RICOH

FACSIMILE

RICOH FAX07

[BETA]

FIELD SERVICE MANUAL

(Europe)

(Asia)

Drafted on August 1 st, 1988
Technical Center
Overseas Marketing Department
Facsimile Division
Ricoh Company, Ltd.

TABLE OF CONTENTS

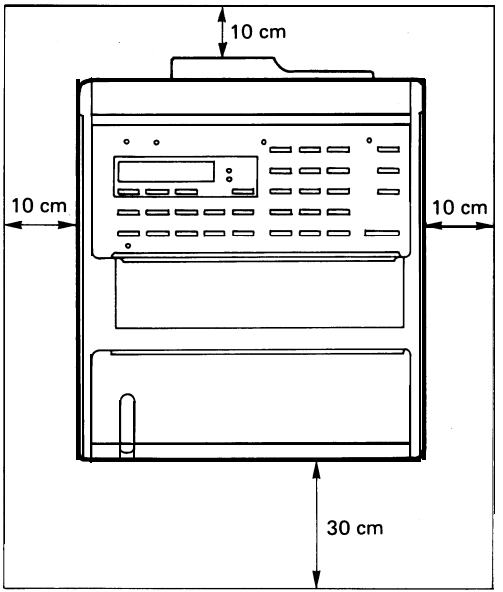
SECTION 1

UNPACKING

1-1 INSTALLATION REQUIREMENTS

Install in a place which satisfies the following:

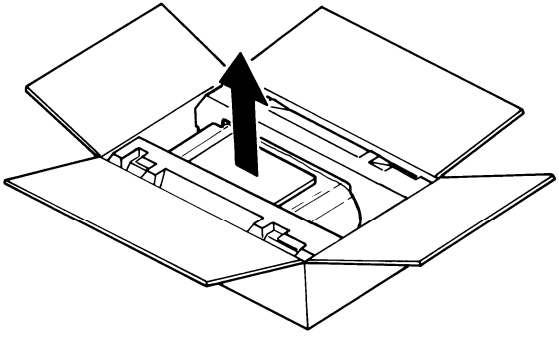
- **Not exposed to direct sunlight**
- **Away from areas containing corrosive gas**
- **Level**
- **Well ventilated (air turnover at least three times per hour)**
- **Not subject to vibration**
- **Dust-free**
- **Condensation-free**
- **Temperature 17 to 28°C**
- **Humidity 30 to 85%RH.**
- **Away from other electronic equipment, to avoid interference**
- **Away from heaters and air conditioners, to avoid sudden changes of temperature**
- **With clearance as shown below**

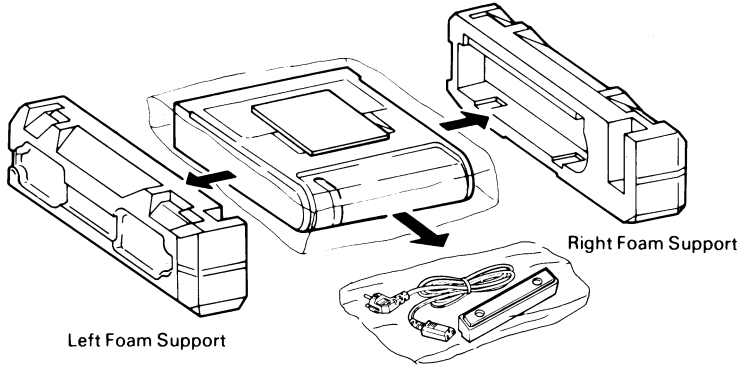


1-2 UNPACKING PROCEDURE

1. **Pull the machine out of the carton, with the foam supports and package.**

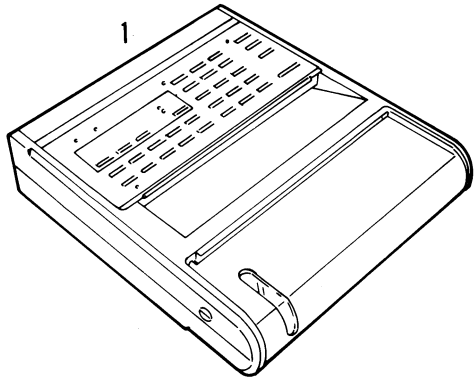
2. Remove the package, the foam supports, and the plastic bag from the machine.

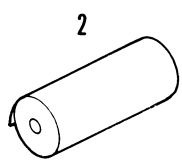


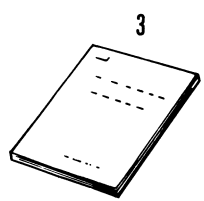


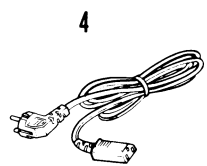
1-3 ACCESSORIES

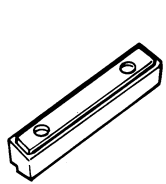
1. Facsimile Terminal	1
2. Thermal Paper	**15m**
3. Operation Manual	1
4. Power Cord	1
5. Tilt Stand	1
6. Screwdriver	1
7. One-touch Key Labels	**1 set**

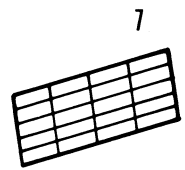












SECTION 2

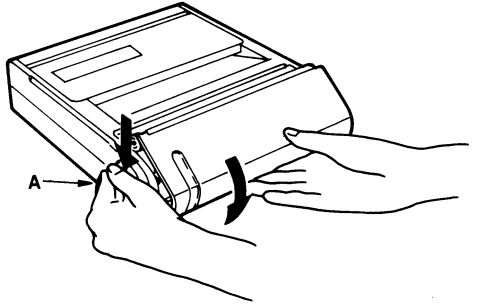
INSTALLATION PROCEDURE

2-1 ASSEMBLY

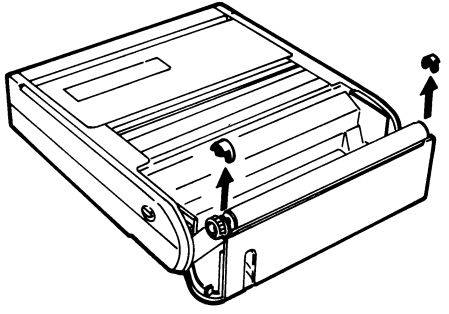
Note: Step 6 is optional, as the tilt stand does not have to be used.

1. **Remove all tape from the outside of the machine.**

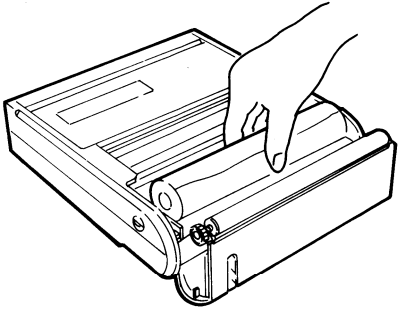
2. **Push down the printer cover release button (A) and open the printer cover.**

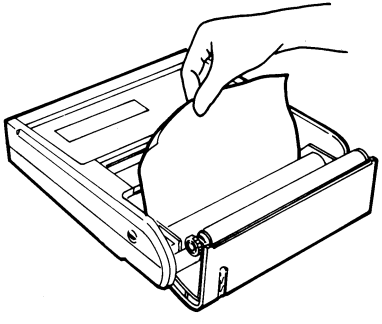


3. **Remove the red spacers from the platen roller bushings.**



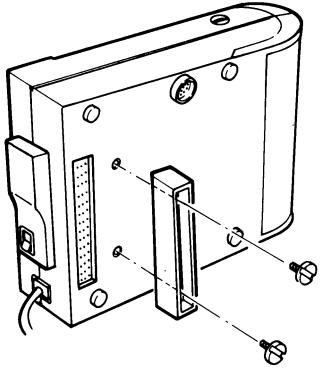
4. Place the paper roll in the machine with the leading edge feeding as shown below.





5. Close the printer cover. Ensure that the cover is locked properly. Make a test copy.

6. Stand the unit on its right side. Attach the tilt stand to the rear base of the unit as shown (two screws). Then stand the unit back on its base.



2-2 POWER CONNECTION

First, make sure that the power switch on the unit is off.

1. Connect the power cord to a 230V 50/60Hz power source capable of supplying more than 10A.

2. Voltage must not fluctuate more than 10%.

3. Make sure that the plug is firmly inserted into a proper grounded wall socket.

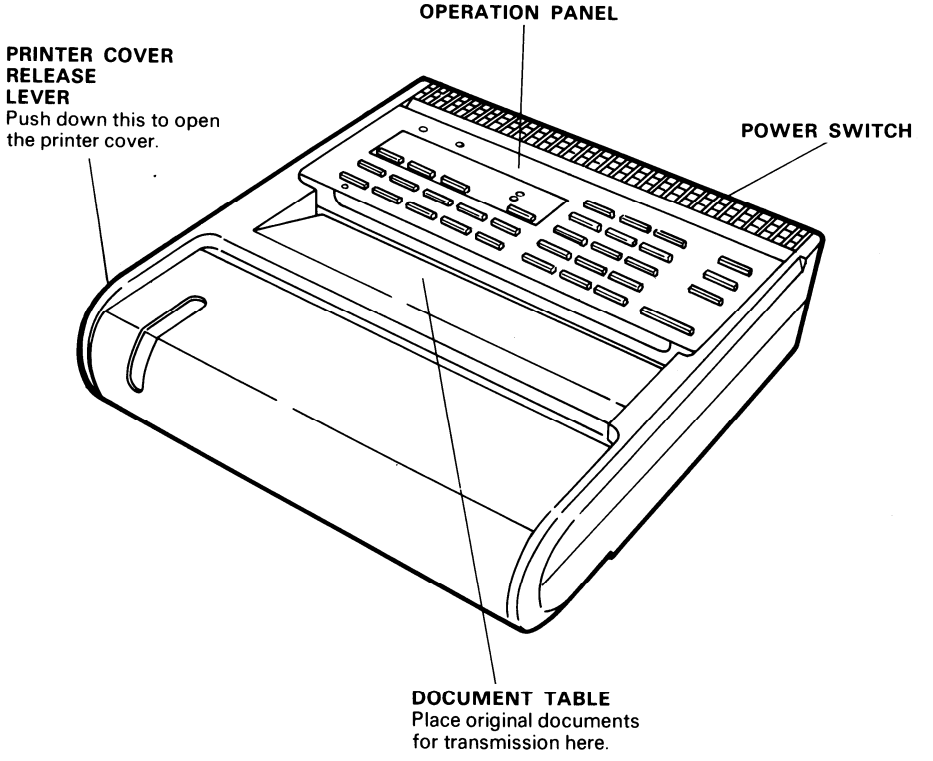
4. A dedicated circuit is recommended.

SECTION 3

COMPONENT GUIDE

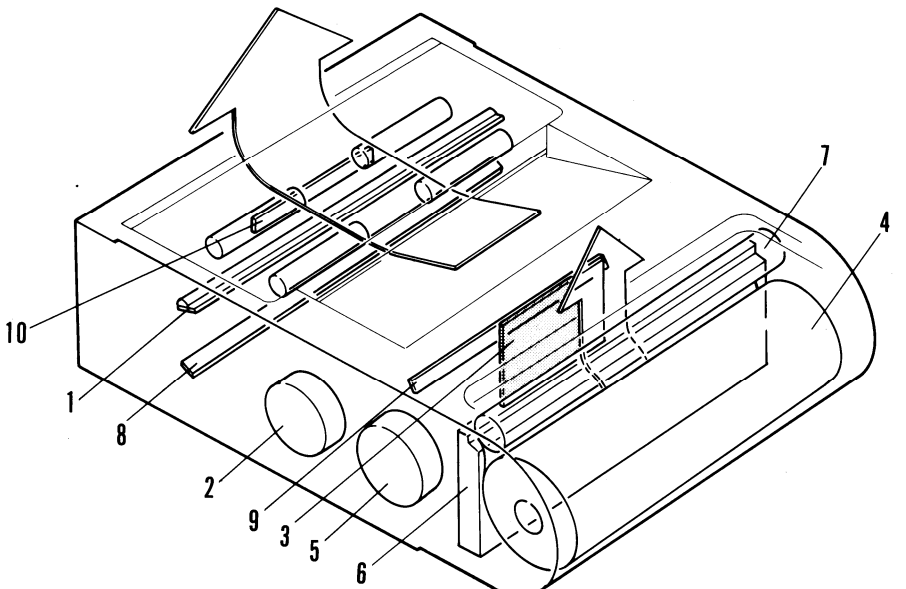
3-1 EXTERNAL

– Guide to Components —

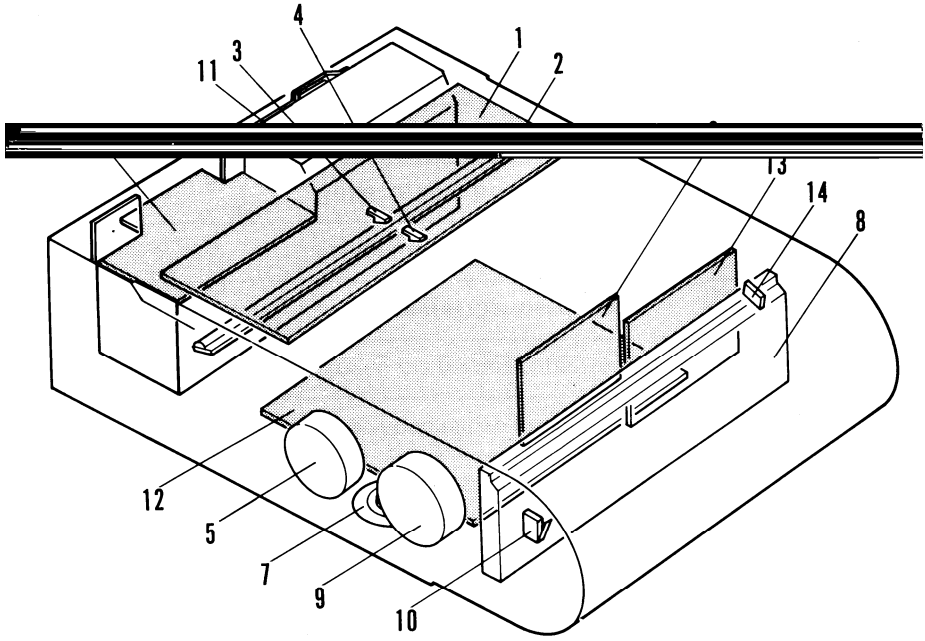


3-2 **INTERNAL**

– Optical and Mechanical Components –



No.	Name	Function
1	LED Array	Illuminates the document.
2	Tx Motor	Drives the DF and the scanner.
3	SBU	Contains the CCD, which converts optical images into an analog signal.
4	Paper Roll	Thermosensitive paper
5	Rx Motor	Drives the printer paper feed mechanism.
6	Thermal Head	Prints on the thermal paper.
7	Platen Roller	Feeds the printer paper.
8	First Mirror	Reflects light from the document to the SBU.
9	Second Mirror	As above.
10	Third Mirror	As above.


4
1
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11
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10

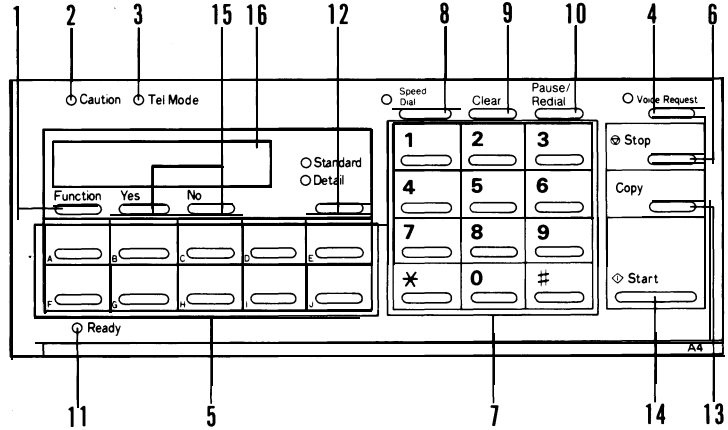
No.	Name	Function
1	OPU	Drives the operation and display panels.
2	LED Array	Illuminates the document.
3	Scan Line Sensor (SB-2)	Detects when a document is set at the scan line.
4	Document Sensor (SB-1)	Detects when a document is set in the DF.
5	Tx Motor	Drives the DF and the scanner.
6	SBU	Converts optical images into an analog signal.
7	Monitor Speaker	Monitors the telephone line.
8	Thermal Head	Prints on the thermal paper.
9	Rx Motor	Drives the printer paper feed mechanism.
10	Printer Cover Sensor (SB-10)	Detects when the printer cover is open and cuts off the main power.
11	PSU	Supplies power to all parts.

No.	Name	Function
12	FCU	Controls the system.
13	Modem	Modulates and demodulates.
14	Paper End Sensor (SB-4)	Detects when the paper roll has run out.
15	NIF	Contains the network control hardware.

SECTION 4

PROGRAMMING AND TESTING

4-1 OPERATION PANEL



No.	Name	Function
1.	**Function Key**	**Press to enter the programming mode.**
2.	**Caution Indicator**	**Lights when a transmission failure, document misfeed or copy misfeed occurs.**
3.	**Tel Mode Indicator**	**Lights when the unit is in TEL mode.**
4.	**Voice Request Key**	**During communication, press this key to request voice contact with the other terminal's operator.**

No.	Name	Function
5.	One-touch Keys	Use to input a single address with one touch.
6.	Stop Key	Press to stop the communication in progress and return the machine to standby.
7.	Keypad	When the Speed Dial lamp is not lit this keypad acts as a conventional numeric keypad. When the Speed Dial lamp is lit, this keypad can be used to enter a two-digit Speed Dial code.
8.	Speed Dial Key and Indicator	Push to enter a Speed Dial Code.
9.	Clear Key	Push to clear the previously entered character, or use as a cursor.
10.	Pause/Redial Key	i) Push to insert a pause in the telephone number. ii) Push to redial the remote terminal immediately.
11.	Ready Indicator	Lights when the unit is ready to operate.
12.	Resolution Key	Press to select the required resolution.
13.	Copy Key	Press to copy the document now in the feeder.
14.	Start Key	Press to start communication.
15.	Yes/No Keys	Press to answer questions on the display panel.
16.	Display Panel	Displays prompts, status, and selected modes.

4-2 PROGRAMMING

– Initial Set Up –

The following items should be programmed or registered before starting operation. If these items are not set, the machine will not function at optimum potential.

- **RTI/TTI/CSI*[1]**
- **ID code**
- **Date and time**

- **One-touch Keys**
- **Speed dial numbers – Up to 90**
- **FAX/TEL setting**
- **Local terminal telephone type**
- **Closed network enable/disable**
- **Auto-answer Delay time*[2]**
- **Refer to the Operation Manual for details.**

***[1] CSI is programmed by user mode (function no. 64) and service mode (function no. 99) in European models.**
***[2] This function is service mode in European models (function no. 80).**

Europe No.	Asia No.	Function
1	1	Contrast Selection
2	2	Send Later
3	3	FAX/TEL Setting
*1	4	Auto-Answer Delay Time
50	50	Clock Adjustment
56*2	51	Closed Network Enabling
51	52	Communication Counter Check
52	53	Scanned and Printed Sheet Counter Check
53	54	TTI Disabling
4*3	55	Telephone Line Type
54	56	Speaker Volume Adjustment
55	57	Transmission Report Enabling
60	60	Quick Dial Programming
61	61	ID Code Programming
62	62	RTI Programming
63	63	TTI Programming
64*4	64	CSI Programming
70	70	Journal Printing
71	71	Telephone List Printing

*1 This function is in the service mode (function no. 80).

*2 Default setting is disabled in the German version. This function is made available by changing bit sw. 18, bit nos. 5 and 6.

*3 This function is available only when bit sw. 18, bit no. 3 is O (default setting is 1 except the UK version).
If this bit is 1, this function is enabled only in the service mode (function no. 81).

*4 This function is in the service mode (function no. 99).
Default setting is enabled in the UK and Universal versions.

Europe No.	Asia No.	Purpose	Remarks
1	1	To select the contrast	Enter the number corresponding to the required contrast at the keypad.
2	2	To make a Send Later transmission	Enter the required transmission time in 24-hour clock format.
3	3	To select either automatic or manual reception	Press * to select FAX, and # to select TEL.
—	4	To select the time delay for answering the line in FAX mode	Press * to decrement and # to select TEL.
50	50	To enter the date and time	Increment with #, decrement with *, and move the cursor with Clear.
56	51	To enable or disable closed network transmission and reception	For each feature, press * to enable and #to disabled. If enebled, the remote terminal must have the same ID code as yours for communication to succeed.

Europe No.	Asia No.	Purpose	Remarks
51	52	To view the communication counters	Press Yes after viewing.
52	53	To view the sheet feed counters	Press Yes after viewing.
53	54	To enable/disable TTI printout on copies at the remote terminal	Press * to enable and # to disable.
4	55	To match the unit's dialing mode with the connected line	Press * for DTMF and # for pulse dialing. This function is available only for the UK version in Europe. The other versions can be enabled by the Function number 81 in the service man mode.
54	56	To adjust the speaker volume	Increase with # and decrease with *.
55	57	To enable transmission report output	

Europe No.	Asia No.	Purpose	Remarks
60	60	To program one-touch dial and speed dial codes	Press the key or enter the code that you want to program. Then enter the number. For one-touch keys, you can also program a label. The method is the same as for RTI (see function 62).
61	61	To Program the ID code needed for closed network communication	Enter the required code at the keypad. Do not use 0000 or FFFF.
62	62	To program the Remote Terminal Identifier. This is displayed on the remote terminal's operation panel during communication.	Enter the identifier from the left. Increment the character at the cursor through the character set with #, and decrement with *. Move the cursoe with Clear. Store the identifier by pressing Yes. Enter up to 20 characters.
63	63	To program the Transmitting Terminal Identifier. This is printed on the top of pages received at the remote terminal.	Up to 32 characters. Enter in the same way as the RTI.
64	64	To program the Called Subscriber Identifier. This is used in place of the RTI when communicating with a non-Ricoh machine.	Enter the telephone number (up to 20 numbers and spaces) at the keypad, then press #, then Yes.

Europe No.	Asia No.	Purpose	Remarks
70	70	To print the Transaction Confirtion Report	
71	71	To print the Telephone Lists	There are two lists: • One-touch Keys • Speed Dial Codes

4-3 SERVICE MODE

1. Entering and Exiting the Service Mode

To enter the service mode, press 1,4, 7, and * simultaneously.

Note: If you cannot enter service mode, install jumper 4 on the FCU before entering the service mode. (Europe only)

To exit the service mode, press 3, 6, 9, and # simultaneously.

Note: Take out FCU jumper 4, if you do not wish the user to access service mode. (Europe only)

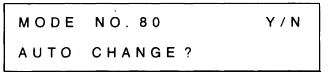
2. Function Table

Function Number	Function	Remarks
80	Auto-Answer Delay Time	Europe only
81	Telephone Line Type	Europe only
90	Bit SW programming	
91	ROM, RAM. display, RAM rewriting	Local terminal only
92	System Report	
93	ROM, RAM data printout	
94	Error code display	
95	Service Report	
96	CCITT and Maker code programming	CCITT = 0000, Maker = 25
97	Thermal head parameter programming	Enter the pulse width
98	NCU parameter programming	
99	CSI Programming	Europe only

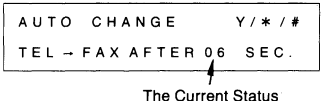
1) Auto-answer Delay Time Setting (Europe only)

This setting determines the time delay between the unit detection an incoming call and automatically answering the line. The setting can be any multiple of 6 from 0 to 42 seconds. A high value would give you a chance to answer the telephone personally even if the unit is in Fax mode.
This setting has no effect on the way the machine operates in Tel mode; in Tel mode, the unit will never answer the line automatically.

1. Press the Function key and enter 80.



2. Press Yes.



3. Either:
Press * to decrement the time

Or:
Press # to increment the time.

4. Press the Function key to return to standby.

3) Bit Switch Programming

1. Press the Function key and enter 90 at the keypad

MODE NO. 90 Y/N
DISPLAY BIT SW?

2. Press Yes.
The first line indicates the factory settings; the second line indicates the present settings.

DEFAULT: 0110 0000
BITSW 0: 0110 0000

3. Make your changes
*** Press # to increment the bit switch number; press * to decrement.**
Hold down #/* for fast increment/decrement
Example: Press # once.

DEFAULT: 0111 0100
BITSW 1: 0111 0100

*** Press the numeric keypad key corresponding to the bit that you want to change. Bits are numbered from 7 at the left to 0 at the right.**
Example: Change bit 0 to 1.
Press 0.

DEFAULT: 0111 0100
BITSW 1: 0111 0101

4. Either:

Change more bit switches using step 3

Or:

Press the Function key to return to standby

```
READY          10:00
SET DOCUMENT
```

CAUTION: Refer to appendix A (Bit switch functions) and consult a senior technician before changing any setting.

4) ROM and RAM display, RAM rewriting

Consult a senior technician before changing any RAM data.

1. Press the Function key and enter 91

```
MODE NO. 91
DISPLAY ROM, RAM?
```

2. Press Yes.

```
ADDRESS = 0000
DATA    = 03
```

3. Select the address.

*** Use the Clear key as a cursor.**

*** Use # to increment the cursor character.**

*** Use the * key to decrement.**

4. Move the cursor onto the data.

Change the data, if required, using the same method as for step 3.

The machine automatically prevents you from changing ROM areas.

5. Either:

Change more addresses; go back to step 3

Or:

Press the Function key to return to standby

Useful RAM Addresses

Contrast Thresholds	Light	12C4
	Normal	12C5
	Dark	12C6
Sensor Threshold	SB-4 in standby mode	1E84 (40%)
Current Sensor Values	SB-4	1E82
Number of Redials	1E6A	
Redialing Interval	1E6B	

5) System Report

This report lists counter totals, ID codes and other items.

1. Press the Function key and enter 92.

```
MODE NO. 92 COPY/N
FOR SYSTEM REPORT
```

2. Press the Copy key to print the report.

```
PRINT SYSTEM REPORT
```

6) ROM and RAM Printout

1. Press the Function key and enter 93.

```
MODE NO. 93                Y/N
PRINT ROM, RAM DATA?
```

2. Press Yes.

```
PRINT DATA                 COPY/N
START = 0000, END = 0000
```

3. Enter the start and end addresses.

Use # to increment, * to decrement, and Clear to shift the cursor.

```
PRINT DATA                 COPY/N
START = 1230, END = 123F
```

4. Press Copy

```
PRINT ROM, RAM DATA
```

7) Error Code Display

This displays the most recent 32 error codes. All types of error are included

1. Press the Function key and enter 94.

MODE NO. 94
DISPLAY ERROR CODE?

2. Press Yes.

ERROR CODE
1-01, 1-02,2-03,2-02

3. Either:

Press # to display the next four codes.

Note: If # is pressed more than 7 times, the machine returns to standby.

Or:

Press the Function key to return to standby.

8) Service Report

1. Press the Function key and enter 95.

MODE NO. 95 COPY/N
FOR SERVICE REPORT

2. Press Copy.

The machine automatically returns to standby.

PRINT SERVICE REPORT

SERVICE REPORT

TERMINAL ID: **RICOH TECH. SECTION (AUG.04 '88 15:55)**

DATE	START TIME	REMOTE TERMINAL IDENTIFICATION	MODE	ERROR CODE(S)
AUG.02	14:30	RICOH FACSIMILE QA	G3DR	0-23,
	18:33	RICOH 882-2176	G3ST	0-07,
AUG.03	13:39	RICOH SVC O'SEAS	G3DT	0-07,
	14:10	WYWY MALAYSIA	G3ST	0-08,

ERROR CODE LIST

1-21	0-08	0-07	0-00	0-00	0-00
0-07	1-21	1-21	1-21	0-04	0-01
0-00	0-00	0-00	0-00	0-00	0-00
0-00	1-21	1-21	0-23	1-21	0-62
1-10	1-21	0-06	1-71	1-71	1-71
1-71	1-20				

The Error Code column lists communication errors.
The Error Code List area gives all types of error codes (the most recent 32 codes only).

9) CCITT and Maker Codes

1. Press the Function key and enter 96.

   MODE NO. 96 Y/N
   SET CCITT, MAKER?

2. Press Yes.

   CCITT MAKER
   0001 25

3. Enter the correct codes.

   CCITT = 0000; MAKER = 25

   Use # to increment, * to decrement, and the Clear key as a cursor key.

   CCITT MAKER
   0000 25

   If incorrect codes are programmed, communication using NSF(S) is disabled.

4. Press the Function key to return to standby

10) Thermal Head Parameters

Use this function immediately after changing the thermal head or FCU

1. **Press the Function key and enter 97.**

   MODE NO. 97
   SET PULSE WIDTH? Y/N ?

2. **Press Yes**

   PULSE WIDTH HEAD
   1.00MS A

3. **Enter the pulse shown on the thermal head (e.g., 1.45 ins).**

   PULSE WIDTH HEAD
   1.45MS A

   Enter the value directly at the keypad.

4. **Press the Function key to return to standby.**

11) NCU Parameter Programming

Consult a senior technician before adjusting any of these parameters.

1. Press the Function key and enter 98.

```
MODE NO. 98
SET NCU PARAMETER?
```

2. Press Yes.

```
NCU PARAMETER        KPAD/Y
  NO. 00          065
Param NO.         Value
```

3. Change the value of the displayed parameter, if required.

Enter the new value at the keypad.

```
NCU PARAMETER          KPAD/Y
  NO. 00         075
```

4. Go on to change another parameter.
Press Yes until the desired parameter is displayed.

```
NCU PARAMETER          KPAD/Y
  NO. 01         128
```

5. Press the Function key to return to standby after finishing.

A table of parameters follows.

Parameter No.	Description	Formula	Factory Setting		Remarks
			UK, universal	Asia	
00	Acceptable ringing signal frequency : Range 1, upper limit	$\frac{1}{Nx655x10-6}$ Hz	75	64	
01	Acceptable ringing signal frequency : Range 1, upper limit	$\frac{1}{Nx655x10-6}$ Hz	128	127	
02	Acceptable ringing signal frequency : Range 2, upper limit	$\frac{1}{Nx655x10-6}$ Hz	53	26	
03	Acceptable ringing signal frequency	$\frac{1}{Nx655x10-6}$ Hz	86	67	
04	Number of rings until a call is detected.	N (times)	01	01	
05	Undetected part of the first ring	N x 20 (ms)	10	10	Note 3
06	Undetected part of the second and subsequent rings	N x 20 (ms)	10	10	
07	Reset time	N x 40 (ms)	200	200	
08	Time between the closing of relay DS and the opening of relay DI (TO)	N x 1 (ms)	255	61	Notes 1, 2
09	Time that relay DI is open. (T1)	N x 1 (ms)	67	66	Note 1
10	Time that relay DI is closed. (T2)	N x 1 (ms)	33	34	Note 1
11	Time between the final closure of relay DI and the opening of relay DS. (T3)	N x 1 (ms)	50	50	Notes 1, 2

Parameter No.	Description	Formula	Factory Setting		Remarks
			UK, Universal	Asia	
12	Time until the next dial pulse is transmitted (pause between dials, the time until DI relay is opened after DS relay is opened). (T4)	N x 20 (ms)	30	36	Notes 1, 2
13	Time waited when a pause is input.	N x 20 (ms)	33	101	
14	DTMF tone on time (D0)	N x 1 (ms)	100	100	
15	DTMF tone off time (D1)	N x 1 (ms)	100	110	
16	DTMF tone transmission level	– (15–N)	09	09	Note 4

Notes:

1. **The above pulse dialing times (T0, T1, T2, T3) are the values for 10 pps. Times for 20 pps are half those for 10 pps.**

2. **DS relay control should be done for the Europe type NCU which has a ground start selection.**

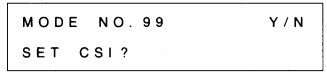
3. **The first ring may not be detected until Parameter 05 + Ringing Signal wavelength X (1 to 2.5).**

4. **N must be between 0 and 15.**

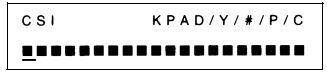
12) Entering the CSI (Europe only)

CSI – This identifier is used instead of the RTI during communication with another maker's terminal.

1. Press the Function Key and enter 99.



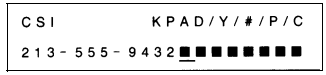
2. Press Yes.



3. Enter the required CSI using up to 20 numerals and spaces. Using your telephone number is recommended.

- **Use digits 0 — 9 at the keypad.**
- **. Press Pause/Redial to enter a space.**
- **. Press Clear to leave the character at the cursor unchanged.**
- **Enter # after the last digit of the CSI.**

Example: 213-555-9432



Press Yes to store this CSI.

The unit returns to standby.

4. Test Mode

The machine has the following function tests.

1) Entering and Exiting the Test Mode

1. Hold down the Stop key and switch the power on.
2. When "ENABLE SERVICE FUNC." is displayed, press the Start key immediately. The following will appear

   D: LED, S: LCD, T/F: MDM
   VOICE: SEN; TEL: DTMF

   The meaning of this display is as follows:
   - Light the "Detail" LED to select LED array lighting
   - Light "Standard", to test the operation panel
   - Press "Yes" (True/False) to test the modem
   - Light "Voice Request" to initialize the sensors
   - Light "Speed Dial" to make a tone test

3. Make the required tests.
   See the top of this page for the appropriate page numbers.

   After testing:
   • Switch the power off, wait for a few seconds, then switch back on.

2) LED Array Lighting

1. Make sure that the Speed Dial and Voice Request LEDs are off.

2. Select “Detail” resolution, then press the Start key.

   LED LAMP ON

   The LED array will light. It will remain lit for 8 minutes

3. Press Stop to return to standby.

3) Operation Panel Test

1. Make sure that the Speed Dial and Voice Request LEDs are off.

2. Select standard resolution then press Start. The LEDs should be lit, except for the following indicators, which should be blinking:
   Tel mode, Caution

   LCD ALL DISPLAY

3. Press the Stop key to return to standby.

4) Modem Test

1. Make sure that the Speed Dial and Voice Request LEDs are off.

2. Push Yes, then push Start. The unit will go into the off-hook mode.

MODEM TEST

3. Press the required keys to test the desired signal (refer to the following table)
Example: 9600 bps, press and hold the start key, then immediately press 9.

MODEM TEST
9600 BPS

Note: The machine will return to standby after 8 minutes of testing any one tone.

4. Press Stop to return to step 3.

MODEM TEST

5. Press Stop once more to return to standby.

Signal	Operation (Press the following keys in sequence)
9600 bps	Start + 9
7200 bps	Start + 7
4800 bps	Start + 4
2400 bps	Start + 2
300 bps	Start + 3
2100 Hz (CED)	copy + 2
1850Hz	copy + 8
1650Hz	copy + 6
1100HZ	copy + 1
462 Hz	copy + 4
2100Hz (G2 video signal)	Copy + Pause/Redial

5) Sensor Threshold Initialization

1. Make sure that SB-4 is covered with paper and make sure that the Speed Dial LED is not lit.
2. Press the Voice Request key, then the Start key.
3. If a sensor is faulty, "NG" will be displayed followed by the faulty sensor.
   If "SET VALUE OF SENSOR" is displayed, the sensors are all in good order and have been automatically initialized.

6) Tone Tests

1. Press the Speed Dial key, then press Start.

   DTMF TONE

2. Press the key corresponding to the desired tone (refer to the table given below).
   Example: 697 Hz, push A

   DTMF TONE 697HZ

   Note: The machine will return to standby if no key is pushed for 8 minutes.

3. Press Stop after testing this tone.

   DTMF TONE

4. Either:
   Return to standby – press Stop once more
   Or:
   Test another tone – go to step 2.

Tone	Operation	Tone	Operation
Dual tone 0	Push0.	Single tone 697 Hz	Push A.
Dual tone 1	Push 1.	Single tone 770 Hz	PushB.
Dual tone 2	Push 2.	Single tone 852 Hz	PushC.
Dual tone 3	Push 3.	Single tone 941 Hz	PushD.
Dual tone 4	Push 4.	Single tone 1209 Hz	PushE.
Dual tone 5	Push 5.	Single tone 1336 Hz	PushF.
Dual tone 6	Push 6.	Single tone 1477 Hz	PushG.
Dual tone 7	Push 7.	Single tone 1633 Hz	PushH.
Dual tone 8	Push 8.		
Dual tone 9	Push 9.		
Dual tone *	Push *.		
Dual tone #	Push #.		

5. Printer Tests

It is not necessary to enter the Service Mode.

From standby:

* **Press the Copy key, then immediately press a specified key, depending on the desired printout.**

  Do not release the keys until the printer has started.

- **Thin, closely spaced lines**
  Copy key + 1

- **Thick, vertical stripes**
  Copy key + 2

- **Pattern**
  Copy key + 3

- **Dense diagonal stripes**
  Copy key + 4

- **Closely spaced horizontal lines**
  Copy key + 5

4-4 QUALITY CHECKS

1. Copy Quality

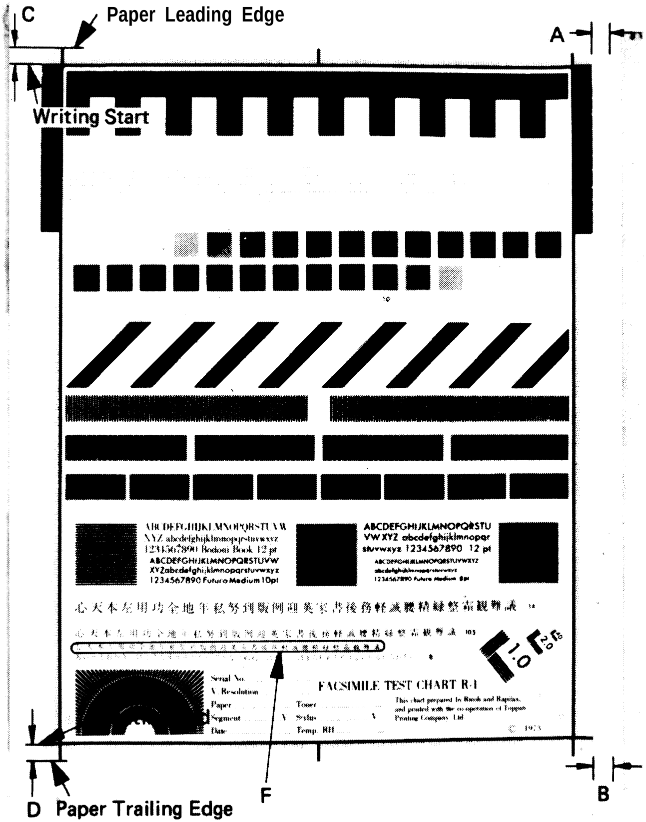
1) Copy density
Method: Visually check the density in the left, right and center.
Standard: Density must be even in the left, right and center.

2) Skew
Method: Copy an RI test chart using standard resolution.
Standard: The difference in length between A and B must be as follows.
A4 or larger: Less than 1 % of the document length.
Smaller than A4: Less than 3% of the document length.
Correction: Clean the RI and R2 rollers.

3) Intelligibility
Method: Copy an R1 test chart using standard resolution.
Check the characters in frame F.
Standard: No characters must be missing in the subscan direction.
Correction: Check and adjust the following.
- Flatness
- Reduction rate
- M T F

Refer to section 6-1 for details.

4) Make another copy. If the copy is still defective, make a printer test (see page 4-31) and check the SBU waveforms if necessary (refer to page 6-1).


C
Paper Leading Edge
A
Writing Start
FACSIMILE TEST CHART R-1
F
B
D
Paper Trailing Edge

2. Test the operation panel display. Refer to page 4-26.

3. Initialize the sensors (refer to page 4-29).

4. Check DF and printer operation.

5. Communication Tests

No.	Procedure	Check Items
1	Call a remote unit and send 2 test charts, one in standard and the other in detailed resolution.	1. Resolution selection. 2. RTI display. 3. Voice request function
2	Receive 2 test charts.	1. RTI display. 2. Copy quality. 3. Automatic reception function. 4. Voice request function.

SECTION 5

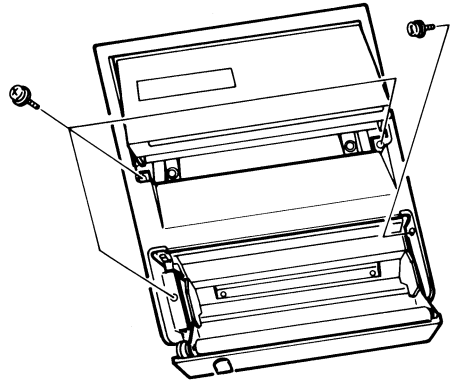
REMOVAL AND REPLACEMENT

5-1 COVER REMOVAL

5-1-1 Top Cover

1. Open the printer and the scanner.

2. Remove the four screws holding the cover and ease off the cover.

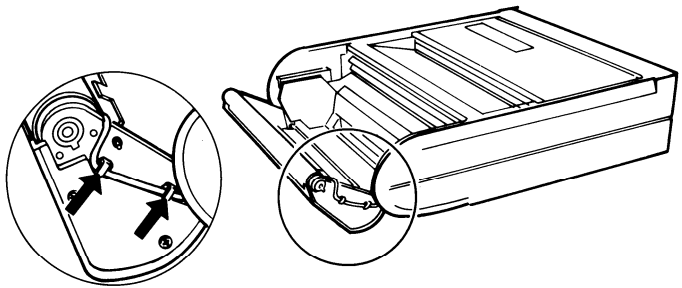


5-1-2 Printer Cover

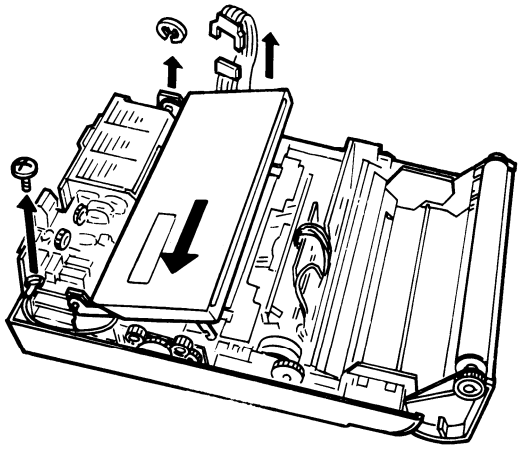
1. Open the printer.

2. Remove the printer cover — four screws, two at each end.

Note: When replacing the cover, make sure that the harness on the right end is in the two harness clamps.



5-1-3 Operation Panel

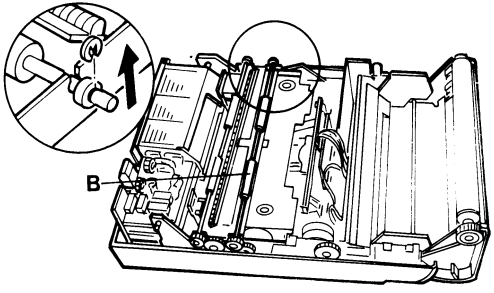


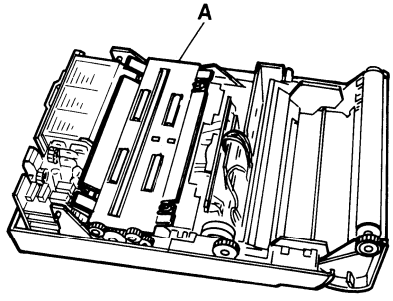
1. Remove the top cover (see section 5-1-1).
2. Remove the ground wire – one screw.
3. Remove the E-ring.
4. Slide the operation panel to the left along the hinge pins, and remove it – one connector.

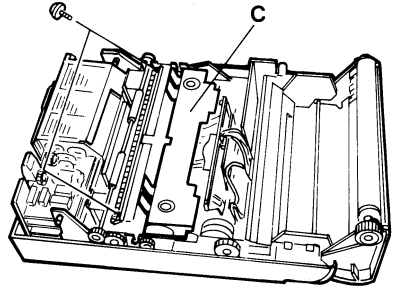
5-2 MECHANICAL AND OPTICAL COMPONENTS

5-2-1 LED Array

1. Remove the top cover (see section 5-1-1).
2. Remove the operation panel (see section 5-1-3).







3. Remove the scanner guide plate (A) – two screws.
4. Remove the RI roller (B) – one E-ring and bushing on the right-hand side.
5. Remove the LED array assembly (C) – two screws, one connector on the FCU.
6. Remove the LED array from the bracket – four screws.
7. Connect up a new LED array and test it using the LED array test procedure (see page 4-26).

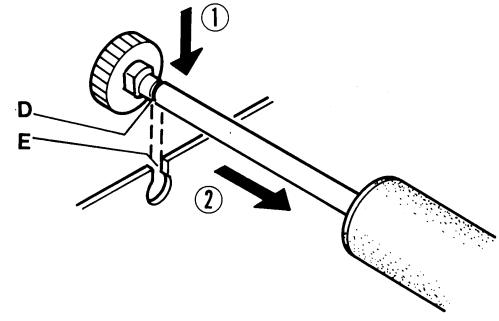
8. Reassemble

- **Wipe off the lens on the LED array with a soft cloth. Do not touch this lens when installing the LED array assembly.**
- **To replace the R1 roller, first push the gear and bushing on the left end of the shaft as far left as they will go.**

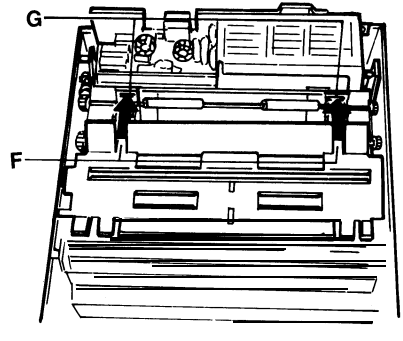
  Then:

  1) Fit the resulting clearance (D) into the slot (E) in the bracket.

  2) Push the shaft in the direction of the arrow until the bushing fits into the slot (E).

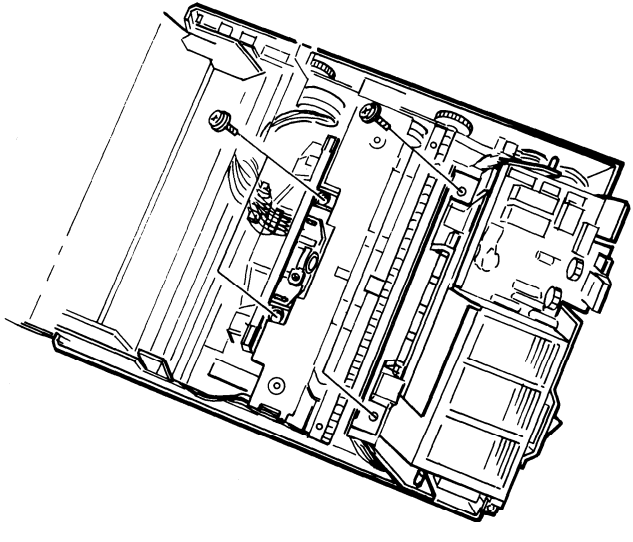


- **When replacing the scanner guide plate, fit the two tabs on the rear (F) into the slots (G) in the upright brackets.**



5-2-2 Scanner Unit

1. Remove the top cover (see section 5-1-1).
2. Remove the operation panel (see section 5-1-3).
3. Remove the scanner guide plate– two screws (see section 5-2-1 step 3).
4. Remove the R1 roller – one E-ring and one bushing (see section 5-2-1 step 4).
5. Remove the R2 roller in the same way as the R1 roller.
6. Disconnect the LED array (CN11) and the SBU (CN7) from the FCU.
7. Remove the four screws that hold the scanner unit to the base.



8. **Lift out the scanner unit.**
9. **Reassemble**
   - **Make sure that there are no wires obstructing the holes for the scanner unit securing screws.**
   - **Make a copy of a test chart.**
   - **There should be no need for any scanner adjustments.**

5-3 ELECTRONIC COMPONENTS

5-3-1 Modem

1. Remove the top cover (see section 5-1-1).
2. Take out the modem.

5-3-2 PSU

1. Remove the scanner unit (see section 5-2-2).
2. Remove the NIF (three screws, two connectors).
3. Remove the bracket that is on top of the PSU (four screws)
4. Remove the PSU (two screws, two connectors).

5-3-3 OP-PORT

1. Remove the operation panel (see section 5- 1 -3).
2. Remove the upper scanner guide plate (four screws), feeding the ground wire through the opening in the plate.
3. Remove the OP-PORT PCB (12 screws, 3 connectors).

5-3-4 FCU

– Before Removal –

1. Print the following reports.
   - . Telephone List
   - . Journal — give to the user
   - . System Report
   - . Service Report — keep for reference during future service calls

2. Check the records for the user to determine what RAM changes have been made since installation.

3. • Note the settings of functions 3, 4, 51, 54, 55, 56, and 57. (Asia)
   - . Note the settings of functions 3, 4(81), 53, 54, 55, 56 and 80. (Europe)

4. Make sure that SW1 (battery switch) and SW2 (factory use only) of the new FCU are ON (closed).

– Removal –

1. Remove the scanner unit (see section 5-2-2).
2. Remove the FCU (ten connectors, one screw).

   Note: The harnesses are not marked.
   Take care not to mix them up.

– After Replacement –

1. Initialize the RAM on the new FCU as follows.
   . Set bit 7 of bit switch D to 1.
2. Reprogram the shorthand numbers, and one-touch keys.
3. . Reprogram functions 3, 4, 51, 54, 55, 56, and 57. (Asia)
   • Reprogram functions 3, 4(81), 53, 54, 55, 56 and 80. (Europe)
4. Reprogram the items on the system report.
5. Reprogram the RAM data noted in step 2 of the pre-removal procedure.
6. Enter the date and time.
7. Carry out the quality checks stated in section 4-4.

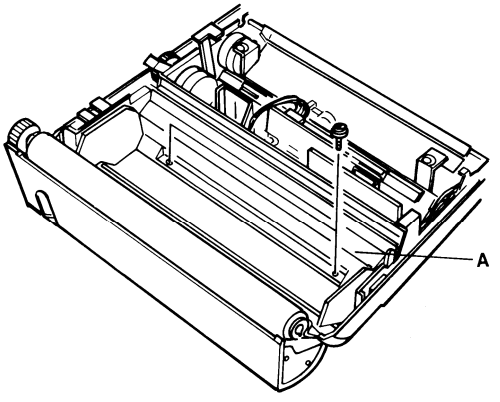
5-3-5 Thermal Head

– Thermal head handling precautions –

1. Avoid static electricity because Bi-CMOS LSIs are used.
   Pack the thermal head in an anti-static bag.
2. Clean the heating element surface with alcohol-soaked guaze or soft cloth.
   This prevents irregular density and white blanks due to damaged or stained heating elements.
3. Do not hit or rub the heating element board surface with a sharp edge or hard material.
4. Check that the head is positioned properly and that the springs pushing the head against the platen roller are in position.
5. Do not operate the thermal head in excess of the pulse width value shown on the thermal head.
6. Do not stain the black seal on the thermal head.
   Otherwise, the paper width sensor and the paper end sensor may malfunction.

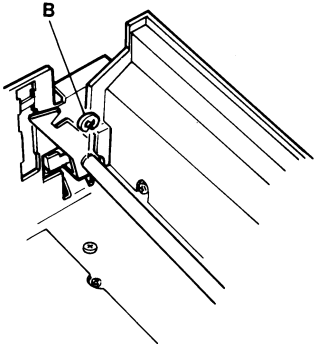
– Procedure–

1. Remove the top cover (see section 5-1-1).
2. Remove the modem (see section 5-3-1).
3. Open the printer and take out the paper roll.

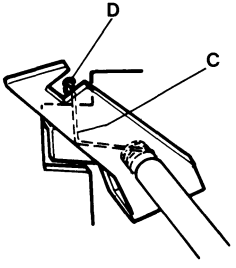


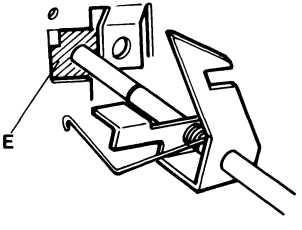
4. Remove the paper guide (A) - two screws.

5. Remove the E-ring (B) on the left end of the printer cover lock shaft.



6. While pressing the thermal head towards the SBU:
   i) Ease the end of the lock lever spring (C) at the left end of the lock lever shaft out of the small hole (D) in the bracket.
   ii) Detach the left-hand end of the lock lever shaft and rest it in the opening (E) in the bracket.
   iii) Remove the lock lever shaft.
7. Stop pressing the thermal head toward the SBU.
8. Remove the thermal head (two screws, two connectors).
9. Install a new thermal head.
   Note: Do not touch the heating elements. Read the precautions at the beginning of this procedure.
10. Reassemble
    To replace the lock lever shaft:
    i) Place the left-hand end of the shaft into the opening (E).
    ii) Replace the right-hand end of the shaft into its original position.
    iii) Replace the left-hand end into its original position.
    iv) Replace the spring (C) and E-ring (B).





11. After reassembly:
    i) Enter the pulse width.
    ii) Clean the thermal head roller and platen with a soft cloth and alcohol.
    iii) Print some test patterns.

5-3-6 SBU

1. Carry out steps 1 to 7 of the thermal head removal procedure (see section 5-3-5).
2. Remove the SBU (two screws).
3. After installing a new SBU, carry out the SBU adjustment procedures.

5-4 SENSORS

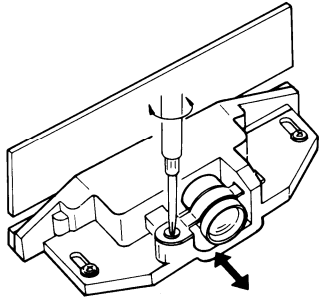
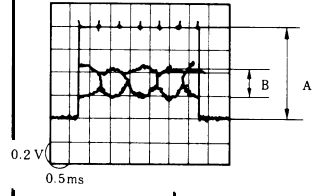
After replacing SB-4, initialize the sensors (see page 4-29).

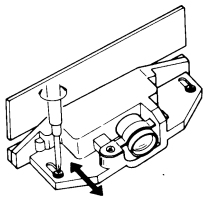
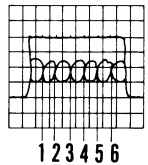
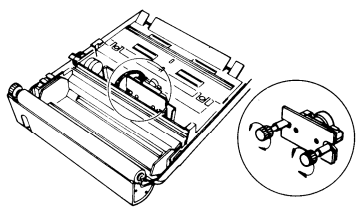
SECTION 6

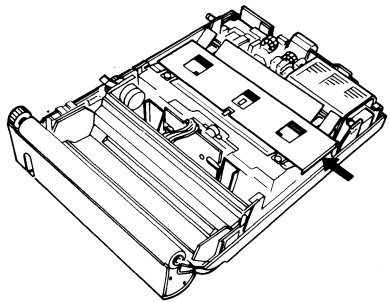
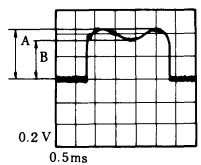
ADJUSTMENT

Scanner Test Points

FCU CN8 – 1 VIDADJ
2 XVIDEO
3 GND

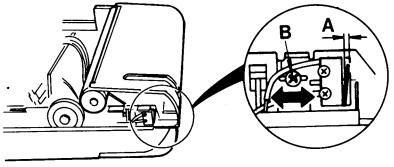
No.	Item	Procedure	Standard	Tools	Symptoms	Remarks
1	Focusing	1. Set the 8-line/mm pattern of the test chart at the scan line position. 2. Loosen the lens securing screw. 3. Move the lens back and forth until B is maximised. (Test point = XVIDEO)  4. Tighten the lens securing screw.	B/A X 100 ≧20	Oscilloscope Allen keys Test chart (R1) Philips screwdriver 	Blurred characters	

No.	Item	Procedure	Standard	Tools	Symptoms	Remarks
2	Reduction rate	1. Set the 8-line/mm pattern of the test chart at the scan line position. 2. Loosen both lens block securing screws. 3. Push the lens block to the left and move it back and forth until the XVIDEO signal has 6 or fewer crosspoints.  4. Tighten the lens block securing screws.	e.g. 6 crosspoints	Oscilloscope Philips screwdriver Test chart (R1) 	Blurred or filled-in characters	
3	Scan line, white level, and scan starting position	1. Set the adjustment knobs as shown below. 2. Loosen the SBU securing screws. 		Oscilloscope Philips screwdriver Scan line test strip Adjustment knobs.	Uneven density, partial scanning	

No.	Item	Procedure	Standard	Tools	Symptoms	Remarks
3	Scan line (continued)	3. Switch the LED array on (see page 4-26). 4. Set the scan line test strip on the scanner guide plate as shown below:  5. Adjust the white XVIDEO waveform with the adjusting knobs until it is as shown on the right. 6. Adjust VR1 on the SBU until XVIDEO within the standard limit. 7. Gently tap the SBU until its position is correct. 8. Tighten the SBU securing screws. 9. Take out the adjustment knobs. 10. Go onto the Error bits procedures.		 MAX 0.4V MIN 0.2V (A−B)/A×100≦ 40		If flatness is out Of spec. clean mirrors or change LED array.

No.	Item	Procedure	Standard	Tools	Symptoms	Remarks
4	Error bits	1. Ensure that there are no abnormal peaks in the XVIDEO waveform.	No abnormal peaks.	Test chart, oscilloscope: 0.2 V/div 0.5ms/div	Abnormal lines along prints made by the copy key.	Replace the SBU if error bits are visible

6-2 PRINTER

No.	Item	Procedure	Standard	Tools	Symptoms	Remarks
1	Cover sensor clearance	1. Remove the top cover.  2. Check that the clearance(A) is correct. 3. If necessary, adjust by loosening the screw (B) and moving the bracket.	T = 0.4 – 0.5mm with cover closed	Philips screwdriver, clearance gauge	Printer error	

6-3 OPERATION PANEL

1. LCD Brightness

VR1 can be used to adjust the LCD brightness.

It alters the resistance between the – 5V input from the FCU and the VLCD pin of the OPP LSI.

SECTION 7

MAINTENANCE

7-1 PRINCIPLE

When visiting a customer on a service call, carry out the maintenance described in this section.

7-2 CLEANING

1. **DF/Scanner**

Item to be cleaned .	Material to be used
a) R1 and R2 Incremental Rollers	Soft cloth (water)
b) R1 and R2 Pressure Rollers	Soft cloth (water)
c) S1 and S2 Sensors	Blower brush

2. Printer Unit

Item to be cleaned	Material to be used
a) Thermal Head	Soft cloth (alcohol)
b) Platen Roller	Soft cloth (alcohol)
c) SB-4	Blower brush

7-3 PERFORMANCE CHECKS

Perform the quality checks listed on page 4-32.

7-4 VIDEO SIGNAL CHECKS

1. White Waveform Check

1) Position the white zone of the R21 test chart at the scan line.
Check the output waveforms at CN8-2 (Signal) and CN8-3 (GND) of the FCU for the following adjustment procedures.
a) White level output
b) Flatness
c) Error bits

Refer to section 6-1 for details.

2) Position the 8-line/mm pattern of the R21 test chart at the scan line.
Check the output waveforms at CN8-2 and CN8-3 of the FCU for the following procedures.
a) Reduction rate
b) MTF (focusing)

7-5 LINE CONNECTION CHECK

Check:
1) Ground connection
2) Telephone and line connection

7-6 OTHERS

Check the supply of consumables on the user's premises.

SECTION 8

TROUBLESHOOTING

8-1 ERROR CODES

1. Protocol Errors

– G3 transmission –

Code	Meaning	Suggested Cause/Action
0-00	DIS/NSF/GI not detected within 35 seconds after the Start button was depressed.	1. Check all connections inside the machine. 2. Replace the FCU. 3. Replace the modem. 4. Measure the Rx signal level. 5. Check the received signal on an oscilloscope. 6. Incompatible remote terminal.
0-01	DCN detected	1. Check remote terminal for printer failure (jam or empty roll) or if operator pushed Stop.
0-02	Remote terminal G3 mode disabled	Check the remote terminal.
0-03	Incompatible remote terminal	Example: 1850, 1000,800
0-04	CFR or FTT not detected from remote unit after MODEM training	1. As for 0-00, actions 1 → 4. 2. Check the remote terminal. 3. Check the Tx signal level. 4. Check for a line problem.

Code	Meaning	Suggested Cause/Action
0-05	FTT from remote unit detected after MODEM training at 2400 bps	1. As for 0-00, actions 1 → 3. 2. Check the Tx signal level. 3. Check for line problems.
0-06	DIS detected after DCS and modem training were sent (machine failed after 3rd try)	1. As for 0-00, actions 1 → 3. 2. Check the remote terminal. 3. Check the Tx signal level. 4. Incompatible remote terminal. 5. Check for line problems.
0-07	Post message response signal not detected after transmission.	1. As for 0-00, actions 1 → 3. 2. Line was disconnected.
0-08	RTN or PIN detected after transmission training was sent (machine failed after 3rd try)	1. Check the Tx signal level. 2. As for 0-00, actions 1 → 3. 3. Defective modem at either end. 4. Check for line problems and noise. 5. Rx signal at either end too weak or too strong. 6. Check line connections. 7. Check remote terminal: • Is paper jammed? • Send to another remote terminal. • Decrease modem rate.

Code	Meaning	Suggested Cause/Action
0-09	Protocol signal could not be recognized	1. As for 0-00, actions 1 → 3. 2. Check the remote terminal.
0-10	As for 0-08, but error report disabled	As for 0-08.
0-11	Error code memory overflow when printer failed	1. Check for printer jam or roll end.
0-12	After sending at 2400 bps, RTN was detected.	As for 0-08.

Code	Meaning	Suggested Cause/Action
0-20	Image information not received within 6 seconds after retraining	1. Check all connections inside the machine. 2. Replace the FCU. 3. Replace the modem. 4. Check for line problems.
0-21	When receiving image information, the following EOL not detected within 5 seconds of the previous EOL	1. As for 0-20. 2. Check for line noise. 3. Disconnected line. 4. Check remote FCU is faulty.
0-22	Modem carrier dropped for 200ms or more while receiving image information	1. As for 0-20. 2. Replace the NCU. 3. Check the remote terminal. 4. Check for line problems. 5. Remote terminal modem faulty.
0-23	Line errors have exceeded the limit	1. As for 0-20. 2. Measure the Rx signal level. 3. Check for line noise. 4. Check remote NCU/modem is faulty.

Code	Meaning	Suggested Cause/Action
0-50	CFR or MCF not detected within 5 seconds after phasing or image information transmission	1. As for 0-20. 2. Measure the Tx signal level. 3. Incompatible remote terminal.
0-51	CFR or MCF carrier not dropped for 6 seconds or more	1. As for 0-20. 2. Incompatible or defective remote terminal. 3. Check MCF/CFR signal turn-off timing.
0-52	PIS detected but operator did not respond	1. Check all connections inside the machine. 2. Check with the operator whether operator call tone sounded. 3. Faulty stop key. 4. Check whether operator call is working. If not, replace FCU. 5. If no ACK/NAK tones on pushing a key, change speaker.

Code	Meaning	Suggested Cause/Action
0-60	Phasing signal not finished within 8 seconds.	1. As for 0-20. 2. Check phasing signal timing.
0-61	Image information not received within 3 seconds.	1. As for 0-60. 2. Incompatible or defective remote terminal.
0-62	Phasing failed .	1. As for 0-61. 2. Try to receive from another G2 unit
0-63	"Black" line sync signal longer than expected.	1. As for 0-62.
0-64	EOM not detected within 3 seconds.	1. As for 0-20. 2. Defective remote terminal. 3. Check whether EOM signal comes in.
0-65	EOM carrier not dropped within 5 seconds.	1. As for 0-20, item 1 → 3. 2. Incompatible or defective remote terminal. 3. Check EOM signal timing.

– G3 or G2 communication –

Code	Meaning	Suggested Cause/Action
0-70	Communication modes unmatched	1. Check all connections inside the machine. 2. Replace the FCU. 3. Replace the modem. 4. Check what mode is selected at remote terminal.

2. Document Errors

Code	Meaning	Suggested Cause/Action
1-00 1-01	Document jammed Maximum document length exceeded (Transmission, Copy)	1. Improperly inserted document. 2. Misadjusted or faulty sensors. 3. Replace FCU. 4. Replace Tx motor. 5. Check all connectors inside machine. 6. Document length exceeded maximum. 7. Check document feed condition.
1-10	Document in reading position at power-up.	1. Check all connectors inside machine. 2. Replace the FCU. 3. Check SB1 . 4. Check whether a document is actually jammed.
1-11 1-12 1-13	Document was pulled out prematurely (G3 Tx) Document was pulled out prematurely (G2 Tx) Document was pulled out prematurely (copy)	1. As for 1-10. 2. Check SB2. 3. Check whether operator pulled out document during operation.

Code	Meaning	Suggested Cause/Action
1-15	Document was set when a jam condition existed.	1. As for 1-00.
1-17	Document jammed when feeding out.	1. Replace the FCU. 2. Check SB2. 3. Scanner feedout path blocked. 4. Document length exceeded maximum. 5. Check document feed condition.

3. Printer Errors

– Paper jam –

Code	Meaning	Suggested Cause/Action
1-20	Paper jammed during receiving Paper jammed after printing	1. Replace the FCU. 2. Check all connectors inside machine. 3. Paper path obstructed. 4. Copy tray overloaded. 5. Check whether paper is actually jammed. 6. Check that paper feed operation is normal.

– No paper –

Code	Meaning	Suggested Cause/Action
1-30 1-33 1-34	Paper emptied during reception, copying or report printing Paper emptied when the sub-power turned on. Paper emptied after recording	1. As for 1-20, items 1 and 2 2. Check SB4. 3. Paper ran out.
1-50 1-51	Thermal head error during reception Thermal head error during copying	1. As for 1-20, items 1 and 2 2. Replace thermal head.
1-71	Cover opened during printing	1. Check all connections inside machine. 2. Check whether operator opened covers. 3. Check cover switch position and action.

Code	Meaning	Suggested Cause/Action
2-00	FCU stalled – interrupt timer to CPU stopped	1. Replace FCU. 2. Replace PSU.
2-10 2-11 2-12	Modem not turned into transmission state Rx data transfer clock not output Tx data transfer clock not output	1. Check modem – FCU connection. 2. Replace FCU. 3. Replace modem.
2-20 2-21 2-22 2-25 2-26	No data compression Data compression not completed A scan line needed more than 10s for compression No phasing signal Data not sent out	1. Check all connections inside machine. 2. Replace FCU.

Code	Meaning	Suggested Cause/Action
2-30	Ringing signal detection continues for more than 6s	1. As for 2-20. 2. Replace modem. 3. Check the line condition.
2-31	Line not connected	
2-32	Line not disconnected	
2-33	Incoming carrier either: Continues for more than 6s Has signal dropout less than 200ms	
2-34	Incoming carrier continues for more than 6s	
2-40	Abnormality after interrupt signal	1. As for 2-20. 2. Replace OP-PORT.
2-41	Abnormality when FCU receives OP-PORT data	
2-42	Abnormality after operator adjusted clock	

8-2 SYMPTOM TROUBLESHOOTING

1. Document Feed

– Non Feed –

Broken S1 sensor
Broken Tx motor
Faulty FCU board

– Misfeed or Skew –

Dirty R1 or R2 roller – clean with a soft cloth and water (increment roller) or alcohol (pressure roller)

– Soiled Document –

Dirty R1 or R2 roller – clean with a soft cloth and water (increment roller) or alcohol (pressure roller)

2. Copy Feed

– Non Feed –

Incorrect cover switch actuator clearance - see section 6-2
Rx motor broken
Faulty FCU board

– Jam –

Faulty FCU board

3. Copy Quality

1) Received Copies

If there is no fault in the transmitting terminal or on the line, but the copy quality is bad, either;
- **Check that the printer cover is closed properly.**
- **Check the thermal head pulse width.**
- **Clean the thermal head (soft cloth)**

If the output continually appears to be stretched;
- **Check the Rx timing belts.**

2) Copies made in Copy mode

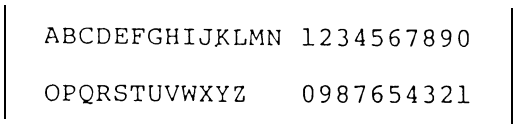
The following ADF and scanner faults must be considered in addition to the printer faults mentioned in subsection 1) above.

Symptom	Causes	Remedies
Blank or Black copies	Scanner or PCB failure	Replace defective part.
Vertical Lines	1) Dirty mirror 2) Error bit in CCD	1) Clean with a soft cloth. 2) Replace SBU.
Uneven Density	1) Scan line out of position 2) Dirty mirror, lens, or LED array 3) Old or dirty LED array	1) See section 6-1. 2) Clean with a soft cloth. 3) Clean or replace.
Magnification	Check the reduction rate.	See section 6-1.
Blurred Characters	1) Focusing needs adjusting 2) Reduction rate needs adjusting	1) See section 6-1. 2) As above.
Filled-in Characters	1) Reduction rate needs adjusting	1) As above.
Side-to-Side Registration Error	1) Scan starting position needs adjusting	1) As above.
Output too Light or too Dark	1) White level needs adjusting 2) Standby level needs adjusting	1) As above. 2) As above.
One side darker than the other	1) Check CCD waveform flatness.	1) As above.
Partial scanning	1) Scan line out of position	1) As above.

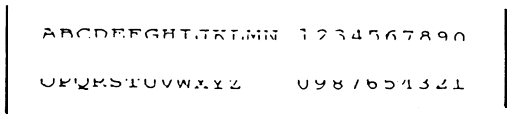
3) Effects of line problems on copy quality

1. Missing lines; shrinkage in sub scan direction.

– Original –

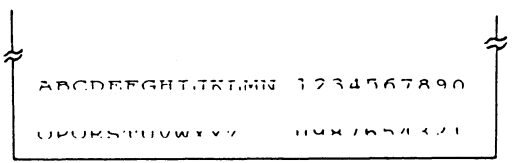


- Bad copy sample –



2. cutoff.

– Bad copy sample –



Some lines may be missing just before the cut off.

RICOH

PARTS CATALOG

FOR

RICOH FAX 07 (For North America)
THE ASSOCIATE (For North America)

[BETA]

Aug. 25, 1987

RICOH COMPANY, LTD.

PARTS CATALOG

INTRODUCTION

This chapter instructs you the numbers and names of the parts on this machine.

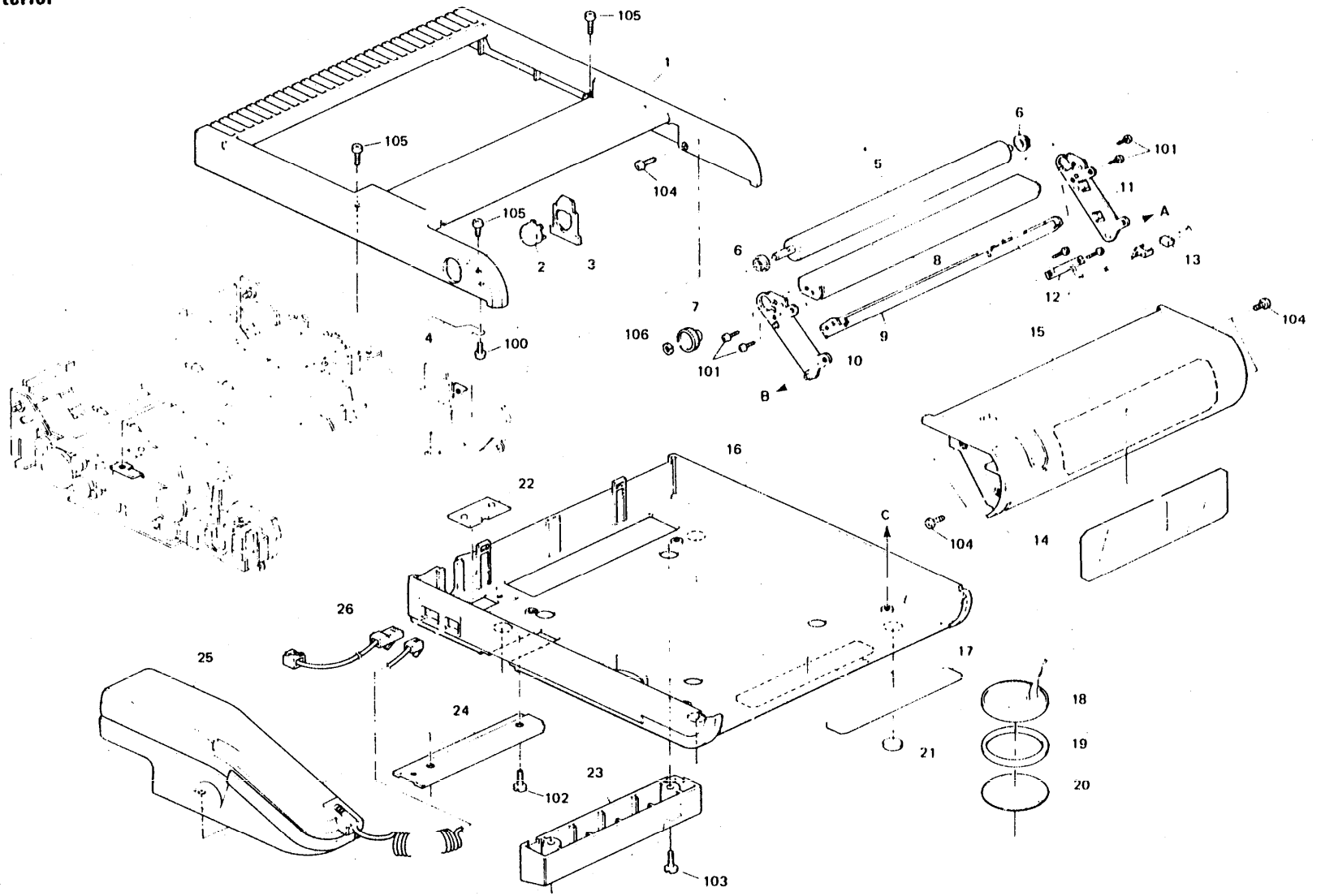
INDEX to PARTS CATALOG

Note: Model

Gray . . . . . FAX 07

Black . . . . . THE ASSOCIATE

1. Exterior

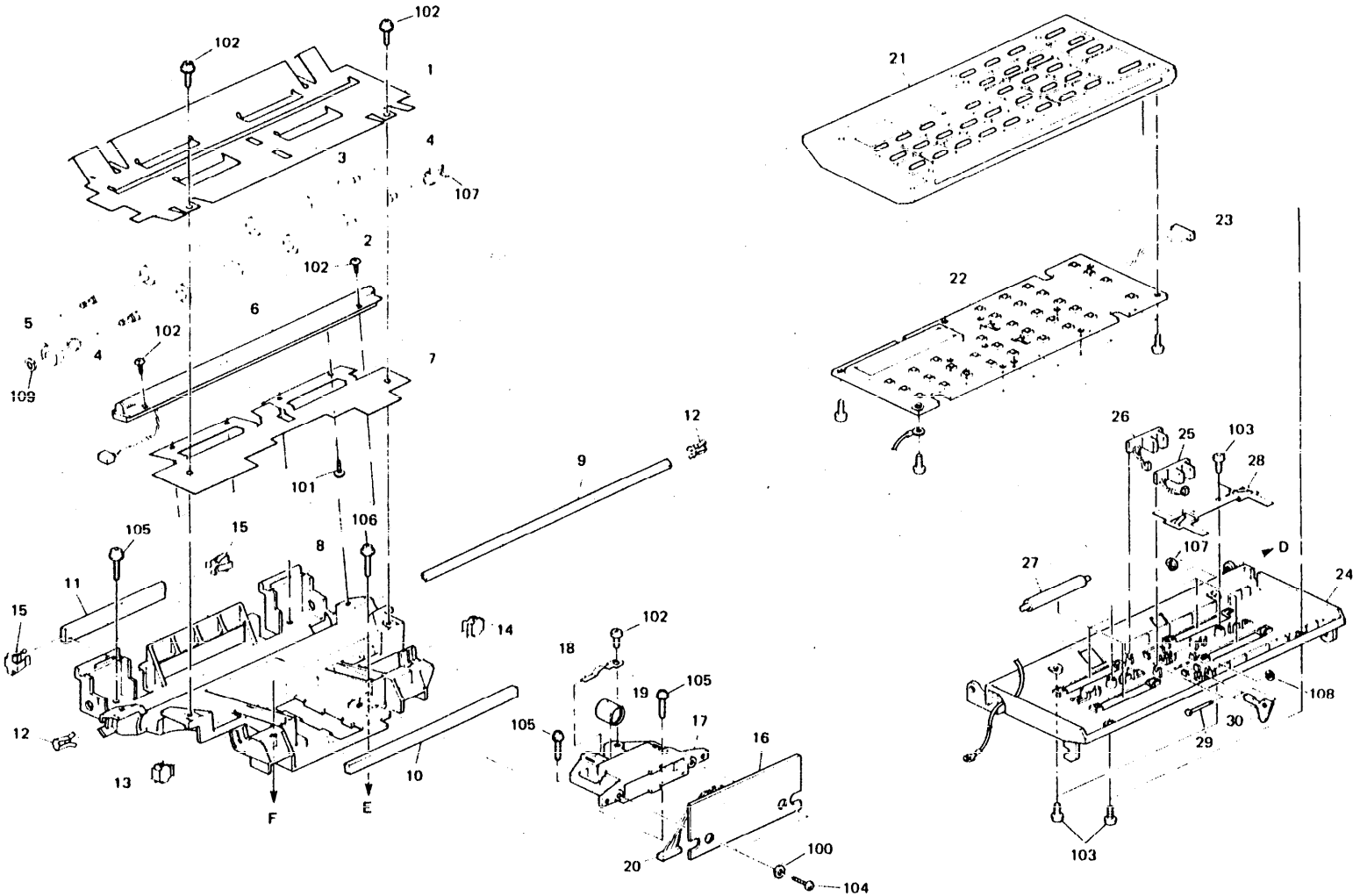


1. Exterior

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
1	H0074601	Upper Cover Ass'y - Gray	Gray	B-1
1	H0074621	Upper Cover Ass'y - Black	Black	B-1
2	H0074612	Release Knob - Paper Cover - Gray	Gray	B-2
2	H0074632	Release Knob - Paper Cover - Black	Black	B-2
3	H0074613	Guide : Release Knob - Paper Cover - Gray	Gray	B-2
3	H0074633	Guide : Release Knob - Paper Cover - Black	Black	B-2
4	H0074610	Spring - Release Knob		B-2
5	H0072109	Platen Roller		C-2
6	H0072110	Bushing - Platen		C-2
7	H0072111	Gear - Platen		C-2
8	H0072108	Stay - Side Plate - Printer		C-2
9	H0072119	Bracket - Paper end Sensor		C-2
10	H0072101	Left Side Plate Ass'y - Printer		C-2
11	H0072105	Right Side Plate Ass'y - Printer		D-1
12	H0075007	Sensor Ass'y - SB4		D-2
13	H0075013	Harness - SB4/INT		D-2
14	H0072601	Protection Sheet - Paper		D-3
15	H0074606	Paper Cover Ass'y - Gray	Gray	D-2
15	H0074626	Paper Cover Ass'y - Black	Black	D-2
16	H0074605	Lower Cover - Gray	Gray	C-3
16	H0074625	Lower Cover - Black	Black	C-3
17	H0072602	Protection Sheet - 160x25		C-3
18	H0075016	Monitor Speaker Ass'y		D-4
19	H0074128	Cushion - Speaker		D-4
20	H0074127	Punching Metal - Speaker		D-4
21	H0074130	Rubber Foot		C-4
22	H0074134	Cover - Ground Wire Terminal		B-3
23	H0074201	Tilt Stand Ass'y - Gray	Gray	B-4
23	H0074204	Tilt Stand Ass'y - Black	Black	B-4
24	H0074206	Fixing Plate - TEL Holder		B-4
25	H0075018	Telephone Unit - 20	Gray	A-4
25	H0075019	Telephone Unit - 21	Black	A-4
26	5474728 7	Modular Cord - 6P/8P		B-3
*	H0072125	Spacer - Platen		
*	H0074208	Screw Driver		
*	H0074211	Dial Label : H007		
*	H0074212	Operation Manual - 20	Gray	
*	H0074213	Operation Manual - 21	Black	
*	H0134662	FAX Test Sheet : A5		

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
100	04330060B	Philips Tapping Screw - M3x6		B-2
101	02425030B	Philips Pan Head Screw - M2.5x3		C-2
102	08011250	Philips Pan Head Screw - M5x8		B-4
103	08011249	Philips Pan Head Screw - M4x6		C-4
104	03130030B	Philips Pan Head Screw - M3x3		D-2
105	03130060B	Philips Pan Head Screw - M3x6		B-1
106	08073104	Cut Washer - M4.1		C-2

2. Upper Unit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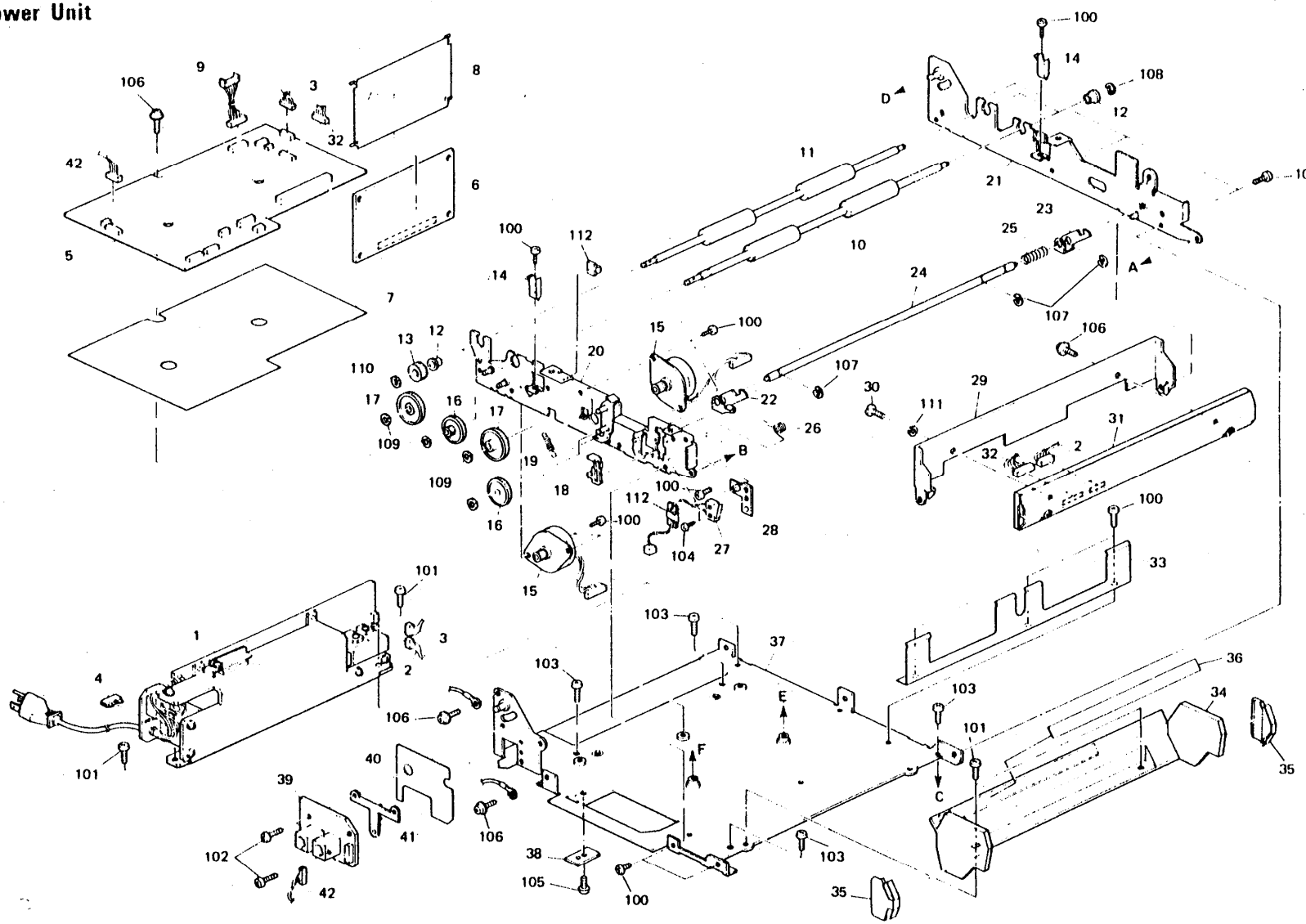
2. Upper Unit

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
1	H0071115	Document Guide Plate		A-1
2	H0071111	Incremental Roller - R1		A-2
3	H0071112	Incremental Roller - R2		A-2
4	H0071113	Bushing - DF		A-2
5	H0071114	DF Gear		A-2
6	H0075017	LED Ass'y		A-2
7	H0071120	Radiation Plate - LED		A-2
8	H0071101	Scanner Base		A-3
9	H0071102	1st Mirror		B-3
10	H0071103	2nd Mirror		B-4
11	H0071104	3rd Mirror		A-3
12	H0071105	1st Mirror Clip		B-3
13	H0071126	2nd Mirror Clip - Left		A-4
14	H0071127	2nd Mirror Clip - Right		B-3
15	H0071107	3rd Mirror Clip		A-4
16	H0076002	PCB Ass'y - SBU		A-3
17	H0071108	Lens Block		C-4
18	H0071109	Lens Holder		B-4
19	H0071110	F4/30 Lens		B-3
7-19	H0071002	Scanner Ass'y		B-3
20	H0075008	Harness - SBU/FCU		B-4
21	H0074611	OP-Port Cover Ass'y - Gray	Gray	C-1
21	H0074631	OP-Port Cover Ass'y - Black	Black	C-1
22	H0076003	PCB Ass'y - OP-Port		C-2
21-22	H0075200	OP-Port Ass'y	Gray	
21-22	H0075201	OP-Port Ass'y	Black	
23	H0075014	Harness - OPU/INT		D-2
24	H0071100	Pressure Plate		D-3
25	H0075004	Sensor Ass'y - SB1		D-3
26	H0075005	Sensor Ass'y - SB2		D-3
27	H0071116	Pressure Roller		C-3
28	H0071117	Plate Spring - Pressure Roller		D-3
29	H0071118	Shaft - S1		D-4
30	H0071119	Actuator - S1		D-4

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
100	54663198	Washer - SBU		C-4
101	03130030B	Philips Pan Head Screw - M3x3		A-3
102	03130060B	Philips Pan Head Screw - M3x6		A-1
103	04330060B	Philips Tapping Screw - M3x6		D-3
104	09503008B	Sem, S Screw - M3x8		C-4
105	09513008B	Philips Screw with Flat Washer - M3x8		B-4
106	09513014B	Philips Screw with Flat Washer - M3x14		B-3
107	07200040E	Retaining Ring - M4		B-1
108	08070066	Cut Washer - M1.6		D-3
109	08073104	Cut Washer - M4.1		A-2

3. Lower Unit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3. Lower Unit

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
1	H0075400	PSU Ass'y - 115V		A-3
2	H0075010	Harness - Thermal Head/PSU		B-3
3	H0075012	Harness - FCU/PSU		B-3
4	H0074642	Plate - Off - Gray	Gray	A-4
4	H0074641	Plate - Off - Black	Black	A-4
5	H0076001	PCB Ass'y - FCU		A-1
6	54746024	PCB Ass'y - V96F Modem		B-1
7	H0074124	Insulating Sheet - FCU		A-2
8	H0074131	Insulating Sheet - V96F Modem		B-1
9	H0075015	Harness - OPU/FCU		A-1
10	H0071111	Incremental Roller - R1		C-1
11	H0071112	Incremental Roller - R2		C-1
12	H0071113	Bushing - DF		B-2
13	H0071114	DF Gear		B-2
14	H0074123	Locking Spring - OP-Port		B-2
15	H0075003	Stepping Motor Ass'y		B-3
16	H0071121	Middle Gear		B-2
17	H0071123	Idle Gear		B-2
18	H0074117	Slide Plate - Release Knob		B-3
19	H0074129	Spring - Clutch Plate		B-2
20	H0074110	Side Plate Ass'y - Left		B-2
21	H0074120	Side Plate Ass'y - Right		D-1
22	H0072112	Left Locking Lever - Printer		C-2
23	H0072127	Right Locking Lever - Printer		D-2
24	H0072114	Locking Lever Shaft - Printer		C-2
25	H0072115	Spring - Locking Shaft - Printer		D-2
26	H0072116	Spring - Locking Lever - Printer		C-2
27	H0075006	Sensor Ass'y - SB10		C-3
28	H0072121	Bracket - Micro Switch		C-3
29	H0072117	Thermal Head Bracket		D-2
30	H0072123	Stepping Screw - Thermal Head		C-2
31	H0075002	Thermal Head - MATSUSHITA		D-2
32	H0075011	Harness - Head/FCU		D-3
33	H0072120	Plate Spring - Thermal Head		D-3
34	H0074628	Thermal Head Cover		D-4
35	H0074137	Stopper - Roll Paper		D-4
36	H0074138	Decal - Paper Set		D-4
37	H0074101	Bottom Plate Ass'y - ROA		C-4
38	H0074135	Cover - Telephone Stand		B-4
39	H0076006	PCB Ass'y - NIF		B-4
40	H0074125	Insulating Sheet - NIF		B-4
41	H0074133	Snap Fit - NIF		B-4
42	H0075009	Harness - NIF/FCU		B-4

INDEX	PART NO.	DESCRIPTION	MODEL	LOCATION
100	0313003OB	Philips Pan Head Screw - M3x3		B-2
101	031300608	Philips Pan Head Screw - M3x6		D-4
102	024250608	Philips Pan Head Screw - M2.5x6		A-4
103	043300608	Philips Pan Head Screw - M3x6		C-4
104	08000080	Philips Pan Head Screw - M2x8		C-3
105	08011250	Philips Pan Head Screw - M5x8		B-4
106	09513005B	Philips Screw with Flat Washer - M3x5		A-1
107	072000 30E	Retaining Ring - M3		C-2
108	07200040E	Retaining Ring - M4		D-1
109	08071085	Cut Washer - M2.6		B-3
110	08073104	Cut Washer - M4.1		B-2
111	07030040	Philips Washer - M4		C-2
112	11050109	Cord Keep		C-3

PARTS INDEX

Note: Model

Gray ..... FAX 07

Black ..... THE ASSOCIATE

Parts No.	Description	Model	Page and Index No.
02425030B	Philips Pan Head Screw - M2.5x3		2-101
02425060B	Philips Pan Head Screw - M2.5x6		6-102
03130030B	Philips Pan Head Screw - M3x3		2-104
03130030B	Philips Pan Head Screw - M3x3		4-101
03130030B	Philips Pan Head Screw - M3x3		6-100
03130060B	Philips Pan Head Screw - M3x6		2-105
03130060B	Philips Pan Head Screw - M3x6		4-102
03130060B	Philips Pan Head Screw - M3x6		6-101
04330060B	Philips Tapping Screw - M3x6		4-103
04330060B	Philips Pan Head Screw - M3x6		6-103
04330060B	Philips Tapping Screw - M3x6		2-100
07030040	Philips Washer - M4		6-111
07200030E	Retaining Ring - M3		6-107
07200040E	Retaining Ring - M4		4-107
07200040E	Retaining Ring - M4		6-108
08000080	Philips Pan Head Screw - M2x8		6-104
08011249	Philips Pan Head Screw - M4x6		2-103
08011250	Philips Pan Head Screw - M5x8		2-102
08011250	Philips Pan Head Screw - M5x8		6-105
08070066	Cut Washer - M1.6		4-108
08071085	Cut Washer - M2.6		6-109
08073104	Cut Washer - M4.1		2-106
08073104	Cut Washer - M4.1		4-109
08073104	Cut Washer - M4.1		6-110
09503008B	Sem, S Screw - M3x8		4-104
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Parts No.	Description	Model	Page and Index No.

APPENDICES

A — H

APPENDIX A. BIT SWITCHES

– Factory Settings – (Asia)

Bit Switch	Bits 7 6 5 4	Bits 3 2 1 0
00	0 1 1 0	0 0 0 0
01	0 1 1 1	0 1 0 0
02	0 1 1 0	0 0 0 0
03	0 0 0 0	0 1 1 0
04	1 0 0 0	0 1 0 0
05	0 0 0 0	0 0 0 0
06	1 1 1 0	0 0 1 1
07	0 0 0 0	0 0 0 0
08	0 0 0 0	0 1 1 0
09	0 0 1 0	0 0 0 0
0A	0 0 1 1	0 0 0 0
0B	0 0 0 1	0 0 0 1
0C	0 0 1 0	0 0 1 0

Bit Switch	Bits 7 6 5 4	Bits 3 2 1 0
0D	0 0 0 1	0 0 0 1
0E	0 1 0 1	1 0 0 1
0F	1 1 0 0	0 0 0 0
10	1 0 0 0	0 1 1 0
11	0 0 0 1	0 0 1 0
12	0 0 0 0	0 0 0 0
13	1 1 1 1	1 1 1 1
14	1 1 0 0	0 0 1 0
15	1 0 1 0	0 0 0 0
16	1 0 0 0	0 0 0 1
17	0 0 0 0	0 0 0 1
18	0 0 0 0	1 0 0 0
19	0 0 1 1	1 1 1 1
1A	0 0 0 0	0 0 0 0
1B	0 0 0 0	0 0 0 0
1C	0 0 0 0	0 0 0 0
1D	0 0 0 0	0 0 0 0
1E	0 0 0 0	0 0 0 0
1F	0 0 0 0	0 0 0 0

– Factory Settings – (U K, Universal)

Bit Switch	Bits 7 6 5 4	Bits 3 2 1 0
00	0 1 1 0	0 0 0 0
01	0 1 1 1	0 1 0 0
02	0 1 1 0	0 0 0 0
03	0 0 0 0	0 1 1 0
04	1 0 0 0	0 1 1 0
05	0 0 0 0	0 0 0 0
06	1 1 1 0	0 0 1 1
07	0 0 0 0	0 0 0 0
08	0 0 1 0	0 1 1 0
09	0 0 1 0	0 0 0 0
0A	0 0 1 1	0 0 0 0
0B	0 0 0 1	0 0 0 1
0C	0 0 1 0	0 0 1 0

Bit Switch	Bits 7 6 5 4	Bits 3 2 1 0
0D	0 0 0 1	0 0 0 0
0E	0 1 0 1	1 1 0 0
0F	1 1 0 0	0 0 0 0
10	1 0 0 0	0 1 1 0
11	0 0 0 0	0 0 1 0
12	1 0 0 0	0 0 0 0
13	1 1 1 1	1 1 1 1
14	1 1 0 0	0 0 1 0
15	1 0 1 0	0 0 0 0
16	1 0 0 0	0 0 0 1
17	0 0 0 0	0 0 0 1
18	0 0 0 0	1 0 0 0
19	0 0 1 1	1 1 1 1
1A	0 0 0 0	0 0 0 0
1B	0 0 0 0	0 0 0 0
1C	0 0 0 0	0 0 0 0
1D	0 0 0 0	0 0 0 0
1E	0 0 0 0	0 0 0 0
1F	0 0 0 0	0 0 0 0

[BIT SW 0]

BIT No.	Function	Remarks
0	Back to Back function 1 ; Enabled When this bit is set to "1", the Start key is enabled without hanging up the handset.	To directly connect two machines and check the communication function
1	Remote memory Read/Write 1 ; Not accepted . When this bit is set to "1", a memory Read/Write request is not accepted.	This bit should be "O" when RAM data is to be changed from the service center by a K10 series machine.
2	Maximum wait time between sending CFR and receiving video data. 0: 6s (Normal) 1:10s	If the unit often receives messages from devices that do not respond quickly to CFR, set this to 1. Some PCs with fax boards respond slowly to CFR.
3	1: If bit O of bit switch 10 is at 1 and if this bit is at 1, ID LOCKED is displayed briefly after using function 51 to enable Closed Network Transmission.	USA only
4	1: Same as for bit 3 above, but for Closed Network Reception.	USA only
5	Closed Network transmission O; Enabled 1 ; Disabled	Changed by function 51 (Asia) Changed by function 56 (Europe)
6	Closed Network reception O; Enabled 1 ; Disabled	Changed by function 51 (Asia) Changed by function 56 (Europe)

[BIT SW 0]

BIT No.	Function	Remarks
7	**Communication parameter display** **1 ; Enabled** **When communicating in Gill mode, the communication parameters are displayed as follows.**	**To confirm the communication parameters.**

96	S	1D	AN	DCS	I0M
Modem rate	Resolution	Coding	Size	Mode	I/0 rate
96:9600 bps	S: Standard	1D:MH	A: A4	DCS: CCITT	10M: 10ms/line
72:7200 bps	D: Detail		N: No reduction	Standard mode	20M: 20ms/line
48:4800 bps				NSS: Non-standard	40M: 40ms/line
24:2400 bps				mode (RICOH)	

[BIT SW 1]

BIT No.	Function	Remarks
0	**FAX/TEL selection** **0; FAX 1 ; TEL** **This bit can be changed by Function 3.** **When this bit is set to "1", automatic receiving is not available.**	
1	**Resolution selection at power-up** **0; Standard 1 ; Detail**	**Set as the customer desires.**
2	**Standby default resolution** **1 ; As specified in bit 1** **When communication is finished, the resolution returns to that selected by bit No. 1 if this bit is "1".**	
3 4	**Original contrast selection at power-up** 0 0 Dark 0 1 / 1 0 Normal 1 1 Light **The original contrast selected by these bits is selected also when transmission is completed.**	**Changed by function 1.**

[BIT SW 1]

BIT No.	Function	Remarks
5	**Setting of keypad standby default mode** **0; Speed Dial 1 ; Keypad** **When communication is finished, the keypad mode is selected if this bit is 1.**	
6	**Contrast selection reset** **0; Contrast does not reset after the end of transmission.** **1 ; As specified in bits 3 and 4.**	
7	**Not used.**	

[BIT SW 2]

BIT No.	Function	Remarks
0 1	**Selection of transmission modem rate** 0 0 } 9600 bps 1 0 } 7200 bps 0 1 } 4800 bps 1 1 } 2400 bps	**Select to meet the line condition,**
2 3	**I/O rate in standard mode for transmission** 0 0 } 10 ms 1 0 } 20 ms 0 1 1 1 } 40 ms	
4	**I/o rate in detail mode for transmission** **0; Two times as fast as the standard mode.** **1 ; The same speed as the standard mode.**	
5 6	**Not used.**	**Keep at 1.**
7	**Recognition of remote terminal's paper length** **0; No limit is recognized** **1 ; Limit is recognized. MPS is sent after receiving the length specified by remote terminal.** **The remote terminal may designate a fixed paper length, such as A4 or B4.**	

[BIT SW 3]

BIT No.	Function	Remarks
0 1 2 3	**Transmission level from modem** **0: –1dB 1:0dB** **0: –2dB 1:0dB** **0: –4dB 1:0dB** **0: –8dB 1:0dB**	**To change the transmission level.** **The Tx level is the sum of these 4 bits.**
4 **5**	**Not used**	**Keep at (0, 0)**
6	**Handshake moder" rate for protocol when transmitting**	**Keep at (0. 0).**
7	0 0 } 300 bps 1 0 } Not used 0 1 1 1 } Not used	

[BIT SW 4]

BIT No.	Function	Remarks
0	Hang-up decision when a negative code (RTN or PIN) is received. 0; No hang-up 1 ; Hang-up	
1	Echo countermeasure 0 ; Enabled When the same code that was sent is received, it is ignored.	If this is set to 1, the machine will disconnect instead of ignoring echoes.
2	CNG signal transmission in manual transmission mode O; Enabled For automatic dialing, this bit should be 0.	
3	DIS detection times (Echo countermeasure for transmission) 0; Once 1 ; Twice	If this is set to 1, the machine waits for a second DIS before returning DCS.
4 5	Not used	Keep at (0, 0)

[BIT SW 4]

BIT No.	Function	Remarks
6	**Printing condition of TCR** **0; Results of communications which were disconnected before transmission/reception of image data are not printed.** **1 ; All communications are listed except for telephone calls (On-hook Dial).**	
7	**NCU type** **0; PROGRAMMABLE** **1 ; PERMISSIVE**	

[BIT SW 5]

BIT No.	Function	Remarks
0	Display priority between NSF (CSI) and CSI 0; NSF (CSI) priority 1 ; CSI When both NSF (CSI) and CSI frames are received, the frame with priority is displayed.	
1	NSF (CSI) and CSI frame display decision 0; Displays the frame with priority 1 ; Displays both frames	
2	NSF (CSI) and/or CSI frame display decision 0; Displayed When this bit is "1 ", bits O and 1 are ignored.	
3	NSF frame reception 0; Enabled	
4	Transmission of the TSI frame before the DCS code 0; Enabled	
5	Transmission of the NSS (TSI) frame after NSS(S) code 0; Enabled	
6	GI (Group Identification) signal reception in G2 mode 0; Enabled	
7	Not used	Keep at 0.

[BIT SW 6]

BIT No.	Function	Remarks
0	Not used	Keep at 1.
1	Not used	Keep at 1.
2	End of page signal after 8 minutes 0; Disabled 1 ; Transmitter sends an end-of-page signal if the page takes longer than 8 minutes to transmit. The receiver outputs the rest of the page on a separate sheet.	FTZ specification
3 4	Not used	
5	Not used	Keep at 1
6	Not used	
7	Conditions for going into transmit mode 0; After detecting polarity change and CED 1 ; Goes into Tx mode after detecting any frame.	

[BIT SW 7]

BIT No.	Function	Remarks
0	**Line error method** **0; Selects bit no. 1 method** **1 ; Not used**	
1	**Line error counter decrement during G3 reception** **0; Decremented by 1 every time 10 lines are received perfectly.** **1 ; Disabled** *** When a line error occurs, the error counter increases by +1. When the counter reaches 10, RTN is sent.**	
2 3	**New FTZ Quality Criterion – Threshold value for line error.** 0 0 → 3(6) line; 1 0 → 4(8) line; 0 1 → 5(10) lines; 1 1 → 6(12) lines	**Values for detailed resolution are in parenthesis.** **In the new FTZ quality check, the error line counter will be decremented by one every time an error-free line is received.**
4 5 6	**New FTZ Quality Criterion – Error Ratio** **(Error Lines/Total Line = 100)** 0 0 0 → 5%; 1 0 0 → 6%; 0 1 0 → 7%; 1 1 0 → 8%; 0 0 1 → 9%; 1 0 1 → 10%	
7	**Not used**	

[BIT SW 8]

BIT No.	Function	Remarks
0	Longest receivable document 0; Unlimited (well log) 1 ; A4 length	Set this to 1 when the user requires all received copies to be marked into A4 lengths.
1 2	Not used	Keep at 1.
3 4	Modem types to be notified to the transmitting terminal 0 0 V29 / V27 ter — 1 0 V27 ter — 0, 1 / 1, 1 V27 ter fall back	
5	Receiver training error counter method 0; Standard 1 ; For Europe	
6 7	Receiver training error tolerance Standard 0 0 15 bits — 1 0 10 bits — 0 1 2 bits — 1 1 0 bits Europe 0 0 14 bits — 1 0 9 bits — 0 1 4 bits — 1 1 1 bit	

[BIT SW 9]

BIT No.	Function	Remarks
0	**Resolution capability to be notified to the remote terminal** **0; 3.85 (Standard) and 7.7 (Detail)** **1 ; 3.85 only**	
1 2	**Handshake modem rate for protocol when receiving** 0, 0: 300 bps; 1, 0: Not used; 0, 1 / 1, 1: Not used	**Keep at (0, 0)**
3 4	**Modem rate for the start of reception** 0, 0: 9600 bps; 1, 0: 7200 bps; 0, 1: 4800 bps; 1, 1: 2400 bps	
5 6	**I/O rate in standard mode for reception** 0, 0: Not used; 1, 0: 20 ms; 0, 1 / 1, 1: 40 ms	
7	**I/O rate in detail mode for reception** **0; Two times as fast as the standard mode** **1 ; The same speed as the standard mode**	

[BIT SW A]

BIT No.	Function	Remarks
0	**Transmission of NSF(S) frame** **0; Enabled**	
1	**Transmission of NSF(CSI) frame** **0; Enabled**	
2	**Transmission of CSI frame** **0; Enabled**	
3	**Transmission of Group Identification signal** **0; Enabled**	
4 5	**Not used**	**Keep at 1.**
6 7	**Not used**	

[BIT SW B]

BIT No.	Function	Remarks
o	Not used	Keep at 1
1	Communication mode at power up 0; AUTO 1;G2	
2	Compatibility with MV1200 1 ; Enabled	
3	FTZ Specifications 1 ; Enabled	For Germany; enables FTZ protocol
4 5 6 7	Not used	

[BIT SW C]

BIT No.	Function	Remarks
0	**Monitor speaker during transmission** **1 ; Disabled at all times during transmission**	
1 2	**Monitor speaker volume during transmission** 0 0 : −6dB; 1 0 : −4dB; 0 1 : −2dB; 1 1 : 0dB	**Changed by function 56. (Asia)** **Changed by function 54. (Europe)**
3	**Not used**	
4	**Monitor speaker during reception** **1 ; Disabled at all times during reception**	
5 6	**Monitor speaker volume during reception** 0 0 : −6dB; 1 0 : −4dB; 0 1 : −2dB; 1 1 : 0dB	**Changed by function 56. (Asia)** **Changed by function 54. (Europe)**
7	**Not used**	

[BIT SW D]

BIT No.	Function	Remarks
0	Transmission report output 0; Enabled	
1	Error report output 0; Enabled	
2	Automatic TCR output 0; Output automatically every 35 communications 1 ; Not output automatically	
3	TCR memory cleared after output 1 ; TCR memory cleared TCR is cleared after a manual TCR (Function 70) is performed.	
4	TSI printing 0; Enabled When this bit is set at 0, the TSI or NSS (TSI) sent from the transmitter is printed at the head of the output data.	If this is enabled and if bit 3 of bit switch F is 1, the TSI will be printed on top of the TTI.

[BIT SW D]

BIT No.	Function	Remarks
5	Clearing of the transmission confirmation report memory 1 ; Clear When the stop button or function button is pressed, or when the timer is exceeded after this bit is set at 1, TCR, Service Report, Error Report and error codes are all cleared. After erasing, the bit is automatically set back to O.	
6	Clearing of the transmit and receive counters/scanned and plotted document counters 1 ; Clear When the stop button or function button is pressed, or when the timer is exceeded after this bit is set at 1, the counters are cleared. When they are cleared, this bit is automatically set back to 0.	
7	RAM clear and reset. After this bit is set to 1, the CPU resets the machine to all default settings.	Factory use only.

[BIT SW E]

BIT No.	Function	Remarks
0 1	**Maximum transmittable document length** 0, 0: 600 mm 1, 0: 1.2 m 0, 1: 14 m	**(1, 1) is not used.**
2	**Minimum printout length** **0; 75 mm 1 ; 150 mm (A5 length)**	
3	**Not used**	**Keep at 1.**
4	**Not used**	**Keep at 1.**
5	**Not used**	
6	**Not used**	**Keep at 1.**
7	**Monitor speaker status during video data communication** **0; off 1;On**	

[BIT SW F]

BIT No.	Function	Remarks
0	**TTI data output** **0; Transmitted as document data** **1 ; Not transmitted**	
1	**TTI character output** **0; Transmitted** **1 ; Not transmitted**	
2	**TTI page number output** **0; Transmitted** **1 ; Not transmitted**	
3	**TTI printing start position** **This is the distance of the time/date information in from the scan start position.** **0 ; 2 4 m m 1 ; 4 8 m m**	
4	**TTI printing during copying** **0; Prohibited** **1 ; Printed**	
5 6	**Buzzer volume during operator call for Voice Request** 0, 0 } Loud 1, 0 } Medium 0, 1 } Weak 1, 1 } OFF	
7	**Pause key input indication on display panel** **0; "P"** **1 ; " – "**	

[BIT SW 10]

BIT No.	Function	Remarks
0	0; ID code can be changed with Function 61. 1 ; ID code cannot be changed	USA only
1	Melody transmission while remote terminal is on hold 0; Enabled 1 ; Disabled	USA only
2	Japanese alphabet in character set 0; Included 1; Not included	The character set is for RTI, TTI, and labels.
3	Time interval that Ready blinks after the end of a page before the unit returns to standby 0; 5 seconds (normal) 1 ; 10 seconds	During this time, the unit sends flags to the remote terminal.
4	Error code printing in Error Report 0; Code is printed 1 ; Disabled	Keep at 1 in the German and Italian versions.
5	Use of Quick Dial Key "J" 0; As a normal Quick Dial Key 1 ; As a TEL/FAX change key	
6	Operation panel type 0; Includes 10 one-touch keys 1 ; Does not include one-touch keys	An optional operation panel without one-touch keys may become available.
7	Telephone List output 0; Automatically after the user finishes with function 60. 1 ; Only if the user selects function 71.	

[BIT SW 11]

BIT No.	Function						Remarks
0 1 2 3 4	Country code of the local terminal						For enabling the required set of PTT parameters.
	BIT NO.	4	3	2	1	0	
	Germany	0	0	0	0	1	
	England	0	0	0	1	0	
	Italy	0	0	0	1	1	
	Austria	0	0	1	0	0	
	Belgium	0	0	1	0	1	
	Denmark	0	0	1	1	0	
	Finland	0	0	1	1	1	
	Ireland	0	1	0	0	0	
	Norway	0	1	0	0	1	
	Sweden	0	1	0	1	0	
	Switzerland	0	1	0	1	1	
	Portugal	0	1	1	0	0	
	Netherlands	0	1	1	0	1	
	U.S.A.	1	0	0	0	1	
	Asia	1	0	0	1	0	
	Japan	1	0	0	1	1	
5	Not used						Japan only

[BIT SW 11]

BIT No.	Function	Remarks
6 7	**Dialing method from PABX to PSTN** **BIT NO. 7 6** **PSTN 0 0** **Loop Start 0** 1 **Ground Start** 1 **0** **Flash Start 1** 1	

[BIT SW 12]

BIT No.	Function	Remarks
0 1	Dialing method in pulse dial mode BIT NO. 1 0 P = N 0 0 Normal P =10–N 0 1 Oslo P =N+1 1 0 Sweden P: Number of pulses N: Dialed No.	Note that in P = N mode, 0 is 10 pulses.
2	Dialing tone detection (PSTN) 0; Enabled	Europe only
3	Busy and ringback tone detection 0; Enabled	Europe only
4	Line current detection 0; Enabled	Europe only
5	Dial tone detection (PABX) 0; Enabled	Europe only
6	Redial when CCITT T1 timer exceeded 0; Enabled 1 ; Disabled (for Austria and Norway)	
7	Dialing method 0; DTMF 1;PD	Changed by function 55. (Asia) Changed by function 4 or 81. (Europe)

[BIT SW 13]

BIT No.	Function	Remarks
0 1 2 3 4 5 6 7	**Access Number Registration for connection to PSTN** **Access No. Hex value of BITSW13** 0 F0 ↓ ↓ 9 F9 00 00 ↓ ↓ 99 99 **If the machine detects this access code at the start of a telephone number, it will wait until PSTN dial tone is detected before continuing.** **This function is only enabled when bit switch 11, bits 6 and 7 select Loop Start.**	**Example: Code 0** Set bits 0 → 3 to 0 and bits 4 → 7 to 1.

[BIT SW 14]

BIT No.	Function	Remarks
0 1 2 3 4	Not used	
5	Dotted line page break indication 0: Printed 1: Disabled	
6	Not used	
7	Dial pulse rate for NCU auto-dialer 0; 20 pps 1;10pps	

[BIT SW 15]

BIT No.	Function	Remarks
0 1	Not used	
2	Factory use only	
3 4 5	Not used	
6	When the copy count is more than 20 in copy mode 0; Copy is disabled. 1 ; Machine stops for 40 sec. per 1 sheet.	
7	Not used	

[BIT SW 16]

BIT No.	Function	Remarks
0	**Monitor speaker in On-hook dialing mode before and after sending dial signals** **0; Enabled**	**USA only**
1 2	**Monitor speaker volume in On-hook dialing mode before and after sending dial signals** 0 0 } −6dB 1 0 } −4dB 0 1 } −2dB 1 1 } 0dB	USA only
3	1: G3 Tx disabled	
4	**1: G3 Rx disabled**	
5	**1: G2 Tx disabled**	
6	**1: G2 Rx disabled**	
7	**On-hook dial 0; Enabled**	**USA only**

[BIT SW 17]

BIT No.	Function	Remarks
0	Auto-answer delay time 0; As specified by bits 0 through 4 1 ; No delay time	Changed by function 4. (Asia) Changed by function 80. (Europe)
1 2 3 4	Auto-answer delay time BIT 1 0 1 0 1 0 1 0 1 0 1 2 0 0 1 1 0 0 1 1 0 0 3 0 0 0 0 1 1 1 1 0 0 4 0 0 0 0 0 0 0 0 1 1 Time 6 12 18 24 30 36 42 48 54 60 (seconds)	Changed by function 4. (Asia) Changed by function 80. (Europe)
5	Three-minute timer when in service mode. 0; Enabled	
6	Thermal Head Type 0; Matsushita 1 ; Ricoh	
7	MTF 0; Enabled 1 ; Disabled	

[BIT SW 18]

BIT No.	Function	Remarks
0	Monitor speaker in dialing mode O; Enabled	
1 2	Monitor speaker in dialing mode $\begin{matrix}0\\0\end{matrix}$ −6dB $\begin{matrix}1\\0\end{matrix}$ −4dB $\begin{matrix}0\\1\end{matrix}$ −2dB $\begin{matrix}1\\1\end{matrix}$ 0dB	
3	Telephone Line type setting 0; User level 1 ; Service level	If this is set to 1, function 4 in European models will be disabled.
4	Auto-answer delay time function 1 ; Disabled	If this is set to 1, function 80 in models will be disabled.
5	Closed Network Transmission 1 ; Disabled	If bits 5 and 6 are both set to 1, function 56 in European models will be completely disabled. Keep at 1 in the German version.
6	Closed Network Reception 1 ; Disabled	Keep at 1 in the German version
7	CSI Programming 0; User level 1 ; Service level	If this is set to 1, function 64 in European models will be disabled (only function 99 will be enabled)

[BIT SW 19]

BIT No.	Function	Remarks
0	**Cable equalization in transmit mode** **0; Enabled**	
1 2	**Cable equalization in transmit mode** 1, 1 } 0 km 0, 1 } 1.8km 1, 0 } 3.6km 0, 0 } 7.2km	
3	**Cable equalization in receive mode** **0; Enabled**	
4 5	**Cable equalization in receive mode** 1, 1 } 0km 0, 1 } 1.8km 1, 0 } 3.6km 0, 0 } 7.2km	
6 7	**Not used**	

[BIT SW 1A]

BIT No.	Function	Remarks
0	MPS timing 1 ; Resolution change 0; Flag transmission	
1	Operator call when Ready lamp blinks. 1 ; Enabled 0; Disabled	
2	Redial when T1 time ran out 0; Enabled	Always disabled for Austria and Norway
3 4 5 6 7	Not used	

[BIT SW 1B]

BIT No.	Function	Remarks
0 1	**Detection time of 1300Hz** 0, 0: 1.5 sec. 1, 0: 2 sec. 0, 1: 2.5 sec. 1, 1: 1 sec.	**Japan and USA only**
2 **3** **4** **5** **6** **7**	**Not used**	

[BIT SW 1C]

BIT No.	Function	Remarks
0	Not used	
1 2 3 4 5 6 7	Not used	

APPENDIX B. JUMPERS, TEST POINTS, AND VRs

– FCU –

VC1 – Do not touch
SW1 – Battery switch – keep ON during normal use
SW2 – Keep ON
VR1 – Tx level adjustment

– SBU –

VR1 – White level adjustment
TP1 – XVIDEO

– OPU –

VR1 – LCD brightness adjustment

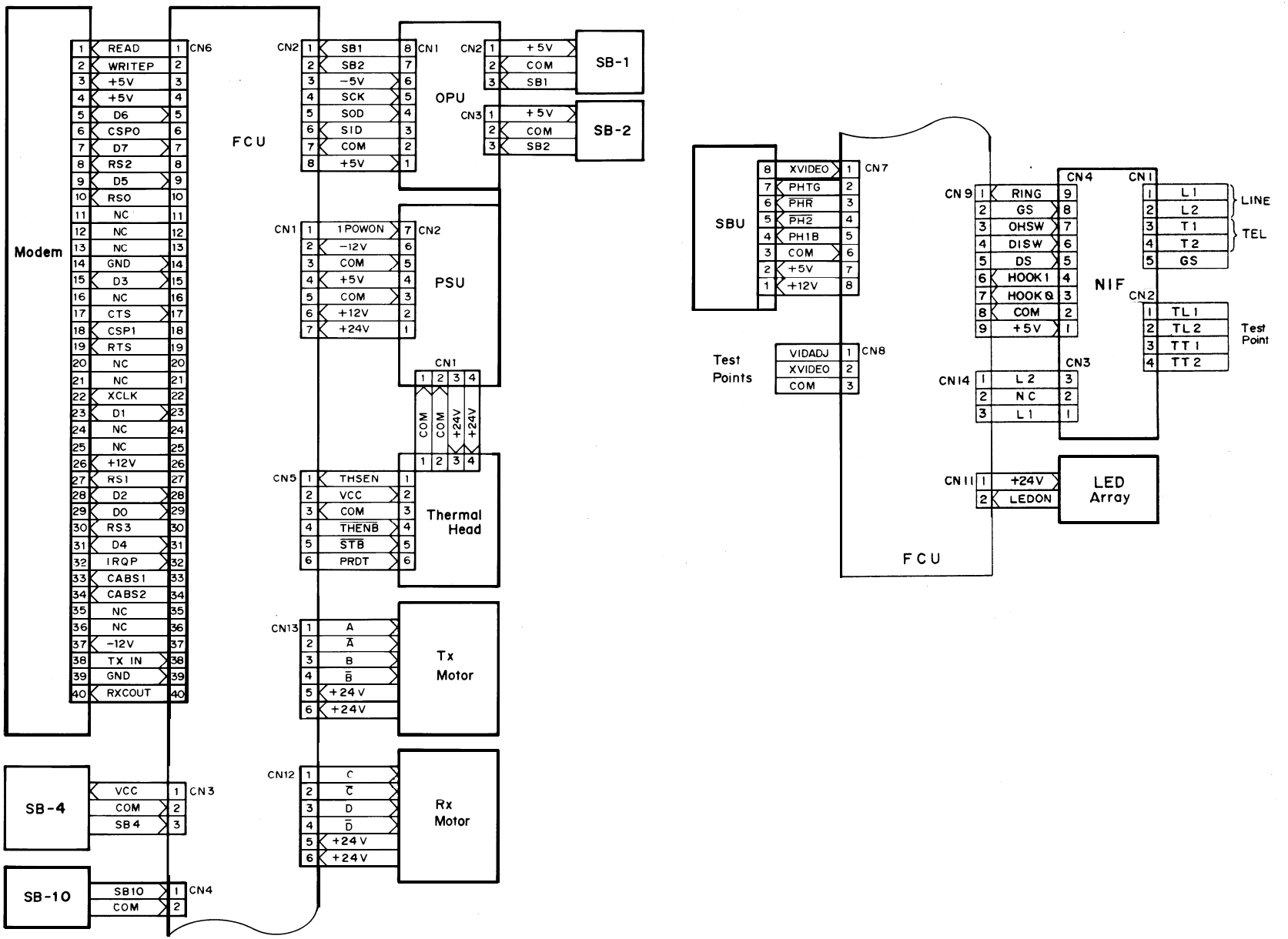
Jumpers

JP number / Nation	NIF														FCU			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	*1	*2	*3	*4
Austria					S	S		S	S	S	S	S	S			S		S
Belgium		S			S	S		S	S	S	S	S	S			S		S
Denmark		S			S				S	S			S			S		S
Finland	S		S		S	S			S	S	S	S				S		S
France		S			S	S		S	S	S	S	S	S			S		S
Germany	S			S	S	S		S	S	S	S	S	S			S		S
Ireland	S			S	S	S		S	S	S	S	S	S	S		S		S
Italy	S			S	S	S		S	S	S	S	S	S			S		S
Netherland		S			S	S			S	S	S	S	S			S		S
Norway		S			S	S			S	S	S	S	S			S	S	S
Portugal		S			S	S		S	S	S	S	S	S			S		S
Sweden		S			S	S	S		S		S	S	S			S		S
Switzerland						S		S		S	S	S				S		S
U.K.	S			S	S	S		S	S	S	S	S	S			S		S

Notes: 1. **FCU jumper 4 – S: Service Mode Enabled**
2. **FCU jumper 3 – Norway return loss**
3. **FCU jumper 2 – Do not remove.**

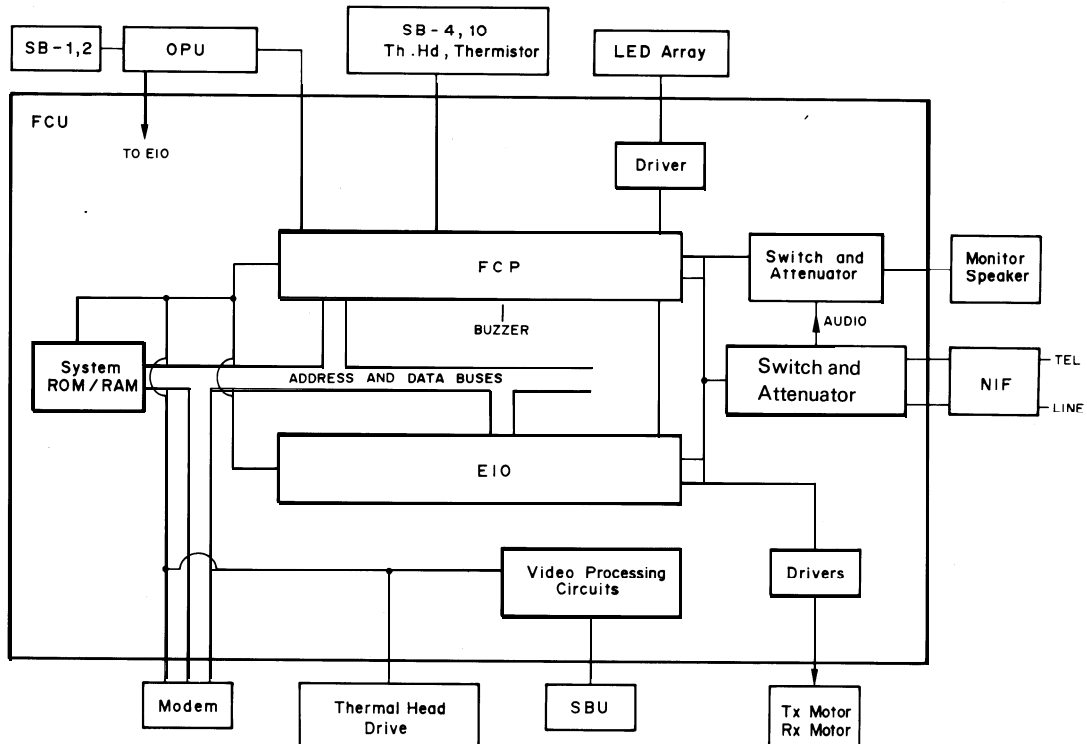
S: Short **Blank: Open**

APPENDIX C. POINT TO POINT DIAGRAM



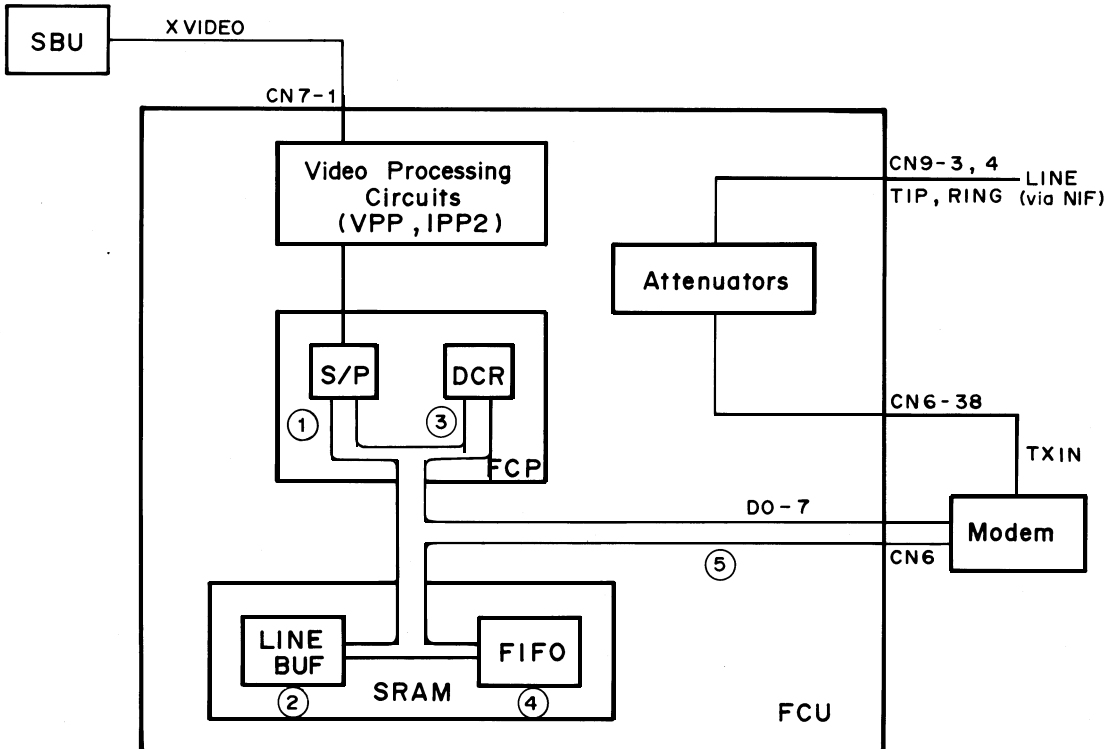
APPENDIX D. BLOCK DIAGRAMS

1. System Control

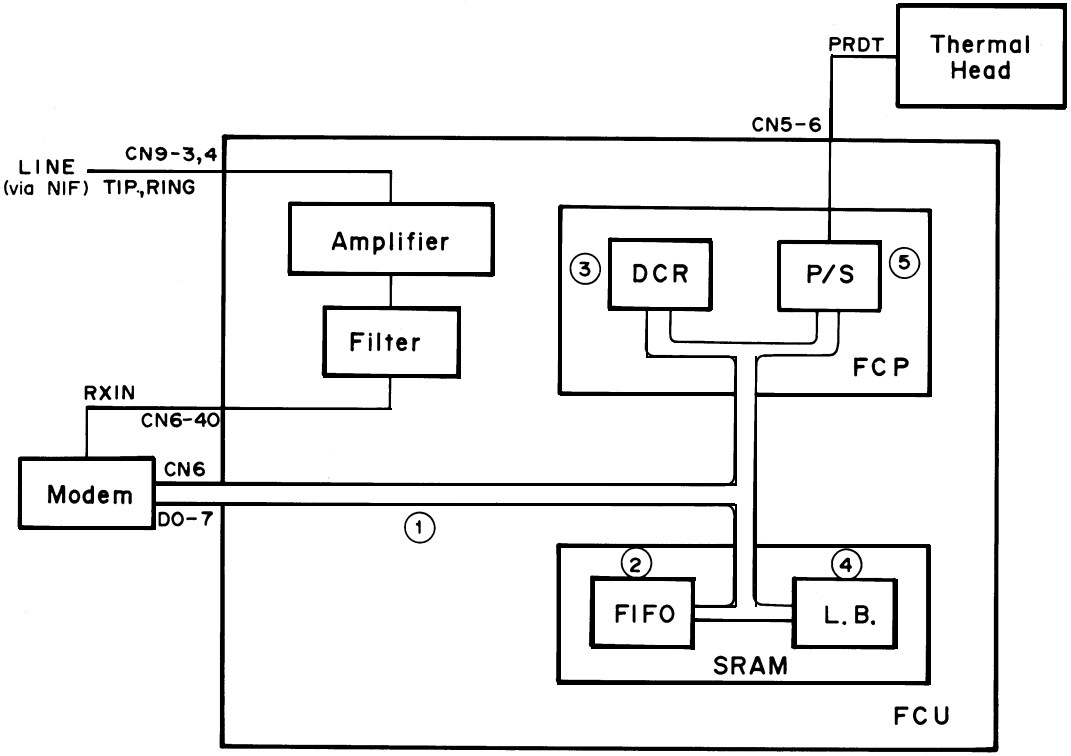


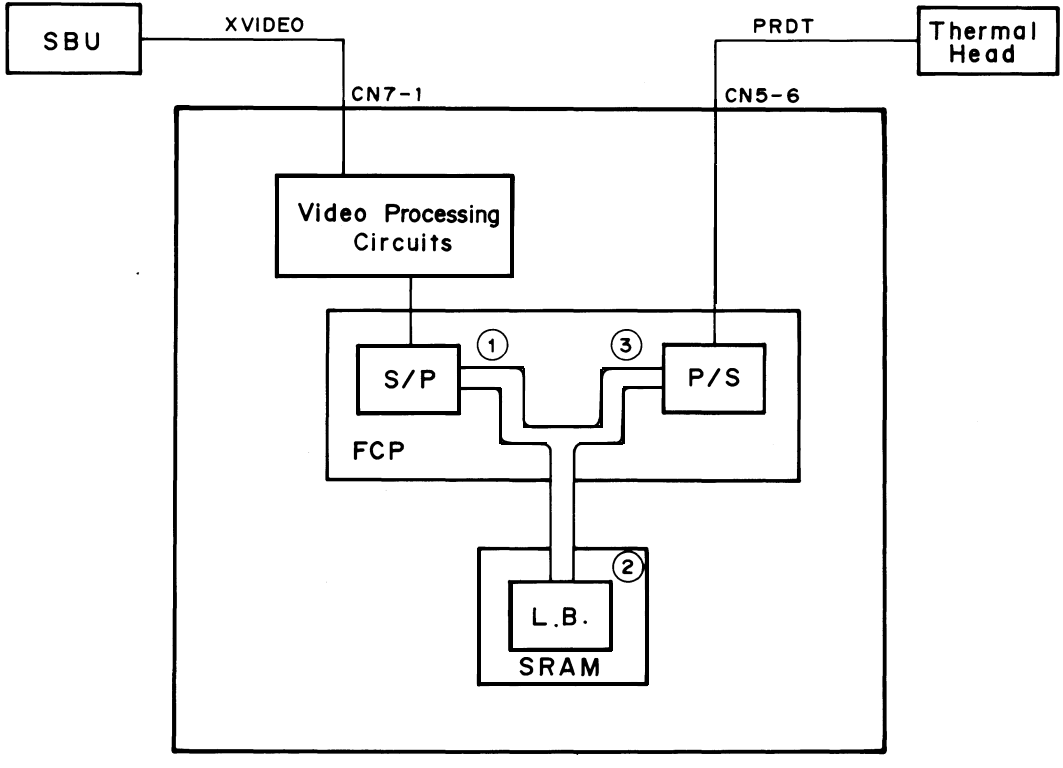
2. Video Data Path

–Transmission –

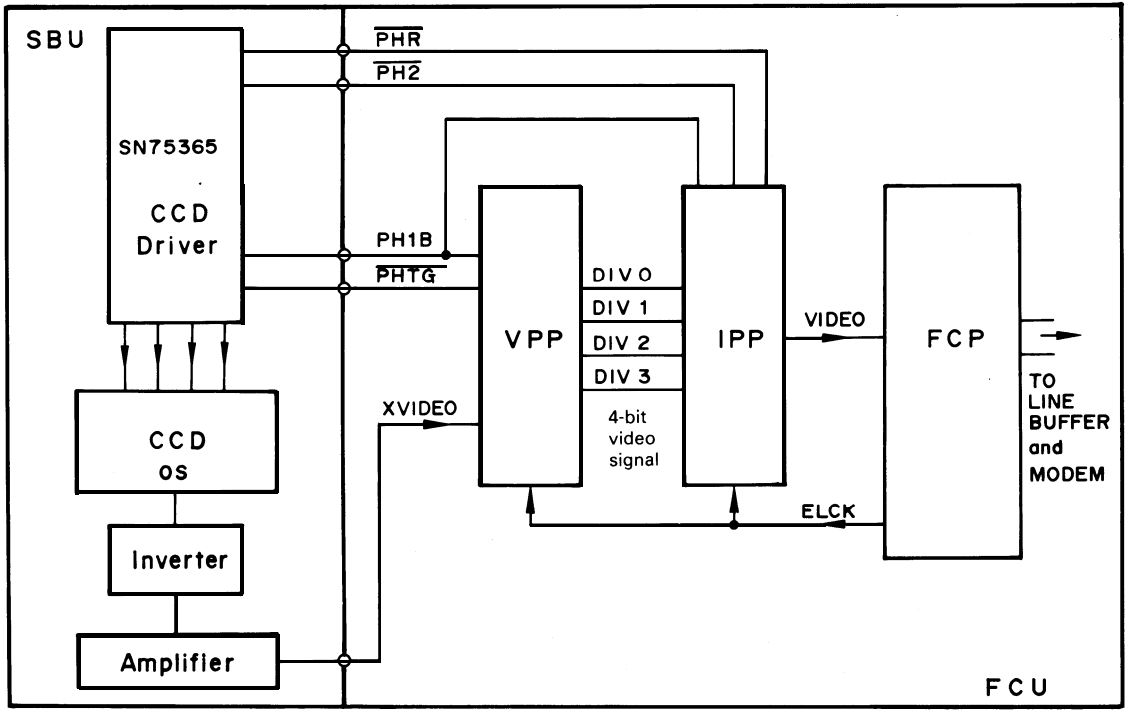


– Reception –

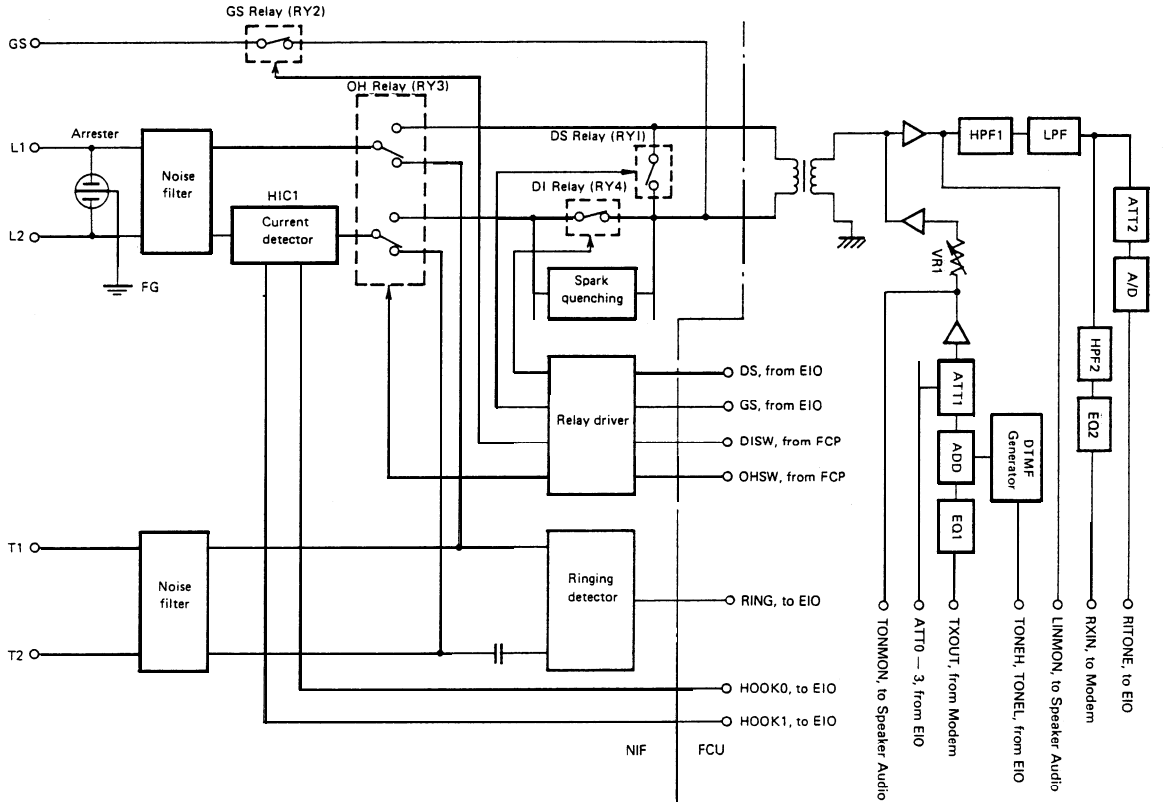

PRDT
Thermal Head
CN5-6
CN9-3,4
LINE
(via NIF) TIP,RING
Amplifier
Filter
③
DCR
P/S
⑤
FCP
RXIN
CN6-40
CN6
Modem
D0-7
①
②
FIFO
④
L.B.
SRAM
FCU


SBU
XVIDEO
PRDT
Thermal Head
CN7-1
CN5-6
Video Processing Circuits
S/P
1
3
P/S
FCP
2
L.B.
SRAM

– Video Processing Circuit –

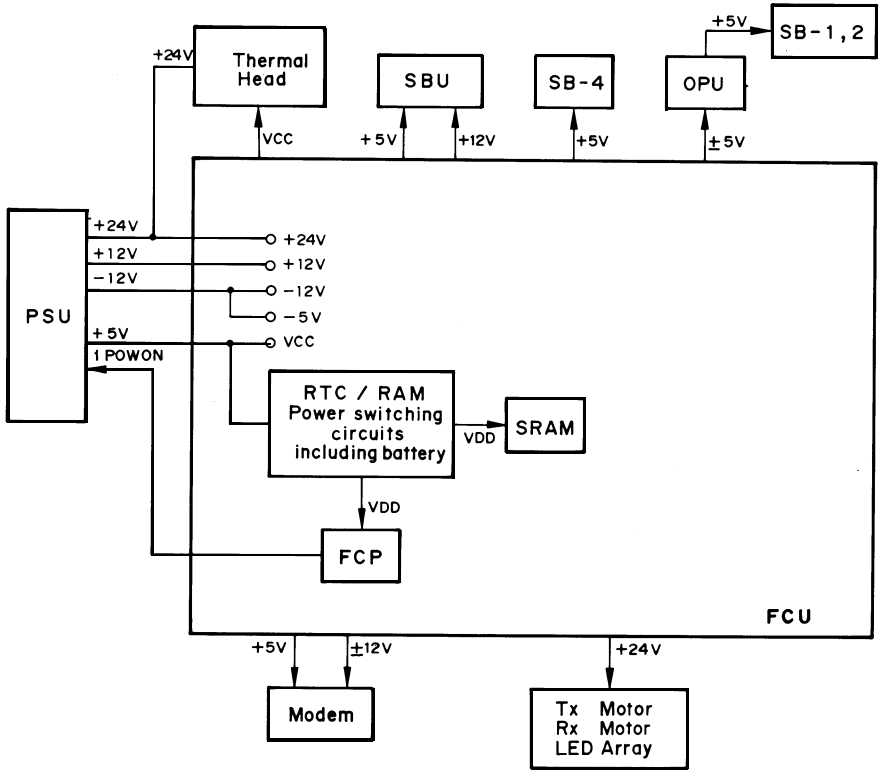


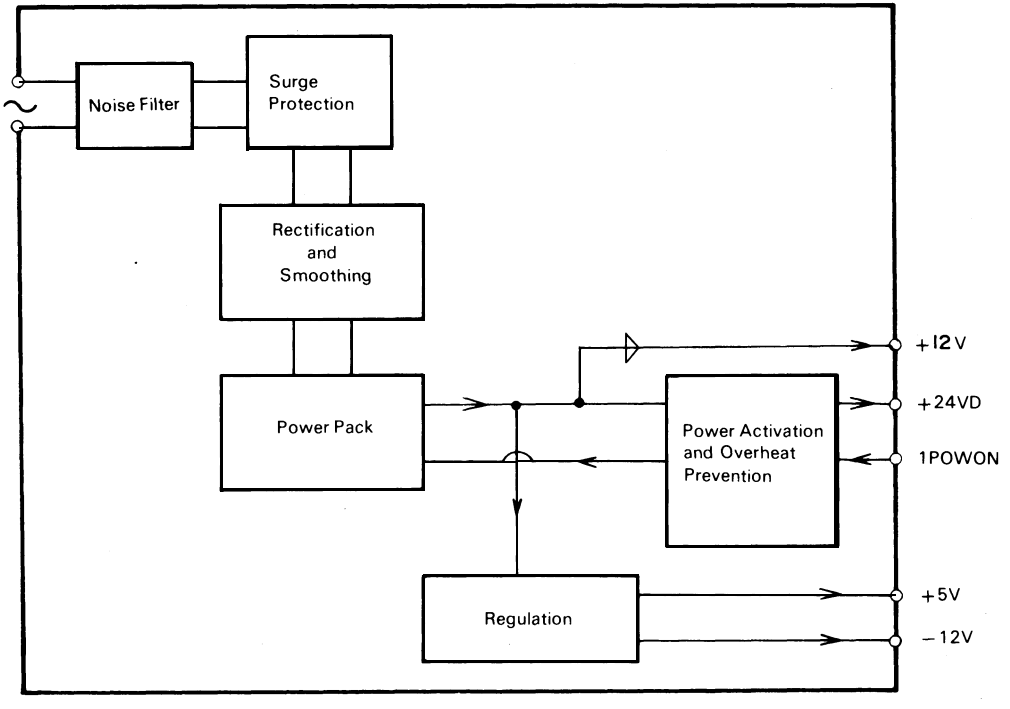
3. Communication Control



4. Power Supply

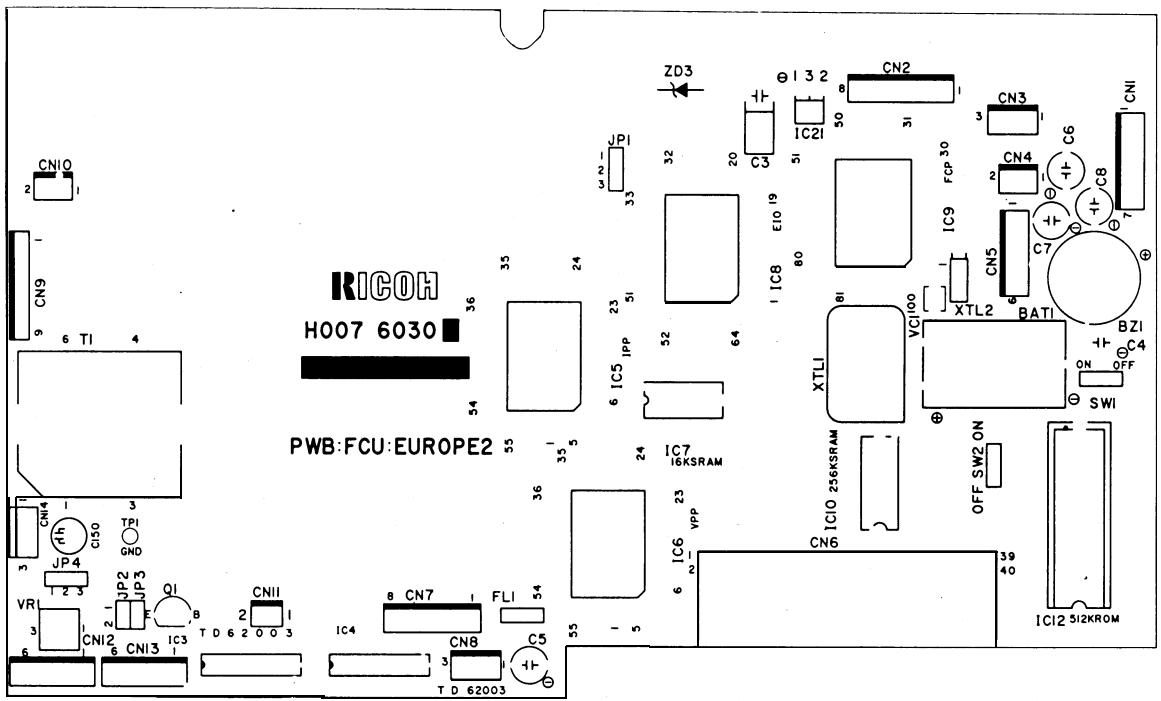
– Distribution –



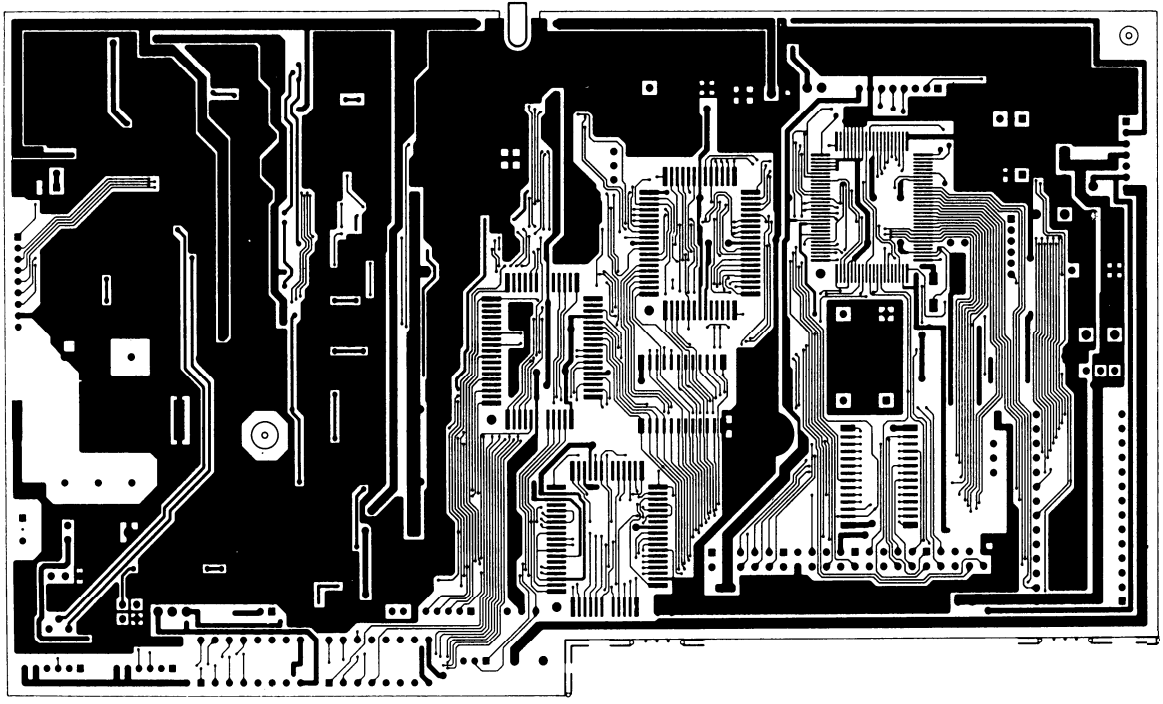

Noise Filter
Surge Protection
Rectification and Smoothing
Power Pack
Power Activation and Overheat Prevention
Regulation
+12V
+24VD
1POWON
+5V
−12V

APPENDIX E. PCB LAYOUTS

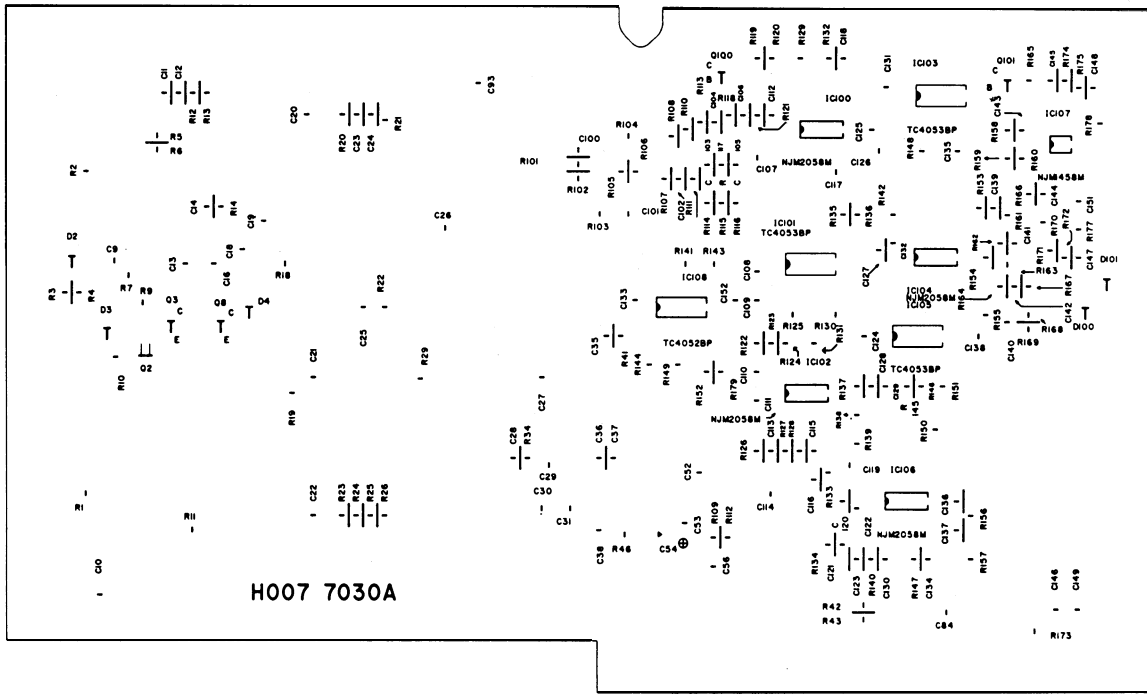
FCU 1/4



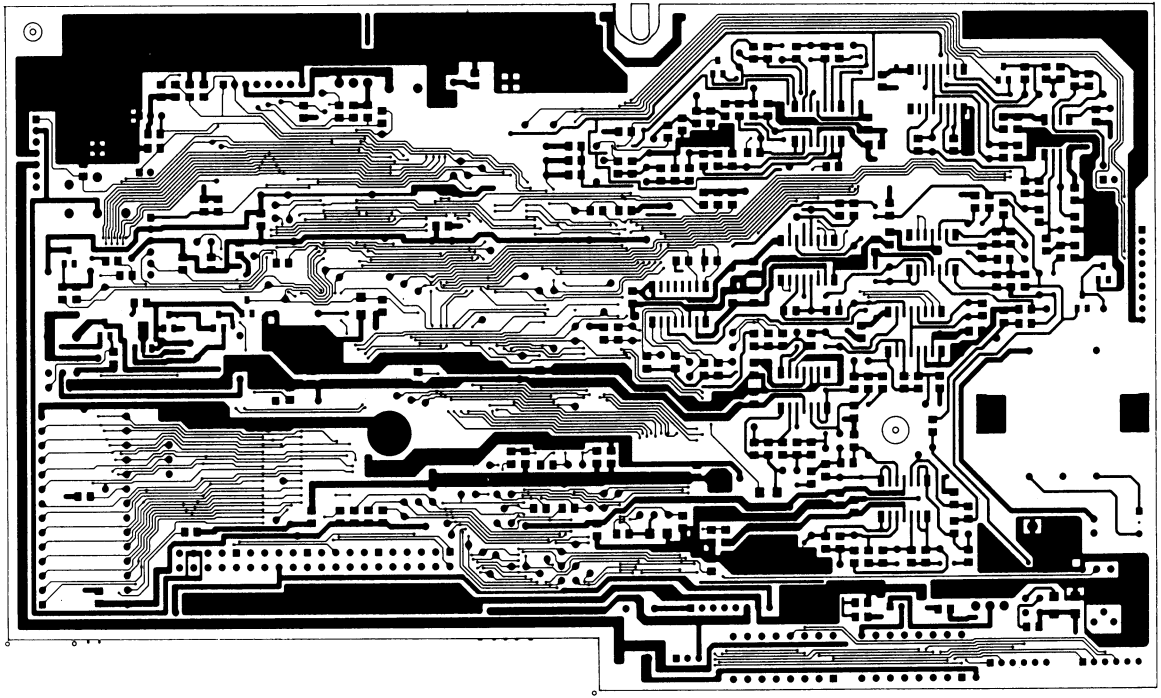
Parts Layout



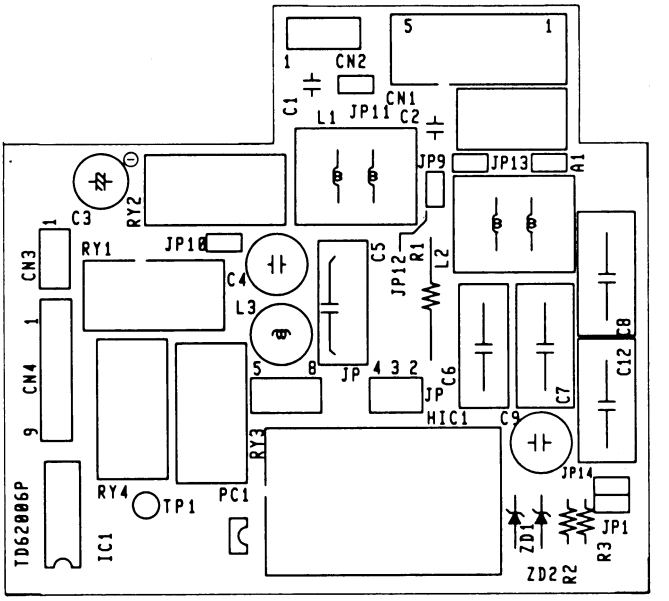
Parts Side



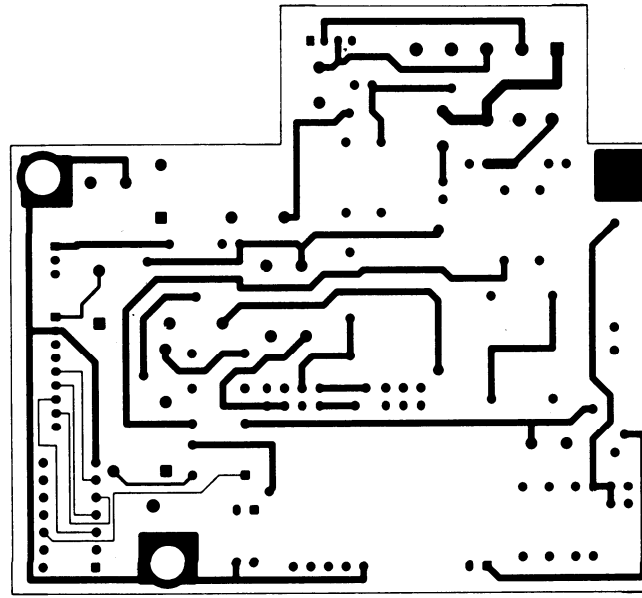
Comp Side



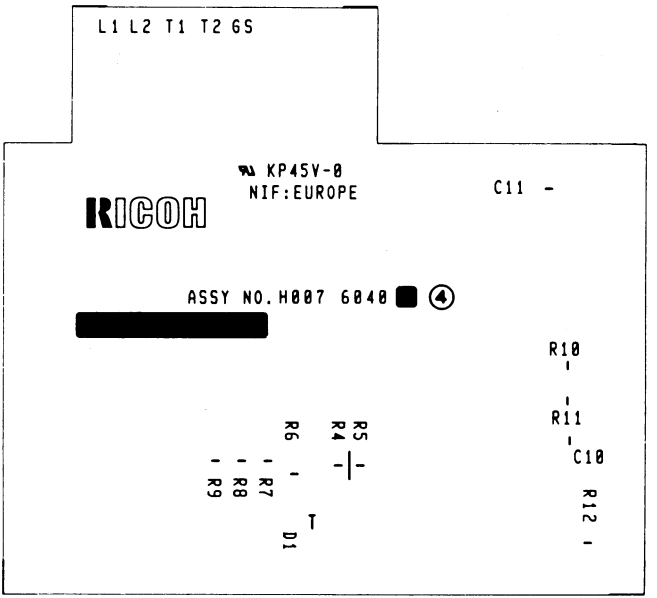
Reverse



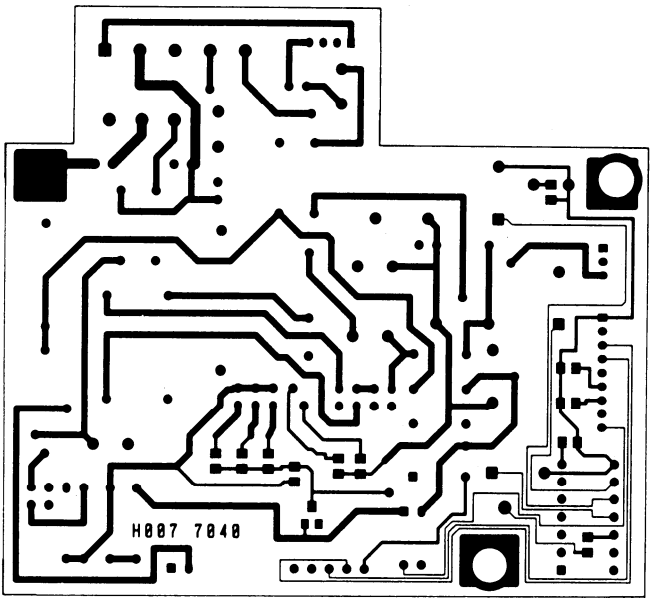
Parts Layout



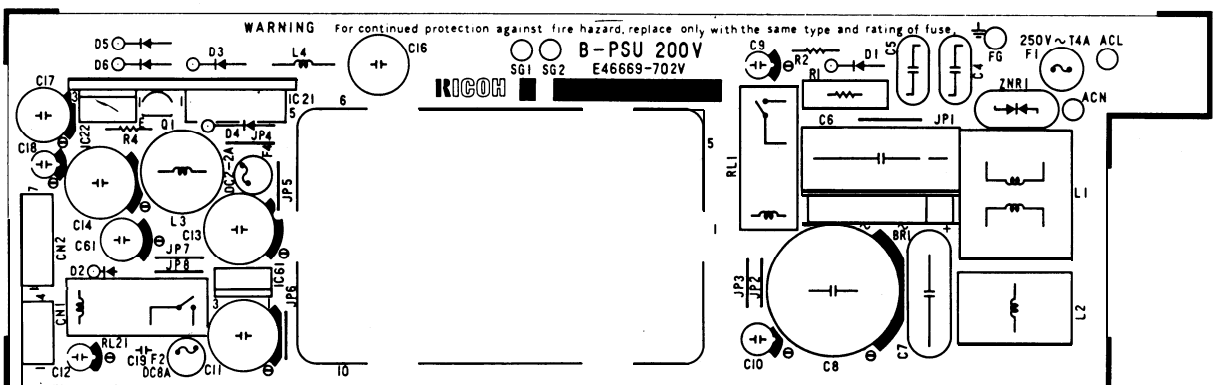
Parts Side


L1 L2 T1 T2 GS
KP45V-0
NIF:EUROPE
RICOH
C11
ASSY NO. H007 6040
R10
R11
C10
R12
R5
R4
R6
R7
R8
R9
D1

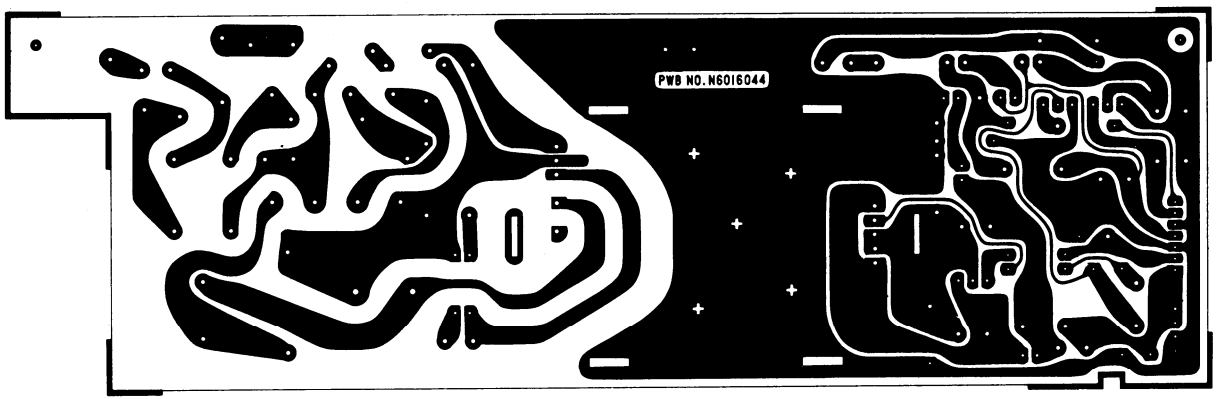
Comp Side



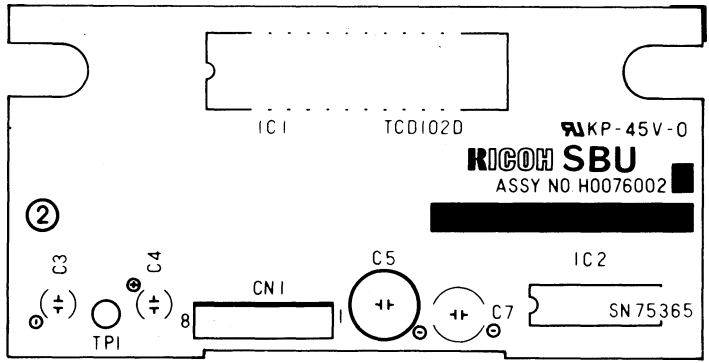
Reverse



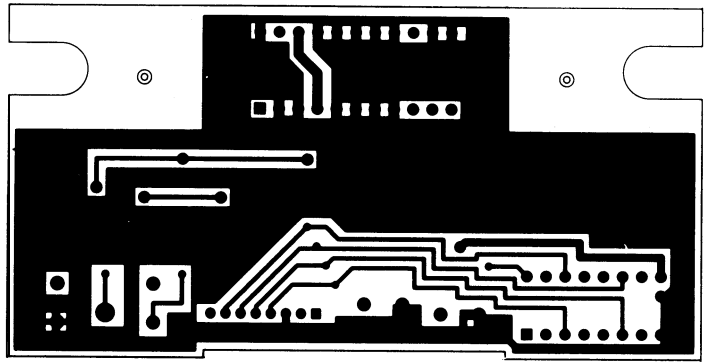
Parts Layout



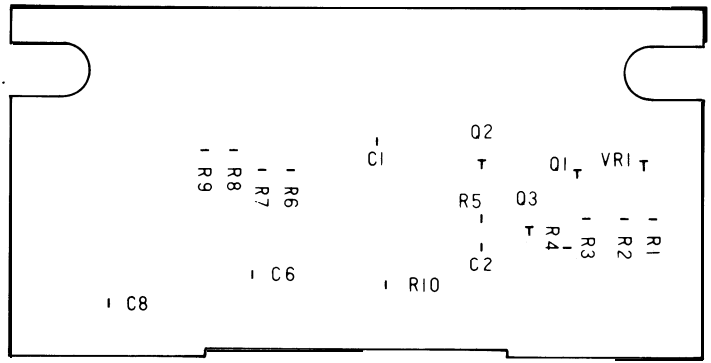
Reverse



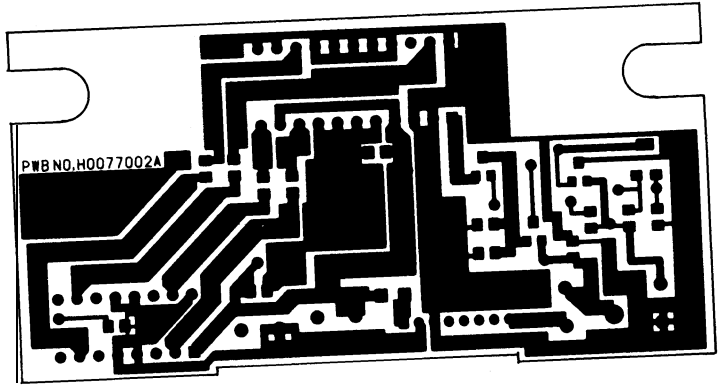
Parts Layout



Parts Side



Comp Side



Reverse

APPENDIX F. SENSOR TABLE

No.	Name	Type	Output H	Output L
SB- 1	Document sensor	Photointerrupter/Actuator	No paper	Paper
SB- 2	Scan line sensor	Photointerrupter/Actuator	No paper	Paper
SB- 4	Roll end sensor	Reflective photosensor	Paper	No paper
SB-10	Top cover switch	Microswitch	Cover open	Cover closed

APPENDIX G. FEATURES AND SPECIFICATIONS

1. Features

Key: o = available, X = not available

Function	Europe	Asia	Remarks
Resolution	o	o	
Automatic dialing	o	o	
Shared or dedicated lines (FAX/TEL)	o	o	
Redialing –			
twice at 5-min intervals	o	o	
immediate redial option	o	o	
On-hook dial	X	X	
Built-in phone	X	X	
Speed Dial codes – up to 90	o	o	
One-touch keys	o	o	
single addresses	o	o	
G2, G3 autocompatibility	o	o	
Automatic fallback	o	o	
MTF correction	o	o	
Contrast selection	o	o	
Send Later transmission – one destination	o	o	

Function	Europe	Asia	Remarks
Auto/manual reception	o	o	
Auto-answer delay time setting	o	o	Note 1
Monitor speaker	o	o	
Voice request	o	o	
Well log	o	o	
Closed Network Communication	o	o	Note 2
Reports + Lists			
– Automatic –			
TCR (Journal)	o	o	
Transmission Report	o	o	
Error Report	o	o	Note 3
– User-initiated –			
TCR (Journal)	o	o	
Telephone List	o	o	
– Service Level –			
Service Report	o	o	
Parameter List	o	o	
Memory Dump	o	o	

Function	Europe	Asia	Remarks
Programming			
– User Level –			
Quick Dial	o	o	
Clock adjustment	o	o	
RTI/TTI	o	o	
CSI	o	o	Note 4
ID code	o	o	Note 2
Telephone line type	o	o	Note 5
Sheet counters – Tx/Rx	o	o	
– Scanned/Printed	o	o	
Speaker volume	o	o	
TTI print disabling	o	o	
– Service Level –			
Bit switch setting	o	o	
Local terminal ROM/RAM read	o	o	
Local RAM rewriting	o	o	
CCITT/Maker codes	o	o	
Thermal head parameters	o	o	
Error code display	o	o	
NCU parameters	o	o	
Sensor initialization	o	o	
System tests	o	o	
Rewrite from remote K10	o	o	

Notes:
1. Service level for Europe
2. Default setting is disabled for Germany. This is made available by bit sw. 18, bit nos. 5 and 6.
3. German and Italian versions do not print the error codes.
4. This can be selectable by both user level and service level for Europe. Default setting is user level only for the UK and Universal versions.
5. This can be selectable by both user level and service level for Europe. Default setting is user level only for the UK version.

2. Specifications

Item	Specifications
Type	Desk-top transceiver
Circuit	Public telephone network
Connection	Direct coupling
Document size	Maximum: 216 x 600 mm (W x L) Up to 14 m length available Minimum: 148 x 105 mm (W x L) Thickness: 0.05 to 0.15 mm
Document feed	Manual feed, face down
Scanning method	Flat bed, CCD
Scanning resolution	Main scan: 8 pixels/mm Sub scan: 3.85 lines/mm (Standard) 7.7 lines/mm (Detailed)
Encoding	MH
Modulation	QAM, PhM, AM-FM-VSB, FM
Protocol	Groups 2 and 3, Automatic compatibility
Data rate	9600/7200/4800/2400 bps Automatic fallback
Transmission time	21s for one CCITT#1 test chart using standard resolution, 9600 bps
Printing system	Thermosensitive paper
Paper roll size	A4 width x 30 m
Printout width	210 mm (A4)
Copy top margin	27 mm

Item	Specifications		
Power supply	Voltage: 230±30 V/ac Frequency: 50/60 Hz, single phase		
Maximum power consumption	Standby:	18 ± 5W	(240V)
	Transmission:	32 ± 5W	(240V)
	Reception:	29 ± 5W	(240V)
	Copying:	43 ± 7W	(240V)
Weight	5 kg		

APPENDIX H. GLOSSARY OF TERMS

CCD – Charge Coupled Device: The device used to scan a document and convert black and white data into an electric signal.

CED – Called Station Identification: A protocol signal which informs the calling station that a fax terminal has been reached.

CCITT – Consultive Committee for International Telephone and Telegraph: A part of the U.N. which sets and governs facsimile standards.

CFR – Confirmation to Receive: A protocol signal used by the receiving terminal telling the transmitter that modem training and set-up information was accepted.

CNG – Calling Tone: An 1100 Hz tone that is used by autodialing machines to alert a manual receive machine that a fax is on the line.

CSI – Called Subscriber Identification: the phone number of the fax machine; used for identification.

DCN – Disconnect: A protocol signal sent by the transmitter to release the telephone line.

DCR – Data Compressor Reconstructor: A VLSI circuit used to compress and reconstruct data; contained in the FCP.

DCS – Digital Command Signal: a protocol signal that sets-up Group 3 facsimile parameters.

DIS – Digital Identification Signal: A protocol signal that informs the calling station of the called stations capabilities.

DRAM – Dynamic Random Access Memory: A LSI used for the storage of information.

DTMF – Dual Tone Multi Frequency: A method of dialing using tones instead of pulses.

EOM – End of Message: A protocol signal that informs the receiver that there are more pages using different set-up.

EOP – End of Procedure: A protocol signal that informs the receiver that this is the end of page data transmission.

EPROM - Electronically Programmable Read Only Memory: A memory chip that can only be read from; contains system parameters.

FCP – Facsimile Control Peripheral: A Ricoh custom LSI which contains the system control CPU.

FCU – Facsimile Control Unit: A PCB which controls the entire facsimile machine.

FIFO – First In First Out: A buffer which passes data, the first data arriving is the first out.

FTT – Fail to Train: A protocol signal that informs the transmitter that either set-up information and/or modem training was not acceptable.

IPP – Image Processing Peripheral: A Ricoh custom LSI that processes the digital video signal from the VPP.

LCD – Liquid Crystal Display: Display on the operator panel used to inform the operator of machine status and programming.

LED – Light Emitting Diode: An electronic component, a diode that emits light. Used as an indicator lamp.

LSI – Large Scale Integration: A process of making micro-chips.

MCF – Message Confirmation: A protocol signal confirming reception of the previous page sent.

MH – Modified Huff man: A compression method used in facsimile to code scan lines. Modified Huff man Coding is a one dimensional run length digital scheme of coding white and black runs.

MPS – Multipage Signal: A protocol signal that informs the receive station that more pages are to follow using the same parameters.

MTF – Modulation Transfer Function: MTF is necessary for the transmission of details such as points, thin lines and detailed characters.

NIF – Network Interface: A PCB that contains the relays and switches for interfacing with the network.

NSF – Non-Standard Facilities - A protocol signal that informs the calling station of the called stations capabilities, otherwise known as Ricoh Group 3.

NSS – Non-Standard Set-up: Set up command in Ricoh Protocol.

OPU – Operator Unit: A PCB, the panel that contains the keypad and switches and the LCD display for the operator.

PABX – Public Access Broadcast Exchange: A switchboard, normally electronic, found at the customer's location.

PD – Pulse Dialing: Pulse or Rotary dialing method of a telephone.

PIN – Procedural Interrupt Negative: A protocol signal used to inform the transmitter that the previous page was not received satisfactorily due to depletion of paper, paper jam or because the STOP button was pushed on the receiving machine.

PIP – Procedural Interrupt Positive: A protocol signal that confirms reception of the previous page, but the receive machine's operator wishes to make a voice request.

PSTN - Public Switched Telephone Network: The normal telephone network used for voice communications.

PSU – Power Supply Unit: The assembly that supplies voltages to the required sections and components of the fax.

QAM – Quadrature Amplitude Modulation: A modulation technique used when transmitting at 9600 and 7200 bps, so that we can transmit over the PSTN.

RTI – Remote Terminal Identification: The RTI is an alphanumeric ID that is displayed on the other terminal's operator panel display. It may be the company name, serial number or any other identifying code that the operator wishes.

RTN – Retrain Negative: A protocol signal that informs the transmitter that the previous page was not received satisfactorily, due to excessive errors.

RTP – Retrain Positive: A protocol signal informing the transmitter that the previous page was OK, but retraining of the modems must occur before continuing. Usually due to poor telephone line conditions.

SBU – **Scanner Board Unit: A PCB that contains the CCD and circuitry needed for reading a document.**

TCR – **Transaction Confirmation Report: A report that contains all fax transactions and shows date, time, RTI, mode, number of pages, result and department code.**

TTI – **Transmit Terminal Identification: An ID of the transmitter that is printed at the top of each page sent; includes the date and time, customer ID and page number.**

VPP – **Video Processing Peripheral: A Ricoh custom LSI that processes and A/D converts the CCD output video signal.**