FAX OPTION TYPE 2027
(Machine Code: B576)
SERVICE MANUAL

Conventions in this Manual

This manual uses several symbols.

Symbol	What it means
☛	Refer to section number
CT	See Core Tech Manual for details
⚲	Screw
⊟	Connector
ℂ	E-ring
⟨⟩	Clip ring

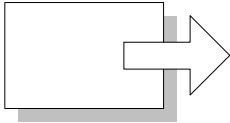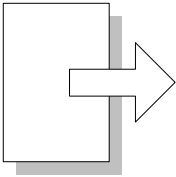**Short Edge Feed (SEF)**   **Long Edge Feed (LEF)**

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1. INSTALLATION

1.1 CAUTIONS AND WARNINGS

⚠WARNING
1. Never install telephone writing during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.
5. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be remote risk of electric shock from lightning.
6. Do not use a telephone or cellular phone to report a gas leak in the vicinity of the leak.

⚠CAUTION
1. Before installing the fax unit, switch off the main switch, and disconnect the power cord.
2. The fax unit contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacture. Discard batteries in accordance with the manufacture's instructions and local regulations.

NOTE FOR AUSTRALIA
Unit must be connected to Telecommunication Network through a line cord which meets the requirements of ACA Technical Standard TS008.

1.2 FAX OPTION TYPE 2027 INSTALLATION
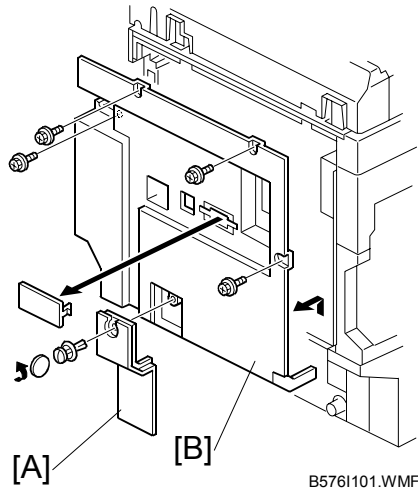
B576I101.WMF
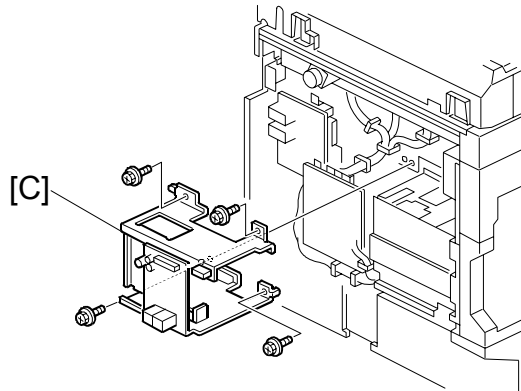
B576I502.WMF
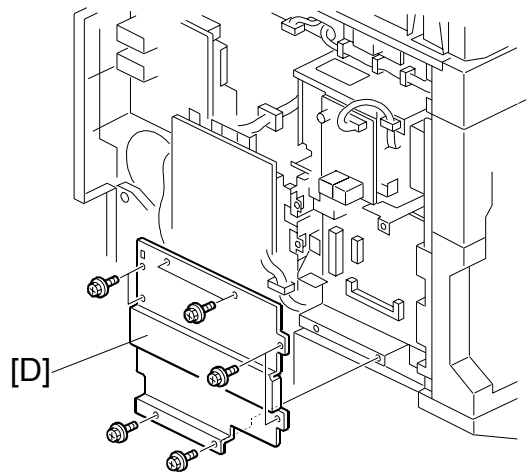
B576I503.WMF

> ⚠️**CAUTION**
>
> **Before installing this option, do the following:**
>
> 1. **If there is a printer option in the machine, print out all data in the printer buffer.**
>
> 2. **Turn off the main switch and disconnect the power cord and the network cable.**

1. Remove the small cover [A] (1 rivet) and the rear cover [B] (🖉 x 4).

2. Attach the NCU unit [C] (🖉 x 4) into the machine.

3. Remove the shield cover [D] (🖉 x 8).

B576I505.WMF

B576I106.WMF

B576I607.WMF

B576I108.WMF
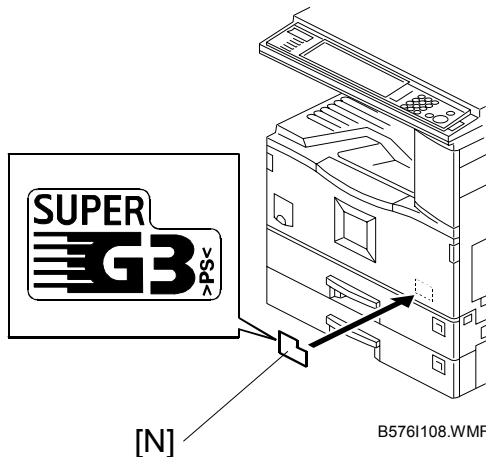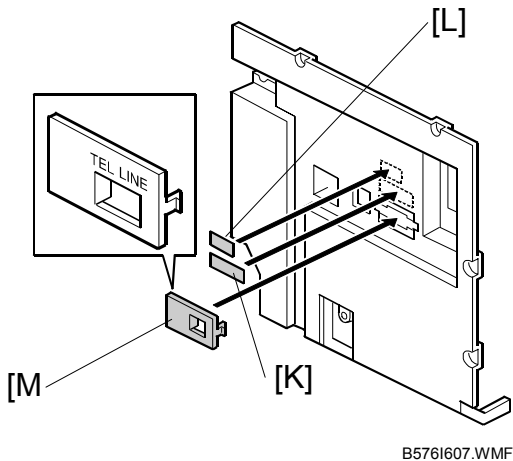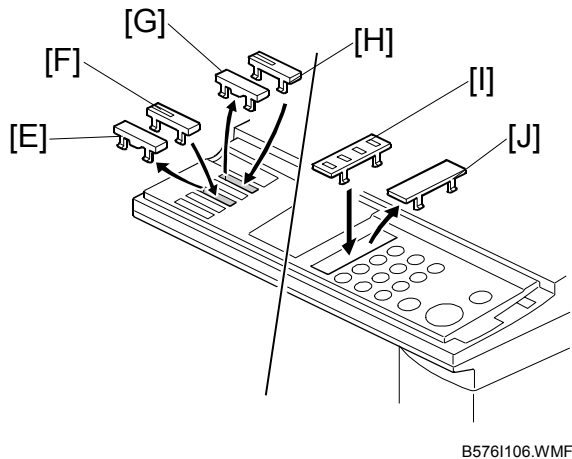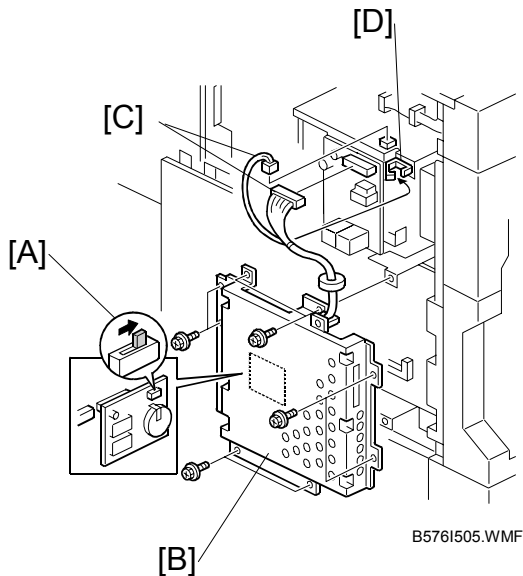
4. Turn on the battery switch (SW1) [A] on the MBU board, then attach the FCU unit [B] ($\hat{\mathscr{F}}$ x 6). Connect harnesses [C], then clamp harness [D] as shown. Replace the rear cover and the small cover.

5. Remove parts [E], [G] and [J], then install parts [F], [H] and [I].

6. Affix the FCC decal [K] and the serial number decal [L] on the rear cover as shown. Then install the small cover [M] on the rear cover.

7. Affix the super G3 decal [N] as shown.

THYH660
B576I552.WMF WMF
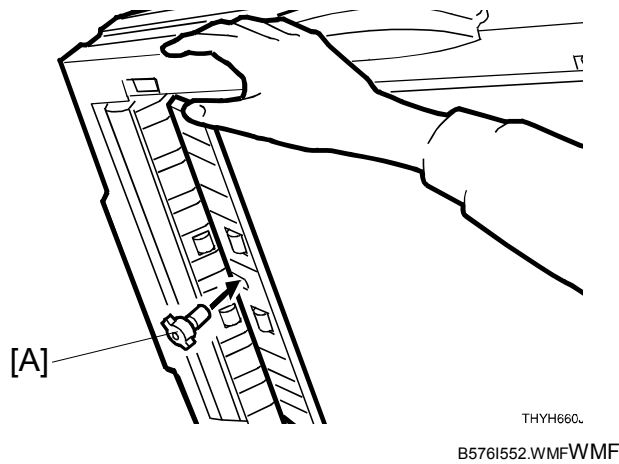
8. If the ADF has been installed, insert the stamp cartridge [A] into the ADF as shown.

9. Connect the telephone line to the "LINE" jack at the rear of the machine.

10. Plug in the machine and turn on the main power switch.
    NOTE: The copier must be connected to a properly - grounded socket outlet.

11. Be sure to set the clock. (Date and time)

12. Enter service mode and program the serial number into the fax unit (Fax SP-3-102-000). The serial number can be found on the serial number label (attached to the machine in Step 6).

1.3 G3 INTERFACE UNIT TYPE 2027 INSTALLATION

NOTE: This installation procedure uses the following symbols.

    🔩: Screws   🔌: Connectors

B576I101.WMF

B593I502.WMF

B593I503.WMF
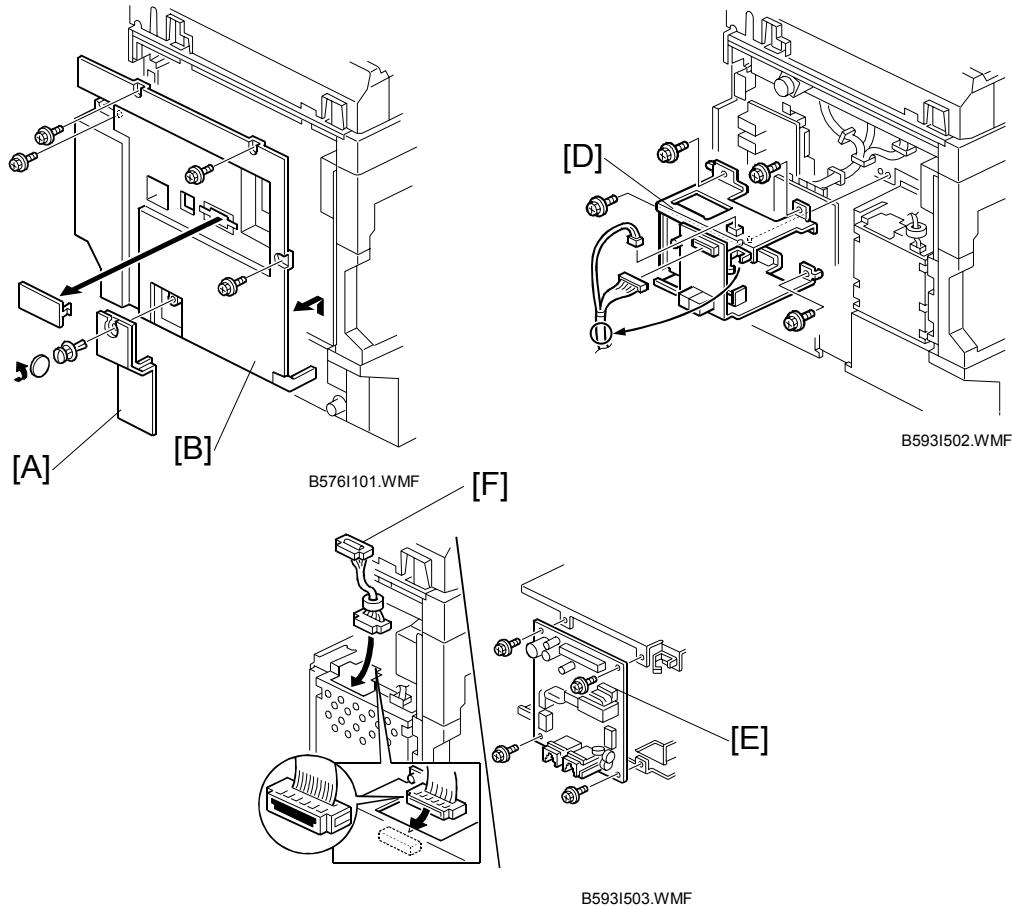
⚠**CAUTION**
Before installing this option, do the following:
3. If there is a printer option in the machine, print out all data in the printer buffer.
4. Turn off the main switch and disconnect the power cord and the network.

1. Remove the small cover [A] (1 rivet) and the rear cover [B] (🔩 x 4). Then cut away the jack window [C].

2. Remove the NCU unit [D] (🔩 x 4, 🔌 x 2)

3. Remove the NCU [E] from the NCU unit (🔩 x 4). Connect harness [F] to the FCU.

B593I506.WMI

B593I507.WMF
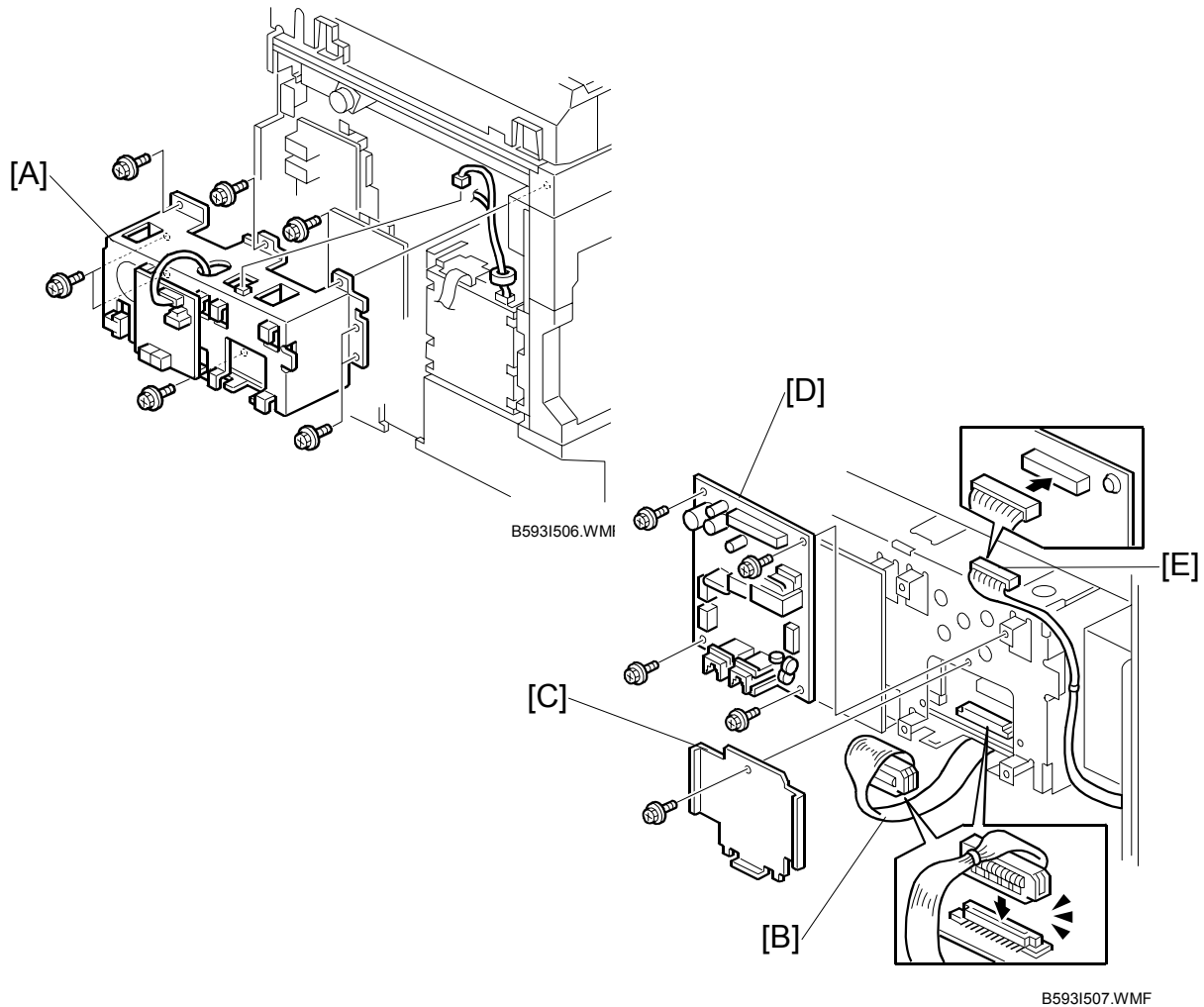
4.   Attach the G3 unit [A] to the machine (⌀ x 6, ▱ x 1).

5.   Connect harness [B] to the interface board and attach bracket [C] (⌀ x 1). Then attach the NCU [D] (removed from the NCU unit in step 3) to the G3 unit (⌀ x 4). After that, connect harness [E] to the NCU [D], then clamp harness [E] as shown.

6.   Replace the rear cover and the small cover.

7.   Connect the cable to the LINE2 jack, then plug in the machine and turn the main switch on.

8.   Enter service mode and set bit 1 of communication switch 16 to "1". After that turn the main switch off and on.

9.   Print the system parameter list and ensure that "SG3-D" is listed as an option.

10. Set up and program the items required for PSTN-2 communications.

2. TROUBLESHOOTING

2.1 ERROR CODES

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

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF not detected within 40 s of Start being pressed	• Check the line connection. • Check the NCU - FCU connectors. • The machine at the other end may be incompatible. • Replace the NCU or FCU. • Check for DIS/NSF with an oscilloscope. • If the rx signal is weak, there may be a bad line.
0-01	DCN received unexpectedly	• The other party is out of paper or has a jammed printer. • The other party pressed Stop during communication.
0-03	Incompatible modem at the other end	• The other terminal is incompatible.
0-04	CFR or FTT not received after modem training	• Check the line connection. • Check the NCU - FCU connectors. • Try changing the tx level and/or cable equalizer settings. • Replace the FCU or NCU. • The other terminal may be faulty; try sending to another machine. • If the rx signal is weak or defective, there may be a bad line. **Cross reference** • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters - Section 4
0-05	Unsuccessful after modem training at 2400 bps	• Check the line connection. • Check the NCU - FCU connectors. • Try adjusting the tx level and/or cable equalizer. • Replace the FCU or NCU. • Check for line problems. **Cross reference** • See error code 0-04.

Code	Meaning	Suggested Cause/Action
0-06	The other terminal did not reply to DCS	• Check the line connection. • Check the FCU - NCU connectors. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. • The other end may be defective or incompatible; try sending to another machine. • Check for line problems. **Cross reference** • See error code 0-04.
0-07	No post-message response from the other end after a page was sent	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed or run out of paper. • The other end user may have disconnected the call. • Check for a bad line. • The other end may be defective; try sending to another machine.
0-08	The other end sent RTN or PIN after receiving a page, because there were too many errors	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • The other end may have jammed, or run out of paper or memory space. • Try adjusting the tx level and/or cable equalizer settings. • The other end may have a defective modem/NCU/FCU; try sending to another machine. • Check for line problems and noise. **Cross reference** • Tx level - NCU Parameter 01 (PSTN) • Cable equalizer - G3 Switch 07 (PSTN) • Dedicated Tx parameters - Section 4
0-14	Non-standard post message response code received	• Check the FCU - NCU connectors. • Incompatible or defective remote terminal; try sending to another machine. • Noisy line: resend. • Try adjusting the tx level and/or cable equalizer settings. • Replace the NCU or FCU. **Cross reference** • See error code 0-08.

Code	Meaning	Suggested Cause/Action
0-15	The other terminal is not capable of specific functions.	The other terminal is not capable of accepting the following functions, or the other terminal's memory is full. • Confidential rx • Transfer function • SEP/SUB/PWD/SID
0-16	CFR or FTT not detected after modem training in confidential or transfer mode	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Try adjusting the tx level and/or cable equalizer settings. • The other end may have disconnected, or it may be defective; try calling another machine. • If the rx signal level is too low, there may be a line problem. **Cross reference** • See error code 0-08.
0-17	Communication was interrupted by pressing the Stop key.	If the Stop key was not pressed and this error keeps occurring, replace the operation panel.
0-20	Facsimile data not received within 6 s of retraining	• Check the line connection. • Check the FCU - NCU connectors. • Replace the NCU or FCU. • Check for line problems. • Try calling another fax machine. • Try adjusting the reconstruction time for the first line and/or rx cable equalizer setting. **Cross reference** • Reconstruction time - G3 Switch 0A, bit 6 • Rx cable equalizer - G3 Switch 07 (PSTN)
0-21	EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal	• Check the connections between the FCU, NCU, & line. • Check for line noise or other line problems. • Replace the NCU or FCU. • The remote machine may be defective or may have disconnected. **Cross reference** • Maximum interval between EOLs and between ECM frames - G3 Bit Switch 0A, bit 4
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

Trouble-shooting

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
0-30	The other terminal did not reply to NSS(A) in AI short protocol mode	• Check the line connection. • Check the FCU - NCU connectors. • Try adjusting the tx level and/or cable equalizer settings. • The other terminal may not be compatible. **Cross reference** • Dedicated tx parameters - Section 4
0-32	The other terminal sent a DCS, which contained functions that the receiving machine cannot handle.	• Check the protocol dump list. • Ask the other party to contact the manufacturer.
0-52	Polarity changed during communication	• Check the line connection. Retry communication.
0-70	The communication mode specified in CM/JM was not available (V.8 calling and called terminal)	• The other terminal did not have a compatible communication mode (e.g., the other terminal was a V.34 data modem and not a fax modem.) • A polling tx file was not ready at the other terminal when polling rx was initiated from the calling terminal.
0-74	The calling terminal fell back to T.30 mode, because it could not detect ANSam after sending CI.	• The calling terminal could not detect ANSam due to noise, etc. • ANSam was too short to detect. • Check the line connection and condition. • Try making a call to another V.8/V.34 fax.
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.

Code	Meaning	Suggested Cause/Action
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.
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.
2-10	The modem cannot enter tx mode	• Replace the FCU.
2-11	Only one V.21 connection flag was received	• Replace the FCU.

Trouble-shooting

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 or reconstruction error	• Turn off the machine, then turn it back on. • Replace the EXFUNC board if the error is frequent.
2-24	JBIG ASIC error	• Turn off the machine, then turn it back on. • Replace the EXFUNC board if the error is frequent.
2-25	JBIG data reconstruction error (BIH error)	• JBIG data error • Check the sender's JBIG function. • Update the MBU ROM.
2-26	JBIG data reconstruction error (Float marker error)	
2-27	JBIG data reconstruction error (End marker error)	
2-28	JBIG data reconstruction error (Timeout)	
2-50	The machine resets itself for a fatal FCU system error	• If this is frequent, update the ROM, or replace the FCU.
2-51	The machine resets itself because of a fatal communication error	• If this is frequent, update the ROM, or replace the FCU.
3-00	G4 interface board reset	• Replace the G4 interface board or FCU.
3-10	Disconnection during ISDN G3 communication	• Check the other terminal and the ISDN line. • The other terminal may have dialed a wrong number.
3-11	Disconnection during ISDN G4 communication	• Check the other terminal and the ISDN line.
3-20	A CSA signal was received during ISDN G4 communication	• The operator at the other terminal may have interrupted the communication.
3-21	A CSA signal was sent during ISDN G4 communication, because the Stop key was pressed	• The local operator has interrupted the communication.
3-30	Mismatched specifications (rx capability)	• Check the receive capabilities requested from the other terminal.
4-01	Line current was cut	• Check the line connector. • Check the connection between FCU and NCU. • Check for line problems. • Replace the FCU or the NCU.
4-10	Communication failed because of an ID Code mismatch (Closed Network) or Tel. No./CSI mismatch (Protection against Wrong Connections)	• Get the ID Codes the same and/or the CSIs programmed correctly, then resend. • The machine at the other end may be defective.

Code	Meaning	Suggested Cause/Action
5-00	Data construction not possible	• Replace the FCU.
5-01	Data reconstruction not possible	
5-10	DCR timer expired	
5-20	Storage impossible because of a lack of memory	• Temporary memory shortage. • Test the SAF memory. • Replace the FCU or optional EXMEM board
5-21	Memory overflow	
5-22	Mode table overflow after the second page of a scanned document	• Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-23	Print data error when printing a substitute rx or confidential rx message	• Test the SAF memory. • Ask the other end to resend the message. • Replace the FCU or optional EXMEM board.
5-24	Memory overflow after the second page of a scanned document	• Try using a lower resolution setting. • Wait for the messages which are currently in the memory to be sent or delete some files from memory.
5-25	SAF file access error	• Replace the FCU or EXMEM board.
6-00	G3 ECM - T1 time out during reception of facsimile data	• Try adjusting the rx cable equalizer. • Replace the FCU or NCU.
6-01	G3 ECM - no V.21 signal was received	
6-02	G3 ECM - EOR was received	
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.

Trouble-shooting

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.
6-21	V.21 flag detected during high speed modem communication	• The other terminal may be defective or incompatible.
6-22	The machine resets the sequence because of an abnormal handshake in the V.34 control channel	• Check for line noise. • If the same error occurs frequently, replace the FCU. • Defective remote terminal.
6-99	V.21 signal not stopped within 6 s	• Replace the FCU.
22-00	Original length exceeded the maximum scan length	• Divide the original into more than one page. • Check the resolution used for scanning. Lower the scan resolution if possible. • Add optional page memory.
22-01	Memory overflow while receiving	• Wait for the files in the queue to be sent. • Delete unnecessary files from memory. • Transfer the substitute reception files to an another fax machine, if the machine's printer is busy or out of order. • Add an optional SAF memory card or hard disk.
22-02	Tx or rx job stalled due to line disconnection at the other end	• The job started normally but did not finish normally; data may or may not have been received fully. • Restart the machine.
22-04	The machine cannot store received data in the SAF	• Update the ROM • Replace the FCU.
23-00	Data read timeout during construction	• Restart the machine. • Replace the FCU
25-00	The machine software resets itself after a fatal transmission error occurred	• Update the ROM • Replace the FCU.
F0-xx	V.34 modem error	• Replace the FCU.

2.2 FAX SC CODE AND ERROR MESSAGES

SC871 FCU Flash ROM Abnormal

Message: **Flash ROM error.**
Quick Dial Table is Unavailable
Please call service.

The flash ROM mounted in the fax unit where the address book is stored has been detected as abnormal.

- Replace the FCU.

FCU Flash ROM Access Limit Exceeded

Message: **Flash ROM replacement is now**
necessary for the Quick Dial Table.

The access limit of the flash ROM mounted in the fax unit has exceeded the limit. You can continue to use the machine after this error occurs.

- Replace the FCU.

SRAM Abnormal

Message: **Functional problems with facsimile.**
Data will be initialized.

This message may appear immediately after the fax unit is installed, or when the SRAM (backup RAM) is detected abnormal.

On this message screen:

- Initialize SRAM.
- Set the SRAM backup switch to ON.

Expansion SRAM Abnormal

Message: **Some data will be deleted by installing Fax Memory Board.**
Will you continue to install it? If you want to cancel, turn main power switch
off and take the Board out.

This message may appear immediately after installation of the Function Upgrade Kit, or when the SRAM (backup RAM) is detected abnormal.

On this message screen:

- Initialize the expansion SRAM
- For the Function Upgrade Kit, set the backup switch to ON.

3. SERVICE TABLES

> ⚠️**CAUTION**
>
> **Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation power switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.**

NOTE: The main power LED lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a facsimile or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

3.1 SERVICE PROGRAM MODE

3.1.1 SERVICE PROGRAM MODE OPERATION

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

Entering and Exiting SP mode

◇▭	1.	Press the Clear Mode key.
①⓪⑦	2.	Use the keypad to enter "107".
ⓒ⊘	3.	Hold down Clear/Stop for at least 3 seconds.
Fax SP	4.	On the touch-panel, press Fax SP.
Exit	5.	Press Exit twice to return to the copy window.

SP1-XXX (Bit Switches) ☛ Section 3.2 Bit Switches

1	Mode No.		Function
101	System Switch		
	001 – 032	00 – 1F	Change the bit switches for system settings for the fax option ☛ Section 3.2 Bit Switches
102	Ifax Switch		
	001 – 016	00 – 0F	Change the bit switches for scanner settings for the fax option ☛ Section 3.2 Bit Switches
103	Printer Switch		
	001 – 016	00 – 0F	Change the bit switches for printer settings for the fax option ☛ Section 3.2 Bit Switches
104	Communication Switch		
	001 – 032	00 – 1F	Change the bit switches for communication settings for the fax option ☛ Section 3.2 Bit Switches
105	G3-1 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the standard G3 board ☛ Section 3.2 Bit Switches
106	G3-2 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the optional G3 board ☛ Section 3.2 Bit Switches
108	Not used. Do not change these settings.		
109	Not used. Do not change these settings.		

SP2-XXX (RAM Data)

2	Mode No.		Function
101	RAM Read/Write		
	001		Change RAM data for the fax board directly. ☛ Section 3.5 Service RAM Addresses
102	Memory Dump		
	001	G3-1 Memory Dump	Print out RAM data for the fax board. ☛ Section 3.5 Service RAM Addresses
	002	G3-2 Memory Dump	Print out RAM data for the SG3 board.
	004	Not used. Do not change setting.	
103	G3-1 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the standard G3 board. ☛ Section 3.3 NCU Parameters
104	G3-2 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the optional G3 board. ☛ Section 3.3 NCU Parameters

SP3-XXX (Machine Settings)

3	Mode No.		Function
101	Service Station		
	001	Fax Number	Enter the fax number of the service station.
	002	Select Line	Select the line type.
102	Serial Number		
	000		Enter the fax unit's serial number.
103	PSTN-1 Port Settings		
	001	Select Line	Select the line type setting for the G3-1 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)".
	002	PSTN Access Number	Enter the PSTN access number for the G3-1 line.
	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, turn this SP on.
104	PSTN-2 Port Settings		
	001	Select Line	Select the line setting for the G3-2 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)".
	002	PSTN Access Number	Enter the PSTN access number for the G3-2 line.

Service Tables

3		**Mode No.**	**Function**
104	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on.
	004	Transmission Disabled	If you turn this SP on, the machine does not send any fax messages on the G3-2 line.
105	PSTN-3 Port settings		
	001	Select Line	Select the line setting for the G3-3 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)".
	002	PSTN Access Number	Enter the PSTN access number for the G3-3 line.
	003	Memory Lock Disabled	If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on
	004	Transmission Disabled	If you turn this SP on, the machine does not send any fax messages on the G3-3 line.
106	ISDN Port Settings		
	001	Select Line	Not used. Do not change these settings.
	002	PSTN Access Number	
	003	Memory Lock Disabled	
	004	Transmission Disabled	
201	FAX Switches		
	001 – 032	00 – 1F	Change the bit switches for scanner settings for the fax option ☛ Section 3.2 Bit Switches

SP4-XXX (ROM Versions)

4		Mode No.	Function
101	001	FCU ROM Version	Displays the FCU ROM version.
102	001	Error Codes	Displays the latest 64 fax error codes.
103	001	G3-1 ROM Version	Displays the G3-1 modem version.
104	001	G3-2 ROM Version	Displays the G3-2 modem version.
106	001	G4 ROM Version	Not used.
107	001	Charge ROM Version	Not used.

SP5-XXX (RAM Clear)

5		Mode No.	Function
101	Initialize SRAM		
	000		Initializes the bit switches and user parameters, user data in the SRAM, files in the SAF memory, and clock.
102	Erase All Files		
	000		Erases all files stored in the SAF memory.
103	Reset Bit Switches		
	000		Resets the bit switches and user parameters.
104	Factory setting		
	000		Resets the bit switches and user parameters, user data in the SRAM and files in the SAF memory.

Service Tables

SP6-XXX (Reports)

6	Mode No.		Function
101	System Parameter List		
	000		Touch the "ON" button to print the system parameter list.
102	Service Monitor Report		
	000		Touch the "ON" button to print the service monitor report.
103	G3 Protocol Dump List		
	001	G3 All Communications	Prints the protocol dump list of all communications for all G3 lines.
	002	G3-1 (All Communications)	Prints the protocol dump list of all communications for the G3-1 line.
	003	G3-1 (1 Communication)	Prints the protocol dump list of the last communication for the G3-1 line.
	004	G3-2 (All Communications)	Prints the protocol dump list of all communications for the G3-2 line.
	005	G3-2 (1 Communication)	Prints the protocol dump list of the last communication for the G3-2 line.
104	G4 Protocol Dump List		
	001	Dch + Bch 1	Not used. Do not change these settings.
	002	Dch	
	003	Bch 1 Link Layer	
	004	Dch Link Layer	
	005	Dch +Bch 2	
	006	Bch 2 Link Layer	
105	All Files print out		
	000		Prints out all the user files in the SAF memory, including confidential messages. **NOTE:** Do not use this function, unless the customer is having trouble printing confidential messages or recovering files stored using the memory lock feature.
106	Journal Print out		
	001	All Journals	The machine prints all the communication records on the report.
	002	Specified Date	The machine prints all communication records after the specified date.

6		**Mode No.**	**Function**
107	Log List Print out		
	001	All log files	These log print out functions are for designer use only.
	002	Printer	
	003	SC/TRAPStored	
	004	Decompression	
	005	Scanner	
	006	JOB/SAF	
	007	Reconstruction	
	008	JBIG	
	009	Fax Driver	
	010	G3 CCU	
	011	Fax Job	
	012	CCU	
	013	Scanner Condition	

Service Tables

SP7-XXX (Test)

These are the test modes for PTT approval.

7	Function	
101	G3-1 Modem Tests	
102	G3-1 DTMF Tests	
103	Ringer Test	
104	G3-1 V34 (S2400baud)	
105	G3-1 V34 (S2800baud)	
106	G3-1 V34 (S3000baud)	
107	G3-1 V34 (S3200baud)	
108	G3-1 V34 (S3429baud)	
109	Recorded Message Test	
110	G3-2 Modem Tests	
111	G3-2 DTMF Tests	
112	G3-2 V34 (S2400baud)	
113	G3-2 V34 (S2800baud)	
114	G3-2 V34 (S3000baud)	
115	G3-2 V34 (S3200baud)	
116	G3-2 V34 (S3429baud)	
124	IG3-1 Modem Tests	Not used.
125	IG3-1 DTMF Tests	Do not change these settings.
126	IG3-1 V34 (S2400baud)	
127	IG3-1 V34 (S2800baud)	
128	IG3-1 V34 (S3000baud)	
129	IG3-1 V34 (S3200baud)	
130	IG3-1 V34 (S3429baud)	
131	IG3-2 Modem Tests	
132	IG3-2 DTMF Tests	
133	IG3-2 V34 (S2400baud)	
134	IG3-2 V34 (S2800baud)	
135	IG3-2 V34 (S3000baud)	
136	IG3-2 V34 (S3200baud)	
137	IG3-2 V34 (S3429baud)	

3.2 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.

3.2.1 SYSTEM SWITCHES

System Switch 00		SP No. 1-101-001
No	**FUNCTION**	**COMMENTS**
0	Dedicated transmission parameter programming **0:** Disabled **1:** Enabled	Set this bit to 1 before changing any dedicated transmission parameters. Reset this bit to 0 after programming dedicated transmission parameters.
1	Not used	Do not change the setting.
2	Technical data printout on the Journal **0:** Disabled **1:** Enabled	**1**: Instead of the personal name, the following data are listed on the Journal for each G3 communication.
	e.g. **0000 32V34 288/264 L0100 03 04** (1) (2)(3) (4) (5) (6) (7) (8) **(1):** EQM value (Line quality data). A larger number means more errors. **(2):** Symbol rate (V.34 only) **(3):** Final modem type used **(4):** Starting data rate (for example, 288 means 28.8 kbps) **(5):** Final data rate **(6):** Rx revel (refer to the note after this table for how to read the rx level) **(7):** Total number of error lines that occurred during non-ECM reception. **(8):** Total number of burst error lines that occurred during non-ECM reception. **Note:** EQM and rx level are fixed at "FFFF" in tx mode. The seventh and eighth numbers are fixed at "00" for transmission records and ECM reception records.	

System Switch 00		SP No. 1-101-001
No	**FUNCTION**	**COMMENTS**
2	**Rx level calculation** **Example:** 0000 32 V34 288/264 **L <u>01</u> <u>00</u>** 03 04 The four-digit hexadecimal value (N) after "L" indicates the rx level. The <u>high</u> byte is given first, followed by the <u>low</u> byte. Divide the decimal value of N by -16 to get the rx level. In the above example, the decimal value of N (= 0100 [H]) is 256. So, the actual rx level is 256/-16 = -16 dB	
3-4	Not used	Do not change the settings.
5	G3 communication parameter display **0:** Disabled **1:** Enabled	This is a fault-finding aid. The LCD shows the key parameters (see below). This is normally disabled because it cancels the CSI display for the user. Be sure to reset this bit to 0 after testing.
6	Protocol dump list output after each communication **0:** Off **1:** On	This is only used for communication troubleshooting. It shows the content of the transmitted facsimile protocol signals. Always reset this bit to 0 after finishing testing. If system switch 09 bit 6 is at "1", the list is only printed if there was an error during the communication.
7	Not used	Do not change the setting.

G3 Communication Parameters

Modem rate	336: 33600 bps 168: 16800 bps 312: 31200 bps 144: 14400 bps 288: 28800 bps 120: 12000 bps 264: 26400 bps 96: 9600 bps 240: 24000 bps 72: 7200 bps 216: 21600 bps 48: 4800 bps 192: 19200 bps 24: 2400 bps
Resolution	S: Standard (8 x 3.85 dots/mm) D: Detail (8 x 7.7 dots/mm) F: Fine (8 x 15.4 dots/mm) SF: Superfine (16 x 15.4 dots/mm) 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 44: Superfine (400 x 400 dpi)
Compression mode	MMR: MMR compression MR: MR compression MH: MH compression JBO: JBIG compression (Optional mode) JBB: JBIG compression (Basic mode)
Communication mode	ECM: With ECM NML: With no ECM
Width and reduction	A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction A3: A3 (11.7"), no reduction
I/O rate	0: 0 ms/line 10: 10 ms/line 25: 2.5 ms/line 20: 20 ms/line 5: 5 ms/line 40: 40 ms/line **Note:** "40" is displayed while receiving a fax message using AI short protocol.

Service Tables

System Switch 01 - Not used (Do not change the factory settings.)

System Switch 02		SP No. 1-101-003
No	FUNCTION	COMMENTS
0-1	Not used Bit 1 Bit 2: Not used.	Do not change the settings.
2	Communication stall fail safe. 0: Disabled 1: Enabled	If enabled, the machine cuts communication within one hour of a communication error but the connection remains established.
3	Not used.	Do not change the setting.
4	File retention time **0:** Depends on User Parameter 24 [18(H)] **1:** No limit	**1:** A file that had a communication error will not be erased unless the communication is successful.
5	Not used	Do not change the setting.
6 to 7	Memory read/write by RDS **Bit 7 6 Setting** 0 0 Always disabled 0 1 User selectable 1 0 User selectable 1 1 Always enabled	**(0,0):** All RDS systems are always locked out. **(0,1), (1,0):** Normally, RDS systems are locked out, but the user can temporarily switch RDS on to allow RDS operations to take place. RDS will automatically be locked out again after a certain time, which is stored in System Switch 03. Note that if an RDS operation takes place, RDS will not switch off until this time limit has expired. **(1,1):** At any time, an RDS system can access the machine.

System Switch 03		SP No. 1-101-004
No	FUNCTION	COMMENTS
0 to 7	Length of time that RDS is temporarily switched on when bits 6 and 7 of System Switch 02 are set to "User selectable"	00 - 99 hours (BCD). This setting is only valid if bits 6 and 7 of System Switch 02 are set to "User selectable". The default setting is 24 hours.

System Switch 04		SP No. 1-101-005
No	FUNCTION	COMMENTS
0	Program registration list output key display selection	This setting determines whether the key to print the program registration list is displayed on the screen.
1-2	Not used	Do not change the settings.
3	Printing dedicated tx parameters on Quick/Speed Dial Lists **0:** Disabled **1:** Enabled	**1:** Each Quick/Speed dial number on the list is printed with the dedicated tx parameters (10 bytes each). The first 10 bytes of data are the programmed dedicated tx parameters; 34 bytes of data are printed (the other 24 bytes have no use for service technicians).
4-7	Not used	Do not change the settings.

System Switch 05 - Not used (Do not change the factory settings.)

System Switch 06		SP No. 1-101-007
No	**FUNCTION**	**COMMENTS**
0 to 7	Reduction ratio for reduced TX function	71~99% (BCD) This setting is less than 71 (BCD) handled as 71%.

System Switch 07 - Not used (Do not change the factory settings.)
System Switch 08 - Not used (Do not change the factory settings.)

System Switch 09		SP No. 1-101-010
No	**FUNCTION**	**COMMENTS**
0	Addition of image data from confidential transmissions on the transmission result report **0:** Disabled **1:** Enabled	If this feature is enabled, the top half of the first page of confidential messages will be printed on transmission result reports.
1	Inclusion of communications on the Journal when no image data was exchanged. **0:** Disabled **1:** Enabled	**0:** Communications that reached phase C (message tx/rx) of the T.30 protocol are listed on the Journal. **1:** Communications that reached phase A (call setup) of T.30 protocol are listed on the Journal. This will include telephone calls.
2	Automatic error report printout **0:** Disabled **1:** Enabled	**0:** Error reports will not be printed. **1:** Error reports will be printed automatically after failed communications.
3	Printing of the error code on the error report **0:** No **1:** Yes	**1:** Error codes are printed on the error reports.
4	Not used	Do not change the setting.
5	Power failure report **0:** Disabled **1:** Enabled	**1:** A power failure report will be automatically printed after the power is switched on if a fax message disappeared from the memory when the power was turned off last.
6	Conditions for printing the protocol dump list **0:** Print for all communications **1:** Print only when there is a communication error	This switch becomes effective only when system switch 00 bit 6 is set to 1. **1:** Set this bit to 1 when you wish to print a protocol dump list only for communications with errors.
7	Priority given to various types of remote terminal ID when printing reports **0:** RTI > CSI > Dial label > Tel. number **1:** Dial label > Tel. number > RTI > CSI	This bit determines which set of priorities the machine uses when listing remote terminal names on reports. **Dial Label:** The name stored, by the user, for the Quick/Speed Dial number.

System Switch 0A		SP No. 1-101-011
No	**FUNCTION**	**COMMENTS**
0-2	Not used	Do not change the settings.
3	Continuous polling reception **0:** Disabled **1:** Enabled	This feature allows a series of stations to be polled in a continuous cycle. This will continue until the polling reception file is erased. The dialing interval is the same as memory transmission.
4	Dialing on the ten-key pad when the external telephone is off-hook **0:** Disabled **1:** Enabled	**0:** Prevents dialing from the ten-key pad while the external telephone is off-hook. Use this setting when the external telephone is not by the machine, or if a wireless telephone is connected as an external telephone. **1:** The user can dial on the machine's ten-key pad when the handset is off-hook.
5	On hook dial **0:** Disabled **1:** Enabled	**0:** On hook dial is disabled.
6-7	Not used	Do not change the settings.

System Switch 0B - Not used (Do not change the factory settings.)
System Switch 0C - Not used (Do not change the factory settings.)
System Switch 0D - Not used (Do not change the factory settings.)

System Switch 0E		SP No. 1-101-015
No	**FUNCTION**	**COMMENTS**
0-2	Not used	Do not change the settings.
3	Action when the external handset goes off-hook **0:** Manual tx and rx operation **1:** Memory tx and rx operation (the display remains the same)	**0:** Manual tx and rx are possible while the external handset is off-hook. However, memory tx is not possible. **1:** The display stays in standby mode even when the external handset is used, so that other people can use the machine for memory tx operation. Note that manual tx and rx are not possible with this setting.
4-7	Not used	Do not change the settings.

System Switch 0F		SP No. 1-101-016
No	**FUNCTION**	**COMMENTS**
0 to 7	Country/area code for functional settings (Hex) 00: France 11: USA 01: Germany 12: Asia 02: UK 13: Japan 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: Taiwan 0B: Switz. 1C: Korea 0C: Portugal 20: Turkey 0D: Holland 21: Greece 0E: Spain 22: Hungary 0F: Israel 23: Czech 10: Canada 24: Poland	This country/area 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: SP2-103, 104, parameter C.C.

Service Tables

System Switch 10 - Not used (Do not change the factory settings.)

System Switch 11		SP No. 1-101-018
No	**FUNCTION**	**COMMENTS**
0	TTI printing position **0:** Superimposed on the page data **1:** Printed before the data leading edge	Change this bit to 1 if the TTI overprints information that the customer considers to be important (G3 transmissions).
1	TSI (G3) printing position **0:** Superimposed on the page data **1:** Printed before the data leading edge	Change this bit to 1 if the TSI (G3) overprints information that the customer considers to be important.
2-7	Not used	Do not change the factory setting.

System Switch 12		SP No. 1-101-019
No	**FUNCTION**	**COMMENTS**
0 to 7	TTI printing position in the main scan direction	TTI/CIL: 08 to 92 (BCD) mm Input even numbers only. This setting determines the print start position for the TTI and CIL from the left edge of the paper. If the TTI is moved too far to the right, it may overwrite the file number which is on the top right of the page.

System Switch 13 - Not used (do not change the settings)
System Switch 14 - Not used (do not change the settings)

System Switch 15		SP No. 1-101-022
No	**FUNCTION**	**COMMENTS**
0	Not used	Do not change the setting.
1	Going into the Energy Saver mode automatically **0**: Enabled **1**: Disabled	**1:** The machine will restart from the Energy Saver mode quickly, because the +5V power supply is active even in the Energy Saver mode.
2-7	Not used	Do not change the settings.

System Switch 16		SP No. 1-101-023
No	**FUNCTION**	**COMMENTS**
0	Parallel Broadcasting **0**: Disabled **1**: Enabled	**1:** When the G3 unit is installed, the machine sends messages simultaneously using both available ports (PSTN/ISDN) during broadcasting.
2	Not used	Do not change the settings.

System Switch 17 - Not used (do not change the settings)
System Switch 18 - Not used (do not change the settings)

System Switch 19		SP No. 1-101-026
No	**FUNCTION**	**COMMENTS**
0-2	Not used	Do not change the settings.
3	Selects a temporary address for the number PC-FAX #.	0: When prefixed by #, handled only as a stored address. 1: When prefixed by #, when a digit exists that prevents handling the transaction as a Quick, Speed, or Group dialing, handles temporarily.
4	Number of jobs controlled for PC-FAX TX 0: 64 Jobs 1: No limitations (but conforms to device limitations)	Sets the number of jobs controlled for PC-FAX transactions. If "1" is selected (no limitations), control is relinquished to the device (standard 400, expandable to 800).
6	Not used	Do not change the settings.
7	Special Original mode **0**: Disabled **1**: Enabled	**1:** If the customer frequently wishes to transmit a form or letterhead which has a colored or printed background, change this bit to "1". "Original 1" and "Original 2" can be selected in addition to the "Text", "Text/Photo" and "Photo" modes.

Service Tables

System Switch 1A		SP No. 1-101-026
No	**FUNCTION**	**COMMENTS**
0 **to** **7**	LS RX memory remaining refresh value setting	Sets a value of 4K. If the amount of memory remaining falls below 4K, documents received in memory are printed to create more space in memory. Initial value: 0x80 (512K) 00-FF (0-1020 KB: Hex)

System Switch 1B - Not used (do not change the settings)
System Switch 1C - Not used (do not change the settings)

System Switch 1D		SP No. 1-101-030
No	**FUNCTION**	**COMMENTS**
0	RTI/CSI display **0:** Disabled **1:** Enabled	**1:** RTI/CSI is displayed on the top line of the LCD panel during communication.
1-7	Not used	Do not change the settings.

System Switch 1E		SP No. 1-101-031
No	**FUNCTION**	**COMMENTS**
0	Communication after the Journal data storage area has become full **0:** Impossible **1:** Possible	This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper). **0:** If the buffer memory of the communication records for the Journal has become full, fax communications will become impossible, to prevent overwriting the communication records before the machine prints them out. **1:** If the buffer memory of the communication records for the Journal is full, fax communications are still possible. But the machine will overwrite the oldest communication records. **Cross Reference** ❑ Automatic Journal output - User switch 03 bit 7 ❑ Number of communication records for the Journal: 200 records (standard) 1000 records (with the Function Upgrade unit installed)
1	Action when the SAF memory has become full during scanning **0:** The current page is erased. **1:** The entire file is erased.	**0:** If the SAF memory becomes full during scanning, the successfully scanned pages are transmitted. **1:** If the SAF memory becomes full during scanning, the file is erased and no pages are transmitted. This bit switch is ignored for parallel memory transmission.

System Switch 1E		SP No. 1-101-031
No	**FUNCTION**	**COMMENTS**
2	RTI/CSI display priority 0: RTI 1: CSI	This bit determines which identifier, RTI or CSI, is displayed on the LCD while the machine is communicating in G3 non-standard mode.
3	File No. printing **0**: Enabled **1**: Disabled	**1:** File numbers are not printed on any reports.
4	Action when authorized reception is enabled but authorized RTIs/CSIs are **not yet** programmed **0**: All fax reception is disabled **1**: Faxes can be received if the sender has an RTI or CSI	If authorized reception is enabled but the user has stored no acceptable sender RTIs or CSIs, the machine will not be able to receive any fax messages. If the customer wishes to receive messages from any sender that includes an RTI or CSI, and to block messages from senders that do not include an RTI or CSI, change this bit to "1", then enable Authorized Reception. Otherwise, keep this bit at "0 (default setting)".
5-6	Not used	Do not change the setting.
7	RAM initialization after the optional Function Upgrade unit is installed or removed **0**: Enabled **1**: Disabled	When the machine detects that a Function Upgrade unit has been installed or removed, the machine shows the following message on the display for the customer. *"Adding/Removing FAX Feature Expander causes data loss. Turn Main Power Switch off and remove/replace it to avoid loss. To continue, press Yes."* If Yes is pressed, the machine initializes the RAM to the "with" or "without card" configuration. However, changing this bit to "1" disables this initialization, even if Yes is pressed. Change this bit to 1 after installing the Function Upgrade unit. **0:** When the above message is displayed, the machine initializes the RAM if Yes is pressed. The amount of data lost depends on whether the board is in or out. To avoid losing data, the user must switch off immediately and put the Function Upgrade unit back in. **1:** When the above message is displayed, the machine does not initialize the RAM even if Yes is pressed. However, the fax unit cannot be used until the user switches off, puts the Function Upgrade unit back in, then switches back on. No data is lost.

Service Tables

System Switch 1F   **SP No. 1-101-032**
No	**FUNCTION**	**COMMENTS**
0	Not used	Do not change the setting.
1	Report printout after an original jam during SAF storage or if the SAF memory fills up **0:** Enabled **1:** Disabled	**0:** When an original jams, or the SAF memory overflows during scanning, a report will be printed. Change this bit to "1" if the customer does not want to have a report in these cases. Memory tx – Memory storage report Parallel memory tx – Transmission result report
2	Not used	Do not change the setting.
3	Received fax print start timing (G3 reception) **0:** After receiving each page **1:** After receiving all pages	**0:** The machine prints each page immediately after the machine receives it. **1:** The machine prints the complete message after the machine receives all the pages in the memory.
4-6	Not used	Do not change the factory settings.
7	Action when a fax SC has occurred **0:** Automatic reset **1:** Fax unit stops	**0:** When the fax unit detects a fax SC code other than SC1201 and SC1207, the fax unit automatically resets itself. **1:** When the fax unit detects any fax SC code, the fax unit stops. **Cross Reference** Fax SC codes - See "Troubleshooting"

3.2.2 IFAX SWITCHES

Please refer to the IFAX Service Manual.

3.2.3 PRINTER SWITCHES

Printer Switch 00		SP No. 1-103-001
No	**FUNCTION**	**COMMENTS**
0	Page separation mark **0:** Disabled **1:** Enabled	**0:** No marks are printed. **1**: If a received page has to be printed out on two sheets, an asterisk inside square brackets is printed at the bottom right hand corner of the first sheet, and a "2" inside a small box is printed at the top right hand corner of the second sheet. This helps the user to identify pages that have been split.
1	Repetition of data when the received page is longer than the printer paper **0:** Disabled **1:** Enabled	**0:** The next page continues from where the previous page left off. **1:** The final few mm of the previous page are repeated at the top of the next page. The amount of repeated data depends on printer switch 04, bits 5 and 6.
2	Prints the date and time on received fax messages **0:** Disabled **1:** Enabled	This switch is only effective when user parameter 02 - bit 2 (printing the received date and time on received fax messages) is enabled. **1:** The machine prints the received and printed date and time at the bottom of each received page.
3-7	Not used	Do not change the settings.

Printer Switch 01		SP No. 1-103-002
No	**FUNCTION**	**COMMENTS**
0-2	Not used	Do not change the settings.
3-4	Maximum print width used in the setup protocol **Bit 4　3　　　Setting** 　0　0　　　Not used 　0　1　　　A3 　1　0　　　B4 　1　1　　　A4	These bits are only effective when bit 7 of printer switch 01 is "1".
5-6	Not used	Do not change the settings.
7	Received message width restriction in the protocol signal to the sender **0:** Disabled **1:** Enabled	**0:** The machine informs the transmitting machine of the print width depending on the paper size available from the paper feed stations. Refer to the table on the next page for how the machine chooses the paper width used in the setup protocol (NSF/DIS). **1:** The machine informs the transmitting machine of the fixed paper width which is specified by bits 3 and 4 above.

Service Tables

Relationship between available paper sizes and printer width used in the setup protocol

Available Paper Size	Printer width used in the Protocol (NSF/DIS)
A4 or 8.5" x 11"	297 mm width
B5	256 mm width
A5 or 8.5" x 5.5"	216 mm width
No paper available (Paper end)	216 mm width

Printer Switch 02		SP No. 1-103-003
No	**FUNCTION**	**COMMENTS**
0	1st paper feed station usage for fax printing **0:** Enabled **1:** Disabled	**0:** The paper feed station can be used to print fax messages and reports. **1**: The specified paper feed station will not be used for printing fax messages and reports. **Note:** Do not disable usage for a paper feed station which has been specified by User Parameter Switch 0F (15), or which is used for the Specified Cassette Selection feature.
1	2nd paper feed station usage for fax printing **0:** Enabled **1:** Disabled	
2	3rd paper feed station usage for fax printing **0:** Enabled **1:** Disabled	
3	4th paper feed station usage for fax printing **0:** Enabled **1:** Disabled	
4	LCT usage for fax printing **0:** Enabled **1:** Disabled	
5-7	Not used	Do not change the settings.

Printer Switch 03		SP No. 1-103-004
No	**FUNCTION**	**COMMENTS**
0	Length reduction of received data **0:** Disabled **1:** Enabled	**0:** Incoming pages are printed without length reduction. (Page separation threshold: Printer Switch 03, bits 4 to 7) **1:** Incoming page length is reduced when printing. (Maximum reducible length: Printer Switches 04, bits 0 to 4)
1-3	Not used	Do not change the settings

Printer Switch 03		SP No. 1-103-004
No	**FUNCTION**	**COMMENTS**

4 to 7	Page separation threshold (with reduction disabled with switch 03-0 above)
	
	If the incoming page is up to x mm longer than the length of copy paper, the excess portion will not be printed. If the incoming page is more than x mm longer than the length of copy paper, the excess portion will be printed on the next page.
	The value of x is determined by these four bits.
	
	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: Printer Switch 03, Bit 0	

Printer Switch 04		SP No. 1-103-005
No	**FUNCTION**	**COMMENTS**

0 to 4	Maximum reducible length when length reduction is enabled with switch 03-0 above.
	<Maximum reducible length> = <Paper length> + (N x 5mm)
	"N" is the decimal value of the binary setting of bits 0 to 4.
	
	Bit 4 3 2 1 0 Setting
	   0 0 0 0 0 0 mm Not Used
	   0 0 0 0 1 5 mm
	
	   0 0 1 0 0 20 mm (default setting)
	
	   1 1 1 1 1 155 mm
	
	For A5 sideways and B5 sideways paper
	<Maximum reducible length> = <Paper length> + 0.75 x (N x 5mm)	

5 to 6	Length of the duplicated image on the next page, when page separation has taken place. $\binom{0}{0}=4\,mm\;\binom{1}{0}=10\,mm\;\binom{0}{1}=15\,mm\;\binom{1}{1}=Not\;used$	
7	Not used.	Do not change the setting.

Printer Switch 05 - Not used (do not change the settings)

Printer Switch 06		SP No. 1-103-007
No	**FUNCTION**	**COMMENTS**
0	Printing while a paper cassette is pulled out, when the Just Size Printing feature is enabled. **0**: Printing will not start **1**: Printing will start if another cassette has a suitable size of paper, based on the paper size selection priority tables.	**Cross reference** Just size printing on/off – User switch 05, bit 5
1-7	Not used.	Do not change the settings.

Printer Switch 07		SP No. 1-103-008
No	**FUNCTION**	**COMMENTS**
0	Reduction for Journal printing **0:** Off **1:** On	**1:** The Journal is reduced to 91% to ensure that there is enough space in the left margin for punch holes or staples.
2-3	Not used.	Do not change the settings.
4	List of destinations in the Communication Failure Report for broadcasting **0**: All destinations **1**: Only destinations where communication failure occurred	**1:** Only destinations where communication failure occurred are printed on the Communication Failure Report.
5-7	Not used.	Do not change the settings.

Printer Switch 08 - Not used (do not change the settings)
Printer Switch 09 - Not used (do not change the settings)
Printer Switch 0A - Not used (do not change the settings)
Printer Switch 0B - Not used (do not change the settings)
Printer Switch 0C - Not used (do not change the settings)
Printer Switch 0D - Not used (do not change the settings)

Printer Switch 0E		SP No. 1-103-015
No	**FUNCTION**	**COMMENTS**
0	Paper size selection priority **0:** Width **1:** Length	**0:** A paper size that has the same width as the received data is selected first. **1:** A paper size which has enough length to print all the received lines without reduction is selected first.
1	Paper size selected for printing A4 width fax data **0:** 8.5" x 11" size **1:** A4 size	This switch determines which paper size is selected for printing A4 width fax data, when the machine has both A4 and 8.5" x 11" size paper.
2	Page separation **0:** Enabled **1:** Disabled	**1:** If all paper sizes in the machine require page separation to print a received fax message, the machine does not print the message (Substitute Reception is used). After a larger size of paper is set in a cassette, the machine automatically prints the fax message.
3 to 4	Printing the sample image on reports **Bit 4 Bit 3 Setting** 0 0 The upper half only 0 1 50% reduction in sub-scan only 1 0 Same size 1 1 Not used	"Same size" means the sample image is printed at 100%, even if page separation occurs. User Parameter Switch 19 (13H) bit 4 must be set to "0" to enable this switch. Refer to Detailed Section Descriptions for more on this feature.
5-6	Not used	Do not change the settings.
7	Equalizing the reduction ratio among separated pages (Page Separation) **0:** Enabled **1:** Disabled	**0:** When page separation has taken place, all the pages are reduced with the same reduction ratio. **1:** Only the last page is reduced to fit the selected paper size when page separation has taken place. Other pages are printed without reduction.

Service
Tables

Printer Switch 0F		SP No. 1-103-016
No	FUNCTION	COMMENTS
0 to 1	Smoothing feature **Bit 1 Bit 0 Setting** 0 0 Disabled 0 1 Disabled 1 0 Enabled 1 1 Not used	**(0, 0) (0, 1):** Disable smoothing if the machine receives halftone images from other manufacturers fax machines frequently.
2	Duplex printing **0:** Disabled **1:** Enabled	**1:** The machine always prints received fax messages in duplex printing mode:
3	Binding direction for Duplex printing **0:** Left binding **1:** Top binding	
4	Printing fax messages in user code mode **0:** Enabled **1:** Disabled	**1:** The machine holds the received fax messages until the machine exits the restricted access mode (user code or key counter). If the machine enters the restricted access mode again while printing fax messages, the machine stops printing the machine exits the mode again.
5-7	Not used	Do not change the settings.

3.2.4 COMMUNICATION SWITCHES

Communication Switch 00		SP No. 1-104-001
No	**FUNCTION**	**COMMENTS**

0
to
1
	Compression modes available in receive mode
	Bit 1 0 Modes
	  0 0 MH only
	  0 1 MH/MR
	  1 0 MH/MR/MMR
	  1 1 MH/MR/MMR/
	          JBIG
		These bits determine the compression capabilities to be declared in phase B (handshaking) of the T.30 protocol.

2
to
3
	Compression modes available in transmit mode
	Bit 3 2 Modes
	  0 0 MH only
	  0 1 MH/MR
	  1 0 MH/MR/MMR
	  1 1 MH/MR/MMR/
	          JBIG
		These bits determine the compression capabilities to be used in the transmission and to be declared in phase B (handshaking) of the T.30 protocol.

4	Not used	Do not change the setting.
5	JBIG compression method: Reception **0**: Only basic supported **1**: Basic and optional both supported	Change the setting when communication problems occur using JBIG compression.
6	JBIG compression method: Transmission **0**: Basic mode priority **1**: Optional mode priority	Change the setting when communication problems occur using JBIG compression.
7	Closed network (reception) **0**: Disabled **1**: Enabled	**1:** Reception will not go ahead if the ID code of the other terminal does not match the ID code of this terminal. This function is only available in NSF/NSS mode.

Service Tables

Communication Switch 01		SP No. 1-104-002
No	**FUNCTION**	**COMMENTS**
0	ECM **0:** Off **1:** On	If this bit is set to 0, ECM is switched off for all communications. In addition, V.8 protocol and JBIG compression are switched off automatically.
1	Not used	Do not change the setting.
2 to 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.
4-5	Not used	Do not change the settings.
6 to 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		SP No. 1-104-003
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
1	Acceptable total error line ratio **0:** 5% **1:** 10%	If the error line ratio for a page exceeds the acceptable ratio, RTN will be sent to the other end.
2	Treatment of pages received with errors during G3 reception **0:** Deleted from memory without printing **1:** Printed	**0:** Pages received with errors are not printed.
3	Hang-up decision when a negative code (RTN or PIN) is received during G3 immediate transmission **0:** No hang-up, **1:** Hang-up	**0:** The next page will be sent even if RTN or PIN is received. **1:** The machine will send DCN and hang up if it receives RTN or PIN. This bit is ignored for memory transmissions or if ECM is being used.
4-7	Not used	Do not change the settings.

Communication Switch 03		SP No. 1-104-004
No	**FUNCTION**	**COMMENTS**
0 **to** **7**	Maximum number of page retransmissions in a G3 memory transmission	00 - FF (Hex) times. This setting is not used if ECM is switched on. Default setting - 03(H)

Communication Switch 04 - Not used (do not change the settings)
Communication Switch 05 - Not used (do not change the settings)
Communication Switch 06 - Not used (do not change the settings)
Communication Switch 07 - Not used (do not change the settings)
Communication Switch 08 - Not used (do not change the settings)
Communication Switch 09 - Not used (do not change the settings)

Service Tables

Communication Switch 0A		SP No. 1-104-011
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.
1-7	Not used	Do not change the settings.

Communication Switch 0B		SP No. 1-104-012
No	**FUNCTION**	**COMMENTS**
0	Use of Economy Transmission during a Transfer operation to end receivers **0:** Disabled **1:** Enabled	These bits determine whether the machine uses the Economy Transmission feature when it is carrying out a Transfer operation as a Transfer Station.
1	Use of Economy Transmission during a Transfer operation to the Next Transfer Stations **0:** Disabled **1:** Enabled	
2	Use of Label Insertion for the End Receivers in a Transfer operation **0:** Disabled **1:** Enabled	This bit determines whether the machine uses the Label Insertion feature when it is carrying out a Transfer operation as a Transfer Station.
3	Conditions required for Transfer Result Report transmission **0:** Always transmitted **1:** Only transmitted if there was an error	**0:** When acting as a Transfer Station, the machine will always send a Transfer Result Report back to the Requesting Station after completing the Transfer Request, even if there were no problems. **1:** The machine will only send back a Transfer Result Report if there were errors during communication, meaning one or more of the End Receivers could not be contacted.
4	Printout of the message when acting as a Transfer Station **0:** Disabled **1:** Enabled	When the machine is acting as a Transfer Station, this bit determines whether the machine prints the fax message coming in from the Requesting Terminal.
5	Action when there is no fax number in the programmed Quick/Speed dials which meets the requesting terminal's own fax number **0:** Transfer is disabled **1:** Transfer is enabled	After the machine receives a transfer request, the machine compares the last N digits of the requesting terminal's own fax number with all the Quick/Speed dials programmed in the machine. (N is the number programmed in communication switch 0C.) **0:** If there is no matching number programmed in the machine, the machine rejects the transfer request. **1:** Even if there is no matching number programmed in the machine, the machine accepts the transfer request. The result report will be printed at the transfer terminal, but will not be sent back to the requesting terminal.
6-7	Not used	Do not change the settings.

Communication Switch 0C		SP No. 1-104-013
No	FUNCTION	COMMENTS
0 to 4	Number of digits compared to find the requester's fax number from the programmed Quick/Speed Dials when acting as a Transfer Station	00 - 1F (0 to 31 digits) After the machine receives a transfer request, the machine compares the own telephone number sent from the Requesting Terminal with all Quick/Speed Dials programmed in the machine, starting from Quick Dial 01 to the end of the Speed Dials. This number determines how many digits from the end of the telephone numbers the machine compares. If it is set to 00, the machine will send the report to the first Quick/Speed Dial that the machine compared. If Quick Dial 01 is programmed, the machine will send the report to Quick 01. If Quick Dial 01 through 04 are not programmed and Quick Dial 05 is programmed, the machine will send the report to Quick 05. Default setting - 05(H) = 5 digits
5-7	Not used	Do not change the settings.

Communication Switch 0D		SP No. 1-104-014
No	FUNCTION	COMMENTS
0 to 7	The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled	00 to FF (Hex), unit = 4 kbytes (e.g., 06(H) = 24 kbytes) One page is about 24 kbytes. The machine refers to this setting before each fax reception. If the amount of remaining memory is below this threshold, the machine cannot receive any fax messages. If this setting is kept at 0, the machine will detect ringing signals and go into receive mode even if there is no memory available. This will result in communication failure.

Communication Switch 0E		SP No. 1-104-015
No	FUNCTION	COMMENTS
0 to 7	Minimum interval between automatic dialing attempts	06 to FF (Hex), unit = 2 s (e.g., 06(H) = 12 s) This value is the minimum time that the machine waits before it dials the next destination.

Communication Switch 0F - Not used (do not change the settings.)

Service Tables

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Communication Switch 10		SP No. 1-104-017
No	**FUNCTION**	**COMMENTS**
0 **to** **7**	Memory transmission: Maximum number of dialing attempts to the same destination	01 - FE (Hex) times

Communication Switch 11 - Not used (do not change the settings.)

Communication Switch 12		SP No. 1-104-019
No	**FUNCTION**	**COMMENTS**
0 **to** **7**	Memory transmission: Interval between dialing attempts to the same destination	01 - FF (Hex) minutes

Communication Switch 13 - Not used (do not change the settings.)

Communication Switch 14		SP No. 1-104-021
No	**FUNCTION**	**COMMENTS**
0	Inch-to-mm conversion during transmission **0:** Disabled **1:** Enabled	**0:** In immediate transmission, data scanned in inch format are transmitted without conversion. In memory transmission, data stored in the SAF memory in mm format are transmitted without conversion. **Note:** When storing the scanned data into SAF memory, the fax unit always converts the data into mm format. **1:** The machine converts the scanned data or stored data in the SAF memory to the format which was specified in the set-up protocol (DIS/NSF) before transmission.
1-5	Not used	Do not change the factory settings.
6 **to** **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 - Not used (do not change the settings)

Communication Switch 16		SP No. 1-104-023
No	**FUNCTION**	**COMMENTS**
0	Not used.	Do not change setting.
1	Optional G3 unit (G3-2) **0:** Not installed **1:** Installed	Change this bit to 1 when installing the first optional G3 unit.
2 to 7	Not used.	Do not change setting.

Communication Switch 17		SP No. 1-104-024
No	**FUNCTION**	**COMMENTS**
0	SEP reception **0:** Disabled **1:** Enabled	**0:** Polling transmission to another maker's machine using the SEP (Selective Polling) signal is disabled.
1	SUB reception **0:** Disabled **1:** Enabled	**0:** Confidential reception to another maker's machine using the SUB (Sub-address) signal is disabled.
2	PWD reception **0:** Disabled **1:** Enabled	**0:** Disables features that require PWD (Password) signal reception.
3-6	Not used	Do not change the settings.
7	Action when there is no box with an F-code that matches the received SUB code **0:** Disconnect the line **1:** Receive the message (using normal reception mode)	Change this setting when the customer requires.

Service Tables

Communication Switch 18 - Not used (do not change the settings)
Communication Switch 19 - Not used (do not change the settings)
Communication Switch 1A - Not used (do not change the settings)

Communication Switch 1B		SP No. 1-104-028
No	**FUNCTION**	**COMMENTS**
0 to 7	Extension access code (0 to 7) to turn V.8 protocol On/Off **0:** On **1:** Off	If the PABX does not support V.8/V.34 protocol procedure, set this bit to "1" to disable V.8. **Example:** If "0" is the PSTN access code, set bit 0 to 1. When the machine detects "0" as the first dialed number, it automatically disables V.8 protocol. (Alternatively, if "3" is the PSTN access code, set bit 3 to 1.)

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Communication Switch 1C		SP No. 1-104-029
No	**FUNCTION**	**COMMENTS**
0 to 1	Extension access code (8 and 9) to turn V.8 protocol On/Off **0:** On **1:** Off	Refer to communication switch 1E. **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.)
2-7	Not used	Do not change the settings.

Communication Switch 1D - Not used (do not change the settings)
Communication Switch 1E - Not used (do not change the settings)
Communication Switch 1F - Not used (do not change the settings)

3.2.5 G3-1 SWITCHES

G3-1 Switch 00		SP No. 1-105-001
No	**FUNCTION**	**COMMENTS**
0 **to** **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 settings.

G3-1 Switch 01		SP No. 1-105-002
No	**FUNCTION**	**COMMENTS**
0-3	Not used	Do not change the settings.
4	DIS frame length **0:** 10 bytes **1:** 4 bytes	**1:** The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).
5	Not used	Do not change the setting.
6	CED/ANSam transmission **0:** Disabled **1:** Enabled	Do not change this setting, unless the communication problem is caused by the CED/ANSam transmission.
7	Not used	Do not change the setting.

G3-1 Switch 02		SP No. 1-105-003
No	**FUNCTION**	**COMMENTS**
0	G3 protocol mode used **0:** Standard and non-standard **1:** Standard only	Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. **1:** Disables NSF/NSS signals (these are used in non-standard mode communication)
1-4	Not used	Do not change the settings.
5	Use of modem rate history for transmission using Quick/Speed Dials **0:** Disabled **1:** Enabled	**0:** Communications using Quick/Speed Dials always start from the highest modem rate. **1:** The machine refers to the modem rate history for communications with the same machine when determining the most suitable rate for the current communication.
6	AI short protocol (transmission and reception) **0:** Disabled **1:** Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about AI Short Protocol.
7	Short preamble **0:** Disabled **1:** Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble.

Service Tables

G3-1 Switch 03		SP No. 1-105-004
No	FUNCTION	COMMENTS
0	DIS detection number (Echo countermeasure) **0:** 1 **1:** 2	**0:** The machine will hang up if it receives the same DIS frame twice. **1:** Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line.
1	V.8 protocol in manual reception **0:** Disabled **1:** Enabled	**0:** The machine sends CED instead of ANSam when starting a manual reception. **1:** The machine sends ANSam during manual reception.
2	V.8 protocol **0:** Disabled **1:** Enabled	**0:** V.8/V.34 communications will not be possible. **Note:** Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower.
3	ECM frame size **0:** 256 bytes **1:** 64 bytes	Keep this bit at "0" in most cases.
4	CTC transmission conditions **0:** After one PPR signal received **1:** After four PPR signals received (ITU-T standard)	**0:** When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. $$\sqrt{N_{Transmit} \leq N_{Resend}}$$ $N_{Transmit}$- Number of transmitted frames N_{Resend}- Number of frames to be retransmitted **1:** When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.
5	Modem rate used for the next page after receiving a negative code (RTN or PIN) **0:** No change **1:** Fallback	**1:** The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used.
6	V.8 protocol in manual transmission **0:** Disabled **1:** Enabled	**1:** The machine detects either ANSam or CED during manual transmission.
7	Not used	Do not change the setting.

G3-1 Switch 04		SP No. 1-105-005
No	**FUNCTION**	**COMMENTS**
0 to 3	Training error detection threshold	0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded.
4-7	Not used	Do not change the settings.

G3-1 Switch 05		SP No. 1-105-006
No	**FUNCTION**	**COMMENTS**
0 to 3	Initial Tx modem rate **Bit 3 2 1 0 Setting (bps)** 0 0 0 1 2.4 k 0 0 1 0 4.8 k 0 0 1 1 7.2 k 0 1 0 0 9.6 k 0 1 0 1 12.0 k 0 1 1 0 14.4 k 0 1 1 1 16.8 k 1 0 0 0 19.2 k 1 0 0 1 21.6 k 1 0 1 0 24.0 k 1 0 1 1 26.4 k 1 1 0 0 28.8 k 1 1 0 1 31.2 k 1 1 1 0 33.6 k Other settings - Not used	These bits set the initial starting modem rate for transmission. Use the dedicated transmission parameters if you need to change this for specific receivers. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. **Cross reference** V.8 protocol on/off - G3 switch 03, bit2
4 to 5	Initial modem type for 9.6 k or 7.2 kbps. **Bit 5 Bit 4 Setting** 0 0 V.29 0 1 V.17 1 0 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 the settings.

Service Tables

G3-1 Switch 06		SP No. 1-105-007
No	**FUNCTION**	**COMMENTS**

0 **to** **3**	Initial Rx modem rate
	
	Bit 3 2 1 0 Setting (bps)
	   0 0 0 1 2.4 k
	   0 0 1 0 4.8 k
	   0 0 1 1 7.2 k
	   0 1 0 0 9.6 k
	   0 1 0 1 12.0 k
	   0 1 1 0 14.4 k
	   0 1 1 1 16.8 k
	   1 0 0 0 19.2 k
	   1 0 0 1 21.6 k
	   1 0 1 0 24.0 k
	   1 0 1 1 26.4 k
	   1 1 0 0 28.8 k
	   1 1 0 1 31.2 k
	   1 1 1 0 33.6 k
	Other settings - Not used
		These bits set the initial starting modem rate for reception.
		
		Use a lower setting if high speeds pose problems during reception.
		
		If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - G3 switch 03, bit2

4 **to** **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 V.27ter, V.29
	                        V.33
	   0 1 0 0 V.27ter, V.29,
	                        V.17/V.33
	   0 1 0 1 V.27ter, V.29,
	                        V.17/V33,
	                        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, bit2

No	FUNCTION	COMMENTS
G3-1 Switch 07		**SP No. 1-105-008**

0
to
1
	PSTN cable equalizer
	(tx mode: Internal)
	Bit 1 Bit 0 Setting
	  0 0 None
	  0 1 Low
	  1 0 Medium
	  1 1 High
		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
		Use the dedicated transmission parameters for specific receivers.
		
		Also, try using the cable equalizer if one or more of the following symptoms occurs.
		• Communication error
		• Modem rate fallback occurs frequently.
		
		Note: This setting is not effective in V.34 communications.

2
to
3
	PSTN cable equalizer
	(rx mode: Internal)
	Bit 3 Bit 2 Setting
	  0 0 None
	  0 1 Low
	  1 0 Medium
	  1 1 High
		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
		
		Also, try using the cable equalizer if one or more of the following symptoms occurs.
		• Communication error with error codes such as 0-20, 0-23, etc.
		• Modem rate fallback occurs frequently.
		
		Note: This setting is not effective in V.34 communications.

4	PSTN cable equalizer (V.8/V.17 rx mode: External) **0**: Disabled **1**: Enabled	Keep this bit at "1".
5-7	Not used	Do not change the settings.

G3-1 Switch 08 - Not used (do not change the settings)
G3-1 Switch 09 - Not used (do not change the settings)

Service
Tables

G3-1 Switch 0A		SP No. 1-105-011
No	**FUNCTION**	**COMMENTS**
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	Non-ECM Carrier Drop 0: Maintain connection 1: Disconnect	Determines how the machine will respond when it detects a drop in the carrier signal during non-ECM communication.
3	Not used	Do not change the settings.
4	Maximum allowable frame interval during image data reception. **0:** 5 s **1:** 13 s	This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end. Try using a longer setting if error code 0-21 is frequent.
5	Not used	Do not change the 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.

G3-1 Switch 0B		SP No. 1-105-012
No	**FUNCTION**	**COMMENTS**
0	Protocol requirements: Europe **0:** Disabled **1:** Enabled	The machine does not automatically reset these bits for each country after a country code (System Switch 0F) is programmed. Change the required bits manually at installation.
1	Protocol requirements: Spain **0:** Disabled **1:** Enabled	
2	Protocol requirements: Germany **0:** Disabled **1:** Enabled	
3	Protocol requirements: France **0:** Disabled **1:** Enabled	
4	PTT requirements: Germany **0:** Disabled **1:** Enabled	
5	PTT requirements: France **0:** Disabled **1:** Enabled	
6	Not used	Do not change the setting.
7	DTS requirements : Germany **0:** Disabled **1:** Enabled	Change this bit manually if required.

G3-1 Switch 0C		SP No. 1-105-013
No	**FUNCTION**	**COMMENTS**
0 1	Pulse dialing method **Bit 1 Bit 0 Setting** 0 0 Normal(P=N) 0 1 Oslo (P=10 - N) 1 0 Sweden (N+1) 1 1 Not used	P = Number of pulses sent out, N = Number dialed.
2-7	Not used	Do not change the settings.

G3-1 Switch 0D - Not used (do not change the settings)

G3-1 Switch 0E		SP No. 1-105-015
No	**FUNCTION**	**COMMENTS**

0 to 7	CNG transmission OFF interval. To input a value more than 3 s, use bits 3 to 0, and keep bits 4 to 7 at 0.
	          3000 + 50 x N ms
	To inpu a value less than 3 s, use bits 4 to 7, and keep bits 0 to 3 at 1.
	          3000 – 50 x N ms
		Examples:
		3100 ms: 50 x 2 = 100
		    Bits 4 to 7 must be 0
		    Bits 0 to 3 must be 2(H)
		    So, enter 02H.
		2800 ms: 50 x 4 = 200
		    Bits 0 to 3 must be F(H)
		    Bits 4 to 7 must be 4(H)
		    So, enter 4FH

Service
Tables

G3-1 Switch 0F		SP No. 1-105-016
No	**FUNCTION**	**COMMENTS**
0	Alarm when an error occurred in Phase C or later **0**: Disabled **1**: Enabled	If the customer wants to hear an alarm after each error communication, change this bit to "1".
1	Alarm when the handset is off-hook at the end of communication **0**: Disabled **1**: Enabled	If the customer wants to hear an alarm if the handset is off-hook at the end of fax communication, change this bit to "1".
2-7	Not used	Do not change the settings.

3.2.6 G3-2 SWITCHES

These switches require an optional G3 interface unit.

G3-2 Switch 00		SP No. 1-106-001
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.
3-6	Not used	Do not change the settings.

G3-2 Switch 01		SP No. 1-106-002
No	**FUNCTION**	**COMMENTS**
0-3	Not used	Do not change the settings.
4	DIS frame length **0:** 10 bytes **1:** 4 bytes	**1:** The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).
5	Not used	Do not change the setting.
6	CED/ANSam transmission **0:** Disabled **1:** Enabled	Do not change this setting, unless the communication problem is caused by the CED/ANSam transmission.
7	Not used	Do not change the setting.

Service Tables

G3-2 **Switch 02**		**SP No. 1-106-003**
No	**FUNCTION**	**COMMENTS**
0	G3 protocol mode used **0:** Standard and non-standard **1:** Standard only	Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. **1:** Disables NSF/NSS signals (these are used in non-standard mode communication)
1-4	Not used	Do not change the settings.
5	Use of modem rate history for transmission using Quick/Speed Dials **0:** Disabled **1:** Enabled	**0:** Communications using Quick/Speed Dials always start from the highest modem rate. **1:** The machine refers to the modem rate history for communications with the same machine when determining the most suitable rate for the current communication.
6	AI short protocol (transmission and reception) **0:** Disabled **1:** Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about AI Short Protocol.
7	Short preamble **0:** Disabled **1:** Enabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble.

G3-2 Switch 03		SP No. 1-106-004
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:** After one PPR signal received **1:** After four PPR signals received (ITU-T standard)	**0:** When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. $$\sqrt{N_{Transmit}} \le N_{Resend}$$ $N_{Transmit}$- Number of transmitted frames N_{Resend}- Number of frames to be retransmitted **1:** When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.
5	Modem rate used for the next page after receiving a negative code (RTN or PIN) **0:** No change **1:** Fallback	**1:** The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used.
6-7	Not used	Do not change the settings.

G3-2 Switch 04		SP No. 1-106-005
No	**FUNCTION**	**COMMENTS**
0 to 3	Training error detection threshold	0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded.
4-7	Not used	Do not change the settings.

Service Tables

G3-2 Switch 05		SP No. 1-106-006
No	**FUNCTION**	**COMMENTS**

0 **to** **3**	Initial Tx modem rate
	Bit 3 2 1 0 Setting (bps)
	    0 0 0 1 2.4 k
	    0 0 1 0 4.8 k
	    0 0 1 1 7.2 k
	    0 1 0 0 9.6 k
	    0 1 0 1 12.0 k
	    0 1 1 0 14.4 k
	    0 1 1 1 16.8 k
	    1 0 0 0 19.2 k
	    1 0 0 1 21.6 k
	    1 0 1 0 24.0 k
	    1 0 1 1 26.4 k
	    1 1 0 0 28.8 k
	    1 1 0 1 31.2 k
	    1 1 1 0 33.6 k
	Other settings - Not used
		These bits set the initial starting modem rate for transmission.
		
		Use the dedicated transmission parameters if you need to change this for specific receivers.
		
		If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
		
		Cross reference
		V.8 protocol on/off - SG3 switch 03, bit 2

4 **to** **5**	Initial modem type for 9.6 k or 7.2 kbps.
	Bit 5 Bit 4 Setting
	  0 0 V.29
	  0 1 V.17
	  1 0 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 the settings.

G3-2 Switch 06		SP No. 1-106-007
No	**FUNCTION**	**COMMENTS**
0 **to** **3**	Initial Rx modem rate **Bit 3 2 1 0 Setting (bps)** 0 0 0 1 2.4 k 0 0 1 0 4.8 k 0 0 1 1 7.2 k 0 1 0 0 9.6 k 0 1 0 1 12.0 k 0 1 1 0 14.4 k 0 1 1 1 16.8 k 1 0 0 0 19.2 k 1 0 0 1 21.6 k 1 0 1 0 24.0 k 1 0 1 1 26.4 k 1 1 0 0 28.8 k 1 1 0 1 31.2 k 1 1 1 0 33.6 k Other settings - Not used	These bits set the initial starting modem rate for reception. Use a lower setting if high speeds pose problems during reception. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. **Cross reference** V.8 protocol on/off - SG3 switch 03, bit 2
4 **to** **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 V.27ter, V.29 V.33 0 1 0 0 V.27ter, V.29, V.17/V.33 0 1 0 1 V.27ter, V.29, V.17/V33, 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 - SG3 switch 03, bit 2

Service
Tables

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G3-2 Switch 07		SP No. 1-106-008
No	**FUNCTION**	**COMMENTS**

0
to
1
	PSTN cable equalizer
	(tx mode: Internal)
	Bit 1 Bit 0 Setting
	  0 0 None
	  0 1 Low
	  1 0 Medium
	  1 1 High
		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
		Use the dedicated transmission parameters for specific receivers.
		
		Also, try using the cable equalizer if one or more of the following symptoms occurs.
		• Communication error
		• Modem rate fallback occurs frequently.
		
		Note: This setting is not effective in V.34 communications.

2
to
3
	PSTN cable equalizer
	(rx mode: Internal)
	Bit 3 Bit 2 Setting
	  0 0 None
	  0 1 Low
	  1 0 Medium
	  1 1 High
		Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.
		
		Also, try using the cable equalizer if one or more of the following symptoms occurs.
		• Communication error with error codes such as 0-20, 0-23, etc.
		• Modem rate fallback occurs frequently.
		
		Note: This setting is not effective in V.34 communications.

4	PSTN cable equalizer (V.8/V.17 rx mode: External) **0**: Disabled **1**: Enabled	Keep this bit at "1".
5	PSTN cable equalizer (V.34 rx mode; External)	Keep this bit at "1".
6-7	Not used	Do not change the settings.

G3-2 Switch 08 - Not used (do not change the settings)
G3-2 Switch 09 - Not used (do not change the settings)

G3-2 Switch 0A		SP No. 1-106-011
No	**FUNCTION**	**COMMENTS**
0 **1**	Maximum allowable carrier drop during image data reception <table><tr><td>**Bit 1**</td><td>**Bit 0**</td><td>**Value (ms)**</td></tr><tr><td>0</td><td>0</td><td>200</td></tr><tr><td>0</td><td>1</td><td>400</td></tr><tr><td>1</td><td>0</td><td>800</td></tr><tr><td>1</td><td>1</td><td>Not used</td></tr></table>	These bits set the acceptable modem carrier drop time. Try using a longer setting if error code 0-22 is frequent.
2	Non-ECM Carrier Drop 0: Maintain connection 1: Disconnect	Determines how the machine will respond when it detects a drop in the carrier signal during non-ECM communication.
3	Not used	Do not change the settings.
4	Maximum allowable frame interval during image data reception. **0:** 5 s **1:** 13 s	This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end. Try using a longer setting if error code 0-21 is frequent.
5	Not used	Do not change the 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.

G3-2 Switch 0B		SP No. 1-106-012
No	**FUNCTION**	**COMMENTS**
0	Protocol requirements: Europe **0:** Disabled **1:** Enabled	The machine does not automatically reset these bits for each country after a country code (System Switch 0F) is programmed. Change the required bits manually at installation.
1	Protocol requirements: Spain **0:** Disabled **1:** Enabled	
2	Protocol requirements: Germany **0:** Disabled **1:** Enabled	
3	Protocol requirements: France **0:** Disabled **1:** Enabled	
4	PTT requirements: Germany **0:** Disabled **1:** Enabled	
5	PTT requirements: France **0:** Disabled **1:** Enabled	
6-7	Not used	Do not change the setting.

Service Tables

G3-2 **Switch 0C**				SP No. 1-106-013
No		**FUNCTION**		**COMMENTS**
0 **1**	Pulse dialing method **Bit 1** 0 0 1 1	**Bit 0** 0 1 0 1	**Setting** Normal(P=N) Oslo (P=10 - N) Sweden (N+1) Not used	P = Number of pulses sent out, N = Number dialed.
2-7	Not used			Do not change the settings.

G3-2 Switch 0D - Not used (do not change the settings)
G3-2 Switch 0E - Not used (do not change the settings)
G3-2 Switch 0F - Not used (do not change the settings)

3.2.7 FAX SWITCHES

FAX Switch 00 - Not used (do not change the settings)

FAX Switch 01		SP No. 3-201-002
No	**FUNCTION**	**COMMENTS**
0 to 7	Scan density step value (Text mode)	When scan density is adjusted manually away from the Normal setting, the threshold value for binary picture processing changes for each step from the value specified by Scanner Switch 02, by the amount programmed here. For example, with the default setting (14), the threshold value changes as follows. +3 (Darkest) :　71 (= 85 – 14) +2 :　　　　　85 (= 99 – 14) +1 :　　　　　99 (= 113 – 14) 　0 (Normal) : 113 (Scanner Switch 02 setting) -1 :　　　　　127 (= 113 + 14) -2 :　　　　　141 (= 127 + 14) -3 (Lightest) :　155 (= 141 + 14) For smaller steps, input a lower value.

FAX Switch 02		SP No. 3-201-003
No	**FUNCTION**	**COMMENTS**
0 to 7	Binary picture processing: Threshold for Text mode - Normal setting (center position)	This setting determines the threshold value for binary picture processing in Text mode (when the scan density setting is at the center). The value can be between 01 and FF. For a darker threshold, input a lower value. Default setting: 71(H) = 113(D)

FAX Switch 03 - Not used (do not change the settings)

FAX Switch 04		SP No. 3-201-005
No	**FUNCTION**	**COMMENTS**
0 to 7	Binary picture processing: Threshold for monotone background special original 1 mode - Normal setting (center position)	This setting determines the threshold value for binary picture processing in monotone background special original 1 mode (when the scan density setting is at the center). The value can be between 01 and FF. For a darker threshold, input a lower value. Default setting: A4(H) = 164(D)

Service Tables

FAX Switch 05		SP No. 3-201-006
No	**FUNCTION**	**COMMENTS**
0 to 7	Binary picture processing: Threshold for colored background special original 2 mode - Normal setting (center position)	This setting determines the threshold value for binary picture processing in colored background special original 2 mode (when the scan density setting is at the center). The value can be between 01 and FF. For a darker threshold, input a lower value. Default setting: 28(H) = 40(D)

FAX Switch 06		SP No. 3-201-007
No	**FUNCTION**	**COMMENTS**
0 to 3	MTF filter level (Text mode) The value can be between 0(Off) and F. For a weaker threshold, input a lower value. Default setting: 7 This setting is independent from the threshold specified by the copier SP modes.	
4 to 7	MTF filter level (Text/Photo mode) The value can be between 0(Off) and F. For a weaker threshold, input a lower value. Default setting: 7 This setting is independent from the threshold specified by the copier SP modes.	

FAX Switch 07		SP No. 3-201-008
No	**FUNCTION**	**COMMENTS**
0 to 2	Smoothing filter level (Photo mode)	The value can be between 0(Off) and 7. For a weaker threshold, input a lower value. Default setting: 2 This setting is independent from the threshold setting specified by the copier SP modes.
3-7	Not used	Do not change the settings.

FAX Switch 08 – Not used (do not change the settings)	SP No. 3-201-009
FAX Switch 09 – Not used (do not change the settings)	**SP No. 3-201-010**

FAX Switch 0A		SP No. 3-201-011
No	**FUNCTION**	**COMMENTS**
0-3	Not used	Do not change the settings.
4 to 7	MTF filter level (Colored background special original mode) The value can be between 0 (Off) and F. For a weaker threshold, input a lower value. Default setting: 7 This setting is independent from the threshold specified by the copier SP modes.	

FAX Switch 0B		SP No. 3-201-012
No	**FUNCTION**	**COMMENTS**
0 **to** **3**	Scan margin setting (right and left margin in book scan ADF mode) The setting can be between 0 and F (H) (unit 0.5 mm). Default setting: 2 mm	
4 **to** **7**	Scan margin setting (top and bottom margin in book scan and ADF mode) The setting can be between 0 and 7 (H) (unit 0.5 mm). Default setting: 3 mm	

FAX Switch 0C		SP No. 3-201-013
No	**FUNCTION**	**COMMENTS**
0	Action when an original jam has occurred while scanning the original into memory for memory tx **0:** Continues scanning after recovery **1:** Stops scanning and erases all scanned pages for that job	This bit is only effective when parallel memory tx is disabled (user parameter 07 - bit 2). If parallel memory tx is enabled, the machine always erases the scanned pages when an original jam occurs. The machine then asks the user to retry from the first page, even if the parallel memory tx is not actually used. **0:** The machine displays a message asking the user to put the jammed page back into the original stack, and continues scanning. The message is displayed for the time period specified by scanner switch 0E, bit 2. **1:** The machine erases all the scanned pages and asks the user to retry from the first page.
1 to 2	Setting when an original size cannot be recognized **Bit 2 1 Setting** 0 0 No original 0 1 A5 ▯ 1 0 A5 ▭ 1 1 No original	
3-7	Not used	Do not change the settings.

FAX Switch 0D		SP No. 3-201-014
No	**FUNCTION**	**COMMENTS**
0-6	Not used	Do not change the settings.
7	Scan width for A5 lengthwise or B5 lengthwise originals **0:** 210 mm (8.5") **1:** Original width	**0:** The machine scans the original as 210 mm (8.5") width. The transmitted image has a blank area on the right. **1:** The machine scans 148 mm (A5) or 182 mm (B5) and centers the scanned data on a 216 mm width transmitted image.

Service Tables

FAX Switch 0E		SP No. 3-201-015
No	**FUNCTION**	**COMMENTS**
0	Not used	Do not change the settings.
1	Scan resolution unit **0:** mm **1:** inches	This bit determines which resolution unit will be used for scanning a fax message. Default setting: mm
2-7	Not used	Do not change the settings.

Scanner Switch 0F		SP No. 3-201-016
No	**FUNCTION**	**COMMENTS**
0	Image rotation before transmission (A4/LT sideways) **0:** Disabled **1:** Enabled	This bit determines whether the machine rotates the scanned image by 90 degrees before transmission. If this bit is set at 1, A4 (LT) sideways images (297 mm width in the protocol) will be transmitted as A4 (LT) lengthwise images (216 mm width in the protocol).
1	Not used	Do not change the settings
2	Image rotation before transmission (A5/HLT lengthwise) **0:** Disabled **1:** Enabled	This bit determines whether the machine rotates the scanned image by 90 degrees before transmission. If this bit is set at "1", A5 (HLT) lengthwise images will be transmitted as A4 (LT) width images (216 mm width in the protocol).
3-7	Not used	Do not change the settings.

3.3 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 (SP2-101), but some can be changed using NCU Parameter programming (SP2-103 and 104); if SP2-103 and 104 can be used, this will be indicated in the Remarks column. The RAM is programmed in hex code unless (BCD) is included in the Unit column.

NOTE: The following addresses describe settings for the standard NCU.
Change the fourth digit from "5" to "6" (e.g. 680500 to 680600) for the settings for the optional G3 interface unit.

Service
Tables

Address	Function	Unit	Remarks
680500	Country/Area code for NCU parameters	Use the Hex value to program the country/area code directly into this address, or use the decimal value to program it using SP2-103-001	
		Country/Area **Decimal** **Hex**	
		France 00 00	
		Germany 01 01	
		UK 02 02	
		Italy 03 03	
		Austria 04 04	
		Belgium 05 05	
		Denmark 06 06	
		Finland 07 07	
		Ireland 08 08	
		Norway 09 09	
		Sweden 10 0A	
		Switzerland 11 0B	
		Portugal 12 0C	
		Holland 13 0D	
		Spain 14 0E	
		Israel 15 0F	
		USA 17 11	
		Asia 18 12	
		Hong Kong 20 14	
		South Africa 21 15	
		Australia 22 16	
		New Zealand 23 17	
		Singapore 24 18	
		Malaysia 25 19	
		China 26 1A	
		Taiwan 27 1B	
		Korea 28 1C	
		Greece 33 21	
		Hungary 34 22	
		Czech 35 23	
		Poland 36 24	
680501	Line current detection time	20 ms	Line current detection is disabled.
680502	Line current wait time		Line current is not detected if 680501 contains FF.
680503	Line current drop detect time		
680504	PSTN dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680505	PSTN dial tone frequency upper limit (low byte)		
680506	PSTN dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680507	PSTN dial tone frequency lower limit (low byte)		

Address	Function	Unit	Remarks
680508	PSTN dial tone detection time	20 ms	If 680508 contains FF(H), the machine pauses for the pause time (address 68050D / 68050E). Italy: See Note 2.
680509	PSTN dial tone reset time (LOW)		
68050A	PSTN dial tone reset time (HIGH)		
68050B	PSTN dial tone continuous tone time		
68050C	PSTN dial tone permissible drop time		
68050D	PSTN wait interval (LOW)		
68050E	PSTN wait interval (HIGH)		
68050F	PSTN ring-back tone detection time	20 ms	Detection is disabled if this contains FF.
680510	PSTN ring-back tone off detection time	20 ms	
680511	PSTN detection time for silent period after ring-back tone detected (LOW)	20 ms	
680512	PSTN detection time for silent period after ring-back tone detected (HIGH)	20 ms	
680513	PSTN busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680514	PSTN busy tone frequency upper limit (low byte)		
680515	PSTN busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680516	PSTN busy tone frequency lower limit (low byte)		
680517	PABX dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680518	PABX dial tone frequency upper limit (low byte)		
680519	PABX dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
68051A	PABX dial tone frequency lower limit (low byte)		
68051B	PABX dial tone detection time	20 ms	If 68051B contains FF, the machine pauses for the pause time (680520 / 680521).
68051C	PABX dial tone reset time (LOW)		
68051D	PABX dial tone reset time (HIGH)		
68051E	PABX dial tone continuous tone time		
68051F	PABX dial tone permissible drop time		
680520	PABX wait interval (LOW)		
680521	PABX wait interval (HIGH)		
680522	PABX ringback tone detection time	20 ms	If both addresses contain FF(H), tone detection is disabled.
680523	PABX ringback tone off detection time	20 ms	
680524	PABX detection time for silent period after ringback tone detected (LOW)	20 ms	If both addresses contain FF(H), tone detection is disabled.
680525	PABX detection time for silent period after ringback tone detected (HIGH)	20 ms	

Service
Tables

Address	Function	Unit	Remarks
680526	PABX busy tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680527	PABX busy tone frequency upper limit (low byte)		
680528	PABX busy tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680529	PABX busy tone frequency lower limit (low byte)		
68052A	Busy tone ON time: range 1	20 ms	
68052B	Busy tone OFF time: range 1		
68052C	Busy tone ON time: range 2		
68052D	Busy tone OFF time: range 2		
68052E	Busy tone ON time: range 3		
68052F	Busy tone OFF time: range 3		
680530	Busy tone ON time: range 4		
680531	Busy tone OFF time: range 4		
680532	Busy tone continuous tone detection time		
680533	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		
680534	International dial tone frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680535	International dial tone frequency upper limit (low byte)		
680536	International dial tone frequency lower limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680537	International dial tone frequency lower limit (low byte)		
680538	International dial tone detection time	20 ms	If 680538 contains FF, the machine pauses for the pause time (68053D / 68053E). Belgium: See Note 2.
680539	International dial tone reset time (LOW)		
68053A	International dial tone reset time (HIGH)		
68053B	International dial tone continuous tone time		
68053C	International dial tone permissible drop time		
68053D	International dial wait interval (LOW)		
68053E	International dial wait interval (HIGH)		

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Address	Function	Unit	Remarks
68053F	Country dial tone upper frequency limit (HIGH)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
680540	Country dial tone upper frequency limit (LOW)		
680541	Country dial tone lower frequency limit (HIGH)		If both addresses contain FF(H), tone detection is disabled.
680542	Country dial tone lower frequency limit (LOW)		
680543	Country dial tone detection time	20 ms	If 680543 contains FF, the machine pauses for the pause time (680548 / 680549).
680544	Country dial tone reset time (LOW)		
680545	Country dial tone reset time (HIGH)		
680546	Country dial tone continuous tone time		
680547	Country dial tone permissible drop time		
680548	Country dial wait interval (LOW)		
680549	Country dial wait interval (HIGH)		
68054A	Time between opening or closing the DO relay and opening the OHDI relay	1 ms	See Notes 3, 6 and 8. SP2-103-11
68054B	Break time for pulse dialing	1 ms	See Note 3. SP2-103-12
68054C	Make time for pulse dialing	1 ms	See Note 3. SP2-103-13
68054D	Time between final OHDI relay closure and DO relay opening or closing	1 ms	See Notes 3, 6 and 8. SP2-103-14 This parameter is only valid in Europe.
68054E	Minimum pause between dialed digits (pulse dial mode)	20 ms	See Note 3 and 8. SP2-103-15
68054F	Time waited when a pause is entered at the operation panel		SP2-103-16 See Note 3.
680550	DTMF tone on time	1 ms	SP2-103-17
680551	DTMF tone off time		SP2-103-18
680552	Tone attenuation level of DTMF signals while dialing	-N x 0.5 –3.5 dBm	SP2-103-19 See Note 5.
680553	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-dBm x 0.5	SP2-103-20 The setting must be less than –5dBm, and should not exceed the setting at 680552h above. See Note 5.
680554	PSTN: DTMF tone attenuation level after dialling	-N x 0.5 –3.5 dBm	SP2-103-21 See Note 5.
680555	ISDN: DTMF tone attenuation level after dialling	-dBm x 0.5	See Note 5
680556	Not used		Do not change the settings.

Service
Tables

Address	Function	Unit	Remarks
680557	Time between 68054Dh (NCU parameter 14) and 68054Eh (NCU parameter 15)	1 ms	This parameter takes effect when the country code is set to France.
680558	Not used		Do not change the setting.
680559	Grounding time (ground start mode)	20 ms	The Gs relay is closed for this interval.
68055A	Break time (flash start mode)	1 ms	The OHDI relay is open for this interval.
68055B	International dial access code (High)	BCD	For a code of 100:
68055C	International dial access code (Low)		68055B - F1 68055C - 00
68055D	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 68054F is used. Do not set a number more than 7 in the UK.

68055E	Progress tone detection level, and cadence detection enable flags	Bit 7 Bit 6 Bit 5 dBm
		   0 0 0 -25.0
		   0 0 1 -35.0
		   0 1 0 -30.0
		   1 0 0 -40.0
		   1 1 0 -49.0
		
		 Bits 2, 0 - See Note 2.	

68055F to 680564	Not used		Do not change the settings.
680565	Long distance call prefix (HIGH)	BCD	For a code of 0:
680566	Long distance call prefix (LOW)	BCD	680565 - FF 680566 - F0
680567 to 680571	Not used		Do not change the settings.
680572	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz).	SP2-103-2
680573	Acceptable ringing signal frequency: range 1, lower limit		SP2-103-3
680574	Acceptable ringing signal frequency: range 2, upper limit		SP2-103-4
680575	Acceptable ringing signal frequency: range 2, lower limit		SP2-103-5

Address	Function	Unit	Remarks
680576	Number of rings until a call is detected	1	SP2-103-6 The setting must not be zero.
680577	Minimum required length of the first ring	20 ms	See Note 4. SP2-103-7
680578	Minimum required length of the second and subsequent rings	20 ms	SP2-103-8
680579	Ringing signal detection reset time (LOW)	20 ms	SP2-103-9
68057A	Ringing signal detection reset time (HIGH)		SP2-103-10
68057B to 680580	Not used		Do not change the settings.
680581	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
680582	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		
680583 to 6805A0	Not used		Do not change the settings.
6805A1	Acceptable CED detection frequency upper limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A2	Acceptable CED detection frequency upper limit (low byte)		
6805A3	Acceptable CED detection frequency lower limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A4	Acceptable CED detection frequency lower limit (low byte)		
6805A5	CED detection time	20 ms ± 20 ms	Factory setting: 200 ms
6805A6	Acceptable CNG detection frequency upper limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A7	Acceptable CNG detection frequency upper limit (low byte)		

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Address	Function	Unit	Remarks
6805A8	Acceptable CNG detection frequency lower limit (high byte)	BCD (Hz)	If both addresses contain FF(H), tone detection is disabled.
6805A9	Acceptable CNG detection frequency lower limit (low byte)		
6805AA	Not used		Do not change the setting.
6805AB	CNG on time	20 ms	Factory setting: 500 ms
6805AC	CNG off time	20 ms	Factory setting: 200 ms
6805AD	Number of CNG cycles required for detection		The data is coded in the same way as address 680533.
6805AE	Not used		Do not change the settings.
6805AF	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte)	Hz (BCD)	If both addresses contain FF(H), tone detection is disabled.
6805B0	Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte)		
6805B1	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte)	Hz(BCD)	If both addresses contain FF(H), tone detection is disabled.
6805B2	Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte)		
6805B3	Detection time for 800 Hz AI short protocol tone	20 ms	Factory setting: 360 ms
6805B4	PSTN: Tx level from the modem	-N – 3 dBm	SP2-103-1
6805B5	PSTN: 1100 Hz tone transmission level	- N 6805B4 - 0.5N 6805B5 –3.5 (dB) See Note 7.	
6805B6	PSTN: 2100 Hz tone transmission level	- N6805B4 - 0.5N 6805B6 –3 (dB) See Note 7.	
6805B7	PABX: Tx level from the modem	- dBm	
6805B8	PABX: 1100 Hz tone transmission level	- N 6805B7 - 0.5N 6805B8 (dB)	
6805B9	PABX: 2100 Hz tone transmission level	- N 6805B7 - 0.5N 6805B9 (dB)	
6805BA	ISDN: Tx level from the modem	- dBm	The setting must be between -12dBm and -15dBm.
6805BB	ISDN: 1100 Hz tone transmission level	- N 6805BA - 0.5N 6805BB (dB)	
6805BC	ISDN: 2100 Hz tone transmission level	- N 6805BA - 0.5N 6805BC (dB)	
6805BD	Modem turn-on level (incoming signal detection level)	-37-0.5N (dBm)	
6805BE to 6805C6	Not used		Do not change the settings.

Address	Function	Unit	Remarks
6805C7	Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump **0:** Simple, **1:** Detailed (default) Bits 5 to 7 – Not used.		
6805C8 to 6805D9	Not used		Do not change the settings.
6805DA	T.30 T1 timer	1 s	

NOTES:

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

2. Italy and Belgium only

    RAM address 68055E: 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.
    680508 (if bit 0 = 1) or 680538 (if bit 2 = 1): tolerance for on or off state duration (%), and number of cycles required for detection, coded as in address 680533.
    68050B (if bit 0 = 1) or 68053B (if bit 2 = 1): on time, hex code (unit = 20 ms)
    68050C (if bit 0 = 1) or 68053C (if bit 2 = 1): off time, hex code (unit = 20 ms)

3. Pulse dial parameters (addresses 68054A to 68054F) 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.

Service
Tables

5. The calculated level must be between 0 and 10.
    The attenuation levels calculated from RAM data are:
    High frequency tone: $- 0.5 \times N_{680552/680554} - 3.5$ dBm
                            $- 0.5 \times N_{680555}$ dBm
    Low frequency tone: $- 0.5 \times (N_{680552/680554} + N_{680553}) - 3.5$ dBm
                            $- 0.5 \times (N_{680555} + N_{680553})$ dBm
    NOTE: N_{680552}, for example, means the value stored in address 680552(H)

6. 68054A: Europe - Between Ds opening and Di opening, France - Between Ds
    closing and Di opening
    68054D: Europe - Between Ds closing and Di closing, France - Between Ds
    opening and Di closing

7. Tone signals which frequency is lower than 1500Hz (e.g., 800Hz tone for AI
    short protocol) refer to the setting at 6805B5h. Tones which frequency is higher
    than 1500Hz refer to the setting at 6805B6h.

8. 68054A, 68054D, 68054E: The actual inter-digit pause (pulse dial mode) is the
    sum of the period specified by the RAM addresses 68054A, 68054D, and
    68054E.

3.4   DEDICATED TRANSMISSION PARAMETERS

Each Quick Dial Key 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 and adjust the parameters allocated to that number.

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

3.4.1 PROGRAMMING PROCEDURE

1. Set the bit 0 of System Bit Switch 00 to 1.

2. Press User Tools> System Settings> Key Operator Tools> Address Book Management.

3. Select the destination where you want to change the settings.

4. Press "Fax Dest.".

5. When the programmed dial number is displayed, press "Start". Make sure that the LED of the Start button is lit as green.

6. The settings for the switch 00 are now displayed. Press the bit number that you wish to change.

7. To scroll through the parameter switches:

    Select the next switch: press "Next"

    -or-

    Select the previous switch: "Prev." until the correct switch is displayed.
    Then go back to step 6.

8. After the setting is changed, press "OK".

9. After finishing, reset bit 0 of System Bit Switch 00 to 0.

3.4.2 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 to 4	Tx level **Bit 4 3 2 1 0 Setting** 0 0 0 0 0 0 0 0 0 0 1 -1 0 0 0 1 0 -2 0 0 0 1 1 -3 0 0 1 0 0 -4 : : 0 1 1 1 1 -15 1 1 1 1 1 Disabled	If communication with a particular remote terminal often contains errors, the signal level may be inappropriate. Adjust the Tx level for communications with that terminal until the results are better. If the setting is "Disabled", the NCU parameter 01 setting is used. **Note:** Do not use settings other than listed on the left.
5 to 7	Cable equalizer **Bit 7 6 5 Setting** 0 0 0 None 0 0 1 Low 0 1 0 Medium 0 1 1 High 1 1 1 Disabled	Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange when calling the number stored in this Quick/Speed Dial. Also, try using the cable equalizer if one or more of the following symptoms occurs. • Communication error with error codes such as 0-20, 0-23, etc. • Modem rate fallback occurs frequently. **Note:** Do not use settings other than listed on the left. If the setting is "Disabled", the bit switch setting is used.

Switch 02		
No	**FUNCTION**	**COMMENTS**
0 to 3	Initial Tx modem rate **Bit3 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. **Note:** Do not use settings other than listed on the left. If the setting is "Disabled", the bit switch setting is used.
4-5	Not used	Do not change the settings.
6	AI short protocol **0:** Off **1:** Disabled	Refer to Appendix B in the Group 3 Facsimile Manual for details about AI Short Protocol. If the setting is "Disabled", the bit switch setting is used.
7	Not used	Do not change the settings.

Service Tables

Switch 03			
No		**FUNCTION**	**COMMENTS**
0 **to** **1**	Inch-mm conversion before tx **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 **to** **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 set-up protocol at the start of transmission. The machine will then wait for the second DIS or NSF before sending DCS or NSS. If the setting is "Disabled", the bit switch setting is used.
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 **to** **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 the settings)
Switch 05 - Not used (do not change the settings)
Switch 06 - Not used (do not change the settings)
Switch 07 - Not used (do not change the settings)
Switch 08 - Not used (do not change the settings)
Switch 09 - Not used (do not change the settings)

3.5 SERVICE RAM ADDRESSES

⚠**CAUTION**

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

680001 to 680004(H) - ROM version (Read only)
   680001(H) - Revision number (BCD)
   680002(H) - Year (BCD)
   680003(H) - Month (BCD)
   680004(H) - Day (BCD)

680006 to 680015(H) - Machine's serial number (16 digits - ASCII)

680018(H) - Total program checksum (low)
680019(H) - Total program checksum (high)

680020 to 68003F(H) - System bit switches
680050 to 68005F(H) - Printer bit switches
680060 to 68007F(H) - Communication bit switches
680080 to 68008F(H) - G3 bit switches
680090 to 68009F(H) - G3-2 bit switches
6800D0(H) - User parameter switch 00 (SWUER_00) : Not used
6800D1(H) - User parameter switch 01 (SWUSR_01) : Not used

6800D2(H) - User parameter switch 02 (SWUSR_02)

Bit 0:	Forwarding mark printing on forwarded messages 0: Disabled 1: Enabled
Bit 1:	Center mark printing on received copies. (This switch is not printed on the user parameter list.) 0: Disabled 1: Enabled
Bit 2:	Reception time printing. (This switch is not printed on the user parameter list.) 0: Disabled 1: Enabled
Bit 3:	TSI print on received messages 0: Disabled 1: Enabled
Bit 4:	Checkered mark printing. (This switch is not printed on the user parameter list.) 0: Disabled 1: Enabled
Bit 5 to 7:	Not used.

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Tables

6800D3(H) - User parameter switch 03 (SWUSR_03: Automatic report printout)

Bit 0: Transmission result report (memory transmissions) 0: Off, 1: On
Bit 1: Not used
Bit 2: Memory storage report 0: Off, 1: On
Bit 3: Polling reserve report (polling reception) 0: Off, 1: On
Bit 4: Polling result report (polling reception) 0: Off, 1: On
Bit 5: Transmission result report (immediate transmissions) 0: Off, 1: On
Bit 6: Polling clear report 0: Off, 1: On
Bit 7: Journal   0: Off, 1: On

6800D4(H) - User parameter switch 04 (SWUSR_04: Automatic report printout)

Bit 0: Automatic confidential reception report output 0: Off, 1: On
Bits 1 to 6: Not used
Bit 7: Inclusion of a sample image on reports 0: Off, 1: On

6800D5(H) - User parameter switch 05 (SWUSR_05)

Bit 0: Substitute reception when the base copier is in an SC condition
 0: Enabled, 1: Disabled
Bits 1 and 2: Condition for substitute rx when the machine cannot print messages
(Paper end, toner end, jam, and during night mode)

Bit 2	1	Setting
0	0	The machine receives all the fax messages.
0	1	The machine receives the fax messages with RTI or CSI.
1	0	The machine receives the fax messages with the same ID code.
1	1	The machine does not receive anything.

Bit 3 and 4: Not used
Bit 5: Just size printing   0: Off, 1: On
Bit 6: Not used
Bit 7: Add paper display when a cassette is empty 0: Off, 1: On

6800D6(H) - User parameter switch 06 (SWUSR_06)

Bits 0 to 5: Not used
 Bit 6: Scan sequence in Book transmission
      0: Left page then right page, 1: Right page then left page
Bit 7: Not used

6800D7(H) - User parameter switch 07 (SWUSR_07)

Bits 0 and 1: Not used
Bit 2: Parallel memory transmission 0: Off, 1: On
Bits 3 to 7: Not used

6800D8(H) - User parameter switch 08 (SWUSR_08)

Bits 0 and 1: Not used.
Bit 2: Authorized reception
    0: Only faxes from senders whose RTIs/CSIs are specified for this feature
      are accepted.
    1: Only faxes from senders whose RTIs/CSIs are not specified for this feature
      are accepted.
Bits 3 to 7: Not used.

6800D9(H) - User parameter switch 09 (SWUSR_09) : Not used

6800DA(H) - User parameter switch 10 (SWUSR_0A)

Bit 0: Not used
Bit 1: 2 into 1   0: Off, 1: On
Bit 2: Not used
Bit 3: Page reduction 0: Off, 1: On
Bits 4 to 7: Not used

6800DB(H) - User parameter switch 11 (SWUSR_0B)

Bit 0 to 5: Not used
Bit 6: Printout of messages received while acting as a forwarding station
   0: Off, 1: On
Bit 7: Polling Standby duration 0: Once, 1: No limit

6800DC(H) - User parameter switch 12 (SWUSR_0C): Not used

6800DD(H) - User parameter switch 13 (SWUSR_0D): Not used
6800DE(H) - User parameter switch 14 (SWUSR_0E)

Bit 0: Message printout while the machine is in Night Printing mode 0: On, 1: Off
Bit 1: Maximum document length detection
   0: Double letter, 1: Longer than double-letter (well log) – up to 1,200 mm
Bit 2: Batch transmission 0: Off, 1: On
Bit 3: Fax mode settings, such as resolution, before a mode key (Copy/Fax/Printer
/Scanner) is pressed
   0: Not cleared, 1: Cleared
Bits 4 to 6: Not used
Bit 7: Manual service call (sends the system parameter list to the service station)
   0: Off, 1: On

Service Tables

6800DF(H) - User parameter switch 15 (SWUSR_0F)
Bits 0, 1 and 2: Cassette for fax printout

    Bit 2   1   0   Setting
        0   0   1   1st paper feed station
        0   1   0   2nd paper feed station
        0   1   1   3rd paper feed station
        1   0   0   4th paper feed station
        1   0   1   LCT
  Other settings Not used
Bits 3 and 4: Not used
Bit 5: Using the cassette specified by bits 0, 1 and 2 above only 0: On, 1: Off
Bits 6 and 7: Not used

6800E0(H) – User parameter switch 16 (SWUSR_10)
(This switch is not printed on the user parameter list.)
Bits 0 and 1: Not used
Bit 2: Paper size selection priority for an A4 size fax message when A4/LT size
       paper is not available.
       0: A3 has priority, 1: B4 has priority
Bits 3 to 7: Not used

6800E1(H) – User parameter switch 17 (SWUSR_11)
Bits 0 and 1: Not used
Bit 2: Inclusion of the "Add" button when a sequence of Quick/Speed dials is
selected for broadcasting
       0:Not needed, 1: Needed
Bits 3 to 6: Not used
Bit 7: Press "Start" key without an original when using the on hook dial or the
external telephone,
       0: displays "Cannot detect original size".
       1: Receives fax messages.

6800E2(H) - User parameter switch 18 (SWUSR_12)
Bit 0: TTI date   0: Off, 1: On
Bit 1: TTI sender   0: Off, 1: On
Bit 2: TTI file number   0: Off, 1: On
Bit 3: TTI page number   0: Off, 1: On
Bit 4 to 7: Not used

6800E3(H) - User parameter switch 19 (SWUSR_13)
Bit 0: Offset sort function for the fax (only using the shift tray on the 1,000 sheet finisher)
    0: Disabled, 1: Enabled
Bit 1: Journal format
  0: The Journal is separated into transmissions and receptions
  1: The Journal is separated into G3-1 and G3-2 communications
Bit 2: Action when the paper cassette that was selected by the specified cassette selection feature becomes empty.
(This switch is not printed on the user parameter list.)
  0: The machine will not print any received files until paper is added.
  1: The machine will use other cassettes to print received files that are not
    specified by this feature.
Bit 3: 90° image rotation during B5 portrait Tx
(This switch is not printed on the user parameter list.)
  0: Off, 1: On
Bit 4: Reduction of sample images on reports to 50% in the main scan and sub-scan directions. (This switch is not printed on the user parameter list.)
  0: Technician adjustment (printer switch 0E bits 3 and 4), 1: 50% reduction
Bit 5: Use of A5 size paper for reports
(This switch is not printed on the user parameter list.)
  0: Off, 1: On
Bits 6 and 7: Not used

6800E4(H) - User parameter switch 20 (SWUSR_14)
Bit 0: Automatic printing of the PC FAX error report
    0: Off, 1: On
Bit 1: Reprint the documents fail to print from PC Fax driver
    0: Off, 1: On
Bits 2 to 5: Store documents in memory which could not be printed from PC Fax driver

Bit 5	4	3	2	Setting
0	0	0	0	0 min.
0	0	0	1	1 min.
⇩			⇩	
1	1	1	0	14 min.
1	1	1	1	15 min.

Bits 6: Not used.
Bit 7: PC fax result notification mail, 0: Off, 1: On

6800E5(H) - User parameter switch 21 (SWUSR_15)
Bit 0: Print E-mail Reception Notice, 0: Off, 1: On
Bit 1: Respond to E-mail Reception Acknowledgement Request, 0: Off, 1: On
Bit 2 and 3: Not used.
Bit 4: Transmit Journal by E-Mail, 0: Off, 1: On
Bit 5 and 6: Not used.
Bit 7: Transmit Error Mail Notification, 0: Off, 1: On

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Tables

6800E6(H) - User parameter switch 22 (SWUSR_16): Not used
6800E7(H) – User Parameter switch 23 (SWUSR_17) : Not used
6800E8(H) - User parameter switch 24 (SWUSR_18)
Bits 0 and 1: File retention time (Cross reference: System switch 02 bit 4)

Bit	1	0	Setting
	0	0	File retention impossible
	0	1	24 hours
	1	0	File retention impossible
	1	1	72 hours

Bits 2 to 7: Not used

6800E9(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
        (see system switch 02).
Bits 5 to 7: Not used

6800EA to 6800EF(H) - User parameter switch 26 to 31 (SWUSR_1A to 1F),
Not used

6800F0 – User Parameter Switch 32 (SWUSR_20)
Bit 0: Priority destination for transfer, 0: Fax number, 1: E-mail address
Bits 2 to 7: Not used

680180 to 68019F(H) - Service station's fax number (SP3-101)
See 68036C(H) for the type of network used for this number**.**

6801A0 to 6801A3(H) - Own fax PABX extension number
6801AA to 6801B3(H) - Own fax number (PSTN)
6801F8 to 68020B(H) - PSTN-1 RTI (Max. 20 characters - ASCII) - See the
                         following note.
68020C to 68021F(H) - PSTN-2 RTI (Max. 20 characters - ASCII) - See the
                         following note.
680237 to 680276(H) - TTI 1 (Max. 64 characters - ASCII) - See the following
                          note.
680277 to 6802B6(H) - TTI 2 (Max. 64 characters - ASCII) - See the following
note.
6802F7 to 68030A(H) - PSTN-1 CSI (Max. 20 characters - ASCII)
68030B to 68031E(H) - PSTN-2 CSI (Max.20 characters - ASCII)
680333(H) - Number of PSTN-1 CSI characters (Hex)
680334(H) - Number of PSTN-2 CSI characters (Hex)
If the number of characters is less than the maximum (20 for RTI, 64 for TTI), add a
stop code (FF[H]) after the last character.

680340 to 680342(H) - PSTN-1 line settings
680340
Bits 0 and 1: PSTN access method from behind a PABX.

Bit	1	0	Setting
	0	0	Loop start
	0	1	Ground start
	1	0	Flash start
	1	1	Not used

Bit 2: Telephone line type.
    0: PSTN, 1: PABX
Bits 3 and 4: Dialing type.

Bit	4	3	Setting
	0	0	Pulse dialing
	0	1	Not used
	1	0	Tone dialing
	1	1	Not used

Bits 4 to 7: Not used

680341: PSTN access number for loop start
Access number Hex value to program (BCD)

0	F0
⇩	⇩
9	F9
00	00
⇩	⇩
99	99

680342
Bit 0: Transmission disabled
    0: Tx and Rx, 1: Rx only
Bit 1: Memory Lock reception
    0: Enabled, 1: Disabled
Bits 2 to 7: Not used

680348 to 68034A(H) - PSTN-2 line settings

680360(H) – Polling ID Code (Low – Hex)
680361(H) – Polling ID Code (High – Hex)

680362(H) - Confidential ID (low - BCD)
680363(H) - Confidential ID (high - BCD)

680364(H) - Memory Lock ID (low - BCD)
680365(H) - Memory Lock ID (high - BCD)

Service
Tables

68036C(H) - Network type used for the service station number
>   0 1 (H) - PSTN-1
>   0 2 (H) - PSTN-2
>   0 3 (H) – Not used
>   1 0 (H) – Not used
>   0 7 (H) - G3 auto selection

680370 to 680377(H) - Last power off time (Read only)
>   680370(H) - 01(H) - 24-hour clock, 00(H) - 12-hour clock (AM),
>   02(H) - 12-hour clock (PM)
>   680371(H) - Year (BCD)
>   680372(H) - Month (BCD)
>   680373(H) - Day (BCD)
>   680374(H) - Hour
>   680375(H) - Minute
>   680376(H) - Second
>   680377(H) - 00: Monday, 01: Tuesday, 02: Wednesday, ... , 06: Sunday

680384(H) - Optional equipment (Read only – Do not change the settings)
 Bit 0 to 3: Not used
Bit 4: Function Upgrade unit   0: Not installed, 1: Installed
Bit 5 to 7: Not used

680385(H) - Optional equipment (Read only – Do not change the settings)
Bit 0: Function Upgrade unit 0: Not installed, 1: Installed
Bit 1 to 3: Not used
Bit 4: G3-2   0: Not installed, 1: Installed

6803F6 to 6803FA(H) – Option G3 board (G3-2) ROM information (Read only)
>   6803F6(H) - Suffix (BCD)
>   6803F7(H) - Version (BCD)
>   6803F8(H) - Year (BCD)
>   6803F9(H) - Month (BCD)
>   6803FA(H) - Day (BCD)

680402(H) - Option G3 board (G3-2) modem ROM version (Read only)

680406 to 68040B(H) - Modem ROM version (Read only)
>   680406(H) - Part number (low)
>   680407(H) - Part number (high)
>   680408(H) - Control (low)
>   680409(H) - Control (high)
>   68040A(H) - DSP (low)
>   68040B(H) - DSP (high)

680464(H) - Time for economy transmission (hour in 24h clock format - BCD)
680465(H) - Time for economy transmission (minute - BCD)

680482(H) - Transmission monitor volume 00 - 07(H)
680483(H) - Reception monitor volume 00 - 07(H)
680484(H) - On-hook monitor volume 00 - 07(H)
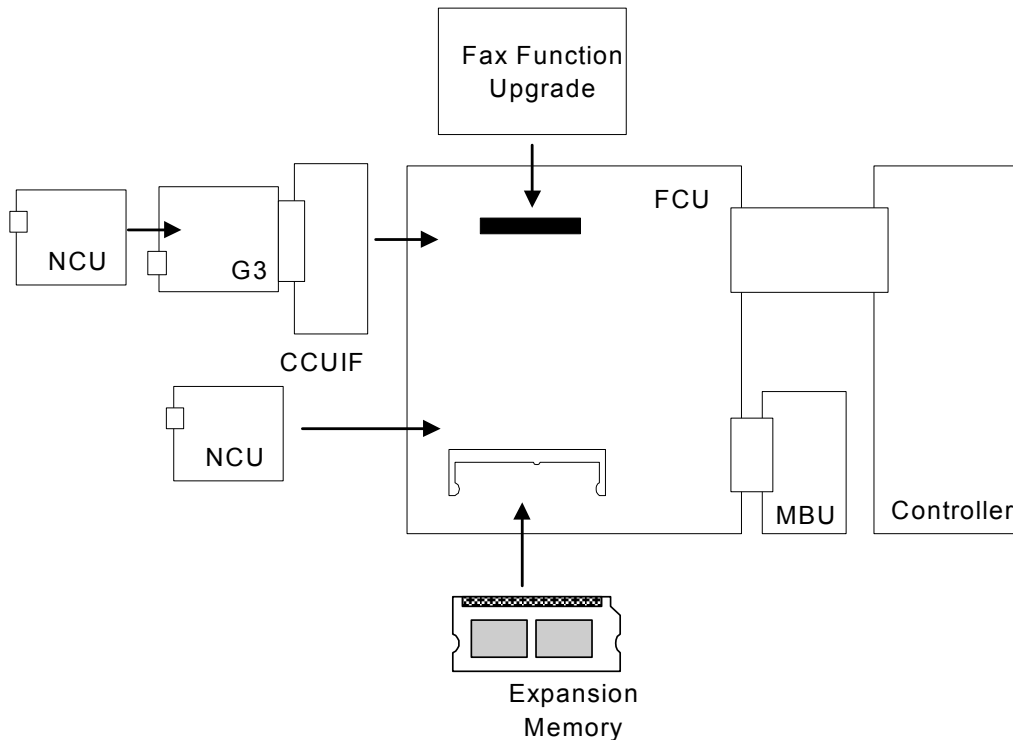**680485(H)** - Dialing monitor volume 00 - 07(H)
680486(H) - Buzzer volume   00 - 07(H)

6BA000 – 6BA1FF(H) – Latest 64 error codes (Read only)

6BE988 – 6BF35F(H) – Latest 20 error communication records

Service
Tables

4. DETAILED SECTION DESCRIPTIONS

4.1 OVERVIEW

B576D901.WMF

The basic fax unit consists of three PCBs: an FCU, an MBU and an NCU.
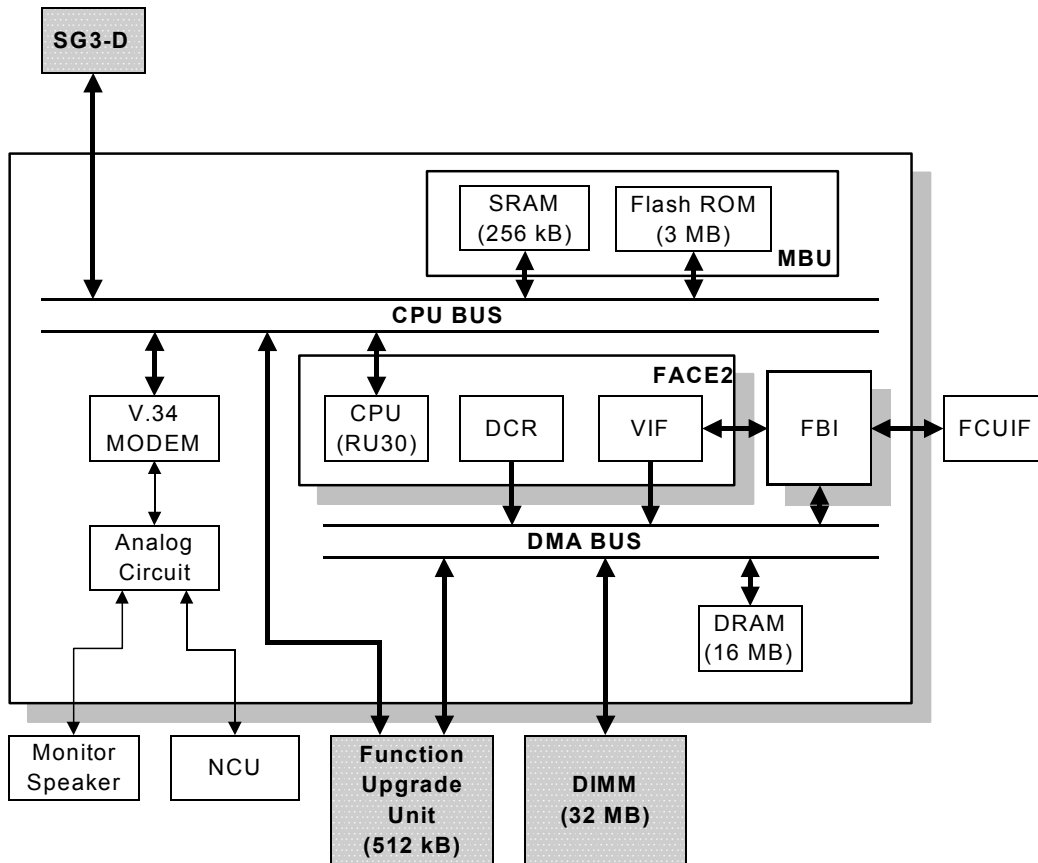
The FCU controls all the fax communications and fax features, in cooperation with the controller board. The MBU contains the ROM and SRAM. The NCU switches the analog line between the fax unit and the external telephone.

Fax Options:

1. Extra G3 Interface option: This provides one more analog line interface. This allows full dual access. Only one extra G3 interface option can be installed. The optional G3 unit consists of three PCBs: G3 board, NCU, and CCUIF.

2. Fax Function Upgrade Unit: JBIG compression becomes available. In addition, this expands the system's SRAM capacity to hold programmed telephone numbers, memory files, etc.

3. Memory Expansion: This expands the SAF memory and the page memory (used for image rotation); without this expansion, the page memory is not big enough for image rotation at 400 dpi, so transmission at 400 dpi is not possible.

4.2 BOARDS

4.2.1 FCU

B576D902.WMF

The FCU (Facsimile Control Unit) controls fax communications, the video interface to the base copier's engine, and all the fax options.

FACE2 (Fax Application Control Engine)

- CPU
- Data compression and reconstruction (DCR)
- DMA control
- Clock generation
- DRAM backup control
- Ringing signal/tone detection

FBI (FACE Bridge Interface)

- Interface between the PCI bus and the FACE
- DMA control

Modem (Panasonic MN195006-E)

- V.34, V33, V17, V.29, V.27ter, V.21, and V.8

DRAM

- The 16 MB of DRAM is shared as follows.
  SAF memory   : 4 MB
  Working memory : 4 MB
  Page memory   : 8 MB
- The SAF memory is backed up by a rechargeable battery.

Memory back-up

- A Rechargeable battery backs up the SAF memory (DRAM) for 1 hour.

Switches

Item	Description
SW1	Reset switch, to reboot the FCU board

4.2.2 MBU

On this board, the flash ROM contains the FCU firmware, and the SRAM contains the system data and user parameters. Even if the FCU is changed, the system data and user parameters are kept on the MBU board.

ROM

- 3MB flash ROMs for system software storage
  2MB (16bit x 1MB) + 1MB (16bit x 512K)

SRAM

- The 256 KB SRAM for system and user parameter storage is backed up by a lithium battery.
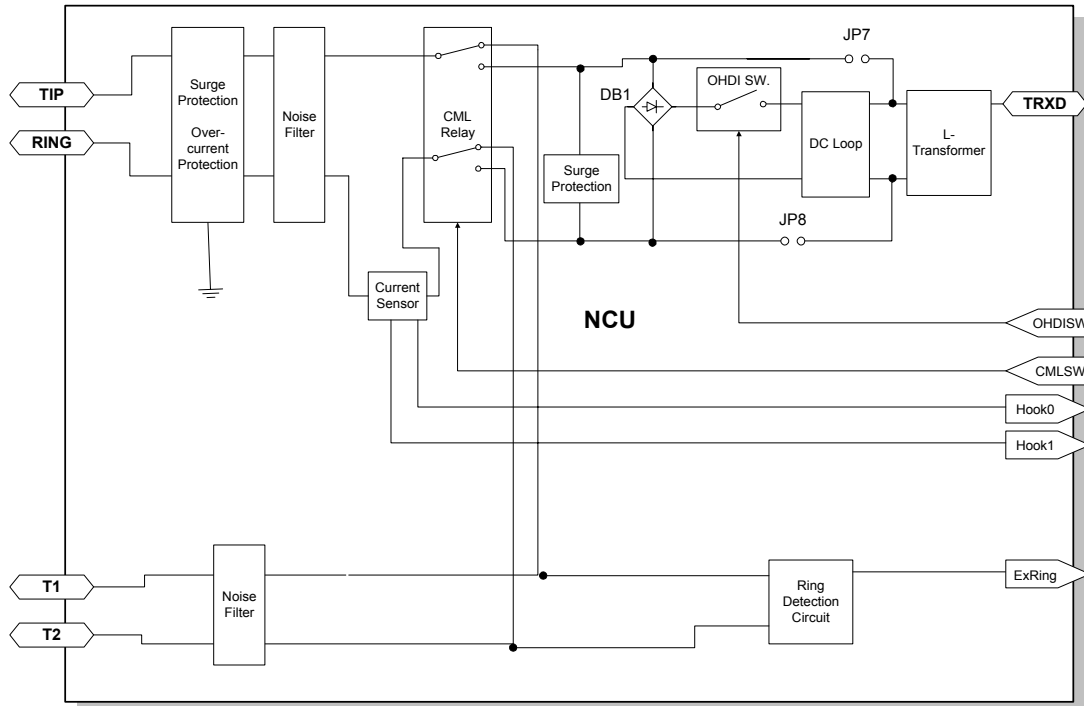
Memory back-up

- A lithium battery backs up the system parameters and programmed items in the SRAM, in case the base copier's main switch is turned off.

Switches

Item	Description
SW1	Switches the SRAM backup battery on/off.

4.2.3 NCU (US)

B576D902.WMF

Jumpers

| Item	Description
JP7	These jumpers should be shorted when the machine is connected to a dry
JP8	line.
DB1	Also remove DB1 when the machine is connected to a dry line.

4.2.4 NCU (EUROPE/ASIA)
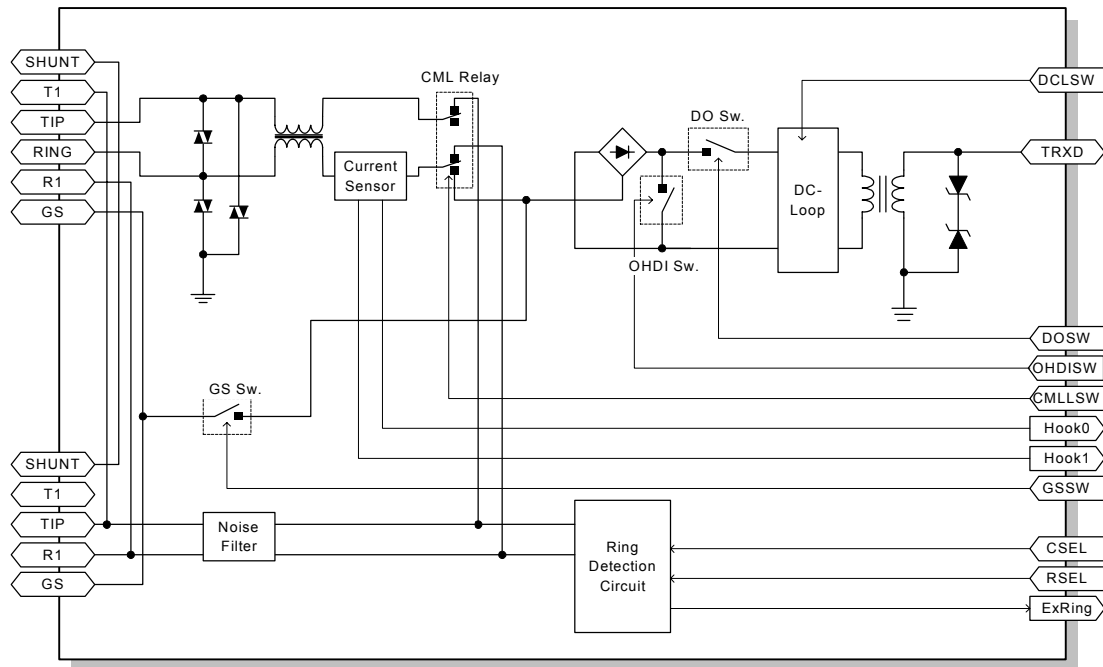
B576D903.WMF

Control Signals and Jumpers

	CSEL1	RSEL
Country	**CN2-5**	**CN1-13**
CTR21	H	H
Australia	H	H
South Africa	H	H
Malaysia	H	H
Hong Kong	L	L
New Zealand	L	L
Singapore	L	L
Asia	L	L
	L: Low, H: High	

CTR21 (Common Technical Regulation 21):
France, Germany, UK, Italy, Austria, Belgium, Denmark, Finland, Ireland, Norway, Sweden, Switzerland, Portugal, Holland, Spain, Israel, Greece

4.2.5 SG3-D BOARD
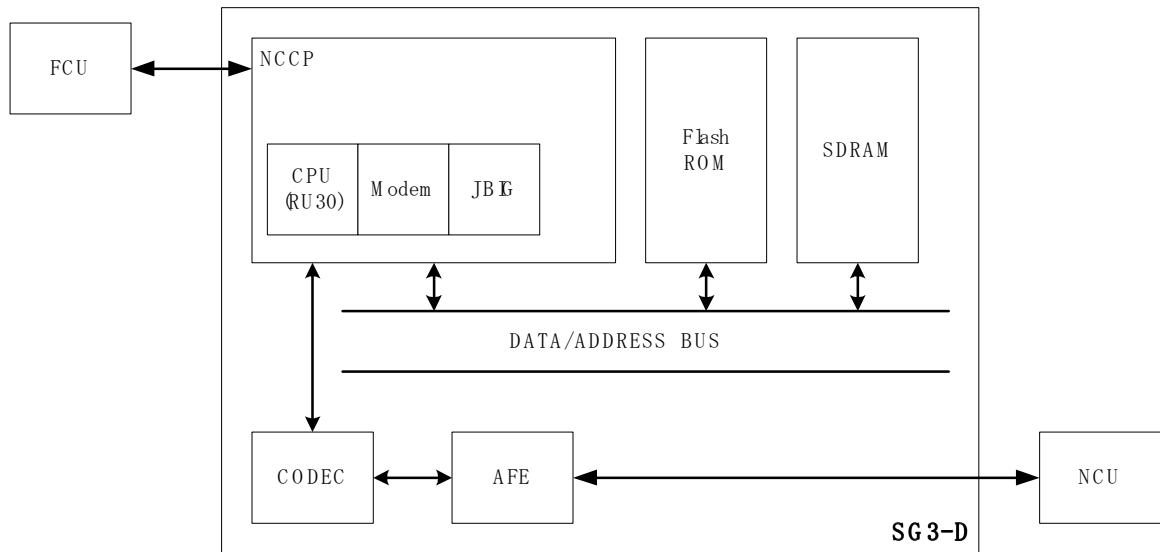
B576D904.WMF

The SG3-D board allows up to two simultaneous communications when used with the the FCU.

NCCP (New Communication Control Processor)
- Controls the SG3-D board
- CPU (RU30)
- Modem (V.34)
- JBIG

Flash ROM
- 8 MB flash ROM shared between the SG3 software and modem softare.

SDRAM
- 16 MB DRAM shared between the ECM buffer, line buffer, and work memory.

CODEC
- Converts analog data to binary data.
- Converts binary data to analog data.

AFE (Analog Front End)
- Analog circuit
- Data transfer
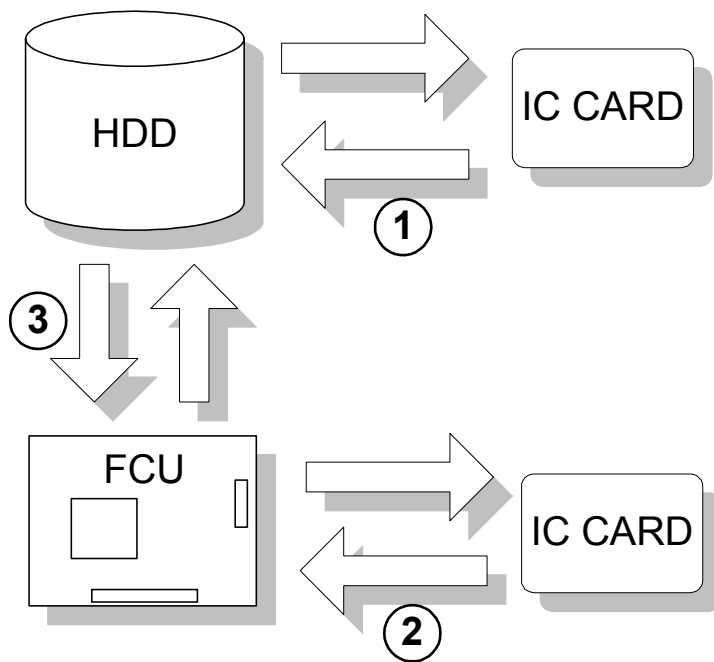
4.3 ADDRESS BOOK

The address book (directory) for this machine combines under one user name the fax address and mail address.

All the address data is stored on the HDD. Up to a maximum of 2,000 items can be stored for addresses.

4.3.1 ADDRESS BOOK BACKUP

The address data can be backed up, and frequently backing up the address book data is recommended. If for any reason data can no longer be read from the HDD, you can use the backed up data to restore the address book.

Overview of Data Backup

B576D905.WMF

There are three methods you can use to back up address book data:

- HDD ←→ IC Card
- FCU (MBU) ←→ IC Card
- HDD ←→ FCU

Each is described below.

1. HDD ←→ IC Card

Address data stored on the HDD can be uploaded to an IC card with SP5846 51 (UCS Settings - All Directory Info. Upload), or address data backed up on the IC card can be downloaded to the HDD with SP5846 52 (UCS Settings – All Directory Info. Download).

2. FCU (MBU) ←→ IC Card

Address data stored in the FCU (MBU) can be uploaded to an IC card with SP5846 51 (UCS Settings - All Directory Info. Upload), or address data backed up on the IC card can be downloaded to the FCU with SP5846 52 (UCS Settings – All Directory Info. Download).

3. HDD ←→ FCU

Address data stored on the HDD can be uploaded to the FCU (MBU) with SP5846 80 (UCS Settings - FCU Backup), or when there is address data in the FCU and the HDD has just been replaced, this data is downloaded automatically to the new HDD.

SP Modes

1. SP5846 051 UCS Settings - All Directory Info. Upload

This SP mode is used to upload address data to an IC card. The machine automatically detects where the address data is stored. If there is address data on the HDD, the address data from the HDD is uploaded to the IC card. If the HDD is not present, then the address data from the FCU is uploaded. If one IC card is not large enough to hold all the address data, as many IC cards as needed can be used to hold all of the address data.

2. SP5846 052 UCS Settings – All Directory Info. Download

This SP mode downloads address data from an IC card. The machine automatically determines where to store the address data. If there is address data on the HDD, then the data is downloaded to the HDD. If HDD is not present, then the address data is downloaded to the FCU.

3. SP5846 080 UCS Settings - FCU Backup

This SP mode is used to take fax address data from among the address data on the HDD and upload it to the FCU. However, the FCU is capable of holding only up to 500 items for address data, so if more than 500 address items are stored on the HDD, only the first and oldest 500 address on the HDD are backed up. If FAX Function Upgrade Unit (Option) is installed, up to 1200 address items can be backed up.

NOTE: In preparation for the possibility that data can no longer be read from the HDD, we recommend that the CE back up the address data to the FCU when visiting the customer. However, when address data is backed up to the FCU, only the fax data in the address book is backed up, and the other data (e-mail address, etc.) are not backed up. For this reason, the customer should be instructed about how to frequently back up the address book data using SmartNet – Monitor Admin.

Detailed Descriptions

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Type:	Desktop type transceiver
Circuit:	PSTN (max. 2 ch.) PABX
Connection:	Direct couple
Original Size:	Book (Face down) 　　Maximum Length: 432 mm [17 ins] 　　Maximum Width: 297 mm [11.7 ins] ARDF (Face up) 　　(single sided document) 　　Length: 128 - 1200 mm [5.0 - 47.2 ins] 　　Width: 105 - 297 mm [4.1 - 11.7 inch] 　　(double sided document) 　　Length: 128 - 432 mm [5.0 - 17 inch] 　　Width: 105 - 297 mm [4.1 - 11.7 inch]
Scanning Method:	Flat bed, with CCD
Resolution:	G3 　　8 x 3.85 lines/mm (Standard) 　　8 x 7.7 lines/mm (Detail) 　　8 x 15.4 line/mm (Fine) Note1 　　16 x15.4 line/mm (Super Fine) See Note 1 　　200 x 100 dpi (Standard) 　　200 x 200 dpi (Detail) 　　400 x 400 dpi (Super Fine) See Note 1 **NOTE:** 1. Optional Expansion Memory required
Transmission Time:	G3: 3 s at 28800 bps; Measured with G3 ECM using memory for an ITU-T #1 test document (Slerexe letter) at standard resolution
Data Compression:	MH, MR, MMR JBIG (optional Fax Function Upgrade Unit required)
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:	G3: 33600/31200/28800/26400/24000/21600/ 19200/16800/14400/12000/9600/7200/4800/2400 bps Automatic fallback
I/O Rate:	With ECM: 0 ms/line Without ECM: 2.5, 5, 10, 20, or 40 ms/line

Spec.

Memory Capacity: ECM: 128 KB

                      SAF
                          Standard: 4 MB
                          With optional Expansion Memory: 32 MB (4 MB+ 28 MB)

                      Page Memory
                          Standard: 8 MB (Print: 4 MB + Scanner: 4 MB)
                          With optional Expansion Memory: 16 MB (8 MB + 8 MB)
                              (Print 8 MB + Scanner: 4 MB)

2. CAPABILITIES OF PROGRAMMABLE ITEMS

The following table shows how the capabilities of each programmable item will change after the optional Fax Function Upgrade Unit is installed.

Item	Standard	With Fax Function Upgrade Unit
Quick Dial	500	1200 (2000*)
Groups	100	100
Destination per Group	500	500
Boxes (Information/Personal/Transfer)	150	400
Destinations dialed from the ten-key pad overall	500	2000
Programs	100	200
Auto Document	6	18
Communication records for Journal stored in the memory	200	1000
Specific Senders	30	50

* With the Printer/Scanner Option

The following table shows how the capabilities of the document memory will change after the optional Fax Function Upgrade Unit and the Expansion Memory are installed.

		Without the Expansion Memory	With the Expansion Memory
Memory Transmission file	**Without the Fax Function Upgrade Unit**	800	800
Maximum number of page for memory transmission		1000	3000
Memory capacity for memory transmission (**Note1**)		320	2240
Memory Transmission file	**With the Fax Function Upgrade Unit**	800	800
Maximum number of page for memory transmission		1000	3000
Memory capacity for memory transmission (**Note1**)		320	2240

NOTE: 1) Measured using an ITU-T #1 test document (Slerexe letter) at the standard resolution, the auto image density mode and the Text mode.

Spec.

3. MACHINE CONFIGURATION

Item	Machine Code	Remarks
Fax Option Type 2027	B576	
G3 Interface Unit Type 2027	B593	
Fax Function Upgrade Type 185	A892	Used in common with A250 and B022.
Handset Type 1018	B433	USA only
Marker Type 30	H903	Refill ink for stamp
Expansion Memory	-	Used in common with A250, A265, and B022.