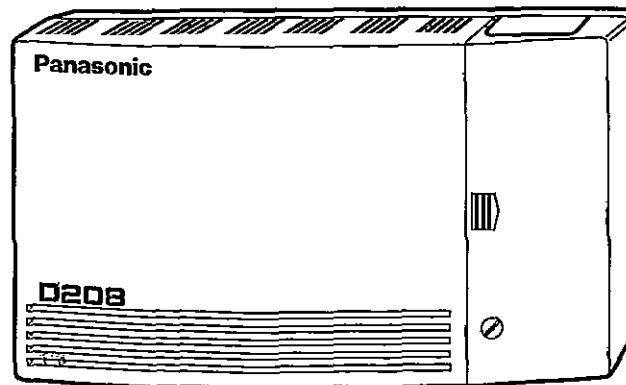


Service Manual

DIGITAL SUPER HYBRID SYSTEM

KX-TD208E[KX-TD20880CE]
[KX-TD20870CE]

(for United Kingdom)

**⚠ WARNING**

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

Panasonic

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

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CAUTION

SAFETY CAUTIONS FOR LITHIUM BATTERY

(FOR UNITED KINGDOM)

THE LITHIUM BATTERY IS A CRITICAL COMPONENT

TYPE NUMBER CR23541 (BATT) MANUFACTURED BY MATSUSHITA

IT MUST NEVER BE SUBJECTED TO EXCESSIVE HEAT OR DISCHARGE. IT MUST THEREFORE ONLY BE FITTED IN EQUIPMENT DESIGNED SPECIFICALLY FOR ITS USE.

REPLACEMENT BATTERIES MUST BE OF AN APPROVED TYPE AND MANUFACTURER AS INDICATED ABOVE. THEY MUST BE FITTED IN THE SAME MANNER AND LOCATION AS THE ORIGINAL BATTERY, WITH THE CORRECT POLARITY CONNECTIONS OBSERVED.

DO NOT ATTEMPT TO RE-CHARGE THE OLD BATTERY OR RE-USE IT FOR ANY OTHER PURPOSE. IT SHOULD BE DISPOSED OF IN WASTE PRODUCTS DESTINED FOR BURIAL RATHER THAN INCINERATION.

WARNING

THE LITHIUM BATTERY IN THIS EQUIPMENT MUST ONLY BE REPLACED BY QUALIFIED PERSONNEL. WHEN NECESSARY, CONTACT YOUR LOCAL PANASONIC SUPPLIER.

SAFETY PRECAUTIONS

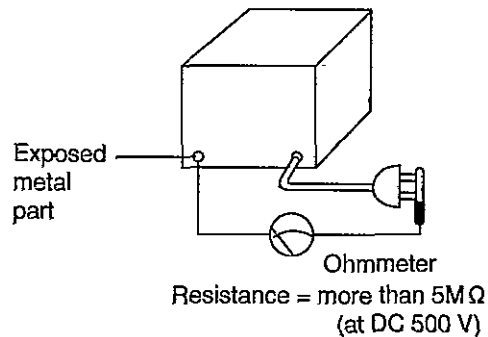
1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers,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

INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part (screwheads, control shafts, handle brackets, etc.).

"Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.



FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

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

IMPORTANT INFORMATION

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A5 amp fuse is fitted in this plug. Should the fuse need to be replaced please ensure that the replacement fuse has rating of 5 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced. If you lose the fuse cover the plug must not be used until a replacement cover is obtained. A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.


If a new plug is to be fitted please observe the wiring code as shown below.

WARNING : THIS APPLIANCE MUST BE EARTHED.

IMPORTANT : The wires in this mains leads are coloured in accordance with the following code:

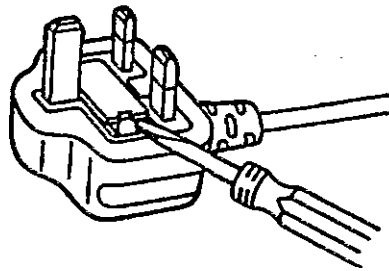
Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

How to replace the fuse : Open the-fuse compartment with a screwdriver and replace the fuse and fuse cover.



SPECIFICATIONS

1. GENERAL DESCRIPTION

- 1. System Capacity Extension lines 8
ISDN Line 1 (2 CO lines)
- 2. Control Method Stored Program CPU: 8 bits CPU
Control ROM: 1024 KB, Control RAM:160 KB
- 3. Switching Non Blocking PCM Time Sharing Switch
- 4. Power Supplies Primary AC 110-240 V, 50/60 Hz
Secondary Circuit Volt: +5V, +15 V, +30 V
- 5. Dialing Dial Pulse (DP) 10 pps, 20pps, Tone (DTMF) Dialing, DTMF-DP
- 6. Connector ISDN line Modular connector (8-pin)
Extension 4-pin connector
Doorphone 4-pin connector

7. Extension Connection Cable

Single line telephones	1 pair wire (A, B)
KX-T7230E, KX-T7235E, KX-T7250E	1 pair wire (L, H): A and B are not necessary or 2 pair wire (A, B, L, H) for XDP
KX-T7310E, KX-T7315E	1 pair wire (A, B)
KX-T7130E, KX-T7020E KX-T7050E	2 pair wire (L, H, A, B)

- 8. SMDR (Station Message Detail Recording) Interface EIA (RS-232C) (D-SUB, 9-pin)
Output Equipment Printer
Detail Recording Date, Time, Extension Number, Department Code, ISDN Port Number, Call Duration, Charge Fee, Account Code
- 9. Dimensions 317(W) × 63(H) × 172(D) mm
(12 ¹⁵/₃₂" × 2 ¹⁵/₃₂" × 6 ²⁵/₃₂")
- 10. Weight 1.3kg (2 lb 13.9 oz)

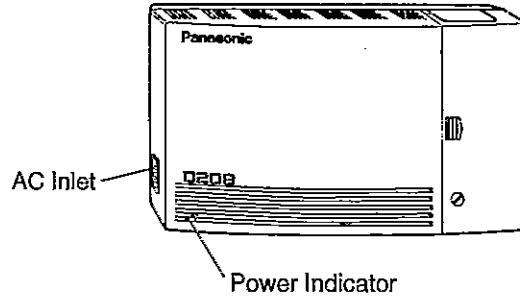
2. CHARACTERISTICS

- 1. Station Loop Limit KX-T7230E/KX-T7235E/KX-T7250E 40 ohms
KX-T7130E/KX-T7020E/KX-T7050E
Single line telephone/KX-T7310E/KX-T7315E 600 ohms including set
Doorphone 20 ohms
- 2. Minimum Leak Resistance 15000 ohms
- 3. Maximum Number of Station Instruments per line 1 for KX-T7230E/KX-T7235E/KX-T7250E
or KX-T7130E/KX-T7020E/KX-T7050E
2 for Parallel or Extra device Port connection of a PITS and SLT
3 for SLT, KX-T7310E/KX-T7315E
- 4. Ring Voltage 90 Vrms at 25 Hz depends on Ringing Load
- 5. Primary Power AC 110-240 V, 50/60 Hz
- 6. Central Office Loop Limit 1600 ohms maximum
- 7. Environmental Requirements ... 0-40°C/32-104°F, 10%-90% (Humidity)

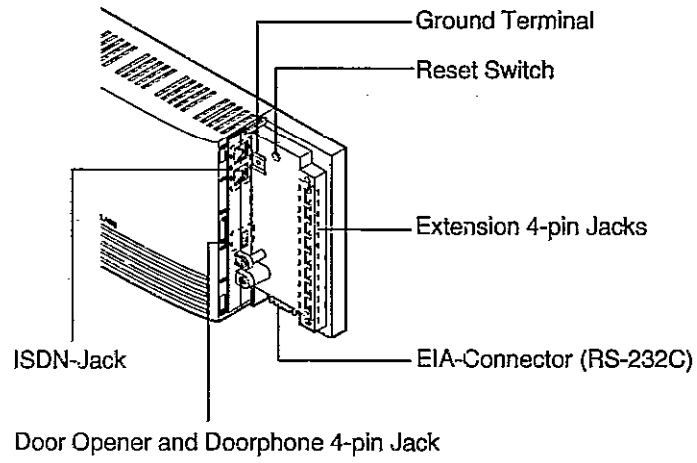
Design and specifications are subject to change without notice.

NAME AND LOCATION

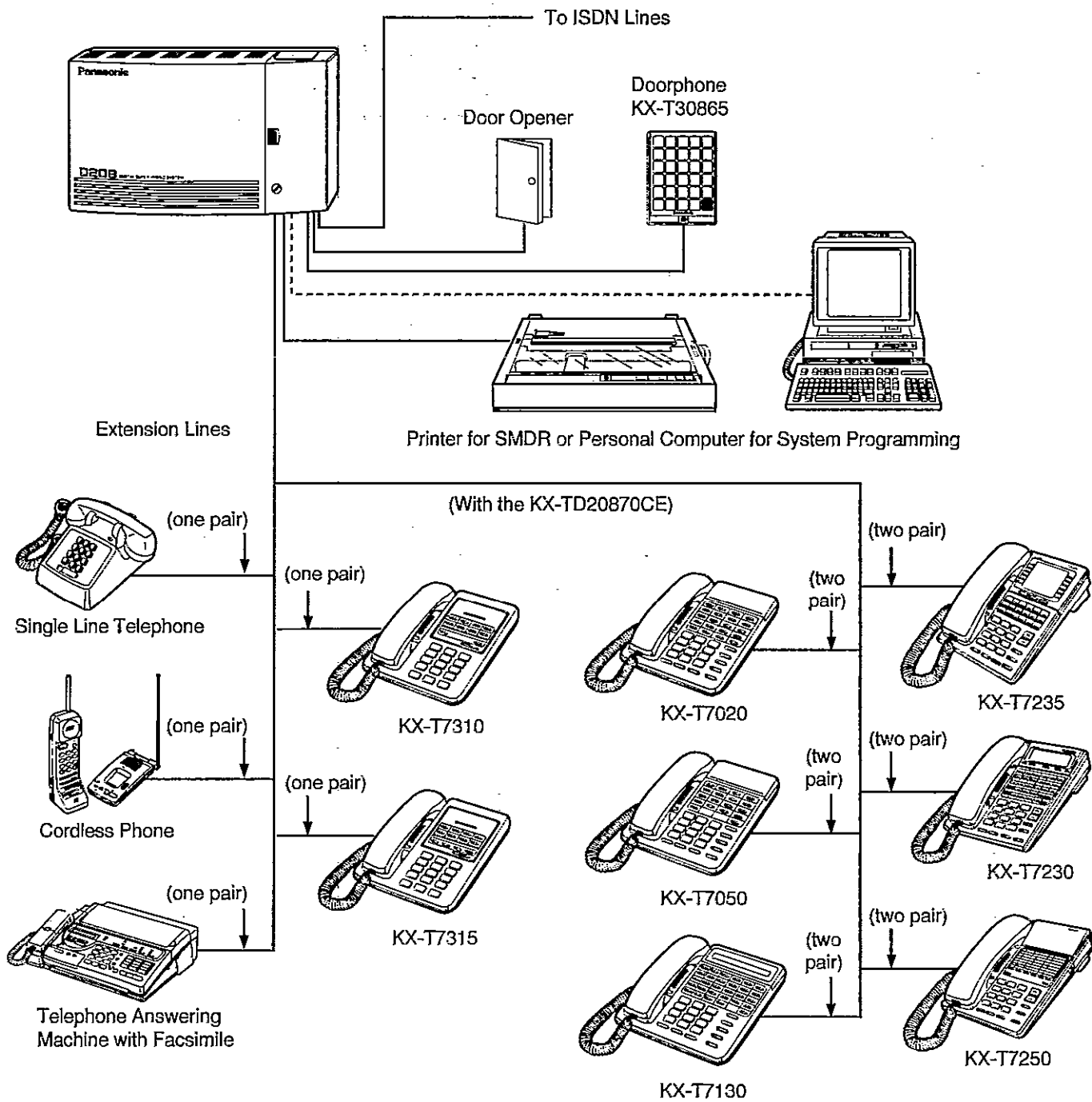
OVERVIEW OF THE MAIN UNIT



INSIDE VIEW OF THE MAIN UNIT



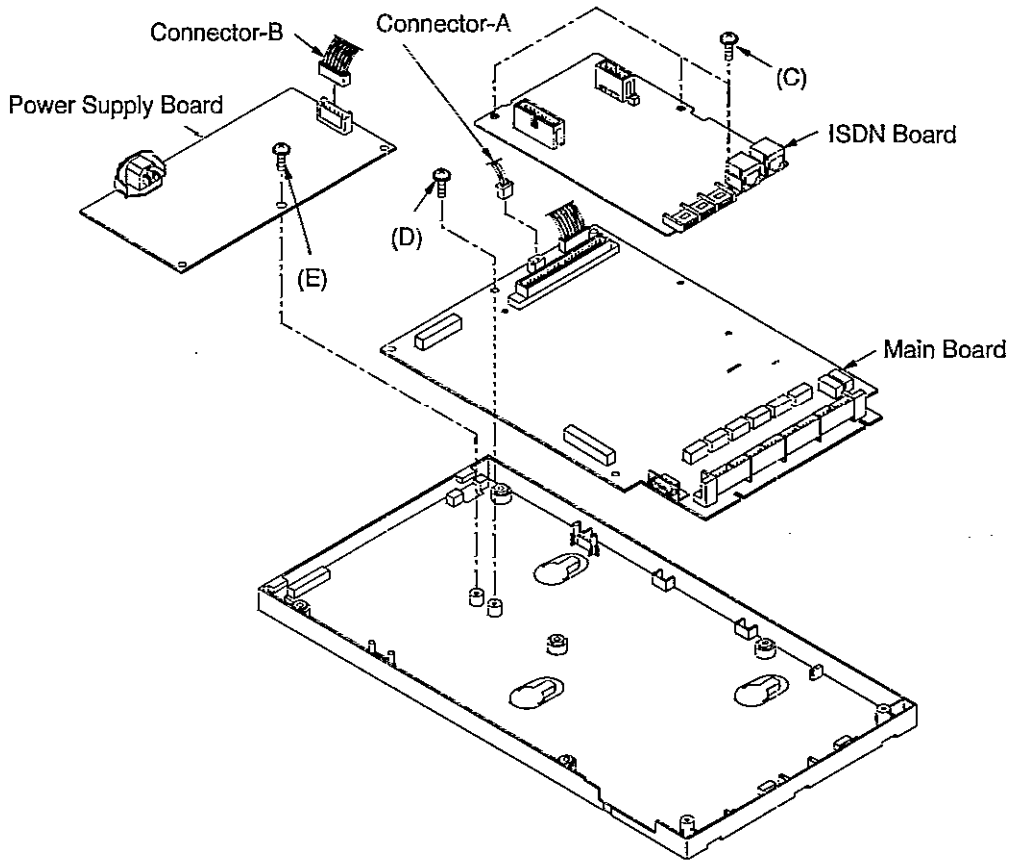
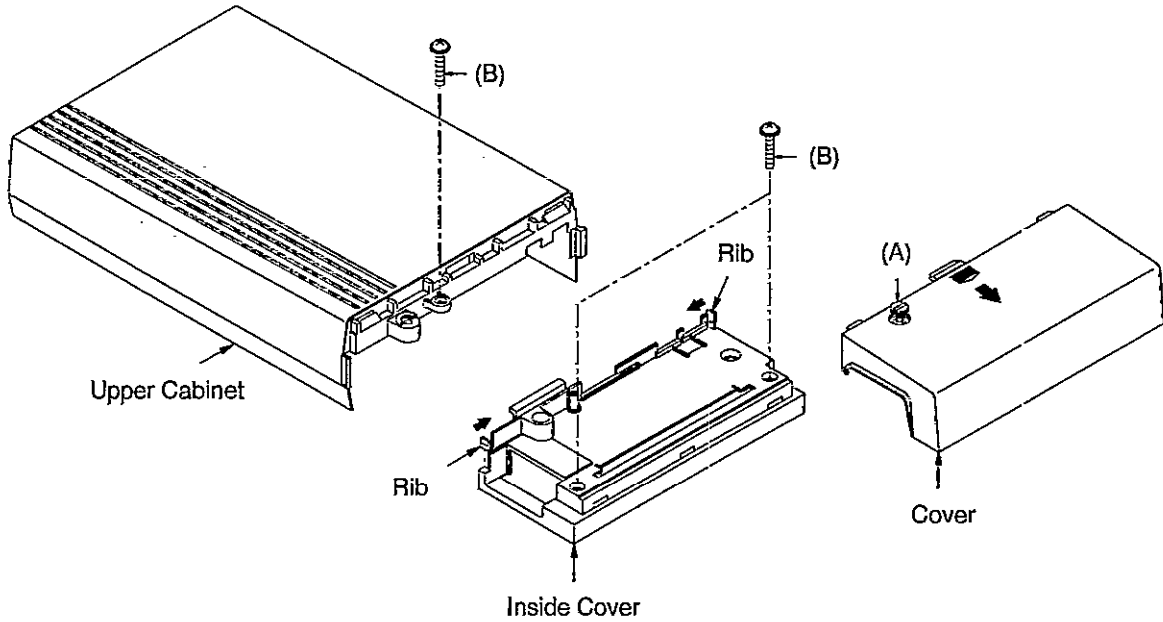
SYSTEM CONNECTION DIAGRAM



Notes: For details of installation and programming, refer to the Installation Manual.

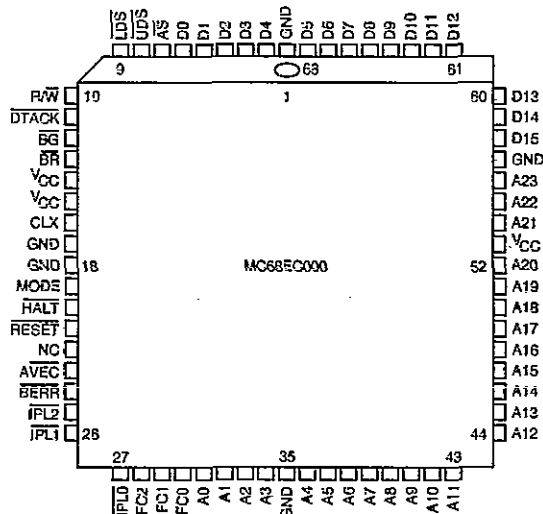
DISASSEMBLY INSTRUCTIONS

1. Loosen the screw (A).
2. Slide the cover to the direction of an arrow while pressing the marked position.
3. Remove the 3 screws (B).
4. Pressing the 2 ribs and remove the upper cabinet.
5. Pull out the connector-A.
6. Remove the inside cover.
7. Remove the 3 screws (C).
8. Remove the ISDN board.
9. Pull out the connector-B.
10. Remove the 2 screws (D).
11. Remove the main board.
12. Remove the screw (E).
13. Remove the power supply board.



IC DATA

1. IC100

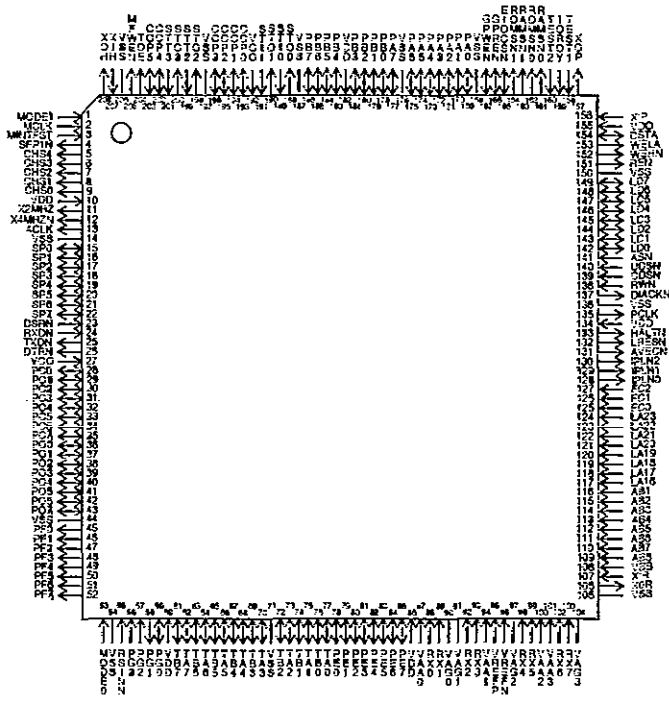


Pin No.	Pin Name	I/O	Function	Operation
1	GND	—	Ground	
2	D4	I/O	Data 4	Data Bus
3	D3	I/O	Data 3	
4	D2	I/O	Data 2	
5	D1	I/O	Data 1	
6	D0	I/O	Data 0	
7	AS	O	Address Strobe	
8	UDS	O	Upper Data Strobe	Not Use (open)
9	LDS	O	Lower Data Strobe	
10	R/W	O	Read/Write Signal	
11	DTACK	I	Data Acknowledgment	
12	BG	O	Bus Request Acknowledgment	Not Use (open)
13	BR	I	Bus Request	Not Use (High Level fixed)
14	Vcc	—	Power Source	+5V Supply
15	Vcc	—	Power Source	+5V Supply
16	CLK	I	Clock Input	8.192 MHz Clock Input
17	GND	—	Ground	
18	GND	—	Ground	
19	MODE	I	Data Bus Mode Select	Low Level fixed (8-Bit Data Bus)
20	HALT	I/O	HALT Input/Output	0 = HALT enable
21	RESET	I/O	RESET Input/Output	0 = RESET enable
22	N.C	—	Non Connection	
23	AVEC	I	Auto Vector	

KX-TD208E

Pin No.	Pin Name	I/O	Function	Operation
24	BERR	I	Bus Error	Not Use (High Level fixed)
25	IPL2	I	Interrupt Priority Level	
26	IPL1	I		
27	IPL0	I		
28	FC2	O		Processer Status
29	FC1	O		
30	FC0	O		
31	A0	O	Address 0	Address Bus
32	A1	O	Address 1	
33	A2	O	Address 2	
34	A3	O	Address 3	
35	GND	—	Ground	Address Bus
36	A4	O	Address 4	
37	A5	O	Address 5	
38	A6	O	Address 6	
39	A7	O	Address 7	
40	A8	O	Address 8	
41	A9	O	Address 9	
42	A10	O	Address 10	
43	A11	O	Address 11	
44	A12	O	Address 12	
45	A13	O	Address 13	
46	A14	O	Address 14	
47	A15	O	Address 15	
48	A16	O	Address 16	
49	A17	O	Address 17	
50	A18	O	Address 18	
51	A19	O	Address 19	
52	A20	O	Address 20	
53	Vcc	—	Power Source	+5 V Supply
54	A21	O	Address 21	Address Bus
55	A22	O	Address 22	
56	A23	O	Address 23	
57	GND	—	Ground	Data Bus
58	D15	I/O	Data 15	
59	D14	I/O	Data 14	
60	D13	I/O	Data 13	
61	D12	I/O	Data 12	
62	D11	I/O	Data 11	
63	D10	I/O	Data 10	
64	D9	I/O	Data 9	
65	D8	I/O	Data 8	
66	D7	I/O	Data 7	
67	D6	I/O	Data 6	
68	D5	I/O	Data 5	

2. IC102



Pin No.	Port	Pin Name	I/O	Function	Operation	Initial Value
15	SP 0	CLEAR SW	I	Reset SW status	0 ... Reset	1
16	SP 1	PROGRAM SW	I	Flash ROM write mode	1 ... disable, 0 ... enable	1
17	SP 2	DC ALARM	I	DC alarm status	0 ... +15 V down	1
31	PC 3	D BUSY	O	Doorphone power control	1 ... Power ON	0
32	PC 4	D OPEN	O	Door opener control	1 ... Door opener enable	0
33	PC 5	D HOOK	O	Doorphone hook detection	1 ... ON-Hook, 0 ... OFF-Hook	0
34	PC 6	DR	I	Doorphone connection	1 ... Connect Doorphone	1
45	PF 0	BELL 1	O	Bell relay control for EXT1	1 ... Ring ON 0 ... Ring OFF	0
46	PF 1	BELL 2	O	Bell relay control for EXT2		0
47	PF 2	BELL 3	O	Bell relay control for EXT3		0
48	PF 3	BELL 4	O	Bell relay control for EXT4		0
49	PF 4	BELL 5	O	Bell relay control for EXT5		0
50	PF 5	BELL 6	O	Bell relay control for EXT6		0
51	PF 6	BELL 7	O	Bell relay control for EXT7		0
52	PF 7	BELL 8	O	Bell relay control for EXT8		0

KX-TD208E

Pin No.	Port	Pin Name	I/O	Function	Operation	Initial Value
78	PE 0	HOOK 1	I	Hook detection for EXT1	0 ... OFF-Hook 1 ... ON-Hook	1
79	PE 1	HOOK 2	I	Hook detection for EXT2	0 ... OFF-Hook 1 ... ON-Hook	1
80	PE 2	HOOK 3	I	Hook detection for EXT3	0 ... OFF-Hook 1 ... ON-Hook	1
81	PE 3	HOOK 4	I	Hook detection for EXT4	0 ... OFF-Hook 1 ... ON-Hook	1
82	PE 4	HOOK 5	I	Hook detection for EXT5	0 ... OFF-Hook 1 ... ON-Hook	1
83	PE 5	HOOK 6	I	Hook detection for EXT6	0 ... OFF-Hook 1 ... ON-Hook	1
84	PE 6	HOOK 7	I	Hook detection for EXT7	0 ... OFF-Hook 1 ... ON-Hook	1
85	PE 7	HOOK 8	I	Hook detection for EXT8	0 ... OFF-Hook 1 ... ON-Hook	1

TIME SLOT LAYOUT TABLE

SLOT No.	HW 0		HW 1		HW 2		HW 3	
	PULL-UP	PULL-DOWN	PULL-UP	PULL-DOWN	PULL-UP	PULL-DOWN	PULL-UP	PULL-DOWN
1	IDLE	CNF1-1	reserved	reserved	Ex1-B1	Ex1-B1		
2		-2	reserved	reserved	Ex1-B2	Ex1-B2		
3		-3			Ex2-B1	Ex2-B1		
4					Ex2-B2	Ex2-B2		
5	CNF1-2	CNF2-1	reserved	reserved	Ex3-B1	Ex3-B1		
6	-1	-2	reserved	reserved	Ex3-B2	Ex3-B2		
7	-3	-3			Ex4-B1	Ex4-B1		
8	TONE1				Ex4-B2	Ex4-B2		
9	CNF2-2	CNF3-1	reserved	reserved				
10	-1	-2	reserved	reserved				
11	-3	-3						
12	TONE2							
13	CNF3-2	CNF4-1	reserved	reserved				
14	-1	-2	reserved	reserved				
15	-3	-3						
16	TONE3							
17	CNF4-2	CNF5-1	S01_B1	S01_B1	Ex1-v	Ex1-v		
18	-1	-2	S01_B2	S01_B2	Ex2-v	Ex2-v		
19	-3	-3			Ex3-v	Ex3-v		
20	TONE4				Ex4-v	Ex4-v		
21	CNF5-2	CNF6-1	S02_B1	S02_B1	Ex5-v	Ex5-v		
22	-1	-2	S02_B2	S02_B2	Ex6-v	Ex6-v		
23	-3	-3			Ex7-v	Ex7-v		
24	DTMF1				Ex8-v	Ex8-v		
25	CNF6-2		reserved	reserved				
26	-1		reserved	reserved				
27	-3							
28			MUSIC					
29			reserved	reserved				
30			reserved	reserved				
31			DPHN	DPHN				

1) EX1-8-v (Extention), S01 (Basic ISDN), S02 (Expansion ISDN)

2) B* : D-PITS voice data
 B1: D-PITS usual pass
 B2: D-PITS OHCA pass
 V : A-PITS, SLT voice data

CIRCUIT OPERATIONS

1. SPECIFICATIONS

ITEM	CONTENT
Control Method	Stored Program Method
Telephone Call Way Method	Non Blocking PCM Time Division Method
Switching Method	A Law
Control CPU	MC68EC000 (manufactured by Motorola)
ROM Capacity	1024 K byte
RAM Capacity	160 K byte
Extension Capacity	8
CO line Capacity	2 (1 for initial equipment. Correspond to ISDN only)
Door-phone Connection Capacity	1
Door Opener Connection Capacity	1
Internal Music on Hold Capacity	1
RS-232C Port	1 (9 pin D-SUB)

2. OUTLINES AND FUNCTIONS OF EACH UNIT

In this section, the unit compositions, outlines, and functions of this system are described as follows.

Classification	Board Name	Model No	Quantity	Remarks
Initial Equipment	Power Supply Board	KX-TD208E	1	
	Main Board	KX-TD208E	1	
	ISDN Board (basic)	KX-TD208E	1	
Option	Expansion ISDN Board	KX-TD20880CE	1	
	PITS I/F Board	KX-TD20870CE	1	

2.1 POWER SUPPLY BOARD

The power supply board generates three kinds of DC voltage, +30V, +15V, and +5V from AC power supply, and supply them to the system.

2.1 MAIN BOARD

The main board has CPU, which control the system, and TSW (Tome Switch), which switch the PCM telephone call way, as its main function. Futhermore, the main board has common resources to the systems as clock function, clock making function, and so on. Also, I/F function, which connects the system and the terminal units.

Function		Content
CPU Function		Following the programs, CPU function controls all the system.
Inside of G/A	TSW Function	Conducts a time division transforming process such as keeping PCM data temporally, and outputting the data to random slot of random PCM serial data stream.
	HDLC Controller	Controls the transmission of DPITS data. Two channels of this controller are equipped. Equivalent to MT8952B for KX-TD1232 series. Unused at KX-TD208E.
	RS-232C Communication Controller	Controls the RS-232C communication, and has its circuit.
	Clock Function	Equivalent to Clock IC (MS6242) for KX-TD series.

Function		Content
Inside of G/A	Tone Generator Detection Controller	1) Enables Three Persons Conference. (6 channels) 2) Generates a dual tone. (4 channels)
	Timer Counter	The basic frequency is 16.384 MHz. The timer counter is composed of an interval timer of two channels, a watchdog timer, and baud rate generator.
	A/DPITS Communication Controller	Used to control the digital communication of 2B -- D for analogue typed telephones and digital typed telephones.
	Parallel I/O Port	Used to receive comparatively slow status, and to control the status at bit unit. Parallel I/O Port is composed of system port and port groups #A ~ #F, which can be able to access by 8 bit, and port group #G, which can be able to access by 4 bit.
	PCM Stream Controller	Composed of the basic Timing generator of PCM stream, and eight channel pulse generator blocks.
Internal Music on Hold		Possible by Music on Hold IC.
Voltage Watching Function		Observes +5V and +15V voltages. It conducts the system reset when +5V voltage is derated.
Buck-up Function		<ul style="list-style-type: none"> •Back up the around CPU (+5V) when AC power momentarily fails. •Back up the system data of RAM by lithium battery.
Bell Signal Generator Function		Generates 25 Hz signal from I/O port of G/A, Amplifies and up the voltage by power amplifier and transformer, and supplies it to the extensions.

Function	Content
Current Supply	Supplies the communicative current to SLT.
Hook Detection	Detects On-Hook and Off-Hook when a bell signal is not output.
Ring Trip Detection	Detects Off-Hook when a bell signal is presented.
2W-4W Lines Conversion	Converts 2W signals from SLT to 4W signals.
A/D and D/A Conversion	Conducts a conversion between 4W analogue signals and PCM digital signals by Codec.

2.3 ISDN BOARD (BASIC)

ISDN board is an initial equipment on the system, and conducts I/F between ISDN circuit and the system. It supports only 1-ISDN, also, Door-phone and Door Opener are equipped to the ISDN board.

Function	Content
ISDN Circuit Interface	This is an interface circuit to connect ISDN circuit and the system.
2W-4W Lines Conversion	Converts 2W signals from the door-phone to 4W signals.
A/D and D/A Conversion	Conducts a conversion between 4W analogue signals and PCM digital signals by Codec.
Door-phone Calling Detection	Detects a calling sign from a door-phone side.
Door Opener Controller Function	Has one channel of relay contact output for a door opener controller.
Current Supply	Supplying the current to the door-phone.
Detect connection of Door-phone	Detect if the door-phone is connected.

2.4 EXPANSION ISDN BOARD (KX-TD20880CE, OPTION)

The expansion ISDN board can be used for following purposes.

- (1) If the CO line is selected, two CO lines are added.
- (2) If the extension line is selected, eight ISDN extension lines are added.

This board is only equipped with ISDN circuit interface.

Function	Content
ISDN Circuit Interface	This is a interface circuit to connect ISDN circuit and the system. Also, it is possible to use as an extension ISDN by changing software's setting.

2.5 A/DPITS I/F BOARD (KX-TD20870CE, OPTION)

This board is an optional card for connecting A-PITS and D-PITS up to 4Exts.

Function	Description
Current Supply	Supplying the current necessary to operate the APITS and the DPITS through the data line.
Data transmission (APITS)	Communicating with the APITS about the control data such as the key information, the ramp information.
Data transmission (DPITS)	Communicating with the DPITS about the voice (2B) and the control data.

3. EXPLANATION OF CIRCUIT OPERATION

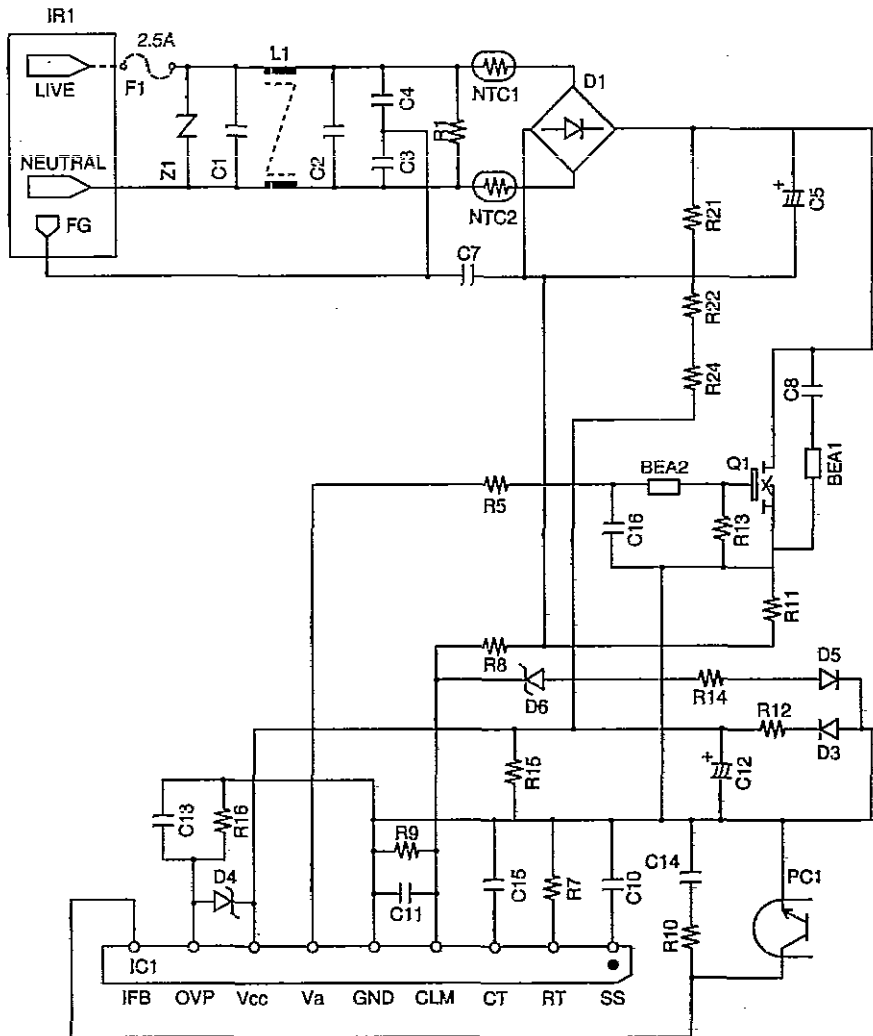
3.1 POWER SUPPLY BOARD

3.1.1 PRIMARY CIRCUIT

Circuit Operation:

The circuits between IR1 and T1 are known as the primary circuit which consists of the filter circuit (C1, C2, L1, C3, C4) for eliminating noise, the surge protector (Z1), rectifier circuit (D1, C5), and switching circuit (IC1, Q1).

Circuit Diagram



3.1.2 DC Voltage Stalizing Circuit

Circuit Operation:

The primary and secondary are insulated by switching transformer (T1).

DC voltage of +30V, +15V, +5.9V, and -150V can be obtained at the secondary.

The +15V voltage , which is output to the secondary, is stabilized by adjusting VR101 in the constant voltage circuit.

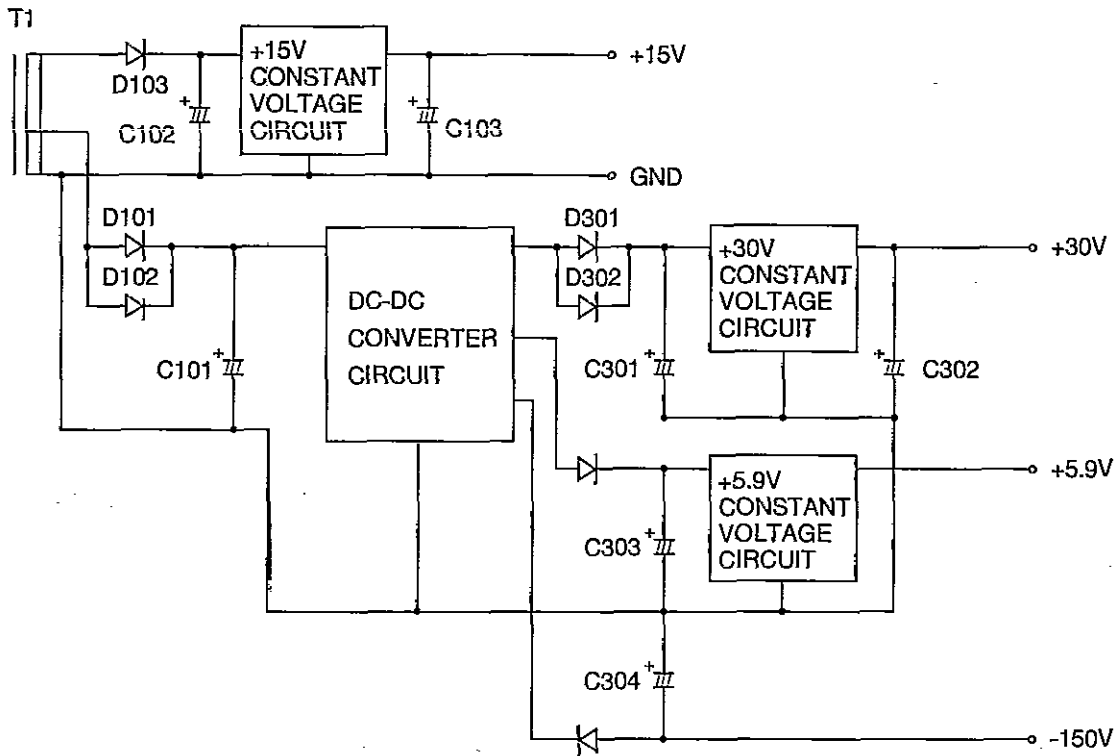
The voltage, +30V, +5.9V, and -150V, are generated by converting T1's output by DC-DC Converter.

The +30V voltage , which is output to the secondary, is stabil IC301 and D305 in the constant voltage circuit.

The +5.9V voltage , which is output to the secondary, is stabilized by adjusting VR301 in the constant voltage circuit.

The -150V voltage , which is output to the secondary, is stabilized by DC-DC CONVERTER CIRCUIT.

Block Diagram

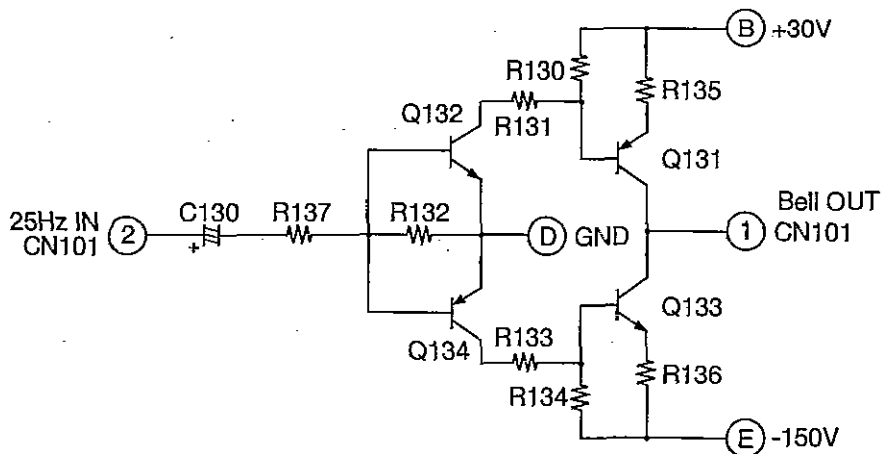


3.1.3 Bell Circuit

Circuit Operation:

The 25 Hz square waves from the CPU are supplied to CN101 pin 2, bell waveforms are formed by the bell circuit inside the power supply, and these are output to CN101 pin 1.

Circuit Diagram



3.2 MAIN BOARD**3.2.1 CPU Circuit**

CPU circuit is mainly composed of following parts.

- 8 bit CPU (IC100)
- ROM (IC102, IC103)
- RAM (IC104, IC105)
- Gate Array (IC101)

Circuit Operation:

CPU(IC100) controls the programs in ROM (IC102, IC103), that is, the system. RAM (IC104, IC105) is backed up by back-up battery (BAT1), and keeps system data.

Gate Array is equipped with following function.

- (a) TSW (Time division Switch) Controller Function
- (b) RS-232C Communication Controller Function
- (c) Clock Function
- (d) Tone Generator Detection Processor
- (e) Timer Counter
- (f) Parallel I/O Port
- (g) PCM Highway Controller Function
- (h) APITS Data Communication Circuit
- (i) DPITS Data Communication Circuit
- (j) HDLC Controller

- (a) TSW (time Division Switch) Controller Function

Inside of G/A, four PCM highway are installed. One PCM highway can have 32 channels of 8 bit PCM data, therefore maximum 128 channels of PCM data are available. Followings are the assignments of each highway

- HW0 Conference Circuit, Tone-DTMF Generator,
- HW1 ISDN#1~#4, Music ON HOLD, Door-phone,
- HW2 EXT#1~#8
- HW3 Unused

- (b) RS-232C Communication Controller Function

This function controls the data transmission between CPU (IC100) and personal computer, printer, etc.

- (c) Clock Function

This function supplies a real time clock to the system. This function has its own power source, and is backed up by battery.

- (d) Tone Generator Detection Processor

This is signal processor to use following function.

- ① Three Persons Conference

Conference function is for enabling the three person's conference. This function is connected with HWS0 of the down high way and HWR0 of the up highway. After the voice data which are transferred to HWS0 at TSW are processed with the summation, and are presented to HWR0 and transferred at TSW again. This function covers 3-person×6-conference.

- ② Tone Generator Function

Tone Generator Function presents 4 kinds of the call progress tone and 2 channels of the DTMF tone to HWS0 of the down highway.

- (e) Timer Counter

The timer counter, its basic frequency is 16.384 MHz, is composed of Watchdog timer, and other kinds of timer.

- (f) Parallel I/O Port

Gate Array (IC101) is composed of system port and port group #A~#F, which can be able to access by 8 bit, and of port group #G, which can be able to access by 4 bit.

(g) PCM Highway Controller Function

This function generates the basic timing of PCM Highway, and eight channel pulses.

Following are the clocks generated.

CHSD ~ 4: 128, 64, 32, 16, 8 kHz; Channel select signal

- CCP0 ~ 5: 8 kHz Synchronous signal for CODEC

(h) APITS Data Communication Circuit

APITS Data Communication Circuit is a circuit which performs the serial/parallel conversion of the control data between APITS comm. paths and the main CPU(IC100). This circuit covers 4 lines corresponding to each extension, and 4 lines are integrated into on Gate Array(IC101).

(i) DPITS Data Communication Circuit

DPITS Data Communication Circuit is a circuit which has the following functions. This circuit covers 4 lines corresponding to each extension, and 4 lines are integrated into one Gate Array(IC101).

· B channel communication

The B channel data are transferred between the DPITS comm. path and the PCM highway. The transmitting capability is 64 kbps X2.

Note) B channel stands for "Barer Channel", normally transmitting the voice data.

· D channel communication

The data are transferred between the DPITS comm. path and the HDLC controller, serial bus.

The transmitting capability is 16 kbps. Because the communication between HDLC controller and this circuit is done as 1 vs. 1, the HDLC controller switches the communication extension every for 8 ms. Therefore, the communication per one extension is done only 8 ms at 64 ms cycles, the actual transmitting capability is 2 kbps.

Note) D channel stands for "Data Channel", transmitting CPU control data.

· C channel communication

The serial/parallel data conversion are done between the DPITS comm. path and the main CPU data bus. The level (H or L) transmission is only possible through the C channel.

Note) C channel stands for "Control Channel".

(j) HDLC Controller

HDLC controller is a circuit which functions the data format conversion of the D channel between the DPITS comm. line installed with a Gate Array (IC101) and the CPU data bus by following the HDLC protocol. The serial/parallel conversion is done at the same time.

Though this circuit communicates with 8 channel of the DPITS comm. circuit, since it can communicate only with one channel at a time, as before mentioned it, switches the communicating extension every for 8 ms.

3.2.2 Internal Hold Tone Circuit

Composition:

CODEC IC (IC115), IC108, etc.

Circuit Operation:

The Internal Hold Tone Circuit is a circuit which presents the hold tone for the system. The analogue signals from the tone sources are changed to the digital ones by CODEC IC (IC115) and presented to HWR1 of the up highway.

3.2.3 Back-Up Circuit

Composition:

BAT, C133, etc.

Back-Up Circuit is a circuit which has two functions as follows;

• Back up the CPU (IC100) peripherals for one second when AC power momentarily fails.

• Back up the real time clock in the Gate Array and the part of RAM for 7 years.

Circuit Operation:

Back-Up is done by the super capacitor (C133) at the momentary AC power failure, and the real time clock in the Gate Array and RAM are backed up by the lithium of secondary battery (BAT).

3.2.4 Voltage Watching Circuit

Composition:

Reset IC (IC107), Q100, Q101, etc.

Circuit Operation:

Voltage Watching Circuit is a security circuit which detects the deration of +5V and +15V.

If +15V is derated, this circuit resets the system. If +15V is derated, this circuit presents "Low" to I/O port in the Gate Array. The deration of +15V means AC power off.

3.2.5 RS-232C Interface Circuit

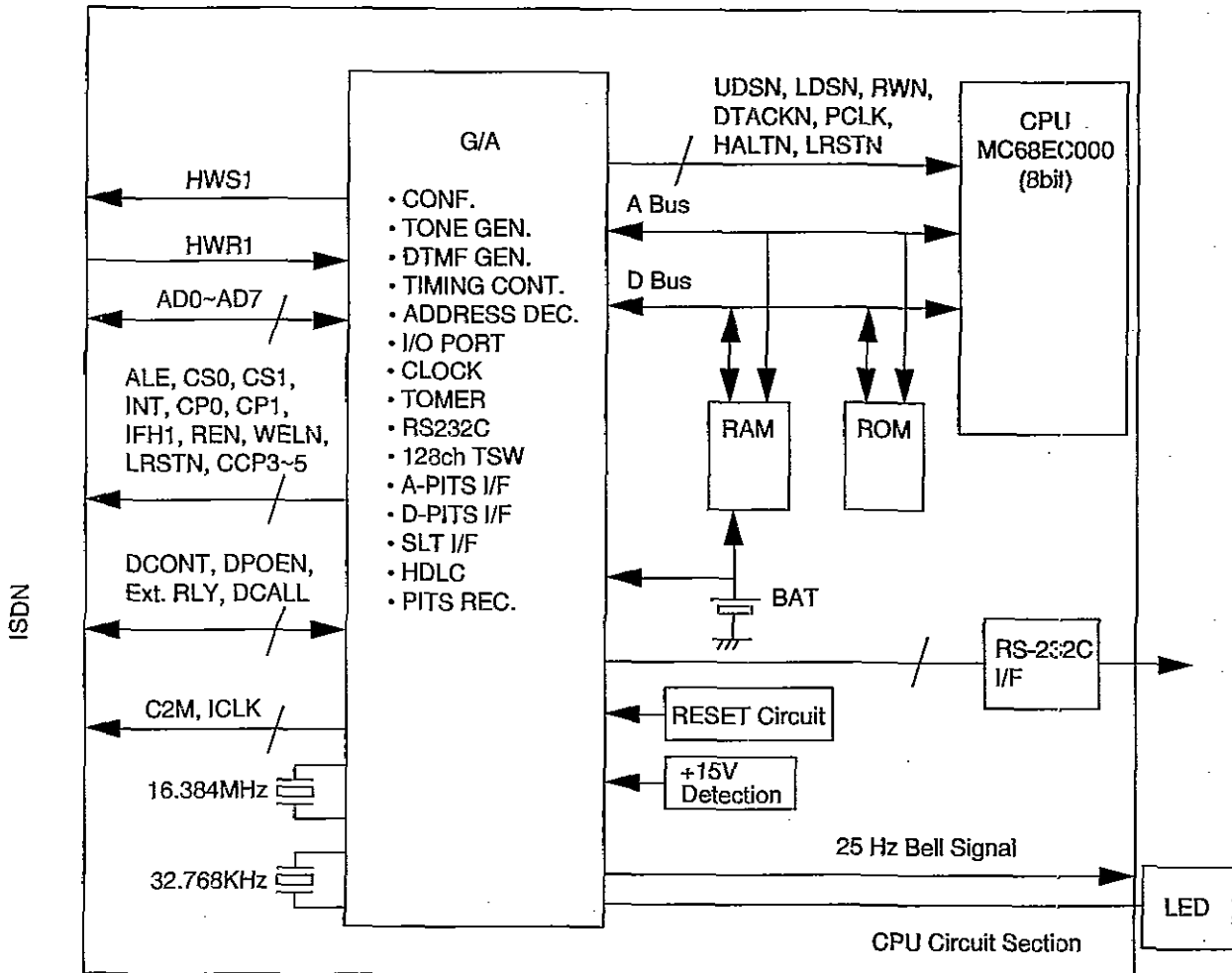
Composition:

Reset / Driver IC (IC106), Gate Array (IC101), etc.

Circuit Operation:

RS-232C Interface Circuit is a circuit for realizing the data transmission between CPU (IC100) and a Personal computer / printer, etc. This circuit consists of a serial interface built in CPU and the level conversion circuit.

Main Board Block Diagram (1)



3.2.6 Analogue Telephone Circuit

Analogue Telephone Circuit is composed of the following circuit, this consists of eight circuit corresponding to each extension line.

Composition:

- (a) Current Supply Circuit
- (b) Hook Detection Circuit
- (c) Ring Trip Detection Circuit
- (d) 2-4 Lines Conversion Circuit
- (e) A/D and D/A Conversion Circuit

Circuit Operation:

(a) Current Supply Circuit

Current Supply Circuit is constant-current circuit which supplies the call current to SLT.

With the telephone off-hook, a DC loop is formed, and current is supplied to the telephone. This current is limited to about 30 mA by R301, Q302, R304, and Q303 respectively.

+30V → R302 → R301 → Q300 → RLY301 (b → c) → L300 → Telephone → L301 → RLY301 → (c → b) → Q301 → R304 → R305 → GND

(b) Hook Detection Circuit

Hook Detection Circuit is a circuit which detects on-hook or off-hook of SLT when the bell signals are not presented, and detects the dial pulse as well.

When the telephone handset is taken off the hook, a DC loop is formed and current flows to 2 pin of IC303. Because of this, 1 pin of IC303 changes from high to low, thus HOOK pin of IC101 becomes low, and the CPU detects an off-hook condition.

When the handset is replaced back on hook, the DC loop is interrupted and current no longer flows to 2 pin of IC303 and 1 pin of IC303 goes high and the CPU assumes an on-hook condition.

(c) Ring Trip Circuit

This is for detecting off-hook of SLT when the bell signals are presented.

Normally Q304 is OFF during transmission of the bell signal. When answering the telephone, the DC loop of the call signal circuit is established, Q304 then turns ON, and base of Q305 becomes low. Because of this, the collector of Q305 becomes high and RLY301 is reset. With resetting of RLY301, the loop of bell signal circuit is interrupted and the DC loop of call circuit is established.

(d) 2W-4W Lines Conversion Circuit

This circuit converts 2-line analogue signals from SLT to 4-line signals.

The voice analog signal from the line is outputted from C304 to the 2-4 Line conversion circuit, and the circuit flow is C304 → R317 → 6 Pin of IC303 → C312 → IC300 (IC301).

IC300 and IC301 are 4ch.-CODECs. The voice analog signal is converted to PCM signal by the 4ch.-CODEC. PCM signal from TSW in G/A is converted to voice analogue signal by the 4ch.-CODEC. And the circuit flow is as following.

IC300 (IC301) → C306 → R308 → 2 Pin of IC302 → J301 → R306 → C304 → RLY301 (b → c) → L300 → Telephone.

(e) A/D and D/A Conversion Circuit

This circuit for conversion between 4-line analogue signals and the PCM digital signals. 4ch.-CODEC (IC300, IC301) has a power down function at no operation and a μ A law switching over function, and is controlled by program.

3.2.7 DTMF Receiver Circuit

Composition:

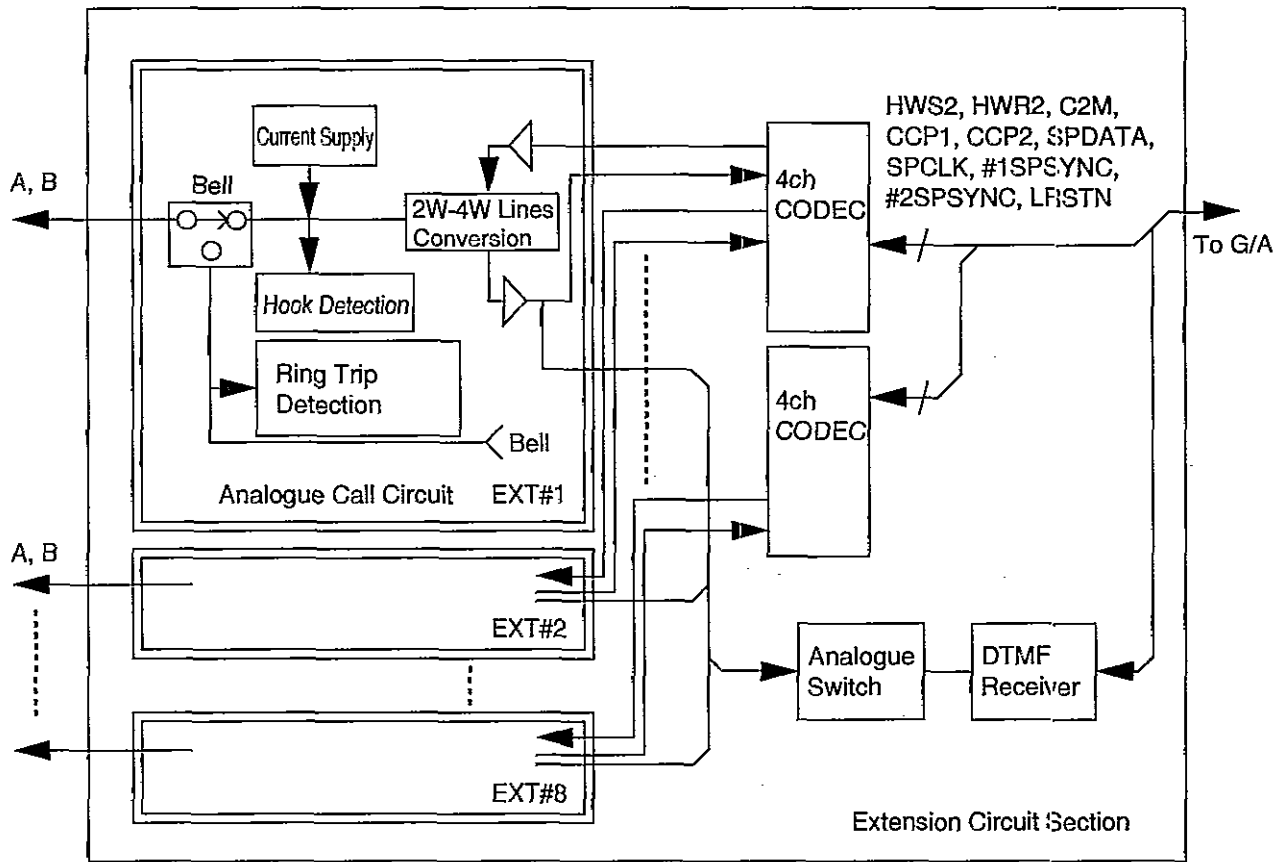
DTMF Receiver IC (IC305, IC306)

8 → 1 Analogue Switches (IC303, IC304)

Circuit Operation:

DTMF Receiver Circuit is a circuit for receiving the DTMF dials presented by SLT. This circuit is composed of the 8 → 1 Analogue Switches (IC303, IC304) and the DTMF Receiver IC (IC305, IC306). This circuit is incorporated two lines on one card, each line is connected through the eight extensions and the analogue switches (IC303, IC304) to the DTMF receiver IC (IC305, IC306). The received data of DTMF receiver are read through the data bus by the main CPU (IC100).

Main Board Block Diagram (2)



3.3 ISDN BOARD

3.3.1 ISDN Circuit

Composition:

ISDN I/F IC (IC400)

ISDN Transformer (T400, T401)

Circuit Operation:

This circuit has the S-Bus interface circuit and the ISDN lower LAYER (LAYER 1 only) control circuit.

The component switches B and D channel between the S/T Interface and the PCM Highway I/F.

3.3.2 Door-Phone Interface Circuit

Door-Phone Interface Circuit is a circuit which functions the interface between the door-phone and the PCM highway, and is composed of the following circuits.

Composition:

(a) Circuit for detection whether the door-phone is connected or not.

(b) Current supply circuit

(c) Hook detection circuit

(d) 2-4 lines conversion circuit

(e) A/D and D/A conversion circuit (CODEC) IC702

Circuit Operation:

(a) Circuit for detection whether the Door-Phone is connected or not.

When the Door-Phone is not connected, base of Q703 is high. When corrector of Q703 is low, input pin of G/A(IC101) is low.

When the Door-Phone is connected, base of Q703 is low. When corrector of Q703 is high, input pin of G/A(IC101) is high.

CPU (IC100) on 1AP gets information through IC101 whether the Door-Phone is connected or not.

(b) Current Supply Circuit

Q704 supplies current to the Door-Phone line through the transformer (T701).

(c) Hook Detection Circuit

When the call button of Door-Phone isn't pushed, base of Q706 is high. When corrector of Q706 is low, input pin of G/A(IC101) is low.

When the call button of Door-Phone is pushed, base of Q706 is low. When corrector of Q706 is high, input pin of IC101 is high. CPU (IC100) on 1AP gets information through IC101 whether the call button is pushed or not.

(d) 2-4 Lines Conversion Circuit

This circuit converts 2-line analogue signals to 4-line signals.

(e) A/D, D/A Conversion Circuit

This circuit is for converting the analogue signals from Door-Phone to the PCM digital signals to present to the PCM highway, and also converting the data on the PCM highway into the analogue signals to the Door-Phone. This circuit has the power down function and the μ A conversion function.

3.3.3 Door Opener Circuit

This is the relay circuit which controls the Door Opener connected externally. The control is made by the "D OPEN" signal. One of this circuit are installed on a card.

Composition:

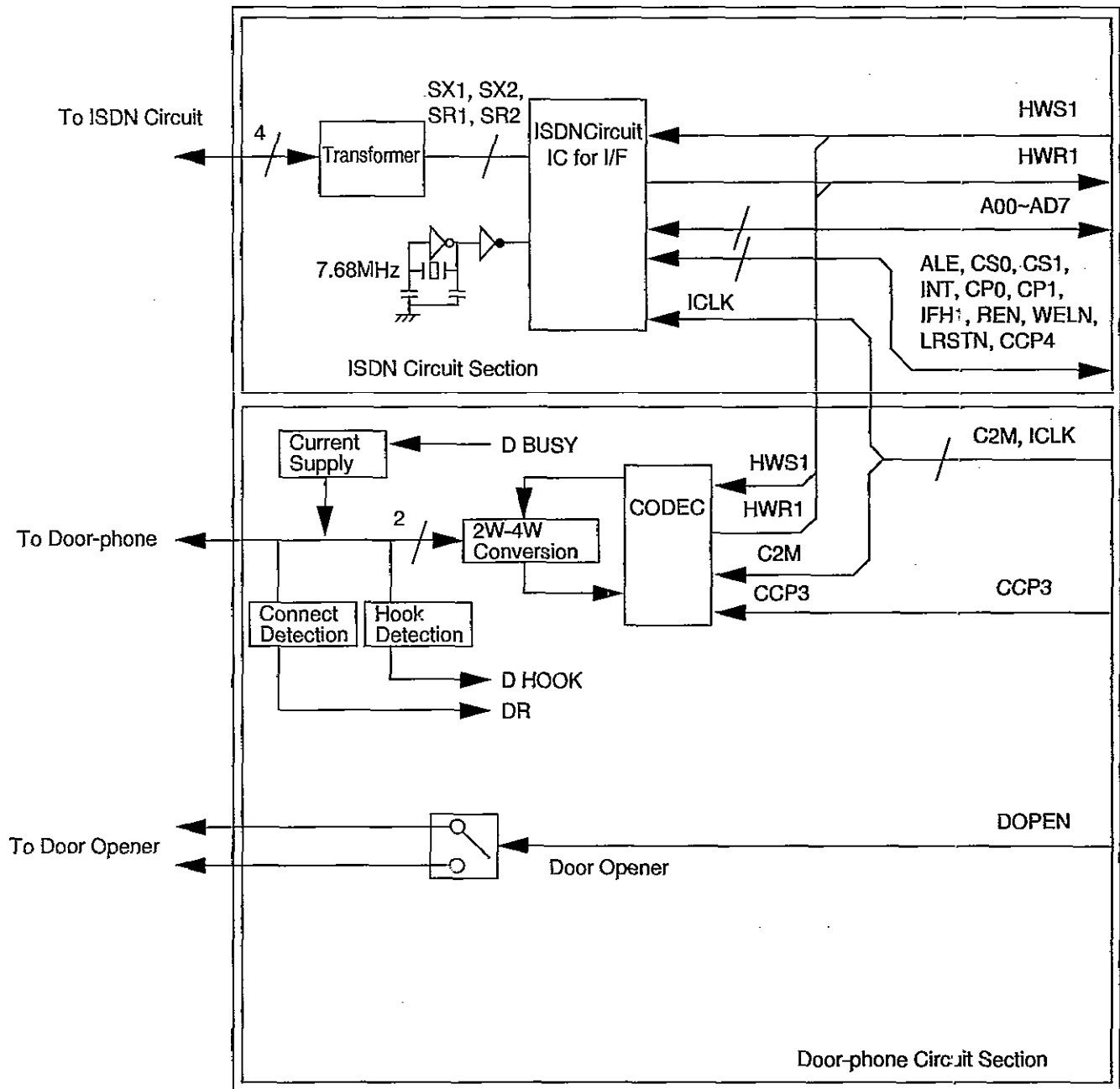
Q709, RLY702, etc.

Circuit Operation:

When CPU (IC100) on 1AP make the "D OPEN" signal high, transistor (Q709) controls the relay (RLY702) ON. When

CPU (IC100) on 1AP make the "D OPEN" signal low, transistor controls the relay OFF.

ISDN Board Block Diagram

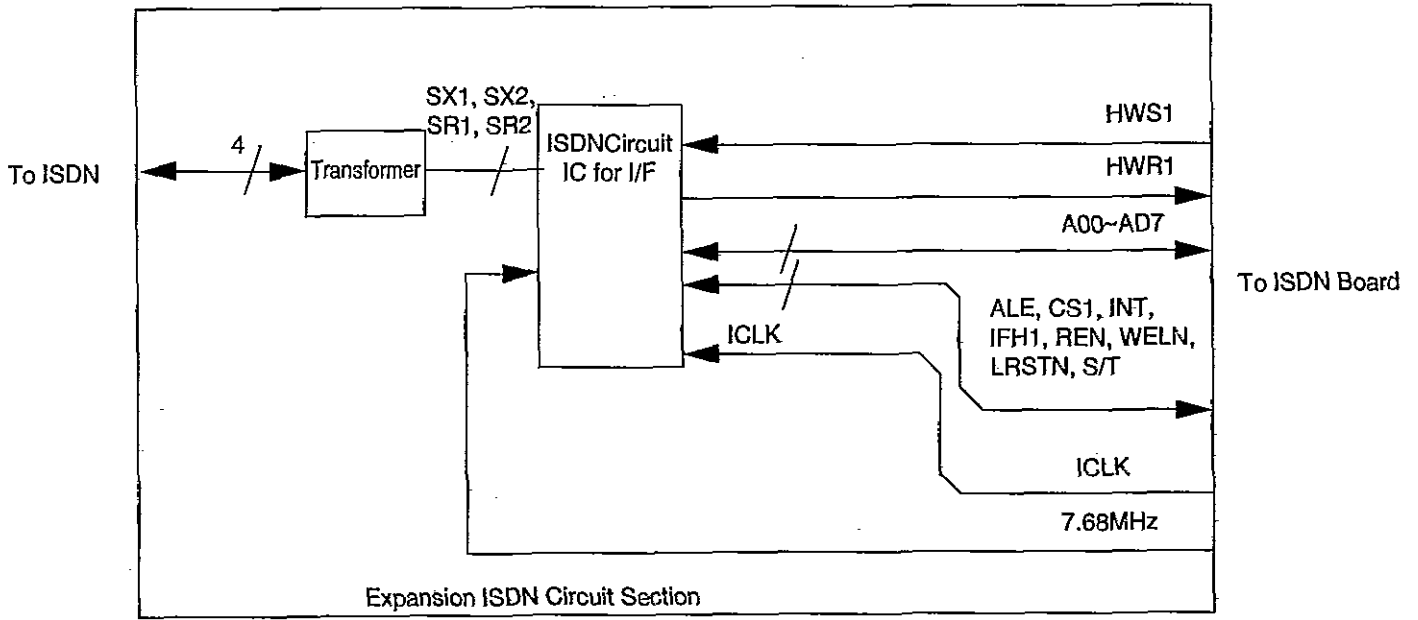


3.4 EXPANSION ISDN BOARD (KX-TD20880CE)

The circuit on this board has the following differences from the ISDN BOARD. Others are the same as the ISDN BOARD.

- Expansion ISDN board can be converted to both extension ISDN and CO Line ISDN.

Expansion ISDN Board Block Diagram



KX-TD208E

3.5 EXPANSION A/DPITS BOARD (KX-TD20870CE)

Composition :

Q800, Q801, Q802, T800 etc.

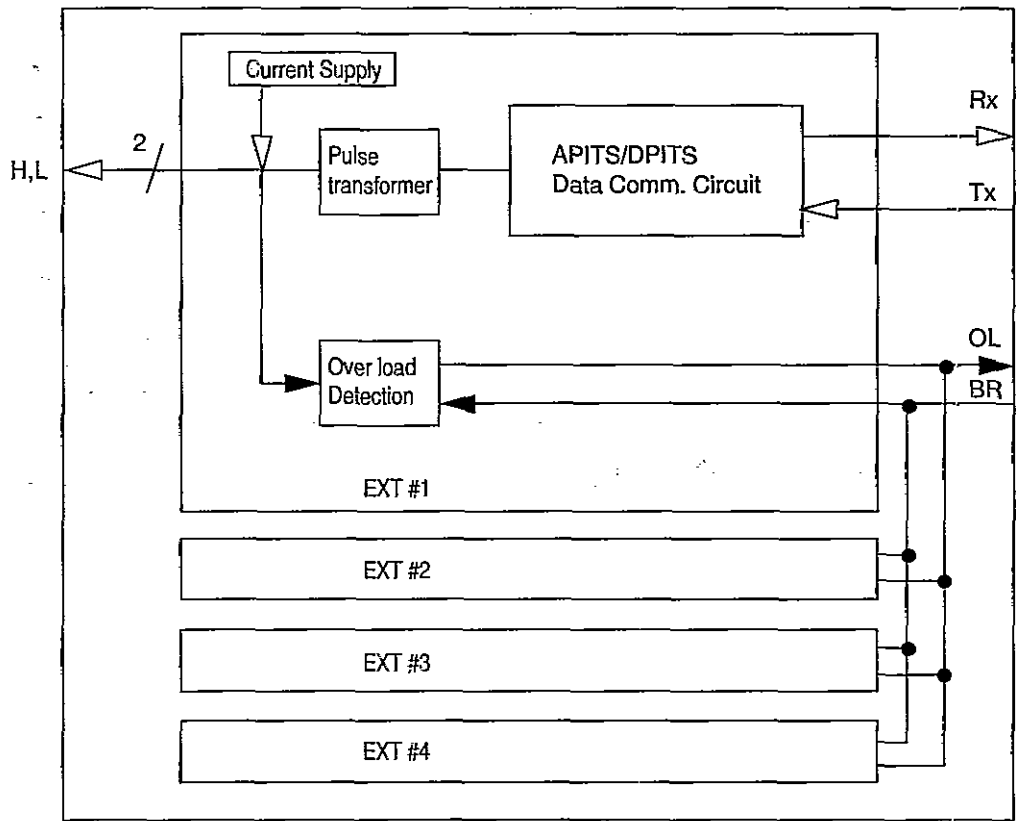
Circuit Operation :

The circuit functions the wave shaping and the level conversion between the date line from the telephone terminal and the Gate Array (IC101), and supplies the current to the terminal through the data line.

The data communication is done through this circuit with any kinds of the terminal whichever APITS of DPITS.

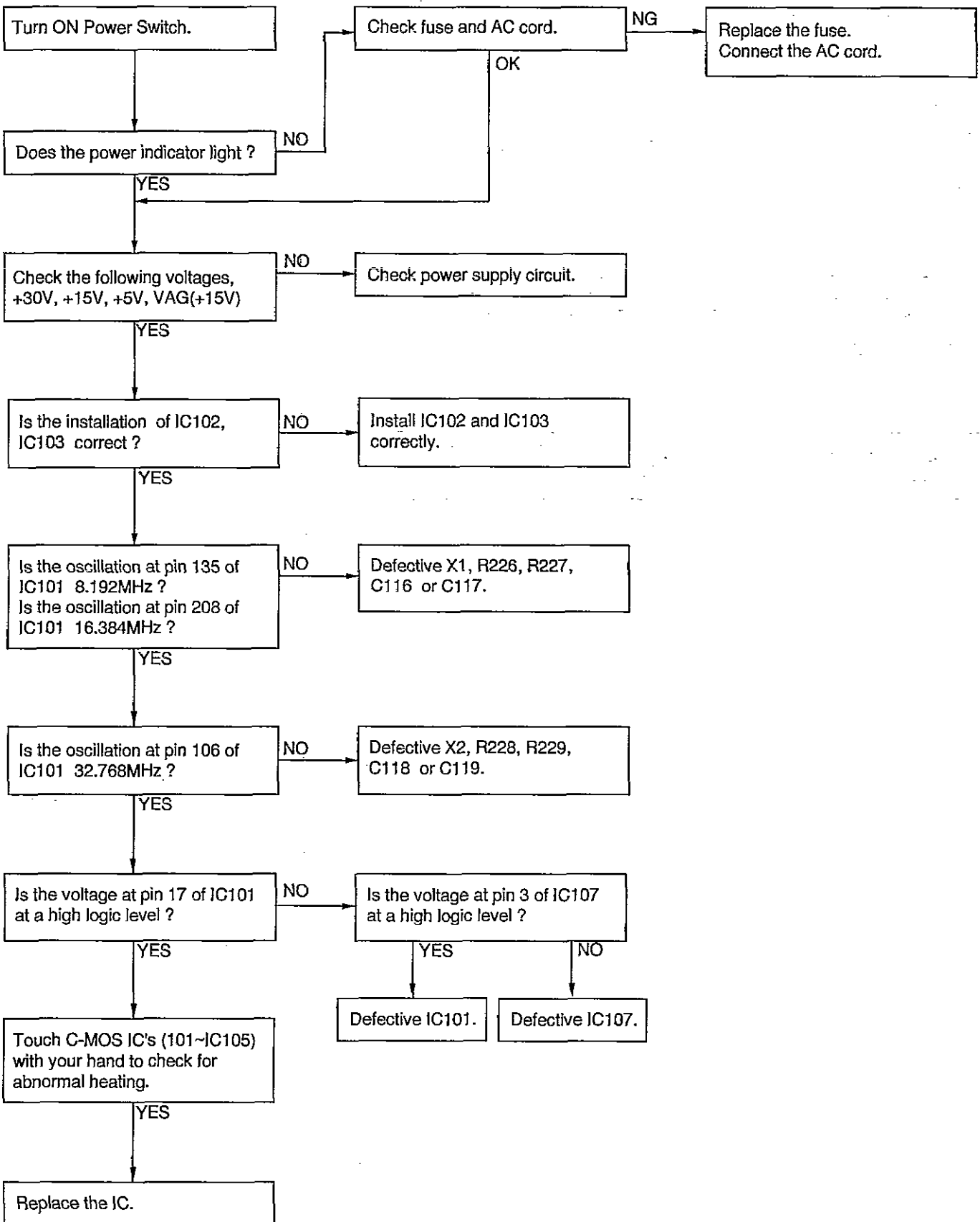
This circuit consists of the drive circuit (Q801, Q802 etc.) and the transformer (T800).

Expansion A/DPITS Board Block Diagram

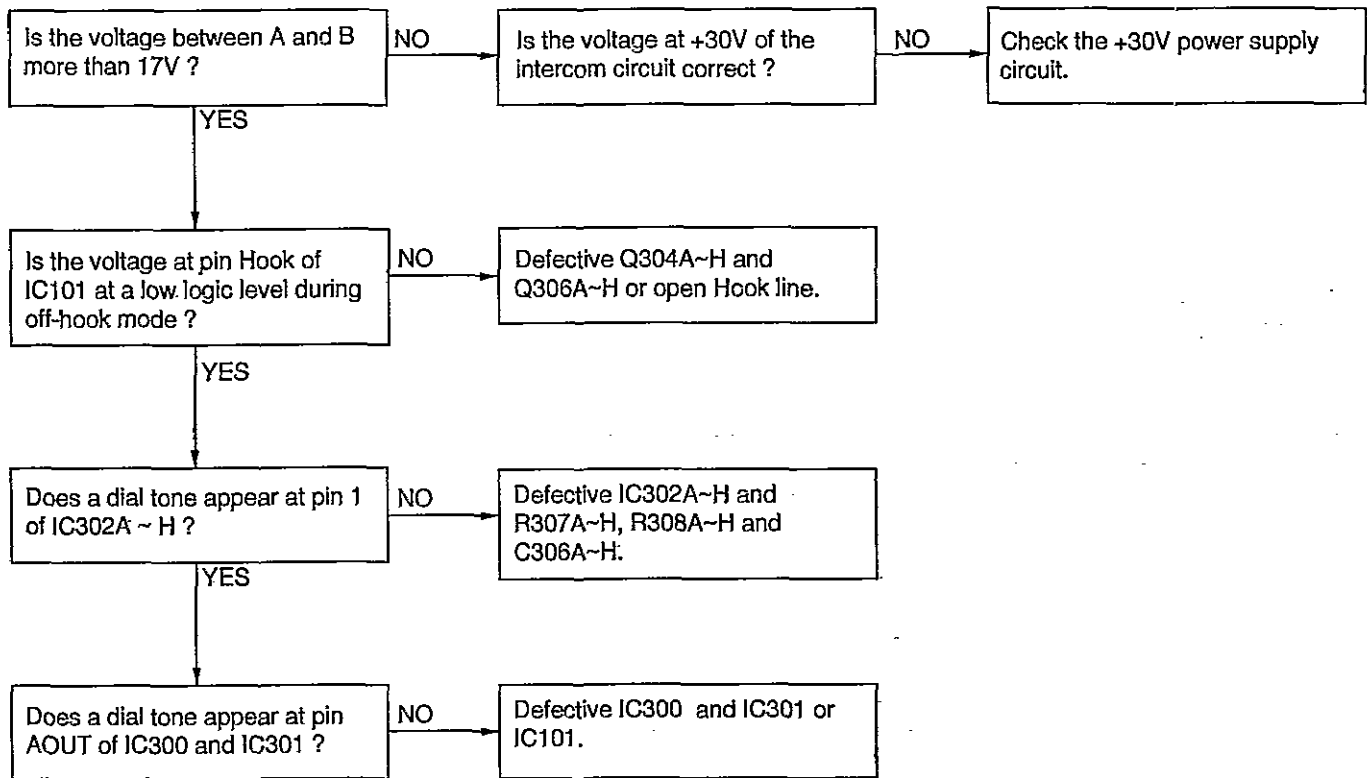


TROUBLESHOOTING GUIDE

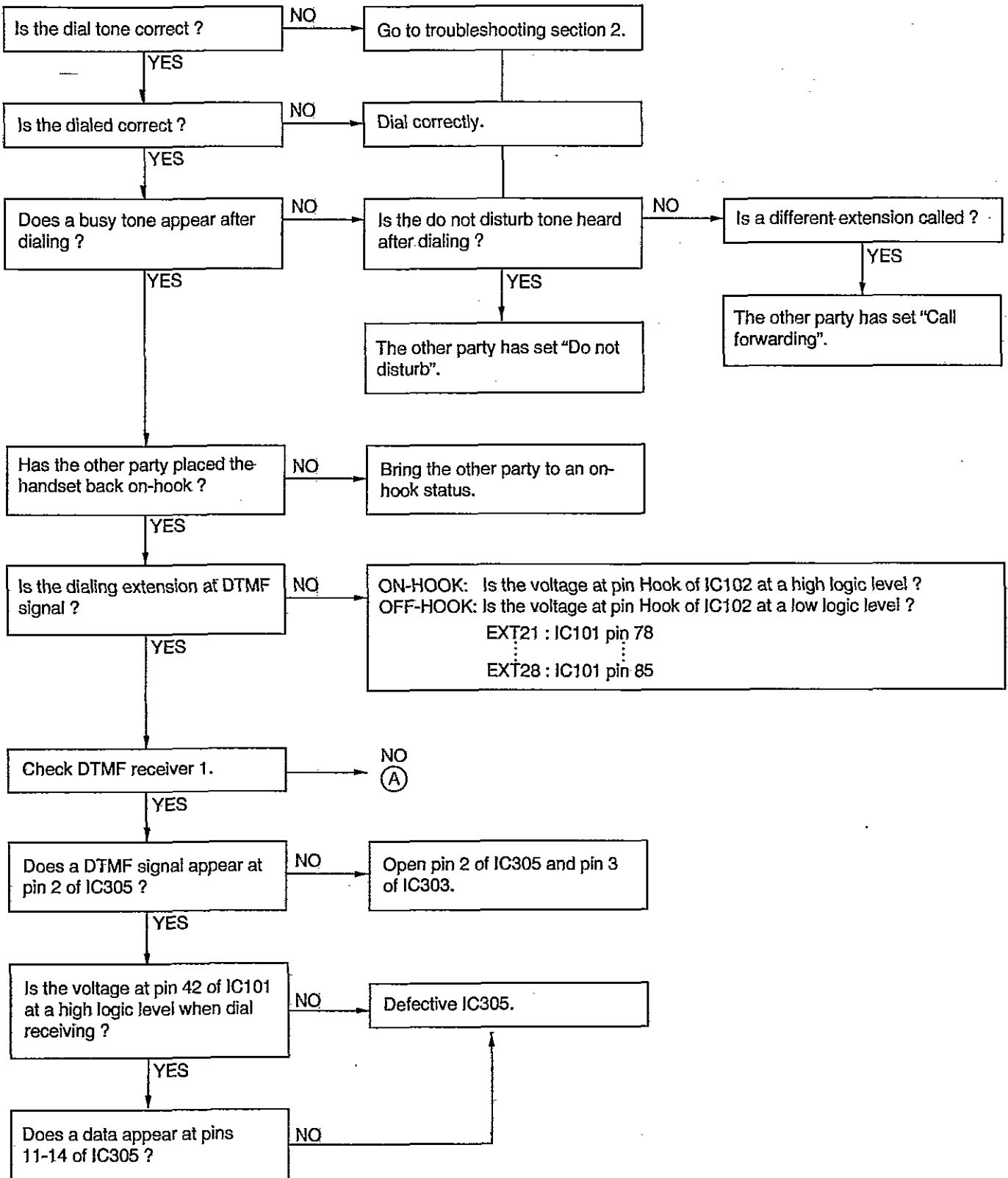
1. NO OPERATION



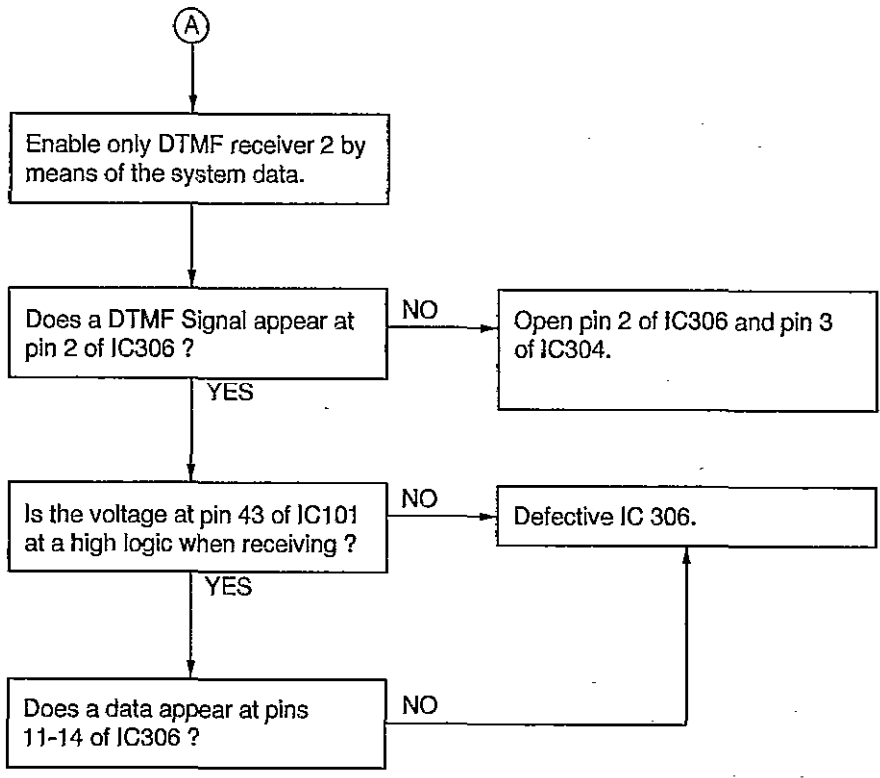
2. NO DIAL TONE



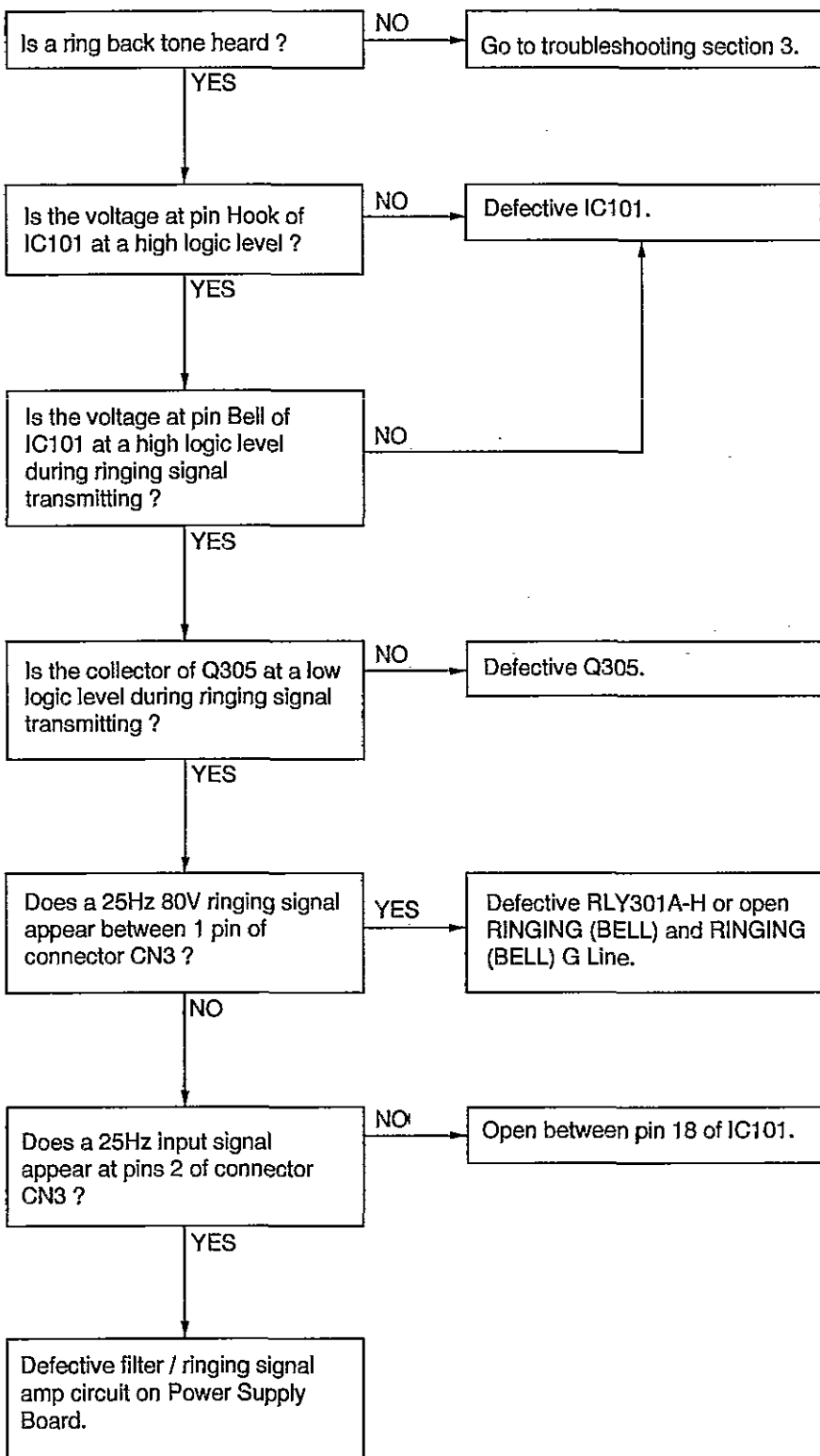
3. CAN NOT DIAL



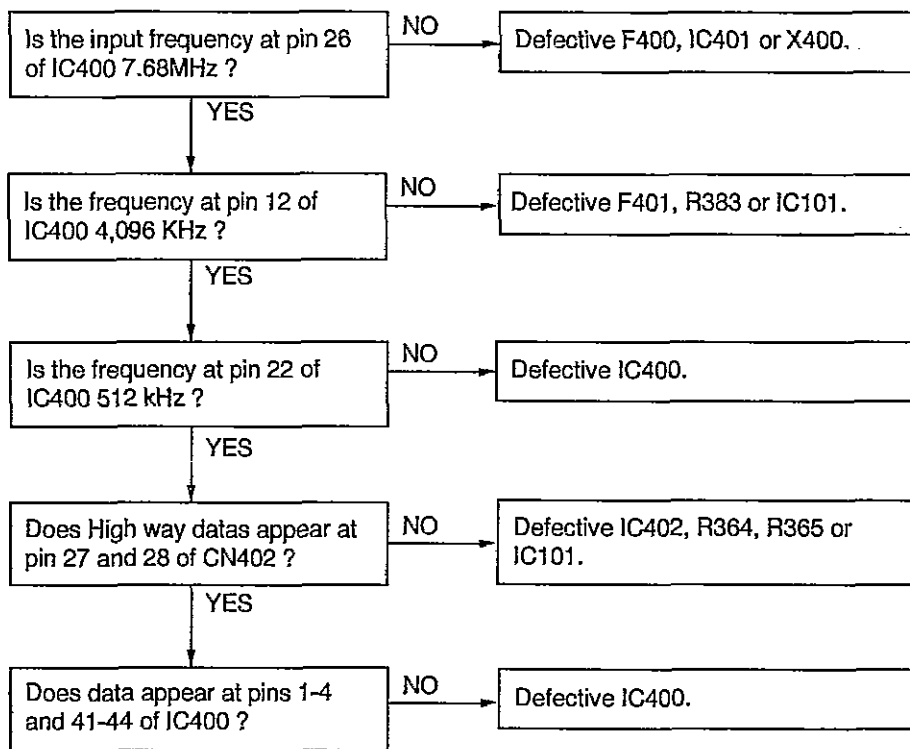
KX-TD208E



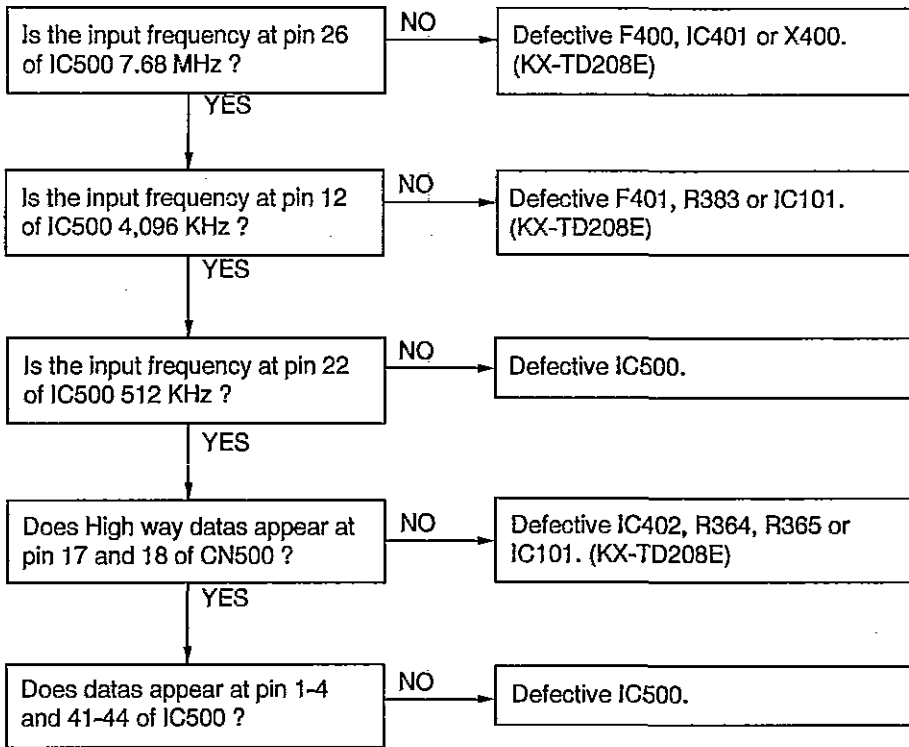
4. CAN NOT ACCESS AN EXTENSION



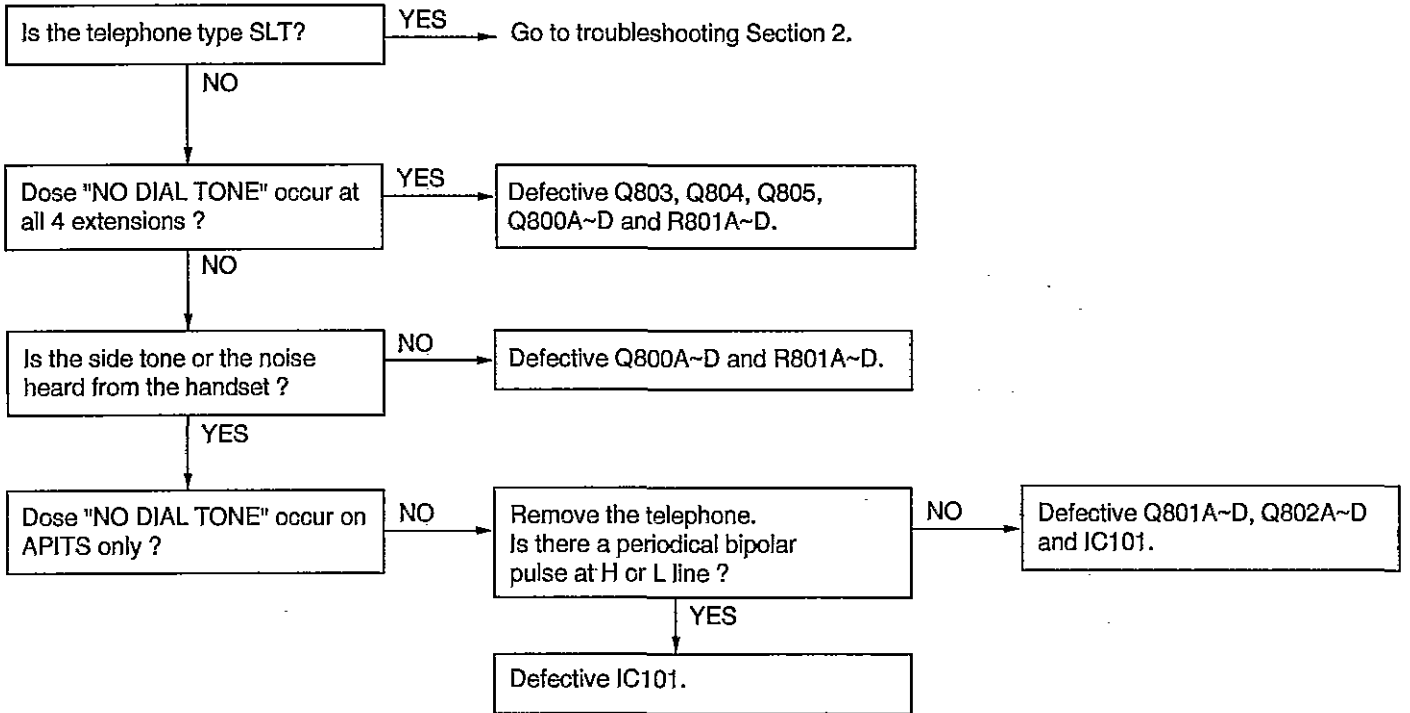
5. CAN NOT ACCESS TO ISDN



6. CAN NOT ACCESS TO ISDN (KX-TD20880CE)



7. NO DIAL TONE (KX-TD20870CE)



HOW TO REPLACE FLAT PACKAGE IC

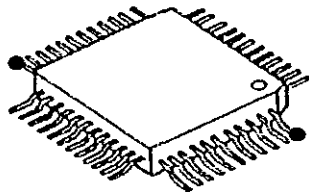
■ PREPARATION

- SOLDER Sparkle Solder 115A-1, 115B-1
OR
Almit Solder KR-19, KR-19RMA
- Soldering iron Recommended power consumption will be between 30 W to 40 W.
Temperature of Copper Rod $662 \pm 50 \text{ }^\circ\text{F}$ ($350 \pm 10 \text{ }^\circ\text{C}$)

(An expert may handle 60~80 W iron, but a beginner might damage the foil by overheating.)
- Flux HI115 Specific gravity 0.863
(Original flux will be replaced daily.)

■ PROCEDURE

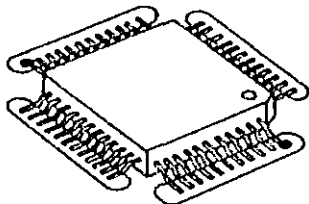
1. Temporarily fix the FLAT PACKAGE IC by Soldering on two marked pins.



● Temporary soldering point.

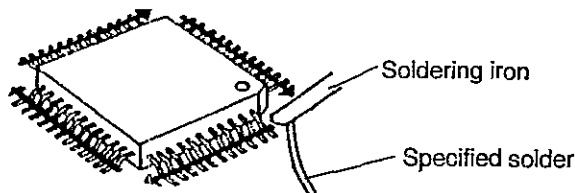
*Accurate setting of the IC to the corresponding soldering foil is vital.

2. Apply flux to the all pins of the FLAT PACKAGE IC.



○ Flux

3. Solder the specified solder in the direction of the arrow, while slide the soldering iron.

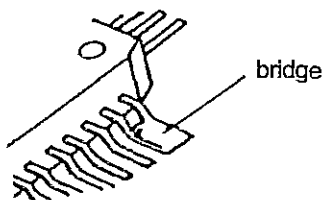


Soldering iron

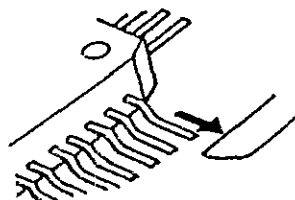
Specified solder

■ MODIFICATION PROCEDURE OF BRIDGE

1. Re-solder slightly on bridged portion.
2. Remove any remaining solder along the pins using soldering iron as shown below.



bridge

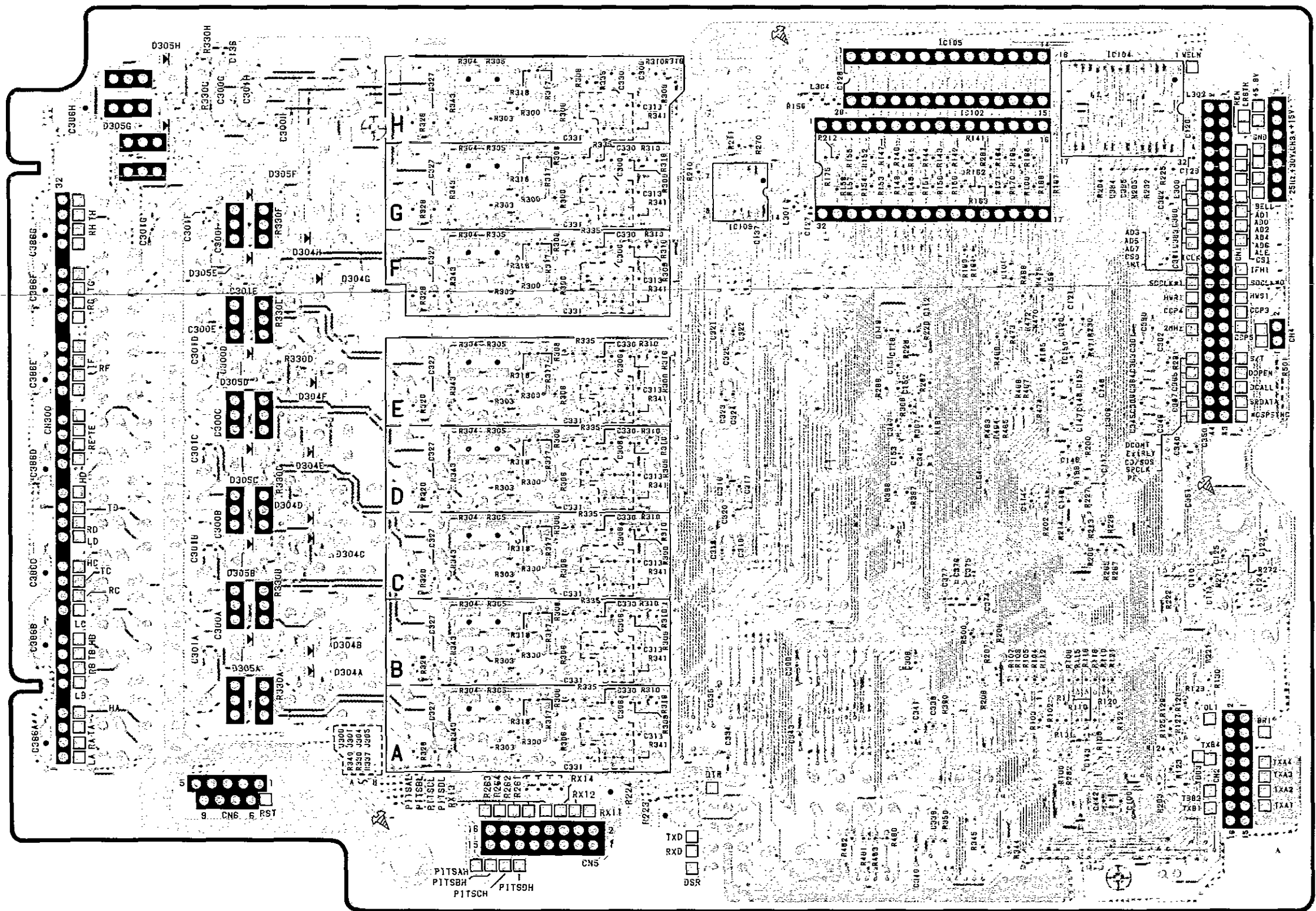


PRINTED CIRCUIT BOARD (MAIN)



(BOTTOM VIEW)

1 2 3 4 5 6 7 8 9 10 11 12

A
B
C
D
E
F
G
H



Notes:

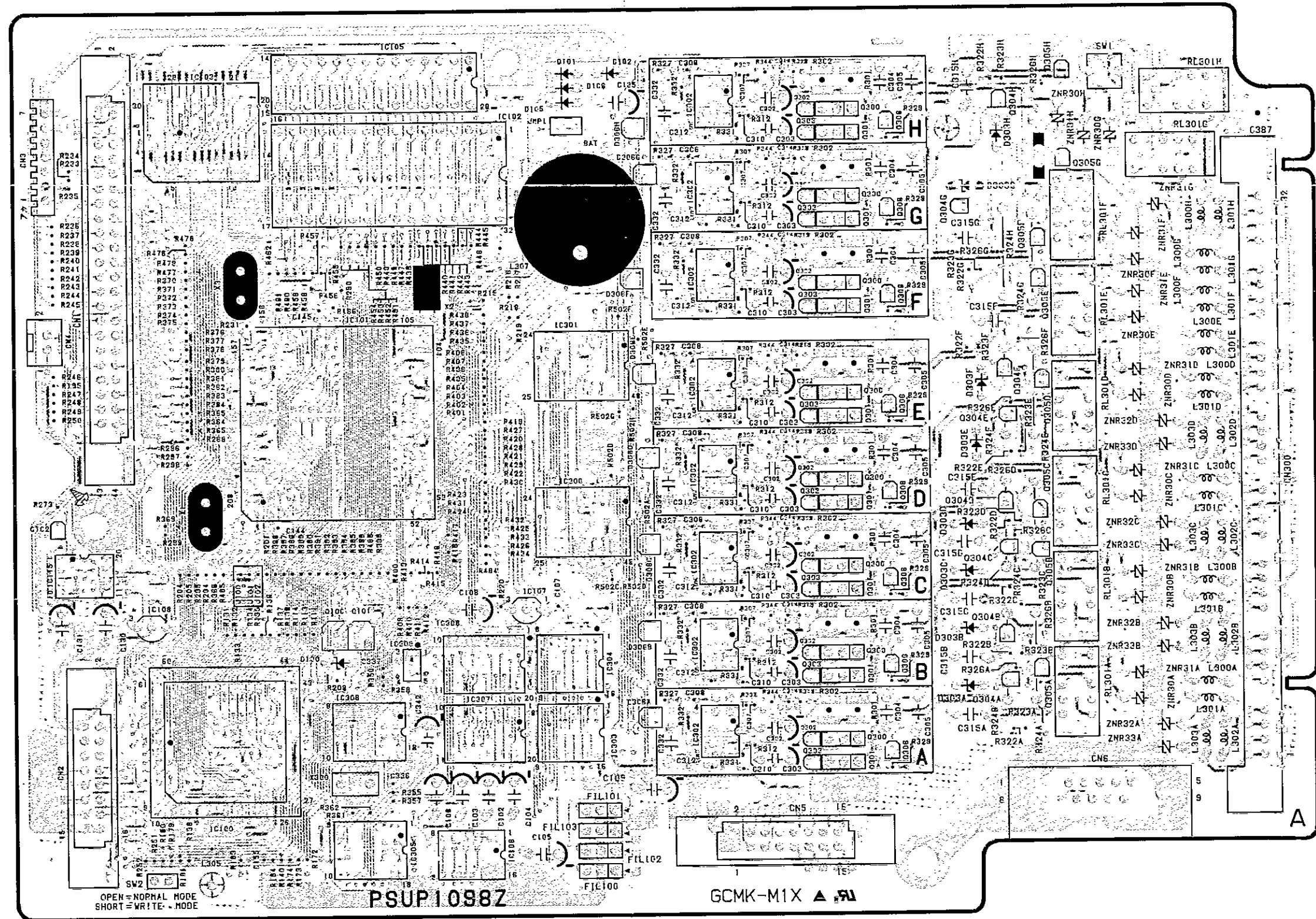
1. The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in  on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

KX-TD208E



KX-TD208E

PRINTED CIRCUIT BOARD (MAIN)

(COMPONENT VIEW)



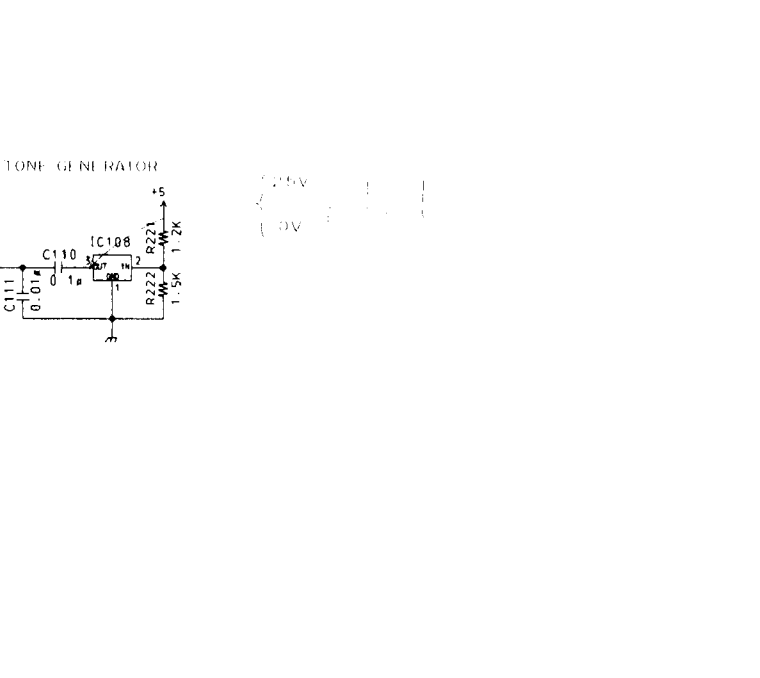
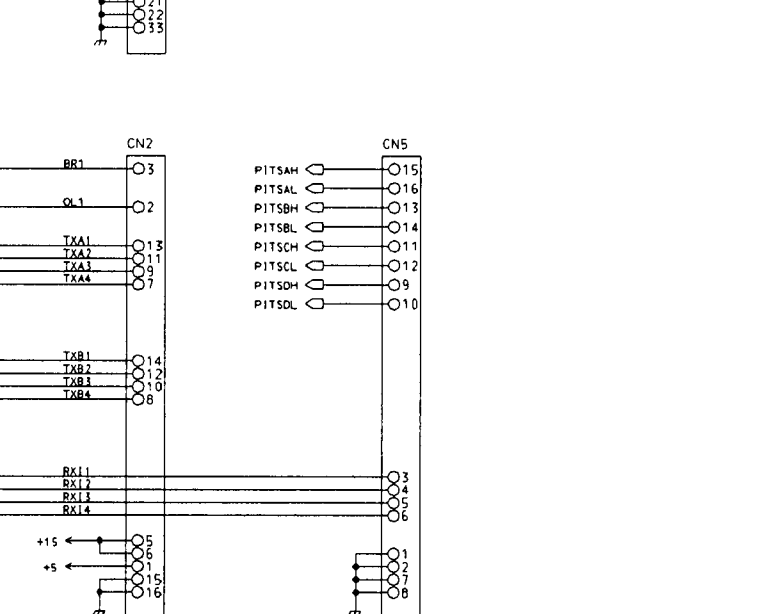
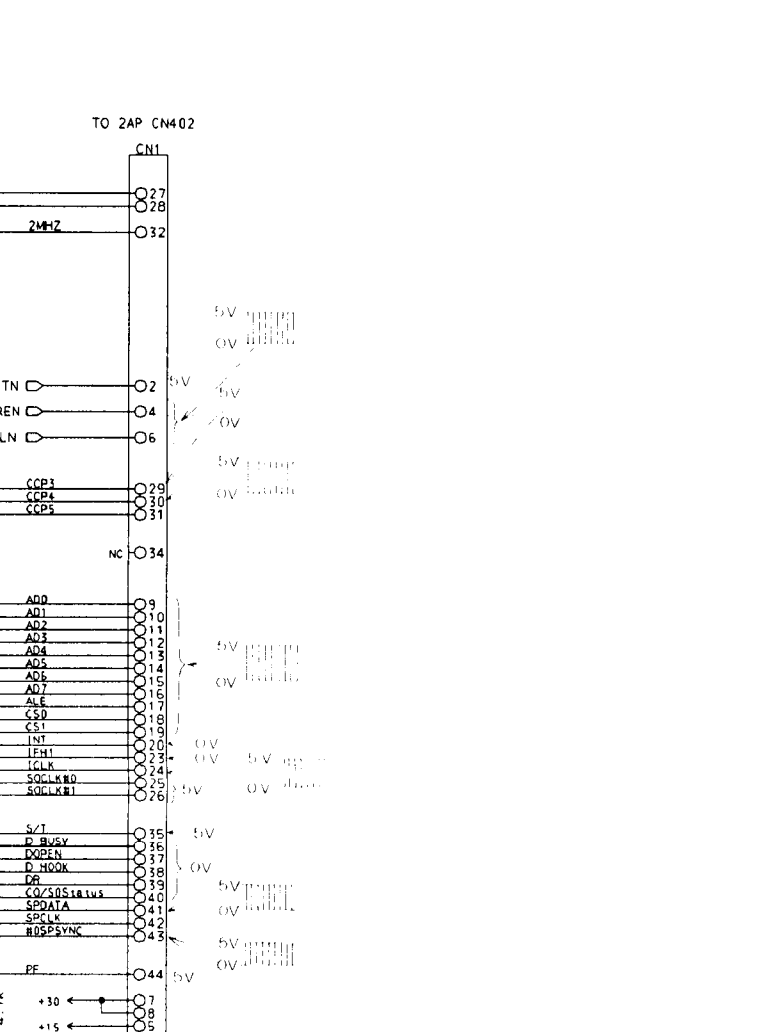
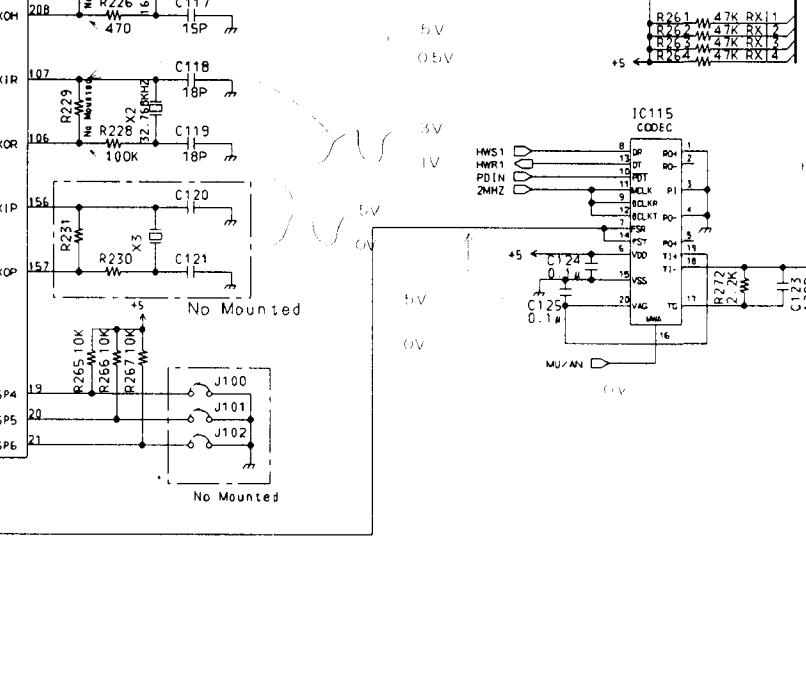
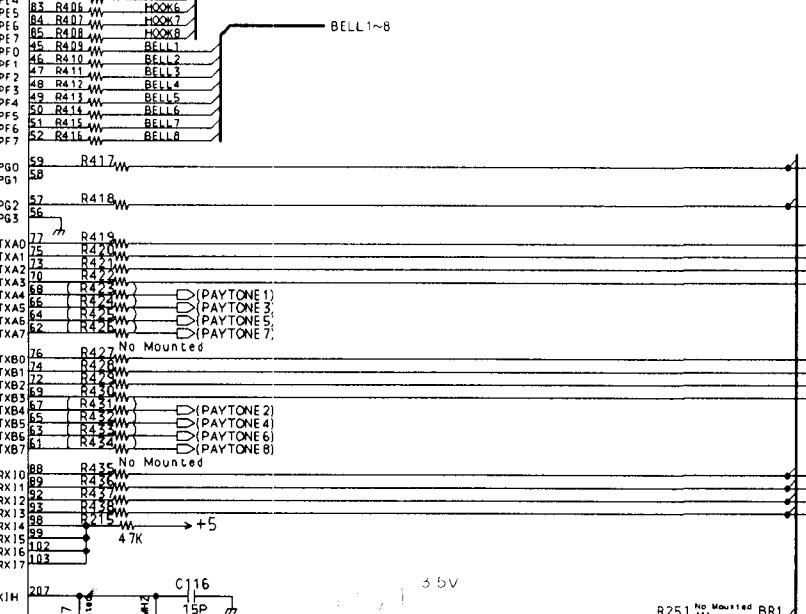
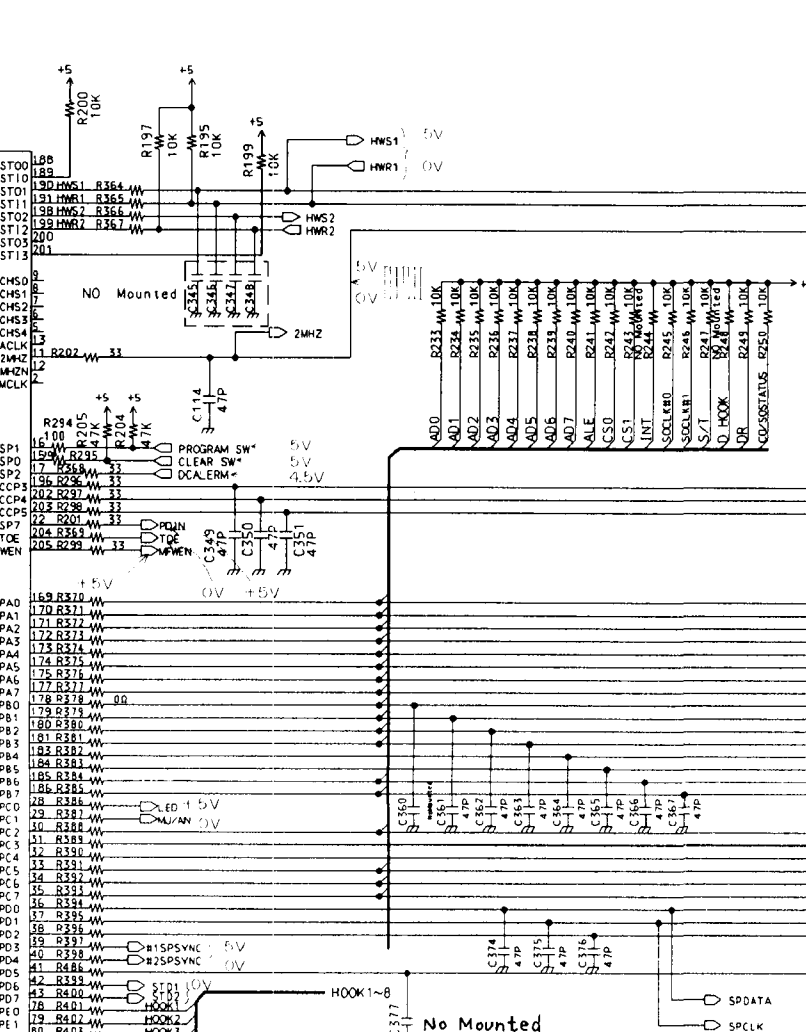
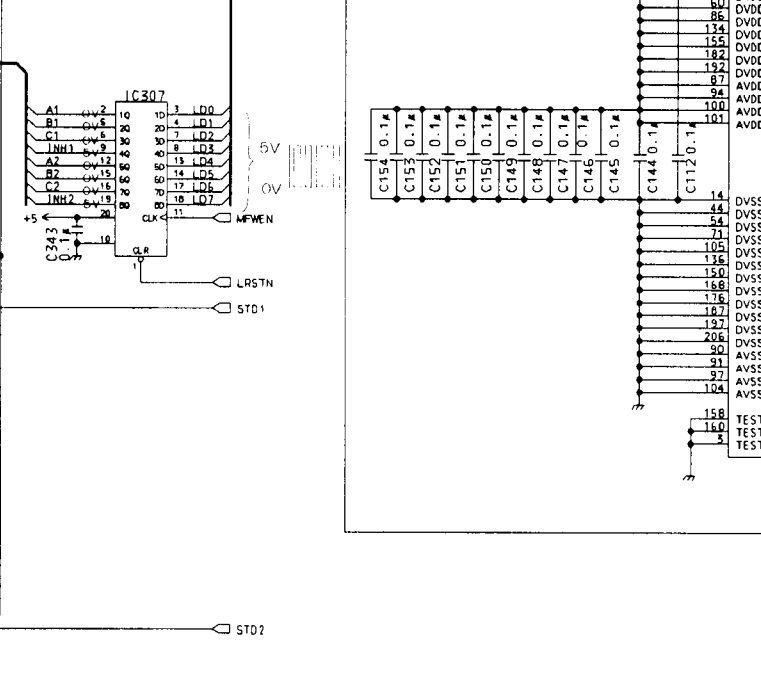
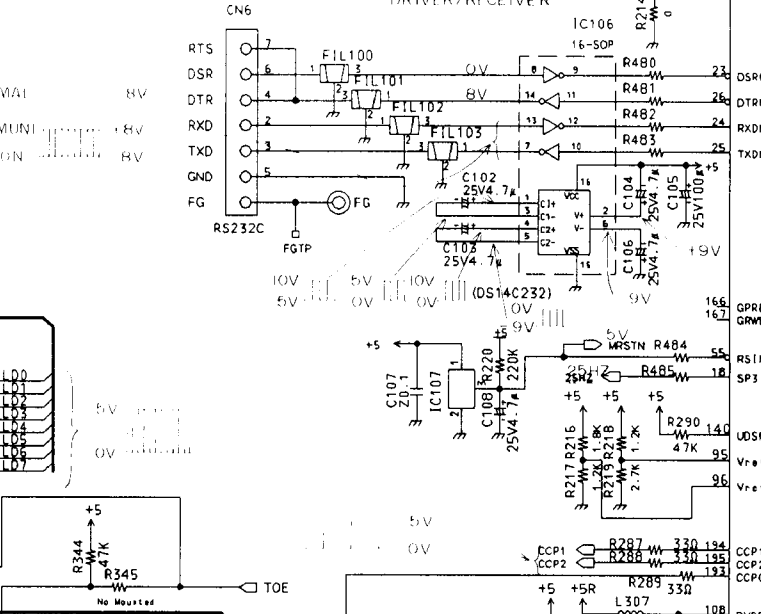
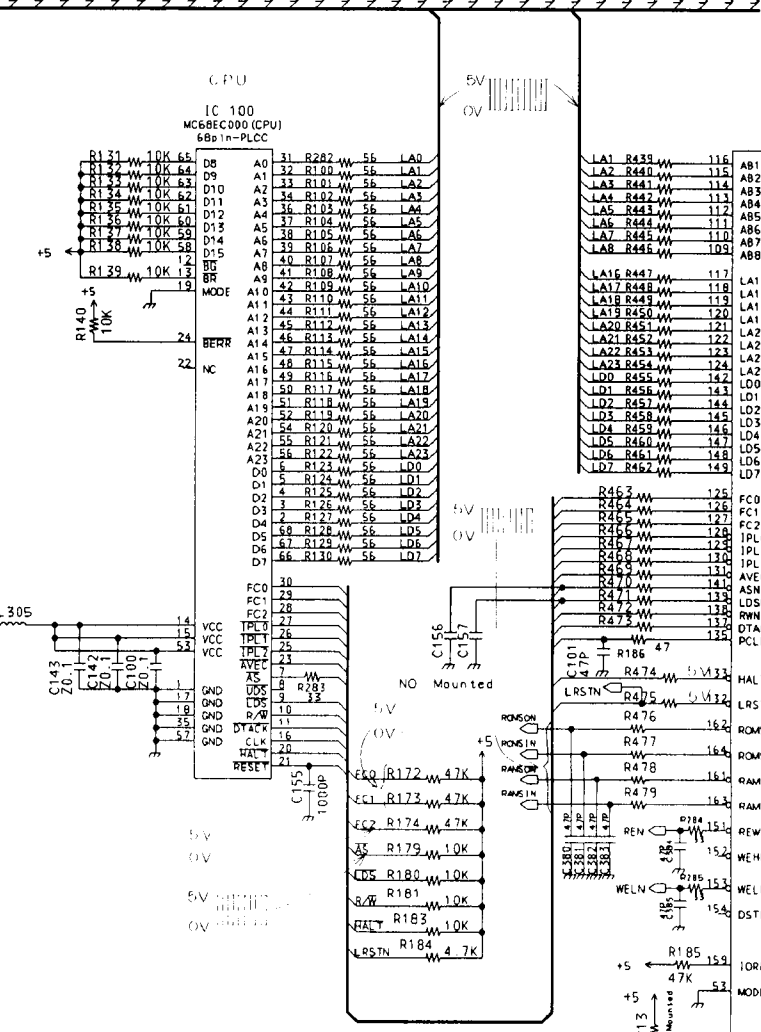
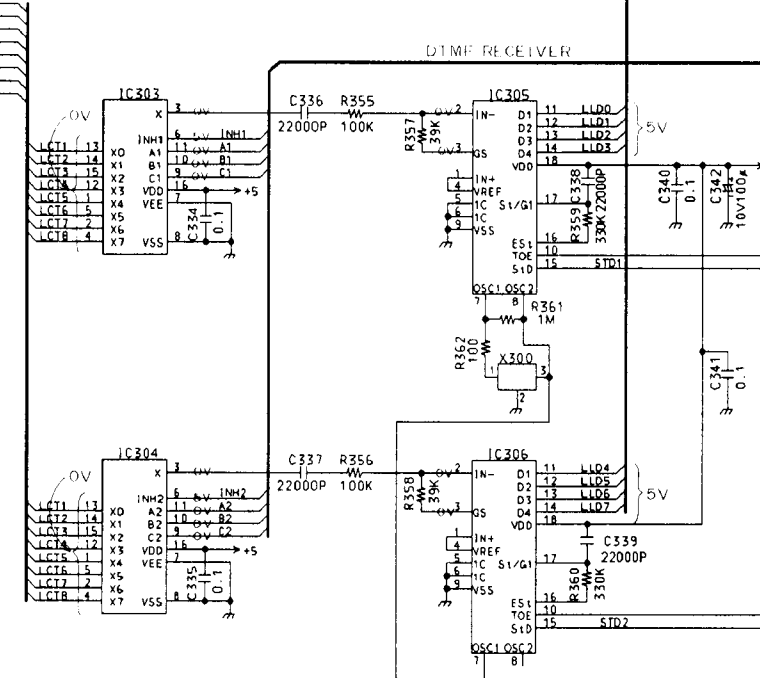
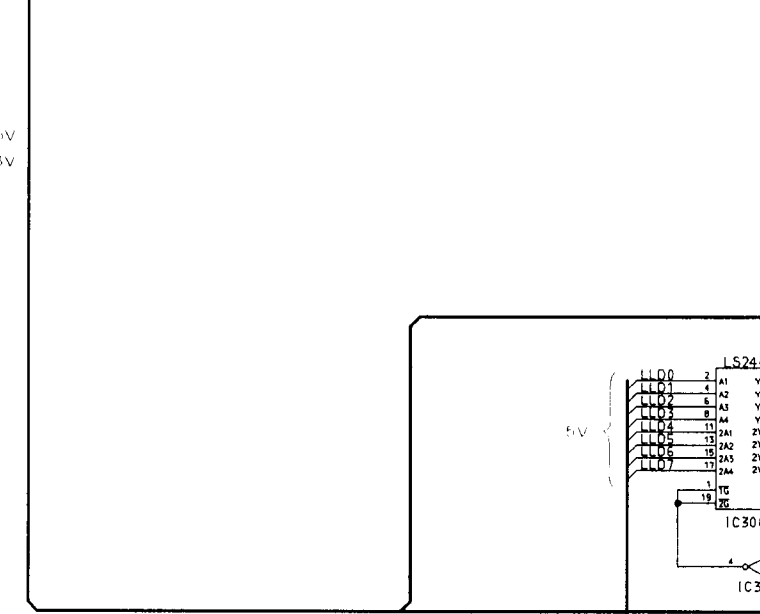
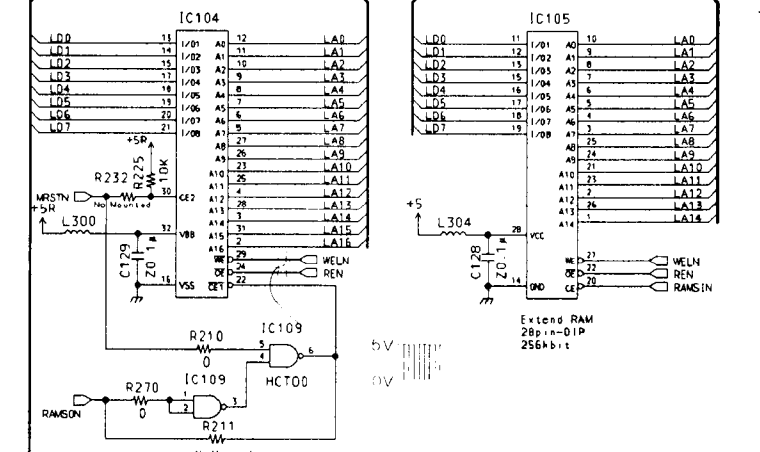
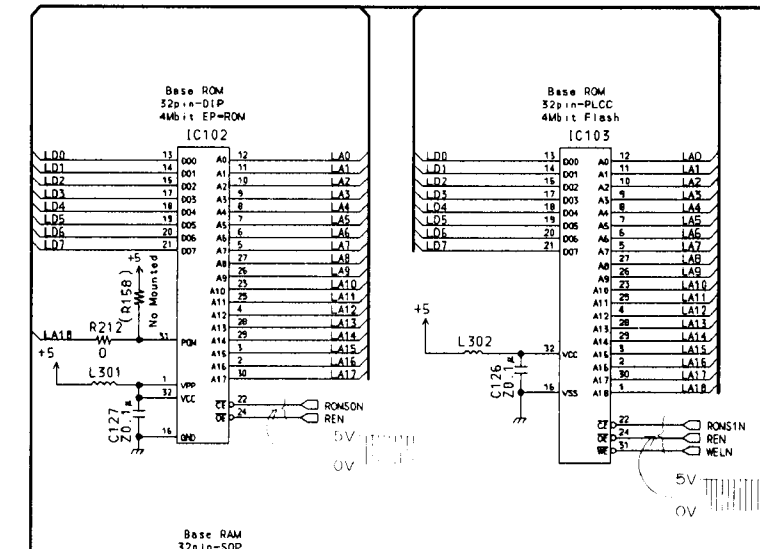
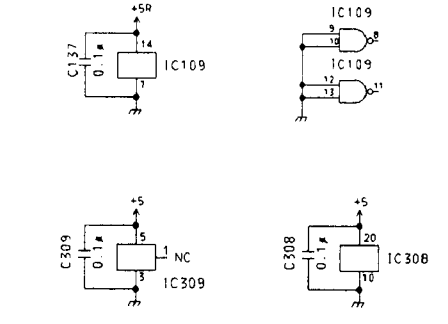
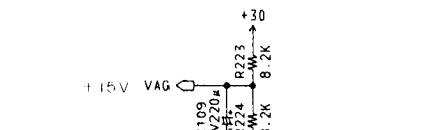
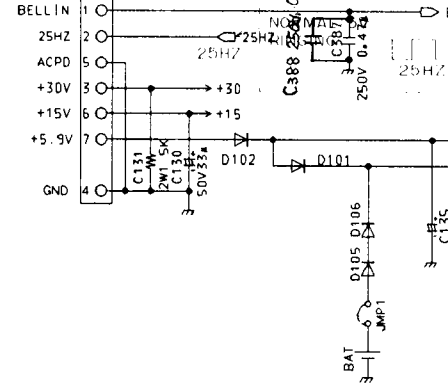
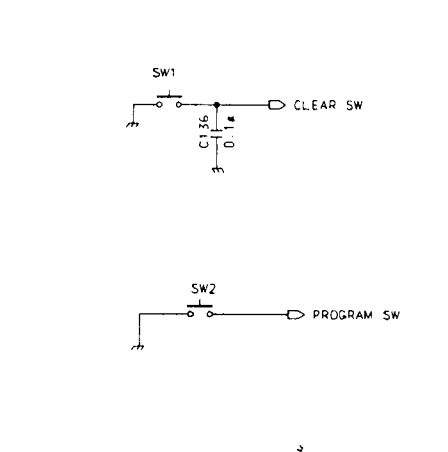
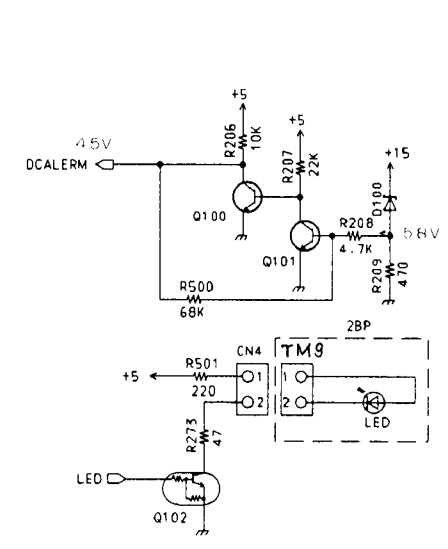
Notes:

1. The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in  on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

SCHEMATIC DIAGRAM(CPU)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

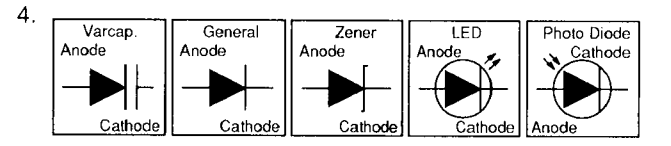
A
B
C
D
E
F
G
H
I
J
K
L
M



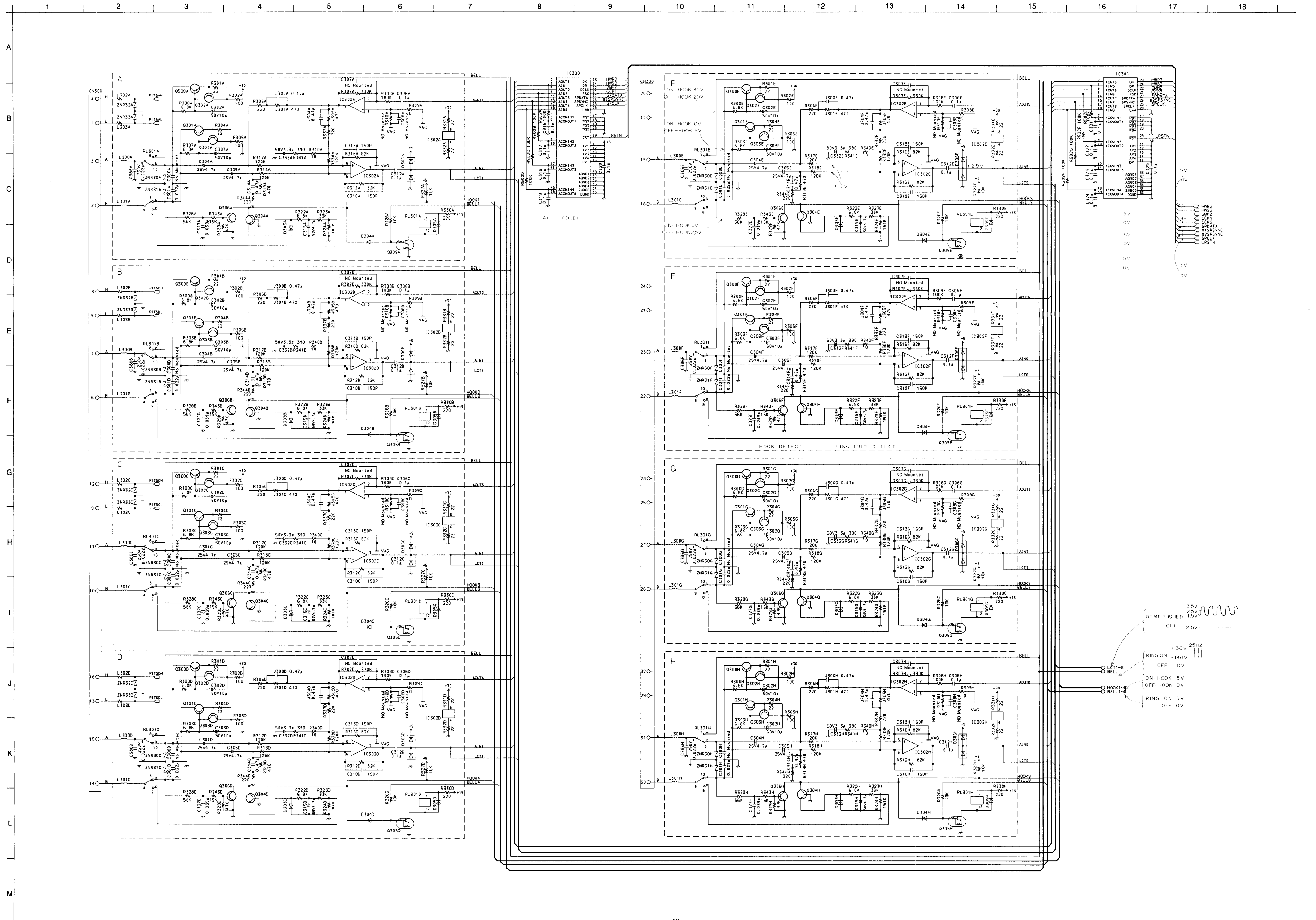
Notes:

- DC voltage measurements are taken with electronic voltmeter and oscilloscope from ground line.
 - Power Switch ON condition
 - Voltage Value is V
- This schematic diagram may be modified at any time with the development of new technology.

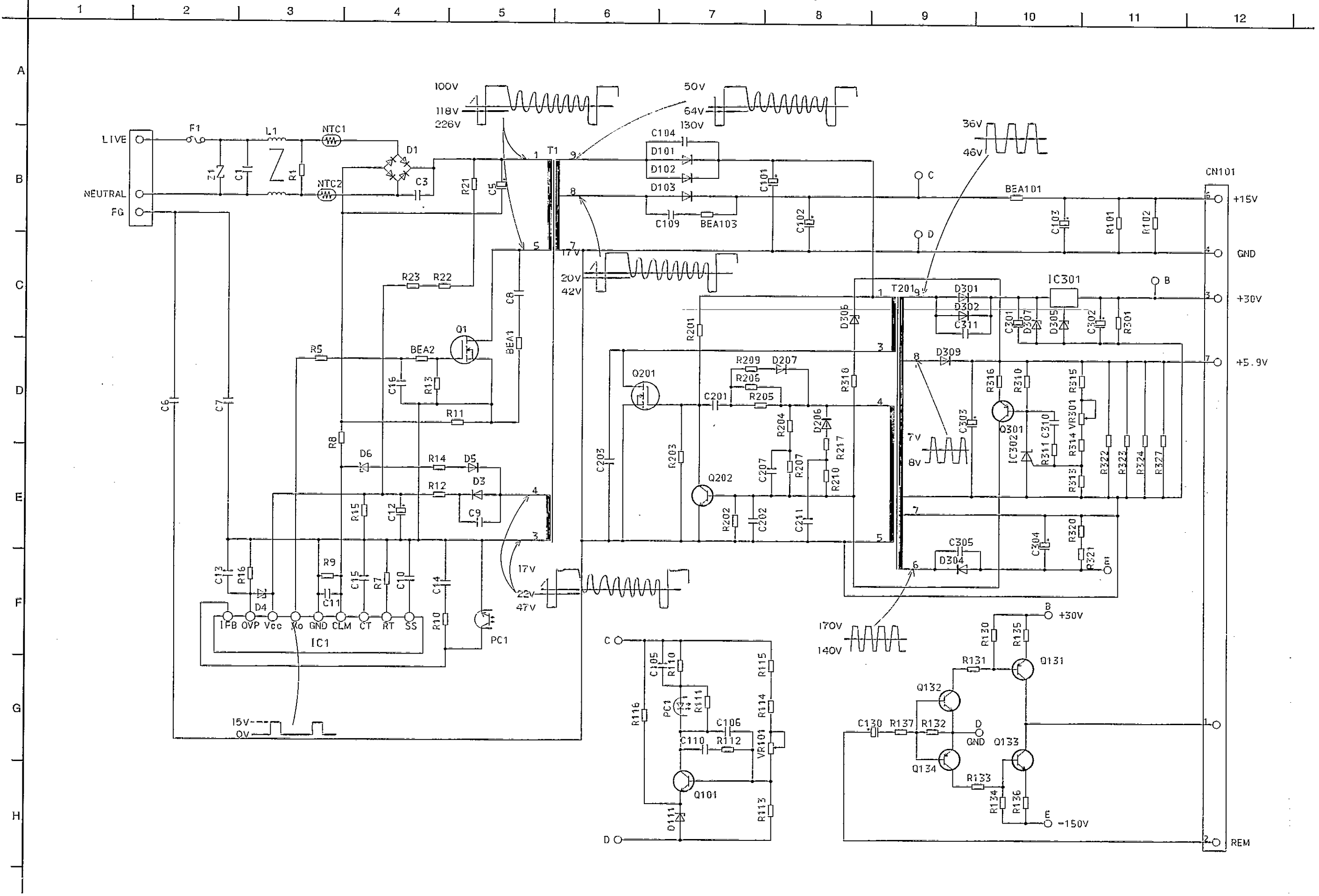
Important safety notice
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.



SCHEMATIC DIAGRAM(EXT.)



SCHEMATIC DIAGRAM (POWER SUPPLY)



PRINTED CIRCUIT BOARD (ISDN)

1 2 3 4 5 6 7 8 9 10 11 12

(COMPONENT VIEW)

(BOTTOM VIEW)

A

B

C

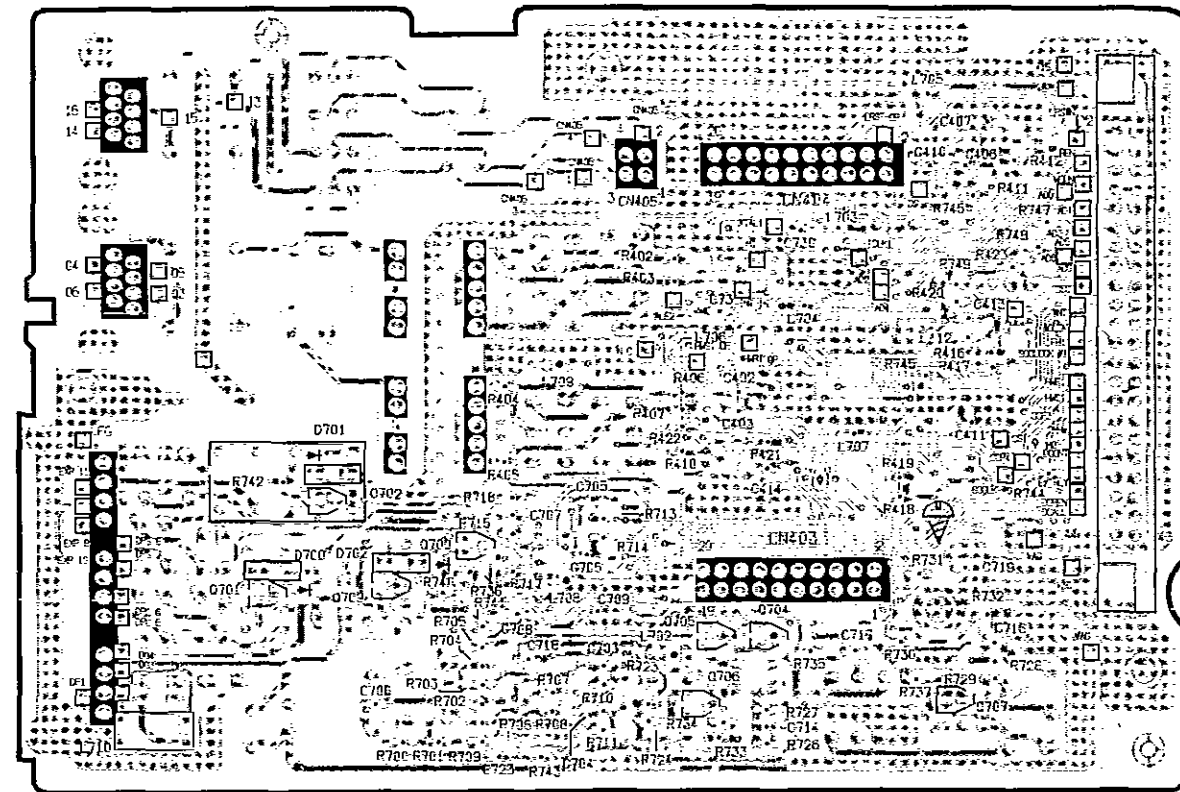
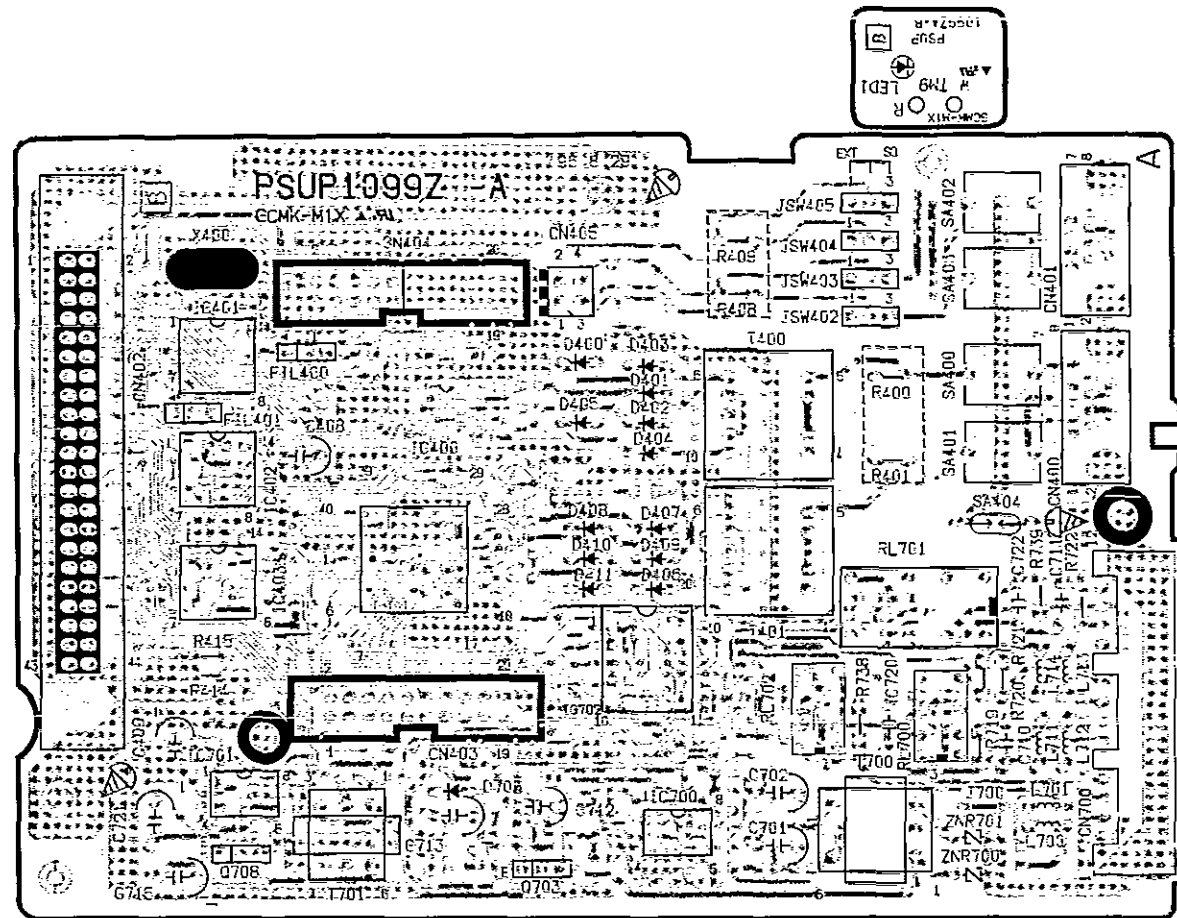
D

E

F

G

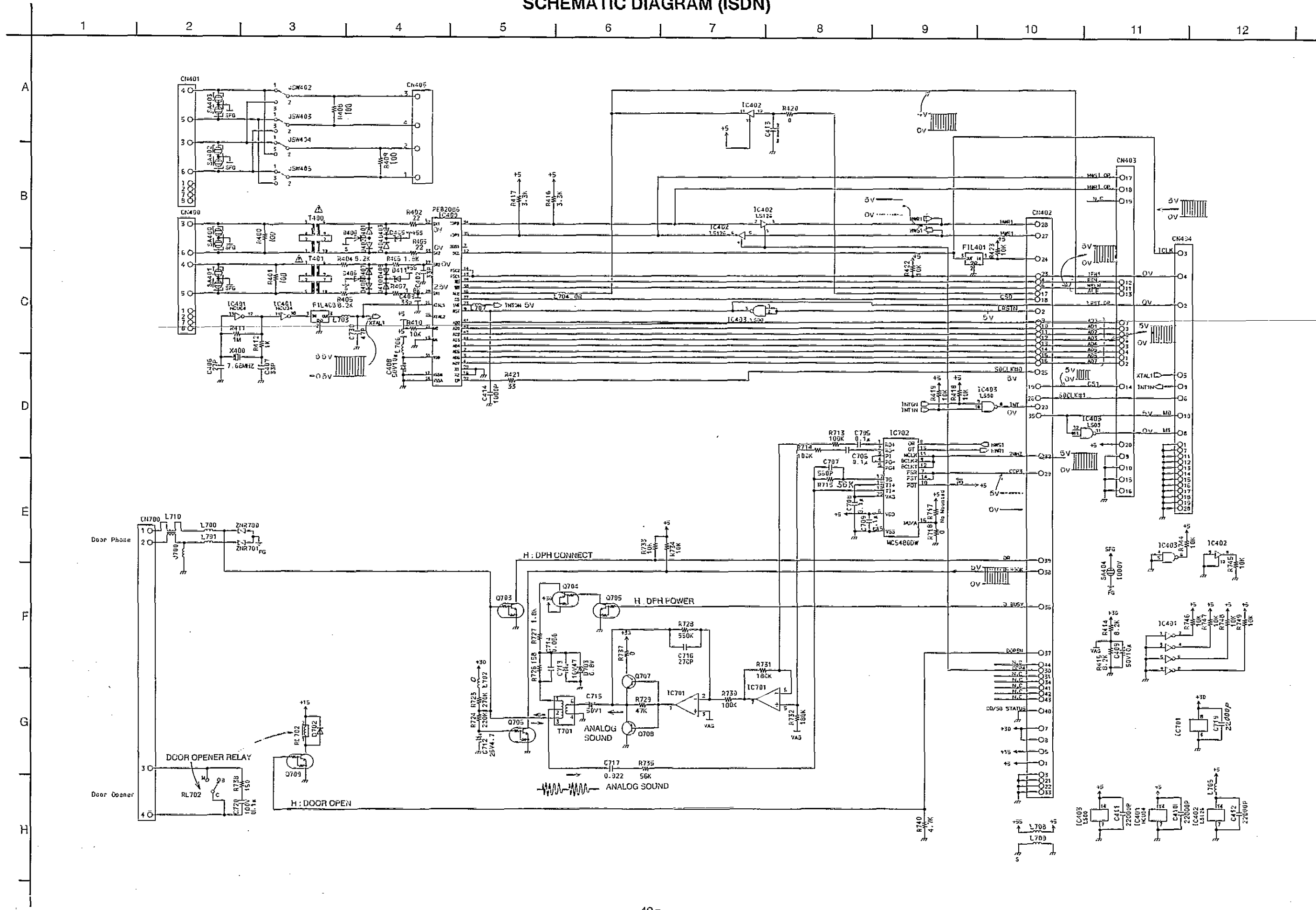
H



Notes:

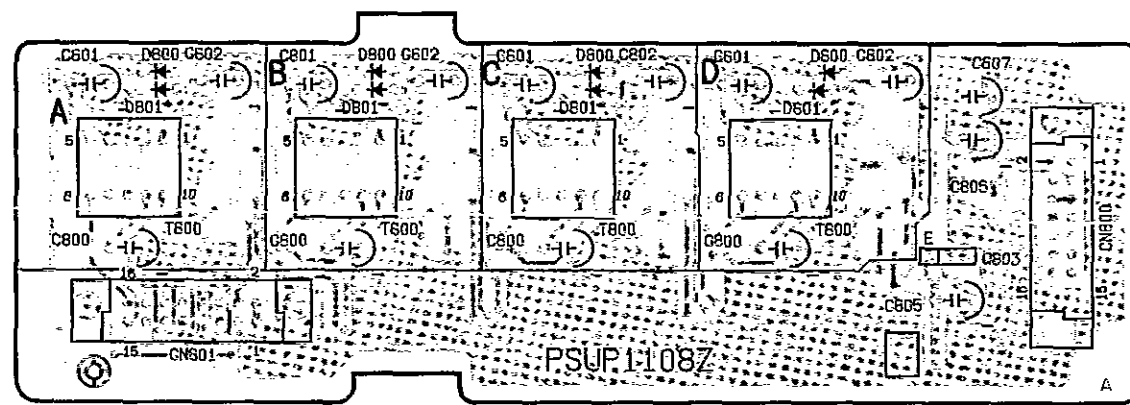
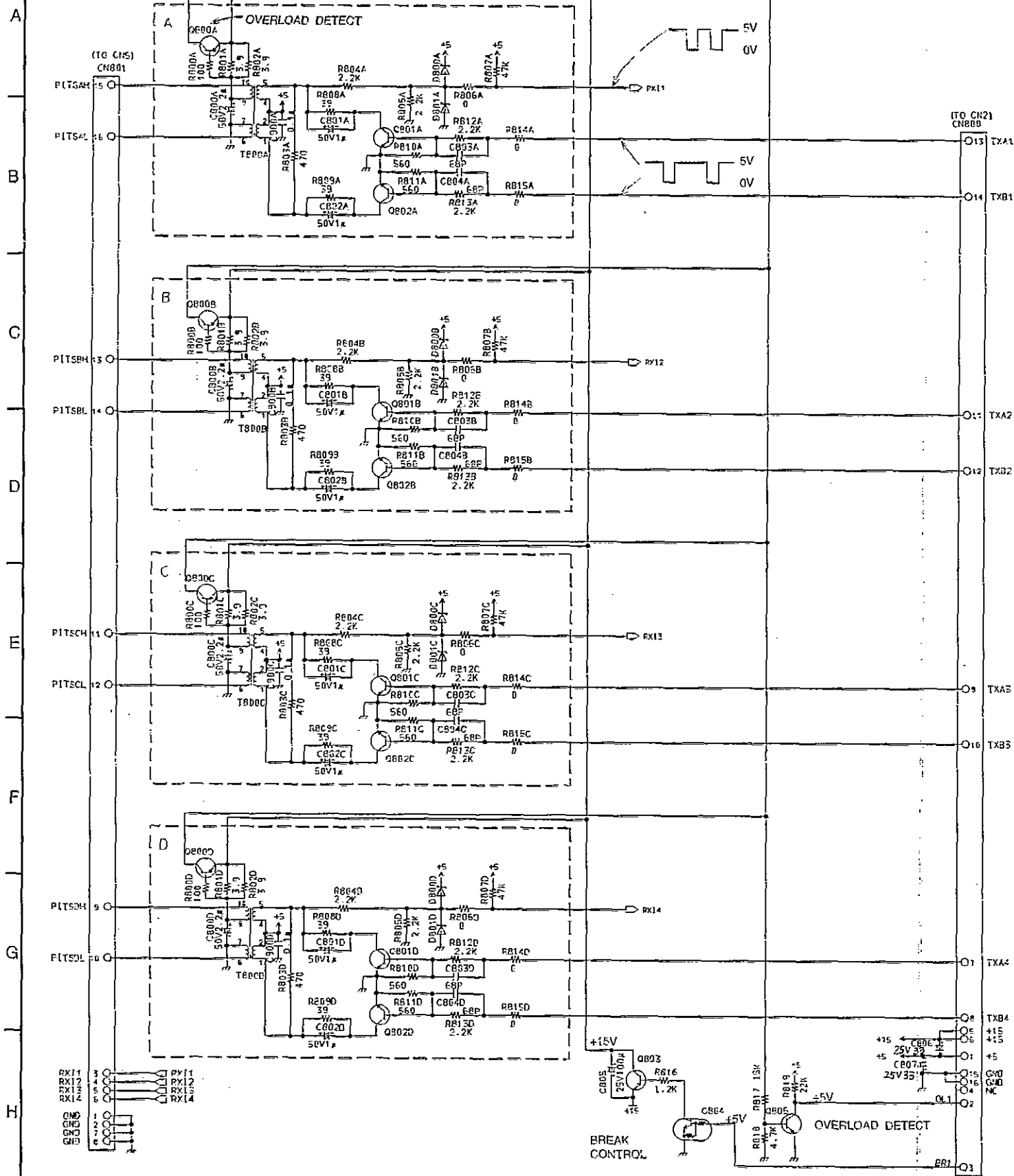
1. The circuit shown in on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

KX-TD208E KX-TD208E
SCHEMATIC DIAGRAM (ISDN)

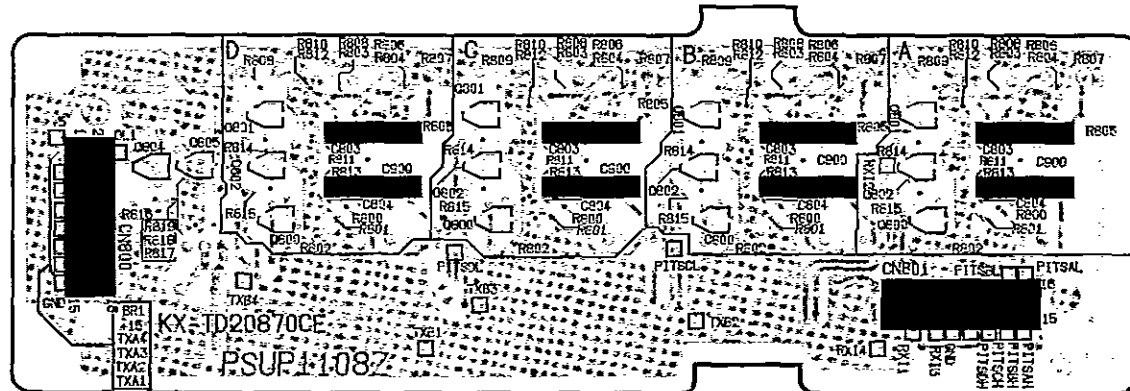


SCHEMATIC DIAGRAM/PRINTED CIRCUIT BOARD (KX-TD20870CE)

(COMPONENT VIEW)



(BOTTOM VIEW)



Notes:

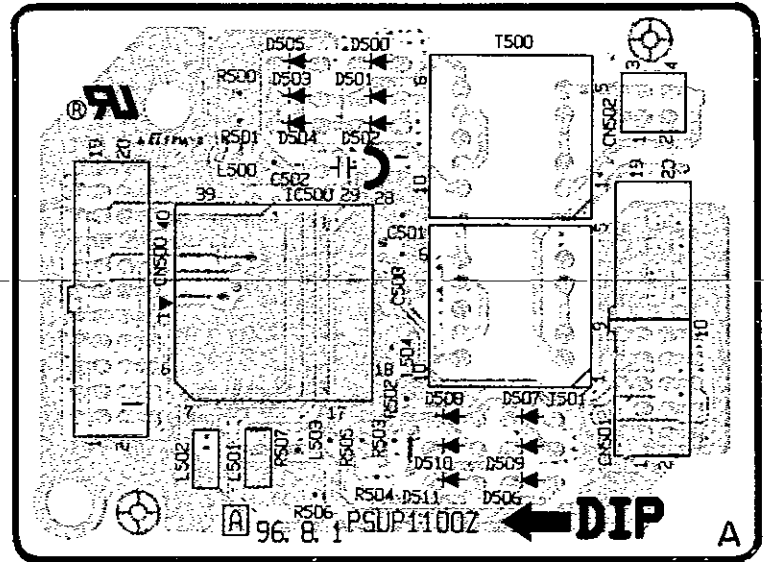
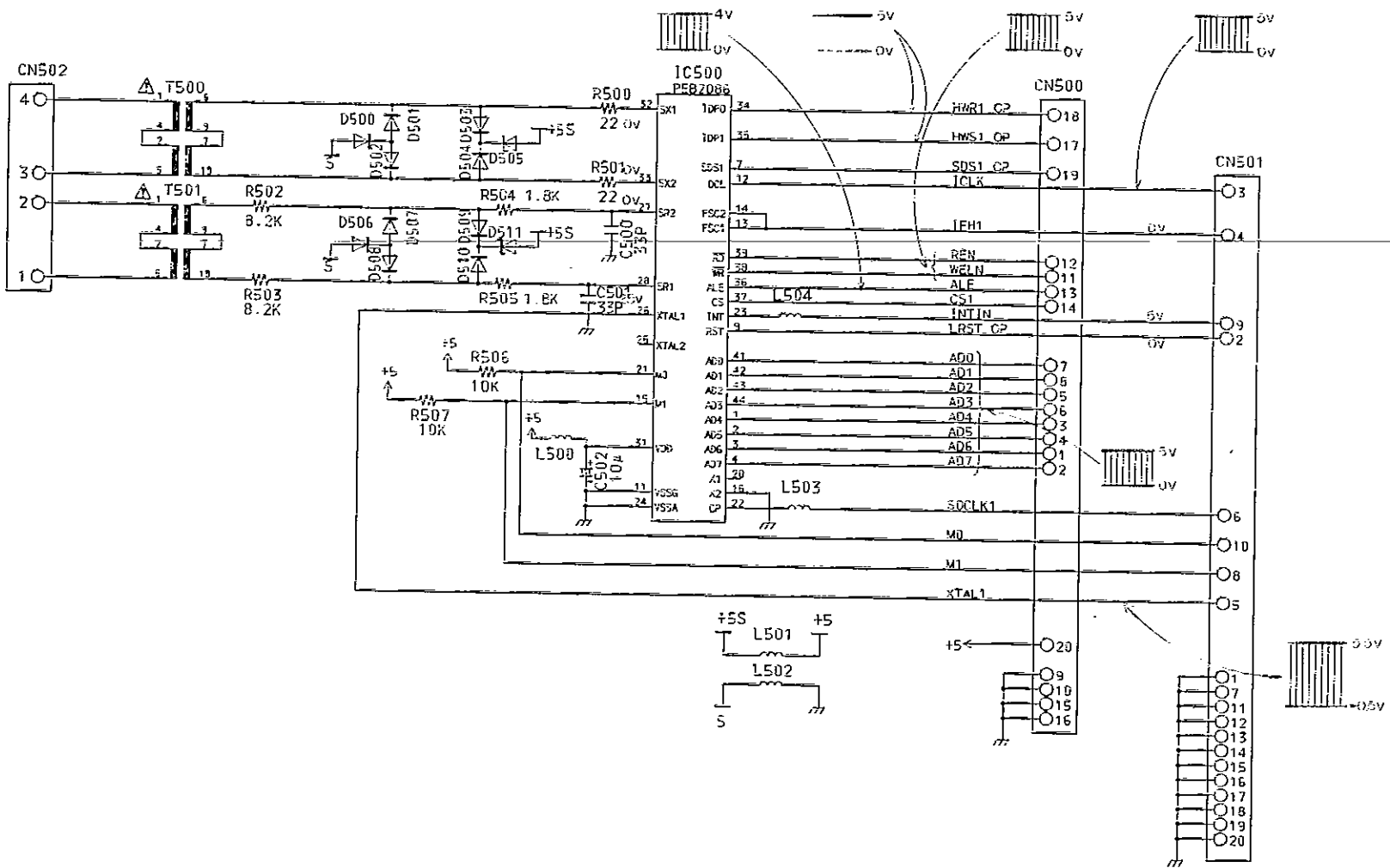
- 1. The circuit shown in [] on the conductor indicates printed circuit on the back side of the printed circuit board.
- 2. The circuit shown in [] on the conductor indicates printed circuit on the front side of the printed circuit board.
- 3. This printed circuit board may be modified at any time with the development of new technology.

SCHEMATIC DIAGRAM/ PRINTED CIRCUIT BOARD (KX-TD20880CE)



1 2 3 4 5 6 7 8 9 10 11 12

(COMPONENT VIEW)

A
B
C
D
E
F
G
H



Notes:

1. The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in  on the conductor indicates printed circuit on the front side of the printed circuit board.
3. This printed circuit board may be modified at any time with the development of new technology.

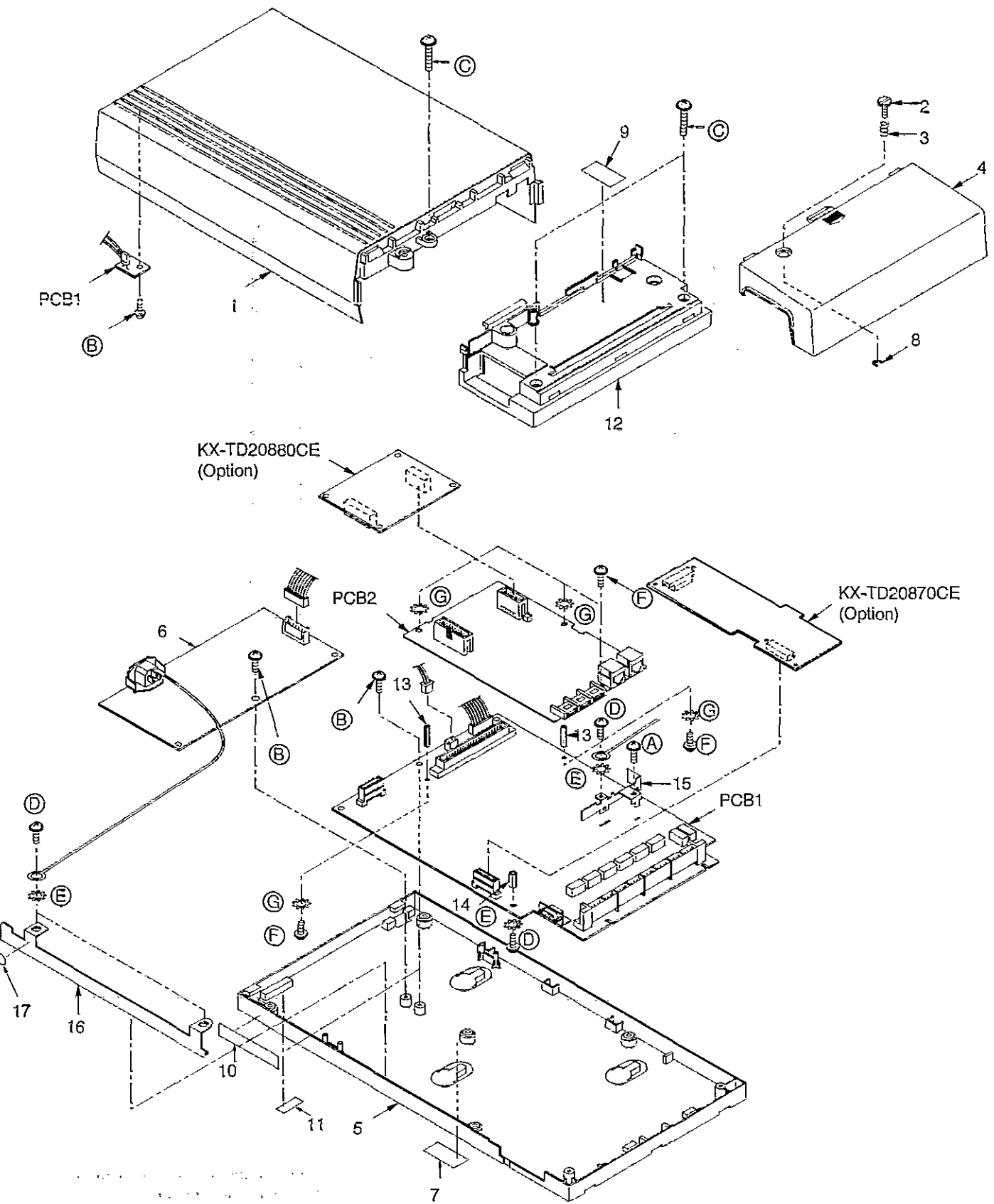
X

CABINET AND ELECTRICAL PARTS LOCATION

KX-TD208E

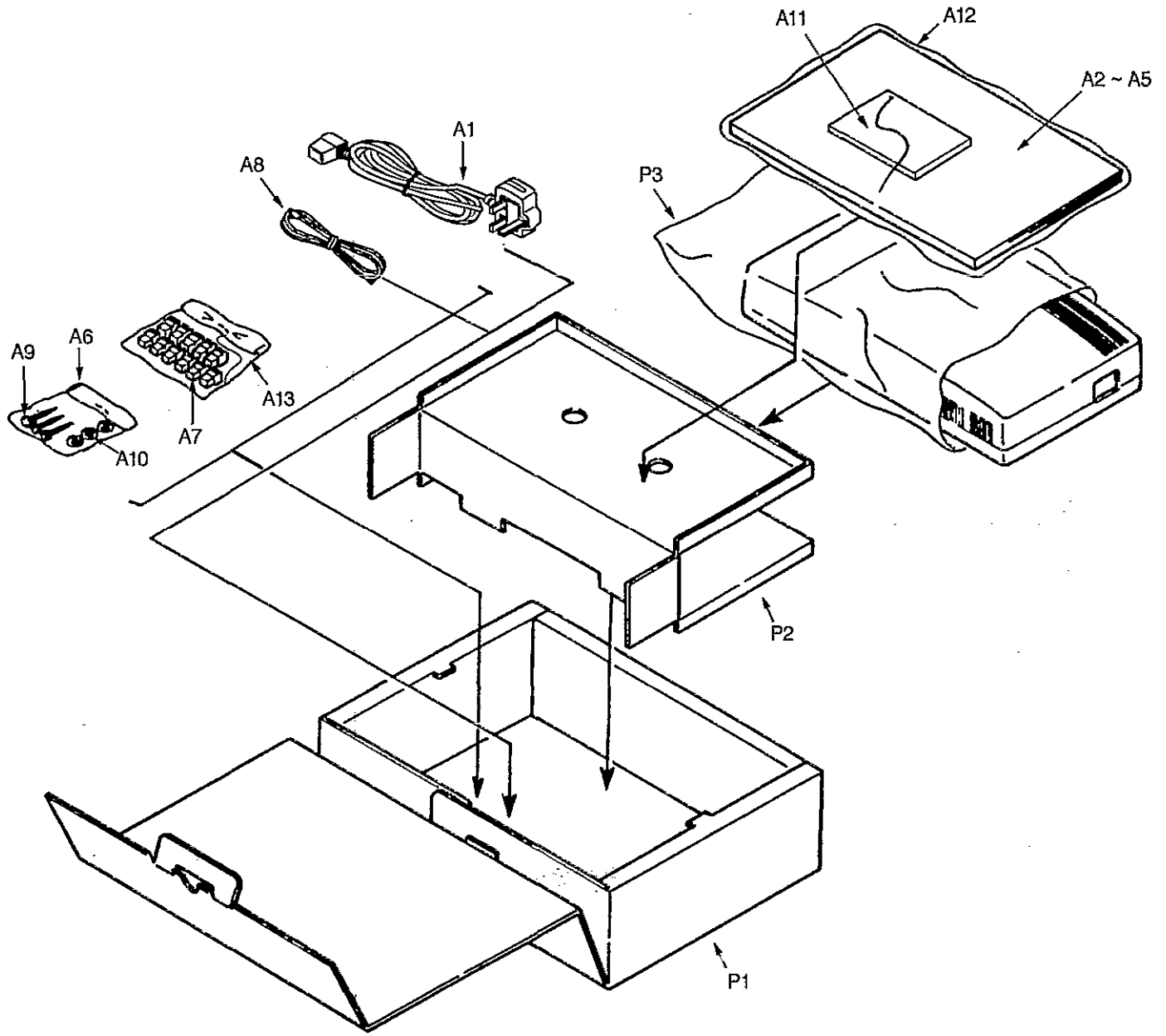
KX-TD208E

ACTUAL SIZE OF SCREWS AND WASHERS



Ref. No.	Part No.	Figure
(A)	XSN4D8FN	
(B)	XTW3+S10P	
(C)	XTW3+S12P	
(D)	XYN4+C8	
(E)	XWC4B	
(F)	XYN3+C6	
(G)	XWC3B	

ACCESSORIES AND PACKING MATERIALS



This replacement parts list is for **KX-TD208E** only.

Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-TD208E

Notes:

- The marking (RTL) Indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS**
Unless otherwise specified.
All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μ F) P= μ F
*Type & Wattage of Resistor
Type

ERC:Solid	ERX: Metal Film	PQRD: Carbon
ERD: Carbon	ERG: Metal Oxide	PQRQ: Fuse
PQ4R: Chip	ERO: Metal Film	ERF: Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W
---------------	---------------	---------------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD: Semi-Conductor	ECOD, ECKD, PQCB, PQVP : Ceramic
EQCS: Styrol	EQCM, ECQV, ECQE, ECQU, ECQB : Polyester
PQCBX, ECUV: Chip	ECEA, ECSZ, ECOS : Electrolytic
ECMS: Mica	ECQP : Polypropylene

Voltage

ECQ Type	EQCG EQV Type	ECSZ Type	Others		
1H: 50V	05: 50V	0F: 3.15V	0J :6.3V	1V :35V	
2A: 100V	1: 100V	1A: 10V	1A :10V	50, 1H: 50V	
2E: 250V	2: 200V	1V: 35V	1C :16V	1J :63V	
2H: 500V		0J: 6.3V	1E, 25: 25V	2A :100V	

Ref. No.	Part No.	Part Name & Description	Pcs
CABINET & ELECTRICAL PARTS			
1	PSKM1017N1	UPPER CABINET	1
2	PQHD10011Z	SCREW	1
3	PQUS141Z	SPRING	1
4	PQKV10007Z1	COVER	1
5	PQKF10026B1	LOWER CABINET	1
6	PSLP1029Z	POWER SUPPLY BOARD ASS'Y Δ	1
7	PSGT1495Z	NAME PLATE	1
8	XUC3VW	RETAINING RING	1
9	PSQT1034Z	CAUTION LABEL	1
10	PSQT1035X	CAUTION LABEL	1
11	PSHX1026Z	COVER	2
12	PSGG1002Y1	GRILL	1
13	PQHE10035Z	SPACER	2
14	PSHE1012Z	SPACER	1
15	PSMC1035Z	ANGLE	1
16	PSMC1038Z	ANGLE	1
17	PQQT9626Z	EARTH MARK LABEL	1
ACCESSORIES AND PACKING MATERIALS			
A1	PQJA10045Z	CORD, POWER Δ	1
A2	PSQX1235Z	INSTRUCTION BOOK	1
A3	PSQX1258Z	GETTING STARTED MANUAL	1
A4	PSQX1259Z	SLT CARD	1
A5	PSQW1212Z	LEAFLET	1

Ref. No.	Part No.	Part Name & Description	
A6	XZB05X08A03	PROTECTION COVER (FOR ACCESSORY)	1
A7	PQJS04S08Z	CONNECTOR	11
A8	PSJA1011Z	CORD, TEL. Δ	1
A9	PQHE5004Z	SCREW, WALL MOUNT	3
A10	XWG35FY	WASHER	3
A11	PSZXTD208E	FLOPPY DISK	1
A12	XZB30X40A04	BAG	1
A13	XZB07X09A03	BAG	1
P1	PSPK1339Z	GIFT BOX	1
P2	PQPN10427Z	INNER CUSHION	1
P3	XZB26X45A01	PROTECTION COVER (FOR SET)	1

MAIN/LED BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Pcs
PCB1	PSWP1TD208E	MAIN/LED BOARD ASS'Y (RTL)	1
		(ICs)	
IC100	PSV16800LAL	IC	1
IC101	MN7A090Z9A	IC	1
IC102/103	PSWITD208E	IC (ROM)	1
IC104	PSVICX581AMD	IC	1
IC105	PSVIHM6256BC	IC	S 1
IC106	PQVIDS14C232	IC	1
IC107	PQVIPS520C	IC	1
IC108	PQVIUM66T11L	IC	1
IC109	PSVITC7HT00A	IC	1
IC115	PSVIMC14548V	IC	S 1
IC300,301	PSVIPD9611G	IC	2
IC302A-	PQVINJM2904F	IC	8
IC302H			
IC303,304	PQVITC4051F	IC	S 2
IC305,306	PQVICM8870F1	IC	2
IC307	PQVISN7L273M	IC	1
IC308	PQVISN7L244S	IC	S 1
IC309	PQVITC7SU04F	IC	1
		(TRANSISTORS)	
Q100,101	2SC2412K	TRANSISTOR(SI)	2
Q102	PQVTDTC143E	TRANSISTOR(SI)	1
Q300A-	2SB1322	TRANSISTOR(SI)	8
Q300H			
Q301A-	2SD1994A	TRANSISTOR(SI)	8
Q301H			
Q302A-	2SB1218A	TRANSISTOR(SI) (or 2SA1576Q) S	8
Q302H			
Q303A-	2SD1819A	TRANSISTOR(SI) (or 2SC4081Q) S	8
Q303H			
Q304A-	2SD1819A	TRANSISTOR(SI) (or 2SC4081Q) S	8
Q304H			
Q305A-	PQVTDTC143E	TRANSISTOR(SI)	8
Q305H			
Q306A-	2SD1819A	TRANSISTOR(SI) (or 2SC4081Q) S	8
Q306H			
		(DIODES)	
D100	MA4091	DIODE(SI)	1
D101	MA723	DIODE(SI)	1
D102	PQVDS5688G	DIODE(SI)	1
D105	MA723	DIODE(SI)	1
D106	MA723	DIODE(SI)	1

This replacement parts list is for KX-TD208E only.

Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
D303A-D303H	MA4043M	DIODE(S)	8	C316-319	ECUV1C104KBV	0.1	S 4
D304A-D304H	RLS71	DIODE(S)	8	C320-325	ECUV1C104KBV	0.1	S 6
D305A-D305H	RLS71	DIODE(S)	8	C327A-C327H	PQCUV1H393KB	0.039	S 8
D306A-D306H	MA740TX	DIODE(S)	8	C332A-C332H	ECEA1HKS3R3	3.3	S 8
BAT	CR23541GUJF	(BATTERY) LITHIUM BATTERY	1	C334,335	ECUV1C104KBV	0.1	S 2
C100	ECUV1C104KBV	(CAPACITORS)	S 1	C336-339	ECUV1H223KBV	0.022	S 4
C101	ECUV1H470JCV	47P	1	C340,341	ECUV1C104KBV	0.1	S 2
C102	ECEA1VKS4R7	4.7	S 1	C342	ECEA1AU101	100	S 1
C103	ECEA1VKS4R7	4.7	S 1	C343	ECUV1C104KBV	0.1	S 1
C104	ECEA1VKS4R7	4.7	S 1	C349	ECUV1H470JCV	47P	1
C105	ECEA1EU101	100	1	C350,351	ECUV1H470JCV	47P	2
C106	ECEA1VKS4R7	4.7	S 1	C361-367	ECUV1H470JCV	47P	7
C107	ECUV1C104KBV	0.1	S 1	C374	ECUV1H470JCV	47P	1
C108	ECEA1VKS4R7	4.7	S 1	C375	ECUV1H470JCV	47P	1
C109	ECEA1EU221	220	1	C376	ECUV1H470JCV	47P	1
C110	ECUV1C104KBV	0.1	1	C380-385	ECUV1H470JCV	47P	6
C111	ECUV1H103KBV	0.01	S 1	C386A-C386H	PSCUV2EW223K	0.022	8
C112	ECUV1C104KBV	0.1	S 1	C387,388	PSCUV2ET474K	0.47	2
C114	ECUV1H470JCV	47P	1	J300A-J300H	PQCUV1C474ZF	0.47	8
C116,117	ECUV1H150JCV	15P	2	J304A-J304H	PQCUV1C474ZF	0.47	8
C118,119	ECUV1H180JCV	18P	2		(RESISTORS)		
C123	ECUV1H121JCV	120P	S 1	C131	ERDS2TJ152	1.5K	1
C124-127	ECUV1C104KBV	0.1	S 4	R100-109	ERJ3GEYJ560	56	10
C128	PQCUV1H104ZF	0.1	S 1	R110-119	ERJ3GEYJ560	56	10
C129	ECUV1C104KBV	0.1	S 1	R120-129	ERJ3GEYJ560	56	10
C130	ECEA1HU330	33	1	R130	ERJ3GEYJ560	56	1
C135	ECEA1AU101	100	1	R131-140	ERJ3GEYJ103	10K	10
C136	ECUV1C104KBV	0.1	1	R141-149	ERJ3GEYJ103	10K	9
C137	ECUV1C104KBV	0.1	S 1	R150-157	ERJ3GEYJ103	10K	8
C142-149	ECUV1C104KBV	0.1	S 8	R159	ERJ3GEYJ103	10K	1
C150-154	ECUV1H104ZVF	0.1	S 5	R160-169	ERJ3GEYJ103	10K	10
C155	ECUV1H102KBV	0.001	S 1	R170,171	ERJ3GEYJ103	10K	2
C301A-C301H	ECUV1H223KBV	0.022	S 8	R172	ERJ3GEYJ473	47K	1
C302A-C302H	ECEA1HKS100	10	S 8	R173	ERJ3GEYJ473	47K	1
C303A-C303H	ECEA1HKS100	10	S 8	R174	ERJ3GEYJ473	47K	1
C304A-C304H	ECEA1EKN4R7	4.7	8	R175	ERJ3GEYJ103	10K	1
C305A-C305H	ECEA1EKN4R7	4.7	8	R179	ERJ3GEYJ103	10K	1
C306A-C306H	PQCUV1H104ZF	0.1	S 8	R180	ERJ3GEYJ103	10K	1
C308,309	ECUV1C104KBV	0.1	S 2	R181	ERJ3GEYJ103	10K	1
C310A-C310H	ECUV1H151JCV	150P	8	R183	ERJ3GEYJ103	10K	1
C312A-C312H	PQCUV1H104ZF	0.1	S 8	R184	ERJ3GEYJ472	4.7K	1
C313A-C313H	ECUV1H151JCV	150P	8	R185	ERJ3GEYJ473	47K	1
C314A-C314H	PQCUV1C474ZF	0.47	8	R186	ERJ3GEYJ470	47	1
C315A-C315H	ECEA1HKN4R7	4.7	8	R195	ERJ3GEYJ103	10K	1
				R197	ERJ3GEYJ103	10K	1
				R199	ERJ3GEYJ103	10K	1

This replacement parts list is for KX-TD208E only.

Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
R200	ERJ3GEYJ103	10K	1	R304A-	ERJ14YJ220	22	8
R201,202	ERJ3GEYJ330	33	2	R304H			
R204,205	ERJ3GEYJ473	47K	2	R305A-	ERJ14YJ101	100	8
R206	ERJ3GEYJ103	10K	1	R305H			
R207	ERJ3GEYJ223	22K	1	R306A-	ERJ3GEYJ221	220	8
R208	ERJ3GEYJ472	4.7K	1	R306H			
R209	ERJ3GEYJ471	470	1	R307A-	ERJ3GEYJ334	330K	8
				R307H			
R210	ERJ3GEY0R00	0	1	R308A-	ERJ3GEYJ104	100K	8
R212	ERJ3GEY0R00	0	1	R308H			
R214	ERJ3GEY0R00	0	1	R309A-	ERJ3GEY0R00	0	8
R215	ERJ3GEYJ473	47K	1	R309H			
R216	ERJ3GEYJ182	1.8K	1				
R217	ERJ3GEYJ122	1.2K	1	R312A-	ERJ3GEYJ823	82K	8
R218	ERJ3GEYJ122	1.2K	1	R312H			
R219	ERJ3GEYJ272	2.7K	1	R316A-	ERJ3GEYJ823	82K	8
				R316H			
R220	ERJ3GEYJ224	220K	1	R317A-	ERJ3GEYJ124	120K	8
R221	ERJ3GEYJ122	1.2K	1	R317H			
R222	ERJ3GEYJ152	1.5K	1	R318A-	ERJ3GEYJ124	120K	8
R223	ERJ14YJ822	8.2K	1	R318H			
R224	ERJ14YJ822	8.2K	1	R319A-	ERJ3GEYJ471	470	8
R225	ERJ3GEYJ103	10K	1	R319H			
R226	ERJ3GEYJ471	470	1				
R228	ERJ3GEYJ104	10K	1	R322A-	ERJ3GEYJ682	6.8K	8
				R322H			
R233-239	ERJ3GEYJ103	10K	7	R323A-	ERJ3GEYJ333	33K	8
				R323H			
R240-243	ERJ3GEYJ103	10K	4	R324A-	PQRD1TJ102	1K	8
R245	ERJ3GEYJ103	10K	1	R324H			
R246	ERJ3GEYJ103	10K	1	R326A-	ERJ3GEYJ103	10K	8
R247	ERJ3GEYJ103	10K	1	R326H			
R249	ERJ3GEYJ103	10K	1	R327A-	ERJ3GEYJ103	10K	8
				R327H			
R250	ERJ3GEYJ103	10K	1	R328A-	PQ4R10XJ563	56K	8
R252	ERJ3GEYJ473	47K	1	R328H			
				R329A-	ERJ3GEYJ473	47K	8
				R329H			
R261-264	ERJ3GEYJ473	47K	4				
R265	ERJ3GEYJ103	10K	1	R330A-	PQ4R10XJ221	220	8
R266	ERJ3GEYJ103	10K	1	R330H			
R267	ERJ3GEYJ103	10K	1	R331A-	ERJ3GEYJ220	22	8
				R331H			
R270	ERJ3GEY0R00	0	1	R332A-	ERJ3GEYJ220	22	8
R271	ERJ3GEYJ104	10K	1	R332H			
R272	ERJ3GEYJ222	2.2K	1	R337A-	ERJ3GEYJ221	220	8
R273	ERJ3GEYJ470	47	1	R337H			
				R338A-	ERJ3GEYJ124	120K	8
R281	ERJ3GEYJ103	10K	1	R338H			
R282	ERJ3GEYJ560	56	1				
R283	ERJ3GEYJ330	33	1	R340A-	ERJ3GEYJ100	10	8
R284	ERJ3GEYJ330	33	1	R340H			
R285	ERJ3GEYJ330	33	1	R341A-	ERJ3GEYJ391	390	8
R287	ERJ3GEYJ330	33	1	R341H			
R288	ERJ3GEYJ330	33	1	R343A-	ERJ3GEYJ153	15K	8
R289	ERJ3GEYJ330	33	1	R343H			
				R344	ERJ3GEYJ473	47K	1
R290	ERJ3GEYJ473	47K	1	R344A-	ERJ3GEYJ221	220	8
R291	ERJ3GEYJ472	4.7K	1	R344H			
R294,295	ERJ3GEYJ101	100	2				
R296-299	ERJ3GEYJ330	33	4	R355,356	ERJ3GEYJ104	100K	2
				R357,358	ERJ3GEYJ393	33K	2
R300A -	ERJ3GEYJ682	6.8K	8	R359	ERJ3GEYJ334	330K	1
R300H							
R301A-	ERJ14YJ220	22	8	R360	ERJ3GEYJ334	330K	1
R301H				R361	ERJ3GEYJ105	1M	1
R302A-	ERJ14YJ101	100	8	R362	ERJ3GEYJ101	100	1
R302H							
R303A-	ERJ3GEYJ682	6.8K	8	R378	ERJ3GEY0R00	0	1
R303H							

This replacement parts list is for KX-TD208E only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
R500	ERJ3GEYJ683	68K	1	X2	PQVCL3276N6Z	CRYSTAL OSCILLATOR	1
R501	ERJ3GEYJ221	220	1	X300	PQVBF3584A1	CERAMIC FILTER	S 1
R502A- R502H	ERJ3GEYJ104	100K	8	FIL100- FIL103	PQVFTU50MT	CERAMIC FILTER	4
J301A- J301H	ERJ3GEYJ471	470	8	ISDN BOARD PARTS			
J305A- J305H	ERJ3GEYJ471	470	8				
RL301A- RL301H	ATX203	(RELAYS) RELAY	8	PCB2	PSWP2TD208E	ISDN BOARD ASSY (RLT)	1
ZNR30A- ZNR30H	PSVDVF05390	(VARISTORS) VARISTOR	S 8	IC400	PQVIPEB2086	(ICs) IC	1
ZNR31A- ZNR31H	PSVDVF05390	VARISTOR	S 8	IC401	PQVIMB7HU04F	IC	S 1
ZNR32A- ZNR32D	PSVDVF05390	VARISTOR	S 4	IC402	PQVISN7L126A	IC	1
ZNR33A- ZNR33D	PSVDVF05390	VARISTOR	S 4	IC403	PQVISN7L00ST	IC	1
CN1	PSJP44A39Z	(CONNECTORS & TERMINAL) CONNECTOR, 44P	1	IC701	PQVINJM4558M	IC	1
CN2	PSJP16A11Y	CONNECTOR, 16P	1	IC702	PSVIMC5480DW	IC	1
CN3	PQJS07Q42Z	CONNECTOR, 7P	1	Q703	UN421D	(TRANSISTORS) TRANSISTOR(Si)	1
CN4	PQJP2D70Z	CONNECTOR, 2P	1	Q704	UN5113	TRANSISTOR(Si)	S 1
CN5	PSJP16A11Y	CONNECTOR, 16P	1	Q705	UN5213	TRANSISTOR(Si)	S 1
CN6	PSJP09A41Z	CONNECTOR, 9P	1	Q706	2SD1819A	TRANSISTOR(Si)(or 2SC4081Q)	S 1
CN300	PQJP32A56Z	CONNECTOR, 32P	1	Q707	2SD1819A	TRANSISTOR(Si)(or 2SC4081S)	S 1
SW2	PQJP02G47X	CONNECTOR, 2P	1	Q708	2SA933	TRANSISTOR(Si)	1
SW1	EVQ21409K	(SWITCH) SWITCH	1	Q709	PQVTDTC114Y	TRANSISTOR(Si)	1
L300	PQLQR1RM601	(CERAMIC FILTER & COILS) COIL	1	D400-404	1SS131	(DIODES) DIODE(Si)	S 5
L300A- L300H	PQLE106	COIL	8	D405	MA4020	DIODE(Si)	1
L301,302	PQLQR1RM601	COIL	2	D406-410	1SS131	DIODE(Si)	S 5
L301A- L301H	PQLE106	COIL	8	D411	MA4020	DIODE(Si)	1
L302A- L302D	PQLE106	COIL	4	D702	RLS71	DIODE(Si)	1
L303A- L303D	PQLE106	COIL	4	D703	MA4068	DIODE(Si)	1
L304	PQLQR1RM601	COIL	1	LED	LN242RP	LED	1
L305	PQLQR1T2R2M	COIL	1	(CAPACITORS)			
L306	PQLQR1T2R2M	COIL	1				
L307	PQLQR1T2R2M	COIL	1	C402,403	PQCUV1H330JC	33P	2
R364- R377	PQLQR1RM601	COIL	14	C406	PQCUV1H270JC	27P	1
R379- R422	PQLQR1RM601	COIL	44	C407	PQCUV1H330JC	33P	1
R427- R430	PQLQR1RM601	COIL	4	C408	ECEA1HKS100	10	S 1
R435- R466	PQLQR1RM601	COIL	54	C409	ECEA1HKS100	10	S 1
X1	PQVCJ16384N8	(CRYSTAL OSCILLATORS & CERAMIC FILTER) CRYSTAL OSCILLATOR	1	C410	PQCUV1H223KB	0.022	S 1
				C411	PQCUV1H223KB	0.022	S 1
				C412	PQCUV1H223KB	0.022	S 1
				C414	PQCUV1H102J	0.001	1
				C705,706	PQCUV1E104MD	0.1	S 2
				C707	PQCUV1H561JC	56P	1
				C708,709	PQCUV1H104ZF	0.1	2
				C712	ECEA1EU4R7	4.7	1
				C713	ECEA1EU470	47	1
				C714	PQCUV1H563KB	0.056	1
				C715	ECEA1HN010S	1	S 1
				C716	PQCUV1H271JC	270P	1
				C717	PQCUV1H223MD	0.022	1
				C719	PQCUV1H223KB	0.022	S 1
				C720	ECQE1104KN	0.1	S 1

This replacement parts list is for KX-TD208E only.

Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs	Ref. No.	Part No.	Part Name & Description	Pcs
C730	PQCUV1H470JC	47P (RESISTORS)	1	L707	PQLQR2BT	COIL	S 1
R400,401	ERDS2TJ101	100	2	L703,709	PQLQR1T2R2M	COIL	2
R402,403	PQ4R10XJ220	22	2	J700	PQLE106	COIL	1
R404,405	PQ4R10XJ822	8.2K	2			(RELAYS)	
R406,407	PQ4R10XJ182	1.8K	2	RL702	PQSL63Z	RELAY	1
R408,409	ERDS2TJ101	100	2			(VARISTORS)	
R410	PQ4R10XJ103	10K	1	SA400-	PQVDT83A350X	VARISTOR (SURGE ABSORBER)	4
R411	PQ4R10XJ105	1M	1	SA403			
R412	PQ4R10XJ102	1K	1	SA404	PSVDY08Z102B	VARISTOR (SURGE ABSORBER)	1
R414,415	ERDS2TJ822	8.2K	2	ZNR700	ERZC03DK241		S 1
R416,417	PQ4R10XJ332	3.3K	2	ZNR701	ERZC03DK241		S 1
R418,419	PQ4R10XJ103	10K	2			(TRANSFORMERS)	
R420	PQ4R10XJ000	0	1	T400,401	PQLT9Z15A	TRANSFORMERS	2
R421	PQ4R10XJ330	33	1	T701	ETA14Y101BY	TRANSFORMER	△ 1
R422,423	PQ4R10XJ103	10K	2			(CRYSTAL OSCILLATOR)	
R713,714	PQ4R10XJ104	100K	2	X400	PQVCJ7680N5Z	CRYSTAL OSCILLATOR	1
R715	PQ4R10XJ563	56K	1				
R718	PQ4R10XJ000	0	1				
R723	PQ4R10XJ274	270K	1				
R724	PQ4R10XJ224	220K	1				
R726	ERJ6ENF1580	158	S 1				
R727	PQ4R10XJ182	1.8K	1				
R728	PQ4R10XF5603	560K	1				
R729	PQ4R10XF4702	47K	1				
R730	PQ4R10XF1003	100K	1				
R731,732	PQ4R10XJ184	180K	2				
R733,734	PQ4R10XJ103	10K	2				
R735	PQ4R10XF5602	56K	1				
R737	PQ4R10XJ000	0	1				
R738	ERDS2TJ151	150	1				
R740	PQ4R10XJ472	4.7K	1				
R744-749	PQ4R10XJ103	10K	6				
L702	PQ4R18XJ000	0	1				
L704	PQR10XJ000	0	1				
		(JACKS & CONNECTORS)					
CN400	PQJ1TD2Z	JACK, ISDN	1				
CN401	PQJ1TD2Z	JACK, ISDN	1				
CN402	PSJS44A07Y	CONNECTOR, 44P	1				
CN403	PQJP20D30Y	CONNECTOR, 20P	1				
CN404	PQJP20D30Y	CONNECTOR, 20P	1				
CN405	PQJP04B14Z	CONNECTOR, 4P	1				
CN700	PQJP12A56Y	CONNECTOR, 12P	1				
JSW402- JSW405	PQJP03G47X	CONNECTOR, 3P	4				
TM9	PSJS02R79Z	CONNECTOR, 2P	1				
	PQJS02S12Z	CONNECTOR, 2P	1				
		(CERAMIC FILTERS)					
FIL400	PQVFTU50MT	CERAMIC FILTER	1				
FIL401	PQVFTU50MT	CERAMIC FILTER	1				
L710	PQVFCM04RC01	CERAMIC FILTER	1				
		(COILS)					
L700,701	PQLQZM2R2K	COIL	S 2				
L703	PQLQR2BT	COIL	S 1				
L705	PQLQR2BT	COIL	S 1				
L706	PQLQR2BT	COIL	S 1				

This replacement parts list is for KX-TD20880CE only.

Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

KX-TD20880CE

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

2. Important safety notice.

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

3. The S mark indicates service standard parts and may differ from production parts.

4. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F) P= μ μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse
PQ4R:Chip	ERC:Metal Film	ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W
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*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor	ECOD,ECKD,PQCBG,PQVP : Ceramic
ECQS:Styrol	ECQM,ECQV,ECQE,ECQU,ECQB : Polyester
PQCBX,ECUV:Chip	ECEA,ECSZ,ECOS : Electrolytic
ECMS:Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	OF:3.15V	OJ :6.3V	1V :35V
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V
2E:250V	2:200V	1V:35V	1C :16V	1J :63V
2H:500V		OJ:6.3V	1E,25:25V	2A :100V

Ref. No.	Part No.	Part Name & Description	Pcs
ACCESSORY PARTS			
A8	PSJA1011Z	CORD, TEL Δ	1
BOARD PARTS			
IC500	PQVIPEB2086	(ICs) IC	1
D500- D504	1SS131	(DIODES) DIODE(SI)	5
D505	MA4020	DICDE(SI)	1
D506- D510	1SS131	DIODE(SI)	5
D511	MA4020	DIODE(SI)	1
(CAPACITORS)			
C500	PQCUV1H330JC	33P	1
C501	PQCUV1H330JC	33P	1
C502	ECEA1HKS100	10	S 1

Ref. No.	Part No.	Part Name & Description	Pcs
(RESISTORS)			
R500,501	PQ4R10XJ220	22	2
R502,503	PQ4R10XJ822	8.2K	2
R504,505	PQ4R10XJ182	1.8K	2
R505,507	PQ4R10XJ103	10K	2
(CONNECTORS)			
CN500	PQJS20X33Y	CONNECTOR, 20P	1
CN501	PQJS20X33Y	CONNECTOR, 20P	1
CN502	PQJS04A15Z	CONNECTOR, 4P	1
(COILS)			
L500	PQLQR2BT	COIL	S 1
L501,502	PQLQR1T2R2M	COIL	2
L503,504	PQLQR2BT	COIL	S 2
(TRANSFORMERS)			
T500,501	PQLT9Z15A	PULSE TRANSFORMER Δ	2

This replacement parts list is for KX-TD20870CE only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-TD20870CE

Notes:

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS
Unless otherwise specified.
All resistors are in ohms (Ω) k=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS(μ F) P= μ μ F
*Type & Wattage of Resistor
Type

ERC:Solid	ERX:Metal Film	PQRD:Carbon
ERD:Carbon	ERG:Metal Oxide	PQRQ:Fuse
PQ4R:Chip	ERO:Metal Film	ERF:Wire Wound

Wattage

10,16,18:1/8W	14,25,S2:1/4W	12,50,S1:1/2W	1:1W	2:2W	5:5W
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*Type & Voltage of Capacitor

Type		ECFD:Semi-Conductor		ECCD,ECKD,PQCBQ,PQVP : Ceramic	
ECQS:Styrol		PQCBX,ECUV:Chip		ECQM,ECQV,ECQE,ECQU,ECQB : Polyester	
ECMS:Mica		ECQP : Polypropylene			

Voltage

ECQ Type	ECQG ECQV Type	ECSS Type	Others		
1H: 50V	05: 50V	0F:3.15V	0J :5.3V	1V :35V	
2A:100V	1:100V	1A:10V	1A :10V	50,1H:50V	
2E:250V	2:200V	1V:35V	1C :16V	1J :63V	
2H:500V		0J:6.3V	1E,25:25V	2A :100V	

Ref. No.	Part No.	Part Name & Description	Pcs
BOARD PARTS			
		(TRANSISTORS)	
Q800A-Q800D	2SB1218A	TRANSISTOR(SI)(or 2SA1576R)	S 4
Q801A-Q801D	2SD1819A	TRANSISTOR(SI)(or 2SC4081R)	S 4
Q802A-Q802D	2SD1819A	TRANSISTOR(SI)(or 2SC4081R)	S 4
Q803	2SB1417P	TRANSISTOR(SI)	1
Q804	UN5213	TRANSISTOR(SI)	S 1
Q805	2SD1819A	TRANSISTOR(SI)(or 2SC4081R)	S 1
		(DIODES)	
D800A-D800D	1SS131	DIODE(SI)	4
D801A-D801D	1SS131	DIODE(SI)	4
		(CONNECTORS)	
CN800	PSJS16A07Y	CONNECTOR, 16P	1
CN801	PSJS16A07Y	CONNECTOR, 16P	1

Ref. No.	Part No.	Part Name & Description	Pcs
		(CAPACITORS)	
C800A-C800D	ECEA1HKS2R2	2.2	S 4
C801A-C801D	ECEA1HKS010	1	S 4
C802A-C802D	ECEA1HKS010	1	S 4
C803A-C803D	PQCUV1H680JC	68P	4
C804A-C804D	PQCUV1H680JC	68P	4
C805	ECEA1EU101	100	1
C806,807	ECEA1VU330	33	S 2
C900A-C900D	PQCUV1E104MD	0.1	4
		(RESISTORS)	
R800A-R800D	PQ4R10XJ101	100	4
R801A-R801D	PQ4R10XJ3R9	3.9	4
R802A-R802D	PQ4R10XJ3R9	3.9	4
R803A-R803D	PQ4R10XJ471	470	4
R804A-R804D	PQ4R10XJ222	2.2K	4
R805A-R805D	PQ4R10XJ222	2.2K	4
R806A-R806D	PQ4R10XJ000	0	4
R807A-R807D	PQ4R10XJ473	47K	4
R808A-R808D	PQ4R10XJ390	39	4
R809A-R809D	PQ4R10XJ390	39	4
R810A-R810D	PQ4R10XJ561	560	4
R811A-R811D	PQ4R10XJ561	560	4
R812A-R812D	PQ4R10XJ222	2.2K	4
R813A-R813D	PQ4R10XJ222	2.2K	4
R814A-R814D	PQ4R10XJ000	0	4
R815A-R815D	PQ4R10XJ000	0	4
R816	PQ4R10XJ122	1.2K	1
R817	PQ4R10XJ153	15K	1
R818	PQ4R10XJ472	4.7K	1
R819	PQ4R10XJ223	22K	1
		(TRANSFORMER)	
T800A-T800D	PSLT9Z4A	TRANSFORMER	4