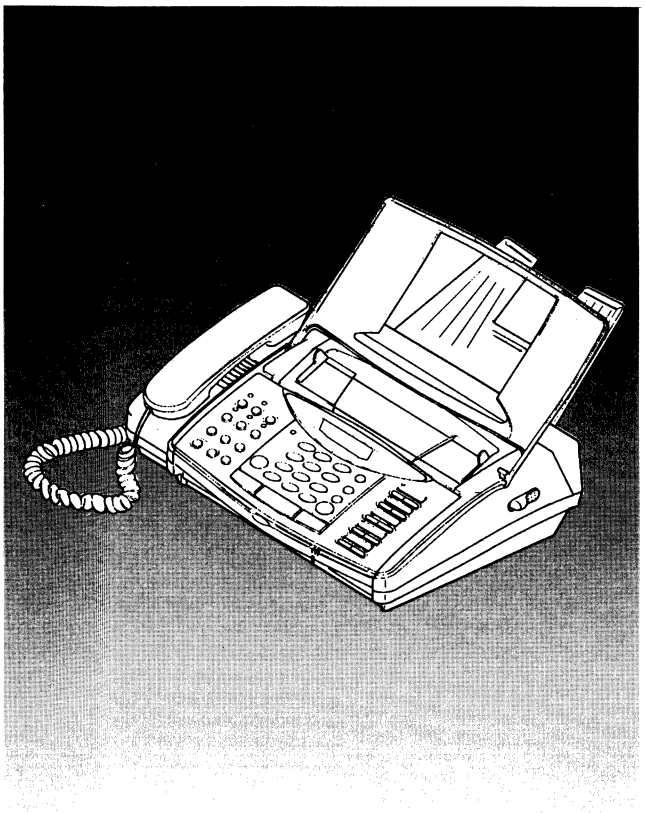
SAMSUNG

FACSIMILE

SF2800/SF800

SERVICE Manual

FACSIMILE



CONTENTS

1. Precautions

1-1. Safety Precautions

1. Before servicing, unplug the power cord to prevent an electric shock.

2. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged.

3. After servicing, make sure that protective devices such as insulation barriers and insulation paper shields are properly installed. Then, be sure to make an insulation resistance test to prevent the customer from being exposed to a shock hazard.

1-2. Servicing Precautions

1. Use only manufacturers recommended parts for safety.

2. After removing an electrical assembly equipped with ICs and LSIs, place the assembly on a conductive surface such as aluminum foil to prevent electrostatic change buildup or exposure of the assembly.

3. Do not grasp IC or LSI pins with bare fingers.

2. Specifications

Classification			Specification	
Transmitter	Document Size (Width x Length)		Normal	8.5 x 11 inches (216mm x 297 mm)
			Max.	8.5 x 59 inches
			Min.	6 x 3 inches
	Document Thickness		0.0029 to 0.0059 inches	
	Scan Line Length		A4, 1728 scan elements along a line length of 216 mm	
	Effective Scanning Width		8.5 inches (216 mm)	
	Scanning Method		Horizontal	Flat-bed scanning using CIS
			Vertical	Intermittent scanning by stepping motor
	Resolution		Fine	203 pels/inches x 196 lines/inches
			Standard	203 pels/inches x 98 lines/inches
Receiver	Transmission Speed		9600, 7200, 4800, 2400 bps	
	Coding Scheme		MH (Modified Huffman), MR (Modified Read)	
	Recording Paper Size		8.5 inches x 98.4 ft (216 mm x 30 m)	
	Effective Recording Width		8.27 inches (210 mm) ± 1 %	
	Recording Method		Thermal recording with solid state Thermal Printing Head (TPH)	
	Resolution		Fine	203 pels/inches x 196 lines/inches
			Standard	203 pels/inches x 98 lines/inches
Line Control Block	Communication Facility		Public Switched Telephone Network (PSTN)	
	Line Coupling		Direct coupling	
	Modem		QAM, DPSK and FSK (V.29, V.27ter with fall back function and V.21)	
	Carrier Frequency		1700 Hz (9600/7200 bps) 1800 Hz (4800/2400 bps)	
	Control Signal		1100 Hz (CNG) 2100 Hz (CED) 300 bps (FSK)	
	Output Level		0 dBm to -15 dBm adjustable by 1 dB step	
	Input Sensitivity		0 dBm to -43 dBm	
	Input & Output Impedance		600 ohm ± 30%	
Dialing (Telephone)	Dialing Signal		DP / DTMF	
	Dialing Method		Direct dialing, Memory dialing, Redialing	
	Memory Capacity		10 memory dial (in the power operated state)	
Power Supply	Power Requirement		Check power label (attached near the power outlet)	
Operating Environments	Temperature		50°F to 95°F (10°C to 35°C)	
	Relative Humidity		20% to 80% RH (Non-Condensing)	
Construction	Dimensions	Width	14.2 inches (359.5 mm)	
		Depth	11 inches (280.2 mm)	
		Height	4.1 inches (104.5 mm)	
	Weight		8.3 lbs (3.75 kg)	

Note: Nominal specs represent the design specs. All units should be able to approximate these while some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specs.

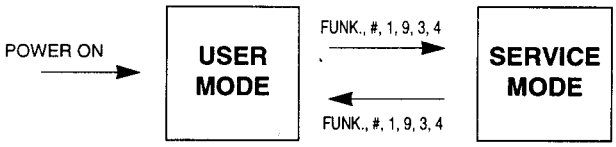
3. Operation Instructions

3-1. Service Mode

The service mode (tech mode) of the machine provides additional option settings, tests, reports, LED Indicators, LCD display and memory clear.

The service mode is entered by pressing **FUNK., #, 1, 9, 3, 4**, in sequence. Then the LCD display shows "TECH MODE" at the second row on the LCD to indicate that the machine is operating in service mode (tech mode). The machine will still perform all normal operations while in this mode.

You must turn the power switch off and on, or press the key **FUNC., #, 1, 9, 3, 4** in sequence again to return from service mode to user mode. At this time, performing this operation does not change any option that was changed in service mode, unless you performed operations for memory clear tests.



You can communicate with direct connection between both units by pressing the "SPEAKER" key followed by "START/COPY" key of the both units.

3-2. Options Instruction

3-2-1. User Mode options

1) FAX options

• **Confirmation Report (SENDEBERICH)**: Default setting → NO (NEIN)
Selects whether or not the machine will print the transmission result after every transmission.

YES = The machine will print out the transmission result after every transmit session.
NO = The machine will not print out the transmission result.

• **Ring Count (RUFBEAN TWORTUNG)**: Default setting → 2 Time (MAL)
The machine will be settable from 1 to 7 rings before the fax machine answers a call automatically.

• **In PABX (In TEL.-Anlagen)**: Default setting → NO (NEIN)
When you install your fax machine, your unit is connected to the GSTN line or PABX line. If you select the dial tone from the Central Office, or if you select the PABX line, then detect the dial tone only if there is pause entry between first digit and second digit, when dialing.

• **Select HOLD/MUTE (Rückfrage/Stumm) key operation**: Default setting → HOLD (Rückfrage)
When "**HOLD/MUTE (Rückfrage/Stumm)**" is pressed while conversing on the line, selects whether the machine will service the **HOLD** Music or **MUTE** func. through the tel. line.

HOLD (Rückfrage) = When "**HOLD/MUTE (Rückfrage/Stumm)**" is pressed, the remote party will be able to hear hold music.
MUTE (Stumm) = When "**HOLD/MUTE (Rückfrage/Stumm)**" is pressed, the microphone will be deactivated and the local party will be inaudible to the remote party.

• **Remote RCV. Start Code (Fernempf. Code)** : Default setting → * 9 *
To receive a fax using the extension telephone, the fax machine detects the code which consists of [*] and one-digit number [9] and [*]. The first and last digits [*] are fixed. You can change the middle-digit number (0 to 9, *, #).

• **RDC Enable (RDC Moeglich)**: Default setting → YES (JA)
This option allows your unit to be controlled from RDC main machine which is used by maintenance center.

2) TAD options

• **NON-RING Mode (Rufauss Chaltung)**: Default setting → NO (NEIN)
Selects whether the machine will ring or not, when it detects a ring in ANS/FAX Mode.

YES = The machine will answer without ringing as soon as it detects ring as per Ring Count. At this time, the machine also does not perform Call Monitoring independent of Call Monitoring option.
NO = The machine will ring as per Ring Count before it answers a call automatically.

• **Call Monitoring (Mithoeren)**: Default setting → YES (JA)
Selects whether the machine will send sound out or not of local and remote party through the speaker.

YES = The machine will send out OGM message and sound (for example, voice) of remote party through the speaker and line.
NO = The machine will send out sound of local and remote party through the line only.

• **OGM Recording limit time (Ansagezeit)**: Default setting → 15 sec (15 sek)
The machine is settable to a time limit of 15 or 30 sec. for OGM recording.

• **Message Recording limit time (Aufnahmezeit)**: Default setting → 30 sec (30 sek)
The machine is settable to 30 sec. for OGM, 1 min and 2 min for MEMO and ICM recording. 2-WAY recording time is not limited.

• **Remote Access Password (Fernab. Password)**: Default setting → # 19 #
To control the answering features by remote access, the machine detects the Remote Access Password which consists of [#] and 2-digit number [xx] and [#]. The first and last digits are fixed. You can change the 2 middle-digits number (0 - 9, *) but you cannot use a double digit (for example, 11, 22, 33...) as a password.

• **Battery Alarm (Batterie-Alarm)**: Default setting → ON (AN)
The battery alarm message is preset to display automatically when the battery low.

ON = The battery alarm message appears when the battery is low.
OFF = The battery alarm message is not displayed when battery is low.

3-2-2. Service Mode Options

• **Cut Paper (Papier Scheiden)**: Default setting → YES (JA) (SF2800 only)
Selects whether or not the machine will cut every page.

YES = The machine will cut the paper between pages received.
NO = The machine will print in a continuous sheet.

• **Auto-Cutting Curl Part (Papier Glaettungs-Neuanschnitt)**: Default setting → NO (NEIN) (SF2800 only)
When the **Cut Paper (Papier Scheiden)** option is set to 'YES (JA)', this option lets you choose whether or not you want to cut out the bending part of paper about 4 inches every time before printing operation.

YES = Cuts out the part of the paper that bends before printing operation.
NO = Normal processing.

• **Modem Speed (Uebert. Geschw)**: Default setting → 9600 bps
Baud rate can be set at 9600, 7200, 4800, and 2400 bps. The lower the baud rate, the larger the error rate accepted. T30 protocol has an affixed speed of 300 bps in the protocol mode. When the TX speed is set to 9600 or 7200 bps, the RX speed can be any V.29 or V.27ter speed. When the TX speed is set to 4800 or 2400 bps. the RX speed can be any V.27ter speed.

• **Transmission Level (Sendepegel)**: Default setting → -6 dBm
+01 dBm to -13 dBm is acceptable. The machine will be settable between +01 and -13 dBm with the control panel keypad. The accuracy is ±1 dBm of the setting.

• **Cable Equalizer (Kabelanpassung)**: Default setting → SHORT (KURZ)
In copper wire, lower frequencies are attenuated less than higher frequencies. The longer the cable, the more pronounced the effect. To compensate for this effect, the machine should be set to adjust the cable status. The options are settable for SHORT or LONG cable.

• **Monitor Line (Ltgs Lautsprecher)**: Default setting → NO (NEIN)
You can hear line signals through a tone speaker. The volume is adjustable.

YES = Monitor the line signal.
NO = Speaker active only for dialing, the starting part of the phase B of CCITT, and key tones.

• **Receive Level 0 dBm (Empf.-Pegel 0 dBm)**: Default setting → NO
Receive level may be lowered due to cable loss.

YES = Receive sensitivity is between 0 to -40 dBm. This option will be used in the worst case.
NO = Receive sensitivity is between -5 to -43 dBm.

• **Ignore first DIS (Ignorieren Erste DIS)**: Default setting → NO (NEIN)
Digital Identification Echo or singing effect is generated while transmitting. This will be cancelled by Suppression.

YES = When originating a call, fax machine will wait until two DIS signals are received from the remote unit before responding. When answering a call, fax unit will pause 1.5 sec between sending CED and DIS.
NO = Normal processing.

• **2-Way Recording beep (Mitschneide-Ton)**: Default setting → YES (JA)
The machine, with 2-way recording facility, will record a warning tone on the line when recording is in progress.

YES = Records warning tone to the line when recording is in progress.
NO = Does not record warning tone to the line when recording is in progress.

3-2-3. Options Setting Procedure

Technical can set by pressing **FUNK.** , **4**, **JA** key and selecting the item want to change options with **YES**, **NO** or [◄◄], [►►] key in user or service mode.

THE DEFAULT SETTING OF OPTIONS (USER MODE)

Options	Default	Remarks
Sendebericht	Nein	Print message confirmation after each transmission.
Rufbentwortung	2	Ringing cycles before auto answer rings.
In TEL.-Anlagen	Nein	
Rueckfrage/Stumm	HOLD	To send out the HOLD song through the line during conversation.
Fernempf. Code	9	To receive a fax using the extension telephone, fax machine detects the remote code.
RDC Moeglich	Ja	To answer automatically without ringing in local side.
Rufausschaltung	Nein	To monitoring caller's voice through the Speaker in ANS/FAX.
Mithoeren	Ja	To indicate newly recorded messages to the caller.
Ansagezeit	15 sec	To limit recording time for OGM message (15 sec or 30 sec).
Aufnahmezeit	30 sec	To limit recording time for MEMO and ICM (OGM only, 30 sec, 1 min, 2 min).
Fernab. password	#19#	To control the answering features by remote accessing.
Batterie-alarm	An	To control the battery alarm.

THE DEFAULT SETTINGS OF OPTIONS (SERVICE MODE)

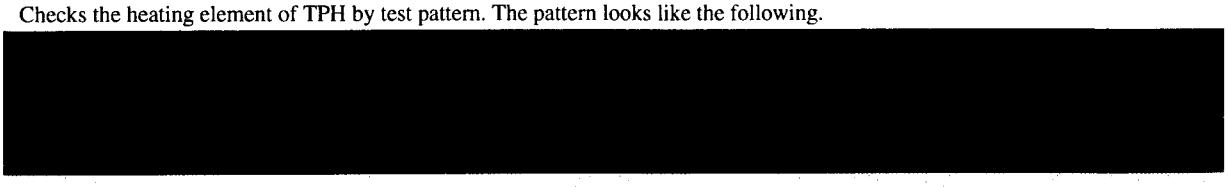
Options	Default	Remarks
Papier Schneiden	Ja	Selects whether or not the machine will cut every page.
Papierglaettungs-Neuanschnitt	Nein	When the **Papier Scheiden** option is set to '(JA)', this option lets you choose whether or not you want to cut out the bending part of paper about 4 inches every time before printing operation.
Uebert. Geschw.	9600	Maximum speed used
Sendepegel	-6 dBm	TX output power (+01 to -13 dBm range).
Kabelanpassung	Kurz	Amplitude equalizer for cable length status.
Ltgs Lautsprecher	Nein	Yes = Monitor line signal through tone speaker.
Empf.-Pegel 0 dBm	Nein	Yes = RX sensitivity 0 to -40 dBm No = RX sensitivity -5 to -43 dBm
Ignorieren Erste DIS	Nein	Yes = Wait until 2nd DIS from remote before responding (for lines with echo).
Mitschneide-Ton	Ja	Records warning tone on the line when recording is in progress.

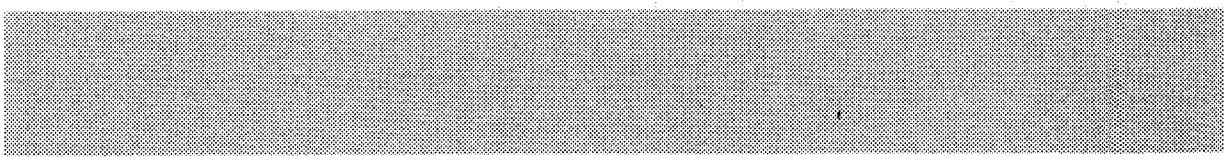
3-2-4. Tests (Service Mode Only)

If you press **FUNK., 6, JA** key in sequence, you enter the test mode. Various tests can be performed.

1) TPH Test

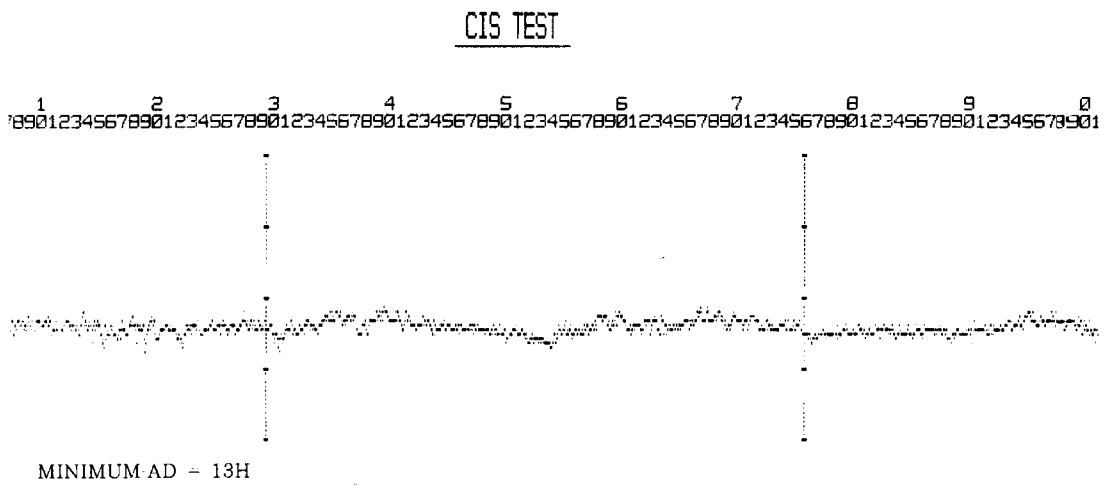
Checks the heating element of TPH by test pattern. The pattern looks like the following.





2) CIS Test

You can check the scanning part element of CIS (Contact Image Sensor) and print shading waveform with dot in graphically. If you select this test, then the LCD window shows "PRINTING..." at the second row on the LCD to indicate that the machine is



printing shading waveform with dot. The graphic waveform is similar to the following.

3) MODEM Test

The Modem sends various transmit signals on the telephone line which the Modem generates as the machine sends them on the telephone line in normal use.

- Modem FSK Test
- Modem Tone Test: 462Hz, 1100Hz, 1500Hz, 1650Hz, 1700Hz, 1850Hz, 2100Hz, 2425Hz
- G3 Training Test: 9600 bps, 7200 bps, 4800 bps, 2400 bps

4) RAM Test

The machine tests its RAM (Random Access Memory) and the result appears on the LCD window as "RAM OK !" or "RAM NG !"

5) ROM Test

The machine tests its ROM (Read Only Memory) The result and the version of software appears on the LCD window in the machine as follows.

ROM TEST OK ! CHK SUM = 7E, VOO	ROM TEST NG ! CHK SUM = 7E, VOO

6) KEY Test

The machine tests its key checking of the operation control panel. The results of key checking are displayed on the LCD window at every press of the Keys.

3-2-5. Reports

You can print out a report by pressing **FUNC., 3** key and selecting the desired item.

1) In User Mode

• Dial Number List

You can print out dial Number list which was assigned to the one-touch and speed dial.

• Options List

You can print out only User Mode options status.

• Transmission Report

You can print out the latest 20 transmission results and elapsed time.

• Reception Report

You can print out the latest 20 reception results and elapsed time.

• Confirmation Report

You can print out the transmission result.

2) In Service Mode

• Including all the items in User Mode

• Protocol Dump List.

This report lists show the sequence of the CCITT Group 3 T.30 protocol which occurred during the most recent TX or RX operation. You can check the reason of "COMM. ERROR" with this report. If your unit is in the service mode and a communication error occurs, the protocol dump list will be printed automatically.

3-2-6. LCD Displays

1) During the communication

• In User Mode

At the 1st row the LCD will display the remote I.D, at the 2nd row communication type (SEND or REC.), protocol type (G3), baud rate in kbps and page number.

• In Service Mode

At the 1st row the LCD will display the abbreviations for the CCITT Group 3 T.30 protocol as they occur, at the 2nd row communication type (SEND or REC.), protocol type (G3), coding mode (MH/MR), baud rate in kbps and line time.

2) In the case of some communication problem

• In User Mode

PAPER JAM (PAPIERSTAU): The recording paper has jammed.
CUTTER JAM (SCHNEIDEWERKSTAU): The recording paper has jammed in the cutter (FX2800 only).
COMM. ERROR (UEBERTRAGUNGS-FEHLER): Normal communication problem.

• In Service Mode

Including all the items in User Mode. The above COMM.ERROR is replaced by more descriptive messages.

PRE-MESSAGE ERROR: Problem occurred during phase B of session.
MESSAGE ERROR: Problem occurred during phase C of session.
POST-MESSAGE ERROR: Problem occurred during phase D of session.
LINE ERROR: Machine cannot connect or has lost connection with the remote.

Note: The additional message shown above will also print in the result column of the TX and RX reports when in service mode.

3-2-7. Memory Clear

Turn power on while pressing **STOP.** Then the all contents of RAM of machine will be erased and the machine returns to factory default setting condition.

4. Disassembly Instructions

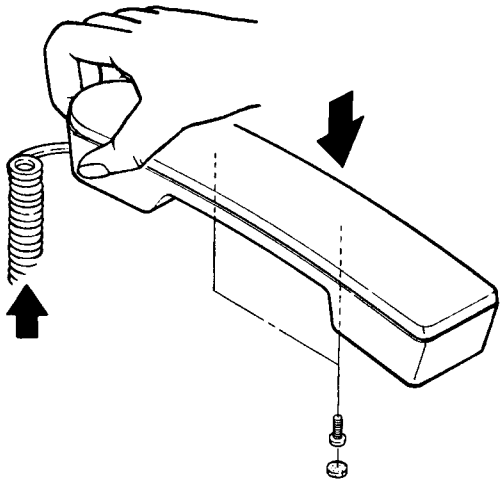
Note: Make sure the power is turned off and remove the power cord from the wall outlet.

4-1. Handset Disassembly

① Disconnect the modular jack from the Facsimile.

② Remove the rubber dummies from the hole and loosen the screws (2 screws).

③ Draw up the upper cover and push down on the indicated point

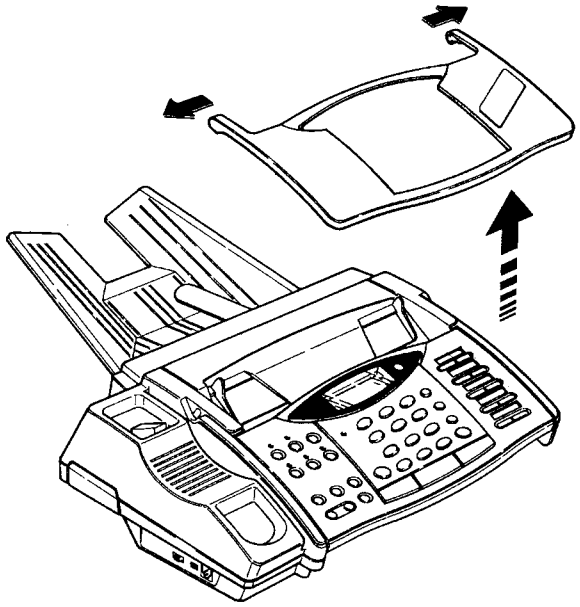


4-2. Facsimile Disassembly

4-2-1. Removing the TX-stacker from the machine

① Snap the Tx-stacker is hinge part and bend the stacker's hinge part.

② Lift up the stacker

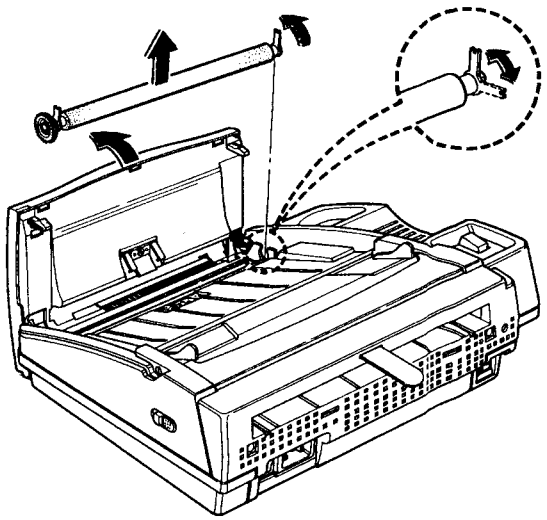


4-2-2. Removing the CIS (Contact Image Sensor) roller assembly from the machine

① Open the Operator Panel Assembly, and you will find a white roller on the CIS glass.

② Pick up the shaft-bushing inserted at both ends of the roller and turn then lightly as in figure A below.

③ Lift up this assembly using your hand, At this time, be careful not to get the bushing removed from the roller.



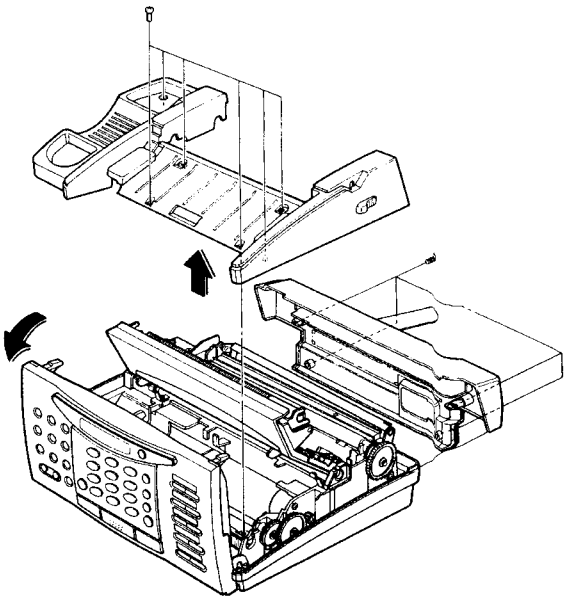
4-2-3. Removing the cover-top assembly from the machine

① Loosen the screws fastening the rear cover (4 screws).

② Draw out the rear cover as in the figure below.

③ The operator panel being opened, loosen the screws fastening the top cover (6 screws).

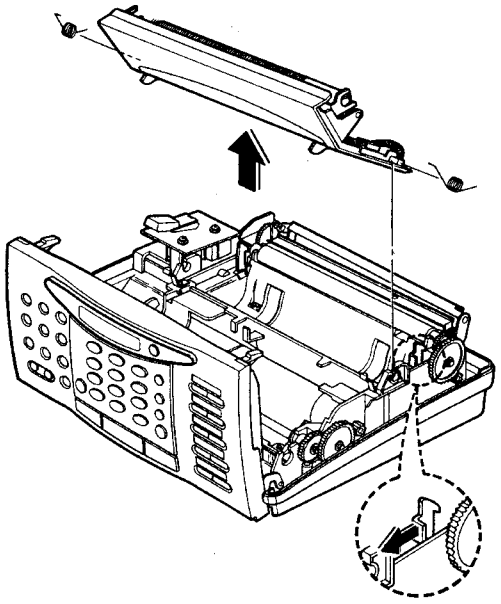
④ Lift up the top cover carefully, using both hands.



4-2-4. Removing the RX cover assembly from machine

① Snap the RX cover open by moving the RX locker.

② Remove the RX cover in the indicated direction carefully as shown below. Before you act, don't forget to disconnect the connectors and the found wires from the main board.

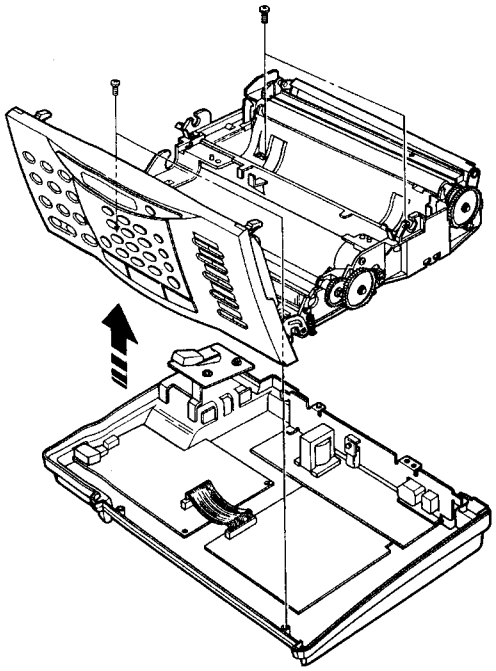


4-2-5. Separation of the main frame assembly and the base assembly

① Loosen the screws fastening the main frame assembly and the base assembly (4 screws).

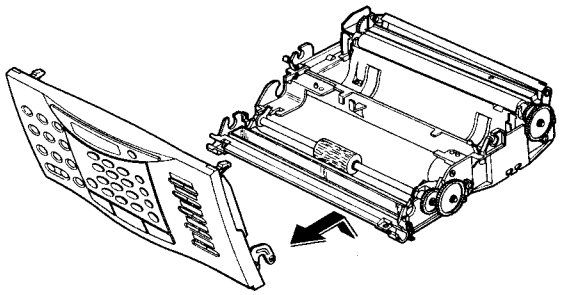
② Disconnect all connectors from the main board and LIU (Line Interface Unit) board.

③ Lift to remove the main frame assembly with the operator panel from the base as shown below.



4-2-6. Separation of the operator panel assembly and the main frame assembly

① Remove the operator panel in the indicated direction lifting the main frame slightly.



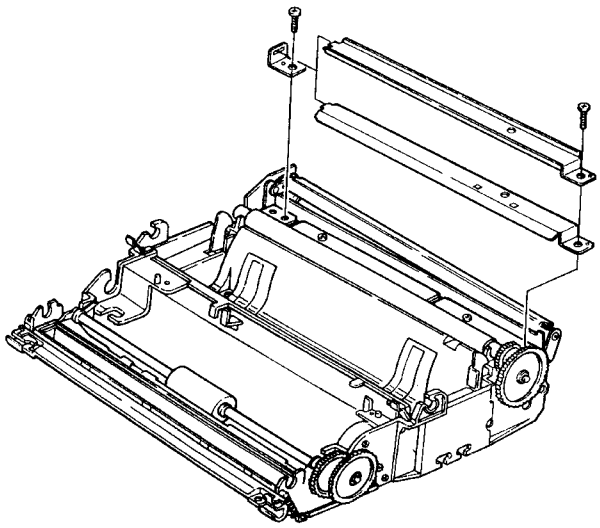
4-2-7. Main Frame Disassembly

1) Removing the paper guides → SF2800 only

① Loosen the screw fastening the paper guides and the main frame.

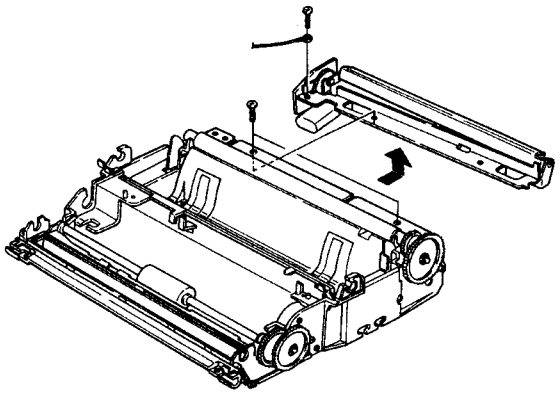
② Take out the paper guides from the guide bracket and remove them.

③ Loosen the screw to remove the guide bracket as in the figure below.



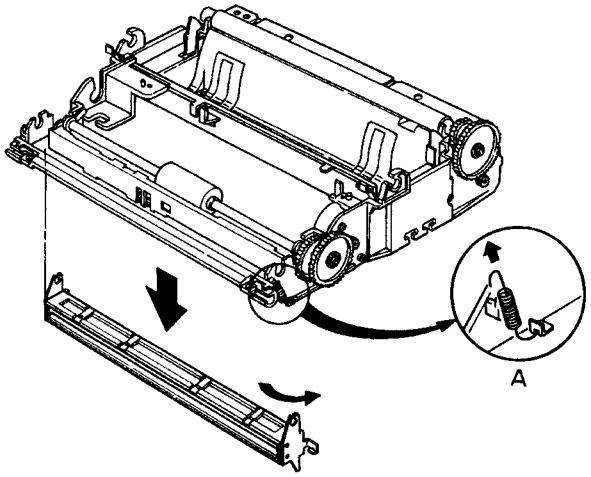
2) Removing the APC (Automatic Paper Cutter) → SF2800 only

① Loosen the screws fastening the Automatic Paper Cutter on the main frame (2 screws).
② Remove the ground wire by loosening the screw.
③ Remove the APC from the main frame as shown below.



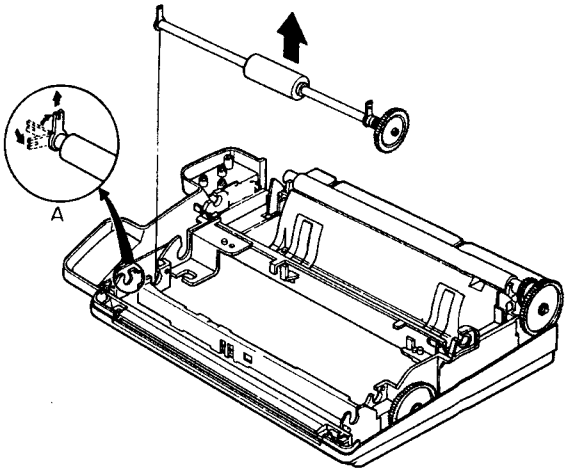
3) Removing the CIS assembly

① Unhook the CIS springs as in figure A using pliers and remove them.
② Turn the CIS downward as shown below.
③ Remove the CIS in the indicated direction.



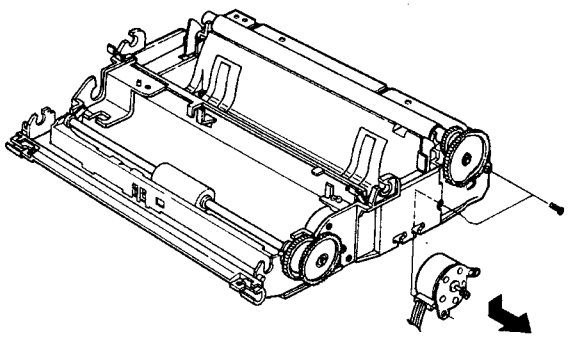
4) Removing the ADF (Automatic Document Feeder) roller assembly

① Pick up the shaft-bushing and turn them lightly as shown below.
② Lift it up.



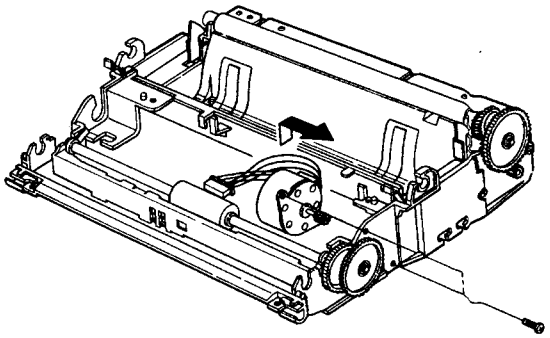
5) Removing the RX motor

① Loosen the screws fastening the motor. (2 screws)
② Remove the motor as in the figure below.



6) Removing the TX motor

① Loosen the screws fastening the motor. (2 screws)
② Remove the motor as in the figure below.

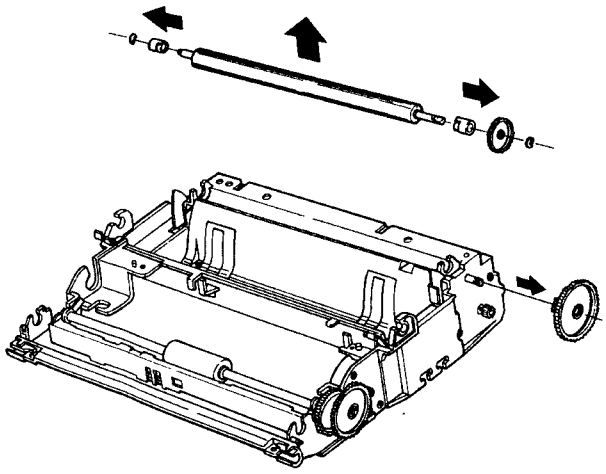


7) Removing the roller platen assembly

① Pick out the E-ring to remove the idle gear.

② Pick out the E-rings to remove the platen gear and the bushing platens as in the figure below.

③ Remove the roller.

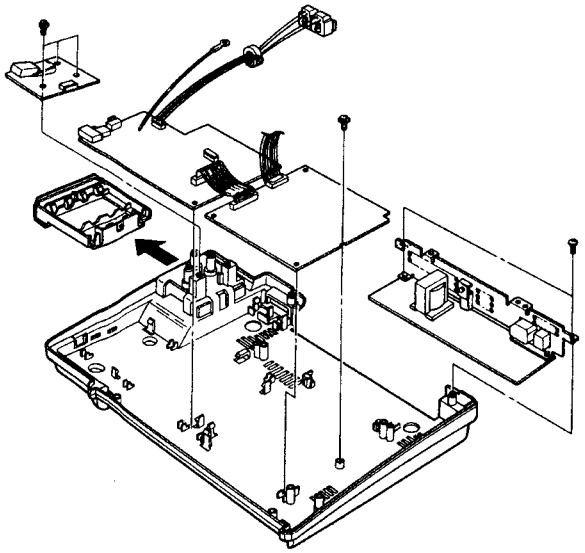


4-2-8. BASE DISASSEMBLY

1) Removing the main board and the LIU board

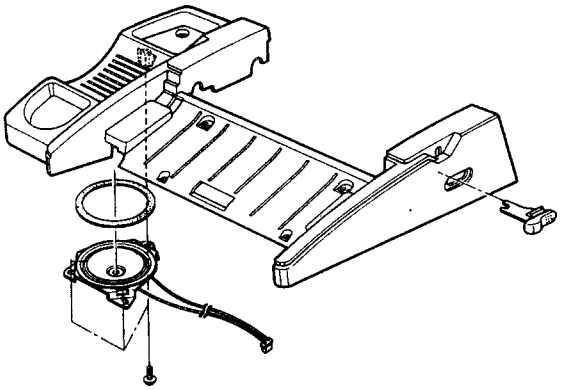
① Make sure all connectors are disconnected from the boards and loosen the screw fastening the main board (1 screw).

② Lift to remove the boards (main and LIU board) by bending the snap fits as shown below.



2) Removing the speaker

① Pull up the speaker by bending the snap fits as shown below.



5. Troubleshooting

CHART 1 OVERALL TROUBLESHOOTING

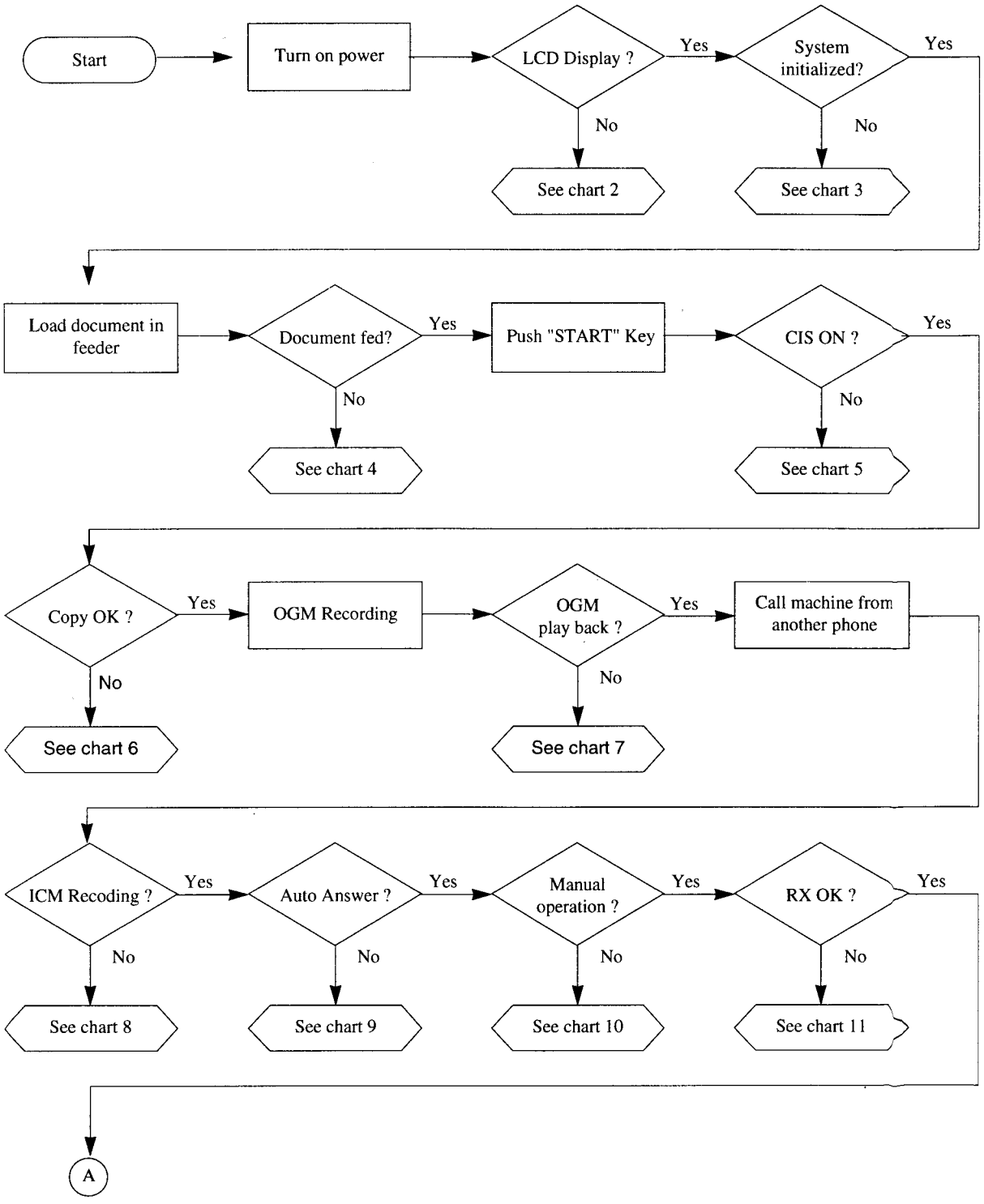


CHART 1 **CONTINUED**

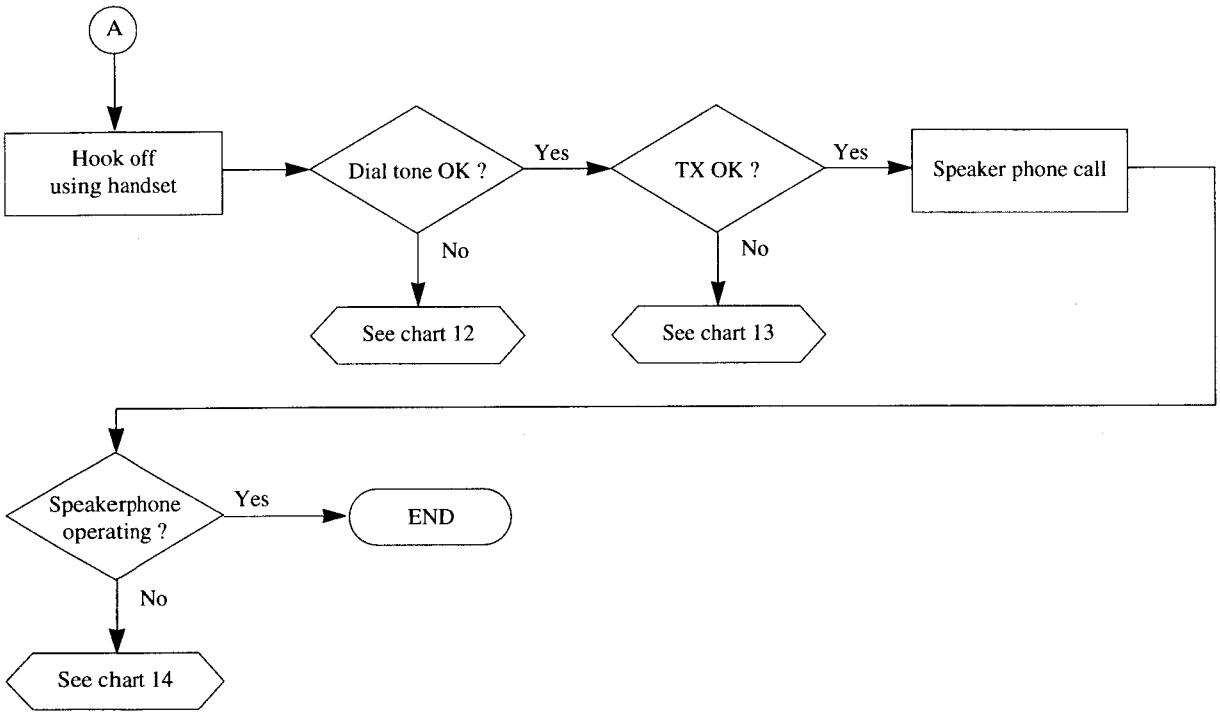


CHART 2 LCD NOT DISPLAYED

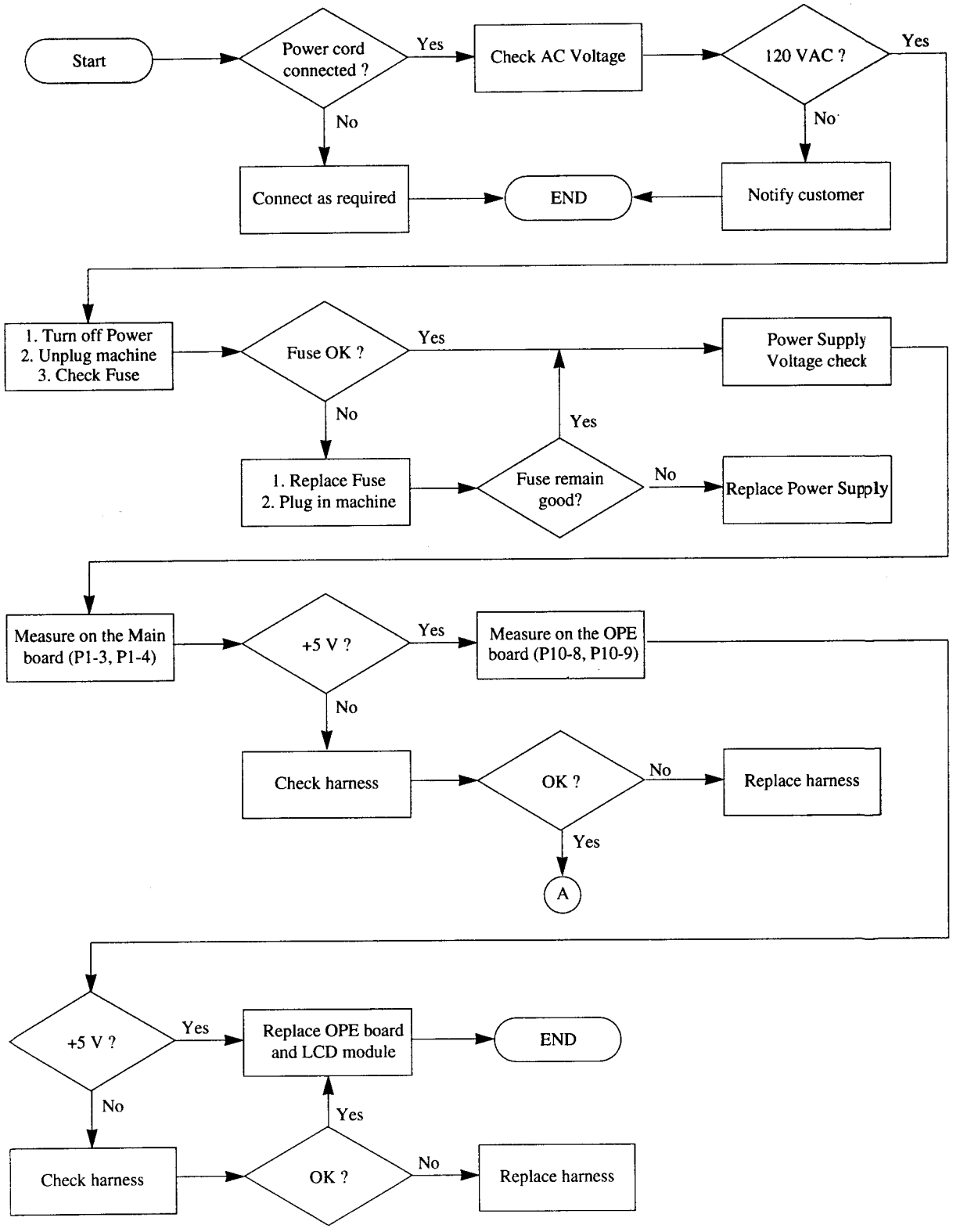


CHART 2 **CONTINUED**

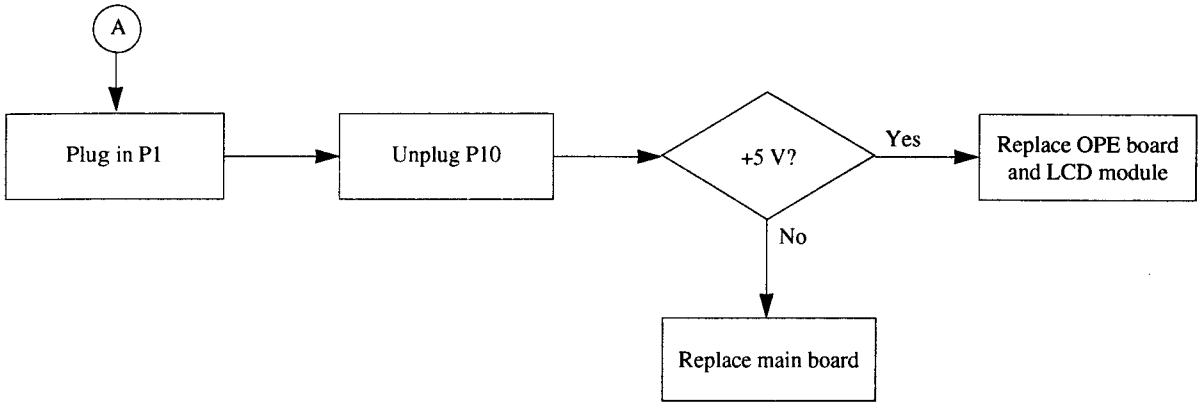


CHART 3 SYSTEM NOT INITIALIZED

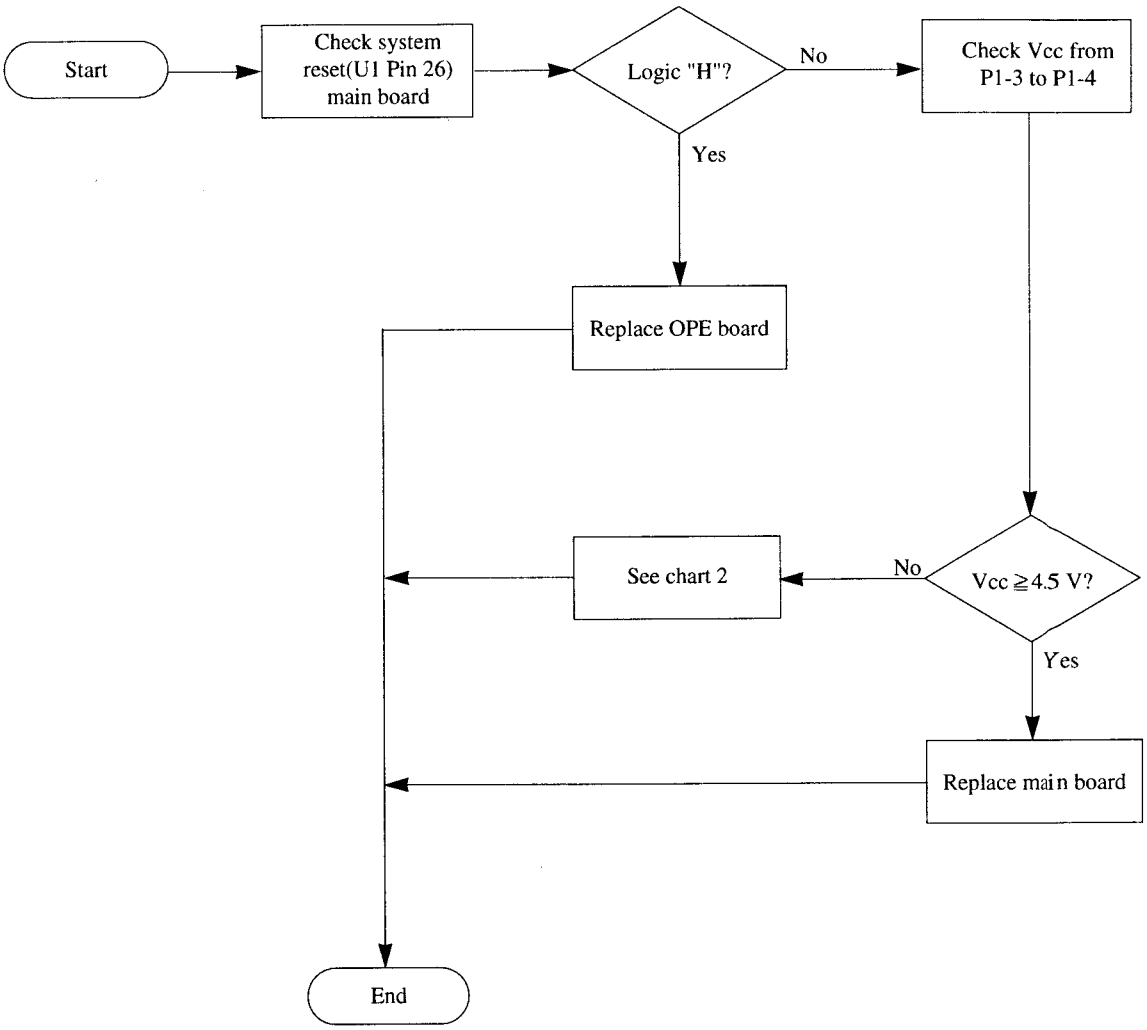


CHART 4 DOCUMENT NOT FED

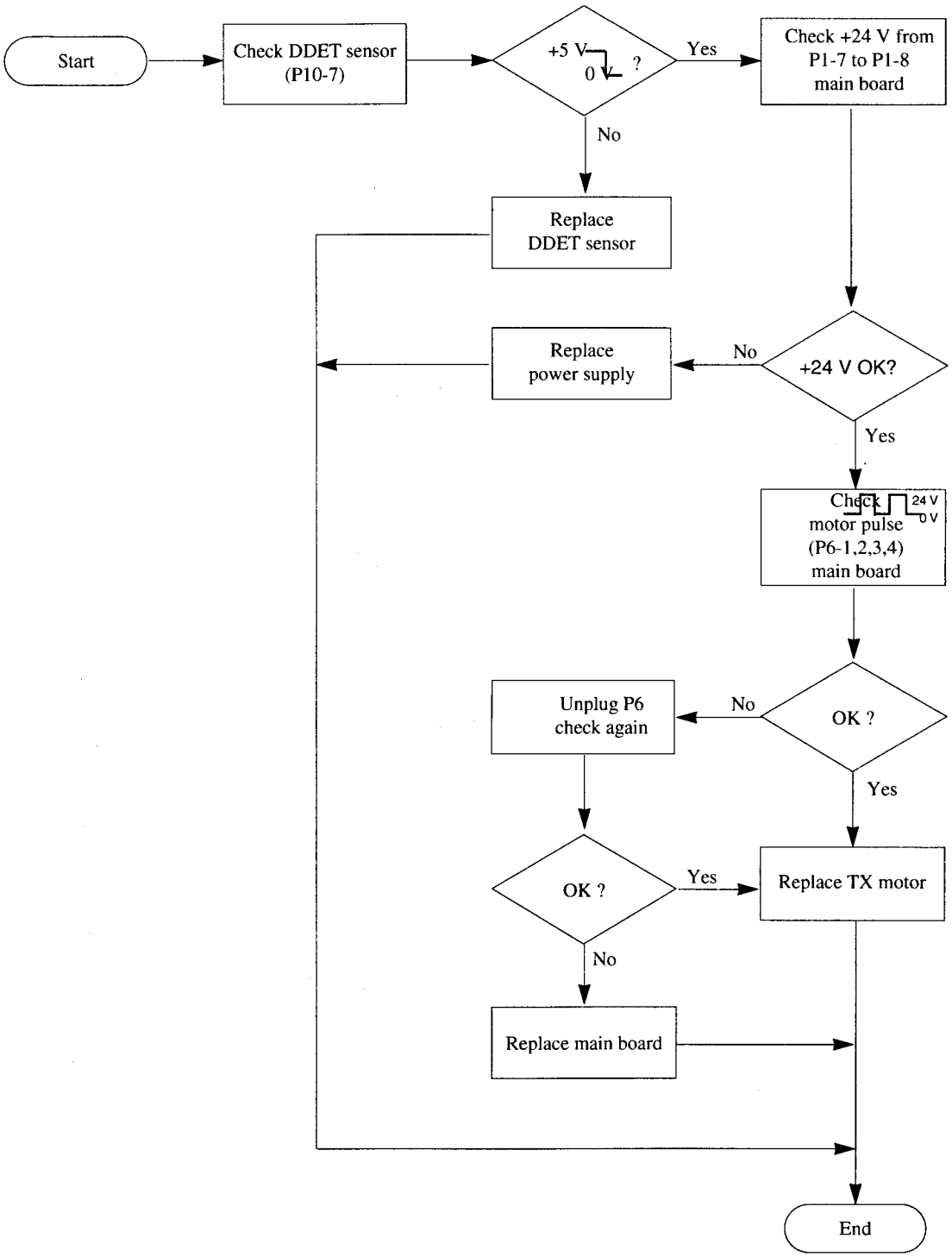


CHART 5 CIS LED NOT LIT

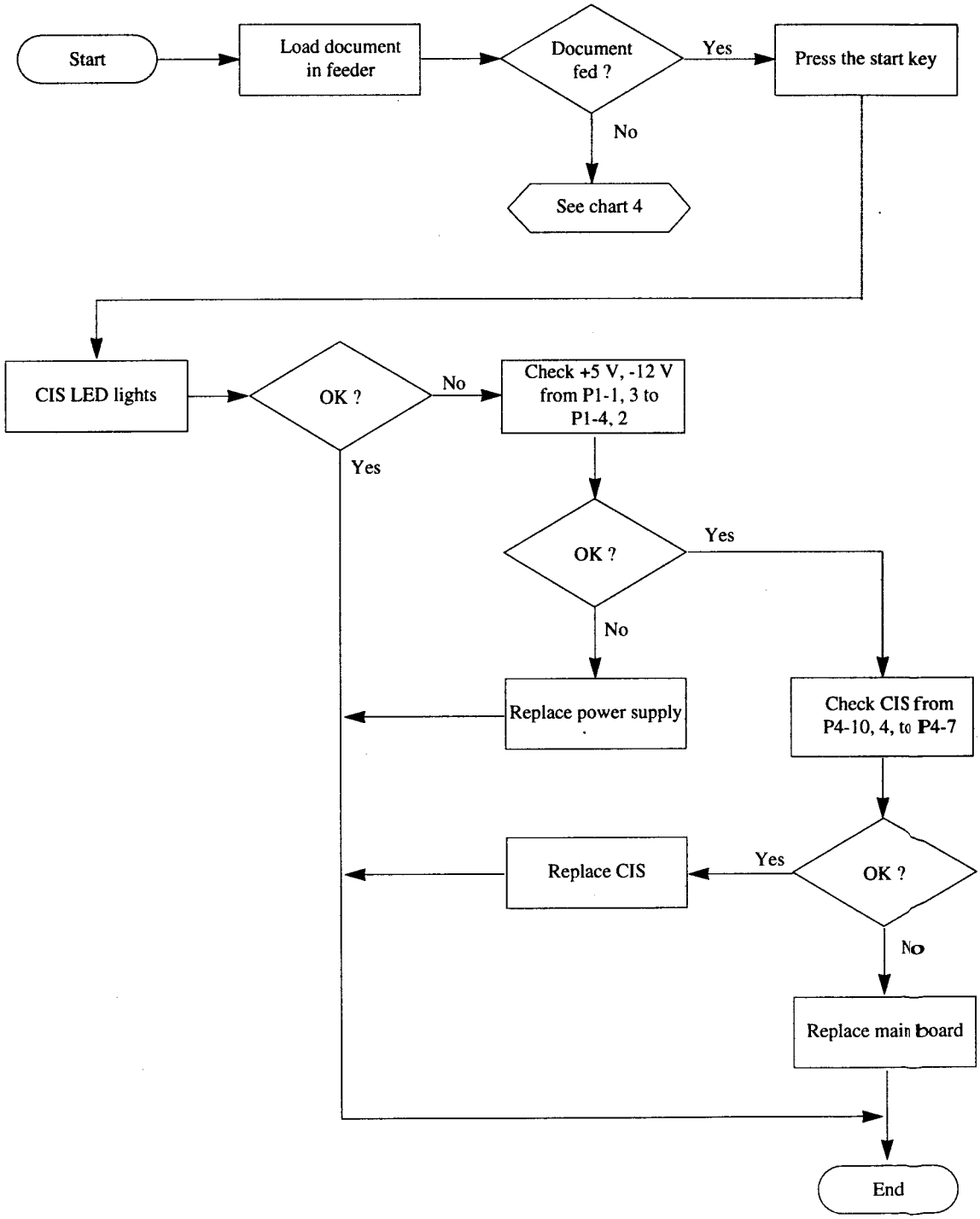


CHART 6 NO COPY MODE OPERATION

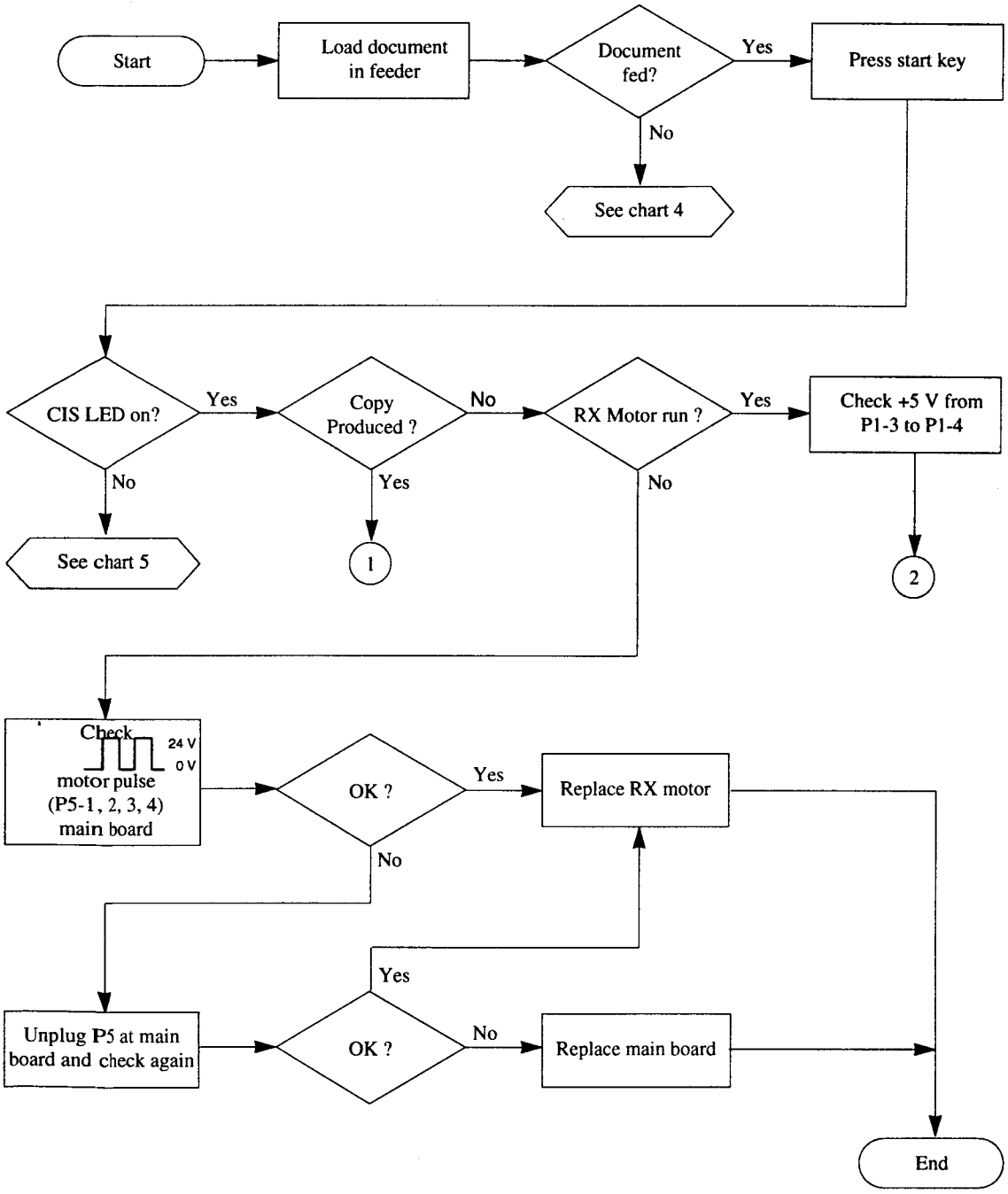


CHART 6 **CONTINUED**

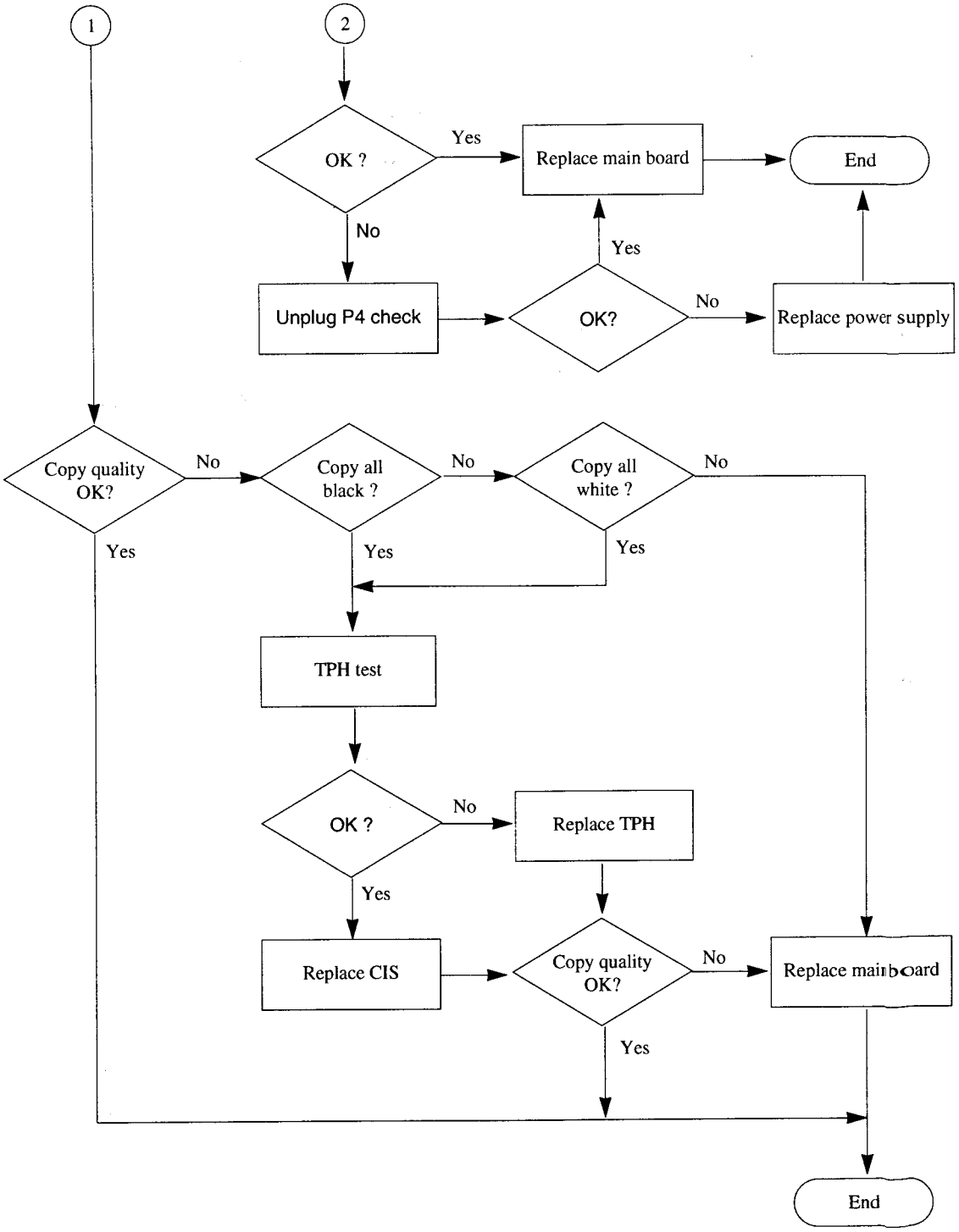


CHART 7 OGM NOT PLAYING BACK

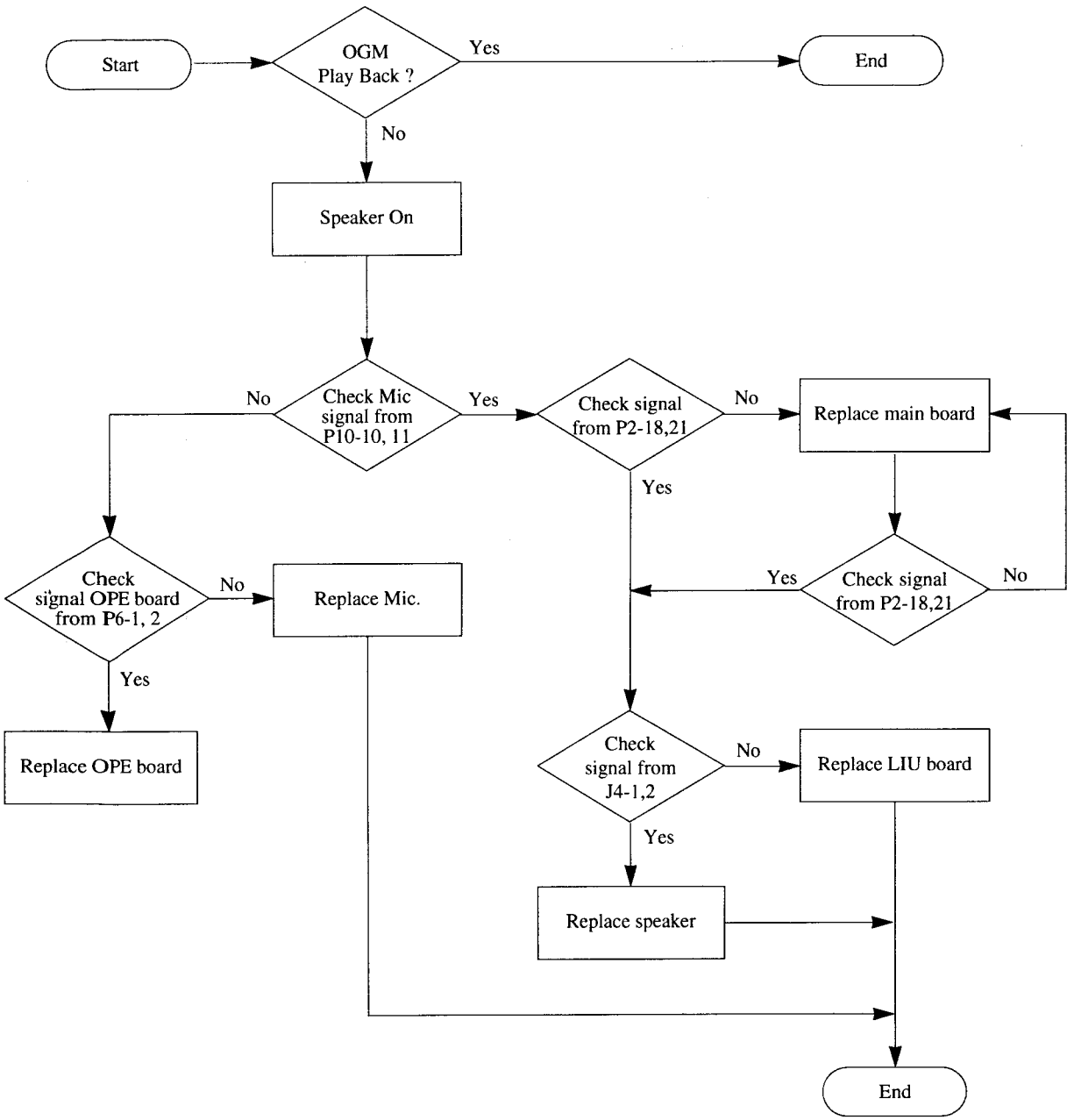


CHART 8 ICM NOT RECORDING

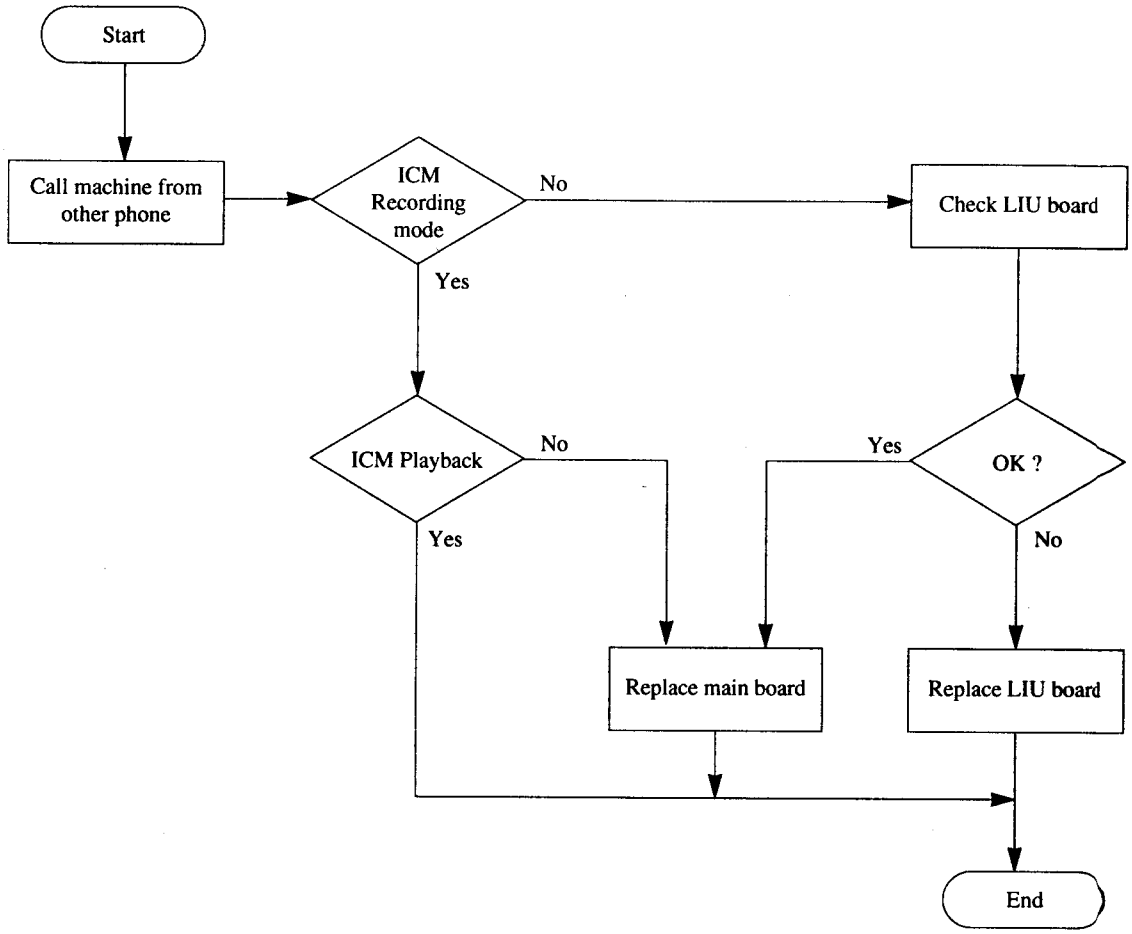


CHART 9 AUTO ANSWER PROBLEM

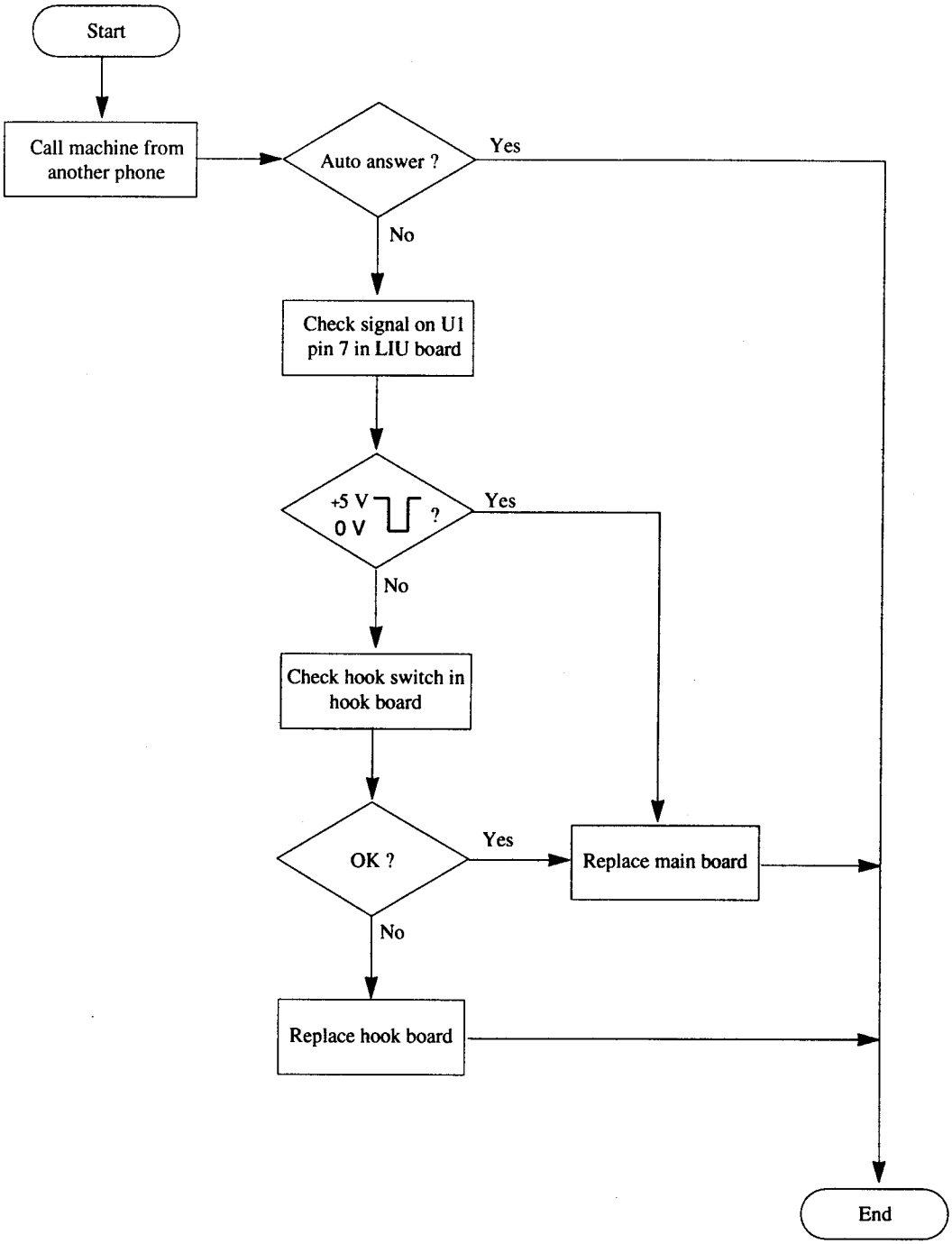


CHART 10 MANUAL OPERATION PROBLEM

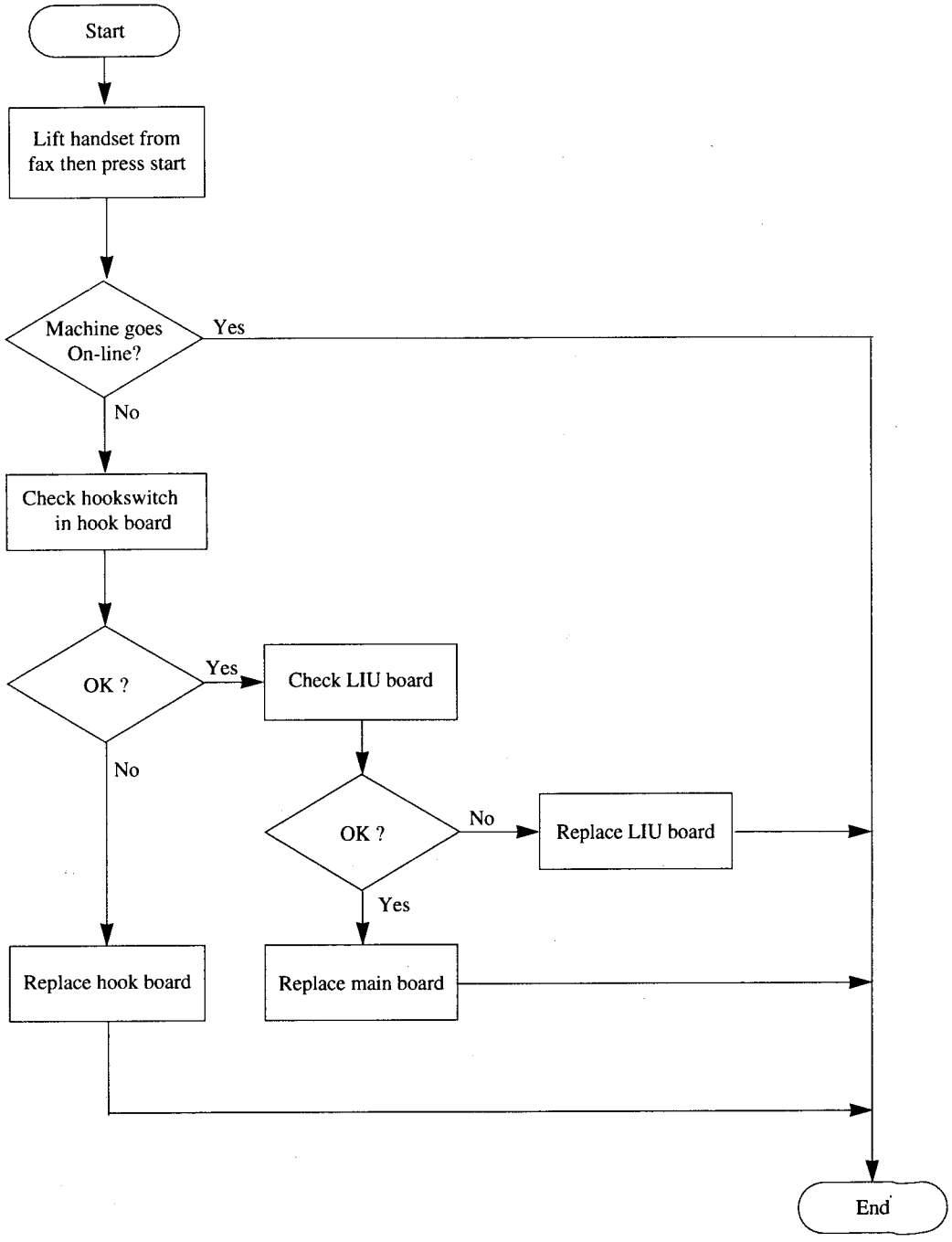


CHART 11 WILL NOT RECEIVE

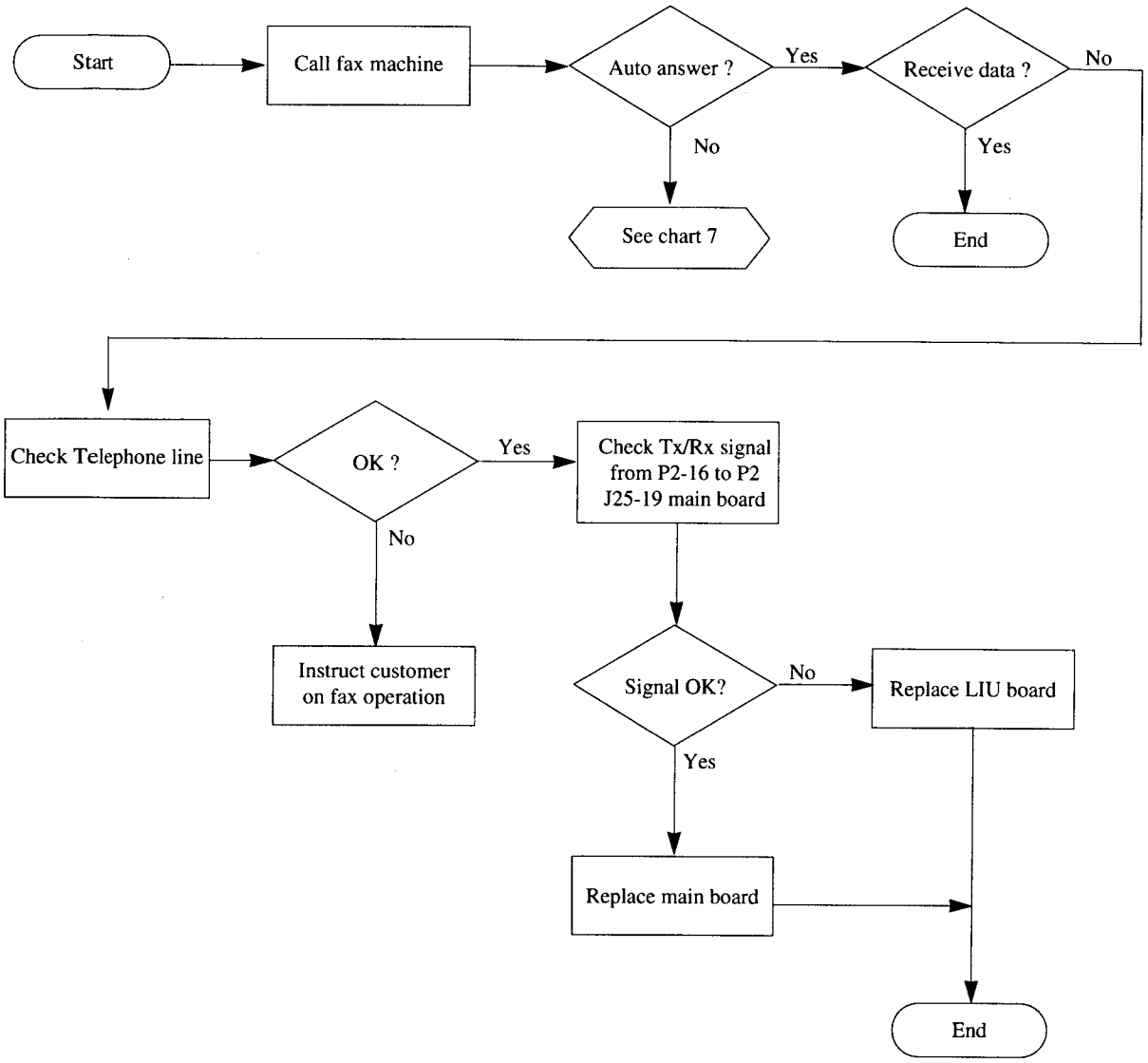


CHART 12 NO DIAL TONE

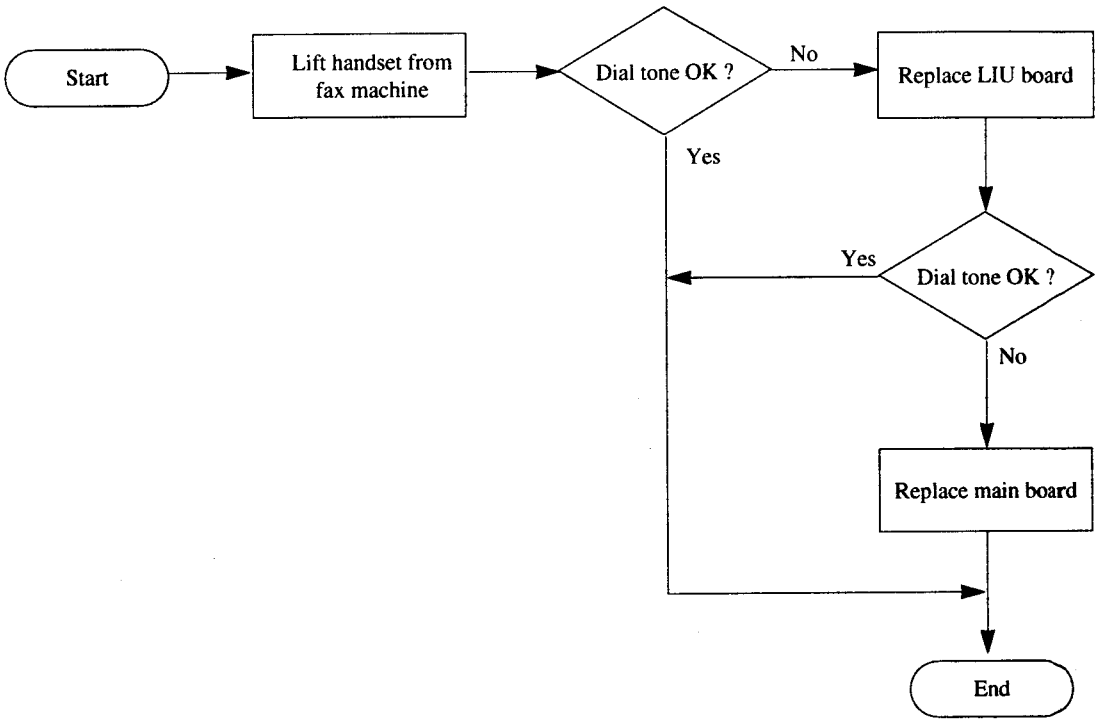


CHART 13 WILL NOT TRANSMIT

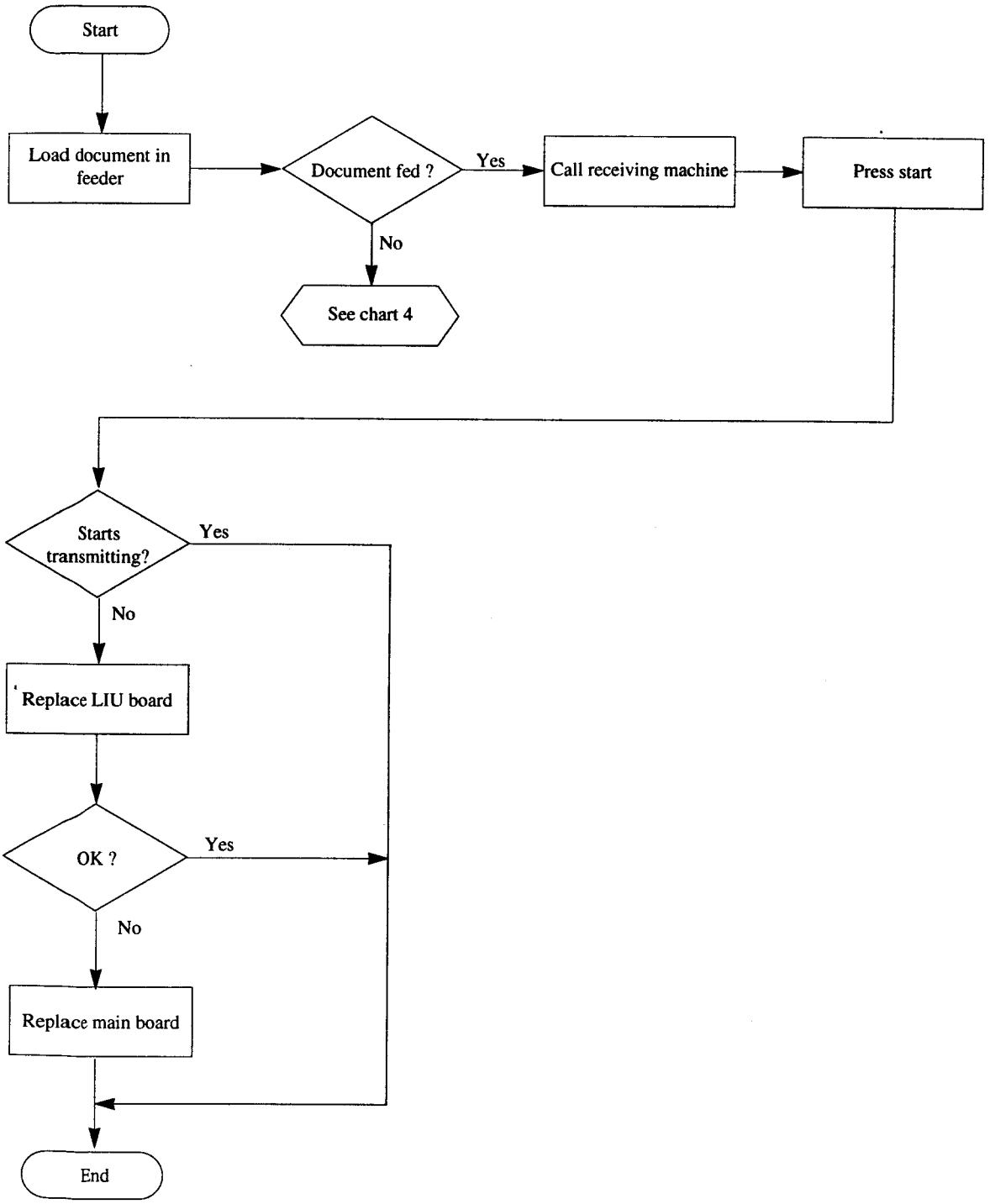


CHART 14 SPEAKERPHONE DOES NOT WORK

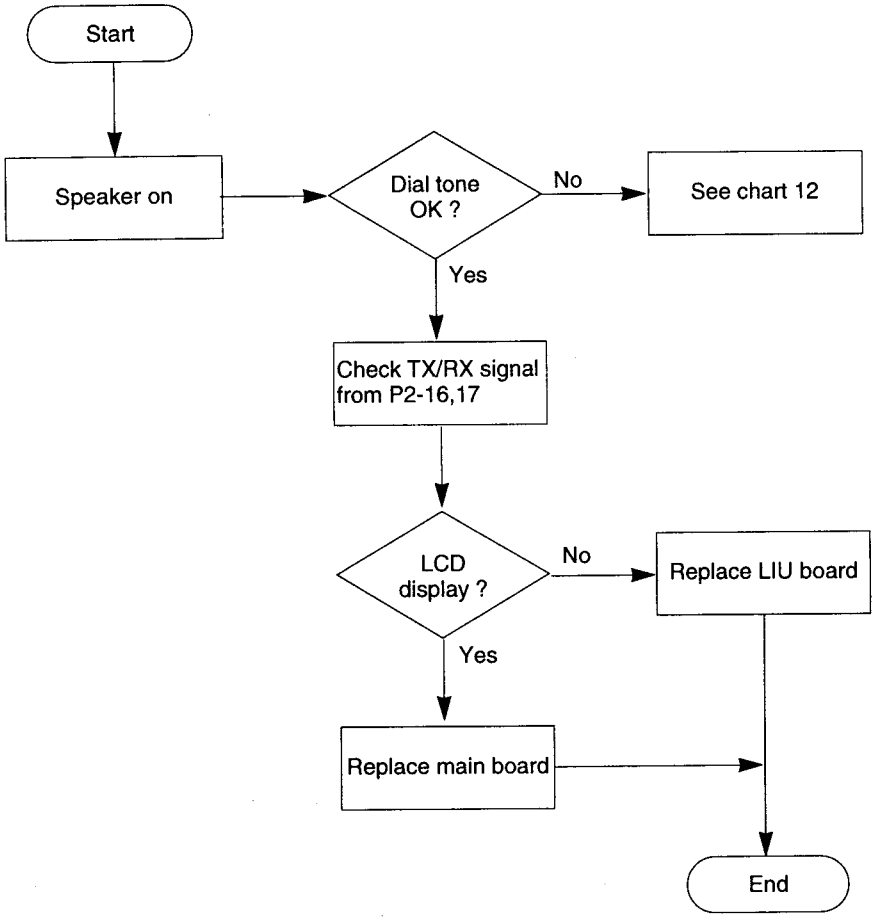
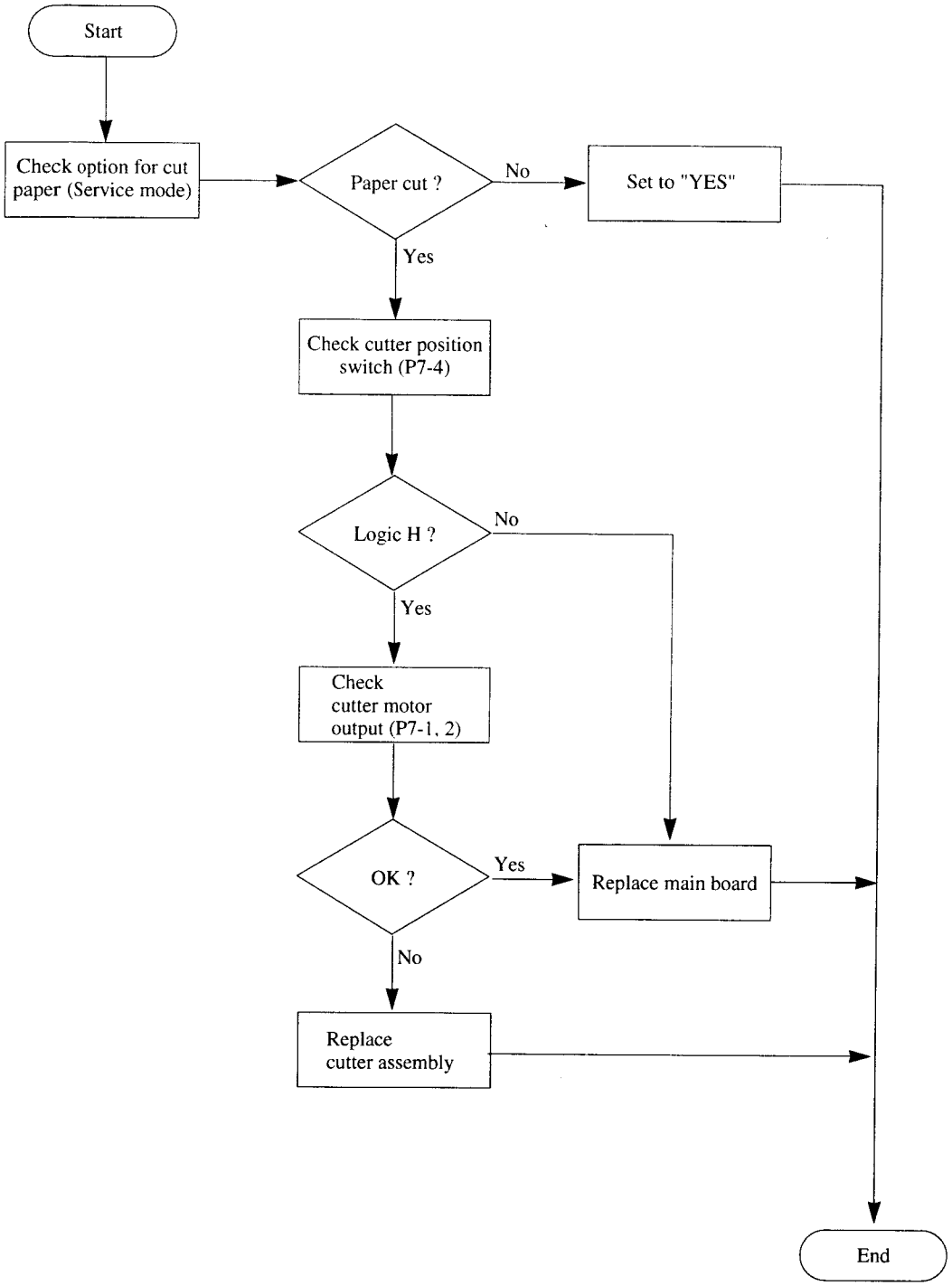
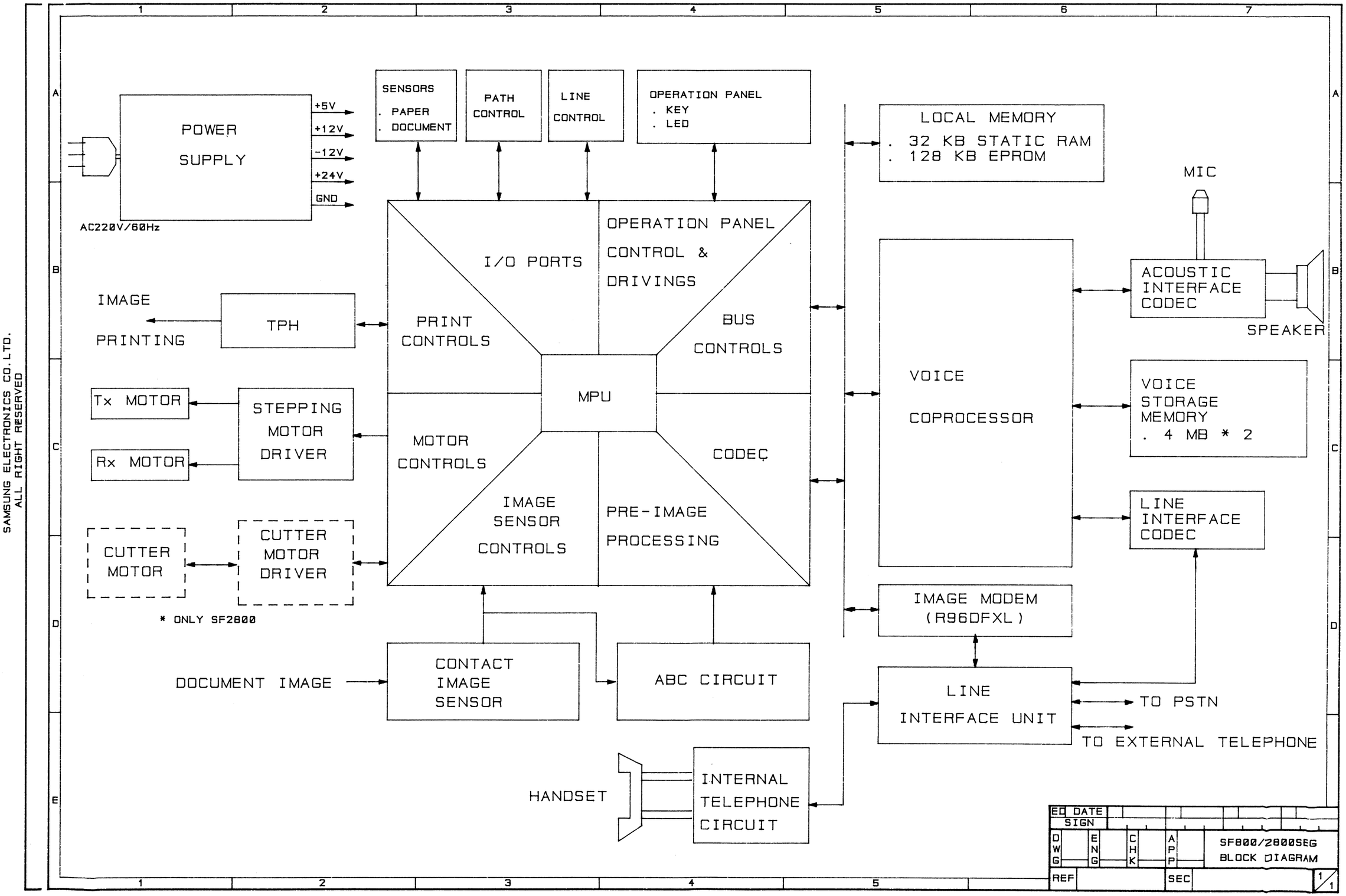


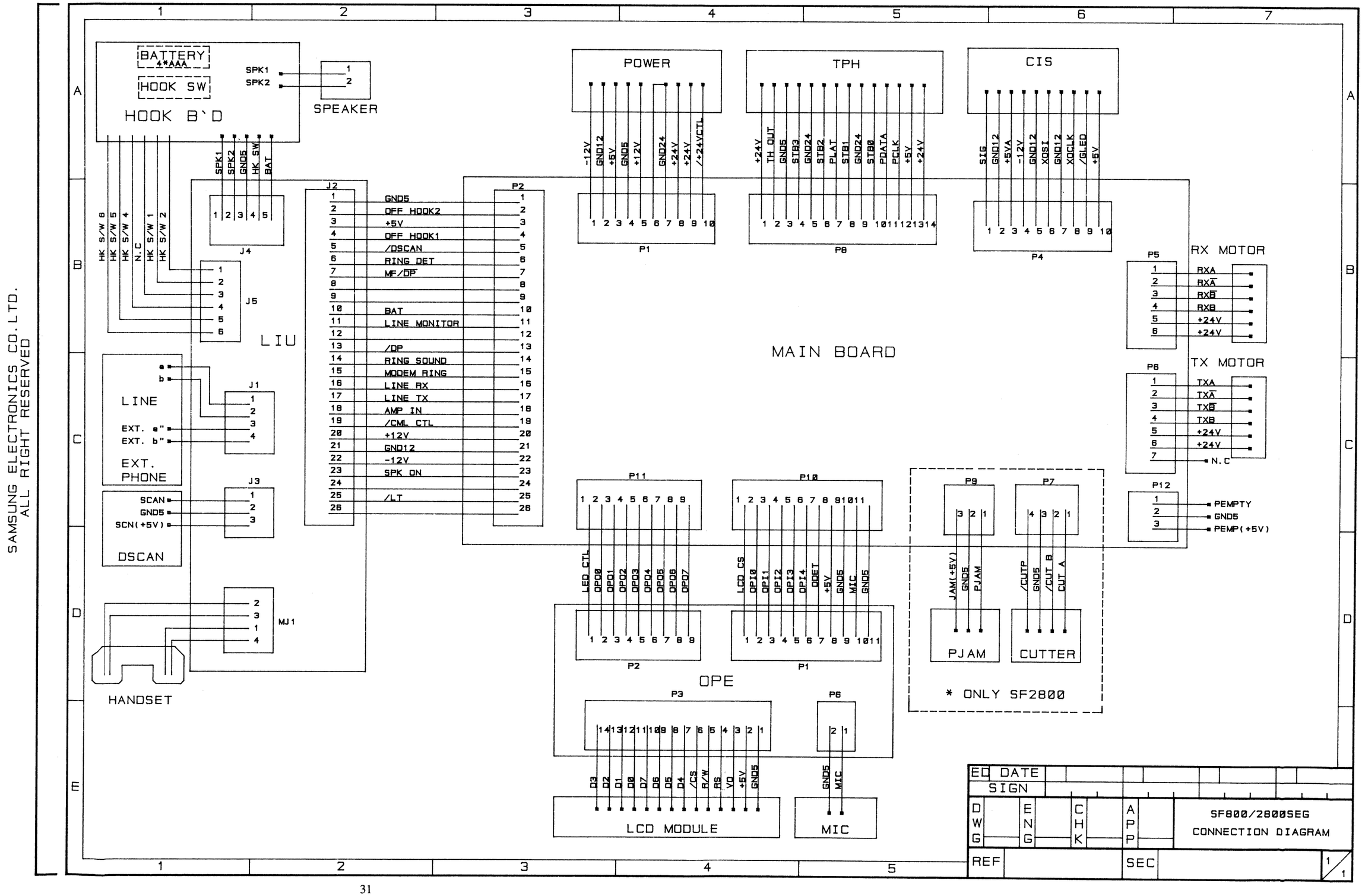
CHART 15 AUTOCUTTER DOES NOT WORK (SF2800 ONLY)



6. Block Diagram

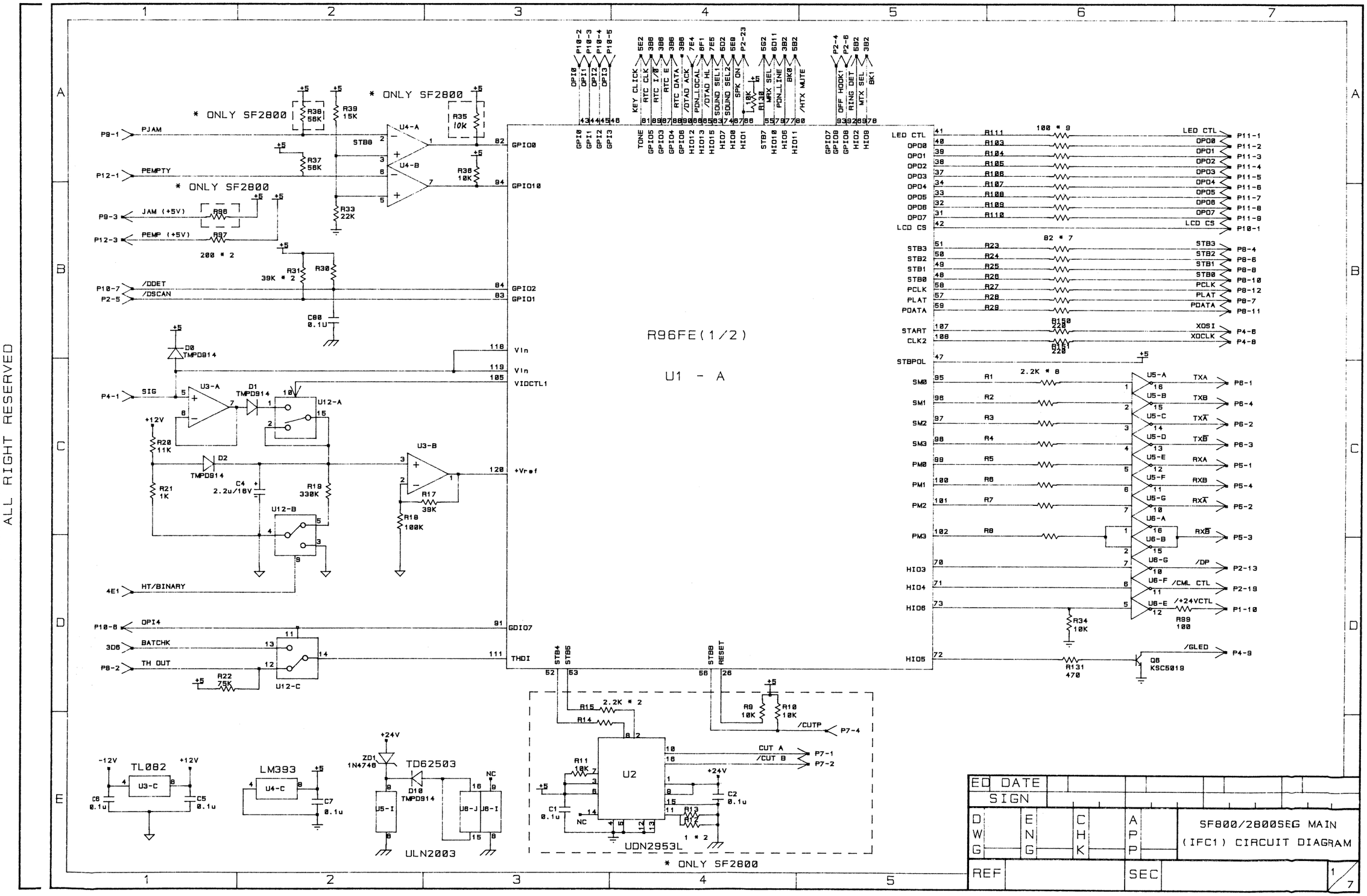


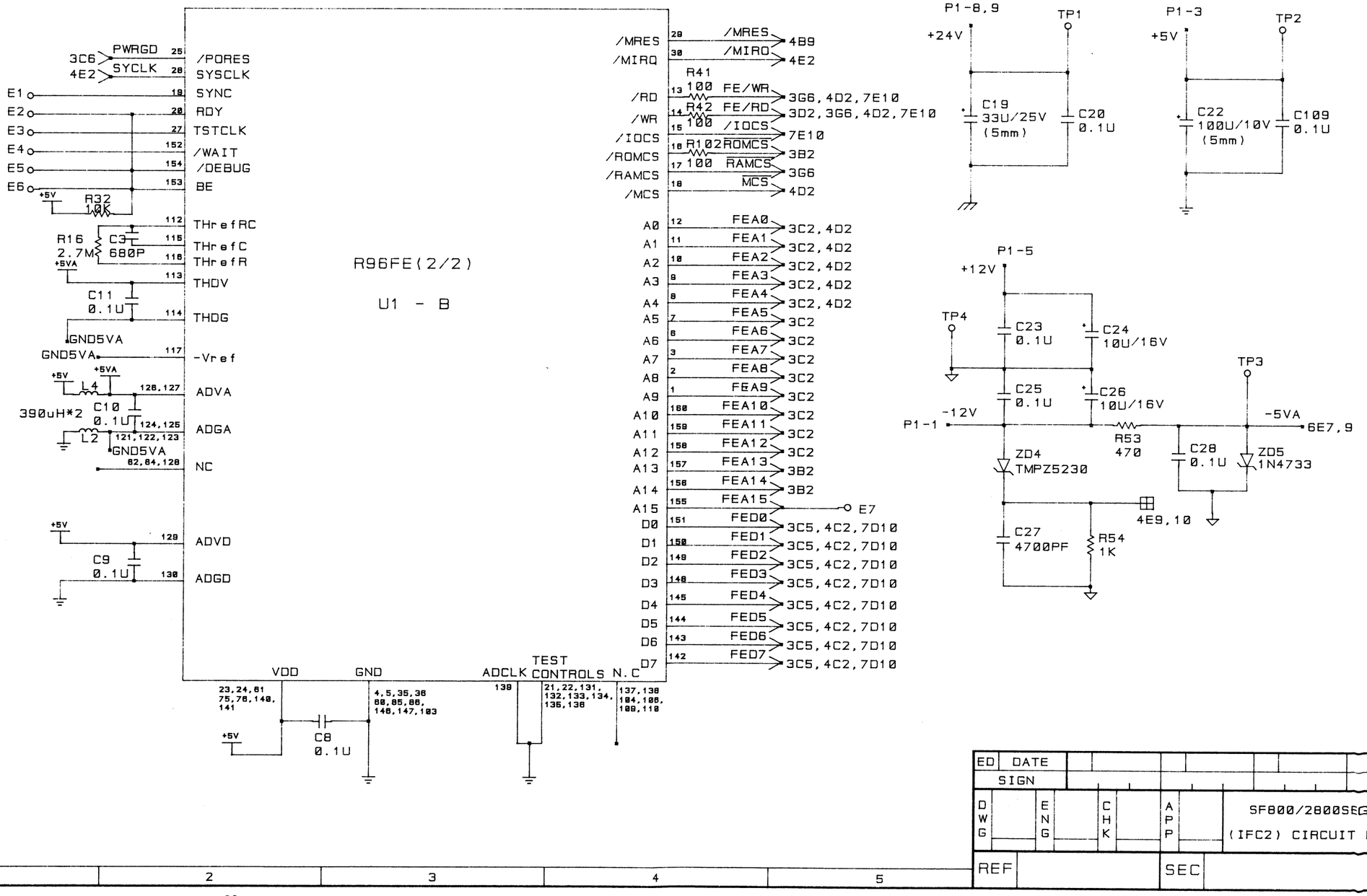
7. Connection Diagram



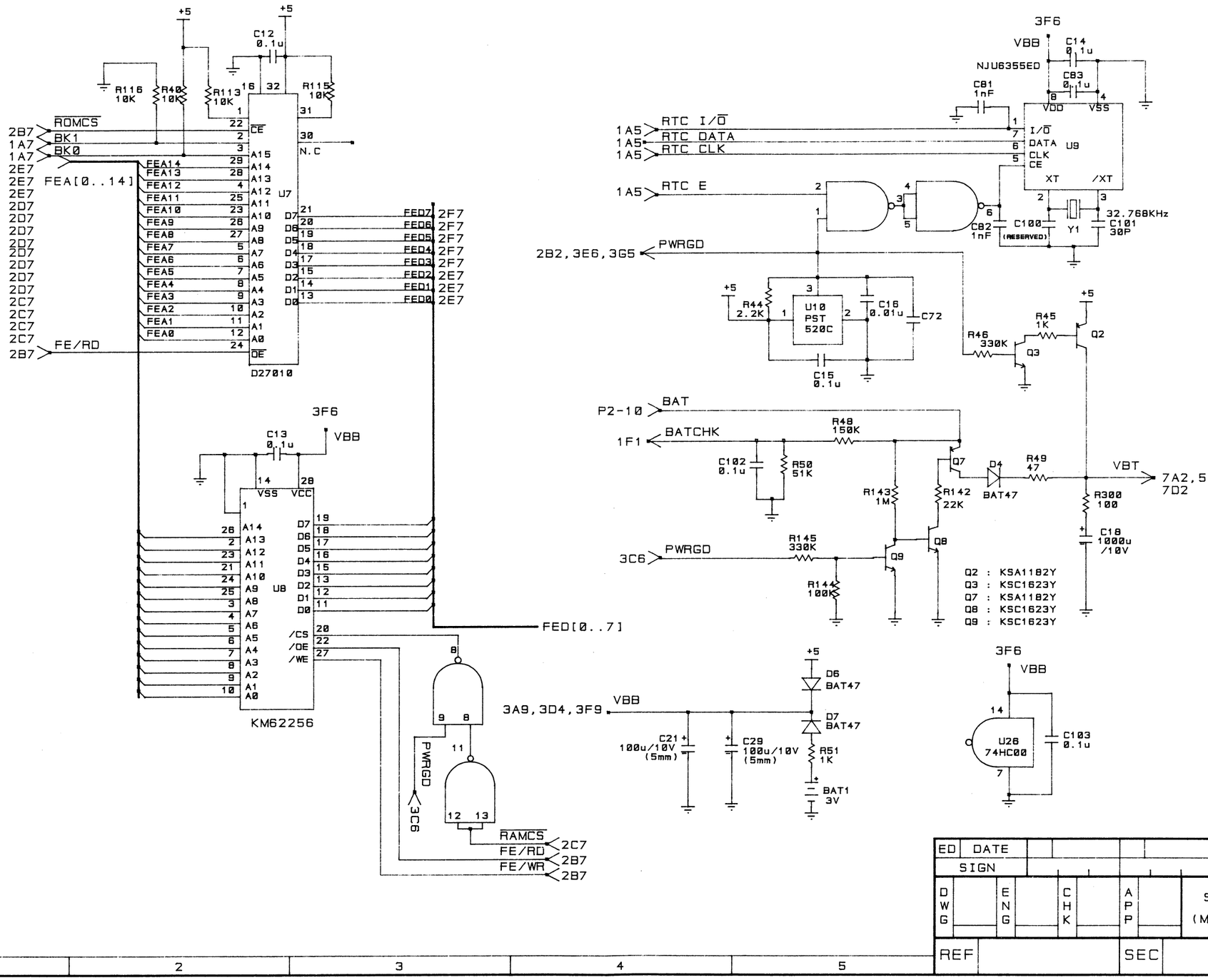
8. Circuit Diagram

8-1. Main Circuit





ED	DATE				
	SIGN				
DWG		ENG		CHK		APP		SF800/2800SEG MAIN (IFC2) CIRCUIT DIAGRAM
REF		SEC		2/7



ED	DATE				
SIGN					
DWG	ENG	CHK	APP	SF800/2800SEG MAIN (MEM) CIRCUIT DIAGRAM	
REF		SEC		3/7	

P2-24 /CPC
P2-2 OFF HOOK2
7E4 /DTAD RESET

N.C : 19,20,27,28,29,31,32
33,41,42,51,71,84,86
90,95,96

U11 R960FXL

82	DCLK	XTLI	68
73	DCLK1	XTLO	69
78	CTS	/PORI	67
64	/RTS	ADOUT	35
79	TXD	ADIN	87
75	GP16	DAOUT	88
76	GP17	DAIN	34
91	GP21	TXOUT	44
15	D0	SWGAINO	99
14	D1	SWGAINI	24
13	D2	RCVO	98
12	D3	RCVI	37
11	D4	0VD2	6,7,16,23,50,66,77,80,81,89,92,97
10	D5		
9	D6	RXIN	45
8	D7	AOUT	49
60	RS0	RAMPIN	18
59	RS1	AGD	48
58	RS2	0VA	17, 71
57	RS3	YCLK	21,30,43,47
56	RS4	EYECLK	85
54	/CS	EYECLK1	25
55	/RD	EYESYNC	83
53	/WR	SYNCIN1	26
52	/IRQ	SYNCIN2	74
65	/EN85	N.C	62
36	BYPASS	+5VD1	72
38	TXLOSS3	+5VD2	22
39	TXLOSS2		
40	TXLOSS1		
63	GP11		
70	XCLK		
46	+5VA		
61	GP13		
93	GP20		
81			
2	GP04		
4	GP06		
3	GP03		
1	GP07		
5	GP19		
94	GP02		
100	N.C		

R55 10K
R56 1K
R57 10K
R134 0
R135 (RESERVED)
R58 20
R59 220
R60 17.4K(1%)
R61 86.6K
R62 10K
R63 118K(1%)
R64 86.6K(1%)
R65 3K
R66 47.5K(1%)
R101 3.3uH

C30 0.1u
C31 22u /25V,10%
C32 18P
C33 39P
C34 1u(T)
C35 1n
C36 0.1u
C37 1n
C38 0.1u
C39 10u/16V
C40 0.1u
C41 0.1u
C42 0.1u
C43 0.1u
C44 0.1u
C45 0.1u
C46 0.1u
C47 0.1u
C71 1n
C72 0.1u

Y2 24.00014M

+5
B1 220

1E2 HT/BINARY
2B1 SYSCLK

2E7 FED0
2E7 FED1
2F7 FED2
2F7 FED3
2F7 FED4
2F7 FED5
2F7 FED6
2F7 FED7
2F7 FEA0
2C7 FEA1
2C7 FEA2
2C7 FEA3
2D7 FEA4
2D7 MCS
2C7 FE/RD
2B7 FE/WR
2B7 /MIRQ

P2-26 SIDE TONE CTL U6-C 14 3
P2-25 /LT U6-D 13 4
4E11 VOL_H
5F2 /HRX MUTE
P2-7 MF/DP
4E11 VOL_L

/MRES 2B7
MODEM TX 5C2
MODEM RX 5G9

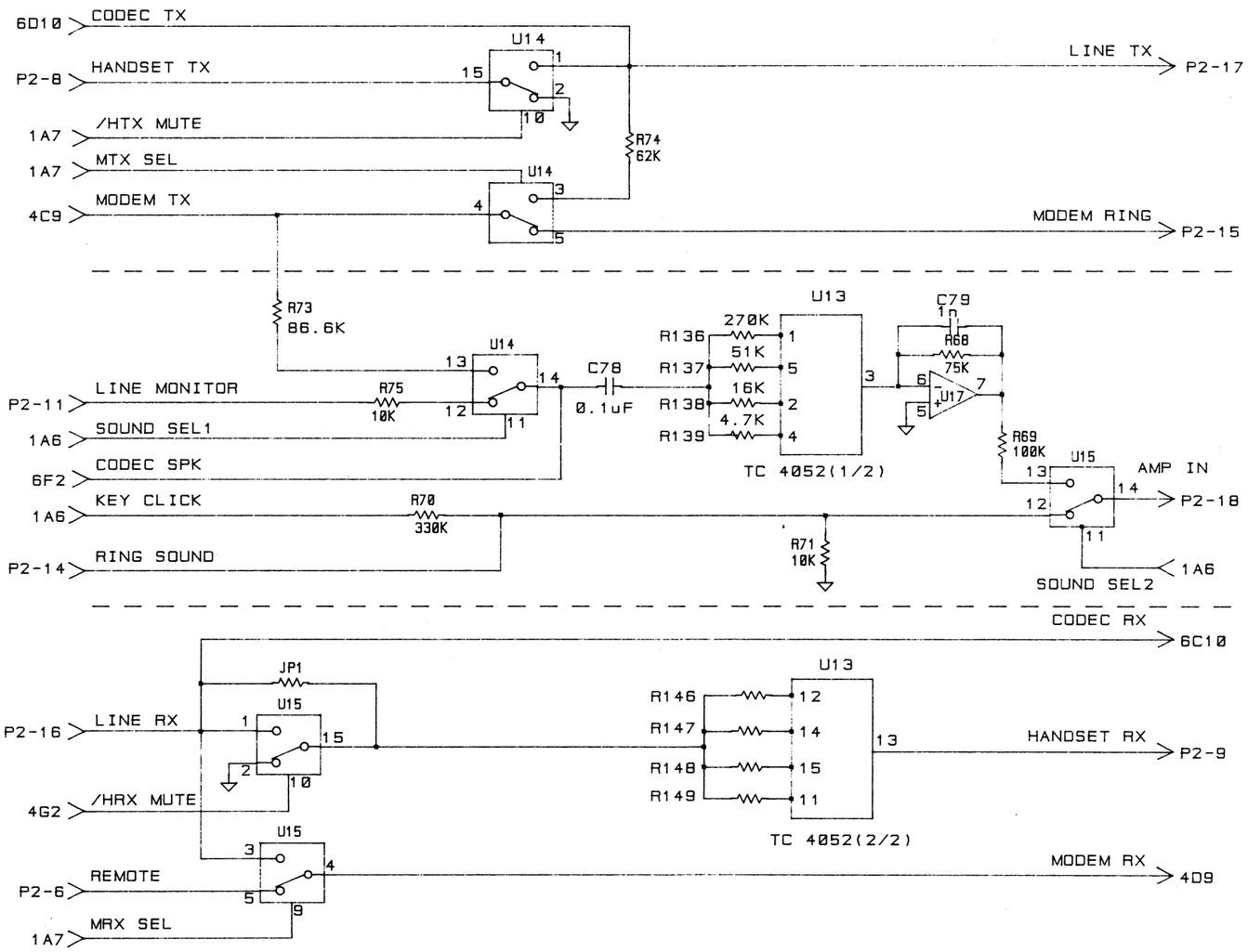
U17-A
U18-B
U17-C
U18-C
MC4558 * 2
+12V -12V

D8 TMPD914
TC4053x3
U12,14,15
TC4052
U13
VOL-L 4G2
VOL-H 4G2

ED	DATE		
	SIGN		
DWG	ENG	CHK	APP

SF800/2800SEG MAIN
(MODEM) CIRCUIT DIAGRAM

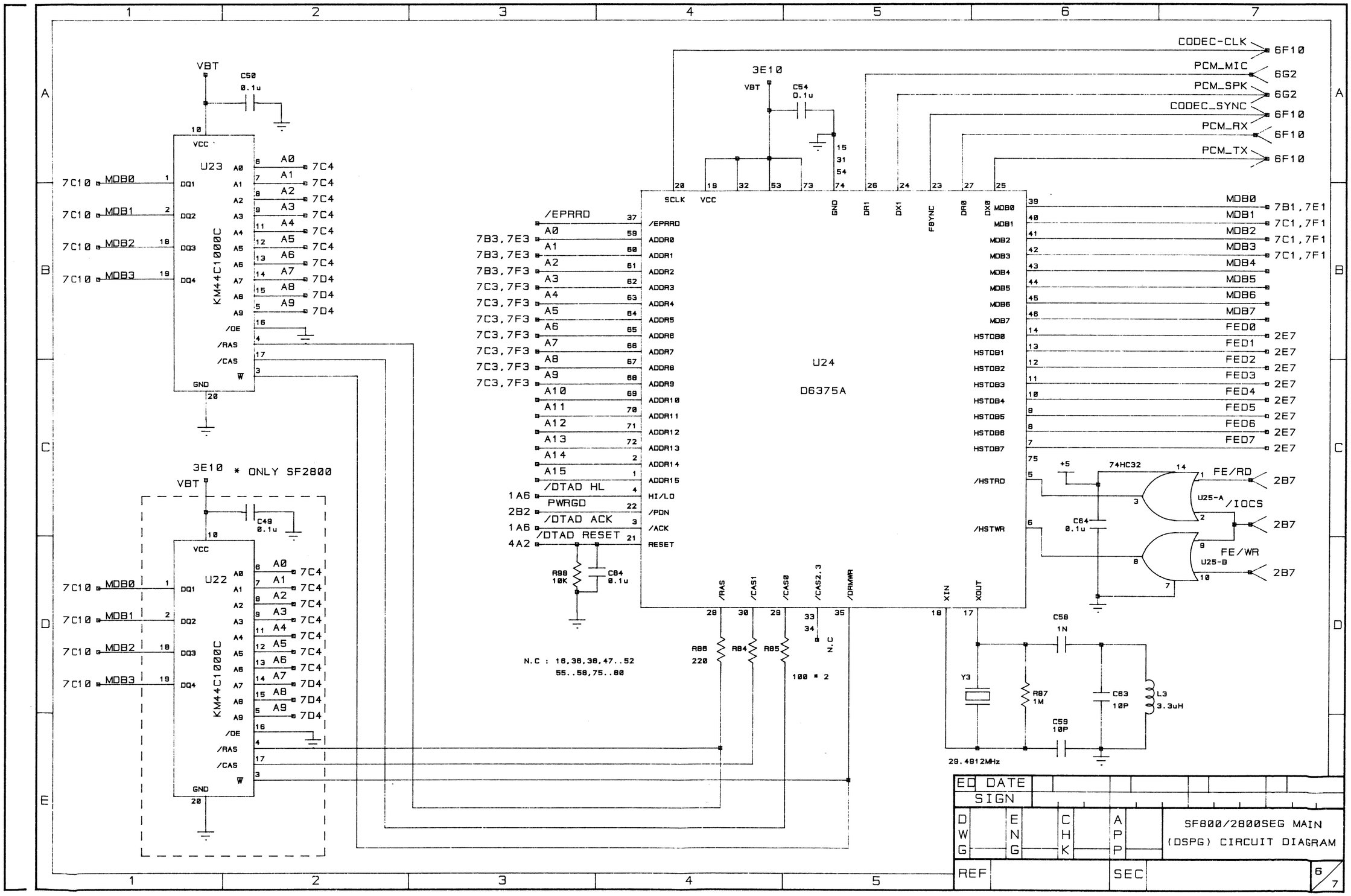
REF | SEC | 4/7

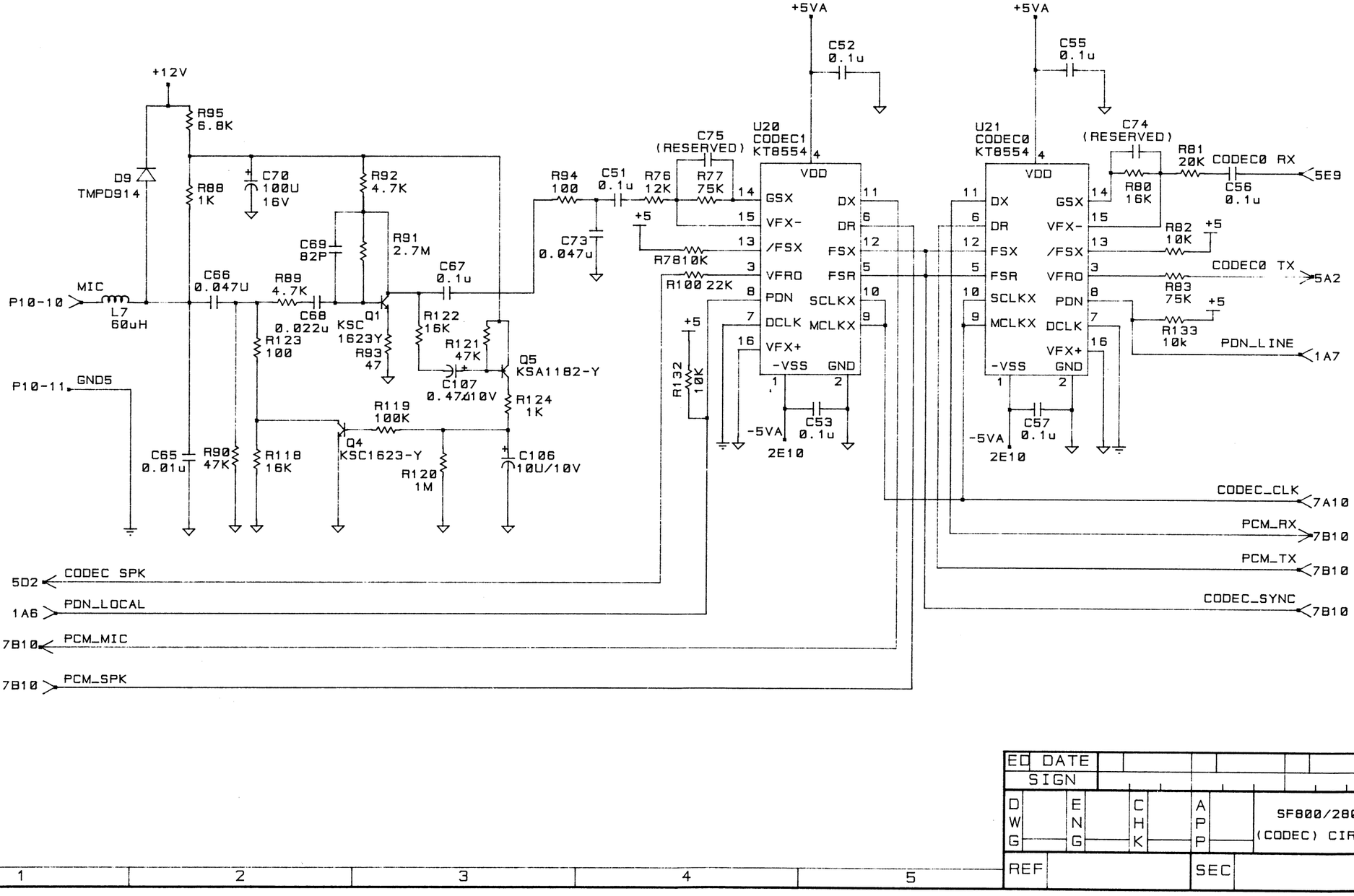


ED	DATE				
SIGN					
DWG		ENG		CHK	APP

SF800/2800SEG MAIN
(MUX) CIRCUIT DIAGRAM

REF | SEC | 5/7



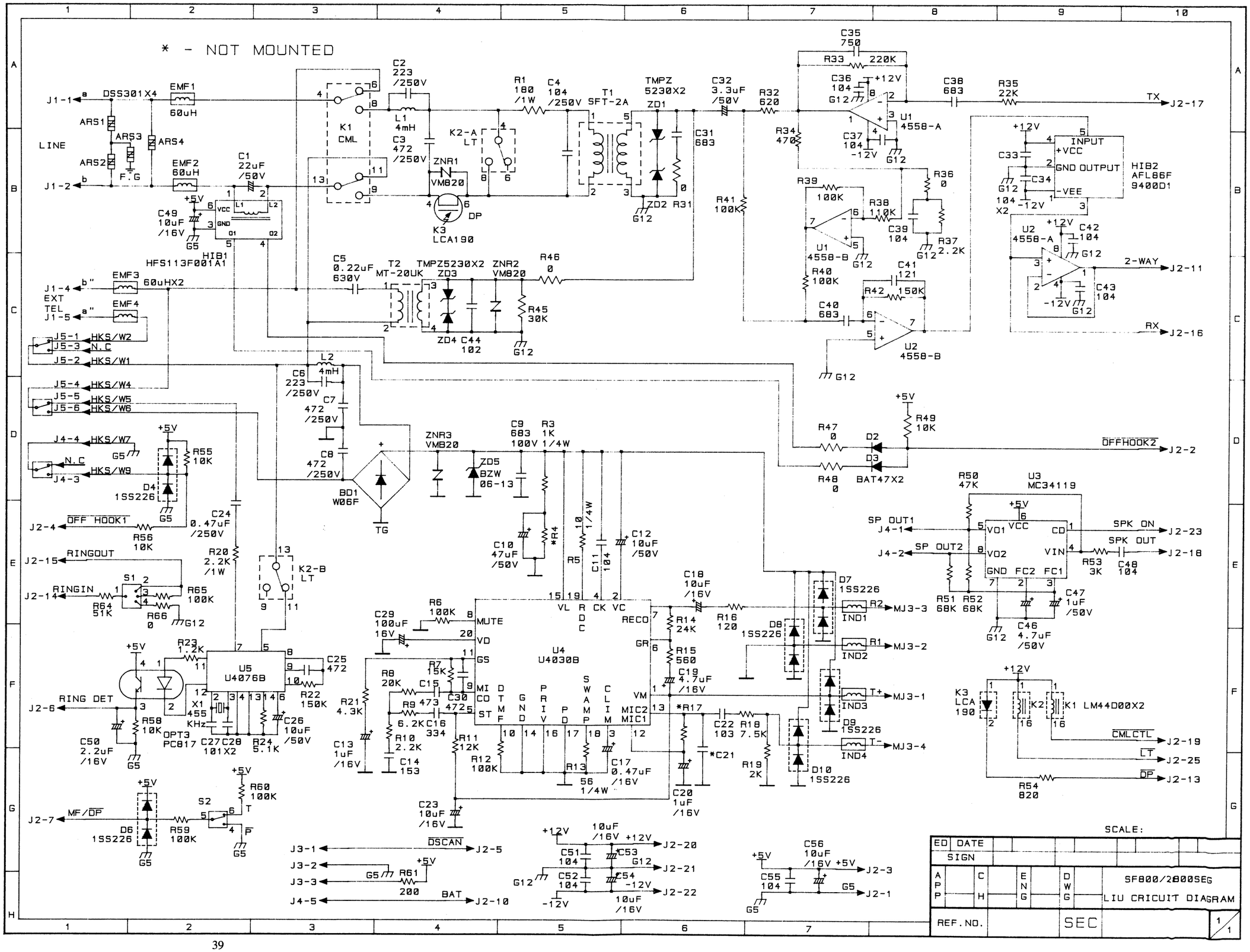


ED DATE					
SIGN					
DWG		ENG		CHK	APP

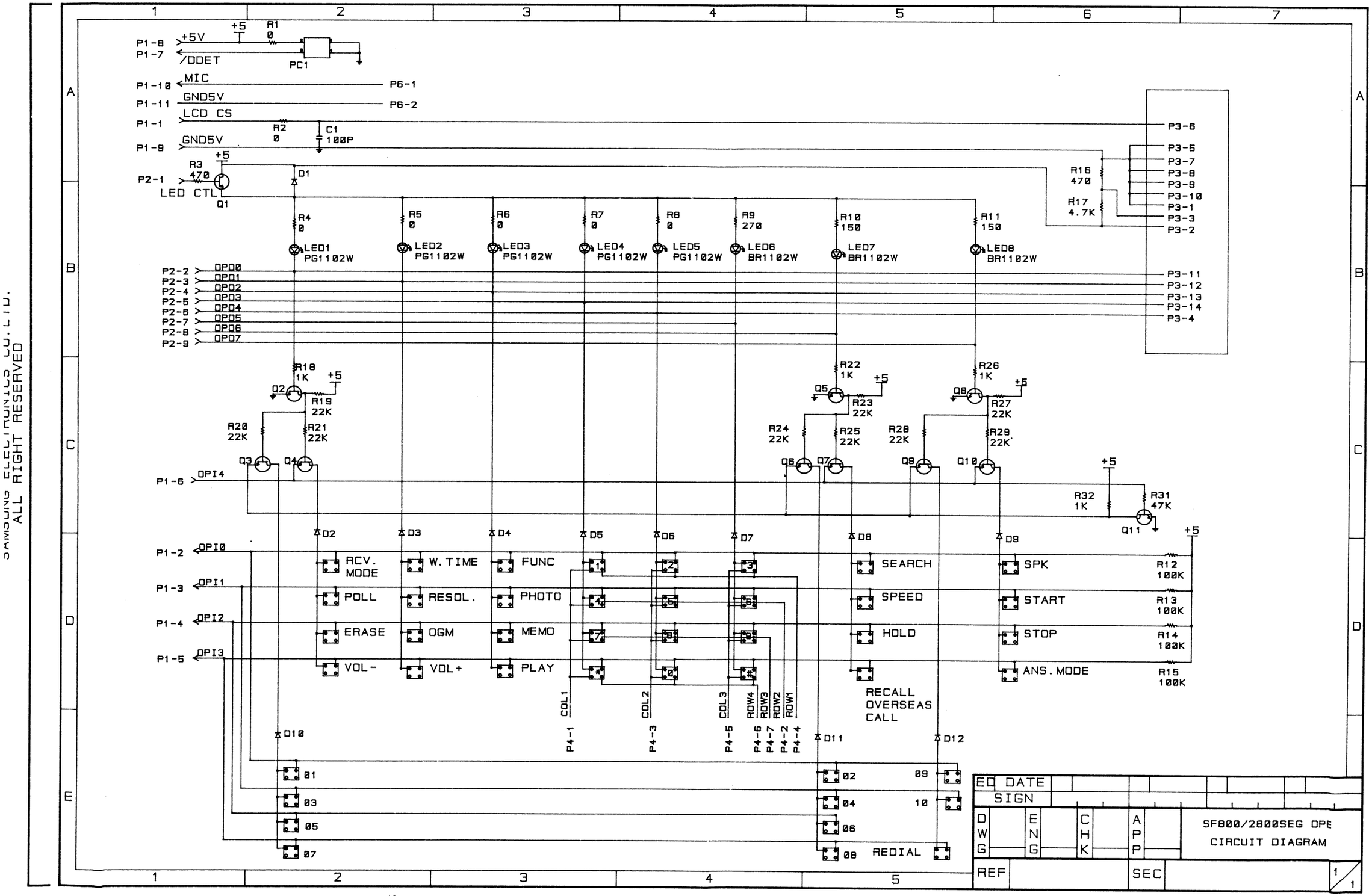
SF800/2800SEG MAIN (CODEC) CIRCUIT DIAGRAM

REF | SEC | 7/7

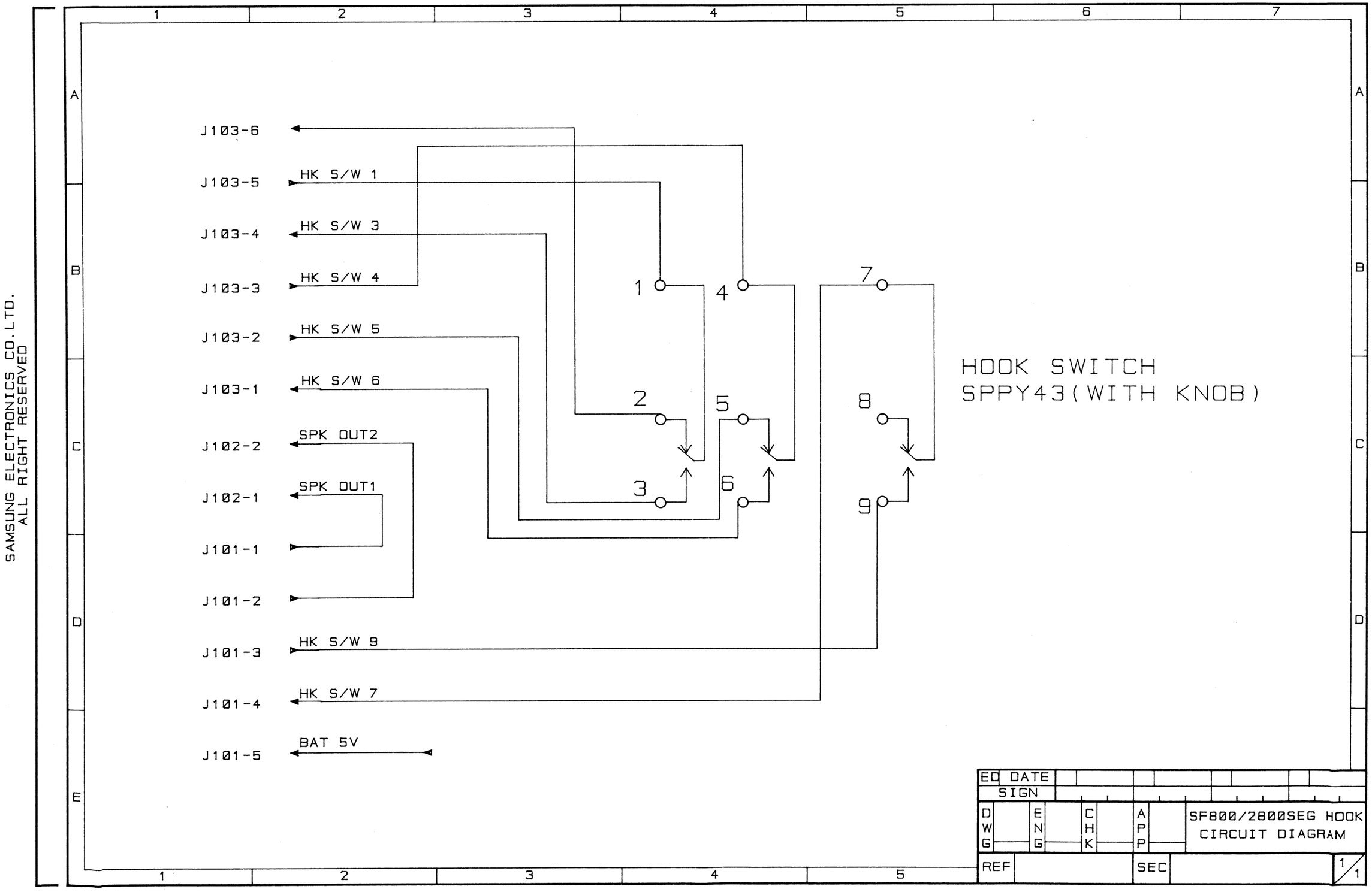
8-2. LIU Circuit



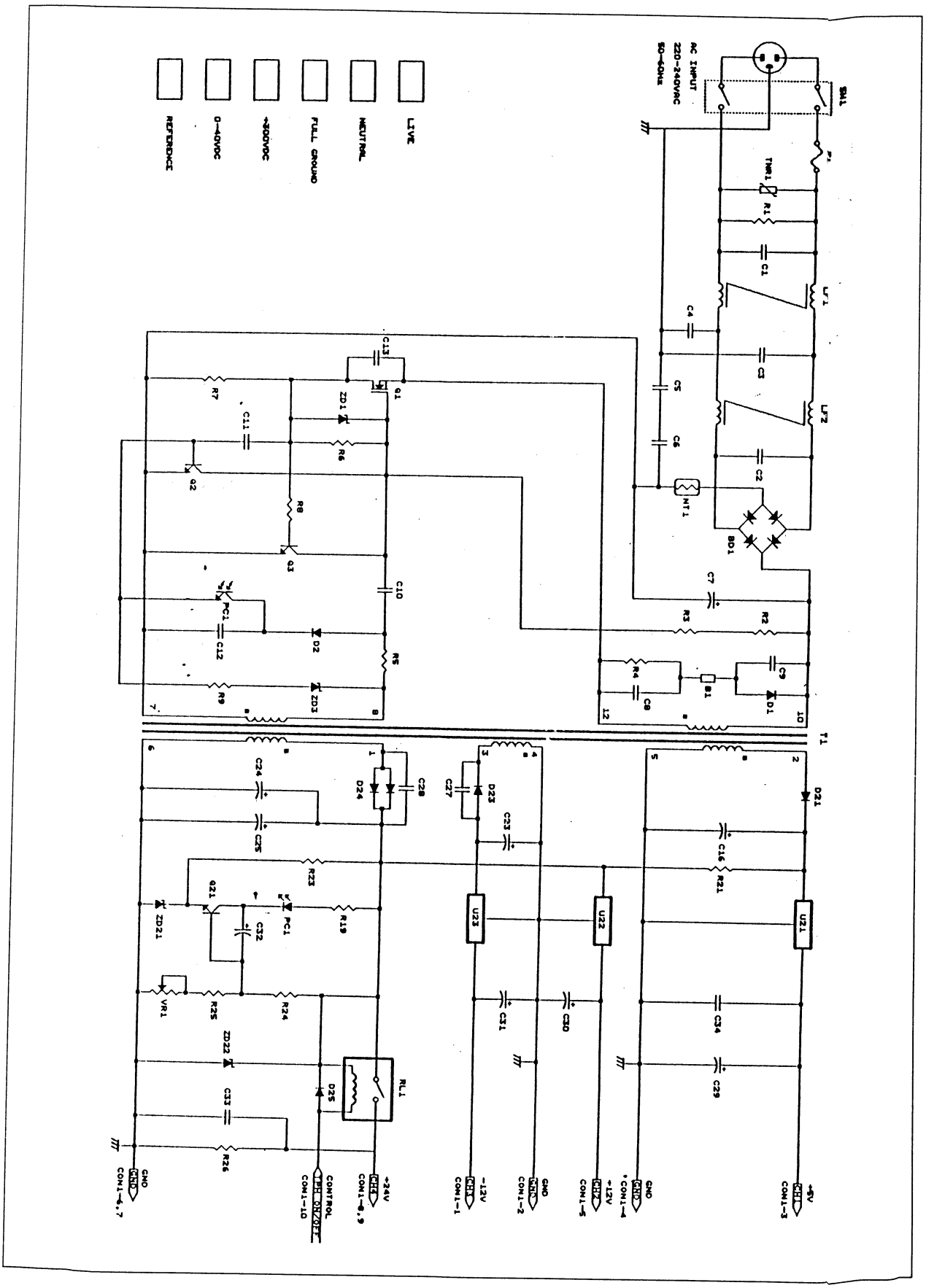
8-3. OPE Circuit



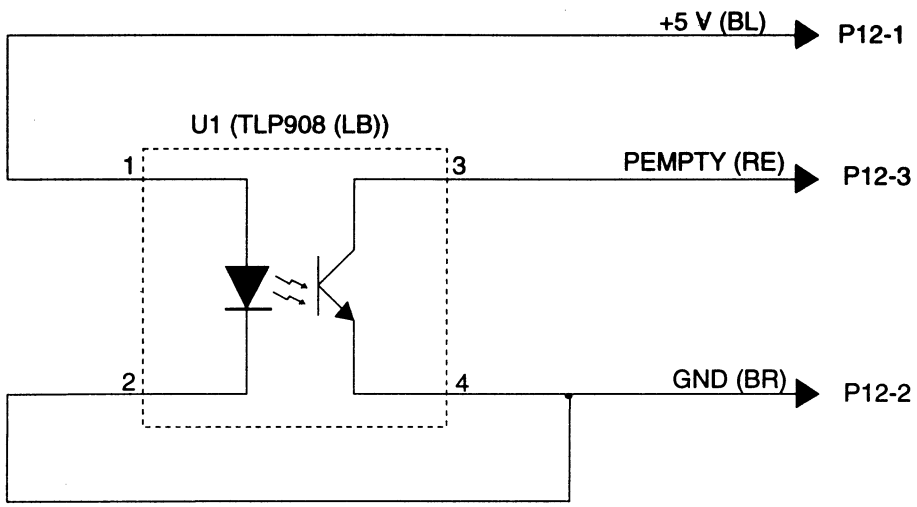
8-4. Hook Circuit



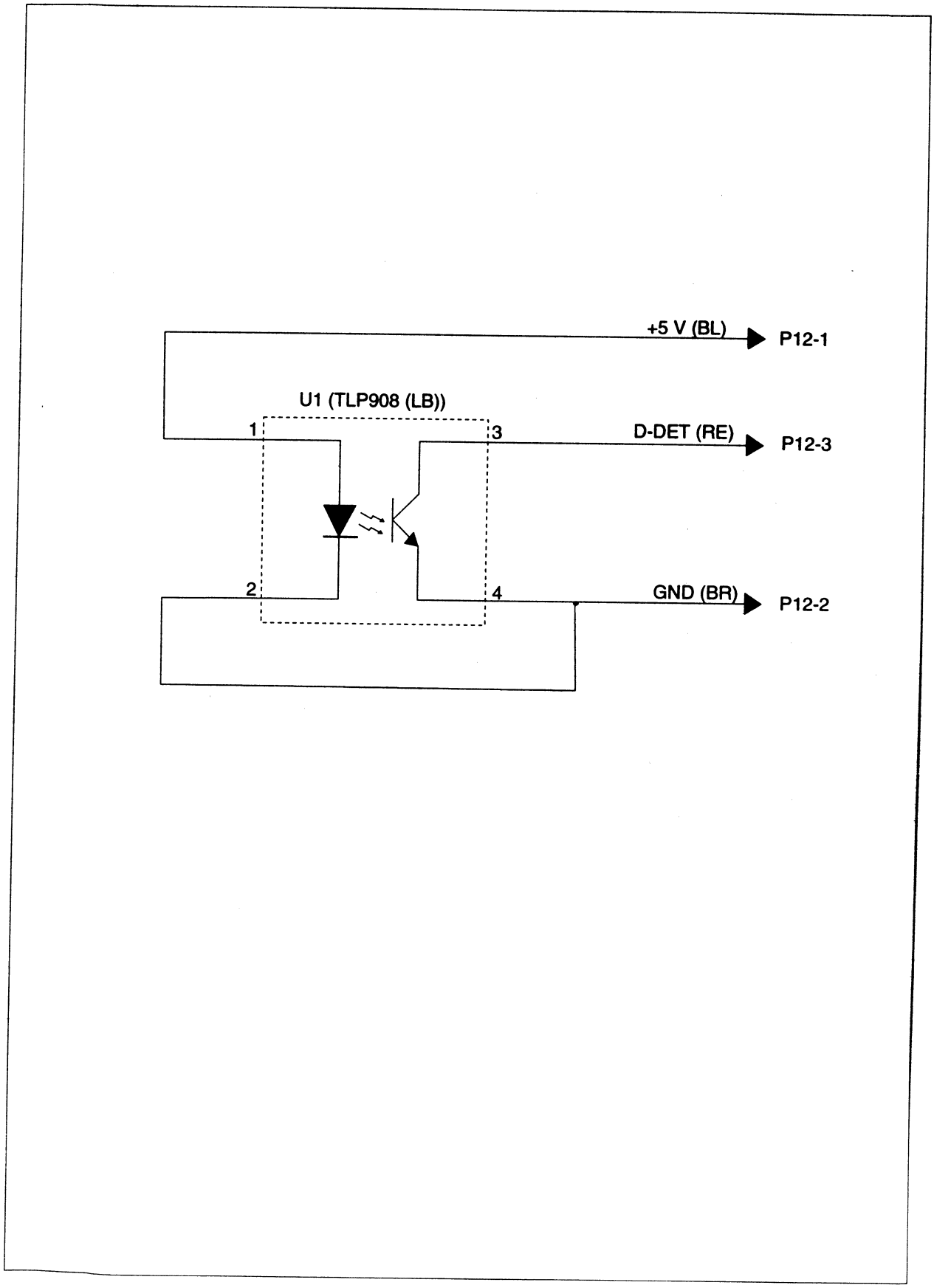
8-5. Power Suplly Circuit



8-6. Paper Empty Circuit Diagram

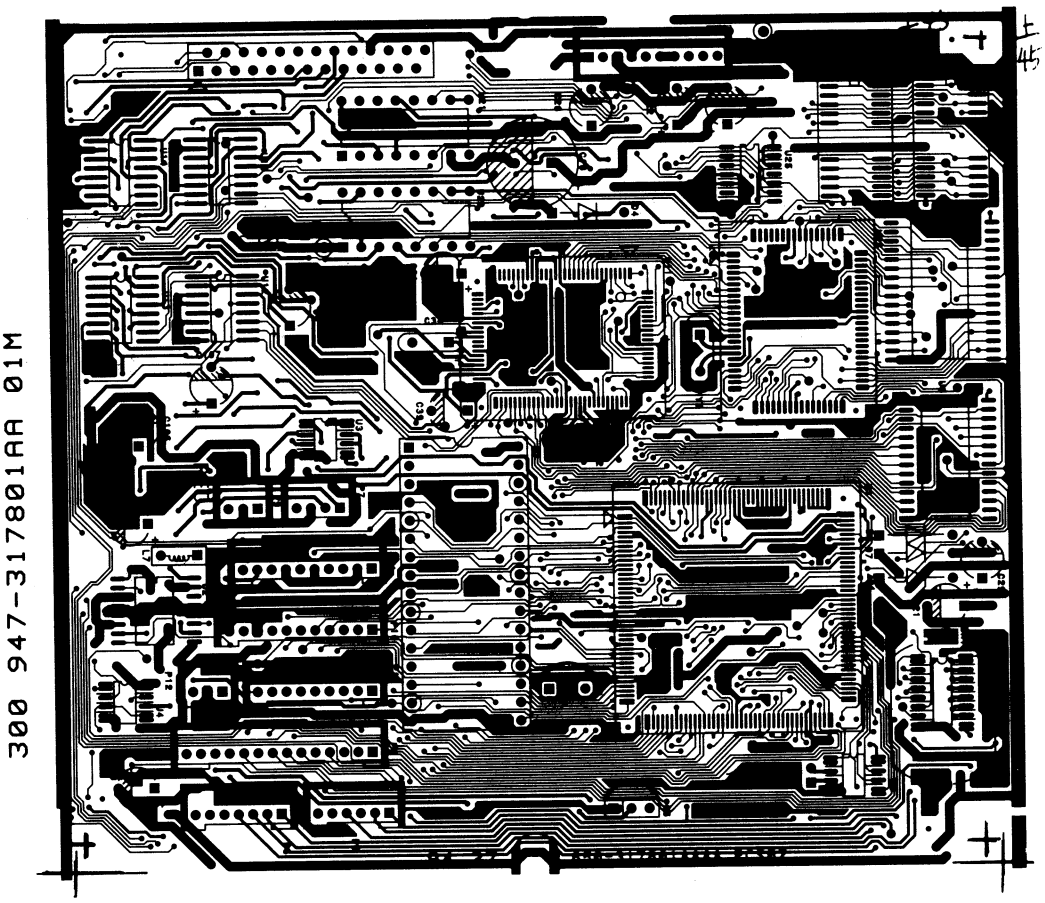


8-7. Doc. Detect Circuit Diagram

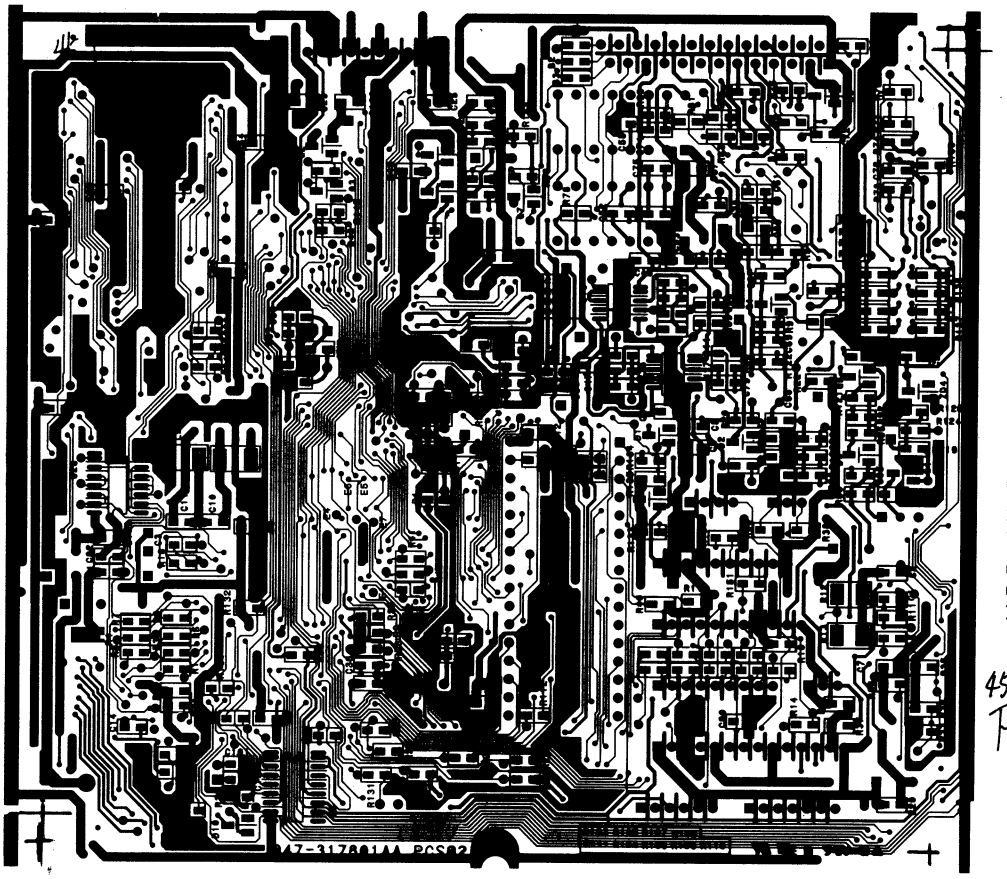


8-7. PCB Layout

8-7-1. Main PCB

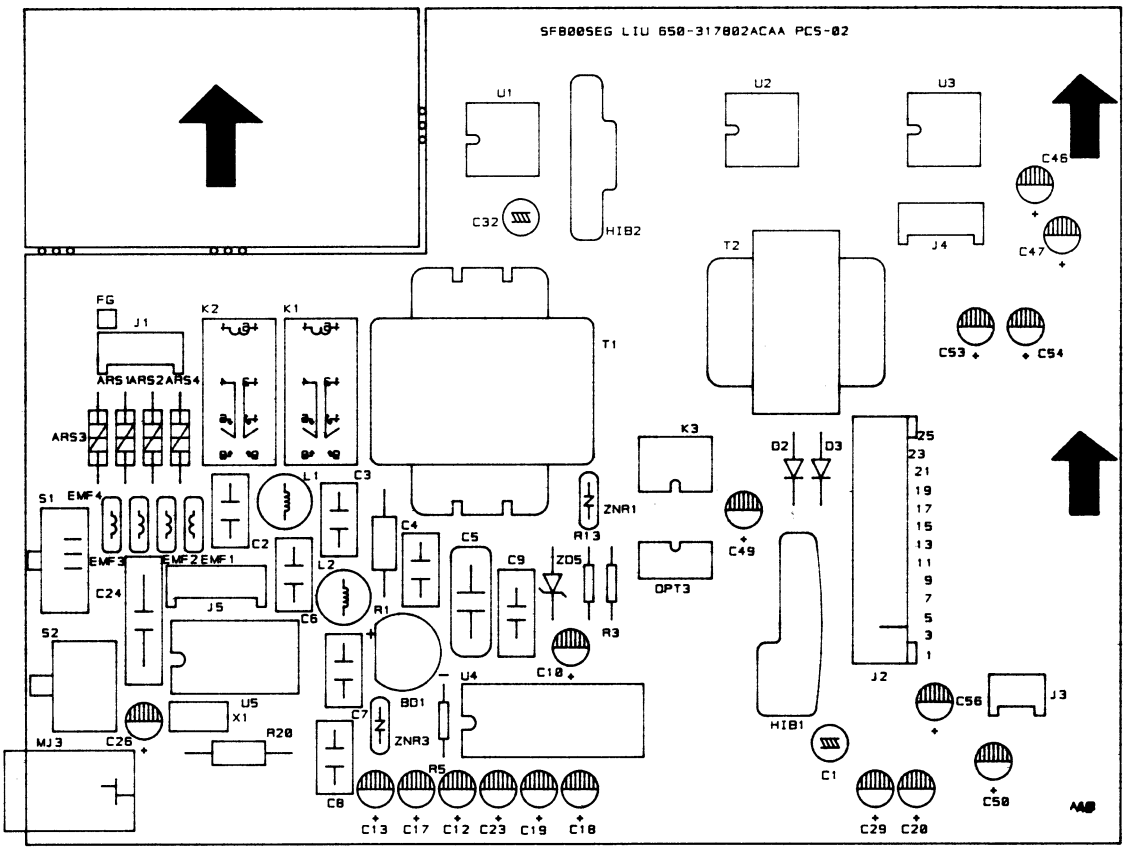


Top View

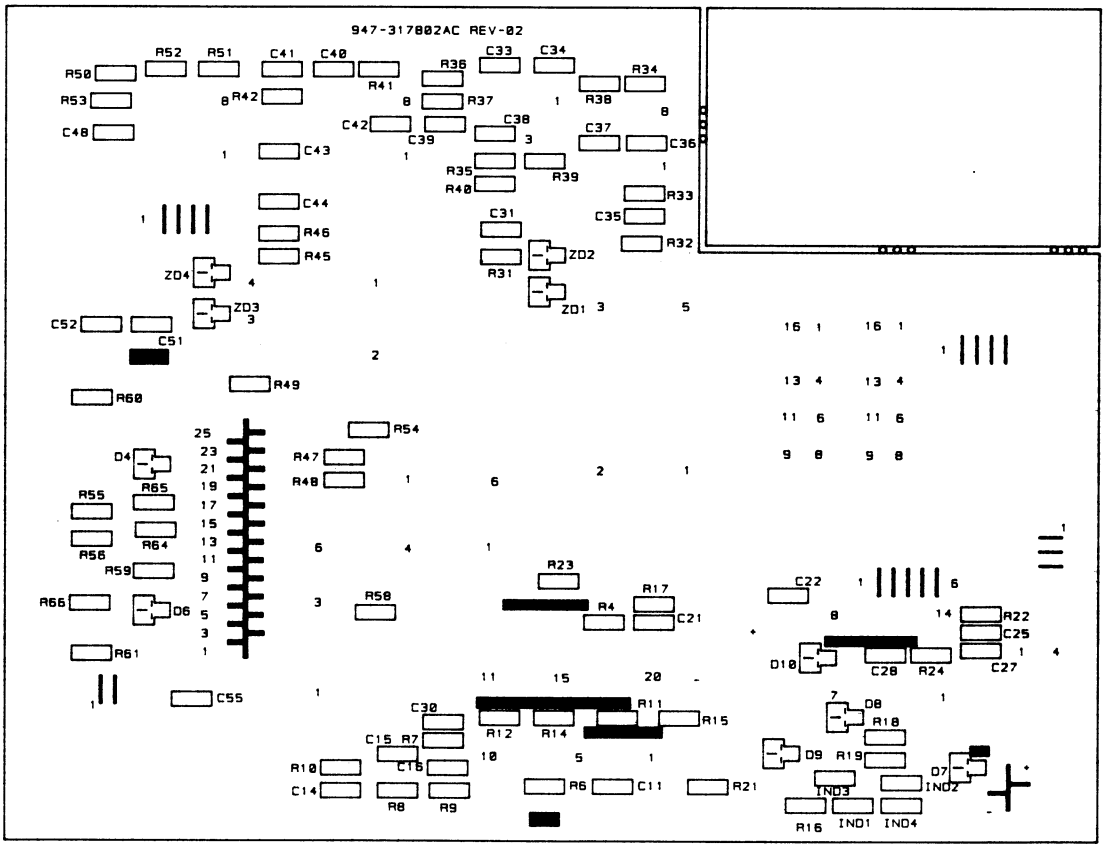


Bottom View

8-7-2. LIU PCB

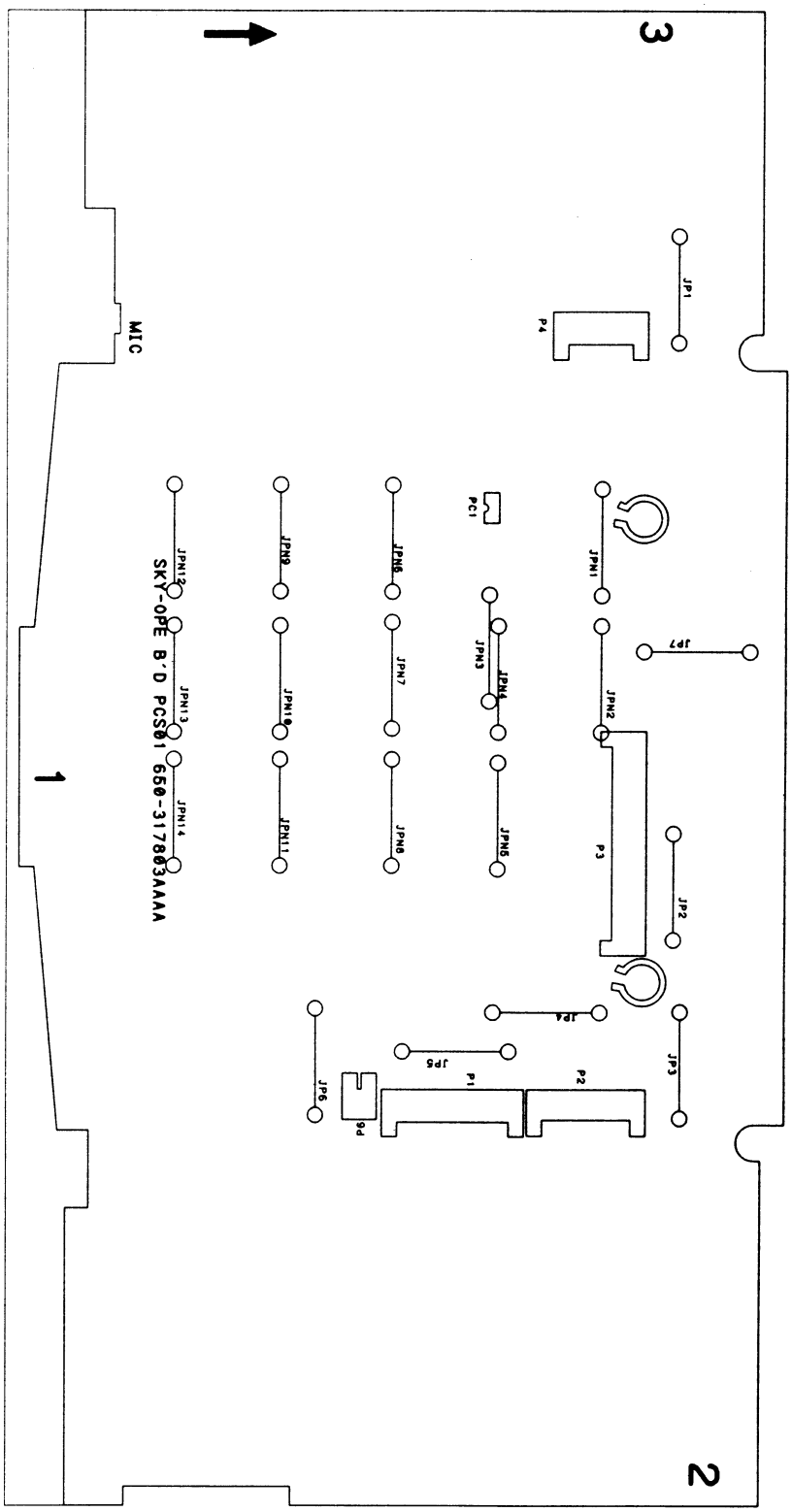


Top View



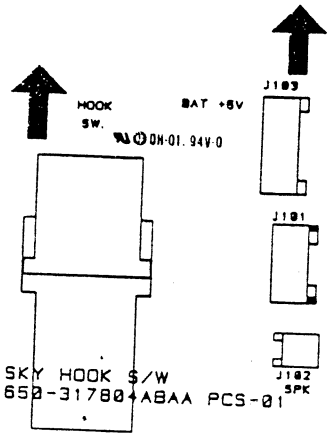
Bottom View

8-7-3. OPE PCB



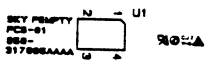
TOP VIEW

8-7-4. HOOK PCB



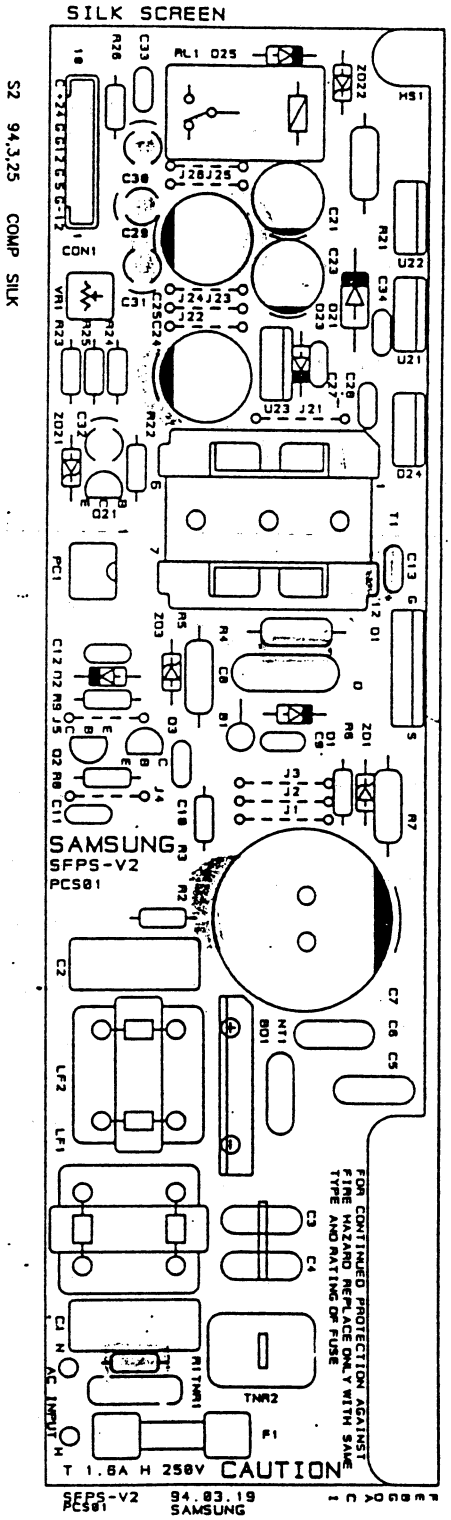
Top View

8-7-5. Sensor PCB



Top View

8-7-6. POWER SUPPLY PCB



TOP VIEW

9. Circuit Description

9-1. Main PBA

9-1-1. General description

Main circuit consists of IFC (Integrated Facsimile Controller) including CPU and all kinds of I/O device drive, memory, modem, transmission circuit, and TAD circuit composed of voice coprocessor, CODEC & ARAM. Main circuit controls SF800/SF2800 system. The following describes the designations of circuit diagram.

9-1-2. Memory map

Memory area from CPU part of FE (R96FE, U1) is devided into external ROM area and RAM area. BANK is designed to be available for memory extension (see Figure 1) but 32 kbyte RAM and 128 kbyte ROM is used 000H-7FFFH is used, for RAM and 3000H-FFFH for ROM with 4 BANK.

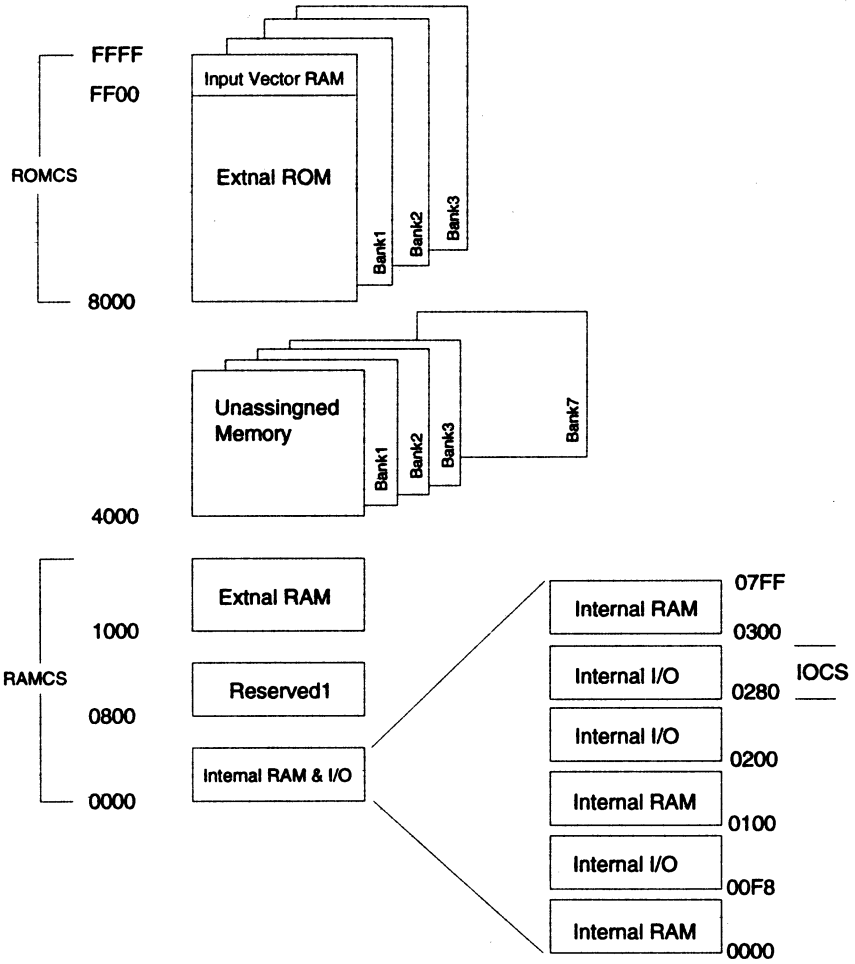


Figure 1. Memory Map

9-1-3. Detailed description

1) IFC

This circuit consists of IFC and system reset circuit including data and address bus, operation panel, printing, image sensor, control of motor driver, and I/O port.

2) IFC function

- System clock

  Internal operation clock frequency is 6 MHz (TSTCLK). It divides 12 MHz system clock from modem by half.

- Data and Address bus control

  • /RD & /WR

  /RD & /WR signal is active in low condition with PH2 clock in high condition when internal wait state occurs in TSTCLK (6MHz). These signals are transmitted to RAM, ROM, and /RD & /WR port of RAM, ROM and Modem to read or write data when each CHIP select is active.

• Chip Select (/RAMSC, /ROMCS, /IOCS, /MCS)
/RAMCS: RAM Chip Select (low active)
/ROMCS: ROM Chip Select (low active)
/IOCS: VOICE COPROCESSOR Chip Select (low active)
/MCS: MODEM Chip Select (low active)
When each chip select is low, it can read or write data.

• DO-D7: 8 bit address bus

• A0-A15: 16 bit address bus

Parameter	Symbol	Min	Max	Units
SYSCLK Cycle	t_{SCY}	140		ns
SYSCLK Pulse Width High	t_{SH}	55	-	ns
SYSCLK Pulse Width Low	t_{SL}	55	-	ns
TSTCLK delay	t_{CD}	-	15	ns
/WAIT delay	t_{WSD}	-	25	ns
/RD, /WR delay	t_{SD}	-	15	ns
/RD, /WR delay (Delayed On)	t_{SDD}	-	25	ns
/RD, /WR delay (Early Off)	t_{SDE}	-	25	ns
Address delay	t_{AD}	-	15	ns
Chip Select delay	t_{CSD}	-	15	ns
Data setup (Read)	t_{DSU}	15	-	ns
Data hold (Read)	t_{HR}	0	-	ns
Data delay (Write)	t_{WDD}	-	10	ns
Data hold (Write)	t_{HW}	0	-	ns
RDY setup	t_{RDS}	5	-	ns
RDY hold	t_{RDH}	5	-	ns
Interrupts setup	t_{IS}	20	-	ns
Interrupts hold	t_{IS}	10	-	ns
SYNC delay	t_{SYS}	8	15	ns
/DEBUG setup	t_{DBS}	10	-	ns
/DEBUG hold	t_{DBH}	0	-	ns
BE setup	t_{BES}	5	-	ns
BE hold	t_{BEH}	10	-	ns
BE to BUS Active/Inactive	t_{BE}	-	20	ns

Figure2. FAX Engine bus timing parameter value

3) Operation panel control

- LEDCTL (LED ConTroL)
  Active high (connected to operation panel)

- LCDCS (LCD Chip Select)
  Active high (connected to operation panel)

- OPI0 - OPI3 (Operation Panel Input 0 - 3)
  Active low (key return input)

- OPO0 - OPO7 (Operation Panel Input 0 - 7)
  LCD, LED and key control output port

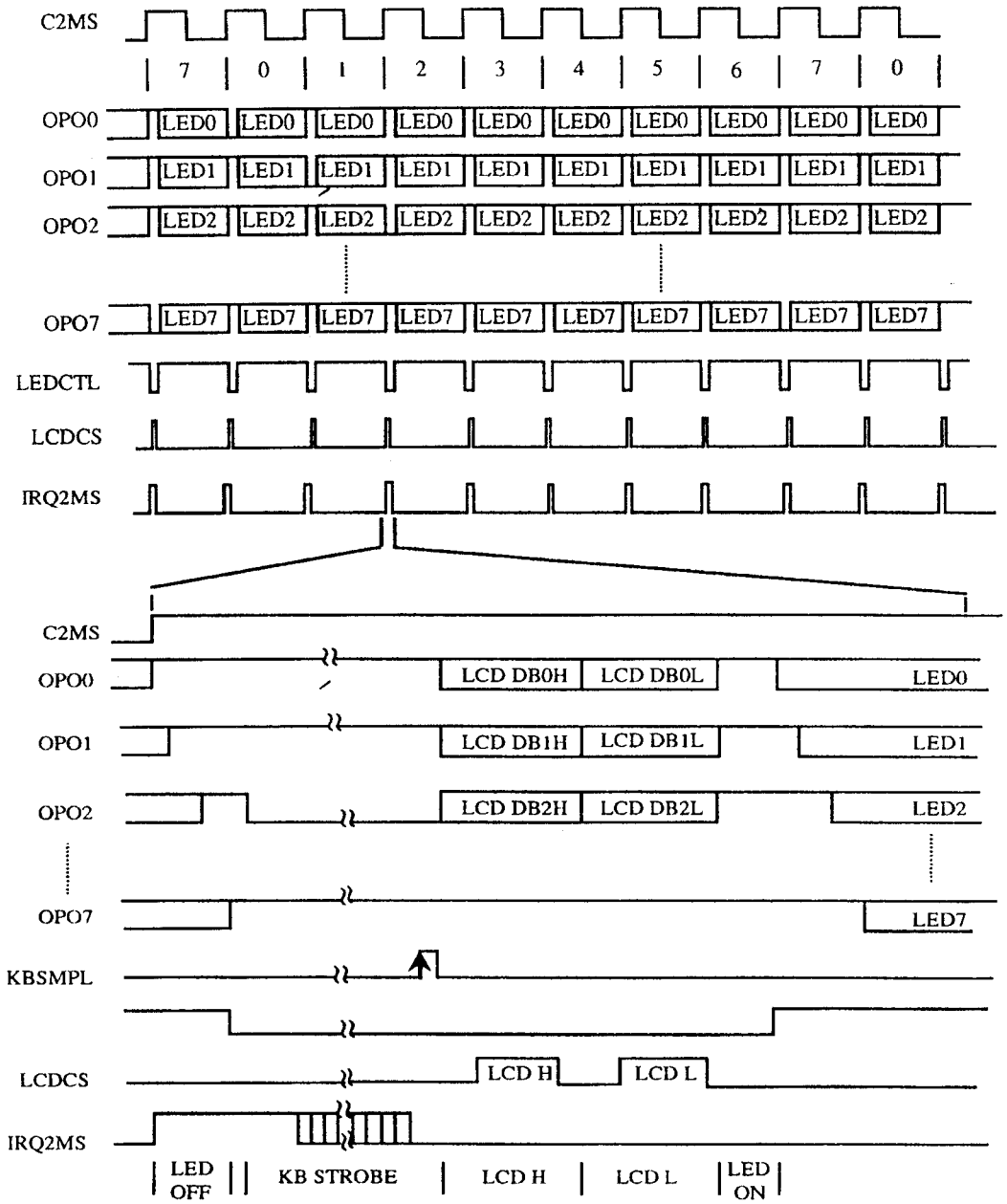


Figure3. OPE Timing chart

4) Printing control

• PCLK, PDAT, PLAT

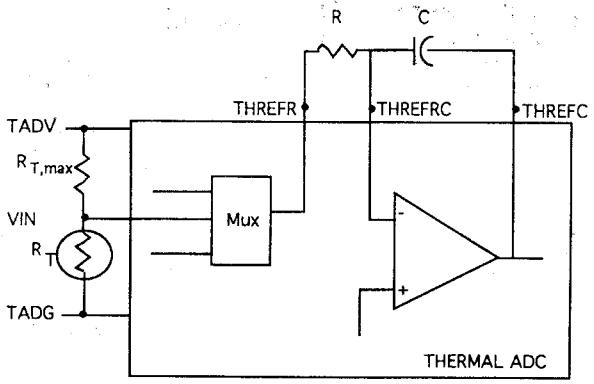
PCLK and PDAT are used as printing data output synchronizing clock and serial data transmission line to transmit the printing data in serial form TDM. PLAT signal is used to latch the printing data transmitted in serial from TDH into shift register through PDAT.

• STB0 - STB3

STB0 - STB3 signals are input into TPH to enable four STROBE intervals in TPH in sequence, such as STB1, STB2, STB3, and STB4. SF800/SF2800 system is of 10ms/line printing structure and determines high or low enable of STB, depending upon STBPOL. (For SF800/SF2800, STB0-3 is low enable and STBPOL is higher enable.)

• TPH A/D converter.

Value from TPH THOUT terminal provides the appropriate STROBE pulse by reading the temperature value through dual slope A/D converter. Slope determination depends upon R.C value of THREFC and THREFR.



R_T, max: Maximum resistance of thermistor over expected temperature range.

R_T : Print head thermistor

Figure 4. TPH A/D converter

5) Image sensor

- General

Shading wave is formed by using white roller to compensate for shading distortion depending upon CIS characteristics prior to scanning documents. Such compensation is made by determining slice level. The wave input from CIS is converted into 6 bit digital in image processing part inside FE (U1) and then processed by B/W mode or intermediate bath mode. Figure 5 shows the internal functions.

- Motor control

• SM0 - SM3

These signals are scanner motor driver strobe pulse which operates in 2-phase at 200 pps.

• PM0 - PM3

These signals are printer motor driver strobe pulse which operates in 2-phase at 200 pps.

- CIS input processing.

To process input signal in white color, max. value (+VREF) and min. value(-VREF) of the signals input from CIS are calculated by controlling MUXA and MUXB in high condition for the former and by setting to ground for the latter. Shading process for compensation of CIS 'shading' distortion is controlled with MUXA in 'low' and MUXB in 'high', for B/W mode MUXA in 'high' and MUXB in 'low', and for half tone MUXA in 'low' and MUXB in 'high'

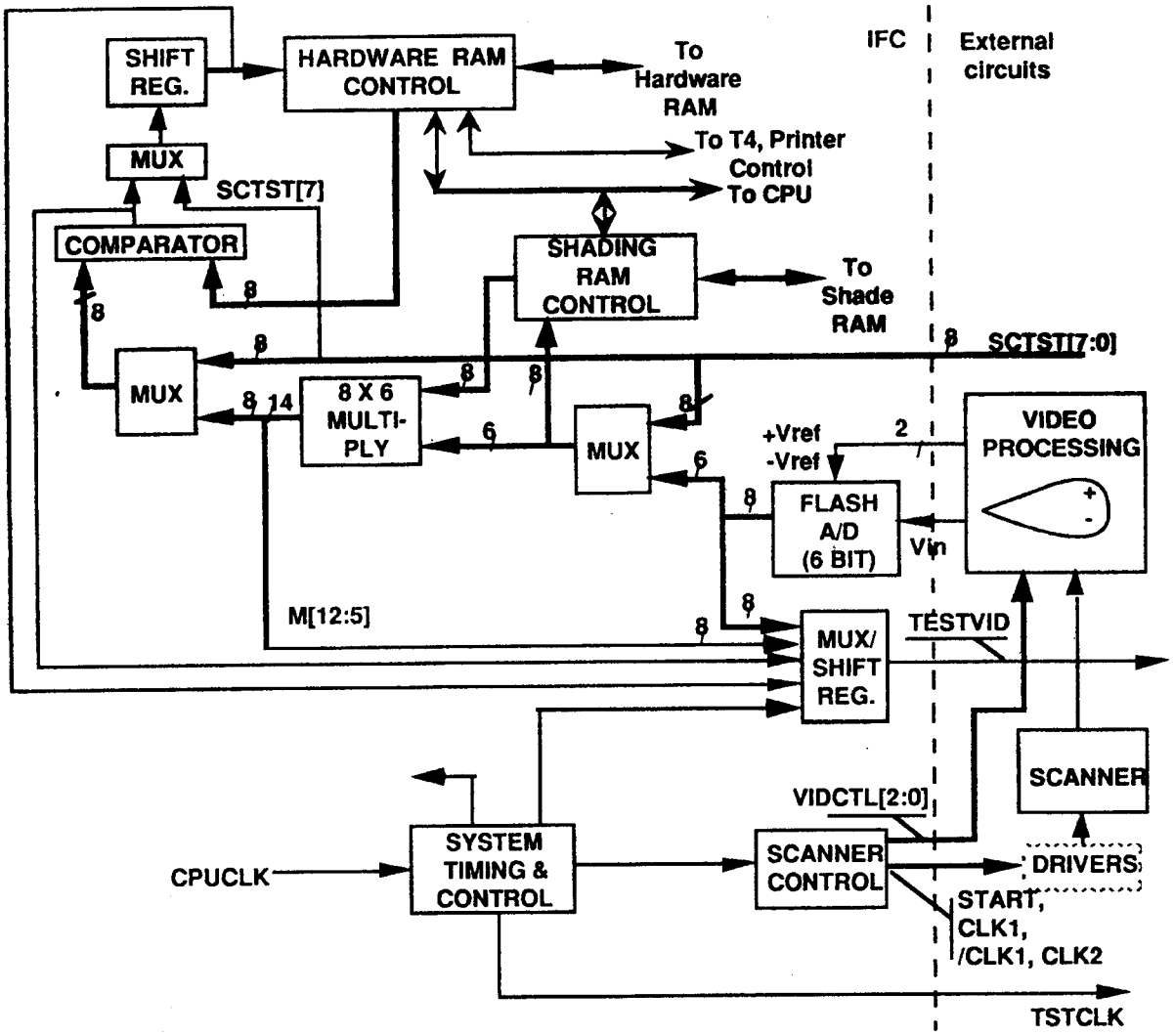


Figure 5. Video Signal Processing Diagram

- CIS driver

CIS driver clock is set to 300 kHz. 50 % of DUTY corresponding to 75 % of LOW is used to elongate charge time duration. Scanning time of each line is 10ms and start signal is transmitted for each 10 ms. Actual image signal is transmitted within 5.8 ms, using 300 kHz clock, because A4 size is taken into consideration. The timing diagram is as follows:

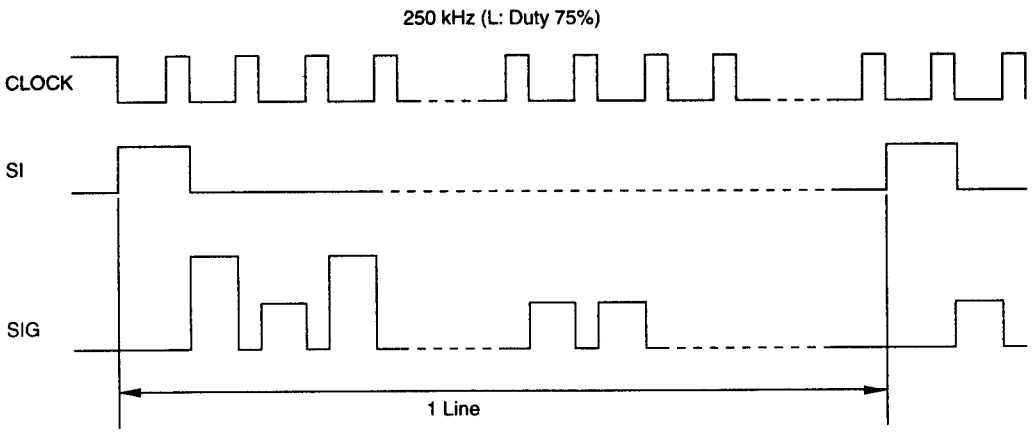


Figure 6. CIS Clock timing chart

6) All kinds of I/O port

Pin name	Circuit name	I/O	State	Description
GPIO0	PJAM	I	H	Paper Jam
			L	-
GPIO1	DSCAN	I	H	Doc. Scan Position
			L	-
GPIO2	DDET	I	H	-
			L	Doc. Detect
GPIO3	RTC I/O	O	H	RTC Write
			L	RTC Read
GPIO4	RTC E	O	H	RTC Enable
			L	RTC Disable
GPIO5	RTC CLK	O	H	RTC Clock
			L	-
GPIO6	RTC DATA	I/O		RTC Data
GPIO7	KEY CHECK & BATCHK/ THOUT CTL	O	H	Battery check & Key check 1
			L	TPH Temp. check & Key check 2
GPIO8	RING DET	I	H	Ring in state
			L	-
GPIO9	OFF HOOK 1	I	H	Off Hook (Handset)
			L	On Hook (Handset)
GPIO10	PEMP	I	H	Paper Exist
			L	Paper Empty
HIO0	SOUND CTL	O	H	Voice or Line Monitoring
			L	Keyclick or Ring sound
HIO1	SPK ON	O	H	Speaker Off
			L	Speaker On
HIO2	TX CTL	O	H	Fax Transfer Mode
			L	Ring Out
HIO3	DP	O	H	Dial Pulse On
			L	Dial Pulse Off

Pin name	Circuit name	I/O	State	Description
HIO4	CML CTL	O	H	K1 Relay On
			L	K1 Relay Off
HIO5	GLED	O	H	CIS LED On
			L	CIS LED Off
HIO6	+24V CTL	O	H	+24 V On
			L	+24 V Off
HIO7	RING CTL	O	H	Line Monitoring
HIO8	BANK 0	O	H	ROM Bank 0
			L	
HIO9	BANK 1	O	H	ROM Bank 1
			L	
HIO10	PDN 1	O	H	CODEC 1 Power down
			L	-
HIO11	HOLD	O	H	Handset TX On
			L	Handset TX Clear
HIO12	DATA ACK	I	H	-
			L	DTAD (D6325A) Acknowledge
HIO13	PDN 0	O	H	CODEC 0 Power down
			L	-
HIO15	DTAD HL	O	H	DTAD High byte data
			L	DTAD Low byte data
STB4	CUT START	O	H	-
			L	Cutter Break
STB5	CUT BREAK	O	H	-
			L	Cutter Break
STB7	RX CTL	O	H	Receive Line
			L	External Line (Remote mode)
STB8	CUTP	I	H	Cutter Position Sensor open
			L	-

- Other signals

• Tone

Keyclick sound generation : 800 Hz, 30 ms

• /MRES, /MIRQ

/MRES signal is connected to /PORI of modem and resets the modem. /MIRQ receives interrupt signal of modem to execute its service.

7) Reset circuit

Reset circuit in SF800/SF2800 system consists of power monitor using PST520C and watch dog timer in IFC.

• Power monitor

The power monitor enables the PST520C output termination to be low and resets IFC by checking for power failure if +5 V to PST520 is unstable in +4.65 ~ + 4.35 (typically 4.5 V). Resetting of IFC causes the modem connected to /MRES terminal and then D6375A (voice coprocessor) to be reset. RTC is also disabled by low output of PST520C, In PST520C, output termination of open drain structure is connected to IFC by 10K pull up.

• Watch dog timer

Programmable counter in IFC is reset for every 2 ms. If the counter is not reset even after 250 ms, system should be reset to be at initial conditions by using program.

8) Real time clock

The part consists of 6355ED clock chips in circuit and occurs the data to be displayed on LCD. 6355ED gains clock source from external crystal, divides the clock into time, minute, second, year, month, day, and date. and then enables the output signal of RTC E PORT and PST520C of IFC through two nand gate. (Such composition is for RTC disable in event of power failure.) Battery is used as electric source for normal operation even when power is off. Wrighting and reading of data through RTC I/O pin is applicable. Serial data is read and written through RTC data and RTCCLK pin.

9-1-4. Memory

1) General

System memory consists of 128 KB ROM and 32 KB RAM. RAM is backed up throughout the area.

2) Memory composition

ROM and RAM is selected by each chip select. Access of data is made for byte unit.

3) System memory back-up circuit

The electric source of RAM is supplied with +5 V through <VBB> when power is on, while with the electricity to battery when power is off. Battery for SF800/Sf2800 is of NI-CD type and the 1 kohm resistance on + terminal of battery is for battery protection. 100 μF electrolyte condenser in C21 and C29 is for voltage stabilization to prevent voltage drop as switching.

9-1-5. Modem and Transmission Circuit

1) General

This circuit controls the signals to be transfered between modems and between LIU and modem.

2) R96DFXL modem

R96DFXL serves for single chip fax and to occur DTMF detection and DTMF signals. TX OUT is transmission output port from modem and RX IN is receiving input port. /PORI is the signal from IFC which can initialize modem without system power off. D0-D7 is data bus and RS0 - RS4 is a signal for internal register select of R96DFXL which determines a mode. /CS is a signal for R96DFX l Chip interface and /IRQ for modem interrupt. I/O port has R96 DFXL I/O pin. Refer to the table below for its use.

Pin name	Circuit name	I/O	State	Description
GP O2	MUTE	O	H	Voice, Line monitoring volume control
			L	
GP O4	CML2	O	H	CML2 Relay control
			L	
GP 11	HT/BINARY	O	H	Halftone Mode
			L	Binary Mode
GP 13	RESET	O	H	Data Reset
			L	
GP 19	MF/DP	2	H	DTMF
			L	DP
GP 20	OFF HOOK2	0	H	On Hook (External Phone)
			L	Off Hook (External Phone)
GP 22	CPC	1	H	Tel Line Off
			L	

3) Transmission

This circuit controls transmission output of analog signal from modem (R96DFXL). Output voltage from modem is buffered through LIU B'd and OP amp after signal smoothing and filtering, and then output into line.

4) Receiving

Receiving mode sends the incoming analog signal through LIU B'd to receiving input termination through smoothing filter.

9-1-6. TAD Circuit

1) General

TAD circuit has voice coprocessor (D6375A) for voice recording and playing, MIC input, line input and play path, and voice memory for recording.

2) MIC input path

This uses receiving path. OGM and memo signal received through CODEC 1 is stored in voice memory (4M DRAM) by means of DRAM control part voice coprocessor.

3) Link input and play path

ICM input and 2-way memo signal to link is stored in voice memory (4M DRAM) through CODEC 0 (U21) and DRAM control of voice coprocessor. For play, the stored data is processed by voice coprocessor and sent to LIU through R83 by CODEC 0. For speaker play, the data is sent in LIU through MUX (U13) and OP amp by MUX (U14-C) selecting hold sound and play sound through R75.

I/O Control / Volume	V-LO	Mute
1	0	0
2	0	1
3	1	0
4	1	1

4) Voice coprocessor (D6375A)

Voice coprocessor consists of host interface, memory interface, codec interface, speaker phone, and DSP core. Host interface transmits and receives IFC and data. Memory interface communicates with DRAM (or EPROM) the voice data contracted in playing and recording operation. Speakerphone processing part compares and switches transmission and receiving, opening one path and decreasing signal from another path. Speakerphone part is connected to line and user through CODEC interface. These operations are carried out by DSP core by communicating with host (IFC) through host interface part.

5) Voice back-up circuit

The electric source of RAM is supplied with + 5V through <VBT> when power is on, while with the electricity to battery through <VBB> when power is off. Four alkaline batteries with 1.5V are used. ON/OFF relation of TR for electric supply to battery is as follows:

	Q2	Q3	Q7	Q8	Q9	VBT
Power On (PWRGD = High)	On	On	Off	Off	On	+5 V
Power Off (PWRGD = Low)	Off	Off	On	On	Off	BAT

1000 μF electrolytic condenser in C18 is for voltage stabilization to prevent voltage drop as switching. D4 and R49 are used to drop 6 V VBT voltage to about 5.5 V. R145 and R144 for the PWRGD low signal voltage device to prevent fluctuation of PWRGD signal at power off which causes Q9 to turn on, resulting in abnormal battery back-up.

9-2. LIU PBA

9-2-1. General

LIU connects modems and lines and consists of FAX part operating at power on and telephone part operating at power off. FAX part is devided into signal connection circuits between modem and line, DC loop feeding circuit, DP circuit, ring detect circuit, Telephone part is devided into ringer circuit and speech circuit.

9-2-2. Fax part

1) Signal connection circuit between modem and line.

This forms signal path between modem and lines which is used as signal and data, remote control signal, and 2-way recording.

- ▶ CML relay (K1): Connected to line terminal and changes signal path to telephone or FAX.
- ▶ Matching trans (T1): Matches impedance between line terminal and fax. Path for fax signal and data transfer is 600 ohm. Path for DTMF signal, CNG detect and 2-way recording for remote control uses 20 kohm terminal.
- ▶ C5, T2: Provides the path to 20 kohm terminal under idle condition to allow DTMF signal and CNG tone to be detected, and forms recording path for 2-way communication.
- ▶ R1, C4: Interrupt DC factors to 600 ohm and 20 kohm, respectively.
- ▶ HIB1: Current detector is to work with current over 10 to 15 mA of line current.
- ▶ DP Relay (K3): Forms DP signal by intermitting line voltage

3) Ring detect circuit

This circuit transfers the output from ringer IC rear end to I/O port through photo coupler for auto receive function.

9-2-3. Telephone circuit

1) Ringer circuit

This circuit has U4076B and the circumferential circuits. Line ring signal is cleared of DC factor by C24 and reduced by R20, and then transmitted into 7 and 5 pins of U5. This signal is filtered in U5 and provided as a form of electric current for generation. AC signal from inside is output terminal to drive OPT3. C25 and R22 controls output signal frequency, and R9 is charging capacitor for bridge rectifier. X1 is clock signal generator.

2) Speech Circuit

This circuit consists of U4030B and the circumferential circuits.

- Transmitting Circuit

The voice flowing through condenser mic is converted into electrical signal, amplified by the amplifier of U4, and then filtered and input to VM and Mic1, Mic2. This signal is sent to line through Vcc, some being returned to side tone circuit through R7, C16, and R8, R9. Condenser mic bias is adjusted by R19, and Transfer level is adjusted by C22 and R18.

- Receiver Circuit

Receiver signal from the opposite flows to RECO pin through R16, C18 and R14, and is amplified in amplifying circuit in U4, transfered through RECO pin, and converted into voice by high sensitive Receiver unit.

• Side tone circuit

The voice signal from Transfer circuit to Vcc is emitted to a line through balance circuit composed of R9, C16 and R10 and then to receiver circuit. side tone level is adjusted through balance circuit.

9-3. OPE PBA

9-3-1. General

OPE circuit diagram is a design of OPE board which is connected to main board to perform several functions of fax system and to let users know the current conditions. This circuit consists of key matrix-related circuit, LED display-related circuit, LCD display-related circuit.

9-3-2. Detailed Description.

OPE circuit uses a time sharing method in operation which involves the time duration of scanning all the keys of key matrix structure connected to operation control part. To know which key is pressed, key (active: low) scanning is made by checking input ports (OPI0-OPI3) of FE with OPO0 low and the other output ports high among output ports (OPO0-OPO7). These gradual sequences of each output port indicate operation of all the keys connected to key matrix. The keys on key matrix respectively are allocated with scanning time of 2 ms, summing 16 ms. SF800/SF2800 OPE has 43keys. Existing 4 × 8 key matrix is difficult to incorporate 43keys. The keys are checked by H/L grouping them using one port of FE. This port is key matrix H/L CTL. Timing diagram of timing sharing method which is a basic operation of OPE circuit is as in figure below and performed by the following sequence. In case time interrupt occurs regardless of current conditions (ON/OFF) of LED (LED1) connected to OPO0 port, the keys should be scanned with LEDCTL 'low' and LED off. At this time, only key connected to OPO0 port is scanned because other output port is high. After these key scanning sequence, the data to be displayed through output port is transfered. As in the figure below, high 4 bits and low 4 bits corresponding to 1 bit should be sent through 4 data bus (OPO0 - OPO3) at time interval. After key scanning and data transmission to LCD, the LED of OPO0 should be operated in origin condition. These sequences should be performed, changing output ports in turn at every 2 ms. Diodes in key matrix-related circuit part are used to separate the LED display part. The resistances in LED display-related circuit is designed under consideration of FE current.

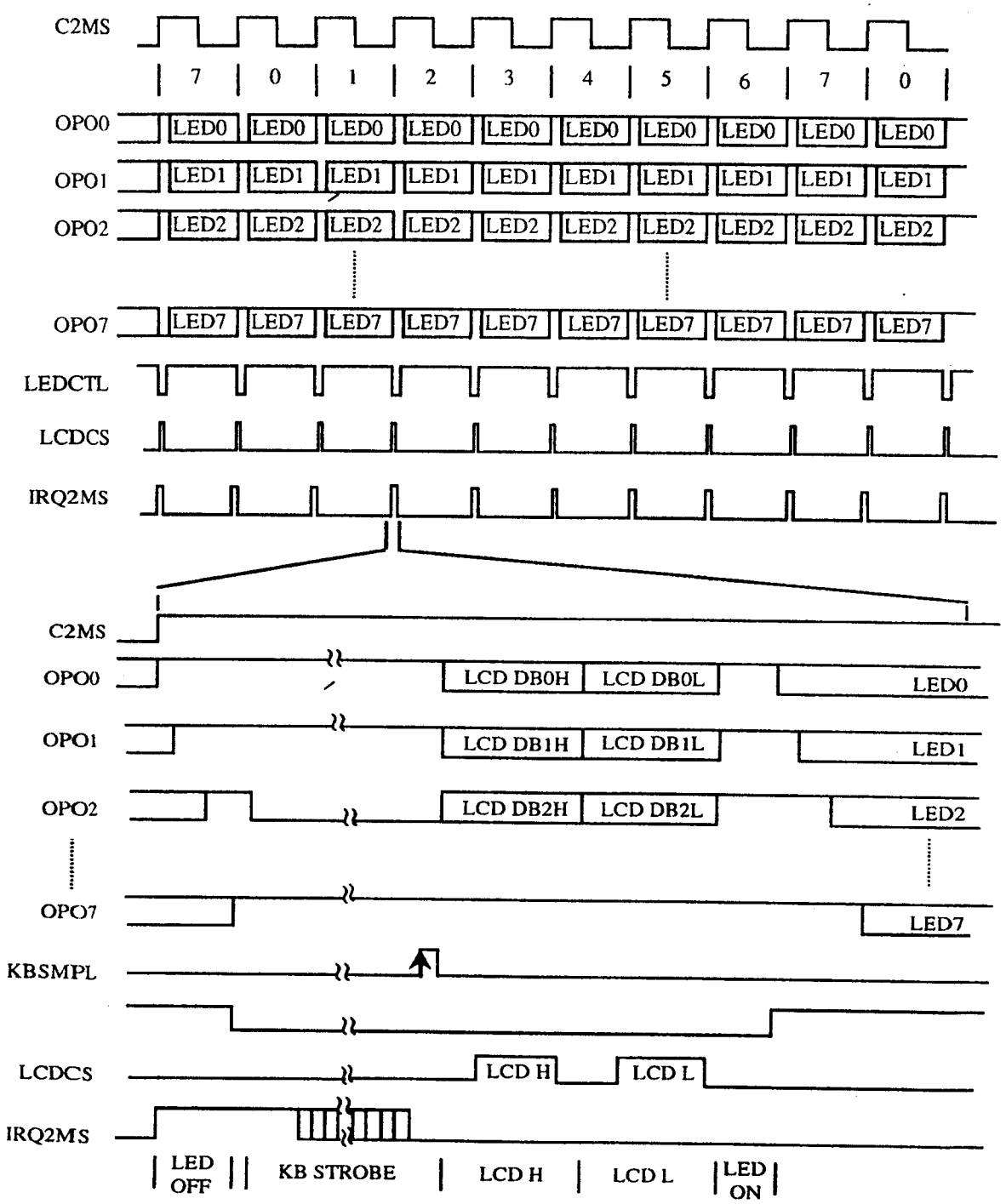
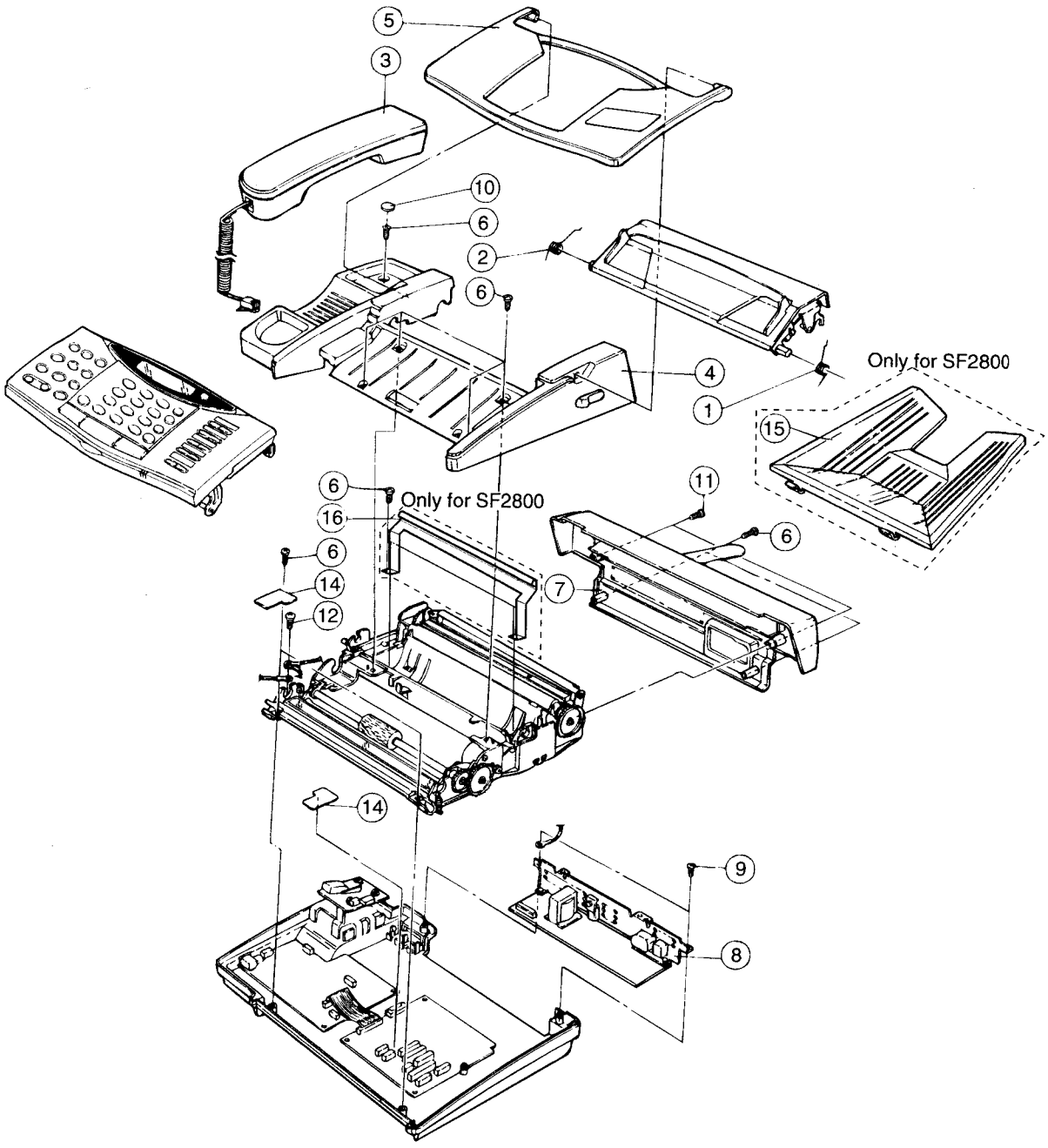


Figure 7. OPE Timing chart

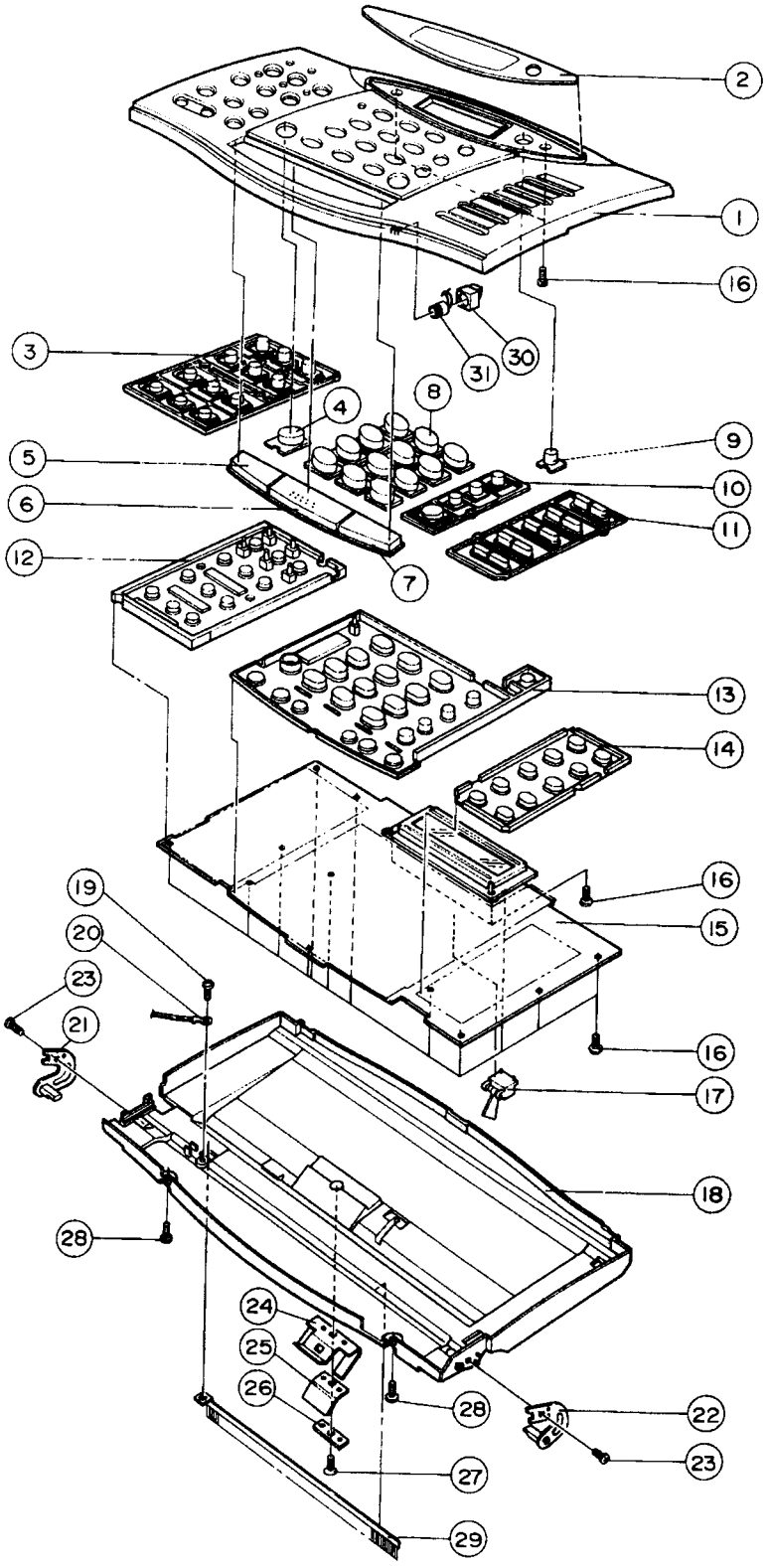
10. Exploded Views and Parts List

10-1 Main Assembly



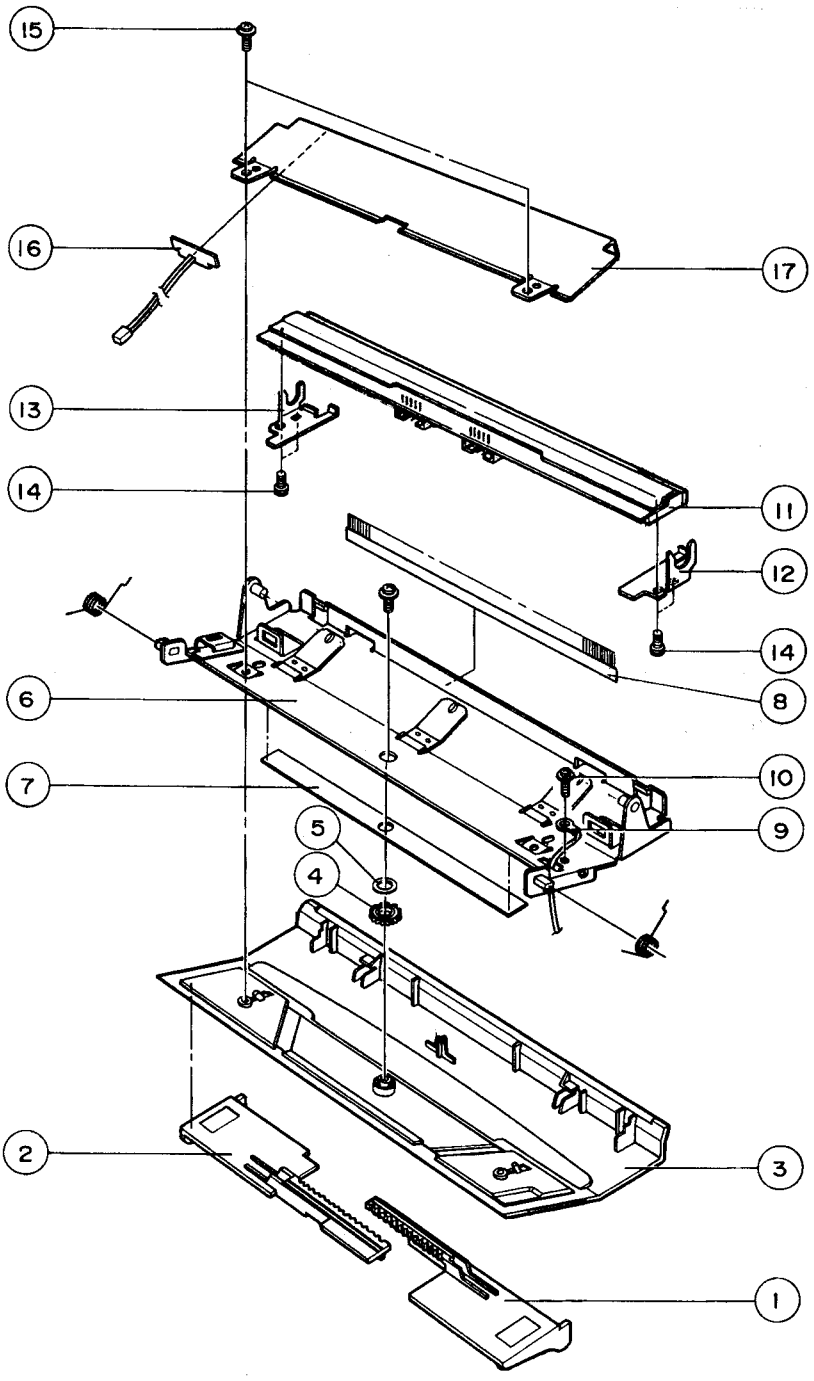
NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	SPRING - TORSION(R)	813 315054AA	1	
2	SPRING - TORSION(L)	813 315054AB	1	
3	ASS'Y HANDSET	139 750520SAAA	1	
4	ASS'Y COVER-TOP	139 500417AAAA	1	
5	STACKER - TX	821 311234AB	1	SF800
		821 311234BE	1	SF2800
6	TAPTITE,B,PH+,M3,L10	847 501001AK	12	
7	REAR COVER	821 311233AA	1	SF800
		821 311250AA	1	SF2800
8	POWER SUPPLY	953 140021RB	1	
9	TAPTITE,B,BH+,M3,L10	847 501007DA	2	
10	HOLE DUMMY	821 258076AY	1	
11	TAPTITE,B,BH+,M3,L10	847 501007DA	2	SF800
	TAPTITE,F,PH+,M3,L12	847 502001AG	2	SF2800
12	TAPTITE,B,PH+,M3,L8	847 501001AB	1	
14	SHEET - DUMMY	821 317118AA	2	
15	STACKER - RX	821 310958AA	1	Only for SF2800
16	BRACKET DECURL	813 310353AA	1	Only for SF2800

10-2. OPERATOR PANEL ASSEMBLY



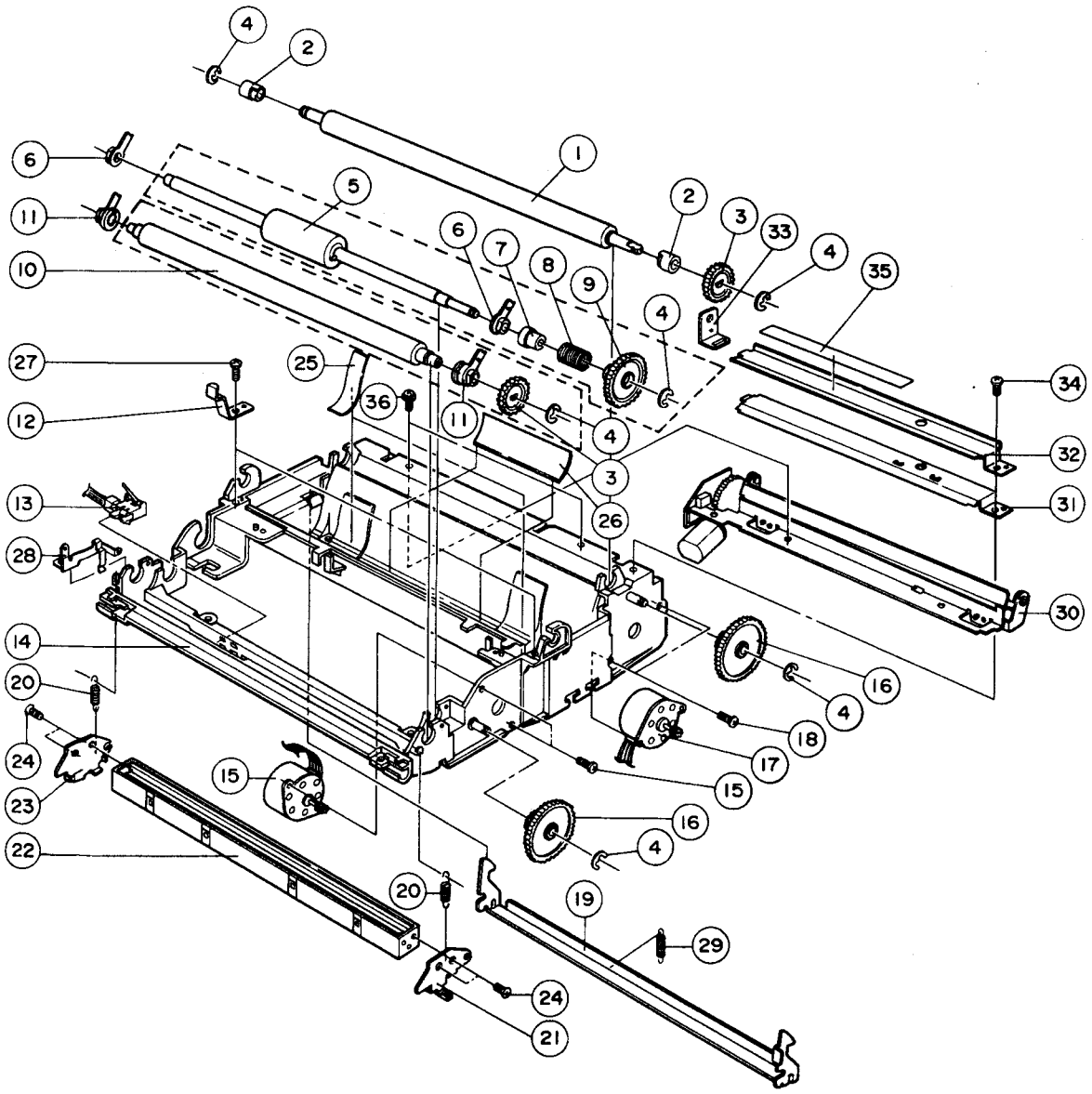
NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	COVER - OPE	821 311235DA	1	
2	WINDOW - LCD	811 311211BA	1	
3	KEY - FUNCTION	821 311239AA	1	
4	KEY - ABSENT	821 311238AA	1	
5	KEY - STOP	821 311243AA	1	
6	KEY - START	821 311244CA	1	
7	KEY - SPEAKER	821 311237DA	1	
8	KEY - TEL	821 311236AA	1	
9	KEY - SEARCH	821 311241AA	1	
10	KEY - MODE	821 311240AA	1	
11	KEY - ONE TOUCH	821 311242AA	1	
12	RUBBER - CONTACT(A)	821 315214AA	1	
13	RUBBER - CONTACT(B)	821 315215AA	1	
14	RUBBER - CONTACT(C)	821 315216AA	1	
15	PBA OPE	650 317803AAAA	1	
16	TAPTITE,B,PH,+,M2.5	847 501005BA	16	
17	INTER RUPTER, OS110703 - 304	895 610013AA	1	
18	FRAME - FRONT	821 311229AA	1	
19	TAPTITE,B,PH+,M2.5,L6	847 501005BA	1	
20	CBF - WIRE, OPE - MAIN	955 317801ADJZ	1	
21	HINGE - OPE(L)	813 310212AB	1	
22	HINGE - OPE(R)	813 310212AA	1	
23	TAPTITE,B,PH+,M3,L8	847 501001AF	2	
24	SPRING - ADF	813 312089AA	1	
25	RUBBER - ADF	821 315155AA	1	
26	PLATE - ADF	813 310211AA	1	
27	TAPPING,FH+,M3,L8	842 243013AB	1	
28	TAPTITE,B,PH+,M3,L8	847 501001AF	2	
29	BRUSH - ANTI(TX)	811 311124AA	1	
30	ADAPTER - MIC	821 315217AA	1	
31	AUDIO-MIC	939 030502FA	1	

10-3. RX-COVER ASSEMBLY



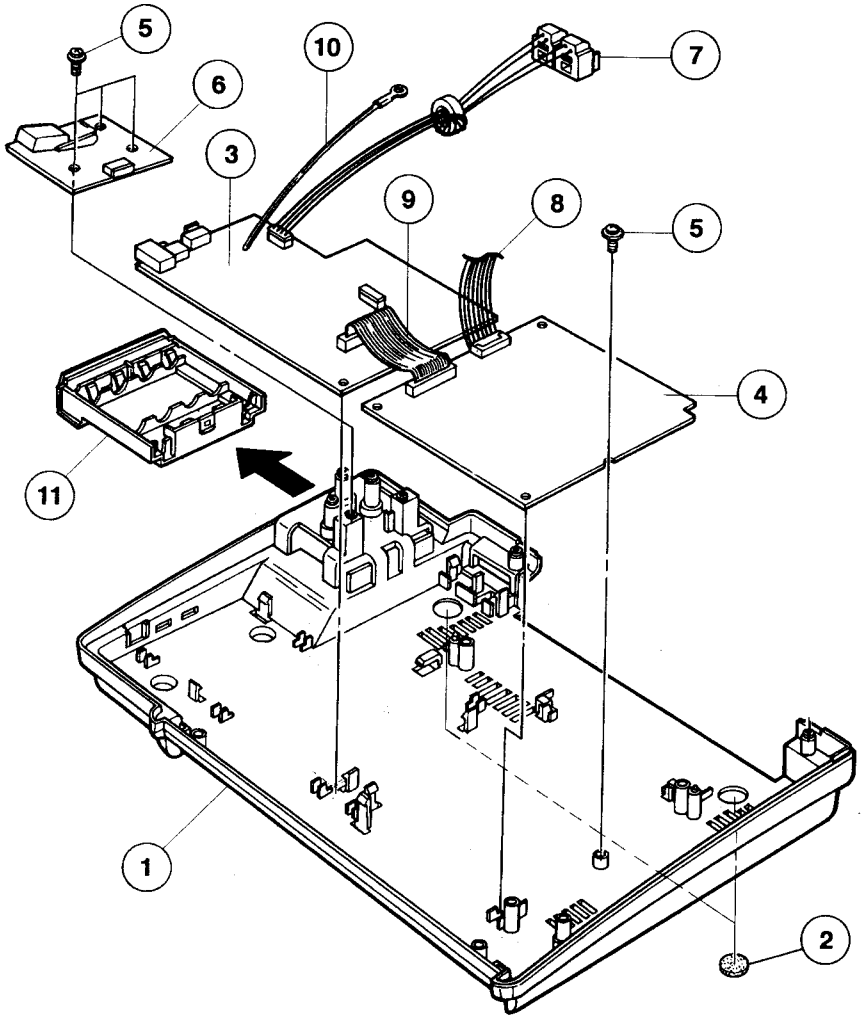
NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	GUIDE - DOC(R)	821 311248AA	1	
2	GUIDE - DOC(L)	821 311249AA	1	
3	COVER - RX	821 311232AA	1	
4	PINION - GEAR	821 310254AA	1	
5	SPRING - CURVE	813 310154AA	1	
6	CHASSIS - RX	811 311128AA	1	
7	SHEET - RX	829 311012CA	1	
8	BRUSH - ANTI(RX)	811 311125AA	1	
9	FRAME - RX EARTH WIRE	955 317814ACHZ	1	
10	TAPTITE,F,B,PH+,M3,L6	847 502001AF	1	
11	TPH	897 500016AB	1	
12	GUIDE TPH(L)	813 310219AB	1	
13	GUIDE TPH(R)	813 310219AA	1	
14	MACHINE,A,PH+,M3,L6	841 810001AA	4	
15	TAPTITE,F,B,PH+,M3,L6	847 502001AF	3	
16	PAPER EMPTY SENSOR	650 317805AAAA	1	
17	GUIDE PAPER	813 312093AA	1	SF800
		811 311218AA	1	SF2800

10-4. MAIN FRAME ASSEMBLY



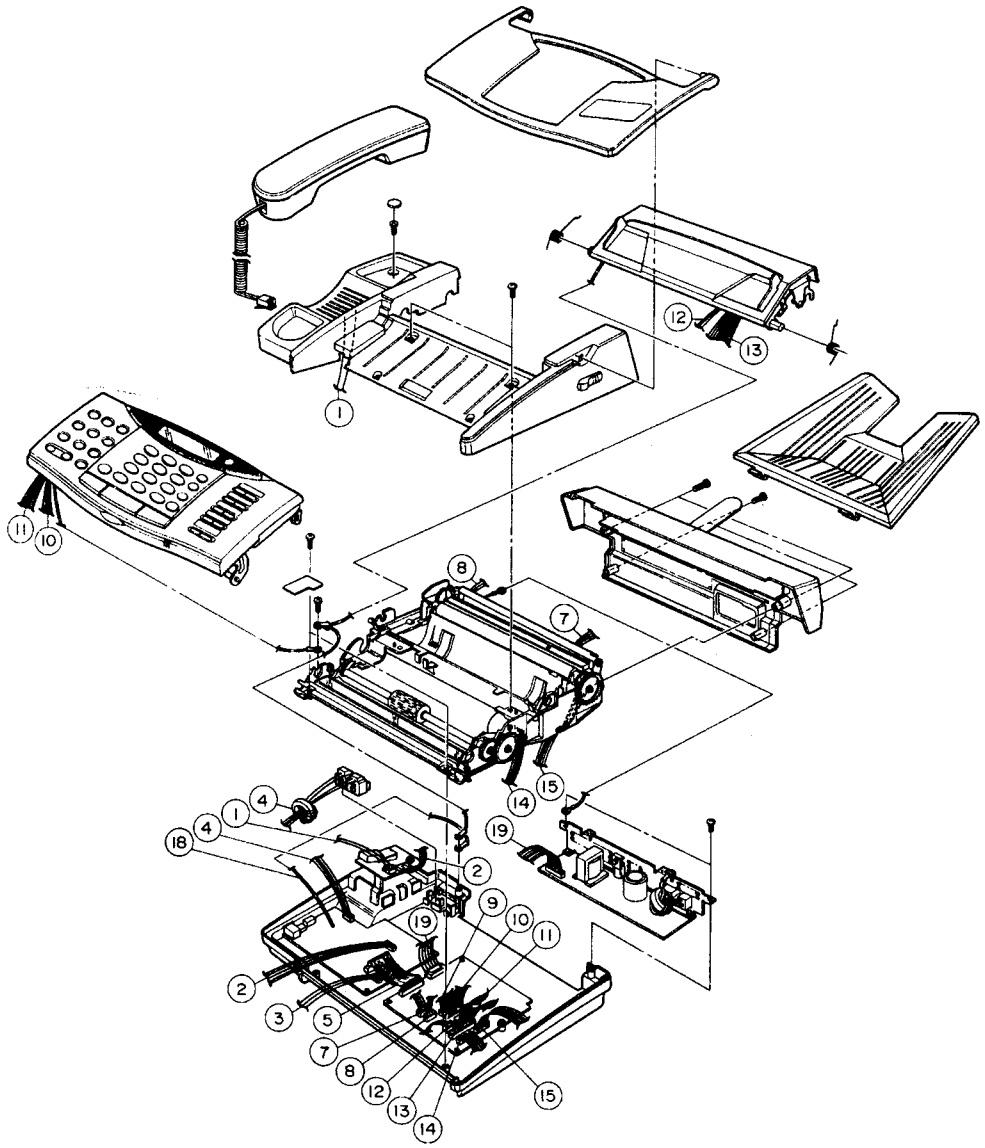
NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	ROLLER PLATEN	811 311122AA	1	
2	BUSHING PLATEN	815 312015AA	2	
3	GEAR CIS	821 310783AA	2	
4	MISCEL, ID3, OD7, TO, 6	857 150010AL	6	
5	ASS'Y ROLLER ADF	139 750507AAAA	1	
6	BUSHING SHAFT	821 310785AA	2	
7	BUSHING ADF	821 310784AA	1	
8	SPRING CLUTCH	813 315056AA	1	
9	GEAR ADF	821 310782AA	1	
10	ROLLER CIS	811 311123AA	1	
11	BUSHING CIS	821 311268AA	2	
12	LOCKER TX	813 310352AA	2	
13	INTERRUPTER OS570203-605	895 610012AA	1	
14	MAIN FRAME	821 310686AA	1	
15	MOTOR STEP - 7P	953 280023HB	1	
16	GEAR IDLE	821 310781AA	2	
17	MOTOR STEP - 6P	953 280023HA	1	
18	MACHINE,PH+,M3,L6	841 313008BB	4	
19	LOCKER RX	813 310216AA	1	
20	SPRING LOCKER	831 521101AA	2	
21	BRACKET CIS(R)	813 310350AA	1	
22	CIS	895 390014AA	1	
23	BRACKET CIS(L)	813 310350AB	1	
24	TAPPING,FH+,M2,L6	842 840028AA	4	
25	SLIDING TAPE	961 160043AJ	2	
26	DOC L/D LABEL	825 131002CE	1	SF800
		825 131006KC	1	SF2800
27	TAPTITE,B,PH+,M3,L6	847 501001AF	2	
28	SPRING GROUND TX	813 315159AA	1	
29	SPRING CIS	813 315053AA	1	
30	AUTO CUTTER	811 311175AA	1	SF2800 only
31	GUIDE PAPER(B)	813 310296AA	1	SF2800 only
32	GUIDE PAPER(A)	813 310295AA	1	SF2800 only
33	BRACKET - GUIDE PAPER	813 310299AA	1	SF2800 only
34	SCREW TAPTITE,F,B,PH+,M3,L6	847 501001AA	2	SF2800 only
35	PAPER GUIDE LABEL	825 119007LC	1	SF2800 only
36	MACHINE ,A,PH+,M3,L6	841 810001AA	3	SF2800 only

10-5. BASE ASSEMBLY



NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	BASE	821 311231AA	1	
2	RUBBER - FOOT	821 272003AB	2	
3	LIU - BOARD	650 317802ACAA	1	
4	MAIN - BOARD	650 317801AAAD	1	SF800
		650 317801AABD	1	SF2800
5	TAPTITE,F,B,PH+,M3,L6	847 502001AF	4	
6	PBA, HOOK S/W	650 317804ABAA	1	
7	TEL LINE	955 317623ABJZ	1	
8	MAIN POWER HARNESS	955 317805ABJZ	1	
9	CABLE - FLAT	955 317830AAKZ	1	
10	LIU - PWR, EARTH, 190 mm	955 317608ABKZ	1	
11	ASSEMBLY, BATTERY CASE	811 311216AA	1	

10-6. HARNESS ASSEMBLY



NO.	DESCRIPTION	SEC CODE	Q'TY	REMARKS
1	SPK - HOOK	955 - 317809ACCZ	1	
2	LIU - HOOK	955 - 317803ABJZ	1	
3	SCAN SENSOR	895 - 610012AA	1	
4	CBF - LIU LINE 4P	955 - 317808ABGZ	1	
5	CABLE - FLAT, 30P	955 - 317830AAKZ	1	
7	AUTO CUTTER JAM SENSOR	955 - 317810ADGZ	1	SF2800
8	AUTO CUTTER HARNESS	811 - 311175AA	1	SF2800
9	MAIN - CIS	955 - 317813ACBZ	1	
10	OPE - MAIN	955 - 317821AECZ	1	
11	OPE - MAIN	955 - 317821AECZ	1	
12	PEMPTY SENSOR	955 - 317804ABFZ	1	
13	MAIN - TPH	955 - 317806ACKZ	1	
14	MOTOR - STEP(TX)	953 - 280023HB	1	
15	MOTOR - STEP(RX)	953 - 280023HA	1	
16	CUTTER POWER EARTH	955 - 317812AAJZ	1	SF2800
17	TPH-CIS-POWER GROUND	955 - 317814ACHZ	1	
18	LIU - POWER EARTH WIRE	955 - 317608ABKZ	1	
19	MAIN - POWER	955 - 317805ABJZ	1	

11. Electrical Parts List

11-1. MAIN PBA

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
- Jumpers -				
B1	Chip, 220 ohm, 5 %, 1/10 W	MCR10EZHJ221	911 732207BS	
B2-B9	Chip, 0, 5%, 1/10W	MCR10EZHJ000	911 710007BS	
- Battary -				
BAT1	Battary, 3 V, 210 mA	CR-2032T-6	953 130008AD	
- Capacitors -				
C1-C2	Ceramic, 100 nF	08055E104ZATMA	915 516100HZ	SF2800 only
C3	Ceramic, 680 PF	GRM40COG681J50PT	915 413680HJXH	
C4	Electrolytic, 2.2 µF, 16 V	SMS1CVB2R2MTP	917 121220CM	
C5-C11	Ceramic, 100 nF	08055E104ZATMA	915 516100HZ	
C12	Ceramic, 100 nF	08055E104ZATMA	915 516100HZ	SF2800 only
C13-C15	Ceramic, 100 nF	08055E104ZATMA	915 516100HZ	
C16	Ceramic, 10 nF	GRM40X7R103K25PT	915 515100EKXH	
C18	Electrolytic, 1000 µF, 16 V	SR16VB04-1000(M)	917 714100CM	
C19	Electrolytic, 33 µF, 25 V	SRE1EVB330MTP	917 822330EMXH	
C20	Ceramic, 100 nF	08055E104ZATMA	915 516100HZ	
C21-C22	Electrolytic, 100 µF, 1A	SRM1AVB101MTP	917 823100BMXH	
C23	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C24	Electrolytic, 10 µF, 25 V	SRE1CVB100MTP	917 822100CMXH	
C25	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C26	Electrolytic, 10 µF, 25 V	SRE1CVB100MTP	917 822100CMXH	
C27	Ceramic, 4.7 nF, 50 V	GRM40X7R472K50PT	915 514470HKXH	
C28	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C29	Electrolytic, 100 µF, 1A	SRM1AVB101MTP	917 823100BMXH	
C30	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C31	Electrolytic, 22 µF, 25 V	SRA25VB-22(M)	917 722220EM	
C32	Chip, 18 pF, 50 V, 5 %	GRM40COG180J50PT	915 412180HJXH	
C33	Chip, 39 pF, 50 V, 5 %	GRM40COG390J50PT	915 412390HJXH	
C34	Electrolytic, 1 µF, 25 V	TBB1E-010KSS	917 311100EK	
C35	Chip,1 nF, 50 V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C36	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C37	Chip,1 nF, 50 V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C38	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C39	Electrolytic, 10 µF, 16 V	SMS1CVB100MTP	917 122100CM	
C40-C47	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C49	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C50-C57	Ceramic, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C58	Chip, 1 nF, 50V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C59	Ceramic chip, 10 pF, 50 V	GRM40COG100D50PT	915 412100HDXH	
C63	Ceramic chip, 10 pF, 50 V	GRM40COG100D50PT	915 412100HDXH	
C64	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C65	Ceramic chip, 10 nF, 25 V	GRM40X7R103K25PT	915 515100EKXH	
C66	Ceramic chip, 47 nF, 16 V	GRM40X7R473K16PT	915 515470CKXH	
C67	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C68	Ceramic chip, 22 nF, 16 V	GRM40X7R223K16PT	915 515220CKXH	
C69	Ceramic chip, 82 pF, 50 V	GRM40COG820J50PT	915 412820HJXH	
C70	Electrolytic, 100 µF, 16 V	SR16VB-100(M)	917 713100CM	
C71	Ceramic chip, 1 nF, 50 V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C72	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C73	Ceramic chip, 47 nF, 16 V	GRM40X7R473K16PT	915 515470CKXH	
C78	Ceramic chip, 100 nF	08055E104ZATMA	915 516100HZ	
C79	Ceramic chip, 1 nF, 50 V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C80	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C81-C82	Ceramic chip, 1 nF, 50 V, 5 %	GRM40COG102J50PT	915 414100HJXH	
C83-C84	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
C101	Ceramic chip, 30 pF, 50 V	GRM40COG300J50PT	915 412300HJXH	
C102-C103	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
C106	Electrolytic, 10 µF, 16 V	SMS1CVB100MTP	917 122100CM	
C107	Electrolytic, 0.47 µF, 50 V	SRA1HVBR47MTP	917 720470HMXH	
C109	Ceramic chip, 100 nF, 50 V	08055E104ZATMA	915 516100HZ	
- Diodes -				
D0-D2	Rec	TMPD914	893 310914AD	
D4	Signal	BAT47	893 190103AA	
D6-D7	Signal	BAT47	893 190103AA	
D8-D10	Rec	TMPD914	893 310914AD	
ZD1	Zener	1N4746A	893 214746AB	
ZD4	Zener	TMPZ5230	893 290010AG	
ZD5	Zener	1N4733A	893 214733AB	
- Inductors -				
L2	Inductor chip, 390 µH	LQH4N391K04	925 003022AB	
L3	Inductor chip, 3.3 µH	MLF0212A-3R3K-T	925 003014AM	
L4	Inductor chip, 390 µH	LQH4N391K04	925 003022AB	
L7	Inductor line filter, 60 µH	SBT-0260T	925 317002AA	
- Connectors -				
P1	Wall header, 10 P, 2 mm, angle	GILS-10P-S2L2-EF	935 241310KA	
P2	Flat Cable, 26 P, 1.25 mm	00-8370-261-000-800	935 144126FD	
P4	Wall header, 10 P, 2 mm	GILS-10P-S2T2-EF(S)	935 240910BESA	
P5	Wall header, 6 P, 2 mm	GILS-6P-S2T2-EF(S)	935 240906BESA	
P6	Wall header, 7 P, 2 mm	GILS-7P-S2T2-EF(S)	935 240907BESA	
P7	Wall header, 4 P, 2 mm	GILS-4P-S2T2-EF(S)	935 240904BE	SF2800 only
P8	Wall header, 14 P, 2 mm	GILS-14P-S2T2-EF(S)	935 240914BESA	
P9	Wall header, 3 P, 2 mm	GILS-3P-S2T2-EF	935 240903BE	SF2800 only
P10	Wall header, 11 P, 2 mm	GILS-11P-S2T2-EF(S)	935 240911BESA	
P11	Wall header, 9 P, 2 mm	GILS-9P-S2T2-EF(S)	935 240909BESA	
P12	Wall header, 3 P, 2 mm	GILS-3P-S2T2-EF	935 240903BE	
Transistors -				
Q1	NPN	KSC1623-Y	891 391623AANA	
Q2	PNP	KSA1182-Y	891 191182AA	
Q3-Q4	NPN	KSC1623-Y	891 391623AANA	
Q5	PNP	KSA1182-Y	891 191182AA	
Q6	NPN	KSC5019-MTA	891 395019AA	
Q7	PNP	KSA1182-Y	891 191182AA	
Q8-Q9	NPN	KSC1623-Y	891 391623AANA	
- Resistors -				
R1-R8	Chip, 2.2 kohm, 5 %, 1/10 W	MCR10EZHJ222	911 742207BS	
R9	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R10-R11	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	SF2800 only
R12-R13	Chip, 1 ohm, 5 %, 1/10 W	MCR10EZHJ1	911 711007DR	SF2800 only
R14-R15	Chip, 2.2 kohm, 5 %, 1/10 W	MCR10EZHJ222	911 742207BS	SF2800 only
R16	Chip, 2.7 Mohm, 5 %, 1/10 W	MCR10EZHJ275	911 772707BS	
R17	Chip, 39 kohm, 5 %, 1/10 W	MCR10EZHJ393	911 753907BS	
R18	Chip, 100 kohm, 5 %, 1/10 W	MCR10EZHJ104	911 761007BS	
R19	Chip, 330 kohm, 5 %, 1/10 W	MCR10EZHJ334	911 763307BS	
R20	Chip, 11 kohm, 5 %, 1/10 W	MCR10EZHJ113	911 751107BS	
R21	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R22	Chip, 75 kohm, 5 %, 1/10 W	MCR10CE8HJ753	911 757507BS	
R23-R29	Chip, 82 ohm, 5 %, 1/10 W	MCR10EZHJ82	911 728207BS	
R30-R31	Chip, 39 kohm, 5 %, 1/10 W	MCR10EZHJ393	911 753907BS	
R32	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R33	Chip, 22 kohm, 5 %, 1/10 W	MCR10EZHJ223	911 752207BS	
R34	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R35	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	SF2800 only
R36	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R37	Chip, 56 kohm, 5 %, 1/10 W	MCR10EZHJ563	911 755607BS	
R38	Chip, 56 kohm, 5 %, 1/10 W	MCR10EZHJ563	911 755607BS	SF2800 only

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
R39	Chip, 15 kohm, 5 %, 1/10 W	MCR10EZHJ153	911 751507BS	
R40	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R41-R42	Chip, 100 ohm, 5 %, 1/10 W	MCR10EZHJ101	911 731007BS	
R44	Chip, 2.2 kohm, 5 %, 1/10 W	MCR10EZHJ222	911 742207BS	
R45	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R46	Chip, 330 kohm, 5 %, 1/10 W	MCR10EZHJ334	911 763307BS	
R47	Chip, 0 ohm, 5 %, 1/10 W	MCR10EZHJ000	911 710007BS	
R48	Chip, 150 kohm, 5 %, 1/10 W	MCR10EZHJ154	911 761507BS	
R49	Chip, 47 ohm, 5 %, 1/10 W	MCR10EZHJ47	911 724707BS	
R50	Chip, 51 kohm, 5 %, 1/10 W	MCR10EZHJ513	911 755107BS	
R51	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R53	Chip, 470 ohm, 5 %, 1/10 W	MCR10EZHJ471	911 734707BS	
R54	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R55	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R56	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R57	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R58	Chip, 20 ohm, 5 %, 1/10 W	MCR10EZHJ200	911 722007BS	
R59	Chip, 220 ohm, 5 %, 1/10 W	MCR10EZHJ221	911 732207BS	
R60	Chip, 17.4 kohm, 1 %, 1/10 W	RC201F1742CS	911 751745BS	
R61	Chip, 86.6 kohm, 1 %, 1/10 W	MCR10EZHF8662	911 758665BS	
R62	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R63	Chip, 118 kohm, 1 %, 1/10 W	RC2012J154CS	911 761185BS	
R64	Chip, 86.6 kohm, 1 %, 1/10 W	MCR10EZHF8662	911 758665BS	
R65	Chip, 3 kohm, 5 %, 1/10 W	MCR10EZHJ302	911 743007BS	
R66	Chip, 47.5 kohm, 1 %, 1/10 W	MCR10EZHF4752	911 754755BS	
R68	Chip, 75 kohm, 5 %, 1/10 W	MCR10CE8HJ753	911 757507BS	
R69	Chip, 100 kohm, 5 %, 1/10 W	MCR10EZHJ104	911 761007BS	
R70	Chip, 330 kohm, 5 %, 1/10 W	MCR10EZHJ334	911 763307BS	
R71	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R73	Chip, 86.6 kohm, 1 %, 1/10W	CR10EZHF8662	911 758665BS	
R74	Chip, 62 kohm, 5 %, 1/10 W	MCR10EZHJ623	911 756207BS	
R75	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R76	Chip, 12 kohm, 5 %, 1/10 W	MCR10EZHJ123	911 751207BS	
R77	Chip, 75 kohm, 5 %, 1/10 W	MCR10CE8HJ753	911 757507BS	
R78	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R80	Chip, 16 kohm, 5 %, 1/10 W	MCR10EZHJ163	911 751607BS	
R81-R82	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R83	Chip, 75 kohm, 5 %, 1/10 W	MCR10CE8HJ753	911 757507BS	
R84-R85	Chip, 100 ohm, 5 %, 1/10 W	MCR10EZHJ101	911 731007BS	
R86	Chip, 220 ohm, 5 %, 1/10 W	MCR10EZHJ221	911 732207BS	
R87	Chip, 1 Mohm, 5 %, 1/10 W	MCR10EZHJ105	911 771007BS	
R88	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R89	Chip, 4.7 kohm, 5 %, 1/10 W	MCR10EZHJ472	911 744707BS	
R90	Chip, 47 kohm, 5 %, 1/10 W	MCR10EZHJ473	911 754707BS	
R91	Chip, 2.7 Mohm, 5 %, 1/10 W	MCR10EZHJ275	911 772707BS	
R92	Chip, 4.7 kohm, 5 %, 1/10 W	MCR10EZHJ472	911 744707BS	
R93	Chip, 47 ohm, 5 %, 1/10 W	MCR10EZHJ470	911 724707BS	
R94	Chip, 100 ohm, 5 %, 1/10 W	MCR10EZHJ101	911 731007BS	
R95	Chip, 6.8 kohm, 5 %, 1/10 W	MCR10EZHJ682	911 746807BS	
R96	Chip, 200 ohm, 5 %, 1/10 W	MCR10EZHJ201	911 732007BS	SF2800 only
R97	Chip, 200 ohm, 5 %, 1/10 W	MCR10EZHJ201	911 732007BS	
R98	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R99	Chip, 100 ohm, 5 %, 1/10 W	MCR10EZHJ101	911 731007BS	
R100	Chip, 22 kohm, 5 %, 1/10 W	MCR10EZHJ223	911 752207BS	
R101	Chip-Inductor, 3.3 µH	MLF0212A-3R3K-T	925 003014AM	
R102-R112	Chip, 100 ohm, 5 %, 1/10 W	MCR10EZHJ101	911 731007BS	
R113	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R115-R116	Chip, 10 kohm, 5 %, 1/10 W	MCR10EZHJ103	911 751007BS	
R118	Chip, 16 kohm, 5 %, 1/10 W	MCR10EZHJ163	911 751607BS	
R119	Chip, 100 kohm, 5 %. 1/10 W	MCR10EZHJ104	911 761007BS	
R120	Chip, 1 Mohm , 5 %, 1/10 W	MCR10EZHJ105	911 771007BS	
R121	Chip, 47K,5%,1/10W	MCR10EZHJ473	911 754707BS	

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
R122	Chip, 16K,5%,1/10W	MCR10EZHJ163	911 751607BS	
R123	Chip, 100,5%,1/10W	MCR10EZHJ101	911 731007BS	
R124	Chip, 1K, 5%, 1/10W	MCR10EZHJ102	911 741007BS	
R130	Chip, 10K, 5%, 1/10W	MCR10EZHJ103	911 751007BS	
R131	Chip, 470, 5%, 1/10W	MCR10EZHJ471	911 734707BS	
R132-R133	Chip, 10K, 5%, 1/10W	MCR10EZHJ103	911 751007BS	
R134	Chip, 0, 5%, 1/10W	MCR10EZHJ000	911 710007BS	
R136	Chip, 270K, 5%, 1/10W	MCR10EZHJ274	911 762707BS	
R137	Chip, 51K, 5%, 1/10W	MCR10EZHJ513	911 755107BS	
R138	Chip, 16K, 5%, 1/10W	MCR10EZHJ163	911 751607BS	
R139	Chip, 4.7K, 5%, 1/10W	MCR10EZHJ472	911 744707BS	
R142	Chip, 22K, 5%, 1/10W	MCR10EZHJ223	911 752207BS	
R143	Chip, 1M, 5%, 1/10W	MCR10EZHJ105	911 771007BS	
R144	Chip, 100K, 5%, 1/10W	MCR10EZHJ104	911 761007BS	
R145	Chip, 330K, 5%, 1/10W	MCR10EZHJ334	911 763307BS	
R146	Chip, 1M, 5%, 1/10W	MCR10EZHJ105	911 771007BS	
R147	Chip, 22K, 5%, 1/10W	MCR10EZHJ223	911 752207BS	
R148	Chip, 12K, 5%, 1/10W	MCR10EZHJ123	911 751207BS	
R149	Chip, 2K , 5%, 1/10W	MCR10EZHJ202	911 742007BS	
R150-R151	Chip, 220 ohm, 5 %, 1/10 W	MCR10EZHJ221	911 732207BS	
R300	MF, 100 ohm, 5%, 1/4 W		911 431007AD	
- ICs -				
U1	MPU, Fax Engine	R96FE-IFC	877 810781AA	
U2	TTL, Motor Driver	UDN2953LB	871 102953GA	SF2800 only
U3	Liner, Op amp	TL082CD	881 100082GA	
U4	Liner, Comparator	LM393D	881 200393GA	
U5	Liner, Tr array	ULN2003L	881 802003GA	
U6	Liner, Tr array	TD62503FTP1	881 862503XR	
U7	Memory, EPROM	D27010-2	883 627010BA	
U7_S1	IC Socket, 32 P, DIP	2-640362-3	935 155132DC	
U8	Memory, SRAM, SOP, 28 P	KM62256BLG-10	883 162256GB	
U9	MPU, Pherpheral	NJU6355EM	877 906355KA	
U10	Liner, Detector	PST520T	881 200520TA	
U11	Liner, Modem	R96DFXL	881 600096EA	
U12	Mos, Multiplexer	TC4053BF	873 404053GANB	
U13	Mos, Multiplexer	GD4052BD	873 404052GANB	
U14-U15	Mos, Multiplexer	TC4053BF	873 404053GANB	
U17-U18	Liner, Op amp	KA4558D/T	881 104558XR	
U20-U21	Liner, Codec/Filter	KT8554N	881 608554AA	
U22	Memory, Audio RAM	SA5040A-OJP	883 905040GANA	SF2800 only
U23	Memory, Audio RAM	SA5040A-OJP	883 905040GANA	
U24	MPU, Processor	D6375A11AQC	877 906375EA	
U25	Mos, Gate	CD74HC32M	873 760032GA	
U26	Mos, Gate	GD74HC00D/RT	873 760000GB	
- Crystals -				
Y1	Crystal, 0.032768M	MX38-32.768K	941 110012AA	
Y2	Crystal, 24.00014M	HC-49/S, 24.00014M	941 110092BB	
Y3	Crystal, 29.4912M	HC-49/S, 29.4912M	941 110107AB	
- PCB -				
PCB	MAIN, 2 Layer	947 317801AA	947 317801AA	

11-2. LIU PBA C-LIST

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
- Arresters -				
ARS1-ARS4	Arrester	DSS-301L-A22R	953 210503BC	
- Capacitors -				
C1	Electrolytic, 22 µF, 50 V		917 222220HM	
C2	MPETP, 22 nF, 250 V		916 585220QK	
C3	MPETP, 4.7 nF		916 584470TK	
C4	MPETP, 100 nF, 250 V		916 586100QK	
C5	MPETP, 15 nF, 630 V	MMD153M630V-12.5P	916 565150WM	
C6	MPETP, 22 nF, 250 V		916 585220QK	
C7-C8	MPETP, 4.7 nF		916 584470TK	
C9	MPETP, 68 nF, 250 V		916 585680QK	
C10	Electrolytic, 47 µF, 50 V		917 122470HM	
C11	Ceramic, 100 nF, 50 V		915 536100HKXH	
C12	Electrolytic, 10 µF, 50 V		917 122100HM	
C13	Electrolytic, 1 µF, 50 V		917 121100HM	
C14	Ceramic, 15 nF, 50 V		915 535150HKXH	
C15	Ceramic, 47 nF, 50 V		915 535470HK	
C16	Ceramic, 330 nF, 25 V		915 536330EMVH	
C17	Electrolytic, 0.47 µF, 50 V		917 120470HM	
C18	Electrolytic, 10 µF, 16 V		917 122100CM	
C19	Electrolytic, 4.7 µF, 50 V		917 121470HM	
C20	Electrolytic, 1 µF, 50 V		917 121100HM	
C21				
C22	Ceramic, 10 nF, 50 V		915 535100HK	
C23	Electrolytic, 10 µF, 16 V		917 122100CM	
C24	MPETP, 470 nF, 250 V		916 556470QK	
C25	Ceramic, 4.7 nF, 50 V		915 534470HK	
C26	Electrolytic, 10 µF, 50 V		917 122100HM	
C27-C28	Ceramic, 100 pF, 50 V		915 433100HJ	
C29	Electrolytic, 100 µF, 16 V		917 123100CM	
C30				
C31	Ceramic, 68 nF, 50 V		915 535680HK	
C32	Electrolytic, 3.3 µF, 50 V		917 221330HM	
C33-C34	Ceramic, 100 nF, 50 V		915 536100HKXH	
C35	Ceramic, 75 pF, 50 V		915 412750HJXH	
C36-C37	Ceramic, 100 nF, 50 V		915 536100HKXH	
C38	Ceramic, 68 nF, 50 V		915 535680HK	
C39	Ceramic, 100 nF, 50 V		915 536100HKXH	
C40	Ceramic, 68 nF, 50 V		915 535680HK	
C41	Ceramic, 120 pF, 50 V		915 433120HJ	
C42-C43	Ceramic, 100 nF, 50 V		915 536100HKXH	
C44	Ceramic, 1 nF, 50 V		915 534100HK	
C45				
C46	Electrolytic, 4.7 µF, 50 V		917 121470HM	
C47	Electrolytic, 1 µF, 50 V		917 121100HM	
C48	Ceramic, 100 nF, 50 V		915 536100HKXH	
C49	Electrolytic, 10 µF, 16 V		917 122100CM	
C50	Electrolytic, 2.2 µF, 50 V		917 221220HM	
C51-C52	Ceramic, 100 nF, 50 V		915 536100HKXH	
C53-C54	Electrolytic, 10 µF, 16 V		917 122100CM	
C55	Ceramic, 100 nF, 50 V		915 536100HKXH	
C56	Electrolytic, 10 µF, 16 V		917 122100CM	
- Diodes -				
BD1	Bridge, 600 V, 1.5 A	W06F	893 390109AA	
D2-D3	Signal	BAT47	893 190103AA	
D4	Signal	1SS226	893 190226AA	
D5				
D6-D10	Signal	1SS226	893 190226AA	

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
ZD1-ZD4	Zener,	TMPZ5230	893 290010AG	
ZD5	Zener,	1N4743A	893 214743AB	
- Connectors -				
J1	Wall-Header, 5 P, 2 mm	GILS-5P-S2T2-EF	935 240905BESA	
J2	Flat Cable, 26 P, 1.25 mm	00-8370-261-000-800	935 144126FD	
J3	Wall-Header, 3 P, 2 mm		935 240903BF	
J4	Wall-Header, 5 P, 2 mm	GILS-5P-S2T2-EF	935 240905BESA	
J5	Wall-Header, 6 P, 2 mm	GILS-6P-S2T2-EF	935 240906BESA	
- Inductors -				
L1-L2	RF, 4 mH		925 210034AA	
IND1-IND4	Chip, 2 kohm, fix		925 003030AB	
EMF1-EMF4	Line filter, 60 μH, fix	SBT-0260T	925 317002AA	
- Resistors -				
R1	MO, 180 ohm, 5 %, 1 W	MOR1W180J	911 331807GA	
R2				
R3	MF, 1 kohm, 5 %, 1/4 W		911 441007DA	
R4				
R5	MF, 10 ohm, 5 %, 1/4 W		911 421007DA	
R6	Chip, 100 kohm, 5 %, 1/8 W		911 761007CR	
R7	Chip, 15 kohm, 5 %, 1/8 W		911 751507CR	
R8	Chip, 20 kohm, 5 %, 1/8 W		911 752007CR	
R9	Chip, 6.2 kohm, 5 %, 1/8 W		911 746207CR	
R10	Chip, 2.2 kohm, 5 %, 1/8 W		911 742207CR	
R11	Chip, 12 kohm, 5 %, 1/8 W		911 751207CR	
R12	Chip, 100 kohm, 5 %, 1/8 W		911 761007CR	
R13	MF, 56 ohm, 5 %, 1/4 W		911 425607DA	
R14	Chip, 24 kohm, 5 %, 1/8 W		911 752407CR	
R15	Chip, 560 ohm, 5 %, 1/8 W		911 735607CR	
R16	Chip, 120 ohm, 5 %, 1/8 W		911 731207CR	
R18	Chip, 7.5 kohm, 5 %, 1/8 W		911 747507CR	
R19	Chip, 1 kohm, 5 %, 1/8 W		911 741007CR	
R20	MF, 2.2 kohm, 5%, 1 W		911 342207GA	
R21	Chip, 4.3 kohm, 5 %, 1/8 W		911 744307CR	
R22	Chip, 150 kohm, 5 %, 1/8 W		911 761507CR	
R23	Chip, 1.2 kohm, 5 %, 1/8 W		911 741207CR	
R24	Chip, 5.1 kohm, 5 %, 1/8 W		911 745107CR	
R31	Chip, 0 ohm, 5 %, 1/8 W		911 710007CR	
R32	Chip, 620 ohm, 5 %, 1/8 W		911 736207CR	
R33	Chip, 220 kohm, 5 %, 1/8 W		911 762207CR	
R34	Chip, 470 ohm, 5 %, 1/8 W		911 734707CR	
R35	Chip, 22 kohm, 5 %, 1/8 W		911 752207CR	
R36	Chip, 0 ohm, 5 %, 1/8 W		911 710007CR	
R37	Chip, 1.2 kohm, 5 %, 1/8 W		911 741207CR	
R38	Chip, 110 kohm, 5 %, 1/8 W		911 761107CR	
R39-R41	Chip, 100 kohm, 5 %, 1/8 W		911 761007CR	
R42	Chip, 150 kohm, 5 %, 1/8 W		911 761507CR	
R43				
R45	Chip, 30 kohm, 5 %, 1/8 W		911 753007CR	
R46	Chip, 100 kohm, 5 %, 1/8 W		911 761007CR	
R47-R48	Chip, 0 ohm, 5 %, 1/8 W		911 710007CR	
R49	Chip, 10 kohm, 5 %, 1/8 W		911 751207CR	
R50-R52	Chip, 68 kohm, 5 %, 1/8 W		911 756807CR	
R53	Chip, 3 kohm, 5 %, 1/8 W		911 753007CR	
R54	Chip, 820 ohm, 5 %, 1/8 W		911 738207CR	
R55-R56	Chip, 10 kohm, 5 %, 1/8 W		911 751007CR	
R58	Chip, 58 kohm, 5 %, 1/8 W		911 761007CR	
R59-R60	Chip, 100 kohm, 5 %, 1/8 W		911 761007CR	
R61	Chip, 200 ohm, 5 %, 1/8 W		911 732007CR	

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
- Switchs -				
S1	Switch-Slide, SP3T	SBHA13BM-065B	933 290047AB	
S2	Switch-Slide, DPDT	SK2203RG8(PVT)	933 290115AA	
- Transformers -				
T1	Matching Transformer	600:600	923 310006AA	
T2	Matching Transformer		923 310003AA	
- ICs -				
U1-U2	Liner, Op amp	KA4558N	881 104558AA	
U3	Liner, Audio amp	MC34119P	881 134119AA	
U4	Liner, Speech	4030	881 604030AA	
U5	Liner, Tone Ringer	4076	881 604076AA	
HIB1	Hybrid, Current detect		887 400186AA	
HIB2	Hybrid, LPF		887 400187AA	
- Miscellaneous -				
FG	Earth wire, LIU-Power, 190 mm	955 317608ABKZ	955 317608ABKZ	
FSE	Fuse-micro, 0.75 A, 125 V	T251.750	949 150002AE	
MJ3	Modular-jack, 4C/4P	616PCB4-LS	935 720019CC	
K1-K2	Relay, 12V		927 300016AD	
K3	Mos, Photo-Coupler	LCA190	895 550002AA	
PCB	LIU, 1 Layer	947 317802AC	947 317802AC	
OPT3	OPT-Coupler, TR	PC824	895 520824AA	
ZNR1	Varister		897 130502BF	
ZNR3	Varister		897 130502BF	
X1	C-Reso		941 210024BA	

11-3. OPE PBA C-LIST

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
- Capacitor -				
C1	Ceramic, 101K,	GRM40COG101K50PT	915 413100HKXH	
- Diodes -				
D1-D12	Rec	TMPD914	893 310914AD	
- Jump Wire -				
JP1-JP7	Jump wire	TCWA-0.6 (BARE)	931 404701AA	
- LEDs -				
LED1-LED5	LED, Chip, Green	PG1102W-TR	895 190005GA	
LED6-LED8	LED, Chip, Red	WG1102W	895 190005RA	
- Connectors -				
P1	Wall Header, 11 P, 2 mm	GILS-11P-S2L2-EF	935 241311KA	
P2	Wall Header, 9 P, 2 mm	GILS-9P-S2L2-EF	935 241309KA	
P3	Socket, 14 P,	MDF7-14S-2.54DSA	935 145114FB	
P6	Wall Header, 2 P, 2 mm	GILS-2P-S2L2-EF	935 241302KA	
- Transistors -				
Q1-Q11	NPN	KSC1623-Y	891 391623AANA	
- Resistors -				
R1-R2	Chip, 0 ohm, 5 %, 1/10 W	MCR10EZHJ000	911 710007BS	
R3	Chip, 470 ohm, 5 %, 1/10W	MCR10EZHJ471	911 734707BS	
R4-R8	Chip, 0 ohm, 5 %, 1/10 W	MCR10EZHJ000	911 710007BS	
R9	Chip, 270 ohm, 5 %, 1/10 W	MCR10EZHJ271	911 732707BS	
R10-R11	Chip, 150 ohm, 5 %, 1/10 W	MCR10EZHJ151	911 731507BS	
R12-R15	Chip, 100 kohm, 5 %, 1/10 W	MCR10EZHJ104	911 761007BS	
R16	Chip, 470 ohm, 5 %, 1/10 W	MCR10EZHJ471	911 734707BS	
R17	Chip, 4.7 kohm, 5 %, 1/10 W	MCR10EZHJ472	911 744707BS	
R18	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R19-R21	Chip, 22 kohm, 5 %, 1/10 W	MCR10EZHJ223	911 752207BS	
R22	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R23-R25	Chip, 22 kohm, 5 %, 1/10 W	MCR10EZHJ223	911 752207BS	
R26	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
R27-R29	Chip, 22 kohm, 5 %, 1/10 W	MCR10EZHJ223	911 752207BS	
R31	Chip, 47 kohm, 5 %, 1/10 W	MCR10EZHJ473	911 754707BS	
R32	Chip, 1 kohm, 5 %, 1/10 W	MCR10EZHJ102	911 741007BS	
- Miscellaneous -				
PC1	Interrupter	OS-110703-304	895 610013AA	
PCB	OPE, SF800/2800, 1 Layer	947 317803AA	947 317803AA	

11-4. HOOK PBA C-LIST

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
HSW	Switch-Hook	JHS1266AG	933 210071AE	
J101	Wall Header, 5 P,2 mm	GILS-5P-S2L2-EF	935 241305KA	
J102	Wall Header, 2 P, 2 mm	GILS-2P-S2T2-EF	935 240902BE	
PCB	Hook, SF800/2800, 1 Layer	947 317804AA	947 317804AA	

11-5. PEMPTY PBA

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
PEH	WIRE,PEMPTY,145MM,3P	955 317804ABFZ	955 317804ABFZ	
PCB	PEMPTY	947 317805AA	947 317805AA	
U1	Reflt Sensor, TR	TLP908(LB)	895 710003AB	

11-6. PJAM PBA

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
PJH	WIRE,PJAM,360MM,3P	955 317810ADGZ	955 317810ADGZ	SF2800 only
PCB	SF800 PEMPTY	947 317805AA	947 317805AA	SF2800 only
U1	Reflt Sensor, TR	TLP908(LB)	895 710003AB	SF2800 only

11-7. Wire Harness assembly

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
CAB	Flat Cable, 30 P, 90 mm	KF30/90P7S4B3;VS2VB1	955 317830AAKZ	
CTG	Cutter Ground, 80 mm	955 317812AAJZ	955 317812AAJZ	SF2800 only
CUL	Handset curl cord, 300 mm	955 317809HDAZ	955 317809HDAZ	
LHH	LIU-HOOK, 175 mm, 5 P	955 317803ABJZ	955 317803ABJZ	
LTH	LIU LINE, 155 mm, 4 P	955 317808ABGZ	955 317808ABGZ	
MCH	MAIN-CIS, 210 mm, 10 P	955 317813ACBZ	955 317813ACBZ	
MOH	MIC-OPE, 150 mm, 2 P	955 317801ABFZ	955 317801ABFZ	
OPH	OPE-MAIN, 380 mm, 21 P	955 317807ADJZ	955 317807ADJZ	
PCD	AC Power Cord, 2.5 M	DR4SVT-DS2	955 316013AACL	
PEH	PEMPTY, 240 mm, 3 P	955 317804ABFZ	955 317804ABFZ	
PJM	PJAM, 360 mm, 3 P	955 317810ADGZ	955 317810ADGZ	SF2800 only
PWH	Power-MAIN, 180 mm, 10 P	955 317805ABJZ	955 317805ABJZ	
SHH	SPK-HOOK, 215 mm, 2 P	955 317809ACCZ	955 317809ACCZ	
TCG	Earth wire, TPH-CIS, 265 mm	955 317814ACHZ	955 317814ACHZ	
TCG	LINE CORD ASS'Y	955 316014GACK	955 316014GACK	
TPW	TPH-MAIN, 290 mm, 14 P	955 317806ACKZ	955 317806ACKZ	

11-8. Miscellaneous

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
BAT1	BATTERY-ALKA 1.5V,AAA	LR03AAA	953 130014DA	
BAT2	BATTERY-ALKA 1.5V,AAA	LR03AAA	953 130014DA	
BAT3	BATTERY-ALKA 1.5V,AAA	LR03AAA	953 130014DA	
BAT4	BATTERY-ALKA 1.5V,AAA	LR03AAA	953 130014DA	
CIS	CIS	SIS-216-2M03N	895 390014AA	
DSC	INTERRUPT SENSOR (DSCAN)	OS-570203-605	895 610012AA	
HDS	HANDSET ASS'Y	139 750520SAAA	139 750520SAAA	
LCD	LCD, 16X2 LINE	UC16214-TNARS5-A	895 420038AD	
MIC	AUDIO-MIC,1.5V	CMT-58H	939 030502FA	
OLP	NO WALL HEADER,14P	KA2-14P8-2.54DSA	935 220214AB	
PAP	THERMAL PAPER, 10M	829 3150113BA	829 315013BA	
PWR	MEP,P/S,AC/DC,SF800	SFPS-V1	953 140021RA	
RXM	RX MOTOR	PM35L-048-SYCO-E	953 280023HA	
SPK	AUDIO-SPEAKER,0.5W,32 OHM	P-252N	939 040054AA	
TPH	MNP,TPH,	D2-216-8H15A	897 500016AA	
TXM	TX MOTOR	PM35L-048-SYC6-A	953 280023HB	

11-9. Power supply unit

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
- Capacitors -				
C1-C2	Cap-X, 125/250 V, 104M	KNB1530-104		
C3-C6	Cap-Y, 250/400 V, 222M	HCYE2G222MAA		
C7	Electrolytic, 120 µF, 400 V	SMS400V120uF		
C8	M.F, 630 V, 333K	MMD630V333K		
C9	Ceramic, 1 kV, 221K BL	HCYB3A221KDB/T		
C10	Mylar, 100 V, 222J	CQ921MF2A222J		
C11	Mylar, 100 V, 333J	CQ921MF2A333J		
C12	Mylar, 100 V, 104J	CQ921MF2A104J		
C13	Ceramic, 1 kV, 221K BL	HCYB3A221KDB/T		
C21	Electrolytic, 1200 µF, 10 V	SXE10V1200uF(M)		
C23	Electrolytic, 100 µF, 35 V	SXE35V100uF(M)		
C24-C25	Electrolytic, 1000 µF, 35 V	SXE35V1000uF(M)		
C27	Ceramic, 1 kV, 471K BL	HCYB3A471KDB/T		
C28	Ceramic, 1 kV, 102K BL	HCYB3A102KDB/T		
C29-C31	Electrolytic, 47 µF, 25 V	SMS25V 47uF		
C32	Electrolytic, 1 µF, 50 V	SMS50V 1uF		
C33-C34	Ceramic, 50 V, 104Z	CCYV!H104ZF		
- Diodes -				
BD1	Bridge, 600 V, 4 A	RBV406		
D1	FR, 1 kV, 1 A, 75 ns	RG1C		
D2,D25	Switch, 75 V, 0.15 A, 4 ns	1N4148		
D21	Schottky, 90 V, 2 A, 100 ns	ERB84-009		
D23	FR, 200 V, 1 A, 50 ns/35ns	D1NL20/U		
D24	FR, 200 V, 10 A	D10LC20U		
ZD1	Zenner, 0.5 W, 20 V, 5 %	1N5250B		
ZD3	Zenner, 0.5 W, 4.7 V, 5 %	1N5230B		
ZD21	Zenner, 0.5 W, 6.2 V, 5 %	1N5234B		
ZD22	Zenner, 1 W, 27 V, 5 %	1N4750		
- ICs -				
U21	Regulator, +5 V	L4940V5		
U22	Regulator, +12 V, 0.5 A	MC78M12CT		
U23	Regulator, -12 V, 0.5 A	MC79M12CT		
PC1	Photo Coupller	TCDT1101G		
- Resisros -				
VR1	Variable, 0.5 W, 1 kohm Top adj	EVNDJAA03B13		
R1	Carbon, 560 kohm, 5 % 1/4 W			
R2-R3	Carbon, 560 kohm, 5 %, 1/4 W			
R4	Metal oxide, 100 kohm, 5 %, 2 W			
R5	Metal oxide, 470 ohm, 5 %, 1 W			
R6	Carbon, 27 kohm, 5 %, 1/4 W			
R7	Wire wound, 0.2 ohm, 5 %, 1 W			
R8	Carbon, 100 ohm, 5 %, 1/4 W			
R9	Carbon, 1.0 kohm, 5 %, 1/4 W			
R21	Metal oxide, 330 ohm, 5 %, 2 W			
R22	Carbon, 220 ohm, 5 %, 1/4 W			
R23	Carbon, 2.2 kohm, 5 %, 1/4 W			
R24	Carbon, 6.8 kohm, 5 %, 1/4 W			
R25	Carbon, 2.4 kohm, 5 %, 1/4 W			
R26	Carbon, 3.9 kohm, 5 %, 1/4 W			
- Transistors -				
Q1	FET-Power, 900V 5A, 2.40 ohm	2SK1537		
Q2-Q3	TR-NPN, 80 V, 700 mA	KSC1003-Y		
Q21	TR-NPN, 60 V, 150 mA	KSC945C-Y		

NO	DESCRIPTION	PART NAME	SEC CODE	REMARK
-Miscellaneous -				
LF1	AC Line filter, UU1116	SPL3		
LF2	AC Line filter, UU1620	SPL6		
AC INLET	Inlet, 250 V, 6 A	ACR303B20		
T1	Trans Power, EEP 28L	SPT-2A		
NT1	Thermistor, 8 ohm	8D13		
TNR1	Surge Absober	D61ZoV301RA45		
RL1	Relay, 24 VDC, 5 A	JE1aX-DC24V-H		
SW1	Switch, on/off, 250 VAC	JRC2101-H(8A)		
F1	Fuse Ceramic, 250 VT 1.6 A	50CT106H		
Con1	Connetor, 10 P	GILS10PS2T2EF		

SAMSUNG

FACSIMILE

POWER SUPPLY UNIT PARTS LIST

APPENDIX *Manual*

CONTENTS

1. Power Supply Unit

1-1. SF800/2800 Serise

1-1-1. SFPS-V1 (Input Voltage: 120 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	IRF840 2SK1693	SEC SHINDENGEN	996 203416AA
Q2	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q3	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q21	TRANSISTOR NPN	KTC3198Y KSC945C-Y	KEC SEC	996 201354AA
U21	IC, REGULATOR	MC7805C KA7805	MOTOROLA SEC	996 203355AA
U22	IC, REGULATOR	MC78M12C KA78M12	MOTOROLA SEC	996 203064AB
U23	IC, REGULATOR	MC79M12C KA79M12	MOTOROLA SEC	996 203254AC
PC1	PHOTO COUPLER	TLP621GR PC17T1DB	TOSHIBA KWANG	996 203352AA
BD1	DIODE BRIDGED	RBV406 D3SB60	SANKEN SHINDENGEN	996 203005AD
D1	DIODE-F.R	RG1C UF4007	SANKEN GI	996 203151AD
D2	DIODE-SWITCHING	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D21	DIODE-SCHOTTKY	RK39 ERB84-009	SANKEN FUJI	
D23	DIODE-F.R	D1NL20/U EGP10D	SHINDENGEN GI	
D24	DIODE-F.R	D10LCA20/LC20U FML-22S	SHINDENGEN SANKEN	
D25	DIODE-SWITCHING	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
ZD1	DIODE-ZENER	MTZ20C UZ20BM	ROHM-KOREA UNIZON	996 203307AD
ZD3	DIODE-ZENER	MTZ4.7C UZ4.7B	ROHM-KOREA UNIZON	996 203307AE
ZD21	DIODE-ZENER	MTZ6.2C UZ6.2BM	ROHM-KOREA UNIZON	996 203005AC
ZD22	DIODE-ZENER	TZP27B UZP27B	ROHM-KOREA UNIZON	996 201359AA
C1	CAP-X	KNB1530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C2	CAP-X	KNB1530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C3	CAP-Y	DE7100F222MVA1KC HCYE2B222MAA	MURATA SEM	996 203251AA
C4	CAP-Y	DE7100F222MVA1KC HCYE2B222MAA	MURATA SEM	996 203251AA
C6	CAP-Y	DE7100F222MVA1KC HCYE2B222MAA	MURATA SEM	996 203251AA
C7	CAP-ELECTRIC	SMH200V470uF(M) HQ200V470uF	SAMYOUNG SAMHWA	
C8	CAP-M.F	MMW400V333K TM2G333K	DONGSUNG SAMHWA	

No	Description	Vendor P/N	Vendor	SEC Code
C9	CAP-CERAMIC	CKR3A221K06BS HCYB3A221KDB	SAMHWA SEM	996 203356AA
C10	CAP-MYLAR	TY2A223J 310M2A223J	SAMHWA SUNIL	
C11	CAP-MYLAR	TY2A333J 310M2A333J	SAMHWA SUNIL	
C12	CAP-MYLAR	TY2A104J 310M2A104J	SAMHWA SUNIL	
C13	CAP-CERAMIC	CKR3A681K08BS HCYB3A681KDB	SAMHWA SEM	
C21	CAP-ELECTRIC	SXE10V1200uF RY10V1200uF STL1A122	SAMYOUNG SAMHWA SEM	996 203351AA
C23	CAP-ELECTRIC	SXE35V100uF RX35V100uF STL1V101	SAMYOUNG SAMHWA SEM	
C24	CAP-ELECTRIC	SXE35V1000uF RX35V1000uF STL1V102	SAMYOUNG SAMHWA SEM	996 203408AD
C25	CAP-ELECTRIC	SXE35V1000uF RX35V1000uF STL1V102	SAMYOUNG SAMHWA SEM	996 203408AD
C27	CAP-CERAMIC	CKR3A471K06BS HCYB3A471KDB	SAMHWA SEM	996 203403AB
C28	CAP-CERAMIC	CKR3A102K08BS HCYB3A102KDB	SAMHWA SEM	996 203403AA
C29	CAP-ELECTRIC	SMS25V47uF SG25V47uF SSL1E470	SAMYOUNG SAMHWA SEM	996 203161AB
C30	CAP-ELECTRIC	SMS25V47uF SG25V47uF SSL1E470	SAMYOUNG SAMHWA SEM	996 203161AB
C31	CAP-ELECTRIC	SMS25V47uF SG25V47uF SSL1E470	SAMYOUNG SAMHWA SEM	996 203161AB
C32	CAP-ELECTRIC	SMS50V1uF SG50V1uF SSL1H1RO	SAMYOUNG SAMHWA SEM	996 203408AC
C33	CAP-CERAMIC	CGY1H104Z08BS CCYV1H104ZF	SAMHWA SEM	
C34	CAP-CERAMIC	CGY1H104Z08BS CCYV1H104ZF	SAMHWA SEM	
VR1	RESISTOR-VR	EVNDJAA03B1K CT-6P GF06P	MATSUSHITA COPAL TOCOS	996 203418AA
R1	M.F/C.F-RESISTOR	1/4W 560kohm 5%	PHILIPS-KOREA ABCO	
R2	M.F/C.F-RESISTOR	1/4W 220kohm 5%	PHILIPS-KOREA ABCO	
R3	M.F/C.F-RESISTOR	1/4W 220kohm 5%	PHILIPS-KOREA ABCO	
R4	R-M.O(MINI)	2W 47kohm 5%	PHILIPS-KOREA ABCO	
R5	R-M.O(MINI)	1W 220ohm 5%	PHILIPS-KOREA ABCO	

No	Description	Vendor P/N	Vendor	SEC Code
R6	M.F/C.F-RESISTOR	1/4W 27kohm 5%	PHILIPS-KOREA ABCO	
R7	R-W.W	1W 0.1ohm 5%	HANMI HANIL	996 203353AA
R8	M.F/C.F-RESISTOR	1/4W 100ohm 5%	PHILIPS-KOREA ABCO	996 203400AF
R9	M.F/C.F-RESISTOR	1/4W 1.3kohm 5%	PHILIPS-KOREA ABCO	
R21	R-M.O(MINI)	2W 330ohm 5%	PHILIPS-KOREA ABCO	
R22	M.F/C.F-RESISTOR	1/4W 220ohm 5%	PHILIPS-KOREA ABCO	
R23	M.F/C.F-RESISTOR	1/4W 2.2kohm 5%	PHILIPS-KOREA ABCO	
R24	M.F/C.F-RESISTOR	1/4W 6.8kohm 5%	PHILIPS-KOREA ABCO	
R25	M.F/C.F-RESISTOR	1/4W 2.4kohm 5%	PHILIPS-KOREA ABCO	
R26	M.F/C.F-RESISTOR	1/4W 3.9kohm 5%	PHILIPS-KOREA ABCO	
LF1	AC LINE FILTER	SPL1(L0440)	SUNGWON KORYO	
LF2	AC LINE FILTER	SPL1(L0440)	SUNGWON KORYO	
T1	TRANS POWER	SPT-1A PC40/2500B2/NC-2H	SUNGWON KORYO	
B1	BEAD	BFS3550R2F BI3850(A)	SAMHWA BOAM	996 203420AA
C5	BEAD	BFS3550A0L BI3850(R)	SAMHWA BOAM	
NT1	THERMISTOR	KL13L008 8D-13	SANGSHIN ISUZUKA	
TNR1	SURGE ABSORBER	INR14D221K UL D6221Z0V141RA07	ILJIN MADIA	996 203404AE
TNR2	SURGE ABSORBER	INR14D182K UL D69Z0V102RA220	ILJIN MAIDA	996 203404AC
RL1	RELAY	KM11-M24F JE1AX-DC24V-H	CHUNGWON NATIONAL	
SW1	SWITCH ON/OFF	SF-W101A-03BB T8600VB JRA1102H	EDK ARCORECTRIC JEIL MASTUKYU	996 203407AA
F1	FUSE GLASS	51S 030L 125V 3A 51S 125V 3A	TRIAD SAMHWA	
CON1	CONNECTOR	GILS10PS2T2EF	GSE	
INLET	AC-INLET	ACR303B20 EAC-409-080 0711	TSC SWITCHCRAFT INALWAYS	

1-1-2. SFPS-V2 (Input voltage: 220V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	2SK1537 2SK1203	SHINDENGEN HITACHI	996 203416AB
Q2	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q3	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q21	TRANSISTOR NPN	KTC3198Y KSC945C-Y	KEC SEC	996 201354AA
U21	IC, REGULATOR	L4940V5 LM2940T	SGS-TOHMSON NATIONAL-SEMIC	996 203413AD
U22	IC, REGULATOR	KA78M12 MC78M12CT	SEC MOTOROLA	996 203064AB
U23	IC, REGULATOR	KA79M12 MC79M12CT	SEC MOTOROLA	
PC1	PHOTO COUPLER	TCDT1100G PC111	TELEFUNKEN SHARP	996 203352AB
BD1	DIODE BRIDGED	RBV406 D3SB60	SANKEN SHINDENGEN	996 203005AD
D1	DIODE-F.R	RG1C UF4007	SANKEN GI	996 203151AD
D2	DIODE-SWITCHING	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D21	DIODE-SCHOTTKY	RK39 ERB84-009	SANKEN FUJI	
D23	DIODE-F.R	D1NL20/U EGP10D	SHINDENGEN GI	
D24	DIODE-F.R	D10LCA20/LC20U FML-22S	SHINDENGEN SANKEN	
D25	DIODE-SWITCHING	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
ZD1	DIODE-ZENER	MTZ20C	ROHM-KOREA	996 203307AD
ZD3	DIODE-ZENER	MTZ4.7C	ROHM-KOREA	996 203307AE
ZD21	DIODE-ZENER	MTZ6.2C	ROHM-KOREA	996 203005AC
ZD22	DIODE-ZENER	TZP27B UZP27B	ROHM-KOREA UNIZON	996 201359AA
C1	CAP-X	KNB1530-104 MEX104M5B/E MKP/335 1 0.1uF	ISKARA TSC PHILIPS	996 203012AA
C2	CAP-X	KNB1530-104 MEX104M5B/E MKP/335 1 0.1uF	ISKARA TSC PHILIPS	996 203012AA
C3	CAP-Y	DE7100F222MVA1KC HCYE2G222MAA	MURATA SEM	996 203251AA
C4	CAP-Y	DE7100F222MVA1KC HCYE2G222MAA	MURATA SEM	996 203251AA
C5	CAP-Y	DE7100F222MVA1KC HCYE2G222MAA	MURATA SEM	996 203251AA
C6	CAP-Y	DE7100F222MVA1KC HCYE2G222MAA	MURATA SEM	996 203251AA
C7	CAP-ELECTRIC	SMH400V120uF HQ400V120uF	SAMYOUNG SAMHWA	
C8	CAP-M.F	MMW630V333K TM2J333K	DONGSUNG SAMHWA	996 203103AA
C9	CAP-CERAMIC	CKR3A221K06BS HCYB3A221KDB	SAMHWA SEM	996 203356AA

No	Description	Vendor P/N	Vendor	SEC Code
C10	CAP-MYLAR	TY2A222J 310M2A222J	SAMHWA SUNIL	
C11	CAP-MYLAR	TY2A333J 310M2A333J	SAMHWA SUNIL	
C12	CAP-MYLAR	TY2A104J 310M2A104J	SAMHWA SUNIL	
C13	CAP-CERAMIC	CKR3A681K08BS HCYB3A681KDB	SAMHWA SEM	
C21	CAP-ELECTRIC	SXE10V1200uF RY10V1200uF	SAMYOUNG SAMHWA	996 203351AA
C23	CAP-ELECTRIC	SXE35V100uF RX35V100uF	SAMYOUNG SAMHWA	
C24	CAP-ELECTRIC	SXE35V1000uF RX35V1000uF	SAMYOUNG SAMHWA	996 203408AD
C25	CAP-ELECTRIC	SXE35V1000uF RX35V1000uF	SAMYOUNG SAMHWA	996 203408AD
C27	CAP-CERAMIC	CKR3A471K06BS HCYB3A471KDB	SAMHWA SEM	996 203403AB
C28	CAP-CERAMIC	CKR3A102K08BS HCYB3A102KDB	SAMHWA SEM	996 203403AA
C29	CAP-ELECTRIC	SMS25V47uF SG25V47uF	SAMYOUNG SAMHWA	996 203161AB
C30	CAP-ELECTRIC	SMS25V47uF SG25V47uF	SAMYOUNG SAMHWA	996 203161AB
C31	CAP-ELECTRIC	SMS25V47uF SG25V47uF	SAMYOUNG SAMHWA	996 203161AB
C32	CAP-ELECTRIC	SMS50V1uF SG50V1uF	SAMYOUNG SAMHWA	996 203408AC
C33	CAP-CERAMIC	CGY1H104Z08BS CCYV1H104ZF	SAMHWA SEM	
C34	CAP-CERAMIC	CGY1H104Z08BS CCYV1H104ZF	SAMHWA SEM	
VR1	RESISTOR-VR	EVNDJAA03B1K CT-6P	MATSUSHITA COPAL	996 203418AA
R1	M.F/C.F-RESISTOR	1/2W 560kohm 5%	PHILIPS-KOREA ABCO	
R2	M.F/C.F-RESISTOR	1/2W 560kohm 5%	PHILIPS-KOREA ABCO	
R3	M.F/C.F-RESISTOR	1/2W 560kohm 5%	PHILIPS-KOREA ABCO	
R4	R-M.O(MINI)	2W 100kohm 5%	PHILIPS-KOREA ABCO	
R5	R-M.O(MINI)	1W 470ohm 5%	PHILIPS-KOREA ABCO	
R6	M.F/C.F-RESISTOR	1/4W 27kohm 5%	PHILIPS-KOREA ABCO	
R7	R-W.W	1W 0.2ohm 5%	HANMI HANIL	996 203353AA
R8	M.F/C.F-RESISTOR	1/4W 100ohm 5%	PHILIPS-KOREA ABCO	996 203400AF
R9	M.F/C.F-RESISTOR	1/4W 1.0kohm 5%	PHILIPS-KOREA ABCO	
R21	R-M.O(MINI)	2W 330ohm 5%	PHILIPS-KOREA ABCO	

No	Description	Vendor P/N	Vendor	SEC Code
R22	M.F/C.F-RESISTOR	1/4W 220ohm 5%	PHILIPS-KOREA ABCO	
R23	M.F/C.F-RESISTOR	1/4W 2.2kohm 5%	PHILIPS-KOREA ABCO	
R24	M.F/C.F-RESISTOR	1/4W 6.8kohm 5%	PHILIPS-KOREA ABCO	
R25	M.F/C.F-RESISTOR	1/4W 2.4kohm 5%	PHILIPS-KOREA ABCO	
R26	M.F/C.F-RESISTOR	1/4W 3.9kohm 5%	PHILIPS-KOREA ABCO	
LF1	AC LINE FILTER	SPL3	SUNGWON KORYO	
LF2	AC LINE FILTER	SPL6	SUNGWON KORYO	
T1	TRANS POWER	SPT-2A PC40/2500B2/NC-2H	SUNGWON KORYO	
B1	BEAD	BFS3550R2F BI3850(A)	SAMHWA BOAM	996 203420AA
NT1	THERMISTOR	KL13L008 8D-13	SANGSHIN ISUZUKA	
TNR1	SURGE ABSORBER	INR14D471K SVC471D-14A	ILJIN SAMHWA	996 203404AE
RL1	RELAY	KM11-M24F JE1AX-DC24V-H	CHUNGWON NATIONAL	
SW1	SWITCH ON/OFF	SE-W202A-03BB T8550VB JRC2101H	EDK ARCORECTRIC JEIL MASTUKYU	
F1	FUSE GLASS	50CT025H 215 01.6 S505 01.6	TRIAD LITTEL FUSE BESWICK	
CON1	CONNECTOR	GILS10PS2T2EF	GSE	
	AC-INLET	ACR303B20 EAC-409-080 0711	TSC SWITCHCRAFT INALWAYS	996 203411AA

1-2. SF5500/5600 Serise

1-2-1. RFPS-V1 (Input Voltage: 110 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	IRF840 2SK1693	SEC SHINDENGEN	996 201263AA
Q2	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q3	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
IC2	IC REGULATOR	KA78M12 MC78M12CT	SEC MOTOROLA	996 203254AB
IC3	IC REGULATOR	KA79M12CT MC79M12CT	SEC MOTOROLA	996 203254AC
IC4	IC-SHUNT REG.	KA431Z TL431CLP	SAMSUNG MOTOROLA	996 201261AA
SCR1	TRIAC	T1212MH BTA12-600BW	TAG S-T	996 201260AA
PC1	PHOTO COUPLER	PC17T1 TLP621GB	KWANG TOSHIBA	996 203312AA
PC2	PHOTO COUPLER	PC17T1 TLP621GB	KWANG TOSHIBA	996 203312AA
PC3	PHOTO COUPLER	MOC3061T	MOTOROLA	996 201257AA
BD1	DIODE BRIDGE	D3SB60 RBV406	SHINDENGEN SANKEN	996 203005AD
D1	DIODE-FR	UF4007 RG1C	GI SANKEN	996 203151AD
D2	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D7	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D8	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D9	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D10	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D3	DIODE-FR	D10LC20U ESAC92M-02	SHINDENGEN FUJI	
D4	DIODE-FR	EGP10D D1NL20	GI SHINDENGEN	
D5	DIODE-FR	EGP10D D1NL20	GI SHINDENGEN	
D6	DIODE-SCHOTTKY	D10SC4M ESAC82M004	SHINDENGEN FUJI	
ZD1	DIODE-ZENER	MTZ20C 1N5250B	ROHM-KOREA MOTOROLA	996 203307AD
ZD2	DIODE-ZENER	MTZ4.7C 1N5230B	ROHM-KOREA MOTOROLA	996 203307AE
ZD3	DIODE-ZENER	MTZ5.6C 1N5232B	ROHM-KOREA S-T	996 201258AA
ZD4	DIODE-ZENER	MTZ33C 1N5257B	ROHM-KOREA MOTOROLA	996 203260AC
C1	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA
C2	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA

No	Description	Vendor P/N	Vendor	SEC Code
C3	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA
C4	CAP-Y	HCYE2B222MAA	SEM	996 201256AA
C5	CAP-Y	HCYE2B222MAA	SEM	996 201256AA
C6	CAP-Y	HCYE2B222MAA	SEM	996 201256AA
C7	CAP-ELECTRIC	SMH200V470uF SMS200V470uF	SAMYOUNG SEM	
C8	CAP-CERAMIC	HCYB3A221KDB	SEM	996 203356AA
C9	CAP-M.F	MMD630V333K	SHINSHIN	996 203103AA
C10	CAP-M.F	MMD400V104K	SHINSHIN	
C12	CAP-MYLAR	CQ921MF2A333J	SEOJIN	996 201254AC
C13	CAP-MYLAR	CQ921MF2A104J	SEOJIN	996 201254AA
C14	CAP-MYLAR	CQ921MF2A223J	SEOJIN	996 201254AB
C15	CAP-CERAMIC	HCYB3A102KDB	SEM	
C26	CAP-CERAMIC	HCYB3A102KDB	SEM	
C16	CAP-ELECTRIC	SXE35V1000uF STL35V1000uF	SAMYOUNG SEM	996 203408AD
C18	CAP-ELECTRIC	SXE35V330uF STL35V330uF	SAMYOUNG SEM	
C22	CAP-ELECTRIC	SXE35V330uF STL35V330uF	SAMYOUNG SEM	
C23	CAP-ELECTRIC	SXE35V330uF STL35V330uF	SAMYOUNG SEM	
C19	CAP-CERAMIC	CCYV1H104ZB	SEM	996 201253AA
C31	CAP-CERAMIC	CCYV1H104ZB	SEM	996 201253AA
C11	CAP-CERAMIC	HCYB3A471KDB	SEM	
C20	CAP-CERAMIC	HCYB3A471KDB	SEM	
C21	CAP-CERAMIC	HCYB3A471KDB	SEM	
C24	CAP-ELECTRIC	SMS25V47uF SSX25V47uF	SAMYOUNG SEM	996 203161AB
C25	CAP-ELECTRIC	SMS25V47uF SSX25V47uF	SAMYOUNG SEM	996 203161AB
C27	CAP-ELECTRIC	SXE10V2200uF STL10V2200uF	SAMYOUNG SEM	
C29	CAP-ELECTRIC	SMS50V1uF SSX50V1uF	SAMYOUNG SEM	996 203408AC
C30	CAP-ELECTRIC	SXE10V1200uF STL10V1200uF	SAMYOUNG SEM	996 203351AA
R1	RESISTOR-CARBON	1/4W 560 kohm 5%	PHILIPS-KOREA HANJOO	
R2	RESISTOR-CARBON	1/4W 56 kohm 5%	PHILIPS-KOREA HANJOO	
R3	RESISTOR-CARBON	1/4W 56 kohm 5%	PHILIPS-KOREA HANJOO	
R4	R-METAL OXIDE MINI	2W 47 kohm 5%	PHILIPS-KOREA YUMI	
R6	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R10	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R19	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R23	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF

No	Description	Vendor P/N	Vendor	SEC Code
R24	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R5	RESISTOR-FUSIBLE	1/4W 120 ohm 5%	PHILIPS-KOREA HANJOO	
R7	RESISTOR-FUSIBLE	1/4W 180 ohm 5%	PHILIPS-KOREA HANJOO	
R8	R-WIRE WOUND	1 N 0.1 ohm 5%	HANMI	996 203353AA
R9	RESISTOR-CARBON	1/4W 27 kohm 5%	PHILIPS-KOREA HANJOO	996 203419AB
R11	R-METAL OXIDE	1W 220 ohm 5%	PHILIPS-KOREA YUMI	996 201250AE
R12	RESISTOR-CARBON	1/4W 680 ohm 5%	PHILIPS-KOREA HANJOO	
R17	R-METAL OXIDE MINI	3W 680 ohm 5%	YUMI	996 201250AG
R18	R-METAL OXIDE MINI	3W 680 ohm 5%	YUMI	996 201250AG
R20	R-RESISTOR-CARBON	1/4W 2 kohm 5%	PHILIPS-KOREA HANJOO	
R21	R-METAL OXIDE MINI	3W 50 ohm 5%	ABCO YUMI	996 201250AF
R22	RESISTOR-CARBON	1/4W 4.7 kohm 5%	PHILIPS-KOREA HANJOO	
R25	RESISTOR-CARBON	1/4W 1.5 kohm 5%	PHILIPS-KOREA HANJOO	
R26	RESISTOR-CARBON	1/4W 3.9 kohm 5%	PHILIPS-KORA HANJOO	
R27	R-METAL OXIDE MINI	1W 1.2 kohm 5%	PHILIPS-KOREA YUMI	996 201250AD
VR1	RESISTOR-VR	CT-6P 102 EVNDJAA03B1K	COPAL MATSUSHITA	996 203418AA
F1	FUSE GLASS	51S080L 125V 3A	TRIAD	996 201251AB
F2	FUSE GLASS	51S030L 125V 3A	TRIAD	996 201251AC
CON1	CONNECTOR	52330-2017	MOLEX	
CON2	CONNECTOR	5145-03AH	MOLEX	
CON3	CONNECTOR	5096-02C	MOLEX-KOREA	
RL1	RELAY	VG24TM	TAKAMISAWA	996 203010AA
L1	CHOKE COIL	210uH ± 15%	SOOJUNG	
L2	CHOKE COIL	2uH 10A	SOOJUNG	
B1	BEAD	BI3857	SEM BOAM	
LF1	AC LINE FILTER	12-101-116	S/CLOVER	
LF2	AC LINE FILTER	UU1620(SPL4)	S.CLOVER	996 201262AA
T1	TRANS POWER	RPT-1B PL5 NC2H/2500B2	S/CLOVER	
TNR1	SURGE ABSORBER	D6221ZOV141RA07	MAIDA	996 201255AB
TNR2	SURGE ABSORBER	D69ZOV102RA220	MAIDA	996 201255AC
NT1	THERMISTOR	8D-13 KL13L008	ISHIZUKA SANGSHIN	
TF1	THERMAL FUSE	D090-002 SF91U-1	ELMWOOD NEC	

1-2-2. RFPS-V2 (Input voltage: 220V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	2SK1537 STH5N90	SHINDENGEN S-T	996 203212AB
Q2	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q3	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
IC2	IC REGULATOR	KA78M12 MC78M12CT	SEC MOTOROLA	996 203254AB
IC3	IC REGULATOR	KA79M12 MC79M12CT	SEC MOTOROLA	996 203254AC
IC4	IC-SHUNT REG.	KA431Z TL431CLP	SEC MOTOROLA	996 201261AA
SCR1	TRIAC	T1212MH BTA12-600BW	TAG S-T	996 201260AA
PC1	PHOTO COUPLER	TCDT1101G PC111	TELEFUNKEN SHARP	996 203160AA
PC2	PHOTO COUPLER	TCDT1101G PC111	TELEFUNKEN SHARP	996 203160AA
PC3	PHOTO COUPLER	MOC3061T	MOTOROLA	996 201257AA
BD1	DIODE BRIDGE	D3SB60 RBV406	SHINDENGEN SANKEN	996 203005AD
D1	DIODE-FR	UF4007	GI	996 203151AD
D2	DIODE-SW	1N4148	TELEFUNKEN	996 203151AA
D7	DIODE-SW	1N4148	TELEFUNKEN	996 203151AA
D8	DIODE-SW	1N4148	TELEFUNKEN	996 203151AA
D9	DIODE-SW	1N4148	TELEFUNKEN	996 203151AA
D10	DIODE-SW	1N4148	TELEFUNKEN	996 203151AA
D3	DIODE-FR	D10LC20U ESAC92M-02	SHINDENGEN FUJI	
D4	DIODE-FR	EGP10D D1NL20	GI SHINDENGEN	
D5	DIODE-FR	EGP10D D1NL20	GI SHINDENGEN	
D6	DIODE-SCHOTTKY	D10SC4M ESAC82M-004	SHINDENGEN FUJI	
ZD1	DIODE-ZENER	MTZ20C 1N5250B	ROHM-KOREA MOTOROLA	996 203307AD
ZD2	DIODE-ZENER	MTZ4.7C 1N5230B	ROHM-KOREA MOTOROLA	996 203307AE
ZD3	DIODE-ZENER	MTZ5.6C 1N5232B	ROHM-KOREA S-T	996 201258AA
ZD4	DIODE-ZENER	MTZ33C 1N5257B	ROHM-KOREA MOTOROLA	996 203260AC
C1	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA
C2	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA
C3	CAP-X	KNB1530-104K 2222-335-10104	ISKRA PHILIPS-KOREA	996 203012AA
C4	CAP-Y	HCYE2G222MAA	SEM	996 203414AA
C5	CAP-Y	HCYE2G222MAA	SEM	996 203414AA
C6	CAP-Y	HCYE2G222MAA	SEM	996 203414AA
C32	CAP-Y	HCYE2G222MAA	SEM	996 203414AA
C7	CAP-ELECTRIC	SMH400V100uF SMS400V100uF	SAMYOUNG SEM	

No	Description	Vendor P/N	Vendor	SEC Code
C8	CAP-CERAMIC	HCYB3A101KDB	SEM	
C9	CAP-M.F	MMD630V333K	SHINSHIN	996 203103AA
C10	CAP-M.F	MMD630V333K	SHINSHIN	996 203103AA
C11	CAP-CERAMIC	HCYB3A221KDB	SEM	996 203356AA
C12	CAP-MYLAR	CQ921MF2A333J	SEOJIN	996 201254AC
C13	CAP-MYLAR	CQ921MF2A104J	SEOJIN	996 201254AA
C14	CAP-MYLAR	CQ921MF2A223J	SEOJIN	996 201254AB
C15	CAP-CERAMIC	HCYB3A102KDB	SEM	
C26	CAP-CERAMIC	HCYB3A102KDB	SEM	
C16	CAP-ELECTRIC	SXE35V1000uF STL35V1000uF	SAMYOUNG SEM	996 203408AD
C18	CAP-ELECTRIC	SXE35V330uF STL1V331	SAMYOUNG SEM	
C22	CAP-ELECTRIC	SXE35V330uF STL1V331	SAMYOUNG SEM	
C23	CAP-ELECTRIC	SXE35V330uF STL1V331	SAMYOUNG SEM	
C19	CAP-CERAMIC	CCYV1H104ZB	SEM	996 201253AA
C31	CAP-CERAMIC	CCYV1H104ZB	SEM	996 201253AA
C11	CAP-CERAMIC	HCYB3A471KDB	SEM	
C20	CAP-CERAMIC	HCYB3A471KDB	SEM	
C21	CAP-CERAMIC	HCYB3A471KDB	SEM	
C24	CAP-ELECTRIC	SMS25V47uF SSL1E470	SAMYOUNG SEM	996 203161AB
C25	CAP-ELECTRIC	SMS25V47uF SSL1E470	SAMYOUNG SEM	996 203161AB
C27	CAP-ELECTRIC	SXE10V2200uF STL1A222	SAMYOUNG SEM	
C29	CAP-ELECTRIC	SMS50V1uF SSL1H1R0	SAMYOUNG SEM	996 203408AC
C30	CAP-ELECTRIC	SXE10V1200uF	SAMYOUNG	996 203351AA
R1	RESISTOR-CARBON	1/4W 560 kohm 5%	PHILIPS-KOREA HANJOO	
R2	RESISTOR-CARBON	1/4W 270 kohm 5%	PHILIPS-KOREA HANJOO	
R3	RESISTOR-CARBON	1/4W 270 kohm 5%	PHILIPS-KOREA HANJOO	
R4	R-METAL OXIDE MINI	2W 100 kohm 5%	PHILIPS-KOREA YUMI	996 203354AC
R6	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R10	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R19	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R23	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R24	RESISTOR-CARBON	1/4W 100 ohm 5%	PHILIPS-KOREA HANJOO	996 203400AF
R5	RESISTOR-FUSIBLE	1/4W 270 ohm 5%	PHILIPS-KOREA HANJOO	
R7	RESISTOR-FUSIBLE	1/4W 390 ohm 5%	PHILIPS-KOREA HANJOO	
R8	R-WIRE WOUND	1 N 0.2 ohm 5%	HANMI	996 203353AA

No	Description	Vendor P/N	Vendor	SEC Code
R9	RESISTOR-CARBON	1/4W 27 kohm 5%	PHILIPS-KOREA HANJOO	996 203419AB
R11	R-METAL OXIDE	1W 220 ohm 5%	PHILIPS-KOREA YUMI	996 201250AE
R12	RESISTOR-CARBON	1/4W 820 ohm 5%	PHILIPS-KOREA HANJOO	
R17	R-METAL OXIDE MINI	3W 680 ohm 5%	YUMI	996 201250AG
R18	R-METAL OXIDE MINI	3W 680 ohm 5%	YUMI	996 201250AG
R20	R-RESISTOR-CARBON	1/4W 2 kohm 5%	PHILIPS-KOREA HANJOO	
R21	R-METAL OXIDE MINI	3W 50 ohm 5%	ABCO YUMI	996 201250AF
R22	RESISTOR-CARBON	1/4W 4.7 kohm 5%	PHILIPS-KOREA HANJOO	
R25	RESISTOR-CARBON	1/4W 1.5 kohm 5%	PHILIPS-KOREA HANJOO	
R26	RESISTOR-CARBON	1/4W 3.9 kohm 5%	PHILIPS-KORA HANJOO	
R27	R-METAL OXIDE MINI	1W 1.2 kohm 5%	PHILIPS-KOREA YUMI	996 201250AD
VR1	RESISTOR-VR	CT-6P 102 EVNDJAA03B1K	COPAL MATSYSHITA	996 203418AA
F1	FUSE GLASS	S505 H250V T5A	BUSSMANN	
F2	FUSE GLASS	50T016H	TRIAD	
CON1	CONNECTOR	52330-2017	MOLEX	
CON2	CONNECTOR	5145-03AH	MOLEX	
CON3	CONNECTOR	5096-02C	MOLEX-KOREA	
RL1	RELAY	VG24TM	TAKAMISAWA	996 203010AA
L1	CHOKE COIL	210uH ± 15%	SOOJUNG	
L2	CHOKE COIL	2uH 10A	SOOJUNG	
B1	BEAD	BI3857	BOAM	
LF1	AC LINE FILTER	12-101-116	S/CLOVER	
LF2	AC LINE FILTER	UU1620(SPL4)	S.CLOVER	996 201262AA
T1	TRANS POWER	RPT-2B PL5 NC-2H/2500B2	S/CLOVER	
TNR1	SURGE ABSORBER	D61ZOV301RA45 INR14D471K	MAIDA ILJIN	
NT1	THERMISTOR	8D-13 KL13L008	ISHIZUKA SANGSHIN	

1-3. SF30/40 Serise

1-3-1. LIONS-V1 (Input Voltage: 110 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	IRF840	SEC IR	996 223416AA
Q2	TRANSISTOR NPN	KSC1008-Y	SEC	996 203261AA
Q3	TRANSISTOR NPN	KTC3198-Y KSC945C-Y	KEC SEC	996 201354AA
U1	IC REGULATOR	KA79M12CT MC79M12CT	SEC MOTOROLA	996 203254AC
U2	IC REGULATOR	KA7805 CT MC7805 CT	SEC MOTOROLA	996 203355AA
SCR1	THYRISTOR	MCR100-4 TS0820-20	MOTOROLA S-T	
PC1	PHOTO COUPLER	TLP621GB	TODHIBA	996 203352AA
BD1	DIODE BRIDGE	R8V406 D3S860	SANKEN SHINDENGEN	996 203005AD
D1	DIODE-FR	RG1C UF4007	SANKEN GI	996 203151AD
D2	DIODE-SW	1N4148	ROHM TELEFUNKEN	996 203151AA
D6	DIODE-SW	1N4148	ROHM TELEFUNKEN	996 203151AA
D3	DIODE-FR	D5LC20U S5KC20	SHINFENGEN SHINDENGEN	966 203307AB
D4	DIODE-FR	D1NL20	SHINDENGEN	996 203307AC
D5	DIODE-FR	D1NL20	SHINDENGEN	996 203307AC
ZD1	DIODE-ZENER	MTZ20C UZ208M	ROHM UNIZON	996 203307AD
ZD2	DIODE-ZENER	MTZ20C UZ208M	ROHM UNIZON	996 203307AD
ZD3	DIODE-ZENER	MTZ4.7C UZ4.7B	ROHM UNIZON	996 203307AE
ZD4	DIODE-ZENER	MTZ6.2C UZ6.2BM	ROHM UNIZON	996 203005AC
C1	CAP-Y	CS13E2GA222MYAS HCYE2G222MAA	TDK SEM	996 203414AA
C2	CAP-Y	CS13E2GA222MYAS HCYE2G222MAA	TDK SEM	996 203414AA
C6	CAP-Y	CS13E2GA222MYAS HCYE2G222MAA	TDK SEM	996 203414AA
C23	CAP-Y	CS17E2GA472MYAS HCYE2G472MAA	TDK SEM	
C3	CAP-X	KNB1530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C4	CAP-X	KNB1530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C7	CAP-CERAMIC	CKR3A681K08BS HCYB3A681KDT	SAMHWA SEM	996 203403AC
C8	CAP-M.F	MMW400V 333K TM2G333K	DONGSUNG SAMHWA	
C9	CAP-CERAMIC	CKR3A221K068S HCYB3A221KDT	SAMHWA SEM	996 203403AD
C12	CAP-MYLAR	TZ2A223J 310M2A223J	SAMHWA SUNIL	

No	Description	Vendor P/N	Vendor	SEC Code
C10	CAP-MYLAR	TZ2A333J 310M2A333J	SAMHWA SUNIL	
C11	CAP-MYLAR	TZ2A333J 310M2A333J	SAMHWA SUNIL	
C13	CAP-MYLAR	TZ2A104J 310M2A104J	SAMHWA SUNIL	
C14	CAP-CERAMIC	CKR3A102K108S HCYB3A102KDT	SAMHWA SEM	996 203403AA
C19	CAP-ELECTRIC	SXE35V330uF (M) STL1V331	SAMYOUNG SEM	
C18	CAP-ELECTRIC	SXE35V560uF (M) STL1V561	SAMYOUNG SEM	
C17	CAP-ELECTRIC	SXE35V100uF (M) STL1V101	SAMYOUNG SEM	996 203308AC
C16	CAP-ELECTRIC	SXE10V1200uF (M) STL1A122	SAMYOUNG SEM	996 203351AA
C20	CAP-ELECTRIC	SMS25V47uF SS1E470	SAMYOUNG SEM	996 203161AB
C22	CAP-ELECTRIC	SMS25V47uF SS1E470	SAMYOUNG SEM	996 203161AB
C24	CAP-ELECTRIC	SMS50V1uF SS1H010	SAMYOUNG SEM	996 203258AB
C25	CAP-ELECTRIC	SMS200V330uF(M) SMS2D331	SAMYOUNG SEM	
R1	RESISTOR-CARBON	1/4W 560 kohm 5%	PHILIPS ABCO	
R2	R-WIRE WOUND	1W 0.1 ohm 5%	HANMI HANIL	996 203353AA
R6	RESISTOR-CARBON	1/4W 270 kohm 5%	PHILIPS ABCO	
R3	RESISTOR-CARBON	1/4W 27 kohm 5%	PHILIPS ABCO	
R9	RESISTOR-CARBON	1/4W 27 kohm 5%	PHILIPS ABCO	
R4	R-METAL OXIDE	1W 47 kohm 5%	PHILIPS ABCO	996 203354AA
R5	R-METAL OXIDE	1W 220 ohm 5%	PHILIPS ABCO	996 203354AB
R8	RESISTOR-CARBON	1/4W 3 kohm 5%	PHILIPS ABCO	
R10	RESISTOR-CARBON	1/4W 560 ohm 5%	PHILIPS ABCO	
R11	R-METAL OXIDE	2W 1 kohm 5%	PHILIPS ABCO	
R12	RESISTOR-CARBON	1/4W 3.9 kohm 5%	PHILIPS ABCO	
R13	RESISTOR-CARBON	1/4W 220 ohm 5%	PHILIPS ABCO	
R14	RESISTOR- METAL	1/4W 6.8 kohm 5%	PHILIPS ABCO	996-203301AA
R15	RESISTOR- METAL	1/4W 2.55 kohm 5%	PHILIPS ABCO	
R16	RESISTOR-CARBON	1/4W 2.2 kohm 5%	PHILIPS ABCO	

No	Description	Vendor P/N	Vendor	SEC Code
R7	RESISTOR-CARBON	1/4W 200 kohm 5%	PHILIPS ABCO	
LF1	AC LINE FILTER	L0440	SUNGWON KORYO	
LF2	AC LINE FILTER	L0440	SUNGWON KORYO	
T1	TRANS POWER	LIONS-V11 2500B2/NC-2H	SUNG WON KORYO	
B1	BEAD	8FS3550R1F	SAMHWA BOAM	996 203402AA
B2	BEAD	8FS3550R1F	SAMHWA BOAM	996 203402AA
B3	BEAD	8FS3550R1F	SAMHWA BOAM	996 203402AA
NT1	THERMISTOR	KL09L010 08SP010	SANGSHIN UEI	
INLET	AC INLET	ACR303B10 EAC409	TSC SWITCHCRAFT	996 203411AA
TNR1	SURGE ABSORBER	TNR12G221 INR10D221K UL SVC220D-10A	MARCON ILJIN SAMHWA	996 203404AB
TNR2	SURGE ABSORBER	TNR12G182K D69ZOV102RA220	MARCON MAIDA	996 203404AC
RL1	RELAY	VG24TM	TAKAMISAWA	966 203415AA
SW1	SWITCH ON/OFF	SF-W101A-03BB MCR5-2#3 T8600V8	EDK MARUSHIN ARCOLECTRIC	996 203407AA
F1	FUSE-CLASS	51SB030L 125V 3A 51S 125V 3A	TRIAD SAMHWA	
CON1	CONNECTOR	GIL-D-10S-S3LA2-A	GSE	

1-3-2. LIONS-V2 (Input Voltage: 240 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	SSP6N60A	SEC	996 201300AA
Q2	TRANSISTOR NPN	KSC945C-Y 2SC1815-Y	SEC TOSHIBA	996 201354AA
IC1	IC CONTROL	TDA4605-3	SIEMENS	996 203305AB
IC2	IC REGULATOR	KA7805 L7805 CT	SEC SGS-TOHMSON	996 203355AA
IC3	IC REGULATOR	KA79M12CT L7912CV	SEC SGS-TOHMSON	996 203254AC
PC1	PHOTO COUPLER	TCDT1101G PC111	TELEFUNKEN SHARP	996 203160AA
BD1	DIODE BRIDGE	RBV406 D3SB60	G.I SHINDENGEN	996 203005AD
D1	DIODE-FR	UF4007 BYV38	GI TELEFUNKEN	996 201103AE
D4	DIODE-FR	D5LC20U	SHINDENGEN	996 203307AB
D6	DIODE-FR	BYV27/200 D1NL20U	TELEFUNKEN SHINDENGEN	
D7	DIODE-FR	BYV27/200 D1NL20U	TELEFUNKEN SHINDENGEN	
D2	DIODE-SW	1N4148	TELEFUNKEN ROHM-KOREA	966 203151AA
D3	DIODE-SW	1N4148	TELEFUNKEN ROHM-KOREA	966 203151AA
D5	DIODE-SW	1N4148	TELEFUNKEN ROHM-KOREA	966 203151AA
ZD1	DIODE-ZENER	MTZ6.2C	ROHM-KOREA	996 203005AC
C3	C-POLY FILM	KNB1530-104M PBE2EA104K 2222 335 0.1uF	ISKRA SEM PHILIPS	996 203012AA
C4	C-POLY FILM	KNB1530-104M PBE2EA104K 2222 335 0.1uF	ISKRA SEM PHILIPS	996 203012AA
C1	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C2	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C5	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C6	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C25	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C26	C-CERAMIC	HCYE2G222MAA CD14E222M	SEM TDK	996 203251AA
C10	C-CERAMIC	HCYB3A221KDT	SEM	
C12	C-CERAMIC	HCYB3A221KDT	SEM	
C17	C-CERAMIC	HCYB3A102KDT	SEM	996 203403AA
C11	C-MYLAR FILM	MMD630V333K	SHINSHIN	996 203103AA
C14	C-MYLAR	CQ921MF2A102J	SEOJIN DONHKUK	996 203310AA
C9	C-MYLAR	CQ921MF2A332J	SEOJIN DONGKUK	

No	Description	Vendor P/N	Vendor	SEC Code
C13	C-MYLAR	CQ921MF2A104J	SEOJIN DONGKUK	996 203310AC
C18	C-ELECTRIC	SXE35V470uF STX1V471	SAMYOUNG SEM	996 201302AA
C19	C-ELECTRIC	SXE35V470uF STX1V471	SAMYOUNG SEM	996 201302AA
C21	C-ELECTRIC	SXE10V1000uF STL1A102	SAMYOUNG SEM	996 201302AB
C23	C-ELECTRIC	SXE35V100uF STX1V101	SAMYOUNG SEM	996 203308AA
C8	C-ELECTRIC	SMS25V47uF SSL1E470	SAMYOUNG SEM	996 203161AB
C22	C-ELECTRIC	SMS25V47uF SSL1E470	SAMYOUNG SEM	996 203161AB
C24	C-ELECTRIC	SMS25V47uF SSL1E470	SAMYOUNG SEM	996 203161AB
C15	C-ELECTRIC	SMS50V1uF SSL1H010	SAMYOUNG SEM	996 203258AB
C16	C-ELECTRIC	SMS50V1uF SSL1H010	SAMYOUNG SEM	996 203258AB
C20	C-ELECTRIC	SMS50V1uF SSL1H010	SAMYOUNG SEM	996 203258AB
C7	C-ELECTRIC	SMS400V120uF SMS2G120	SAMYOUNG SEM	996 201302AC
R14	R-METAL OXIDE	2W-330ohm-J	YUMI PHILIPS	996 203311AA
R2	R-METAL OXIDE	2W-56kohm-J	YUMI PHILIPS	
R6	R-METAL OXIDE	1W-100kohm-J	YUMI PHILIPS	996 203050AC
R3	R-CARBON	1/2W 270kohm-J	HANJOO PHILIPS	
R4	R-CARBON	1/2W 750koHm-J	HANJOO PHILIPS	
R18	R-METAL	1/4W 2.55kohm-F	HANJOO PHILIPS	
R17	R-METAL	1/4W 6.8kohm-F	HANJOO PHILIPS	
R12	R-CARBON	1/4W 2ohm-J	HANJOO PHILIPS	996 201303AA
R13	R-CARBON	1/4W 10ohm-J	HANJOO PHILIPS	996 201303AB
R7	R-CARBON	1/4W 100ohm-J	HANJOO PHILIPS	996 201360AA
R11	R-CARBON	1/4W 220ohm-J	HANJOO PHILIPS	996 201303AC
R15	R-CARBON	1/4W 820ohm-J	HANJOO PHILIPS	996 201303AD
R10	R-CARBON	1/4W 1 kohm-J	HANJOO PHILIPS	
R16	R-CARBON	1/4W 2.2kohm-J	HANJOO PHILIPS	996 201250AA
R19	R-CARBON	1/4W 3.9kohm-J	HANJOO PHILIPS	

No	Description	Vendor P/N	Vendor	SEC Code
R5	R-CARBON	1/4W 10kohm-J	HANJOO PHILIPS	
R8	R-CARBON	1/4W 10kohm-J	HANJOO PHILIPS	
R9	R-CARBON	1/4W 10kohm-J	HANJOO PHILIPS	
R1	R-CARBON	1/4W 560kohm-J	HANJOO PHILIPS	
LF1	LINE FILTER	SPL3	BOAM SEOUL CLOVER	
LF2	LINE FILTER	SPL6	BOAM SEOUL CLOVER	
INLET	AC INLET	ACR303B10 EAC409	TSC SWITCHCRAFT	
T1	TRANS-POWER	LIONS	SEOUL CLOVER	
SW1	SWITCH ON/OFF	JRC-2101H R19-20	JEIL LIGHT-COUNTRY	
TH1	THERMISTOR	8D-13	ISHIZUKA	996 203101AA
TNR1	SURGE ABSORBER	D6221ZOV301RA45	MAIDA	996 201304AA
RL1	RELAY	VG24TM	TAKAMISAWA	996 203010AA
F1	FUSE	S505 250V 1.6A 50CT-016-H	BUSSMANN TRIAD	996 201251AA
CON1	CONNECTOR	GIL-D-10S-S3LA2-A	GSE	
B1	BEAD-CORE	EFBC3550060TS BFS3550RIF	SEM SAMHWA	
B2	BEAD-CORE	EFBC3550060TS BFS3550RIF	SEM SAMHWA	
B3	BEAD-CORE	EFBC3550060TS BFS3550RIF	SEM SAMHWA	

1-4. SF500/1500 Serise

1-4-1. QFPS-V1 (Input Voltage: 120 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	IRF840 2SK1693	SEC SHINDENGEN	996 223416AA
Q2	TRANSISTOR NPN	KSC1008-Y 2SC1008-Y	SEC TOSHIBA	996 203261AA
Q3	TRANSISTOR NPN	2SC1815-Y KSC945-Y	TOSHIBA SEC	996 201354AA
U1	IC, REGULATOR	MC79M12CT KA79M12	MOTOROLA SEC	996 203254AC
U2	IC, REGULATOR	MC7805CT KA7805	MOTOROLA SEC	996 203355AA
U3	IC, REGULATOR	MC78M12CT KA78M12	MOTOROLA SEC	996 203254AB
SCR1	THYRISTOR	2N5062/4 TS0820-10/20	MOTOROLA S-T	
PC1	PHOTO COUPLER	PC8178D TLP621GB	SHARP TOSHIBA	996 203352AA
BD1	DIODE BRIDGED	RBV406 D3SB60	SANKEN SHINDENGEN	996 203005AD
D1	DIODE-F.R	RG1C UF4007	SANKEN GI	996 203151AD
D2	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D6	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D3	DIODE-FR	D10L0A20 FML-22S	SHINDENGEN SANKEN	996 203307AB
D4	DIODE-SCHOTTKY	RK39 ER884-009	SANKEN FUJI	996 203201AB
D5	DIODE-FR	MUR120 ER891-02	MOTOROLA FUJI	996 203005AE
ZD1	DIODE-ZENER	MTZ20C UZ20BM	ROHM UNIZON	996 203307AD
ZD2	DIODE-ZENER	MTZ4.7C UZ4.7BM	ROHM UNIZON	996 203307AE
ZD3	DIODE-ZENER	MTZ6.2C UZ6.2BM	ROHM UNIZON	996 203005AC
C1	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C2	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C6	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C3	CAP-X	KN81530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C4	CAP-X	KN81530-104 MEX104M5B/E	ISKARA TSC	996 203012AA
C7	CAP-CERAMIC	CKR3A681K08BS HCYB3A681KB/T	SAMHWA SEM	996 203403AC
C15	CAP-CERAMIC	CKR3A471K08BS HCYB3A471KB/T	SAMHWA SEM	996 203403AB
C8	CAP-M.F	MM0400V 333K MF2G333K	SHINSHIN SAMHWA	

No	Description	Vendor P/N	Vendor	SEC Code
C9	CAP-CERAMIC	CKR3A221K06BS HCYB3A221KDB/T	SAMHWA SEM	996 203403AD
C10	CAP-MYLAR	TZ2A223J 310M2A223J	SAMHWA SUNIL	
C11	CAP-MYLAR	TZ2A333J 310M2A333J	SAMHWA SUNIL	
C13	CAP-MYLAR	TZ2A104J 310M2A104J	SAMHWA SUNIL	
C14	CAP-CERAMIC	CKR3A102K10BS HCYB3A102KDB/T	SAMHWA SEM	996 203403AA
C16	CAP-ELECTRIC	ZXE35V330uF (M) STL1C331	SAMYOUNG SEM	
C17	CAP-ELECTRIC	SXE10V1200uF(M) STL1A122	SAMYOUNG SEM	996 203351AA
C18	CAP-ELECTRIC	SXE35V1000uF(M) STL1V102	SAMYOUNG SEM	996 203408AD
C19	CAP-ELECTRIC	SXE35V1000uF(M) STL1V102	SAMYOUNG SEM	996 203408AD
C20	CAP-ELECTRIC	SMS25V 47uF GLX1H470	SAMYOUNG SEM	996 203161AB
C21	CAP-ELECTRIC	SMS25V 47uF GLX1H470	SAMYOUNG SEM	996 203161AB
C22	CAP-ELECTRIC	SMS25V 47uF GLX1H470	SAMYOUNG SEM	996 203161AB
C23	CAP-CERAMIC	50V 104Z CCYV1H104ZF	SAMHWA SEM	
C24	CAP-ELECTRIC	SMS50V 1uF GLX1H010	SAMYOUNG SEM	996 203408AC
C25	CAP-ELECTRIC	KMH200V390uF(M) SMU2D391	SAMYOUNG SEM	
C26	CAP-MONOLITIC	SR215A104ZAT K104Z20Z5UF58H50	AVX CENT-LAB	
VR1	RESISTOR-VR	EVNDJAA0381K CT-6P RGC6P	MATSUSHITA COPAL TOCOS	996 203418AA
R1	RESISTOR-CARBON	1/4W 560kohm 5%	PHILIPS HANJOO	
R2	R-WIRE WOUND	1W 0.1ohm 5%	DALE HANIL	996 203353AA
R6	RESISTOR-CARBON	1/4W 270 kohm 5%	PHILIPS HANJOO	
R3	RESISTOR-CARBON	1/4W 27kohm 5%	PHILIPS HANJOO	
R9	RESISTOR-CARBON	1/4W 27kohm 5%	PHILIPS HANJOO	
R4	R-METAL OXIDE	1W 47 kohm 5%	PHILIPS HANRYUK	996 203354AA
R5	R-METAL OXIDE	1W 220ohm 5%	PHILIPS HANRYUK	996 203354AB
R8	RESISTOR-CARBON	1/4W 3kohm 5%	PHILIPS HANJOO	
R10	RESISTOR-CARBON	1/4W 680ohm 5%	PHILIPS HANJOO	
R11	R-METAL OXIDE(M)	2W 330ohm 5%	PHILIPS YUMI	

No	Description	Vendor P/N	Vendor	SEC Code
R12	RESISTOR-CARBON	1/4W 3.9kohm 5%	PHILIPS HANJOO	
R13	RESISTOR-CARBON	1/4W 220ohm 5%	PHILIPS HANJOO	
R14	RESISTOR-CARBON	1/4W 6.8kohm 5%	PHILIPS HANJOO	
R15	RESISTOR-CARBON	1/4W 2.4kohm 5%	PHILIPS HANJOO	
R16	RESISTOR-CARBON	1/4W 2.2kohm 5%	PHILIPS HANJOO	
R7	RESISTOR-CARBON	1/4W 200kohm 5%	PHILIPS HANJOO	
LF1	AC LINE FILTER	L0440	SUNGWON SEOUL CLOVER	
LF2	AC LINE FILTER	L0440	SUNGWON SEOUL CLOVER	
T1	TRANS POWER	QPT-1A PC40/2500B2	SUNGWON SEOUL CLOVER	
B1	BEAD CORE	BFS-3565-R2B	SAMHWA TOKIN	
B2	BEAD CORE	BFS-3565-R2B	SAMHWA TOKIN	
B3	BEAD CORE	BFS-3565-R2B	SAMHWA TOKIN	
TS1	THERMAL SWITCH	T90AR3U2/1	NATIONAL	
NT1	THERMISTOR	15SP012 T2326	UEI MIDWEST	
INLET	AC INLET	ACR303B20 0711-1	TSC INALWAYS	996 203411AA
TNR1	SURGE ABSORBER	TNR12G221 INR10D221K UL	MARCON ILJIN	996 203404AB
TNR2	SURGE ABSORBER	TNR12G182K D69ZOV102RA220	MARCON MAIDA	996 203404AC
RL1	RELAY	VG24TM	TAKAMISAWA	996 203415AA
SW1	SWITCH ON/OFF	SF-W101A-03BB MSR5-2#3	EDK MARUSHIN	996 203407AA
F1	FUSE	51S8030L 125V 3A 51S 125V 3A	TRIAD SAMHWA	
CON1	CONNECTOR	GILS10PS2T2EF	GSE	

1-4-2. QFPS-V2 (Input Voltage: 220 V)

No	Description	Vendor P/N	Vendor	SEC Code
Q1	FET-POWER	BUZ91A 2SK1537	SIEMENS SHINDENGEN	996 203416AB
Q2	TRANSISTOR NPN	KSC1008-Y 2SC1008-Y	SEC TOSHIBA	996 203261AA
Q3	TRANSISTOR NPN	2SC1815-Y KSC945-Y	TOSHIBA SEC	996 201354AA
Q4	TRANSISTOR NPN	KSC1008-Y 2SC1008-Y	SEC TOSHIBA	996 203261AA
U1	IC, REGULATOR	MC79M12CT KA79M12	MOTOROLA SEC	996 203254AC
U2	IC, REGULATOR	MC7805CT KA7805	MOTOROLA SEC	996 203355AA
U3	IC, REGULATOR	MC78M12CT KA78M12	MOTOROLA SEC	996 203254AB
PC1	PHOTO COUPLER	TCDT1101G PC111	TELEFUNKEN SHARP	996 203352AB
BD1	DIODE BRIDGED	RBV406 D3SB60	SANKEN SHINDENGEN	996 203005AD
D1	DIODE-F.R	RG1C UF4007	SANKEN GI	996 203151AD
D2	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D6	DIODE-SW	1N4148	ROHM-KOREA TELEFUNKEN	996 203151AA
D3	DIODE-FR	D10LCA20 FML-22S	SHINDENGEN SANKEN	996 203307AB
D4	DIODE-SCHOTTKY	RK39 ERB84-009	SANKEN FUJI	996 203201AB
D5	DIODE-FR	MUR120 ERB91-02	MOTOROLA FUJI	996 203005AE
ZD1	DIODE-ZENER	MTZ20C UZ20BM	ROHM UNIZON	996 203307AD
ZD3	DIODE-ZENER	MTZ4.7C UZ4.7BM	ROHM UNIZON	996 203307AE
ZD4	DIODE-ZENER	MTZ6.2C UZ6.2BM	ROHM UNIZON	996 203005AC
C1	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C2	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C6	CAP-Y	CS13E2GA222MYAS HCYE2E222MAA	TDK SEM	996 203414AA
C3	CAP-X	KNB1530-224 MEX224M5E	ISKARA TSC	
C4	CAP-X	KNB1530-104 MEX104M5E	ISKARA TSC	996 203012AA
C7	CAP-CERAMIC	CKR3A221K06BS HCYB3A221KB/T	SAMHWA SEM	996 203403AD
C9	CAP-CERAMIC	CKR3A221K06BS HCYB3A221KB/T	SAMHWA SEM	996 203403AD
C15	CAP-CERAMIC	CKR3A471K08BS HCYB3A471KB/T	SAMHWA SEM	996 203403AB

No	Description	Vendor P/N	Vendor	SEC Code
C8	CAP-M.F	MMD630V 333K MF2J333K	SHINSHIN SAMHWA	
C10	CAP-MYLAR	TZ2A222J 310M2A222J	SAMHWA SUNIL	
C11	CAP-MYLAR	TZ2A333J 310M2A333J	SAMHWA SUNIL	
C13	CAP-MYLAR	TZ2A104J 310M2A104J	SAMHWA SUNIL	
C14	CAP-CERAMIC	CKR3A102K10BS HCYB3A102KDB/T	SAMHWA SEM	996 203403AA
C16	CAP-ELECTRIC	SXE35V330uF (M) STL1V331	SAMYOUNG SEM	
C17	CAP-ELECTRIC	SXE10V1200uF(M) STL1A122	SAMYOUNG SEM	996 203351AA
C18	CAP-ELECTRIC	SXE35V1000uF(M) STL1V102	SAMYOUNG SEM	996 203408AD
C19	CAP-ELECTRIC	SXE35V1000uF(M) STL1V102	SAMYOUNG SEM	996 203408AD
C20	CAP-ELECTRIC	SMS25V 47uF GLX1E470	SAMYOUNG SEM	996 203161AB
C21	CAP-ELECTRIC	SMS25V 47uF GLX1E470	SAMYOUNG SEM	996 203161AB
C22	CAP-ELECTRIC	SMS25V 47uF GLX1E470	SAMYOUNG SEM	996 203161AB
C23	CAP-CERAMIC	50V 104Z CCYV1H104ZF	SAMHWA SEM	
C24	CAP-ELECTRIC	SMS50V 1uF GLX1H010	SAMYOUNG SEM	996 203408AC
C25	CAP-ELECTRIC	SMH400V120uF(M) SMS2G121	SAMYOUNG SEM	
C26	CAP-MONOLITIC	SR215A104KAT K104Z20COGF5TK5C	AVX CENT-LAB	
VR1	RESISTOR-VR	EVNDJAA0381K CT-6P RGC6P	MATSUSHITA COPAL TOCOS	996 203418AA
R1	RESISTOR-CARBON	1/2W 560kohm 5%	PHILIPS HANJOO	
R6	RESISTOR-CARBON	1/2W 560kohm 5%	PHILIPS HANJOO	
R7	RESISTOR-CARBON	1/2W 560kohm 5%	PHILIPS HANJOO	
R2	R-WIRE WOUND	1W 0.2ohm 5%	DALE HANIL	996 203353AB
R3	RESISTOR-CARBON	1/4W 27kohm 5%	PHILIPS HANJOO	
R4	R-METAL OXIDE	2W 100 kohm 5%	PHILIPS HANRYUK	996 203354AC
R5	R-METAL OXIDE	1W 470ohm 5%	PHILIPS HANRYUK	
R8	RESISTOR-CARBON	1/4W 100ohm 5%	PHILIPS HANJOO	966 203400AF
R10	RESISTOR-CARBON	1/4W 820ohm 5%	PHILIPS HANJOO	
R11	R-METAL OXIDE(M)	2W 330ohm 5%	PHILIPS YUMI	

No	Description	Vendor P/N	Vendor	SEC Code
R12	RESISTOR-CARBON	1/4W 3.9kohm 5%	PHILIPS HANJOO	
R13	RESISTOR-CARBON	1/4W 220ohm 5%	PHILIPS HANJOO	
R14	RESISTOR-CARBON	1/4W 6.8kohm 5%	PHILIPS HANJOO	
R15	RESISTOR-CARBON	1/4W 2.4kohm 5%	PHILIPS HANJOO	
R16	RESISTOR-CARBON	1/4W 2.2kohm 5%	PHILIPS HANJOO	
LF1	AC LINE FILTER	SPL3	SUNGWON SEOUL CLOVER	
LF2	AC LINE FILTER	SPL6	SUNGWON SEOUL CLOVER	
T1	TRANS POWER	QPT-2A1 PC40/2500B2	SUNGWON SEOUL CLOVER	
B1	BEAD CORE	BFS-3565-R2B	SAMHWA TOKIN	996 203420AA
TS1	THERMAL SWITCH	T90AR3U2/1	NATIONAL	
NT1	THERMISTOR	15SP012 T2326	UEI MIDWEST	
INLET	AC INLET	ACR303B20 0711-1	TSC INALWAYS	996 203411AA
TNR1	SURGE ABSORBER	TNR14G471 INR14D471K UL	MARCON ILJIN	996 203404AB
RL1	RELAY	VG24TM	TAKAMISAWA	996 203415AA
SW1	SWITCH ON/OFF	R19-20 MSR5-2#3	LIGHT COUNTRY MARUSHIN	996 203407AA
F1	FUSE	56T016H 5T GLASS	TRIAD SAMHWA	996 203357AA
CON1	CONNECTOR	GILS10PS2T2EF	GSE	