OKIFAX 5250/5400 Maintenance Manual

First Edition

September, 1999
Oki Data Corporation

PREFACE

This manual is intended to be used for installing and maintaining OKIFAX 5250/5400 facsimile unit.

Maintenance of the OKIFAX 5250/5400 is assumed to be conducted at the following levels:

- Assembly-level maintenance for mechanical portions
- Unit-level maintenance for electrical at portions

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS
and
ATTENTION: IL Y A DANGER D'EXPLOSION S'IL Y A REMPLACEMENT INCORRECT DE LA BATTERIE. REMPLACER UNIQUEMENT AVEC UNE BATTERIE DU MEME TYPE OU D'UNT TYPE RECOMMANDE PAR LE CONSTRUCTEUR. METTRE AU REBUT LES BATTERIES USA GEES CONFORMEMENT AUX INSTRUCTIONS DU FABRICANT.

Programming procedures of the following user functions are not described in this maintenance manual.
Please refer to user's guide.

- One-touch key programming
- Two-digit auto dial programming
- Group setting
- Programming mail box password
- Memory operation

CONTENTS

CHAPTER 1

GENERAL INFORMATION

1.1 General Performance

(1) Type of appearance
- Desktop type

(2) Applicable lines
- Public switched telephone network (PSTN)
- Private branch exchange (PBX)

(3) Compatibility
- ITU-T Group 3 facsimile transceiver

(4) Document width
- Max. 216 mm (NA Letter)
- Min. 148 mm (ISO A5 size)

(5) Effective reading width
- Max. 215 mm (NA Letter)
- Max. 208 mm (ISO A4 size)

(6) Scanning length
- 128 mm to 356 mm
  Length setting: Unlimited (1500 mm) is also available.

(7) Automatic document feeder (ADF)
- 30 sheets (NA Letter/A4-size: 20-1b bond. Oki Data recommended paper)
- 15 sheets (NA Letter/A4-size: 13 to 28-1b bond)

Note: NA is North America

(8) Recording paper or sheet

• First cassette:	NA Letter/NA Legal/A4-size plain paper cut 250 sheets capacity (20-1b bond*)
• Second cassette (Option):	NA Letter/NA Legal/A4-size plain paper cut 500 sheets capacity (20-1b bond*)
• Manual loading feeder:	Transparency for overhead projector, applicable. Sheet size: NA Letter/NA Legal/A4-size

*: Oki Data recommended paper

(9) Printable width
- NA Letter: 211.3 mm (203.2 mm for assured quality)
- NA Legal: 211.3 mm (203.2 mm for assured quality)
- ISO A4: 206 mm (197.3 mm for assured quality)

(10) Printable length
- NA Letter: 273.4 mm (266.7 mm for assured quality)
- NA Legal: 349.6 mm (342.9 mm for assured quality)
- ISO A4: 291 mm (284.3 mm for assured quality)

(11) Copy stacker
- Max. 100 sheets (20-lb bond)

*: Oki Data recommended paper

(12) Scanning resolution
a) Horizontal:
- 300 dots/inch

b) Vertical:
Transmission mode: 3.85 line/mm (STD), 7.7 line/mm (FINE) or 300 dot/inch (EX.FINE)
COPY mode: 7.7 line/ mm(FINE) or 300 dot/inch(EX.FINE)

(13) Scanning method
• 2592 bits contact image sensor

(14) Recording resolution
a) Horizontal:
300 dots/inch

b) Vertical:
Variable: Automatically adjusted to the paper length.
(300 to 395 dot/inch), STD mode (3.85 to 5.06 line/mm) and FINE mode (7.7 to 10.13 line/mm) and EX-FINE mode (15.4 to 20.24 line/mm)
Fixed: STD mode: 3.85 line/mm
FINE mode: 7.7 line/mm
EX-FINE mode : 15.4 line/mm
: 300 dot/inch

(15) Recording method
• 211.3 mm (2496 bit) or 216.7 mm (2560 bit)

(16) Minimum scan line time for reception
• When receiving from OKIFAX or ECM: 0 ms
• When receiving from non- OKIFAX and non ECM: 10 ms at 3.85 line/mm
5 ms at 7.7 line/mm

(17) Print speed
• Max. 8 sheets per minute

(18) Pre-heating time
• Approx. 20 sec. (standby print)

(19) Coding scheme
• Modified Huffman (MH)
• Modified READ (MR)
• Modified Modified READ (MMR)

(20) Modem
• ITU-T Rec. V.29: 9600 bps for use on point-to-point 4-wire leased telephone type circuit
• ITU-T Rec. V.27 ter: 4800 bps modem for use in PSTN (Public Switched Telephone Network)
• ITU-T Rec. V.21 channel 2: 300 bps duplex modem for PSTN
• ITU-T Rec. V.17: 2-wire modem for fax application up to 14.4 kbps
• ITU-T Rec. V.34:

Note: V.34 (33.6 kbps) option is available when V.34 optional Modem board is installed in OKIFAX 5400 only.

(21) Transmission speed
• 6 sec. per sheet of ITU-T No. 1 sample document
• 3 sec. per sheet of ITU-T No. 1 sample document

Note: This is Phase C time at 3.85 line/mm and 28800 bps for 3 sec. and 14400 bps for 6 sec. in MMR code transmission.

(22) Protocol
- ITU-T Rec. T.30
- OKI special protocols: High-speed protocol

(23) Error correction mode (ECM)

(24) Communication mode
- Half duplex

(25) Memory capacity
- OKIFAX 5250 1M
- OKIFAX 5400 2M

1M, 1.5M, 2M, and 4M options available for both units.

(26) Liquid crystal display (LCD)
- Two rows of 20 characters for operation guidance, check and various kinds of information

(27) Power source
- Nominal input voltage 120 VAC for ODA version
- Nominal input voltage 230 VAC for INT'L version

(28) MFP (Multi- Function Peripheral) function (OKIFAX 5400 only)
- By installing the optional board (CTR board), the MFP function can be realized:
  PC Printer Function
  PC Scanner Function
  PC FaxModem Function
  Location Programing Function

Note: For details, see "Product Specification for MFP"

1.2 General User's Function

(1) Transmit mode
- Automatic transmit mode
- Manual transmit mode

(2) Receive mode
- Automatic receive mode
- Manual receive mode
- TEL/FAX automatic switchover mode
- TAD mode
- Memory only receive mode
- PC receive mode (OKIFAX 5400 only)

(3) Dual access

(4) Voice request

(5) Automatic redial

(6) Last number redial (Manual redial)

(7) Local copy including multiple copies
- 99 copies max

(8) Sender identification (Sender ID)

(9) Personal identification (Personal ID)

(10) Polling transmission
- Feeder polling transmission
- Memory polling transmission

(11) Polling reception

(12) Selective polling

(13) Acoustic line monitor

(14) Telephone handset (option)

(15) Automatic alternate selecting call (FAX No. + FAX No. can be registered in one-touch keys).

(16) Delayed transmission (Max. 3 days)
- Delayed broadcast
- Delayed transmission
  - OKIFAX 5400 20 timers / OKIFAX 5250 10 timers

(17) Relay broadcast initiate

(18) Subaddress transmission

(19) Confidential message transmission (Hopper 1 station)

(20) Confidential message reception
- 16 mail boxes

(21) PHOTO mode
- 64 scale gradations

(22) G3 sequential broadcast (Memory)
- Broadcast mode
  134 stations at maximum
- Delayed broadcast mode

(23) No paper/no toner reception

(24) Memory-only reception
(Memory reception even if paper does not run out)

(25) Distinguishing Text from picture

(26) Page re-transmission (Only in case of memory TX mode)

(27) Vertical reduction printing (Reduction rate is from 100% to 75%)

(28) Horizontal reduction (RX, Copy: Reduction rate is from 93% to 98%)

(29) Smoothing printing (In case of 8 dot/mm x 3.85, 7.7 or 15.4 line/mm → 300 dot/inch x 784 line/inch)
- Turn off in the PC print mode

(30) Programmed key operation (“F” key + “OT” key)

(31)

Auto dialing	5250	5400
• One-touch dialing	15	30
• Two-digit automatic dialing	64	99
• Keypad dialing		
• Chain dialing		
• Mixed dialing		
• Group dialing	10	20

(32) Realtime dialing
(In case of optional handset is installed or Hook key)

(33) Automatic pause signal insertion

(34) Manual feeder local copy

(35) Telephone directory (Alpha search) dialing

(36) TEL/FAX automatic switching

(37) Time and date printing

(38) Closed users group (Direct mail rejection)

(39) Transmission contrast and resolution control

(40) Key touch tone

(41) Printer counter display (For drum, toner, total print)

(42) Total page counter (Scan)

(43) Quick scanning 3 sec. minimum 5400/ 6 sec. minimum 5250 → A4 size 3.85 ℓ /mm

(44) Time and date setting

(45) PC interface (option)
- Standard: ODA version
- Option: INT'L version

(46) Language selection
- 2 languages (LCD and Reports)

(47) Fax fowarding

(48) Reports
- Activity report
- Protocol report (Service man setting)
- Message confirmation report (Single address or multiple addresses)
- Broad cast entry report (Broadcast)
- Transmission error report
- Confidential reception report
- Configuration report
- Telephone directory
- Power outage report

(49) 4 digit indication of YEAR

1.3 General Maintenance Functions

(1) Self-diagnosis
- CPU ROM/RAM check
- FLASH (/MASK) memory check (Program, Language, Default)
- RAM check
- RAM check (MEMORY board: option)
- PC-IF board (parallel) check
- Print test

(2) Sensor calibration (Adjustment of scanning level)

(3) LED test

(4) Tone send test

(5) Multi-frequency (MF) send test

(6) High-speed modem send test

(7) High-speed modem receive test

(8) Tone (TEL/FAX) test

(9) Remote diagnosis

(10) System reset

(11) Service default report (Machine setting for service engineer)

1.4 General Appearance

Figure 1.4.1 shows the general appearance.
Figure 1.4.2 shows the control panel.

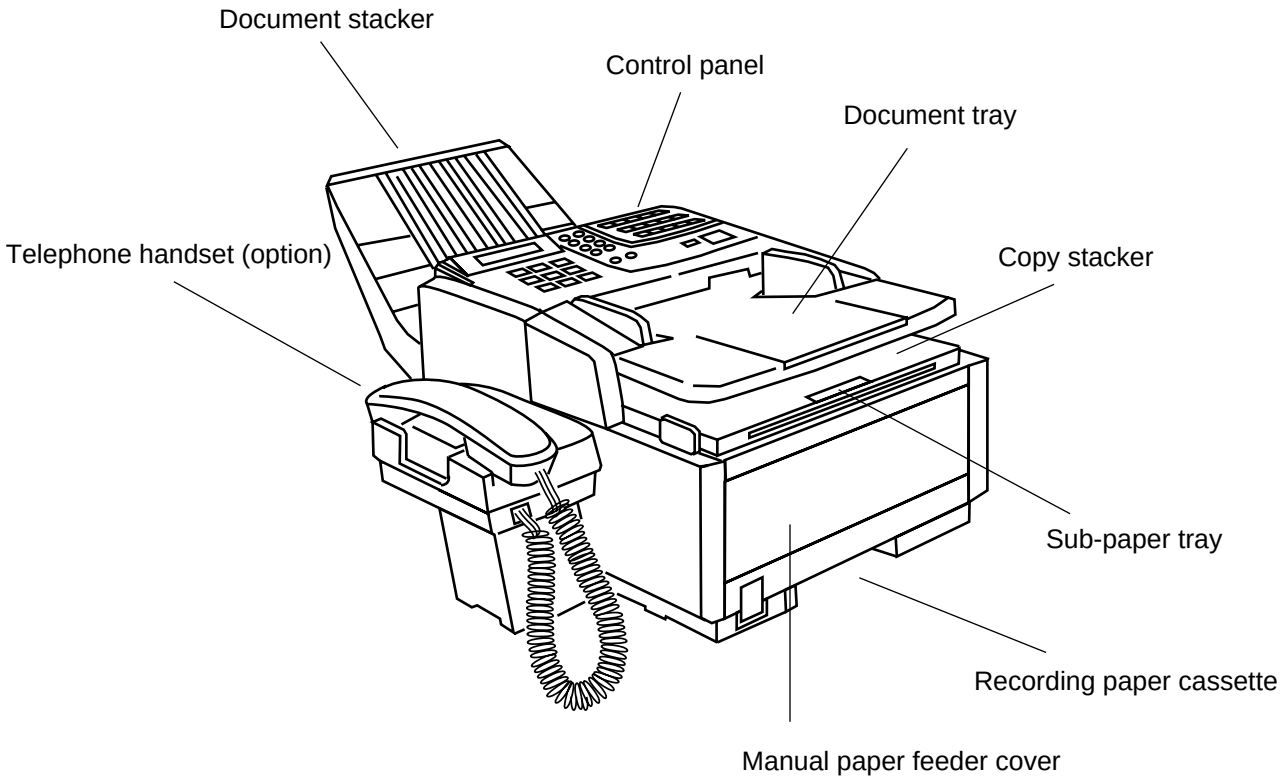
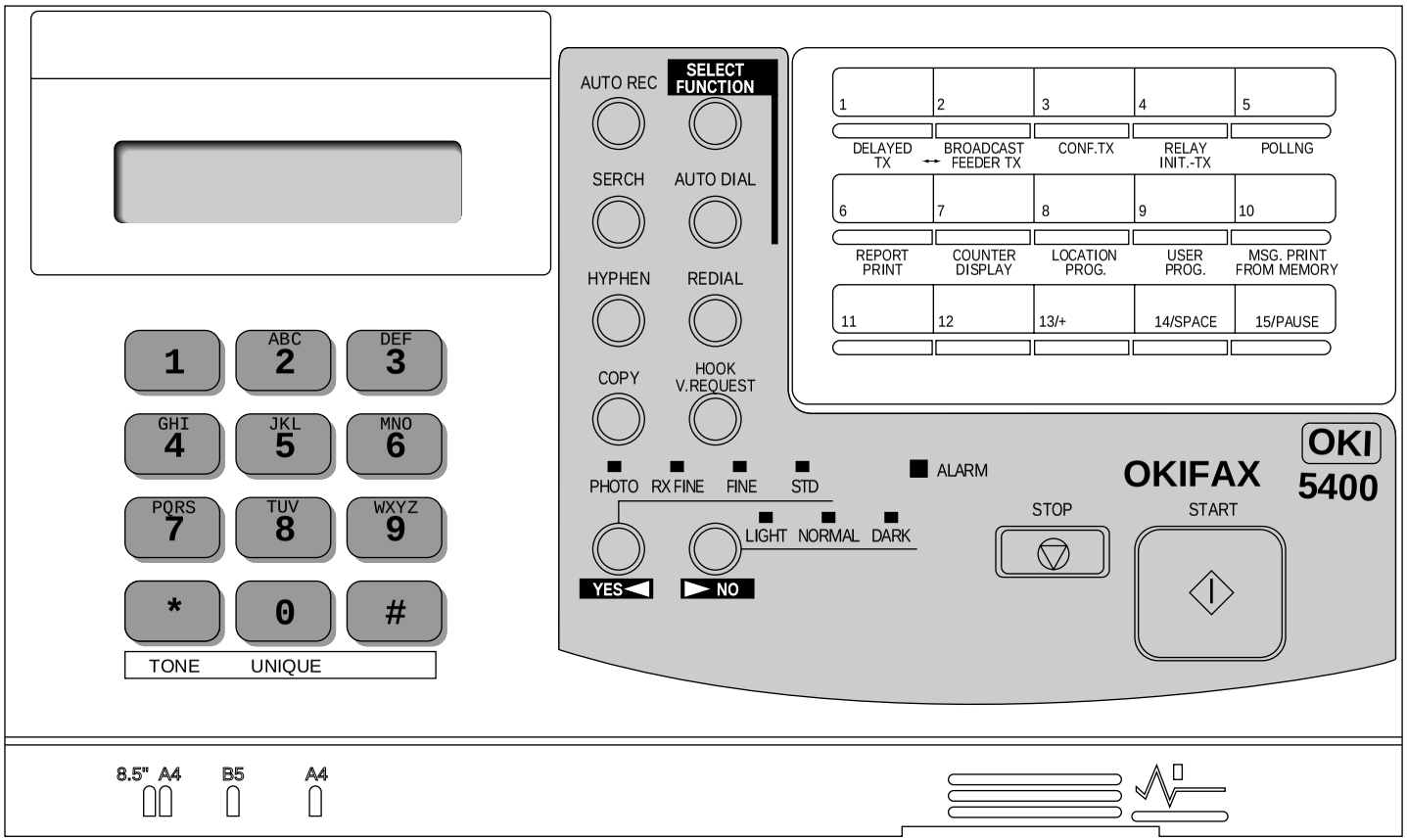


Figure 1.4.1 General Appearance



Fiture 1.4.2 Control Panel

1.5 Basic Performance Specifications

Table 1.5.1 shows basic performance specifications.

Note: TF: Technical function setting
FP: Function program setting
OT: One-touch key pressed
F: SELECT FUNCTION key pressed

Table 1.5.1 (1/9) Basic Performance Specifications

No.	Item	Specifications
1	Applicable line	1) Public switched telephone network (PSTN) 2) Private branch exchange (PBX) (OT9+2)
2	Line interface 1) Impedance	600Ω balanced ***Note:*** Impedance may differ by the requirement of PTT.
	2) Sending power level	0 dBm to –15 dBm range (Adjustable in 1 dB steps. TF + 22)
	3) Receiving power level	0 dBm to -4 dBm or –6 dBm to –46 dBm
3	Type of document to be transmitted 1) Width	Max. 216 mm (NA Letter) Min. 148 mm (ISO A5 size) ***Note:*** Effective reading width is NA Letter (215 mm).
	2) Length	Min. 128 mm (5 inch) Max. 356 mm (14 inch) Long document detection: 380 mm, or 1500 mm. * TF + 11 (To enable or disable the long document scanning)
	3) Thickness	Based on common bond paper, a) 0.08 to 0.13 mm for multiple page feeding b) 0.06 to 0.15 mm for single page feeding
	4) Shape	Rectangular
	5) Opacity	Documents allowing less than 40% of the scanner source light to pass through them.

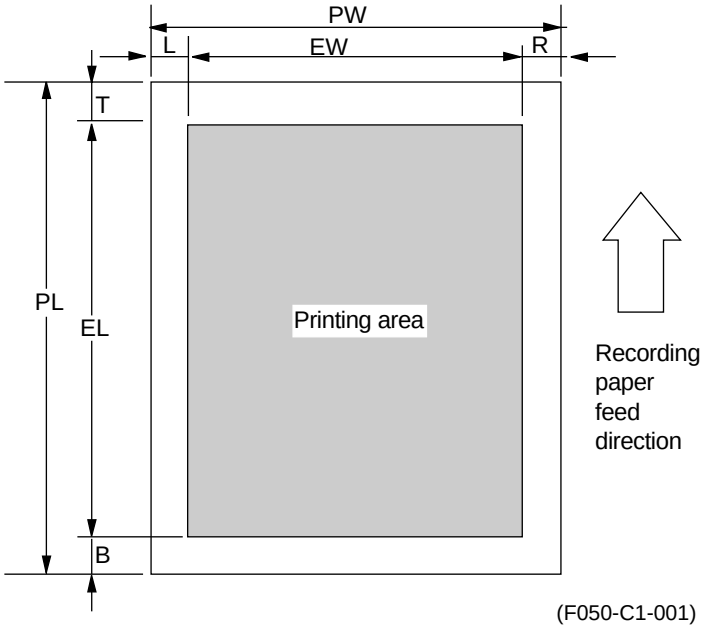
Table 1.5.1 (2/9) Basic Performance Specifications

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th></tr>
<tr><td>4</td><td>Effective reading width</td><td></td></tr>
<tr><td></td><td colspan="2">
<table>
<tr><th>Document width</th><th>Communication Mode/Paper width</th><th>Effective reading width</th><th>Copy size</th></tr>
<tr><td>ISO A4 (210 mm) [INT'L/FTZ]</td><td>G3/A4</td><td>208 mm for TX
202.8 mm for local copy</td><td>A4</td></tr>
<tr><td>NA letter (216 mm) [US/CANADA]</td><td>G3/A4</td><td>215.1 mm for TX
211.2 mm for local copy</td><td>Letter</td></tr>
<tr><td>NA legal (216 mm) [US/CANADA]</td><td>G3/A4</td><td>215.1 mm for TX
211.2 mm for local copy</td><td>Legal</td></tr>
</table>
Note Local copy: Pritable reading width in local copy mode
</td></tr>
<tr><td>5</td><td>Automatic document feeder (ADF)</td><td>Max. 30 documents: NA Letter or A4 (20-1b/75 gm)
Max. 15 documents: NA Letter or A4 (16-28lb/60-105 gm bond paper)
Documents shall be placed facedown on ADF stacker.
The first sheet will be fed first in the feeder and will exit facedown in the document stacker.</td></tr>
<tr><td>6</td><td>Document skew</td><td>Max. 2.6 mm skew over a document of A4 length.
For a document longer than A4 length, occurrence of skew exceeding 2.6 mm over any A4 length is 0.5% or less.</td></tr>
<tr><td>7</td><td>Document jam detection</td><td>1) Transmission will stop and line disconnection will occur when the end of a document is not detected within 356 mm after scanning begins (except for the long document scanning. TF + 11)
2) A jam will also be declared if the document does not reach the scanning position within 5.5 seconds after the start of a document feed.
Note: When a jam is detected during message transmission from the feeder, the machine will stop scanning and disconnect the line, but its receiving capability will remain valid.</td></tr>
<tr><td>8</td><td>Document jam removal</td><td>Manual release</td></tr>
</table>

Table 1.5.1 (3/9) Basic Performance Specifications

No.	Item	Specifications
9	Recording paper or sheet	For the first or second recording paper cassette: 1) Type: Plain paper cut (Bond paper) 2) Size: ISO A4 (210 mm x 297 mm) NA Letter (215.9 mm x 279.4 mm)/(8.5 inch x 11 inch) NA Legal (215.9 mm x 355.6 mm)/(8.5 inch x 14 inch) 3) Weight: 16 lbs to 24 lbs/60-90 gm base weight Base weight is defined as the weight of 500 sheets of 431.8 mm (17 inch) by 558.8 mm (22 inch) or 1 sheet size 1000 mm by 1000 mm. 4) Thickness: 0.08 mm to 0.12 mm 5) Condition: New paper For the manual loading feeder on the first cassette: 1) Type: Plain paper, transparency for overhead projector, colored paper, printed paper 2) Size: A4/NA Letter/NA Legal 3) Weight, thickness and condition: Same as above ***Note:*** One single sheet only should be loaded on the manual loading feeder for any one occasion. For best results use Oki Data recommended papers 1) Xerox 4200 (20 - lb/base weight paper) 2) L-type paper for photo-printers
10	Recording paper cassette 1) First cassette 2) Second cassette (Option)	 250 sheets/cassette (Oki Data recommended paper) 500 sheets/cassette (Oki Data recommended paper)

Table 1.5.1 (4/9) Basic Performance Specifications

No.	Item	Specifications
11	Effective recording area	 (F050-C1-001)

Note: These tables do not include vertical and horizontal addressing deviations (+ or –2 mm) of recording paper.

1) Printable area

	NA LETTER SIZE		ISO A4 SIZE		14 inch LEGAL SIZE		13 inch LEGAL SIZE	
	inch	mm	inch	mm	inch	mm	inch	mm
PL	11	279.4	11.7	297	14	355.6	13	330.2
PW	8.5	216	8.27	210	8.5	216	8.5	216
EL	10.76	273.4	11.46	291	13.76	349.6	12.76	324.2
EW	8.32	211.3	8.11	206	8.32	211.3	8.32	211.3
T	0.12	3	0.12	3	0.12	3	0.12	3
B	0.12	3	0.12	3	0.12	3	0.12	3
L	0.09	2.3	0.08	2	0.09	2.3	0.09	2.3
R	0.09	2.3	0.08	2	0.09	2.3	0.09	2.3

2) Guaranteed printing area

	NA LETTER SIZE		ISO A4 SIZE		14 inch LEGAL SIZE		13 inch LEGAL SIZE	
	inch	mm	inch	mm	inch	mm	inch	mm
PL	11	279.4	11.7	297	14	355.6	13	330.2
PW	8.5	216	8.27	210	8.5	216	8.5	216
EL	10.5	266.7	11.2	284.3	13.5	342.9	12.5	317.5
EW	8.0	203.2	7.77	197.3	8.0	203.2	8	203.2
T	0.25	6.35	0.25	6.35	0.25	6.35	0.25	6.35
B	0.25	6.35	0.25	6.35	0.25	6.35	0.25	6.35
L	0.25	6.35	0.25	6.35	0.25	6.35	0.25	6.35
R	0.25	6.35	0.25	6.35	0.25	6.35	0.25	6.35

12	Copy stacking	The fax can discharge printed copies and stack them face-down. Maximum sheets on the copy stacker: 100* ***Note*:*** Oki Data recommended paper

Table 1.5.1 (5/9) Basic Performance Specifications

No.	Item	Specifications
13	Scanning resolution	Horizontal: • 300 dot/inch Vertical: Transmission mode: • 3.85 line/mm (STD), 7.7 line/mm (FINE) or 300 dot/inch,(EX. FINE) COPY mode: 7.7 line/ mm (FINE) or 300 dot/inch (EX. FINE)
14	Image scanning method	NA Letteer size (2592-bit) contact image sensor
15	Contrast control	1) Automatic background sensing A continuous document background of 0.3 OD (optical density) or less will be transmitted as white. 2) The LIGHT and DARK contrasts will automatically be adjusted to improve image quality.
16	Recording resolution	Horizontal: • 300 dot/inch Vertical: • Fixed: 3.85 line/mm (STD), 7.7 line/mm (FINE), 15.4 line/mm (EX-FINE) 300 dot/inch (EX-FINE). Veriable: Automatically adjusted to the paper length. • 300 to 412 dot/inch • 3.85 to 5.06 line/mm (STD) • 7.7 to 10.13 line/mm (FINE) • 15.4 to 20.24 line/mm (EX.FINE)
17	Recording system	Electro-photographic printing 1) 211.3mm (2496 bit) or 216.7mm (2560 bit) LED print head
18	Skew of recording paper	Maximum allowable skew is + or - 1 mm over an advance of 100 mm.
19	Copy darkness	1) Black image: Greater than 1.2 OD (Optical density) 2) White background: Not greater than 0.2 OD (Optical density)
20	Copy uniformity	Printed copies will exhibit a uniform density of the printed and background area: 1) From edge to edge: 25% unit 2) From copy to the next copy: 30% unit
21	Recording paper running out	The fax can detect the no-paper condition by a photosensor. When the paper has run out in the local copy operation, the scanning will stop with “NO PAPER ... REPLACE PAPER” on the LCD and an ALARM LED turns on without an alarm tone. When the paper has run out while a message is being received and the no-paper reception is activated, the LCD display will show “MSG. IN MEMORY”, and the ALARM LED turns on.

Table 1.5.1 (6/9) Basic Performance Specifications

No.	Item	Specifications
22	Minimum scan line time for receiving	0 ms, when receiving in ECM mode or from an Oki Data facsimile. 5 ms at 15.4 line/mm or 7.7 line/mm and 10 ms at 3.85 line/mm when receiving from a non-Oki Data facsimile or non-ECM mode.
23	Coding scheme	1) One-dimensional coding scheme: Modified Huffman (MH) 2) Two-dimensional coding scheme: Modified READ (MR) Modified modified READ (MMR)
24	MODEM 1) High-speed MODEM	a) ITU-T Rec. V.29 (9600/7200 bps) b) ITU-T Rec. V.27 ter (4800/2400 bps) c) ITU-T Rec. V.17 (14400/12000/9600/7200 bps) d) ITU-T Rec. V.33 (14400/12000 bps) e) ITU-T Rec. V.34 (28800 bps) ***Note:*** 33600 bps (V.34) optional is available when serviceman set to enable.
	2) Low-speed MODEM	ITU-T Rec. V.21 channel 2 (300 bps)
25	Fallback	Automatic fallback will occur according to the following sequence by FTT, RTN or PPR.

Fallback rank	Transmission speed	Activated by FTT (Times)	Activated by RTN (Times)	Activated by PPR (Times)	Protocol
1st	14400 bps	1	1	4 (Note 1)	ITU-T V.17 (V.33)
2nd	12000 bps	1	1	4 (Note 1)	ITU-T V.17 (V.33)
3rd	9600 bps	1	1	4 (Note 1)	ITU-T V.17 (V.29)
4th	7200 bps	1	1	4 (Note 1)	ITU-T V.17 (V.29)
5th	4800 bps	2	1	4 (Note 1)	ITU-T V.27 ter.
6th	2400 bps	2	1	4 (Note 1)	ITU-T V.27 ter.

When the last trial fails, the transmitting station sends out a DCN signal to the remote station for disconnection.

Note 1: Continuous PPRs for the same partial page within each fallback rank.

Fallback rank	Transmission speed	Activated byPPR (Times)	Protocol
1st	28800 bps	1 (Note 1)	ITU-T V.34
2nd	26400 bps	1 (Note 1)	ITU-T V.34
3rd	24000 bps	1 (Note 1)	ITU-T V.34
4th	21600 bps	1 (Note 1)	ITU-T V.34
5th	19200 bps	1 (Note 1)	ITU-T V.34
6th	16800 bps	1 (Note 1)	ITU-T V.34
7th	14400 bps	1 (Note 1)	ITU-T V.34
8th	12000 bps	1 (Note 1)	ITU-T V.34
9th	9600 bps	1 (Note 1)	ITU-T V.34
10th	7200 bps	1 (Note 1)	ITU-T V.34
11th	4800 bps	1 (Note 1)	ITU-T V.34
12th	2400 bps	1 (Note 1)	ITU-T V.34

Note 2: V.34 optional modem performs the fall-back depending upon the line condition automatically.

Table 1.5.1 (7/9) Basic Performance Specifications

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th></tr>
<tr><td>26</td><td>Protocol</td><td>1) ITU-T Rec. T.30
2) Oki Data special protocol
High-speed protocol
The T.30 protocol signal from the transmitting station is sent at message transmission speed instead of 300 bps.
Note: In high-speed protocol, 28.8 K-bps are not supported.</td></tr>
<tr><td>27</td><td>Transmission time</td><td>3 sec.(approx 3.5 sec) /ITU-T No. 1 sample document
6 sec.(approx 6.9 sec) /ITU-T No. 1 sample document

Note: This is Phase C time at 3.85 line/mm and 28800 bps for 3 sec. and 14400 bps for 6 sec. in MMR code transmission.</td></tr>
<tr><td>28</td><td>Error correction</td><td>ITU-T Error correction mode (ECM)
Oki Data ITU-T ECM</td></tr>
<tr><td>29</td><td>Communication mode</td><td>Half-duplex</td></tr>
<tr><td>30</td><td>Ringing signal detection sensitivity</td><td></td></tr>
<tr><td></td><td>1) Voltage range</td><td>25 to 150 V r.m.s.
Inoperative below 10 V
Note: This range may differ by the requirement of PTT.</td></tr>
<tr><td></td><td>2) Frequency range</td><td>20 to 68 Hz
Note: This range may differ by the requirement of PTT.</td></tr>
<tr><td></td><td>3) Ring response time</td><td>One-ringing signal or 5 to 30 seconds.
(Selectable in 5 sec. steps. F + OT9 + ← + 11)</td></tr>
<tr><td>31</td><td>Image memory</td><td>Basic model: 5250 - 1M 5400 - 2M
Optional memory: 1M, 1.5M, 2M, AND 4M

<table>
<tr><th></th><th>5400 Memory condition</th><th>A4 Setting [pages]</th><th>LEGAL Setting [pages]</th></tr>
<tr><td rowspan="2">With option board</td><td>Standard (without option)</td><td>187</td><td>179</td></tr>
<tr><td>4M-byte</td><td>307</td><td>299</td></tr>
</table>
Note: No. of sheets are counted provided that ITU-T No.1 sample dosument is used. No. of sheets are typical value.

Back-up time on electrical interruption: Min. one hour

Note: In case of power failure, messages received in memory will only be backed up when 1.5M, 2M, or 4M option is used. These boards have a battery.</td></tr>
</table>

Table 1.5.1 (8/9) Basic Performance Specifications

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th></tr>
<tr><td>32</td><td>Telephone handset (option)</td><td>General telephone function is available while the power is on.

Note: In the fax special versions, general telephone is available even when the power is off.</td></tr>
<tr><td>34</td><td>Overheat protection</td><td>The heater of the fuser unit is controlled within the predetermined temperature range by the thermistor. If the temperature of the heater exceeds the range, the LCD displays “PRINTER ALARM 4”.

Furthermore, the built-in thermostat in the fuser unit prevents the heater from being overheated even in the event of the failures in the above temperature control circuit.</td></tr>
<tr><td>35</td><td>PC interface applications</td><td>The following four modes are supported:
1) PC local printer function
2) PC scanner function
3) PC FaxModem function
4) Location Programing function

Note: 5400 option only

For, details, see product specification for MFP.</td></tr>
<tr><td>36</td><td>Power supply unit and power consumption of the machine</td><td>Power consumption of the machine
(Typical power)
<table>
<tr><th></th><th>INT'L version</th><th>US/CANADA version</th></tr>
<tr><td>Transmit</td><td>60W</td><td>60W</td></tr>
<tr><td>Receive</td><td>160W</td><td>160W</td></tr>
<tr><td>Local copy</td><td>210W</td><td>210W</td></tr>
<tr><td>Standby
(Power Save OFF)</td><td>16.6W</td><td>16.6W</td></tr>
<tr><td>Standby
(Power Save ON)</td><td>0.5W</td><td></td></tr>
</table>
** US/CANADA version has no power save mode.

Note: Chart; ITU-T No. 1</td></tr>
<tr><td>37</td><td>Ambient condition

1) Operating condition

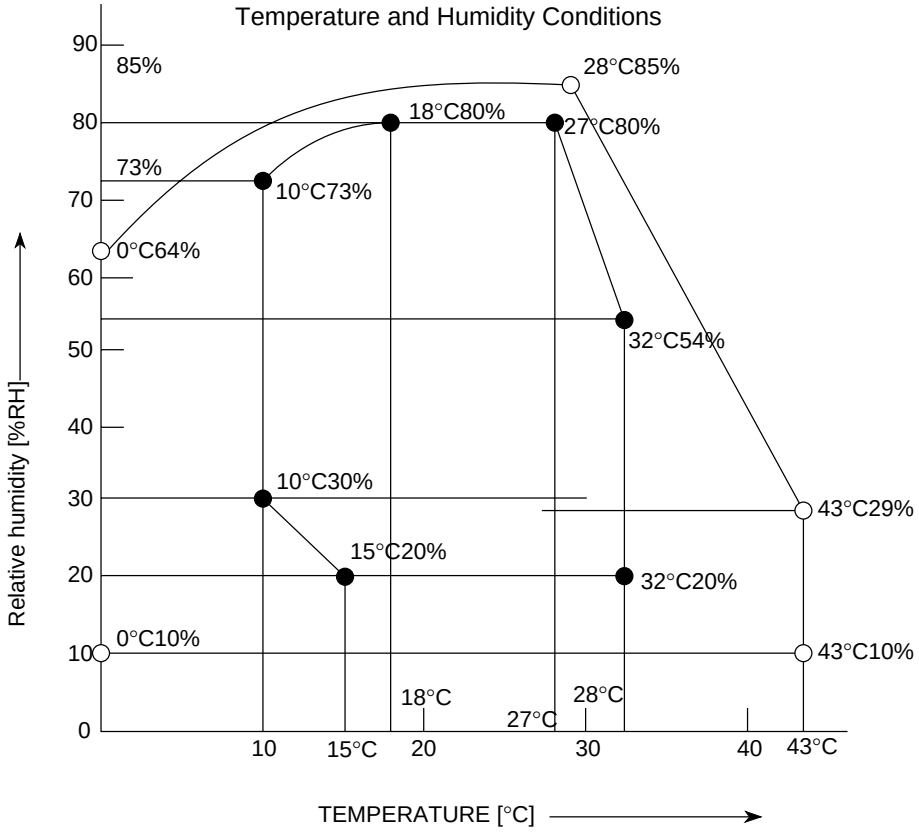
2) Storage condition</td><td>

See Figure 1.5.1

See Figure 1.5.1</td></tr>
</table>

Table 1.5.1 (9/9) Basic Performance Specifications

No.	Item	Specifications
	Temperature and Humidity Conditions	



Area enclosed by lines with ● : Range where printing is guaranteed.
Area enclosed by lines with ○ : Range for storage without power supply.

(Note) The curve connecting 28°C, 85% and 0°C, 64% is the condensation curve.

Figure 1.5.1 Ambient Conditions

38	Dimension (Main body)	1) Width: Approx. 330 mm 2) Depth: Approx. 420 mm 3) Height: Approx. 245 mm
39	Weight (Main body)	Approx. 13 kg Excluding optional units, recording paper and packing materials.
40	Attachment (to the main body)	1) AC power cord x 1 2) I/D unit x 1 (Already installed) 3) Toner cartridge x 1 4) Telephone handset x 1 (option) 5) Curled cord and Telephone cord for (4) x 1 (option) 6) Document stacker x 1 7) Line cord x 1 8) One touch sheet x 1 (Already installed) 9) User's guide x 1

1.6 Reports and Lists

Table 1.6.1 shows Reports and Lists Specifications.

Note: F +OT: Press FUNCTION and One-touch key
FP: Function program setting
TF: Technical function setting

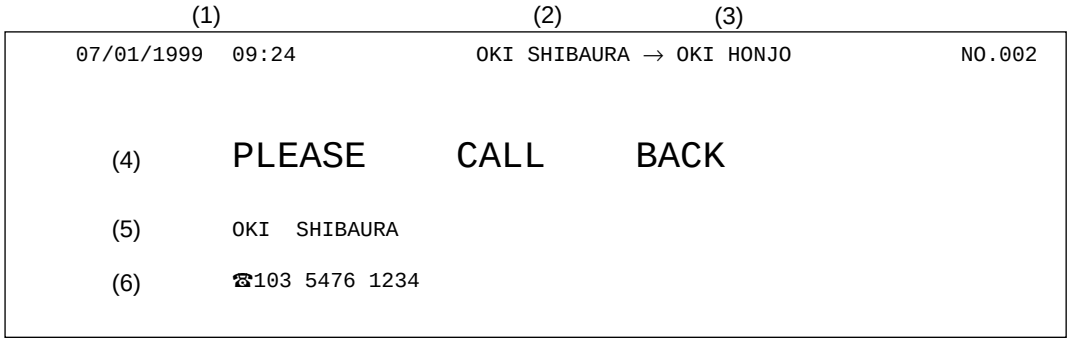
Table 1.6.1 (1/2) Reports and Lists Specifications

No.	Item	Specifications
1	Call-back message	The transmitter sends a call-back message to the receiver only when the receiver does not respond to voice request of the transmitter.
2	Sender ID	The fax can transmit a programmed alphanumeric message, such as company's name, consisting of up to 32 characters. * (Outside only)
3	Transmitting subscriber identification(TSI) printing	Received TSI can be printed at the top of the received page. * TF + 05 (To enable or disable this function)
4	Cancel report (Power outage report)	The fax can automatically print out a power-outage report when the power off condition occurs.
5	Activity report	The fax can print out an activity report manually, and provides a record of your fax machine's last 30 communications. This report does not contain the results of messages which were received without errors. However it does contain messages received in memory with or without errors. * REPORT PRINTOUT+1(Manual printout)
6	Message confirmation report	The fax can print out a message confirmation report manually or automatically in the following cases. (1) When COPY key is pressed after a single location call, this report can be printed. (Manual printout) * FP + 01 (To enable or disable automatic printing)
7	Broadcast entry report	The fax can print out a broadcast entry report if specified during operating sequence of a broadcast.
8	Broadcast confirmation report	The fax can print out a broadcast confirmation report manually or automatically. * COPY key (Manual printout): Pressed after a broadcast. * REPORT PRINTOUT + 2 (Manual printout) * FP +02 (To enable or disable automatic printing)

Table 1.6.1 (2/2) Reports and Lists Specifications

No.	Item	Specifications
9	Confidential reception report	The fax can print out this report automatically on completion of a confidential reception.
10	Telephone directory	This directory is printed manually. (REPORT PRINTING +3)
11	Configuration report	This report is printed manually. (REPORT PRINTING +4)

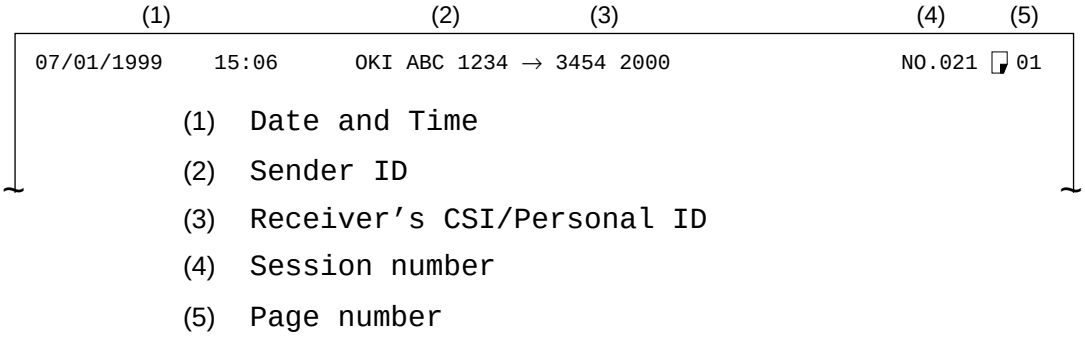
Call-back Message Format: (Example)



(F050-C1-002)

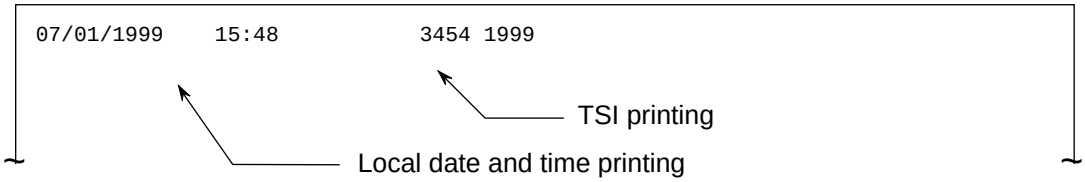
(1) Date and time
(2) Sender ID
(3) CSI/Personal ID
(4) Letters "PLEASE CALL BACK"
(5) Sender ID
(6) Sender's call back telephone number

Sender ID Format: (Example)



(F050-C1-003)

TSI Printing and Local Date and Time Printing Format: (Example)



(F050-C1-004)

Note: TSI printing (TF+05)
Local date and time printing (TF+04)

Cancel Report Format: (Example)

POWER OUTAGE REPORT

05/19/1999 17:05
ID=OKI

DATE	TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
05/17	10:10		0485-88-3385				9080
05/17	10:30		ODS TAKASAKI		03		0000
05/17	12:05	01'20"	OKI FAX	BOX=01	03	OK	0000
05/17	13:00	00'20"	03-5476-4300	CALLED	01	OK	0000
05/17	15:40		034567092222	FWD-T	05		
05/18	10:50	01'20"	0495-22-5400	CALLED	03	OK	0000
05/18	15:00			B.C.	01		

Note: Memory reception only is printed on the mode in the report as called.

(1) **Activity Report Format: (Example)**

ACTIVITY REPORT

(2) 05/19/1999 17:05
(3) ID=OKI

(4) TOTAL TIME CALLING=08:22' CALLED=17:30'

DATE (5)	TIME (6)	S,R-TIME (7)	DISTANT STATION ID (8)	MODE (9)	PAGES (10)	RESULT (11)	(12)
05/17	10:00	01'20"	OKI FAX	CALLING	02	OK	0000
05/17	10:10	01'00"	0485 88 3385	CALLING	00	STOP	9080
05/17	10:30	00'20"	ODS TAKASAKI	POLLING	00	OK	0000 *8
05/17	12:05	01'20"	OKI FAX	POLLED	03	OK	0000 *9
05/17	13:00	00'20"	03 5476 4300	POLL=XX	01	OK	0000 *10
05/17	15:40	03'25"	ODS TAKASAKI	CONF=01	03	OK	0000 *1
05/17	19:00	00'00"	OKI FAX		01	OK	0000 *2
05/18	10:10	02'00"	OKI SHIBAURA	CALLED	05	NO	908E
05/18	10:22	00'12"	0495 22 5400	CALLING	00	STOP	9080
05/18	10:50	01'20"	0495 22 5400	CALLED	03	NO	9090
05/18	12:05	00'20"	OKI FAX	CALLING	01	STOP	9080
05/18	15:00	01'30"		CALLED	03	OK	0000 *3
05/18	15:30	00'20"		CALLING	01	OK	0000
05/18	17:05	05'20"		B.C.		COMP.	60A0 *4
05/18	19:04	00'20"	03 5476 4300	CALLING	00	STOP	9080
05/19	09:00	01'11"		CALLING	02	OK	0000
05/19	10:20	00'20"	03 5476 4300	CALLING	02	STOP	9080
05/19	10:35	02'23"		CONF=01	02	OK	0000 *1
05/19	10:50	00'20"	ODS TAKASAKI	CALLED	01	OK	0000
05/19	11:03	00'00"	OKI FAX	CALLING	00	STOP	9080
05/19	13:00	00'24"	03 5476 4300		01	OK	0000 *5
05/19	16:00	03'25"	ODS TAKASAKI	FWD-R	03	OK	0000 *6
05/19	16:04	03'30"	OKIFAX	FWD-T	03	OK	0000 *7

*1 : Confidential reception
*2 : Manual TX
*3 : Memory reception
*4 : Broadcast TX
*5 : Manual memory reception
*6 : Reception for forwarding
*7 : Forwarding
*8 : Polling reception
*9 : Polling transmission
*10 : Bulletin polling

(1) Title of the report
(2) Date and time when the report was printed
(3) Sender ID
(4) Total CALLING and CALLED time
(5) Date of transmission or reception
(6) Time when the communication started
(7) Time span of the fax communication.
(8) Identification of the remote station
Personal ID/Location ID/TSI/CSI/Dial number or space
(9) Communication mode:
CALLING (Transmission)
CALLED (Reception NG or MEMORY RX)
B. C. (Broadcast)
CONF=XX (Confidential reception)
FWD-R (Fax Fowarding RX)
FWD-T (Fax Fowarding TX)
POLLED (polling TX) in case of except for country code=FRE
POLLING (polling RX) in case of except for country code=FRE
POLLED (polling RX) in case of country code=FRE
POLLING (polling TX) in case of country code=FRE
POLL=XX (Bulletin polling)
(10) Number of transmitted pages or received pages
(11) Result code
OK (Note1)/NO/STOP (Note 2)/BUSY/PAPER (Out of recording paper)/S_JAM (Document jam)/R_JAM (Recording paper jam)/COVER/COMP (Completion of a broadcast)/PUNIT (Printer Alarm)/CANCL (Confidential reception T.O.)

Note 1: The following cases are included:
- Unmatched handshaking to the received NSF.
- Unmatched password to the received NSC in the polling transmission mode.

Note 2: The following cases are included:
- The STOP key is pressed.
- The memory cancellation operation removes the message from the active memory files.

(12) Service code

Message Confirmation Report Format (1/2): (Example)

(1) MESSAGE CONFIRMATION

(2) 07/01/1999 08:05
(3) ID=OKI

(4) DATE	(5) S.R-TIME	(6) DISTANT STATION ID	(7) MODE	(8) PAGES	(9) RESULT	(10)
07/01	00’20"	OKI FAX	CALLING	02	OK	0000

(F050-C1-008 1/2)

Message Confirmation Report Format (2/2): (Example)

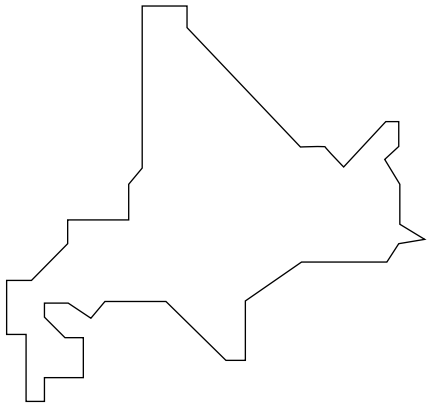
(1) MESSAGE CONFIRMATION

(2) 07/01/1999 17:05
(3) ID=OKI

(4) DATE	(5) S.R-TIME	(6) DISTANT STATION ID	(7) MODE	(8) PAGES	(9) RESULT	(10)
07/01	00’20"	OKI FAX	B.C.	01	COMP	60A0
07/01/96	17:00	OKI → OKIFAX	No.022	001		

150 km

(11)



(F050-C1-008 2/2)

(1) Title of the report
(2) Date and time when the report was printed
(3) Sender ID
(4) Date of transmission or reception
(5) Length of time for which the fax was connected to the line
(6) Identification of the remote station
Personal ID/Location ID/TSI/CSI/Dial number
(7) Communication mode
Reference to ACTIVITY REPORT
(8) Number of transmitted pages or received pages
(9) Result of the communication
Reference to ACTIVITY REPORT
(10) Service code
(11) Message

Broadcast Entry Report Format: (Example) (1/2)

BROADCAST ENTRY REPORT

07/01/1999 17:05
ID=OKI

LOCATION ID	LOCATION ID	LOCATION ID
ONE TOUCH		
1 = OT1	2 = OT2	3 = OT3
4 = OT4	5 = OT5	6 = OT6
7 = OT7	8 = OT8	9 = OT9
10 = OT10	11 = OT11	12 = OT12
13 = OT13	14 = OT14	15 = OT15
16 = OT16	17 = OT17	18 = OT18
19 = OT19	20 = OT20	21 = OT21
22 = OT22	23 = OT23	24 = OT24
25 = OT25	26 = OT26	27 = OT27
28 = OT28	29 = OT29	30 = OT30
AUTO DIAL		
01 = AD1	02 = AD2	03 = AD3
04 = AD4	05 = AD5	06 = AD6
07 = AD7	08 = AD8	09 = AD9
10 = AD10	11 = AD11	12 = AD12
13 = AD13	14 = AD14	15 = AD15
16 = AD16	17 = AD17	18 = AD18
19 = AD19	20 = AD20	21 = AD21
22 = AD22	23 = AD23	24 = AD24
25 = AD25	26 = AD26	27 = AD27
28 = AD28	29 = AD29	30 = AD30
31 = 31	32 = 32	33 = 33
34 = 34	35 = 35	36 = 36
37 = 37	38 = 38	39 = 39
40 = 40	41 = 41	42 = 42
43 = 43	44 = 44	45 = 45
46 = 46	47 = 47	48 = 48
49 = 49	50 = 50	51 = 51
52 = 52	53 = 53	54 = 54
55 = 55	56 = 56	57 = 57
58 = 58	59 = 59	60 = 60
61 = 61	62 = 62	63 = 63
64 = 64	65 = 65	66 = 66
67 = 67	68 = 68	69 = 69
70 = 70	71 = 71	72 = 72
73 = 73	74 = 74	75 = 75
76 = 76	77 = 77	78 = 78
79 = 79	80 = 80	81 = 81
82 = 82	83 = 83	84 = 84
85 = 85	86 = 86	87 = 87
88 = 88	89 = 89	90 = 90
91 = 91	92 = 92	93 = 93
94 = 94	95 = 95	96 = 96
97 = 97	98 = 98	99 = 99

KEYPAD
1234
2345
3456
4567
1234

Broadcast Entry Report Format: (Example) (2/2)

BROADCAST ENTRY REPORT

07/01/1999 17:04
ID=OKI TAKSAKI

KEYPAD

1234567890123456789012345678901234567890
1234567890123456789012345678901234567890
1234567890123456789012345678901234567890
1234567890123456789012345678901234567890
1234567890123456789012345678901234567890

Broadcast Confirmation Report Format: (Example)

BROADCAST CONFIRMATION REPORT

07/01/1999 17:05
PAGES = 01 ID=OKI

TOTAL TIME = 00:02'30"

LOCATION ID	PAGES	RESULT	LOCATION ID	PAGES	RESULT
ONE TOUCH					
1 = OT1*1	01	OK	2 = OT2*1	01	OK
3 = OT3*1	01	OK	4 = OT4*1	01	OK
5 = OT5*1	01	OK			
AUTO DIL					
01 = AD1*1	01	OK	02 = AD2*1	01	OK
03 = AD3*1	01	OK	04 = GERMAN*1	01	OK
05 = AD5*1	01	OK			
KEYPAD					
1234*1	01	OK			
3456*1	01	OK			
5678*1	01	OK			

*1: Identification of remote station
Personal ID, TSI, Location ID or Dial number
(Printing in this order depending if information is programed in remote fax machine)

Confidential Reception Report Format: (Example)

CONFIDENTIAL RX REPORT

07/01/1999 17:05
ID=OKI

DATE	TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
07/01	00:20	00'00"	OKI FAX*2	CONF=01	02	OK	0000

*2: Identification of remote station
Personal ID or CSI

Telephone Directory (1/6): (Example)

TELEPHONE DIRECTORY P1

07/01/1999 17:05
ID=OKI

ONE TOUCH	LOCATION ID	TEL NO.	PRM. ECHO
1	OKI SERVICE	0001 123 345	(ON)
		OR 0101 123 567	
2	ODC	0002	(OFF)
		OR 0102	
3	NEW YORK	0003	(OFF)
		OR 0103	
4	OT4 ABC	0004	(OFF)
		OR 0104	
5	XYZ CO.	0005	(OFF)
		OR 0105 111	
6	UK PLANT	0006 222	(OFF)
		OR 0106	
7	GERMANY	0007	(OFF)
		OR 0107	
8	BT	0008	(OFF)
		OR 0108	
9	FRANCE	0009	(OFF)
		OR 0109	
10	TOKYO	0010	(OFF)
		OR 0011	
11			(OFF)
		OR	
12			(OFF)
		OR	
13			(OFF)
		OR	
14			(OFF)
		OR	
15			(OFF)
		OR	
16			(OFF)
		OR	
17			(OFF)
		OR	
18			(OFF)
		OR	
19			(OFF)
		OR	
20			(OFF)
		OR	
21			(OFF)
		OR	
22			(OFF)
		OR	
23			(OFF)
		OR	
24			(OFF)
		OR	
25			(OFF)
		OR	
26			(OFF)
		OR	
27			(OFF)
		OR	
28			(OFF)
		OR	
29			(OFF)
		OR	
30			(OFF)
		OR	

Telephone Directory (2/6): (Example)

TELEPHONE DIRECTORY P2

07/01/1999 17:05
ID=OKI

AUTO DIAL	LOCATION ID	TEL NO.
01	TOKYO OFFICE	1001 111 222
02	PARIS	1002 111 333
03	AMERICA	1003
04	TOKYO 3	1004
05	TOKYO 5	1005
06	UK	1006
07	BT	1007
08	FRANCE	1008
09	GERMANY	1009
10	ITALY	1010
11	SPAIN	1011 567 890
12	DENMARK	1012 571 123
13	FINLAND	1013
14	SWITLAND	1014
15	OSAKA	1015 456 6789
16	TAKASAKI	1016
17	HONJO	1017
18	SHIBAURA	1018
19		
20		
21		
22		
23		
24		
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64		

Telephone Directory (3/6): (Example)

TELEPHONE DIRECTORY P3

07/01/1999 17:05
ID=OKI

AUTO DIAL	LOCATION ID	TEL NO.
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
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88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99	OKIDATA	234 5678

Telephone Directory (4/6): (Example)

TELEPHONE DIRECTORY P4

07/01/1999 17:05
ID=OKI

GROUP NUMBER = #1 #2 #3 #4 #5 #6 #7

#1 ONE TOUCH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
26 27 28 29 30
AUTO DIAL
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75
76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99
#2 ONE TOUCH

AUTO DIAL

#3 ONE TOUCH

AUTO DIAL

#4 ONE TOUCH

AUTO DIAL

#5 ONE TOUCH

AUTO DIAL

#6 ONE TOUCH

AUTO DIAL

#7 ONE TOUCH

AUTO DIAL

Telephone Directory (5/6): (Example)

TELEPHONE DIRECTORY P5

07/01/1999 17:05
ID=OKI

GROUP NUMBER = #8 #9 #10 #11 #12 #13 #14

#8 ONE TOUCH

AUTO DIAL

#9 ONE TOUCH

AUTO DIAL

#10 ONE TOUCH

AUTO DIAL

#11 ONE TOUCH

AUTO DIAL

#12 ONE TOUCH

AUTO DIAL

#13 ONE TOUCH

AUTO DIAL

#14 ONE TOUCH

AUTO DIAL

Telephone Directory (6/6): (Example)

TELEPHONE DIRECTORY P6

07/01/1999 17:05
ID=OKI

GROUP NUMBER = #15 #16 #17 #18 #19 #20

#15 ONE TOUCH

AUTO DIAL

#16 ONE TOUCH

AUTO DIAL

#17 ONE TOUCH

AUTO DIAL

#18 ONE TOUCH

AUTO DIAL

#19 ONE TOUCH

AUTO DIAL

#20 ONE TOUCH

AUTO DIAL

Configuration Report (User)

CONFIGURATION

07/01/1999 17:05
ID=OKI

FUNCTION LIST

01:MCF (SINGLE-LOC.) ON	02:MCF (MULTI-LOC.) ON	03:ERR.REPORT (MCF) ON
04:MESSAGE IN MCF ON	05:SENDER ID. ON	06:MONITOR VOLUME LOW
07:BUZZER VOLUME MIDDLE	08:CLOSED NETWORK OFF	09:TX MODE DEFAULT FINE/NORMAL
10:T/F TIMER PRG. 35SEC	11:RING RESPONSE *3 1RING	12:DISTINCTIVE RING *3 OFF
13:1'ST PAPER SIZE A4	14:2'ND PAPER SIZE *1 A4	15:USER LANGUAGE ENGLISH
16:INCOMING RING ON	17:REMOTE RECEIVE OFF	18:MEM./FEEDER SWITCH MEMORY
19:POWER SAVE MODE *4 ON	20:ECM FUNCTION ON	21:REMOTE DIAGNOSIS OFF
22:PC/FAX SWITCH *2 (5400 only) ON		

TEL NO. = 12345678901234567890
CALL BACK NO. = 12345678901234567890
FORWARD TEL NO. = 12345678901234567890

REDIAL TRIES	3TRY *3	REDIAL INTERVAL	3MIN *3
DIAL TONE DETECT	OFF *3	BUSY TONE DETECT	ON *3
MF(TONE)/DP(PULSE)	MF *3	PULSE DIAL RATE	10PPS *3
PULSE MAKE RATIO	39% *3	PULSE DIAL TYPE	NORMAL *3
MF (TONE) DURATION	100MSEC *3	PBX LINE	OFF *3
PBX TYPE	NORMAL *3	AUTO START	ON *3
DIAL PREFIX	OFF *3	IT2 DETECT	ON *3

*1 Function 14 is printed when 2'nd Tray is installed.
*2 Function No.22 is printed when CTR board is installed.
*3 Depending on local PTT requirements, certain user function and dial parameters are not printed and can not be selected by the user.
*4 Function 19 is only for INT'L version (See page 1-20, No.35 and 36)

Service Default Report (Configuration Report: Service bit=ON)

CONFIGURATION

07/01/1999 17:05
ID=OKI

FUNCTION LIST

01:SERVICE BIT ON	02:MONITOR CONT. OFF	03:COUNTRY CODE USA
04:TIME/DATE PRINT OFF	05:TSI PRINT OFF	06:NO TONER MEM. RX ON
07:TAD MODE TYPE2	08:REAL TIME DIAL TYPE2	09:TEL/FAX SWITCH ON
10:MDY/DMY. MDY	11:LONG DOC. SCAN OFF	12:TONE FOR ECHO OFF
13:MH ONLY OFF	14:H/MODEM RATE 14.4K	15:T1 (TX) TIMER VALUE 059
16:T1 (RX) TIMER VALUE 035	17:T2 TIMER VALUE 100	18:DIS BIT32 ON
19:ERR. CRITERION VALUE 10	20:OFF HOOK BYPASS OFF	21:NL EQUALIZER 0DB
22:ATTENUATOR 10DB	23:T/F TONE ATT. 10DB	24:MF ATT. 6DB
25:RING DURA. * 10MS 12	26:CML TIMING * 100MS 3	27:LED HEAD STROBE 10100
28:LED HEAD WIDTH TYPE1	29:MEDIA TYPE MEDIUM	30:V34 TX RETRY ON
31:SYMBOL RATE 3200		

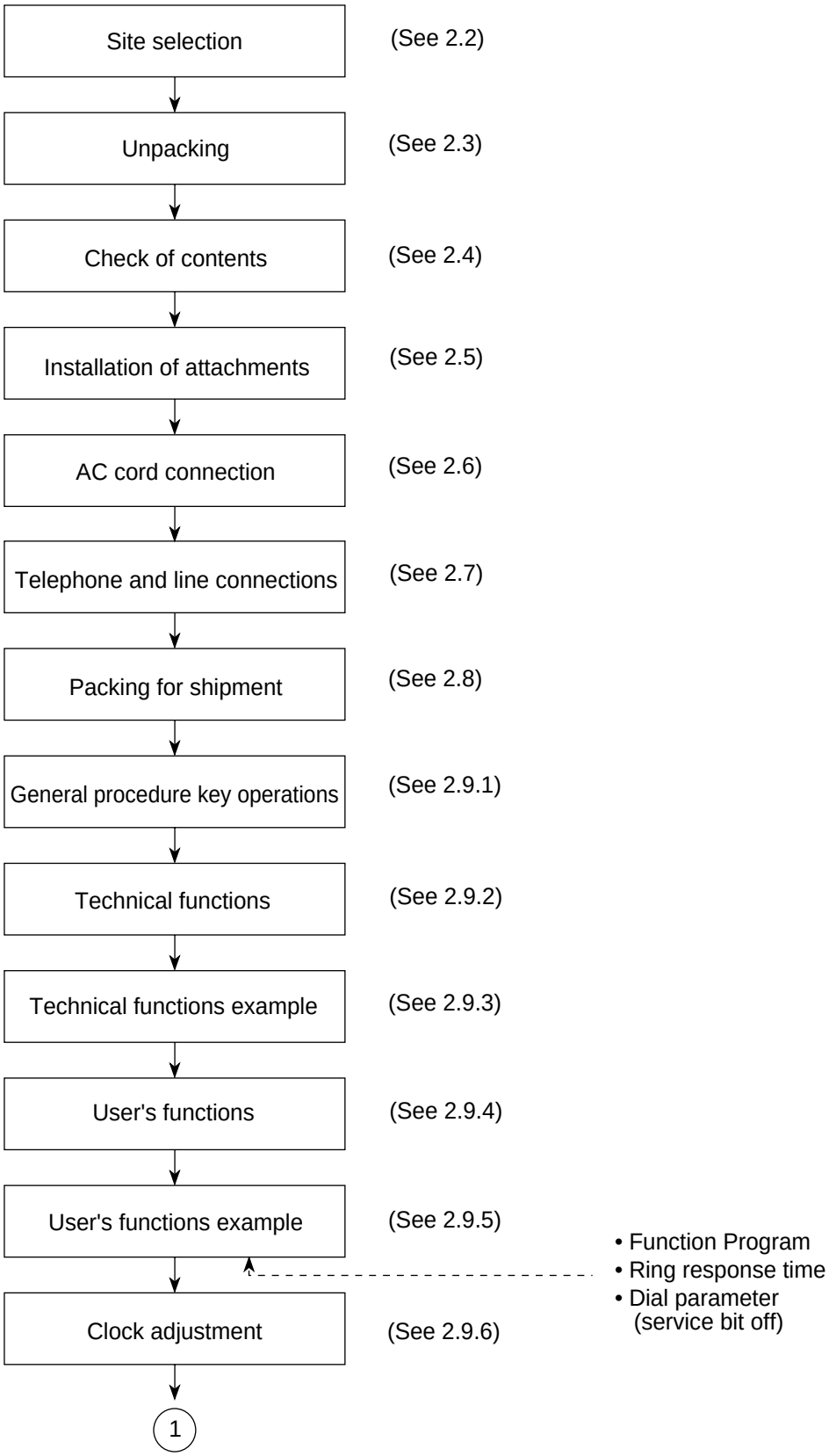
CHAPTER 2

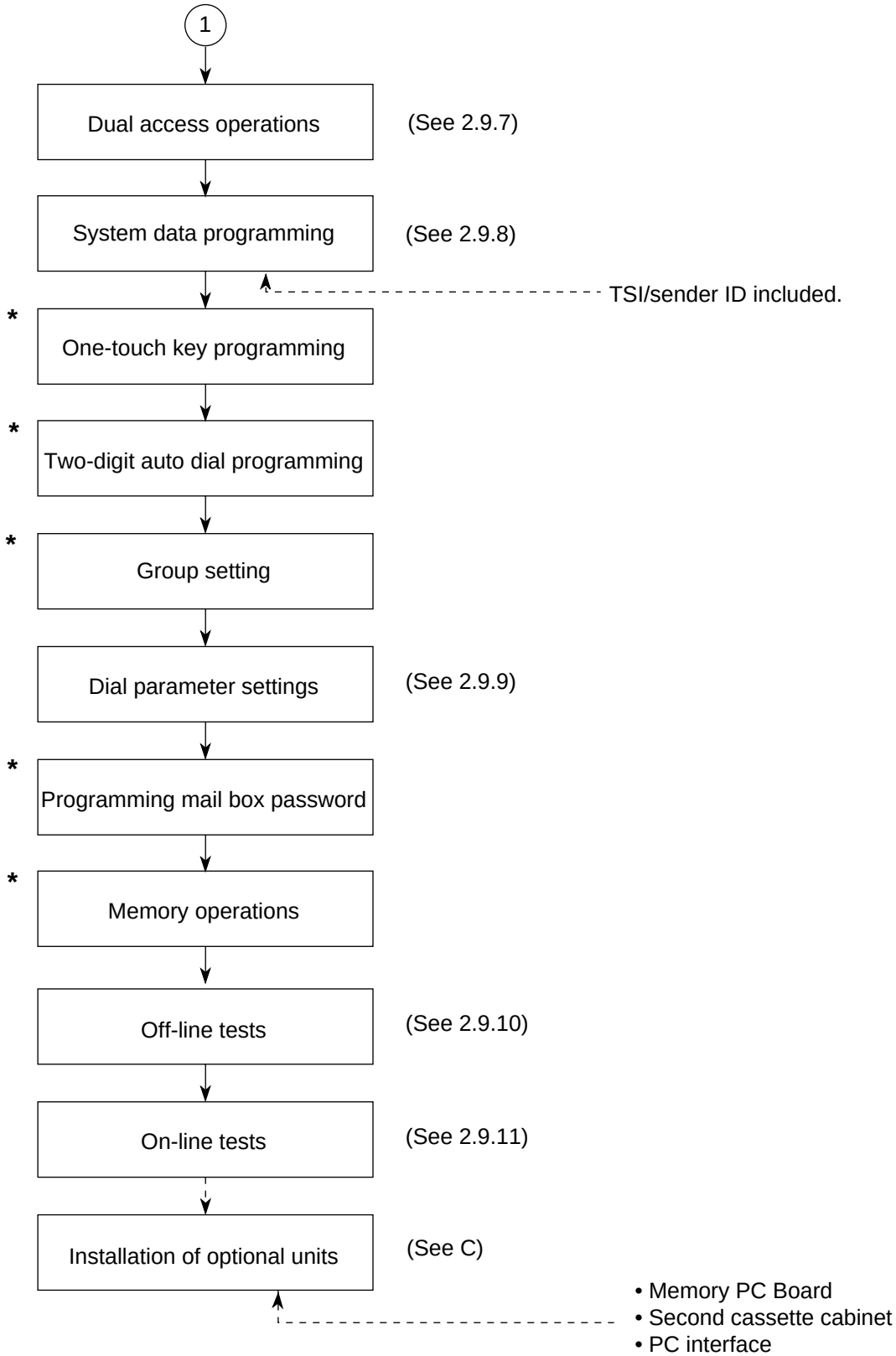
INSTALLATION PROCEDURE

A. Setup Information

2.1 General

The following flowchart outlines the installation procedure.





*** : See user's guide**

2.2 Site Selection

INSTALLATION

Precautions for Installation

(1) Fluctuation in line voltage
- 120VAC (102V to 127V)
- 230VAC (198V to 264V)

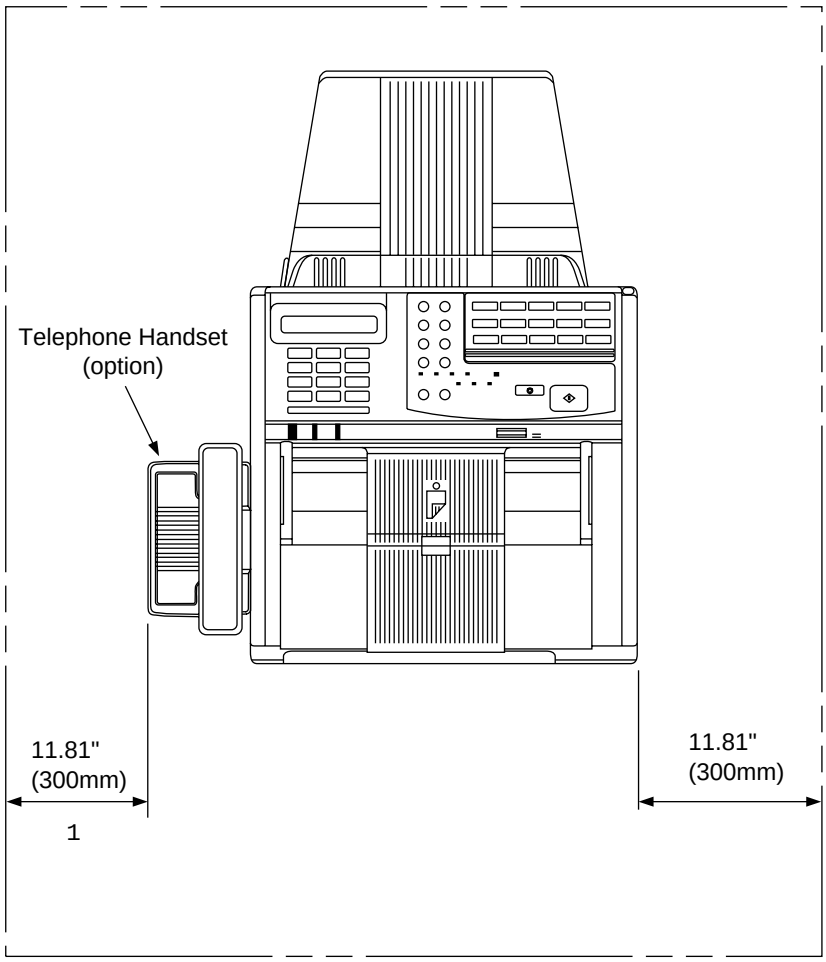
(2) Room temperature
50 to 90°F (10 to 32°C)

(3) Humidity
20 to 80% RH

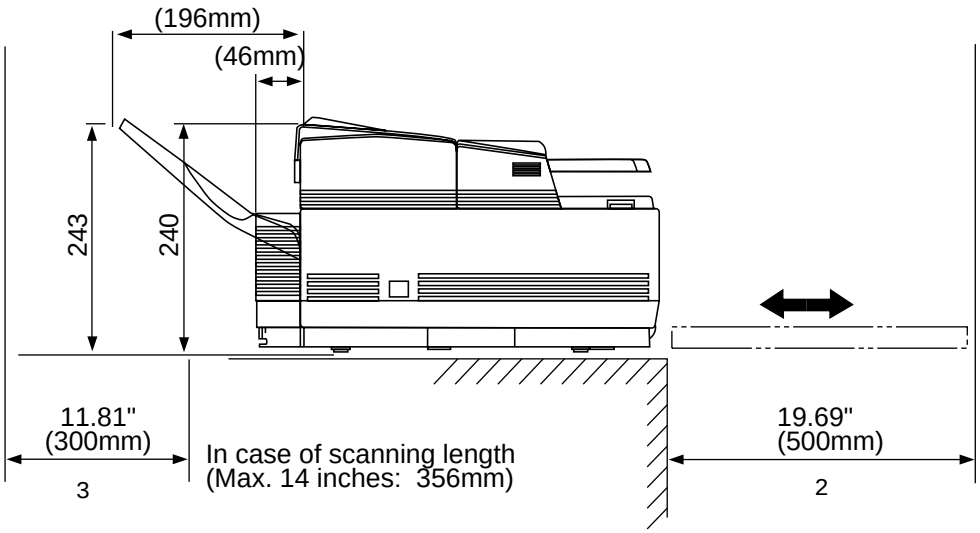
(4) Operating environment
Pressure: Equivalent to altitude of 2500 m and below.

(5) Exposure
Within five minutes at luminous intensity 2,000 lux (with the stacker cover opened).

(6) Required space for installation
The facsimile requires the space as shown below for safety and good operability.



FX-050VP-C2-001



FX-050VP-C2-002

Note: ① This space is necessary for handling the handset. (option) (page 2-3)
② This space is necessary for removing the recording paper cassette.
③ This space is necessary for installing the document stacker and to allow space for the fan exhaust.

(7) Levelness of installation surface
1 degree max.

(8) Other requirements
Avoid installing in any of the following places:
- A place exposed to direct sunlight
- A place near a heat source or exposed to vibration
- A dusty place
- A place in the atmosphere of acid gas, or steam etc.,
- A place exposed to quick temperature changes

2.3 Unpacking

2.3.1 Unpacking

Procedure

(1) Remove tape on the top of the carton box and open its cover.

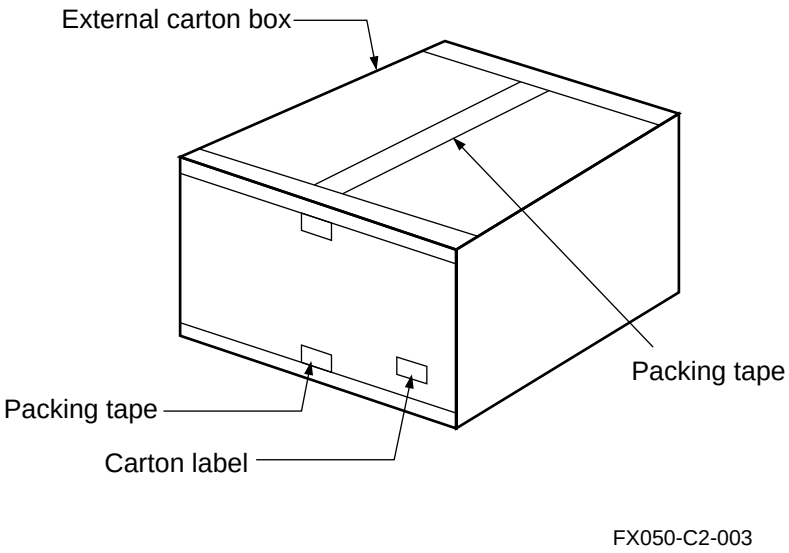


Figure 2.3.1 Unpacking Procedure (1)

(2) Take out the accessory box from the carton box.
(See Figure 2.3.1)

(3) Take out the machine with plastic wrapper from the box.

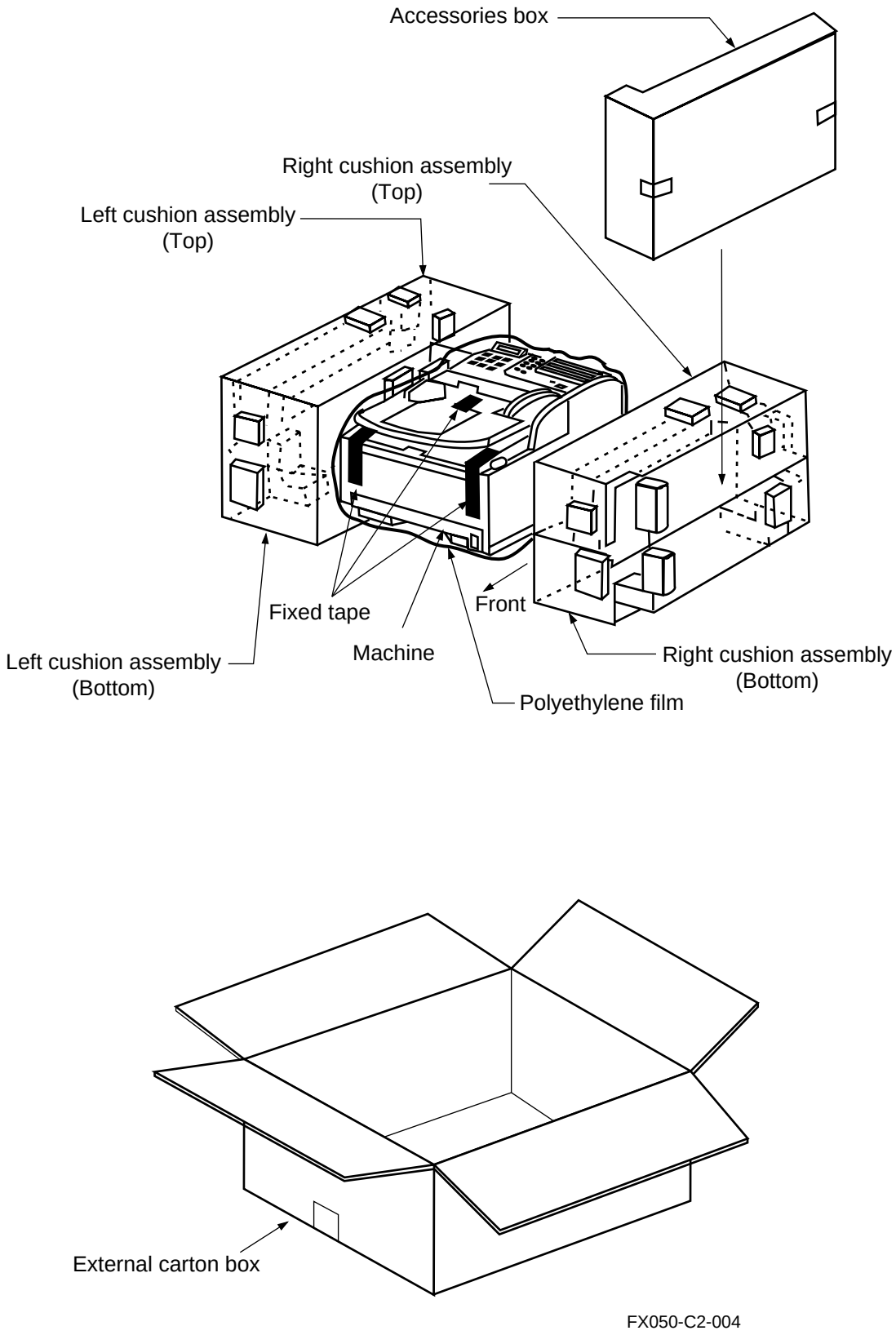


Figure 2.3.1 Unpacking Procedure (2)

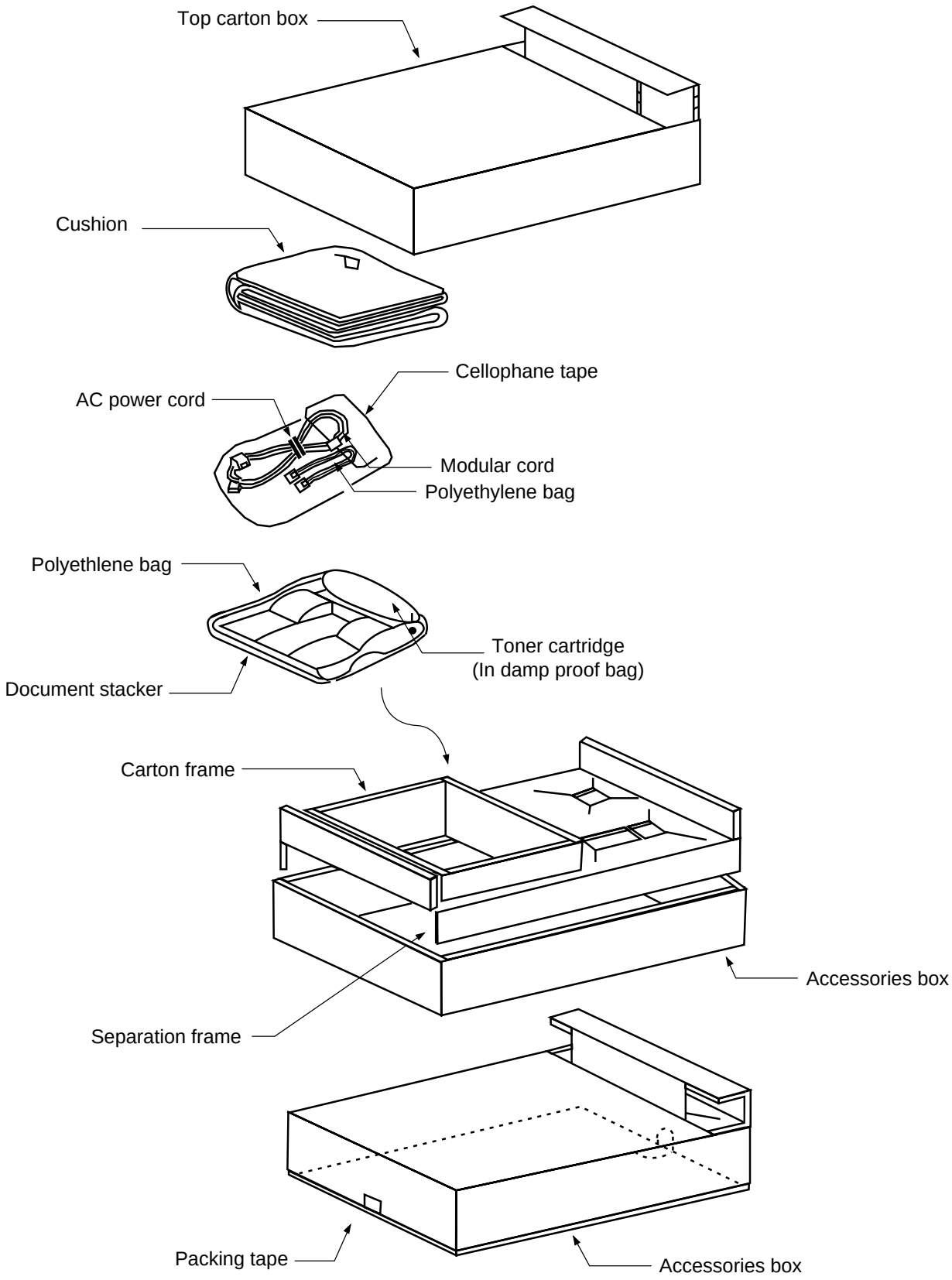


Figure 2.3.1 Unpacking Procedure (3)

2.4 Identification Contents

After having taken out the machine and accompanied accessories from the carton box, check the contents according to the following list:

Table 2.4.1 Contents List

Item No.	Name	Q'ty	Remarks
1	OKIFAX 5250/5400 fax	1	
2	AC power cord	1	
3	I/D unit	1	Already installed.
4	Toner cartridge	1	
5	Document stacker	1	
6	Line cord	1	
7	One touch sheet	1	Already installed.
8	User's guide	1 vol.	

2.5 Installation of Attachments

2.5.1 Installation of Attachments

(1) Items
- Image Drum (ID) Unit (already installed)
- Toner cartridge
- Recording paper
- Document stacker

(2) Procedure

1) Toner cartridge
- Peel off the fixed tape attached to the copy stacker.
- Open the document table and copy stacker.

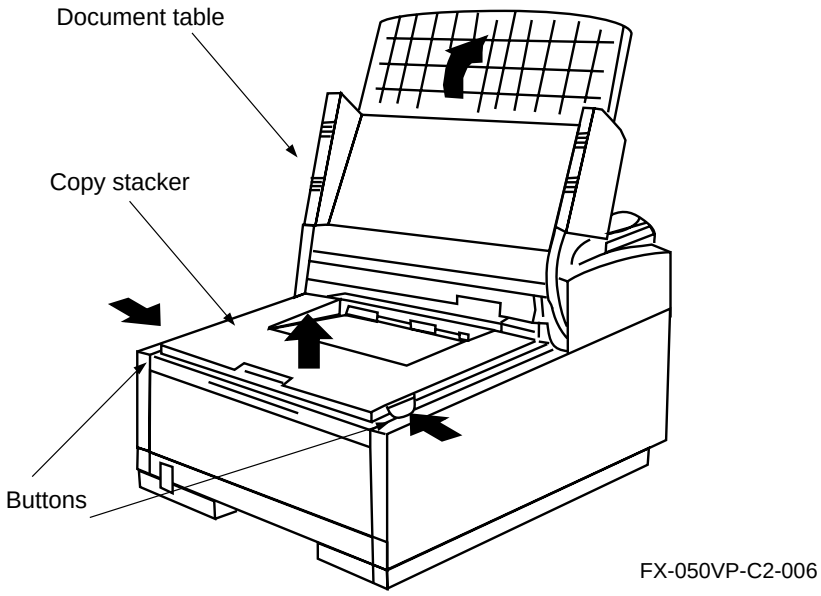


Figure 2.5.1.1 Toner Cartridge Installation (1)

- Take the cushion out of the ID unit.

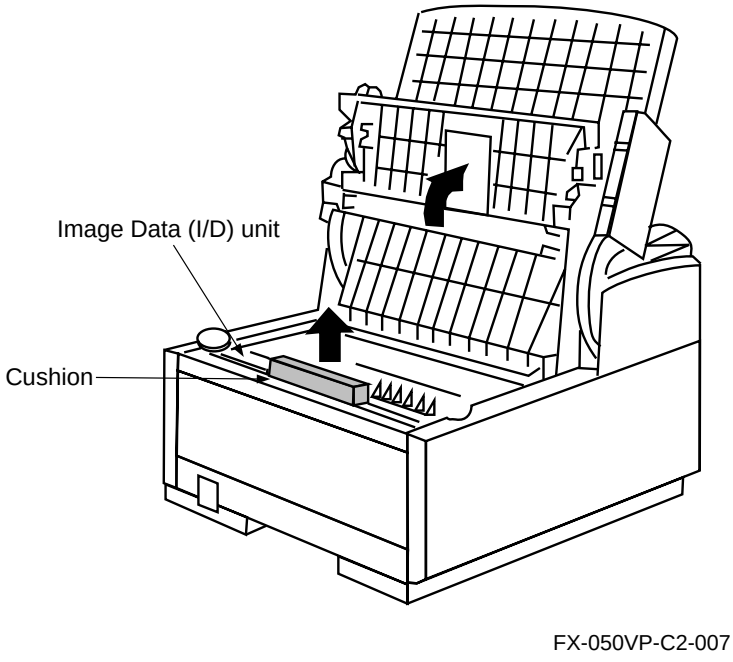


Figure 2.5.1.2 Toner Cartridge Installation (2)

- Take out the toner cartridge from the damp proof bag, shake it five or six times as shown in the illustration to eliminate the toner deflection, and peel off the seal gently.

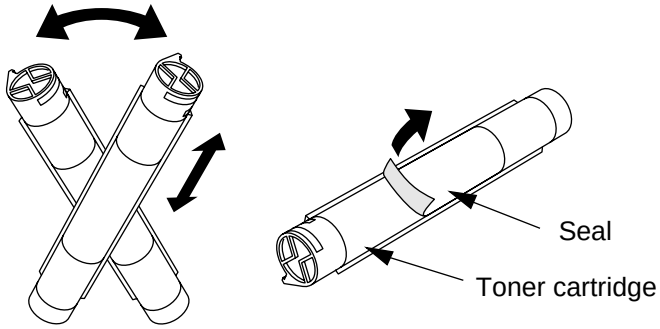


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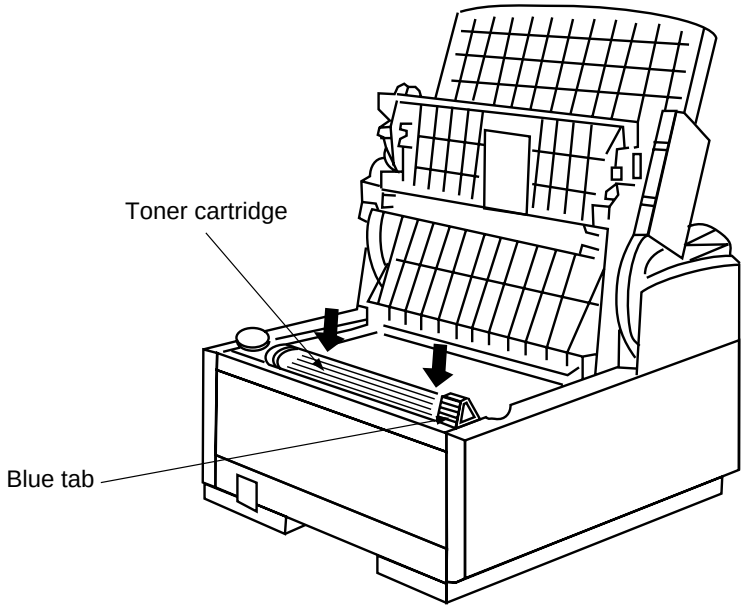
Figure 2.5.1.3 Toner Cartridge Installation (3)

- Ensure that the plastic tab on the right-hand side of the toner cartridge recess lines up with the groove on the toner cartridge.
- Press down on both ends to make sure the cartridge is fully seated.



FX-050VP-C2

Figure 2.5.1.4 Toner Cartridge Installation (4)

- Push the blue tab forward until it stops.

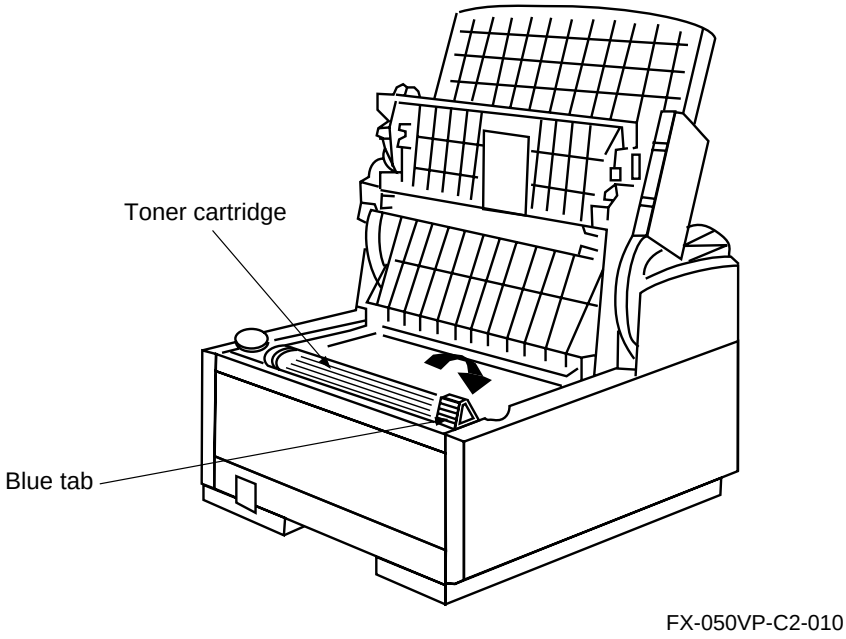


Figure 2.5.1.5 Toner Cartridge Installation (5)

- Clean the toner scattered in the vicinity of the toner cartridge using a cloth moistened with cold water. Do not use hot water since it makes the toner stick there.
- Close the copy stacker until the buttons have been locked completely.

(3) Recording paper

Note: About 250 sheets of the new paper can be set in the recording paper cassette.

- Remove the paper cassette from the facsimile by pulling the cassette tab.

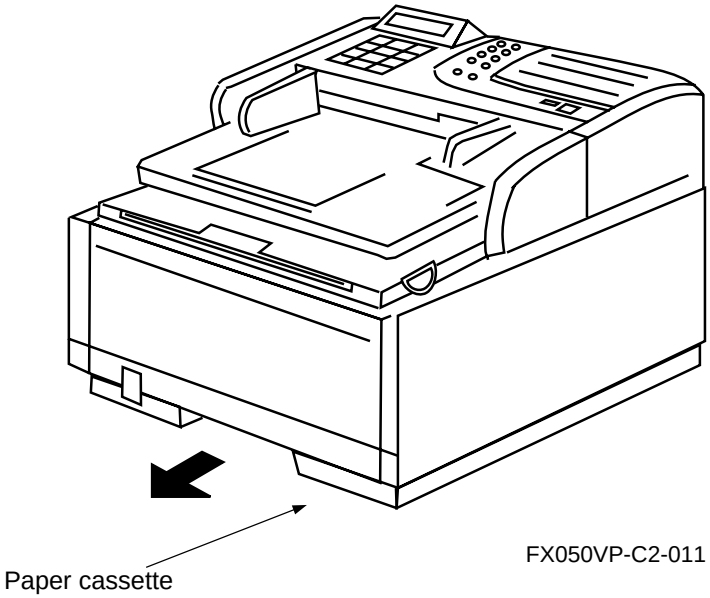


Figure 2.5.1.6 Recording Paper Cassette Installation (1)

- Sheets must not exceed the paper full marker of the new paper limit indication. If excessive sheets are set, it will cause paper jams.
- After loading the new paper, push it forward into the slot at the front of the facsimile until it locks.

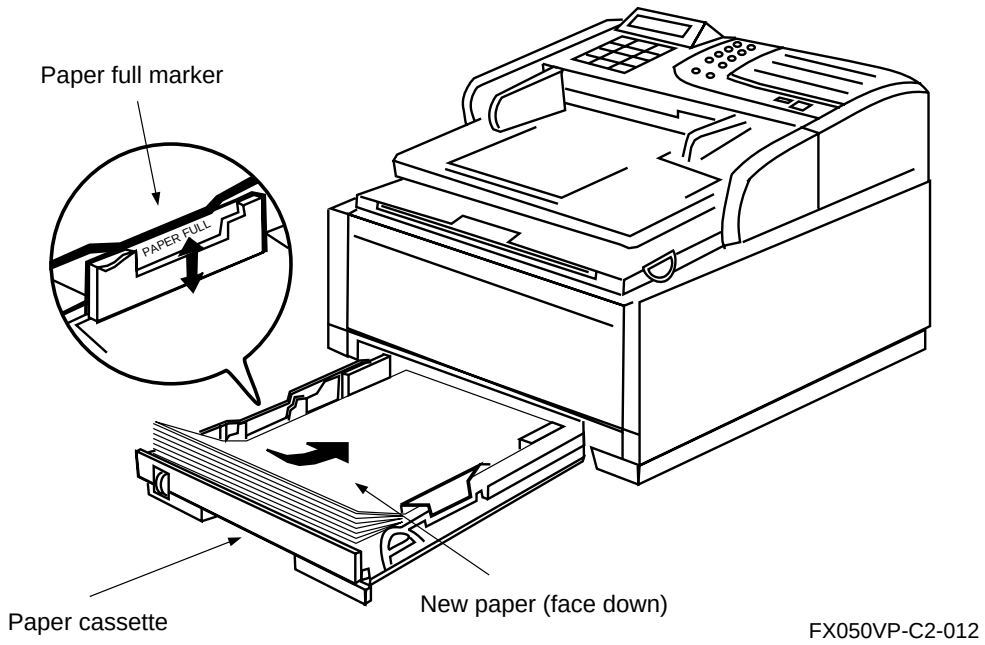


Figure 2.5.1.7 Recording Paper Cassette Installation (2)

(4) Document stacker

- Hang the document stacker onto hanging position.

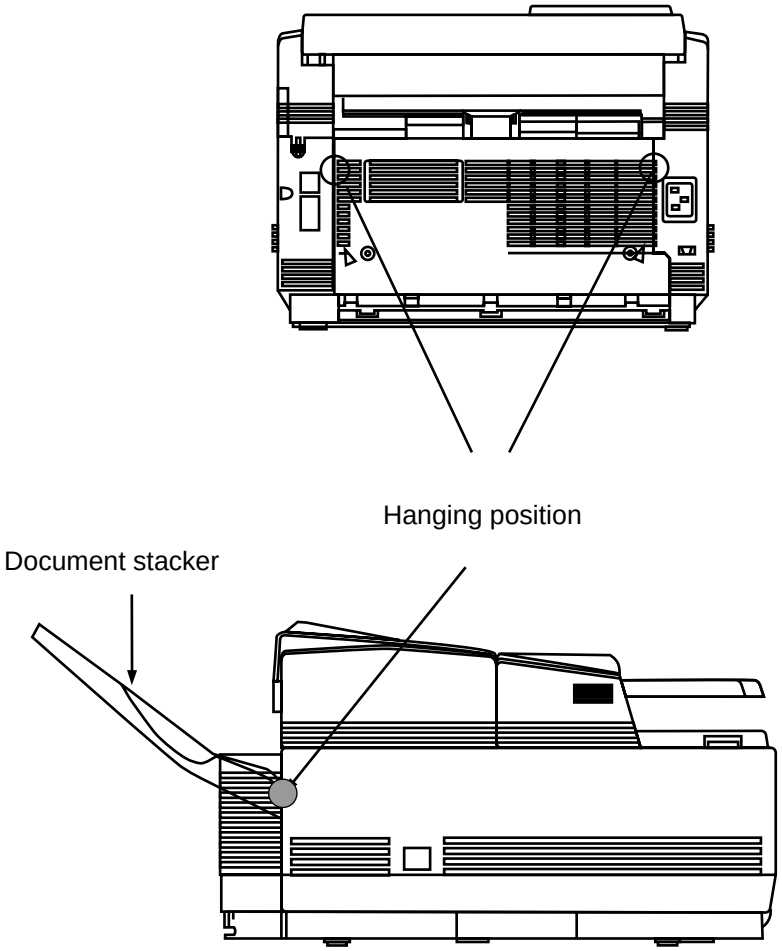


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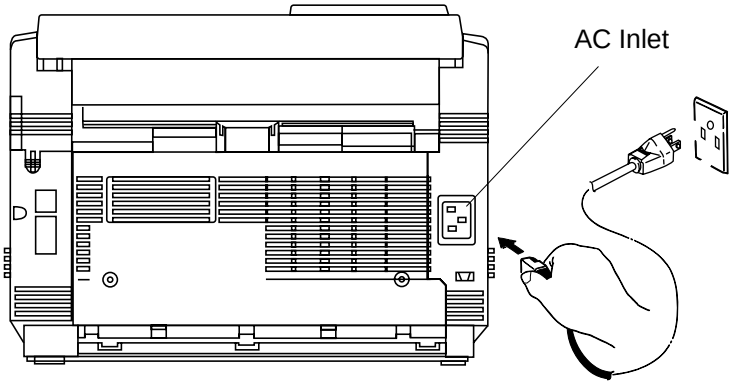
Figure 2.5.1.8 Document Stacker Installation

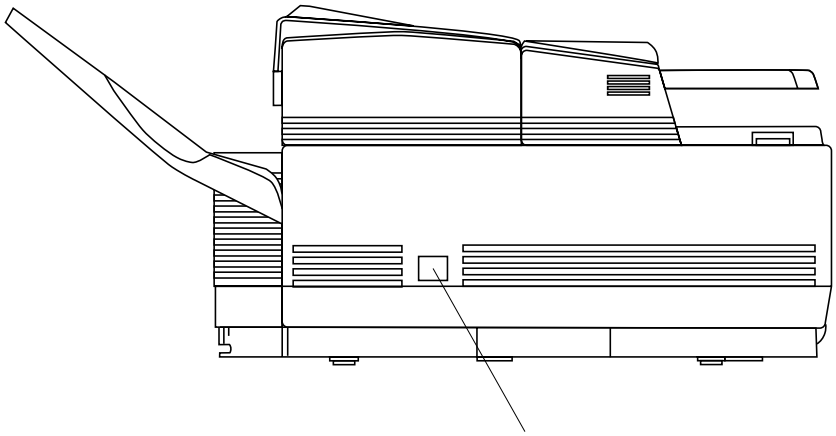
2.6 AC Cord Connection

The power supply is provided as follows.

Nominal input voltage 120VAC (Voltage range 102 to 127VAC)
Nominal input voltage 230VAC (Voltage range 198 to 250VAC)

Check whether the AC voltage of your input is within the above-mentioned voltage range and if so, check that the power switch is turned OFF. After turning off the power switch, connect the female plug of the AC cord to the machine and insert the male plug of the AC cord to the inlet receptacle. Turn the power switch ON and check that the display shows "(Time)" message indicating the standby mode.





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2.7 Telephone and Line Connections

(1) Procedure

- Connect the lines.

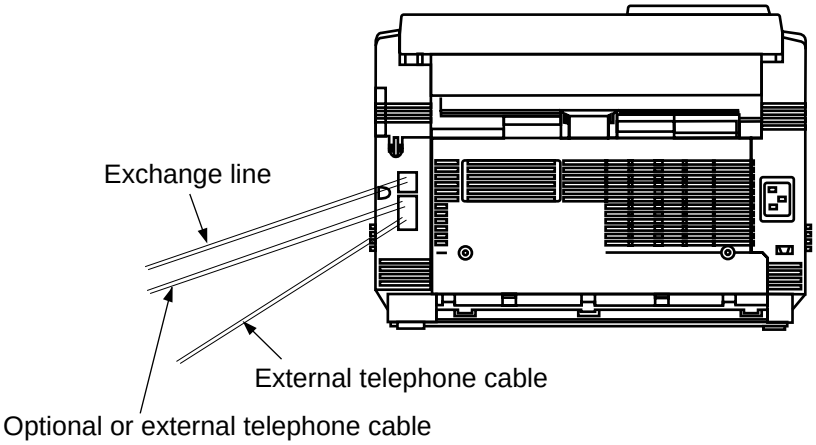


Figure 2.7.1 Telephone and Line Connections

2.8 Packing for Shipment

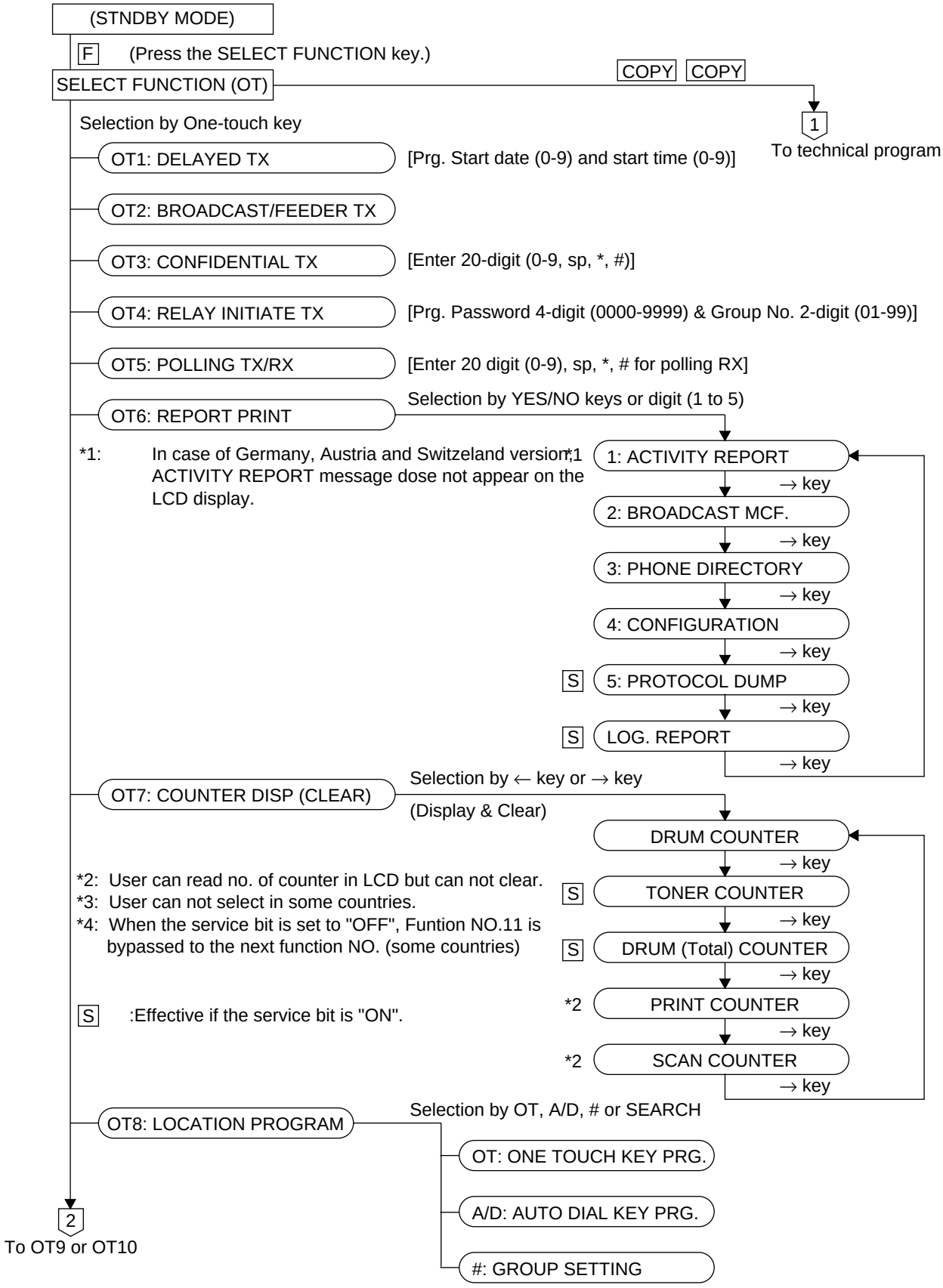
CAUTION: When packing the OKIFAX 5250/5400 for shipment, REMOVE THE IMAGE DRUM AND TONER FROM THE UNIT AND SHIP SEPARATELY!
Failure to do this will result in damage to the machine."

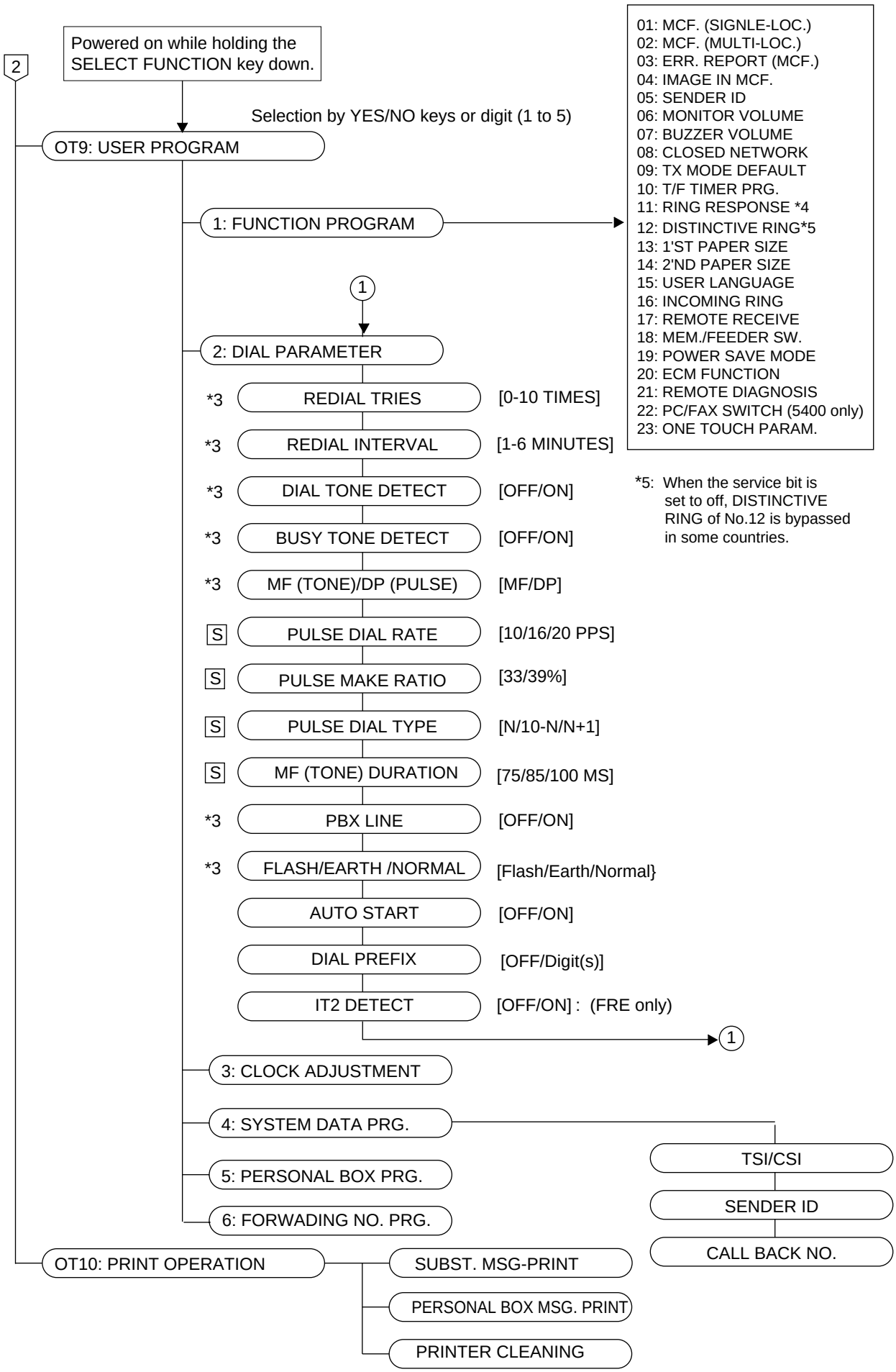
B. Programming and Initial Settings

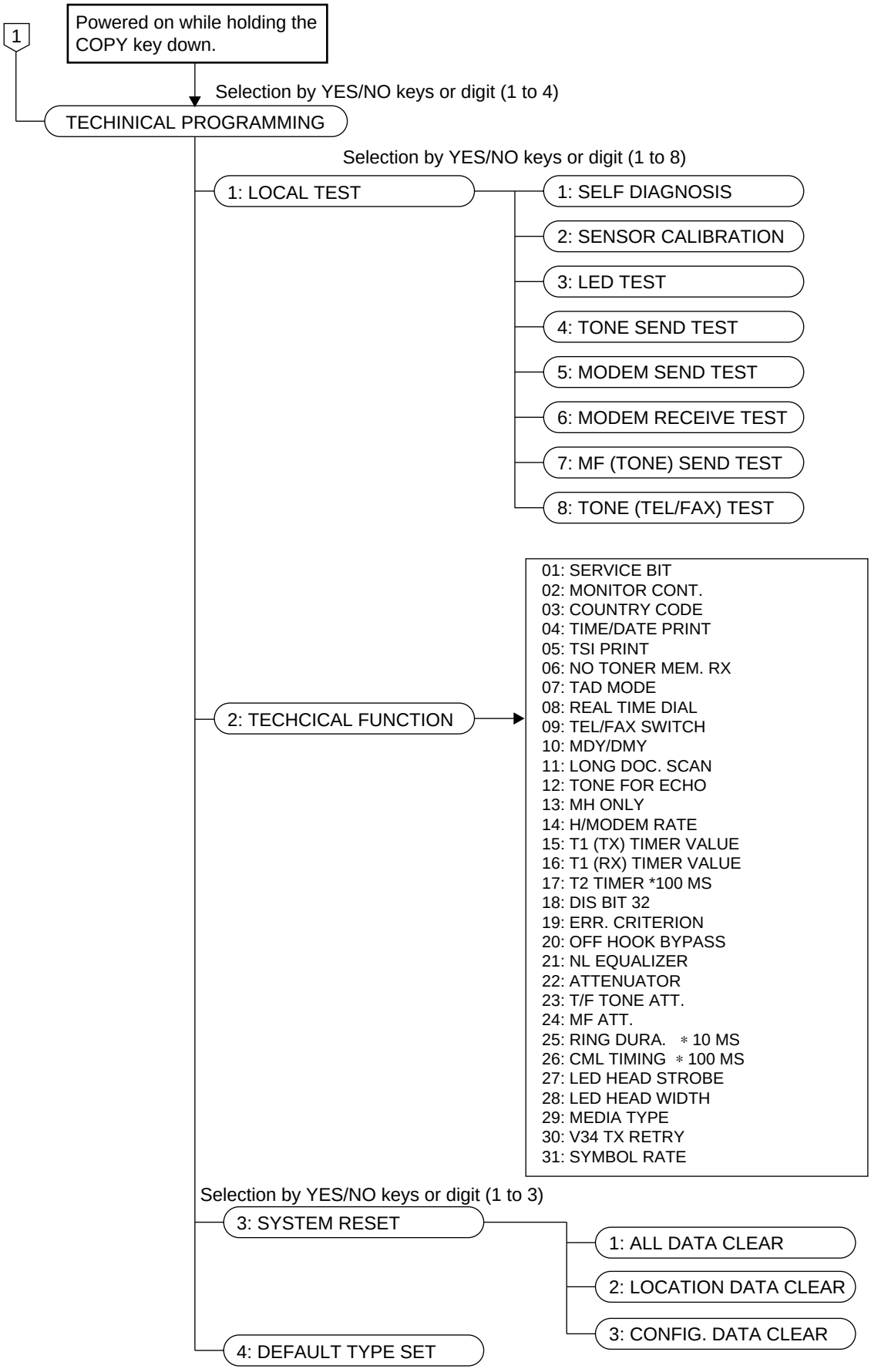
2.9 Initial Settings

2.9.1 General Procedure of Key Operation

Figure 2.9.1 shows the general procedure of key operation.


(STNDBY MODE)
F (Press the SELECT FUNCTION key.)
SELECT FUNCTION (OT)
COPY COPY
1
To technical program
Selection by One-touch key
OT1: DELAYED TX
[Prg. Start date (0-9) and start time (0-9)]
OT2: BROADCAST/FEEDER TX
OT3: CONFIDENTIAL TX
[Enter 20-digit (0-9, sp, *, #)]
OT4: RELAY INITIATE TX
[Prg. Password 4-digit (0000-9999) & Group No. 2-digit (01-99)]
OT5: POLLING TX/RX
[Enter 20 digit (0-9), sp, *, # for polling RX]
OT6: REPORT PRINT
Selection by YES/NO keys or digit (1 to 5)
*1: In case of Germany, Austria and Switzeland version, *1 ACTIVITY REPORT message dose not appear on the LCD display.
*1 1: ACTIVITY REPORT
→ key
2: BROADCAST MCF.
→ key
3: PHONE DIRECTORY
→ key
4: CONFIGURATION
→ key
S 5: PROTOCOL DUMP
→ key
S LOG. REPORT
→ key
OT7: COUNTER DISP (CLEAR)
Selection by ← key or → key
(Display & Clear)
DRUM COUNTER
→ key
*2: User can read no. of counter in LCD but can not clear.
*3: User can not select in some countries.
*4: When the service bit is set to "OFF", Funtion NO.11 is bypassed to the next function NO. (some countries)
S TONER COUNTER
→ key
S DRUM (Total) COUNTER
→ key
S :Effective if the service bit is "ON".
*2 PRINT COUNTER
→ key
*2 SCAN COUNTER
→ key
OT8: LOCATION PROGRAM
Selection by OT, A/D, # or SEARCH
OT: ONE TOUCH KEY PRG.
A/D: AUTO DIAL KEY PRG.
#: GROUP SETTING
2
To OT9 or OT10


Powered on while holding the SELECT FUNCTION key down.
2
Selection by YES/NO keys or digit (1 to 5)
OT9: USER PROGRAM
1: FUNCTION PROGRAM
01: MCF. (SIGNLE-LOC.)
02: MCF. (MULTI-LOC.)
03: ERR. REPORT (MCF.)
04: IMAGE IN MCF.
05: SENDER ID
06: MONITOR VOLUME
07: BUZZER VOLUME
08: CLOSED NETWORK
09: TX MODE DEFAULT
10: T/F TIMER PRG.
11: RING RESPONSE *4
12: DISTINCTIVE RING*5
13: 1'ST PAPER SIZE
14: 2'ND PAPER SIZE
15: USER LANGUAGE
16: INCOMING RING
17: REMOTE RECEIVE
18: MEM./FEEDER SW.
19: POWER SAVE MODE
20: ECM FUNCTION
21: REMOTE DIAGNOSIS
22: PC/FAX SWITCH (5400 only)
23: ONE TOUCH PARAM.
*5: When the service bit is set to off, DISTINCTIVE RING of No.12 is bypassed in some countries.
1
2: DIAL PARAMETER
*3 REDIAL TRIES [0-10 TIMES]
*3 REDIAL INTERVAL [1-6 MINUTES]
*3 DIAL TONE DETECT [OFF/ON]
*3 BUSY TONE DETECT [OFF/ON]
*3 MF (TONE)/DP (PULSE) [MF/DP]
S PULSE DIAL RATE [10/16/20 PPS]
S PULSE MAKE RATIO [33/39%]
S PULSE DIAL TYPE [N/10-N/N+1]
S MF (TONE) DURATION [75/85/100 MS]
*3 PBX LINE [OFF/ON]
*3 FLASH/EARTH /NORMAL [Flash/Earth/Normal}
AUTO START [OFF/ON]
DIAL PREFIX [OFF/Digit(s)]
IT2 DETECT [OFF/ON] : (FRE only)
1
3: CLOCK ADJUSTMENT
4: SYSTEM DATA PRG.
TSI/CSI
SENDER ID
CALL BACK NO.
5: PERSONAL BOX PRG.
6: FORWADING NO. PRG.
OT10: PRINT OPERATION
SUBST. MSG-PRINT
PERSONAL BOX MSG. PRINT
PRINTER CLEANING


1
Powered on while holding the COPY key down.
Selection by YES/NO keys or digit (1 to 4)
TECHINICAL PROGRAMMING
Selection by YES/NO keys or digit (1 to 8)
1: LOCAL TEST
1: SELF DIAGNOSIS
2: SENSOR CALIBRATION
3: LED TEST
4: TONE SEND TEST
5: MODEM SEND TEST
6: MODEM RECEIVE TEST
7: MF (TONE) SEND TEST
8: TONE (TEL/FAX) TEST
2: TECHCICAL FUNCTION
01: SERVICE BIT
02: MONITOR CONT.
03: COUNTRY CODE
04: TIME/DATE PRINT
05: TSI PRINT
06: NO TONER MEM. RX
07: TAD MODE
08: REAL TIME DIAL
09: TEL/FAX SWITCH
10: MDY/DMY
11: LONG DOC. SCAN
12: TONE FOR ECHO
13: MH ONLY
14: H/MODEM RATE
15: T1 (TX) TIMER VALUE
16: T1 (RX) TIMER VALUE
17: T2 TIMER *100 MS
18: DIS BIT 32
19: ERR. CRITERION
20: OFF HOOK BYPASS
21: NL EQUALIZER
22: ATTENUATOR
23: T/F TONE ATT.
24: MF ATT.
25: RING DURA. * 10 MS
26: CML TIMING * 100 MS
27: LED HEAD STROBE
28: LED HEAD WIDTH
29: MEDIA TYPE
30: V34 TX RETRY
31: SYMBOL RATE
Selection by YES/NO keys or digit (1 to 3)
3: SYSTEM RESET
1: ALL DATA CLEAR
2: LOCATION DATA CLEAR
3: CONFIG. DATA CLEAR
4: DEFAULT TYPE SET

2.9.2 Technical Functions

This section explains setting items generally conducted by service personnel, not by users.

Table 2.9.1 shows the initial setting items and their purposes. (The default setting is different by the individual countries.)
Each item can be accessed by entering the corresponding service number on Technical Function.

The detailed procedures of the initial setting items will be explained on the following pages.

Note 1: S-ON: Effective if the service bit has been set to ON.
FP: Function program setting
TF: Technical function setting

Note 2: The fonts displayed on the LCD operation panel may differ from fonts written this manual.

Table 2.9.1 (1/6) Service Personnel Initial Settings

T.F. No.	Item	Specifications	Default
01	Service bit	Switching serviceman/user operation. ON : Service personnel's features are available. OFF : Service personnel's features are not available. To enable or disable the following functions: • Drum (Total, Print, Scan), and toner counter clear • Protocol dump • Dial parameters • etc	
02	Line monitor control	Changing the audible monitoring range. FP +06 (To select the loudness of monitoring) ON : Enable OFF : Disable ***Note:*** In case of transmission mode, the monitor will be available during dialling, but the monitor will be switched off automatically after the elapse of specified time (about 5 sec.). However, when TF02 is set to ON, the monitor is available during communication also.	
03	Country code	Selecting the following country code: USA, INT'L, GBR, IRL, NOR, SWE, FIN, DEN, GER, HUN, TCH, POL, SUI, AUT, BEL, HOL, FRE, ESP, ITA, GRE, AUS, NZL, SIN, HNG	
04	Time and date print	Enables or disables the function of printing local date and time at the top of the received page. OFF/ONCE/ALL selectable. OFF: Time and date are not printed. ONCE: Time and date are printed at the top of the first page only. ALL: Time and date are printed at the top of every page. ***Note:*** • Set at receiver.	
05	TSI print	Switches the function of printing TSI data from remote fax onto the received pages. TSI is printed at the leading edge of first reproduced copy. (Set at receiver.) When TF04 is set to "ALL", TSI is printed for the all received pages. ON : Enable OFF : Disable (Reference) TSI; Transmitting Subscriber Identification	

Table 2.9.1 (2/6) Service Personnel Initial Settings

T.F. No.	Item	Specifications	Default
06	No-toner memory reception	Enables or disables the memory reception when the fax is in no toner condition. ON : The messages are printed when toner has been newly supplied or an operator performs the memory operation (OT10). OFF : The messages are printed in the print mode. But print quality is not guaranteed.	
07	TAD mode (For external telephone answering device.)	Switches an automatic voice message response to the calling station. TAD mode is of two types (TYPE1/TYPE2). OFF/TYPE1/TYPE2 selectable. TYPE1 means: 1. RING comes. 2. The TAD answers, returns the recorded voice message in TAD to calling party. 3. The FAX machine will continue to detect CNG signal while TAD works. 4. If the FAX machine detects CNG signal, the fax will go into normal receiving mode. 5. Even though the fax does not detect CNG signal, the fax will go to receiving mode in hook-on condition. TYPE2 means: The function from No. 1 to No. 4 of upper TYPE2 are the same as TYPE1. 5. If the fax does not detect CNG signal during working of TAD, the machine will go to standby mode.	
08	Real time dialing	Enables or disables the real time dialling. 3 types selectable. (OFF/TYPE1/TYPE2) TYPE1: Real-time dialling is available when the optional telephone handset is OFF-HOOK. TYPE2: Real-time dialling is available when the optional telephone handset is OFF-HOOK or HOOK key is pressed.	
09	TEL/FAX switching	Enables or disables the TEl/FAX automatic switching. ON : Enable OFF : Disable (Related item: FP10, TF23)	
10	MDY/DMY	Switches LCD display and report print from month/day/year to day/month/year or vice versa. MDY/DMY selectable.	

Table 2.9.1 (3/6) Service Personnel Initial Settings

<table>
<tr><th>T.F. No.</th><th>Item</th><th>Specifications</th><th>Default</th></tr>
<tr><td>11</td><td>Long document SCAN</td><td>Switches the function of transmitting long-size document (more than 380 mm).

ON : Unlimited (1500 mm)
OFF : 380 mm.</td><td></td></tr>
<tr><td>12</td><td>Tone for Echo</td><td>Switches the function to apply to poor lines with echo in overseas transmission, etc.

ON: Enables
OFF: Disables

<table><tr><td>Echo Protection</td><td>OFF</td><td>ON</td></tr><tr><td>Ignore 1st DIS</td><td>OFF</td><td>ON</td></tr><tr><td>CED-DIS timer</td><td>75 ms</td><td>1.5 sec</td></tr><tr><td>Tone for echo</td><td>OFF</td><td>ON</td></tr></table>
(TF-12 table)</td><td></td></tr>
<tr><td>13</td><td>MH only</td><td>Switches the function of limiting image compression only to the MH codes.

ON : Coding scheme is MH only. When the receiving image data is affected by noise on the telephone line.
OFF : Any of MH, MR and MMR.</td><td></td></tr>
<tr><td>14</td><td>High-speed modem rate</td><td>Specifies the modem’s starting speed, 33.6K, 28.8K, 14.4k, 9.6k, or 4.8kbps.

Note: 33.6 kbps (V.34) operation is available when V.34 optional Modem board is installed in 5400 only</td><td></td></tr>
<tr><td>15</td><td>T1 (TX), timeout value</td><td>T1 (TX) is a time to detect up to 3 flags of DIS sent from a called fax machine.
Registers the time duration (in seconds) for which the fax waits for the remote station’s answer.
This timer starts when the last dialled digit has been sent in the automatic transmission mode.

* Selects the 3 digit timer
010 to 255 sec selectable.(in one second steps)</td><td></td></tr>
<tr><td>16</td><td>T1 (RX), timeout value</td><td>T1 (RX), timeout value (later)
Registers the time duration (in seconds) for which the fax waits for the remote station's answer of individual country's specification. T1 timer starts after the DIS is transmitted. If T1 times out, the fax disconnects the line.

* Selects the 3 digit timer
010 to 255 sec selectable. (in one second steps)</td><td></td></tr>
</table>

Table 2.9.1 (4/6) Service Personnel Initial Settings

T.F. No.	Item	Specifications	Default
17	T2, timeout value	T2, timeout value Registers the time duration (in seconds) for which the receiving fax detects the EOL (End Of Line) signal during phase C. The fax will disconnect the line when EOL cannot be detected within T2. * Selects the 3 digit timer 001 to 255 selectable. (in 100ms steps) For example: 060 x 100 ms =6 s	
18	DIS bit32	Selects whether a called fax should transmit DIS bit 32 or not. ON : Transmits a bit 32. OFF: Does not transmit DIS bit 32. When OFF, the following functions will not be supported: • Reception of Extra Fine (8 x 15.4 line/mm) • 300 dpi • SEP/SUB frame ***Note:*** To improve compatibility between this fax machine and other company's fax machines. If communication error occurs frequently when a fax sender is an older version.	
19	Error criterion	Registers the threshould value whether to transmit RTN or MCF signal when the error occurs in received data. 00% to 99% selectable. (in one percent steps)	
20	Off-hook bypass	Switches the function of maintaining communication without hooking up the telephone set in normal testing etc. ON : Enable OFF: Disable	
21	NL equalizer	Selects equalization for the following cable lengths: 0 km/1.8 km/3.6 km/ 7.2 km selectable. ***Note:*** Relative to 1700Hz for length of 0.4mm diameter cable. Equalizer level is the difference of gain of equalized signal between 0.3 kHz and 3.4 kHz.	

Table 2.9.1 (5/6) Service Personnel Initial Settings

T.F. No.	Item	Specifications	Default
22	Modem attenuator	Adjusts the attenuation (dB) for the message send signal power level. Adjusting value is 0 to 15 dB in one dB steps. Since the maximum send signal power level (dB) of the fax is at 0 dB, you can select 0 dB to -15 dB in one dB steps for the send signal power level. 0 to 15 dB. selectable ***Note:*** The send signal power level should meet your country's regulation. Some countries may specify the power level at a telephone exchange. In that case, you should substract the specified level from the line cable attenuation to determine the send level of your fax.	
23	T/F tone attenuator (for TEL/FAX SW)	Adjusts the attenuation (dB) for the quasi-ring back tone send signal of TEL/FAX switching. Adjusting value is 0 to 15 dB in one dB steps.	
24	MF attenuator	Adjusts the attenuation (dB) for the send MF tone power level. Adjusting value is 0 to 15 dB in one dB steps.	
25	Ring duration detection time	Selects the minimum ring detection time to meet country's requirements. Adjusting time is 100 MS to 990 MS in 10 MS steps. 10 to 99 selectable. For example: (120 ms) 12 x 10 ms = 120 ms	
26	CML timing	Selects the time from end of ring to CML-ON. Adjusting time is 100 MS to 1900 MS in 100 MS steps. 0 to 19 selectable. For example: (300 ms) 03 x 100 ms = 300 ms	
27	Strobe for LED head	Setting of LED print head strobe signals (00000-11111). Selection of strove width in LED head. "00000" is darkest and "11111" is lightest. ***Note 1:*** When the rank marking of the new replaced LED print head (new part) is same as that of the old used LED print head (old part), you do not always have to set the LED print head strobe signal. ***Note 2:*** Intensity ranking is determined by the first, second and third digits from the right on the LED print head serial number. (i.e. in .... 212, 212 is the intensity ranking.)	

Table 2.9.1 (6/6) Service Personnel Initial Settings

T.F. No.	Item	Specifications	Default

Setting of Technical Function No. 27

Setting / Rank Marking	MSB ↑ LSB																														
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1
		0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
		0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
		0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
291–313										*																							
269–290											*																						
248–268												*																					
229–247													*																				
212–228														*																			
196–211															*																		
181–195																*																	
168–180																	*																
155–167																		*															
143–154																			*														
132–142																				*													
122–131																					*												
113–121																						*											
105–112																							*										
100–104																								*									

28	Head width	Head width You should confirm the head width by the following table, and then select it by this setting. Head width is two types (TYPE1/TYPE2). Setting: TYPE 1 — Head width: 2496 dots — Head label: 1228G1 Setting: TYPE 2 — Head width: 2560 dots — Head label: 1104G2	
29	Media type	Selects the recording paper according to its quality. Medium, Medium-heavy and Heavy selectable.	
30	V34 TX RETRY (5400 only)	Selects whether a machine should learn V34 Parameters and retry or not, when V34 Communication Error occurs. ON: Remembered OFF: Not remembered	
31	Symbol rate (5400 only)	Symbol rate Selects the V.34 modem symbol rate when V.34 modem board is installed. 2400, 2800, 3200, 3429 selectable.	

1) TEL/FAX automatic switching

This function is used for the purpose of TEL/FAX automatic switching as follows.

(1) If the machine detects a call with a CNG signal indicating an auto send facsimile call, it starts an automatic document receiving operation.

(2) If machine detects a call without a CNG signal, machine generates the buzzer sounds as a telephone call. The calling person can hear a “ring back” tone within a predetermined time.

If the operator at the called side does not lift the handset within the predetermined time, the machine automatically starts a document receiving operation.
Voice conversation will automatically be available through the internal handset by lifting up the handset while the call buzzer is sounding.

Note: 1: The predetermined time is selectable between 20 or 35 sec.
(Function program No. 10)

2: No ringing signal is sent to the external telephone handset.

3: Choice of message sending level. The level is selectable from 0 to 15 dB in one dB step.
(Technical function No. 23)

4: TEL/FAX mode is available by Technical Function No.9.

2) TAD mode

TAD: Telephone Answering Device

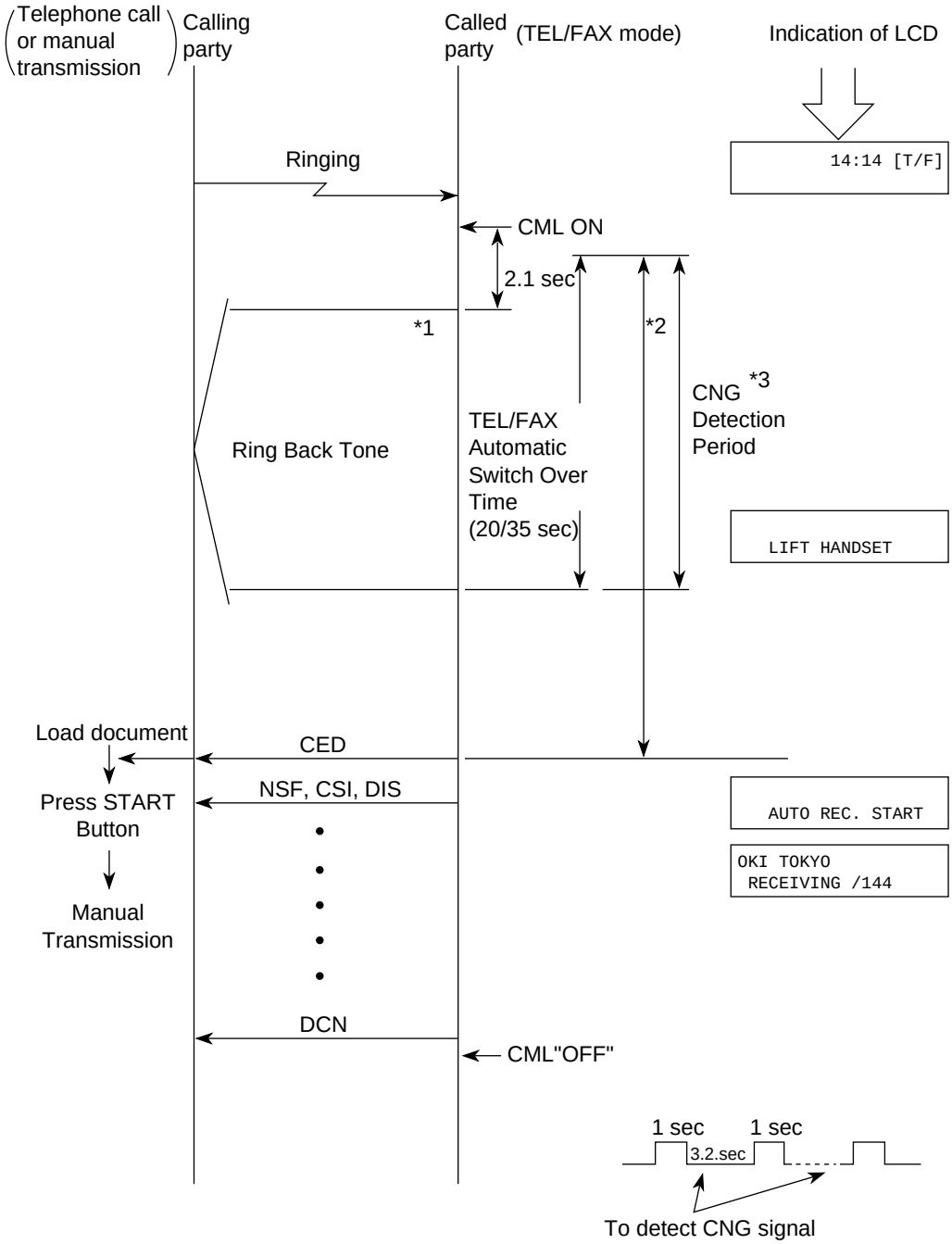
TAD can be connected to external telephone terminal to record your messages.

TAD records your speech and switches an automatic voice message response to the calling station.

***Note 1*:** A choice of TAD mode is available by Technical Function No. 07.

***Note 2*:** The predetermined time is selectable between 20 or 35 sec.

- TEL/FAX mode flow chart



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[Notes]

*1: Ring Back Tone — 1 sec. ON, 3.2 sec. OFF

*2: When you want to talk by phone, pick up handset.

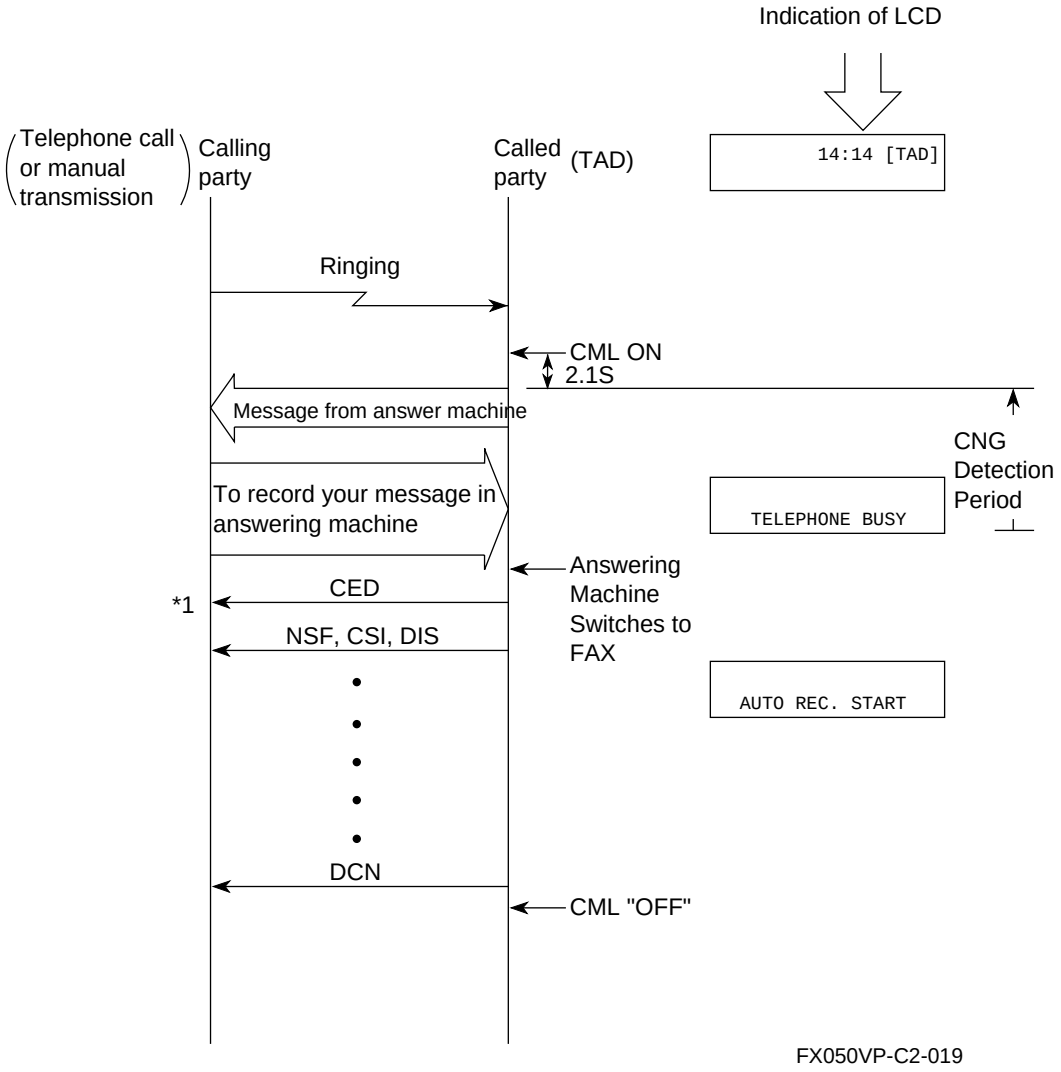
*3: The called party can send CED to the calling party immediately to start FAX communication if the CNG is detected during the period.

*4: If the fax does not detect CNG signal during working of TEL/FAX mode, LCD display indicates “LIFT HANDSET”.

- TAD mode flow chart

  In case of TYPE 1;

  Even though the fax does not detect CNG signal, the fax will go to receiving mode.

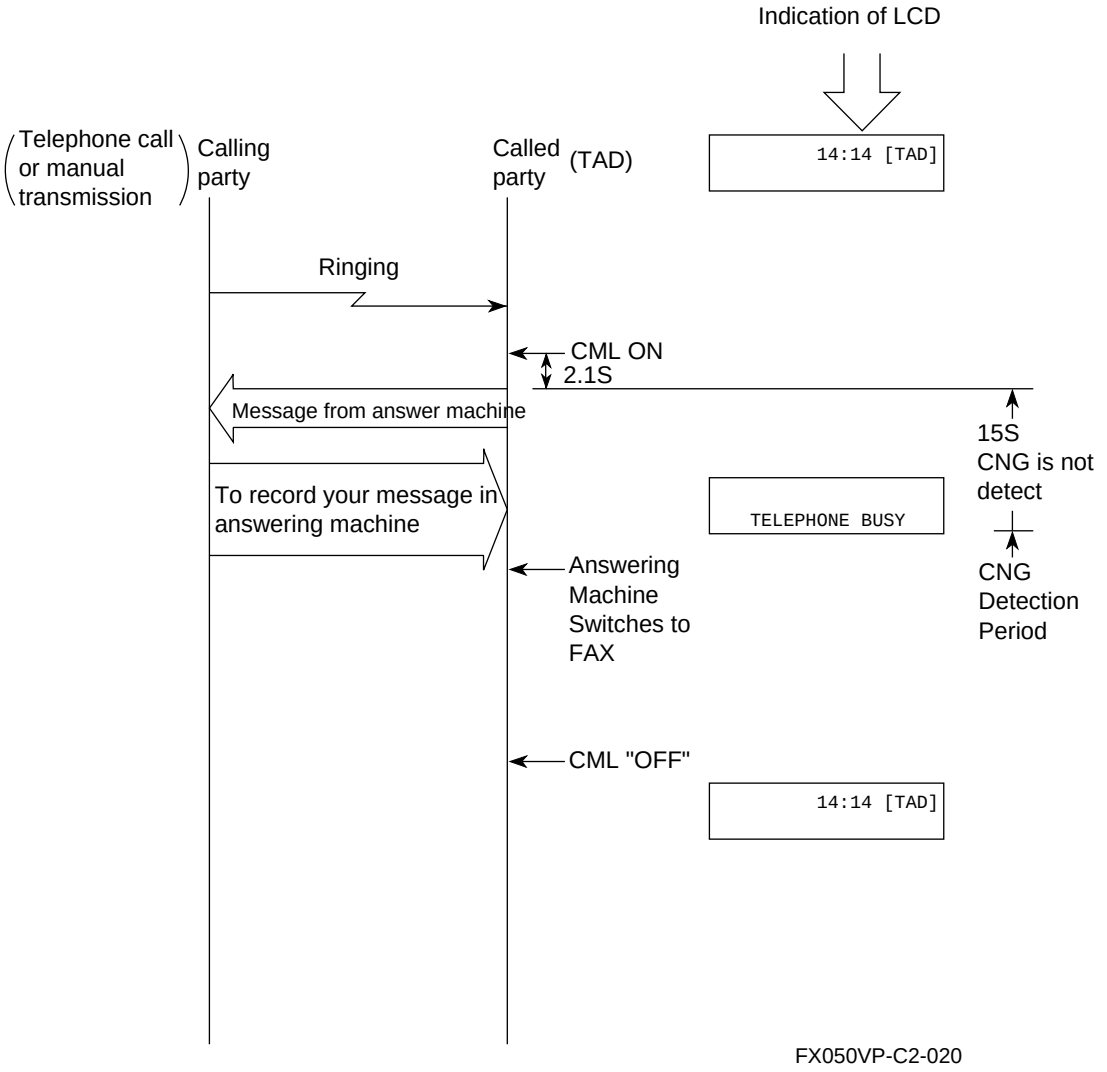


*1 To enable the manual TX mode.
Load document → Press START button → Manual transmission

- TAD mode flow chart

  In case of TYPE 2:

  If the fax does not detect CNG signal during working of TAD, the machine will go to standby mode.



2.9.3 Technical Functions Example

Note: The fonts displayed on the LCD operation panel may differ from the fonts written this manual.

(1) Service Bit Setting

1) Purpose

To enable or disable the following functions:

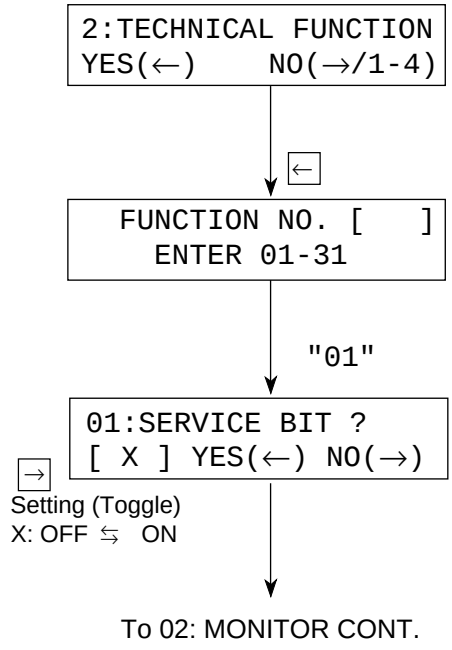
- Drum and toner counter display (clear)
- Service default report printing
- Protocol dump report printing
- Ring response time setting
- Dial parameters setting
- Printer counters clearing

2) Procedure

Operations:

- To bring the LCD up to the desired message press SELECT FUNCTION key once, COPY key twice and "2"key. (In case of no message in memory)
- Press ← key.
- Service bit setting is T.F. No. 01. Enter "01"

The display shows:



Reference: See Figure 2.9.1 on the next page for the general operation flow.

(2) Technical functions

Operations:

- Press SELECT FUNCTION key.
- Press COPY key twice.
- Press ← key.
- Press → key.
- Press ← key.
- Enter two-digit function number, then the display will show the set item corresponding to the number entered. If you want to set up all or several items starting with 01, then enter 01.

The display shows:

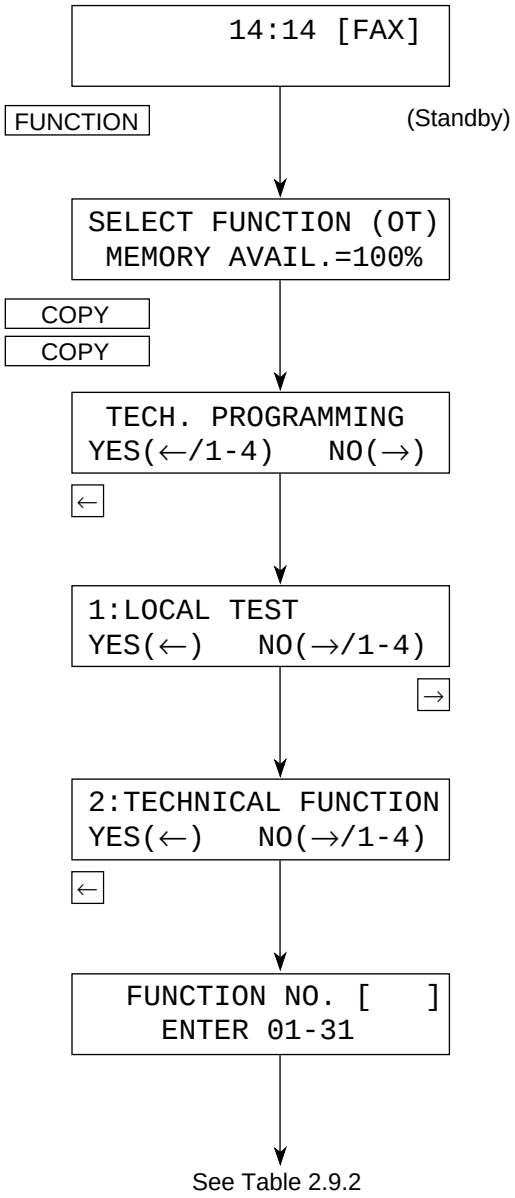


Table 2.9.2 (1/5) Technial Functions

T.F. No.	Name of Function	The Display Shows
01	Service bit	01:SERVICE BIT [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
02	Line monitor control	02:MONITOR CONT. [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
03	Country code	03:COUNTRY CODE [X] YES(←) NO(→) [→] Setting X: INT'L→ GBR→ •••••USA
04	Time and date print	04:TIME/DATE PRINT [X] YES(←) NO(→) [→] Setting X: OFF→ ONCE→ →ALL
05	TSI print	05:TSI PRINT [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
06	No toner memory reception	06:NO TONER MEM. RX [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
07	TAD mode (For external telephone answering device.)	07:TAD MODE [X] YES(←) NO(→) [→] Setting X: OFF→ TYPE1→ →TYPE2
08	Real-time dialling	08:REAL TIME DIAL [X] YES(←) NO(→) [→] Setting X: OFF→ TYPE1→ →TYPE2
09	TEL/FAX switching	09:TEL/FAX SWITCH [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
10	MDY/DMY format	10:MDY/DMY [X] YES(←) NO(→) [→] Setting (Toggle) X: MDY ⇆ DMY
11	Long document transmission	11:LONG DOC. SCAN [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON

Table 2.9.2 (2/5) Technial Functions

T.F. No.	Name of Function	The Display Shows
12	Tone for echo (echo protection)	12:TONE FOR ECHO [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
13	MH only	13:MH ONLY [X] YES(←) NO(→) [→] Setting (Toggle) X: OFF ⇆ ON
14	High-speed modem rate	14:H/MODEM RATE [X] YES(←) NO(→) [→] Setting X: 4.8k → 9.6k → → 14.4k
15	T1 (TX), timeout value (XTTO value)	15:T1(TX)TIMER VALUE [X] YES(←) NO(→) [←] To 16: T1(RX) TIMER VALUE X: 010 - 255 sec [→] 15:T1(TX)TIMER VALUE [060] ENTER 010-255 3-digit timer entered. 15:T1(TX)TIMER VALUE [059] YES(←) NO(→) [→] (Example)
16	T1 (RX), timeout value	16:T1(RX)TIMER VALUE [X] YES(←) NO(→) [←] To 17: T2 TIMER VALUE X: 010 - 255 sec [→] 16:T1(RX)TIMER VALUE [_] ENTER 010-255 3-digit timer entered. 16:T1(RX)TIMER VALUE [059] YES(←) NO(→) [→] (Example)

Table 2.9.2 (3/5) Technial Functions

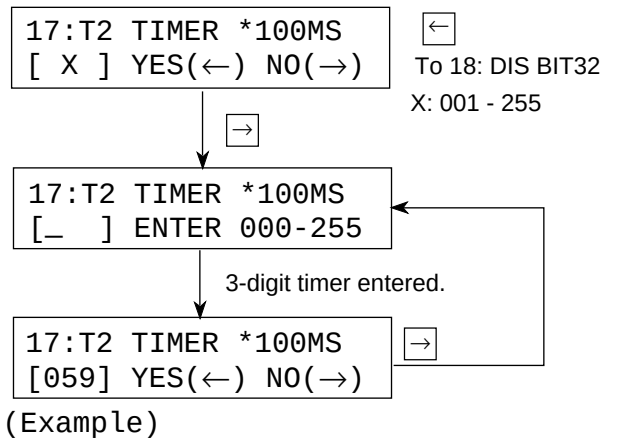
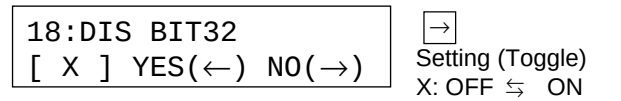
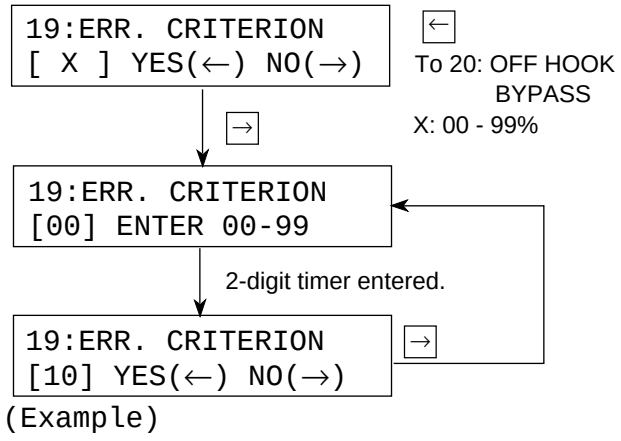
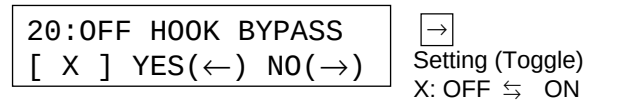
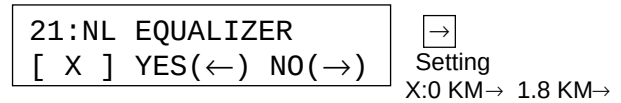
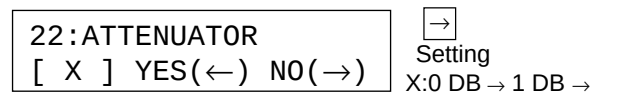
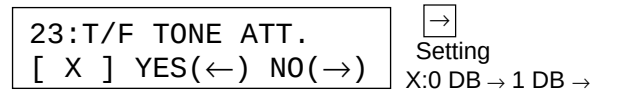
T.F. No.	Name of Function	The Display Shows
17	T2, timeout value	
18	DIS bit 32	
19	Error criterion	
20	Off-hook bypass	
21	NL equalizer	
22	Modem attenuator	
23	T/F tone attenuator (for TEL/FAX switch)	

Table 2.9.2 (4/5) Technial Functions

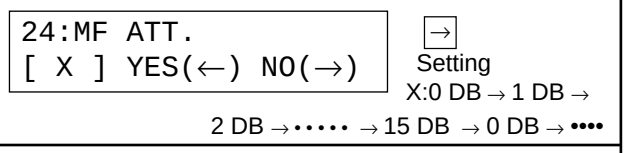
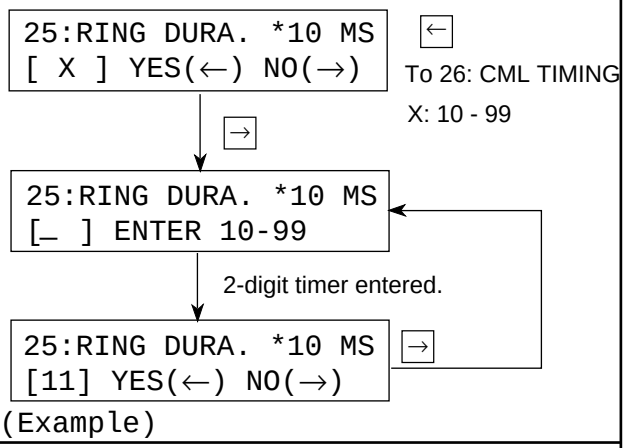
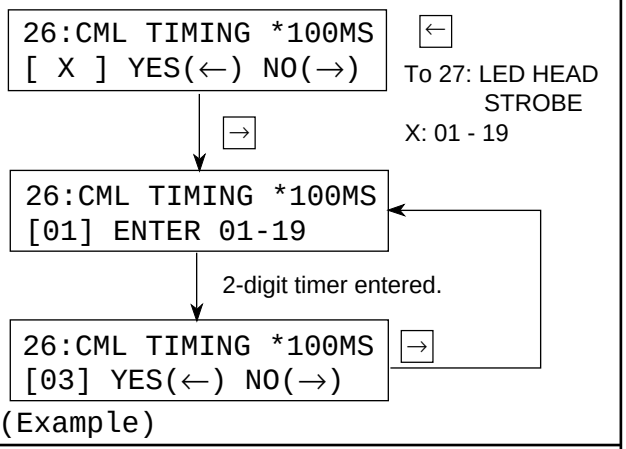
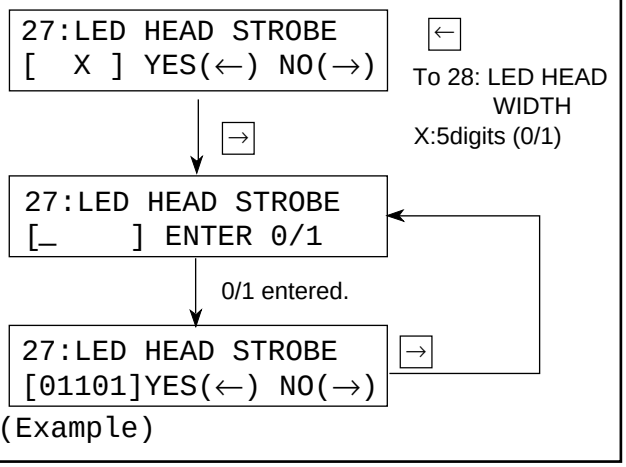
T.F. No.	Name of Function	The Display Shows
24	MF attenuator	
25	Ring duration detection time	 (Example)
26	CML timing	 (Example)
27	LED Head strobe	 (Example)

Table 2.9.2 (5/5) Technial Functions

T.F. No.	Name of Function	The Display Shows
28	LED Head Width	28:LED HEAD WIDTH [X] YES(←) NO(→) [→] Setting (Toggle) X: TYPE1 ⇆ TYPE2
29	Media type	29:MEDIA TYPE [X] YES(←) NO(→) [→] Setting X: M → MH → H
30	V34 TX RETRY (5400 only)	30:V34 TX RETRY [X] YES(←) NO(→) [→] Setting (Toggle) X: ON ⇆ OFF
31	Symbol rate (5400 only)	31:SYMBOL RATE [X] YES(←) NO(→) [→] Setting X:3429 → 2400 → 2800 → 3200 → 3429

2.9.4 User's Functions

This section explains the items usually set up by general users.

Table 2.9.3 shows the initial setting items and their purposes.

Each F.P.can be accessed by entering the corresponding function number on Function Programming.

The detailed procedure of the initial setting items will be explained on the following pages.

***Note*:** S-ON: Effective if the service bit has been set on.
FP: Function program setting
TF: Technical function setting

1) User's Functions

Table 2.9.3 (1/6) User's Functions

No.	Item	Specifications
1	Auto dial 1) One-touch dial	15/30 one-touch keys are provided. 5250/5400 Max. 32 digits for each location number. In addition to an ordinary location number, another alternate location number can be registered in to each one-touch key. Purposes of this alternate location number: 1) Fax dial A fax number is registered as an alternate location number. When a call to the first location number is not answered, the alternate location number will be automatically dialled.
	2) Two-digit dial	64/99 different codes are provided. 5250/5400 * Two- digit location code: 01 to 64/99 Max. 32 digits for each location number.
	3) Keypad dial	With ten-key pad. Max. 40 digits for one operation
	4) Chain dial	The number of dialling digits can be expanded to longer digit numbers by chaining any number of the above 1), 2) and 3).
	5) Mixed dial	Type of dialling can be changed from pulse dial to tone dial halfway in dialling process. The changing point is specified by the * key. This feature is not available in all countries.
2	Manual dial	With a telephone handset.
3	Receive mode 1) Auto receive mode	Selectable by key operation.
	2) Manual recevice mode	Selectable by key operation.
	3) Telephone/fax automatic switchover	Selectable by key operation. The fax recognizes a fax call from a verbal call as follows: If the fax detects a call with a CNG signal, it starts an automatic document receive operation. If it detects a call without a CNG signal, it sounds the buzzer to indicate a voice call. Operator can answer the call by lifting the telephone handset. If he or she does not lift the handset within predetermined time (20 sec. or 35 sec.), the fax automatically starts a document receive operation. * FP + 10 (To determine the timer.) ***Note:*** Refer to page 2-28.

Table 2.9.3 (2/6) User's Functions

No.	Item	Specifications
4	Automatic redial	PTT parameter setting disables or enables this feature, and specifies redial times and redial intervals. * See 2.9.9 for the service bit condition depending on PTT parameters.
5	Last No. redial	"REDIAL" key is provided. There is no limit on number of repeat attempts. If machine is in Power Save mode (not available for US/CANADA version) manual redial with RE-DIAL key is not possible.
6	Group dial	• 10/20 dialling groups Max. 79/129 locations. 5250/5400 Grouping some one-touch keys and some two-digit auto dial codes to which telephone numbers have been assigned. This group setting makes broadcast operation simple.
7	Telephone directory and location ID (Alpha search)	In addition to fax numbers, an alpha/ numeric name can be assigned to each of one-touch keys and two-digit dial codes, 01 to 99. This name is called a location ID. Any location ID can be searched and displayed on LCD. Then direct dialling to the ID's station can be performed. There are two methods of searching: (1) Search based on the first character specified. (2) Searching by displaying all registered location IDs one after another in the lexicographical order. Location ID: Max. 15 characters
8	Voice request	A voice request from the transmitter is available only upon completion of the total message transmission. A voice request from the receiver is available at the end of each page being received.
9	Local copy	Printing resolution: Horizontal: 300 dpi Vertical: 7.7 or 15.4 line/mm or variable
10	Multiple local copy	Up to 99 copies.
11	Manual loading feeder	One single sheet from the feeder above the first recording paper cassette can be copied. Example of sheets:Transparency for an overhead projector

Table 2.9.3 (3/6) User's Functions

No.	Item	Specifications
12	Broadcast (Memory transmission)	Max. 89/134 remote locations can be specified by the following means: • One-touch keys (with of without a group list). • Two-digit auto dial codes. • 10 keypad dial number One delayed time of calling for this feature can be specified unless any other delayed calling feature has been specified. The combination 20 delayed broadcast and one immediate calling of broadcast is possible. However, the setting of delayed transmission and delayed broadcast must not exceed the total number of specified time which is different according to the machine. For example, 5 specified times: 2 specified time of delayed broadcast and 3 specified time of delayed transmission. When multiple locations are specified for one broadcast (1) The fax prints a broadcast entry report, if specified in operating sequence. (2) The fax can print a broadcast confirmation report. (FP + 02 To enable or disable this printout)
13	Delayed transmission from the memory	The fax can automatically transmit documents at five specified times from the memory.
14	Polling transmission (To be polled)	Document(s) placed on the feeder or in the memory can be collected by a remote station.
15	Polling reception	The fax can collect documents from one remote station.
16	Transmission preparation (Hopper)	An operator can prepare documents for transmission even while the fax is enagaged in message reception. They will be automatically transmitted upon completion of the reception. An operator can also prepare documents for transmission during transmission from memory.
17	No toner reception	The fax can temporarily store received messages in memory when toner has run out. The messages are printed when toner has been newly supplied or an operator presses the SELECT FUNCTION key followed by the one-touch key No. 10 under the LCD message “MSG. IN MEMORY/REPLACE TONER CART.” in the standby mode. * TF + 06 (To enable or disable this function)

Table 2.9.3 (4/6) User's Functions

No.	Item	Specifications
18	Smooth printing	The documents received in the STD mode can be printed at the FINE resolution by means of generating one line based on the two consecutive original lines and printing it between them.
19	Dual Access	The documents for transmission can be read into the memory even while the fax is engaged in another memory transmission, reception in the ECM or non-ECM mode. 1) Operation of memory transmission while the fax is engaged in a communication (memory TX, memory RX or print mode RX). 2) Copy while the fax is engaged in a communication (memory TX or memory RX). ***Note:*** Condition for operation a) Copy is invalid when the machine is already engaged in an operation which is using or could use the printer. 3) Call reception while the fax is engaged in scanning documents for memory transmission when the auto receive mode is in “FAX” or “T/F” mode, although “TEL” mode is not valid. Refer to sub-section 2.9.7 for dual access operation. For the patterns of dual access refer to the following, Dual Access Combination Table.

Table 2.9.3 (5/6) User's Functions

No.	Item	Specifications

Dual Access Combination Table (1/2)

Machine Status / Dual Access		Program-ming	TX from Feeder		Scanning to Memory		TX from Memory			RX (non-ECM/ECM)				
										Paper		Memory		
			During Scanning	After Scanning	During Prefeeding	During Scanning	During Dialing	During Hand-shaking	During Trans-mitting Message	During Hand-shaking	During Receiving Message	During Hand-shaking (~1st ϕ C)	During Hand-shaking (~1st ϕ C)	During Receiving Message
Programming		\	×	×	×	×	×	×	×	×	×	×	×	×
TX from Feeder	Setting	×	\	○	\	\	○	○	○	○	○	○	○	○
	Dial & TX	×	\	\	\	\	\	\	\	\	\	\	\	\
Polling RX	Setting	×	×	×	×	×	×	×	×	×	×	×	×	×
	Dial & RX	×	\	\	×	×	\	\	\	\	\	\	\	\
Scanning to Memory		×	\	○	\	\	○	○	○	○	○	○	○	○
TX from Memory		×	\	\	×	×	\	\	\	\	\	\	\	\
Auto Answer	RX to Paper	×	\	\	○	○	\	\	\	\	\	\	\	\
	RX to Memory	×	\	\	○	○	\	\	\	\	\	\	\	\
	Poll TX	×	\	\	\	\	\	\	\	\	\	\	\	\
Manual Answer	RX to Paper	×	\	\	×	×	\	\	\	\	\	\	\	\
	RX to Memory	×	\	\	×	×	\	\	\	\	\	\	\	\
	Poll TX	×	\	\	×	×	\	\	\	\	\	\	\	\
Copy	Page by Page	×	\	×	\	\	×	×	×	×	×	○	○	○
Manual Message Print	Auto	×	×	×	○	○	○	○	○	\	\	○	○	○
	Manual	×	×	×	×	×	×	×	×	\	\	×	×	×
Manual Report Print	Auto	×	×	×	○	○	○	○	○	\	\	○	○	○
	Manual	×	×	×	×	×	×	×	×	\	\	×	×	×

<Note> ○ : Available × : Not available △ :Available with limitation

Table 2.9.3 (6/6) User's Functions

No.	Item	Specifications

Dual Access Combination Table (2/2)

Machine Status / Dual Access		Copy			Memory Reception Print				Report Printing			
		Page by Page	Multi-Sorting		Auto Matic		Manual		Auto Matic		Manual	
			During Scanning	During Printing	During Hopping	During Printing	During Hopping	During Printing	During Hopping	During Printing	During Hopping	During Printing
Programming		×	×	×	×	×	×	×	×	×	×	×
TX from Feeder	Setting	\	\	\	○	○	×	×	○	○	×	×
	Dial & TX	\	\	\	○	○	×	×	○	○	×	×
Polling RX	Setting	×	×	×	×	×	×	×	×	×	×	×
	Dial & RX	×	×	×	×	×	×	×	×	×	×	×
Scanning to Memory		\	\	\	○	○	×	×	○	○	×	×
TX from Memory		×	×	×	×	×	×	×	×	×	×	×
Auto Answer	RX to Paper	×	×	×	×	×	×	×	×	×	×	×
	RX to Memory	○	○	○	○	○	×	×	○	○	×	×
	Poll TX	×	×	×	×	×	×	×	×	×	×	×
Manual Answer	RX to Paper	×	×	×	×	×	×	×	×	×	×	×
	RX to Memory	×	×	×	×	×	×	×	×	×	×	×
	Poll TX	×	×	×	×	×	×	×	×	×	×	×
Copy	Page by Page	\	\	\	\	\	\	\	\	\	\	\
Manual Message Print	Auto	\	\	\	\	\	\	\	\	\	\	\
	Manual	\	\	\	\	\	\	\	\	\	\	\
Manual Report Print	Auto	\	\	\	\	\	\	\	\	\	\	\
	Manual	\	\	\	\	\	\	\	\	\	\	\

<Note> ○ : Available × : Not available

2) User's Initial Settings

Note: The fonts displayed on the LCD operation panel may differ from fonts written this manual.

2)-1 One Touch Key Operations

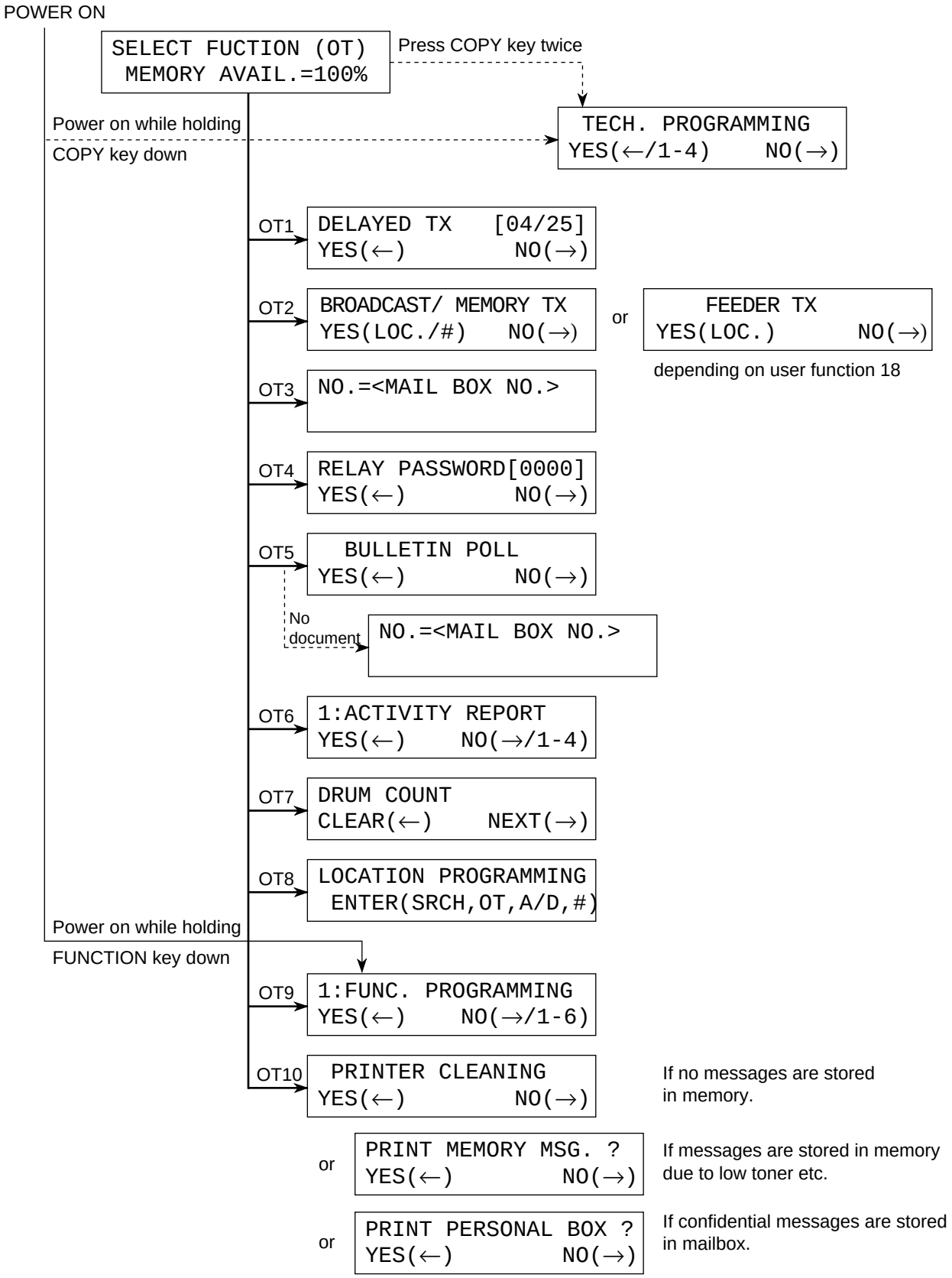


Table 2.9.4 (1/4) User's Initial Settings (One-touch key Program)

F+OT No.	Item	Specifications
1	Delayed transmission (Tx)	This function enters a message transmission time(s) and location(s) for execution at a specified time.
2	Broadcast/memory transmission	To make a one-time selection of the memory transmission mode. Max. 134 remote locations can be specified by the following means: • One-touch key (with of without a group list) • Two-digit auto dial code • Keypad dial number When multiple locations are specified for one broadcast, 1) The fax can print a broadcast confirmation report, if specified in operating sequence.
3	Confidential transmission	To program the mail box number 20 digits. Subaddressing is supported. Available remote station's mail box numbers: OKIFAX 2400/2600: 01 to 40 OKIFAX 1000: 01 to 16 OKIFAX 2300/OF-18/OF-150: 01 to 16 OF 38/OF-27: 01 to 64 OKIFAX 2350/OKIFAX 1050: 01 to 08 OKIFAX 2450: 01 to 16 OKIFAX 5200/5300: 01 to 08 OKIFAX 5500/5600: 01 to 16 OKIFAX 5400 01 to 16
4	Relay broadcast initiate transmission	This function automatically originates a message call via relay key station (which must be equipped with OKIFAX 2600, OF-38, OF-27 or equivalent) up to 120 locations for OKIFAX 2600 and 99 locations for OF-38 or OF-27. To program relay password. To enable or disable the relay report. When auto dial code number 99 is not assigned, relay broadcast report is not transmitted. When it is assigned, relay report is transmitted to fax number assigned to auto dial code 99.
5	Polling transmission/reception	Polling TX: The documents placed on the feeder or in the memory can be collected by a remote station. Polling RX: The fax can collect documents from one remote station. Selective Polling is supported.
6	Report printing	1. Activity report 2. Broadcast message confirmation report (Multi location) 3. Phone directory report 4. Configuration report (Serviceman report if service bit sets to ON.) 5. Protocol dump report * TF + 01 (Sets to on Service bit)

Table 2.9.4 (2/4) User's Initial Settings (One-touch key Program)

F+OT No.	Item	Specifications
		Log. report * TF + 01 (Sets to on Service bit)
7	Counter display (clear)	The operation for displaying and clearing the print counters in five ways are as follows: 1. Drum counter * User can clear but can not read No. of counter 2. Toner counter * TF + 01 (Sets to on Service bit) 3. Drum (total) continue * TF + 01 (Sets to on Service bit) 4. Print counter * User can read no. of counter in LCD but can not clear. 5. Scan counter * User can read no. of counter in LCD but can not clear.
8	Location program 1. One-touch key	One-touch keys allow registering: (1) Telephone number (numeral, -, P and space) in 32 digits. (2) Alternate fax telephone number in 32 digits. (additional registration) (3) ID for the telephone directory function in 15 characters (alphabetic, numeric and symbolic). (One ID can be registered for one key). (4) 30 one-touch keys are provided.
	2. Two-digit auto dial program	Auto-dial No. 01 to 64/99 allows registering telephone number in 32 digits (numeral, -, P and space) and ID for the telephone directory maximum 15 characters (alphabetic, numeric and symbolic).
	3. Group setting	Grouping some one-touch keys and some two-digit auto dial codes to which telephone numbers have been assigned. 10/20 group setting are available. This group setting makes broadcast operation simple.

Table 2.9.4 (3/4) User's Initial Settings (One-touch key Program)

F+OT No.	Item	Specifications
9	User's programs 1. Function program	Function program 01: MCF (SINGLE-LOC.) 02: MCF (MULTI-LOC.) 03: ERR. REPORT (MCF.) 04: IMAGE IN MCF. 05: SENDER ID 06: MONITOR VOLUME 07: BUZZER VOLUME 08: CLOSED NETWORK 09: TX MODE DEFAULT 10: T/F TIMER PRG. 11: RING RESPONSE 12: DISTINCTIVE RING 13: 1'ST PAPER SIZE 14: 2'ND PAPER SIZE 15: USER LANGUAGE 16: INCOMING RING 17: REMOTE RECEIVE 18: MEM./FEEDER SW. 19: POWER SAVE MODE 20: ECM FUNCTION 21: REMOTE DIAGNOSIS 22: PC/FAX SWITCH (5400 only) 23: ONE TOUCH PARAM. Refer to Table 2.9.4 for Specification of the function programs No. 01 through 23
	2. Dial parameters	Dial parameters 1. REDIAL TRIES 2. REDIAL INTERVAL 3. DIAL TONE DETECT 4. BUSY TONE DETECT 5. MF (TONE)/DP (PULSE) 6. PULSE DIAL RATE 7. PULSE MAKE RATIO 8. PULSE DIAL TYPE 9. MF(TONE) DURATION 10. PBX LINE 11. FLASH/EARTH/NORMAL 12. AUTO START 13. DIAL PREFIX 14. IT2 DETECT (FRE only) Refer to Table 2.9.6 for specification of dial parameter settings.
	3. Clock adjustment	Date and time adjustment.

Table 2.9.4 (4/4) User's Initial Settings (One-touch key Program)

F+OT No.	Item	Specifications
	4. System data program	(1) TSI/CSI (except for SUI and AUT) Registration of TSI/CSI/CIG (numbers, + and space) in 20 digits. TSI: Transmitting Subscriber Identification CSI: Called Subscriber Identification CIG: Calling Subscriber Identification (2) SENDER ID Registration of sender ID (alphabetic, numeric and symbolic) in 32 digits. (3) CALL BACK NO. Registration of telephone number for call-back message (alphabetic, numeric and symbolic) in 20 digits.
	5. Personal Box	To allow the operator to open a personal box and to assign a 4-digit password code one of 16 mail-box memory segments in the message memory.
	6. Forwarding number programming	The message is first received in the memory and when this reception is completed, automatically the fax transfers the message to one designated location.
10	Print operation 1. Substitutive message print	Substitutive message print The messages are printed when toner has been newly supplied or an operator performs the substitutive operation. When memory reception data exists in the memory and the MEMORY RX MODE is indicated by AUTO REC key operation, machine will print out the memory reception data.
	2. Confidential reception message print	Confidential RX message print Printing is enabled for received message in the personal box in memory only when the password entered by the operator matches that already registered to the box. • 16 mailboxes
	3. Printer cleaning	This drum cleaning function removes the residual toner on the I/D (image drum) Unit surface by printing.

2)-2 Function Program

Table 2.9.4 (1/4) User's Initial Settings (Function Program)

P.F. No.	Item	Specifications	Default
01	Message confirmation report (Single location)	Enables or disables the automatic message confirmation report printing after a single location call. ON: Printing the MCF report. OFF: Disables this function.	
02	Message confirmation report (Multiple locations)	Enables or disables the automatic message confirmation report printing after a multiple polling or broadcast. ON: Prints the MCF report. OFF: Disables this function.	
03	Error report (MCF)	Enables or disables the automatic error report printing when transmission error occurs. (Excepts for service bit “0”.) ON: Printing the error report. OFF: Disables this function.	
04	Image in MCF	Enables or disables the automatic printing of the image on the first sheet below the message confirmation report. ON: Printing the image in MCF report. (Memory transmission and if the report is printed automatically.) OFF: Disables this function.	
05	Sender ID	The fax can transmit programmed alphanumeric message, such as company’s name consisting of up to 32 characters. Enables or disables the sender ID function. * (Outside only) ON: Enables OFF: Disables	
06	Line monitor volume	Controls the volume. OFF/Low/High selectable.	
07	Buzzer volume	Selects the sound volume of each buzzer (end of communication buzzer, voice request buzzer and off-hook alarm) and software ringer from high, low and middle levels. Low/Mid/High selectable. ***Note:*** Fixed a low level for key touch tone.	

Table 2.9.4 (2/4) User's Initial Settings (Function Program)

P.F. No.	Item	Specifications	Default
08	Closed network	The fax compares lower four digits of TSI/CSI received from remote station with fax numbers registered locally for one-touch dial and two-digits autodial. If unmatched, the communication will be automatically disconnected. OFF/RX only/TX and RX selectable. * Prevention of direct mail or wrong number calls. (Reference) TSI: Transmitting subscriber identification CSI: Called subscriber identification	
09	TX mode default	Selects automatically the mode set up when a document is loaded on the feeder. The following combinations are selectable. STD/NORMAL→STD/DARK→STD/LIGHT→ FINE/NORMAL→FINE/DARK→FINE/LIGHT→ EX.FINE/NORMAL→EX.FINE/DARK→ EX.FINE/LIGHT→PHOTO/NORMAL→ PHOTO/DARK→PHOTO/LIGHT→ STD/NORMAL→ • • •	
10	Telephone/fax automatic switchover time	Specifies the time for which the fax alerts an operator on reception of a call in the telephone/fax automatic swichover mode. 20 sec./35 sec. selectable Refer to page 2-28	
11	Ring response time	User can register ring response time if National code is: INT'L, GBR, NOR, SWE, USA, HOL, ESP. ITA, GRE or GER Selects the ring response time. 1 ring/5/10/15/20 sec. selectable.	
12	Distinct ring	Specifies the detected distinct ring. (not available in all countries) OFF/ON/SET selectable.	
13	1'st cassette paper size	Selects A4, LETTER or LEGAL 13˜, LEGAL 14˜/ OTHER by this function. The operator must select the preferable paper size as the machine cannot detect the paper size automatically. ***Note:*** OTHER message appears when operating with MFP terminal.	

Table 2.9.4 (3/4) User's Initial Settings (Function Program)

P.F. No.	Item	Specifications	Default
14	2'nd cassette paper size (option)	Selects A4, LETTER or LEGAL 13˜, LEGAL 14˜/ OTHER by this function. The operator must select the preferable paper size as the machine cannot detect the paper size automatically. ***Note:*** OTHER message appears when operating with MFP terminal.	
15	User language	A choice of 2 languages for LCD and print message are available. Language 1 and Language 2	
16	Incoming ring	Instead of ringer circuit, software can control built-in speaker to ring sound. To enable (ON) or disable (OFF) or distinctive ring (DRC) a software generated ring sound to indicate arrival of an incoming bell.	
17	Remote receive	This function is used to transfer the call received by external telephone (connected to fax) by entering preset two-digits. The following combinations are selectable. 00/11/22/33/44/55/66/77/88/99/**/##/OFF selectable.	
18	Memory and feeder switch	Switches the transmission mode between the memory and feeder. MEM. TX/FEEDER TX selectable. ***Note:*** Memory or feeder setting can register as the defult by operating the "F + OT 2".	
19	Power save mode	When the fax becomes the operation state, power supply is feeding to the all circuits. By adoption of this system, power consumption at standby state becomes below 0.5 W ***Note:*** Power save mode is not available for US/CANADA version. Pre-heating time (Standby to print): Approx 20 sec Eanbles or disables power save mode ON: Enables OFF: Disables	
20	ECM function	Enables or disables ECM (error corection mode) communication. ON: Enables OFF: Disables	

Table 2.9.4 (4/4) User's Initial Settings (Function Program)

P.F. No.	Item	Specifications	Default
21	Remote diagnosis	Enables or disables the remote diagnosis function when the machine can allow remote diagnosis from remote center. ON: Enables OFF: Disables	
22	PC/FAX switch (5400 only)	To enable or disable PC interface function: When PC reception is not available, for example, application is not activated on the PC or cable is missing between PC and fax etc., this setting allows to switch from PC to fax reception automatically. ON: Automatically change to fax reception OFF: No reception ***Note:*** When the parallel board is installed in the fax, PC/FAX switching mode appears in the LCD display.	
23	One-touch key parameters	To assign the following features to each one-touch key. 1) Echo protection (ON/OFF)	

2.9.5 User's Functions Example

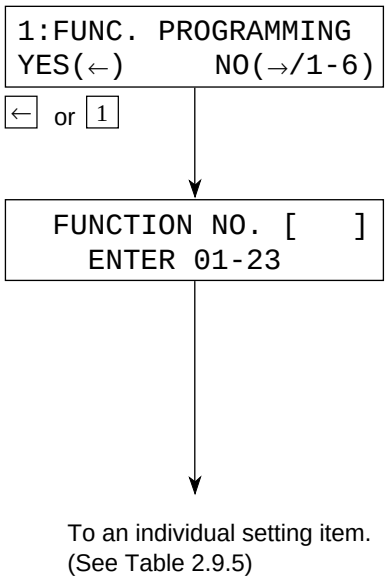
Note: The fonts displayed on the LCD operation panel may differ from fonts written this manual.

1) Function Program

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 9 in the standby mode. (In case of no message in memory)
- Press [←] key.
- Enter two-digit function number, then the display will show the set item corresponding to the number entered. If you want to set up all or several items starting with 01, then enter 01.

The display shows:



To an individual setting item.
(See Table 2.9.5)

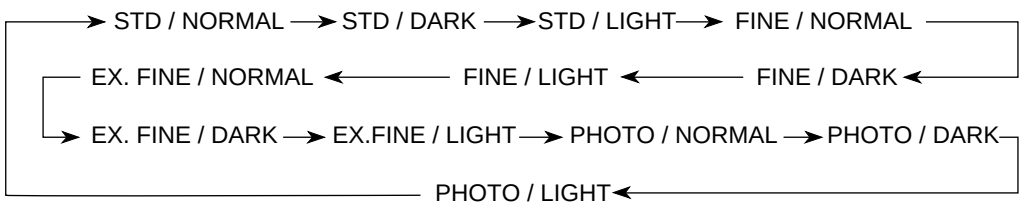
Table 2.9.5 (1/2) User's Functions

Tap No.	Name of Function	The Display Shows
0 1	Message confirmation report (Single location)	01:MCF(SINGLE-LOC.) [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
0 2	Message confirmation report (Multiple locations)	02:MCF (MULTI-LOC.) [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
0 3	Error report	03:ERR. REPORT(MCF.) [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
0 4	Image in MCF.	04:IMAGE IN MCF. [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
0 5	Sender ID	05:SENDER ID [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
0 6	Line monitor volume	06:MONITOR VOLUME [X] YES(←) NO(→) → Setting X: OFF → LOW → HIGH
0 7	Buzzer volume	07:BUZZER VOLUME [X] YES(←) NO(→) → Setting (Toggle) X: MID → HIGH → LOW
0 8	Closed network	08:CLOSED NETWORK [X] YES(←) NO(→) → Setting X: T/R → RX → OFF
0 9	TX mode default	09:TX MODE DEFAULT YES(←) NO(→) → Setting RESOLUTION & ORIGINAL NOTE 1:
1 0	Telephone/fax automatic switchover timer	10:T/F TIMER PRG. [X] YES(←) NO(→) → Setting (Toggle) X: 20SEC ⇆ 35SEC
1 1	Ring response time	11:RING RESPONSE [X] YES(←) NO(→) → Setting NOTE 2: X: 1RING → 05SEC → 10SEC → 15SEC → 20SEC → 1RING
1 2	Distinct ring	12:DISTINCTIVE RING [X] YES(←) NO(→) → Setting (Toggle) X:OFF → ON → SET NOTE 2:

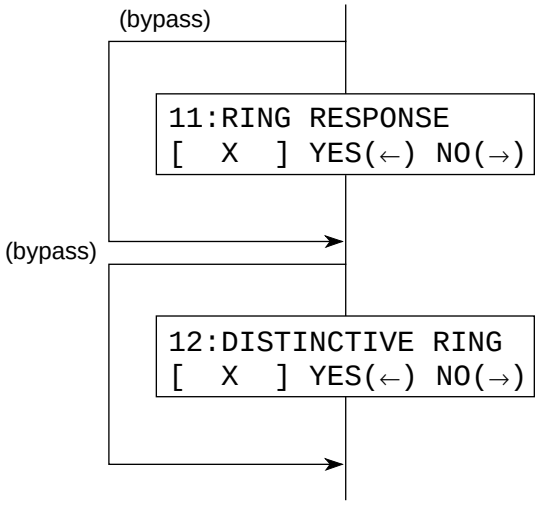
Table 2.9.5 (2/2) User's Functions

Tap No.	Name of Function	The Display Shows
1 3	1st cassette paper size	13:1'ST PAPER SIZE [X] YES(←) NO(→) → Setting X: A4 → LET → LGL 13 → LGL 14 → OTHER → A4
1 4	2ndcassette paper size (option)	14:2'ND PAPER SIZE [X] YES(←) NO(→) → Setting X: A4 → LET → LGL 13 → LGL 14 → OTHER → A4 NOTE 3:
1 5	User language	15:USER LANGUAGE [X] YES(←) NO(→) → Setting X: ENG. ⇆ (Other)
1 6	Incoming ring	16:INCOMING RING [X] YES(←) NO(→) → Setting (Toggle) X: OFF → ON → DRC → OFF
1 7	Remote receive	17:REMOTE RECEIVE [X] YES(←) NO(→) OFF → 00 → 11 → 22 → 33 → 44 → 55 → 77 → 88 → 99 → ## → ** → OFF
1 8	Memory and feeder selection	18:MEM/FEEDER SW. [X] YES(←) NO(→) → Setting X: MEM. ⇆ FEED.
1 9	Power save mode (not available for US/CANADA version)	19:POWER SAVE MODE [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
2 0	ECM function	20:ECM FUNCTION [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
2 1	Remote diagnosis	21:REMOTE DIAGNOSIS [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON
2 2	PC/FAX switch (option)	22:PC/FAX SWITCH [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON NOTE 4:
2 3	One-touch key parameters	23:ONE TOUCH PARAM. YES(OT) NO(→) → To: FUNCTION NO. One-touch key pressed. ECHO PROTECTION [X] YES(←) NO(→) → Setting (Toggle) X: OFF ⇆ ON ←

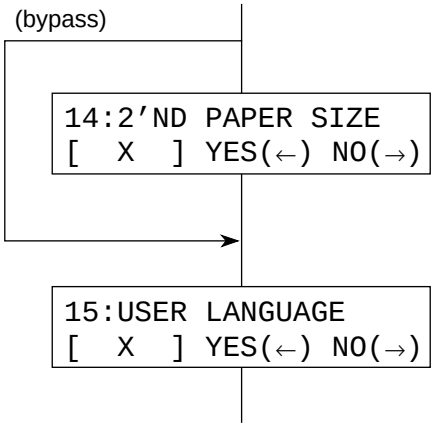
Note1: RESOLUTION & ORIGINAL of Tx mode defult setting can be selected by using [→] key.



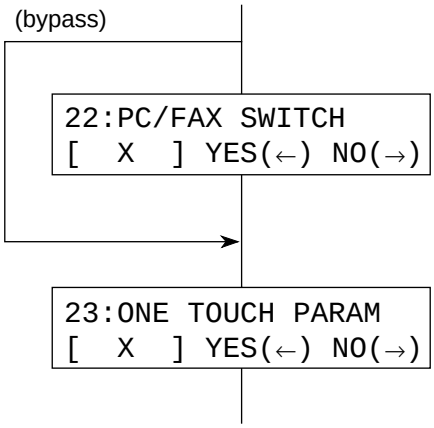
Note2: When the service bit is set to "off" and the corresponding bit of XPARA of national code is set to "off", Ring response and/or Distinctive ring is bypassesd as follows:



Note3: When 2'nd tray is not mounted on OKIFAX 5400, 2'nd paper size is bypassed as follows:



Note4: When CTR board is not mounted on OKIFAX 5400, PC/FAX switch is bypassed as follows:



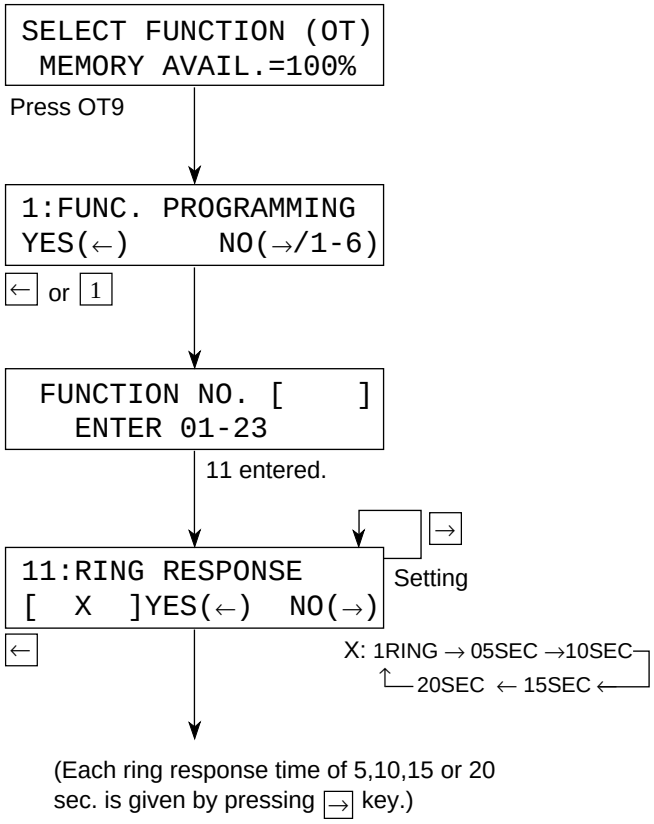
2) Ring response time

Before specifying the ring response time, set the service bit on following the operations shown in 2.9.3 (1). (Service Bit Setting).

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 9 in the standby mode. (In case of no message in memory)
- Press [←] key enter using the ten-key pad.
- Enter 11 using the ten-key pad.
- Press [→] key until the setting you want is displayed, then press [←] key.

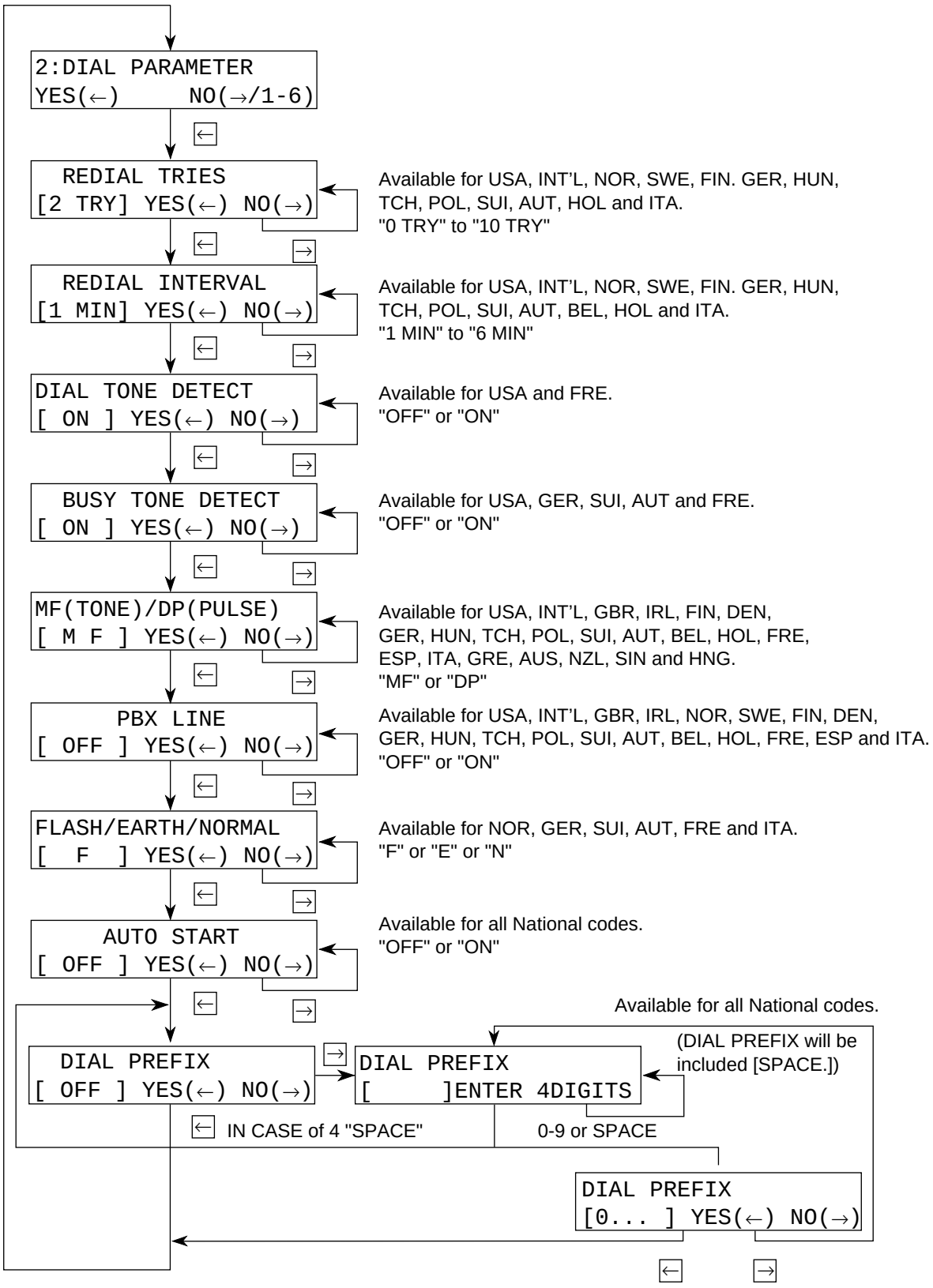
The display shows:



(Each ring response time of 5,10,15 or 20 sec. is given by pressing [→] key.)

3) Dial parameters (In case the service bit is "OFF".)

To get the "DIAL PARAMETER" message on the display, perform the same operetion as Table 2.9.6.
(Dial parammeters settings).



The following table can be set depending on the National codes even if the service bit is "off".

Table 2.9.10 Dial parameters setting if the service bit "OFF"

NATIONAL CODE	USA	INT'L	GBR	IRL	NOR	SWE	FIN	DEN	GER	HUN	TCH	POL
Redial tries	○	○			○	○	○		○	○	○	○
Redial interval	○	○			○	○	○		○	○	○	○
Dial tone detect	○											
Busy tone detect	○								○			
MF/DP	○	○	○	○			○	○	○	○	○	○
Pulse dial rate												
Pulse make ratio												
Pulse dial type												
MF duration												
PBX line	○	○	○	○	○	○	○	○	○	○	○	○
Flash/Earth/Normal					○				○			
Auto start	○	○	○	○	○	○	○	○	○	○	○	○
Dial	○	○	○	○	○	○	○	○	○	○	○	○
IT2 detect												

NATIONAL CODE	SUI	AUT	BEL	HOL	FRE	ESP	ITA	GRE	AUS	NZL	SIN	HNG
Redial tries	○	○		○			○					
Redial interval	○	○	○	○			○					
Dial tone detect					○							
Busy tone detect	○	○			○							
MF/DP	○	○	○	○	○	○	○	○	○	○	○	○
Pulse dial rate												
Pulse make ratio												
Pulse dial type												
MF duration												
PBX line	○	○	○	○	○	○	○					
Flash/Earth/Normal	○	○			○		○					
Auto start	○	○	○	○	○	○	○	○	○	○	○	○
Dial	○	○	○	○	○	○	○	○	○	○	○	○
IT2 detect												

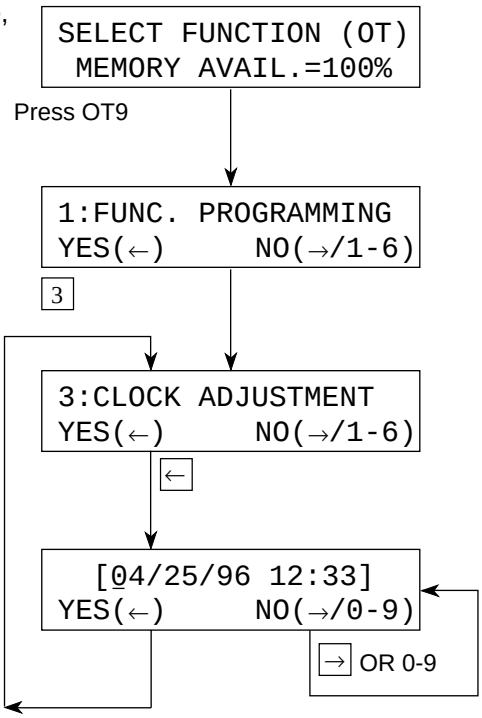
Note: The blank in the table is not indicated on the LCD.

2.9.6 Clock Adjustment

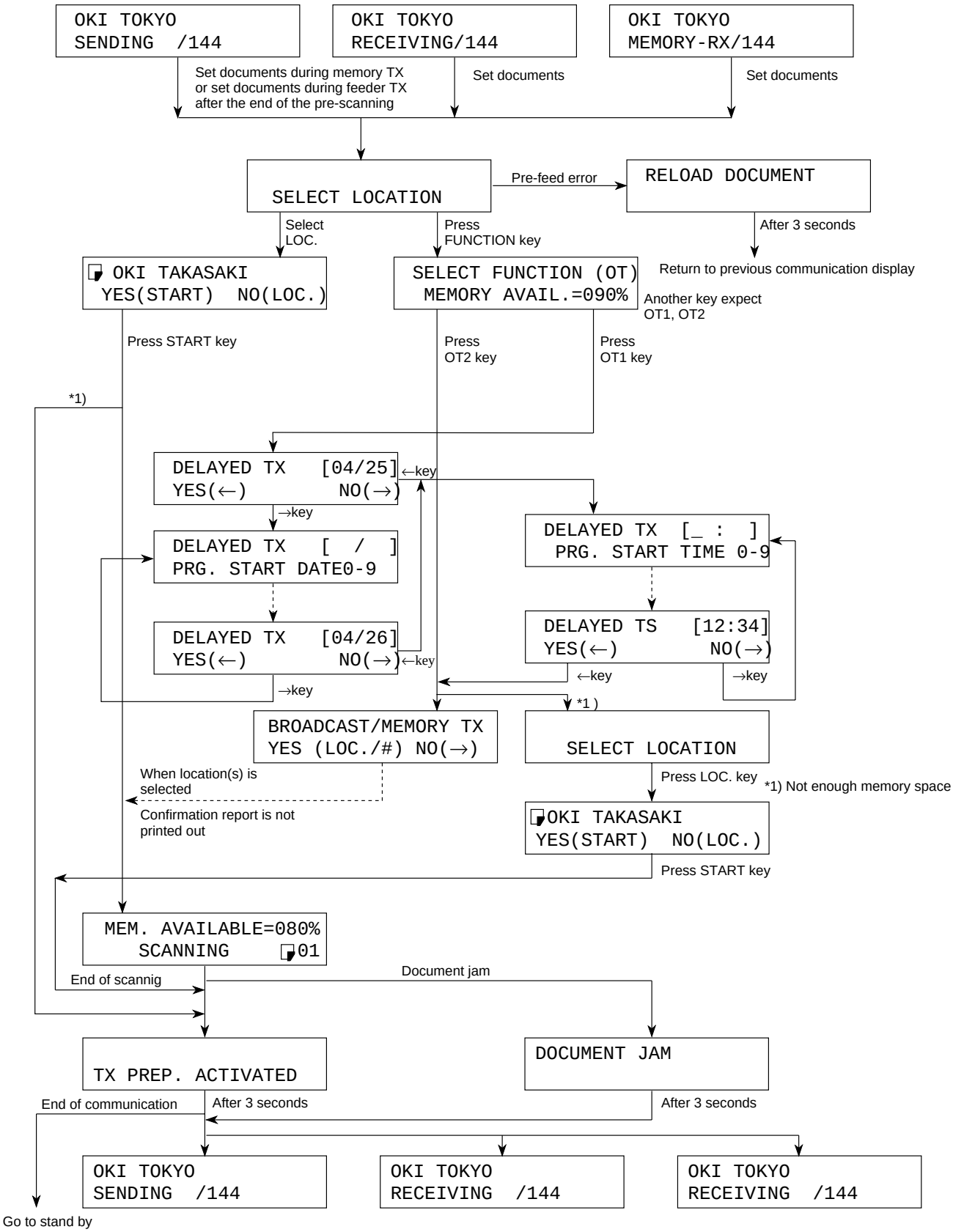
Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 9 in the standby mode. (In case of no message in memory)
- Enter 3 using the ten-key pad.
- Press ← key.
- Enter date and time by using the ten-key pad (0 to 9 keys).

The display shows:



2.9.7 Dual Access Operation



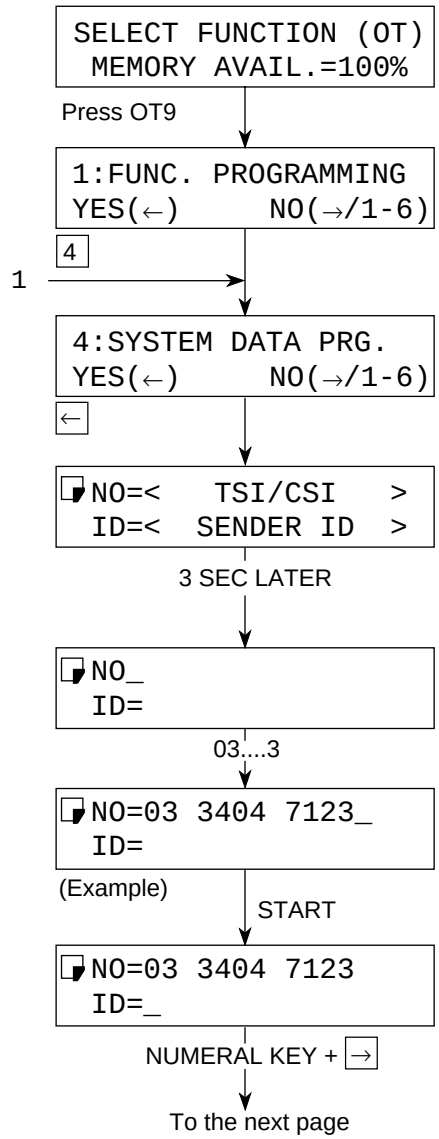
2.9.8 System Data Programming

- TSI/CSI (Defalut: Blank)
- Registration of sender ID (Defalut: Blank)
- Registration of telephone number for the call-back message (Defalut: Blank)

Operations:

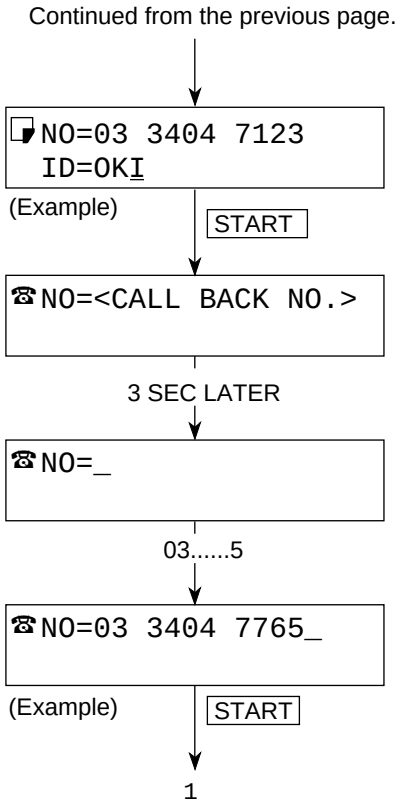
- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 9 in the standby mode.
  (In case of no message in memory)
- Enter 4 using the ten-key pad.
- Press ← key.

The display shows:



Note: Use the UNIQUE key to input special symbols.

Operations: **The display shows:**



- Press START key.

- Press START key.

2.9.9 Dial Parameters Settings

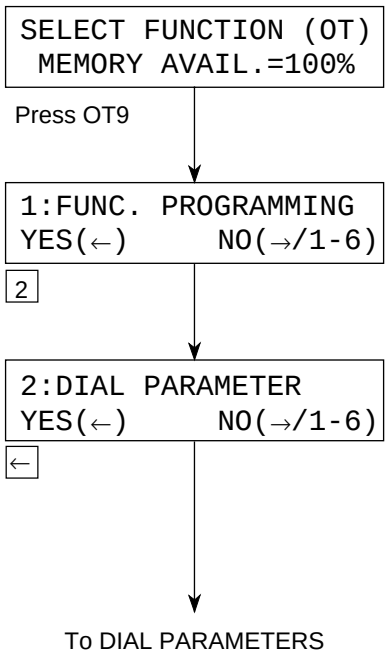
(1) Procedure

The following shows the case in which the service bit is on.

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 9 in the standby mode. (In case of no message in memory)
- Enter 2 using the ten-key pad.
- Press [←] key.

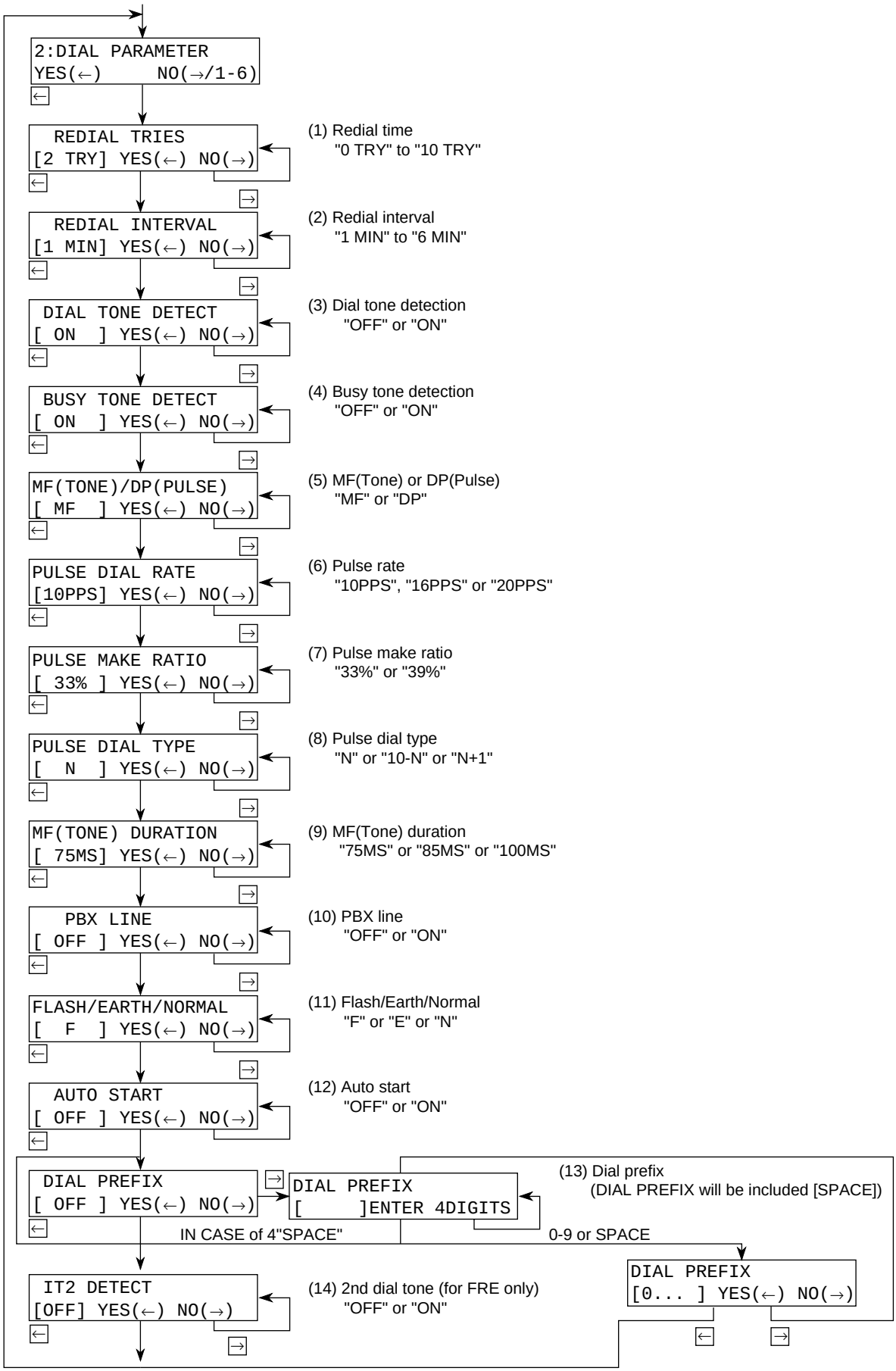
The display shows:



*1 Not all of the following dial parameters are released to the users (depending on National codes and if the Service bit is OFF)

The display shows:

Continued from the previous page.



(2) Purpose

Table 2.9.11 Default Settings of Dial Parameters

No.	User Setting Items	Setting Selection	NATIONAL CODE																							
			1 USA	2 INT'L	3 GBR	4 IRL	5 NOR	6 SWE	7 FIN	8 DEN	9 GER	10 HUN	11 TCH	12 POL	13 SUI	14 AUT	15 BEL	16 HOL	17 FRE	18 ESP	19 ITA	20 GRE	21 AUS	22 NZL	23 SIN	24 HNG
1	REDIAL TRIES	0 - 10 TRIES	3	3	2	2	5	10	3	5	10	10	2	2	10	10	3	2	2	2	2	2	2	2	5	2
2	REDIAL INTERVAL	1 - 6 min	3	3	3	3	2	3	3	3	1	1	3	3	1	1	3	3	6	3	3	3	3	3	3	3
3	DIAL TONE DETECT	ON/OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON	ON
4	BUSY TONE DETECT	ON/OFF	ON	ON	ON	OFF	ON	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
5	MF (TONE)/DP (PULSE)	DP/MF	MF	MF	MF	MF	MF	MF	MF	MF	DP	DP	MF	DP	MF	DP	MF	MF	MF	MF	MF	MF	MF	MF	MF	MF
6	PULSE DIAL RATE	10 PPS/16 PPS/ 20 PPS	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
7	PULSE MAKE RATIO	33%/39%	39%	33%	33%	33%	33%	39%	39%	39%	39%	33%	39%	33%	39%	39%	33%	39%	33%	33%	39%	39%	33%	33%	33%	33%
8	PULSE DIAL TYPE	N/10-N/N+1	N	N	N	N	N	N+1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	10-N	N	N
9	MF (TONE) DURATION	75 ms/83 ms/100 ms	100	85	85	85	75	85	85	100	85	100	100	100	85	85	85	100	75	85	85	100	85	85	85	85
10	PBX LINE	ON/OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
11	FLASH/EARTH/NORMAL	NORMAL/FLASH/ EARTH	N	N	N	N	N	N	N	N	EARTH	N	N	N	FLASH	EARTH	N	N	FLASH	N	N	N	N	N	N	N
12	AUTO START	ON/OFF	ON	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON
13	DIAL PREFIX	OFF/(max. 4 digits)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	0...	OFF	OFF	OFF	0...	0...	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
14	IT2 DETECT	ON/OFF	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	ON	–	–	–	–	–	–	–

Note: User settings are possible for items without mesh (Meshed items are displayed at service bit = ON.)
The contents of tables are subject to change by the requests of OEM comanies and customers without notice.

Table 2.9.6 Dial Parameters Settings

No.	Item	Specifications
	Dial parameters	
01	Redial tries	Switches on the re-dial times to meet the regulations of the installed country. 0 to 10 tries (in one-try steps) 1 to 5 tries for FRE.
02	Redial interval	Switches on the re-dial intervals to meet the regulations of installed country. 1 to 6 minutes (in one-minute steps) 1 to 12 minutes for FRE.
03	Dial tone detect	Selects the dial tone detection. ON/OFF selectable. ON: Enable OFF: Disable
04	Busy tone detect	Selects the busy tone detection. ON/OFF selectable. ON: Enable OFF: Disable
05	MF (TONE) or DP (Pulse)	Selects dialling by multi-frequency or dial pulse.
06	Pulse dial rate	Selects the dialling pulse rates for the line. 10 pps/16 pps/20 pps selectable.
07	Pulse make ratio	Selects pulse dial rate. 33%/39%
08	Pulse dial type	Selects pulse dial type. Normal(N)/10-N/N+1
09	MF (Tone) duration	Selects MF (Tone) duration. 75/85/100 ms selectable.
10	PBX line	Selects PBX line. ON/OFF selectable. ON: PBX line OFF: PSTN
11	Flash/Earth/Normal	Selects the PBX type to meet the exchange requirements. NORMAL/EARTH/FLASH selectable. (PBX line origination types)
12	Auto start	Enables or disables the function of dialing without pressing the START key in one-touch dial and 2-digit auto dial modes. ON: Enable OFF: Disable
13	Access digit	Prefix dialing digits with which PBX connects the fax to the public line. OFF/max. 4digit(s) selectable. Digit: Enable OFF: Disable
14	IT2 detect (FRE only)	Selects 2nd dial tone detection ON/OFF selectable. (FRE only) ON: Enable OFF: Disable

2.9.10 Off-line Tests

(1) Purpose

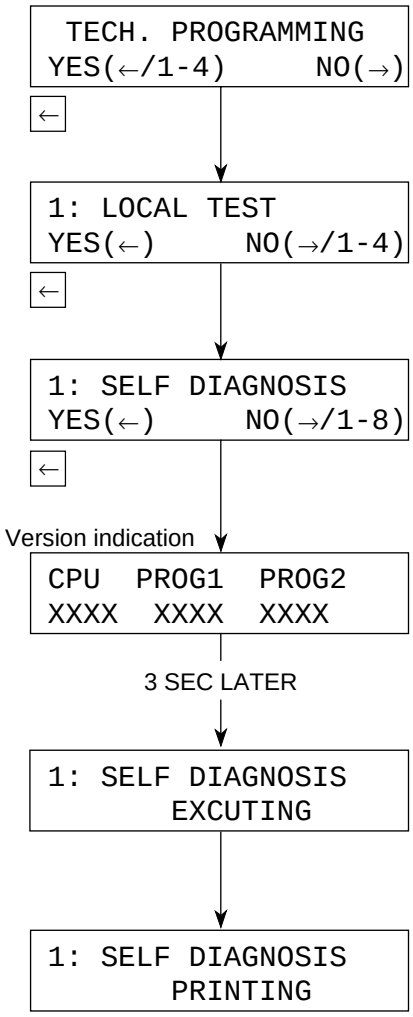
Activate self-diagnosis which includes:
- Print test
- CPU-ROM version printing
- CPU-RAM check
- PROG version printing
- LANGUAGE version printing
- DEFAULT version printing
- RAM check
- RAM check (memory board: optional)
- PC-I/F version printing (optional)

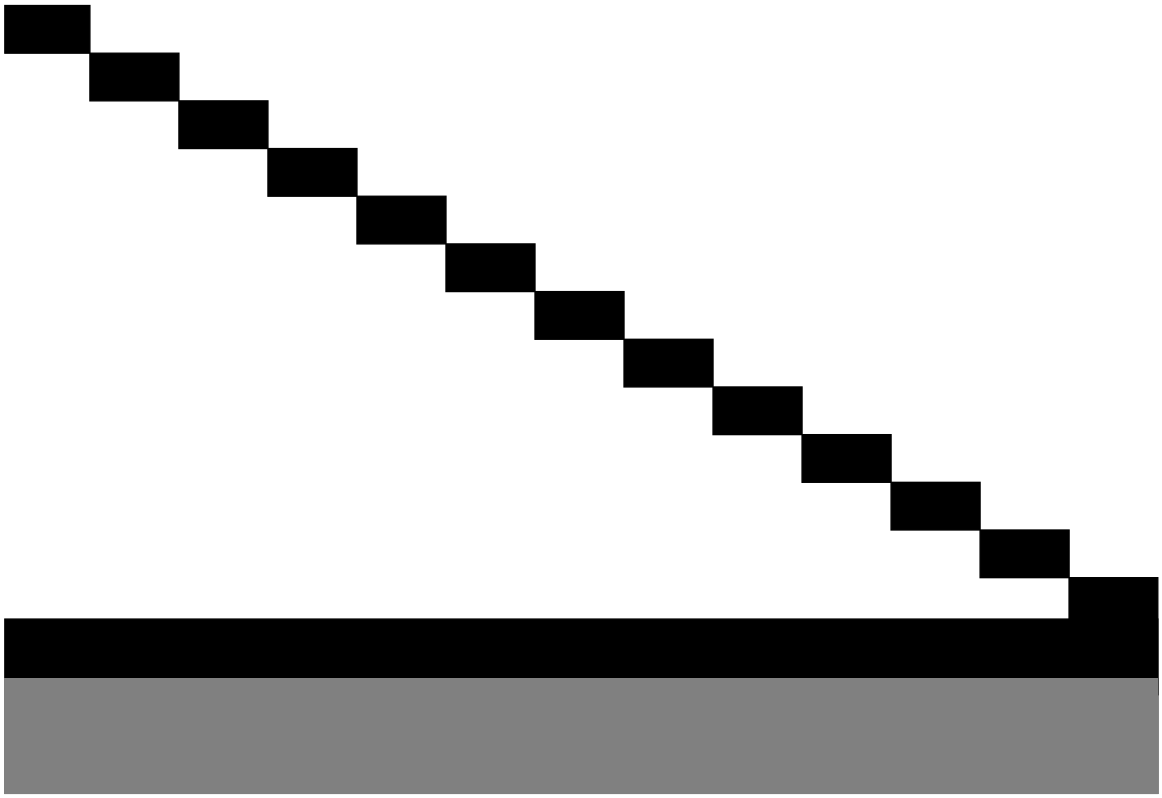
(2) Procedure

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and COPY key twice in the standby mode. (In case of no message in memory)
- Press [←] key.
- Press [←] key.
- Press [←] key for cheking and test printing. (An example of printed data is shown in Figure 2.9.4)

The display shows:





```
   CPU-ROM  VERSION  Z208
            HASH     OK   6FCF
   CPU-RAM           OK
   PROG1    VERSION  HB0
            HASH     OK   C5CA
   PROG2    VERSION  JB0
            HASH     OK   8ABF

   LANGUAGE VERSION  EFHH
            HASH     OK   1292
   DEFAULT  VERSION  GF00
            HASH     OK   9B54
*1 RAM1              1M   OK
*2 RAM2              OK
*3 OPT-RAM1          1M   OK
*3 OPT-I/F           PARALLEL
   DEFAULT TYPE      01   12/01/1998   18:30



*1 marked item is shown for condition of all RAM except EXCEED RAM.
*2 marked item is shown to SRAM for EXCEED.
*3 marked items are option.
```

Fig. 2.9.4 Printed Data of Self-diagnosis Print Test (Example)

2.9.11 On-line Tests

1. Transmission

(1) Load documents

(2) Make sure that

- The loaded documents are fed in automatically.
- The STD and NORMAL lamps light.
- The display shows SELECT LOCATION.

(3) Dial the telephone number of the remote machine by the ten-key pad.

(4) Make sure that the telephone number of the remote machine is shown on the display.

(5) Press the START button.

(6) Typical message transmission flow is described in Figure 2.9.5.

2. Reception

(1) Use another machine for dialling.

(2) Make sure that

- The display shows AUTO REC. START.
- The message is automatically received.

(3) Typical message reception flow is described in Figure 2.9.6.

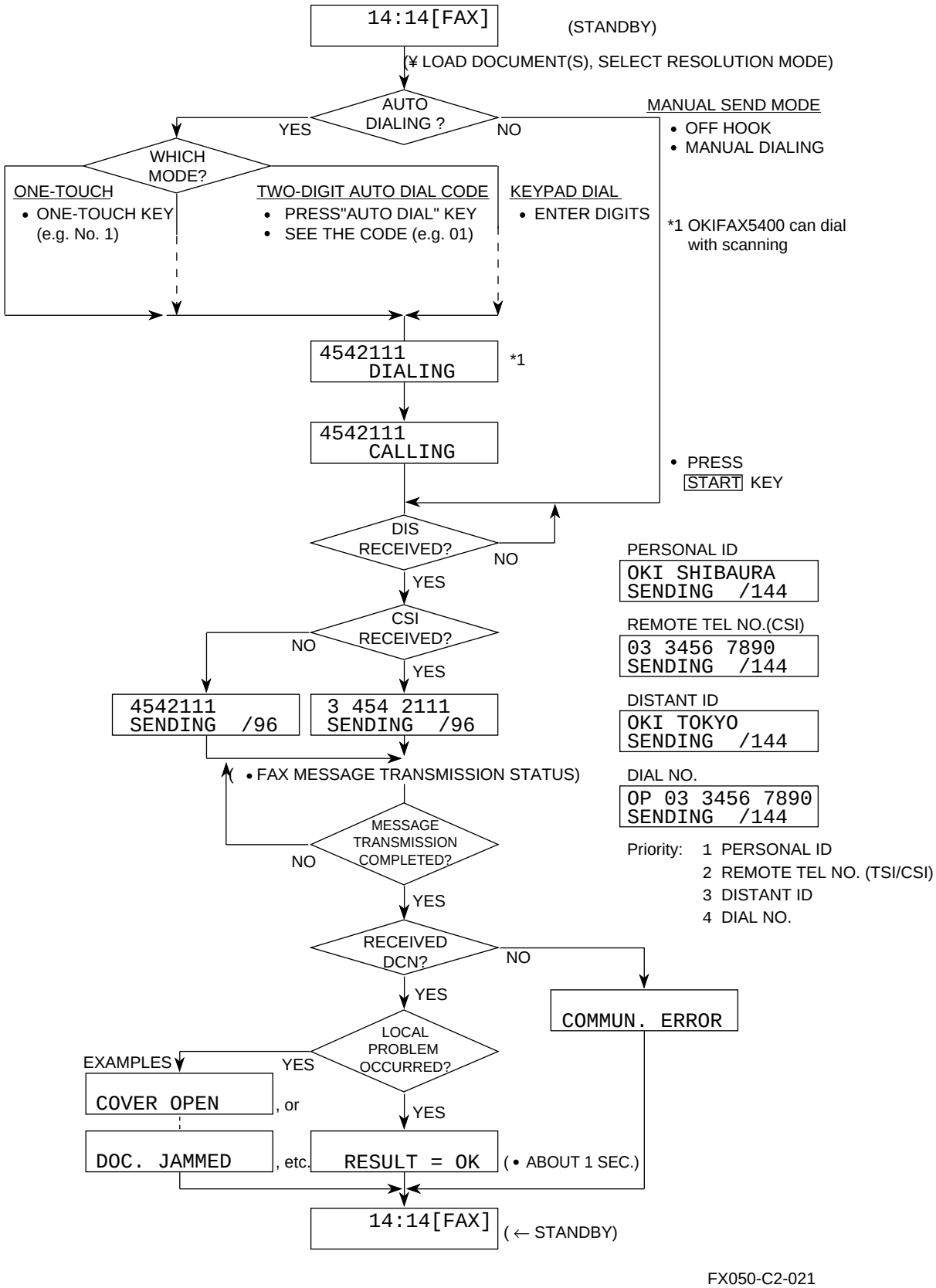


Fig. 2.9.5 Typical Transmission Flow

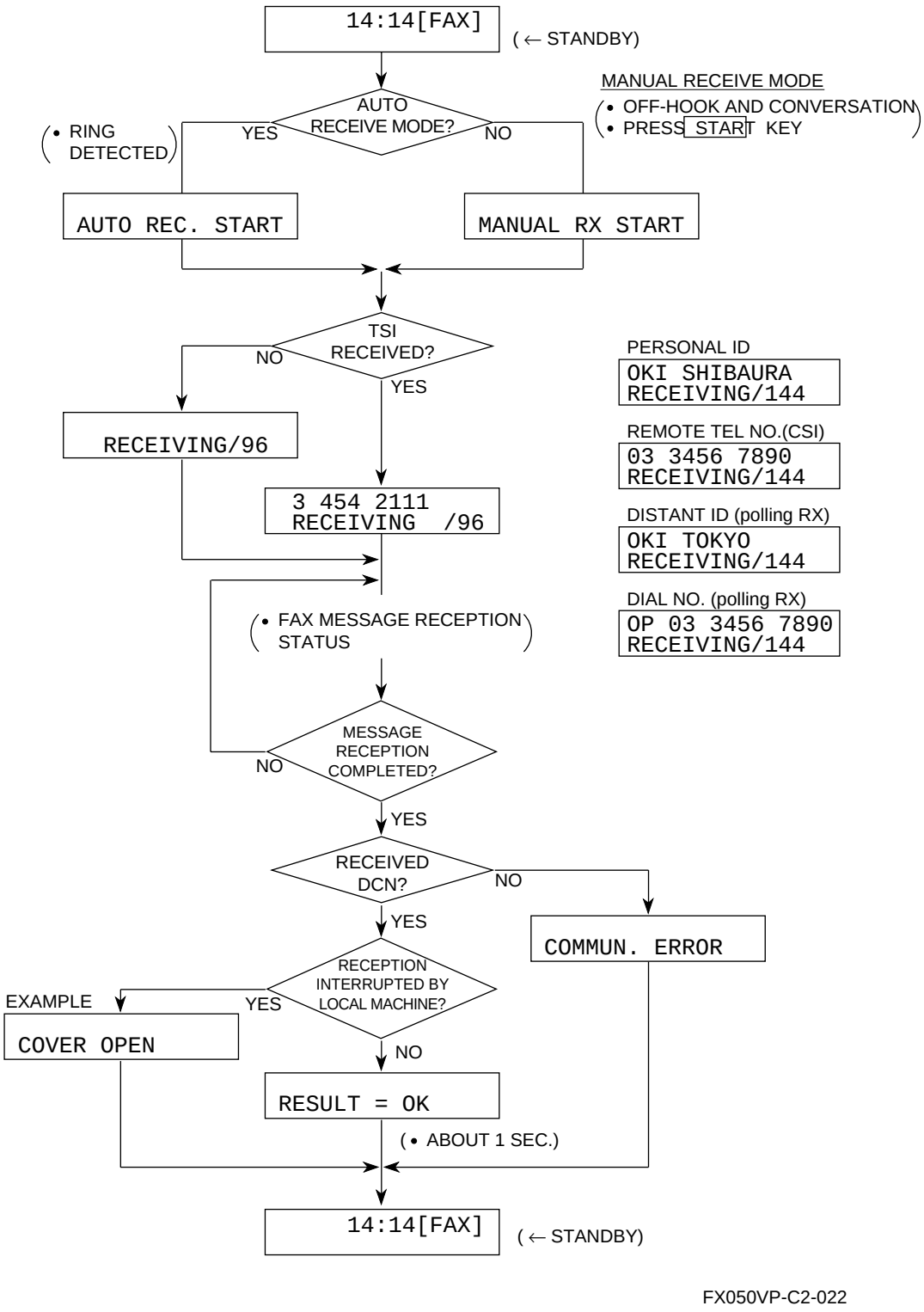


Fig. 2.9.6 Typical Reception Flow

C. Installation of Optional Units

(1) Items

- Memory board
- PC interface board (5400 only)
- Telephone handset
- Second paper cassette unit

(2) Procedure

- Turn the facsimile power switch OFF and remove the AC power cord.

Note: Unplug the AC power cord from the wall outlet first and then from the facsimile.

- Do not remove unnecessary parts.
- Since screws and small parts are likely to be lost, they should temporarily be attached to their original positions.

1. Instllation of the memory board

- In OKIFAX 5250/5400, MEM, 1,1.5,2 or 4MB memory board can be mounted on to the connector CN13 of E17 board.

Remove Rear Cover.
Remove the rear cover by removing the two screws (S1) and (S2).

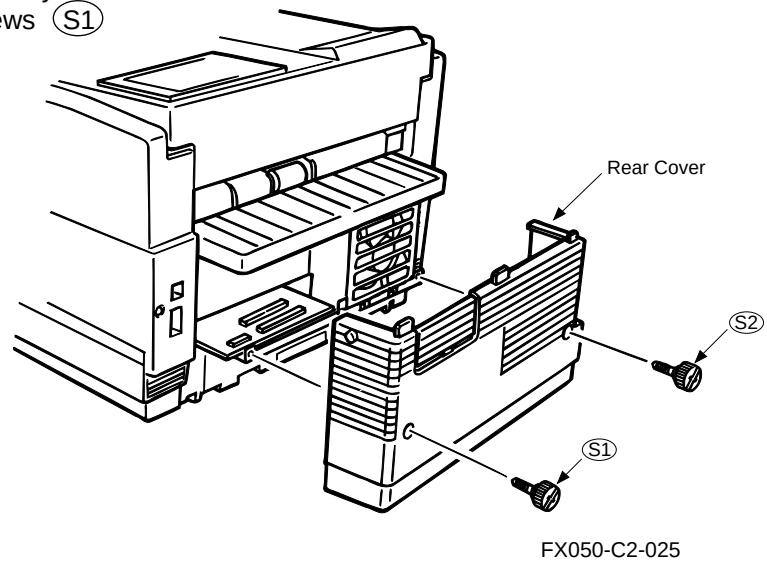


Fig. C.1.1

Install Memory Board:
First, install the memory board on to the connector CN13 of E17 board, and then tighten the screw to the separation plate.

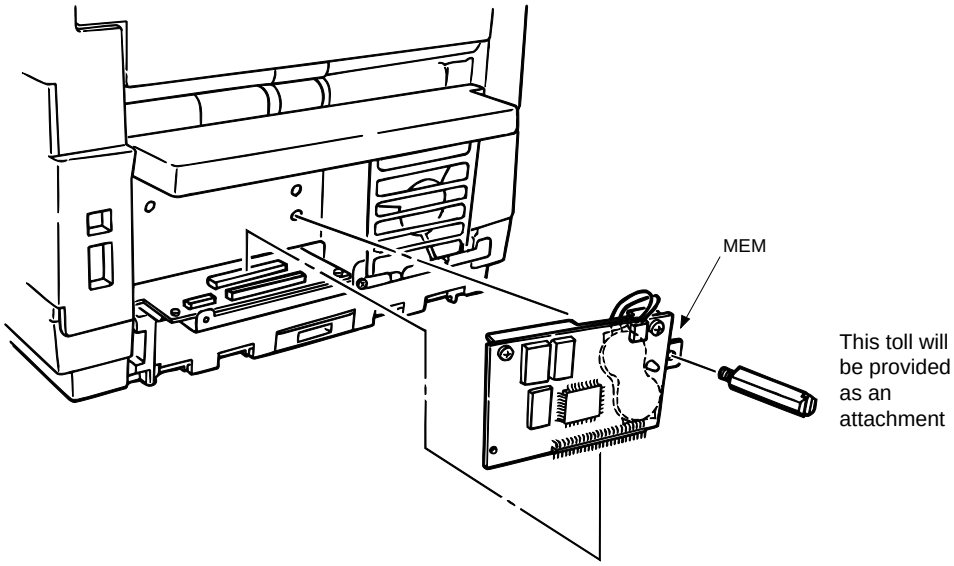


Fig. C.1.2

Note:
Fit the fixing hooks at anchor positions on the cassette guide, after that, lift the rear cover slightly and push it inward.
Tighten the two screws S1 and S2.

2. Installation of CTR (PC interface) board (5400 only)

Remove Rear Cover.
Remove the rear cover by removing the two screws (S1) and (S2).

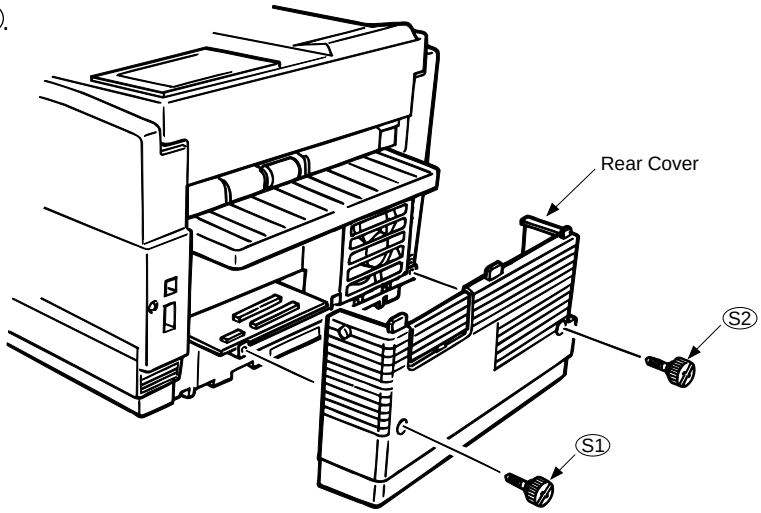


Fig. C.2.1

Install CTR board.
First, install CTR board on to the connector CN12, CN17 of E17 board, and then tighten the two screws to the separation plate.

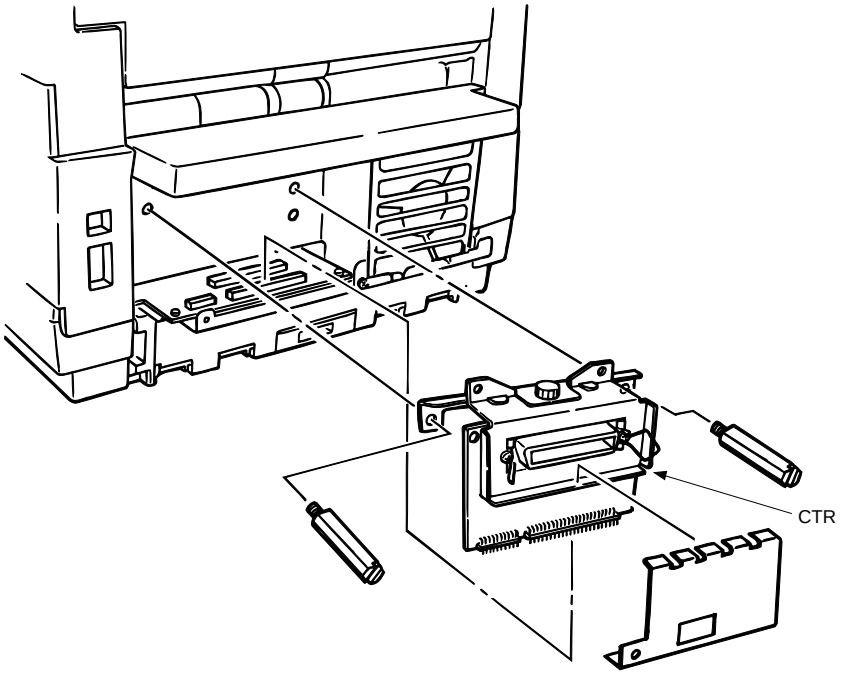
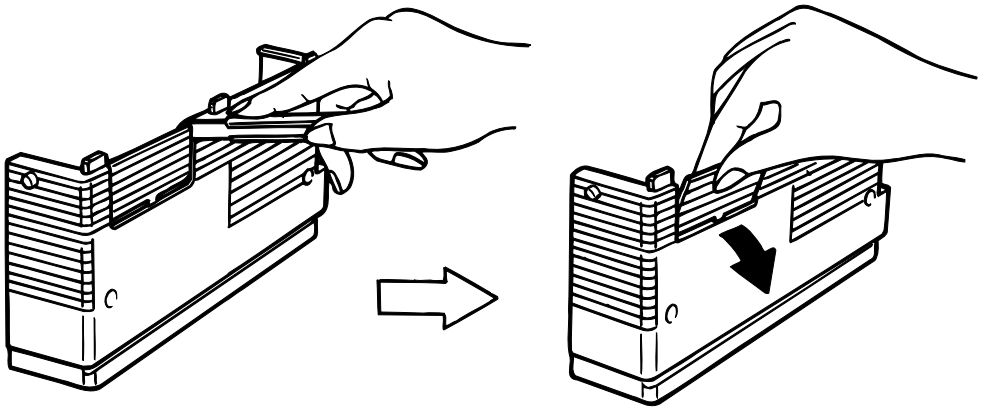


Fig. C.2.2



a)Insert the tip of a cutter or Nipper between the mold of Rear Cover and cut out it.

Note: Be careful not to rotate the cutter or Nipper, since this can cause scratching on the Rear Cover.

b)Grasp the mold of Rear Cover, and rotate it up and down until you can able to easily remove it.

3. Installation of an optional telephone set

(1) Dial Mode Setting (For TEL-UK)

Set the DIAL MODE slide switch on the rear side of the telephone set according to the dial mode of the connecting line.
(Set to MF for UK, Norway, Denmark, Belgium and Italy)

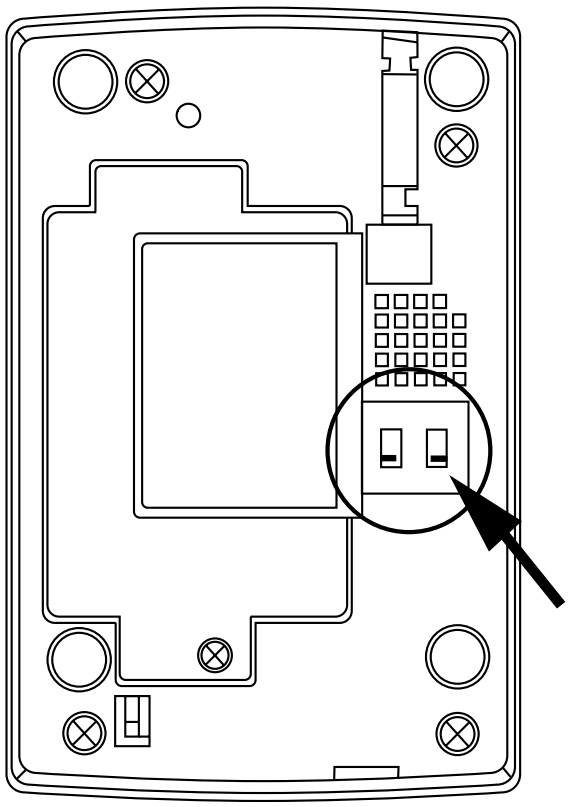


Fig. C.3.1

(2) Ringer Volume Setting (For TEL-UK and TEL-S)

Set the VOL slide switch on the rear cover side of the telephone set for the ringer sound volume.

(3) After having taken out the telephone set, telephone handset and curled cord from the carton box, connect them as show in Fig. C.3.2.

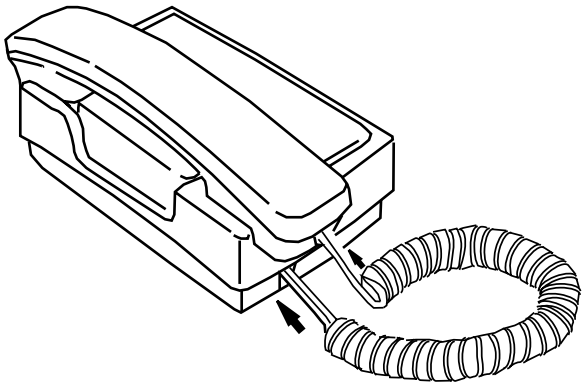


Fig. C.3.2

(4) After installing the connection cable to the telephone set, extend the connection cable like Fig. C.3.3.

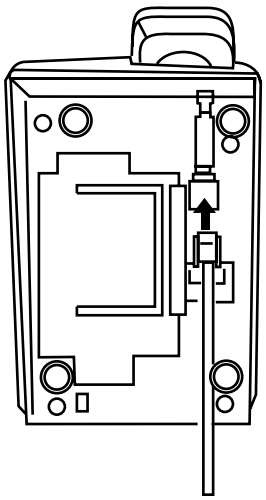


Fig. C.3.3

(5) After installing the cradle assembly to the telephone set, fix the screw like Fig. C.3.4.

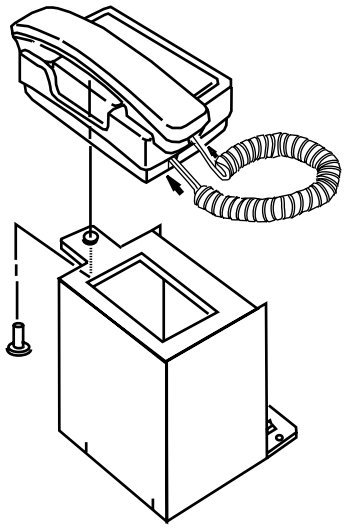


Fig. C.3.4

(6) Install the telephone assembly on the facsimile transceiver unit. In this case, cram the telephone assembly into the position of Fig. C.3.5 by lifting the facsimile transceiver unit slightly. When 2'nd tray is mounted on the facsimile transceiver unit, install the telephone assembly in the position of Fig. C.3.5.

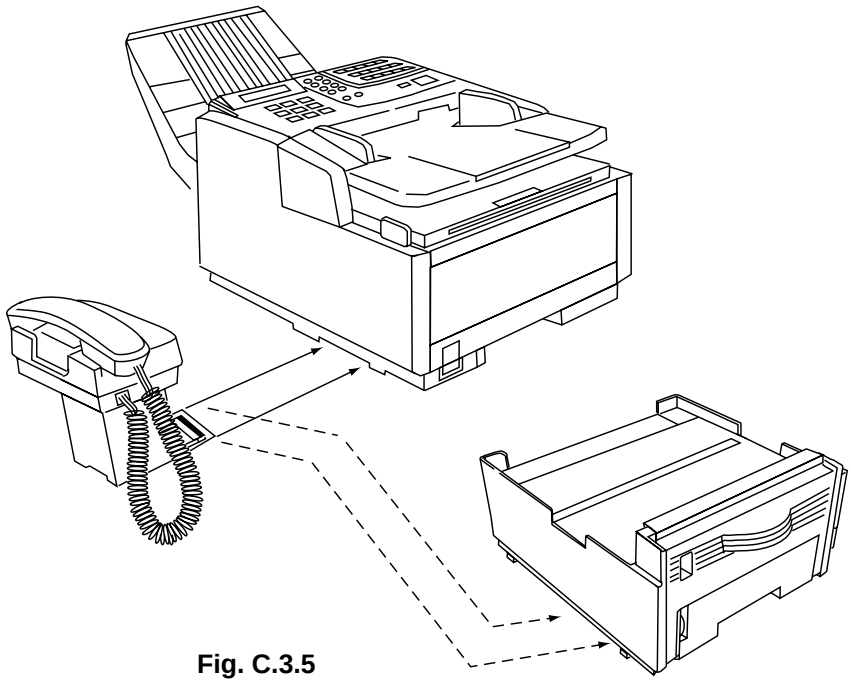


Fig. C.3.5

(7) Connect the terminal on the other side of the connection cable formed on the rear side of the equipment (TEL1), like Fig. C.3.6, to the telephone set.

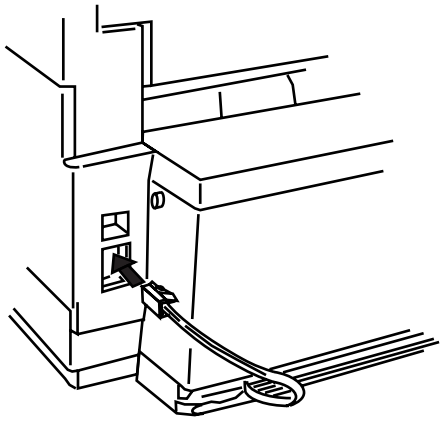


Fig. C.3.6

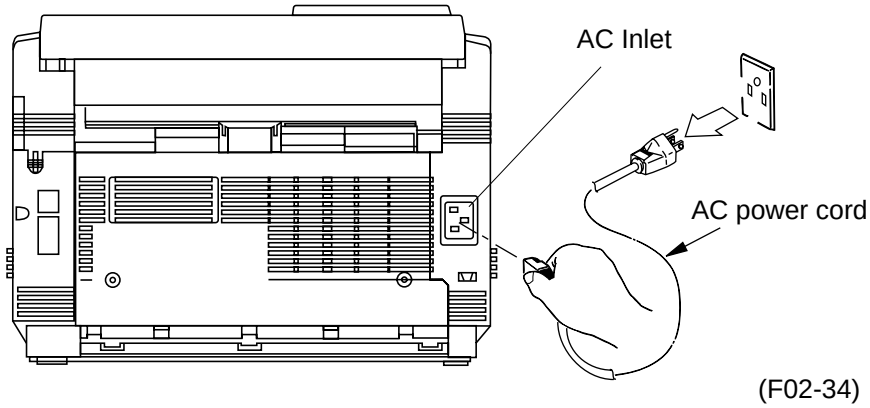
2) Second Paper Cassette Unit

This item explains how to install the Second Paper Cassette Unit option.

Second Paper Cassette Unit installation

1. Turn the facsimile power switch off and remove the ACpower cord.

   Note: Unplug the AC power cord from the wall outlet first and then from the facsimile.



(F02-34)

Figure C.4.1

2. Open the Manual Feed Guide.

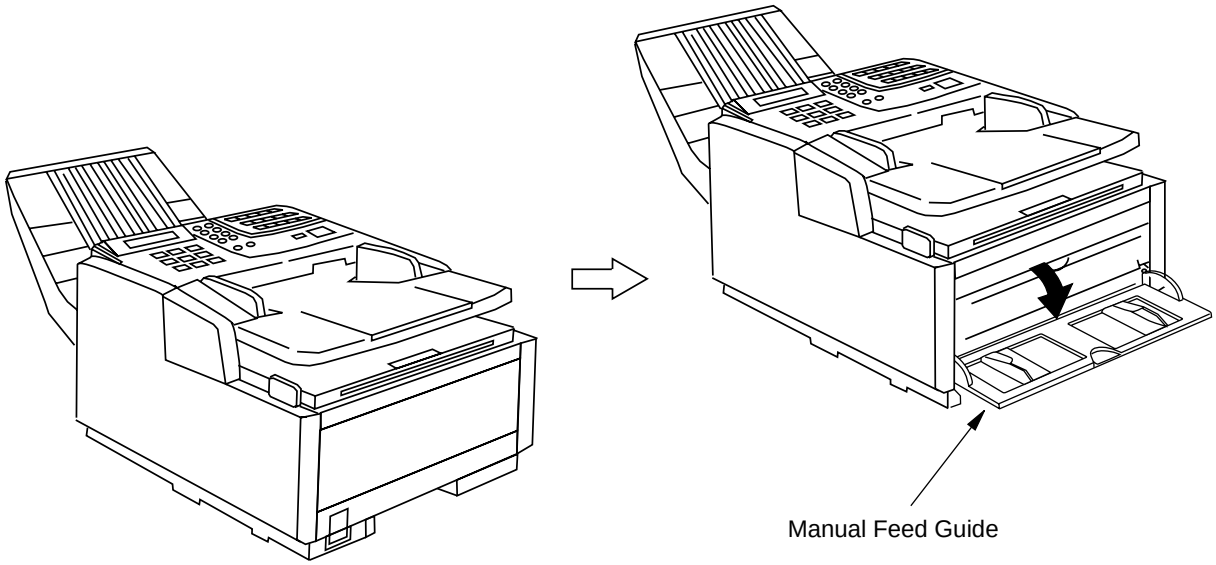
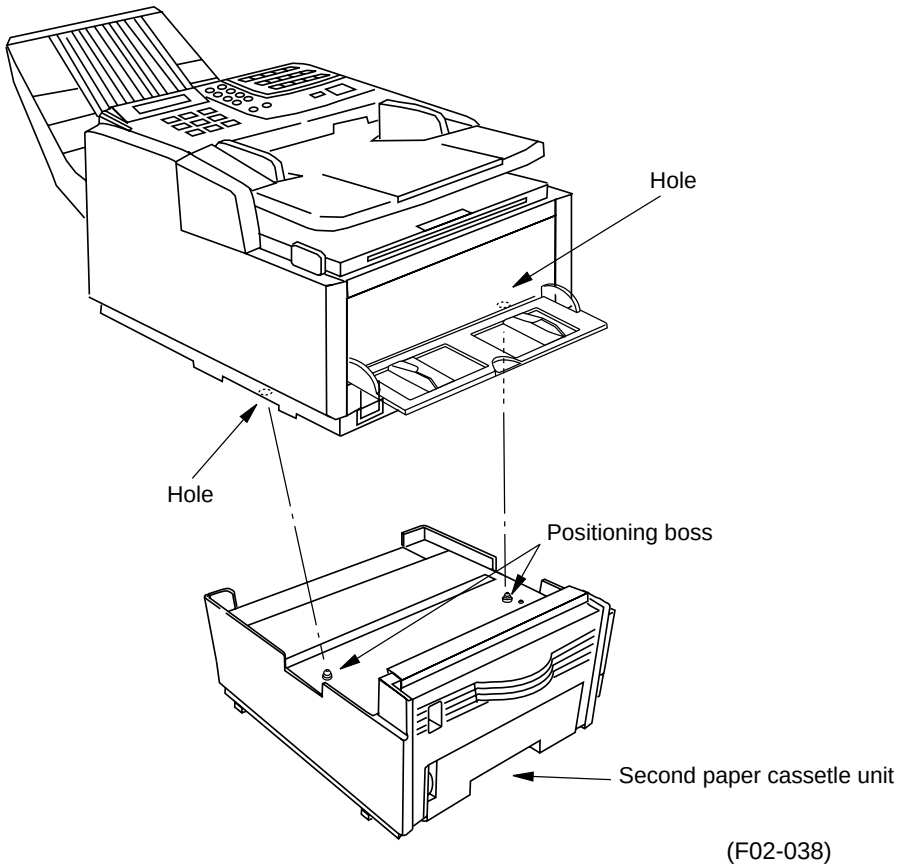


Figure C.4.2

3. Gently lower the facsimile on the Second Paper Cassette Unit.

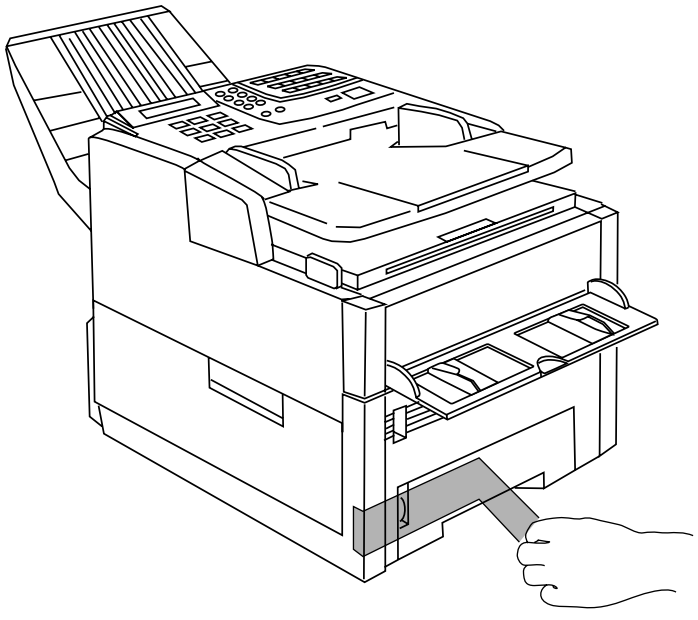
Note: Make sure that the positioning boss of the Second Paper Cassette Unit fits into the 2 holes at the bottom of the facsimile transceiver main unit.



(F02-038)

Figure C.4.3

4. Peel off the tape attached on the Second Paper Cassette Unit.



(F02-039)

Figure C.4.4

5. Install the Second Paper Cassette. Approximately 500 sheets of recording paper (20-Ib bond) can be loaded.

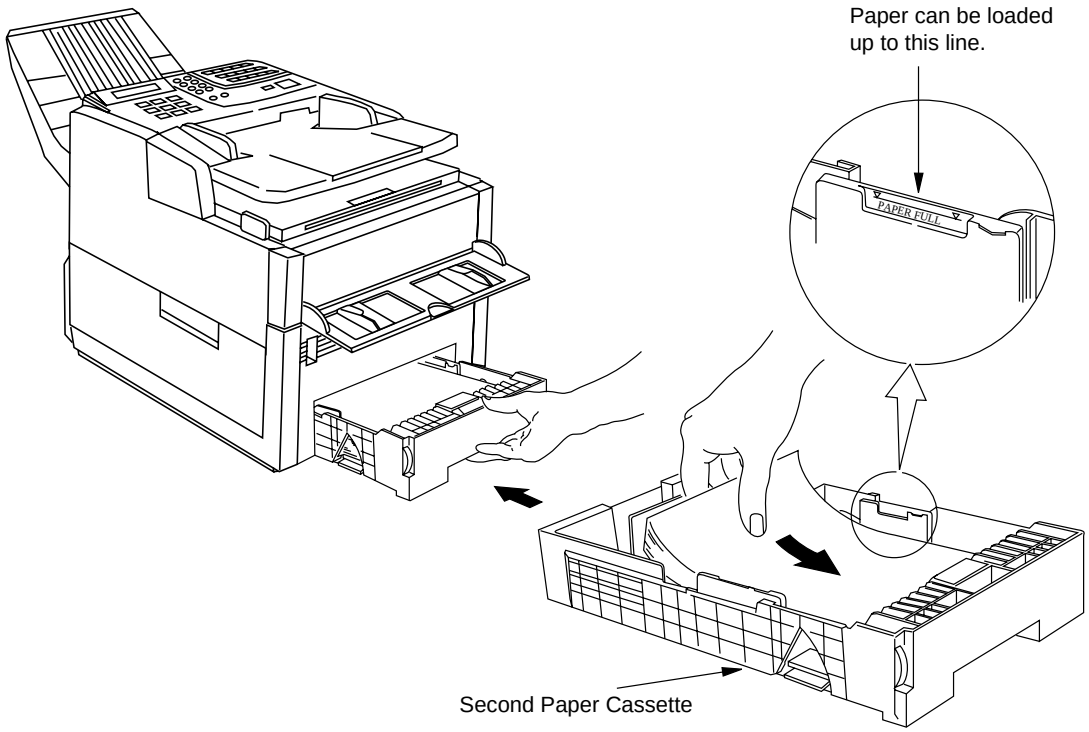
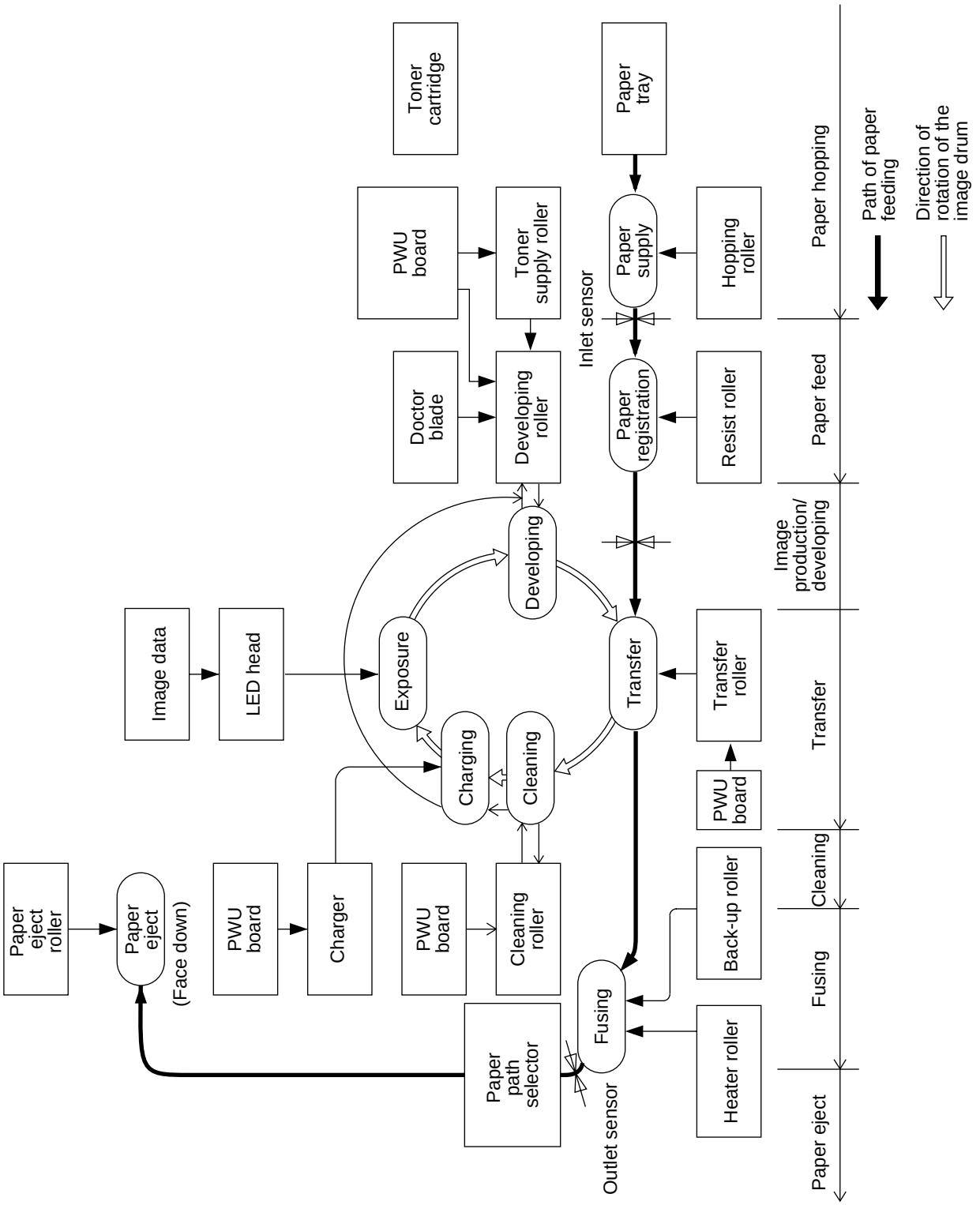


Figure C.4.5

6. Reconnect the power cord to the wall and the facsimile, and Turn the facsimile power on.

CHAPTER 3

BRIEF TECHNICAL DESCRIPTION

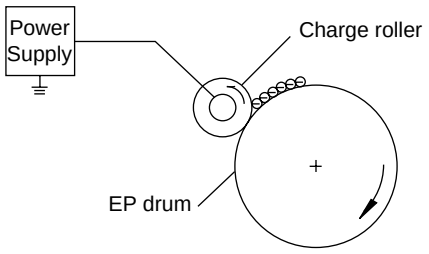
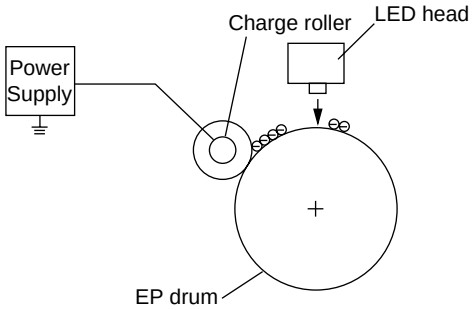
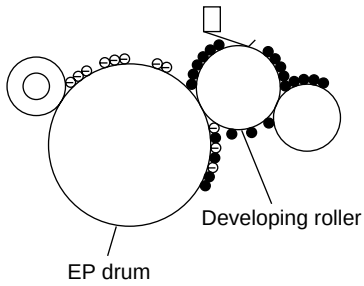


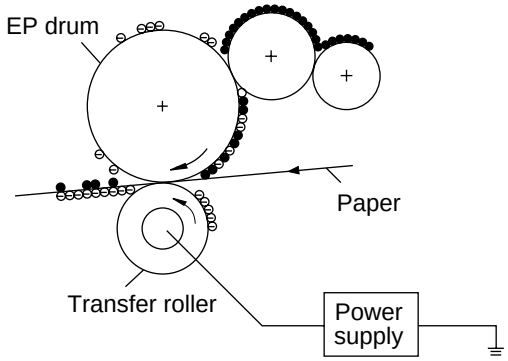
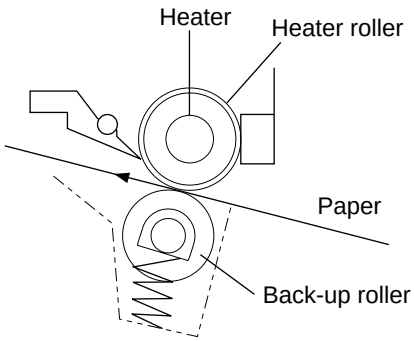
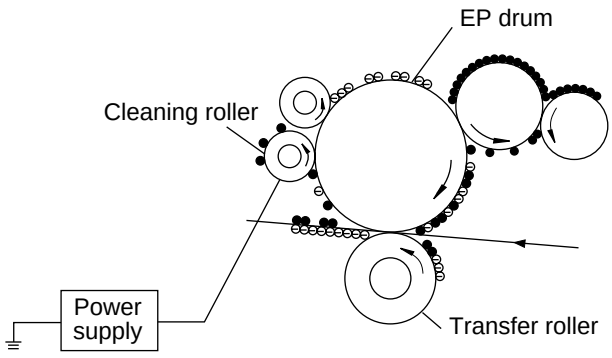
Electro-photographic Process Flow

3.1 Fundamentals of the Electro-Photographic Process

The electro-photographic process involves six sub-processes:
(1) Charging (2) Exposure (3) Development (4) Transfer (5) Fusing (6) Cleaning

Outline of each process is explained below.

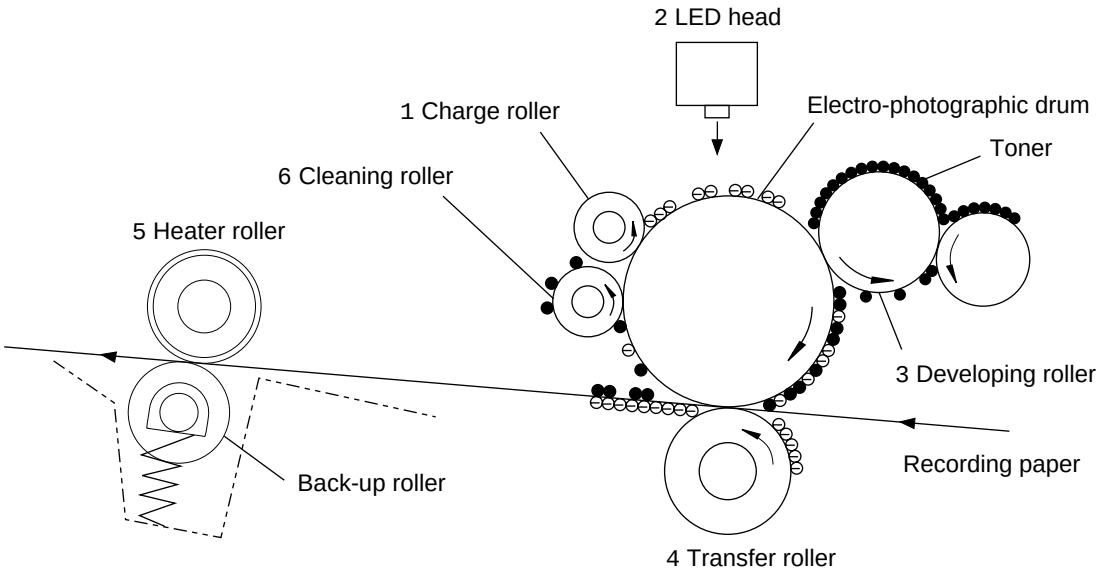
Process	Illustration	Description
1 Charging		The surface of the electro-photographic Image drum is uniformly charged with negative charges by applying a negative voltage to the charge roller. When the applied DC voltage exceeds a threshold value, charging of the drum begins.
2 Exposure		Light emitted from the LED head irradiates the negatively charged surface. The potential of the irradiated part of the Image drum surface is raised, so that an electrostatic latent image associated with the print image is formed.
3 Development		Toner is attracted to the exposed part (high-potential part) of the Image drum at the contact between the Image drum and the developing roller, making the electrostatic latent image visible. At the same time, the residual toner on

Process	Illustration	Description
4 Transfer		the Image drum is attracted to the developing roller by static electricity. The recording paper is placed over the Image drum surface and a positive charge, opposite in polarity to the toner, is applied to the reverse side of the paper from the transfer roller. The toner is attracted by the positive charge and is transferred to the paper. The toner charged negative that is attracted to the Image drum surface is transferred to the upper side of the recording paper by the positive charge on the lower side of the paper.
5 Fusing		The unfused toner image is fused on the paper under heat and pressure as it passes between the heater roller and the back-up roller.
6 Cleaning		Residual toner on the Image drum is attracted to the cleaning roller temporarily by static electricity on the Image drum surface.

3.2 Actual Electo-photographic Process

The electro-photographic process consists of six essential processes.

The following Figure 3.2.1 provides a general description.



* Process:

1 : Charging
2 : Exposure
3 : Developing
4 : Transfer
5 : Fusing
6 : Cleaning

Figure 3.2.1 Actual EP Process

3.3 Boards and Units

3.3.1 Boards and Units

The following three boards, Memory board (option), Telephone interface board (option), PC interface board (option) and three units constitute facsimile transceiver machine.

• Main control board	MCNT:	(E17)
• Modem board	MODEM:	(MODE; V.34) 5400 option
• Network control unit board	NCU:	(UNC; WN5, DN5; FN5)
• Memory board (option)	MEM:	(MEM; 2/4MB)
• Telephone interface board (option)	TEL:	(TEL-U, TEL-W1, TEL-W2, TEL-W2D, NTIF, HOOK, 10 KEY,)
• PC interface board (option)	Bi-Centro I/F:	(CTR) 5400 option
• 2nd tray interface board (option)	2ND TRAY I/F:	(TQSB)
• Operation panel assembly unit	OPE:	(O5W)
• Power supply unit	POW UNIT:	(120/230, SPSU;120V/230V)
• Printer unit		

Figure 3.3.1 shows the related drawing of the facsimile transceiver.

Note: The contact image sensor and electromagnetically driven parts compose the so-called Scan Unit.

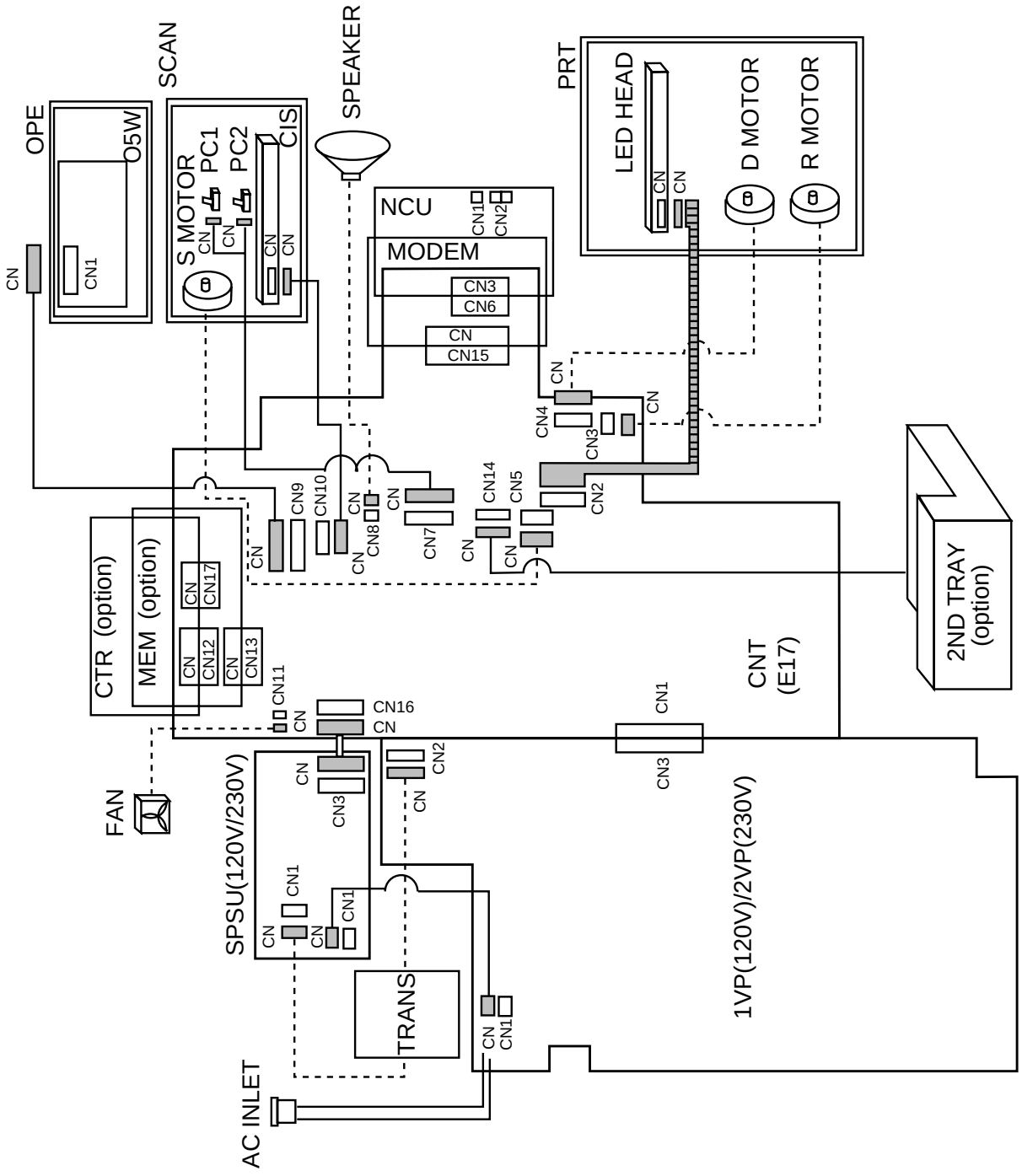


Figure 3.3.1 Related drawing

3.4 Overall Dimension and Mechanical Structure

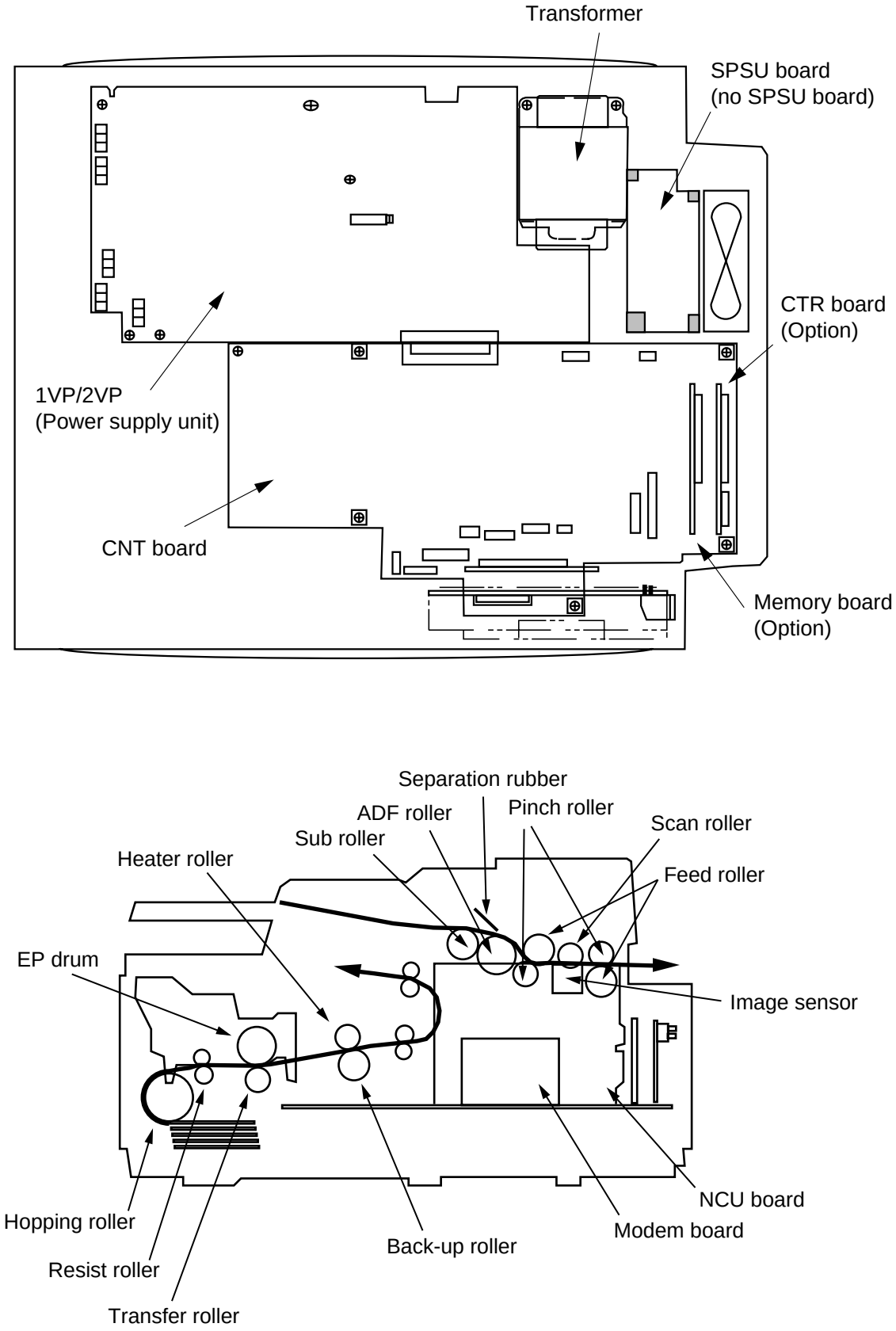


Figure 3.4.1 Overall Dimension and Mechanical Structure

CHAPTER 4

MECHANICAL DISASSEMBLY AND REASSEMBLY

This chapter explains the procedures for replacement of assemblies and units in the field.

4. General

4.1 Precautions for Parts Replacement

(1) Before starting disassembly and reassembly, always turn the AC power switch OFF, and pull out the AC plug.

Note: Unplug the AC power cord from the wall outlet first and then from the facsimile.

(2) Do not try to disassemble as long as the facsimile is operating normally.

(3) Do not remove unnecessary parts: Try to keep disassembly to a minimum.

(4) When disassembling, follow the prescribed sequence. Otherwise, parts may be damaged.

(5) Since screws and small parts are likely to be lost, they should temporarily be attached to their original positions.

(6) When handling items such as printed circuit boards, do not wear gloves that are likely to generate static electricity.

(7) Using a wrist band connected to the ground will protect semiconductors on printed circuit boards from damage by the static electricity.

(8) Do not place printed circuit boards directly on the equipment or on the floor.

	Board or Part	Adjustment
(a)	NCU board	DIP switches to be placed in the same position as on the removed board. Refer to Chapter 8.

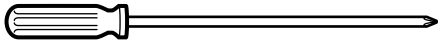
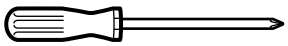
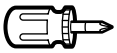
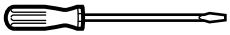
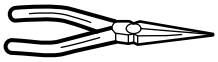
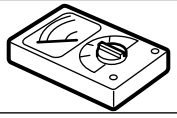
Note: The DIP switches setting is subject to change by PTT parameters.
WN5, DN5 and FN5 board (Except for USA/Canada version)

(b)	LED print head	When the rank marking of the replaced LED print head (new part) is the same as that of the used LED print head (old part), you do not always have to set the LED print head strobe time by the technical function No. 27. (Refer to Chapter 5)

4.2 Tools

Table 4.1 shows the tools required for the replacement of parts such as circuit boards and mechanical units.

Table 4.1 Tools

No.	Service tools		Q'ty	Remarks
1		Philips screw driver (L)	1	
2		Philips screw driver (M)	1	
3		Philips screw driver (S)	1	
4		Flat screw drivers (S)	1	
5		Philips screw driver (S)	1	
6		Radio pliers	1	
7		Nippers	1	
8		Multimeter	1	Short-ciucuit test

4.3 How to Disassemble and Reassemble

This section explains how to disassemble and reassemble the fax.

• Figure 4.1 shows the disassembly procedure flow as generalization.

• The detailed disassembly procedure is explained from sub-section 4.3.1 to 4.3.8.

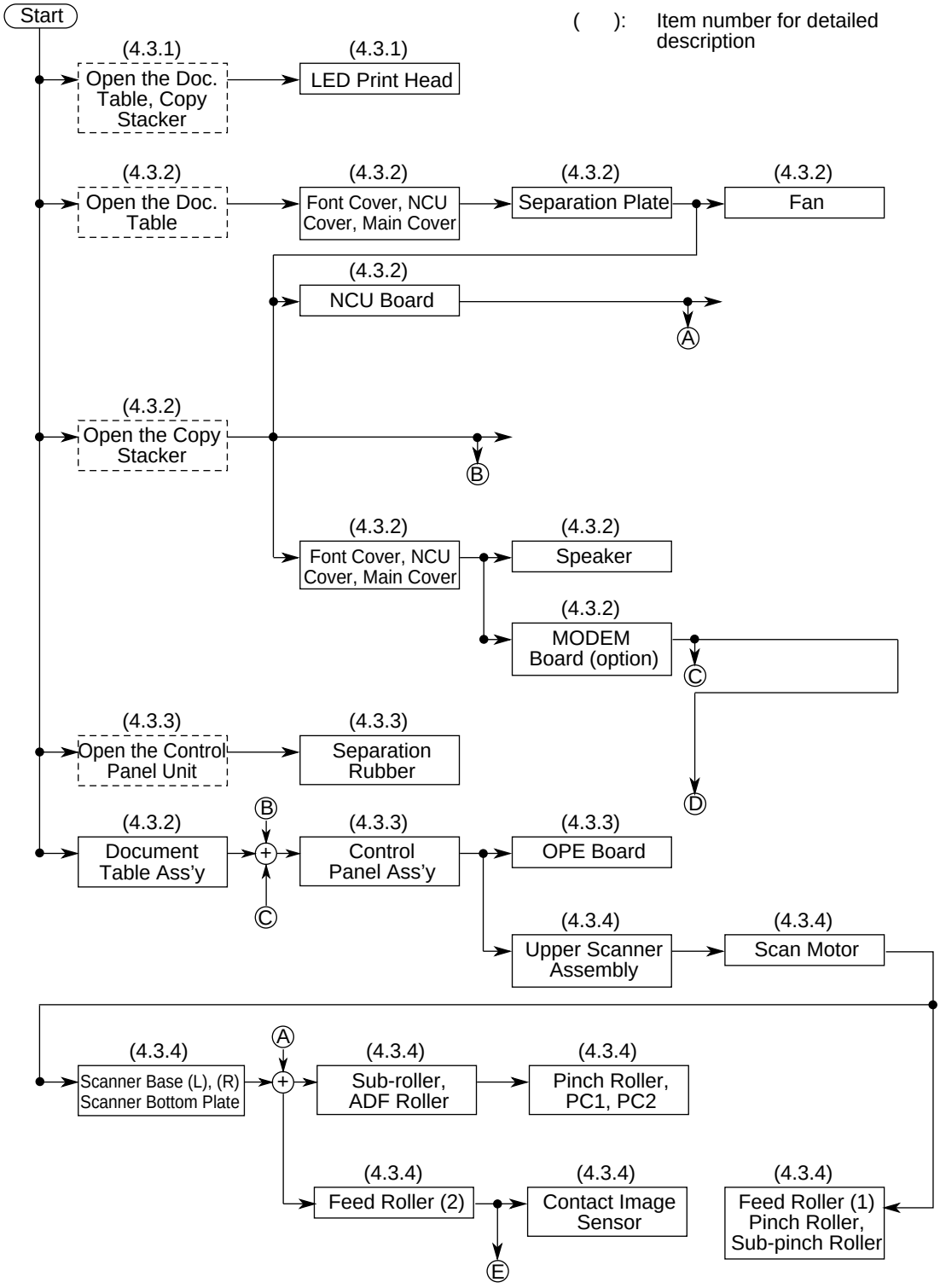


Figure 4.1 (1/2) Disassembly Procedure Flow

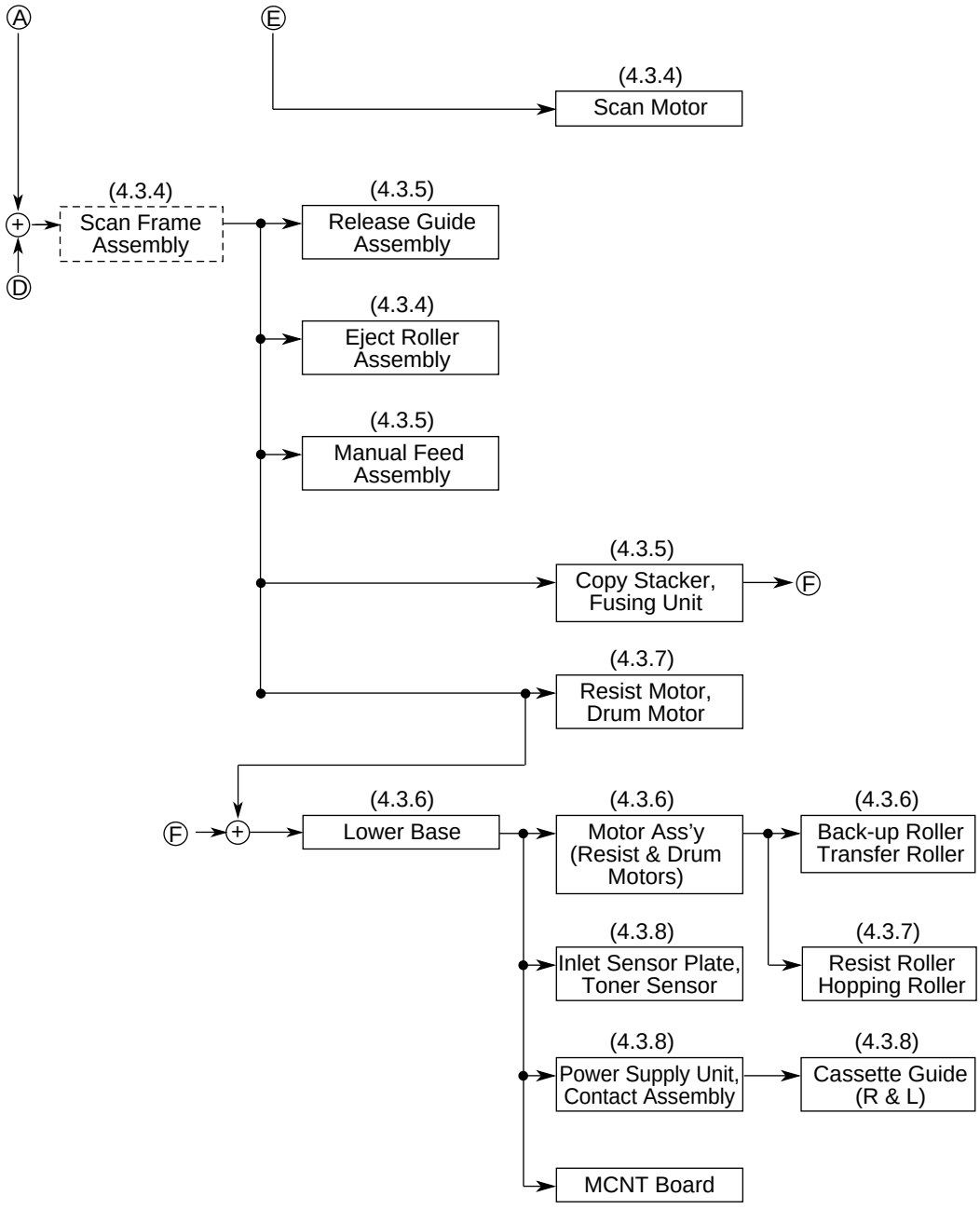


Figure 4.1 (2/2) Disassembly Procedure Flow

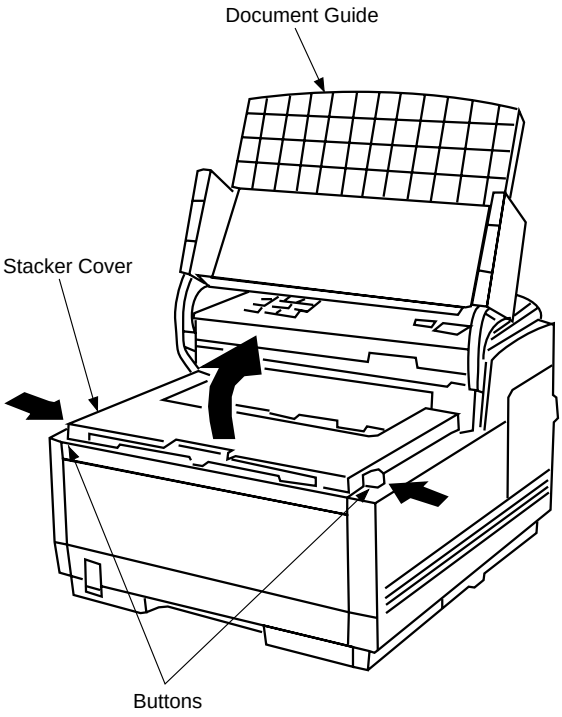
4.3.1 LED Print Head

It is used two kind of head as the LED print head. (208 mm width or 216 mm width)

(1) Disassembly procedure

a) Open the Document Table assembly.

b) Open the Stacker Cover by pushing the Buttons.

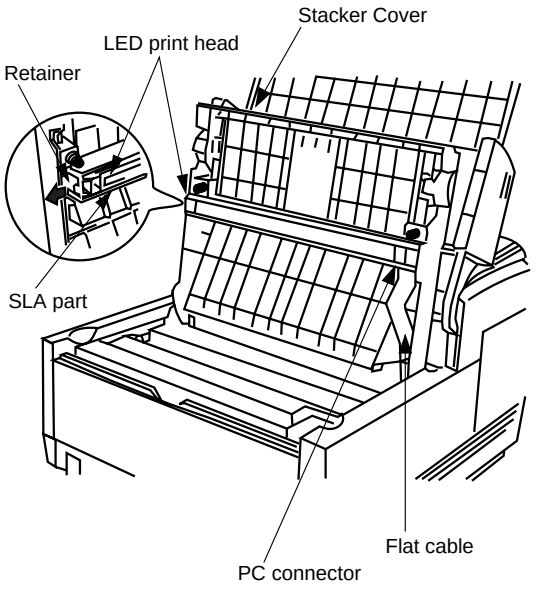


(FX-050VP-C4-001)

c) Disconnect the PC connector from the LED print head.

d) Disconnect the flat cable from the PC connector.

e) Remove the LED print head while spreading the retainer on the Stacker Cover.



(FX-050VP-C4-002)

Note: Be sure not to touch directly or push the SLA part of the LED print head.

(2) Reassembly procedure

Reverse the disassembly procedures.

Note: After replacing the LED print head, set drive time of the LED print head following the marking. (Refer to section 5.1). When you replace the LED print head, if the width of the LED head to be used is changed from current version, you should select the head width by the service personnel initial setting (No. 28). (Refer to table 2.9.1 TF No. 28)

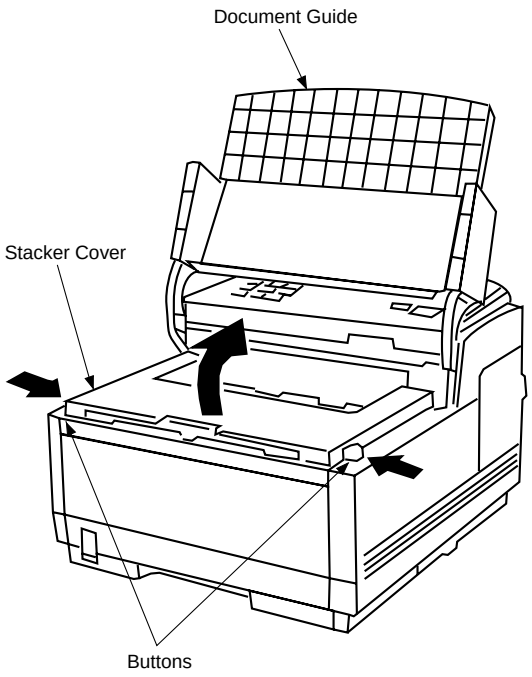
4.3.2 ID Unit, Rear Cover, NCU Cover, Main Cover, Separation Plate, NCU Board, Modem Board

(1) Disassembly procedure

1) ID Unit, Rear Cover, NCU Cover, Main Cover

a) Open the Document Guide assembly.

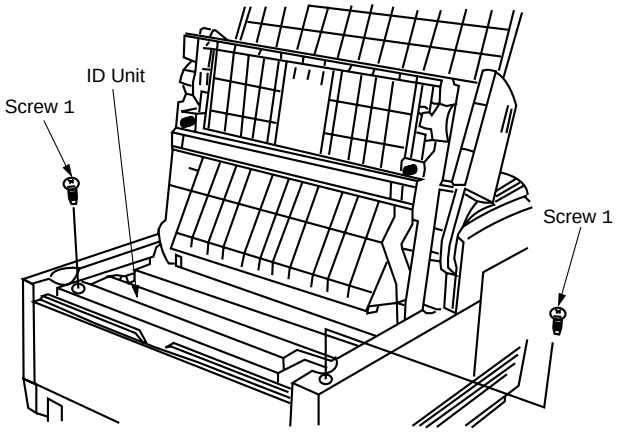
b) Open the stack cover by removing the buttons.



(FX-050VP-C4-001)

c) Take out the ID Unit from the equipment.

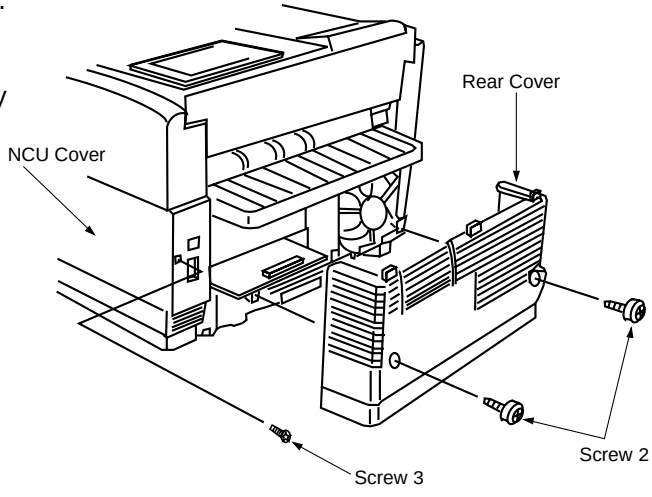
d) Remove the two screws ①.



(FX-050VP-C4-003)

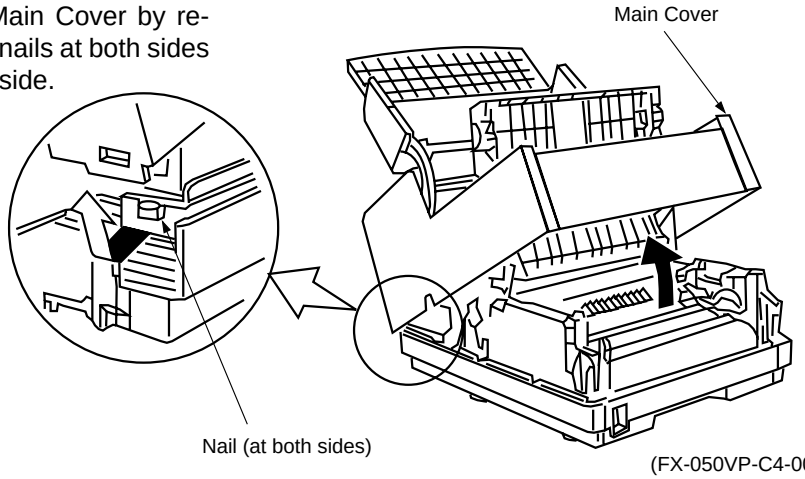
e) Remove the Rear Cover by removing the two screws ②.

f) Remove the NCU Cover by removing the screws ③.



(FX-050VP-C4-004)

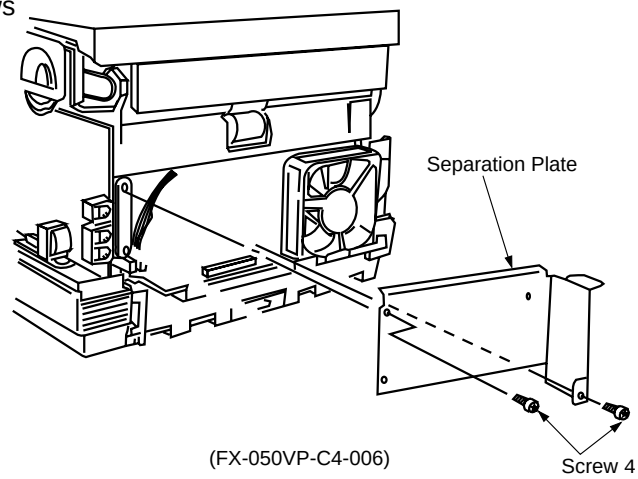
g) First, open the Main Cover from the front side, and then, remove the Main Cover by removing the nails at both sides on the rear side.



(FX-050VP-C4-005)

2) Separation Plate

a) Remove the Separation Plate by removing the two screws ④.



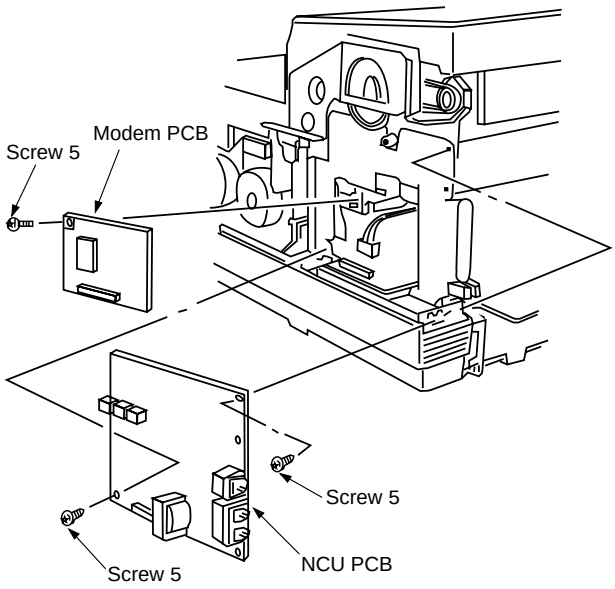
(FX-050VP-C4-006)

3) NCU Board, MODEM Board

a) Remove the NCU Board by removing the two screws ⑤.

b) Remove the MODEM Board by removing the screw ⑥.

Note: V.34 modem board (5400 option)



(FX-050VP-C4-007)

(2) Reassembly procedure

Reverse the disassembly procedures.

4.3.3 Control Panel Assembly, Paper Guide (U) Assembly.

(1) Disassembly procedure

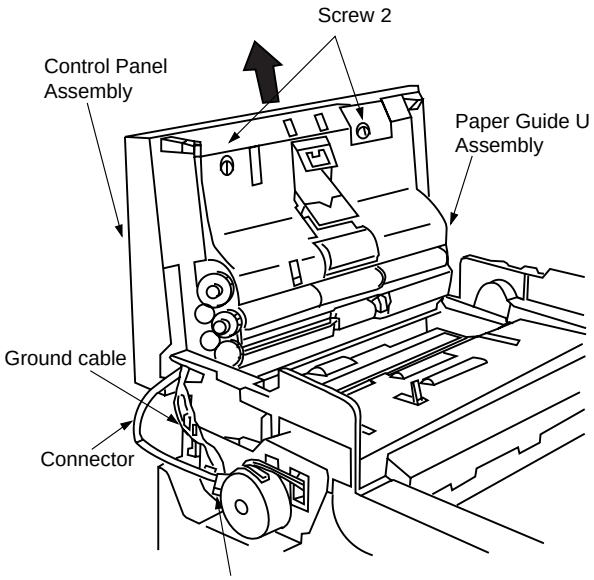
1) Control Panel Assembly and Paper Guide (U) Assembly

a) First, carry out the disassembly procedure up to the point of the 4.3.2 (Main Cover, NCU Cover and Rear Cover).

b) Remove the ground cable by removing the screw ①.

c) Disconnect the connector of the Control Panel from the MCNT Board.

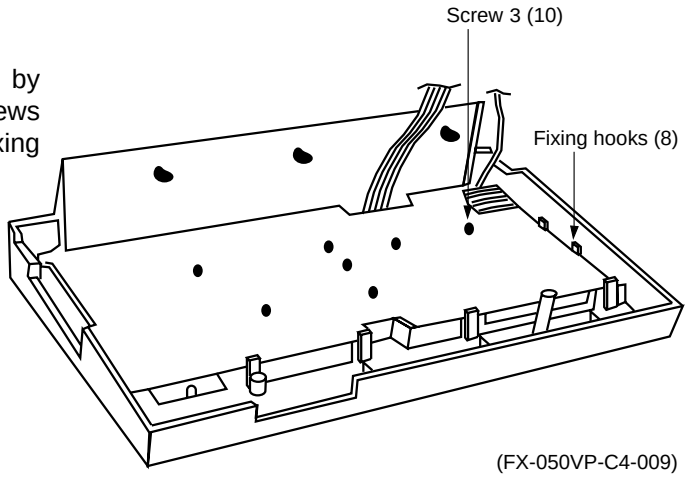
d) The removal of the two screws ② results into two separate assemblies:
Control Panel Assembly and Paper Guide (U) Assembly.



(FX-050VP-C4-008)

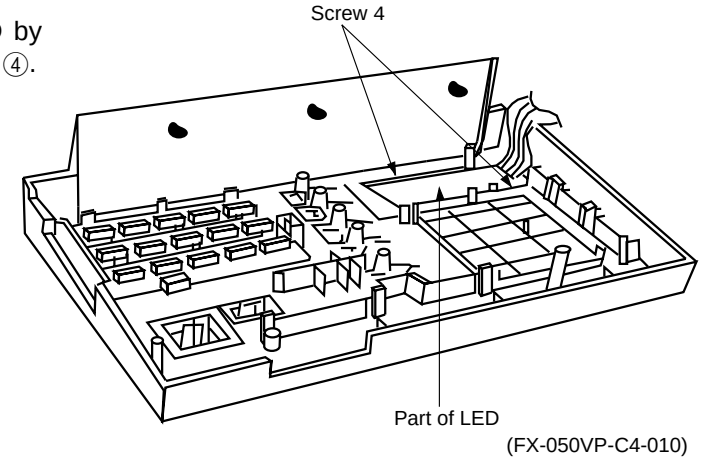
2) Control Panel Assembly

a) Remove the OPE Board by removing the 10 small screws ③ and the part of the fixing hooks (8).



(FX-050VP-C4-009)

b) Remove the part of LED by removing the two screws ④.

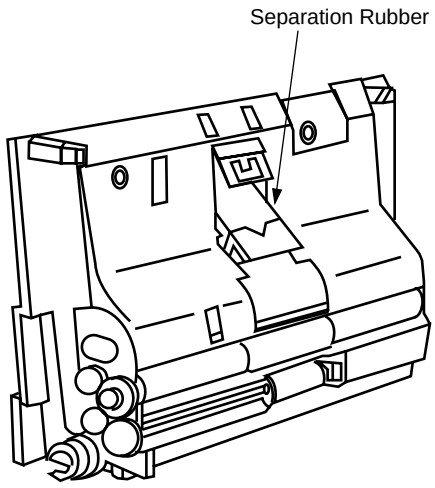


(FX-050VP-C4-010)

3) Paper guide (U) Assembly

a) Separation Rubber

a. The Separation Rubber can be removed from the Paper Guide (U) Assembly.

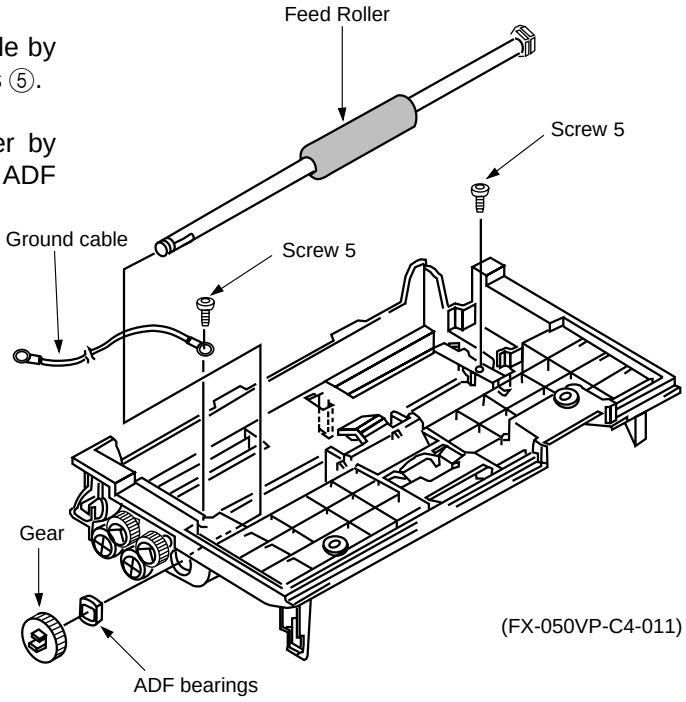


(FX-050VP-C4-011)

b) Feed Roller

a. Remove the ground cable by removing the two screws ⑤.

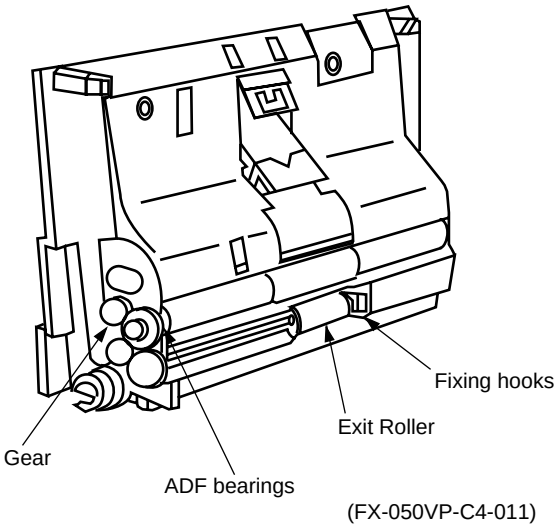
b. Remove the Feed Roller by removing the gear and ADF bearings.



(FX-050VP-C4-011)

c) Scan Roller
Remove the Scan Roller by removing the gear and ADF bearing.

d) Exit Roller
Remove the Exit Roller while spreading and holding up the part of the fixing hooks.



(FX-050VP-C4-011)

Note: Be careful as not to break the shaft of the Exit Roller when removing.

(2) Reassembly procedure

Reverse the disassembly procedures.

4.3.4 Sub-roller, ADF Roller Assembly, Pinch Roller, Contact Image Sensor, Document Detectors (PC1 and PC2).

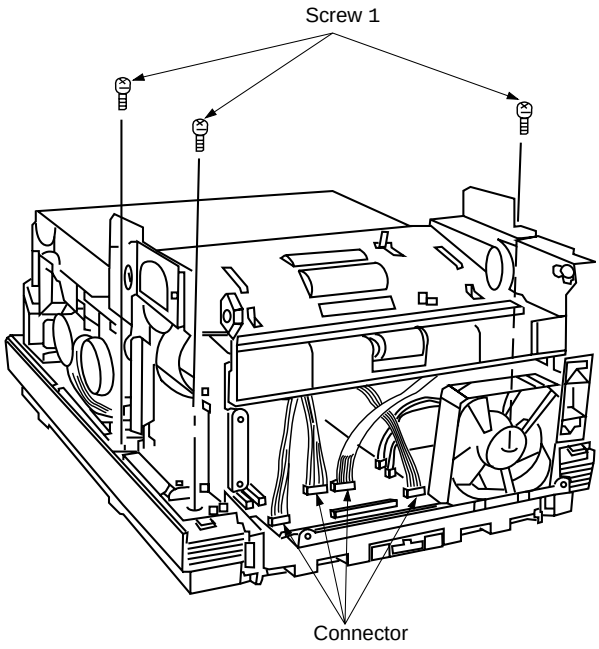
(1) Disassembly procedure

1) Scanner Unit

a) First, carry out the disassembly procedure up to the point of the 4.3.2 (Rear Cover and Main Cover) and 4.3.3 (Control Panel Assembly and Paper Guide (U) Assembly).

b) Disconnect the connector from the MCNT Board and the AC inlet from the scanner frame.

c) Remove the Scanner Unit by removing the three screws ①.



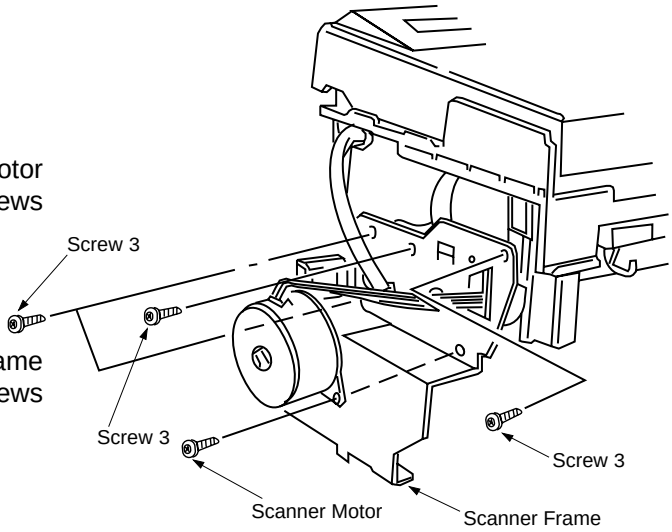
(FX-050VP-C4-013)

2) Scanner Motor

a) Remove the Scanner Motor by removing the two screws ②.

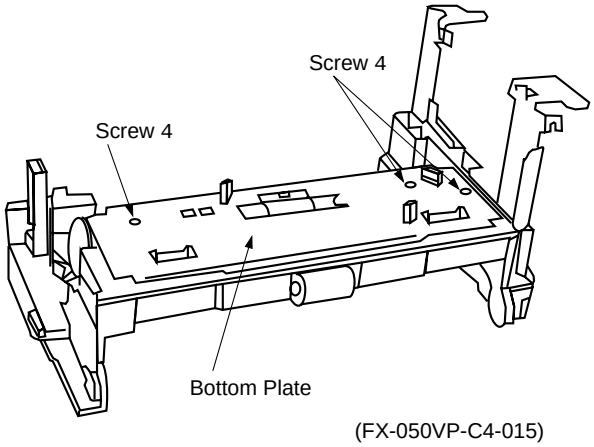
3) Scanner Frame

a) Remove the Scanner Frame by removing the three screws ③.



(FX-050VP-C4-014)

4) Sub-roller, ADF roller assembly, Pinch Roller, Contact Image Sensor



(FX-050VP-C4-015)

- Turn the Scanner Frame Assembly inside out and perform the disassembly procedure.

a) Remove the Bottom Plate by removing the three screws ④.

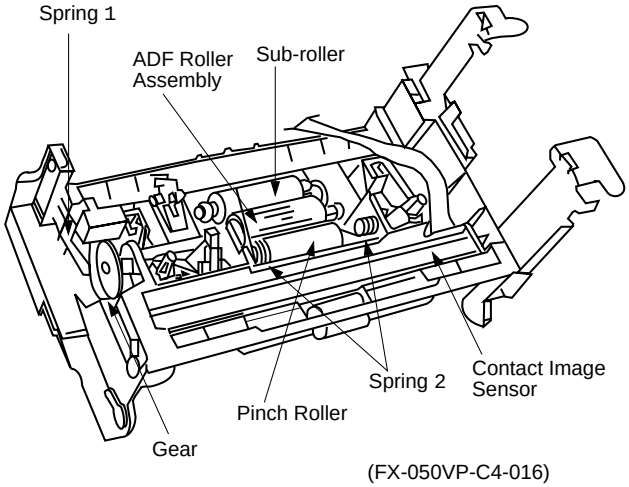
b) Remove the Sub-roller from the Scanner Frame.

c) Remove the spring ① from the Scanner Frame.

d) Remove the ADF Roller Assembly by removing the gear on the Scanner Frame.

e) After removing the ADF Roller, remove the Pinch Roller by holding up the two springs ② while the Pinch Roller Shaft is pushed and released.

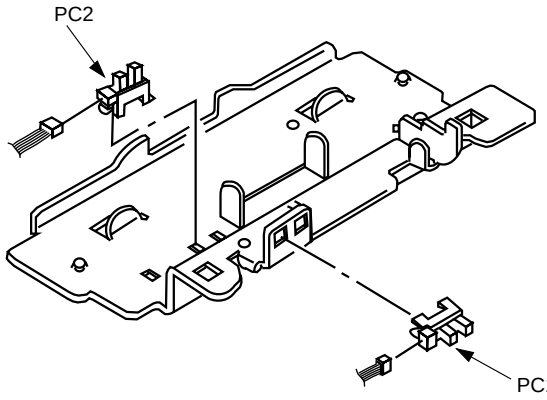
f) Remove the Contact Image Sensor by disconnecting the connector.



(FX-050VP-C4-016)

5) PC1, PC2

a) After disconnecting the two connectors, remove the photo-coupler sensors PC1 and PC2 on the Bottom Plate by pressing the latch using the flat screwdriver or the like.



(FX-050VP-C4-017)

(2) Reassembly procedure

Reverse the disassembly procedure.

4.3.5 Resist Motor, Drum Motor, Release Guide Assembly, Manual Guide Assembly, Stacker Cover, Fusing Unit

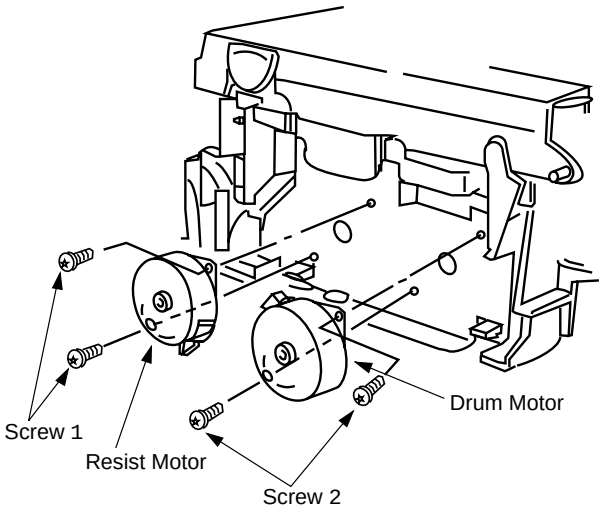
(1) Disassembly procedure

- First, carry out the disassembly procedure up to the point of the Scanner Unit Assembly removal (Refer to Sub-section 4.3.4.)

1) Resist Motor and Drum Motor

a) Remove the Resist Motor by removing the two screws ①.

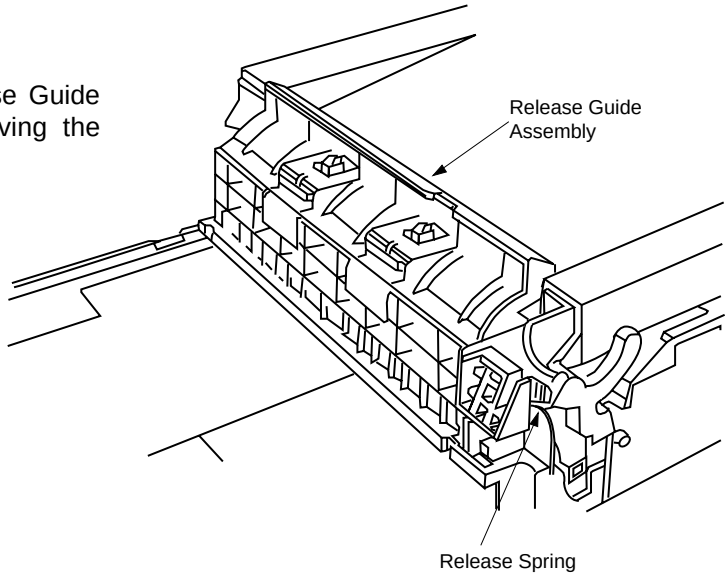
b) Remove the Drum Motor by removing the two screws ②.



(FX-050VP-C4-018)

2) Release Guide Assembly

a) Remove the Release Guide Assembly by removing the Release Spring.



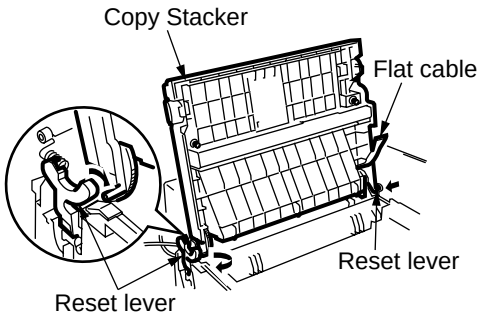
(FX-050VP-C4-019)

3) Stacker Cover

a) Disconnect the flat cable.

b) Remove the Copy Stacker by pressing inward the two latches on it from the two reset levers.

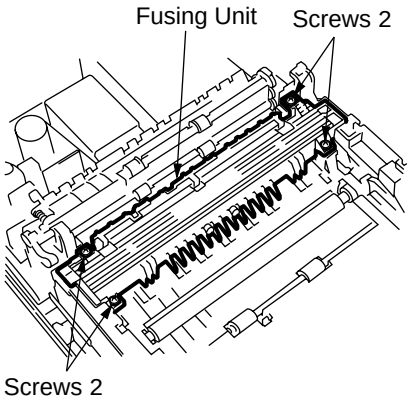
c) Remove the Copy Stacker by spreading it from the lower base.



(FX050-C4-021)

4) Fusing Unit

a) Remove the Fusing Unit by removing the four screws ②.

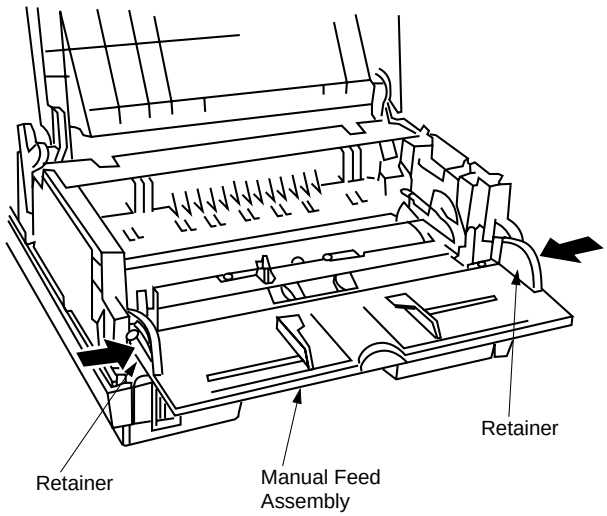


(FX050-C4-022)

5) Manual Feed Assembly

a) First, carry out the disassembly procedure up to the point of Main Cover removal. (Refer to sub-section 4.3.2)

b) Remove the Manual Feed Assembly by pressing inward the two retainers.



(FX-050VP-C4-020)

(2) Reassembly procedure

Reverse the disassembly procedures.

4.3.6 Lower Base, Motor Assembly, Back-up Roller, Transfer Roller

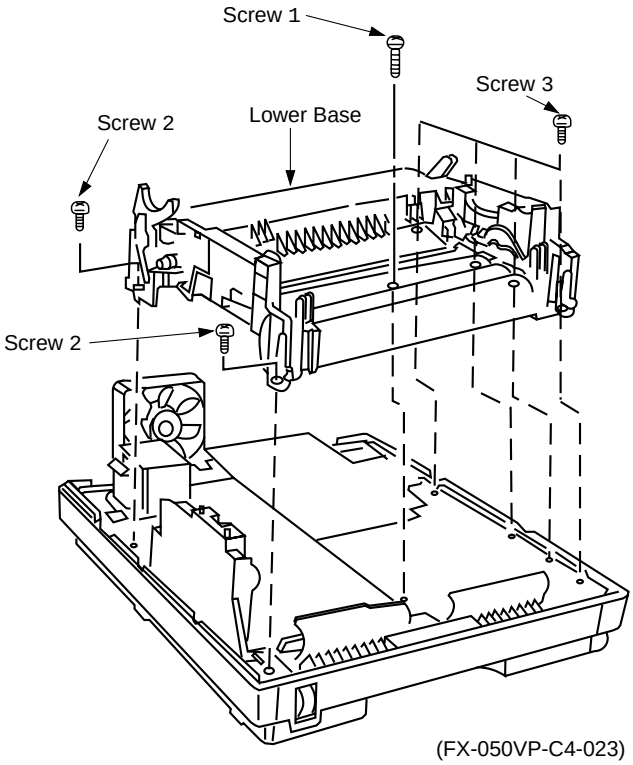
(1) Disassembly procedure

1) Lower Base, Motor Assembly

a) First, carry out the disassembly procedure up to the point of the Fusing Unit removal. (Refer to sub-item 4.3.5.)

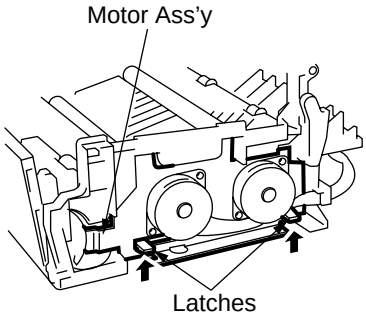
b) Disconnect the two connectors (CN3 and CN4 on the MCNT board).

c) Remove the Lower Base by removing the seven screws ① to ③.



(FX-050VP-C4-023)

d) Press up and hold the two latches while removing the Motor Assembly out.

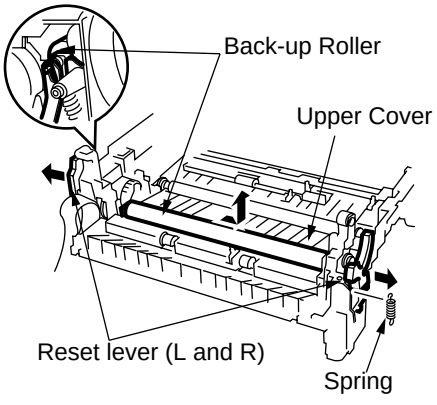


(FX050-C4-024)

2) Back-up Roller, Transfer Roller

a) After removing the Lower Base, remove the spring.

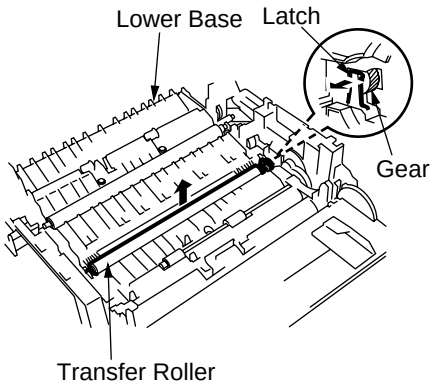
b) Lift the left side of the Back-up Roller and pull it out leftwards.



(FX050-C4-022)

c) Release the gear by unlocking the latch on the Lower Base.

d) Lift the right side of the Transfer Roller and shift rightwards, then pull it out from the Lower Base.



(FX050-C4-026)

(2) Reassembly procedure

Reverse the disassembly procedures.

4.3.7 Resist Roller, Hopping Roller, Sensor Plates

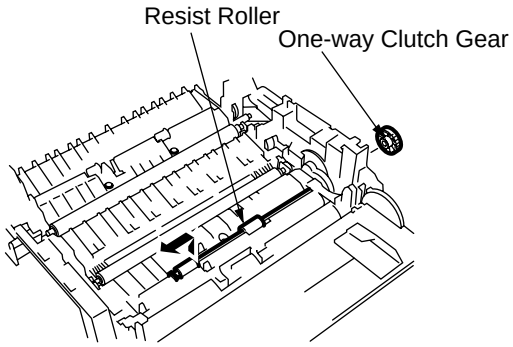
(1) Disassembly procedure

1) Resist Roller, Hopping Roller

a) First, carry out the disassembly procedure up to the point of the Lower Base removal. (Refer to sub-item 4.3.6.)

b) Remove the One-way Clutch Gear.

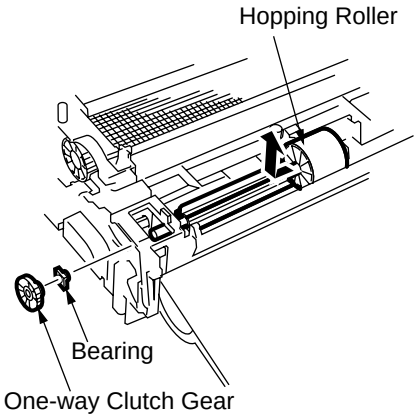
c) Press the Resist Roller to the right side and lift up the left side of it, then take off the Resist Roller.



(FX050-C4-027)

d) Remove the One-way Clutch Gear and Bearing.

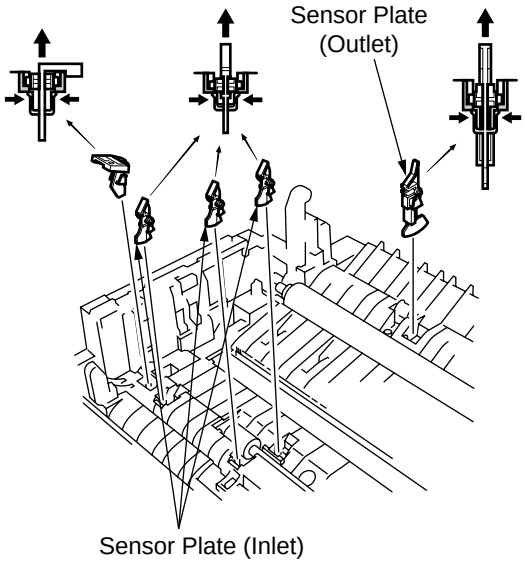
e) Remove the Hopping Roller by sliding to the right side.



(FX050-C4-028)

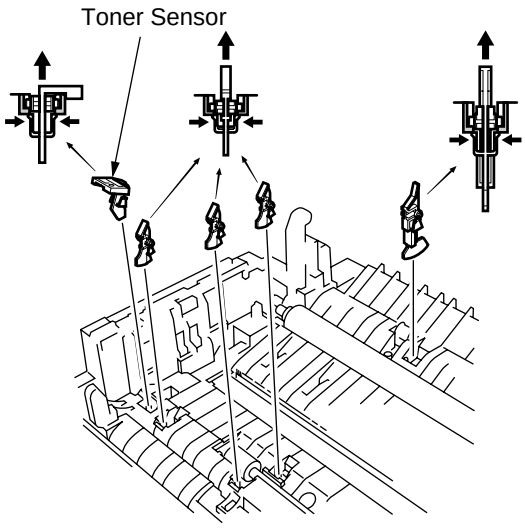
2) Sensor Plates (Inlet, Outlet), Toner Sensor

a) After removing the Lower Base, remove the Sensor Plate by pressing and holding the latches while shifting the Sensor Plate up and out.



(FX050-C4-029)

b) Press and hold the Clutch while pushing the Toner Sensor up and out.



(FX050-C4-030)

(2) Reassembly procedure

Reverse the disassembly procedures.

4.3.8 MCNT Board, Power Supply Unit, Contact Assembly, Transformer, Sub-PSU

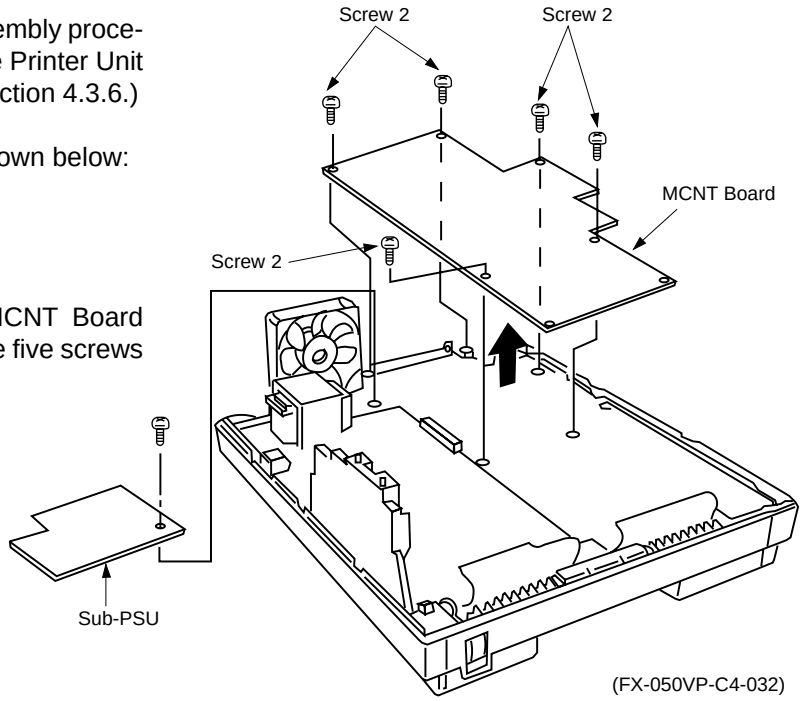
(1) Disassembly procedure

- First, carry out the disassembly procedure up to the point of the Printer Unit removal. (Refer to sub-section 4.3.6.)

  Note: MCNT board is shown below:

1) MCNT Board

   a) Remove the MCNT Board by removing the five screws ②.



(FX-050VP-C4-032)

2) Power Supply Unit and Contact Assembly

   a) Disconnect the two connectors from the Transformer.

   b) Remove the Power Supply Unit by removing the three screws ③ and the screw ④.

   c) Separate the Power Supply Unit from the Contact Assembly.

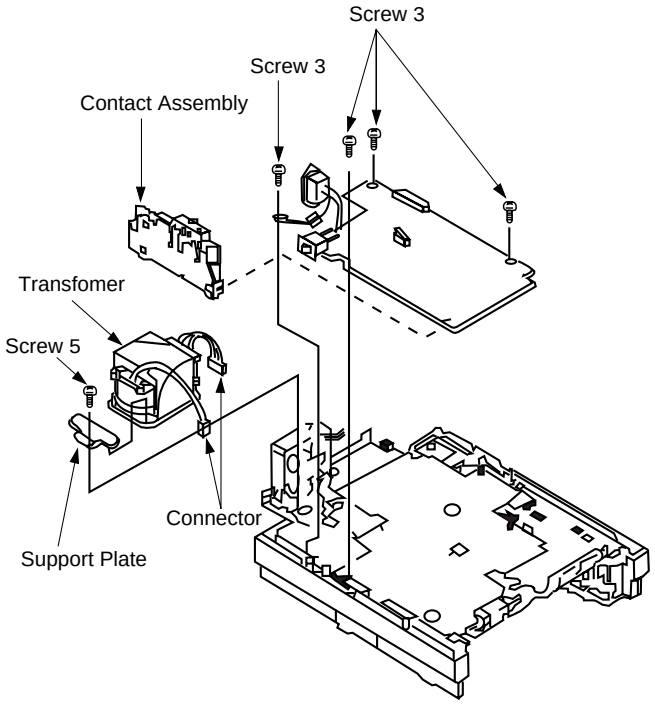
3) Transformer

   a) Remove the Support Plate by removing the five screws ⑤.

   b) Remove the Transformer by disconnecting the two connectors.

4) Sub-PSU

   a) Remove 1 screw.



(FX-050VP-C4-033)

(2) Reassembly procedure

Reverse the disassembly procedures.

CHAPTER 5

ADJUSTMENTS

5.1 Setting of LED Print Head Drive Time

- Adjustment point: Technical Function No. 27.

* To bring the LCD up to Technical Function, press SELECT FUNCTION key once, COPY key twice and "2" key (In case of no message in memory).

Note: When the rank marking of the replaced LED print head (new part) is the same as that of the used LED print head (old part), you do not always have to set the LED print head drive time.

Adjustment:

1) Turn AC power ON.
2) Setting of LED print head should be according to the Table 5.1.1 below:

Table 5.1.1 Setting of Technical Function No. 27

Setting / Rank Marking	MSB ↕ LSB																														
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1
		0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
		0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
		0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
291 — 313										*																					
269 — 290											*																				
248 — 268												*																			
229 — 247													*																		
212 — 228														*																	
196 — 211															*																
181 — 195																*															
168 — 180																	*														
155 — 167																		*													
143 — 154																			*												
132 — 142																				*											
122 — 131																					*										
113 — 121																						*									
105 — 112																							*								
100 — 104																								*							

Note1: The luminous intensity ranking is determined by the first, second and third digits from the right in the LED print head (i.e. in ---XX122, 122 is the luminous intensity ranking.)

Note2: When the head label of the replaced LED print head (new part) is the same as that of the used LED print head (old part), you do not always have to set the LED print head width by technical function No.28. (Refer to table 2.9.1, TF No.28)

5.2.1 Confirmation Items

The clock frequency and power voltage of the machine are not possible to adjust in the field. However, their measurement procedures are described here for confirmation of clock frequency and each voltage.

1) Clock Frequency

- Measurement point: E17 board; LC2-3 pin and ground terminal
- Specification: 20.000 MHz ± 50 PPM

Note: If the counter does not read with 20.000 MHz, replace with a new crystal oscillator (X1).

2) +5V DC Voltage (SUB)

- Measurement point: E17 board; CN16-1 pin and ground terminal
- Specification: +5V ± 4% (+4.5V to 5.2V)

3) +5V DC Voltage

- Measurement point: E17 board; CN1-B12/A13/B13 pin and ground terminal
- Specification: +5V ± 4% (+4.5V to 5.2V)

4) +8V DC Voltage

- Measurement point: E17 board; CN1-A14 pin and ground terminal
- Specification: +6.5V to 15V

5) –8V DC Voltage

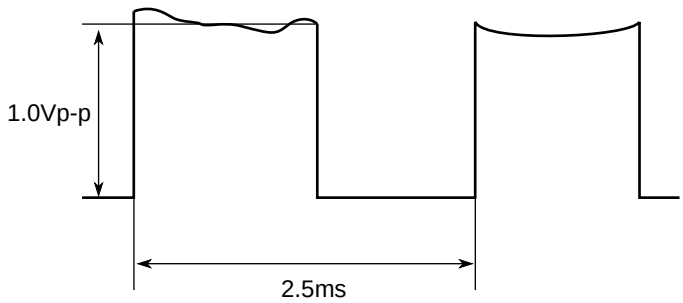
- Measurement point: E17 board; CN1-B14 pin and ground terminal
- Specification: –15V to –6.5V

6) +30V DC Voltage

- Measurement point: E17 board; CN1-A15/B15 pin and ground terminal
- Specification: +24V to +45V

7) Contact Image Sensor Output (SIG signal)

- Measurement point: E17 board; CN10-1 pin and ground terminal
- Specification: A waveform sample is shown below.
- Test chart: White sheet (A4 size)



5.2.2 Measurement

1) Turn AC power OFF.

2) Carry out the disassembly procedure up to Main Cover and Scanner Unit removal. (Refer to the Mechanical Disassembly and Reassembly in Chapter 4-2.)

3) Connect extension cables to the E17 board.

4) Connect the frequency counter (for clock frequency), digital voltmeter (for power voltage) and Oscilloscope (for SIG signal). See figure 5.2.1.

5) Turn AC power ON.
Main power supply is set to "ON" (PC1 ON) by loading the document on the cover-top. (except +5V SUB)

6) Measurement

7) Turn AC power OFF.

8) Reverse the disassembly procedures.

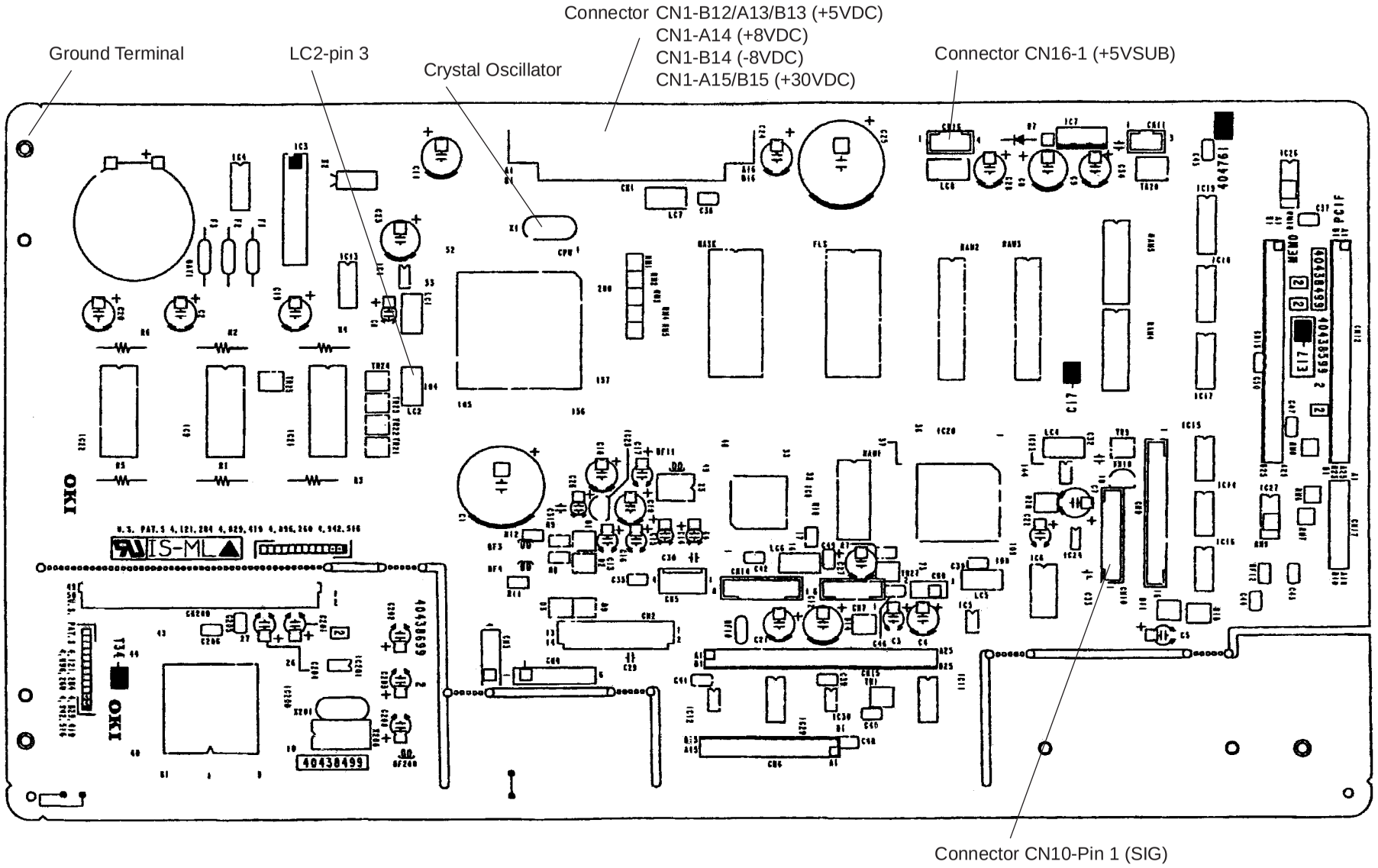


Figure 5.2.1 Measurement Points on E17 Board

CHAPTER 6

CLEANING AND MAINTENANCE

6.1 Replacement of Consumable Parts

The user (or service personnel) is required to replace the following items as consumable parts.

(1) User side

No.	Part name	Expected Use Before Replacement	Reference Item No. in Fig.6.1
1	Toner Cartrige	2500 sheets/cartrige (ITU-T document sample No.1) (For the second or later cartridge to a new I/D Unit) * The first toner cartridge installed in a new I/D unit will have a decreased yield.	(1)
2	I/D Unit (Image drum unit)	11,000 sheets/unit	(2)

(2) Service personnel side

No.	Part name	Expected Use Before Replacement	Reference Item No. in Fig.6.1
1	Fuser Unit	180,000 sheets	(3)
2	Separation Rubber	The Separation Rubber will not require replacement for at least 30,000 documents fed.	(4)

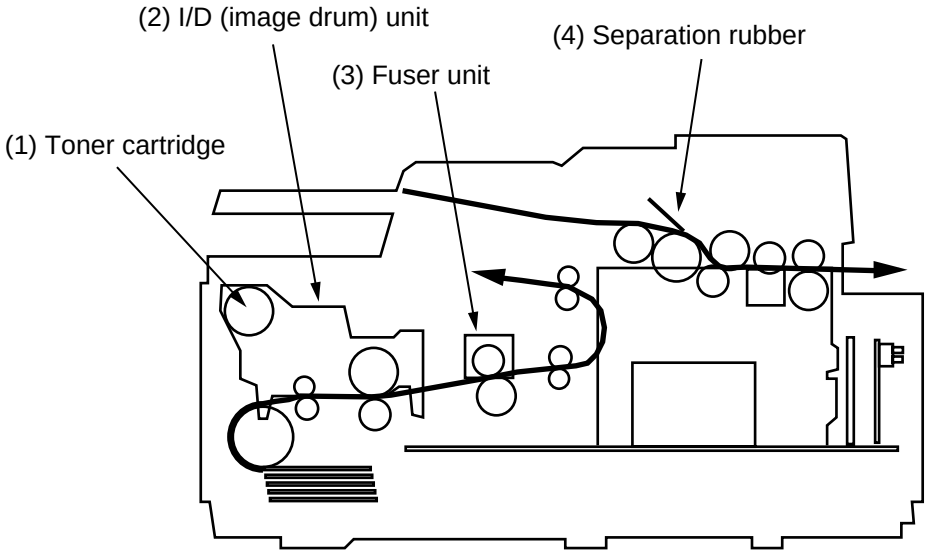


Figure 6.1 Consumable Parts

(3) Others

Table 6.1 Reliability

No.	Item	Specifications
1	Document feeder	Jam occurrence and misfeeds in the automatic document feeder will be less than one in 500 operations for all specified documents.
2	Recording paper feeder	Jam occurrence in the automatic paper feeder will be less than one in 1,500 operations and misfeeds will be less than one in 500 operations for all specified recording paper.
3	Battery	The life of the battery is five years. Lithium battery. Not rechargeable.
4	MTBF	The MTBF for the overall machine will exceed 3,000 hours of actual operation. The MTBF will be measured at a confidence level of 95% under controlled laboratory conditions. The MTBF will be based on 50% transmit and 50% receive activities.

CAUTION

Danger of explosion if battery is incorrectly replaced.

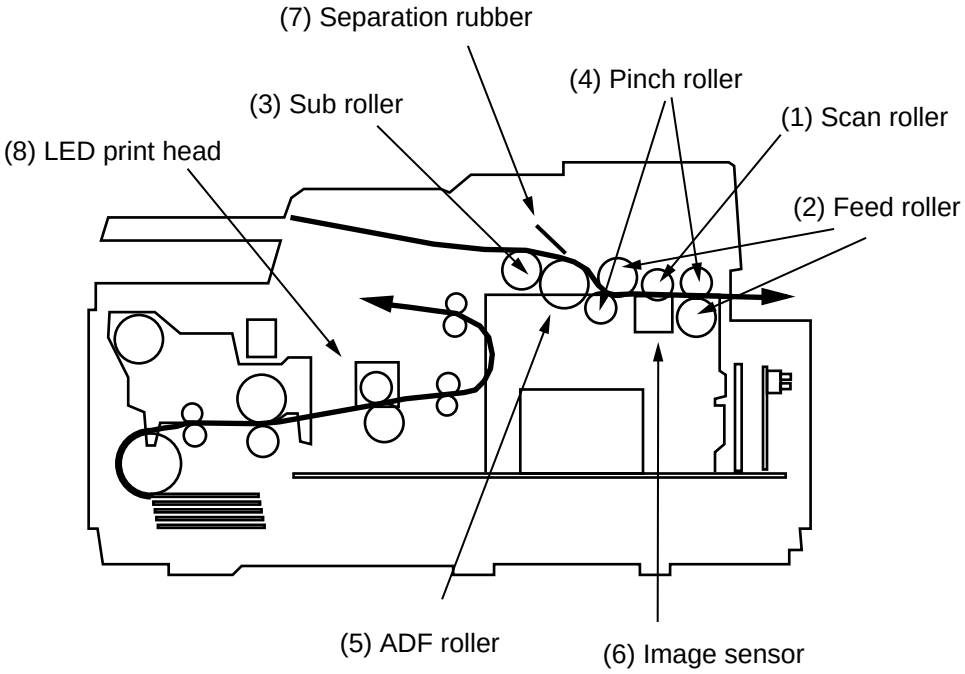
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

6.2 Routine Inspection

Basically, the routine inspection of following items is performed about half-yearly (or every one year) after the machine is installed. The description of routine inspection is shown in Table 6.2.

Table 6.2 Routine Inspection

No.	Part name	Expected Use Before Replacement	Reference Item No. in Fig.6.2
1	Scan Roller	Clean with wet cloth.	(1)
2	Feed Rollers No. 1 and No. 2	Clean with wet cloth. If the surface of these rollers becomes dirty and the dirt causes the transmitted image or the local copied image to expand vertically, perform this cleaning.	(2)
3	Sub Roller	Clean with wet cloth.	(3)
4	Pinch Rollers	Clean with ethyl alcohol.	(4)
5	ADF Roller	Clean with wet cloth. If the surface of this roller becomes dirty and the dirt causes misfeeding of documents, perform this cleaning.	(5)
6	Contact Image Sensor	Check for accumulation of paper dust, etc. Clean with ethyl alcohol if necessary.	(6)
7	Separation Rubber	Clean with wet cloth. If this rubber is worn out, replace this rubber. (every one year)	(7)
8	LED print head	Clean the surface of the head by moving the tissue paper back and forth several times.	(8)
9	Printer unit	Clean the inside of the printer unit by using wet cloth.	
10	Lubrication	Apply MOLYKOTE EM-30L Greese (Made by Dow corning co., ltd.) to the following parts: a. Gears (every one year)	
11	Cleaning	Remove materials that have fallen from outside, if any.	



Fifure 6.2 Parts of Routine Inspection

6.3 Printer Counter Display/Clear

Note: The fonts displayed on the LCD operation panel may differ from the fonts written this manual.

1. Purpose

A user can clear the image drum unit and check some of the counters (such as the print counter, scan counter) by using the ← key or → key.

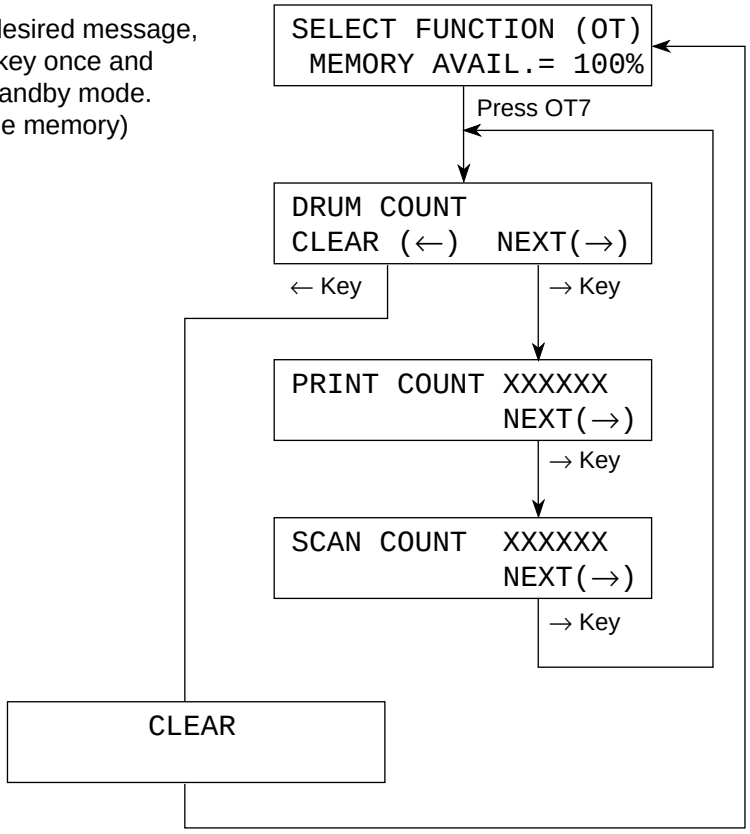
2. Procedure

The following shows the case when the service bit has been set OFF.

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No.7 in the standby mode. (In case of no message in the memory)
- Press [←] key or [→] key.

The display shows:



Note: Clear Operation

After having cleared the drum counter, warning message will be disappeared.

6.4 Printer Counter Display/Clear

1. Purpose

The service personnel can clear and check the following data:

- Image Drum
- Toner
- Image Drum (Total)
- Print
- Scan

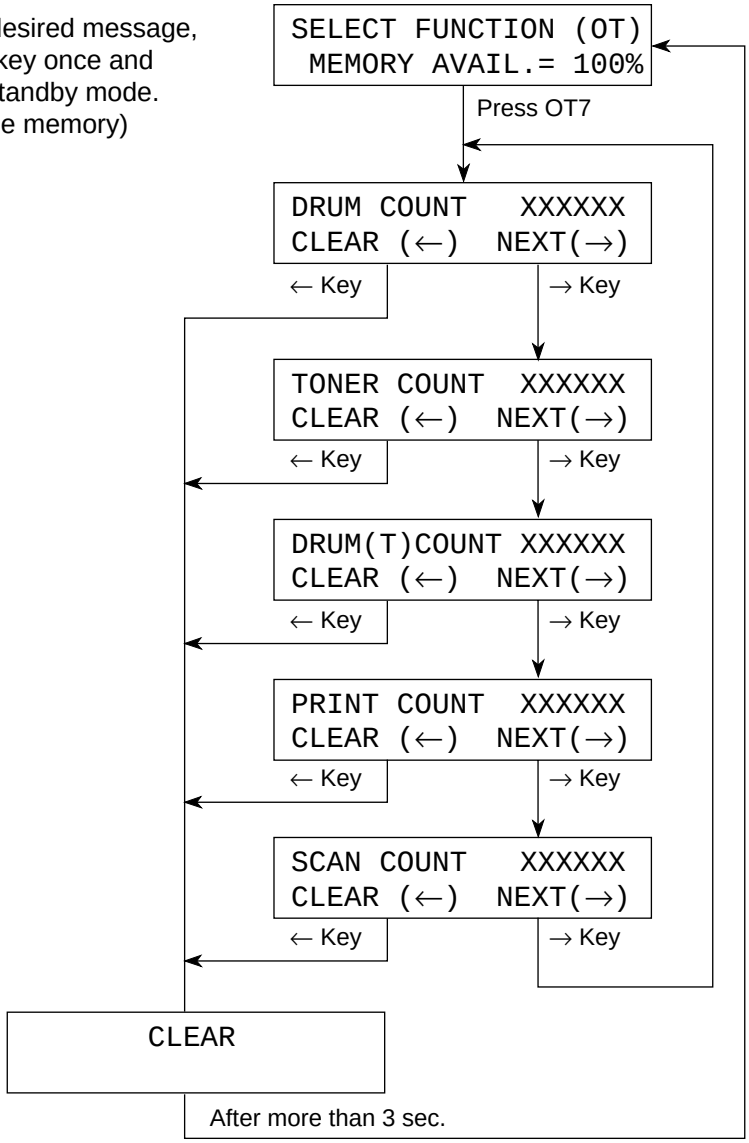
2. Procedure

The following shows the case when the service bit has been set ON.

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and one-touch key No. 7 in the standby mode. (In case of no message in the memory)
- Press ← key or → key.

The display shows:



Note: DRUM (T) will be used to know the total in-use life of the machine.

6.5 Self-diagnosis Test

1. Purpose

To check ROMs, RAMs and printing function.

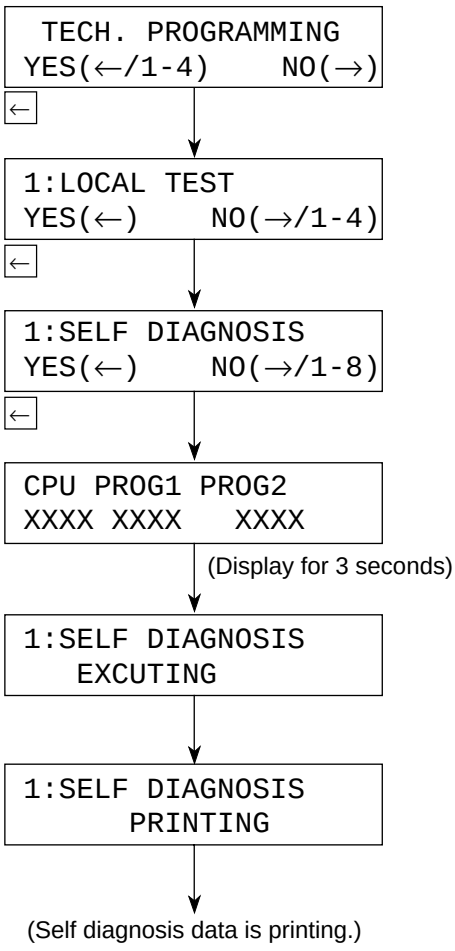
2. Procedure

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and COPY key twice in the standby mode. (In case of no message in the memory)
- Press [←] key.
- Press [←] key.
- Press [←] key to activate self-diagnosis.

(Figure 6.5.1 shows the printed data.)

The display shows:



- Test report will be automatically printed out with the following items:

a) Pattern 1 — All white (32 lines)

b) Pattern 2 — Stair pattern (32 lines in each step)

c) Pattern 4 — All black (32 lines)

d) Pattern 4 — Alternate printing of black dots and white dots (32 lines x 2)

e) Pattern 5 — All white (32 lines)

f) CPU-ROM VERSION

CPU-ROM	In case CPU-ROM is good.	HASH OK
	In case CPU-ROM is not good.	HASH NG
CPU-RAM	In case CPU-RAM is good.	OK
	In case CPU-RAM is not good.	NG

g) PROG1 VERSION

PROG1	In case PROG1 is good.	HASH OK

h) PROG2 VERSION

PROG2	In case PROG2 is good.	HASH OK

i) LANGUAGE VERSION

LANGUAGE	In case LANGUAGE is good.	HASH OK
	In case LANGUAGE is not good.	HASH NG

j) DEFAULT VERSION

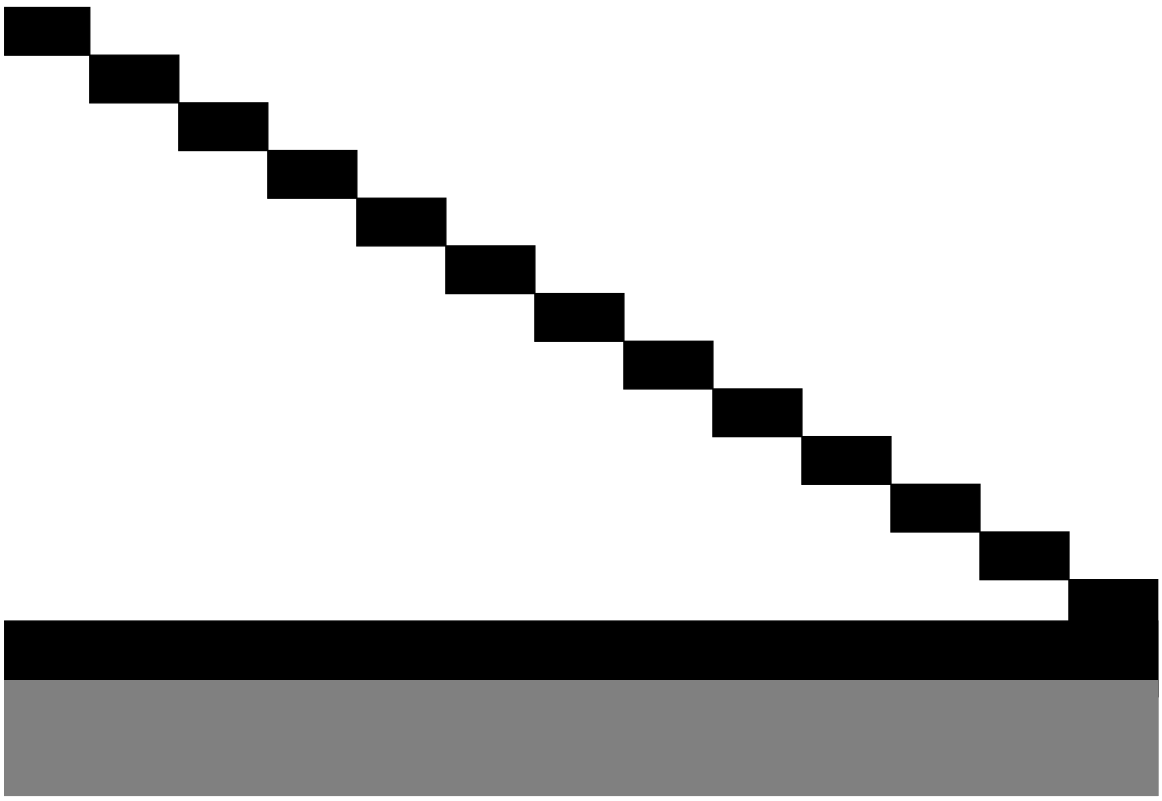
DEFAULT	In case DEFAULT is good.	HASH OK
	In case DEFAULT is not good.	HASH NG

k) RAM1	In case RAMi is good.	OK
RAM2	In case RAMi is not good.	NG
	("i" is RAM's number)	

l) OPT-RAM1	In case OPT-RAM1 is good.	OK
	In case OPT-RAM1 is not good.	NG

m) OPT-IF	In case OPT-IF is good.	PARALLEL
	In case OPT-I/F is not good.	(ALL BLANK)

- Figure 6.5.1 shows a printed sample.



```
    CPU-ROM  VERSION  Z208
             HASH     OK   6FCF
    CPU-RAM           OK
    PROG1    VERSION  HB0
    PROG1    HASH     OK   C5CA
    PROG2    VERSION  JB0
    PROG2    HASH     OK   8ABF

    LANGUAGE VERSION  EFHH
             HASH     OK   1292
    DEFAULT  VERSION  GF00
             HASH     OK   9B54
 *1 RAM1             1M   OK
 *2 RAM2             OK
 *3 OPT-RAM1         1M   OK
 *3 OPT-I/F          PARALLEL
    DEFAULT TYPE     01   12/01/1998   18:30
```

*1 marked item is shown for condition of all RAM except EXCEED RAM.
*2 marked item is shown to SRAM for EXCEED.
*3 marked items are option.

Figure 6.5.1 Self-diagnosis Data

6.6 Sensor Calibration Test

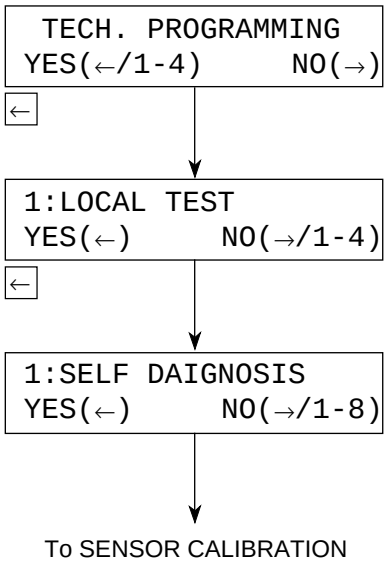
1. Purpose

To adjust the linearity of output levels of contact image sensor.

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and COPY key twice in the standby mode. (In case of no message in the memory)
- Press ← key.
- Press ← key.

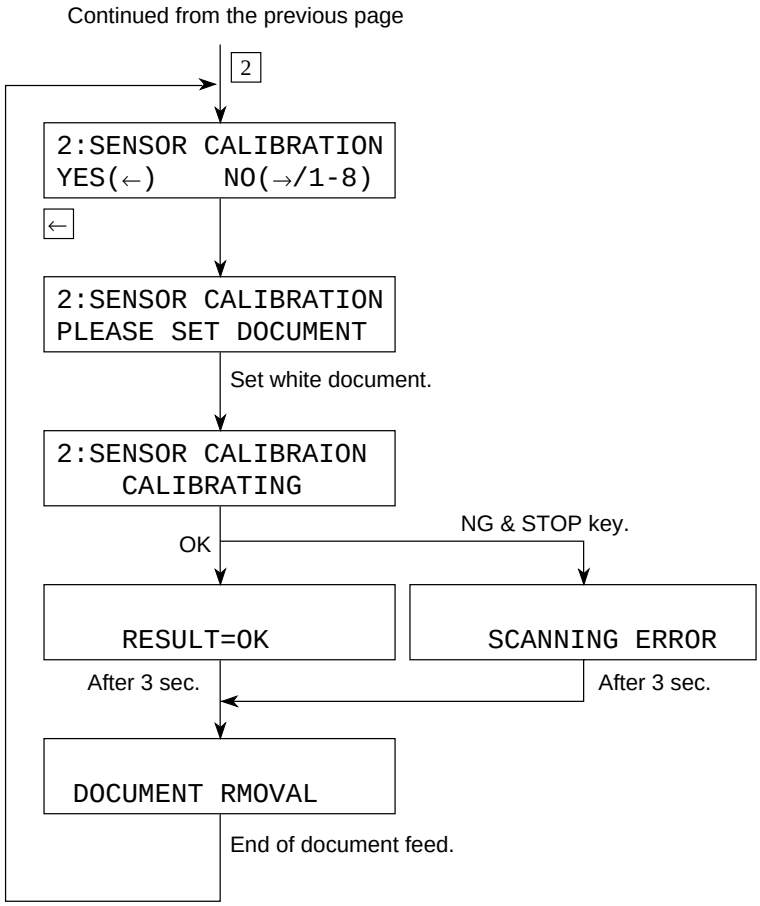
The display shows:



Operations:

The display shows:

- Enter "2".
- Press [←] key.
- Load document(s).
  For adjustment of levels, use white plain bond paper(s) of NA Letter or A4 size.
- Observe and check the document feed operation.
  Check that the followings do not occur:
  - Document skew.
  - Multiple document feeding.
  - No feeding.



Note: After adjustment of levels, check the copy quality by copying test charts or documents.

6.7 LED Test

1. Purpose

To check all LEDs on operation panel by lighting.

2. Procedure

Operations: **The display shows:**

- To bring the LCD up to the desired message, press SELECT FUNCTION key once and COPY key twice in the standby mode. (In case of no message in memory)

```
TECH. PROGRAMMING ?
YES(←/1-4)     NO(→)
```

- Press [←] key.

```
1:LOCAL TEST
YES(←)     NO(→/1-4)
```

- Press [←] key.

```
1:SELF DIAGNOSIS
YES(←)     NO(→/1-8)
```

- Enter "3".

[3]

```
3:LED TEST
YES(←)     NO(→/1-8)
```

- Press [←] key.

```
3:LED TEST
      TESTING
```

- Observe and check that LEDs are blinking.
  - All LEDs will be sequentially turned on for one second in the following order.

(Start)

→ ALARM → DARK → NORMAL → LIGHT → STD → FINE →

all LED off ← all LED on ← PHOTO ← EX.FINE ←

1 second interval.

- After the checking, press STOP key.

6.8 Tone Send Test

1. Purpose

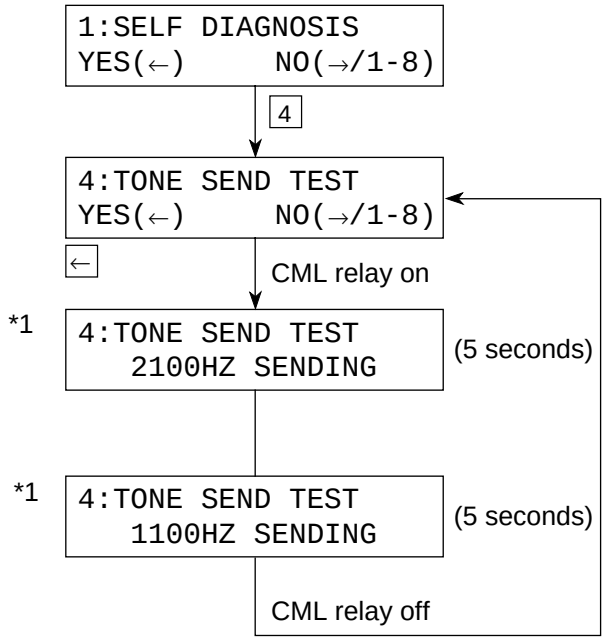
To send the G3 tonal frequencies to the line.

2. Procedure

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once, COPY key twice and [←] key twice. (In case of no message in memory)
- Enter "4".
- Press [←] key.
- After the checking, press STOP key or end of the transmission.

The display shows:



*1: When indicating "2100Hz or 1100Hz SENDING", extend the tone send test for 30 more seconds by pressing the START key.

6.9 High-speed Modem Send Test

1. Purpose

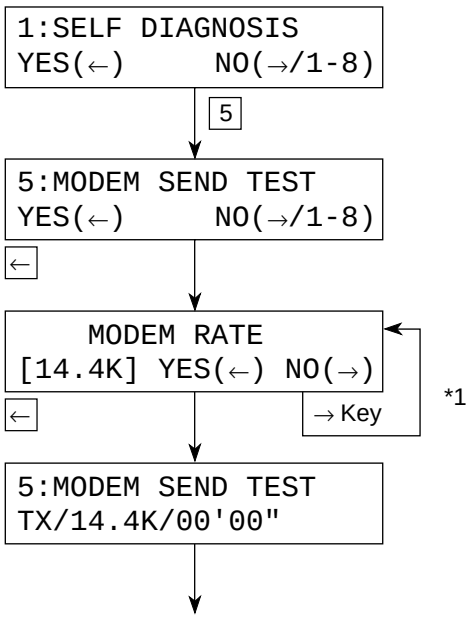
To check the telephone line quality in combination with a remote station programmed to the high-speed modem receive test mode.

2. Procedure

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once, COPY key twice and [←] key twice. (In case of no message in memory)
- Enter "5".
- Press [←] key.
- Set MODEM rate by [→] key.
- Press [←] key.
  All zero data will be continuously sent.
- After the test, press STOP key.

The display shows:



(For detail, see Fig. 6.9.1)

*1: → 33.6K (Option) → 28.8K (Option) → 14.4K → 12.0K → 9.6KT (V.17) → 7.2KT (V.17) →
← 0.3K ← 2.4K ← 4.8K ← 7.2K (V.29) ← 9.6K (V.29) ←

33.6K and 28.8K are skipped for the MODEM without 33.6/28.8K bps function.

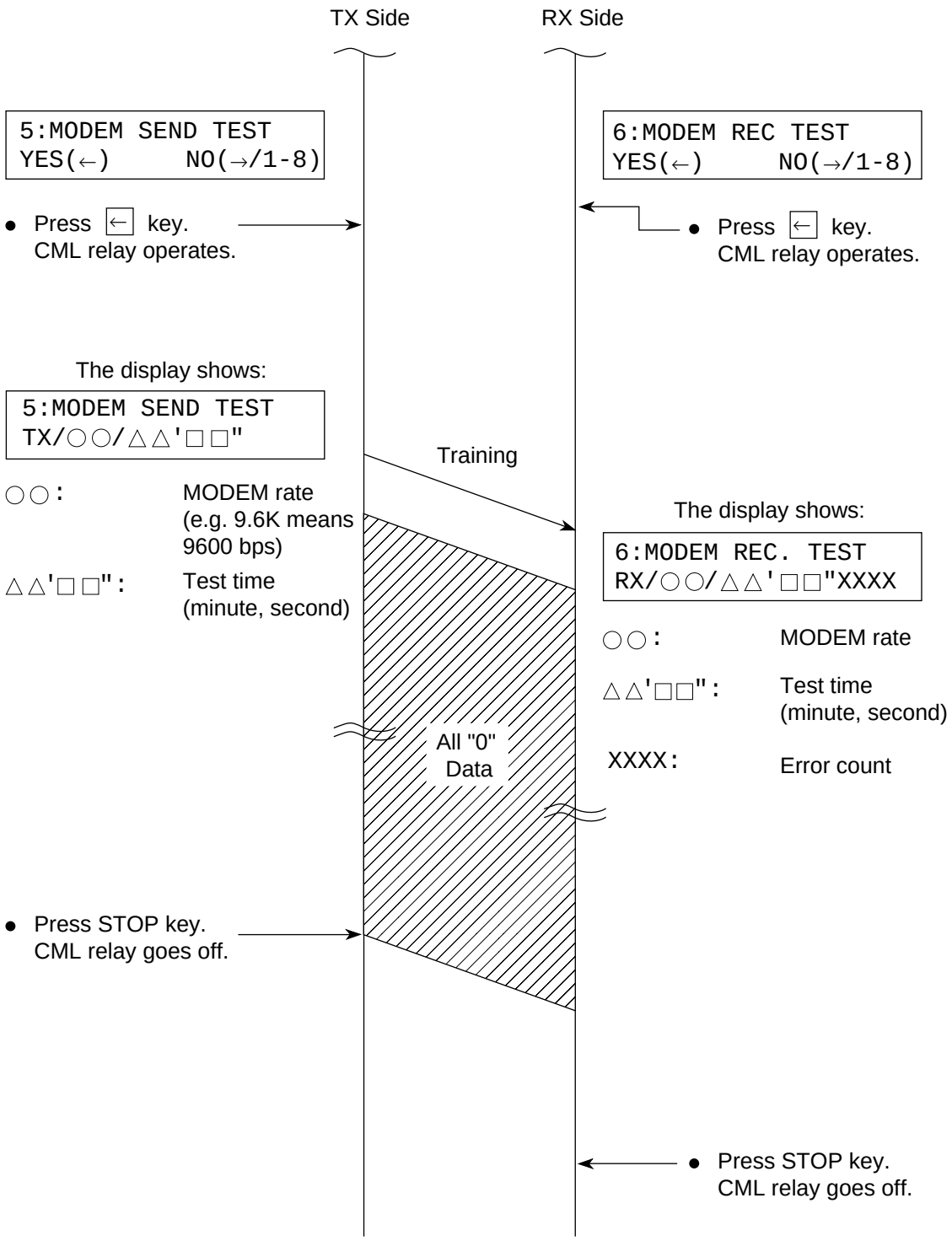


Figure 6.9.1 High-speed Modem Send and Receive Test

6.10 High-speed Modem Receive Test

1. Purpose

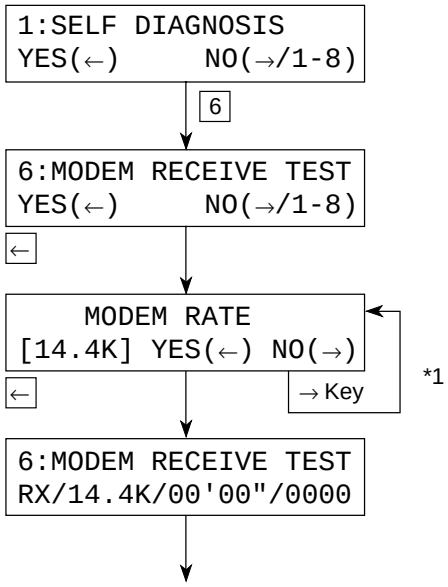
To check the telephone line quality in combination with a remote station programmed to the high-speed modem send test mode.

2. Procedure

Operations:

- To bring the LCD up to the desired message, press SELECT FUNCTION key once, COPY key twice and [←] key twice. (In case of no message in memory)
- Enter 6.
- Press [←] key.
- Set MODEM rate by [→] key.
- Press [←] key.
- After the test, press STOP key.

The display shows:



(For detail, see Fig. 6.9.1)

*1: → 14.4K → 12.0K → 9.6KT (V.17) → 7.2KT (V.17) → 9.6K (V.29) → 7.2K (V.29) → 4.8K → 2.4K →

6.11 MF Send Test

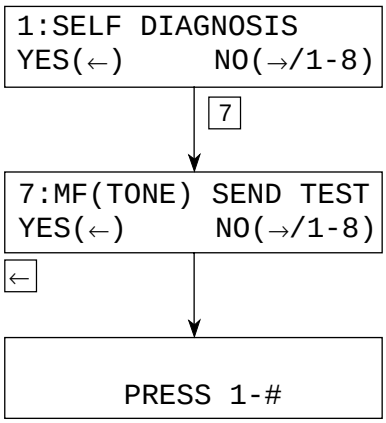
1. Purpose

To send the multi-frequencies of tone dialling to the line.

2. Procedure

Operations: **The display shows:**

- To bring the LCD up to the desired message, press SELECT FUNCTION key once, COPY key twice and [←] key twice. (In case of no message in memory)



- Enter 7.
- Press [←] key.
- Press 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, * or # key.
  MF tone corresponding to the key pressed will be sent until the next key is pressed.
- After the test, press STOP key.
  Frequencies of MF tones are as follows:

1	697 Hz/1209 Hz
2	697 Hz/1366 Hz
3	697 Hz/1477 Hz
4	770 Hz/1209 Hz
5	770 Hz/1366 Hz
6	770 Hz/1477 Hz
7	852 Hz/1209 Hz
8	852 Hz/1366 Hz
9	852 Hz/1477 Hz
0	941 Hz/1366 Hz
*	941 Hz/1209 Hz
#	941 Hz/1477 Hz

6.12 Tone (TEL/FAX)

1. Purpose

To check the pseudo-ring back tone of TEL/FAX automatic switching.

2. Procedure

Operations:	The display shows:
• To bring the LCD up to the desired message, press SELECT FUNCTION key once, COPY key twice and [←] key twice. (In case of no message in memory)	1:SELF DIAGNOSIS YES(←) NO(→/1-8)
• Enter 8.	[8]
	8:TONE(TEL/FAX) TEST YES(←) NO(→/1-8)
• Press [←] key.	[←]
	8:TONE(TEL/FAX) TEST TONE SENDING
• After the test, press STOP key.	

6.13 Protocol Dump Data Printing

1. Purpose

To analyze the transmitted/received G3 protocol signals.

2. Procedure

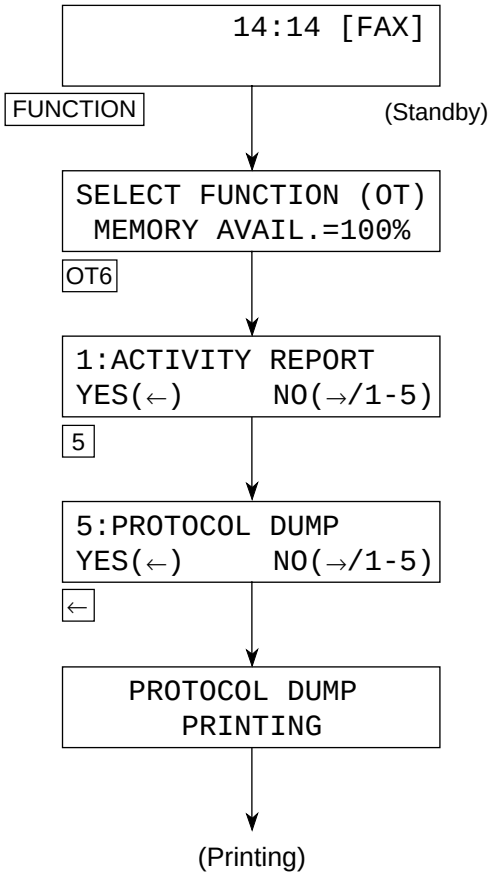
- Manual print-out of the last communication.

(a) Manual print-out

Operations:

- Press SELECT FUNCTION key, provided that the service bit is ON.
- Press one-touch key No.6
- Enter 5.
- Press ← key.

The display shows:



3. Dump data description

1) Data sample
   Figure shows the printed data as a sample.

PROTOCOL DUMP

07/01/98 09:21
ID=OKI SHIBAURA

DATE	TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
07/01	09:16	00'46"	OKI HONJO	CALLING	01	OK	0000

FCF

TX	C2 C4 FD F4 DF
RX	04 02 01 21 31

TX	
RX	

TX
DIS
00 00 00 00 00 00 00
DTC
00 00 00 00 00 00 00
DCS
00 00 00 00 00 00 00 00
NSF
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 00 00 00 00 00 00 00 00 00 00
NSS
FF C8 C4 00 00 84 80 30 40 E4 10 40 B8 39 20 0C 0C 0C 0C 30 82 4A AA 82 42 92 12 CA 04 92 D2 F2
80 40 80 10 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 00 00 00 00 00 00 00 00 00 00
00 00 00 00
NSC
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
CM
00 00 00 00
JM
00 00 00 00
RX
DIS
FF CB 01 00 73 17 22 00 00 00 00 00 00 00 00 00 00 00 00 00
DTC
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
DCS
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
NSF
FF C0 04 00 00 84 80 08 40 F4 10 40 F9 7D 20 0C 0C 0C 0C 90 F2 52 72 F2 12 04 92 D2 F2 80 F0 80
40 80 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
NSS
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 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
NSC
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 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00
CM
00 00 00 00 00 00
JM
00 00 00 00 00 00
V 34
SYMBOL RATE(SPS) = 3429
DATA SIGNALLING RATE(BPS) = 228
RSEULT 00
TX
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 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
PX
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 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
RECEIVED CSI/CIG/TSI
FF C0 02 0C 0C 2C AC 04 4C 4C 04 AC 9C 2C 0C 04 04 04 04 04 04 04 04
TRANSMITTED CSI/CIG/TSI
FF C0 C2 2C CC 4C 8C 04 6C EC 2C AC 04 CC 0C 04 04 04 04 04 04 04 04

Figure 6.13.1 Protocol Dump Data (Sample: at transmitter side)

4. Analysis from the data

The printed out data permits to analyze G3 facsimile communication protocol signals between two facsimile machines. Figure 6.13.2 shows the result of an analysis on the printed data referring to Figure 6.13.1 (Protocol dump data).

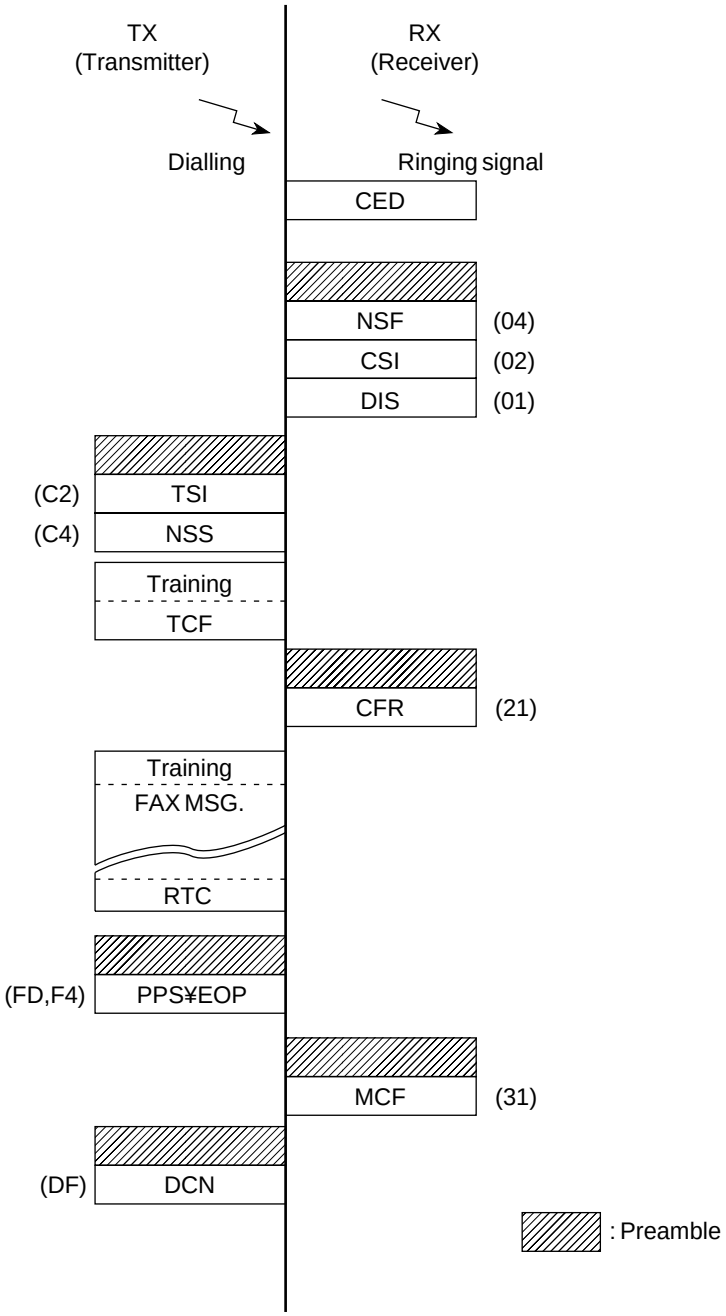


Figure 6.13.2 Result of Analysis (Example)

5. FCF (Facsimile Control Field) conversion table

Table 6.13.1 shows all FCF signals which are needed to analyze the printed out protocol dump data.

Some signals have two different hexadecimal codes in accordance with the calling party or called party.

Table 6.13.1 FCF Signals Conversion Table

Abbreviation	Hex. Codes		Description of function
NSF	04		Non-Standard Facilities
CSI	02		Called Subscriber Identification
DIS	01		Digital Identification Signal
NSC	84		Non-Standard Facilities Command
CIG	82		Calling Subscriber Identification
DTC	81		Digital Transmit Command
NSS	44	C4	Non-Standard Set-Up
TSI	42	C2	Transmitting Subscriber Identification
DCS	41	C1	Digital Command Signal
CFR	21	A1	Confirmation to Receive
MCF	31	B1	Message Confirmation
FTT	22	A2	Failure to Train
MPS	72	F2	Multi-Page Signal
EOM	71	F1	End of Message
EOP	74	F4	End of Procedure
RTP	33	B3	Retrain Positive
RTN	32	B2	Retrain Negative
PIP	35	B5	Procedure Interrupt Positive
PIN	34	B4	Procedure Interrupt Negative
PRI-MPS	7A	FA	Procedure Interrupt-MPS
PRI-EOM	79	F9	Procedure Interrupt-EOM
PRI-EOP	7C	FC	Procedure Interrupt-EOP
DCN	5F	DF	Disconnect
CRP	58	D8	Command Repeat
CTC	48	C8	Continue to Correct
CTR	23	A3	Response to Continue to Correct
EOR	73	F3	End of Retransmission
ERR	38	B8	Response to End of Retransmission
FCD	60		Facsimile Coded Data
PPS	7D	FD	Partial Page Signal
PPR	3D	BD	Partial Page Request
RCP	61		Return to Control for Partial Page
RNR	37	B7	Receiver not Ready
RR	76	F6	Receiver Ready

6.14 System Reset

1. Purpose

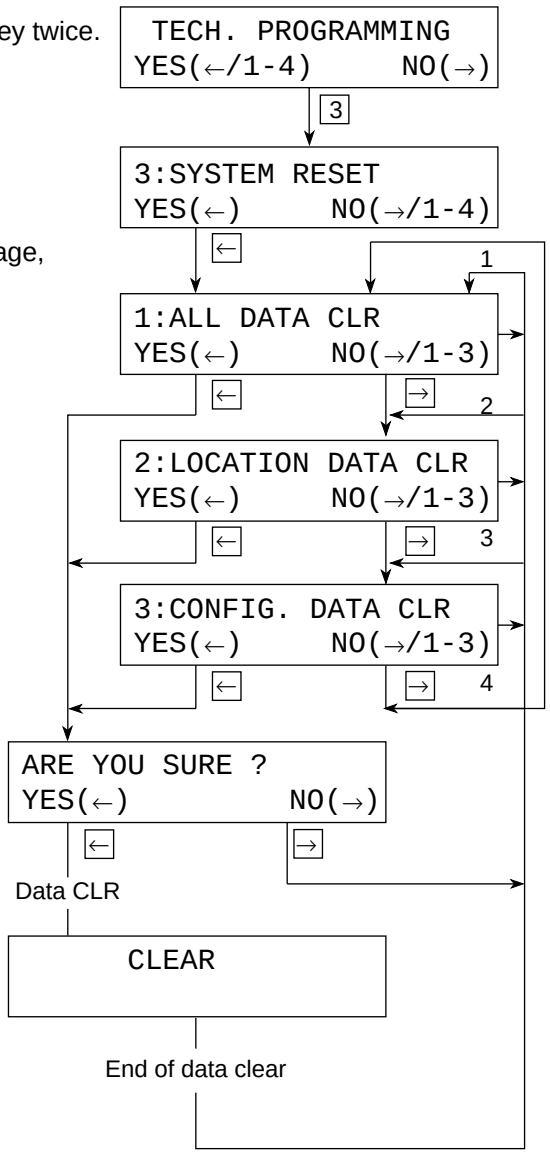
To clear or initialize the following data:
(a) Location data
(b) Configuration data (default)

2. Procedure

Operations: **The display shows:**

- Press SELECT FUNCTION key, COPY key twice. (In case of no message in the memory)
- Enter 3.
- To bring the LCD up to the desired message, press [←] key and [→] key.

Note: ALL DATA CLEAR is to clear or initialize (a) to (b).



6.15 Service Code

1) The service code can be printed on Activity Report to recognize the result of each communication.

2) The activity report indicates the code ”0000", should a communication terminates on normal status as a service code.

3) The activity report indicates one of the codes of “90XX”, should a communication terminates on abnormal status, as an error code.

4) Besides the above codes of “90XX”, the following codes are prepared for identifying an abnormal status in details.

-21XX: For error codes in Group 3 transmission phase B
-29XX: For error codes in Group 3 reception phase B
-39XX: For error codes in Group 3 reception phase C
-41XX: For error codes in Group 3 transmission phase D
-49XX: For error codes in Group 3 reception phase D

Table 6.15.1 (1/2) Service Code List

Code	Description
0000	Successful end of communication.
1080	STOP key has been pressed while calling a remote fax.
10A2	Busy tone detected.
14C0	Dial tone not detected.
14C1	Line current not detected.
14C2	Calling-and-waiting for line connection time out.
14C3	Dialling limit time out.
21A0	Received signal other than DIS/DTC.
21A1	Contents of received DIS/DTC are faulty.
21A3	Each time there is no response from the receiver for sending TCF three times.
21A4	TCF fall back is not possible.
21A5	Received signal other than the desired signal in response to sending TCF.
21B0	Transmitter tried to transmit by confidential transmission function but the remote fax has not the capability of confidential reception.
21B1	Transmitter tried to transmit by Broadcast Initiate function but the remote fax has not the broadcast capability.
21C0	In Closed Network setting, TSI/CIG/CSI is either not received or, if received, it is not authorized one.
21E0	Contents of CM/JM are faulty at transmission side.
21E1	Phase 2 time out at transmission side.
21E2	Phase 3 time out at transmission side.
21E3	Training time out of phase B control channel at transmission side.
29B6	In Confidential Reception, the mail box specified by transmitter is not set up and open.
29C1	In closed Network setting, TSI/CSI is either not received or, if received, it is not authorized one.
29E0	Contents of CM/JM are faulty at receive side.
29E1	Phase 2 time out at receive side.
29E2	Phase 3 time out at receive side.
29E3	Training time out of phase B control channel at receive side.
39A0	The number of continuous-error lines have exceeded the specified limit.
39A1	The number of random-error lines have exceeded the specified limit.
39B0	Memory Overflow has occurred while receiving in memory.
39B1	Memory Overflow occurred during Confidential Reception.
39C0	DECODER hardware error. (cannot reproduce picture)

Table 6.15.1 (2/2) Service Code List

Code	Description
39C1	DECODER hardware error. (cannot detect end of picture)
41A0	There was no response each time in response to the three post commands.
41A6	Received signal other than the desired signal in responce to the post command.
41A9	Fall back in Phase C is not possible.
41C8	T5 time out.
41CE	Received negative signal in response to the post command.
41E0	Control chanel data. Time out in Phase D.
49CC	Received signal other than the desired signal in response to RNR.
49CD	Command not received in response to RNR.
49E0	Data time out of
49E1	Fall back in Phase C is not possible.
60A0	Broadcast completed.
6803	DCN received in response to NSF/DIS without sending a single picture.
9080	Pressed STOP key.
9081	T1 time out.
9082	T2 time out.
9083	T3 time out.
9084	No recording paper.
9087	Document jam.
9088	60-minute or 70-minute time out.
9089	Document length has exceeded its maximum limit.
908E	Recording paper jam.
9090	Received DCN.
90B1	Picture memory hash error.
90C1	Document removed prior to transmission.
90C6	Normal or error-free lines not received for 13 seconds.
90C7	Error frame protocol received.
90D4	Hardware error in transmission system. (response of modem not detected)
90D5	ENCODER error. (Picture storage fault)
90F0	Option (2'nd tray) error.
90F1	Fan motor error.
90F2	Fuser error.
90F3	Recording paper size error.
90F4	Cover open.

CHAPTER 7

TROUBLESHOOTING AND REPAIR FOR OKIFAX 5250/5400

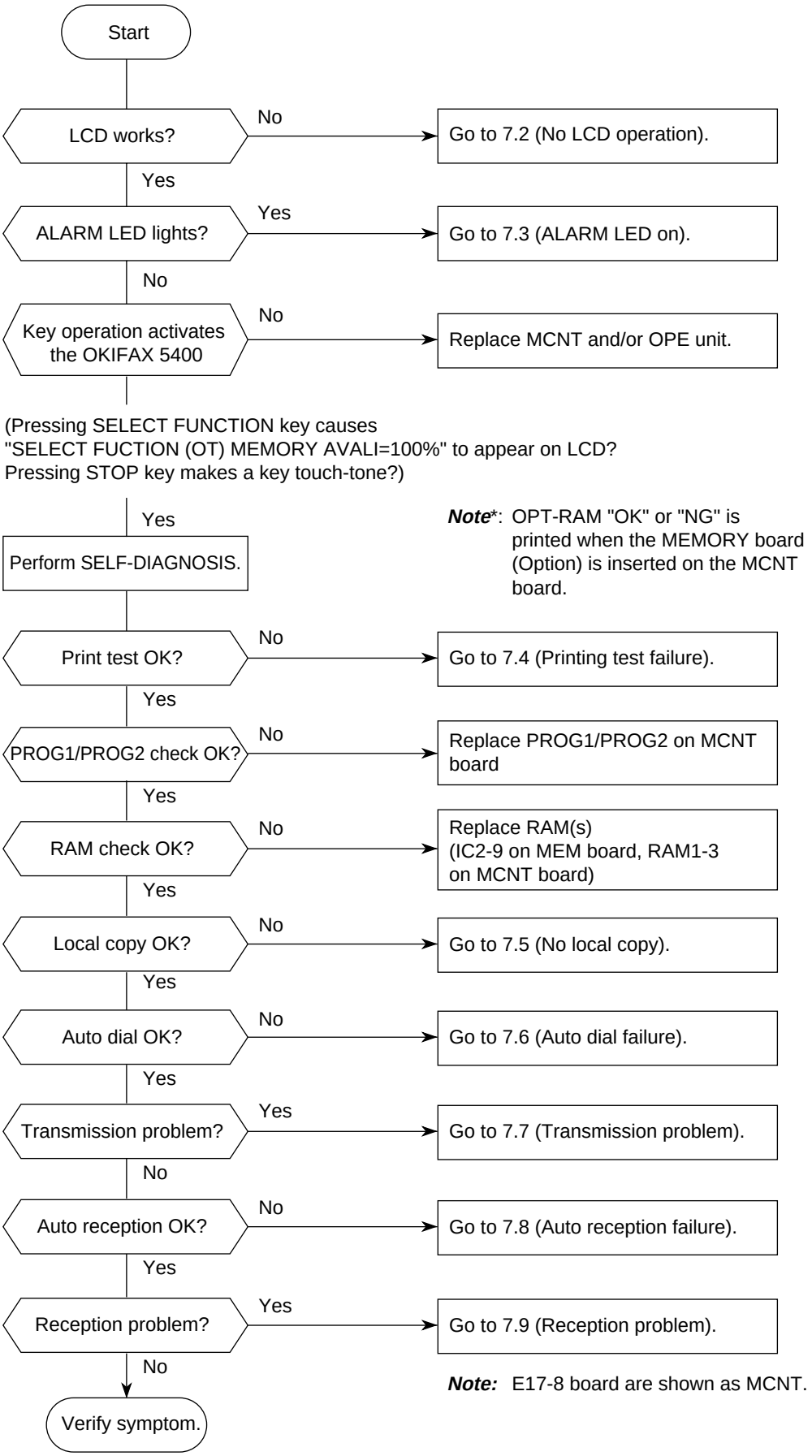
OKIFAX 1050/2350/2450/5200/5300/5400/5500/5600/4100/OKIOFFICE44 Extension cable lists

No.	Oki Parts Number	Description	Remarks	OKIFAX 1050	OKIFAX 2350	OKIFAX 2450	OKIFAX 5200/5300	OKIFAX 5500/5600	OKIOFFICE44 OKIFAX 4100	OKIFAX 5400
1	4YS4111-5655P001	Extension cable (OPE)		O	O	O	•••	•••	•••	•••
2	4YS4111-5656P001	Extension cable (Sensor)		O	O	O	O	O	O	O
3	4YS4111-5657P001	Extension cable (PC1, 2)		O	O	O	O	O	O	O
4	4YS4111-5658P001	Extension cable (Speaker)		O	O	O	O	O	O	O
5	4YS4111-5659P001	Extension cable (PWU)		O	O	O	O	O	•••	O
6	4YS4111-5660P001	Extension cable (FAN)		O	O	O	O	O	•••	O
7	4YS4111-5661P001	Extension cable (S-motor)		O	•••	•••	•••	•••	O	•••
8	4YS4111-5662P001	Extension cable (D-motor)		O	•••	•••	•••	•••	•••	•••
9	4YS4111-5663P001	Extension cable (R-motor)		O	•••	•••	•••	•••	•••	•••
10	4YS4111-5664P001	Extension cable (S-motor)		•••	O	O	O	O	•••	O
11	4YS4111-5665P001	Extension cable (D-motor)		•••	O	O	O	O	•••	O
12	4YS4111-5666P001	Extension cable (R-motor)		•••	O	O	O	O	O	O
13	4YS4111-5667P001	Extension cable (2nd)		•••	O	O	O	O	•••	O
14	238A1071P0006	SUMI card (LED head)		O	O	O	O	O	O	O
15	40331401YS	Connection code; extension (OPE)	OPE/MCNT	•••	•••	•••	O	O	O	O
16	40331501YS	Connection code; extension (MPSU)	MCNT/MPSU (Power)	•••	•••	•••	•••	•••	O	•••
17	40331602YS	Connection code; extension (Heater)	HEATER AC/PSU	•••	•••	•••	•••	•••	O	•••
18	40331801YS	Connection code; extension (Clutch)	CLUTCH/MCNT	•••	•••	•••	•••	•••	O	•••
19	40332001YS	Connection code; extension	FUJI CARD: MCNT/HVPS	•••	•••	•••	•••	•••	O	•••
20	40332201YS	Connection code; extension (SPSU)	SPSU (Sub-power)/MCNT	•••	•••	•••	O	O	•••	O
21	40332301YS	Connection code; extension (PSU)	PSU (Power)/SPSU (Sub-power)	•••	•••	•••	O	O	•••	O
22	40331901YS	Connection code; extension (Transformer)	Transformer/SPSU (Sub-power)	•••	•••	•••	O	O	•••	O

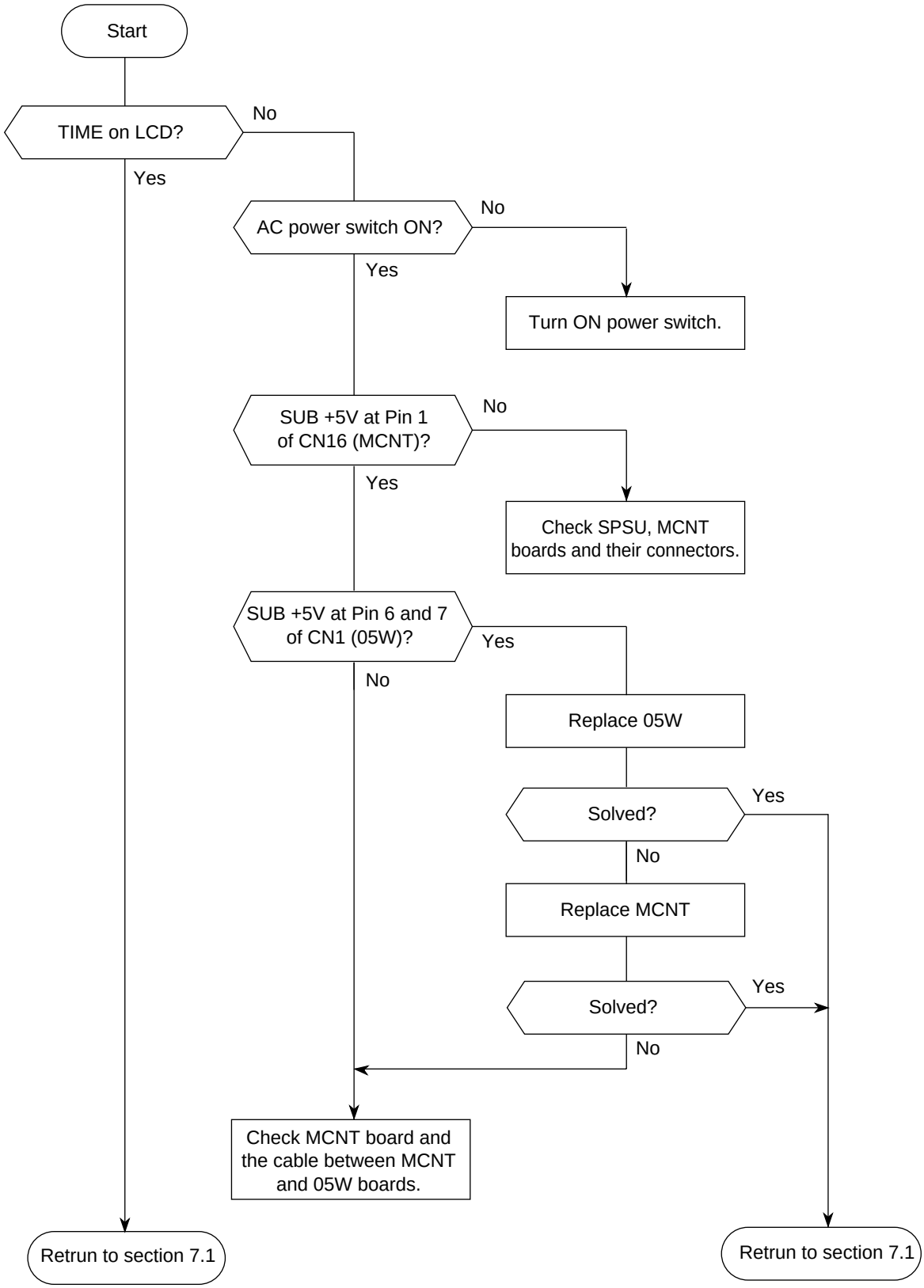
This chapter contains:

(a) Troubleshooting flow charts related to general operations
(b) Troubleshooting flow charts by test operations
(c) Troubleshooting flow charts placing an emphasis on mechanical portions

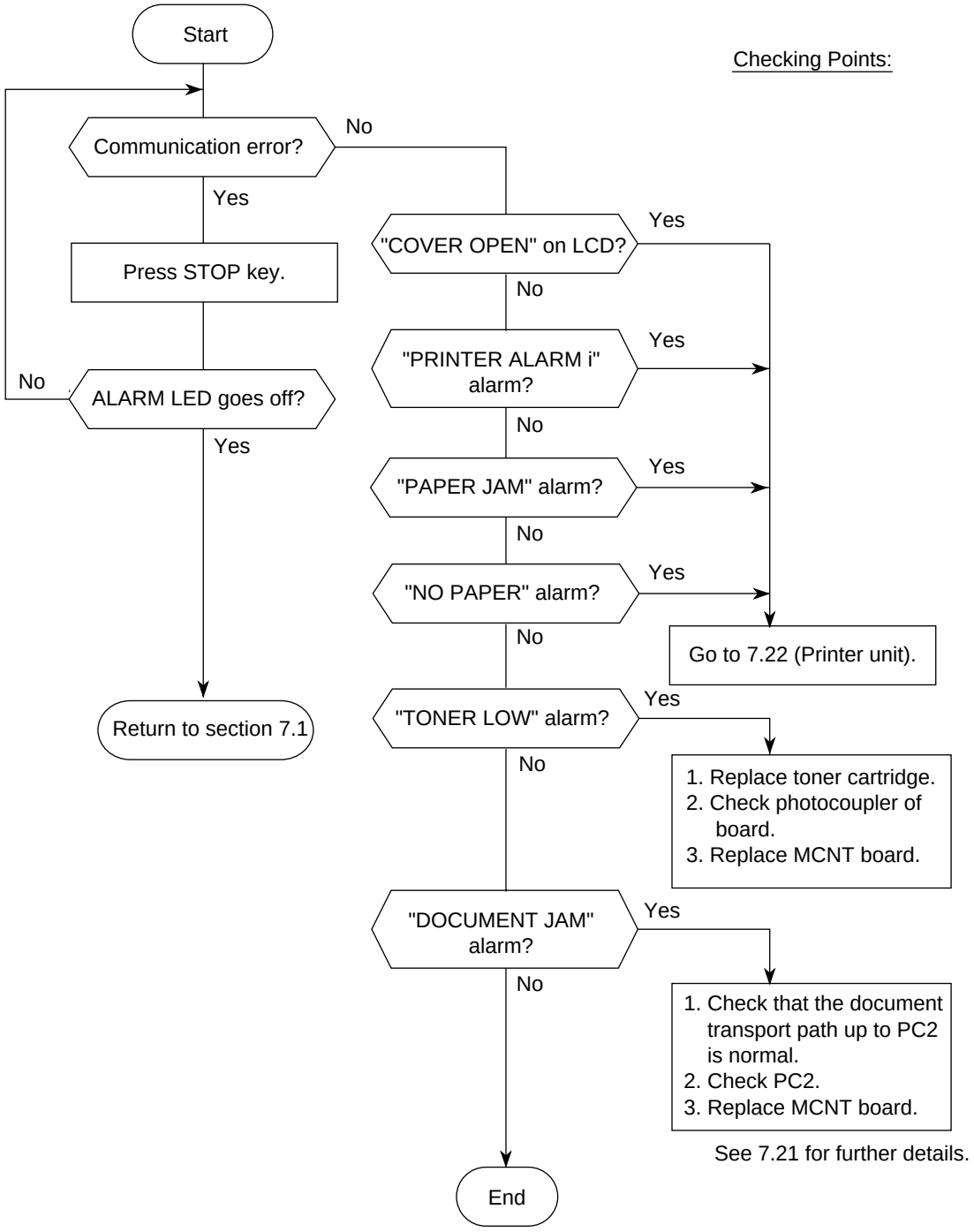
7.1 Overall Troubleshooting Flow Chart



7.2 No LCD Operation

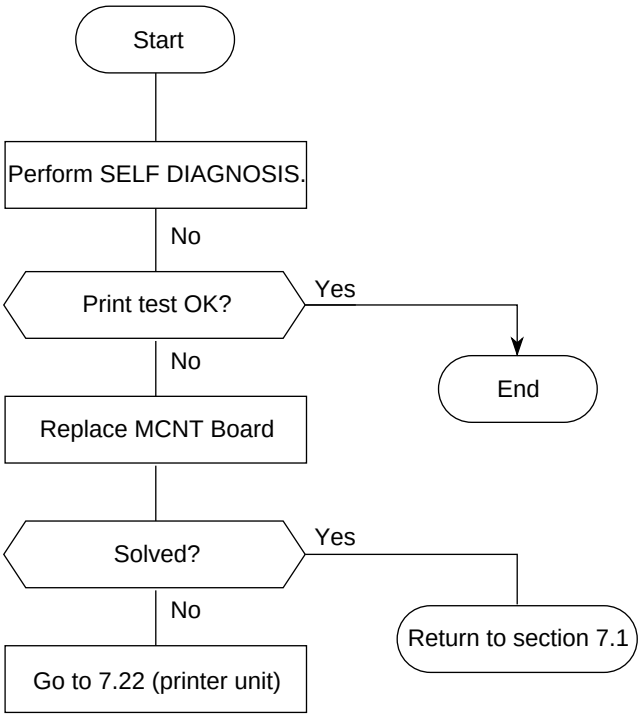


7.3 ALARM LED On

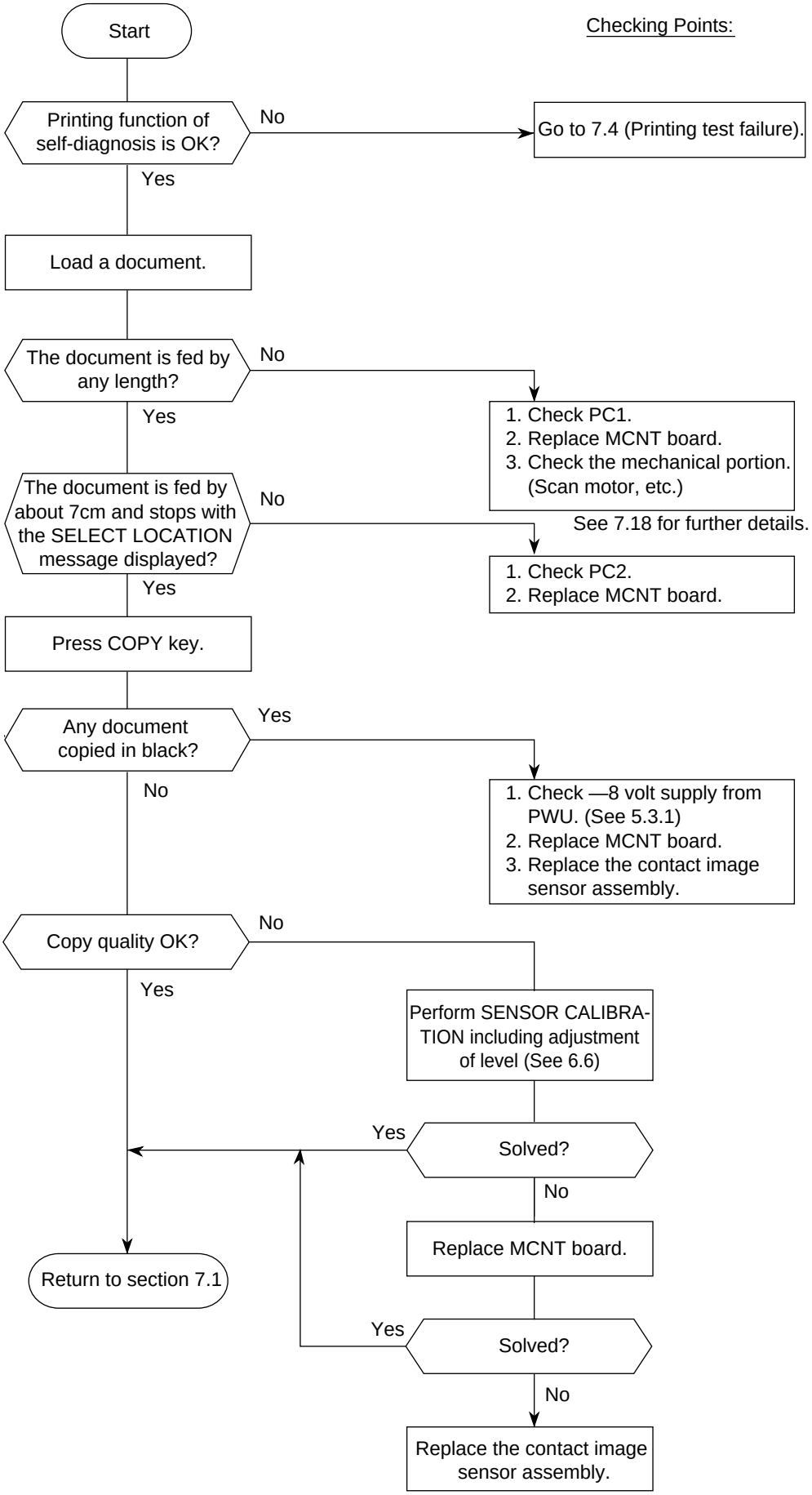


Note* : "PRINTER ALARM i" will be shown as follows:
PRINTER ALARM 2 to PRINTER ALARM 4.

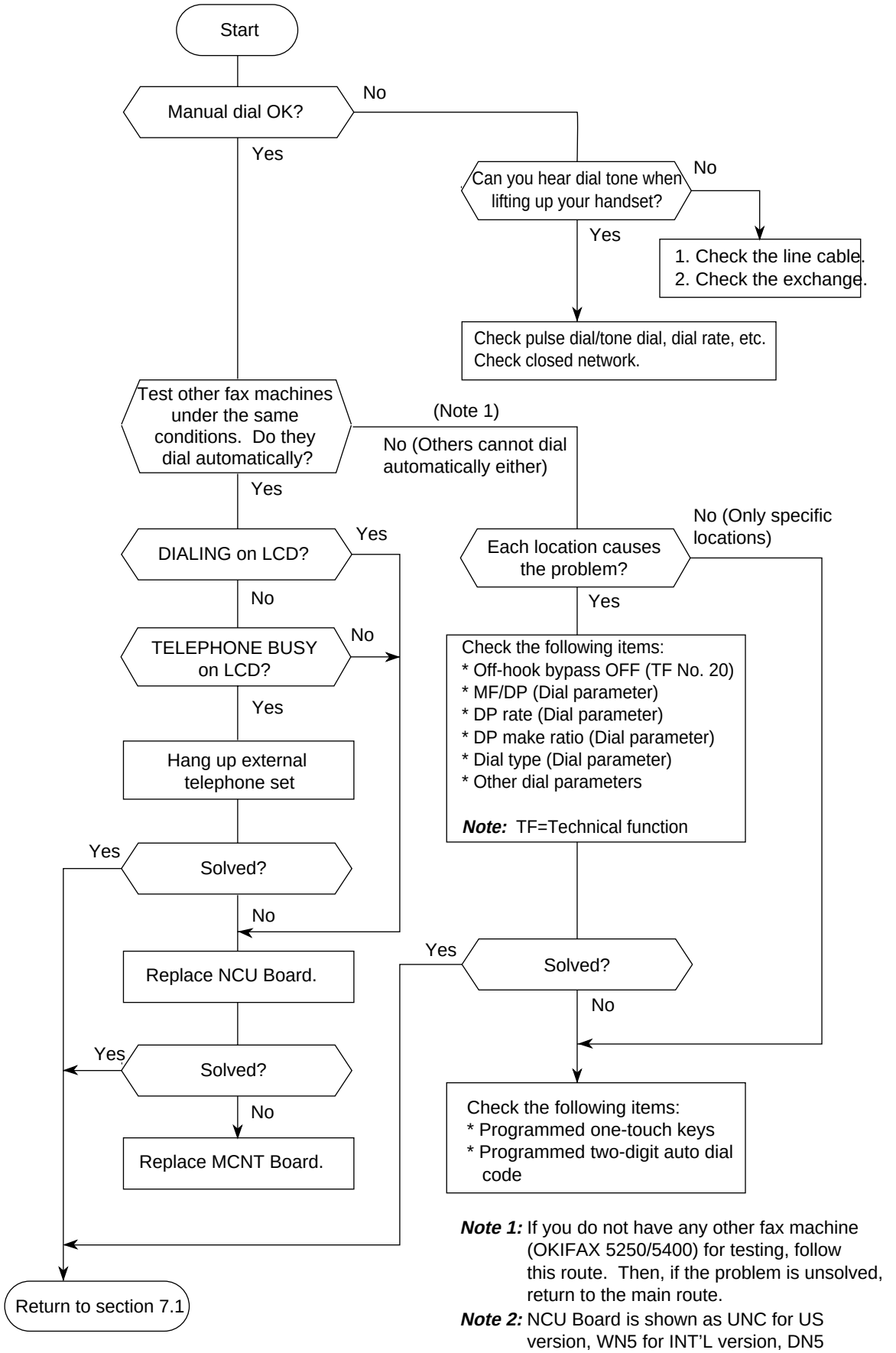
7.4 Printing Test Failure



7.5 No Local Copy



7.6 Auto Dial Failure

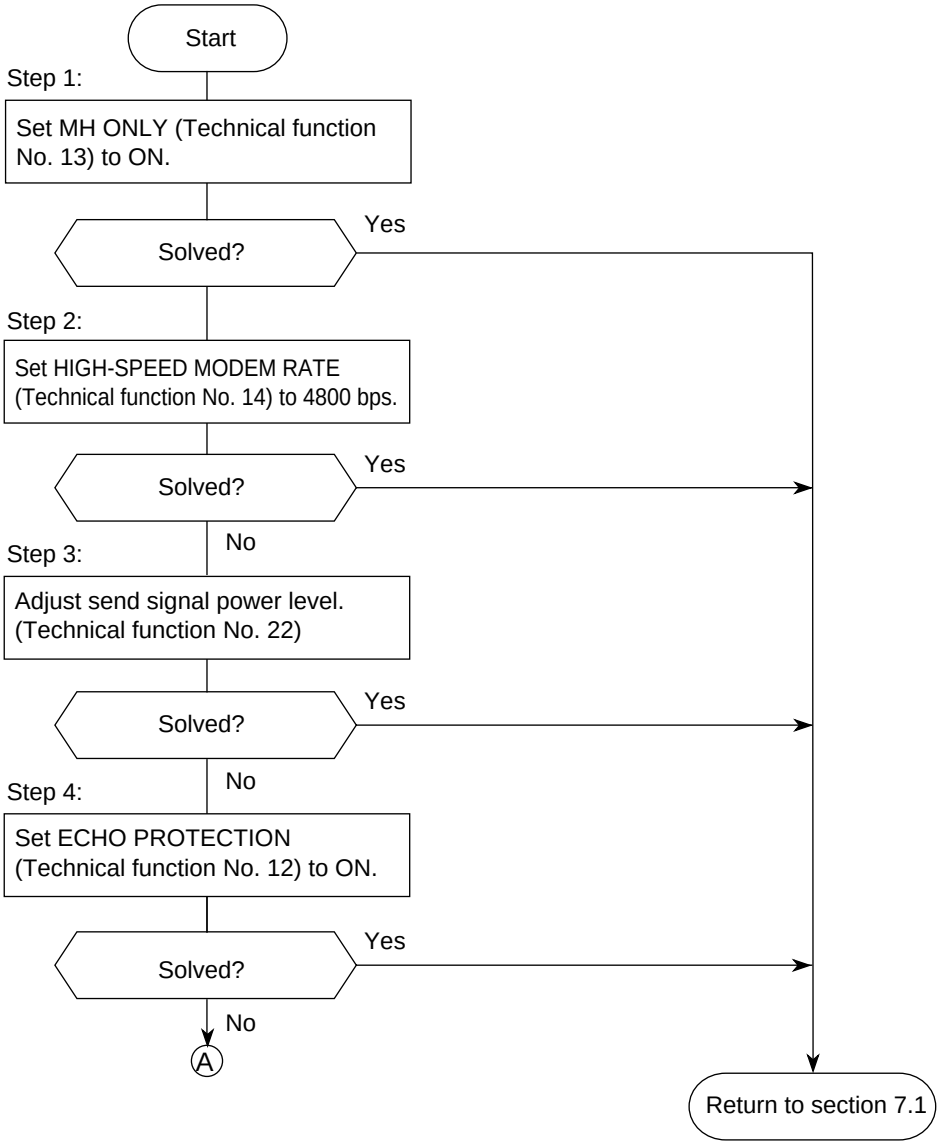


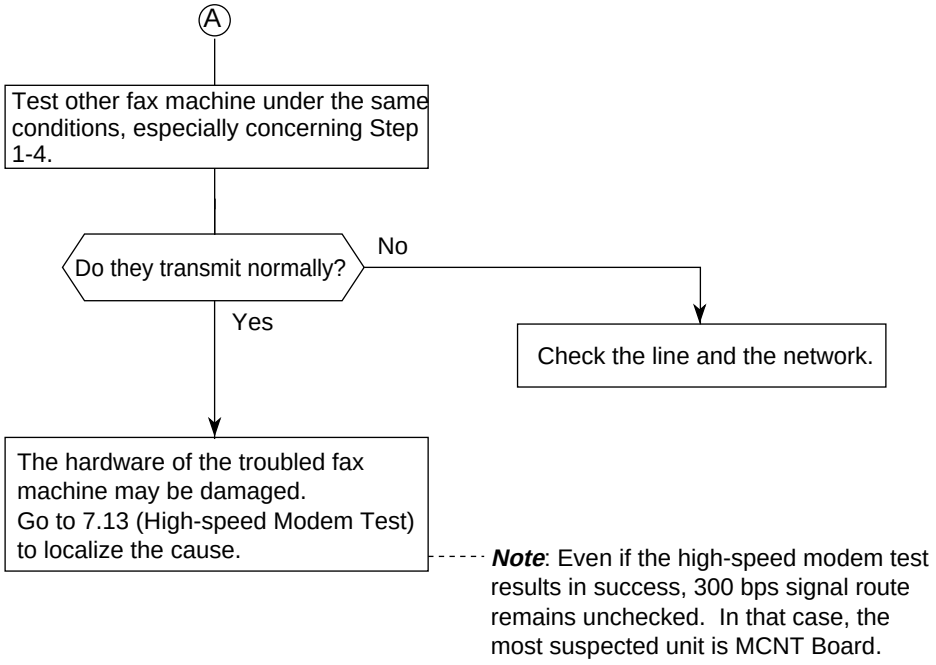
Note 1: If you do not have any other fax machine (OKIFAX 5250/5400) for testing, follow this route. Then, if the problem is unsolved, return to the main route.

Note 2: NCU Board is shown as UNC for US version, WN5 for INT'L version, DN5 for FTZ version and FN5 for U.K. and France

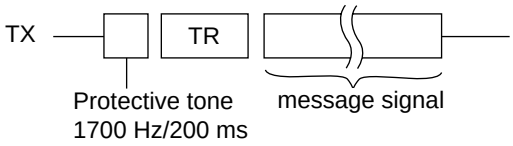
7.7 Transmission Problem

This section explains how to localize the cause of problems occurred after completion of connection with a remote station.

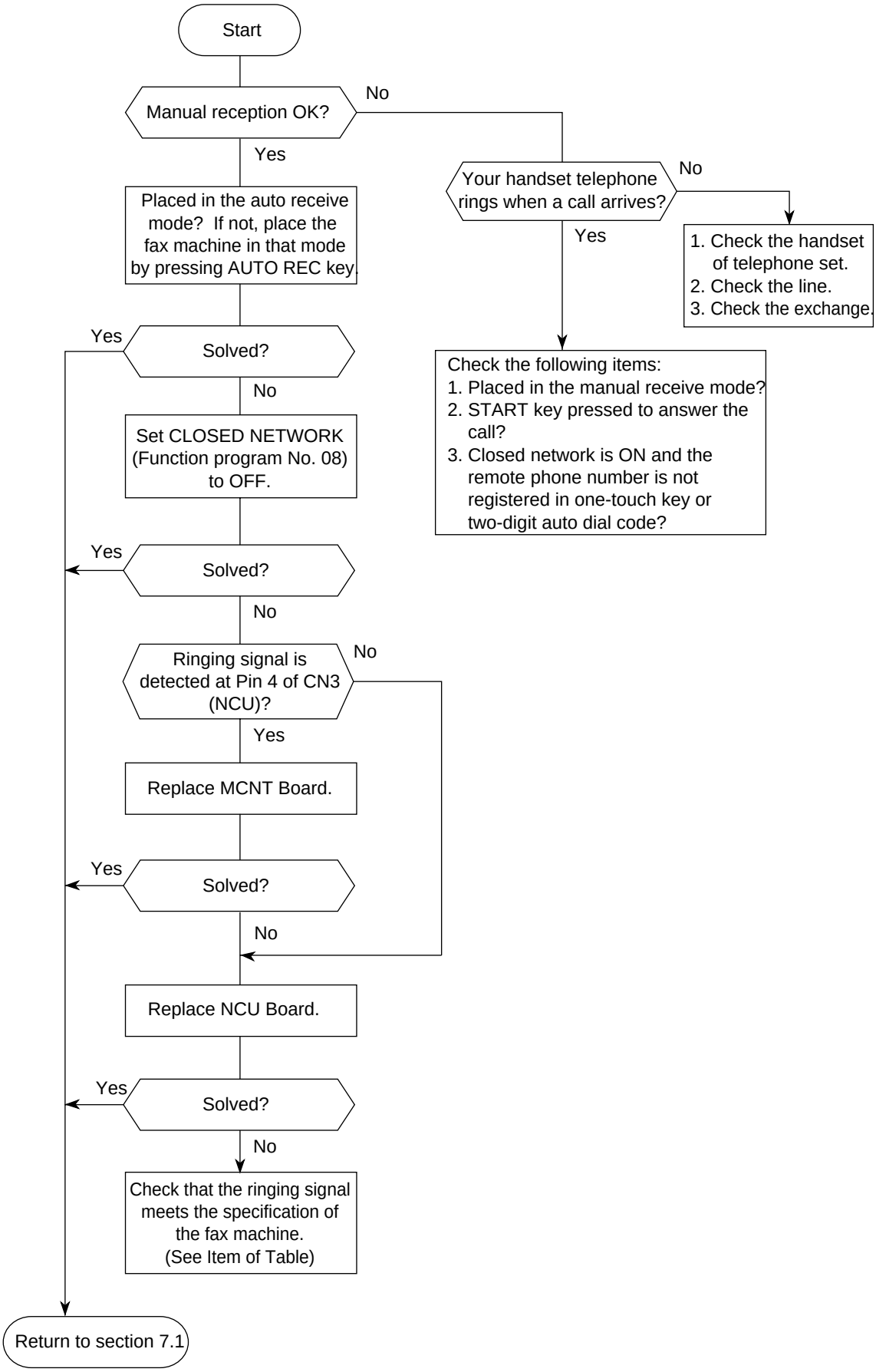




Description: Protective tone is 1700 Hz/200 ms.
This signal is added to training signal to protect the training signal against echo as follows.

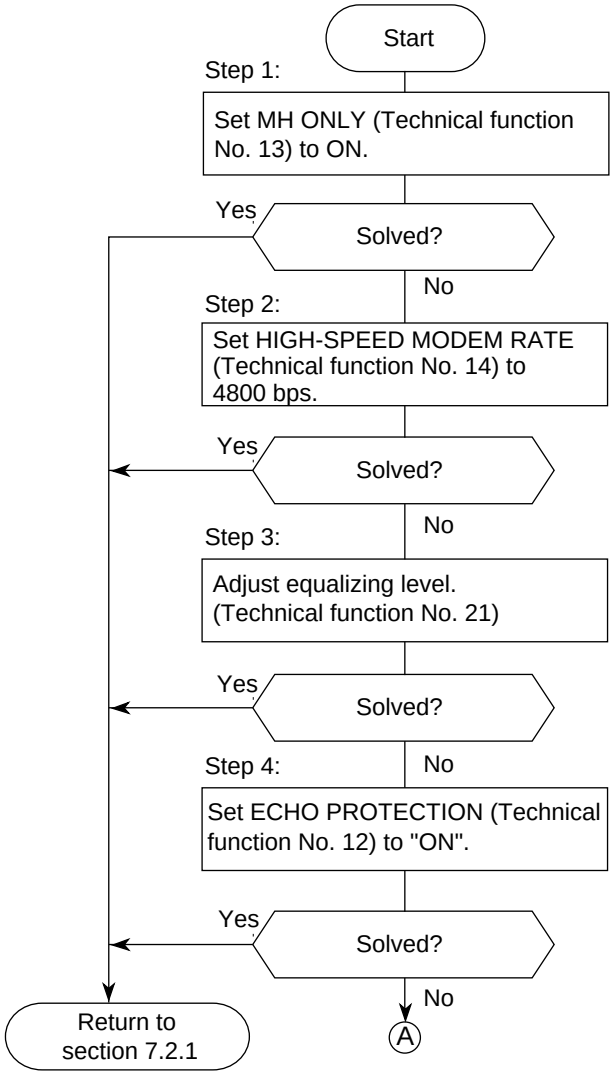


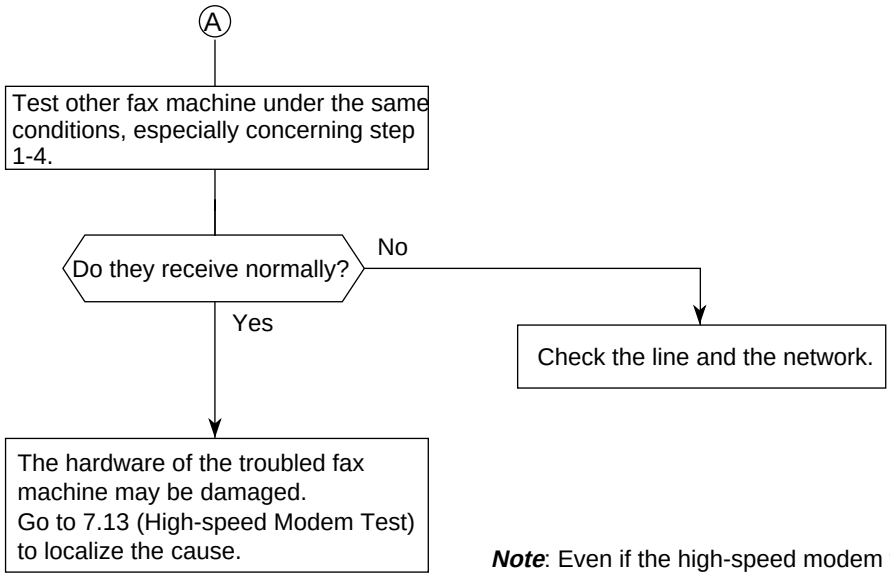
7.8 Auto Reception Failure



7.9 Reception Problem

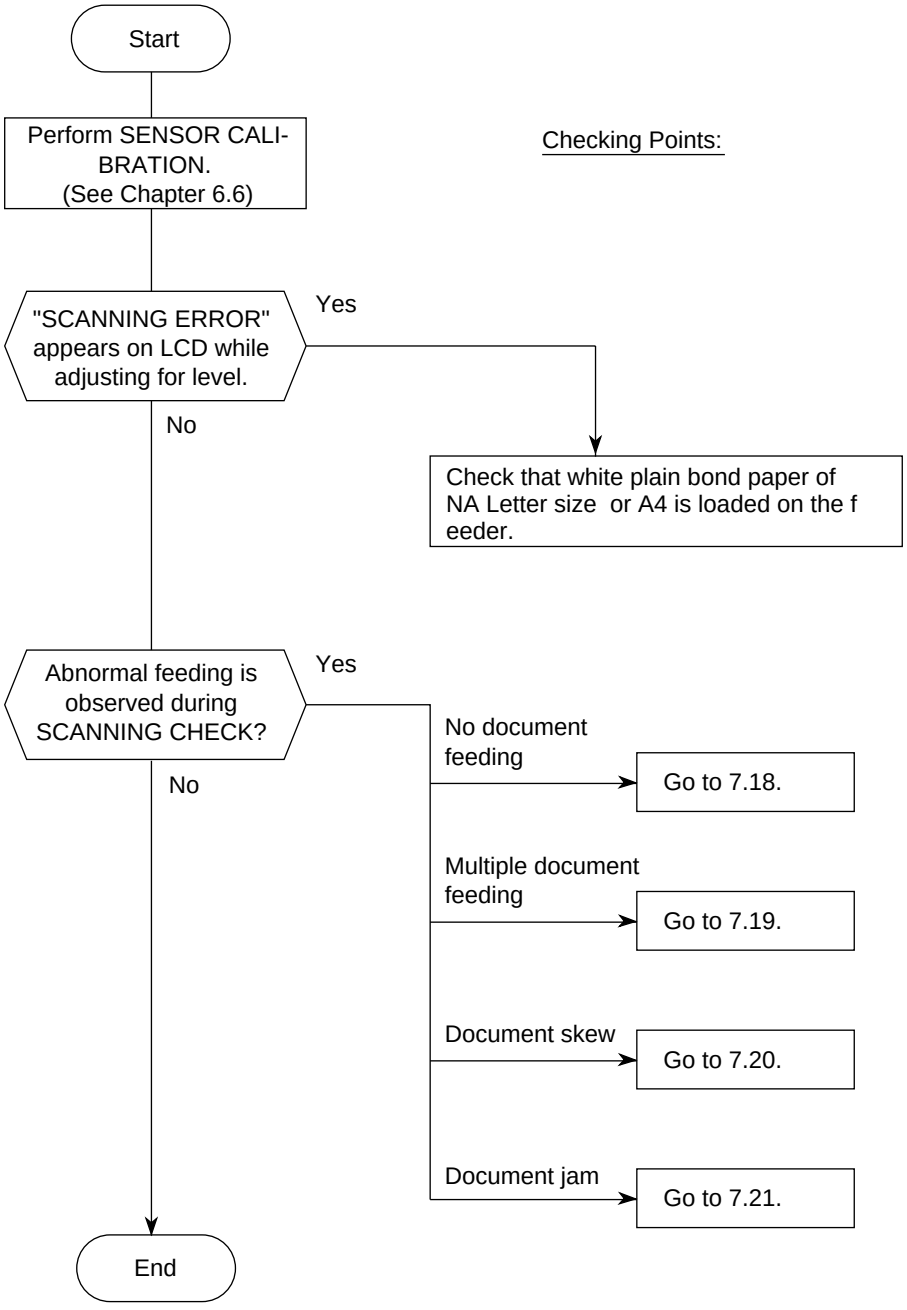
This section explains how to localize the cause of problems occurred after completion of connection with a remote station.



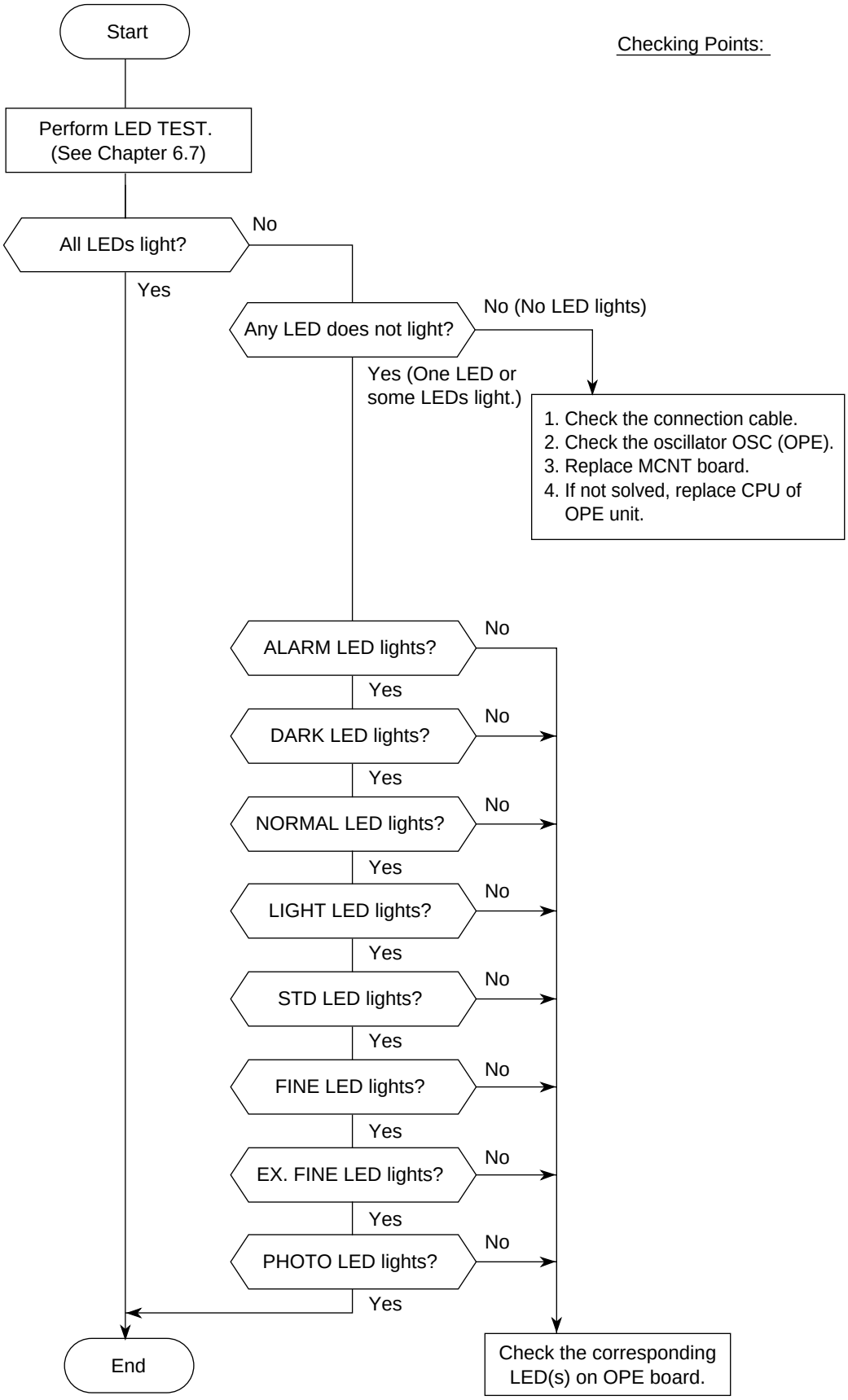


Note: Even if the high-speed modem test results in success, 300 bps signal route remains unchecked. In that case, the most suspected unit is MCNT board.

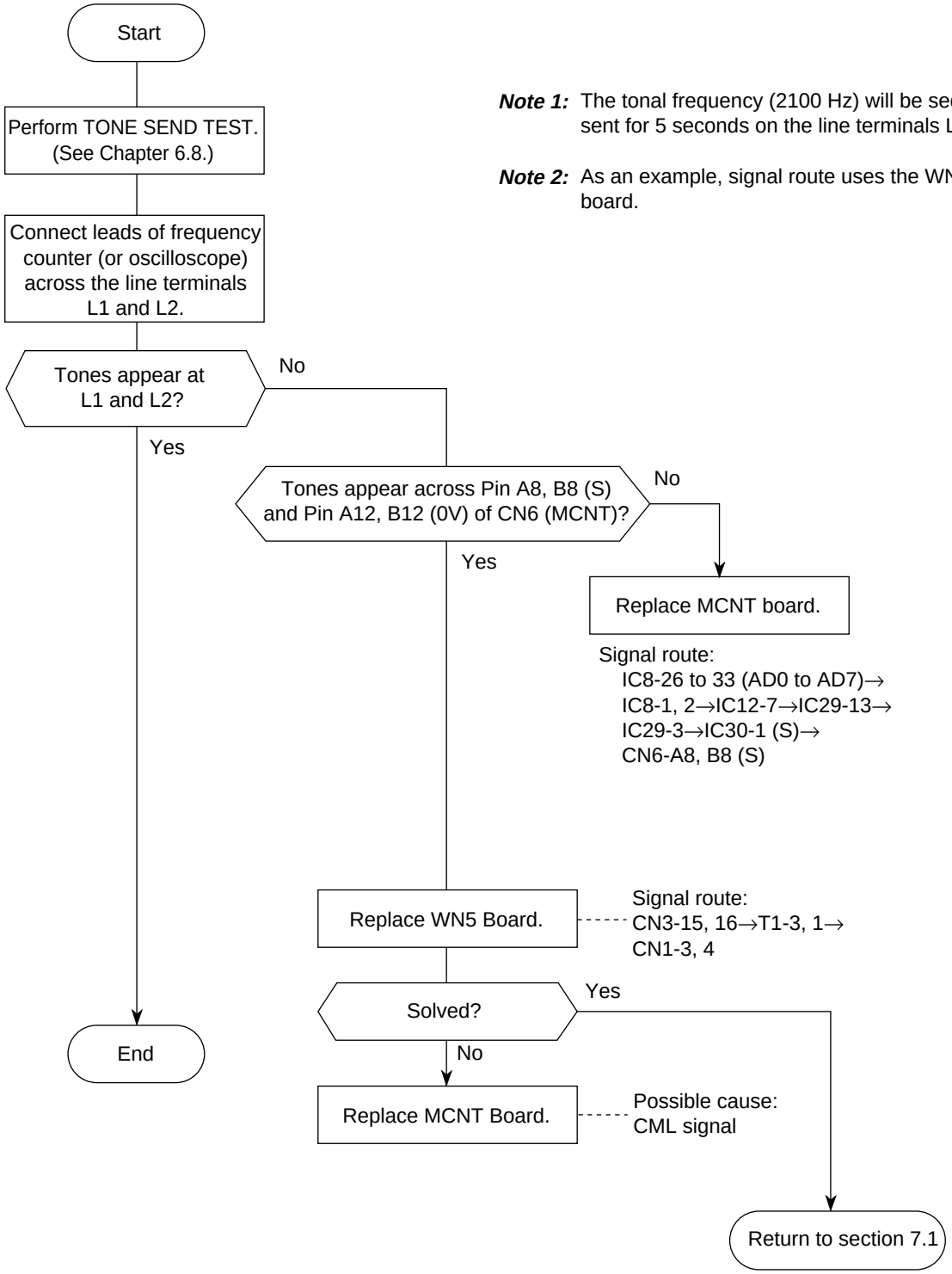
7.10 Sensor Calibration Test



7.11 LED Test


Start
Perform LED TEST.
(See Chapter 6.7)
All LEDs light?
No
Yes
Any LED does not light?
No (No LED lights)
Yes (One LED or some LEDs light.)
Checking Points:
1. Check the connection cable.
2. Check the oscillator OSC (OPE).
3. Replace MCNT board.
4. If not solved, replace CPU of OPE unit.
ALARM LED lights?
DARK LED lights?
NORMAL LED lights?
LIGHT LED lights?
STD LED lights?
FINE LED lights?
EX. FINE LED lights?
PHOTO LED lights?
Check the corresponding LED(s) on OPE board.
End

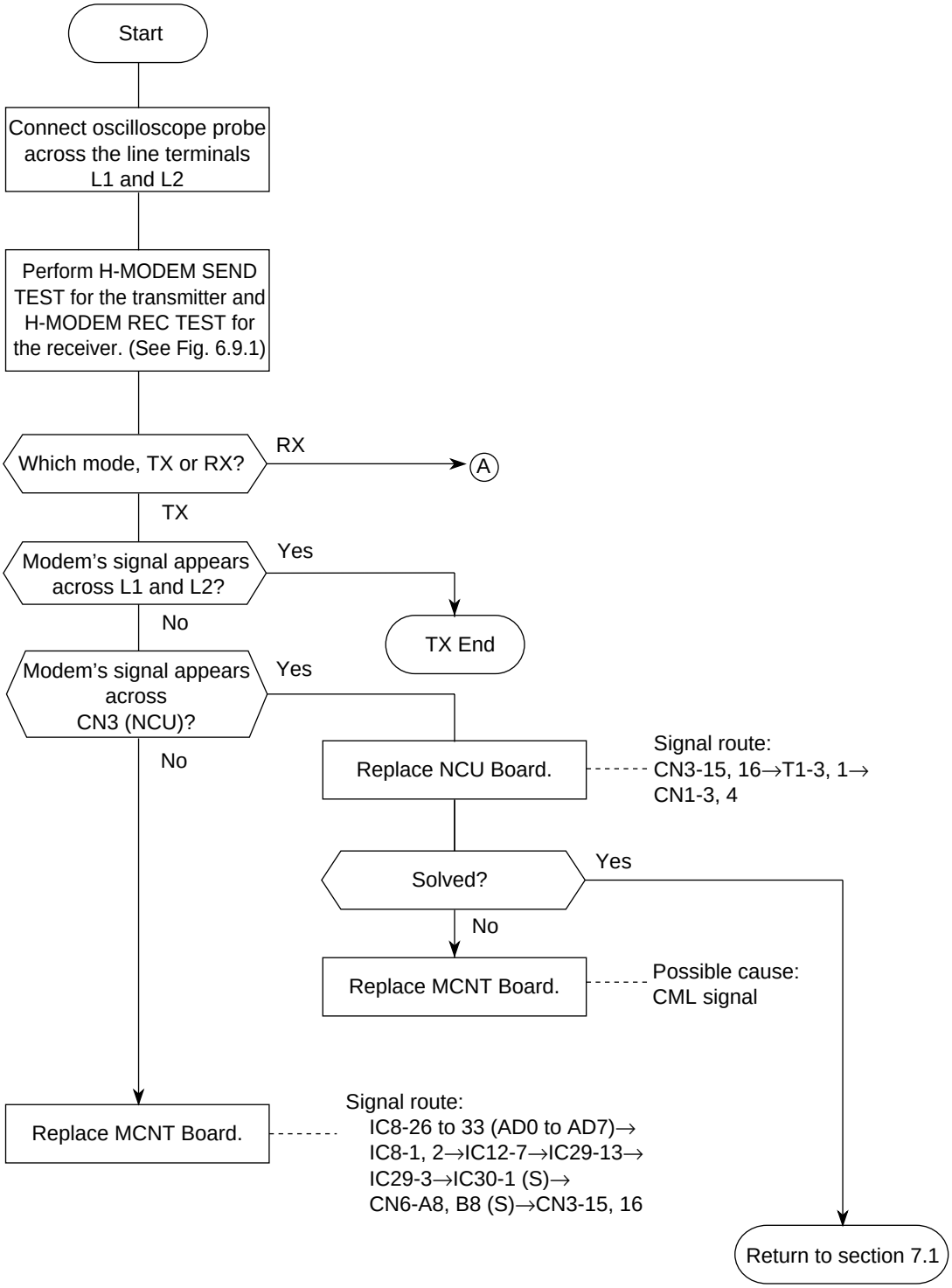
7.12 Tone Send Test

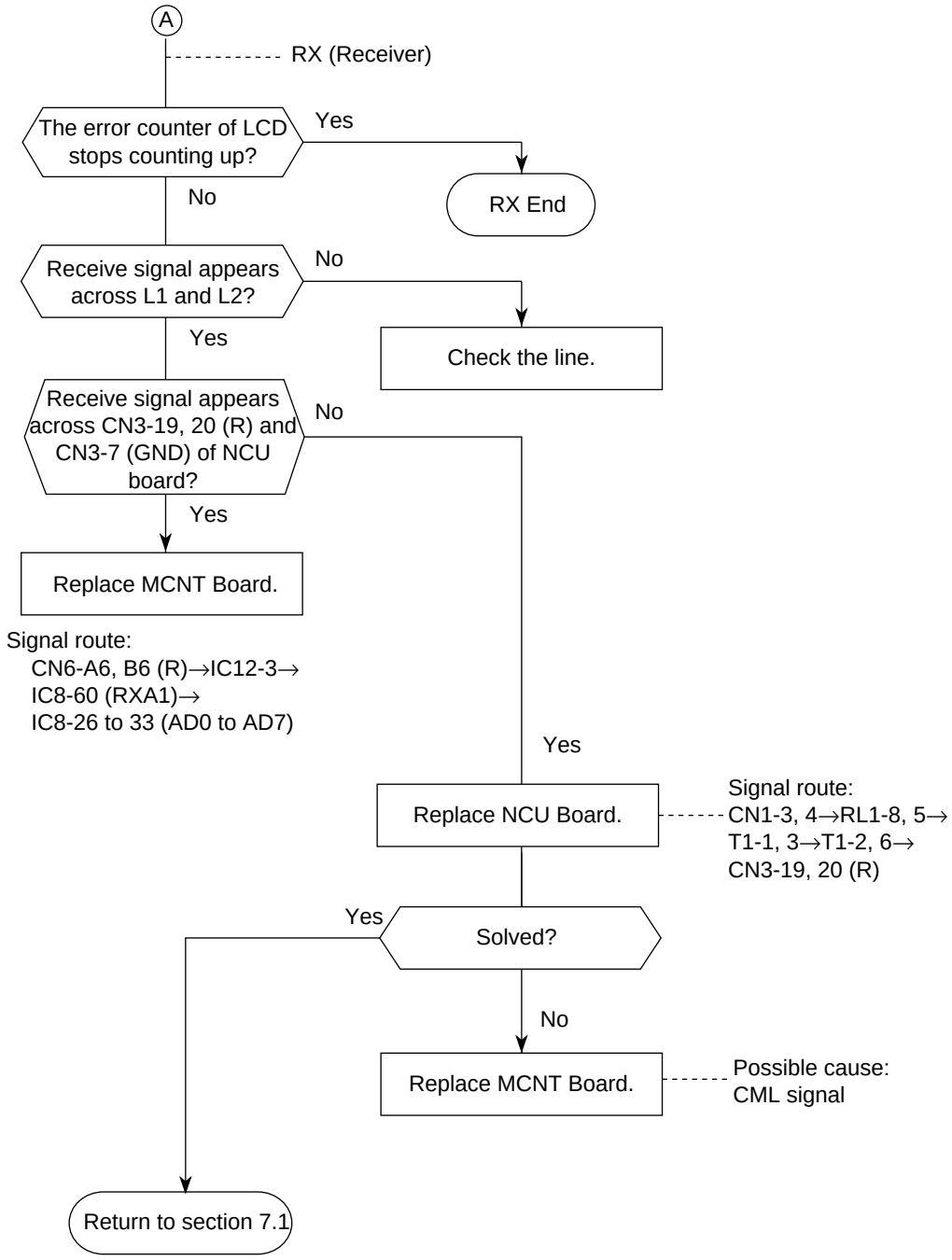


Note 1: The tonal frequency (2100 Hz) will be sequentially sent for 5 seconds on the line terminals L1 and L2.

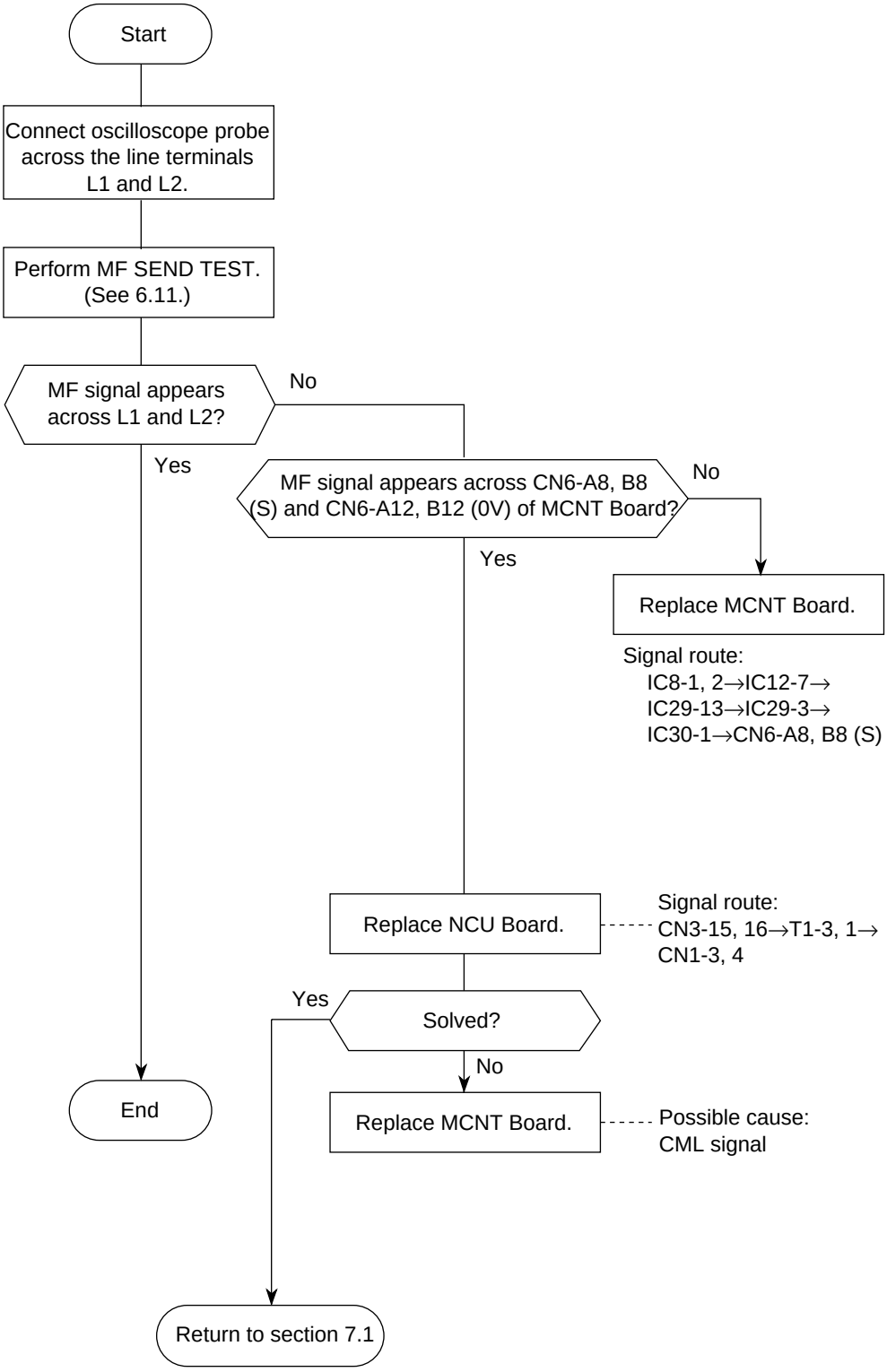
Note 2: As an example, signal route uses the WN5 (NCU) board.

7.13 High-speed Modem Test

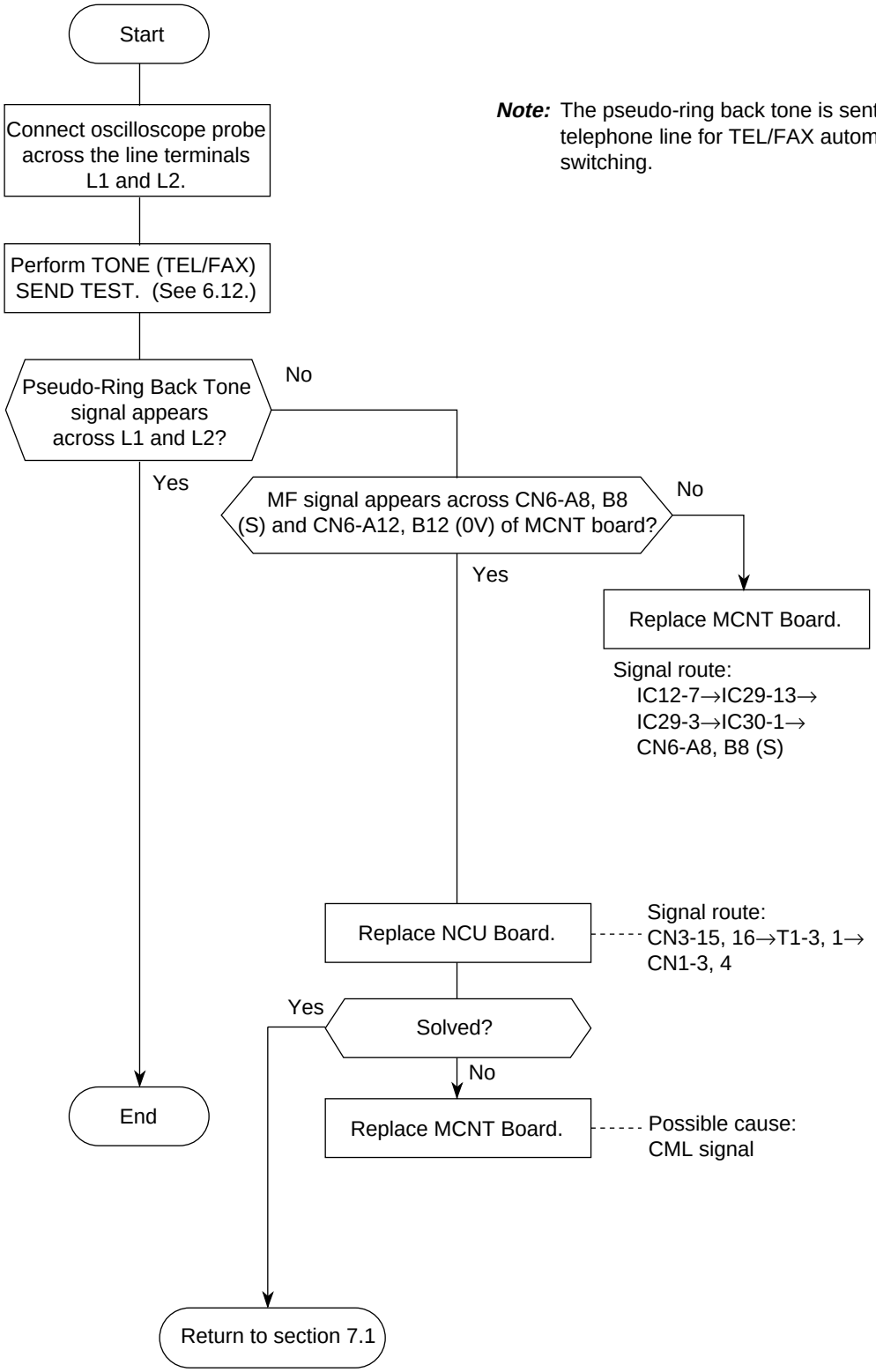



A
RX (Receiver)
The error counter of LCD stops counting up?
Yes
RX End
No
Receive signal appears across L1 and L2?
No
Check the line.
Yes
Receive signal appears across CN3-19, 20 (R) and CN3-7 (GND) of NCU board?
No
Yes
Replace MCNT Board.
Signal route:
CN6-A6, B6 (R)→IC12-3→
IC8-60 (RXA1)→
IC8-26 to 33 (AD0 to AD7)
Yes
Replace NCU Board.
Signal route:
CN1-3, 4→RL1-8, 5→
T1-1, 3→T1-2, 6→
CN3-19, 20 (R)
Yes
Solved?
No
Replace MCNT Board.
Possible cause:
CML signal
Return to section 7.1

7.14 MF Send Test



7.15 Tone (TEL/FAX) Send Test

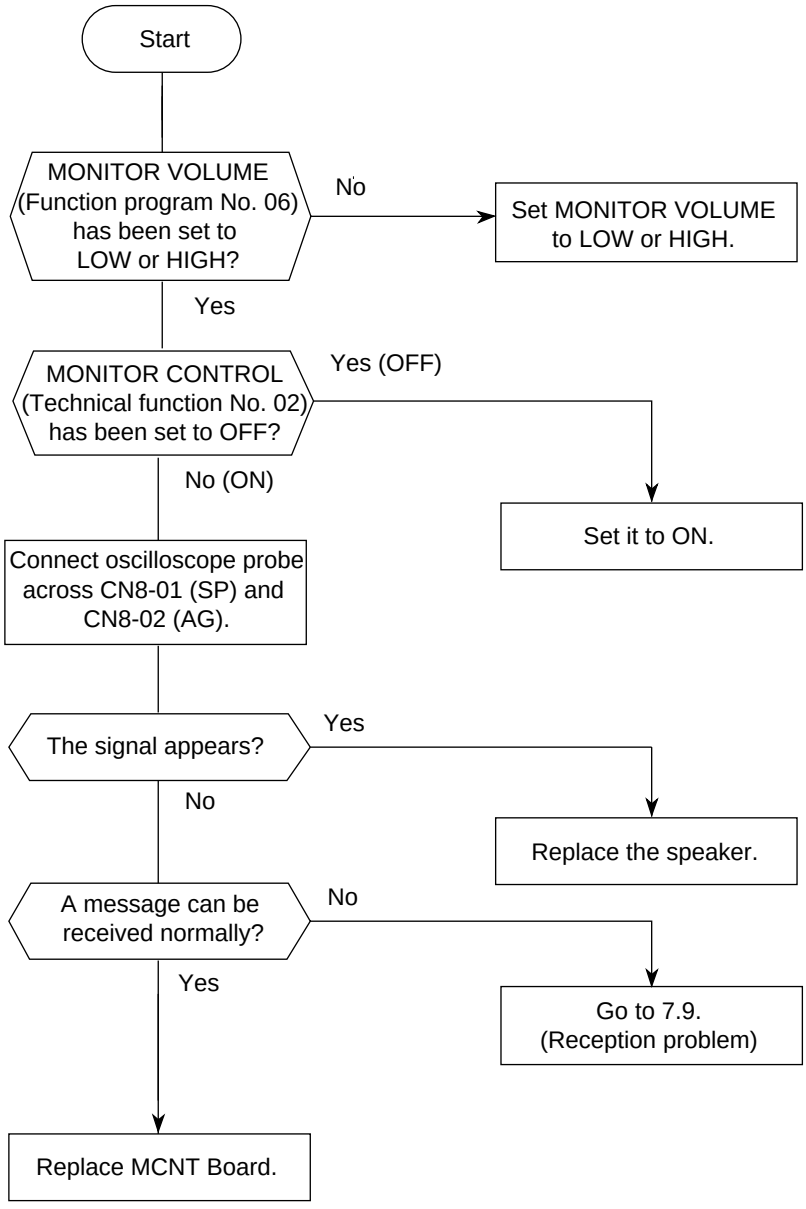


Note: The pseudo-ring back tone is sent to the telephone line for TEL/FAX automatic switching.

7.16 No Acoustic Line Monitor

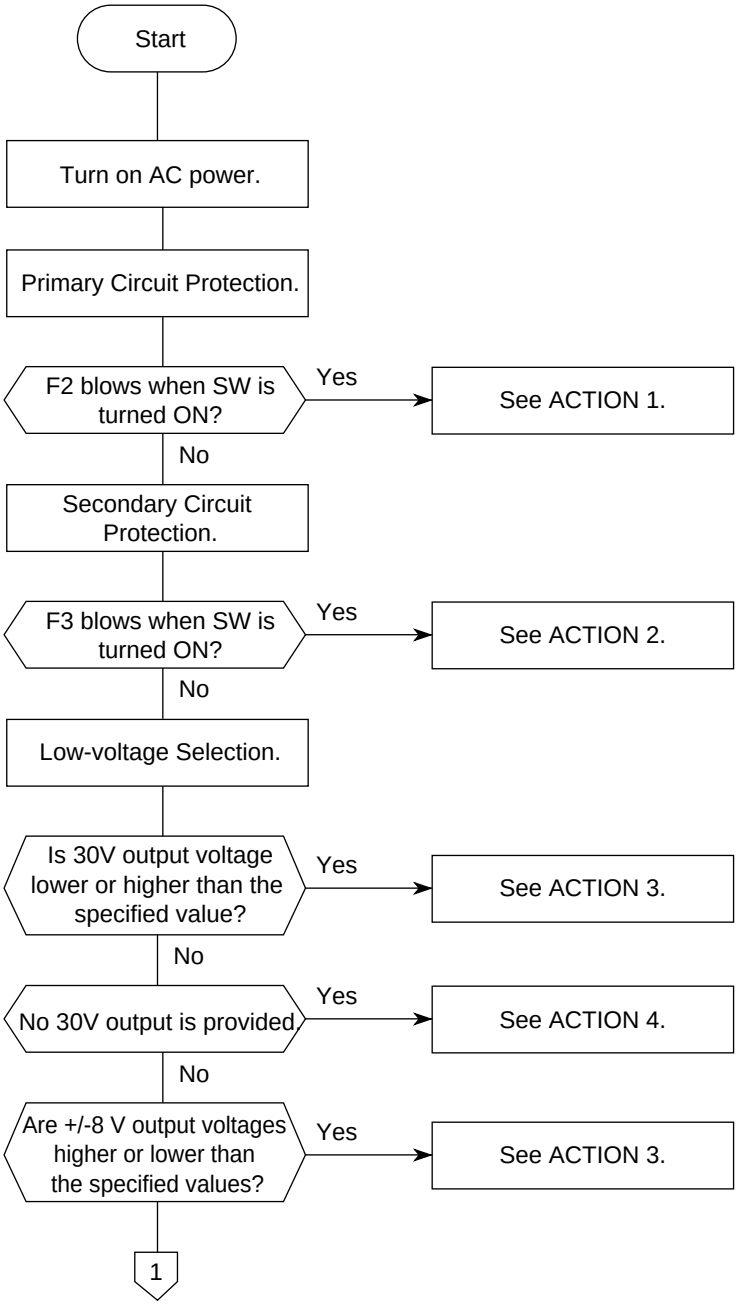
There are two source routes of acoustic line monitor:

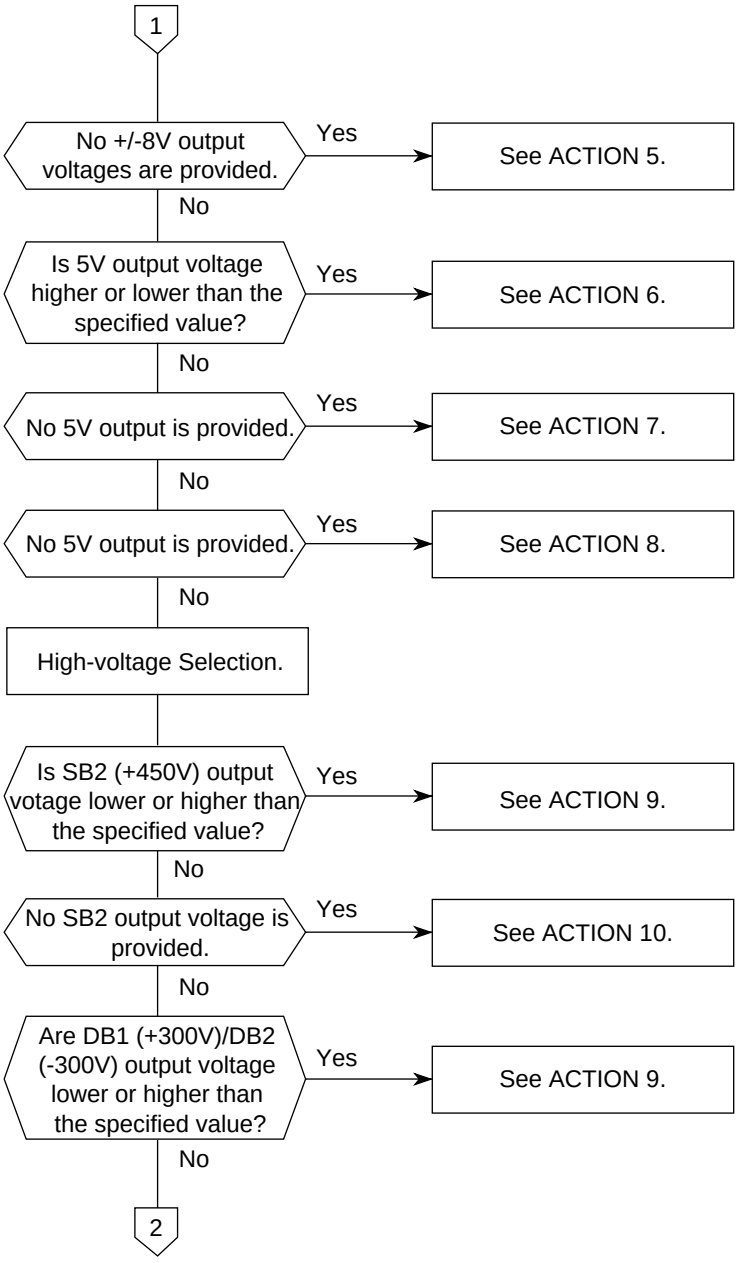
(a) General communication signal
(b) DP pulse signal

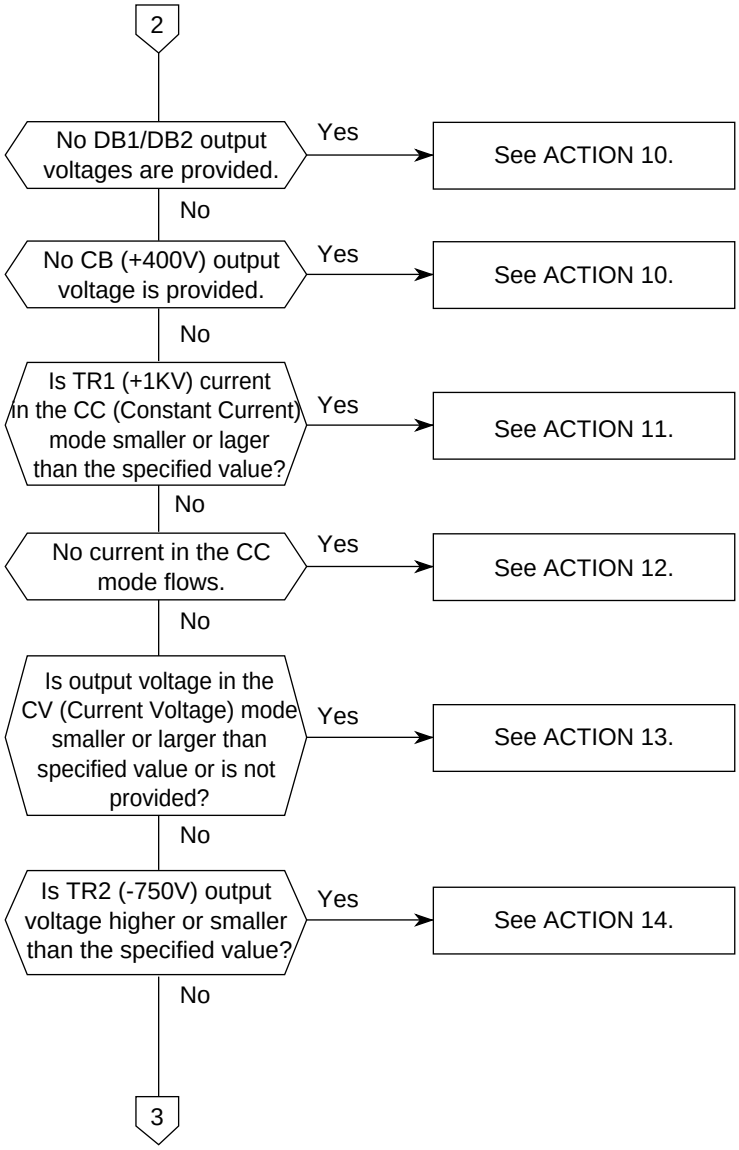


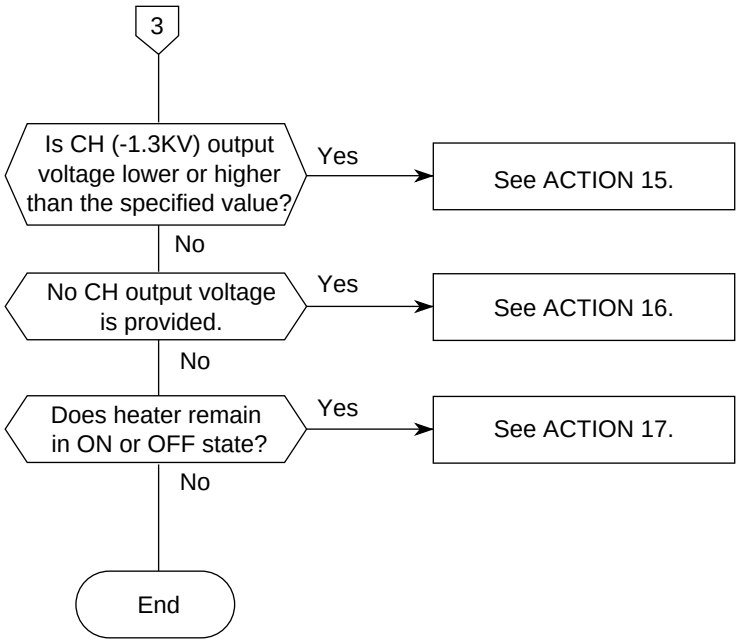
Signal route:
CN6-A6, B6 (R)→IC12-1 (RM)→
TR1-2→IC11-3→IC5-5

7.17 Power Supply Unit




1
No +/-8V output voltages are provided.
Yes
See ACTION 5.
No
Is 5V output voltage higher or lower than the specified value?
Yes
See ACTION 6.
No
No 5V output is provided.
Yes
See ACTION 7.
No
No 5V output is provided.
Yes
See ACTION 8.
No
High-voltage Selection.
Is SB2 (+450V) output votage lower or higher than the specified value?
Yes
See ACTION 9.
No
No SB2 output voltage is provided.
Yes
See ACTION 10.
No
Are DB1 (+300V)/DB2 (-300V) output voltage lower or higher than the specified value?
Yes
See ACTION 9.
No
2


2
No DB1/DB2 output voltages are provided.
Yes
See ACTION 10.
No
No CB (+400V) output voltage is provided.
Yes
See ACTION 10.
No
Is TR1 (+1KV) current in the CC (Constant Current) mode smaller or lager than the specified value?
Yes
See ACTION 11.
No
No current in the CC mode flows.
Yes
See ACTION 12.
No
Is output voltage in the CV (Current Voltage) mode smaller or larger than specified value or is not provided?
Yes
See ACTION 13.
No
Is TR2 (-750V) output voltage higher or smaller than the specified value?
Yes
See ACTION 14.
No
3


3
Is CH (-1.3KV) output voltage lower or higher than the specified value?
Yes
See ACTION 15.
No
No CH output voltage is provided.
Yes
See ACTION 16.
No
Does heater remain in ON or OFF state?
Yes
See ACTION 17.
No
End

ACTION Item:

No.	ACTION
1	Probable cause 1: A double AC voltage is applied (200V is applied to a 120V transformer). Check item 1: Check the input AC voltage. Probable cause 2: A short-circuit between lines after F2. Check item 2: Check the pattern on PCB and T1.
2	Probable cause 2: Short-circuit in 30V output circuit. Check item 1: Check DS1, C7, and R53. Probable cause 2: A short-circuit in 5V output circuit. Check item 2: Check Q1, D6, D7, C6, C10, C20, D6, D8, R4, R9, R83, R10, R11, and C35. If D8 and D6 operate and F3 blows when 5V overvoltage is detected, D8 and Q1 may be detective. Replace both D8 and Q1.
3	Probable cause 1: If the AC voltage is high (127V or more)/(250V or more), the output voltage becomes higher than the specified value. If the AC voltage is low (102V or less)/(198V or less), the output voltage becomes lower than the specified value. Check item 1: Check the AC voltage. Probable cause 2: If the load setting is large, the output voltage becomes lower than the specified value. Check item 2: Check the load resister. Probable cause 3: DS1 is defective (if the 30V output voltage is low). Check item 3: Check DS1 and R53.
4	Probable cause 1: F3 blows. → See ACTION 2. Probable cause 2: T1 is defective. Check item 2: Check secondary side pins 1 to 3 and primary side pins 1 and 2 of T1. Check item 3: Check DS1 for shorting and opening.
5	Probable cause 1: D10 and D11 are defective. Check item 1: Check the AC voltage. Probable cause 2: T1 is defective. Check item 2: Check pins 5 and 6 of T1 (thermal fuse may blow).
6	Probable cause 1: The reference resister is defective. Check item 1: Check R83, R10 and R11 (tolerance error: +/- 1%). Probable cause 2: IC1 is defective. Check item 2: Check IC1-1 pin (normal value: 2.45 to 2.69V).
7	Probable cause 1: F3 blows. → See ACTION 2.
8	Probable cause 1: C19 and C20 are defective. Check item 1: Check C10 and C20. Probable cause 2: L3 is defective. Check item 2: Check L3. Probable cause 3: C8 and C35 are defective. Check item 3: Check C8 and C35.

ACTION Item:

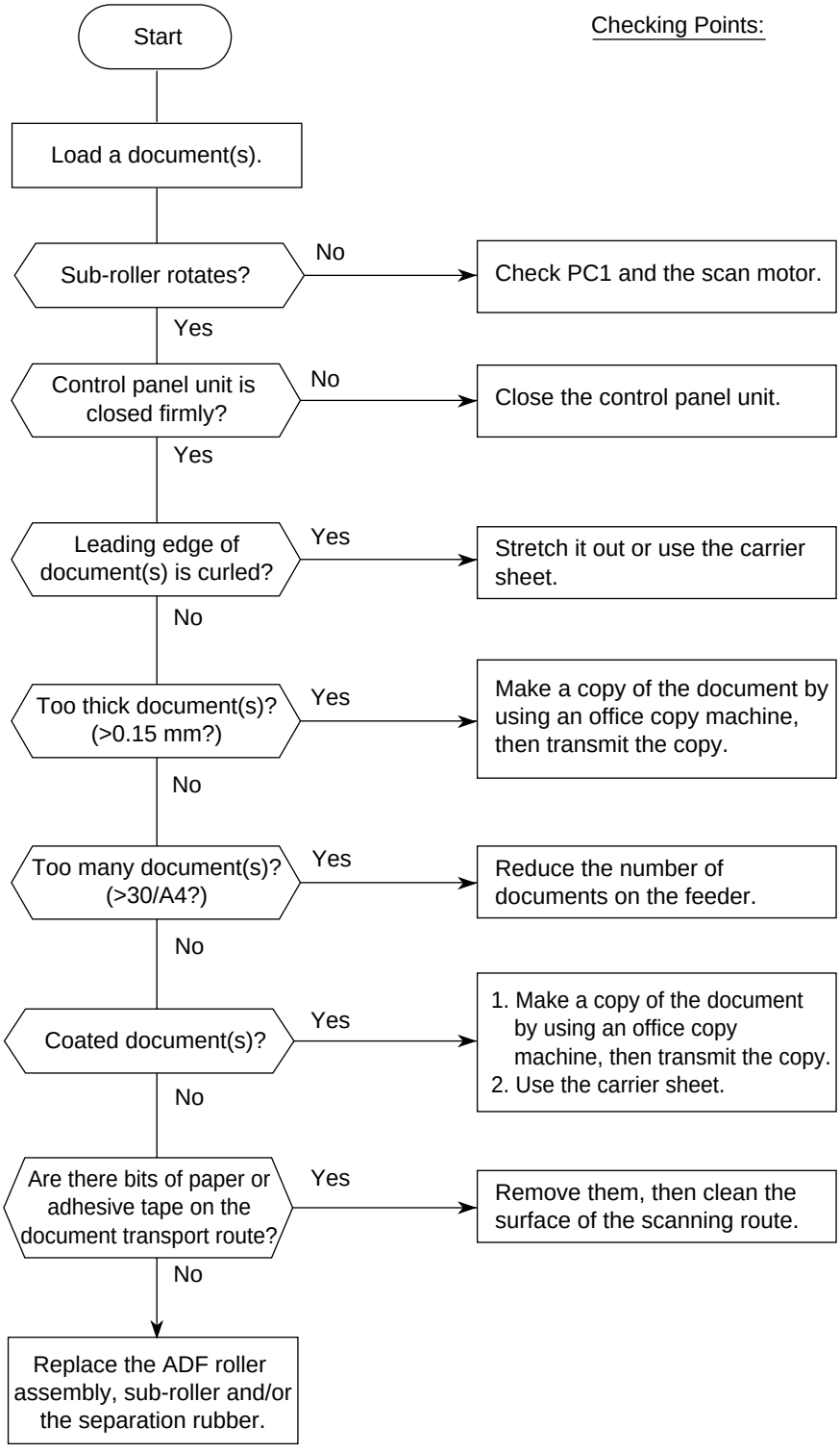
No.	ACTION
9	Probable cause 1: D85 is defective. Check item 1: Replace D85. Probable cause 2: The load is larger than the normal value. Check item 2: Check if the load current is 2μA or less. Probable cause 3: D52 is defective. Check item 3: Check if D52 is iZ300 class Y or Z (class X is not acceptable).
10	Probable cause 1: Q11 and Q12 are malfunctioning. Check item 1: Check the PWM waveform of DB output (cycle: 142 μs, ON time: 36μs). Check item 2: Check Q11 and Q12. Check the base voltage of Q21, Q22 and Q23 (3.7V or more to 3.9V or more).
11	Probable cause 1: Current set resistor R115 is defective. Check item 1: Check R115 (tolerance error: +/-1%) Probable cause 2: The reference voltage is incorrect. Check item 2: Check if the voltage at CN3-B10 pin is 2.5V. Check item 3: Check the PWM waveform of TR1 (cycle: 142Ms, ON time: 36 μs).
12	Probable cause 1: CC (Constant Current) mode is not set. Check item 1: Check if TR SEL2 is "H". Probable cause 2: T2 is defective. Check item 2: Replace T2. Check T2. Probable cause 3: Check (3) of ACTION 11.
13	Probable cause 1: The voltage memory circuit is malfunctioning. Check item 1: Check if the average value of the VSEN voltage in the CC mode is equal to that in the CV (Current Voltage) mode. Check if the voltage across C230 remains unchanged in the CV mode (for 15 seconds or more).
14	Probable cause 1: D65 or D66 is defective. Check item 1: Check if these diodes are 1ZB390. Check item 2: Check the PWM waveform of TR2 output (cycle: 146μs, ON time: 36μs). Check item 3: Check if TR1 is "L" or TR2 is "H" (if TR1 is "H", TR1 output appears).
15	Probable cause 1: The class of D76 or D82 is incorrect. Check item 1: Check if both D76 and D82 are of EB-2 class. Probable cause 2: The load current is lower than the specified value. Check item 2: The load current shall be 6 to 8μA. (Namely, the load current shall not be more than or less than this limit range.)

ACTION Item:

No.	ACTION
16	Check item 1: Check the PWM waveform of CH (cycle: 42μs, ON time: 36μs).
17	Probable cause 1: D1 is detective. Check item 1: Check if both D1 and T1 or D1 and T2 are shorted. Probable cause 2: The D1 drive circuit is defective. Check item 2: Check PC1. [Whether PC1 turns ON or OFF according to the level of HEAT signal (CN3-B7)?] Check if R2 or R3 is in open state (This cannot be observed from the external appearance because these resistors are fusible resistor.)

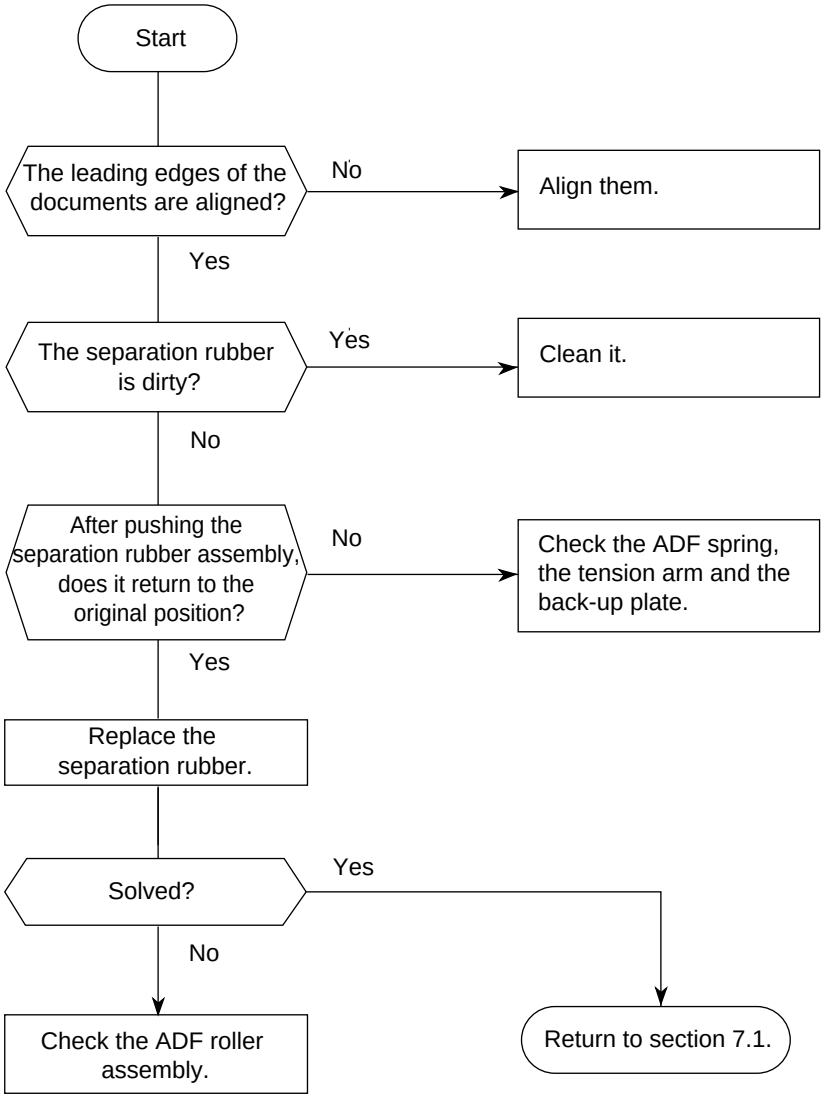
7.18 No Document Feeding

Note: This section places an emphasis on troubleshooting of mechanical portions. Therefore, it is recommended to replace the MCNT Board first and, then if not solved, follow this flow chart.

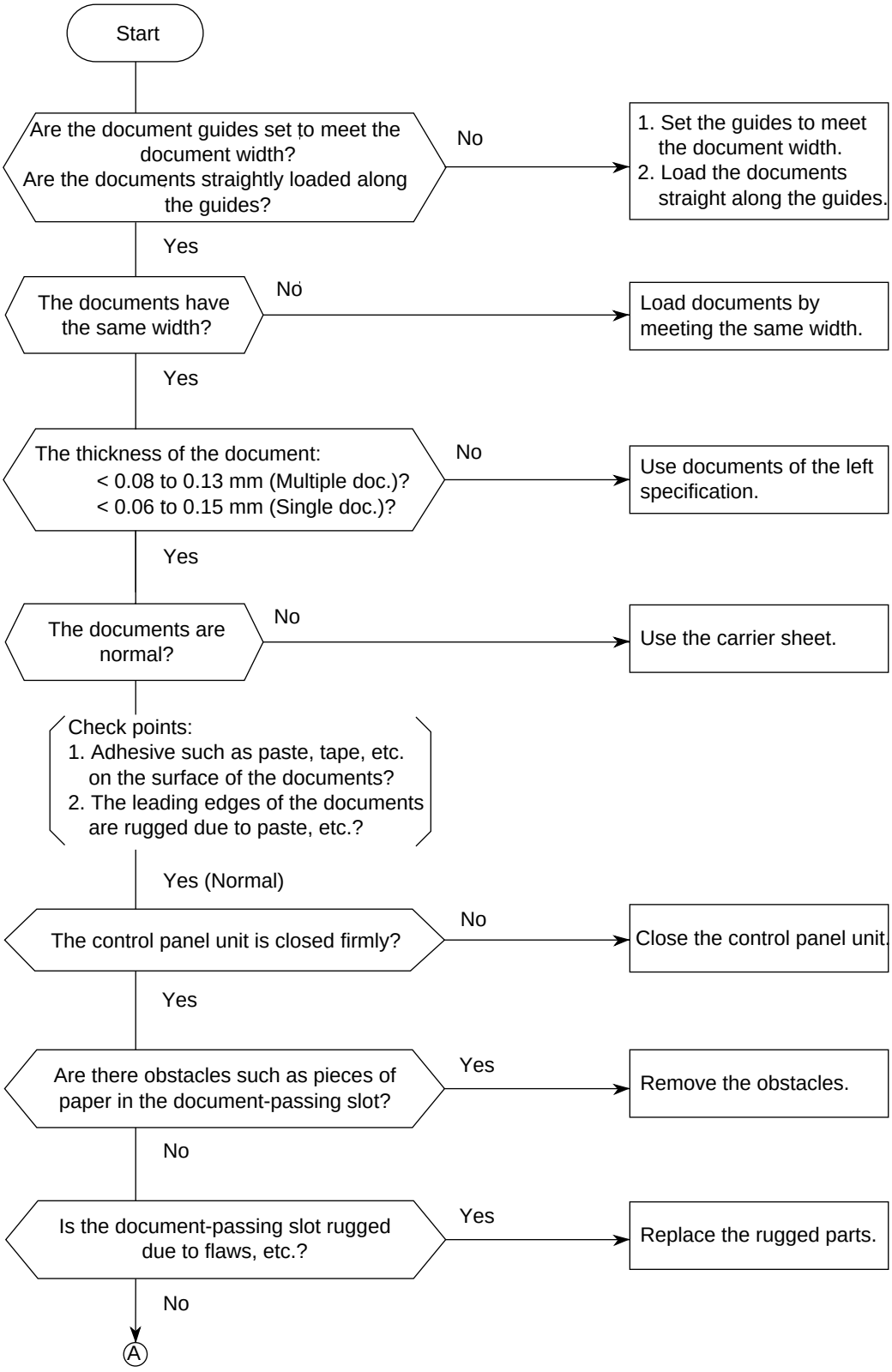


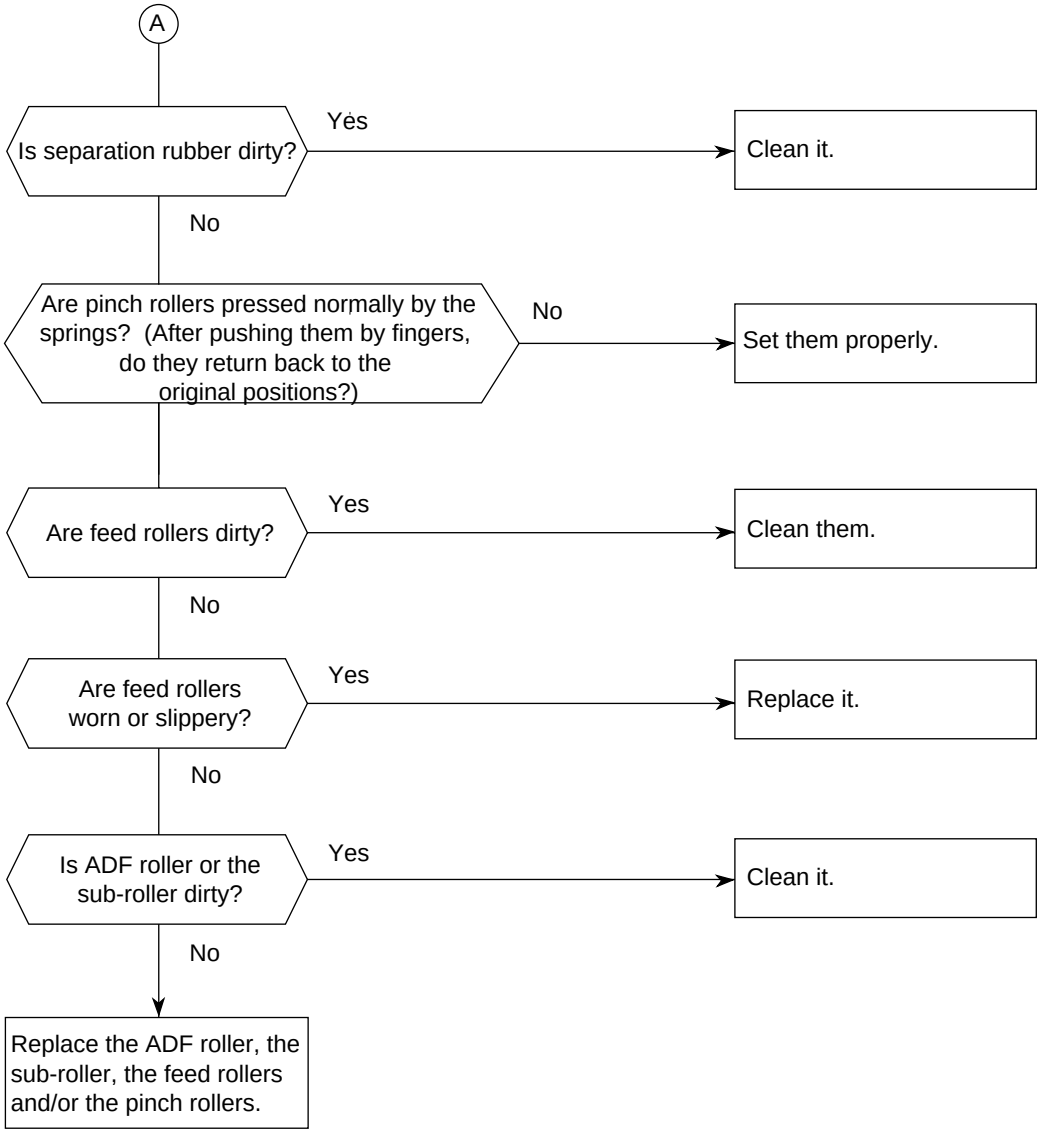
7.19 Multiple Document Feeding

Definition: Multiple document feeding.
Multiple documents are not separated and they are fed in the same one feeding operation.

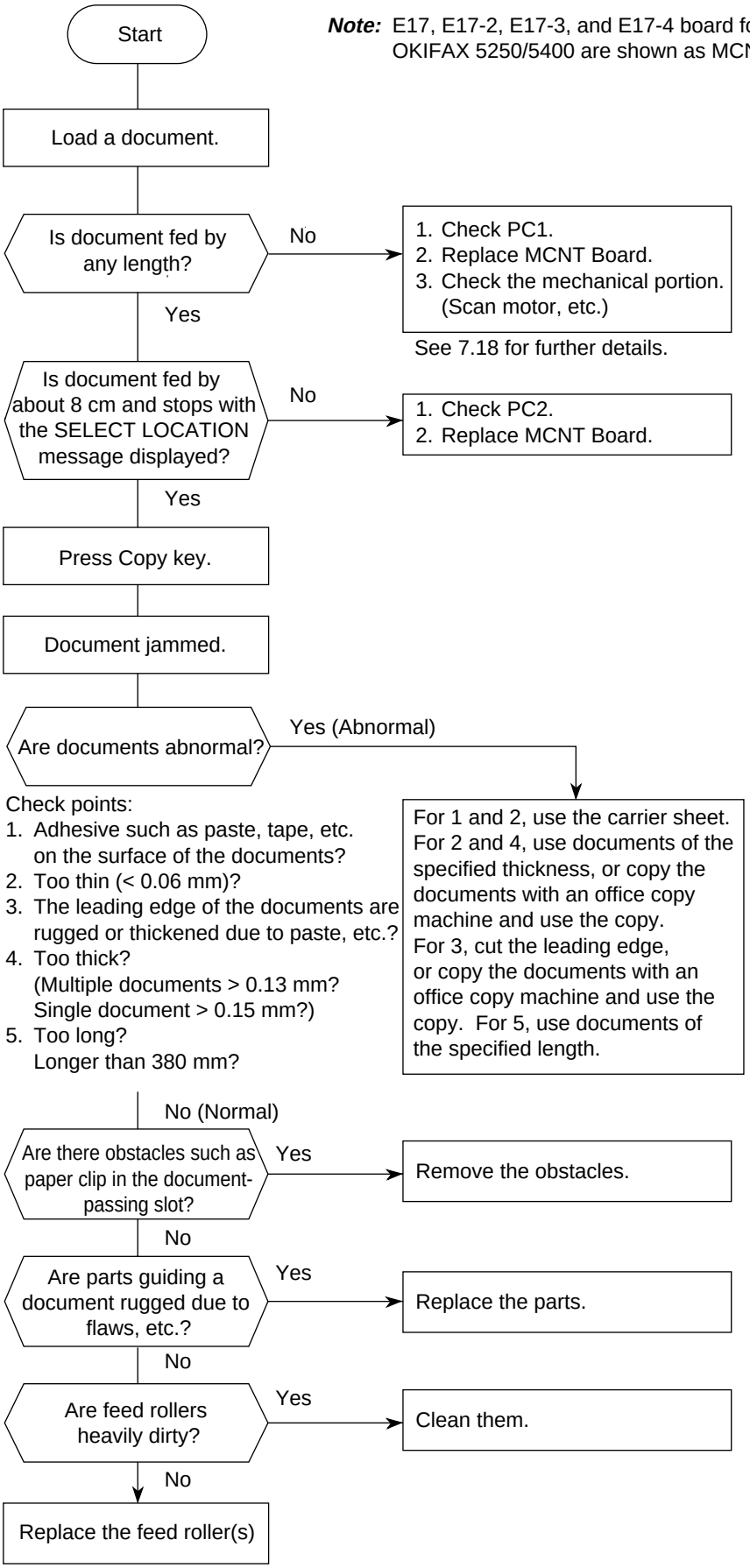


7.20 Document Skew




A
Is separation rubber dirty?
Yes
Clean it.
No
Are pinch rollers pressed normally by the springs? (After pushing them by fingers, do they return back to the original positions?)
No
Set them properly.
Are feed rollers dirty?
Yes
Clean them.
No
Are feed rollers worn or slippery?
Yes
Replace it.
No
Is ADF roller or the sub-roller dirty?
Yes
Clean it.
No
Replace the ADF roller, the sub-roller, the feed rollers and/or the pinch rollers.

7.21 Document Jam



Note: E17, E17-2, E17-3, and E17-4 board for OKIFAX 5250/5400 are shown as MCNT.

7.22 Printer Unit

7.22.1 Precautions

1. Points to check before correcting image troubles
   (1) Is the printer being run in proper ambient conditions?
   (2) Have the supplies (toner) and the routine replacement part (ID unit) been replaced properly?
   (3) Is the recording paper normal?
   (4) Has the ID unit been loaded properly?

2. Tips for correcting image troubles
   (1) Do not touch, or bring foreign matter into contact with the surface of the drum.
   (2) Do not expose the drum to direct sunlight.
   (3) Keep hands off the fuser unit as it is heated during operation.
   (4) Do not expose the drum to light for longer than 5 minutes at room temperature.

7.22.2 Troubleshooting Flow Charts of Printer Unit

Overall troubleshooting flow chart:

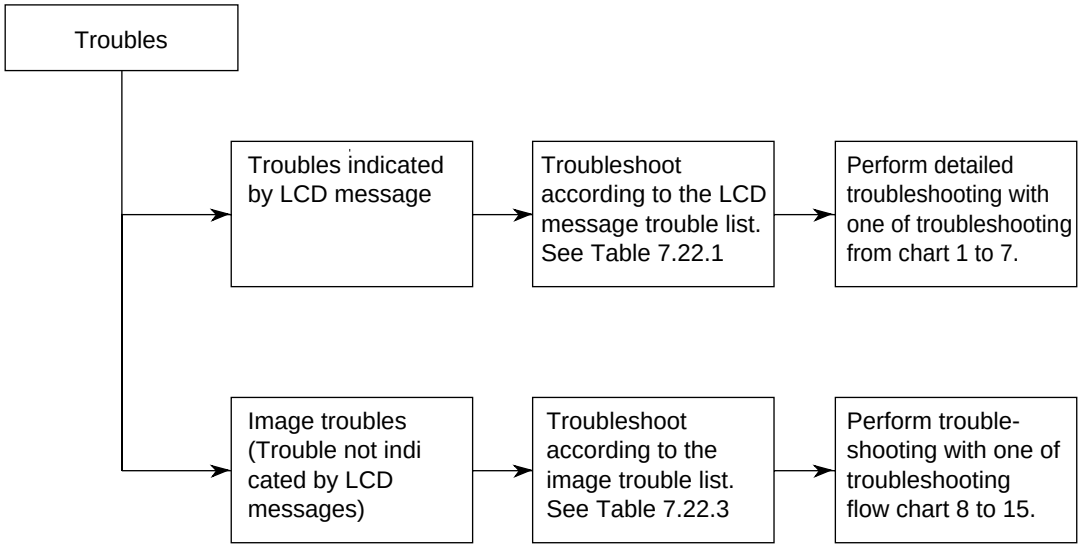
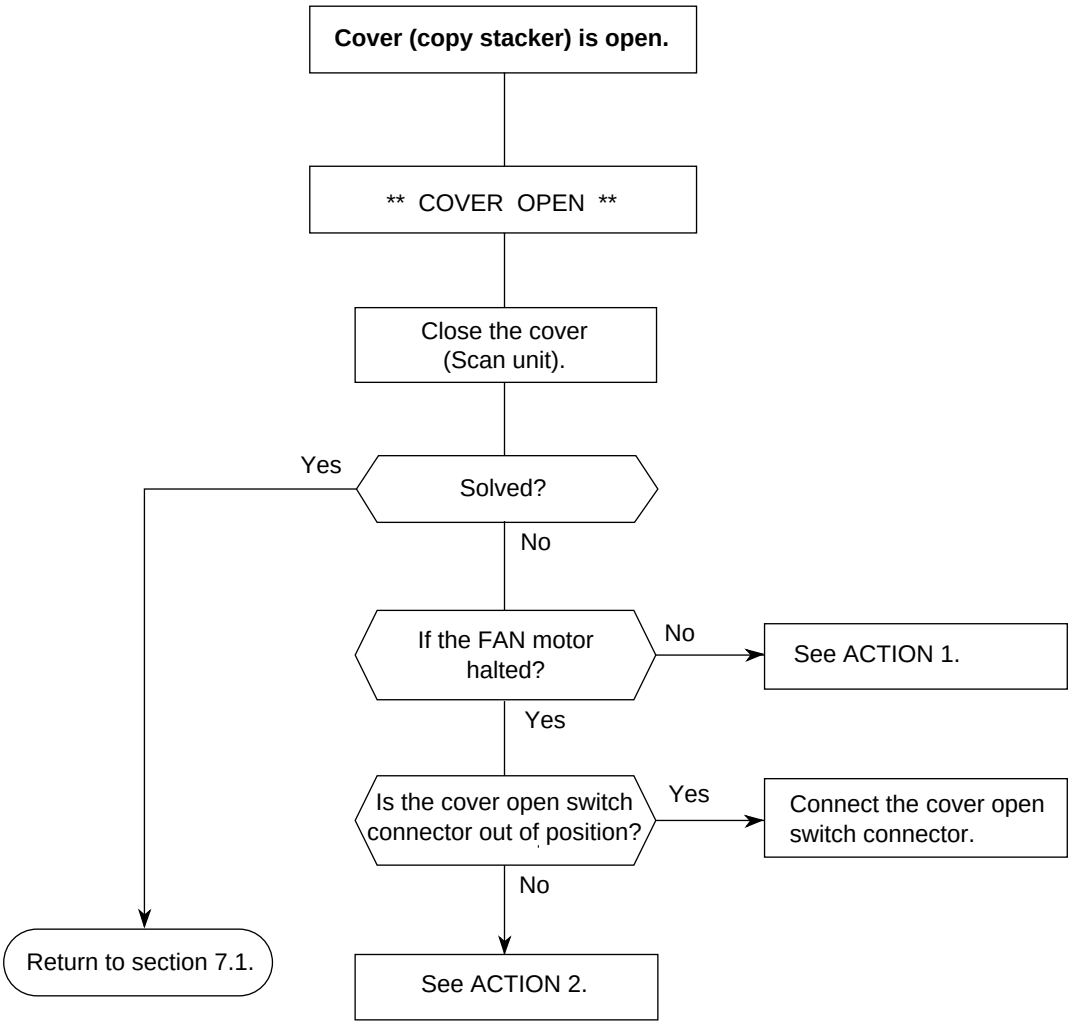


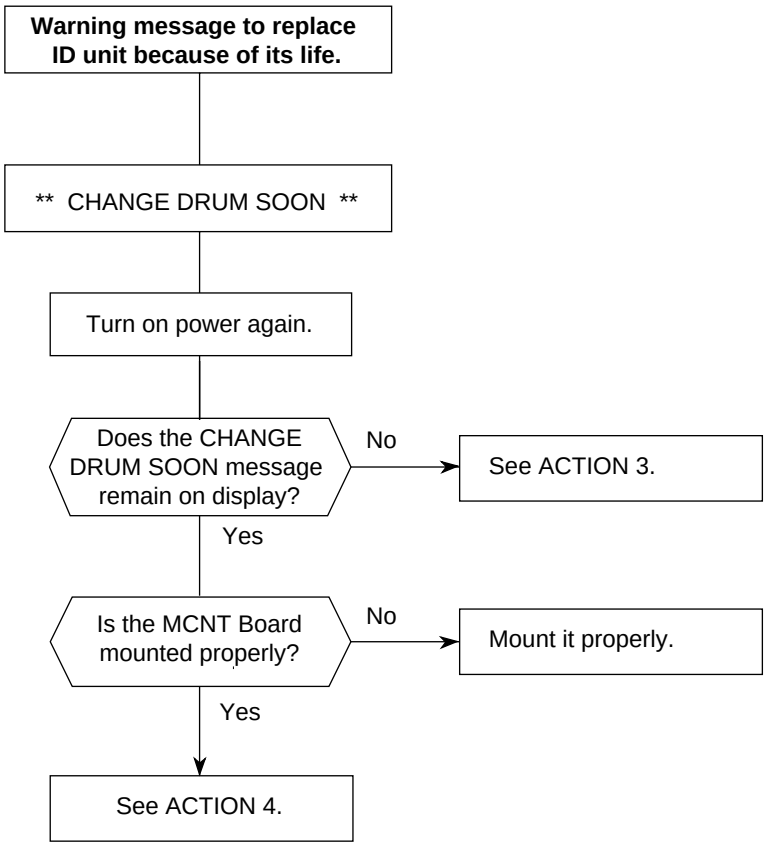
Table 7.22.1 LCD Message Trouble List

Category	LCD message display	Trouble	Troubleshooting flow chart number
Cover open	14:14 [FAX] COVER OPEN	The cover (copy stacker) is open.	1
Image drum alarm	14:14 [FAX] CHANGE DRUM	Warning message to replace ID unit because of its life.	2
Engine errors	PRINTER ALARM 2[TEL] PLEASE CONFIRM	Engine controller error (Option: 2nd tray)	3
	PRINTER ALARM 3[TEL] PLEASE CONFIRM	Fan motor rotation error	4
	PRINTER ALARM 4[TEL] PLEASE CONFIRM	Fuser unit thermal error	5
Recording paper/ jam error	PAPER JAM [FAX] CONFIRM AND "STOP"	Recording paper feed jam, transport jam, ejection jam, recording size error	6
Paper cassette request	NO PAPER [FAX] REPLACE PAPER	No recording paper cassette or no recording paper	7
Daily status	TONER LOW [FAX] REPLACE TONER CART.	Toner is running short. Note: No toner memory RX is ON.	
	14:14 [FAX] REPLACE TONER CART.	Toner is running short. Note: No toner memory RX is OFF.	

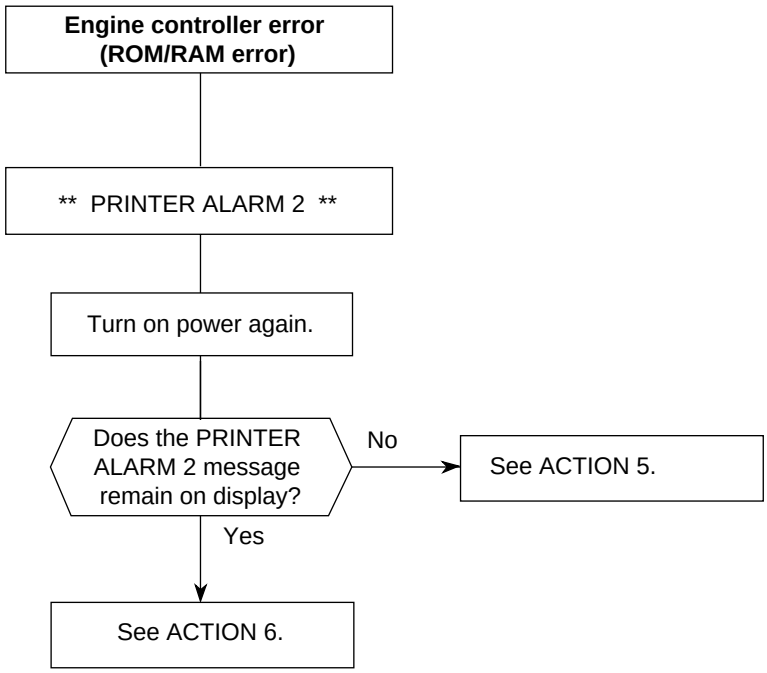
Troubleshooting flow chart 1:



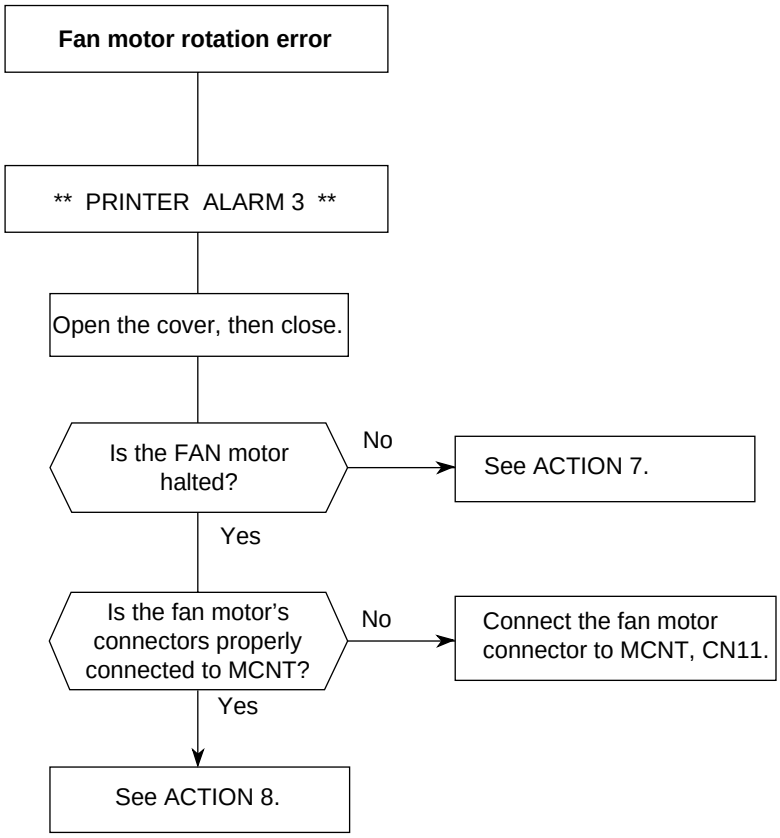
Troubleshooting flow chart 2:



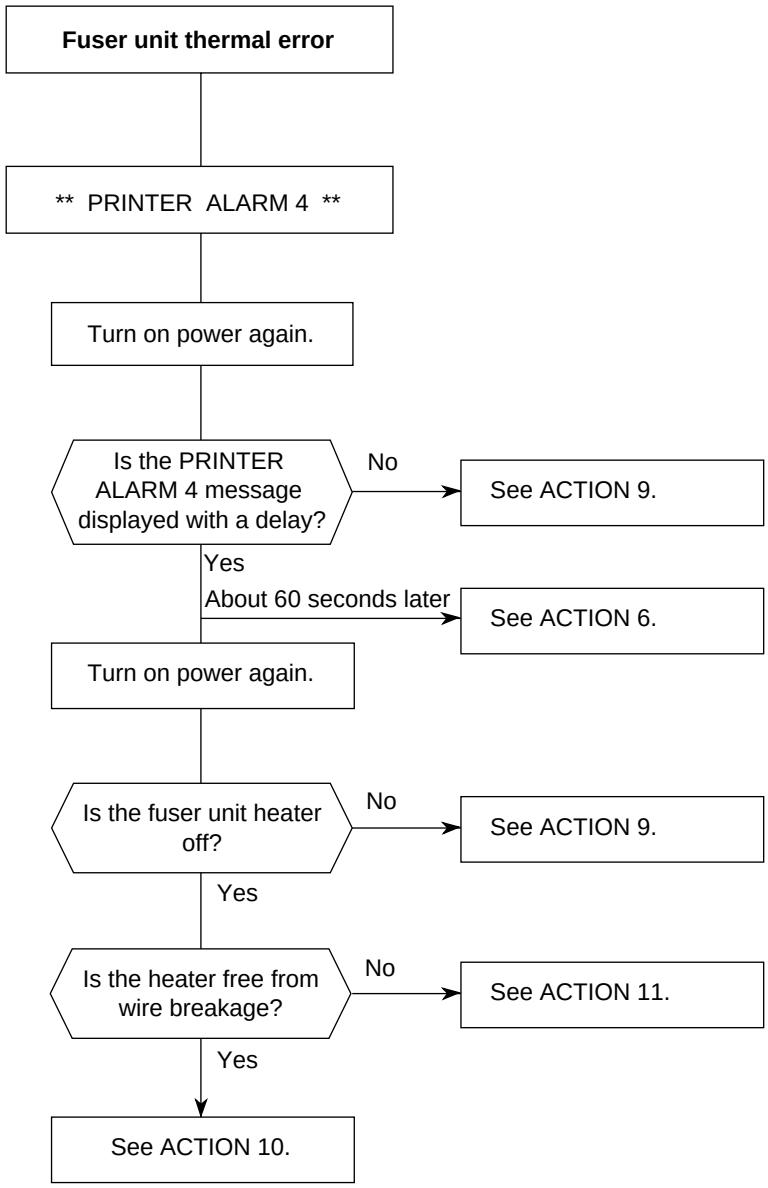
Troubleshooting flow chart 3:



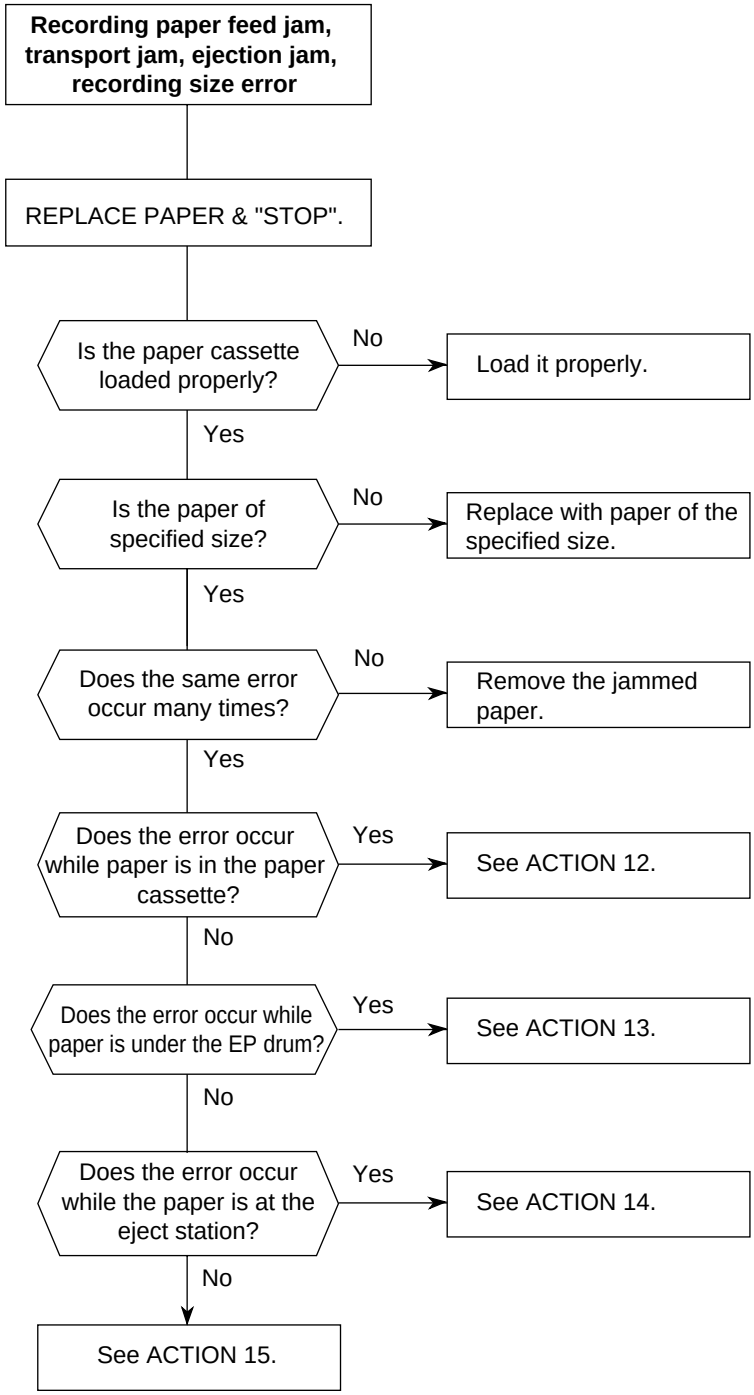
Troubleshooting flow chart 4:



Troubleshooting flow chart 5:



Troubleshooting flow chart 6:



Troubleshooting flow chart 7:

No recording paper cassette or not recording paper

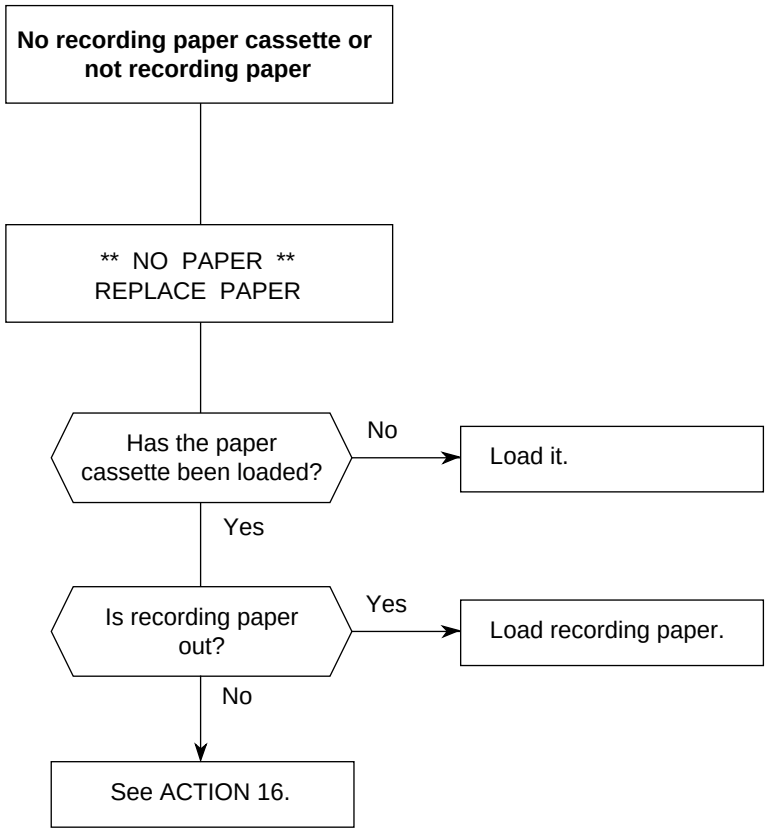


Table 7.22.2 Action Items (Printer Unit-LCD Message)

No.	ACTION
1	Check MCNT Board.
2	Check POWER SUPPLY UNIT. cover open switch, cover open switch connection. Check MCNT Board.
3	Return to Section 7.2.
4	Replace the ID Unit. And clear Drum Count, Selection 6.3.
5	Check installation of MCNT board, POWER SUPPLY UNIT board.
6	Check MCNT Board.
7	Check FAN motor, MCNT Board.
8	Check FAN motor, MCNT Board, POWER SUPPLY UNIT.
9	Check thermister (resistance of about 100 kilo ohms at room temperature and about 1.5 kilo ohms at high temperature), POWER SUPPLY UNIT.

No.	ACTION
10	Check connection between the PWU and the fuser assembly, heater, thermostat.
11	Check PWU.
12	Check inlet sensor lever, hopping roller, resist motor, MCNT Board, cover setting state.
13	Check cover setting state, drum motor, drum motor gear, MCNT Board.
14	Check exit sensor lever, cover setting state, PWU
15	Check MCNT Board,.
16	Check paper sensor lever, PWU, MCNT board.

Note: E17-8 board for OKIFAX 5250/5400 are shown as MCNT.

Table 7.22.3 Image Troubles

Abnormal Symptom	Reference Figure	Troubleshooting Flow Chart No.
Images are light or blurred as a whole.	Fig. Ⓐ	8
The blank background is smeared.	Fig. Ⓑ	9
Blank paper is output.	Fig. Ⓒ	10
Black belts or black stripes in vertical direction.	Fig. Ⓓ	11
Periodic abnormal printing.	Fig. Ⓔ	12
Some parts not printed.	—	13
White belts or some white stripes in vertical direction	Fig. Ⓕ	14
Poor fusing (Images are blurred or peeled off when touched by hands)	—	15

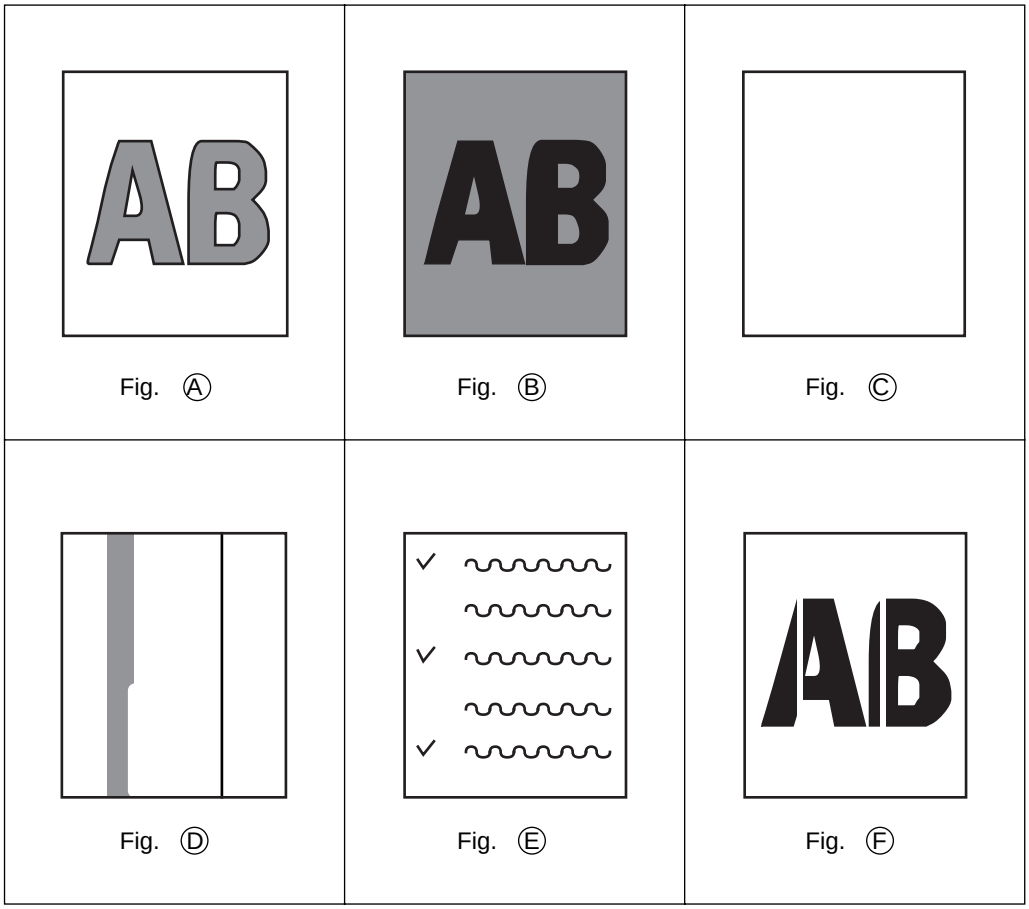
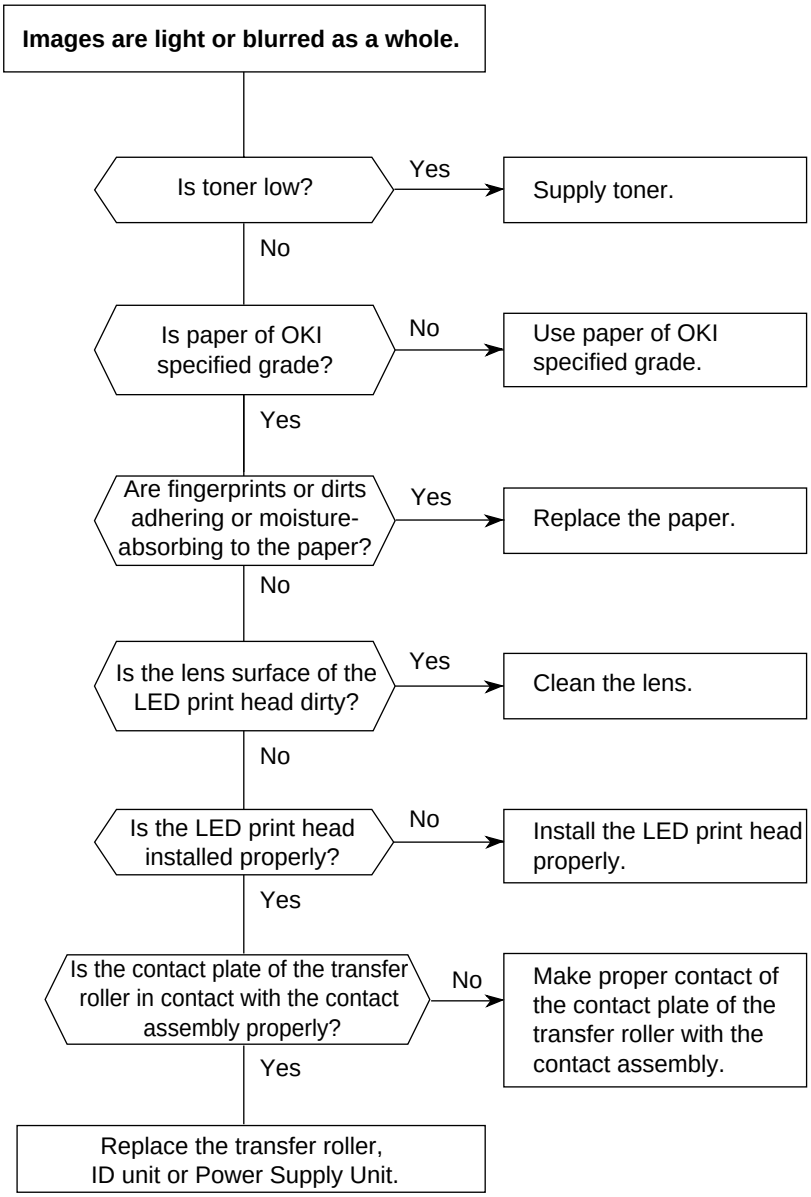


Fig. Ⓐ Fig. Ⓑ Fig. Ⓒ

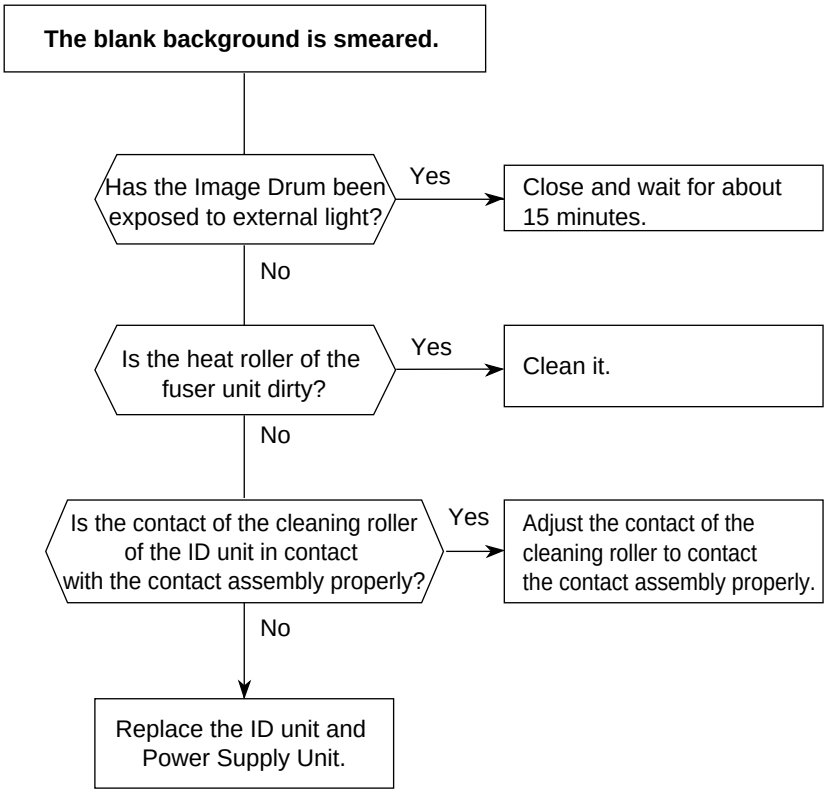
Fig. Ⓓ Fig. Ⓔ Fig. Ⓕ

Figure 7.22.1 Abnormal Symptoms of Image Troubles (Example)

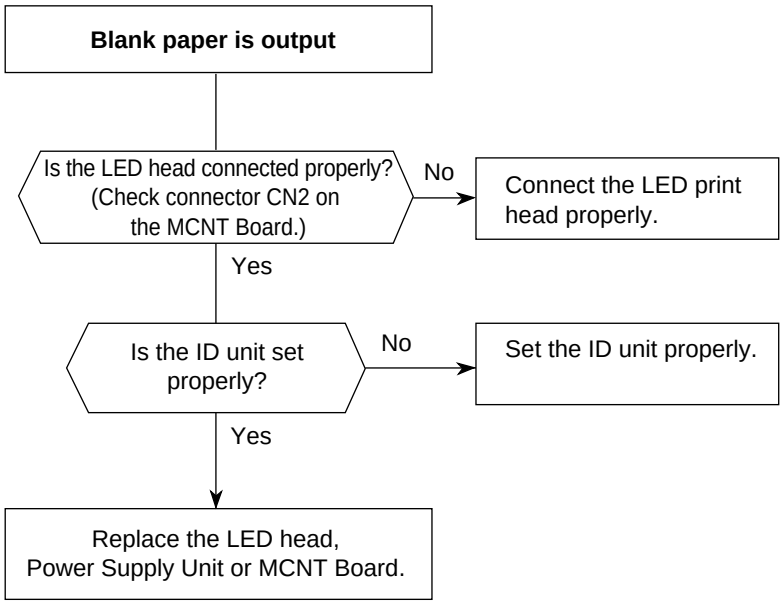
Troubleshooting flow chart 8:



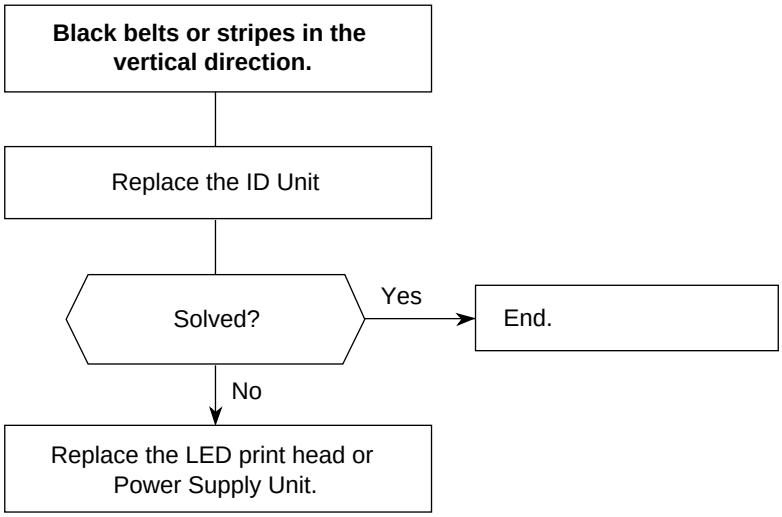
Troubleshooting flow chart 9:



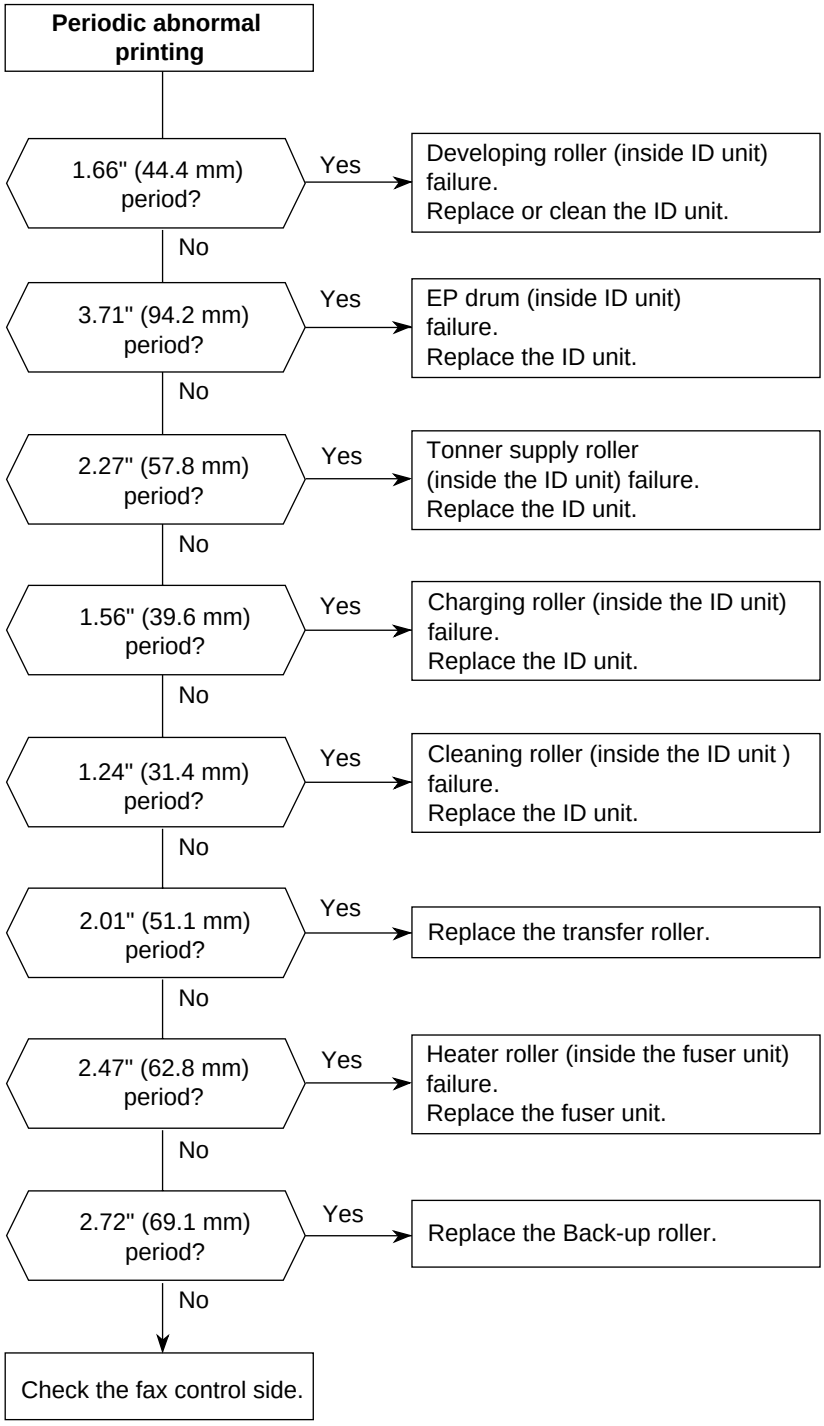
Troubleshooting flow chart 10:



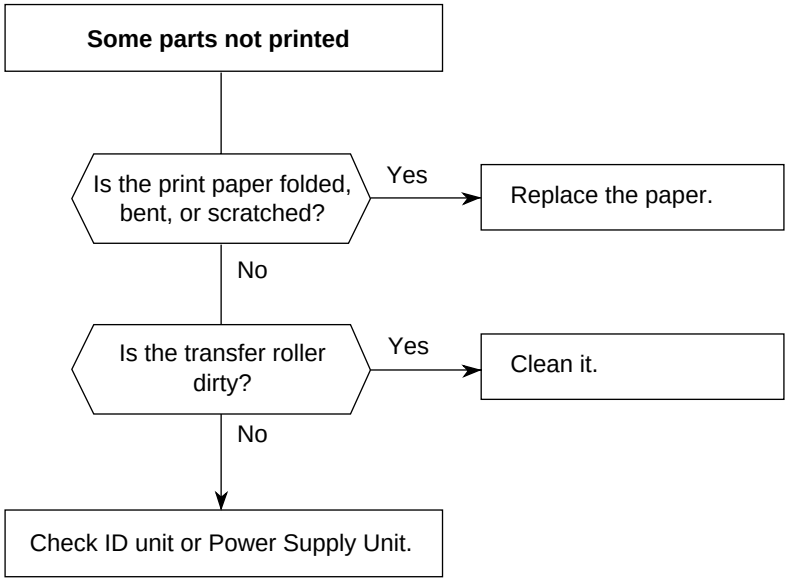
Troubleshooting flow chart 11:



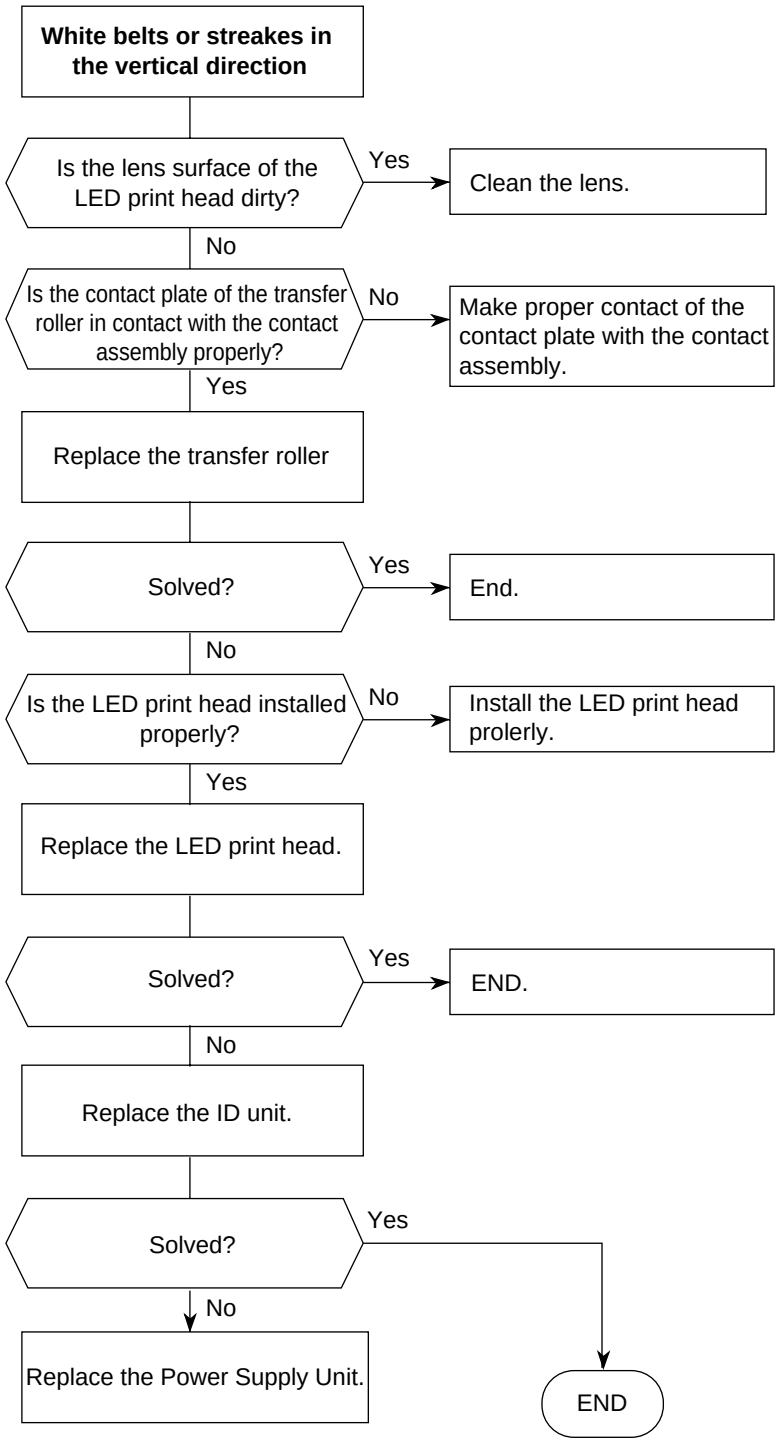
Troubleshooting flow chart 12:



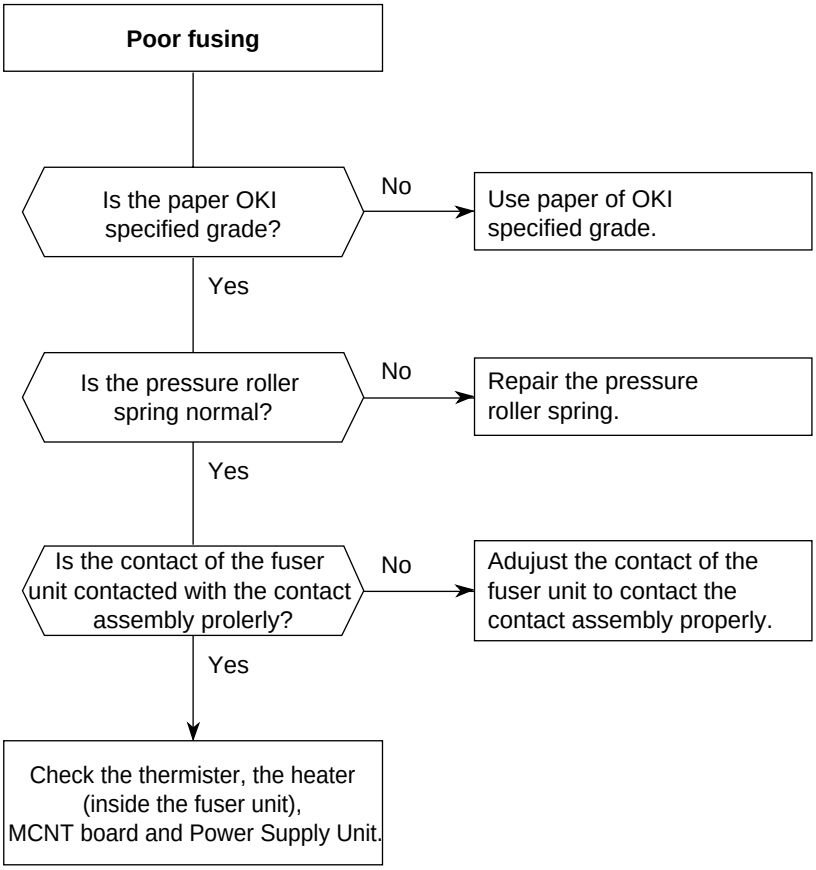
Troubleshooting flow chart 13:



Troubleshooting flow chart 14:



Troubleshooting flow chart 15:



Appendix A

PC Board Descriptions and Operation

(OKIFAX 5250/5400)

First Edition

August, 1999

Oki Data Corporation

CONTENTS

Page

APPENDIX A PC Board Description and Operation

PREFACE

This manual has been designaed to provide basic information concerning the electric section for the component-level maintenance of the OKIFAX 5400 series facsimile transceiver. It includes such information which will help maintenance personnel to understand the circuit operations.

This manual will also provide the reader information concerning the functions of units and the relationships among the units which will assist you in conducting unit-level maintenance.

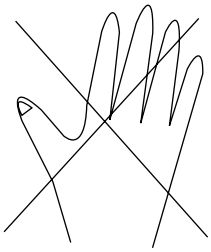
Detailed circuit diagram has been omitted from this manual to avoid duplications of contents with other associated manuals, For information not contained in this manual, refer to:

OKIFAX 5250/5400 SERIES CIRCUIT DIAGRAM/PARTS LIST (Appendix C)

DANGER

Do Not
Touch !

HIGH VOLTAGE



You may be subjected to high-voltage electric shock by touching the following parts without an insulating material:

a. High-voltage unit

b. Contact ass'y

A1.1 Unit Configuration and Block Diagram

1. The unit configuration of the OKIFAX 5250/5400 is as follows:

Cabinet Assembly

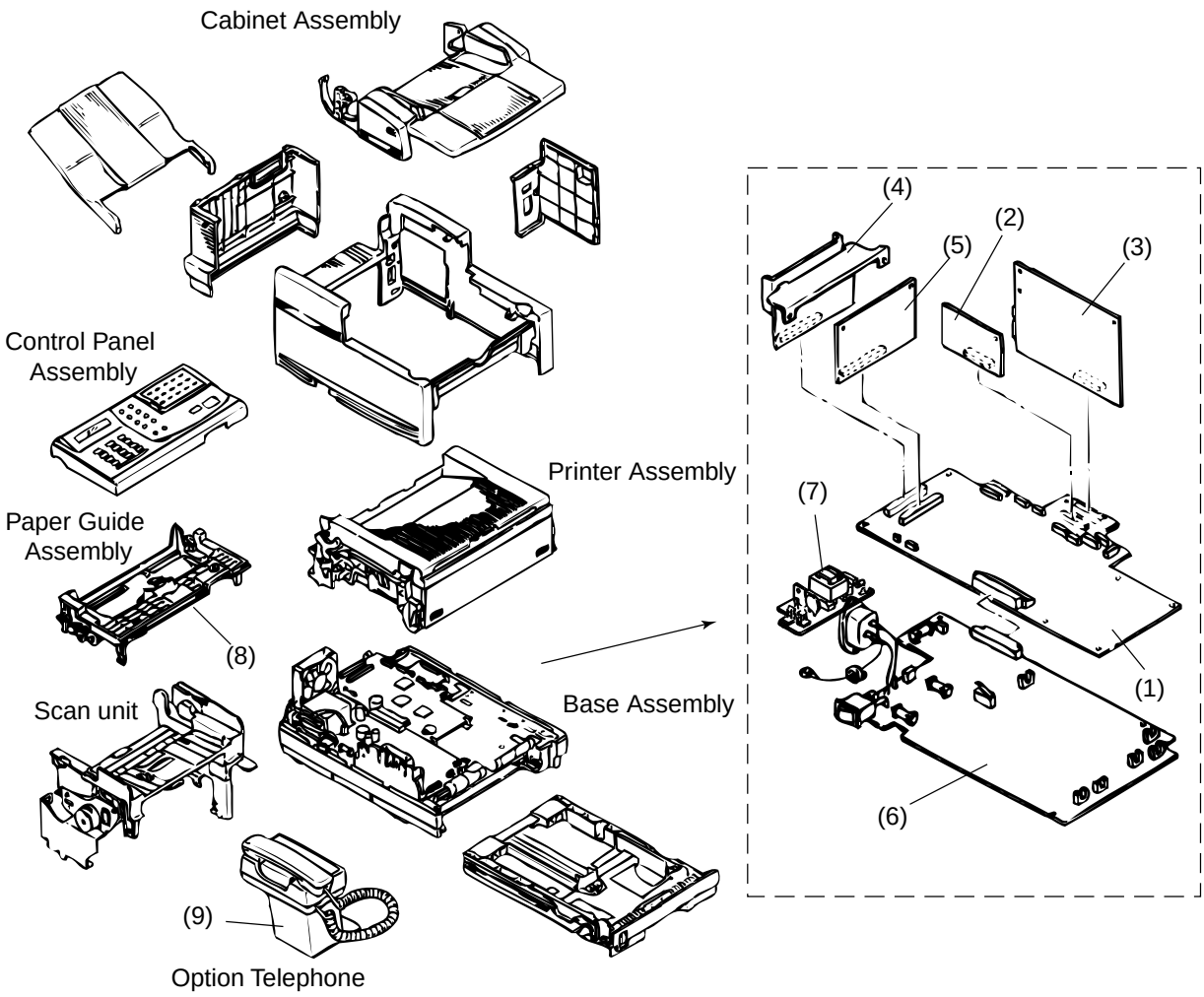


Figure A1.1.1 Unit Configuration

(1) Main control board (E17-)
(2) Modem board (MODEM): 5400 option
(3) Network control unit (NCU)
(4) PC interface board (CTR): 5400 option
(5) Memory board (MEM): option
(6) Power supply unit (1VP: 120V, 2VP: 230V)
(7) Power supply unit (SUB POW)
(8) Operation panel board (05WH)
(9) Optional board
- Telephone interface board (TEL)
- NCU-TEL interface board (NTIF)
- Ten-key board (10KY)
- Hook board (HOOK)

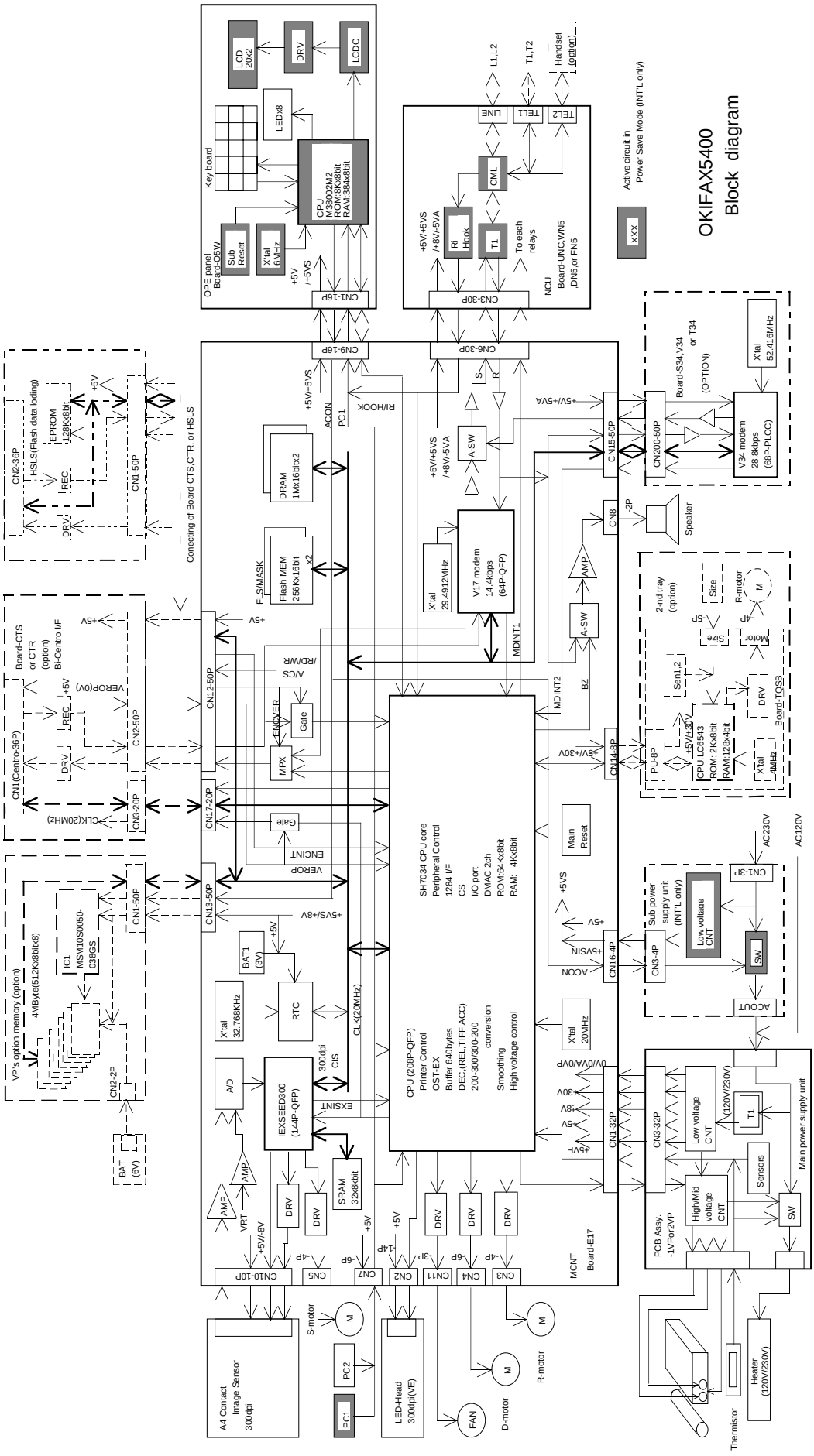


Figure A1.2.1 OKIFAX 5400 Block Diagram

Meaning of abbreviations used in Block Diagram

A/D	:	Analog-to-digital converter
AMP	:	Amplifier
BATT	:	Battery
CNi	:	Connector number i
CPU	:	Central processing unit
D-MOTOR	:	Drum motor
DRV	:	Motor drive
DRAM	:	Dynamic random-access memory
EXSEED	:	Image proccessing gate array
FAN	:	Fan motor
FLASH	:	Flash memory
IOGA 3	:	Input output gate array
PCi	:	Photocoupler number i
POW.UNIT	:	Power supply unit
PSRAM	:	Pseudo-SRAM
R-MOTOR	:	Resist motor
RTC	:	Real time clock
S-MOTOR	:	Send motor
SRAM	:	Static random-access memory
X’tal	:	Crystal oscillator

A1.2 Function of Each Unit

The section describes the principal functions of the individual units of the OKIFAX 5400 electrical sections.

Figure A1.2.1 shows the pertinent block diagram.

(1) E17 board

- CPU (208P-QFP)
  Printer control
  OST-EX
  Buffer 640 kbytes
  DEC,(REL, TIFF, ACC)
  200-300/300-200 conversion
  Smoothing
  High-voltage control
  SH7034 CPU core
  Peripheral input/output control
  1284 I/F
  CS
  I/O port
  DMAC 2ch
  ROM: 64k x 8bit
  RAM: 4k x 8bit
- IEXSEED 300
  Image data processing
- SRAM (32 x 8bit)
  Memory storage for image picture data
- Supervision of the following external statuses:
  Presence of document on hopper
  Presence of document at scanning position
- Send motor control
- Fan motor control
- Drum motor control
- Resist motor control
- Modem chip/Modem option board (Board S.34, V.34 or T.34)
  Modulation and demodulation for V.34
  Modulation and demodulation for V.33 and V.17
  Modulation and demodulation for V.29 and V.27 ter
  Generation of signal-frequency signals for tonal signals
  Detection of signal-frequency tonal signals
  Generation of dual time multiple-frequency signals for tone dialing

(2) Operation panel unit

- Supervision of switches on operation panel
- Control of LEDs on operation panel
- Control of LCD on operation panel

  LED : Light-emitting diode
  LCD : Liquid crystal display

(3) NCU board

UNC5 ------- For US and Canada
WN5 --------- For Denmark, Norway, Sweden, Finland, The Netherlands, ireland, portugal, New Zealand, Australia, Belgium, Spain, Greece and Other countries
DN5 ---------- For Germany, Switzerland and Austria
FN5 ---------- For France and UK

- Conversion of receive data and receive signals to internal signal level
- Conversion of send data and send signals to external signal level
- Generation of dial pulses to telephone line
- Detection of ringing signal
- Detection of busy tone (conjunction with Modem unit)
- Detection of hook up signal
- Interface with telephone handset (option)
- Output of send data and send signals to telephone line
- Input of receive data and receive signals from telephone line

(4) Power supply unit: 1VP (120V)/2VP (230V), SUB-POW board (only 230V)

- Conversion of main alternating current to the following direct currents:
  +5V DC power supply
  +8V DC/-8V DC power supply
  +30V DC power supply
- Supplying of main alternating current to fuser unit
- Generation of medium voltages +300V, -300V, +400V, -450V and 0V
- Generation of high voltages -1.35 kV, -0.75 kV and +3.5 kV

(5) MEM (memory) board (Option)

- DRAM (4 Mbytes: 512 k x 8 bit x 8)
  Memory storage for ECM operations, memory broadcast, delayed broadcast, etc.

(6) CTR board (Option)

- Driver circuits

(7) NTIF board (Option)

- Ringer circuit

(8) TENKEY board (Option)

- TEN-key pad

(9) HOOK board (Option)

- Hook switch circuit

(10) TELU board (Option): For US and Canada

- Speech network circuit
  Basic speech functions included.

(11) TEL-W2 board (Option): For Sweden, Finland, The Netherlands, Ireland, Portugal, New Zealand, Australia, Belgium, Spain, Greece, Switzerland and Austria.

- Basic speech functions included.
- Separate receive pre-amp with signal output terminal.
- Separate receive power amp input terminal, because it is possible to mix input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amp input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifiers are provided with AGC according to the line current.

(12) TEL-W1 board (Option): For UK, Norway, Denmark and Italy.

- Basic speech functions included.
- Separate receive pre-amp with signal output terminal.
- Separate receive power amp input terminal, because it is possible to mix input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amp input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifiers are provided with AGC according to the line current.
- Dialing functions included.

(13) TEL-W2D board (Option): For Germany

- Basic speech functions included.
- Separate receive pre-amp with signal output terminal.
- Separate receive power amp input terminal, because it is possible to mix input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amp input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifiers are provided with AGC according to the line current.

(14) TQSB board (option)

Second paper cassette unit.

- MOS-CPU
- Motor control

A2.1 Explanation of Signal Flow

(1) Copy Mode

Figure A2.1 shows the picture signal route in local copy mode

One-line picture data is transferred to A/D converter (analog/digital) via operational amplifier from the scanning unit (CIS: contact image sensor) as an analog data. After conversion from analog data to 6-bit digital data by A/D converter, the picture data is sent to IEXSEED (image processing LSI) and SRAM. Here, the picture data undergoes various kinds of picture processings (IEXSEED and SRAM), converted to two-level binary data (black and white) and then sent to CPU (scanning control). The one-line binary picture data from CPU is stored into DRAM. When the data for one page has been stored in the DRAM, the data is read out from the DRAM and sent to CPU. The data is converted into a serial data by the picture control of CPU and transferred to the LED print head for printing as HDATA0. Writing of data into the page memory is also possible during the printing operation.

(2) G3 Send Mode

Figure A2.2 shows the G3 send picture signal route

In the G3 mode, the data transfer route from the scan unit up to the DRAM is the same as in the copy mode described in (1).

The picture data for one-line is transferred from DRAM to CPU. The CPU performs the picture data processing (encode) for this picture data (FILLER, fill bits are inserted etc.) and again stores into the DRAM. The stored encoded data is output from DRAM to the Modem under the control of CPU. After modulation the picture signal “S” is sent to the NCU board as the transmission data. The transmission data “S” goes through the amplifier and is sent to the telephone line L1 and L2 via the transformer T1 as high speed signal.

(3) G3 Receive Mode

Figure A2.3 shows the G3 receive picture signal route

In the G3 mode, the high-speed picture signal arriving from the telephone line at L1 and L2 of NCU passes through the transformer T1 and the amplifier and is input to the Modem as “R” signal. After demodulation by the modem, the picture data is sent to CPU. The CPU performs the picture data processing (decode) for this picture data and stores into the DRAM. Then, the stored picture data is again written into DRAM (as a page memory) by the picture processing control of CPU. When the data for one page has been stored in the DRAM, the data is read out from the DRAM and sent to CPU. The picture data is converted into a signal data by the printer control of CPU and transferred to the LED print head for printing as HDATA0.

(4) 300bps Send Mode

Figure A2.4 shows 300bps send protocol signal route

In G3 communication, this is the route of the procedural control signal (pre-message, post-message phases etc.) at 300bps.

The protocol send data is read into DRAM in the sequence the contents of various data stored in the FLASH memory area in advance under the control of CPU. The contents of the frame has been edited on the DRAM by CPU and sent to Modem via CPU. HDLC (high level data link control) frame of the data is structured by the modem and converted to serial data in synchrony with the modem’s DCLK (data clock). After modulation, the protocol signal is output from “S” of the modem and sent to the telephone line L1 and L2 via the transformer T1 of NCU.

(5) 300bps Receive Mode

Figure A2.5 shows 300bps receive protocol signal route

In G3 communication, this is the route of the procedual control signals (pre-message, post-message phases etc.) at 300bps.

The 300bps modulated signals received via the telephone line L1 and L2 of the NCU are sent from pin R to pin RXA1 of the modem. After demodulation by the modem, the demodulated digital signals are sent to the CPU via the data bus from the modem.
The data is read and decoded by the CPU and written into the DRAM. The written data is interpreted according to bit assignment of the binary procedural signals in the ITU recommendations. The successive modes of communication (for example, line density, encoding scheme, etc.) are determined.

(6) Report Printing

Figure A2.6 shows the report printing signal route

This signal route describes the printing route of character data used to print Activity Report, Message Confirmation Report, etc.

The report data is read into DRAM in the sequence the contents of data stored in the FLASH memory in advance under the control of CPU. The contents of data is edited on the DRAM. The data is read out from the DRAM and sent to CPU. The data is converted into a serial data by the picture control of CPU and transferred to the LED print head for printing as HDATA0.

(7) Memory Transmission

This signal route describes the memory transmission used in broadcast mode, delayed broadcast mode, etc,)

The stored encoded data undergoes buffering, passes through CPU, Modem and NCU and then sent out to the telephone line.

(8) Memory Reception

This signal route describes the memory reception used in no-paper, no-toner reception, confidential mode, etc.

The encoded data received by the same route of (3) G3 receive mode undergoes the picture data processing and stored into memory (DRAM) as such. In case of printing, when the data for one page has been stored in the memory (DRAM), the data is read out from the memory and sent to CPU. The printed data is converted into a serial data by the printer control of CPU and transferred to the LED print head for printing as HDATA0.

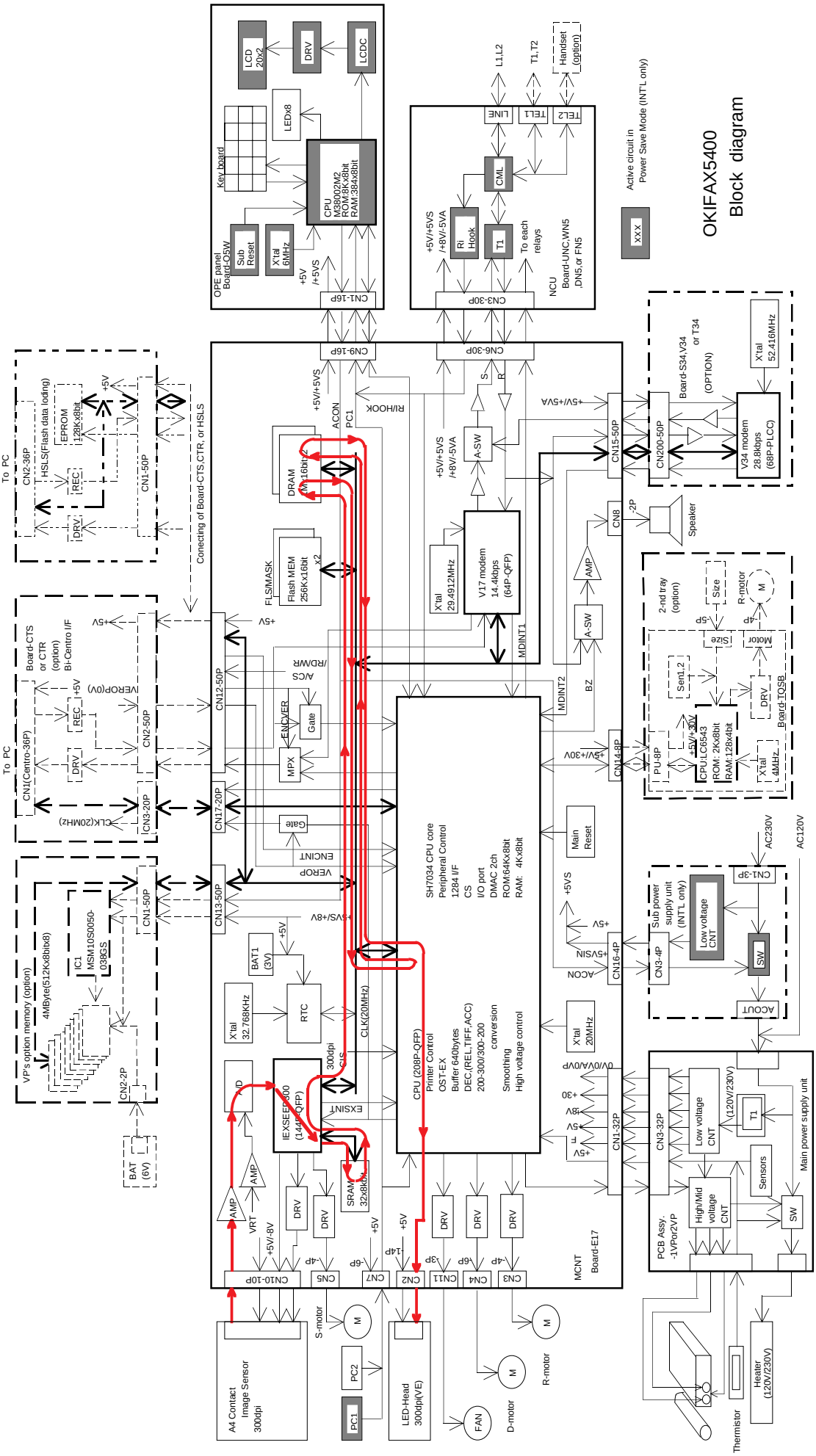


Figure A2.1 Copy Picture Signal

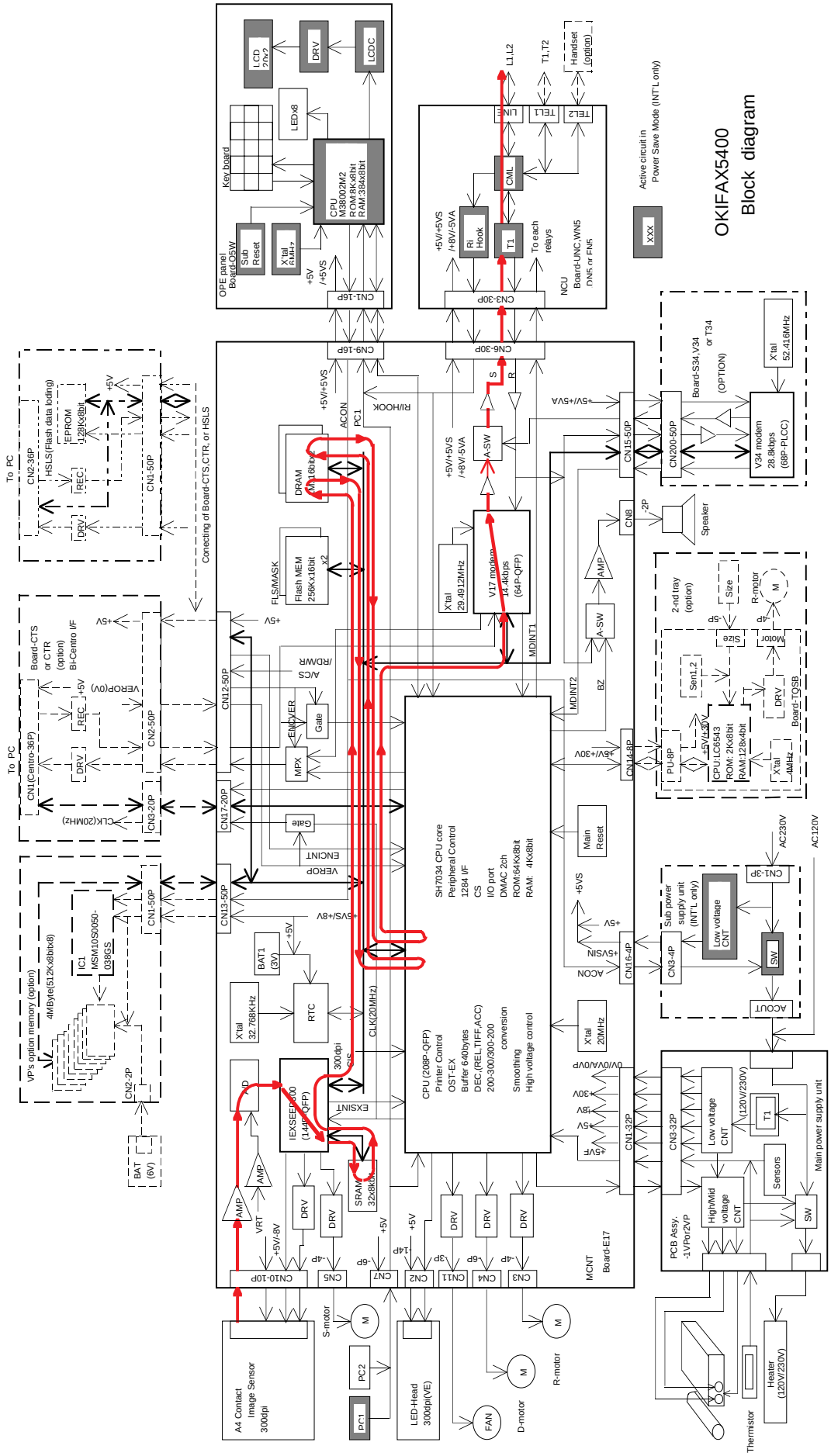


Figure A2.2 G3 Send Picture Signal

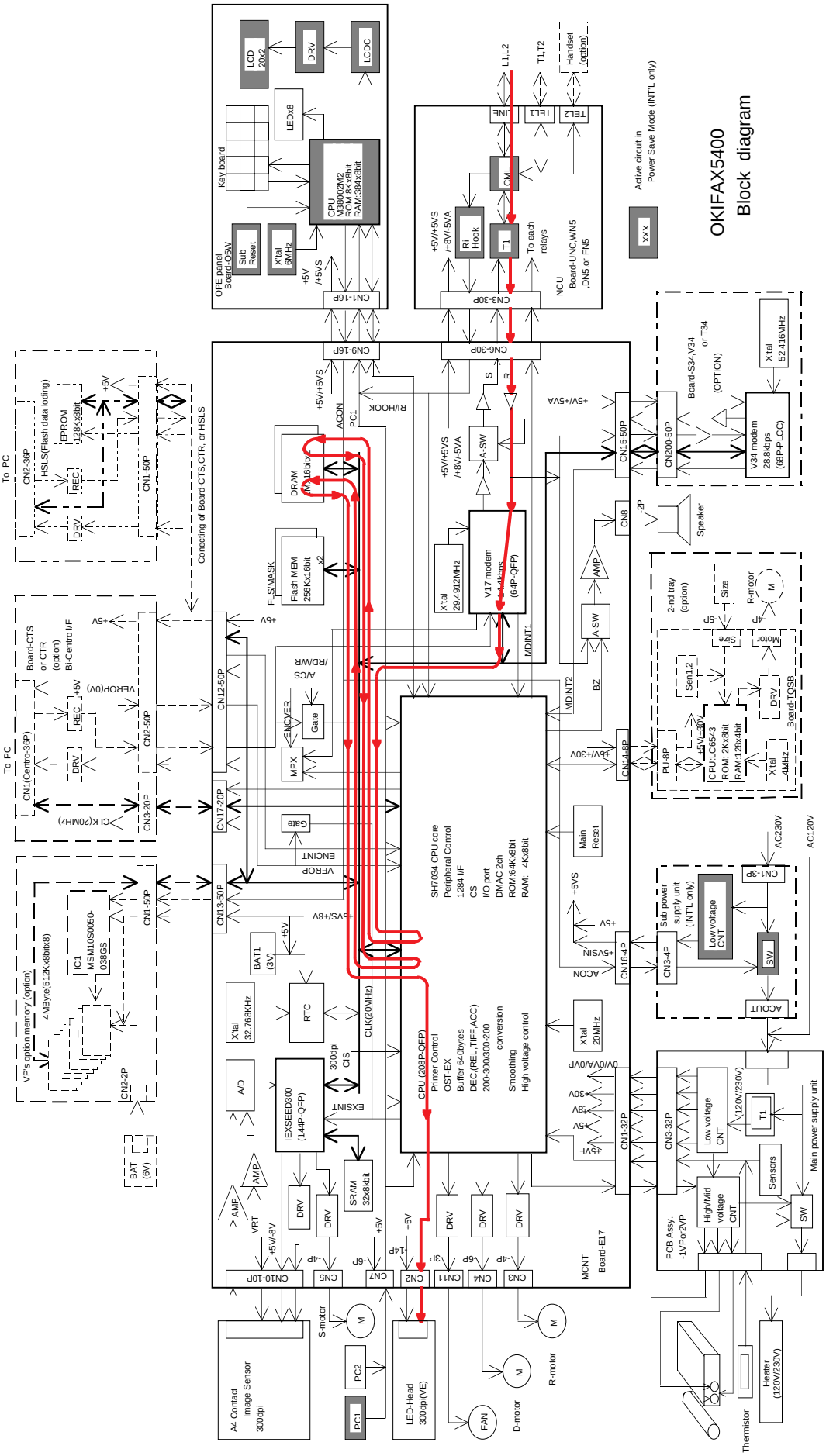


Figure A2.3 G3 Receive Picture Signal

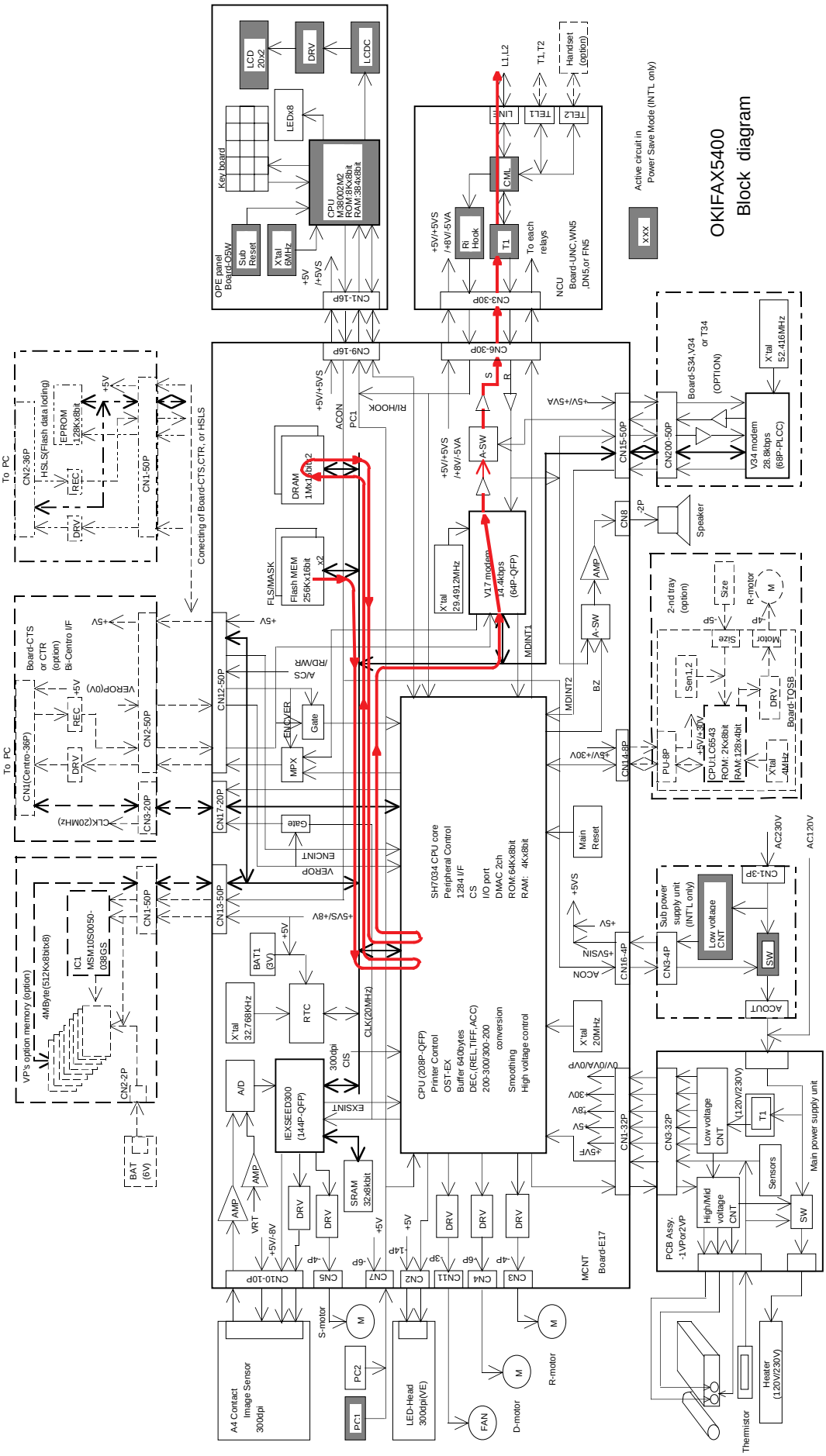


Figure A2.4 300 bps Send Signal

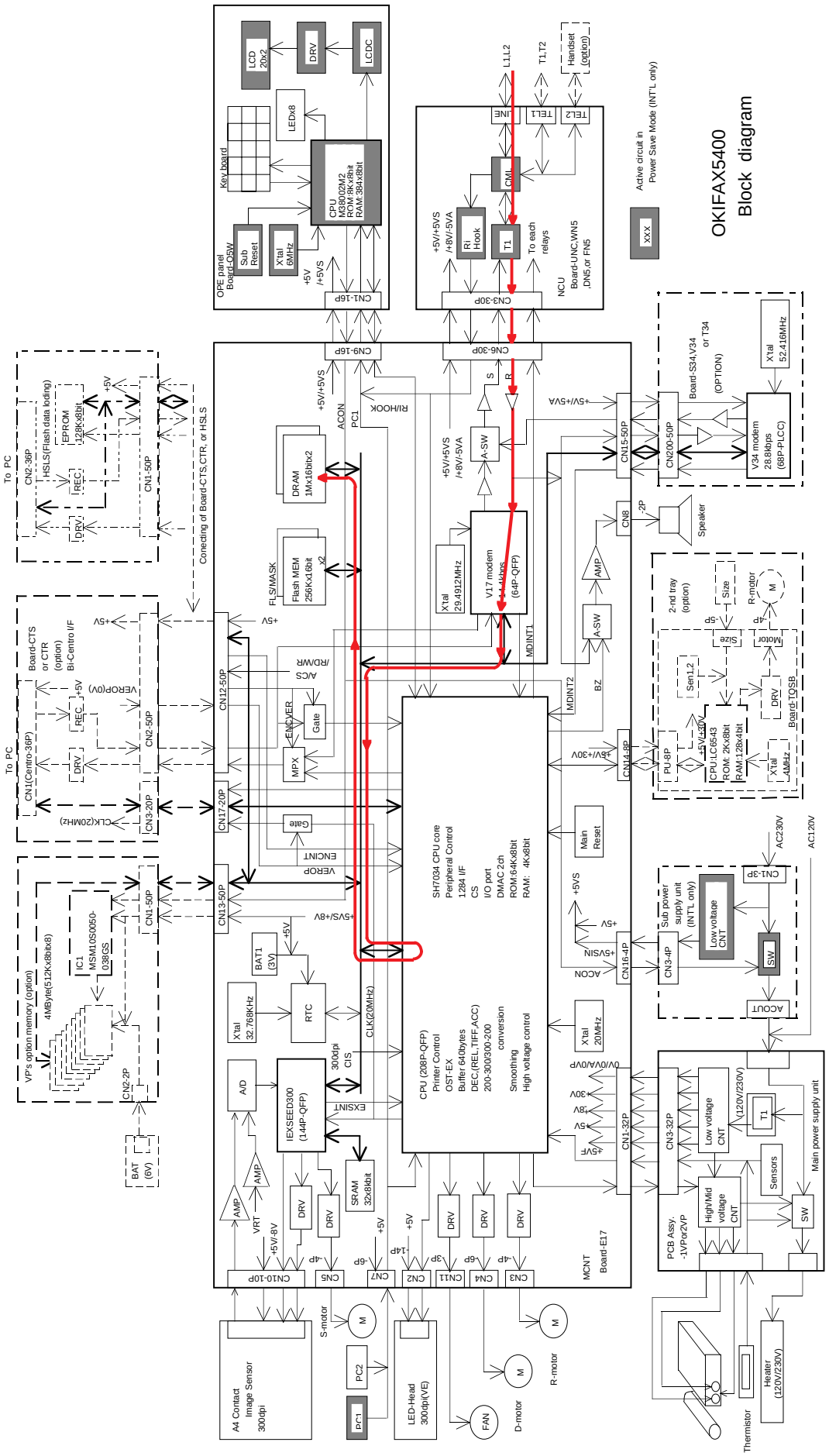


Figure A2.5 300 bps Receive Signal

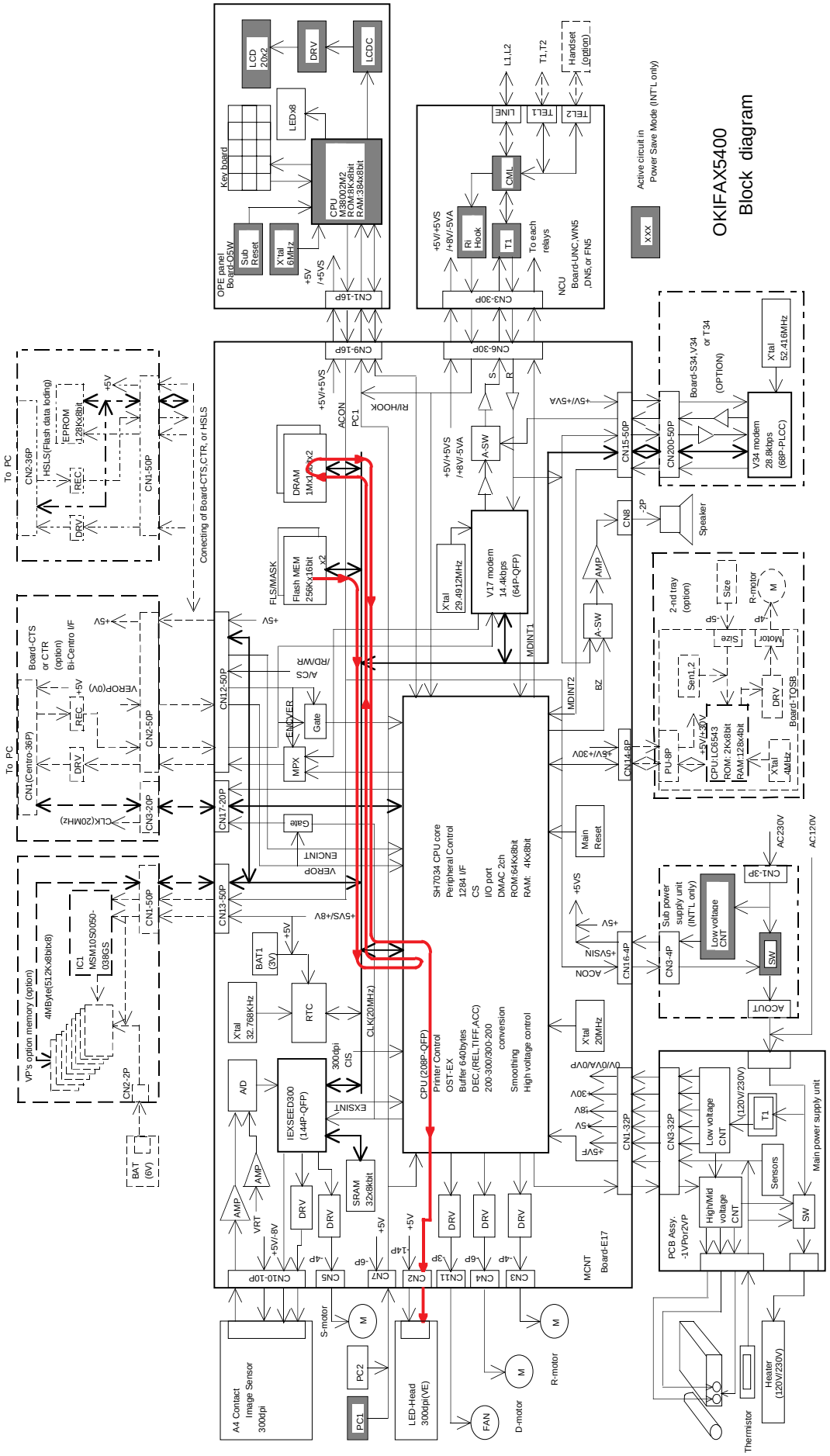


Figure A2.6 Report Pritn Signal

A3.1 E17 Circuit Diagram

A3.1.1 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 1/16 consists of CPU, crystal oscillator circuit and main reset signal generator.

Figure A3.1.1 shows the block diagram of CPU and the peripheral circuits.

1) CPU (HG72C706H01FD) is newly developed LSI for scanning, printing control and provided with a built-in CPU.

- CPU contains the following functions:
  - Printing control
  - Various image data processing control for scanning data
  - Strobe signals control for LED head
  - Smoothing control for printing data
  - DMA (Direct Memory Access) control
  - Interrupt procedure control
  - A/D converter
  - Bus state control
  - Programmable pattern control
  - 16 bit integrated timer pulse unit (ITU)
  - Timing pattern control (TPC)
  - Serial communication interface (SCT)
  - Input/output port

2) Crystal oscillator circuit
X1 is 20MHz crystal oscillator. The output wave is fed to the CPU through pin 14 and 15. CLK (20MHz) is used as the system clock.

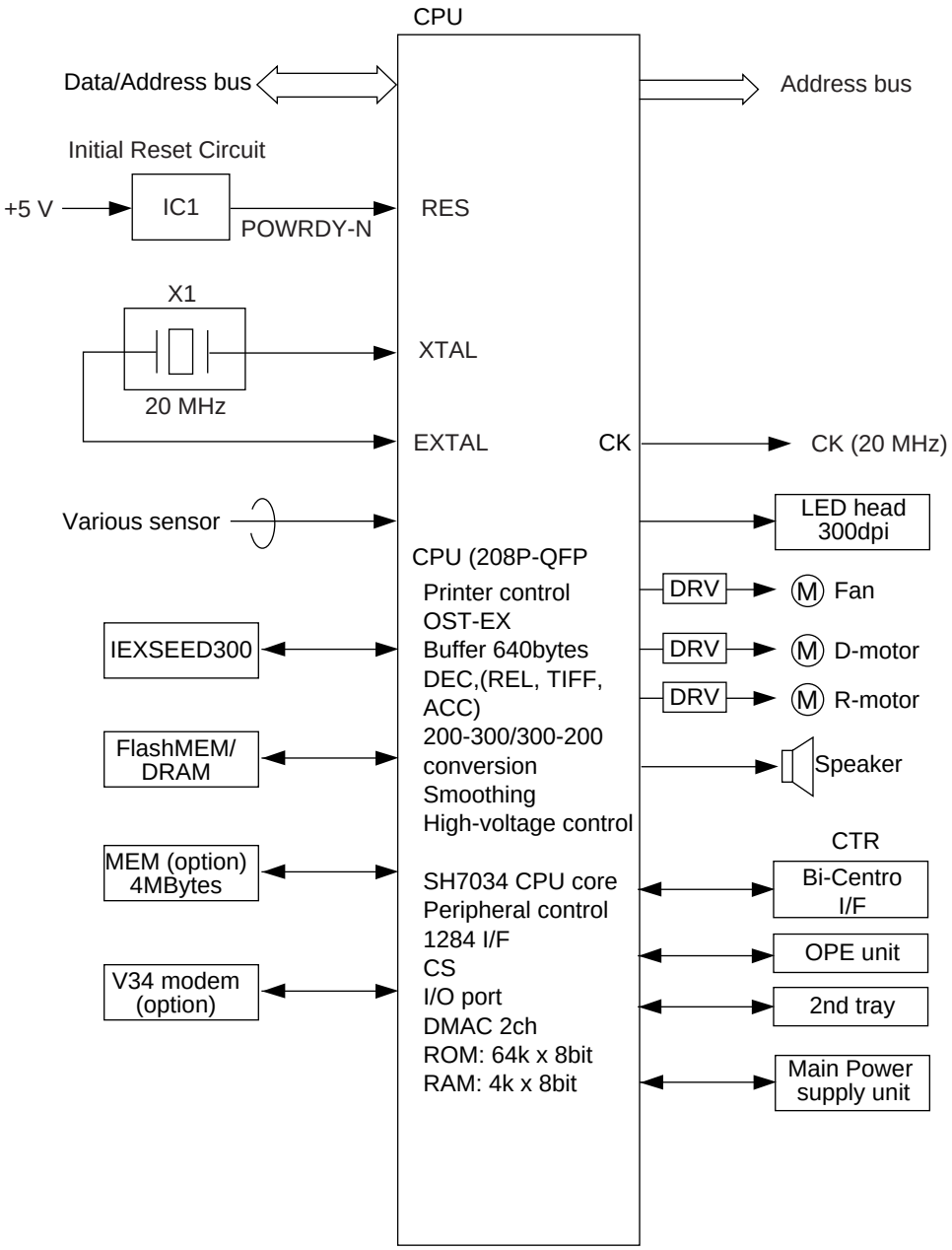


Figure A3.1.1 Related Signals of CPU

A3.1.2 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 2/16 consists of Flash memory, Mask ROM, IC3 (Real time clock IC) and Back up battery circuit.

Figure A3.1.2 shows the block diagram of Flash memory, Mask ROM and Real time clock.

2. Function

1) Flash memory (FLS)

Flash memory (electrically erasable and programmable device) is used for the main software program which is stored in EP-ROM of the current OKIFAX. Other than the function of EP-ROM, Flash memory is also used for the user data area instead of SRAM chips.

- 256 KByte x 16 bit Flash memory x 1 (FLS)
  Used for work area, report recording etc.

2) Back-up battery circuit

- The non-rechargeable lithium battery supplies voltage to real-time clock IC at AC main interruption.

3) Real-time clock IC (IC3)

IC3 is a real-time clock IC used as a timepiece to display the data and time in year, month, day, hour, minute, and second units. Its input/output signals are the 4-bit data bus (AD0 - AD3), 4-bit address bus (A1 - A4) and the control signals, RTCCS, MDMRD-N and MDMWR-N which perform a CPU-controlled read operation (M/D/Y H:M, Data read) and write operation (M/D/Y H:M, Data setting).

4) MASK

- 256 KByte x 16 bit Flash memory or Mask ROM x 1 (MASK)
  Used for program storage

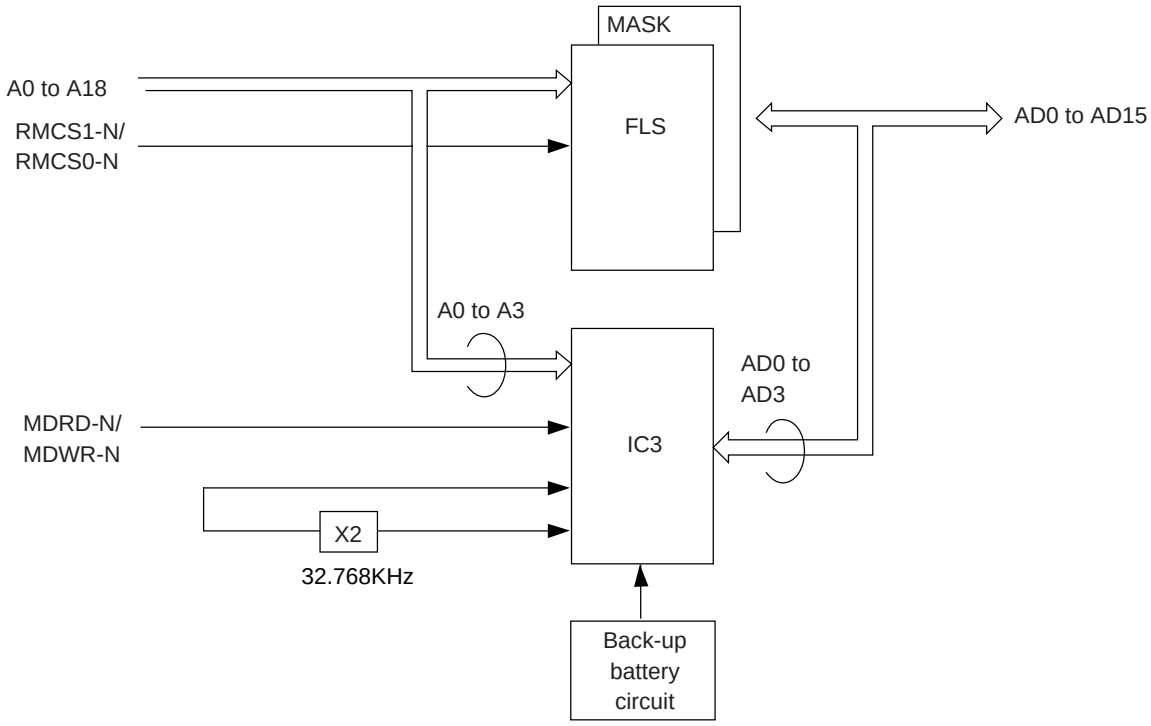


Figure A3.1.2 Block Diagram of FLS, MASK and Real Time Clock

A3.1.3 E17 Circuit Diagram

1. Block diagram

The audio monitor circuit on page 3/16 that consists of IC11 (analog switch IC) and IC5 (amplifier) generates the following audio monitor.

- Line monitoring
- Buzzer signals

Figure A3.1.3 shows the block diagram of audio monitor circuit.

2. Function

1) Line monitoring

Send and receive signals are input from the transformer on the NCU board to this circuit as RM signal and the signal power is input to the IC11. The IC11 adjusts the monitor volume by MONC0, MONC1 and MONC2 signal under the control of CPU. Output (high and low) from IC11 passes through the amplifier and fed to the speaker as a SP signal.

- MONC0/MONC1/MONC2 signal : Volume control signal.

Note: In case of transmission mode, the monitor will be available during dialing, but the monitor will be switched off automatically after the elapse of specified time (about 5 sec).

2) Buzzer control

Alarm and other signals (key touch etc.) are input from CPU to this circuit as BZ signal. The various buzzer signals are sounded under the control of CPU.

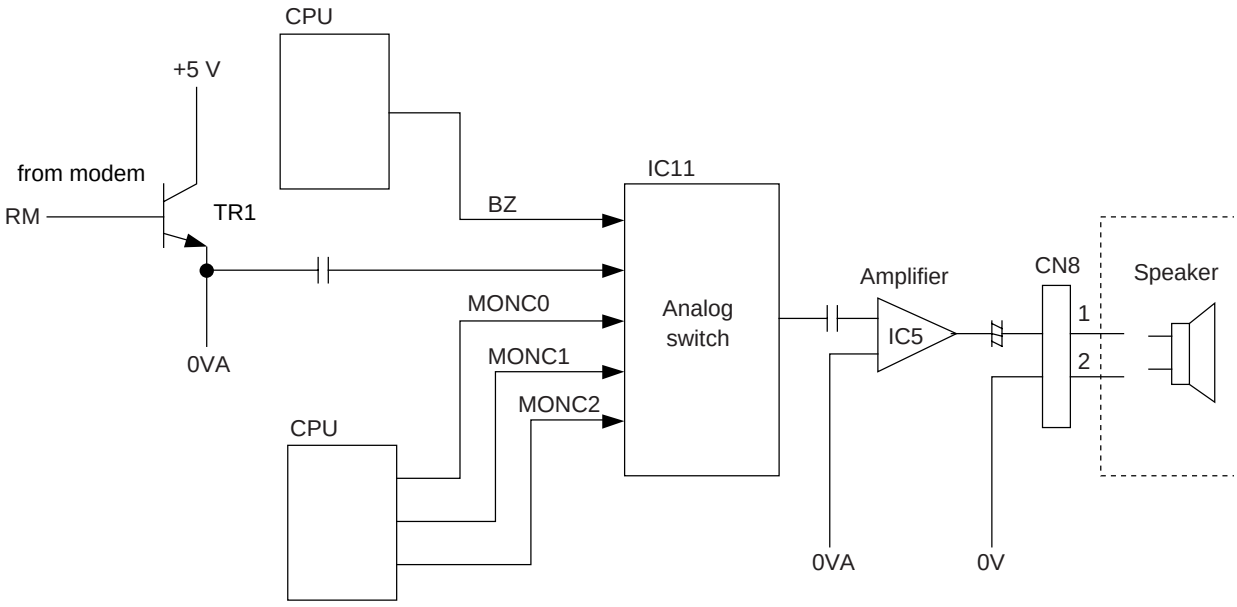


Figure A3.1.3 Block Diagram of Audio Monitor Circuit

A3.1.4 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 4/16 consists of the following function:

- IC6 (A/D converter) and amplifier
- 30 V/24 V conversion circuit
- Connector CN10 that provides an interface between E17 board and CIS (contact image sensor).

Figure A3.1.4 shows the related signals and block diagram of CIS.

2. Function

One-line picture data is read in the sequence from the scanning unit (CIS) as SIG signal (analog data) to A/D converter (analog/digital converter) of IC6 via amplifier. After conversion from analog data to 6-bit digital signal (SDT2 - SDT7) under the control of IC6, the picture data is sent to IEXSEED300 (scanning control LSI) of IC20. Here, the picture data undergoes various kinds of picture processings.

Sensor interface signal output from IEXSEED300.

- LEDON : LED on/off control signal
- PDCK : Scanning sensor drive clock (1.25MHz)
- MISP : Scanning synchronous signal (2.5 msec)
- ADCLK : Sampling clock for A/D converter (1.25MHz)

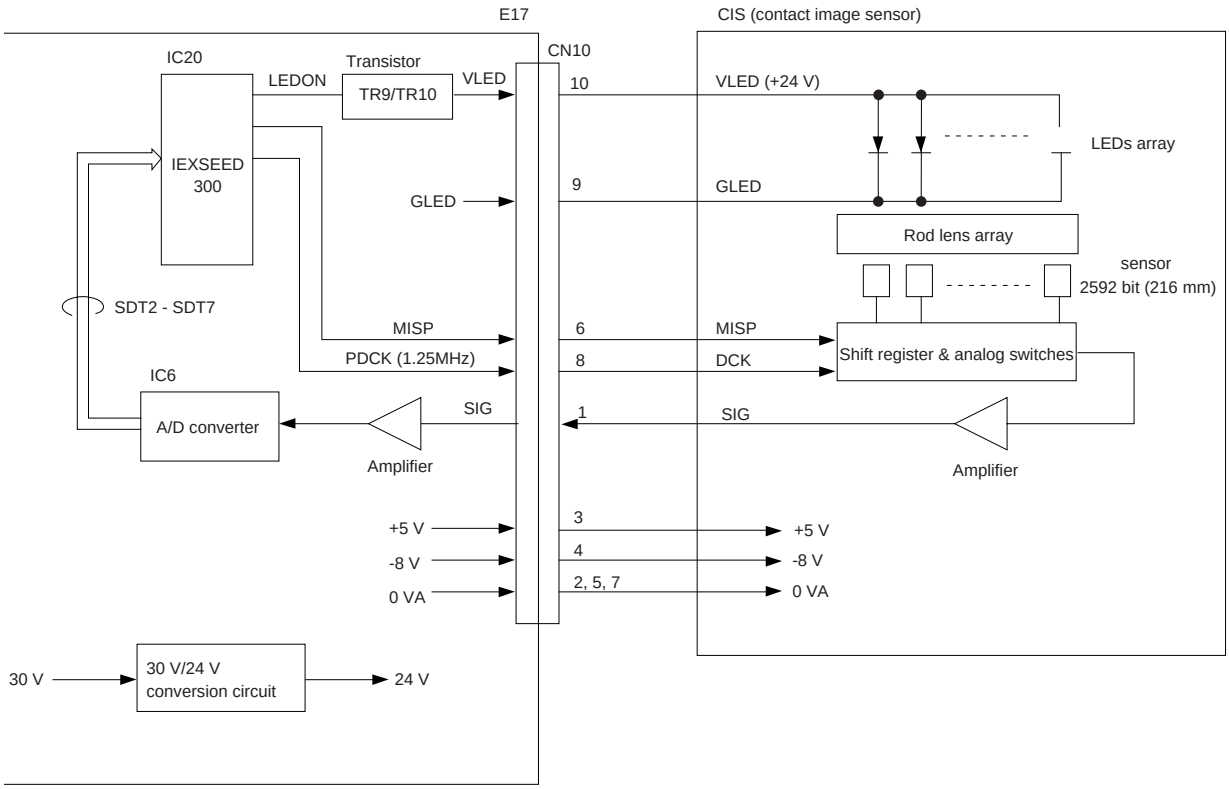


Figure A3.1.4 Related Signals and Block Diagram of CIS (contact image sensor)

A3.1.5 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 5/16 consists of the IEXSEED300 (image processing LSI) of IC20 and SRAM.

Figure A3.1.5 shows the related signals of IEXSEED300.

2. Functions

IEXSEED300 is developed LSI for the image processing.
IEXSEED300 contains the following functions:

- Contact image sensor driver
- Send motor forward rotation/chopping control
- Line buffer control

3. SRAM

32 x 8 kbit SRAM x 1 (RAM1)
Stores the dark/light level correction data.
Error diffusion data and image separation data are processed by IEXSEED300.

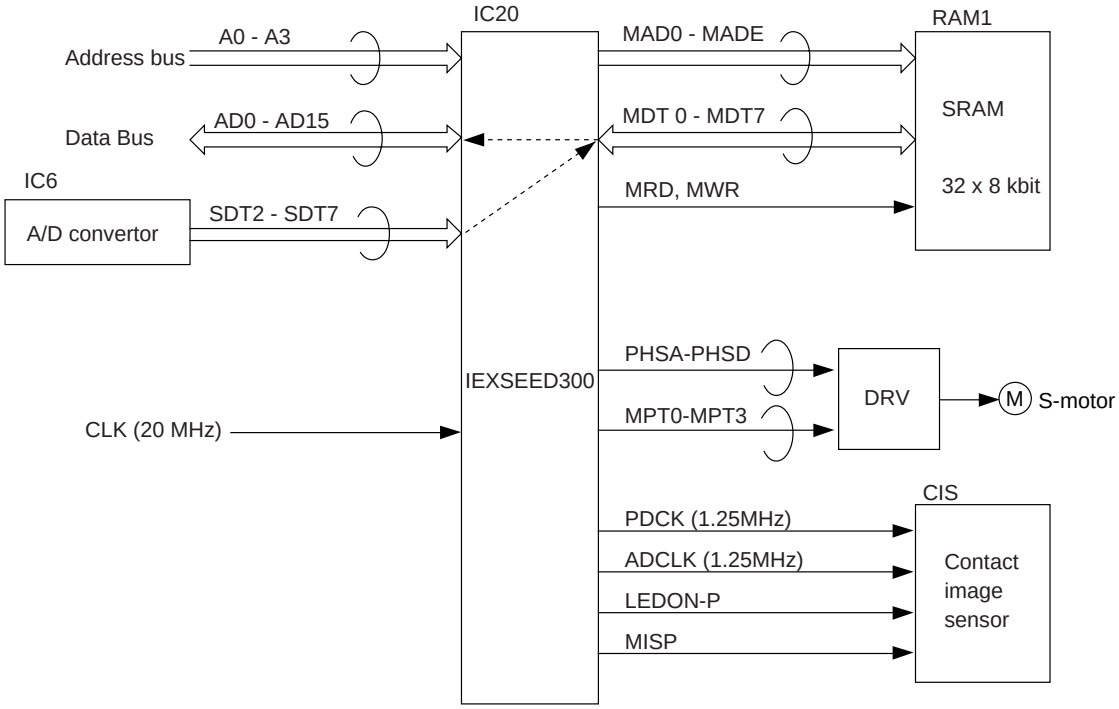


Figure A3.1.5 Related Signals of IEXSEED300

A3.1.6 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 7/16 consists of connector CN15 that provides an interface between E17 board and the Modem board S34, V34 or T34 (option).

The circuit diagram shown on page 6/16 consists of Modem (14.4 kbps).
The circuit diagram shown on page 16/16 consists of Modem (V34 modem, 28.8 kbps).

Modem consists the following functions:

- Modulation/demodulation

Modulation type:

1) ITU-T Rec. V34 (28800 bps) for G3 picture data.
2) ITU-T Rec. V17 (14400/12000/9600/7200 bps) for G3 picture data.
3) ITU-T Rec. V33 (14400/12000 bps) for G3 picture data.
4) ITU-T Rec. V29 (9600/7200 bps) for G3 picture data.
5) ITU-T Rec. V27 ter (4800/2400 bps) for G3 picture data.
6) ITU-T Rec. V21 channel 2 (300bps) for binary signals defined in ITU-T Rec. T.30.

- Automatic adaptive equalizer for G3 receive data with 300 bps data excluded.
- Generation of signal tones
- PB tone (multi-frequency tone) generation
- Detection of single tones
- D/A converter for send data (TX)
- A/D converter for receive data (RX)
- Amplitude equalizer for RX
- Selectable attenuation for TX
- Automatic gain control

Figure A3.1.6 shows the related signals of Modem.

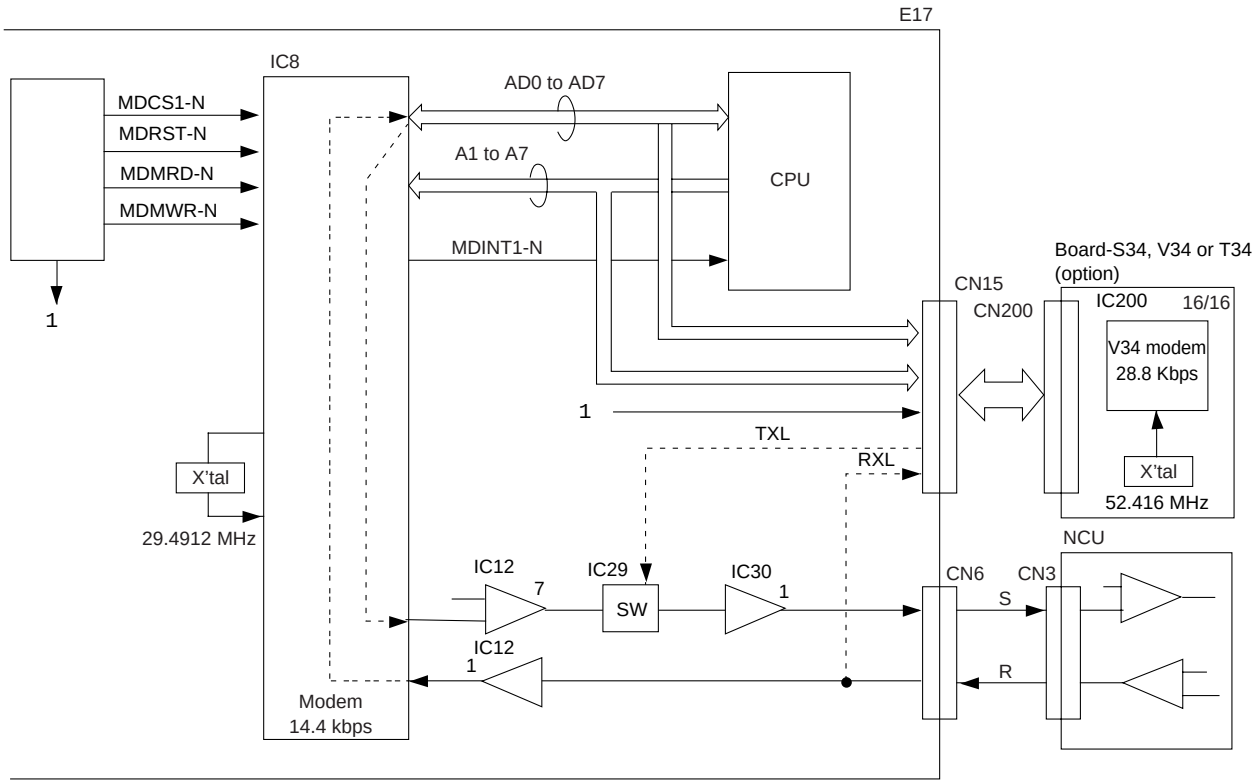


Figure A3.1.6 Related Signals of Modem

A3.1.7 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 8/16 consists of the following connectors:
- Connector CN6 that provides an interface between E17 board and NCU board.
- Connector CN7 that provides an interface between E17 board and external electro-mechanical devices (PC1 and PC2).
- Connector CN9 that provides an interface between E17 board and OPE (O5W) unit.

Figure A3.1.7 shows an interface between E17 board and NCU board.
Figure A3.1.8 shows an interface between E17 board and OPE unit.
Figure A3.1.9 shows the related signals of PC1 and PC2.

2. Function

1) External status supervising interface (PC1/PC2)

External status is detected by the photocouplers (PC1/PC2) in the mechanism and the signal is output to the input port of CPU via this interface circuit.
- PC1: Presence of document on hopper.
  When sub-power supply is applied to the fax machine, this signal is output to OPE unit which will control the main-power supply.
- PC2: Presense of document at scanning position.

3. Others

NCU interface signal
- CML : Line seizure control signal
- DP : Dial pulse control signal
- SR : Control signal for connection between LINE and TEL terminals
- MUTE : Control signal for pulse dial improvement and bell shunt replay
- PP : Relay control signal for special service code detection at parallel pickup or remote reception
- PBXE : Control signal for connecting one of LINE terminal to the PBXE terminal
- OH2 : Detection of off-hook of terminal connected to TEL-1 or TEL-2
- OH1 : Output upon circuit current detection after fax line seizure
- RP : Receiving sensistivity determination terminal
- RI : Ringing detection signal
- S : Send signal (picture data/protocol/tonal signals/PB tone etc.)
- R : Received signal (picture data/protocol/tonal signals etc.)

OPE interface signals
- TXDOPE : This signal transmits sequencially the contents of each data of TXD (LED on/off information, etc.) to OPE in serial data from CPU.
- RXDOPE : This signal transmits sequencially the contents of each data of RXD (key code information, etc.) to CPU in serial data from OPE.
- OPECHK : Use to monitor the operation of the OPE unit.
- OPERST : Reset signal for OPE unit
- WAKEUP-N : Wakeup signal
- PSMODE : Power Save Mode off signal from OPE.
- MP/OFF : Main Power On/Off signal to Main Power Supply Unit.
- MPREQ : Main Power off signal from CPU.

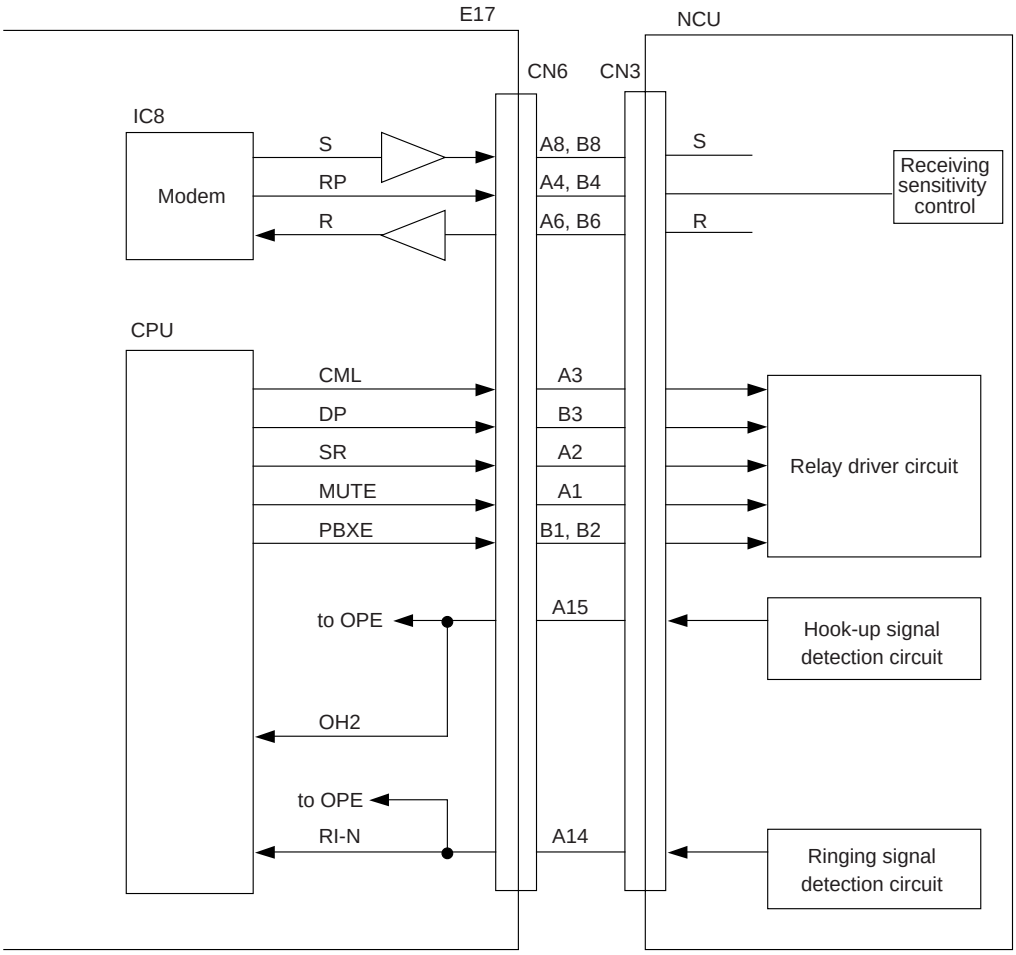


Figure A3.1.7 Interface between E17 Board and NCU Board

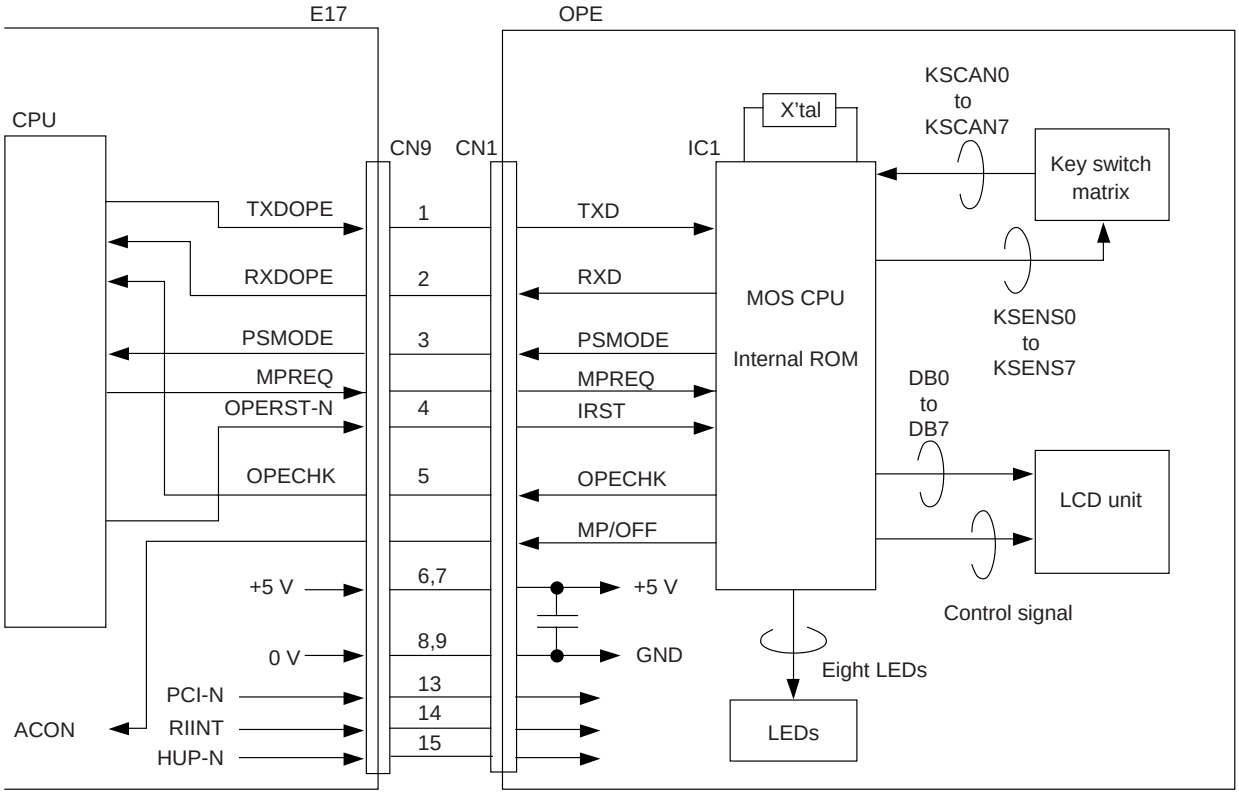


Figure A3.1.8 Interface between E17 Board and OPE (operation unit)

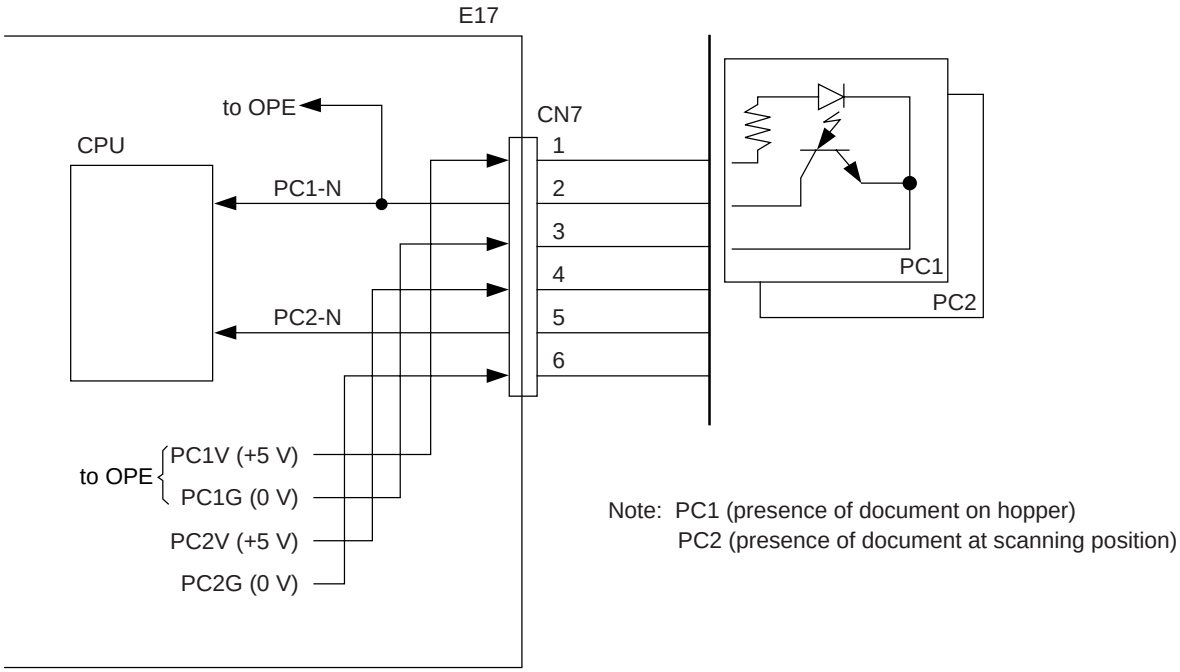


Figure A3.1.9 Related Signals of PC1/PC2

A3.1.8 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 9/16 consists of connector CN2 that provides an interface between E17 board and LED print head.

Figure A3.1.10 shows the related signals and block diagram of LED print head.

2. Function

Data of 1664 LEDs on the LED print head is loaded into the shift registers by the HCLCK (6.67 MHz) signal. After the 1664 bit (208mm) data is loaded in the shift registers, it is then loaded in the latch circuit by the HLATCH signal. The turning -on and off of the LEDs are controlled by STRB1-N to STRB4-N signals.

LED head interface signals output from CPU

- HDATA 0 : Print data i.e., data to be printed
- HCLCK : Transfer clock for print data (6.67 MHz)
- HLATCH : Latch signal for print data
- STRB1-N to STRB4-N : LED head strobe signals

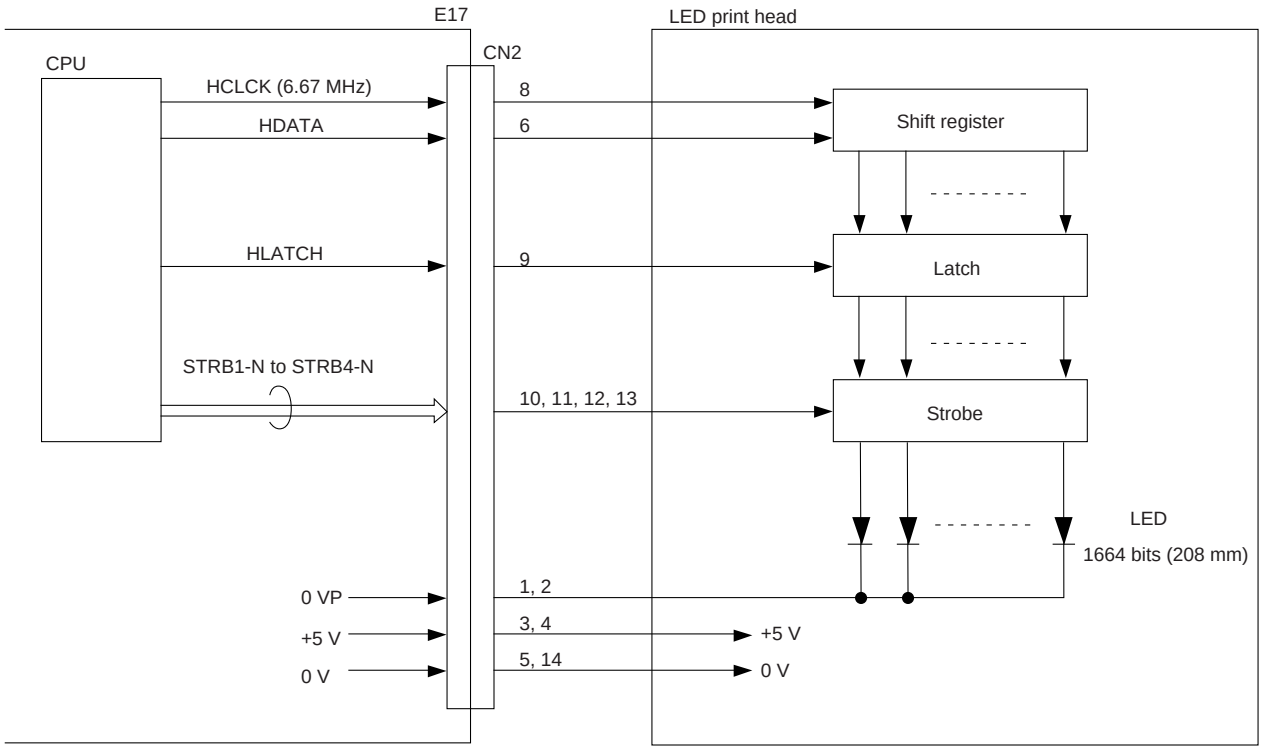


Figure A3.1.10 Related Signals and Block Diagram of LED Head

A3.1.9 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 10/16 consists of the following functions and connectors:

- IC21 (Send motor drive)
- Connector CN5 that provides an interface between E17 board and the send motor.

Figure A3.1.11 shows the related signals of the send motor.

2. Function

1) Send motor rotaion and chopper control

Send motor drive signals are generated by the IEXSEED300 and output to send motor via IC21 (motor drive IC) of this circuit.

Note: The built-in motor control circuit of IEXSEED300 consists of the following blocks:

- Setting of the excitation operation
- Setting of the chopping operation
- Setting of the chopping frequency
- Setting of the motor forward
- Setting of the motor excitation method (1-2/2-1 phase excitation)

a) Send motor rotaion control

There are several cases of the rotation operation:
Forward rotation for feeding documents.

- Case 1: Feeding document from hopper to the position where one line data is read.
- Case 2: Feeding document while reading.
- Case 3: Feeding document after a page has been read.

b) Send motor chopper control

The purpose of chopper control is to reduce the current to the motor by setting the phase signal on and off intermittently when a time lapse exceeding a specific time occurs without a phase update.

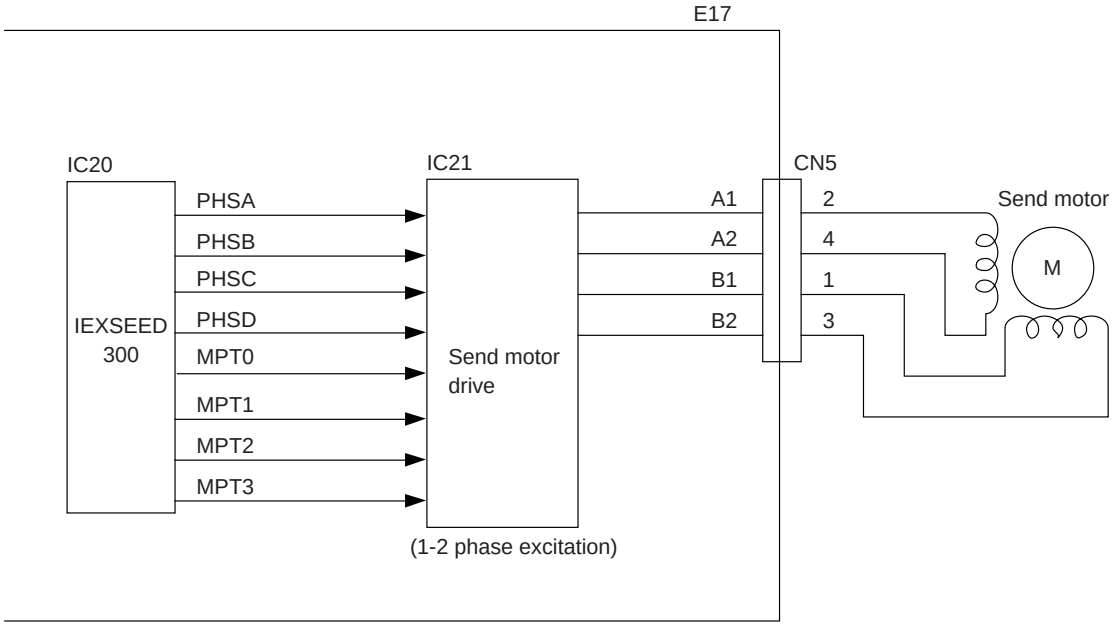


Figure A3.1.11 Related Signals of Send Motor

A3.1.10 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 11/16 consists of the following functions and connectors:

- IC9 (Drum motor driver)
- IC22 (Resist motor driver)
- Connector CN3 that provides an interface between E17 board and the resist motor.
- Connector CN4 that provides an interface between E17 board and the drum motor.

Figure A3.1.12 shows the related signals of the drum motor and resist motor.

2. Function

1) Drum motor control

The drum motor is driven by the motor driver IC9. It is two-phase excited and bipolar-driven according to the DMPH1 and DMPH2 signals that are generated from the CPU. The DMON2-N, DMENA-N signal are generated from CPU. This drum motor rotates the image drum.

2) Resist motor control

The resist motor is driven by the motor driver IC22. It is two-phase excited and bipolar-driven according to the RMPH1 and RMPH2 signals that are generated from the CPU. The RMON1-N, RMON2-N signal ARE generated from CPU. This resist motor rotates the hopping (paper hopping) roller and the resist (paper feed) roller.
Refer to Appendix B of the page B-3.

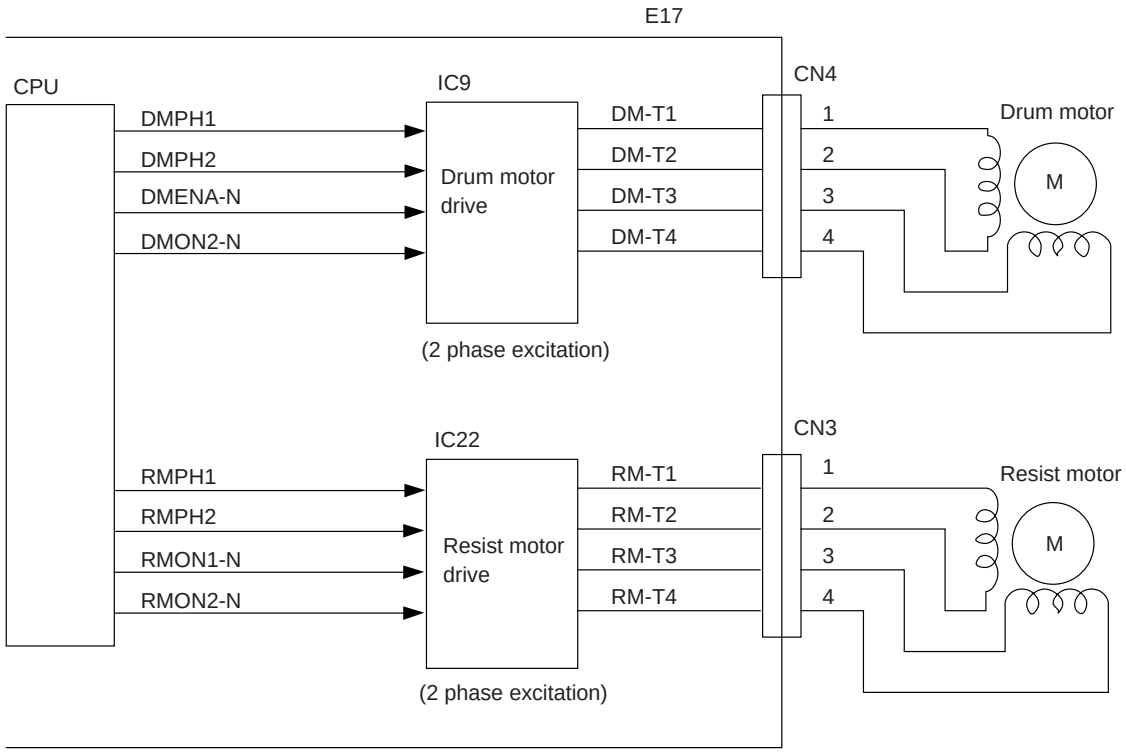


Figure A3.1.12 Related Signals of Drum/Resist Motor

A3.1.11 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 12/16 consists of the following connectors:
- Connector CN11 that provides an interface between E17 board and the fan motor.
- Connector CN14 that provides an interface between E17 board and the second tray (option).
- Connector CN16 that provides an interface between E17 board and Sub-power unit.

Figure A3.1.13 shows the related signals of the fan motor.
Figure A3.1.14 shows an interface between E17 board and the second tray (option).

2. Function

1) Fan motor control

The fan motor is controlled by the FANON signal generated from CPU under the temperature control of the heater. The operating status of the fan is supervised by the FANSNS-N signal.

The fan rotates in the following 3 status:
- Normal mode
- Cover open
- Paper jamming occurring in the paper transport route

2) Second tray (option)

Second tray consists of the following functions:
- Paper capacity : 500 sheets
- Paper size : A4, Letter, Legal
- Paper-size selection : Manual
- Cassette/no-cassette selection : Automatic
- Paper/no-paper selection : Automatic
- Paper route open to facsimile transceiver unit : Automatic decision

Control method:
When second tray is installed on the facsimile transceiver unit, the tray is connected to the facsimile transceiver unit by a connector. The tray controls by the command from CPU of PU (printer unit) section.

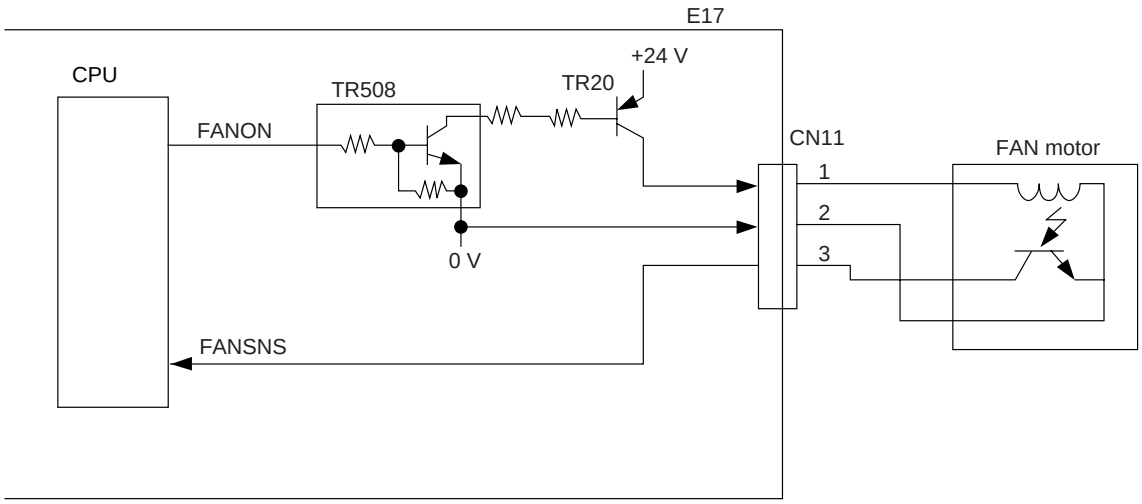


Figure A3.1.13 Related Signals of Fan Motor

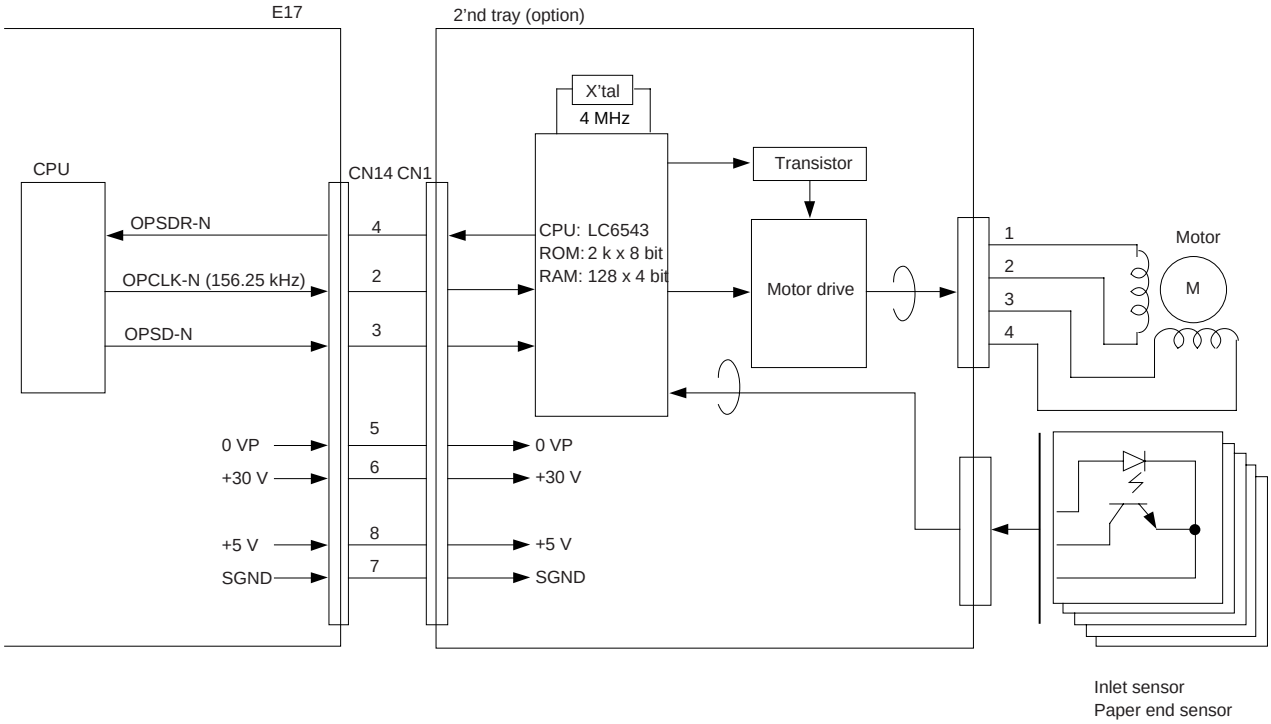


Figure A3.1.14 Interface between E17 Board and 2'nd Tray

A3.1.12 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 13/16 consists of the following connector:

- Connector CN1 that provides an interface between E17 board and main power supply unit.

2. Function

1) Sensors and switch control

Six types of sensors are used in the printer as listed below. All of their output enter CPU ports for referring to and processing by the CPU.
Figure A3.1.15 shows sensors and switch control.

- Inlet sensor 1 and 2
- Write sensor (To detect the paper top position for printing)
- Outlet sensor
- Paper end sensor
- Toner end sensor
- Cover status switch

The functions of various sensors are described in the following table.

Sensor Type	Sensor Name	Function
PSIN-N PSIN2-N	Inlet sensor Inlet sensor 2	This photosensor is positioned before the resist roller to detect whether the paper has entered into the printer section.
WRSNS-N	Write sensor	Detects the arrival of paper at designated position on the paper transport route inside the printer in order to turn on the light of the LED head. 0: Paper exists, 1: Paper does not exist
PSOUT-N	Outlet sensor	Located at the exit of the printer to supervise the paper exit operation. 0: Paper exists, 1: Paper does not exist
PAPER-N	Paper sensor	Detects the presence of paper in the paper cassette. 0: Paper exists, 1: Paper does not exist
TNRSNS-N	Toner sensor	Detects the remaining toner in the toner cartrige. "The length of time of low-toner state within fixed time interval" detects a low-toner state.
CVOPN-N	Cover open sensor	Detects whether the cover of the printer section is open or not. 0: Cover is open, 1: Cover is close

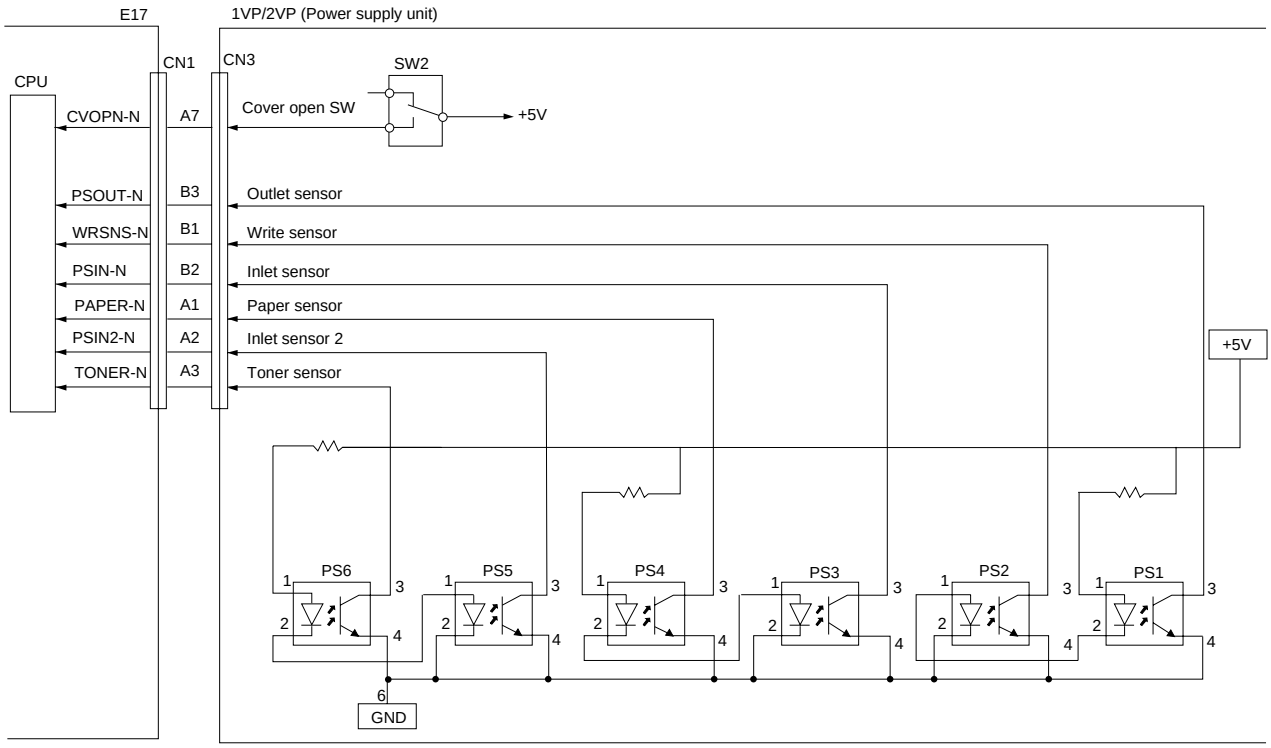


Figure A3.1.15 Sensors and Switch Control

2) Fuser unit temperature control

The heater in the fuser unit is controlled by the thermister, CPU to keep the heater roller surface within a prescribed temperature range. The CPU supervises the status of the port THCHK periodically, turning HEATON signal on and off according to CPU of THCHK (A/D converter input section) status to exercise temperature control.
At power on time, the CPU switches the output signal THON from pin 59 (between high and low states) to check for a blown or shorted thermister according to the status of the THCHK signal.
A built-in thermostat in the fuser unit prevents the heater from being overheated in event of failures in the thermister, or temperature control circuit, etc.

Figure A3.1.16 shows the fuser unit temperature control.

Note: Heater control
Temperature of the heater at the time of printing is 150 ˚C to 180 ˚C. This temperature is maintained by controlling the on and off operation of heater according to the input of the thermister converted into analogue-digital (A/D) values by the CPU.

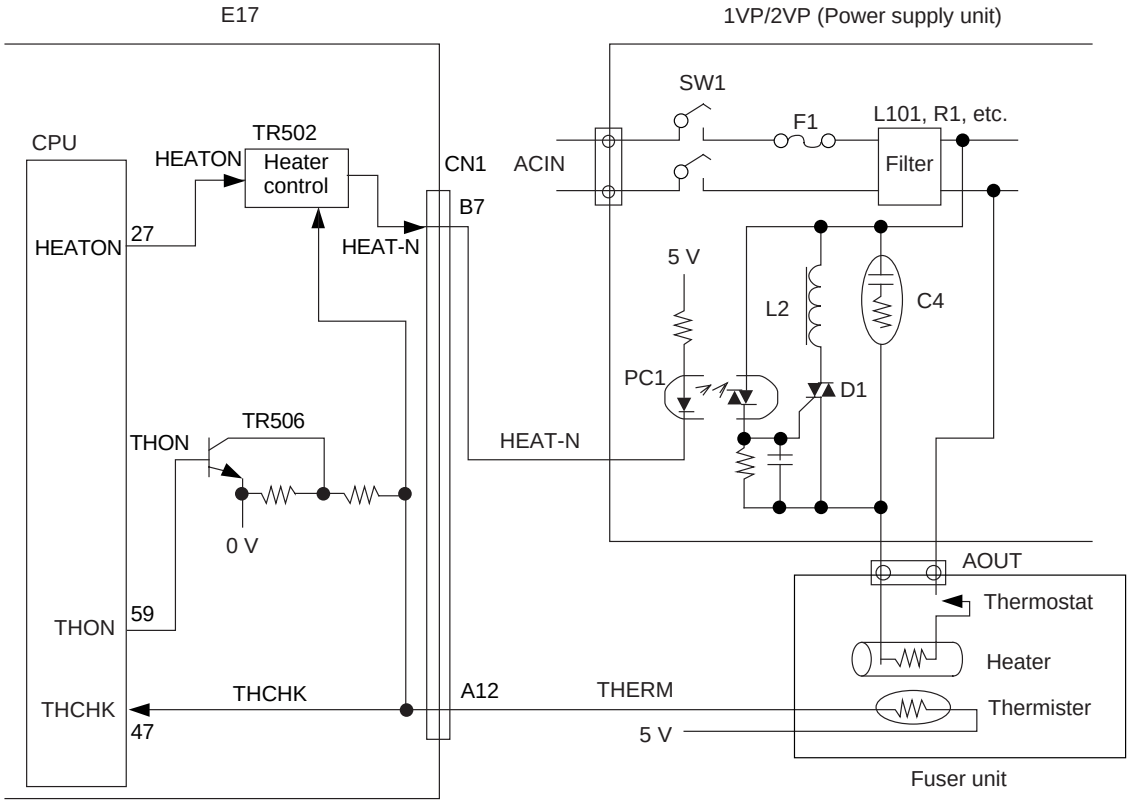


Figure A3.1.16 Fuser Unit Temperature Control

3) High-voltage and medium-voltage control

High voltages are activated by CPU and generated by the high-voltage circuit inside the power supply unit. The CH (charge) voltage of about -1.35 kV is used for the charge roller. The TR1/TR2 (transfer) voltage of about +3.5 kV/-0.75 kV is used for the transfer roller.

Medium voltages are activated by CPU and generated by the medium-voltage circuit inside the power supply unit. The SB1/SB2 (toner supply) voltage of about +0 V/-450 V is used for the toner supply roller. The DB1/DB2 (developping) voltage of about +300 V/-300 V is used for the developing roller. The CB (cleaning) voltage of about +400V is used for the cleaning roller.

Figure A3.1.17 shows high/medium voltages control.

* Signals used to control the high/medium-voltages are listed below.

Signal Name	Description
CHPWM	P.W.M : CH is output.
DB1ENB	"1": + ive polarity voltage of DB1/SB1 is output.
DB2ENB	"1": - ive polarity voltage of DB2/SB2/CB is output.
TR1PWM	P.W.M : TR1 is output.
TR2PWM	P.W.M : TR2 is output.
DBPWM	P.W.M : DB/SB/CB is output.

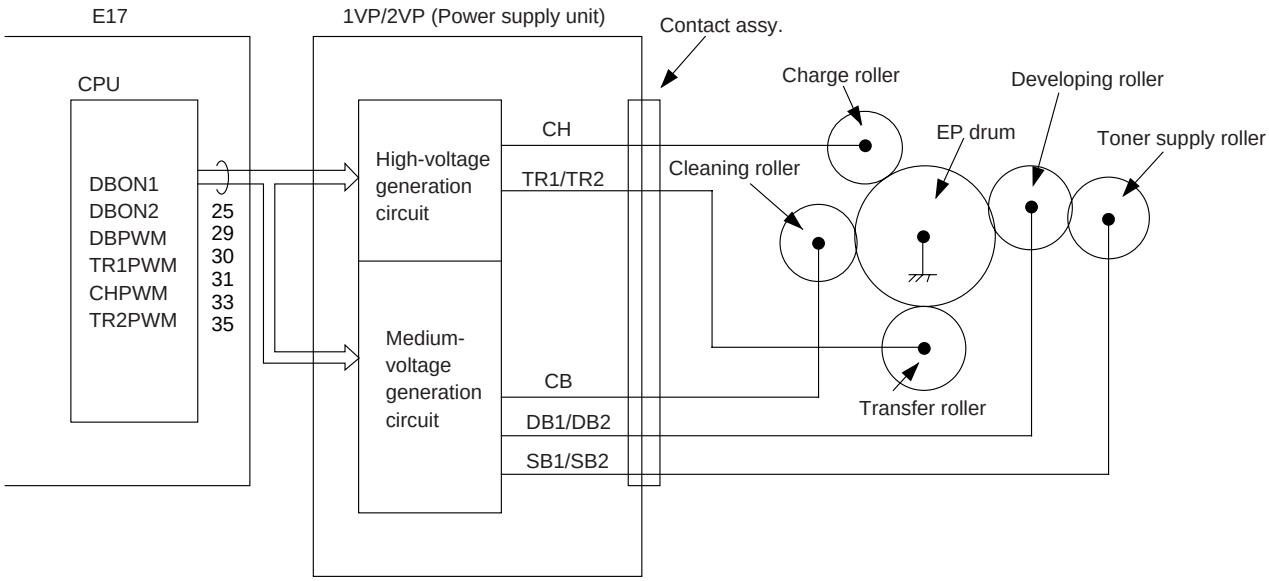


Figure A3.1.17 High/Medium Voltage Control

A3.1.13 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 14/16 consists of the following connector:

- Connector CN13 that provides an interface between E17 board and optional memory board.
- Connector CN12 and CN17 that provides an interface between E17 board and CTR (PC interface) board.

Figure A3.1.18 shows the interface between E17 and memory board.
Figure A3.1.19 shows the interface between E17 and PC interface board.

Note 1: 4 Mbyte memory board can be added to the memory capacity.

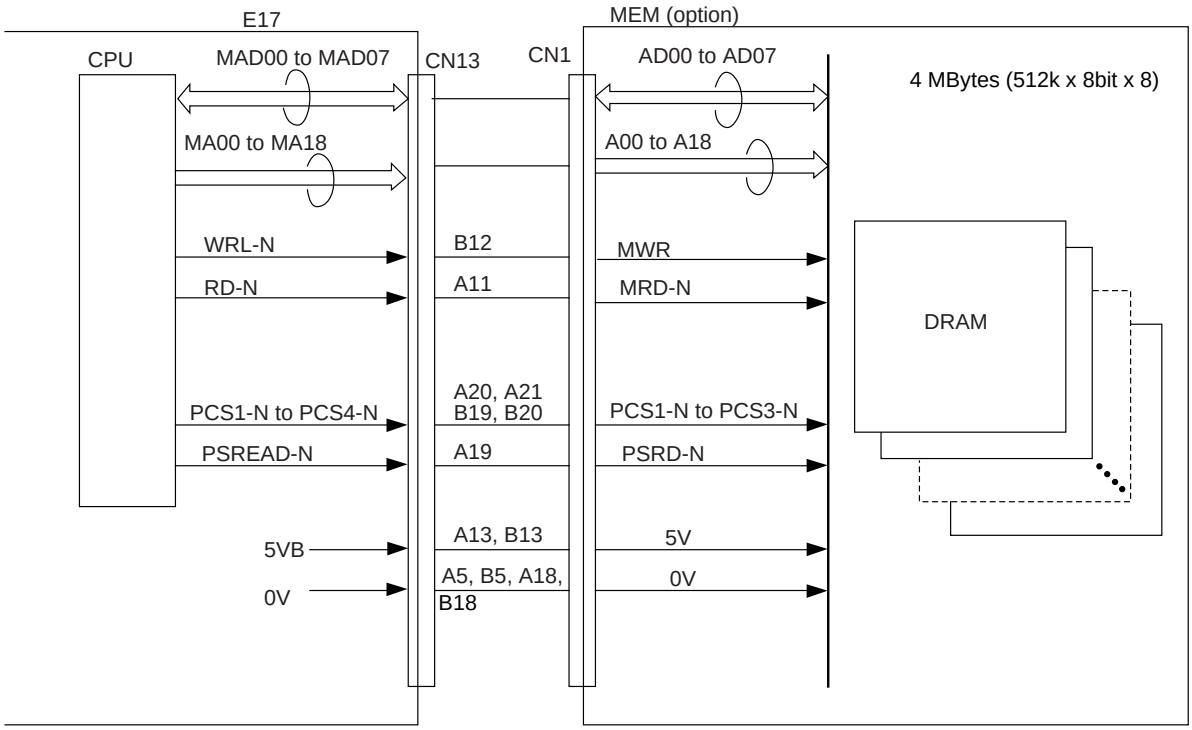


Figure A3.1.18 Interface between E17 Board and Memory Board (option)

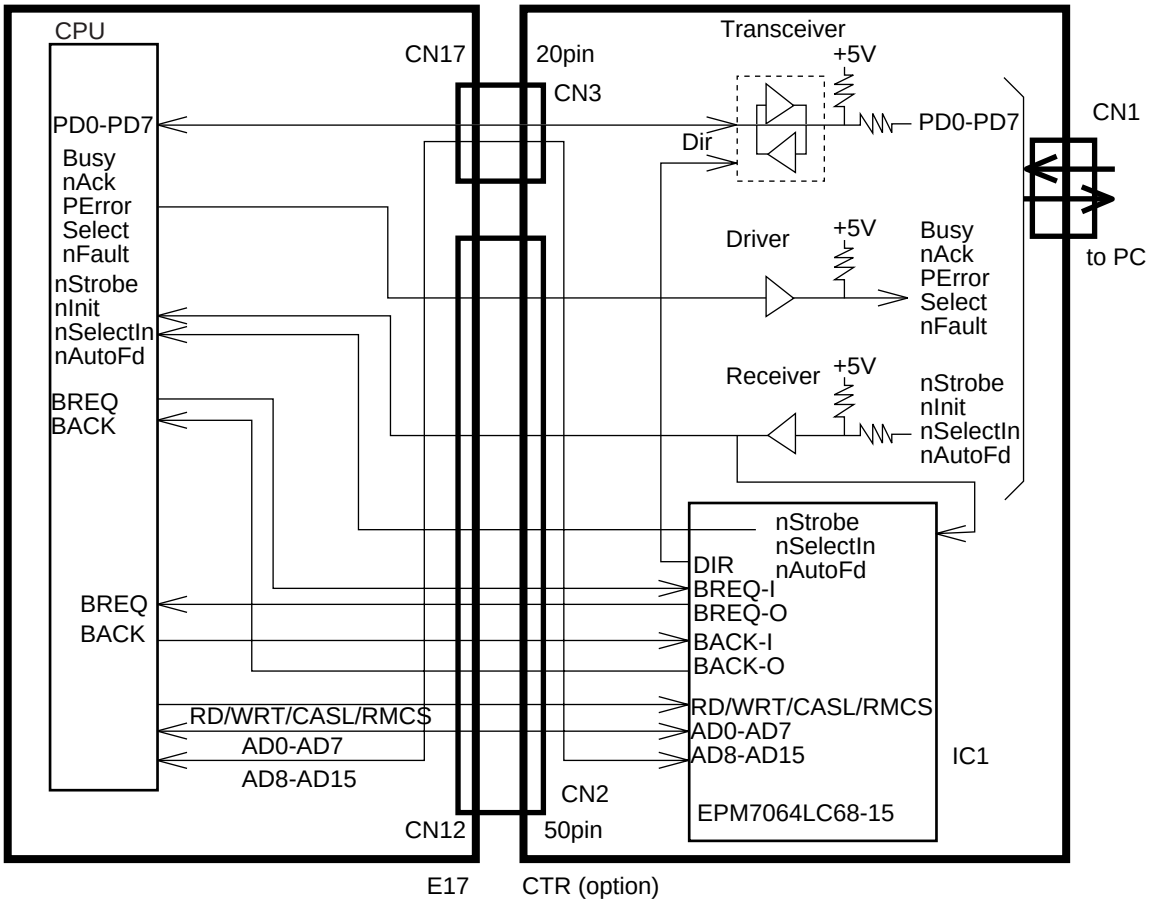


Figure A3.1.19 Interface between E17 Board and CTR Board (PC interface unit)

A3.1.14 E17 Circuit Diagram

1. Block diagram

The circuit diagram shown on page 15/16 consists of the following functions and connectors:
- RAM2 to RAM5

Figure A3.1.20 shows the block diagram of DRAM.

2. Function

1) DRAM
1 M x 16 bit DRAM x 2 (RAM2 and RAM3)
- Used as follows:
  Picture memory for the ECM send/receive modes.
  Picture memory for the memory transmission mode.
  Picture memory for the retransmission mode.
  Picture memory for the reception in memory.
  Editing for report printing.

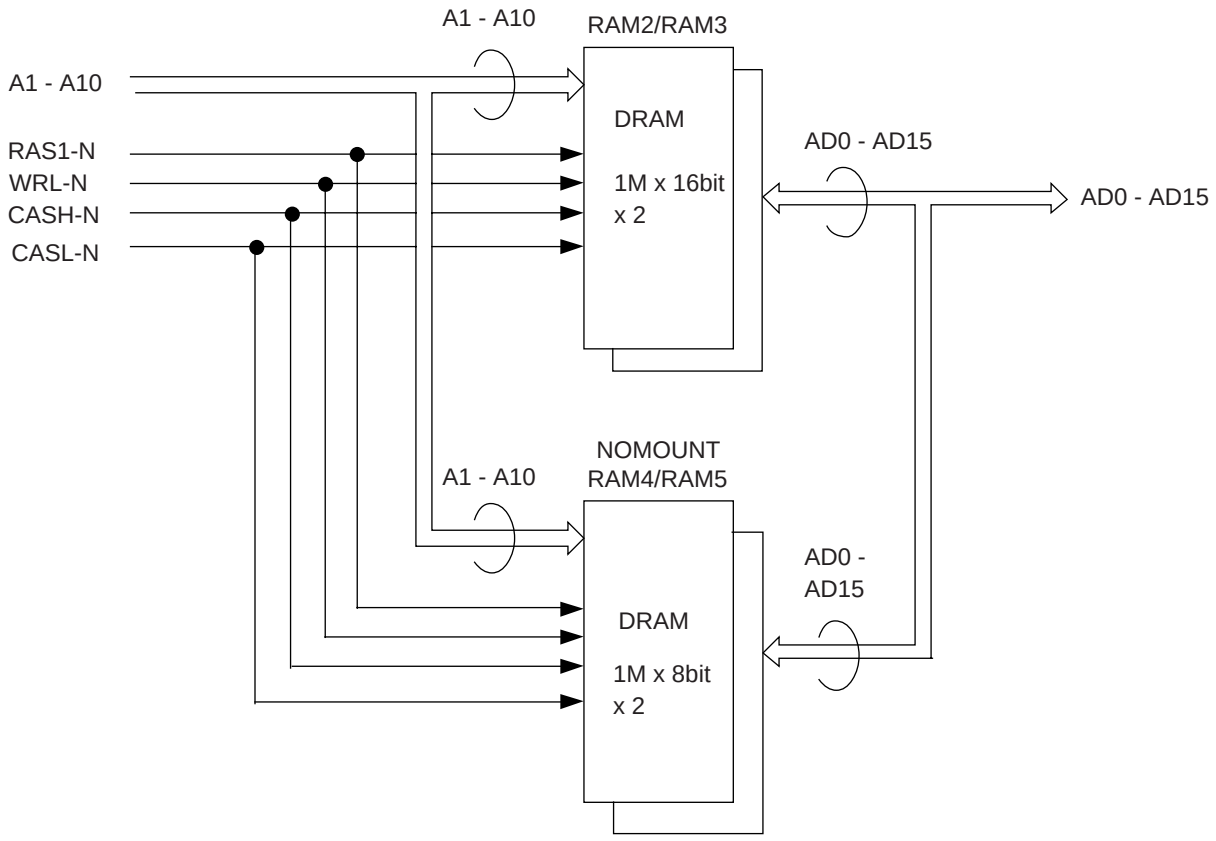


Figure A3.1.20 Block Diagram of DRAM

A3.2 OPE (05W) Circuit Diagram

1. Block diagram

   Figure A3.2.1 shows a block diagram of OPE (05W).

   The O5WH (operation unit) circuit consists of the following blocks:

   1) IC1 (one chip MOS-CPU)

      - Output ports
        Setting LEDs on and off: 8 ports
        Specifies the row during key switch matrix scanning: 8 ports
      - Input ports
        Detect the column whose key is pressed: 8 ports

   2) Key switch matrix (8 rows x 8 columns)

   3) LEDs (8 LEDs)

   4) LCD unit

2. Key switch scanning

   Output ports (KSCAN0 to KSCAN7 signal) corresponding to 8 rows of key matrix are scanned sequentially by the software. In the case 1 is any of output from KSCAN0 to KSCAN7 signal which corresponds to the row 8 in the block diagram, the software reads input port, KSENS0 to KSENS7, and determines which in the row 8 is pressed.

3. LED drives and LEDs

   Eight LEDs (ALARM, PHOTO, LIGHT, etc.) on the control panel are driven by output of IC1 via resistors R1, R4-9 and R11 respectively. An LED lights on when a port output is 1.

4. In case sub-power supply is applied to the fax machine: when PC1-N, HUP-N or RIINT signal is input to OPE unit, OPE unit controls the main power supply (120/230 board) by outputting the MP/OFF (ACON) signal.

   - PC1-N: Presence of document on hopper
   - HUP-N: OFF-Hook detection for TEL 1 and TEL 2 terminal
   - RIINT: Ringing detection signal

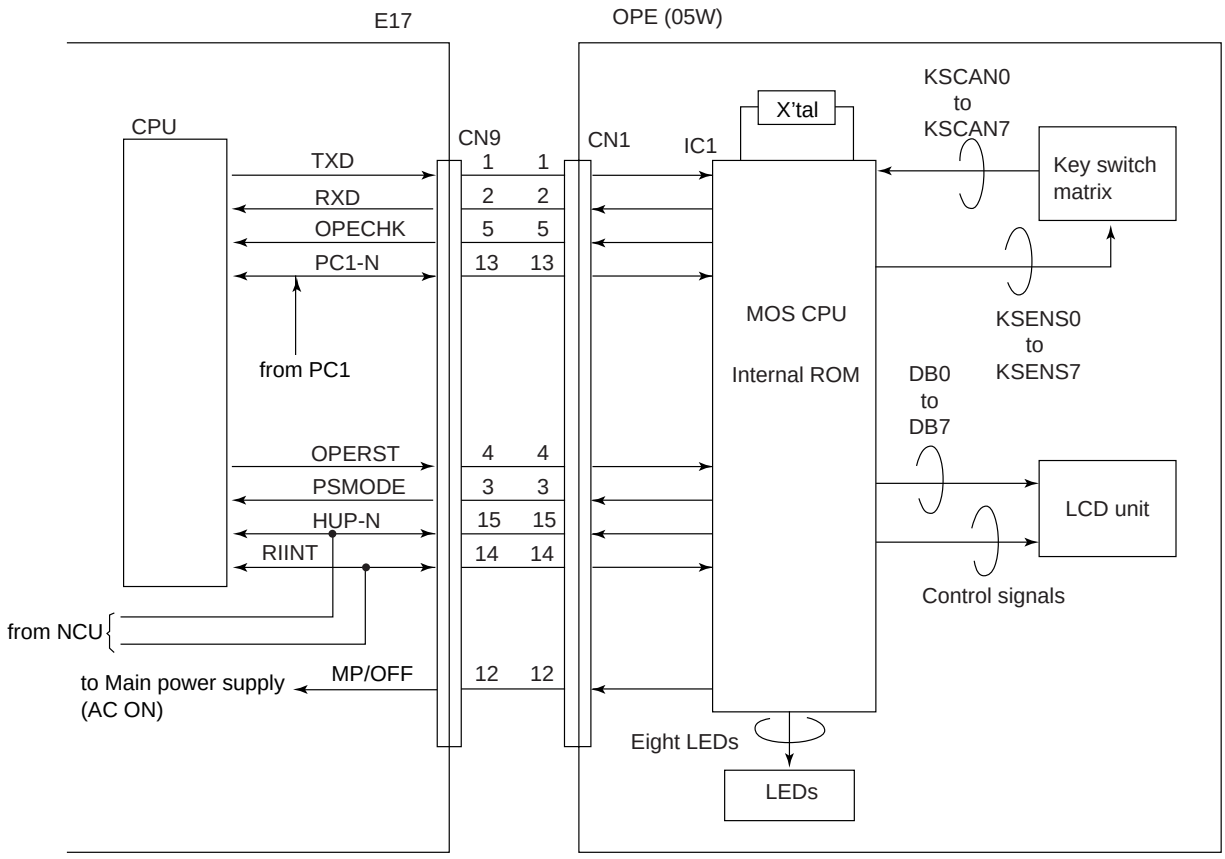


Figure A3.2.1 Block Diagram of OPE (operation unit)

A3.3 Power Supply Unit

A3.3.1 1VP (for 120 V)/2VP (for 230 V) Circuit Diagram (1/2)

IMPORTANT:
Oki Data Corporation recommends that maintenance of the Power supply unit (1VP/2VP board) be performed by replacement of a unit, not by replacement of components.

Therefore,
1) circuit descriptions in this section are for reference.
2) orders for components of the power supply unit cannot always be accepted.

Functions of unit:

1VP/2VP circuit generates the following direct currents (DC) based on the alternating current,
AC 120 V +6%, -15%
AC 230 V +15%, -14%

1. Low-voltage power supply circuit

   This circuit generates the following voltages.

Output Voltage	Output Voltage
+5 V	Logic circuit supply voltage (IC, LSI), and high-voltage source voltage, etc.
+8 V	CIS (contact image sensor)
-8 V	CIS (contact image sensor)
+30 V	Send motor, drum motor, resist motor, fan drive, flash memory, CIS, and second tray voltage

2. Input ratings

   - Voltage : AC 120 V +6%, -15% (AC 102 V to 127 V)
     AC 230 V +15%, -14% (AC 198 V to 264 V)
   - Frequency : 50 Hz/60 Hz +/-2%

3. Output ratings

Transformer type B

Pin No.	Rated Voltage	Rated Current	Current Range	Voltage Range	Output Ripple	Output Noise
CN3-B11-B13 A13	+5 V	1.8 A	0.2 to 4.5 A	5 V ± 4%	100 mVP-P	250 mVP-P
CN3-A15, B15	+30 V	1.20 A	0 to 1.20 A	—	4.0 VP-P	—
CN3-A14	+8 V	0.1 A	0 to 0.1 A	6.5 to 15 V	3.0 VP-P	3.6 VP-P
CN3-B14	-8 V	0.1 A	0 to 0.1 A	-15 to 6.5 V	3.0 VP-P	3.6 VP-P

4. Block diagram

Figure A3.3.1 shows a block diagram of 1VP (120V)/2VP (230V).

Note: The differences between 1VP (AC120V) and 2VP (AC230V) board are shown in the following table.

Symbol	1VP board	2VP board	Remarks
INLET Ass'y	4YS4011-2894P001	4YS4011-2894P002	
F1	51MS063L	19181-5A	
F2	51MS016L	Not mounted	
F3	GGS 3.15	21702.5	
T1 (Transformer 1)	4YB4049-7082P1	4YB4049-7083P1	
C1, C2, C56 and C242	Not mounted	Mounted	
R18, R51, R52 and R125	Not mounted	Mounted	

* The information contained herein can change without notice owing to product and/or technical improvements.

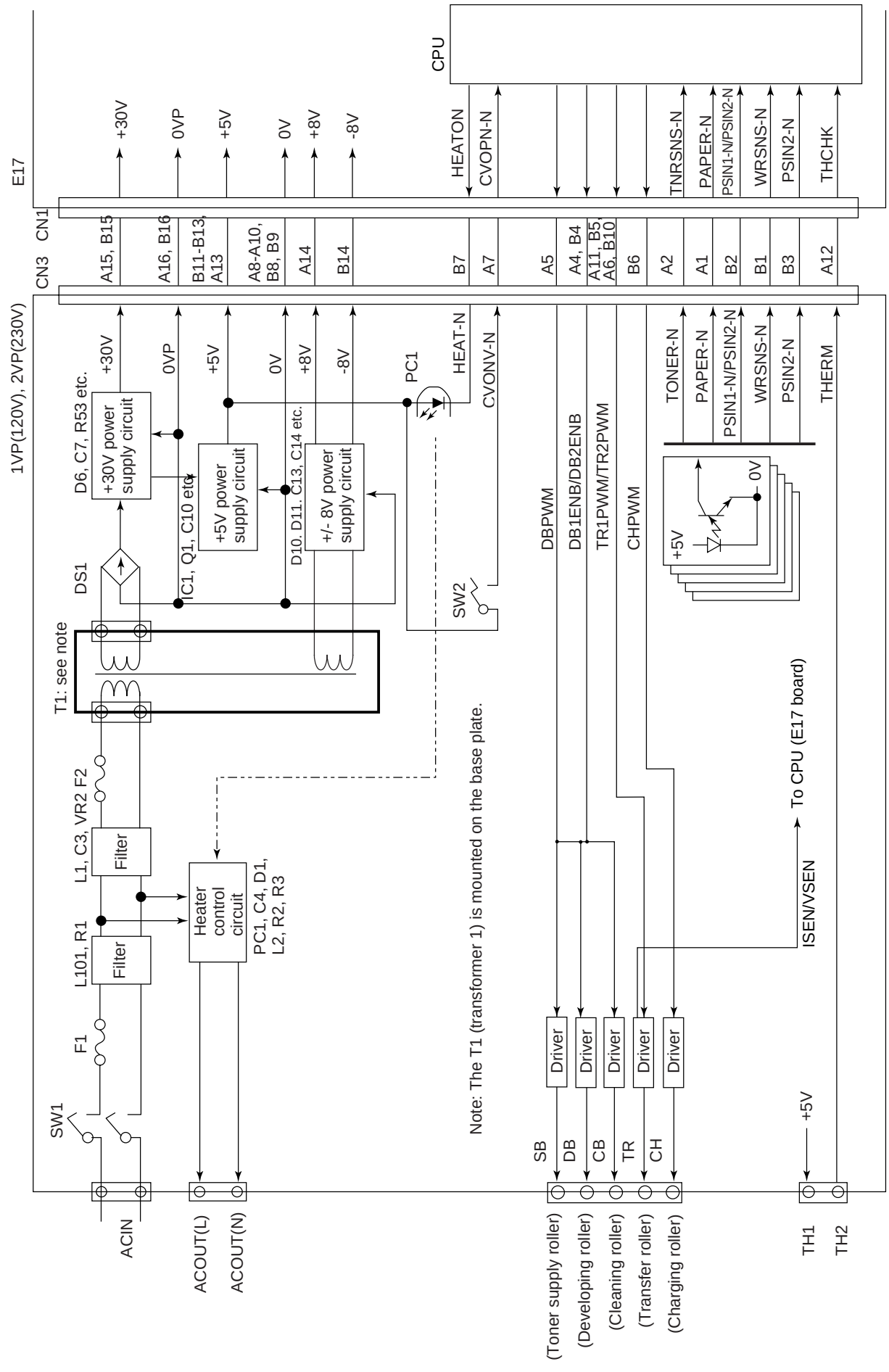


Figure A3.3.1 Block Diagram of PWU (power supply unit)

5. General functional description

5-1 General

The power supply unit consists mainly of AC transformer and a power PCB (1VP board for AC120V/2VP board for AC230V). A block diagram of the power supply unit is shown in Figure A3.3.1 The power PCB is composed of five main circuits: AC input section, heater control section, low-voltage section, high-voltage section and protection circuit.

The low-voltage section provides a +5V output by a DC-DC converter and other output voltages (+30V, +8V and -8V) simply by rectifying and smoothing the respective outputs of the AC transformer. The high-voltage section (TR1, TR2, DB1, DB2, SB1, SB2, CB and CH) produces a flyback voltage from 5V by using a drum coil and a high-voltage transformer.

5-2 Circuit description

5-2-1 AC input section

1) AC commercial power is supplied to line filter circuit through the AC inlet, power switch (SW1) and the fuse (F1). Fuse F1 is used for protecting the heater circuit.

2) The filter circuit consists of L101,R1, C1, C2, C3 and L1. Capacitors C1 and C2 are not mounted in the power unit for 120VAC input.

3) Fuse F2 is used for protection for the double voltage input in the power supply unit for 120VAC input and will not blow by shorting or opening the secondary circuit. This fuse F2 is not mounted in the power supply unit for 230VAC input.

5-2-2 Heater control circuit

1) The AC power divided from the AC input section passes through L2 for noise elimination and is fed to the heater via D1 (operating as a switch) from the power PCB.

2) The on/off operation of D1 is controlled by the operation of photocoupler PC1 whose operation is controlled by the HEAT-N signal applied to CN3-B7 pin from the control PCB (M17 board).

3) Resistors R2 and R3 connected on the AC side of PC1 are fuse resistors to protect themselves from firing when PC1 turns on in the event of D1 open failure.

5-3 Low-voltage section

5-3-1 +30 V circuit

1) The +30 V circuit provides +30 V output by rectifying the corresponding output of transformer T1 by a rectifier diode DS1 and smoothing the rectified signal by capacitor C7.

2) Resistor R53 is used to discharge the elecetric charge of C7 when the power switch (SW1) turned off.

5-3-2 +/- 8 V circuit

1) The +/- 8 V circuit provides +8 V and -8 V outputs by rectifying the corresponding output of transformer T1 by rectifier diodes D10 and D11 and smoothing the rectified signals by capacitors C13 and C14.

2) Resistors R22 and R23 are used to discharge the electric charge of C13 and C14 when the power switch (SW1) is turned off.

5-3-3 +5 V circuit

1) +5 V circuit provides +5 V output by lowering +30 V output by means of DC-DC concerter circuit.

2) IC1 is a control IC of frequency fixed type (operating at about 30 kHz in present power supply unit)

3) Q1 is a power transistor, D7 is a flywheel diode, and L3 , C10 and C20 compose a smoothing circuit.

4) The +5 V output is regulated as follows. The rectified +5 V is divided by resistors R83, R10 and R11 and the resulting voltage is applied to IC1, in which this voltage is regulated to a constant voltage. Thus, the regulated +5 V output is obtained by controlling IC1.

5-4 Protection circuits

1) The protection circuit includes fuse F3 for +30 V and +5 V overcurrent protection circuit.

2) If an overvoltage is applied to the +5 V circuit, D8, R9 and D6 operate to shortcircuit the +30 V circuit for half-wave cycle and fuse F3 will blow.

3) F1 will blow only in the event of AC line shortcircuit.

5-5 Cover open circuit

1) The cover open circuit consists of SW2. When the stacker cover is opened, the cover open microswitch (SW2) on the 1VP/2VP board is turned off to cut the supply of H5V to the high-voltage power supply circuit. As a result all high-voltage outputs are interruptted. At the same time, the CVOPN-N signal is sent to the control board to notify it the off state of the microswitch, and the control board performs the cover open processing.

A3.3.2 1VP (for 120 V)/2VP (for 230 V) Circuit Diagram (2/2)

This circuit consists of photo-sensors and high voltage generation unit.

Note: If the high-voltage unit inside the 1VP/2VP circuit board is replaced, the output voltage and current output from the terminals must be checked and adjusted. This section does not describe the checking and adjustment methods, however.

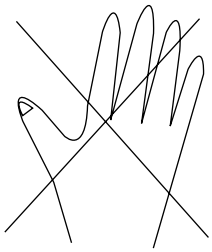
High voltage outputs are connected to the contact ass'y as shown below:

DANGER:

DANGER

Do Not
Touch !

HIGH VOLTAGE



You may be subjected to high-voltage electric shock by touching the following parts without an insulating material:

a. High-voltage unit

b. Contact ass'y

5-6 High-voltage section

5-6-1 Functional overview

The high-voltage outputs consist of TR1 (3.5 kV), TR2 (-0.75 kV), DB1 (+300 V), DB2 (-300 V), SB2 (-450V), CB (+400 V) and CH (-1.35 kV) and are obtained as follows. The control signal obtained from CPU of E17 board is applied to High-voltage power supply circuit. As result, the driver current is applied to the drive circuit, which will provide the high-voltage outputs.

Note:

Signal Name	Output Voltage	Application
SB1/SB2	0±5 V/-450 V	Voltage applied to toner supply roller.
DB1/DB2	+300 V/-300 V	Voltage applied to developing roller.
TR1/TR2	+3.5 kV/-0.75 kV	Voltage applied to transfer roller.
CH	-1.35 kV	Voltage applied to charging roller.
CB	+400 V	Voltage applied to cleaning roller.

5-6-2 SB2, DB1, DB2 and CB

1) These four high-voltage outputs are obtained from the flyback voltage of Q10.

2) The positive and negative voltages of DB1 and DB2 are obtained by switching the charging direction under the triac and thyristor.

3) Feedback is not applied to these outputs. However, SB2 is limited by D85 and DB2 is limited by D84 so as not to provide an output exceeding a preset voltage.

5-6-3 TR1 and TR2

1) The TR1 high-voltage is obtained by rectifying the secondary output of Q17 switching circuit by a voltage-doubler rectifier.

2) TR1 output circuit has both constant current (hereinafter called CC) and constant voltage (hereinafter called CV) modes.

3) At first, TR1 output circuit operates in the CC mode. Once the voltage determined by parameters such as roller and medium is obtained, this circuit changes to operate in the CV mode by the control signal.

4) The TR2 output voltage is regulated by keeping the voltage obtained by switching operation of Q15 at a constant voltage by D66 and D65.

5-6-4 CH

1) The CH output voltage is stabilized by keeping the primary flyback voltage obtained by switching operation of Q16 at a constant voltage by D76 and D82.

5-7 Photosensors

The photosensors mounted on this circuit board/sensor board supervise the paper running state during printing. These six photosensors are used in this printer as listed below. All of their outputs enter CPU for referring to and processing by the CPU.

1) PS1 (photosensor 1): PSOUT

   Supervises the paper feed according to the time of arrival at the sensor and the time of passage of paper.

2) PS2 (photosensor 2): WRSNS

   Detects the leading part of sensor.
   Supervises the paper running state.

3) PS3 (photosensor 3): PSIN1

   Detects the leading part of the paper and gives the supervision timing for switching from hopping operation to feeding operation. Supervises the paper running state and the paper size according to the paper arrival time and running time.

4) PS4 (photosensor 4): PAPER

   Detects the end of the paper.

5) PS5 (photosensor 5): PSIN2

   Not used

6) PS6 (photosensor 6): TONER

   Detects the lack of the toner.

A3.4 UNC, WN5, FN5 and DN5 Circuit Diagram

The NCU board is selected from UNC, WN5, FN5 and DN5 because it differs depending on country's specifications. Therefore, the NCU circuit diagram is destined for the following countries.

Note: The relationship between NCU and optional boards (NTIF, TEL, HOOK, etc.) are shown in A3.10 OKIFAX 5400 facsimile transceiver.

- UNC circuit diagram
  US and Canada.

- WN5 circuit diagram
  Sweden, Finland, The Netherlands, Ireland, Portugal, New Zealand, Australia, Belgium, Spain, Greece, Norway, Denmark, Italy, and other countries.

- FN5 circuit diagram
  France and UK

- DN5 circuit diagram
  Germany, Switzerland and Austria.

1. Block diagram

   - Figure A3.4.1 shows a block diagram of UNC circuit.
   - Figure A3.4.2 shows a block diagram of WN5 circuit.
   - Figure A3.4.3 shows a block diagram of FN5 circuit
   - Figure A3.4.4 shows a block diagram of DN5 circuit.

2. General functions of this circuit are as follows:

   1) Generates and detects signals to be exchanged with a telephone exchange or network in Phases A and E defined by ITU T.30.
      - Loop formation for call origination
      - Line current detection (see note 1) before call origination
      - Dial tone detection (see note 1)
      - Generation of dial pulses (see note 2)
      - Busy tone detection (see note 1)
      - Ringing signal detection

   2) Sends various data and signals from the E17 board to the telephone line after amplification.
      - Picture data/Protocol/Tonal signals/PB tone, etc.

   3) Sends the following signals received from the line to the E17 board as data after amplification.
      - Picture data/Protocol/Tonal signals, etc.

      Note 1: This procedure may be omitted depending on the dial parameters.
      Note 2: MF (Multi-frequency) tone is generated by the modem and transferred to the telephone line via the NCU board.

3. Explanation on CN3 Terminals

CN3 pin No.	Terminal name	Explanation	UNC (US.CA)	WN5 (INT'L)	DN5 D.A.CH)	FN5 (F.UK)
1	REV2	Detection and output of the direction of DC line current.	*	*	*	*
2	OH2	Detection of off-hook of terminal connected to TEL-1 or TEL-2.				
3	OH1	Output upon circuit current detection after fax line seizure	*	*	*	*
4	RI	0 - 5 V signal output synchronized with the ringing signal frequency				
5	NC	Unused terminal	*	*	*	*
6	PP	Relay control signal for special service code detection at parallel pickup or remote reception				
7, 8	E	GND				
9, 10	sub + 5 V	Sub power supply for OH2 and RI detection				
11, 12	+ 5 V	Power supply for relays and logic circuits				
13, 14	+ 5 VA	+5 V power supply for analog circuit	*	*		*
15, 16	S	TX Signal				
17, 18	– 5 VA	– 5 V power supply for analog circuit	*	*		*
19, 20	R	RX Signal				
21, 22	SG	Signal ground				
23, 24	Rp	Receiving sensitivity determination terminal				
25	DP	Pulse dial control signal				
26	CML	Line seizure control signal				
27	F. ICC	Loop current control signal upon line seizure	*	*	*	
28	SR	Control signal for connection between LINE and TEL terminals				
29	PBXE	Control signal for connecting one of LINE terminal to the PBXE terminal	*	*		*
30	MUTE	Control signal for pulse dial improvement and bell shunt relay	*			

Note *: Unused.

4. Description on the NCU Block Diagram

4.1 UNC circuit diagram

① Lightning arresters (AR1, 2)
The nominal operating voltage is 350 V.
When connecting the ground of the arrestor to the chassis, tighten ARG on the PCB with a screw. At this time, the PCB is grounded through the power cable.
The TB1 arrestor ground terminal can also be used to connect to the earth directly.

④ DC circuits (R10, R11, C4)
These circuits provide DC characteristics according to the line requirements using the primary DC resistor in the line transformer T1 and the R10 and R11 resistors . The capacitor C4 bypasses AC signals.

⑤ Impedance matching network (R523, R536, C503)
This circuit matches the impedance between the line and equipment to reduce reflection of transmitted signals.

⑥ Receiving sensitivity (R574, R504)
The receiving sensitivity at line seizuring is determined by R574 and the MF tone receiving sensitivity at parallel pickup is determined by R504.

⑦ CML (RL1)
This circuit selectively switches the line between the telephone or facsimile.

⑧ SR (RL2)
This circuit connects the line with the telephone. During facsimile transmission, it disconnects the telephone.

⑪ PP (RL6)
If this circuits detects MF or CNG tones without seizuring a line, it sets a proper receiving sensitivity.

⑫ DP (RL3)
This circuit generates pulse dials.
If the circuit detects MF or CNG tones without seizuring a line, it opens to increase the impedance.

⑬ Pickup RC (R5, C31)
These circuits insert a high-impedance resistor and capacitor serially to prevent the line impedance from dropping by the line transformer T1.

⑭ Ring detectors (IC1)
These circuits detect a ring signal arriving to the line. If the input ring signal exceeds a specific voltage, the circuits output a signal having of RI the same frequency as incoming RI.

⑮ Line transformer (T1)
This circuit processes send/receive signals required for facsimile transmission, dial tone receive signals required for automatic dialing, and MF tone send and remote receive signals. It separates between the line and equipment in terms of DC and also keeps a balance between the line and the ground. The transformer on the UNC board for OKIFAX 5400 is covered with the shield case for the low-level receiving counter-measure.

⑯ Off-hook detector (IC2)
This circuit detects the off-hook state of the telephone connected to the TEL1, TEL2 through LINE terminals.

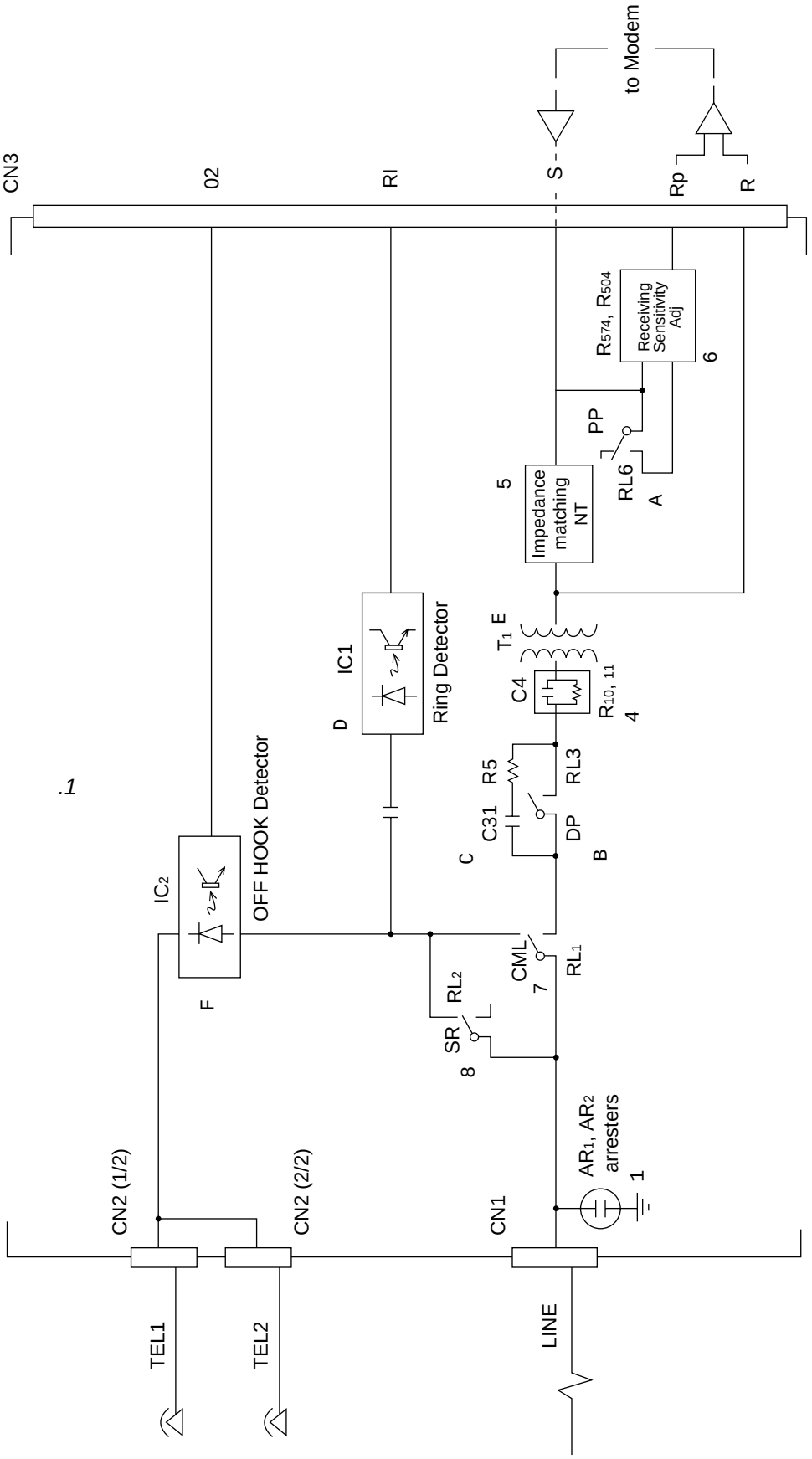


Figure A3.4.1 Block Diagram of UNC

4.2 WN5 circuit diagram

① Lightning arresters (AR1, 2)
The nominal operating voltage is 500 V.
When connecting the ground of the arrestor to the chassis, tighten ARG on the PCB with a screw. At this time, the PCB is grounded through the power cable.
The TB1 arrestor ground terminal can also be used to connect to the earth directly.

② Loop current detector (IC4) — Optional
When a line is seizured, this circuit detects a DC loop current to notify the fact.
For detection (OH1), it outputs the low level to the nominal input current of 10 mA or more.

③ Diode bridge (DB1)
This circuit rectifies the loop current so that the DC circuit characteristics are not affected by a polarity change over the line.

④ DC circuits (Q3, R540, R541, C13, R9, R209, and R309)
These circuits provide DC characteristics according to the line requirements depending on the DIP SW (S3) position.

⑤ Impedance matching network (R523, R536, C503 ... R823, R836, C803)
This circuit matches the impedance between the line and equipment to reduce reflection of transmitted signals.
It provides impedance (return loss) characteristics to meet the line requirement using the connector keys (CN15 to CN45).

⑥ Receiving sensitivity (R537, R539...R837, R839)
The receiving sensitivity at line hunting is determined by R539 to R839 depending on the line impedance. Similarly, the MF tone receiving sensitivity at parallel pickup is determined by R537 to R837. The receiving sensitivity is set using connector keys (CN15 to CN45).

⑦ CML (RL1)
This circuit selectively switches the line between the telephone or facsimile.

⑧ SR (RL2)
This circuit connects the line with the telephone. During facsimile transmission, it disconnects the telephone.

⑨ DP (IC5)
This circuit generates pulse dial signals.

⑩ MUTE (IC7)
During pulse dialing, this circuit closes to reduce the DC loop resistance.

⑪ PP (RL6)
If this circuits detects MF or CNG tones without seizuring a line, it disconnects Impedance matching Net work (⑤) to increase the input impedance and also sets the receiving sensitivity.

⑫ MUTE (RL3)
During pulse dialing, this circuit opens to prevent pulse distortion caused by capacitor C11. If it detects MF or CNG tones without seizuring a line, it opens to increase the impedance.

⑬ Pickup RC (R590, C31)
These circuits insert a high-impedance resistor and capacitor serially to prevent the line impedance from dropping by the line transformer T1.

⑭ Ring detectors (IC1)
These circuits detect a ring signal arriving to the line. If the input ring signal exceeds a specific voltage, the circuits output a signal of RI having the same frequency as incoming RI.

⑮ Line transformer (T1)
This circuit processes send/receive signals required for facsimile transmission, dial tone receive signals required for automatic dialing, and MF tone send and remote receive signals. It separates between the line and equipment in terms of DC and also keeps a balance between the line and the ground.

⑯ Off-hook detectors (IC2, RL7)
These circuits detect the off-hook state of the telephone connected to the TEL1, TEL2, through LINE terminal. IC2 uses a high detection sensitivity than of RL7. In TEL/FAX mode, the higher sensitive IC2 is used to detect the off-hook state of the telephone while the main equipment is hunting a line.
Usually, IC2 is short-circuited by the CML relay (⑦) in the standby state and RL7 is used for off-hook detection.

⑰ Impedance switches (CN15 to CN45)
These circuits set the impedance according to the line requirement.
220: 220 ohm + 820 ohm//115 nF (CN15)
275: 275 ohm + 850 ohm//150 nF (CN25)
370: 370 ohm + 620 ohm//310 nF (CN35)
600: 600 ohm (CN35)

⑱ DC resistance switch (SW3)
This switch sets the DC resistance according to the line requirement.

⑲ Ring impedance switches (S1-3 to S1-6)
These switches set the ring impedance according to the line requirement.

⑳ Ring sensitivity switch (S4)
This switch sets the ring sensitivity according to the line requirement.

㉑ Telephone cascade/parallel switches (S1-1 to S1-2)
To connect the telephone connected to the TEL1 terminal and an external telephone in parallel, set the switches to ON.

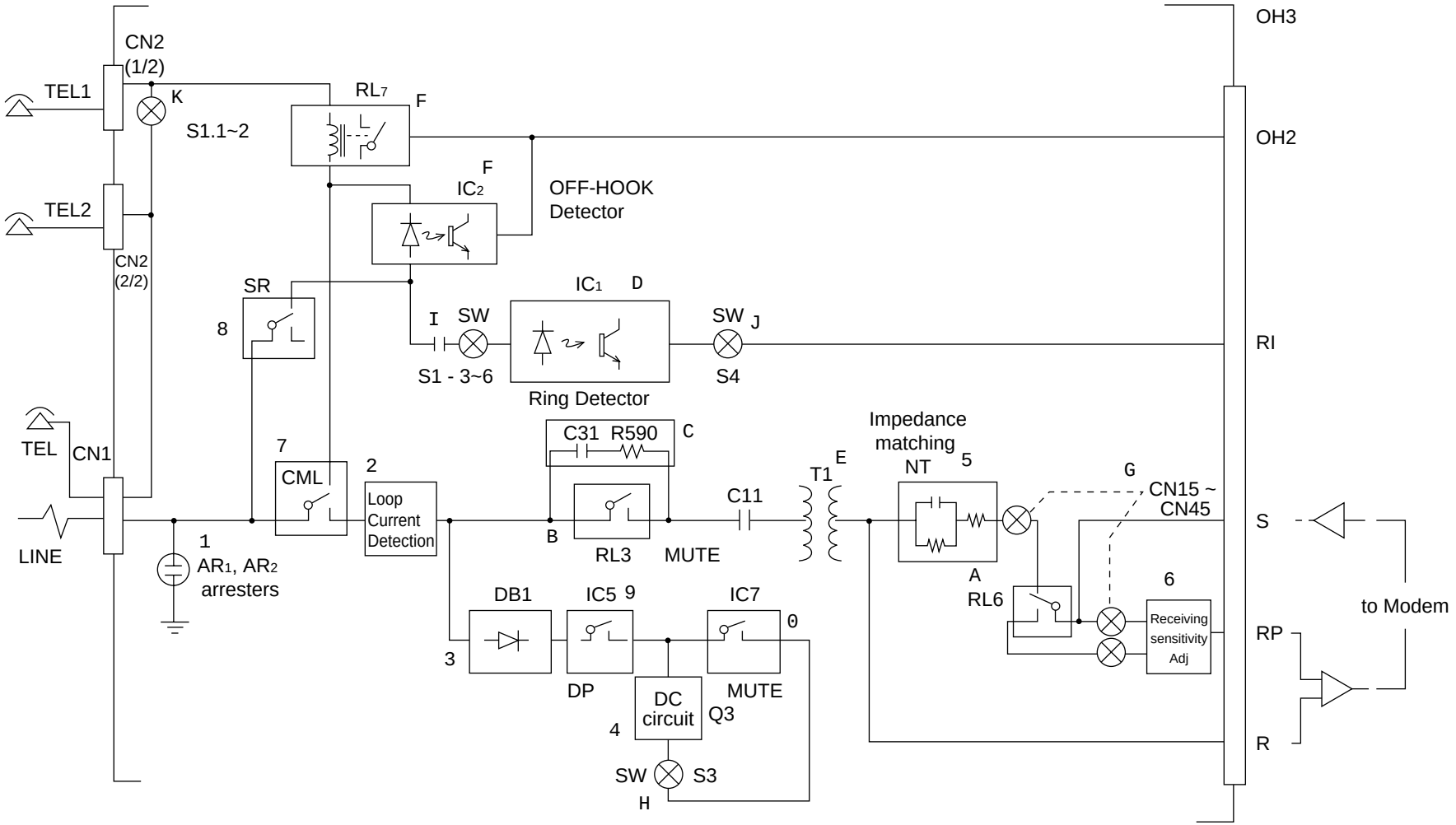


Figure A3.4.2 Block Diagram of WN5

4.3 FN5 circuit diagram

① Lightning arresters (AR1, 2)
The nominal operating voltage is 500 V.
When connecting the ground of the arrestor to the chassis, tighten ARG on the PCB with a screw. At this time, the PCB is grounded through the power cable.
The TB1 arrestor ground terminal can also be used to connect to the earth directly.

③ Diode bridge (DB1)
This circuit rectifies the loop current so that the DC circuit characteristics are not affected by a polarity change over the line.

④ DC circuits (Q3, R540, R541, C13, R9, R209)
These circuits provide DC characteristics according to the line requirements.

⑤ Impedance matching network (R523, R536, C503, R623, R636, C603)
This circuit matches the impedance between the line and equipment to reduce reflection of transmitted signals.
It provides impedance (return loss) characteristics to meet the line requirement using the S5-1 and 5-2.

⑥ Receiving sensitivity (R537, R539, R637, R639)
The receiving sensitivity at line hunting is determined by R539 or R639 and the MF tone receiving sensitivity at parallel pickup is determined by R537 or R639.
The receiving sensitivity set using DIP switch S5-3 to S5-6.

⑦ CML (RL1)
This circuit selectively switches the line between the telephone or facsimile.

⑧ SR (RL2)
This circuit connects the line with the telephone. During facsimile transmission, it disconnects the telephone.

⑨ DP (IC5)
This circuit generates pulse dial signals.

⑩ MUTE (IC7)
During pulse dialing, this circuit closes to reduce the DC loop resistance.

⑪ PP (RL6)
When it detects MF or CNG tones without seizuring a line, it disconnects NT (⑤) to increase the input impedance and also sets the receiving sensitivity.

⑫ MUTE (RL3)
During pulse dialing, this circuit opens to prevent pulse distortion caused by capacitor C11. When it detects MF or CNG tones without seizuring a line, it opens to increase the impedance.

⑬ Pickup RC (R590, C31)
These circuits insert a high-impedance resistor and capacitor serially to prevent the line impedance from dropping by the line transformer T1.

⑭ Ring detectors (IC1)
These circuits detect a ring signal arriving to the line. If the input ring signal exceeds a specific voltage, the circuits output a signal of RI having the same frequency as the incoming RI.

⑮ Line transformer (T1)
This circuit processes send/receive signals required for facsimile transmission, dial tone receive signals required for automatic dialing, and MF tone send and remote receive signals. It separates between the line and equipment in terms of DC and also keeps a balance between the line and the ground.

⑯ Off-hook detectors (IC2, RL7)
These circuits detect the off-hook state of the telephone connected to the TEL1, TEL2, through LINE terminals. IC2 uses a high detection sensitivity than of RL7. In TEL/FAX mode, the higher sensitive IC2 is used to detect the off-hook state of the telephone while the main equipment is hunting a line.
Usually, IC2 is short-circuited by the CML relay (⑦) in the standby state and RL7 is used for off-hook detection.

⑰ Impedance switches (S5-1 to 5-2)
These circuits set the impedance according to the line requirement.
S5-1: 370 ohm + 620 ohm//310 nF (UK)
S5-2: 600 ohm (F)

⑱ DC resistance switches (CN26 and CN36)
These switches set the DC resistance according to the line requirement.

㉗ FICC (IC6)
This circuits reduces the DC resistance to increase the loop current momentarily to assure operation of the switch at line seizuring.

㉘ Constant current circuits (Q1 and Q2)
These circuits provide DC characteristics according to the French line requirement.

㉙ Shunt (RL5)
This circuit prevents bell resonances in the telephone sets connected in parallel during pulse dialing and also reduces distortions of the pulse waveform.

㉚ Communication line terminal switches (CN26 and CN36)
Unlike other countries, pines 2 and 5 are connected to the line for the UK communication line. Set the switches to “F” for France and “UK” for UK.

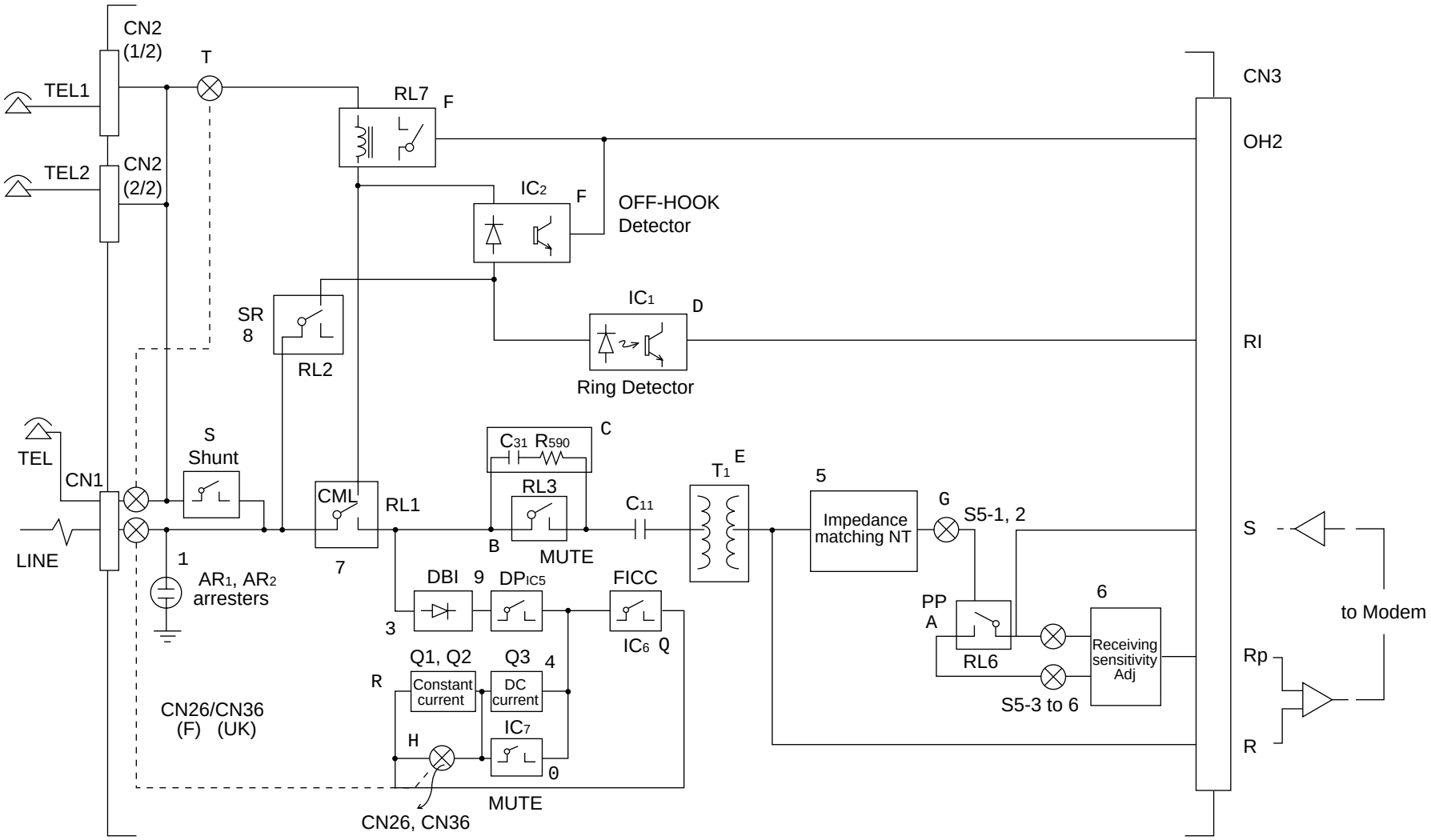


Figure A3.4.3 Block Diagram of FN5

4.4 DN5 circuit diagram

① Lightning arresters (AR1, 2)
The nominal operating voltage is 500 V.
When connecting the ground of the arrestor to the chassis, tighten ARG on the PCB with a screw. At this time, the PCB is grounded through the power cable.
The TB1 arrestor ground terminal can also be used to connect to the earth directly.

② Loop current detector (IC4) - Optional
When a line is hunt, this circuit detects a DC loop current to notify the fact.
For detection (OH1), it outputs the low level to the nominal input current of 10 mA or more.

③ Diode bridge (DB1)
This circuit rectifies the loop current so that the DC circuit characteristics are not affected by a polarity change over the line.

④ DC circuits (Q3, R540, R541, C13, R9, R209)
These circuits provide DC characteristics according to the line requirements.

⑤ Impedance matching network (R523, R536, C503, ...)
This circuit matches the impedance between the line and equipment to reduce reflection of transmitted signals.
It provides impedance (return loss) characteristics to meet the line requirement using the S4-3 and S4-4.

⑥ Receiving sensitivity (R537, R539, R637, R639)
The receiving sensitivity at line hunting is determined by R539 to R639 depending on the line impedance. Similarly, the MF tone receiving sensitivity at parallel pickup is determined by R537 or R637.
The receiving sensitivity is set using the DIP switches S4-5 to S4-8.

⑦ CML (RL1)
This circuit selectively switches the line between the telephone or facsimile.

⑧ SR (RL2)
This circuit connects the line with the telephone. During facsimile transmission, it disconnects the telephone.

⑨ DP (IC5)
This circuit generates pulse dial signals.

⑩ MUTE (IC7)
During pulse dialing, this circuit closes to reduce the DC loop resistance.

⑪ PP (RL6)
If this circuits detects MF or CNG tones without seizuring a line, it disconnects NT (⑤) to increase the input impedance and also sets the receiving sensitivity.

⑫ MUTE (RL3)
During pulse dialing, this circuit opens to prevent pulse distortion caused by capacitor C11. If it detects MF or CNG tones without seizuring a line, it opens to increase the impedance.

⑬ Pickup RC (R590, C31)
These circuits insert a high-impedance resistor and capacitor serially to prevent the line impedance from dropping by the line transformer T1.

⑭ Ring detectors (IC1)
These circuits detect a ring signal arriving to the line. If the input ring signal exceeds a specific voltage, the circuits output a signal of RI having the same frequency as incoming RI.

⑮ Line transformer (T1)
This circuit processes send/receive signals required for facsimile transmission, dial tone receive signals required for automatic dialing, and MF tone send and remote receive signals. It separates between the line and equipment in terms of DC and also keeps a balance between the line and the ground.

⑯ Off-hook detectors (IC2, RL7)
These circuits detect the off-hook state of the telephone connected to the TEL1, TEL2, through LINE terminals. IC2 uses a high detection sensitivity than of RL7. In TEL/FAX mode, the higher sensitive IC2 is used to detect the off-hook state of the telephone while the main equipment is hunting a line.
Usually, IC2 is short-circuited by the CML relay (⑦) in the standby state and RL7 is used for off-hook detection.

⑰ Impedance switches (S4-3 to S4-4)
These circuits set the impedance according to the line requirement.
S4-3: 220 ohm + 820 ohm//115 nF
S4-4: 600 ohm

⑲ Ring impedance switches (S1-4)
These switches set the ring impedance according to the line requirement.

⑳ Ring sensitivity switch (S4-4, S4-2)
This switch sets the ring sensitivity according to the line requirement.

㉑ Telephone cascade/parallel switches (S1-1 to S1-2)
To connect the telephone connected to the TEL1 terminal and an external trephone in parallel, set the switches to ON.

㉒ 16 kHz LPF (L7, L8, C7, C507, C9)
This low-pass filter removes 16 kHz metering pulses.

㉓ Transmitter amplifier (IC501 1/2)
This transmitter buffer amplifier amplifies DTMF signals and FAX send signals.

㉔ Receiver amplifier (IC501 2/2)
This amplifier amplifies MF tones, dial tones, and FAX receive signals.

㉕ 16 kHz LPF (IC502)
This active low-pass filter removes 16 kHz metering pulses.

㉖ PBXE (RL4)
This circuits connects one end of the LINE terminal to the PBXE terminal when requested from the PBX line.

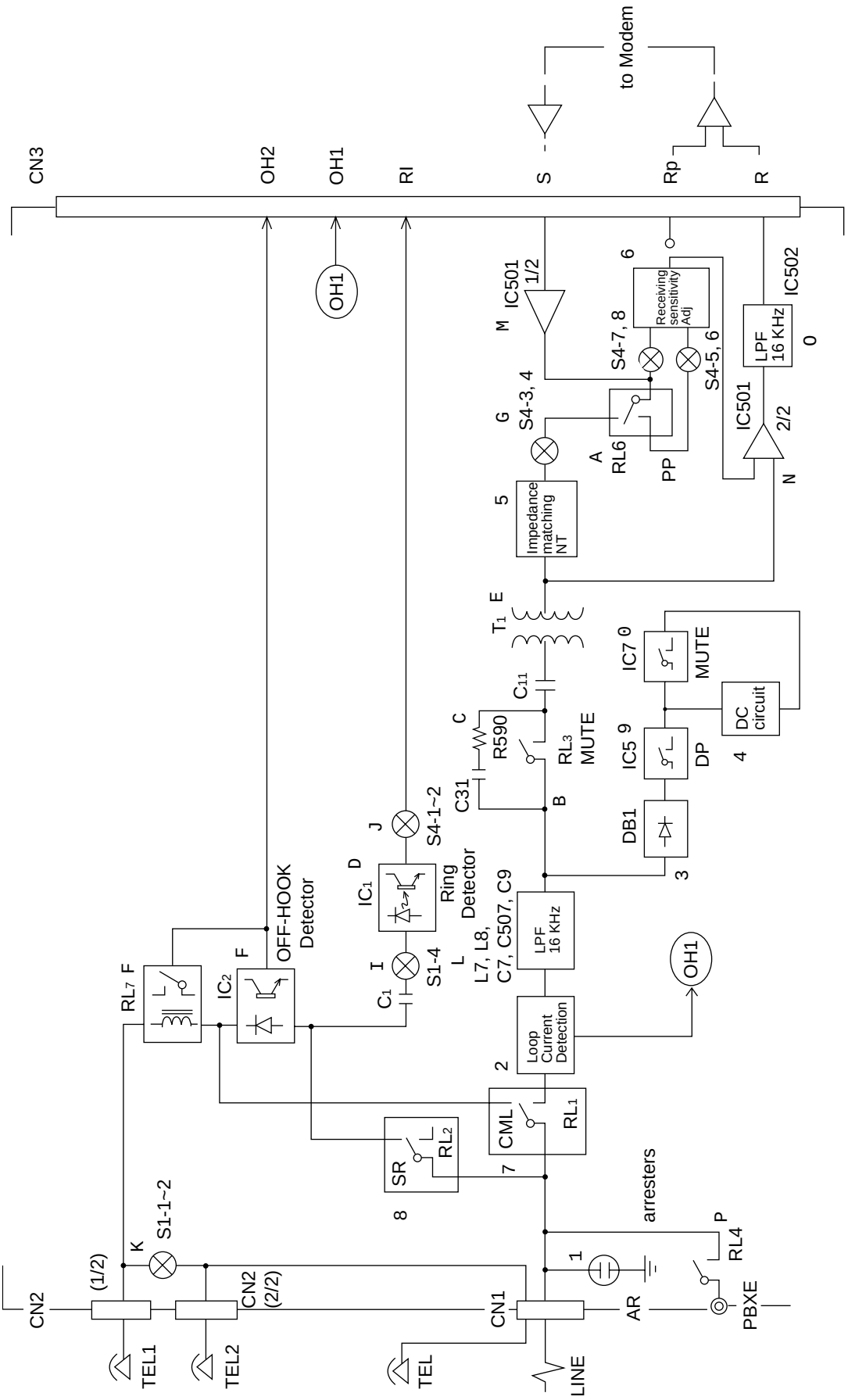


Figure A3.4.4 Block Diagram of DN5

A3.5 TELU, TEL-W2, TEL-W1, TEL-W2D and TEL-W2F Circuit Diagram (option)

TEL board is used for the control board of the telephone set when the optional telephone assembly is installed on the facsimile transceiver, and TEL board is selected from TELU, TEL-W2, TEL-W1, TEL-W2D and TEL-W2F because it differs depending on country's specifications. Therefore, the TEL circuit diagram is destined for the following countries.

Note: The relationship between TEL and other boards (NCU, NTIF, HOOK, etc.) shows A3.10. OKIFAX 5400 facsimile transceiver.

- TELU circuit diagram
  US and Canada.

- TEL-W2 circuit diagram
  Sweden, Finland, The Netherlands, Ireland, Portugal, New Zealand, Australia, Spain, Greece, Switzerland and Austria.

- TEL-W1 circuit diagram
  UK, Norway, Denmark, Belgium and Italy.

- TEL-W2D circuit diagram
  Germany

- TEL-W2F
  France

1. Block diagram

   - Figure A3.5.1 shows a block diagram of TELU circuit.
   - Figure A3.5.2 shows a block diagram of TEL-W2 circuit.
   - Figure A3.5.3 shows a block diagram of TEL-W1 circuit.
   - Figure A3.5.4 shows a block diagram of TEL-W2D circuit.
   - Figure A3.5.5 shows a block diagram of TEL-W2F circuit.

2. General functions of this circuit are as follows:

   - Speech IC
   - Sending Level Adjustment
   - Receiving Level Adjustment
   - Sending Frequency Response Adjustment
   - Side Tone Adjustment
   - DC V-1 Characteristics Adjustment
   - Return Loss Adjustment
   - AGC (automatic gain control)
   - Manual Pad
   - Sending Frequency Response Adjustment
   - Receiving Frequency Response Adjustment
   - Pulse Dialing (for TEL-W1)
   - MF Dialing (for TEL-W1)
   - Charge Pulse Elimination Characteristics (for TEL-W2D)
   - Handset Interface

3. Explanation of TEL circuit diagram

This section describes functional blocks of individual TEL circuit diagram.

3-1 TELU circuit diagram

TELU circuit diagram is formed by Speech IC and interface of UNC, HOOK SW and HANDSET.

1) Speech IC

The hybrid circuit is formed by Speech IC.

2) Handset Interface

- Transmitter signal route
  Signal from the microphone of the handset is input to pin 15 and 16 of Speech IC. This signal is determined by the amplification factor and output to the telephone line via UNC, Hook switch and DB2 (rectifier).

- Receive signal route
  Receive signal from the telephone line enters Speech IC via UNC, Hook switch and DB2 and is output to pin 2 & 3 of the speaker of the handset.

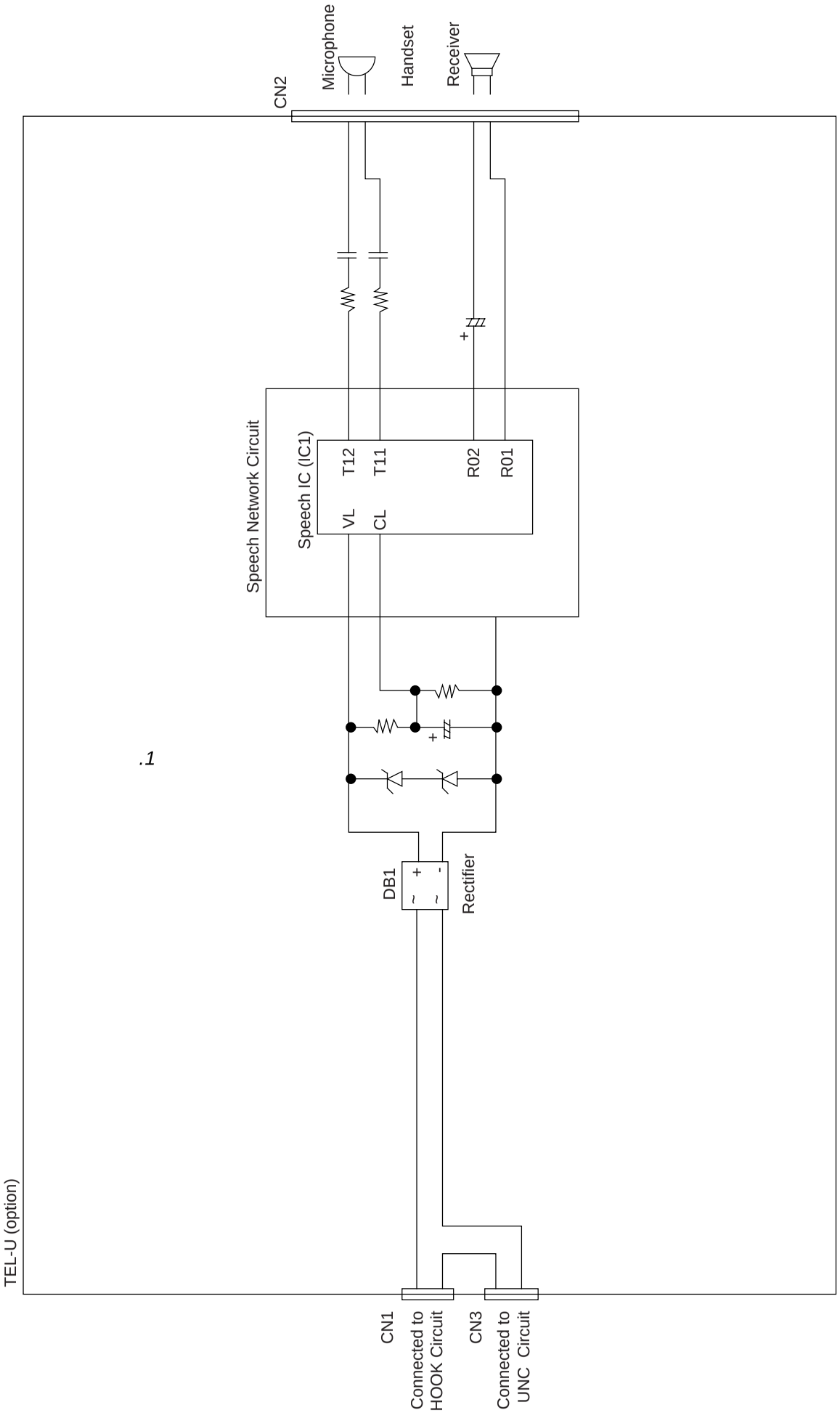


Figure A3.5.1 Block Diagram of TEL-U (option)

3-2 TEL-W2 circuit diagram

Note: Refer to each country's hardware parameters comparison table.

1) Speech IC

General functions of the speech IC are as follows:
- Basic speech functions included.
- Separate receive pre-amplifier with signal output terminal
- Separate receive power amplifier input terminal, cause it is possible to mixing input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amplifier input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifier are provided with AGC in accordance with the line current.

2) Sending Level Adjustment

The sending level is determined by the circuit section formed by resistors R55, R56, R57 and R58, and the bits of SW3 connect the resistors in parallel. The sending level is maximum when all the bits of SW3 are set to ON, and minimum when all the bits of SW3 are set to OFF.

3) Receiving Level Adjustment

The receiving level is determined by the circuit section formed by resistors R34, R35, R36, R82, R83 and R84, and the bits of SW5. The receiving level is minimum when all the bits of SW5 are set to ON, and maximum when all the bits of SW5 are set to OFF.

4) Sending Frequency Response Adjustment

The circuit section affecting the low range level of the sending frequency response is formed by capacitors C59, C35, C36 and C60, which are connected in series to the section in front of a transmitter. The low range level can be adjusted by the ON/OFF setting of bits 1 and 2 of SW3. The high range level can be adjusted by the ON/OFF setting of SW6-5.

Note: When the frequency response is changed, the sending and receiving levels may be changed. Verify the sending and receiving levels after adjustment.

5) Side Tone Adjustment

The setting of the side-tone level is performed by the setting of SW1-1 through 8 and SW2-1. One of these bits it set to ON for each individual country. The side-tone level is interrelated with the receiving and sending level. The side-tone level becomes higher when the sending and receiving level are set lower.

Note: After the side tone level is changed, the sending and receiving levels change, so readjust the sending and receiving level and reverify and readjust the side tone.

6) DC V-I (voltage-versus-current) Characteristics Adjustment

The adjustment of the DC V-I characteristics at the time of line supplement is performed by D10, D11, D12, SW2-7, R25 and SW2-8. When raising the DC V-I value, set SW 2-7 to OFF or SW2-8 to ON. When decreasing the value, set SW2-7 to ON, or SW2-8 to OFF.

7) Return Loss

The return loss setting is performed by SW2-2 to 6. One of the bits is set to ON for each individual country. When SW2-3 is set to ON, the impedance is set to 600 W's series.

8) AGC (automatic gain control)

AGC is function for adjusting the sending and receiving levels automatically in accordance with the line current values, so that the optimal communication level is automatically set. The circuit section to determine the AGC characteristic is formed by the group of resistors R41, R43 and R44 connected to the AGC terminal of the speech IC. The AGC gain is high wen the resistor values are small, and the AGC gain is low when the resistor values are large. The AGC gain is adjusted by ON/OFF setting of SW6-2 and 3 connected to R43 and R44.

9) Manual Pad

The manual pad is used for a countermeasure by the ON setting of SW6-1 when howling has occurred because of line conditions. (normally set to OFF)

Note: Adjustment Sequence of Characteristics
Since individual characteristics are interrelated to each other, the settings shall be performed in the following sequence:

(1) DC resistance
(2) Return loss
(3) Sending level
(4) Receiving level
(5) Side tone level

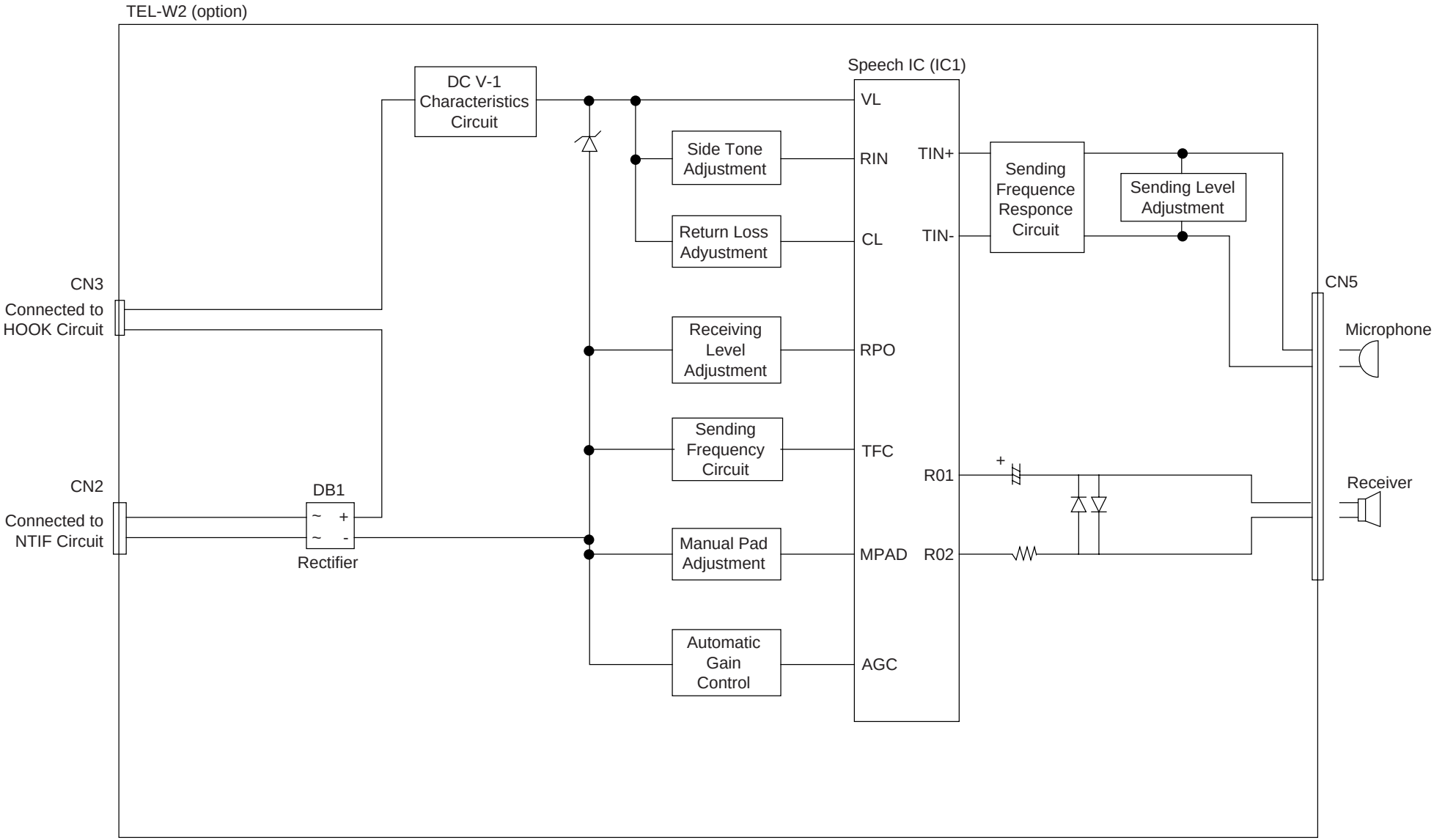


Figure A3.5.2 Block Diagram of TEL-W2 (option)

TEL-W2 (1/2)
Each country's hardware parameters comparison table.

Dip-switch No.		Sweden	Finland	The Netherlands	Ireland	Portugal	New Zealand	Australia	Remarks
SW1	1	ON	ON	OFF	OFF	OFF	OFF	OFF	Balancing Network
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	3	OFF	OFF	OFF	OFF	OFF	OFF	ON	
	4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	5	OFF	OFF	OFF	OFF	ON	OFF	OFF	
	6	OFF	OFF	ON	OFF	OFF	OFF	OFF	
	7	OFF	OFF	OFF	ON	OFF	OFF	OFF	
	8	OFF	OFF	OFF	OFF	OFF	ON	OFF	
SW2	1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Impedance Matching
	3	ON	ON	ON	ON	ON	OFF	OFF	
	4	OFF	OFF	OFF	OFF	OFF	ON	OFF	
	5	OFF	OFF	OFF	OFF	OFF	OFF	ON	
	6	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	7	OFF	OFF	OFF	OFF	OFF	OFF	OFF	DC Resistance
	8	ON	ON	ON	ON	ON	ON	ON	Impedance Setting
SW3	1	ON	ON	ON	ON	ON	ON	OFF	Sending Frequency Setting
	2	ON	ON	ON	ON	ON	ON	OFF	
	3	ON	ON	OFF	ON	ON	OFF	OFF	Sending Level Setting
	4	OFF	OFF	ON	OFF	ON	ON	OFF	
	5	OFF	OFF	OFF	ON	ON	ON	OFF	
	6	ON	ON	ON	OFF	OFF	OFF	OFF	
	7	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not Used
	8	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
SW5	1	ON	ON	OFF	ON	ON	OFF	ON	Rx Frequency (FLUP)
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Receiving Level Setting
	3	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	4	OFF	ON	ON	OFF	ON	ON	ON	
	5	OFF	ON	ON	OFF	OFF	ON	OFF	
	6	ON	OFF	OFF	ON	ON	OFF	ON	
	7	ON	ON	ON	ON	ON	ON	ON	
	8	ON	ON	OFF	ON	ON	ON	OFF	Rx Frequency (FHUP)
SW6	1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Manual Pad Setting
	2	OFF	OFF	OFF	ON	ON	ON	OFF	Automatic Gain Control
	3	ON	ON	OFF	OFF	OFF	OFF	ON	
	4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not Used
	5	ON	ON	OFF	ON	OFF	OFF	OFF	Tx Frequency Setting
	6	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Not Used

TEL-W2 (2/2)
Each country's hardware parameters comparison table.

Dip-switch No.		Spain	Greece	Switzer-land	Austria			Remarks
SW1	1	OFF	OFF	ON	OFF			Balancing Network (Side-tone Setting)
	2	ON	OFF	OFF	ON			
	3	OFF	OFF	OFF	OFF			
	4	OFF	ON	OFF	OFF			
	5	OFF	OFF	OFF	OFF			
	6	OFF	OFF	OFF	OFF			
	7	OFF	OFF	OFF	OFF			
	8	OFF	OFF	OFF	OFF			
SW2	1	OFF	OFF	OFF	OFF			
	2	OFF	OFF	ON	ON			Impedance Matching Setting
	3	ON	ON	OFF	OFF			
	4	OFF	OFF	OFF	OFF			
	5	OFF	OFF	OFF	OFF			
	6	OFF	OFF	OFF	OFF			
	7	ON	ON	OFF	OFF			DC Resistance
	8	OFF	OFF	OFF	OFF			Impedance Setting
SW3	1	ON	ON	OFF	OFF			Sending Frequency Setting
	2	ON	ON	OFF	OFF			
	3	OFF	ON	OFF	OFF			Sending Level Setting
	4	ON	ON	OFF	OFF			
	5	OFF	ON	ON	ON			
	6	ON	OFF	OFF	OFF			
	7	OFF	OFF	OFF	OFF			Not Used
	8	OFF	OFF	OFF	OFF			
SW5	1	OFF	OFF	ON	ON			Rx Frequency (FLUP)
	2	ON	OFF	ON	ON			Receiving Level Setting
	3	OFF	ON	OFF	OFF			
	4	ON	ON	OFF	OFF			
	5	OFF	ON	ON	ON			
	6	OFF	OFF	OFF	OFF			
	7	ON	OFF	OFF	OFF			
	8	OFF	OFF	OFF	OFF			Rx Frequency (FHUP)
SW6	1	OFF	OFF	OFF	OFF			Manual Pad Setting
	2	OFF	OFF	OFF	OFF			Automatic Gain Control
	3	OFF	OFF	OFF	OFF			
	4	OFF	OFF	OFF	OFF			Not Used
	5	OFF	OFF	OFF	OFF			Tx Frequency Setting
	6	OFF	OFF	OFF	OFF			Not Used

3-3 TEL-W1 circuit diagram

Note: Refer to each country's hardware parameter comparison table.

1) Speech IC

General functions of the speech IC are as follows:

- Basic speech functions included.
- Separate receive pre-amplifier with signal output terminal
- Separate receive power amplifier input terminal.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amplifier input terminal.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifier are provided with AGC in accodance with the line current.

2) Sending Level Adjustment

The sending level is adjusted by the selection of resistors allocated for individual countries by the dip-switch settings. The dip-switch set to ON corresponds to the country as shown in the table below.

Country	Dip-switch	Symbol
UK	SW3-1	R47
Italy	SW3-2	R48
Denmark	SW3-3	R55
Norway	SW3-4	R56
Belgium	SW3-1,4	R47, R56

- Increase the resistor value to set louder sending level (i.e. lower SLR value).
- Lower the resistor value to set quieter sending level (i.e. higher SLR value).

3) Receiving Level Adjustment

The receiving level is adjusted by the selection of resistors allocated for individual countries by the dip-switch settings. The dip-switch set to ON correspond to the country as shown in the table below.

Country	Dip-switch	Symbol
UK	SW5-1	R35
Italy	SW5-2	R36
Denmark/ Belgium	SW5-3	R72
Norway	SW5-4	R73

- Lower the resistor value to set louder receiving level (i.e. lower RLR value).
- Increase the resistor value to set quieter receiving level (i.e. higher RLR vallue).

4) Sending Frequency Response Adjustment

The adjustment of the high range frequency response is performed by changing the capacitance of the capacitor C33. Increase the value of C33 to lower the amplitude of the high range level. Decrease the value of C33 to raise the amplitude. The adjustnent of the low range frequency response is performed by changing the capacitance of the capacitors C35 and C37. Decrease the capacitance of C35 and C37 to lower the amplitude of the low range level. Increase the capacitance of C35 and C37 to raise the amplitude.

Note: When the sending frequency response is changed, the sending loudness rating (SLR) value may change. It is required to measure the SLR value again and verify it.

5) Receiving Frequency Response Adjustment

The adjustment of the low range frequency response is performed by changing the capacitance of the capacitor C26. Increase the capacitance of C26 to raise the amplitude of the low range level. Decrease the capacitance of C26 to lower the amplitude.
The adjustment of the high range-frequency response is performed by changing the capacitance of the capacitors C29. Decrease the capacitance of C29 to raise the amplitude of the high range level. Increase the capacitance of C29 to lower the amplitude of the high range level.

Note: When the receiving frequency response is changed, the receiving loudness rating (RLR) value may change. It is required to measure the RLR value again and verify it.

6) Side-Tone Adjustment

The side-tone adjustment is performed by the C-R networks corresponding to the individual countries. For adjusting the side tone, select the corresponding C-R network by the designated DIP switch and adjust the STMR value to the specified value by the values of capacitors and resistors.

The dip-switch set to ON corresponds to the country as shown in the table.

Note: When the C-R network is changed for the side tone adjustment, the receiving loudness rating (RLR) value may change. It is required to measure the RLR value again and verify it.

Country	Dip-switch	Symbol (network)
UK	SW1-1	R19, C16, R22
Italy/ Belgium	SW1-2	R20, C17, R23
Denmark	SW1-3	R21, C18, R24
Norway	SW1-4	R62, C47, R63

7) DC V-I Characteristics

The DC V-I characteristics at the time of the line supplement is performed by diodes D10, D11 and SW4-5, and can be selected from two types by setting of dip-switch 4-5. In case SW4-5 is set to ON, since D10, and D11 are short-circuited, V/I value is lowered. In case SW4-5 is set to OFF, V/I value is raised.

8) Return Loss Adjustment

The return loss adjustment is performed by the installed C-R networks corresponding to the individual country. For adjusting the return loss, select the corresponding C-R network by the designated DIP switch and adjust the return loss by changing the values of capacitors and resistors.

The dip-switch set to ON corresponds to the country as shown in the table.

Country	Dip-switch	Symbol (network)
UK	SW1-5	R29, C21, R26
Italy/Belgium	SW1-6	R30, C22, R27
Denmark	SW1-7	R31, C23, R28
Norway	SW1-8	R76, C54, R77

9) AGC (automatic gain control)

AGC is a function for adjusting the sending and receiving levels automatically in accordance with the line current values, so that the optimal communication level is automatically set. The circuit section to determine the AGC characteristics is formed by resistors R41 and R43 connected to the AGC terminal of the speech IC. The AGC gain is high when the resistor values are small, and the AGC gain is low when the resistor values are large.

10) Pulse Dialling

Changing the make-and-break ratio is determined by the dip-switch SW4-1 and 2.

- Setting SW4-1 to ON and SW4-2 to OFF corresponds to a 33% make ratio.
- Setting SW4-1 to OFF and SW4-2 to ON corresponds to a 40% make ratio.

11) MF dialling

The MF signal sending level is adjusted by the selection of resistors and capacitors allocated for the individual countries by the dip-switch setting.

The dip-switch set to ON corresponds to the country as shown in the table below.

Country	Dip-switch	Symbol	Rated Value
UK	SW2-1	C31, R38	-9 dBm/-11 dBm
Italy/Belgium	SW2-2	C70, R39	-6 dBm/-8 dBm
Denmark	SW2-3	C71, R80	-9 dBm/-11 dBm
Norway	SW2-4	C72, R81	-9 dBm/-11 dBm

Increase the resistor value to lower the MF signal sending level, and decrease the resistor value to raise the sending level. The difference between the high and low groups of the MF signal is performed by changing the capacitance of the capacitor. The allowable level difference between the high and low groups is (2±1) dB.

12) Manual Pad

The manual pad is used as a countermeasure by the ON setting of SW3-8 when howling is occurs because of line conditions. (normally set to OFF)

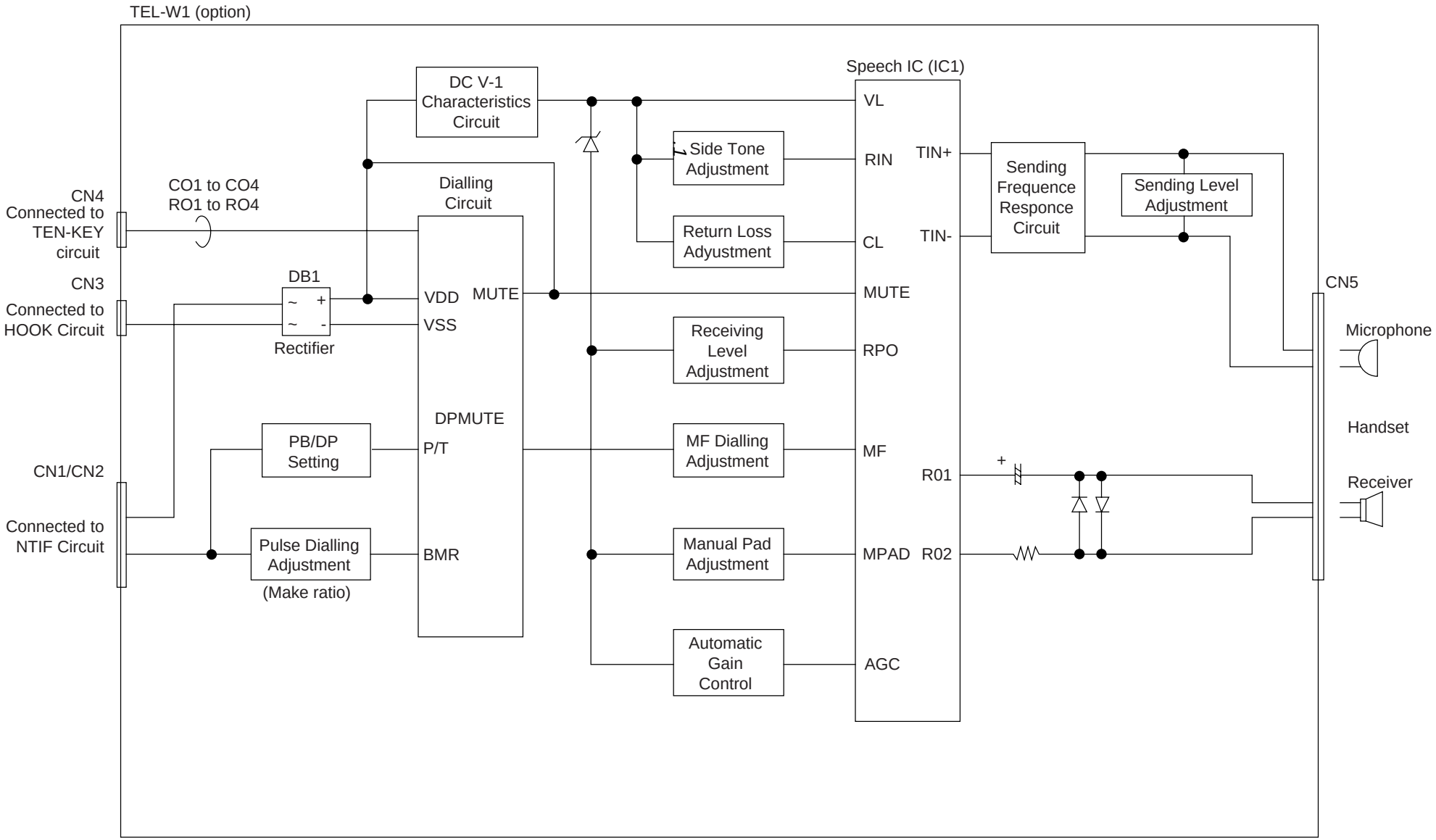


Figure A3.5.3 Block Diagram of TEL-W1 (option)

TEL-W1
Each country's hardware parameters comparison table.

Dip-switch No.		United Kingdom	Italy	Denmark	Norway	Belgium			Remarks
SW1	1	ON	OFF	OFF	OFF	OFF			Balancing Network (Side Tone Setting)
	2	OFF	ON	OFF	OFF	ON			
	3	OFF	OFF	ON	OFF	OFF			
	4	OFF	OFF	OFF	ON	OFF			
	5	ON	OFF	OFF	OFF	OFF			Impedance Matching Setting
	6	OFF	ON	OFF	OFF	ON			
	7	OFF	OFF	ON	ON	OFF			
	8	OFF	OFF	OFF	ON	OFF			
SW2	1	ON	OFF	OFF	OFF	OFF			
	2	OFF	ON	OFF	OFF	ON			MF-tone Level Setting
	3	OFF	OFF	ON	OFF	OFF			
	4	OFF	OFF	OFF	ON	OFF			
SW3	1	ON	OFF	OFF	OFF	ON			Seding Level Setting
	2	OFF	ON	OFF	OFF	OFF			
	3	OFF	OFF	ON	OFF	OFF			
	4	OFF	OFF	OFF	ON	ON			
	5	ON	OFF	ON	ON	OFF			MF-tine Level Setting
	6	ON	ON	OFF	OFF	ON			Automatic Gain Control
	7	OFF	ON	OFF	OFF	OFF			
	8	OFF	OFF	OFF	OFF	OFF			Manual Pad Setting
SW4	1	ON	OFF	ON	ON	ON			MEKE:
	2	OFF	ON	OFF	OFF	OFF			
	3	ON	ON	OFF	OFF	ON			RATE:
	4	OFF	OFF	ON	ON	OFF			
	5	OFF	ON	ON	ON	ON			DC Resistance
	6	OFF	OFF	ON	OFF	OFF			Threshold
SW5	1	ON	OFF	OFF	OFF	OFF			Receiving Level Setting
	2	OFF	ON	OFF	OFF	OFF			
	3	OFF	OFF	ON	OFF	ON			
	4	OFF	OFF	OFF	ON	OFF			

3-4 TEL-W2D circuit diagram

TEL-W2D board is for the Germany version only.

1) Speech IC

General functions of the speech IC are as follows:
- Basic speech functions included.
- Separate receive pre-amplifier with signal output terminal
- Separate receive power amplifier input terminal, cause it is possible to mixing input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amplifier input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifiers are provided with AGC in accodance with the line circuit.

2) Sending Level Adjustment

The sending level can be adjusted by resistor R55 connected in parallel with the section in front of the transmitter. Increase the resistor value to lower the sending level, and decrease the value to raise the level.

3) Receiving Level Adjustment

The receiving level is determined by the resistor value of R35. Decrease the resistor value of R35 to lower the receiving level, and increase it to raise the level.

4) Frequency Response Adjustment

The high range frequency response of the transmitter is determined by the capacitance of C61. Increase the capacitance of C61 to lower the high range level, and decrease the capacitance to raise the high range level. The low range frequency response is determined by the capacitance of C36 and C37. Increase the capacitance of those capacitors to raise the low range level, and decrease the capacitance to lower the level. When the capacitance of C36 and C37 are changed, both capacitors should have the same value.

The high range frequency response of the receiver is determined by the capacitance of C29. Increase the capacitance of C29 to lower the high range level, and lower the capacitance to raise the level. The low-range frequency response is determined by the capacitance of C26. Increase the capacitance to raise the low-range level, and lower the capacitance to decrease the low-range level.

5) Side-Tone Adjustment

The side-tone level is determined by the values of R19, R22 and C16.
Note: Changing the side tone level setting affects the sending and receiving levels, the verification and readjustment of the sending and receiving levels, and the verification and the readjustment of the side tone level are required.

6) DC V-I (voltage-versus-current) Characteristics Adjustment

The DC V-I characteristics can be changed by mounting or not mounting D10 and D11. When D10 and D11 are mounted the DC V/I value is raised. When these diodes are deleted the DC V/I value is lowered. R202 is a 0 W resistor, which is mounted when D10 and D11 are not being installed.

7) Return Loss

The circuit section which determines the return loss is formed by R26, R29 and C21.

8) AGC (automatic gain control)

The gain of the AGC is determined by the resistor value of R41. To lower the AGC gain, raise the resistor value of R41. To raise the gain, decrease the resistor value.

9) Charge Pulse Elimination Characteristics

The Germany network sends 16kHz pulses for charging to the terminal while the terminal is connected to the line. The terminal should not cause any mulfunction for the communication by the charge pulses. In TEL-W2D PCB a parallel oscillation filter is formed by L3, C305/L2 and C301 which eliminates the charge pulses.

10) Manual Pad

The sending/receiving levels are lowered by 6dB when SW6-1 is set to ON. Use the setting as a countermeasure when howling is generated because of line conditions (normally set to OFF).

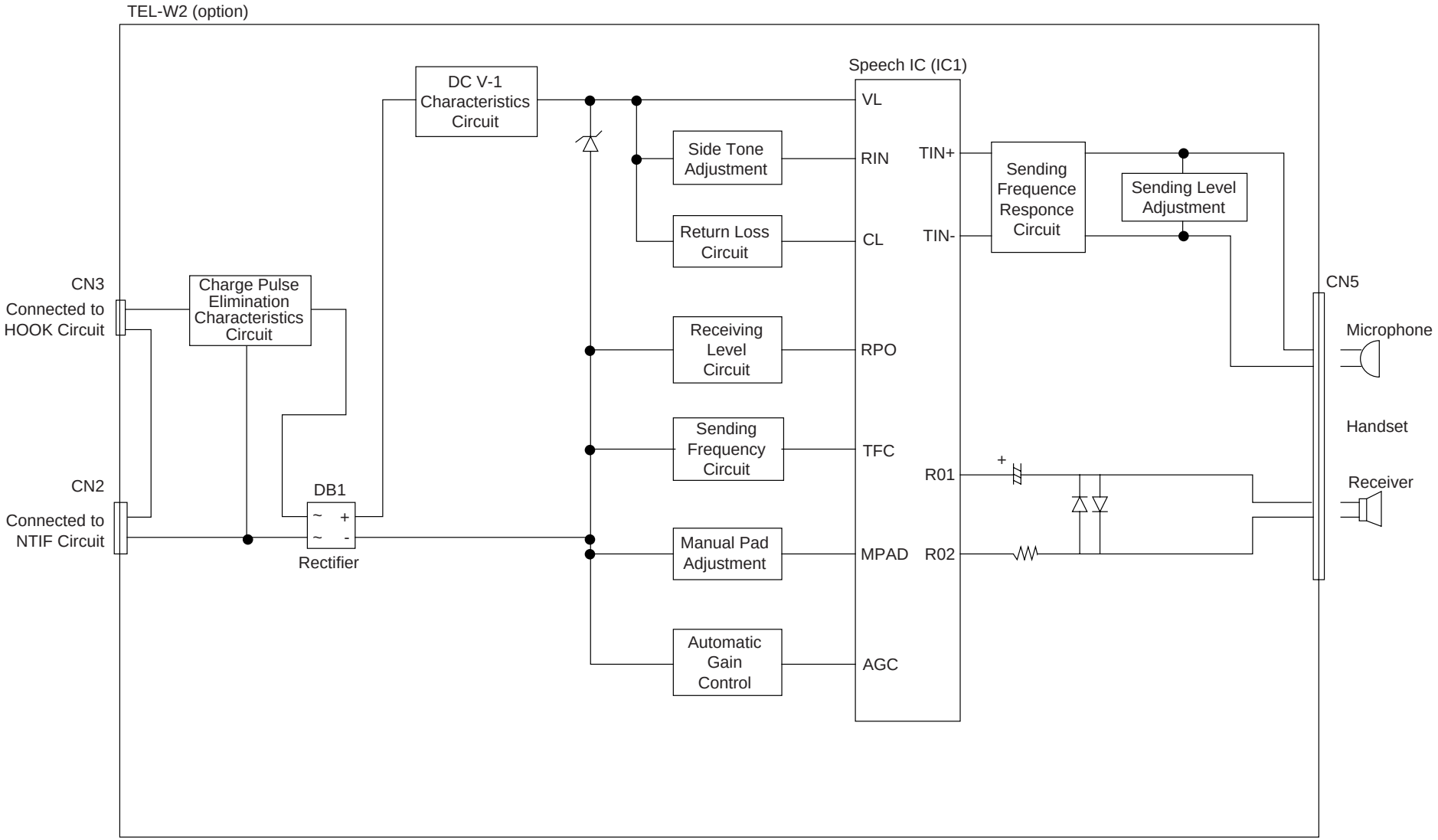


Figure A3.5.4 Block Diagram of TEL-W2D (option)

3-5 TEL-W2F circuit diagram

Note: Refer to each country's hardware parameters comparison table.

1) Speech IC

General functions of the speech IC are as follows:
- Basic speech functions included.
- Separate receive pre-amplifier with signal output terminal
- Separate receive power amplifier input terminal, cause it is possible to mixing input.
- Balanced input for microphone input to provide immunity to common mode noise.
- MF pre-amplifier input terminal is possible to mixing input.
- Dial pulse waveform improvement circuit included.
- Manual pad function included.
- The transmit, receive, and DTMF amplifier are provided with AGC in accodance with the line current.

2) Sending Level Adjustment

The sending level is determined by the circuit section formed by resistors R55, R56,R57 and R58, and the bits of R110-R114 connect the resistors in parallel. The sending level is maximum when all the bits of R110-R114 are set to "Mount", and minimum when all the bits of R110-R114 are set to "Not mount".

3) Receiving Level Adjustment

The receiving level is determined by the circuit section formed by resistors R34, R35, R36, R37 and R38, and the bits of R101-R105. The receiving level is minimum when all the bits of R101-R105 are set to "Mount", and maximum when all the bits of R101-R105 are set to "Not mount".

4) Sending Frequency Response Adjustment

The circuit section affecting the low range level of the sending frequency response is formed by capacitors, C35 and C36, which are connected in series to the section in front of a transmitter.

Note: When the fequency response is changed, the sending and receiving levels may be changed. Verify the sending and receiving levels after adjustment.

5) Side Tone Adjustment

Adjustment is unavailable.

6) DC V-I (voltage-versus-current) Characteristics Adjustment

Adjustment is unavailable.

7) Return Loss

Adjustment is unavailable.

8) AGC (automatic gain control)

Adjustment is unavailable.

9) Manual Pad

Adjustment is unavailable.

(1) DC resistance
(2) Return loss
(3) Sending level
(4) Receiving level
(5) Side tone level

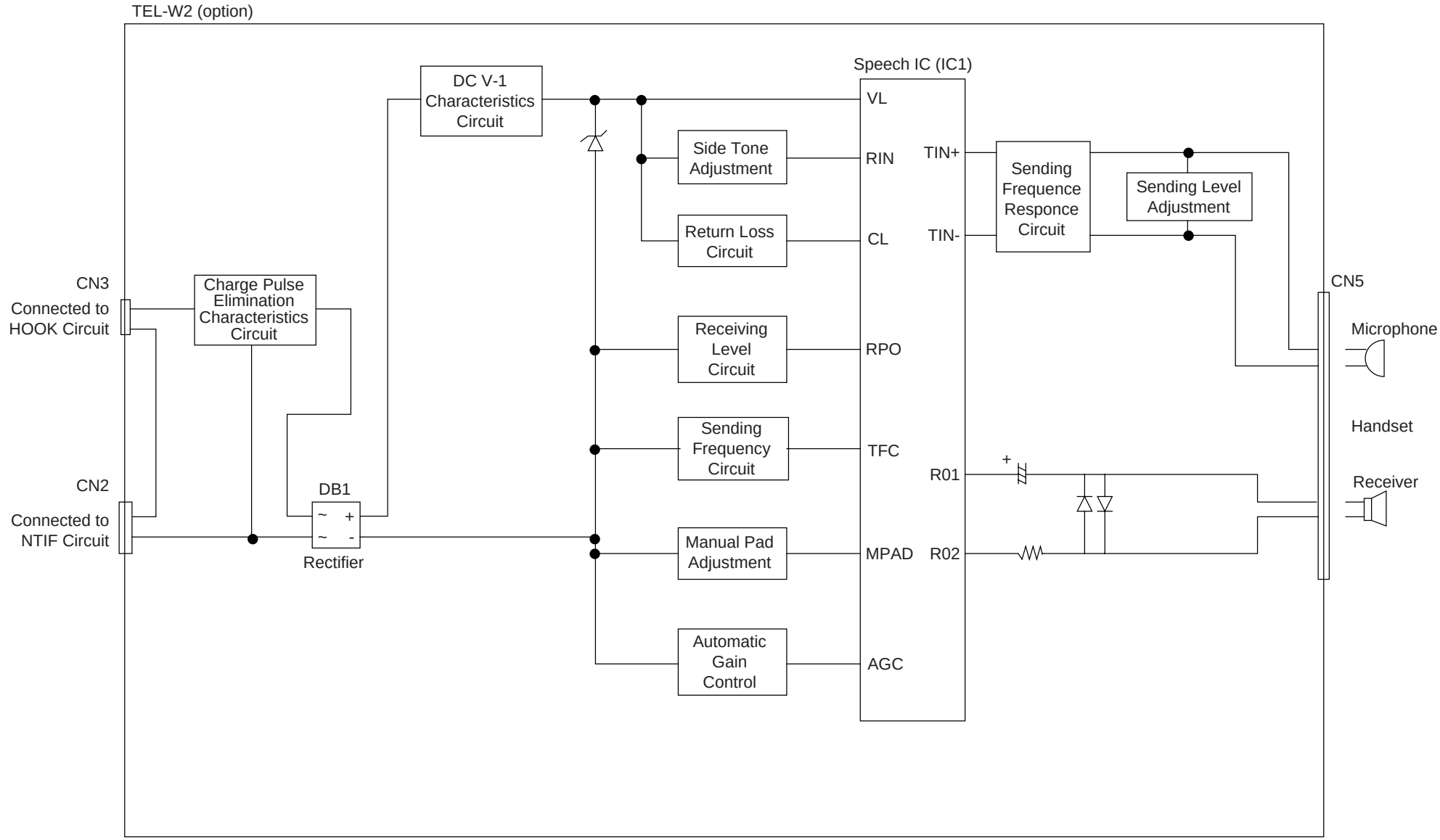


Figure A3.5.5 Block Diagram of TEL-W2Fº (option)

A3.6 NTIF (NCU and TEL interface) Circuit Diagram (option)

NTIF board is used as an interface board of NCU, TEL and HOOK board. (Expect US version) The relationship between NTIF and the peripheral block diagram is shown in A3.10 OKIFAX 5400 facsimile transceiver.

1. Block diagram

NTIF board circuit consists of the following blocks:

1) Dialing

The selection between the MF dial and the dial pulse (DP) is performed by SW2 setting.
SW4-3 should be set to ON, and SW4-4 set to OFF on TEL-W1.

2) Route selection

The shunt wire activation for the UK version and the cascade connection of the external TEL are performed by the ON/OFF settings of SW3-1,2 and 3. The Dip-switch settings are shown below.

Each country's hardware parameters comparison table:

Dip-sw 3 Setting Table (U.K.)

No.	Setting	Remarks
1	OFF	Route change
2	ON	
3	OFF	
4	OFF	Not used

Dip-sw 3 Setting Table (Except U.K.)

No.	Setting	Remarks
1	ON	Route change
2	OFF	
3	ON	
4	OFF	Not used

3) Ringer circuit (for ABB/ABX type)

This circuit is used for the buzzer sound when optional telephone set is mounted on the facsimile transceiver.

4) Ring impedance

The circuit section related to the ring impedance is formed by C1, R4. R5, and R6.

A3.7 MEMO (memory) Circuit Diagram (option)

By mounting this optional memory board (MEM), it can be used for the expansion memory.

1. Block diagram

Figure A3.7.1 shows a related signal of memory board.

Memory board circuit consists of the following block.

1) 512 kbyte MOS Dynamic RAM x 8 (IC2 to IC9).
Used as follows:
- Picture memory for the ECM send/receive modes.
- Picture memory for the memory transmission mode.
- Picture memory for the retransmission data.
- Picture memory for the reception in memory

2) Memory capacity

- 4 Mbyte (512 k x 8 bit x 8) memory board can be added for OKIFAX 5400.

The relationship between memory capacity and mounted boards are shown in the following table.

Memory Capacity	IC2	IC3	IC4	IC5	IC6	IC7	IC8	IC9
4 Mbyte	◯	◯	◯	◯	◯	◯	◯	◯

◯ : mounted

× : not mounted

Note: Back-up time on electrical interruption; Min. one hour.

3) Image memory capacity

	5400 Memory Condition	A4 Setting [pages]	LEGAL Setting [pages]
With Option Board	Standard (without option)	187	179
	4 Mbyte	307	299

Note: No. of sheets are counted provided that ITU-T No.1 sample document is used.
No. of sheets are typical value.

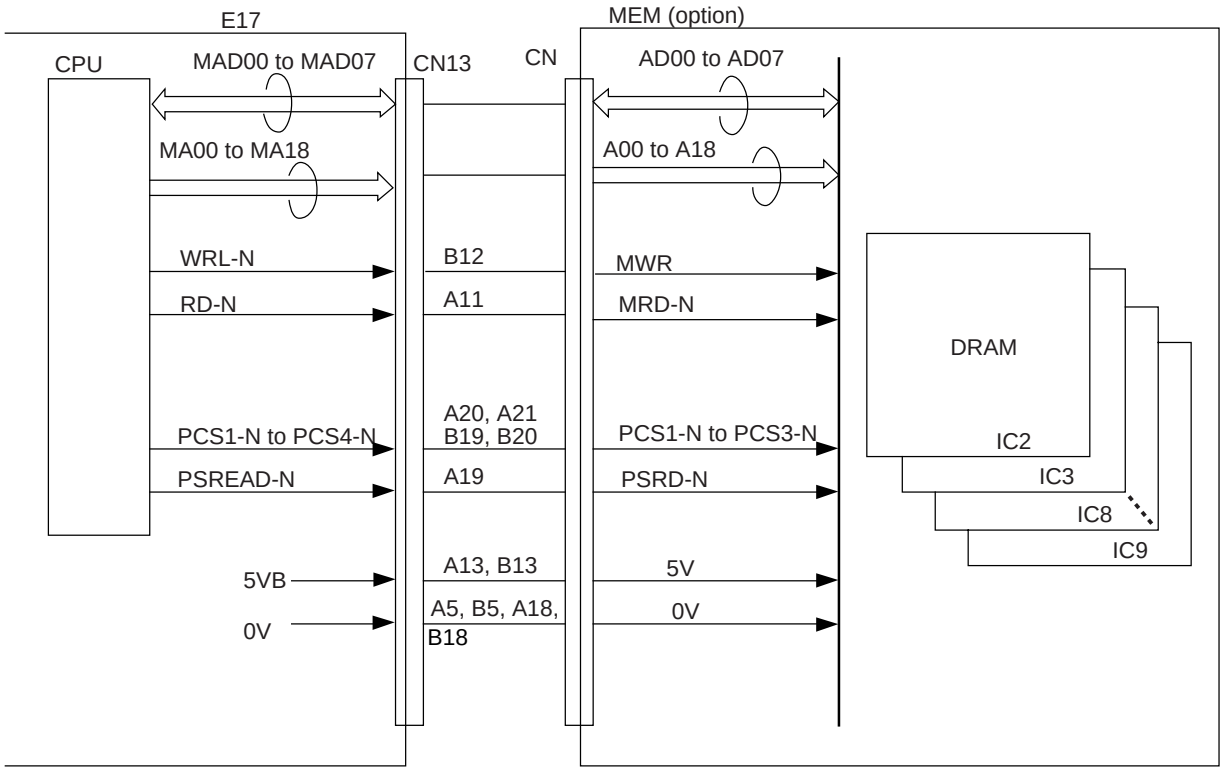


Figure A3.7.1 Related Signals of Memory Board (option)

A3.8 CTR (PC interface unit) Circuit Diagram (5400 option)

CTR board is used as an interface board of PC and FAX when PC is connected to facsimile machine.

1. Block diagram

CTR board circuit is formed by Receiver, Driver, and 1284-I/F.

Figure A3.8.1 shows related signals of CTR board.

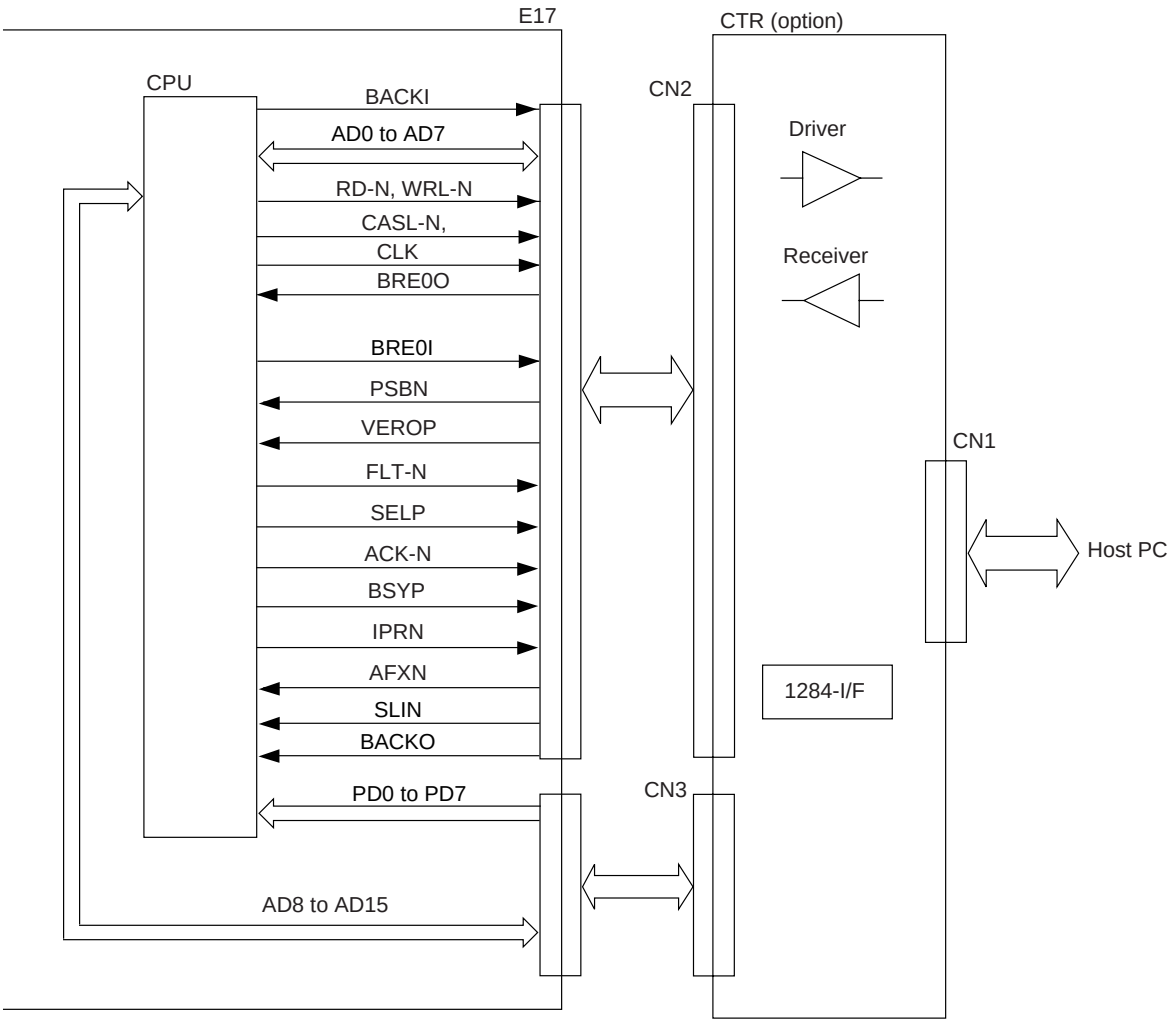


Figure A3.8.1 Related Signals of P050 (PC interface unit)

2. Function

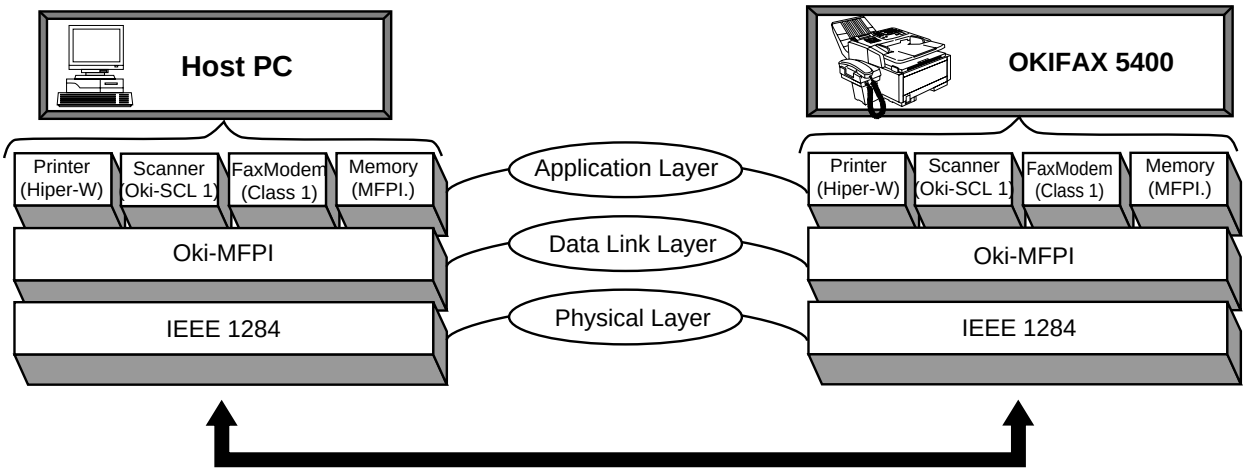
2.1 Summary

By installing the optional board (Bi-Centro), the following MFP (Multi-Function Peripheral) function can be realized.

Example:

- PC printer function (300/Q600 dpi) 8PPM
- PC Scanner function 300 dpi
- PC Fax Modem function (TIA/EIA Class 1)
- PC Memory function
- PC Multiplex function Disable Enable

Interface between Fax machine and Host PC consists of three layer structure as detailed below, each sub-system can be operated at the same time by adopting a Oki-MFPI protocol in both Fax machine and Host PC.



a) Application layer:
Performs a function control of each sub-system at the Host PC and Fax machine.

b) Data-Link layer:
Performs a protocol control at the Host PC and Oki-MFPI (TIA IS650 Level 1 requirement).
(Packetize/Unpacketize, flow control, Transfers command/data between each sub-system)

c) Physical layer:
Has a bi-directional interface control circuit which conforms to IEEE1284.
Standard mode: Compatible, Nibble
Oki special mode: MCE (Mode Change Express)

Following devices are as sub-system:

1) Printer (HIPER-W: Host based Image PrintER for Windows)
   Encodes a rater image data in Host PC and transfers a data with HIPER-W emulation.

2) Scanner (Oki-SCL 1: Oki-Scanner Control Language 1)
   Transfers and image data of document scanned in Fax machine to the Host PC with Oki-SCL 1 command.

3) FaxModem (TIA/EIA Class 1)
   Send/receive a Class 1 command between Host PC and Fax machine.

4) Memory (MFPL: Multi-Function Peripheral Language)
   By using MFPL command, it is possible to display on screen of Host PC for condition of Fax machine and performs the initial registration of the telephone number used in Fax machine.

A3.9 TQSB (Second tray) Circuit Diagram: option

1. Block diagrm

This board is installed as the optional board.

Figure A3.9.1 shows a block diagram of the second tray (option).

2. Function

Second tray consists of the following functions:

- Paper capacity : 500 sheets
- Paper size : A4, Letter, Legal
- Paper-size selection : Automatic
- Cassette/no-cassette selection : Automatic
- Paper/no-paper selection : Automatic
- Paper route open to facsimile transceiver unit : Automatic decision

Control method:
When second tray is installed with the facsimile transceiver unit, the tray is connected to the facsimile transceiver unit by a connecting cable. The tray is controlled by the command from CPU of PU (printer unit) section.

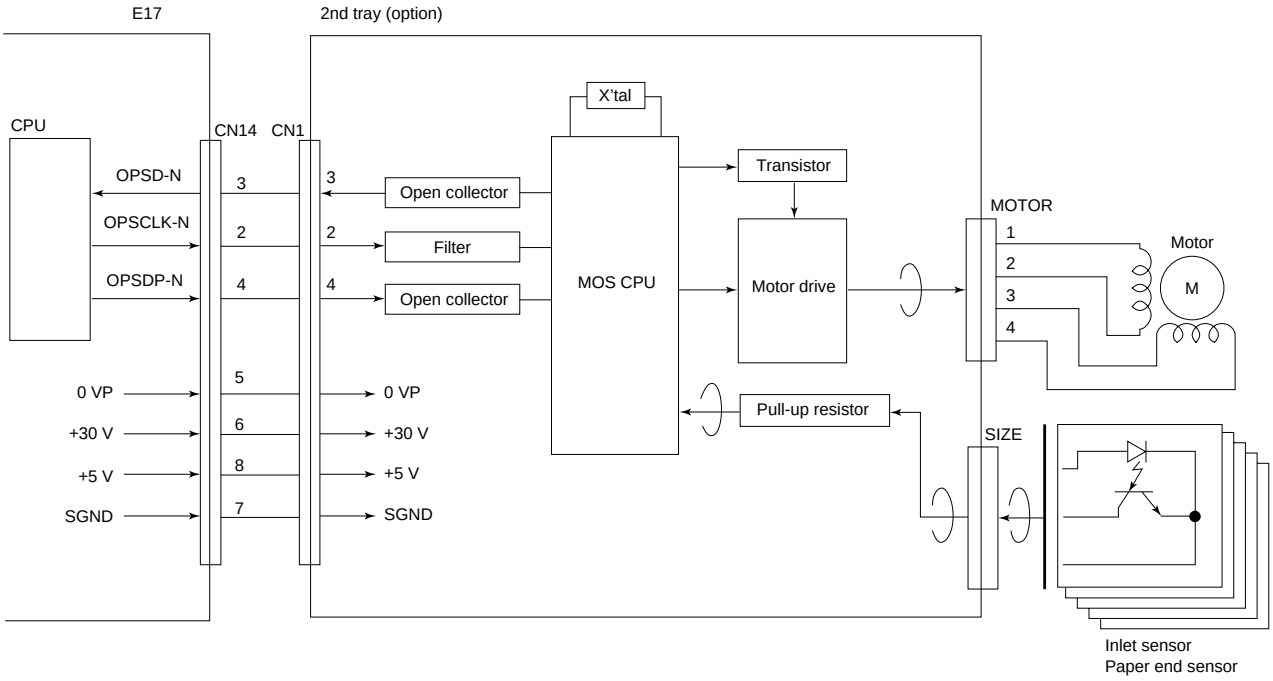


Figure A3.9.1 Block Diagram of 2nd Tray

Appendix B

Descriptions of Print Operation

First Edition

August, 1999

Oki Data Corporation

CONTENTS

APPENDIX B Description of Print Operations

B.1 Mechanical Components

1) EP drum cartridge

The EP (image) cartridge consists of an EP (image) drum, a charger, and a developer. The cartridge forms a toner image on the drum, using an electrostatic latent image formed by the LED print head.

2) Resist motor

This resist motor is a pulse motor of 48 steps/rotation that is two-phase excited by the signal from the E17 board. It drives the hopping roller and the resist roller via two one-way clutches according to the direction of rotation.

3) Drum motor

This drum motor is a pulse motor of 48 steps/rotation that is two-phase excited by the signal from the E17 board and is the main motor of this mechanism.

4) LED head

Image data for each dot on a line from the E17 board is received by the shift registers and latch registers. The Letter size LED head are driven to radiate the image data on to the EP (image) drum.

5) Fuser

The fuser consists of a heater, a heat roller, a thermister and a thermostat.

An AC voltage from the power supply board (1VP/2VP) is applied to the heater under the control of the HEAT-N signal from the E17 board. This AC voltage heats the heater. The E17 board supervises the heat roller temperature via the thermistor, and regulates the heater roller at a predetermined temperature (about 185 ˚C) by connecting or disconnecting the AC voltage supply to the heater.

If the heater roller temperature rises abnormally, the thermostat of the heater voltage supply circuit is activated to cut off the AC voltage supply forcibly.

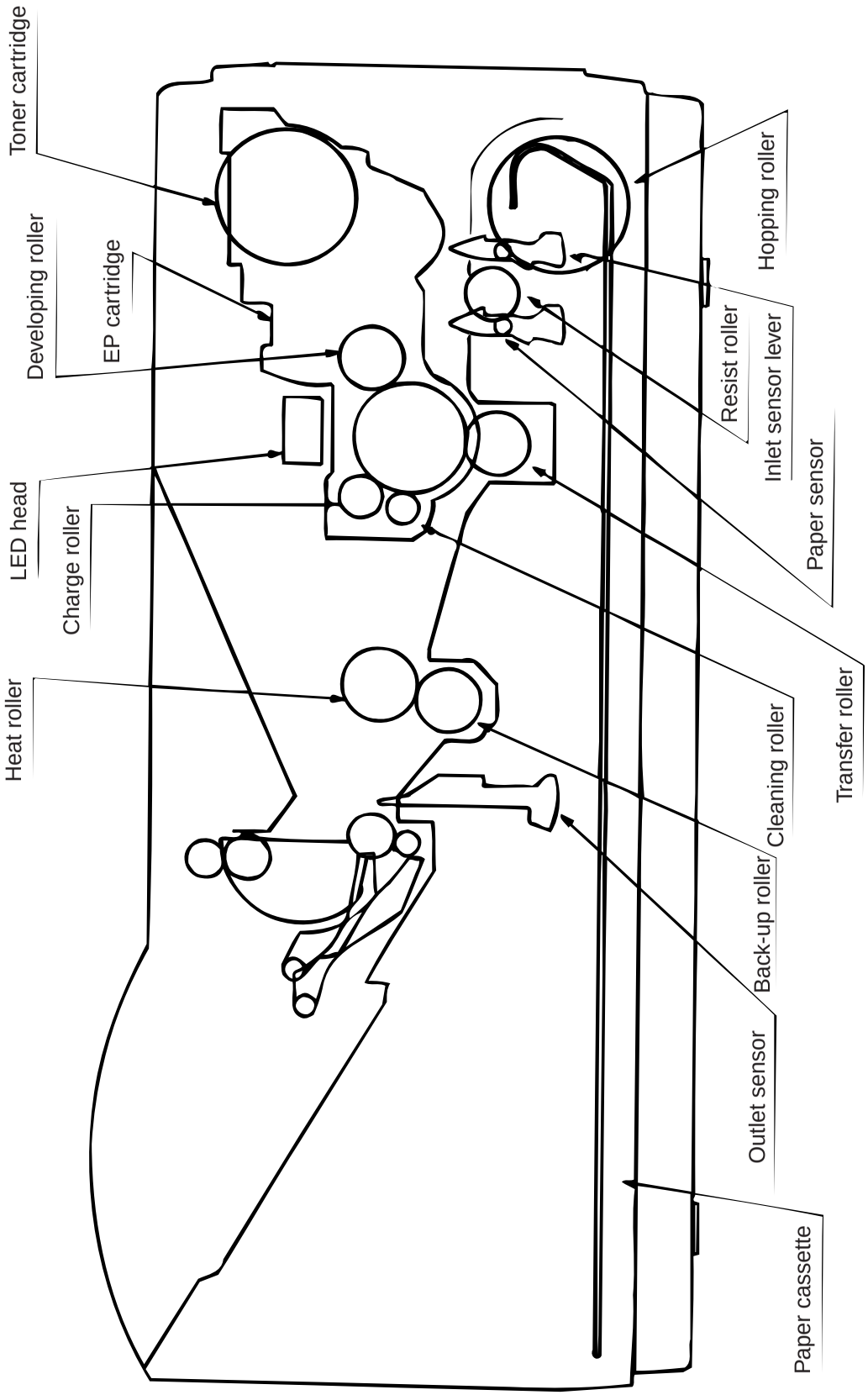


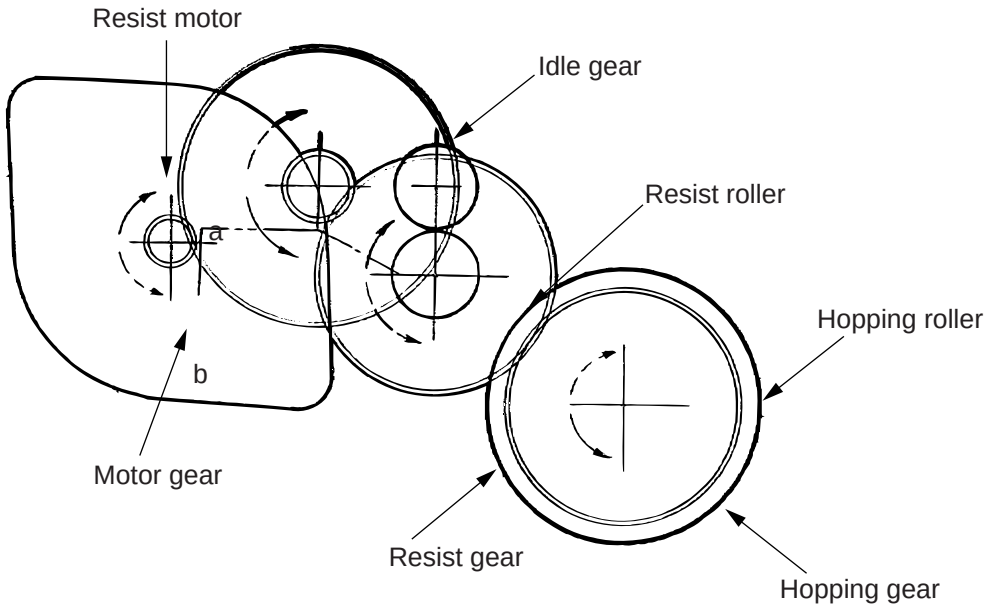
Figure B.1 Layout of Print Station Components

B.2 Description of Print Operations

B.2.1 Process Operations

1) Hopping and feeding

Hopping and feeding are affected by a single resist motor in the mechanism shown below.

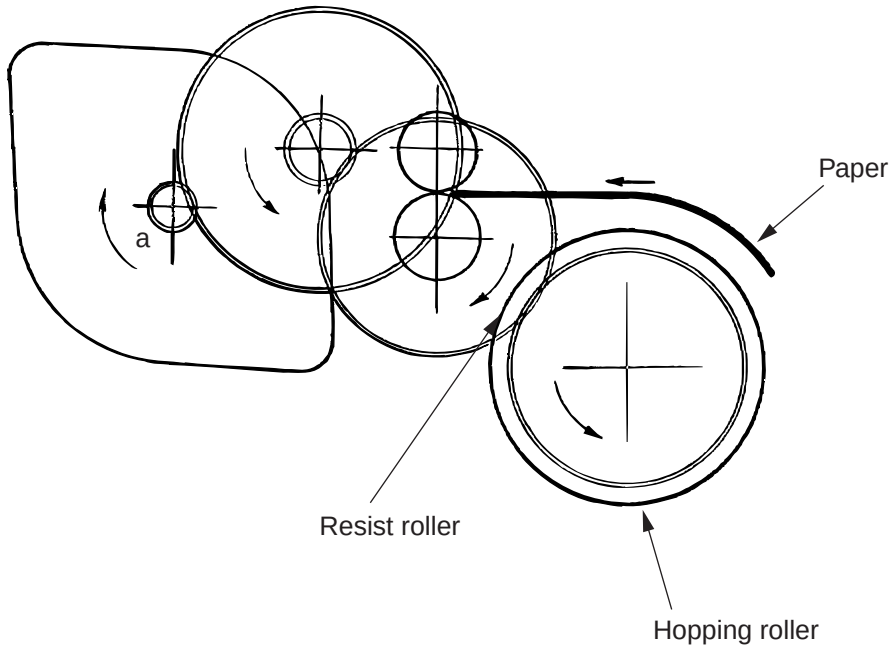


Turning the resist motor in the "a" direction drives the hopping roller. Turning the resist motor in the "b" direction drives the resist roller. The resist gear and hopping gear contain one-way clutch, so that turning each of these gears in reverse direction will not be transmitted to the corresponding roller.

(a) Hopping

① Hopping turns the resist motor in the "a" direction (in the CW direction) and drives the hopping roller to advance the paper until the inlet sensor turns on. (In this case, the resist gear also turns, but the resist roller is prevented from turning by the one-way clutch gear.)

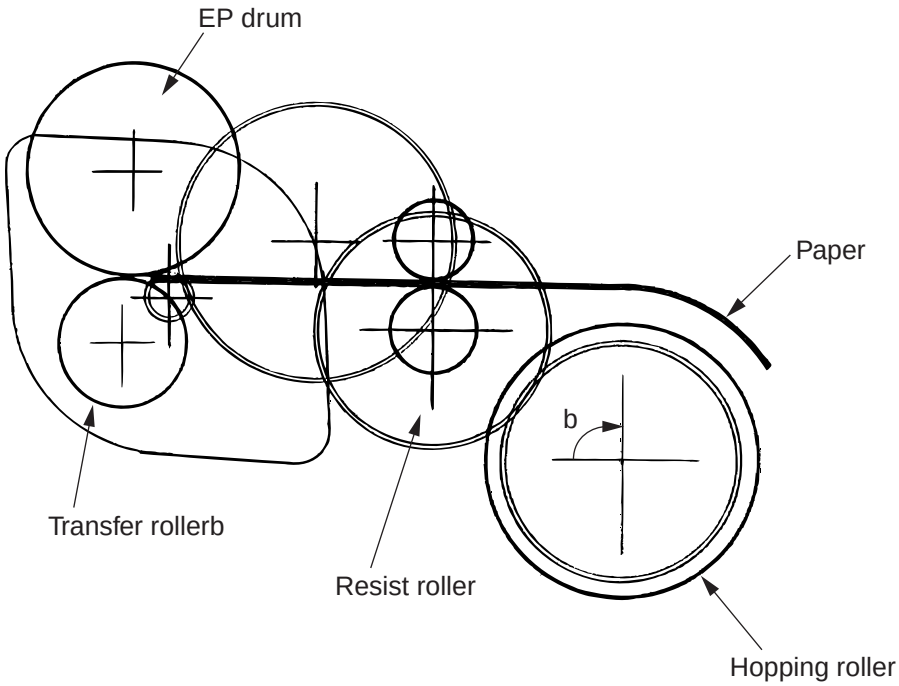
② After the paper has turned on the inlet sensor, the paper is further advanced by a predetermined length until the paper hits the resist roller. (The skew in the paper can thus be corrected.)



CW = Clockwise

(b) Feeding

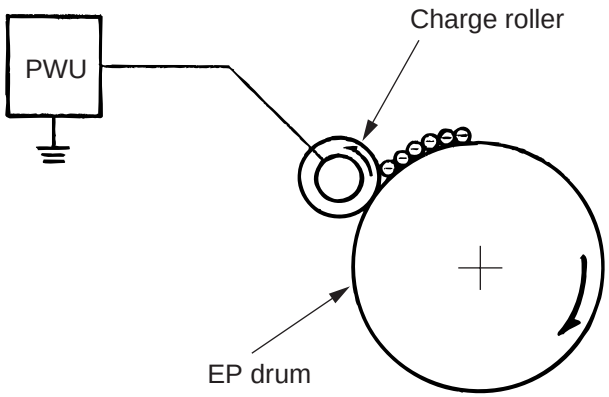
① After end of hopping, turning the resist motor in the "b" direction (in the CCW direction) drives the resist roller to advance the paper. (In this case, the hopping gear also turns, but the hopping roller is prevented from turning by the one-way clutch gear.)
② The paper is further advanced in synchrony with the print data.



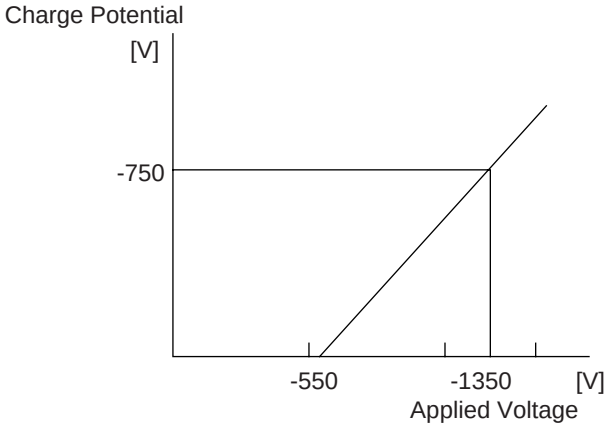
CCW = Counterclockwise

2) Charging

Charging is affected by applying a DC voltage to the charge roller thta is in contact with the EP (image) drum surface.

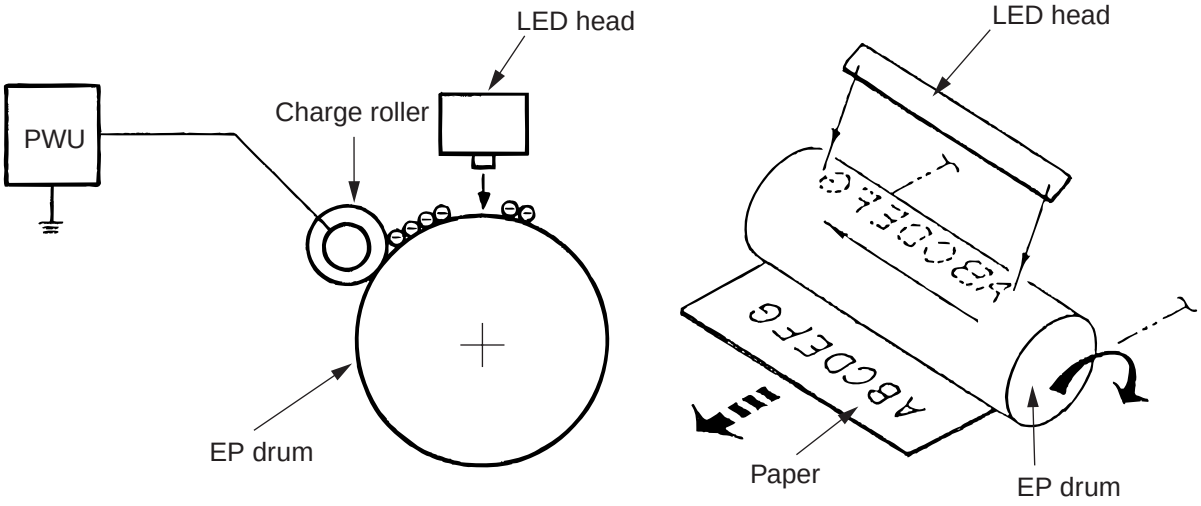


The charge roller is composed of two layers consisting of a conductive layer and a surface protective layer that has elasticity, in order to secure a good contact with the EP (image) drum. When the DC voltage (-1.35 KVDC) applied from the Power Supply Unit exceeds a threshold value, charging begins. The applied voltage is proportional to charge potential with off set of approx. -550V.

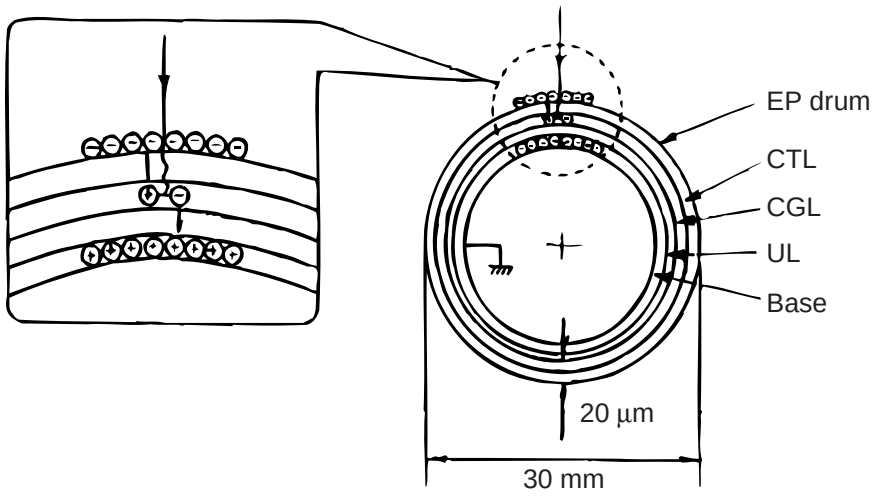


3) Exposure

Light emitted from the LED head irradiates the EP (image) drum surface with negative charges. The surface potential of the irradiated part of the EP drum drops, thereby forming an electrostatic latent image associated with the image signal.



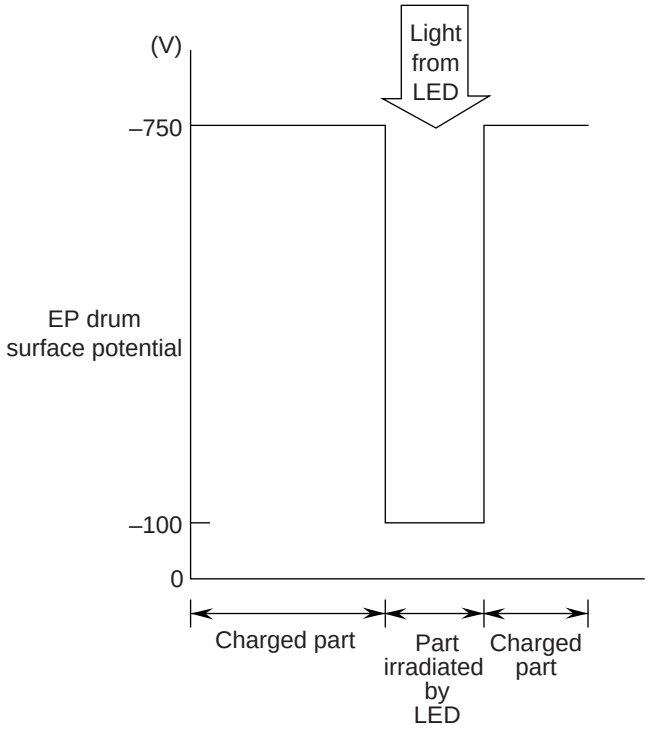
The EP (image) drum is coated with an underlayer (UL), a carrier generation layer (CGL), and carrier transfer layer (CTL) on the aluminum base. The organic photo conductor layer (OPC), comprising a CTL and a CGL, is about 20 μm thick.



The EP (image) drum surface is charged to about -750 V by the contact charge of the charge roller.

When light from the LED head irradiates the EP (image) drum surface, the light energy generates positive and negative carriers in the CGL. The positive carriers are moved to the CTL by an electrical field acting on the EP (image) drum. Likewise, the negative carriers flow into the aluminum layer (ground).

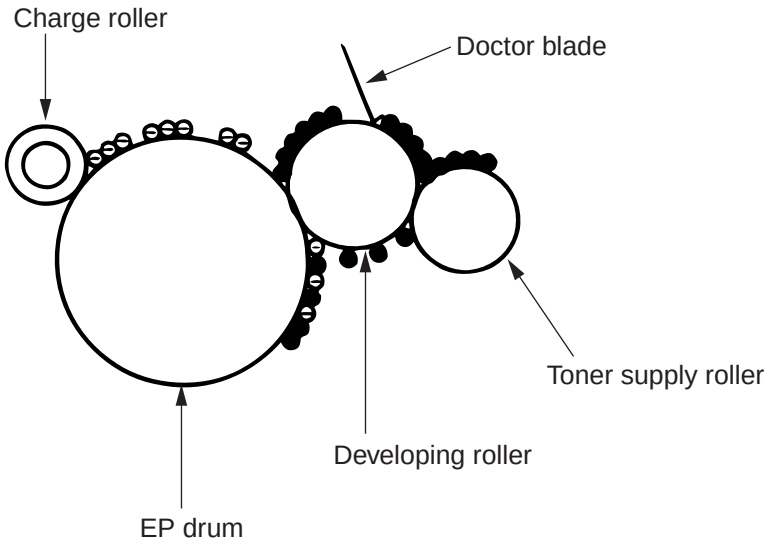
The positive carriers moved to the CTL combine with the negative charges on the EP (image) drum surface accumulated by the contact charge of the charge roller, lowering the potential on the EP (image) drum surface. The resultant drop in the potential of the irradiated part of the EP (image) drum surface forms an electrostatic latent image on it. The irradiated part of the EP (image) drum surface is kept at about -100 V.



4) Developing

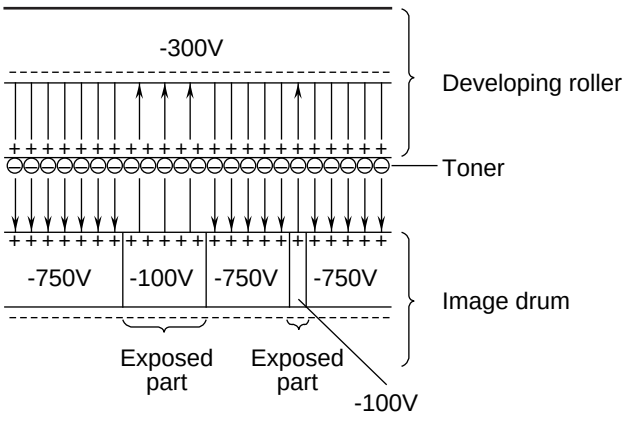
Toner is attracted to the electrostatic latent image on the EP (image) drum surface to convert it into a visible toner image. Developing takes place at the contact between the EP (image) drum and the developing roller.

① As the toner supply roller rotates while rubbing on the developing roller, a friction charge is generated between the developing roller and the toner, allowing the toner to be attracted to the developing roller. (The developing roller surface is charges positive and the toner, negative.)



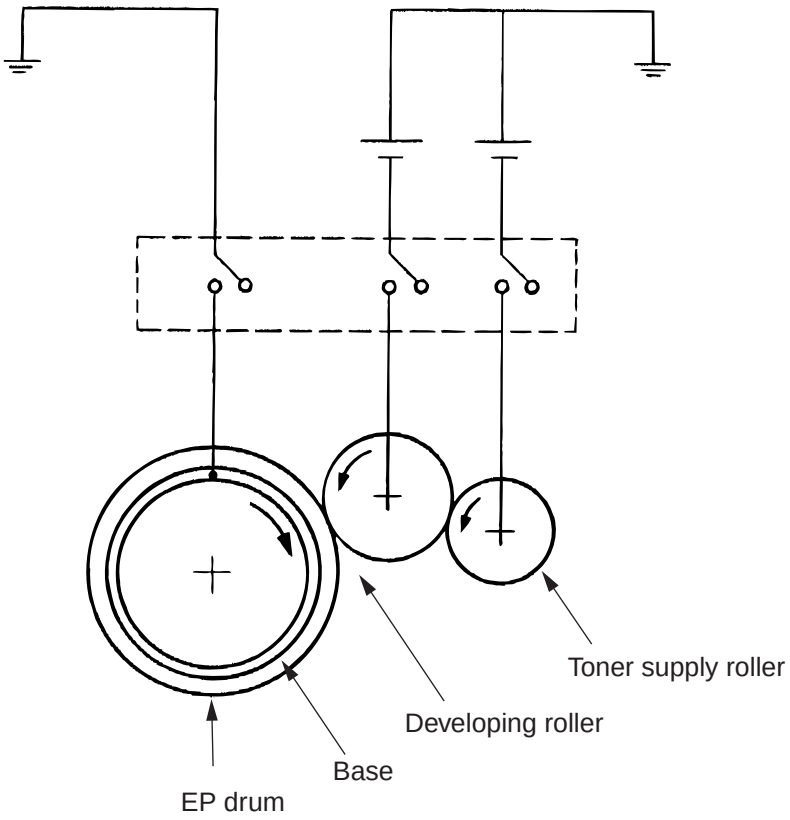
② The toner attracted to the developing roller is scraped off by the doctor blade, forming a thin coating of toner on the developing roller surface.

③ Toner is attracted to the exposed part (low-potential part) of the EP (image) drum at the contact between the EP (image) drum and the developing roller, making the electrostatic latent image visible.



An illustration of activities at the contact point of the image drum surface and the developing roller (arrow marks denote the direction of the electric field).

Note: The toner supply roller and the developing roller are supplied with bias voltages required during the developing process as shown below. -450 VDC is supplied to the toner supply roller, -300 VDC to the developing roller.

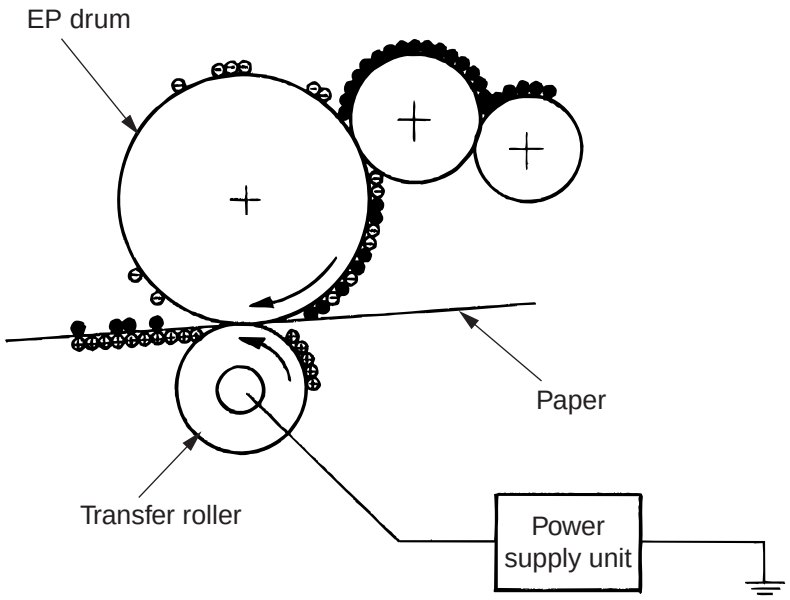


5) Transfer

The transfer roller is composed of conductive sponge material and is designed to make the EP (image) drum surface and the paper closely into contact.

Paper is placed over the EP (image) drum surface, and a positive charge, opposite in polarity to the toner, is applied to the paper from its reverse side.

The application of a high positive voltage (+1 KVDC) from the Power Supply Unit (1VP/ 2VP board) to the transfer roller causes the positive charge induced on the transfer roller surface to be transferred to the paper at the contact between the transfer roller and the paper. As a result, toner charged negative that is attracted to the EP (image) drum surface is transferred to the upper side of the paper by the positive charge on the lower side of the paper.

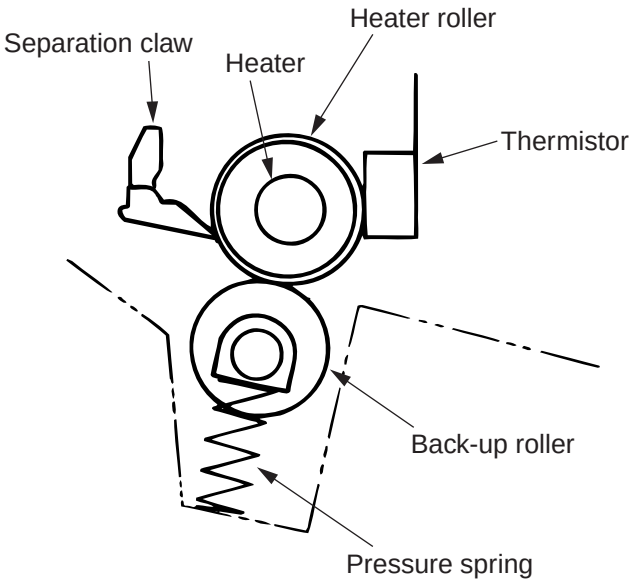


6) Fusing

After the end of the transfer operation, the unfused toner image is fused on the paper under heat and pressure as it passes between the heater roller and the back-up roller. The heater roller with a Teflon coating incorporates a 500 W heater (Halogen lamp), which heats the heat roller.

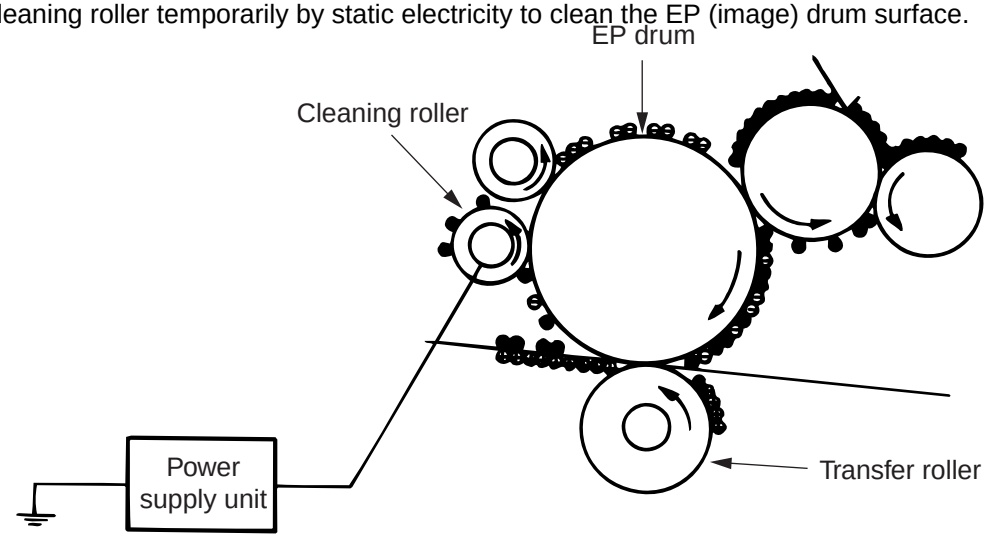
A thermister, which is in contact with the heater roller, regulates the heater roller at a predetermined temperature (about 185 ˚C for OKIFAX 5000 series). A safety thermostat cuts off voltage supply to the heater by opening the thermostat in the event of abnormal rise in temperature.

The back-up roller is held under a pressure of 2.5 kg by the pressure spring at each side.



7) Cleaning

After the end of the transfer, residual toner on the EP (image) drum is attracted to the cleaning roller temporarily by static electricity to clean the EP (image) drum surface.



8) Cleaning of rollers

The charge roller, transfer roller and cleaning roller are cleaned in the following cases:

- In warning up at power-on time
- In warning up after the cover is opened and closed
- When the number of accumulated sheets is 10 or more and the printout operation ends

Changes in bias voltage applied to each roller move adhesive toner from the roller to the EP (image) drum and return it to the developer.

	Cleaning "NO" (V)	Cleaning "YES" (V)
DB+	—	+300 V
DB-	-300 V	-300 V
TR+	+1000 V	+1000 V
TR-	—	-750 V
CB (cleaning)	+400 V	+400 V
CH-	-1350 V	-1350 V

B.3 Errors

B.3.1 Errors List

The errors are listed below.

1) Major trouble errors

- Fuser error
- Fan error
- Paper supply error
- Paper transport system error
- Paper exit jam
- Paper size error
- 2'nd tray communication error
- Cover open

2) Recoverable errors

- 2'nd tray route open
- No cassette in 2'nd tray
- No paper in 1'st cassette
- No paper in 2'nd cassette

3) Alarms (warning)

- Low toner
- Paper width error

Note:

1. The major trouble errors do not recover after an error has been removed unless a reset is not performed.
2. A recoverable error resets automatically by itself once the cause of error has been removed. Printing is not possible while an error is existing.
3. The alarm serves as a warning only and the printing operation is performed.

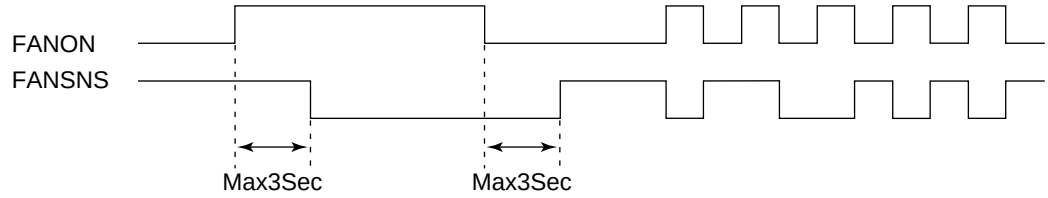
B.3.2 Major Trouble Errors

B.3.2.1 Fuser Error

The fuser error indicates an error in thermister on heater.
In case the fuser error occurs at the time of printing, the heater is turned off soon but the printing continues of that page.
However, if the error occurs before the write sensor is turned on, the motor stops soon.

B.3.2.2 Fan Error

The fan error is generated when the FANSNS signal lead goes "1" while the fan is running at full speed. Operation of the FANSNS signal when the fan is turned on is described below.



Since the fan alarm is not monitored during printing, the fan alarm does not appear from the moment the printing is started until the completion of printing operation.
In other words, the printing will continue even if the fan alarm occurs during printing.

B.3.2.3 Paper Feed Monitoring

Status	Description and Supervising Sensor	Distance
Paper supply error	Indicates monitoring error in hopping. Hopping is retried 3 times.	118 mm or less path Length +36 (hopping) x 3
Transport system jam 1	Indicates an error in the paper transport path. Error on resist roller section. From resist ON to write sensor (PS2) ON.	30 mm or less Inlet ~ write +20
Transport system jam 2	From inlet sensor OFF up to write sensor OFF.	44 mm or less
Transport system jam 3	Indicates an error in the paper transport system. Error of transfer roller and/or heat roller. From write sensor ON to outlet sensor ON.	207 mm or less Write ~ outlet +69
Paper size error	Indicates paper size other than specified one. From resist ON to inlet sensor OFF.	Recording paper +/- 45 mm
Paper outlet jam 1	Supervises slipping of the recording paper. From outlet sensor ON to OFF.	Recording paper +/- 45 mm
Paper outlet jam 2	Supervises jamming at the near paper outlet. From outlet sensor ON to OFF. When a crumpled recording paper is detected, the outlet sensor is set to "OFF" earlier than usual.	135 mm or less: NG

B.3.2.4 2'nd Tray Communication Error

This error is generated if on sending a command to the 2'nd tray is returned no-status (40s) or an undefined status. However, in case there is no status when reset, it will be considered that the 2'nd tray is not mounted.

B.3.2.5 Cover Open

Cover open sensor "0" indicates an open cover.
When the cover is closed the CU (control unit) section sends the reset signal and processes in the same way as if the power has been turned on.

B2.3.3 Recoverable Errors

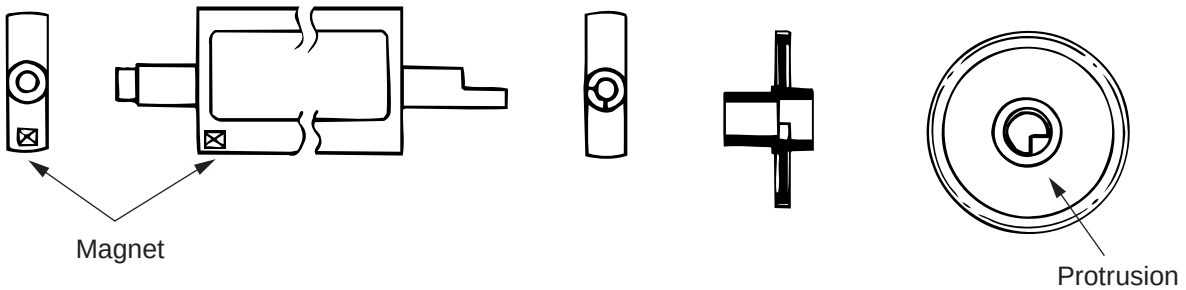
The three recoverable errors are listed in the table below.

Status	Description and Supervising Sensor
2'nd tray route open	Paper supply route from the option 2'nd tray to the main body is open, recording paper of the 1'st tray is being replaced.
No paper in 1'st cassette	No paper has been detected by the 1'st tray's paper sensor. No paper has been detected by paper sensor in "1" state.
No paper in 2'nd cassette	Response from the option tray indicated no paper in 2'nd tray.

B.3.3.1 Toner Low Detection

- Composition
  The device consists of the stirring gear which rotates at a constant rate, the stirring bar and the magnet on the stirring bar. The stirring bar rotates through the link on the protrusion in the stirring gear.

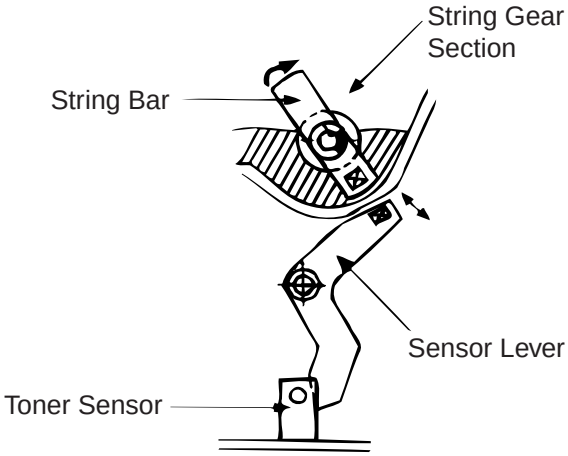
  The configuration of stirring bar in the figure below may differ. The principle of toner detection, however, remains the same.



- Operation
  Toner Low is detected by monitoring the time interval between the encounter of the magnet set on the sensor lever and the magnet on the stirring bar.

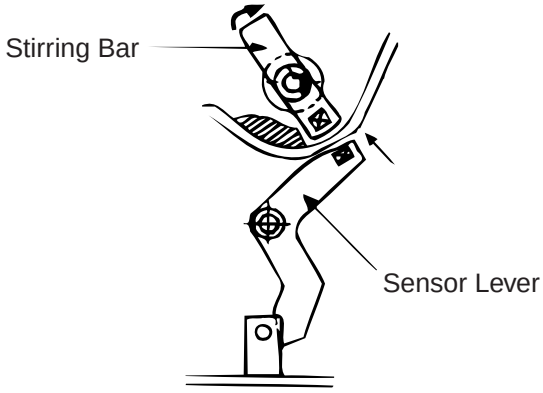
Operation during toner full state

- The stirring bar rotates due to interlocking with the stirring gear.
- Even when the magnet on the stirring bar reaches the maximum height, since theother side is being dipped in the toner, the stirring bar is pushed by the stirring gear.



Operation during toner low state

- When the stirring bar reaches the maximum height, since there is no resnstance provided by the toner on the other side, it falls to the minimum height due to its own weight. Because of this, the time interval during which it is in encounter with themagnet of the sensor lever becomes long. By monitoring this time interval, toner



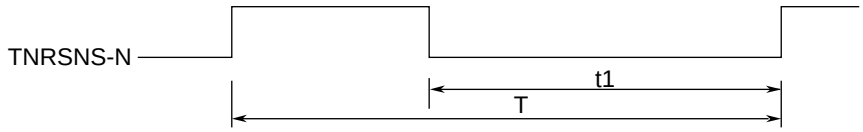
low can be detected.

Low Toner Alarm

A check for low toner is carried out at all times when the drum is rotating (rotation in opposite direction is excluded).

- The toner sensor is not monitored while the drum motor is in halt.

TONER FULL state



TONER LOW state

- When the toner low state is detected 2 times consecutively, Toner Low is established.
- When the toner full state is detected 2 times consecutively, Toner Low is cancelled.
- When there is no change with the toner sensor for 2 cycles (6.5 sec. x 2) or more, then the Toner Sensor Alarm is activated.

Printing Speed	T	t1 (Toner Exists)	Remarks
8 ppm	3.2 sec.	0.16 ~ 1.00 sec.	OKIFAX 5000 series

B.4 Other Special Cases

B.4.1 Manual Paper Feed

Turning on of the inlet sensors without the hopping operation indicates manual paper feeding for OKIFAX 5400 (excluding when power is on).

B.4.2 Cleaning

The image drum needs cleaning since it gets dirty after having printed copies for a number of times.

The two kinds of cleaning are listed in the table below:

Cleaning Type	Function	Remarks
Cleaning	This cleaning removes the toner whose electric potential is reversed due to poor electrification, or removes the toner whose electric potential is insufficient on the image drum surface. (Recovery of the toner to developing roller)	Cleaning is performed when the number of prints exceed 10 sheets or the one-job operation ends. (At the end of communication or copy operations)
CH (charge roller) cleaning	This cleaning removes the residual toner on the charging roller surface. The toner is removed by moving to the recording paper from charging roller and image drum.	User operation

Appendix D

Mechanical Expanded View Drawing and Parts List

(OKIFAX 5250/5400)

First Edition

August, 1999

Oki Data Corporation

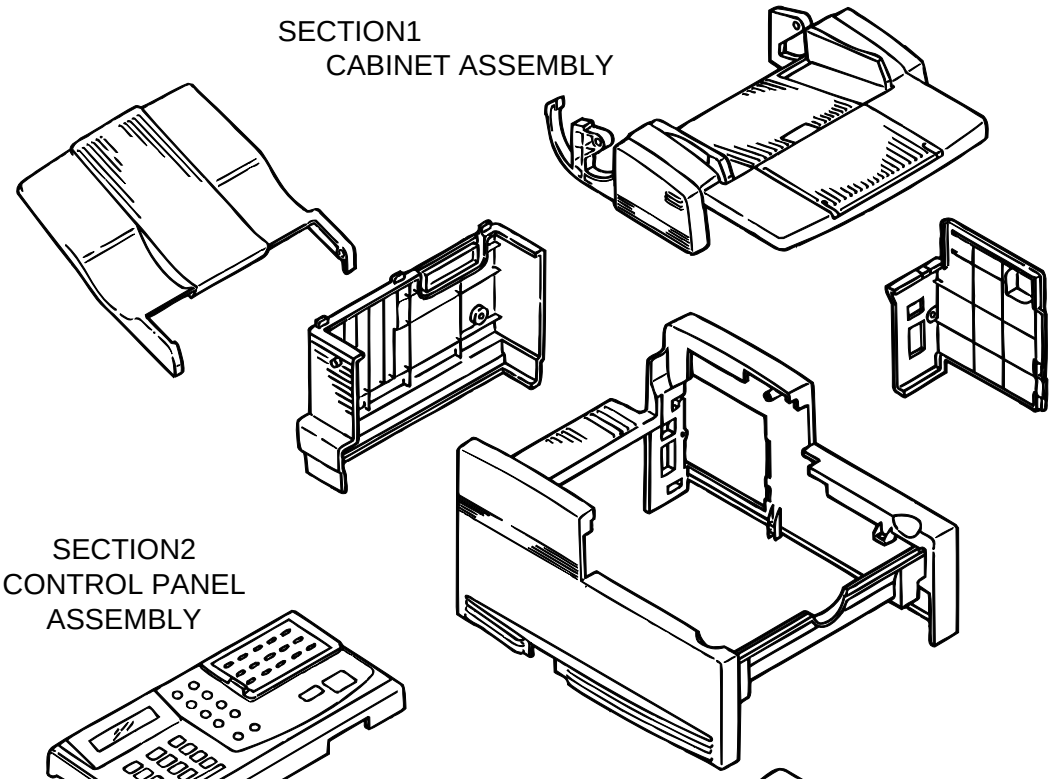
CONTENTS

Note: The blank columns of parts lists show the parts/units not treated as spare parts due to reasons as follows:

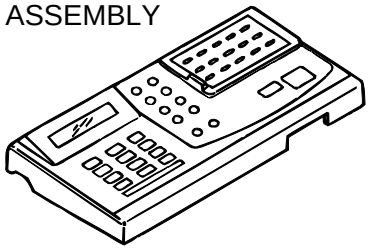
1) Item No. omitted.
2) Shown in other sections.
3) Consumables (Including screws).
4) Unified and inseparable parts/unit.

ASSEMBLY

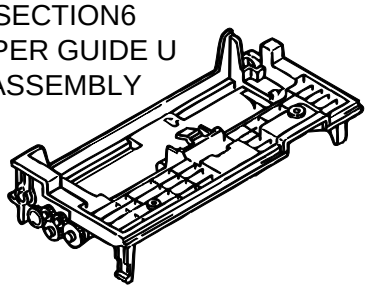
SECTION1
CABINET ASSEMBLY

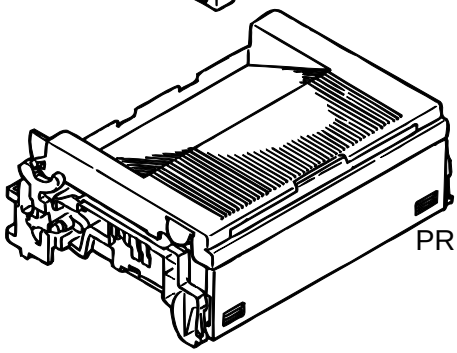


SECTION2
CONTROL PANEL
ASSEMBLY



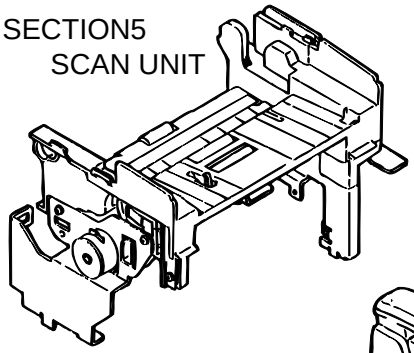
SECTION6
PAPER GUIDE U
ASSEMBLY

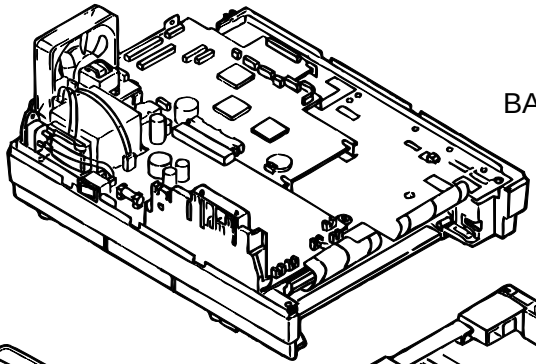




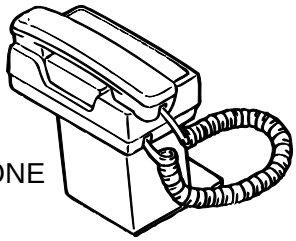
SECTION3
PRINTER ASSEMBLY

SECTION5
SCAN UNIT

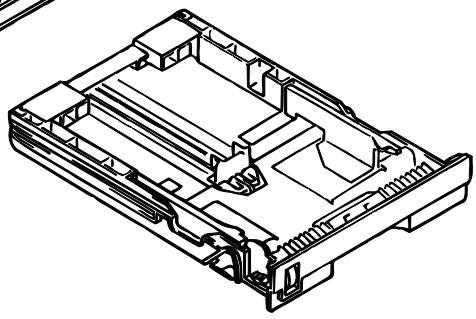




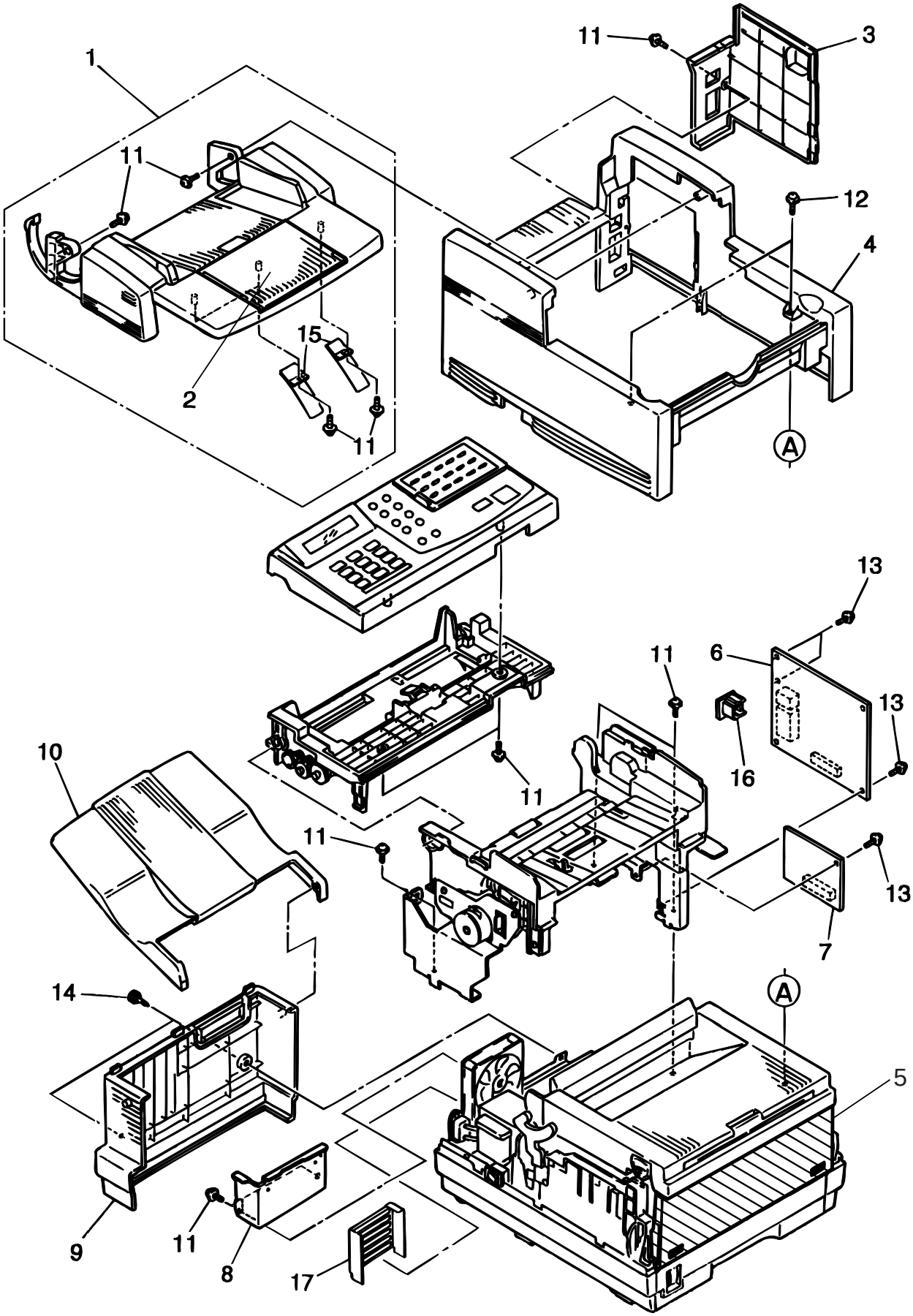
SECTION4
BASE ASSEMBLY



OPTION TELEPHONE



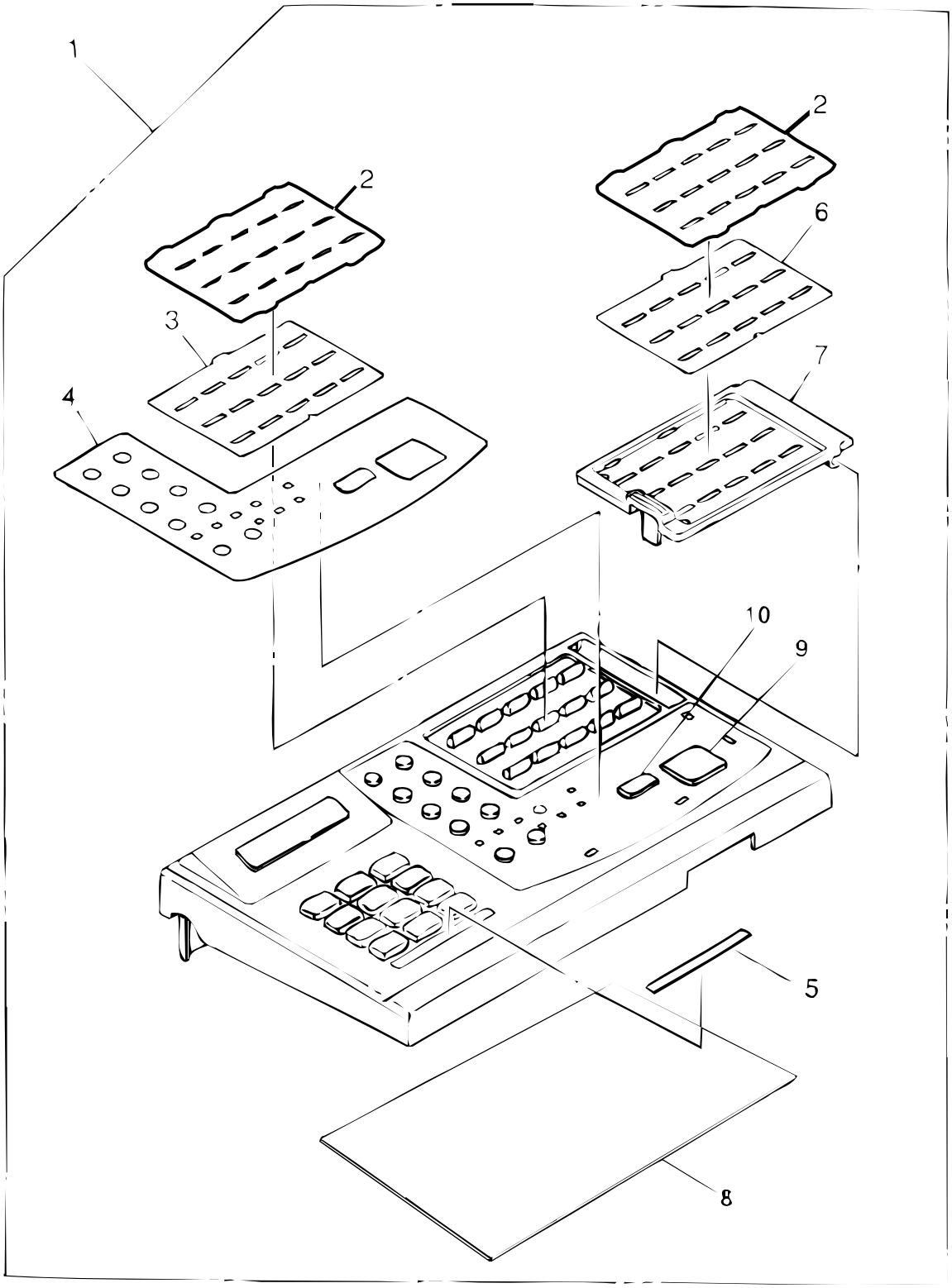
SECTION 1 CABINET ASSEMBLY



Section 1 CABINET ASSEMBLY

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1	50607301	Document Hopper Assy.	1	
	2	50220901	Sub-Hopper Plate	1	
	3	53075901	NCU Cover	1	
	4	53075801	Main Cover	1	
	5	51011001	Manual Feed Guide Assembly	1	
	6	40044501	Board-UNC	1	US
	7	40274602	Board-S34-2	1	
	8	51019501	Partition Plate	1	
	9	53076001	Rear Cover	1	
	10	50221001	Stacker Cover	1	
	11		Screw		
	12		Screw		
	13		Screw		
	14	50317601	Screw: Thumb	2	
	15	51019601	Assist Guide Assy	3	
	16		Cover: Modular Cap		
	17	40275501	Plate-guard	1	

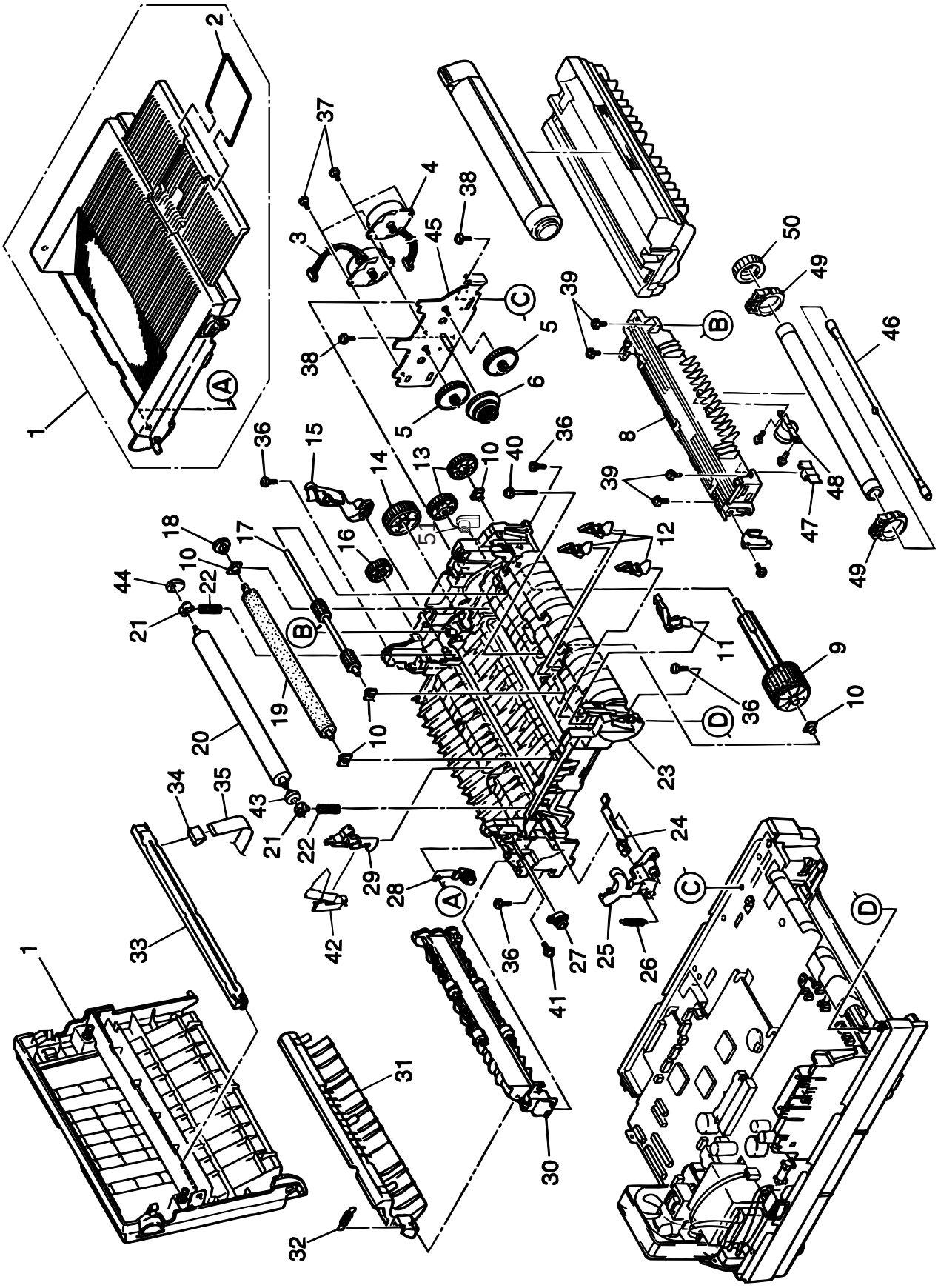
SECTION 2 CONTROL PANEL ASSEMBLY



Section 2 CONTROL PANEL ASSEMBLY

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1a	55083202	Unit: Op Panel- 5250	1	
	1b	40079109	Unit: Op Panel- 5400	1	
	2	52203301	One-touch Cover Film	2	
	3	52081310	One-touch Sheet	1	
	4		Sheet-F-175V	1	
	5		Ten Key Label	1	
	6	40047001	Sheet: One Touch 5400	1	
	7a	53077901	Cover: One Touch 5250	1	
	7b	53076101	Cover: One Touch 5400	1	
	8		Board-05W		
	9		Button-Start (S)		
	10		Button-Stop (S)		

SECTION 3 PRINTER ASSEMBLY



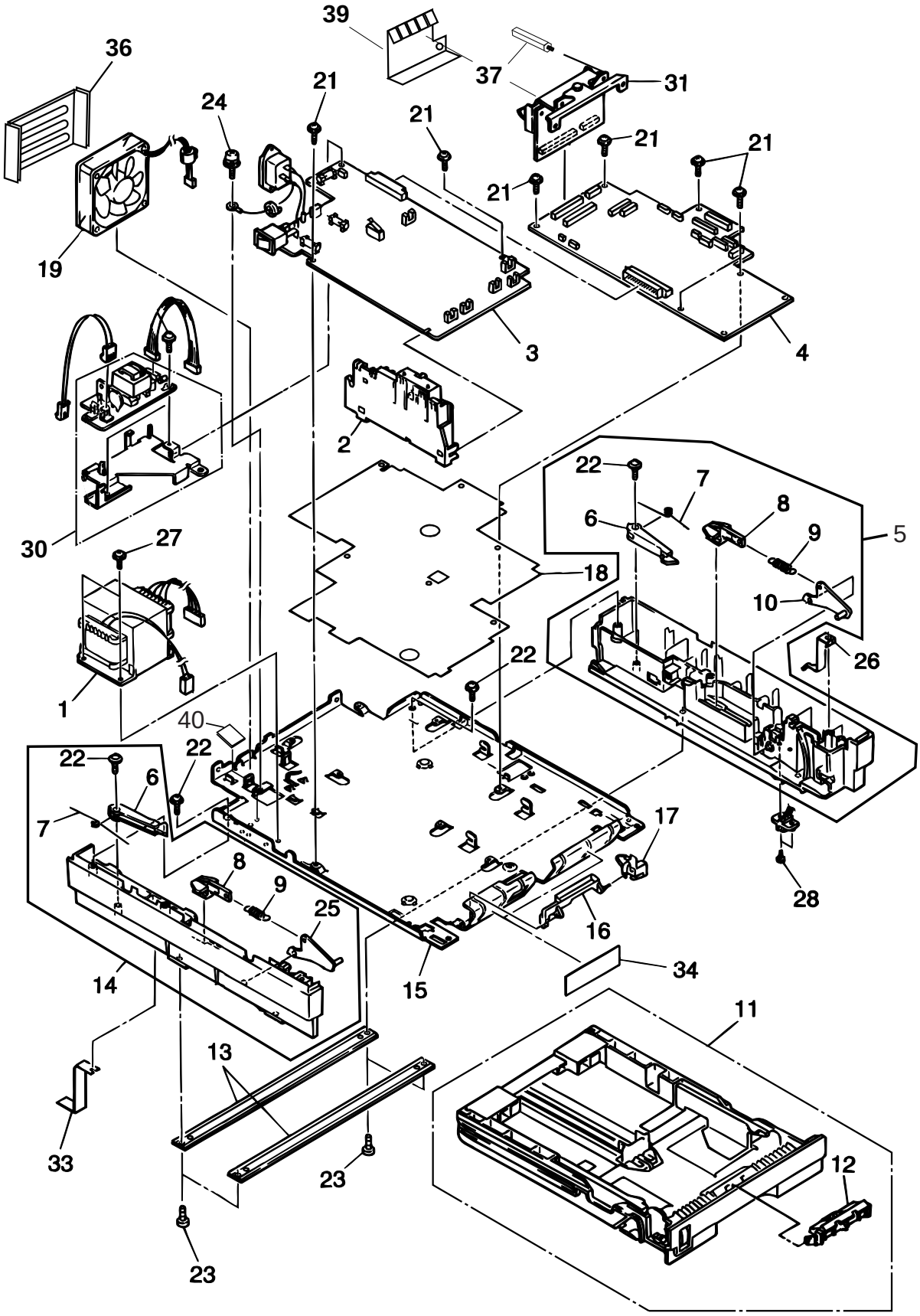
Section 3 PRINTER ASSEMBLY 1/2

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1	53077801	Stacker Cover Assy.	1	
	2	51013801	Guide Wire	1	
	3	56512701	Pulse Motor (Main)	1	
	4	56512601	Pulse Motor (Registration)	1	
	5	51225701	Idle Gear A	2	
	6	51229301	Reduction Gear	1	
	8a	50220801	Fusing Unit Assy. (120V)	1	ODA
	8b	50220802	Fusing Unit Assy. (230V)	1	Except ODA
	9	50219601	Hopping Roller Assy.	1	
	10	51607402	Bearing A	5	
	11	50405501	Toner Sensor Assembly	1	
	12	51010701	Sensor Plate (Inlet)	3	
	13	51228901	One-way Clutch Gear	2	
	14	51229101	Fuser Roller Idle Gear B	1	
	15	50805901	Reset Lever (R)	1	
	16	51229201	Eject Roller Idle Gear C	1	
	17	53342501	Resistration Roller	1	
	18	51236601	Transfer Roller Gear	1	
	19	50409301	Transfer Roller	1	
	20	53343701	Back-up Roller	1	
	21	51607601	Pressure Roller Bushing	2	
	22	50925301	Bias Spring A	2	
	23	50223201	Lower Base Sub Assy.	1	
	24	53068901	Cover Open Arm	1	
	25	50805801	Reset Lever (L)	1	
	26	50924201	Stacker Cover Reset Spring	1	
	27	51229401	Stacker Cover Damper Gear	1	
	28	53069101	Stacker Cover Damper Arm	1	
	29	51010802	Exit Sensor Lever Assembly	1	
	30	50409901	Exit Roller Assy.	1	

Section 3 PRINTER ASSEMBLY 2/2

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	31	51019201	Release Guide Assy.	1	
	32	50930001	Release Spring	1	
	33	56112101	LED Head Unit	1	
	34	56730201	LED Cable Connector	1	
	35	56632401	LED Cable Assy.	1	
	36		Screw		
	37		Screw		
	38		Screw		
	39		Screw		
	40		Screw		
	41		Screw		
	42	40778901	Sensor Wire Assembly	1	
	43	50517001	Washer B	1	
	44	50517201	Washer C	1	
	45	51709901	Motor Plate Assembly	1	
	46a		Halogen Lamp (Q)-F120	1	
	46b		Halogen Lamp (Q)-F230	1	
	47		Heat Sensor	1	
	48		Thermostat A	1	
	49		Bearing B	2	
	50		Gear A	1	
	51		Bearing R	1	

SECTION 4 BASE ASSEMBLY



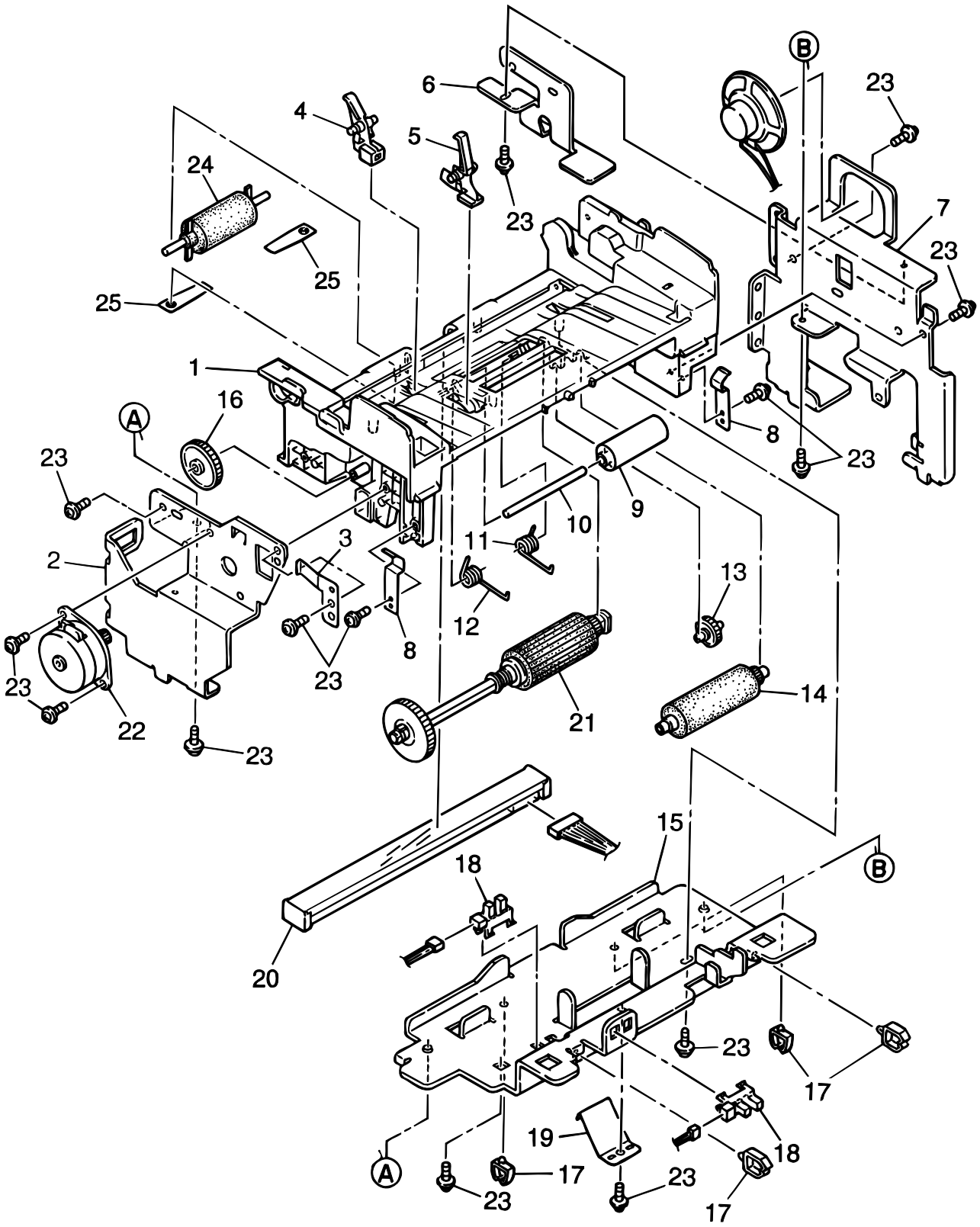
Section 4 BASE ASSEMBLY 1/2

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1a	56414201	Power Transformer	1	(120V)
	1b	56414001	Power Transformer	1	(230V)
	2	56730001	Contact Assy.	1	
	3a	40319201	PWR Unit AC/DC Drop (120v)	1	230v - p/n 40035902
	4a	55083801	PCB: E17-8 (OF5250) (MCNT)	1	
	4b	40476108	PCB: E17-8 (OF5400) (MCNT)	1	
	5	51024301	Cassette Guide (R) Assy.	1	
	6	50808401	Cassette Lock Lever	2	
	7	50929501	Cassette Lock Spring	2	
	8	53345201	Link Pull Lever	2	
	9	50929901	Sheet Spring	2	
	10	50808601	Sheet Link (R) Assy.	1	
	11	50110501	Paper Cassette Assy.	1	
	12	40259701	Frame Assy.-Sepa	1	
	13	51608801	Beam Plate	2	
	14	51024201	Cassette Guide (L) Assy.	1	
	15	51018901	Base Plate	1	
	16	51011501	Cassette Detection Lever	1	
	17	51019701	Paper End Sensor Lever	1	
	18	51711301	Insulator Plate	1	
	19	56512801	DC Fan Motor	1	
	20				
	21		Screw		
	22		Screw		
	23		Screw		
	24		Screw		
	25	50808501	Sheet Link (L) Assy.	1	
	26	51023701	FG Plate C	1	
	27		Screw		
	28		Screw		
	29				
	30		Plate Assy.-SPSU	1	(230V)

Section 4 BASE ASSEMBLY 2/2

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	31	40123401	Plate: PC Interface (OF5400)	1	
	32	51024001	Plate: Earth (PCFX) (OF5400)	1	
	33	51023601	FG Plate D	1	
	34		Polyethylene Tape	2	
	35				
	36	40275501	Plate-Guard	1	
	37		Screw-Hexagon	2	Option
	38				
	39				
	40		Rubber-Damping	1	

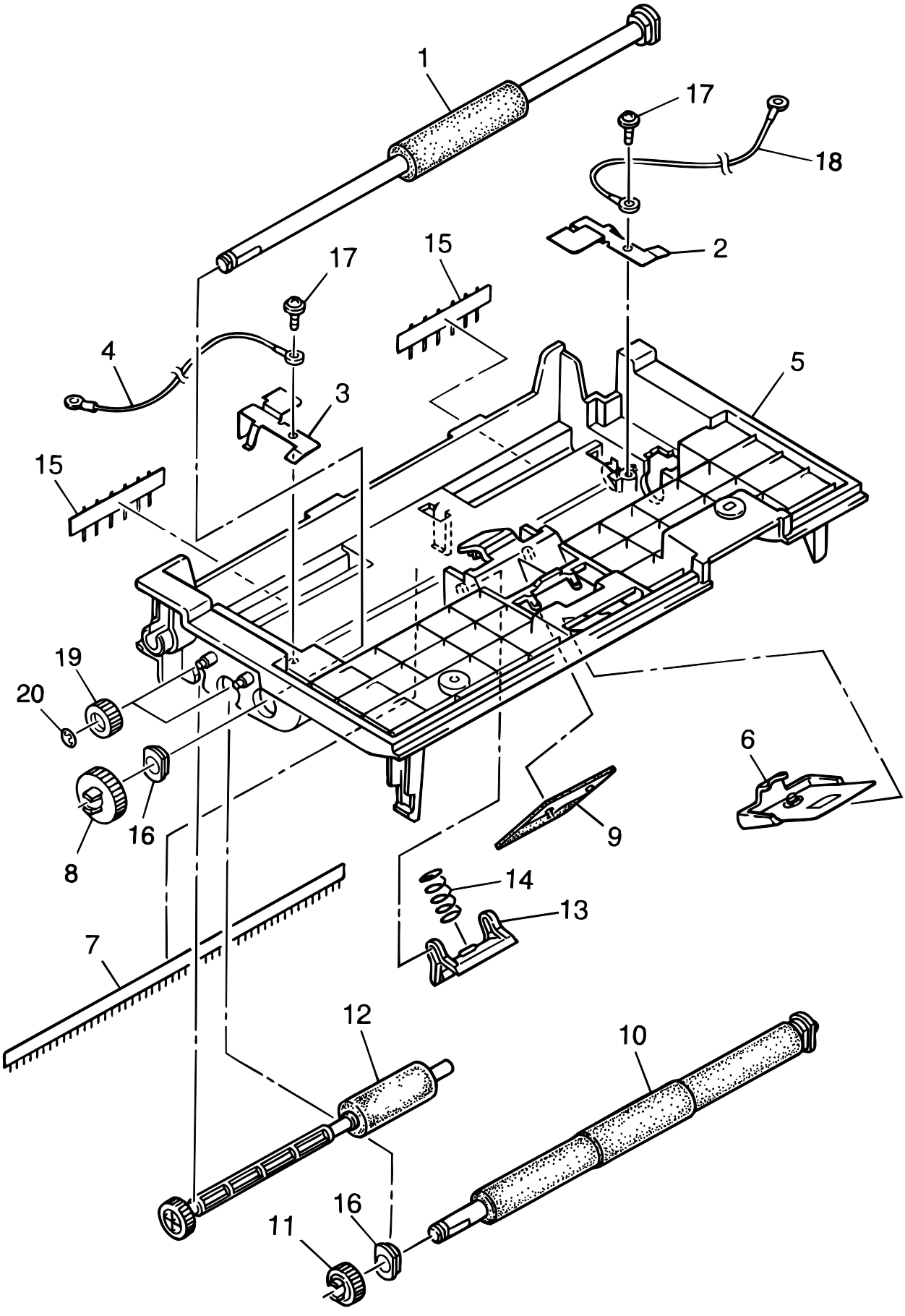
SECTION 5 SCAN UNIT



Section 5 SCAN UNIT

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1	53350701	Scanner Frame	1	
	2	50221101	Scanner Base Frame (L)	1	
	3	51019901	ADF Ground Plate	1	
	4	50808801	PC2 Lever	1	
	5	50808701	PC1 Lever	1	
	6	51020001	Pocket Plate	1	
	7	50221201	Scanner Base Frame (R)	1	
	8	50930101	Latch Spring	2	
	9	50406201	Pinch Roller (Feed)	1	
	10	51113701	Pinch Roller Shaft	1	
	11	50930301	Pinch Spring R	1	
	12	50930201	Pinch Spring L	1	
	13	51229501	ADF Idle Gear	1	
	14	50406101	Sub-roller Assy.	1	
	15	51020101	Scanner Bottom Plate	1	
	16	51236301	Gear (Z81/15)	1	
	17	50708701	Mini Clamp Holder	4	
	18	50410001	Photo Sensor	2	
	19	50930401	Sensor Spring	1	
	20	40141401	Contact Image Sensor-A4	1	300DPI
	21	50410201	ADF Roller Assy.	1	
	22	40047601	Motor-S (FX-VP)	1	
	23		Screw		
	24	50411501	Eject Pinch Roller	1	
	25	50932301	Eject Pinch Spring	2	

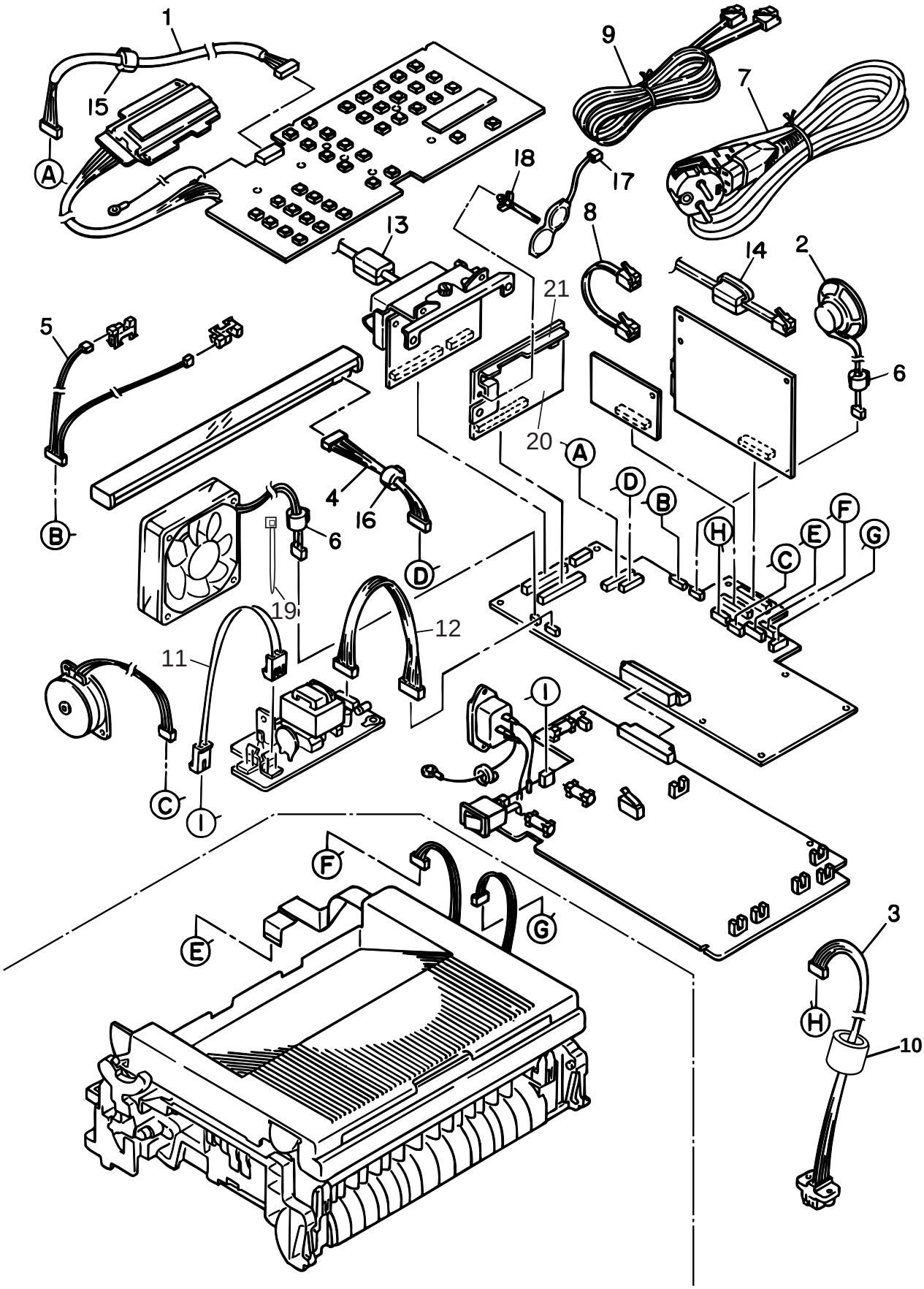
SECTION 6 PAPER GUIDE U ASSEMBLY



Section 6 PAPER GUIDE U ASSEMBLY

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1	50410301	Feed Roller (1) Assy.	1	
	2	51023801	Earth Plate (SR)	1	
	3	51023901	Earth Plate (SL)	1	
	4	56634702	Earth Cord (Ground Wire)	1	
	5	51024501	Paper Guide (U)	1	
	6	51020501	Pinch Plate Assy.	1	
	7	51305101	Ground Brush	1	
	8	51236401	Gear (Z28)	1	
	9	53344901	Separation Rubber Assy.	1	
	10	51410501	Sensor Roller Assy.	1	
	11	51236501	Gear (Z22)	1	
	12	51410401	Exit Roller Assy.	1	
	13	53339801	ADF Back-up Plate	1	
	14	50930501	ADF Spring	1	
	15	51305102	Static Brush	2	
	16	51608901	Bearing	2	
	17		Screw		
	18	56634703	Earth Cord (Ground Wire)	1	
	19	51226101	Gear (Z16)	2	
	20	50709103	CS-Ring (CS4-SUS)	2	

SECTION 7 CABLES



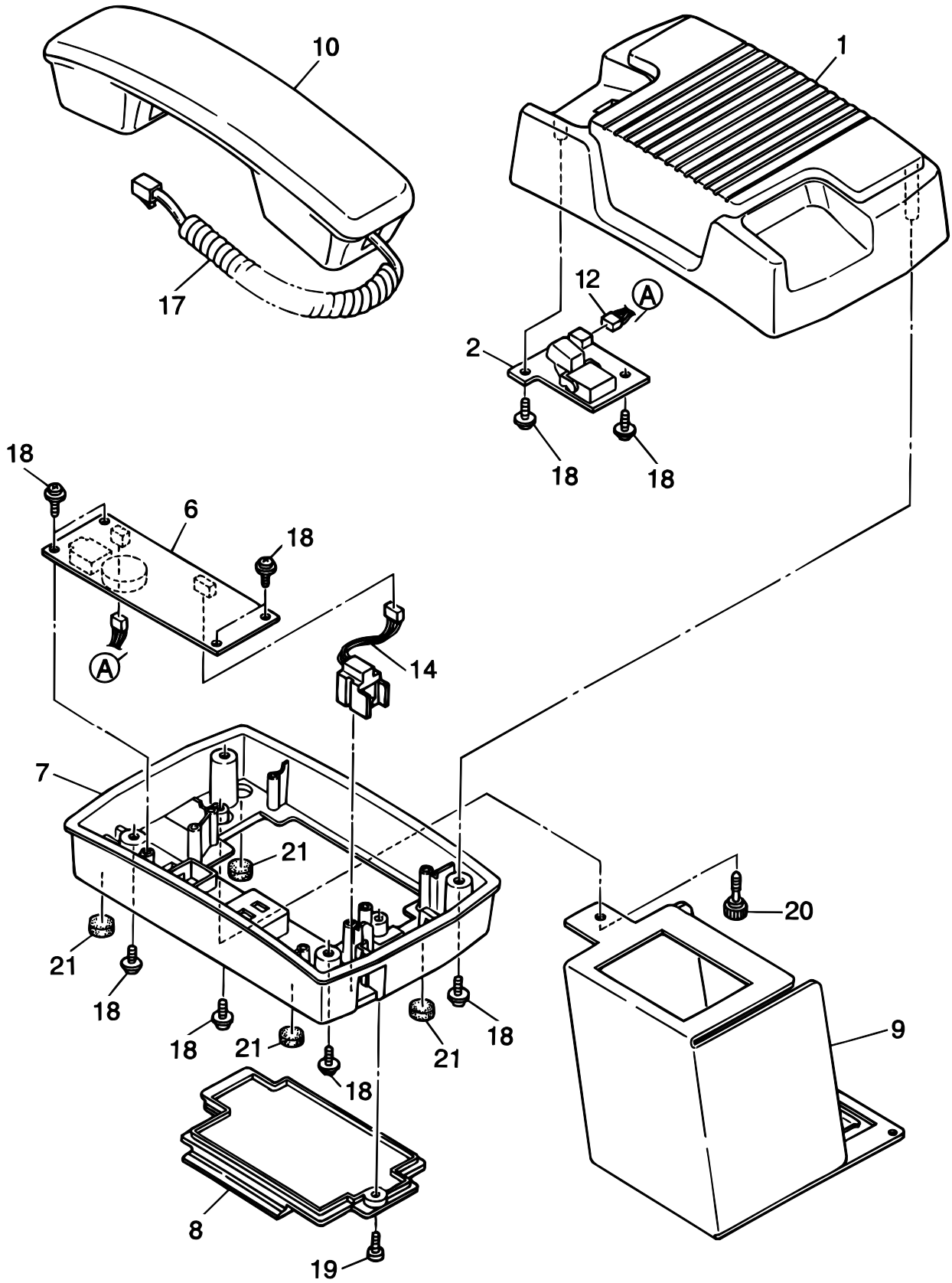
Section 7 CABLES

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1	40040002	Op Panel Connection Cable	1	
	2	57001701	Speaker	1	
	3	56632801	2nd Tray Connnection Cable	1	
	4	56634501	CIS Connection Cable	1	
	5	56634601	PC 1/2 Connection Cable	1	
	6	55505201	Ferrite Core D	2	
	7a	56618901	AC CORD	1	ODA Note 2
	7b	56631701	AC CORD (220v) (Pictured)	1	OEL Note 1
	8	56635001	Cord (TEL1-TEL2)	1	
	9	56621001	TEL/LINE Cable	1	
	10	55505303	Ferrite Core G	1	
	11	40048201	Connection Cord-Wire (PSU)	1	
	12	40040101	Connection Cord-Wire (SPSU)	1	
	13	55505402	0443-167251 Core	1	
	14	55505904	5FC-8 Core	1	
	15	55505204	TFC-23-11-14 Core	1	
	16	55505203	Ferrite Core E	1	
	17	56306901	Secondary Battery	1	
	18	50702001	Snap Band		
	19		Tying Cord	1	
	20		Board-MEM	1	option
	21		Plate-MEM	1	

Note 1: Parts will be supplied by OUK.

Note 2: Parts will be supplied by ODA.

SECTION 8 OPTION TELEPHONE (US)



Section 8 OPTION TELEPHONE (US)

Rev.	No.	Oki parts Number	Description	Q'ty	Remarks
	1		Cradle	1	
	2		Board-Hook	1	
	6		Board-TELU	1	
	7		Base-Cradle	1	
	8		Cover-Terminal	1	
	9		Attachment-Assembly	1	
	10		Handset	1	
	12		Connection-Cord	1	
	14		Moduler-Jack-Cord	1	
	17	56628101	Cord-Handset	1	
	18		Tapping-Screw		
	19		Screw		
	20		Knob-Screw	1	
	21		Rubber-Hoot	4	

Appendix E
Second Paper Feeder
Maintenance Manual

(OKIFAX 5250/5400)

First Edition

August, 1999

Oki Data Corporation

PREFACE

This Maintenance Manual is intended for the maintenance personnel and describes the field maintenance methods for Second Paper Feeder option of OKIFAX 5250/5400 Facsimile Transceiver.

Refer to the Instruction sheet of High Capacity Second Paper Feeder option for equipment handling and operation methods.

CONTENTS

1. OUTLINE

1.1 Functions

When the Second Paper Feeder is installed with the OKIFAX 5400 facsimile transceiver, the Second Paper Feeder is connected to the facsimile by a connector. The Second Paper Feeder supplies paper automatically through the operation of pulse motor (hopping), which is driven by signals sent from CPU of the Second Paper Feeder under the control of the facsimile.
The main functions are the followings:

- Paper that can be used:

[Paper Type]
- Standard paper: Xerox 4200 (20-lb)
- Special paper: PPC sheets; use of envelopes or thick paper is not possible.
- Cut sheet size: A4, Letter, Legal13, Legal14
- Special size: Paper width: 210 to 216mm
  Paper length: 279.4 to 355.6mm

[Weight]
- 16-lb to 24-lb (60 to 90 g/m^2)

- Paper setting quantity: 500 sheets of paper weighing 64 g/m^2

1.2 External View and Component Names

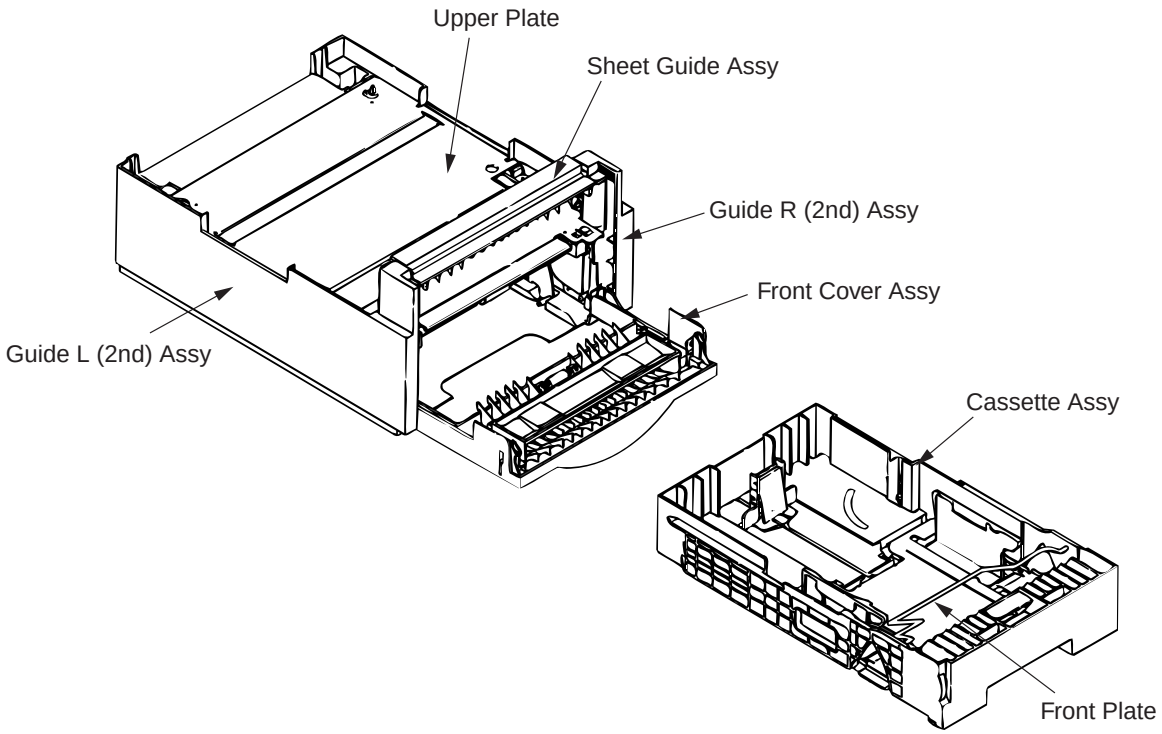


Fig. 1-1 External View and Component Names

2. MECHANISM DESCRIPTION

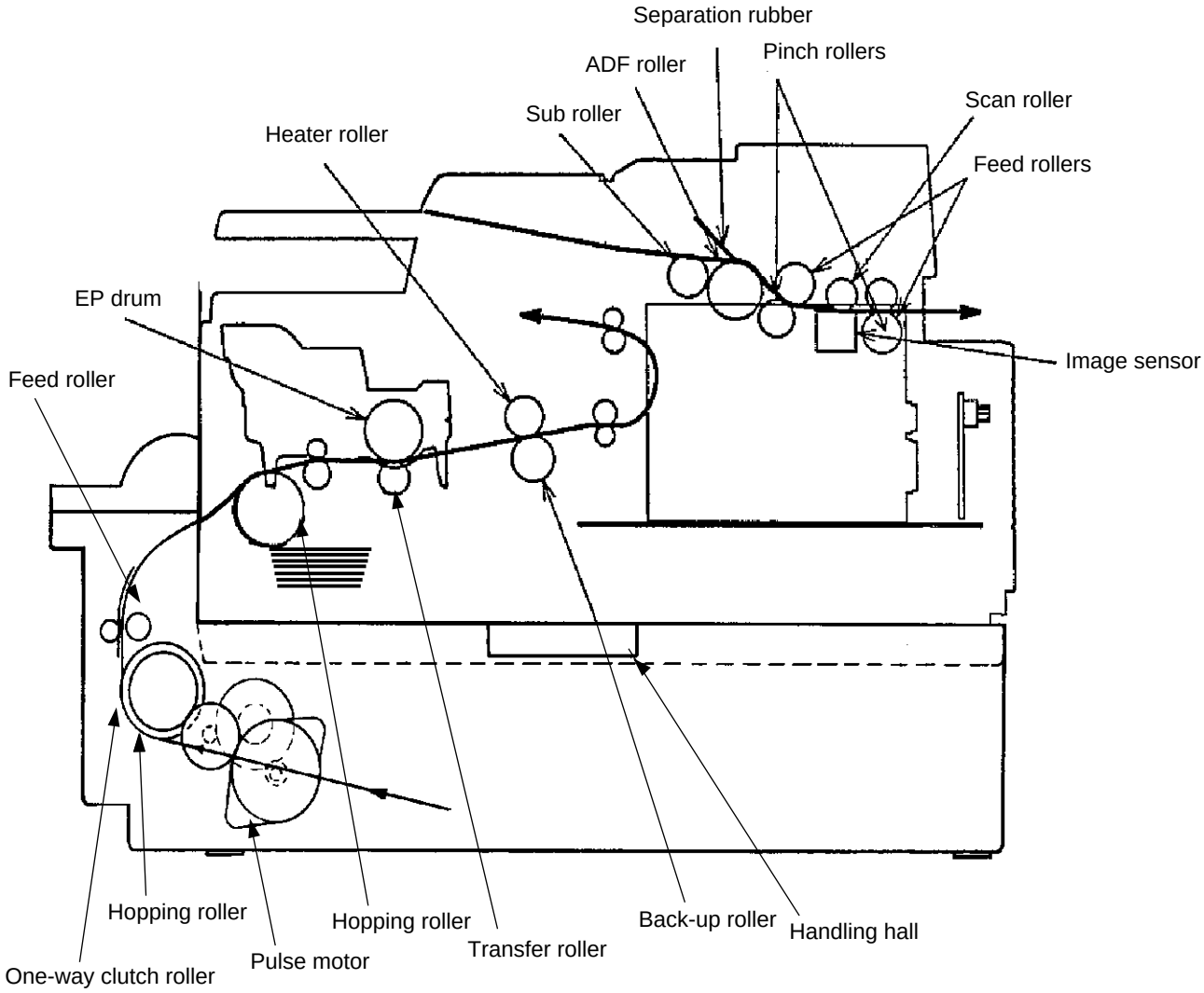
2.1 General Mechanism

The Second Paper Feeder feeds the paper into the facsimile by receiving the signal from the facsimile, which drives the pulse motor inside the Second Paper Feeder, and this motion is transmitted to rotate the one-way clutch of the hopping frame assembly. The paper is delivered from the hopper into the facsimile through the turning of the hopping roller and feed roller.

Once delivered into the facsimile, the paper is then controlled and fed through by pulse motor (registration) of the facsimile.

2.2 Hopper Mechanism

The hopper automatically feeds the facsimile with the paper being set, single sheet at a time. When the paper is loaded in the paper cassette, it is then transported by the pulse motor, carrying forward only a single sheet caught by the separation rubber at a time.



3. PARTS REPLACEMENT

This section covers the procedures for the disassembly, reassembly and installations in the field. This section describes the disassembly procedures, and for reassembly procedures, basically proceed with the disassembly procedures in the reverse order.

3.1 Precautions Concerning Parts Replacement

(1) Parts replacements must be carried out, by first turning the facsimile power switch off “O” and removing the facsimile from the Second Paper Feeder.

(2) Do not disassemble the Second Paper Feeder if it is operating normally.

(3) Establish the extent of disassembly suitable for the purpose of the procedure, and do not disassemble any more than necessary.

(4) Only specified service tools may be used.

(5) Disassembly must be carried out according to the prescribed procedures. Parts may be damaged if such procedures are not followed.

(6) Small parts such as screws and collars can easily be lost, therefore these parts should be temporarily fixed in the original location.

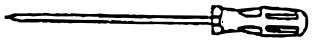
(7) When handling printed circuit boards, do not use any glove which may generate static electricity.

(8) Do not place the printed circuit boards directly on the equipment or floor.

[Service Tools]

Table 3-1 shows the tools required for the replacement of printed circuit boards, assemblies and units in the field.

Table 3-1 Service Tools

No.	Service Tools		Q'ty	Application	Remarks
1		No. 1-100 Philips screwdriver	1	2 ~ 2.5 mm screws	
2		No. 2-100 Philips screwdriver	1	3 ~ 5 mm screws	
3		No. 3-100 screwdriver	1		
4		Digital multimeter	1		
5		Pliers	1		

3.2 Parts Layout

This section describes the layout of the main components.

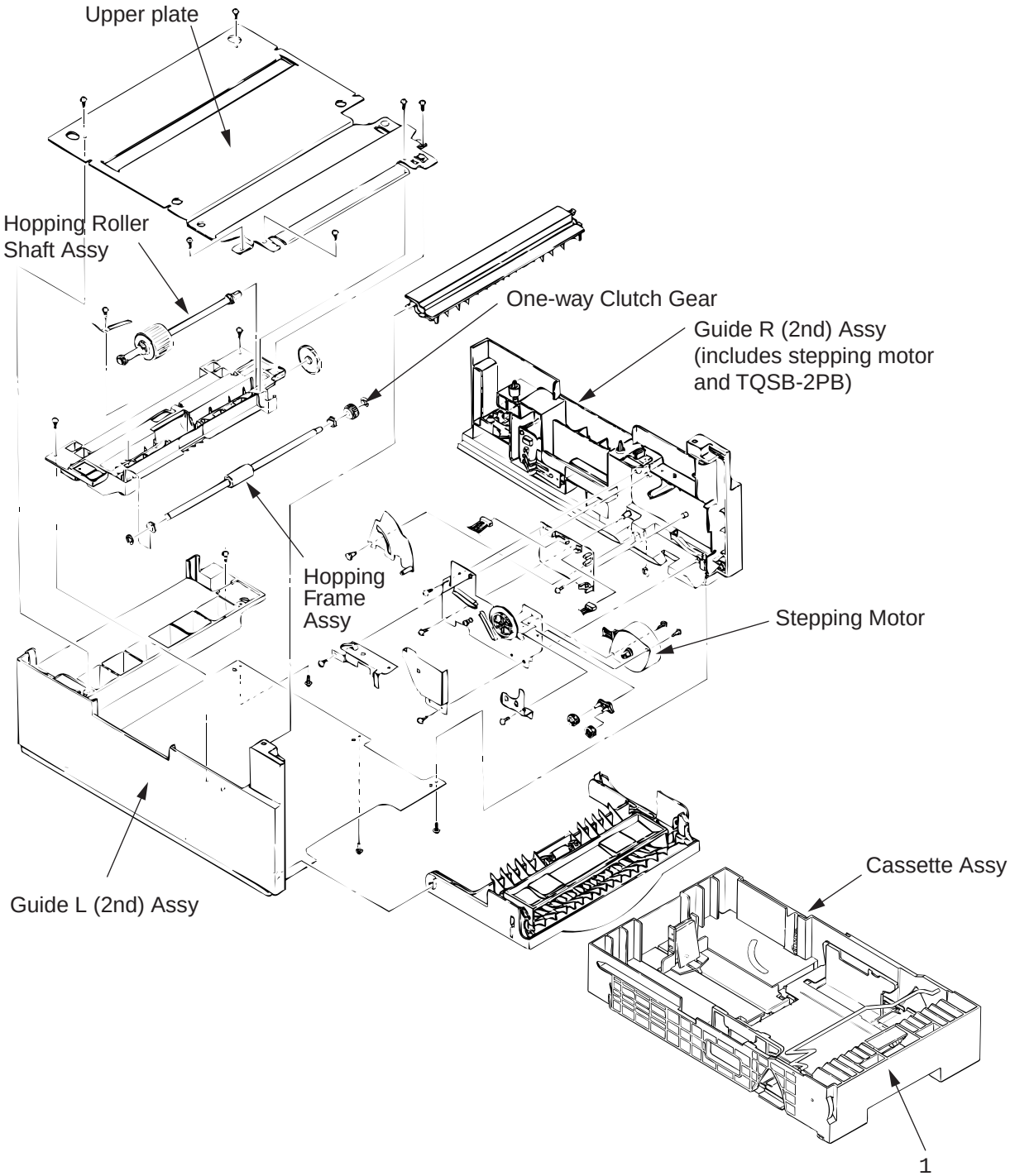
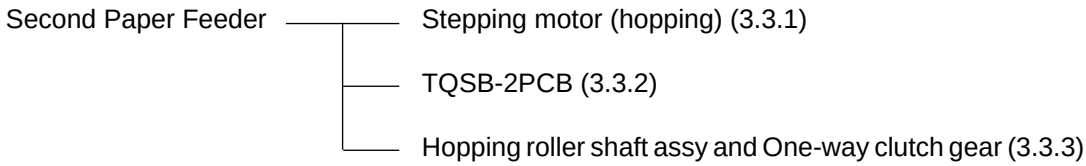


Fig. 3-1

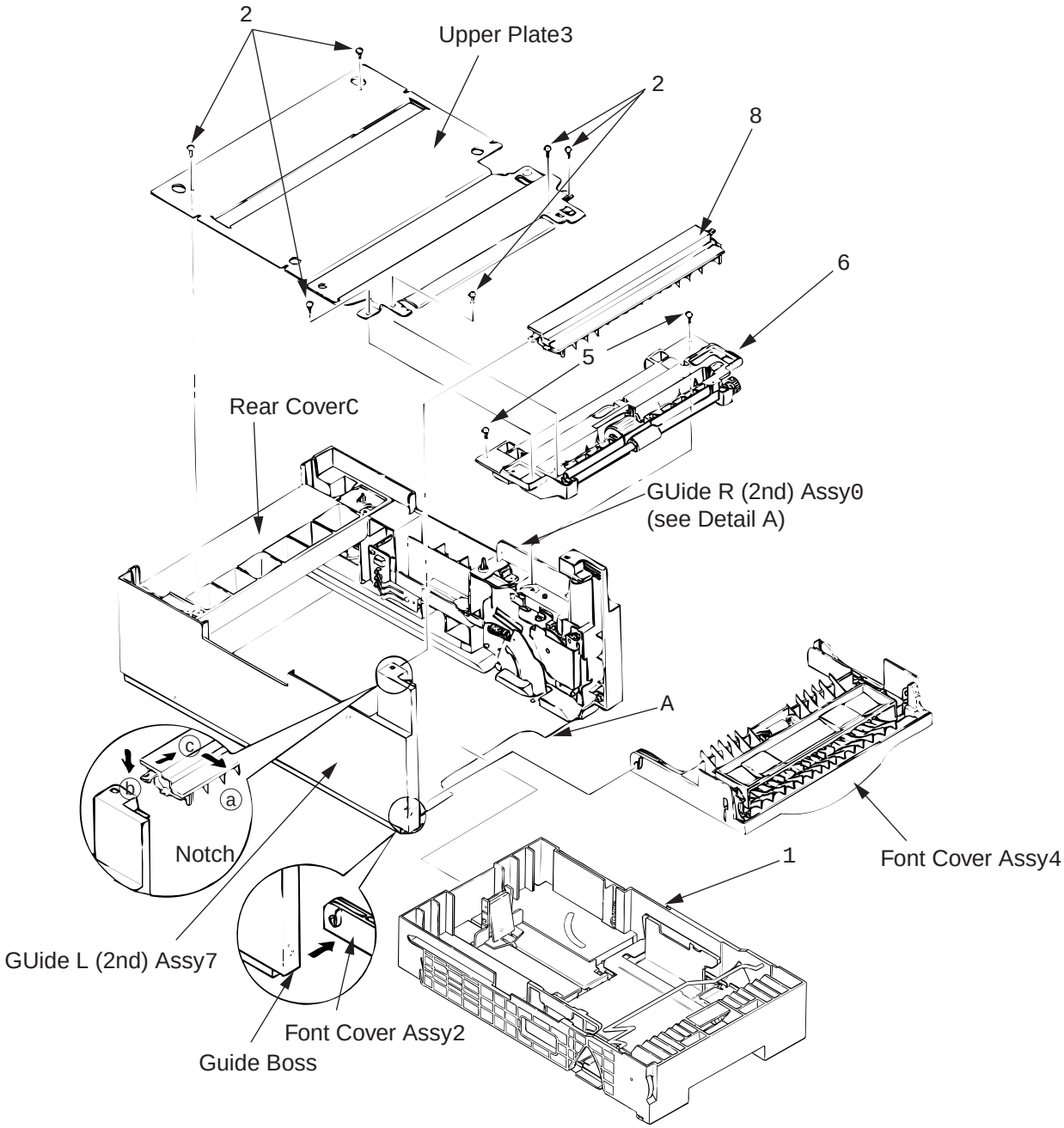
3.3 Parts Replacement Methods

This section describes the parts replacement methods for the components listed in the disassembly order diagram below.

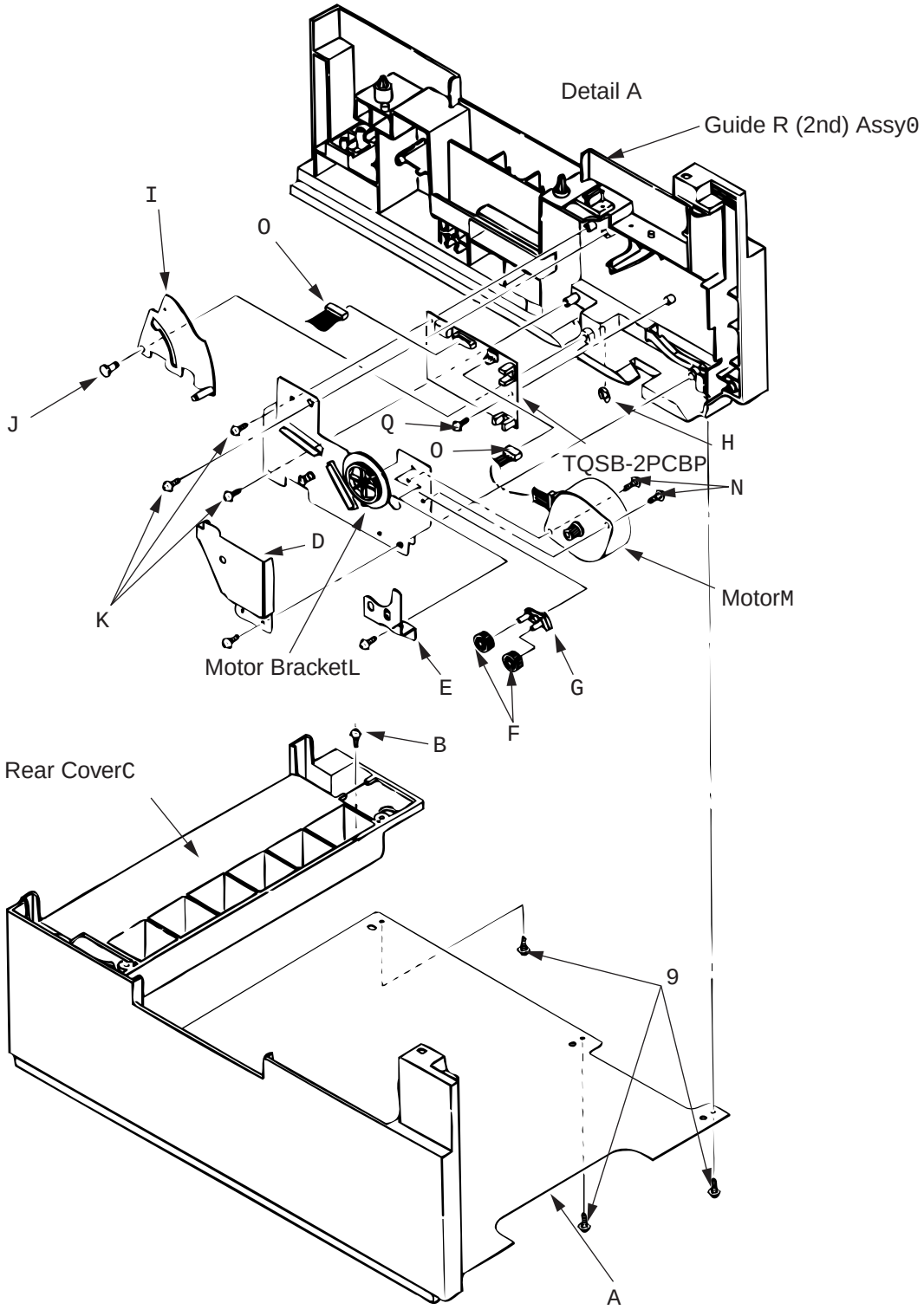


3.3.1 Stepping Motor (Hopping)

(1) Turn the facsimile power switch off, pull out the AC cord from the outlet. Remove the facsimile off Second Paper Feeder.
(2) Take the paper cassette assy ❶ out of Second Paper Feeder.
(3) Remove six screws ② and remove the upper plate ③. Remove two screws ⑤ and remove the hopping frame assy ⑥.
(4) Remove the front cover assy ④ off the guide boss on the guide L (2nd) assy ⑦ by bending the guide L (2nd) assy ⑦ in the direction of arrow shown in the magnified view below.
(5) Pull the sheet guide assy ⑧ in the direction of arrow a and also push in the direction of arrow b to unlock the notch, and bring the sheet guide assy ⑧ in the direction of arrow c to remove the sheet guide assy ⑧.



(6) Remove three screws ⑨ which are holding the guide R (2nd) assy ⑩ to the bottom plate ⑪. Remove the screw ⑫ which is keeping the rear cover ⑬ and guide R (2nd) assy ⑩. Remove the guide R (2nd) assy ⑩.
(7) Remove the protect (M) ⑭, guide bracket ⑮, planet gears ⑯ and planet gear bracket ⑰.
(8) Remove the E-ring ⑱ which is keeping the sheet link ⑲ on the guide R (2nd) assy ⑩, and pull out the hinge stand ⑳.
(9) Remove three remaining screws ㉑ which are keeping the motor on the motor bracket ㉒, and remove the connector off the Stepping Motor ㉓.
(10) Remove two screws ㉔ on the Stepping Motor ㉓.



3.3.2 TQSB2-PCB

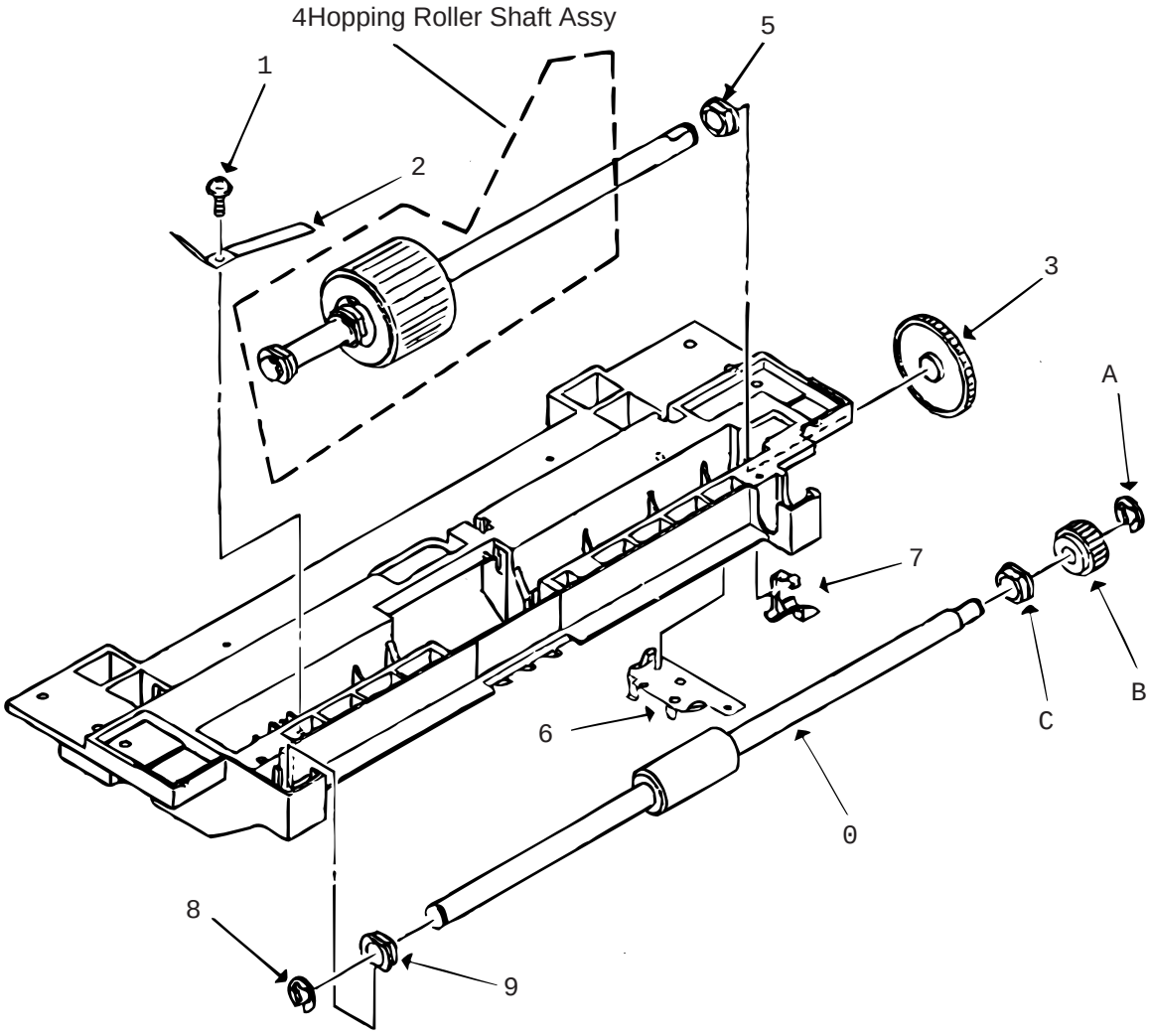
(1) Remove the pulse motor (see 3.3.1).
(2) Remove the connector ㉕ from the TQSB-2PCB ㉖.
(3) Remove the screw ㉗ and remove the TQSB-2PCB ㉖.

Note : Refer to Detall A in the previous page.

3.3.3 Hopping Roller Shaft Assy and One-way Clutch Gear

(1) Follow up to step (3) of 3.3.1 and remove the hopping frame assy.
(2) Remove the screw ① and remove the earth plate ②. Remove the sensor lever ⑦ and remove the ground plate ⑥. Remove the gear ③ and remove the metal bush ⑤ and Hopping Roller shaft Assy ❹.
(3) Remove the E-ring ⑪ and remove the one-way clutch gear ⓬ on the right side of the feed roller ⑩.

Note : The metal bush ⑬ also comes off. Be careful not to lose it.



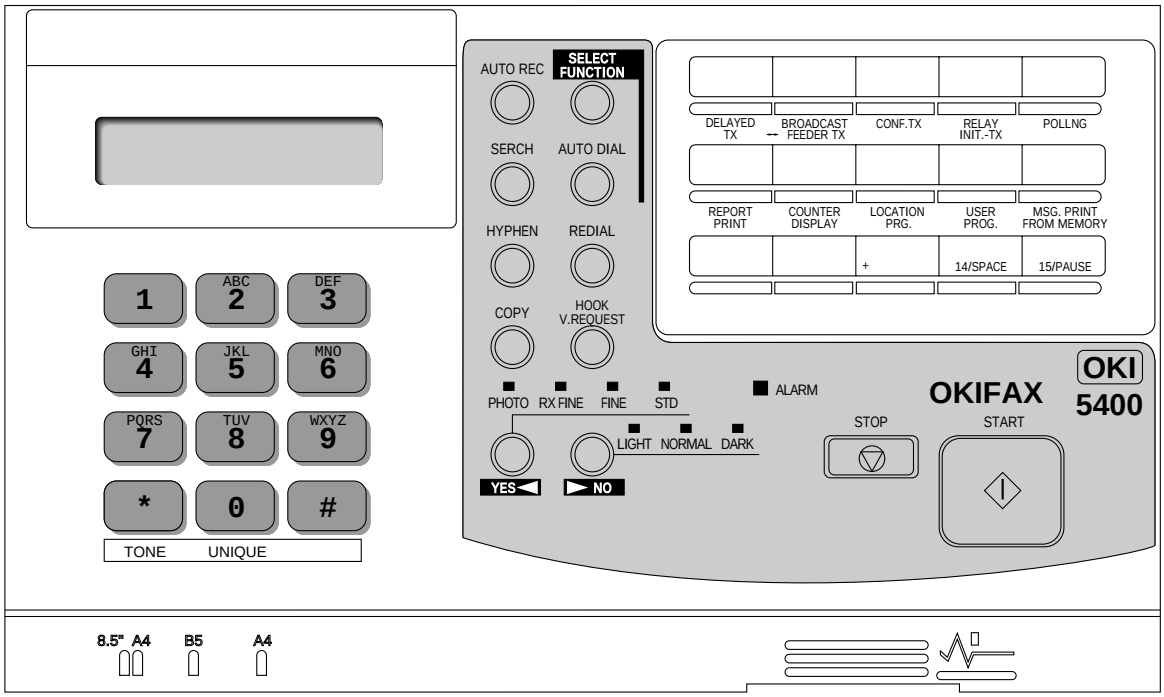
4. TROUBLESHOOTING

4.1 Precautions Prior to the Troubleshooting

(1) Go through the basic checking items provided in the facsimile Handbook.
(2) Obtain detailed information concerning the problem from the user.
(3) Go through checking in the conditions similar to that in which the problem occurred.

4.2 Preparations for the Troubleshooting

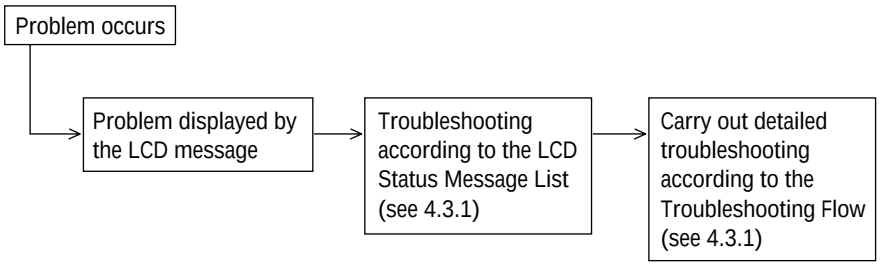
(1) Display on the Operator panel
The status of the problem is displayed on the LCD (Liquid Crystal Display) on the Operator panel. Go through the appropriate troubleshooting procedures according to the messages displayed on the LCD.



Control Panel of OKIFAX 5400

4.3 Troubleshooting Method

When a problem occurs, go through the troubleshooting according to the following procedure.



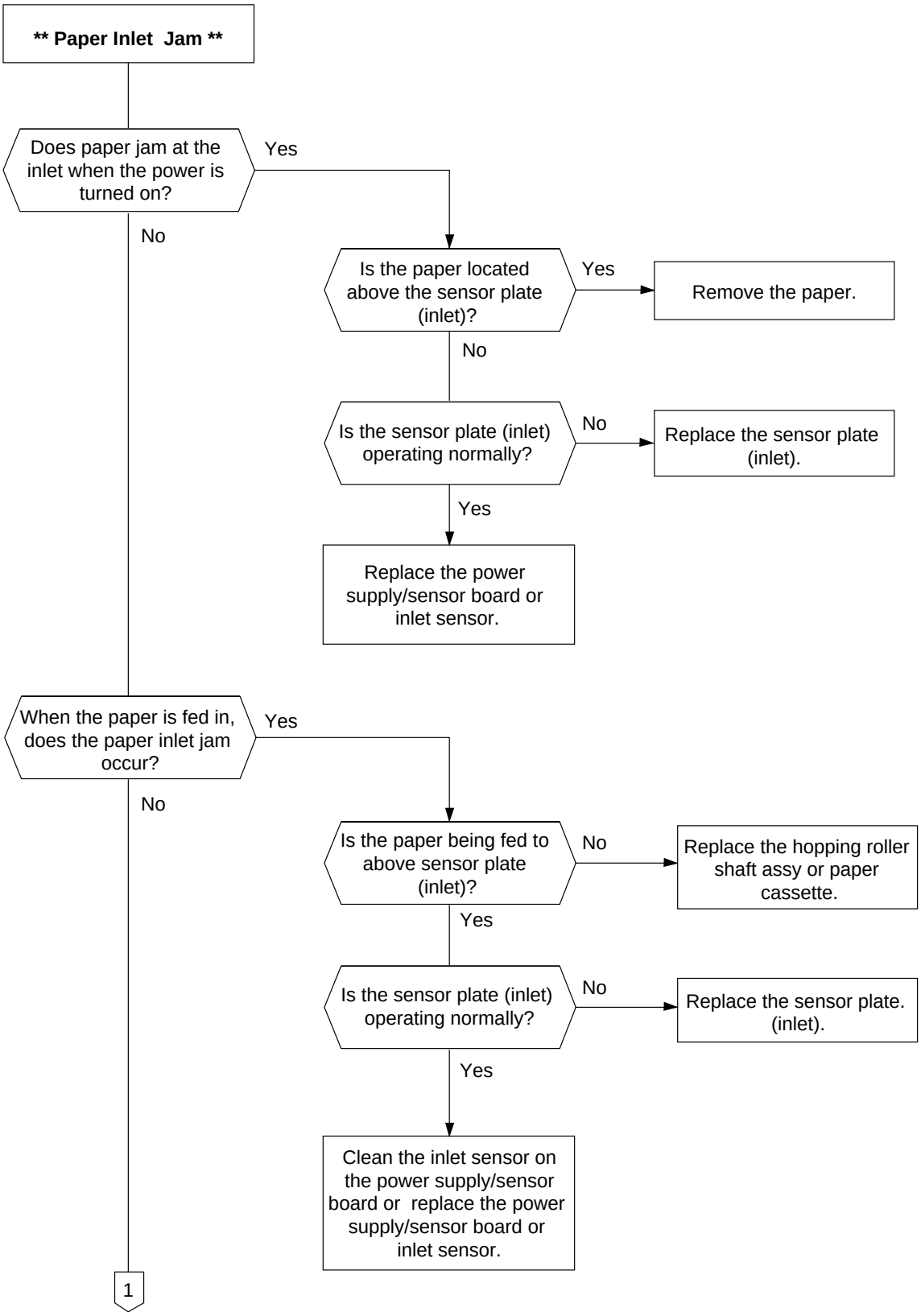
4.3.1 LCD Status Message List

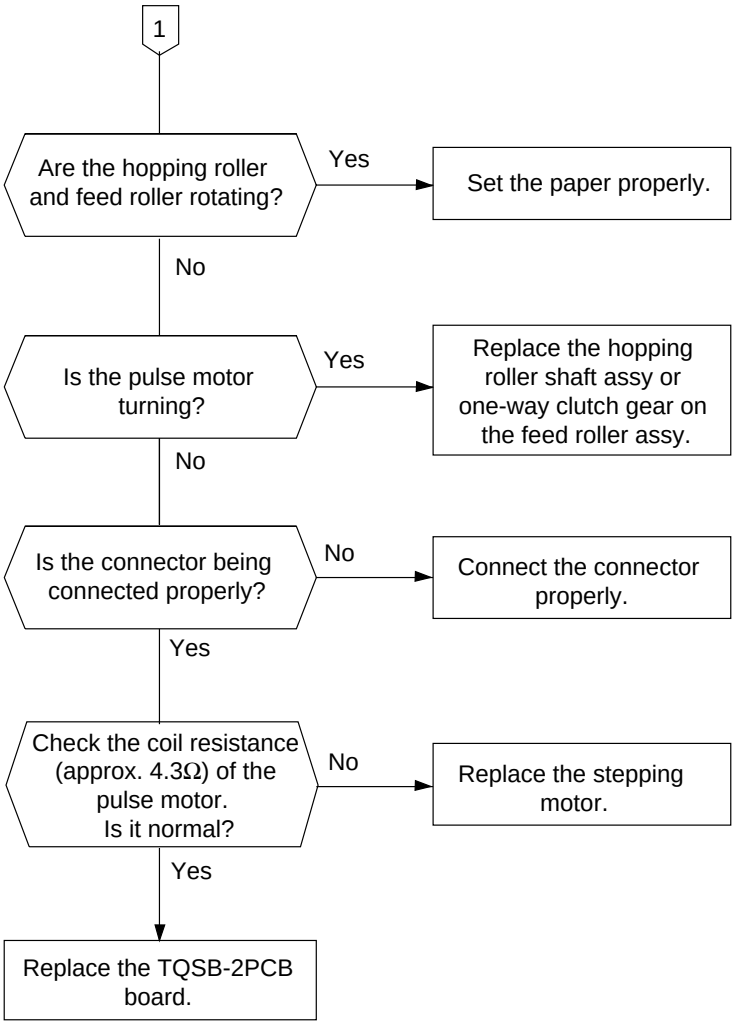
The listing of the statuses and problems displayed in the form of messages on the LCD is provided in Table 4-1.

Classification	LCD Status Message	Description	Recovery method
Jam error (feeding) *1	PAPER MIS-FEED[FAX] REPLACE PAPER	Notifies of occurrence of jam while the paper is being fed from Second Paper Feeder.	• Check the paper in the Second Paper Feeder. Carry out the recovery printing by opening and closing the cover, and turn the error display off. • When the problem occurs frequently, go through the Troubleshooting.
Jam error (ejection)	PAPER JAM [FAX] REPLACE PAPER	Notifies of occurrence of jam while the paper is being ejected from the Second Paper Feeder.	• Check the paper in the Second Paper Feeder. Carry out the recovery printing by opening and closing the cover, and turn the error display off.
Paper size error	PAPER JAM [FAX] REPLACE PAPER	Notifies of incorrect size paper feeding from Second Paper Feeder.	• Check the paper in the Second Paper Feeder. Also check to see if there was a feeding of multiple sheets. Carry out the recovery printing by opening and closing the cover, and turn the error display off.
Tray paper out *2	NO PAPER [FAX] REPLACE PAPER	Notifies of no paper state when both cassettes (1st and 2nd) has no recording paper.	• Load the paper in Second Paper Feeder.

*1: Indicates the same message on the display, when 1st or 2nd cassette becomes jam error (feeding).
*2: However, if 1st cassette has recording paper, LCD indicates the standby mode on the display and alarm message does not indicate.

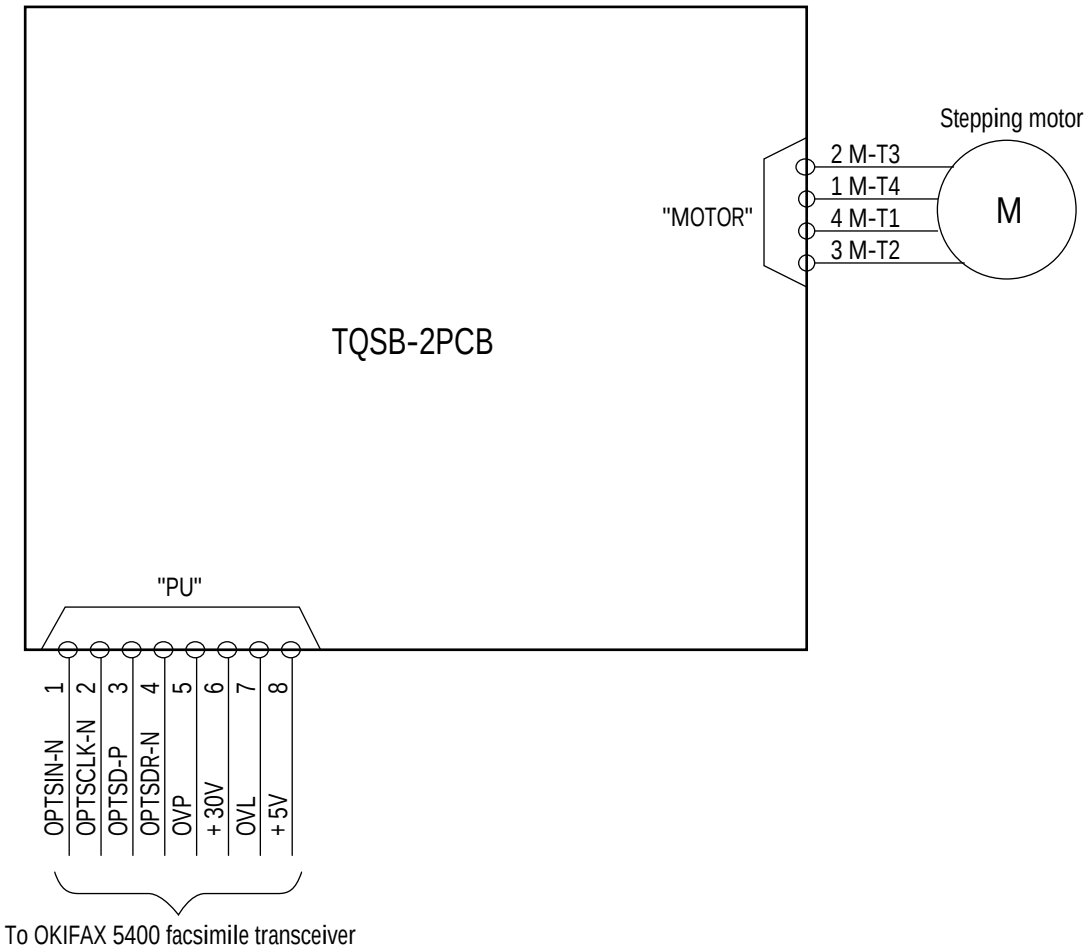
• (JAM error)


** Paper Inlet Jam **
Does paper jam at the inlet when the power is turned on?
Yes
No
Is the paper located above the sensor plate (inlet)?
Yes
Remove the paper.
No
Is the sensor plate (inlet) operating normally?
No
Replace the sensor plate (inlet).
Yes
Replace the power supply/sensor board or inlet sensor.
When the paper is fed in, does the paper inlet jam occur?
Yes
No
Is the paper being fed to above sensor plate (inlet)?
No
Replace the hopping roller shaft assy or paper cassette.
Yes
Is the sensor plate (inlet) operating normally?
No
Replace the sensor plate. (inlet).
Yes
Clean the inlet sensor on the power supply/sensor board or replace the power supply/sensor board or inlet sensor.
1


1
Are the hopping roller and feed roller rotating?
Yes
Set the paper properly.
No
Is the pulse motor turning?
Yes
Replace the hopping roller shaft assy or one-way clutch gear on the feed roller assy.
No
Is the connector being connected properly?
No
Connect the connector properly.
Yes
Check the coil resistance (approx. 4.3Ω) of the pulse motor. Is it normal?
No
Replace the stepping motor.
Yes
Replace the TQSB-2PCB board.

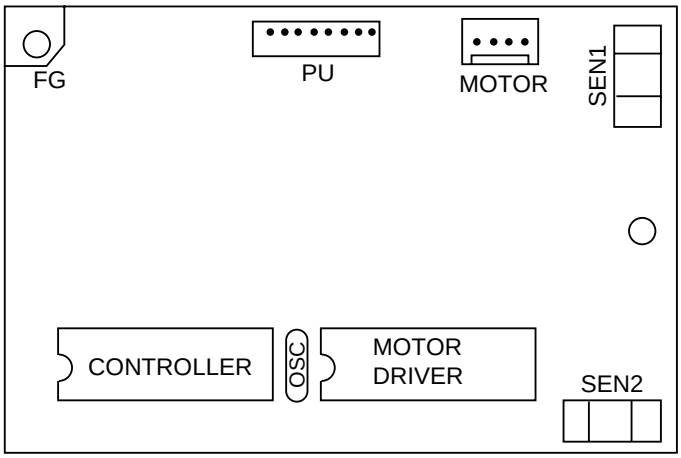
5. CONNECTION DIAGRAM

5.1 Interconnection Diagram



5.2 PCB Layout

TQSB-2PCB



6. PARTS LIST

SECTION1 CABINET & CASSETTE ASSEMBLY

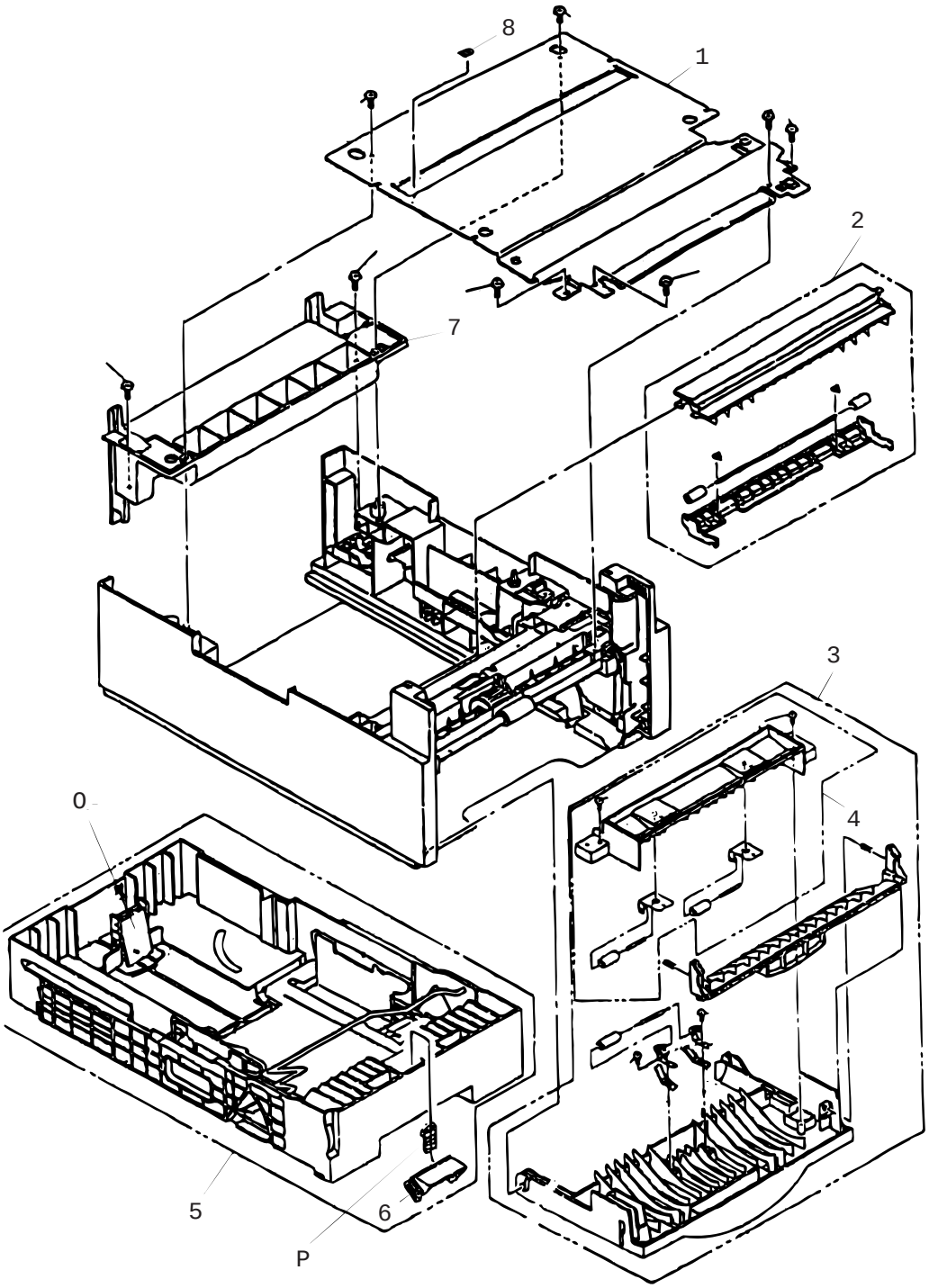


Figure 6-1

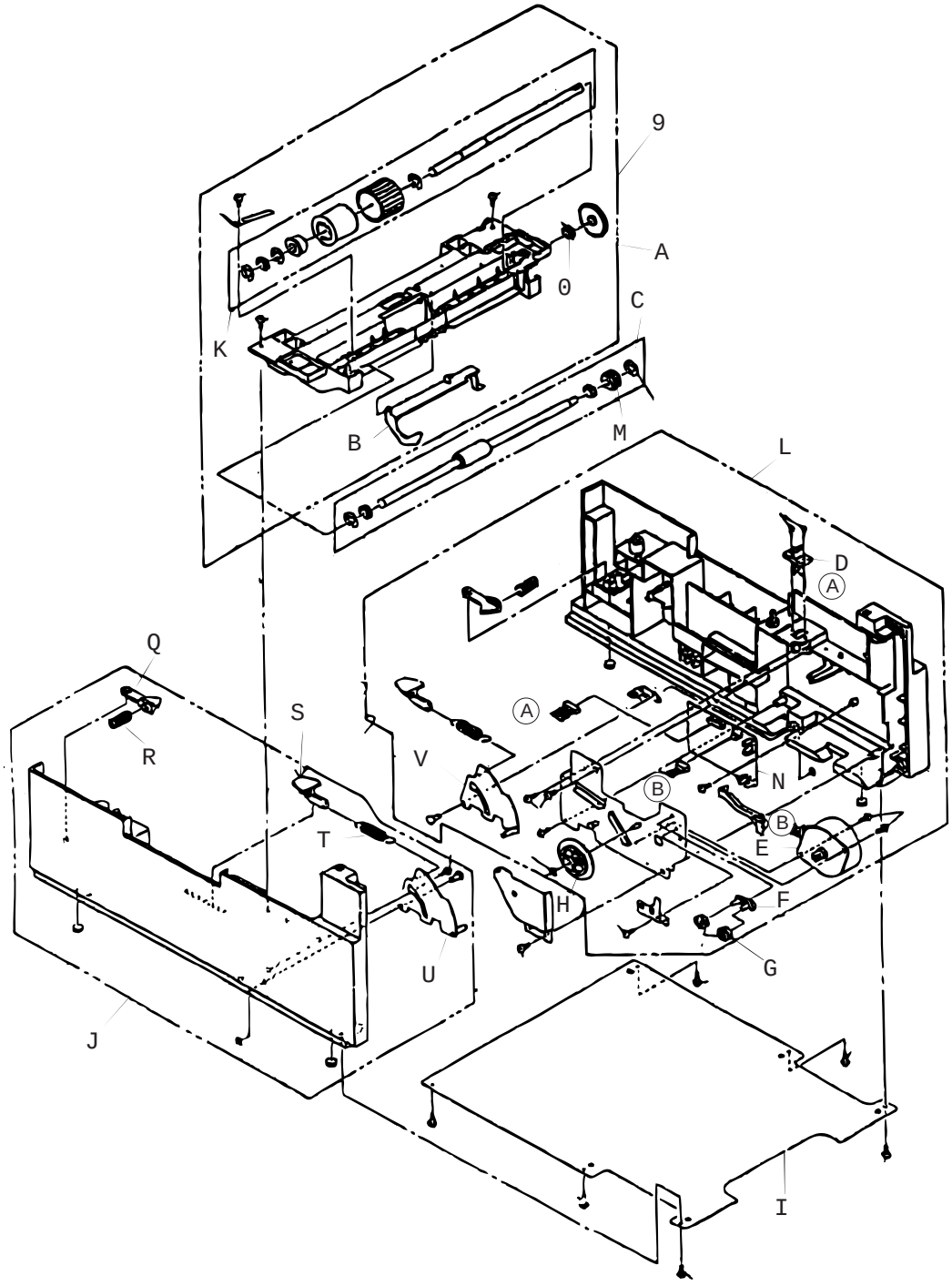


Figure 6-2

Table 6-1 Paper Feeder

No.	OKI Oarts Number	Description	Q'ty/U	Remarks
1	51023301	Plate, Upper	1	
2	50222001	Sheet Guide Assembly	1	
3	53075301	Front Cover Assembly	1	
4	50021501	Inner Guide Assembly	1	
5	50107304	Cassette Assembly (2nd Tray)	1	
6	53345801	Separation (F) Frame Assembly	1	
7	53075201	Cover, Rear	1	
8	51023401	Ground: Stick Finger	1	
9	50222401	Hopping Frame Assembly	1	
10	51608901	Bearing	1	
11	51239001	Gear (Z70)	1	
12	50411201	Lever, Sensor (P)	1	
13	50222501	Feed Roller Assembly	1	
14	56633901	Cable & Connector	1	
15	56512201	Pulse Motor	1	
16	51712001	Bracket	1	
17	51238901	Gear (Z24)	2	
18	51239101	Gear (Z87/Z60)	1	
19	51023201	Plate, Bottom	1	
20	50222301	Second Cassette Guide (L) Assembly	1	
21	50409501	Hopping Roller Assembly (2nd Tray)	1	
22	50222201	Second Cassette Guide (R) Assembly	1	
23	51401101	One-way Clutch Gear	1	
24	55078102	TQSB-2 PCB	1	
25		Tail Guide Assembly	1	
26	50927502	Separation Spring	1	
27		Cassette Lock Lever	1	
28		Locks Spring	1	
29		Pull Block	1	
30		Sheet Spring	1	
31		Sheet Link (L)	1	
32		Sheet Link (R)	1	