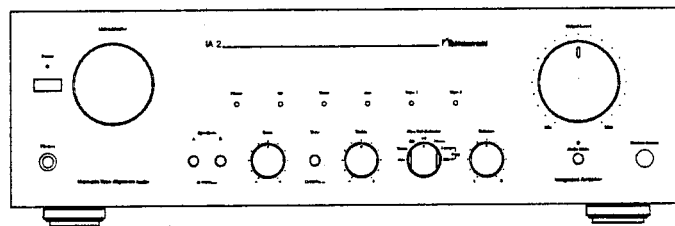


Service Manual

IA-2

Integrated Amplifier



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1. GENERAL

Reference Service Manual

The base Model of IA-2 is Amplifier 2. In this Service Manual, identical sections/items are omitted. So, please refer to the Service Manual of Amplifier 2 (0Q06142A).

1.1. Product Code

B115

1.2. Destinations

EP, UK, SWT, GER, AUS, SAU, OTR, JPN

Abbreviation

EP — Europe	AUS — Australia
UK — United Kingdom	SAU — Saudi Arabia
SWT — Switzerland	OTR — Other
GER — Germany	JPN — Japan

1.3. Cautions/Warnings

(1) Product Safety Notice

Parts marked with the symbol  in the schematic diagram have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

(2) Leakage Current Check/Resistance Check

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

1.4. Voltage Selector

Voltage Selector is installed on the Rear Panel of the IA-2 (SAU and OTR). The voltage selector can select either 110V–120V or 220V–240V at customer's disposal.

1.5. Package Ass'y and Accessory Ass'y

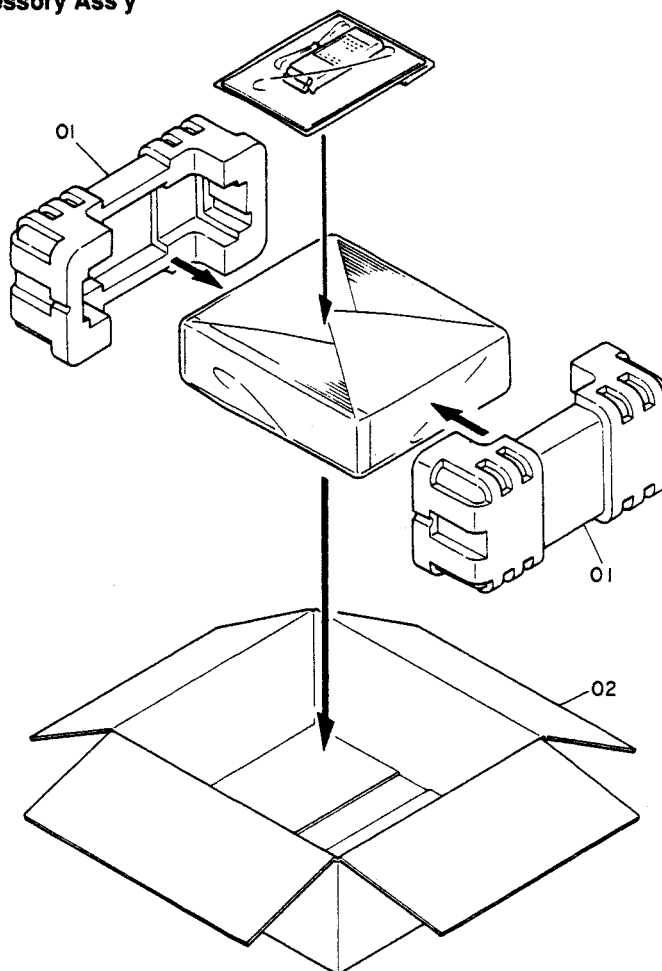


Fig. 1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
Package Ass'y							
01	0F04469B	Packing	2	DA04728A	Accessory Ass'y (EP, SWT, GER)		1
02	0F04752A	Carton Box	1	DA04731A	Accessory Ass'y (UK)		1
—	0F04458A	Soft Sheet	1	DA04733A	Accessory Ass'y (SAU)		1
				DA04730A	Accessory Ass'y (AUS, OTR)		1
				DA04729A	Accessory Ass'y (JPN)		1
				0B90451A	Battery UM3x1		2
				0D06457A	Owner's Manual (English)		1
				0D06459A	Owner's Manual (German)		1
				0D06460A	Owner's Manual (French)		1
				0D06458A	Owner's Manual (Japanese)		1
				DA04734A	Remote Control Unit		1
				0D06136A	Mini Plug Cord		1

2. MECHANISM ASS'Y AND PARTS LIST

2.1. Synthesis

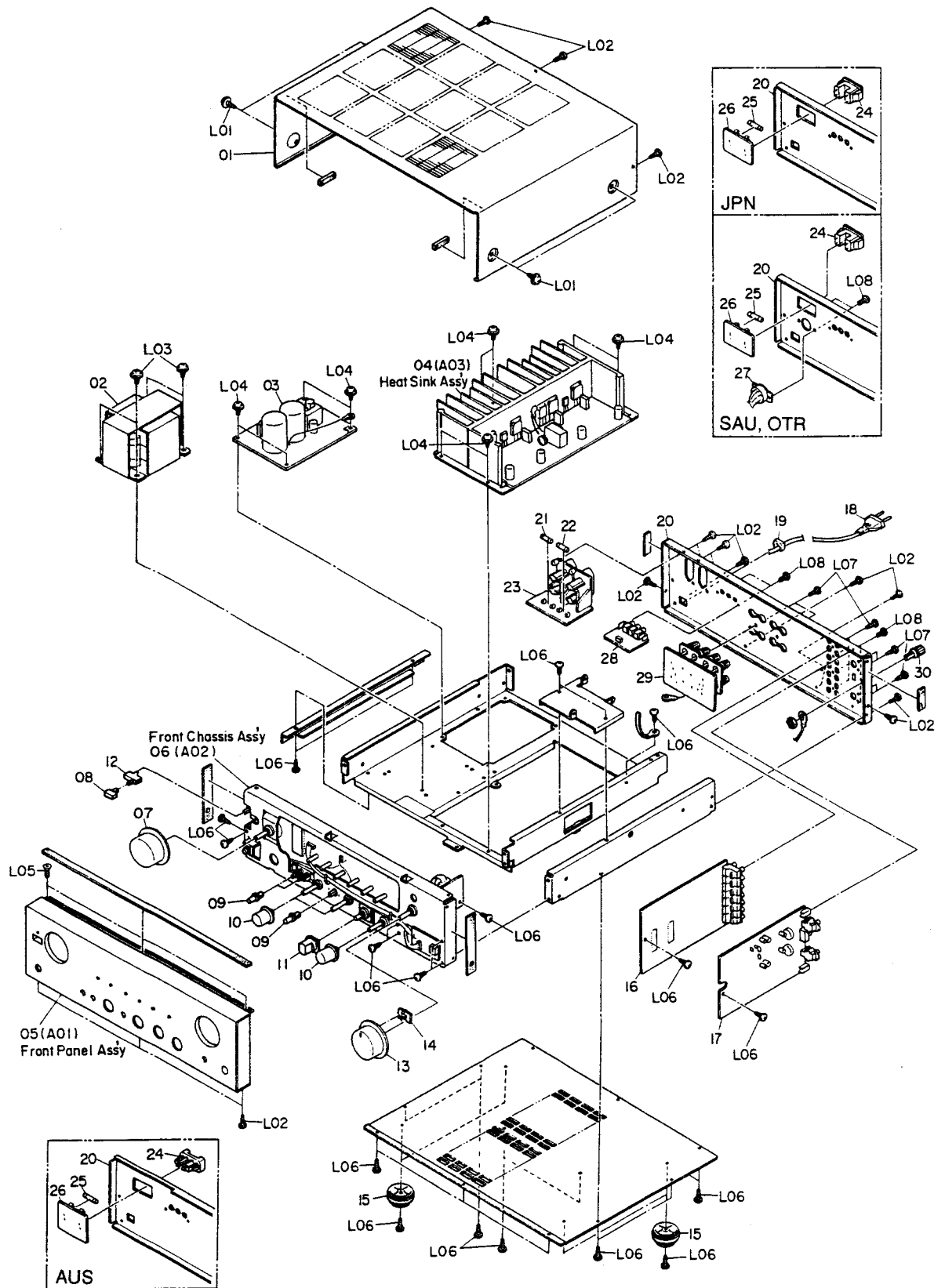


Fig. 2.1

2.1. Synthesis

Schematic Ref. No.	Part No.	Description	Q'ty
	—	Synthesis	
01	0H05862A	Top Cover	1
02	0B50188A	Power Transformer (EP, UK, SWT, AUS)	1
	0B50223A	Power Transformer (GER)	1
	0B50233A	Power Transformer (SAU)	1
	0B50189B	Power Transformer (OTR)	1
	0B50187A	Power Transformer (JPN)	1
03	BA08075A	Power Supply P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08074A	Power Supply P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
04	—	Heat Sink Ass'y	1
05	HA06664A	Front Panel Ass'y	1
06	—	Front Chassis Ass'y	1
07	HA06654A	Selector Knob Ass'y	1
08	0H06418A	Power Switch Knob	1
09	0H06656A	Push Knob	3
10	HA06655A	Tone Knob Ass'y	3
11	HA06656A	Rec. Out Knob Ass'y	1
12	0J07146A	Power Joint	1
13	HA06653A	Volume Knob Ass'y	1
14	BA08955A	Volume LED P.C.B. Ass'y	1
15	0H06472A	Leg	4
16	BA08077A	Selector P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08076A	Selector P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
17	BA08073A	Eq. Amp. P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08072A	Eq. Amp. P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
18	0B08093U	Power Cord (EP, SWT, GER)	1
	0B08348A	Power Cord (UK)	1
	0B05241A	Power Cord (AUS)	1
	0B80336A	Power Cord (SAU, OTR, JPN)	1
19	0B90280A	Cord Bushing	1
20	0H06626A	Rear Panel (EP)	1
	0H06627A	Rear Panel (UK)	1
	0H06630A	Rear Panel (GER)	1
	0H06631A	Rear Panel (AUS)	1
	0H06632A	Rear Panel (SAU)	1
	0H06629A	Rear Panel (OTR)	1
21	0B90385A	Fuse T2.5A 250V [F401] (EP, UK, SWT, GER)	1
22	0B90384A	Fuse T2.0A 250V [F402] (EP, UK, SWT, GER)	1
23	BA08071A	AC Outlet B P.C.B. Ass'y (EP, SWT, GER)	1
	BA08070A	AC Outlet B P.C.B. Ass'y (UK)	1
24	0B80394A	AC Outlet (AUS)	1
	0B81986A	AC Outlet 2P (SAU, OTR, JPN)	1
25	0B90385A	Fuse T2.5A 250V [F401] (AUS)	1
	0B90380A	Fuse 5A 125V [F401] (SAU, OTR, JPN)	1
26	BA08069A	AC Outlet A P.C.B. Ass'y (SAU, OTR, JPN)	1
27	0B70210A	Voltage Selector (SAU)	1
	0B70049A	Voltage Selector (OTR)	1
28	BA08062A	Remote P.C.B. Ass'y	1
29	BA08079A	Speaker Terminal P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08078A	Speaker Terminal P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
30	0B81604A	Earth Terminal	1
L01	0E03032A	BT4x8 + Pan Washer Faced (Black Chromate)	
L02	0E00921A	BT3x8 + Binding (Black Chromate)	
L03	0E03664A	ST4x8 + Tapping (Black Chromate)	
L04	0E03157A	BT3x8 + Binding with Flat Washer	
L05	0E03025A	BT3x6 + Countersunk	
L06	0E00868A	BT3x8 + Binding	
L07	0E03749A	PT3x8 + Binding (Black Chromate)	
L08	0E00985A	M3x6 + Binding (Black Chromate)	
—	0J06377A	Speaker Terminal Cap (EP, UK, GER)	8

2.2. Front Panel Ass'y (A01)

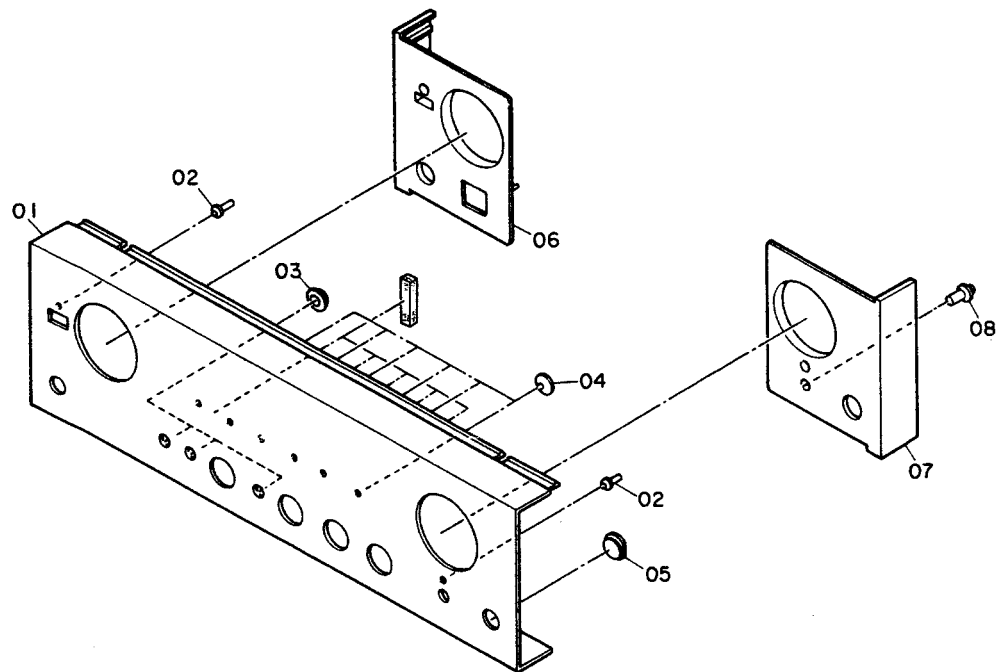


Fig. 2.2

2.2. Front Panel Ass'y (A02)

Schematic Ref. No.	Part No.	Description	Q'ty
A01	HA06664A	Front Panel Ass'y	1
01	0H06633A	Front Panel	1
02	0H05860A	Power Indicator Lens	2
03	0J07142B	Center Escutcheon	3
04	0H06621B	Selector Lens	6
05	0H05861A	Remote Control Window	1
06	HA06696C	Side Escutcheon L Ass'y	1
07	0H06620B	Side Escutcheon R	1
08	0H05858A	Mute Knob	1

2.3. Front Chassis Ass'y (A02)

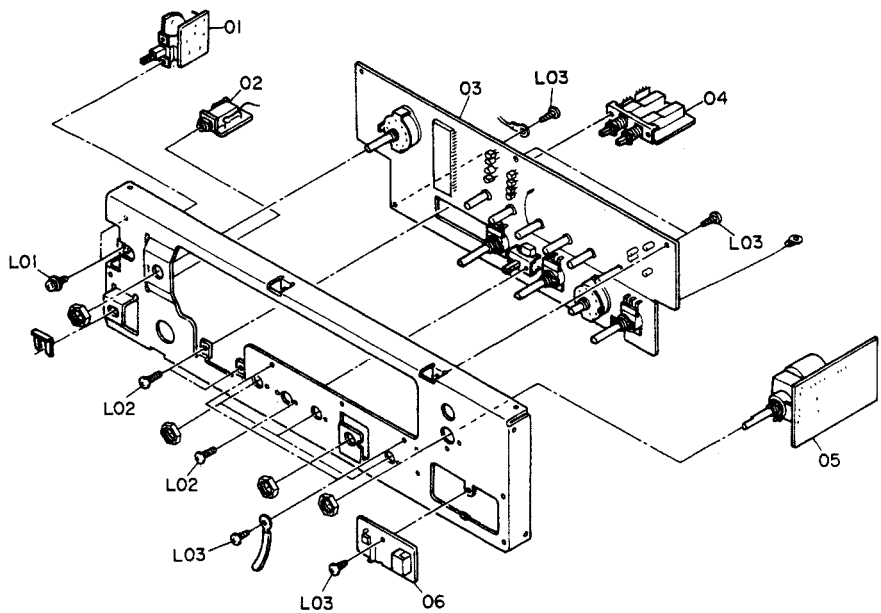


Fig. 2.3

2.3. Front Chassis Ass'y (A02)

Schematic Ref. No.	Part No.	Description	Q'ty
A02	—	Front Chassis Ass'y	1
01	BA08061A	Power Switch P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08060A	Power Switch P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
02	BA08057A	Headphone P.C.B. Ass'y	1
03	BA08946A	Front P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08947A	Front P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
04	BA08064A	Speaker Switch P.C.B. Ass'y	1
05	BA08065A	Volume B P.C.B. Ass'y	1
06	BA08950A	Sensor P.C.B. Ass'y	1
L01	0E00606A	M3x6 + Pan (3A)	
L02	0E00896A	M3x6 + Binding	
L03	0E00877A	ST3x5 + Binding	

2.4. Heat Sink Ass'y (A03)

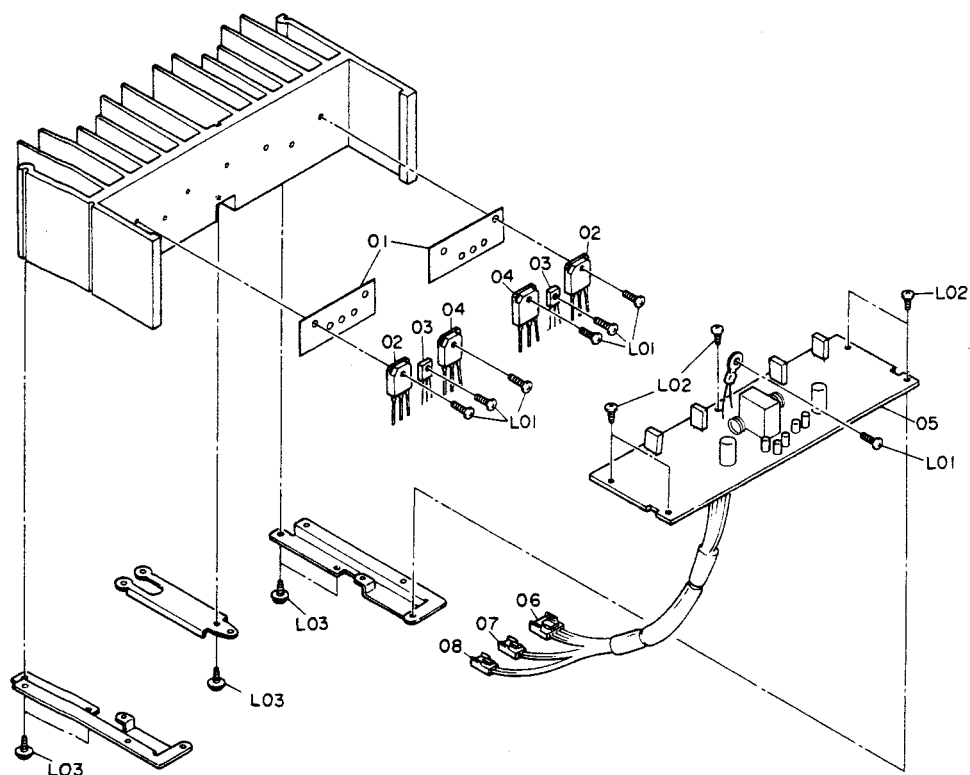


Fig. 2.4

2.4. Heat Sink Ass'y (A03)

Schematic Ref. No.	Part No.	Description	Q'ty
A03	—	Heat Sink Ass'y	1
01	0J06294A	Transistor Sheet	2
02	0B10290A	TR 2SA1491 [Q182L,R]	2
03	0B10381A	TR 2SC3421 [Q176L,R]	2
04	0B10291A	TR 2SC3855 [Q181L,R]	2
05	BA08948A	Power Amp. P.C.B. Ass'y (EP, UK, SWT, GER)	1
	BA08949A	Power Amp. P.C.B. Ass'y (AUS, SAU, OTR, JPN)	1
06	0B80356A	Connector Ass'y 4P [CN118]	1
07	0B80355A	Connector Ass'y 2P [CN116]	1
08	0B80357A	Connector Ass'y 2P [CN121]	1
L01	0E03319A	M3x8 + Binding	
L02	0E00868A	BT3x8 + Binding	
L03	0E03157A	BT3x8 + Binding With Flat Washer	

3. MOUNTING DIAGRAMS AND PARTS LIST

3.1. Volume LED P.C.B. Ass'y

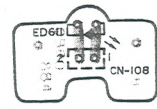


Fig. 3.1

3.2. Sensor P.C.B. Ass'y

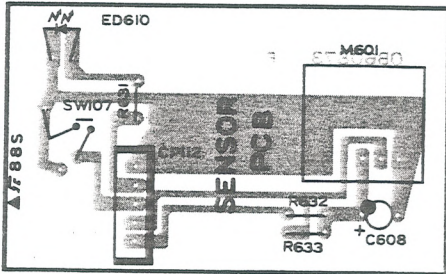


Fig. 3.2

3.3. Front P.C.B. Ass'y

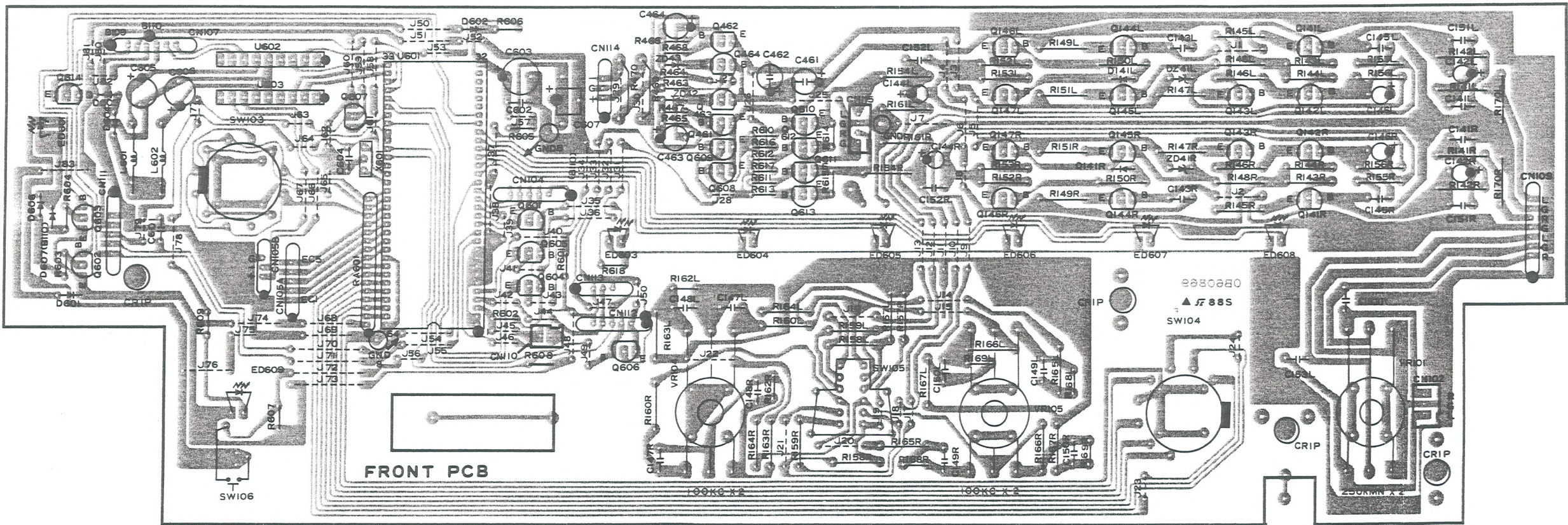


Fig. 3.3

NOTES: 1. Abbreviations

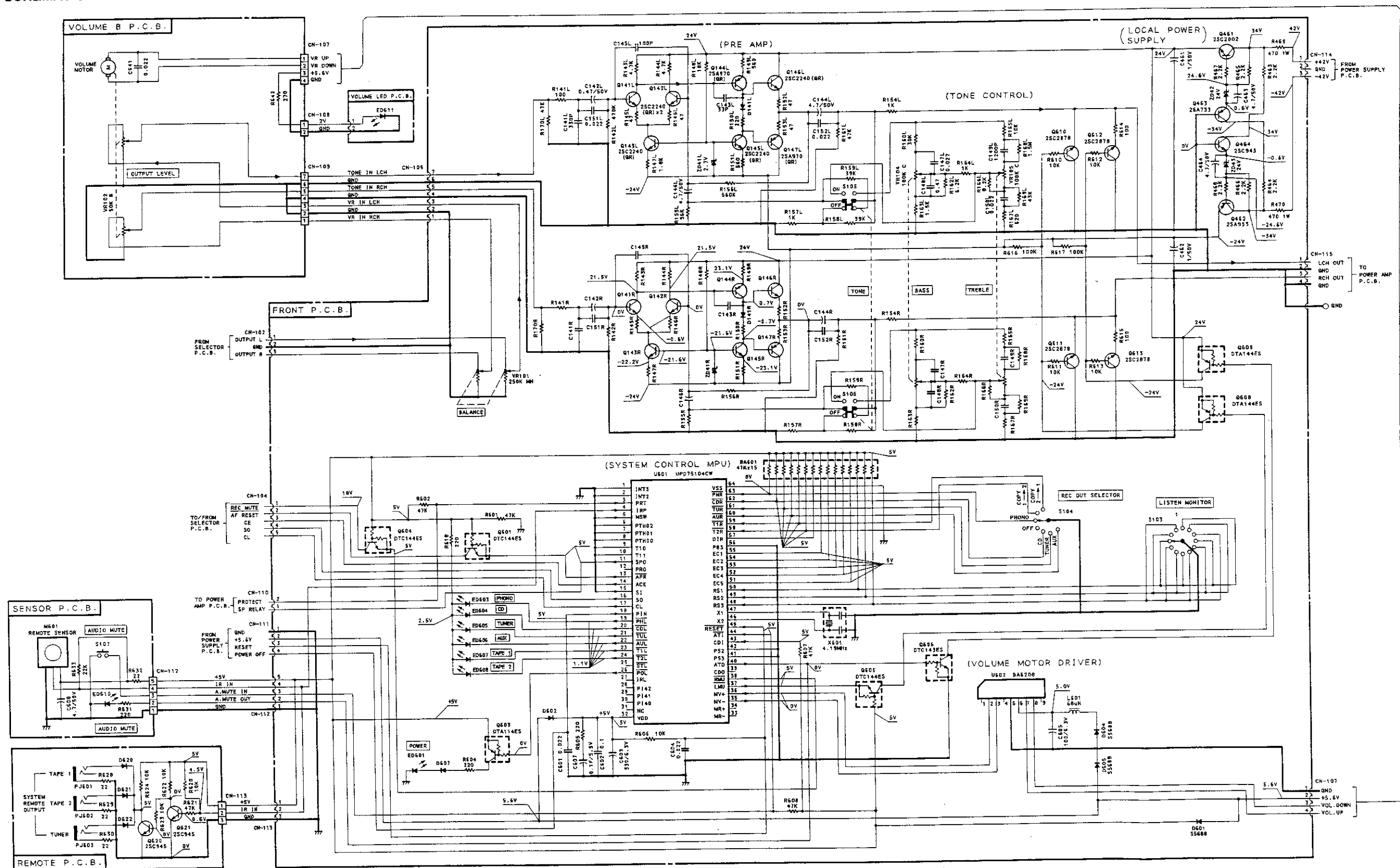
TR – Transistor, SID – Silicon Diode, ZD – Zener Diode, Varicap – Variable Capacitance Diode
RK – Carbon Resistor, RM – Metal Film Resistor, RF – Fail Safe Type Resistor, RC – Cement Resistor
CE – Electrolytic Capacitor, CML – Mylar Capacitor, CC – Ceramic Capacitor, CPP – PP Capacitor,
CMM – Metalized Mylar Capacitor, CSP – Polystyrene Capacitor, C – Mica Capacitor,
CT – Tantalum Capacitor

2. Description of capacitor: 10 16V = 10 μ 16V

3.1. Volume LED P.C.B. Ass'y

3.1. Volume LED P.C.B. Ass'y			Schematic			Schematic		
Schematic Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
ED611 CN108	BA08955A	Volume LED P.C.B Ass'y	ED604,605	0C85387A	LED SLR-34DC3F	C145L,R	0B41974A	CC 100P 50V J
			ED605,606	0C85387A	LED SLR-34DC3F	C146L,R	0B40784A	CE 4.7 50V
			ED607,608	0C85387A	LED SLR-34DC3F	C147L,R	0B09045A	CML 0.027 50V J
			D141L,R	0B06398A	SID 1SS176	C148L,R	0B41306A	CML 0.47 50V J
			D601	0B12693A	SID S5688B	C149L,R	0B05687A	CML 1200P 50V J
ED611 CN108	0B60892E	Volume LED P.C.B. Ass'y	D602	0B06398A	SID 1SS176	C150L,R	0B05582A	CML 0.022 50V J
			D604,605	9B80082A	Jumper Wire (EP, UK, GER)	C151L,R	0B05582A	CML 0.022 50V J
						C152L,R	0B05582A	CML 0.022 50V J
				0B12693A	SID S5688B (AUS, SAU, OTR, JPN)	C461,462	0B40557A	CE 1 50V
						C463,464	0B40784A	CE 4.7 50V
3.2. Sensor P.C.B. Ass'y			D607	0B06398A	SID 1SS176	C601	0B41554A	CC 0.022 25V Z
Schematic Ref. No.	Part No.	Description	X601	0B92043A	X'tal 4.19MHz	C602	0B47117A	CC 0.1 50V K
			L601	0B51378W	Inductor 68uH	C603	0B40786A	CE 330 6.3V
			VR101	0B30139A	VR 250 KMN	C604	0B41554A	CC 0.022 25V Z
			VR104,105	0B30140A	VR 100 KC	C605	0B40158A	CE 100 6.3V
			RA601	0B21103A	R Network 47Kx15	C607	0B40501A	CE 0.1 5.5V
ED610 R631 R632 R633 C608 M601 S107 CN112	BA08950A	Sensor P.C.B. Ass'y	R141L,R	0B01679A	RK 100 1/4W J	S103	0B70186A	Rotary Switch 1-12NS
			R142L,R	0B01684A	RK 470K 1/4W J	S104	0B70191A	Rotary Switch 1-7NS
			R143L,R	0B01846A	RK 4.7K 1/4W J	S105	0B70196A	Push Switch
			R144L,R	0B01846A	RK 4.7K 1/4W J	CN102	0B80337C	3P Connector Ass'y
			R145L,R	0B01706A	RK 47 1/4W J	CN104	0B80338B	5P Connector Ass'y
ED610 R631 R632 R633 C608 M601 S107 CN112	0B60873F	Sensor P.C.B. Ass'y	R146L,R	0B01706A	RK 47 1/4W J	CN107	0B80369B	4P Connector Ass'y
			R147L,R	0B05614A	RK 1.8K 1/4W J	CN109	0B80346A	7P Connector Ass'y
			R148L,R	0B05560A	RK 18K 1/4W J	CN110	0B80353A	4P Connector Ass'y
			R149L,R	0B05575A	RK 560 1/4W J	CN111	0B80363A	4P Connector Ass'y
			R150L,R	0B01933A	RK 220 1/4W J	CN112	0B80347A	5P Connector Ass'y
ED610 R631 R632 R633 C608 M601 S107 CN112	0C85387A	LED SLR-34DC3F	R151L,R	0B05575A	RK 560 1/4W J	CN113	0B80348B	3P Connector Ass'y
			R152L,R	0B01706A	RK 47 1/4W J	CN114	0B80361A	3P Connector Ass'y
			R153L,R	0B01706A	RK 47 1/4W J	CN115	0B80352B	4P Connector Ass'y
			R154L,R	0B01857A	RK 1.0K 1/4W J	M101	0B90429A	C. Clip (5)
			R155L,R	0B05508A	RK 56K 1/4W J	JP601	0B80395A	Ground 8 Ass'y
ED610 R631 R632 R633 C608 M601 S107 CN112	BA08946A	Front P.C.B. Ass'y (EP, UK, GER)	R156L,R	0B05784A	RK 560K 1/4W J	0B84386A	6P Wire Holder (CN107)	
			R157L,R	0B01857A	RK 1.0K 1/4W J	0B84385A	5P Wire Holder (CN104/CN111/CN112)	
			R158L,R	0B01854A	RK 39K 1/4W J	0B84387A	7P Wire Holder (CN109)	
			R159L,R	0B01854A	RK 39K 1/4W J	0B84383A	3P Wire Holder (CN113/CN114)	
			R160L,R	0B09075A	RK 30K 1/4W J	0B80379B	Ground 7 Ass'y (1)	
ED610 R631 R632 R633 C608 M601 S107 CN112	BA08947A	Front P.C.B. Ass'y (AUS, SAU, OTR, JPN)	R161L,R	0B05641A	RK 47K 1/4W J	QJ06295A	LED Reflector (6)	
			R162L,R	0B09696A	RK 6.2K 1/6W J	0B84395A	LED Spacer	
			R163L,R	0B05698A	RK 1.5K 1/4W J			
			R164L,R	0B01857A	RK 1.0K 1/4W J			
			R165L,R	0B01888A	RK 10K 1/4W J			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B06869F	Front P.C.B. Ass'y	R166L,R	0B01856A	RK 8.2K 1/4W J			
			R167L,R	0B09882A	RK 620 1/4W J			
			R168L,R	0B20093A	RK 1.5M 1/6W J			
			R169L,R	0B09716A	RK 43K 1/6W J			
			R170L,R	0B05641A	RK 47K 1/4W J			
ED610 R631 R632 R633 C608 M601 S107 CN112	0J06295A	LED Reflector	R463,464	0B09685A	RK 2.2K 1/6W J			
			R465,466	0B09685A	RK 2.2K 1/6W J			
			R467,468	0B09685A	RK 2.2K 1/6W J			
			R469,470	0B24279ARF	470 1W			
			R601,602	0B09717A	RK 47K 1/6W J			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B11888A	IC uPD75104CW	R604,605	0B09661A	RK 220 1/6W J			
			R606	0B09701A	RK 10K 1/6W J			
			R607,608	0B09717A	RK 47K 1/6W J			
			R610,611	0B09701A	RK 10K 1/6W J			
			R612,613	0B09701A	RK 10K 1/6W J			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B11530A	IC BA6208	R614,615	0B09653A	RK 100 1/6W J			
			R616,617	0B09725A	RK 100K 1/6W J			
			R618	0B09661A	RK 220 1/6W J			
			C141L,R	0B47113A	CC 330P 50V K			
			C142L,R	0B40777A	CE 0.47 50V			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B10078A	TR 2SC2240 (GR)	C143L,R	0B41976A	CC 33P 50V J			
			C144L,R	0B40784A	CE 4.7 50V			
			Q141L,R	0B10078A	TR 2SC2240 (GR)			
			Q142L,R	0B10078A	TR 2SC2240 (GR)			
			Q143L,R	0B10078A	TR 2SC2240 (GR)			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B06180A	TR 2SA970 (GR)	Q144L,R	0B06180A	TR 2SA970 (GR)			
			Q145L,R	0B10078A	TR 2SC2240 (GR)			
			Q146L,R	0B10078A	TR 2SC2240 (GR)			
			Q147L,R	0B06180A	TR 2SA970 (GR)			
			Q461	0B06322A	TR 2SC2002 (K,L)			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B06372A	TR 2SA953 (K,L)	Q462	0B06372A	TR 2SA953 (K,L)			
			Q463	0B06155A	TR 2SA733			
			Q464	0B06100A	TR 2SC945			
			Q601	0B10062A	TR DTC144ES			
			Q603	0B10058A	TR DTA144ES			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B10062A	TR DTC144ES	Q604,605	0B10062A	TR DTC144ES			
			Q606	0B10070A	TR DTC143ES			
			Q608,609	0B10053A	TR DTA144ES			
			Q610,611	0B06299A	TR 2SC2878			
			Q612,613	0B06299A	TR 2SC2878			
ED610 R631 R632 R633 C608 M601 S107 CN112	0B12360A	ZD 2.7V B2	ZD41L,R	0B12360A	ZD 2.7V B2			
			ZD42,43	0B12195A	ZD 24V B2			
			ED601,603	0C85387A	LED SLR-34DC3F			

4. SCHEMATIC DIAGRAM



Service Manual

Nakamichi Amplifier 1



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1. GENERAL

1.1. Production No.

Production No.: B109

1.2. Destinations

EP, UK, SWT, GER, AUS, OTR, JPN

Abbreviation

EP — Europe	AUS — Australia
UK — United Kingdom	OTR — Other
SWT — Switzerland	JPN — Japan
GER — Germany	

1.3. Parts Supply

(1) Unstocked Parts

Parts marked with "★" at the head of part No. are not stocked. So, it takes time to supply the parts after we receive your order.

(2) Unsupplied Parts

Parts without part Nos. (indicated as "—" in the parts list) are not supplied.

1.4. CAUTIONS/WARNINGS

(1) Product Safety Notice

Parts marked with the symbol  in the schematic diagram have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer.

It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

(2) Leakage Current Check/Resistance Check

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.

WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

1.5. Voltage Selector

Voltage selector is installed on the Rear Panel of the Amplifier 2 (Other). The voltage selector can select 110 V, 120 V, 220 V, or 240 V at customer's disposal.

1.6. Package Ass'y and Accessory Ass'y

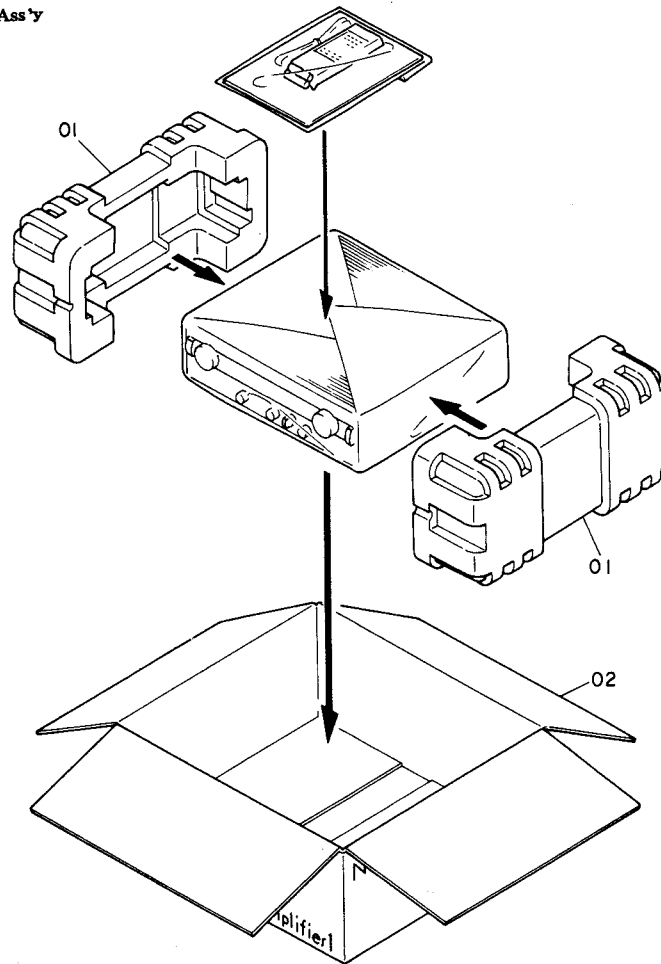


Fig. 1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
01 02	—	Package Ass'y	2		DA04422A	Accessory Ass'y (EP, SWT, GER, AUS)	1
	0F04469A	Packing	1		DA04443A	Accessory Ass'y (UK)	1
	0F04471A	Carton Box			DA04437A	Accessory Ass'y (OTR)	1
					DA04423A	Accessory Ass'y (JPN)	1
					0B90451A	Battery UM3x1	2
					0D06141A	Owner's Manual (English/German /French)	1
					0D06140A	Owner's Manual (Japanese)	1
					DA04428A	Remote Control Unit	1
					0D06136A	Mini Plug Cord	1

2. REMOVAL PROCEDURES

2.1. Top Cover

Refer to Fig. 2.1.

- (1) Loosen screws F01 (4 pcs.) and F02 (3 pcs.), and remove F03 (Top Cover).

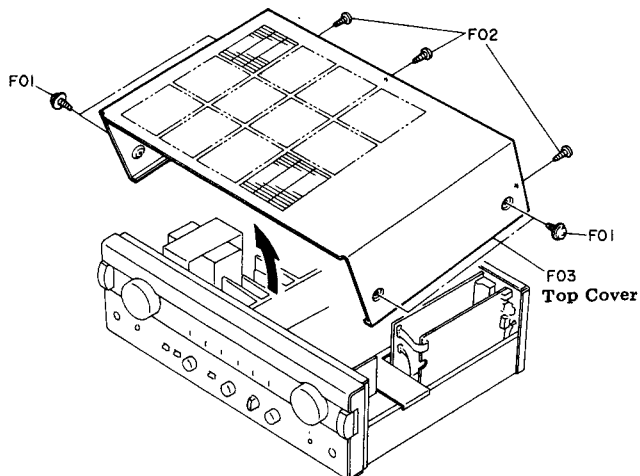


Fig. 2.1

2.3. Front Panel Ass'y

Refer to Fig. 2.3.

- (1) Remove the Top Cover referring to item 2.1.
- (2) Peel off F01 (Top Cover Cushion).
- (3) Loosen screws F02 (2 pcs.) and F03 (3 pcs.), and remove F04 (Front Panel Ass'y).

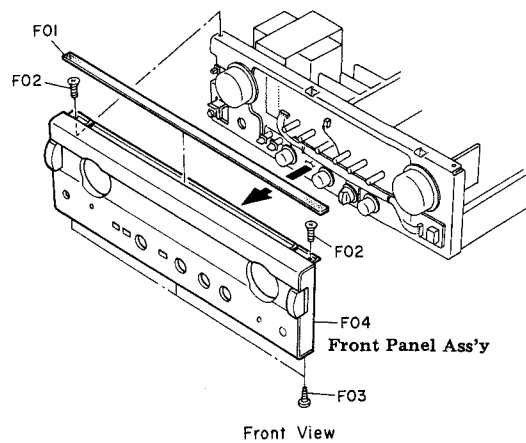


Fig. 2.3

2.2. Bottom Cover Ass'y

Refer to Fig. 2.2.

- (1) Loosen screws F01 (12 pcs.) and remove F02 (Bottom Cover Ass'y).

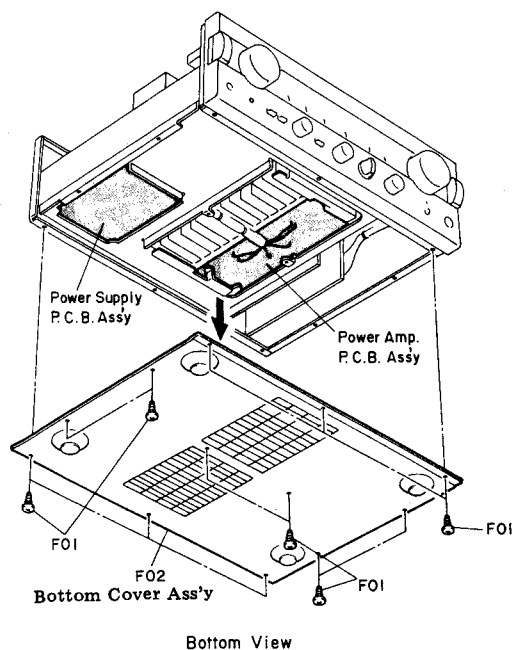


Fig. 2.2

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

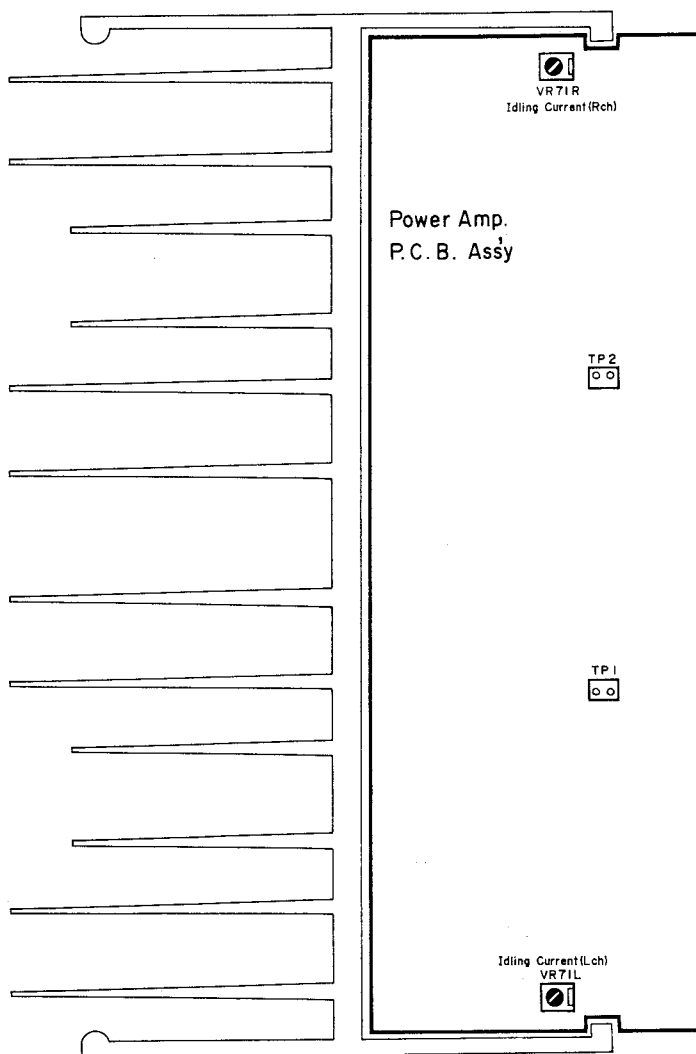


Fig. 3

4. ELECTRICAL ADJUSTMENT

4.1. Idling Current Adjustment

- Measuring Condition

Red. Out Selector: CD Position

CD Input Jacks: Short with shorting pins.

Speaker Output Terminals: Unloaded

- (1) Turn OFF the power.
- (2) Turn VR71L (VR71R) on the Power Amp. P.C.B. Ass'y fully counterclockwise.
- (3) Connect a DC millivoltmeter between both pins of TP1 (TP2).
- (4) Turn ON the power.
- (5) Rotate VR71L (VR71R) slowly and adjust so that the DC millivoltmeter reads 2.5 mV to 3.5 mV (idling current 11 mA to 16 mA).

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

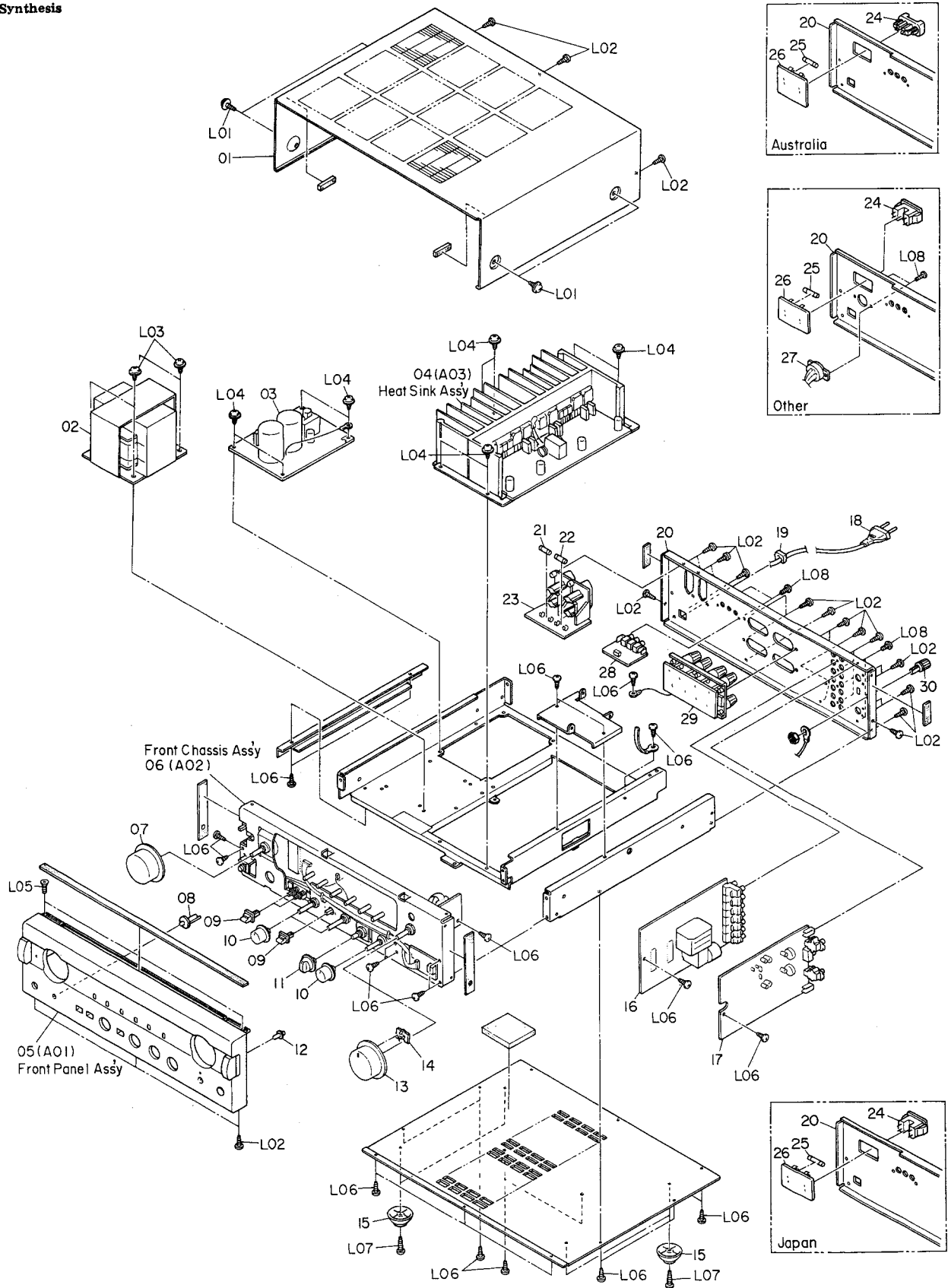


Fig. 5.1

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Q'ty
5.1. Synthesis			
	—	Synthesis	
01	OH05862A	Top Cover	1
02	OB50185A	Power Transformer (EP, SWT, GER, UK, AUS)	1
	OB50186A	Power Transformer (OTR)	1
	OB50184A	Power Transformer (JPN)	1
03 ★	BA08045A	Power Supply P.C.B. Ass'y (EP, SWT, GER, UK)	1
★	BA08044A	Power Supply P.C.B. Ass'y (AUS, OTR, JPN)	1
04	—	Heat Sink Ass'y	1
05	HA05953B	Front Panel Ass'y	1
06	—	Front Chassis Ass'y	1
07	HA05956A	Selector Knob Ass'y	1
08	OH05857D	CD Knob	1
09	OH05877B	Push Knob	3
10	HA05957A	Tone Knob Ass'y	3
11	HA05958A	Rec. Out Knob Ass'y	1
12	OH05858B	Mute Knob	1
13	HA05955A	Volume Knob Ass'y	1
14 ★	BA08050A	Volume LED P.C.B. Ass'y	1
15	HA05833A	Leg Ass'y	4
16 ★	BA08047A	Selector P.C.B. Ass'y (EP, SWT, GER, UK)	1
★	BA08046A	Selector P.C.B. Ass'y (AUS, OTR, JPN)	1
17 ★	BA08043A	Eq. Amp. P.C.B. Ass'y (EP, SWT, GER, UK)	1
★	BA08042A	Eq. Amp. P.C.B. Ass'y (AUS, OTR, JPN)	1
18	OB80382A	Power Cord KP4819C (EP, GER)	1
	OB80383A	Power Cord BS6500 GTBS-2 (UK)	1
	OB80385A	Power Cord KP-419S LTCE-2F (SWT)	1
	OB05241A	Power Cord KP-560 (AUS)	1
	OB80336A	Power Cord KP-235 (OTR, JPN)	1
19	OB90157A	Cord Bushing SR-6N-4 (EP, GER, UK)	1
	OB90530A	Cord Bushing 2104 (SWT)	1
	OB90280A	Cord Bushing 2271 (AUS, OTR, JPN)	1
20	OH05863B	Rear Panel (EP)	1
	OH05864A	Rear Panel (UK)	1
	OH05865B	Rear Panel (SWT)	1
	OH05955A	Rear Panel (GER)	1
	OH05956A	Rear Panel (AUS)	1
	OH05867A	Rear Panel (OTR)	1
	OH05866A	Rear Panel (JPN)	1
21	OB90386A	Fuse T3.15A 250V [F401] (EP, SWT, GER, UK)	1
22	OB90384A	Fuse T2.0A 250V [F402] (EP, SWT, GER, UK)	1
23 ★	BA08041A	AC Outlet B P.C.B. Ass'y (EP, SWT, GER)	1
★	BA08040A	AC Outlet B P.C.B. Ass'y (UK)	1
24	OB80394A	AC Outlet (AUS)	1
	OB81986A	AC Outlet 2P (OTR, JPN)	1
25	OB90386A	Fuse T3.15A 250V [F401] (AUS)	1
	OB90478A	Fuse 6.3A 250V [F401] (OTR, JPN)	1
26 ★	BA08231A	AC Outlet P.C.B. Ass'y (AUS)	1
★	BA08039A	AC Outlet A P.C.B. Ass'y (OTR, JPN)	1
27	OB70049A	Voltage Selector (OTR)	1
28 ★	BA08032A	Remote P.C.B. Ass'y	1
29 ★	BA08049A	Speaker Terminal P.C.B. Ass'y (EP, SWT, GER, UK)	1
★	BA08123A	Speaker Terminal P.C.B. Ass'y (AUS, OTR, JPN)	1
30	OB81604A	Earth Terminal	1
L01	OE03032A	BT4x8 @ Pan Washer Faced (Black Chromate)	
L02	OE00921A	BT3x8 @ Binding (Black Chromate)	
L03	OE03664A	ST4x8 @ Tapping (Black Chromate)	
L04	OE03157A	BT3x8 @ Binding with Flat Washer	
L05	OE03025A	BT3x6 @ Countersunk	
L06	OE00868A	BT3x8 @ Binding	
L07	OE00888A	BT3x12 @ Binding	
L08	OE00985A	M3x6 @ Binding (Black Chromate)	

5.2. Front Panel Ass'y (A01)

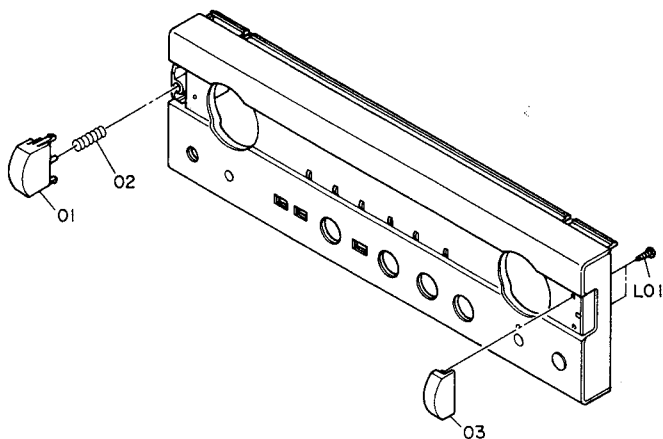


Fig. 5.2

5.3. Front Chassis Ass'y (A02)

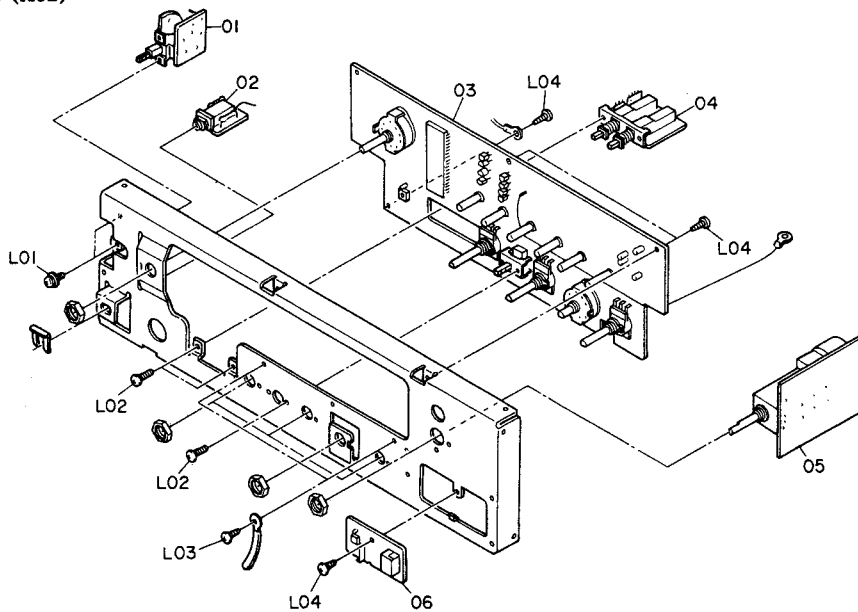


Fig. 5.3

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
5.2. Front Panel Ass'y (A01)				5.3. Front Chassis Ass'y (A02)			
A01	HA05953B	Front Panel Ass'y	1	A02	—	Front Chassis Ass'y	1
01	0H05723A	Power Switch Button	1	01	* BA08031A	Power Switch P.C.B. Ass'y (EP, SWT, GER., UK)	1
02	0C09392A	Power Switch Spring	1		* BA08030A	Power Switch P.C.B. Ass'y (AUS, OTR, JPN)	1
03	0H05714A	Dummy Cap	1	02	* BA08027A	Headphone P.C.B. Ass'y	1
L01	0E00855A	BT2x6 @ Binding		03	* BA08026A	Front P.C.B. Ass'y (EP, SWT, GER., UK)	1
					* BA08025A	Front P.C.B. Ass'y (AUS, OTR, JPN)	1
				04	* BA08034A	Speaker Switch P.C.B. Ass'y	1
				05	* BA08035A	Volume A P.C.B. Ass'y	1
				06	* BA08033A	Sensor P.C.B. Ass'y	1
				L01	0E00606A	M3x6 @ Pan (3A)	
				L02	0E00896A	M3x6 @ Binding	
				L03	0E00877A	ST3x8 @ Binding	
				L04	0E00868A	BT3x8 @ Binding	

5.4. Heat Sink Ass'y (A03)

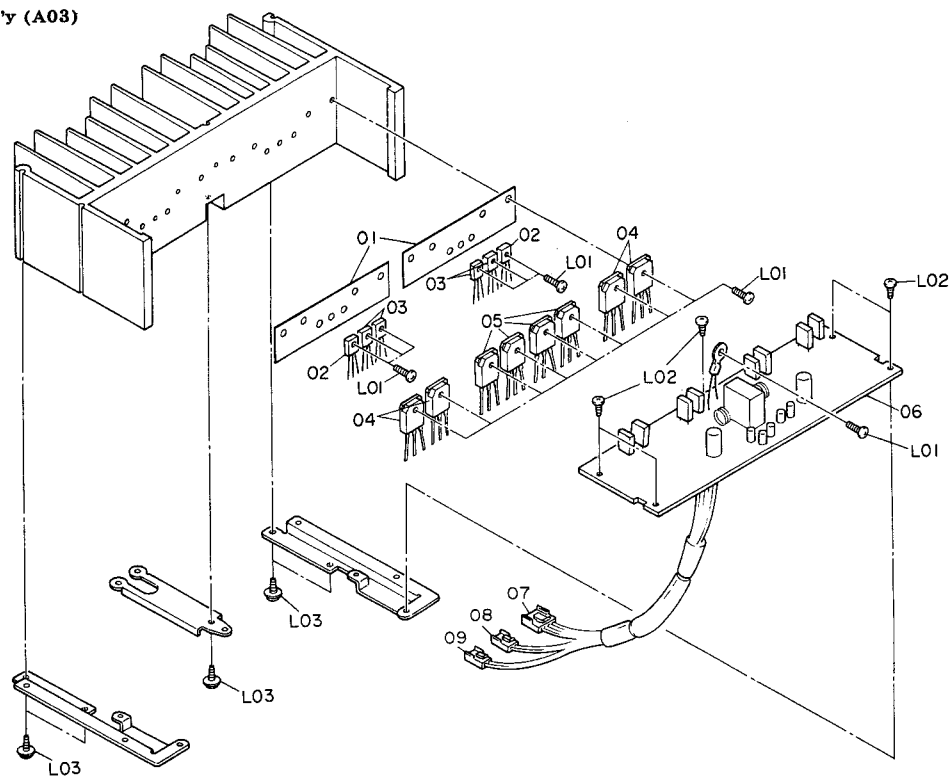


Fig. 5.4

★: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Q'ty
5.4. Heat Sink Ass'y (A03)			
A03	—	Heat Sink Ass'y	1
01	OJ06293A	Transistor Sheet	2
02	OB10380A	TR 2SA1358 [Q178L,R]	2
03	OB10381A	TR 2SC3421 [Q176L,R/Q177L,R]	4
04	OB10290A	TR 2SA1491 [Q180L,R/Q182L,R]	4
05	OB10291A	TR 2SC3855 [Q179L,R/Q181L,R]	4
06	★ BA08029A	Power Amp. P.C.B. Ass'y (EP, SWT, GER, UK)	1
	★ BA08028A	Power Amp. P.C.B. Ass'y (AUS, OTR, JPN)	1
07	OB80356A	4P Connector Ass'y [CN118]	1
08	OB80355A	2P Connector Ass'y [CN116]	1
09	OB80357A	2P Connector Ass'y [CN121]	1
L01	OE03319A	M3x8 ⊕ Binding	
L02	OE00868A	BT3x8 ⊕ Binding	
L03	OE03157A	BT3x8 ⊕ Binding With Flat Washer	

6. MOUNTING DIAGRAMS AND PARTS LIST

- Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 3. Following transistors are interchangeable with each other.
 a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
 b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
 4. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, ZD — Zener Diode, Varicap — Variable Capacitance Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor
 CE — Electrolytic Capacitor, CML — Mylar Capacitor, CC — Ceramic Capacitor, CPP — PP Capacitor,
 CMM — Metalized Mylar Capacitor, CSP — Polystyrene Capacitor, C — Mica Capacitor
 CT — Tantalum Capacitor

6.1. AC Outlet P.C.B. Ass'y

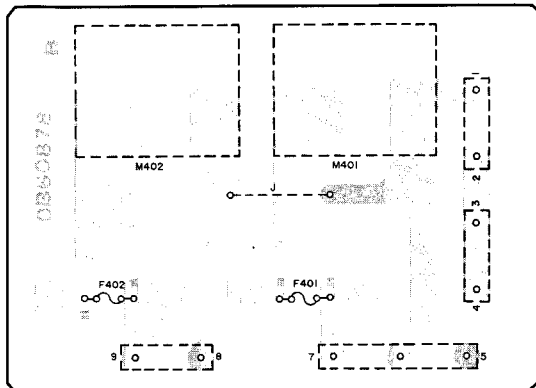


Fig. 6.1.1 For EP, SWT & UK

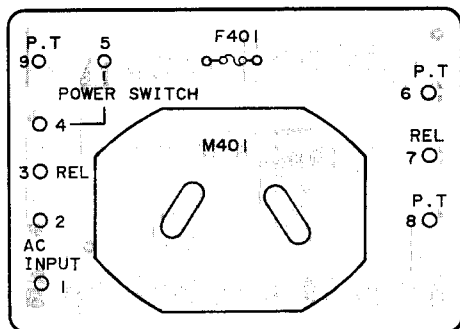


Fig. 6.1.2 For AUS

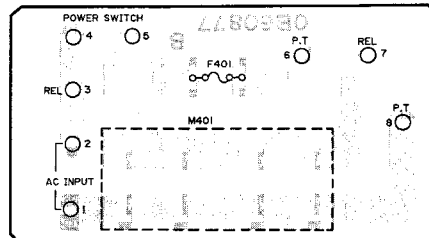


Fig. 6.1.3 For OTR & JPN

6.2. Power Switch P.C.B. Ass'y

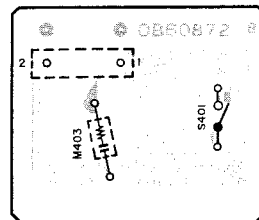


Fig. 6.2

6.3. Volume LED P.C.B. Ass'y

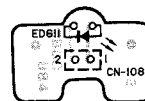


Fig. 6.3

6.4. Headphone P.C.B. Ass'y

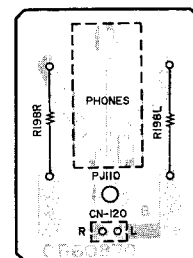


Fig. 6.4

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description		
6.1. AC Outlet P.C.B. Ass'y			*	BA08039A	AC Outlet A P.C.B. Ass'y (OTR, JPN)	6.3. Volume LED P.C.B. Ass'y				
M401,402	*	BA08041A		AC Outlet B P.C.B. Ass'y (EP, SWT, GER)	OB60877B	AC Outlet A P.C.B. Fuse Clip (2)	ED611 CN108	*	BA08050A	Volume LED P.C.B. Ass'y
	*	BA08040A	AC Outlet B P.C.B. Ass'y (UK)	6.2. Power Switch P.C.B. Ass'y				OB60884B	Volume LED P.C.B. LED Green	
	OB60878B	AC Outlet B P.C.B. AC Outlet (EP, SWT, GER)	M403	*	BA08031A	Power Switch P.C.B. Ass'y (EP, SWT, GER, UK)	R198L,R PJ110 CN120	*	BA08027A	Headphone P.C.B. Ass'y
	OB84364A	AC Outlet (UK) Wrapping Terminal 2P (3)		*	BA08030A	Power Switch P.C.B. Ass'y (AUS, OTR, JPN)				
	OB84365A	Wrapping Terminal 3P (1)		OB60872B	Power Switch P.C.B. Spark Killer	Headphone P.C.B. RF 330 2W Headphone Jack 2P T-Post Ground 2 Ass'y (1)				
	OB84275A	Wrapping Terminal 3P (1)		OB47233A	Power Switch Wrapping Terminal 2P (1)					
OB84380A	Fuse Clip (2)	S401	OB71005A							
OB90366A			OB84275A							
*	BA08231A	AC Outlet P.C.B. Ass'y (AUS)								
	OB60920A	AC Outlet P.C.B. Fuse Clip (2)								
	OB90366A									

6.5. Speaker Switch P.C.B. Ass'y

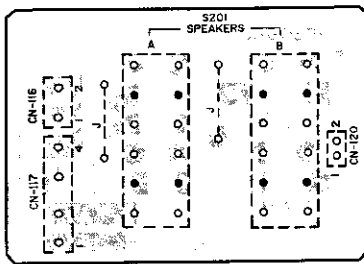


Fig. 6.5

6.6. Remote P.C.B. Ass'y

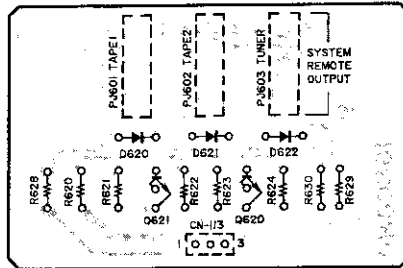


Fig. 6.6

6.7. Sensor P.C.B. Ass'y

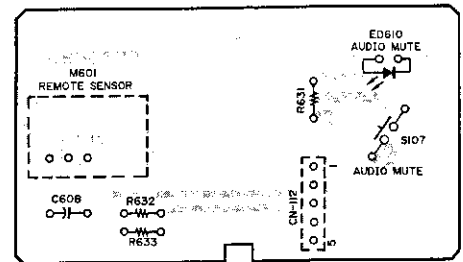


Fig. 6.7

6.8. Volume A P.C.B. Ass'y

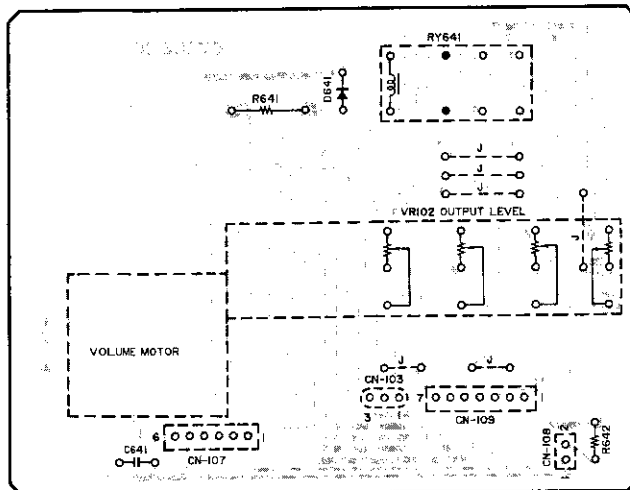


Fig. 6.8

6.9. Speaker Terminal P.C.B. Ass'y

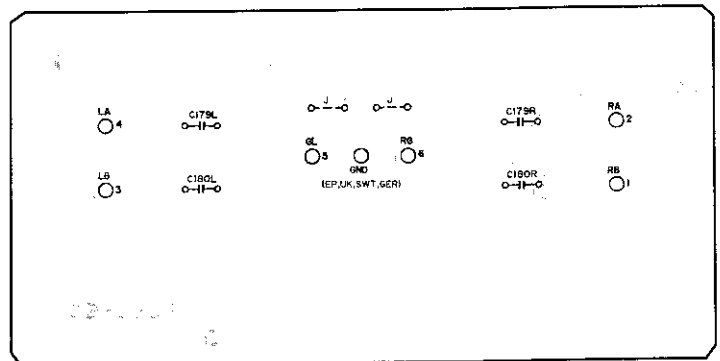


Fig. 6.9

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.5. Speaker Switch P.C.B. Ass'y			6.7. Sensor P.C.B. Ass'y			6.9. Speaker Terminal P.C.B. Ass'y		
S201 CN116 CN117 CN120	* BA08034A	Speaker Switch P.C.B. Ass'y	ED610 R631 R632 R633 C608 M601	* BA08033A	Sensor P.C.B. Ass'y	C179L,R C180L,R CN117 CN122 PJ111	* BA08049A	Speaker Terminal P.C.B. Ass'y (EP, SWT, GER, UK)
	OB60874B	Speaker Switch P.C.B.		OB60873B	Sensor P.C.B. LED Green		* BA08123A	Speaker Terminal P.C.B. Ass'y (AUS, OTR, JPN)
	OB70189A	Push Switch		OB12710A	RK 22 1/6W J		OB60883B	Speaker Terminal P.C.B.
	OB81400A	2P T-Post		OB09661A	RK 22 1/6W J		OB47073A	CML 0.022μ 100V J
	OB81322A	4P T-Post		OB09637A	RK 22 1/6W J		OB47073A	CML 0.022μ 100V J
6.6. Remote P.C.B. Ass'y	OB80358A	2P Connector Ass'y	S107 CN112	OB40176A	CE 4.7μ 50V	C179L,R C180L,R CN117 CN122 PJ111	OB80359A	4P Connector Ass'y
	OB80358A	2P Connector Ass'y		OB19017A	Remote Receiver Unit		OB80360A	2P Connector Ass'y
	OB80358A	2P Connector Ass'y		OB70161A	Tact Switch		OB84366A	Speaker Terminal Ground 3 Ass'y
	OB80358A	2P Connector Ass'y		OB81637A	5P T-Post		OB80350C	Ground 3 Ass'y (EP, SWT, GER, UK) (1)
	OB80358A	2P Connector Ass'y					OJ06335A	Spacer 25mm (4)
6.8. Volume A P.C.B. Ass'y			6.9. Speaker Terminal P.C.B. Ass'y					
Q620,621 D620,621 D622 R620 R621 R622,623 R624 R628,629 R630 PJ601,602 PJ603 CN113	* BA08032A	Remote P.C.B. Ass'y	D641 VR102 R641 R642 C641 RY641 CN103 CN107 CN108 CN109	* BA08035A	Volume A P.C.B. Ass'y			
	OB60881B	Remote P.C.B. TR 2SC945		OB60875B	Volume A P.C.B. SiD S5688B			
	OB06100A	SID 1SS176		OB12693A	Motor VR 50KB/20KB			
	OB06398A	SID 1SS176		OB30137A	RK 18 1/4W J			
	OB06398A	SID 1SS176		OB20398A	RK 220 1/6W J			
	OB09701A	RK 10K 1/6W J		OB09661A	CC 0.022μ 25V Z			
	OB09717A	RK 47K 1/6W J		OB41554A	Relay 5V			
	OB09701A	RK 10K 1/6W J		OB90468A	3P Connector Ass'y			
	OB09701A	RK 10K 1/6W J		OB80341A	6P S-Post			
	OB09701A	RK 10K 1/6W J		OB84421A	2P T-Post			
	OB09637A	RK 22 1/6W J		OB81459A	7P S-Post			
	OB09637A	RK 22 1/6W J		OB81471A				
	OB84372A	Mini Jack Stereo						
	OB84372A	Mini Jack Stereo						
	OB84280A	3P T-Post						
	OB84388A	Screw Terminal (2)						

6.10. Power Supply P.C.B. Ass'y

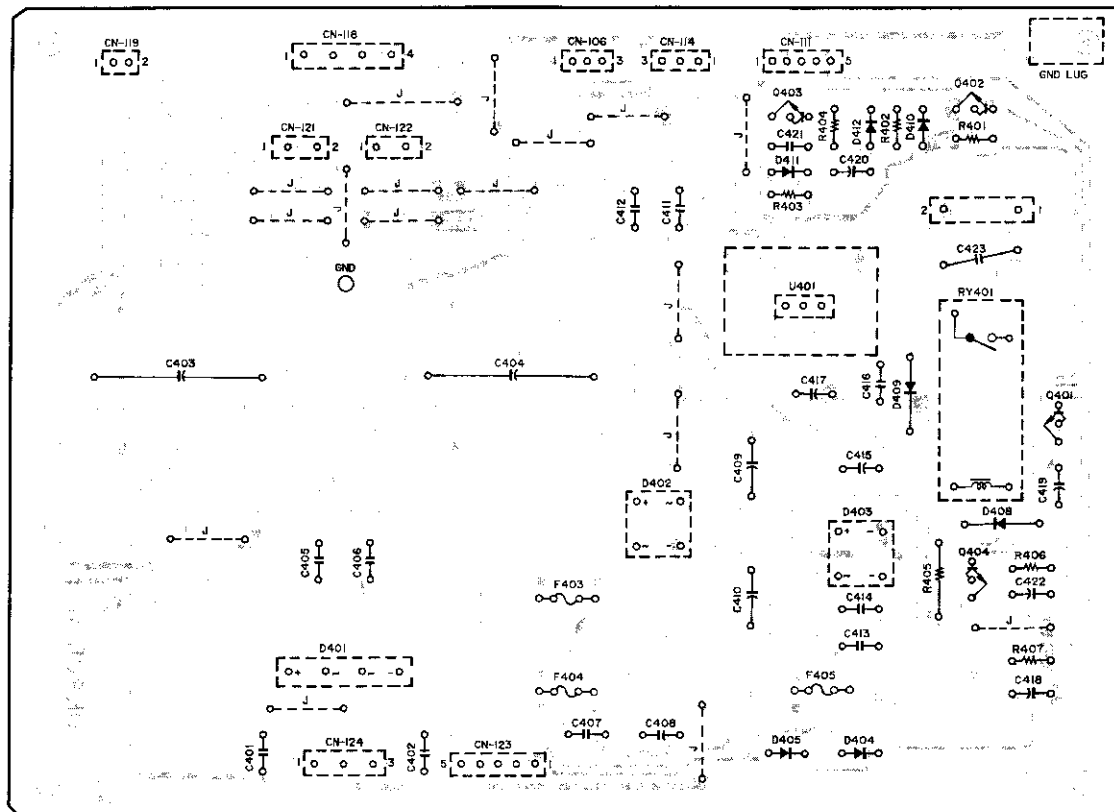


Fig. 6.10

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.10. Power Supply P.C.B. Ass'y			C418	0B40557A	CE 1μ 50V
*	BA08045A	Power Supply P.C.B. Ass'y (EP, SWT, GER, UK)	C419,420	0B40558A	CE 2.2μ 50V
			C421	0B47117A	CC 0.1μ 50V
*	BA08044A	Power Supply P.C.B. Ass'y (AUS, OTR, JPN)	C422	0B40778A	CE 10μ 25V
			C423	0B41825A	CC 4700P 400V
			RY401	0B90467A	Relay 9V
			F403,404	0B90381A	Fuse T1A 250V
			F405	0B90384A	Fuse T2.0A 250V
			CN106	0B80342A	3P Connector Ass'y
			CN111	0B84287A	5P T-Post
			CN114	0B81635A	3P T-Post
			CN118	0B81322A	4P T-Post
			CN119	0B81459A	2P T-Post
			CN121,122	0B81400A	2P T-Post
			CN123	0B81637A	5P T-Post
			CN124	0B81401A	3P T-Post
				0B90366A	Fuse Clip (6)
				0B84383A	3P Wire Holder (CN106)
				0B80364B	Ground 4 Ass'y (1)
				0J05625B	TR Heat Sink (1)
				0B90502A	Heat Sink (EP, SWT, GER, UK) (1)
				0B90471A	Heat Sink (AUS, OTR, JPN) (1)
				0E03355A	Earth Lug for P.C.B. (1)
				0B84275A	Wrapping Terminal (1)
				0E00986A	M3x10 ⊕ Binding (1)
				0E00986A	
U401	0B60880B	Power Supply P.C.B. IC 78M05A			
Q401	0B11897A	TR DTC124ES			
Q402,403	0B06100A	TR 2SC945			
Q404	0B10023A	TR 2SC2002			
D401	0B12617A	SiD KBU8D			
D402,403	0B12722A	SiD W02GL			
D404,405	0B06398A	SiD 1SS176			
D408,409	0B12365A	SiD 1SR35-100A			
D410,411	0B06398A	SiD 1SS176			
D412	0B06398A	SiD 1SS176			
R401	0B09703A	RK 12K 1/6W J			
R402	0B09721A	RK 68K 1/6W J			
R403,404	0B09725A	RK 100K 1/6W J			
R405	0B24300R	RF 10 1/2W J			
R406	0B09709A	RK 22K 1/6W J			
R407	0B09685A	RK 2.2K 1/6W J			
C401,402	0B47075A	CML 0.047μ 100V J			
C403,404	0B40791A	CE 10000μ 63V			
C405,406	0B47077A	CML 0.1μ 63V J			
C407,408	0B47075A	CML 0.047μ 100V J			
C409,410	0B40792A	CE 2200μ 35V			
C411,412	0B47077A	CML 0.1μ 63V J			
C413,414	0B47075A	CML 0.047μ 100V J			
C415	0B40787A	CE 2200μ 16V			
C416	0B47077A	CML 0.1μ 63V J			
C417	0B40781A	CE 1000μ 10V			

6.11. Eq. Amp. P.C.B. Ass'y

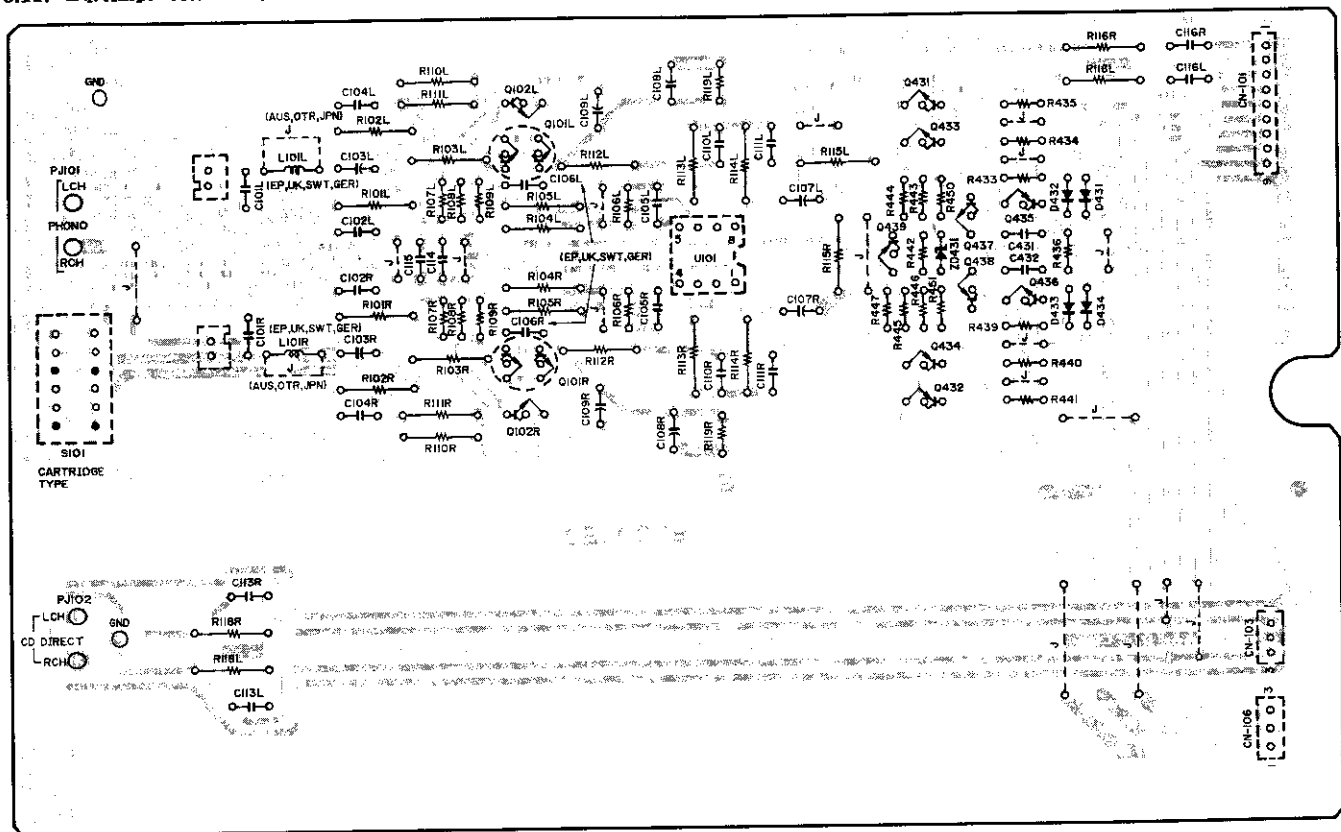


Fig. 6.11

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.11. Eq. Amp. P.C.B. Ass'y			R111L,R	OB22854A	RM 41.2 1/4W F	C114,115	OB05550A	CML 1000P 50V J
			R112L,R	OB22579A	RM 243 1/4W F	C116L,R	OB05550A	CML 1000P 50V J
			R113L,R	OB22563A	RM 38.3K 1/4W F	C431,432	OB05653A	CML 1500P 50V J
			R114L,R	OB09541A	RM 464K 1/4W F	S101	OB70187A	Slide Switch 4-2 S
			R115L,R	OB01857A	RK 1.0K 1/4W J	PJ101	OB84375A	Pin Jack 2P
			R116L,R	OB01889A	RK 100K 1/4W J	PJ102	OB84374A	Pin Jack 2P
			R118L,R	OB05508A	RK 56K 1/4W J	CN101	OB84084A	9P T-Post
			R119L,R	OB09719A	RK 56K 1/6W J	CN103	OB81467A	3P S-Post
			R433	OB09677A	RK 1K 1/6W J	CN106	OB81667A	3P S-Post
			R434,435	OB09685A	RK 2.2K 1/6W J		OB80343A	Phone L Ass'y 2P
			R436	OB09725A	RK 100K 1/6W J			(1)
			R439	OB09677A	RK 1K 1/6W J		OB80344A	Phone R Ass'y 2P
			R440,441	OB09685A	RK 2.2K 1/6W J			(1)
			R442	OB09701A	RK 10K 1/6W J		OB84388A	Screw Terminal (2)
			R443	OB09693A	RK 4.7K 1/6W J			
			R444	OB09697A	RK 6.8K 1/6W J			
			R445,446	OB09701A	RK 10K 1/6W J			
			R447	OB09687A	RK 2.7K 1/6W J			
			R450,451	OB09701A	RK 10K 1/6W J			
U101	OB60879B	Eq. Amp. P.C.B. IC MPC4570C	C101L,R	OB47027A	CML 470P 50V J			
Q101L,R	OB11713A	TR 2SC3065 (E,F)	C102L,R	OB47027A	CML 470P 50V J			
Q102L,R	OB10078A	TR 2SC2240 (GR)	C103L,R	OB40720A	CE 10μ 16V (LN)			
Q431	OB06322A	TR 2SC2002 (K,L)	C104L,R	OB47126A	CC 220P 50V K			
Q432	OB06372A	TR 2SA953 (K,L)			(EP, SWT, GER, UK)			
Q433	OB06322A	TR 2SC2002 (K,L)			CML 100P 50V J			
Q434	OB06372A	TR 2SA953 (K,L)			(AUS, OTR, JPN)			
Q435	OB06155A	TR 2SA733 (P)			CML 0.15μ 50V J			
Q436,437	OB06100A	TR 2SC945			CC 150P 50V K			
Q438,439	OB06155A	TR 2SA733 (P)			(EP, SWT, GER, UK)			
ZD431	OB12168A	ZD 10V B2			CE 2.2μ 50V (LN)			
D431,432	OB06398A	SiD 1SS176			CE 10μ 16V (LN)			
D433,434	OB06398A	SiD 1SS176			CE 220μ 6.3V (LN)			
L101L,R	OB51377A	FN Coil 50μH (EP, SWT, GER, UK)			CPP 2000P 50V G			
R101L,R	OB01679A	RK 100 1/4W J			CPP 6800P 50V G			
R102L,R	OB05876A	RK 51K 1/4W J			CML 1000P 50V J			
R103L,R	OB05800A	RK 5.6 1/4W J						
R104L,R	OB01888A	RK 10K 1/4W J						
R105L,R	OB01888A	RK 10K 1/4W J						
R106L,R	OB09611A	RK 1.8 1/6W J						
R107L,R	OB09693A	RK 4.7K 1/6W J						
R108L,R	OB09701A	RK 10K 1/6W J						
R109L,R	OB09711A	RK 27K 1/6W J						
R110L,R	OB22853A	RM 787 1/4W F						

6.12. Selector P.C.B. Ass'y

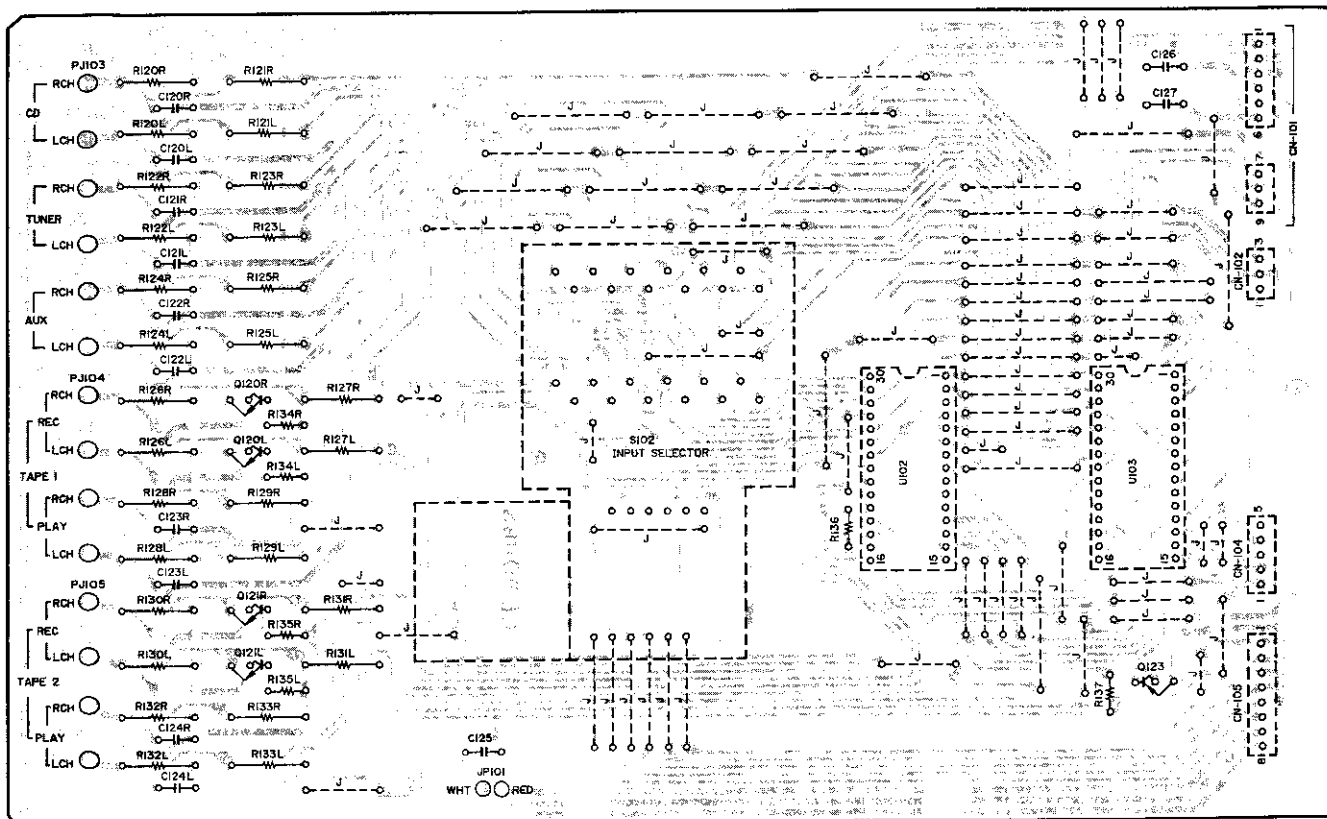
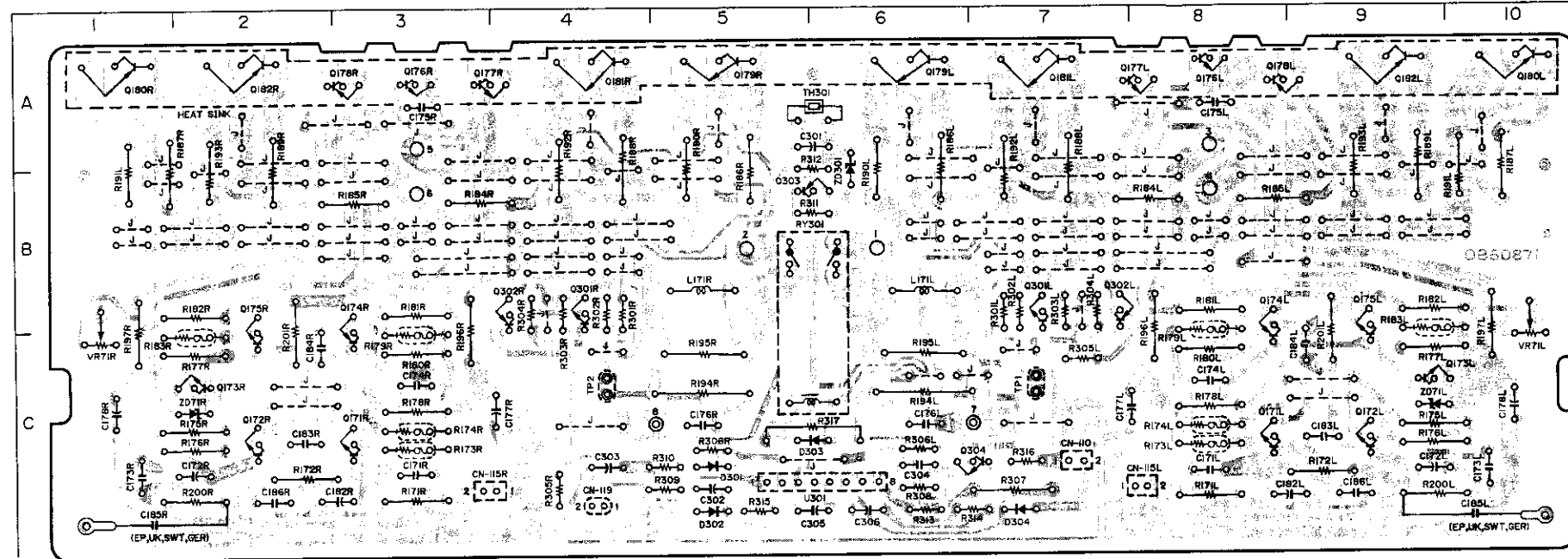


Fig. 6.12

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.12. Selector P.C.B. Ass'y			C123L,R	OB05550A	CML 1000P 50V J
			C124L,R	OB05550A	CML 1000P 50V J
			C125	OB47117A	CC 0.1u 50V Z
			C126,127	OB05550A	CML 1000P 50V J
			S102	OB70192A	Motor Rotary Switch
			PJ103	OB84368A	Pin Jack 6P
			PJ104,105	OB84369A	Pin Jack 4P
			CN101	OB80340A	9P Connector Ass'y
			CN102	OB84280A	3P T-Post
			CN104	OB84287A	5P T-Post
			CN105	OB81465A	8P T-Post
				OB84383A	3P Wire Holder (CN101) (1)
				OB84386A	6P Wire Holder (CN101) (1)
				OB80386A	2P Connector Ass'y (1)
				OB81459A	2P T-Post (1)
	★ BA08047A	Selector P.C.B. Ass'y (EP, SWT, GER, UK)			
	★ BA08046A	Selector P.C.B. Ass'y (AUS, OTR, JPN)			
	OB60882B	Selector P.C.B.			
U102,103	OB11879A	IC LC7822			
Q120L,R	OB06299A	TR 2SC2878			
Q121L,R	OB06299A	TR 2SC2878			
Q123	OB10053A	TR DTA144ES			
R120L,R	OB05508A	RK 56K 1/4W J			
R121L,R	OB01679A	RK 100 1/4W J			
R122L,R	OB05508A	RK 56K 1/4W J			
R123L,R	OB01679A	RK 100 1/4W J			
R124L,R	OB05508A	RK 56K 1/4W J			
R125L,R	OB01679A	RK 100 1/4W J			
R126L,R	OB01889A	RK 100K 1/4W J			
R127L,R	OB05698A	RK 1.5K 1/4W J			
R128L,R	OB05508A	RK 56K 1/4W J			
R129L,R	OB01679A	RK 100 1/4W J			
R130L,R	OB01889A	RK 100K 1/4W J			
R131L,R	OB05698A	RK 1.5K 1/4W J			
R132L,R	OB05508A	RK 56K 1/4W J			
R133L,R	OB01679A	RK 100 1/4W J			
R134L,R	OB09717A	RK 47K 1/4W J			
R135L,R	OB09717A	RK 47K 1/4W J			
R136	OB09709A	RK 22K 1/6W J			
R137	OB09717A	RK 47K 1/4W J			
C120L,R	OB05550A	CML 1000P 50V J			
C121L,R	OB05550A	CML 1000P 50V J			
C122L,R	OB05550A	CML 1000P 50V J			

6.13. Power Amp. P.C.B. Ass'y



Note: Q176L/R, Q177L/R, R178L/R, Q179L/R, Q180L/R, Q181L/R and Q182L/R are mounted on the Heat Sink Ass'y.

Fig. 6.13

• Semiconductor Location

Ref. No.	Location
U301	C-5
Q171L	C-8
Q171R	C-3
Q172L	C-9
Q172R	C-2
Q173L	C-9
Q173R	C-2
Q174L	B-8
Q174R	B-3
Q175L	B-9
Q175R	B-2
Q176L	A-8
Q176R	A-3
Q177L	A-8
Q177R	A-3
Q178L	A-8
Q178R	A-3
Q179L	A-6
Q179R	A-5
Q180L	A-10
Q180R	A-1
Q181L	A-7
Q181R	A-4
Q182L	A-9
Q182R	A-2
Q301L	B-7
Q301R	B-4
Q302L	B-7
Q302R	B-4
Q303	B-5
Q304	C-7
ZD71L	C-9
ZD71R	C-2
ZD301	B-6
D301	C-5
D302	C-5
D303	C-5
D304	C-7

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.13. Power Amp. P.C.B. Ass'y								
U301	* BA08029A	Power Amp. P.C.B. Ass'y (EP, SWT, GER, UK)	R176L,R	OB01706A	RK 47 1/4W J	R310	OB09701A	RK 10K 1/6W J
	* BA08028A	Power Amp. P.C.B. Ass'y (AUS, OTR, JPN)	R177L,R	OB20529A	RK 910 1/4W J	R311	OB09693A	RK 4.7K 1/6W J
			R178L,R	OB05641A	RK 47K 1/4W J	R312	OB09701A	RK 10K 1/6W J
			R179L,R	OB24355A	Fuse Resistor 330 1/4W J (EP, SWT, GER, UK)	R313	OB09707A	RK 18K 1/6W J
						R314	OB09719A	RK 56K 1/6W J
						R315	OB09709A	RK 22K 1/6W J
						R316	OB09693A	RK 4.7K 1/6W J
						R317	OB24284A	RF 1K 2W
Q301	OB60871B	Power Amp. P.C.B. IC μ PC1237H	R180L,R	OB05615A	RK 22K 1/4W J	C171L,R	OB05550A	CML 1000P 50V Z
	OB11246A	TR 2SC2240 (GR)	R181L,R	OB09301A	RK 2K 1/4W J	C172L,R	OB40776A	CE 47 μ 16V (LN)
	OB10078A	TR 2SC2240 (GR)	R182L,R	OB05577A	RK 330 1/4W J	C173L,R	OB05582A	CML 0.022 μ 50V J
	OB10078A	TR 2SC2240 (GR)	R183L,R	OB24355A	Fuse Resistor 330 1/4W J (EP, SWT, GER, UK)	C174L,R	OB40773A	CML 10P 50V
	OB10221A	TR 2SA1145 (Y)				C175L,R	OB47078A	CML 0.15 μ 63V J
	OB10222A	TR 2SC2705				C176L,R	OB47078A	CML 0.15 μ 63V J
	OB10222A	TR 2SC2705				C177L,R	OB40783A	CE 220 μ 63V
	OB10078A	TR 2SC2240 (GR)	R184L,R	OB01679A	RK 100 1/4W J	C178L,R	OB40783A	CE 220 μ 63V
	OB06180A	TR 2SA970	R185L,R	OB01679A	RK 100 1/4W J	C182L,R	OB40652A	CE 10 μ 50V (LN)
	OB06155A	TR 2SA733	R186L,R	OB24288R	RF 1 1/2W J	C183L,R	OB47126A	CC 220P 50V K
Q304	OB10078A	TR 2SC2240 (GR)	R187L,R	OB24288R	RF 1 1/2W J		OB09302A	CML 100P 50V J (AUS, OTR, JPN)
	OB12619A	ZD 6.8V B2	R188L,R	OB24288R	RF 1 1/2W J			
	OB12360A	ZD 2.7V B2	R189L,R	OB24288R	RF 1 1/2W J	C184L,R	OB41507A	CML 22P 50V J
	OB06398A	SiD 1SS176	R190L,R	OB24286A	RC 0.22 5W	C185L,R	OB47130A	CC 1000P 50V Z (EP, SWT, GER, UK)
	OB12693A	SiD S5688B	R191L,R	OB24286A	RC 0.22 5W			
	OB12693A	SiD S5688B	R192L,R	OB24286A	RC 0.22 5W	OB41772A	OB41772A	CSP 1000P 160V J
	OB51376A	Coil 0.8 μ H	R193L,R	OB24286A	RC 0.22 5W	C301	OB40558A	CE 2.2 μ 50V
	OB19021A	Thermistor	R194L,R	OB24280A	RC 5.6 5W	C302	OB40779A	CE 10 μ 63V
	OB32190A	Semi VR 1K	R195L,R	OB24278A	RF 3.3 1W	C303	OB40558A	CE 2.2 μ 50V
	OB01679A	RK 100 1/4W J	R196L,R	OB24304R	RF 22 1/2W	C304	OB40774A	CE 100 μ 16V (BP)
R171L,R	OB01679A	RK 12K 1/4W J	R197L,R	OB24304R	RF 22 1/2W	C305	OB40784A	CE 4.7 μ 50V
	OB09263A	Fuse Resistor 2.4K 1/4W J (EP, SWT, GER, UK)	R200L,R	OB09301A	RK 2K 1/4W J	C306	OB40780A	CE 100 μ 16V
	OB24360A		R201L,R	OB20399A	RK 16K 1/4W J		OB90333A	Relay VB 24MBU-510-UL 24V
			R301L,R	OB09701A	RK 10K 1/6W J			
			R302L,R	OB09685A	RK 2.2K 1/6W J			
			R303L,R	OB09725A	RK 100K 1/6W J	OB02233A	OB02233A	2P T-Post
			R304L,R	OB09707A	RK 18K 1/6W J	OB81634A	OB81634A	2P T-Post
			R305L,R	OB09661A	RK 220 1/6W J	OB81459A	OB81459A	2P T-Post
			R306L,R	OB09725A	RK 100K 1/6W J	OB84276A	OB84276A	2P T-Post
			R307	OB24285A	RF 8.2K 1W	OB80354B	OB80354B	2P Connector Ass'y
R172L,R	OB09588A	RK 2.4K 1/4W J (AUS, OTR, JPN)	R308	OB09725A	RK 100K 1/6W J			
			R309	OB09733A	RK 220K 1/6W J			
R173L,R								

6.14. Front P.C.B. Ass'y

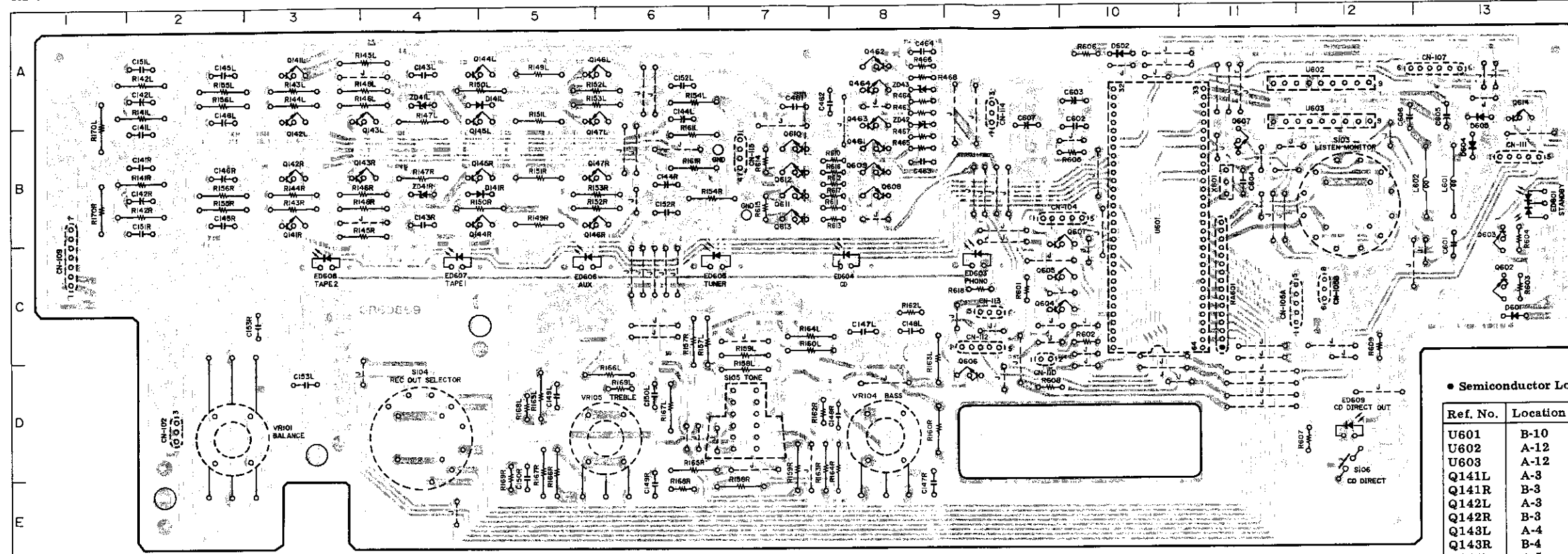


Fig. 6.14

*: Unstocked parts.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
6.14. Front P.C.B. Ass'y			ED609	OB12710A	LED Green	R166L.R	OB01856A	RK 8.2K 1/4W J	C602	OB47117A	CC 0.1μ 50V K
			D141L.R	OB06398A	SID 1SS176	R167L.R	OB09882A	RK 620 1/4W J	C603	OB40786A	CE 330μ 6.3V
			D601	OB12693A	SID S5688B	R168L.R	OB20093A	RK 1.5M 1/6W J	C604	OB41554A	CC 0.022μ 25V Z
			D602	OB06398A	SID 1SS176	R169L.R	OB09716A	RK 43K 1/6W J	C605,606	OB40158A	CE 100μ 6.3V
			D604,605	OB12693A	SID S5688B	R170L.R	OB05641A	RK 47K 1/4W J	C607	OB40501A	CE 0.1F 5.5V
			X601	OB92043A	X'tal 4.19MHz	R463,464	OB09685A	RK 2.2K 1/6W J	S103	OB70186A	Rotary Switch 1-12NS
			L601,602	OB51378R	Inductor 680μH	R465,466	OB09685A	RK 2.2K 1/6W J	S104	OB70190A	Rotary Switch 1-8NS
			VR101	OB30139A	VR 250KMN	R467,468	OB09685A	RK 2.2K 1/6W J	S105	OB70196A	Push Switch 4-2S-F
			VR104,105	OB30140A	VR 100KC	R601,602	OB09717A	RK 47K 1/6W J	S106	OB70161A	Tact Switch
			RA601	OB21103A	R Network 47Kx15	R603,604	OB09661A	RK 220 1/6W J	CN102	OB80337B	3P Connector Ass'y
			R141L.R	OB01679A	RK 100 1/4W J	R605	OB09661A	RK 220 1/6W J	CN104	OB80338B	5P Connector Ass'y
			R142L.R	OB01684A	RK 470K 1/4W J	R606	OB09701A	RK 10K 1/6W J	CN105	OB80339A	8P Connector Ass'y
			R143L.R	OB01846A	RK 4.7K 1/4W J	R607,608	OB09717A	RK 47K 1/6W J	CN107	OB80368B	6P Connector Ass'y
			R144L.R	OB01846A	RK 4.7K 1/4W J	R609	OB09661A	RK 220 1/6W J	CN109	OB80346A	7P Connector Ass'y
			R145L.R	OB01706A	RK 47 1/4W J	R610,611	OB09717A	RK 47K 1/6W J	CN110	OB80353A	2P Connector Ass'y
			R146L.R	OB01706A	RK 47 1/4W J	R612,613	OB09717A	RK 47K 1/6W J	CN111	OB80362B	5P Connector Ass'y
			R147L.R	OB05614A	RK 1.8K 1/4W J	R614,615	OB09653A	RK 100 1/6W J	CN112	OB80347A	5P Connector Ass'y
			R148L.R	OB05560A	RK 18K 1/4W J	R616,617	OB09661A	RK 220 1/6W J	CN113	OB80348B	3P Connector Ass'y
			R149L.R	OB05575A	RK 560 1/4W J	R618	OB09725A	RK 100K 1/6W J	CN114	OB80361A	3P Connector Ass'y
			R150L.R	OB01933A	RK 220 1/4W J	C141L.R	OB47113A	CC 330P 50V K	CN115	OB80352B	4P Connector Ass'y
			R151L.R	OB05575A	RK 560 1/4W J	C142L.R	OB40777A	CE 0.47μ 50V J		OB90429A	C.Clip (5)
			R152L.R	OB01706A	RK 47 1/4W J	C143L.R	OB41976A	CC 33P 50V J		OB80379B	Ground 7 Ass'y (1)
			R153L.R	OB01706A	RK 47 1/4W J	C144L.R	OB40784A	CE 4.7μ 50V J		OB84383A	3P Wire Holder (CN105/CN113/CN114) (1)
			R154L.R	OB01857A	RK 1.0K 1/4W J	C145L.R	OB41974A	CC 100P 50V J			
			R155L.R	OB05508A	RK 56K 1/4W J	C146L.R	OB40784A	CE 4.7μ 50V J			
			R156L.R	OB05784A	RK 560K 1/4W J	C147L.R	OB09045A	CML 0.027μ 50V J			
			R157L.R	OB01857A	RK 1.0K 1/4W J	C148L.R	OB41306A	CML 0.47μ 50V J			
			R158L.R	OB01854A	RK 39K 1/4W J	C149L.R	OB05687A	CML 1200P 50V J			
			R159L.R	OB01854A	RK 39K 1/4W J	C150L.R	OB05582A	CML 0.022μ 50V J			
			R160L.R	OB09075A	RK 30K 1/4W J	C151L.R	OB05582A	CML 0.022μ 50V J			
			R161L.R	OB05641A	RK 47K 1/4W J	C152L.R	OB05582A	CML 0.022μ 50V J			
			R162L.R	OB09696A	RK 6.2K 1/6W J	C153L.R	OB47197A	CSP 33P 50V J			
			R163L.R	OB05698A	RK 1.5K 1/4W J	C461,462	OB05550A	CML 1000P 50V J			
			R164L.R	OB01857A	RK 1.0K 1/4W J	C463,464	OB47081A	CML 0.47μ 63V J			
			R165L.R	OB01888A	RK 10K 1/4W J	C601	OB41554A	CC 0.022μ 25V Z			

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
U601	B-10	Q608	B-8
U602	A-12	Q609	B-8
U603	A-12	Q610	B-7
Q141L	A-3	Q611	B-7
Q141R	B-3	Q612	B-7
Q142L	A-3	Q613	B-7
Q142R	B-3	Q614	A-13
Q143L	A-4	ZD41L	A-4
Q143R	B-4	ZD41R	B-4
Q144L	A-5	ZD42	A-8
Q144R	B-5	ZD43	A-8
Q145L	A-4	ED601	B-13
Q145R	B-5	ED603	C-9
Q146L	A-5	ED604	C-8
Q146R	B-4	ED605	C-7
Q147L	A-5	ED606	C-5
Q147R	B-6	ED607	C-4
Q461	B-8	ED608	C-3
Q462	A-8	ED609	D-12
Q463	A-8	D141L	A-5
Q464	A-8	D141R	B-5
Q601	B-10	D601	C-13
Q602	C-13	D602	A-10
Q603	B-13	D604	B-13
A604	C-9	D605	A-13
Q605	C-9		
Q606	D-9		
Q607	B-11		

7. SCHEMATIC DIAGRAMS

7.1. IC Block Diagrams

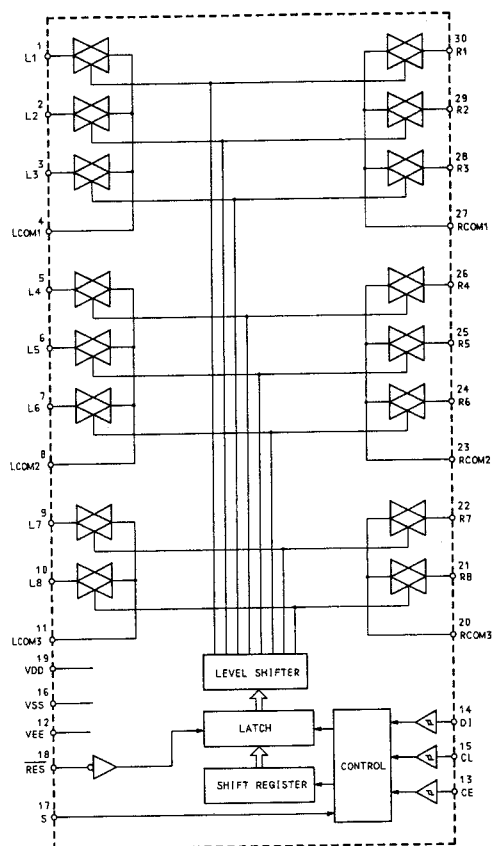


Fig. 7.1.1 Analog Function Switch LC7822

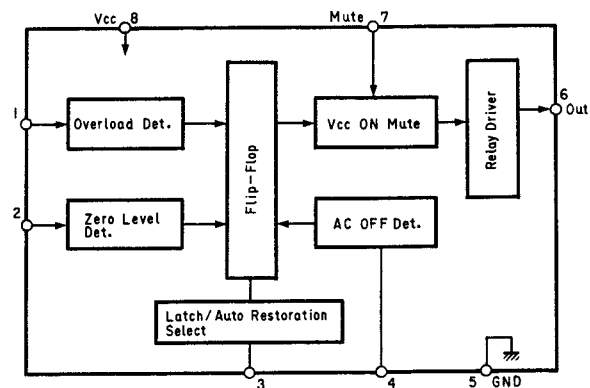


Fig. 7.1.2 Power Amp. Protector μ PC1237

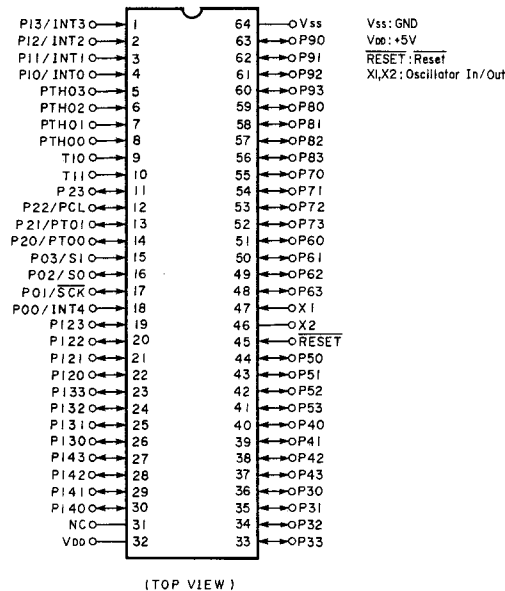
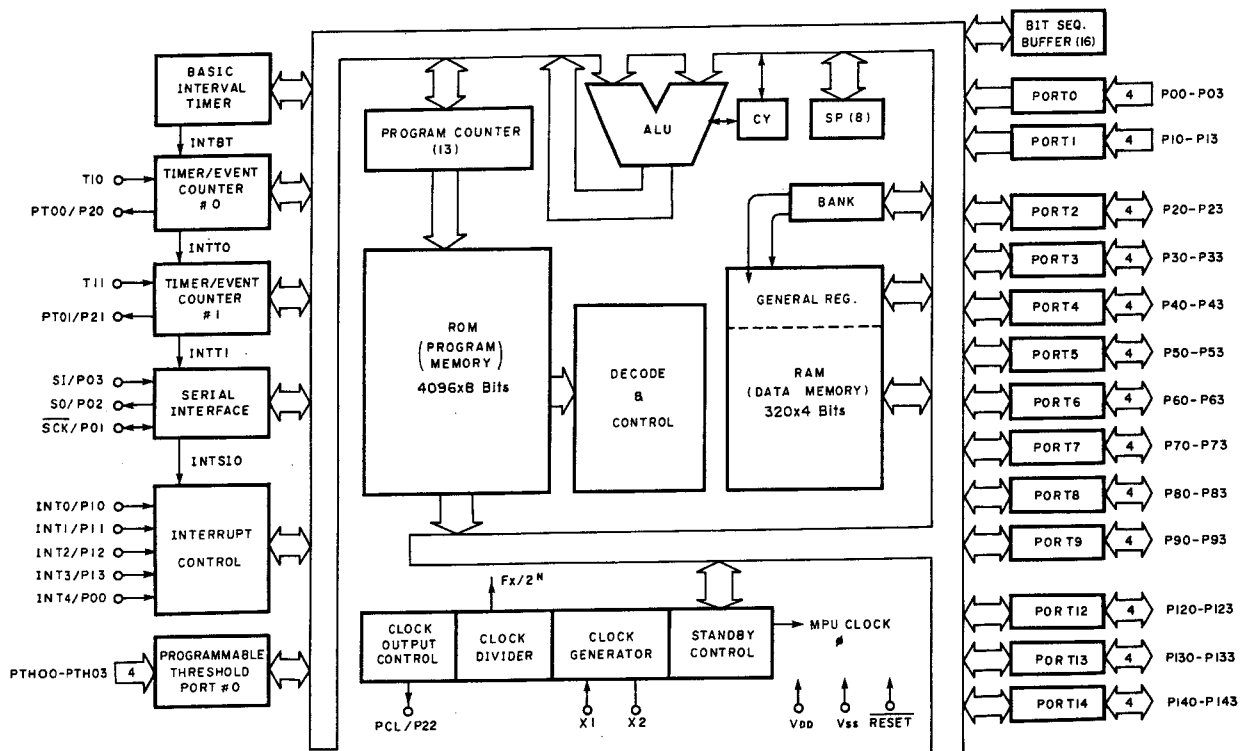
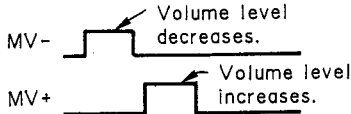


Fig. 7.1.3 Microprocessing Unit (MPU) μ PD75104CW

U601 μ PD75104CW (System Control MPU)

Pin No.	Signal Name	In/ Out	Function
1 2	INT3 INT2	I	Not used.
3	PRT	I	Protection signal sent from pin 6 (Out) of U301 (μ PC1237H) on the Power Amp. P.C.B. Ass'y. Normally "H". If any trouble, such as overload occurs, this pin goes "L". In this case, this IC sets pin 11 (SPO) to "L", causing Q304 on the Power Amp. P.C.B. Ass'y turns OFF, relay RY301 turns OFF, and the power amp. is disconnected from the speakers.
4	IRP	I	Remote control signal input.
5	MSW	I	Model select input. Fixed at "L".
6 7 8 9 10	—	I	Not used. Fixed at "L".
11	SPO	O	Speaker relay (RY301) ON/OFF control signal. Normally "H". Becomes "L" if trouble (overload, etc.) occurs.
12	PRO	O	Power ON relay drive signal. Active "H".
13	AFR	O	Analog function selectors (U102 and U103 on the Selector P.C.B. Ass'y) reset signal. Active "L".
14	ACE	O	Chip enable signal for analog function selectors (U102 and U103). Active "H".
15	SI	I	Not used. Fixed at "L".
16	SO	O	Serial data output for analog function selectors (U102 and 103).
17	CL	O	Clock pulse for serial data at pin 16 (SO).
18	PIN	I	Power OFF signal input. Normally "H". Immediately becomes "L" when the power is turned OFF.
19	PHL	O	Phono LED drive signal. Active "L".
20	CDL	O	CD LED drive signal. Active "L".
21	TUL	O	Tuner LED drive signal. Active "L".
22	AUL	O	AUX LED drive signal. Active "L".
23	T1L	O	Tape 1 LED drive signal. Active "L".
24	T2L	O	Tape 2 LED drive signal. Active "L".
25	STL	O	Standby LED drive signal. Active "L".
26	POL	O	Power ON LED drive signal. Active "L".
27 28 29 30	—	—	Not used. (Open)
31	NC	—	Non connection.
32	VDD	—	+5 V is supplied.
33 34	MR- MR+	O	Input select rotary encoder turning signal.
35	MV-	O	Output volume down signal.

Pin No.	Signal Name	In/ Out	Function
36	MV+	O	Output volume up signal. 
37	LMU	O	Line mute signal. Active "L".
38	RMU	O	Record mute signal. Active "L".
39	CDO	O	CD direct output select signal. Active "H".
40	ATO	O	Audio mute signal. Active "H".
41 42	—	—	Not used. Fixed at "L".
43	CDI	I	CD Direct switch input.
44	ATI	I	Audio Mute switch input. "L" when it is pressed.
45	RESET	I	System reset input. Active "L".
46 47	X2 X1	—	4.19 MHz ceramic resonator is connected.
48 49 50	RS3 RS2 RS1	I	Listen Monitor rotary switch input signals.
51 to 55	EC5 to EC1	I	Input signals from Input Select Rotary Encoder.
56	—	—	Not used. Fixed at "L".
57	DIR	I	Rec. Out selector "CD DIRECT" input.
58	T2R	I	Rec. Out selector "COPY1 to 2" input. Set to "L" when selected.
59	T1R	I	Rec. Out selector "COPY2 to 1" input. Set to "L" when selected.
60	AUR	I	Rec. Out selector "AUX" input. Set to "L" when selected.
61	TUR	I	Rec. Out selector "TUNER" input. Set to "L" when selected.
62	CDR	I	Rec. Out selector "CD" input. Set to "L" when selected.
63	PHR	I	Rec. Out selector "PHONO" input. Set to "L" when selected.
64	VSS	—	Grounded.

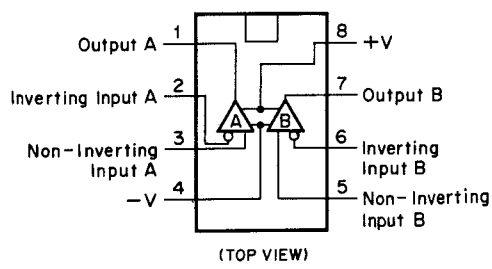


Fig. 7.1.4 Operational Amp. NJM7805A, μ PC4570C

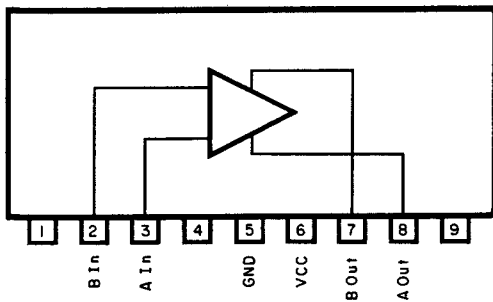


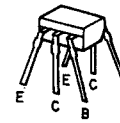
Fig. 7.1.5 Motor Driver BA6208



2SA733
2SA953
2SC945
2SC2002
2SC2240
2SC2878

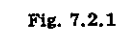


DTA144ES



2SC3065

(1) Input/Rec. Out Selector & Eq. Amp. Section



- 20

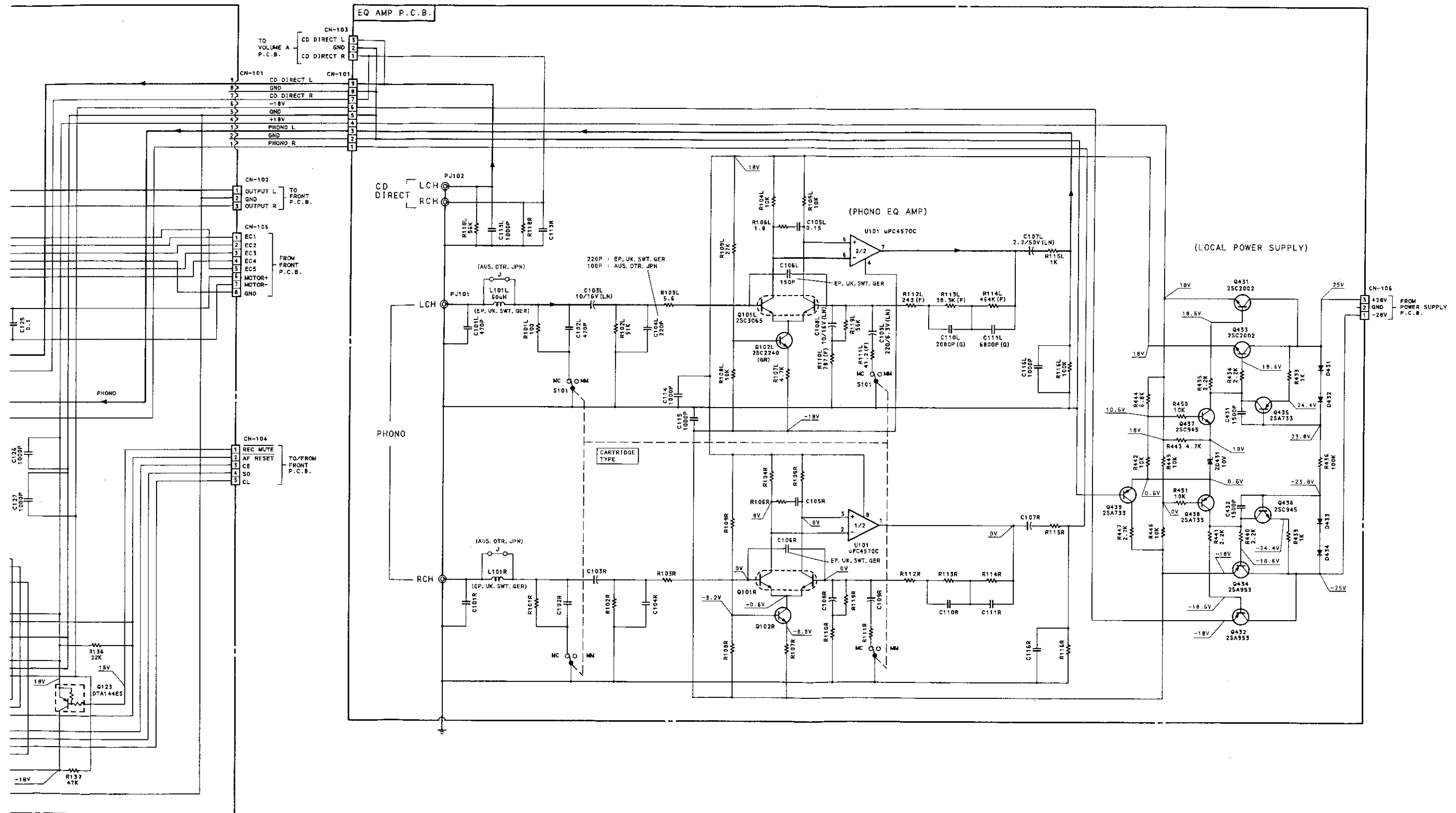


Fig. 7.2.1

(2) Preamp. & System Control Section

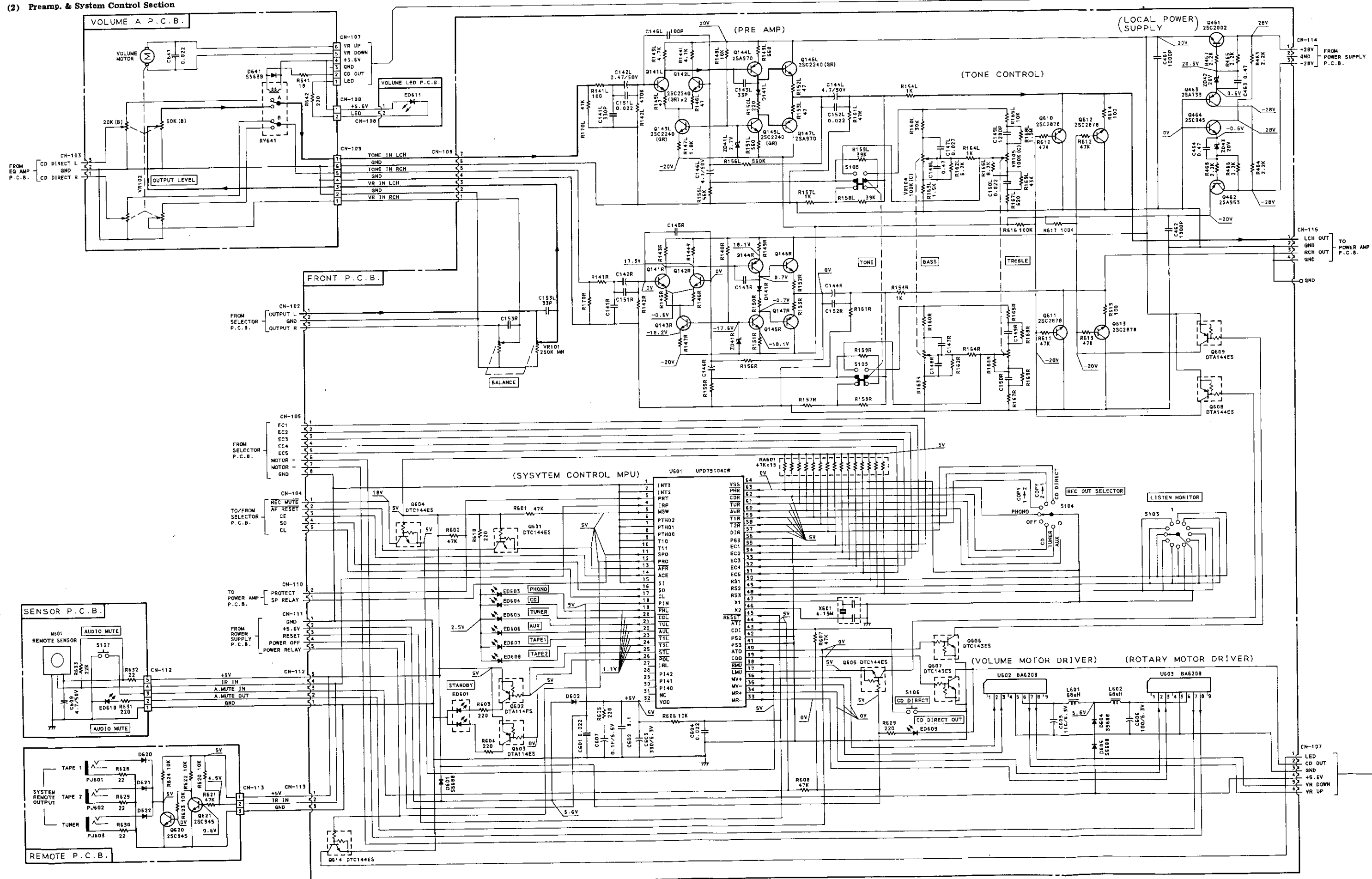
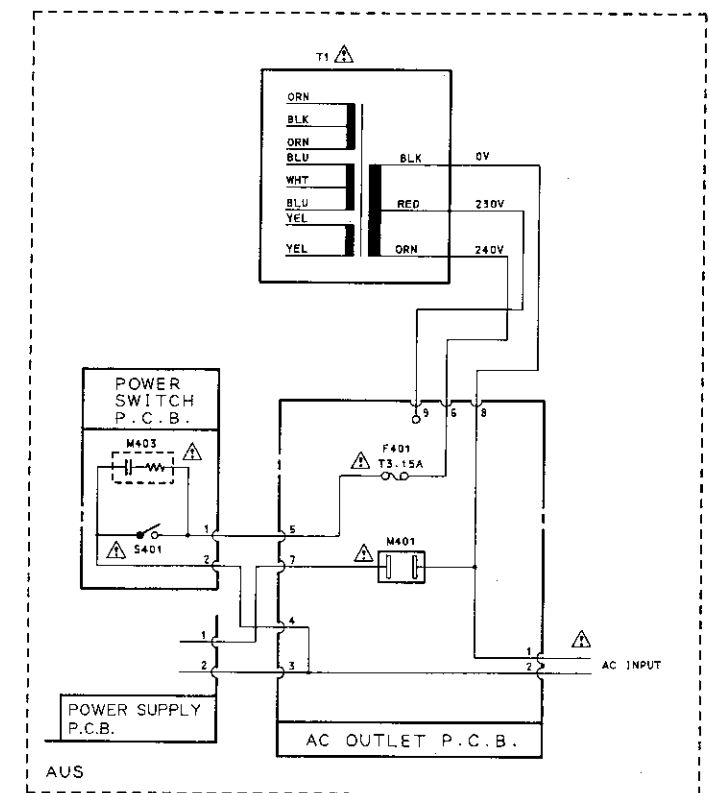
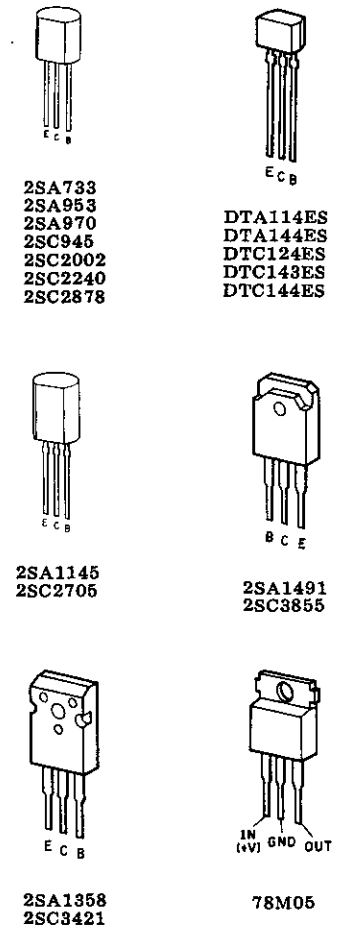
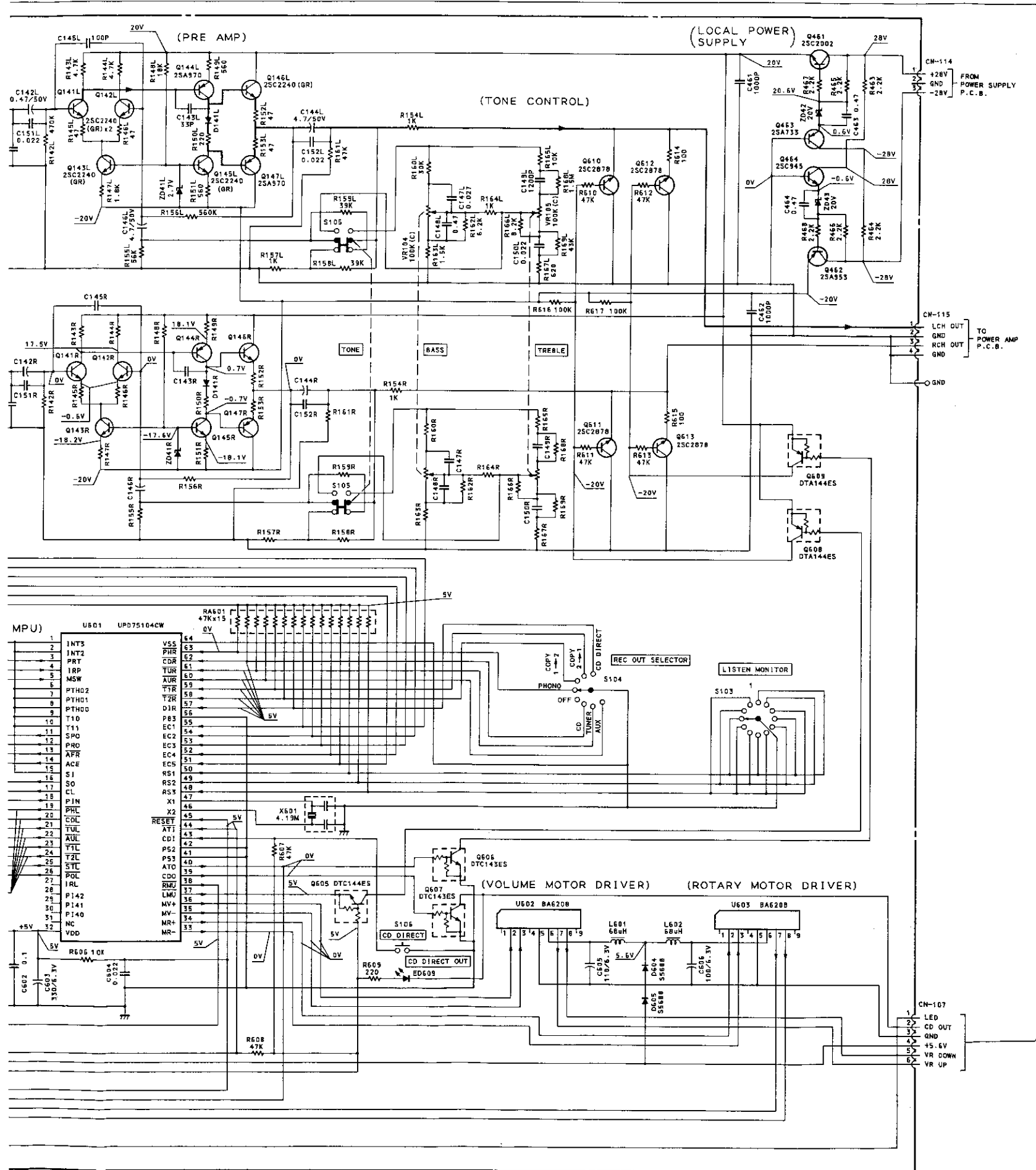


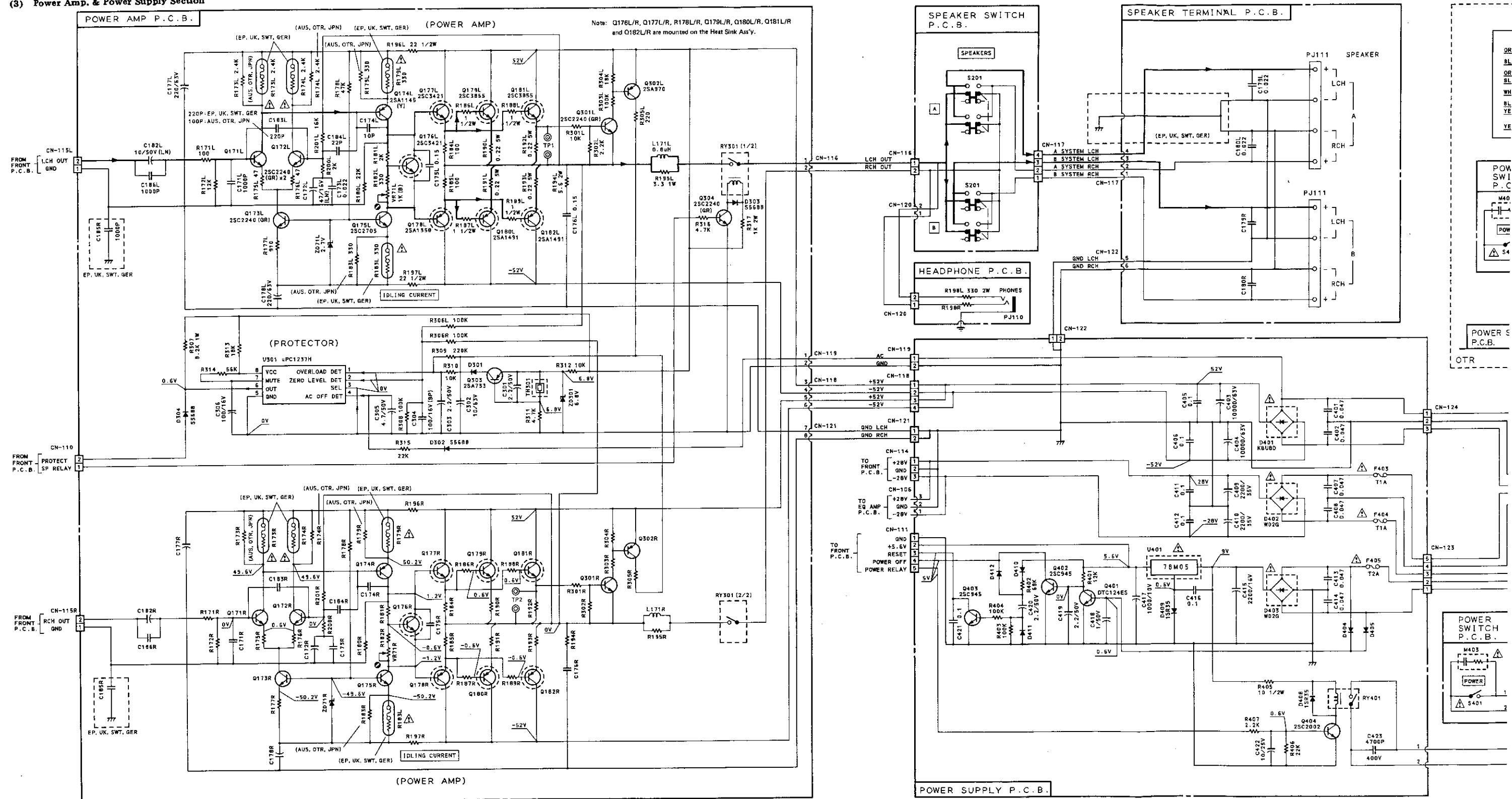
Fig. 7.2.2



- Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
3. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.
4. Description of electrolytic capacitor: 100/16V = 100 μ 16V

Fig. 7.2.2

(3) Power Amp. & Power Supply Section



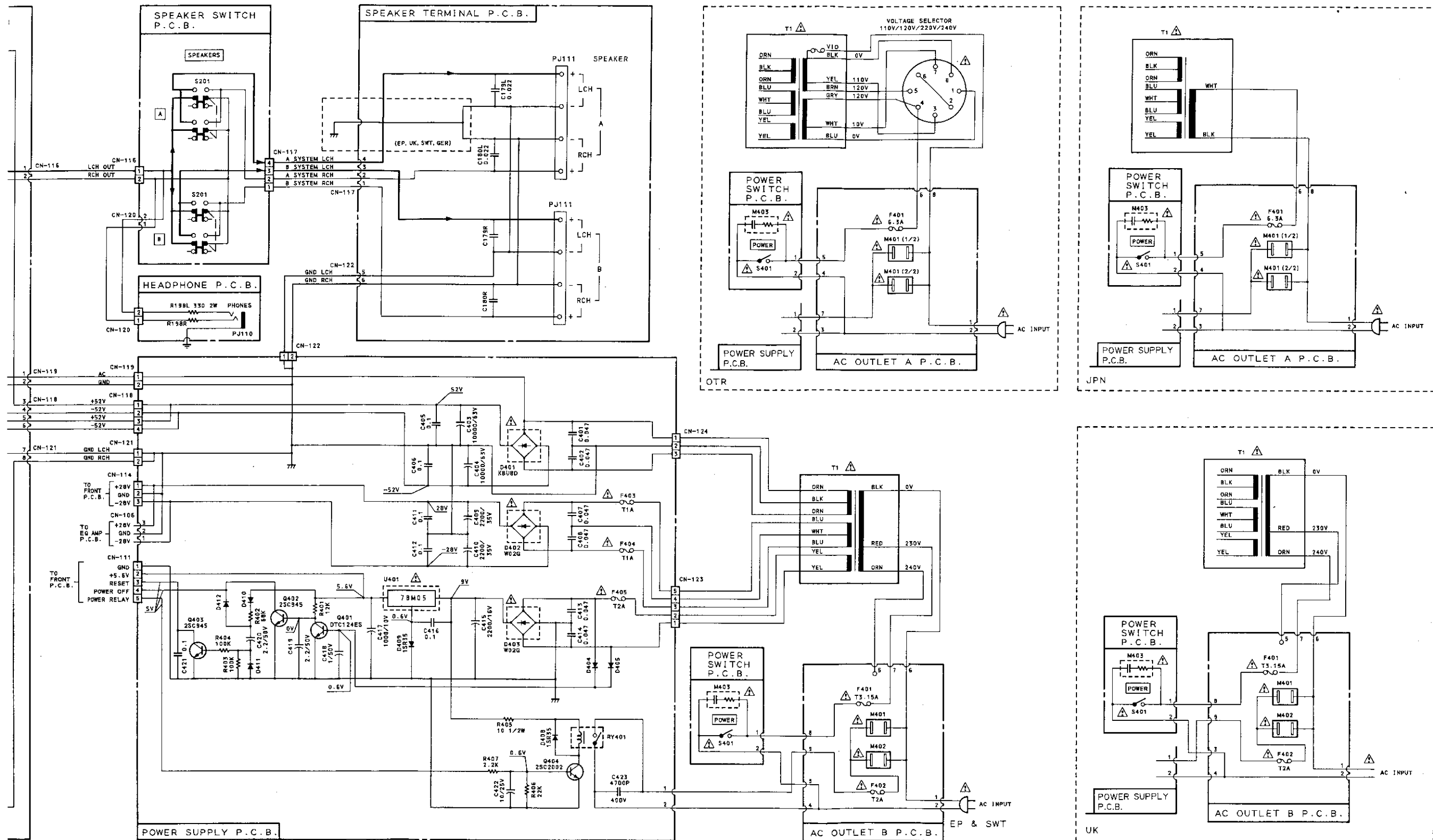


Fig. 7.2.3

WARNING:
 Parts marked with the symbol  have critical characteristics.
 Use ONLY replacement parts recommended by the manufacturer.
 It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

8. WIRING DIAGRAM

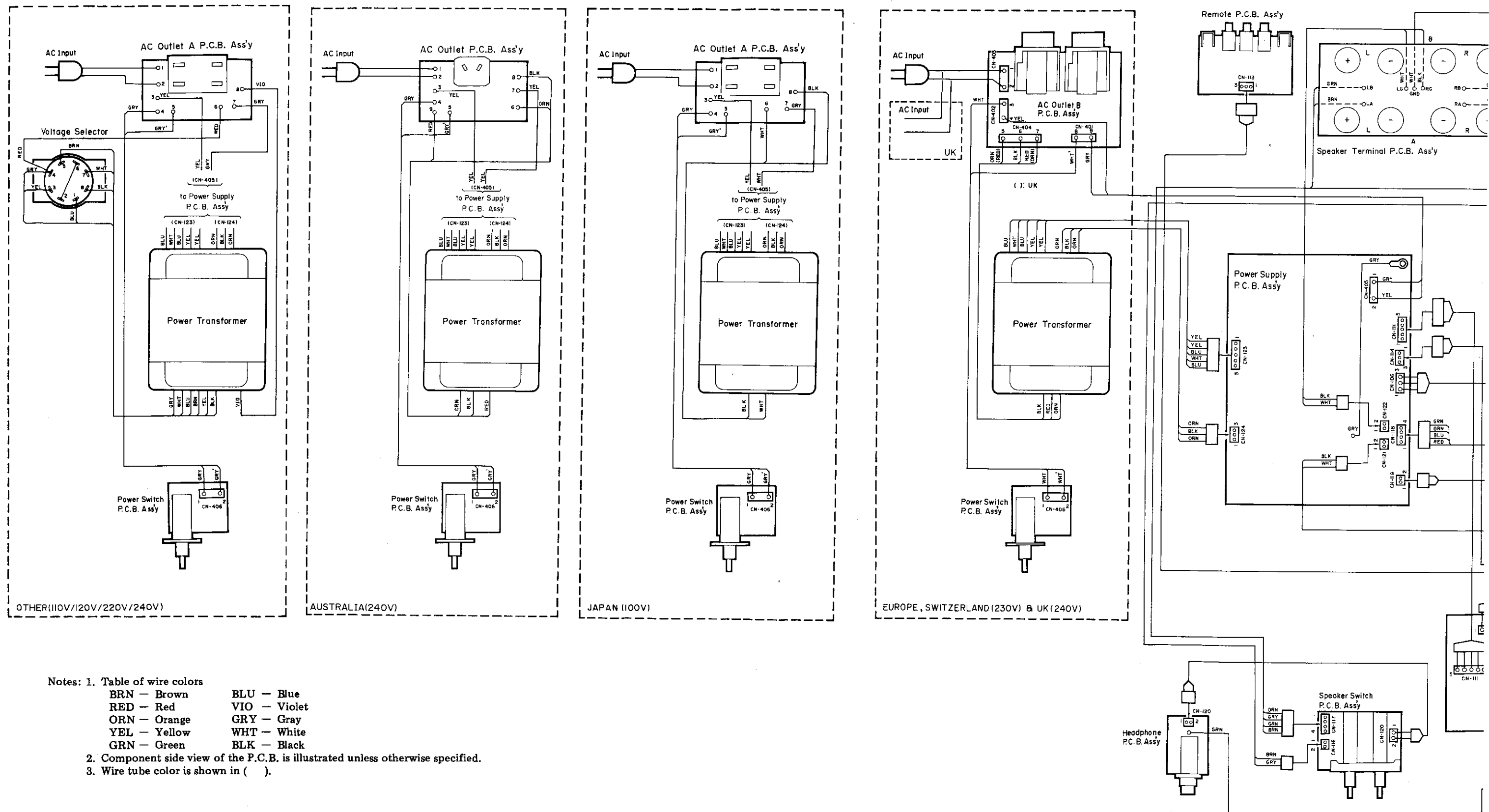
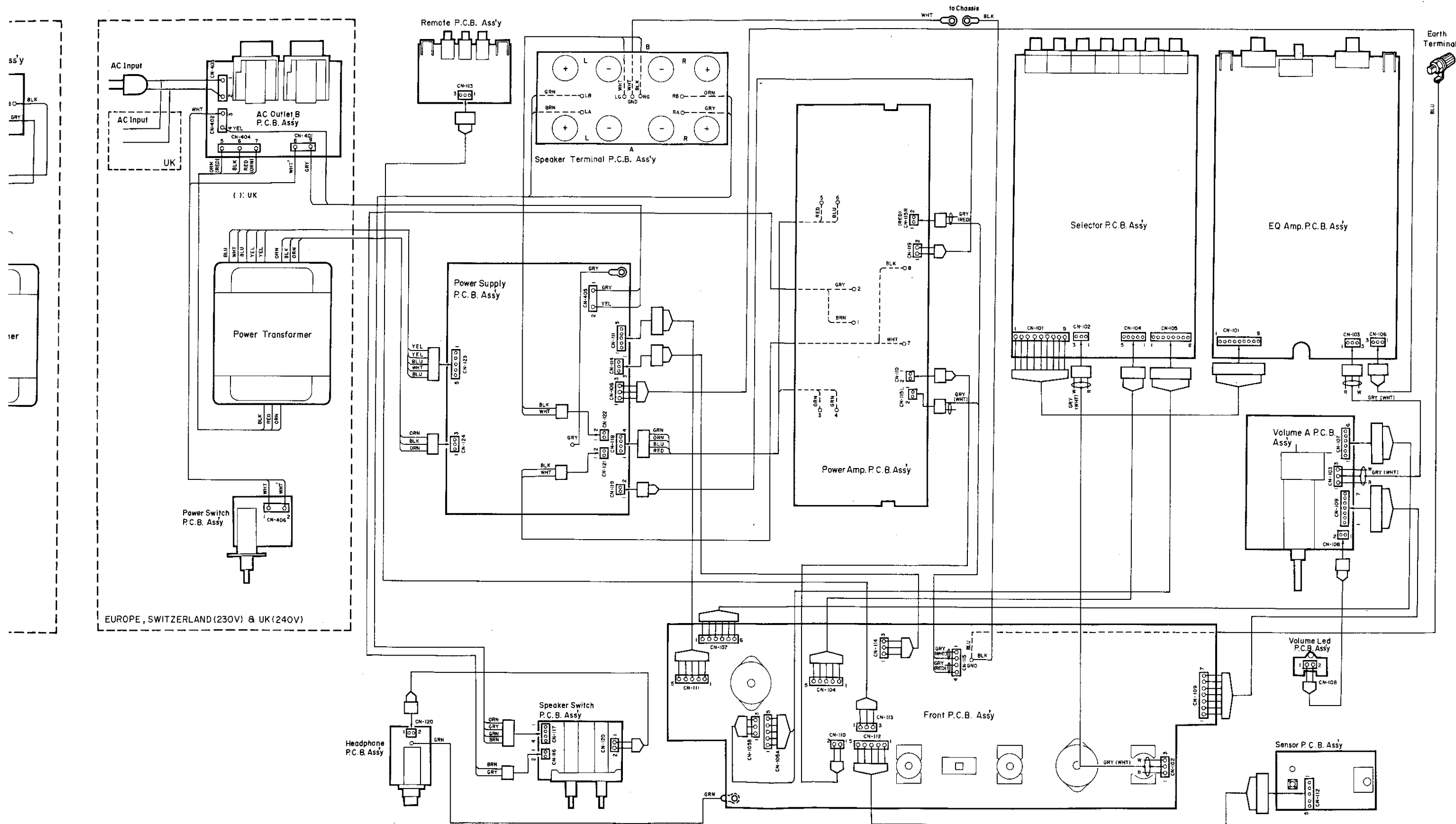


Fig. 8



9. BLOCK DIAGRAM

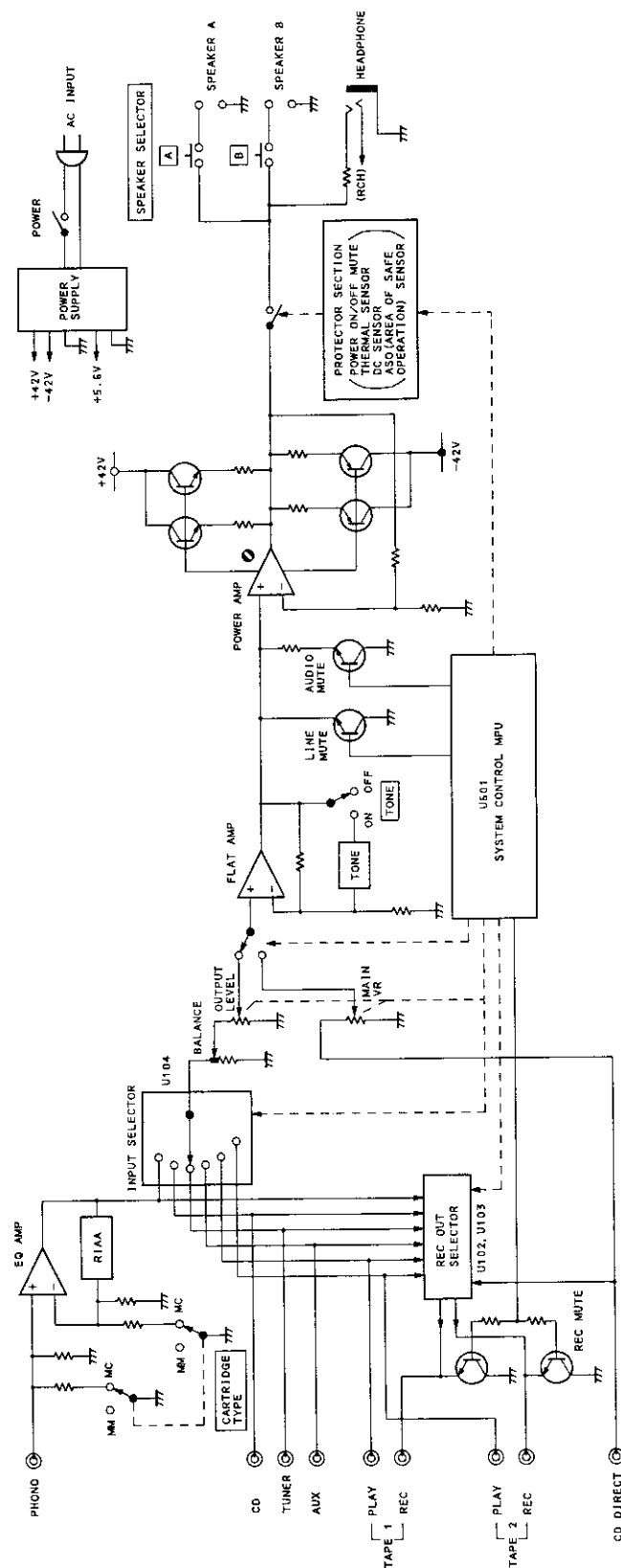


Fig. 9

10. SPECIFICATIONS

For areas other than Scandinavia and Switzerland

● Power Amplifier Section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/TUNER/TAPE/AUX) to the speaker output.

Continuous Average Output

Power

(both channels driven, 80 watts per channel into 8 ohms

20–20,000 Hz, 0.1% THD)

(DIN, both channels driven, . . 130 watts per channel into 4 ohms

1 kHz, 1% THD)

Dynamic Output Power 180 watts per channel into 4 ohms

270 watts per channel into 2 ohms

Power Bandwidth 10–50,000 Hz

Frequency Response 20–20,000 Hz +0, –0.5 dB

5–80,000 Hz +0, –3 dB

Signal to Noise Ratio Better than 105 dB re rated power

(A-WTD, input shorted) Better than 83 dB (IHF-A-202)

Total Harmonic Distortion 0.1% or less

(8 ohms, rated power,

20 Hz–20 kHz)

Headphone Output (into 187 mW

40 ohms)

Output Current Capability 28 A peak per channel

● Preamplifier section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, and tone control characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

Input Sensitivity/Impedance

Phono MC 0.125 mV/100 ohms

MM 2.5 mV/47 kohms

CD/Tuner/Tape/Aux 150 mV/20 kohms

Maximum input level (1 kHz)

Phono MC 9 mV

MM 180 mV

Output Level/Impedance

Rec Out 150 mV/1.5 kohms

Total Harmonic Distortion

(1 kHz, Rec Out, 1 V output level)

Phono MC 0.01% or less

MM 0.008% or less

RIAA Deviation

Phono MC/MM 30–20,000 Hz ± 0.5 dB

Signal to Noise Ratio

(to speaker output, IHF-A-202)

Phono MC 70 dB

MM 82 dB

Tone Controls

Bass 20 Hz, ± 10 dB

Treble 20 kHz, ± 10 dB

● General

Power Source 120, 230, 240 or 110/120/220/240 VAC,
50/60 Hz (according to country of sale)

Power Consumption 600 W max.

Convenience Outlets Switched x 2, maximum capacity 200 W (total)

Dimensions* 430 (W) x 125 (H) x 360 (D) mm

Approximate Weight 15.0 kg

● Remote Control Unit

Principle Infrared pulse system

Power Supply 3 VDC (1.5 V x 2)

Dimensions* 64 (W) x 18 (H) x 176 (D) mm

Approximate Weight 140 g (including batteries)

For Scandinavia and Switzerland

● Power amplifier section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202 measured from any high-level input (CD/TUNER/TAPE/AUX) to the speaker output.

Continuous Average Output . . . 80 watts per channel into 8 ohms
Power (both channels driven,
20–20,000 Hz, 0.1% THD)
Dynamic Output Power 180 watts per channel into 4 ohms
270 watts per channel into 2 ohms
Power Bandwidth 10–50,000 Hz
Frequency Response 20–20,000 Hz +0, –0.5 dB
5–80,000 Hz +0, –3 dB
Signal to Noise Ratio Better than 105 dB re rated power
(A-WTD, input shorted) Better than 83 dB (IHF-A-202)
Total Harmonic Distortion 0.1% or less
(8 ohms, rated power,
20 Hz–20 kHz)
Headphone Output (into 187 mW
40 ohms)
Output Current Capability 28 A peak per channel

● Preamplifier section

Note: Unless noted otherwise, specifications are in accordance with IHF-A-202. Except for sensitivity, S/N, and tone control characteristics (which are measured to the speaker outputs), measurements are made from the specified input to Rec Out.

Input Sensitivity/Impedance

Phono MC 0.125 mV/100 ohms
MM 2.5 mV/47 kohms
CD/Tuner/Tape/Aux 150 mV/20 kohms
Maximum input level (1 kHz)
Phono MC 9 mV
MM 180 mV

Output level/Impedance

Rec Out 150 mV/1.5 kohms
Total Harmonic Distortion
(1 kHz, Rec Out, 1 V output level)
Phono MC 0.01% or less
MM 0.008% or less

RIAA deviation

Phono MC/MM 30–20,000 Hz ± 0.5 dB
Signal to Noise Ratio
(to speaker output, IHF-A-202)
Phono MC 70 dB
MM 82 dB

Tone Controls

Bass 20 Hz, ± 10 dB
Treble 20 kHz, ± 10 dB

● General

Power Source 230 VAC, 50/60 Hz
Power Consumption 400 W max.
Convenience Outlets Switched x 2, maximum capacity 200W (total)
Dimensions* 430 (W) x 125 (H) x 360 (D) mm
Approximate Weight 15.0 kg

● Remote control unit

Principle Infrared pulse system
Power Supply 3 VDC (1.5 V x 2)
Dimensions* 64 (W) x 18 (H) x 176 (D) mm
Approximate Weight 140 g (including batteries)

*: Dimensions do not include protruding parts. Height is the panel height.

● Specifications and design are subject to change for further improvement without notice.

Service Manual

Amplifier 1

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Nakamichi Canada
Nakamichi Australia
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