roller (P/N A2504180):

The shaft for these Rollers is supported at both ends and in the center by the Pressure Roller Case. Friction occurs between the shaft and the central shaft support of the Pressure Roller Case.

B. Exit Rollers (P/N G8004854/G0294181):

When the user tries to remove jammed paper without first releasing the Pressure Release Lever, this can put excessive stress on the Spring Plate causing it to deform. This can also put excessive stress on the Roller Shaft, causing shaft damage and noise.

SOLUTIONS:

A. Exit Roller (P/N A2504180):

Apply Barrierta Grease (P/N A2579300) to the central shaft support of the Pressure Roller Case.

It is critical that only Barrierta Grease (P/N A2579300) be used, and no other. If different grease is used, the noise may subside temporarily, but friction will gradually increase and cause the noise to recur.

B. Exit Rollers (P/N G8004854/G0294181):

Replace the rollers that exhibit the noise, along with their Spring Plates (P/N A2504183/A2504184, respectively). Although the noise may subside temporarily using the Barrierta Grease (P/N A2579300) as mentioned above, the cause of this noise is not friction, but physical damage. Therefore, the noise would most likely recur without Exit Roller/Spring Plate replacement.

However, if replacement parts are not available and grease is used as a temporary solution, it is again critical to use only Barrierta Grease (P/N A2579300). As stated above, any other grease will cause a gradual build-up of friction and a recurrence of the noise.

Note: This copy is intended as a master original
for reproduction of additional bulletins.



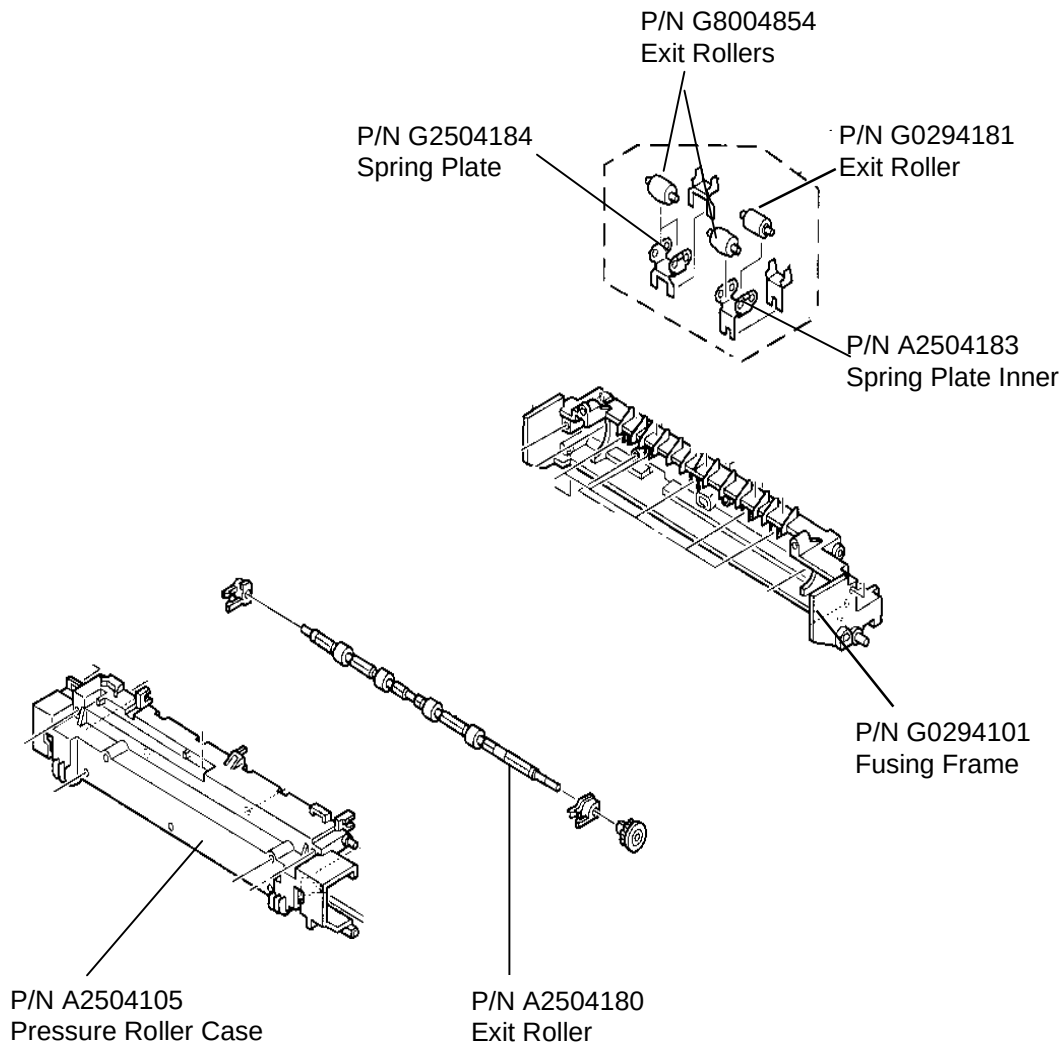
MECHANICAL

GENERAL
INFORMATION

Continued...

UNITS AFFECTED:

A250/B001Serial Number cut-in not available at time of publication.



BULLETIN NUMBER: A250/B001 - 038

12/13/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

Note: This copy is intended as a master original
for reproduction of additional bulletins.

SUBJECT: PAPER CURLING AT EXIT**SYMPTOM:**

Paper curling

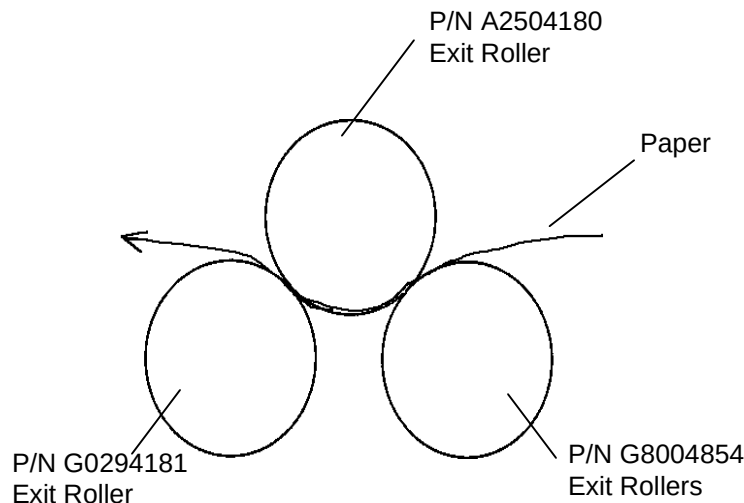
CAUSE:

One factor that determines the degree of paper curl is how well the group of 3 Exit Rollers are in contact with each other. If the 3 types of rollers do not tightly contact each other, the de-curling function does not operate properly. Please see the illustration below.

One cause for this is the bending/deforming of the Plate Spring when the customer forcefully removes the paper from the Exit Unit without using the Pressure Release Lever. In addition, the Rollers can come out of position if the screws in the Fusing Unit Cases are loose (having stripped the hole threading).

SOLUTION:

Ensure that the Spring Plate is not bent and the Exit Rollers are tightly in position as they should be. If the Spring Plates are deformed replace them with Spring Plates (P/N A2504183/A2504184). If the Spring Plate condition is difficult to determine from a visual inspection, the surest way to fix this problem is to replace the Fusing Unit with a new one (or one that is known to have no problem).

**MECHANICAL****PAPER PATH**

BULLETIN NUMBER: A250/B001 - 039

12/13/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: ACCORDION JAM NEAR THE PAPER EXIT**SYMPTOM:**

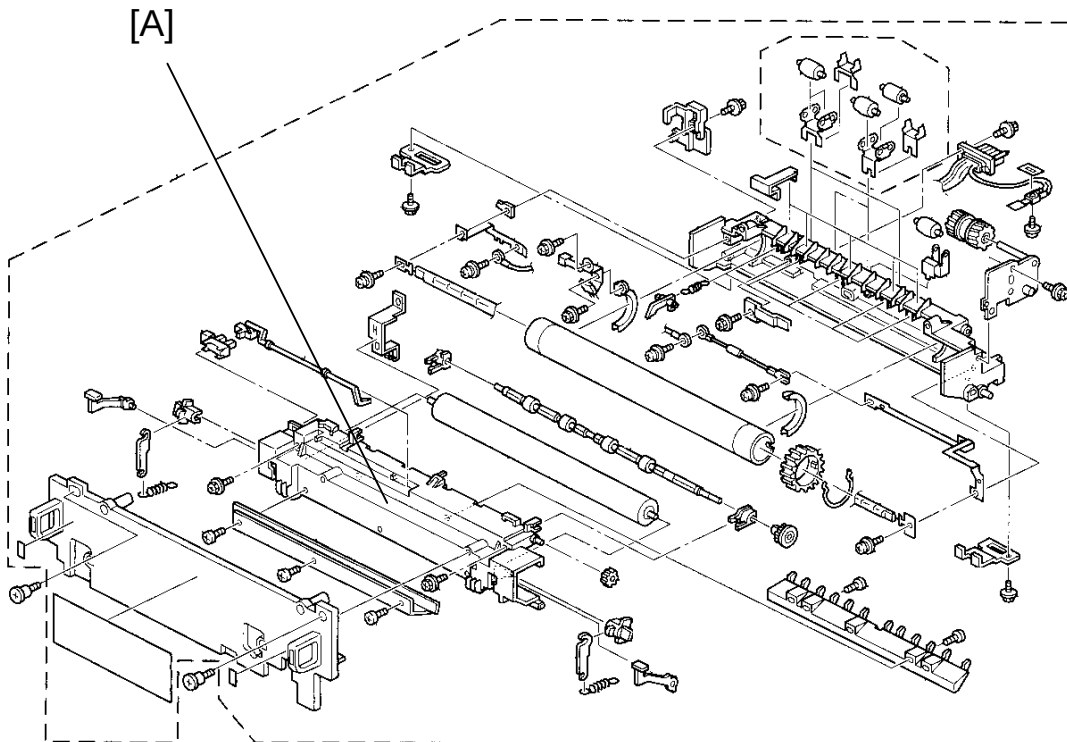
An accordion jam occurs near the Paper Exit Area, especially when the type of paper used curls easily or has already been printed on one side (re-used).

CAUSE:

The paper is normally exited by guiding the leading edge in between the two sets of Exit Rollers. However, when the paper is curled, it impacts with the Pressure Roller Case and causes a jam.

SOLUTION:

To ensure that the leading edge of the paper is properly fed in between the Exit Rollers, a rib has been added to the Pressure Roller Case [A] that will act as a guide. The P/N was changed from A2504105 to A2504106. Please refer to TSB - 033 for the cut-in serial numbers.



MECHANICAL



PAPER PATH

Continued...

In addition, when installing the new Pressure Roller Case (P/N A2504106) in machines that contain the old case (P/N G0294106), it is necessary to replace other components at the same time. Please see TSB - 018 for a description of these parts and the cut-in serial numbers.

When replacing the Pressure Roller Case, it is necessary to remove the mounting screws of this case and the Fusing Frame. When reattaching these screws, tighten them carefully so as not to strip the screw hole threading. If the threading is stripped and the screw becomes loose, be sure to use only screw (P/N 04503014B) (see TSB - 014 and TSB - 023).

NOTE: *We recommend replacing the Pressure Roller Case mounting screws with part number 04503014B at the next service call.*

* Please note that although the following cases can produce an Exit Area accordion jam, each has a distinctly separate cause. Please keep these examples in mind:

- The customer tries to forcefully pull out the jammed paper without using the Pressure Release Lever, and the Spring Plates become damaged. Please confirm if the Spring Plates have been deformed.
- A) The threading is stripped in the Fusing Frame/Pressure Roller Case screw holes, causing the screws to rattle loose in their holes.
B) The Fusing Frame or Pressure Roller Case has not been set properly.

Please check to see if the screws are loose or the frames are not locked in place (push down and check for locking snap).

- The Junction Gate catches on the Exit Cover (1-bin Sorter installed). Confirm that the Junction Gate can move freely back and forth without catching on the Exit Cover. See TSB - 033 for details.
- When the Paper Exit Cover is removed and reinstalled, the Mylar (P/N A2501353) on the Fusing Upper Cover (P/N A2501278) becomes deformed and/or pinched between the Exit Cover and mainframe (no 1-bin Sorter installed). If the Mylar is pinched, an accordion jam will occur 100% of the time. Please confirm whether or not the Mylar has actually been deformed and/or caught between the Exit Cover and mainframe. See TSB - 002 for details.

BULLETIN NUMBER: A250/B001 - 040

12/14/2000

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: NOISE FROM THE MAINFRAME BOTTOM PLATE**SYMPTOM:**

A noise emanates from the area where the Mainframe connects to the Paper Feed Unit.

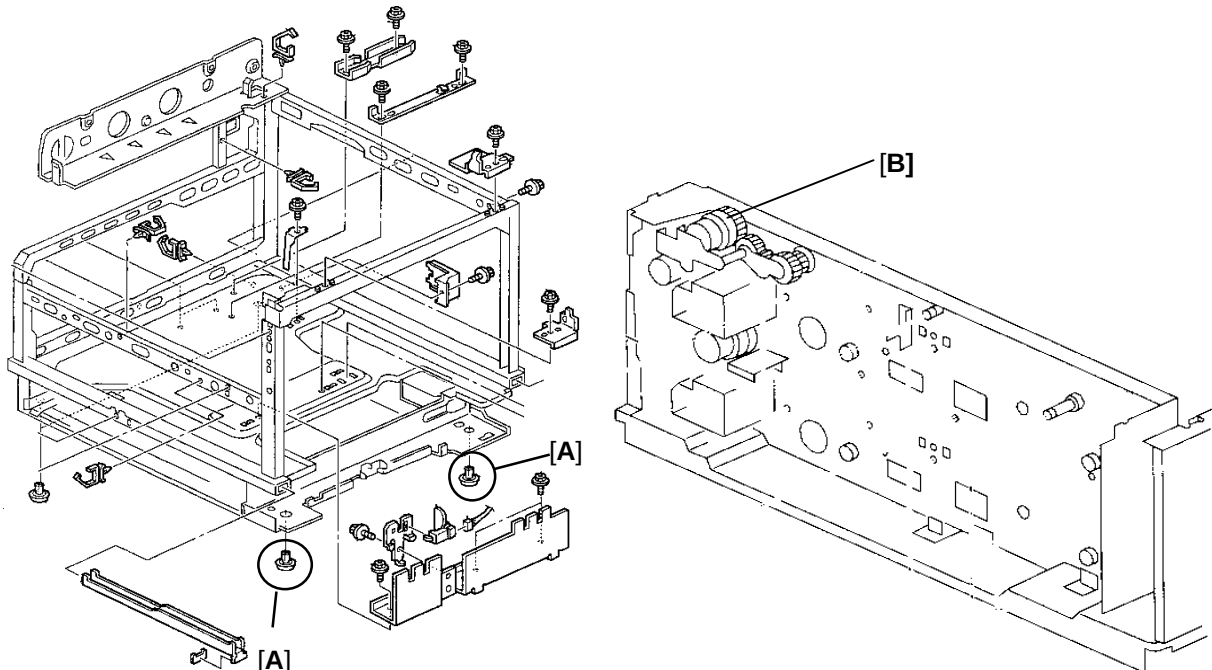
CAUSE:

One or more of the legs [A] attached between the Mainframe and Paper Feed Unit came off. This decreases the gap between the two units. Since the Upper Plate of the PFU has a raised area to accommodate the uppermost Paper Feed Clutch [B], the Mainframe can sometimes contact this raised portion when a missing leg / legs cause the gap to decrease. The noise of the Clutch is then transmitted through and amplified by the Mainframe Bottom Plate.

Note: Even if the gap has decreased, the noise is not always heard. In addition, the noise has a tendency to occur when the two right legs have detached.

SOLUTION:

If the noise condition occurs, check if any of the legs (P/N G0271180) have detached and replace any that have.



Note: This copy is intended as a master original
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BULLETIN NUMBER: A250/B001 - 041

02/22/2001

APPLICABLE MODEL:

GESTETNER – 3218/3215S

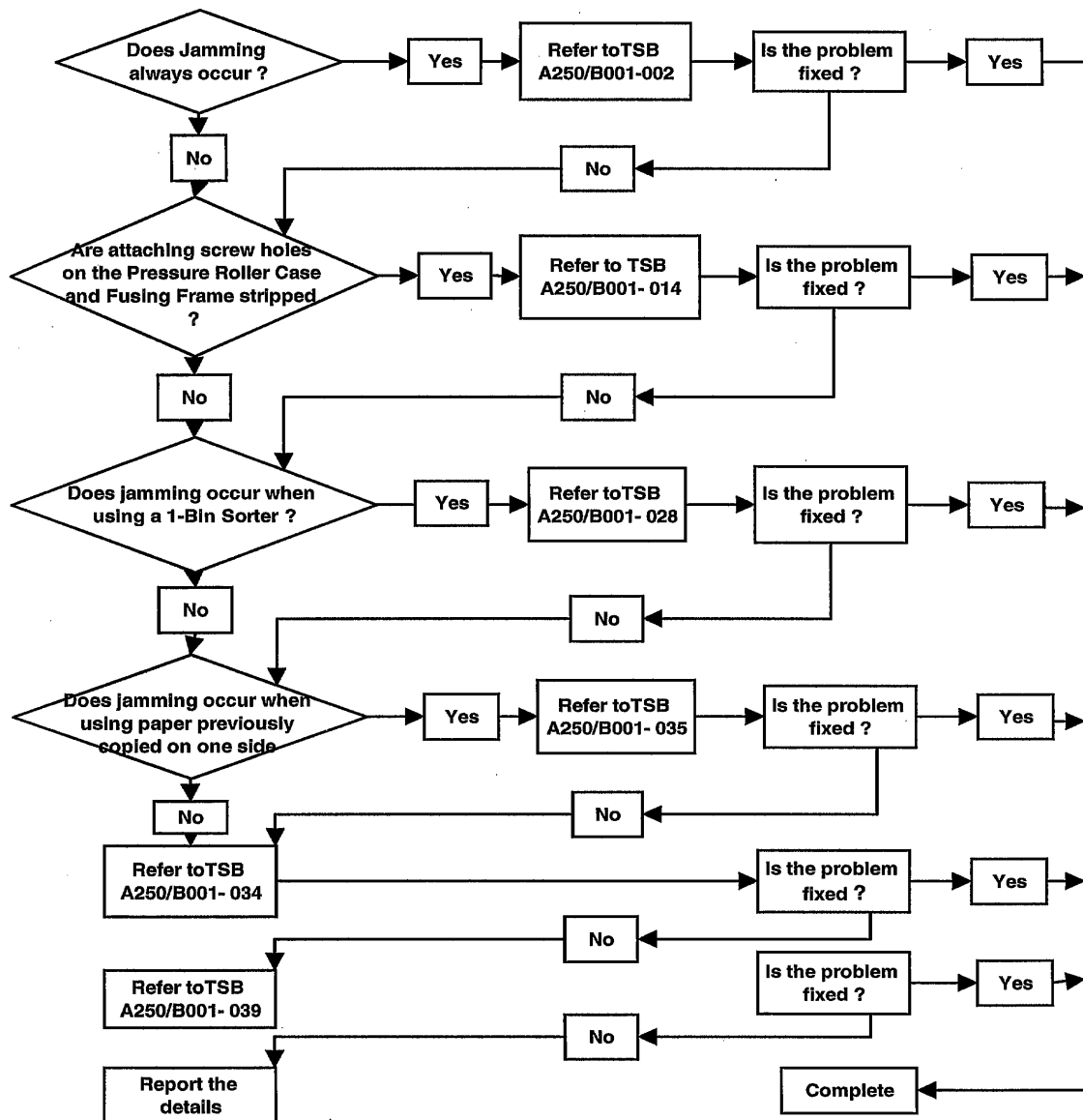
RICOH – Aficio 180/150

SAVIN – 9918DP/2015DP

SUBJECT: FLOWCHART FOR ANALYZING PAPER JAMS

GENERAL:

To aid in analyzing the cause of paper jams please use the following flowchart



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COPY QUALITY

BULLETIN NUMBER: A250/B001 - 041 REISSUE ★

07/23/2002

APPLICABLE MODEL:

GESTETNER – 3218/3215S

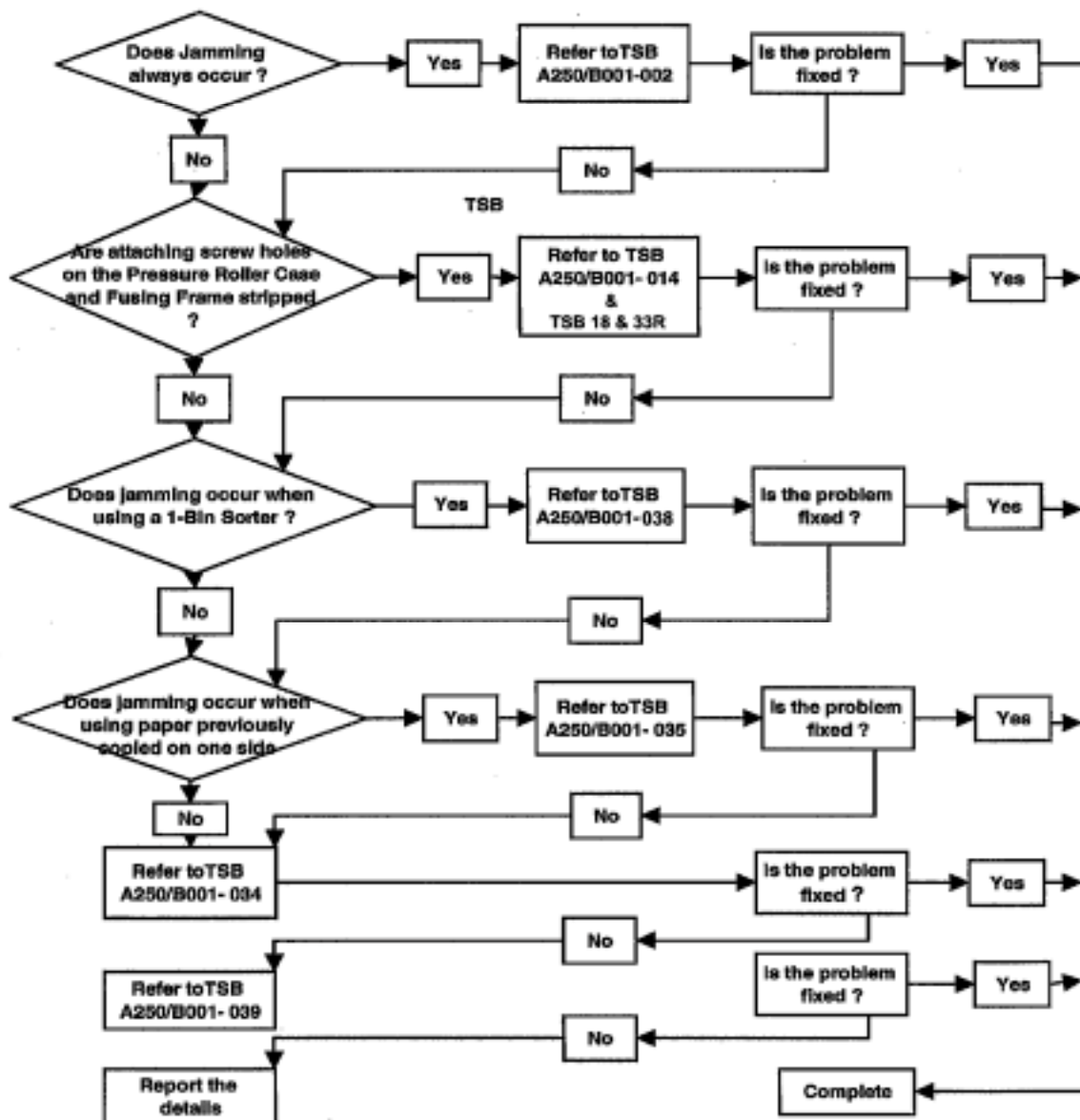
RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: FLOWCHART FOR ANALYZING PAPER JAMS

GENERAL:

To aid in analyzing the cause of paper jams please use the following flowchart.



Note: This copy is intended as a master original for reproduction of additional bulletins.



COPY QUALITY

BULLETIN NUMBER: A250/B001 – 042

01/26/2001

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO180/150

SAVIN – 9918DP/2015DP

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:

- iii Updated Information (TOC Page)
- 1-4 & 1-5 Updated Information for Key Counter
- 3-40 & 3-41 Additional Pages –Key Counter Installation
- 7-1 Updated Information for Service Codes

Note: This copy is intended as a master original
for reproduction of additional bulletins.



3.8.2 EXTENDED MEMORY BOARD INSTALLATION PROCEDURE.....	3-31
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3.10 OPTICS ANTI-CONDENSATION HEATER INSTALLATION (OPTION)	3-33
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3.12 KEY COUNTER.....	3-40

SERVICE TABLES

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4.1.2 TRANSFER ROLLER UNIT	4-1
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4.1.7 ORIGINAL JAM HISTORY DISPLAY (SP7-905)	4-47
4.1.8 SYSTEM PARAMETER AND DATA LISTS (SP5-992)	4-48
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4.1.10 PROGRAM UPLOAD/DOWNLOAD	4-50
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4.1.12 APS AND PLATEN/DF COVER SENSOR OUTPUT DISPLAY (SP4-301)	4-55
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4.1.14 DISPLAY LANGUAGE (SP5-808)	4-57
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4.1.2 USER TOOLS TABLE	4-58
4.4 LEDS	4-60
4.5 SPECIAL TOOLS AND LUBRICANTS	4-60
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4.5.2 LUBRICANTS	4-60
4.6 ROM HISTORY	4-61

PREVENTIVE MAINTENANCE

5. PREVENTIVE MAINTENANCE SCHEDULE	5-1

Optional Equipment:

- Platen cover
- Auto document feeder
- Paper tray unit (1 tray)
- Paper tray unit (2 trays)
- 1-bin sorter
- Tray heater
- Optics anti-condensation heater
- Drum heater
- Copier feature expander (48 MB memory)
- Key Counter

Copy Capacity:

Copy Tray: 250 sheets (without 1-bin sorter),
125 sheets (with 1-bin sorter)
1-bin Sorter: 125 sheets

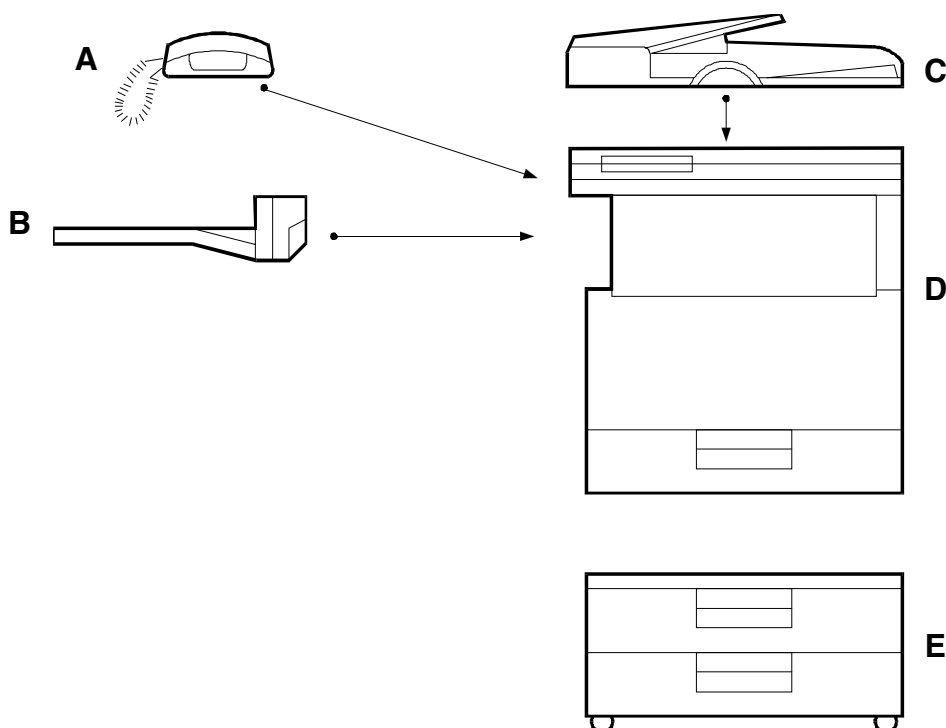
Memory Capacity:

		Standard (16 MB)	Optional (+48 MB)
Sort, Rotate Sort	A4, 8 1/2" x 11"		
	B4, 8 1/2" x 14"		
	A3, 11" x 17"		
Number of pages	A4 6%	80 sheets	99 sheets
	A4 ITU-T#4 12%	35 sheets	99 sheets

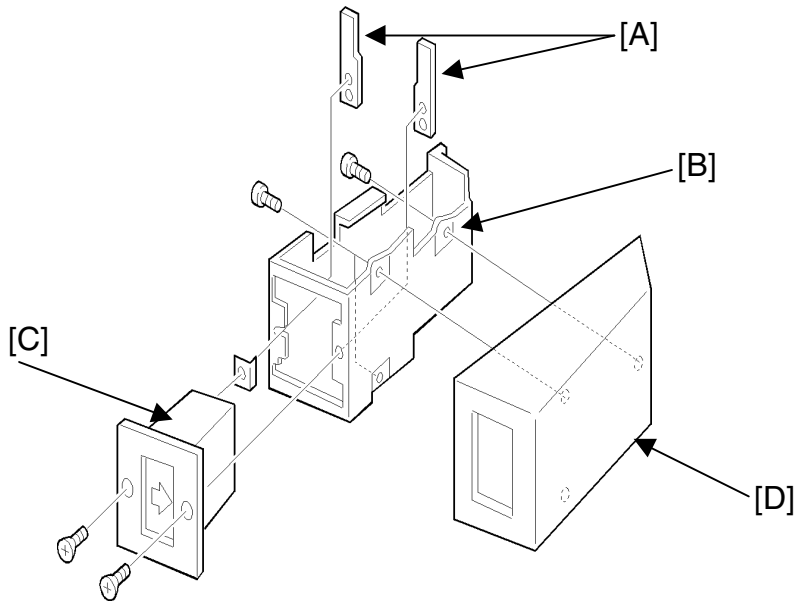
: Available

NOTE: The paper sizes that can be used with Rotate Sort are A4/8 1/2" x 11" and B5 only.

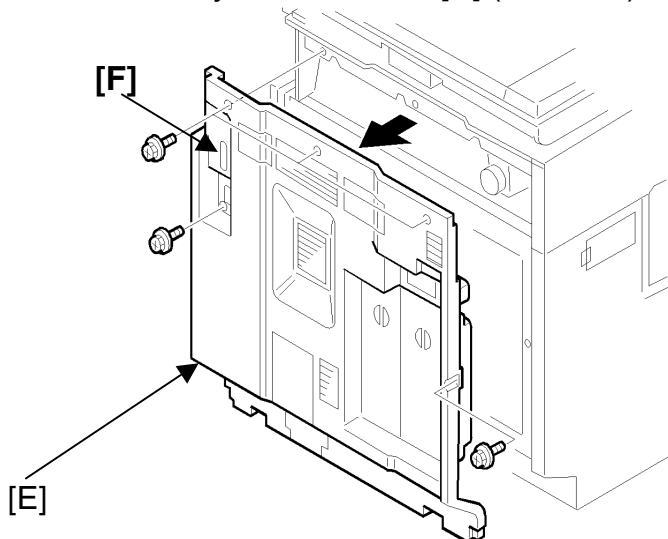
1.2 MACHINE CONFIGURATION



Version	Item	Machine Code	No.
Copier	Copier	A250	D
	ADF (Optional)	A859	C
	Platen Cover (Optional)	A893	
	Paper Tray Unit - 1 tray (Optional)	A861	
	Paper Tray Unit - 2 trays (Optional)	A860	E
	1-bin Sorter (Optional)	A869	B
	Memory 48 MB (Optional)	A887	
	Key Counter	A674-03	
Fax	Fax Controller (Optional)	A891	
	Telephone (Optional)	H160	A
	ISDN (Optional)	A890	
	PC Fax Expander (Optional)	A894	
	Fax Function Expander (Optional)	A892	
Printer	Printer Controller (Optional)	B305	
	PS Option (Optional)	B308	
	HDD (Optional)	G690	
	NIB (Optional)	B307	
	Memory 32 or 64 MB (Optional)	G688	

⇒ 3.12 KEY COUNTER INSTALLATION

1. Hold the key counter plate nuts [A] on the 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. Install the key counter cover [D] (3 screws).

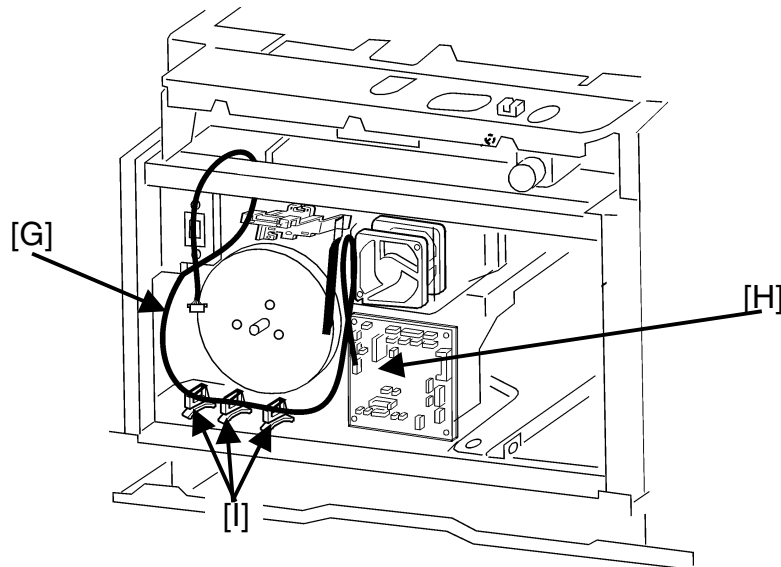


4. Remove the rear cover [E] (5 screws).
5. Using a pair of pliers, remove the oblong cover [F].

6. Connect the key counter cable [G] to connector CN326 on the I/O board [H].
7. Route the key counter cable as shown in the illustration below.

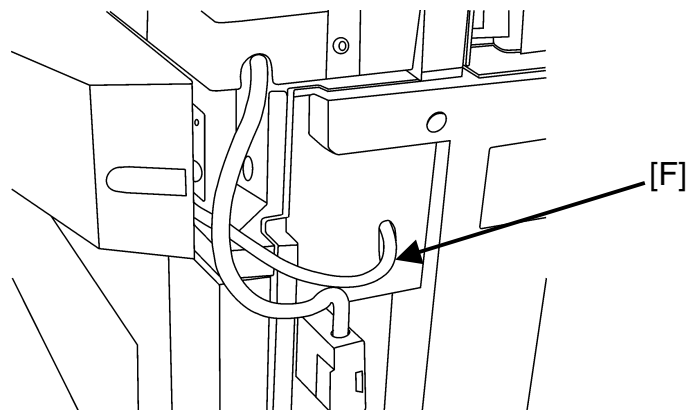
CAUTION: The cable must be properly routed to prevent the cable from contacting the rotating flywheel.

8. Secure the key counter cable under the cable fasteners [I].



9. Feed the key counter cable through the oblong opening [F].
10. Re-install the rear cover.
11. Connect the key counter cable to the key counter.
12. Attach the double-sided tape to the key counter bracket.
13. Adhere the key counter assembly to the left side of the scanner unit as shown below.

NOTE: When attaching the key counter assembly, press the assembly firmly against the scanner cover.



14. Enter the Service Program Mode and set 5-113 to 1. Refer to page 4-26.

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 notes below). The copier is not operational.	Enter SP mode, then turn the main power switch off and on.
B	Turning the main power switch off and on can reset the SC if incorrect sensor detection caused the SC.	Turn the operation switch or main power switch off and on. Turning the main power switch off and on can only reset a level B SC.
C	The copier works normally except for the unit related to the service call.	Turn the operation switch off and on.
D	The SC history is updated. The machine operates as usual.	The SC is not 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) To reset a level "A" SC, enter SP5-810 (SC code reset) and select "1". Next, depress the "Photo mode" key. While depressing the "Photo mode" key, depress the (Ⓢ) key at the same time and hold both keys for at least 3 seconds (it is not necessary to turn the main switch off and on). If the machine beeps 5 times, the reset was successful. If it only beeps twice, the reset failed, and you need to try the reset procedure again. If the machine displays a SC 547 and has firmware level "K" or later. The service code can be cleared by turning the main switch "off" then "on"

4) When a level A or B SC occurs while in SP mode, the display does not indicate the SC number. If this occurs, check the SC number after exiting SP mode. This does not apply to level B codes.

BULLETIN NUMBER: A250/B001- 043**01/30/2001****APPLICABLE MODEL:****GESTETNER – 32318****RICOH – Aficio 180****SAVIN – 9918DP****SUBJECT: AIO CHARGE ROLLER CLEANING PROCEDURE****SYMPTOM:**

A dirty background appears at the center of the prints/copies.

CAUSE:

The surface of the Charge Roller becomes dirty, causing an insufficient charge to be applied to the OPC surface. This results in a dirty background on the copy and a dirty OPC surface.

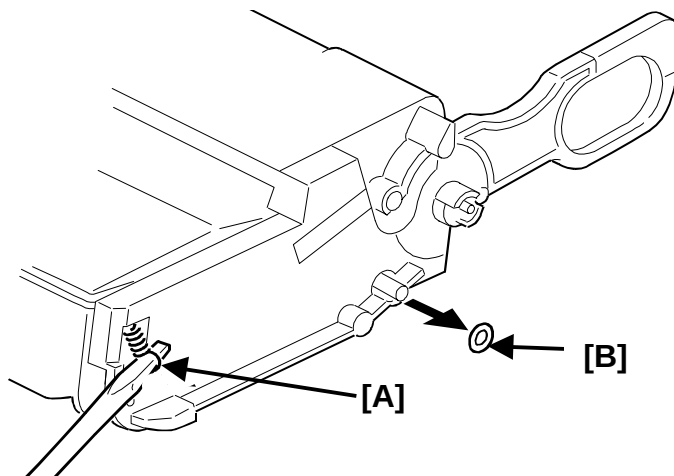
SOLUTION:

Make sure all Specifications of the Copier (Service Manual page 1 –1) and machine Environment (Service Manual page 3 – 1) are followed. If the problem remains, follow the cleaning procedure.

Note: It is very important to avoid scratching the OPC or spilling any Toner at the customer site.

HOW TO CLEAN THE CHARGE ROLLER

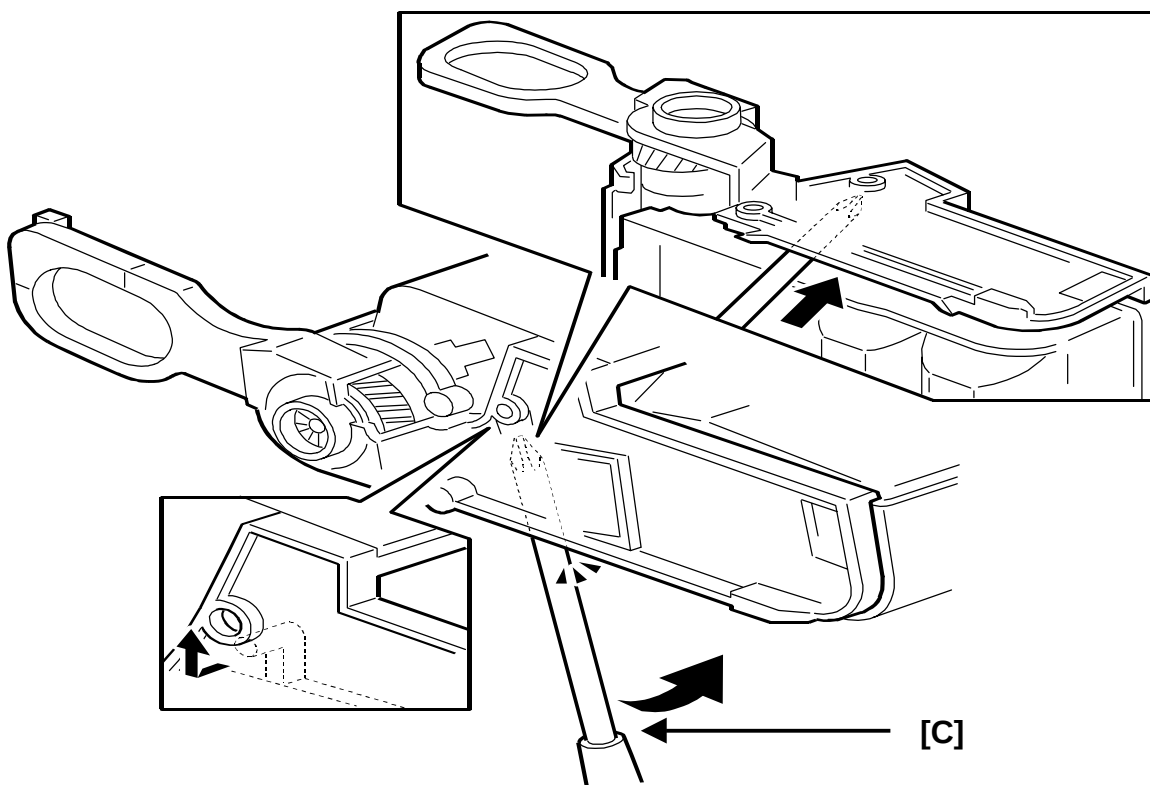
Note: To prevent Toner from spilling, keep the AIO Cartridge level.



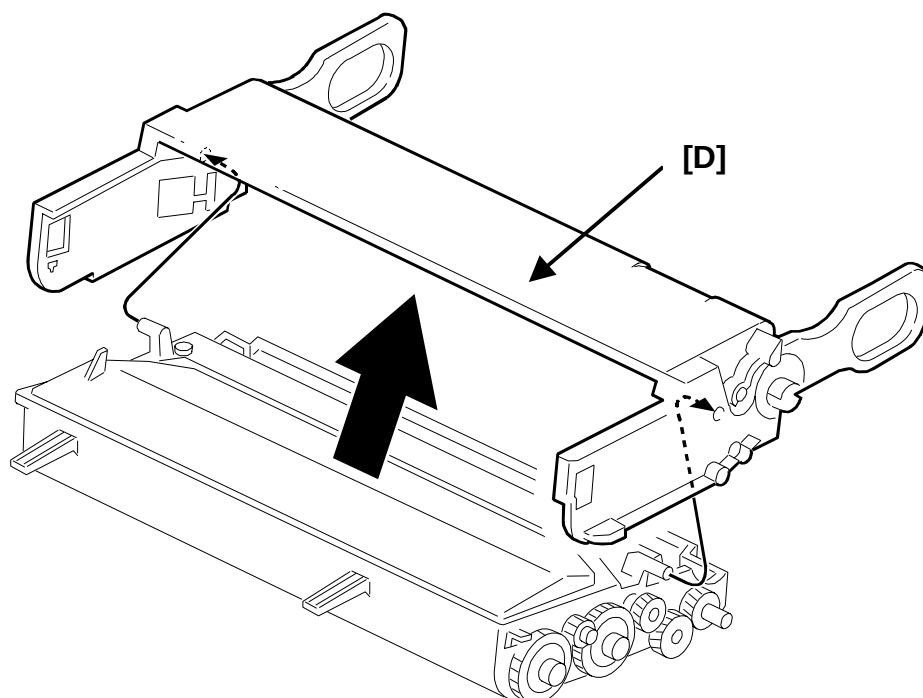
1. Unhook the bottom hooks of both springs [A] on the AIO cartridge.
2. Remove the rubber O-ring [B] from the shaft

Continued...

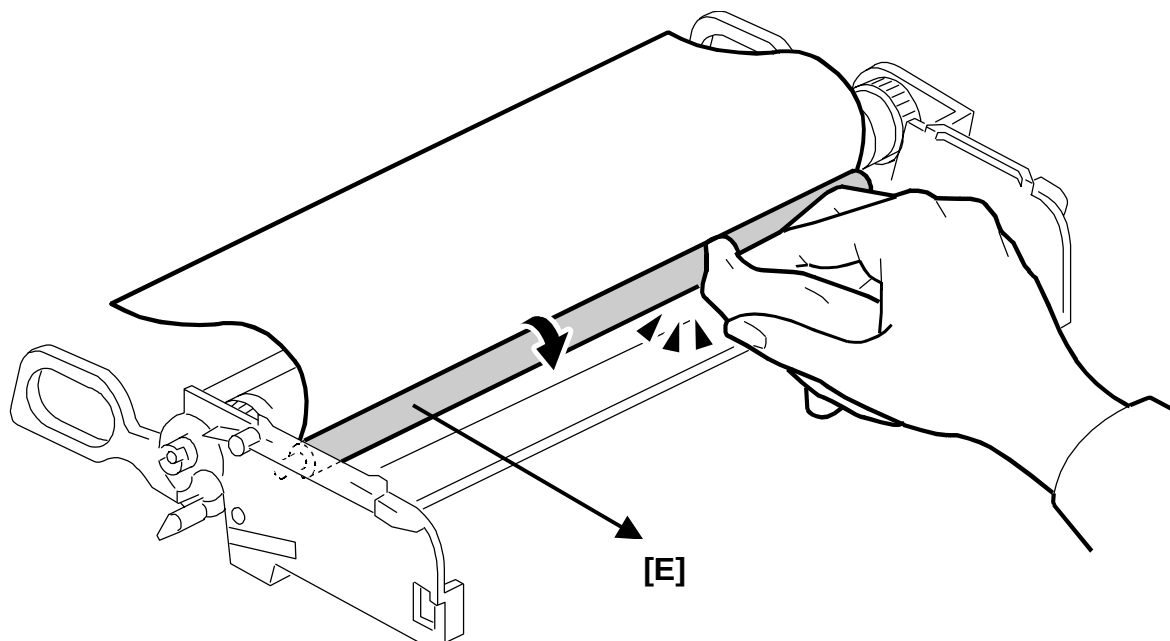




3. Insert the screwdriver [C] as shown above and pry the side to remove the upper half of the AIO cartridge as in [D] below.



Continued...



4. Insert a sheet of paper between the OPC Drum and Charge Roller to prevent damage to the OPC Drum.
5. Clean the Charge Roller [E] with a dry cloth.

NOTE: 1) Be sure to rotate the Charge Roller in the direction shown (downward). Otherwise, used Toner may spill out.
2) Clean the Charge Roller until the surface is black.

TECHNICAL SERVICE BULLETINS

BULLETIN NUMBER: A250/B001 - 044

02/22/2001

APPLICABLE MODEL:

GESTETNER – NETWORK INTERFACE BOARD FOR 3218/3215S

RICOH - NETWORK INTERFACE BOARD FOR AFICIO 180/150

SAVIN - NETWORK INTERFACE BOARD FOR 9918DP/2015DP

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:

- 4 – 3 Updated Information (A250/B001 NIB OPTION FIRMWARE HISTORY)

An arrow has highlighted the revised areas ⇒.

Note: This copy is intended as a master original
for reproduction of additional bulletins.



B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The wording "Config Reference" has been changed to "Riferim. Config" for the Italian version of Web status. • The wording "Default Gateway Address" has been changed to "Direcci. Gateway" for the Spanish version of Web status. • A type of Cisco router caused a problem in browsing the NIB in an AppleTalk network. The cause of this was in the Cisco router but the NIB firmware has been modified to correct this.	G6785839H	October '99 Production	3.9.8
Corrects the following: • PCL text filter support has been added. • "RICOH" brand name has been deleted from several functions and reports.	G6785839J	November '99 Production	4.0.0
Corrects the following: • HTTP access has been improved when multiple protocols are used at the same time (e.g. telnet, IPP and HTTP).	G6785839K	April '00 Production	4.0.2
⇒ Corrects the following: • Bi-directional communication of "diprint" (using 9100 port of TCP/IP printing) is supported (required for DAZEL system). • The "diprint direct [On/Off]" command using telnet has been implemented for supporting bi-directional communication of diprint (required for DAZEL system). PortNavi and Multidirect Print are not supported if bi-directional communication has been selected. • The spelling of the command "retern" in the UNIX install shell has been corrected to "return". • The DHCP of NetWare5 is supported. • The DHCP relay agent is supported. (This has been confirmed only with Windows NT 4.0 relay agent at this time.) • There may be some minor (character) display errors on the LCD while the NIB firmware is being upgraded. The firmware has been modified to prevent this.	G6785839L	October '00 Production	4.06

BULLETIN NUMBER: A250/B001 – 045

07/26/2001

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP



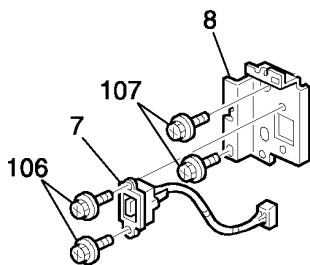
PARTS

SUBJECT: ADF RECEPTACLE

GENERAL:

The index and the part number for the connector to the ADF harness was omitted from the A250/B001 Parts Catalog. Please update your Parts Catalog with the following information. The following part correction is being issued for all A250/B001 Parts Catalogs.

FROM



TO

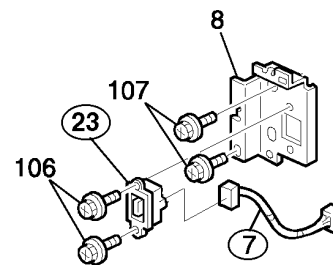


Illustration on
page 38

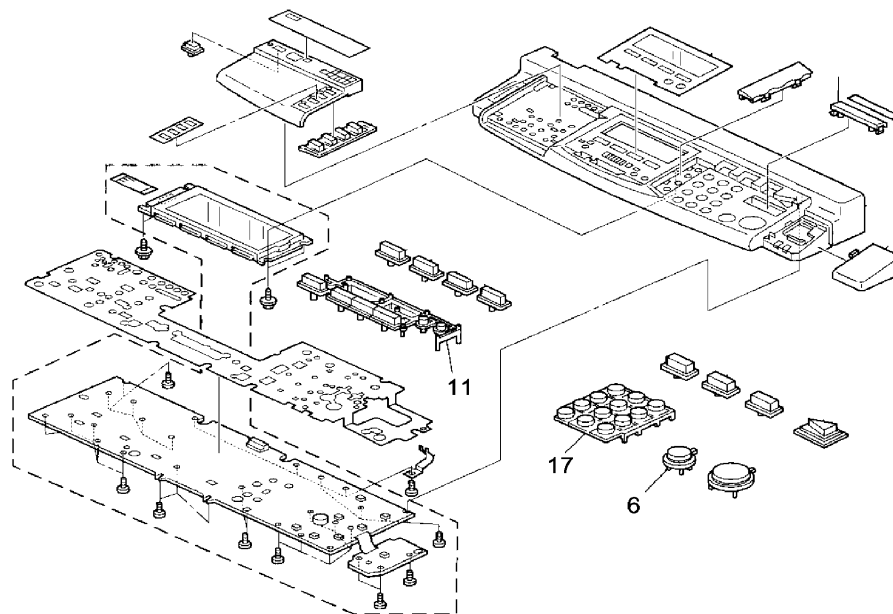
					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
-	11027672	Connector-54111-1615	1	-	39	23 *

* Denotes new item number.

Note: This copy is intended as a master original for reproduction of additional bulletins.

BULLETIN NUMBER: A250/B001 - 046
09/19/2001
APPLICABLE MODEL:
GESTETNER - 3218/3215S
RICOH - AFICIO 180/150
SAVIN - 9918DP/2015DP
SUBJECT: OPERATION PANEL KEY-TOPS
GENERAL:

To ensure that the printed symbols on the key-tops do not rub off, the following parts have been changed. The following part corrections are being issued for all A250/B001 Parts Catalogs.


PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501460	A2501486	Keytop Clear	1	1	11	6
A2501467	A2501488	Keytop Cursor Left And Right	1	1	11	11
A2501461	A2501487	Keytop 10KEY - EU	1	1	11	17
A2501474	A2501494	Keytop 10KEY - NA	1	1	11	17
A2501478	A2501498	Keytop 10KEY - ASIA	1	1	11	17

***DENOTES NEW ITEM NUMBER**

Continued...

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style operation panel keytops installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3215S	H4301100057
Gestetner 3218	H1701100001
Ricoh Aficio 150	H4301000211
Ricoh Aficio 180	H1701100236
Savin 2015DP	H4301100057
Savin 9918DP	H1701100001

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.		

BULLETIN NUMBER: A250/B001 - 047

11/16/2001

APPLICABLE MODEL:

GESTETNER – 3218/3215S

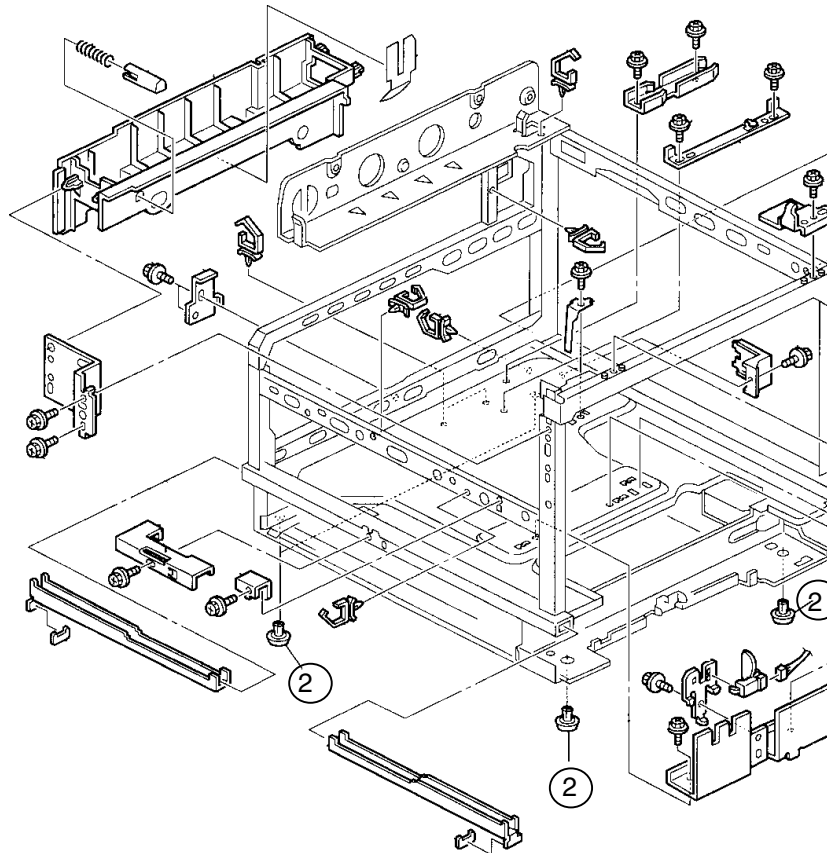
RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: RUBBER PADS

GENERAL:

The shapes of the rubber supports have been changed to ensure that they remain tightly connected to the machine. The following parts corrections are being issued for all A250/B001 Parts Catalogs.



Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
G0271180	AH010009	Rubber Pad – H5	4	1	41	2	

Continued...

UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style rubber pad-H5 installed during production.

MODEL NAME	SERIAL NUMBER
Ricoh Aficio 180	H17105xxxx
Savin 9918DP	H171040001

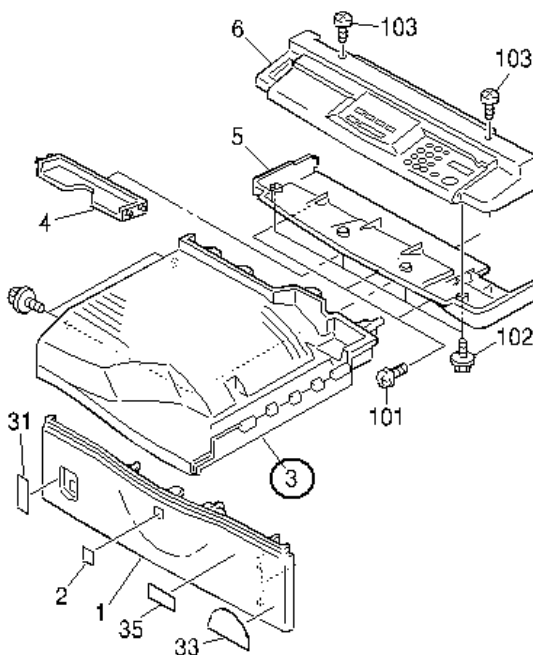
INTERCHANGEABILITY CHART:

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.		

BULLETIN NUMBER: A250/B001 – 048
05/31/2002
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: PARTS CATALOG UPDATES
GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

- **UPDATE 1:** **Exit Cover** – To prevent accordion jams from occurring near the Exit Cover, a modification for greater clearance has been applied. Note that only one Exit Cover is now available. Please update your A250/B001 Parts Catalog with the following information.


A250 only

OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	REFERENCE	
					PAGE	ITEM
A2501281	A2501327	Exit Cover	1	1	7	3
A2501325	A2501327	Exit Cover	1	1	7	3

B001 only

OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	REFERENCE	
					PAGE	ITEM
B0011274	B0011324	Exit Cover	1	0	7	3

Continued...



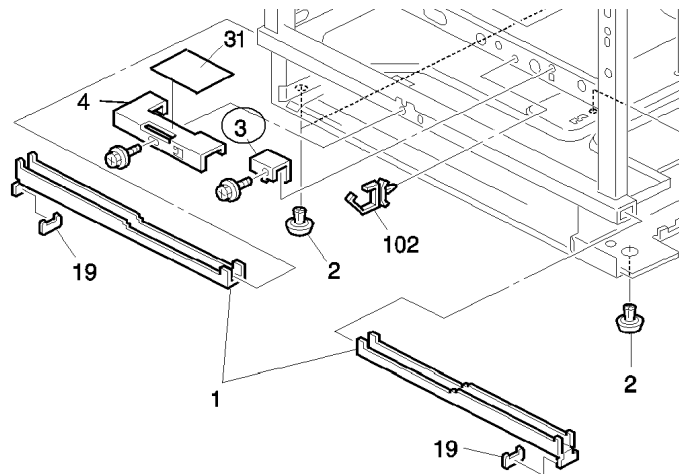
UNITS AFFECTED:

All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Exit Cover installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H1710300001
Gestetner 3215s	H4320300001
Ricoh Aficio 180	H1710200285
Ricoh Aficio 150	H4310300182
Savin 9918DP	H1710300001
Savin 2015DP	H4320300001

● UPDATE 2:

Plate – Fusing Lever – Pushing the Fusing Lever past its lowest position may cause the Registration Frame to break. The lever has been changed to ensure the frame is not damaged. Please update your A250/B001 Parts Catalog with the following information.



A250/B001

REFERENCE

OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501062	A2501057	Plate – Fusing Lever	1	1	41	3

UNITS AFFECTED:

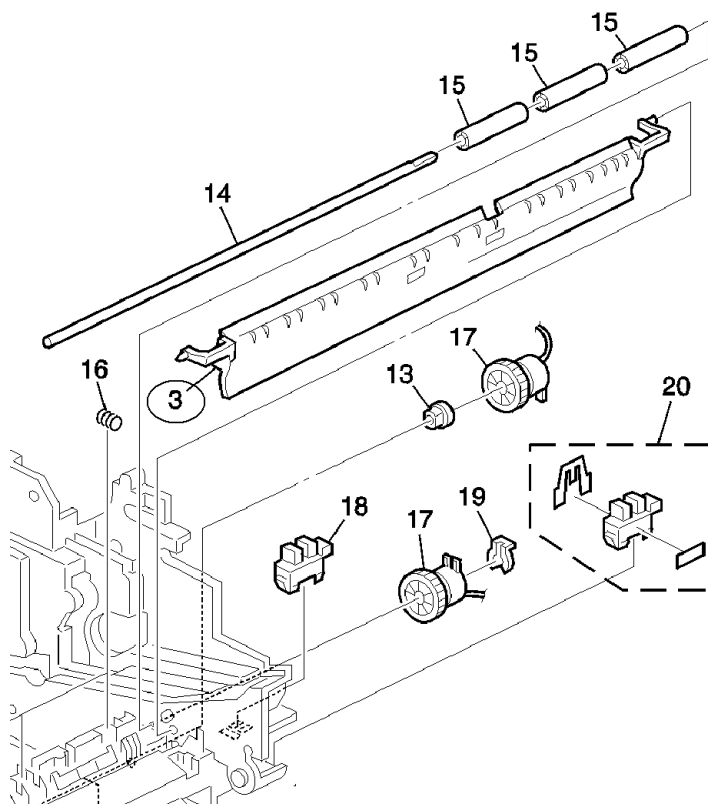
All A250/B001 copiers manufactured after the Serial Numbers listed below will have the new style Fusing Lever Plate installed during production.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	H17107xxxxx
Gestetner 3215s	H43107xxxxx
Ricoh Aficio 180	H17107xxxxx
Ricoh Aficio 150	H43107xxxxx
Savin 9918DP	H17107xxxxx
Savin 2015DP	H43107xxxxx

Continued...

- **UPDATE 3:**

Turn Guide – The Turn Guide has been changed due to standardization with other models. Please update your A250 Parts Catalog with the following information.



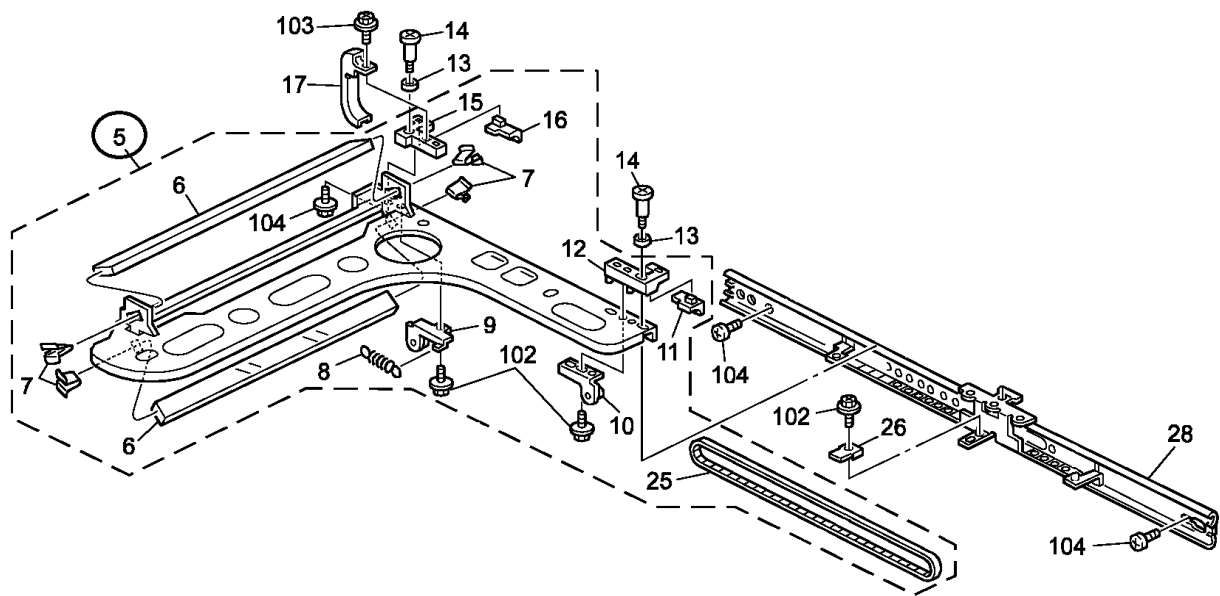
A250 only					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2502650	A2502660	Turn Guide	1	0	23	3

UNITS AFFECTED:

Serial number cut-in information not available at time of publication.

Continued...

- **UPDATE 4:** **2nd Mirror Carriage** – The 2nd Mirror Carriage has been modified to improve the accuracy of enlargement and reduction and straight-line writing. Please update your A250 Parts Catalog with the following information.



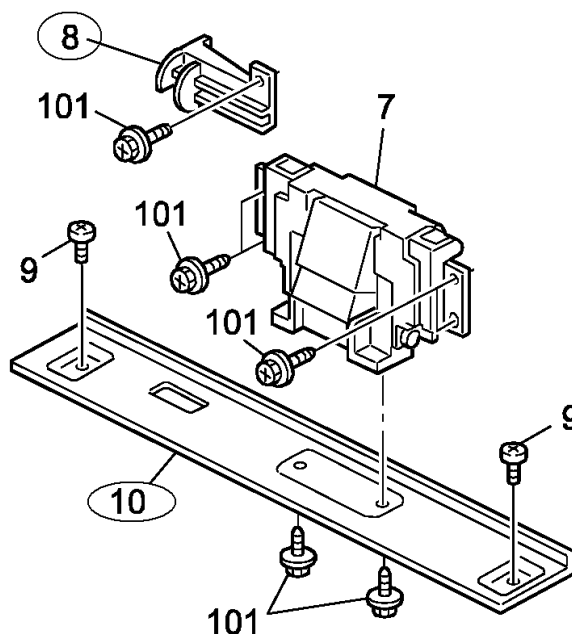
A250 only					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501713	B0601713	2nd Mirror Carriage	1	1	15	5

UNITS AFFECTED:

The new style 2nd Mirror Carriage will available as Service Parts only.

MODEL NAME	SERIAL NUMBER
Gestetner 3218	Service Parts only
Ricoh Aficio 180	Service Parts only
Savin 9918DP	Service Parts only

- **UPDATE 5:** **Platen Cover Feeler** – The Platen Cover Feeler has been changed to maximize paper size detection accuracy. Please update your A250 Parts Catalog with the following information.



A250 only					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501384	B4061384	Feeler - Platen Cover	1	0	9	8
A2501383	B4061383	Bracket - Platen Cover	1	0	9	10

UNITS AFFECTED:

Serial number cut-in information 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.		

BULLETIN NUMBER: A250/B001 - 049**06/24/2002****APPLICABLE MODEL:****GESTETNER – 3218****RICOH – AFICIO 180****SAVIN – 9918DP****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 ⇒.

- 7-17 Updated Information (A250 Firmware Modification History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.

**SERVICE
MANUAL**

A250 COPIER FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
- The detection conditions for SC546 have been changed as follows: Old: - Detection during warm-up, standby and Energy Saver Mode. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 5-second detection intervals. New: - Detection during warm-up only. - After the fusing lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. - Previously, it was necessary to enter the SP Modes to clear SC547. It is now possible to clear the code by turning the main power switch "off" then "on".	A2505532 K	May 2000 Production	2.33
- There are two detection's for SC546. 1. After the Fusing Lamp has been on for 8 seconds, the fusing temperature fails to rise 3°C or more within any of the 10-second detection intervals. 2. The fusing temperature does not reach 74 degrees within 22 seconds of the start of main power warm-up or recovery from Energy Saver/Low Power Mode. The machine did not clear the timer for condition 2 when the Fusing Lamp was heated up to 100%.	A2505532 L	May 2000 Production	2.34
⇒ IMPORTANT: Any BICU that is installed with firmware level 3.05 or higher may not be downgraded to firmware level 2.34 or lower.	A2505532 M	Oct. 2001 Production	3.05

BULLETIN NUMBER: A250/B001 – 050
06/24/2002
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: FUSING JAM KIT
GENERAL:

To aid in servicing A250/B001 Fusing Jams, a Fusing Jam Kit has been created (P/N A2509800). The following table highlights which Fuser Jams are corrected by this kit:

Fusing Jamming Kit (P/N A2509800)			
	Jam Cause:	Check Points:	TSB:
1.	04503014B – Tapping Screw – M3x14 QTY: 2 Fusing Unit screws easily come loose, resulting in uneven pressure between the Hot and Pressure Rollers, which causes the paper to skew.	Is there a gap between the Hot Roller casing and Pressure Roller casing?	A250/B001 – 014 A250/B001 – 023
2.	A2504143 – Pick Off Pawl Spring QTY: 5 Insufficient spring pressure allows a gap to develop between the Pick-Off Pawls and Hot Roller. Toner then accumulates on the Pick-Off Pawl, which increases the gap and misguides the paper.	Is there any paper caught between the Hot Roller and Pick-Off Pawls?	A250/B001 - 020
3.	A2502831 – Paper Feed Mylar QTY: 2 The leading edge of the paper is slightly curled, or curls when it is fed from the paper tray. The curling leads to dog-ears at the leading edge and/or paper skew.	A. Are there dog-ears on the leading edge? B. Is there any creasing in the paper?	A250/B001 – 035
4.	A2504132 – Fusing Idler Gear QTY: 1 The customer tries to pull out jammed paper without first releasing the Fusing Pressure Lever.	A. Is the Exit Roller Spring Plate deformed? B. Is there any paper caught in the Fusing Unit?	TSB to be issued.

The following parts are part of the Fusing Jam Kit (P/N A2509800):

KIT PART NO.	KIT CONTENTS	DESCRIPTION	QTY
A2509800		Fusing Jam Kit	
	▶ 04503014B	Tapping Screw M3x14	2
	▶ A2504143	Pick-Off Pawl Spring	5
	▶ A2502831	Mylar – Paper Feed	2
	▶ A2504132	Idle Gear – Fusing	1



BULLETIN NUMBER: A250/B001 – 050 REISSUE ★
02/14/2003
APPLICABLE MODEL:
GESTETNER – 3218/3215S
RICOH – AFICIO 180/150
SAVIN – 9918DP/2015DP
SUBJECT: FUSING JAM KIT
GENERAL:

- ★ To aid in servicing A250/B001 Fusing Jams, a Fusing Jam Kit has been created (P/N A2509801). The following table highlights which Fuser Jams are corrected by this kit:

★ Fusing Jamming Kit (P/N A2509801)			
	Jam Cause:	Check Points:	TSB:
1.	04503014B – Tapping Screw – M3x14 QTY: 2 Fusing Unit screws easily come loose, resulting in uneven pressure between the Hot and Pressure Rollers, which causes the paper to skew.	Is there a gap between the Hot Roller casing and Pressure Roller casing?	A250/B001 – 014 A250/B001 – 023
2.	A2504143 – Pick Off Pawl Spring QTY: 5 Insufficient spring pressure allows a gap to develop between the Pick-Off Pawls and Hot Roller. Toner then accumulates on the Pick-Off Pawl, which increases the gap and misguides the paper.	Is there any paper caught between the Hot Roller and Pick-Off Pawls?	A250/B001 - 020
3.	A2502831 – Paper Feed Mylar QTY: 2 The leading edge of the paper is slightly curled, or curls when it is fed from the paper tray. The curling leads to dog-ears at the leading edge and/or paper skew.	A. Are there dog-ears on the leading edge? B. Is there any creasing in the paper?	A250/B001 – 035
★ 4.	A2504132 – Fusing Idler Gear QTY: 1 The customer tries to pull out jammed paper without first releasing the Fusing Pressure Lever.	A. Is the Exit Roller Spring Plate deformed? B. Is there any paper caught in the Fusing Unit?	A250/B001 – 055

- ★ The following parts are part of the Fusing Jam Kit (P/N A2509801):

KIT PART NO.	KIT CONTENTS	DESCRIPTION	QTY
★ A2509801		Fusing Jam Kit	
	▶ 04503014B	Tapping Screw M3x14	2
	▶ A2504143	Pick-Off Pawl Spring	5
	▶ A2502831	Mylar – Paper Feed	2
★	▶ B0604132	Idle Gear – Fusing	1



BULLETIN NUMBER: A250/B001 - 051

06/27/2002

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

SUBJECT: REPLACEMENT OF REGISTRATION FRAME**SYMPTOM:**

The right side cover can not be closed properly and an SC401/SC402 is displayed.

CAUSE:

The registration frame is broken.

SOLUTION:

Replace the registration frame with the new style frame (A2501167) also the other parts that are listed on the following page must also be replaced with the new frame.

NOTE: *If the Right Door Modification is necessary refer to Technical Service Bulletin A250/B001 - 030; Dated 10/05/2000 for additional information.*

1. Remove the Photoconductor Unit.
2. Remove the Fusing Unit (Refer to SM pg 6-17).
3. Remove the By-Pass Tray (Refer to SM pg 6-30), Check TSB- 030 if applies.
4. Remove the Cover's (Refer to SM pg 6-1,2,3).
5. Remove the Main Motor / Gear Box / Fly Wheel (Refer to SM pg 6-35).
6. Remove the I/O board (Refer to SM pg 6-36) along with the metal board support.
7. Remove the Fan (2 screws).
8. Remove the Ground Plate (1 screw).
9. Disconnect the Photoconductor Set Sensor.
10. Disconnect the 3 connectors off the High Voltage bd marked T, C and B.
11. Remove the 1 ground screw.

Note: This copy is intended as a master original
for reproduction of additional bulletins.



■ MECHANICAL



■ PARTS

Continued...

12. Remove the 2 connectors for the Cassette Sensors.
13. Remove the LD Unit (Refer to SM pg 6-15).
14. Disconnect the Fusing Unit connector harness from the PSU.
15. Disconnect the 2 connectors on each of the Right door switches.
16. Remove the 8 Registration Frame screws
17. Re-assemble the New Registration Frame.
18. Re-install the Registration Frame to the Copier.
19. Re-assemble all the components to the Copier.
20. Re-install the By-Pass tray and covers.
21. Test with Trim Pattern (Refer to SM pg 6-40)

PARTS LISTING:

				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2501164	A2501167	Frame Registration	1	23	30
A2501166		Shield – Main Frame	1	23	2
G0291055		Duct Sheet	1	23	4
A2502961		Pad – 7x25x1.4	2	23	29
AA153420		Shield – Upper Frame	1	25	10
A2501168		Shield – Frame Duct	1	25	11
G0291094		Grounding Plate - Transport	1	25	16
A2501156		Grounding Plate	1	39	6

BULLETIN NUMBER: A250/B001 - 051 REISSUE ★**01/28/2003****APPLICABLE MODEL:****GESTETNER – 3218/3215S****RICOH – AFICIO 180/150****SAVIN – 9918DP/2015DP****SUBJECT: REPLACEMENT OF REGISTRATION FRAME****SYMPTOM:**

The right side cover cannot be closed properly and an SC401/SC402 is displayed.

CAUSE:

The registration frame is broken.

SOLUTION:

Replace the registration frame with the new style frame (A2501167). Some of the items located on the Registration Frame are attach with double-sided tape. These items may become unusable when moved from the old frame unit to the new frame unit. We have provided a list of these items on the following page.

NOTE: *If the Right Door Modification is necessary refer to Technical Service Bulletin A250/B001 - 030; Dated 10/05/2000 for additional information.*

1. Remove the Photoconductor Unit.
2. Remove the Fusing Unit (Refer to SM pg 6-17).
3. Remove the By-Pass Tray (Refer to SM pg 6-30), Check TSB- 030 if applies.
4. Remove the Cover's (Refer to SM pg 6-1,2,3).
5. Remove the Main Motor / Gear Box / Fly Wheel (Refer to SM pg 6-35).
6. Remove the I/O board (Refer to SM pg 6-36) along with the metal board support.
7. Remove the Fan (2 screws).
8. Remove the Ground Plate (1 screw).
9. Disconnect the Photoconductor Set Sensor.
10. Disconnect the 3 connectors off the High Voltage bd marked T, C and B.
11. Remove the 1 ground screw.

Continued...

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**MECHANICAL****PARTS**

12. Remove the 2 connectors for the Cassette Sensors.
13. Remove the LD Unit (Refer to SM pg 6-15).
14. Disconnect the Fusing Unit connector harness from the PSU.
15. Disconnect the 2 connectors on each of the Right door switches.
16. Remove the 8 Registration Frame screws
17. Re-assemble the New Registration Frame.
18. Re-install the Registration Frame to the Copier.
19. Re-assemble all the components to the Copier.
20. Re-install the By-Pass tray and covers.
21. Test with Trim Pattern (Refer to SM pg 6-40)

PARTS LISTING:

				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2501164	A2501167	Frame Registration	1	23	30
A2501166		Shield – Main Frame	1	23	2
G0291055		Duct Sheet	1	23	4
A2502961		Pad – 7x25x1.4	2	23	29
AA153420		Shield – Upper Frame	1	25	10
A2501168		Shield – Frame Duct	1	25	11
G0291094		Grounding Plate - Transport	1	25	16
A2501156		Grounding Plate	1	39	6

BULLETIN NUMBER: A250/B001 - 051 REISSUE ★**02/04/2003****APPLICABLE MODEL:****GESTETNER – 3218/3215S****RICOH – AFICIO 180/150****SAVIN – 9918DP/2015DP****SUBJECT: REPLACEMENT OF REGISTRATION FRAME****SYMPTOM:**

The right side cover cannot be closed properly and an SC401/SC402 is displayed.

CAUSE:

The registration frame is broken.

SOLUTION:

Replace the registration frame with the new style frame (A2501167). Some of the items located on the Registration Frame are attach with double-sided tape. These items may become unusable when moved from the old frame unit to the new frame unit. We have provided a list of these items on the following page.

NOTE 1: *If the Right Door Modification is necessary refer to Technical Service Bulletin A250/B001 - 030; Dated 10/05/2000 for additional information.*

★ **NOTE 2:** *Refer to Technical Service Bulletin A250/B001-048; **Update Number 2** for serial number information to see if it is also necessary to replace the Fusing Lever Plate.*

1. Remove the Photoconductor Unit.
2. Remove the Fusing Unit (Refer to SM pg 6-17).
3. Remove the By-Pass Tray (Refer to SM pg 6-30), Check TSB- 030 if applies.
4. Remove the Cover's (Refer to SM pg 6-1,2,3).
5. Remove the Main Motor / Gear Box / Fly Wheel (Refer to SM pg 6-35).
6. Remove the I/O board (Refer to SM pg 6-36) along with the metal board support.
7. Remove the Fan (2 screws).
8. Remove the Ground Plate (1 screw).
9. Disconnect the Photoconductor Set Sensor.

Continued...

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**MECHANICAL****PARTS**

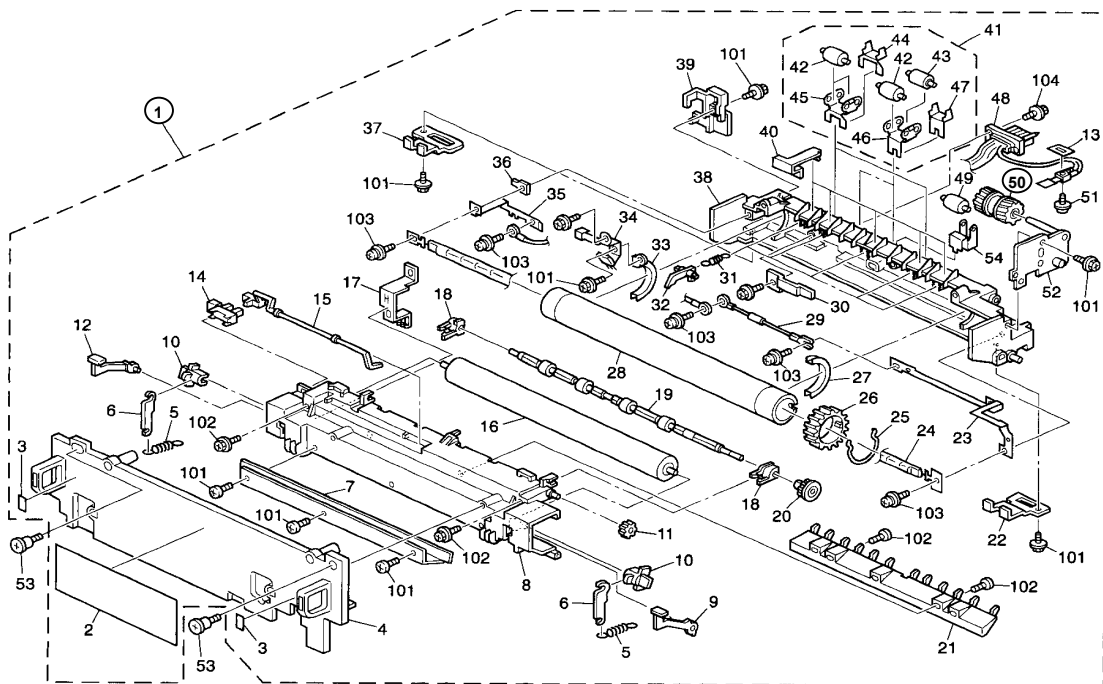
10. Disconnect the 3 connectors off the High Voltage bd marked T, C and B.
11. Remove the 1 ground screw.
12. Remove the 2 connectors for the Cassette Sensors.
13. Remove the LD Unit (Refer to SM pg 6-15).
14. Disconnect the Fusing Unit connector harness from the PSU.
15. Disconnect the 2 connectors on each of the Right door switches.
16. Remove the 8 Registration Frame screws
17. Re-assemble the New Registration Frame.
18. Re-install the Registration Frame to the Copier.
19. Re-assemble all the components to the Copier.
20. Re-install the By-Pass tray and covers.
21. Test with Trim Pattern (Refer to SM pg 6-40)

PARTS LISTING:

				REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	PAGE	ITEM
A2501164	A2501167	Frame Registration	1	23	30
A2501166		Shield – Main Frame	1	23	2
G0291055		Duct Sheet	1	23	4
A2502961		Pad – 7x25x1.4	2	23	29
AA153420		Shield – Upper Frame	1	25	10
A2501168		Shield – Frame Duct	1	25	11
G0291094		Grounding Plate - Transport	1	25	16
A2501156		Grounding Plate	1	39	6

BULLETIN NUMBER: A250/B001 - 052
11/07/2002
APPLICABLE MODEL:
GESTETNER - 3218/3215S
RICOH - AFICIO 180/150
SAVIN - 9918DP/2015DP
SUBJECT: FUSING UNIT
GENERAL:

Although described in the Operating Instructions, some operators forcibly remove jammed paper from the Fusing Unit without using the Pressure Release Lever. Since this can cause the Exit Roller Spring Plates to deform, the following parts have been changed to allow the Idler Gear to turn freely, even when the operator forgets to release the lever. The following parts updates are being issued for all A250/B001 Parts Catalogs.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504018	A2504019	Fusing Unit - 120V	1	0	21	1
A2504028	A2504029	Fusing Unit - 230V	1	0	21	1
G0294131	A2504132	Idler Gear - Fusing	1	0	21	50

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■ PARTS

BULLETIN NUMBER: A250/B001 – 053

11/11/2002

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

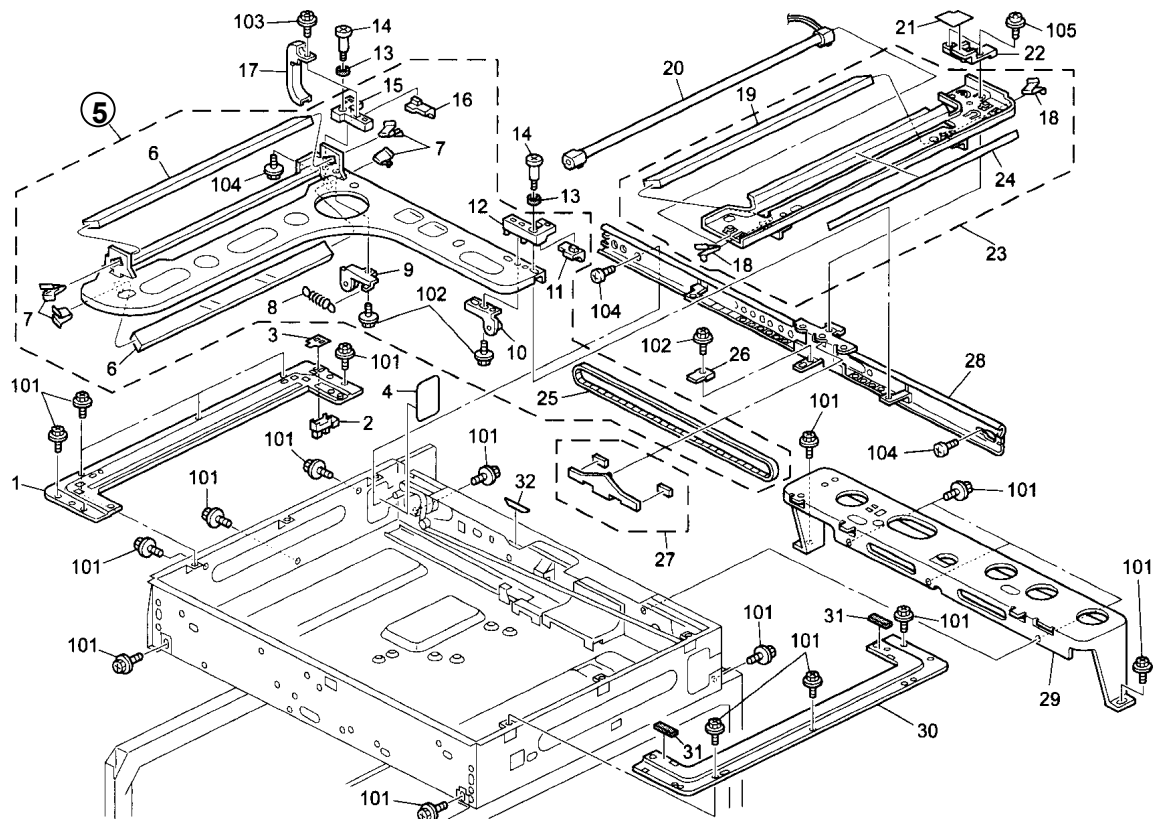
SAVIN – 9918DP/2015DP

SUBJECT: PARTS CATALOG UPDATES

GENERAL:

The following parts updates are being issued for all A250/B001 Parts Catalogs.

- **UPDATE 1:** **2nd Mirror Carriage** – The following has been modified to maximize the accuracy of enlargement/reduction and straight-line writing. Please update your A250/B001 Parts Catalog with the following information.



					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2501713	B0601713	2nd Mirror Carriage	1	1	15	5

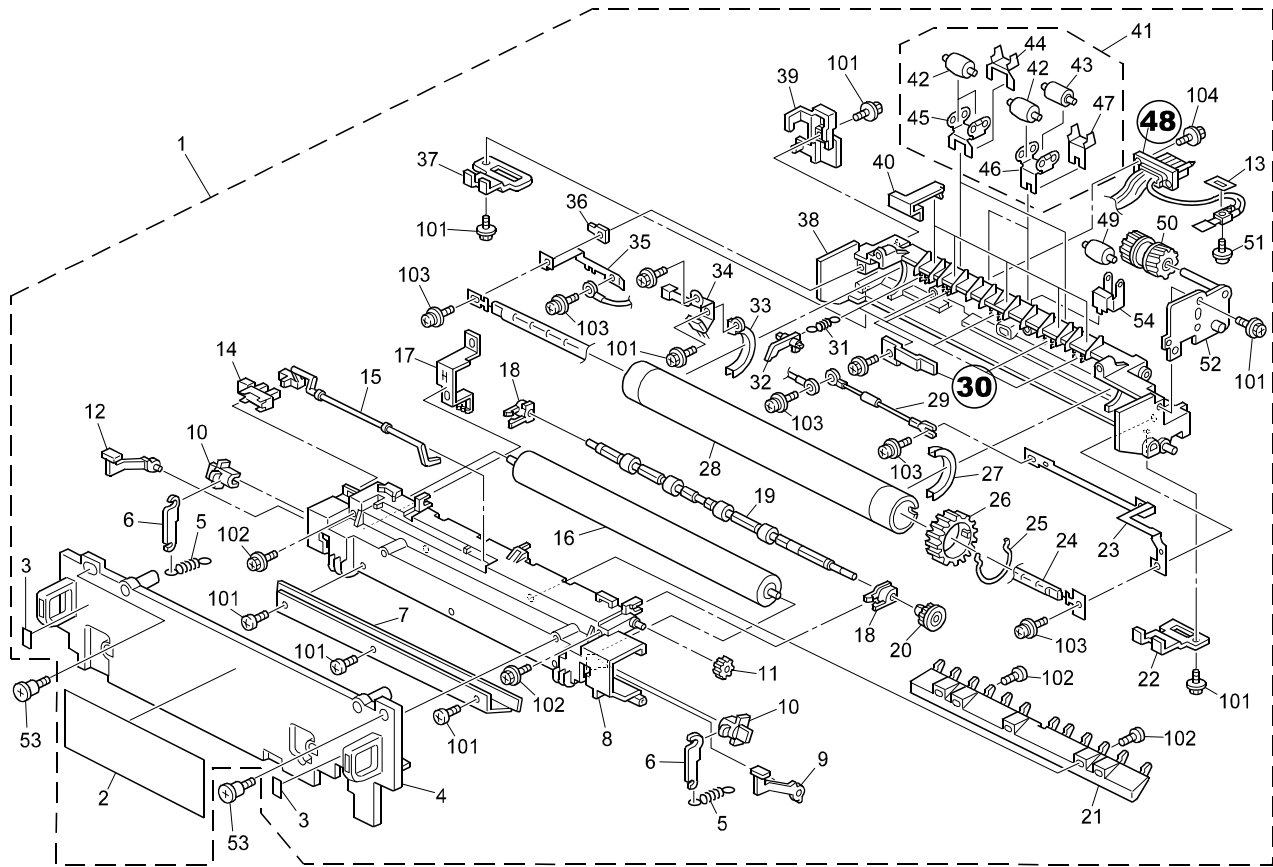
UNITS AFFECTED:

Service Parts only.

Continued...



- **UPDATE 2:** **Fusing Harness Cover** – To ensure that slight deformations do not develop in the Fusing Harness Cover, the Fusing Unit Connector and Fusing Harness Cover have been modified. Please update your A250/B001 Parts Catalog with the following information.



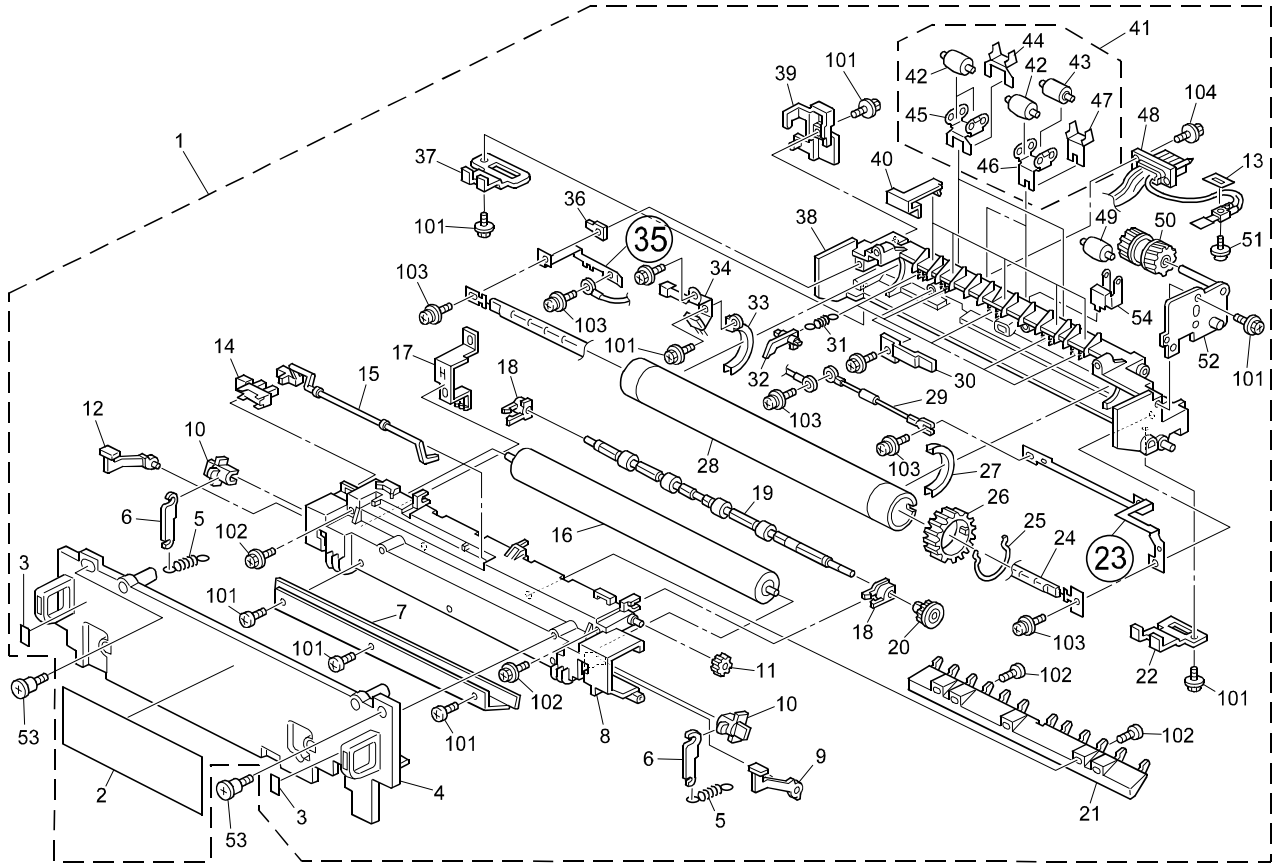
						REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM	
A2504196	B0604196	Fusing Unit Connector - 120V	1	3/S	21	48	
G0294138	G0294125	Fusing Harness Cover	1	3/S	21	30	

NOTE: The Fusing Unit Connector and Fusing Harness Cover must be replaced together as a set.

UNITS AFFECTED:

Service Parts only.

- **UPDATE 3:** **Grounding Plates**– The material for the Grounding Plates was changed to prevent the temperature from rising higher than the target temperature (180°C). Please update your A250/B001 Parts Catalog with the following information.



REFERENCE						
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G0294141	G0294126	Grounding Plate 1	1	0	21	23
G0294144	G0294127	Grounding Plate 2	1	0	21	35

UNITS AFFECTED:
Service Parts only.

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.		

BULLETIN NUMBER: A250/B001 - 054

02/10/2003

APPLICABLE MODEL:

GESTETNER - 3218/3215S

RICOH - AFICIO 180/150

SAVIN - 9918DP/2015DP

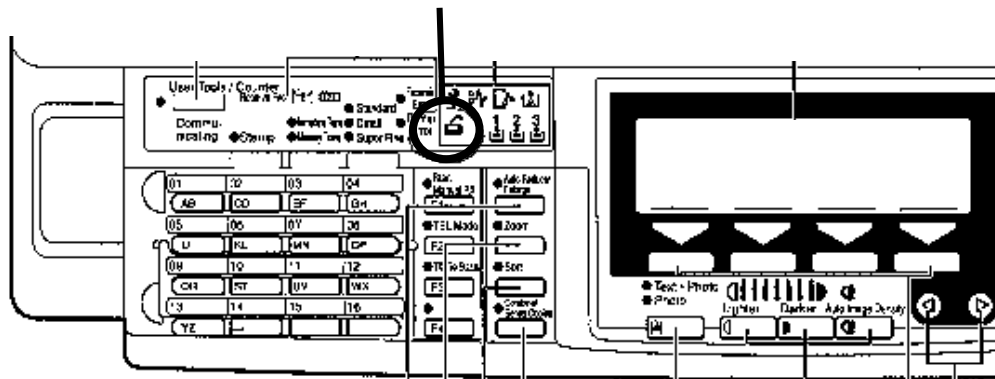
SUBJECT: PM MAINTENANCE COUNTER RESET

SYMPTOM:

The PM Maintenance Counter Alarm light is displayed. This is the symbol underneath the Wrench Alarm light and to right of the Printer Alarm light. The symbol that is displayed is illustrated below.

PM Maintenance Alarm
Operation Panel

PM Maintenance Alarm



CAUSE:

The PM Maintenance Alarm will display when the counter in SP 5-912 is reached. (Default is 100K)

SOLUTION:

Reset SP 7- 909 at each PM. To do this go into SP 7- 909 and select 1, press and hold the "Photo Mode" key and then the "OK" key at the same time to reset the counter. The reset is successful if the beeper sounds 5 times. Power the machine "OFF" then "ON".

Note: This copy is intended as a master original for reproduction of additional bulletins.



MECHANICAL



PARTS



ELECTRICAL

BULLETIN NUMBER: A250/B001 – 055

02/14/2003

APPLICABLE MODEL:

GESTETNER – 3218/3215S

RICOH – AFICIO 180/150

SAVIN – 9918DP/2015DP

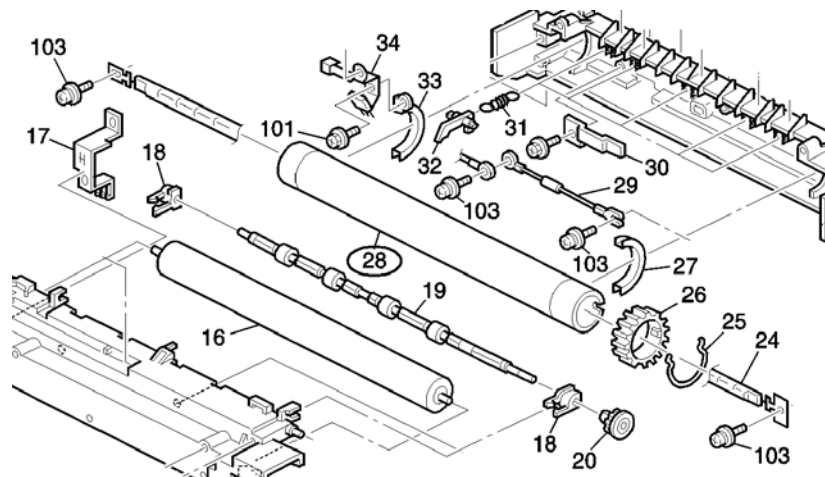
SUBJECT: PARTS CATALOG UPDATES – FUSER SECTION

GENERAL:

The following updates are all related to parts in the A250/B001 Fuser section. The following parts updates are being issued for all A250/B001 Parts Catalogs. Please update your parts catalog with the following information.

● **UPDATE 1:**

Hot Roller – The shape of the U-shaped groove in the Hot Roller has been changed to increase its durability against stress. Be sure to **not** apply grease to the Hot Roller Bushings, as this may create increased friction between the bushings and the hot roller shaft. Please update your A250/B001 Parts Catalog with the following information.



A250/B001

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504110	A2504111	Hot Roller	1	1	21	28

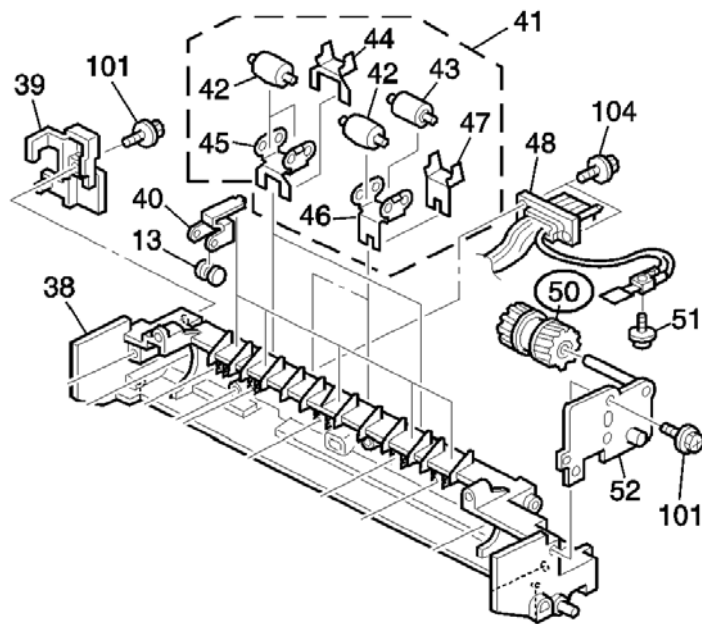
UNITS AFFECTED:

The A250/B001 Hot Roller is available as a service part only.

Continued...



- **UPDATE 2:** **Fusing Idler Gear** – If the customer tries to pull out jammed paper without first releasing the fusing pressure lever, a piece of the paper may remain in the fusing unit or the fusing exit spring plate might be deformed. To prevent this, the Fusing Idler Gear has been changed to a one-way clutch gear. Please update your A250/B001 Parts Catalog with the following information.



A250/B001					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
A2504132	B0604132	Idler Gear - Fusing	1	1	21	50

UNITS AFFECTED:
The A250/B001 Fusing Idler Gear is available as a service part only.

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.		

BULLETIN NUMBER: A891 - 001

12/23/99

APPLICABLE MODEL:

GESTETNER - FAX OPTION for 3218

RICOH - FAX OPTION for AFICIO 180

SAVIN - FAX OPTION for 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

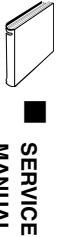
The Service Manual page listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 6-7 Updated Information (Fax Unit SM- FCU Firmware Download)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



If the switch setting is wrong, or if the tool is not connected correctly, the message on the right appears. Then turn off the machine and retry the procedure again.

6. Press OK, then check the ROM version. If the card does not contain FCU ROM data, "Please check flash card" appears. Turn off the machine and retry the procedure with the correct card.
7. Press Start.

```

-----
<FCU ROM Download>
Make sure that the switch below the
card slot is ON.
Cancel OK
  
```

```

FCU ROM Download:
FCU:A2915582B 3.18 New:A2915582B 3.18
This will update the FCU ROM. "Start" to
proceed, otherwise "Cancel". Cancel
  
```

```

FCU ROM Download:
ERASING.....
FCU:A2915582B 3.18 New:A2915582B 3.18
  
```

After the machine updates the ROM data, the message on the right appears.

8. Turn off the main power switch then disconnect the flash memory card.
- ⇒ 9. Turn SW1 off.
10. Turn the machine back on.
11. Print the system parameter list to check if the new ROM version is printed.

```

-----
<FCU ROM Download>
Loading Completed
ROM has been updated. SUM:1E55
Turn the AC switch off then back on.
  
```

TECHNICAL SERVICE BULLETINS

BULLETIN NUMBER: B305 - 001

12/23/99

APPLICABLE MODEL:

GESTETNER - PRINTER OPTION for 3218
RICOH - PRINTER OPTION for AFICIO 180
SAVIN - PRINTER OPTION for 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

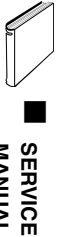
The Service Manual page listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- B305 TOC ii Updated Information (B305 Table of Contents)
- 6-5 Updated Information (Printer Option SM- ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



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6.4 ROM HISTORY

6.4.1 ROM HISTORY – B305

Description of Modification	Firmware Level	Serial Number	Firmware Version
Corrections: - The user cannot initiate energy saver mode while in the middle of a print job. - The language displayed is incorrect if any language other than English has been set. - A software error occasionally occurs when the Enter and Escape keys from the main printer menu display are pushed simultaneously. - After the detection of a paper size mismatch, the error LED turns off if the selected tray is opened and closed. - If there is no paper remaining in the (selected) bypass tray when beginning a print job, the correct paper size is not displayed. - When the correct paper is not available to be fed during a collating job, the corresponding display does not appear on the screen. - Following an R-Jam, the number of copy sets printed out is incorrect. - With PCL5e, three pages of a document are printed out on one page (images overlapping). - Default display for backup mode is changed from "Compressing" to "Processing". - When the tray selected through "tray lock" runs out of paper, the machine begins feeding paper from another tray without prompting the user. The pages are then printed out. - Contrary to specifications, it is possible to set a customized paper size when using the proof print function. - When errors occur with the printer unit, SC error messages are not displayed. - If the Interrupt button is pressed during a print job, the job does not continue after attempting to resume printing. - In sort mode, if an error occurs because the paper being used does not fulfill the conditions of sort mode (e.g. paper from the bypass tray, thick paper mode), the entire job is printed out when the job is resumed, including pages that have already been printed out. - Following the installation of the hard drive, even if the printer is selected in function priority, copy jobs receive first priority. - When an error occurs during a sort job, the corresponding SC number is not displayed. - With a job using various paper sizes, after the machine detects a paper mismatch and displays the corresponding message, it is not possible to continue the job. Continued.....	B3055280 B See Note 1	Oct. 1999 Prod.	1.2.0 See Note 2

Description of Modification	Firmware Level	Serial Number	Firmware Version
• If a second printing job is selected while the first job is being printed out (and the first job is then canceled), the second job is printed out prematurely while "ready" is being displayed. • When a paper mismatch is detected with a job using various paper sizes, the alarm LED does not shut off. • On the config. page, a value is displayed for the size of the paper inside a tray that has been removed from the machine. • Although not always, there are cases where data cannot be received when using AXIS. • During a sort job, the proper message indicating the absence of paper is not displayed the second time the tray runs out of paper (i.e. after the job has been reset once). • Incorrect display of "Wingdings" font.			
Initial Production	B3055280 A	1st Prod.	NA

NOTE 1: This can be viewed at SP Mode 7-801-4.

NOTE 2: This can be viewed on the Printer Configuration page.

BULLETIN NUMBER: B305 - 002

02/22/2000

APPLICABLE MODEL:

GESTETNER - PRINTER OPTION for 3218/3215S

RICOH - PRINTER OPTION for AFICIO 180/150

SAVIN - PRINTER OPTION for 9918DP/2015DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

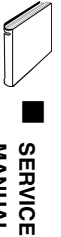
The Service Manual page listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- 6-5 & 6 Updated Information (Printer Option SM- ROM History)

Note: This copy is intended as a master original
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6.4 ROM HISTORY

6.4.1 ROM HISTORY – B305



Description of Modification	Firmware Level	Serial Number	Firmware Version
Corrections: - The printer controller can now determine if it is installed in a A250 or B001. - If a Postscript driver job is cancelled midway through the job, the image for the next job was not printed out correctly. "Waiting..." was displayed when an error occurred but the machine does not return to normal operating mode (Ready Status). The next job was not printed out. - If two separate jobs of text less than 256 bytes were sent from the network, the two jobs were printed out simultaneously on the same page. - It was possible to print out the HDD Directory List when there was no HDD or PS option installed.	B3055280 C See Note 1	Nov. 1999 Prod.	1.2.7 See Note 2
Corrections: - The user cannot initiate energy saver mode while in the middle of a print job. - The language displayed is incorrect if any language other than English has been set. - A software error occasionally occurs when the Enter and Escape keys from the main printer menu display are pushed simultaneously. - After the detection of a paper size mismatch, the error LED turns off if the selected tray is opened and closed. - If there is no paper remaining in the (selected) bypass tray when beginning a print job, the correct paper size is not displayed. - When the correct paper is not available to be fed during a collating job, the corresponding display does not appear on the screen. - Following an R-Jam, the number of copy sets printed out is incorrect. - With PCL5e, three pages of a document are printed out on one page (images overlapping). - Default display for backup mode is changed from "Compressing" to "Processing". - When the tray selected through "tray lock" runs out of paper, the machine begins feeding paper from another tray without prompting the user. The pages are then printed out. - Contrary to specifications, it is possible to set a customized paper size when using the proof print function. - When errors occur with the printer unit, SC error messages are not displayed. - If the Interrupt button is pressed during a print job, the job does not continue after attempting to resume printing. Continued.....	B3055280 B	Oct. 1999 Prod.	1.2.0

Description of Modification	Firmware Level	Serial Number	Firmware Version
• In sort mode, if an error occurs because the paper being used does not fulfill the conditions of sort mode (e.g. paper from the bypass tray, thick paper mode), the entire job is printed out when the job is resumed, including pages that have already been printed out. • Following the installation of the hard drive, even if the printer is selected in function priority, copy jobs receive first priority. • When an error occurs during a sort job, the corresponding SC number is not displayed. • With a job using various paper sizes, after the machine detects a paper mismatch and displays the corresponding message, it is not possible to continue the job. • If a second printing job is selected while the first job is being printed out (and the first job is then canceled), the second job is printed out prematurely while "ready" is being displayed. • When a paper mismatch is detected with a job using various paper sizes, the alarm LED does not shut off. • On the config. page, a value is displayed for the size of the paper inside a tray that has been removed from the machine. • Although not always, there are cases where data cannot be received when using AXIS. • During a sort job, the proper message indicating the absence of paper is not displayed the second time the tray runs out of paper (i.e. after the job has been reset once). • Incorrect display of "Wingdings" font.			
Initial Production	B3055280 A	1st Prod.	NA

NOTE 1: This can be viewed at SP Mode 7-801-4.

NOTE 2: This can be viewed on the Printer Configuration page.

BULLETIN NUMBER: B305 - 003

03/27/2000

APPLICABLE MODEL:

GESTETNER – PRINTER CONTROLLER for 3218
RICOH – PRINTER CONTROLLER for AFICIO 180
SAVIN – PRINTER CONTROLLER for 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

The Service Manual pages 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 ⇒.

- B305 6-2 Updated Information (Printer Controller Error Conditions)

Note: This copy is intended as a master original
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■ SERVICE
MANUAL

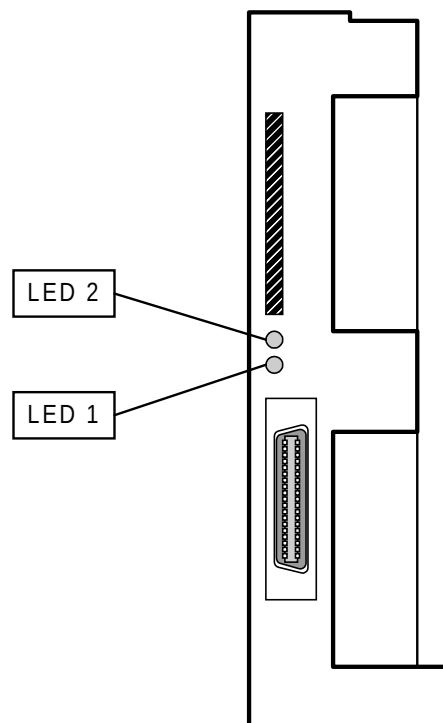
Code	Description	Required Action
2100	NIB self test failed.	Turn off the machine and turn it back on. Replace the NIB if this error is frequent.
21xx	NIB error	
2501	The data in the PS DIMM is damaged.	Replace the PS DIMM if this error is frequent.
2508	The data in the IC card is damaged.	Reprogram the IC card and try again.
3003 or 3004	A damaged cluster was found on the HDD.	The damaged cluster is automatically marked as "bad". If this error is frequent, format the HDD.
47xx	Controller ASIC error.	Replace the controller.



6.3 LED DISPLAY

6.3.1 LOCATION

The controller uses two LEDs to display error status even while the LCD message is not active.



BULLETIN NUMBER: B305 – 004

04/20/2000

APPLICABLE MODEL:

GESTETNER – PRINTER OPTION for 3218
RICOH – PRINTER OPTION for AFICIO 180
SAVIN – PRINTER OPTION for 9918DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

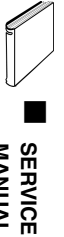
The Service Manual page listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

The revised areas have been highlighted by an arrow ⇒.

PAGES:

- ii Updated TOC Page for B305 Section
- 6-5, 6-6 Updated Information (Printer Option SM-ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



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6.4 ROM HISTORY

6.4.1 ROM HISTORY – B305

	Description of Modification	Firmware Level	Serial Number	Firmware Version
⇒	Initial Production	B3055280 A	1st Prod.	NA
	Corrections: • The user cannot initiate energy saver mode while in the middle of a print job. • The language displayed is incorrect if any language other than English has been set. • A software error occasionally occurs when the Enter and Escape keys from the main printer menu display are pushed simultaneously. • After the detection of a paper size mismatch, the error LED turns off if the selected tray is opened and closed. • If there is no paper remaining in the (selected) bypass tray when beginning a print job, the correct paper size is not displayed. • When the correct paper is not available to be fed during a collating job, the corresponding display does not appear on the screen. • Following an R-Jam, the number of copy sets printed out is incorrect. • With PCL5e, three pages of a document are printed out on one page (images overlapping). • Default display for backup mode is changed from "Compressing" to "Processing". • When the tray selected through "tray lock" runs out of paper, the machine begins feeding paper from another tray without prompting the user. The pages are then printed out. • Contrary to specifications, it is possible to set a customized paper size when using the proof print function. • When errors occur with the printer unit, SC error messages are not displayed. • If the Interrupt button is pressed during a print job, the job does not continue after attempting to resume printing • In sort mode, if an error occurs because the paper being used does not fulfill the conditions of sort mode (e.g. paper from the bypass tray, thick paper mode), the entire job is printed out when the job is resumed, including pages that have already been printed out. • Following the installation of the hard drive, even if the printer is selected in function priority, copy jobs receive first priority. Continued...	B3055280 B	Oct. 1999 Prod.	1.2.0

Description of Modification	Firmware Level	Serial Number	Firmware Version
(Continued from previous page) - When an error occurs during a sort job, the corresponding SC number is not displayed. - With a job using various paper sizes, after the machine detects a paper mismatch and displays the corresponding message, it is not possible to continue the job. - If a second printing job is selected while the first job is being printed out (and the first job is then canceled), the second job is printed out prematurely while "ready" is being displayed. - When a paper mismatch is detected with a job using various paper sizes, the alarm LED does not shut off. - On the config. page, a value is displayed for the size of the paper inside a tray that has been removed from the machine. - Although not always, there are cases where data cannot be received when using AXIS. - During a sort job, the proper message indicating the absence of paper is not displayed the second time the tray runs out of paper (i.e. after the job has been reset once). - Incorrect display of "Wingdings" font.	B3055280 B	Oct. 1999 Prod.	1.2.0
Corrections: - The printer controller can now determine if it is installed in a A250 or B001. - If a Postscript driver job is cancelled midway through the job, the image for the next job was not printed out correctly. "Waiting..." was displayed when an error occurred but the machine does not return to normal operating mode (Ready Status). The next job was not printed out. - If two separate jobs of text less than 256 bytes were sent from the network, the two jobs were printed out simultaneously on the same page. - It was possible to print out the HDD Directory List when there was no HDD or PS option installed.	B3055280 C See Note 1	Nov. 1999 Prod.	1.2.7 See Note 2
Corrections: - Firmware modified so that it can be used with printer controllers for China and Taiwan. - Firmware modified so that it will be compatible with new HDD to be used in the printer controller. NOTE: New HDD is identical in function to previous one.	B3055280 D	Jan.2000 Prod.	1.2.9

NOTE 1: This can be viewed at SP Mode 7-801-4.

NOTE 2: This can be viewed on the Printer Configuration page.

BULLETIN NUMBER: B305 - 005**05/17/2000****APPLICABLE MODEL:****GESTETNER – PRINTER CONTROLLER for 3222/3227****RICOH – PRINTER CONTROLLER for AFICIO 180/150****SAVIN – PRINTER CONTROLLER for 9918DP/2015DP****SUBJECT: HDD ERROR****BACKGROUND:**

This bulletin is to inform you of the possibility of compatibility issues with the Printer Hard Disk Type 185 (G690). The production of 1.6 GB Hard Disk Drives (HDD) will be discontinued in March 2000 and a new 6.0 GB HDD will be used in production starting in April 2000. When the new style 6.0 GB HDD is installed in the machine using Controller Firmware prior to version 1.2.9, an error may occur.

NOTE: *Controller Firmware has been modified from January 2000 production, therefore these B305's are compatible with both the old style 1.6 GB and the new style 6.0 GB Hard Disk Drives.*

SYMPTOM:

The B305 may not be able to detect the HDD during the power on Self-Diagnostic Test. A SC2001 3003 (HDD Error) will be displayed.

TEMPORARY SOLUTION:

Turn the Main Switch off and then on. If the problem persists, try turning off and on again. Once the machine detects the HDD properly (No error message is displayed), there are no problems related to the HDD of the B305.

PERMANENT SOLUTION:

Upgrade the controller firmware with version 1.2.9 or later.

The Controller Firmware revision F (file name B305_136.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.*

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**FIRMWARE**

BULLETIN NUMBER: B305 - 006

05/30/2000

APPLICABLE MODEL:

GESTETNER – PRINTER OPTION for 3218/3215S

RICOH – PRINTER OPTION for AFICIO180/150

SAVIN – PRINTER OPTION for 9918DP/2015DP

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 ⇒.

- 6-7 Updated Information (Firmware History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



BULLETIN NUMBER: B305 - 007
08/02/2000
APPLICABLE MODEL:
GESTETNER – PRINTER OPTION for 3218/3215S
RICOH – PRINTER OPTION for AFICIO 180/150
SAVIN – PRINTER OPTION for 9918DP/2015DP
SUBJECT: PARTS CATALOG UPDATES
GENERAL:

The following parts updates are being issued for all B305 Parts Catalogs.

- **UPDATE 1:** **Hard Disk Drive** – The production of the 1.6GB Hard Disk Drive was discontinued in March 2000 and the new 6.0GB Hard Disk Drive has been used since April 2000 Production. Please update your Parts Catalog with the following information.

					REFERENCE	
OLD PART NO.	NEW PART NO.	DESCRIPTION	QTY	INT	PAGE	ITEM
G6905714	G6905718	PCB HDD - 6GB	1	1	5	1
A8537000	B3497000	HDD - MK6014MAP	1	1	5	2

- **UPDATE 2:** **Operating Instructions - Printer (NA)** – The part number for the Operating Instructions for the Printer (NA) have been added to the Parts Catalog. Please update your Parts Catalog with the following information.

			REFERENCE	
PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B3058717	Operating Instructions - Printer (NA)	1	3	20 *

* Denotes new item number.

Note: This copy is intended as a master original for reproduction of additional bulletins.



■ PARTS

BULLETIN NUMBER: B305 – 008

12/11/2000

APPLICABLE MODEL:

GESTETNER – PRINTER OPTION for 3218/3215S

RICOH - PRINTER OPTION for AFICIO 180/150

SAVIN - PRINTER OPTION for 9918DP/2015DP

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 ⇒.

- 6-7 & 6-8 Updated Information (ROM History)

Note: This copy is intended as a master original
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Description of Modification	Firmware Level	Serial Number	Firmware Version
• Even when the PjL command is released instructing the machine to exit the paper to tray 2 (1-bin tray), the paper is not output from this tray. • With Overlay printing, the text outside the fixed overlay pattern is printed out as PCL commands (specifically, the ESC sequence). • The paper is not fed from Tray 2, even when the PjL command is released instructing the machine to do so.	B3055280 E	March 2000 Production	1.3.4
• Error message not displayed when an error occurred during collate mode printing. • This new revision disabled the NIB Read/Write Function.	B3055280 F	April 2000 Production	1.3.6
• The printed area was shifted slightly, when "Unit of Measure" was defined using the macro command. • The right edge of the printable area for the raster image may not print. • The right edge for the error Log of the Configuration Page criss-crossed each other in Italian and Spanish. • The title of "Printer Name (NetWare)" on the Configuration Page was changed to "Printer Name".	B3055280 G	Sept. 2000 Production	1.4.0
⇒ • Part of the image is missing for the first two pages when printing out with the Unico2000 CAD application. • When printing out with the Microsoft Mini Driver for Windows NT Terminal Server, the image created is sometimes out of specification. • When printing out a file made with certain CAD applications for DOS without using a printer driver, thick lines on the original image appear thin on the output. ** To activate this correction, it is necessary to set Bit SW3, bit 3 to 1 (0=disabled, 1=Enabled). • Firmware modified to meet the functional specifications of the Tray Priority function. • The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to 1 (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to 1 (DAZEL support function disabled). The correction will not be effective if both of these switches are enabled. • Firmware modified so that the controller can connect to and be used with the DAZEL* System. However, the A265/A267 is not yet officially certified by DAZEL Corp. When you enable this function, it is necessary to do the following:	B3055280 H	Nov. 2000 Production	1.4.4
			Continued

Description of Modification	Firmware Level	Serial Number	Firmware Version
⇒ -Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to 1 (0=Enabled, 1=Disabled).			

BULLETIN NUMBER: B305 – 009

07/16/2001

APPLICABLE MODEL:

GESTETNER – PRINTER OPTION for 3218/3215S

RICOH - PRINTER OPTION for AFICIO 180/150

SAVIN - PRINTER OPTION for 9918DP/2015DP

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 ⇒.

- 6-8 Updated Information (ROM History B305)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



■
SERVICE
MANUAL

Description of Modification	Firmware Level	Serial Number	Firmware Version
-Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to 1 (0=Enabled, 1=Disabled).			
⇒ • When printing from a certain DOS application, the right part of the internal print pattern is missing. • When using a certain DOS (CAD) application, the paper size and/or paper feed direction are not sent to the controller, and the machine uses the defaults • When printing out with a certain macro, the frame and lower area of the image are missing. • When using the Dazel system, the job cannot be reset after the paper feed tray reaches paper end.	B3055280 J	Dec. 2000 Production	1.4.8
• After an A4 LEF print job is completed and the ON Line key is pressed, it takes a relatively long time to enter OFF Line mode. • The controller stalls when the test document (A4 LEF) for Corel Draw 9 is printed.	B3055280 K	Feb. 2001 Production	1.4.9

BULLETIN NUMBER: B305 - 010**11/12/2002****APPLICABLE MODEL:****GESTETNER - PRINTER OPTION for 3218/3215S****RICOH - PRINTER OPTION for AFICIO 180/150****SAVIN - PRINTER OPTION for 9918DP/2015DP****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 ⇒.

- 6-8 and 6-9 Updated Information (B305 Firmware History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.

**SERVICE
MANUAL**

Description of Modification	Firmware Level	Serial Number	Firmware Version
-Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to 1 (0=Enabled, 1=Disabled).			
- When printing from a certain DOS application, the right part of the internal print pattern is missing. - When using a certain DOS (CAD) application, the paper size and/or paper feed direction are not sent to the controller, and the machine uses the defaults - When printing out with a certain macro, the frame and lower area of the image are missing. - When using the Dazel system, the job cannot be reset after the paper feed tray reaches paper end.	B3055280 J	Dec. 2000 Production	1.4.8
- After an A4 LEF print job is completed and the ON Line key is pressed, it takes a relatively long time to enter OFF Line mode. - The controller stalls when the test document (A4 LEF) for Corel Draw 9 is printed.	B3055280 K	Feb. 2001 Production	1.4.9
⇒ - For Dazel: When a stack job has been cancelled, a mismatch occurs between the actual number of pages printed out and the number reported to the server. - OCR font does not download into the HDD. - With the PS driver, the printer does not print out jobs when the Separator function has been selected. - Configuration Sheet does not print out. - When a job has been sent with the PS driver but the tray has not been specified (w/manual selection), the machine does not inform the Aficio Manager of this error. - When using the PS driver for a collated print job (bypass feed), only the 1st set is printed out. - Buffer size error occurs during data communication over IEEE1284 ECP.	B3055280 L	Sept. 2001 Production	1.5.4



Description of Modification	Firmware Level	Serial Number	Firmware Version
Machine does not print a job sent with a PS driver when the specified paper size is not loaded in the tray and Tray Priority has been disabled.	B3055280 M	Dec. 2001 Production	1.5.6
- Minor bug with Rotate Sort. - Following paper end during a Sort print job, using the Forced Print function will print out the entire job from the beginning instead of just 1 set (specification). - Software modified so that it is possible to perform jobs containing a mixture of PCL and PS commands when printing directly from a host application. - Added Euro Symbol Sets PC858, Latin 9, and Roman 9. - Added Euro currency codes to existing symbol sets MC Text and PS Math. - Changed symbol sets Win3.1 Latin1 8E, 9E, and Win 3.1 Baltic FF so that they appear on outputs the same as with HP printers.	B3055280 N	May 2002 Production	1.5.7

BULLETIN NUMBER: B305 - 011

12/03/2002

APPLICABLE MODEL:

GESTETNER - PRINTER OPTION for 3218/3215S

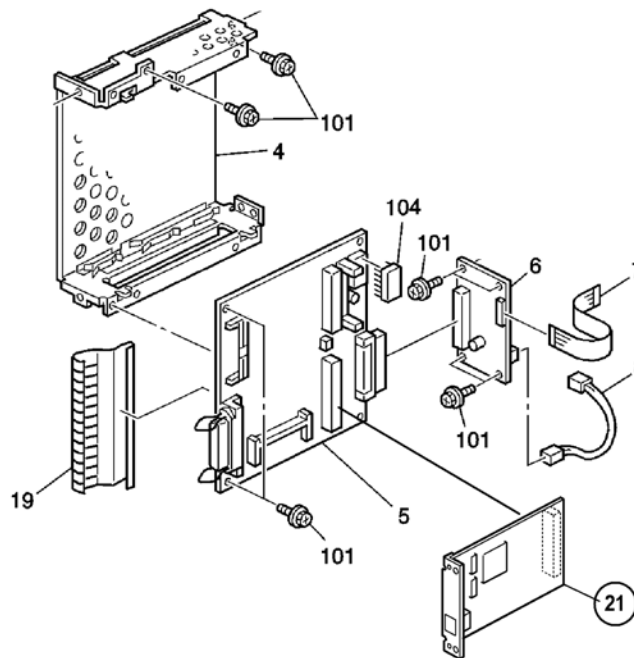
RICOH - PRINTER OPTION for AFICIO 180/150

SAVIN - PRINTER OPTION for 9918DP/2015DP

SUBJECT: NETWORK INTERFACE BOARD

GENERAL:

The Network Interface Board has been registered as a service part for the B305 Parts Catalog. The following part update is being issued for all B305 Parts Catalogs.



■ PARTS

Note: This copy is intended as a master original for reproduction of additional bulletins.

PART NUMBER	DESCRIPTION	QTY	REFERENCE	
			PAGE	ITEM
G6785714	Network Interface Board	1	3	21 *

*** DENOTES NEW ITEM NUMBER**

BULLETIN NUMBER: B305 – 012

02/12/2003

APPLICABLE MODEL:

GESTETNER – PRINTER OPTION for 3218/3215S

RICOH – PRINTER OPTION for AFICIO 180/150

SAVIN – PRINTER OPTION for 9918DP/2015DP

SUBJECT: FIRMWARE MODIFICATION

GENERAL:

The latest firmware version can be downloaded at the Technology Solution Center FTP Site <http://tsc.ricohcorp.com>. Be sure to check the README file for important notes and explanations.

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.



■ FIRMWARE

Note: This copy is intended as a master original for reproduction of additional bulletins.

B305 FIRMWARE MODIFICATION			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Some fonts that are downloaded to the HDD are not recognized as HDD fonts.	B3055280 N	(Web Server only)	1.5.9
Added Euro Symbol Sets and Euro Currency Codes currently available on HP printers (PCL5e, PCLXL).			
Some text characters do not appear on the output.			
Straight lines sometimes appear in the wrong position on the paper.			
When OHP sheets are used up in the middle of a job (bypass tray), the machine searches and feeds from another tray with the same size.			
The Euro currency symbol is sometimes not printed out.			

BULLETIN NUMBER: B305 - 013

05/09/2003

APPLICABLE MODEL:

GESTETNER - PRINTER CONTROLLER TYPE 185 for 3218/3215S

LANIER - PRINTER CONTROLLER TYPE 185 for 5218/N/A

RICOH - PRINTER CONTROLLER TYPE 185 for AFICIO 180/150

SAVIN - PRINTER CONTROLLER TYPE 185 for 9918DP/2015DP

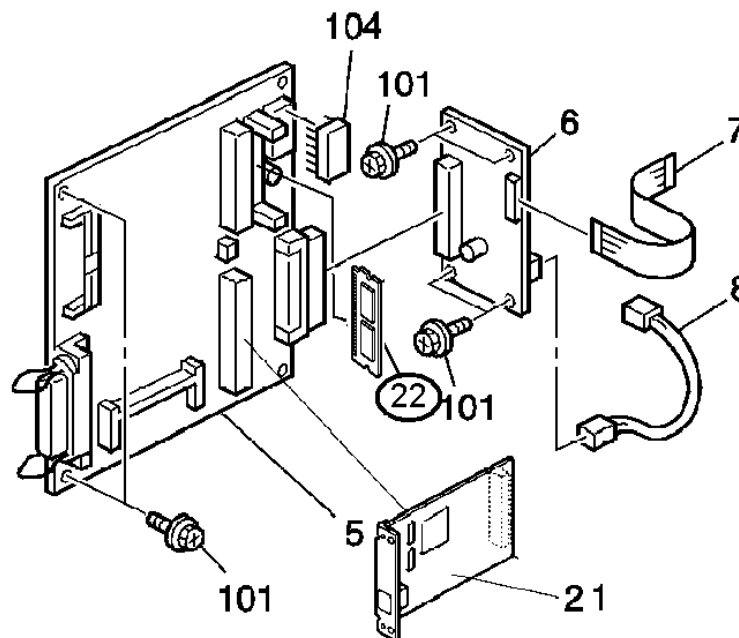
SUBJECT: PS3 BOARD

GENERAL:

As per a field request, the PS3 Board has been registered as a service part. Please update your B305 Parts Catalog as shown in the illustration below. The following part update is being issued for all B305 Parts Catalogs.



■ PARTS



			REFERENCE	
NEW PART NUMBER	DESCRIPTION	QTY	PAGE	ITEM
B3085181	PS3 Board	1	3	22 *

* DENOTES NEW ITEM NUMBER

BULLETIN NUMBER: B307 – 001

05/19/2000

APPLICABLE MODEL:

GESTETNER – NETWORK INTERFACE BOARD for 3218/3215S
RICOH - NETWORK INTERFACE BOARD for AFICIO 180/150
SAVIN - NETWORK INTERFACE BOARD for 9918DP/2015DP

SUBJECT: SERVICE MANUAL - INSERT

GENERAL:

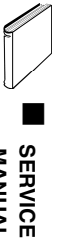
The Service Manual pages listed below must be replaced with the pages supplied. Each bulletin package contains 1 set of replacement pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- B307 TOC i Updated Information (B307 Table of Contents)
- 4-2,3 Updated Information (NIB Firmware History)

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NETWORK INTERFACE BOARD B307

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4.2 FIRMWARE HISTORY

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Initial Production Release	G6785839B	Initial Production	3.7.5
Corrects the following: - On the web status monitor, the improper icon was used for "Paper Empty". - If the NIB received 5 simultaneous print jobs, additional print jobs would be lost.	G6785839C	February '99 Production	3.7.7
Corrects the following: The firmware was modified to support A250/B001.	G6785839D	March '99 Production	3.8.6
Corrects the following: - One banner data page of NetWare was split into two pages when using NetWare 3.12 pserver mode. - In NetWare remote printer mode, the NIB consumed a server connection license. To avoid this, the firmware has been modified to disconnect the NCP connection immediately after the remote printer has connected to the server.	G6785839E	April '99 Production	3.8.7
Corrects the following: - On the web status monitor, the wording in German was incorrect. "FreierSpeicher" corrected to "Freier Speicher". - The Web status monitor displays "No Tray/No Paper" error when a tray is not closed completely. The message has been changed to "Other Error". - Disabling (Down) or enabling (Up) AppleTalk protocol from the operation panel sometimes did not take effect after the change. To avoid this, the firmware has been changed to save a new setting to the NVRAM immediately after a change.	G6785839F	June '99 Production	3.8.8
Corrects the following: - When a printer error occurs, the printer information cannot be accessed using Macintosh printer utilities such as Apple Printer Utility. - IPP (Internet Print Protocol) function has been added.	G6785839G	July '99 Production	3.9.2

BULLETIN NUMBER: B307 – 002

05/19/2000

APPLICABLE MODEL:

GESTETNER – NETWORK INTERFACE BOARD for 3222/3227
RICOH - NETWORK INTERFACE BOARD for AFICIO 220/270
SAVIN - NETWORK INTERFACE BOARD for 9922DP/9927DP

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 ⇒.

- B307 TOC i Updated Information (B307 Table of Contents)
- 4-2,3 Updated Information (NIB Firmware History)

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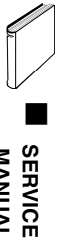


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4.2 FIRMWARE HISTORY

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Initial Production Release	G6785839B	Initial Production	3.7.5
Corrects the following: - On the web status monitor, the improper icon was used for "Paper Empty". - If the NIB received 5 simultaneous print jobs, additional print jobs would be lost.	G6785839C	February '99 Production	3.7.7
Corrects the following: The firmware was modified to support A250/B001.	G6785839D	March '99 Production	3.8.6
Corrects the following: - One banner data page of NetWare was split into two pages when using NetWare 3.12 pserver mode. - In NetWare remote printer mode, the NIB consumed a server connection license. To avoid this, the firmware has been modified to disconnect the NCP connection immediately after the remote printer has connected to the server.	G6785839E	April '99 Production	3.8.7
Corrects the following: - On the web status monitor, the wording in German was incorrect. "FreierSpeicher" corrected to "Freier Speicher". - The Web status monitor displays "No Tray/No Paper" error when a tray is not closed completely. The message has been changed to "Other Error". - Disabling (Down) or enabling (Up) AppleTalk protocol from the operation panel sometimes did not take effect after the change. To avoid this, the firmware has been changed to save a new setting to the NVRAM immediately after a change.	G6785839F	June '99 Production	3.8.8
Corrects the following: - When a printer error occurs, the printer information cannot be accessed using Macintosh printer utilities such as Apple Printer Utility. - IPP (Internet Print Protocol) function has been added.	G6785839G	July '99 Production	3.9.2

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The wording "Config Reference" has been changed to "Riferim. Config" for the Italian version of Web status. • The wording "Default Gateway Address" has been changed to "Direcci. Gateway" for the Spanish version of Web status. • A type of Cisco router caused a problem in browsing the NIB in an AppleTalk network. The cause of this was in the Cisco router but the NIB firmware has been modified to correct this.	G6785839H	October '99 Production	3.9.8
Corrects the following: • PCL text filter support has been added. • "RICOH" brand name has been deleted from several functions and reports.	G6785839J	November '99 Production	4.0.0
Corrects the following: • HTTP access has been improved when multiple protocols are used at the same time (e.g. telnet, IPP and HTTP).	G6785839K	April '00 Production	4.0.2

BULLETIN NUMBER: B307 - 003**06/23/2000****APPLICABLE MODEL:****GESTETNER – NETWORK INTERFACE BOARD for 3218/3215S****RICOH – NETWORK INTERFACE BOARD for AFICIO 180/150****SAVIN – NETWORK INTERFACE BOARD for 9918DP/2015DP****SUBJECT: NIB NVRAM BACKUP AND RESTORE****SYMPTOM:**

The copier may not start after performing the NIB NVRAM Backup Procedure. (Service Tool: NIB Read/Write). This symptom may occur after the NIB NVRAM data is backed up to the Controller. (Data Copy direction: NIB ⇒ Controller).

CAUSE:

The symptom occurs because the NVRAM volume is not large enough to store all the NIB data.

NOTE: *The NIB NVRAM backup and restore procedure is only required when replacing a NIB.*

TEMPORARY SOLUTION:

Do not use the NIB NVRAM backup and restore procedure (Section 4.4.3 of the Printer Option Service Manual). If the copier does not start after performing this function, you must download the Controller Firmware using the error recovery update procedure. This procedure will force the Controller to boot from the IC Card. Please refer to section 4.5.3 of the Printer Option Service Manual for a detailed description.

PERMANENT SOLUTION:

The Controller Firmware will be modified so this function will no longer be valid. It will not be shown as a Service Tool. The Firmware was modified starting with the April 2000 production (version 1.3.6 or higher). Currently there is no way to enable this function because the current NVRAM volume on the Controller Board is not large enough to store all the NIB NVRAM data. After replacing the NIB, you must input the data manually.

Note: This copy is intended as a master original
for reproduction of additional bulletins.

**FIRMWARE**

BULLETIN NUMBER: B307 – 004

08/03/2001

APPLICABLE MODEL:

GESTETNER – NETWORK INTERFACE BOARD for 3218/3215S

RICOH - NETWORK INTERFACE BOARD for AFICIO 180/150

SAVIN - NETWORK INTERFACE BOARD for 9918DP/2015DP

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 ⇒.

- 4-3 Updated Information (B307 Firmware Modification History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The wording "Config Reference" has been changed to "Riferim. Config" for the Italian version of Web status. • The wording "Default Gateway Address" has been changed to "Direcci. Gateway" for the Spanish version of Web status. • A type of Cisco router caused a problem in browsing the NIB in an AppleTalk network. The cause of this was in the Cisco router but the NIB firmware has been modified to correct this.	G6785839H	October '99 Production	3.9.8
Corrects the following: • PCL text filter support has been added. • "RICOH" brand name has been deleted from several functions and reports.	G6785839J	November '99 Production	4.0.0
Corrects the following: • HTTP access has been improved when multiple protocols are used at the same time (e.g. telnet, IPP and HTTP).	G6785839K	April '00 Production	4.0.2
Corrects the following: • Bi-directional communication of "diprint" (using 9100 port of TCP/IP printing) is supported (required for DAZEL system). • The "diprint direct [On/Off]" command using telnet has been implemented for supporting bi-directional communication of diprint (required for DAZEL system). PortNavi and Multidirect Print are not supported if bi-directional communication has been selected. • The spelling of the command "retern" in the UNIX install shell has been corrected to "return". • The DHCP of NetWare5 is supported. • The DHCP relay agent is supported. (This has been confirmed only with Windows NT 4.0 relay agent at this time.) • There may be some minor (character) display errors on the LCD while the NIB firmware is being upgraded. The firmware has been modified to prevent this.	G6785839L	October '00	4.0.6
Corrects the following: • Classless InterDomain Routing (CIDR) is supported. • DHCP of Solaris 2.6 is supported.	G6785839M	February '01	4.0.7

BULLETIN NUMBER: B307 – 005

08/03/2001

APPLICABLE MODEL:

GESTETNER – NETWORK INTERFACE BOARD for 3222/3227

RICOH - NETWORK INTERFACE BOARD for AFICIO 220/270

SAVIN - NETWORK INTERFACE BOARD for 9922DP/9927DP

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:

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- 4-3 Updated Information (B307 Firmware Modification History)

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B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The wording "Config Reference" has been changed to "Riferim. Config" for the Italian version of Web status. • The wording "Default Gateway Address" has been changed to "Direcci. Gateway" for the Spanish version of Web status. • A type of Cisco router caused a problem in browsing the NIB in an AppleTalk network. The cause of this was in the Cisco router but the NIB firmware has been modified to correct this.	G6785839H	October '99 Production	3.9.8
Corrects the following: • PCL text filter support has been added. • "RICOH" brand name has been deleted from several functions and reports.	G6785839J	November '99 Production	4.0.0
Corrects the following: • HTTP access has been improved when multiple protocols are used at the same time (e.g. telnet, IPP and HTTP).	G6785839K	April '00 Production	4.0.2
Corrects the following: • Bi-directional communication of "diprint" (using 9100 port of TCP/IP printing) is supported (required for DAZEL system). • The "diprint direct [On/Off]" command using telnet has been implemented for supporting bi-directional communication of diprint (required for DAZEL system). PortNavi and Multidirect Print are not supported if bi-directional communication has been selected. • The spelling of the command "retern" in the UNIX install shell has been corrected to "return". • The DHCP of NetWare5 is supported. • The DHCP relay agent is supported. (This has been confirmed only with Windows NT 4.0 relay agent at this time.) • There may be some minor (character) display errors on the LCD while the NIB firmware is being upgraded. The firmware has been modified to prevent this.	G6785839L	October '00 Production	4.0.6
⇒ Corrects the following: • Classless InterDomain Routing (CIDR) is supported. • DHCP of Solaris 2.6 is supported.	G6785839M	February '01 Production	4.0.7

BULLETIN NUMBER: B307 - 006**12/04/2002****APPLICABLE MODEL:****GESTETNER - NETWORK INTERFACE BOARD for 3222/3227****RICOH - NETWORK INTERFACE BOARD for AFICIO 220/270****SAVIN - NETWORK INTERFACE BOARD for 9922DP/9927DP****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 ⇒.

- 4-4 Updated Information (B307 Firmware Modification History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



**SERVICE
MANUAL**

B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
⇒ Corrects the following: • Can not connect to NetWare Servers when the servers use NCP Packet Signature Level 2.	G6785839N	August '01 Production	4.0.8
Corrects the following: • SNMP security vulnerabilities reported by CERT on Feb.12, 2002 has been tested using the PROTON c06-snmpv1 test suite and we have verified the fixes. -CERT :http://www.cert.org/advisories/CA-2002-03.html -PROTON c06-snmpv1 test Suite :http://www.ee.oulu.fi/research/ouspg/proton/testing/c06/snmpv1/	G6785839P	July '02 Production	4.1.0

BULLETIN NUMBER: B307 - 007

12/04/2002

APPLICABLE MODEL:

GESTETNER - NETWORK INTERFACE BOARD for 3218/3215S

RICOH - NETWORK INTERFACE BOARD for AFICIO 180/150

SAVIN - NETWORK INTERFACE BOARD for 9918DP/2015DP

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 ⇒.

- 4-4 Updated Information (B307 Firmware Modification History)

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B307 NIB OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
⇒ Corrects the following: • Can not connect to NetWare Servers when the servers use NCP Packet Signature Level 2.	G6785839N	August '01 Production	4.0.8
Corrects the following: • SNMP security vulnerabilities reported by CERT on Feb.12, 2002 has been tested using the PROTON c06-snmpv1 test suite and we have verified the fixes. -CERT :http://www.cert.org/advisories/CA-2002-03.html -PROTON c06-snmpv1 test Suite :http://www.ee.oulu.fi/research/ouspg/proton/testing/c06/snmpv1/	G6785839P	July '02 Production	4.1.0

BULLETIN NUMBER: B308 - 001**08/02/2000****APPLICABLE MODEL:****GESTETNER - POSTSCRIPT OPTION TYPE 185 for 3218/3215S/3222/3227****RICOH - POSTSCRIPT OPTION TYPE 185 for AFICIO 180/150/220/270****SAVIN - POSTSCRIPT OPTION TYPE 185 for 9918DP/2015DP/9922DP/9927DP****SUBJECT: SERVICE MANUAL - INSERT****GENERAL:**

The Service Manual pages listed below must be added to the appropriate service manuals with the pages supplied. Each bulletin package contains 1 set of new pages.

PAGES:

The revised areas have been highlighted by an arrow ⇒.

- Title Page New Information (PostScript Kit Type 185)
- TOC New Information (Table of Contents for B308)
- 1-1 New Information (ROM History)

Note: This copy is intended as a master original
for reproduction of additional bulletins.



POSTSCRIPT KIT TYPE 185
B308

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1. ROM HISTORY

1.1 FIRMWARE MODIFICATION HISTORY

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: The printer controller can now detect whether it is installed in a A250 or B001	B3085280 A	Initial Production	1.0.0
Corrects the following: The PostScript Option firmware has been modified so that it can also be used with the A265/A267.	B3085280 B	October '99 Production	1.2.0
Corrects the following: The PostScript Option firmware was modified so that it can also be used with the B001.	B3085280 C	October '99 Production	1.2.1
Corrects the following: The product names of the B001 PostScript drivers for NRG, Savin and Infotec should be corrected as follows: Incorrect Correct NRG D415s/2815s NRG D415s/2815S /3215s PS3 /3215 PS3 SAVIN 9915DP PS3 SAVIN 2015DP PS3 Infotec PS3 Infotec 4150 MF PS3	B3085280 D	January '00 Production	1.2.2

BULLETIN NUMBER: B308 – 002

12/11/2000

APPLICABLE MODEL:

GESTETNER – POSTSCRIPT OPTION TYPE 185 for 3218/3215S/3222/3227

RICOH - POSTSCRIPT OPTION TYPE 185 for AFICIO 180/150/220/270

SAVIN - POSTSCRIPT OPTION TYPE 185 for 9918DP/2015DP/9922DP/9927DP

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 ⇒.

- 1-1 & 1-2 Updated Information (B308 ROM History)

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1. ROM HISTORY

1.1 FIRMWARE MODIFICATION HISTORY

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: The printer controller can now detect whether it is installed in a A250 or B001	B3085280 A	Initial Production	1.0.0
Corrects the following: The PostScript Option firmware has been modified so that it can also be used with the A265/A267.	B3085280 B	October '99 Production	1.2.0
Corrects the following: The PostScript Option firmware was modified so that it can also be used with the B001.	B3085280 C	October '99 Production	1.2.1
Corrects the following: The product names of the B001 PostScript drivers for NRG, Savin and Infotec should be corrected as follows: Incorrect Correct NRG D415s/2815s NRG D415s/2815S /3215s PS3 /3215 PS3 SAVIN 9915DP PS3 SAVIN 2015DP PS3 Infotec PS3 Infotec 4150 MF PS3	B3085280 D	January '00 Production	1.2.2
			...Continued

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
⇒ Corrects the following: - The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to <u>1</u> (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to <u>1</u> (DAZEL* support function disabled). The correction will not be effective if both of these switches are enabled. - Firmware modified so that the controller can connect to and be used with the DAZEL System. However, the A265/A267 is not yet officially certified by DAZEL Corp. When you enable this function, it is necessary to do the following: -Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to <u>1</u> (0=Enabled, 1=Disabled).	B3085280 E	November '00 Production	1.2.4

BULLETIN NUMBER: B308 – 003

07/16/2001

APPLICABLE MODEL:

GESTETNER – POSTSCRIPT OPTION TYPE 185 for 3218/3215S/3222/3227

RICOH - POSTSCRIPT OPTION TYPE 185 for AFICIO 180/150/220/270

SAVIN - POSTSCRIPT OPTION TYPE 185 for 9918DP/2015dp/9922DP/9927DP

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 ⇒.

- 1-1 & 2

Updated Information (ROM History B308)

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1. ROM HISTORY

1.1 FIRMWARE MODIFICATION HISTORY

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Corrects the following: • The printer controller can now detect whether it is installed in a A250 or B001	B3085280 A	Initial Production	1.0.0
Corrects the following: • The PostScript Option firmware has been modified so that it can also be used with the A265/A267.	B3085280 B	October '99 Production	1.2.0
Corrects the following: • The PostScript Option firmware was modified so that it can also be used with the B001.	B3085280 C	October '99 Production	1.2.1
Corrects the following: • The product names of the B001 PostScript drivers for NRG, Savin and Infotec should be corrected as follows: Incorrect Correct NRG D415s/2815s NRG D415s/2815S /3215s PS3 /3215 PS3 SAVIN 9915DP PS3 SAVIN 2015DP PS3 Infotec PS3 Infotec 4150 MF PS3	B3085280 D	January '00 Production	1.2.2
Corrects the following: • Firmware modified so that the controller can connect to and be used with the DAZEL System. However, the A265/A267 is not yet officially certified by DAZEL Corp. When you enable this function, it is necessary to do the following: -Upgrade the NIB firmware to version 4.0.6 or later and the PS3 firmware to version 1.2.4 or later. -Set NIC to bi-directional-mode (refer to NIC manual). -Do not set Bit SW3, bit 2 to 1 (as explained above, these two SW should not be simultaneously enabled). * To deactivate the DAZEL support function, set Bit SW3, bit 4 to <u>1</u> (0=Enabled, 1=Disabled).	B3085280 E	November '00 Production	1.2.4

...Continued

Post Script
Option
Type 185
B308

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Continued... The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to <u>1</u> (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to <u>1</u> (DAZEL* support function disabled). The correction will not be effective if both of these switches are enabled.			
Corrects the following: - During RAM collate printing, the job cannot be cancelled. - When the job is cancelled, the output paper count is sent to the printer controller (a side-effect of the previous modification made for DAZEL connection).	B3085280 F	January '01 Production	1.2.6

BULLETIN NUMBER: B308 – 004

11/13/2002

APPLICABLE MODEL:

GESTETNER – POSTSCRIPT OPTION TYPE 185 for 3218/3215S/3222/3227

RICOH – POSTSCRIPT OPTION TYPE 185 for AFICIO 180/150/220/270

SAVIN – POSTSCRIPT OPTION TYPE 185 for 9918DP/2015DP/9922DP/9927DP

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 ⇒.

- 1-2 Updated Information (Firmware Modification History)

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**SERVICE
MANUAL**

B308 POSTSCRIPT OPTION FIRMWARE MODIFICATION HISTORY			
DESCRIPTION OF MODIFICATION	FIRMWARE LEVEL	SERIAL NUMBER	FIRMWARE VERSION
Continued... The print speed slows down during continuous printing of a 1-page job. ** To activate this correction, it is necessary to set Bit SW3, bit 2 to <u>1</u> (0=Disabled, 1=Enabled) and set Bit SW3, bit 4 to <u>1</u> (DAZEL* support function disabled). The correction will not be effective if both of these switches are enabled.			
Corrects the following: - During RAM collate printing, the job cannot be cancelled. - When the job is cancelled, the output paper count is sent to the printer controller (a side-effect of the previous modification made for DAZEL connection). ⇒	B3085280 F	January '01 Production	1.2.6
Corrects the following: - If the machine does not contain the driver paper size when printing the 1st set of a Collate job, and Job Reset is then performed, the "Resetting Job..." display does not clear. - Software modified to ignore a "DD" tag on print data, preventing an undefined error and allowing the job to go through.	B3085280 G	December '01 Production	1.2.7
Corrects the following: Software modified so that it is possible to perform jobs containing a mixture of PCL and PS commands when printing directly from a host application.	B3085280 H	May '02 Production	1.2.8