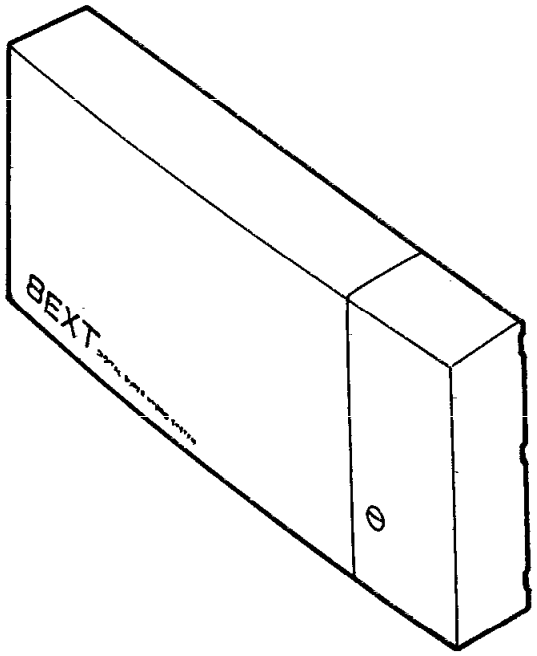
ORDER NO. KMS9509095C2

Service Manual

8-STATION LINE UNIT

KX-TD170E

(for United kingdom)



⚠ WARNING

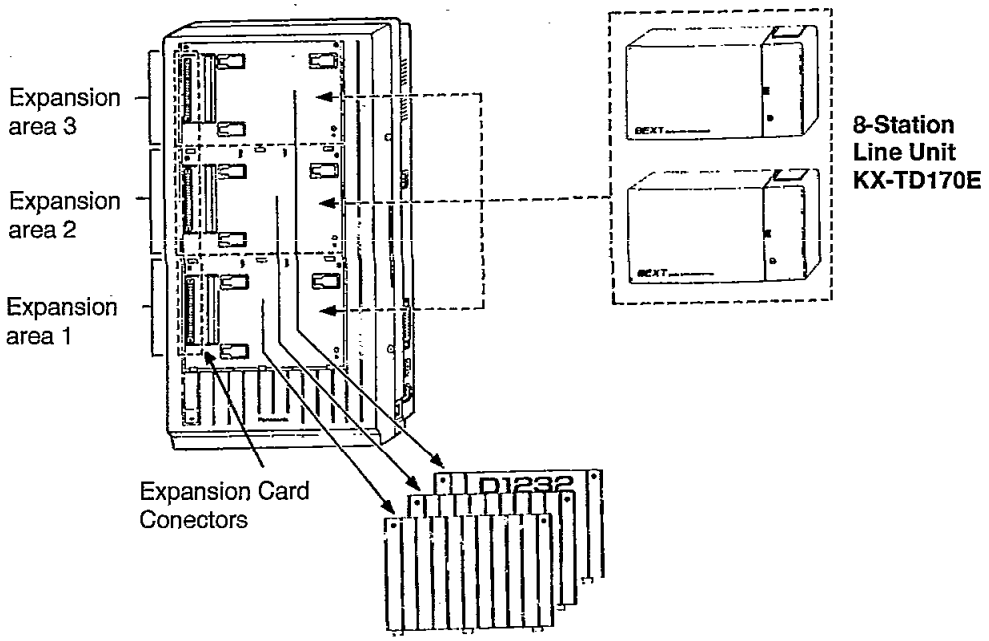
This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should 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

TABLE OF CONTENTS

LOCATION OF THE CARDS (UNITS)

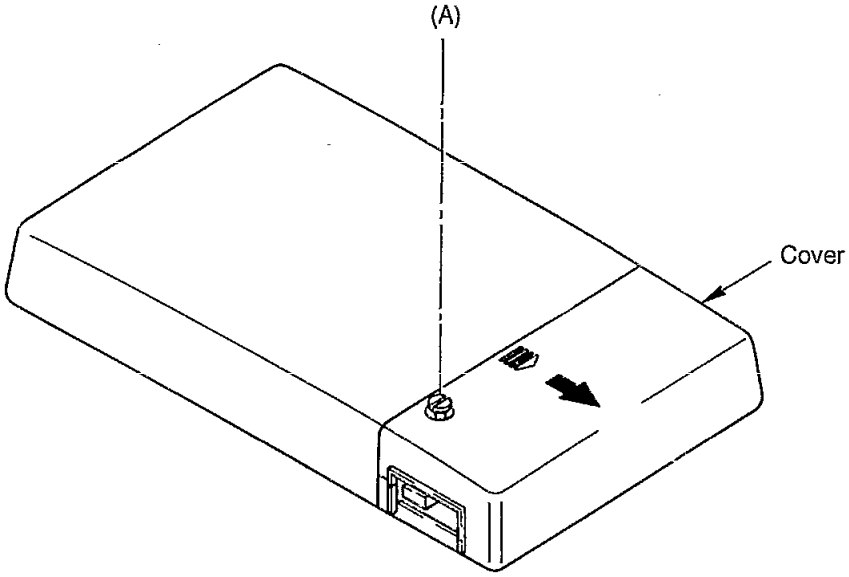
The location of the optional cards (units) is shown below.
One CO Line Expansion Card (unit) can be installed to any expansion area on the main unit, KX-TD1232E.



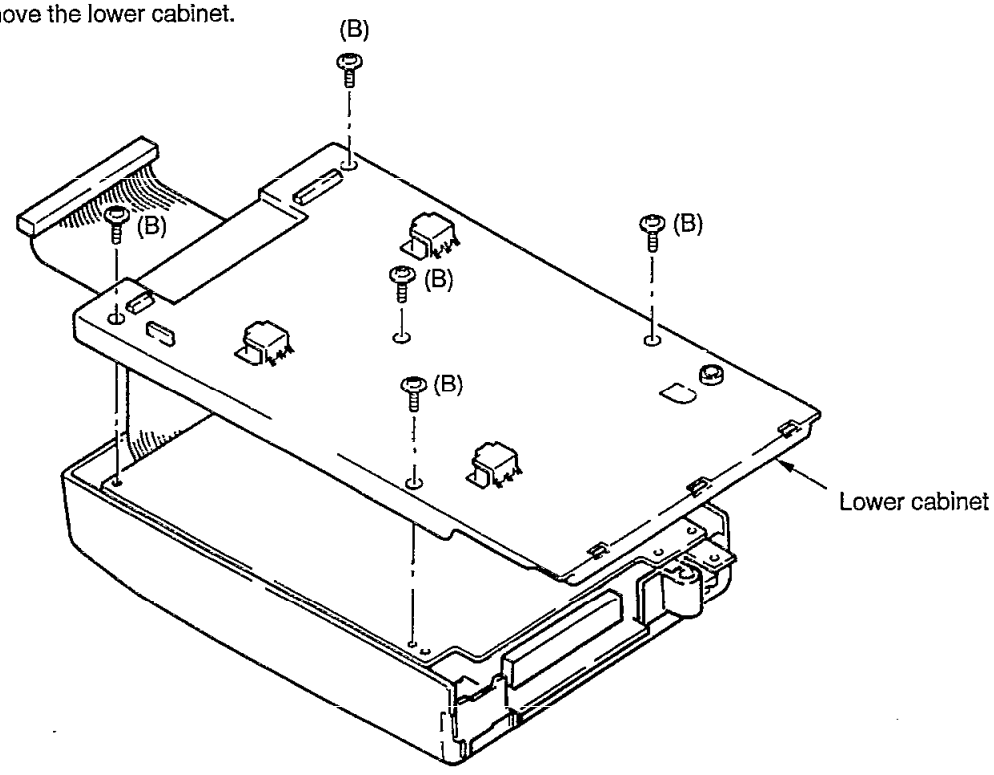
Notes: System Programming is required for card location identification. For details, refer to the Installation Manual.

DISASSEMBLY INSTRUCTIONS

Ref. No. 1	HOW TO REMOVE THE COVER
Procedure 1	1. Remove the screw (A). 2. Slide the cover in the direction of the arrow.



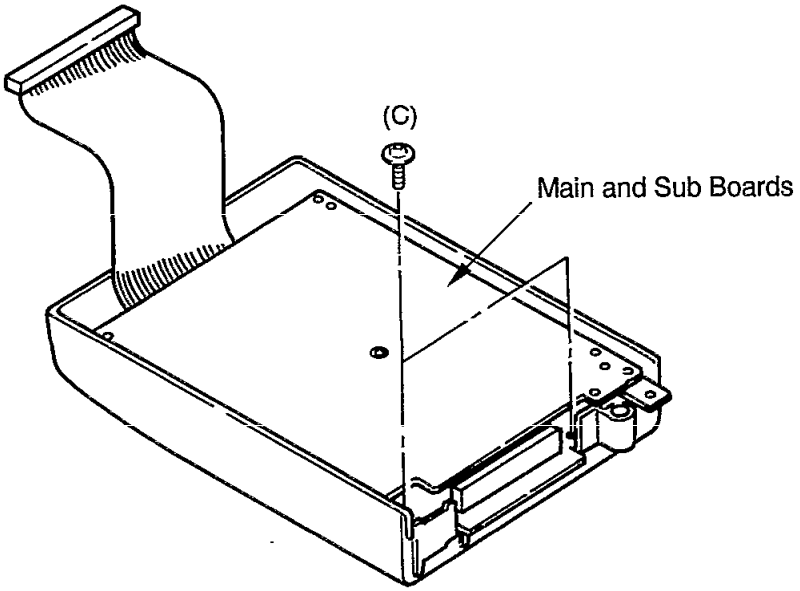
Ref. No. 2	HOW TO REMOVE THE LOWER CABINET
Procedure 1→2	1. Remove the 5 screws (B). 2. Remove the lower cabinet.



Ref. No. 3	HOW TO REMOVE THE MAIN AND SUB BOARDS

Procedure
1 → 2 → 3

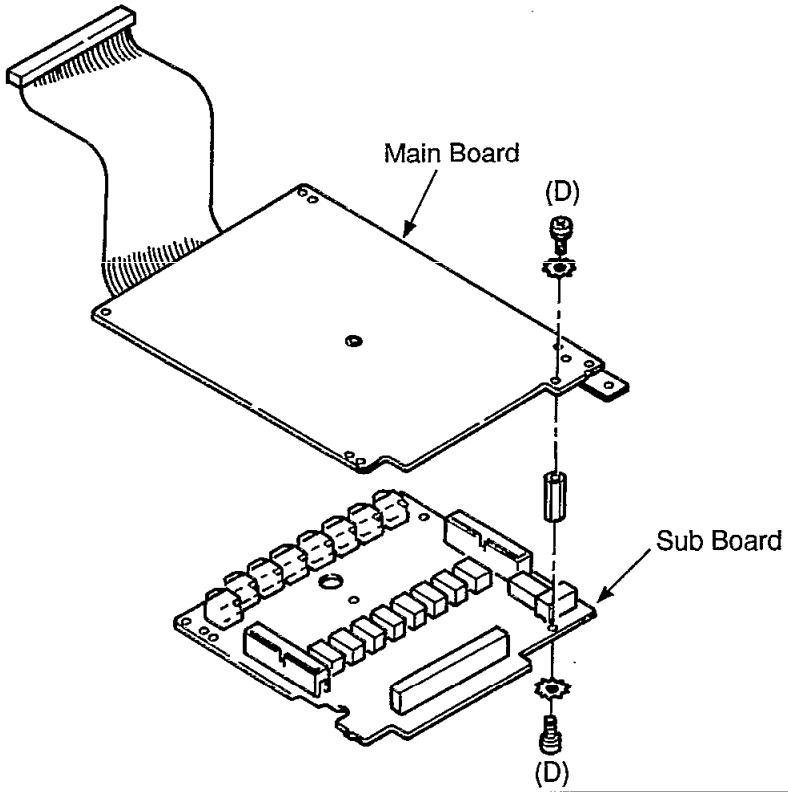
1. Remove the 2 screws (C).
2. Remove the main and sub boards.



Ref. No. 4	HOW TO SEPARATE THE MAIN AND SUB BOARDS

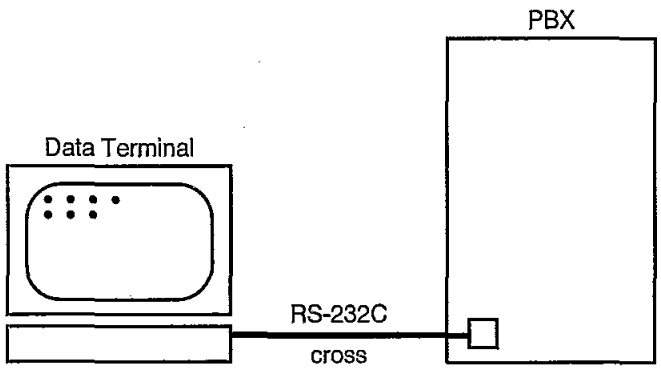
Procedure
1 → 2 → 3 → 4

1. Remove the 2 screw (D).
2. Sparate the main and sub boards.



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

2. TEST ITEMS

No.	Test Items	Test Method	Check Items
1	DTMF G/R Test	1) Enter "M1 4,0" from data terminal. 2) Enter "M1 4,1" from data terminal.	1) Make sure response is "OK 00". 2) Make sure response is "OK 00".
2	Extension Card Test [Analogue Channel Loop Back]	1) Enter "M2 4,0" from data terminal. 2) Enter "M2 4,1" from data terminal.	1) Make sure response is "OK 00". 2) Make sure response is "OK 00".
3	Extension Card Test [Digital Channel Loop Back]	1) Enter "M3 4,0" from data terminal. 2) Enter "M3 4,1" from data terminal.	1) Make sure response is "OK 0000". 2) Make sure response is "OK 0000".
4	Extension Card Test [Digital Data Loop Back Test]	1) Enter "M4 4" from the data terminal.	1) Make sure response is "OK 00".

CIRCUIT OPERATIONS

1. FUNCTION

8-STATION LINE UNIT (KX-TD170E) is an optional unit for extending the EXT lines from 16 up to 24 or 32 lines. The differences between this unit is as follows;

- No diagnostic function for the CO card

Refer to the Service Manual for KX-TD1232E as for the details of BASIC EXT. BOARD.

2. EXPLANATION OF CIRCUIT OPERATION

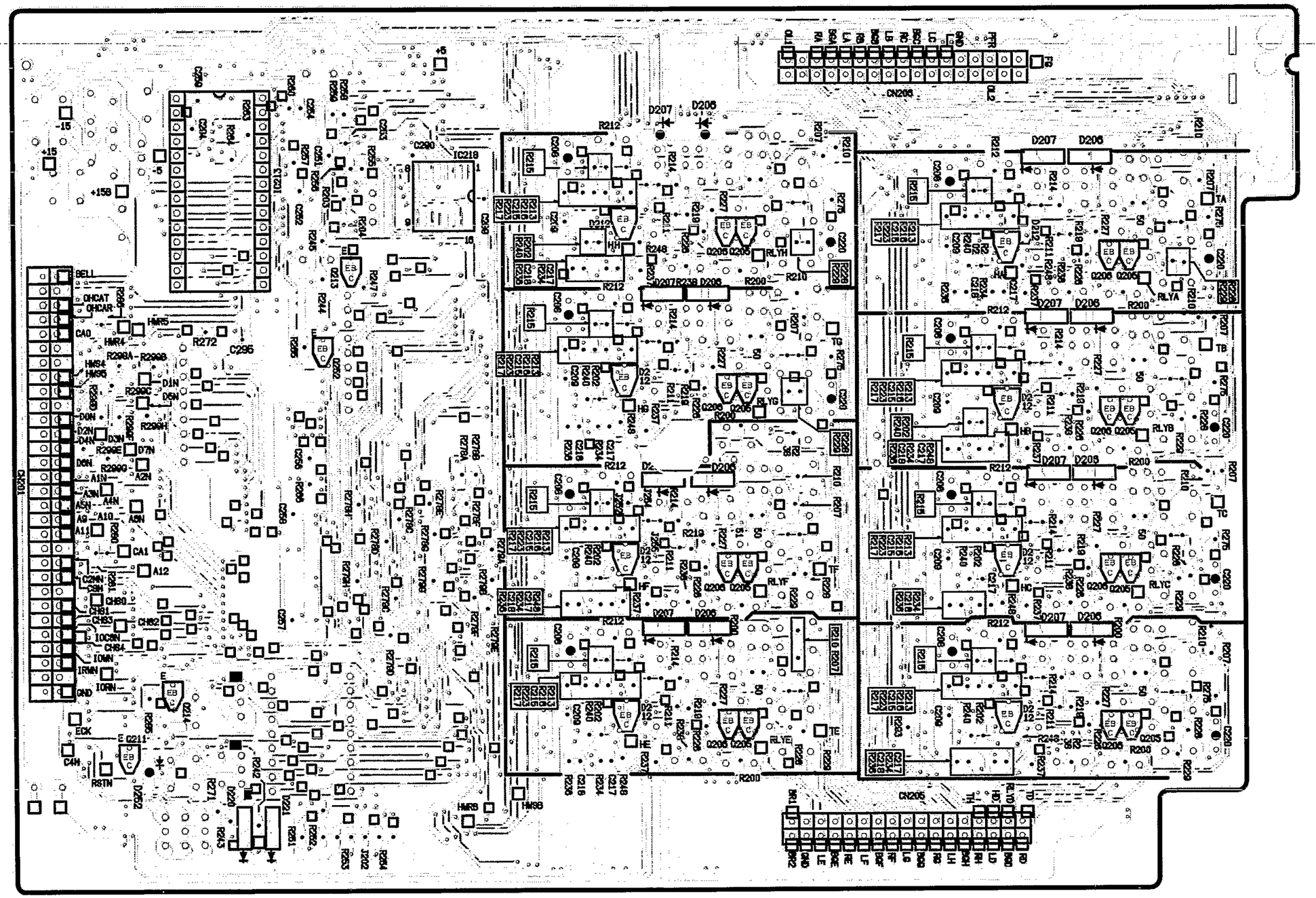
The circuit on this unit has the following differences from the BASIC EXT. CARD. Others are the same as the basic one.

- No diagnostic circuit for CO CARD

Refer to the Service Manual for KX-TD1232E as for the details of BASIC EXT. BOARD.

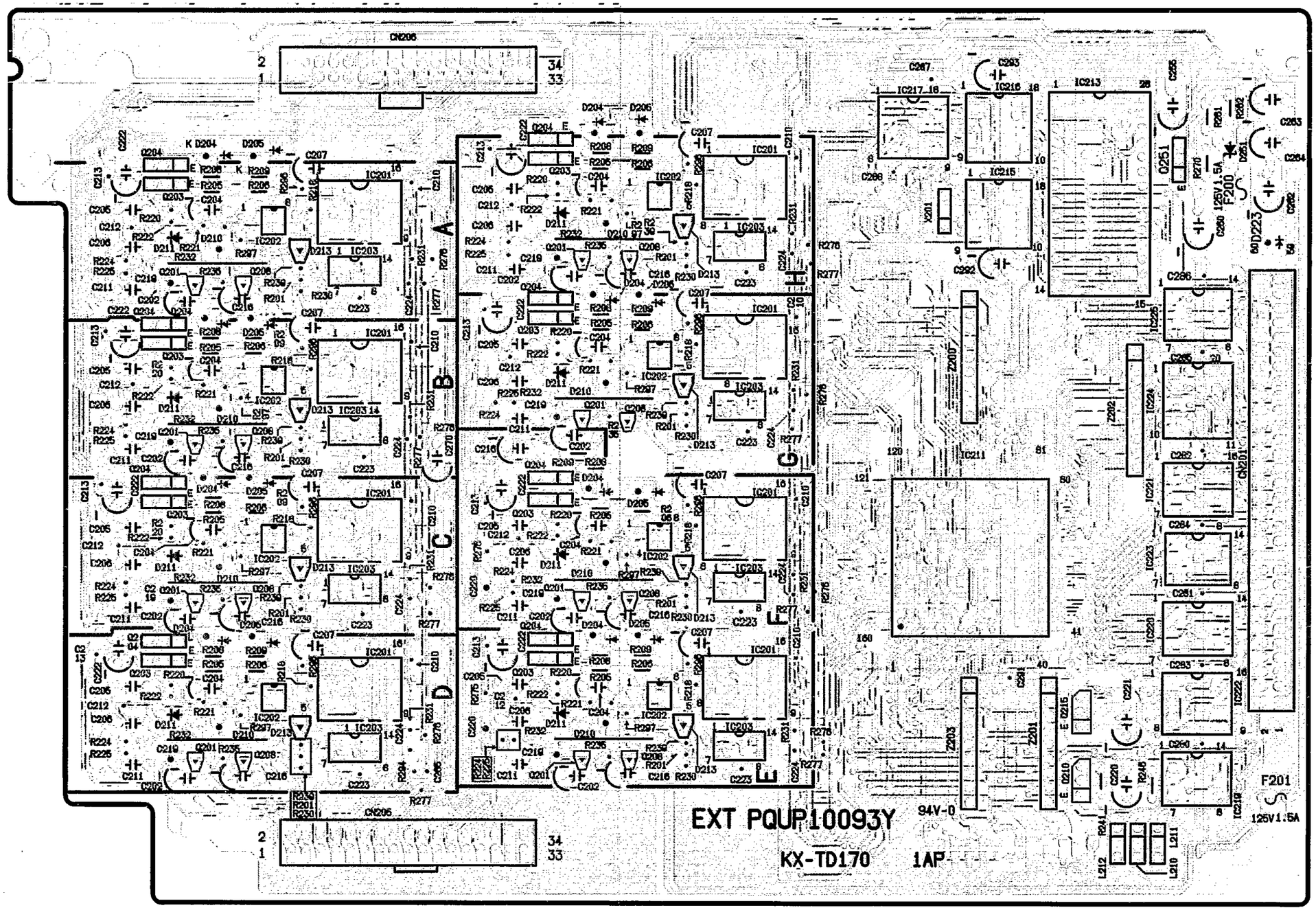
PRINTED CIRCUIT BOARD (MAIN)

(BOTTON VIEW)

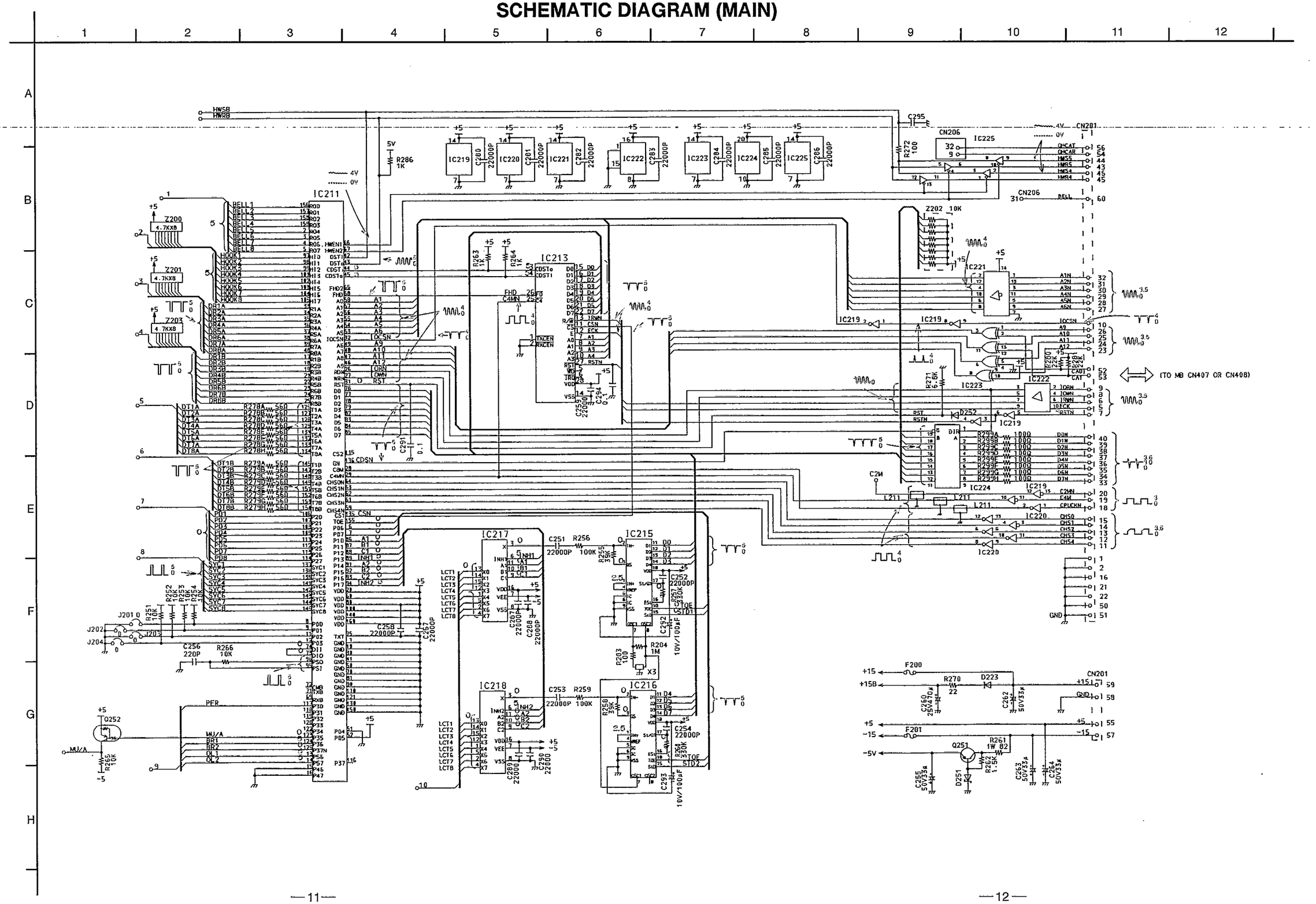


PRINTED CIRCUIT BOARD (MAIN)

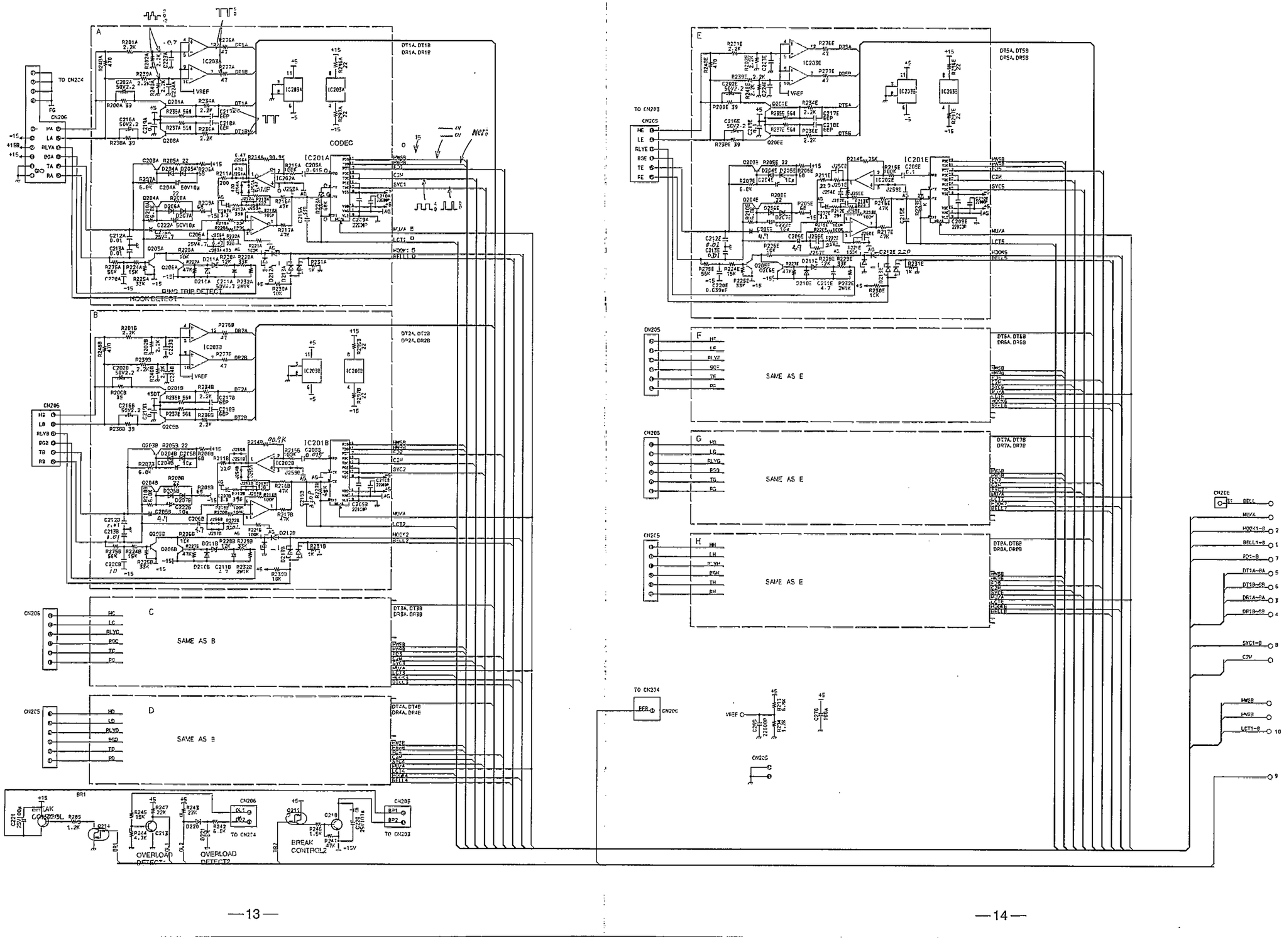
(COMPONENT VIEW)



SCHEMATIC DIAGRAM (MAIN)

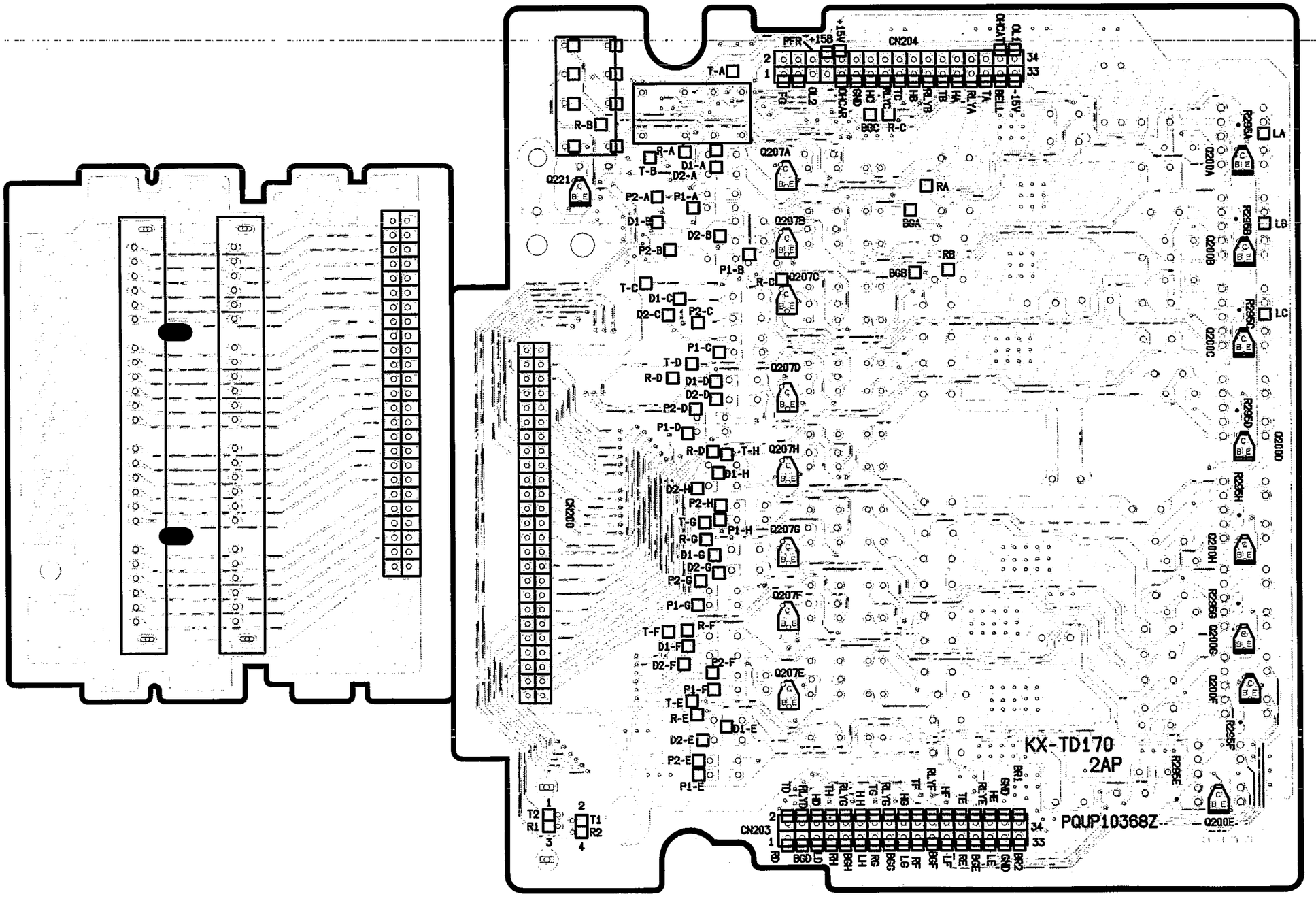


SCHEMATIC DIAGRAM (MAIN)



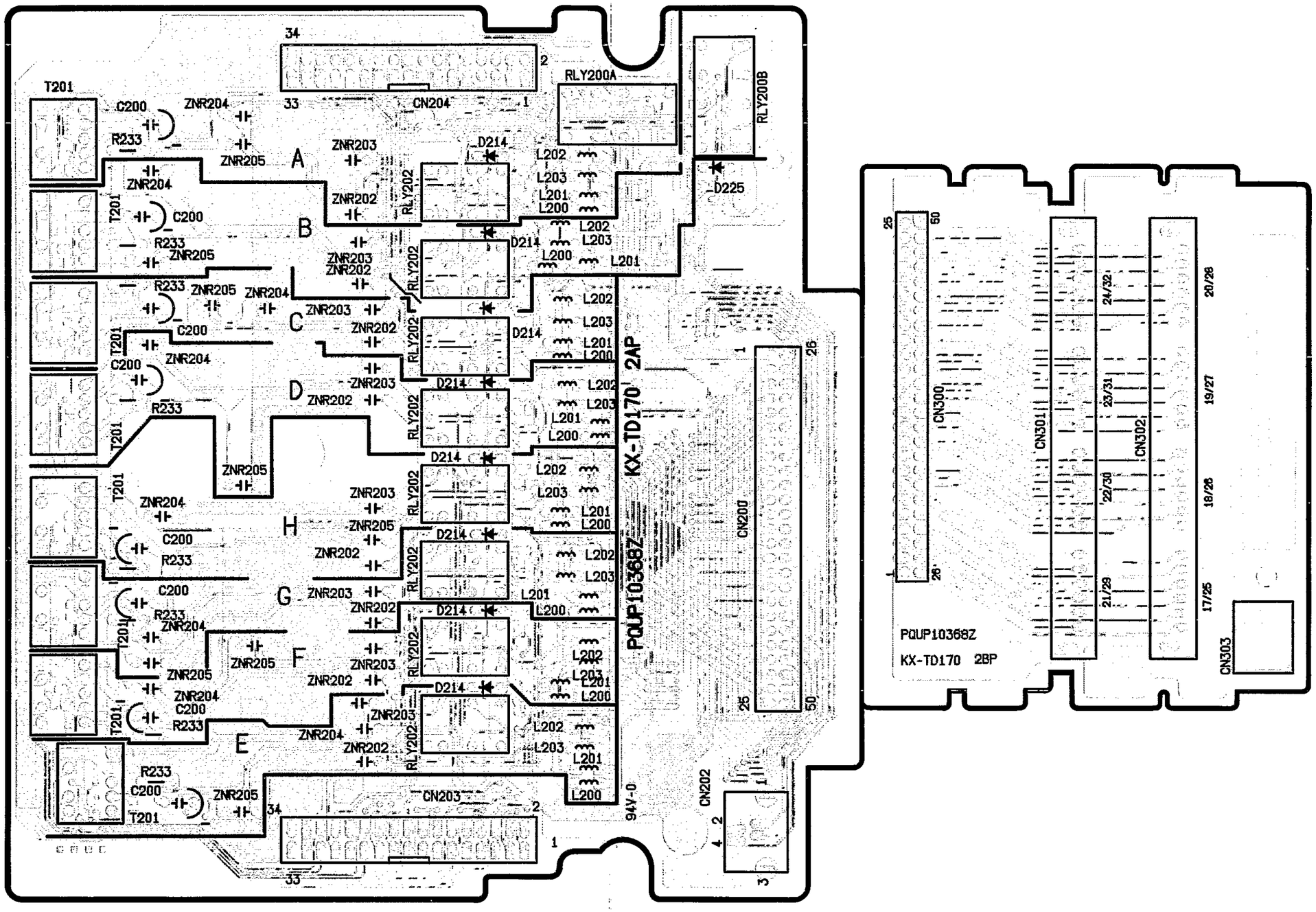
PRINTED CIRCUIT BOARD (SUB)

(BOTTOM VIEW)

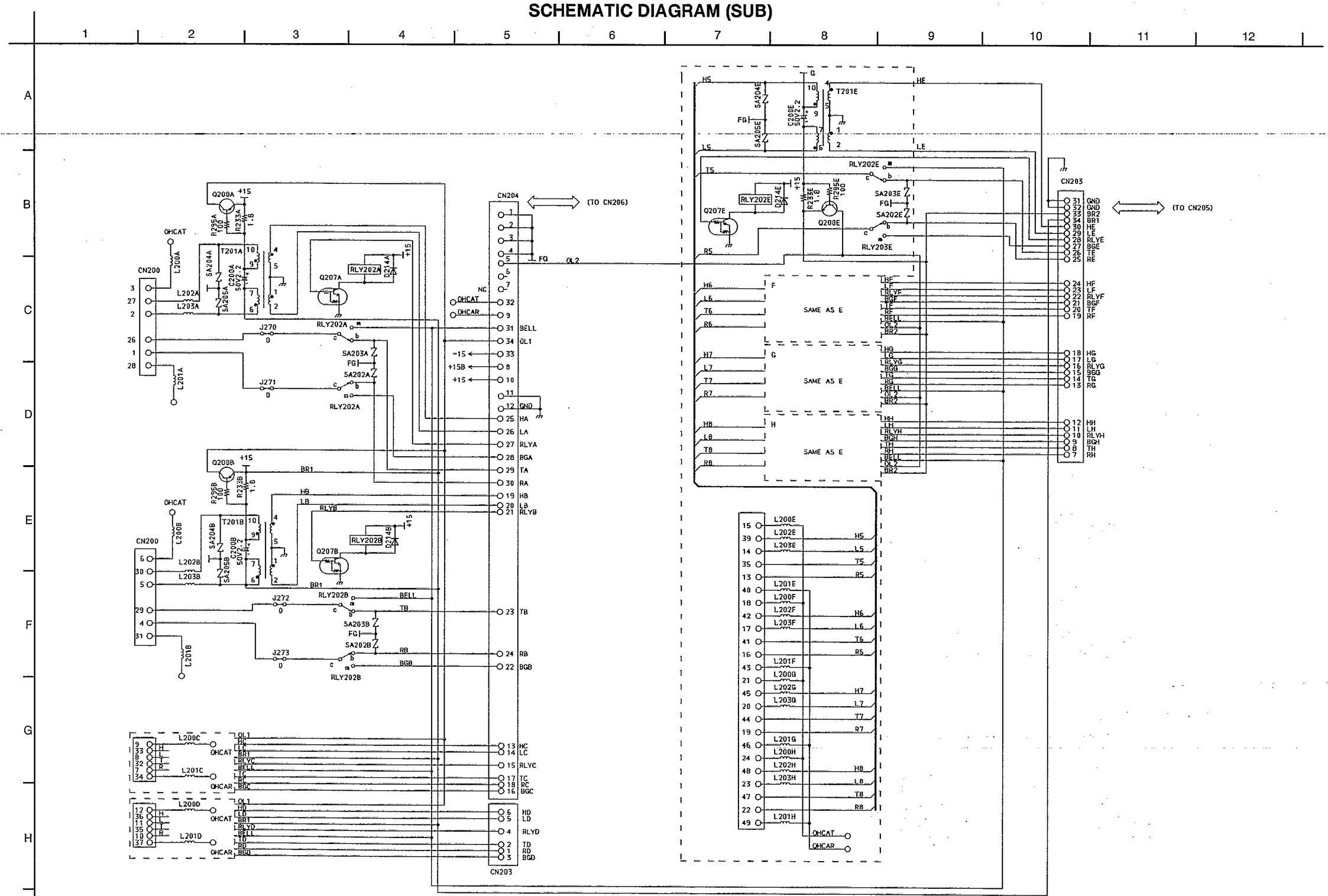


PRINTED CIRCUIT BOARD (SUB)

(COMPONENT VIEW)



SCHEMATIC DIAGRAM (SUB)



HOW TO REPLACE FLAT PACKAGE IC

■ PREPARATION

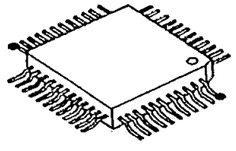
- SOLDER – – – – – – – – Sparkle Solder 115A-1, 115B-1
  OR
  Almit Solder KR-19, KR-19RMA
- Soldering iron – – – – – Recommended power consumption will be between 30 W to 40 W.
  Temperature of Copper Rod 662 ± 50 °F (350 ±10 °C)

  (An expert may handle 60~80 W iron, but beginner might damage foil by overheating.)
- Flux – – – – – – – – – – HI115 Specific gravity 0.863

  (Original flux will be replaced daily.)

■ PROCEDURE

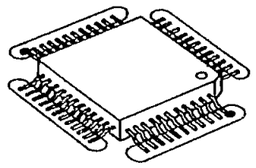
1. Temporary fix FLAT PACKAGE IC by Soldering on marked 2 pins.



●– – – – – –Temporary soldering point.

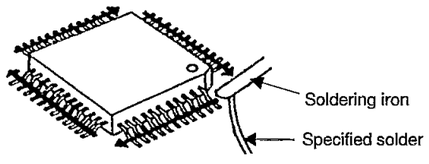
*Most important matter is accurate setting of IC to the corresponding soldering foil.

2. Apply flux for all pins of FLAT PACKAGE IC.



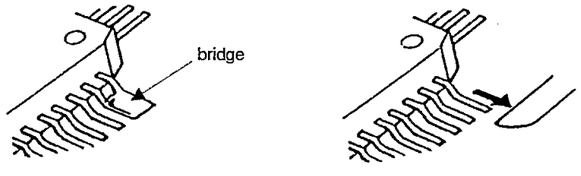
– – – – – Flux

3. Solder employing specified solder to direction of arrow, as slide the soldering iron.

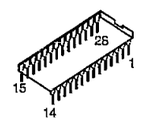
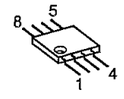
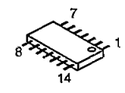
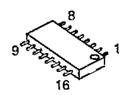
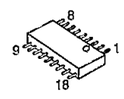
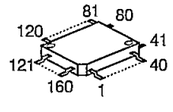
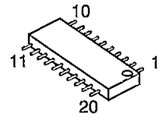
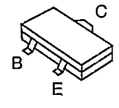
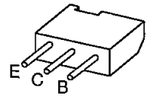
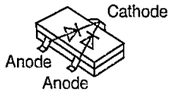
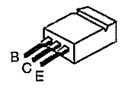
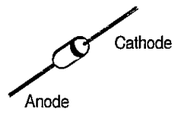
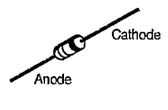
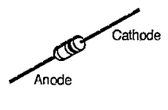


■ MODIFICATION PROCEDURE OF BRIDGE

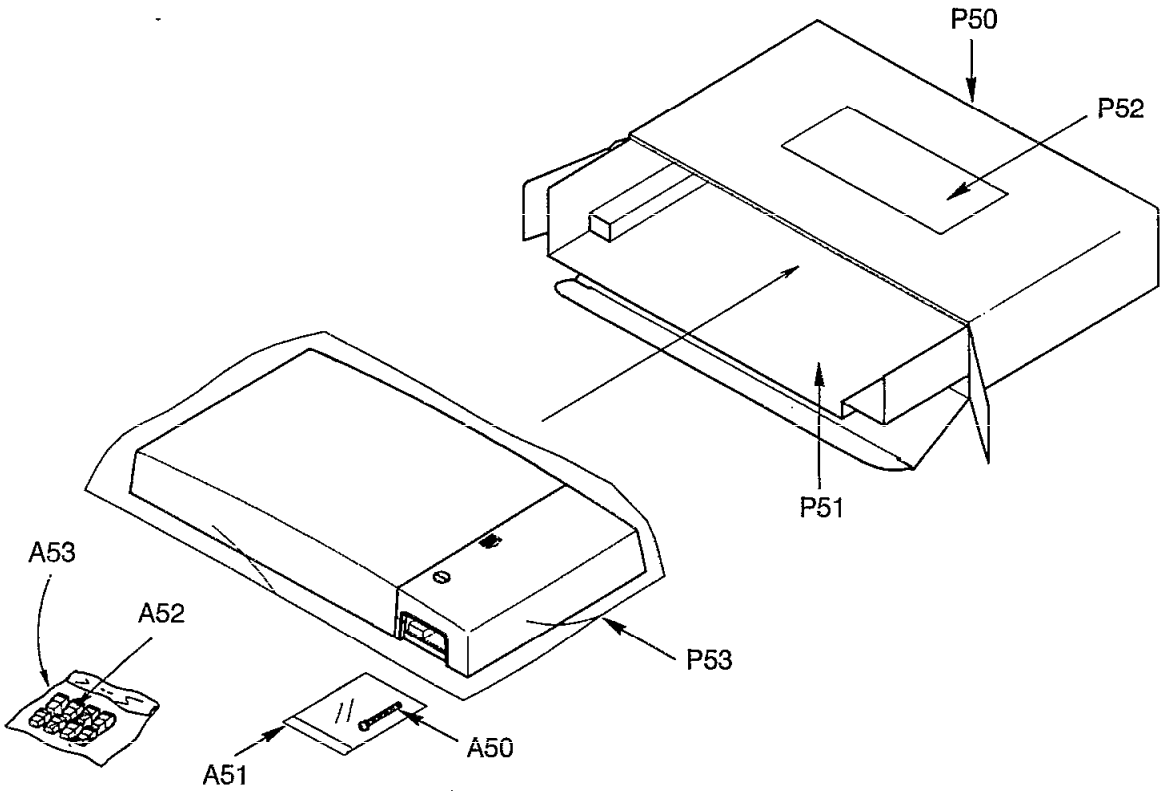
1. Re-solder slightly on bridging portion.
2. Remove remained solder along pins employing soldering iron as shown in below figure.



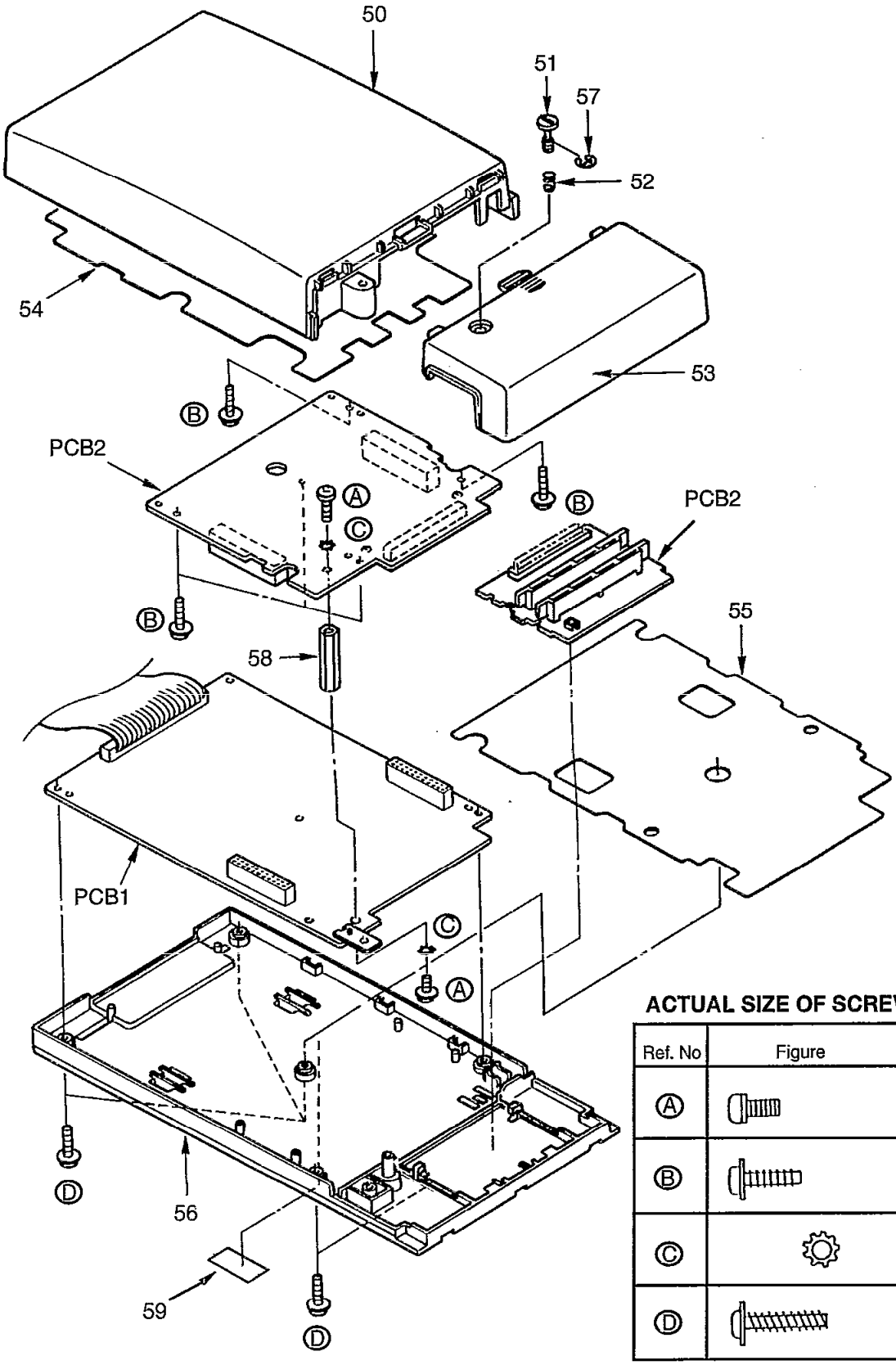
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 PQVIMT8952BE	 PQVINJM4558M	 PQVISN7L125S PQVINJM319V PQVISN7L86S PQVISN7L14S	 PQVISN7L365S PQVIMC4051BF PQVIMC45503W	 PQVICM8870FI
 PQVI603830F	 PQVISN7L640M	 2SD1819A PQVTDTC143E UN5113 UN5213	 2SD1994A 2SB1322 2SB1218A	 MA151WK
 2SD2137	 1SS131, 1SS181	 MA4039 MA4056	 RLS71	

ACCESSORIES AND PACKING MATERIALS



CABINET AND ELECTRICAL PARTS LOCATION



ACTUAL SIZE OF SCREWS

Ref. No	Figure	Part No.
Ⓐ		XYN3+C6
Ⓑ		XTW3+S10P
Ⓒ		XWC3B
Ⓓ		XTW3+S14P

This replacement parts list is for KX-TD170E version only. Refer to the simplified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-TD170E

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 ⚠ 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 (Ω) k=1000Ω, M=1000kΩ
   All capacitors are in MICRO FARADS(μF) P= μμF
   *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	ECCD,ECKD,PQCBC,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
		CABINET & ELECTRICAL PARTS	
50	PQKM10029D1	CABINET BODY	1
51	PQHD10011Z	SCREW	1
52	PQUS141Z	SPRING	1
53	PQKV10007Z1	COVER	1
54	PQMC10065Z	MAGNETIC SHIELD PARTS	1
55	PQMC10066X	MAGNETIC SHIELD PARTS	1
56	PQKF10026K1	CABINET PLATE	1
57	XUC3VW	RETAINING RING	1
58	PQHE10035Z	SPACER (NUT)	1
59	PSGT1051Y	NAME PLATE ⚠	1
		ACCESSORIES AND PACKING MATERIALS	
A50	XYN4+C35FN	SCREW WITH WASHER	1
A51	XZB05X08A03	PROTECTION COVER (FOR SCREW)	1
A52	PQJS06S08Z	CONNECTOR SOCKET	8
A53	XZB07X09A03	PROTECTION COVER (FOR CONNECTOR SOCKET)	1
P50	PQPK10118Z	GIFT BOX	1
P51	PQPD10027Z	CUSHION	1
P52	PSQA1041Y	MODEL NO. LABEL	1
P53	PQPP10047Z	PROTECTION COVER (FOR SET)	1

Ref. No.	Part No.	Part Name & Description		Pcs
		MAIN BOARD PARTS		
PCB1	PSWP1TD170E	MAIN BOARD ASS'Y (RTL)		1
		(ICs)		
IC201A-H	PQVIMC45503W	IC		8
IC202A-H	PQVINJM4558M	IC		8
IC203A-H	PQVINJM319V	IC		8
IC211	PQVI603830F	IC		1
IC212	Not Used			
IC213	PQVIMT8952BE	IC		1
IC214	Not Used			
IC215	PQVICM8870FI	IC		1
IC216	PQVICM8870FI	IC		1
IC217	PQVIMC4051BF	IC		1
IC218	PQVIMC4051BF	IC		1
IC219	PQVISN7L14S	IC		1
IC220	PQVISN7L14S	IC		1
IC221	PQVISN7L14S	IC		1
IC222	PQVISN7L365S	IC		1
IC223	PQVISN7L86S	IC		1
IC224	PQVISN7L640M	IC		1
IC225	PQVISN7L125S	IC		1
		(TRANSISTORS)		
Q201A-H	2SB1218A	TRANSISTOR(SI)	S	8
Q202A-H	Not Used			
Q203A-H	2SB1322	TRANSISTOR(SI)		8
Q204A-H	2SD1994A	TRANSISTOR(SI)		8
Q205A-H	2SD1819A	TRANSISTOR(SI)	S	8
Q206A-H	2SD1819A	TRANSISTOR(SI)	S	8
Q207A-H	Not Used			
Q208A-H	2SB1218A	TRANSISTOR(SI)	S	8
Q210	2SD2137	TRANSISTOR(SI)		1
Q211	UN5113	TRANSISTOR(SI)	S	1
Q212	Not Used			
Q213	2SD1819A	TRANSISTOR(SI)	S	1
Q214	UN5213	TRANSISTOR(SI)	S	1
Q215	2SB1417P	TRANSISTOR(SI)		1
Q251	2SB1322	TRANSISTOR(SI)	S	1
Q252	UN5113	TRANSISTOR(SI)	S	1
		(DIODES)		
D204A-H	RLS71	DIODE(SI)		8
D205A-H	RLS71	DIODE(SI)		8
D206A-H	RLS71	DIODE(SI)		8
D207A-H	RLS71	DIODE(SI)		8
D210A-H	RLS71	DIODE(SI)		8
D211A-H	MA4039	DIODE(SI)		8
D212A-H	MA151WK	DIODE(SI)	S	8
D213A-H	1SS181	DIODE(SI)		8
D220	RLS71	DIODE(SI)		1
D221	RLS71	DIODE(SI)		1
D222	Not Used			
D223	RLS71	DIODE(SI)		1
D251	MA4056	DIODE(SI)		1
D252	RLS71	DIODE(SI)		1
		(RESISTORS)		
R200A-H	PQ4R10XJ390	39		8
R201A-H	PQ4R10XJ222	2.2K		8
R202A-H	PQ4R10XJ222	2.2K		8

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Ref. No.	Part No.	Part Name & Description		Pcs
R203	PQ4R10XJ101	100		1
R204	PQ4R10XJ105	1M		1
R205A-H	ERDS2TJ220	22		8
R206A-H	ERDS2TJ680	68		8
R207A-H	PQ4R10XJ682	6.8K		8
R208A-H	ERDS2TJ220	22		8
R209A-H	ERDS2TJ680	68	S	8
R210A-H	PQ4R10XJ682	6.8K		8
R211A-H	PQ4R10XJ221	220	S	8
R212A-H	PQ4R10XJ391	390		8
R213A-H	PQ4R10XJ221	220		8
R214A-H	PQ4R10XF9092	90.9K	S	8
R215A-H	PQ4R10XF1003	100K	S	8
R216A-H	PQ4R10XF4702	47K		8
R217A-H	PQ4R10XF4702	47K		8
R218A-H	PQ4R10XF1003	100K		8
R219A-H	PQ4R10XF1003	100K		8
R220A-H	PQ4R10XF1003	100K	S	8
R221A-H	PQ4R10XF1003	100K		8
R222A-H	PQ4R10XJ221	220		8
R223A-H	PQ4R10XJ683	68K		8
R224A-H	PQ4R10XJ153	15K		8
R225A-H	PQ4R10XJ333	33K		8
R226A-H	PQ4R10XJ103	10K		8
R227A-H	PQ4R10XJ473	47K		8
R228A-H	PQ4R10XJ123	12K		8
R229A-H	PQ4R10XJ333	33K		8
R230A-H	PQ4R10XJ103	10K		8
R231A-H	Not Used			
R232A-H	PQRD2TJ102	1K		8
R233	Not Used			
R234A-H	PQ4R10XJ222	2.2K		8
R235A-H	PQ4R10XJ561	560		8
R236A-H	PQ4R10XJ222	2.2K		8
R237A-H	PQ4R10XJ561	560		8
R238A-H	PQ4R10XJ390	39		8
R239A-H	PQ4R10XJ222	2.2K		8
R240A-H	PQ4R10XJ222	2.2K		8
R241	ERDS2TJ473	47K		1
R242	PQ4R10XJ682	6.8K		1
R243	PQ4R10XJ223	22K		1
R244	PQ4R10XJ472	4.7K		1
R245	PQ4R10XJ153	15K		1
R246	ERDS2TJ152	1.5K		1
R247	PQ4R10XJ223	22K		1
R248A-H	PQ4R10XJ471	470		8
R251	PQ4R10XJ103	10K		1
R252	PQ4R10XJ103	10K		1
R253	PQ4R10XJ103	10K		1
R254	PQ4R10XJ103	10K		1
R255	PQ4R10XJ393	39K		1
R256	PQ4R10XJ104	100K		1
R257	PQ4R10XJ334	330K		1
R258	PQ4R10XJ393	39K		1
R259	PQ4R10XJ104	100K	S	1
R260	PQ4R10XJ334	330K		1
R261	PQRD1TJ820	82		1
R262	ERDS2TJ152	1.5K		1
R263	PQ4R10XJ102	1K		1
R264	PQ4R10XJ102	1K		1
R265	PQ4R10XJ103	10K		1
R266	PQ4R10XJ103	10K		1
R267-269	Not Used			
R270	ERDS2TJ220	22		1
R271	PQ4R10XJ682	6.8K		1
R272	PQ4R10XJ101	100		1
R275A-H	PQ4R10XJ563	56K	S	8
R276A-H	PQ4R10XJ470	47		8
R277A-H	PQ4R10XJ470	47		8
R278A-H	PQ4R10XJ560	56		8
R279A-H	PQ4R10XJ560	56		8
R280	PQ4R10XJ223	22K		1
R281	PQ4R10XJ223	22K		1
R282-284	Not Used			
R285	PQ4R10XJ122	1.2K		1
R286	PQ4R10XJ102	1K		1
R293	PQ4R10XF6801	6.8K		1
R294	PQ4R10XF1201	1.2K		1
R295	Not Used			
R296A-H	PQ4R10XJ220	22		8
R297A-H	PQ4R10XJ220	22		8
R298	Not Used			
R299A-H	PQ4R10XJ101	100		8
J201-204	PQ4R10XJ000	0		4
J250A-H	PQCUV1C474ZF	0.47		8
J251A-H	PQ4R10XJ471	470		8
J252A-H	PQCUV1C184KB	0.18		8
J253A-H	PQ4R10XJ100	10		8
J254A-H	PQ4R10XJ471	470		8
J255A-H	PQCUV1C474ZF	0.47		8
J256A-H	PQCUV1C474ZF	0.47		8
J257A-H	PQ4R10XJ471	470		8
J258A-H	Not Used			
J259A-H	PQ4R10XJ000	0		8
		(CERAMIC FILTERS)		
L210	PQVFTU50MT	CERAMIC FILTER		1
L211	PQVFTU50MT	CERAMIC FILTER		1
L212	PQVFTU50MT	CERAMIC FILTER		1
		(CAPACITORS)		
C202A-H	ECEA1HKS2R2	2.2		8
C204A-D	ECEA1HKS100	10		4
C204E-H	ECEA1HU100	10		4
C205A-H	ECEA1EN4R7S	4.7		8
C206A-H	ECEA1EN4R7S	4.7		8
C207A-H	ECEA1HKS3R3	3.3		8
C208A-H	ECUV1H153MD	0.015	S	8
C209A-H	PQCUV1H223KB	0.022	S	8
C210A-H	PQCUV1H223KB	0.022	S	8
C211A-H	ECEA1HN4R7S	4.7		8
C212A-H	PQCUV1H103KB	0.01		8
C213A-H	PQCUV1H103KB	0.01		8
C215A-H	PQCUV1H331JC	330P		8
C216A-H	ECEA1HKS2R2	2.2		8
C217A-H	PQCUV1H680JC	68P		8
C218A-H	PQCUV1H680JC	68P		8
C219A-H	ECUV1H104MD	0.1	S	8
C220	ECEA1EU101	100		1
C220A-H	ECEA1HU100	10		8
C220E,F	ECEA1H393KB	0.039		2
C221	ECEA1EU101	100		1
C222A-H	ECEA1HU100	10		8

This replacement parts list is for KX-TD170E version only. Refer to the simplified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
C251	PQCUV1H223KB	0.022	S	1
C252	PQCUV1H223KB	0.022	S	1
C253	PQCUV1H223KB	0.022	S	1
C254	PQCUV1H223KB	0.022	S	1
C255	ECEA1HU330	33		1
C256	PQCUV1H221JC	220P		1
C257	PQCUV1H223KB	0.022	S	1
C258	PQCUV1H223KB	0.022	S	1
C259	PQCUV1H223KB	0.022	S	1
C260	ECEA1EU471	470		1
C261	Not Used			
C262	ECEA1HU330	33		1
C263	ECEA1HU330	33		1
C264	ECEA1HU330	33		1
C265	PQCUV1H223KB	0.022	S	1
C270	ECEA1AKS101	100		1
C280-290	PQCUV1H223KB	0.022		10
C291	PQCUV1H104ZF	0.1		1
C292	ECEA1AU101	100		1
C293	ECEA1AU101	100		1
C294	PQCUV1H104ZF	0.1		1
		(CRYSTAL OSCILLATOR)		
X201	PQVBFC3584A1	CRYSTAL OSCILLATOR		1
		(COMPONENTS COMBINATIONS)		
Z200	PQRSLD8X472J	COMPONENTS COMBINATION		1
Z201	PQRSLD8X472J	COMPONENTS COMBINATION		1
Z202	PQRSLD8X472J	COMPONENTS COMBINATION		1
Z203	PQRSLD8X472J	COMPONENTS COMBINATION		1
		(CONNECTORS)		
CN201	PQJS60R96Z	CONNECTOR, 60P		1
CN205	PQJS34X33Y	CONNECTOR, 34P		1
CN206	PQJS34X33Y	CONNECTOR, 34P		1
		(FUSES)		
F200	PQBA1N15NMAL	FUSE		1
F201	PQBA1N15NMAL	FUSE		1
		SUB BOARD PARTS		
PCB2	PSWP2TD170E	SUB BOARD ASS'Y		1
		(TRANSISTORS)		
Q200A-D	2SB1218A	TRANSISTOR(SI)	S	4
Q200E-H	2SD1819A	TRANSISTOR(SI)	S	4
Q207A-H	PQVTDTC143E	TRANSISTOR(SI)	S	8
		(DIODES)		
D214A-H	1SS131	DIODE(SI)		8
		(CAPACITORS)		
C200A-H	ECEA1HKS2R2	2.2		8
		(COILS)		
L200A-H	PQLQZM100K	COIL	S	8
L201A-H	PQLQZM100K	COIL	S	8

Ref. No.	Part No.	Part Name & Description	Pcs
		(RESISTORS)	
R233A-H	ERDS2TJ1R8	1.8	8
R295A-H	PQ4R10XJ101	100	8
J270~273	ERDS1TJ000	0	4
		(RELAYS)	
RY202A-H	PQSL119Z	RELAY	8
		(TRANSFORMERS)	
T201A-H	ETE13K79AY	TRANSFORMER	8
		(VARISTORS)	
ZR202A-H	PQVDNV039D03	VARISTOR	8
ZR203A-H	PQVDNV039D03	VARISTOR	8
ZR204A-H	PQVDNV039D03	VARISTOR	8
ZR205A-H	PQVDNV039D03	VARISTOR	8
		(CONNECTORS)	
CN200	PQJS50Q30Y	CONNECTOR, 50P	1
CN201	Not Used		
CN202	PQJJ1TB26Z	JACK/SOCKET	1
CN203	PQJP34D30Y	CONNECTOR, 34P	1
CN204	PQJP34D30Y	CONNECTOR, 34P	1
CN300	PQJP50A86Z	CONNECTOR, 50P	1
CN301	PQJP24A57Z	CONNECTOR, 24P	1
CN302	PQJP24A57Z	CONNECTOR, 24P	1
CN303	PQMH10155Z	FG BASE	1

206

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