FAX UNIT
(Machine Code: B465)
SERVICE MANUAL

This manual explains the Fax Unit, as well as the following.

- Handset (Machine Code: B433 - NA only)

24 July, 2001
Subject to change.

Lithium Batteries

⚠CAUTION
The danger of explosion exists if battery on the FCU is incorrectly replaced. **Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.**

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1. INSTALLATION

NOTES: 1) Never install telephone wiring during a lightning storm.
2) Never install a telephone jack in a wet location, 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 a telephone in the vicinity of a gas leak. If you need to report a leak, move to a different location before phoning.

⚠CAUTION

1. **Before installing the fax unit, switch off the main power and disconnect the power cord.**
2. **The fax unit includes lithium battery(s). There is risk of explosion of a battery of this type is replaced incorrectly. 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.**

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT

Refer to the service manual for the base copier.

1.1.2 MACHINE LEVEL

Refer to the service manual for the base copier.

1.1.3 MINIMUM SPACE REQUIREMENTS

Refer to the service manual for the base copier.

1.1.4 POWER REQUIREMENTS

Refer to the service manual for the base copier.

1.2 FAX UNIT

1.2.1 ACCESSORY CHECK

Confirm that you have the components and accessories indicated below.

No.	Description	Q'ty	NA	EU	Asia
1	Fax operation panel	1	O	O	O
2	Monitor speaker	1	O	O	O
3	NCU (Network Control Unit) with bracket	1	O	O	O
4	Harness for NCU - FCU	1	O	O	O
5	FCU (Fax/Function Control Unit)	1	O	O	O
6	Copy Key Top	1	O	O	O
7	Screws	6	O	O	O
8	Super G3 decal	1	O	O	O
9	Handset bracket	1	O	–	–
10	Telephone cable	1	O	–	–
11	Label(s)	1	O	–	–
12	User function key decal	1	O	V	O
13	Operation panel sheet	1	#	V	#
14	Operators Instructions - Basic Features	1	O	V	O
15	Operators Instructions - Advanced Features	1	O	V	O
16	Installation Procedure	1	O	V	O

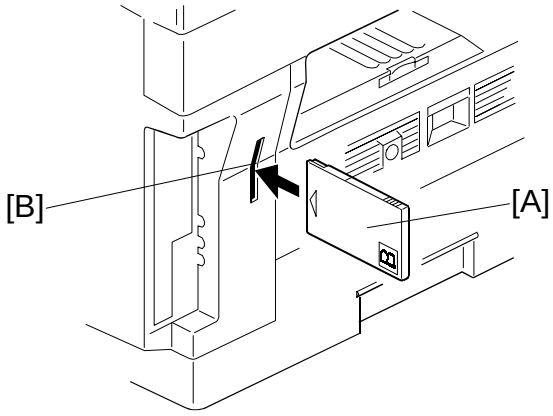
O: Included in package
V: Language kit
#: Adhered on the operation panel

1.2.2 INSTALLING THE FAX OPTION

⚠CAUTION

1. **Before starting installation, be sure to save the SRAM data (user settings) from the existing FCU into an external memory card. After completing the installation, load the save data into the new FCU.**
2. **If there is a printer option installed in the machine, proceed as follows.**
   1) Print out all print data from the printer buffer.
   2) Remove the printer option from the machine.
   3) Install the fax option.
   4) Reinstall the printer option.

1. Turn the power off, and then insert a memory card [A] into the card slot [B].



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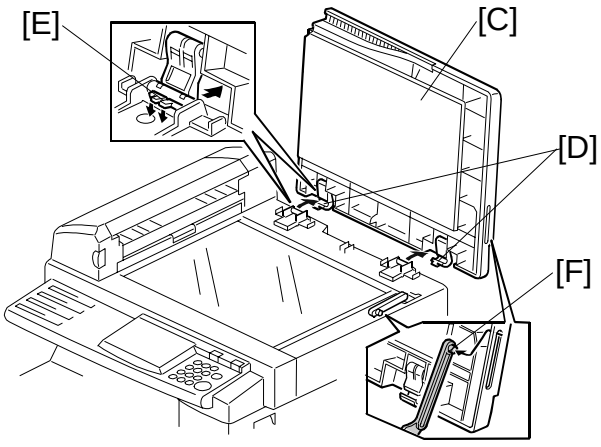
2. Turn the power on, and run SP5-824 to save (upload) the SRAM data from the current FCU into the memory card. (For instructions, see Section 5.1.8 of the base copier's service manual.)
3. Turn off the main switch, remove the memory card, and disconnect the power cord.
4. Remove the platen cover [C]. To remove: Lift the cover, unlatch the two latches [D] (press down on the tabs [E] and push the latch back), and detach the cover from the hook [F].



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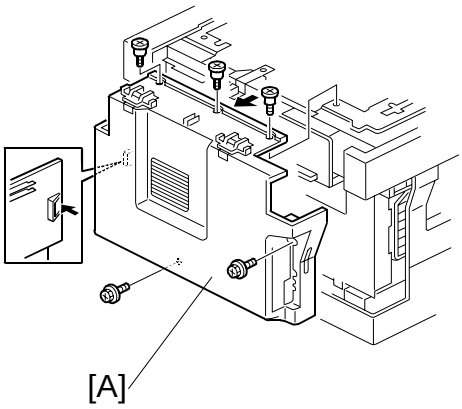
5. Remove the rear cover [A] (x 5).



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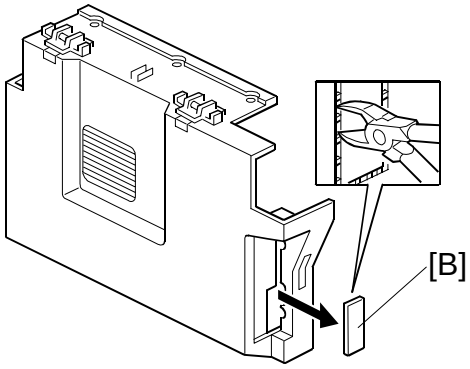
6. Cut out area [B] from the rear cover.



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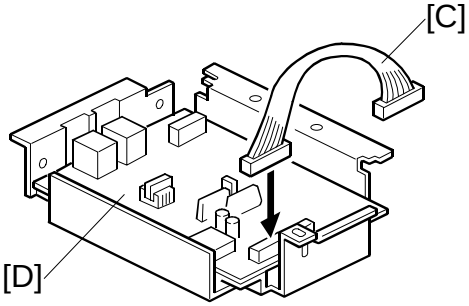
7. Connect the supplied harness [C] to the NCU [D].



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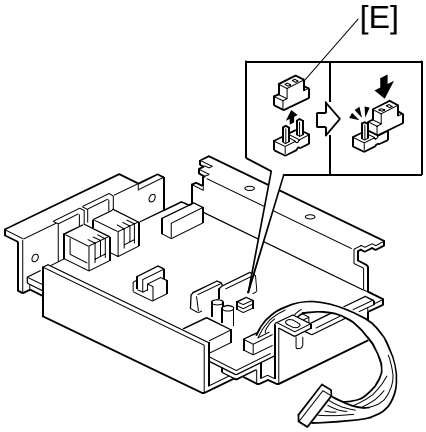
8. ***On Hong Kong models only***: On the NCU, change the position of the TB1 jumper connector [E] so that the jumper is open.



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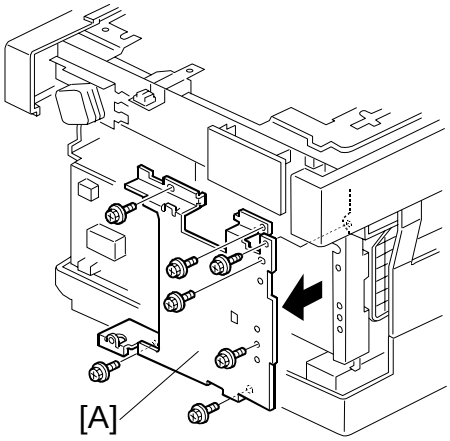
9. Remove the FCU cover plate [A] (🔩 x 7).



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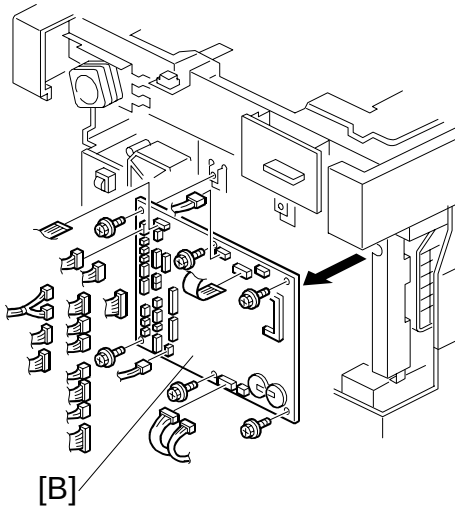
10. Remove the FCU [B] that is currently installed on the machine (all connectors, 2 flat cables, 🔩 x 6).



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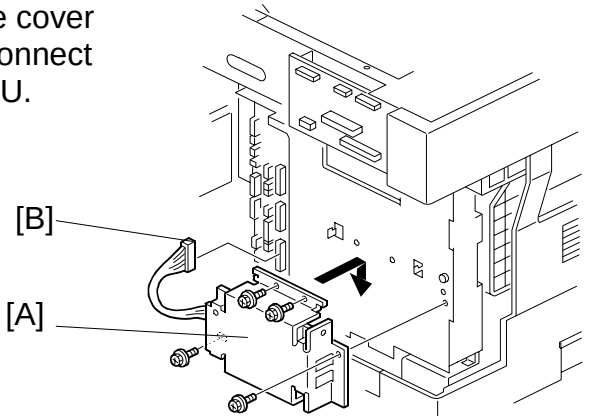
11. In place of the FCU that you just removed, install the FCU that came with the fax option (🔩 x 6, 2 flat cables, all connectors).
NOTE: Make sure that the battery switch on the FCU is turned on.

12. Reinstall the FCU cover plate that you removed at Step 9.

13. Connect the supplied harness to CN1 on the NCU.

14. Attach the NCU-and-bracket [A] to the cover plate with 4 of the supplied screws. Connect the NCU cable [B] to CN33 on the FCU.



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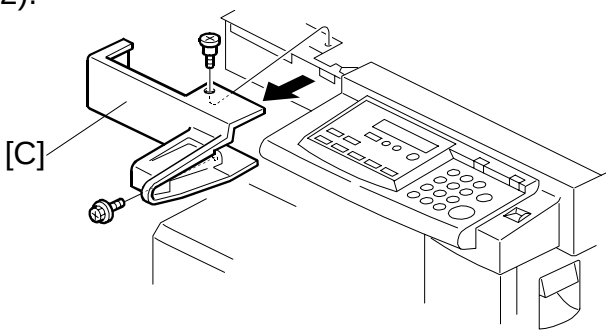
15. Reattach the rear cover.

16. Remove the front left cover [C] (x 2).



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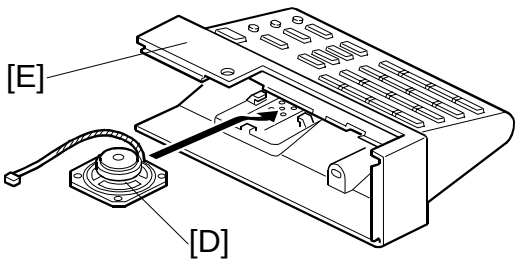
17. Set the monitor speaker [D] into the fax operation panel [E], with the speaker harness positioned as shown.



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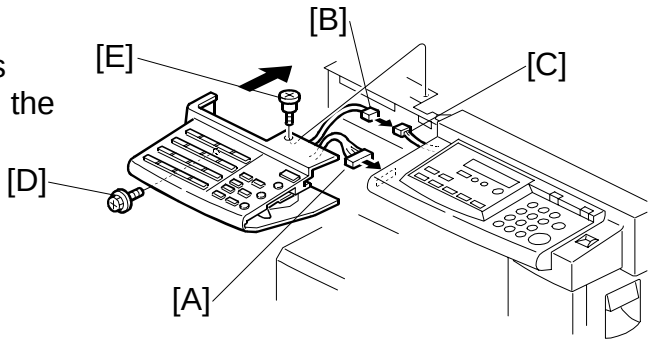
18. Connect the fax operation panel's connector [A] to the connector on the copier's operation panel.



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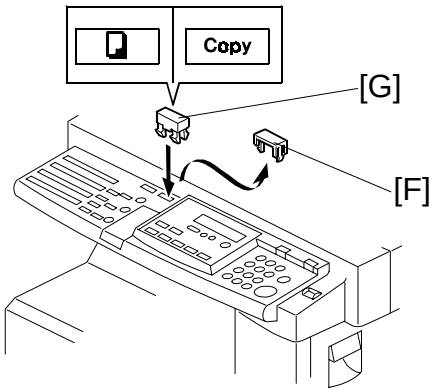
19. Connect the speaker's connector [B] to the connector [C] extending out from the copier's operation panel.
20. Attach the fax operation panel to the copier with the 2 screws ([D] and [E]) removed at Step 15. For the upper screw [E], be sure to use the shorter, headless screw.
    NOTE: If you mistakenly use the longer screw at [E], the screw will block the action of the scanner.

21. Remove the small cover [F], then attach the copy key top [G].



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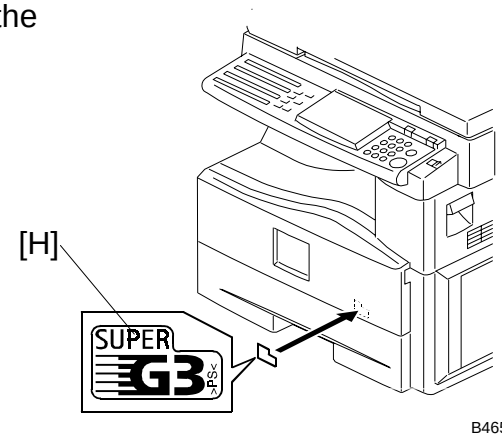
22. Reattach the platen cover.
23. Affix the packed decal(s)/label(s) on the front cover as shown.
    Example: Super G3 decal [H]



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24. Insert the telephone cable into the socket labeled “LINE” at the rear of the machine.
25. Plug in the machine and turn the main power switch on.
    NOTE: Be sure to plug the machine in to a properly grounded outlet.

26. Do the following to confirm that the fax unit is correctly installed. If results are incorrect, go back and repeat the installation procedure.
    1) Access SP5-992 and select "2" to print out a full SMC report. Confirm that the report shows a "YES" for SP7-801-3.
    2) Press the On Hook key on the fax operation panel, and confirm that you hear a dial tone coming from the monitor speaker.
27. Turn the power off, and then insert the memory card that you used at Step 2 to save the old FCU's SRAM data.
28. Turn the power on, and run SP5-825 to download the saved data from the card into the new FCU. (For instructions, see Section 5.1.8 of the base copier's service manual.)
29. Turn the power off, remove the memory card, and turn the power back on.
30. Program the items required for fax communication, as indicated below.

1.2.3 INITIAL PROGRAMMING

Items to Program (Service Level – Service Functions[*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)	07
Service station's fax number	09

Items to Program (Service Level – SP Mode[*1])	SP No.
Machine's serial number	5-811
Language replacement (Firmware download)	5-827
PSTN access code (RAM address 4000DB)	7-955
PSTN access method (RAM address 4000CD)	
Periodic service call (RAM addresses 40054F to 400553)	

*1: See Section 5.1.1 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)	
Energy saver level	System Settings
Language selection	Language
Other initial programming items	*2

*2: Refer to the Operating Instructions for details.

1.3 HANDSET (OPTION FOR NA)

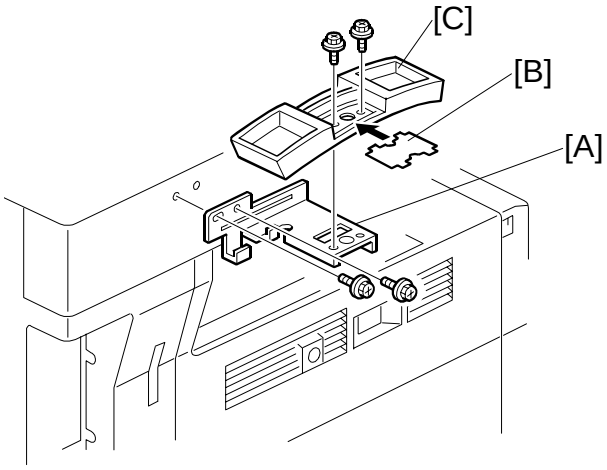
1.3.1 ACCESSORY CHECK

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] included with the fax option, using 2 of the screws included with that option.



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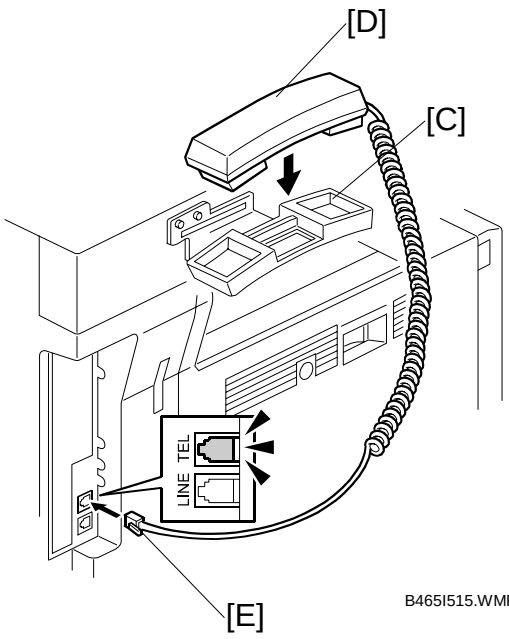
2. Remove the label [B] from the handset cradle [C]. Attach the cradle [C] to the bracket [A] using the two supplied screws. Then reattach the label.
3. Set the handset [D] on the cradle [C], and then connect the cable [E] to the TEL jack at the rear of the machine.



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2. PREVENTIVE MAINTENANCE

2.1 SPECIAL TOOLS AND LUBRICANTS

- Flash Memory Card – 4MB (P/N: N8036701)
- Card Case (P/N: N8031000)

2.2 PM TABLE

No PM necessary for the fax option.

3. REMOVAL AND REPLACEMENT

3.1 PRECAUTION

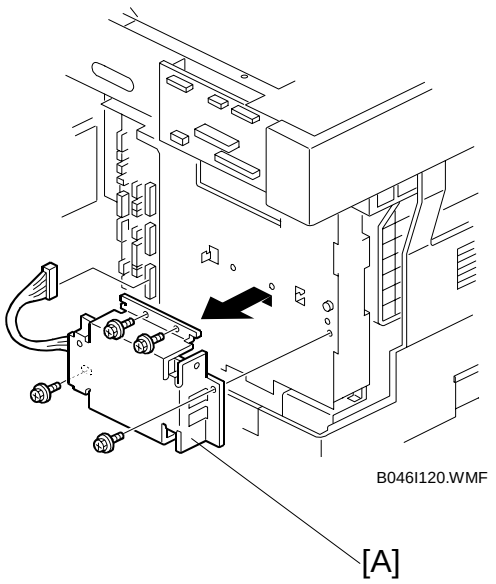
⚠CAUTION
Before starting disassembly, be sure to print all message files in the SAF memory. Then, turn off the main power switch and disconnect the power cord and telephone cable for safety.
Lithium Battery **The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same type or with an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.**

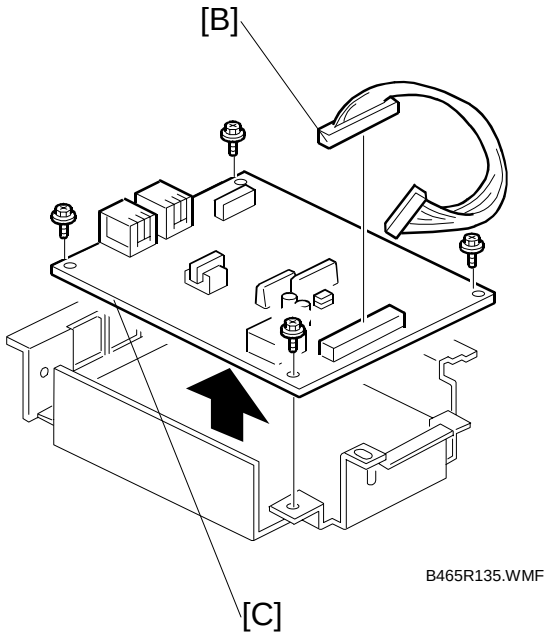
3.2 FCU

Refer to the service manual for the base copier.

3.3 NCU

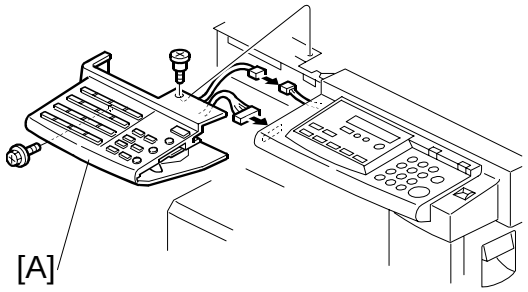
1. Rear cover (Refer to service manual for the base copier.)
2. NCU bracket (× 4) [A]
3. Disconnect the harness [B] from the NCU.
4. NCU [C] (× 4)





3.4 MONITOR SPEAKER

1. Fax operation panel [A] (☞ × 2, ☞ × 2)
2. Speaker [B]



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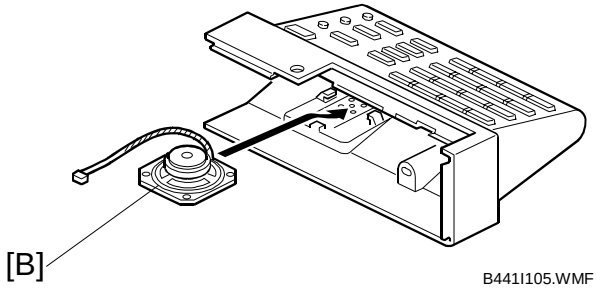

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4. TROUBLESHOOTING

4.1 ERROR CODES

If an error code occurs, retry the communication. If the same problem occurs, try to fix the problem as suggested below. Note that some error codes appear only in the error code display and on the service report.

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF not detected within 40 s of Start being pressed	• Check the line connection. • Check the NCU - FCU connectors. • The machine at the other end may be incompatible. • Replace the NCU or FCU. • Check for DIS/NSF with an oscilloscope. • If the rx signal is weak, there may be a bad line.
0-01	DCN received unexpectedly	• The other party is out of paper or has a jammed printer. • The other party pressed Stop during communication.
0-03	Incompatible modem at the other end	• The other terminal is incompatible.
0-04	CFR or FTT not received after modem training	• Check the line connection. • Check the NCU - FCU connectors. • Try changing the tx level and/or cable equalizer settings. • Replace the FCU or NCU. • The other terminal may be faulty; try sending to another machine. • If the rx signal is weak or defective, there may be a bad line. **Cross reference** • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters
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.

Code	Meaning	Suggested Cause/Action
0-06	The other terminal did not reply to DCS	• Check the line connection. • Check the FCU - NCU connectors. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. • The other end may be defective or incompatible; try sending to another machine. • Check for line problems. **Cross reference** • See error code 0-04.
0-07	No post-message response from the other end after a page was sent	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed or run out of paper. • The other end user may have disconnected the call. • Check for a bad line. • The other end may be defective; try sending to another machine.
0-08	The other end sent RTN or PIN after receiving a page, because there were too many errors	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed, or run out of paper or memory space. • Try adjusting the tx level and/or cable equalizer settings. • The other end may have a defective modem/NCU/FCU; try sending to another machine. • Check for line problems and noise. **Cross reference** • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters
0-14	Non-standard post message response code received	• Check the FCU - NCU connectors. • Incompatible or defective remote terminal; try sending to another machine. • Noisy line: resend. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. **Cross reference** • See error code 0-08.

Code	Meaning	Suggested Cause/Action
0-15	The other terminal is not capable of specific functions.	The other terminal is not capable of accepting the following functions, or the other terminal's memory is full. • Confidential rx • Transfer function • SEP/SUB/PWD/SID
0-17	Communication was interrupted by pressing the Stop key.	If the Stop key was not pressed and this error keeps occurring, replace the operation panel.
0-20	Facsimile data not received within 6 s of retraining	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Check for line problems. • Try calling another fax machine. • Try adjusting the reconstruction time for the first line and/or rx cable equalizer setting. **Cross reference** • Reconstruction time - G3 Switch 0A, bit 6 • Rx cable equalizer - G3 Switch 07 (PSTN)
0-21	EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal	• Check the connections between the FCU, NCU, & line. • Check for line noise or other line problems. • Replace the NCU or FCU. • The remote machine may be defective or may have disconnected. **Cross reference** • Maximum interval between EOLs and between ECM frames - G3 Bit Switch 0A, bit 4
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

Code	Meaning	Suggested Cause/Action
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.
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.

Code	Meaning	Suggested Cause/Action
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.
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.

Code	Meaning	Suggested Cause/Action
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
1-02	Shading error (Interval of original documents is too short)	• Check the ADF drive components and sensors.
1-08	Shading error (No Xenon lamp turns on)	• Check the xenon lamp connection • Replace the xenon lamp or FCU
1-10	Paper at the scan line when the power was turned on.	• Remove the paper. • Check the scan line sensor.
1-17	Document jam in the feed-out area	• Clear any debris from the sensor actuator. • Check the ADF drive components and sensors.
1-20	Paper did not reach the fusing exit at the end of printing	• Remove the paper. • Check the printer drive components and sensors.
1-21	Paper present at the fusing exit after printing	
1-30	Paper ran out during printing	• Add paper in the cassette.
1-34	Paper ran out after printing	
1-35	Paper lift mechanism error at the 1st optional paper tray	• Check the printer drive components and sensors of optional paper tray.
1-71	The cover was opened or the cassette was pulled out during printing	• Close the cover or put back the cassette.
2-10	The modem cannot enter tx mode	• Replace the FCU.
2-11	Only one V.21 connection flag was received	• Replace the FCU.

Code	Meaning	Suggested Cause/Action
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)	
2-28	JBIG data reconstruction error (Timeout)	
2-50	The machine resets itself for a fatal FCU system error	• If this is frequent, update the ROM, or replace the FCU.
2-51	The machine resets itself because of a fatal communication error	• If this is frequent, update the ROM, or replace the FCU.
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.
5-00	Data construction not possible	• Replace the FCU.
5-01	Data reconstruction not possible	
5-10	DCR timer expired	

Code	Meaning	Suggested Cause/Action
5-20	Storage impossible because of a lack of memory	• Temporary memory shortage. • Test the SAF memory. • Replace the FCU board
5-21	Memory overflow	
5-22	Mode table overflow after the second page of a scanned document	• Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-23	Print data error when printing a substitute rx or confidential rx message	• Test the SAF memory. • Ask the other end to resend the message. • Replace the FCU board.
5-24	Memory overflow after the second page of a scanned document	• Try using a lower resolution setting. • Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-25	SAF file access error	• Replace the FCU 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.

Code	Meaning	Suggested Cause/Action
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.
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.
9-00	PIN code response because of printer SC error	• Fix and release the SC error
9-02	DMA receiving error (PLU)	• Replace the FCU.
9-03	Paper eject error at the last page (with image data)	• Check the printer drive components and sensors
9-04	Paper eject error at the last page (without image data)	
9-05	Paper eject error	
9-07	Paper non-feed or jam at the cassette entrance	• If the problem persists, replace the FCU.
9-08	Paper jam inside the development area	
9-09	Paper jam in the fusing exit area	
9-10	Toner end detected	• Replace the cartridge.
9-12	Cover open detected during printing	• Close the cover, or check the cover sensors.
9-13	LD interlock error	• Replace the polygon motor • Replace the LD unit
9-14	PSU overheat	• Check the machine's environment • Replace the PSU
9-17	Charge corona unit failure	• If the problem persists, replace the FCU.
9-20	Laser diode failure	• If the problem persists, replace the FCU.
9-22	Fusing lamp failure	
9-23	Hexagonal mirror motor failure	
9-24	Main motor failure	
9-29	Power pack error	• Check the connections • Replace the power pack or FCU
9-50	Paper non-feed or jam inside the upper paper feed unit	• 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 in the unit.

Code	Meaning	Suggested Cause/Action
9-51	Jam at the paper exit of the upper paper feed unit.	• Check for a blockage in the paper feed path. • Check the paper feed mechanisms inside the unit. • Check if the sensor is defective.
9-60	Printer error occurs during reception	If substitute reception is switched off and a paper jam or other printer error occurs, the machine will terminate the reception. • Check the printer mechanism.
9-61	Memory overflow occurs during reception	• Check the SAF.
9-80	Bypass feed - paper non-feed or jam at the entrance	• Check the registration roller and sensor.
9-81	Bypass feed - paper length exceeds the maximum limit (600 mm)	• Check the paper feed mechanism and sensors.
9-84	Paper non-feed or jam at the cassette entrance	• Same as 9-07
22-00	Original length exceeded the maximum scan length	• Divide the original into a few pages. • Check the resolution used for scanning. Lower the scan resolution if possible. • Add optional page memory.
22-01	Memory overflow while receiving	• Wait for the files in the queue to be sent. • Delete unnecessary files from memory. • Transfer the substitute reception files to an another fax machine, if the machine's printer is busy or out of order. • Expand SAF memory.
22-02	Tx or rx job stalled due to line disconnection at the other end	• The job started normally but did not finish normally; data may or may not have been received fully. • Restart the machine.
22-04	The machine cannot store received data in the SAF	• Update the ROM • Replace the FCU.
23-00	Data read timeout during construction	• Restart the machine. • Replace the FCU
25-00	The machine software resets itself after a fatal transmission error occurred	• Update the ROM • Replace the FCU.
F0-xx	V.34 modem error	• Replace the FCU.

4.2 FAX SC CODES

Same SC codes for fax communication as for the base copier are used.

Refer to section 4.1.2 in the service manual for the base copier.

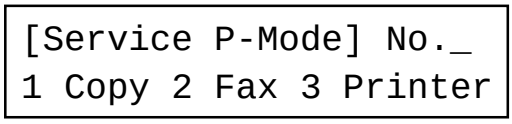
5. SERVICE TABLES

5.1 SERVICE LEVEL FUNCTIONS

5.1.1 HOW TO ENTER AND EXIT SERVICE MODE

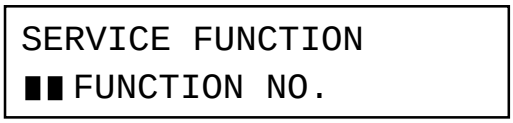
To Enter Fax Service Mode:

1. Ensure that the machine is in standby mode.
2. Press ⌨ ① ⓪ ⑦, then hold down C/© for more than 3 seconds.
   The SP mode main menu appears.



B465S501.WMF

3. Press ② to enter the fax service mode.



B465S502.WMF

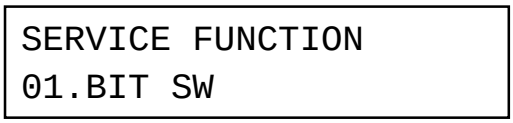
To Exit Fax Service Mode:

Press the 'CANCEL' key to exit the service mode.

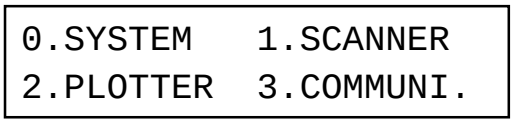
5.1.2 FUNCTION NO.

(1) 01. BIT SW

1. Enter the fax service mode.
2. Press [0] [1], then 'OK'.
   [0] - System Switches
   [1] - Scanner Switches
   [2] - Plotter Switches
   [3] - Communication Switches
   [4] - G3 Switches



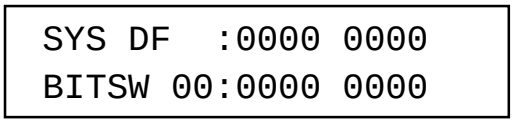
B465S503.WMF



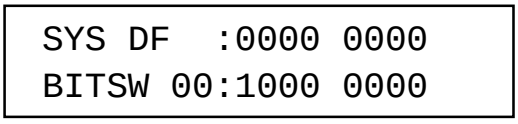
B465S504.WMF

Example

1. Press [0]
2. Scroll through the bit switches.
   To increment the bit switch number:
   Press '→'
   To decrement the bit switch number:
   Press '←'
3. Adjust the bit switch.
   Example: To change the value of bit 7, press [7].
4. To adjust more bit switches, go to step 2.
   To finish, press 'OK' then 'CANCEL'.
5. Exit the service mode.



B465S505.WMF

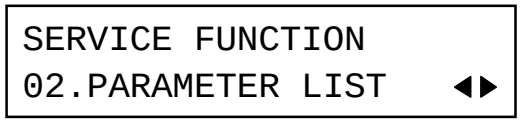


B465S506.WMF

Service Tables

(2) 02. PARAMETER LIST

1. Enter the fax service mode.
2. Press [0] [2].



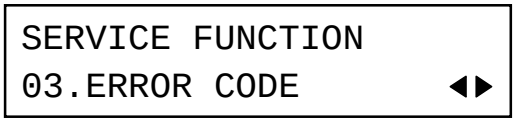
B465S507.WMF

3. Press 'OK'.
4. Press ⓜ.

B465S508.WMF

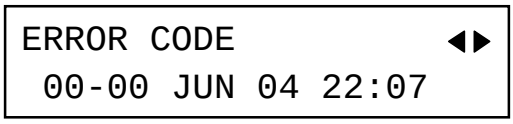
(3) 03. ERROR CODE

1. Enter the fax service mode.
2. Press [0] [3].



B465S509.WMF

3. Press 'OK'.
4. Scroll through the error codes with the arrow keys



B465S510.WMF

(4) 04. SERVICE REPORT

1. Enter the fax service mode.
2. Press [0] [4].

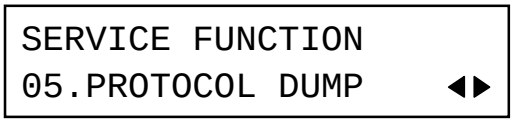
B465S511.WMF

3. Press 'OK'.
4. Press ⓜ.

B465S512.WMF

(5) 05. PROTOCOL DUMP

1. Enter the fax service mode.
2. Press [0] [5].



B465S513.WMF

3. Press 'OK'.
4. Select '1–COMMUNICATION' or 'ALL–COMMUNICATIONS' with the arrow keys, then press 'OK'.

B465S514.WMF

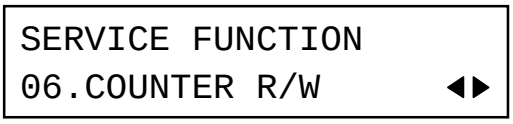
B465S515.WMF

5. Press ⓞ.

B465S516.WMF

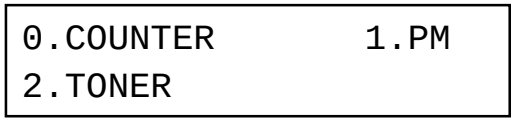
(6) 06. COUNTER R/W

1. Enter the fax service mode.
2. Press [0] [6], then 'OK'.

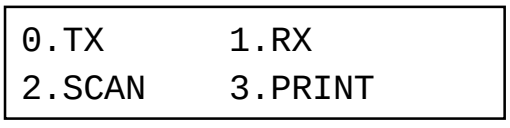


B465S517.WMF

3. Either:
   Check the transmitted, received, scanned
   and printed page counters, and the printer and scanner jam counters - press [0].
   Check the PM counter - press [1].
   Check the Toner counter - press [2].
   Example: Press [0].



B465S518.WMF



B465S519.WMF

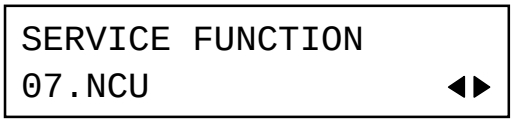
4. To check the received counter, press [1].

B465S520.WMF

5. To change the contents of a counter, input the new value, then press 'OK'.
6. To finish, press 'CANCEL'.

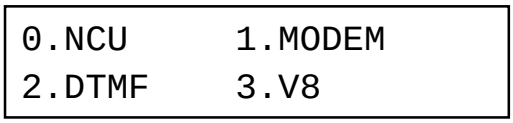
(07) 07. NCU

1. Enter the fax service mode.
2. Press [0] [7].

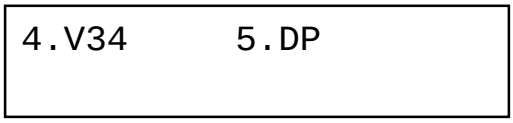


B465S527.WMF

3. Press 'OK'.
4. Select an item from the menu, then press ⓞ.



B465S528.WMF



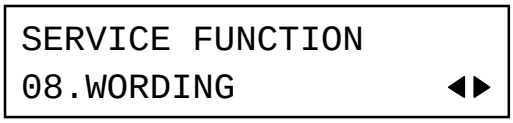
B465S533.WMF

   0. NCU:
      NCU parameters
   1. MODEM:
      MODEM test
   2. DTMF:
      DTMF test
   3. V8:
      V8 test
   4. V34:
      V34 test
   5. DP:
      Dial pulse 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

(08) 08. WORDING

1. Enter the fax service mode.
2. Press [0] [8].



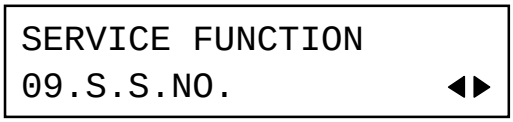
B465S536.WMF

3. Press 'OK'.
4. Press ⓞ to print out Wording List.

B465S537.WMF

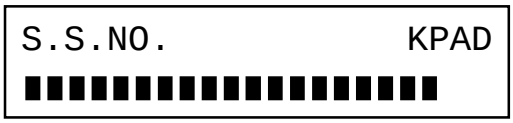
(09) 09. S.S. NUMBER

1. Enter the fax service mode.
2. Press [0] [9]



B465S547.WMF

3. Press 'OK'.
4. Enter the fax number of the service station that will receive Automatic Service Calls from the machine.
5. Press 'OK'.

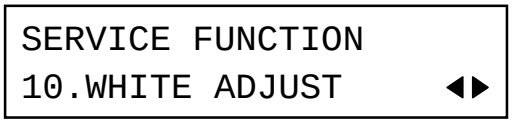


B465S548.WMF

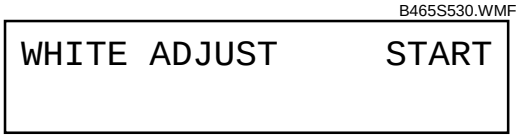
(10) 10. WHITE ADJUST

This is the equivalent to SP4-908 (SBU Auto-Adjustment).
For details, refer to "Standard White Density Adjustment" in Section 3.13.2 of the base copier's service manual.

1. Enter the fax service mode.
2. Press [1] [0].
3. Press 'OK'.

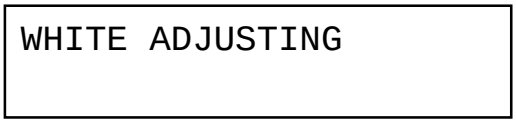


B465S530.WMF



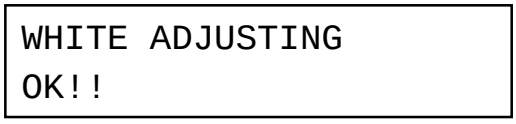
B465S531.WMF

4. Place 10 sheets of new A4 paper on the exposure glass, and close the platen cover, then press ⓐ.



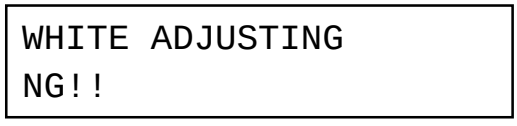
B465S552.WMF

5. The machine automatically adjusts the standard white density.
   If test is successful, the display shows "OK!!".



B465S553.WMF

   If test is unsuccessful, the display shows "NG!!".



B465S554.WMF

5.2 BIT SWITCHES

⚠WARNING

Do not adjust a bit switch or use a setting that is described as "Not used", as this may cause the machine to malfunction or to operate in a manner that is not accepted by local regulations. Such bits are for use only in other areas, such as Japan.

NOTE: Default settings for bit switches are not listed in this manual. Refer to the System Parameter List printed by the machine.

5.2.1 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 (the default country code is Japan), scan margin settings and print registration settings are erased. 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.

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

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)
2–7	Not used	Do not change these settings.

System Switch 02		
No.	**FUNCTION**	**COMMENTS**
0	Memory file transfer **0:** Disabled **1:** Enabled	**1:** All messages in the memory (including confidential RX 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
1–3	Not used	Do not change these settings.
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 4004C0 and 4004C1. **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	Not used	Do not change these settings.
3	Dedicated transmission parameter programming **0:** Disabled **1:** Enabled	Set this bit to 1 before changing any dedicated transmission parameters.
4	Not used	Do not change the setting.
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: 4002D0 to 4002D3(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)

System Switch 09		
No.	**FUNCTION**	**COMMENTS**
0	Not used	Do not change the setting.
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 the 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	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.

System Switch 0A		
No.	**FUNCTION**	**COMMENTS**
0–2	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	Automatic reset timer **Bit 1 0 Timer setting** 0 0 30 seconds 0 1 1 minutes 1 0 3 minutes 1 1 5 minutes	The machine returns to standby mode when the timer expires after the last operation.
2–7	Not used	Do not change these settings.

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

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

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 done, this bit switch resets to UK (02) for EU/Asia models and USA (11) for NA model.

System Switch 10		
No.	**FUNCTION**	**COMMENTS**
0–7	Threshold memory level for parallel memory transmission	Threshold mount = N x 64 Kbytes N can be between 00 - FF(H) Default setting: 04(H) = 256 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.
1–3	Not used	Do not change these settings.
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).

System Switch 11		
No.	**FUNCTION**	**COMMENTS**
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 the printer 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)
System Switch 14 - Not used (do not change any of these settings)

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	Not used	Do not change the setting.
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 - Not used (do not change any of these settings)

System Switch 17		
No.	**FUNCTION**	**COMMENTS**
0–2	Not used	Do not change these settings.
3	Tonal signals key when the machine is in pulse dial setting. **0:** Disabled **1:** Enabled	**1:** The machine can dial out tone signals.
4, 5	Not used	Do not change these settings.
6	Notify user when the communication is complete **0:** Not notify **1:** Notify	**1:** The machine notifies the user with a beeper when the communication is complete.
7	Not used	Do not change the setting.

System Switch 18 - Not used (do not change any of these settings)
System Switch 19 - Not used (do not change any of these settings)
System Switch 1A - Not used (do not change any of 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)

5.2.2 SCANNER SWITCHES

Scanner Switch 00		
No	**FUNCTION**	**COMMENTS**
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 1200 mm 1 0 Not used 1 1 Not used	This is effective only in FAX mode.
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.
5–7	Not used	Do not change these settings.

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)

5.2.3 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, bits 0 to 4)
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: 6 mm **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 0 12/11	

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)

5.2.4 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 Not used	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 Not used	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.
4–7	Not used	Do not change these settings.

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 Bit 2 Setting** 0 0 None 0 1 8 digit CSI 1 0 4 digit CSI 1 1 CSI/RTI	**(0,1) -** The machine will disconnect the line without sending a fax message if the last 8 digits of the received CSI do not match the last 8 digits of the dialed telephone number. This does not work when manually dialed. **(1,0) -** The same as above, except that only the last 4 digits are compared. **(1,1) -** The machine will disconnect the line without sending a fax message, if the other end does not identify itself with an RTI or CSI. **(0,0) -** Nothing is checked; transmission will always go ahead. **Note:** This function does not work when dialing is done from the external telephone.
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.
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 3** **Bit 2** **Setting** 0 0 None 0 1 8 digit CSI 1 0 4 digit CSI 1 1 CSI/RTI	**(0,1) -** The machine will disconnect the line without sending a fax message if the last 8 digits of the received CSI do not match the last 8 digits of the dialed telephone number. This does not work when manually dialed. **(1,0) -** The same as above, except that only the last 4 digits are compared. **(1,1) -** The machine will disconnect the line without sending a fax message, if the other end does not identify itself with an RTI or CSI. **(0,0) -** Nothing is checked; transmission will always go ahead.
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(H)

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	DTS requirements: Germany **0:** Disabled **1:** Enabled	

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.
1–6	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 - Not used (do not change any of these settings)
Communication Switch 0C - Not used (do not change any of 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(H) = 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 - Not used (do not change any of these settings)

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 - Not used (do not change any of these settings)

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.

Communication Switch 14		
5	Not used	Do not change the setting.
6, 7	Available unit of resolution in which fax messages are received **Bit 7** **Bit 6** **Unit** 0 0 mm 0 1 inch 1 0 mm and inch (default) 1 1 Not used	For the best performance, do not change the factory settings. The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).

Communication Switch 15		
No	**FUNCTION**	**COMMENTS**
0, 1	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 Other bits: 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).
2–7	Not used	Do not change these settings.

Communication Switch 16 - Not used (do not change any of these settings)
Communication Switch 17 - Not used (do not change any of these settings)
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 - Not used (do not change any of these settings)

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)

5.2.5 G3 SWITCHES

G3 Switch 00		
No	**FUNCTION**	**COMMENTS**
0, 1	Monitor speaker during communication (tx and rx) **Bit 1 Bit 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 the setting.

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.

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 Bit 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 Bit 0 Setting** 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Use the dedicated transmission parameters for specific receivers. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error • Modem rate fallback occurs frequently. **Note:** This setting is not effective in V.34 communications.
2, 3	PSTN cable equalizer (rx mode: Internal) **Bit 3 Bit 2 Setting** 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. **Note:** This setting is not effective in V.34 communications.
4	PSTN cable equalizer (V.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 Switch 08		
	FUNCTION	**COMMENTS**
0, 1	PABX cable equalizer (tx mode: Internal) **Bit 1 Bit 0 Setting** 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Use the dedicated transmission parameters for specific receivers. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error • Modem rate fallback occurs frequently. **Note:** This setting is not effective in V.34 communications.
2, 3	PABX cable equalizer (rx mode: Internal) **Bit 3 Bit 2 Setting** 0 0 None 0 1 Low 1 0 Medium 1 1 High	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. **Note:** This setting is not effective in V.34 communications.
4	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 Bit 0 Value (ms)** 0 0 200 0 1 400 1 0 800 1 1 Not used	These bits set the acceptable modem carrier drop time. Try using a longer setting if error code 0-22 is frequent.
2	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)

5.3 NCU PARAMETERS

The following tables give the RAM addresses and the parameter calculation units that the machine uses for ringing signal detection and automatic dialing. The factory settings for each country are also given. Most of these must be changed by RAM read/write (Function 06-0), but some can be changed using NCU Parameter programming (Function 07-0); if Function 07-0 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.

Address	Function	Unit	Remarks
401400	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 07-0 (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
France	00	00
Germany	01	01
UK	02	02
Italy	03	03
Austria	04	04
Belgium	05	05
Denmark	06	06
Finland	07	07
Ireland	08	08
Norway	09	09
Sweden	10	0A
Switzerland	11	0B
Portugal	12	0C
Holland	13	0D
Spain	14	0E
Israel	15	0F
USA	17	11
Asia	18	12
Hong Kong	20	14
South Africa	21	15
Australia	22	16
New Zealand	23	17
Singapore	24	18
Malaysia	25	19
China	26	1A
Formosa	27	1B
Korea	28	1C
Turkey	32	20
Greece	33	21
Hungary	34	22
Czech	35	23
Poland	36	24

Address	Function	Unit	Remarks
401401	Line current detection time	20 ms	Line current detection is disabled. Line current is not detected if 401401 contains FF.
401402	Line current wait time		
401403	Line current drop detect time		
401404	PSTN dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled. See Note 7
401405	PSTN dial tone frequency upper limit (low byte)		
401406	PSTN dial tone frequency lower limit (high byte)		
401407	PSTN dial tone frequency lower limit (low byte)		
401408	PSTN dial tone detection time	20 ms	If 401408 contains FF(H), the machine pauses for the pause time (address 40140D / 40140E). Italy: See Note 2 and 7
401409	PSTN dial tone reset time (LOW)		
40140A	PSTN dial tone reset time (HIGH)		
40140B	PSTN dial tone continuous tone time		
40140C	PSTN dial tone permissible drop time		
40140D	PSTN wait interval (LOW)	20 ms	See Note 7
40140E	PSTN wait interval (HIGH)		
40140F	PSTN ring-back tone detection time	20 ms	Detection is disabled if this contains FF.
401410	PSTN ring-back tone off detection time	20 ms	
401411	PSTN detection time for silent period after ring-back tone detected (LOW)		
401412	PSTN detection time for silent period after ring-back tone detected (HIGH)		
401413	PSTN busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401414	PSTN busy tone frequency upper limit (low byte)		
401415	PSTN busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401416	PSTN busy tone frequency lower limit (low byte)		
401417	PABX dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401418	PABX dial tone frequency upper limit (low byte)		
401419	PABX dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
40141A	PABX dial tone frequency lower limit (low byte)		

Address	Function	Unit	Remarks
40141B	PABX dial tone detection time	20 ms	If 40141B contains FF, the machine pauses for the pause time (401420 / 401421).
40141C	PABX dial tone reset time (LOW)		
40141D	PABX dial tone reset time (HIGH)		
40141E	PABX dial tone continuous tone time		
40141F	PABX dial tone permissible drop time		
401420	PABX wait interval (LOW)		
401421	PABX wait interval (HIGH)		
401422	PABX ringback tone detection time	20 ms	If both addresses contain FF(H), tone detection is disabled.
401423	PABX ringback tone off detection time		
401424	PABX detection time for silent period after ringback tone detected (LOW)	20 ms	If both addresses contain FF(H), tone detection is disabled.
401425	PABX detection time for silent period after ringback tone detected (HIGH)	20 ms	If both addresses contain FF(H), tone detection is disabled.
401426	PABX busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401427	PABX busy tone frequency upper limit (low byte)		
401428	PABX busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401429	PABX busy tone frequency lower limit (low byte)		
40142A	Busy tone ON time: range 1	20 ms	
40142B	Busy tone OFF time: range 1		
40142C	Busy tone ON time: range 2		
40142D	Busy tone OFF time: range 2		
40142E	Busy tone ON time: range 3		
40142F	Busy tone OFF time: range 3		
401430	Busy tone ON time: range 4		
401431	Busy tone OFF time: range 4		
401432	Busy tone continuous tone detection time		
401433	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 (±) 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		

Service Tables

Address	Function	Unit	Remarks
401434	International dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401435	International dial tone frequency upper limit (low byte)		
401436	International dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401437	International dial tone frequency lower limit (low byte)		
401438	International dial tone detection time	20 ms	If 401438 contains FF, the machine pauses for the pause time (40143D / 40143E). Belgium: See Note 2.
401439	International dial tone reset time (LOW)		
40143A	International dial tone reset time (HIGH)		
40143B	International dial tone continuous tone time		
40143C	International dial tone permissible drop time		
40143D	International dial wait interval (LOW)		
40143E	International dial wait interval (HIGH)		
40143F	Country dial tone upper frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401440	Country dial tone upper frequency limit (LOW)		
401441	Country dial tone lower frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
401442	Country dial tone lower frequency limit (LOW)		
401443	Country dial tone detection time	20 ms	If 401443 contains FF, the machine pauses for the pause time (401448 / 401449).
401444	Country dial tone reset time (LOW)		
401445	Country dial tone reset time (HIGH)		
401446	Country dial tone continuous tone time		
401447	Country dial tone permissible drop time		
401448	Country dial wait interval (LOW)		
401449	Country dial wait interval (HIGH)		
40144A	Time between opening or closing the DO relay and opening the OHDI relay	1 ms	See Notes 3, 6 and 7. Function 07–0 (parameter 11).
40144B	Break time for pulse dialing	1 ms	See Notes 3 and 7. Function 07-0 (parameter 12).
40144C	Make time for pulse dialing	1 ms	See Notes 3 and 7. Function 07-0 (parameter 13).
40144D	Not used	Do not change the setting.	

Address	Function	Unit	Remarks
40144E	Minimum pause between dialed digits (pulse dial mode)	20 ms	See Notes 3 and 7. Function 07-0 (parameter 15).
40144F	Time waited when a pause is entered at the operation panel		Function 07-0 (parameter 16). See Note 7
401450	DTMF tone on time	1 ms	Function 07-0 (parameter 17). See Note 7
401451	DTMF tone off time		Function 07-0 (parameter 18). See Note 7
401452	Tone attenuation level of DTMF signals while dialing	-dBm x 0.5	Function 07-0 (parameter 19). See Note 5 and 7.
401453	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-dBm x 0.5	Function 07-0 (parameter 20). The setting must be less than –5dBm, and should not exceed the setting at 401452h above. See Notes 5 and 7.
401454	PSTN: DTMF tone attenuation level after dialling	-dBm x 0.5	Function 07-0 (parameter 21). See Note 5.
401455	ISDN: DTMF tone attenuation level after dialling	-dBm x 0.5	See Note 5
401456	Not used	Do not change the setting.	
401457	Time between 40144Dh (NCU parameter 14) and 40144Eh (NCU parameter 15)	1 ms	
401458	Not used	Do not change the setting.	
401459	Grounding time (ground start mode)	20 ms	The Gs relay is closed for this interval.
40145A	Break time (flash start mode)	1 ms	The OHDI relay is open for this interval.
40145B	International dial access code (High)	BCD	For a code of 100: 40145B - F1 40145C - 00
40145C	International dial access code (Low)		
40145D	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 40144F is used. In the UK: Do not set a number higher than 7.
40145E	Progress tone detection level, and cadence detection enable flags	Bits 7–3: Not used Bits 2–0: See Note 2.	
40145F to 401464	Not used	Do not change these settings.	

Address	Function	Unit	Remarks
401465	Long distance call prefix (HIGH)	BCD	For a code of 0: 401465 - FF 401466 - F0
401466	Long distance call prefix (LOW)	BCD	
401467 to 401468	Not used	Do not change these settings.	
401469	Distinctive ring	Hex	00(H): OFF, 01(H): ON
40146A	Distinctive ring minimum off time	1 ms	
40146B	Distinctive ring maximum one cycle time	20 ms ± 20 ms	
40146C to 401471	Not used	Do not change these settings.	
401472	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz)	Function 07-0 (parameter 02). See Note 7.
401473	Acceptable ringing signal frequency: range 1, lower limit		Function 07-0 (parameter 03). See Note 7.
401474	Acceptable ringing signal frequency: range 2, upper limit	1000/ N (Hz)	Function 07-0 (parameter 04). See Note 7.
401475	Acceptable ringing signal frequency: range 2, lower limit		Function 07-0 (parameter 05). See Note 7.
401476	Number or rings until a call is detected	1	Function 07-0 (parameter 06). The setting must not be zero. See Note 7.
401477	Minimum required length of the first ring	20 ms	See Note 4 and 7. Function 07-0 (parameter 07).
401478	Minimum required length of the second and subsequent rings	20 ms	Function 07-0 (parameter 08). See Note 7.
401479	Ringing signal detection reset time (LOW)	20 ms	Function 07-0 (parameter 09). See Note 7.
40147A	Ringing signal detection reset time (HIGH)	20 ms	Function 07-0 (parameter 10). See Note 7.
40147B to 401480	Not used	Do not change the settings.	
401481	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

Address	Function	Unit	Remarks
401482	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		
401483 to 4014A4	Not used	Do not change these settings.	
4014A5	CED detection time	20 ms ± 20 ms	Factory setting: 200 ms
4014A6 to 4014AA	Not used	Do not change these settings.	
4014AB	CNG on time	20 ms	Factory setting: 500 ms
4014AC	CNG off time		Factory setting: 200 ms
4014AD	Number of CNG cycles required for detection		The data is coded in the same way as address 401433.
4014AE	Not used	Do not change the settings.	
4014AF	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
4014B0	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte)		
4014B1	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte)	Hz(BCD)	If both addresses contain FF(H), tone detection is disabled.
4014B2	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte)		
4014B3	Detection time for 800 Hz AI short protocol tone	20 ms	Factory setting: 360 ms
4014B4	PSTN: Tx level from the modem	- dBm	Function 07-0 (parameter 01). See Note 7.
4014B5 to 4014B6	Not used	Do not change these settings.	
4014B7	PABX: Tx level from the modem	- dBm	
4014B8 to 4014BC	Not used	Do not change these settings.	

Address	Function	Unit	Remarks
4014BD	Modem turn-on level (incoming signal detection level)	-37-0.5N (dBm)	
4014BE to 4014C6	Not used	Do not change these settings.	
4014C7	Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump **0:** Simple, **1:** Detailed (default) Bits 5 to 7 – Not used.		
4014C8 to 4014D9	Not used	Do not change the settings.	
4014DA	T.30 T1 timer	1 s	See Note 7.
4014DB to 4014DF	Not used	Do not change these settings.	
4014E0 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.

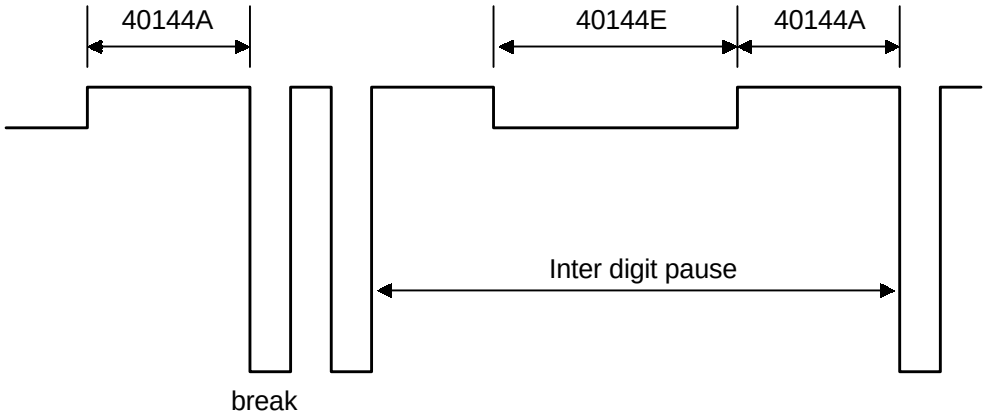
NOTES

1. If a setting is not required, store FF in the address.
2. Italy and Belgium only

   RAM address 40145E: 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.
   401408 (if bit 0 = 1) or 401438 (if bit 2 = 1): tolerance for on or off state duration (%), and number of cycles required for detection, coded as in address 401433.
   40140B (if bit 0 = 1) or 40143B (if bit 2 = 1): on time, hex code (unit = 20 ms)
   40140C (if bit 0 = 1) or 40143C (if bit 2 = 1): off time, hex code (unit = 20 ms)
3. Pulse dial parameters (addresses 40144A to 40144F) 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:
   High frequency tone: - 0.5 x N**401452/401454** dBm



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   Low frequency tone: - 0.5 x (N**401452/401454** + N**401453**) dBm
   NOTE: N**401452**, for example, means the value stored in address 401452(H)

6. The actual inter-digit pause (pulse dial mode) is the sum of the periods specified by RAM addresses 40144A and 40144E.

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.

5.4 DEDICATED TRANSMISSION PARAMETERS

Each Quick Dial Key and Speed Dial Code has eight bytes of programmable parameters allocated to it. If transmissions to a particular machine often experience problems, store that terminal's fax number as a Quick Dial or Speed Dial, and adjust the parameters allocated to that number.

The programming procedure will be explained first. Then, the eight bytes will be described.

5.4.1 PROGRAMMING PROCEDURE

1. Make sure the machine is in standby mode. Press 'User Tools' key then choose '4. Fax Features'.
2. Select the "1. Program/Delete", then press "OK" key.
   Select "1. Prog. Quick dial" or "3. Prog. Speed Dial" then press "OK" key
   Example: Change the Parameters in Quick Dial 01.
3. Press Quick Dial key 01 and "OK" key.
   NOTE: The selected Quick or Speed Dial must be programmed beforehand.
4. When the programmed dial number is displayed, press S - V - C using Quick Dial keys, then press 'Start'.
5. The settings for byte 0 are now displayed. Press a number from 0 to 7 corresponding to the bit that you wish to change.
   Example: Change bit 7 to 1: Press 7
6. To scroll through the parameter bytes, either:
   Select the next byte: press '→' Switch'
   or
   Select the previous byte: press '←' Switch' until the correct byte is displayed.
   Then go back to step 6.
7. After the setting is changed, press "OK" until "Programmed" displays.
8. To finish, press 'User Tools'.

5.4.2 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 0 0 0 0 0 1 -1 0 0 0 1 0 -2 0 0 0 1 1 -3 0 0 1 0 0 -4 : : 0 1 1 1 1 -15 1 1 1 1 1 Disabled	If communication with a particular remote terminal often contains errors, the signal level may be inappropriate. Adjust the Tx level for communications with that terminal until the results are better. If the setting is 'Disabled', the NCU parameter 01 setting is used. **Note:** Do not use settings other than listed on the left.
5–7	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.

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 Bit 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 Bit 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 Bit 6 Setting** 0 0 Off 0 1 On 1 0 Not used 1 1 Disabled	For example, if ECM is switched on but is not wanted when sending to a particular terminal, use the (0, 0) setting. Note that V.8/V.34 protocol and JBIG compression are automatically disabled if ECM is disabled. If the setting is 'Disabled', the bit switch setting is used.

Switch 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)

5.5 SERVICE RAM ADDRESSES

⚠CAUTION

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

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
09H) - 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

4000C0(H) - User parameter switch 00 (SWusr_00)
Bit 0: Not used
Bits 1 to 3: Scanning contrast home position

Bit 3	2	1	Setting
0	0	0	Normal
0	0	1	Lightest
0	1	0	Darkest
1	0	1	Lighter
1	1	0	Darker

Bits 4 and 5: Scanning resolution home position

Bit 5	4	Setting
0	0	Standard
0	1	Detail
1	0	Fine
1	1	Not used

Bit 6: Transmission mode home position 0: Memory tx, 1: Immediate tx
Bit 7: Halftone home position 0: Disabled, 1: Enabled

4000C1(H) - User parameter switch 01 (SWusr_01)
Bits 0 to 6: Not
Bit 7: Settings return to home position after scanning 0: Disabled, 1: Enabled

4000C2(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 and 7: Not used

4000C3(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
Bit 5: Transmission result report (immediate transmissions) 0: Off, 1: On
Bit 6: Not used
Bit 7: Journal 0: Off, 1: On

4000C4(H) - User parameter switch 04 (SWusr_04: Automatic report printout)
Bits 0 to 6: Not used
Bit 7: Inclusion of a sample image on reports 0: Off, 1: On

4000C5(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
Bits 5 to 7: Not used

4000C6(H) - User parameter switch 06 (SWusr_06)
Bit 0: TT print 0: Off, 1: On
Bits 1 to 3: Not used
Bit 4: Batch transmission 0: Off, 1: On
Bits 5 to 7: Not used

4000C7(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

4000C8(H) - User parameter switch 08 (SWusr_08)
Bits 0 to 5: Not used.
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.

4000C9(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 5: Not used
Bit 6: Inclusion of the Yes key when Quick Dials are continuously selected for destinations 0: Not needed, 1: Needed
1: The user must press the Yes key after each Quick Dial key. This is to prevent the user from selecting incorrect destinations.
Bit 7: Not used

4000CA(H) - User parameter switch 10 (SWusr_0A)
Bits 0 to 6: Not used
Bit 7: Halftone type 0: Error diffusion, 1: Dither

4000CB(H) - User parameter switch 11 (SWusr_0B)
Bits 0 to 5: Not used
Bit 6: Printout of messages received while acting as a forwarding station 0: Off, 1: On
Bit 7: Not used

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

Bit 0: Not used
Bit 1: Distinctive Ring detection (NA only) 0: Off, 1: On
Bit 2: Toner saving mode 0: Disabled, 1: Enabled
Bits 3 to 7: Not used

4000CD(H) - User parameter switch 13 (SWusr_0D)

Bits 0 and 1: PSTN 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 to 7: Not used

4000CE(H) to 4000D8 - User parameter switch 14 to 24 (SWusr_0E to 18)

Bits 0 to 7: Not used

4000D9(H) - User parameter switch 25 (SWusr_19)

Bits 0 to 3: Not used
Bit 4: RDS operation 0: Not acceptable
1: Acceptable for the limit specified by system switch 03
Note: This bit is only effective when RDS operation can be selected by the user (system switch 02 bits 6 and 7).
Bits 5 and 6: Not used
Bit 7: Daylight saving time (User tools) 0: Disabled, 1: Enabled

4000DA(H) - User parameter switch 26 (SWusr_1A)

Bit 0 and 1: Dialing type
(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

Bits 2 to 7: Not used

4000DB(H) - User parameter switch 27 (SWusr_1B)

PSTN 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

Service Tables

4000DC(H) - User parameter switch 28 (SWusr_1C)
Number of rings in TEL mode (User tools)
(This switch is not printed on the user parameter list.)

Number of rings		Hex value to program (BCD)
00		00
⇩	➡	⇩
99		99

4000DD(H) to 4000EF - User parameter switch 29 to 47 (SWusr_1D to 2F)
Bits 0 to 7: Not used

400130 to 400143(H) - RTI (Max. 20 characters - ASCII) - See the following note.
400159 to 400178(H) - TTI 1 (Max. 32 characters - ASCII) - See the following note
400179 to 40018C(H) - CSI (Max. 20 digits - ASCII)
4001D5(H) - Number of CSI digits (Hex)
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.

4001D8 to 4001E6(H) - Service station's fax number (Max. 15 digits - ASCII)
[Service Function 09]

4001F6 to 400204(H) - Own fax number: PSTN (Max. 15 digits - ASCII)

400250(H) - ID code (low - BCD)
400251(H) - ID code (high - BCD)

400252(H) - Confidential ID (low - BCD)
400253(H) - Confidential ID (high - BCD)

400254(H) - Memory Lock ID (low - BCD)
400255(H) - Memory Lock ID (high - BCD)

400273 to 40027D(H) – Daylight-saving time (Summer time)

Amount of time shift
400273(H) – Amount of time shift
1-0xFF(H) minutes, 00(H)= 60 minutes

Start date/time:
400274(H) - Month (BCD)
400275(H) - Week (Hex)
400276(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday
400277(H) - Hour (BCD)
400278(H) - Day (BCD)

End date/time:
400279(H) - Month (BCD)
40027A(H) - Week (Hex)
40027B(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday
40027C(H) - 24-Hour (BCD)
40027D(H) - Day (BCD)

40027E to 400285(H) - Last power off time (Read only)

40027E(H) - Clock
- 00(H) - 12-hour clock (AM)
- 01(H) - 24-hour clock
- 02(H) - 12-hour clock (PM)

40027F(H) - Year (BCD)
400280(H) - Month (BCD)
400281(H) - Day (BCD)
400282(H) - Hour
400283(H) - Minute
400284(H) - Second
400285(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

400286 to 40028D(H) - Present time (Read only)

400286(H) - Clock
- 00(H) - 12-hour clock (AM)
- 01(H) - 24-hour clock
- 02(H) - 12-hour clock (PM)

400287(H) - Year (BCD)
400288(H) - Month (BCD)
400289(H) - Day (BCD)
40028A(H) - Hour
40028B(H) - Minute
40028C(H) - Second
40028D(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

40028E to 400291(H) - Total seconds (hex value) since 00:00:00 1st January 1990 (Read only)

400292 to 400295(H) - Optional equipment (Read only)

400292(H)
- Bit 1: Future expander 40M
- Bit 3: ADF
- Bit 4: !00 sheets by-pass tray unit
- Bit 7: Paper tray unit
- Other bits: Not used

400293(H)
- Bit 4: Printer unit
- Other bits: Not used

400294(H)
- Bit 2: JBIG
- Other bits: Not used

400295(H)
- Bit 3: 1 sheet by-pass tray unit
- Bit 4: Modem
- Bit 5: DIMM
- Other bits: Not used

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

4002AC to 4002AF(H) - TX counter (TRANSMISSION)

Address	High	Low
4002AC(H)	Tens digit	Unit digit
4002AD(H)	Thousands digit	Hundreds digit
4002AE(H)	Hundred thousands digit	Ten thousands digit
4002AF(H)	Ten millions digit	Millions digit

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

4002B0 to 4002B3(H) - RX counter (RECEPTION)

4002B4 to 4002B7(H) - Scan counter (SCAN)

4002B8 to 4002BB(H) - Print counter (PRINT)

4002C0 to 4002C3(H) - ADF counter (ADF)

4002C4 to 4002C7(H) - ADF PM counter

4002C8 to 4002CB(H) - ADF PM interval (Default: 45,000)

4002CC to 4002CF(H) - ADF roller counter

4002D0 to 4002D3(H) - ADF roller interval (Default: 45,000)

4002D8 to 4002DB(H) - Paper feed counter: standard cassette (MAIN CASSETTE)

4002DC to 4002DF(H) - Paper feed counter: optional cassette (CASSETTE 2)

4002EC to 4002EF(H) - Paper feed counter: by-pass feeder (BY-PASS)

4002F4 to 4002F7(H) - Scanner total jam counter (DOC. JAM)

4002F8 to 4002FB(H) - Printer total jam counter (COPY JAM)

4002FC to 4002FF(H) - Paper jam counter: standard cassette (MAIN CST JAM)

400300 to 400303(H) - Paper jam counter: optional cassette (CST 2 JAM)

400310 to 400313(H) - Paper jam counter: by-pass feeder (BY-PASS JAM)

400318 to 40031B(H) - Fusing exit jam counter (EJECT JAM)

40031C to 40031F(H) - Registration jam counter (PAPER JAM)

400320 to 400323(H) - Printer PM counter (PM)

400324 to 400327(H) - Printer PM interval (PM DEFAULT: Default: 90,000)

400328 to 40032B(H) - Copy counter (COPY)

40032C to 40032F(H) - OPC counter (PCU)

400330 to 400333(H) - OPC PM interval (Default: 45,000)

400334 to 400337(H) - AIO counter (TONER)

400338 to 40033B(H) – Previous AIO counter, before replacing (TONER (PRE))

400340 to 40034F(H) - Excessive jam call parameters

Parameters	Address (H)		Initial Setting	Sys. Para. List
	ADF	Printer		
DEC (1 – 255; 0 = Disabled)	400340	400344	10 (H)	X
CALL (3 – 15; 0 = Disabled)	400341	400345	06(H)	Y
CLR (Low)	400342	400346	30(H)	-
(High)	400343	400347	00(H)	

Counters	Address (H)		Sys. Para. List
	ADF	Printer	
JAM: Jam counter used to place a service call	400348	40034C	Z
NO-JAM1: Counter used for JAM counter decrement	400349	40034D	-
NO-JAM2: Counter used for clearing the JAM counter	40034A (Low)	40034E (Low)	-
	40034B (High)	40034F (High)	

400350 to 400353(H) - PC tx counter (PC TX)
400354 to 400357(H) - PC rx counter (PC RX)
400358 to 40035B(H) - PC scan counter (PC SCN)
40035C to 40035F(H) - PC print counter (PC PRT)

4004B7(H) - ROM Suffix (BCD)
4004B8(H) - ROM Version (BCD)
4004B9 to 4004BB(H) - ROM Information
4004B9(H) - Year (BCD)
4004BA(H) - Month (BCD)
4004BB(H) - Day (BCD)

4004BC to 4004BD(H) - Modem ROM version (BCD)

4004C0 to 4004C1(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)

4004D8 to 400501(H) - Night timer period

4004D8 to 4004DA(H) - Setting #1 for Monday
4004DB to 4004DD(H) - Setting #2 for Monday
4004DE to 4004E0(H) - Setting #1 for Tuesday
4004E1 to 4004E3(H) - Setting #2 for Tuesday
4004E4 to 4004E6(H) - Setting #1 for Wednesday
4004E7 to 4004E9(H) - Setting #2 for Wednesday
4004EA to 4004EC(H) - Setting #1 for Thursday
4004ED to 4004EF(H) - Setting #2 for Thursday
4004F0 to 4004F2(H) - Setting #1 for Friday
4004F3 to 4004F5(H) - Setting #2 for Friday
4004F6 to 4004F8(H) - Setting #1 for Saturday
4004F9 to 4004FB(H) - Setting #2 for Saturday
4004FC to 4004FE(H) - Setting #1 for Sunday
4004FF to 400501(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

40052E to 400531(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.)

400548(H) - Transmission monitor volume 00 – 07(H)
400549(H) - Reception monitor volume 00 – 07(H)
40054A(H) - On-hook monitor volume 00 – 07(H)
40054B(H) - Dialing monitor volume 00 – 07(H)
40054C(H) - Buzzer volume 00 – 07(H)
40054D(H) - Key acknowledgment tone volume 00 – 07(H)

40054E(H) - Country code (same data as System bit switch 0F)

40054F to 400553(H) - Periodic service call parameters

Parameters		Address (H)
Call interval	01 through 15 month(s) (BCD) 00: Periodic service call disabled	40054F
Next call	Year (Read only)	400550
	Month (Read only)	400551
	Day: 01 through 31 (BCD)	400552
	Hour: 01 through 24 (BCD)	400553

400559 to 40055B(H) - Effective term of automatic service calls

Parameters	Address (H)
Year: last two digits of the year (BCD)	400559
Month: 01 through 12 (BCD)	40055A
Day: 01 through 31 (BCD)	40055B

401400 to 4014E0(H) - NCU parameters (Refer to section 5.3 for details)

401D48(H) - Text mode selection for Fax mode 07(H): Text Sharp
0A(H): Dropout

40F1C8 to 40F3B1(H) - Dedicated tx parameters for Quick Dial 01 - 16.
There are 32 bytes for each Quick Dial. Only the 23rd to 32nd bytes are used.
40F1C8 to 40F1D1(H) - Dedicated tx parameters for Quick 01
40F1E8 to 40F1F1(H) - Dedicated tx parameters for Quick 02
40F208 to 40F211(H) - Dedicated tx parameters for Quick 03
⇩
40F3A8 to 40F3B1(H) - Dedicated tx parameters for Quick 16

40F3C8 to 40F9F1(H) - Dedicated tx parameters for Speed Dial #00 - #49.
There are 32 bytes for each Speed Dial. Only the 23rd to 32nd bytes are used.
40F3C8 to 40F3D1(H) - Dedicated tx parameters for Speed #00
40F3E8 to 40F3F1(H) - Dedicated tx parameters for Speed #01
40F402 to 40F411(H) - Dedicated tx parameters for Speed #02
⇩
40F9E8 to 40F9F1(H) - Dedicated tx parameters for Speed #49

4121DA to 4123D9(H) - Latest 64 error codes (Read only)
One error record consists of 8 bytes of data.
First error record start address - 4121DA(H)
Second error record start address - 4121E2(H)
Third error record start address - 4121F0(H)
:
64th error record start address - 4123D2(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

413C22 to 414469(H) - Latest 20 error communication records (Read only)

One error communication record consists of 98 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)

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 7	6	5	4	Setting
0	0	0	1	V.27ter
0	0	1	0	V.27ter, V.29
0	0	1	1	V.33
0	1	0	0	V.27ter, V.29, V.17
0	1	0	1	V.27ter, V29, V.17, V.34

Other settings - Not used

24th to 26th bytes - Not used

27th to 50th byte - Remote terminal's ID (RTI, TSI or CSI) (ASCII)

51st 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	0	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	1	0	Polling
0	1	0	0	Forwarding
0	1	0	1	Automatic Service Call

Other settings - Not used

52nd 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

53rd to 56th bytes - Not used

57th byte - Number of errors during communication (Hex)

58th byte - Not used

59th to 62nd byte - 1st error code and page number where the error occurred
59th byte - Page number where the error occurred (low - Hex)
60th byte - Page number where the error occurred (high - Hex)
61st byte - Error code (low - BCD)
62nd byte - Error code (high - BCD)
63rd to 66th byte - 2nd error code and page number where the error occurred
67th to 70th byte - 3rd error code and page number where the error occurred
71st to 74th byte - 4th error code and page number where the error occurred
75th to 78th byte - 5th error code and page number where the error occurred
79th to 82nd byte - 6th error code and page number where the error occurred
83rd to 86th byte - 7th error code and page number where the error occurred
87th to 90th byte - 8th error code and page number where the error occurred
91st to 94th byte - 9th error code and page number where the error occurred
95th to 98th byte - 10th error code and page number where the error occurred

6. DETAILED SECTION DESCRIPTIONS

6.1 PCBS

6.1.1 FCU

The FCU (Facsimile Control Unit) for the fax unit contains some additional components other than the FCU (Function Control Unit) for the base copier, as shown below;

- V34 Modem
- Analog circuit for communication (Amplifier)
- Speaker driver
- SAF memory back-up circuit and a rechargeable lithium battery

For details about the FCU, refer to section 6.5.1 in the service manual for the base copier.

6.1.2 NCU

For details about the NCU, refer to section 6.5.3 in the service manual for the base copier.

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Type
Desktop type transceiver

Circuit
PSTN, PABX

Connection
Direct couple

Original Size (Book)
Maximum Length: 297 mm [11.7 in]
Maximum Width: 216 mm [8.5 in]

Original Size (ADF)
Length: 128 – 1260 mm [5.0 – 47.2 in]
Width: 105 – 216 mm [4.1 – 8.5 in]

Scanning Method
Flatbed, with CCD

Scan Width
210 mm [8.3 in] ± 1% (A4)
216 mm [8.5 in] ± 1% (8.5" x 11")

Resolutions
8 x 3.85 lines/mm
8 x 7.7 lines/mm
8 x 15.4 lines/mm
200 x 100 dpi
200 x 200 dpi
200 x 400 dpi

Memory Capacity

ECM: 128 KB

SAF:
Standard: 1 MB (80 pages)
Maximum: 4 MB (320 pages)

Measured using an ITU-T #1 test document (Slerexe letter)

Compression
MH, MR, MMR
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 (bps)
G3:
33600/31200/28800/26400/24000/21600/19200/16800/14400/12000/9600/7200/4800/2400, Automatic fallback

I/O Rate
With ECM: 0 ms/line
Without ECM: 2.5, 5, 10, 20, or 40 ms/line

Transmission Time
G3: 3 s at 28800 bps; Measured with G3 ECM using memory for an ITU-T #1 test document (Slerexe letter) at 8 x 3.85 l/mm resolution

2. FEATURES

2.1 FEATURES LIST

KEY:
O = Used X = Not Used

Video Processing Features	
Automatic image density	O
Contrast	O
Halftone (Basic & Error Diffusion)	O
JBIG compression (copy mode)	O
MTF	O
Reduction before tx	X
Scanning Resolution – Standard	O
Scanning Resolution – Detail	O
Scanning Resolution – Fine	O
Scanning Resolution – Superfine	X
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
Length Reduction	O
Resolutions available for reception Detail Fine Superfine	 O X X
Substitute reception	O
JBIG communication	X
V34 communication	O

Communication Features – User Selectable	
90° Image Rotation before tx	X
Action as a transfer broadcaster	X
AI Redial (last ten numbers)	O
Answering machine interface	X
Authorized Reception	X
Auto Document	X
Automatic dialing (pulse or DTMF)	O

Communication Features – User Selectable	
Automatic Voice Message	X
Batch Transmission	O
Book Original tx	O
Broadcasting	O
Chain Dialing	O
Communication Record Display	X
Confidential ID Override	X
Confidential Reception	X
Confidential Transmission	X
Direct Fax Number Entry	O
Economy Transmission	X
Fax on demand	X
Forwarding	O
Free Polling	O
Groups (Standard: 5 groups)	O
Hold	X
ID Transmission	X
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
Partial Image Area Scanning	X
Personal Codes	O
Personal Codes with Conf. ID	X
Polling Reception	O
Polling Transmission	X
Polling tx file lifetime in the SAF	X
Quick Dial (16 stations)	O
Reception modes (Fax, Tel)	O
Remote control features	X
Remote Transfer	X
Restricted Access	O
Send Later	O

Communication Features – User Selectable	
SEP/SUB/PWD/SID	O
Silent ringing detection	X
Specified Image area	X
Speed Dial (50 stations)	O
Stamp	X
Telephone Directory	O
Tonal Signal Transmission	O
Transfer Request	X
Transmission Deadline (TRD)	X
Turnaround Polling	X
Two in one	X
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	X
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
Protection against wrong connection	O
Short Preamble	X

Other User Features	
Area code prefix	X
Center mark	O
Checkered mark	O
Clearing a memory file	O
Clearing a polling file	O
Clock	O
Confidential ID	X
Counters	O
Daylight Saving Time	O
Destination Check	X
Energy Saver	O
File Retention Time	X

Other User Features	
File Retransmission	X
Function Programs (F1 – F3)	O
Hard Disk Filing System	X
ID Code	O
Label Insertion ("To xxx")	O
Language Selection	O
LCD contrast adjustment	O
Memory file printout (all files)	O
Memory Lock	O
Multi Sort Document Reception	X
Own telephone number	O
Print density control	X
RDS on/off	O
Reception Mode Switching Timer	X
Reception time printing	O
Remaining memory indicator	O
Reverse Order Printing	X
RTI, TTI, CSI	O
Service Report Transmission	X
Speaker volume control	O
Specified Cassette Selection	X
Toner Saving Mode	O
TTI on/off	O
User Function Keys (3 keys)	O
User Parameters	O
Wild Cards	O

Reports – Automatic	
Charge Control Report	X
Communication Failure Report	O
Confidential File Report	X
Error Report	O
Fax On Demand Report	X
File Clear Report	X
File Reserve Report	O
Journal	O
Polling Result Report	O
Power Failure Report	O
Transfer Result Report	X
Transmission Result Report	O

Reports - User-initiated	
Authorized Reception List	X
Charge Control Report	X
File List	O
Forwarding List	O
Group List	O
Hard Disk File List	X
Journal	O
Personal Code List	O
Program List	X
Quick Dial Label	O
Quick Dial List	O
Specified Cassette Selection List	X
Speed Dial List	O
Transmission Status Report	X
User Function List	O
User Parameter List	O

Service Mode Features	
Back-to-back test	X
Bit switch programming	O
Cable equalizer	O
Comm. parameter display	O
Counter check	SP mode
Country code	O
DTMF tone test	O
Echo countermeasure	O
Effective term of service calls	O
Error code display	O
Excessive jam alarm	O
File Transfer (all files)	O

Service Mode Features	
Line error mark	O
Modem Software Download	X
Modem test (including V.34/V.8)	O
NCU parameters	O
Periodic service call	O
PM Call	O
Printing all communication records kept in memory	X
Protocol dump list	O
RAM display/rewrite	O
RAM dump	O
RAM test	X
RDS - RAM read/write - Dial data transfer (Quick/Speed Dial) - Software transfer	 O O O
Ringer test	X
ROM version display (FCU)	SP mode
Serial number	SP mode
Service monitor report	O
Service station number	O
Software Download	SP mode
SRAM data backup/restore	SP mode
System parameter list	O
Technical data on the Journal	O

2.2 PROGRAMMABLE CAPACITY

The following table shows the maximum capacity for each programmable item.

Item	Capacity
Maximum number of memory files	140
Maximum number of destinations per file	133
Maximum number of pages overall	500
Number of Quick Dials	16
Number of Speed Dials	50
Number of Groups	5
Maximum number of destinations dialed from the ten-key pad overall	67
Maximum number of communication records for the Journal stored in the memory	10
Maximum number of user function keys	3
Maximum number of personal codes	10

3. OVERALL MACHINE CONTROL

3.1 SYSTEM CONTROL

The basic fax unit consists of two PCBs: the FCU and the NCU.

The FCU controls all fax communications and fax features. The NCU switches the analog line between the fax unit and the external telephone.

Refer to Section 6 of the base copier's service manual for details.

3.2 POWER DISTRIBUTION

The PSU (Power Supply Unit) generates +5V (+5VE) and +24V (+24VE) DC, and supplies these to the FCU.

The FCU includes regulators that generate +3V (specifically, +3.3V) and +12V for internal use, as indicated below.

Source	Voltage	Description
+24VE	+5VLD*	For the LDDR
	+12V	For the SBU.
	+24VES	For the lamp stabilizer and DF relay board.
	+24VM*	For the main motor, polygon motor, PSU, cooling fan, clutches, power pack, quenching lamp, mechanical counter, optional paper tray.
	+24VMM*	For the scanner motor and DF motor.
+5VE		For the Op-port, sensors, and optional printer unit
	+3V	For the SDRAM, VPL, 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 SCP2, flash ROM, and optional DIMM.
	+3VV	For the thermistor
	+5V	For the power pack, sensors, DF relay board, and optional paper tray.
	+5VA	For analog communication processing
	+5VCD	For flash memory card
	+5VDS	For the NCU
	+5VHCT	For the card I/F
	+5VSPD	For the monitor speaker
	+5VVA	For video processing
	+5VVD	For the SBU.

*Supply is cut off if interlock switch is open.

3.3 MEMORY BACKUP

A non-rechargeable lithium battery provides long-term backup for the SRAM on the FCU, so that system parameters and programmed settings are maintained even when the base copier is unplugged or its main switch is turned off.

A rechargeable lithium battery backs up the SAF memory (SDRAM) on the FCU for about 12 hours in the event that power goes off.

4. VIDEO DATA PATH

4.1 TRANSMISSION

Memory Transmission and Parallel Memory Transmission

The base copier's scanner scans the original at the selected resolution in inch format, then the FCU compresses the data in MMR or raw format and stores it in the SAF memory.

At time of transmission, the FCU decompresses the stored data, then recompresses the data for transmission. The NCU transmits the data to the line through the modem.

Immediate Transmission

The base copier's scanner scans the original at the resolution agreed with the receiving terminal. Then the FCU stores the data in the memory, and compresses the data for transmission. The NCU transmits the data to the line through the modem.

4.2 RECEPTION

Data from an analog line passes to the modem through the NCU. After the modem demodulates the data, it is decompressed and transferred to the memory for printing.