GD-1340 Fax Unit

Service / Troubleshooting Manual

Applicable Models

MB760/MB770/MPS5502/MC770/MC780/MPS3537/MPS4242

MB760+ / MB770+ / MPS5502+ / MC770+ / MV780+ / MPS3537+ / MPS4242+

Document Revision History

Rev.No.	Date	Corrected items			Person in charge
		No.	Page	Description of change	
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TRADEMARKS

- The official name of Windows XP is Microsoft Windows XP Operating System.
- The official name of Windows 7 is Microsoft Windows 7 Operating System.
- The official name of Windows 8 is Microsoft Windows 8 Operating System.
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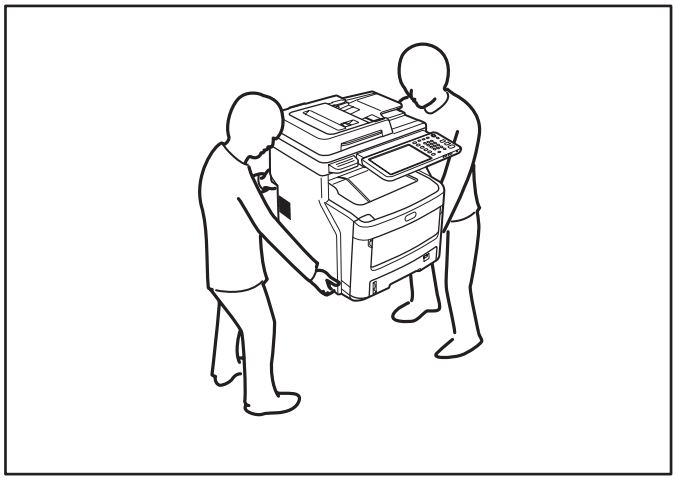
GENERAL PRECAUTIONS REGARDING THE SERVICE FOR GD-1340

The installation and service shall be done by a qualified service technician.

1) Transportation/Installation

- When transporting/installing the equipment, employ two or more persons and be sure to hold the positions as shown in the figure. The equipment is quite heavy and weighs approximately 60 kg (132.27 lb.) (including the finisher), therefore pay full attention when handling it.



- Be sure not to hold the movable parts or units (e.g. the control panel, ADU or RADF) when transporting the equipment.
- Be sure to use a dedicated outlet with AC 110 V / 13.2 A, 115 V or 127 V / 12 A, 220-240 V / 8 A for its power source.
- The equipment must be grounded for safety.
- Select a suitable place for installation. Avoid excessive heat, high humidity, dust, vibration and direct sunlight.
- To insure adequate working space for the copying operation, keep a minimum clearance of 20 cm (8”) on the left, 20 cm (8”) on the right and 60 cm (24”) on the rear.
- The equipment shall be installed near the socket outlet and shall be accessible.
- Be sure to fix and plug in the power cable securely after the installation so that no one trips over it.
- If the caster is installed, lock the casters after setting up the product.

2) General Precautions at Service

- Be sure to turn the power OFF and unplug the power cable during service (except for the service should be done with the power turned ON).
- Unplug the power cable and clean the area around the prongs of the plug and socket outlet once a year or more. A fire may occur when dust lies on this area.
- When the parts are disassembled, reassembly is the reverse of disassembly unless otherwise noted in this manual or other related documents. Be careful not to install small parts such as screws, washers, pins, E-rings, star washers in the wrong places.
- Basically, the equipment should not be operated with any parts removed or disassembled.

- The PC board must be stored in an anti-electrostatic bag and handled carefully using a wristband since the ICs on it may be damaged due to static electricity.

  Caution : Before using the wristband, unplug the power cable of the equipment and make sure that there are no charged objects which are not insulated in the vicinity.

- Be sure not to touch high-temperature sections such as the fuser unit and areas around them.
- Be sure not to touch high-voltage sections such as the chargers, transfer belt, developer, high-voltage transformer and power supply unit. Especially, the board of these components should not be touched since the electric charge may remain in the capacitors, etc. on them even after the power is turned OFF.
- Make sure that the equipment will not operate before touching potentially dangerous places (e.g. rotating/operating sections such as gears, belts pulleys and fans).
- Be careful when removing the covers since there might be the parts with very sharp edges underneath.
- When servicing the equipment with the power turned ON, be sure not to touch live sections and rotating/operating sections.
- Use designated jigs and tools.
- Use recommended measuring instruments or equivalents.
- Return the equipment to the original state and check the operation when the service is finished.
- Be very careful to treat the touch panel gently and never hit it. Breaking the surface could cause malfunctions.

3) Important Service Parts for Safety

- The door switch, fuse, thermostat, thermistor, IC-RAMs including lithium batteries, etc. are particularly important for safety. Be sure to handle/install them properly. If these parts are short-circuited and their functions become ineffective, they may result in fatal accidents such as burnout. Do not allow a short-circuit or do not use the parts not recommended by OKI DATA Corporation.

4) Cautionary Labels

- During servicing, be sure to check the rating plate and cautionary labels such as “Unplug the power cable during service”, “CAUTION. HOT”, “CAUTION. HIGH VOLTAGE”, etc. to see if there is any dirt on their surface and if they are properly stuck to the equipment.

5) Disposal of the Equipment, Supplies, Packing Materials, Used Batteries and IC-RAMs

- Regarding the recovery and disposal of the equipment, supplies, packing materials, used batteriesand IC-RAMs including lithium batteries, follow the relevant local regulations or rules.

Caution:

Dispose of used batteries and IC-RAMs including lithium batteries according to this manual.

Attention:

Se débarrasser de batteries et IC-RAMs usés y compris les batteries en lithium selon ce manuel.

Vorsicht:

Entsorgung der gebrauchten Batterien und IC-RAMs (inclusive der Lithium-Batterie) nach diesem Handbuch

CONTENTS

1. SPECIFICATIONS AND OUTLINE OF SYSTEM

1.1 FAX Options

Equipments can be used as a FAX by installing the FAX unit.
Some options can be added when the FAX unit is installed or to extend the FAX functions.
📖 P. 1-8 "1.5 Options"

1.2 Specifications

1) Main +system

- Type
  Desktop type transceiver
- Operation
  Transmission Manual/Automatic
  Reception Manual/Automatic

2) Scanner
<Scanning density> [ ]: at rotation transmission

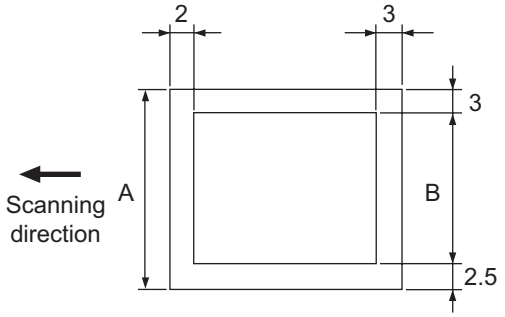
- Horizontal direction
  16 lines/mm, 8 lines/mm
  [15.4 lines/mm, 7.7 lines/mm, 3.85 lines/mm]
- Vertical direction
  15.4 lines/mm, 7.7 lines/mm, 3.85 lines/mm
  [16 lines/mm, 8 lines/mm]
- Combination
  U-Fine: 16 x 15.4 lines/mm [15.4 x 16 lines/mm]
  Semi-U-Fine: 8 x 15.4 lines/mm [15.4 x 8 lines/mm]

Note:

Operation from the panel is automatically converted at the receiving capability of “U-Fine” combination.

Fine: 8 x 7.7 lines/mm [7.7 x 8 lines/mm]
Normal: 8 x 3.85 lines/mm [3.85 x 8 lines/mm]

- Effective scanning area



(Mechanical system error ±2 mm included)

Fig.1-1

(mm)

Original size	A	B
A4	210	204.5
FOLIO	330	324.5
LT	216	210.5
LG	355.6	350.1

3) Transmission system

Circuits to be used: Subscriber line/FAX communication network (G3)

- Calling automatic transmission (including the sequential multi-address transmission)
- Calling automatic reception (polling reception)
- Called automatic transmission (polling transmission)
- Called automatic reception
- Calling manual transmission
- Calling manual reception
- Called manual transmission
- Called manual reception

Communication mode

High-speed mode (Original procedure mode)
G3 mode
ECM (Error Correction Mode)

Circuit carrier link equalization function

Embedded

Output level

-16 dBm to -8 dBm (The setting can be changed by “1 dB”.)

Input level

-43 dBm to 0 dBm
(Level -55 dBm or lower cannot be detected)

Specifications of the communication mode

	High-speed mode (Original procedure mode)	G3 mode	ECM
Horizontal scanning density	8 dots/mm 300 dpi (Reception only) 16 dots/mm	Same as on the left	Same as on the left
Vertical scanning density	3.85 lines/mm 7.7 lines/mm 300 dpi (Reception only) 15.4 lines/mm	Same as on the left	Same as on the left
Encoding system	MH/MR/MMR/JBIG	MH/MR	MH/MR/MMR/JBIG
Minimum transmission time for 1 line	2.5 ms	Same as on the left	Same as on the left
Transmission speed (image signal) and modulation method	14.4 k/12 k/9600 7200/4800/2400 bps Conformance to V.17/V.29/V.27 ter	Same as on the left	33.6 k/31.2 k/28.8 k/ 26.4 k/24 k/21.6 k/ 19.2 k/16.8 k/14.4 k/ 12 k/9600/7200/ 4800/2400 bps
Control signal	300 bps V.21	Same as on the left	2400/1200/600/ 300 bps V.34/V.8/V.21
Procedure to control the transmission	Original procedure	T.30 conformance	Same as on the left

4) Recording paper

- Recording method
  Electrophotographic recording method by LED
- Horizontal printing density
  24 lines/mm (96 lines/mm with the smoothing processing)
  [23.1 lines/mm (92.4 lines/mm with the smoothing processing)]
- Vertical printing density
  23.1 lines/mm (24 lines/mm with the smoothing processing)
- Recording paper size and the effective printing area

Unit: mm (inch)

Paper size	Dimension (width x length)	Printing area
A5	148 x 210	143.8 x 205.8
B5	182 x 257	177.8 x 252.8
A4	210 x 297	205.8 x 292.8
FOLIO	210 x 330	205.8 x 325.8
ST	139.7 x 216 (5.5 x 8.5)	135.5 x 211.8
LT	216 x 279.4 (8.5 x 11)	211.8 x 275.2
Legal 13"	216 x 330 (8.5 x 13)	211.8 x 325.8
Legal 13.5"	216 x 343 (8.5 x 13.5)	211.8 x 338.8
Legal 14"	216 x 356 (8.5 x 14)	211.8 x 351.8

1.3 Features

- High-speed transmission
  33.6 Kbps high speed modem
  Original high-speed communication modes EX and HS
  JBIG encoding system
- Dual Access
  - FAX transmission
    There are two types of FAX transmission: Page-by-page direct transmission and memory transmission that all pages are stored in the memory before being transmitted.
  - FAX reception
    Basically, all pages are input in the memory before being output. This reduces the time that the FAX communication occupies the machine, making Dual Access between the copying/faxing and printing operation possible.

  Namely, the followings are possible:
  - Memory input during the memory transmission
  - Memory input during the memory reception
  - Copying during the memory transmission
  - Reception during the copying
  - Reception during the memory output
  - Reception during the list output
- LED printing on plain paper
  Printing is made on the standard size paper (A5, B5, A4, FOLIO, ST, LT, Legal 13", Legal 13.5", Legal 14") with the LED system.
- Gradation
  256 tones, error diffusion method
- Memory communication function
  Image data can be stored in the HDD. In the delayed transmission, image data read from an original are stored in the memory, then sent when the specified time comes.
  Other memory functions: multi transmission, memory reception, ECM communication, etc.
- Smoothing
  The smoothing process is applied to the received images so that they are changed from 8 × 3.85, 8 × 7.7, 8 × 15.4 or 16 × 15.4 to 24 × 92.4 (equivalent to 600 × 2400dpi), then printed out.
- Editing function
  Duplex transmission and duplex printing are possible.
- FAX data file storage capacity
  1GB (for transmission and reception)

  Note:
  For hard drivers, GB means 1 billion bytes.
- Phone Book (400 addresses(1,000 addresses when the HDD is installed))
  Up to 400 addresses can be registered in the Phone Book using the large LCD control panel.
- Multi-address transmission function
  Data are sent to multiple addresses (400 destinations) in sequence in a single operation.
  There are three ways to choose/enter the address.

- Choose from the Phone Book (up to 400 destinations)
- Direct dialing (up to 400 destinations)
- Mix operation (Phone Book, Direct dialing, Group destinations: up to 400 destinations)

• Memory reception function
When the recording paper has run out or a paper jam has occurred, the memory receives and stores the data.

• Auto-dialing function
- Delayed dialing
  Documents are transmitted automatically to the preset number at the preset time.
- Redialing
  When the receiving side is busy during the automatic dialing, the machine keeps dialing at a fixed interval for a specified number of times.

• Receiving tone/completion tone
Sound notifies that the reception of a FAX document or printing of a received document has been completed.

• List output
The following data stored in the RAM can be printed out
- Phone book information
- Function list
- Transmission journal
- Reception journal
- Memory transmission report
- Power failure list etc.

• Power saver mode
During hours in which the reception amount is small, the weekly timer works to shut off the main power and the heater power to save power consumption.

• Tray selection
It is possible to choose a tray on to whose paper the received images are to be printed.

1.4 Accessories and Parts

The following accessories and parts come with the FAX unit:

Accessory	GD-1340
Modular cord (2 m)	1 pc.
Unpacking instruction	1 set

Parts	GD-1340
Fax unit	1 pc.
SG3 label	1 pc.
FCC Part 68 label (U.S.A.) / IC label (Canada): NA only	
Telepermit label (New Zealand): AU only	
Screw	4 pc.

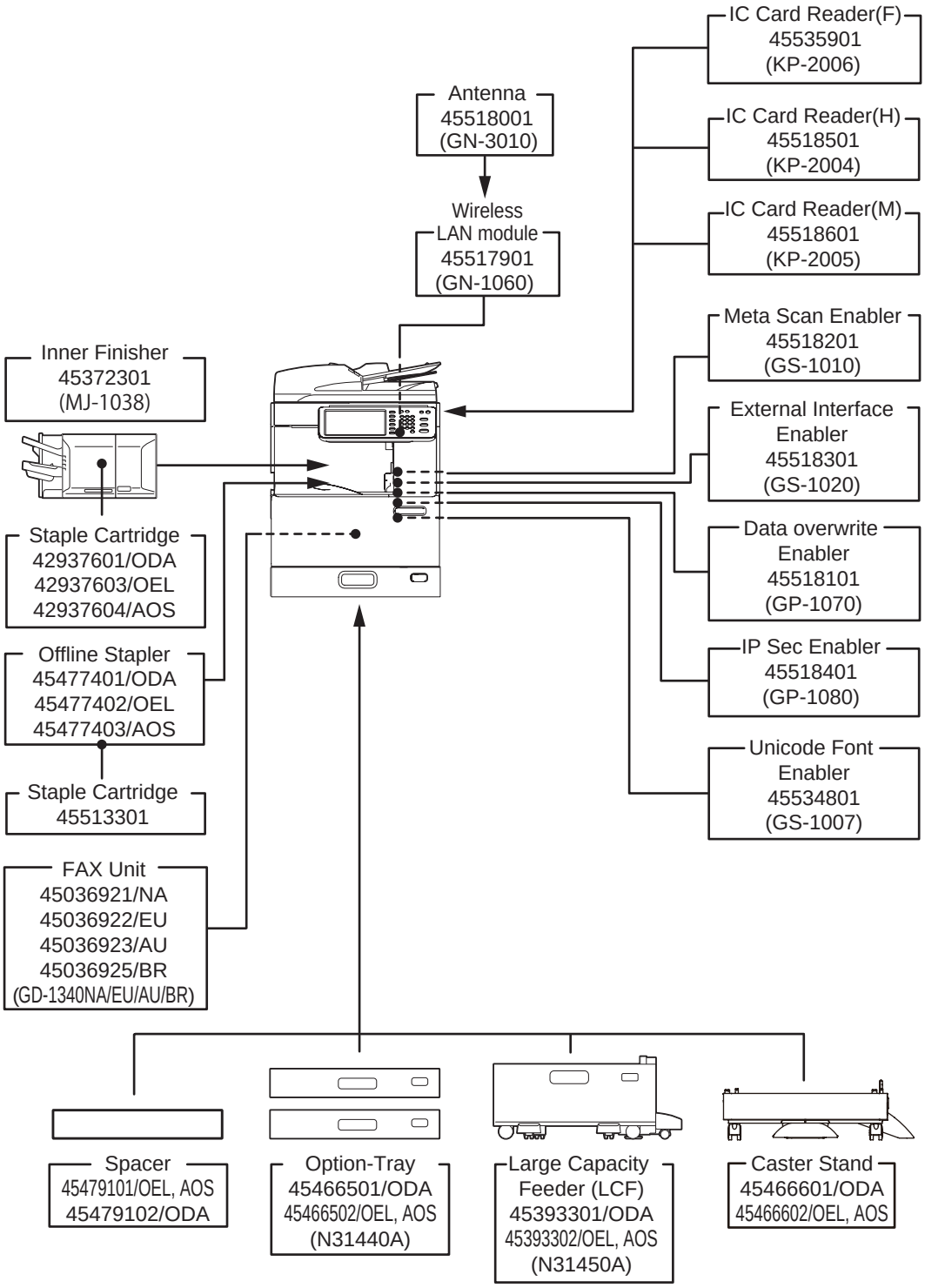
* Apply the each label to the specified positions following the Unpacking/Setup Instruction

1.5 Options

Extends the FAX functions when the FAX unit is installed.

Option	Function	MC760/MC770/MC780
Finisher	Sorts out documents to be output for the FAX/copying operation	45372301 (MJ-1038)

1.6 System List



Note:

The antenna (GN-3010) is necessary to enable the wireless LAN module (GN-1060).

1.7 Overview

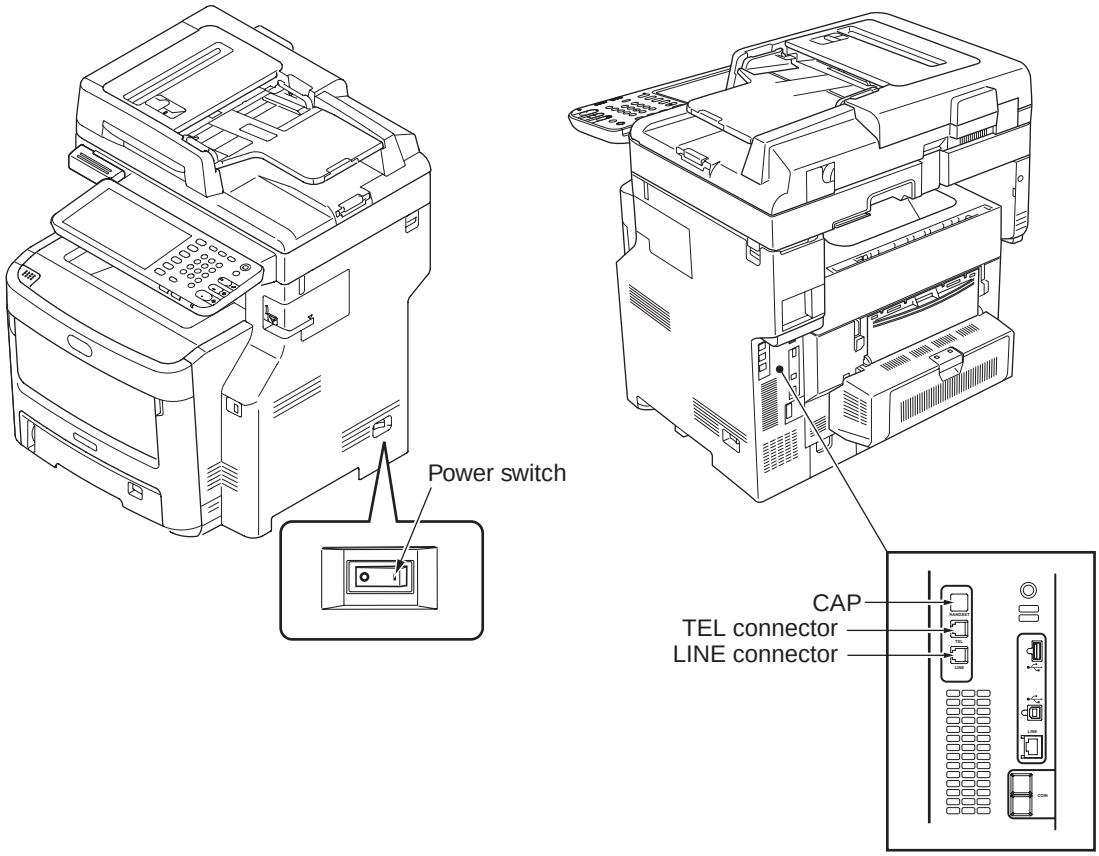


Fig. 1-3

Fig. 1-4

1.8 Layout of PC Boards

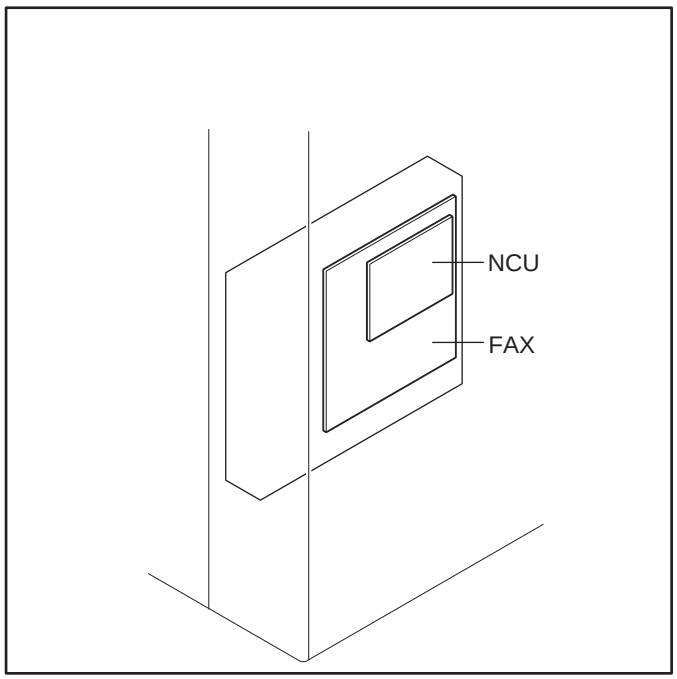


Fig. 1-5 Rear side of the equipment

Symbol	Name	Function
FAX	FAX board	Controls the FAX function
NCU	NCU board	Control the line of telephone

2. LED-RELATED FUNCTIONS

2.1 Recording Mode

This machine offers various printing modes such as the selection of the applicable recording paper and the recording method, etc. to meet users' needs. To take full advantage of these features, it is important to understand the concepts of the recording paper selection algorithm and printing algorithm as described in 2. 2.

2.2 Recording Paper Selection Algorithm and Printing Algorithm

Before printing the received image, the preset settings are evaluated in the order of the following 1) and 2), and the printing is performed based on the result.

1) Recording paper selection algorithm
   - Basically, the received image is printed on a sheet of paper of the same size as the original.

     However, if this size is not available, this algorithm determines on which size of recording paper the output should be made. (Actual Size Mode/Free Mode)

2) Printing algorithm
   - Determines how the received image is to be printed. (Discard printing/Vertical reduction printing/ Regular size reduction printing/Split printing)

2.2.1 Recording paper selection algorithm

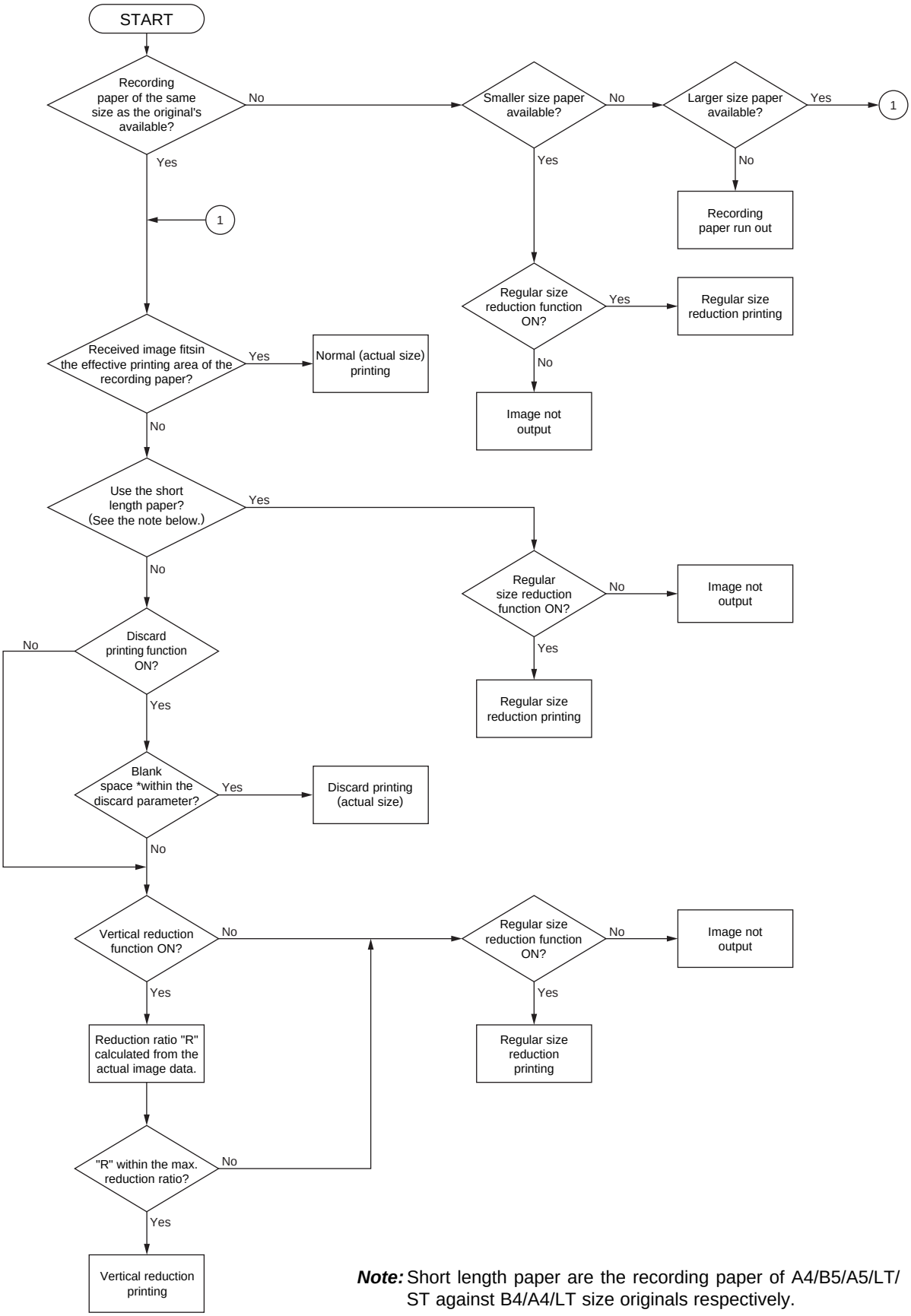
It is possible to distinguish the size of each received image (A5, B5, A4, FOLIO, ST, LT, Legal 13", Legal 13.5", Legal 14"). Basically, recording paper of the same size as the original is used for printing. If recording paper of the size is not available, this algorithm selects paper of another size according to the setting in the Setting Mode.

1) Actual Size Mode (13-517: 0)
   - Printing is performed when regular size reduction is not applied to the received image.
2) Free Mode (13-517: 1)
   - Printing is performed on any available recording paper.

2.2.2 Printing algorithm

Recording paper has its effective printing area. Even if the size of the original paper and the recording paper are the same, the length of the original is normally longer.
This means that the received image would be divided onto two sheets. To prevent this, the printing algorithm works as described in the following pages.

Discard / Vertical reduction / Regular size reduction / Split printing flow chart



Note: Short length paper are the recording paper of A4/B5/A5/LT/ ST against B4/A4/LT size originals respectively.

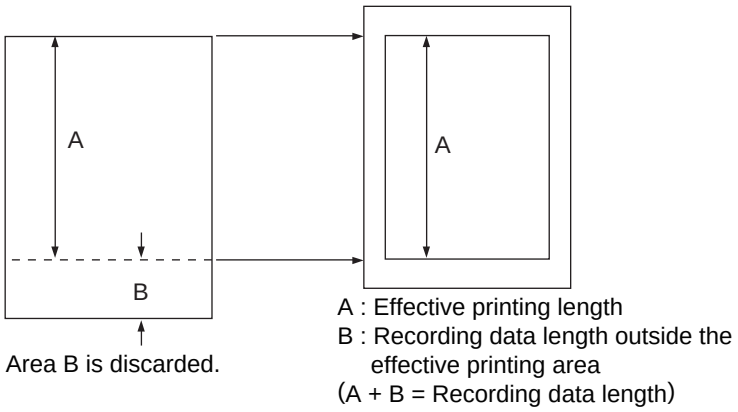
1) Discard printing

- Since the trailing edge area of the original is normally blank, this blank area is cut off to allow the image fit in one sheet in this mode. Image reduction is not performed.
- Maximum discarding amount:

  0 mm: Discard not performed
  10 mm: Corresponding to the inside the TTI
  18 mm: Corresponding to the outside the TTI 1
  22 mm: Corresponding to the outside the TTI 2
  34 mm: A4 → LT conversion
  (TTI: Transmission Terminal Identifier)

  When the discard function is ON (13–378:1):

  Actual size recording is performed with no vertical reduction nor division. The original image is recorded as it is. Namely, the data exceeding the effective printing area are discarded.



Discard parameter (13-375: 0 to 4)

The following parameters are available:

Discard function	Length of B (Discard parameter)	Set value
OFF	0 mm	0
ON	10 mm	1
	18 mm	2
	22 mm	3
	34 mm	4

Reference : These parameters should be set by the service technician (in the FAX Function Mode).

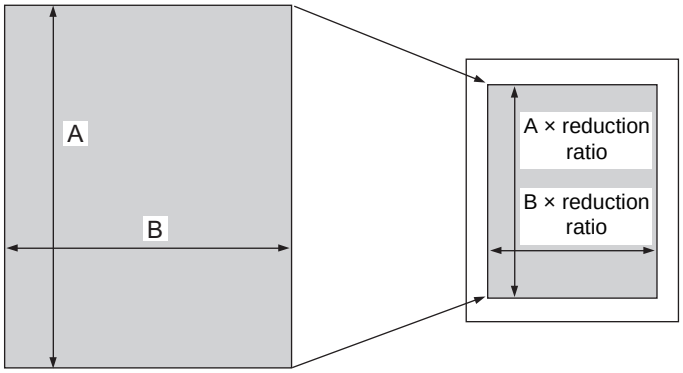
2) Vertical reduction printing (13–377: 0)

- The recording data length is reduced so that the image fits in the recording paper.
  The data can be reduced up to 90/75%, and the machine automatically selects the appropriate ratio.

3) Regular size reduction printing (13–517: 1)

- When the discard and vertical reduction printing cannot be applied to the received image, and any of the combinations B4 → A4, B4 → B5, B4 → A5, A4 → B5, A4 → A5, COMP → LT, COMP → ST, LT → ST, FOLIO → B5, FOLIO → A5 is satisfied, the regular size reduction printing is performed.

  In case that the recording data length is within the effective printing length A, but the recording paper of the same size as the original's or larger size is not available;



B4 → A4, B4 → B5, B4 → A5, A4 → B5,
A4 → A5 , COMP → LT, COMP → ST,
LT → ST, FOLIO → B5, FOLIO → A5

Fig. 2-2

In case that the recording data length exceeds the effective printing length A, the vertical reduction printing is not applicable and larger size recording paper is not available;

(In the following example, A4/LT original was sent but the recording length exceeds A4 size and the data do not fit in A4/LT even if the vertical reduction is performed. The reduction B4 → A4 is applied in this case.)

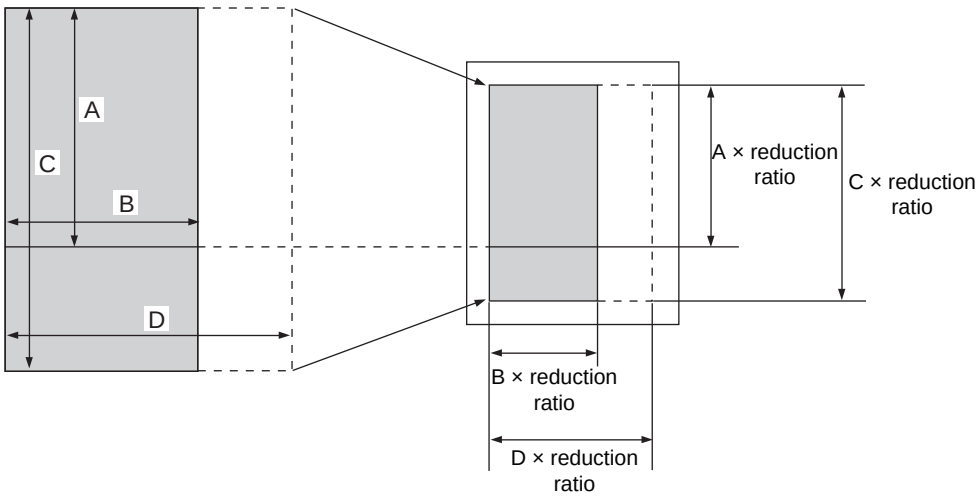


Fig. 2-3

4) Split printing

When the recording data do not fit in a recording paper even if vertical reduction is performed for the recording data length (the recording data length is exceeding the effective printing length of the largest recording paper in the tray installed in the machine), the recording data are divided onto two sheets while vertical reduction is performed.

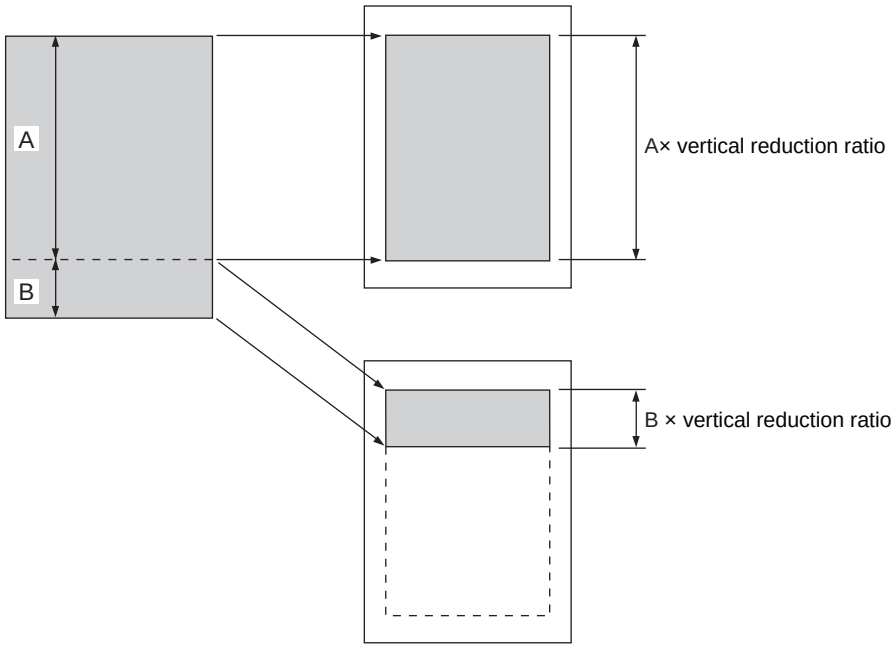


Fig. 2-4

2.2.3 Setting for the split recording

1) Split recording onto A4/B5/A5/LT/ST

Set as to whether split recording onto the short length paper (A4/B5/A5/LT/ST) is to be performed or not.

When this function is disabled, split recording for B4/A4/LT data onto A4/B5/A5/LT/ST recording paper is not performed.

2.3 Recording Paper and Function

The size of the recording paper on which the received image data are printed is determined according to the presence/absence of the recording paper and the above-mentioned function settings. Relation between the recording paper size and the function settings is described in this section.

2.3.1 Table of the recording paper selection modes

<Selection of recording paper: in case the recording data length do not exceed the effective recording length of the recording paper>

		Recording data size						
		A4	B5	A5	LT	LG	ST	FOLIO
Priority	1	A4	B5	A5	LT	LG *3	ST	FOLIO
	2	FOLIO	A4 *1	A4	LG *2, *3	LT *1	LT	A4 *1
	3	B5 *1	FOLIO *1	FOLIO	COMP *2		LG *3	B5 *1
	4	A5 *1	A5 *1	B5 *2	ST *1			

*1: Can be used when the regular size reduction function is ON (when it is OFF, the data are stored in the memory.)

*2: When the data are output in the primary scanning direction, it is printed in the center of the recording paper.

*3: The recording paper is selected in the following order: Legal 14", Legal 13.5", Legal 13".

2.3.2 Others

1) For the users with the TTI outside setting, it is recommended to set the discard parameter to 18 mm.

2.4 Energy saver functions

The equipment has the following energy saver functions.

・Weekly timer

By using this function, the users automatically have the equipment go to the Sleep mode during a specified period of time such as night time.
The users can set the "ON" timer for the starting time and "OFF" timer for the closing time for the desired day of the week so that the equipment turns itself ON and OFF.
If the users do not want to put the equipment into the Sleep mode for an entire day, make settings for the desired day of the week as follows:
[ON]: 0:00/[OFF]:24:00
The equipment does not go into the Sleep mode for an entire day, which is activated by the weekly function.
However, the equipment automatically goes into the Sleep mode according to the time value set for [Auto Sleep mode], if it is left inactive for a certain period of time.

・Auto Power Save mode

By using this function, the users automatically have the equipment go to the Power Save mode when it is left inactive for a certain period of time.
In the Power Save mode, the fuser unit can be shut off and then the LCD display goes to blue.
When a FAX is received via the FAX unit or a job is received via USB or Network in the Power Save mode, the equipment turns ON automatically.
By pressing the [START] button, it also turns ON. The [Power Save] button and each function button are also valid.
The users can set the desired period of time that it waits for the Power Save mode.

Item	How to entre the mode	Timer setting	How to cancel the mode
Power Save mode	Automatically	Can be set in th ADMIN SETTING menu ([Admin] -> [General] -> [Power Save])	Returns to the default screen in the following cases: - By receiving FAX document - By receiving a job via USB or Network - By pressing the [START] button or the [Power Save] button Returns to the each function screen by pressing each function button.

・Auto Sleep mode

By using this function, the users automatically have the equipment go to the Sleep mode when it is left inactive for a certain period of time.
Pressing the [Power Save] button also has the equipment go to Sleep mode.
In the Sleep mode, the fuser unit, main power and power supply for the control panel can be shut off and the LCD display turns OFF.
However the equipment remains a small amount of power supply to check the signals to turn on itself automatically.
When a FAX is received via the FAX unit or a job is received via USB or Network in the Sleep mode, the equipment turns ON automatically.
By pressing the [ON/OFF] button, it also turns ON.
The users can set the desired period of time that the equipment waits for the Sleep mode.
When the equipment goes to the Sleep mode, the Power Save LED usually turns OFF.
However it may not enter the Sleep mode completely in the following cases and the Power Save LED stays ON:
- A particular option is installed. (Wireless LAN module)
- The IPsec function is enabled.
- IEEE 802.1X authentcation is enabled.
- IPv6 is enabled and the IPv6 address is set other than manually
- POP3 client setting is enabled.
- A paricular network protocol is enabled. (AppleTalk, IPX/SPX)

Item	How to entre the mode	Timer setting	How to cancel the mode
Auto Sleep mode	Automatically or by pressing the [Power Save] button	Can be set in th ADMIN SETTING menu ([Admin] -> [General] -> [Power Save])	Returns to the default screen in the following cases: - By receiving FAX document - By receiveing a job via USB or Network - By pressing the [ON/OFF] button when the Power Save LED is OFF - By pressing the [Power Save] button or the [START] button when the Power Save LED is ON.

By changing the SLEEP MODE setting, the users can control the behavior of the equipment when it is left inactive for a certain period of time.

SLEEP MODE	Description
POWER OFF	When a certain period of time is left, the equipment turns off the main power completely. It will not turn on automatically even when it receives a FAX or a job via USB or Network. Pressing the [ON/OFF] button is required to turn it on. Weekly timer does not work when it is in POWER OFF.
AUTO	The equipment goes to the SLEEP mode or POWER OFF when a certain period of time is left. This depends on the conditions. When the equipment is connected via Network or the FAX board is installed, it goes to Sleep mode. Otherwise it goes to POWER OFF.
SLEEP	The equipment goes to the SLEEP mode when a certain period of time is left.

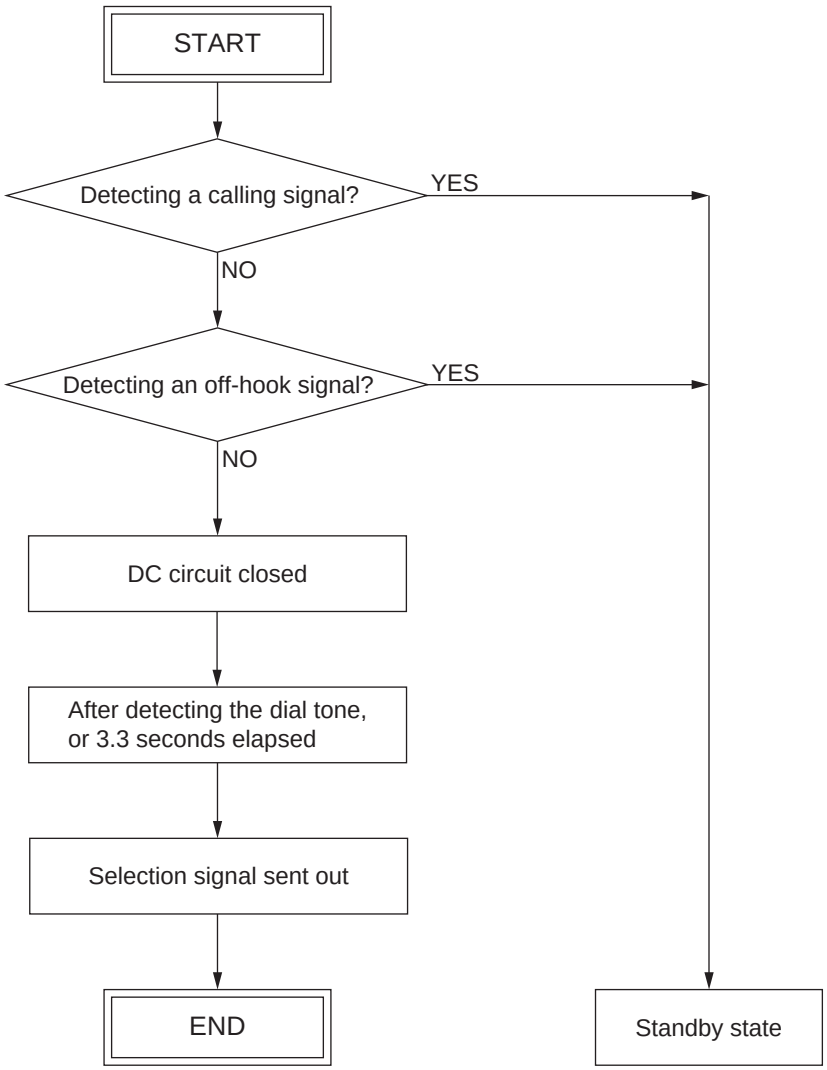
2.5 Memory Reception

Basically, the receiving FAX data are once stored in the HDD, then the data are printed out after the reception process is finished.
The memory reception is performed until the 1GB HDD (for transmission and reception) becomes full.

3. DIALING/COMMUNICATION CONTROL

3.1 Circuit Connection and Procedure to Change Mode

3.1.1 Dial call-up transmission to a telephone circuit

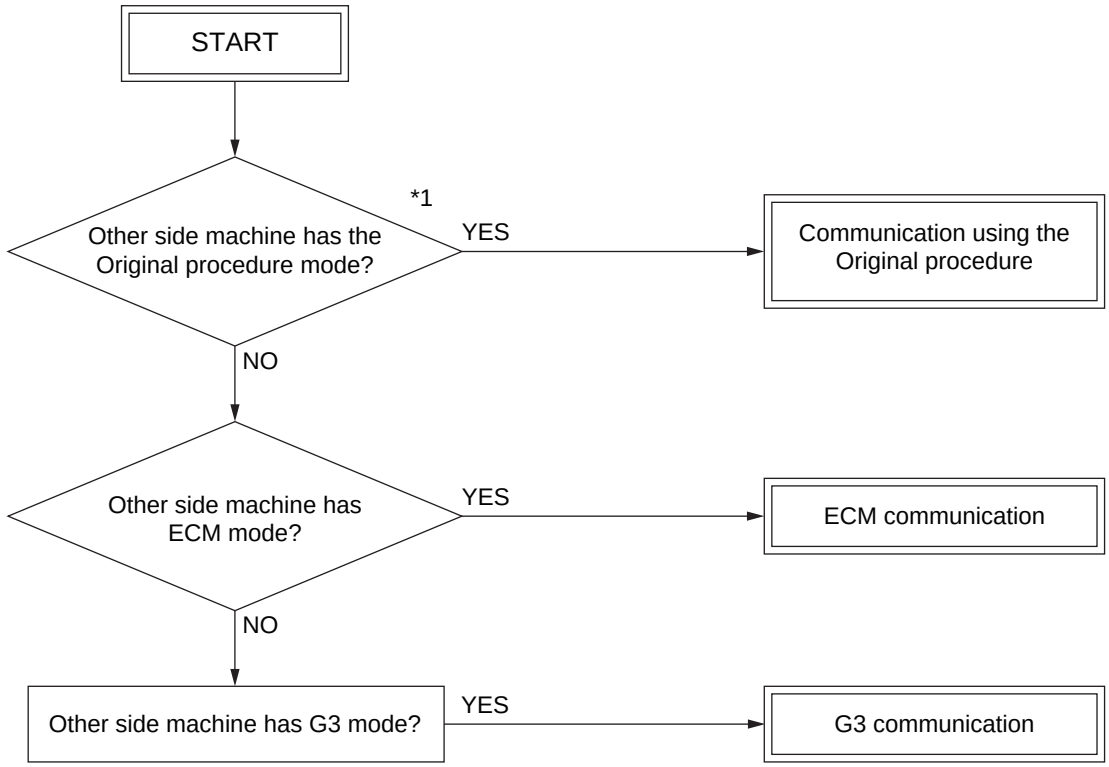


3.1.2 Selection of the communication mode

This machine has three types of communication mode. The mode to be used is determined according to the combination of the types of the circuits and communication and available function of the other side's machine.

	Communication mode		
	Original procedure	ECM	G3
Telephone circuit	○	○	○

3.1.3 Procedure to select the transmission mode



*1: This step is only checked when the other side machine has CRP2 (+ CRP1) or when the transmission is started by the CRP calling. (The first transmission to the other side with CRP1 only is performed in the ECM mode.)

3.2 Signaling System Diagram and Signal Forms

3.2.1 Circuit control signals

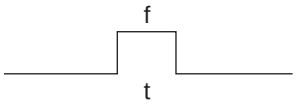
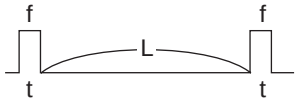
The following circuit control signals are used in the binary and tonal procedures.

- Circuit control signals

CED	Called station identification Indicates that the sender is a FAX machine in the automatic called mode. (*1)
CNG	Calling tone Indicates that the sender is a FAX machine in the automatic calling mode. (*1)

*1: This signal can be sent manually.

- Signal form

Signal name	Signal form	Signal form
CED		f: 2100 ±15 Hz t: 2.6 - 4.0 sec
CNG		f: 1100 ±38 Hz t: 0.5 sec ±15% (L: 3 sec)

3.2.2 Communication with the binary signals

In the original procedure/G3 modes, communication is performed with the binary procedure as follows.

(1) Binary procedure

- Transmission and reception in the original procedure/G3 modes

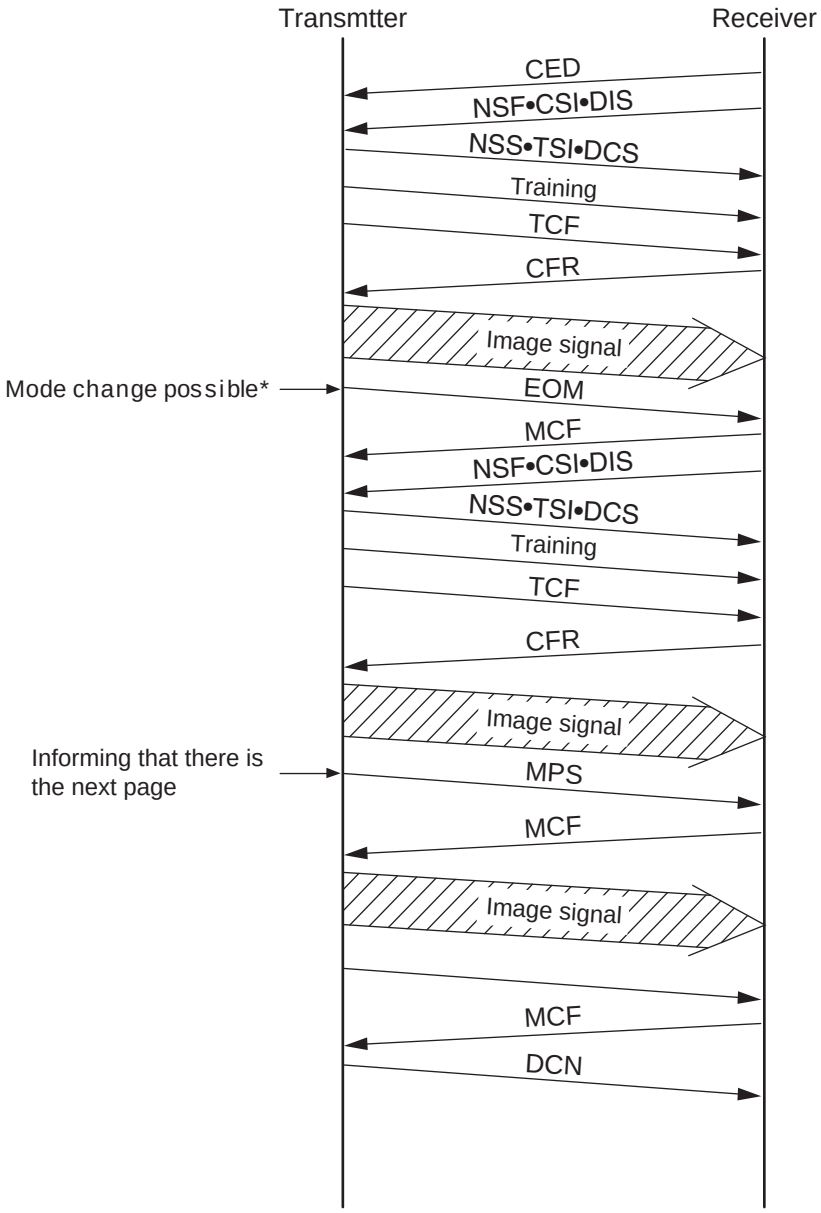


Fig. 3-1

* Mode change is possible only for the original set manually.

- Transmission and reception in the ECM mode

  ECM (Error Correction Mode) conforms to T.30.

  When an error has occurred to the received image data, the receiving station informs the sending station of the occurrence of the error, and the sending station sends the image data again.

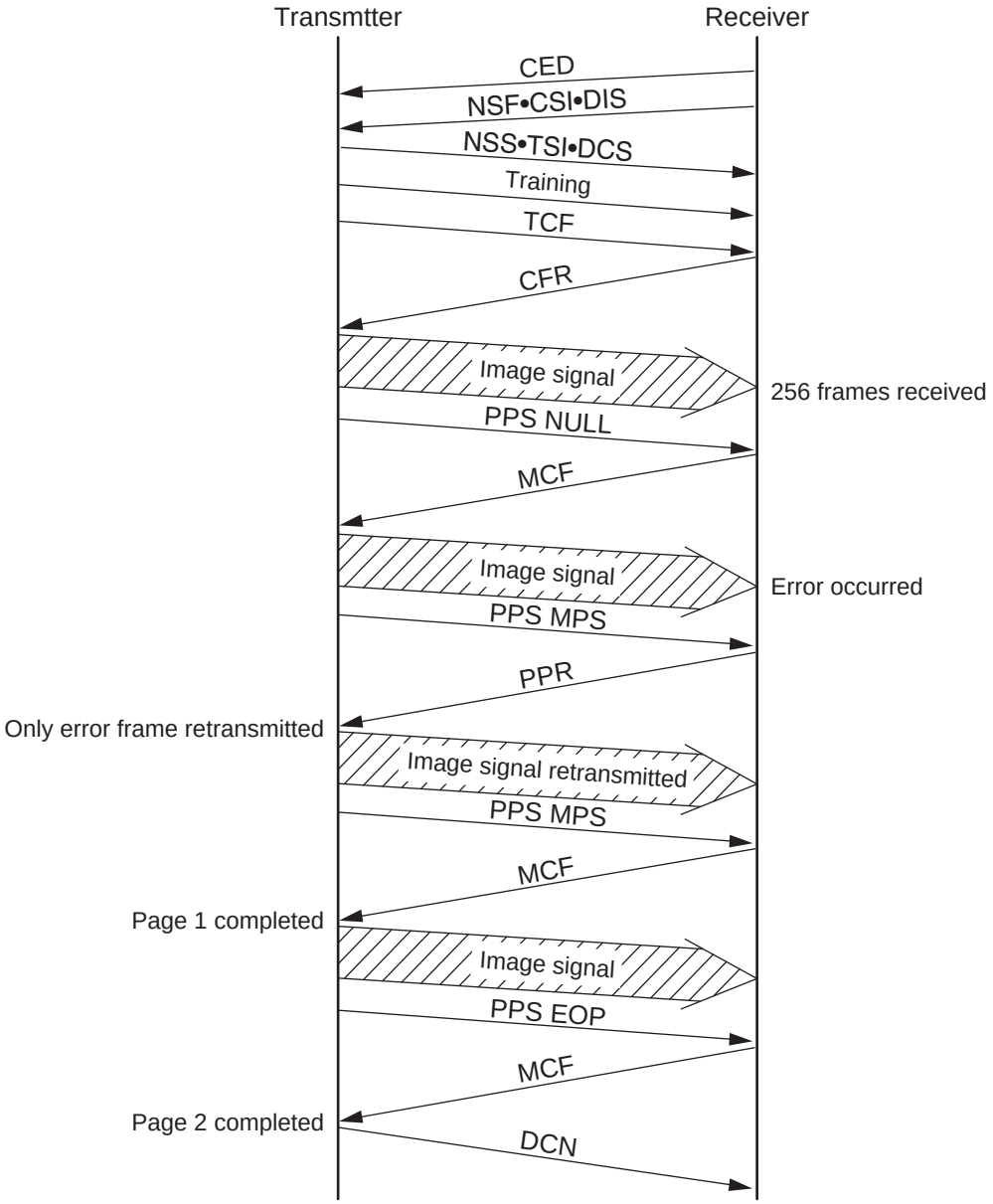


Fig. 3-2

- Cancellation during the transmission

  If the [STOP] button is pressed during the direct transmission or memory input, the display to confirm the cancellation appears. The communication is finished normally regardless of the presence/absence of the next page or mode changes by pressing the [STOP] button.

  If the [STOP] button is pressed anytime except during the transmission of the image data, DCN is forcibly sent to terminate the communication.

  Press the [JOB STATUS] button, and select the transmission job to cancel, then press the [CANCEL] button on the LCD display to cancel the memory transmission or polling transmission.

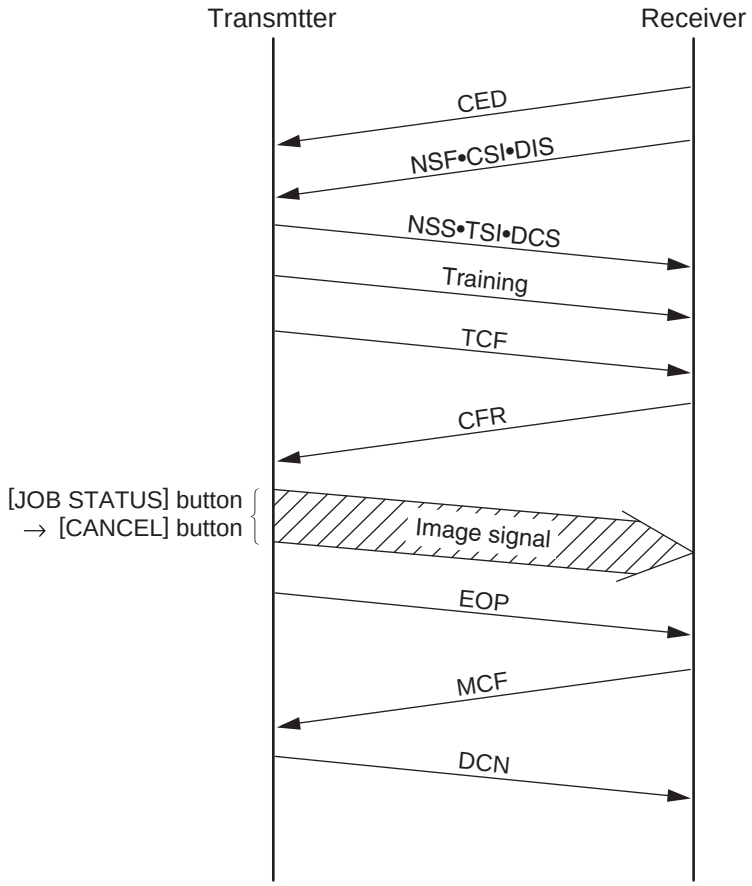


Fig. 3-3

(2) Binary signals

NSF	Non-Standard Facility Informs that the receiving station (machine) has a non-standard facility.
NSC	Non-Standard Facility Command Command to transmit using the non-standard facility which is selected corresponding to NSF (i.e., Polling etc.).
NSS	Non-Standard Facility Setup Command to transmit using the non-standard facility which is selected corresponding to NSF or NSC.
CSI	Called Subscriber Identification Provides the telephone number of the called station. Used to check the identity of the called station.
CIG	Calling Subscriber Identification Provides the telephone number of the calling station. Used to check the identity of the calling station (Polling, etc.).
TSI	Transmitting Station Identification Provides the telephone number of transmitting station. Used to check the identity of the transmitting station.
DIS	Digital Identification Signal Informs that the receiving station (machine) has a standard facility (G3/G2).
DTC	Digital Transmit Command Command to transmit using the standard facility which is selected corresponding to DIS (i.e., Polling, etc.).
DCS	Digital Command Signal Commands to transmit using the standard facility which is selected corresponding to DIS or DTC.
SUB	Sub-address Indicates that the FIF information is a sub-address in the domain on the call-in side.
SEP	Select Polling Indicates that the FIF information is a sub-address for the polling mode.
PWD	Password Indicates that the FIF information is a password for the polling mode in a reception. Indicates that the FIF information is a password for transmission in a transmission.
CFR	Confirmation of Reception Informs that the FAX is ready to receive data.
FTT	Failure to Train Informs that the TCF signal has not received correctly and requests the re-training.
EOM	End of Message Informs that the the 1st page has been transmitted and there is the next page; command to return to the beginning of the phase B.
MPS	Multi-page Signal Informs that the 1st page has been transmitted and there is the next page; command to return to the beginning of the phase C.
EOP	End of Procedure Informs that a document has been transmitted and there is no more pages.
MCF	Message Confirmation A reply to MPS, EOM or EOP; informing that image signals have been received correctly and the FAX is ready to receive data.
RTN	Retrain Negative Informs that a document has not been received correctly; requests for the retraining or phase synchronization to receive the next page.

PIP	Procedure Interrupt Positive Informs that the image signals have been received correctly and requests the operator's reply by telephone or to return to the beginning of the phase B to continue the communication (i.e., CALL Request, etc.).
PIN	Procedure Interrupt Negative Informs that the image signals have not been received correctly and requests for operator's reply by telephone or to return to the beginning of the phase B to continue the communication.
PRI-EOM	Procedure Interrupt EOM Command similar to EOM. Operation by operator is necessary.
PRI-MPS	Procedure Interrupt MPS Command similar to MPS. Operation by operator is necessary.
PRI-EOP	Procedure Interrupt EOP Command similar to EOP. Operation by operator is necessary.
DCN	Disconnect Command to disconnect the FAX line and to connect the telephone line. Reply from the other side is not necessary.
RR	Receive Ready Informs that the FAX is ready to receive documents and requests for data to set the reception mode. (ECM mode)
RNR	Receive Not Ready Informs that the FAX is not in the receivable state. (ECM mode)
PPR	Partial Page Request Informs that a part of page (ECM block) has not been received correctly. The number of the frame needs to be corrected is informed by the FIF. (EC mode)
PPS	Partial Page Signal Informs that a part of page (ECM block) or one page has been transmitted. (EC mode)
CTC	Continue to Correct Replies to the 4th PPR which requests to correct the image signal; informs that the transmitting station will continue to correct the frame data. (ECM mode)
CTR	Response for Continue to Correct Replies to CTC and informs that the receiving station has received and accepted the CTC. (EC mode)
EOR	End of Retransmission Informs that the transmitting station has completed the correction of the error frame data (binary signal) of the previous ECM block. (ECM mode)
ERR	Response for End Retransmission Replies to EOR and requests to transmit the image signal of the next ECM block. (ECM mode)
RTP	Retrain Positive Informs that the message has been received completely and that the subsequent message can be continued after receiving the synchronization signal and CFR signal.
CRP	Command Repeat Requests to resend all the commands including optional frames because the preceding command has been received incorrectly.

(3) Frame structure of binary signals

Each binary signal frame is comprised of the following sequence and fields. However, some binary signals do not have the FIF field inserted.

F	F	A	C	FCF	FIF	FCS	F

Preample

F : Flag sequence
Indicates the start or end of a frame. Also establishes the frame synchronization.

A : Address field
Informs the address.

C : Control field
Informs if this frame is the last one in this procedure.

FCF : FAX control field
Informs the type of the binary signal.

FIF : FAX information field
Informs FAX information such as the functions.

FCS : Frame check sequence
Checks if there was any error in the transmission from A to FIF.

- Format of F, A and C

	Format							
	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8
F	0	1	1	1	1	1	1	0
A	1	1	1	1	1	1	1	1
C	1	1	0	0	×	0	0	0

* When this frame is the last frame, × = 1.

• FCF format of each binary signal

Binary signal	Format							
	b1	b2	b3	b4	b5	b6	b7	b8
NSF	0	0	0	0	0	1	0	0
NSC	1	0	0	0	0	1	0	0
NSS	×	1	0	0	0	1	0	0
CSI	0	0	0	0	0	0	1	0
CIG	1	0	0	0	0	0	1	0
TSI	×	1	0	0	0	0	1	0
DIS	0	0	0	0	0	0	0	1
DTC	1	0	0	0	0	0	0	1
DCS	×	1	0	0	0	0	0	1
SUB	×	1	0	0	0	0	1	1
SEP	1	0	0	0	0	1	0	1
PWD(Rx)	1	0	0	0	0	0	1	1
PWD(Tx)	×	1	0	0	0	1	0	1
CFR	×	0	1	0	0	0	0	1
FTT	×	0	1	0	0	0	1	0
EOM	×	1	1	1	0	0	0	1
MPS	×	1	1	1	0	0	1	0
EOP	×	1	1	1	0	1	0	0
MCF	×	0	1	1	0	0	0	1
RTN	×	0	1	1	0	0	1	0
PIP	×	0	1	1	0	1	0	1
PIN	×	0	1	1	0	1	0	0
PRI-EOM	×	1	1	1	1	0	0	1
PRI-MPS	×	1	1	1	1	0	1	0
PRI-EOP	×	1	1	1	1	1	0	0
DCN	×	1	0	1	1	1	1	1
RR	×	1	1	1	0	1	1	0
RNR	×	0	1	1	0	1	1	1
PPR	×	0	1	1	1	1	0	1
PPS	×	1	1	1	1	1	0	1
CTC	×	1	0	0	1	0	0	0
CTR	×	0	1	0	0	0	1	1
EOR	×	1	1	1	0	0	1	1
ERR	×	0	1	1	1	0	0	0
RTP	×	0	1	1	0	0	1	1
CRP	×	1	0	1	1	1	0	0

• × = 1 for the station which received DIS.

• × = 0 for the station which received a response signal to DIS.

(4) Training

The training is performed in the binary procedure to surely transmit the image signals.

- Training signal

  The training signal is transmitted following the DCS signal at the modem speed specified by the DCS signal. Responding to this training signal, the receiving side adjusts the auto-equalizer.

- Format of the training signal

  - 14.4 Kbps, 12 Kbps

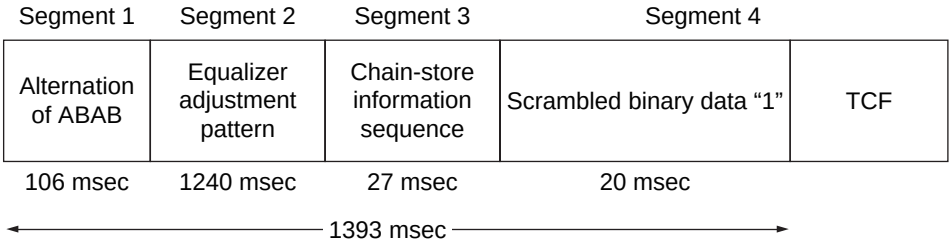


Fig. 3-4

  - 9600 bps, 7200 bps

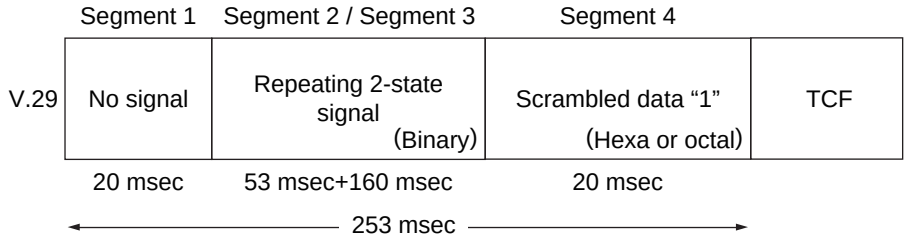


Fig. 3-5

  - 4800 bps, 2400 bps

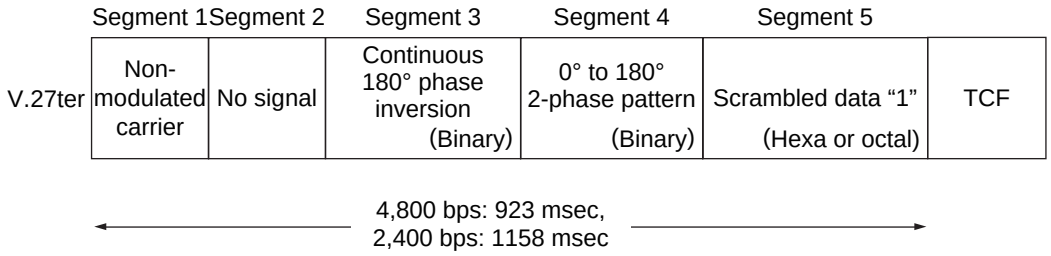


Fig. 3-6

- TCF signal

  An error may occur in the image data if the training is not performed correctly. The transmitting side sends a TCF signal and checks if any error occurs in image data before the image data communication to follow. When the receiving side detects an error in the TCF signal, it transmits an FTT signal to the transmitting side to request the retraining. When there is no error, the receiving side transmits a CFR signal.

  The TCF signal transmits all zeros for 1.5 seconds at the same modem speed as that for the training signal.

3.2.3 V.8/V.34 communication sequence

1) Outline

- V.8 is performed as a startup procedure to switch to V.34. V.8 can connect an existing facsimile machine to the equipment using a data modem or other V-series modems. The V.34 modem has a modem circuit previously recommended, allowing it to be also connected to the existing modems while they are upper compatible.
- New technologies such as the pre-emphasis technology *1 and the probing technology *2 are fully used. The pre-emphasis technology *1 not only speeds up the modulation, but also gains the S/N ratio. The probing technology examines the line characteristics and optimizes the modem for the line condition. Therefore, not only do these technologies speed up the transmission momentarily, but also the average speed of the process during the data transmission is increased.
- For V.8 and the pre/post-FAX transmission for V.34, the procedure is speeded up by the full duplex communication.
- Following 14 types of the image transmission speed are available: *3

  33.6 kbps/31.2 kbps/28.8 kbps/26.4 kbps/24.0 kbps/21.6 kbps/19.2 kbps/16.8 kbps/14.4 kbps/12.0 kbps/9.6 kbps/7.2 kbps/4.8 kbps/2.4 kbps
- The modulating speed (baud rate) *4 can be selected from 2,400, 3,000, 3,200 symbol/sec (mandatory), or 2,743, 2,800, 3,429 symbol/sec (option). The data rate can be set more accurately than the conventional modem.

*1: A signal is sent while raising the output level in the high-frequency band in which the noise is relatively loud.

*2: Tone signal called “Probing Tone” is sent for the receiver to examine the line characteristics of the line.

*3: In the ITU-T Recommendation, it is described as “data rate”. “Image transmission speed” is the same as “data rate”.

*4: In the ITU-T Recommendation, it is described as “symbol speed”. The “Symbol rate”, “Modulating speed”, and “Baud rate” are the same thing. This machine cannot realize the speed of 2,743 symbol/sec.

Notes:

1. ECM is used in the V.34 procedure. If the setting for the ECM transmission/reception of the user data is set to “Not performed”, the V.8 procedure is not performed and the procedure is not switched to V.34. V.17 or lower is selected in this case.
2. When the transmission/reception speed is set to 14.4 kbps or slower, the V.8 procedure is not performed, and V.17 or lower is selected.
3. See “Late start (P3-20)” to move to the V. 8/V.34 procedure after starting with the V.21 procedure.
4. After the V.34 procedure is started, the fallback for the V.34 procedure is performed. However, the fallback for the V.17 mode or lower mode is not performed.

2) Standard procedure

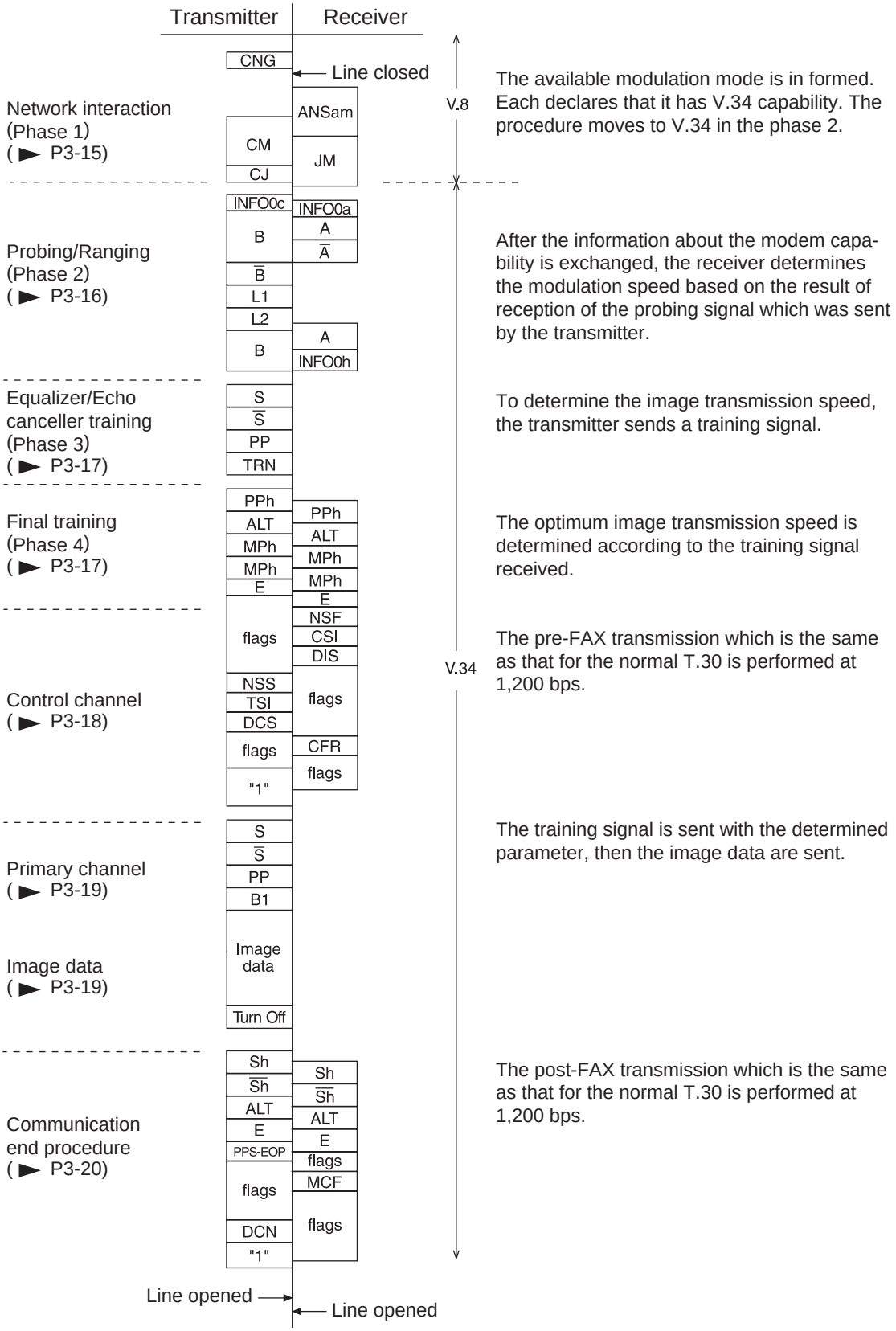


Fig. 3-7

- Network interaction (Phase 1)

  The V.8 procedure is performed as the startup procedure for the V.34 high-speed modem.

  In the V.8 procedure, mainly the optimum modulation method (V series modem mode) that can be operated between the transmitter and receiver is determined.

Transmitter

Signal name	Abbreviation	Function	Remarks
Calling tone	CNG	1100 Hz tone signal specified by T.30 indicating the sender is a FAX machine in the automatic calling mode.	-
Call Menu signal	CM	Mainly indicates an available modulation method such as V.21, V.27ter, V.29, V.17, V.34, etc.	Modulated by V.21 (L) *1. Transmission rate: 300 bps
CM terminator	CJ	Indicates the detection of the JM signal or the termination of CM signal.	Modulated by V.21 (L) *1. Transmission rate: 300 bps
Call Indicator signal	CI	Indicates the general communication functions. It is sent when the V.8 procedure is restarted.	For the late start only. (P3-20) Modulated by V.21 (L) *1. Transmission rate: 300 bps

Receiver

Signal name	Abbreviation	Function	Remarks
Answer amplitude tone	ANSam	2100 Hz tone signal amplitude-modulated to 15 Hz.	Tone equivalent to CED of the conventional machine.
Joint Menu signal	JM	Indicates the terminal type such as a FAX machine. Response to a CM sent from the transmitter and informs available modulation method.	Modulated by V.21 (H) *1. Transmission rate: 300 bps

*1 V.21 (L) .....Low frequency channel defined by the V.21 recommendation 1,080±100 Hz (980 Hz: 1, 1,180 Hz: 0)

V.21 (H) .....High frequency channel defined by the V.21 recommendation 1,750±100 Hz (1,650 Hz: 1, 1,850 Hz: 0)

- Probing/Ranging (Phase 2)

  Examines the line characteristics and sets the parameters for the modulation related items such as the modulating speed.

Transmitter

Signal name	Abbreviation	Function	Remarks
INFO sequence	INFO0c	Informs the modem capability such as modulating speed and frequency transmission capability (two frequency bands (high and low) used to examine the line characteristics), and requests for adjusting.	Transmission rate: 600 bps
Tone B	B	Synchronization between the modems by 1200 Hz tone signal	$\overline{B}$ is a signal that shifts the phase B 180°.
Tone $\overline{B}$	$\overline{B}$		
Line probing signal L1	L1	Tone signal to analyze the line characteristics by probing	Probing is to examine the line characteristics. Tone signal between 150 Hz and 3,750 Hz in units of 150 Hz
Line probing signal L2	L2		

Receiver

Signal name	Abbreviation	Function	Remarks
INFO sequence	INFO0a	Informs the modem capability such as the modulating speed and frequency transmission capability.	Transmission rate: 600 bps
Tone A	A	Synchronization between the modems by 2,400 Hz tone signal	$\overline{A}$ is a signal that shifts the phase A 180°.
Tone $\overline{A}$	$\overline{A}$		
INFO sequence	INFO0h	Based on the analysis of the line probing signal sent from the transmitter, it informs the pre-emphasis filter and modulating speed to be used for the data transmission.	Transmission rate: 600 bps

- Equalizer and echo canceller training (Phase 3)

  Training (adjustment) is performed according to the parameters set in the phase 2 to optimize the filters such as an equalizer.

Transmitter

Signal name	Abbreviation	Function	Remarks
S signal	S	Short training	$\overline{S}$ is a signal made as the result of phase transition of S.
$\overline{S}$ signal	$\overline{S}$		
PP signal	PP	Used by the modem of the receiver to train the equalizer.	
TRN signal	TRN	Used by the receiver to determine the transmission rate.	

- Final training (Phase 4)

  The settings such as the maximum value for the data rate, selection of the trellis encoder, and data rate which can be supported are made in this phase.

Transmitter/receiver

Signal name	Abbreviation	Function	Remarks
PPh signal	PPh	Used by the modem of the other side to train the equalizer.	
ALT signal	ALT	-	
Modulation parameter	MPh	Informs the parameters used for the image transmission such as maximum data signal rate and type of the trellis coding/pre-coding.	
E sequence	E	-	20 bit sequence of “1”s in binary

- Control channel

  The conventional T.30 procedure is performed. The transmission rate is 1200 bps.

Transmitter

Signal name	Abbreviation	Function	Remarks
Flag	flags	Maintains the synchronization.	7E (H)
Non-standard facilities setting	NSS	Receives an NSF sent from the receiver. It selects the available mode from the received NSF, and specifies the mode for the reception.	
Transmitting Subscriber ID	TSI	Informs the telephone number of the transmitter.	
Digital Command Signal	DCS	Specifies the mode that can be used for the communication.	
-	1	Declares to switch to the high- speed procedure.	“1” is sent continuously.

Receiver

Signal name	Abbreviation	Function	Remarks
Non-Standard Facilities	NSF	Informs the presence of the facilities other than those recommended by ITU-T, abbreviated user names, and manufacturer codes, etc.	
Called Subscriber ID	CSI	Informs the telephone number of the receiver.	
Digital Identification Signal	DIS	Informs the standard facilities recommended by ITU-T.	
Flag	flags	Maintains the synchronization.	7E (H)
Confirmation for Reception	CFR	Informs that the training of the modem is completed, and the receiver is ready to receive the image signal.	

Reference : In the control channel, the frequency of the signals to be sent is different between the transmission and reception. The signal echoed back has never been misidentified as a signal sent from the other side. Therefore, this channel is not influenced by signals echoed back.

- Primary channel

  The training is performed according to the parameters set in the phase 4. The transmission rate is 1,200 bps.

Transmitter

Signal name	Abbreviation	Function	Remarks
S signal	S	Short training	$\overline{S}$ is a signal that makes a transition from phase S.
$\overline{S}$ signal	$\overline{S}$		
PP signal	PP	Used by the modem of the receiver to train the equalizer.	
B1 sequence	B1	Scrambled data frame to be sent when the startup process is completed	

- Image data

  Image data are sent.

Transmitter

Signal name	Abbreviation	Function	Remarks
Image data	Image data	Encoded image data	
-	Turn off	-	Scrambled 1 is sent for 35 ms.

- Communication end procedure
  This procedure is to terminate the communication. The transmission rate is 1,200 bps.

Transmitter

Signal name	Abbreviation	Function	Remarks
Sh signal	Sh	Short training	
$\overline{\text{Sh}}$ signal	$\overline{\text{Sh}}$		
ALT signal	ALT	-	
E sequence	E	-	
End of procedure signal	PPS-EOP	The transmission of one page is completed.	
Flag	flags	Maintains the synchronization.	7E (H)
Disconnection signal	DCN	Informs to disconnect the line.	

Receiver

Signal name	Abbreviation	Function	Remarks
Sh signal	Sh	Short training	
$\overline{\text{Sh}}$ signal	$\overline{\text{Sh}}$		
ALT signal	ALT	-	
E sequence	E	-	
Flag	flags	Maintains the synchronization.	7E (H)
Message confirmation	MCF	Indicates that the image signal is received normally, and the receiver is ready to receive the next page.	

3) Example of protocol

The signals shaded in the following figure are the most important signals in the procedure.

- Late start

  The receiver cannot detect CM signal while it is sending the ANSam signal. Therefore, it sends a DIS signal to inform the availability of V.8 support. The transmitter sends a CI signal that causes the receiver to send another ANSam signal which makes the receiver move to the V.8 procedure.

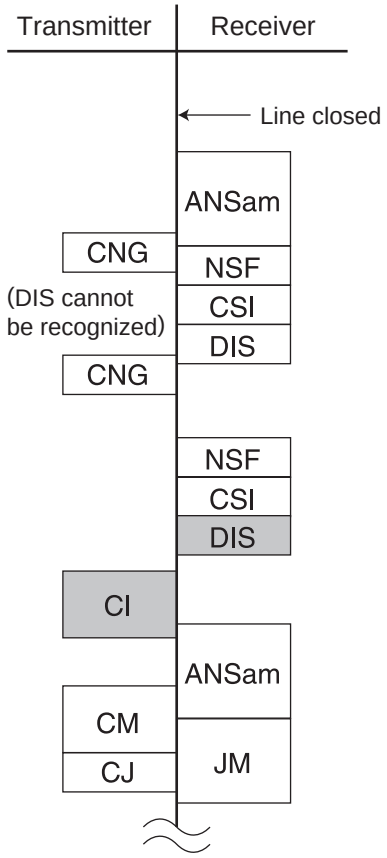


Fig. 3-8

- Multi-page sequence

  In the same manner as the T.30 procedure, the transmitter sends a PPS-MPS signal after sending the image data. The receiver sends an MCF signal and moves to the next page transmission.

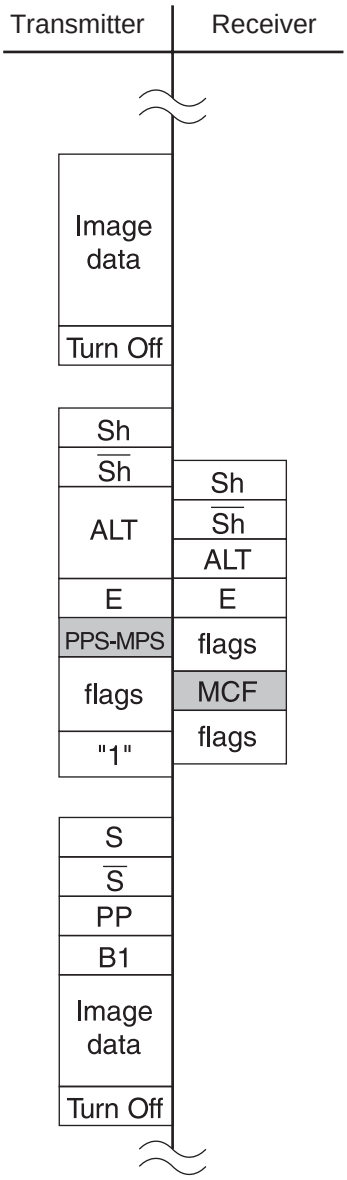


Fig. 3-9

- Mode change

  The transmitter and receiver send a PPS-EOM signal and an MCF signal respectively. Then the receiver and transmitter send a DIS signal and a DCS signal respectively to change the mode.

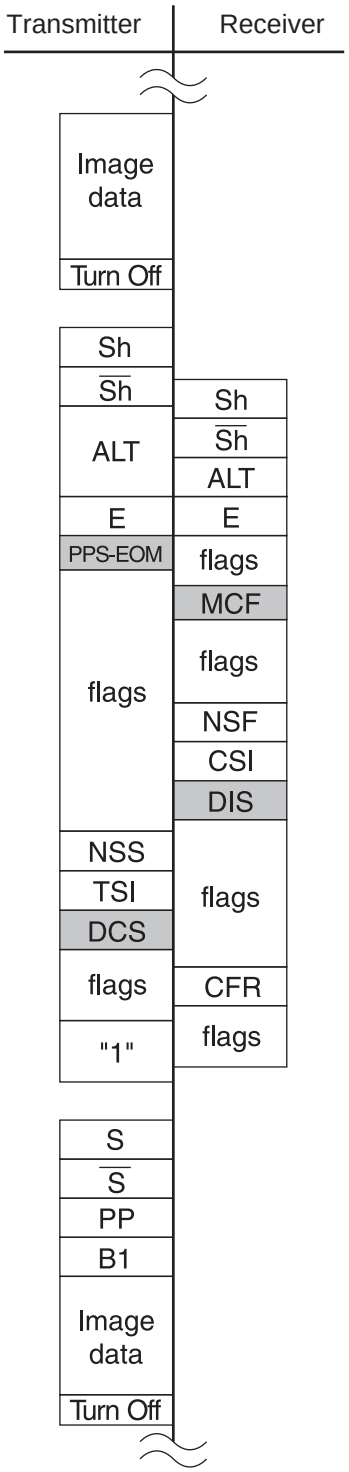


Fig. 3-10

- Change of the image transmission speed by the receiver

  The receiver sends a PPh signal responding to an Sh signal sent from the transmitter. Then, the image transmission speed is determined according to the MPh sequence sent from the both modems.

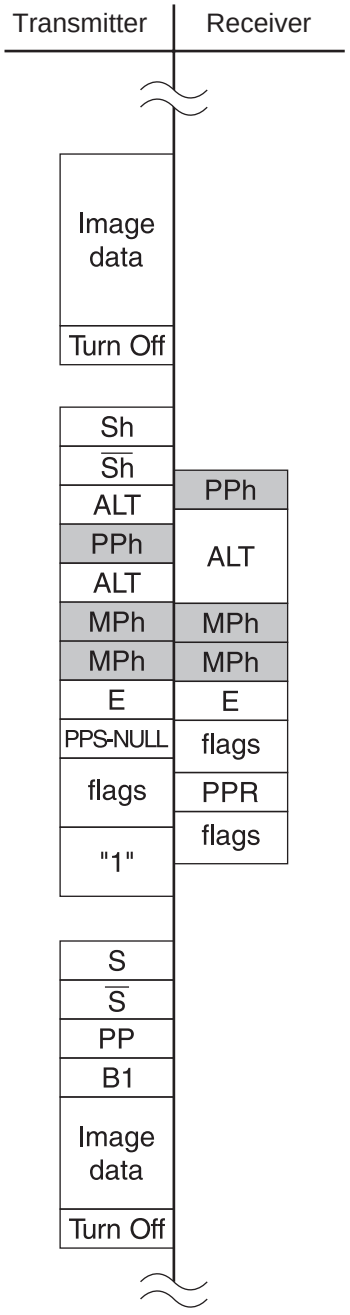


Fig. 3-11

- Change of the image transmission speed by the transmitter

  The transmitter sends a PPh signal after sending the image data. The receiver returns a PPh signal. Then, the image transmission speed is determined according to the MPh sequence sent from the both modems.

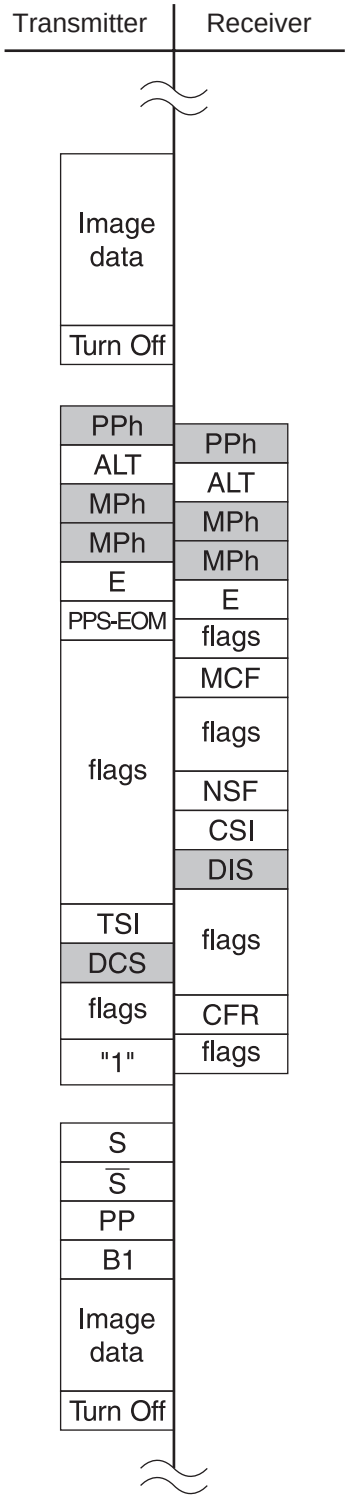


Fig. 3-12

3.3 FAX Automatic Switching

3.3.1 General functions

There are three types of setting for the FAX Auto-Switching Mode Selection: TEL Mode, FAX Mode and TEL/FAX Mode.

TEL/FAX mode setting	No-ringing receiving (Terminal setting: None)	Remote (DP/MF/Manual)	Pseudo ring (Terminal setting: None)
TEL	Off	Available	Non-use
FAX	On	Non-use	Non-use
TEL/FAX	On	Available	Available

3.3.2 TEL mode

This mode is selected to prioritize telephone communication when the frequency of the fax reception is low.
When it is selected, the automatic FAX reception function does not work. Therefore, when a calling signal comes from the exchange, the telephone continues ringing until the operator picks up the handset.
When the caller is communicating with the FAX mode, the operator has to perform manual reception including remote operation.

3.3.3 FAX mode

This mode is selected when the telephone line is used only for FAX communication.
When it is selected and the calling signal comes from the exchange, FAX reception starts automatically without having the telephone ring.
In this mode, a calling number can be set up to 15 times in the self-diagnosis setting "CI detection counter" (13-372 and 607).

3.3.4 TEL/FAX mode

Note : For the setting procedure of the TEL/FAX mode, refer to the User's Manual Advanced Guide.

This mode is selected when one telephone line is used for both the TEL and FAX communications.
When it is selected and a calling signal comes from the exchange, the operation starts without having the telephone ring. Then the TEL/FAX simultaneous monitoring process starts to monitor the FAX signal (CNG, 1300 Hz, CRP) from the caller. After approx. 2 seconds have passed from the closing of the line a pseudo ring-back tone is transmitted to the circuit side, and the calling-on state is notified to the sender.
If the operator does not pick up the handset within the specified range, the FAX reception starts to correspond to the manual transmission of the sender. If it is not manual transmission, the operator of the sender breaks the connection.
For the outline of the operation, refer to the processing flow on the next page.

<Appended figure>
TEL/FAX

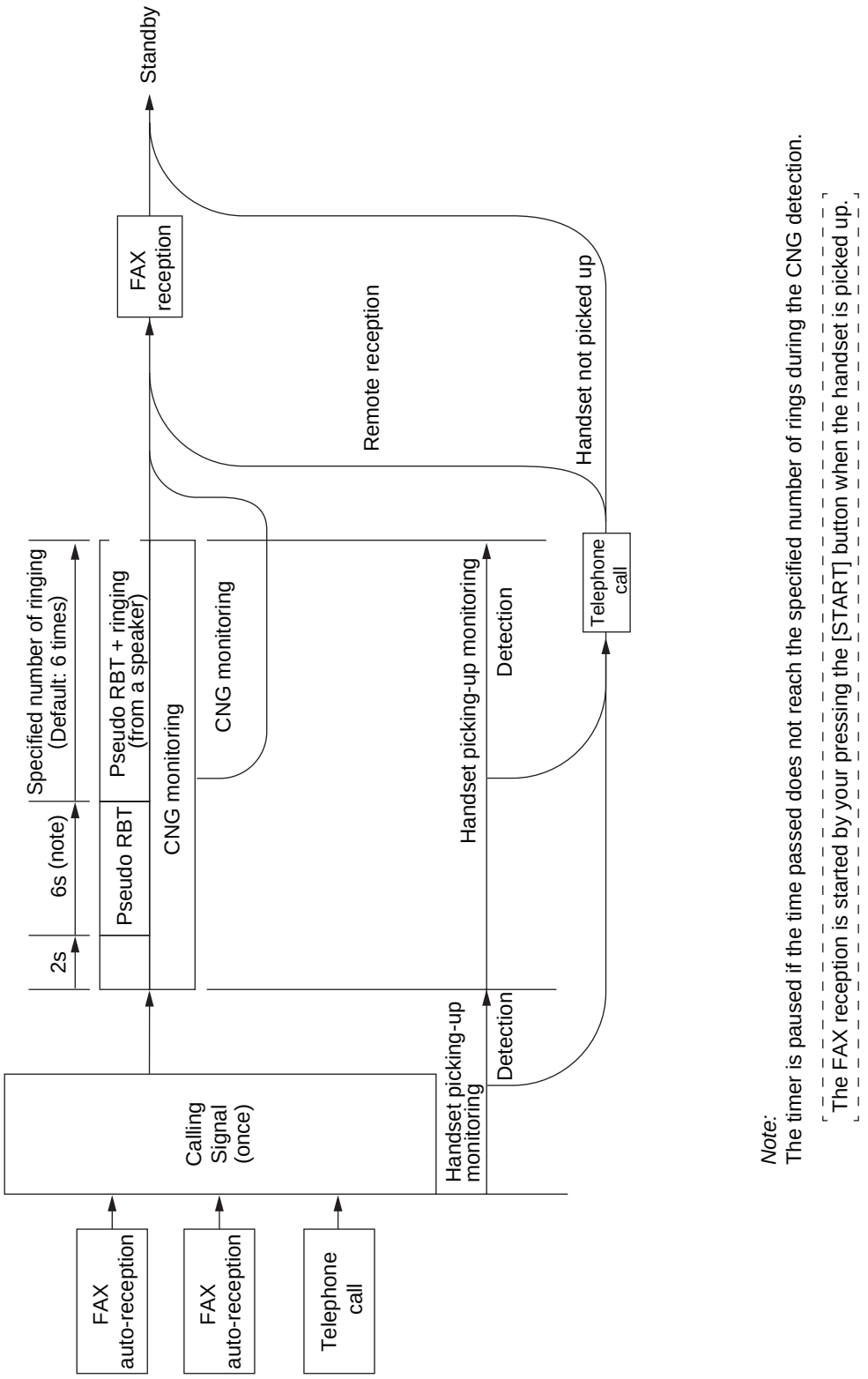


Fig. 3-13

- Pseudo ring volume setting (05-9850)
  Sets the ringing volume of the telephone (pseudo ring) from the speaker.
  Pseudo bell sound waveform

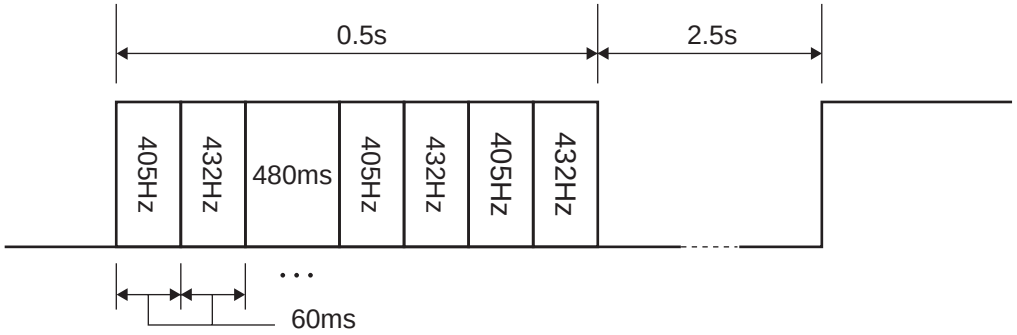


Fig. 3-14

- Pseudo ring-back tone waveform selection (13-722)
  The waveform can be selected either of the following (a) or (b).

  Waveform (a): Alternate transmission with 2 frequency-wave

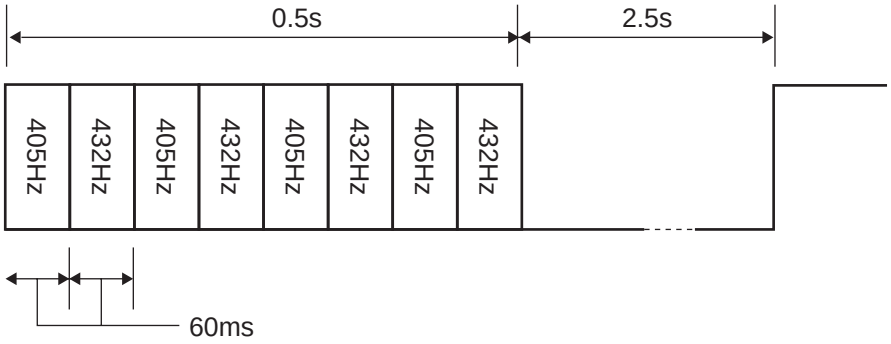


Fig. 3-15

  Waveform (b): Single tone

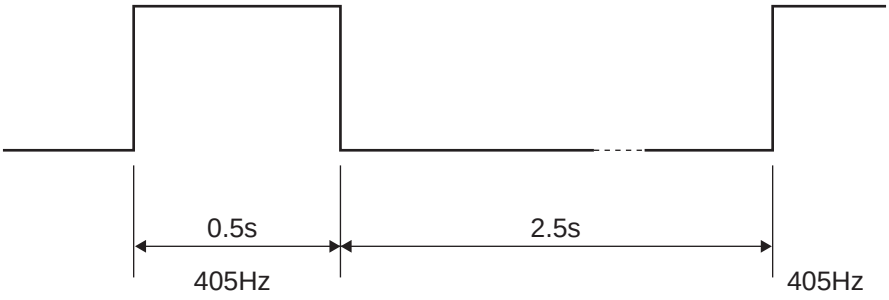


Fig. 3-16

- ATT setting when RBT is transmitted (13-723):
  Default: -15 dB (-10 to -15 dBm)

- CNG detection (13-725)
  CNG is detected with a modem. 2.5 seconds (during non-transmission) of the ring-back tone waveform is used as the tone detection mode.
  The following is the combination of the frequency wave settings to avoid an incorrect detection.
  - 1100 ± 38 Hz: Default
  - 1100 ± 30 Hz
  - 1100 ± 24 Hz

<CNG detection determination method>

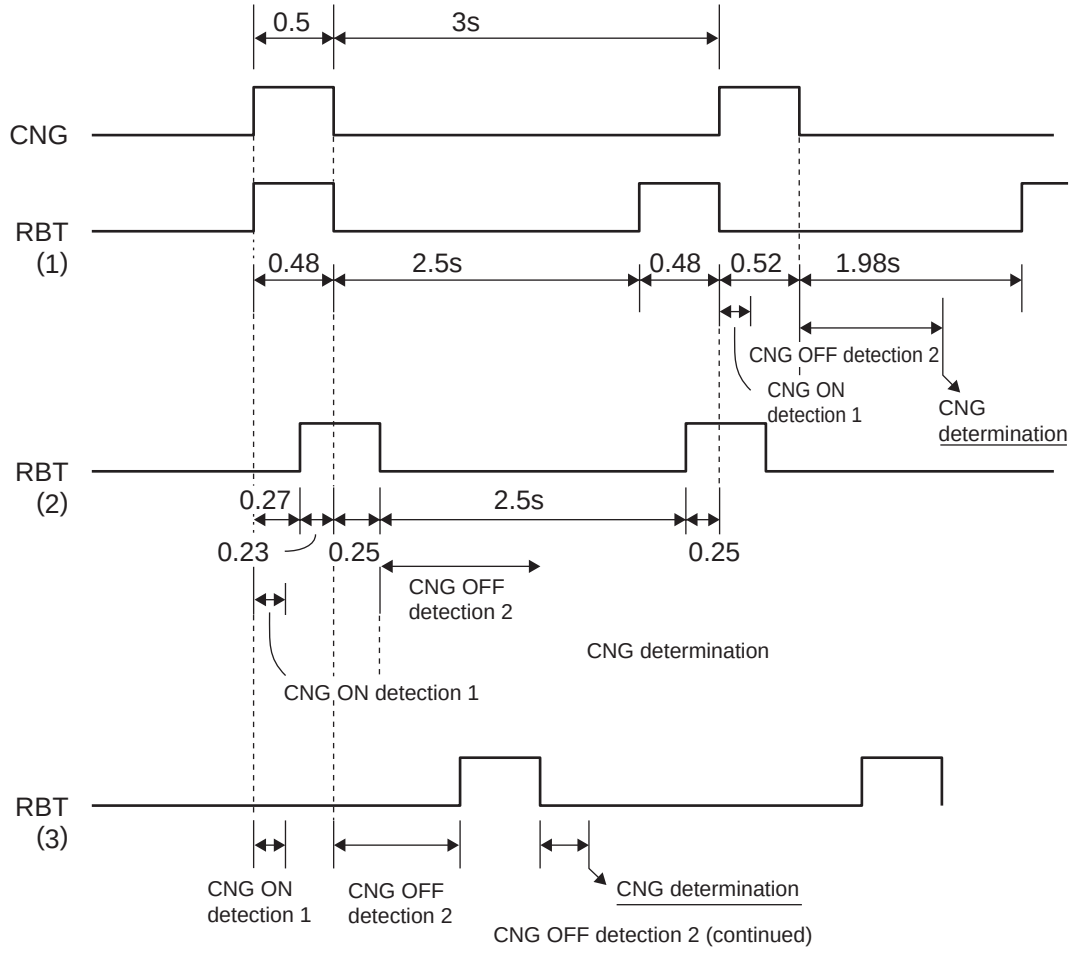


Fig. 3-17

- As indicated in the above figure, 1 CNG time is determined after the CNG ON detection time T1 (175 ms) and CNG OFF detection time T2 (350 ms) have passed, and one more cycle of their detection time has passed sequentially.
- The interruption time for RBT transmission is not counted.

- Number of detection determination setting (13-726)
  Checks the duration time of between ON and OFF to avoid sound misdetection, and counts 1 detection time when the period between ON and OFF has been determined.
  Sets the number of detections to be determined after 1 or 2 times have been counted. (Default: 1)

- Pseudo ring transmission function setting (13-724)
  - Default value of number of setting
  T1 (35s) - 2 - 6 - 3=24s
  24/3 = 8 times
  Due to this, "6" should be set as the default value.
  Up to 15 times are available to be set. (More than 10 times is unnecessary in practice.)

4. ELECTRICAL CIRCUITS

4.1 Configuration

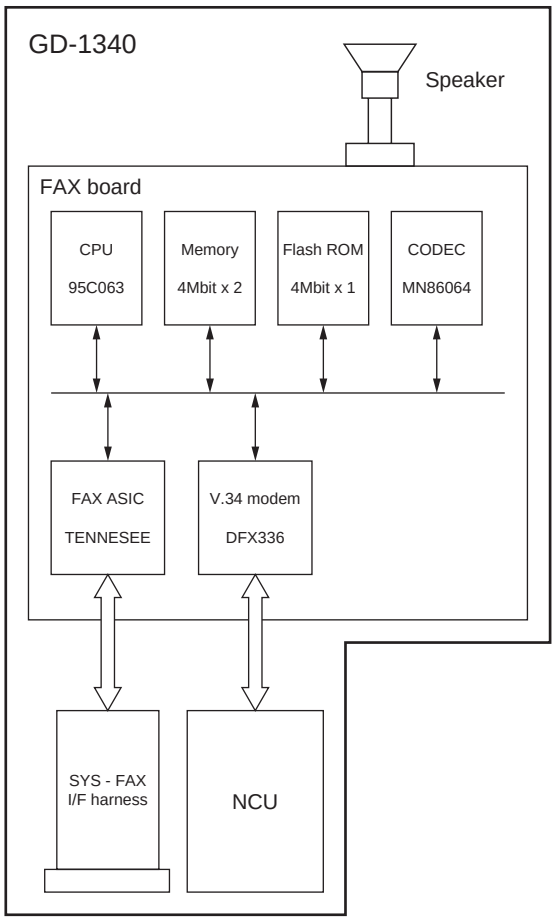


Fig. 4-1

4.2 Description of Circuits

4.2.1 Configuration

This section describes the function of each circuit.

The NCU board consists of the transformer, relay, analog switch and other peripheral devices. It controls switching of the line path, generates the dial pulses, detects the line current and ring signal, and monitors the line.

The NCU board is connected to CN501 on the FAX board.

NA models

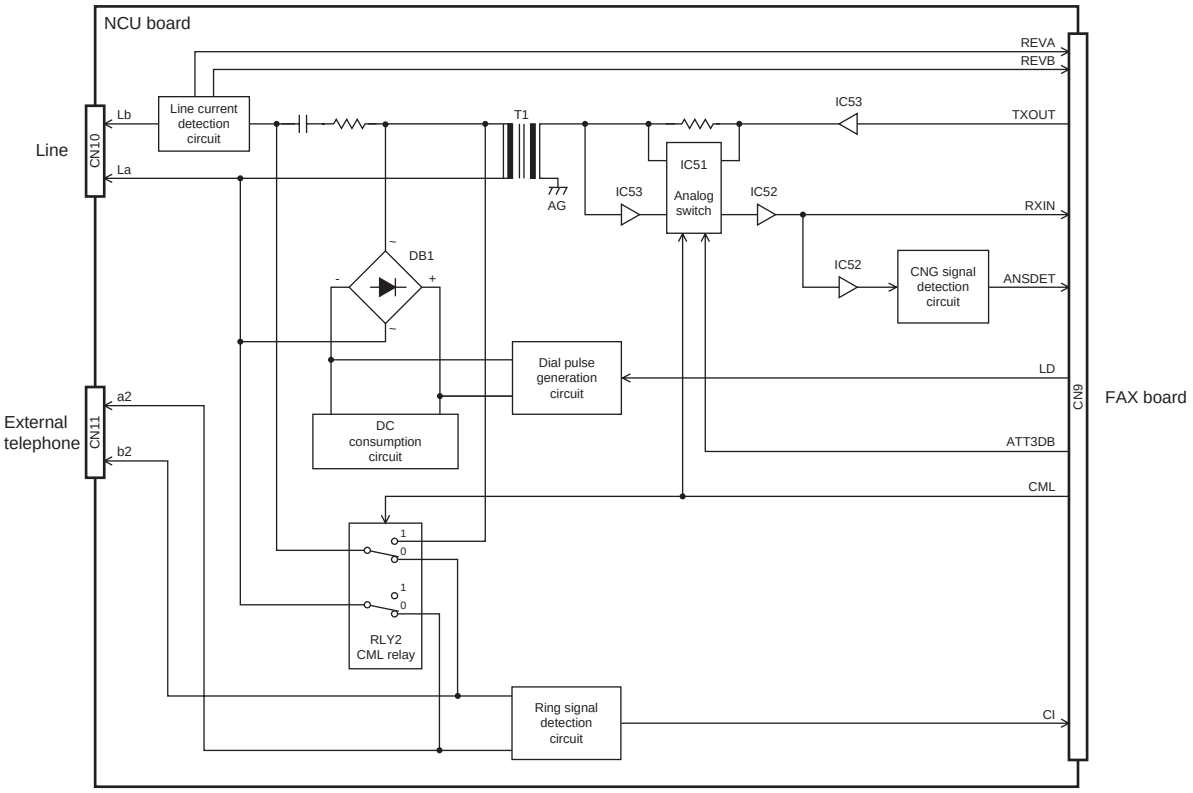


Fig. 4-2

EU/AU/BR models

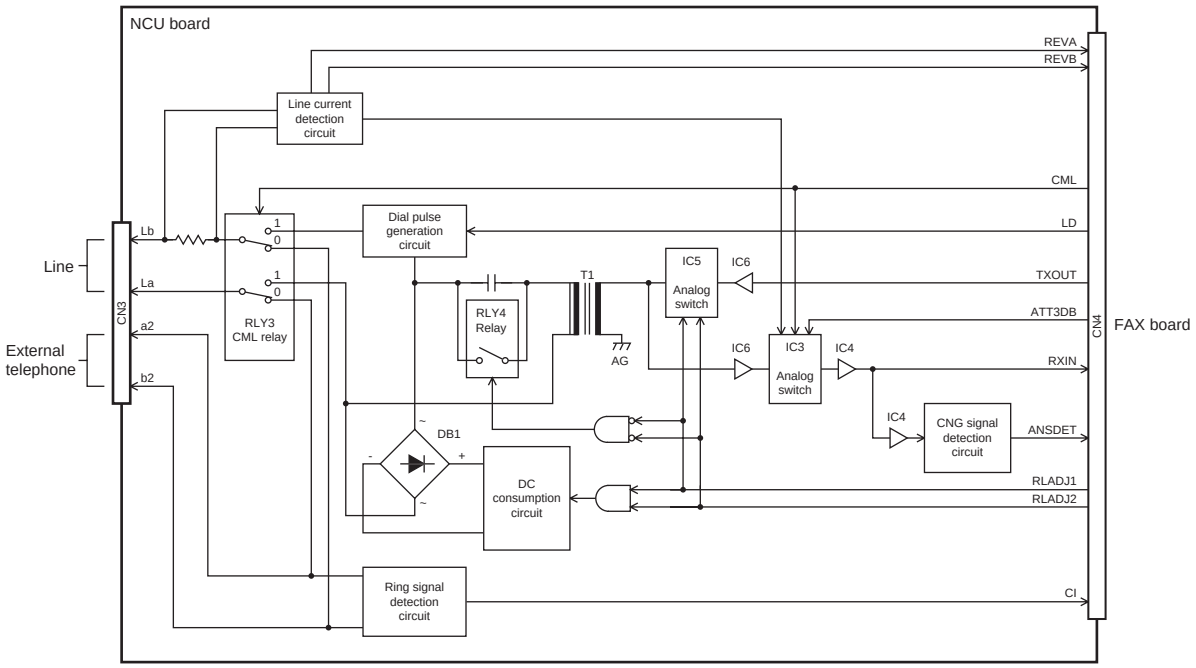


Fig. 4-3

4.2.2 Line path switching control circuit

NA models

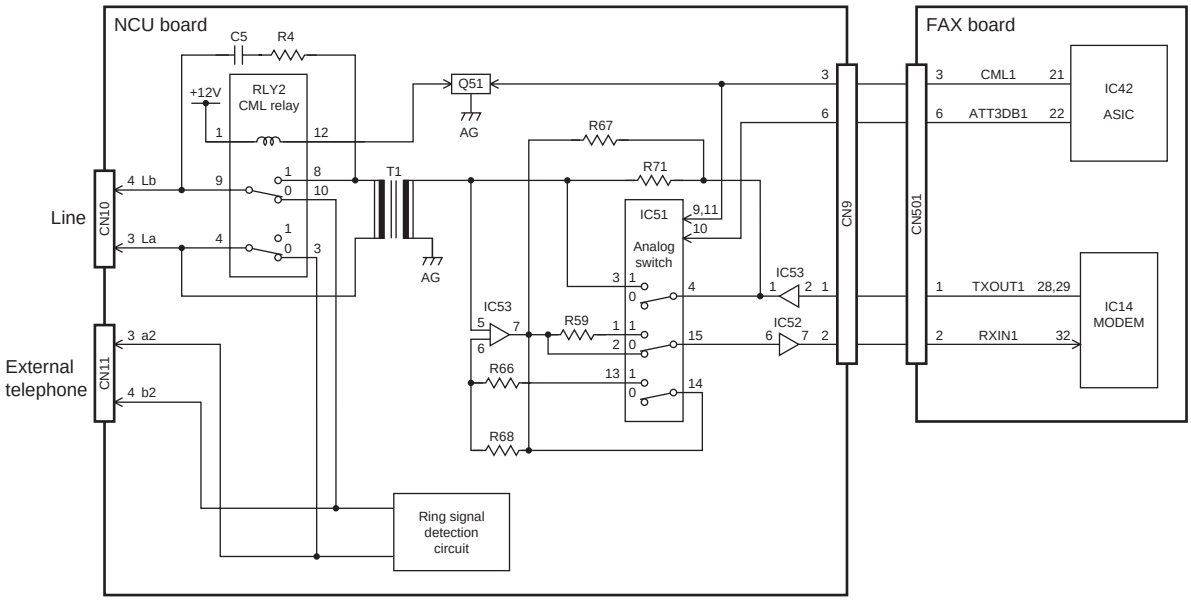


Fig. 4-4

The line path switching control circuit consists of the CML relay (RLY2) and analog switch (IC51) on the NCU board, the ASIC (IC42) on the FAX board and the other peripheral devices.

The CML relay is switched according to the CML1 signal output from the ASIC on the FAX board. When the CML1 signal goes HIGH, Q51 comes on to turn ON the CML relay.

The analog switch is switched according to the CML1 signal and ATT3DB1 signal. When the CML1 signal or ATT3DB1 signal goes HIGH, the analog switch is turned ON.

Turning ON the CML relay and analog switch allow the MODEM to be connected to the line.

Signal Name	Type	Active	Description	Destination
CML1	O	H	CML Relay Control Signal	RLY2, IC51
ATT3DB1	O	H	Attenuator Control Signal	IC51

EU/AU/BR models

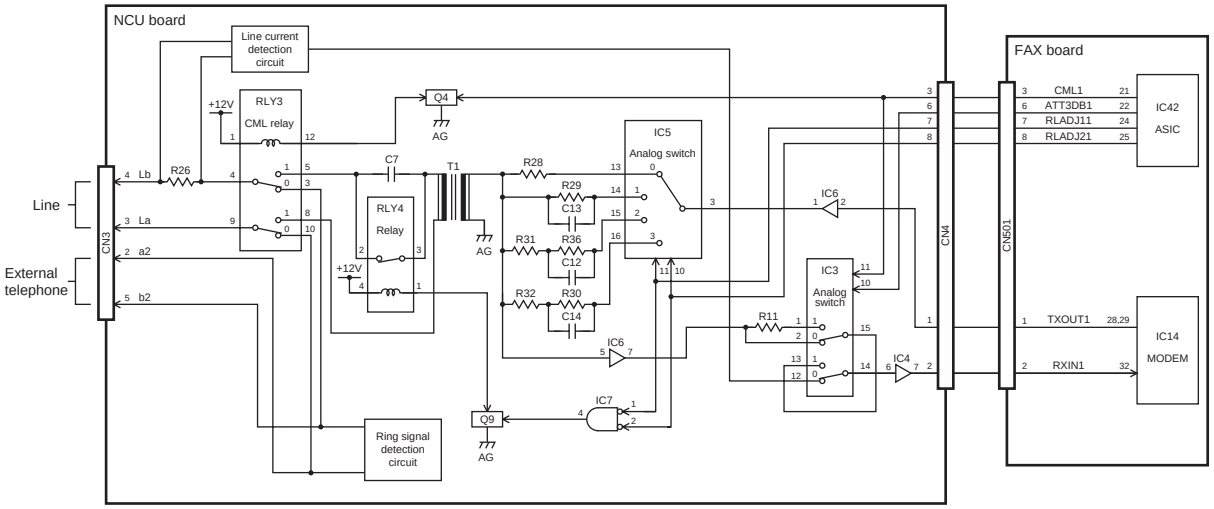


Fig. 4-5

The line path switching control circuit consists of the CML relay (RLY3) and analog switch (IC3, IC5) on the NCU board, the ASIC (IC42) on the FAX board, and the other peripheral devices. It changes the path for the FAX send/receive signals and connects it to each control circuit.

The CML relay is switched according to the CML1 signal output from the ASIC on the FAX board. When the CML1 signal goes HIGH, Q4 comes on to turn ON the CML relay.

The analog switch (IC3) is switched according to the CML1 signal and ATT3DB1 signal. When the CML1 signal or ATT3DB1 signal goes HIGH, the analog switch is turned ON.

The analog switch (IC5) is switched according to the RLADJ11 and RLADJ12 signals.
The analog switch is switched according to the states of the RLADJ11 and RLADJ21 signals.
Turning ON the CML relay and analog switch allow the MODEM to be connected to the line.

Signal Name	Type	Active	Description	Destination
CML1	O	H	CML Relay Control Signal	RLY3, IC3
ATT3DB1	O	H	Attenuator Control Signal	IC3
RLADJ11, 21	O	H	Return Loss Adjustment Signal	IC5

4.2.3 Dial pulse generation circuit

NA models

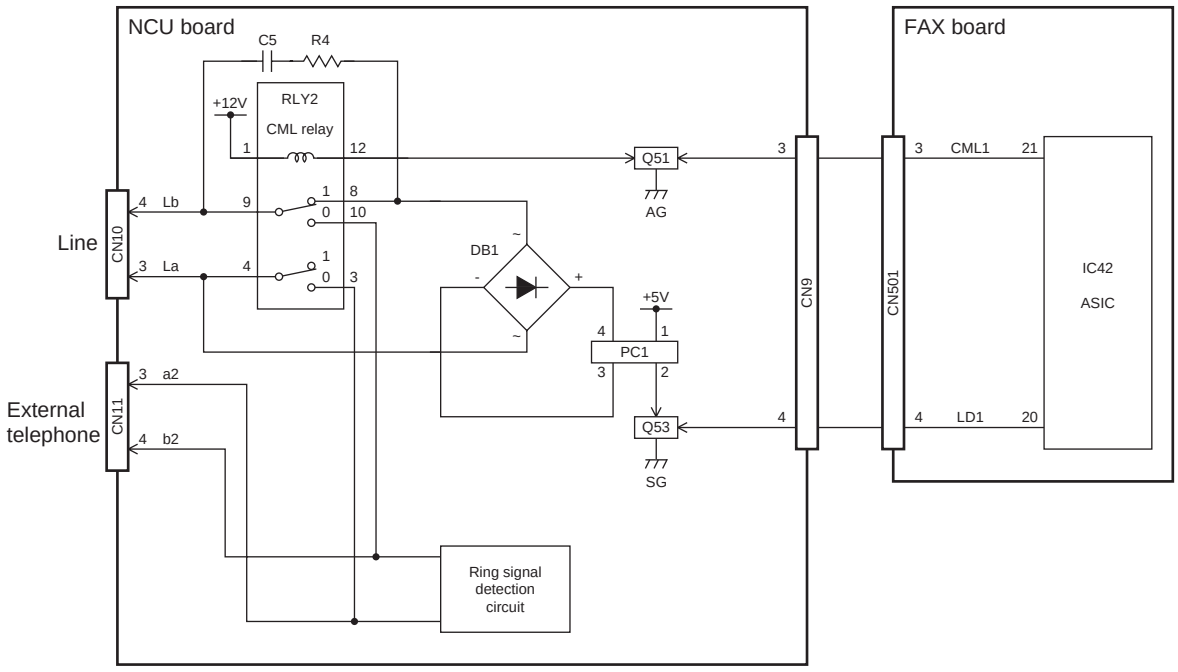


Fig. 4-6

The dial pulse generation circuit consists of the diode bridge (DB1), photocoupler (PC1), the ASIC (IC42) on the FAX board and the other peripheral devices. It generates the dial pulses in the FAX transmission and dialing to the outside.

The ASIC makes the CML1 signal become HIGH to connect the line to the MODEM side. To generate the dial pulse, the ASIC makes the LD1 signal become HIGH to turn ON Q53. This allows the photocoupler to come on and the current flows through the DB1 to send the dial pulses to the line.

Signal Name	Type	Active	Description	Destination
LD1	O	H	Dial Pulse Generation Signal	Q53

EU/AU/BR models

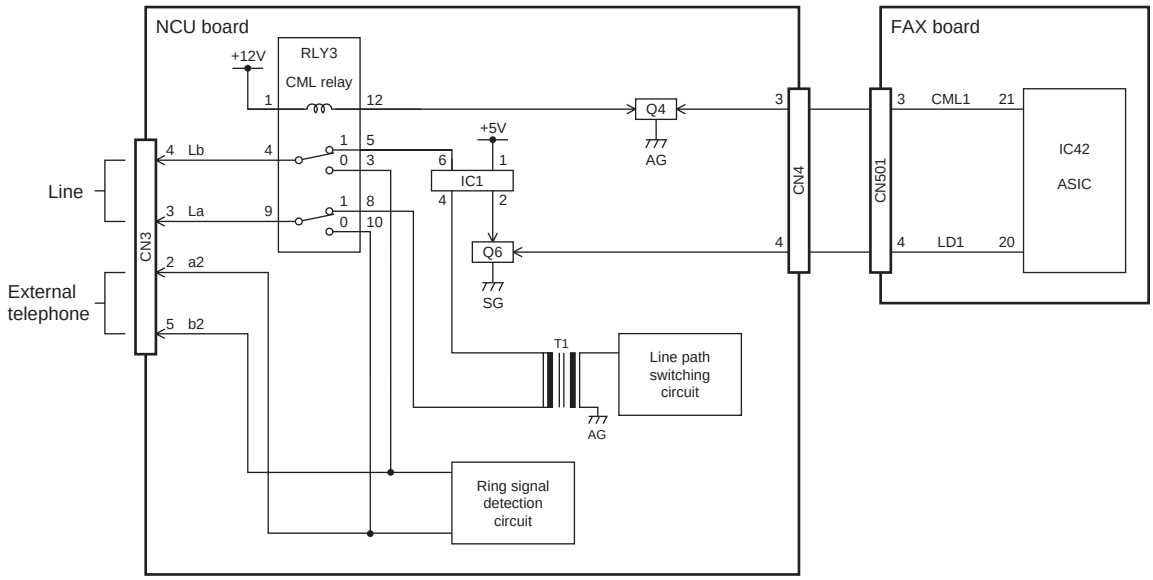


Fig. 4-7

The dial pulse generation circuit consists of the photocoupler (IC1), the ASIC (IC42) on the FAX board and the other peripheral devices. It generates the dial pulses in the FAX transmission and dialing to the outside.

The ASIC makes the CML1 signal become HIGH to connect the line to the MODEM side. To generate the dial pulses, the ASIC makes the LD1 signal become HIGH to turn ON Q6. This allows the photocoupler to come on and the current flows through the line for sending a dial attempt.

Signal Name	Type	Active	Description	Destination
LD1	O	H	Dial Pulse Generation Signal	Q6

4.2.4 Line current detection circuit

NA models

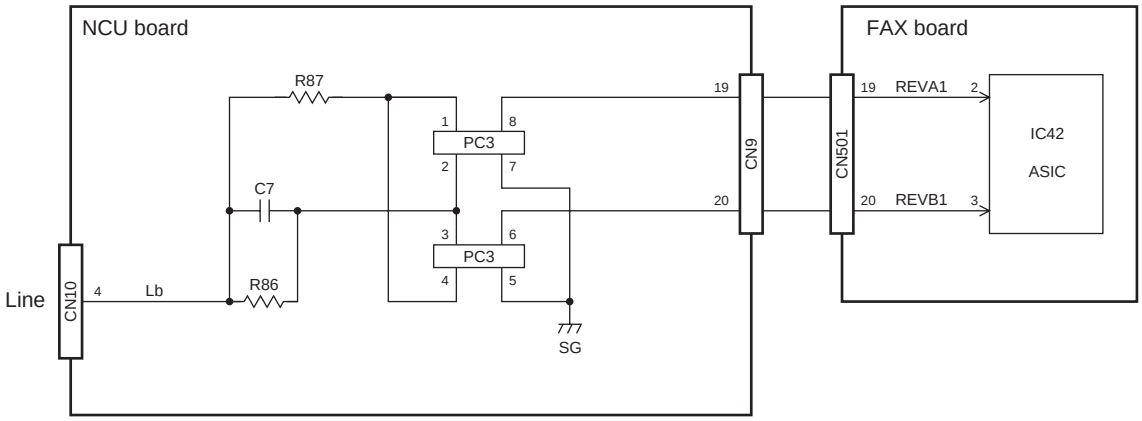


Fig. 4-8

The line current detection circuit consists of the photocoupler (PC3), ASIC (IC42) on the FAX board and the other peripheral devices. It detects a dial tone and the hook status of the external telephone from the current flowing through the line.

When a dial tone is input from the telephone line, current flows through the line and the photocoupler is repeatedly turned ON/OFF. This allows the REVA1 and REVB1 to be the pulse signals and input to the ASIC, then the dial tone is detected.

When the handset is lifted from the external telephone, current also flows through the line and the photocoupler is turned ON/OFF, then the off-hook state is detected.

Signal Name	Type	Active	Description	Destination
REVA1	I	-	Current Detection Signal	IC42
REVB1	I	-	Reverse Current Detection Signal	IC42

EU/AU/BR models

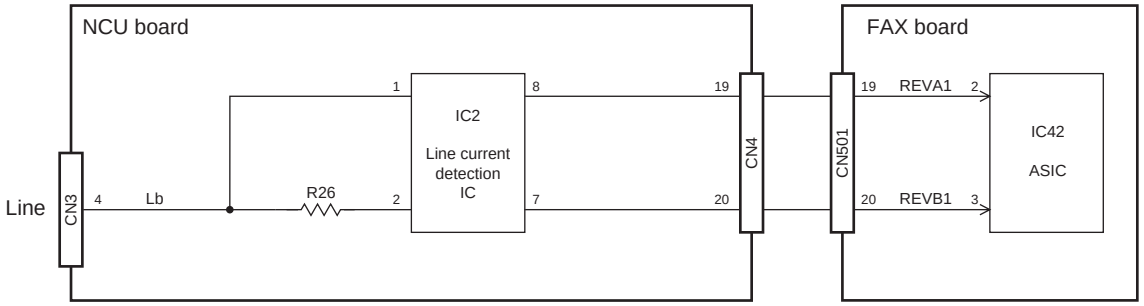


Fig. 4-9

The line current detection circuit consists of the line current detection IC (IC2), ASIC (IC42) on the FAX board, and the other peripheral devices. It detects a dial tone and the hook status of the external telephone from the current flowing through the line.

When a dial tone is input from the telephone line, current flows through the line. The line current detection IC sends REVA1 and REVB1 to the ASIC as pulse signals. This allows a dial tone to be detected.

Signal Name	Type	Active	Description	Destination
REVA1	I	-	Current Detection Signal	IC42
REVB1	I	-	Current Reverse Current Detection Signal	IC42

4.2.5 CI detection circuit

NA models

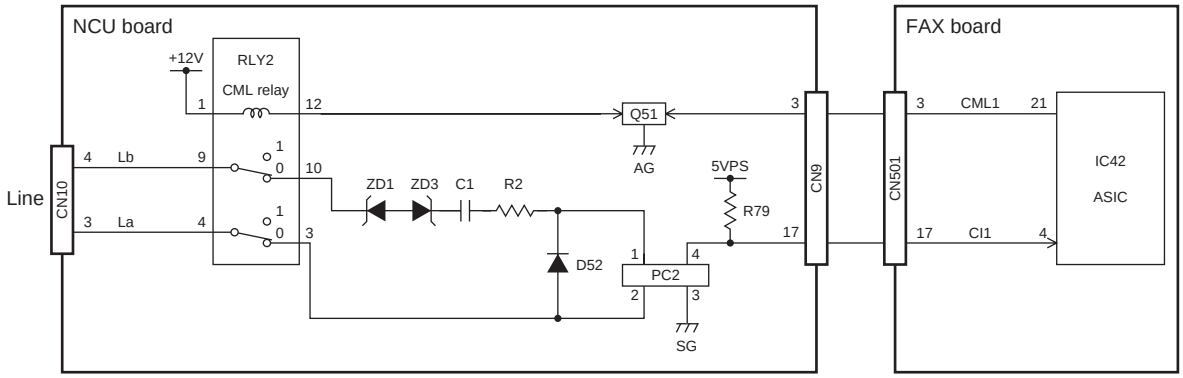


Fig. 4-10

The CI detection circuit consists of the photocoupler (PC2), ASIC (IC42) on the FAX board and the other peripheral devices to detect a ring signal input from the telephone line.

The ASIC makes the CML1 signal become LOW to connect the CI detection circuit to the telephone line.
When a ring signal is input from the telephone line, the photocoupler is repeatedly turned ON/OFF. This allows the CI1 signal to become a pulse signal and input to the ASIC on the FAX board, thereby detecting the ring signal.

Signal Name	Type	Active	Description	Destination
CI1	I	-	CI Detect Signal	IC42

EU/AU/BR models

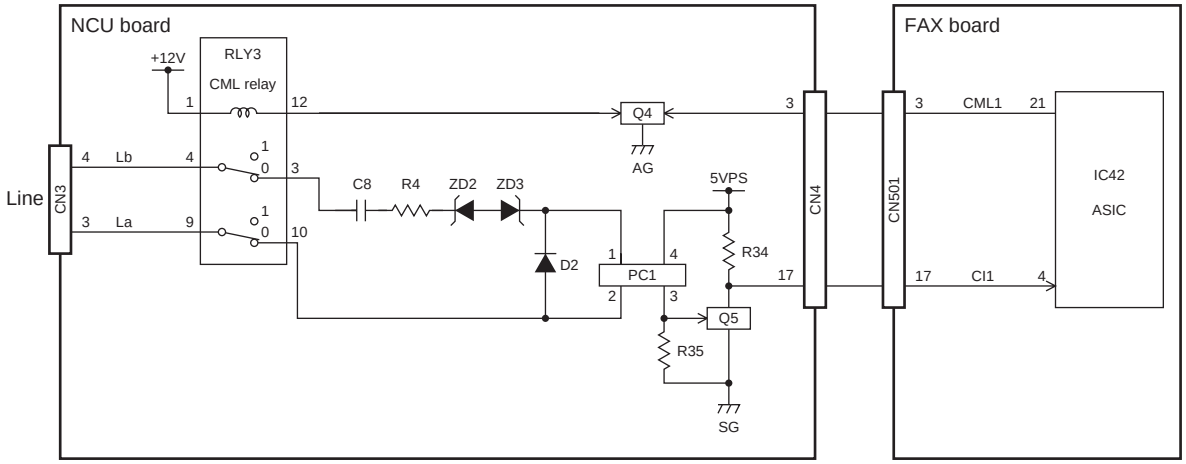


Fig. 4-11

The CI detection circuit consists of the photocoupler (PC1), ASIC (IC42) on the FAX board and other peripheral devices to detect a ring signal input from the telephone line.

The ASIC makes the CML1 signal become LOW to connect the CI detection circuit to the line. When a ring signal is input from the telephone line, the photocoupler is repeatedly turned ON/OFF. This allows Q5 to be turned ON/OFF and the CI1 signal to become a pulse signal and input to the ASIC on the FAX board, thereby detecting the ring signal.

Signal Name	Type	Active	Description	Destination
CI1	I	-	Line 1 CI Detection Signal	IC42

4.2.6 Line monitor circuit

NA models

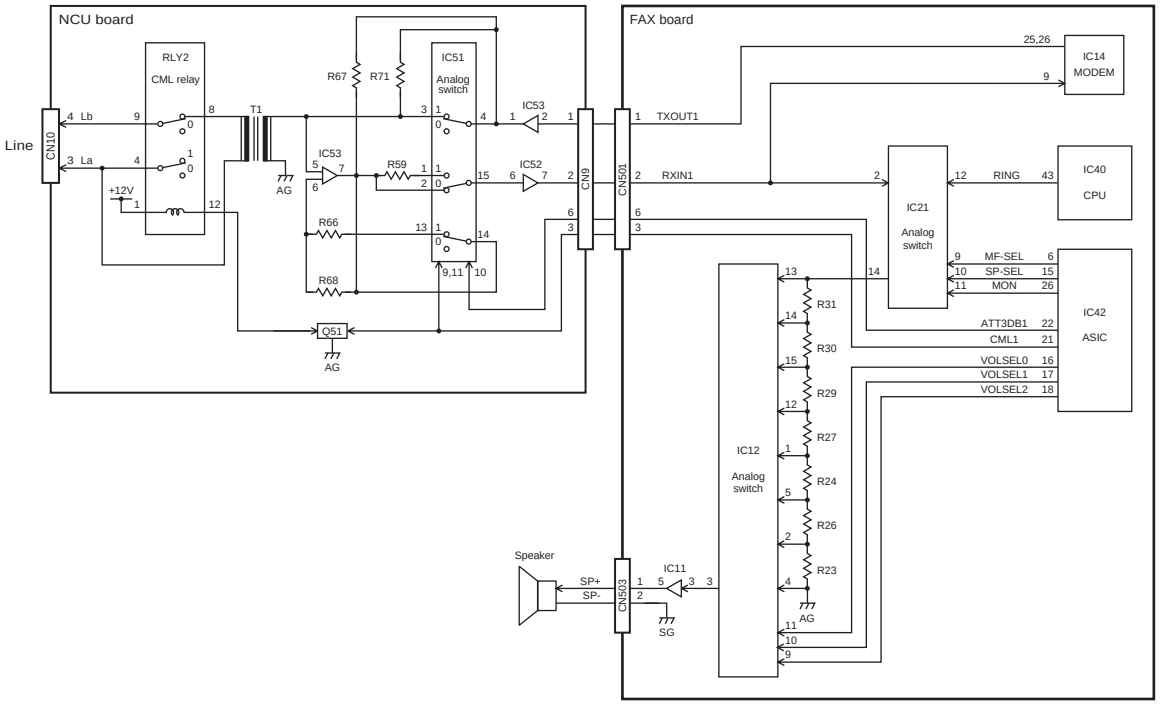


Fig. 4-12

EU/AU/BR models

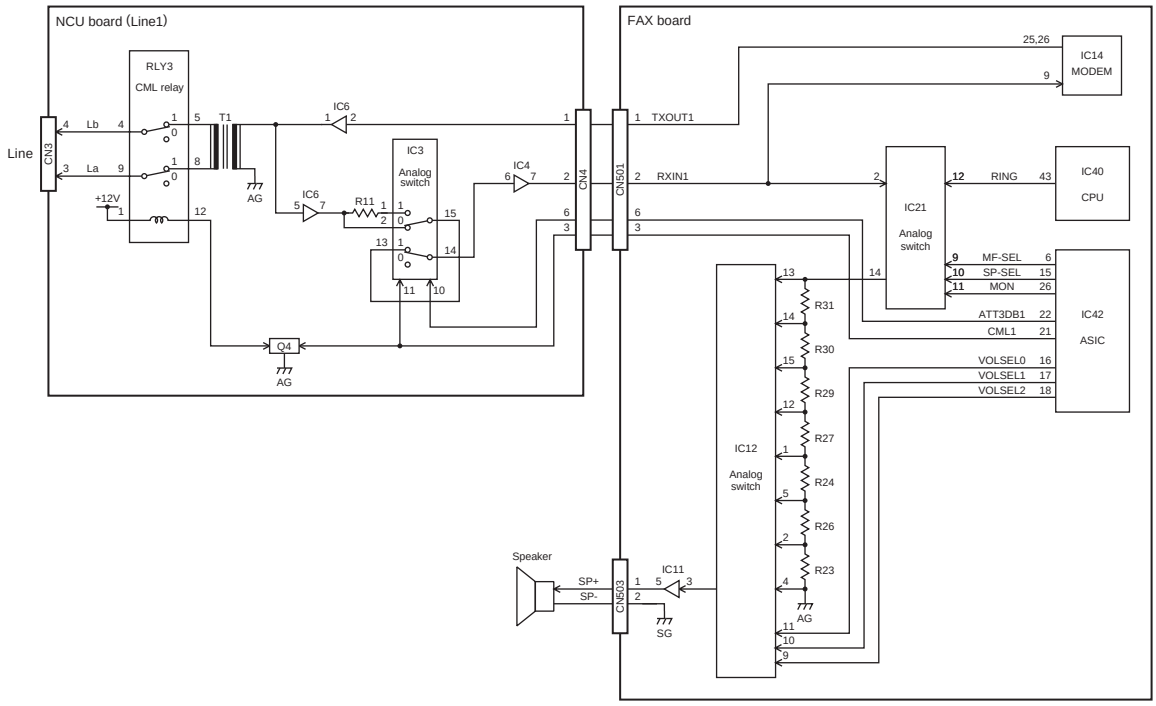


Fig. 4-13

The line monitor circuit consists of the CML relay (NA: RLY2, EU/AU: RLY3), analog switch (NA/TW: IC51, EU/AU/AS/C: IC3), the ASIC (IC42) and analog switches (IC21, IC12) on the FAX board, and other peripheral devices. It switches the telephone line path using the analog switch and monitors the line status and ringer signal in the FAX transmission and reception using the speaker connected to CN503 on the FAX board. It also switches the analog switch to output a buzzer tone from the speaker.

The signal to be monitored is selected by switching the analog switch (IC21) according to SP-SEL signal and MON signal which are output from the ASIC.

To monitor the line during the transmission and reception, the ASIC makes the CML1 signal become HIGH to switch the analog switch and connect the line to the MODEM side.
For the line path switching control, refer to P. 4-4 "4.2.2 Line path switching control circuit".

The relation between the signal levels and monitoring signals is as follows.

Monitoring signal	SP-SEL	MON
LINE Monitor	LOW	HIGH
Ringer/Alarm	-	LOW

The monitoring signal selected by IC21 is input to the analog switch (IC12) to select the output sound volume. The sound volume is selected by switching IC12 according to the VOLSEL0-2 signals output from the ASIC and selecting an input resistance for the monitoring signal.

The relation between the signals and sound volume is as follows.

Sound volume	VOLSEL2	VOLSEL1	VOLSEL0
Max. (7)	LOW	LOW	LOW
(6)	LOW	LOW	HIGH
(5)	LOW	HIGH	LOW
(4)	LOW	HIGH	HIGH
(3)	HIGH	LOW	LOW
(2)	HIGH	LOW	HIGH
Min. (1)	HIGH	HIGH	LOW
Silent (0)	HIGH	HIGH	HIGH

The monitoring signal whose volume is controlled by IC12 is amplified by the OP amplifier (IC11), then output to the speaker.

Signal Name	Type	Active	Description	Destination
SP-SEL	O	H	Line/Tone Selection Signal	IC21
MON	O	H	Ring/Tone Selection Signal	IC21
VOLSEL0-2	O	H	Speaker Volume Control Signals 0-2	IC12

5. INSTALLATION

5.1 Explanation to the Users

After installing the FAX unit, explain the following items to the user using the Operator's Manual. With the underlined items, actually demonstrate the operation.

Items to be explained

- Switches and control panel
  - Summary of the control panel (FAX functions)
  - After power is turned OFF, image data are kept in HDD.
- How to set originals
  - Acceptable original size and scanning width
  - How to insert originals:
    Multiple originals placed on the RADF are scanned from the first page.
  - Unacceptable originals
  - How to set the mode (image quality) and density (contrast)
- Transmission method
  - Manual transmission
  - Monitor dialing
  - Direct dialing (with the digital keys)
  - Phone book dialing
  - Delayed transmission
  - Multi transmission
  - Redialing
- Recording paper size
  - Recording paper size
  - How to change the recording paper size
- Automatic/manual reception
  - How to switch the automatic and manual reception
  - How the machine works and how to operate it when a FAX is received in these modes
- Other functions
  - Memory reception (with the power kept ON)
  - How to set the power saving mode
- Polling
  - Polling operation
  - How to operate the polling reception and transmission
  - How the multi-polling reception works and how to operate it
- How to register addresses
  - How to register new addresses in the Phone Book
  - How to correct or erase the contents of the Phone Book
  - Group registration in the phone book for the multi-transmission or multi-polling
- How to output lists
  - How to output the TRANSMISSION JOURNAL and RECEPTION JOURNAL

GD-1340

Fax Unit

Troubleshooting Manual

MC7X0 / MPS3537 / MPS4242 MFP

MC7X0+ / MPS3537+ / MPS4242+MFP

CONTENTS

1. ERROR CODES

1.1 Transmission/Reception Journal and Error Code List

The transmission journal is shown below. The error code list and status code list are available in the following pages. The reception journal is output in the same form.

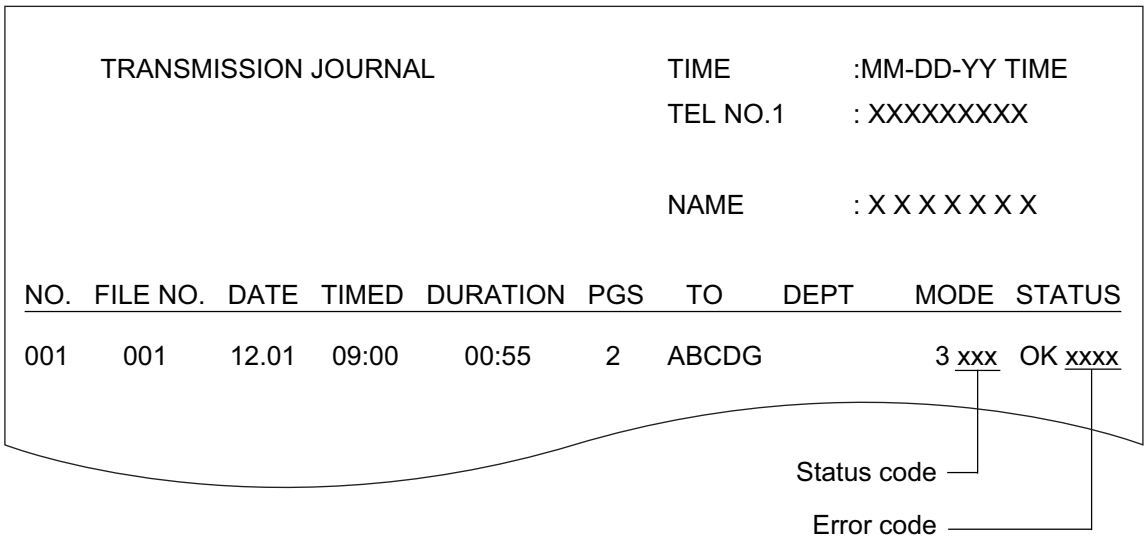


Fig. 1-1

1) Error code list

If an error has occurred during communication, an error code is indicated below “STATUS” on the transmission/reception journal.

Take the appropriate action referring to the following list.

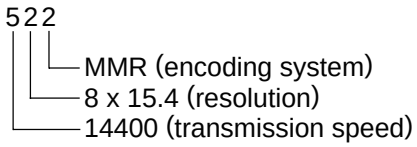
Error code	Content	Situation and corrective action
0000	Normal	
0012	Original jam	Remove the jamming document and retransmit it.
0013	Door is open	Close the doors securely and retransmit the document.
0020	Power failure	A power failure occurred during transmission or reception, and the transmission/reception data were lost. Attempt the transmission/reception again.
0030	Stop by paper jam during the direct transmission	Remove the jamming paper and transmit it.
0033	Polling error	Polling was not performed because the polling document was not found or the security codes were mismatched. Check the polling document or security code on the other side and attempt the polling again.
0042	Memory full	The memory became full a memory abnormality occurred during reception. (The pages normally received are printed out.) Check the remaining memory space or memory status, and attempt the reception again.
0050	Line is busy	Transmission is not made because the line is busy. Attempt the transmission again. As the number of the redialings is increased, the possibility for successful transmission is increased.
0053	Security mismatch in relay or mail box transmission	Check your security code and system password of the other side as well as your own.
00B0	Initial signal not detected	NSF/DIS cannot be detected. Check the receiver and attempt the transmission again.
00B1	Terminal constants not compatible	DIS/NSF that cannot be handled by the sender was received. The receiver received NSS/DCS other than those declared by DIS/NSF. Check the transmission/ reception functions, and attempt the communication again.
00B2	Reception of DCN (Phase B)	DCN was received in the phase B.
00B3	DCS/DTC not detected	DCS/DTC cannot be detected.
00B4	Training error	The sender performed fall-back but the transmission was not made. After the reception of FTT, the receiver received a time-out or DCN. Adjust the transmitter attenuator, link equalizer, etc. and retry the communication.
00B5	CFR not detected	A training signal was sent out but CFR cannot be detected. Adjust the transmitter attenuator, link equalizer, etc. and retry the transmission.
00C0	Image signal carrier not detected	A carrier was not detected on the receiving side. Adjust the transmitter attenuator, link equalizer, etc. and retry the trans-mission.
00C1	High speed signal not detected	A high-speed signal was not detected on the receiving side. Adjust the transmitter attenuator, link equalizer, etc. and retry the transmission.
00C2	Image signal carrier disconnected	Carrier disconnection was detected after the image signal was detected.
00C3	1st EOL not detected	1st EOL was not detected after the high-speed signal was detected.
00C4	EOL not detected	EOL cannot be detected on the receiving side. Or decoding is not possible with MMR.

Error code	Content	Situation and corrective action
00D0	Post message not detected	A post message cannot be detected. Retry the communication. MCF, RTP, RTN, PIN and PIP cannot be detected on the sending side. MPS, EOM and EOP cannot be detected on the receiving side.
00D1	Reception of DCN	DCN was received.
00D2	Poor image quality	Quality of the received image is poor. Retry the transmission.
00E8	HDD error	Hardware is defective.
00F0	Software trouble	Software is defective.
00F1	Hardware noise	Hardware is defective.

2) Status code list

Mode	Transmission speed	Resolution	Encoding system
0	2400	8 x 3.85	MH
1	4800	8 x 7.7	MR
2	7200	8 x 15.4	MMR
3	9600		JBIG
4	12000	16 x 15.4	
5	14400		
6	V.34		
7			
8		300 x 300	
9			
A			
B			
C			
D			
E			
F			

[Example of the indication of a status code]



For the combination of 14400 bps, 8x15.4 and MMR, as shown above, a status of “522” is indicate.

1.2 Error Messages

Error messages are not displayed for the background jobs (memory transmission and memory reception). See the reception/transmission report for the details of the errors.
If an original jam during the direct transmission or recording paper jam during printing occurred, error messages are displayed like when original jam occurred in the equipment.

Error messages and corrective actions

Error	Symptom	Message	Remarks
Memory full	Communication was interrupted because the memory became full.	Memory overflow	Message displayed only during the memory input. It is not displayed during the memory reception.
Line is busy	Redialing was attempted for the specified number of times but the line is still busy.		Job information is stored in the memory when the final retry is finished.
Initial signal not detected	DIS is not detected.	Communication error	
Terminal constants not compatible	Received DIS unable to be handled. Received DCS which is beyond the capability of the receiver.		
Training error	Fall-back is not made successfully. Became time-out after FTT was sent out.	Communication error	
CFR not detected	CFR (FTT) is not detected.	Communication error	
Image signal carrier not detected	Image signal carrier cannot be detected.		
Image signal not detected	High-speed signal cannot be received by the receiver.		
EOL time-out	EOL timer exceeded by 13 seconds		
Post message not detected	Post message is not detected.	Communication error	
Poor image quality	TX: Received RTN/PIN/ERR RX: Transmitted RTN/PIN/ERR	Communication error	
Software overdrive	WDT communication terminated due to software overdrive	Communication error	
Hardware noise	Communication terminated due to software overdrive caused by hardware noise	Communication error	

2. SELF-DIAGNOSIS MODE

There are two types of the self-diagnosis mode for the FAX operation.

- Test mode (03), adjustment mode (05) and setting mode (08): Some items are added to the test mode (03), adjustment mode (05) and setting mode (08) of the self-diagnosis function when the optional FAX unit is installed.

- FAX function mode (13) and FAX clearing mode (1*): These two modes are newly added to the machine when the FAX unit is installed. Started up by turning ON the power while pressing the specified keys are being pressed.

The followings are the modes which are added to (or extend) the PPC self-diagnosis function.

Mode	For start	Function	Display
Test Mode	[0]+[3]+[POWER]	Output check (modem test, dialing test, CML test)	100% C Test Mode
Adjustment Mode	[0]+[5]+[POWER]	Adjustment of the various items	100% A Test Mode
Setting Mode	[0]+[8]+[POWER]	Setting the destination	100% D Test Mode
FAX Function Mode	[1]+[3]+[POWER]	Setting functions of the various items	100% F Test Mode
FAX Clearing Mode	[1]+[*]+[POWER]	Initialization of the various memory areas (user registration area, system setting area, image data area)	100% CL Test Mode
Trace List Output Mode	Operating from the screen for Service UI (without entering the self-diagnostic mode)	Outputs the protocol trace list, dump list and function setting list	-

To enter the desired mode, turn the power ON while pressing two digital keys designated to each mode (e.g. [0] and [5]) simultaneously.

Notes:

- To finish the self-diagnosis mode, make sure to turn the power OFF and then back ON. When the equipment is started in one of the self-diagnosis modes, the equipment is occupied by the mode until the power is turned OFF. In this case, the recovery processing for the FAX operation is not performed.
- Faxes received automatically during the self-diagnosis mode may not be printed out. Be sure to disconnect the modular code from the line connector of the equipment before starting the self-diagnosis mode. Also, be sure to finish the self-diagnosis mode by turning the power OFF and back ON before connecting the modular code.
- The trace list output mode can be used by operating on the Service UI screen. For details of Service UI, refer to the Service Manual of the MFP.

2.1 Test Mode (03)

The modem test output, dialing test output and CML test output are performed in the Test Mode (03).

1) Modem test / CML test
[Operation procedure]

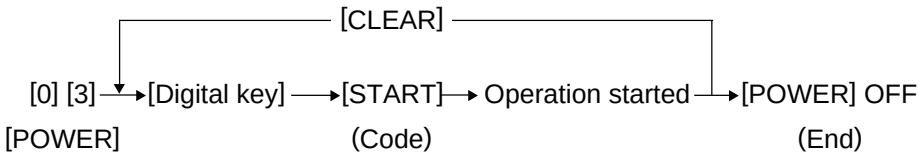


Fig. 2-1

2) Dialing test
[Operation procedure]

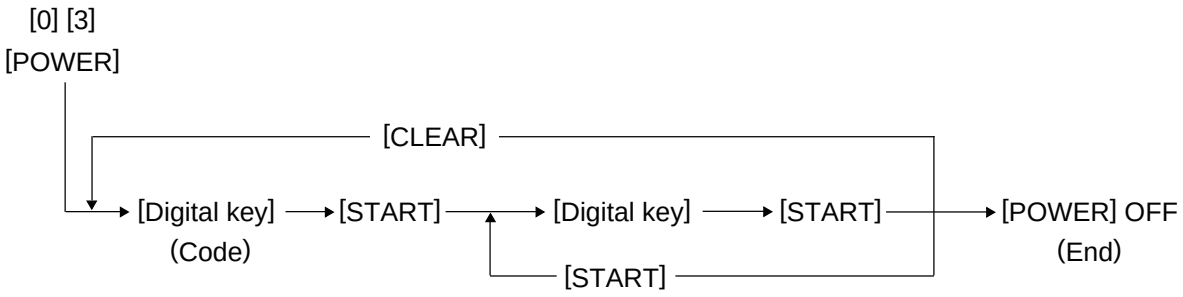


Fig. 2-2

Test code list

Code	Element	Test
03-301	FAX	Modem test 2100 Hz
03-302	FAX	Modem test 14.4 kbps (V.17)
03-303	FAX	Modem test 9.6 kbps (V.29)
03-304	FAX	Modem test 4.8 kbps (V.27)
03-305	FAX	Modem test 300 BPS
03-306	FAX	Modem test 1850 Hz
03-307	FAX	Modem test 1650 Hz
03-308	FAX	Modem test 1100 Hz
03-309	FAX	Modem test 462 Hz
03-310	FAX	Modem test 1300 Hz
03-311	FAX	Modem test 33.6 kbps (V.34)
03-312	FAX	Modem test 28.8 kbps (V.34)
03-313	FAX	Modem test 24.0 kbps (V.34)
03-314	FAX	Modem test 16.8 kbps (V.34)
03-315	FAX	Dialing test 10 PPS (Tested with the digital keys) (The dial number corresponding to the key which was pressed is kept outputting on the circuit. The pressed key is displayed on the control panel.)
03-317	FAX	Dialing test PB (Tested with the digital keys) (The dial number corresponding to the key which was pressed is kept outputting on the circuit. The pressed key is displayed on the control panel.)
03-318	FAX	Modem test 12.0 kbps (V.17)
03-319	FAX	Modem test 7.2 kbps (V.29)
03-320	FAX	Modem test 2.4 kbps (V.27ter)
03-321	FAX	Performs Read/Write test to all the image memories mounted on the FAX board and displays the test result (status) on the control panel. Also, detects automatically whether the extended memory is mounted or not.
03-322	FAX	CML test: Turning ON the CML relay

2.2 Adjustment Mode (05)

Parameter setting for the FAX image processing is performed in the Adjustment Mode (05).

1) Setting parameters for the FAX image processing
[Operation procedure]

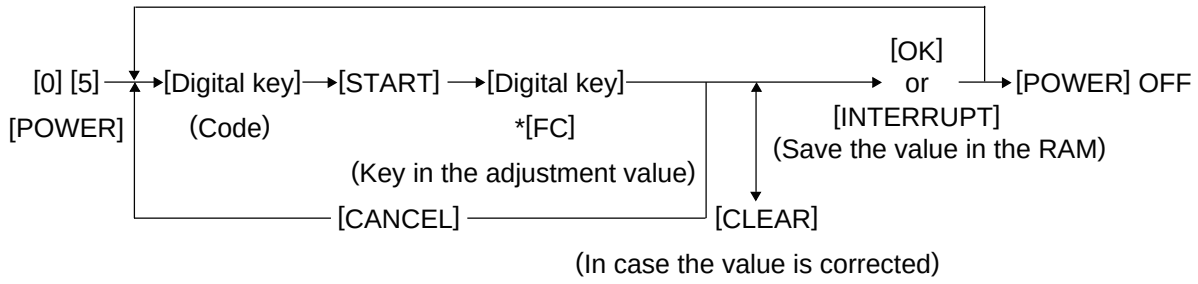


Fig. 2-3

*: "-" can be entered with the [FC] button.

Adjustment codes for the image processing parameters

Code	Element	Adjustment item	Mode	Image quality mode	Default	Accept-able value
05-7534	Density	Adjustment of the threshold value for the binarization Center value	FAX	Text	128	0 to 255
05-7535	Density	Manual-density fine adjustment Error diffusion, Center value	FAX	Photo	128	0 to 255
05-7533	Density	Manual-density fine adjustment Error diffusion, Center value	FAX	Text/ Photo	128	0 to 255
05-7543	Density	Auto-density fine adjustment Error diffusion	FAX	Photo	128	0 to 255
05-7542	Density	Auto-density fine adjustment Error diffusion	FAX	Text/ Photo	128	0 to 255

2) Volume adjustment of ring-back tone
[Operation procedure]

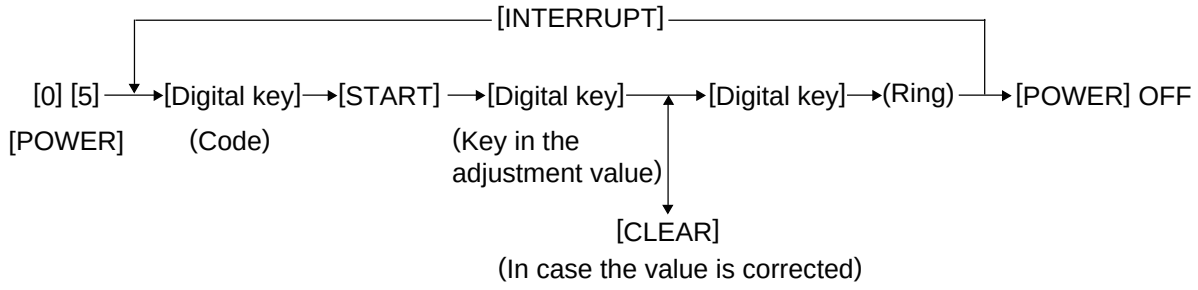


Fig. 2-4

Code	Element	Adjustment item	Mode	Image quality mode	Default	Accept-able value
05-9850	FAX	Volume adjustment of pseudo ring for TEL/ FAX Tone is output to speaker with set sound volume. 0 to 7 can be input. When the code is input, the speaker rings with set sound volume (setting value). The sound volume is set by pressing the INTERRUPT button.	FAX	-	4	0 to 7

3) LED emission level adjustment
[Operation procedure]

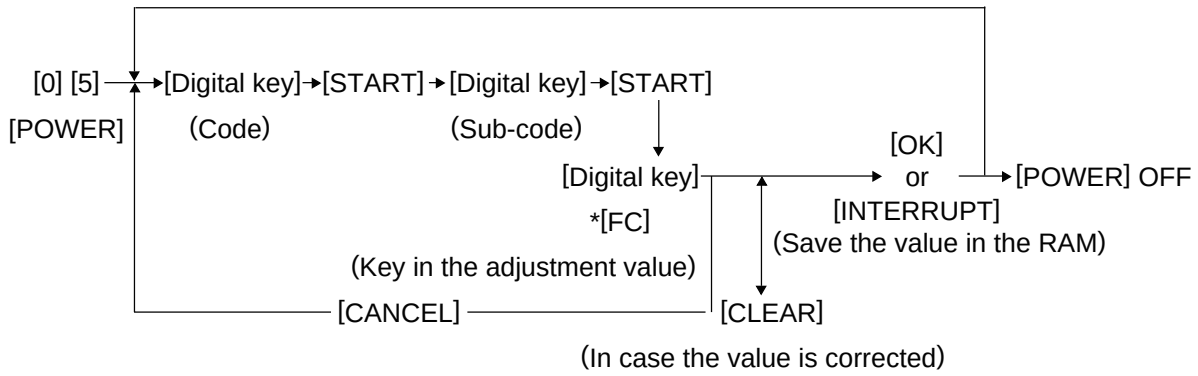


Fig. 2-5

*: "-" can be entered with the [FC] button.

Code	Adjustment item	Remarks
05-7594-0	LED emission level 0/4	The smaller the value is, the smaller the LED emission level becomes. Therefore, the smaller dot is reproduced accordingly. Acceptable values: 0 to 255 (Default: Level 0/4: 0, Level 1/4: 63, Level 2/4: 127, Level 3/4: 191, Level 4/4: 255)
05-7594-1	LED emission level 1/4	
05-7594-2	LED emission level 2/4	
05-7594-3	LED emission level 3/4	
05-7594-4	LED emission level 4/4	

2.3 Setting Mode (08)

The destination is set in the Setting Mode (08).

Note:

For the self-diagnosis code in the setting mode (08) not described in this manual, refer to "11. SELF-DIAGNOSIS CODE (03/04/05/08 CODE)" of the Service Manual Software Guide.

[Operation procedure]

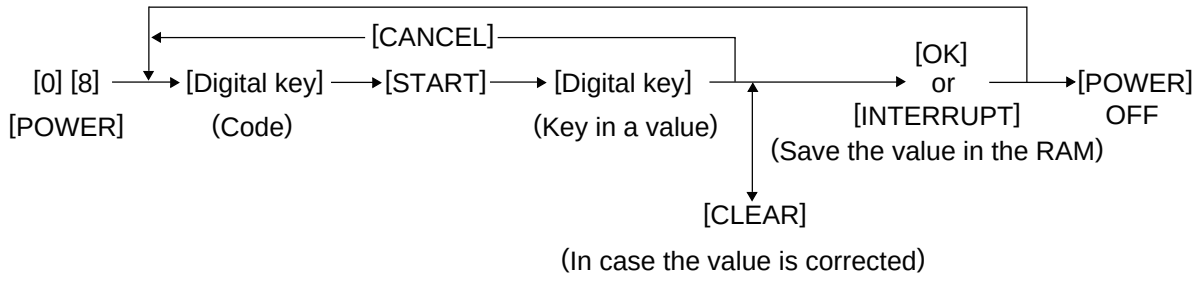
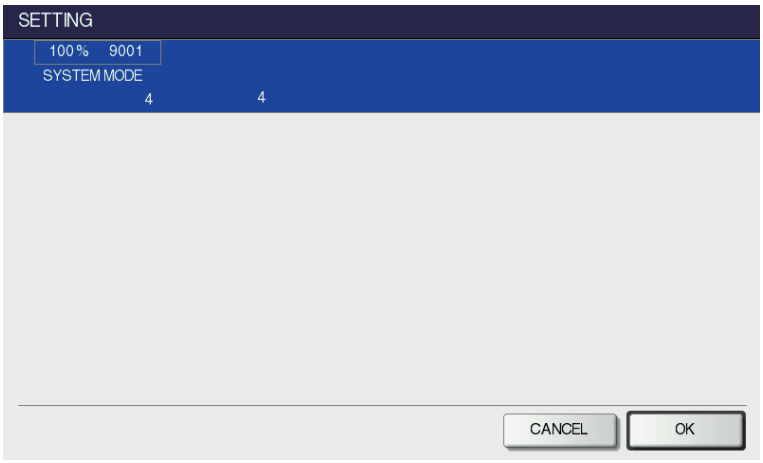


Fig. 2-6

Code	Element	Adjustment item	Mode	Image mode	Default value at the product shipment
08-9001	FAX	Destination 1: Asia/Chile/Peru/Argentina/Saudi Arabia/ Singapore/Malaysia 2: Australia/New Zealand 3: Hong Kong 4: U.S.A/Canada 5: Germany/Cyprus/Luxembourg/Ireland 6: England 7: Italy 8: Belgium 9: Holland 10: Finland 11: Spain 12: Austria 13: Switzerland 14: Sweden 15: Denmark 16: Norway 17: Portugal 18: France 19: Greece 20: Poland 21: Hungary 22: Czech Rep. 23: Turkey 24: South Africa 25: Taiwan 26: Russia 27: Brazil	FAX	-	NA: 4 EU: 5 AU: 2



2.4 Function Mode (13)

Various functions are set in the Function Mode (13).

1) Procedure to set the functions
Key in a code and change the set value.

[Operation procedure]

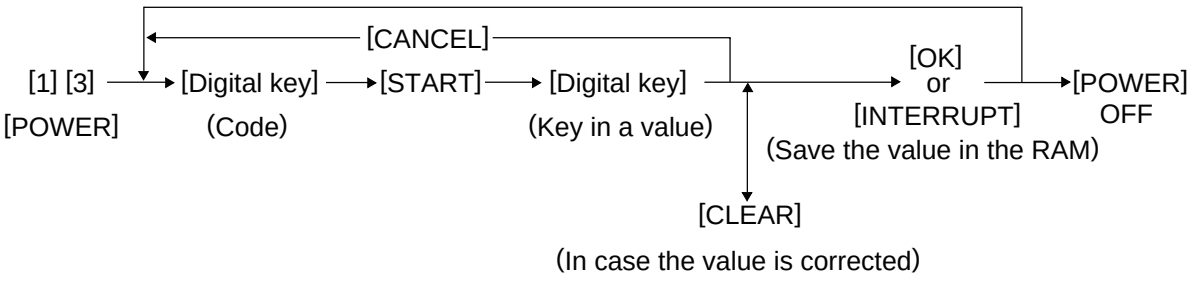


Fig. 2-7

2) Procedure to confirm the set value

[Operation procedure]

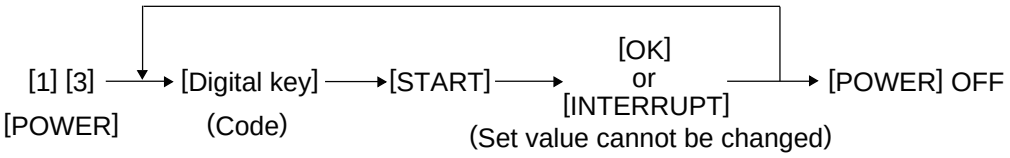


Fig. 2-8

Function code list (100-999)

100-299 Adjustment within the dialing standards

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-100	DTC frequency (PSTN)	Sets the dial tone frequency to be detected for the PSTN.	0: 300-600 Hz 1: 300-650 Hz 2: 390-550 Hz 3: 400-450 Hz 4: 350-480 Hz 5: 300-500 Hz	0	0	0	0	1	1	1	1	1	1
13-101	DTC time (PSTN)	Sets the time for a tone sounds to be determined as dial tone for the PSTN.	0: 2 sec 1: 800 ms 2: 400 ms 3: 1 sec 4: 1.3 sec 5: 1.8 sec 6: 2.5 sec 7: 500 ms	0	0	0	3	2	2	2	2	2	2
13-102	LCC allowed gaps (PSTN)	Sets the interruption time for the PSTN to be ignored during LCC.	0: OFF 1: 50 ms 2: 100 ms 3: 200 ms	0	0	0	3	2	2	2	2	2	2
13-103	DTC allowed gaps (PSTN)	Sets the interruption time for PSTN to be ignored during DTC.	0: OFF 1: 320 ms 2: 160 ms 3: 240 ms	1	1	1	1	1	1	1	1	1	1
13-104	DTC/ LCC for PSTN	Selects which is to be used for the PSTN, DTC or LCC.	0: BZT (DTC/LCC) 1: LCC 5 sec 2: DTC only 3: FRN (DTC/LCC) 4: DTC (JPN) 5: NO DTC&LCC	2	2	2	2	2	2	2	2	2	2
13-105	DTC time out (PSTN)	Sets how long the dial tone detection is performed.	0: 20 sec 1: 10 sec 2: 8 sec 3: 15 sec 4: 3.3 sec	0	0	0	1	1	1	1	1	1	1
13-106	DTC frequency (PABX)	Sets the dial tone frequency to be detected for PABX.	0: 300-600 Hz 1: 300-650 Hz 2: 390-550 Hz 3: 400-450 Hz 4: 350-480 Hz 5: 300-500 Hz	0	0	0	0	1	1	1	1	1	1
13-107	DTC time (PABX)	Sets the time for a tone sounds to be determined as dial tone for the PABX.	0: 2 sec 1: 800 ms 2: 400 ms 3: 1 sec 4: 1.3 sec 5: 1.8 sec 6: 2.5 sec 7: 150 ms	0	0	0	6	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	13-100
2	2	2	2	2	2	2	2	2	2	2	2	0	0	2	2	3	13-101
2	2	2	2	2	2	2	2	2	2	2	2	0	0	2	2	3	13-102
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-103
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-104
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	13-105
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	13-106
2	2	2	2	2	2	2	2	2	2	2	2	0	0	2	2	6	13-107

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-108	LCC allowed gaps (PABX)	Sets the interruption time for the PABX to be ignored during LCC.	0: OFF 1: 50 ms 2: 100 ms 3: 200 ms	0	0	0	0	3	3	3	3	3	3
13-109	DTC allowed gaps (PABX)	Sets the interruption time for the PABX to be ignored during DTC.	0: OFF 1: 320 ms 2: 160 ms 3: 240 ms	1	1	1	1	1	1	1	1	1	1
13-110	DTC/ LCC for PABX	Selects which is to be used for the PABX, DTC or LCC.	0: BZT (DTC/LCC) 1: LCC 5 sec 2: DTC only 3: FRN (DTC/LCC) 4: DTC (JPN) 5: NO DTC&LCC	5	5	5	5	5	5	5	5	5	5
13-111	DTC time out (PABX)	Sets how long the dial tone detection is performed.	0: 20 sec 1: 10 sec 2: 8 sec 3: 15 sec 4: 3.3 sec	0	0	0	1	1	1	1	1	1	1
13-112	BTC frequency	Sets the busy tone frequency to be detected for the PSTN and PABX.	0: Not detected 1: 300-600 Hz 2: 350-550 Hz 3: 300-500 Hz 4: 300-700 Hz	0	0	0	1	1	1	1	1	1	1
13-116	Dial T1 timer	Sets the time to wait for a response from the receiver after dialing is completed.	0: 60 sec 1: 35 sec 2: 90 sec 3: 55 sec 4: 115 sec	0	3	0	3	2	2	2	2	2	2
13-117	Dial stop after T1	In case of T1 time-out (no response from the receiver) during the automatic dialing, redialing is not performed and it is determined that the transmission is terminated due to error.	0: OFF 1: ON	0	0	0	1	0	0	0	0	0	0
13-122	CML make time before dialing	Pause before dialing	0: 0 ms 1: 10 ms ¦ 255:2550 ms	2	2	2	2	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
3	3	3	3	3	3	3	3	3	3	3	3	0	0	2	3	0	13-108
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-109
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	13-110
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	13-111
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	13-112
2	2	2	2	2	2	2	2	2	2	2	2	0	0	3	2	3	13-116
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-117
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-122

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-123	CML hold time after dialing	Pause after dialing	0: 0 ms 1: 10 ms ¦ 255:2550 ms	100	100	100	100	100	100	100	100	100	100
13-125	Dial informa-tion	Sets the definition of the DP dial. Normal: n Shift: n+1 Reverse: 10-n n=Dial No.	0: Normal 1: Shift 2: Reverse	0	0	0	0	0	0	0	0	0	0
13-127	Internal retry	When dialing is interrupted because any of the settings for DTC/ LCC is not satisfied during redialing, that redialing is ignored since it is considered as an internal retry.	0: OFF 1: ON	0	0	0	0	1	1	0	0	0	0
13-128	Redialing counter	Sets the number of redialings.	0: No retry 1: 1 redialing ¦ 14: 14 redialings	5	2	4	5	3	4	3	3	5	3
13-129	Time for a pause	Sets the time for a pause when it is inserted between the dial numbers.	0: 0 sec 1: 1 sec 2: 2 sec 3: 4 sec 4: 3.3 sec 5: 10 sec	4	2	2	4	2	2	3	2	0	2
13-132	Inter-digit pause	Sets the interval between digits for DP dialing.	0: 900 ms 1: 550 ms 2: 700 ms 3: 800 ms	0	0	2	3	0	3	3	2	2	0
13-135	Redialing interval	Sets the interval between redialings.	0: Default (3 min) 1: 1 min ¦ 15: 15 min	3	1	3	1	0	0	3	2	2	0

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	13-123
0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	13-125
0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	13-127
3	1	4	5	4	9	3	5	4	3	3	3	5	5	2	3	5	13-128
2	2	0	2	2	2	1	2	4	4	4	4	4	4	4	2	4	13-129
1	3	3	2	2	2	2	0	3	3	0	0	0	0	0	0	3	13-132
2	2	2	1	0	0	1	3	3	3	3	3	3	3	2	0	1	13-135

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-137	DP make/ break ratio	Sets the make/ break ratio for DP dialing.	0: 60/40 (10 PPS) 1: 67/33 (10 PPS) 2: 63/37 (10 PPS) 3: 50/50 (10 PPS) 4: 67/33 (20 PPS) 5: 70/30 (20 PPS, TWN only)	1	1	1	0	0	1	0	1	0	0
13-138	MF timing	Sets the ON/ OFF timing of MF signals. Do not set the value “4” for the function code 138 and 268 to ensure minimum time of the MF signal duration ruled in TBR21 (Requirement 4.8.2.4, 4.8.2.5)	0: 80/80 ms 1: 70/70 ms 2: 70/150 ms 3: 60/60 ms 4: 80/100 ms 5: 150/50 ms 6: 150/240 ms	2	0	2	4	4	0	0	1	1	0
13-139	DTC RX ATT (PSTN)	Sets the reception level when the dial tone is detected for the PSTN.	0: -24 dBm 1: -27 dBm 2: -30 dBm 3: -33 dBm 4: -36 dBm 5: -39 dBm 6: -42 dBm 7: -45 dBm	6	6	6	6	6	6	6	6	6	6
13-140	DTC RX ATT (PABX)	Sets the reception level when the dial tone is detected for the PABX.	0: -24 dBm 1: -27 dBm 2: -30 dBm 3: -33 dBm 4: -36 dBm 5: -39 dBm 6: -42 dBm 7: -45 dBm	6	6	6	6	6	6	6	6	6	6
13-141	MF TX-ATT	Sets the attenuator value for the MF signal.	0: 0 dB 1: -1 dB ⋮ 15: -15 dB (Value decreased one by one)	2	7	5	3	4	4	4	4	4	4

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
1	0	0	0	1	0	1	1	0	1	0	0	1	1	5	0	1	13-137
2	0	0	1	2	0	0	0	4	0	3	1	2	2	4	4	1	13-138
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	13-139
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	13-140
4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4	4	13-141

Code	Adjustment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-142	International DTC frequency	Selects the frequency range for the dial tone of the first pause to be detected.	00: No detection 01: 300-600 Hz 02: 300-650 Hz 03: 390-550 Hz 04: 400-450 Hz 05: 350-480 Hz 06: 300-500 Hz 07: France Dual Tone (not used)	0	0	0	0	0	0	0	0	0	0
		Selects the frequency range for the dial tone to be detected after dialing the second international dial access code.	10: No detection 11: 300-600 Hz 12: 30-650 Hz 13: 390-550 Hz 14: 400-450 Hz 15: 350-480 Hz 16: 300-500 Hz 17: France Dual Tone (not used)										
13-143	International dial access code	Sets the international access code.	Numeric value of 3 digits (Default setting: 4 digits)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
13-149	ATT control	Sets the receiver attenuator.	0: OFF 1: -3 dB	0	0	0	0	0	0	0	0	0	0
13-150	BTC ON time	Sets time that a busy-tone signal is output to be determined it is ON.	0: 80-650 ms 1: 450-550 ms 2: 200-650 ms 3: 400-600 ms 4: 120-550 ms 5: 420-610 ms	2	2	2	2	2	2	2	2	2	2
13-151	BTC OFF time	Sets time that a busy-tone signal is not output to be determined it is OFF.	0: 80-650 ms 1: 450-550 ms 2: 200-650 ms 3: 400-600 ms 4: 160-600 ms 5: 170-700 ms 6: 380-630 ms 7: 150-470 ms	2	2	2	2	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	13-142
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	13-143
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-149
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-150
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-151

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-152	MF dial level balance	Sets the difference between the high output and low output of the MF signal.	0: 0 dB 1: -1 dB ¦ 4: -4 dB (Value decreased one by one)	2	2	2	2	2	2	2	2	2	2
13-153	Italian Intermit-tent DTC function	Sets Italian intermittent DTC function.	0: OFF 1: ON	0	0	0	0	0	0	1	0	0	0
13-200	Exchang e type	Selects the exchange type.	0: PSTN 1: PABX	0	0	0	0	0	0	0	0	0	0
13-201	Dial selection	Selects the access type for the PABX.	0: Not defined 1: Local/ Distant 2: Access Digit	1	1	1	1	1	1	1	1	1	1
13-203	Dialer type	Selects the dial type.	0: DP 1: MF	1	1	1	1	1	1	1	1	1	1
13-206	Local/ distant dial	Key in an access code designated for the access type selected for the function code 201. Local: 2 digits Distant: 2 digits Access Digit: 3 digits	Numeric value of 3 digits (4 digits for the default setting)	1000	1000	1000	1000	1000	1000	1000	100	1000	1000

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-152
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-153
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-200
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-201
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-203
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	13-206

300-699 Adjustment for switching function specfications

	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-312	CI history hold time	Sets the time for the CI history to remain.	0: 5 sec 1: 8 sec 2: 14 sec	1	1	1	2	2	2	2	2	2	2
13-313	CI detection frequency range	Sets the frequency range for CI detection.	0: 12-80 Hz 1: 16-55 Hz 2: 20-55 Hz 3: 22-55 Hz 4: 5-200 Hz	0	0	0	0	1	1	1	1	1	1
13-317	Handling of negative answer	Sets whether the RTN received is handled as abnormal (NG) or normal when the data are slightly abnormal. Abnormal: DCN is transmitted to stop the communication. Normal: Next page is transmitted normally.	0: Abnormal 1: Normal	1	1	1	0	0	0	0	0	0	0
13-325	TX attenua-tion value (V.17)	Sets the modem transmission level for communication other than V.34. The smaller the value is, the higher the transmission level becomes. If errors occur frequently or training is not sent, the transmission level should be changed.	0: 0 dB 1: -1 dB ¦ 15 -15 dB (Value decreased one by one)	10	10	10	10	12	12	12	12	12	12
13-328	Cable equalizer (V.17)	Sets the equalizer value which has frequency characteristics. For the long-distance communication, it is recommended to set a large value.	0: 0 dB 1: -4 dB 2: -8 dB 3: -12 dB	0	0	0	0	0	0	0	0	0	0

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	13-312
1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	13-313
0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	13-317
12	12	12	12	12	12	12	12	12	12	12	12	10	10	13	12	10	13-325
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-328

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-331	Echo protection delay (high speed) (V.21)	Sets if a delay (500 ms) is inserted before sending the V.21 signal and timing is shifted to avoid the line echo.	0: OFF 1: ON (500 ms)	1	0	1	1	1	1	1	1	1	1
13-335	Modem speed initial value	Sets the initial modem speed to be declared by DIS/DCS.	0: 2,400 bps 1: 14.4 kbps (V.17) 4: 4,800 bps 5: 12 kbps (V.17) 8: 9,600 bps 9: 9,600 bps (V.17) 12: 7,200 bps 13: 7,200 bps (V.17)	1	1	1	1	1	1	1	1	1	1
13-338	Forcible line moni-toring	Selects the line to monitor.	0: OFF 1: Line 1 2: Line 2	0	0	0	0	0	0	0	0	0	0
13-339	CI-ON determine time	CI ON-satiable time.	0: 175 ms 1: 125 ms 2: 800 ms 3: 145 ms	0	0	0	0	0	0	0	0	0	0
13-340	CI-OFF determine time	CI OFF-satiable time.	0: 650 ms 1: 350 ms 2: 175 ms 3: 90 ms	2	2	2	2	2	2	2	2	2	2
13-346	Recording width capacity declara-tion	Selects either one of the followings to declare the maximum recording width to the other party when the specified paper size is not available; the largest paper in the other Tray or the Tray for the largest paper.	0: Paper 1: Tray	0	0	0	0	0	0	0	0	0	0
13-350	High speed carrier-OFF detection timer	Sets the time to determine the carrier signal is stopped completely.	0: 1.5 sec 1: 6 sec (FTZ)	1	1	1	1	1	1	1	1	1	1

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-331
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-335
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-338
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-339
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-340
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-346
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-350

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-351	Off-hook alarm	Sets the volume of the alarm sounded when the handset has been left off the cradle even though the communication is finished.	0: No alarm 1: Level 1 (Min.) ¦ 7: Level 7 (Max.)	0	0	0	0	3	3	3	3	3	3
13-355	Memory trans-mission report	Sets whether the memory transmission report is output or not. Also, selects the output conditions.	0: OFF 1: On Error (BZT) 2: ALWAYS 3: On Error 5: On Error (BZT/W) 6: Always (W) 7: On Error (W)	7	7	7	7	6	6	6	6	6	6
13-356	Multi address trans-mission report	Sets whether the multi-address transmission report is printed or not. Also, selects the output condition.	0: OFF 1: Always 2: On error 3: Always (W) 4: On error (W)	4	4	4	4	3	3	3	3	3	3
13-357	Direct docu-ment trans-mission report	Sets whether the direct transmission report is printed or not. Also, selects the output condition.	0: OFF 1: Always 2: On error	1	1	1	1	1	1	1	1	1	1
13-359	Multi polling report	Sets whether the multi-polling transmission report is printed or not. Also, selects the output condition.	0: OFF 1: Always 2: On error	2	2	2	2	1	1	1	1	1	1
13-361	ITU-T Relay trans-mission (origina-tor) report	Sets whether the report is printed or not. Also, selects the output con-dition.	0: OFF 1: Always 2: On error 3: Always (W) 4: On error (W)	3	3	3	3	3	3	3	3	3	3

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	3	0	13-351
6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	6	7	13-355
3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	3	4	13-356
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-357
1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	2	13-359
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	13-361

Code	Adjustment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-362	Result report printout for relay hub station	Sets whether the relay multi-address transmission report is printed or not. Also, selects the output condition.	0: OFF 1: Always 2: On error 3: Always (W) 4: On error (W)	4	4	4	4	3	3	3	3	3	3
13-363	ITU-T Relay transmission (end station) report	Sets whether the report is transported or not. Also, selects the transport condition.	0: OFF 1: Always 2: On error 3: Always (W) 4: On error (W)	2	2	2	2	2	2	2	2	2	2
13-365	Printing function for relay station (reception report)	Sets whether the relay multi-address reception report is printed or not.	0: OFF 1: ON	0	0	0	0	1	1	1	1	1	1
13-367	F-code acceptance list	Sets whether the acceptance list is printed when the data are sent into the confidential box or bulletin board or not. Also, selects the output condition.	0: OFF 1: Remote ON, local OFF 2: Remote OFF, local ON 3: ON	0	0	0	0	1	1	1	1	1	1
13-368	Journal auto-output	Sets whether the journal is output automatically or not.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1
13-370	Communication result on journal (OK/NG)	Selects whether the communication result (OK/ NG) is reported on the journal or not.	0: Not reported 1: Reported	1	1	1	1	1	1	1	1	1	1
13-371	Communication result on journal (error code)	Selects whether the communication error code is reported on the journal or not.	0: Not reported 1: Reported	1	1	1	1	1	1	1	1	1	1
13-372	CI detection counter setting for auto-RX	Sets the CI counter value for the machine to enter the automatic reception mode.	0: Once 1: Once ¦ 15: 15 times (Value increased one by one)	1	4	1	2	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	3	4	13-362
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-363
1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	13-365
1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	13-367
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-368
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-370
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-371
2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	13-372

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-373	Speaker volume (monitor tone)	Sets the speaker volume for on-hook status or protocol monitor.	0: Level 0 (Min.) ¦ 7: Level 7 (Max.)	6	6	6	6	6	6	6	6	6	6
13-375	Discard parameter on printing	Sets the data length to be discarded when the received data exceed the effective recording length.	0: 0 mm (No elimination) 1: 10 mm 2: 18 mm 3: 22 mm 4: 34 mm	1	1	1	1	1	1	1	1	1	1
13-377	Printing mode (Reduc-tion in vertical direction)	Sets if the received document is reduced automatically in the vertical direction to appropriate recording size.	0: Auto-reduction 1: No reduction	0	0	0	0	0	0	0	0	0	0
13-378	Discard printing	Selects if the discard printing is performed.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1
13-379	Maxi-mum reduc-tion rate in vertical direction	Sets the maximum reduction rate in the vertical direction.	0: 90% 1: 75%	0	1	0	1	1	1	1	1	1	1
13-382	Recep-tion informa tion on received docu ment	Sets if the receiver information is printed on received document.	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-389	RX mode (PSTN)	Selects the receiving mode.	0: TEL 1: FAX 2: TEL/FAX	1	1	1	1	1	1	1	1	1	1
13-391	ECM function	Sets if the ECM communication is performed.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1
13-394	Recov-ery trans-mission retain-ing time	Sets the time for the HDD to retain data when the transmission was terminated due to an error.	1: 1 hour ¦ 24: 24 hours	6	6	6	6	6	6	6	6	6	6

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	13-373
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-375
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-377
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-378
1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	13-379
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-382
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-389
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-391
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	13-394

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-501	Commu-nication control in case PPR is received four times	Sets how the communication is controlled when the 4th PPR is received during the ECM transmission.	0: EOR trans-mitted 1: CTC (commu-nication terminated after the 4th 2400 bps PPR) 2: CTC (EOR transmitted after the reception of the 4th 2,400 bps PPR)	2	2	2	2	2	2	2	2	2	2
13-509	Modem speed for overseas commu nication (except V.34)	Sets the initial modem speed for overseas communication.	0: 9,600 bps 1: 7,200 bps 2: 4,800 bps	0	0	0	0	0	0	0	0	0	0
13-510	Position of header for trans mission informa-tion	Selects the position where the header is inserted.	2: Inside 3: Outside	2	2	2	2	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-501
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-509
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-510

Code	Adjustment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-511	Transmission information at header	Sets the header insertion.	0: Not inserted 1: Inserted	1	1	1	1	1	1	1	1	1	1
13-512	Threshold for error image (G3 mode only)	After receiving a document with more error lines than this threshold level, the machine transmits the RTN signal to the sender.	0: 5% 1: 10% 2: 15% 3: 25%	1	1	1	1	1	1	1	1	1	1
13-517	Regular reduction	Sets if the regular reduction printing (A3 → B4 or A4, B4 → A4 or B5) is performed.	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-518	Duplex printing	Sets if duplex printing for received documents is performed.	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-519	Paper selection for received FAX document	Selects which one has priority over the other, A4 series or LT series, to print the received document when these two series are mixed in a Tray.	0: A4 series 1: LT series	0	0	0	1	0	0	0	0	0	0
13-564	Control channel speed	Selects the control channel speed for the V.34 communication.	0: 1,200 bps 1: 2,400 bps	0	0	0	0	0	0	0	0	0	0
13-565	Fall-back condition for transmitter (No. of PPR reception) (V.34)	Sets the number of the PPR reception for fall-back condition in the V.34 transmission.	0: Once 1: Twice ¦ 10: 11 times	5	5	5	5	5	5	5	5	5	5

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-511
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-512
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-517
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-518
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13-519
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-564
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	13-565

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-566	Fall-back condi-tion for receiver (No. of PPR transmis-sion) (V.34)	Sets the number of the PPR transmission for fall-back condition in V.34 reception.	0: Once 1: Twice ¦ 10: 11 times	5	5	5	5	5	5	5	5	5	5
13-567	TX attenua tion value (V.34)	Sets the modem transmission attenuation level for the V.34 com-munication. The smaller the set value is, the higher the transmission level becomes. If errors occur frequently or training is not sent, the transmission level should be changed.	0: 0 dB 1: -1 dB ¦ 15: -15 dB (Value decreased one by one)	10	10	10	10	12	12	12	12	12	12
13-569	Initial modem speed for V.34 commu-nication	Sets the initial modem speed for V.34 com-munication.	0: V.34 not installed 6: 14.4 kbps (V.34) 9: 21.6 kbps (V.34) 12: 28.8 kbps (V.34) 14: 33.6 kbps (V.34)	14	14	14	14	14	14	14	14	14	14
13-571	SUB/ SEP/ PWD functions	Sets SUB/SEP/ PWB communi-cation at data reception.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1
13-574	Coding capability (com-municati on capa-bility)	Sets the coding capability to be declared to the other side during communication.	0: MH 1: MH/MR 2: MH/MR/ MMR 3: MH/MR/ MMR/JBIG	3	3	3	3	3	3	3	3	3	3
13-575	Reception end tone timing	Sets the timing to sound the reception end tone.	0: OFF 1: When print-ing is com-pleted 2: When reception is completed	1	1	1	1	1	1	1	1	1	1

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	13-566
12	12	12	12	12	12	12	12	12	12	12	12	10	10	13	12	10	13-567
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13-569
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-571
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	13-574
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-575

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-576	V.34 symbol rate	Sets the initial value for the symbol rate for V.34 communi-cation. Maximum modem speed for each setting are as follows. 2,400: 21,600 bps, 2,800: 26,400 bps, 3,000: 28,800 bps, 3,200: 31,200 bps, 3,492: 33,600 bps	0: 2,400 1: 2,800 2: 3,000 3: 3,200 4: 3,429	4	4	4	4	4	4	4	4	4	4
13-577	V.34 fall-back method	Sets the number of steps in which the modem speed is fall-backed.	0: 1 step 1: 2 step 2: 3 step	0	0	0	0	0	0	0	0	0	0
13-578	Recovery trans-mission	Sets whether the recovery transmission is performed or not.	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-580	Protocol type	Selects the type of the T.30 procedure. DTS is only for Europe.	0: ITU-T 1: DTS	0	0	0	0	1	0	0	0	0	0
13-581	Batch trans mission	Batch transmission is performed or not.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1
13-584	Alterna-tion output	Sets the alternation output.	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-585	Search function for receiver name on trans-mission journal	Sets if the search function for the receiver name on the transmission journal is used. (Relay reception report is not supported.)	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-586	Commu-nication end tone volume	Sets the volume of the communi-cation end tone.	0: Level 0 (Min) ¦ 7: Level 7 (Max)	4	4	4	4	4	4	4	4	4	4
13-587	Commu-nication end tone sound-ing time	Sets how long the communication end tone sounds.	0: OFF 1: 0.5 sec 2: 1.0 sec 3: 1.5 sec 4: 2.0 sec 5: 2.5 sec 6: 3.0 sec 7: 3.5 sec 8: 4.0 sec 9: 4.5 sec 10: 5.0 sec	2	2	2	2	2	2	2	2	2	2

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	13-576
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-577
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-578
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	13-580
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-581
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-584
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-585
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	13-586
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13-587

700-749 Adjustment of telephone function

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13 - 722	Pseudo ring-back tone waveform selection	Selects the ring-back tone waveform output in the TEL/ FAX mode.	0: Alternate transmis-sion with 2 frequency-wave (405/ 432 Hz) 1: Single tone (405 Hz)	0	0	0	0	0	0	0	0	0	0
13 - 723	ATT set-ting when RBT is transmit-ted	Sets the trans mission level of the ring-back tone output in the TEL/ FAX mode.	10: -10 dB ¦ 15: -15 dB (per -1 dB)	10	13	10	10	13	13	13	13	13	13
13 - 724	Pseudo ring trans-mission function setting	Sets the num ber of calling operator in the TEL/FAX mode.	0: Once 1: Once ¦ 15: 15 times	6	6	6	6	6	6	6	6	6	6
13 - 725	CNG detection	Selects the fre-quency for CNG filter detection in the TEL/FAX mode. Narrow the frequency if false detection occurs due to sound, etc.	0: 1100 ± 38 Hz 1: 1100 ± 30 Hz 2: 1100 ± 24 Hz	2	2	2	2	2	2	2	2	2	2
13 - 726	Number of detec-tion determi-nation setting	Sets the number of CNG detection before starting automatic reception in the TEL/FAX mode.	0: Once 1: Twice	1	1	1	1	1	1	1	1	1	1

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13 - 722
13	13	13	13	13	13	13	13	13	13	13	13	10	10	15	13	10	13 - 723
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	13 - 724
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13 - 725
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13 - 726

900-999 Adjustment of system setting

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-922	Format of Fax destina-tion dis-play after phase B	Sets either "the phone number transmitted by CSI signal" or "the name of destination in the address book or the dialed phone number" for the destination dis-play after phase B in the transmission control.	0: Phone number by CSI signal 1: Name of destination in the address book or the dialed phone number	0	0	0	0	0	0	0	0	0	0
13-923	Retrieva l method of sender's address name by TSI signal and the address book	Sets either the partial or perfect match retrieval of the phone number transmitted by TSI signal and the registered phone number in the address book to search for sender's address name. (For save file name at the time of the transfer. But SaveAsFile or e-filing setting only. E-mail transmission is not supported.)	0: Partial match retrieval of the phone number by TSI signal and the registered phone number 1: Perfect match retrieval of the phone number by TSI signal and the registered phone number	0	0	0	0	0	0	0	0	0	0
13-924	Duplex printing for received fax	Sets whether duplex printing is performed or not to output the received fax documents at the forwarding destination, when ON is selected at "Duplex printing for received docu-ments" (code: 518).	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-925	Image attach-ment on result report at Mailbox (F-code) data trans-mission	Sets whether an image is not attached on the result report only when Mailbox (F-code) data is transmitted in the confidential box or bulletin board.	0: Depend on result report setting 1: Not attached the image	0	0	0	1	0	0	0	0	0	0

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-922
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-923
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-924
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13-925

Code	Adjust-ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13-926	Paper width declara-tion in paper empty state	Selects either size, A4 or B4, to declare the paper size when “0: Paper” has been selected for the code 346 and paper in every Tray is run out.	0: A4 1: B4	0	0	0	0	0	0	0	0	0	0
13-927	B4 dec-laration on B5 record-ing paper at data reception	Sets whether B4-size data is printed out on B5 recording paper or not. (The data size is not reduced. The later half of the original B4-size data is cut off.)	0: Not printed on B5 1: Printed on B5	0	0	0	0	0	0	0	0	0	0
13-940	UI display for [Tx ATT]	Sets whether the [Tx ATT] button is displayed in the Phone Book registration screen or not. When "16" is set for the TX attenuation, the transmission level of the equipment is determined by the setting values of the following items. 13-325: TX attenuation value (V.17) (Line 1) 13-430: TX attenuation value (V.17) (Line 2) 13-567: TX attenuation value (V.34) (Line 1) 13-616: TX attenuation value (V.34) (Line 2)	0: OFF 1: ON	0	0	0	0	0	0	0	0	0	0
13-941	UI dis-play for TTI ON/ OFF	Sets whether the button is displayed in the TTI setting screen.	0: OFF 1: ON	1	1	1	0	0	0	0	0	0	0
13-944	Error code reserva-tion for protocol trace list	Key in an error code decimally to print out the protocol trace list not for each communication but only for that specific error.	0-255:Error code	0	0	0	0	0	0	0	0	0	0
13-955	Return loss set-ting	Selects the NCU termination circuit.	0: ASIA 1: AUS 2: Others 3: EUR	0	1	0	0	3	3	3	3	3	3
13-962	FCC type for TTI format	Sets whether FCC type for TTI format.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-926
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-927
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-940
0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	13-941
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13-944
3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	3	0	13-955
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13-962

Code	Adjust - ment	Function	Setting	Default									
				ASM	AUS	HKG	USA	DEU	GBR	ITA	BEL	NDL	FIN
13 - 970	Format of address for trans- mission/ reception journal	Sets whether the format of address for transmission/ reception journal.	Priority of recording items in journal 0: Name of address- book, or Direct dialing number 1: Receiver inform (CSI), or Name of address- book or Direct dialing number 2: Dialing num- ber (direct or address- book)	0	0	0	2	1	1	1	1	1	1
13- 971	Short protocol	Sets the short protocol.	0: OFF 1: ON	1	1	1	1	1	1	1	1	1	1

Default																	Code
ESP	AUT	CHE	SWE	DNK	NOR	PRT	FRA	GRC	POL	HUN	CZE	TUR	ZAF	TWN	RUS	BRA	
1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	2	13 - 970
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13- 971

2.5 FAX Clearing Mode (1*)

Various FAX memories are initialized in the FAX clearing mode (1*).

1) Memory Areas

- User registration area (SRAM)
  ID registration area
  Home position
- Image data area (HDD, SRAM)
  Transmission file
  Reception file
  Image data file management area
  F-code box information
- System setting area (NVRAM)
  Settings in the Function Mode (13) Areas 100 - 999

2) Types of Initialization

- FAX Set Up
  User registration area (SRAM)
  Initialized so that there are no data stored.
  System setting area (NVRAM)
  Values are reset to the default settings.
- Clearing the image data
  Image data area (HDD, SRAM)
  Initialized so that there are no data stored.
  Job clear
- Clearing the system setting area
  System setting area (NVRAM)
  Values are reset to the default settings.

[Operation procedure]

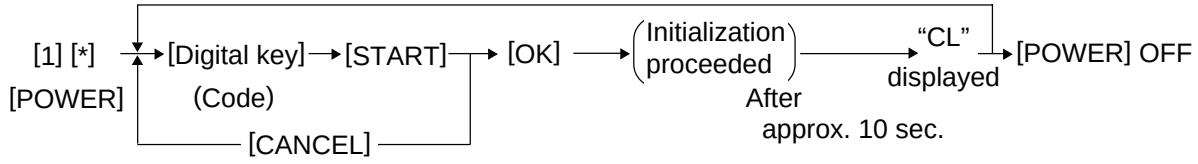


Fig. 2-9

* When "CL" is displayed instead of the set number, that indicates that the machine is in the standby mode.

Initialization codes for the FAX

Code	Element	Contents	Mode	Image quality mode	Default
1*-100	MAINT	FAX Set Up	FAX	-	-
1*-102	MAINT	Clearing the image data	FAX	-	-
1*-103	MAINT	Clearing the system setting area	FAX	-	-

Note:

It takes about 20 seconds until the digital keys become operable after the power has been turned ON while [1] and [*] are pressed simultaneously.

Note:

Before performing the initialization, confirm that the destination value is correct in the Setting Mode (08) described in the 📖 P. 2-6 "2.3 Setting Mode (08)".

If the initialization is performed with the wrong destination setting, the default value of the Function Mode is changed to that for the wrong destination.

3. TROUBLESHOOTING

3.1 Diagnosis Over Telephone

Most problems end users inquire are the results of the following. Therefore, ask the nature of the trouble (in detail) first to seek the cause. These questions can lead to a speedy resolution of the trouble without the need for a service technician.

- **Simple mis-operation**

  A trouble caused by a simple mis-operation can be solved by the user alone with an appropriate instruction through the telephone.

- **A failure with the telephone line**

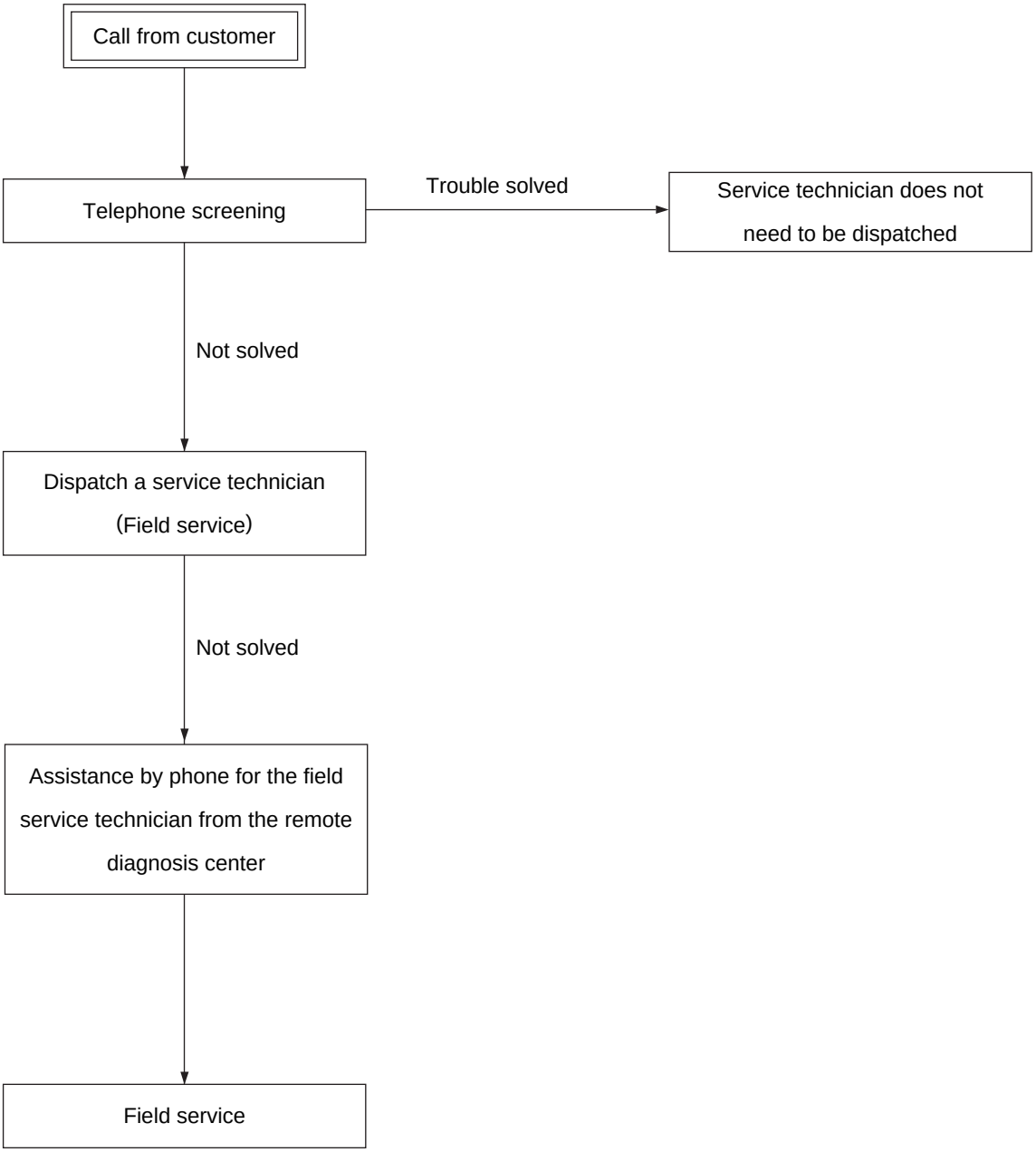
  The machine's condition can be checked by the user's operating sending/receiving documents to/from another FAX unit.

- **A failure with the other party's machine**

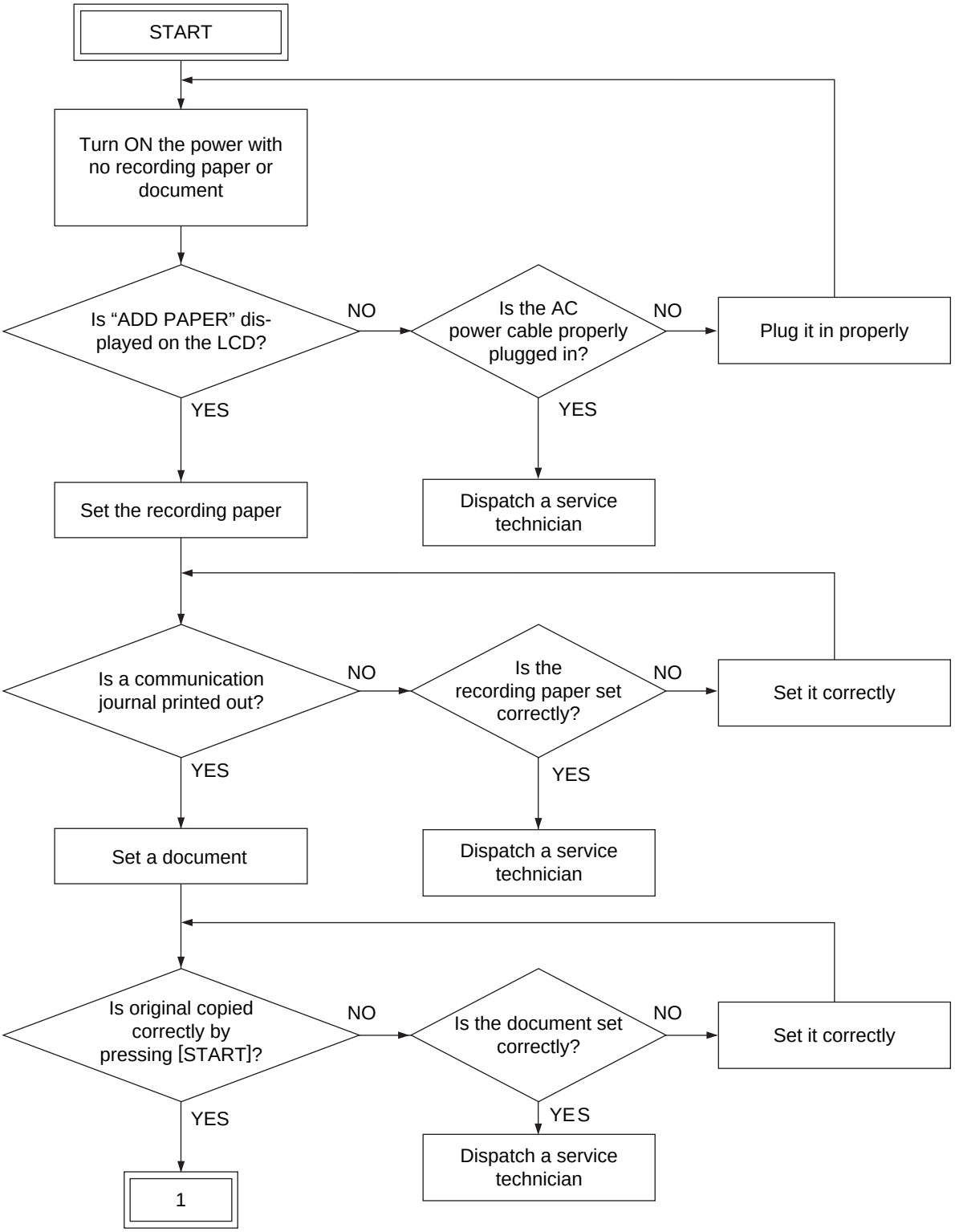
  The other party's machine's condition can be checked by the user's operating sending/receiving documents from/to the user's machine.

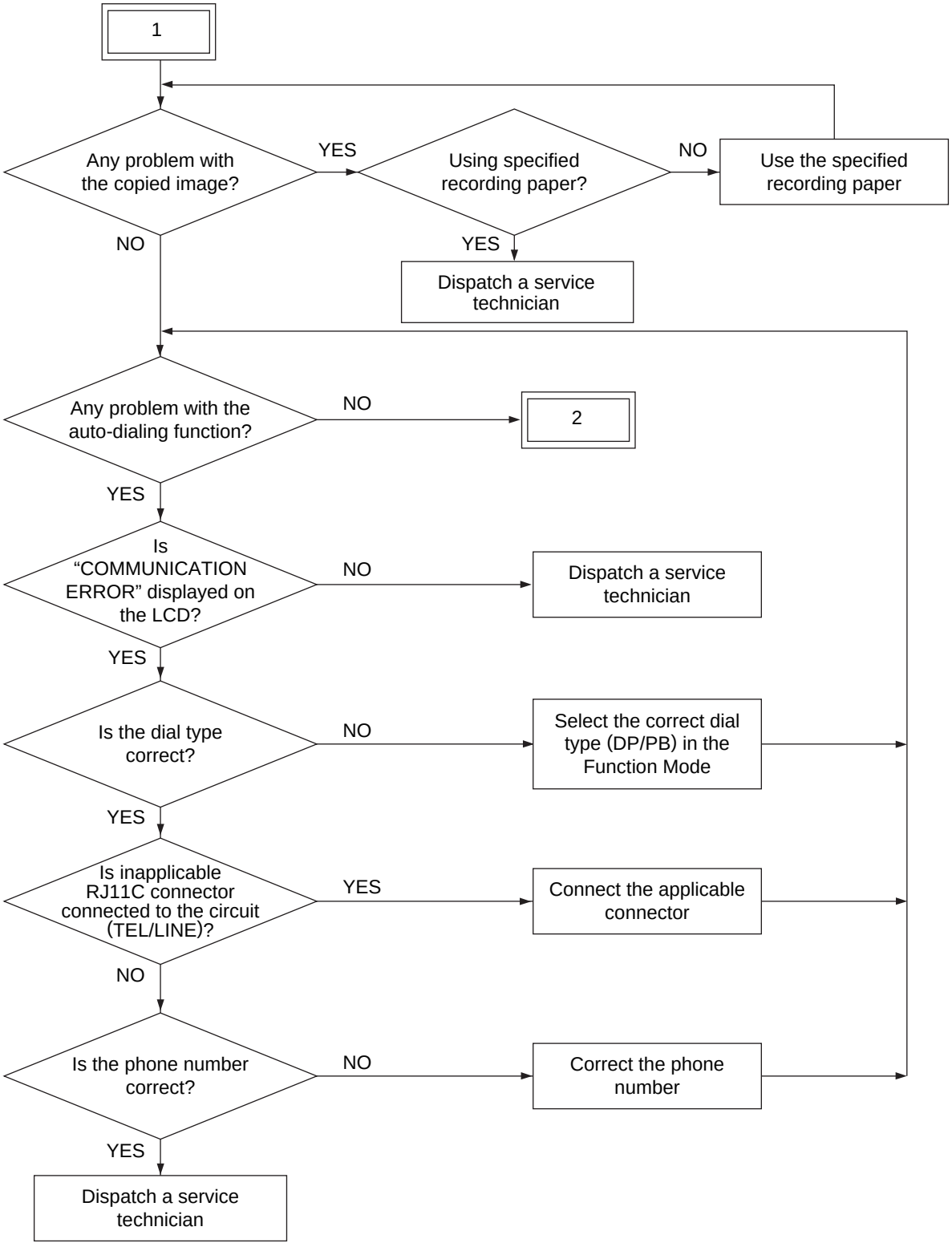
Also, by verifying the error message in the LCD display or the error code on the Journal with the user, the nature of the trouble can be confirmed. This information is important in finding the cause of trouble.
Whenever it can be obtained from the user, respond on the telephone by tracing the "📖 P. 3-3 "3.3 Flow Chart for Recommended Telephone Screening"". This will help the service technician to be prepared for the necessary service requirements.

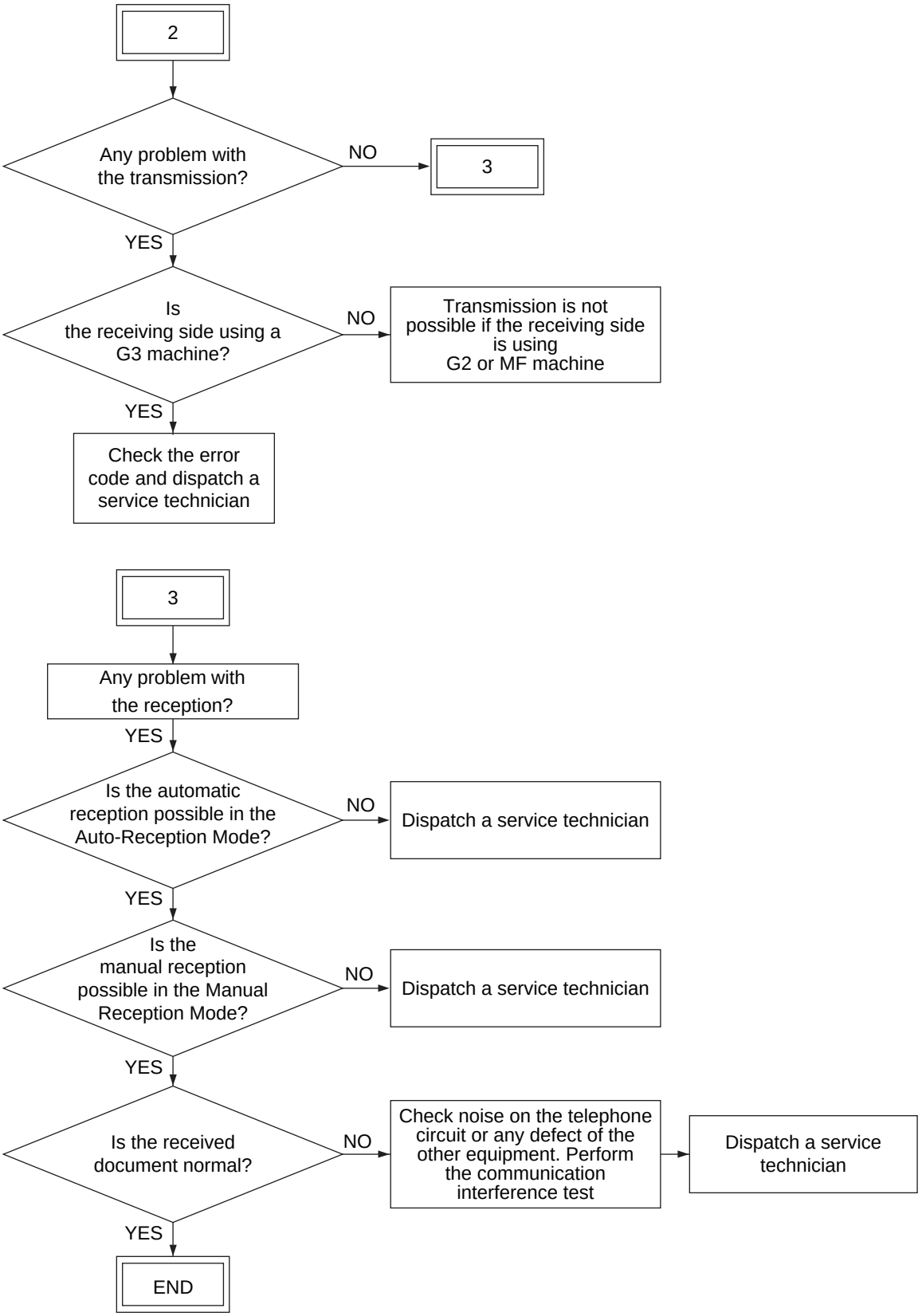
3.2 Recommend Flow Chart for Field Service



3.3 Flow Chart for Recommended Telephone Screening




1
Any problem with the copied image?
YES
Using specified recording paper?
NO
Use the specified recording paper
NO
YES
Dispatch a service technician
Any problem with the auto-dialing function?
NO
2
YES
Is "COMMUNICATION ERROR" displayed on the LCD?
NO
Dispatch a service technician
YES
Is the dial type correct?
NO
Select the correct dial type (DP/PB) in the Function Mode
YES
Is inapplicable RJ11C connector connected to the circuit (TEL/LINE)?
YES
Connect the applicable connector
NO
Is the phone number correct?
NO
Correct the phone number
YES
Dispatch a service technician


2
Any problem with the transmission?
NO
3
YES
Is the receiving side using a G3 machine?
NO
Transmission is not possible if the receiving side is using G2 or MF machine
YES
Check the error code and dispatch a service technician
3
Any problem with the reception?
YES
Is the automatic reception possible in the Auto-Reception Mode?
NO
Dispatch a service technician
YES
Is the manual reception possible in the Manual Reception Mode?
NO
Dispatch a service technician
YES
Is the received document normal?
NO
Check noise on the telephone circuit or any defect of the other equipment. Perform the communication interference test
Dispatch a service technician
YES
END

3.4 Error Analysis Flow

3.4.1 Self-Diagnosis function

Service technicians can figure out the contents of the error with the following information:

1) Display on the LCD panel
2) Error code on the transmission/reception journal

3.4.2 Precautions for diagnosis

Service technicians should output the Address Book / Group Number Information and Function List for Maintenance. Confirm that no received document data are stored in the memory by checking the “Memory RX” LED and Reservation List.
Turn OFF the power and check the following items before starting the diagnosis.:

- Check if the power cable is properly plugged in.
- Check if the connectors are securely connected.
- Pay full attention to an electric shock at the power section and a short circuit of the conductor pattern on the board when servicing with the power cable connected to the outlet while the cover is taken off.
- Make sure that there is not any connector remains disconnected or loosened screw after the error analysis.
- Make sure that the machine operates properly with a communication test every time the error analysis has been performed.

Notes:

- Before replacing the parts, confirm that there is no data to be transmitted or no received document in the memory. Turn OFF the power and unplug the power cable.
- Do not touch the terminal of the connectors. Otherwise, a poor connection may be caused.

3.5 Fault Analysis

3.5.1 Power-ON is not possible

1) Check if the power cable is plugged into an appropriate outlet (of the correct voltage).
2) Check if the rated voltages are being output from the switching power supply. When the measured voltage is not the rated value, replace the switching power supply.
3) Check if each connector between the DSP board and the SYS board is disconnected.
4) Check if each connector between the SYS board and the switching power supply is disconnected.
5) Check if each connector pin is removed or the harness is broken.
6) Check if any conductor pattern on the switching power supply, and SYS board is open- or short-circuited.
7) Replace the DSP board.
8) Replace the SYS board.

3.5.2 Original transport error for RADF

Check the error code and refer to the TROUBLESHOOTING of Service Handbook for the equipment.

3.5.3 Recording paper transport error

Check the error code and refer to the TROUBLESHOOTING of Service Handbook for the equipment.

3.5.4 Image trouble

Check the image and refer to the TROUBLESHOOTING of Service Handbook for the equipment.

3.5.5 Communication error

Communication errors may occur when the condition of a particular phone circuit happens to be bad at the time of attempting the communication job. Therefore, do the communication over again. If communication errors occur too many times, prepare another (operational) FAX unit and check the communication condition among the three FAX units, thus analyzing the troubles.

A communication error occurs between A and B.

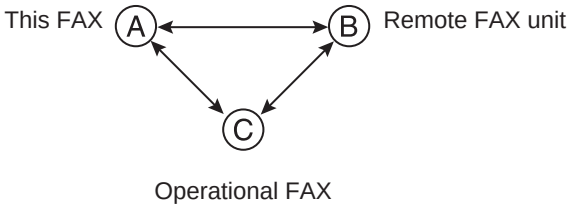


Fig. 3-1

1) If normal communications are possible between A and C, and the communication trouble occurs B and C, it can be assumed that FAX B is malfunctioning.
2) If normal communications are possible between B and C, and the communication trouble occurs A and C, it can be assumed that FAX A is malfunctioning. Therefore, adjust the transmission attenuator value (13-325, 13-430, 13-567, 13-616) and the cable equalizer value (13-328, 13-433).
3) If normal communications are possible between A and C and between B and C, it can be assumed that there is a problem in the line between A and B.

3.6 Lists Required at Problem in the Field

Output the following lists when problem occurs in the field. They are described in the order of the priority the most important one come first in this section. It is not necessary to output these lists immediately after the trouble has occurred, but they must be prepared for any kind of trouble regarding the FAX operation.

[Precaution]

Disconnect the telephone line to stop the communication when trouble occurs. Since the only last communication is reported on the protocol trace list, if the telephone line is not disconnected immediately after the trouble has occurred, next communication might come in before the line is disconnected and be printed out instead of the communication in question.

Do not turn OFF the power before printing the protocol trace list and memory dump list. Otherwise, the information will be lost.

3.6.1 List printing procedure

1) Enter the Service Mode.
   - Press the [USER FUNCTIONS] button.
   - With the [USER FUNCTIONS] menu displayed, enter the Service Mode password provided during product training
   - The SERVICE TECHNICIAN PASSWORD menu appears. Press [OK]. (Enter a password if one is set. Then press [OK].)
   - The SERVICE MODE menu appears.

2) Select "FAX LIST PRINT MODE" and then press [NEXT].

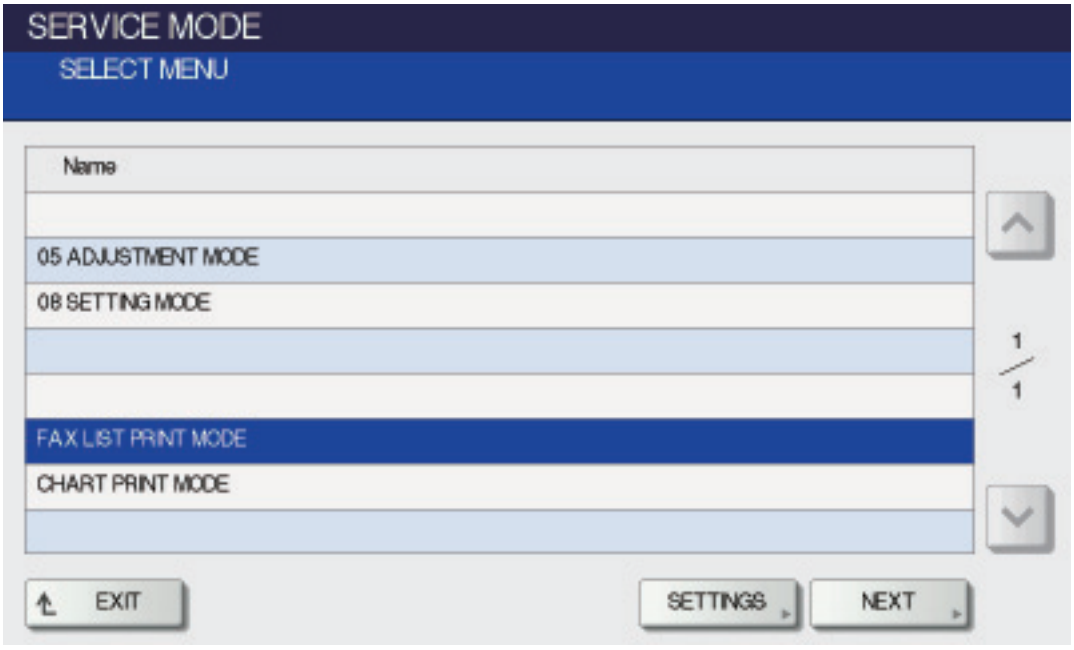


Fig. 3-2

3) Select the desired list and then press [PRINT].

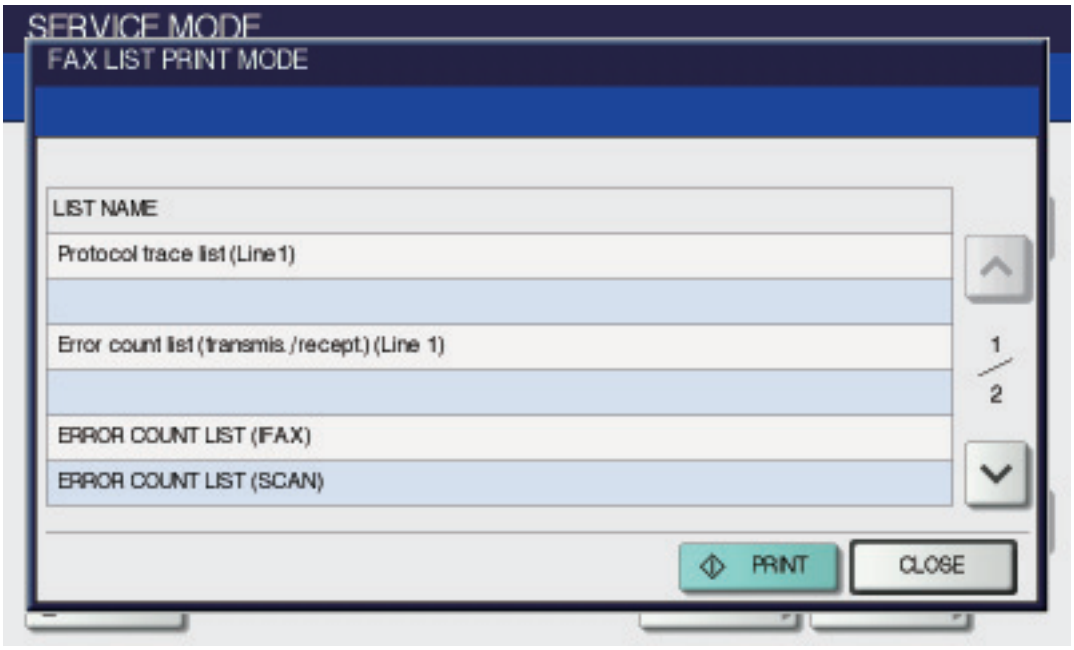


Fig. 3-3

The FAX LIST PRINT MODE menu contains the following lists to select:

- Protocol trace list (Line 1)
- Error count list (transmis./recept.) (Line 1)
- ERROR COUNT LIST (Internet FAX)
- ERROR COUNT LIST (SCAN)
- Function list for Maintenance
- Memory dump list (System)
- Memory dump list (FAX)
- SUPPLY ORDER LIST

3.7 Other Information Required for Error Analysis

The following information is also needed to analyze the malfunction (especially a communication error).
Check the circles below if they are applicable.

1) If the error is cleared or not.
   - Cleared by turning ON/OFF the power.
   - Cleared by performing “Clearing the image data area (1*–102)”.

   Note:
   The image data (including printer data other than FAX data) and the job being performed are erased by this operation.

   - Cleared by replacing the board.
   - Not cleared.

2) Frequency of occurrence
   - Frequently (occurring daily or always)
   - Sometimes (about once a week)
   - Only once

3) When a communication error is occurring, turn ON the circuit monitor for the line 1 (13–338), and check the condition of the FAX communication with the tone from the speaker.

   Note:
   Turn OFF the circuit monitoring function after the checking is finished (13–338: 0).

   - Signals from the transmitter and that from the receiver clash.
     → Check the model name of the other party’s machine.
   - Noise occurring on the circuit.
     → Ask the telephone (or telecommunications) company if the line condition is normal.
   - Busy tone is heard from the other party during the communication.
     → Ask by phone if the other party’s machine has any problem. If it does not, check its model name.
   - Others (describe condition): _____

4) Condition of the machine when the problem occurred
   - Display

     Control panel:

     Copying operation screen FAX operation screen Printing operation screen
     Energy saver screen “Auto Power Off” screen

     Describe the items displayed on the control panel in detail: _____

     Status of LEDs:

     “DATA IN MEMORY” ON “Communicating” ON
     Power ON
   - State of the machine

     Availability of the recording paper:

     1st Tray (size=) No paper Paper present
     2nd Tray (size=) No paper Paper present
     3rd Tray (size=) Not installed No paper Paper present LCF
     4th Tray (size=) Not installed No paper Paper present LCF

- Conditions of RADF (this information is needed for transmission error)

  Originals have been all exited

  Abnormal (original jam, etc.)

  Others (be as specific as possible):

- Condition/State of the communication

  Transmission error

  Reception error

  ECM mode

  G3 mode

  Image errors such as stream image or interrupted image occur in the G3 mode when the noise occurs on the line. These are liable to occur since the line condition differs depending on each communication.

  If the same errors occur to the image which was resent, they can be decreased by reducing the transmission speed of the sending side.

  Communication cannot be made with a particular number.

  (Information of the other side's machine:_____)

  If the communication is impossible with a particular number, it is considered that the other party's machine has broken down or has been busy (there is no response) because the recording paper has run out and the memory is full. Check the condition of the terminal of the other side.

  If there is no problem with the terminal, check the model name since there is a possibility that particular type of the machine has caused the problem.

  Original size = A4 B5 A5

  Size of the received document = B4 A4 B5 A5

  Resolution = NORMAL (8*3.85) FINE (8*7.7) U-FINE (16 or 8*15.4)

  Error occurred to the _____ st/nd/rd/th sheet out of _____sheets.

- Condition of the circuit connection

  Connected directly with the public telephone circuit.

  Connected via a local exchange device or the main equipment.

  → Is any other equipment connected besides this unit?

  → Does the ring tone sound normally (rings for 1 second and stops for 2 seconds) (If it is not normal, the reception may not be started.)

  Circuit switching device

  → Are the circuit settings (DP, PB) of the circuit switching device the same as those for this unit?

  Connection via an ISDN circuit terminal adaptor

  → Is the circuit number of the terminal adaptor correct? Is it the same number as that for the FAX assigned to the other device (ex. data modem)?

  → Does the noise from the terminal adaptor affect the line? (Connect the TA with your machine and ground it to check.)

Configuration of the units
(Illustrate the units connected to your machine such as the telephone lines, exchange system, telephones, modems, etc.)

- Settings of the Auto Power Save and Auto Shut Off
  Auto-clear timer (08-9110) =
  Auto Power Save (08-9111) =
  Auto Shut OFF (08-9112) =

4. PRECAUTIONS FOR INSTALLATION OF FAX UNIT

4.1 Installation of FAX Unit

After unpacking and installing the FAX unit following the unpacking/setup instructions, be sure to perform “FAX Clearing Mode / FAX Set Up” described with the same instructions. The unit is not turned ON without this operation.

[Operation procedure]

Perform the following operation after setting the country/region in 08-9000 and 08-9001.

[1] [*] [POWER] → [100] → [START] (It takes about 20 seconds for the digital keys to be operable after the power is turned ON.) (It takes about 10 seconds until the display changes from ‘100’ to ‘CL’.)

[About FAX Clearing Mode / FAX Set Up]
When “FAX Set Up” is performed, the following operations are performed:
Data in the ID registration, home position stored in the SRAM on the SYS board are erased.
The system setting area is initialized (the settings are reset to the default values.)

4.2 Country/Region Code

Set the country/region code after the installation of the FAX unit is finished.

Note:
All data stored in the SRAM are erased when the country/region code is set/changed.

Setting the country/region code

1) Turn ON the power while pressing [0] and [8] simultaneously.
2) Key in “9001”, and press [START] button.
3) Key in a code, and they press the [ENTER].
   (2.3 Setting Mode (08))

Country/Region	Code
ASM: Asia/Chile/Peru/Argentina/Saudi Arabia/Singapore/Malaysia	1
AUS: Australia/New Zealand	2
HKG: Hong Kong	3
USA: U.S.A/Canada	4
DEU: Germany/Cyprus/Luxembourg/Ireland	5
GBR: England	6
ITA: Italy	7
BEL: Belgium	8
NDL: Holland	9
FIN: Finland	10
ESP: Spain	11
AUT: Austria	12
CHE: Switzerland	13
SWE: Sweden	14
DNK: Denmark	15
NOR: Norway	16
PRT: Portugal	17
FRA: France	18
GRC: Greece	19
POL: Poland	20
HUN: Hungary	21
CZE: Czech Rep.	22
TUR: Turkey	23
ZAF: South Africa	24
TWN: Taiwan	25
RUS: Russia	26
BRA: Brazil	27

- Country/region setting using the FG harness on the NCU board.
  These country/region require code setting on the NCU using the FG harness.
  All other countries/regions have only W1 connection on the board.

DEU	GBR	NLD	ITA	AUT	BEL	CHE	SWE	DNK	NOR	FIN	PRT	FRA	ESP	GRC	IRL
W2	W2	W2	W1	W2	W2	W2	W2	W1	W2	W1	W2	W2	W2	W2	W2

ZAF	SGP	HKG	AUS	NZL	RUS	POL	HUN	CZE	TUR	CHN	RUS	BRA
W2	W2	W2	W2	W2	W2	W2	W2	W2	W2	W2	W2	W2

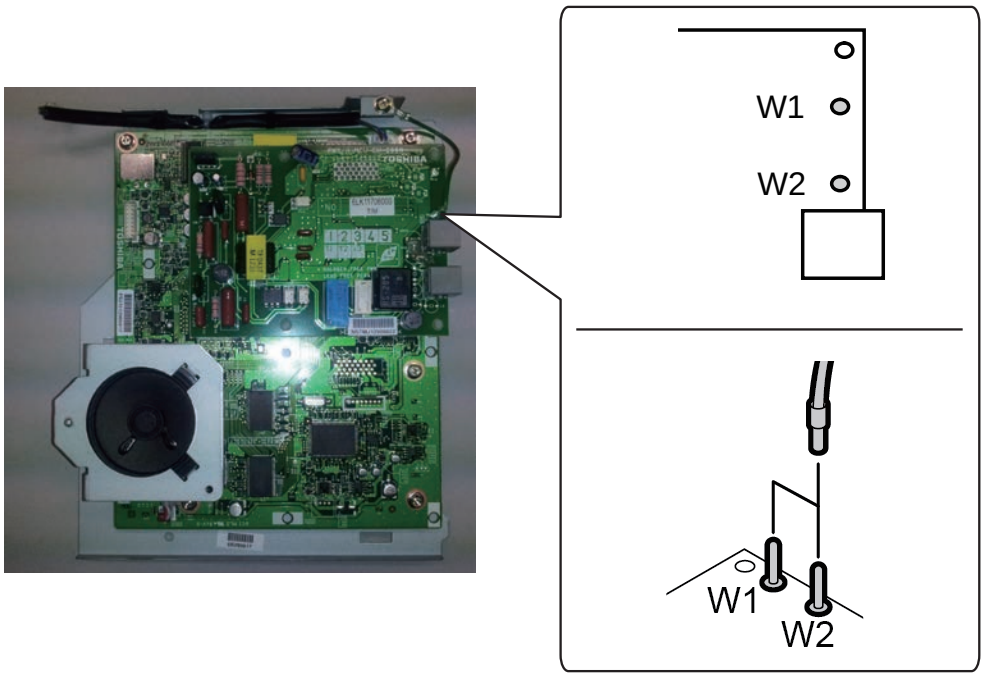


Fig. 4-1

5. FIRMWARE UPDATING

THe FAX firmware FAX Function (T.30 protocol and line control) has been installed in the ROM on the FAX board. When updating the firmware to the latest version is required or the equipment does not operate properly due to the damage of the firmware for some reason, the firmware can be updated by using the download jig (K-PWA-DLM-320).

<<Update procedure>>

Important:

- Before updating the FAX firmware, make sure to print out the current Function List for Maintenance, Function List (ADMIN), Phone Book Number Information and Group Number information.
  In case the updating is failed and the registered information of the users is lost for some reason, re-register the user information referring to the lists and recover it.
- Confirm the following items before turning OFF the power of the equipment. Turning OFF the power may clear the data below.
  - Confirm that the “DATA IN MEMORY” LED is OFF and there are no memory reception data.
  - Print the “Mailbox/Relay box report” and then confirm that there are no F code data.
  - Press the [JOB STATUS] button to display the screen and then confirm that there are no memory transmission data.

(1) Install the ROM to the download jig.
Make sure the direction is correct.

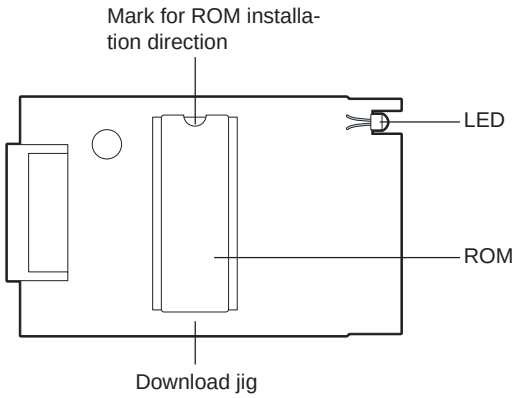


Fig. 5-1 [Jig board: K-PWA-DLM-320]

(2) Turn OFF the power of the equipment.

(3) Open the scanner and top cover. Remove the two screws [1] and two screws [2].

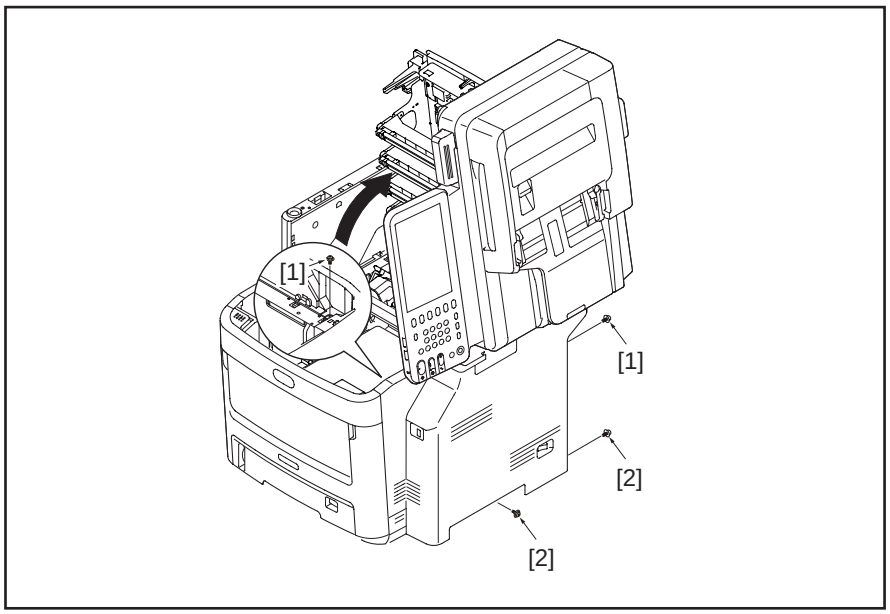


Fig. 5-2

(4) Release 2 latches.

Fig. 5-3

(5) Release 2 latches.

Fig. 5-4

(6) Release the latch.

Fig. 5-5

(7) Close the scanner and top cover, then open the feeder unit. Remove the right side cover [1].

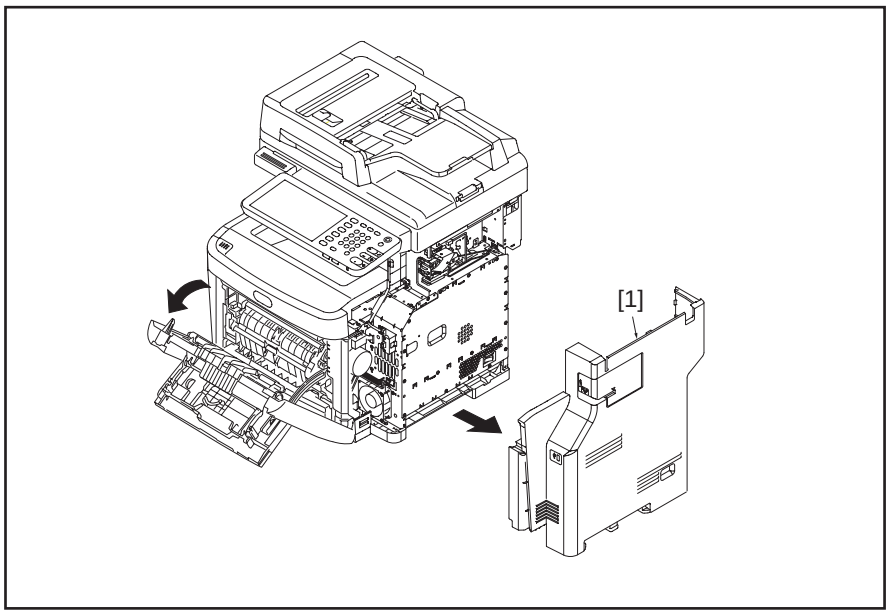


Fig. 5-6

(8) Connect the download jig [1] with the jig connector [2] on the FAX board.

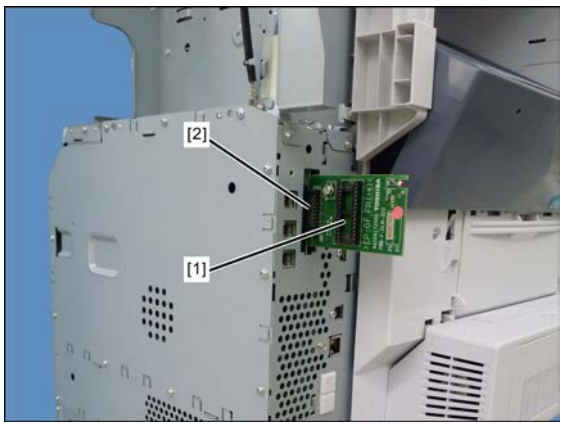


Fig. 5-7

(9) Turn ON the power while [0] button and [8] button are pressed simultaneously.
Updating starts automatically and the LED on the download jig lights.

(10) After the update is completed properly, the LED on the download jig blinks. The LED starts blinking in approx. 30 sec. since the update starts. It is assumed that the update is failed if it does not start blinking even though 1 min. has passed. In this case, turn OFF the power and check the following items. Then, clear the problem and restart updating from the beginning.

- Is the download jig connected properly?
- Is the ROM installed to the download jig properly?
- Is the updating data written on the ROM of the download jig properly?
- Do the download jig and the equipment operate properly?

(11) Turn OFF the power, then remove the download jig, then install the right side cover.

(12) In the FAX Clearing Mode, perform the “FAX Set Up”.

- Confirm the destination setting is correct in the Setting Mode (08).
  08-9000 : Destination setting of the equipment
  08-9001 : Destination setting of the FAX machine
- Turn ON the power while [1] button and [*] button are pressed simultaneously.
- Key in “100”.
- Press the [START] button.

Notes:

If the equipment does not work properly after the operation (8), follow the procedure below and then perform the “Clearing the image data” in the FAX Clearing Mode to erase the image data in the memory.

- Confirm the destination setting is correct in the Setting Mode (08).
  08-9000 : Destination setting of the equipment
  08-9001 : Destination setting of the FAX machine
- Turn ON the power while [1] button and [*] button are pressed simultaneously.
- Key in “102”.
- Press the [START] button.

<<Confirmation of the updated data>>
After the updating is completed, check the data version in the Setting Mode (08) to confirm that the data was overwritten properly.

08-9905 : FAX firmware version