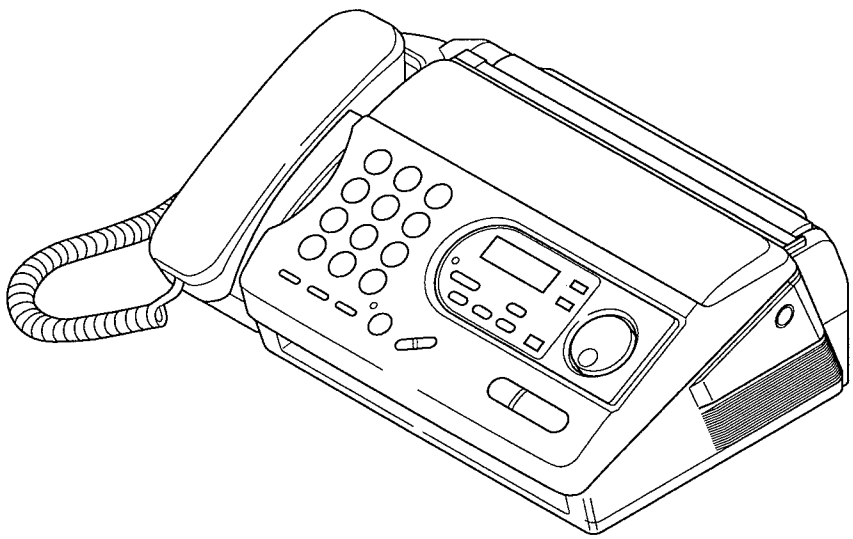
ORDER NO. KM79811250C2

Service Manual

Telephone Answering System
With Facsimile

KX-FT35HG
KX-FT37HG

(for Hungary)



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

©1998 Kyushu Matsushita Electric Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

TABLE OF CONTENTS

Page

INTRODUCTION

Safety Precautions 5
Insulation Resistance Test 5
For Service Technicians 5
Battery Caution 6
AC Caution 6
Personal Safety Precautions 7
Specifications 8
Optional Accessories 8
CCITT No.1 Test Chart 9
Location of Controls ..... 10~11
Features 12
Connections 13
Installation ..... 14~17
Maintenance Items and Component Locations ..... 18~20

TROUBLESHOOTING GUIDE

Troubleshooting Summary 22
User Recoverable Errors 23
Troubleshooting Details ..... 24~82
Programming and Lists ..... 83~88
Test Functions ..... 89~90

ADJUSTMENTS

Table of Test Equipment and Tools 92
Adjusting the Feeder Pressure 92
Confirming the Separation Spring 92

DISASSEMBLY INSTRUCTIONS

Disassembly Instructions ..... 94~103
How to Replace the Flat Package IC ..... 104~105

CIRCUIT OPERATIONS

Connection Diagram 108
General Block Diagram 109, 110
Control Section ..... 111~119
Facsimile Section ..... 119~138
MODEM Section ..... 139~145
Description of Block Diagram in Analog Section 146, 147
NCU Section 148, 149
ITS and Monitor Section 150
Special Circuit on the Analog Board 150
ATAS Section 151
Analog Gate Array Section 151, 152
Operation Panel 153
LCD COG Type 154
Power Supply Board Switching Section ..... 155~158
PRINTED CIRCUIT BOARD (DIGITAL BOARD) 159
PRINTED CIRCUIT DIAGRAM (DIGITAL BOARD) 160
SCHEMATIC DIAGRAM (DIGITAL CIRCUIT) 161
SCHEMATIC DIAGRAM (ANALOG CIRCUIT) 162
PRINTED CIRCUIT BOARD (ANALOG BOARD) 163, 164
SCHEMATIC DIAGRAM AND PRINTED CIRCUIT BOARD (HANDSET) 165
PRINTED CIRCUIT BOARD (SWITCHING POWER SUPPLY) 166
SCHEMATIC DIAGRAM (SWITCHING POWER SUPPLY) 167
PRINTED CIRCUIT BOARD (OPERATION BOARD) 168
SCHEMATIC DIAGRAM (OPERATION CIRCUIT) 169
TERMINAL GUIDE OF THE IC'S TRANSISTORS AND DIODES 170
FIXTURES AND TOOLS 171
CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION ..... 172~180
ACCESSORIES AND PACKING MATERIALS 181
REPLACEMENT PARTS LIST ..... 182~191

INTRODUCTION

Page

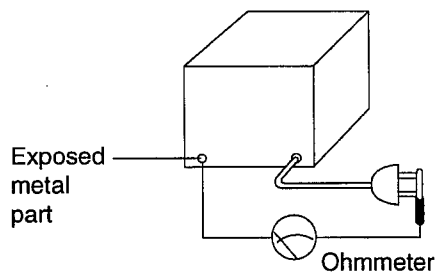
Safety Precautions 5
Insulation Resistance Test 5
For Service Technicians 5
Battery Caution 6
AC Caution 6
Personal Safety Precautions 7
Specifications 8
Optional Accessories 8
CCITT No.1 Test Chart 9
Location of Controls ..... 10~11
Features 12
Connections 13
Installation ..... 14~17
Maintenance Items and Component Locations ..... 18~20

SAFETY PRECAUTIONS

1. Before servicing, unplug the AC power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to perform the following insulation resistance test to prevent the customer from being exposed to shock hazards.

INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part (screwheads, control shafts, bottom frame, etc.).
   Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard.
   The equipment should be repaired and rechecked before it is returned to the customer.



Resistance = more than 10 MΩ
(at DC 500 V)

FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.
When repairing, the following precautions will help prevent recurring malfunctions.

1) Cover the plastic part's boxes with aluminum foil.
2) Ground the soldering irons.
3) Use a conductive mat on the worktable.
4) Do not touch the IC or LSI pins with bare fingers.

BATTERY CAUTION

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacture. Dispose of used batteries according to the manufacturer's instructions.

AC CAUTION

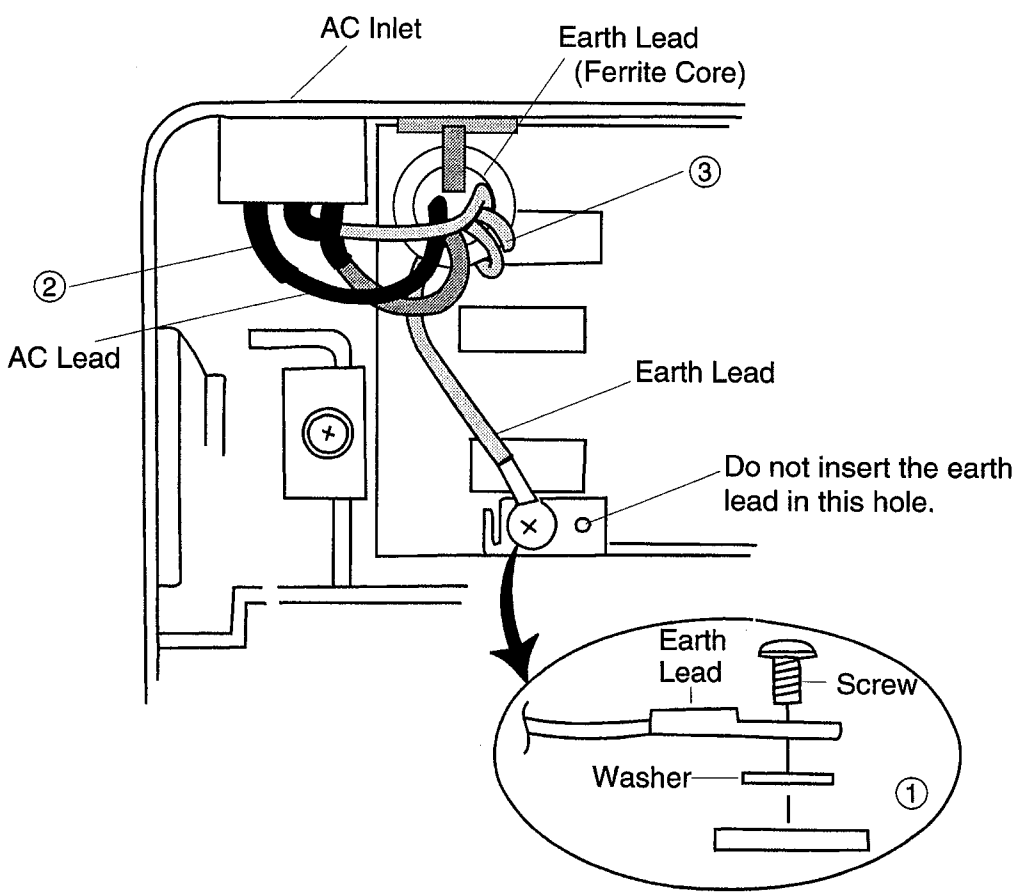
For safety, before closing the lower cabinet, please make sure of the following precautions.

① The earth lead is fixed with the screw.

② The AC connector is connected properly.

③ Wrap the Earth lead around the core 2 times.

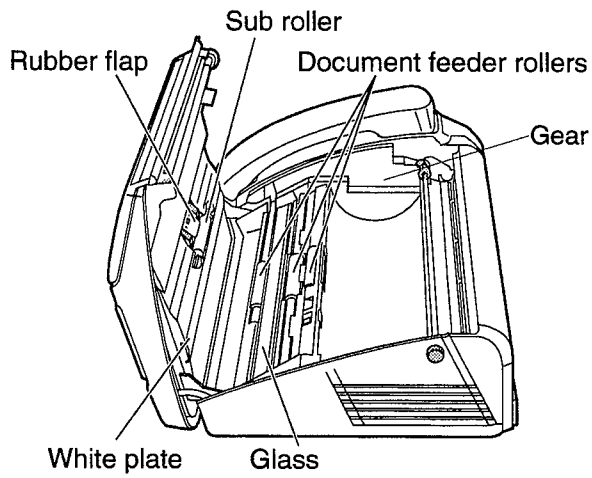
(BOTTOM VIEW)



PERSONAL SAFETY PRECAUTIONS

1. MOVING SECTIONS OF THE UNIT

Be careful not to let your hair, clothes, fingers, accessories, etc., become caught in any moving sections of the unit. The moving sections of the unit are the rollers and a gear. There is a separation roller and a document feed roller which are rotated by the document feed motor. A gear rotates the two rollers. Be careful not to touch them with your hands, especially when the unit is operating.

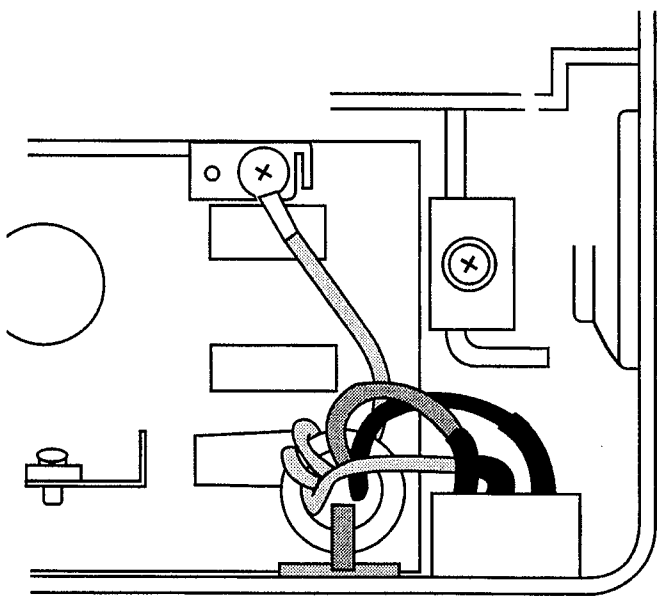


2. LIVE ELECTRICAL SECTIONS

All the electrical sections of the unit supplied with AC power by the AC power cord are live. Never disassemble the unit for service with the AC power supply plugged in.

AC voltage is supplied to the primary side of the power supply unit.
Therefore, always unplug the AC power cord before disassembling for service.

Be careful of "High Voltage" in this area.



(Bottom view)

SPECIFICATIONS

Applicable Lines:	Public Switched Telephone Network
Document Size:	Max. 216 mm (8½") in width Max. 600 mm (23⅝") in length
Effective Scanning Width:	208 mm (8$^{3}/_{16}$")
Recording Paper Size:	216×30 m (8$^{1}/_{2}$"×98")
Effective Printing Width:	208 mm (8$^{3}/_{16}$")
Transmission Time*:	Approx. 15 sec./page (Original mode) Approx. 30 sec./page (G3 Normal mode)
Scanning Density:	Horizontal: 8 pels/mm (203 pels/inch) Vertical: 3.85 lines/mm (98 lines/inch)—Standard mode 7.7 lines/mm (196 lines/inch)—Fine/Halftone mode 15.4 lines/mm (392 lines/inch)–Super Fine mode
Halftone Level:	64-level
Scanner Type:	Contact Image Sensor
Printer Type:	Thermal Printing
Data Compression System:	Modified Huffman (MH), Modified READ (MR)
Modem Speed:	9,600/7,200/4,800/2,400 bps; Automatic Fallback
Operating Environment:	5–35°C (41–95°F), 45–85 % RH(Relative Humidity)
Dimensions (H×W×D):	135×323×229 mm (5$^{9}/_{16}$"×12$^{23}/_{32}$"×9")
Mass (Weight):	Approx. 2.9 kg
Power Consumption:	Transmission: Approx. 20 W / Reception: Approx. 40 W Copy: Approx. 40 W / Standby: Approx. 7.5 W Maximum: Approx. 125 W (When using a 100% black document copy)
Power Supply:	220–240 V AC, 50/60 Hz
Memory capacity:	Approx. 20 minutes of recording time including the greeting message when no fax documents are in memory.** OR (for KX-FT37HG) Approx. 20 pages of document memory based on CCITT No1.Test Chart in standard resolution when no voice messages have been recorded.***

* Transmission speed depends upon the contents of the pages, resolution, telephone line conditions and capability of the receiving unit.
The 15 second speed is based upon CCITT No1.Test Chart (Refer to the next page.)
** Recording time may be reduced by the caller party's background noise.
*** If both fax documents and voice messages are recorded in memory, the corresponding capacities above will be shortened.

Note:
- Any details given in these instructions are subject to change without notice.
- The pictures and illustrations in these instructions may vary slightly from actual product.

OPTIONAL ACCESSORIES

Parts No.	Description	Comment
KX-A106	Standard thermal recording paper	216 mm × 30 m (8 $^{1}/_{2}$"×98') roll, with 25 mm (1") core
KX-A125	Super thermal recording paper (Like plain paper)	216 mm × 30 m (8 $^{1}/_{2}$"×98') roll, with 25 mm (1") core

CCITT NO.1 TEST CHART (Actual size)

THE SLEREXE COMPANY LIMITED

SAPORS LANE - BOOLE - DORSET - BH 25 8 ER

TELEPHONE BOOLE (945 13) 51617 - TELEX 123456

Our Ref. 350/PJC/EAC 18th January, 1972.

Dr. P.N. Cundall,
Mining Surveys Ltd.,
Holroyd Road,
Reading,
Berks.

Dear Pete,

Permit me to introduce you to the facility of facsimile transmission.

In facsimile a photocell is caused to perform a raster scan over the subject copy. The variations of print density on the document cause the photocell to generate an analogous electrical video signal. This signal is used to modulate a carrier, which is transmitted to a remote destination over a radio or cable communications link.

At the remote terminal, demodulation reconstructs the video signal, which is used to modulate the density of print produced by a printing device. This device is scanning in a raster scan synchronised with that at the transmitting terminal. As a result, a facsimile copy of the subject document is produced.

Probably you have uses for this facility in your organisation.

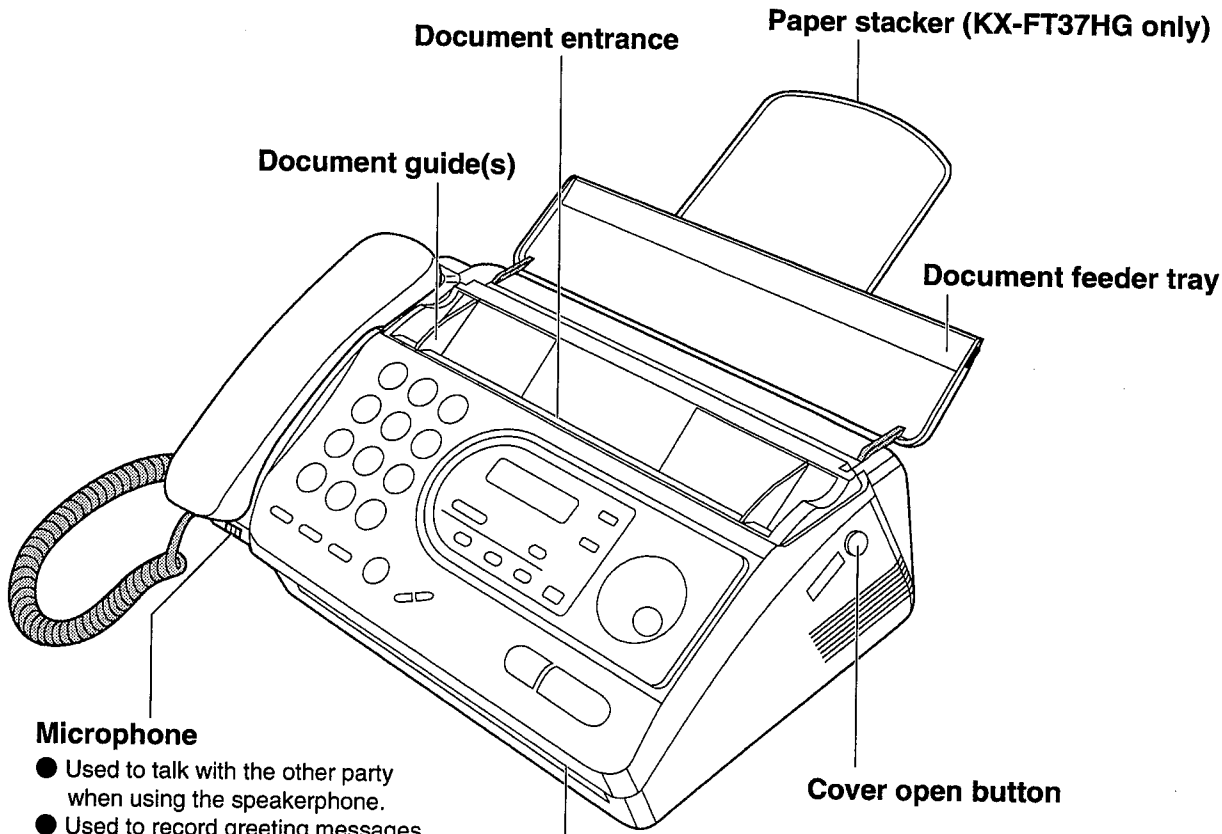
Yours sincerely,

Phil.

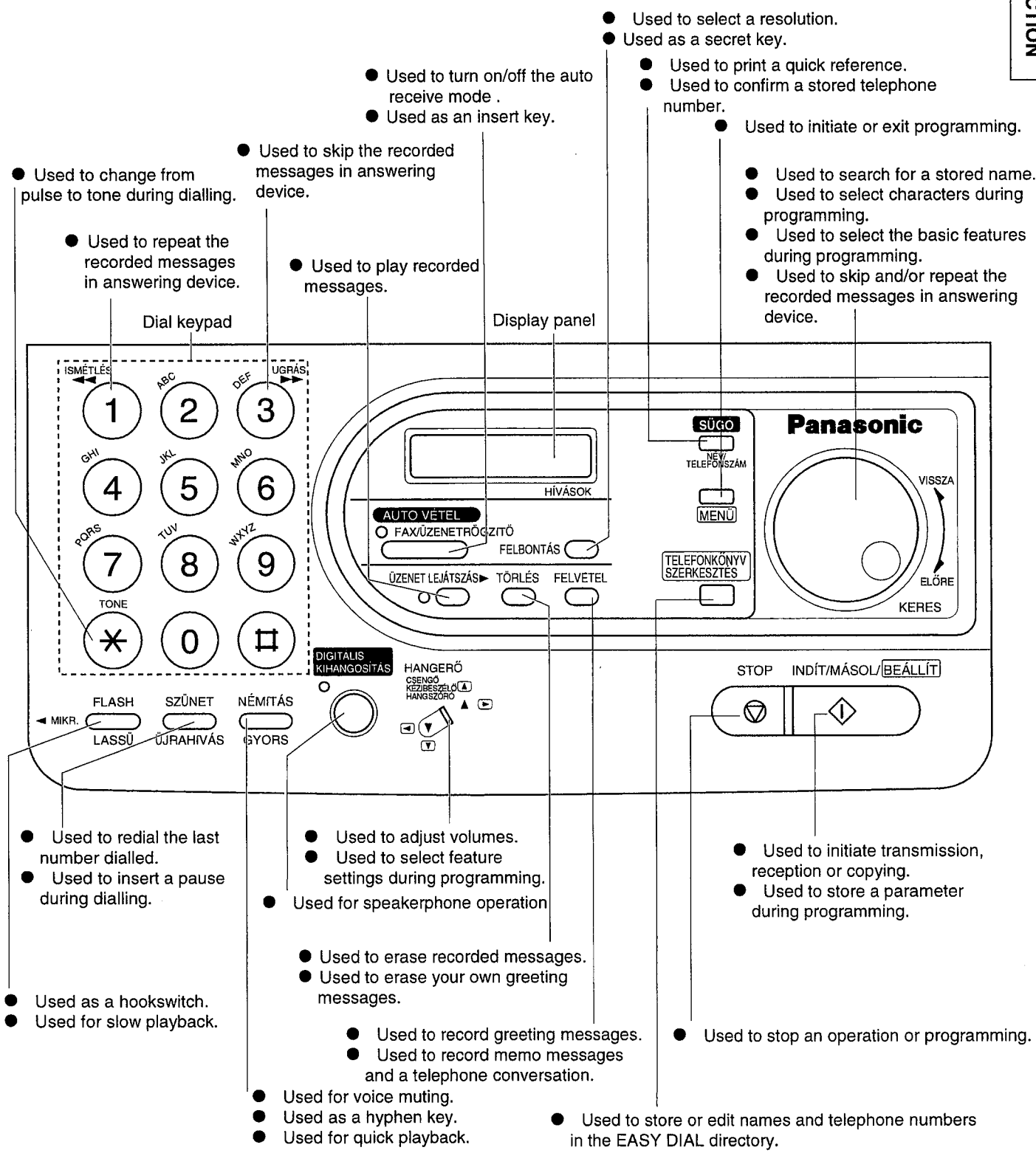
P.J. CROSS
Group Leader - Facsimile Research

LOCATION OF CONTROLS

1.OVERVIEW



2. CONTROL PANEL



FEATURES

General

- *Desktop type*
- *LCD (Liquid Crystal Display) readout*
- *Help function*
- *Copier function*
- *Auto cutter (KX-FT37HG only)*
- *Digital answering system*
- *Digital duplex speaker phone*

Facsimile

- *Space Saving Compact Design*
- *Resolution: standard/fine/super fine/halftone*
- *Copier Function*
- *Automatic Document Feeder (10 Sheets)*
- *Help Printout*
- *Easy-to-view LCD (15 Characters)*
- *Super Thermal Paper*
- *FAX Pager Alert*
- *Out of paper reception (20 pages※1)*

※1 Actual number of the pages depends upon recording time, the contents of the documents and resolution. 20-page capacity is based upon CCITT No1.Test Chart at standard resolution on the condition that the recording time is zero.

Integrated telephone system

- *Easy Dial Operation*
- *Telephone Directory (100 Stations)*
- *Electric Volume Control*
- *Digital duplex speaker phone*

Digital answering system (KX-FT37HG)

- *Voice time/Day stamp*
- *20-minute recording time※2*
- *Voice guidance*

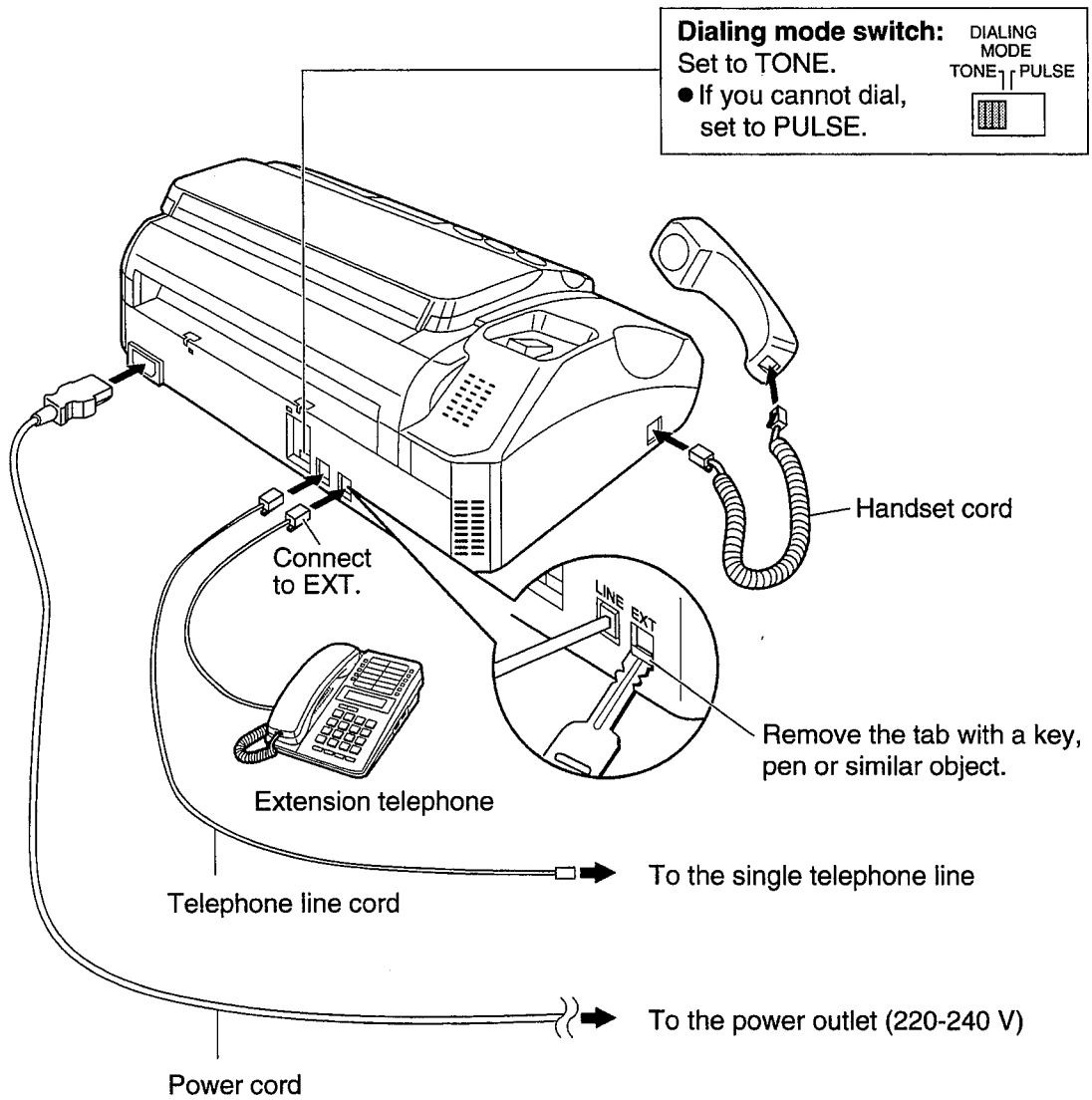
※2 Recording time depends upon the FAX's reception memory capacity because this system shares memory with the FAX unit.

CONNECTIONS

1 Connect the handset cord.

2 Connect the telephone line cord.

3 Connect the power cord.



Note:

● When you operate this product, the power outlet should be near the product and easily accessible.

Helpful hints when using the extension telephone:

If you connect an extension telephone to the facsimile unit, please take notice of the following.

● When an extension telephone is in use, the facsimile unit will show the following messages on the display:
Display: `Pár.tel.felvéve`
When you press the DIGITAL SP-PHONE button or lift the handset of the facsimile unit, the call is switched to the facsimile unit, and the extension telephone will be disconnected.

● If no sound is heard when you lift the handset of the extension telephone, the facsimile is in use.

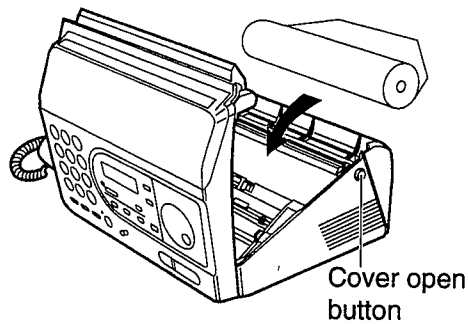
INSTALLATION

3. INSTALLING THE RECORDING PAPER (KX-FT35HG)

1 Open the cover by pressing the cover open button and install the recording paper roll.

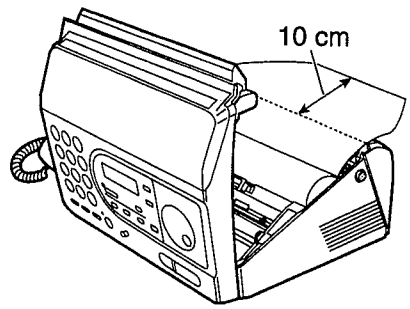
correct incorrect

●If the paper is secured with glue or tape, cut approximately 15 cm (6 inches) from the beginning of the roll.

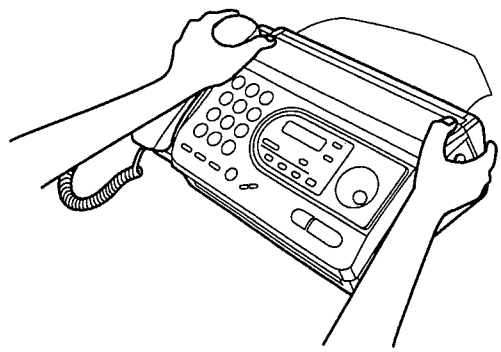


2 Pull the leading edge of the paper approximately 10 cm (4 inches) out of the unit.

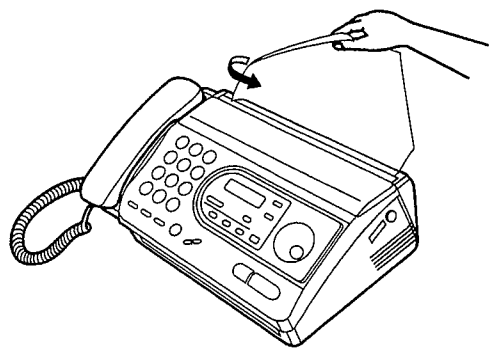
● Make sure that the shiny side of the paper is facing down and there is no slack.



3 Close the cover securely by pushing down on both corners.



4 Tear off the excess paper by pulling it towards you



Note:

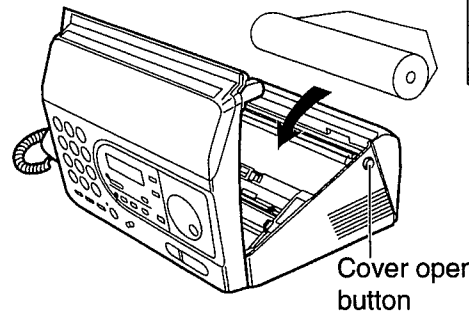
- Only use the included roll of paper or specified recording paper, or else the print quality may be affected and/or excessive thermal head wear may occur.
- To order recording paper, see page 8.
- When the power cord is connected, everytime you close the cover a message will be printed. If the recording paper is set to the wrong side, a message will not be printed. Install the paper correctly.

INSTALLATION

4. INSTALLING THE RECORDING PAPER (KX-FT37HG)

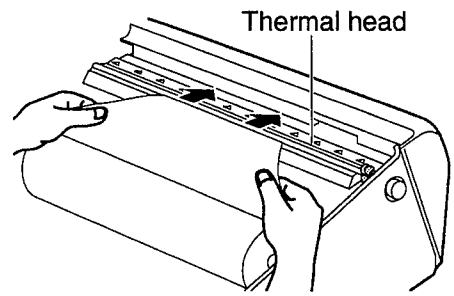
1 Open the cover by pressing the cover open button and install the recording paper roll.

- If the paper is secured with glue or tape, cut approximately 15 cm (6 inches) from the beginning of the roll.

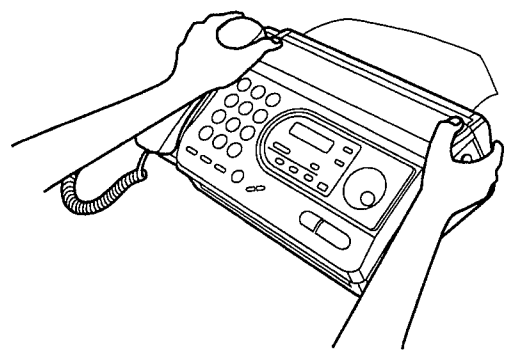


2 Insert the leading edge of the paper into the opening above the thermal head and pull it out of the unit.

- Make sure that there is no slack in the paper roll.



3 Close the cover securely by pushing down on both corners.

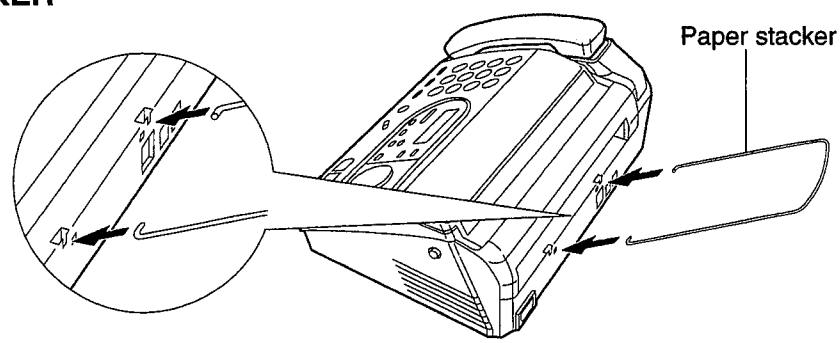


Note:

- Only use the included roll of paper or specified recording paper, or else the print quality may be affected and/or excessive thermal head wear may occur.
- To order recording paper, see page 8.
- When the power cord is connected, everytime you close the cover a message will be printed. If the recording paper is set to the wrong side, a message will not be printed. Install the paper correctly.

5. INSTALLING THE PAPER STACKER

Install the paper stacker into the slots as shown.



6. SETTING YOUR LOGO

The logo can be a company, division or personal name.

(1) Press (MENÜ).

Display: `1.Beállítások`

(2) Press (#)(9)(0)(0)(0)(✱).

`P-SF-■`

(3) Press (0)(0)(2).

(3) Press (INDEÍT/MÁSOL/BEÁLLÍT).

`LOGO=`

(4) Enter your logo, up to 30 characters, by following the instructions on the next page.

Example (using the dial keypad): Bill

1. Press (2) twice.

`LOGO=B`

2. Press (4) six times.

`LOGO=Bi`

3. Press (5) six times.

`LOGO=Bil`

4. Press (►) ((HANGERŐ)) to remove the cursor and press (5) six times.

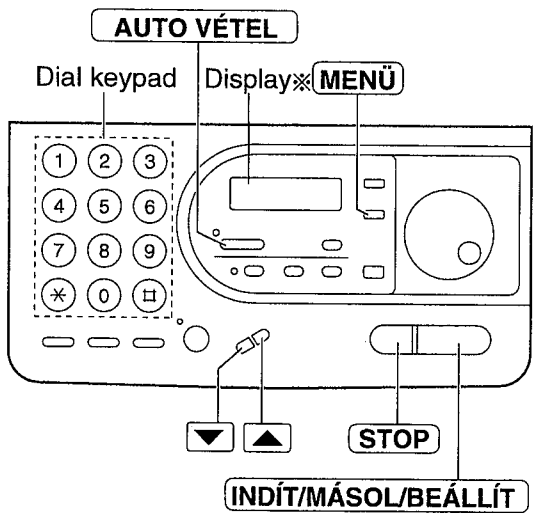
`LOGO=Bill`

- To enter the same number key continuously, move the cursor to the next space.

(5) Press (INDEÍT/MÁSOL/BEÁLLÍT).

`Funkció sz.[_ ]`

(6) Press (MENÜ).



To correct a mistake

- Use (◄) or (►) to move the cursor to the incorrect character, then make the corrections.

To delete a character

- Move the cursor to the character you want to delete and press (STOP).

To insert a character

1. Press (◄) or (►) to move the cursor to the position to the right of where you want to insert the character.
2. Press (AUTO VÉTEL) to insert a space and enter the character.

Selecting characters with the dial keypad

Pressing the dial keys will select a character as shown below.

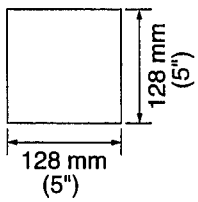
Keys	Characters
1	1 [ ] { } + − / = , . _ ' : ; ? !
2	A B C a b c 2
3	D E F d e f 3
4	G H I g h i 4
5	J K L j k l 5
6	M N O m n o 6
7	P Q R S p q r s 7
8	T U V t u v 8
9	W X Y Z w x y z 9
0	0 ( ) < > ! " # $ % & ¥ * @ ^ ' →
AUTO VÉTEL	**Insert** key (Used to insert a space.)
NÉMÍTÁS	**Hyphen** key (Used to insert a hyphen in the telephone number.)
FELBONTÁS	**Secret** key (Used to keep the telephone number seret.)
HANGERŐ ▼	◄ key (Used to move the cursor to the left.)
HANGERŐ ▲	► key (Used to move the cursor to the right.) To enter the same number key continuously, move the cursor to the next space.

Note:

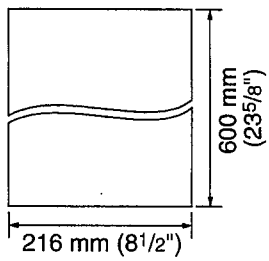
- A hyphen or a space entered in a telephone number is counted as two digits.

Documents you can send

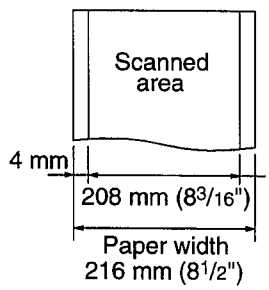
Minimum size



Maximum size



Effective scanning area



Document weight

Single sheet:
45 to 90 g/m² (12 to 24 lb.)

Multiple sheets:
60 to 75 g/m² (16 to 20 lb.)

Note:

- Remove clips, staples or other similar fastening objects.
- Check that ink, paste or correction fluid has dried.
- Do not send the following types of documents. Use copies for fax transmission.
  - Chemically treated paper such as carbon or carbonless duplicating paper
  - Electrostatically charged paper
  - Heavily curled, creased or torn paper
  - Paper with a coated surface
  - Paper with a faint image
  - Paper with printing on the opposite side that can be seen through the front (e.g. newspaper)

MAINTENANCE ITEMS AND COMPONENT LOCATIONS

1. OUTLINE

MAINTENANCE AND REPAIRS ARE PERFORMED USING THE FOLLOWING STEPS.

1) Periodic maintenance

Inspect the equipment periodically and if necessary, clean any contaminated parts.

2) Check for breakdowns

Look for problems and consider how they arose.

If the equipment can be still used, perform copying, self testing or communication testing.

3) Check equipment

Perform copying, self testing and communication testing to determine if the problem originates from the transmitter, receiver or the telephone line.

4) Determine causes

Determine the causes of equipment problem by troubleshooting.

5) Equipment repairs

Repair or replace the defective parts and take appropriate measures at this stage to ensure that the problem will not recur.

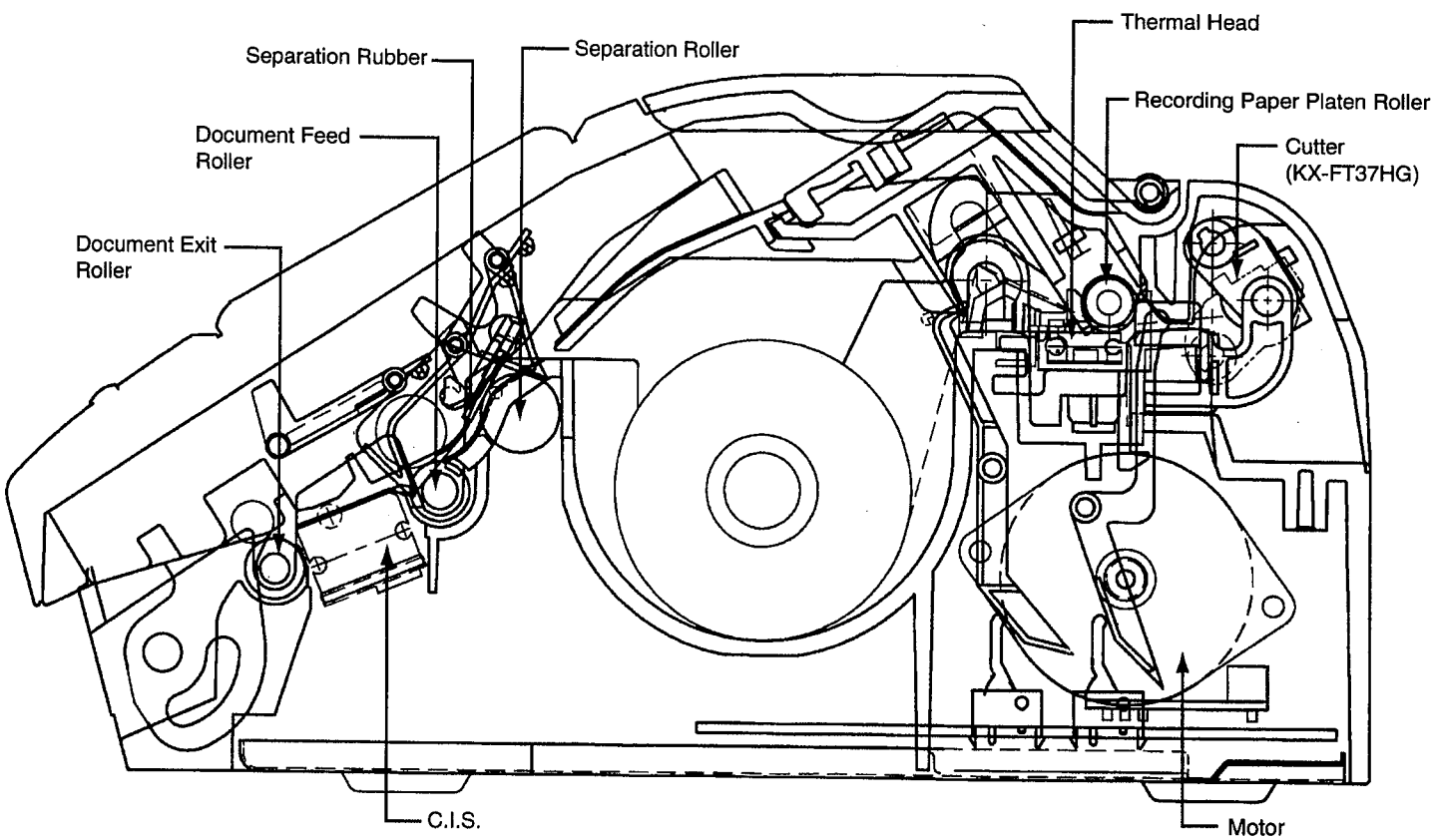
6) Confirm normal operation of the equipment

After completing the repairs, conduct copying, self testing and communication testing to confirm that the equipment operates normally.

7) Record keeping

Make a record of the measures taken to rectify the problem for future reference.

2. MAINTENANCE CHECK ITEMS/COMPONENT LOCATIONS



2.1 MAINTENANCE LIST

NO.	OPERATION	CHECK	REMARKS
1	Document Path	Remove any foreign matter such as paper.	———
2	Rollers	If the roller is dirty, clean it with a damp cloth then dry thoroughly.	See page 20.
3	Thermal Head	If the thermal head is dirty, clean the printing surface with a cloth moistened with denatured alcohol (alcohol without water), then dry thoroughly.	See pages 20 and 102.
4	Glass	If the glass is dirty, clean the glass with a dry soft cloth.	See page 20.
5	Sensors	Document sensor (PS1), Read position sensor (PS2), cover open sensor (PS3), JAM sensor(SW4) (KX-FT37HG)	See page 79.
6	Abnormal, wear and tear or loose parts	Exchange the part. Check if the screws are tight on all parts.	———

2.2 MAINTENANCE CYCLE

No.	Item	Cleaning		Replacement	
		Cycle	Procedure	Cycle	Procedure
1	Separation Roller (Ref. No. 89)	3 months	See p. 20.	7 years (100,000 documents)	See p. 101.
2	Separation Rubber (Ref. No. 35)	3 months	See p. 20.	7 years (100,000 documents)	See p. 96.
3	Feed Rollers (Ref. No. 65)	3 months	See p. 20.	7 years (100,000 documents)	See p. 101.
4	Thermal Head (Ref. No. 55)	3 months	See p. 20.	7 years (100,000 documents)	See p. 102.

These values are only standard ones and may vary depending on usage conditions.

3. MAINTENANCE

3.1 CLEANING THE DOCUMENT FEEDER UNIT

1 Disconnect the power cord and telephone line cord.

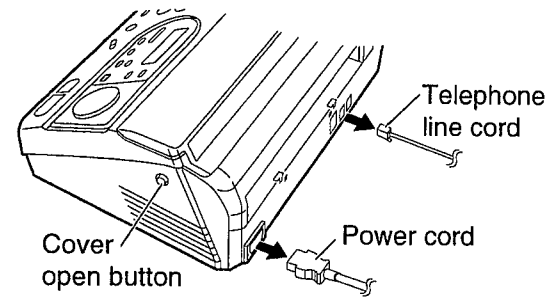
2 Open the cover by pressing the cover open button.

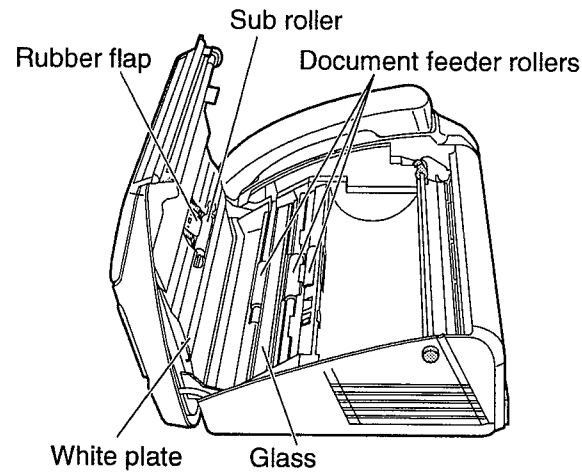
3 Clean the document feeder rollers, sub roller and rubber flap with a cloth moistened with isopropyl rubbing alcohol, and let all parts dry thoroughly.

4 Clean the white plate and glass with a soft dry cloth.

5 Close the cover securely by pushing down on both corners.

6 Connect the power cord and the telephone line cord.





Caution:

- **Do not use paper products, such as paper towels or tissues, to clean the inside of the unit.**

3.2 CLEANING THE THERMAL HEAD

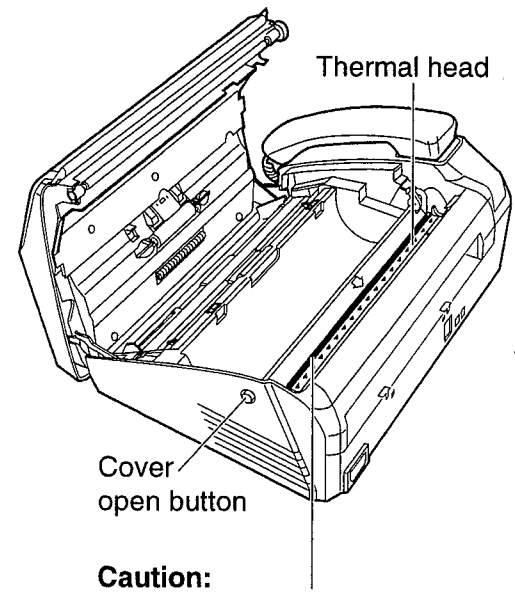
1 **Disconnect the power cord and telephone line cord.**

2 Open the cover by pressing the cover open button.

3 Clean the thermal head with a cloth moistened with isopropyl rubbing alcohol, and let it dry thoroughly.

4 Close the cover securely by pushing down on both corners.

5 Connect the power cord and the telephone line cord.



Caution:

- **To prevent a malfunction due to static electricity, do not use a dry cloth and do not touch the thermal head directly with your fingers.**
- **Do not push on the black cover.**

3.3 CLEANING THE PLATEN ROLLER .....Refer to page 96.

TROUBLESHOOTING GUIDE

Page

1. Troubleshooting Summary 22
   1-1. Troubleshooting 22
   1-2. Precautions 22
2. User Recoverable Errors 23
3. Troubleshooting Details ..... 24~82
   3-1. Outline 24
   3-2. Starting troubleshooting 24
   3-3. Table of troubleshooting items 25
   3-4. Simple check list 26
   3-5. ADF section ..... 27~35
   3-6. Communication section ..... 36~56
   3-7. Digital board section ..... 57~68
   3-8. Analog board section ..... 69~73
   3-9. Power supply section ..... 74~78
   3-10. Operation board section 78
   3-11. Sensor section ..... 79~80
   3-12. Read section ..... 80~81
   3-13. Thermal head section 82
4. Programming and Lists ..... 83~88
5. Test Functions ..... 89~90

1. TROUBLESHOOTING SUMMARY

1-1. TROUBLESHOOTING

After confirming the problem by asking the user, troubleshoot according to the instructions and observe the following precautions.

1-2. PRECAUTIONS

1) If there is trouble with the print quality or the paper feed, first check if the installation space and the print paper meets the specifications, the paper selection lever/paper thickness lever is set correctly, and the paper is set correctly without any slack.
2) Before troubleshooting, first check that the connectors and cables are connected correctly (not loose). If the problem occurs randomly, check it very carefully.
3) When connecting the AC power cord with the unit case and checking the operation, exercise utmost care when handling electric parts in order to avoid electric shock and short-circuits.
4) After troubleshooting, double check that you have not forgotten any connectors, left any loose screws, etc.
5) Always test to verify that the unit is working normally.

2. USER RECOVERABLE ERRORS

If the unit detects a problem, the following messages will appear on the display.

DISPLAY MESSAGE	CAUSE AND REMEDY
Hívj szakembert	● There is something wrong with the unit. [Check the thermistor on the thermal head and connector lead.(for technicians)] [This error is displayed when the thermal head does not warm up.]
Fedél nyitva	● The cover is open. Close it.
Hiba az iratnál	● The document is not fed into the unit properly. Reinsert the document. If misfeeding occurs frequently, clean the document feeder rollers inside the unit. If the problem remains, adjust the feeder pressure. ● Attempted to transmit a document longer than 600 mm (23 $^{5}/_{8}$"). Press the STOP button and remove the document. Divide the document into two or more sheets and try again. [If you do wish to devide the document, change the service code #559 to "OFF". Refer to page 87.]
Memória üres	● Memory (phone nembers, parameters, etc.) has been erased. Re-program.
Tel.könyv tele	● There is no space to store new stations in the EASY DIAL directory. Edit or erase unnecessary stations.
Memóriában: fax	● The unit has (a) document(s) in memory. See the other message instructions to print out the document(s).
Memória megtelt (KX-FT37HG)	● There is no room left in memory to record a message. Erase some or all of the messages. ● The memory is full of received documents. Install a new recording paper roll, or clear the jammed paper.
Nem felet	● The receiving unit is busy or out of recording paper. Try again.
Nincs köszöntés	● Your TAD/FAX greeting is not recorded. Record a greeting message. ● The voice guidance feature is set to "OFF". Set the setting to "ON". Pre-recorded greeting message will be adopted. (KX-FT37HG)
Nincs köszöntés	● Your message transfer greeting is not recorded. Record a greeting message. ● The voice guidance feature is set to "OFF". Set the setting to "ON". Pre-recorded greeting message will be adopted. (KX-FT37HG)
Papír kifogyott	● The unit ran out of recording paper. Install a new recording paper roll.
Papír elakadt	● The recording paper is jammed. Clear the jammed paper.
Lekérdezés hiba	● The other party's machine does not have a polling feature. Check with the other party.
Újrahívás vége	● The other party's machine is busy or out of recording paper. Try again.
Iratot vegye ki	● The document is jammed. Remove the jammed document.
Átviteli hiba	● A transmission error occurred. Try again.
Túlmelegedés	● The unit is too hot. Let the unit cool down. [If many copies are nearly all black, this message will be displayed.] [When this occurs, open the front cover and let the unit cool down.]

※ The explanations given in the [ ] are for serviceman only.
(Native language: replace the English error messages in the troubleshooting with the native language.)

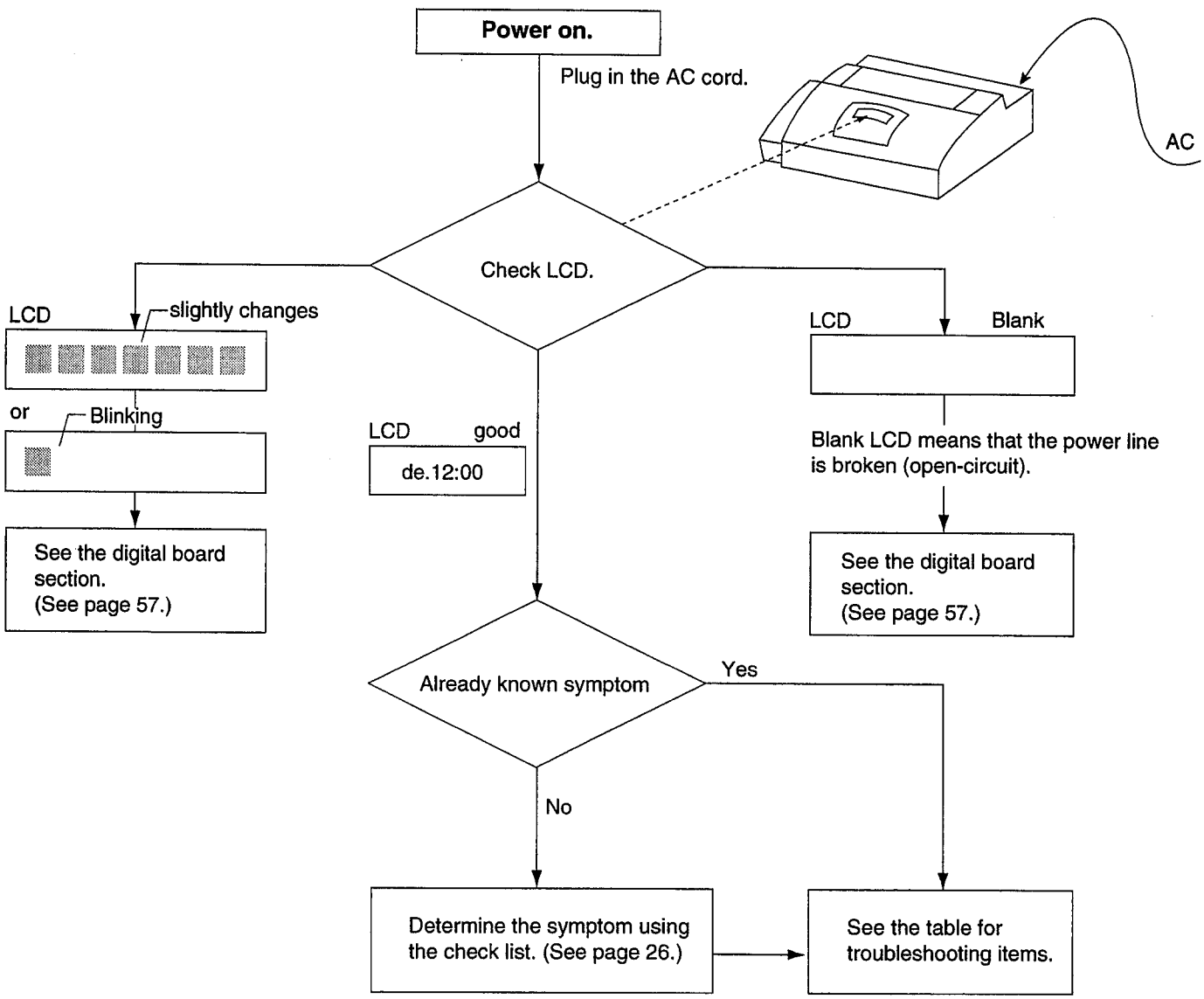
3. TROUBLESHOOTING DETAILS

3-1. OUTLINE

The troubleshooting guide provides a logical path of deduction to assist in locating a fault and suggests methods of restoring the unit to full working condition. Use the reported symptoms of the fault to determine the best troubleshooting method. Even difficult faults can be tracad to a specific block or area, for example, the "Digital Board" or "Image Sensor".
A variety of fault descriptions from customers often point to the same area and, for this reason, careful analysis of the reported symptoms is required. After every repair, test all functions to ensure no problems are evident.

3-2. STARTING TROUBLESHOOTING

- Select the appropriate troubleshooting method according to the symptoms.



3-3. TABLE OF TROUBLESHOOTING ITEMS

FUNCTION	SYMPTOM	SEE THIS PAGE.
Printing	Skewed receiving image Expanded print Image is distorted. Black or White vertical lines appear.	34 34 31 32
ADF (Auto Document Feeder)	No feed Document jam Multiple feed Skew	27 28 29 30
Abnormal mechanical sound	Abnormal sound from the product	34
Cutter	Can't cut the recording paper	33 (KX-FT37HG)
Power supply	Voltage output is abnormal.	74
Operation panel	Keys are not accepted.	78
Sensor	● If the electric circuit is the cause, the error message corresponding to the sensor will be displayed.	79
Communication FAX, TEL (Analog/Digital board)	Cannot communicate by fax. Error code is displayed. Cannot talk. DTMF tone doesn't work. Handset/Monitor sound, volume	36 44 } The analog board may cause these symptoms. (Refer to page 69.)

3-4. SIMPLE CHECK LIST

SERIAL NO. _____ DATE _____

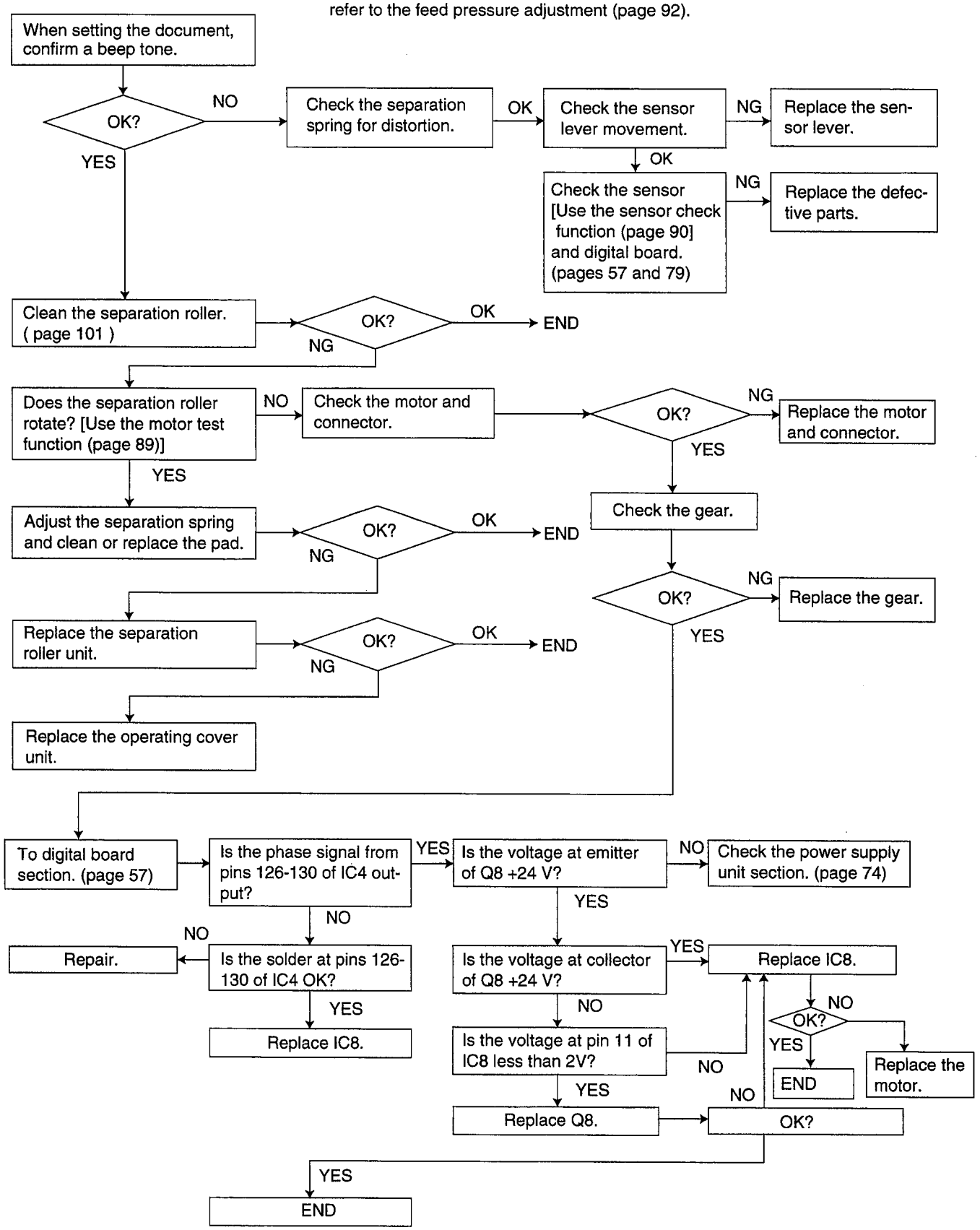
FUNCTION		JUDGEMENT	REFERENCE
FAX operaton	Transmission	OK / NG	
	Receiving	OK / NG	
Copy operation	FINE mode	OK / NG	
	HALF TONE mode	OK / NG	
Telephone operation	Handset transceiver/ receiver	OK / NG	
	Ringer sound	OK / NG	
	Dial operation	OK / NG	
	Volume operation	OK / NG	
	VOX detection	OK / NG	Service code 815 ※ (Digital SP-Phone LED)
Operation panel	Key check	OK / NG	Service code 561 ※
	LED check	OK / NG	Service code 557 ※
	LCD check	OK / NG	Service code 558 ※
Sensor	Sensor check	OK / NG	Service code 815 ※
Digital speaker phone		OK / NG	
Digital TAM	Greeting Rec/Play	OK / NG	
	Incoming message Rec/Play	OK / NG	
	Memo Rec/Play	OK / NG	
Voice prompt		OK / NG	Service code 784 Check whether voice prompt is played or not. (See page 87)
Clock		OK / NG	Check accuracy.

※ Check according to the service code referring to the Test function on page 89.

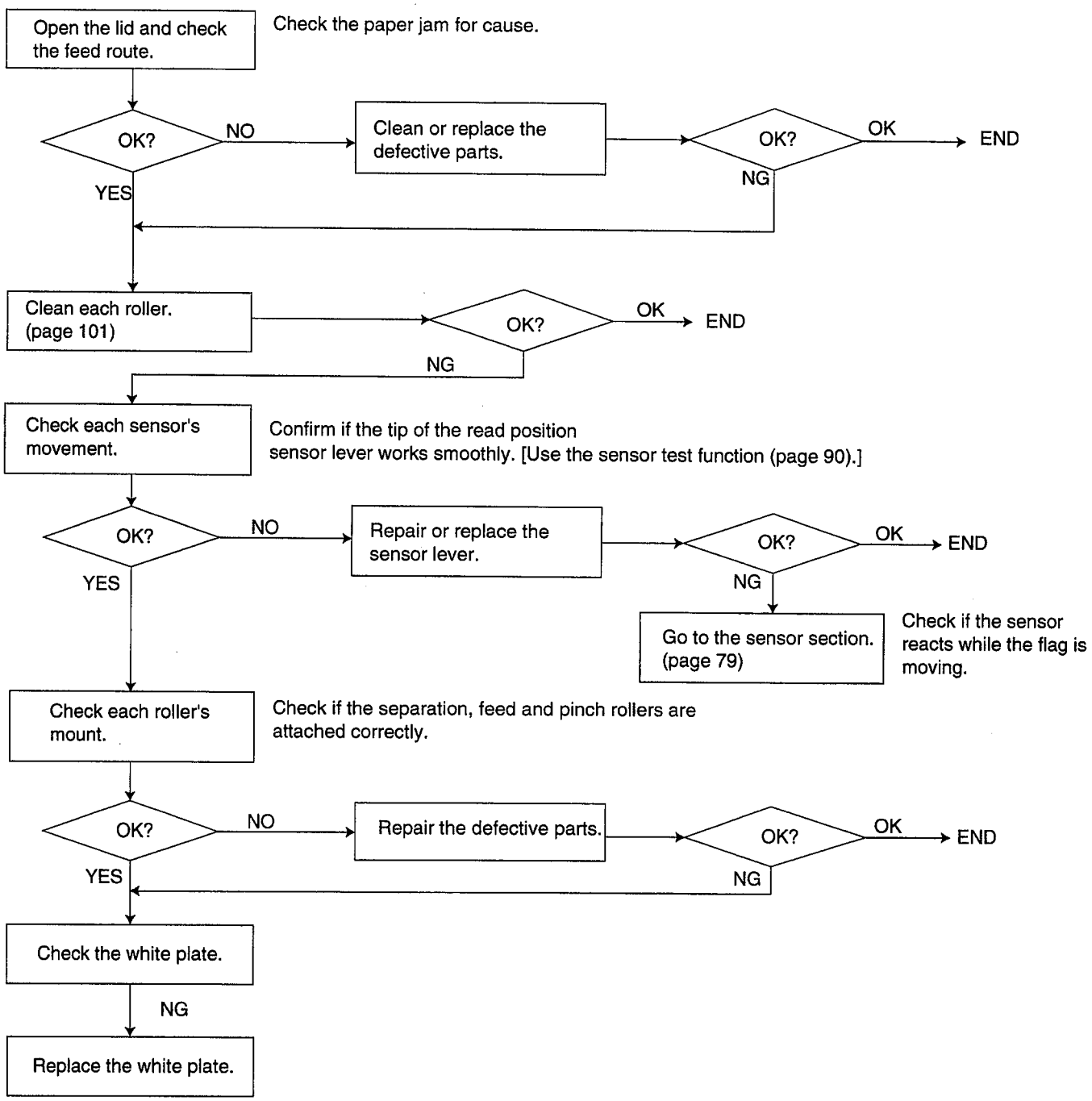
3-5. ADF (Auto document feed) SECTION

(1) No document feed

※ When using thin paper etc., if the document will not feed, refer to the feed pressure adjustment (page 92).

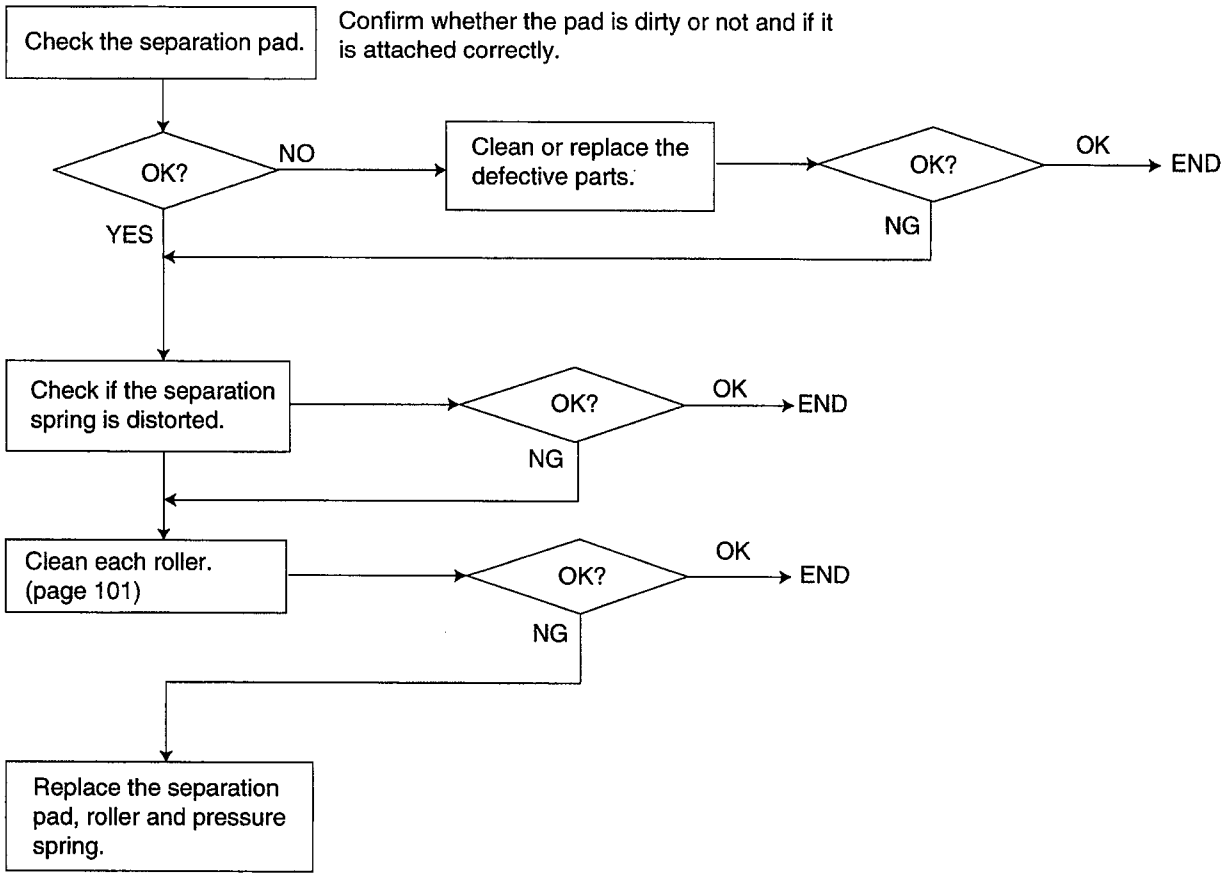


(2) Document JAM

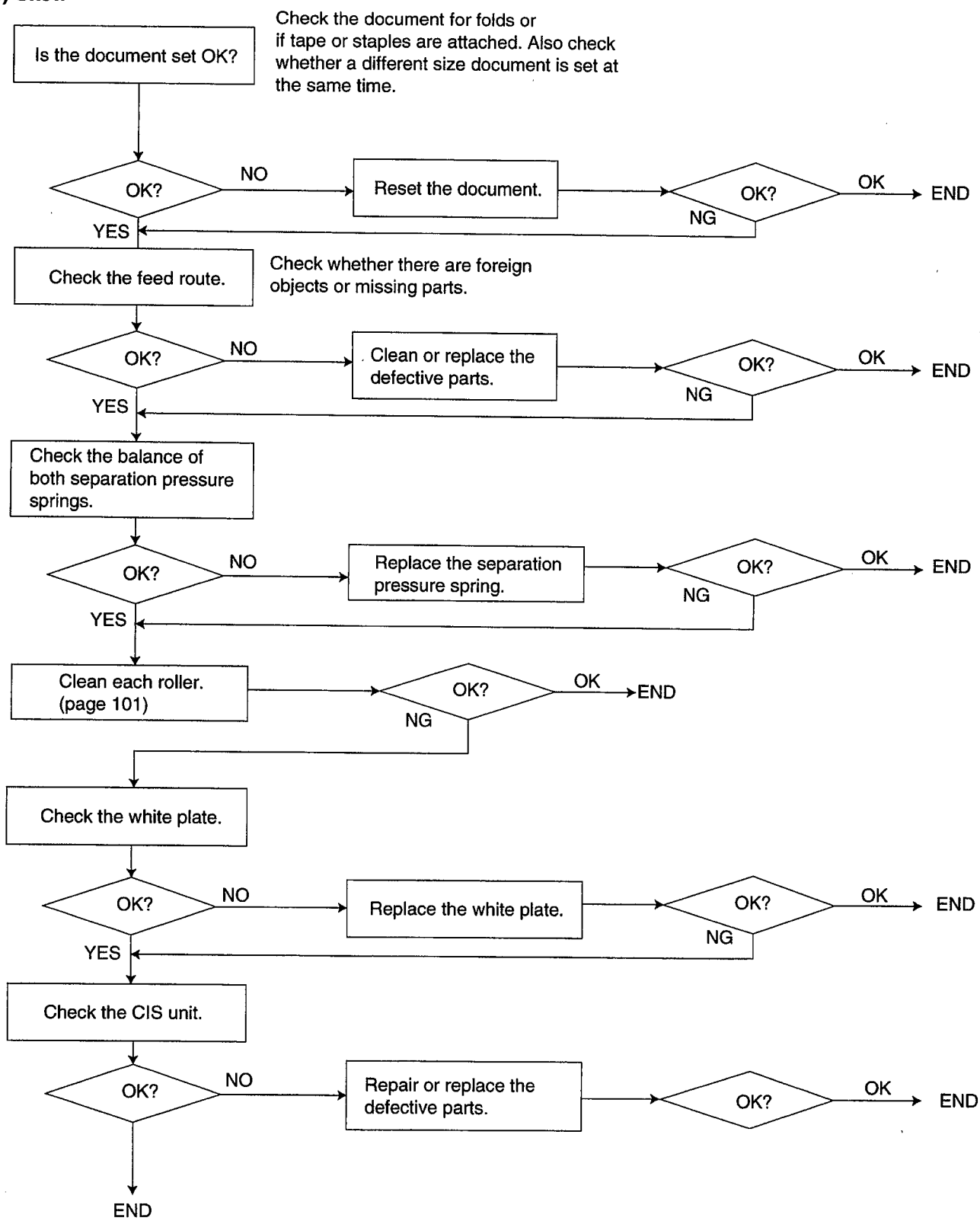


(3) Multiple feed

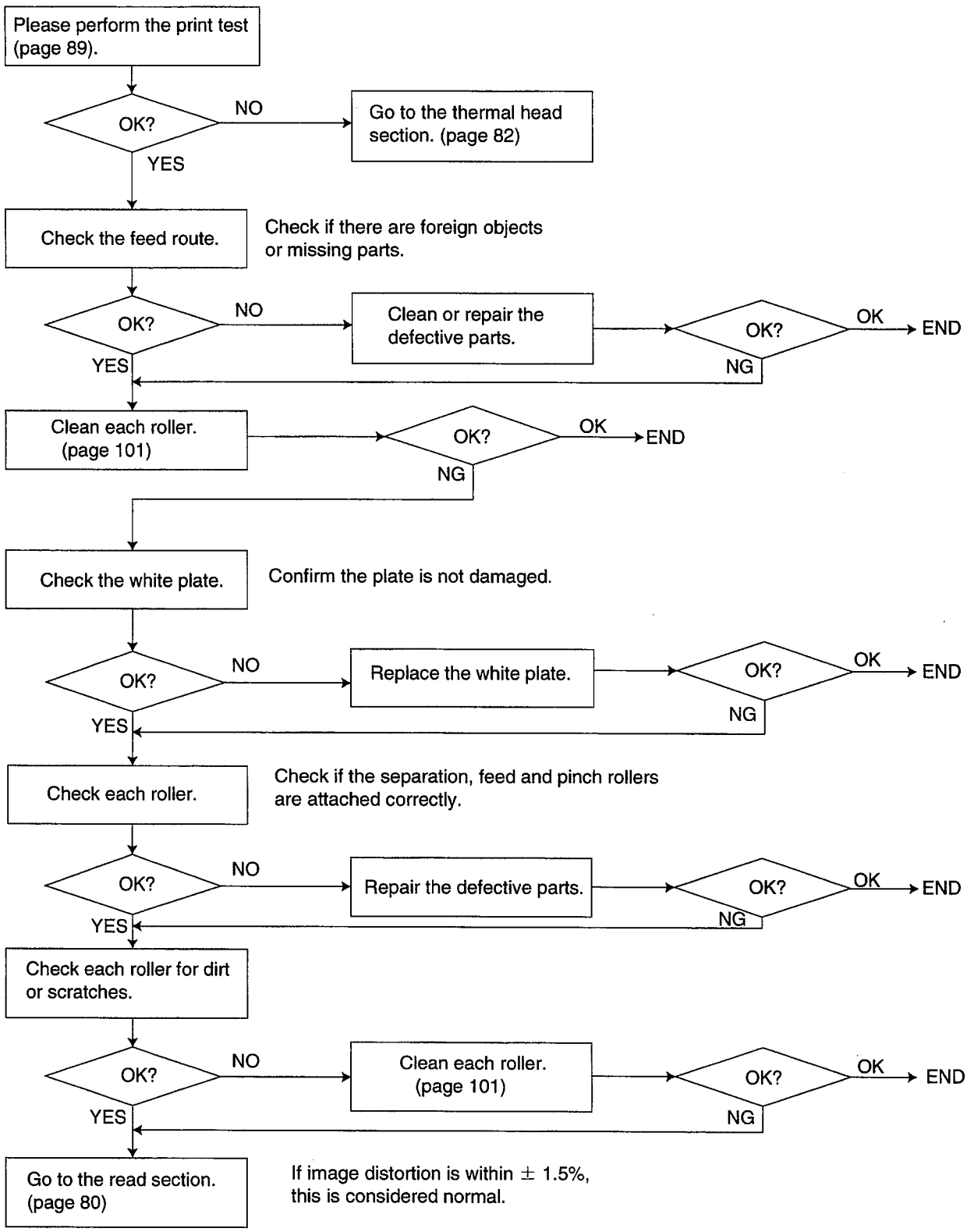
- When using thick paper, etc., if the document will not feed, refer to the feed pressure adjustment (page 92).



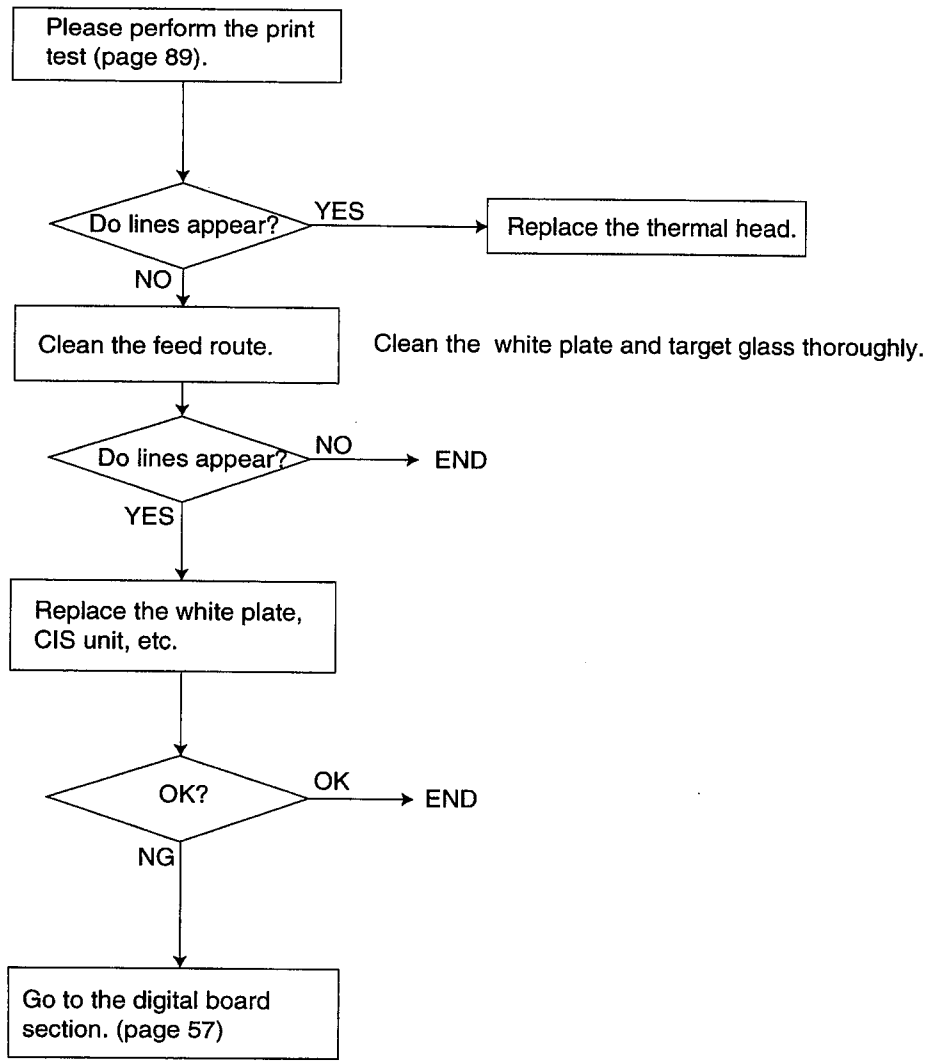
(4) Skew


Is the document set OK?
Check the document for folds or if tape or staples are attached. Also check whether a different size document is set at the same time.
OK?
NO
Reset the document.
OK?
OK
END
NG
YES
Check the feed route.
Check whether there are foreign objects or missing parts.
OK?
NO
Clean or replace the defective parts.
OK?
OK
END
NG
YES
Check the balance of both separation pressure springs.
OK?
NO
Replace the separation pressure spring.
OK?
OK
END
NG
YES
Clean each roller. (page 101)
OK?
OK
END
NG
Check the white plate.
OK?
NO
Replace the white plate.
OK?
OK
END
NG
YES
Check the CIS unit.
OK?
NO
Repair or replace the defective parts.
OK?
OK
END
END

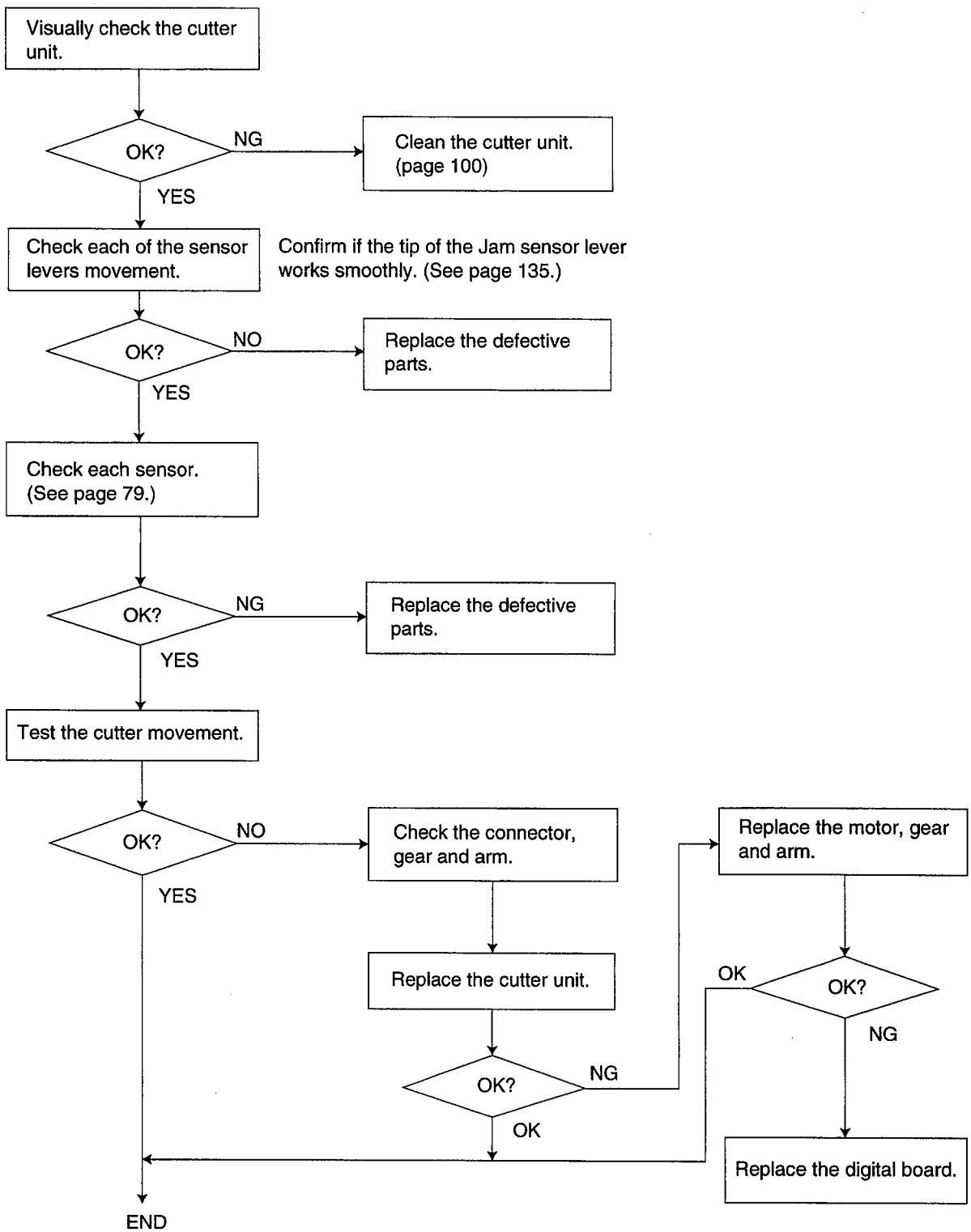
(5) Image is distorted (When printing)



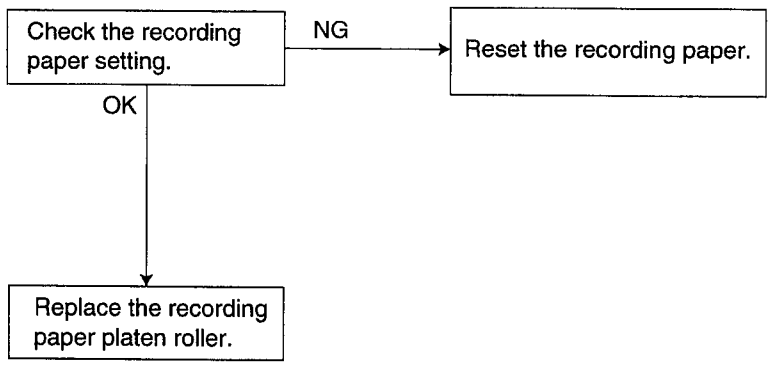
(6) Black or white vertical lines appear.



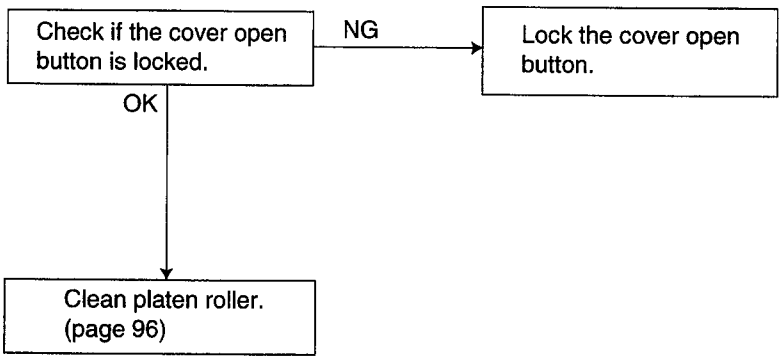
(7) Can't cut the recording paper. (KX-FT37HG)



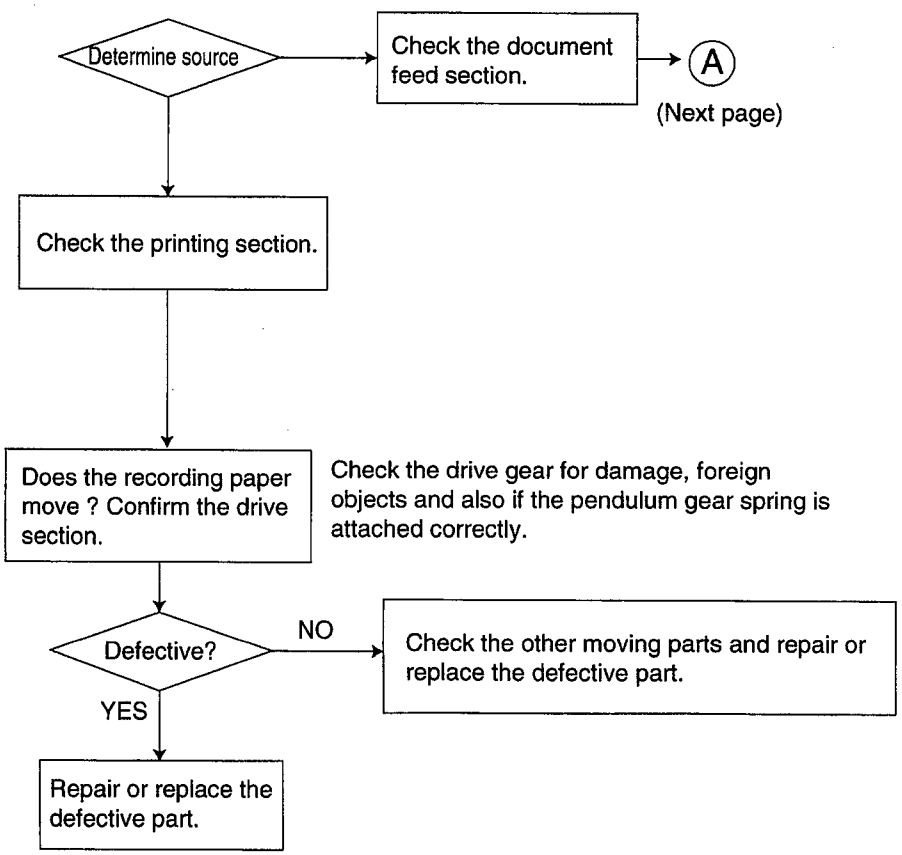
(8) Skewed receiving image

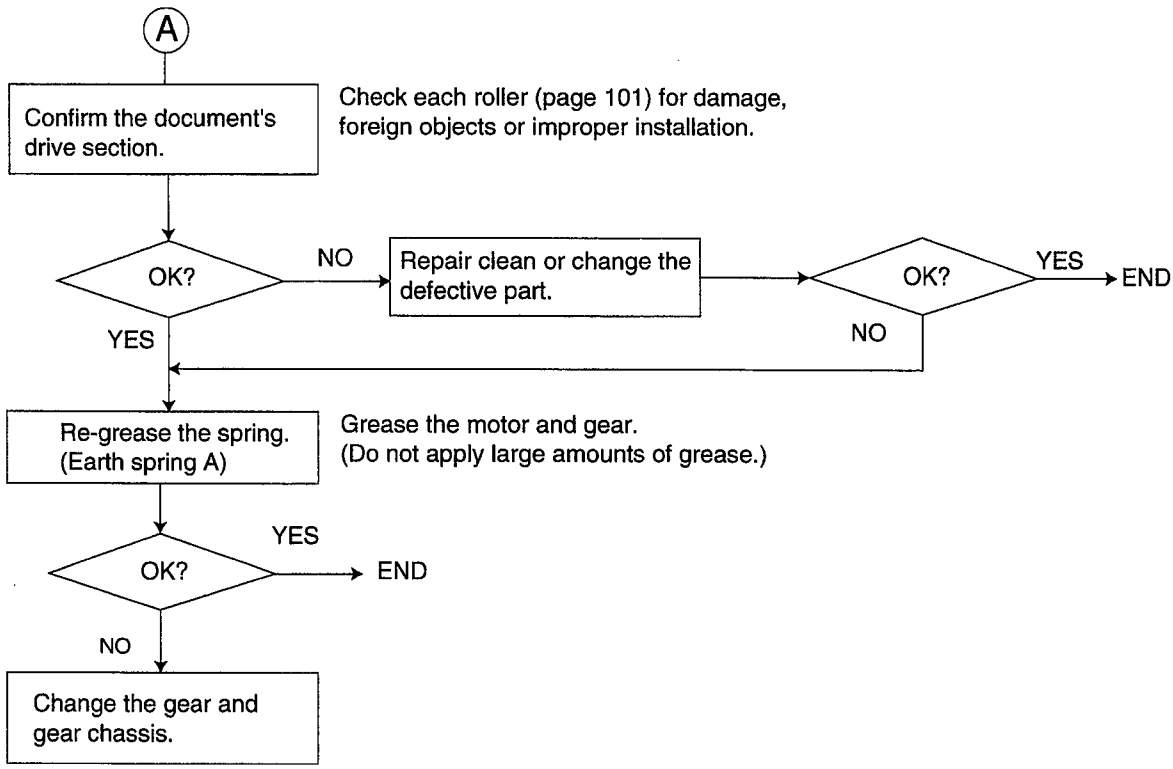


(9) Expanded print (When printing)



(10) When copying or printing, an abnormal sound is heard from the unit.




A
Confirm the document's drive section.
Check each roller (page 101) for damage, foreign objects or improper installation.
OK?
NO
Repair clean or change the defective part.
OK?
YES
END
NO
YES
Re-grease the spring. (Earth spring A)
Grease the motor and gear. (Do not apply large amounts of grease.)
OK?
YES
END
NO
Change the gear and gear chassis.

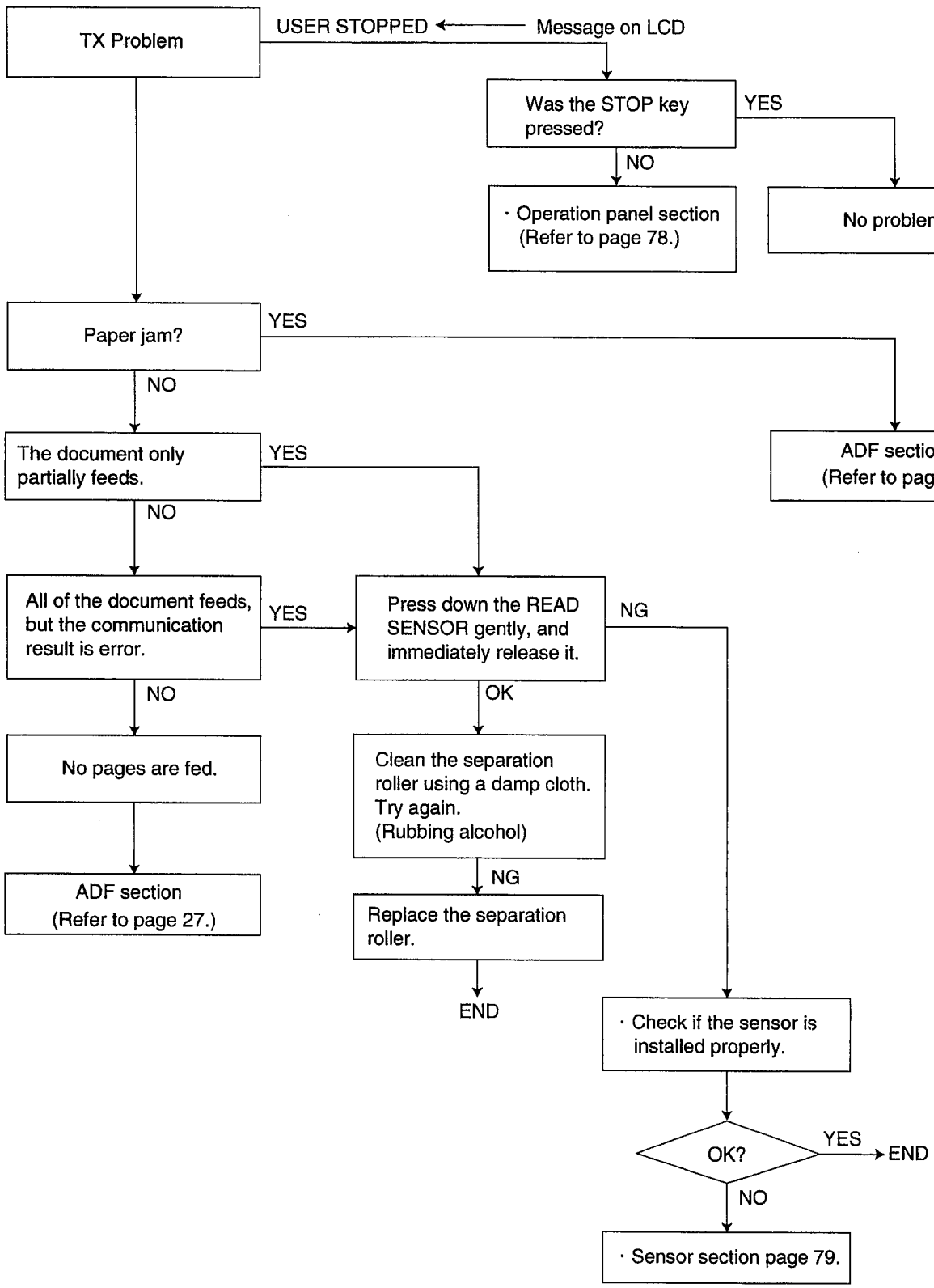
3-6 COMMUNICATION SECTION

Find the problem in the table shown below, and refer to the corresponding troubleshooting procedure in the reference pages (pages 37-52).

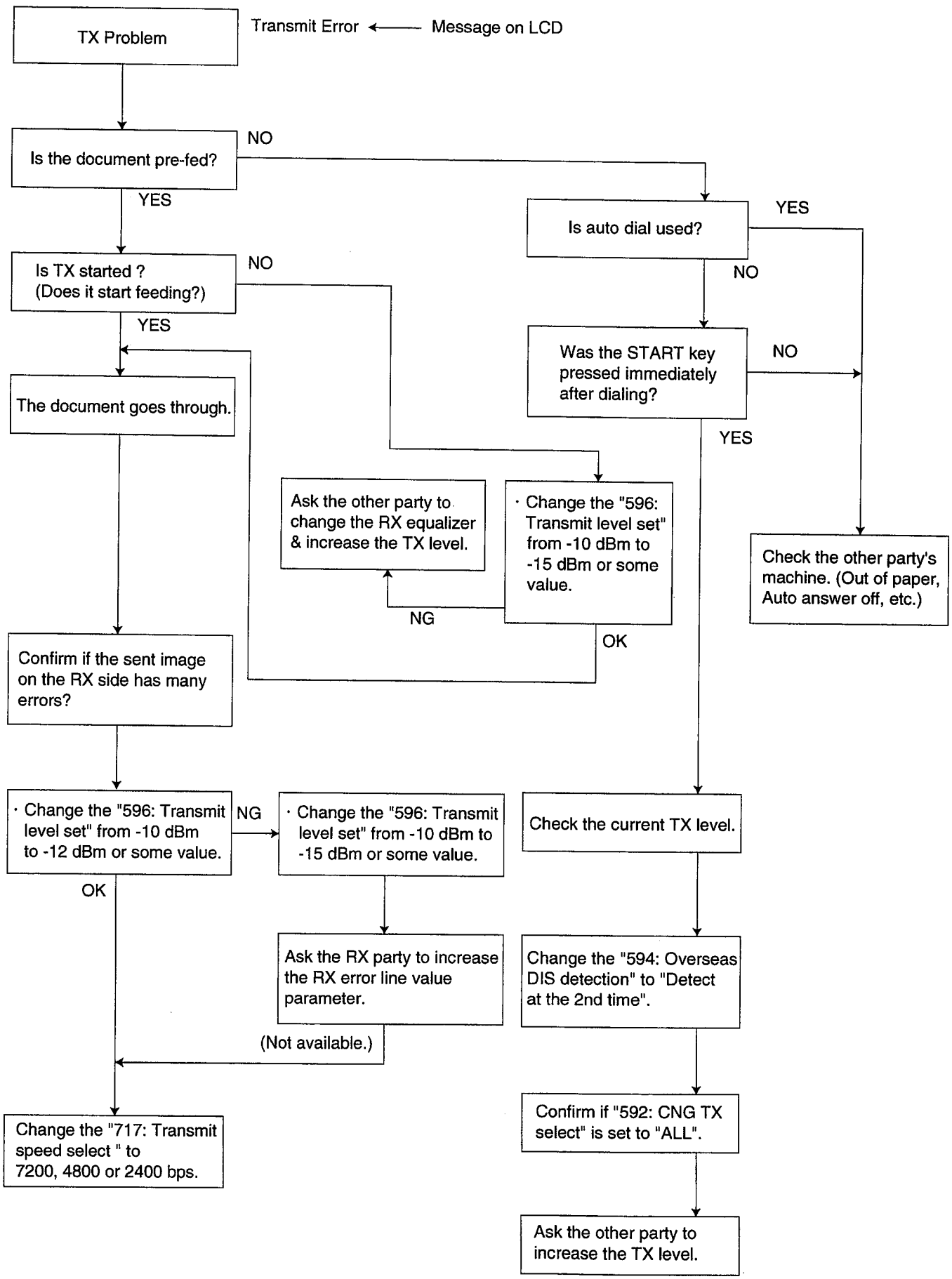
No.	Symptom	Ref. page	Content	Possible cause
1	The paper does not feed properly when faxing. (Copying is also not possible.)	37	Troubleshooting	Problem with the feeding mechanism.
2	The fax transmits successfully one time and fails another. (Copying is possible.)	38	Troubleshooting	Problem with the service line or the receiver's fax.
3	The fax receives successfully one time and fails another. (Copying is possible.)	39	Troubleshooting	Problem with the service line or the transmitter's fax.
4	The fax completely fails to transmit or receive. (Copying is possible.)	40	Troubleshooting	Electronic problem.
5	The fax fails either to transmit or receive when making a long distance or international call. (Copying is possible.)	41-43	Detailed description of the possible causes (Similar to troubleshooting items No.2 and No.3.)	Problem with the service line.
6	When the other error code is appeared.	44-52	Troubleshooting procedure for each error code printed on the communication result report.	

(1) Defective facsimile section

① Transmit problem



② Sometimes there is a transmit problem.



③ Receive problem

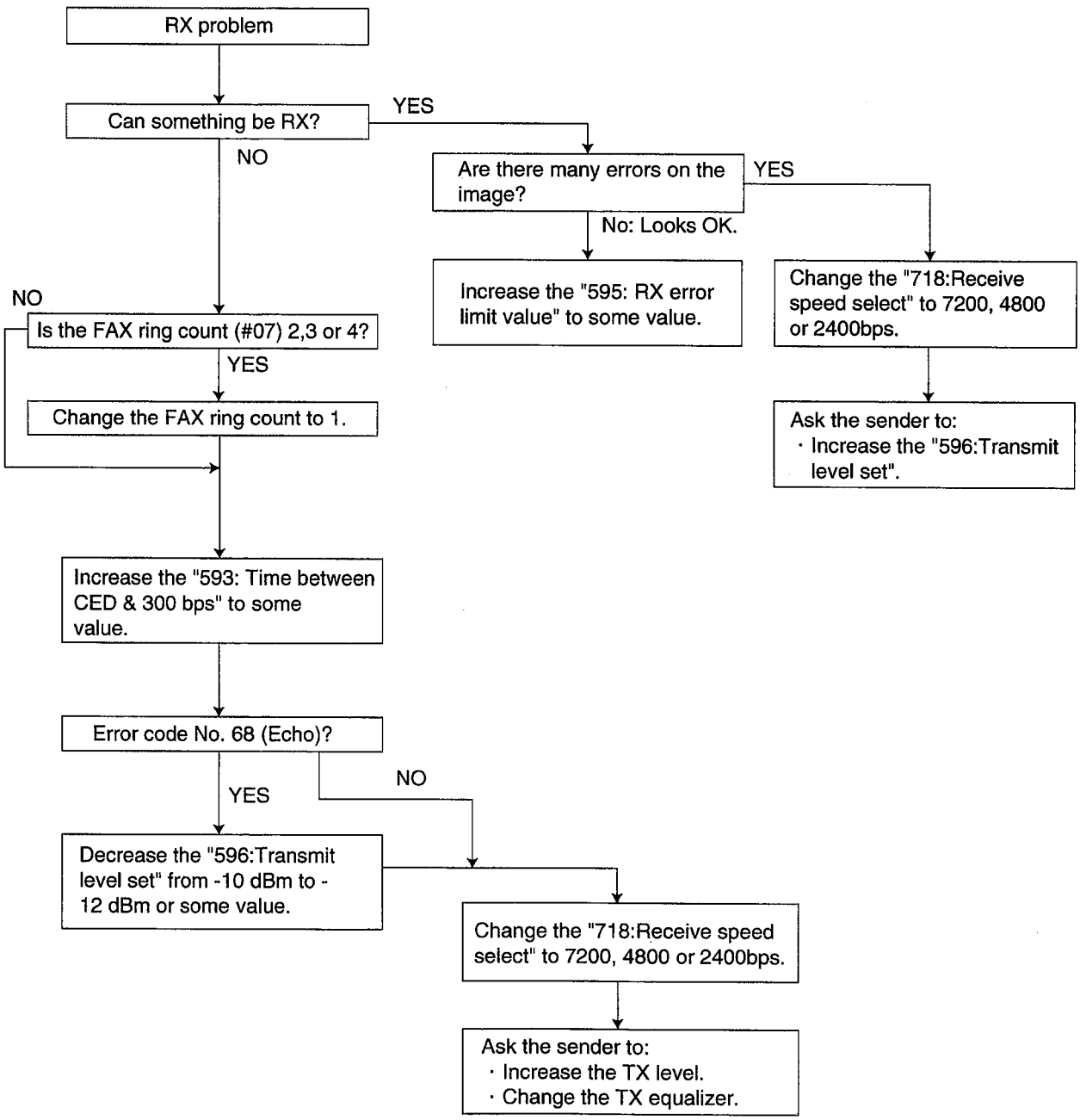
Confirm the following before starting troubleshooting.

- Is the recording paper installed properly?

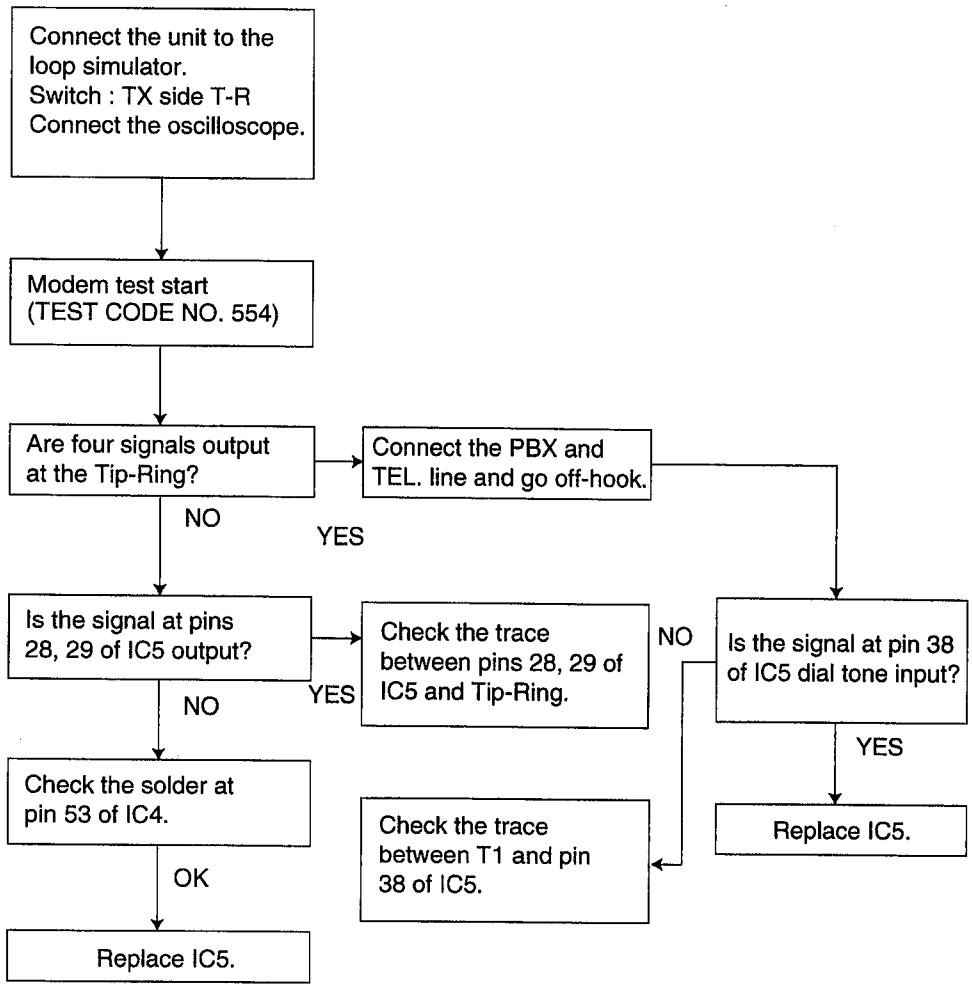
There is the receiving problem when sometimes the below errors maybe occurred.

Papír kifogyott
Fedél nyitva
Túlmelegedés (If it doesn't return automatically, COVER OPEN, etc., reset the unit.)
Hiba az iratnál
Papír elakadt (KX-FT37HG)

Please refer to "2. User Recoverable Errors" (page 23) for the above items.
Also, when a hardware deformity occurs, please check each sensor.



④ The unit can copy, but cannot transmit/receive.

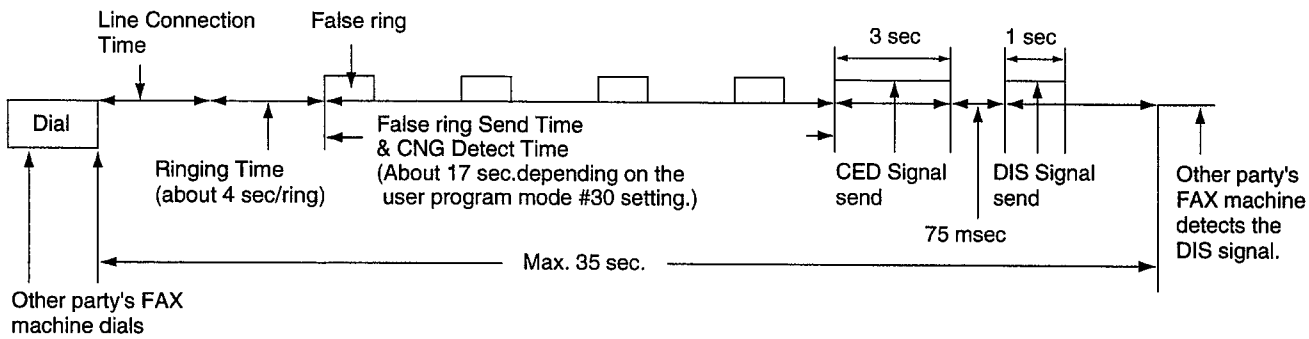


⑤ Unit can copy, but cannot transmit/receive long distance or international communications.

The following 2 causes can be considered for this.

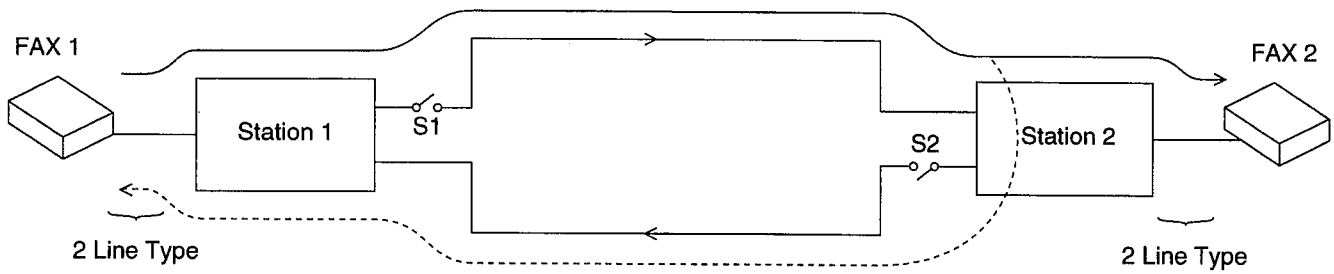
Cause 1:
The other party is executing automatic dialling, the call has been received by this unit, and the CED or DIS signal response time is too long. (In most cases, this unit detects the CNG signal and can respond to the CED or DIS.) (According to the ITU-T standard, the communication procedure is stopped when there is no response from the other party within 35 sec, so that the other party releases the line.)

(Response time)



(Cause and Countermeasure)
As shown in the chart above, the total handshaking time must be reduced. Long distance connection and linking of several stations means the line connection time cannot be reduced. Accordingly, the following countermeasures should be attempted.
(A) The TEL/FAX DELAYED RING count should be 1. (User parameter: code No. 09)
(B) As the 35 sec. count starts directly after dialling or directly after the START button has been pressed for models with a START button, the other party should be called manually, if possible.
Another possibility is entering two pauses at the end of the auto dial number on the transmission side. Then the count start time will be delayed for 2 pauses (about 10 sec.).

Cause 2:
Erroneous detection due to an echo or echo canceller.



The sea bottom cable or satellite communication path (4 Line Type)

(Echo/Echo Canceller)
The signal from FAX1 reaches FAX2 via the stations 1 and 2, but the reflection signal at station 2 also returns via station 1 (echo). As the distance between station 1 and station 2 is far, the echo returns to FAX 1 a max. of 600 msec after transmission. There is a possibility that this signal is detected erroneously as the signal from FAX2. For a normal call, there is a possibility that the echo of their own voice will make the call difficult to understand. For this reason, each station (station 1, station 2) attaches echo cancellers (S1, S2) for international lines or long distance lines. For the echo canceller, the level of the transmission signal from FAX 1 is compared with the level of the reception signal from FAX2. When the transmission signal is larger, S1 is closed while S2 is opened when it is smaller. In other words, for transmission from FAX1, S1 is closed and S2 is open, so that the echo does not return to FAX1.

(Cause and Countermeasure)
(Cause A)
When a training signal is transmitted from FAX1 during the communication procedure at the time of transmission from FAX1 to FAX2, there is a delay until the echo canceller operates. S1 is closed so that a part of the head of the training signal may drop out. Normal reception by FAX2 may not be possible, and transmission may not be started.
(Countermeasure A)
When the international line mode is ON in the service mode (code No. 521), a dummy signal is attached to the head of the training signal to prevent this problem. As this normally is ON, it is necessary to reconfirm that this has not become OFF. When the international mode is switched OFF, the transmission side will try the training signal three times at each speed (9600BPS, 7200BPS, 4800BPS and 2400BPS). If NG, it will drop the speed by one rank (fall-back). When the international mode is switched ON, each speed will be tried only twice. In other words, the slower speed with fewer errors can be accessed more easily. This is done because the line conditions may deteriorate and the picture may be affected more easily during communication for international lines or long distance communication, even when the training is OK.
The default value is ON as preference is given to clearer pictures rather than speed.

(Cause B)
The echo canceller operation is stopped with a 2100Hz signal (i.e. S1 and S2 become ON).
Accordingly, when FAX1 has executed automatic reception, a CED signal is output. If this signal is 2100Hz, S1 and S2 will become ON. Then the echo of the DIS signal output afterwards may be received and FAX1 may execute an erroneous operation, preventing communication from starting.
(Countermeasure B)
In the service mode, the CED signal frequency is set to 1100Hz (code No.520.).Or, the time setting between the CED signal and the DIS signal is set from 75 msec to 500 msec in the service mode (code No.593). This is because the echo canceller operation stop mode is cancelled by an interval of 250 msec or more.
Reduce receiving sensitivity to reduce the effect of RCV echo signal. (service mode: code No. 598)

(Cause C)
This model is FAX1 and the other party is FAX2.
For transmission from FAX1 to FAX2, FAX2 executes automatic reception and transmits a CED signal (2100 Hz) followed by a DIS signal. As the echo cancellers stops as described in cause B, the echo of the DIS signal returns to FAX2. On the other hand, FAX1 detects the DIS signal and transmits a DCS signal. In other words, it is possible that the echo of the DIS signal and the DCS signal transmitted from FAX1 reach FAX2 one after the other. FAX2 detects an error and communication is not started.
(Countermeasure C)
When the international DIS detection setting is set in the service mode (code No.594), FAX1 does not respond to the first DIS signal and returns a DCS signal only for the second DIS signal.
In other words, there is an interval of 250 msec between transmission of first and second DIS signal so that the echo cancellers operation recovers. An echo is not generated for the second DIS signal.
Note:
When the other FAX does not respond with a DCS signal after DIS signal transmission, the DIS signal is transmitted three times for trial.

Summary:
Long distance and international communication operation

SYMPTOM	COUNTERMEASURE
Does not receive in the automatic mode.	1. The TEL/FAX DELAYED RING count should be 1. (User parameter: code No. 09) 2. If possible, manual transmission should be made from the transmission side. 3. If possible, two pauses should be inserted at the end of the auto dial number on the transmission side. 4. If possible, the Function Selector Switch should be switched to FAX.
Does not transmit.	1. Confirm the international line mode is ON. (Service mode: code No. 521) 2. Enable the International DIS detection setting. (Service mode: code No. 594)
Does not receive.	1. Set the time setting between the CED signal and the DIS signal to 500 msec. (Service mode: code No. 593) 2. Set the CED frequency to 1100Hz. (Service mode: code No. 520) 3. Reduce the RCV sensitivity. (Service mode: code No. 598)

⑥ The unit can copy, but the transmission and reception image is incorrect. (Long distance or international communication operation)

This depends widely on the transmission and reception capability of the other FAX unit and the line conditions. The countermeasures for this unit are shown below.

Transmission Operation:
Set the transmitting speed to 4800BPS (Service mode: code No. 717) or select the overseas mode.

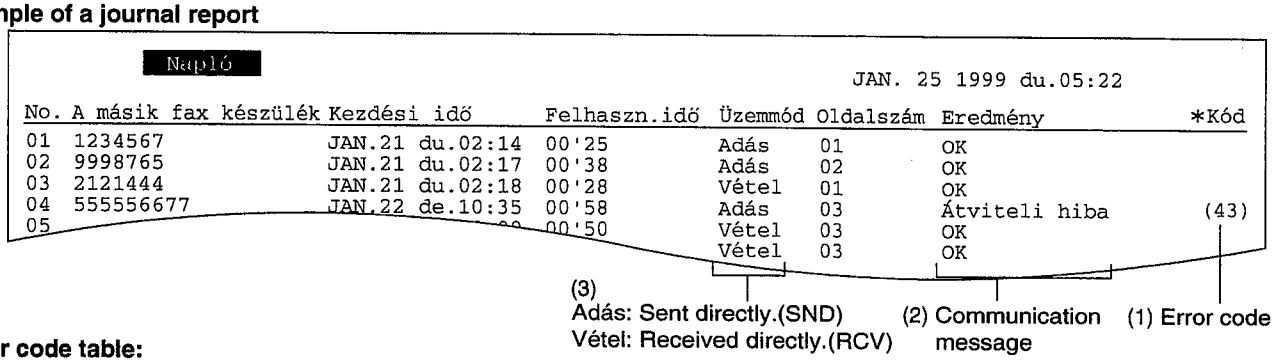
Reception Operation:
If 80% or more of the reception is incorrect, set the receiving speed to 4800BPS. (Service mode: code No. 718)

(2) Communication error functions

① How to output the Journal Report:

1. Press the MENU button 2 times.
2. Press the START/SET button and then ▼ button until JOURNAL REPORT is displayed.
3. Press the START/SET button.
4. The journal will print out, listing any errors.

Sample of a journal report



Error code table:

(1) CODE	(2) RESULT	(3) MODE	SYMPTOM	Counter-measure (go to the next page)
	STOP gomb megnyomva	SND & RCV	Communication was interrupted by the STOP button.	
	Irat elakadt	SND	The document paper is jammed.	
	Nincs irat	SND	No document paper.	
	Túlmelegedés	RCV	The thermal head is overheated.	
	Papír kifogyott	RCV	Out of thermal paper.	
	Fedél nyitva	SND & RCV	The cover is open.	
	Másik fax nem válasz.	SND	Transmission is stopped when the T1 TIMER expires.	
	Memória megtelt	RCV	The document was not received due to memory being full.	
	Papír kifogyott	RCV	The unit ran out of recording paper. Install a recording paper roll	1
41	Átviteli hiba	SND	DCN is received after DCS transmission.	2
42	Átviteli hiba	SND	FTT is received after transmission of 2400BSP training signal.	3
43	Átviteli hiba	SND	No response after post message is transmitted three times.	4
44	Átviteli hiba	SND	RTN and PIN are received.	5
46	Átviteli hiba	RCV	No response after FTT is transmitted.	6
48	Átviteli hiba	RCV	No post message.	7
49	Átviteli hiba	RCV	RTN is transmitted.	8
50	Átviteli hiba	RCV	PIN is transmitted (to PRI-Q).	8
51	Átviteli hiba	RCV	PIN is transmitted.	8
52	Másik fax nem válasz.	RCV	Reception is stopped when the T1 TIMER expires.	9
53	A hiba nem Önnél van	SND	DCN is received after transmission of NSC and DTC.	10
54	A hiba nem Önnél van	RCV	DCN is received after DIS transmission.	11
57	Átviteli hiba	SND	300BPS error	12
58	Átviteli hiba	RCV	DCN is received after FTT transmission.	13
59	A hiba nem Önnél van	SND	DCN responds to a post message.	14
64	Átviteli hiba	SND	Polling is not possible.	15
68	Átviteli hiba	RCV	No response at the other party after MCF or CFR is transmitted.	13
70	A hiba nem Önnél van	RCV	DCN is received after CFR transmission.	13
72	Átviteli hiba	RCV	The carrier is cut when the image signal is received.	16
FF	Átviţeli hiba	SND & RCV	Modem error. For the DCN, DCS, etc. abbreviations, refer to "5. Modem Section" on page 139.	12

Adás=TRANSMISSION Vétel=RECEPTION

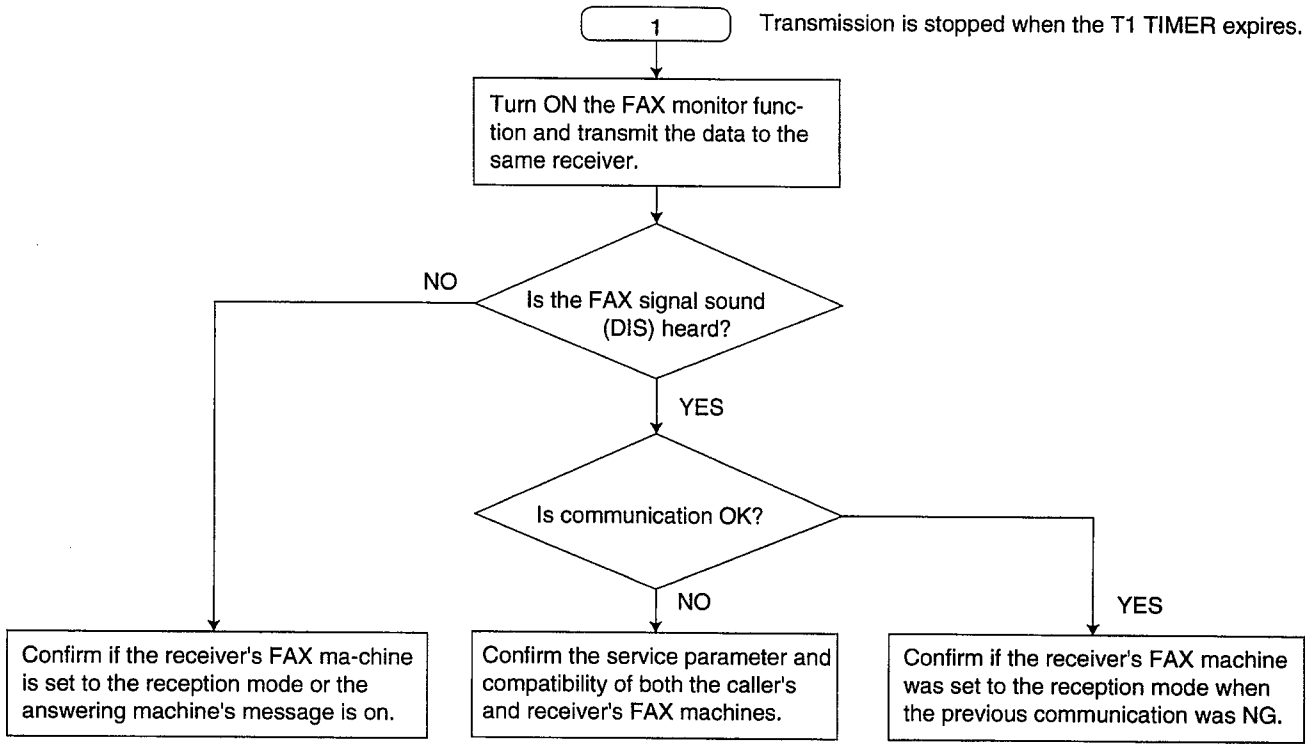
※Most fax communication problems can be resolved by the following steps.

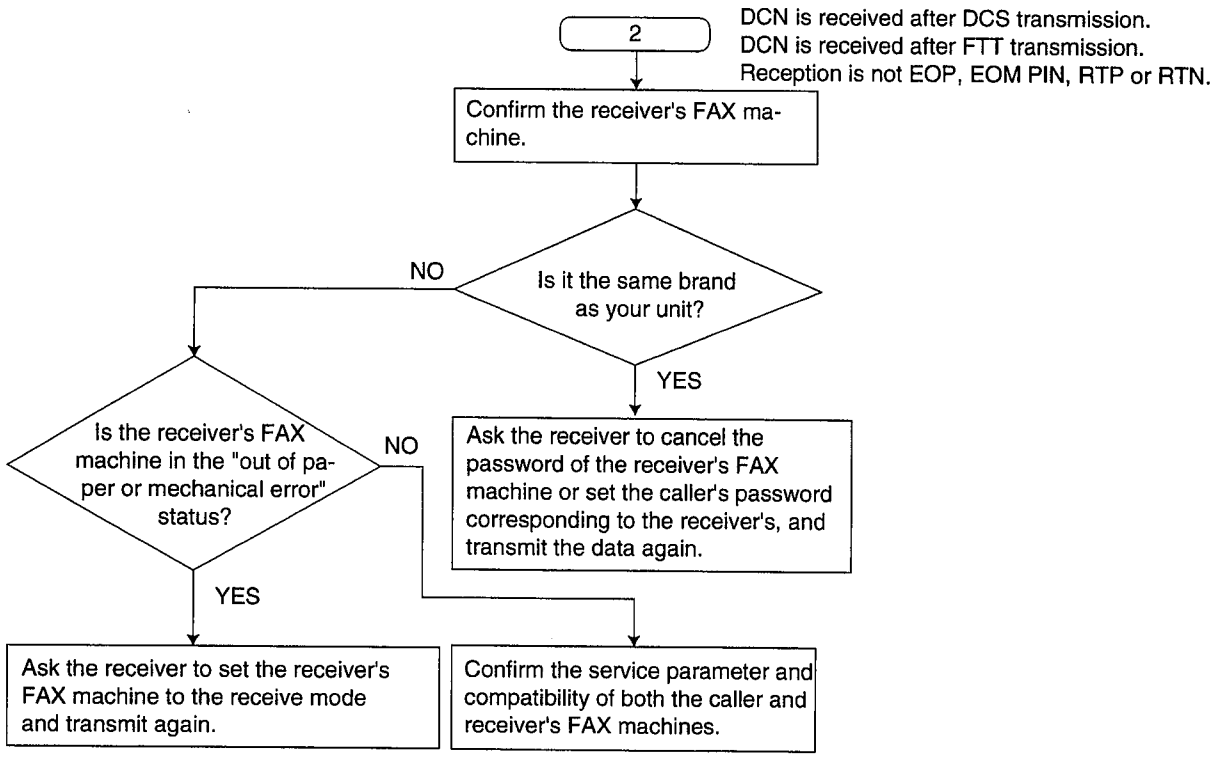
1) Change the transmit level. (Service code: 596, refer to page 86.)

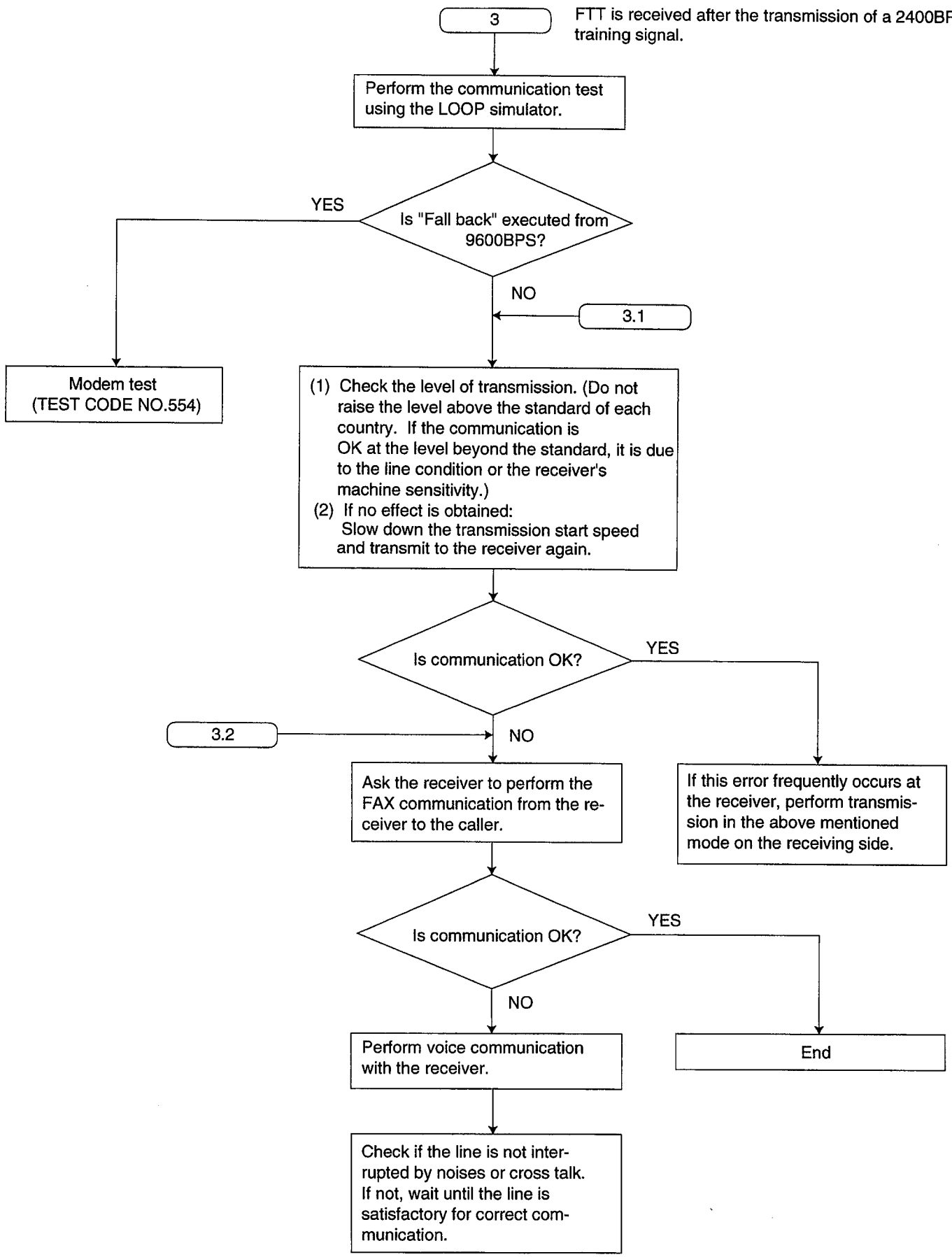
2) Change the TX speed/RX speed. (Service code: 717/718, refer to page 87.)

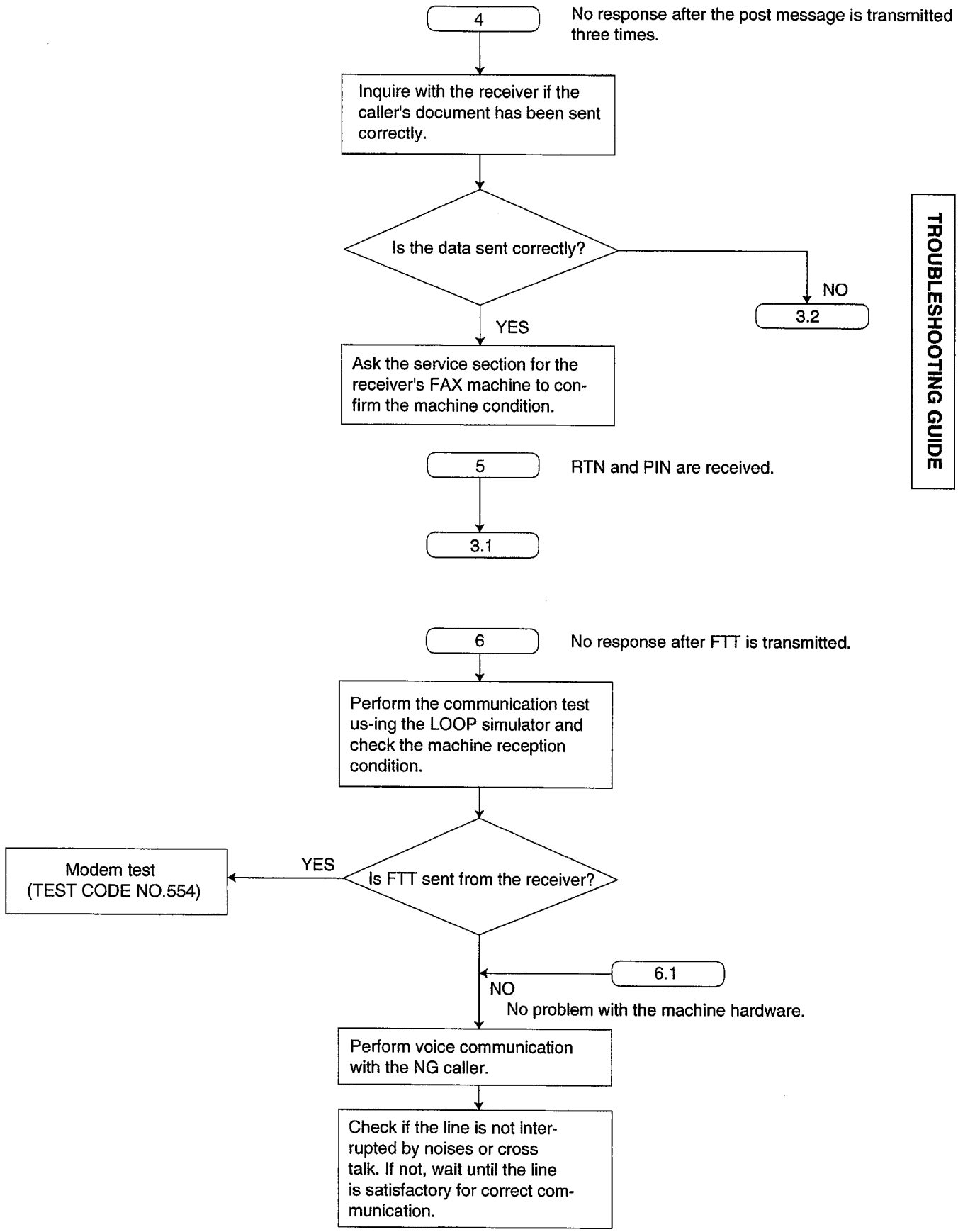
If the problem remains , see the next page.

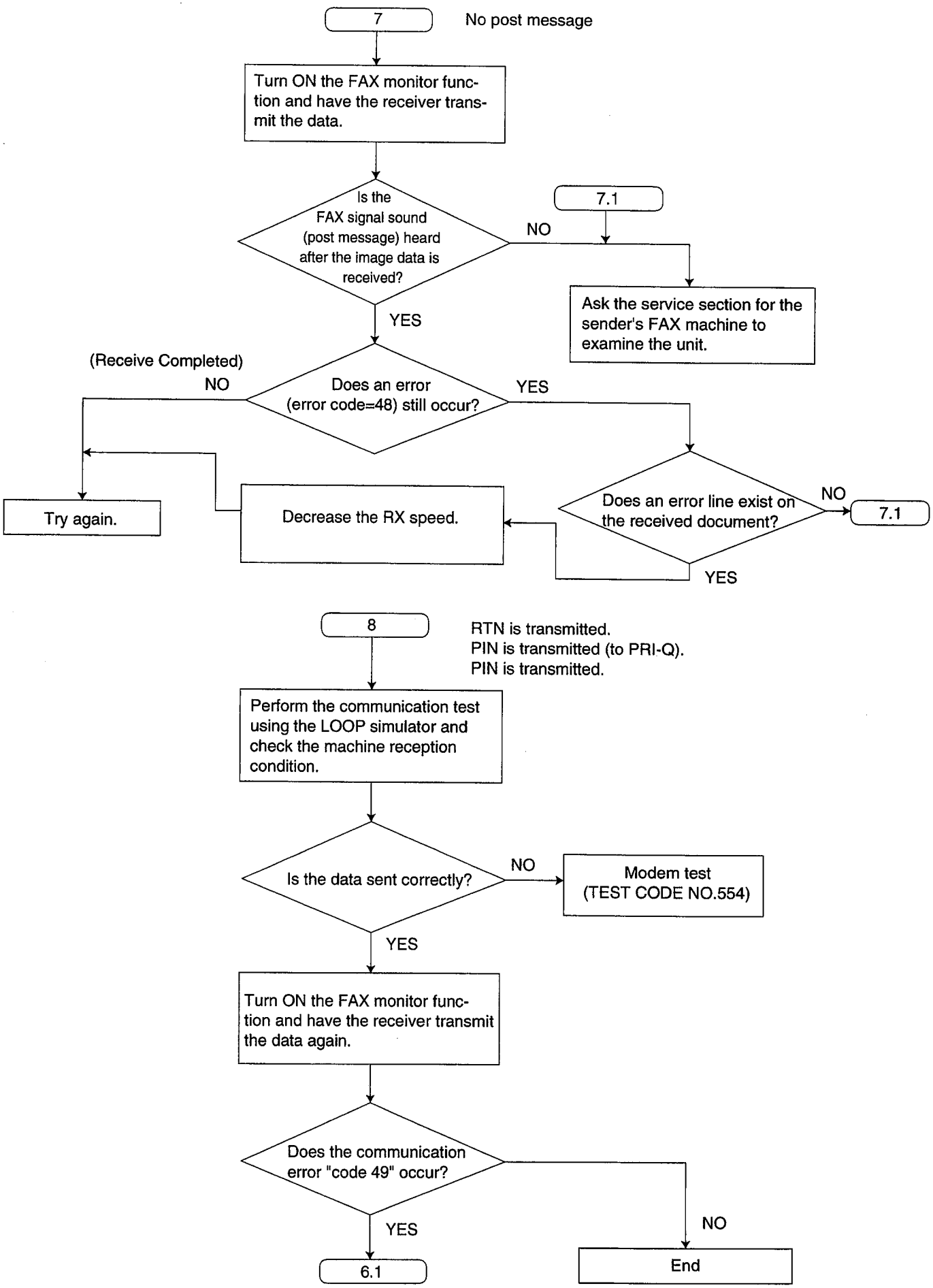
③ Countermeasure

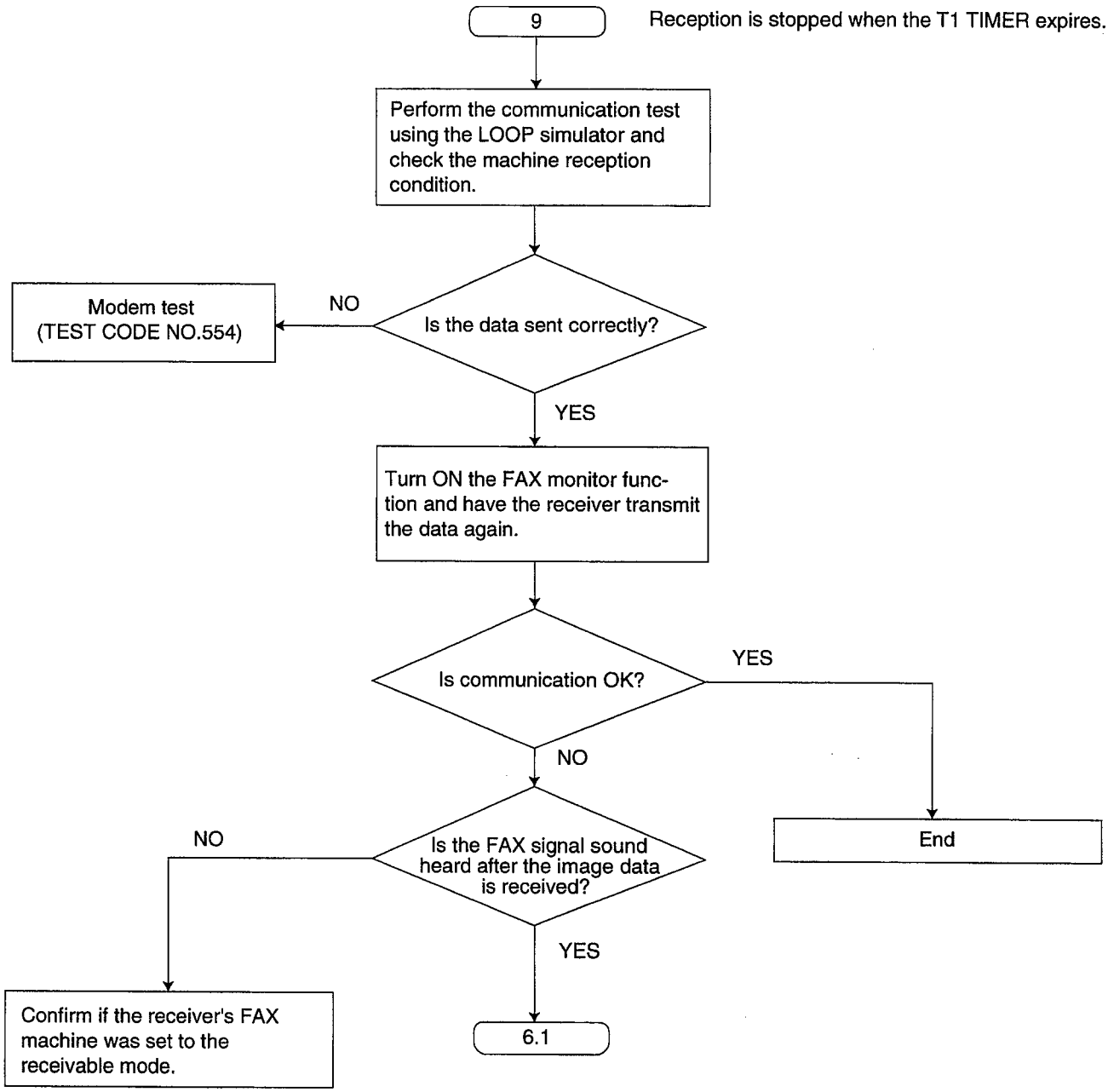


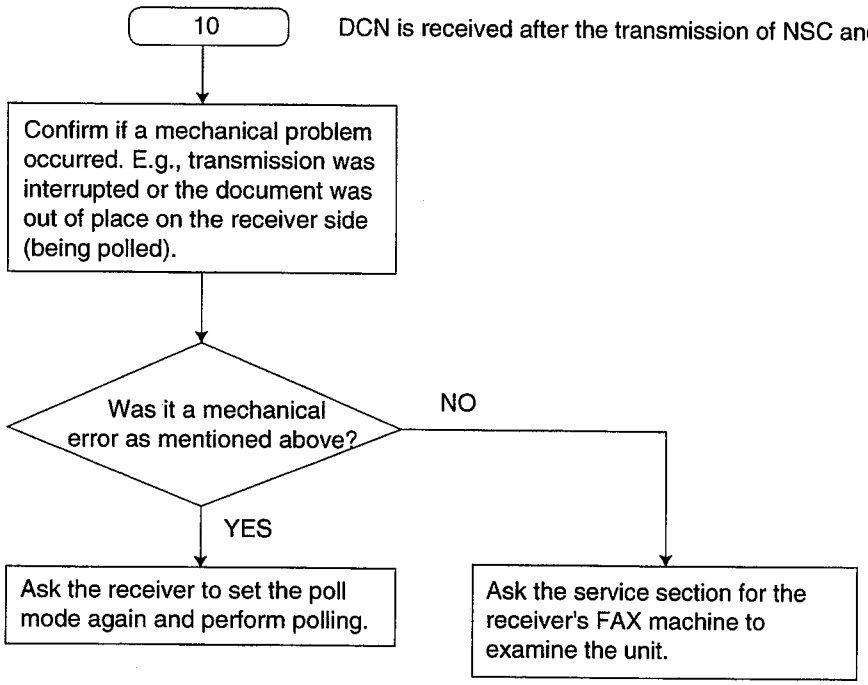


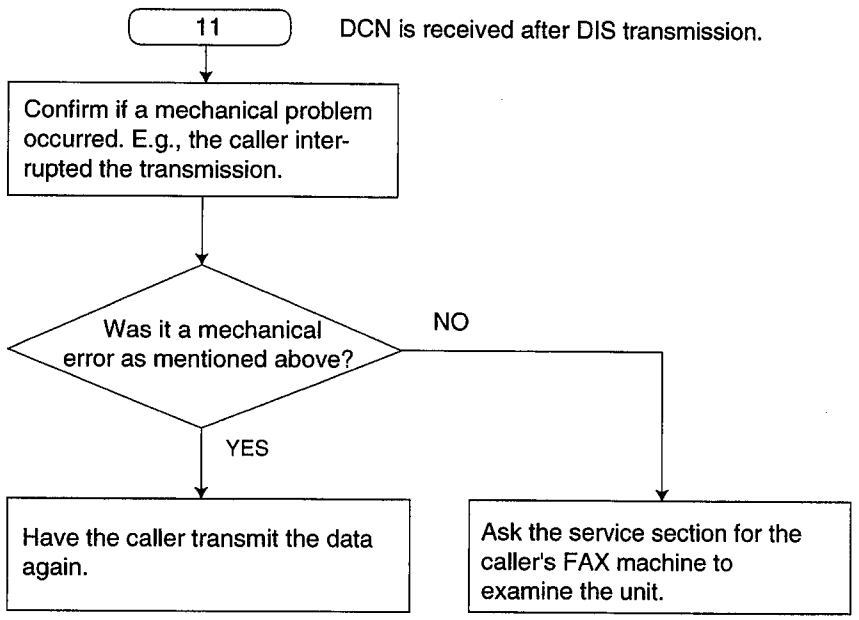

3
FTT is received after the transmission of a 2400BPS training signal.
Perform the communication test using the LOOP simulator.
Is "Fall back" executed from 9600BPS?
YES
NO
3.1
Modem test (TEST CODE NO.554)
(1) Check the level of transmission. (Do not raise the level above the standard of each country. If the communication is OK at the level beyond the standard, it is due to the line condition or the receiver's machine sensitivity.)
(2) If no effect is obtained:
Slow down the transmission start speed and transmit to the receiver again.
Is communication OK?
YES
3.2
NO
Ask the receiver to perform the FAX communication from the receiver to the caller.
If this error frequently occurs at the receiver, perform transmission in the above mentioned mode on the receiving side.
Is communication OK?
YES
NO
Perform voice communication with the receiver.
End
Check if the line is not interrupted by noises or cross talk. If not, wait until the line is satisfactory for correct communication.

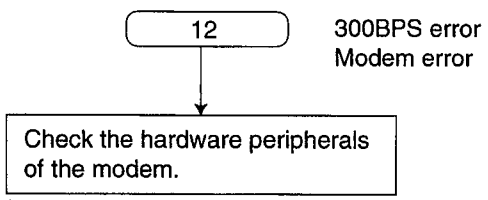

4
No response after the post message is transmitted three times.
Inquire with the receiver if the caller's document has been sent correctly.
Is the data sent correctly?
NO
3.2
YES
Ask the service section for the receiver's FAX machine to confirm the machine condition.
5
RTN and PIN are received.
3.1
6
No response after FTT is transmitted.
Perform the communication test us-ing the LOOP simulator and check the machine reception condition.
Modem test (TEST CODE NO.554)
YES
Is FTT sent from the receiver?
6.1
NO
No problem with the machine hardware.
Perform voice communication with the NG caller.
Check if the line is not interrupted by noises or cross talk. If not, wait until the line is satisfactory for correct communication.

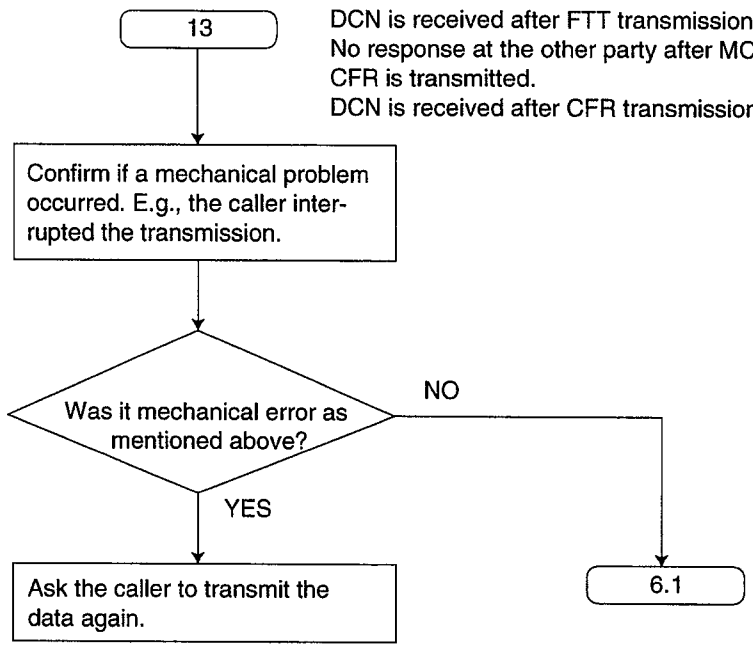

7
No post message
Turn ON the FAX monitor function and have the receiver transmit the data.
Is the FAX signal sound (post message) heard after the image data is received?
NO
7.1
Ask the service section for the sender's FAX machine to examine the unit.
YES
(Receive Completed)
NO
Does an error (error code=48) still occur?
YES
Try again.
Decrease the RX speed.
Does an error line exist on the received document?
NO
7.1
YES
8
RTN is transmitted.
PIN is transmitted (to PRI-Q).
PIN is transmitted.
Perform the communication test using the LOOP simulator and check the machine reception condition.
Is the data sent correctly?
NO
Modem test (TEST CODE NO.554)
YES
Turn ON the FAX monitor function and have the receiver transmit the data again.
Does the communication error "code 49" occur?
YES
NO
6.1
End

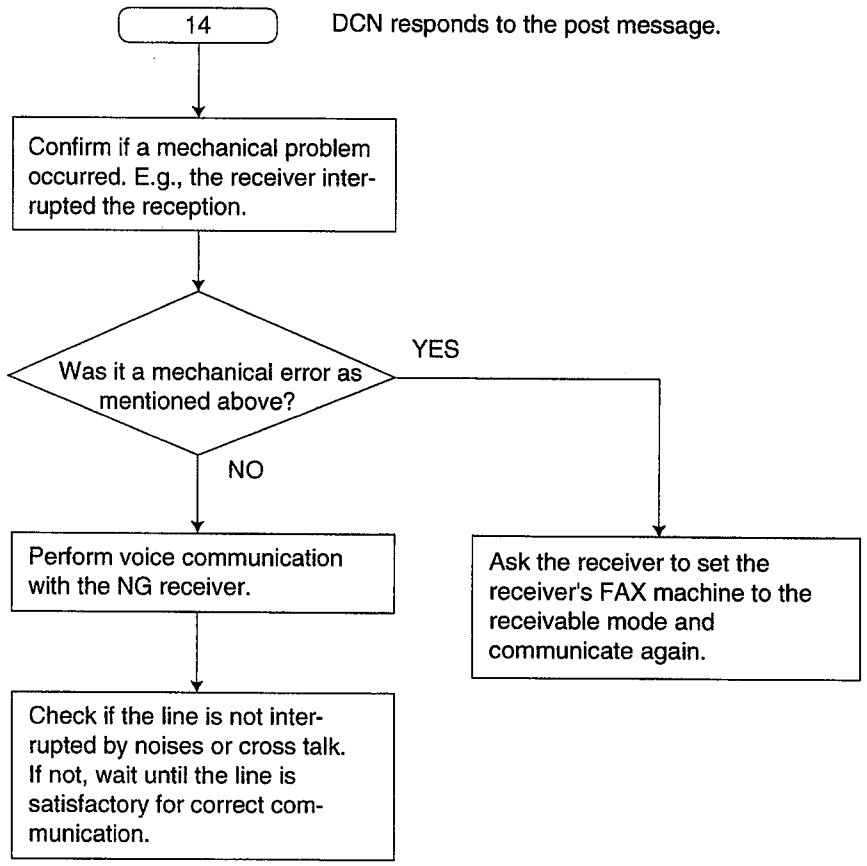

9
Reception is stopped when the T1 TIMER expires.
Perform the communication test using the LOOP simulator and check the machine reception condition.
Is the data sent correctly?
NO
Modem test (TEST CODE NO.554)
YES
Turn ON the FAX monitor function and have the receiver transmit the data again.
Is communication OK?
YES
End
NO
Is the FAX signal sound heard after the image data is received?
NO
YES
Confirm if the receiver's FAX machine was set to the receivable mode.
6.1

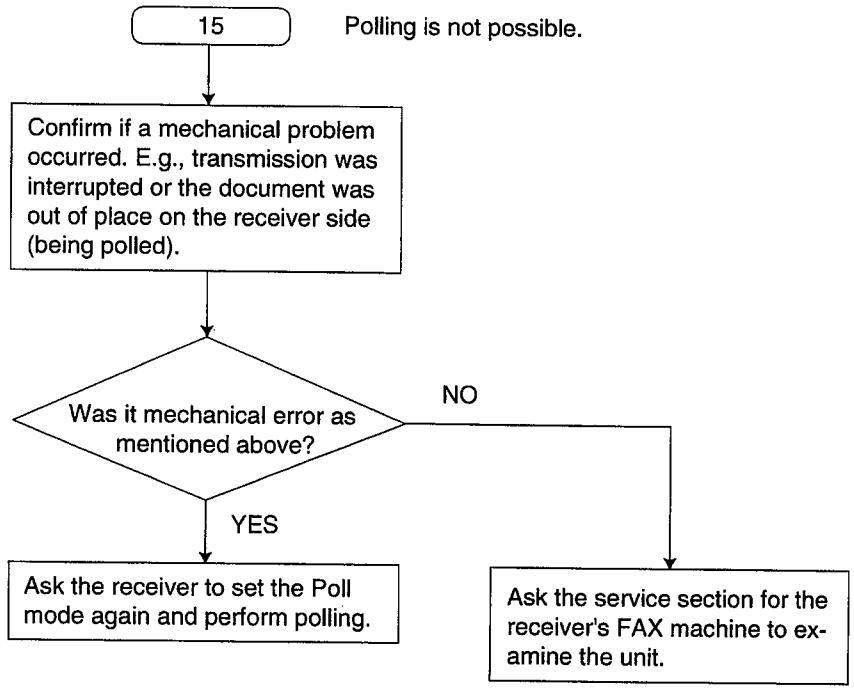

10
DCN is received after the transmission of NSC and DTC.
Confirm if a mechanical problem occurred. E.g., transmission was interrupted or the document was out of place on the receiver side (being polled).
Was it a mechanical error as mentioned above?
NO
YES
Ask the receiver to set the poll mode again and perform polling.
Ask the service section for the receiver's FAX machine to examine the unit.

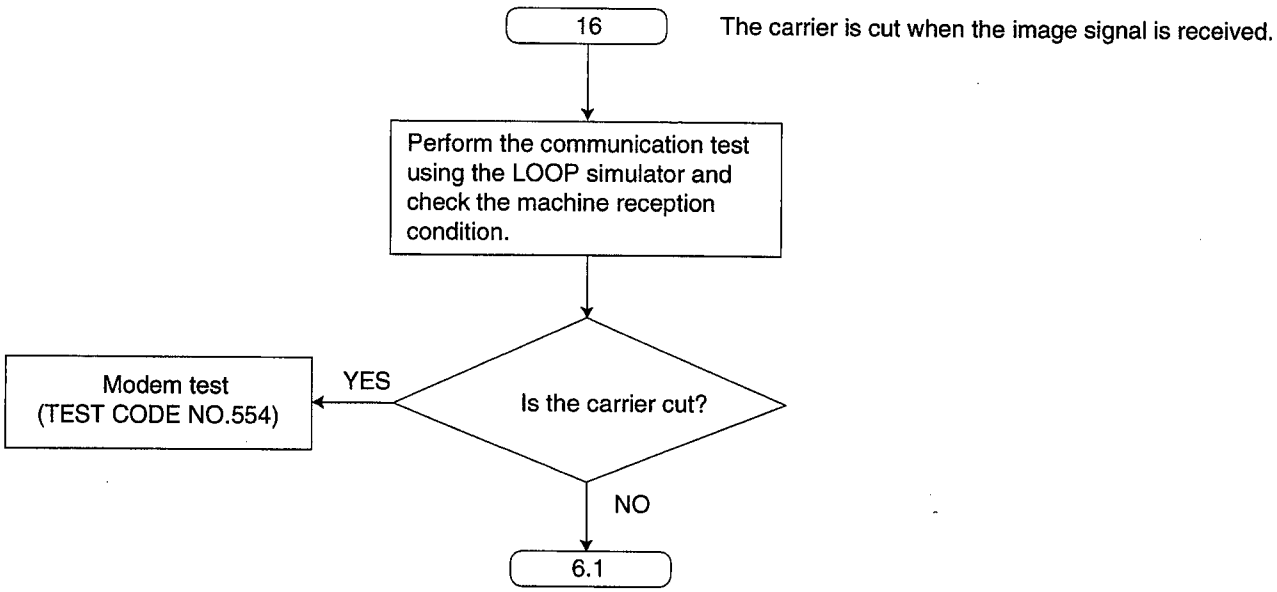

11
DCN is received after DIS transmission.
Confirm if a mechanical problem occurred. E.g., the caller interrupted the transmission.
Was it a mechanical error as mentioned above?
NO
YES
Have the caller transmit the data again.
Ask the service section for the caller's FAX machine to examine the unit.


12
300BPS error
Modem error
Check the hardware peripherals of the modem.


13
DCN is received after FTT transmission.
No response at the other party after MCF or CFR is transmitted.
DCN is received after CFR transmission.
Confirm if a mechanical problem occurred. E.g., the caller interrupted the transmission.
Was it mechanical error as mentioned above?
NO
YES
Ask the caller to transmit the data again.
6.1


14
DCN responds to the post message.
Confirm if a mechanical problem occurred. E.g., the receiver interrupted the reception.
Was it a mechanical error as mentioned above?
YES
NO
Perform voice communication with the NG receiver.
Ask the receiver to set the receiver's FAX machine to the receivable mode and communicate again.
Check if the line is not interrupted by noises or cross talk. If not, wait until the line is satisfactory for correct communication.


15
Polling is not possible.
Confirm if a mechanical problem occurred. E.g., transmission was interrupted or the document was out of place on the receiver side (being polled).
Was it mechanical error as mentioned above?
NO
YES
Ask the receiver to set the Poll mode again and perform polling.
Ask the service section for the receiver's FAX machine to examine the unit.


16
The carrier is cut when the image signal is received.
Perform the communication test using the LOOP simulator and check the machine reception condition.
Is the carrier cut?
YES
Modem test
(TEST CODE NO.554)
NO
6.1

(3) Remote programming

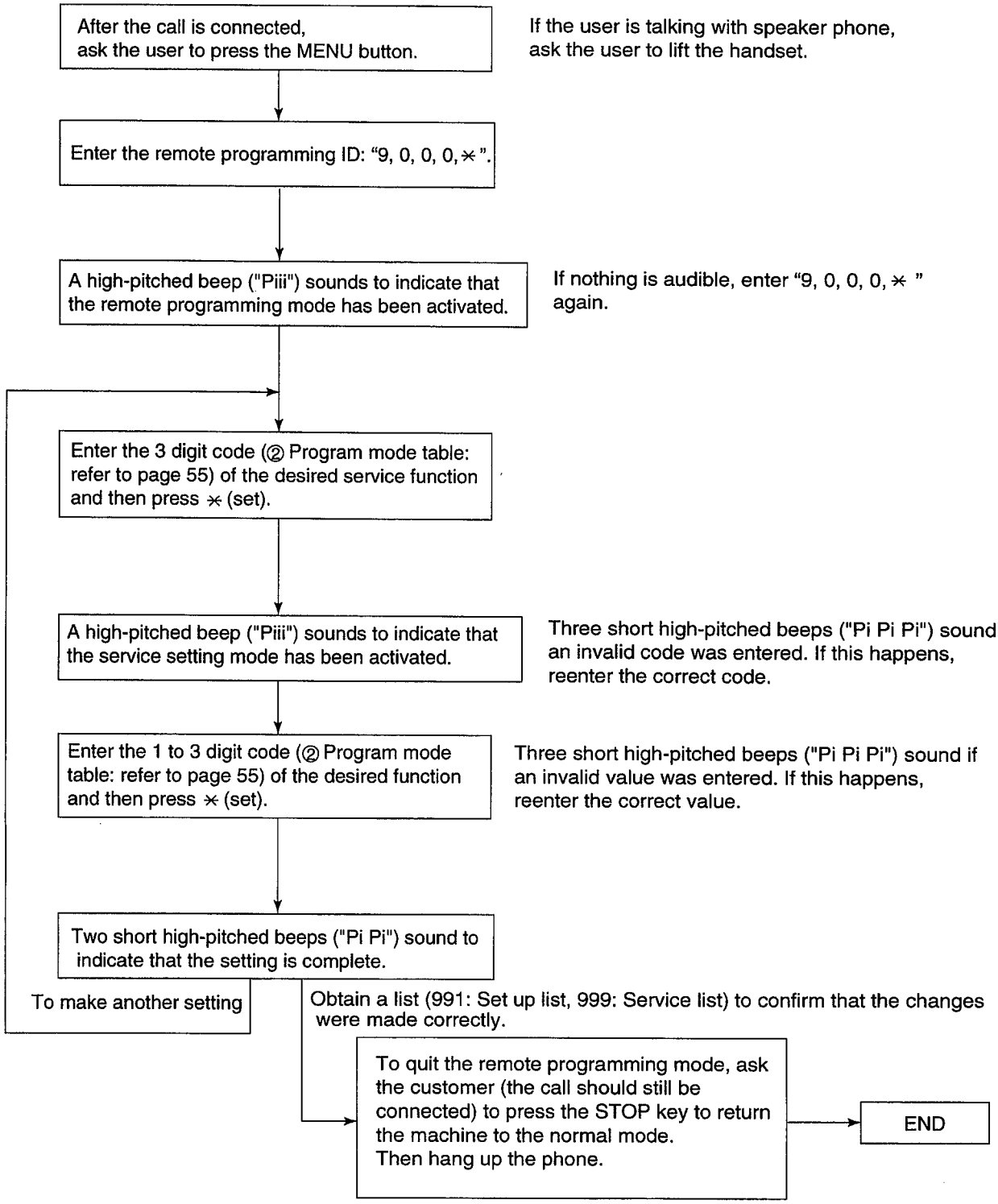
If, after the call is connected, the customer describes the situation and it is determined that the problem can be corrected by making parameter changes, this function makes it possible to change parameters such as the user code and service code from another fax (using DTMF tones). Therefore, travel to the customer's location is not required. However, it is not possible to change all the parameters remotely (② Program mode table: refer to page 55). The function used to accomplish this is remote programming.

First, in order to check the current status of the service code parameter, out put the setup list (code: 991) and service list (code: 999) from the customer's fax machine. Based on this, the parameters for the desired codes can be changed. The procedure for changing and listing parameters is described on the next page. Also, before exiting the remote programming mode, it is advisable to obtain a new list to confirm that only the desired parameters were changed.

Hint:
Since the connected telephone is in use during the remote programming mode, it may be helpful to ask the customer to switch to the speakerphone (except for a digital speakerphone). This frees the customer from the need to remain right next to the fax while you are making parameter settings. When finished, inform the customer. Also note that in very noisy locations where the DTMF tones are not audible, the remote programming function will not work.

KX-FT35HG/KX-FT37HG

① Entering the remote programming mode and changing service codes.



② **Program mode table**

Code	Function	Set Value	Default	Remote setting
001	Set the date and time	mm/dd/yy hh:mm	---------	NG
---	Your logo	---------	---------	NG
---	Your telephone number	---------	---------	NG
004	Print transmission report	1:ERROR 2:ON 3:OFF	ERROR	OK
005	Auto receive mode	1: TAD/FAX 2: FAX ONLY	TAD/FAX	OK
006	TAD/FAX ring count	1~4:TOLL SAVER/RINGER OFF	1	OK
007	FAX ring count	1 to 4 rings	1 ring	OK
008	Manual receive mode	1:TEL 2:TEL/FAX	TEL	OK
009	TEL/FAX delayed ring	1 to 4 rings	1 ring	OK
010	Recording time	1:VOX/2:1 MIN	VOX	OK
011	Remote ANS ID	---------	ID=111	NG
022	Journal auto print	1:ON 2:OFF	ON	OK
023	Overseas mode	1:ON 2:OFF	OFF	OK
025	Delayed send	ON/OFF	OFF	NG
030	Silent FAX recognition ring	3 to 9 rings	3 rings	OK
039	LCD contrast	NORMAL/LIGHT/DARK	NORMAL	NG
041	FAX activation code	ON/OFF	ON/ID=＊9	NG
042	Message alert	1:ON 2:OFF	OFF	OK
043	REC. time alert	1:ON 2:OFF	OFF	OK
046	Friendly reception	1:ON 2:OFF	ON	OK
047	Voice guidance (KX-FT37HG)	1:ON 2:OFF	ON	OK
054	Common greeting MSG. REC. time	1:16s 2:60s	16s	OK
058	Original setting	1:NORMAL 2:LIGHT 3:DARK	NORMAL	OK
060	Message transfer	MESSAGE/PAGER/OFF	OFF	NG
061	Transfer greeting	CHECK/RECORD/ERASE	CHECK	NG
067	ICM monitor	1:ON 2:OFF	ON	OK
070	FAX pager	ON/OFF	OFF	NG
076	FAX tone	1:ON 2:OFF	ON	OK
080	Set the default	YES/NO	NO	NG
501	Pause time set	001~600 X 100 msec	050	OK
502	Recall time set	01~90 X 10 msec	100	OK
503	Dial speed set	1:10pps 2:20 pps	10	OK
510	Vox time	1:6sec 2:4sec	6sec	OK
520	CED frequency select	1:2100Hz 2:1100Hz	2100	OK
521	International mode select	1:ON 2:OFF	ON	OK
522	Auto standby select	1:ON 2:OFF	ON	OK
523	Receive equalizer select	1:0km 2:1.8km 3:3.6km 4:7.2km	0km	OK
524	Transmission equalizer select	1:0km 2:1.8km 3:3.6km 4:7.2km	1.8km	OK
533	Setting the number of times that message transfer is redialled.	00~99	03	OK
534	Setting of the message transfer/pager call redial interval	001~999	030	OK
544	Document feed position adjustment value set	01~99 step	---------	OK
550	Memory clear	Press "START".	---------	NG
551	ROM check	Press "START".	---------	NG
553	Monitor on FAX communication select	1:OFF 2:P-B 3:ALL	OFF	OK
554	Modem test	Press "START".	---------	NG

KX-FT35HG/KX-FT37HG

Code	Function	Set Value	Default	Remote setting
555	Scanner test	Press "START".	---------	NG
556	Motor test	Press "START".	---------	NG
557	LED test	Press "START".	---------	NG
558	LCD test	Press "START".	---------	NG
559	Document jam detection select	1:ON 2:OFF	ON	OK
560	Cutter selection (KX-FT37HG)	1:ON 2:OFF	ON	OK
561	Key test	Press any key.	---------	NG
562	Cutter test (KX-FT37HG)	Press " START "	---------	NG
563	CCD position adjustment value set	00~30 mm	---------	OK
570	Break % select	1:61% 2:67%	67%	OK
571	ITS auto redial time set	00~99	10	OK
572	ITS auto redial line disconnection time set	001~999 set	065	OK
573	Remote turn-on ring number set	01~99	15	OK
580	TAM continuous tone detection	1:ON/2:OFF	ON	OK
590	FAX auto redial time set	00~99	05	OK
591	FAX auto redial line disconnection time set	001~999	065	OK
592	CNG transmit select	1:OFF/2:ALL/3:AUTO	ALL	OK
593	Time between CED and 300 bps	1:75/2:500/3:1s	75 ms	OK
594	Overseas DIS detection select	1:1st/2:2nd	1st	OK
595	Receive error limit value set	001~999	100	OK
596	Transmit level set	15~00dBm	-10	OK
598	Receiving Sensitivity	20~48	43	OK
717	Transmit speed select	1:9600/2:7200/3:4800/4:2400bps	9600bps	OK
718	Receive speed select	1:9600/2:7200/3:4800/4:2400bps	9600bps	OK
719	Ringer off in TEL/FAX mode	1:ON/2:OFF	ON	OK
721	Pause tone detect	1:ON/2:OFF	ON	OK
722	Redial tone detect	1:ON/2:OFF	ON	OK
731	CPC mode	1:A / 2:B / 3:OFF	A	OK
732	Auto disconnect cancel time	1:350 msec/2:1800 msec/3:OFF	350 msec	OK
763	Friendly reception CNG detection select	1:10S/2:20S/3:30S	20S	OK
771	T1 timer	1:35 sec/2:60 sec	35 sec	OK
775	Monitoring of message transfer	1:ON/2:OFF	OFF	OK
815	Sensor check	Press "START".	---------	NG
844	Original setting	1:NORMAL/2:LIGHT/3:DARKER	NORMAL	OK
991	Transmit basic list	1: START	---------	OK
992	Transmit advanced list	1: START	---------	OK
994	Transmit journal report	1: START	---------	OK
999	Transmit service list	1: START	---------	OK

Note: Refer to page 86 for descriptions of the individual codes.

OK means "can set".
NG means "can not set".

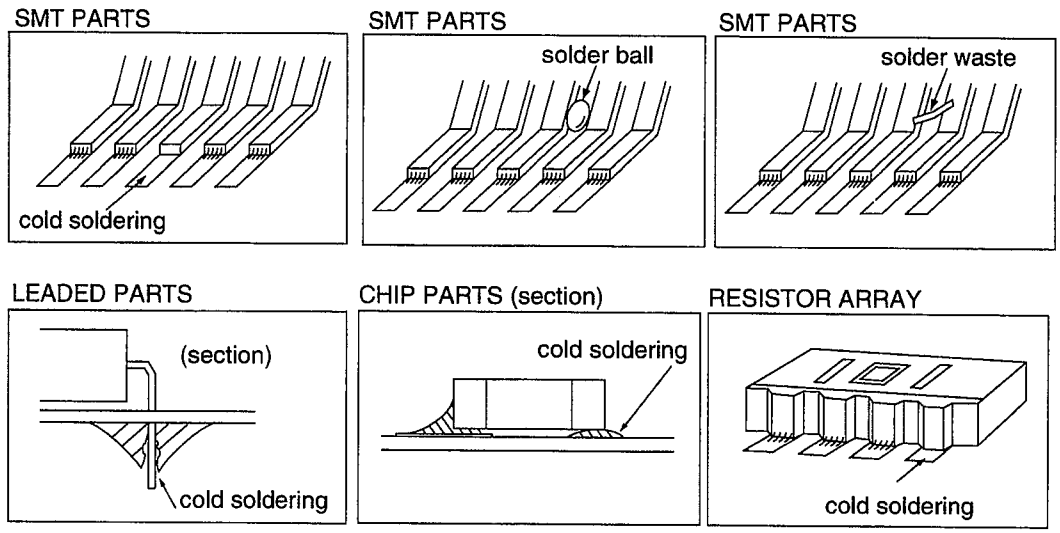
For example, the "004 Transmission report mode" set value"1:ERROR/2:ON/3:OFF" number corresponds to the number dialled.

3-7. DIGITAL BOARD SECTION

One of most difficult problems to deal with is when the system will not boot up.

The symptom: No response when the power is turned on. (No LCD display, keys are not accepted.)

Then first thing to do is check the power source, If there is no problem with the power supply unit, then there is a problem with the digital unit (main board).
As there are many potential causes in this case (ASIC, etc.), it may be difficult to specify what you should check first. If a mistake is made in the order of checks, a normal part may be determined faulty.
Although the tendency is to regard the problem as a serious one (IC malfunction, etc.), usually most problems are caused by solder faults (poor contact due to a tunnel in the solder, signal short circuit due to solder waste).



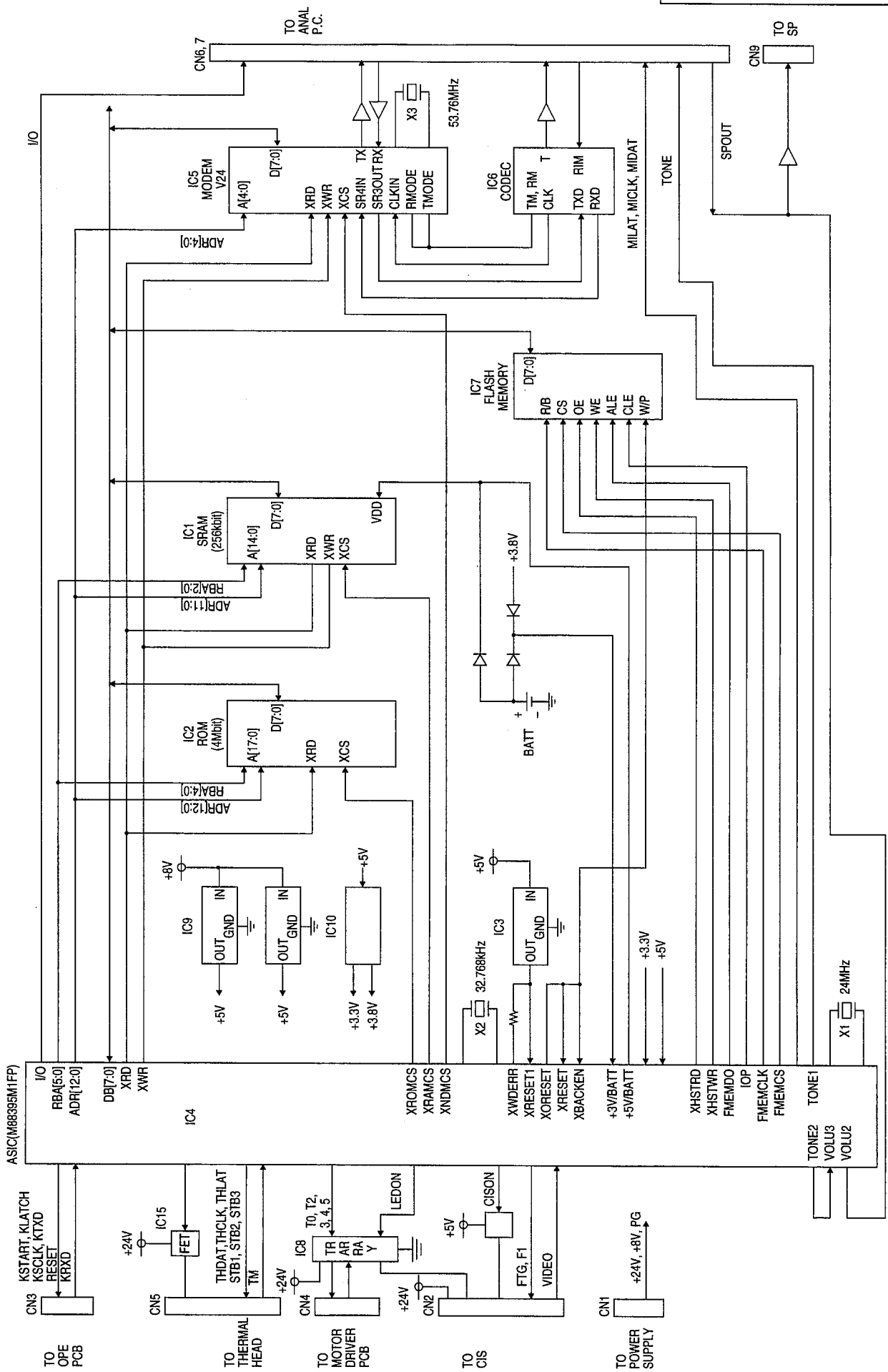
Note:

1. Electrical continuity may have existed at the factory check, but a faulty contact occurred as a result of vibration, etc., during transport.
2. Solder waste remaining on the board may get caught under the IC during transport, causing a short circuit.

Main signals for "Boot-up"

Please refer to the Block diagram.
The ASIC (including the CPU) (IC4) controls all the other digital ICs. When the power is turned on, the ASIC (CPU) retrieves the operation code stored in the ROM (IC2), then follows the instructions for controlling each IC. All ICs have some inner registers that are assigned to a certain address.
It is the address bus by which the ASIC (CPU) designates the location inside each IC. And the data bus reads or writes the data in order to transmit the instructions from the ASIC (CPU) to the ICs.
These signal lines are all controlled by voltages of 5V (H) or 0V (L).

Digital Block Diagram



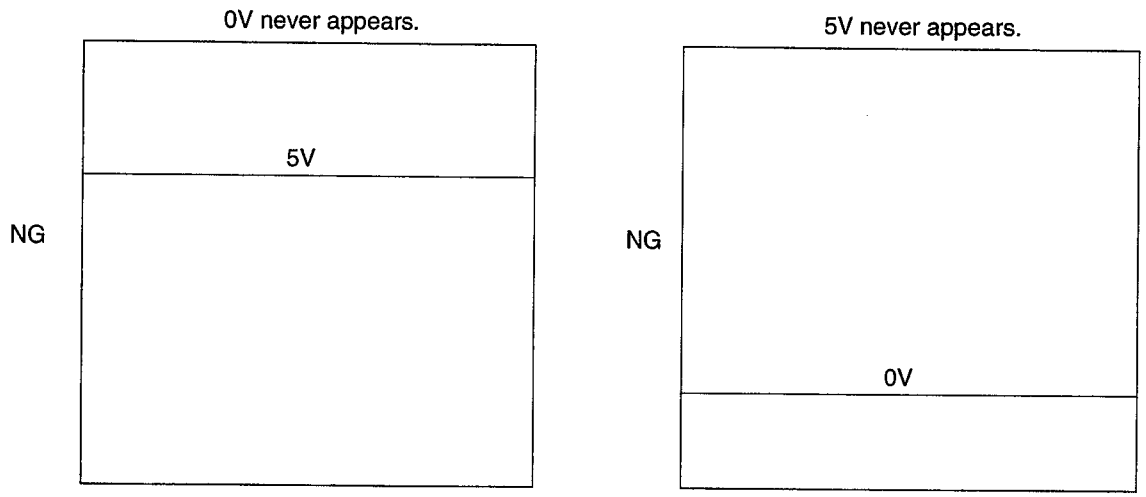
The signal lines that must be normal for the system to boot up are listed here [List 1].
For signal lines other than these, even if they malfunction they do not directly affect booting up the system.

[List 1]

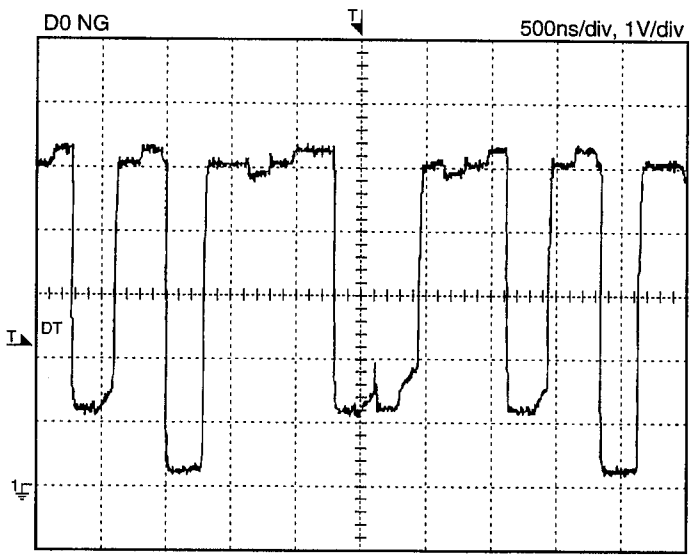
① D0~D7	(Address/Data Bus)
② A0~A15	(Address Bus)
③ $\overline{RD}$	(Read Signal)
$\overline{ROMCS}$	(ROM Select Signal)
$\overline{WR}$	(Write Signal)
$\overline{RAMCS}$	(SRAM Select Signal)
④ $\overline{MDMCS}$	(Modem Select signal)

If these signals are normal, once the power is turned on, each IC repeatedly outputs 5V (H) and 0V (L). The following page shows NG and normal wave patterns.

NG Wave pattern



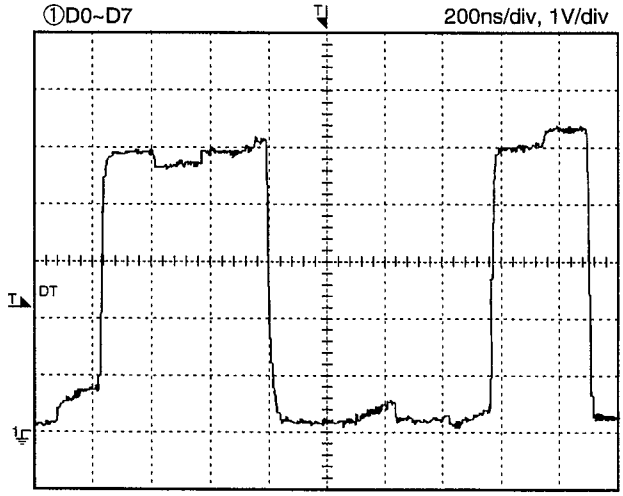
For a short between D0 and D1



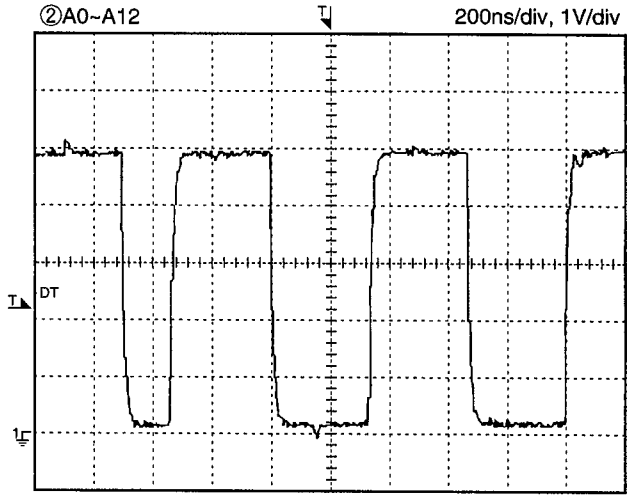
Normal Wave patterns

OK

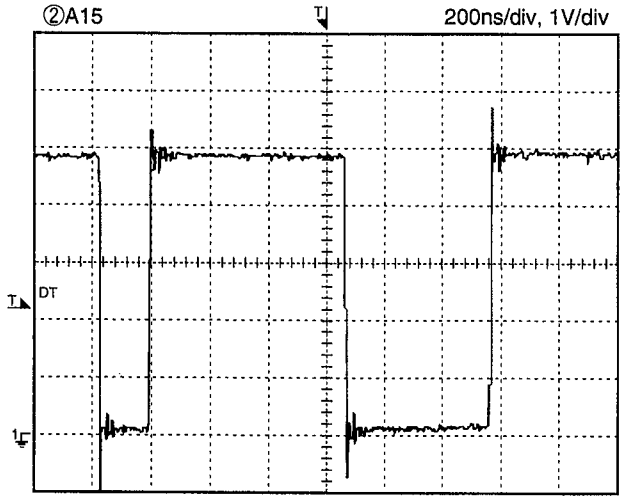
①D0~D7 200ns/div, 1V/div



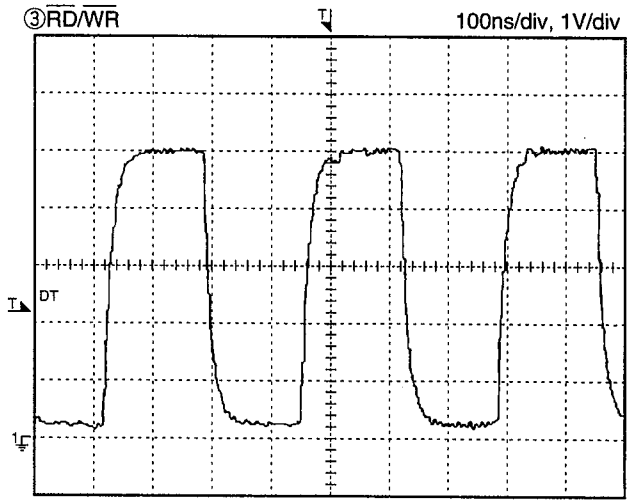
②A0~A12 200ns/div, 1V/div



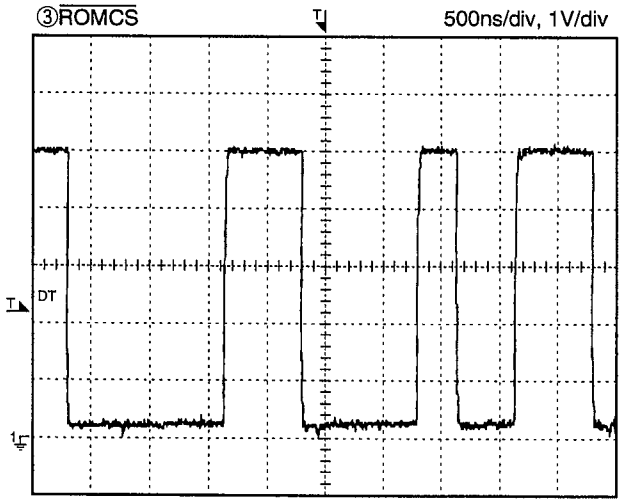
②A15 200ns/div, 1V/div



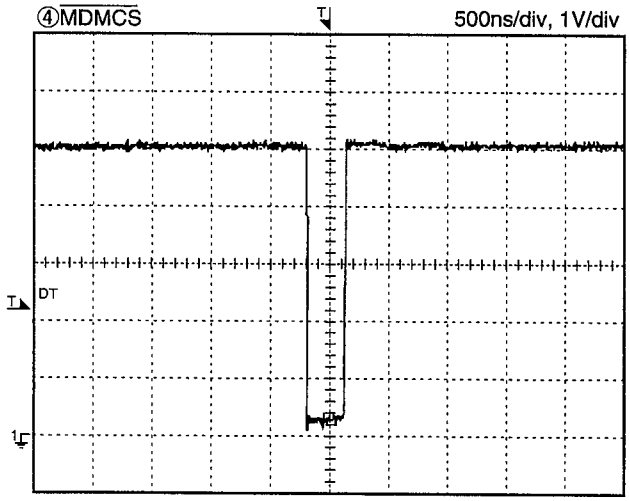
③$\overline{RD}$/$\overline{WR}$ 100ns/div, 1V/div



③$\overline{ROMCS}$ 500ns/div, 1V/div



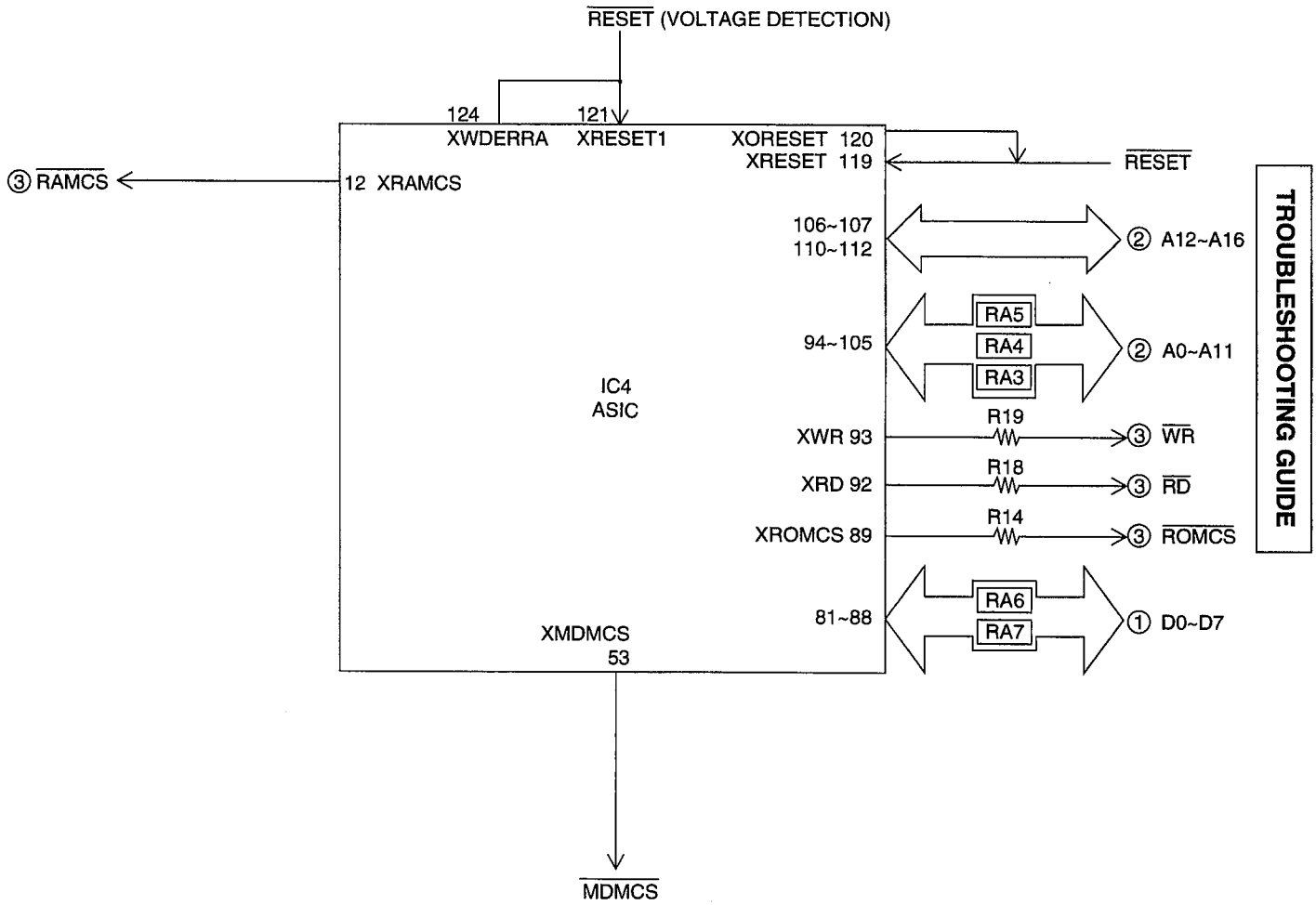
④$\overline{MDMCS}$ 500ns/div, 1V/div



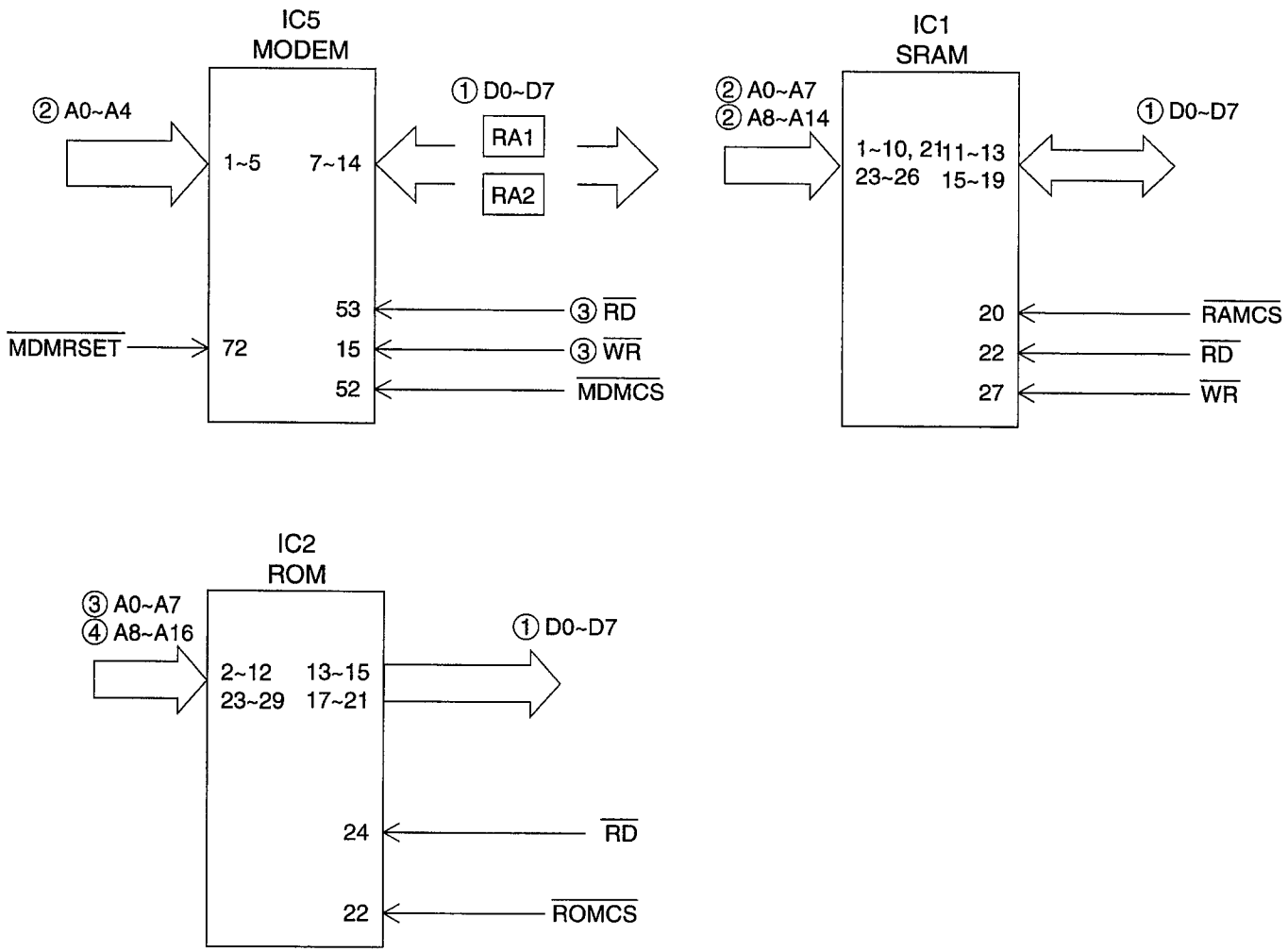
For these reasons and the software sequence to boot up the unit, if you use an oscilloscope to judge whether a signal is OK or NG, you must check in the same order as in [List 1]. (If the ASIC (CPU) failed to access the ROM, the ASIC cannot access the SRAM normally.)

The digital circuit actually operates according to the timing combinations of these signals. So, if the timing of these signals is even slightly off, the circuit will not operate normally. Even of the IC did malfunction, the output voltage level may become abnormal but the timing is accurate according to the specifications. (If oscillation is provided accurately.)
Accordingly, the problem presented here is whether each IC outputs the correct signal. (See the I/O direction diagram on the next page.) In other words, is it constantly switching between 5V (H) and 0V (L) as described earlier.

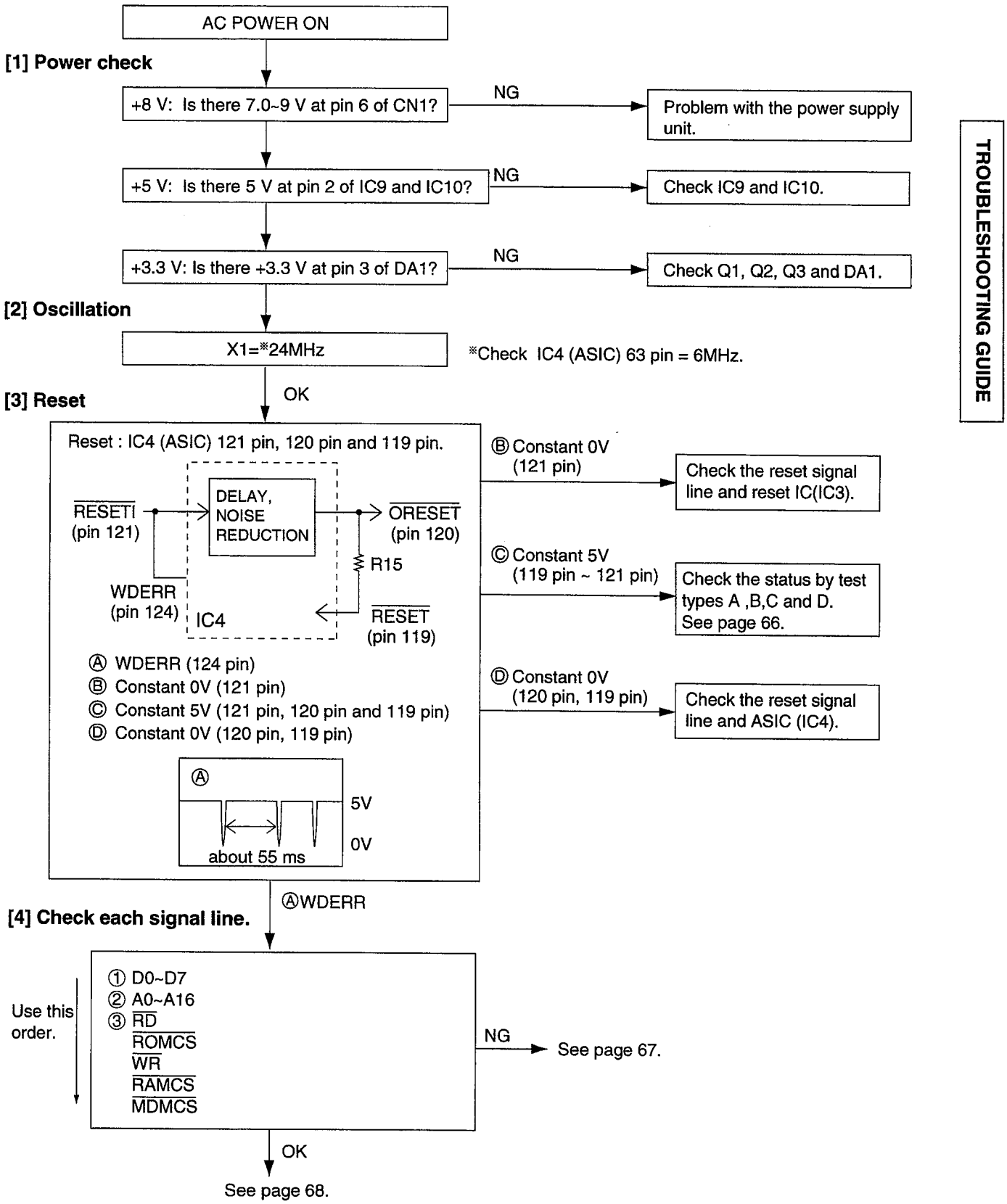
I/O and Pin No. Diagram



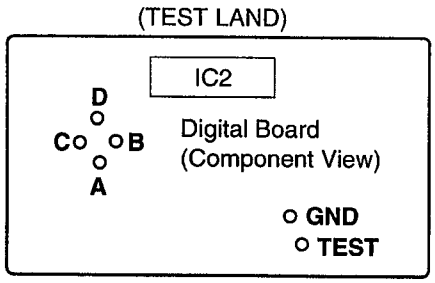
KX-FT35HG/KX-FT37HG

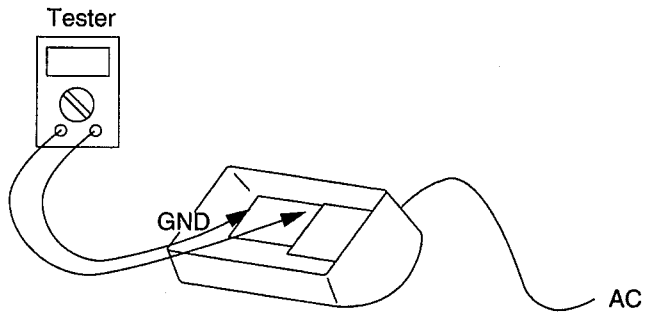


After the power is turned on, the ASIC(CPU) initializes and checks each IC.
The ROM, SRAM, and Modem are checked.
If initialization fails for the ICs, the system will not boot up.



Put the unit in the test mode and check the voltage at lands A, B, C and D.





- Turn off the power supply.
- Short using a metallic object, such as tweezers, between the test and GND land, and turn on the AC power.
- Check the following voltages by using an oscilloscope or tester.
- To cancel the status check mode, turn off the AC power.

Item	Check point voltage				Check points
	A	B	C	D	
CLOCK(IC4)	5V	0V	0V	0V	IC4
MODEM(IC5)	0V	5V	0V	0V	R6, IC5 (52 pin), RA1, RA2, IC4 (53 pin), IC5
S-RAM(IC1)	0V	0V	5V	0V	IC1 (20 pin), IC4 (12 pin), IC1
ASIC(IC4)	0V	0V	0V	5V	RA3~RA7, R13, R14, R18, R19, IC4 (81~113 pins)
ALL OK	5V	5V	5V	0V	

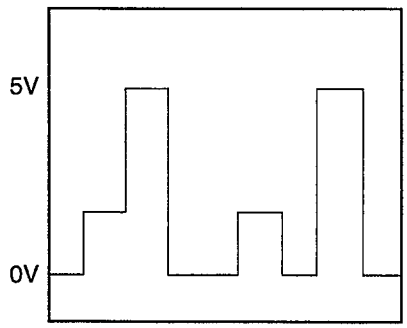
- This indicates that the Add/Data Bus, RAM, ROM, MODEM, and ASIC are all completely connected to the CPU and that control from the CPU is possible.

Please check the soldering and conduction of these components.
If there is no problem, replace the ICs.

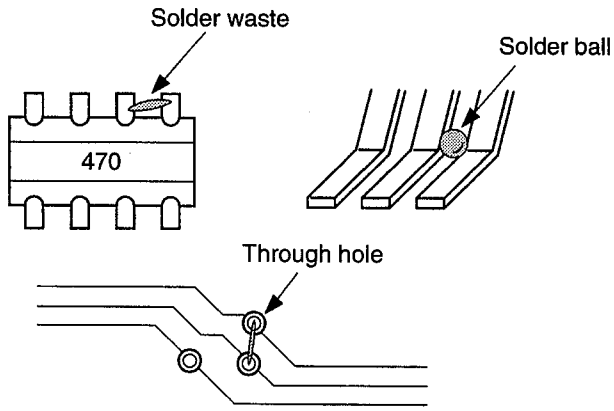
If you still have a problem with the digital board, please see page 60.

NG Example

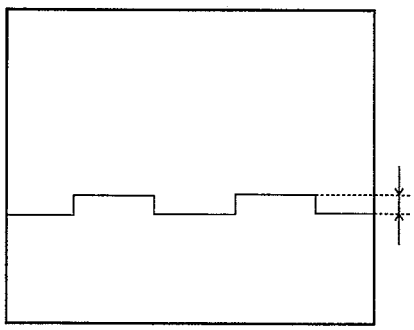
1.



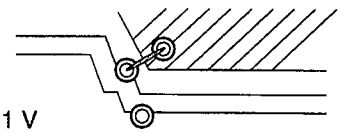
Short circuit from the adjacent signal wires.
Check for a short circuit in the RA and IC leads and the signal wire at the through hole.



2.

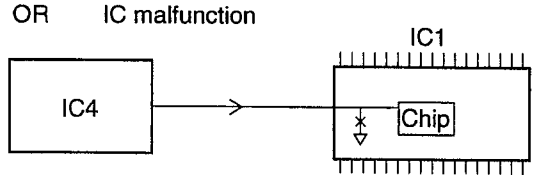


Short between the signal line and GND.

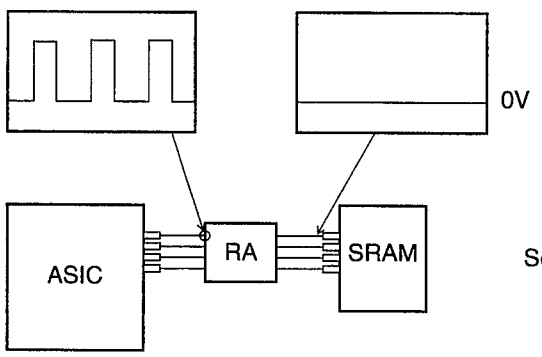


Approx. 0 or 1 V

OR IC malfunction

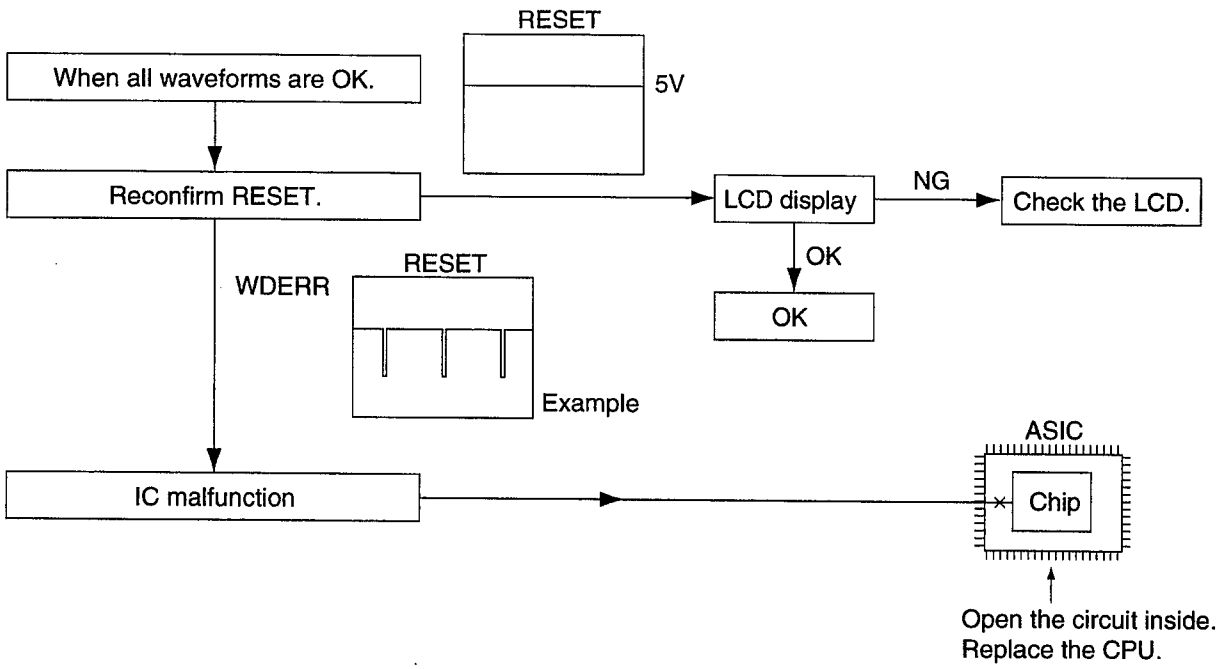


3.

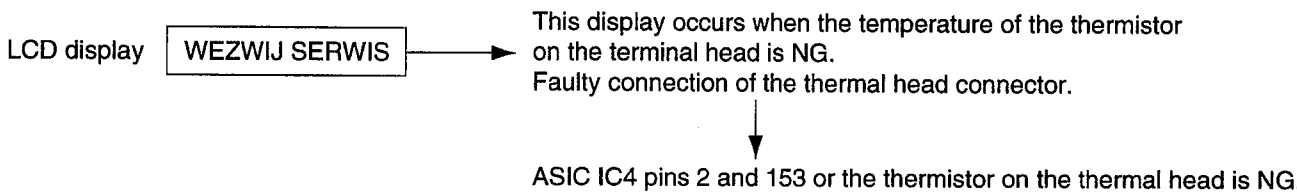


Solder fault on RA.

KX-FT35HG/KX-FT37HG

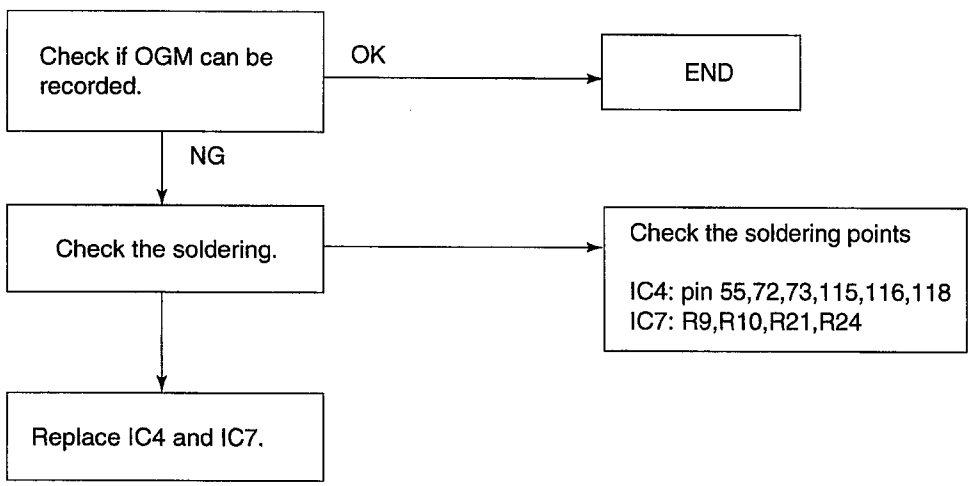


Other NG examples while the power is ON and the LCD displays the following.



FLASH MEMORY (IC7)

If the TAM does not work, follow the procedures below.



3-8 Analog Board Section

The analog parts check is actually different than the digital parts check. The signal route is determined by the purpose of the check. For example, the handset TX route begins from the handset microphone and is output in the telephone line. In this route, it is mainly an analog signal. Tracing the signal can be done easily using an oscilloscope. Each route is shown on the Check Sheet here. If there is a problem with the unit (for example, you cannot communicate with the H/S, etc.), trace the signal in the area and determine the cause.

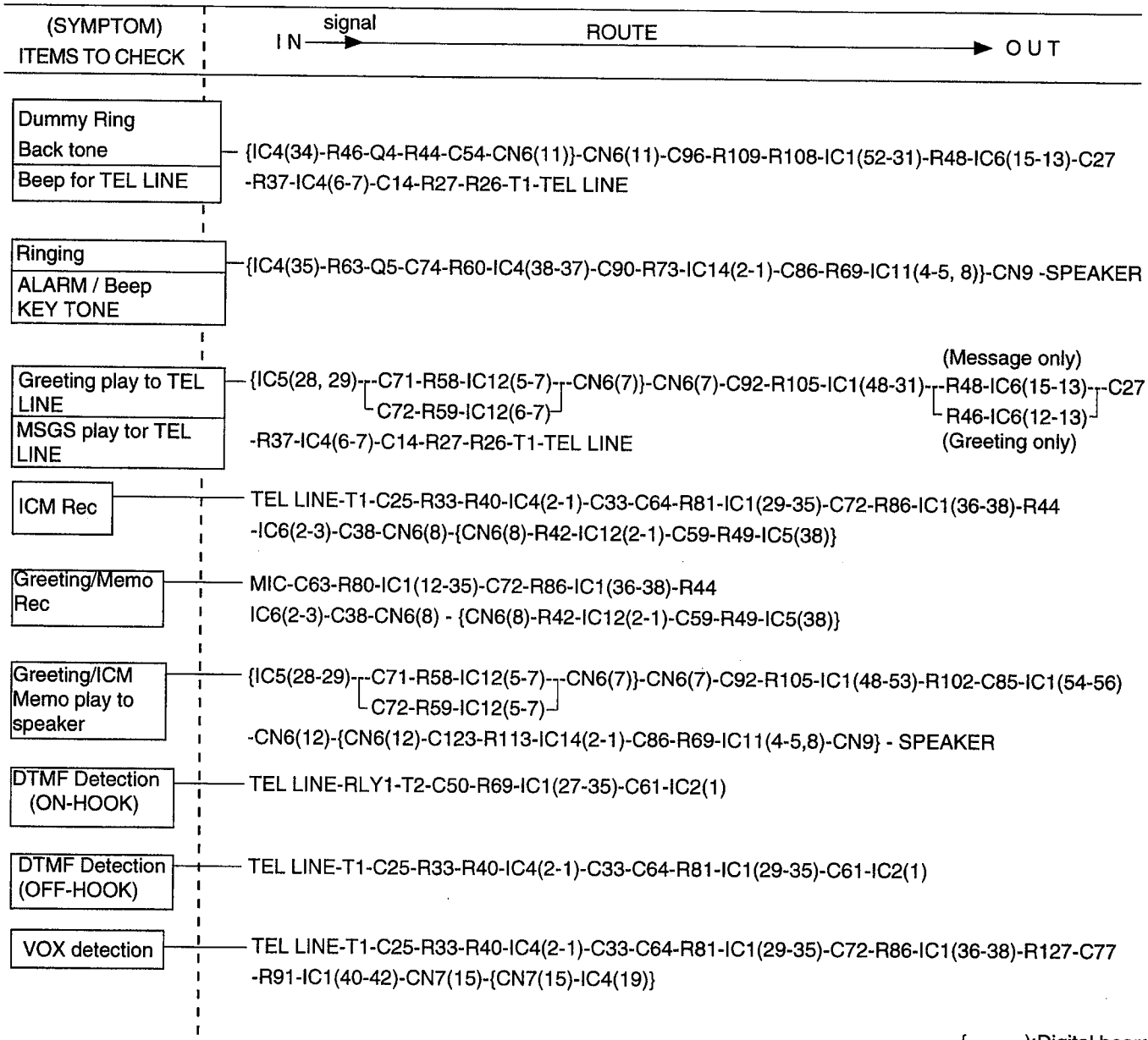
CHECK SHEET

(SYMPTOM) ITEMS TO CHECK	signal IN → ROUTE → OUT
Handset TX	MIC-┬-L6-C48-R64-IC1(21)-┬-IC1(31)-R48-IC6(15-13)-C27-R37-IC4(6-7)-C14-R27-R26-T1-TEL LINE └L9-C47-R63-IC1(22)┘
Handset RX	TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C64-R81-IC1(29-15,16) -┬-C45-L7-┬-SPEAKER └ L8 ┘
SP-PHONE TX	MIC-C63-R80-IC1(12-44)-CN6(10)-{CN6(10)-C61-R54-R57-IC6(23-6)-IC5(82-28, 29) ┬-C71-R58-IC12(5-7)-┬-CN6(7)} └ C72-R59-IC12(6-7)┘ -CN6(7)-C92-R105-IC1(48-31)-R47-IC6(14-13)-C27-R37-IC4(6-7)-C14-R27-R26-T1-TEL LINE
SP-PHONE RX	TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C64-R81-IC1(29-35)-R43-IC6(5-3)-C38-CN6(8) -{CN6(8)-R42-IC12(2-1)-C59-R49-IC5(38-83)-IC6(13-17, 18)┬-C68-R55-IC14(5-7)-┬-R48-CN6(9)} └C69-R56-IC14(6-7)┘ -CN6(9)-C91-R104-IC1(46-53)-R102-C85-IC1(54-56)-CN6(12)-{CN6(12)-C123-R113-IC14(2-1) -C86-R69-IC11(4-5, 8)-CN9}-SPEAKER
DTMF Monitor – Speaker	{IC6(17, 18)┬-C68-R55-IC14(5-7)-┬-R48-CN6(9)}-CN6(9)-C91-R104-IC1(46-53)-R102-C85 └C69-R56-IC14(6-7)┘ -IC1(54-56)-CN6(12)-{CN6(12)-C123-R113-IC14(2-1)-C86-R69-IC11(4-5,8)-CN9)-SPEAKER
DTMF Monitor – Handset	{IC5(28, 29)┬-C71-R58-IC12(5-7)-┬-CN6(7)}-CN6(7)-C93-R106-IC1(49-15, 16)┬-----L8-----SPEAKER └C72-R59-IC12(6-7)┘ └C45-L7┘
DTMF for TEL LINE / FAX TX	{IC5(28,29)┬-C71-R58-IC12(5-7)-┬-CN6(7)}-CN6(7)-C21-R36-C29-IC6(11-13)-C27-R37-IC4(6-7)-C14 └C72-R59-IC12(6-7)┘ -R27-R26-T1-TEL LINE
CNG/DTMF Detection (while transmitting the Greeting message) / FAX RX	TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C34-R50-C36-IC6(1-3)-C38-CN6(8)-{CN6(8)-R42-IC12(2-1) -C59-R49-IC5(38)}

Note:

{ }: digital board

CHECK SHEET

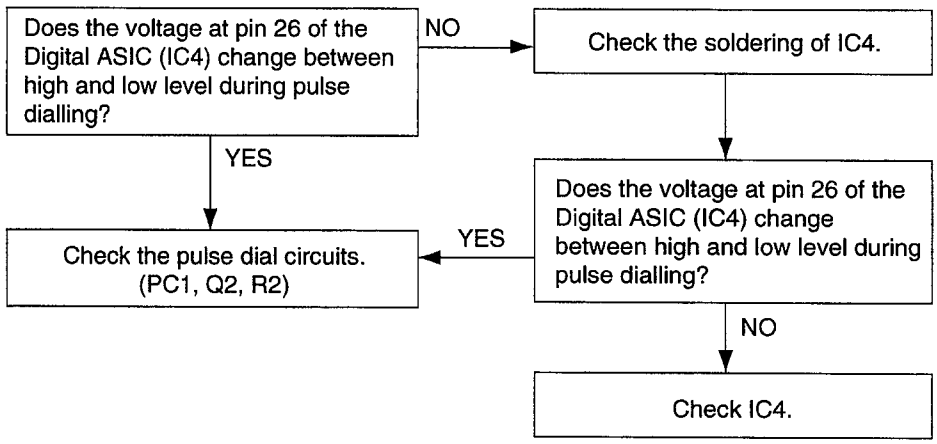

(SYMPTOM)
ITEMS TO CHECK
signal
IN
ROUTE
OUT
Dummy Ring
Back tone
Beep for TEL LINE
{IC4(34)-R46-Q4-R44-C54-CN6(11)}-CN6(11)-C96-R109-R108-IC1(52-31)-R48-IC6(15-13)-C27
-R37-IC4(6-7)-C14-R27-R26-T1-TEL LINE
Ringing
ALARM / Beep
KEY TONE
{IC4(35)-R63-Q5-C74-R60-IC4(38-37)-C90-R73-IC14(2-1)-C86-R69-IC11(4-5, 8)}-CN9 -SPEAKER
Greeting play to TEL LINE
MSGS play tor TEL LINE
{IC5(28, 29)-C71-R58-IC12(5-7)-CN6(7)}-CN6(7)-C92-R105-IC1(48-31)-R48-IC6(15-13)-C27
C72-R59-IC12(6-7)
R46-IC6(12-13)
(Message only)
(Greeting only)
-R37-IC4(6-7)-C14-R27-R26-T1-TEL LINE
ICM Rec
TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C64-R81-IC1(29-35)-C72-R86-IC1(36-38)-R44
-IC6(2-3)-C38-CN6(8)-{CN6(8)-R42-IC12(2-1)-C59-R49-IC5(38)}
Greeting/Memo Rec
MIC-C63-R80-IC1(12-35)-C72-R86-IC1(36-38)-R44
IC6(2-3)-C38-CN6(8) - {CN6(8)-R42-IC12(2-1)-C59-R49-IC5(38)}
Greeting/ICM Memo play to speaker
{IC5(28-29)-C71-R58-IC12(5-7)-CN6(7)}-CN6(7)-C92-R105-IC1(48-53)-R102-C85-IC1(54-56)
C72-R59-IC12(5-7)
-CN6(12)-{CN6(12)-C123-R113-IC14(2-1)-C86-R69-IC11(4-5,8)-CN9} - SPEAKER
DTMF Detection (ON-HOOK)
TEL LINE-RLY1-T2-C50-R69-IC1(27-35)-C61-IC2(1)
DTMF Detection (OFF-HOOK)
TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C64-R81-IC1(29-35)-C61-IC2(1)
VOX detection
TEL LINE-T1-C25-R33-R40-IC4(2-1)-C33-C64-R81-IC1(29-35)-C72-R86-IC1(36-38)-R127-C77
-R91-IC1(40-42)-CN7(15)-{CN7(15)-IC4(19)}
{):Digital board

(1) Defective ITS (Integrated telephone system) section

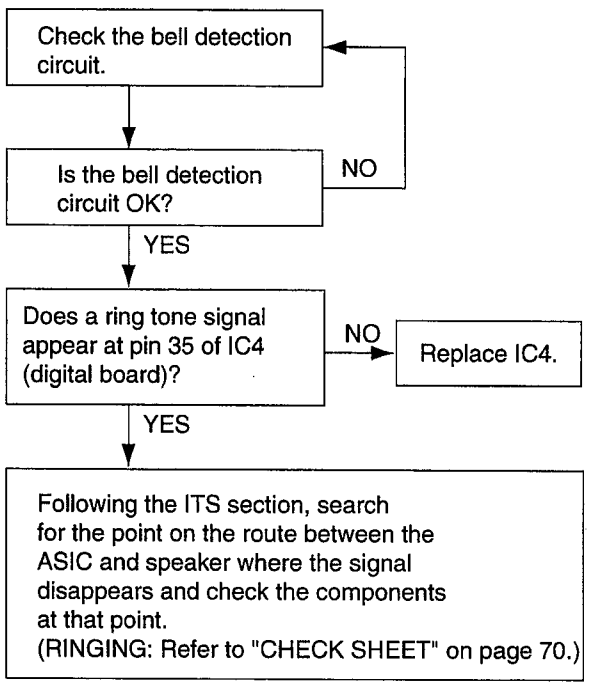
① No handset and monitor transmission/reception

Following the ITS section or NCU section, check the route between the microphone and the telephone line (sending) or between the telephone line and the speaker (receiving) for loss of signal. Check the components at that point.

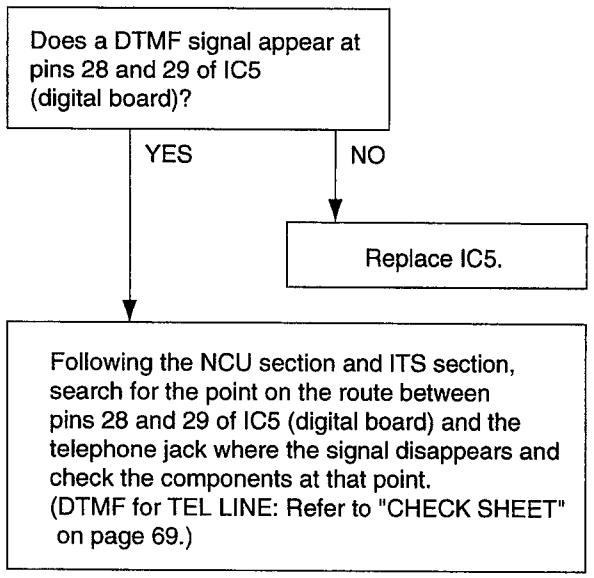
② No pulse dialling



③ No ring tone (or No bell)



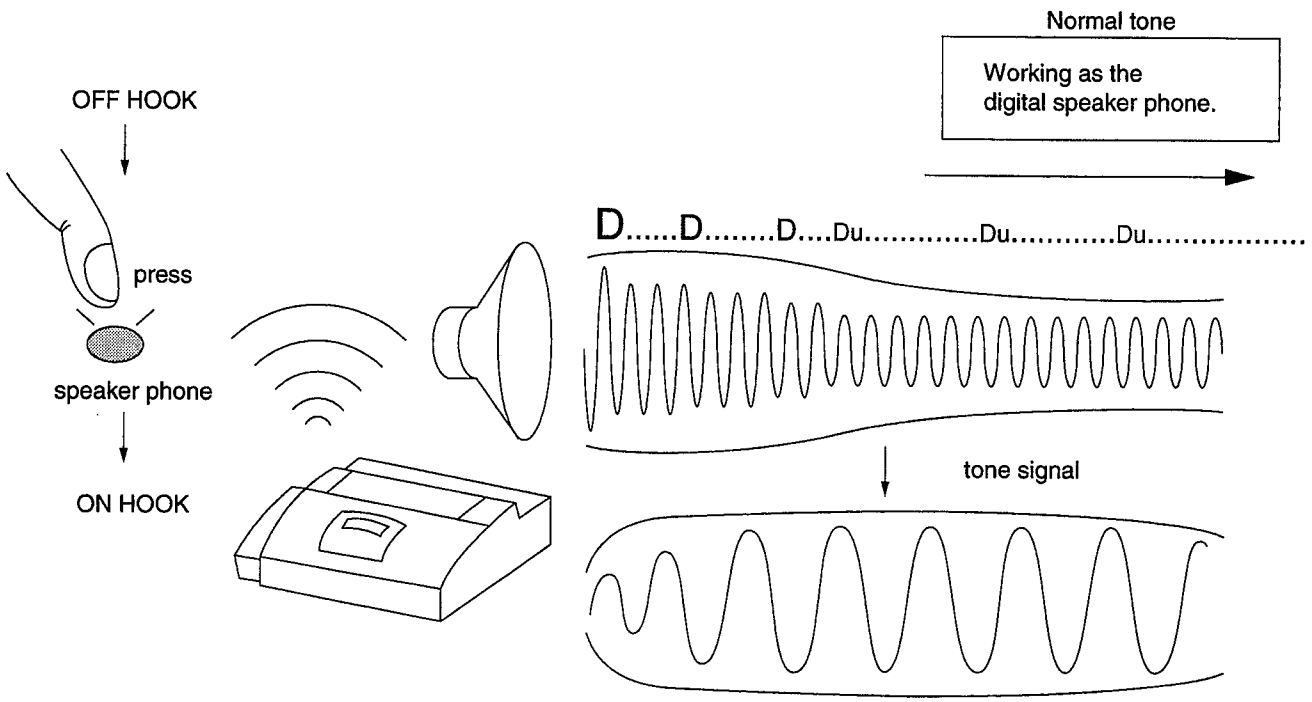
④ No tone dialling



3.3.6. Digital speakerphone section

The digital speaker phone is different from the analog speaker phone.
The previous type (analog speaker phone) switches between Tx or Rx. Either Tx or Rx is able to pass through a telephone line or speaker, depending on the Tx and Rx signal (voice) level. The larger one can pass through the route for that signal. Therefore, you never hear the other party's voice while you are talking. But with the digital speaker phone feature, you can hear the other party's voice while you are talking. So both Tx and Rx are active at the same time. Troubleshooting is also different from the previous type.

At the start of communication, for the initial 2~3 exchanges the digital speakerphone performs half-duplex operation, alternating between transmission (Tx) and reception (Rx). Then duplex communication becomes possible.
Learning occurs during the initial 2~3 exchanges of communication in order to set the appropriate parameters for duplex communication.

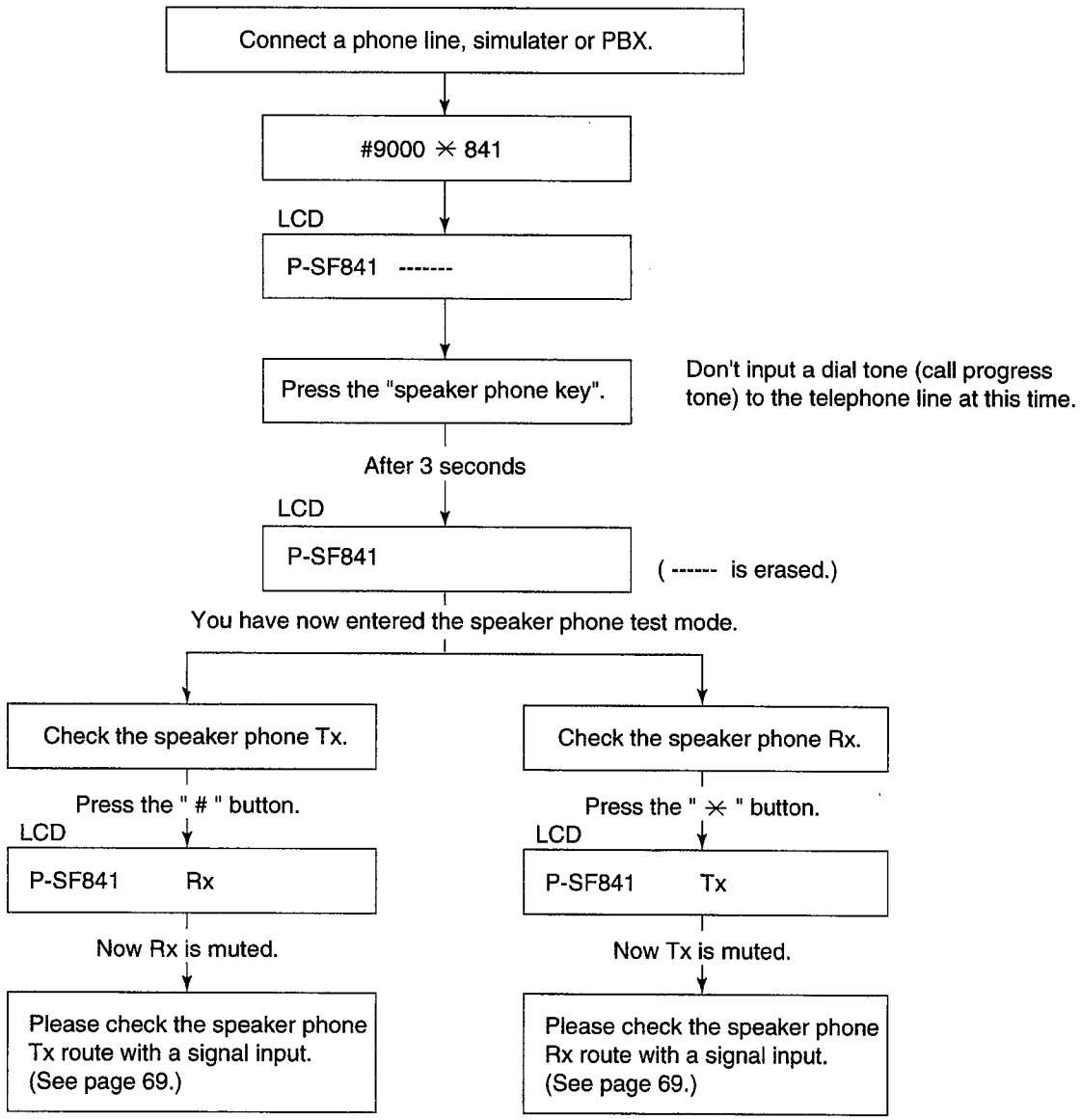


You cannot check the digital speaker phone by the previous method (signal route) because the level is changing as stated above.

Therefore, there is a service function for this troubleshooting. In this service mode, you can set the mute to either Tx or Rx. Then you can check the signal route of the speaker phone Tx or speaker phone Rx without any disturbances.

HOW TO USE THE **841** SERVICE FUNCTION for THE DIGITAL SPEAKER PHONE

Please check by using the service function #9000 ✳ **841.**



3-9. POWER SUPPLY SECTION

(1) key components for troubleshooting

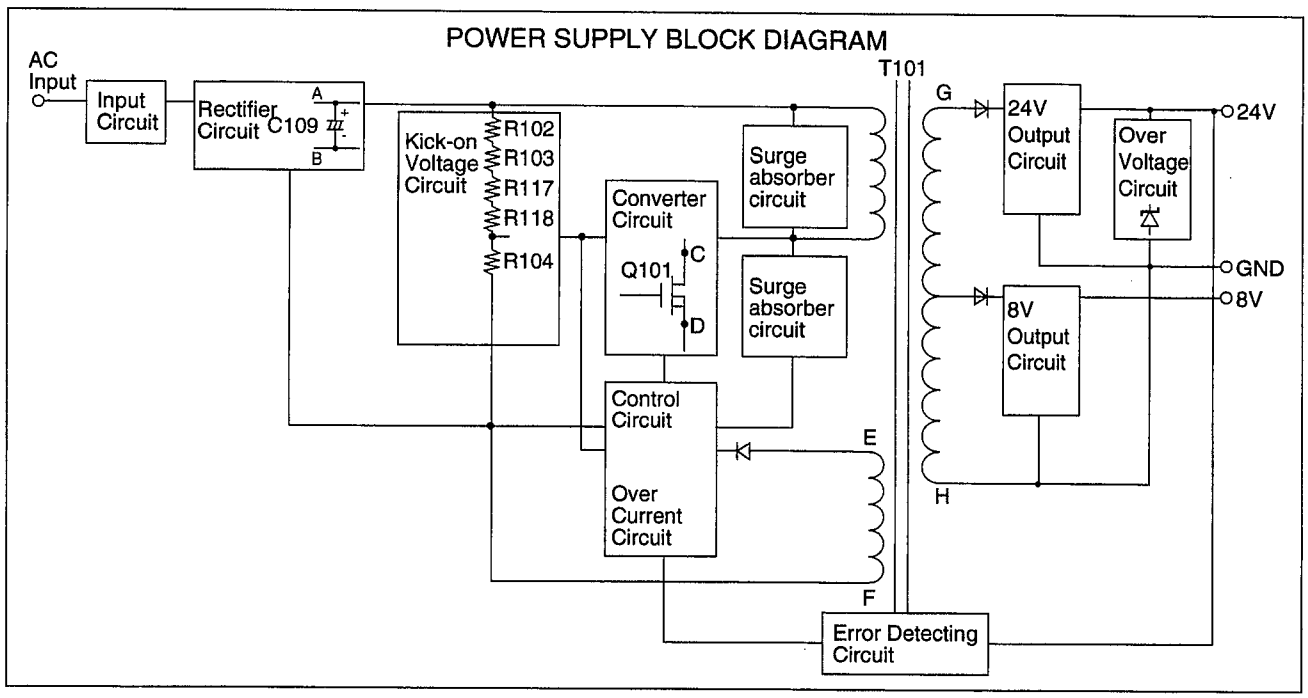
Check the following components first:

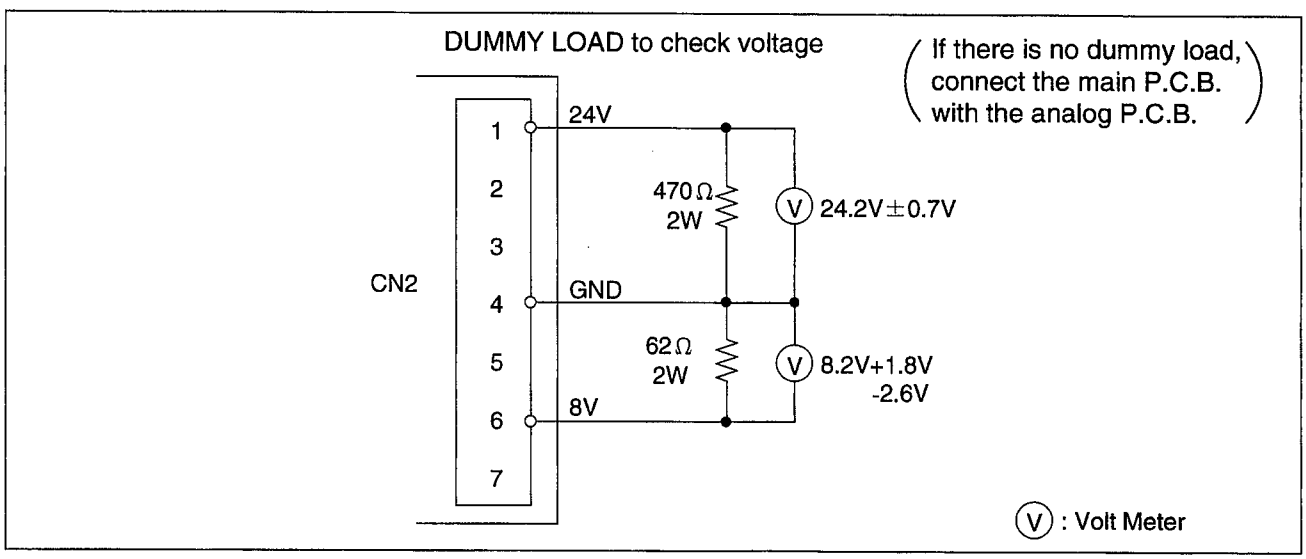
F101, D101-D104, C109, Q101, PC101, ZD203, R302.

This comes from our experience with experimental tests. For example : power supply, lightning surge voltage test, withstanding voltage test, intentional short circuit test, etc.

Caution:

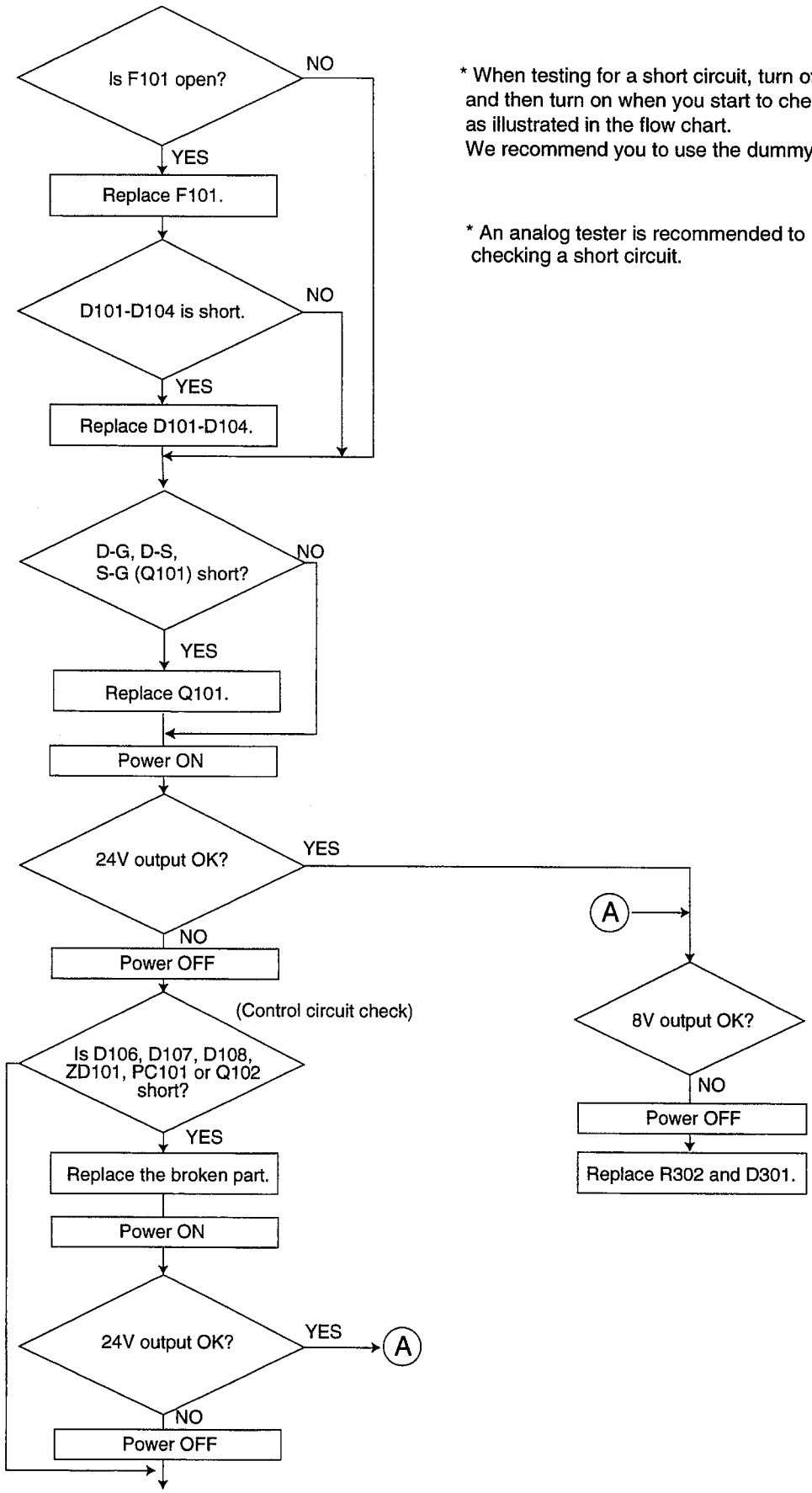
A blown fuse usually indicates a faulty component. Locate and repair the fault before turning on the power. In most cases, the symptom is that nothing is output. It is more likely that the fault is in the primary side rather than the secondary side. Check the primary side components first.





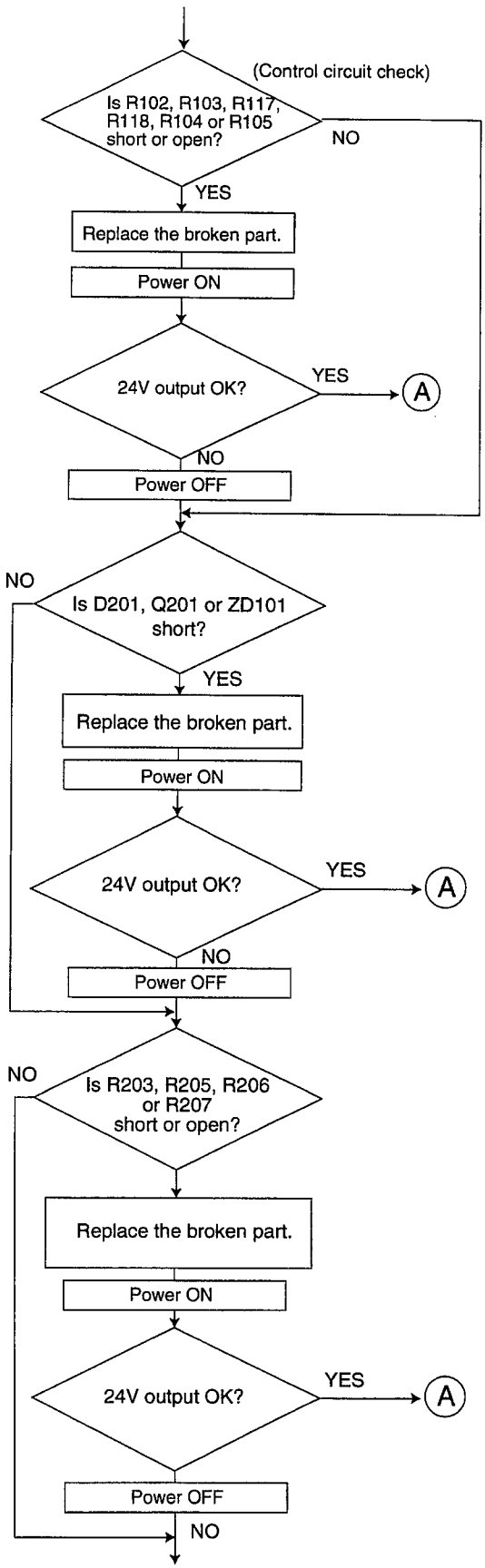
(2) Troubleshooting flow chart

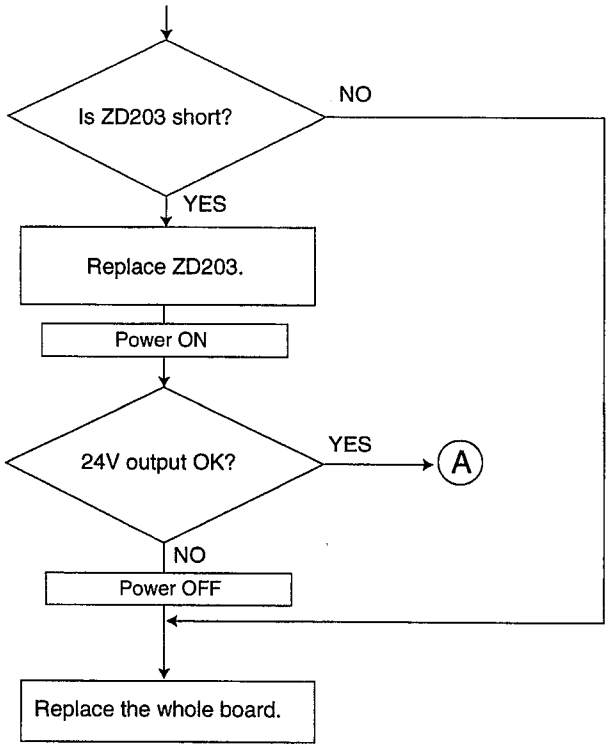
※ Before turning on the power supply, you should check F101.



* When testing for a short circuit, turn off first and then turn on when you start to check output voltage (24V or 8V) as illustrated in the flow chart.
We recommend you to use the dummy load on page 74.

* An analog tester is recommended to use for checking a short circuit.


(Control circuit check)
Is R102, R103, R117, R118, R104 or R105 short or open?
NO
YES
Replace the broken part.
Power ON
24V output OK?
YES
A
NO
Power OFF
NO
Is D201, Q201 or ZD101 short?
YES
Replace the broken part.
Power ON
24V output OK?
YES
A
NO
Power OFF
NO
Is R203, R205, R206 or R207 short or open?
Replace the broken part.
Power ON
24V output OK?
YES
A
Power OFF
NO



(3) Broken parts repair details

(D101, D102, D103, D104)

Check for a short-circuit in terminal 4. If D101, D102, D103 and D104 are short-circuited, F101 will melt (open). In this case, replace all of the parts (D101, D102, D103, D104, F101).

(Q101)

The worst case of Q101 is a short-circuit between the Drain and Gate because damage expands to the peripheral circuit of Q101.
This is due to a very high voltage through the Gate circuit which is composed of R105, Q102 and D106.
You should change all of the parts listed as follows.

F101, Q101, R105, Q102, D106

(D201)

If D201 is broken, the oscillation circuit in the power supply cannot operate. Check it with an electric tester.

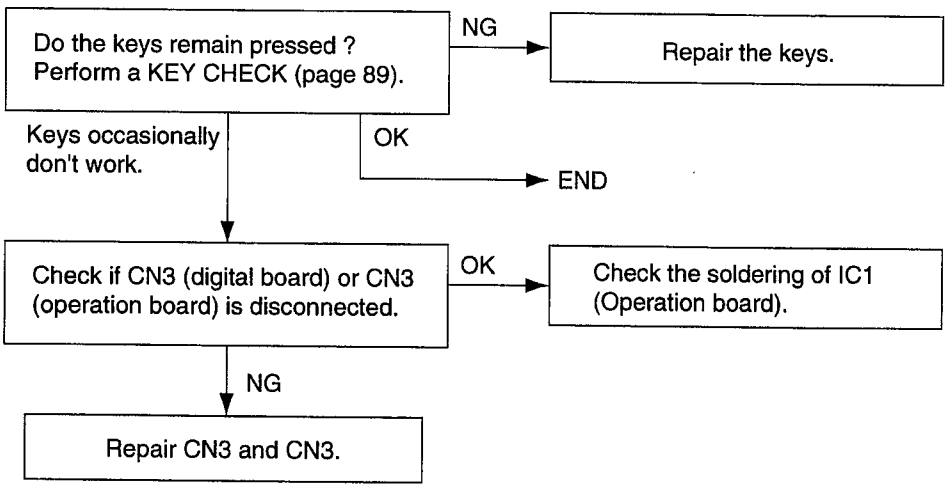
(ZD203)

If ZD203 shorts, the voltage feedback circuit is almost always the cause.
Replace the following parts if this happens.

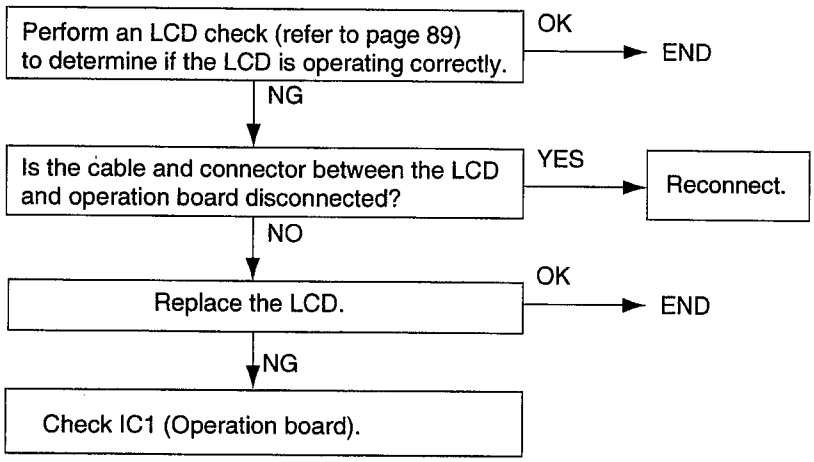
PC101, Q102, ZD201, D107, ZD101, D106

3-10.OPERATION BOARD SECTION

① No key operation



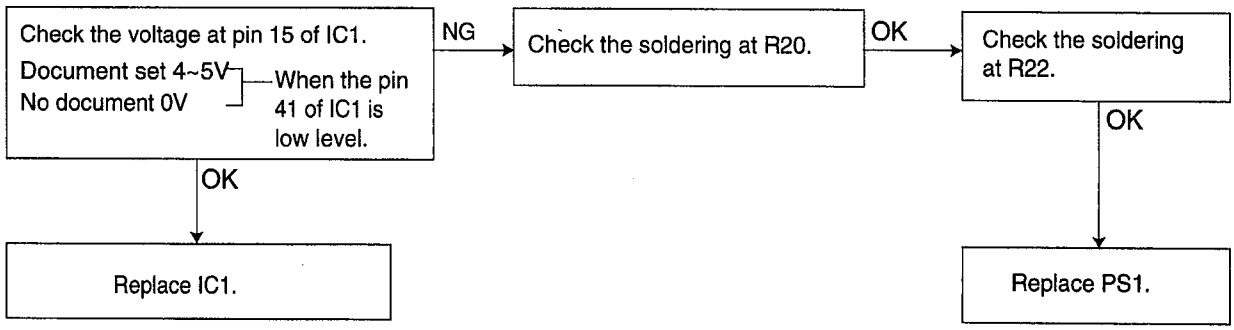
② No LCD indication



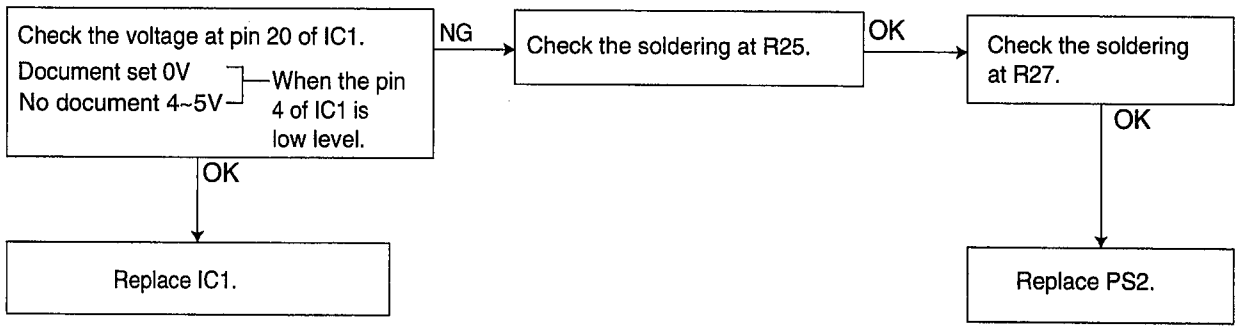
3-11. SENSOR SECTION (Refer to page 135 for circuit operation)

The Test Function makes the sensor circuit check easier. (see page 90.)
For example, as for "COVER OPEN SENSOR", "CO" is turned ON/OFF on the display when you open or close the front cover. Also, document sensor, read position sensor, recording paper sensor and jam sensor are turned ON/OFF by the copy operation. Therefore, each sensor can be checked for proper mechanical operation.
As for the electric check, check whether each voltage is right or not with following flowchart turning each sensor lever ON/OFF manually.

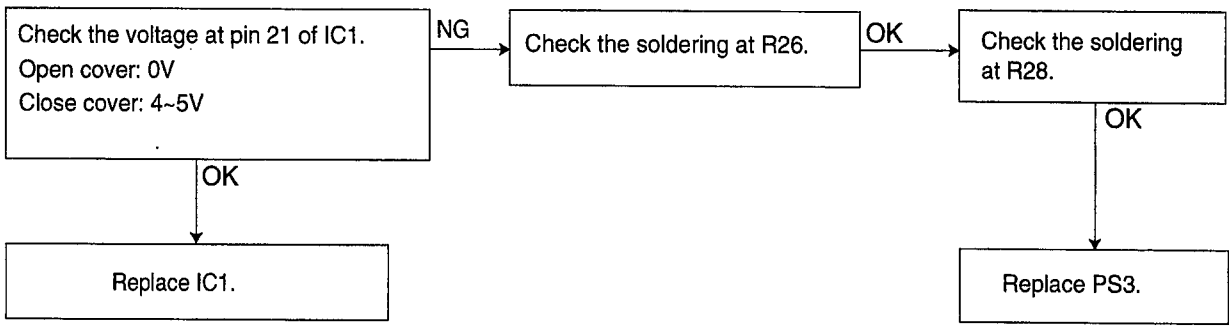
(1) Check the document sensor (PS1) " Hiba az iratnál "



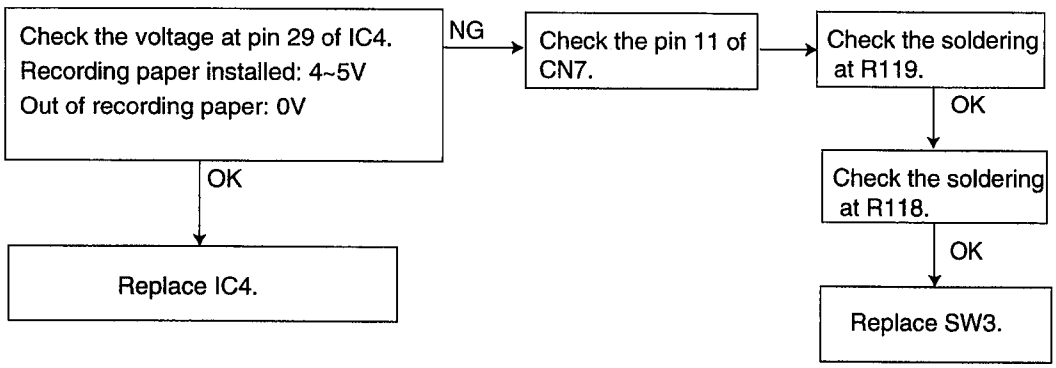
(2) Check the read position sensor (PS2) " Iratot vegye ki "



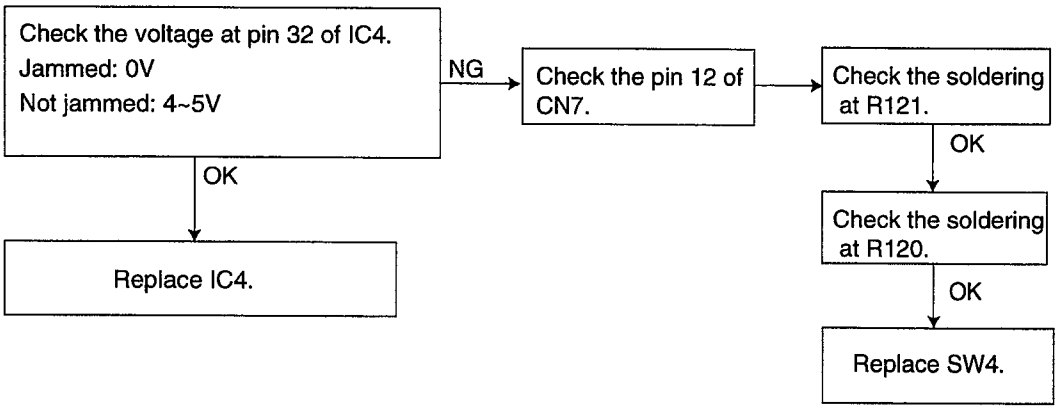
(3) Check the cover open sensor (PS3) " Fedél nyitva "



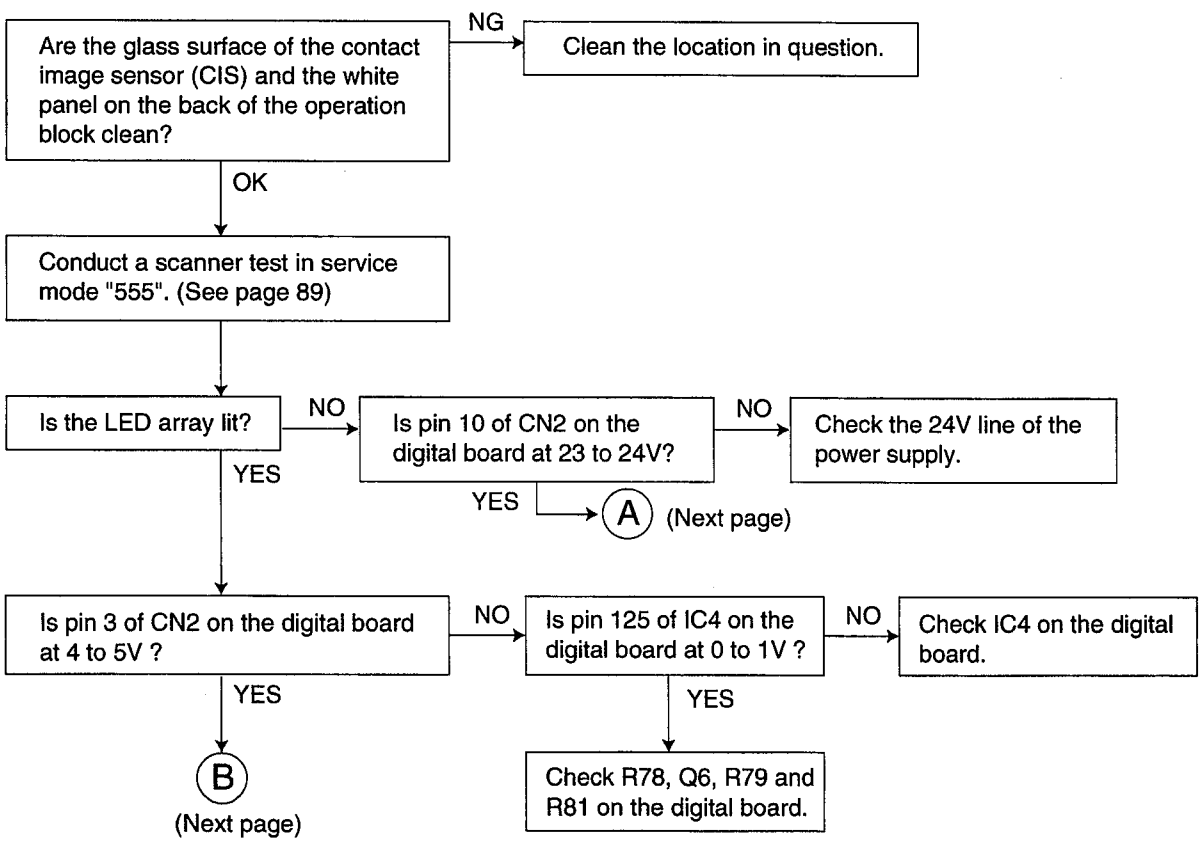
(4) Check the recording paper sensor (SW3) " Papír kifogyott "

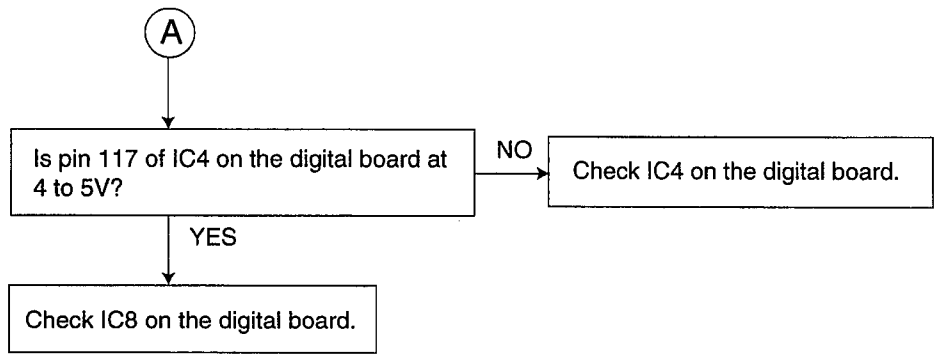


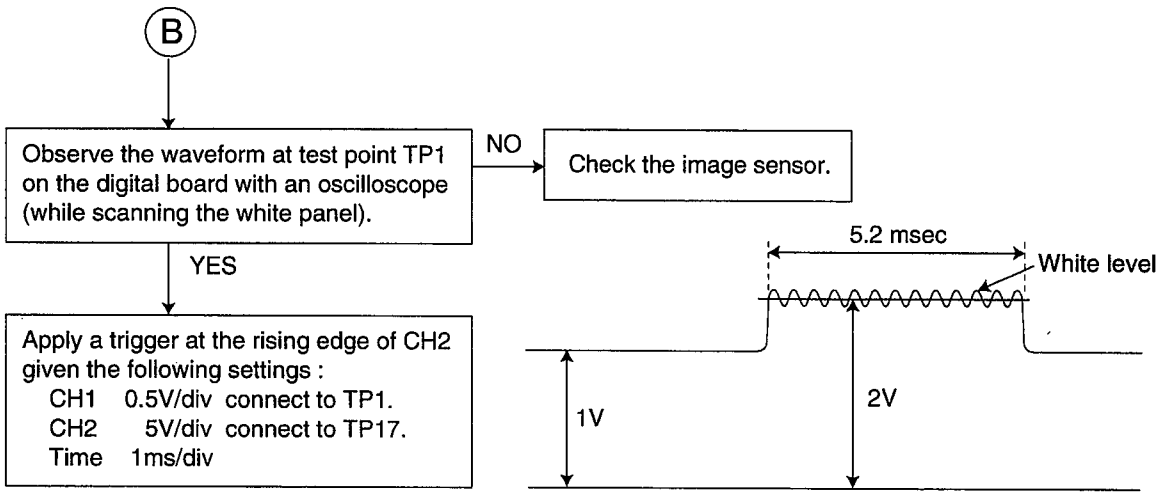
(5) Check the jam sensor (SW4) " Papír elakadt " (KX-FT37HG)



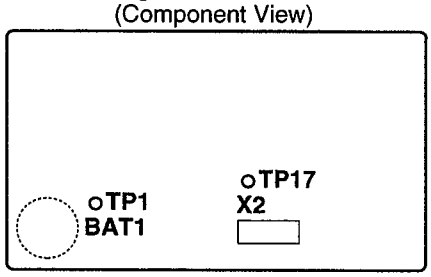
3-12. READ SECTION (Refer to page 123 for circuit operation: SCANNING BLOCK)



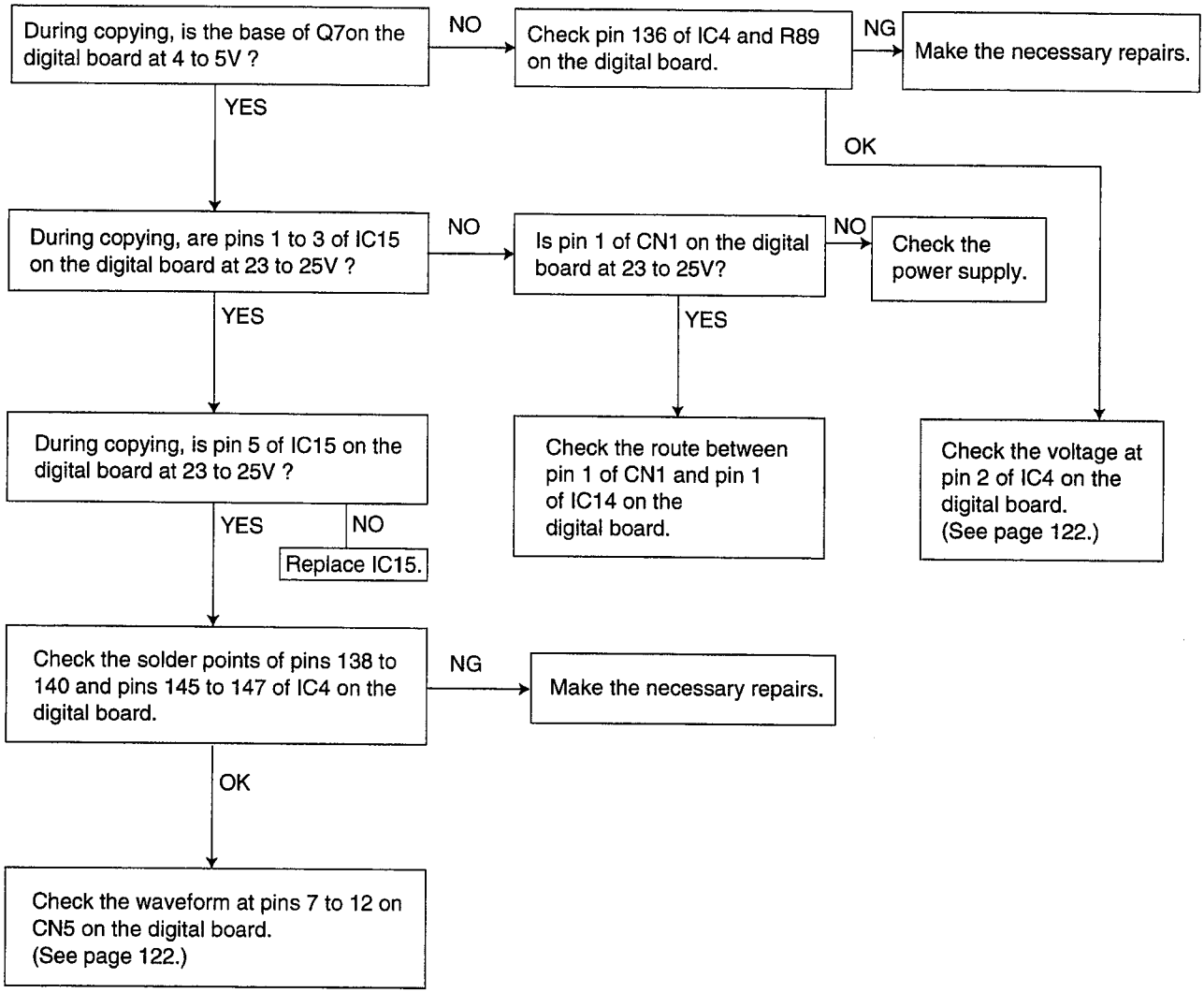




Digital Board
(Component View)



3-13. THERMAL HEAD SECTION (Refer to page 121 for circuit operation)



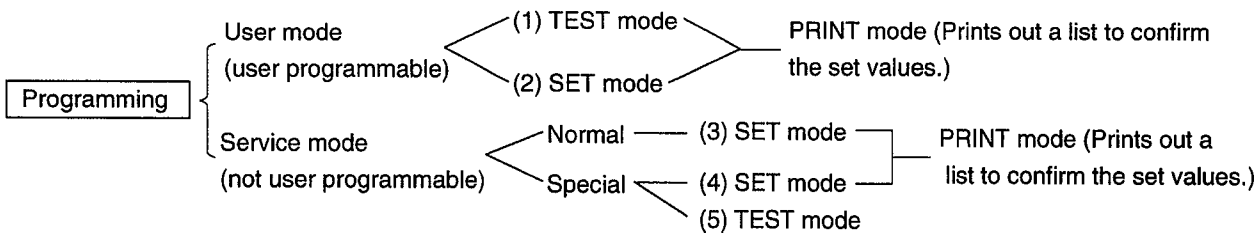
4. PROGRAMMING AND LISTS

The programming functions are used to program the various features and functions of the machine, and to test the machine. Programming can be done in both the on-hook and off-hook conditions. This facilitates communication between the user and the service while programming the machine.

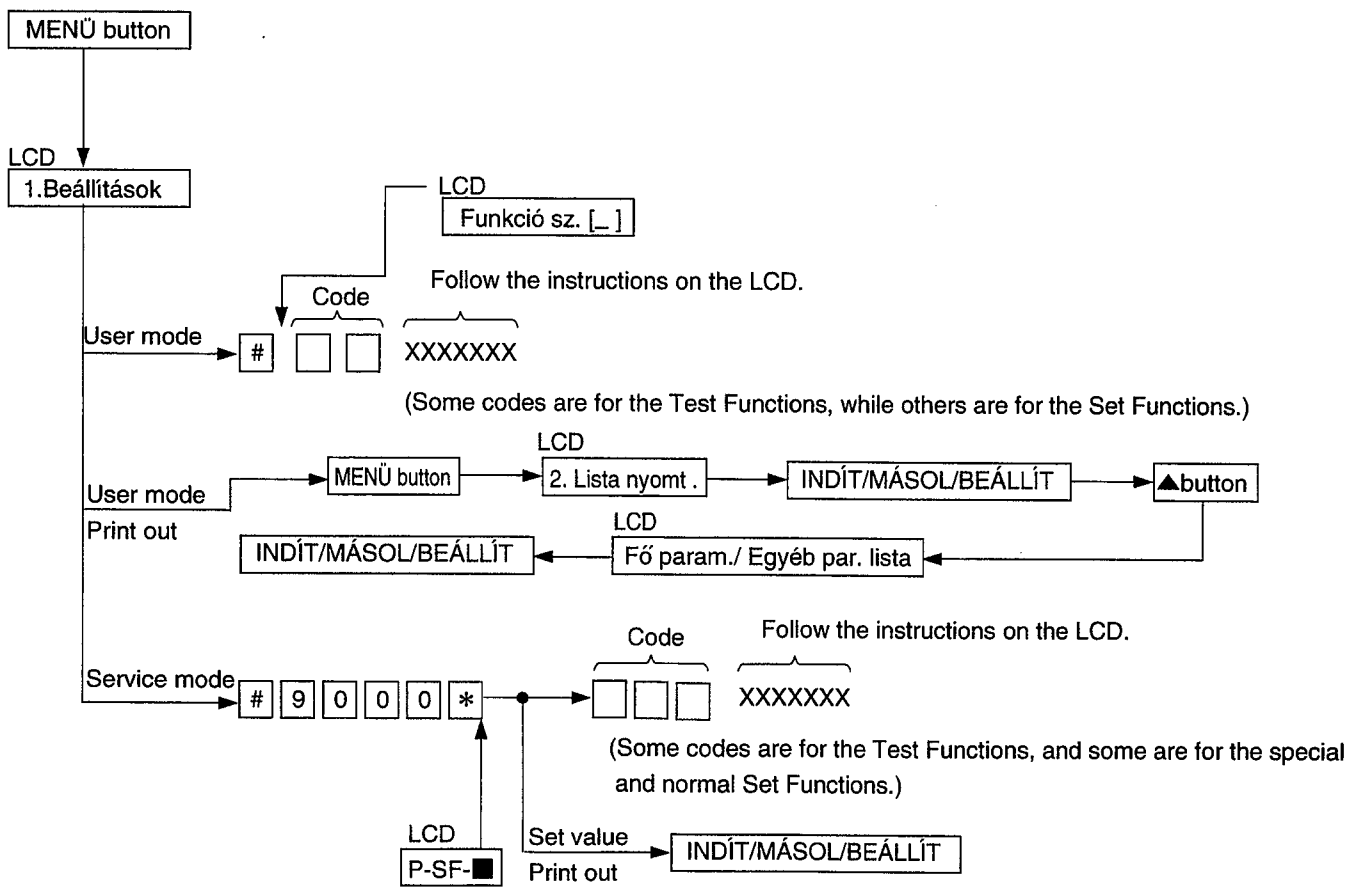
4-1. OPERATION

There are 2 basic categories of programming functions, the User Mode and the Service Mode. The Service Mode is further broken down into the normal and special programs. The normal programs are those listed in the Operating Instructions and are available to the user. The special programs are only those listed here and not displayed to the user. In both the User and Service Modes, there are Set Functions and Test Functions. The Set Functions are used to program various features and functions, and the Test Functions are used to test the various functions .
The Set Functions are accessed by entering their code, changing the appropriate value, then pressing the SET key.
The Test Functions are accessed by entering their code and pressing the key listed on the menu. While programming, to cancel any entry, press the STOP key.

4-2. OPERATION FLOW



Operating Procedure



4-3. USER MODE (The list below is an example of the SYSTEM SETUP LIST the unit prints out.)

BASIC FEATURE LIST

kód	Szolgáltatás	Aktuális beállítás	
#01	Dátum és időpont beállítás	JAN. 01 1999 de.12:00	
	Az Ön LOGOja		
	Az Ön telefonszáma		
#04	Adási napló nyomtatás	hiba	[hiba,be,ki]
#05	Automatikus vételi mód	Rögz./Fax	[Rögz./Fax,csak fax]
#06	Rögz./Fax csengetésszámláló	1	[1...4,takarékos,csengő ki]
#07	Fax csengetésszámláló	1	[1...4]
#08	Manuális vétel üzemmód	telefon	[telefon,tel/fax]
#09	Telefon/fax csengetésszámláló	1	[1...4]
#10	Üzenet hossza	Vox	[Vox,1 perc]
#11	Üzenetrögzítő távvezérlő kód Kód=	111	

Code

Set Value

ADVANCED FEATURE LIST

kód	Szolgáltatás	Aktuális beállítás	
#22	Napló automatikus nyomtatása	be	[be,ki]
#23	Tengerentúli üzemmód	ki	[be,ki]
#25	Időzített adás	ki	[be,ki]
	célállomás =		
	kezdési idő =	de.12:00	
#30	Csendes fax felismerés csengetésszámláló	3	[3...9]
#39	Kijelző kontraszt	normál	[normál,világos,sötét]
#41	Fax távvezérlő aktiváló kód	be	[be,ki]
	Kód =	*9	
#42	Üzenet érkezett	ki	[be,ki]
#43	Felvételi idő figyelmeztetés	ki	[be,ki]
#46	Felhasználóbarát vétel	be	[be,ki]
#47	Hangbemondás (KX-FT37HG only)	be	[be,ki]

MEGJEGYZÉS : Ha ezt a szolgáltatást kikapcsolja anélkül, hogy felvette volna az ÁTADÁS BEJELENTKEZŐ SZÖVEGET, az üzenet átadás visszaállítódik a kikapcsolt alaphelyzetbe(#60).

#54	Közös bejelentkező szöveg felvételi ideje	16mp	[16mp,60mp]

MEGJEGYZÉS : Ha 60 másodpercről 16 másodpercre vált, akkor a saját bejelentkező szövege törlődik, az új bejelentkező szöveg hossza pedig 16 másodpercre korlátozódik.

#58	Eredeti beállítás	normál	[normál,világos,sötét]
#60	Üzenet átadása	ki	[üzenet,szm.hívó,ki]
#61	Átadás bejelentkező szöveg	ellenőrzés	[ellenőrzés,felvétel,törlés]
#67	Bejövő üzenetek figyelése	be	[be,ki]
#70	Fax személyhívó	ki	[be,ki]
	célállomás =		
#76	Kapcsolási hang	be	[be,ki]
#80	Alaphelyzetbe állítás		

Set Value

Note:

The above values are the default values.

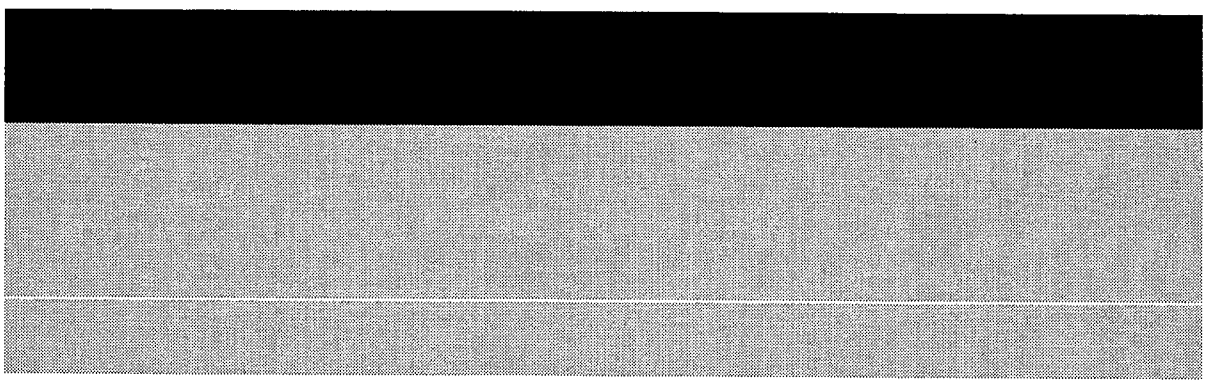
4-4. SERVICE FUNCTION TABLE

Code	Function	Set Value	Effective Range	Default	Remarks
501	Setting the pause time	001~600 X 100 msec	001~600	05000 msec	Selects the pause time in 100 msec steps.
502	Setting the flash recall time	01~99 X 10 msec	01~99	100 msec	Selects the line break time during flashing in 10 msec steps.
503	Setting the pulse dial speed	1:10pps 2:20pps	1, 2	10 pps	Sets the pulse dial speed.
510	VOX time	1:6 sec 2:4 sec	1, 2	6 sec	Setting of the end of call confirmation time by VOX.
520	Setting the CED frequency	1:2100Hz 2:1100Hz	1, 2	2100 Hz	When international communications cannot be performed smoothly select 1100Hz. However some exchange system should not be accopted (1100Hz on CED). (See page 43)
521	Setting the international line mode	1:ON 2:OFF	1, 2	ON	Selects the international line mode during FAX communication. (See page 43)
522	Setting the return to default mode	1:ON 2:OFF	1, 2	ON	Set the resolution and contrast conditions for FAX or copy to the default settings.
523	Receive equalizer select	1:0km 2:1.8km 3:3.6km 4:7.2km	1~4	0km	When the telephone station is far from the unit or reception cannot be performed correctly, adjust accordingly.
524	Transmission equalizer select	1:0km 2:1.8km 3:3.6km 4:7.2km	1~4	1.8km	When the telephone station is far from the unit or reception cannot be performed correctly, adjust accordingly.
533	Setting the number of time that message transfer is redialed	00~99	00~99	3 times	Selects the number of times that message transfer is redialed (not including the first dialing).
534	Setting the message transfer/paper call redial interval	001~999 sec	001~999	030 sec	Sets the interval of message transfer/pager call redial.
544	Selecting the document feed position	01~99 step	00~99	---	When the ADF function is incorrect, adjust the feed position. (8 step = 1mm)
550	Memory clear				Press "START/COPY/SET".
551	ROM version and sum check				Press "START/COPY/SET".
553	Setting the FAX monitor function	1: OFF 2:PHASE B 3:ALL	1, 2, 3	OFF	Sets whether to monitor the line signal with the unit's speaker during FAX communication or not.
554	Modem test				Press "START".
555	Scanner test				Press "START".
556	Motor test				Press "START".
557	LED test				Press "START".
558	LCD test				Press "START".
559	Setting the document jam detection	1:ON 2:OFF	1, 2	ON	Selects the jam detection of a document during FAX transmission/copying.

Code	Function	Set Value	Effective Range	Default	Remarks
560	Cutter selection (KX-FT37HG)	1:ON 2:OFF	1, 2	ON	Turns OFF the cutter function.
561	KEY test				Press any key.
562	Cutter test (KX-FT37HG)				Press "START" key. [Refer to Test function]
563	CCD position adjustment value set	00~30 X 1 mm	00~30	-----	Lets you select the correction value for the scanner to align the image.
570	Setting the % break	1:61% 2:67%	1, 2	67%	Sets the % break of pulse dialing.
571	Setting the number of times that ITS is redialed	00~99	00~99	10 times	Selects the number of times that ITS is redialed (not including the first dial).
572	Setting the ITS redial interval	001~999 sec	001~999	065 sec	Sets the interval of ITS redialing.
573	Setting of number of rings for REMOTE TURN ON	01~99	01~99	15 times	Sets the number of rings before the unit starts to receive a document in the TEL mode.
580	TAM continuous tone detection	1:ON 2:OFF	1, 2	ON	ON: Stops TAM operation when Dial tone, etc. are detected.
590	Setting the number of FAX redial times	00~99	00~99	5 times	Selects the number of redial times during FAX communication (not including the first dial).
591	Setting the FAX redial interval	001~999 sec	001~999	065 sec	Sets the FAX redial interval during FAX communication.
592	Designation of CNG sending	1: OFF 2: ALL 3: AUTO	1, 2, 3	ALL	Lets you select the CNG output during FAX transmission. ALL: CNG is output at phase A. AUTO: CNG is output only when automatic dialing is performed. OFF: CNG is not output at phase A.
593	Setting the interval between CED and the 300 bps signal	1: 75 msec 2:500 msec 3:1000 msec	1, 2, 3	75 msec	Sets the interval between the CED signal and subsequent 300 bps signal. (See page 43)
594	Setting the overseas DIS detection	1: Detects on the 1st time. 2: Detects on the 2nd time.	1, 2	Detects on the 1st time.	Sets the recognition format of the DIS signal. 1:Detects the first DIS signal sent from the receiver during FAX transmission. 2:Ignores the first DIS signal sent from the receiver during FAX transmission. (See page 43)
595	Setting an acceptable reception error value	001~999 X number of times	001~999	100	Sets the number of acceptable error lines when the FAX reconstructs the received data.
596	Setting the transmit level	- 15~00	- 15~00	- 10 dBm	Selects the FAX transmission level.
598	Receiving Sensitivity	- 43dBm	20~48	43	See page 43.

Code	Function	Set Value	Effective Range	Default	Remarks
717	Transmit speed select	1:9600BPS 2:7200BPS 3:4800BPS 4:2400BPS	1~4	9600 BPS	Adjusts the speed to start training during FAX transmission.
718	Receive speed select	1:9600BPS 2:7200BPS 3:4800BPS 4:2400BPS	1~4	9600 BPS	Adjusts the speed to start training during FAX reception.
719	Ringer off in TEL/FAX mode	1:ON 2:OFF	1, 2	ON	Sets the ringer switch off when a call is received in the TEL/FAX mode.
721	Pause tone detect	1:ON 2:OFF	1, 2	ON	Selects the tone detection for pauses in dialing.
722	Redial tone detect	1:ON 2:OFF	1, 2	ON	Selects the tone detection mode after redialing.
731	CPC mode	1:A 2:B 3:OFF	1, 2, 3	A	Set the CPC signal detection mode from the converter.
732	AUTO disconnect	1:350 ms 2:1.8 sec 3:OFF	1, 2, 3	350 ms	Selects the start time detection of auto disconnect.
763	CNG detect time	1:10 sec 2:20 sec 3:30 sec	1, 2, 3	20 sec	Selects the CNG detection time of friendly reception.
771	T1 timer	1:35 sec 2:60 sec	1, 2	35 sec	Sets a higher value when the response from the other party needs more time during FAX transmission.
775	Monitoring of message transfer	1:ON 2:OFF	1, 2	2	If set to ON a message can be monitored from this unit's SP-PHONE when transferring a message.
784	Voice prompt test (KX-FT37PD)				You can hear the voice prompt from speaker after pressing "START" key.
815	Sensor check				Press "START".
844	Original setting	1:NORMAL 2:LIGHT 3:DARKER	1, 2, 3	NORMAL	Use this feature when you need to transmit and copy a document with very faint writing or very dark writing.
890	TEL/FAX ring back tone	1:ON 2:OFF	1, 2	1	Selects whether the TEL/FAX 1st ring back tone is ON or OFF in theTEL/FAX mode.

Printer test list (#85)



4-5. SERVICE MODE SETTING VALUES (Example of a printed out list)

SERVICE DATA LIST

(Code / Set Value)

```
501 PAUSE TIME          =  050*100ms      [001...600]*100ms
502 FLASH TIME          =  10*10ms        [01...99]*10ms
503 DIAL SPEED          =  10pps          [1=10     2=20]pps
510 VOX TIME            =  6sec           [1=6      2=4]sec
520 CED FREQ.           =  2100Hz         [1=2100   2=1100]Hz
521 INTL. MODE          =  ON             [1=ON     2=OFF]
522 AUTO STANDBY        =  ON             [1=ON     2=OFF]
523 RCV EQL.            =  0.0Km          [1=0.0    2=1.8   3=3.6   4=7.2]Km
524 SND EQL.            =  1.8Km          [1=0.0    2=1.8   3=3.6   4=7.2]Km
```

SPECIAL SERVICE SETTING

(Code / Set Value)

```
533  534  544  553  559  560  563  570  571  572  573  580  590
 03  030   50    1    1    1   15    2   10  065   15    1   05

591  592  593  594  595  596  598  717  718  719  721  722  731
065    2    1    1  100   10   43    1    1    1    1    1    1

732  763  771  775  844
  1    2    1    2    1
```

Note 1: The above values are the default values.

Note 2: "560" is only for the KX-FT37HG.

```
[ HISTORY ]

1. DATE

  TIME=00002 HOURS
2. KEY OPERATION
  1ST. 50:
  07 01 01 01 07 04 01 07 01 01 05 3C 39 3A 3A 3A 3B 07 04 00 00 00 00 00 00
  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  LAST 50:
  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
3. NUMBER OF COPY
  =00000
4. NUMBER OF RX
  =00000
5. NUMBER OF TX
  =00000

YOUR LOGO
YOUR TELEPHONE NUMBER
```

4.6 OTHER

[HISTORY]

No.	Display	Function
1	DATE	Date and time which are set by a user for the first time after purchase. TIME is the expiration from the first power on after purchase.
2	KEY OPERATION	Indicate 2-digit codes. 1st.50: History of the key operation from 1st to 50th after purchase. Last.50: History of the last 50 key operations.
3	NUMBER of COPY	The number of pages copied.
4	NUMBER of RX	The number of pages received.
5	NUMBER of TX	The number of pages sent.

5. TEST FUNCTIONS

The codes listed below can be used to perform simple checks of some of the unit's functions. When complaints are received from customers, they provide an effective tool for identifying the locations and causes of malfunctions.

Test mode	Type of Mode	• Code □□ • Operation after code input.	Function
PRINT TEST	User mode	[8] [5] START	Prints a test pattern and checks the thermal head for abnormalities (missing dots, etc.), and also checks the operation of the reception motor. (Printer test list: page 87)
MOTOR TEST	Service Mode	[5] [5] [6] START	Rotates the transmission and reception motors to check the operation of the motors. 11.....Forward TX motor--- TX/Document feed 12.....Forward RX and TX motor--- Copying 13.....Forward RX motor--- RX/Print out 14.....Backward RX motor---Cutter/Pull back recording paper • Press the STOP button to cancel.
MODEM TEST	Service Mode	[5] [5] [4] START	First, go OFF-HOOK with the handset to enter this Test Mode. Each time you press the start key, each of the signals will be heard in the following order from the handset. 1) OFF → 2) 9600bps → 3) 7200bps → 4) 4800bps → 5) 2400bps → 6) 300bps → 7) 2100Hz → 8) 1100Hz
ROM CHECK	Service Mode	[5] [5] [1] START	Indicates the version and checks the sum of the ROM.
SCAN CHECK	Service Mode	[5] [5] [5] START	Turns on the LEDs of the CIS unit and operates the read system.
LCD CHECK	Service Mode	[5] [5] [8] START	Checks the LCD indication. Illuminates all the dots to check if they are normal.
DTMF SINGLE TEST	Service Mode	[5] [5] [2] 1..On 2..Off	Outputs DTMF as single tones. Used to check the frequencies of the individual DTMF tones. Refer to "5.1 DTMF Single Tone Transmit Select" on page 90.
LED TEST	Service Mode	[5] [5] [7] START	All LEDs flash on and off, or are illuminated.
KEY CHECK	Service Mode	[5] [6] [1] START {any key}	Checks the button operation. Indicates the button code on the LCD while the button is pressed. Refer to "5.2 Button Code Table" on page 90.
FACTORY SET	Service Mode	[5] [5] [0] START	Clears the memory where the users can store data.
CUTTER TEST (KX-FT37HG)	Service Mode	[5] [6] [2] START	Check the cutter operation.

SENSOR CHECK	Service Mode	[8] [1] [5] START	CHECKS THE SENSOR OPERATION After entering this mode, perform the copy operation. For each sensor's operation, refer to page 128. LCD DISPLAY [Do Sn Co Ja Pa Vx] Do: Document Sensor: Turns on when a document is inserted. Sn: Read Position Sensor: At the read position with the cover opened, the sensor lever is pressed directly. Co: Cover open sensor: Turns on and off when the front cover is opened and closed. Ja: Jam Sensor: (KX-FT37HG) Turns off when the front cover is opened and on the sensor lever is pressed directly. Pa: Recording Paper Sensor: Turns on and off when the cassette lock lever is pushed down and up. Vx: Vox signal: (KX-FT37HG) Detection signal for the tone on the line. If there is a tone, it is ON.

Note: The numbers in the boxes (XXX) indicate the keys to be input for the various test modes.

5.1 DTMF SIGNAL TONE TRANSMIT SELECTION

When set to ON (=1), the 12 keys and transmission frequencies are as shown.

key	High Frequency (Hz)	Key	Low Frequency (Hz)
"1"	697	"5"	1209
"2"	770	"6"	1336
"3"	852	"7"	1477
"4"	941	"8"	1633

When set to OFF (=2), the 12 keys and transmission frequencies are as shown.

High (Hz) / Low (Hz)	1209	1336	1477
697	"1"	"2"	"3"
770	"4"	"5"	"6"
852	"7"	"8"	"9"
941	*	"0"	"#"

Note: After performing this check, do not forget to turn the setting off. Otherwise, dialing using DTMF will not be possible.

5-2. BUTTON CODE TABLE

Code	Button Name	Code	Button Name	Code	Button Name	Code	Button Name
02	RESOLUTION	0E	∨ VOLUME	35	5	3E	FLASH
03	AUTO RECEIVE			36	6	20	SEARCH DIAL (turn to the right)
04	START/COPY/SET	14	RECORD	37	7		
05	MENU	16	ERASE	38	*	21	SEARCH DIAL (turn to the left)
07	HELP	18	PLAY MESSAGE	39	8		
08	MONITOR	31	1	3A	9		
0A	MUTE	32	2	3B	0	00	NO INPUT
0C	DIRECTORY EDIT	33	3	3C	#	01	STOP
0D	∧ VOLUME	34	4	3D	REDIAL/PAUSE		

Note: These codes (00,01) are only for the data in the History Report.