Fax Unit
Machine Code: M172/M173

Field Service Manual

September, 2014

Important Safety Notices

⚠WARNING

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

⚠CAUTION

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

Note

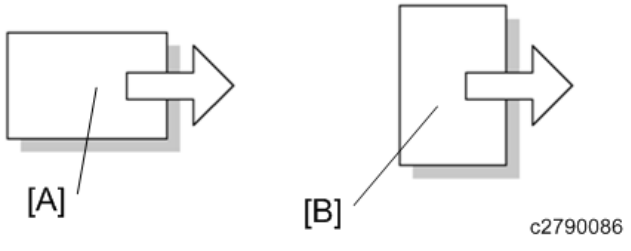
- Note for Australia:
- Unit must be connected to Telecommunication Network through a line cord that meets the requirements of ACA Technical Standard TS008.

Symbols and Abbreviations

Conventions Used in this Manual

This manual uses several symbols.

Symbol	What it means
	Screw
	Connector
	Clip ring
	Clamp
SEF	Short Edge Feed
LEF	Long Edge Feed



[A] Short Edge Feed (SEF)

[B] Long Edge Feed (LEF)

Cautions, Notes, etc.

The following headings provide special information:

⚠WARNING

- Failure to obey warning information could result in serious injury or death.

⚠CAUTION

- Obey these guidelines to ensure safe operation and prevent minor injuries.

Important

- **Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.**
- **Always obey these guidelines to avoid serious problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine. bold is added for emphasis.**

Note

- This document provides tips and advice about how to best service the machine.

TABLE OF CONTENTS

5. Specifications

1. Replacement and Adjustment

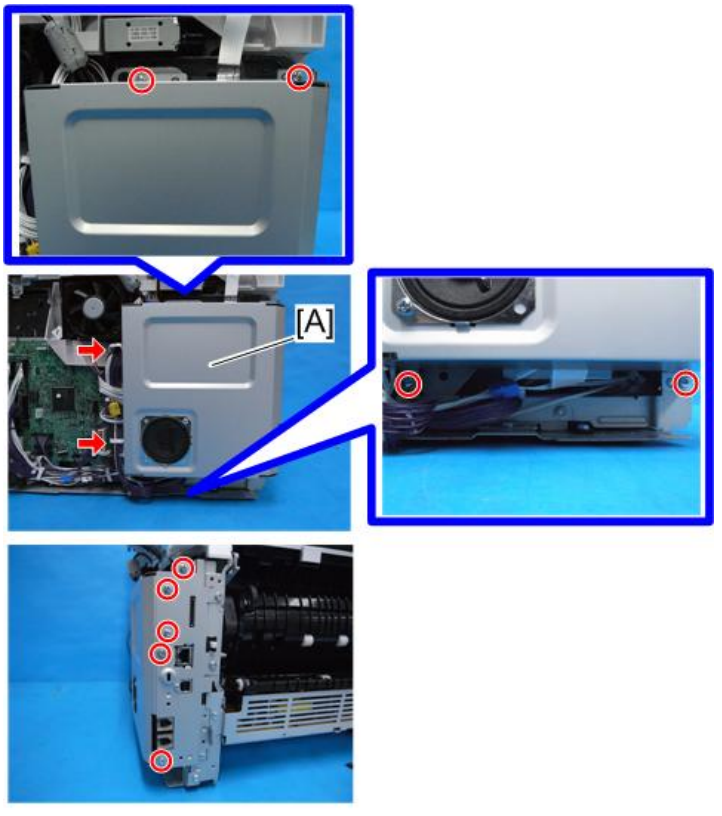
FCU

FCU Replacement Procedure

1. Open the front cover.
2. Open the rear cover.
3. Remove the right cover [A] (☞ x 4, hook x 4).

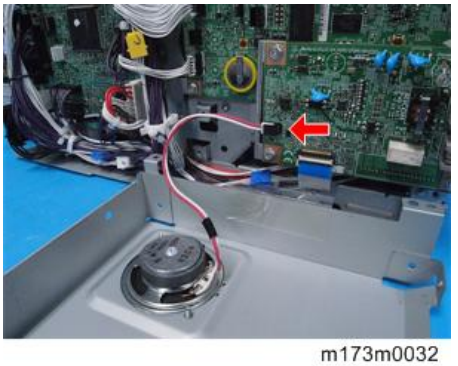
m173m0021

4. **Controller Box [A] (x 9, x 2)**



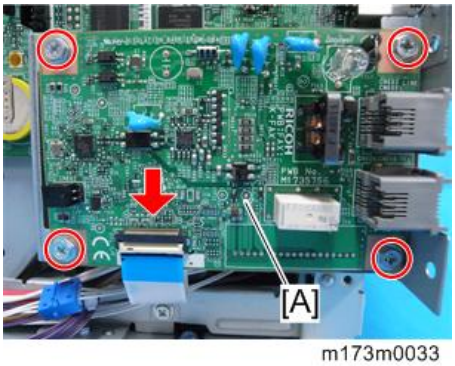
m173m0030

5. **Remove the speaker connector (x 1).**



m173m0032

6. **FCU [A] (x 4, x 1)**



m173m0033

7. **Replace the FCU.**

Note

- Be sure not to insert the flat cable obliquely.

2. Troubleshooting

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
0-17	Communication was interrupted by pressing the [Stop] key	Operational error by the customer	If the [Stop] key was not pressed and this error keeps occurring, replace the operation panel or the operation panel drive board.
9-01	Used toner full	• Used toner full • Defective Used toner	• Used toner disposal. • Check / Replace the used toner sensor.

9-07	Paper feed jam	• Mechanical failure
		  • Roller dirt, degradation
		  • Clutch failure
		  • Corner strippers failure
		• Foreign substances
		• Sensor failure
			• Check the mechanism.
			  • Clean / replace the roller.
			  • Replace the clutch.
			  • Adjust / Replace the corner strippers.
			• Check the foreign substances.
			• Check / Replace the sensor.

9-08	Image transfer jam		
9-09	Paper exit jam	• Defective fusing unit • Defective output sensor • Defective FCU • Skew amount exceeded standard value • Defective output drive	• Clean the roller and separating pick. • Replace the fusing unit. • Check / Replace the sensor. • Check the transfer route. • Check the operation of the paper ejection driving mechanism.

Code	Meaning	Suggested Cause	Action
9-10	Toner end	• Out of toner • Defective Toner end sensor	• Supply the toner. • Check / Replace the toner.
9-11	Auto service call	Failure such as SC occurs in scanner hard	After turning OFF/ON to restore, contact CE if the failure occurs again.
9-12	Door open	• Output door/front door open • Cover/SW failure	• Check the open/close state of the cover. • Check / Replace the cover and SW.
9-19	Auto service call	Used toner bottle is in near-end	• Dispose of the used toner. • Check / Replace the used toner sensor.

9-50	Second feed part non-feed jam	• Mechanism failure
		  • Roller contamination or deterioration
		  • Defective clutch
		• Foreign substances in transfer route
		• Defective lower paper feeding sensor
		• Defective paper feed motor
			• Check the mechanism.
			  • Clean / Replace the machine.
			  • Replace the clutch.
			• Check the transfer route.
			• Check / Replace the lower paper feeding sensor.
			• Replace paper feed motor.

9-80	Manual feed jam and by-pass paper feed jam	• Defective transfer mechanism
		  • Roller contamination or deterioration
		  • Foreign substances
			• Check the mechanism.
			  • Clean / Replace the roller.
			  • Check the transfer system.

Code	Meaning	Suggested Cause	Action

9-84	Main body paper feeding device feed jam error	• Defective mechanism
		  • Roller contamination or deterioration
		  • Defective clutch
		  • Defective corner pick
		• Foreign substances
		• Defective sensor
			• Check the mechanism.
			  • Clean / Replace the roller.
			  • Replace the roller.
			  • Adjust / Replace the corner pick.
			• Check the foreign substances.
			• Check / Replace the sensor.

9-85	Double-sided paper feed device feed jam error	• Defective mechanism
		  • Motor step-out
			• Check the mechanism.
			  • Replace the motor.
			• Check the electricity.
			  • Check the motor current value.

10-16	When receiving a PC fax, destination information can not be saved and reception is aborted	Destination file shortage	Finish / Cancel the cumulative sending jobs.
31-20	SAF memory full or page over occurs while a PC fax is being stored in SAF of FCU	Memory overflow	• Check the memory capacity and delete unnecessary files from memory. • Wait for the file in the queue to be sent.
31-23	Other errors while a PC fax is being stored	Defective controller board.	Replace the controller board.
A0-01	RTN or ERR is sent when receiving messages	Line failure	• Ask the other end to resend the message. • Set the communication protocol V.17 or V.29 to own machine.

Code	Meaning	Suggested Cause	Action
A0-nn (Except A0-01)	Error other than one from SDK	• Connection failure of base modem • Power supply failure	Restart the machine.
A1-XY	Modem access error	• Connection failure between substrate and modem • Power supply failure	Restart the machine.
A4-XY	Line disconnection during FAX communication	• Line disconnection • Line failure	Check the line connection.
A6-XY	Timeout occurs in FAX communication	• The other end may be defective. • Modem failure • Line failure • Call from a function other than FAX • Transmission data error • Received data error	• Check the sending destination. • Check if the destination responds. • Check the line connection. • Check if the opposite machine is FAX. • Turn off the V.8 protocol. • Set the communication protocol V.17 or V.29 to own machine. • Ask the other end to resend the message. • Resend to the opposite machine.

Code	Meaning	Suggested Cause	Action
A7-XY	• Unexpected FCF (Facsimile Control Field) is received • Transmission source information of the opposite machine is not correct	• The opposite machine is not a FAX • The communication protocol is not matched with the opposite machine • The opposite machine cut connection	• Check the sending destination. • Check if the FAX function of the opposite machine can communicate with own machine. • Resend to the opposite machine. • Clear the print-unable status.
A8-XY	• Graphic generating memory area failure • EOL interval of the graphic is too long • Sent job graphic failure	• Sent job graphic is not generated • Graphic sending delay • Memory error	• Check if a sent job is generated correctly. • Delete unnecessary jobs to create area for send job.
A9-XY	• Receiving graphic data error at phase C • Modem failure	• Line failure • Unknown connection error	• Ask the other end to resend the message. • Turn off the V.8 protocol. • Set the communication protocol V.17 or V.29 to own machine. • Restart the machine.
AB-XY	Receive memory overflow	Memory to contain the received data has no room	Delete unnecessary jobs to create area for received data
AD-XY	Paper size or resolution does not match in DCS	It is unclear which machine caused the error	Adjust the paper size and resolution and resend.
AE-XY	Communication abort error by user	None	None

Code	Meaning	Suggested Cause	Action
AF-XY	When sending, the FAX communication setting of the opposite machine is wrong	FAX communication setting failure of the opposite machine	Adjust FAX communication setting of the opposite machine (receiving machine) and resend.
B0-XY	When receiving, the FAX communication setting of the opposite machine is wrong	FAX communication setting failure of the opposite machine	Adjust FAX communication setting of the opposite machine (sending machine) and resend.
F0-21	Timeout waiting for INFO0	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-22	Check sum error in INFO0		
F0-23	Timeout waiting for tone A or B		
F0-24	Timeout waiting for first phase inversion		
F0-25	Timeout waiting for cutoff tone proving		
F0-26	Timeout waiting for second phase inversion		
F0-27	Timeout waiting for proving end		
F0-28	Timeout waiting for third phase inversion		
F0-29	Timeout waiting for INFO1		

Code	Meaning	Suggested Cause	Action
F0-2A	Check sum error in INFO1	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-2B	A tone detected before INFO0		
F0-2C	Unexpected INFO0 is detected		
F0-31	Timeout due to waiting for the Control Channel turn-off		
F0-61	Transmitter sends HDLC abort due to underflow state		
F0-71	Not matched to the first mapping flame		
F0-91	Error in first CC train		
F0-92	Timeout error for PPh	• Defective modem • Line failure • Reception level is high	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine. • Try asking the other end to adjust their tx level.
F0-93	Tone A/B detected in CC retrain	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.

Code	Meaning	Suggested Cause	Action
F0-94	Timeout waiting for ALT	• Defective modem • Line failure • Reception level is high	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine. • Try asking the other end to adjust their tx level.
F0-95	Detected ACh	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-96	Directed PSTN line cut demand		
F0-97	Timeout waiting for CC turn off		
F0-98	FED off on CC data		
F0-A1	Forced retrain for problems which can not be solved in phase 2		
F0-B0	Problem occurs in HDX-resync S sequence		
F0-B1	FED off in HDX-resync S sequence		
F0-B2	S sequence finished before expected in HDX-resync		

Code	Meaning	Suggested Cause	Action
F0-B3	Timeout waiting for S and Sbar in HDX-resync	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-B4	Timeout waiting for S and Sbar in HDX-resync (2)		
F0-B5	Timeout waiting for S in HDX-resync		
F0-B6	Timeout is suspended for synchronizing with PP		
F0-C0	Problem occurs in S sequence on phase 3		
F0-C1	FED off in S sequence on phase 3		

Code	Meaning	Suggested Cause	Action
F0-C2	S sequence finished before expected in phase 3	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-C3	Timeout waiting for S and Sbar in phase 3		
F0-C4	Timeout waiting for S and Sbar in phase 3 (2)		
F0-C5	Timeout waiting for S in phase 3		
F0-C7	Training is executed due to TRN failure		
F0-D0	Problem occurs in S sequence on phase 4		
F0-D1	FED off in S sequence on phase 4		
F0-D2	S sequence finished before expected in phase 4		
F0-D3	Timeout waiting for S and Sbar in phase 4	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-D4	Timeout waiting for S and Sbar in phase 4 (2)		
F0-D5	Timeout waiting for S in phase 4		
F0-D6	Timeout waiting for Mp		
F0-D8	Timeout waiting for E		
F0-DA	Timeout waiting for transmitter rate renegotiation		

Code	Meaning	Suggested Cause	Action
F0-DB	Timeout on transmitter MPh	• Defective modem • Line failure	• Check the line connection. • The machine at the other end may be defective. • Try sending to another machine.
F0-E2	Retrain detected in phase 2		
F0-E3	Retrain detected in phase 3		
F0-E4	Retrain detected in phase 4		
F0-FE	DTR on retrain is OFF		
F0-FF	TX set abort flag		

3. Service Tables

Cautions

Important

- **Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the 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 ADF is open, while the main machine is communicating with a facsimile or the network server, or while the machine is accessing the memory for reading or writing data.

Service Program Tables

SP1-XXX (BIT SW)

1	Mode No.		Function
101	System Switch		
	001 – 032	00 – 1F	Change the bit switches for system settings for the fax option "page 28 "Bit Switches - 1"" : "System Switches"
103	Printer Switch		
	001 – 016	00 – 0F	Change the bit switches for printer settings for the fax option "page 38 "Bit Switches - 2"" : "Printer Switches"
104	Communication Switch		
	001 – 032	00 – 1F	Change the bit switches for communication settings for the fax option "page 41 "Bit Switches - 3"" : "Communication Switches"
105	G3-1 Switch		
	001 – 016	00 – 0F	Change the bit switches for the protocol settings of the standard G3 board "page 46 "Bit Switches - 4"" : "G3 Switches"

SP2-XXX (RAM)

2	Mode No.		Function
101	001	RAM Read/Write	Change RAM data for the fax board directly. page 58 "Service RAM Addresses"
103	G3-1 NCU Parameters		
	001 – 023	CC, 01 – 22	NCU parameter settings for the standard G3 board. page 54 "NCU Parameters"

SP3-XXX (Machine Set)

3	Mode No.		Function
101	Service Station		
	001	Fax Number	Enter the fax number of the service station.
102	001	Serial Number	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 "PREFIX", "GND" or "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.
201	FAX SW		
	001 – 032	00 – 1F	

SP4-XXX (ROM Versions)

4	Mode No.		Function
102	002 – 065	Error Codes	Displays the latest 64 fax error codes.
103	002	G3-1 ROM Version: Parts number	Displays the G3-1 modem version.
	003	G3-1 ROM Version: Controller	
	004	G3-1 ROM Version: DSP	

SP5-XXX (RAM Clear)

5	Mode No.		Function
101	001	Initialize SRAM (except Secure)	Initializes the bit switches and user parameters, user data in the SRAM, files in the SAF memory.
102	001	Erase All Files	Erases all files stored in the SAF memory.
103	001	Reset Bit Switches (except Secure)	Resets the bit switches and user parameters.
104	001	Factory Setting	Resets the bit switches and user parameters, user data in the SRAM and files in the SAF memory, except clock.
105	001	Reset All Bit Switches	Resets all the current bit switch settings.
106	001	Reset Security Bit Switches	Resets only the security bit switches.

SP6-XXX (Reports)

6	Mode No.		Function
101	001	System Parameter List	Touch the "ON" button to print the system parameter list.
102	001	Service Monitor Report	Touch the "ON" button to print the service monitor report.
103	G3 Protocol Dump List		
	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.
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.

SP7-XXX (Tests)

These are the test modes for PTT approval.

7	Mode No.		Function
101	001 – 015	G3-1 Modem Tests	Tests the V8 to V29 modem signal transmission.
102	001 – 012	G3-1 DTMF Tests	Tests the 0 to 9, *, and # signal transmission.
103	001	Ringer Test	Tests the external telephone's ringer.
104	001 – 014	G3-1 V34 (S2400baud)	Tests the V34 signal transmission with S2400.
105	001 – 014	G3-1 V34 (S2800baud)	Tests the V34 signal transmission with S2800.
106	001 – 014	G3-1 V34 (S3000baud)	Tests the V34 signal transmission with S3000.
107	001 – 014	G3-1 V34 (S3200baud)	Tests the V34 signal transmission with S3200.
108	001 – 014	G3-1 V34 (S3429baud)	Tests the V34 signal transmission with S3429.

Bit Switches - 1

Note

- 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.

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

System Switches

System Switch 00 (SP No. 1-101-001)		
No	**Function**	**Comments**
0-1	Not used	Do not change these settings.
2	Technical data printout on the Journal 0: Disabled 1: Enabled	1: Instead of the personal name, the following data are listed on the Journal for each G3 communication.
	Example: **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 (see below 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**
	Rx level calculation Example: **0000 32V34 288/264 L0100 03 04** (1) (2)(3) (4) (5) (6) (7) (8) The four-digit hexadecimal value (N) after "L" indicates the rx level. The **high** byte is given first, followed by the **low** byte. Divide the decimal value of N by -16 to get the rx level. In 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 these settings.
5	G3 communication parameter display 0: Disabled 1: Enabled	This is a fault-finding aid. The LCD shows the key parameters (see "G3 Communication Parameters" below this table). 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 this 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) 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi)
Compression mode	MMR: MMR compression MR: MR compression MH: MH compression
Communication mode	ECM: With ECM NML: With no ECM
Width and reduction	A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction
I/O rate	0: 0 ms/line 5: 5 ms/line 10: 10 ms/line 20: 20 ms/line 25: 2.5 ms/line 40: 40 ms/line

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	Do not change these settings.

System Switch 02 (SP No. 1-101-003)		
No	Function	Comments
2	Forced reset after transmission stalls 0: Off 1: On	With this setting on, the machine resets itself automatically if a transmission stalls and fails to complete the job.
3-7	Not used	Do not change these settings.

System Switch 03 - Not used (Do not change the factory settings.)
System Switch 04 - Not used (Do not change the factory settings.)
System Switch 05 - Not used (Do not change the factory settings.)
System Switch 06 - Not used (Do not change the factory settings.)
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	Not used	Do not change this setting.
1	Print timing of communication reports on the Journal when no image data was exchanged. 0: After DCS/NSS communication (default), 1: After calling	0: The Journal is printed only when image data is sent. 1: The Journal is printed when any data is sent.
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. This can be used for detecting an error which occurs rarely.
4	Not used	Do not change this setting.

System Switch 09 (SP No. 1-101-010)		
No	Function	Comments
5	Power failure report 0: Disabled 1: Enabled (default)	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. **Note** • If "0" is selected, no reports are printed and no one may recognize that fax data is gone due to a power failure.
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. **Note** • The memory size is limited. Use this bit switch only when some log reports are necessary.
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.

* This machine is not supported RTI.

System Switch 0A (SP No. 1-101-011)		
No	Function	Comments
0-4	Not used	Do not change these settings.
5	On hook dial 0: Disabled 1: Enabled	0: On hook dial is disabled.
6-7	Not used	Do not change these settings.

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

System Switch 0F (SP No. 1-101-016)			
No	Function		Comments
0-7	Country/area code for functional settings (Hex)		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: SP No. 2-103-001 for G3-1
	00: France	12: Asia	
	01: Germany	13: Japan	
	02: UK	14: Hong Kong	
	03: Italy	15: South Africa	
	04: Austria	16: Australia	
	05: Belgium	17: New Zealand	
	06: Denmark	18: Singapore	
	07: Finland	19: Malaysia	
	08: Ireland	1A: China	
	09: Norway	1B: Taiwan	
	0A: Sweden	1C: Korea	
	0B: Switz.	1D: Brazil	
	0C: Portugal	20: Turkey	
	0D: Holland	21: Greece	
	0E: Spain	22: Hungary	
	0F: Israel	23: Czech	
	10: ---	24: Poland	
	11: USA	25: Russia	

System Switch 10 - Not used (Do not change the factory settings.)
System Switch 11 - Not used (Do not change the factory settings.)
System Switch 12 - Not used (Do not change the factory settings.)

System Switch 13 - Not used (Do not change the factory settings.)
System Switch 14 - Not used (Do not change the factory settings.)

System Switch 15 (SP No. 1-101-022)		
No	**Function**	**Comments**
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. The LED of the operation switch is flashing instead of entering Energy Saver mode. Use this setting if an external telephone has to be used when the machine is in the Energy Saver mode.
2-7	Not used	Do not change these settings.

System Switch 16 - Not used (Do not change the factory settings.)
System Switch 17 - Not used (Do not change the factory settings.)
System Switch 18 - Not used (Do not change the factory settings.)
System Switch 19 - Not used (Do not change the factory settings.)
System Switch 1A - Not used (Do not change the factory settings.)
System Switch 1B - Not used (Do not change the factory settings.)
System Switch 1C - Not used (Do not change the factory settings.)

System Switch 1D (SP No. 1-101-030)		
No	**Function**	**Comments**
0	RTI/CSI/CPS code display 0: Enable 1: Disable	0: RTI, CSI, CPS codes are displayed on the top line of the LCD panel during communication.* 1: Codes are switched off (no display)
1-7	Not used	Do not change these settings.

* This machine is not supported RTI/CPS.

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	0: When this switch is on and the journal history becomes full, the next report prints. If the journal history is not deleted, the next transmission cannot be received. This prevents overwriting communication records before the machine can print them. 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. Note • This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper).
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 for a memory transmission, the successfully scanned pages are transmitted. 1: If the SAF memory becomes full during scanning for a memory transmission, the file is erased and no pages are transmitted. Note • This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper).
2	Not used	Do not change this setting.
3	File No. printing 0: Enabled 1: Disabled	1: File numbers are not printed on any reports. Note • The file numbers may not be printed in the sequential order. If a customer does not like this numbering, select "0".
4-7	Not used	Do not change these settings.

System Switch 1F (SP No. 1-101-032)		
No	Function	Comments
0	Not used	Do not change this 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
2-7	Not used	Do not change these settings.

Bit Switches - 2

Note

- 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.

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

Printer Switches

Printer Switch 00 - Not used (Do not change the factory settings.)
Printer Switch 01 - Not used (Do not change the factory settings.)

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	
2-7	Not used	Do not change this setting.

Printer Switch 03 - Not used (Do not change the factory settings.)
Printer Switch 04 - Not used (Do not change the factory settings.)
Printer Switch 05 - Not used (Do not change the factory settings.)
Printer Switch 06 - Not used (Do not change the factory settings.)
Printer Switch 07 - Not used (Do not change the factory settings.)

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

Printer Switch 0E (SP No. 1-103-015)		
No	**Function**	**Comments**
0	Not used	Do not change this setting.
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.
3-7	Not used	Do not change this setting.

Printer Switch 0F (SP No. 1-103-016)				
No	**Function**			**Comments**
0-1	Smoothing feature			(0, 0) (0, 1): Disable smoothing if the machine receives halftone images from other manufacturers fax machines frequently.
	Bit 1	Bit 0	Setting	
	0	0	Disabled	
	0	1	Disabled	
	1	0	Enabled	

Printer Switch 0F (SP No. 1-103-016)		
No	Function	Comments
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	0: Sets the binding for the left edge of the stack. 1: Sets the binding for the top of the stack.
4-7	Not used	Do not change this setting.

Bit Switches - 3

Note

- 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.

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

Communication Switches

<table>
<tr><th colspan="5">Communication Switch 00 (SP No. 1-104-001)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">Compression modes available in receive mode</td><td rowspan="6">These bits determine the compression capabilities to be declared in phase B (handshaking) of the T.30 protocol.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Modes</td></tr>
<tr><td>0</td><td>0</td><td>MH only</td></tr>
<tr><td>0</td><td>1</td><td>MH/MR</td></tr>
<tr><td>1</td><td>0</td><td>MH/MR/MMR</td></tr>
<tr><td>1</td><td>1</td><td>MH/MR/MMR</td></tr>
<tr><td rowspan="6">2-3</td><td colspan="3">Compression modes available in transmit mode</td><td rowspan="6">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.</td></tr>
<tr><td>Bit 3</td><td>Bit 2</td><td>Modes</td></tr>
<tr><td>0</td><td>0</td><td>MH only</td></tr>
<tr><td>0</td><td>1</td><td>MH/MR</td></tr>
<tr><td>1</td><td>0</td><td>MH/MR/MMR</td></tr>
<tr><td>1</td><td>1</td><td>MH/MR/MMR</td></tr>
<tr><td>4-7</td><td colspan="3">Not used</td><td>Do not change this setting.</td></tr>
</table>

<table>
<tr><th colspan="5">Communication Switch 01 (SP No. 1-104-002)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td>0</td><td colspan="3">ECM
0: Off 1: On</td><td>If this bit is set to 0, ECM is switched off for all communications.</td></tr>
<tr><td>1-5</td><td colspan="3">Not used</td><td>Do not change this setting.</td></tr>
<tr><td rowspan="5">6-7</td><td colspan="3">Maximum printable page length available</td><td rowspan="5">The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).</td></tr>
<tr><td>Bit 7</td><td>Bit 6</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>No limit</td></tr>
<tr><td>0</td><td>1</td><td>B4 (364 mm)</td></tr>
<tr><td>1</td><td>0</td><td>A4 (297 mm)</td></tr>
</table>

Communication Switch 02 (SP No. 1-104-003)		
No	**Function**	**Comments**
0	Not used	Do not change this setting.
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.
2-7	Not used	Do not change this setting.

Communication Switch 03 – Not used (Do not change the factory settings.)
Communication Switch 04 – Not used (Do not change the factory settings.)
Communication Switch 05– Not used (Do not change the factory settings.)
Communication Switch 06 - Not used (Do not change the factory settings.)
Communication Switch 07 - Not used (Do not change the factory settings.)
Communication Switch 08 - Not used (Do not change the factory settings.)
Communication Switch 09 - Not used (Do not change the factory settings.)

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 this setting.

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

Communication Switch 0D (SP No. 1-104-014)		
No	Function	Comments
0-7	The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled.	00 to FF (Hex), unit = 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
0-7	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 factory settings.)

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

Communication Switch 11 – Not used (Do not change the factory settings.)

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

Communication Switch 13 – Not used (Do not change the factory settings.)
Communication Switch 14 – Not used (Do not change the factory settings.)
Communication Switch 15 – Not used (Do not change the factory settings.)
Communication Switch 16 – Not used (Do not change the factory settings.)
Communication Switch 17 – Not used (Do not change the factory settings.)
Communication Switch 18 – Not used (Do not change the factory settings.)
Communication Switch 19 – Not used (Do not change the factory settings.)
Communication Switch 1A – Not used (Do not change the factory settings.)

Communication Switch 1B (SP No. 1-104-028)		
No	Function	Comments
0-7	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.)

Communication Switch 1C (SP No. 1-104-029)		
No	Function	Comments
0-1	Extension access code (8 and 9) to turn V.8 protocol On/Off 0: On 1: Off	Refer to communication switch 1B. Example: If "8" is the PSTN access code, set bit 0 to 1. When the machine detects "8" as the first dialed number, it automatically disables V.8 protocol. (If "9" is the PSTN access code, use bit 1.)
2-7	Not used	Do not change these settings.

Bit Switches - 4

Note

- 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.

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

G3 Switches

<table>
<tr><th colspan="5">G3 Switch 00 (SP No. 1-105-001)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="6">0-1</td><td colspan="3">Monitor speaker during communication (tx and rx)</td><td rowspan="6">(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.</td></tr>
<tr><td>Bit 1</td><td>Bit 0</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>Disabled</td></tr>
<tr><td>0</td><td>1</td><td>Up to Phase B</td></tr>
<tr><td>1</td><td>0</td><td>All the time</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>2</td><td colspan="3">Monitor speaker during memory transmission
0: Disabled 1: Enabled</td><td>1: The monitor speaker is enabled during memory transmission.</td></tr>
<tr><td>3-7</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
</table>

G3 Switch 01 (SP No. 1-105-002)		
No	Function	Comments
0-3	Not used	Do not change these settings.
4	DIS frame length 0: 10 bytes 1: 4 bytes	1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames).

G3 Switch 01 (SP No. 1-105-002)		
No	Function	Comments
5	Not used	Do not change this setting.
6	Forbid CED/ANsam output 0: Off 1: On (Forbid output)	Do not change this setting (Default: 0: Off), unless communication problem is caused by a CED or ANSam transmission.
7	Not used	Do not change this setting.

G3 Switch 02 - Not used (Do not change the factory settings.)

G3 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	Not Used	Do not change this 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.
4-7	Not used	Do not change these settings.

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

G3 Switch 05 (SP No. 1-105-006)						
No	Function					Comments
0-3	Initial Tx modem rate (kbps)					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, bit 2
	Bit 3	Bit 2	Bit 1	Bit 0	kbps	
	0	0	0	1	2.4	
	0	0	1	0	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	
	0	1	1	0	14.4	
	0	1	1	1	16.8	
	1	0	0	0	19.2	
	1	0	0	1	21.6	
	1	0	1	0	24.0	
	1	0	1	1	26.4	
	1	1	0	0	28.8	
	1	1	0	1	31.2	
	1	1	1	0	33.6	

<table>
<tr><th colspan="5">G3 Switch 05 (SP No. 1-105-006)</th></tr>
<tr><th>No</th><th colspan="3">Function</th><th>Comments</th></tr>
<tr><td rowspan="5">4-5</td><td colspan="3">Initial modem type for 9.6 k or 7.2 kbps.</td><td rowspan="5">These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds.</td></tr>
<tr><td>Bit 5</td><td>Bit 4</td><td>Setting</td></tr>
<tr><td>0</td><td>0</td><td>V.29</td></tr>
<tr><td>0</td><td>1</td><td>V.17</td></tr>
<tr><td>1</td><td>0</td><td>V.34</td></tr>
<tr><td>6-7</td><td colspan="3">Not used</td><td>Do not change these settings.</td></tr>
</table>

G3 Switch 06 (SP No. 1-105-007)						
No	Function					Comments
0-3	Initial Rx modem rate(kbps)					These bits set the initial starting modem rate for reception. Use a lower setting if high speeds pose problems during reception. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2
	Bit 3	Bit 2	Bit 1	Bit 0	kbps	
	0	0	0	1	2.4	
	0	0	1	0	4.8	
	0	0	1	1	7.2	
	0	1	0	0	9.6	
	0	1	0	1	12.0	
	0	1	1	0	14.4	
	0	1	1	1	16.8	
	1	0	0	0	19.2	
	1	0	0	1	21.6	
	1	0	1	0	24.0	
	1	0	1	1	26.4	
	1	1	0	0	28.8	
	1	1	0	1	31.2	
	1	1	1	0	33.6	

G3 Switch 06 (SP No. 1-105-007)

No	Function				Comments
4-7	Modem types available for reception The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode. If V.34 is not selected, V.8 protocol must be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit 2				
	Bit 7	Bit 6	Bit 5	Bit 4	Types
	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
	0	1	0	1	V.27ter, V.29, V.17, V.34

G3 Switch 07 - Not used (Do not change the factory settings.)

G3 Switch 08 - Not used (Do not change the factory settings.)

G3 Switch 09 - Not used (Do not change the factory settings.)

G3 Switch 0A (SP No. 1-105-011)

No	Function			Comments
0-1	Maximum allowable carrier drop during image data reception			These bits set the acceptable modem carrier drop time. If instantaneous interruptions occur frequently on the line in use, set this to a longer time to maintain high-speed data reception.
	Bit 1	Bit 0	Value (ms)	
	0	0	200	
	0	1	400	
	1	0	800	

G3 Switch 0A (SP No. 1-105-011)		
No	Function	Comments
2	Select cancellation of high-speed RX if carrier signal lost while receiving 0: Off 1: On	This switch setting determines if high-speed receiving ends if the carrier signal is lost when receiving during non-ECM mode
3	Not used	Do not change this setting.
4	Maximum allowable frame interval during image data reception. 0: 5 s 1: 13 s	This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end.
5	Not used	Do not change this 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. ITU-T T.30 recommendation: The first line should come within 5 s of CFR.
7	Not used	Do not change this setting.

G3 Switch 0B Not used (Do not change the factory settings.)
G3 Switch 0C Not used (Do not change the factory settings.)
G3 Switch 0D Not used (Do not change the factory settings.)

G3 Switch 0D Not used (Do not change the factory settings.)

G3 Switch 0E (SP No. 1-105-015)		
No	**Function**	**Comments**
0-7	Set CNG send time interval Some machines on the receiving side may not be able to automatically switch the 3-second CNG interval.	
	High order bit	3000-2250ms: 3000-50xNms 3000 – 50 x Nms 0F (3000 ms) <= N <= FF (2250 ms)
	Low order bit	00-0E(3000-3700ms: 3000+50xNms 3000 – 50 x Nms 0F (3000 ms) <= N <= 0F (3700 ms)

G3 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 these settings.

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. These can be changed using NCU Parameter programming (SP2-103).

Note

- The following addresses describe settings for the standard NCU.
- After changing these settings, you must switch the main switch off and on to enable the new settings.

Address	Function					
00000000	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	Country /Area	Decimal	Hex
	France	00	00	Asia	18	12
	Germany	01	01	Japan	19	13
	UK	02	02	Hong Kong	20	14
	Italy	03	03	South Africa	21	15
	Austria	04	04	Australia	22	16
	Belgium	05	05	New Zealand	26	17
	Denmark	06	06	Singapore	24	18
	Finland	07	07	Malaysia	25	19
	Ireland	08	08	China	26	1A
	Norway	09	09	Taiwan	27	1B
	Sweden	10	0A	Korea	28	1C
	Switzerland	11	0B	Brazil	29	1D
	Portugal	12	0C	Turkey	32	20
	Holland	13	0D	Greece	33	21
	Spain	14	0E	Hungary	34	22
	Israel	15	0F	Czech	35	23
	Canada	16	10	Poland	36	24
	USA	17	11	Russia	37	25

Address	Function	Unit	Remarks
0000004A	Do not change this setting.		SP2-103-012 (parameter 11)
0000004B	Break time for pulse dialing	1 ms	SP2-103-013 (parameter 12). See Note 1.
0000004C	Make time for pulse dialing	1 ms	SP2-103-014 (parameter 13). See Note 1.
0000004D	Do not change this setting.		SP2-103-015 (parameter 14)
0000004E	Do not change this setting.		SP2-103-016 (parameter 15). See Note 1 and 4.
0000004F	Time waited when a pause is entered at the operation panel		SP2-103-017 (parameter 16). See Note 1.
00000050	DTMF tone on time	1 ms	SP2-103-018 (parameter 17). See Note 5.
00000051	DTMF tone off time		SP2-103-019 (parameter 18). See Note 5.
00000052	Tone attenuation level of DTMF signals while dialing	-N x –0.5 dBm	SP2-103-020 (parameter 19).
00000053	Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals	-N x –0.5 dBm	SP2-103-021 (parameter 20). The setting must be less than –5dBm, and should not exceed the setting at 00000052h above. See Note 3.
00000054	Do not change this setting.		SP2-103-022 (parameter 21).
00000072	Acceptable ringing signal frequency: range 1, upper limit	1000/ N (Hz)	SP2-103-003 (parameter 02).
00000073	Acceptable ringing signal frequency: range 1, lower limit		SP2-103-004 (parameter 03).
00000074	Do not change this setting.		SP2-103-005 (parameter 04).
00000075	Do not change this setting.		SP2-103-006 (parameter 05).

Address	Function	Unit	Remarks
00000076	Number of rings until a call is detected.	1	SP2-103-007 (parameter 06). The setting must not be zero.
00000077	Minimum required length of the first ring	20 ms	SP2-103-008 (parameter 07). See Note 2.
00000078	Minimum required length of the second and subsequent rings	20 ms	SP2-103-009 (parameter 08).
00000079	Ringing signal detection reset time (LOW)	20 ms	SP2-103-010 (parameter 09).
0000007A	Ringing signal detection reset time (HIGH)		SP2-103-011 (parameter 10).
000000B4	PSTN: Tx level from the modem	-N x –1 dBm	SP2-103-002 (parameter 01).

NOTES

1. Pulse dial parameters (addresses 0000004A to 0000004F) are the values for 10 pps. If 20 pps is used, the machine automatically compensates.
2. The first ring may not be detected until 1 to 2.5 wavelengths after the time specified by this parameter.
3. The calculated level must be between 0 and 10.

   The attenuation levels calculated from RAM data are:

   High frequency tone:

   - $-0.5 \times N_{00000052/00000054} - 3.5$ dBm
   - $-0.5 \times N_{00000055}$ dBm

   Low frequency tone:

   - $-0.5 \times (N_{00000052/00000054} + N_{00000053}) - 3.5$ dBm
   - $-0.5 \times (N_{00000055} + N_{00000053})$ dBm

   Note

   - $N_{00000052}$, for example, means the value stored in address 00000052(H)
4. 0000004A, 0000004D, 0000004E: The actual inter-digit pause (pulse dial mode) is the sum of the period specified by the RAM addresses 0000004A, 0000004D, and 0000004E.
5. The setting that the totals of DTMF tone on time and DTMF tone off time exceeds 256 ms is prohibited.

Service RAM Addresses

⚠CAUTION

- Do not change the settings which are marked as “Not used”.

The service RAM addresses are designated by the relative addresses which specify the CTRYCODE on the top of the G3 table as 00000000h.

The last address is 000000FFh.

Note

- After changing these settings, you must switch the main switch off and on to enable the new settings.

Address	Function	Unit	Remarks
00000008	PSTN dial tone detection time	20ms	
00000009	PSTN dial tone reset time (LOW)		
0000000A	PSTN dial tone reset time (HIGH)		
0000000B	PSTN dial tone continuous tone time		
0000000C	PSTN dial tone permissible drop time		
0000000D	PSTN wait interval (LOW)		
0000000E	PSTN wait interval (HIGH)		
0000001B	PABX dial tone detection time	20ms	
0000001C	PABX dial tone reset time (LOW)		
0000001D	PABX dial tone reset time (HIGH)		
0000001E	PABX dial tone continuous tone time		
0000001F	PABX dial tone permissible drop time		
00000020	PABX wait interval (LOW)		
00000021	PABX wait interval (HIGH)		

Address	Function	Unit	Remarks
0000002A	Busy tone ON time: range 1	20ms	Busy tone which turns ON/OFF in 500ms cycle is detected. If 0xFF or 0x00 is set to the range X, the busy tone detection with the setting following X is not executed. For example, if 0xFF or 0x00 is set to the Busy tone ON time: range 1 (or Busy tone OFF time: range 1), all the busy tone detections with the setting from range 1 to type 4 are not executed.
0000002B	Busy tone OFF time: range 1		
0000002C	Busy tone ON time: range 2		
0000002D	Busy tone OFF time: range 2		
0000002E	Busy tone ON time: range 3		
0000002F	Busy tone OFF time: range 3		
00000030	Busy tone ON time: range 4		
00000031	Busy tone OFF time: range 4		
00000032	Busy tone continuous tone detection time	20ms	Used only when calling. When receiving a call, the busy tone continuous tone detection is not executed. If 0xFF or 0x00 is set, the busy tone continuous tone detection is not executed. If a value within 5000 ms is set, the set value is regarded as 5000 ms.

Address	Function	Unit	Remarks
00000033	The number of times of the busy tone detection and allowable range of the ON/OFF detection time BIT7, 6: The number of times of detection on calling 00: 2 times 01: 3 times 10: 4 times 11: 5 times The number of times of detection on incoming call 00: 4 times 01: 6 times 10: 8 times 11: 10 times BIT5, 4: Not used BIT3-0: 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). 0000: 500ms±75.0% 0001: 500ms±50.0% 0010: 500ms±25.0% 0011: 500ms±12.5% 0100 -1111: Reserved		If 0xFF or 0x00 is set to the Busy tone ON/OFF time: range 1, this setting (allowable range of the ON/OFF detection time) is not referred to because the busy tone detections are not executed.
0000005D	PSTN access pause time	20ms	

Address	Function	Unit	Remarks
00000082	On-hook/off-hook detection time BIT7-4: Not used BIT3, 2: Handset on-hook detection time 00: 200ms 01: 800ms 10: 1200ms 11: Reserved BIT1, 0: Handset off-hook detection time 00: 200ms 01: 800ms 10: Reserved 11: Reserved		
000000AB	CNG on time	20ms	This function detects ON of the CNG signal and switches to FAX. Factory setting: 500 ms
000000AC	CNG off time	20ms	This function detects OFF of the CNG signal and switches to FAX. Factory setting: 3000 ms

Address	Function	Unit	Remarks
000000AD	Number of CNG cycles required for detection / Allowable range for ON/OFF detection time BIT7-4: Number of detection (0 to 15 times) *1 Initial value: 3 times BIT3-0: Allowable range for detection time 0000: ±75.0%*2 0001: ±50.0% 0010: ±25.0% 0011: ±12.0%		*1 0 is not allowed to be set for the number of detection. *2 Set the detection time for CNG signal OFF (000000AC) to 92(H) or below.
000000BD	Modem turn-on level (incoming signal detection level) * 00(H): -19dBm 01(H)-0A(H): -26dBm 0B(H)-14(H): -33dBm 15(H)-: -43dBm		* Four level is set to this function for this machine.
000000CD	Permission setting for each symbol rate when sending V.34 BIT0: 2400symb/s BIT1: 2743symb/s * BIT2: 2800symb/s BIT3: 3000symb/s BIT4: 3200symb/s BIT5: 3429symb/s 0: Inhibited 1: Permitted		* Symbol rate 2743 is not supported on this machine Specify "0: Inhibited"

Address	Function	Unit	Remarks
000000D7	Permission setting for each symbol rate when receiving V.34 BIT0: 2400symb/s BIT1: 2743symb/s * BIT2: 2800symb/s BIT3: 3000symb/s BIT4: 3200symb/s BIT5: 3429symb/s 0: Inhibited 1: Permitted		* Symbol rate 2743 is not supported on this machine Specify "0: Inhibited"
000000DA	T.30 T0 timer	1s	Automatic calling connection timer until FAX signal is detected.
000000E2	T1 timer/T4 timer BIT7,6: Reserved BIT5,4: Not used BIT3,2: T4 timer 00: 3000ms 01: 3500ms 10: 4000ms 11: 5000ms BIT1,0: T1 timer 00: 35sec 01: 40sec 10: 50sec 11: 60sec		T1 timer: Lengthen it when sending can not be performed due to delay of receiver response (DIS). Note that 50 and 60 seconds setting are in violation of the recommendation which specifies 35 ± 5 seconds setting. T4 timer: Lengthen it when the response is delayed after message and collision of signals occur. Note that 3500, 4000, and 5000ms setting are in violation of the recommendation which specifies 3 seconds ± 15% setting.

Address	Function	Unit	Remarks
000000E3	ACIM/MINI/ DCV-Voltage BIT7-4: ACIM (AC impedance) BIT3,2: MINI (minimum loop electric current) BIT1,0: DCV (TIP/RING) Voltage		Do not change this setting.
000000F1	Waiting time across numbers / I-V characteristics BIT7,6: Reserved BIT5,4: DC Mask BIT3,2,1: Reserved BIT0: Dial pulse Interdigit(10PPS/ 20PPS)		Do not change this setting.
000000F2	Sending start time of the received signals (CED/ANSam) BIT7,6: Reserved BIT5-0: Set value	100ms	Allowable set range is 1.0sec-5.0sec * * Round the set value outside the range to the upper limit or lower limit.
000000F3	PSTN dial tone/busy tone frequency BIT7-2: Reserved BIT1,0: 00: Universal filter 01: European filter 10: Japanese filter 11: Filter for low frequency		This setting is for design and do not change from each country default value.

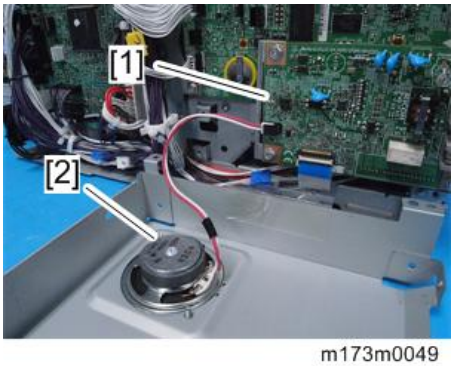
Address	Function	Unit	Remarks
000000F4	PABX dial tone/busy tone frequency BIT7-2: Reserved BIT1,0: 00: Universal filter 01: European filter 10: Japanese filter 11: Filter for low frequency		If detecting the PABX dial tone with the default setting for each country fails, try "(0,0) Universal filter", and if it fails again, try "(1,1) Filter for low frequency".
000000F5	Threshold voltage in which the ringing signal calls Ring threshold: V RingThreshold = [[1.414 x (Ring Vrms -2)] x 90% x 320/256] -22 Example: 0:16Vrms 25:30Vrms		

4. Detailed Section Descriptions

Overview

The FCU controls all the fax communications and fax features, in cooperation with the controller board. Also, the FCU contains the NCU circuits.

Fax Unit Configuration



m173m0049

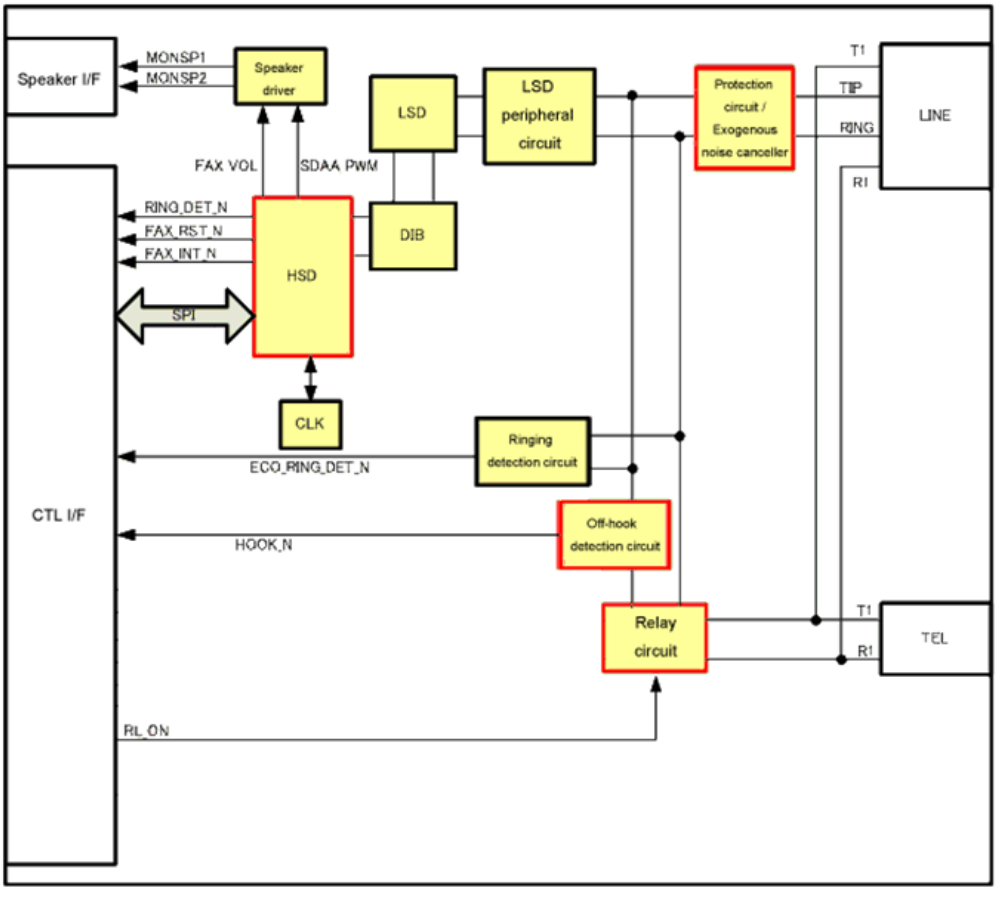
Component	No.	Remarks
FCU	1	
Speaker	2	

Boards

FCU (Facsimile Control Unit)

Overview

PCB: FAX: KIBO: ** is the board which extends the facsimile application function by installing it to the controller box. It is equipped as the standard item.



w_m173m0079

This board has the functions of the analog front end, AD conversion, facsimile signal processing, communication control, modulation/demodulation, and communication with the host (SPI).

LSD

The LSD is a SiDAA which has the functions of the analog front end and AD conversion.

HSD

The HSD is a modem which has the functions of the communication with the host (SPI), facsimile signal processing, and modulate/demodulate data.

5. Specifications

General Specifications

FCU

Standard:	Group 3
Resolution:	8 x 3.85 lines/mm, 200 x 100 dpi (Standard character) 8 x 7.7 lines/mm, 200 x 200 dpi (Detail character)
Transmission Time:	3.5 seconds at 28,800 bps
Data Compression:	MH, MR, MMR
Maximum Original Size:	Standard: A4 (SEF) or 8.5" x 14" (SEF)
Maximum Scanning Size:	216 mm x 356 mm (8.5" x 14")
Print Process:	LED alley and electro-photographic printing
Transmission speed:	33,600/31,200/28,800/26,400/24,000/21,600/19,200/16,800/14,400/12,000/9,600/7,200/4,800/2,400 bps (Auto shift down system)

Maximum Values

The following list contains the maximum value for each item.

Item	Maximum value
Memory	16 MB
Number of pages you can store in memory (using A4 Standard <ITU-T 1Chart>)*1	Approx. 100
Number of destinations you can register in the Address Book	200
Number of forwarding destinations that you can specify	1
Number of destinations you can specify per file	100
Number of destinations you can specify for all files (including files in memory)	500
Number of destinations you can search at a time using the [Search Destination] key	100
Number of destinations that can be stored in the history	1
Number of digits that can be included in a destination	64
Number of communication results printed in the Journal	50
Number of transmission results you can check using Web Image Monitor on a network computer	100
Number of destinations you can register in the Address Book of the LAN-Fax	2,000
Number of destinations you can specify at once using LAN-Fax	100

*1 The maximum number of pages that can be stored or transmitted may decrease depending on the contents of documents.