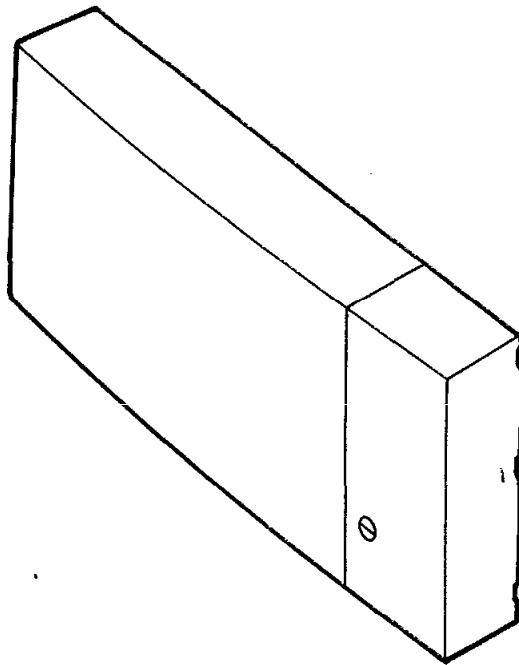


# Service Manual

2 ISDN EXPANSION UNIT  
**KX-TD280E**  
(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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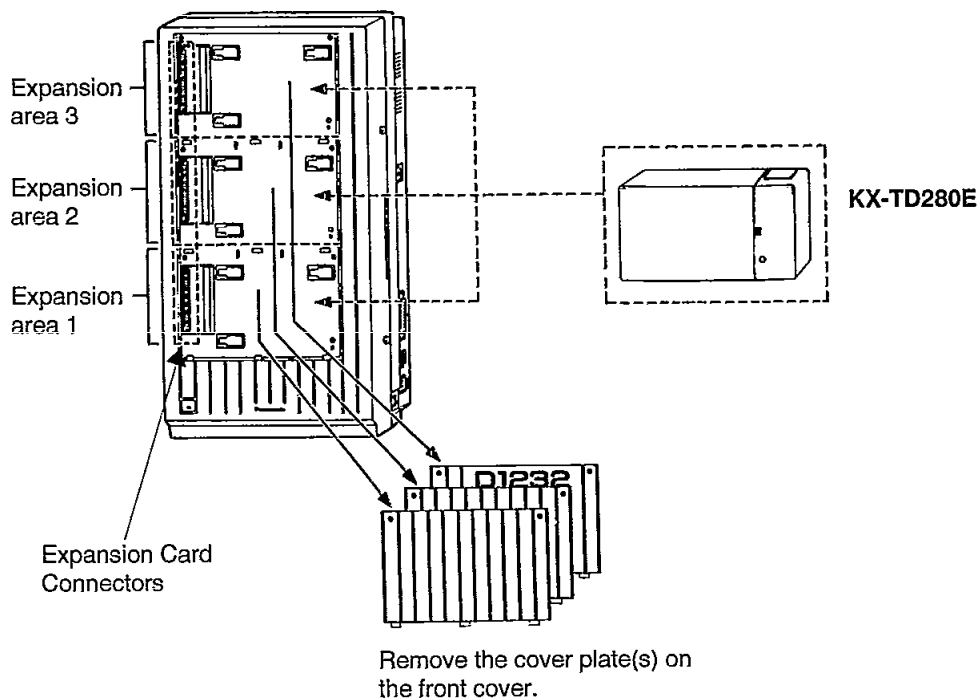
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## LOCATION OF THE UNIT

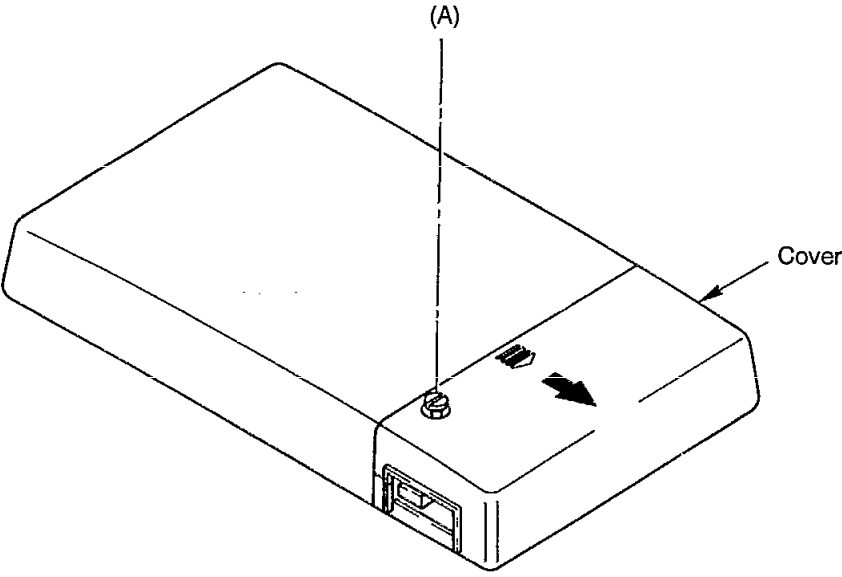
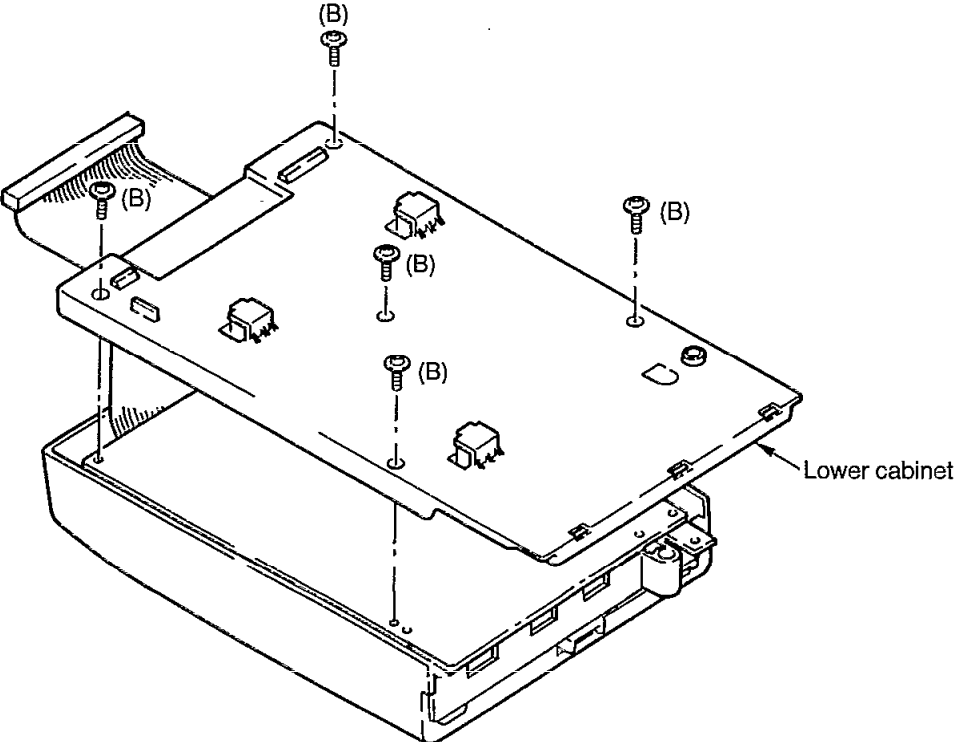
The location of the optional unit shown below.

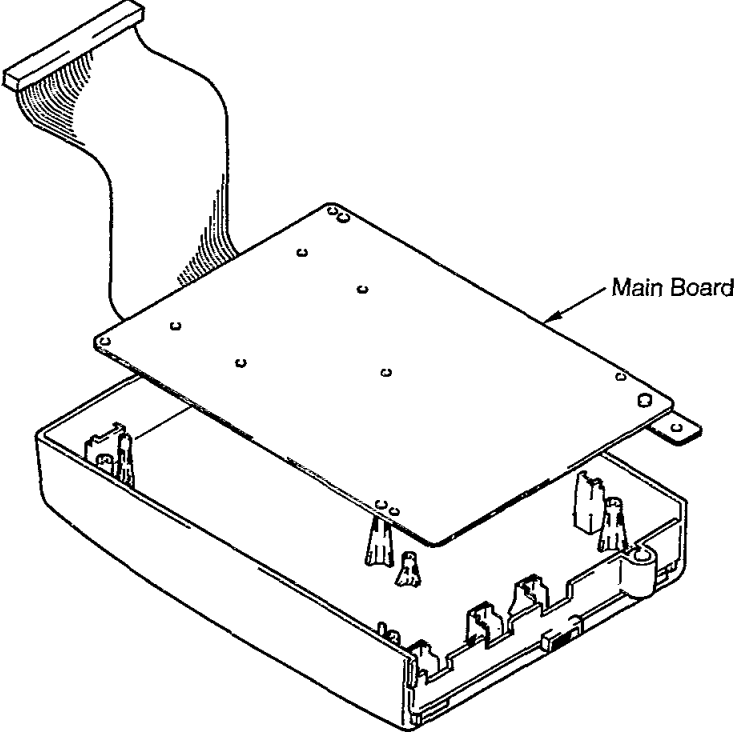
One So Line Expansion unit can be installed to any expansion area on the main unit, KX-TD1232E.



**Notes:** System Programming is required for card location identification. For details, refer to the Installation Manual.

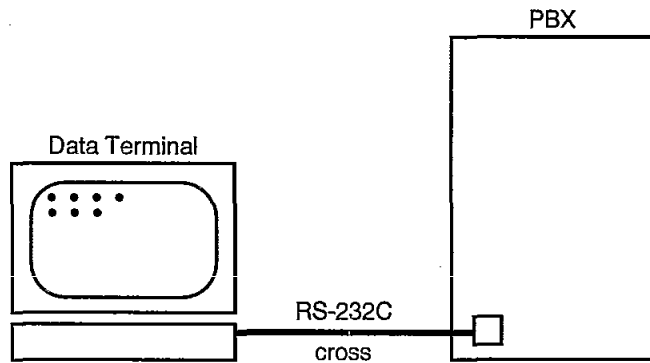
## DISASSEMBLY INSTRUCTIONS

Ref. No. 1	<b>HOW TO REMOVE THE COVER</b>
Procedure 1	<ol style="list-style-type: none"> <li>1. Remove the screw (A).</li> <li>2. Slide the cover in the direction of the arrow.</li> </ol>
	
Ref. No. 2	<b>HOW TO REMOVE THE LOWER CABINET</b>
Procedure 1→2	<ol style="list-style-type: none"> <li>1. Remove the 5 screws (B).</li> <li>2. Remove the lower cabinet.</li> </ol>
	

Ref. No. 3	<b>HOW TO REMOVE THE MAIN BOARD</b>
Procedure 1→2→3	1. Remove the main board.
 <p>The diagram illustrates the first step of removing the main board. It shows a perspective view of a rectangular chassis with a main board being lifted out. The board is connected to a ribbon cable on the left side. The chassis has various connectors and components visible on its front and side panels. An arrow points from the text 'Main Board' to the board itself.</p>	

# DIAGNOSTIC METHOD

## 1. HOW TO GET INTO SELF-DIAGNOSTIC MODE



- (1) Set the main power switch to ON. (PBX and Data Terminal)
- (2) Connect the Data Terminal to the RS-232C of PBX and press the return key of the Data Terminal in 10 seconds.
- (3) After message is displayed, enter password.

Ex.) 

```
Welcome to KX-TD1232 Ver. 2.0 Panasonic CO.,LTD
Enter Password
?????? ↓
```

- (4) After response message is received, enter diagnostic mode shift command "DAG".

Ex.) 

```
EIA Mode Start
DAG ↓
```

- (5) After response message is received, diagnostic command can be used.

Ex.) 

```
DIAG Mode Start
```

\*Setting of RS-232C communication parameter

Return Cord: CL+LF  
 Borate: 9600bps  
 Data: 8 bit  
 Parity Bit: None  
 Stop Bit: 1 bit

★ To test the KX-TD280E, connect the KX-TD280E to the Expansion area 1.

## 2.TEST ITEMS

No.	Test Items	Test Method	Check Items
1	ROM Test	1)Enter "X3 3" from data terminal.	1)Make sure response is "OK XXXX,XXXX". XXXX:Don't care
2	RAM Test	1)Enter "X4 3" from data terminal.	1)Make sure response is "OK 00".
3	S/T Interface Test	1)Enter "X9 3" from data terminal.	1)Make sure response is "OK 80,80,00,00".
4	ISDN card Test	1)Enter "MF 3" from data terminal.	1)Make sure response is "OK 00".

★For the No.4 test, set the KX-TD181 E.(Expansion CO card).

## CIRCUIT OPERATIONS

### 1.FUNCTION

This unit is an optional unit for communicating with ISDN.

The differences between this board and other 4S0 card (KX-TD281E) are as follows;

2 ISDN Basic Interface (2B+D) are included.

Refer to the Service Manual for KX-TD281E as for the details of 4S0 card.

## 2.EXPLANATION OF THE CIRCUIT OPERATION

EXPANSION ISDN CARD consists of the following.

- ISDN card control circuit
- CPU BUS I/F circuit
- PCM Highway I/F circuit
- ISDN I/F circuit
- DPLL circuit

### 2-1. ISDN CARD CONTROL CIRCUIT

**Composition:**

CPU(IC4)

ROM(IC5,6)

RAM(IC7,8)

IC17,18,19,20,21,22,23,24,25,26,27 etc.

**Circuit Operation:**

This circuit controls CPU BUS I/F IC(IC3), PCM Highway I/F IC(IC2) and ISDN I/F IC(IC1A,IC1B) and controls ISDN LAYER 2,3 procedure, too.

### 2-2. CPU BUS I/F CIRCUIT

**Composition:**

FIFO(IC3)

IC14,29,33,34 etc

**Circuit Operation:**

This circuit transfers the datas between CPU CARD and EXPANSION ISDN CARD, and drives the reset signal.

### 2-3. PCM HIGHWAY I/F CIRCUIT

**Composition:**

PCM Highway I/F IC(IC2)

IC12 etc.

**Circuit Operation:**

This circuit works as the data converter between PCM Highway and ISDN I/F IC(IC1A,IC1B), and it general the directional signal, the frame synchronization pulse and the data transmission clock.

**2-4. ISDN I/F CIRCUIT**

**Composition:**

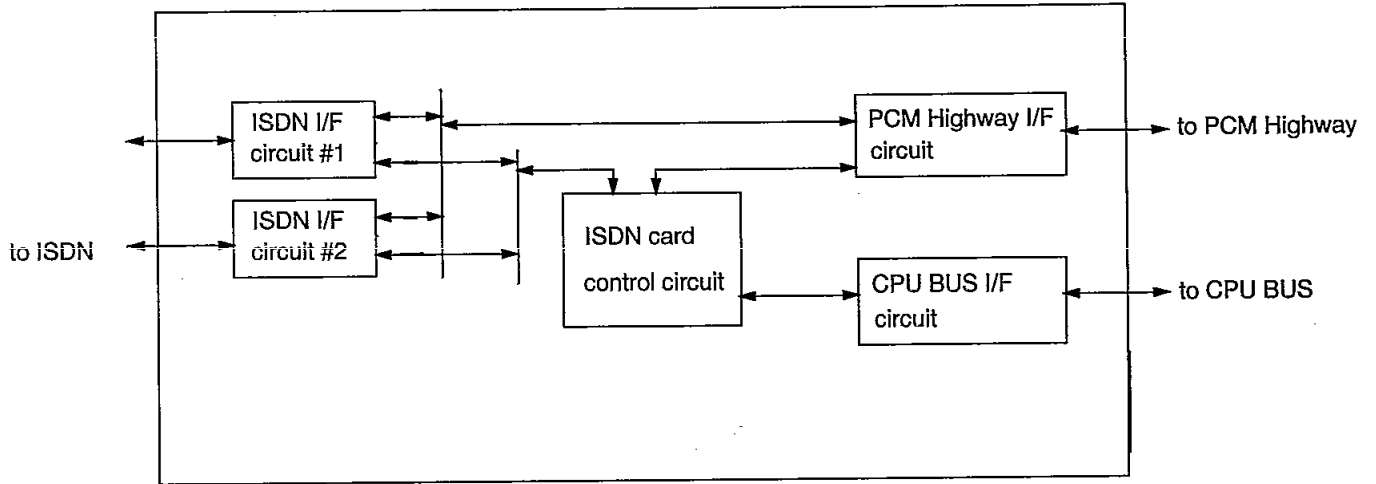
ISDN I/F IC (IC1A,IC1B)

ISDN Transformer (T1A,T2A,T1B,T2B)

**Circuit Operation:**

This circuit has the S-Bus Interface circuit and the ISDN lower LAYER (LAYER 1 and a part of LAYER 2) control circuit. The component switches B and D channel between the S/T Interface and the PCM Highway I/F.

**Block Diagram**





# PRINTED CIRCUIT BOARD

(BOTTOM VIEW)

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

A

B

C

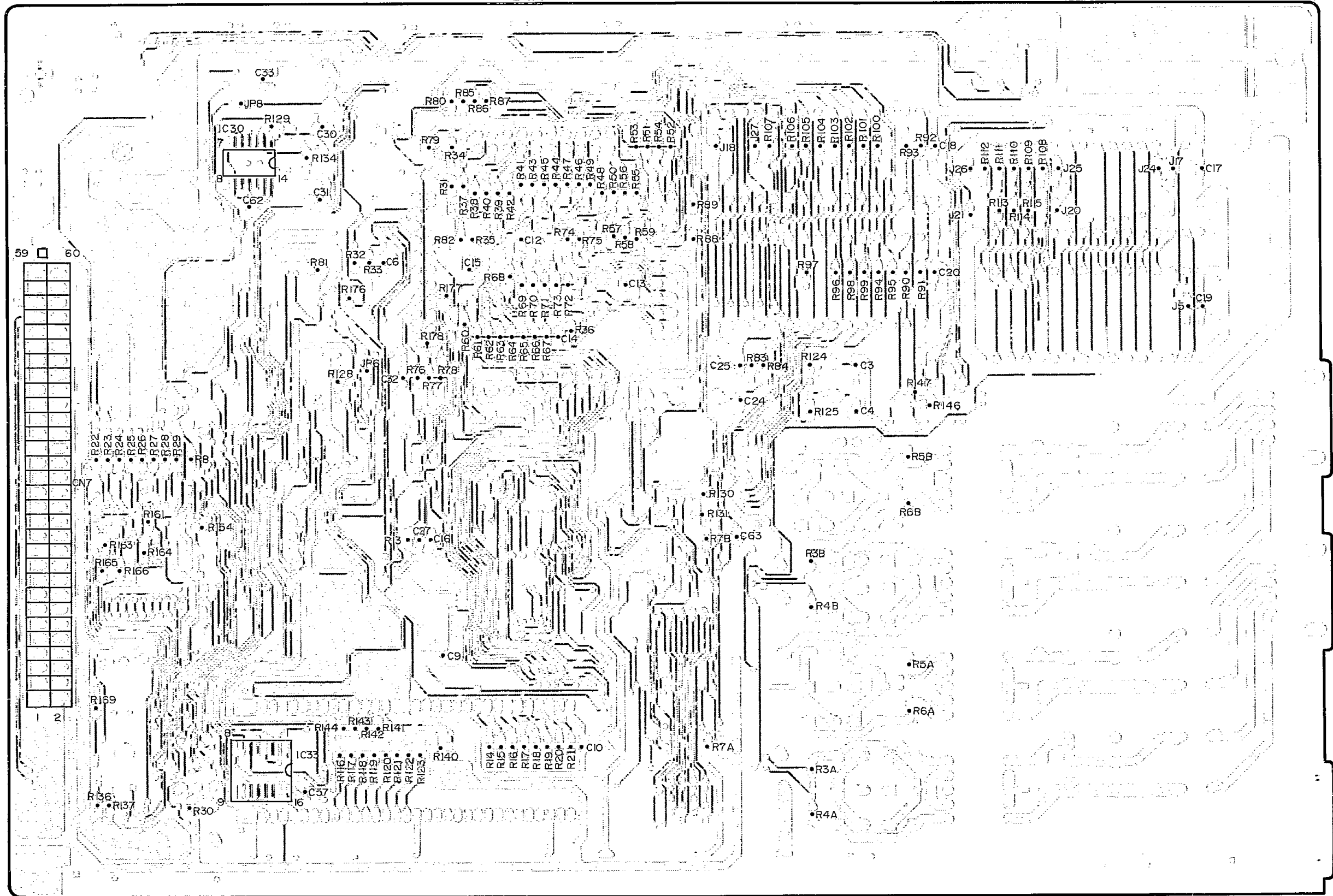
D

E

F

G

H

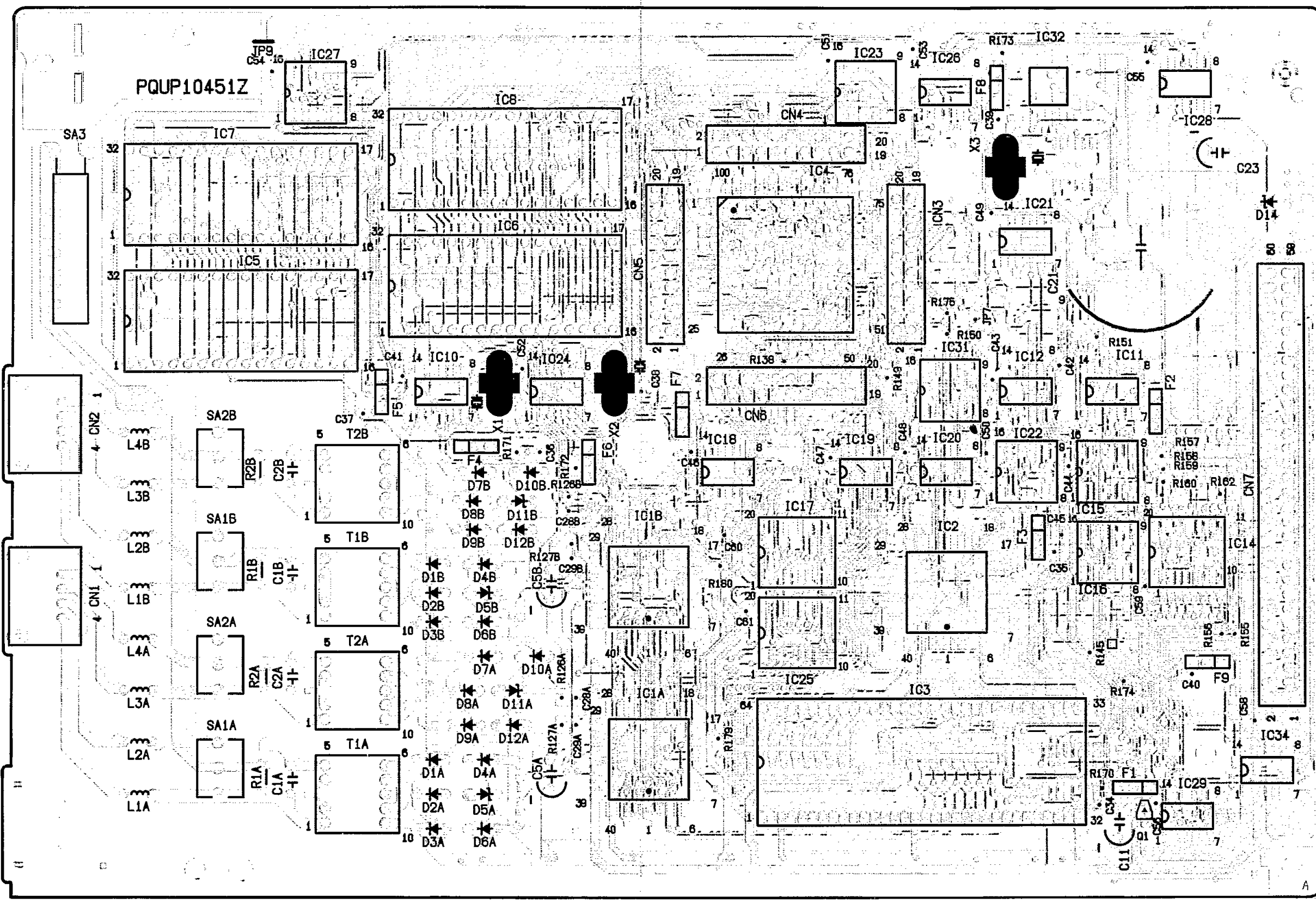


# PRINTED CIRCUIT BOARD

(COMPONENT VIEW)

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

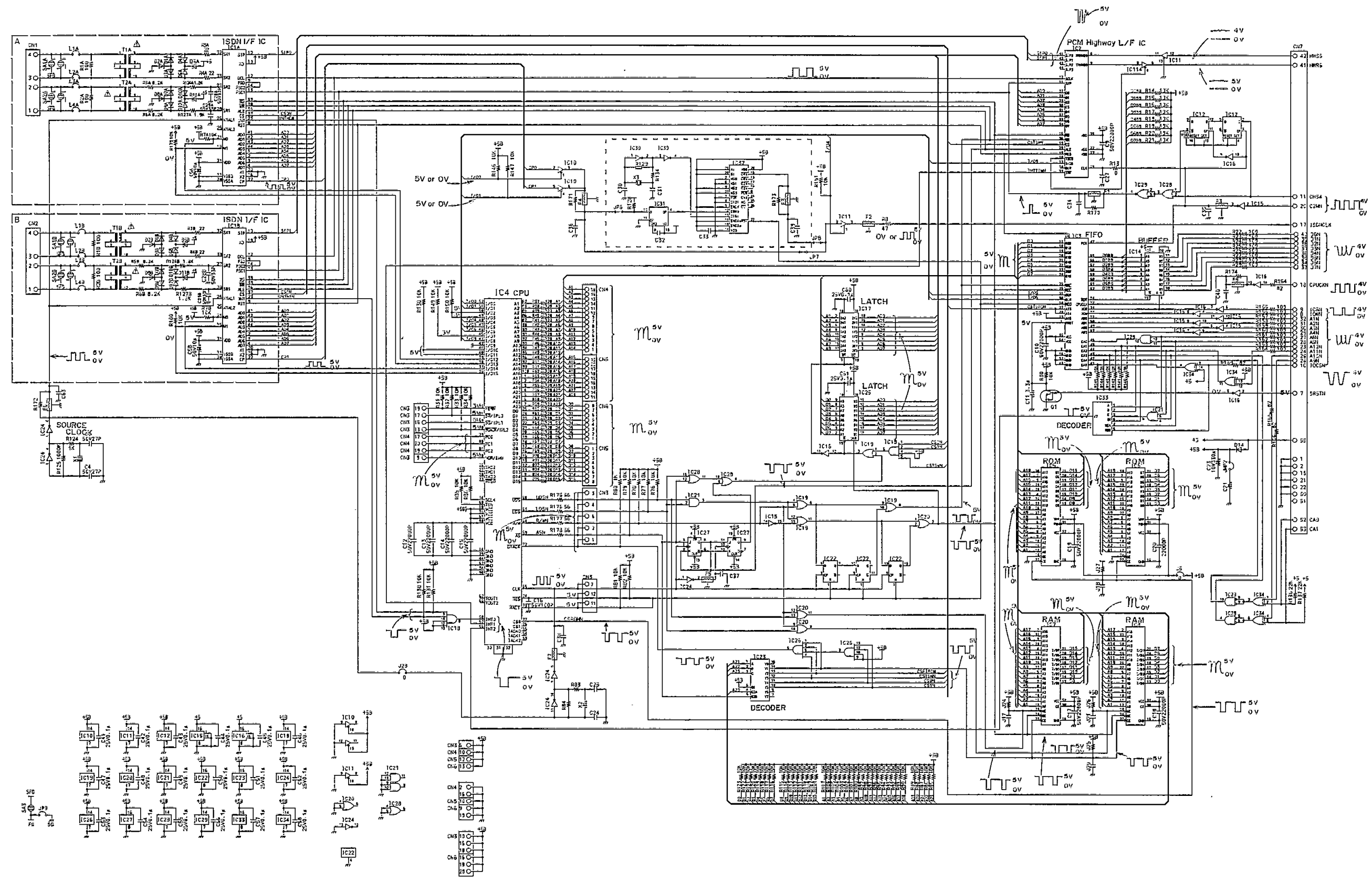
A  
B  
C  
D  
E  
F  
G  
H



# SCHEMATIC DIAGRAM

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

A  
B  
C  
D  
E  
F  
G  
H

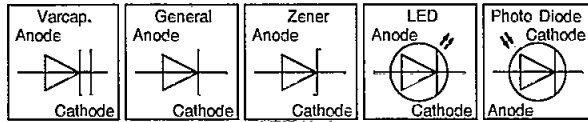


## HOW TO REPLACE FLAT PACKAGE IC

**Notes:**

1. DC voltage measurements are taken with oscilloscope from ground line.  
(Waiting condition. Value is V.)
2. The schematic diagram and circuit board may be modified at any time with the development of new technology.

3.



4.

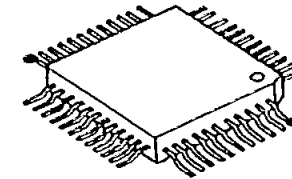
**Important safety notice**  
Components identified by mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

**■ 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 ± 50° F (350 ± 10° 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**

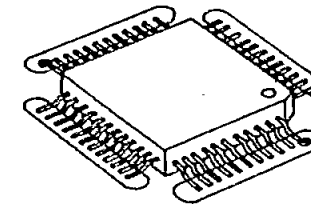
1. Temporary fix the FLAT PACKAGE IC by Soldering on marked 2 pins.



● ..... Temporary soldering point.

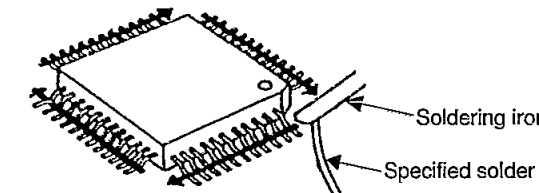
\*Accurate setting of the IC to the corresponding soldering foil is vital

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



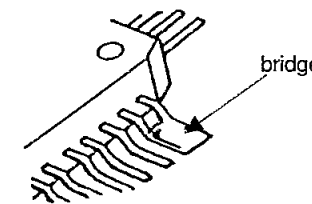
..... Flux

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

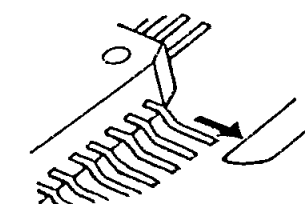


**■ MODIFICATION PROCEDURE OF BRIDGE**

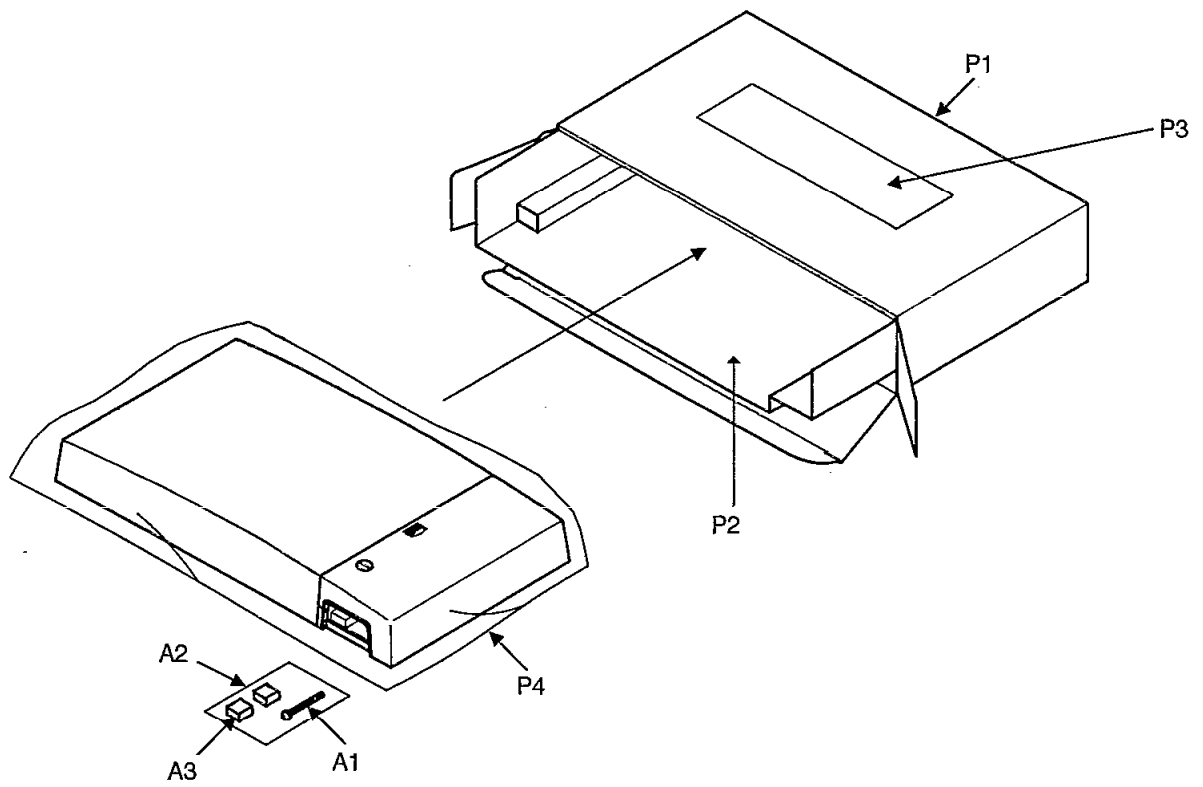
1. Re-solder slightly on bridged portion.
2. Remove any remaining solder along the pins using a soldering iron as shown below.



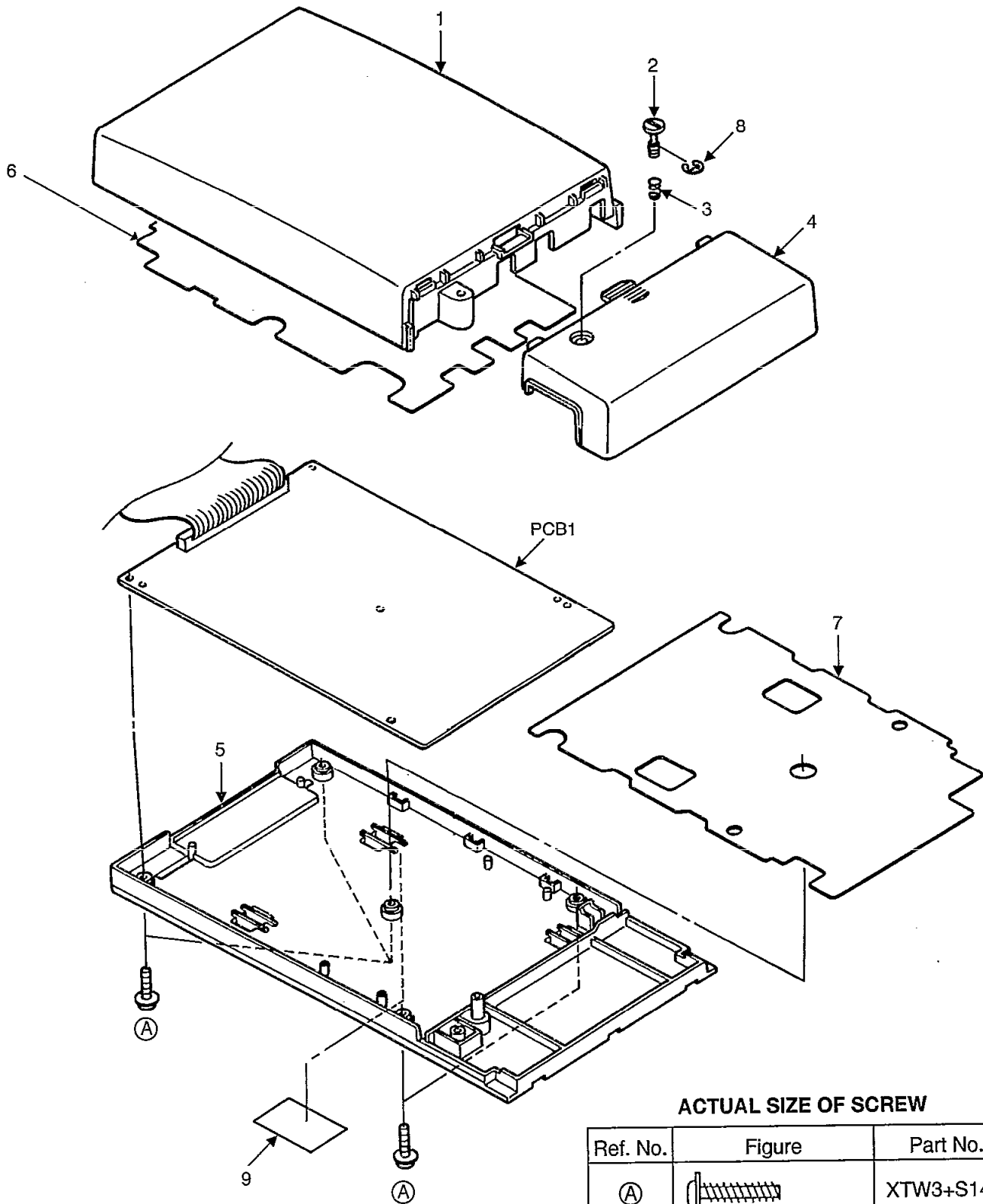
bridge



# ACCESSORIES AND PACKING MATERIALS



# CABINET AND ELECTRICAL PARTS LOCATION



This replacement parts list is for KX-TD280E only. Refer to the simplified manual (cover) for other areas.

**REPLACEMENT PARTS LIST**

Model KX-TD280E

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 the  $\Delta$  mark 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 ( $\Omega$ ) k=1000 $\Omega$ , M=1000k $\Omega$

All capacitors are in MICRO FARADS( $\mu$ F) P=  $\mu$  $\mu$ 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	ECQD,ECKD,PQCBQ,PQVP : Ceramic
ECQS:Styro!	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 (Value)	Pcs
P1	PQPK10118Z	GIFT BOX	1
P2	PQPD10027Z	CUSHION	1
P3	PSQA1047Z	MODEL NO. LABEL	1
P4	PQPP10047Z	PROTECTION COVER	1

MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description (Value)	Pcs
PCB1	PSWPTD280E	MAIN BOARD ASS'Y (RTL)	1
		(ICs)	
IC1A	PQVIPEB2086	IC	1
IC1B	PQVIPEB2086	IC	1
IC2	PQVIPEB2052	IC	1
IC3	PQVI6522W150	IC	1
IC4	PQVI68301FCG	IC	1
IC5/6	PSWITD280E	IC	1
IC7,8	PQVICX581APD	IC	2
IC10	PQVISN7L125S	IC	S 1
IC11	PQVISN7L125S	IC	S 1
IC12	PQVISN7L74S	IC	1
IC14	PQVISN7L640M	IC	1
IC15	PQVISN7L368M	IC	1
IC16	PQVISN7L368M	IC	1
IC17	PQVISN7L244S	IC	1
IC18	PQVISN7L21S	IC	1
IC19	PQVISN7L32S	IC	1
IC20	PQVISN7L32S	IC	1
IC21	PQVISN7L08S	IC	S 1
IC22	PQVISN7L175M	IC	1
IC23	PQVISN7L138M	IC	1
IC24	PQVITC7H04AF	IC	S 1
IC25	PQVISN7L245S	IC	S 1
IC26	PQVISN7L21S	IC	1
IC27	PQVISN7L112A	IC	S 1
IC28	PQVISN7L32S	IC	1
IC29	PQVISN7L02ST	IC	S 1
IC33	PQVISN7L138M	IC	1
IC34	PQVISN7L86S	IC	S 1

Ref. No.	Part No.	Part Name & Description (value)	Pcs
CABINET & ELECTRICAL PARTS			
1	PQKM10029C1	UPPER CABINET	1
2	PQHD10011Z	SCREW	1
3	PQUS141Z	SPRING	1
4	PQKV10007Z1	COVER	1
5	PQKF10026G1	LOWER CABINET	1
6	PQMC10065Z	MAGNETIC SHIELD SHEET	1
7	PQMC10066X	MAGNETIC SHIELD SHEET	S 1
8	XUC3VW	RETAINING RING	1
9	PSGT1053Y	NAME PLATE $\Delta$	1
ACCESSORIES AND PACKING MATERIALS			
A1	XYN4+C35FN	SCREW WITH WASHER	1
A2	XZB05X08A03	PROTECTION COVER	1
A3	PQJS04S08Z	JACK	2

Ref. No.	Part No.	Part Name & Description (value)	Pcs
Q1	PQVTDTC143E	(TRANSISTORS) TRANSISTOR(SI)	1
D 1A	1SS131	DIODE(SI)	1
D 1B	1SS131	DIODE(SI)	1
D 2A	1SS131	DIODE(SI)	1
D 2B	1SS131	DIODE(SI)	1
D 3A	1SS131	DIODE(SI)	1
D 3B	1SS131	DIODE(SI)	1
D 4A	1SS131	DIODE(SI)	1
D 4B	1SS131	DIODE(SI)	1
D 5A	MA4020	DIODE(SI)	1
D 5B	MA4020	DIODE(SI)	1
D 6A	1SS131	DIODE(SI)	1
D 6B	1SS131	DIODE(SI)	1
D 7A	1SS131	DIODE(SI)	1
D 7B	1SS131	DIODE(SI)	1
D 8A	1SS131	DIODE(SI)	1
D 8B	1SS131	DIODE(SI)	1
D 9A	1SS131	DIODE(SI)	1
D 9B	1SS131	DIODE(SI)	1

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Ref. No.	Part No.	Part Name & Description (Value)	Pcs	Ref. No.	Part No.	Part Name & Description (Value)	Pcs
D10A	1SS131	DIODE(SI)	1	R 4B	PQ4R10XJ220	22	1
D10B	1SS131	DIODE(SI)	1	R 5A	PQ4R10XJ822	8.2K	1
D11A	MA4020	DIODE(SI)	1	R 5B	PQ4R10XJ822	8.2K	1
D11B	MA4020	DIODE(SI)	1	R 6A	PQ4R10XJ822	8.2K	1
D12A	1SS131	DIODE(SI)	1	R 6B	PQ4R10XJ822	8.2K	1
D12B	1SS131	DIODE(SI)	1	R 7A	PQ4R10XJ103	10K	1
D14	PQVDAK03	DIODE(SI)	1	R 7B	PQ4R10XJ103	10K	1
				R 8	PQ4R10XJ470	47	1
		(CAPACITORS)					
C 3, 4	PQCUV1H270JC	27P	2	R 13	PQ4R10XJ000	0	1
C 5A	ECEA1HU100	10	1	R 14	PQ4R10XJ103	10K	1
C 5B	ECEA1HU100	10	1	R 15	PQ4R10XJ103	10K	1
C 9	PQCUV1H223KB	0.022	S 1	R 16	PQ4R10XJ103	10K	1
C10	PQCUV1H223KB	0.022	S 1	R 17	PQ4R10XJ103	10K	1
C11	ECEA1HKS3R3	3.3	1	R 18	PQ4R10XJ103	10K	1
C12	PQCUV1H223KB	0.022	S 1	R 19	PQ4R10XJ103	10K	1
C13	PQCUV1H223KB	0.022	S 1	R20	PQ4R10XJ103	10K	1
C14	PQCUV1H223KB	0.022	S 1	R21	PQ4R10XJ103	10K	1
C15	PQCUV1H223KB	0.022	S 1	R22	PQ4R10XJ101	100	1
C16	PQCUV1H101JC	100P	1	R23	PQ4R10XJ101	100	1
C17	PQCUV1H223KB	0.022	S 1	R24	PQ4R10XJ101	100	1
C18	PQCUV1H223KB	0.022	S 1	R25	PQ4R10XJ101	100	1
C19	PQCUV1H223KB	0.022	S 1	R26	PQ4R10XJ101	100	1
C20	PQCUV1H223KB	0.022	S 1	R27	PQ4R10XJ101	100	1
C21	EECFE5R5474	0.47	1	R28	PQ4R10XJ101	100	1
C23	ECEA1AU331	330	1	R29	PQ4R10XJ101	100	1
C28A	PQCUV1H330JC	33P	1	R30	PQ4R10XJ103	10K	1
C28B	PQCUV1H330JC	33P	1	R31	PQ4R10XJ103	10K	1
C29A	PQCUV1H330JC	33P	1	R32	PQ4R10XJ103	10K	1
C29B	PQCUV1H330JC	33P	1	R33	PQ4R10XJ103	10K	1
				R34	PQ4R10XJ103	10K	1
				R35	PQ4R10XJ103	10K	1
				R36	PQ4R10XJ103	10K	1
				R37	PQ4R10XJ121	120	1
C41	PQCUV1E104MD	0.1	S 1	R38	PQ4R10XJ121	120	1
C42	PQCUV1E104MD	0.1	S 1	R39	PQ4R10XJ121	120	1
C43	PQCUV1E104MD	0.1	S 1				
C44	PQCUV1E104MD	0.1	S 1	R40	PQ4R10XJ121	120	1
C45	PQCUV1E104MD	0.1	S 1	R41	PQ4R10XJ121	120	1
C46	PQCUV1E104MD	0.1	S 1	R42	PQ4R10XJ121	120	1
C47	PQCUV1E104MD	0.1	S 1	R43	PQ4R10XJ121	120	1
C48	PQCUV1E104MD	0.1	S 1	R44	PQ4R10XJ121	120	1
C49	PQCUV1E104MD	0.1	S 1	R45	PQ4R10XJ121	120	1
C50	PQCUV1E104MD	0.1	S 1	R46	PQ4R10XJ121	120	1
C51	PQCUV1E104MD	0.1	S 1	R47	PQ4R10XJ121	120	1
C52	PQCUV1E104MD	0.1	S 1	R48	PQ4R10XJ121	120	1
C53	PQCUV1E104MD	0.1	S 1	R49	PQ4R10XJ121	120	1
C54	PQCUV1E104MD	0.1	S 1	R50	PQ4R10XJ121	120	1
C55	PQCUV1E104MD	0.1	S 1	R51	PQ4R10XJ121	120	1
C56	PQCUV1E104MD	0.1	S 1	R52	PQ4R10XJ121	120	1
C57	PQCUV1E104MD	0.1	S 1	R53	PQ4R10XJ121	120	1
C58	PQCUV1E104MD	0.1	S 1	R54	PQ4R10XJ121	120	1
C60, 61	PQCUV1E104MD	0.1	S 2	R55	PQ4R10XJ121	120	1
				R56	PQ4R10XJ121	120	1
		(RESISTORS)		R57	PQ4R10XJ121	120	1
J5	PQ4R10XJ000	0	1	R58	PQ4R10XJ121	120	1
JP7, JP28	PQ4R10XJ000	0	2	R59	PQ4R10XJ121	120	1
R 1A	ERDS2TJ101	100	1				
R 1B	ERDS2TJ101	100	1	R60	PQ4R10XJ121	120	1
R 2A	ERDS2TJ101	100	1	R61	PQ4R10XJ121	120	1
R 2B	ERDS2TJ101	100	1	R62	PQ4R10XJ121	120	1
R 3A	PQ4R10XJ220	22	1	R63	PQ4R10XJ121	120	1
R 3B	PQ4R10XJ220	22	1	R64	PQ4R10XJ121	120	1
R 4A	PQ4R10XJ220	22	1	R65	PQ4R10XJ121	120	1



This replacement parts list is for KX-TD280E only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description (Value)	Pcs	Ref. No.	Part No.	Part Name & Description (Value)	Pcs
R66	PQ4R10XJ121	120	1	R127A	PQ4R10XJ182	1.8K	1
R67	PQ4R10XJ121	120	1	R127B	PQ4R10XJ182	1.8K	1
R68	PQ4R10XJ121	120	1				
R69	PQ4R10XJ121	120	1				
R70	PQ4R10XJ121	120	1	R130	PQ4R10XJ103	10K	1
R71	PQ4R10XJ121	120	1	R131	PQ4R10XJ103	10K	1
R72	PQ4R10XJ121	120	1	R134	PQ4R10XJ102	1K	1
R73	PQ4R10XJ121	120	1	R136	PQ4R10XJ223	22K	1
R74	PQ4R10XJ121	120	1	R137	PQ4R10XJ223	22K	1
R75	PQ4R10XJ121	120	1	R138	PQ4R10XJ103	10K	1
R76	PQ4R10XJ103	10K	1				
R77	PQ4R10XJ103	10K	1	R140	PQ4R10XJ103	10K	1
R78	PQ4R10XJ103	10K	1	R141	PQ4R10XJ103	10K	1
R79	PQ4R10XJ103	10K	1	R142	PQ4R10XJ103	10K	1
				R143	PQ4R10XJ103	10K	1
R80	PQ4R10XJ102	1K	1	R144	PQ4R10XJ103	10K	1
R81	PQ4R10XJ103	10K	1	R145	PQ4R10XJ103	10K	1
R82	PQ4R10XJ103	10K	1	R146	PQ4R10XJ103	10K	1
R83,84	Not Used			R147	PQ4R10XJ103	10K	1
R85	PQ4R10XJ103	10K	1	R148	Not Used		
R86	PQ4R10XJ103	10K	1	R149	PQ4R10XJ103	10K	1
R87	PQ4R10XJ103	10K	1				
R88	PQ4R10XJ103	10K	1	R150	PQ4R10XJ103	10K	1
R89	PQ4R10XJ103	10K	1	R151	PQ4R10XJ103	10K	1
				R152,153	Not Used		
R90	PQ4R10XJ103	10K	1	R154	PQ4R10XJ820	82	1
R91	PQ4R10XJ103	10K	1	R155	PQ4R10XJ101	100	1
R92	PQ4R10XJ103	10K	1	R156	PQ4R10XJ101	100	1
R93	PQ4R10XJ103	10K	1	R157	PQ4R10XJ101	100	1
R94	PQ4R10XJ103	10K	1	R158	PQ4R10XJ101	100	1
R95	PQ4R10XJ103	10K	1	R159	PQ4R10XJ101	100	1
R96	PQ4R10XJ103	10K	1				
R97	PQ4R10XJ103	10K	1	R160	PQ4R10XJ101	100	1
R98	PQ4R10XJ103	10K	1	R161	PQ4R10XJ820	82	1
R99	PQ4R10XJ103	10K	1	R162	PQ4R10XJ101	100	1
				R163	PQ4R10XJ820	82	1
R100	PQ4R10XJ103	10K	1	R164	PQ4R10XJ820	82	1
R101	PQ4R10XJ103	10K	1	R165	PQ4R10XJ820	82	1
R102	PQ4R10XJ103	10K	1	R166	PQ4R10XJ820	82	1
R103	PQ4R10XJ103	10K	1	R167,168	Not Used		
R104	PQ4R10XJ103	10K	1	R169	PQ4R10XJ820	82	1
R105	PQ4R10XJ103	10K	1				
R106	PQ4R10XJ103	10K	1	R175	PQ4R10XJ560	56	1
R107	PQ4R10XJ103	10K	1	R176	PQ4R10XJ560	56	1
R108	PQ4R10XJ103	10K	1	R177	PQ4R10XJ560	56	1
R109	PQ4R10XJ103	10K	1	R178	PQ4R10XJ560	56	1
				R179	PQ4R10XJ103	10K	1
R110	PQ4R10XJ103	10K	1	R180	PQ4R10XJ103	10K	1
R111	PQ4R10XJ103	10K	1				
R112	PQ4R10XJ103	10K	1			(TRANSFORMERS)	
R113	PQ4R10XJ103	10K	1	T1A	PQLT9Z15A	TRANSFORMER	△ 1
R114	PQ4R10XJ103	10K	1	T1B	PQLT9Z15A	TRANSFORMER	△ 1
R115	PQ4R10XJ103	10K	1	T2A	PQLT9Z15A	TRANSFORMER	△ 1
R116	PQ4R10XJ103	10K	1	T2B	PQLT9Z15A	TRANSFORMER	△ 1
R117	PQ4R10XJ103	10K	1				
R118	PQ4R10XJ103	10K	1			(VARISTORS)	
R119	PQ4R10XJ103	10K	1	SA1A	PQVDT83A350X	VARISTOR (AURGE ABSORBER)	1
				SA1B	PQVDT83A350X	VARISTOR (AURGE ABSORBER)	1
R120	PQ4R10XJ103	10K	1	SA2A	PQVDT83A350X	VARISTOR (AURGE ABSORBER)	1
R121	PQ4R10XJ103	10K	1	SA2B	PQVDT83A350X	VARISTOR (AURGE ABSORBER)	1
R122	PQ4R10XJ103	10K	1	SA3	PQVDDSA102MA	VARISTOR (AURGE ABSORBER)	1
R123	PQ4R10XJ103	10K	1				
R124	PQ4R10XJ102	1K	1			(CONNECTORS)	
R125	PQ4R10XJ105	1M	1	CN1	PQJP04A56Y	CONNECTOR, 4P	1
R126A	PQ4R10XJ182	1.8K	1	CN2	PQJP04A56Y	CONNECTOR, 4P	1
R126B	PQ4R10XJ182	1.8K	1	CN7	PQJS60R96Z	CONNECTOR, 60P	1

This replacement parts list is for KX-TD280E only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description (Value)	Pcs
		(FILTERS)	
F1	PQVFTU50MT	CERAMIC FILTER	1
F2	PQVFTU50MT	CERAMIC FILTER	1
F3	PQVFTU50MT	CERAMIC FILTER	1
F4	PQVFTU50MT	CERAMIC FILTER	1
F5	PQVFTU50MT	CERAMIC FILTER	1
F6	PQVFTU50MT	CERAMIC FILTER	1
F7	PQVFTU50MT	CERAMIC FILTER	1
F8	PQVFTU50MT	CERAMIC FILTER	1
F9	PQVFTU50MT	CERAMIC FILTER	1
		(CRYSTAL OSCILLATOR)	
X1	PQVCJ7680N5Z	CRYSTAL OSCILLATOR	1