Portable Manual

FAX Board
Super G3 FAX Board-T1

Canon

Sep 14 2005

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

Corrections

This manual may contain technical inaccuracies or typographical errors due to improvements or changes in products. When changes occur in applicable products or in the contents of this manual, Canon will release technical information as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon will issue a new edition of this manual.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
 Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
 REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.
   In the diagrams, ▭▮▮▮▭ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.
   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.
2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.
   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.
All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1 Error Code

Chapter 2 System Construction

Chapter 1 Error Code

1.1 User Error Code

1.1.1 User Error Code

T-1-1

No.	Tx/Rx	Description
#0001	[Tx]	an original has jammed.
#0003	[Tx/Rx]	tine-out for copying or sending/receiving a single page has occurred.
#0005	[Tx/Rx]	time-out for initial identification (T0/T1) has occurred.
#0009	[Rx]	recording paper has jammed or is absent.
#0012	[Tx]	recording paper is absent at the other party.
#0018	[Tx/Rx]	auto call initiation has failed.
#0037	[Rx]	image memory overflow at time of reception has occurred.
#0059	[Tx]	The number you dial and connected number (CSI) does not match.
#0995/0099	[Tx/Rx]	a memory communication reservation has been cancelled.

1.2 Service Error Code

1.2.1 Service Error Code

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No.	Tx/Rx	Description
##0100	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0101	[Tx/Rx]	the modem speed does not match that of the other party.
##0102	[Tx]	at time of transmission, fall-back cannot be used.
##0103	[Rx]	at time of reception, EOL cannot be detected for 5 sec (15 sec if CBT).
##0104	[Tx]	at time of transmission, RTN or PIN is received.
##0106	[Rx]	at time of reception, the procedural signal is received for 6 sec while in wait for the signal.
##0107	[Rx]	at time of reception, the transmitting party cannot use fall-back.
##0109	[Tx]	at time of transmission, a signal other than DIS, DTC, FTT, CFR, or CRP is received, and the procedural signal has been sent more than specified.
##0111	[Tx/Rx]	memory error has occurred.
##0114	[Rx]	at time of reception, RTN is transmitted.
##0200	[Rx]	at time of reception, no image carrier is detected for 5 sec.
##0201	[Tx/Rx]	DCN is received outside the normal parity procedure.
##0220	[Tx/Rx]	system error (main program out of control) has occurred.
##0232	[Tx]	encoding error has occurred.
##0237	[Rx]	decoding error has occurred.
##0261	[Tx/Rx]	system error has occurred.
##0280	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0281	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0282	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0283	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0284	[Tx]	at time of transmission, DCN is received after transmission of TCF.
##0285	[Tx]	at time of transmission, DCN is received after transmission of EOP.
##0286	[Tx]	at time of transmission, DCN is received after transmission of EOM.
##0287	[Tx]	at time of transmission DCN is received after transmission of MPS.
##0288	[Tx]	after transmission of EOP, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0289	[Tx]	after transmission of EOM, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0290	[Tx]	after transmission of MPS, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0670	[Tx]	at time of V.8 late start, the V.8 ability of DIS front the receiving party is expected to be detected, and the CI signal is expected to be transmitted in response; however, the procedure fails to advance, and the line is released because of T1 time-out.
##0671	[Rx]	at time of V.8 arrival, procedure fails to move to phase 2 after detection of CM signal from caller, causing T1 time-out and releasing line
##0672	[Tx]	at time of V.34 transmission, a shift in procedure from phase 2 to phase 3 and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0673	[Rx]	at time of V.34 reception, a shift in procedure from phase 2 to phase 3 and thereafter stops, causing the machine to release the line and suffer T1 timeout.

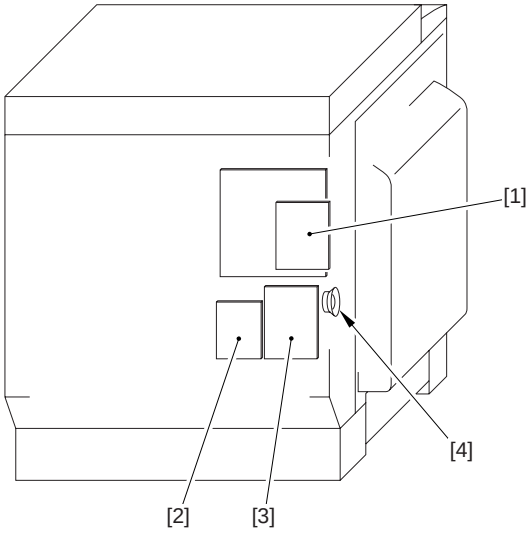
No.	Tx/Rx	Description
##0674	[Tx]	at time of V.34 transmission, a shift in procedure from phase 3 and phase 4 to the control channel and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0675	[Rx]	at time of V.34 reception, a shift in procedure from phase 3 and phase 4 to the control channel and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0750	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-NULL, causing the procedural signal to be transmitted more than specified.
##0752	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-NULL.
##0753	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-NULL, or T5 time-out (60 sec) has occurred.
##0754	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-NULL.
##0755	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-MPS, causing the procedural signal to be transmitted more than specified.
##0757	[Tx]	at time of ECM transmission, DCN is received after retransmission of PPS-MPS.
##0758	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS, or T5 time-out (60 sec) has occurred.
##0759	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS.
##0760	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-EOM, causing the procedural signal to be transmitted more than specified.
##0762	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-EOM.
##0763	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS, or T5 time-out (60 sec) has occurred.
##0764	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOM.
##0765	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-EOP, causing the procedural signal to be transmitted more than specified.
##0767	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-EOP.
##0768	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOP, or T5 time-out (60 sec) has occurred.
##0769	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOP.
##0770	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-NULL, causing the procedural signal to be transmitted more than specified.
##0772	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-NULL.
##0773	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-NULL, or T5 time-out (60 sec) has occurred.
##0774	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-NULL.
##0775	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-MPS, causing the procedural signal to be transmitted more than specified.
##0777	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-MPS.
##0778	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission EOR-MPS, or T5 time-out (60 sec) has occurred.
##0779	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-MPS.
##0780	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-EOM, causing the procedural signal to be transmitted more than specified.
##0782	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-EOM.
##0783	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-EOM, or T5 time-out (60 sec) has occurred.
##0784	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-EOM.
##0785	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-EOP, causing the procedural signal to be transmitted more than specified.
##0787	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-EOP.
##0788	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-EOP, or T5 time-out (60 sec) has occurred.
##0789	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-EOP.
##0790	[Rx]	at time of ECM reception, ERR is transmitted after transmission of EOR-Q.
##0791	[Tx/Rx]	while ECM mode procedure is under way, a signal other than a meaningful signal is received.
##0792	[Rx]	at time of ECM reception, PPS-NULL cannot be detected over partial page processing.
##0793	[Rx]	at time of ECM reception, no effective frame is received while high-speed signal reception is under way, thus causing time-out.
##0794	[Tx]	at time of ECM reception, PPR with all 0s is received.
##0795	[Tx/Rx]	a fault has occurred in code processing for communication.

Chapter 2 System Construction

2.1 Basic Construction

2.1.1 Overview

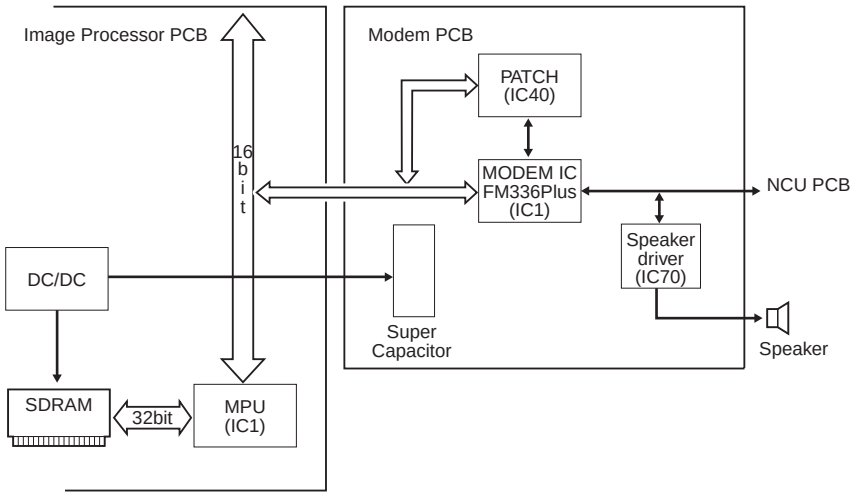
The board is designed to enable a digital copier to serve as a high-performance multi-functional machine (image processing functions and communication functions over the telephone line).
It is capable of communicating at a maximum rate of 33.6 kbps, thanks to the presence of a V.34-compliant modem (ITU-T).



F-2-1

[1] Modem PCB
[2] Modular PCB
[3] NCU PCB
[4] Speaker unit

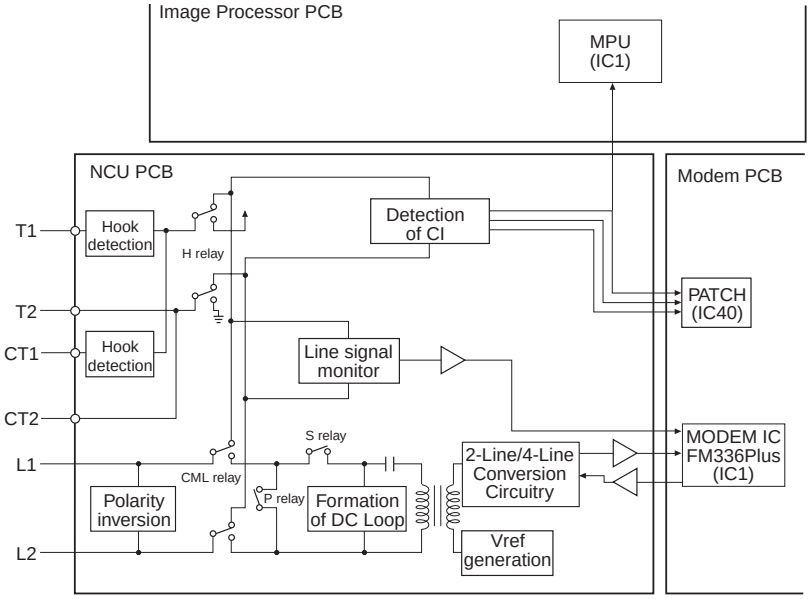
2.1.2 Modem PCB



F-2-2

MPU (IC1)
It performs JBIG encoding/decoding and control of line communication and SDRAM. SDRAM is connected with a bus of 32bit.
PATCH (IC40)
It controls ports, such as those in NCU or speaker.
SDRAM
It is used as the memory for encoding/decoding of image data during transmitting/receiving and that for MPU work area.
In addition, it is used for storing the transmitted/received image data.
MODEM IC (IC1)
CONEXTANT FM336Plus modem modulates the transmitted data from MPU via line based on the ITU-T V.17, V.21, V.27ter., V.29 and V.34.
In receiving, it demodulates the received data via line based on the ITU-T V.17, V.21, V.27ter., V.29, and V34.
Super Capacitor
It backups the transmitted/received image data stored in SDRAM.
DC/DC
It generates the voltage to backup SDRAM by raising the voltage of super capacitor when main power is shut down or fails.

2.1.3 NCU PCB



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2-Line/4-Line Conversion Circuitry
Signals from a 2-line telephone line are converted into transmission signals and reception signals (4 lines). It also serves to prevent intrusion of signals from the modem into the reception circuit.
Dial Pulse Generator Circuit
It turns on and off the relay within the circuit using the control signal from the Modem PCB to generate dial pulses so that dial signals will be generated by the fax on a dial-pulse line.
Off-Hook Detection Circuit
Detects an off-hook state by monitoring the dirt current flowing in the circuit when the telephone connected to the extension telephone terminal is put off the hook.
Line Voltage Conversion Circuit
The primary side of the NCU PCB is controlled by a line voltage of +48 VDC. The DC component is cut out by the work of a capacitor and, as a result, only audio signals are converted into voltages suited to the level of the modem.

2.2 Product Specifications

2.2.1 Product Specifications

T-2-1

Item	Description
Communication	G3
Applicable lines	PSTN (Public Switched Telephone Network)
Modulation method	<G3 image signal>
	ITU-T V.27ter (2.4Kbps, 4.8Kbps)
	ITU-T V.29 (7.2Kbps, 9.6Kbps)
	ITU-T V.17 (TC 7.2Kbps, TC 9.6Kbps, 12Kbps, 14.4Kbps)
	ITU-T V.34 (2.4Kbps, 4.8Kbps, 7.2Kbps, 9.6Kbps, 12Kbps, 14.4Kbps, 16.8Kbps, 19.2Kbps, 21.6Kbps, 24Kbps, 26.4Kbps, 28.8Kbps, 31.2Kbps, 33.6Kbps)
	<G3 procedure signal>
	ITU-T V.21 No.2 (300bps)
	ITU-T V.8, V.34 (300bps)
Transmission speed	33.6Kbps, 31.2Kbps, 28.8Kbps, 23.4Kbps, 24Kbps, 21.6Kbps, 19.2Kbps, 16.8Kbps, 14.4Kbps, 12Kbps, TC 9.6Kbps, TC7.2Kbps, 9.6Kbps, 7.2Kbps, 4.8Kbps, 2.4Kbps
	auto fallback function
Coding method	JBIG, MMR, MR, MH
G3-specific abridged procedure	no
Dial Tone Detection	yes
Modem IC	CONEXANT FM336 Plus
Error correction	ITU-T ECM
Transmission original size	A3, A4, A4R, A5, A5R, B4, B5, B5R, LTR, LTRR, LGL, 11x17, STMT, STMTR
	ADF: double-sided originals accepted
Scanning line density	Standard (200 x 100 dpi): 8 dots/mm x 3.85 lines/mm
	Fine (200 x 200 dpi):8 dots/mm x 7.7 lines/mm
	Super Fine (300 x 300 dpi): 8 dots/mm x 15.4 lines/mm
	Ultra Fine (400 x 400 dpi): 16 dots/mm x 15.4 lines/mm
Halftone	256 gradations
Recording unit	maximum reception size: A3 (297mm x 420mm)

Item	Description
	scanning line density: 600dpi x 600dpi
Memory	image memory: 1000 prints (Canon Fax Standard Chart No. 1)
	memory type: Super capacitor
	storage: JBIG
	backup time: approx. 1 hour
Extension telephone connection	no
Answering machine connection	no
Fax/Tel switching	no
Divided Transmission	yes
Remote reception	no
Polling (F code)	no
Memory box	no
Password reception	no
Machine telephone No. transmission	yes
User abbreviation transmission	yes
Dual access	64 (maximum number of reservations)
Broadcasting	201 targets (maximum number of targets)
	10 target(maximum number of targets by numeric key dialing)

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