MODEL S-F2
(Machine Code: H556/H557)

SERVICE MANUAL

NOTE: The "♦" mark in this service manual indicates that the marked item is identical to the Model S-F1 (H555).

20 December, 2002
Subject to change.

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine power cord is unplugged.

2. The wall outlet should be near the machine and easily accessible.

3. 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.

4. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

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. Do not incinerate toner cartridge. Toner dust may ignite suddenly when exposed to an open flame.

2. Dispose of used toner cassette in accordance with local regulations. (It is non-toxic supply.)

3. Dispose of replaced parts in accordance with local regulations.

LITHIUM BATTERIES (MEMORY BACK-UP)

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 manufacture's instructions.

SAFE AND ECOLOGICAL DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly if exposed to an open flame.

2. Dispose of used toner, developer, and organic Photoconductor in accordance with local regulations. (These are nontoxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.

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 not specified in this manual, or performance of adjustments or procedures not 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 cause serious damage to eyes.

CAUTION MARKING:

CAUTION
VORSICHT

INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM
UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

>PS<

H555DECAL.WMF

SYMBOLS AND ABBREVIATIONS

This manual uses the symbols and abbreviations shown below.

Symbol	Meaning
☞	"See", "Refer to"
⊘	Clip ring
ℂ	E ring
𝒫	Screw
⫟	Connector
SEF	Short Edge Feed
LEF	Long Edge Feed
CT	Core Technology manual
⌧▭	Energy Saver/Clear Modes key
◆	Marked item or feature is identical to the corresponding feature of the Model H555.

TABLE OF CONTENTS

1.   INSTALLATION

NOTES: 1) Never install telephone wiring during a lightning storm.
2) Never install a telephone jack in wet locations, unless the jack is specifically designed for such a location.
3) Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4) Use caution when installing and modifying telephone lines.
5) Avoid using telephones (other than cordless types) during an electrical storm, as there may be a remote risk of electric shock from lightning.
6) Do not use telephones when in the vicinity of a gas leak. Use either a neighbor, cellular or public telephone to report the leak.

1.1   INSTALLING THE MACHINE

Refer to "Before you use this machine" and Operating Instructions for information about the installation environment and instructions on how to install and set up the machine.

1.2 INITIAL PROGRAMMING

Items to Program (Service Level - Service Function*1)	Function No.
Country code (System switch 0F)	01
Protocol requirements (G3 switch 0B) - EU only	01
PM call (System switch 01- bit 0)	01
Country code (NCU parameter 00)	08
Service station's fax number	13
Replacement level of maintenance kits (System Switch 04) - ADF rollers - PCU	01
Telephone Line Type (System Switch 04)	01

Items to Program (Service Level - SP Mode*1)	SP No.
Machine's serial number	5-811
PSTN access code (RAM address 4000F8)	7-955 or Fax service function: 06
PSTN access method (RAM address 4000ED)	
Periodic service call (RAM addresses 4005BD to 4005C1)	

*1: See Section 5 for information about how to enter service functions.

Items to Program (User Administrator Level)	User Tools
Monitor volume	Fax Features -> Setup
Display contrast	
Date and Time	
Reception mode	
Fax Header/Own Name/Own No. (TTI/RTI/CSI)	
Reports on/off	Key Op. Tools
Country Code (except NA)	
Fusing power control during energy saver mode	
Language selection	Language
Other initial programming items	*2

*2: Refer to the Operating Instructions for details.

1.3 HANDSET (OPTION FOR NA MODEL)
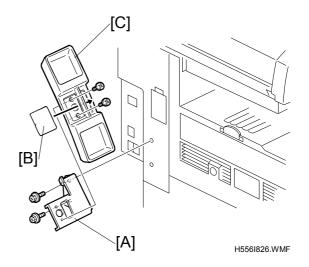
1.3.1 ACCESSORY CHECK

Check that you have the components and accessories indicated below.
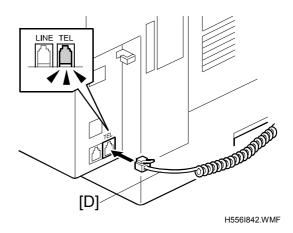
No.	Description	Q'ty
1	Handset	1
2	Handset cradle	1
3	Screws	2
4	Handset manual	1

1.3.2 INSTALLATION PROCEDURE

1. Attach the handset bracket [A] (🔩 x 2) included with the mainframe, using screws included with this option.

2. Remove the label [B] from the handset cradle [C].

3. Attach the cradle [C] to the bracket [A] (🔩 x 2) using screws included with the mainframe. Finally, reattach the label.

4. Place the handset on the cradle.

H556I826.WMF

5. Connect the cable [D] to the "TEL" jack at the left side of the machine.

H556I842.WMF

1.4 BY-PASS FEEDER TYPE 300

1.4.1 ACCESSORY CHECK

Check the items in the box below to confirm that you have all the required components
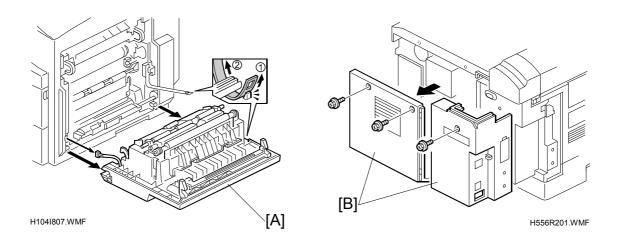
No.	Description	Q'ty
1	By-pass Feed Roller Unit	1
2	By-pass Tray	1
3	Gears	2
4	Bracket	1
5	Ground Plate	1
6	Screws – Tapping	3
7	Screws – Phillips	1

1.4.2 INSTALLATION PROCEDURE
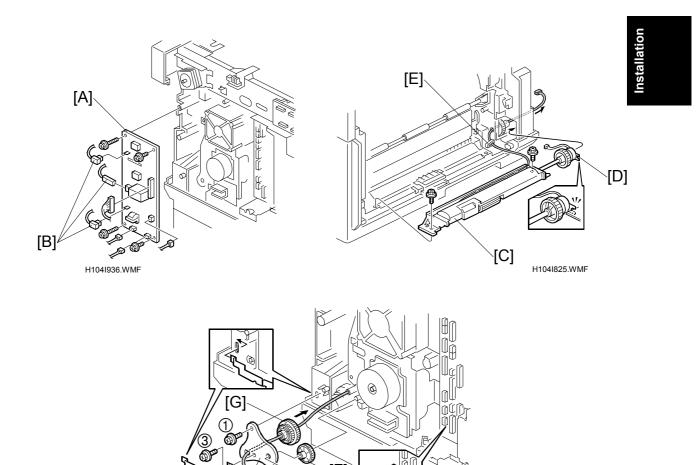
⚠CAUTION
Before installing an optional unit, do the following: **1. Print out all messages stored in the memory.** **2. Print out the lists of user-programmed items and the system parameter list.** **3. Turn off the main switch, and disconnect the power plug.**

H104I807.WMF   [A]   H556R201.WMF

1. Open the right-door [A] and remove it (Strap x 1, ⬚ x 1).
    - Use a small, flat screwdriver to raise the end of the strap ① from the peg then pull it through the slot ②.

2. Remove the rear covers [B] (⬚ x 3).

[A]

[B]

H104I936.WMF

[E]

[D]

[C]

H104I825.WMF

[G]

①

③

[I]

②

[F]

[H]

H104I827.WMF

3. Disconnect the High Voltage Power Supply Board [A] (🖋 x 4).
    • Disconnect the bayonet connectors (C, T, B) from [B] and place the unit
      aside. (It is not necessary to disconnect all connectors.)

4. Install the By-pass Feed Roller Unit [C] (🖋 x 2).
    • Make sure that the clutch arm [D] is engaged with the peg and that the paper
      sensor cable is clamped at [E].
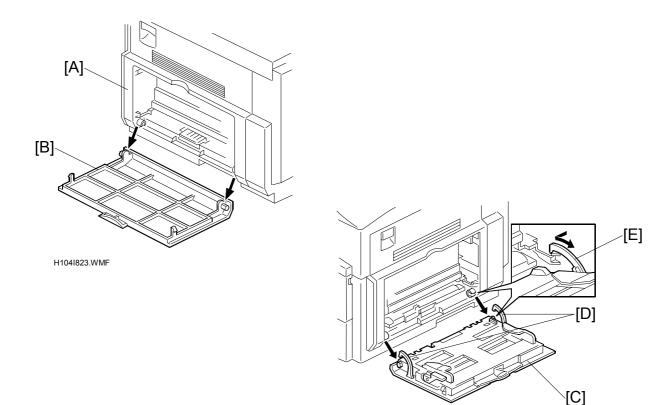
5. Mount the gears [F] and [G]. Make sure that gear [G] is engaged with the by-
    pass feed clutch and that the paper sensor connector passes through the shaft
    of gear [G].

6. Remove screw ① and use it to attach bracket [H], and then attach the tapping
    screw ② (provided).

7. Attach the ground plate [I] (🖋 x 1) ③. (Use the Phillips screw provided.)

8. Connect the paper sensor connector to the FCU at connector CN30. Make sure
    that the wire is inside the frame.

9. Re-attach the High Voltage Supply Board then connect the clutch cable to CN3.

H104I823.WMF

H104I806.WMF

10. Re-attach the right door [A] (Strap x 1, ▣ x 1)

11. Detach the dummy cover [B].

12. Attach the 100-sheet by-pass feed tray [C].
    - Align the pegs with the slots and gently push them up until the tray snaps in place. Slowly raise the tray making sure that the arms [D] move into the wells on either side.
    - If the tray does not open and close smoothly, remove it and try again. Make sure the pegs are aligned within the slots before snapping the tray in place.
    - To remove, gently press the arms [E] and push down.

1.5   G3 INTERFACE UNIT TYPE 410

1.5.1 ACCESSORY CHECK

Check that you have the components and accessories indicated below.

No.	Description	Q'ty
1	SG3 Unit	1
2	OPIF Board	1
3	FCC Decal	1*
4	Telephone Cable	1*
5	Installation Procedure	1
6	Screw – M3 x 6	4
7	Core	1**

*: Only for NA, **: Only for EU/Asia

1.5.2 INSTALLAITON PROCEDURE
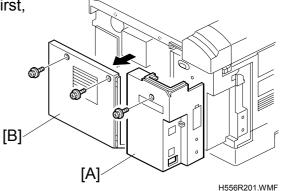
⚠CAUTION
Before installing an optional unit, do the following:
1. Print out all messages stored in the memory.
2. Print out the lists of user-programmed items and the system parameter list.
3. Turn off the main switch, and disconnect the power plug.
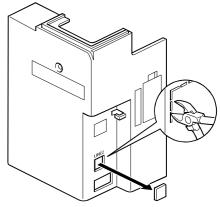
1. Remove the rear right cover [A] (✐ x 1) first, then rear left cover [B] (✐ x 2).
    NOTE: For NIC Fax model, no need to remove the rear left cover [B].

[B]

[A]

H556R201.WMF
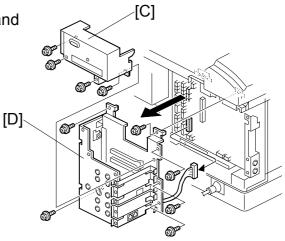
2. Cut away the "LINE2" window from the rear right cover as shown.
    NOTE: For NIC Fax model, skip to step 4.

H556I519.WMF
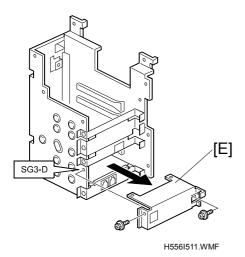
3. Remove the upper bracket [C] (✒ x 4) and the lower bracket [D] (✒ x 6, 🗐 x 1).

[C]

[D]
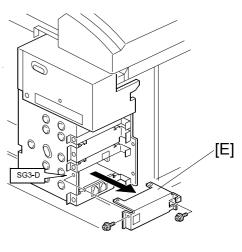
H556I510.WMF

4. Remove the bracket cover [E] (✒ x 2) from the lower bracket.
   NOTE: For NIC Fax model, skip to step 7.

- Basic model -   **- NIC Fax model -**

SG3-D   SG3-D

[E]   [E]
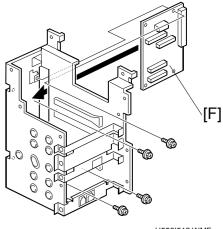
H556I511.WMF   H556R503.WMF

5. Insert the OPIF board [F] as shown, then secure it (✒ x 4).

[F]

H556I512.WMF
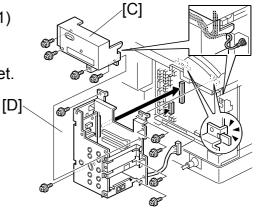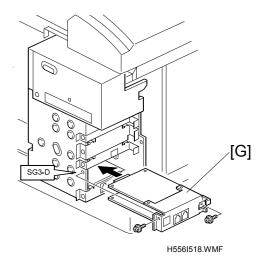
6. Replace the lower bracket [D] (🔩 x 6, ⬛ x 1)
    and the upper bracket [C] (🔩 x 4).
    NOTE: The harnesses and grounding wire
        should be inside of the upper bracket.

[C]

[D]

H556I521.WMF

7. Insert the SG3-D board unit [G] (🔩 x 2) into the
    lower bracket.

[G]

SG3-D

H556I518.WMF

8. Replace the rear cover(s).

9. Attach the FCC/IC approval label on the machine around LINE2 jack.

10. Plug in the machine and turn on the main power switch.

11. Enter Fax Service mode and set Communication SW16 Bit 1 to "1".

12. Exit Service mode, turn the machine off, then turn the machine on again.

13. Print the System Parameter List from inside Fax Service mode, and make sure
    that "G3" is listed as an option. Then exit Service mode.

1.6 PS480 RELAY HARNESS

1.6.1 INSTALLATION PROCEDURE

NOTE: 1) When two paper feed units are installed on the same machine, attach the relay harness and the edge saddle to the paper feed unit installed directly under the mainframe.
2) The relay harness and the edge saddle are contained in the mainframe.
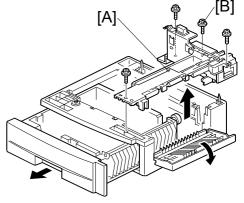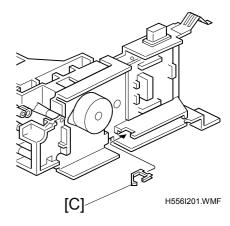
⚠**CAUTION**

Before installing an optional unit, do the following:
1. Print out all messages stored in the memory.
2. Print out the lists of user-programmed items and the system parameter list.
3. Turn off the main switch, and disconnect the power plug.

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1. Pull out the paper tray and open the right cover as shown. Then remove the drive unit [A] (𝄃 x 4).
   NOTE: The screw [B] is located under the mylar.
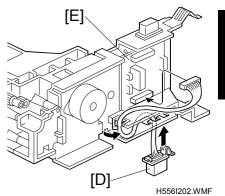
H556R216.WMF
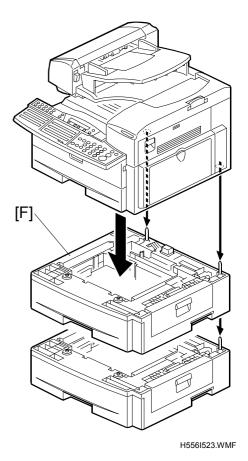
2. Attach the edge saddle [C] to the drive unit bracket as shown.

[C]   H556I201.WMF

3. Attach the relay harness [D] to the drive unit bracket as shown.

4. Run the harness through the edge saddle and connect the harness to the PCB [E].

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5. Replace the drive unit assembled in step 4 to the paper feed unit.

6. Set the machine onto the paper tray units.
    NOTE: The paper feed unit [F] must be modified in steps 1-5 above before attachment.

7. Plug in the machine and turn on the main power switch.

8. Print the System Parameter List from the Fax Service mode, then make sure that "CASSETTE" is listed as an option. Then exit Service mode.

9. Load some paper and make some test prints using the newly installed paper feed unit.

H556I523.WMF

2. PREVENTIVE MAINTENANCE SCHEDULES

2.1 PM TABLE

NOTE: 1) After carrying out PM, clear the PM counter (SP7-804).

2) PM intervals (45k, 60k, 90k, 120k) indicate the number of prints.

Key: AN: As necessary, **FST**: Field Service Technician

C: Clean, **R**: Replace, **L**: Lubricate, **I**: Inspect

	45k	90k	AN	NOTE
ADF				
ADF feed unit assembly (Including feed and pick-up rollers)	R (user)	R (user)		ADF Maintenance Kit
Reverse roller assembly	R (user)	R (user)		ADF Maintenance Kit
Exposure glass♦			C	Dry cloth
R0, R1, R2, Exit rollers			C	Dry cloth
Pressure roller♦			C	Dry cloth
White shading plate♦			C	Dry cloth
DRUM AREA				
PCU	R (user)	R (user)		
Transfer roller♦		R (FST)		
Discharge plate♦		R (FST)		
PAPER FEED				
Paper feed roller♦		R (FST)	C	Water or alcohol.
Friction pad♦		R (FST)	C	Dry cloth
Bottom-plate pad♦		C (FST)	C	Water or alcohol.
Registration roller♦		C (FST)	C	Water or alcohol.
FUSING UNIT				
Hot roller♦		R (FST)		
Pressure roller♦		R (FST)		
Hot roller bushings♦		R (FST)		
Pressure-roller bushings♦		I (FST)		
Inlet guide♦		C (FST)		
Outlet guide♦		C (FST)		
Hot roller stripper pawls		R (FST)		
Thermistor♦		C (FST)		Dry cloth

	60k	120k	AN	NOTE
PAPER TRAY UNIT (Option)				
Paper feed roller♦		R (FST)		
Bottom-plate pad♦			C	Dry cloth
Friction pad♦		R (FST)		

2.2 COUNTERS

The machine has several counters that require resetting as described in the next section below. The table below shows how to use each counter.

	On/Off		Interval	Reset	Display
PM Counter◆	PM Call	• Sys. Bit Sw 01 bit 0	• SP5-501-1 • 400382 - 5H	• SP7-804-1	• SP7-803-1 • 40037E - 81H • Sys.Para.List
	Alarm	• SP5-501-2			
PCU Counter	Alarm	• SP5-912-1	• SP5-912-2 • 40038E - 91H	• SP7-909-1 • When new PCU is installed (automatic reset)	• SP7-908-1 • 40038A - DH • Sys.para.List
ADF Counter	Alarm	• Sys. Bit Sw. 04 bit 5	• 40031E - 21H	• When new ADF maintenance kit is installed (automatic reset) • 40031A - DH	• 40031A - DH • Sys.para.List

2.2.1 RESETTING THE PM COUNTER◆

The PM counter requires resetting after the count exceeds the programmed value.

To reset the PM counter:

1. Access SP7-804-1 (PM Counter Reset), then input "1".
2. Hold down the Halftone key and press the OK key to reset the counter.
   If the reset is successful, the display shows "Action completed."
   If the reset fails, the display shows "Error!!!"

2.2.2 RESETTING THE PCU COUNTER ◆

The user replaces the PCU when the PCU counter exceeds the programmed value, and the machine displays "Time to change PCU".

NOTE: With "Time to change PCU" displayed, any operation, printing, etc. is available, but the display will not clear until the PCU is replaced or until the PCU counter is reset.

To reset the PCU counter:

Reset the PCU counter with SP7-909-1 (PCU Counter Reset).

NOTE: When the PCU is replaced with a new PCU, the PCU counter is reset automatically.

1. Access SP7-909-1 (PCU Counter Reset), then input "1".
2. Hold down the Halftone key and press the OK key to reset the counter.
   • If the reset is successful, "Action completed" is displayed.
   • If the reset fails, "Error!!!" is displayed.

2.2.3 RESETTING THE ADF COUNTER

The ADF Maintenance Kit is replaced by the end user.

When the ADF counter exceeds the programmed maximum, the machine will display, "Replace ADF Maintenance Kit." If "OK" is pressed, the machine will then display, "Replace Now?"

- If replacing the Kit right away: Select [Yes], after which the display will read, "Please Replace Kit Then Press OK. " After replacing the Kit, press OK. At this time, the ADF counter is reset.

- If replacing the Kit later: Select [No] and clear the display by pressing OK.

NOTE: The initial "Replace ADF Maintenance Kit" message can be cleared by pressing the Stop key, however it will reappear every 100 prints if the Kit is not replaced.

Preventive Maintenance

Resetting the ADF counter:

In addition to the automatic reset of the ADF counter described above, there is also a method to manually reset the counter:

1. Select mode either:
   - Fax service mode: 6. Memory
   - SP7-955
2. Set RAM addresses 40031A to 40031DH all to a value of "0".

3.   REPLACEMENT AND ADJUSTMENT

3.1   PRECAUTIONS◆

⚠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 type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

Replacement Adjustment

3.2   SPECIAL TOOLS AND LUBRICANTS

Part Number	Description	Q'ty	Common with...
N8036701◆	Flash Memory Card (4MB)	1	Schmidt series
N8031000◆	Card Case	1	Schmidt series

3.3 EXTERIOR COVERS AND OPERATION PANEL

3.3.1 ORIGINAL TABLE◆

Same as Model S-F1 (☞ S-F1 service manual)
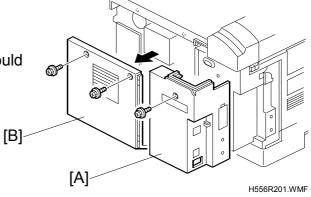
3.3.2 FRONT DOOR◆

Same as Model S-F1 (☞ S-F1 service manual)

3.3.3 REAR COVERS

1. Rear right cover [A] (🔩 x 1)

2. Rear left cover [B] (🔩 x 2)
    NOTE: The rear right cover [A] should
    be removed first.

[B]

[A]

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3.3.4 BY-PASS TRAY◆
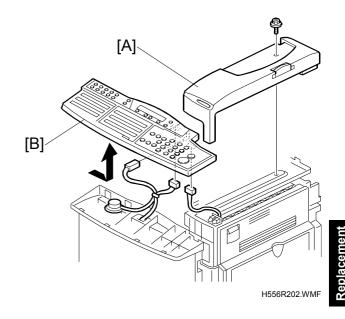
Same as Model S-F1 (☞ S-F1 service manual)

3.3.5 RIGHT DOOR◆

Same as Model S-F1 (☞ S-F1 service manual)
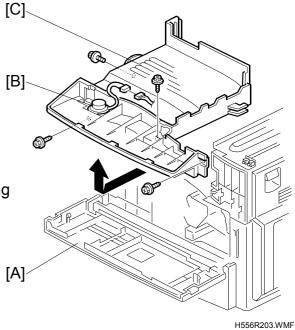
3.3.6 OPERATION PANEL

1. Original table.
   (☛ S-F1 service manual)

2. Right upper cover [A] (🔩 x 1)

3. Operation panel [B] (🔌 x 3)

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3.3.7 OUTPUT TRAY

1. Open the front door [A].

2. Operation panel (☛ 3.3.6)

3. Disconnect the speaker [B].
   (🔌 x 1)

4. Output tray [C] (🔩 x 4)
   - Pass the operation panel connectors
     and speaker connectors through the
     output tray knockout before positioning
     the output tray for re-installation.

H556R203.WMF

3.4 ADF UNIT

3.4.1 FEED UNIT◆

Same as Model S-F1 (☛ S-F1 service manual)

3.4.2 PICKUP ROLLER◆

Same as Model S-F1 (☛ S-F1 service manual)

3.4.3 FEED ROLLER◆

Same as Model S-F1 (☛ S-F1 service manual)

3.4.4 SEPARATION ROLLER◆

Same as Model S-F1 (☛ S-F1 service manual)

3.4.5 DF COVERS
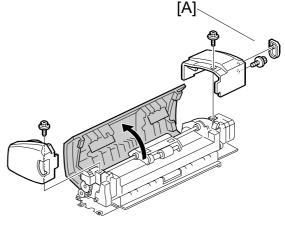
DF front cover

Same as Model S-F1 (☛ S-F1 service manual)

DF rear cover

1. Remove the screw cap [A].
2. DF rear cover (🔩 x 2).

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3.4.6 SENSORS, SWITCHES
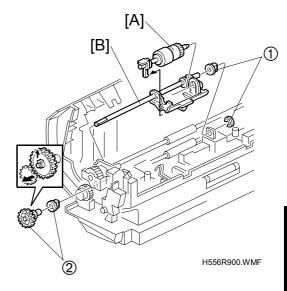
S1 (Original Set Sensor)◆, Cover Open Switch◆

Same as Model S-F1 (☛ S-F1 service manual)
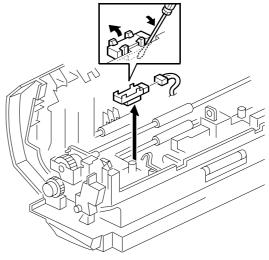
S2 (Original Registration Sensor)

1. Open the upper cover.

2. Feed unit. (☛ S-F1 service manual)

3. Three lids. (🔩 x 2)
    (☛ S-F1 service manual)

4. DF front cover. (🔩 x 1)
    (☛ S-F1 service manual)

5. Detach the separation roller [A].

6. Remove the separation roller drive
    shaft [B] at ① (ℂ x 1, bushing x 1)
    and at ② (gear x 1, bushing x 1)
    • Raise the plastic release on the
      gear to release it from the end of
      the drive shaft.

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7. S2 (original registration sensor) [C]
    (🔌 x 1)

H556R835.WMF
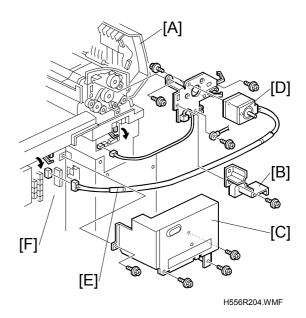
3.4.7 TX MOTOR
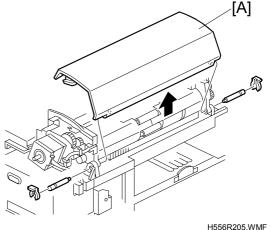
1. Rear covers (🖋 x 3) (☛ 3.3.3)

2. Open the upper cover [A].

3. DF rear cover (🖋 x 2)
   (☛ 3.4.5)

4. Plastic bracket [B] (🖋 x 1)

5. Upper bracket [C] (🖋 x 4)

6. TX motor [D] (🖋 x 5, 🔌 x 1)
   - Pull the mesh-covered cables [E] out of the slotted knockout and separate it from the two harnesses.
   - Disconnect the connector at CN35 on the FCU [F].

H556R204.WMF

3.4.8 CIS AND STAMP UNIT
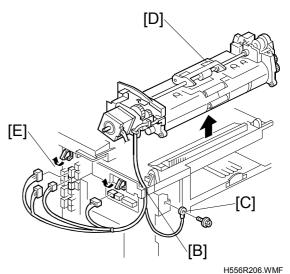
1. Remove the front and rear DF covers.
   (☛ S-F1 service manual and 3.4.5)

2. Open and remove the upper cover [A]
   (⟨⟩ x 2, pins x 2).

3. Upper bracket (𝄢 x 4) (☛ 3.4.7)

[A]
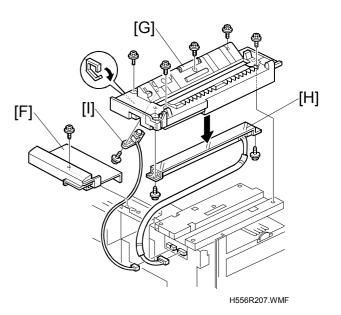
H556R205.WMF

4. Pull all cables out of the slotted knockout
   in the frame [B].

5. Disconnect the ground wire at the frame
   [C] (𝄢 x 1).

6. Set the upper unit [D] aside.
   • It is not necessary to remove all the
     connectors at the FCU.
   • However, if you need to remove the
     upper unit, disconnect the cables from
     the two harness clamps, then at the
     FCU [E] disconnect CN9, CN31,
     CN35, CN37 and CN38.

[D]

[E]

[C]

[B]

H556R206.WMF

7. Remove the cover [F] (𝄢 x 1)

8. Remove the lower unit [G] (𝄢 x 5)
   • Work carefully to avoid scratching or
     breaking the exposure glass.

9. Turn the lower unit over and remove the
   CIS unit [H] (𝄢 x 2, ⬗ x 1).
   • Be sure not to drop the stamp
     cartridge.
   • Never attempt to disassemble the CIS
     and remove the brackets.

10. Remove the stamp unit [I] (𝄢 x 1)

[G]

[F]

[I]

[H]

H556R207.WMF
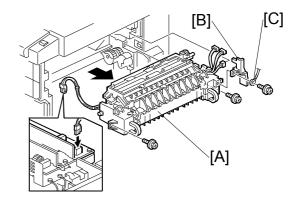
3.5 FUSING

3.5.1 FUSING UNIT

> **⚠CAUTION**
> **The fusing unit can become very hot. Be sure that it has cooled down sufficiently before handling it.**

1. Turn off the main switch, and unplug the machine.

2. Output tray (☛ 3.3.7)

3. Fusing unit [A] (🔩 x 3, 🔌 x 4)
   - When reinstalling the unit, replace the spacer [B] in the correct position, and remember to set the grounding wire [C] into place.
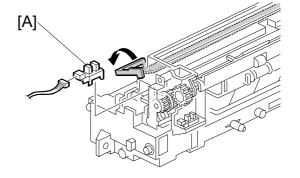
H556R501.WMF

3.5.2 EXIT SENSOR♦

Same as Model S-F1 (☛ S-F1 service manual)
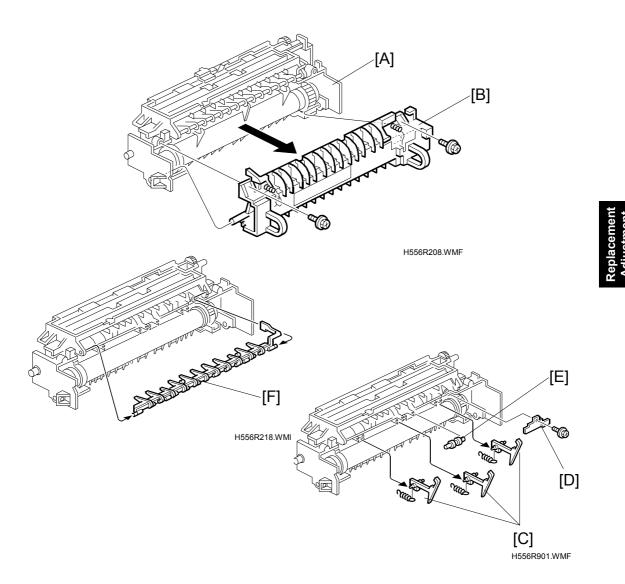
3.5.3 DUPLEX SENSOR

1. Fusing unit (☛ 3.5.1)

2. Duplex sensor [A] (🔌 x 1)

H556R217.WMF

3.5.4 HOT ROLLER STRIPPER PAWLS AND INTERCHANGE PAWL

H556R208.WMF

H556R218.WMI

H556R901.WMF

Replacement
Adjustment

1. Fusing unit (☛ 3.5.1)

2. Separate the fusing unit into two sections: the hot roller section [A], and the pressure roller section [B]. (🗲 x 2)
   NOTE: After removing the screws, lower the pressure roller section about halfway and then slide it toward the front side to detach it.

3. Hot roller stripper pawls [C] (1 spring for each pawl)
   NOTE: 1) To remove the right pawl, first remove the plastic spacer at [D] (🗲 x 1).
   2) When reinstalling the center pawl, be sure to set roller [E] back into place.

4. Interchange pawl [F].

3.5.5 HOT ROLLER & FUSING LAMP◆
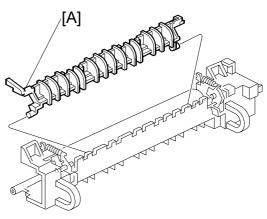
Same as Model S-F1 (☛ S-F1 service manual)

3.5.6 THERMOFUSE, THERMOSWITCH, AND THERMISTOR◆

Same as Model S-F1 (☛ S-F1 service manual)
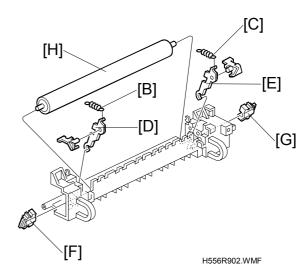
3.5.7 PRESSURE ROLLER

1. Fusing unit (☛ 3.5.1)

2. Separate the fusing unit into two sections: the hot roller section and the pressure roller section (☛ 3.5.4, Step 2). Carry out the remaining steps on the pressure roller section.

3. Fusing entrance guide [A]

H556R209.WMF

4. 2 springs ([B], [C])

5. 2 pressure arms ([D], [E])
   • Manipulate each arm so that it comes out through the slit in the casing.

6. 2 bushings ([F], [G])

7. Pressure roller [H]

H556R902.WMF

3.6 PCU♦

Same as Model S-F1 (☞ S-F1 service manual)

3.7 TONER SUPPLY CLUTCH♦

Same as Model S-F1 (☞ S-F1 service manual)

3.8 PAPER FEED SECTION

3.8.1 PAPER FEED ROLLER AND FRICTION PAD♦
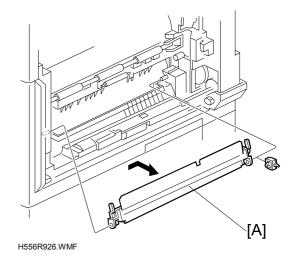
Same as Model S-F1 (☞ S-F1 service manual)

3.8.2 PAPER END SENSOR♦
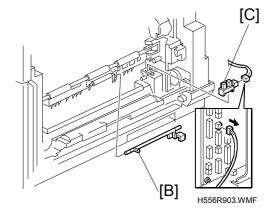
Same as Model S-F1 (☞ S-F1 service manual)

3.8.3 REGISTRATION SENSOR

1. Take out the paper tray.
2. Open the right door.
3. Black guide piece [A] (🔘 x 1)

H556R926.WMF

4. Registration sensor feeler [B]
5. Registration sensor [C] (🔌 x 1)

H556R903.WMF

3.8.4 BY-PASS PAPER END SENSOR◆

Same as Model S-F1 (☛ S-F1 service manual)

3.8.5 BY-PASS FEED ROLLER◆

Same as Model S-F1 (☛ S-F1 service manual)

3.8.6 BY-PASS FEED CLUTCH◆

Same as Model S-F1 (☛ S-F1 service manual)

3.8.7 BY-PASS FRICTION PAD◆

Same as Model S-F1 (☛ S-F1 service manual)

3.8.8 REGISTRATION CLUTCH◆

Same as Model S-F1 (☛ S-F1 service manual)

3.8.9 PAPER FEED CLUTCH◆

Same as Model S-F1 (☛ S-F1 service manual)

3.9 IMAGE TRANSFER SECTION

3.9.1 IMAGE TRANSFER ROLLER◆

Same as Model S-F1 (☞ S-F1 service manual)

3.9.2 ID (IMAGE DENSITY) SENSOR◆
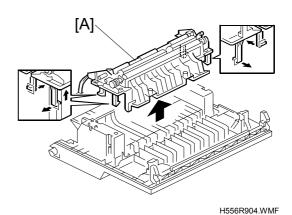
Same as Model S-F1 (☞ S-F1 service manual)

3.9.3 DISCHARGE PLATE◆
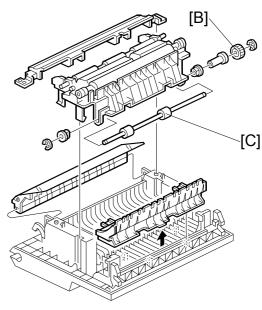
Same as Model S-F1 (☞ S-F1 service manual)

3.9.4 DUPLEX ROLLER AND GEAR

1. Right door (☞ S-F1 service manual)
2. Push in the latches as shown and pry off the entire section [A].

H556R904.WMF
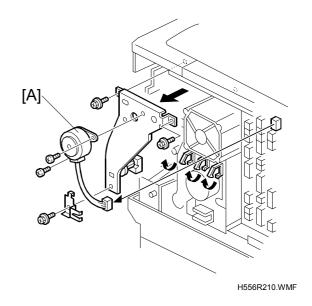
3. Duplex gear [B] and roller [C] (Ⓒ x 2)

H556R211.WMF

3.9.5 DUPLEX MOTOR

1. Rear covers (☛ 3.3.3)

2. High-voltage power supply board
   (☛ S-F1 service manual)

3. Duplex motor [A] (🔩 x 2, 🔌 x 1)

H556R210.WMF
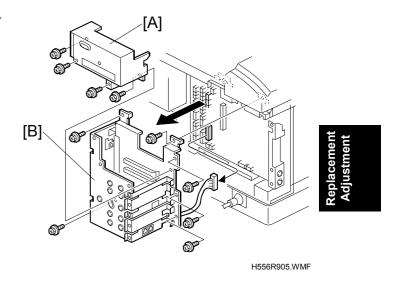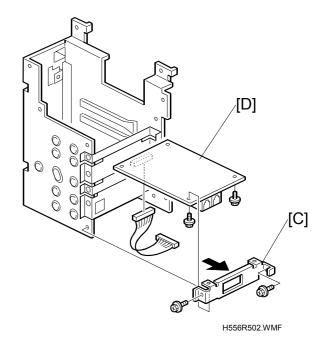
3.10 PCBS

3.10.1 NETWORK CONTROL UNIT (NCU)

1. Rear covers (☛ 3.3.3)

2. Upper bracket [A] (🔩 x 4) and lower bracket [B] (🔩 x 6, ⬅ x 1)

H556R905.WMF

3. NCU bracket [C] (🔩 x 2)

4. NCU [D] (🔩 x 2, ⬅ x 1)

H556R502.WMF

3-15
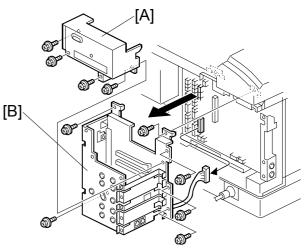
3.10.2 FACSIMILE CONTROL UNIT (FCU)
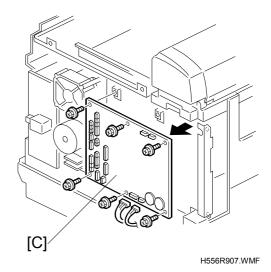
NOTE: 1) Before starting replacement, to save SRAM user data from the existing FCU into a flash memory card, use fax service function or SP5-824. After finishing the replacement, to reload the data from the card into the SRAM on the new FCU, use fax service function or SP5-825. For instructions, see Section 5.

2) Replacement FCUs ship with the battery jumper switch set to the OFF position. Be sure to change the jumper switch to the ON position before installing the replacement FCU.

1. Rear covers (☛ 3.3.3)

2. Upper bracket [A] (⌀ x 4) and lower bracket [B] (⌀ x 6, ⊡ x 1)

H556R906.WMF

3. FCU [C] (⊡ x all, ⌀ x 6)

H556R907.WMF

3.11 LASER UNIT
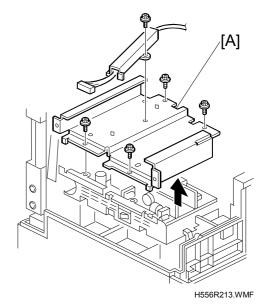
⚠WARNING
The laser beam can cause serious eye damage. Be sure that the main power switch is off and that the machine is unplugged before accessing the laser unit.

3.11.1 LOCATION OF "CAUTION" DECAL♦

Same as Model S-F1 (☛ S-F1 service manual)
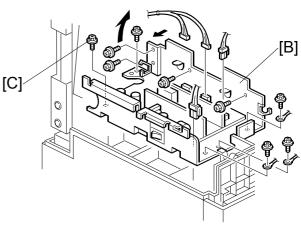
3.11.2 PSU BRACKET

1. Operation panel (☛ 3.3.6)

2. Output tray (☛ 3.3.7)
   • After removing the output tray, leave the front door open.

3. Set PIF bracket [A] (🔩 x 4) aside.

H556R213.WMF

4. PSU bracket [B] (🔩 x 9, ⬡ x 4)
   NOTE: Use a stubby screwdriver to remove the screw at [C].

H556R212.WMF

3.11.3 LASER UNIT[♦]

Same as Model S-F1 (☞ S-F1 service manual)

3.11.4 LD UNIT[♦]

Same as Model S-F1 (☞ S-F1 service manual)

3.11.5 POLYGON MIRROR MOTOR[♦]

Same as Model S-F1 (☞ S-F1 service manual)

3.12 OTHER REPLACEMENTS

3.12.1 QUENCHING LAMP◆
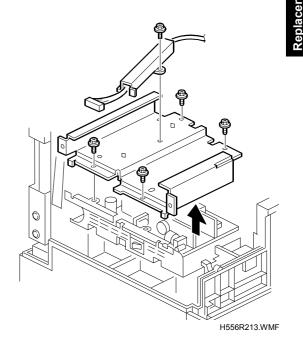
Same as Model S-F1 (☞ S-F1 service manual)

3.12.2 HIGH-VOLTAGE POWER SUPPLY BOARD◆

Same as Model S-F1 (☞ S-F1 service manual)
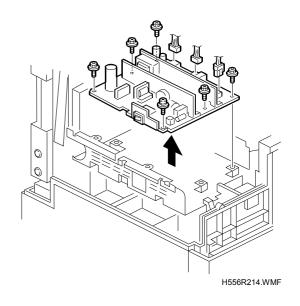
3.12.3 PSU

1. Output tray (☞ 3.3.7)
2. Set PIF bracket [A] (🔩 x 4) aside.

H556R213.WMF

3. PSU [B] (🔩 x 6, 🔌 x all)

H556R214.WMF

3.12.4 MAIN MOTOR♦

Same as Model S-F1 (☛ S-F1 service manual)

3.12.5 EXHAUST FAN♦

Same as Model S-F1 (☛ S-F1 service manual)

3.12.6 MONITOR SPEAKER♦

Same as Model S-F1 (☛ S-F1 service manual)

3.13 PRINTING ADJUSTMENTS

You need to perform the following printing adjustments after executing a Memory All Clear (SP5-801) and after replacing the paper tray. For details about how to access and use the SP mode and fax service functions, see Section 5.

Before you begin the printing adjustments:

• Make sure the paper is installed correctly in each paper source before you start these adjustments.
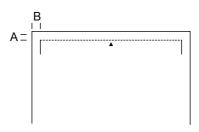
3.13.1 REGISTRATION - LEADING EDGE/SIDE-TO-SIDE

To print the Trimming Area Pattern

Print the REGIST pattern. Follow the procedure in Section "5.2 FAX SERVICE FUNCTIONS", Accessing Fax Service Mode, "11. Printer".

To check and adjust the Trimming Area Pattern

1. Check the leading edge registration [A] for each paper feed station, and adjust each of these registrations using SP1-001.

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A: Leading edge
B: Side-to-side

Tray	SP mode	Specification
Paper tray(s)	SP1-001-1 + User Tools Setting [*1]	0.3 ~ 4.0 mm
100-sheet by-pass	SP1-001-2 + User Tools Setting [*1]	0.3 ~ 4.0 mm

[*1]:User Tools> Fax Features> Key Op. Tools> Print Position

2. Check the side-to-side registration [B] for each paper feed station, and adjust these registrations using SP1-002. (Adjust the trays in order: the 1st tray first, then the 2nd tray [if installed], 3rd tray [if installed] and the by-pass, then back page).

Tray	SP mode	Specification
1st tray	SP1-002-1 + User Tools Setting [*1]	
2nd tray	SP1-002-2 + User Tools Setting [*1]	
3rd tray	SP1-002-3 + User Tools Setting [*1]	0 ± 1 mm
100-sheet by-pass	SP1-002-5 + User Tools Setting [*1]	

[*1]: User Tools> Fax Features> Key Op. Tools> Print Position

3.13.2 REGISTRATION FOR DUPLEX PRINTING

To confirm the front page (2nd side) setting, first press the User Function Key programmed for the duplex function, then press the Start key. The REGIST pattern prints for the front page (2nd side).

NOTE: A User Function Key must be set up for the duplex function before you do this procedure. For details, please refer to the Operating Instructions.

Sub Scan (Leading Edge)

For duplex printing, the value specified with SP1-001-3 for sub scan (leading edge) is the registration for the first page (2nd side).

Mode	SP Code	Specification
2nd Side (Front Page) Sub Scan Registration	SP1-001-3 + User Tools Setting [1]	0.3 ~ 4.0 mm

[1]: User Tools> Fax Features> Key Op. Tools> Print Position

When the 1st side (back page) is rotated 180 degrees for output, the value for sub scan registration is adjusted by the amount that SRAM was adjusted.

Address	Calculation	Specification
40280E	x 0.1 mm	0 ±1 mm

NOTE: A minus value is set with hexadecimal: –0.1 mm → FFFF. There is no limit to the range, so if an extremely large setting is specified regardless of the sign (±), then the result of such a setting cannot be guaranteed.

As the value of the SRAM setting is increased, the top margin at the leading edge of the write area decreases with the result that that top margin of the rotated image becomes wider.

Conversely, as value of the SRAM setting is decreased, the top margin of the write area increases with the result that that top margin of the rotated image becomes narrower.

This is summarized in the table below:

Setting	Write Margin (Leading Edge)	Image Margin (Leading Edge)
Large	Narrows	Widens
Small	Widens	Narrows

Main Scan (Side-to-Side)

For duplex printing, the value specified with SP1-002-6 (2nd side) for main scan (side-to-side) is used to adjust the 2nd side (front page). That is to say, the value of the setting of main scan registration of the tray that fed the sheet is added to the main scan registration correction value of SP1-002-6 for the 2nd side. This increased value becomes the value for the 2nd side.

Example: When Paper is Fed from the 1st Tray for Duplexing

Mode	Description	Specification
1st Side (Back Page) Main Scan Registration	SP1-002-1 + User Tools Setting [1]	0 ± 1mm
2nd Side (Front Page) Main Scan Registration	SP1-002-1 + User Tools Setting [1] + SP1-002-6	0 ± 1mm

[1]: User Tools> Fax Features> Key Op. Tools> Print Position

When the 1st side (back page) is rotated 180 degrees for output, however, main scan registration is adjusted by only the amount of the adjustment done for the SRAM setting.

Address	Calculation	Function	Specification
40281A	/5 x0.5mm	180 deg. rotation of main scan	0 ± 1 mm

Minus value is set with hexadecimal: –0.5 mm → FFFB
Setting Range: -9 mm to +9 mm (FFA6 ~ 005A)

As the value is increased, the left margin of the write area decreases with the result that that left margin of the rotated image becomes wider.

Conversely, as the value is decreased, the left margin of the write area increases with the result that that left margin of the rotated image becomes narrower.

This is summarized in the table below:
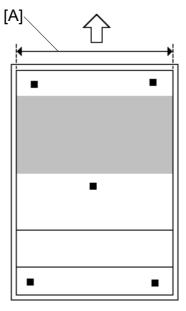
Setting	Write Margin (Left Margin)	Image Margin (Left Margin)
Max. +9 mm	Narrows	Widens
Min. –9 mm	Widens	Narrows

3.13.3 MAIN-SCAN MAGNIFICATION

1. Print the Trimming Area Pattern (FACTORY pattern). For details, see Section "5.2 Fax Service Functions, Accessing Fax Service Modes, 11. Printer".

Paper Size	Width [A]
Letter	210 mm
A4	204 mm

2. Perform SP2-998 to adjust magnification in the main scan direction until the width of the frame in the printout meets the specifications in the above table (100±1% in both directions).

H556R909.WMF

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY◆

There are two service-call levels, as follows.

Level	Definition	Reset Procedure
A	To prevent possible damage to the machine, level-A service calls can be cleared only by a service representative The machine will not operate until the representative clears the call.	Enter SP 5-810 (SC code reset) and select "1". Then simultaneously press the *Halftone* key and the *OK* (or ⓡ/#) key. (There is no need to turn the main switch off and on.).
B	These SCs can be cleared by turning the main power switch off and on.	Turn the main power switch off and on.

NOTE: 1) *If a problem involves circuit boards:* Before deciding to replace a circuit board, first see if you can solve the problem by disconnecting and then reconnecting all connectors.
2) *If a problem involves a motor lock:* Check the mechanical load first, before deciding whether to replace motors or sensors.
3) Switching power off and back on may in some cases cause loss of data stored in SAF memory.
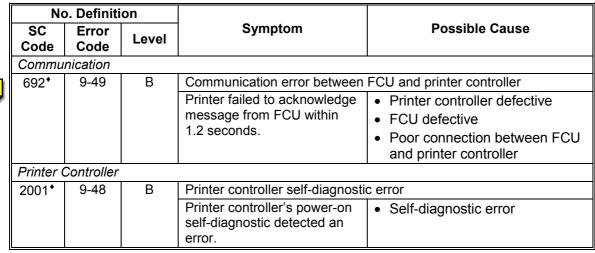
Trouble-shooting

4.1.2 SC CODE DESCRIPTIONS

No. Definition			Symptom	Possible Cause
SC Code	Error Code	Level		
Scanner				
101♦	1-04	B	Exposure (LED) Lamp Error	
			Insufficient white level detected when scanning the white plate.	• Exposure lamp (LED) defective • CIS defective • Bad connection
Image Process 1				
302♦	9-17	B	Charge roller current leak	
			Current leak at the charge roller was detected.	• Charge roller damaged • High voltage supply board defective • Poor connection of the PCU
320♦	9-23	B	Polygon mirror motor error	
			Did not detect lock signal from polygon mirror motor within 10 seconds after motor ON signal; or, lost lock signal for continuous 1.5 seconds after signal was detected.	• Polygon mirror motor (or harness) defective • FCU defective
322♦	9-20	B	Laser synchronization error	
			Detected LD error signal for continuous 1.5 seconds while polygon mirror motor was running at constant speed.	• Synchronization detection mirror defective • LD unit defective • FCU defective • LD harness damaged • THM not in place
390♦	9-73	B	TD sensor error	
			The TD sensor output less than 0.33 V or greater than 2.64 V ten times in succession.	• TD sensor defective • Bad connection
391♦	9-29	B	Development bias leak	
			Development bias leak signal was detected.	• Development roller defective • High voltage supply board defective
392♦	9-74	B	Developer initialization error	
			Error reading ID sensor pattern during developer initialization.	• Forgot to remove heat seal from replacement PCU • ID sensor defective • TD sensor defective • Drum is not turning • Development roller is not turning • Right door not closed firmly

| No. Definition | | | | |
SC Code	Error Code	Level	Symptom	Possible Cause
Image Process 2				
401♦	9-29	B	Transfer roller leak error 1 ("+" leak)	
			A current leak signal for the transfer roller was detected. (Current feedback signal was not detected for at least 200 ms).	• Transfer roller damaged • High voltage supply board defective • Poor connection between transfer unit and machine • Transfer unit set incorrectly
402♦	9-29	B	Transfer roller leak error 2 ("–" leak)	
			A current leak signal for the transfer roller was detected. (Current feedback signal was not detected for at least 200 ms).	• Transfer roller damaged • High voltage supply board defective • Poor connection between transfer unit and machine • Transfer unit set incorrectly
Print Engine				
500♦	9-24	B	Main motor lock error	
			Failed to detect main motor lock signal for 7 checks in succession (total of 700 ms) after main motor started to rotate, or after last lock signal was detected.	• Main motor defective • Too much load on the drive mechanism • Motor driver damaged
541♦	9-22	A	Fusing thermistor open	
			Thermistor generated abnormal values immediately after 24 V power on.	• Fusing thermistor defective or disconnected • Fusing lamp defective • Fuse blown • PSU defective • Bad connection between fuser and machine
542♦	9-22	A	Fusing temperature warm-up error	
			During fusing warm-up, fusing temperature failed to reach target range within 22 seconds (when starting at least 25°C below the target temperature).	• Fusing thermistor defective • Fusing lamp defective • Thermofuse blown • PSU defective • Bad connection between fuser and machine • Transistor on the FCU defective
543♦	9-22	A	Fusing overheat error	
			Detected fusing temperature remained above 230°C for 1 second.	• Fusing thermistor defective • PSU defective

Trouble-shooting

No. Definition			Symptom	Possible Cause
SC Code	Error Code	Level		
544♦	9-22	A	Fusing low temperature error	
			Detected fusing temperature remained abnormally low for 1 second during fusing operation (below 140°C) or during stand-by mode.	• Fusing thermistor defective • PSU defective • Bad connection between fuser and machine
546♦	9-22	A	Unstable fusing temperature	
			Detected that fusing temperature changed more than ±25°C/second two seconds in succession.	• Fusing thermistor defective • PSU defective • Bad connection between fuser and machine
547♦	9-22	B	Zero-cross detection error	
			Detection error (detection overflow or busy) occurred 8 times in succession (at 20 ms intervals) while 24 V power was on.	• PSU defective • FCU defective
548♦	9-22	A	Fusing-temperature range violation (too high)	
			During paper transport, fusing temperature moved above limit (200°C for plain paper, 210°C for thick paper) and remained above limit for 10 seconds.	• TRIAC short • Fan not running
549♦	9-22	A	Fusing-temperature range violation (too low)	
			During paper transport, fusing temperature fell below lower limit (155°C) and remained below limit for 6 seconds.	• Fusing thermistor defective • PSU defective
550♦	9-22	A	Standby temperature error 1	
			Fusing temperature failed to drop to expected level within a given time (15 seconds, 15 minutes, or 25 minutes, depending on mode) after entering standby or low-power mode.	• TRIAC short • Fan not running
551♦	9-22	A	Standby overheat	
			Temperature during standby or low-power mode remained too high for a specified interval (10 seconds or 25 seconds, depending on the mode).	• TRIAC short
552♦	9-22	A	Standby low temperature error	
			After reaching expected temperature in low-power mode (level 1) or standby mode, temperature fell and remained below 155°C for 20 seconds.	• Fusing thermistor defective • PSU defective

No. Definition			Symptom	Possible Cause
SC Code	Error Code	Level		
Communication				
692♦	9-49	B	Communication error between FCU and printer controller	
			Printer failed to acknowledge message from FCU within 1.2 seconds.	• Printer controller defective • FCU defective • Poor connection between FCU and printer controller
Printer Controller				
2001♦	9-48	B	Printer controller self-diagnostic error	
			Printer controller's power-on self-diagnostic detected an error.	• Self-diagnostic error

To release an SC code indication relating to the fusing unit (9-22), check and/or replace the fusing unit first. Then set printer switch 01 bit 0 to 1 and turn the power off and on.

Trouble-shooting

4.2 ERROR CODE DESCRIPTIONS

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
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.
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.

Code	Meaning	Suggested Cause/Action
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
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.
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. (SC ☛ 0-08)

Trouble-shooting

Code	Meaning	Suggested Cause/Action
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 Switch 0A, bit 4
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
0-24♦	Printer failure occurred while the memory was full during non-ECM reception; negative response returned	There is no memory space available, or substitute reception is disabled. • Try asking the user to add optional extra memory.

Code	Meaning	Suggested Cause/Action
0-29♦	Data block format failure in ECM reception	Check for line noise or other line problems. • Try receiving from another machine. Replace the FCU.
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
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.
0-33♦	DCR timer runs out without receiving certain amount of data.	• 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.
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.
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.

Trouble-shooting

Code	Meaning	Suggested Cause/Action
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. • Try adjusting the Tx cable equalizer setting. If these errors happen at the receiving terminal: • 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.
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.
1-00♦	Document jam	• Incorrectly inserted document or unsuitable document type. Check the ADF drive components and sensors.
1-01♦	Document length exceeded the maximum	• Try changing the maximum acceptable document length. • Divide the document into smaller pieces. • Check the ADF drive components and sensors. **Cross reference** • Max. document length - Scanner switch 00, bits 2 and 3

Code	Meaning	Suggested Cause/Action
1-04♦	Exposure (LED) lamp error (SC-101)	• Check the LED lamp (CIS) connection
1-08♦	Shading error (no LED lamp turns on)	• Replace the CIS or FCU
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/ reconstruction error	• Turn off the machine, then turn it back on. • Replace the FCU if the error occurs frequently.
2-24♦	JBIG ASIC error	
2-25♦	JBIG data reconstruction error (BIH) error	• JBIG data error. • Check the remote terminal's JBIG function. • Replace the FCU if the error occurs frequently.
2-26♦	JBIG data reconstruction error (Float marker error)	
2-27♦	JBIG data reconstruction error (End marker error)	
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.
2-52♦	Memory resource releasing error after communication	• Check the connection between FCU and NCU board.
3-30♦	Mismatched specifications (rx capability)	• Check the receive capabilities requested from the other terminal.
4-00♦	One page took longer than 8 minutes to transmit	Check for a bad line. • Try the communication at a lower resolution, or without halftone. Change the FCU.
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.
4-02♦	The other end cut the received page as it was longer than the maximum limit.	• Split the page into smaller pieces, or ask the other end to change their maximum receive length setting, then re-send.
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.

Trouble-shooting

Code	Meaning	Suggested Cause/Action
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.
5-21◆	Memory overflow	• Replace the FCU board
5-25◆	SAF file access error	• Replace the FCU board.
5-30◆	Mode table for the first page to be printed was not effective	• Replace the FCU or IC memory card.
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	
6-03◆	G3 ECM - non-standard V.21 code received	• The other terminal may be defective.
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.
6-11◆	G3 ECM - printing impossible because of a missing first line in the MMR coding	• Check for problems in the printer mechanism.

Code	Meaning	Suggested Cause/Action
6-21♦	V.21 flag detected during high speed modem communication	• The other terminal may be defective or incompatible.
6-99♦	V.21 signal not stopped within 6 s	• Replace the FCU.
9-07♦	Paper non-feed or jam at the cassette entrance	• Check the clutch connectors. • If the problem persists, replace the FCU and/or the high-voltage power supply board (power pack).
9-08♦	Paper jam inside the development area	• Check the paper feed mechanism, clutch and sensors.
9-09♦	Paper jam in the fusing exit area	• If the problem persists, replace the FCU.
9-17♦	Charge corona unit failure (SC-302)	• If the problem persists, replace the FCU.
9-20♦	Laser diode failure (SC-322)	• Replace the LDDR • If the problem persists, replace the FCU.
9-22♦	Fusing lamp failure (SC-54x, 55x)	• Check the thermistor, thermoswitch and thermofuse. • Replace the fusing lamp. • Replace the PSU. • If the problem persists, replace the FCU.
9-23♦	Polygon mirror motor failure (SC-320)	• Replace the polygon motor. • If the problem persists, replace the FCU.
9-24♦	Main motor failure (SC-500)	• Check the interlock switch. • Replace the main motor. • If the problem persists, replace the FCU.
9-29♦	Power pack error (SC-391, 401, 402)	• Check the connections • Replace the power pack or FCU
9-30♦	Disk drive error (write)	• Check the connection of the memory card
9-31♦	Disk control error (close)	• If the problem persists, replace the memory card and/or FCU.
9-32♦	Disk memory error (read)	
9-33♦	Fatal disk error	
9-50♦	No paper feed at the 1st optional paper tray.	• Check if a recommended type of paper is used. • Check if the paper guides are aligned to the paper correctly. • Check the paper feed mechanism and sensors in the unit.
9-52	No paper feed at the 2nd optional paper tray.	• Check if a recommended type of paper is used. • Check if the paper guides are aligned to the paper correctly. • Check the paper feed mechanism and sensors in the unit.
9-61♦	Memory overflow occurs during reception	• Check the SAF.
9-73♦	TD sensor error (SC-390)	• Check the connection • Replace the TD sensor

Trouble-shooting

Code	Meaning	Suggested Cause/Action
9-74♦	Developer initialization error (SC-392)	• Check if the heat seal from the replacement PCU is not removed. • Replace the ID sensor • Replace the TD sensor • Replace the PCU • Check if the right door is closed firmly
9-82♦	By-pass feed - paper non-feed or jam at the entrance	• Same as 9-80
9-84♦	Paper non-feed or jam at the cassette entrance	• Same as 9-07
9-85	Jam in duplex unit.	• Check the paper size. (A5/HLT cannot be used for duplex printing.) • Check the paper feed mechanism for duplex printing. • Check the sensor for defects.
9-86	Duplex printing retry error.	
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.
F0-xx♦	V.34 modem error	• Replace the FCU.

4.3　ELECTRICAL COMPONENT DEFECTS

4.3.1　SENSOR/SWITCH OPEN ERRORS

Sensor	CN	Symptom
Registration Sensor	FCU 27-2◆	Paper jam reported.
Paper End Sensor	FCU 29-2◆	Paper-end error when attempting to feed from main tray. Fax key blinks red.
By-pass Paper End Sensor	FCU 30-2◆	"Paper End" message when attempting to feed from by-pass tray. .
Exit Sensor	FCU 28-2◆	Paper jam reported.
Image Density (ID) Sensor	FCU 32-1◆	Toner control process changes.
Toner Density (TD) Sensor	FCU 23-3◆	"Reset PCU Correctly" message appears, and Caution indicator stays on.
ADF Guide Open Sensor	FCU 31-4◆	"Close ADF" message appears, and Caution indicator stays on.
ADF Original Set Sensor (S1)	FCU 31-2◆	Fails to detect originals at ADF.
ADF Registration Sensor (S2)	FCU 37-2◆	Document jam reported.
Front/Right Door Switch	FCU 14◆	"Close Front/Right Cover" message appears, and the Caution indicator stays on.
Duplex Sensor	FCU 2-2	Paper jam reported during duplex printing

Trouble-shooting

4.3.2　BLOWN FUSE CONDITIONS

Same as Model S-F1 (☛ S-F1 service manual)

5. SERVICE TABLES

5.1 USING SERVICE PROGRAM MODE (SP MODE)

Use the Service Program mode (SP mode) to check electrical data, change operating modes, and adjust values.

NOTE: In the procedures below, the ⌖ key symbol in text represents the "Energy Saver/Clear Modes" key on the operation panel.

Accessing SP Mode
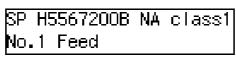
How to enter SP Mode◆

1. Key in the following sequence.

    ⌖ → ① → ⓪ → ⑦ → ⓒ

    • Hold the ⓒ key down for longer than 3 seconds.

2. The LCD displays a menu.

    ```
    [Service P-Mode]   No._
    1 Copy 2 Fax 3 Printer
    ```
    H556S501.BMP

> **NOTE:** Installed applications appear on the menu as follows: "1.Copy", "2. Fax", "3. Printer". If an application is not installed, the corresponding item does not appear.

3. Press the number for the application mode you need. (For example, press "1" to select the copier application mode.) The selected SP mode display appears on the LCD, as shown.

    ```
    SP H5567200B NA class1
    No.1 Feed
    ```
    H556S502.BMPMP

How to Exit SP Mode

Press ⌖ or the "Cancel" key one or more times to return to the standby-mode display.

Accessing Copy Mode from within SP Mode

1. When the machine asks to print, press the ⓟ key.

2. To return to SP mode, press ⌖ or the "Cancel" key.

Service Tables

How to Select a Program Number◆

```
C1(1)Feed
C2 No.  1
```

H556S503.BMP

Each SP number consists of two or three levels ("classes"). To select a program, you need to enter each class number in sequence.

1. Enter the first-class program number with the numeric keypad (or change the number using the *Left* < or *Right* > cursor key), and then press the ⓡ/# key or the *OK* key.

2. Enter the second-class program number with the numeric keypad (or the *Left* < or *Right* > cursor key), and press ⓡ/# or *OK*.

3. To select a third-class program: select the second-class number and then use the *Left* < or *Right* > cursor key.

4. To return to the next higher class, press ⟨◇▭⟩.

To Input a Value or Setting◆

1. Enter the required program mode as explained above.

2. Enter the required setting using the numeric keys, and then press ⓡ/# or the OK key.

NOTE: 1) If you forget to press ⓡ/# or OK, the previous value remains in effect.
2) If necessary, use the ⓞ/✗ key to select "+" or "−" when entering the value.

5.1.1 SP MODE TABLES

NOTE: 1) An asterisk (*) after the SP number means that this SP's value is stored in the SRAM. If you do a RAM reset, all these SP settings will be returned to their factory defaults.

2) In the Function/[Setting] column:

- Comments are in *italics*.
- The setting range is enclosed in brackets, with the default setting written in **bold**.
- **DFU** stands for **D**esign/**F**actory **U**se only. Values marked **DFU** should not be changed.
- **IAJ** means that you should refer to Section 3.13 ("Replacement and Adjustment – Copy Image Adjustments") for more information.
- **IP** means that you should refer to Section 6.11, (Detailed Descriptions - Image Processing").
- The reference to the "Original Type" key in the text denotes the "Halftone" key. (There is no "Original Type" key on the operation panel of this machine.)

3) In the SP mode table:

- A symbol "♦" indicates that the marked item is identical to models S-C1 and F1.
- A symbol "♣" indicates that the marked item is identical to model S-F1.
- A marked function with "▢" indicates that the marked item is unique in model S-F2.
- Light text indicates that the item was available in model S-F1, but is not used in model S-F2.

SP1-XXX *(Feed)*

1	Mode Number/Name		Function/[Setting]
001*	Leading Edge Registration		
	1♦	Paper tray (copy, fax)	Adjusts the plotter leading-edge registration from each paper feed station. Use the Trimming Area Pattern (SP5-902, No.10) to make the adjustment.) [–9.0 ~ 9.0 / **0.0** / 0.1 mm/step] **IAJ** • *Specification: 0 ± 2 mm* • *Use the ⊙ key to select "+" or "–" when entering the value.*
	2♦	By-pass (copy fax)	
	3	Duplex (copy fax)	
	4♦	Paper tray (optional printer)	
	5♦	By-pass (optional printer)	
	6	Duplex (optional printer)	
002*	Side-to-Side Registration		
	1♦	1st tray	Adjusts the printing side-to-side registration from each paper feed station. (Use Trimming Area Pattern (SP5-902, No.10) to make the adjustment.) The 2nd-tray adjustment is for the optional tray. [–9.0 ~ 9.0 / **0.0** / 0.1 mm/step] **IAJ** • *Specification: 0 ± 2 mm* • *Use the ⊙ key to select "+" or "–" when entering the value.*
	2♦	2nd tray	
	3	3rd tray	
	5♦	By-pass	
	6	Duplex	
003*	Paper Feed Timing		
	1♦	1st tray	Adjusts the amount of buckle the paper feed clutch applies to the paper (by adjusting delay between triggering of the registration sensor and activation of registration clutch). A higher setting applies greater buckling. [0 ~ 10 / **5** / 1 mm/step]
	2♦	Other trays	
	3♦	By-pass	
	4	Duplex	
106	Fusing Temperature Display		
	1♦		Displays the fusing temperature. *Press ⎙ to exit the display.*
109	Fusing Nip Band Check		
	1♦		Checks the fusing nip band. [**1 = No** / 0= Yes] **DFU**
902	AC Frequency Display		
	1♦		Displays the fusing lamp power control frequency (as detected by the zero cross signal generator), in Hz.

SP2-XXX *(Drum)*

2		Mode Number/Name	Function/[Setting]
001		Charge Bias Adjustment	
	1*♦	Image area	Adjusts the voltage applied to the charge roller when printing. [–1800 ~ –1500 / **–1650** / 1 V/step] *The actually applied voltage changes automatically as charge roller voltage correction is carried out. The value you set here becomes the base value on which this correction is carried out.*
	2*♦	ID sensor pattern	Adjusts the voltage applied to the charge roller when generating the ID sensor pattern. [0 ~ 400 / **200** / 1 V/step] *The actual charge-roller voltage is obtained by adding this value to the value of SP2-001-1.*
	3♦	Manual	Use this feature to adjust the voltage to the image area when diagnosing a problem. [–1900 ~ 0 / **0** / 1 V/step] • *The value is applied as an offset to the value set by SP2-001-001.* • *This setting is lost at power-off.*
005*		Charge Bias Correction	
	1♦	Vsdp min.	Sets lower limit for application of charge-bias correction. [0 ~ 100 / **90** / 1%/step] *Correction is applied if Vsdp/Vsg is less than this value.*
	2♦	Vsdp max.	Sets upper limit for application of charge-bias correction. [0 ~ 100 / **95** / 1%/step] *Correction is applied if Vsdp/Vsg is greater than this value.*
	3♦	Correction step	Sets the correction step (the amount of voltage added or subtracted for each correction). [0 ~ 200 / **50** / 1V/step]
102*		Image print area adjustment (Paper margin adjustment)	
	1	Sides (copy, optional printer)	Adjusts the printable image area by eliminating both sides from image. A higher setting increases margins of both sides. [0 ~ 2 / **0.5** / 0.1 mm/step]
	2	Leading/Trailing edges (copy)	Adjusts the printable image area by eliminating leading/trailing edges from image. A higher setting increases margins of both edges. [0 ~ 9 / **0.0** / 0.1 mm/step]
201*		Development Bias Adjustment	
	1♦	Image area	Adjusts the voltage applied to the development roller when printing. [–800 ~ 0 / **–600** / 1 V/step] • *This can be adjusted as a temporary measure if faint copies are being produced due to an aging drum.*
	2♦	ID sensor pattern	Adjusts the voltage applied to the development roller when generating the ID sensor pattern. **[0 = N (200 V)** / 1 = H (240 V) / 3 = HH (280 V) / 4 = LL (120 V)] *The actual voltage applied is this setting - 600 V.*

Service Tables

2	**Mode Number/Name**		**Function/[Setting]**
213*	Copies after Toner Near End		
	1♦		Sets the number of copy/print/fax pages that can be made after toner near-end has been detected. [**0 = 50 pages** / 1 = 20 pages] *Reduce the number of pages if the user normally makes copies with a high image ratio.*
214♦	Initial Developer Running		
			Initializes the developer (by forced churning). [**0 = No** / 1 = Yes] • *To start forced developer initialization, you must turn the machine off and back on.* • *Since the machine automatically initializes the developer when a replacement PCU is installed, there is no need to carry out this SP when replacing the PCU.* • *If the machine has not been used for a long period of time, prints may have a dirty background. In this case, use this SP to mix the developer.*
220	TD Sensor Value Display		

	1♦		Displays:
			  a) Current TD sensor output value (Vt)
			  b) Target TD output value [Vts corrected by ID sensor output]
			 • *The TD sensor output value changes every copy. If a > b, toner is supplied to the development unit.*
			 • *Press ▧▭ to exit the display.*

221	ID Sensor Display		
	1♦		Displays Vsg, Vsp, Vsdp, Vt, and the ID sensor's PWM output. Use these values to check the operational status of the ID sensor. [**0 = No** / 1 = Yes] • *This machine has no SC code for ID sensor errors. If imaging problems occur (such as dirty background), use this SP to determine whether the problem is with toner density control.* • *You can use SP7-911 to check the number of ID sensor errors that have occurred. (☛ 5.1.10)*
301*	Transfer Current		
	1♦	Normal paper	Adjusts the current applied to the transfer roller when feeding from a paper tray. [0 = –2 μA / **1 = 0 μA** / 2 = +2 μA / 3 = +4 μA] • *Use a high setting if the user normally feeds relatively thick paper (within spec).* *(☛ 6.18.2, "Image Transfer Current Timing")*
	2♦	Thick/Thin paper	Adjusts the current applied to the transfer roller when feeding from the by-pass tray. [0 = –2 μA / **1 = 0 μA** / 2 = +2 μA / 3 = +4 μA] • *Use a high setting (a) if the user normally feeds relatively thick paper, or (b) if waste toner is re-attracted from the drum (which can occur when using transparencies).* *(☛ 6.18.2, "Image Transfer Current Timing")*

2		Mode Number/Name	Function/[Setting]
	3	Duplex	Adjusts the current applied to the transfer roller during duplex printing. [0 = –2 μA / **1 = 0 μA** / 2 = +2 μA / 3 = +4 μA] *Use a high* setting *(a) if the user normally feeds relatively thick paper, or (b) if image transfer condition is different between front and back side. (☛ 6.18.2, "Image Transfer Current Timing")*
	4♦	Cleaning	Adjusts the current applied to the transfer roller for roller cleaning. [–10 ~ 0 / **–4** / 1 μA/step] *Increase the current if toner remains on the roller after cleaning. (Remaining toner may cause dirty background on the rear side.)* *(☛ 6.18.3, "Transfer Roller Cleaning")*
	5♦	Manual (Temporary)	**DFU**
906*		Tailing Correction	
	1♦	Shift value	When printing multiple copies, the machine will shift the image writing position by the specified amount after every *n* copies, where *n* is given by SP2-906-2. [0.0 ~ 1.0 / **0.0** / 0.1 mm/step] *When making many copies of an original that contains vertical lines (such as in tables), the paper may not separate correctly. This can cause tailing images (ghosts of the vertical lines continuing past the bottom of the table). This SP corrects the problem by shifting the paper after every specified number of copies.*
	2♦	Interval	Changes the interval for the image shift specified by SP2-906-1. [1 ~ 10 / **1** / 1 page/step] *If the setting is n, the machine executes the shift after the first n copies, then shifts back to standard position after the next n copies, and so on.*
908		Forced Toner Supply	
	1♦		Forces the toner bottle (or toner hopper) to supply toner to the toner supply unit. Press "1" to start. [**0 = No** / 1 = Yes] *The machine supplies toner over a total of 15 seconds (1.5 second on, 1.5 second off, repeated 5 times).*
922*		Toner Supply Time	
	1♦		Adjusts the toner supply motor ON time. [0.1 ~ 5.0 / **0.6** / 0.1 s/step] • *Raising this value increases the toner supply motor ON time. Set to a high value if the user tends to make many copies having high proportions of solid black image areas.* *(☛ 6.15.4, "Toner Density Control")*
926*		Standard Vt	
	1♦		Adjusts Vts (the reference voltage used for new developer). The TD sensor output is adjusted to this value during the TD sensor initial setting process. [0.00 ~ 3.3 / **1.25** / 0.01 V/step] **DFU**

Service Tables

2	**Mode Number/Name**		**Function/[Setting]**
927*	ID Sensor Control		
	1♦		Selects whether the ID sensor is or is not used for toner density control. [0 = No / **1 = Yes**] *This value should normally be left at "1". If the value is "0", dirty background may occur after long periods of non-use. (☛ 6.15.4, "Toner Density Control")*
928	Toner End Clear		
	1♦		Clears the toner end condition without adding new toner. Select "1" then press the ⓡ/# key to clear the condition. [**0 = No** / 1 = Yes] *Setting this to "1" will clear the following:* • *Toner end and near-end indicator* • *Toner near-end counter* • *Toner end counter (sheets)* • *Toner end counter (level)* *This function should generally not be used. If you clear the toner end condition without adding new toner, there is a risk that the drum may eventually begin to attract carrier after toner runs out. This attracted carrier may damage the drum.*
929*	Vref Limits		
	1♦	Upper	Adjust the upper Vref limit. [0.50 ~ 3.50 / **1.80** / 0.01V/step]
	2♦	Lower	Adjust the lower Vref limit. [0.00 ~ 3.50 / **0.45** / 0.01V/step]
995*	ID Detection Interval		
	1♦		Sets the interval after which ID detection will be carried out at start of printing (relative to previous ID detection). [0 ~ 999 / **480** / 1 minute/step] *Higher values increase the chance of dirty background. Lower values increase the frequency at which the machine makes ID sensor patterns, increasing the chance that the transfer roller (and rear side of paper) will become dirty.*
998*	Main Scan Magnification (Printing)		
	1♦		Adjusts the magnification along the main scan direction, for all print modes (copy, fax, printing). [–0.5 ~ +0.5 / **0.0** / 0.1%/step] **IAJ** • *Use the ⓒ/* key to select "+" or "–" when entering the value.*

SP4-XXX *(Scanner)*

4		Mode Number/Name	Function/[Setting]
012*		Erase Margin Adjustment	
	3*	Left side	Adjusts the left edge erase margin. [0.0 ~ 9.0 / **2.0** / 0.1 mm/step] **IAJ**
	4*	Right side	Adjusts the right edge erase margin. [0.0 ~ 9.0 / **2.0** / 0.1 mm/step] **IAJ**
902*♦		Exposure Lamp ON **(Not used in Models H556/557)**	
			Lets you turn the exposure lamp on and off. [0 = Lamp Off / 1 = Lamp On] • *To turn the exposure lamp on, press "1". To turn the lamp off, press "0". To exit, press ⌧ or Cancel to exit.* • *The scanner moves to the shading position and remains there until you exit the SP.* • *The display also shows the minimum and maximum white-plate values (updated every 0.5 sec.).*
913*		DF Shading Interval Time	
	1♦		Adjusts the interval used for shading processing in DF mode. [0 ~ 255 / **30** / 1s / step] • *Setting this value to 255 will switch off auto-shading between pages of DF copy jobs.* • *Light and heat may affect scanner response. Reduce this setting if copy quality indicates that the white level is drifting during DF copy jobs.*
921*		Image Adjustment Selection	
	1*		You must first use this SP to select the processing mode (pattern) that you wish to set adjustment parameters for with SP codes SP4-922 to SP4-966. **IP** There are seven modes ("Pattern 1" to "Pattern 7"), as follows. 1: Text Copy. Copy default. Normal text with error diffusion. 2: Text Fax. Fax default. Sharp text with error diffusion. 3: Fax Special. Dropout with fixed binary processing. 4: Photo Normal. Fax and copy default. Uses error diffusion. 5: Photo Smooth. Uses dithering. 6: Text Printer / Color scan. Printed characters / Color scanning. 7: Photo Printer. Printed photographs. 8~11: Not used First use the right or left cursor key to select the mode ("Pattern 1" to "Pattern 7"), and then press "1" to enable adjustment for that mode. Press *OK*, and then use SP4-922 to 4-966 to make adjustments for that mode. • *If you select "0", SPs 4-922 to 966 will not operate.*

Service Tables

4	**Mode Number/Name**	**Function/[Setting]**
922*♦	Scanning Density Adjustment	
		Selects whether the linear gamma table or the 16-bit gray mode gamma table is used for the mode selected for adjustment with SP4-921. [0~2 / **0** / 1] **IP** 0: Default gamma table 1: Linear gamma table (= OFF) 2: Not used
923*♦	Image Density Adjustment	

		Shifts the default setting of scanning density to the left or right. Note that there is no density selector on the operation panel.
		[–1 ~ +1 / 0 / 1] **IP**
		–1: Lighter
		  0: Normal
		  1: Darker

925*♦	Sharpness Adjustment	

		Allows fine adjustment of the image sharpness processing (MTF and smoothing coefficients) for the mode selected with SP4-921.
		[–2 ~ 2 / **0** / 1 step] **IP**
		–2: Soft
		–1: Soft (light)
		  0: Normal
		  1: Sharp
		  2: Sharp

926*♣	Texture Cleaning Threshold Level (Effective only with Error Diffusion)	
		Adjusts the texture removal threshold for the mode selected with SP4-921. [0 ~ 4 / **0** / 1 step] **IP** 0: The default value for the selected mode is used. 1: Fixed threshold. 2: Varying threshold (low variance) 3: Varying threshold (medium variance) 4: Varying threshold (high variance)
927*♦	Line Width Correction	
		Adjusts the line width correction algorithm for the mode selected with SP4-921. Positive settings produce thicker lines; negative settings produce thinner lines. [–2 ~ 2 / **0** / 1/step] **IP**
928*♦	Independent Dot Erase	
		Selects the dot erase level for the mode selected with SP4-921. Higher settings provide greater erasure. [–2 ~ 2 / **0** / 1/step] **IP**

4	**Mode Number/Name**	**Function/[Setting]**
930*♣	Binary Data Select	
		Determines how data is processed when picture/text separation is applied (Standard and Detail resolution only; picture/text separation does not work with Fine resolution). [0 ~ 6 / **0**/ 1/step] **IP** Text areas (one-bit data): 　0: Default for the selected mode 　1: All data treated using smoothing 　2: Mixture of raw data and smoothing 　3: All data treated using MTF 　4: All data treated using MTF 　5: Mixture of raw data and MTF 　6: All data treated using MTF Photo areas: 　0: Default for the selected mode 　1: All data treated using smoothing 　2: Mixture of raw data and smoothing 　3: All data treated using smoothing 　4: All data output as raw data 　5: Mixture of raw data and MTF 　6: All data treated using MTF
931*♣	Uneven Dot Adjustment (Vertical black line correction)	
		Selects the bad-dot (pixel) correction method used by the mode selected with SP4-921. [0 ~ 5 / **0** / 1 step] **IP** 0: Default for the selected mode 1: Off 2: 1-dot correction 3: 2-dot correction 4: 3-dot correction 5: 4-dot correction
932*	Auto Density Determination **(Not used in H556/557 models)**	
		Determines whether standard or more detailed scanning is required, based on the content of the image. This feature is enabled only when "Auto" is selected. [–2 ~ 2 / **0** / 1/step] **IP** –2: Most likely to recognize as standard mode. –1: More likely to recognize as standard mode. 　0: Normal 　1: Less likely to recognize as standard mode. 　2: Least likely to recognize as standard mode. *Disabled for copy mode, immediate (non-memory) fax transmission, and parallel memory fax transmission.*

Service Tables

4	**Mode Number/Name**	**Function/[Setting]**
933*♣	Blank-Page Sensor Level Adjustment	
		Attempts to recognize the scanned page as a blank page and outputs a warning on the operation panel LCD when a blank page is detected. This SP adjusts the sensitivity of blank page recognition. [-2 ~ 2 / **0** / 1/step] **IP** –2: Least likely to recognize a blank page. –1: Less likely recognize a blank page. 0: Normal 1: More likely to recognize a blank page. 2: Most likely to recognize a blank page.
934*♦	Peak Level	
		Adjusts the detection level for the white peak prior to start of scanning, for the mode selected with SP4-921. [–128 ~ 127 / **0** / 1/step] **IP** Text modes (Text normal, Text sharp and Dropout): The applied peak becomes (detected peak ± this setting) x about 60% Photo modes (Photo normal and Photo smooth): The applied peak becomes (detected peak ± this setting).
935*♦	AE [Auto Exposure] Check Speed	
		Adjusts the white-peak checking (tracking) speed for the mode selected with SP4-921. [–2 ~ 2 / **0** / 1/step] **IP** This SP is only effective in Text modes (Text normal, Text Sharp and Dropout). *A negative setting reduces the speed; a positive setting increases the speed.*
936*♦	Peak Offset	
		Sets the peak correction offset for the mode selected with SP4-921. [–2 ~ 2 / **0** / 1 step] **IP** *A negative setting produces better reproduction of low-contrast originals. A positive setting provides better elimination of dirty background.*
961*♦	Plotter (Printer Engine) Mode Select	
		Selects the plotter (printer engine) mode used by the processing mode selected with SP4-921. [1~3 / **1** / 1 step] **IP** 1 = Normal (no correction) 2 = Toner save 3 = FCI (Fine Character Adjustment) *The default varies according to the processing mode selected with SP4-921.*

4	**Mode Number/Name**	**Function/[Setting]**
962*♦	Marking Image Density Conversion	
		Selects the image density conversion for the processing mode selected with SP4-921. [–2 ~ 2 / **0** / 1 step] **IP** –2: Black reduction 2 –1: Black reduction 1 0: Normal (Off) 1: Black enlargement 1 2: Black enlargement 2 *A setting of "0" switches conversion OFF. Negative settings reduce the black marking size, while positive values magnify it.*
963*♦	Marking Image Density Setting	
		Sets the density adjustment type for the mode selected with SP4-921. [1 ~ 5 / **0** / 1/step] **IP** 0: The selected mode's default value is used. 1: Distortion prevention 2: Distortion prevention and jagged edge correction 3: Normal 4: Jagged edge correction (light) 5: Jagged edge correction (heavy)
964*♦	(Spot) Independent Dot Enhancement Select	
		Selects the emphasis used for lone dots, for the mode selected with SP4-921. [–2 ~ 2 / **0** / 1step] **IP** (☛ 6.11.5, "Mode Adjustments" of the S-F1 service manual)
965*♦	Toner Save Level	
		Sets the toner save level for the mode selected with SP4-921. [0 ~ 4 / **0** / 1/step] **IP** 0: Default for the selected mode 1: Thin lines 2: Mask 1 (with edge detection) 3: Mask 2 (no edge detection) 4: Mask 3 (with edge detection)
966*♦	Smoothing Select	
		Selects whether smoothing is used for the mode selected with SP4-921. [0 ~ 2 / **0** / 1/step] **IP** 0: Default for the selected mode 1: OFF 2: ON

Service
Tables

SP5-XXX (Mode)

5	Mode Number/Name		Function/[Setting]
001◆	All Indicators On		
			Sets on all indicators on the operation panel, and causes the display to blink (empty for five second, all pixels black for five seconds). *After checking, press ▣ or Cancel to exit.*
501*	PM Alarm Mode		
	1◆	Interval	Sets the base PM interval. [1 ~ 255 / **45** / 1K copies/step] *This setting is meaningful only if SP5-501-2 is set to "1".*
	2◆	On/Off	Enables/disables the PM alarm for the total number of prints, copies, and faxes. [0 = Disable / **1 = Enable**]
801◆	Memory All Clear		
			Resets all SP/UP settings and values to their defaults, with the exception of plug-and-play settings (SP5-907), total print counters (SP7-003), and the serial number setting (SP5-811). (☛ 5.1.5) [**0 = No** / 1 = Yes] • *Before clearing the SRAM, be sure to output an SMC printout of all current SRAM content. (☛ SP5-992).* • *This SP mode should generally not be used.*
803◆	Input Check		
			Displays the signals being received from a selected sensor or switch. (☛ 5.1.2) *Press ▣ to exit the program.*
804◆	Output Check		
			Turns on a selected electrical component for test purposes.
810◆	SC Code Reset		
			Resets all level-A service call conditions, such as fusing errors. [**0 = No** / 1 = Yes] • *After selecting "1", hold down the Halftone key and press the OK key (or the ⌨ key) to execute the reset. If the reset succeeds, the machine reboots. If it fails, the display shows "Error!!!". (☛ 4.1, "Service Call Conditions")*
811*◆	Serial Number Input		
			Used to input the machine serial number (normally done at the factory). This is the serial number printed on SMC reports. (☛ 5.1.9)
824◆	SRAM Data Upload		
			Uploads SP and UP settings from the machine's SRAM to a flash memory card. (☛ 5.1.8) [**0 = No** / 1 = Yes] • *This SP is effective only if a flash memory card has been plugged into the machine's card slot.*

5	**Mode Number/Name**	**Function/[Setting]**
825♦	SRAM Data Download	
		Downloads SP mode data from a flash memory card to the machine's SRAM. (☛ 5.1.8)
		[**0 = No** / 1 = Yes]
		• *This SP is effective only if a flash memory card has been plugged into the machine's card slot.*
826♦	Program Upload	
		Uploads the system program from the machine's SRAM into the flash memory card plugged into the machine's card slot. (☛ 5.1.7)
		[**0 = No** / 1 = Yes]
		• *This SP is effective only if a flash memory card has been plugged into the machine's card slot.*
827♦	Program Download	
		Downloads the system program from a flash memory card to the machine's SRAM. (☛ 5.1.7)
		[**0 = No** / 1 = Download first 2MB / 2= Download last 2MB]
		• *This SP is effective only if you have booted the machine from a flash memory card.*
837♦	Program Checksums	
		Displays checksums of the contents of the machine's SRAM.
		• *The screen shows three check sums: "SUM" (total checksum, "B" (boot sum), and "M" (main sum).*
		• *If you have used SP5-827 to download new firmware, be sure to reboot the software before running this SP. (If you don't reboot, the screen will show checksums for the previous firmware.)*
906*	Exhaust-Fan Control Timer	
	1♦	Inputs the fan control time.
		[30 ~ 120 / **30** / 1 s/step]
		The fan maintains existing speed for the specified time before slowing or stopping (after occurrence of an SC or following entry into warm-up, standby, or low-power mode).
907*♦	Plug & Play Setting	
		Selects the brand name and production name for the Plug and Play function (for Windows 95 and up). These names are registered in the SRAM. If the SRAM becomes defective, these names should be re-registered.
		• *Use the Right or Left cursor key to scroll through the list of brand names. To select a brand name, press the Halftone key and the OK (or ⊛) key at the same time. The LCD displays an asterisk (*) next to the number of the currently selected brand name.*
		• *After displaying any of the brand names, you can view the corresponding production name by holding down the Darker key. (If the production name is too long to fit on the screen, you can view the rest of the name by holding down both the Darker and Lighter keys).*
		• *To exit, press ▨ or the Cancel key.*

Service Tables

5	Mode Number/Name		Function/[Setting]
912*	PCU Alarm		
	1♦	Alarm Display On/Off	Selects whether or not the machine will display a "Replace PCU" warning when the PCU alarm counter reaches the interval set by SP912-2. [**0 = Display** / 1 = Do not display]
	2♦	Interval	Sets the PCU Alarm interval (count) at which a "Replace PCU" warning occurs. [1 ~ 255 / **45** / 1,000 sheets/step]
913	UP Mode Data Reset		
	1♦		Resets the user tools settings (with the exception of the copy user codes and copy user code counters). [**0 = No** / 1 = Yes] • *This operation is equivalent to executing a System Reset with the User Tools.* • *After selecting "1", hold down the Halftone key and press the OK key (or ⍟ key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!"*
941	Treatment of the last page in duplex mode		Selects treatment of the last page when printing a job with an odd number of pages in the duplex mode. <u>1-Sided Print (default):</u> 　The last page is not fed through the duplex unit, so the last page faces the opposite way from other pages in the job. <u>2-Sided Print:</u> 　The last page is fed through the duplex unit, so the last page faces the same way as other pages in the job. [0 = 2 Sided Print / **1 = 1 Sided Print**] • Set this switch to "0" when if the customer wants the last page to face the same way as the other pages.
991*	Debug Monitor Mode		
	1♦		[0 ~ 3 / **0** / 1/step] **DFU**
992♦	SMC Printing		
			Prints out machine data. (☛ 5.1.4) [**0 = No** / 1 = SP settings / 2 = All / 3 = Memory]

SP6-XXX (Peripherals)

6	Mode Number/Name		Function/[Setting]
006	ADF Registration		
	2♦	Leading Edge	Adjusts the leading edge registration for DF mode. [–5.0 ~ +5.0 / **0.0** / 0.1 mm/step] **IAJ** 0.1 mm/step *Use the ⊙ key to select "+" or "–" when entering the value.*
	3♦	Trailing Edge Erase	Adjusts the trailing edge erase margin for DF mode. [–3.0 ~ +3.0 / **–1.0** / 0.1 mm/step] **IAJ** *Use the ⊙ key to select "+" or "–" when entering the value.*
009♦	ADF Free Run **(Not used in H556/557 models)**		
			Performs a DF free run. (☛ 5.1.6) [**0 = No** / 1 = Yes] *After selecting "1", press OK or ⊙ twice to start the run. Press ⊙ to stop.*
910♦	ADF/Printer Free Run **(Not used in H556/557 models)**		
			Performs a free run of the DF and printer. (☛ 5.1.6) [**0 = No** / 1 = Yes] *After selecting "1", press OK or ⊙ twice to start the run. Press ⊙ to stop.*

Service
Tables

SP7-XXX (Data Log)

7		Mode Number/Name	Function/[Setting]
002*		Total Original Counter	
	1♦	All Modes	Displays the total number of scanned originals (total).
	2♦	Copy	Displays total number of scanned originals (copy mode only).
	3♦	Fax	Displays total number of scanned originals (fax mode only).
003		Total Print Counter	
	1♦	All Modes	Displays the total number of prints (total).
	2*♦	Copy	Displays the total number of prints (copier mode).
	3*♦	Fax	Displays the total number of prints (fax mode).
	4*♦	Printer	Displays the total number of prints (printer mode).
101*		Copy Counter – Paper Size	
	1♦	A4	Displays the total number of copies by paper size.
	2♦	B5	
	3♦	LG	
	4♦	LT	
	5♦	HLT	
	6♦	Others	
204*		Copy Counter – Paper Tray	
	1♦	1st	Displays the total number of sheets fed from each paper feed station.
	2♦	2nd	
	3♦	By-pass	
	4	3rd	
	5	Duplex	
205*		Total ADF Counter	
	1♦		Displays the total number of originals fed by the DF.
401*		Total SC Counter	
	1♦		Displays the total number of logged SC codes.
402*		SC Type Counter	
	1♦		Displays the total number of each type of logged SC code.
501*		Total Jam Counter	
	1♦		Displays the total number of jams (copy paper + original).
502*		Total Paper Jam Counter	
	1♦		Displays the total number of copy paper jams.
503*		Total Original Jam Counter	
	1♦		Displays the total number of original jams.
504*		Jam Counter – by Location	
	1♦	"A" jams	Displays the total number of copy paper jams by location.
	4♦	"Y" jams	
	5♦	1st Tray	
	6♦	2nd Tray	
	7♦	By-pass	
	8	3rd	
	9	Duplex	

7	**Mode Number/Name**		**Function/[Setting]**
801	ROM Versions and Option Connections ***Note: SP7-801 cannot be accessed at the screen.*** *This information appears on SMC printouts only. (Go to SP5-992 and select "2" to print out all data. The SP7-801 information will appear in the "LOG DATA" section on the second page of the printout.* [☛ *5.1.4])*		
	Shows software versions and option connection statuses as below.		
	1♦	Firmware Version	
	2♦	No meaning (Fixed at "VER. 1")	
	3♦	Fax Unit ["Yes" = installed, "No" = Not installed]	
	4♦	Printer Unit ["Yes" = installed, "No" = Not installed]	
	5♦	ADF ["Yes" = installed, "No" = Not installed]	
	6♦	Optional Memory ["No" (None installed), "32MB", "40MB", "64MB"]	
	7♦	Paper Tray Unit ["Yes" = installed, "No" = Not installed]	
	8♦	By-pass Type ["1" = 1 sheet / "100" = 100-sheet]	
	9	2nd Optional Tray Unit ["Yes" = Installed, "No" = Not installed]	
	10	Optional NIC ["Yes" = Installed, "No" = Not installed]	
	11	Optional JPEG Board ["Yes" = Installed, "No" = Not installed]	
	12	Optional G3 Unit ["Yes" = Installed, "No" = Not installed]	
803*	PM Counter Display		
	1♦		Displays the PM counter value (the count since the last PM).
804	PM Counter Reset		
	1♦		Resets the PM counter. [**0 = No** / 1 = Yes] *After selecting "1", hold down the Halftone key and press the OK key (or ⊕ key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!"*
807	SC/Jam Counter Reset		
	1♦		Resets the SC counter and all jam counters. [**0 = No** / 1 = Yes] *After selecting "1", hold down the Halftone key and press the OK key (or ⊕ key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*
808	Reset Counters		
	1♦		Resets all counters, except for the total counter (SP7-003). [**0 = No** / 1 = Yes] *After selecting "1", hold down the Halftone key and press the OK key (or ⊕ key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*

Service Tables

7	Mode Number/Name	Function/[Setting]
825	Total Counter Reset	
	1♦	Resets the electronic total counter. [**0 = No** / 1 = Yes] • *This reset is generally performed at installation. This SP mode is effective only once, while the counter still has a negative value. This SP cannot be used once the counter takes a positive value.* • *After selecting "1", hold down the Halftone key and press the OK key (or ⓡ⁄# key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*
901	SC History Display	
	1♦	Displays the codes of the last fifty errors that have occurred. [0 = No / 1 = Yes] *On fax-equipped models, you can print out the last fifty error codes using fax service mode 04. For information, refer to the fax service manual.*
902	SC History Reset	
	1♦	Clears the SC history. [**0 = No** / 1 = Yes] • *Note that when executed on fax-equipped models, this operation will not clear the machine's service-report data.* • *After selecting "1", hold down the Halftone key and press the OK key (or ⓡ⁄# key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*
908	PCU Counter Display	
	1♦	Displays the number of prints made since the PCU was last replaced.
909	PCU Counter Reset	
	1♦	Resets the developer counter. [**0 = No** / 1 = Yes] *After selecting "1", press the Halftone key and the OK key (or ⓡ⁄# key) at the same time to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*
911*	ID Sensor Error Counter Display	
	1♦	Displays the total number of logged ID sensor errors. *For information about how to analyze these errors, see Section 5.1.10.*
912	ID Sensor Error Counter Reset	
	1♦	Resets the ID sensor error counter. [**0 = No** / 1 = Yes] *After selecting "1", hold down the Halftone key and press the OK key (or ⓡ⁄# key) to execute the reset. If the reset is successful, the display shows "Action completed". If the reset fails, the display shows "Error!!!".*
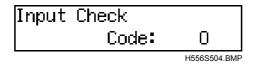
7	**Mode Number/Name**	**Function/[Setting]**
955♦	Memory Read/Write (Byte Access)	
		Lets you read byte values from arbitrary RAM addresses, and write values into arbitrary addresses. (☛ 5.1.11)
956♦	Memory Read/Write (Word Access)	
		Same as SP7-955, except that access is in (2-byte) words. **DFU**
		This SP is not intended for use on models outside of Japan. Always use SP7-955 to carry out memory reads and writes.

SP9-XXX *(Others)*

9	**Mode Number/Name**	**Function/[Setting]**
9xx♦	**DFU**	

Service Tables

5.1.2 INPUT CHECK (SP5-803)

This can also be done with Service Function 22. (☞ *5.2.2 "22. Sensor Input"*)

```
Input Check
           Code:      0
```
H556S504.BMP

1. Access SP5-803.

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, switch or motors.

4. If you wish to check the signal during a copy cycle, select the required copy mode, then press ⊙.

5. The LCD panel will display "00H" or "01H", as shown below.

```
◐Ready In #17=00H38PM
Set Orig. / Enter No.
```
H556S505.BMP

The following table shows the meaning of the value displayed for each switch and sensor.

Input Check Table

Number	Description	Reading	
		00H	**01H**
1♦	ADF registration sensor (S1)	No paper	Paper detected
3♦	ADF original set sensor (S2)	No paper	Paper detected
9♦	ADF unit and ADF upper cover open sensors	Closed	Open
15♦	Registration sensor	No paper	Paper detected
16♦	Exit Sensor	No paper	Paper detected
17♦	Front door switch	Door closed	Door open
18♦	Right door switch	Door closed	Door open
20♦	PCU detection	Not detected	Detected
21♦	New PCU detection (inside PCU)	Not detected	Detected
23♦	Mechanical counter sensing	Counter not installed	Counter installed
24♦	Main motor lock	Not detected	Detected
25♦	Polygon motor lock	Not detected	Detected
35♦	Paper end sensor (standard tray)	Paper not detected.	Paper detected.
40♦	Paper tray 2[*1]	Not installed	Installed
45♦	Paper end sensor (paper tray 2[*1])	No paper	Paper detected
47♦	Paper tray 2[*1] door switch	Not detected	Detected
48♦	Paper tray 2[*1] feed sensor	No paper	Paper detected
90♦	100-sheet by-pass feeder unit	Not detected	Detected
95♦	By-pass paper end sensor (100-sheet by-pass feeder unit)	No paper	Paper detected

*1: Optional Paper Tray Unit

5.1.3 OUTPUT CHECK (SP5-804)♦

```
Output Check
Code:       0  Data: 0
```
H556S506.BMP

CAUTION: To avoid mechanical or electrical damage, do not leave electrical components on continuously for a prolonged period of time.

1. Access SP5-804.

2. Select the number that corresponds to the component you wish to check (see the table below), then press *OK* or (R/#).

3. Press "1", then press *OK* or the (R/#) key to check that component.

4. To interrupt the test, re-enter SP 5-804 and enter a value of "0".

Input Check Table

Number	Description
1	Polygon mirror motor (400 x 400 dpi)
2	Polygon mirror motor (600 x 600 dpi)
3	Main motor
4	Fan motor (slow)
5	Fan motor (fast)

Service Tables

5.1.4 SMC PRINTING (SP5-992)♦

1. Access SP5-992.

2. Select the type of data you wish to print: "1" to print SP settings only, "2" to print all system parameters (including SP settings), or "3" to dump a selected memory range.

3. If you selected "3", press the *OK* key and then use the cursor and numeric keys to enter the address range to be dumped.

4. Press ⊚ to access the copy mode display.

5. Select the print conditions (paper size, print density, etc).

6. Press ⊚ again to print the list.

7. Press ⊡ to exit from copy mode.

8. Press ⊡ as necessary to exit this SP.

5.1.5 MEMORY ALL CLEAR (SP5-801)◆

Executing a Memory All Clear will reset all SRAM-resident SP and UP settings and values to their defaults - with the exception of the serial number setting (SP5-811), the plug-and-play settings (SP5-907), and the total print counters (SP7-003). This procedure is not for normal use, but may be appropriate if the copier has malfunctioned as a result of a problem with its SRAM.

1. Before clearing the memory clear, you should do both of the following to save current SRAM data (if possible).
    *   Print a complete SMC printout using SP5-992. Be sure to select all "2" ("All") for the printout type. (☛ 5.1.4)
    *   Upload the data to a flash memory card using SP5-824. (☛ 5.1.8)
2. Access SP5-801.
3. Hold down the "Halftone" key and press the *OK* key (or ⒭⁄# key) to execute the clear. If the clear is successful, the display shows "Action completed". If it fails, the display shows "Error!!!".
4. Turn the main switch off and back on.
5. If you save SRAM data to a flash-memory card, try downloading the data back into the machine (☛ 5.1.8). If the download is successful, this completes the procedure.

If you did not save SRAM data to a flash memory card, or if you were unable to download the saved data, then continue as follows.

6. Carry out printer and scanner registration and magnification adjustments. (☛ 3.13)
7. Carry out CIS shading adjustment, using FAX Service Mode. (☛ 3.14.2)
8. Refer to the SMC printout, and re-enter any values that differ from the factory settings.
9. Check the copy quality, and carry out any necessary adjustments.

5.1.6 FREE RUNS

This product offers a free-run operations, as indicated below. Please keep in mind that prolonged or unnecessary use of free runs can cause machine wear or other problems. Select the free run that drives only those parts that you specifically need to check.

Name	Function	ADF		Print engine		Remarks
		ADF feed	LED Lamp	Paper printout	Fusing Lamp	
Aging Test	11-1	Runs	Runs	Runs	Runs	(☛ *5.2.2 "11. Printer".*)
Fusing Nip Band Check	SP1-109◆	Off	Off	Runs	Runs	**Factory use only**

5.1.7 PROGRAM UPLOAD/DOWNLOAD

The program (firmware) for this machine is upgraded using a 4MB flash memory card (IC card). The machine provides the following functions to support program porting and upgrade:

- FAX Service Function 12-1 (☛ *5.2.2 "12. RAM Test".*)

```
0.M->R    1.M<-R
2.M->S    3.M<-S
```
H556S585.BMP

```
4.SG3     6.NICF
7.JPEG
```
H556S586.BMP

0. M->R: Program upload for main frame
1. M<-R: Program download for main frame
2. M->S: SRAM upload (☛ *5.1.8)*
3. M<-S: SRAM download (☛ *5.1.8)*
4. SG3:   Program download for SG3 option
6. NICF: Program download for NIC Fax option (☛ *"Service Manual for NIC FAX Unit"*)
7. JPEG   Program download for JPEG option (☛ *"Service Manual for NIC FAX Unit"*)

- Program Upload: Uploads the program from the machine's flash ROM to an IC card.
- Program Download: Downloads the selected program from an IC card to the machine's flash ROM.

When you write the program into an IC card, either:
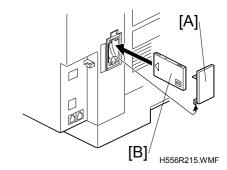
- Machine's program:
  Since the program size is 4MB, write the program into card address space 000000h to 3FFFFFh.
- Option's program:
  Since the program size is 2MB, write the program into card address space 200000h to 3FFFFFh. (However, it is not possible to store another different program in the remaining 2MB of space on the same IC card.)

Service Tables

Program Download

This is effective only if you boot the machine from the IC card as described below. If the download is unsuccessful, or if you decide that you do not wish to start the download, please turn the machine off and back on before resuming normal operation.

NOTE: Be sure to turn off the main switch before inserting or removing the IC card. Installing or removing a card while the main switch is on may damage the FCU.

1. Prepare an IC card that contains the required firmware.

2. Turn off the machine and remove the cover [A] and 40MB memory (if installed).

3. Insert the IC card [B] into the IC card slot.
    NOTE: The "B" side of the card must face towards the rear of the machine.

[A]
[B] H556R215.WMF

4. Turn on the machine.

5. If the card contains the machine's program, the machine boots from the card, automatically enters the program upload/download function, and displays the menu.

```
0.M->R    1.M<-R
2.M->S    3.M<-S
```
H556S585.BMP

    NOTE: If the card does not contain a valid program, or if the card contains program for the SG3 option, the machine will boot from the machine, and start in the normal standby mode.
    In this case, enter the Fax service mode and use service function 12.

6. Select either:
    *   Main frame: press ①.

```
COPY ROM        START
MACHINE <- BOARD
```
H556S508.BMP

    *   SG3 option: Press ▣, then ④.

```
COPY SG3        START
MACHINE <- BOARD
```
H556S910.BMP

    Example: Press ① for main frame.

7. Press ⊘.
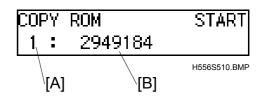
```
COPY ROM        START
0 : 12582912
```
H556S509.BMP

8. The machine erases the current firmware, then begins downloading the new firmware from the card. The "ON" lamp flashes, and the screen counts down the progress. The download takes about 3 minutes.

    Display during download:
    [A]: "0" = erasing flash ROM
         "1" = writing to flash ROM
    [B]: Amount (bytes) remaining to be written

```
COPY ROM        START
1 :   2949184
```
H556S510.BMP
[A]   [B]

9. If "OK!!" is displayed, exit the function and turn off the machine.
    If "NG!!" is displayed, repeat from step 1.

10. Remove the IC card, re-install the 40MB memory (if present) and reattach the cover.

11. Turn the switch back on.

12. Enter the Fax service function 21 to check the ROM version for the new firmware. (☛ *5.2.2 "21. ROM Version"*)
    Or print out the SMC print (SP5-992-2) to confirm that it correctly appears the new firmware version.
    NOTE: Be sure to remove the card and turn the main switch off and back on before checking the ROM version.

Program Upload

NOTE: 1) Be sure to turn off the main switch before inserting or removing the IC card. Installing or removing a card while the main switch is on may damage the FCU.
      2) This operation will erase any data already stored in the IC card.

1. Prepare an IC card that can store program data of the machine's flash ROM.

2. Turn off the machine and remove the cover and 40MB memory (if installed).

3. Insert the IC card into the IC card slot.
    NOTE: The "B" side of the card must face towards the rear of the machine.

4. Turn on the machine.

5. Access service function 12, then press ①.

```
0.M->R      1.M<-R
2.M->S      3.M<-S
```
H556S507.BMP

6. Press ⓪ for program upload.

```
COPY ROM        START
MACHINE -> BOARD
```
H556S911.BMP
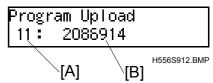
7. Press ⊛.

8. The machine erases the card, and then writes the program into it. The "ON" lamp flashes, and the screen counts down the progress. Uploading takes about 2 minutes. On successful completion, the LCD displays "Loading completed.".
    NOTE: If uploading fails, the "Loading error!!!" message appears. If this occurs, try repeating the procedure.

Display during upload:
[A]: "10" = erasing card
      "11" = writing to card
[B]: Amount (bytes) remaining to be written

```
Program Upload
11:   2086914
```
[A]   [B]
H556S912.BMP

9. Turn off the main switch, then remove the memory card.

Service Tables

5.1.8 SRAM DATA UPLOAD/DOWNLOAD

Before installing a new FCU, and before executing a "memory all clear", you should upload all current SRAM data into a flash memory card. You can then download the data back after completing the FCU replacement or memory clear.

- **FAX Service Function 12-1** (☛ *5.2.2 "12. RAM Test".*)

   2. M → S: SRAM upload
   3. M ← S: SRAM download

```
0.M->R    1.M<-R
2.M->S    3.M<-S
```
H556S585.BMP
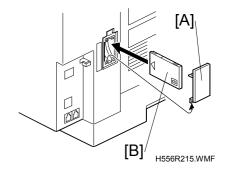
   - SRAM Upload: Upload from the machine's SRAM to a flash memory card.
   - SRAM Download: Download from a flash memory card to the machine's SRAM.

SRAM Data Upload

NOTE: 1) Be sure to turn off the main switch before inserting or removing the flash memory card. Installing or removing a card while the main switch is on may damage the FCU.
   2) This operation will erase any data already stored in the flash memory card.

1. Change System Bit Switch 01 bit 7 to 1.

2. Turn off the main switch.

3. Remove the cover [A] and 40MB memory (if installed).

4. Insert the IC card [B] into the IC card slot.
    NOTE: The "B" side of the card must face towards the rear of the machine.

[A]

[B] H556R215.WMF

5. Turn on the main switch.

6. Press ② for SRAM upload.

```
COPY SRAM       START
MACHINE -> BOARD
```
H556S517.BMP

7. Press ◎.

```
SRAM Data Upload
                  0
```
H556S515.BMP

8. The machine erases the card, and then saves its SRAM data into it. The "ON" lamp flashes, and the screen counts down the progress. Uploading takes about 30 seconds. On successful completion, the screen displays "Loading completed.".
    NOTE: If uploading fails, the "Loading error!!!" message appears. If this occurs, try repeating the procedure.

Display during upload:
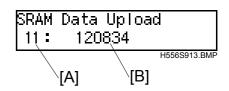
[A]: "10" = erasing card
"11" = saving to card
[B]: Amount (bytes) remaining
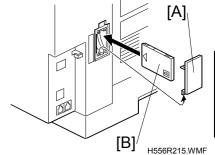
```
SRAM Data Upload
11:   120834
```
H556S913.BMP

[A]   [B]

9. Turn off the main switch.

10. Remove the IC card, re-install the 40MB memory (if present) and reattach the cover.

11. Turn the power back on and change System Switch 01 bit 7 back to 0.

SRAM Data Download

NOTE: 1) Be sure to turn off the main switch before inserting or removing the IC card. Installing or removing a card while the main switch is on may damage the FCU.
2) This operation will overwrite all of the machine's current SRAM data.

1. Change System Switch 01 bit 7 to 1.

2. Turn off the main switch.

3. Remove the cover [A] and 40MB memory (if installed).

4. Insert the IC card [B] into the IC card slot.
NOTE: The "B" side of the card must face towards the rear of the machine.

5. Turn on the main switch.

6. Press ② for SRAM upload.

7. Press ◉.

[A]

[B] H556R215.WMF

```
COPY SRAM        START
MACHINE <- BOARD
```
H556S518.BMP

```
SRAM Data Download
                 0
```
H556S519.BMP

8. The machine executes the download. This operation takes about 2 seconds. On successful completion, the screen displays "Loading completed.".
NOTE: If uploading fails, the "Loading error!!!" message appears. If this occurs, try repeating the procedure.

9. Turn off the main switch.

10. Remove the IC card, re-install the 40MB memory (if present) and reattach the cover.

11. Turn the power back on and change System Switch 01 bit 7 back to 0.

5.1.9 SERIAL NUMBER INPUT (SP5-811)♦

This can also be done with Service Function 14. (☛ *5.2.2 "14. Serial #")*

Use this SP to input the machine's 11-digit serial number. (This is normally done at the factory). Each key of the numeric keypad controls a different digit of the serial number: the first key controls the first digit, the second key controls the second digit, and so on. (The ⓡ key is not used.) Press each key as many time as necessary to set the corresponding digit. To set the second digit to "X", for example, press the 2 key as many times as necessary to bring up "X" on the screen.

Note that the first four digits of the serial number may be either letters or numbers. Digits 5 to 11 are always numbers.

<div align="center">

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

⊙/✳   ⓪   ⓡ/#

10th digit   11th digit   Not used

</div>

5.1.10 ID SENSOR ERROR ANALYSIS (SP2-221)◆

```
Vg2.56,Vp0.14,PW 2
Vg-Vp0.05,Vt1.43
```
H556S521.BMP

A defective ID sensor does not generate an SC condition, but does cause the image quality to become worse (e.g., dirty background on the copy). If these conditions occur, check the ID sensor output using SP2-221. (☛ 6.11.15)

1. Vsg ("Vg" in the display)

    Error Condition: Vsg < 1.65
    Possible causes:
    - ID sensor defective
    - ID sensor dirty
    - Drum does not get charged

2. Vsp ("Vp" in the display)

    Error Condition: Vsp > 1.65
    Possible causes:
    - Toner density is very low
    - ID sensor pattern is not being generated

3. Power ("PW" in the display)

    This is the power for the light source of the ID sensor.
    Error Condition: Vsg < 2.31 at maximum power
    Possible causes:
    - ID sensor defective
    - ID sensor dirty
    - Drum does not get charged

4. Vsdp ("Vg-Vp" in the display)

    No Error Conditions

5. Vt

    Error Condition: Vt > 2.64 or Vt < 0.20
    Possible cause:
    - TD sensor defective

Service Tables
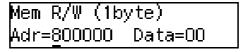
5.1.11 MEMORY READ/WRITE⬥

This can also be done with Service Function 06. (☛ *5.2.2 "06. Memory"*)

You can use SP7-955 to read byte values from arbitrary RAM addresses, and to write values to arbitrary RAM addresses.

When you enter this SP, the screen looks likes this:

```
Mem R/W (1byte)
Adr=800000  Data=00
```

H556S522.BMP

You can now operate the SP as follows.

- To manually enter an address or data value: Use the cursor keys to move to the desired column in the "Adr" field. Use numeric keys to input number values 1 to 9, and ["Halftone" + numeric keys "1" to "6"] to input number values A to F.
- After entering an address value, press OK (or ⓡ⧸#) to set the value. The Data field will then display the current content of the entered address. The cursor will jump to the Data field.
- To increment or decrement the address, use the density keys (or "Halftone" + cursor keys). The Data value will change to show the content of the selected address.
- When the cursor is in the Data field, you can enter a new value to be stored into the selected address. Press OK (or ⓡ⧸#) to write the new value into the address. The cursor will then return to the Address field.
- If you are in the Data field, pressing Cancel will move you to the address field. If you are in the address field, pressing Cancel will exit this SP.
- To cancel an entry in progress (and restore the previous value), press ⓒ⧸ⓒ. To exit the SP, press the *Clear Modes* key.

5.2 FAX SERVICE FUNCTIONS

NOTE: 1) Symbol "♦" indicates that the marked item is identical to model S-C1 and S-F1.
2) Symbol "♣" indicates that the marked item is identical to model S-F1 (but the Function No. is different).

5.2.1 ACCESSING FAX SERVICE MODE

How to enter service function mode♦

1. Ensure that the machine is in standby mode.

2. Press ⑯ ① ⓪ ⑦, then hold down ©/© for more than 3 seconds. The SP mode main menu opens.

```
[Service P-Mode]  No._
1 Copy 2 Fax 3 Printer
```
H556S501.BMP

3. Press ② to enter the fax service mode.

```
SERVICE FUNCTION
██ FUNCTION NO.
```
H556S524.BMP

How to exit service function mode♦

Press ⑯ or "Cancel" to exit the service mode.

5.2.2 FUNCTION NO.

01. BIT SW♦

1. Enter the fax service mode.

2. Press ⓪①, then "OK".
    ⓪ - System Switches
    ① - Scanner Switches
    ② - Plotter Switches
    ③ - Communication Switches
    ④ - G3 Switches
    To scroll to the next menu, press ▶.

```
SERVICE FUNCTION
01.BIT SW            ◀▶
```
H556S525.BMP

```
0.SYSTEM  1.SCANNER
2.PLOTTER 3.COMMUNI.
```
H556S526.BMP

Example:

1. Press ⓪

2. Scroll through the bit switches.
    To increment the bit switch number: Press ▶
    To decrement the bit switch number: Press ◀

```
SYS DF  :0000 0000
BITSW 00:0000 0000
```
H556S528.BMP

3. Adjust the bit switch.
    Example: To change the value of bit 7, press ⑦.

```
SYS DF  :0000 0000
BITSW 00:1000 0000
```
H556S529.BMP

4. To adjust more bit switches, go to step 2.
    To finish, press "OK" then "Cancel".

5. Press ⑯ or "Cancel" to exit the service mode.

Service Tables

02. PARAMETER LIST◆

1. Enter the fax service mode.

2. Press ⓪②.

```
SERVICE FUNCTION
02.PARAMETER LIST    ◆▶
```
H556S530.BMPP

3. Press "OK".

4. Press ⓪.

```
                    START
PARAMETER LIST
```
H556S531.BMPP

03. ERROR CODE◆

2. Enter the fax service mode.

3. Press ⓪③.

```
SERVICE FUNCTION
03.ERROR CODE        ◆▶
```
H556S532.BMPP

4. Press "OK".

5. Scroll through the error codes with the arrow keys

```
ERROR CODE           ◆▶
 09-50 MAR 21 13:06
```
H556S533.BMPP

04. SERVICE REPORT◆

1. Enter the fax service mode.

2. Press ⓪④.

```
SERVICE FUNCTION
04.SERVICE REPORT    ◆▶
```
H556S534.BMPP

3. Press "OK".

4. Press ⓪.

```
                    START
SERVICE REPORT
```
H556S535.BMPP

05. PROTOCOL DUMP◆

1. Enter the fax service mode.

2. Press ⓪⑤.

```
SERVICE FUNCTION
05.PROTOCOL DUMP     ◆▶
```
H556S536.BMP

3. Press "OK".

```
PROTOCOL DUMP
1-COMMUNICATION      ◆▶
```
H556S537.BMPP

4. Select "1–COMMUNICATION" or "ALL– COMMUNICATIONS" with ▶, then press "OK".

```
PROTOCOL DUMP
ALL-COMMUNICATIONS   ◆▶
```
H556S538.BMPP

5. Press ⓪.

```
PROTOCOL DUMP
```
H556S539.BMP

06. MEMORY

1. Enter the fax service mode.

2. Press ⓪⑥.

```
SERVICE FUNCTION
06.MEMORY          ◀▶
```
H556S540.BMPP

3. Press "OK".

4. Select an item from the menu by typing in the number.

```
0.M.BYTE  1.M.WORD
2.MEM.DUMP
```
H556S541.BMP

    0. M.BYTE: Memory read/write (byte access)
    1. M.WORD: Memory read/write (word access) - *see Note below.*
    2. MEM.DUMP: Memory dump

NOTE: Pressing ① for memory word access is the same as the above ⓪ key press for memory byte access, except that access is in (2-byte) words. This word access is not intended for use outside of Japan. Always use the above byte access to carry out memory read/write.

Memory Read/Write (Function 06-0)

5. Press ⓪ for memory byte access.

6. Input the address that you want to see.
Example: Address 800020 ⑧ ⓪ ⓪ ⓪ ② ⓪
NOTE: To move the cursor, press ▣.

```
MEMORY READ/WRITE
ADDR:000000 DATA:00
```
H556S542.BMP

```
MEMORY READ/WRITE
ADDR:800020 DATA:88
```
H556S900.BMPP

7. To change the data, move the cursor to the data field then press ▣

8. Type in the new data.
Example: 80, press ⑧ ⓪
NOTE: To move the cursor, press ▣.

```
MEMORY READ/WRITE
ADDR:800020 DATA:80
```
H556S907.BMP

  - or-

- To view more addresses, go to step 6.
- To finish, press "Cancel"

Memory Dump (Function 06-2)

5. Press ②⏎

6. Enter the first four digits of the start and end addresses.
Example: enter ⑧⓪⓪⓪ for the start address - 800000(H), then enter ⑧⓪⓪① for the end address - 8001FF(H).

```
ADD.000000 - 0000FF
PRESS START TO PRINT
```
H556S544.BMPP

```
ADD.800000 - 8001FF
PRESS START TO PRINT
```
H556S901.BMPP

7. Press ◈.

Service Tables

07. COUNTER R/W*

1. Enter the fax service mode.

2. Press ⓪⑦.

```
SERVICE FUNCTION
07.COUNTER R/W     ◆▶
```
H556S545.BMPP

3. Press "OK".

```
0.COUNTER 1.PM
2.TONER
```
H556S546.BMPP

4. To check the transmitted, received, scanned and printed page counters, and the printer and scanner jam counters, press ⓪.
    or: To check the PM counter, press ①.
    or: To check the Toner counter, press ②.
    Example: Press ⓪.

```
0.TX       1.RX
2.SCAN     3.PRINT
```
H556S547.BMPP

5. To check the transmission counter, press ⓪.

```
TX COUNTER    :0000000
```
H556S549.BMPP

6. To change the contents of a counter, input the new value, then press "OK".

7. To finish, press "Cancel".

08. NCU*

1. Enter the fax service mode.

2. Press ⓪⑧.

```
SERVICE FUNCTION
08.NCU             ◆▶
```
H556S557.BMP

3. Press "OK".

4. Select an item from the menu by typing in the number.
    To scroll the next menu, press ▶.

```
0.NCU      1.MODEM
2.DTMF     3.V8
```
H556S558.BMPP

```
4.V34
```
H556S559.BMP

    0. NCU: NCU parameters
    1. MODEM: MODEM test
    2. DTMF: DTMF test
    3. V8:   V8 test
    4. V34:   V34 test

    NOTE: NA models only: Before changing the NCU country code with "0. NCU", you must first set system switch 15 bit 2 to 1

5. Either:
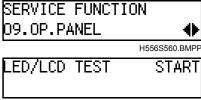
    *   To select "NCU Parameters", press ⓪, then scroll through the parameters using ▶ or ◀. If you want to change a value, enter the new value at the keypad, then press "OK".

    *   To test one of menu 1 to 4, press the appropriate number from the keypad, then press ⓐ. Press ⓒⓞ to stop the test.

-or-
- To test others, go to step 5.
- To finish, press "Cancel".

09. OP.PANEL (Operation Panel Test)

1. Enter the fax service mode.

2. Press ⓪⑨.

```
SERVICE FUNCTION
09.OP.PANEL          ◀▶
```
H556S560.BMPP

3. Press "OK".

4. Press ⊚.

5. To stop the test, press ©⁄⊚.

```
LED/LCD TEST    START
```
H556S561.BMPP

10. SCANNER

1. Enter the fax service mode.

2. Press ①⓪.

```
SERVICE FUNCTION
10.SCANNER           ◀▶
```
H556S562.BMPP

3. Press "OK".

4. Select an item from the menu, then press ⊚.

```
0.LAMP      1.ADF
2.TUNING   3.LAMP(RGB)
```
H556S563.BMP

   0. LAMP: Lamp Test
   1. ADF: ADF Test
   2. TUNING: Lamp Tuning Test
   3. LAMP (RGB):   Lamp Test (RGB)
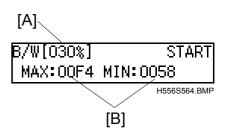
Lamp Test (Function 10-0)

5. Press ⓪ for lamp test.
   The duty of black & white [A] and output values of the video signal (max. and min.) [B] are displayed on the LCD. It should change when the lamp turns on.

[A]
```
B/W[030%]       START
 MAX:00F4 MIN:0058
```
H556S564.BMP
[B]

6. Press ⊚ to turn the lamp on.

7. To stop the test, press ©⁄⊚.

ADF Test (Function 10-1)

5. Press ① for ADF test.

6. Place a document in the feeder, then press ⊘.

7. After feeding is finished, "SCAN COUNTER" on the LCD displays the last value.
   To stop the test, press ©/⊘.

8. To finish, press "Cancel".

```
ADF TEST        START
SCAN COUNTER :0000000
```
H556S566.BMP

```
ADF TEST        START
SCAN COUNTER :0000009
```
H556S568.BMP

Lamp Tuning Test (Function 10-2)

5. Press ② for lamp tuning.

6. Press ⊘.

   If the lamp tuning is successful, the display shows "OK".
   If the lamp tuning is unsuccessful, the display shows "NG".

7. To finish, press "Cancel".

```
LAMP TUNING
PRESS START
```
H556S569.BMPP

```
LAMP TUNING
NOW CHECKING
```
H556S570.BMP

```
B/W OK
RGB OK
```
H556S571.BMP

Lamp Test (RGB) (Function 10-3)

5. Press ③ for lamp test (RGB).
   The LCD displays duty and output values of the video signal for primary color red. (*To see the indication, see ☞ Lamp Test (Function 10-0)*).

6. Scroll through the primary colors.
   To select each primary color, press ▶ or ◀.
   Example: Press ▶ once to select primary color green.

7. Press ⊘ to test the selected primary color.

8. To stop the test, press ©/⊘.
   -or-
   • To test other colors, go to step 6.
   • To finish, press "Cancel".

```
R[045%]         START
MAX:00F4 MIN:0058
```
H556S572.BMPP

```
G[035%]         START
MAX:00F4 MIN:0058
```
H556S574.BMPP

```
G[035%]          STOP
MAX:02F2 MIN:01F1
```
H556S575.BMP

11. PRINTER♣

1. Enter the fax service mode.

2. Press ①①.

```
SERVICE FUNCTION
11.PRINTER          ◀▶
```
H556S578.BMP

3. Press "OK".

```
0.PATTERN 1.AGING
```
H556S579.BMP

4. Select an item from the menu by typing in the number.

   0. PATTERN: Test pattern print
   1. AGING: Free run for ADF, LED array, paper feed, fusing lamp and operation panel.
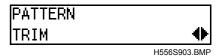
Test Pattern Print (Function 11-0)

5. Press ⓪ to print test pattern.

6. Scroll through the available patterns using ▶ or ◀

```
PATTERN
TRIM                ◀▶
```
H556S903.BMP

Pattern Name	Test Pattern
TRIM	Trim pattern
1x1 DOTS	Shaded gray pattern (1x1)
2x2 DOTS	Shaded gray pattern (2x2)
BLACK	Solid black pattern
CROSS1	Grid pattern
SUMIYA	Sumiya pattern (Shaded bars)
REGIST	Registration adjustment pattern
LETTER	Character dump (3 pages) - Not available in duplex mode
FACTORY	Factory pattern

7. Press "OK", then ◎.
   A test pattern is printed.

8. Either:
   - Print other pattern - go to step 6.
   - Finish, press "Cancel".

Aging Test (Function 11-1)

5. Press ① to perform aging test.

6. Press ◎.

7. To stop the test, press ⓒ/◎.

```
AGING TEST     START
```
H556S904.BMP

Service Tables

12. RAM TEST

1. Enter the fax service mode.

2. Press ①②.

```
SERVICE FUNCTION
12.RAM TEST      ◆▶
```
H556S580.BMP

3. Press "OK".

4. Select an item from the menu by typing in the number.

```
0.TEST    1.COPY
```
H556S581.BMP

    0. TEST: SRAM/DRAM test
    1. COPY: Program and SRAM data upload/download

SRAM/DRAM Test (Function 12-0)

5. Press ⓪.

  -or-

- To test the SRAM, press ⓪, then ⊛
- To test the DRAM, press ①, then ⊛

```
0.SRAM    1.DRAM
```
H556S582.BMP

  -or-

- If the test is successful, the display shows "OK!!".

```
SRAM TEST    START
 OK!!
```
H556S905.BMP

- If the test is unsuccessful, the display shows the address where an error occurs and its write and read data.

```
SRAM TEST    START
ADD:800000 W:55 R:EA
```
H556S906.BMP

6. To finish, press "Cancel".

Program and SRAM Data Upload/Download (Function 12-1)

5. Press ①.

```
0.M->R    1.M<-R
2.M->S    3.M<-S
```
H556S585.BMP

6. To scroll the next menu, press ▣.

   NOTE: Some items will appear only when those options have been installed.

```
4.SG3     6.NICF
7.JPEG
```
H556S586.BMP

7. Select an item from the menu by typing in the number.

8. For more details about how to use, see ☛ *5.1.7 "Program Upload/Download", 5.1.8 "SRAM Data Upload/Download".*

13. S.S.NO. (Service Station Number)

1. Enter the fax service mode.

2. Press ①③.

```
SERVICE FUNCTION
13.S.S.NO.          ◀▶
```
H556S587.BMPP

3. Press "OK".

```
S.S.NO.           KPAD
☎▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
```
H556S588.BMP

4. Enter the fax number of the service station that
   will receive Automatic Service Calls from this machine.

   To correct the telephone number:
   - ©⁄∅ to delete the last input.
   -or-
   - "Cancel" to erase whole number.

5. If the display is correct, press "OK".

6. To finish, press "Cancel".
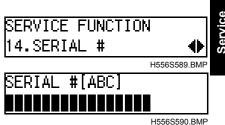
14. SERIAL

1. Enter the fax service mode.

2. Press ①④.

```
SERVICE FUNCTION
14.SERIAL #         ◀▶
```
H556S589.BMP

3. Press "OK".

4. Enter the serial number at the keypad, then:
   To correct a mistake, press ©⁄∅.
   To input a symbol, press "Symbols" then select available symbol.

```
SERIAL #[ABC]
▮▮▮▮▮▮▮▮▮▮▮▮▮
```
H556S590.BMP

5. If the display is correct, press "OK".

6. To finish, press "Cancel".

(15.Not used)

16. FLASH♣

This procedure is used when the optional memory card ('silicon disk' type) does not work properly.

1. Enter the fax service mode.

2. Press ①⑥.

```
SERVICE FUNCTION
16.FLASH            ◀▶
```
H556S591.BMPP

3. Press "OK".

```
0.INITIAL 1.FORMAT
2.TEST
```
H556S592.BMPP

4. Select an item from the menu, then press ⊘.

Menu	Function	When is this effective?	Data
0. INITIAL:	The file system is created.	If you want to reset the card to the initial condition	Cleared
1. FORMAT:	Independent clusters are removed.	• When 100% is displayed even though a file is stored • When 100% is not displayed even though no file exists	Not cleared
2. TEST:	The file system is reproduced in the working RAM of the machine memory.	• When an error occurs on the card • When checking the card format	Not cleared

Tests 1 and 2 are similar to 'defrag' and 'scandisk' utilities commonly on PCs. Try these first, and if the test result is negative, then reset the card with test 0.

17. SG3-D

This function will appear only if the SG3 option has been installed.

1. Enter the fax service mode.

2. Press ①⑦.

```
SERVICE FUNCTION
17.SG3-D          ◆▶
```
H556S593.BMP

3. Press "OK".

```
0.SG3-SW  1.SG3-DMP
2.SG3-NCU
```
H556S594.BMP

4. Select an item from the menu by typing in the number.

   0. SG3-SW: Bit switch setting for SG3
   1. SG3-DMP: RAM dump for SG3
   2. SG3-NCU: NCU mode for SG3

   • To select bit switch setting for SG3, press ⓪, then ☞ *01. BIT SW* about how to adjust settings.

   -or-

```
 SG3 DF  :0000 0000
 BITSW 00:0000 0000
```
H556S595.BMP

   • To select RAM dump for SG3, press ①, then ☞ *06. MEMORY* about how to print RAM dump.

```
ADD.000000 - 0000FF
PRESS START TO PRINT
```
H556S597.BMP

   • To select NCU mode for SG3, press ②, then scroll through the modes using ▶ or ◀. ☞ *08. NCU* about how to use this function.

   -or-

```
0.NCU     1.MODEM
2.DTMF    3.V8
```
H556S598.BMP

     • To do others, go to step 5.
     • To finish, press "Cancel".

18. LAN
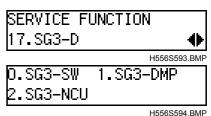
☞ *"Service Manual for NIC FAX Unit"* for details.

19. JPEG TEST
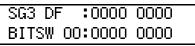
☞ *"Service Manual for NIC FAX Unit"* for details.

20. IP-FAX
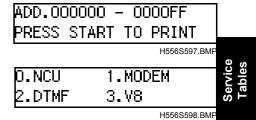
☞ *"Service Manual for NIC FAX Unit"* for details.

Service Tables

21. ROM VERSION

1. Enter the fax service mode.

2. Press ②①.

```
SERVICE FUNCTION
21.ROM VERSION      ◀▶
```
H556S603.BMP

3. Press "OK".

```
0.FCU ROM  1.SG3 ROM
2.MDM ROM  4.NICF ROM
```
H556S604.BMP

4. To scroll the next menu, press ▶.
   NOTE: Some items will appear only when those
         options have been installed.

```
5.JPEG ROM
```
H556S605.BMP
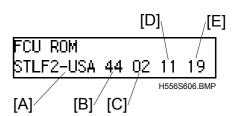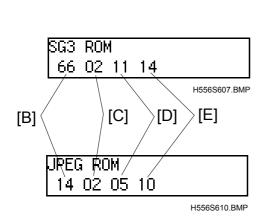
5. Select an item from the menu by typing in the
   number.
   Example: Press ⓪ to see FCU ROM version.
   [A]: Product version
   [B]: ROM version
   [C]: Year
   [D]: Month
   [E]: Day
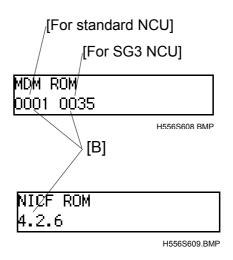
```
                    [D]      [E]
FCU ROM
STLF2-USA 44 02 11 19
                          H556S606.BMP
   [A]       [B]  [C]
```

```
SG3 ROM
  66 02 11 14
                 H556S607.BMP

[B]      [C]  [D]  [E]
```

```
[For standard NCU]
   [For SG3 NCU]
MDM ROM
0001 0035
              H556S608.BMP
          [B]
```

```
JPEG ROM
  14 02 05 10
                 H556S610.BMP
```

```
NICF ROM
4.2.6
              H556S609.BMP
```

   -or-

   • To view other ROM versions, press "Cancel" and go to step 5.
   • To finish, press "Cancel"

22. SENSOR INPUT

1. Enter the fax service mode.

2. Press ②②.

```
SERVICE FUNCTION
22.SENSOR INPUT       ◆▶
```
H556S611.BMP

3. Press "OK".

```
PAPER_END1 : 1
COVER_1 : 0
```
H556S612.BMP

4. Scroll through the displays using ▶ or ◀ .

5. Select the item that will access the switch or sensor you wish to check (see the table below).
   ☞ 5.1.2 INPUT CHECK (SP5-803)

Display	Description	Reading	
		0	1
PAPER_END1	Paper end sensor (standard cassette)	No paper	Paper detected
COVER_1	ADF unit and upper cover open sensors	Closed	Open
S1	S1 sensor	No paper	Paper detected
S2	S2 sensor	No paper	Paper detected
COVER_24V	Right door and Front door switches	Door closed	Door open
COVER_TRAY1			
REGIST	Registration sensor	No paper	Paper detected
EJECT	Paper exit sensor	No paper	Paper detected
AIO(CTM)	PCU detection	Not detected	Detected
BRANCH	Duplex sensor	Paper detected	No paper
COVER_TRAY2	Door switch (2nd cassette[1])	Cover closed	Cover open
PAPER_END2	Paper end sensor (2nd cassette[1])	No paper	Paper detected
COVER_TRAY3	Door switch (3rd cassette[1])	Cover closed	Cover open
PAPER_END3	Paper end sensor (3rd cassette[1])	No paper	Paper detected

*1: Optional Paper Tray Unit

23. LOG DUMP LIST

1. Enter the fax service mode.

2. Press ②③.

```
SERVICE FUNCTION
23.LOG DUMP LIST      ◆▶
```
H556S619.BMP

3. Press "OK".

4. Press ⊚.
   To stop the list, press ⊙.

```
                  START
LOG DUMP
```
H556S620.BMP

Service Tables

5.3 BIT SWITCH TABLES

⚠**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 unacceptable by local regulations. The "Not Used" bits are for use only in Japan or other areas.

NOTE: 1) Default settings for bit switches are not listed in this manual. Refer to the System Parameter List printed by the machine.
2) In the bit switch tables:
- Symbol "♦" indicates that the marked item is identical to model S-C1 and S-F1.
- Symbol "♣" indicates that the marked item is identical to model S-F1.
- A function marked with shading indicates that the shaded item is unique in model S-F2.
- Light text indicates that the item was available in the model S-F1, but not used in the model S-F2.

5.3.1 SYSTEM SWITCHES

System Switch 00		
No.	**FUNCTION**	**COMMENTS**

0, 1♦	**RAM Reset**
	Bit 1 0 Reset Level
	    0 0 No reset
	    0 1 Reset Level 2
	    1 0 Reset Level 3
	    1 1 Not used
		Reset Level 3: Erases all image data files stored in the SAF memory and communication files (e.g. substitute RX files). This is the recommended setting when the SAF requires clearing.
		Reset Level 2: This level erases the following items in addition to those erased by Reset Level 3: own telephone number, bit switches (excluding country code), RTI/TTI/CSI, report data, programmed telephone numbers (Quick/Speed/Groups, service station, etc.), NCU parameters, and personal codes. The NCU country code is also set to the same as the bit switch country code (System Bit Switch 0F).
		
		After erasing, the machine automatically changes these two bits back to 0.
		No reset: Normal operation
		
		Cross-reference
		RAM Reset Level 1 (Factory reset):
		Change the RAM address data from 400005(H) to FF(H), then turn the machine off and on. In addition to those items erased by Reset Level 2, the clock, country code (default country code: USA for NA models, UK for Europe/Asia models), scan margin settings and print registration settings are erased. For NA models, to adjust the country code, you must first set system switch 15 bit 2 to 1.

System Switch 00		
No.	FUNCTION	COMMENTS
2♦	Technical data printout on Journal **0:** Disabled **1:** Enabled	**1:** Instead of a personal code, the Journal lists the following data for each analog G3 communication. E.g. 32 V34 288 M 01 00 03 02 **First number:** Symbol rate (V.34 only) Second number: Final modem type used **Third number:** Final date rate (for example, 288 means 28.8 KBPS) **Fourth number:** M means modem EQM./L means RX level. **Fifth and sixth number:** Line quality data. This is either a measurement of the error rate or the RX level, depending on the bit 3 setting below. (An M on the report indicates that it is error rate, and an L indicates RX level.) The left-hand figure is the high byte and the right-hand figure is the low byte (refer to the note after this table for how to read the RX level). If it measures the error rate, a larger number means more errors. **Seventh number (RX mode only):** Total number of error lines that occurred during non-ECM reception. **Eighth number (RX mode only):** Total number of burst error lines that occurred during non-ECM reception. The seventh and eighth numbers are fixed at 00 for transmission records and ECM reception records.
3♦	Line quality data output method **0:** Error rate measurement during image data transmission **1:** Rx level	This bit determines the data type printed in the Journal when bit 2 (above) enables a technical data printout.
4♦	Line error marks **0:** Disabled **1:** Enabled	If this bit is 1, a mark will be printed on the left edge of the page at any place where a line error occurred in the data. A noisy line causes such errors, for example.
5♦	Communication parameter display **0:** Disabled **1:** Enabled	This is a faultfinding aid. The LCD shows the key parameters (see the next page). This is normally disabled because it cancels the CSI display for the user. Be sure to reset this bit to 0 after testing.
6♦	Protocol dump list output **0:** Disabled **1:** Enabled	This is used for communication troubleshooting. It shows the content of the transmitted facsimile protocol signals. Always reset this bit to 0 after 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 print 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.

Service
Tables

How to calculate the RX level listed on the Journal (when bit 2 of system switch 00 is set to 1)

Example: 32 V34 288 **L 01 00** 00 00

The four-digit hexadecimal values (N) after L indicates the RX level.
The high byte is given first, followed by the low byte. Divide the decimal value of N by -16 to get the RX level.

In this above example, the decimal value of N (=0100[H]) is 256.
So, the actual RX level is 256/-16 = -16 dB.

Communication Parameters

Mode	DCS: ITU-T standard NSS: Non-standard G3
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: 4000 BPS 192: 19200 BPS 24: 2400 BPS
Resolution	F: Fine, transmitted at 8 x 15.4 dots per mm D: Detail, transmitted at 8 x 7.7 dots per mm S: Standard, transmitted at 8 x 3.85 dots per mm 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 24: Fine (200 x 400 dpi)
Compression mode	MMR: MMR compression MR: MR compression MH: MH compression JBO: JBIG optional compression JBB: JBIG standard compression
Communication mode	ECM: With ECM NML: With no ECM
Width and reduction	A4: A4 (8.3"), no reduction
I/O rate	0: 0 ms/line 10: 10 ms/line 2/: 2.5 ms/line 20: 20 ms/line 5: 5 ms/line 40: 40 ms/line "40" is displayed while receiving a fax message using AI short protocol.

System Switch 01		
No.	FUNCTION	COMMENTS
0♦	PM call **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.
1♦	Auto service call **0:** Disabled **1:** Enabled	This bit switch determines whether the machine will send an Auto Service Call to the service station when a fatal error occurs. This bit is changed to 0 (disabled) automatically when the machine called a not fax machine or a wrong fax machine. **Cross-reference** Communication Switch 02 bits 4 and 5 - Wrong connection prevention method (Service station)
2–6♦	Not used	Do not change these settings.
7♣	Machine starts up at power-on **0:** Auto detect **1:** Always start up from machine ROM, even if there is a flash memory card in the slot	**0:** If a flash memory card that contains machine software is installed in the machine's card slot, the machine starts up from the flash memory card. If no flash memory card is installed, the machine starts up from the machine ROM. **1:** The machine does not have a switch to select either ROM or flash memory card for startup, so when you must start up from the machine ROM (not from the memory card), set this bit to 1. For example, set to 1 when doing an SRAM data upload/download.

System Switch 02		
No.	FUNCTION	COMMENTS
0♦	Memory file transfer **0:** Disabled **1:** Enabled	**1:** All messages in the memory (including confidential Rx and memory lock messages) are sent to the fax number that is stored as the service station. Always reset this bit to zero after transfer. **Cross-reference** Service station number: Function 09
1♦	Not used	Do not change this setting.
2	Scan Router connection 0: Disabled 1: Enabled	Set this bit to 1 when you wish to use this machine as a network scanner using Scan Router. The NIC Fax Unit must be installed before Scan Router can be used.
3	Substitute reception immediate printing if paper size does not match **0:** Disabled 1: Enabled	1: If the paper in the trays is not the same size as the message, the machine will print the message. 0: The machine will not print the message unless the same size of paper is installed.

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System Switch 02		
No.	FUNCTION	COMMENTS
4♦	Automatic reset (during communication) **0:** Disabled **1:** Enabled	**1:** The machine automatically returns to standby mode when a page takes more than a certain time to send (the default setting is 60 minutes). This timer can be adjusted with RAM addresses 40052E and 40052F. When the optional G3 unit is installed - While the machine is in standby mode, it resets the optional G3 unit at a certain interval (the default setting is 15 min). This timer can be adjusted with RAM addresses 400530 and 400531. For communication, when this timer expires after the communication is finished, the machine resets the optional G3 unit. **Cross-reference** Service RAM Addresses, section 5.5.
5♦	Not used	Do not change the setting.
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 (see below). 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
0–7♦	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 data 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	LCD contrast **Bit2 1 0 Contrast** 0 0 0 Brightest 0 0 1 ↓ ↓ ↓ 1 1 0 ↓ 1 1 1 Darkest	Use these bit switches to adjust the contrast of the LCD on the operation panel.
3♦	Dedicated transmission parameter programming **0:** Disabled **1:** Enabled	Set this bit to 1 before changing any dedicated transmission parameters.

System Switch 04		
No.	**FUNCTION**	**COMMENTS**
4✲	Pressing the Start key when using a Keystroke Program **0:** Not needed **1:** Needed	**0:** The user does not need to press the Start key when operating a keystroke program.
5♦	Replacement level for the maintenance kits **0:** User **1:** Service	**0:** The machine asks the user to replace the parts in the ADF maintenance kit after 45,000 scans with the ADF. After the user replaces the parts, the machine asks the user if they have been replaced or not. After the user answers yes, the user has to reset the roller counter using the key operator tools. The replacement counter is programmed at the following addresses: ADF kit counter: 40031E to 400321(H) Refer to Section 5.5 for more details. **1:** The machine will not ask the user to replace the maintenance kits.
6♦	CSI programming level **0:** User level **1:** Service level	**1:** Only a service function can program the CSI.
7♦	Telephone line type programming mode **0:** User level **1:** Service level	**1:** Only a service function can program the telephone line type selection.

System Switch 05		
No.	**FUNCTION**	**COMMENTS**
0–7♦	Not used	Do not change these settings.

System Switch 06		
No.	**FUNCTION**	**COMMENTS**
0♦	Use of the Stop key during memory transmission **0:** Disabled **1:** Enabled	**1:** The Stop key can be used to halt memory transmissions. However, users might accidentally cancel another person's memory transmission in progress.
1-3♦	Not used	Do not change these settings.
4♦	Use of the Stop key during memory transmission **0:** Disabled **1:** Enabled	**1:** The Stop key can be used to halt memory transmissions. After pressing the Stop key, a message (STOP & CLR FILE?) appears on the LCD.
5–7♦	Not used	Do not change these settings.

System Switch 07♦ - Not used (do not change any of these settings)
System Switch 08♦ - Not used (do not change any of these settings)

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System Switch 09		
No.	**FUNCTION**	**COMMENTS**
0✦	Addition of part of the 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 in the Journal when no image data was exchanged. **0:** Disabled **1:** Enabled	**0:** The Journal lists communications that reached phase C (message TX/RX) of the T.30 protocol. **1:** The Journal lists communications that reached phase A (call setup) of T.30 protocol. This includes telephone calls.
2✦	Automatic error report printout **0:** Disabled **1:** Enabled	**0:** Error reports are not printed. **1:** Error reports will print automatically after all failed communications, excluding polling reception and immediate transmissions.
3✦	Print error code on error report **0:** No **1:** Yes	**1:** Error codes are printed on the error reports.
4	Not used	Do not change this setting.
5✦	Power failure report **0:** Disabled **1:** Enabled	**1:** A power failure report automatically prints after the power is switched on if a fax message disappears from 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	Not used	Do not change this setting.

System Switch 0A		
No.	**FUNCTION**	**COMMENTS**
0-1	Line type selection **Bit 1 Bit 0 Setting** 0 0 G3 0 1 PABX 1 0 Not used 1 1 Not used	Determines the machine's default standby line for transmission.
2✦	Not used	Do not change these settings
3✦	Continuous polling reception **0:** Disabled **1:** Enabled	This feature allows a series of stations to be polled in a continuous cycle.
4✦	Dialing on the ten-key pad when the handset is off-hook **0:** Disabled **1:** Enabled	**1:** The user can dial on the ten-key pad when the handset is off-hook.
5✦	On-hook dial **0:** Disabled **1:** Enabled	**0:** On-hook dial is disabled.
6, 7✦	Not used	Do not change these settings

System Switch 0B		
No.	**FUNCTION**	**COMMENTS**
0, 1♣	Not used	Do not change these settings.

2, 3♣	Energy Saver mode timer
	Bit 3 2 Time Limit
	    0 0 1 minute
	    0 1 3 minutes
	    1 0 5 minutes
	    1 1 No limit
		(1, 1): Automatic Energy Saver mode is disabled.
		(Other): The machine goes into Energy Saver Mode when the timer exceeds the time limit after the last operation. (☞Section 6 Details, "6.20 Energy Saver Modes")

4–6♦	Not used	Do not change these settings.
7♣	Keys to be pressed to exit the energy saver mode **0:** Only the energy saver key **1:** Any key	**1:** Any key can be pressed to exit the energy saver mode

System Switch 0C		
No.	**FUNCTION**	**COMMENTS**
0–2♦	Not used	Do not change these settings.
3♦	Paper size selection for ADF mode **0:** A4 **1:** Letter	This switch determines the original size in ADF mode, and fixes the maximum scanning width.
4–7♦	Not used	Do not change these settings.

System Switch 0D♣ - Not used (do not change any of these settings)

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System Switch 0E		
No.	**FUNCTION**	**COMMENTS**
0-5♦	Not used	Do not change these settings.
6	Print area to be used when printing a report that includes an image **0:** Always printed below from the center. **1:** Printed below the next line of the report.	**0:** The image is always printed below from the center on the paper. **1:** The report does not take any blank lines, and prints the image just below the next line of the report, so that the reduction rate of the image saved can be minimized.
7♦	Paper size to be used when printing a report that includes an image **0:** Always printed on A4/Letter size **1:** Depends on the image size	**0:** Every report is always printed on A4/Letter size paper. If the image size is larger and cannot fit on A4/Letter size paper, then the image is reduced. **1:** The paper that is used depends on the image size in the report. The following matrix is applied when printing reports: Each of the 7 columns represents a different paper tray setup. For example, the first column is for when the only paper size in the machine is A4, the 4th column is for when the machine contains A4 and letter paper, and the 7th column is for when the machine contains all three sizes.

Paper Size	●: Priority paper size ○: Available only if this bit is set to 1						
A4	●	—	—	●	●	—	●
Letter	—	●	—	○	—	●	○
Legal	—	—	●	—	○	○	○

System Switch 0F		
No.	**FUNCTION**	**COMMENTS**
0–7♦	Country code for functional settings (Hex) 00: France 11: USA 01: Germany 12: Asia 02: UK 13: Not used 03: Italy 14: Hong Kong 04: Austria 15: South Africa 05: Belgium 16: Australia 06: Denmark 17: New Zealand 07: Finland 18: Singapore 08: Ireland 19: Malaysia 09: Norway 1A: China 0A: Sweden 1B: Formosa 0B: Swiss. 1C: Korea 0C: Portugal 20: Turkey 0D: Holland 21: Greece 0E: Spain 22: Hungary 0F: Israel 23: Czech 10: Not used 24: Poland	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 07, parameter CC. The bit switch country code will automatically be changed to the same country code with the NCU country code when you change the NCU country code and exit the service mode. **Note:** If RAM reset level 1 is executed, this bit switch resets to UK (02) for EU/Asia models and to USA (11) for the NA models.

System Switch 10		
No.	**FUNCTION**	**COMMENTS**
0–7⬥	Threshold memory level for parallel memory transmission	Threshold = N x 64 Kbytes N can be between 00 - FF(H) Default setting: 08(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 important.
1⬥	Not used	Do not change this setting.
2	Position of label insertion **0:** Left **1:** Right	
3⬥	Not used	Do not change this setting.
4⬥	Received-time printing position **0:** Superimposed on the page data **1:** Printed after the data trailing edge	Change this bit to 1 if the reception time overprints information that the customer considers important.
5⬥	Preferred type of terminal identification to appear on reports **0:** Label programmed in the machine **1:** Dialed number	Change this bit to 1 If the customer wants reports to always show actually dialed numbers rather than programmed labels. (If the setting is 0, the report will show programmed label if one is registered, or dialed number otherwise).
6⬥	Memory reception if no RTI or CSI received **0:** Reception disabled **1:** Reception enabled only when there is no problem with the printer mechanism	This switch setting is dependent on user parameter switch 05 bit 1. This SW U.P.05 bit 1 — 0: Reception always enabled 0 1: Reception disabled 1 1: Reception enabled only there is no problem with theprinter mechanism
7⬥	Not used	Do not change the setting.

System Switch 12		
No.	**FUNCTION**	**COMMENTS**
0–7⬥	TTI printing position in the main scan direction	08 to 92 (BCD) mm. Only input even numbers. This setting determines the TTI print start position from the left edge of the paper. If the TTI is too far to the right, the file number, which is on the top right of the page, may obscure it.

System Switch 13⬥ - Not used (do not change any of these settings)

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System Switch 14		
No.	**FUNCTION**	**COMMENTS**
0-7✲	Wait time between pages in printer mode (with the optional printer unit)	05 to 64 (H) (5 to 100 s) During a print job, a fax message could come in while a page from the computer is still being compiled. If the timer has not run out yet, the machine will continue to compile the page from the printer and the fax message will not be printed. However, if the timer runs out before the page has been compiled, all pages of the fax message will be printed, then the rest of the waiting print job will be output. Therefore, with a longer setting, the fax machine is more likely to wait until the end of print job output before printing any incoming fax messages. A shorter setting allows the fax machine to interrupt a print job to print an incoming fax message. Default setting: 0A(H) = 10 s

System Switch 15		
No.	**FUNCTION**	**COMMENTS**
0♦	Not used	Do not change this setting.
1♦	Programming with European characters **0:** Disabled **1:** Enabled	**1:** The user can program with European characters (e.g. "**ä**", "**å**") for the TTI, Quick Dial labels, etc.
2♦	Change NCU country code **0:** Disabled **1:** Enabled	**0:** The machine does not display "c.c." in the service mode 07: NCU, 0: NCU PARA menu.
3✲	Country code programming level **0:** Service level **1:** User level	**1:** The user can change the country code with the User Tools menu.
4♦	Daylight saving time automatic adjustment (NA only) **0:** Manual adjustment **1:** Automatic adjustment	**1:** The clock is adjusted automatically at start and end of daylight-saving time (in May and October).
5–7♦	Not used	Do not change these settings.

System Switch 16		
No.	**FUNCTION**	**COMMENTS**
0	Not used	Do not change this setting.
1–7♦	Not used	Do not change these settings.

System Switch 17		
No.	**FUNCTION**	**COMMENTS**
0✦	Not used	Do not change the setting.
1✲	Direct fax number entry **0:** Disabled **1:** Enabled	**0:** The user must place the original on the ADF before dialing. **1**: Users can dial fax numbers before setting the original.
2✦	Not used	Do not change the setting.
3✦	Tonal signals key when the machine is in pulse dial setting. **0:** Disabled **1:** Enabled	**0:** No tone signal on dialing. **1:** The machine can dial out tone signals.
4	TTI selection when the destination is specified at the ten key pad. **0:** TTI 1st **1:** TTI 2nd	
5✦	Not used	Do not change this setting.
6	Not used	Do not change this setting.
7✦	Not used	Do not change this setting.

System Switch 18		
No.	**FUNCTION**	**COMMENTS**

0-1	Default communication line for transmission when both lines are outside lines (neither line is connected to a PABX)
	Bit 1 Bit 0 Setting
	  0 0 Auto select
	  0 1 PSTN 1 (Standard G3)
	  1 0 PSTN 2 (Optional G3)
	  1 1 Not used
		(0,0): If one line is already being used, the other line is selected.
		Others: The line is fixed in accordance with these switches. However, the user can select another line with the line selection key (or user function key if programmed with the line selection feature).
		
		The settings of communication switch 16 bit 5 and system switch 0A bit 6 over-ride these switches.

2✦	Not used	Do not change this setting.

3-4	Default communication line for transmission when there is no G3 outside line (both lines connected to a PABX, or one line connected to a PABX and one line connected to an ISDN)
	Bit 4 Bit 3 Setting
	  0 0 Auto select
	  0 1 PSTN 1 (Standard G3)
	  1 0 PSTN 2 (Optional G3)
	  1 1 Not used
		(0,0): If one line is already being used, the other line is selected.
		Others: The line is fixed in accordance with these switches. However, the user can select another line with the line selection key (or user function key if programmed with the line selection feature).
		
		The settings of communication switch 16 bit 5 and system switch 0A bit 6 over-ride these switches.
		
		User switch 13 (0DH) is used to connect a line to a PABX.

5-7✦	Not used	Do not change these settings.

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System Switch 19		
0-2◆	Not used	Do not change these settings.
3	Handling LAN Fax Prefixed with # 0: Recognizes the #-prefixed number as a Quick Dial, Speed Dial, or Group Dial code. 1: Uses the #-prefixed number to access another line through a switching device.	This setting avoids problems with a system that recognizes the # symbol as a code to access a switching device. 0 (Off) Recognizes the # number as a normally registered destination and sends. If the number is not registered, nothing happens. 1 (On) Recognizes the # as the code to access another line via a switching device. However, if the input number is registered as a Quick Dial, Speed Dial, or Group Dial number, the machine sends the message to that number. If there is no match with a registered destination, or if the specified number code does not match the format for a Quick, Speed, or Group dial code, the machine dials the specified number.
4-7◆	Not used	Do not change these settings.

System Switch 1A		
No	**FUNCTION**	**COMMENTS**
0	Simultaneous broadcasting **0:** Disabled **1:** Enabled	This determines whether broadcasting is done by sending to each station consecutively, or simultaneously using more than one outgoing line (up to two outgoing lines can be used simultaneously).
1-7◆	Not used	Do not change these settings.

System Switch 1B◆ - Not used (do not change any of these settings)
System Switch 1C◆ - Not used (do not change any of these settings)
System Switch 1D◆ - Not used (do not change any of these settings)
System Switch 1E◆ - Not used (do not change any of these settings)
System Switch 1F◆ - Not used (do not change any of these settings)

5.3.2 SCANNER SWITCHES

No	FUNCTION	COMMENTS
Scanner Switch 00		
0◆	MTF **0:** Disabled **1:** Enabled	
1◆	Text/Photo separation in halftone mode **0:** Disabled **1:** Enabled	Normally keep this bit at 1 to get a good halftone quality.
2, 3◆	Maximum transmittable document length. **Bit 3 2 Setting** 0 0 600 mm 0 1 1,200 mm 1 0 Not used 1 1 Not used	
4◆	OR processing in immediate Tx and copying (Standard resolution) **0:** Disabled **1:** Enabled	**0:** The machine scans the document in 3.85 line/mm steps, then transmits or makes copies. **1:** The machine scans the document in 7.7 line/mm steps. Each pair of lines goes through OR processing before transmission or copy making. Toner may be used up earlier if OR processing is enabled.
5◆	Not used	Do not change the setting.
6✦	OR processing in memory Tx at Standard resolution **0:** Disabled **1:** Enabled	**0:** The machine scans the document in 3.85 line/mm steps, then stores the document in memory. **1:** The machine scans the document in 7.7 line/mm steps. Each pair of lines goes through OR processing before storing in memory. Toner may be used up earlier if OR processing is enabled.
7◆	Not used	Do not change the setting.

Scanner Switch 01◆ - Not used (do not change any of these settings)
Scanner Switch 02◆ - Not used (do not change any of these settings)
Scanner Switch 03◆ - Not used (do not change any of these settings)
Scanner Switch 04◆ - Not used (do not change any of these settings)
Scanner Switch 05◆ - Not used (do not change any of these settings)
Scanner Switch 06◆ - Not used (do not change any of these settings)
Scanner Switch 07◆ - Not used (do not change any of these settings)
Scanner Switch 08◆ - Not used (do not change any of these settings)
Scanner Switch 09◆ - Not used (do not change any of these settings)
Scanner Switch 0A◆ - Not used (do not change any of these settings)
Scanner Switch 0B◆ - Not used (do not change any of these settings)
Scanner Switch 0C◆ - Not used (do not change any of these settings)
Scanner Switch 0D◆ - Not used (do not change any of these settings)
Scanner Switch 0E◆ - Not used (do not change any of these settings)
Scanner Switch 0F◆ - Not used (do not change any of these settings)

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5.3.3 PLOTTER SWITCHES

Plotter 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 10 mm of the previous page are repeated at the top of the next page.
2-7♦	Not used	Do not change these settings.

Plotter Switch 01		
No	**FUNCTION**	**COMMENTS**
0♦	Reset the fusing unit failure **0:** Off **1:** On (Clear)	When a fusing error occurs, set this bit to 1 after fixing the problem. The machine then resets the fusing error. Switch the machine off/on and this bit will reset itself to 0.
1-7♦	Not used	Do not change these settings.

Plotter Switch 02♦ - Not used (do not change any of these settings)

Plotter 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: Plotter Switch 03, bits 4 to 7) **1:** Incoming page length is reduced when printing. (Maximum reducible length: Plotter Switches 04 and 05)
1-3♦	Not used	Do not change these settings.

Plotter Switch 03		
No	**FUNCTION**	**COMMENTS**

4-7♦	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.
	
	Hex value of bits 4 to 7 x (mm)
	           0 0
	           1 1
	and so on until
	           F 15
	Default setting: 4 mm for NA models, 10 mm (A) for EU/AS models.
	
	Cross reference
	Length reduction On/Off: Plotter Switch 03, Bit 0	

Plotter Switch 04 and 05		
No	**FUNCTION**	**COMMENTS**

0-7♦	Reduction ratios used for different paper sizes (with reduction enabled in switch 03-bit 0 above)
	If reduction is enabled, the data will be reduced in the lengthwise direction before printing.
	These switches determine the maximum reduction ratio for each paper size.
	
	Cross-reference
	Switch 04/05 Paper used
	Bit0 A5 sideways/HLT sideways
	Bit1 Not used
	Bit2 LT/B5
	Bit3 A4
	Bit4 F
	Bit5 LG
	Bit6 Not used
	Bit7 Not used
	
	SW04 SW05 Reduction Ratio
	  0 0 Disabled
	  1 0 4/3
	  0 1 8/7
	  1 1 12/11	

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Plotter Switch 06♦ - Not used (do not change any of these settings)
Plotter Switch 07♦ - Not used (do not change any of these settings)
Plotter Switch 08♦ - Not used (do not change any of these settings)
Plotter Switch 09♦ - Not used (do not change any of these settings)
Plotter Switch 0A♦ - Not used (do not change any of these settings)
Plotter Switch 0B♦ - Not used (do not change any of these settings)
Plotter Switch 0C♦ - Not used (do not change any of these settings)
Plotter Switch 0D♦ - Not used (do not change any of these settings)
Plotter Switch 0E♦ - Not used (do not change any of these settings)
Plotter Switch 0F♦ - Not used (do not change any of these settings)

5.3.4 COMMUNICATION SWITCHES

Communication Switch 00		
No	**FUNCTION**	**COMMENTS**

0, 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, 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 setting.
5♦	JBIG reception mode **0:** Standard mode only **1:** Standard and optional mode (default)	**0**: JBIG optional mode is switched off for reception. Change the setting when communication problems occur using JBIG compression.
6♦	Priority for JBIG mode used for transmission **0:** Standard mode **1:** Optional mode (default)	This bit determines the priority for the compression mode used for JBIG transmission. Change the setting when communication problems occur using JBIG compression.
7♦	Closed network (reception) **0:** Disabled **1:** Enabled	**1:** No reception 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.
1◆	Not used	Do not change the setting.
2, 3◆	Wrong connection prevention method **Bit 3　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.
4◆	Operator call if no response is received in reply to NSF/DIS **0:** Disabled　**1:** Enabled	Set this bit to 1 if the user expects to receive telephone calls at the same number that the machine is connected to. The machine will then alert the user if a phone call comes in.
5◆	Not used	Do not change the setting.
6, 7◆	Maximum printable page length available **Bit 7　6　Setting** 　0　0　No limit 　0　1　B4 (364 mm) 　1　0　A4 (297 mm) 　1　1　Not used	The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).

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. **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 This bit is ignored if ECM is in use. This method is enabled only when the switch 02-bit 7 below is set to 1.
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. This bit is ignored if ECM is in use.

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Communication Switch 02		
No	**FUNCTION**	**COMMENTS**
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.
3♦	Hang-up decision when a negative code (RTN or PIN) is received during 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, 5♦	Wrong connection prevention method (Auto Service Call) **Bit 5 4 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.
6♦	Not used	Do not change the setting.
7♦	Burst error **0:** Disabled **1:** Enabled	If this switch is set to 0, burst error count method in switch 02-bit 0 above is disabled, and only total error line count method in switch 02-bit 1 above is used.

Communication Switch 03		
No	**FUNCTION**	**COMMENTS**
0-7♦	Maximum number of page retransmissions in a memory transmission	00 - FF (Hex) times. This setting is not used if ECM is switched on. Default setting - 03(Hex)

Communication Switch 04♦ - Not used (do not change any of these settings)
Communication Switch 05♦ - Not used (do not change any of these settings)

Communication Switch 06		
No	**FUNCTION**	**COMMENTS**
0–5♦	Not used	Do not change these settings.
6♦	Dialing requirements: USA **0:** Disabled **1:** Enabled	This function automatically sets these switches to the required settings for each country after selecting a country code (System switch 0F).
7	Not used	Do not change this setting.

Communication Switch 07♦ - Not used (do not change any of these settings)
Communication Switch 08♦ - Not used (do not change any of these settings)
Communication Switch 09♦ - Not used (do not change any of these 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	Transfer received mail to the computer that is running Scan Router **0:** Disabled **1:** Enabled	This bit switch determines whether the machine will transfer all received e-mails to the computer that is running Scan Router.
2-6♦	Not used	Do not change these settings.
7♦	Emergency calls using 999 **0:** Enabled **1:** Disabled	Hong Kong only If this bit is at 1, the machine will not allow you to dial 999 at the auto-dialer.

Communication Switch 0B		
No	**FUNCTION**	**COMMENTS**
0	Use of Economy Transmission during a Transfer operation to End Receivers **0:** Disabled **1:** Enabled	These bits determine whether the machine uses the Economy Transmission feature when it is carrying out a Transfer operation as a Transfer Station.
1	Use of Economy Transmission during a Transfer operation to the Next Transfer Stations **0:** Disabled **1:** Enabled	
2	Use of Label Insertion for the End Receivers in a Transfer operation **0:** Disabled **1:** Enabled	This bit determines whether the machine uses the Label Insertion feature when it is carrying out a Transfer operation as a Transfer Station.
3	Conditions required for Transfer Result Report transmission **0:** Always transmitted **1:** Only transmitted if there was an error	**0:** When acting as a Transfer Station, the machine will always send a Transfer Result Report back to the Requesting Station after completing the Transfer Request, even if there were no problems. **1:** The machine will only send back a Transfer Result Report if there were errors during communication so that one or more of the End Receivers could not be contacted.
4	Printout of the message when acting as a Transfer Station **0:** Disabled **1:** Enabled	When the machine is acting as a Transfer Station, this bit determines whether the machine prints the fax message coming in from the Requesting Terminal.

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Communication Switch 0B		
No	**FUNCTION**	**COMMENTS**
5	Action when there is no fax number in the programmed Quick/Speed dials which meets the requesting terminal's own fax number. **0:** Transfer is Disabled **1:** Transfer is Enabled	After the machine receives a transfer request, the machine compares the last N digits of the requesting terminal's own fax number with all the Quick/Speed dials programmed in the machine. (N is the number programmed in communication switch 0C.) **0:** If there is no matching number programmed in the machine, the machine rejects the transfer request. **1:** Even if there is no matching number programmed in the machine, the machine accepts the transfer request. The result report will be printed at the transfer terminal, but will not be sent back to the requesting terminal.
6-7◆	Not used	Do not change these settings.

Communication Switch 0C		
No	**FUNCTION**	**COMMENTS**
0-4	Number of digits compared to find the requester's fax number from the programmed Quick/Speed Dials when acting as a Transfer Station	00 - 1F (0 to 31 digits) After the machine receives a transfer request, the machine compares the own telephone number sent from the Requesting Terminal with all Quick/Speed Dials programmed in the machine, starting from Quick Dial 01 to the end of the Speed Dials. This number determines how many digits from the end of the telephone numbers the machine compares. If it is set to 00, the machine will send the report to the first Quick/Speed Dial that the machine compared. If Quick Dial 01 is programmed, the machine will send the report to Quick 01. If Quick Dial 01 through 04 are not programmed and Quick Dial 05 is programmed, the machine will send the report to Quick 05. Default setting - 05(H) = 5 digits
5-7◆	Not used	Do not change these settings.

Communication Switch 0D		
No	**FUNCTION**	**COMMENTS**
0–7◆	The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled	00 to FF (Hex), unit = 2 KB (e.g. 0C(H) = 24 KB) One page is about 24 KB. The machine refers to this setting before each fax reception. If the remaining memory is below this threshold, the machine cannot receive fax messages. If this setting remains at 0, the machine will detect ringing signals and enter receive mode even if there is no available memory. This will result in communication failure.

Communication Switch 0E		
No	**FUNCTION**	**COMMENTS**
0-7◆	Minimum interval between automatic dialing attempts	06 to FF (Hex), unit = 2 s (e.g., 06(Hex) = 12 s) This value is the minimum time that the machine waits before it dials the next destination.

Communication Switch 0F◆ - Not used (do not change any of these settings)

Communication Switch 10		
No	**FUNCTION**	**COMMENTS**
0-7◆	Memory transmission: Maximum number of dialing attempts to the same destination	01 - FE (Hex) = 1 - 254 times

Communication Switch 11		
No	**FUNCTION**	**COMMENTS**
0-7◆	Immediate transmission: Maximum number of dialing attempts to the same destination	01 - FE (Hex) = 1 - 254 times

Communication Switch 12		
No	**FUNCTION**	**COMMENTS**
0-7◆	Memory transmission: Interval between dialing attempts to the same destination	00 - FF (Hex) = 0 - 255 minutes

Communication Switch 13		
No	**FUNCTION**	**COMMENTS**
0-7◆	Immediate transmission: Interval between dialing attempts to the same destination.	00 - FF (Hex) = 0 - 255 minutes

Service Tables

Communication Switch 14		
No	**FUNCTION**	**COMMENTS**
0◆	Inch-to-mm conversion during transmission **0:** Disabled (default) **1:** Enabled	**0:** Transmitting is always done in inch format. **1:** If the other end only has mm-based resolution for printing, the machine converts the scanned data to mm-format before transmission.
1◆	Inch/mm format informed to the other terminal during transmission **0:** Always in inch format **1:** Dependent on the other terminal (default)	**0:** The machine always informs the other terminal that the resolution is in inch format and transmits with the inch format. **1:** The machine informs the other terminal that the resolution is in mm format and transmits with the inch format if the other end only has mm-based resolution. This setting is informed to the receiving terminal in the pre-message protocol exchange (in the DCS/NSS frames).
2◆	Not used	Do not change the setting.
3◆	I/O rate for Detail reception **0:** Off (Normal) **1:** On (Double)	**1:** Shortens receiving time for non-ECM communication **Note:** In most cases this setting should be left at 0. Communication will fail if fusing warm-up time is longer than the time it takes to receive the image.
4◆	Positive response timing when substitute reception is disabled **0:** When the fusing exit sensor turns on **1:** When all image data are stored in the memory	This switch setting is effective when user parameter switch 05 bit 0 is set to 0 (Substitute reception is off). **0:** The data is not stored in the SAF memory. The machine sends the positive response to the other end when the leading edge of the paper turns on the fusing exit sensor. This informs the other end of successful reception after the received image data has already been printed. **1:** The incoming data is stored in the SAF memory. The machine sends the positive response to the other end when all received image data have been stored in the SAF memory. This sends the positive response earlier than when this bit switch is set to 0, but the page has not been printed yet. The data goes to SAF, like for substitute reception. However, it is different from substitute reception, as follows: • The machine rejects all incoming ringing signals when the printer is out of order. • The received image data are stored in the memory even if no RTI/CSI is received.
5◆	Not used	Do not change the setting.

Communication Switch 14		
No	**FUNCTION**	**COMMENTS**

6, 7♦	Available unit of resolution in which fax messages are received
	Bit 7 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).

Communication Switch 15		
No	**FUNCTION**	**COMMENTS**
0-3	Available resolution for receiving fax messages Bit 0 → 1: 200 x 100/8 x 3.85 Bit 1 → 1: 200 x 200/8 x 7.7 Bit 2 → 1: 200 x 400/8 x 15.4 Bit 3 → 1: 400 x 400/16 x 15.4 Disabled if 0 is set.	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).
4–7♦	Not used	Do not change these settings.

Communication Switch 16		
No	**FUNCTION**	**COMMENTS**
0	Standard G3 (NCU) **0:** Disabled **1:** Enabled	**0:** Change this bit to 0 if you wish to disable the standard G3.
1	Optional G3 unit **0:** Not installed **1:** Installed	**1:** Change this bit to 1 when installing the optional G3 unit.
2-4♦	Not used	Do not change these settings.
5	Use of PSTN-2 line **0:** Tx or Rx **1:** Rx only	Change this bit to 1 when the customer requires. Also see system switch 18.
6-7♦	Not used	Do not change these settings.

Service Tables

Communication Switch 17		
No	**FUNCTION**	**COMMENTS**
0	SEP (selective polling) reception **0:** Disabled **1:** Enabled	**0:** Disables features that require SEP (selective polling) signal reception.
1♣	SUB reception **0:** Disabled **1:** Enabled	**0:** Disables signal reception features, such as confidential reception from another maker's machine, that require a SUB (Sub-address) signal reception.
2	PWD (Password) / SID (Sender ID) reception **0:** Disabled **1:** Enabled	**0:** Disables features that require PWD or SID signal reception.
3-6♦	Not used	Do not change the settings.
7	Action when there is no box with an F-code that matches the received SUB code **0:** Disconnect the line **1:** Receive the message (using normal reception mode)	Change this setting when the customer requires.

Communication Switch 18♦ - Not used (do not change any of these settings)
Communication Switch 19♦ - Not used (do not change any of these settings)

Communication Switch 1A		
No	**FUNCTION**	**COMMENTS**
0–7	FTP transfer: Maximum number of dialing attempts to the same destination	00(Hex) = 1 time 01 - FE (Hex) = 1 - 254 times FF(Hex) = No limit

Communication Switch 1B♦		
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 one of these bits 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 3 to 1.)
1		
2		
3		
4		
5		
6		
7		

Communication Switch 1C		
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 1B. **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. (If "9" is the PSTN access code, use bit 1.)
1◆		
2–7◆	Not used	Do not change these settings.

Communication Switch 1D◆ - Not used (do not change any of these settings)
Communication Switch 1E◆ - Not used (do not change any of these settings)
Communication Switch 1F◆ - Not used (do not change any of these settings)

Service Tables

5.3.5 G3 SWITCHES

G3 Switch 00		
No	**FUNCTION**	**COMMENTS**

0, 1✦	Monitor speaker during communication (tx and rx)
	Bit 1 0 Setting
	    0 0 Disabled
	    0 1 Up to Phase B
	    1 0 All the time
	    1 1 Not used
		(0, 0) The monitor speaker is disabled all through the communication.
		(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.
3-7✦	Not used	Do not change these settings.

G3 Switch 01		
No	**FUNCTION**	**COMMENTS**
0-3✦	Not used	Do not change these 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 these 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 the Core Technology Manual for details about AI Short Protocol.
7✦	Not used	Do not change the settings.

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♦	Not used	Do not change the setting.
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.
4♦	CTC transmission conditions **0:** Ricoh mode (PPR x 1) **1:** ITU-T mode (PPR x 4)	When using ECM, the machine will choose a slower modem rate after receiving PPR once (Ricoh mode) or four times (ITU-T mode). This bit is ineffective in V.34 communications.
5♦	Modem rate for the next page after receiving a negative code (RTN or PIN) **0:** No change **1:** Fallback	**1:** The TX modem rate of the machine will fall back before sending the next page if it receives a negative code. This bit is ignored if ECM is in use.
6♦	Not used	Do not change the setting.
7♦	Polarity change after DIS/NSF detection **0:** Disabled **1:** Enabled	This bit should be set to "1" only to deal with communication problems caused by certain types of exchanger.

G3 Switch 04		
No	**FUNCTION**	**COMMENTS**
0-3♦	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 the training was successful.
4-7♦	Not used	Do not change these settings.

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Tables

G3 Switch 05		
No	**FUNCTION**	**COMMENTS**

0-3♦	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 of 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - G3 switch 03, bit 2

4, 5♦	Initial modem type for 9.6 k or 7.2 kbps.
	Bit 5 4 Setting
	   0 0 V.29
	   0 1 V.17
	   1 0 V.34
	   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 these settings.

G3 Switch 06		
No	**FUNCTION**	**COMMENTS**

0-3♦	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 of 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - G3 switch 03, bit 2

G3 Switch 06		

4-7♦	Modem types available for reception
	Bit 7 6 5 4 Setting
	      0 0 0 1 V.27ter
	      0 0 1 0 V.27ter, V.29
	      0 0 1 1 Not used
	      0 1 0 0 V.27ter, V.29
	                        V.17
	      0 1 0 1 V.27ter, V.29
	                        V.17, V.34
	Other settings - Not used
		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, bit 2

G3 Switch 07		
No	**FUNCTION**	**COMMENTS**

0, 1♦	PSTN cable equalizer
	(tx mode: Internal)
	Bit 1 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, 3♦	PSTN cable equalizer
	(rx mode: Internal)
	Bit 3 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.27ter, V.29, V.33/V.17, V.8 rx mode: External) **0:** Disabled **1:** Enabled	Keep this bit at "1" in most cases.
5-7♦	Not used	Do not change these settings.

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G3 Switch 08		
No	FUNCTION	COMMENTS

0, 1♦	PABX cable equalizer (tx mode: Internal)
	Bit 1 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, 3♦	PABX cable equalizer (rx mode: Internal)
	Bit 3 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♦	PABX cable equalizer (V.27ter, V.29, V.33/V.17, V.8 rx mode: External) **0:** Disabled **1:** Enabled	Set this bit to 0 when line quality is good. (e.g. for a digital PABX)
5-7♦	Not used	Do not change these settings.

G3 Switch 09♦ - Not used (do not change any of these settings)

G3 Switch 0A		
No	FUNCTION	COMMENTS

0, 1♦	Maximum allowable carrier drop during image data reception
	Bit 1 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♦	Reception carrier drop operation. **0:** Continue reception **1:** Disconnect the line	This bit decides what the machine does when there is a carrier drop in the image data.
3♦	Not used	Do not change the setting.

G3 Switch 0A		
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 from the other end. Try using a longer setting if error code 0-21 is frequent.
5♦	Not used	Do not change the setting.
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 setting.

G3 Switch 0B (Europe only)		
	FUNCTION	**COMMENTS**
0♦	Protocol requirements: Europe **0:** Disabled **1:** Enabled	Program these bit switches manually to match local requirements.
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	
5-7♦	Not used	Do not change these settings.

G3 Switch 0C♦ - Not used (do not change any of these settings)
G3 Switch 0D♦ - Not used (do not change any of these settings)
G3 Switch 0E♦ - Not used (do not change any of these settings)
G3 Switch 0F♦ - Not used (do not change any of these settings)

Service
Tables

5.3.6 G3-2 SWITCHES

These bit switches require an optional G3 interface unit.

G3-2 Switch 00		
No	FUNCTION	COMMENTS
0-7	Not used	Do not change these settings.

G3-2 Switch 01		
No	FUNCTION	COMMENTS
0-3	Not used	Do not change these 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.

G3-2 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 these 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 the Core Technology Manual for details about AI Short Protocol.
7	Not used	Do not change the settings.

G3-2 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	Not used	Do not change the setting.

G3-2 Switch 03

No	FUNCTION	COMMENTS
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.
4	CTC transmission conditions **0:** Ricoh mode (PPR x 1) **1:** ITU-T mode (PPR x 4)	When using ECM, the machine will choose a slower modem rate after receiving PPR once (Ricoh mode) or four times (ITU-T mode). This bit is ineffective in V.34 communications.
5	Modem rate for the next page after receiving a negative code (RTN or PIN) **0:** No change **1:** Fallback	**1:** The TX modem rate of the machine will fall back before sending the next page if it receives a negative code. This bit is ignored if ECM is in use.
6	Not used	Do not change the setting.
7	Polarity change after DIS/NSF detection **0:** Disabled **1:** Enabled	This bit should be set to "1" only to deal with communication problems caused by certain types of exchanger.

G3-2 Switch 04

No	FUNCTION	COMMENTS
0-3	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 the training was successful.
4-7	Not used	Do not change these settings.

G3-2 Switch 05

No	FUNCTION	COMMENTS

0-3	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 of 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - G3 switch 03, bit 2

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G3-2 Switch 05		

4, 5	Initial modem type for 9.6 k or 7.2 kbps.
	Bit 5 4 Setting
	    0 0 V.29
	    0 1 V.17
	    1 0 V.34
	    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 these settings.

G3-2 Switch 06		
No	**FUNCTION**	**COMMENTS**

0-3	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 of 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - G3 switch 03, bit 2

4-7	Modem types available for reception
	Bit 7 6 5 4 Setting
	    0 0 0 1 V.27ter
	    0 0 1 0 V.27ter, V.29
	    0 0 1 1 Not used
	    0 1 0 0 V.27ter, V.29
	                        V.17
	    0 1 0 1 V.27ter, V.29
	                        V.17, V.34
	Other settings - Not used
		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, bit 2

G3-2 Switch 07		
No	**FUNCTION**	**COMMENTS**
0, 1	PSTN cable equalizer (tx mode: Internal) **Bit 1 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, 3	PSTN cable equalizer (rx mode: Internal) **Bit 3 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.27ter, V.29, V.33/V.17, V.8 rx mode: External) **0:** Disabled　**1:** Enabled	Keep this bit at "1" in most cases.
5-7	Not used	Do not change these settings.

G3-2 Switch 08		
No	**FUNCTION**	**COMMENTS**
0, 1	PABX cable equalizer (tx mode: Internal) **Bit 1 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.

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G3-2 Switch 08		
2, 3	PABX cable equalizer (rx mode: Internal) **Bit 3 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	PABX cable equalizer (V.27ter, V.29, V.33/V.17, V.8 rx mode: External) **0:** Disabled **1:** Enabled	Set this bit to 0 when line quality is good. (e.g. for a digital PABX)
5-7	Not used	Do not change these settings.

G3-2 Switch 09 - Not used (do not change any of these settings)

G3-2 Switch 0A		
No	**FUNCTION**	**COMMENTS**
0, 1	Maximum allowable carrier drop during image data reception **Bit 1 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	Reception carrier drop operation. **0:** Continue reception **1:** Disconnect the line	This bit decides what the machine does when there is a carrier drop in the image data.
3	Not used	Do not change the setting.
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 from the other end. Try using a longer setting if error code 0-21 is frequent.
5	Not used	Do not change the setting.
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.

G3-2 Switch 0A		
7	Not used	Do not change the setting.

G3-2 Switch 0B (Europe only)		
	FUNCTION	**COMMENTS**
0	Protocol requirements: Europe **0:** Disabled **1:** Enabled	Program these bit switches manually to match local requirements.
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	
5-7	Not used	Do not change these settings.

G3-2 Switch 0C - Not used (do not change any of these settings)
G3-2 Switch 0D - Not used (do not change any of these settings)
G3-2 Switch 0E - Not used (do not change any of these settings)
G3-2 Switch 0F - Not used (do not change any of these settings)

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5.4 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 06-0), but some can be changed using NCU Parameter programming (Function 08-0); if Function 08-0 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.

NOTE: The following addresses describe settings for the standard NCU.
Change the start address:
- 402200H to 402300H for the settings for PSTN-2 (optional G3 unit)
- 402200H to 402400H for the settings for IP-FAX (optional NIC Fax unit).

Address	Function	Unit	Remarks
402200	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 08-0 (parameter C.C.). **Note:** NA model only You will have to set system switch 15 bit 2 to 1 before trying to change the NCU country code.	

Country	Decimal	Hex	Country	Decimal	Hex
France	00	00	USA	17	11
Germany	01	01	Asia	18	12
UK	02	02	Hong Kong	20	14
Italy	03	03	South Africa	21	15
Austria	04	04	Australia	22	16
Belgium	05	05	New Zealand	23	17
Denmark	06	06	Singapore	24	18
Finland	07	07	Malaysia	25	19
Ireland	08	08	China	26	1A
Norway	09	09	Formosa	27	1B
Sweden	10	0A	Korea	28	1C
Switzerland	11	0B	Turkey	32	20
Portugal	12	0C	Greece	33	21
Holland	13	0D	Hungary	34	22
Spain	14	0E	Czech	35	23
Israel	15	0F	Poland	36	24

Address	Function	Unit	Remarks
402201	Line current detection time	20 ms	Line current detection is disabled. Line current is not detected if 402201 contains FF.
402202	Line current wait time		
402203	Line current drop detect time		
402204	PSTN dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is

Address	Function	Unit	Remarks
402204	PSTN dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled. See Note 7
402205	PSTN dial tone frequency upper limit (low byte)		
402206	PSTN dial tone frequency lower limit (high byte)		
402207	PSTN dial tone frequency lower limit (low byte)		
402208	PSTN dial tone detection time	20 ms	If 402208 contains FF(H), the machine pauses for the pause time (address 40220D / 40220E). Italy: See Note 2 and 7
402209	PSTN dial tone reset time (LOW)		
40220A	PSTN dial tone reset time (HIGH)		
40220B	PSTN dial tone continuous tone time		
40220C	PSTN dial tone permissible drop time		
40220D	PSTN wait interval (LOW)	20 ms	See Note 7
40220E	PSTN wait interval (HIGH)		
40220F	PSTN ring-back tone detection time	20 ms	Detection is disabled if this contains FF.
402210	PSTN ring-back tone off detection time	20 ms	
402211	PSTN detection time for silent period after ring-back tone detected (LOW)		
402212	PSTN detection time for silent period after ring-back tone detected (HIGH)		
402213	PSTN busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402214	PSTN busy tone frequency upper limit (low byte)		
402215	PSTN busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402216	PSTN busy tone frequency lower limit (low byte)		
402217	PABX dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402218	PABX dial tone frequency upper limit (low byte)		
402219	PABX dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
40221A	PABX dial tone frequency lower limit (low byte)		
40221B	PABX dial tone detection time	20 ms	If 40221B contains FF, the machine pauses for the pause time (402220 / 402221).
40221C	PABX dial tone reset time (LOW)		
40221D	PABX dial tone reset time (HIGH)		
40221E	PABX dial tone continuous tone time		
40221F	PABX dial tone permissible drop time		
402220	PABX wait interval (LOW)		
402221	PABX wait interval (HIGH)		
402222	PABX ringback tone detection time	20 ms	If both addresses contain FF(H), tone detection is disabled.
402223	PABX ringback tone off detection time		

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Address	Function	Unit	Remarks
402224	PABX detection time for silent period after ringback tone detected (LOW)	20 ms	If both addresses contain FF(H), tone detection is disabled.
402225	PABX detection time for silent period after ringback tone detected (HIGH)	20 ms	If both addresses contain FF(H), tone detection is disabled.
402226	PABX busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402227	PABX busy tone frequency upper limit (low byte)		
402228	PABX busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402229	PABX busy tone frequency lower limit (low byte)		
40222A	Busy tone ON time: range 1	20 ms	
40222B	Busy tone OFF time: range 1		
40222C	Busy tone ON time: range 2		
40222D	Busy tone OFF time: range 2		
40222E	Busy tone ON time: range 3		
40222F	Busy tone OFF time: range 3		
402230	Busy tone ON time: range 4		
402231	Busy tone OFF time: range 4		
402232	Busy tone continuous tone detection time		
402233	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 ($\pm$) Bit 1 0 0 0 75% Bits 2 and 3 must always 0 1 50% be kept at 0. 1 0 25% 1 1 12.5% Bits 7, 6, 5, 4: number of cycles required for cadence detection		
402234	International dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402235	International dial tone frequency upper limit (low byte)		
402236	International dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402237	International dial tone frequency lower limit (low byte)		
402238	International dial tone detection time	20 ms	If 402238 contains FF, the machine pauses for the pause time (40223D / 40223E). Belgium: See Note 2.
402239	International dial tone reset time (LOW)		
40223A	International dial tone reset time (HIGH)		
40223B	International dial tone continuous tone time		

Address	Function	Unit	Remarks
40223C	International dial tone permissible drop time		
40223D	International dial wait interval (LOW)		
40223E	International dial wait interval (HIGH)		
40223F	Country dial tone upper frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402240	Country dial tone upper frequency limit (LOW)		
402241	Country dial tone lower frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
402242	Country dial tone lower frequency limit (LOW)		
402243	Country dial tone detection time		If 402243 contains FF, the machine pauses for the pause time (402248 / 402249).
402244	Country dial tone reset time (LOW)		
402245	Country dial tone reset time (HIGH)		
402246	Country dial tone continuous tone time	20 ms	
402247	Country dial tone permissible drop time		
402248	Country dial wait interval (LOW)		
402249	Country dial wait interval (HIGH)		
40224A	Time between opening or closing the DO relay and opening the OHDI relay	1 ms	See Notes 3, 6 and 7. Function 08–0 (parameter 11).
40224B	Break time for pulse dialing	1 ms	See Notes 3 and 7. Function 08-0 (parameter 12).
40224C	Make time for pulse dialing	1 ms	See Notes 3 and 7. Function 08-0 (parameter 13).
40224D	Not used	Do not change the setting.	
40224E	Minimum pause between dialed digits (pulse dial mode)	20 ms	See Notes 3 and 7. Function 08-0 (parameter 15).
40224F	Time waited when a pause is entered at the operation panel		Function 08-0 (parameter 16). See Note 7
402250	DTMF tone on time	1 ms	Function 08-0 (parameter 17). See Note 7
402251	DTMF tone off time		Function 08-0 (parameter 18). See Note 7
402252	Tone attenuation level of DTMF signals while dialing	-dBm x 0.5	Function 08-0 (parameter 19). See Note 5 and 7.
402253	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-dBm x 0.5	Function 08-0 (parameter 20). See Notes 5 and 7. The setting must be less than –5dBm, and should not exceed the setting at 402252h above.
402254	PSTN: DTMF tone attenuation level after dialling	-dBm x 0.5	Function 08-0 (parameter 21). See Note 5.

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Address	Function	Unit	Remarks
402255	ISDN: DTMF tone attenuation level after dialling	-dBm x 0.5	See Note 5
402256	Not used	Do not change the setting.	
402257	Time between 40224Dh (NCU parameter 14) and 40224Eh (NCU parameter 15)	1 ms	
402258	Not used	Do not change the setting.	
402259	Grounding time (ground start mode)	20 ms	The Gs relay is closed for this interval.
40225A	Break time (flash start mode)	1 ms	The OHDI relay is open for this interval.
40225B	International dial access code (High)	BCD	For a code of 100: 40225B - F1 40225C - 00
40225C	International dial access code (Low)		
40225D	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 40224F is used. In the UK: Do not set a number higher than 7.
40225E	Progress tone detection level, and cadence detection enable flags	Bits 7 - 3: Not used Bits 2 - 0: See Note 2.	
40225F to 402264	Not used	Do not change these settings.	
402265	Long distance call prefix (HIGH)	BCD	For a code of 0: 402265 - FF 402266 - F0
402266	Long distance call prefix (LOW)	BCD	
402267 to 402268	Not used	Do not change these settings.	
402269	Distinctive ring	Hex	00(H): OFF, 01(H): ON
40226A	Distinctive ring minimum off time	1 ms	
40226B	Distinctive ring maximum one cycle time	20 ms ± 20 ms	
40226C to 402271	Not used	Do not change these settings.	
402272	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz)	Function 08-0 (parameter 02). See Note 7.
402273	Acceptable ringing signal frequency: range 1, lower limit		Function 08-0 (parameter 03). See Note 7.
402274	Acceptable ringing signal frequency: range 2, upper limit	1000/ N (Hz)	Function 08-0 (parameter 04). See Note 7.
402275	Acceptable ringing signal frequency: range 2, lower limit		Function 08-0 (parameter 05). See Note 7.

Address	Function	Unit	Remarks
402276	Number or rings until a call is detected	1	Function 08-0 (parameter 06). See Note 7. The setting must not be zero.
402277	Minimum required length of the first ring	20 ms	Function 08-0 (parameter 07). See Note 4 and 7.
402278	Minimum required length of the second and subsequent rings	20 ms	Function 08-0 (parameter 08). See Note 7.
402279	Ringing signal detection reset time (LOW)	20 ms	Function 08-0 (parameter 09). See Note 7.
40227A	Ringing signal detection reset time (HIGH)	20 ms	Function 08-0 (parameter 10). See Note 7.
40227B to 402280	Not used	Do not change the settings.	
402281	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
402282	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		
402283 to 4022A4	Not used	Do not change these settings.	
4022A5	CED detection time	20 ms ± 20 ms	Factory setting: 200 ms
4022A6 to 4022AA	Not used	Do not change these settings.	
4022AB	CNG on time	20 ms	Factory setting: 500 ms
4022AC	CNG off time		Factory setting: 200 ms
4022AD	Number of CNG cycles required for detection		The data is coded in the same way as address 402233.
4022AE	Not used	Do not change the settings.	
4022AF	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.

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Address	Function	Unit	Remarks
4022B0	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte)		
4022B1	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte)	Hz(BCD)	If both addresses contain FF(H), tone detection is disabled.
4022B2	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte)		
4022B3	Detection time for 800 Hz AI short protocol tone	20 ms	Factory setting: 360 ms
4022B4	PSTN: Tx level from the modem	- dBm	Function 08-0 (parameter 01). See Note 7. **Note:** Do not set a value higher than – 3dBm. Even if a value higher than – 3 dBm is set, the tx level will be kept – 3dBm.
4022B5 to 4022B6	Not used	Do not change these settings.	
4022B7	PABX: Tx level from the modem	- dBm	
4022B8 to 4022BC	Not used	Do not change these settings.	
4022BD	Modem turn-on level (incoming signal detection level)	-37-0.5N (dBm)	
4022BE to 4022C6	Not used	Do not change these settings.	
4022C7	Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump **0:** Simple, **1:** Detailed (default) Bits 5 to 7 – Not used.		
4022C8 to 4022D9	Not used	Do not change the settings.	
4022DA	T.30 T1 timer	1 s	See Note 7.
4022DB to 4022DF	Not used	Do not change these settings.	
4022E0 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.

NOTES

1. If a setting is not required, store FF in the address.

2. Italy and Belgium only

   RAM address 40225E: 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)
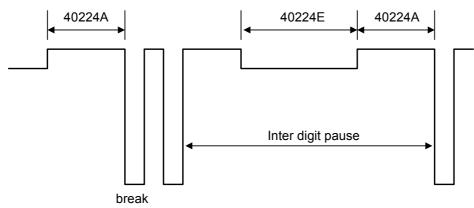
   If bit 0 or bit 2 is set to 1, the functions of the following RAM addresses are changed.
   402208 (if bit 0 = 1) or 402238 (if bit 2 = 1): tolerance for on or off state duration (%), and number of cycles required for detection, coded as in address 402233.
   40220B (if bit 0 = 1) or 40223B (if bit 2 = 1): on time, hex code (unit = 20 ms)
   40220C (if bit 0 = 1) or 40223C (if bit 2 = 1): off time, hex code (unit = 20 ms)

3. Pulse dial parameters (addresses 40224A to 40224F) 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 attenuation levels calculated from RAM data are:

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High frequency tone: - 0.5 x $N_{402252/402254}$ dBm
Low frequency tone: - 0.5 x ($N_{402252/402254}$ + N_{402253}) dBm

NOTE: N_{402252}, for example, means the value stored in address 402252(H)

6. The actual inter-digit pause (pulse dial mode) is the sum of the periods specified by RAM addresses 40224A and 40224E.

7. For European models, these parameters should not be changed in the field. The default values of these parameters have been approved by CTR21 and/or EG201121. Therefore, a change in any one of these values would constitute a violation of these requirements.

5.5 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.

5.5.1 PROGRAMMING PROCEDURE♦

1. Set bit 3 of System Bit Switch 04 to 1.

2. Either use the programming Quick Dial number or Speed Dial number.
    Example: Change the Parameters in Quick Dial 01.

3. Make sure the machine is in standby mode. Press 'User Tools' key then choose '2. Fax Features'.

4. Select the "1. Program/Delete", then press "OK" key.
    Select "1. Prog. Quick dial" then press "OK" key.
    Press Quick Dial key 01 and "OK" key.

5. Press the "OK" key three times.

6. 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

7. To scroll through the parameter bytes, either:
    Select the next byte: ▶
       or
    Select the previous byte: ◀ until the correct byte is displayed. Then go back to step 6.

8. After the setting is changed, press "OK" until "Programmed" displays.

9. To finish, press 'User Tools'.

5.5.2 PARAMETERS◆

The initial settings of the following parameters are all FF(H) - all the parameters are disabled.

Switch 00
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 01		
No	**FUNCTION**	**COMMENTS**

0-4	Tx level
	Bit 4 3 2 1 0 Setting
	    0 0 0 0 0 Not used
	    0 0 0 0 1 Not used
	    0 0 0 1 0 Not used
	    0 0 0 1 1 -3
	    0 0 1 0 0 -4
	    0 0 1 0 1 -5
	        :
	    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.

5-7	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.
		
		If the setting is 'Disabled', the bit switch setting is used.
		
		Note: Do not use settings other than listed on the left.

Service Tables

Switch 02		
No	FUNCTION	COMMENTS

0-3	Initial Tx modem rate
	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
		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.
		
		If the setting is 'Disabled', the bit switch setting is used.
		
		Note: Do not use settings other than listed on the left.

4, 5	Not used	Do not change the settings.
6	AI short protocol **0:** Off **1:** Disabled	Refer to the Core Technology 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 setting.

Switch 03		
No	FUNCTION	COMMENTS

0, 1	Inch-mm conversion before transmission
	Bit 1 0 Setting
	  0 0 Inch-mm
	         conversion
	         available
	  0 1 Inch only
	  1 0 Not used
	  1 1 Disabled
		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.

2, 3	DIS/NSF detection method
	Bit 3 2 Setting
	  0 0 First DIS or NSF
	  0 1 Second DIS or NSF
	  1 0 Not used
	  1 1 Disabled
		(0, 1) Use this setting if echoes on the line are interfering with the setup 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.

Switch 03		
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 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 04:	Not used (do not change any of these settings)
Switch 05:	Not used (do not change any of these settings)
Switch 06:	Not used (do not change any of these settings)
Switch 07:	Not used (do not change any of these settings)
Switch 08:	Not used (do not change any of these settings)
Switch 09:	Not used (do not change any of these settings)
Switch 10:	Not used (do not change any of these settings)

Service Tables

5.6 SERVICE RAM ADDRESSES

⚠CAUTION
Do not change the settings which are marked as "Not used" or "Read only".

NOTE: 1) Symbol "♦" indicates that the marked item is identical to model S-C1 and S-F1 (but the address is different).
2) Symbol "♣" indicates that the marked item is identical to model S-F1 (but the address is different).

400001 to 400004(H)♦ - ROM version (Read only)
400001(H) - Revision number (BCD)
400002(H) - Year (BCD)
400003(H) - Month (BCD)
400004(H) - Day (BCD)

400005(H)♦ - RAM Reset Level 1
Change the data at this address to FF(H), then switch the machine off and on to reset all system settings (with the exception of the copier SP/UP settings, which are retained).

Caution: Before using this RAM, print the settings of all the system parameters (System Parameter List - Function02).

The country code will be reset to UK for EU/Asia models and USA for NA model when RAM reset level 1 is done.

400006(H)♦ - Language Code (Hex)
02(H) - English
04(H) - French
05(H) - Spanish
06(H) - German
07(H) - Italian
08(H) - Swedish
09(H) - Norwegian
0A(H) - Portuguese
0B(H) - Dutch
0C(H) - Polish
0D(H) - Hungarian
0E(H) - Czech
0F(H) - Danish
10(H) - Finnish

400008(H)♦ - Program checksum: Total (low)
400009(H)♦ - Program checksum: Total (high)
40000A(H)♦ - Program checksum: Boot (low)
40000B(H)♦ - Program checksum: Boot (high)
40000C(H)♦ - Program checksum: Main (low)
40000D(H)♦ - Program checksum: Main (high)
40000E(H)♦ - RDS program update counter (Hex)

400010 to 40002F(H)♦ - System bit switches
400030 to 40003F(H)♦ - Scanner bit switches
400040 to 40004F(H)♦ - Plotter bit switches
400050 to 40006F(H)♦ - Communication bit switches
400070 to 40007F(H)♦ - G3 bit switches
400080 to 40008F(H) - G3-2 bit switches (for optional G3 unit)
400090 to 40009F(H) - G3-i bit switches (for optional NIC FAX unit)
4000A0 to 4000BF(H) - LAN bit switches (for optional NIC FAX unit)

4000E0(H) - User parameter switch 00 (SWusr_00)
Bit 0: Stamp home position   0: Disabled, 1: Enabled
Bits 1 to 3♦: Not used
Bits 4 and 5: Scanning resolution home position
  <u>Bit 5 4 Setting</u>
    0 0 Standard
    0 1 Detail
    1 0 Fine
    1 1 Ex. Super Fine
Bit 6♦: Transmission mode home position   0: Memory tx, 1: Immediate tx
Bit 7♦: Halftone home position   0: Disabled, 1: Enabled

4000E1(H) - User parameter switch 01 (SWusr_01)
Bits 0 to 3♦: Not used
Bits 4 to 5✦: Automatic reset timer
  <u>Bit 5 4 Setting</u>
    0 0 30 sec.
    0 1 1 min.
    1 0 3 min.
    1 1 5 min.
Bit 6: Notify user when the communication is complete
  0: Not notify
  1: The machine notifies the user with a beeper when the communication is
   complete.
Bit 7♦: Settings return to home position after scanning   0: Disabled, 1: Enabled

4000E2(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   0: Disabled, 1: Enabled
Bit 2♦: Reception time printing   0: Disabled, 1: Enabled
Bit 3♦: TSI print on received messages   0: Disabled, 1: Enabled
Bit 4♦: Checkered mark printing   0: Disabled, 1: Enabled
Bits 5 to 7♦: Not used

4000E3(H) - User parameter switch 03 (SWusr_03: Automatic report printout)
Bit 0♦: Communication result report (memory transmissions) 0: Off, 1: On
Bit 1♦: Not used
Bit 2♦: File reserve report (memory transmission)   0: Off, 1: On
Bit 3♦: File reserve report (polling reception)   0: Off, 1: On
Bit 4♦: Communication result report (polling reception)   0: Off, 1: On

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Bit 5♦: Transmission result report (immediate transmissions) 0: Off, 1: On
Bit 6♦: Polling transmission clear report   0: Off, 1: On
Bit 7♦: Journal   0: Off, 1: On

4000E4(H) - User parameter switch 04 (SWusr_04: Automatic report printout)

Bit 0✤: Confidential file report   0: Off, 1: On
Bit 1♦: Not used
Bit 2: Print remote terminal ID on communication failure report   0: Off, 1: On
Bit 3: Print failed transmission result in the journal   0: Off, 1: On
Bit 4: 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.
    Dial Label: The name stored with the Quick/Speed Dial number by the user.
Bit 5: Reduce the size of the journal when printing it   0: Off, 1: On
Bit 6: Print File Reserve Report when memory is full or paper jam occurred
                                                              0: Off, 1: On
Bit 7♦: Inclusion of a sample image on reports   0: Off, 1: On

4000E5(H) - User parameter switch 05 (SWusr_05)

Bit 0♦: Substitute reception   0: Enabled, 1: Disabled
Bit 1♦: Memory reception if no RTI or CSI received   0: Possible, 1: Impossible
Bits 2 and 3♦: Not used
Bit 4♦: Restricted Access using personal codes   0: Off, 1: On
Bit 5♦: Not used
Bit 6✤: Energy Saver Mode   0: Energy Saving Standby (Level 2: Fusing lamp off)
                                     1: Fax Standby (Level 1: Fusing lamp half-cool)
Bit 7♦: Not used

4000E6(H) - User parameter switch 06 (SWusr_06)

Bit 0♦: TT print   0: Off, 1: On
Bit 1♦: Not used
Bit 2✤: Closed Network Tx   0: Off, 1: On
Bit 3♦: Not used
Bit 4♦: Batch transmission   0: Off, 1: On
Bits 5 to 6♦: Not used
Bit 7: Backup file tx   0: Off, 1: On
    - same as "4. Key Op. Tools -> 7. Backup File Tx" in User Tools.

4000E7(H) - User parameter switch 07 (SWusr_07)

Bits 0 and 1♦: Not used
Bit 2♦: Parallel memory transmission   0: Off, 1: On
Bit 3♦: Not used
Bit 4♦: Use of the ⊛ key for tonal signals   0: Off, 1: On
Bits 5 to 7♦: Not used

4000E8(H) - User parameter switch 08 (SWusr_08)

Bits 0 and 1: Multi-copy reception

Bit	1	0	Setting
	X	0	Disabled
	0	1	Faxes from senders whose RTIs/CSIs are specified for this feature are multicopied.
	1	1	Faxes from senders whose RTIs/CSIs are not specified for this feature are multicopied.

Bits 2 and 3: Authorized reception

Bit	3	2	Setting
	X	0	Disabled
	0	1	Faxes from senders whose RTIs/CSIs are specified for this feature are accepted.
	1	1	Faxes from senders whose RTIs/CSIs are not specified for this feature are accepted.

Bits 4 and 5: Specified cassette selection (optional cassette required)

Bit	5	4	Setting
	X	0	Disabled
	0	1	Faxes from senders whose RTIs/CSIs are specified for this feature are printed to the paper in a specified cassette.
	1	1	Faxes from senders whose RTIs/CSIs are not specified for this feature are printed to the paper in a specified cassette.

Bits 6 and 7♦: Forwarding

Bit	7	6	Setting
	X	0	Disabled
	0	1	Faxes from senders whose RTIs/CSIs are specified for this feature are forwarded.
	1	1	Faxes from senders whose RTIs/CSIs are not specified for this feature are forwarded.

4000E9(H) - User parameter switch 09 (SWusr_09)

Bits 0 and 1♦: Memory lock

Bit	0	1	Setting
	X	0	Disabled
	0	1	Faxes from senders whose RTIs/CSIs are specified for this feature are kept in the memory until a memory lock ID is entered.
	1	1	Faxes from senders whose RTIs/CSIs are not specified for this feature are kept in the memory until a memory lock ID is entered.

Bits 2 to 4♦: Not used

Bit 5: Forwarding function for messages intended for specified senders (messages intended for receivers other than those you specified if the setting for switch 08, bit 6 and 7 is "11") that are note registered with a forwarding destination.   0: Off, 1: On

Bit 6♦: Inclusion of the OK key when Quick Dials are continuously selected for destinations.   0: Not needed, 1: Needed

1: The user must press the OK key after each Quick Dial key. This is to prevent the user from selecting incorrect destinations.

Bit 7: Output method for multiple sets   0: Sort, 1: Stack

4000EA(H) - User parameter switch 10 (SWusr_0A)

Bit 0♦: Not used

Bit 1: Two in one   0: Off, 1: On

Bits 2 to 4♦: Not used

Bit 5♣: Task selection for by-pass tray   0: All, 1: Only for optional printer

Bit 6♦: Not used

Bit 7♦: Halftone type   0: Error diffusion, 1: Dither

4000EB(H) - User parameter switch 11 (SWusr_0B)

Bit 0: Remote transfer   0: Off, 1: On

Bit 1♦: Not used

Bit 2♣: Detection of blank sheet during transmission   0: Off, 1: On

Bits 3 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

4000EC(H) - User parameter switch 12 (SWusr_0C)

Bit 0♦: Not used

Bit 1: Not used

Bit 2♦: Toner saving mode   0: Disabled, 1: Enabled

Bits 3 to 6♦: Not used

Bit 7♣: Copy operation   0: Possible, 1: Prohibited

4000ED(H) - User parameter switch 13 (SWusr_0D)
(NA and Asia Models)

    Bit 0♦: PSTN-1 access method from behind a PABX   0: PSTN, 1: PABX

    Bit 1♦: Not used

    Bit 2: PSTN-2 access method from behind a PABX   0: PSTN, 1: PABX

    Bits 3 to 7♦: Not used

(EU Model)

    Bits 0 and 1♦: PSTN-1 access method from behind a PABX

Bit 1	0	Setting
0	0	PSTN
0	1	Loop start (prefix)
1	0	Ground start
1	1	Flash start

    Bits 2 and 3: PSTN-2 access method from behind a PABX

Bit 1	0	Setting
0	0	PSTN
0	1	Loop start (prefix)
1	0	Ground start
1	1	Flash start

    Bits 4 to 7♦: Not used

4000EE(H) - User parameter switch 14 (SWusr_0E)

Bits 0 to 7♦: Not used

4000EF(H) - User parameter switch 15 (SWusr_0F)

Bits 0 to 7♦: Not used

4000F0(H) - User parameter switch 16 (SWusr_10)
Bits 0 and 1: Leave messages on the POP server after receiving them

Bit	1	0	Setting
	0	0	Do not save
	0	1	Save all
	1	0	Save error only
	1	1	Not used

Bit 2: Network delivery scanning using Scan Router V2 Lite
                                                                0: Disabled, 1: Enabled
Bit 3: If an error occurs during mail reception, whether to mail a notification to the
       sender.   0: Yes, 1: No
Bit 4: Whether to receive e-mail automatically when Night Timer is enabled
                                          0: Yes, but only during the day, 1: Never
Bit 5: Memory transfer with SUB code   0: Off, 1: On
  1: On
    Setting this switch On allows memory transfer with SUB receiving.
    This switch setting is related to other switch settings. This switch is enabled when
    System Switch 02 bit 2 for the Scan Router function and User Switch 08 bit 6 for
    the Forwarding function are both On.

    With System Switch 02 bit 2 and User Switch 08 bit 6 both On, but without SUB
    receiving, memory transfer cannot operate. When SUB receiving, however,
    memory transfer can proceed according to the setting of User Switch 08 bit 7 for
    specifying the transfer condition.

  0: Off
    When this switch is OFF, other switch settings do not intervene with the result
    that transmitting can proceed, provided that 1) System Switch 02 bit 2 for the
    Scan Router function and 2) User Switch 08 bit 6 for the Forwarding function are
    both On and 3) the Forwarding condition setting on the remote fax matches the
    setting on the local fax.

  NOTE: Even with Communication Switch 0A bit 1 (Memory transfer for mail Rx)
            On, transfer function for receiving mail cannot operate if this switch
            (Memory Transfer with Sub Code) is set to On.

Bits 6 to 7♦: Not used

4000F1(H) - User parameter switch 17 (SWusr_11)
Bit 0: SMTP reception   0: Off, 1: On
Bit 1: Route documents received with SMTP   0: Off, 1: On
Bit 2: Respond to request for receipt confirmation   0: Off, 1: On
Bit 3: Max mail size - same as "4. Key Op. Tools -> 15. Network" in User Tools.
Bit 4: Make a request for confirming reception when sending e-mail   0: Off, 1: On
Bit 5: PDF file type selection when scanning
                                    0: Disabled (TIFF-F/JPEG), 1: Enabled (PDF)
Bit 6: Mail reception protocol selection   0: POP3, 1: IMAP4
Bit 7♦: Not used

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4000F2(H) - User parameter switch 18 (SWusr_12)
Bit 0: PC-Fax error report   0: Off, 1: On
Bit 1: APOP   0: Off, 1: On
Bit 2: SMTP   0: Off, 1: On
Bits 3 to 4♦: Not used
Bit 5: Notification of Journal data by e-mail with csv format   0: Off, 1: On
        This setting determines whether the Journal is detected with mail (csv format).
Bit 6: POP before SMTP (check for received mail before sending mail)   0: Off, 1: On
Bit 7:Print result of sending Reception Notice Request messages
                                                    0: Disabled, 1: Enabled

4000F3(H) - User parameter switch 19 (SWusr_13)
Bits 0 to 2: Paper tray used for printing reports

Bit	2	1	0	Setting
	0	0	0	Disabled
	0	0	1	Tray 1 (Standard paper tray)
	0	1	0	Tray 2 (Optional paper tray)
	0	1	1	Tray 3 (Optional paper tray)
	1	0	0	Not used
	1	0	1	Not used
	1	1	0	Not used
	1	1	1	Bypass tray

Bits 3 to 4♦: Not used
Bits 5 to 7✲: Paper tray used for copying

Bit	7	6	5	Setting
	0	0	0	Not used
	0	0	1	Tray 1 (Standard paper tray)
	0	1	0	Tray 2 (Optional paper tray)
	0	1	1	Tray 3 (Optional paper tray)
	1	0	0	Not used
	1	0	1	Not used
	1	1	0	Not used
	1	1	1	By-pass feeder

4000F4(H) - User parameter switch 20 (SWusr_14)
Bit 0♦: Not used
Bit 1: Ex. Super fine mode in copy mode   0: Off, 1: On
Bit 2: Ex. Super fine mode in transmission   0: Off, 1: On
Bit 3: Ex. Super fine mode in reception   0: Off, 1: On
Bit 4: Vertical Blank Line Correction when scanning originals   0: Off, 1: On
Bit 5: Use the user code (name of the personal box) as the fax header
                                                    0: Off, 1: On
Bit 6♦: Not used
Bit 7✲: Display warning if scanner is dirty   0: Off, 1: On

4000F5(H) - User parameter switch 21 (SWusr_15)
Bits 0 to 7♦: Not used

4000F6(H) - User parameter switch 22 (SWusr_16)
Bits 0 to 7♦: Not used

4000F7(H) - User parameter switch 23 (SWusr_17)
PSTN-2 access code from behind a PABX (Key operator tools)
(This switch is not printed on the user parameter list.)

Access number		Hex value to program (BCD)
0		F0
⇩	➡	⇩
9		F9
00		00
⇩	➡	⇩
99		99

4000F8(H) - User parameter switch 24 (SWusr_18)
Bits 0 and 1:File retention - same as "4. Key Op. Tools -> 14. File Retention" in
          User Tools.
Bits 2 to 7♦: Not used

4000F9(H) - User parameter switch 25 (SWusr_19)
Bit 0♣: Night Timer   0: Off, 1: On
Bits 1 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 (system switch 02 bits 6 and 7).
Bits 5 and 6♦: Not used
Bit 7♦: Daylight saving time (User tools)   0: Disabled, 1: Enabled

4000FA(H) - User parameter switch 26 (SWusr_1A)
Bit 0 and 1♦: Dialing type - PSTN-1
(This switch is not printed on the user parameter list.)

Bit	1	0	Setting
	0	0	Pulse dialing (10 pps)
	0	1	Pulse dialing (20 pps)
	1	0	Tone (DTMF) dialing
	1	1	Not used

Bits 2 to 3♦: Not used
Bit 4 and 5: Dialing type - PSTN 2
(This switch is not printed on the user parameter list.)

Bit	5	4	Setting
	0	0	Pulse dialing (10 pps)
	0	1	Pulse dialing (20 pps)
	1	0	Tone (DTMF) dialing
	1	1	Not used

Bits 6 to 7♦: Not used

Service Tables

4000FB(H)♦ - User parameter switch 27 (SWusr_1B)

PSTN-1 access code from behind a PABX (Key operator tools)
(This switch is not printed on the user parameter list.)

Access number		Hex value to program (BCD)
0		F0
⇩	➡	⇩
9		F9
00		00
⇩	➡	⇩
99		99

4000FC to 4000FF(H) - User parameter switch 28 to 31 (SWusr_1C to 1F)

Bits 0 to 7♦: Not used

400100(H) - User parameter switch 32 (SWusr_20)

Bit 0: IP-Fax Gate Keeper usage   0: No, 1: Yes
Bit 1: Email Fax Transmission Auto Detection:
   When enabled, the machine can automatically detect whether or not the
   destination entered is an email address (i.e. no need to prompt the user for an
   email vs. IP confirmation, saving time). When disabled, the machine will first ask
   whether the destination is an email or IP address, then prompt the user to input
   the address.   0: Disabled 1: Enabled
Bits 2 to 7♦: Not used

400101(H) - User parameter switch 33 (SWusr_21)

Bits 0 and 1: Color transmission/reception time saver (Subsampling):
   This switch allows the user to reduce the amount of time required to receive and
   transmit color images (as e-mail attachments). The setting 0,0 takes the least
   time, but the images appear slightly lighter than usual. The setting 1,1 requires
   more time, but the image quality is closer to the original.

Bit	1	0	Setting
	0	0	4:1:1 (shorter)
	0	1	2:1:1
	1	0	Not used.
	1	1	1:1:1 (longer)

Bits 2 to 7♦: Not used

400102(H) - User parameter switch 34 (SWusr_22)

Bits 0 and 1♦: Not used
Bits 2 and 3: Default tray selection for receiving documents specified by PSTN
   Bit 2: 0: Off, 1: On
   Bit 3: 0: When received by PSTN-1, standard tray is used. When received by
               PSTN-2, a tray other than the standard tray is used.
           1: When received by PSTN-1, a tray other than the standard tray is used.
               When received by PSTN-2, standard tray is used.
Bits 4 to 7♦: Not used

400103(H) - User parameter switch 35 (SWusr_23)
Bit 0 and 1: Two-sided reception

Bit	1	0	Setting
	0	0	Off
	0	1	Messages from specified senders
	1	0	Messages from senders other than those you specify
	1	1	Not used

Bits 2 to 7◆: Not used

400104 to 40010F(H) - User parameter switch 36 to 47 (SWusr_24 to 2F)
Bits 0 to 7◆: Not used

400150 to 400163(H)◆ - RTI (Max. 20 characters - ASCII) - See the following note.
400179 to 400198(H)◆ - TTI 1 (Max. 32 characters - ASCII) - See the following note
400199 to 4001B8(H) - TTI 2 (Max. 32 characters - ASCII) - See the following note
4001B9 to 4002CC(H)◆ - CSI (Max. 20 digits - ASCII)
4002CD to 4002E0(H) - CSI for optional G3 unit (Max. 20 digits - ASCII)
4001F5(H)◆ - Number of CSI digits (Hex)
4001F6(H) - Number of CSI digits for optional G3 unit (Hex)

NOTE: If the number of characters is less than the maximum (20 for RTI, 32 for TTI), add a stop code (FF[H]) after the last character.

4001F8 to 400206(H)◆ - Service station's fax number (Max. 15 digits - ASCII)
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400216 to 400224(H)◆ - Own fax number: PSTN (Max. 15 digits - ASCII)

40029E(H)◆ - ID code (low - BCD)
40029F(H)◆ - ID code (high - BCD)

4002A0(H)◆ - Confidential ID (low - BCD)
4002A1(H)◆ - Confidential ID (high - BCD)

4002A2(H)◆ - Memory Lock ID (low - BCD)
4002A3(H)◆ - Memory Lock ID (high - BCD)

4002A6(H)◆ - Remote ID (low - BCD)
4002A7(H)◆ - Remote ID (high - BCD)

4002C1 to 4002CB(H)◆ - Daylight-saving time (Summer time)
   Amount of time shift
     4002C1(H) – Amount of time shift
       1-0xFF(H) minutes,   00(H)= 60 minutes
   Start date/time (spring):
     4002C2(H) - Month (BCD)
     4002C3(H) - Week (Hex)
     4002C4(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday
     4002C5(H) - Hour (BCD)
     4002C6(H) - Day (BCD)
          If this address is set to 00, the day of the week set in 4002C4(H) is given priority.

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End date/time (fall):
  4002C7(H) - Month (BCD)
  4002C8(H) - Week (Hex)
  4002C9(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday
  4002CA(H) - 24-Hour (BCD)
  4002CB(H) - Day (BCD)
              If this address is set to 00, the day of the week set in 4002C9(H) is given priority.

4002CC to 4002D3(H) - Last power off time (Read only)
  4002CC(H) - Clock
           00(H) - 12-hour clock (AM)
           01(H) - 24-hour clock
           02(H) - 12-hour clock (PM)
  4002CD(H) - Year (BCD)
  4002CE(H) - Month (BCD)
  4002CF(H) - Day (BCD)
  4002D0(H) - Hour
  4002D1(H) - Minute
  4002D2(H) - Second
  4002D3(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

4002D4 to 4002DB(H) - Present time (Read only)
  4002D4(H) - Clock
           00(H) - 12-hour clock (AM)
           01(H) - 24-hour clock
           02(H) - 12-hour clock (PM)
  4002D5(H) - Year (BCD)
  4002D6H) - Month (BCD)
  4002D7(H) - Day (BCD)
  4002D8A(H) - Hour
  4002D9(H) - Minute
  4002DA(H) - Second
  4002DB(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

4002DC to 4002DF(H) - Total seconds (Hex value) since 00:00:00 1st January 1990 (Read only)

4002E0 to 4002E3(H) - Optional equipment (Read only)
  4002E0(H)
      Bit 1: 40MB Memory
      Bit 4: 100 sheets by-pass tray unit
      Bit 7: Paper tray unit (upper)
      Other bits: Not used
  4002E1(H)
      Bit 0: Paper tray unit (lower)
      Bit 4: Printer unit
      Other bits: Not used
  4002E2(H)
      Bit 2: JBIG
      Bit 3: Optional G3 unit

              Bit 4: 400dpi memory
              Bit 6: NIC Fax unit
              Other bits: Not used
        4002E3(H)
              Bit 5: JPEG board
              Other bits: Not used

4002E5(H) - Type of key board
       01(H) - ABC
       02(H) - QWERTY
       03(H) - QWERTZ
       04(H) - AZERT

For the following counters, the wording in brackets indicates how these counters appear on the system parameter list.

4002EE to 4002F1(H) - LAN Tx counter (MAIL TX)

Address	High	Low
4002EE(H)	Tens digit	Unit digit
4002EF(H)	Thousands digit	Hundreds digit
4002F0(H)	Hundred thousands digit	Ten thousands digit
4002F1(H)	Ten millions digit	Millions digit

Note: The following counters have the same data format as above.

4002F2 to 4002F5(H) - LAN Rx counter (MAIL RX)

4002F6 to 4002F9(H) – LAN PC-Fax counter (LAN PC-FAX)

4002FA to 4002FD(H)♦ - Tx counter (TX)

4002FE to 400301(H)♦ - Rx counter (RX)

400302 to 400305(H)♦ - Scan counter (SCN)

400306 to 400309(H)♦ - Plotter counter (PRT)

40030E to 400311(H)♦ - ADF counter (ADF)

400312 to 400315(H) *- ADF PM counter

400316 to 400319(H) *- ADF PM interval (Default: 45,000)

40031A to 40031D(H) *- ADF roller counter (ADF ROLLER)

40031E to 400321(H) *- ADF roller interval (Default: 45,000)

400326 to 400329(H)♦ - Paper feed counter: standard cassette (MAIN CASSETTE)

40032A to 40032D(H) - Paper feed counter: upper optional cassette (CASSETTE 2)

40032E to 400331(H) - Paper feed counter: lower optional cassette (CASSETTE 3)

40033A to 40033D(H)♦ - Paper feed counter: by-pass feeder (BY-PASS)

400346 to 400349(H) - Paper feed counter: duplex (DUPLEX)

40034A to 40034D(H)♦ - Scanner total jam counter (DOC. JAM)

Service
Tables

40034E to 400351(H)♦ - Printer total jam counter (COPY JAM)

400352 to 400355(H)♦ - Paper jam counter: standard cassette (MAIN CST JAM)

400356 to 400359(H)♦ - Paper jam counter: upper optional paper tray (CST 2 JAM)

40035A to 40035D(H) - Paper jam counter: lower optional paper tray (CST 3 JAM)

400366 to 400369(H)♦ - Paper jam counter: by-pass feeder (BY-PASS JAM)

400372 to 400375(H) - Paper jam counter: duplex (DUPLEX JAM)

400376 to 400379(H)♦ - Fusing exit jam counter (EJECT JAM)

40037A to 40037D(H)♦ - Registration jam counter (PAPER JAM)

40037E to 400381(H)♦ - Printer PM counter (PM)

400382 to 400385(H)♦ - Printer PM interval (PM DEFAULT: Default: 90,000)

400386 to 400389(H)♦ - Copy counter (COPY)

40038A to 40038D(H)♦ - OPC counter (PCU)

40038E to 400391(H)♦ - OPC PM interval (Default: 45,000)

400392 to 400395(H)♦ - AIO counter (TONER)

400396 to 400399(H)♦ - Previous AIO counter (TONER(PRE)) - Not used

40039E to 4003AD(H)♦ - Excessive jam call parameters

Parameters	Address (H)		Initial Setting	Sys. Para. List
	ADF	Printer		
DEC (1 - 255; 0 = Disabled)	4003A6	4003AA	10 (H)	X
CALL (3 - 15; 0 = Disabled)	4003A7	4003AB	06(H)	Y
CLR (Low)	4003A8	4003AC	30(H)	-
(High)	4003A9	4003AD	00(H)	

Counters	Address (H)		Sys. Para. List
	ADF	Printer	
JAM: Jam counter used to place a service call	40039F	4003A3	Z
NO-JAM1: Counter used for JAM counter decrement	40039E	4003A2	-
NO-JAM2: Counter used for clearing the JAM counter	4003A0 (Low)	4003A4 (Low)	-
	4003A1 (High)	4003A5 (High)	

If the machine makes an excessive jam call, it sets a bit in RAM address 40283C(H) to 1 (bit 2 for scanner jams and bit 3 for printer engine jams). No more excessive jam calls can be made until the bit is reset to 0.

4003AE to 4003B1(H) - PC tx counter

4003B2 to 4003B5(H) - PC rx counter

4003B6 to 4003B9(H) - PC scan counter

4003BA to 4003BD(H) - PC print counter

4003BE to 4003C1(H)[♦] - Charger (charge roller) counter

4003C2 to 4003C5(H) - Charger (charge roller) interval (Default: 90,000)

4003C6 to 4003C9(H)[♦] - Fusing pressure roller counter

4003CA to 4003CD(H) - Fusing pressure roller interval (Default: 90,000)

4003E2 to 4003E5(H)[♦] - Total SC counter

4003E6 to 4003E9(H)[♦] - Paper jam counter at standard cassette

4003EA to 4003ED(H)[♦] - Paper jam counter at upper optional paper tray

4003EE to 4003F1(H)[♦] - Paper jam counter at lower optional paper tray

4003FE to 400401(H)[♦] - Paper jam counter at by-pass feeder

400406 to 400409(H)[♦] - Paper jam counter at duplex

40040A to 40040D(H)[♦] - Scanner counter: copy mode

40040E to 400411(H)[♦] - Scanner counter: fax mode

400412 to 400415(H)[♦] - Print counter by paper size: A4 paper

400416 to 400419(H)[♦] - Print counter by paper size: B5 paper

40041A to 40041D(H)[♦] - Print counter by paper size: Legal paper

40041E to 400421(H)[♦] - Print counter by paper size: Letter paper

400422 to 400425(H)[♦] - Print counter by paper size: Half-letter paper

400426 to 400429(H)[♦] - Print counter by paper size: Other paper

40042A to 40042D(H)[♦] - Total jam counter - not used

400432 to 400435(H)[♦] - SC101 counter

400436 to 400439(H)[♦] - SC120 counter

40043A to 40043D(H)[♦] - SC121 counter

40043E to 400441(H)[♦] - SC122 counter

400442 to 400445(H)[♦] - SC123 counter

400446 to 400449(H)[♦] - SC192 counter

40044A to 40044D(H)[♦] - SC302 counter

40044E to 400451(H)[♦] - SC320 counter

400452 to 400455(H)[♦] - SC322 counter

400456 to 400459(H) - SC324 counter - not used

40045A to 40045D(H)[♦] - SC350 counter

40045E to 400461(H)[♦] - SC390 counter

400462 to 400465(H)[♦] - SC391 counter

400466 to 400469(H)[♦] - SC392 counter

Service
Tables

40046A to 40046D(H)♦ - SC401 counter

40046E to 400471(H)♦ - SC402 counter

400472 to 400475(H)♦ - SC500 counter

400476 to 400479(H)♦ - SC541 counter

40047A to 40047D(H)♦ - SC542 counter

40047E to 400481(H)♦ - SC543 counter

400482 to 400485(H)♦ - SC544 counter

400486 to 400489(H)♦ - SC546 counter

40048A to 40048D(H)♦ - SC547 counter

40048E to 400491(H)♦ - SC548 counter

400492 to 400495(H)♦ - SC549 counter

400496 to 400499(H)♦ - SC550 counter

40049A to 40049D(H)♦ - SC551 counter

40049E to 4004A1(H)♦ - SC552 counter

4004A2 to 4004A5(H)♦ - SC692 counter

4004A6 to 4004A9(H)♦ - SC900 counter

4004AA to 4004AD(H)♦ - SC901 counter

4004AE to 4004B1(H) - SC999 counter - not used

4004E2 to 4004E5(H)♦ - ID sensor error counter

400525 to 400529(H) – Optional G3 ROM Information
　　400525(H) - ROM suffix
　　400526(H) - ROM version
　　400527(H) - Year (BCD)
　　400528(H) - Month (BCD)
　　400529(H) - Day (BCD)

40052A to 40052B(H)♦ - Modem ROM version (BCD)

40052C to 40052D(H)♦ - Modem ROM version for optional G3 unit (BCD)

40052E to 40052F(H)♦
　　Timer adjustment for FCU automatic reset (system switch 02 bit 4)
　　0000 to 04FF(H): 1 hour
　　0500 to FFFF(H): N x 500 ms (10.7 minutes to 9.1 hours)

400530 to 400531(H)
　　Timer adjustment for SG3 automatic reset (system switch 02 bit 4)
　　0000 to 04FF(H): 15 minutes
　　0500 to FFFF(H): N x 500 ms (10.7 minutes to 9.1 hours)

400544(H) - Number of copies for multi-sort document reception

400546 to 40056F(H)♦ - Night timer period

400546 to 400548(H) - Setting #1 for Monday
400549 to 40054B(H) - Setting #2 for Monday
40054C to 40054E(H) - Setting #1 for Tuesday
40054F to 400551(H) - Setting #2 for Tuesday
400552 to 400554(H) - Setting #1 for Wednesday
400555 to 400557(H) - Setting #2 for Wednesday
400558 to 40055A(H) - Setting #1 for Thursday
40055B to 40055D(H) - Setting #2 for Thursday
40055E to 400560(H) - Setting #1 for Friday
400561 to 400563(H) - Setting #2 for Friday
400564 to 400566(H) - Setting #1 for Saturday
400567 to 400569(H) - Setting #2 for Saturday
40056A to 40056C(H) - Setting #1 for Sunday
40056D to 40056F(H) - Setting #2 for Sunday

Program format

First byte - Hour (BCD)
Second byte - Minute (BCD)
Third byte - 00(H): Timer start time, 01(H): Timer end time

40059A to 40059B(H) - Time for economy transmission

40059A(H) - hour in 24h clock format - BCD
40059B(H) - minute - BCD

40059C to 40059D(H)♦ - Time of last RDS execution (Read-only)

These 4 bytes store the time at which RDS was last carried out. (Time is given in total seconds counted from 00:00:00 January 1, 1990.)

4005B6(H)♦ - Transmission monitor volume   00 – 07(H)

4005B7(H)♦ - Reception monitor volume 00 – 07(H)

4005B8(H)♦ - On-hook monitor volume   00 – 07(H)

4005B9(H)♦ - Dialing monitor volume   00 – 07(H)

4005BA(H)♦ - Buzzer volume   00 – 07(H)

4005BB(H)♦ - Key acknowledgment tone volume   00 – 07(H)

4005BC(H)♦ - Country code (same data as System bit switch 0F)

4005BD to 4005C1(H)♦ - Periodic service call parameters

Parameters		Address (H)
Call interval	01 through 15 month(s) (BCD) 00: Periodic service call disabled	4005BD
Next call	Year (Read only)	4005BE
	Month (Read only)	4005BF
	Day: 01 through 31 (BCD)	4005C0
	Hour: 01 through 24 (BCD)	4005C1

Service
Tables

4005C7 to 4005C9(H)♦ - Effective term of automatic service calls

Parameters	Address (H)
Year: last two digits of the year (BCD)	4005C7
Month: 01 through 12 (BCD)	4005C8
Day: 01 through 31 (BCD)	4005C9

402200 to 4022E0(H)♦ - NCU parameters (☛ 5.4)

40283C(H)♦: If the machine makes an excessive jam call, it sets a bit in this RAM address to 1 (bit 2 for scanner jams and bit 3 for printer engine jams). No more excessive jam calls can be made until the bit is reset to 0

40487C(H)♦ - Text mode selection for Fax mode (☛ 6.11.3)   01(H): Text Sharp
                                                                   02(H): Dropout

42476A to 4252A9(H) - Dedicated tx parameters for Quick Dial 01 - 90.
There are 32 bytes for each Quick Dial. Only the 23rd to 32nd bytes are used.
   42476A to 424789(H) - Dedicated tx parameters for Quick 01
   42478A to 4247A9(H) - Dedicated tx parameters for Quick 02
   4247AA to 4247C9(H) - Dedicated tx parameters for Quick 03
      ⇩
   42528A to 4252A9(H) - Dedicated tx parameters for Quick 90

4252AA to 426BA9(H) - Dedicated tx parameters for Speed Dial #00 - #200.
There are 32 bytes for each Speed Dial. Only the 23rd to 32nd bytes are used.
   4252AA to 4252C9(H) - Dedicated tx parameters for Speed #00
   4252CA to 4252E9(H) - Dedicated tx parameters for Speed #01
   4252EA to 425309(H) - Dedicated tx parameters for Speed #02
      ⇩
   426B8A to 426BA9(H) - Dedicated tx parameters for Speed #200

434730 to 435067(H) - Latest 20 error communication records (Read only)
One error communication record consists of 118 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: Character type   0: ASCII, 1: Japanese characters
   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 7th bytes - Date and time when the communication started
   3rd byte - Year (BCD)
   4th byte - Month (BCD)
   5th byte - Day (BCD)
   6th byte - Hour (BCD)
   7th byte - Minute (BCD)

8th and 9th bytes - Communication time
    8th byte - Minutes (BCD)
    9th byte - Seconds (BCD)

10th byte - Line detection status
    01(H): Ringing detection
    02(H): 1300Hz detection
    03(H): Remote detection
    04(H): CNG detection

11th and 12th bytes - Number of pages transmitted or received
    11th byte - Low byte (Hex)
    12th byte - High byte (Hex)

13th and 14th bytes - Personal code or number of total/burst error lines
    If bit 4 of the 1st byte is 0: 13th byte - Personal code (low - BCD)
                                    14th byte - Personal code (high - BCD)
    If bit 4 of the 1st byte is 1: 13th byte - Number of total error lines (Hex)
                                    14th byte - Number of burst error lines (Hex)

15th byte - File number (low - Hex)
16th byte - File number (high - Hex)

17th and 18th bytes – Destination File ID number (for system work area)

19th byte - Communication result
    00(H): OK
    80(H): NG
    FF(H): Unknown

20th byte - Type of image mode
    00(H): Text
    01(H): Gray scale
    02(H): Color
    03(H): Color/Text
    04(H): Color/Photo
    80(H): Photo

21st and 22nd bytes - Rx level or measure of error rate
    If bit 5 of the 1st byte is 0: 20th byte - Rx level (low - Hex)
                                    21st byte - Rx level (high - Hex)
    If bit 4 of the 1st byte is 1: 20th byte - Measure of error rate (low - Hex)
                                    21st byte - Measure of error rate (high - Hex)

Service Tables

23rd byte - Final modem rate
 Bits 0 to 3: Final modem speed

Bit 3	2	1	0	Setting
0	0	0	1	2.4 k
0	0	1	0	4.8k
0	0	1	1	7.2k
0	1	0	0	9.6k
0	1	0	1	12.0k
0	1	1	0	14.4k
0	1	1	1	16.8k
1	0	0	0	19.2k
1	0	0	1	21.6k
1	0	1	0	24.0k
1	0	1	1	26.4k
1	1	0	0	28.8k
1	1	0	1	31.2k
1	1	1	0	33.6k

Other settings - Not used

 Bits 4 to 7: Final modem type

Bit 6	5	4	Setting
0	0	1	V.27ter
0	1	0	V.27ter, V.29
0	1	1	V.33
1	0	0	V.27ter, V.29, V.17
1	0	1	V.27ter, V29, V.17, V.34

Other settings - Not used
 Bit 7   0: Not V.34, 1: V.34

24th to 26th bytes - Not used

27th to 50th byte - Remote terminal's ID (RTI, TSI or CSI) (ASCII)

51st to 74th byte - Local terminal's ID (RTI, TSI or CSI) (ASCII)

75th byte - Communication mode #1
 Bits 0 - 3: Resolution used

Bit 3	2	1	0	Setting
0	0	0	1	8 x 3.85 lines/mm
0	0	1	0	8 x 7.7 lines/mm
0	0	1	1	8 x 15.4 lines/mm
0	1	0	0	16 x 15.4 lines/mm
0	1	0	1	24 x 23.1 lines/mm

Bits 4 to 7: Communication mode used

Bit 7	6	5	4	Setting
0	0	0	0	Normal
0	0	0	1	Confidential
0	0	1	0	Polling
0	1	0	0	Forwarding
0	1	0	1	Automatic Service Call

Other settings - Not used

76th byte - Communication mode #2
   Bit 0: Tx or Rx   0: Tx, 1: Rx
   Bit 1: Reduction in 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
   Bit 5: Not used
   Bit 6: ECM   0: Off, 1: On
   Bit 7: Not used

77th byte - Not used

78th byte - Number of errors during communication (Hex)

79th to 82nd byte - 1st error code and page number where the error occurred
   79th byte - Page number where the error occurred (low - Hex)
   80th byte - Page number where the error occurred (high - Hex)
   81st byte - Error code (low - BCD)
   82nd byte - Error code (high - BCD)
83rd to 86th byte - 2nd error code and page number where the error occurred
87th to 90th byte - 3rd error code and page number where the error occurred
91st to 94th byte - 4th error code and page number where the error occurred
95th to 98th byte - 5th error code and page number where the error occurred
99th to 102nd byte   - 6th error code and page number where the error occurred
103rd to 106th byte   - 7th error code and page number where the error occurred
107th to 110th byte   - 8th error code and page number where the error occurred
111th to 114th byte   - 9th error code and page number where the error occurred
115th to 118th byte   - 10th error code and page number where the error occurred

436838 to 436A37(H)♦ **- Latest 64 error codes (Read only)**
One error record consists of 8 bytes of data.
First error record start address - 436838(H)
Second error record start address - 436840(H)
Third error record start address - 436848(H)
      :
64th error record start address - 436A30(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)
     00(H): PSTN
     02(H): PABX
8th byte - Not used

43FA50 to 43FA5F(H)♦ - Machine serial number - ASCII (☛ function 14)

Service
Tables

43FA64 to 43FA73(H) - Total counter information (Hex value)
The following counter values include any reports/lists. These count up as soon as the paper exit sensor detects paper.

   43FA64 to 43FA67(H) - All printing (same count as mechanical counter)
   43FA68 to 43FA6B(H) - Copy mode
   43FA6C to 43FA6F(H) - Fax mode
   43FA70 to 43FA73(H) - Printer mode

5.7   USER TOOLS

5.7.1 HOW TO ENTER AND EXIT USER TOOLS♦

Press the User Tools key, then select the User Tools program. When you are finished with the User Tools program, press the User Tools key to exit.

5.7.2 USER TOOLS TABLE

NOTE: 1) Symbol "♦" indicates that the marked item is identical to model S-C1 and S-F1 (but the address is different).
2) Symbol "♣" indicates that the marked item is identical to model S-F1 (but the address is different).

"2. Fax Features"

Level 0	Level 1	Level 2	Level 3
User Tools	1. Counter	☛ Operating Instructions	
	2. Fax Features	1. Program/Delete	☛ Operating Instructions
		2. Reports/Lists	☛ Operating Instructions
		3. Setup	**See below**
		4. Key Op. Tools	**See below**
	3. Printer Features	☛ Operating Instructions	
	4. Language	☛ Operating Instructions	

"3. Setup"

Level 0	Level 1	Level 2	Level 3
User Tools	1. Counter	☛ Operating Instructions	
	2. Fax Features	1. Program/Delete	☛ Operating Instructions
		2. Reports/Lists	☛ Operating Instructions
		3. Setup	**1. Monitor Volume♦**
			2. Display Contrast♦
			3. Date/Time♦
			4. Summer Time/DST♦*1
			5. Reception Mode♦
			6. Fax Information♦
			7. Scanner RGB
			8. Tray Paper Size♦
			9. Ppr. Tray (2 sided)
			10. By-pass Paper Type♣
			11. Auto Reset Timer♦
			12. On Hook Timeout♦
		4. Key Op. Tools	See below
	3. Printer Features	☛ Operating Instructions	
	4. Language	☛ Operating Instructions	

*1: Europe and Asia models only

"4. Key Operator Tools"

| Level 0	Level 1	Level 2	Level 3
User Tools	1. Counter	☛ Operating Instructions	
	2. Fax Features	1. Program/Delete	☛ Operating Instructions
		2. Reports/Lists	☛ Operating Instructions
		3. Setup	See above
		4. Key Op. Tools	**1. ADF Counter Reset**♦*2
			2. Authorized Rx♣
			3. Memory Lock♦
			4. Multi-copy Reception
			5. 2 Sided Reception
			6. Forwarding♦
			7. Backup File Tx
			8. Economy Tx
			9. Energy Saver Timer♣
			10. User Parameters♦
			11. ID Code♦
			12. G3 Analog Line
			13. Transfer Report
			14. File Retention
			15. Network
			16. IP-Fax Parameter
			17. Key Layout
			18. Country Code♦*1,3
			19. Memory File Transfer♦
			20. Print Position
			21. RDS On/Off♦*2
			22. System Param. TX*2
			23. Box Settings
	3. Printer Features	☛ Operating Instructions	
	4. Language	☛ Operating Instructions	
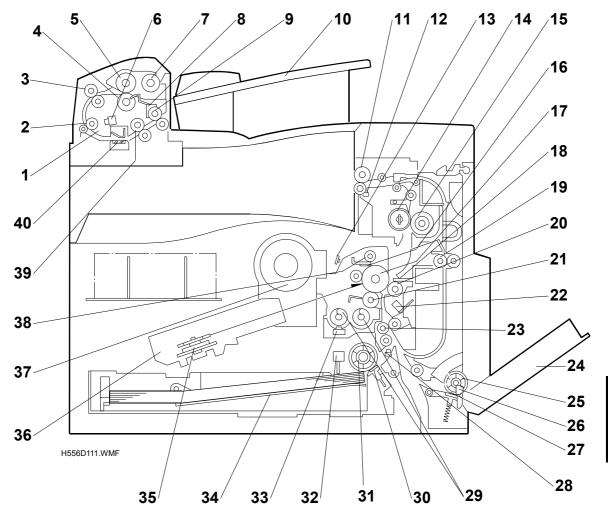
*1: Europe and Asia models only
*2: This feature may not appear on the LCD, depending on the machine settings.
*3: This feature may or may not be available, depending on country code setting.

6. DETAILED SECTION DESCRIPTIONS

6.1 OVERVIEW

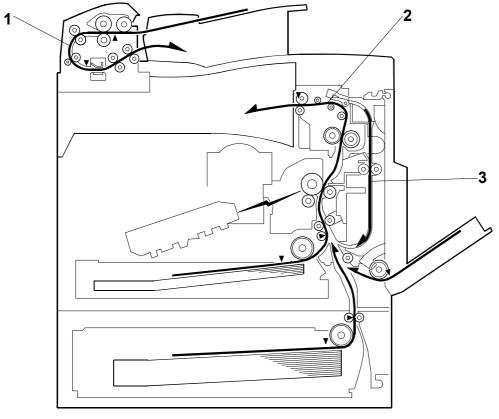### 6.1.1 MECHANICAL COMPONENT LAYOUT

H556D111.WMF

Detailed
Descriptions

1. ADF (Auto Document Feeder)
2. R1 (Transport 2) Roller
3. R0 (Transport 1) Roller
4. Separation Roller
5. Feed Roller
6. S2 (original registration) Sensor
7. Pick-up Roller
8. S1 (original set) Sensor
9. Exit Roller
10. Document Table
11. Exit Roller
12. Exit Sensor
13. Quenching Lamp
14. Hot Roller
15. Pressure Roller
16. Cleaning Blade
17. OPC Drum
18. Discharge Plate
19. Duplex Roller
20. Transfer Roller
21. Development Roller
22. ID (Image Density) Sensor
23. Registration Roller
24. By-pass Tray
25. By-pass Paper Feed Roller
26. By-pass Paper End Sensor
27. By-pass Friction Pad
28. Registration Sensor
29. Mixing Augers
30. (Main) Friction Pad
31. Paper Feed Roller
32. Paper End Sensor
33. TD (Toner Density) Sensor
34. Bottom Plate
35. Polygon Mirror Motor
36. Laser Unit
37. Toner Hopper Magazine (THM)
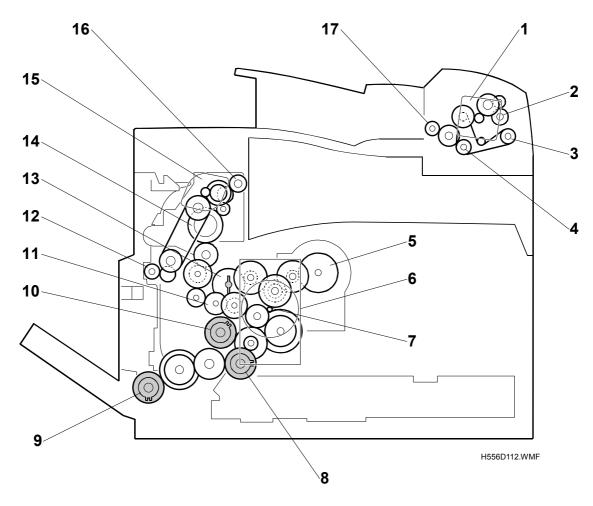38. Toner Collection Coil
39. R2 Roller
40. Exposure Glass (CIS Unit)

6.2 PAPER PATH

H556D113.WMF

1♦. Original Document Path

2♦. Printer Paper Path

3.   Duplex (Two-sided) Paper Path

6.3 DRIVE LAYOUT

H556D112.WMF
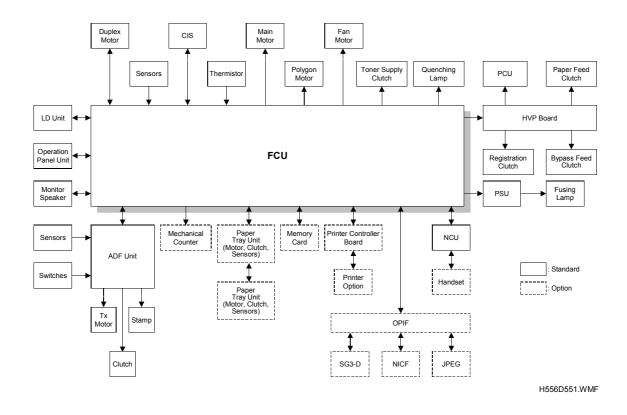
1. Tx Motor
2. R0 (Transport 1) Roller
3. R1 (Transport 2) Roller
4. R2 (Exit) Roller
5. THM Clutch♦
6. Main Motor (board)♦
7. Main Motor (drive shaft)♦
8. Paper Feed Clutch♦
9. By-pass Feed Clutch♦*[1]

10. Registration Clutch♦
11. Developer Driver Gear♦
12. Duplex Roller
13. Drum Drive Gear♦
14. Fusing Drive Gear♦
15. Duplex Motor
16. Exit Roller♦
17. Exit Roller

*1: By-pass feed clutch: This is part of the by-pass feed unit, or the By-pass
      Feeder Type 300 (H104), installed as an option for NA/Asia basic models.

6.4 BLOCK DIAGRAM: PCBs AND COMPONENTS

H556D551.WMF

NOTE: The FCU (Facsimile Control Unit) contains logical components for overall system control, and direct interfaces for the optional equipment.

Detailed Descriptions

6.5 POWER DISTRIBUTION

6.5.1 DISTRIBUTION DETAILS

The PSU (Power Supply Unit) generates +5 V (+5 VE) and +24V (+24VE) DC, and supplies these to the FCU.

The FCU has regulators that generate supplies from +24 VE to +5 VLD for the LDDR, and also from +3 V (specifically, +3.3 V) to +5VE for internal use, as indicated in the table below.

Source	Voltage	Description
+24VE	+5VLD*♦	For the LDDR
	+24VM*	For the main motor, polygon motor, PSU, cooling fan, clutches, power pack, quenching lamp, mechanical counter and optional paper tray
	+24VED	For the CIS
	+24VMM	For the Tx motor and duplex motor
+5VE		For the operation panel and optional printer unit
	+3V	For the KVPL, CIOP, and modem.
	+3VA♦	For analog communication processing
	+3VBAT♦	Supplied from a long-term lithium battery; backs up the SRAM (programmed settings) on the FCU.
	+3VD♦	Supplied from a rechargeable lithium battery; backs up stored data DRAM and on optional IC card (both on the FCU) for 12 hours after power goes off.
	+3VE♦	For the SCP2A and flash ROM.
	+3VV♦	For the thermistor
	+5V	For the power pack, sensors, flash memory card, optional paper tray and OPIF board (SG3-D and NICF).
	+5VA♦	For analog communication processing
	+5VDS♦	For the NCU
	+5VHCT♦	For the card I/F
	+5VSPD♦	For the monitor speaker
	+5VV	For the CIS and video processing

*Supply is cut off if the interlock switch is open.
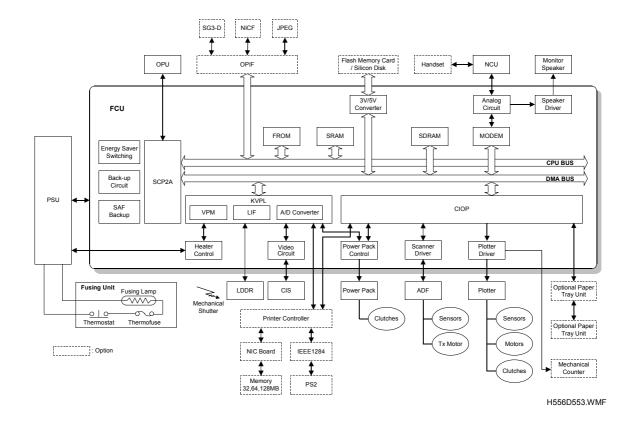
6.5.2 MEMORY BACK-UP♦

Same as Model S-F1 (☛ S-F1 service manual)

6.6 MAIN PCBs

6.6.1 FCU (FACSIMILE CONTROL UNIT)

H556D553.WMF

The FCU is the machine's main controller. It controls scanning, printing, fax operations, image processing, power-mode switching, and it interfaces with standard and optional peripherals and with the user. It holds the machine's FROM, SRAM, and DRAM, and provides the slot for the optional memory card.

SCP2A♦:

The machine's CPU. Uses a dual bus structure (CPU bus and DMA bus), and includes DMA, DCR, JBIG, and energy-save control circuits.

KVPL (Kaiser Video Processing LSI):

This chip implements video processing, utilizing the following internal blocks.
- VPM (Video Processing Module)
- Implements scanning control and image processing.
- LIF (Laser Interface)
- Implements printing control and image processing
- A/D Converter

CIOP (Communications and I/O Processing) ♦:

Implements communication and I/O control circuits. Runs at 9.83MHz (clock signal supplied by the main CPU).

FROM (Flash ROM) – 4 MB:

The machine's program memory. Packaged in a 48-pin TSOP; 90 ns access time; runs at +2.7 to +3.6 V (+3 VE). The memory content can be overwritten from a flash memory card.

SDRAM – 16 MB:

The machine's standard operating RAM. Packaged in a 54-pin TSOP; 133 MHz maximum clock speed; operates at +3.3 V (+3 VD). Allocated as follows: 6912K for page memory; 640 K for ring buffer; 7 M for the fax SAF; 800 K for working RAM; 256 K for line buffer; 128 K for ECM buffer; 224 K for OS; 128 K text SAF. The SAF backup circuit will maintain DRAM content for up to about 12 hours if power outage occurs while SAF data is being stored.

SRAM – 256 K:

Stores users settings and usage data. Packaged in a 32-pin TSOP; 70 ns access time; runs at +2.7 to +3.6 V (+3V BAT). On-board battery backup maintains memory content while power is off.

3V/5V Converter♦:

Interface between the 3 V output by the FCU and the 5 V used by service flash card.

Energy-Save Switching♦:

Controls low-power mode switching

Reset/Backup Circuit♦:

Monitors +5 VE power, and issues system reset and RTC reset signals. When the main power is off, supplies power from the primary battery to SRAM and parts of the SCP2A.

SAF Backup♦:

Backs up DRAM for up to 12 hours if power outage occurs while SAF data is being held.

Analog Processing Circuit:

Implements modem filtering, 2/4-line switching.

Modem♦:

Implements a V34 modem and code. Includes a 24.6 MHz modem clock.

Speaker Driver♦:

Drives the speaker for the buzzer and monitor sounds.

Heater Control♦:

Processes signals from the thermistor controlling the fusing heater.

Video Processing Circuit:

Interface with the color CIS.

Power Pack Control♦:

Interface with the high-voltage power supply unit. (Implements PWM control and receives feedback.)
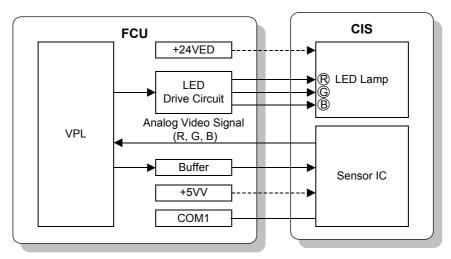
Scanner Driver♦:

Drives the Tx motor and interfaces with the ADF.

Plotter (Printer Engine) Driver♦:

- Drives the main, polygon and duplex motors; the feed, by-pass, registration, and toner-supply clutches; the quenching lamp; and the fan.
- Interfaces with the exit, paper-end, registration, ID, and TD sensors.

Detailed Descriptions

6.6.2 CIS (CONTACT IMAGE SENSOR) UNIT

H556D554.WMF

FCU

Controls all fax features and communications. The FCU supplies power to the CIS LEDs and processes the analog video signals from the Sensor IC of the CIS.

LED Drive Circuit: Powers the LEDs of the CIS.

KVPL: The KVPL (Kaiser Video Processing LSI) is the chip on the FCU that performs video processing.

Buffer: Buffers the CIS drive signals and boosts them from 3 V to 5 V. The KVPL is a 3V system, so the signals must be boosted before sending them to the CIS.

CIS

The CIS (Contact Image Sensor) is a compact reading device, consists of (1) three colors (Red, Green and Blue) of LEDs, which operates as the light source for scanning the originals, and (2) an array of self-focusing optic fibers (SELFOC). For monochrome scanning, red and green LEDs light. For color scanning, one scan line is scanned by three LEDs in order: red, green then blue. Light from the LEDs are projected onto the original and reflected back onto the self-focusing fiber optical array and then to the Sensor IC. The entire assembly is below the original document (loaded face up and transported over the exposure glass face down), approximately 0.1 mm from the surface of the original.
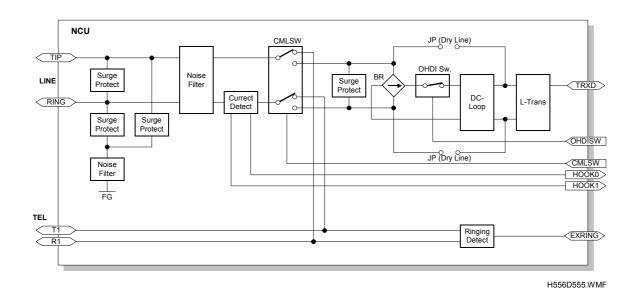
LED Lamps: Sealed diodes that switch on when a very low current passes through them. The LED lamps provide the light source for scanning the original as it passes over the exposure glass above. Signals from the KVPL switch the LEDs off and on at the start and end of scanning.

Sensor IC: Light-sensitive phototransistors that convert the light reflected from the original into video image signals and sends them to the KVPL.
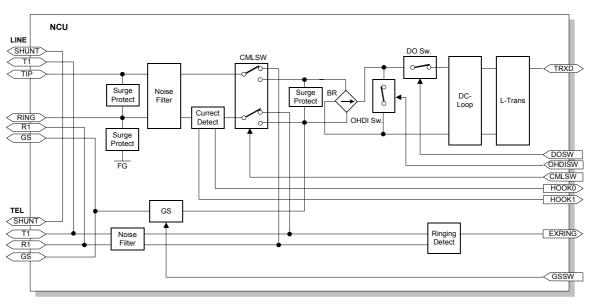
6.6.3 NCU (NETWORK CONTROL UNIT)

The NCU implements the interface between the fax system and the telephone network.

North America version

H556D555.WMF
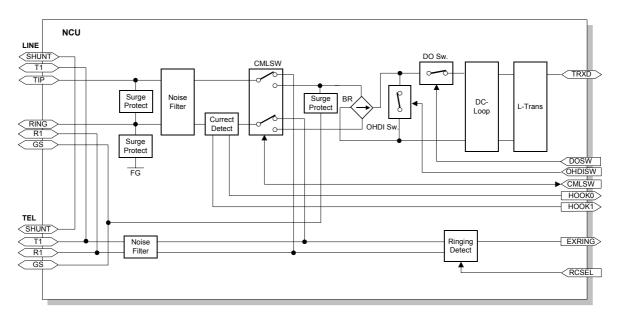
Europe version

H556D556.WMF
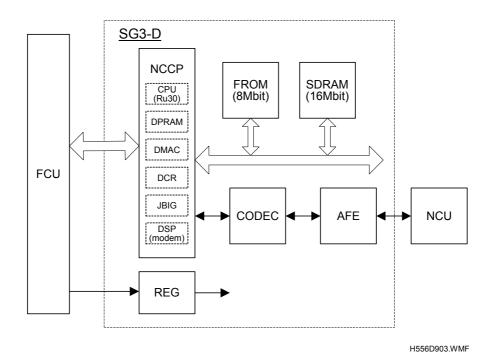
Asia version

H556D557.WMF

6.6.4 SG3-D

H556D903.WMF

The SG3 board allows up to two simultaneous communications when used in combination with the FCU.

NCCP (New Communication Control Processor):
- Controls the SG3 board.
- CPU (RU30)
- DPRAM (Dual Port RAM): Handshaking with the FCU is done through this block.
- DMA controller
- JBIG
- DSP V34 modem (RL5T892): Includes the DTMF Receiver function
- DCR for MH, MR, MMR, and JBIG compression and decompression

FROM:
- 8M flash ROM for SG3 software storage and modem software storage

SDRAM:
- 16M DRAM shared between ECM buffer, line buffer, and working memory

AFE (Analog Front End):
- Analog processing
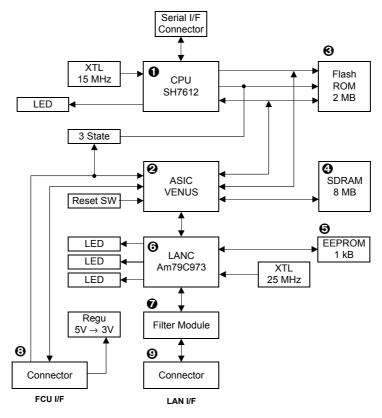
CODEC (COder-DECoder):
- AD & DA conversions for modem

REG:

Supplies +3.3 V from +5 V of the FCU

Detailed Descriptions

6.6.5 NICF (NETWORK INTERFACE CARD FOR FACSIMILE)

H556D904.WMF

The NICF provides a standard fax IEEE802.3/IEEE802.u LAN interface and uses a CPU to effect protocol processing.

❶ **CPU:** An RISC CPU, high performance DSP, and peripheral functions are combined on one CPU chip (SH7612). The SH7612 receives the requests from the LANC and option bus and releases the external bus.

❷ **ASIC (VENUS):** The ASIC provides the central point for the control of bus arbitration for CPU access, for option bus and SDRAM access, for SDRAM refresh, and for management of the internal bus gate.

❸ **Flash ROM:** The 16 Mbit Flash ROM stores the program code.

❹ **SDRAM:** The 64 Mbit SDRAM provides shared memory for the option bus and CPU, the TX/RX buffer for the LAN, the work area for the CPU, and program area for the CPU.

❺ **EEPROM:** The EEPROM is a 1 Kbit serial ROM (93C46 compatible). It stores the MAC addresses and the initial parameters for the LANC register.

❻ **LANC:** The LANC is the LAN controller that controls communication with the sublayers below the MAC in the OSI model. MAC, or the media access control, is sublayer 2 of the OSI model. The OSI (Open System Interconnection) reference model, is a 7-layer fruitcake framework upon which network standards are hung.

❼ **Filter Module:** The filter module consists of an insulated transformer and choke coil.

❽ **FCU I/U:** Interfaces the NICF with the FCU of the machine.

❾ **LAN I/F:** Consists of an RJ-45 module jack and an 8-pin connector.

Detailed Descriptions

6.7 VIDEO DATA PATH

6.7.1 TRANSMISSION◆

Same as Model S-F1 (☛ S-F1 service manual)

6.7.2 RECEPTION◆

Same as Model S-F1 (☛ S-F1 service manual)

6.7.3 COPYING◆

Same as Model S-F1 (☛ S-F1 service manual)

6.7.4 SCANNING

Monochrome Scanning

The CIS (Contact Image Sensor) scans the original at the selected resolution, and then the data is compressed by MMR in the SCP2A and stored in SAF memory. Next, the data is decompressed, then compressed again, using MH format (for TIFF) or MMR (for PDF). The compressed data goes to the LAN via the NICF board.
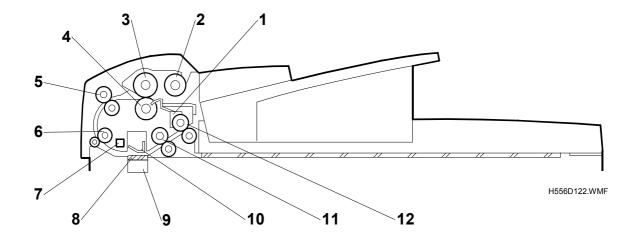
Color Scanning

The CIS (Contact Image Sensor) scans the original at the selected resolution, then the data goes to JPEG board for compression using JPEG format. Next, the compressed data goes to the LAN via the NICF board.

6.8 COPY PROCESS OVERVIEW ◆

Same as Model S-F1 (☛ S-F1 service manual)

6.9 ORIGINAL SCANNING

H556D122.WMF

1. S1 (original set) Sensor
2. Pick-up Roller
3. Feed Roller
4. Separation Roller
5. R0 (Transport 1) Roller
6. R1 (Transport 2) Roller

7. S2 (original registration) Sensor
8. Exposure glass
9. CIS (Contact Image Sensor)
10. White Pressure Plate
11. R2 Roller
12. Exit Roller

6.9.1 OVERVIEW

***Pickup*◆**

Same as Model S-F1 (☛ S-F1 service manual)

***Separation*◆**

Same as Model S-F1 (☛ S-F1 service manual)

***Transport*◆**

Same as Model S-F1 (☛ S-F1 service manual)

***Scanning*◆**

Same as Model S-F1 (☛ S-F1 service manual)

Detailed Descriptions

Exit

The R2 roller (11) and the Exit roller (12) feed the original onto the document table. After the last sheet is fed, the Tx motor reverses briefly and raises the pick-up roller.

Stamping

The stamp unit is located between R2 roller (11) and Exit roller (12). The timing of stamping documents after scanning depends on the transmission method (immediate or memory transmission).
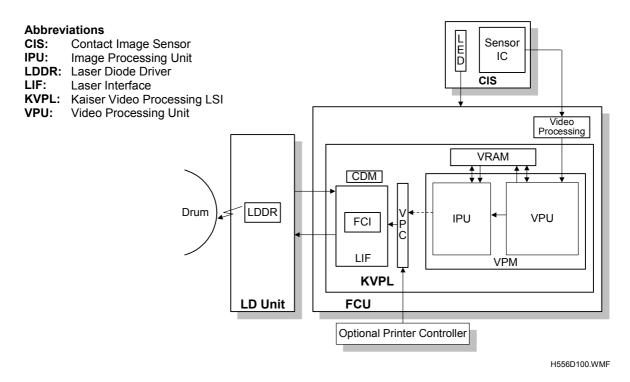
6.10 JAM CONDITIONS ♦

Same as Model S-F1 (☛ S-F1 service manual)

6.11 IMAGE PROCESSING

6.11.1 OVERVIEW

Abbreviations
CIS: Contact Image Sensor
IPU: Image Processing Unit
LDDR: Laser Diode Driver
LIF: Laser Interface
KVPL: Kaiser Video Processing LSI
VPU: Video Processing Unit

H556D100.WMF

The scanned image is processed by the following modules.

In the CIS

- When the original reaches S2 (the original registration sensor), the KVPL switches on the LEDs in the CIS to illuminate the original over the exposure glass for scanning.
- The self-focusing fiber optics of the CIS focus the image and send it to the Sensor IC which then relays the image to the KVPL as analog video signals for processing by the KVPL

In the KVPL Chip on the FCU

VPU: Video correction (black level, shading, peak tracking and correction), image correction (gamma correction), and reduction processing (in main-scan direction). (☛ 6.11.2)

IPU: Magnification processing (in main scan direction), filtering, second gamma correction (fax only), etc. (☛ 6.11.2))
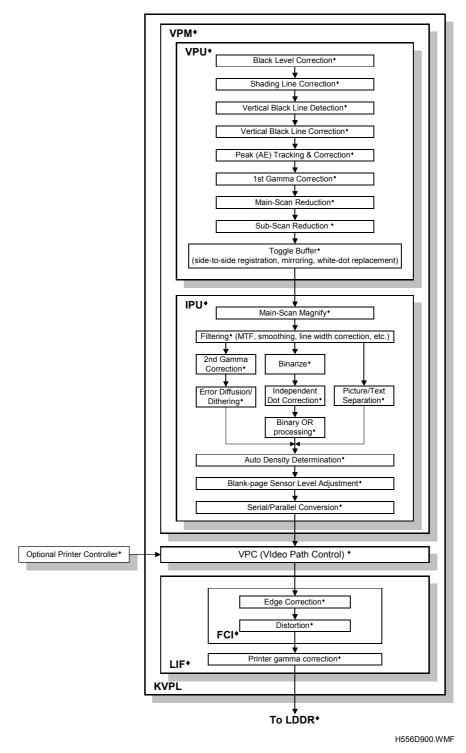
LIF: Smoothing, edge correction, FCI (fine character adjustment) (☛ 6.11.2)

The data then moves to the LD drive board in accordance with timing controlled by the FCU. The VPU and IPU are submodules of a larger module, the VPM (Video Processing Module). The VPM includes interface components (not shown) that interface these submodules to the VRAM processing memory. The VPC (Video Path Control circuit) controls which signal is sent to the LIF.

Detailed Descriptions
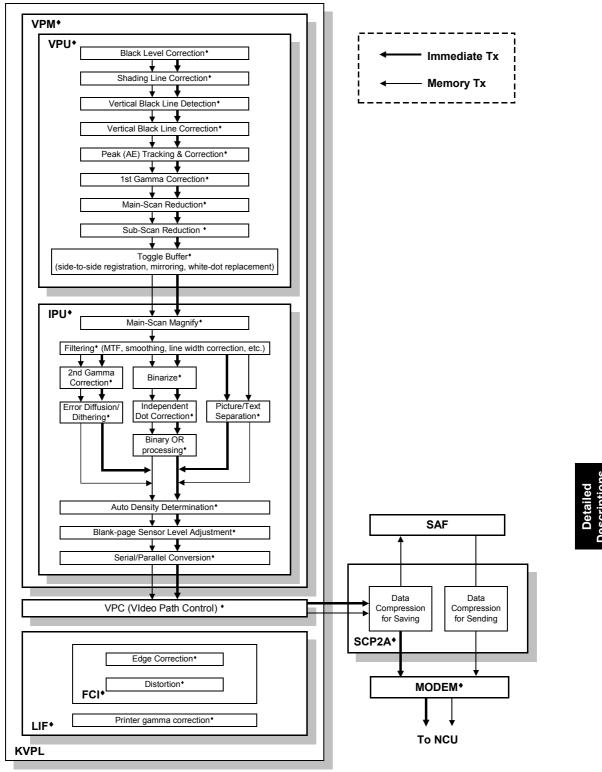
6.11.2 IMAGE PROCESSING PATH

The diagram below shows the image processing steps. The steps that are actually carried depend on the selected original processing modes and on adjustments made with the relevant SPs.

Copy and Printer

H556D900.WMF
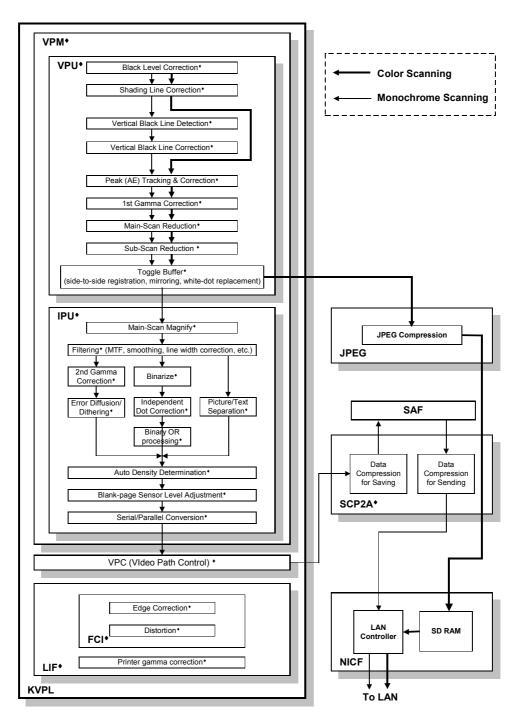
Fax Transmission

H556D902.WMF

Scanning

VPM

VPU
- Black Level Correction
- Shading Line Correction
- Vertical Black Line Detection
- Vertical Black Line Correction
- Peak (AE) Tracking & Correction
- 1st Gamma Correction
- Main-Scan Reduction
- Sub-Scan Reduction
- Toggle Buffer (side-to-side registration, mirroring, white-dot replacement)

IPU
- Main-Scan Magnify
- Filtering (MTF, smoothing, line width correction, etc.)
- 2nd Gamma Correction
- Binarize
- Error Diffusion/ Dithering
- Independent Dot Correction
- Picture/Text Separation
- Binary OR processing
- Auto Density Determination
- Blank-page Sensor Level Adjustment
- Serial/Parallel Conversion

VPC (VIdeo Path Control)

FCI
- Edge Correction
- Distortion

LIF
- Printer gamma correction

KVPL

Color Scanning

Monochrome Scanning

JPEG Compression

JPEG

SAF

Data Compression for Saving

Data Compression for Sending

SCP2A

LAN Controller

SD RAM

NICF

To LAN

H556D901.WMF

6.11.3 ORIGINAL MODES

The machine offers six original modes for copying, transmitting faxes and color scanning.

NOTE: Color scanning:
  For EU/Asia models, the NIC Fax Unit Type 410 and Color Unit Type 410 are required. For the NA model, the Color NIC Fax Unit Type 410 is required.

Original Mode Summary

Original mode selection determines how the original is scanned for copying or fax sending or scanning (monochrome or color). Here is a summary of the six modes:

Mode	Also Called	Intended For...
Text Copy	Text Normal	Normal text originals. Copy default.
Text Fax	Text Sharp	For newspapers or other originals through which text on the rear side is moderately visible. Fax default.
Fax Special	Dropout	Stronger removal of dropout colors.
Photo 1	Photo Normal	Normal photos. Employs error diffusion. 🅲🆃
Photo 2	Photo Smooth	Photos with visible pixels (newspaper photos, etc.) Employs dithering. 🅲🆃
Color Scanning and	Color Scan	Color scan mode
Text Printer	Printed Text	The so-called "plotter" (printer engine) modes. (☛ S-F1 S/M)
Photo Printer	Printed Photos	

NOTE: For monochrome scanning, "Text Fax" mode is applied.

Original Mode Selection

Text Copy (Normal)

Automatically selected by the machine if the scanned original is to be copied.

Text Fax (Sharp)

Automatically selected by the machine if the scanned original is to be sent as a fax, unless the customer engineer has selected Fax Special by changing the setting for the SRAM address (see below).

Fax Special (Dropout)

Can be used instead of Text Fax if the user is having difficulty with the quality of transmitted faxes. The mode used by the machine is determined by the value set for SRAM address 40487C(H) (☛ 5.6).

To change the mode select either:

- Fax service function: 6. Memory
- Copier service SP: SP7-955

To change to Fax Special (Dropout), write 02H into this address, or to restore the setting to Text 2 (Text sharp), write 01H into this address.

Photo Normal / Photo Smooth

Same as Model S-F1 (☛ S-F1 service manual)

6.11.4 MODE ADJUSTMENTS (COLOR SCANNING)

To customize image processing mode

As the customer engineer, you can use SP codes 4-922 to 4-936 to further customize for color scanning to meet specific user requirements.

If the user is experiencing a problem with color image quality, proceed as follows:

1. First, use SP4-921 to select the color scanning mode.

2. Next, while referring to the table below, enter the relevant settings for SP4-922 to SP4-936.

6.11.5 IMAGE PROCESSING STEPS FOR COLOR SCANNING

Figures in brackets: SP mode default settings | : Not used

Image Processing Path		Color Scanning	Adjust with
Shading correction	Shading Line Correction	Enabled	
	Vertical Black Line Correction		
	Peak (AE) Tracking		
	Peak (AE) Correction	Normal (0)	SP4-934 SP4-936
	1st γ Correction	Normal (0)	SP4-922 SP4-923
Magnification	Main-scan/ Sub-scan reduction	Enabled	
	Mirroring		
	Side-to-side Registration	Enabled	
	Main-scan Magnification	Enabled	

NOTE: For more details about "Image Processing Steps For Each mode" other than color scanning, refer to the S-F1 service manual.

For more details about all the settings available for SP4-921, and SP4-922~SP4-936, see Section "5. Service Tables".

Default plotter (printer engine) customization settings for each mode♦

Same as Model S-F1 (☛ S-F1 service manual)

6.11.6 COLOR SCANNING IMAGE ADJUSTMENT (USER MODE)

Scanner RGB

Color balance for color scanning can be adjusted with the Scanner RGB feature. To do this:

Fax Features> Setup> Scanner RGB, then select the color Red or Green or Blue and adjust. (☛ Operating Instructions)

Image quality

The balance of brightness and color differences can be adjusted using User Parameter switch 33 (21[H]) bit 0 and 1. (☛ Operating Instructions)

6.11.7 VERTICAL BLACK LINE CORRECTION

Almost same as Model S-F1 (☛ S-F1 service manual).

Differences between S-F1 and S-F2 are RAM Addresses as follows:

This table is a part of the System Parameter List

402100	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
402100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402110	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402120	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402130	00	00	08	00	00	00	00	00	00	00	00	00	2D	00	0F	00
402140	00	00	08	00	01	00	00	00	0F	00	00	00	00	00	00	00
402150	02	00	06	00	07	00	00	00	00	00	00	00	00	00	00	00
402160	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402170	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402180	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
402190	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4021F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Count Detection Parameters List

Please refer to the sample on the previous page as you read the table descriptions below.

Address	Count	Detection Conditions
40213C, D	Vertical Black Line Detections	Number of jobs in which an abnormal pixel was detected before page 1 of the original was scanned. Increments only by 1 per job.
40213E, F	Pixels of Abnormal Width – Correctable	Increments by 1 for every abnormally wide pixel that can be corrected electronically. The electronically correctable width depends on a special setting made at the factory before shipping. (Currently this width is set for 1 pixel.) Also, if alternating pixels ○ ● ○ ● are detected, the counter is incremented.
402140, 1	Pixels of Abnormal Width – Not Correctable	Increments by 1 for every abnormally wide pixel that cannot be corrected electronically. The electronically correctable width depends on a special setting made at the factory. (Currently this width is set for 1 pixel.)
402142, 3	Abnormal Pixels – Consecutive occurrence at the same place (1 time)	Increments by 1 if an abnormal pixel occurred, but had disappeared from that place by the start of the next job (for example, the exposure glass was cleaned or the original brushed away the speck of dust).[1]
402144, 5	Abnormal Pixels – Consecutive occurrence at the same place (2~9 times)	Increments by 1 if an abnormal pixel occurred at the same place on the scan line 2 to 9 consecutive times, but was not there at the start of the next job (for example, the exposure glass was cleaned or the original brushed away the speck of dust).[1]
402146, 7	Abnormal Pixels – Consecutive occurrence at the same place (10 or more times)	Increments by 1 if an abnormal pixel occurred at the same place on the scan line 10 or more consecutive times, but was not there at the start of the next job (for example, the exposure glass was cleaned or the original brushed away the speck of dust).[1]
402148, 9	Abnormal Pixel Width Counter: 2~3 Pixels Wide	Increments by 1 every time an abnormal pixel 2~3 times wider than 1 pixel is detected. If more than one pixel is detected, the counter updates once for each pixel detected.
40214A, B	Abnormal Pixel Width Counter: 4~6 Pixels Wide	Increments by 1 every time an abnormal pixel 4~6 times wider than 1 pixel is detected. If more than one pixel is detected, the counter updates once for each pixel detected.
40214C, D	Abnormal Pixel Width Counter: 7~12 Pixels Wide	Increments by 1 every time an abnormal pixel 7~12 times wider than 1 pixel is detected. If more than one pixel is detected, the counter updates once for each pixel detected.
40214D, F	Abnormal Pixel Width Counter: 13 or More Pixels Wide	Increments by 1 every time an abnormal pixel 13 times or more wider than 1 pixel is detected. If more than one pixel is detected, the counter updates once for each pixel detected.
402150, 1	Abnormal Pixels in CIS Block 1	Increments by 1 if abnormal pixels are detected in Block 1[2] of the CIS.
402152, 3	Abnormal Pixels in CIS Block 2	Increments by 1 if abnormal pixels are detected in Block 2[2] of the CIS.
402154, 5	Abnormal Pixels in CIS Block 3	Increments by 1 if abnormal pixels are detected in Block 3[2] of the CIS.
402156, 7	Abnormal Pixels in CIS Block 4	Increments by 1 if abnormal pixels are detected in Block 4[2] of the CIS.

[1]: This counter increments by one only when an abnormal pixel that was previously detected at a certain position has now disappeared.

[2]: The length of the CIS (Contact Image Sensor) is divided into four blocks: Block 1, Block 2, Block 3, and Block 4. The count is incremented only once even if abnormal pixels are detected at more than one location in the same block.

Detailed Descriptions

Settings for Vertical Black Line Detection*♦

Same as Model S-F1 (☛ S-F1 service manual).

Vertical Black Line Warning Message♦

Same as Model S-F1 (☛ S-F1 service manual).

6.12 LASER EXPOSURE ♦

Same as Model S-F1 (☛ S-F1 service manual).

6.13 PHOTOCONDUCTOR UNIT (PCU) ♦

Same as Model S-F1 (☛ S-F1 service manual).

6.14 DRUM CHARGE♦

Same as Model S-F1 (☛ S-F1 service manual).

6.15 DEVELOPMENT♦

Same as Model S-F1 (☛ S-F1 service manual).

6.16 DRUM CLEANING AND TONER RECYCLING♦

Same as Model S-F1 (☛ S-F1 service manual).

6.17 PAPER FEED♦

Same as Model S-F1 (☛ S-F1 service manual).

6.18 IMAGE TRANSFER AND PAPER SEPARATION

6.18.1 OVERVIEW◆

Same as Model S-F1 (☛ S-F1 service manual).

6.18.2 IMAGE TRANSFER CURRENT TIMING

There are two current levels used during the transfer sequence: low and high.

1. At time of write-start signal, the high voltage supply board generates low current (5 A) to the roller. This prevents positive toner on the drum from moving to the roller.

2. After a certain time the high voltage supply board generates high current to the roller, causing toner to move from drum to paper. (See table below.)

3. After the sheet has passed the roller, current goes off (if printing is finished) or returns to low (if multicopy job with nonstop feed).

The table below shows the default high current levels. You can adjust these levels with SP2-301. But please note that setting the current too high can cause a ghosting effect (where the image at the top of the sheet repeats as a ghost lower down on the page) and in the worst case may damage the drum.

"High" Transfer Current (μA)

Paper Size	Main Tray/ Optional Tray	Duplex		By-pass		
		1st Side* (Back Page)	2nd Side** (Front Page)	Normal	Thick	Special (OHP)
A4, LT	6	6	5	6	8	8
B5	—	—	—	8	6	—
A5	—	—	—	10	6	—

*: Transfer current [1st side] = [Main Tray/Optional Tray] (μA)

**: Transfer current [2nd side] = [1st side] – 1 (μA)

6.18.3 TRANSFER ROLLER CLEANING◆

Same as Model S-F1 (☛ S-F1 service manual).

6.19 IMAGE FUSING AND PAPER EXIT◆

Same as Model S-F1 (☛ S-F1 service manual).

6.20 DUPLEX (TWO-SIDED) PRINTING

6.20.1 PREPARATION

For Duplex (Two-sided) printing, the tray for duplex printing should be programmed as a duplex paper tray. (☞ Operation Instructions).
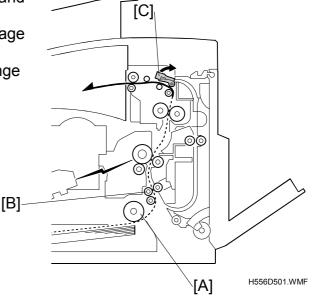
User Tools> Fax Features> Setup> Paper Tray (2 Sided)> Select the tray to enable this function.

NOTE: Duplex printing is not available for the bypass tray (optional for NA/Asia basic models)

6.20.2 DUPLEX PRINTING PROCEDURE
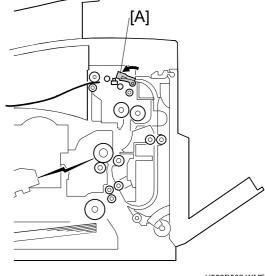
Back page printing

The paper is fed by paper feed roller [A] and stops at the registration roller [B] if the fusing unit is not ready. Then the back page is printed first with 180 degree image rotation. The paper lifts up the interchange pawl [C] and the actuator on the pawl activates the duplex sensor.

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Paper stops at the exit

After printing the back page, the paper stops for a moment at the exit and the interchange pawl [A] returns to the original position and the feeler on the pawl deactivates the duplex sensor.

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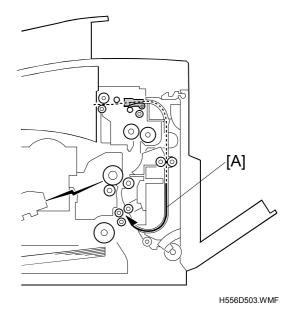
Front page printing

After a specified time has elapsed after the duplex sensor deactivates. Then the duplex motor turns on.

Next, the paper is switched back and fed into the duplex unit. The paper [A] is reversed in the duplex unit. Then front page is printed and exits onto the output tray.

[A]

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6.20.3 FEED RETRY

If the paper does not reach the registration sensor within the specified time after the duplex motor turns on, Error Code 9-86 is logged and the machine tries to feed the paper again. If the paper does not arrive at the registration sensor, then a duplex jam error is logged (Error Code: 9-85).

6.20.4 PAPER SIZE

The following paper sizes can be used for duplex printing:

- A4 SEF
- LT SEF
- LG SEF (optional paper tray)
- 8.5" x 13" SEF (optional paper tray)
- 8.25" x 13" SEF (optional paper tray)
- 8.25" x 14" SEF (optional paper tray)
- 8" x 13" SEF (optional paper tray)

Detailed Descriptions

6.20.5 LAST PAGE

When the number of original or received fax pages is odd, how the machine handles the last page is determined by the following SP setting:

SP5-941	Description
0	The machine performs duplex printing. The back page is printed as a blank, then the image is printed on the front page.
1	The machine does not perform duplex printing. The image is printed the same as normal printing.

6.20.6 ERROR CODES RELATED TO DUPLEX PRINTING

- Feed retry error: 9-86
- Jam at the duplex unit   9-85

6.21 ENERGY SAVER MODES

6.21.1 MODE TRANSITIONS◆

Same as Model S-F1 (☛ S-F1 service manual).

6.21.2 STANDBY MODES

The Energy Saver mode setting (User Parameter switch 05 bit 6) determines which standby mode is used when the machine enters energy saver mode.

The energy saver timer can be set to either 1 min., 3 min., 5 min. or "no limit" using System Switch 0B bit 2 and 3. The default is 5 minutes.

Mode	Fusing Temp.	Approx. Recovery Time	Power Consumption
Fax standby	70 °C	30 s	15 W (Basic Model) 20W (NIC Fax Model)
Energy saver standby	Room Temp.	40 s	2 W (Basic Model) 6 W (NIC Fax Model)

6.21.3 TRANSITION OPERATION◆

Same as Model S-F1 (☛ S-F1 service manual).

Detailed Descriptions

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

NOTE: 1) A symbol "♦" indicates that the marked item is identical to the model S-C1 and S-F1.
2) A symbol "♣" indicates that the marked item is identical to the model S-F1.

Type♦
Desktop type transceiver

Circuit♦
PSTN, PABX

Connection♦
Direct couple

Original Size♦
  Length:
    140 - 356 mm (5.5 - 14 in.)
    Up to 600 mm (23.6 in.), manually
    assisted
    (Up to 1200 mm (47.2 in.) adjustable
    with Scanner Switch 00 bit 2,3)
  Width:
    140 - 216 mm (5.5 - 8.5 in.)
    To determine whether an A4/Letter width
    original is detected as A4 or Letter width,
    change System Switch 0C bit 3.
  Thickness:
    52 - 105 g/m² (14 - 28 lb.)

ADF Capacity
  70 sheets with A4 recommended paper
  (thinner than 80 g/m²)
  30 sheets using A4 paper and/or over A4-
  sized paper or thicker than 80 g/m²

Scanning Method
CIS (Contact Image Sensor with LED lamp)

Scan Width
204 mm (8.0 in.) (A4)
210 mm (8.3 in.) (Letter)

Scan Resolutions
  Main scan:
    100[*1], 200, 300, 400, 600[*2] dpi
  Sub-scan:
    100, 200, 300, 400, 600[*2] dpi
  [*1]: 100 x 100 dpi is available with only color
      scan mode.
  [*2]: 600 x 600 dpi (Ex. Super Fine) is
      available when User Parameter Switch
      20 (14[H]) bit 2 is "1"

Memory Capacity
  ECM: 128 Kbytes
  SAF:
    Standard:
      7 MB (560 pages)
    Maximum:
      Up to 2200 pages using optional 40
      MB memory card
      Measured using an ITU-T #1 test
      document (Slerexe letter)

Compression♦
MH, MR, MMR, JBIG
SAF storage for memory tx: MMR and/or
raw data

Protocol♦
Group 3 with ECM

Modulation♦
V.34, V.33, V.17 (TCM), V.29 (QAM),
V.27ter (PHM), V.8, V.21 (FM)

Data Rate♦
33600/31200/28800/26400/24000/21600/
19200/16800/14400/12000/9600/7200/
4800/2400 bps, Automatic fallback

I/O Rate♦
With ECM: 0 ms/line
Without ECM: 2.5, 5, 10, 20, or 40 ms/line

Transmission Time♦
3 seconds at 28800 bps; Measured with G3
ECM, MMR and MTF off using memory for
an ITU-T #1 test document (Slerexe letter)
at standard resolution

Printing System
Laser printing; plain paper; dry toner; single
and duplex printing

Printing Speed
Maximum 15 ppm for A4 or letter size paper
9 ppm: duplex printing

Spec.

Paper Size♦
  Standard cassette:
    NA: Letter, Half-Letter LEF
    EU: A4, A5LEF
    Asia: A4, A5LEF

  By-pass tray (option for NA/Asia Basic Model):
    NA: Letter, Half-Letter, Legal
    EU: A4, A5
    Asia: A4, A5, Folio/Foolscap

  Optional paper tray unit (up to 2 units can be installed):
    NA: Letter, Half-Letter, Legal
    EU: A4, A5
    Asia: A4, A5, Folio/Foolscap

Paper Capacity♦
  Standard cassette:
    250 sheets
  By-pass tray:
    100 sheets with A4/Letter recommended paper
  Optional paper tray unit:
    500 sheets with A4/Letter recommended paper

Print Resolution
  Fax mode:
    Main Scan: 400, 600* dpi
    Sub Scan: 400, 600* dpi
   *: 600 x 600 dpi (Ex. Super Fine) is available when User Parameter Switch 20 (14[H]) bit 3 is "1"
  Copy mode:
    Main Scan: 400, 600* dpi
    Sub Scan: 400, 600* dpi
   *: 600 x 600 dpi (Ex. Super Fine) is available when User Parameter Switch 20 (14[H]) bit 1 is "1"
  Printer mode: 600 dpi

Power Supply♦
  NA: 120 ± 15 Vac, 60 ± 3 Hz
  EU/Asia: 220 - 240 Vac ± 15%,
                50/60 ± 3 Hz

Recommended Environment♦
  Temperature: 15 - 25°C [59 - 77°F]
  Humidity: 30 - 70 % Rh

Operating Environment♦
  Temperature: 10 - 32°C [50 - 89.6°F]
  Humidity: 15 - 80% Rh
Dimensions (W x D x H)
  448 x 551 x 411 mm
  (17.7 x 21.7 x 16.2 in.)
  Including tray (max. dimensions)

Weight
  Approx. 23.0 kg (50.8 lb.)
          Including cassette, tray and THM
          Excluding options

2. FEATURES

2.1 FEATURES LIST

KEY:
O = Used, **X** = Not Used
A = With optional 40MB memory card only
# = Not used in some countries
NA = Only NA version at default
Bit = Bit Switches
SF = Fax Service Functions
RM = Service RAM Addresses
SP = SP Modes

Video Processing Features	
Automatic image density	O♦
Contrast	O♦
Halftone (Basic & Error Diffusion)	O♦
MTF	O♦
Reduction before tx	X♦
Scanning Resolution – Standard	O♦
Scanning Resolution – Detail	O♦
Scanning Resolution – Fine	O♦
Scanning Resolution – Superfine	A
Smoothing to 400 x 400 dpi when printing (Rx only)	O♦

Communication Features – Automatic	
Automatic fallback	O♦
Automatic redialing (Memory tx only)	O♦
Dual Access	O♦
JBIG compression	O♣
Length Reduction	O♦
Resolutions available for reception Detail Fine Ex. Super Fine	O♦ O A
Substitute reception	O♦
V34 communication	O♦

Communication Features – User Selectable	
90° Image Rotation before tx	X♦
Action as a transfer broadcaster	O
AI Redial (last ten numbers)	O♦
Answering machine interface	O
Authorized Reception	O♣
Auto Document	O♣
Automatic Dialing (pulse or DTMF)	O♦
Automatic Voice Message	X♦
Backup File Transmission	O
Batch Transmission	O♦
Blank Sheet Detect	O♣
Book Original tx	X♣
Box Feature (Personal/Transfer)	O
Broadcasting	O♦
Chain Dialing	O♦
Communication Record Display	X♦
Confidential ID Override	O♣
Confidential Reception	O♣
Confidential Transmission	O♣
Direct Fax Number Entry	O♦
Duplex Original Scanning	O
Duplex (two-sided) Reception	O
Economy Transmission	O
Fax on demand	X♦
Forwarding	O♦
Free Polling	O♦
Groups	O
Hold	X♦
ID Reception	O
ID Transmission	O
Immediate Redialing	O♦
Immediate Transmission	O♦
ISDN	X♦
Keystroke Programs	X♦
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♦

Spec.

Communication Features – User Selectable	
Partial Image Area Scanning	X♦
Personal Codes	O♦
Personal Codes with Conf. ID	O♣
Polling Reception	O♦
Polling Transmission	O
Polling tx file lifetime in the SAF	O
Quick Dials	O♦
Reception modes (Auto, Manual)	O
Reduced Image Transmission	O
Remote control features	X♦
Remote Transfer	O
Restricted Access	O♦
Send Later	O♦
SEP/SUB/PWD/SID	O♦
Silent ringing detection	X♦
Simultaneous Broadcast	O
Specified Image area	X♦
Speed Dials	O♦
Stamp	O
Telephone Directory	O♦
Tonal Signal Transmission	O♦
Transfer Request	O
Transmission Deadline (TRD)	X♦
Turnaround Polling	X♦
Two in one	O
Vertical Black Line Correction	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♦
Auto Start Initial Setup	O♦
Center Mark	O♦
Checkered Mark	O♦
Clearing a Memory File	O♦
Clearing a polling file	O♦
Clock	O♦
Confidential ID	O
Counters	O♦
Country Code	#♦
Daylight Saving Time	O♦
Destination Check	X♦
Duplex Printing	O
Energy Saver	O♦
Fax Reset Timer	O♦
Fax Header Print	O
File Retention Time	O
File Retransmission	O
Function Programs	O
Hard Disk Filing System	X♦
Help on Demand	O♦
ID Code	O♦
Label Insertion ("To xxx")	O♦
Language Selection	O♦
LCD Contrast Adjustment	O♦
Margin Adjustment	O♦
Memory File Transfer (all files)	O♦
Memory File Printout (all files)	X♦
Memory Lock	O♦
Multi Sort Document Reception	O
On Hook Time Out	O♦
Own Telephone Number	O♦
Print Density Control	X♦
RDS on/off	NA♦
Reception Mode Switching Timer	X♦
Reception Time Printing	O♦
Remaining Memory Indicator	O♦
Reverse Order Printing	X♦
RTI, TTI, CSI	O♦

Other User Features	
Service Report Transmission	O♦
Speaker volume Control	O♦
Specified Cassette Selection	O♣
Telephone Line Type	#♦
Toner Saving Mode	O♦
TTI-2	O
TTI on/off	O♦
User Function Keys	O♦
User Parameters	O♦
Wild Cards	O♦

Reports – Automatic	
Charge Control Report	X♦
Communication Failure Report	O♦
Communication Result Report	O♦
Confidential File Report	O♣
Error Report	O♦
Fax On Demand Report	X♦
File Clear Report	X♦
File Reserve Report	O♦
Journal	O♦
Polling Result Report	O♦
Polling Tx Clear Report	O
Power Failure Report	O♦
Transfer Result Report	O
Transmission Confirmation Report	X
Transmission Result Report	O♦

Reports – User-initiated	
Authorized Reception List	O
Charge Control Report	X♦
File List	O♦
Forwarding List	O♦
Group Dial List	O♦
Hard Disk File List	X♦
Help List	O♦
Journal	O♦
Personal Code List	O♦
Program List	O
Quick Dial Label	O♦
Quick Dial List	O♦
Specified Cassette Selection List	O♦
Specified Sender List	O♦
Speed Dial List	O♦

Reports – User-initiated	
Transmission Status Report	X♦
User Function List	O♦
User Parameter List	O♦

Service Mode Features	
Back-to-Back Test	X♦
Bit Switch Programming	BS♦
Cable Equalizer	BS♦
CIS Auto Adjustment	X
Comm. Parameter Display	BS♦
Counter Read/Write	SF♦
Country Code	BS,SF♦
Auto Adjustment to Daylight Saving Time	NA,BS, RM♦
DTMF Tone Test	SF♦
Echo Countermeasure	BS♦
Effective Term of Service Calls	RM♦
Error Code Display	SF♦
Excessive Jam Alarm	RM♦
File Transfer (all files)	BS♦
Input/Output Check	SP♦ (SF)
Line Error Mark	BS♦
Log Dump List	SF
Memory Card Test	SF♣
Modem Software Download	X♦
Modem Test (including V.34/V.8)	SF♦
NCU Parameters	SF♦
Periodic Service Call	RM♦
PM Call	BS,SP♦
Printing All Communication Records Kept in Memory	X♦
Protocol Dump List	SF,BS♦
RAM Display/Rewrite	SF(SP♦)
RAM Dump	SF(SP♦)
RAM Test	SF
RDS - RAM Read/Write	O♦
- Dial Data Transfer (Quick/Speed)	O♦
- Software Transfer	O♦
Ringer Test	X♦
ROM Version Display	SF(SP♦)
Serial Number	SF(SP♦)
Service Monitor Report	SF♦

Spec.

Service Mode Features	
Service Station Number	SF♦
SMC Printing	SP♦
Software Download	SF(SP♦)
SRAM Data Backup/Restore	SF(SP♦)
System Parameter List	SF♦

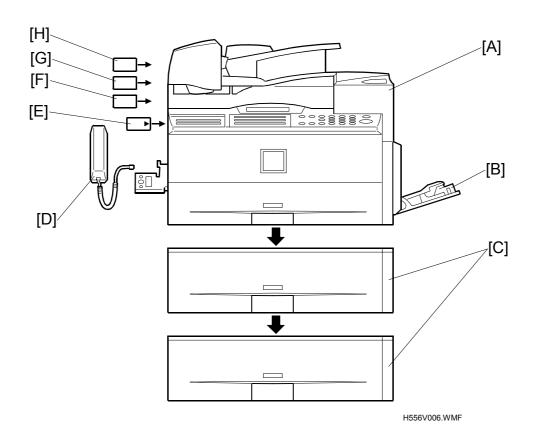| Service Mode Features	
Technical Data on the Journal	BS♦
Test Pattern Print	SF⁑
Wording List	X

2.2 CAPABILITIES OF PROGRAMMABLE ITEMS

The following table shows the maximum capacity for each programmable item.

Item	Standard	With optional memory card
Memory size	7 MB	40 MB
Number of pages that can be stored in memory (ITU-T #1 test chart at standard resolution)	560	2,200
Maximum number of memory files	250	
Number of destinations per file	250	
Maximum total number of destinations	500	
Number of pages per file	1200	2,200
Maximum number of pages overall	1200	2,200
Number of Quick Dials	90	
Number of Speed Dials	200	
Number of Groups	9	
Maximum number of destinations dialed from the ten-key pad overall	100	
Number of destinations in a group	250	
Maximum number of destinations for groups	390	
Maximum number of user function keys	10	
Maximum number of personal codes	150	
Number of digits for dialing	254	

3. MACHINE CONFIGURATION

H556V006.WMF

Model: NA = North America, EU = Europe, AA: Asia, All = All models

Version		Item	Machine Code	Model	Letter
Main Frame		Fax (One PFU, no 100-sheet by-pass)	H556	NA	A/B/C
		Fax (100-sheet by-pass)	H556	EU	A/B
		Fax (no 100-sheet by-pass)	H556	AA	A
		Fax (Color, NIC Fax, 100-sheet by-pass)	H557	NA/EU	A/B/G/H
Option	Fax	100-sheet By-pass Feeder	H104✦	NA/AA	B
		Paper Feed Unit (up to 2 units)	B421✦	All	C
		Handset	B433✦	NA	D
		40MB Memory Card	H105	All	E
		G3 Unit	H234	All	F
		NIC Fax Unit	H231	EU/AA	G
		Color Unit	H232	EU/AA	H
		Color + NIC Fax Unit	H231	NA	G/H
	Printer	Printer Controller	B441✦	All	
		NIB	B430✦	All	
		PS2	B431✦	All	
		32MB Memory	G578✦	All	
		64MB Memory	G579✦	All	
		128MB Memory	G580✦	All	

Spec.