



SERVICE MANUAL **1180 DC**



marantz

model 1180DC

Stereo Console Amplifier

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1. POWER AMPLIFIER ADJUSTMENT

1.1 DC-OFFSET Adjustment

Connect VTVM to JN01 and JN05 (or ground) and adjust left channel R739 until the meter indication reaches 0 mV (± 5 mV). Similarly, connect VTVM to JN04 and JN06 (or ground) and adjust right channel R740 until the meter indication reaches 0 mV (± 5 mV).

2. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the Model 1180DC Stereo Console Amplifier. The wattmeter, AC voltmeter, and variable autotransformer may be assembled as a test fixture as shown schematically in Figure 1. The load resistors and AC ammeter may be assembled into a second test fixture as shown in Figure 2.

Table 1. Test Equipment Required for Servicing

Item	Manufacturer and Model No. (or equivalent)	Use
Distortion Analyzer and Audio Oscillator	Sound Technology, Model 1700B (NOTE: Less than 0.002 percent residual distortion is required.)	Measures distortion, voltage of amplifier output and sinewave source
Oscilloscope	Tektronix, Model 503 Data, Model 555	Waveform analysis and troubleshooting.
VTVM	RCA Senior Volt-Ohmyst, Model WV-98C	Voltage and resistance measurements.
AC Wattmeter	Simpson, Model 390	Monitors primary power consumption of amplifier.
AC Ammeter (0 to 10 amps)	Commercial Grade	Monitors amplifier output under short circuit condition.
Line Voltmeter (0 to 150V AC)	Commercial Grade	Monitors potential of primary power to amplifier.
Variable Autotransformer (0 to 140 V AC, 10 amps)	Powerstat, Model 116B	Adjusts level of primary power to amplifier.
Shorting Plug	Use phono plug with 600 ohms across center pin and shell.	Shorts amplifier input to eliminate noise pickup.
Power Supply Bleeder Resistor (10 ohms at 1 W)	Commercial Grade	Discharges power supply filter capacitors prior to disassembly or resistance measurements.
Output Load Resistor (8 Ω $\pm 0.5\%$, 250W)	Commercial Grade	Provides 8-ohm load for amplifier output termination.
Output Load Resistor (4 Ω $\pm 0.5\%$, 250W)	Commercial Grade	Provides 4-ohm load for amplifier output termination.
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks.
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1.	Monitors and controls primary power for amplifier.
Amplifier Output Load Box	Optional Item Fabricate in accordance with Figure 2.	Provides various amplifier loads and can monitor shorted output.

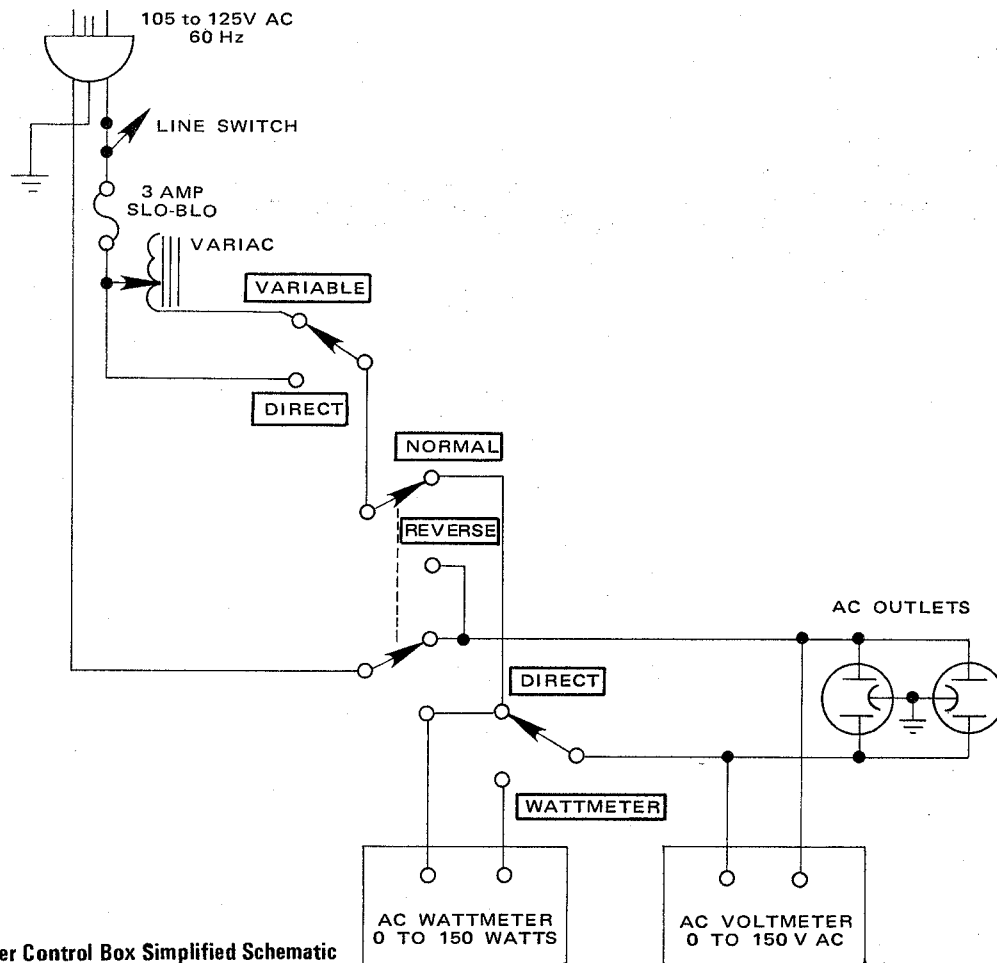


Figure 1. AC Power Control Box Simplified Schematic

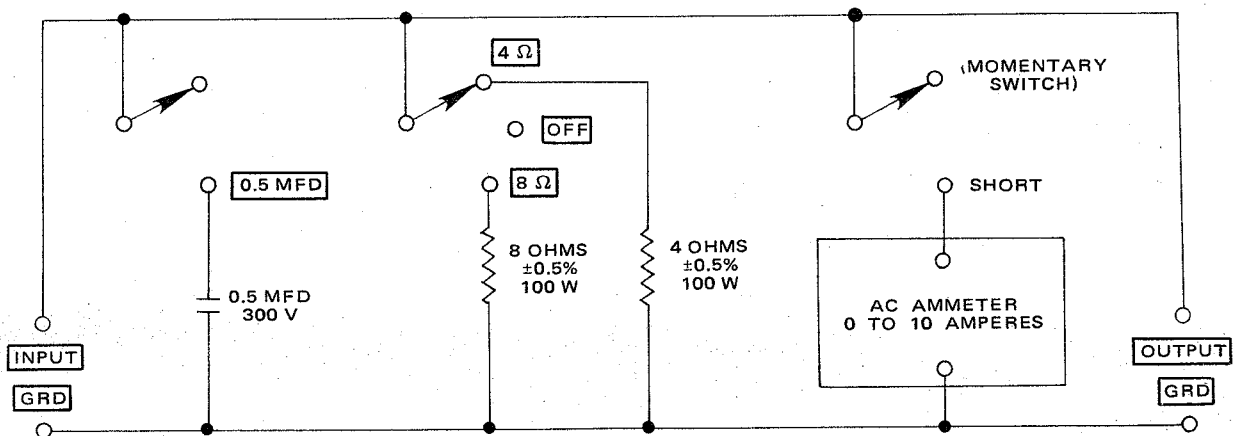


Figure 2. Amplifier Output Load Box Simplified Schematic

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3. VOLTAGE CONVERSION

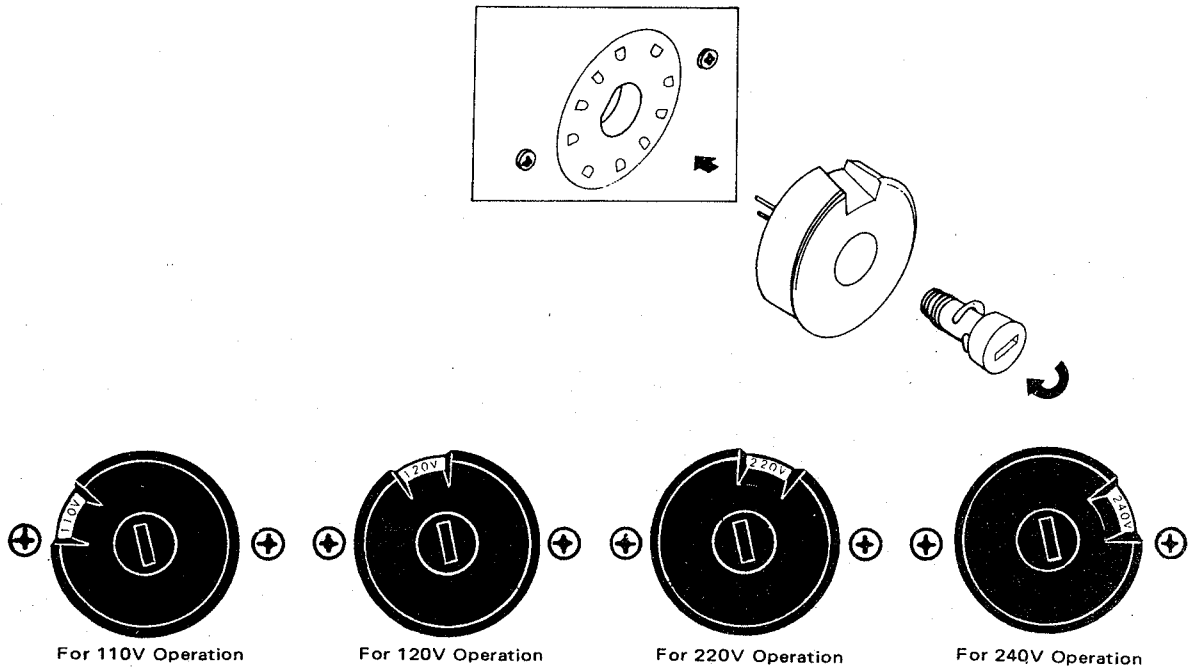
● EUROPEAN MODEL ONLY

This Model is equipped with a universal power transformer to permit operation at 110, 120, 220 and 240 V AC 50/60 Hz.

To convert the unit to the required voltage, set the plug as illustrated so that you can adjust the voltage as required.

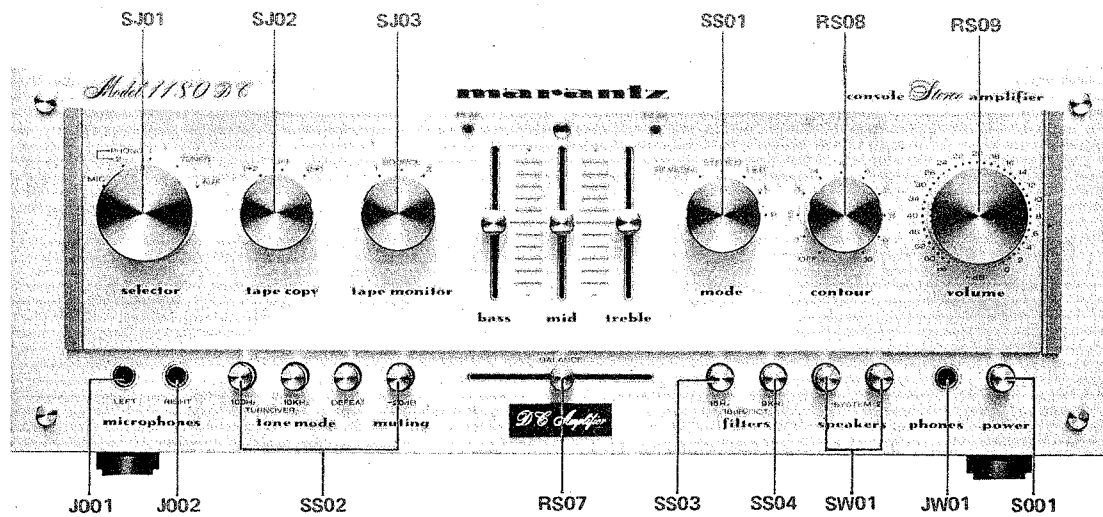
CAUTION
DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

Figure 3. Voltage Conversion Chart

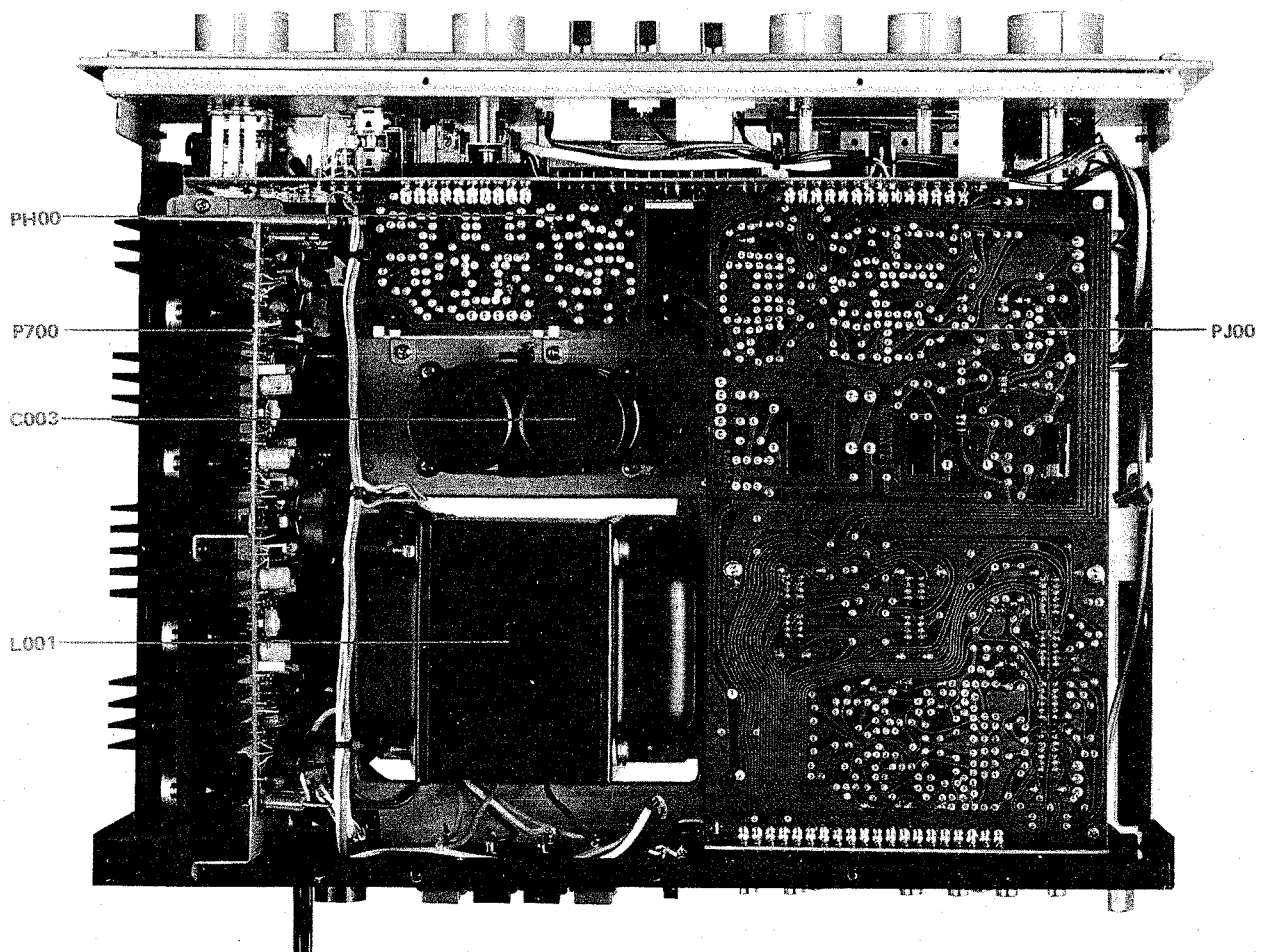


4. MAJOR COMPONENT LOCATIONS

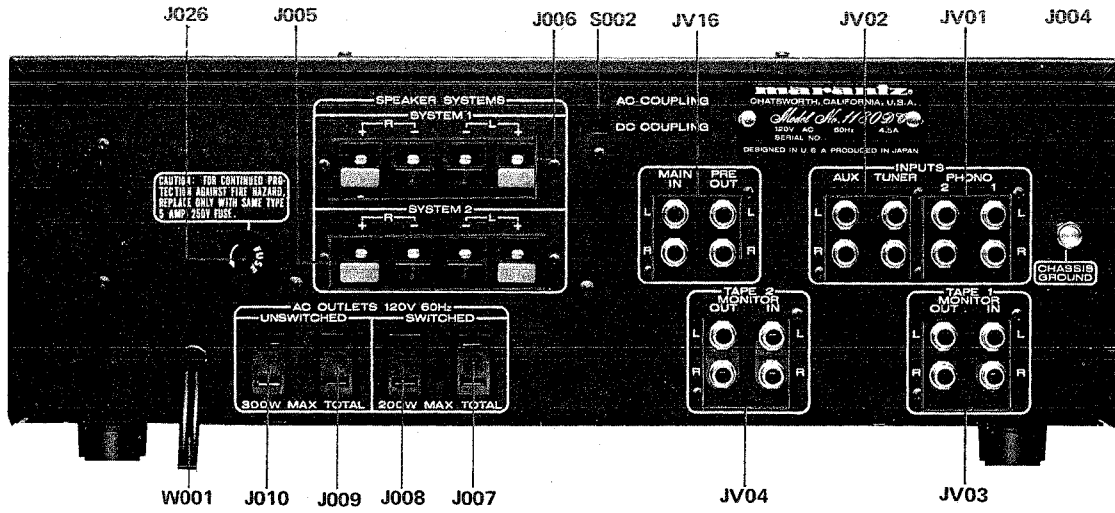
4.1 Front Panel Adjustment and Component Locations



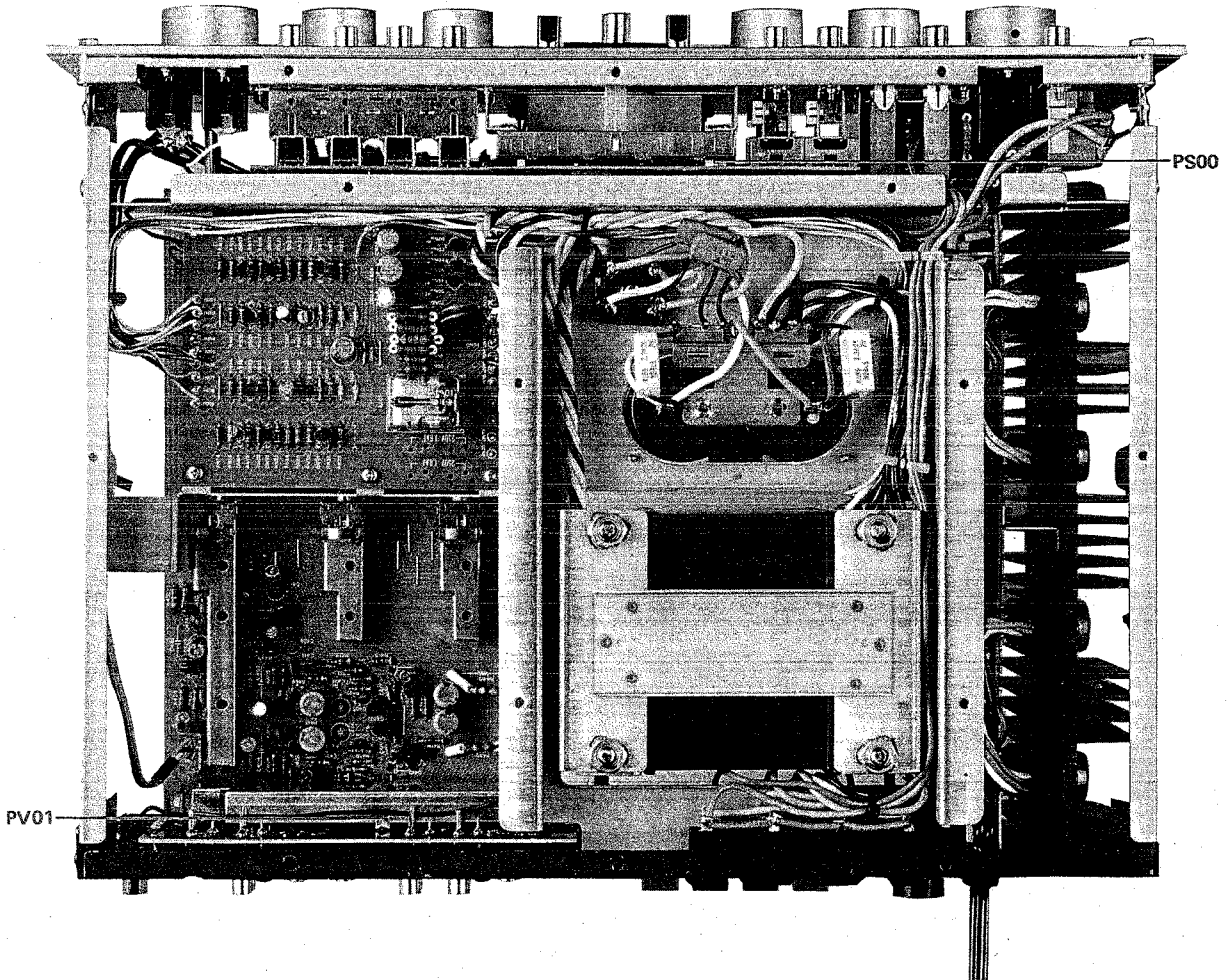
4.2 Main Chassis Component Locations (Top View)



4.3 Rear Panel Adjustment and Component Locations

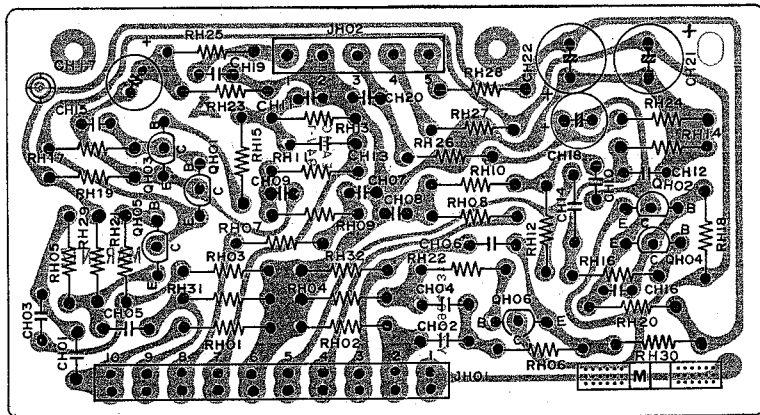
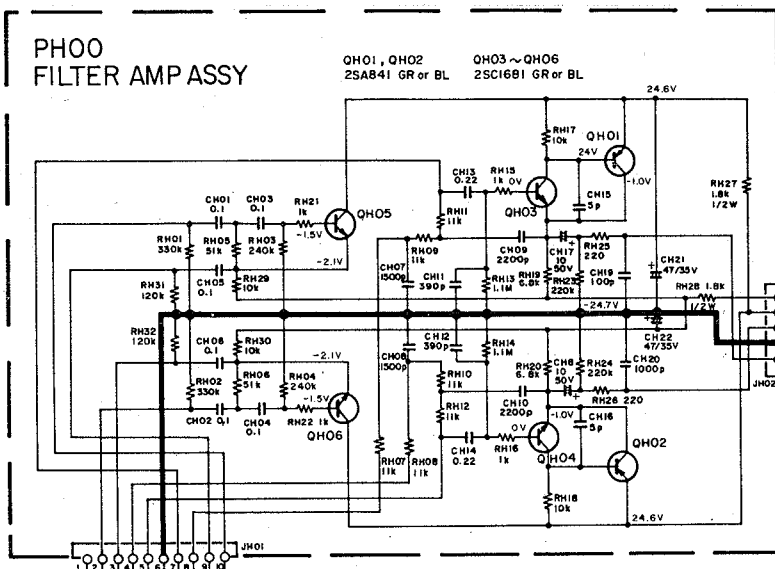


4.4 Main Chassis Component Locations (Bottom View)

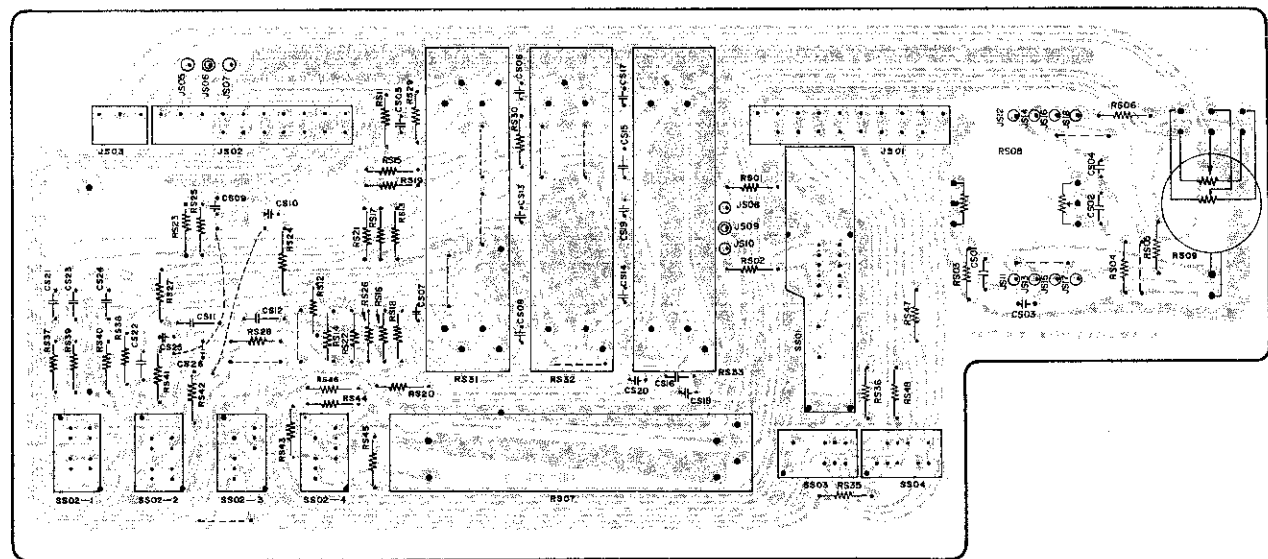
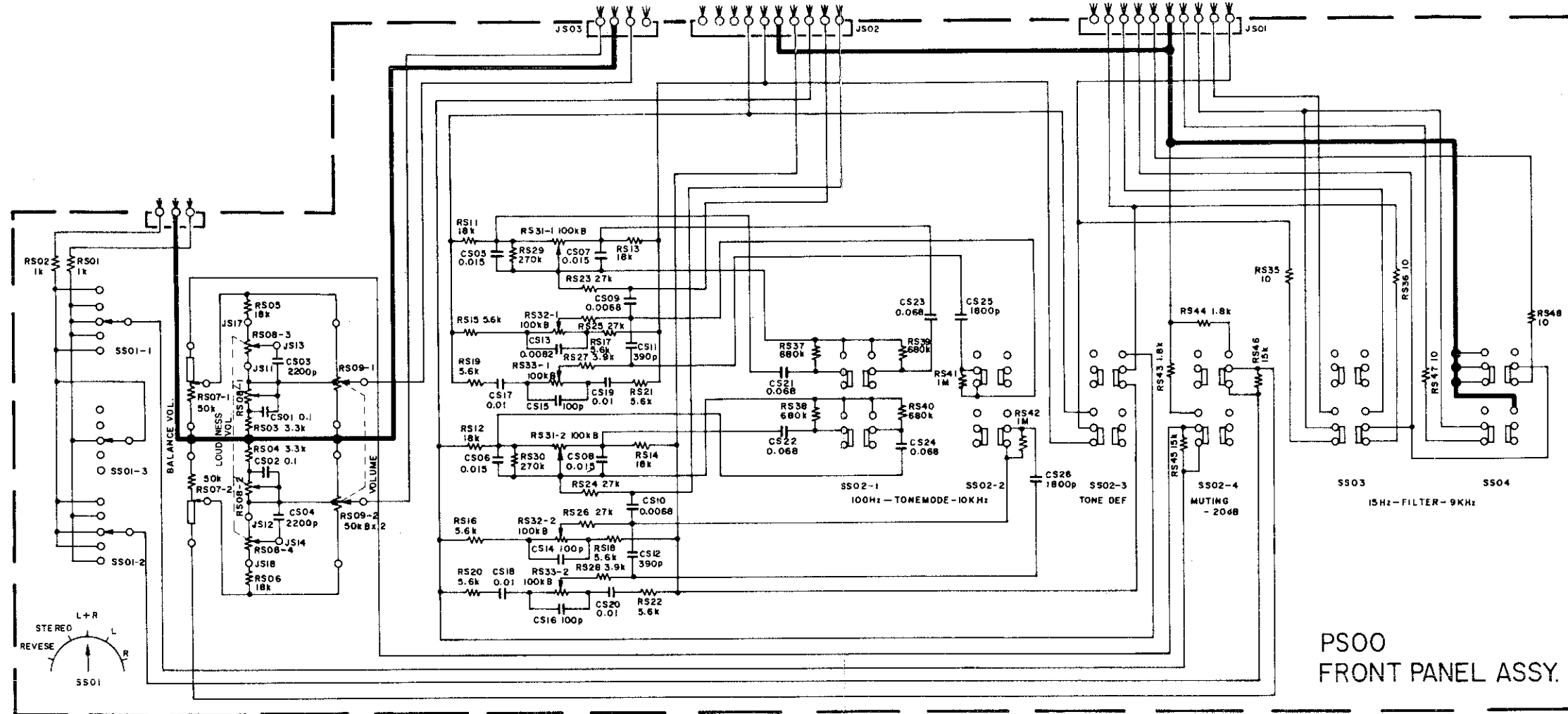


5. DIAGRAM AND COMPONENT LOCATIONS

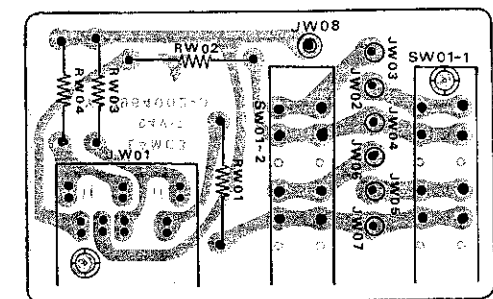
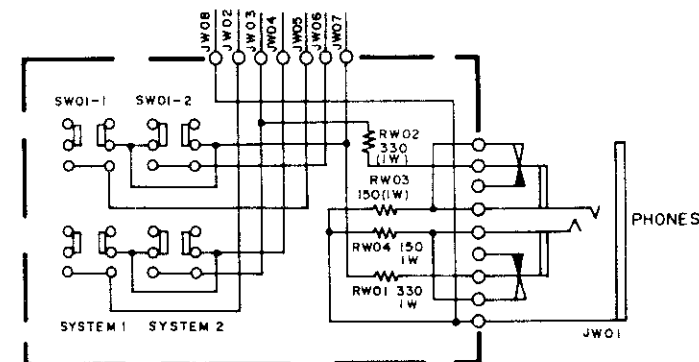
5.1 Filter Amp. Assembly (PH00) Schematic Diagram and Component Locations



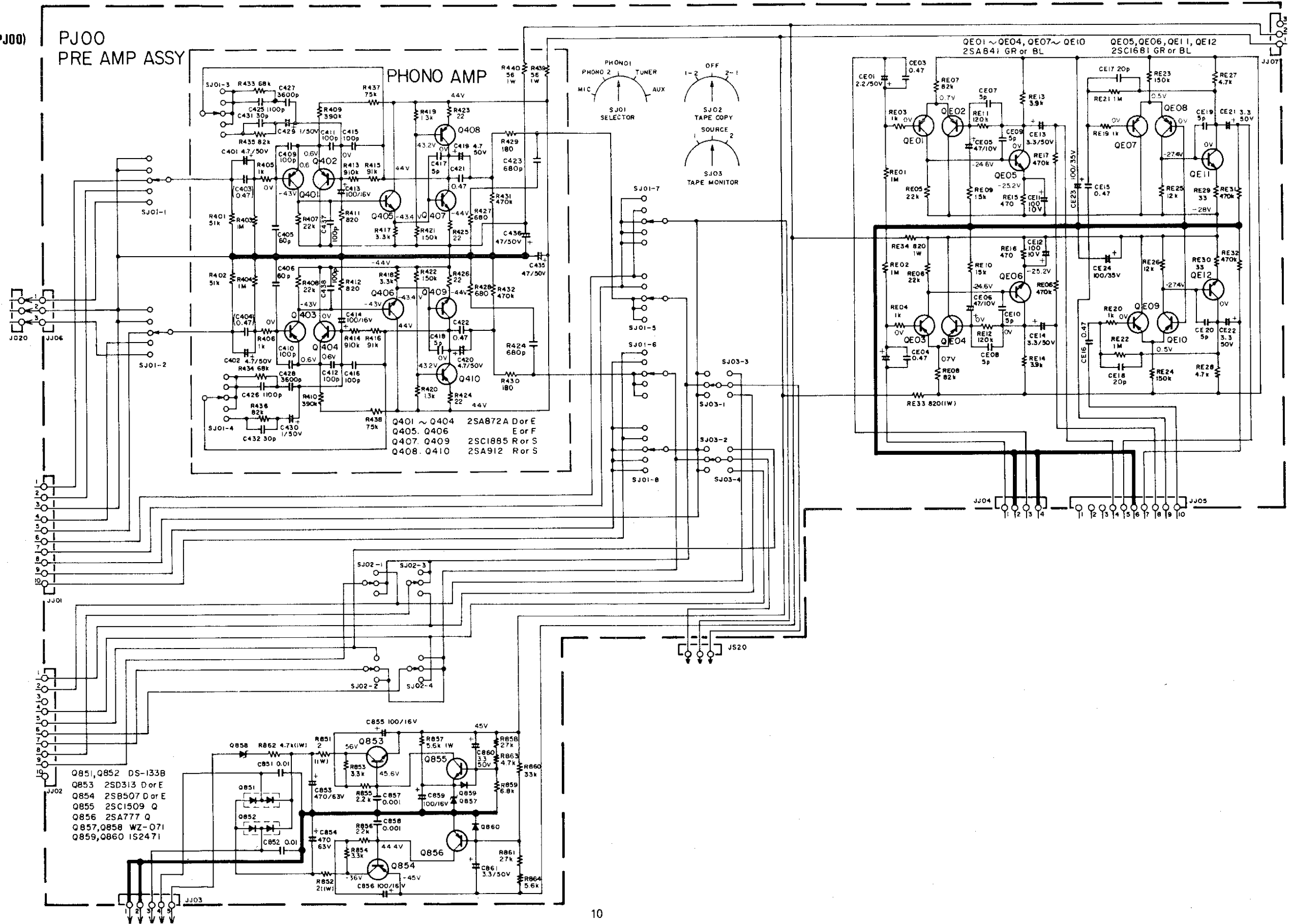
5.2 Front Panel Assembly (PS00) Schematic Diagram and Component Locations



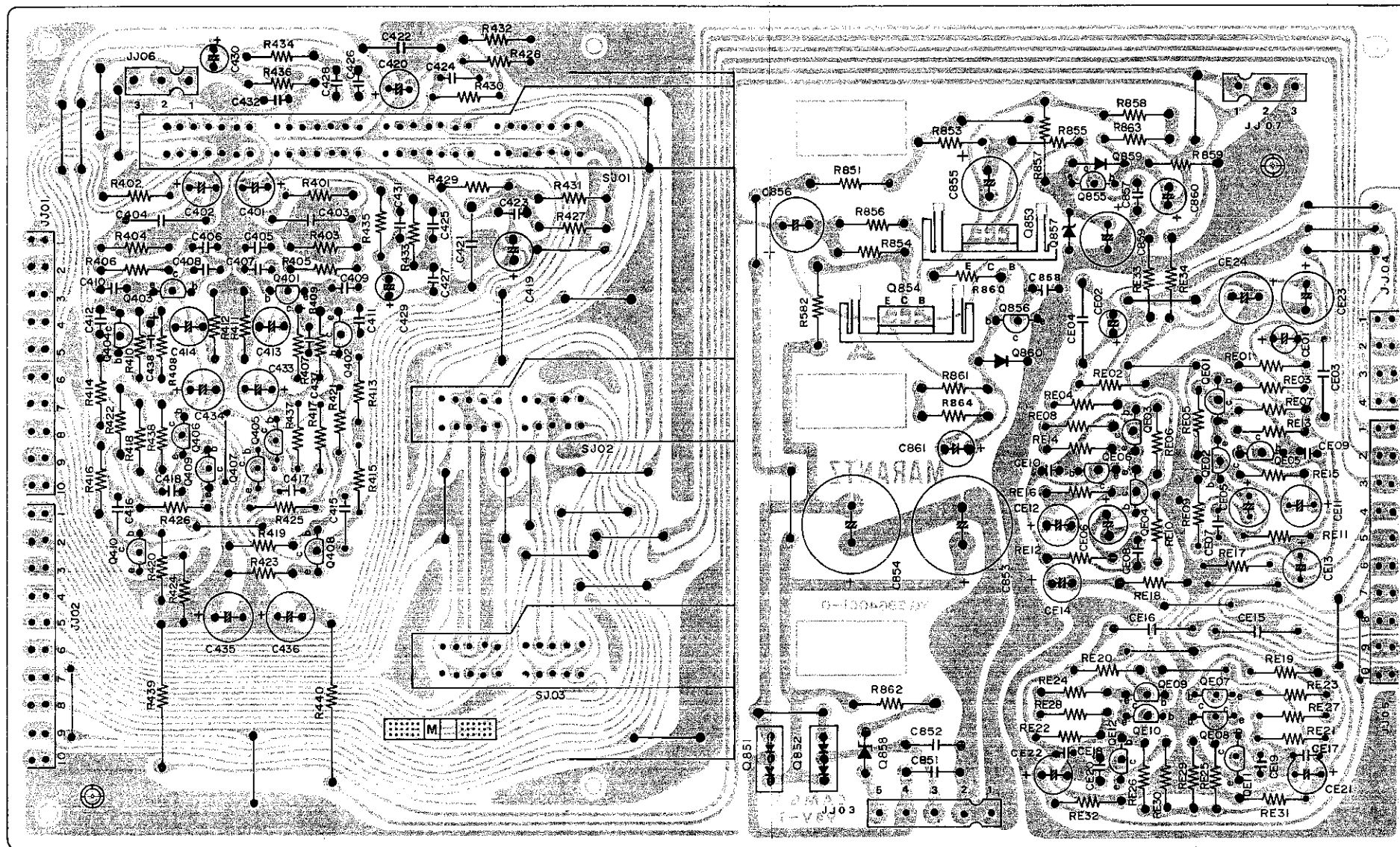
5.3 Speaker Switch Assembly (PW00) Schematic Diagram and Component Locations



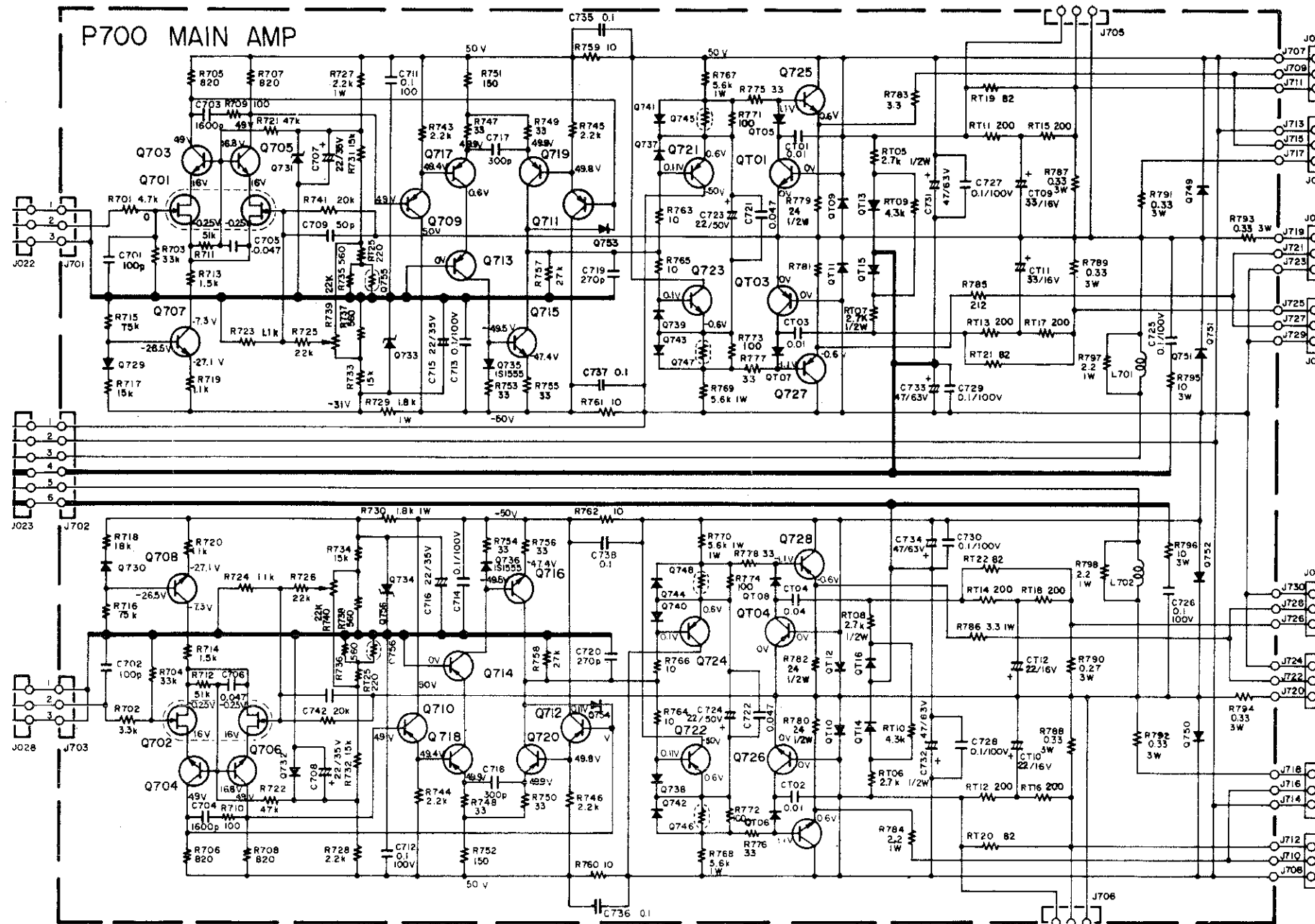
5.4 Pre Amp. Assembly (PJ00)
Schematic Diagram



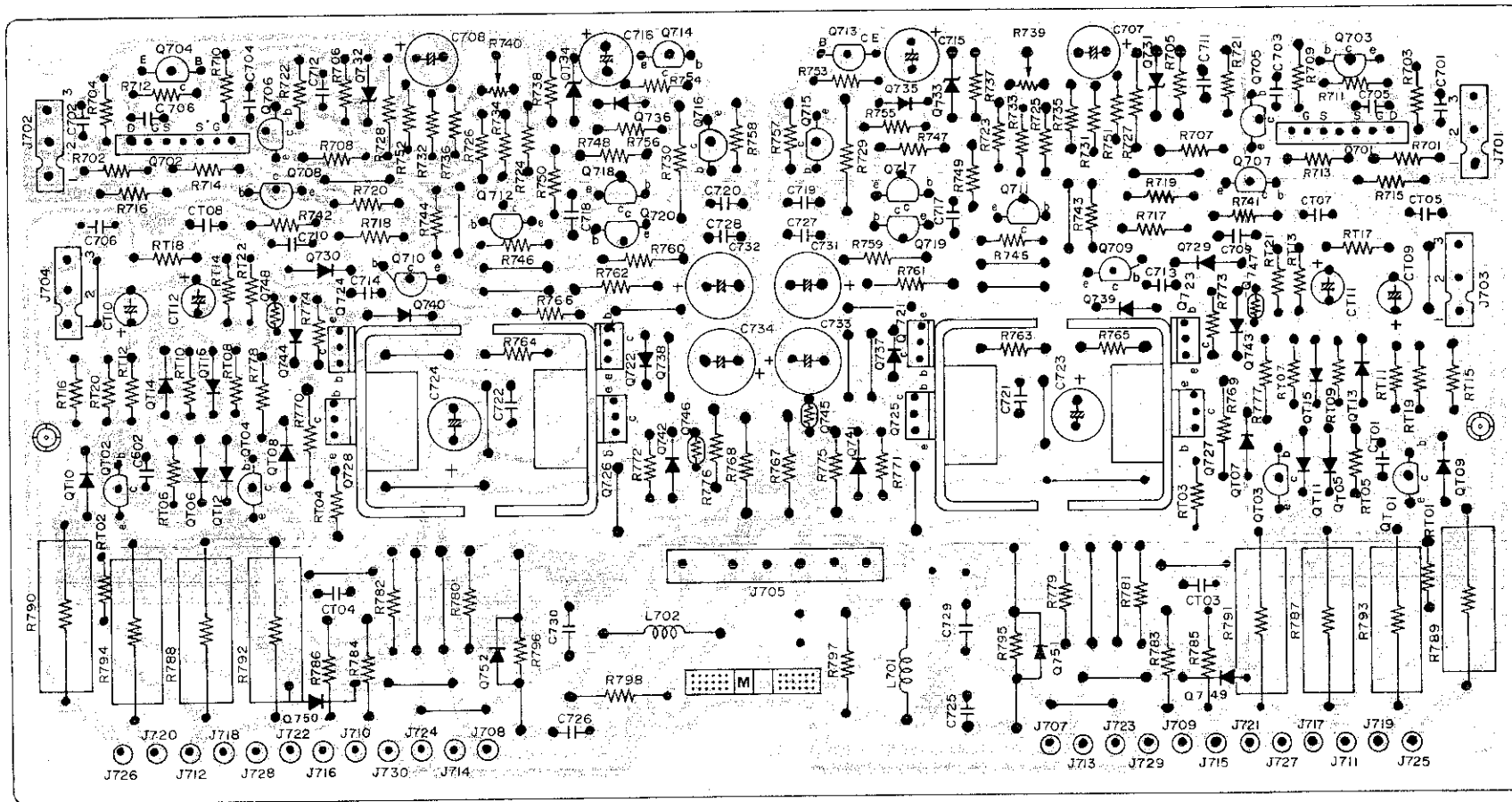
• Pre Amp. Assembly (PJ00) Component Locations



5.5 Main Amp. Assembly (P700) Schematic Diagram

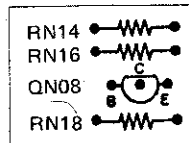


• Main Amp. Assembly (P700) Component Locations

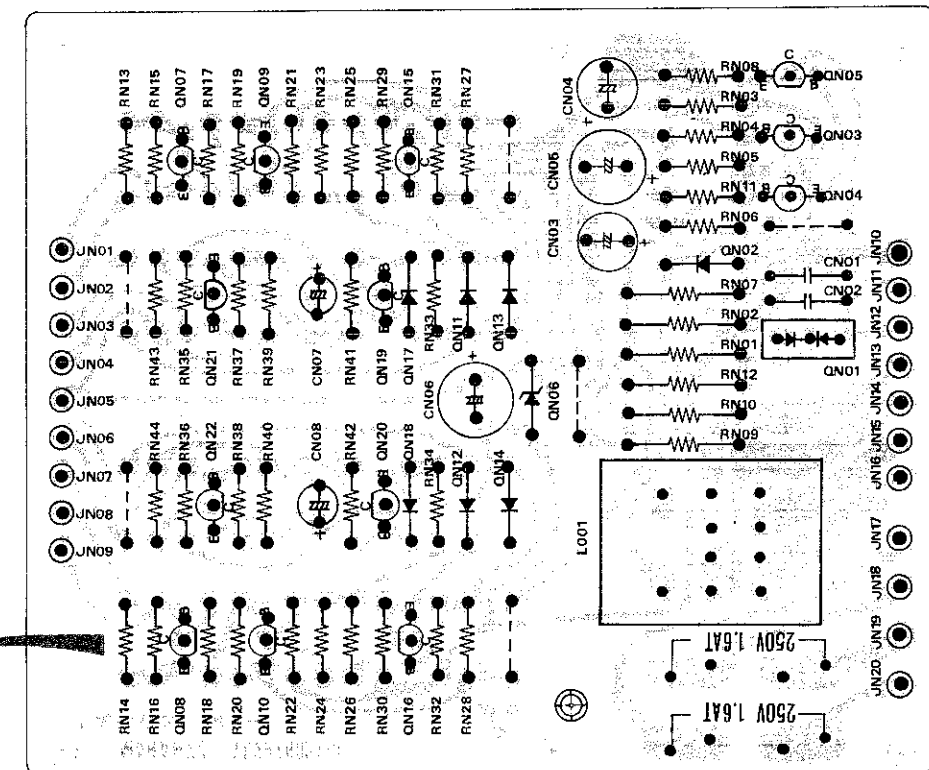
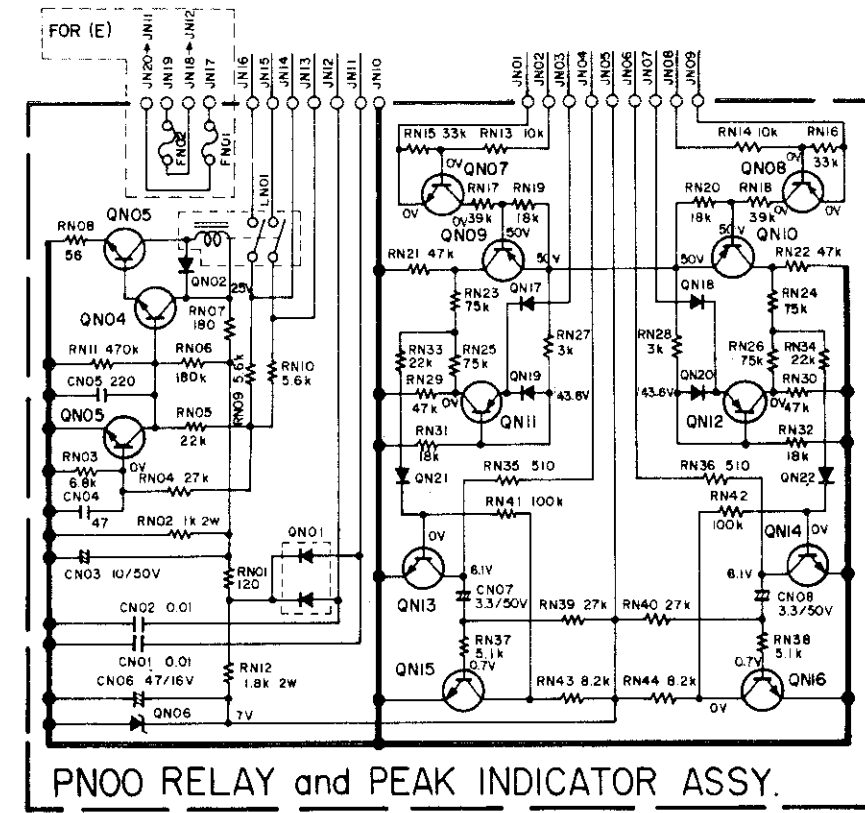


NOTE

Products running from serial numbers U010001 to U020150 and E010001 to E030100 have polarity indication failure of QN08 on the PN00 P.W. Board. Correct polarity is shown in the following diagram.

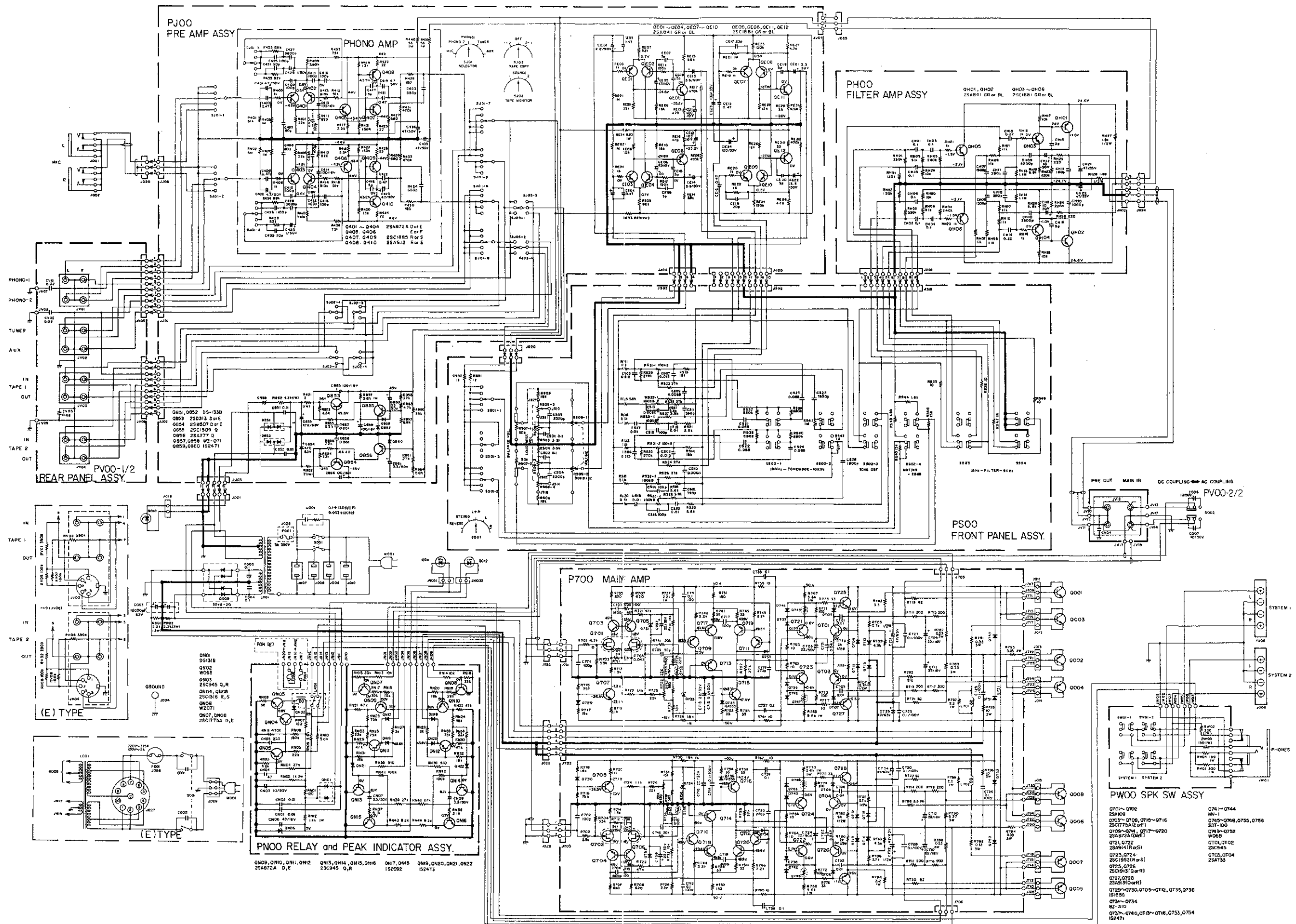


5.6 Relay Assembly (PN00) Schematic Diagram and Component Locations

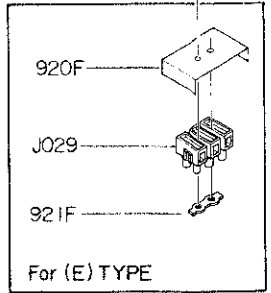
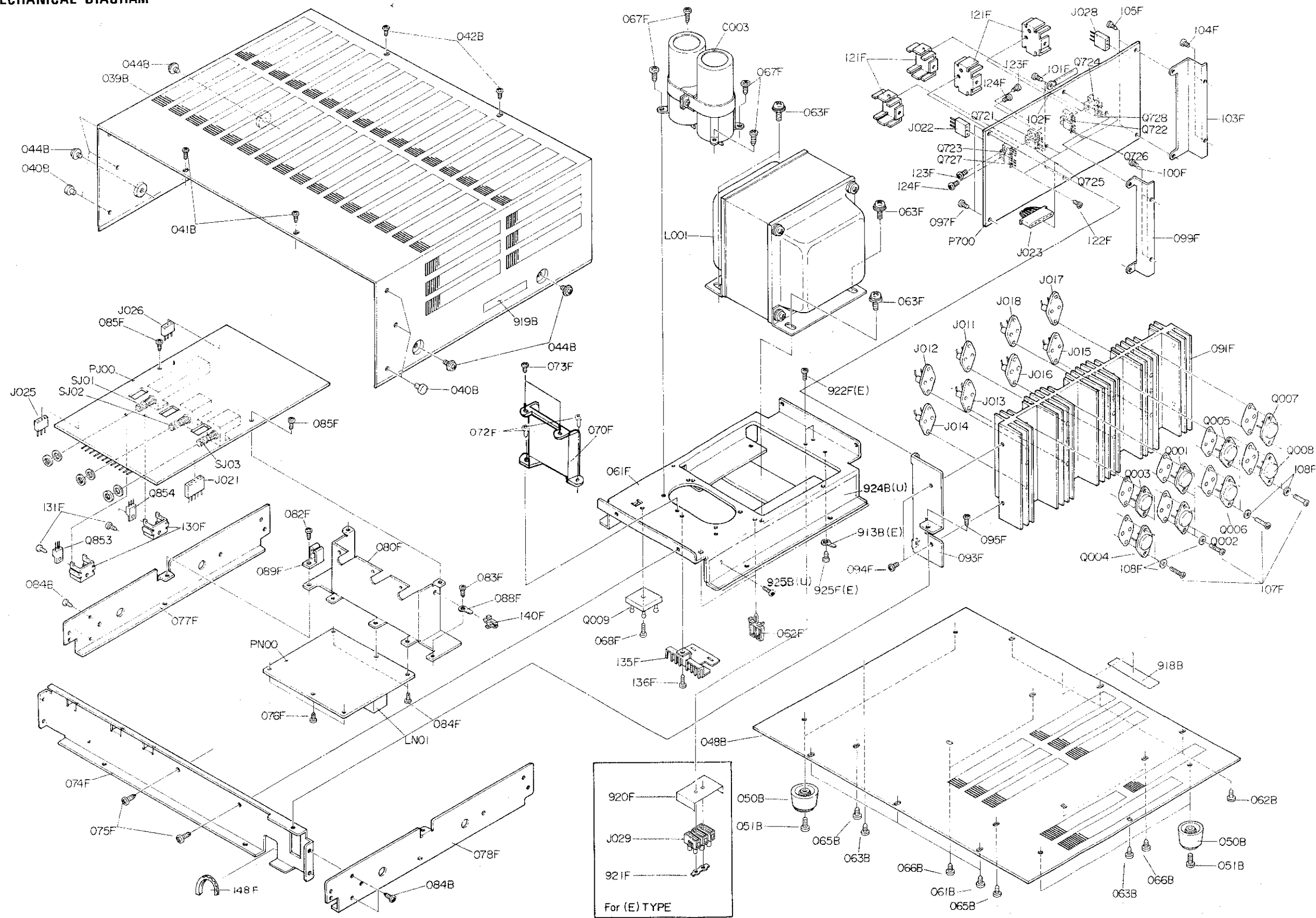


8. SCHEMATIC DIAGRAM

Model 1180DC

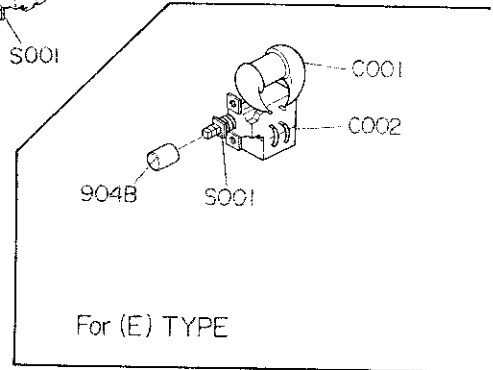
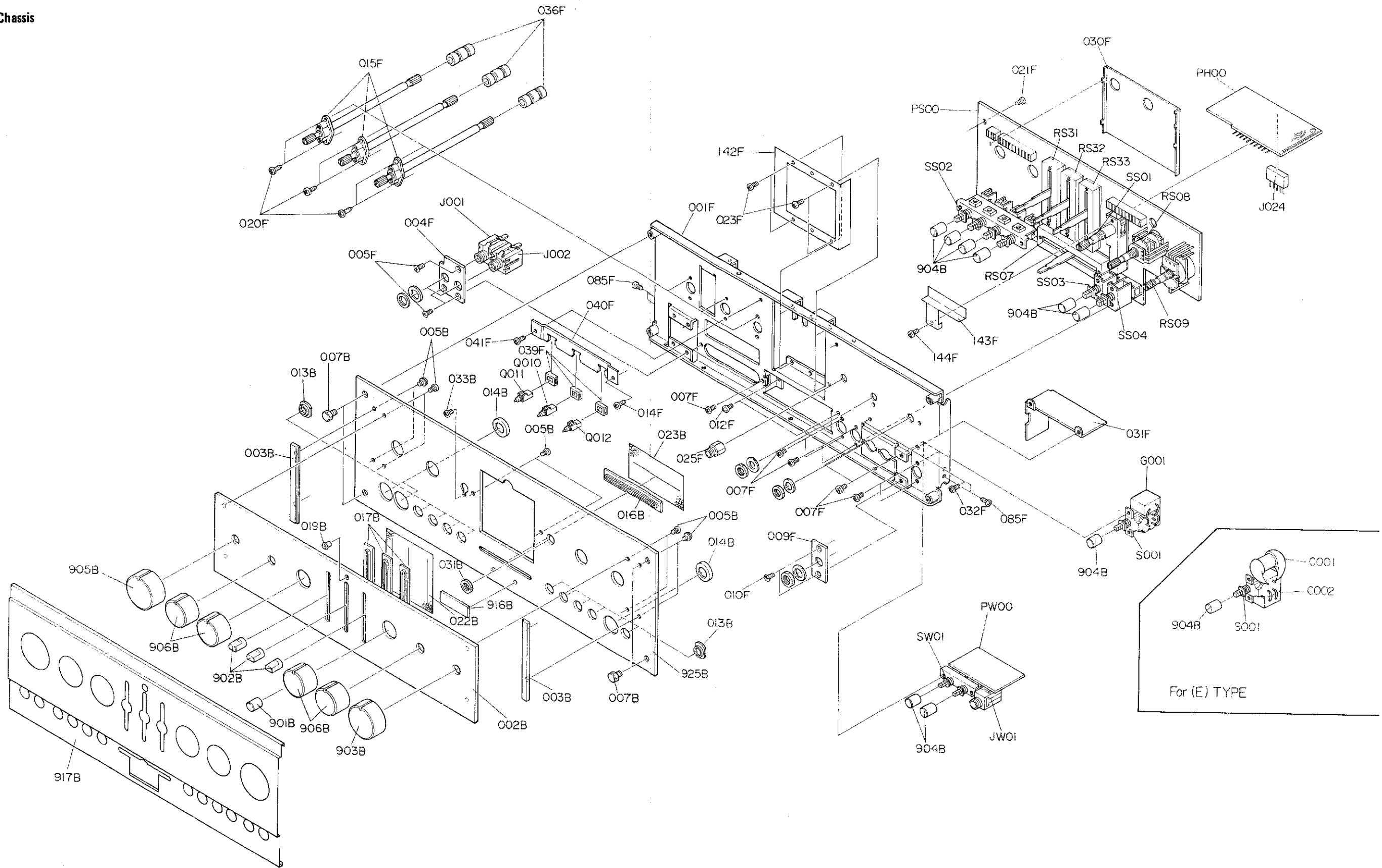


9. EXPLODED MECHANICAL DIAGRAM
9.1 Cabinet

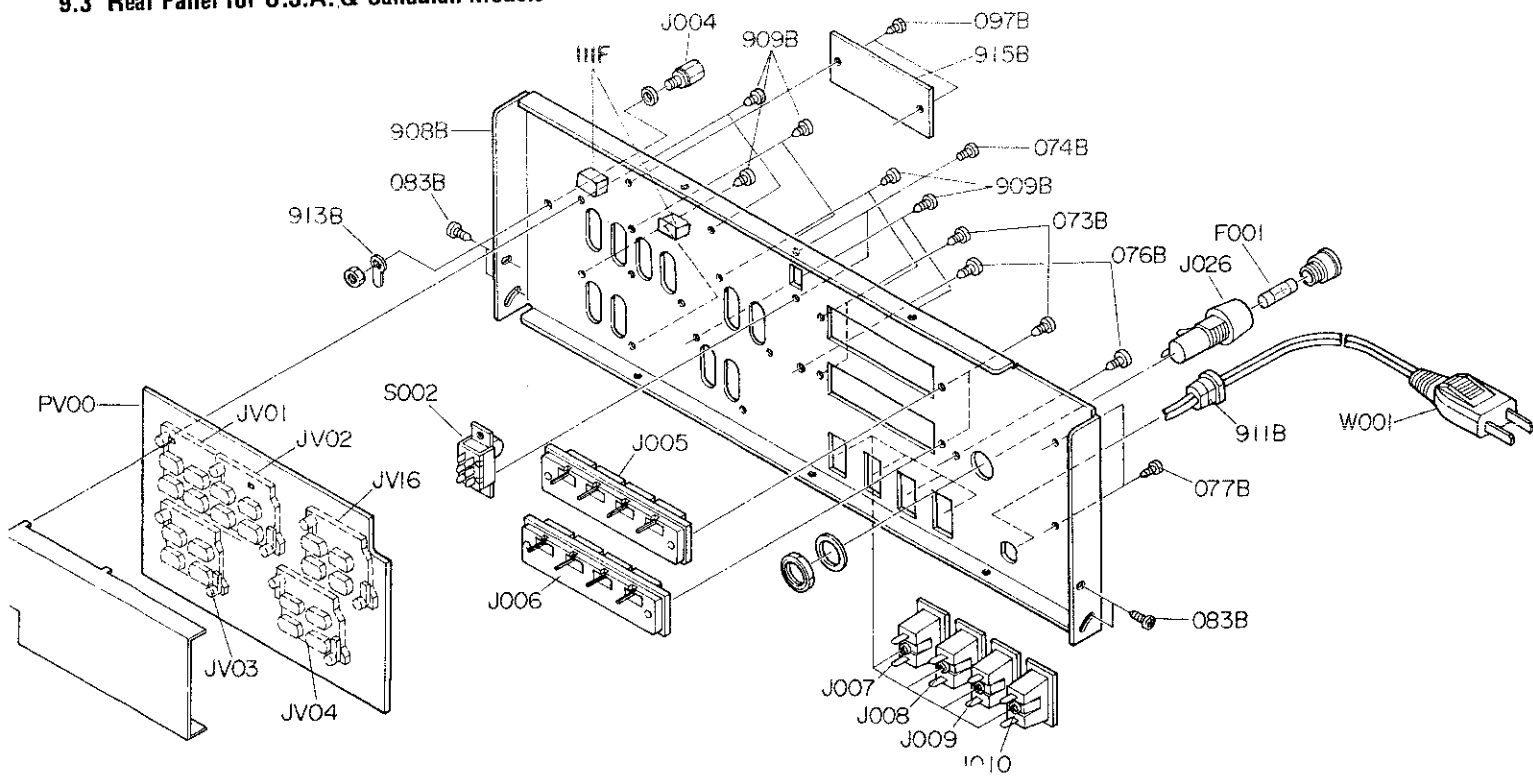


• (U) for U.S.A.
 • (E) for Europe

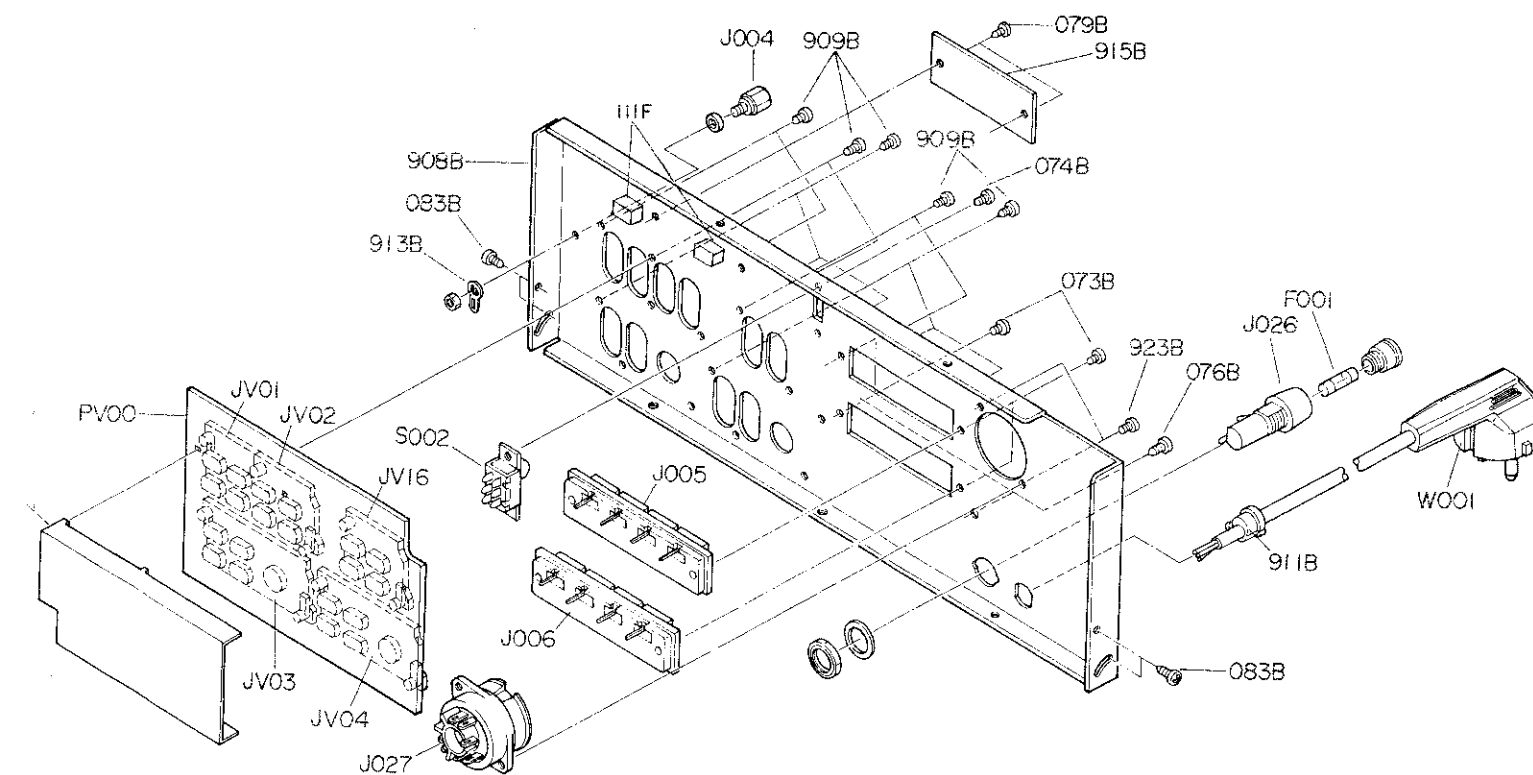
9.2 Chassis



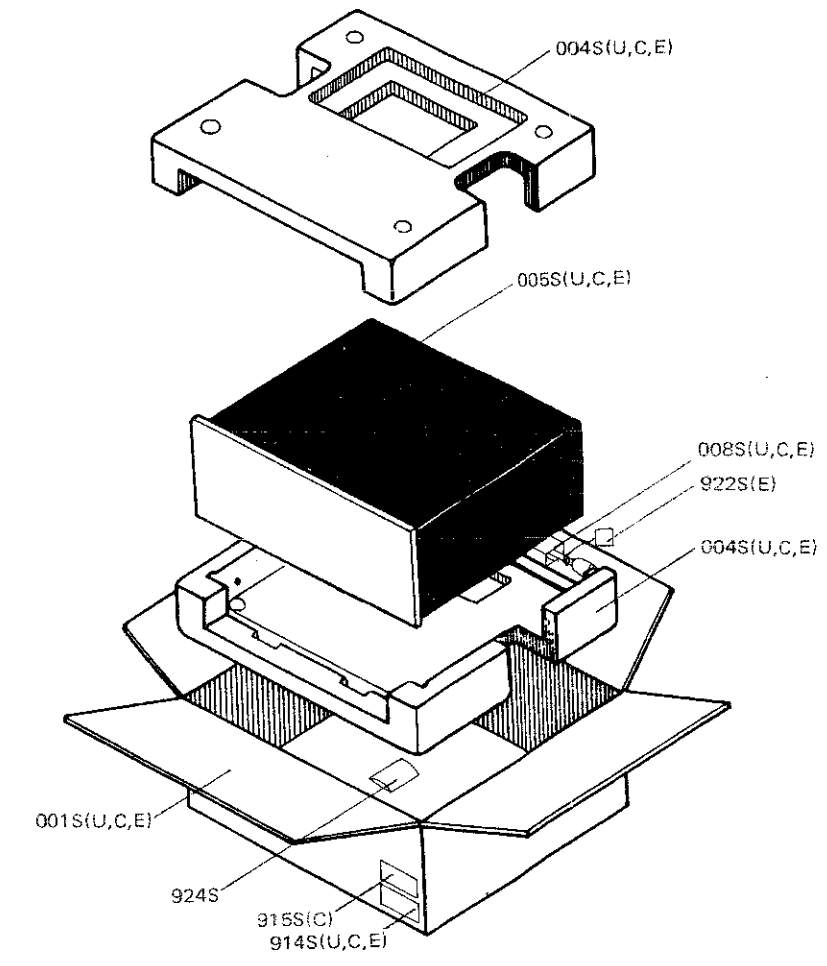
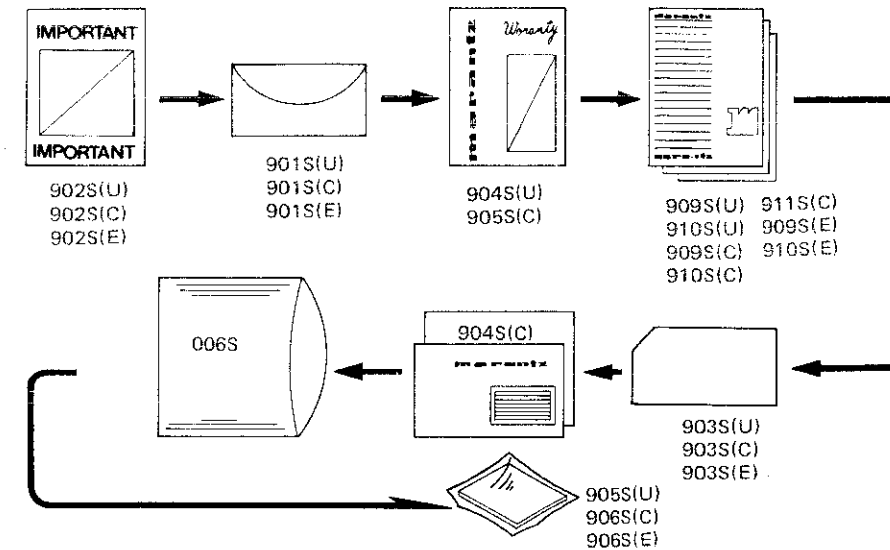
9.3 Rear Panel for U.S.A. & Canadian Models



9.4 Rear Panel for European Model



10. PACKING MATERIAL EXPLODED VIEW



- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

- (U) for U.S.A
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
RE01	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE02	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE03	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE04	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE05	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
RE06	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
RE07	1	1	1	RT05823140	Resistor, 82kΩ ±5% ¼W
RE08	1	1	1	RT05823140	Resistor, 82kΩ ±5% ¼W
RE09	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
RE10	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
RE11	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
RE12	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
RE13	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W
RE14	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W
RE15	1	1	1	RT05471140	Resistor, 470Ω ±5% ¼W
RE16	1	1	1	RT05471140	Resistor, 470Ω ±5% ¼W
RE17	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE18	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE19	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE20	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RE21	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE22	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
RE23	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
RE24	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
RE25	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE26	1	1	1	RT05123140	Resistor, 12kΩ ±5% ¼W
RE27	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
RE28	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
RE29	1	1	1	RT05330140	Resistor, 33Ω ±5% ¼W
RE30	1	1	1	RT05330140	Resistor, 33Ω ±5% ¼W
RE31	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE32	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
RE33	1	1	1	GJ05821010	Resistor, 820Ω ±5% 1W
RE34	1	1	1	GJ05821010	Resistor, 820Ω ±5% 1W
CH01	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH02	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH03	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH04	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH05	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH06	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CH07	1	1	1	DF15152010	Film Cap., 1500pF ±5% 50V
CH08	1	1	1	DF15152010	Film Cap., 1500pF ±5% 50V
CH09	1	1	1	DF15222010	Film Cap., 2200pF ±5% 50V
CH10	1	1	1	DF15222010	Film Cap., 2200pF ±5% 50V
CH11	1	1	1	DF65391010	Film Cap., 390pF ±5% 50V
CH12	1	1	1	DF65391010	Film Cap., 390pF ±5% 50V
CH13	1	1	1	DF17224010	Film Cap., 0.22μF ±20% 50V
CH14	1	1	1	DF17224010	Film Cap., 0.22μF ±20% 50V
CH15	1	1	1	DD11050010	Ceramic Cap., 5pF ±0.5pF 50V
CH16	1	1	1	DD11050010	Ceramic Cap., 5pF ±0.5pF 50V
CH17	1	1	1	EE10605040	Electrolytic Cap., 10μF 50V
CH18	1	1	1	EE10605040	Electrolytic Cap., 10μF 50V
CH19	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
CH20	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
CH21	1	1	1	EA47603590	Electrolytic Cap., 47μF 35V
CH22	1	1	1	EA47603590	Electrolytic Cap., 47μF 35V
JH01	1	1	1	YP06000400	Plug, 10P, AMP

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
JH02	1	1	1	YP06001050	Plug, 5P
PH00	1	1	1	YK29640310	PH00 FILTER AMP BOARD
	1	1	1	ZZ29640310	P.W. Board Assembly
QH01	1	1	1	HT108412A0	Transistor, 2SA841 (GR or BL)
QH02	1	1	1	HT108412A0	Transistor, 2SA841 (GR or BL)
QH03	1	1	1	HT316812A0	Transistor, 2SC1681 (GR or BL)
QH04	1	1	1	HT316812A0	Transistor, 2SC1681 (GR or BL)
QH05	1	1	1	HT316812A0	Transistor, 2SC1681 (GR or BL)
QH06	1	1	1	HT316812A0	Transistor, 2SC1681 (GR or BL)
RH01	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RH02	1	1	1	RT05334140	Resistor, 330kΩ ±5% ¼W
RH03	1	1	1	RT05244140	Resistor, 240kΩ ±5% ¼W
RH04	1	1	1	RT05244140	Resistor, 240kΩ ±5% ¼W
RH05	1	1	1	RT05513140	Resistor, 51kΩ ±5% ¼W
RH06	1	1	1	RT05513140	Resistor, 51kΩ ±5% ¼W
RH07	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH08	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH09	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH10	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH11	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH12	1	1	1	RT05113140	Resistor, 11kΩ ±5% ¼W
RH13	1	1	1	RT05115140	Resistor, 1.1MΩ ±5% ¼W
RH14	1	1	1	RT05115140	Resistor, 1.1MΩ ±5% ¼W
RH15	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RH16	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RH17	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RH18	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RH19	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
RH20	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
RH21	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RH22	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
RH23	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
RH24	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
RH25	1	1	1	RT05221140	Resistor, 220Ω ±5% ¼W
RH26	1	1	1	RT05221140	Resistor, 220Ω ±5% ¼W
RH27	1	1	1	GF05182120	Resistor, 1.8kΩ ±5% ¼W
RH28	1	1	1	GF05182120	Resistor, 1.8kΩ ±5% ¼W
RH29	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RH30	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
RH31	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
RH32	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
JJ01	1	1	1	YP06000400	Plug, 10P, AMP
JJ02	1	1	1	YP06000400	Plug, 10P, AMP
JJ03	1	1	1	YP06001050	Plug, 5P
JJ04	1	1	1	YP06000340	Plug, 4P, AMP
JJ05	1	1	1	YP06000400	Plug, 10P, AMP
JJ06	1	1	1	YP06001040	Plug, 3P
JJ07	1	1	1	YP06001040	Plug, 3P
PJ00	1	1	1	YG29640012	PJ01 PRE-AMP BOARD
	1	1	1	ZZ29640010	P.W. Board Assembly
SJ01	1	1	1	SR08050360	Rotary Switch, Selector
SJ02	1	1	1	SR04030160	Rotary Switch, Tape Copy

• (U) for U.S.A
 • (C) for Canada
 • (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
SJ03	1	1	1	SR04030160	Rotary Switch, Tape Monitor
CN01	1	1	1	DK18103510	Ceramic Cap., 0.01μF 500V
CN02	1	1	1	DK18103510	Ceramic Cap., 0.01μF 500V
CN03	1	1	1	EA10605090	Electrolytic Cap., 10μF 50V
CN04	1	1	1	EA47601690	Electrolytic Cap., 47μF 16V
CN05	1	1	1	EA22701690	Electrolytic Cap., 220μF 16V
CN06	1	1	1	EA47601690	Electrolytic Cap., 47μF 16V
CN07	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
CN08	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
JN01	20	20	20	YP10001130	Plug
JN20					
LN01	1	1	1	LY40240050	Relay
					PN00 RELAY BOARD
PN00	1	1	1	YK29760210	P.W. Board
	1	1	1	ZZ29760210	P.W. Board assembly
QN01	1	1	1	HD20011030	Diode, DS131B
QN02	1	1	1	HD20005010	Diode, W06B
QN03	1	1	1	HT309452A0	Transistor, 2SC945 Q, R
QN04	1	1	1	HT313182R0	Transistor, 2SC1318 R, S
QN05	1	1	1	HT313182R0	Transistor, 2SC1318 R, S
QN06	1	1	1	HD30023090	Zener Diode, WZ071 7V
QN07	1	1	1	HT317752D0	Transistor, 2SC1775A D, E
QN08	1	1	1	HT317752D0	Transistor, 2SC1775A D, E
QN09	1	1	1	HT108722D0	Transistor, 2SA872A D, E
QN10	1	1	1	HT108722D0	Transistor, 2SA872A D, E
QN11	1	1	1	HT108722D0	Transistor, 2SA872A D, E
QN12	1	1	1	HT108722D0	Transistor, 2SA872A D, E
QN13	1	1	1	HT309452A0	Transistor, 2SC945 Q, R
QN14	1	1	1	HT309452A0	Transistor, 2SC945 Q, R
QN15	1	1	1	HT309452A0	Transistor, 2SC945 Q, R
QN16	1	1	1	HT309452A0	Transistor, 2SC945 Q, R
QN17	1	1	1	HD20018050	Diode, 1S2092
QN18	1	1	1	HD20018050	Diode, 1S2092
QN19	1	1	1	HD20001210	Diode, 1S2473
QN20	1	1	1	HD20001210	Diode, 1S2473
QN21	1	1	1	HD20001210	Diode, 1S2473
QN22	1	1	1	HD20001210	Diode, 1S2473
RN01	1	1	1	GJ05121010	Resistor, 120Ω ±5% 1W
RN02	1	1	1	GJ05102020	Resistor, 1kΩ ±5% 2W
RN03	1	1	1	GD05682140	Resistor, 6.8kΩ ±5% ¼W
RN04	1	1	1	GD05273140	Resistor, 27kΩ ±5% ¼W
RN05	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
RN06	1	1	1	GD05164140	Resistor, 160kΩ ±5% ¼W
RN07	1	1	1	GJ05181010	Resistor, 180Ω ±5% 1W
RN08	1	1	1	GD05560140	Resistor, 56Ω ±5% ¼W
RN09	1	1	1	GU05562120	Resistor, 5.6kΩ ±5% ¼W
RN10	1	1	1	GU05562120	Resistor, 5.6kΩ ±5% ¼W
RN11	1	1	1	GD05474140	Resistor, 470kΩ ±5% ¼W
RN12	1	1	1	GJ05182010	Resistor, 1.8kΩ ±5% 1W
RN13	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
RN14	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
RN15	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
RN16	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
RN17	1	1	1	GD05393140	Resistor, 39kΩ ±5% ¼W
RN18	1	1	1	GD05393140	Resistor, 39kΩ ±5% ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
RN19	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
RN20	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
RN21	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
RN22	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
RN23	1	1	1	GD05353140	Resistor, 35kΩ ±5% ¼W
RN24	1	1	1	GD05353140	Resistor, 35kΩ ±5% ¼W
RN25	1	1	1	GD05353140	Resistor, 35kΩ ±5% ¼W
RN26	1	1	1	GD05353140	Resistor, 35kΩ ±5% ¼W
RN27	1	1	1	GD05302140	Resistor, 3kΩ ±5% ¼W
RN28	1	1	1	GD05302140	Resistor, 3kΩ ±5% ¼W
RN29	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
RN30	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
RN31	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
RN32	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
RN33	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
RN34	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
RN35	1	1	1	GD05511140	Resistor, 510Ω ±5% ¼W
RN36	1	1	1	GD05511140	Resistor, 510Ω ±5% ¼W
RN37	1	1	1	GD05512140	Resistor, 5.1kΩ ±5% ¼W
RN38	1	1	1	GD05512140	Resistor, 5.1kΩ ±5% ¼W
RN39	1	1	1	GD05273140	Resistor, 27kΩ ±5% ¼W
RN40	1	1	1	GD05273140	Resistor, 27kΩ ±5% ¼W
RN41	1	1	1	GD05104140	Resistor, 100kΩ ±5% ¼W
RN42	1	1	1	GD05104140	Resistor, 100kΩ ±5% ¼W
RN43	1	1	1	GD05822140	Resistor, 8.2kΩ ±5% ¼W
RN44	1	1	1	GD05822140	Resistor, 8.2kΩ ±5% ¼W
FP01	1			FS10160800	Fuse, SEMKO 1.6A
FP02	1			FS10160800	Fuse, SEMKO 1.6A
JP01	1			YJ08000200	Jack, Fuse Holder, PWB Type
JP02	1			YJ08000200	Jack, Fuse Holder, PWB Type
JP03	1			YJ08000200	Jack, Fuse Holder, PWB Type
JP04	1			YJ08000200	Jack, Fuse Holder, PWB Type
CS01	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CS02	1	1	1	DF15104010	Film Cap., 0.1μF ±5% 50V
CS03	1	1	1	DF15222010	Film Cap., 2200pF ±5% 50V
CS04	1	1	1	DF15222010	Film Cap., 2200pF ±5% 50V
CS05	1	1	1	DF15153010	Film Cap., 0.015μF ±5% 50V
CS06	1	1	1	DF15153010	Film Cap., 0.015μF ±5% 50V
CS07	1	1	1	DF15153010	Film Cap., 0.015μF ±5% 50V
CS08	1	1	1	DF15153010	Film Cap., 0.015μF ±5% 50V
CS09	1	1	1	DF15682010	Film Cap., 6800pF ±5% 50V
CS10	1	1	1	DF15682010	Film Cap., 6800pF ±5% 50V
CS11	1	1	1	DF65391010	Film Cap., 390pF ±5% 50V
CS12	1	1	1	DF65391010	Film Cap., 390pF ±5% 50V
CS13	1	1	1	DF15822010	Film Cap., 8200pF ±5% 50V
CS14	1	1	1	DF15822010	Film Cap., 8200pF ±5% 50V
CS15	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
CS16	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
CS17	1	1	1	DF15103010	Film Cap., 0.01μF ±5% 50V
CS18	1	1	1	DF15103010	Film Cap., 0.01μF ±5% 50V
CS19	1	1	1	DF15103010	Film Cap., 0.01μF ±5% 50V
CS20	1	1	1	DF15103010	Film Cap., 0.01μF ±5% 50V
CS21	1	1	1	DF15683010	Film Cap., 0.068μF ±5% 50V
CS22	1	1	1	DF15683010	Film Cap., 0.068μF ±5% 50V
CS23	1	1	1	DF15683010	Film Cap., 0.068μF ±5% 50V
CS24	1	1	1	DF15683010	Film Cap., 0.068μF ±5% 50V
CS25	1	1	1	DF15182010	Film Cap., 1800pF ±5% 50V

- (U) for U.S.A
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION	REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E				U	C	E		
CS26	1	1	1	DF15182010	Film Cap., 1800pF ±5% 50V	SS01	1	1	1	SR04050100	Rotary Switch, 4 Circuit 5 Position
JS01	1	1	1	YJ06000400	Jack, 10P Connector (AMP)	SS02	1	1	1	SP04040170	Push Switch, 4 Circuit 4 Button
JS02	1	1	1	YJ06000400	Jack, 10P Connector (AMP)	SS03	1	1	1	SP04010210	Push Switch, 4 Circuit 1 Button
JS03	1	1	1	YJ06000340	Jack, 4P Connector (AMP)	SS04	1	1	1	SP04010210	Push Switch, 4 Circuit 1 Button
JS05						CT01	1	1	1	DF16103010	Film Cap., 0.01µF ±10% 50V
JS18	14	14	14	YP10001130	Plug	CT02	1	1	1	DF16103010	Film Cap., 0.01µF ±10% 50V
						CT03	1	1	1	DF16103010	Film Cap., 0.01µF ±10% 50V
						CT04	1	1	1	DF16103010	Film Cap., 0.01µF ±10% 50V
					PS00 FRONT PANEL BOARD	CT09	1	1	1	EA22601690	Electrolytic Cap., 22µF 16V
PS00	1	1	1	YD29702020	P.W. Board, Front Panel	CT10	1	1	1	EA22601690	Electrolytic Cap., 22µF 16V
	1	1	1	ZZ29762020	P.W. Board Assembly	CT11	1	1	1	EA22601690	Electrolytic Cap., 22µF 16V
						CT12	1	1	1	EA22601690	Electrolytic Cap., 22µF 16V
RS01	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W	QT01	1	1	1	HT309452A0	Transistor, 2SC945 (Q or R)
RS02	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W	QT02	1	1	1	HT309452A0	Transistor, 2SC945 (Q or R)
RS03	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W	QT03	1	1	1	HT107332A0	Transistor, 2SA733 (Q or R)
RS04	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W	QT04	1	1	1	HT107332A0	Transistor, 2SA733 (Q or R)
RS05	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W						
RS06	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W	QT05	1	1	1	HD20011050	Diode, 1S1555
RS07	1	1	1	RS05030320	Variable Resistor, 50kΩx2	QT06	1	1	1	HD20011050	Diode, 1S1555
RS08	1	1	1	RG05030060	Variable Resistor, 50kΩAx2	QT07	1	1	1	HD20011050	Diode, 1S1555
RS09	1	1	1	RM05030720	Variable Resistor, 50kΩBx2	QT08	1	1	1	HD20011050	Diode, 1S1555
RS11	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W	QT09	1	1	1	HD20011050	Diode, 1S1555
						QT10	1	1	1	HD20011050	Diode, 1S1555
RS12	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W	QT11	1	1	1	HD20011050	Diode, 1S1555
RS13	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W	QT12	1	1	1	HD20011050	Diode, 1S1555
RS14	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W	QT13	1	1	1	HD20003210	Diode, 1S2471
RS15	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	QT14	1	1	1	HD20003210	Diode, 1S2471
RS16	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W						
RS17	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	QT15	1	1	1	HD20003210	Diode, 1S2471
RS18	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	QT16	1	1	1	HD20003210	Diode, 1S2471
RS19	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	RT05	1	1	1	GD05272120	Resistor, 2.7kΩ ±5% ¼W
RS20	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	RT06	1	1	1	GD05272120	Resistor, 2.7kΩ ±5% ¼W
RS21	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	RT07	1	1	1	GD05272120	Resistor, 2.7kΩ ±5% ¼W
						RT08	1	1	1	GD05272120	Resistor, 2.7kΩ ±5% ¼W
RS22	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W	RT09	1	1	1	GD05432140	Resistor, 4.3kΩ ±5% ¼W
RS23	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W	RT10	1	1	1	GD05432140	Resistor, 4.3kΩ ±5% ¼W
RS24	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W	RT11	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS25	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W	RT12	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS26	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W	RT13	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS27	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W	RT14	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS28	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% ¼W	RT15	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS29	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W	RT16	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS30	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W	RT17	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS31	1	1	1	RS01040040	Variable Resistor, 100kΩBx2	RT18	1	1	1	GD05201140	Resistor, 200Ω ±5% ¼W
RS32	1	1	1	RS01040040	Variable Resistor, 100kΩBx2	RT19	1	1	1	GD05820140	Resistor, 82Ω ±5% ¼W
RS33	1	1	1	RS01040040	Variable Resistor, 100kΩBx2	RT20	1	1	1	GD05820140	Resistor, 82Ω ±5% ¼W
RS35	1	1	1	RT05100140	Resistor, 10Ω ±5% ¼W	RT21	1	1	1	GD05820140	Resistor, 82Ω ±5% ¼W
RS36	1	1	1	RT05100140	Resistor, 10Ω ±5% ¼W	RT22	1	1	1	GD05820140	Resistor, 82Ω ±5% ¼W
RS37	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W	CV01	1	1	1	DK18203010	Ceramic Cap., 0.02µF 50V
RS38	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W	CV02	1	1	1	DK18203010	Ceramic Cap., 0.02µF 50V
RS39	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W	CV03	1	1	1	DK18203010	Ceramic Cap., 0.02µF 50V
RS40	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W						
RS41	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W						
RS42	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W						
RS43	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% ¼W						
RS44	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% ¼W						
RS45	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W						
RS46	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W						
RS47	1	1	1	RT05100140	Resistor, 10Ω ±5% ¼W						
RS48	1	1	1	RT05100140	Resistor, 10Ω ±5% ¼W						

• (U) for U.S.A
 • (C) for Canada
 • (E) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	E		
CV04	1	1	1	DF17104010	Film Cap., 0.11µF 50V
JV01	1	1	1	YT02040150	Terminal, 4P RCA
JV02	1	1	1	YT02040150	Terminal, 4P RCA
JV03	1	1	1	BY01050060	Jack, RCA (DIN)
JV03	1	1	1	YT02040150	Terminal, 4P RCA
JV04	1	1	1	BY01050060	Jack, RCA (DIN)
JV04	1	1	1	YT02040150	Terminal, 4P RCA
JV05	1	1	1	YJ06000400	Jack, 10P AMP
JV06	1	1	1	YJ06000400	Jack, 10P AMP
JV07					
?	9	9	9	YP10001130	Plug
JV15					
JV16	1	1	1	YT02040210	Terminal, 4P RCA
JV17	1	1	1	YP10001130	Plug
JV18	1	1	1	YP10001130	Plug
					PV00 REAR BOARD
PV00	1	1	1	YF29640010	P.W. Board
	1	1		ZZ29641010	P.W. Board Assembly
				ZZ29648010	P.W. Board Assembly
RV01					
RV02					
RV03					
RV04					
RV05					
RV06					
RV07					
RV08					
JW01	1	1	1	YJ01000860	Jack, Headphone
JW02					
?	7	7	7	YP10001130	Plug
JW08					
					PW00 HEADPHONE BOARD
PW00	1	1	1	YF29640020	P.W. Board
	1	1	1	ZZ29641020	P.W. Board Assembly
RW01	1	1	1	GJ05331010	Resistor, 330Ω ±5% 1W
RW02	1	1	1	GJ05331010	Resistor, 330Ω ±5% 1W
RW03	1	1	1	GJ05151010	Resistor, 150Ω ±5% 1W
RW04	1	1	1	GJ05151010	Resistor, 150Ω ±5% 1W
SW01	1	1	1	SP04020210	Pushswitch
C001					
C002					
C003					
C004					
C005					
C006					
C007					
F001					
F001					
G001					
G001					
J001					
J002					
J004					
J005					

REF. DESIG.	QTY			PART NO.	DESCRIPTION
	U	C	E		
J006	1	1	1	YT03040160	Terminal
J007					
?	4	4		YJ04000560	Jack, AC Outlet
J010					
J011					
?	8	8	8	YJ05000220	Jack, Transistor Socket
J018					
J019	1	1	1	YJ05000250	Jack, LED Socket
J020	1	1	1	YJ06001040	Jack, 3P Jack
J021	1	1	1	YJ06001050	Jack
J022	1	1	1	YJ06001040	Jack 3P
J023	1	1	1	YJ06001450	Jack, 6P
J024	1	1	1	YJ06001050	Jack, 5P
J025	1	1	1	YJ06001040	Jack, 3P
J026					
J026	1	1		YJ08000220	Jack, Fuse Holder 20mm
J026	1	1		YJ08000230	Jack, Fuse Holder
J027					
J027	1			BY03110010	Plug, Voltage Selector
J028	1	1	1	YJ06001040	Jack
J029					
J029	1			YL09030010	Terminal, Connector
J031	1	1	1	YJ05000250	Jack, LED Socket
J032	1	1	1	YJ05000250	Jack, LED Socket
J033	1	1	1	YJ06001040	Jack, 3P
J034	1	1	1	YJ06001040	Jack, 3P
L001	1	1		TS61406050	Power Transformer
L001					Power Transformer
Q001	1	1	1	HT404272A0	Transistor, 2SD427 (R or O)
Q002	1	1	1	HT205572A0	Transistor, 2SB557 (R or O)
Q003	1	1	1	HT404272A0	Transistor, 2SD427 (R or O)
Q004	1	1	1	HT205572A0	Transistor, 2SB557 (R or O)
Q005	1	1	1	HT404272A0	Transistor, 2SD427 (R or O)
Q006	1	1	1	HT205572A0	Transistor, 2SB557 (R or O)
Q007	1	1	1	HT404272A0	Transistor, 2SD427 (R or O)
Q008	1	1	1	HT205572A0	Transistor, 2SB557 (R or O)
Q009	1	1	1	HD20004290	Diode, S5VB-20
Q010	1	1	1	H110004030	L.E.D., 132B
Q011	1	1	1	H110004030	L.E.D., SLP-132B
Q012	1	1	1	H110004030	L.E.D., SLP-132B
R001	1	1	1	GS10222030	Resistor, 2.2kΩ ±10% 3W
R002	1	1	1	GS10222030	Resistor, 2.2kΩ ±10% 3W
S001					
S001	1	1		SP02010250	Pushswitch, SDG-5P SEMKO
S001	1	1		SP02020210	Pushswitch, Power TV-5
S002	1	1	1	SS02020380	Slide Switch, AC-DC Coupling
W001					
W001	1	1		YC01900030	A.C. Power Cord
W001	1	1		YC02400170	A.C. Power Cord
C401	1	1	1	EE47505040	Electrolytic Cap., 4.7µF ±20% 50V
C402	1	1	1	EE47505040	Electrolytic Cap., 4.7µF ±20% 50V
C405	1	1	1	DD15600010	Ceramic Cap., 60pF ±5% 50V
C406	1	1	1	DD15600010	Ceramic Cap., 60pF ±5% 50V
C409	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
C410	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
C411	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
C412	1	1	1	DD15101020	Ceramic Cap., 100pF ±5% 50V
C413	1	1	1	EE10701640	Electrolytic Cap., 100µF ±20% 16V
C414	1	1	1	EE10701640	Electrolytic Cap., 100µF ±20% 16V
C415	1	1	1	DF65101010	Film Cap., 100pF ±5% 50V

- (U) for U.S.A
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- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C416	1	1	1	DF65101010	Film Cap., 100pF ±5% 50V
C417	1	1	1	DD11050010	Ceramic Cap., 5pF 50V
C418	1	1	1	DD11050010	Ceramic Cap., 5pF 50V
C419	1	1	1	EE47505040	Electrolytic Cap., 4.7µF ±20% 50V
C420	1	1	1	EE47505040	Electrolytic Cap., 4.7µF ±20% 50V
C423	1	1	1	DF65681010	Film Cap., 680pF ±5% 50V
C424	1	1	1	DF65681010	Film Cap., 680pF ±5% 50V
C425	1	1	1	DF14112010	Film Cap., 1100pF ±2% 50V
C426	1	1	1	DF14112010	Film Cap., 1100pF ±2% 50V
C427	1	1	1	DF14362010	Film Cap., 3600pF ±2% 50V
C428	1	1	1	DF14362010	Film Cap., 3600pF ±2% 50V
C429	1	1	1	EE10505040	Electrolytic Cap., 1µF ±20% 50V
C430	1	1	1	EE10505040	Electrolytic Cap., 1µF ±20% 50V
C431	1	1	1	DD15300010	Ceramic Cap., 30pF ±5% 50V
C432	1	1	1	DD15300010	Ceramic Cap., 30pF ±5% 50V
C433	1	1	1	EA10603590	Electrolytic Cap., 10µF 35V
C434	1	1	1	EA10603590	Electrolytic Cap., 10µF 35V
C435	1	1	1	EA47605090	Electrolytic Cap., 47µF 50V
C436	1	1	1	EA47605090	Electrolytic Cap., 47µF 50V
C437	1	1	1	DD15251010	Ceramic Cap., 250pF ±5% 50V
C438	1	1	1	DD15251010	Ceramic Cap., 250pF ±5% 50V
Q401	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)
Q402	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)
Q403	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)
Q404	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)
Q405	1	1	1	HT317752E0	Transistor, 2SC1775A (E or F)
Q406	1	1	1	HT317752E0	Transistor, 2SC1775A (E or F)
Q407	1	1	1	HT318852C0	Transistor, 2SC1885 (R or S)
Q408	1	1	1	HT109122C0	Transistor, 2SA912 (R or S)
Q409	1	1	1	HT318852C0	Transistor, 2SC1885 (R or S)
Q410	1	1	1	HT109122C0	Transistor, 2SA912 (R or S)
R401	1	1	1	RT05513140	Resistor, 51kΩ ±5% ¼W
R402	1	1	1	RT05513140	Resistor, 51kΩ ±5% ¼W
R403	1	1	1	RT05104140	Resistor, 1MΩ ±5% ¼W
R404	1	1	1	RT05105140	Resistor, 1MΩ ±5% ¼W
R405	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R406	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R407	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R408	1	1	1	RT05223140	Resistor, 22kΩ ±5% ¼W
R409	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R410	1	1	1	RT05394140	Resistor, 390kΩ ±5% ¼W
R411	1	1	1	RT02821140	Resistor, 820Ω ±2% ¼W
R412	1	1	1	RT02821140	Resistor, 820Ω ±2% ¼W
R413	1	1	1	RT02914140	Resistor, 910kΩ ±2% ¼W
R414	1	1	1	RT02914140	Resistor, 910kΩ ±2% ¼W
R415	1	1	1	RT02513140	Resistor, 51kΩ ±2% ¼W
R416	1	1	1	RT02513140	Resistor, 51kΩ ±2% ¼W
R417	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R418	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R419	1	1	1	RT05132140	Resistor, 1.3kΩ ±5% ¼W
R420	1	1	1	RT05132140	Resistor, 1.3kΩ ±5% ¼W
R421	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
R422	1	1	1	RT05154140	Resistor, 150kΩ ±5% ¼W
R423	1	1	1	RT05220140	Resistor, 22Ω ±5% ¼W
R424	1	1	1	RT05220140	Resistor, 22Ω ±5% ¼W
R425	1	1	1	RT05220140	Resistor, 22Ω ±5% ¼W
R426	1	1	1	RT05220140	Resistor, 22Ω ±5% ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R427	1	1	1	RT05681140	Resistor, 680Ω ±5% ¼W
R428	1	1	1	RT05681140	Resistor, 680Ω ±5% ¼W
R429	1	1	1	RT05181140	Resistor, 180Ω ±5% ¼W
R430	1	1	1	RT05181140	Resistor, 180Ω ±5% ¼W
R431	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
R432	1	1	1	RT05474140	Resistor, 470kΩ ±5% ¼W
R433	1	1	1	RT05683140	Resistor, 68kΩ ±5% ¼W
R434	1	1	1	RT05683140	Resistor, 68kΩ ±5% ¼W
R435	1	1	1	RT05823140	Resistor, 82kΩ ±5% ¼W
R436	1	1	1	RT05823140	Resistor, 82kΩ ±5% ¼W
R437	1	1	1	RT05753140	Resistor, 75kΩ ±5% ¼W
R438	1	1	1	RT05753140	Resistor, 75kΩ ±5% ¼W
R439	1	1	1	GF05560120	Resistor, 56Ω ±5% ¼W
R440	1	1	1	GF05560120	Resistor, 56Ω ±5% ¼W
C701	1	1	1	DF65251010	Film Cap., 250pF ±5% 50V
C702	1	1	1	DF65251010	Film Cap., 250pF ±5% 50V
C703	1	1	1	DF65162010	Film Cap., 1600pF ±5% 50V
C704	1	1	1	DF65162010	Film Cap., 1600pF ±5% 50V
C705	1	1	1	DF16473010	Film Cap., 0.047µF ±10% 50V
C706	1	1	1	DF16473010	Film Cap., 0.047µF ±10% 50V
C707	1	1	1	EA22603590	Electrolytic Cap., 22µF 35V
C708	1	1	1	EA22603590	Electrolytic Cap., 22µF 35V
C709	1	1	1	DD15500500	Ceramic Cap., 50pF ±5% 500V
C710	1	1	1	DD15500500	Ceramic Cap., 50pF ±5% 500V
C711	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C712	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C713	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C714	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C715	1	1	1	EA22603590	Electrolytic Cap., 22µF 100V
C716	1	1	1	EA22603590	Electrolytic Cap., 22µF 100V
C717	1	1	1	DF65301510	Film Cap., 300pF ±5%
C718	1	1	1	DF65301510	Film Cap., 300pF ±5%
C719	1	1	1	DF65271510	Film Cap., 270pF ±5%
C720	1	1	1	DF65271510	Film Cap., 270pF ±5%
C721	1	1	1	DF16473010	Film Cap., 0.047µF ±10% 50V
C722	1	1	1	DF16473010	Film Cap., 0.047µF ±10% 50V
C723	1	1	1	EA22605090	Electrolytic Cap., 22µF 50V
C724	1	1	1	EA22605090	Electrolytic Cap., 22µF 50V
C725	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C726	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C727	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C728	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C729	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C730	1	1	1	DF17104540	Film Cap., 0.1µF 100V
C731	1	1	1	EA47606390	Electrolytic Cap., 47µF 63V
C732	1	1	1	EA47606390	Electrolytic Cap., 47µF 63V
C733	1	1	1	EA47606390	Electrolytic Cap., 47µF 63V
C734	1	1	1	EA47606390	Electrolytic Cap., 47µF 63V
J701					
J704	4	4	4	YP06001040	Plug, 3P
J705	1	1	1	YP06000540	Plug, 6P (SMK)
L701	1	1	1	LC22620010	Choke Coil
L702	1	1	1	LC22620010	Choke Coil
P700	1	1	1	YG29640020	P700, MAIN AMP BOARD
	1	1	1	ZZ29761020	P.W. Board Assembly

• (U) for U.S.A
 • (C) for Canada
 • (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION	REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E				U	C	E		
Q701	1	1	1	HC10003200	IC, 2SK109 (C or D)	R706	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W
Q702	1	1	1	HC10003200	IC, 2SK109 (C or D)	R707	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W
Q703	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R708	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W
Q704	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R709	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
Q705	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R710	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
Q706	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R711	1	1	1	GD05513140	Resistor, 51kΩ ±5% ¼W
Q707	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R712	1	1	1	GD05513140	Resistor, 51kΩ ±5% ¼W
Q708	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R713	1	1	1	GD05152140	Resistor, 1.5kΩ ±5% ¼W
Q709	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R714	1	1	1	GD05152140	Resistor, 1.5kΩ ±5% ¼W
Q710	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R715	1	1	1	GD05753140	Resistor, 75kΩ ±5% ¼W
Q711	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R716	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q712	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R717	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q713	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R718	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q714	1	1	1	HT108722D0	Transistor, 2SA872A (D or E)	R719	1	1	1	GD05112140	Resistor, 1.1kΩ ±5% ¼W
Q715	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R720	1	1	1	GD05112140	Resistor, 1.1kΩ ±5% ¼W
Q716	1	1	1	HT317752D0	Transistor, 2SC1775A (D or E)	R721	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
Q717	1	1	1	HT108722E0	Transistor, 2SA872A (E or F)	R722	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
Q718	1	1	1	HT108722E0	Transistor, 2SA872A (E or F)	R723	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
Q719	1	1	1	HT108722E0	Transistor, 2SA872A (E or F)	R724	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
Q720	1	1	1	HT108722E0	Transistor, 2SA872A (E or F)	R725	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
Q721	1	1	1	HT109142B0	Transistor, 2SA914 (R or S)	R726	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
Q722	1	1	1	HT109142B0	Transistor, 2SA914 (R or S)	R727	1	1	1	GJ05222010	Resistor, 2.2kΩ ±5% ¼W
Q723	1	1	1	HT319532B0	Transistor, 2SC1953 (R or S)	R728	1	1	1	GJ05222010	Resistor, 2.2kΩ ±5% ¼W
Q724	1	1	1	HT319532B0	Transistor, 2SC1953 (R or S)	R729	1	1	1	GJ05182010	Resistor, 1.8kΩ ±5% ¼W
Q725	1	1	1	HT319132B0	Transistor, 2SC1913 (R or S)	R730	1	1	1	GJ05182010	Resistor, 1.8kΩ ±5% ¼W
Q726	1	1	1	HT319132B0	Transistor, 2SC1913 (R or S)	R731	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q727	1	1	1	HT109132B0	Transistor, 2SA913 (R or S)	R732	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q728	1	1	1	HT109132B0	Transistor, 2SA913 (R or S)	R733	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q729	1	1	1	HD20011050	Diode, 1S1555	R734	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
Q730	1	1	1	HD20011050	Diode, 1S1555	R735	1	1	1	GD05561140	Resistor, 560Ω ±5% ¼W
Q731	1	1	1	HD30046090	Zener, WZ-310	R736	1	1	1	GD05561140	Resistor, 560Ω ±5% ¼W
Q732	1	1	1	HD30046090	Zener, WZ-310	R737	1	1	1	GD05561140	Resistor, 560Ω ±5% ¼W
Q733	1	1	1	HD30046090	Zener, WZ-310	R738	1	1	1	GD05561140	Resistor, 560Ω ±5% ¼W
Q734	1	1	1	HD30046090	Zener, WZ-310	R739	1	1	1	RA02230050	Trimming Resistor, 22kΩ CR29R
Q735	1	1	1	HD20011050	Diode, 1S1555	R740	1	1	1	RA02230050	Trimming Resistor, 22kΩ CR29R
Q736	1	1	1	HD20011050	Diode, 1S1555	R741	1	1	1	GD05203140	Resistor, 20kΩ ±5% ¼W
Q737	1	1	1	HD20003110	Diode, 1S2471	R742	1	1	1	GD05203140	Resistor, 20kΩ ±5% ¼W
Q738	1	1	1	HD20003210	Diode, 1S2471	R743	1	1	1	GD05222140	Resistor, 2.2kΩ ±5% ¼W
Q739	1	1	1	HD20003210	Diode, 1S2471	R744	1	1	1	GD05222140	Resistor, 2.2kΩ ±5% ¼W
Q740	1	1	1	HD20003210	Diode, 1S2471	R745	1	1	1	GD05222140	Resistor, 2.2kΩ ±5% ¼W
Q741	1	1	1	HV00004120	Varistor, MV-1	R746	1	1	1	GD05222140	Resistor, 2.2kΩ ±5% ¼W
Q742	1	1	1	HV00004120	Varistor, MV-1	R747	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q743	1	1	1	HV00004120	Varistor, MV-1	R748	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q744	1	1	1	HV00004120	Varistor, MV-1	R749	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q745	1	1	1	HH00007030	Thermistor, SDT-100	R750	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q746	1	1	1	HH00007030	Thermistor, SDT-100	R751	1	1	1	GD05151140	Resistor, 150Ω ±5% ¼W
Q747	1	1	1	HH00007030	Thermistor, SDT-100	R752	1	1	1	GD05151140	Resistor, 150Ω ±5% ¼W
Q748	1	1	1	HH00007030	Thermistor, SDT-100	R753	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q749	1	1	1	HD20005010	Diode, W06B	R754	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q750	1	1	1	HD20005010	Diode, W06B	R755	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q751	1	1	1	HD20005010	Diode, W06B	R756	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
Q752	1	1	1	HD20005010	Diode, W06B	R757	1	1	1	GD05273140	Resistor, 27kΩ ±5% ¼W
R701	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W	R758	1	1	1	GD05273140	Resistor, 27kΩ ±5% ¼W
R702	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W	R759	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R703	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W	R760	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R704	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W	R761	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W
R705	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W	R762	1	1	1	GF05100140	Resistor, 10Ω ±5% ¼W

- (U) for U.S.A
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R763	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R764	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R765	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R766	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R767	1	1	1	GJ05562010	Resistor, 5.6kΩ ±5% 1W
R768	1	1	1	GJ05562010	Resistor, 5.6kΩ ±5% 1W
R769	1	1	1	GJ05562010	Resistor, 5.6kΩ ±5% 1W
R770	1	1	1	GJ05562010	Resistor, 5.6kΩ ±5% 1W
R771	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R772	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R773	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R774	1	1	1	GD05101140	Resistor, 100Ω ±5% ¼W
R775	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R776	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R777	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R778	1	1	1	GF05330140	Resistor, 33Ω ±5% ¼W
R779	1	1	1	GF05240120	Resistor, 24Ω ±5% ¼W
R780	1	1	1	GF05240120	Resistor, 24Ω ±5% ¼W
R781	1	1	1	GF05240120	Resistor, 24Ω ±5% ¼W
R782	1	1	1	GF05240120	Resistor, 24Ω ±5% ¼W
R787	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R788	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R789	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R790	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R791	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R792	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R793	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R794	1	1	1	GW10332030	Resistor, 0.33Ω ±10% 3W
R795	1	1	1	GJ05100030	Resistor, 10Ω ±5% 3W
R796	1	1	1	GJ05100030	Resistor, 10Ω ±5% 3W
R797	1	1	1	GJ05022020	Resistor, 2.2Ω ±5% 2W
R798	1	1	1	GJ05022020	Resistor, 2.2Ω ±5% 2W
C851	1	1	1	DK18103510	Ceramic Cap., 0.01μF 500V
C852	1	1	1	DK18103510	Ceramic Cap., 0.01μF 500V
C853	1	1	1	EA47706310	Electrolytic Cap., 470μF 63V
C854	1	1	1	EA47706310	Electrolytic Cap., 470μF 63V
C855	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C856	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C857	1	1	1	DF16102010	Film Cap., 0.001μF ±10% 50V
C858	1	1	1	DF16102010	Film Cap., 0.001μF ±10% 50V
C859	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V
C860	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
C861	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
Q851	1	1	1	HD20013030	Diode, DS-133B
Q852	1	1	1	HD20013030	Diode, DS-133B
Q853	1	1	1	HT403132P0	Transistor, 2SD313 (D or E)
Q854	1	1	1	HT205072P0	Transistor, 2SB507 (D or E)
Q855	1	1	1	HT315091Q0	Transistor, 2SC1509 (Q)
Q856	1	1	1	HT107771Q0	Transistor, 2SA777 (Q)
Q857	1	1	1	HD30023090	Zener, WZ-071
Q858	1	1	1	HD30023090	Zener, WZ-071
Q859	1	1	1	HD20003210	Diode, 1S2471 Black
Q860	1	1	1	HD20003210	Diode, 1S2471 Black
R851	1	1	1	GJ05022010	Resistor, 2.2Ω ±5% 1W
R852	1	1	1	GJ05022010	Resistor, 2.2Ω ±5% 1W
R853	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W
R854	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R855	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R856	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R857	1	1	1	GJ05562010	Resistor, 5.6kΩ ±5% 1W
R858	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
R859	1	1	1	RT05682140	Resistor, 6.8kΩ ±5% ¼W
R860	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R861	1	1	1	RT05273140	Resistor, 27kΩ ±5% ¼W
R862	1	1	1	GJ05472010	Resistor, 4.7kΩ ±5% 1W
R863	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% ¼W
R864	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% ¼W

12. TECHNICAL SPECIFICATIONS

● FOR U.S.A. MODEL ONLY

AMPLIFIER SECTION

RATED POWER OUTPUT, MINIMUM CONTINUOUS
AVERAGE POWER PER CHANNELS, BOTH CHANNELS DRIVEN **90 WATTS**
POWER BAND **20 Hz to 20 kHz**
TOTAL HARMONIC DISTORTION **0.03%**
LOAD IMPEDANCE **8 OHMS**

RATED POWER OUTPUT, MINIMUM CONTINUOUS
AVERAGE POWER PER CHANNELS, BOTH CHANNELS DRIVEN **113 WATTS**
POWER BAND **20 Hz to 20 kHz**
TOTAL HARMONIC DISTORTION **0.06%**
LOAD IMPEDANCE **4 OHMS**

I.M. Distortion (IHF method, 60 Hz
 and 7 kHz mixed 4:1
 at rated power output)
 at 8 ohm load impedance 0.03%
 at 4 ohm load impedance 0.09%
 Damping Factor (at 20 Hz) 60
 Sensitivity (at MAIN IN) 1.5 V
 Impedance (at MAIN IN) 36 k ohms
 Frequency Response for Power Amp Only
 (at 1 watt output, 20 Hz to 20 kHz) ±0.2 dB
 S/N Ratio (MAIN IN, "A" Weighted) 110 dB

PREAMPLIFIER SECTION

Phono
 Input Overload at 1 kHz 310 mV
 Equivalent Input Noise ("A" Weighted) 0.48 µV
 Dynamic Range
 (Dynamic Range is the ratio of input
 overload to equivalent input noise) 117 dB
 Input Sensitivity 1.8 mV
 Input Impedance 47 k ohms
 Frequency Response, RIAA 20 Hz to 20 kHz .. ±0.2 dB
 Signal-to-Noise Ratio ("A" Weighted)
 (at rated output and 7.75 mV input) 83 dB
 High Level (Aux and Tape)
 Input Sensitivity 180 mV
 Input Impedance 20 k ohms

Frequency Response
 (includes Power Amp) ... 5 Hz to 60 kHz ±1.0 dB
 Signal-to-Noise Ratio ("A" Weighted)
 (ref. to rated output and 775 mV input) ... 93 dB
 Output Levels
 Tape Out (ref. 7.75 mV at Phono inputs) ... 775 mV
 Pre-Out (ref. 180 mV at Aux inputs) 1.5 V
 (ref. 500 mV at Aux inputs, Main
 Amp disconnected) 4.2 V
 Output Impedance
 Tape Out 330 ohms
 Pre-Out 220 ohms

GENERAL

Power Requirements 120 VAC 60 Hz
 Power Consumption at rated output,
 both channels operating 370 Watt
 Idling Power (Volume Control at zero) 65 Watt
 Dimensions
 Panel Width 416 mm (16-3/8")
 Panel Height 146 mm (5-3/4")
 Depth 316 mm (12-3/8")
 Weight
 Unit alone 15.0 kg (33.0 lbs)
 Packed for Shipment 17.0 kg (37.4 lbs)

● FOR EUROPEAN MODEL ONLY

Audio Section

POWER OUTPUT AT 1% DISTORTION	160 W
RATED POWER OUTPUT, 1 kHz	113 W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz	0.09%
I.M. DISTORTION AT RATED POWER OUTPUT (I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT)	0.09%
POWER BANDWIDTH, ½ RATED POWER OUTPUT	7 Hz ~ 70 kHz
LOAD IMPEDANCE	4 OHMS
POWER OUTPUT AT 1% DISTORTION	105 W
RATED POWER OUTPUT, 1 kHz	90 W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz	0.03%
I.M. DISTORTION AT RATED POWER OUTPUT (I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT)	0.03%
POWER BANDWIDTH, ½ RATED POWER OUTPUT	7 Hz ~ 70 kHz
LOAD IMPEDANCE	8 OHMS

Damping Factor, SP Output	
40 Hz	60
1 kHz	50
12.5 kHz	45
Frequency Response	
Phono 40 Hz ~ 1.6 kHz	±0.5 dB
Aux 40 Hz ~ 1.6 kHz	±0.5 dB
Main In 40 Hz ~ 1.6 kHz	±0.2 dB
Signal-to-Noise Ratio, 1 kHz	
Phono	56 dB
Aux	56 dB
Main In	58 dB
Input Sensitivity, 1 kHz (Rated Input Voltage)	
Phono	1.8 mV
Aux	180 mV
Main In	1.5 V
Input Impedance, 1 kHz	
Phono	47 k ohms
Aux	20 k ohms
Main In	36 k ohms
Phono Equivalent Input Noise	1.0 µV
Phono Dynamic Range	110 dB
Phono Input Capacitance	100 pF
Channel Balance	
Phono 0 ~ -40 dB	2.5 dB
Aux 40 Hz ~ 16 kHz	2.0 dB
Main In	1.0 dB
Interchannel Crosstalk	
Phono 1 kHz	43 dB
250 Hz ~ 10 kHz	40 dB
Aux 1 kHz	45 dB
250 Hz ~ 10 kHz	33 dB
Tape 1 kHz	45 dB
250 Hz ~ 10 kHz	33 dB
Main In 1 kHz	55 dB
250 Hz ~ 10 kHz	50 dB

Intersource Crosstalk, Worst Point	
1 kHz	45 dB
250 Hz ~ 10 kHz	33 dB
Output Voltage, 1 kHz	
Tape Out	0.18 V
Pre Out	1.5 V
Output Impedance, 1 kHz	
Tape Out	330 ohms
Pre Out	220 ohms
Power Consumption	
Idling	60 W
Rated Power, 1 kHz	350 W

General

Power Requirements	220 V ~, 50 Hz
(E and N versions are featuring an external voltage selector for use on 110/120/240 V. Other versions can be converted by a qualified technician to operate on 110/120/240 V.)	
Power Consumption at rated output, both channels operating	350 W ±50W
Idling Power	60 W ±15W
Semiconductor Complement	
Transistors	83
Diodes	50
Field Effect Transistors	4
Dimensions	
Panel Width	416 mm (16-3/8 inches)
Panel Height	146 mm (5-3/4 inches)
Depth	316 mm (12-3/8 inches)
Weight	
Unit Alone	15.0 kg (33.0 lbs)
Packed for Shipment	17.0 kg (37.4 lbs)