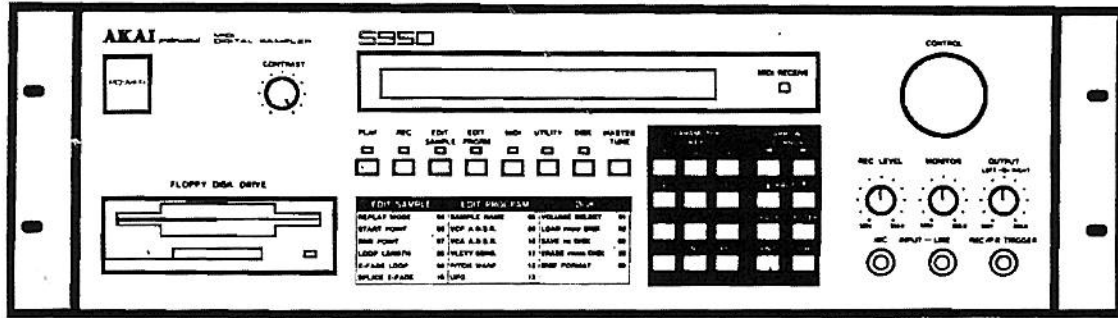


# AKAI SERVICE MANUAL

S-950



## MIDI DIGITAL SAMPLER

# MODEL S950

### SPECIFICATIONS

System .....	Digital sampling Sampling frequency : 7.5 kHz - 48kHz(MIN - MAX) Sampling time : 63.35 sec - 9.79 sec (MIN - MAX) Voice : 8 Voice Range : 6 Octave	Velocity switch Positional cross fade Time stretch Pitch warp LFO(delay rate, depth) Filter(Key tracking, Velocity, A.D.S.R) Sample merge
Storage .....	Built-in FLOPPY DISK DRIVE Memory capacity : 1 Mbytez(2DD) Memory Medium : 3.5 inch MICRO FLOPPY DISK (2DD, 2HD) Internal memory: 750 K byte (Expansion memory is adaptable)	Communication .... RS-232C or equivalent External jack ..... MIDI(IN, OUT, THRU) Mic input × 1 Line input × 1 REC/PB trigger × 1 Line output × 8 Stereo output × 2 (L, R) Mix output × 1 Voice output × 1 (13 PIN/DIN)
Multi sampling .....	99	Dimensions ..... 482.6(W) × 132.6(H) × 410(D) mm
Edit .....	Scanning(ONE SHOT, LOOPING, ALTERNATING) A.D.S.R(Velocity-Attack, Velocity Release)	Weight ..... 10.8 kg

\* For improvement purposes, specifications and design are subject to change without notice.

# ★ SAFETY INSTRUCTIONS

## PRECAUTIONS DURING SERVICING

1. Parts identified by the  $\Delta$  (\*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.  
These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulation tape
  - 2) PVC tubing
  - 3) Spacers (insulating barriers)
  - 4) Insulation sheets for transistors
  - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.

The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal-input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15  $\mu$ F capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.

The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.



(DANGER)



(RECOMMENDED WAY)

## ★ INFORMATION

### SYMBOLS FOR PRIMARY DESTINATION

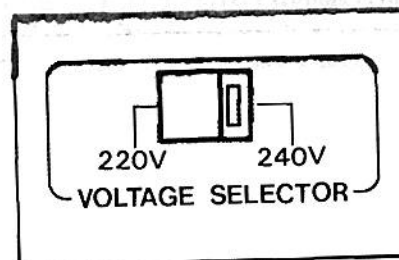
Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
A	USA
B	UK
C	Canada
E	Europe (except UK)
J	Japan
S	Australia
V	W. Germany only
U	Universal Area
Y*	Custom version

### VOLTAGE CONVERSION

(E, V, B, S Model only)

Before connecting the power cord. Set the VOLTAGE SELECTOR located on the rear panel with a screwdriver so that the correct voltage is indicated.

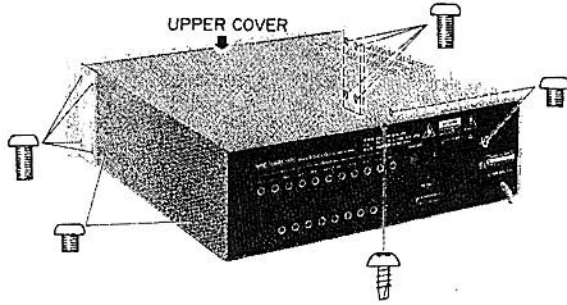


# I. DISASSEMBLY

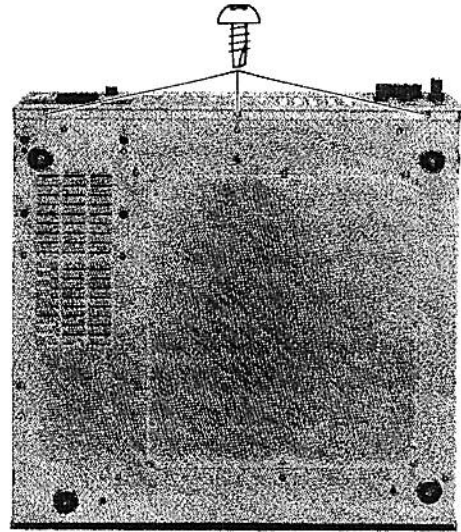
In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in the reverse order.

\* Photographs employed on this page are of model S900.

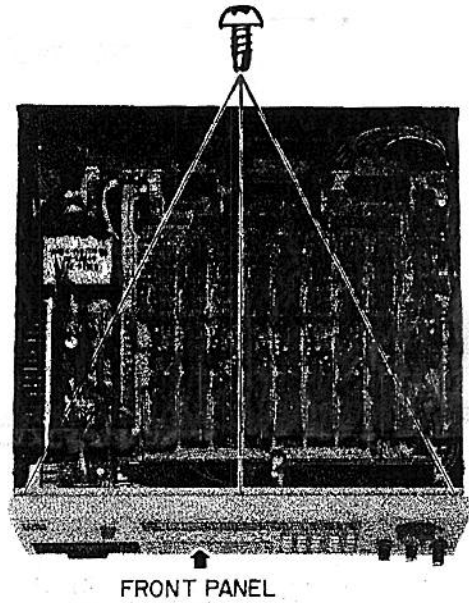
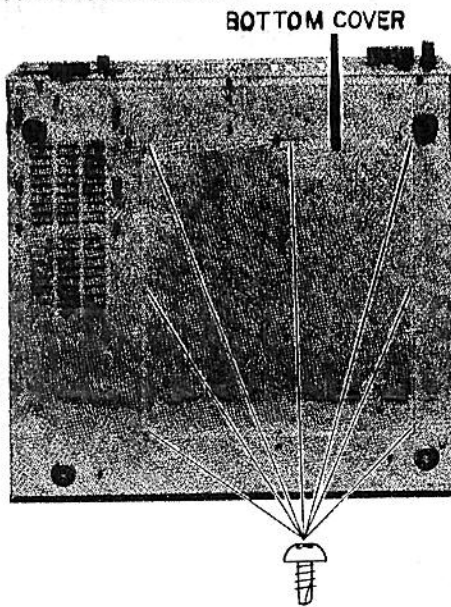
1. Removal of UPPER COVER



3. Removal of FRONT PANEL



2. Removal of BOTTOM COVER



## II. CONTROLS

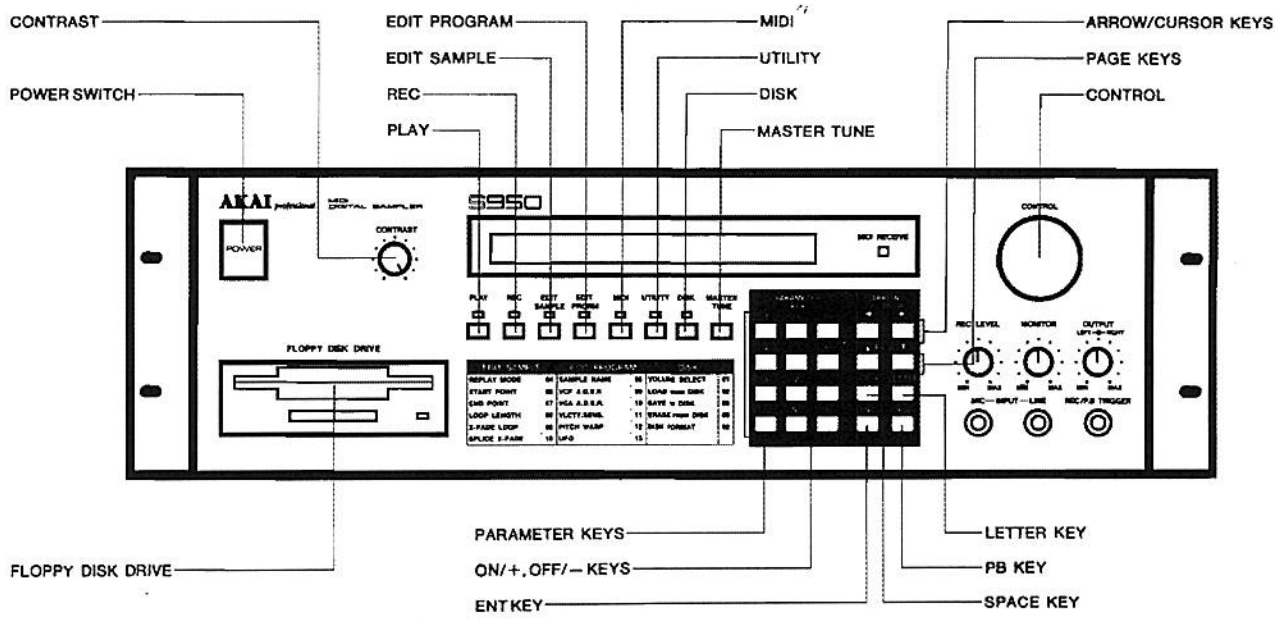


Fig. 2-1

## III. CONNECTIONS

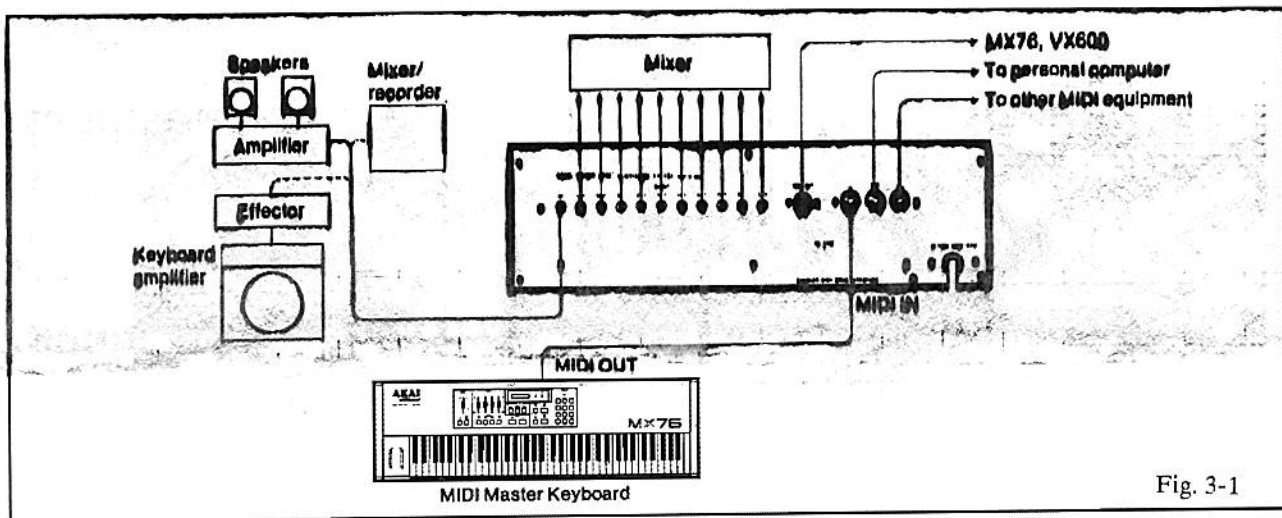


Fig. 3-1

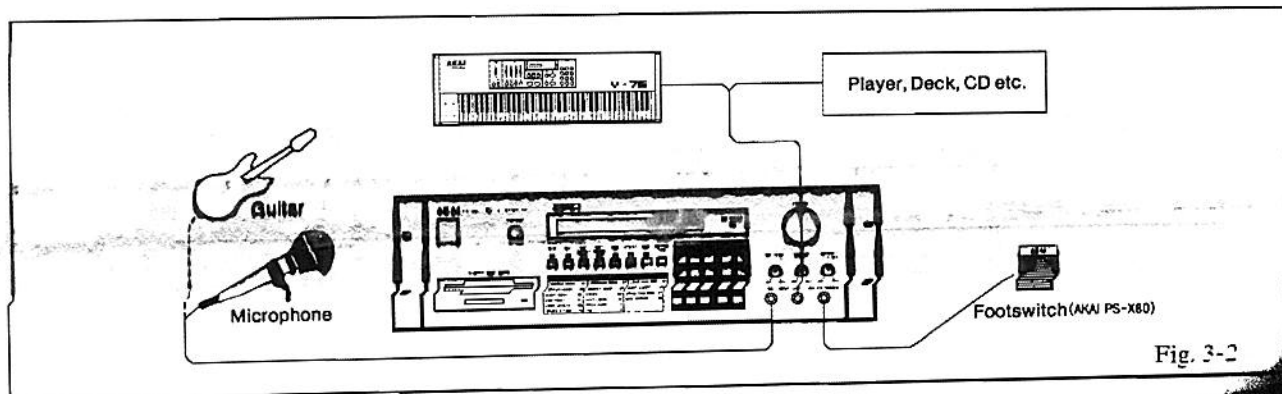


Fig. 3-2



# IV. PRINCIPAL PARTS LOCATION

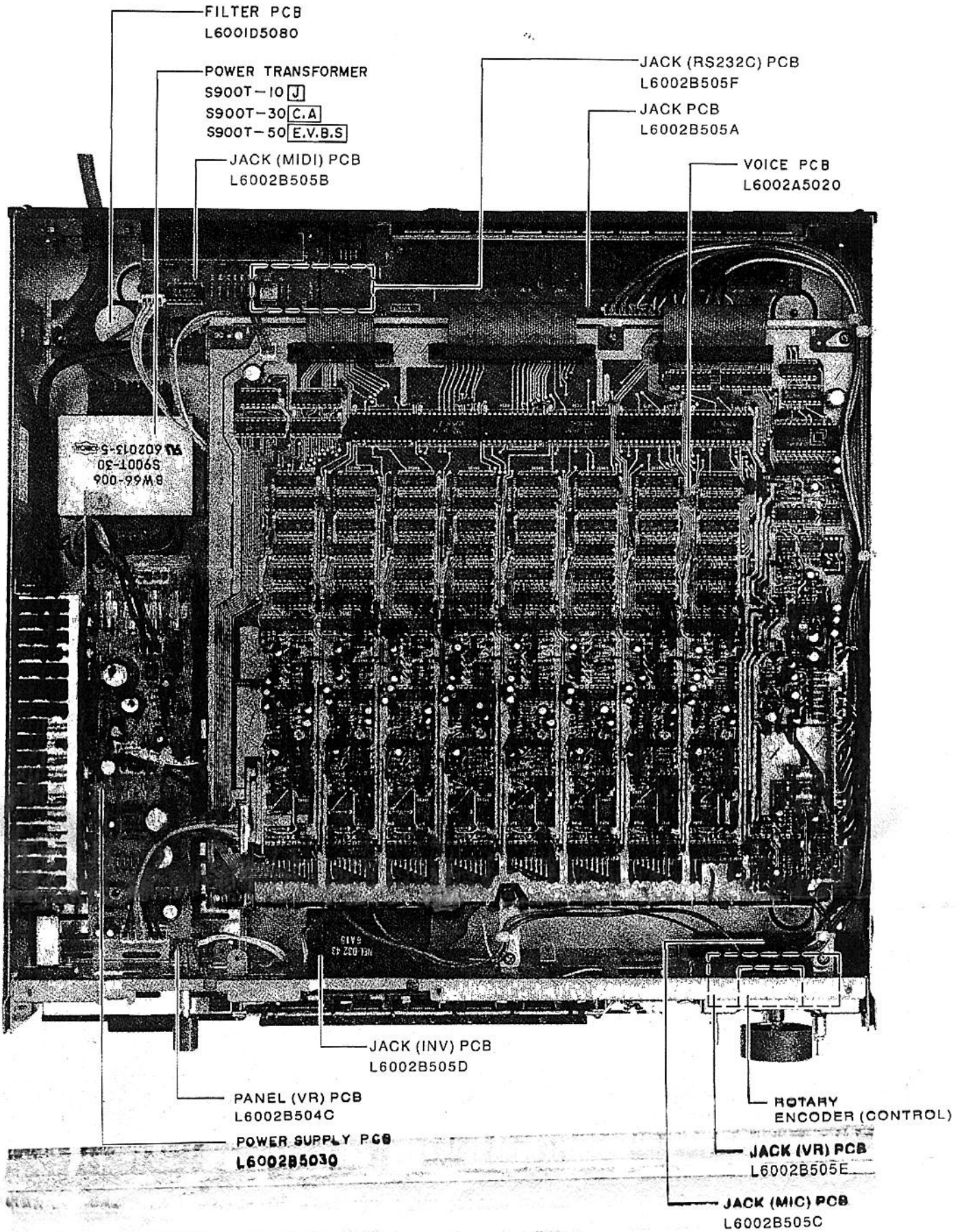
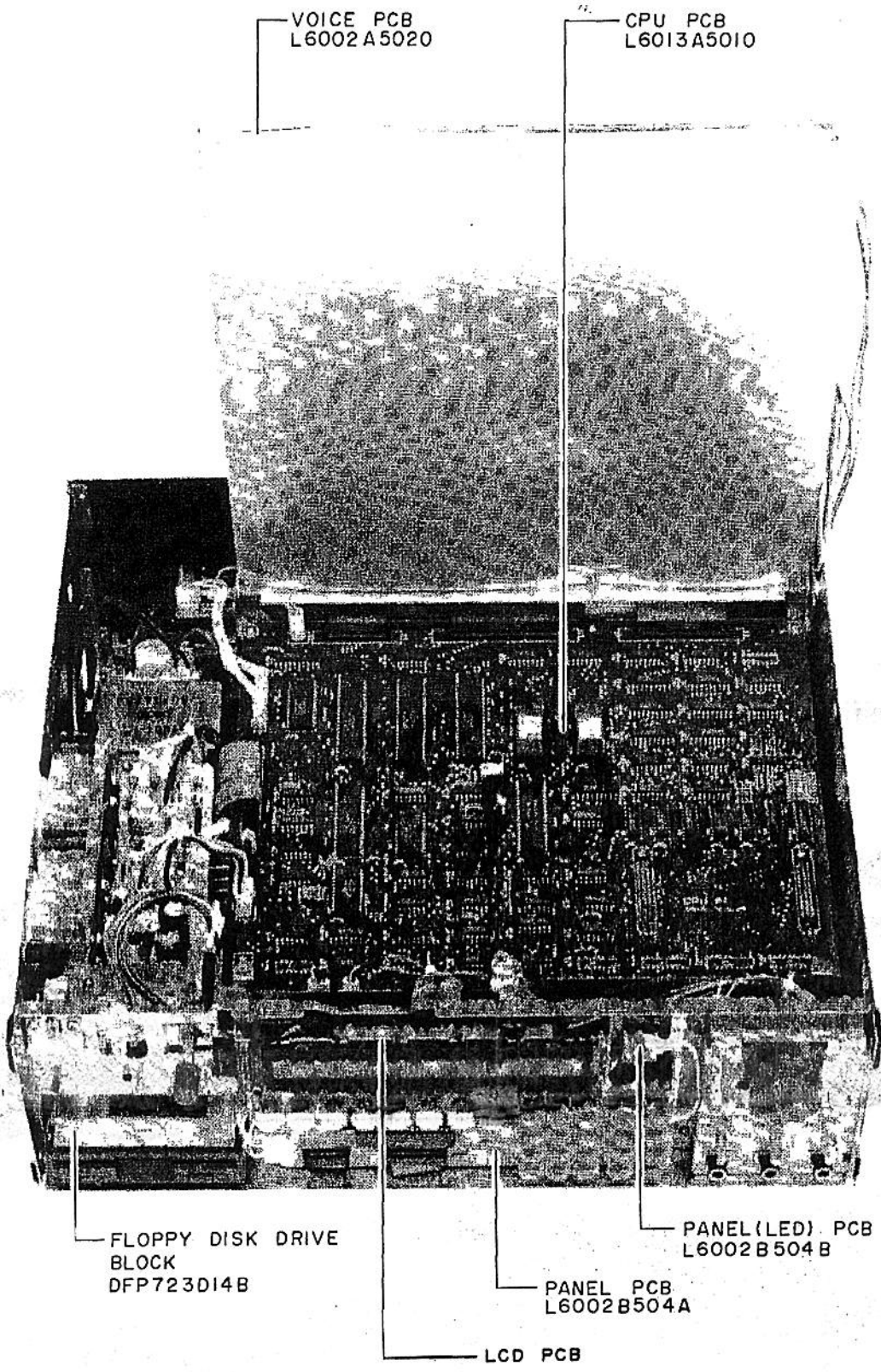


Fig. 4-1



VOICE PCB  
L6002A5020

CPU PCB  
L6013A5010

FLOPPY DISK DRIVE  
BLOCK  
DFP723D14B

PANEL (LED) PCB  
L6002B504B

PANEL PCB  
L6002B504A

LCD PCB

Fig. 4-2

## V. ADJUSTMENT

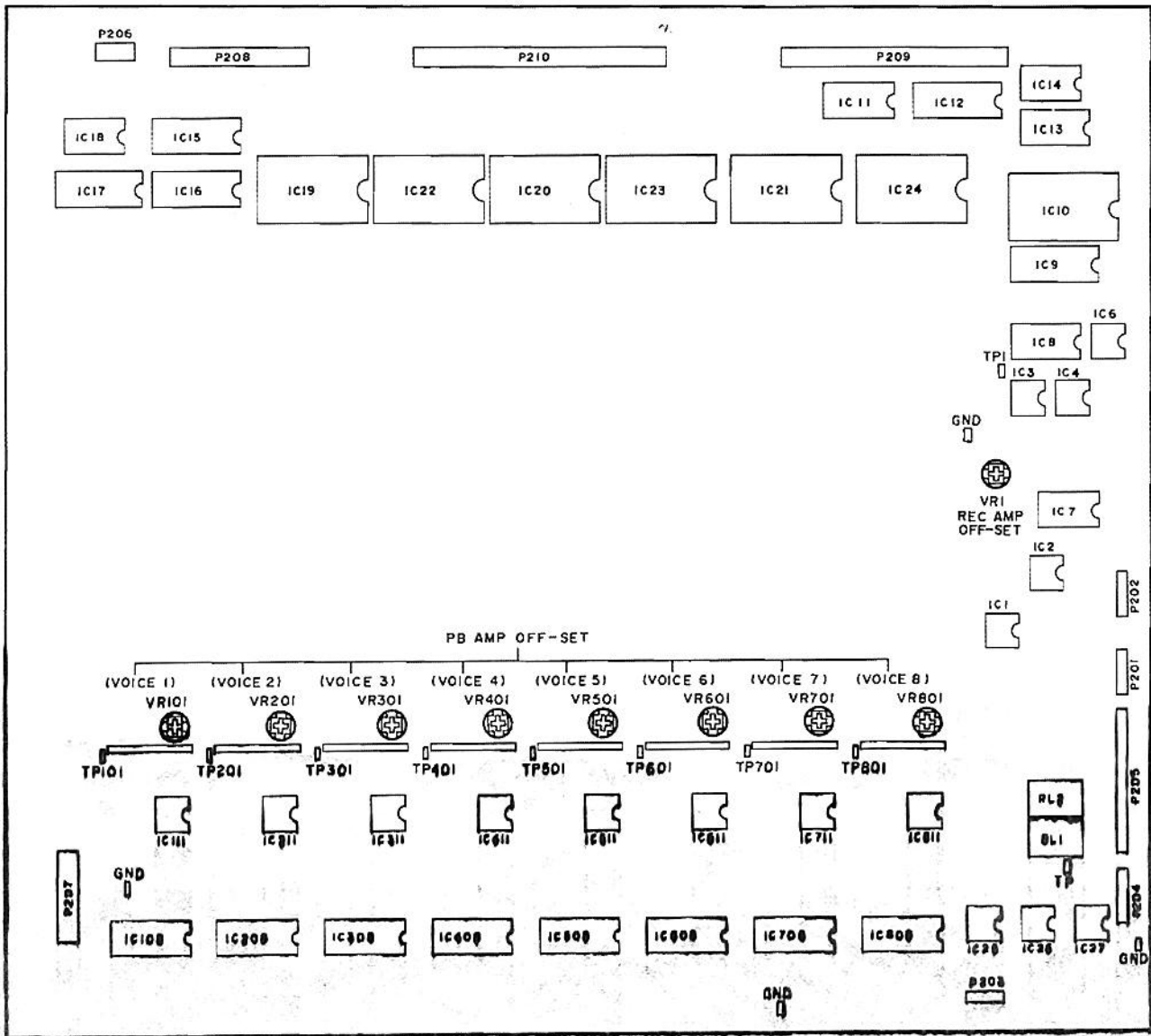


Fig. 5-1 Adjustment points of VOICE PCB

### 5-1. ADJUSTMENT OF REC AMP OFF-SET

- 1) Connect the digital DC voltmeter between TP1(REC AMP OFF-SET) and TP(GND).
- 2) Adjust VR1(REC AMP OFF-SET) so that the reading on the digital DC voltmeter is  $DC\ 0 \pm 1mV$ .

### 5-2. ADJUSTMENT OF PB AMP OFF-SET

- 1) Connect the digital DC voltmeter between TP101(PB AMP OFF-SET) and TP(GND).
- 2) Set the REC LEVEL control to "MIN" position, and record with no signal input condition.
- 3) After recording, read the voltage on the digital DC voltmeter, then push the PB button on the front panel and read the voltage again.
- 4) Adjust VR101(VOICE 1 PB AMP OFF-SET) so that the both reading voltages are equal or the voltage difference is within  $\pm 5mV$ .
- 5) Adjust VR201(VOICE 2 PB AMP OFF-SET) to VR801(VOICE 8 PB AMP OFF-SET) as same maner as 1 to 4).

Function...	Transmitted	Recognized	Remarks
Basic Channel	Default Changed	× ×	1 1-16 Without Disk Memorized(Disk)
Mode	Default Messages Altered	× × *****	Mode 1 Mode1 - 4 Omni on/off, P/M × Without Disk Memorized(Disk)
Note Number	: True voice	× *****	0 - 127 24 - 96
Velocity Note ON Note OFF	× ×	○ 9n V=1 - 127 ○ 9n V=0 or 8n V=0 - 127	Used Velocity release
After Touch	Key's Ch's	× ×	× ○
Pitch Bender	×	○	0 - 2: Half tone step (7 bit)
Control Change	1 64	× ×	○ ○ Modulation wheel Damper pedal
Prog Change	: True#	× *****	1 - 127 1 - 127 by preset number value
System Exclusive		○	○ ID: 47
System Common	: Song Pos : Song Sel : Tune	× × ×	× × ×
System Real time	: Clock : Commands	× ×	× ×
Aux Messages	: Local ON/OFF : All Notes OFF : Active Sense : Reset	× × × ×	× ○ (123) × ×
Notes			

Mode 1 : OMNI ON, POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
Mode 4 : OMNI OFF, MONO

○ : Yes  
× : No



**ATTENTION**

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

**HOW TO USE THIS PARTS LIST**

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

**2. HEAD BASE BLOCK**

REF. NO.	PART NO.	DESCRIPTION
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20x03STL CMT
4	ZS-536488	BID20x08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

**SP (Service Parts) Classification**  
 This number corresponds with the individual parts index number in that figure.

b) PC Board

**6. MAIN PC BOARD**

REF. NO.	PART NO.	DESCRIPTION
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

**Symbols for primary destination**  
 [A] : AAL (U.S.A)    [S] : SAA (Australia)  
 [B] : BEAB (England)    [U] : U/T (Universa Area)  
 [C] : CSA (Canada)  
 [E] : CEE (Europa)    [V] : VDE (W. Germany)  
 [J] : JPN (Japan)    [Y] : Custom Version

**SP (Service Parts) Classification**  
 These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

**WARNING**

**⚠ (\*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTROLLED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.**

**AVERTISSEMENT**

**⚠ (\*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.**

# 1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	BB-389042J	FLOPPY DISK DFP723D14B	50	EI-378218	IC MB81C4256-10-G
2	*BT-365907	TRANS POWER S900T-10(J) [J]	51	EI-372103	IC MB89254
3	*BT-365908	TRANS POWER S900T-30(A,C) [A,C,Y1]	52	EI-360058	IC MF6CN-50
4	*BT-365909	TRANS POWER S900T-50(E,V,B,S) [E,V,B,S]	53	EI-375346	IC MM74HCO4N
5	ED-364261	D LED SLP-981C-50	54	EI-375347	IC MM74HC14N
6	*ED-365819	D SILICON CTU-12R 200/ 6.0A	55	EI-375345	IC MM74HC373N
7	*ED-365818	D SILICON CTU-12S 200/ 6.0A	56	EI-360043	IC M5220P
8	*ED-330319	D SILICON DBA10B 100/1.0A	57	*EI-348123	IC M5230L
9	*ED-357038	D SILICON DBB10B 100/1.0A	58	EI-362588	IC M5238P
10	ED-301911	D SILICON H DS448	59	*EI-365822	IC NJM78M06A
11	ED-370990	D SILICON 1SR35-100AHS F10	60	*EI-365823	IC NJM79M06A
12	*ED-346617	D ZENER H HZ12 C2	61	EI-365798	IC SED9420CAC
13	*EF-355226	FUSE BET T 250V 1.00A [B]	62	EI-310044	IC SN74LS05N
14	*EF-359225	FUSE BET T 250V 3.15A [B]	63	*EI-365820	IC STR9005
5	*EF-358974	FUSE BET T 250V 630MA [B]	64	*EI-347758	IC TA78012AP
16	*EF-358641	FUSE BET T 250V 800MA [B]	65	EI-360038	IC TC74HC02P
17	*EF-623103	FUSE SEMKO T 250V 1.00A [E,V,S]	66	EI-360039	IC TC74HC08P
18	*EF-691007	FUSE SEMKO T 250V 3.15A [E,V,S]	67	EI-365846	IC TC74HC109P
19	*EF-601842	FUSE SEMKO T 250V 630MA [E,V,S]	68	EI-360025	IC TC74HC138P
20	*EF-258344	FUSE SEMKO T 250V 800MA [E,V,S]	69	EI-356049	IC TC74HC139P
21	*EF-308387	FUSE TSC A 250V 1.00A [J]	70	EI-372578	IC TC74HC153P
22	*EF-308851	FUSE TSC A 250V 2.50A [J]	71	EI-365840	IC TC74HC155P
23	*EF-308852	FUSE TSC A 250V 4.00A [J]	72	EI-360035	IC TC74HC157P
24	*EF-308124	FUSE TSC A 250V 630MA [J]	73	EI-360048	IC TC74HC173P
25	*EF-310220	FUSE TSC 125V 1.00A [C,A,Y1]	74	EI-360054	IC TC74HC174P
26	*EF-308954	FUSE TSC 125V 2.00A [C,A,Y1]	75	EI-360053	IC TC74HC175P
27	*EF-308857	FUSE TSC 125V 4.00A [C,A,Y1]	76	EI-365802	IC TC74HC191P
28	*EF-308703	FUSE TSC 125V 830MA [C,A,Y1]	77	EI-365101	IC TC74HC195P
29	EI-347600	COMP R EXB-P88 472K	78	EI-365801	IC TC74HC257P
30	EI-360049	IC AM2504PC	79	EI-360042	IC TC74HC259P
31	EI-354283	IC BA8110	80	EI-384782J	IC TC74HC365P
32	EI-390060	IC BA9201	81	EI-360047	IC TC74HC374P
33	EI-360050	IC BA9221	82	EI-365831	IC TC74HC393P
34	EI-389128J	IC CD74AC138E	83	EI-365803	IC TC74HC4002P
35	EI-360045	IC DG211CJ	84	EI-365830	IC TC74HC870P
36	EI-389049J	IC HD63B50P	85	EI-360027	IC TC74HC86P
37	EI-389061J	IC HD74AC04P	86	EI-365828	IC UPC812C-AK
38	EI-389060J	IC HD74AC158P	87	EI-365782	IC UPD70118C-B
39	EI-389050J	IC HD74AC32P	88	EI-365793	IC UPD71011C
40	EI-388711J	IC HD74HC00P	89	EI-365813	IC UPD71055C
41	EI-387934J	IC HD74HC04P	90	EI-365785	IC UPD71058C
42	EI-388707J	IC HD74HC244P	91	EI-365784	IC UPD71071C
43	EI-388712J	IC HD74HC245P	92	EI-378275	IC UPD72088C
44	EI-388708J	IC HD74HC32P	93	EI-364146	IC UPD8253C-2
45	EI-365808	IC HD75188P	94	EI-365811	OSC X'TAL NR18 16.000MHZ
46	EI-365805	IC HD75189P	95	EM-365844	IND LCD DMC40218UE [INC. PCB]
47	EI-360854	IC IR9311	96	EO-360068	COIL LF LF-2 R
48	EI-367571	IC LA8358T	97	*ER-324185	R CB H S10 FS RDS 1/4W 221J
49	EI-378295	IC MBM27C256-15CZ-G	98	*ER-328189	R FUSE H S10 ERD2PC 1/4W 22R0G
			99	*ER-366747	R QMF H 616 FS 1W 820J
			100	ES-365843	SW EWT-XDFK85808 [E,V,B,S]
			101	*ES-307400	SW FLUSH SDDL01 01-1
			102	*ES-306430	SW SLIDE J-S4013 #01 01-2 [E,V,B,S]
			103	ES-365851	SW TACT SPPQ19
			104	ET-354167	DETECTOR PC900V
			105	ET-353899	TR 2SA1317 S,T,U
			106	*ET-356817	TR 2SB891 Q,R
			107	ET-360137	TR 2SC3330 U,V F05
			108	*ET-354083	TR 2SD1189 Q,R
			109	EV-389054J	VR ROTARY RK1612221 B103X2
			110	EV-389052J	VR ROTARY RK1631110 A103
			111	EV-389053J	VR ROTARY RK1631110 B103
			112	EV-365817	VR ROTARY 16P10X2G
			113	VT-365945	MULTI BLK INVERTER NEL-D32-43

## 2. PC BORAD BLOCK

Ref. No.	Part No.	Description
1	BA-L6002A050B	PC VOICE BLK S950
2	BA-L6013A040A	PC CPU BLK S950
3	BA-L6002A020A	PC( # ) PANEL BLK S900
4	BA-L6002A080B	PC( # ) JACK BLK S950
5	BA-L6002A060A	POWER BLK S900

## 3. VOICE P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301911	D SILICON H DS448
D2	ED-370990	D SILICON 1SR35-100AHS F10
IC1	EI-360043	IC M5220P
IC2	EI-362588	IC M5238P
IC3	EI-362588	IC M5238P
IC4	EI-365829	IC UPC812C-AK
IC6	EI-360954	IC IR9311
IC7	EI-360058	IC MF6CN-50
IC8	EI-360045	IC DG211CJ
IC9	EI-360050	IC BA9221
IC10	EI-360049	IC AM2504PC
IC11	EI-360048	IC TC74HC173P
IC12	EI-360047	IC TC74HC374P
IC13	EI-365846	IC TC74HC109P
IC14	EI-360038	IC TC74HC02P
IC15	EI-360047	IC TC74HC374P
IC16	EI-360047	IC TC74HC374P
IC17	EI-388707J	IC HD74HC244P
IC18	EI-375346	IC MM74HCO4N
IC19	EI-372103	IC MB89254
IC20	EI-372103	IC MB89254
IC21	EI-372103	IC MB89254
IC22	EI-364146	IC UPD8253C-2
IC23	EI-364146	IC UPD8253C-2
IC24	EI-364146	IC UPD8253C-2
IC25	EI-362588	IC M5238P
IC26	EI-362588	IC M5238P
IC27	EI-362588	IC M5238P
IC101	EI-365830	IC TC74HC670P
IC102	EI-365830	IC TC74HC670P
IC103	EI-365830	IC TC74HC670P
IC104	EI-365831	IC TC74HC393P
IC105	EI-360038	IC TC74HC02P
IC106	EI-360027	IC TC74HC86P
IC107	EI-360050	IC BA9221
IC108	EI-360060	IC BA9201
IC109	EI-360058	IC MF6CN-50
IC110	EI-354283	IC BA6110
IC111	EI-367571	IC LA6358T
IC201	EI-365830	IC TC74HC670P
IC202	EI-365830	IC TC74HC670P
IC203	EI-365830	IC TC74HC670P
IC204	EI-365831	IC TC74HC393P
IC205	EI-360038	IC TC74HC02P
IC206	EI-360027	IC TC74HC86P
IC207	EI-360050	IC BA9221
IC208	EI-390060	IC BA9201
IC209	EI-360058	IC MF6CN-50
IC210	EI-354283	IC BA6110
IC211	EI-367571	IC LA6358T
IC301	EI-365830	IC TC74HC670P
IC302	EI-365830	IC TC74HC670P
IC303	EI-365830	IC TC74HC670P
IC304	EI-365831	IC TC74HC393P
IC305	EI-360038	IC TC74HC02P
IC306	EI-360027	IC TC74HC86P
IC307	EI-360050	IC BA9221
IC308	EI-390060	IC BA9201
IC309	EI-360058	IC MF6CN-50
IC310	EI-354283	IC BA6110
IC311	EI-367571	IC LA6358T
IC401	EI-365830	IC TC74HC670P
IC402	EI-365830	IC TC74HC670P

Ref. No.	Part No.	Description
IC403	EI-365830	IC TC74HC670P
IC404	EI-365831	IC TC74HC393P
IC405	EI-360038	IC TC74HC02P
IC406	EI-360027	IC TC74HC86P
IC407	EI-360050	IC BA9221
IC408	EI-390060	IC BA9201
IC409	EI-360058	IC MF6CN-50
IC410	EI-354283	IC BA6110
IC411	EI-367571	IC LA6358T
IC501	EI-365830	IC TC74HC670P
IC502	EI-365830	IC TC74HC670P
IC503	EI-365830	IC TC74HC670P
IC504	EI-365831	IC TC74HC393P

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
IC505	EI-360038	IC TC74HC02P	TR501	ET-353899	TR 2SA1317 S,T,U
IC506	EI-360027	IC TC74HC86P	TR601	ET-353899	TR 2SA1317 S,T,U
IC507	EI-360050	IC BA9221	TR701	ET-353899	TR 2SA1317 S,T,U
IC508	EI-390060	IC BA9201	TR801	ET-353899	TR 2SA1317 S,T,U
IC509	EI-360058	IC MF6CN-50	VR1	EV-307695	R S-FIX H RH0651C 0.05W104
IC510	EI-354283	IC BA6110	VR101	EV-307695	R S-FIX H RH0651C 0.05W104
IC511	EI-367571	IC LA6358T	VR201	EV-307695	R S-FIX H RH0651C 0.05W104
IC601	EI-365830	IC TC74HC670P	VR301	EV-307695	R S-FIX H RH0651C 0.05W104
IC602	EI-365830	IC TC74HC670P	VR401	EV-307695	R S-FIX H RH0651C 0.05W104
IC603	EI-365830	IC TC74HC670P	VR501	EV-307695	R S-FIX H RH0651C 0.05W104
IC604	EI-365831	IC TC74HC393P	VR601	EV-307695	R S-FIX H RH0651C 0.05W104
IC605	EI-360038	IC TC74HC02P	VR701	EV-307695	R S-FIX H RH0651C 0.05W104
IC606	EI-360027	IC TC74HC86P	VR801	EV-307695	R S-FIX H RH0651C 0.05W104
IC607	EI-360050	IC BA9221			
IC608	EI-390060	IC BA9201			
IC609	EI-360058	IC MF6CN-50			
IC610	EI-354283	IC BA6110			
IC611	EI-367571	IC LA6358T			
IC701	EI-365830	IC TC74HC670P			
IC702	EI-365830	IC TC74HC670P			
IC703	EI-365830	IC TC74HC670P			
IC704	EI-365831	IC TC74HC393P			
IC705	EI-360038	IC TC74HC02P			
IC706	EI-360027	IC TC74HC86P			
IC707	EI-360050	IC BA9221			
IC708	EI-390060	IC BA9201			
IC709	EI-360058	IC MF6CN-50			
IC710	EI-354283	IC BA6110			
IC711	EI-367571	IC LA6358T			
IC801	EI-365830	IC TC74HC670P			
IC802	EI-365830	IC TC74HC670P			
IC803	EI-365830	IC TC74HC670P			
IC804	EI-365831	IC TC74HC393P			
IC805	EI-360038	IC TC74HC02P			
IC806	EI-360027	IC TC74HC86P			
IC807	EI-360050	IC BA9221			
IC808	EI-390060	IC BA9201			
IC809	EI-360058	IC MF6CN-50			
IC810	EI-354283	IC BA6110			
IC811	EI-367571	IC LA6358T			
P208	EJ-365891	PLUG RA-H261TD-0190 26P			
P209	EJ-365892	PLUG RK-H401TD-0190 40P			
P210	EJ-365890	PLUG RA-H602TD-0190 60P			
RL1	EQ-348929	RELAY SIG Q6A-837P 8TR 12V			
R7	ER-362496	R DMF H S10 FS 1/2W 101J			
R8	ER-362496	R DMF H S10 FS 1/2W 101J			
R29	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R30	ER-324185	R FUSE H S10 ERD2FC 1/4W 22ROG			
R31	ER-365788	R MF H F10 1/4W 2491F			
R32	ER-365789	R MF H F10 1/4W 4991F			
R68	ER-365747	R DMF H S16 FS 1W 820J			
R121	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R202	ER-365788	R MF H F10 1/4W 2491F			
R203	ER-365789	R MF H F10 1/4W 4991F			
R221	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R302	ER-365788	R MF H F10 1/4W 2491F			
R303	ER-365789	R MF H F10 1/4W 4991F			
R321	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R402	ER-365788	R MF H F10 1/4W 2491F			
R403	ER-365789	R MF H F10 1/4W 4991F			
R421	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R502	ER-365788	R MF H F10 1/4W 2491F			
R503	ER-365789	R MF H F10 1/4W 4991F			
R521	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R602	ER-365788	R MF H F10 1/4W 2491F			
R603	ER-365789	R MF H F10 1/4W 4991F			
R621	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R702	ER-365788	R MF H F10 1/4W 2491F			
R703	ER-365789	R MF H F10 1/4W 4991F			
R721	ER-324185	R CB H S10 FS RDS 1/4W 221J			
R802	ER-365788	R MF H F10 1/4W 2491F			
R803	ER-365789	R MF H F10 1/4W 4991F			
R821	ER-324185	R CB H S10 FS RDS 1/4W 221J			
TR1	ET-360197	TR 2SC3330 U.V F05			
TR101	ET-353899	TR 2SA1317 S,T,U			
TR201	ET-353899	TR 2SA1317 S,T,U			
TR301	ET-353899	TR 2SA1317 S,T,U			
TR401	ET-353899	TR 2SA1317 S,T,U			



#### 4. CPU P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301911	D SILICON H DS448
IC1	EI-365792	IC UPD70116C-8
IC2	EI-365793	IC UPD71011C
IC3	EI-365794	IC UPD71071C
IC4	EI-365794	IC UPD71071C
IC5	EI-365794	IC UPD71071C
IC6	EI-365795	IC UPD71059C
IC8	EI-389049J	IC HD63B50P
IC9	EI-378275	IC UPD72066C
IC10	EI-365798	IC SED9420CAC
IC11	EI-378295	IC MBM27C256-15CZ-G
IC12	EI-378295	IC MBM27C256-15CZ-G
IC13	EI-375345	IC MM74HC373N
IC14	EI-375345	IC MM74HC373N
IC15	EI-375345	IC MM74HC373N
IC16	EI-375345	IC MM74HC373N
IC17	EI-375345	IC MM74HC373N
IC18	EI-388712J	IC HD74HC245P
IC19	EI-365831	IC TC74HC393P
IC20	EI-365801	IC TC74HC257P
IC21	EI-360053	IC TC74HC175P
IC22	EI-360025	IC TC74HC138P
IC23	EI-360025	IC TC74HC138P
IC24	EI-356049	IC TC74HC139P
IC25	EI-360042	IC TC74HC259P
IC26	EI-388707J	IC HD74HC244P
IC27	EI-365801	IC TC74HC257P
IC28	EI-365802	IC TC74HC191P
IC30	EI-360054	IC TC74HC174P
IC31	EI-365803	IC TC74HC4002P
IC32	EI-387834J	IC HD74HC04P
IC33	EI-388709J	IC HD74HC32P
IC34	EI-388709J	IC HD74HC32P
IC35	EI-388711J	IC HD74HC00P
IC36	EI-388711J	IC HD74HC00P
IC37	EI-380030	IC TC74HC08P
IC38	EI-387834J	IC HD74HC04P
IC39	EI-375347	IC MM74HC14N
IC40	EI-365101	IC TC74HC185P
IC41	EI-360030	IC TC74HC08P
IC42	EI-360030	IC TC74HC157P
IC43	EI-365806	IC HD75188P
IC44	EI-365806	IC HD75188P
IC45	EI-378210	IC MB81C4256-10-G
IC46	EI-378210	IC MB81C4256-10-G
IC47	EI-378210	IC MB81C4256-10-G
IC48	EI-378210	IC MB81C4256-10-G
IC49	EI-378210	IC MB81C4256-10-G
IC50	EI-378210	IC MB81C4256-10-G
IC51	EI-378210	IC MB81C4256-10-G
IC51	EI-385830	IC TC74HC870P
IC52	EI-385830	IC TC74HC870P
IC53	EI-388712J	IC HD74HC245P
IC54	EI-372578	IC TC74HC153P
IC55	EI-365840	IC TC74HC155P
IC56	EI-360038	IC TC74HC02P
IC57	EI-384782J	IC TC74HC365P
IC58	EI-384782J	IC TC74HC365P
IC59	EI-360025	IC TC74HC138P
IC81	EI-389050J	IC HD74AC32P
IC82	EI-389060J	IC HD74AC158P
IC82	EI-360035	IC TC74HC157P
IC83	EI-389060J	IC HD74AC158P
IC84	EI-389060J	IC HD74AC158P
IC85	EI-360039	IC TC74HC08P
IC86	EI-389061J	IC HD74AC04P
IC88	EI-389128J	IC CD74AC138E
IC89	EI-360039	IC TC74HC08P
J101	EW-365836	WIRE ASSY S900 (14) 28P
J102	EW-365836	WIRE ASSY S900 (15) 50P
J109	EW-365836	WIRE ASSY S900 (16) 40P
P107	EJ-365833	PLUG RA-H201TD-0190 20P
P108	EJ-378287	PLUG RP148B30P-1TD2-03 48P
P109	EJ-365834	PLUG RK-H341TD-0190 34P
P110	EJ-389062J	PLUG RA-H601TD-1190 60P

Ref. No.	Part No.	Description
P111	EJ-378287	PLUG RP148B30P-1TD2-03 48P
R40	ER-200939	R CB H S10 FS RDS 1/4W 181J
R41	ER-200939	R CB H S10 FS RDS 1/4W 181J
X1	EI-365811	OSC X'TAL NR18 16.000MHZ
1	EJ-358691	SOCKET IC DILB28P-8J

#### 5. PANEL P.C BOARD

Ref. No.	Part No.	Description
CR1	EH-347688	COMP R EXB-P88 472K
CR2	EH-347688	COMP R EXB-P88 472K
D1	ED-364261	D LED SLP-981C-50
D2	ED-364261	D LED SLP-981C-50
D3	ED-364261	D LED SLP-981C-50
D4	ED-364261	D LED SLP-981C-50
D5	ED-364261	D LED SLP-981C-50
D6	ED-364261	D LED SLP-981C-50
D7	ED-364261	D LED SLP-981C-50
IC1	EI-365813	IC UPD71055C
J401	EW-365814	WIRE ASSY S900 (17) 20P
J402	EW-365815	WIRE ASSY S900 (18) 14P
SW1	ES-365851	SW TACT SPPQ19
SW2	ES-365851	SW TACT SPPQ19
SW3	ES-365851	SW TACT SPPQ19
SW4	ES-365851	SW TACT SPPQ19
SW5	ES-365851	SW TACT SPPQ19
SW6	ES-365851	SW TACT SPPQ19
SW7	ES-365851	SW TACT SPPQ19
SW8	ES-365851	SW TACT SPPQ19
SW9	ES-365851	SW TACT SPPQ19
SW10	ES-365851	SW TACT SPPQ19
SW11	ES-365851	SW TACT SPPQ19
SW12	ES-365851	SW TACT SPPQ19
SW13	ES-365851	SW TACT SPPQ19
SW14	ES-365851	SW TACT SPPQ19
SW15	ES-365851	SW TACT SPPQ19
SW16	ES-365851	SW TACT SPPQ19
SW17	ES-365851	SW TACT SPPQ19
SW18	ES-365851	SW TACT SPPQ19
SW19	ES-365851	SW TACT SPPQ19
SW20	ES-365851	SW TACT SPPQ19
SW21	ES-365851	SW TACT SPPQ19
SW22	ES-365851	SW TACT SPPQ19
SW23	ES-365851	SW TACT SPPQ19
SW24	ES-365851	SW TACT SPPQ19
SW25	ES-365851	SW TACT SPPQ19
SW26	ES-365851	SW TACT SPPQ19
SW27	ES-365851	SW TACT SPPQ19
SW28	ES-365851	SW TACT SPPQ19

## 6. JACK P.C BOARD

Ref. No.	Part No.	Description
J501	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J502	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J503	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J505	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J506	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J507	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J508	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J509	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J510	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J511	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J512	EJ-360771	DIN J TCS5037-01-241 13P

## 11. PANEL (VR) P.C BOARD

Ref. No.	Part No.	Description
VR1	EV-365817	VR ROTARY 16P10X2G

## 12. PANEL (LED) P.C BOARD

Ref. No.	Part No.	Description
D1	ED-364261	D LED SLP-981C-50

## 7. JACK (MIC) P.C BOARD

Ref. No.	Part No.	Description
J514	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J515	EJ-354269	PHONE J 3P HLJ0540-110 6.3
J516	EJ-354269	PHONE J 3P HLJ0540-110 6.3

## 8. JACK (MIDI) P.C BOARD

Ref. No.	Part No.	Description
D1	ED-301011	D SILICON H DS448
IC1	EI-310044	IC SN74LS06N
J613	EJ-364266	DIN J M1704 3P
PH1	ET-384187	DETECTOR PC800V

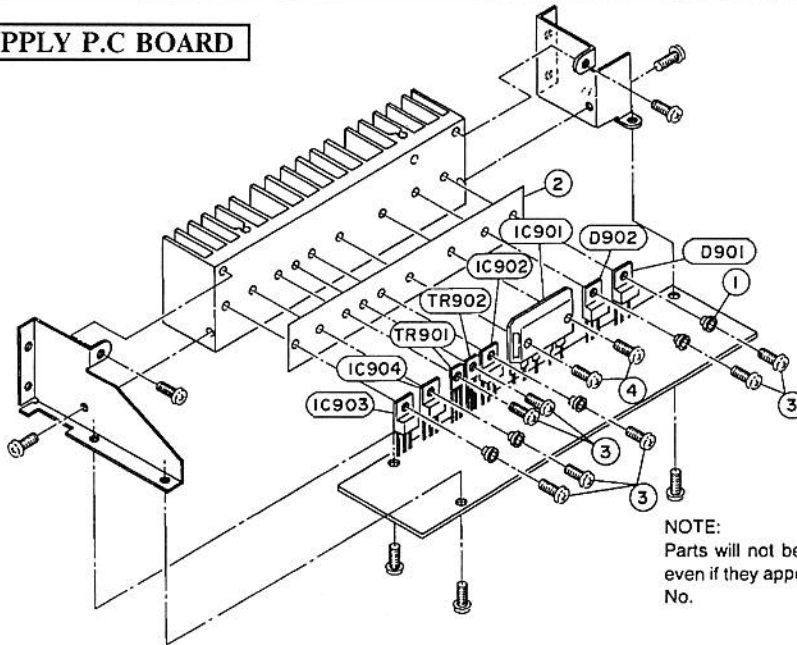
## 9. JACK (INV) P.C BOARD

Ref. No.	Part No.	Description
R1	ER-333372	R CB H S10 FS RDS 1/4W 150J
1	VT-365845	MULTI BLK INVERTER NEL-D32-43

## 10. JACK (VR) P.C BOARD

Ref. No.	Part No.	Description
VR1A	EV-389052J	VR ROTARY RK1631110 A103
VR2A	EV-389053J	VR ROTARY RK1631110 B103
VR3A	EV-389054J	VR ROTARY RK1612221 B103X2

# POWER SUPPLY P.C BOARD



**NOTE:**

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## 13. POWER SUPPLY P.C BOARD

Ref. No.	Part No.	Description
C1	EC-201650	C EC V CUT AS1 472M 10.0DC
C5	EC-316188	C EC V CUT SM 102M 25DC
C8	EC-316188	C EC V CUT SM 102M 25DC
D1	ψED-957038	D SILICON DBB10B 100/1.0A
D2	ψED-330318	D SILICON DBA10B 100/1.0A
D3	ED-370990	D SILICON 1SR35-100AHS F10
D4	ED-370990	D SILICON 1SR35-100AHS F10
D5	ED-370990	D SILICON 1SR35-100AHS F10
D6	ED-370990	D SILICON 1SR35-100AHS F10
D7	ED-370990	D SILICON 1SR35-100AHS F10
D8	ED-301911	D SILICON H DS448
D9	ψED-346617	D ZENER H HZ12 C2
IC1	ψEI-348123	IC M5230L
R1	ψER-324186	R CB H 610 FS RDS 1/4W 221J
R2	ψER-324186	R CB H 610 FS RDS 1/4W 221J
TR1	ET-380137	TR 28C3330 U,V F05
F2	ψEF-306952	FUSE TSC A 250V 4.00A [J]
F2A	ψEF-306957	FUSE TSC 125V 4.00A [C,A,Y1]
F2B	ψEF-601007	FUSE SEMKO T 250V 3.15A [E,V,S]
F2C	ψEF-355225	FUSE BET T 250V 6.15A [B]
F3	*EF-306124	FUSE TSC A 250V 630MA [J]
F3A	*EF-305703	FUSE TSC 125V 630MA [C,A,Y1]
F3B	*EF-601942	FUSE SEMKO T 250V 630MA [E,V,S]
F3C	*EF-358974	FUSE BET T 250V 630MA [B]
F4	*EF-309387	FUSE TSC A 250V 1.00A [J]
F4A	*EF-310229	FUSE TSC 125V 1.00A [C,A,Y1]
F4B	*EF-258344	FUSE SEMKO T 250V 800MA [E,V,S]
F4C	ψEF-358441	FUSE BET T 250V 800MA [B]
F5	ψEF-309387	FUSE TSC A 250V 1.00A [J]
F5A	*EF-310229	FUSE TSC 125V 1.00A [C,A,Y1]
F5B	*EF-258344	FUSE SEMKO T 250V 800MA [E,V,S]
F5C	*EF-358641	FUSE BET T 250V 800MA [B]

Ref. No.	Part No.	Description
D901	*ED-365818	D SILICON CTU-12S 200/ 6.0A
D902	*ED-365819	D SILICON CTU-12R 200/ 6.0A
IC901	*EI-365820	IC STR9005
IC902	*EI-347758	IC TA78012AP
IC903	*EI-365822	IC NJM78M06A
IC904	*EI-365823	IC NJM79M06A
TR901	*ET-356817	TR 2SB891 Q,R
TR902	*ET-354083	TR 2SD1189 Q,R
1	ZW-632228	WASHER INSULATOR (BUSH M)
2	EZ-362348	SHEET HEATSINK
3	ZB-421806	PAN30X08STL CMT
4	ZS-380048	PAN30X10STL CMT

## 14. FILTER P.C BOARD

Ref. No.	Part No.	Description
C2	ψEC-358450	C CE V DNS102MBE B 102M 400AC [A,V]
C3	ψEC-358450	C CE V DNS102MBE B 102M 400AC [A,V]
C4A	ψEC-368870	C MMY V XE 683M 250AC [A,V]
FL1	EO-360068	COIL LF LF-2 B
F1	*EF-306951	FUSE TSC A 250V 2.50A [J]
F1A	*EF-306954	FUSE TSC 125V 2.00A [C,A,Y1]
F1B	*EF-623103	FUSE SEMKO T 250V 1.00A [E,V,S]
F1C	*EF-355226	FUSE BET T 250V 1.00A [B]

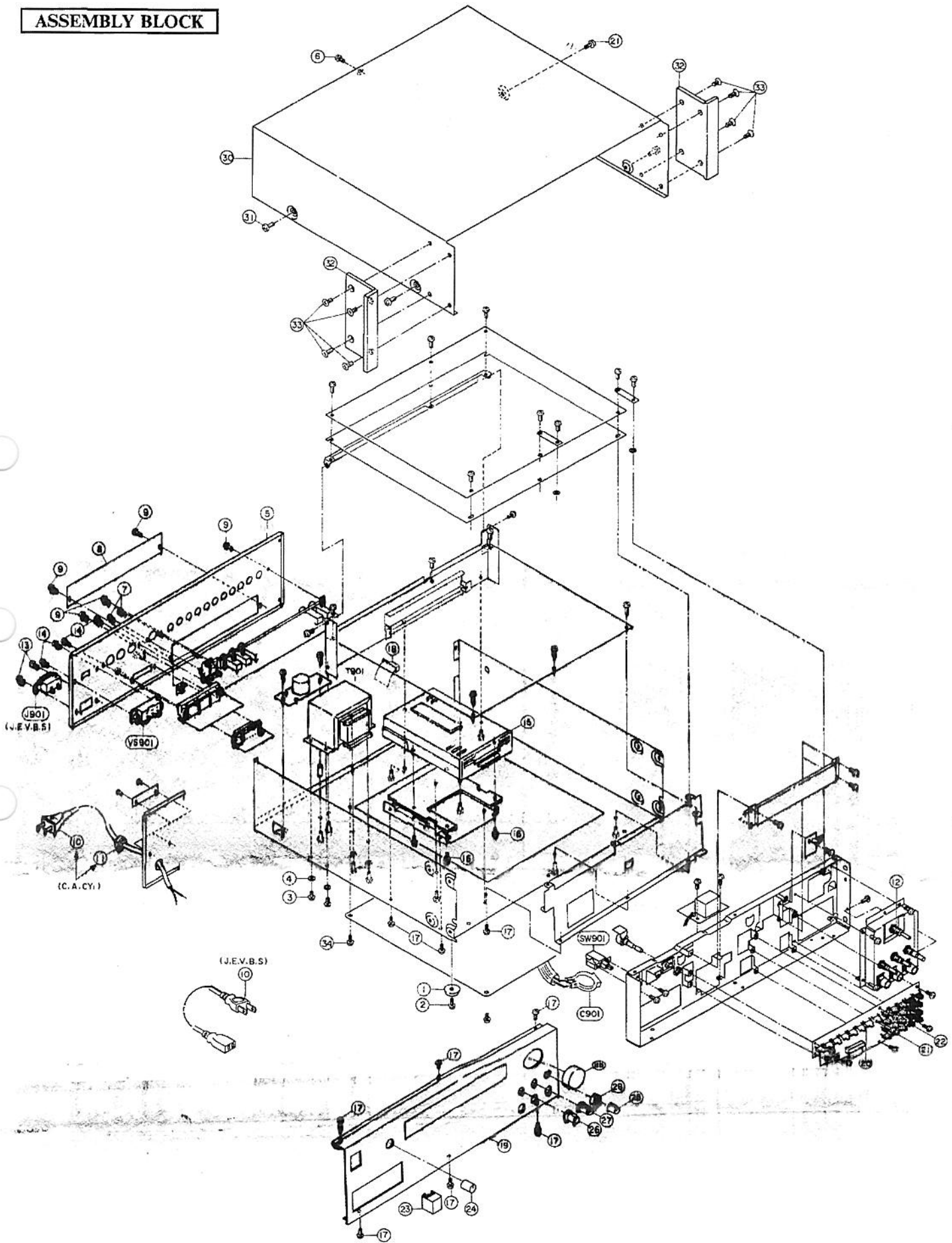
## 15. LCD P.C BOARD

Ref. No.	Part No.	Description
1	EM-385844	IND LCD DMC40218UE [INC. PCB]
2	EL-728381J	DMC40218UE EL BACK LIGHT

## 16. JACK (RS232C) P.C BOARD

Ref. No.	Part No.	Description
J522	EJ-365932	CONNECTOR HDB0001-01-2131 25P

**ASSEMBLY BLOCK**



PARTS LIST



# 18. ASSEMBLY BLOCK

Ref. No.	Part No.	Description
1	SA-349332	FOOT
2	ZS-360715	ST PAN30X08STL CMT C080 [FOOT FIX]
3	ZS-301576	ST PAN40X10STL CMT [TRANS POWER FIX]
4	ZW-273892	TW40
5	SP-389043J1	PANEL REAR S950(J)
5A	SP-389044J1	PANEL REAR S950(C,A)
5B	SP-389045J	PANEL REAR S950(E,V,B,S)
6	ZS-308846	T2BR30X08STL BZN PROJECTION [PANEL REAR FIX]
7	ZW-698308	RV NYL30X055 BL
8	SC-362359A	COVER REAR (A)
9	ZS-308846	T2BR30X08STL BZN PROJECTION [COVER REAR FIX]
10	*EW-365947	AC CORD 250 SKP210KS17B A [J]
10A	*EW-366055	AC CORD 250 KP11WSJT18 UC [A]
10B	*EW-357931	AC CORD 3 CORES VM0033A SJT18A [C,Y1]
10C	*EW-358629	AC CORD 2C KP4819C KS-17Y [E,V]
10D	*EW-358631	AC CORD 2C KS-17 LTBS2F BS [B]
10E	*EW-358630	AC CORD 2C KP560 LTS2F KS17 S [S]
11	*EZ-302906	STRAIN RELIEF SR-6N-4 [C,A,Y1]
12	ES-365943	SW EWT-XDFK2550B [J,E,V,B,S]
C901	*EC-361942	C CE V DNS103ZV V 103Z 400AC
J901	*EJ-358633	SOCKET INLET SOT-17 2P [J,E,V,B,S]
13	ZS-362534	T2CTS30X10STL BNI
BW901	*WB-337903	SW PUSH SDDL1 01-1
VS901	*VB-306430	SW SLIDE J-S4013 #01 01-2 [E,V,B,S]
14	ZS-350934	PT BR30X08STL BNI
T901	*BT-365907	TRANS POWER S900T-10(J) [J]
T901A	*BT-365908	TRANS POWER S900T-30(A,C) [A,C,Y1]
T901B	*BT-365909	TRANS POWER S900T-50(E,V,B,S) [E,V,B,S]
15	BB-389043J	FLOPPY DISK DFP723D14B
16	ZS-379406	BID30X06STL CMT
17	ZS-348375	ST BR30X08STL CMT
18	EW-366912	WIRE ASSY S900 (3)34P
19	BD-389089J	PANEL FRONT PART
20	BK-382347A-A	KNOB PUSH (1)
21	BK-382347E	KNOB PUSH (5)
22	BK-382347F	KNOB PUSH (6)
23	SK-343017J	KNOB POWER (C)
24	SK-383061J	KNOB(A-7)
25	SK-389048J	KNOB ROTARY(B)
26	SK-386675J	KNOB SINGLE(2)PART
27	SK-386676J	KNOB SINGLE(3)PART
28	SK-386860J	KNOB DOUBLE(UPPER) 2 PART
29	SK-383781J	KNOB DOUBLE(LOWER)
30	SP-362371-A	COVER UPPER
31	ZS-341959	ST BID40X06STL N13 [COVER UPPER FIX]
32	SH-362361	HANDLE RACK
33	ZS-321783	ST BID40X10STL N13 [HANDLE RACK FIX]
34	ZS320906	ST BR30X08STL CMT

**NOTE:**

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
BA-L6002A020A	2-3	EF-359225	1-14	EI-360050	3-IC107	EI-365830	3-IC501
BA-L6002A050B	2-1	EF-359225	13-F2C	EI-360050	3-IC207	EI-365830	3-IC502
BA-L6002A060A	2-5	EF-601942	1-19	EI-360050	3-IC307	EI-365830	3-IC503
BA-L6002A080B	2-4	EF-601942	13-F3B	EI-360050	3-IC407	EI-365830	3-IC601
BA-L6013A040A	2-2	EF-623103	1-17	EI-360050	3-IC507	EI-365830	3-IC602
BB-389042J	1-1	EF-623103	14-F1B	EI-360050	3-IC607	EI-365830	3-IC603
BB-389042J	18-15	EF-691007	1-18	EI-360050	3-IC707	EI-365830	3-IC701
BD-389089J	18-19	EF-691007	13-F2B	EI-360050	3-IC807	EI-365830	3-IC702
BT-365907	1-2	EH-347688	1-29	EI-360053	1-75	EI-365830	3-IC703
BT-365907	18-T901	EH-347688	5-CR1	EI-360053	4-IC21	EI-365830	3-IC801
BT-365908	1-3	EH-347688	5-CR2	EI-360054	1-74	EI-365830	3-IC802
BT-365908	18-T901A	EI-310044	1-62	EI-360054	4-IC30	EI-365830	3-IC803
BT-365909	1-4	EI-310044	8-IC1	EI-360058	1-52	EI-365830	4-IC61
BT-365909	18-T901B	EI-347758	1-64	EI-360058	3-IC7	EI-365830	4-IC62
EC-201650	13-C1	EI-347758	13-IC902	EI-360058	3-IC109	EI-365831	1-82
EC-316188	13-C5	EI-348123	1-57	EI-360058	3-IC209	EI-365831	3-IC104
EC-316188	13-C6	EI-348123	13-IC1	EI-360058	3-IC309	EI-365831	3-IC204
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