SERVICE MANUAL PM140

marantz®

model PM140

Stereo Console Amplifier

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS:
Parts can be ordered either by mail or by telex. In both cases, MARANTZ part number has to be specified. If you order by mail, fulfil MARANTZ order forms.

MARANTZ S.A.
EUROPEAN PARTS DEPARTMENT
2, Avenue Léopold III
B-7120 PERONNES-lez-BINCHE
BELGIUM
TWX: 57589 SEPLT B

The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

PARTS ORDERING:
Parts may be ordered from the following addresses:

EUROPE

MARANTZ S.A.
European Parts Department
2, Avenue Léopold III
B-7120 Péronnes-lez-Binche
Belgium
Telex: 57589

MARANTZ DENMARK
Bregnerødvej 132b
3460 Birkerød
Denmark
Telex: 39137

MARANTZ BELGIUM
45 Rue Auguste Van Zande
1080 Brussels
Belgium

MARANTZ NEDERLAND B.V.
Wagenmackersweg 3
3449 H.V. Woerden
Netherlands

MARANTZ S.A.
326 Avenue Louise Bte 32
1050 Bruxelles
Belgium
Telex: 26602

MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France
Telex: 611651

MARANTZ SVENSKA A.B.
Svartviksvägen 56
Träneberg Bromma
Sweden
Telex: 13449

MARANTZ ITALIANA S.p.A.
Via Monte Napoleone, 10
20121 Milano
Italia

MARANTZ GERMANY G.M.B.H.
Max-Planckstrasse 22
6072 Dreieich 1
Germany
Telex: 4185316

MARANTZ AUDIO U.K. LTD.
Unit 15/16
Saxon Way Industrial Estate
Moor Lane
Harmondsworth UB7 OLW
Great Britain
Telex: 935196

MARANTZ AUSTRIA Ge.M.B.H.
25 Franz Lisztgasse
2380 Perchtoldsdorf
Austria
Telex: 113583

AUSTRALIA

MARANTZ AUSTRALIA PTY., LTD.
19 Chard Road
Brookvale, NSW 2100
Australia
Telex: 24121

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

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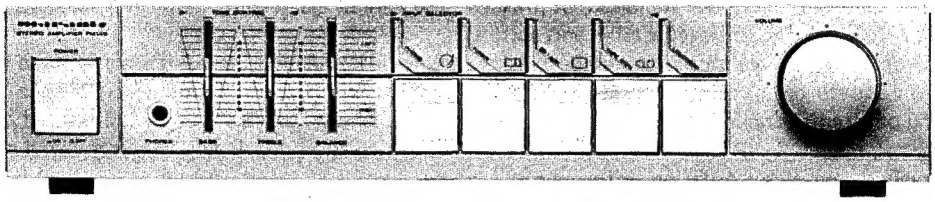
MODEL PM140 STEREO CONSOLE AMPLIFIER



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INTRODUCTION

This service manual was prepared for use by Authorized Warranty Staions and contains service information for the Marantz Model PM140 Stereo Console Amplifier.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.

The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

1. P.W. BOARDS

As can be seen from the circuit diagram the chassis of Model PM140 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

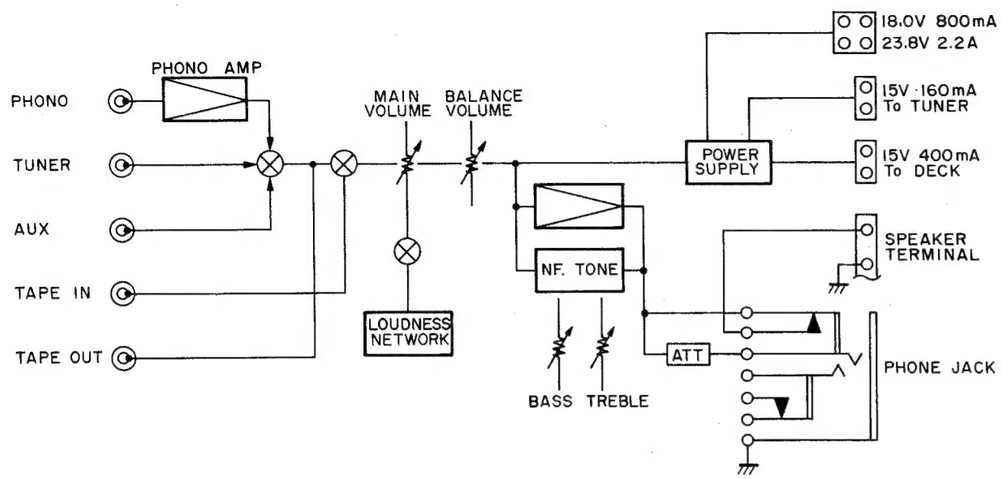
1. **Main Amp. . . . . mounted on P.W. Board P700**
2. **Volume/Tone/Lamp. . . mounted on P.W. Board PE00**
3. **Power switch . . . . . mounted on P.W. Board PG00**
4. **Head Phone Jack . . . . mounted on P.W. Board PW00**

2. TEST EQUIPMENT REQUIRED FOR SERVICING

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
AC VTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
Circuit Tester	Trouble shooting
DC VTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer (0 ~ 140V AC, 10A)	Adjust level of primery power to amplifier
Shorting Plug	Shorts amplifier input to eliminate noise pickup

1. The secondary winding of the power transformer has special AC power outputs for the power supply units of the tuner and tape deck.
2. The ON/OFF switching of the speakers uses the headphones jack rather than a manual switch.
3. Since this unit uses an idling non-adjustment circuit, when replacing the parts, be sure to use the correct idling resistors and the proper rank power transistor and variable resistors.

3. BLOCK DIAGRAM



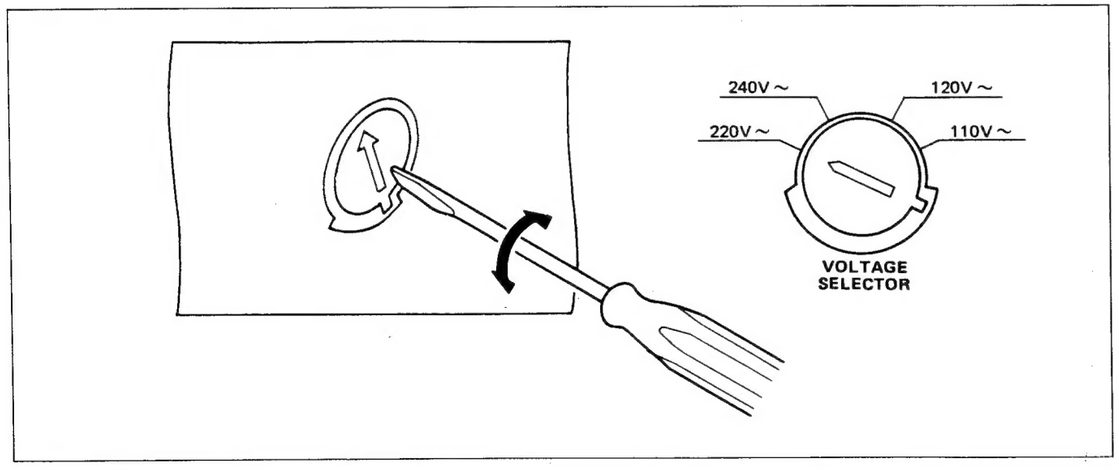
4. VOLTAGE CONVERSION

- **EUROPEAN MODEL ONLY**

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

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

Voltage Conversion Chart



Note on safety: Symbol ⚠ Fire or electrical shock hazard. Only orignal parts should be used to replace any part marked with symbol ⚠ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

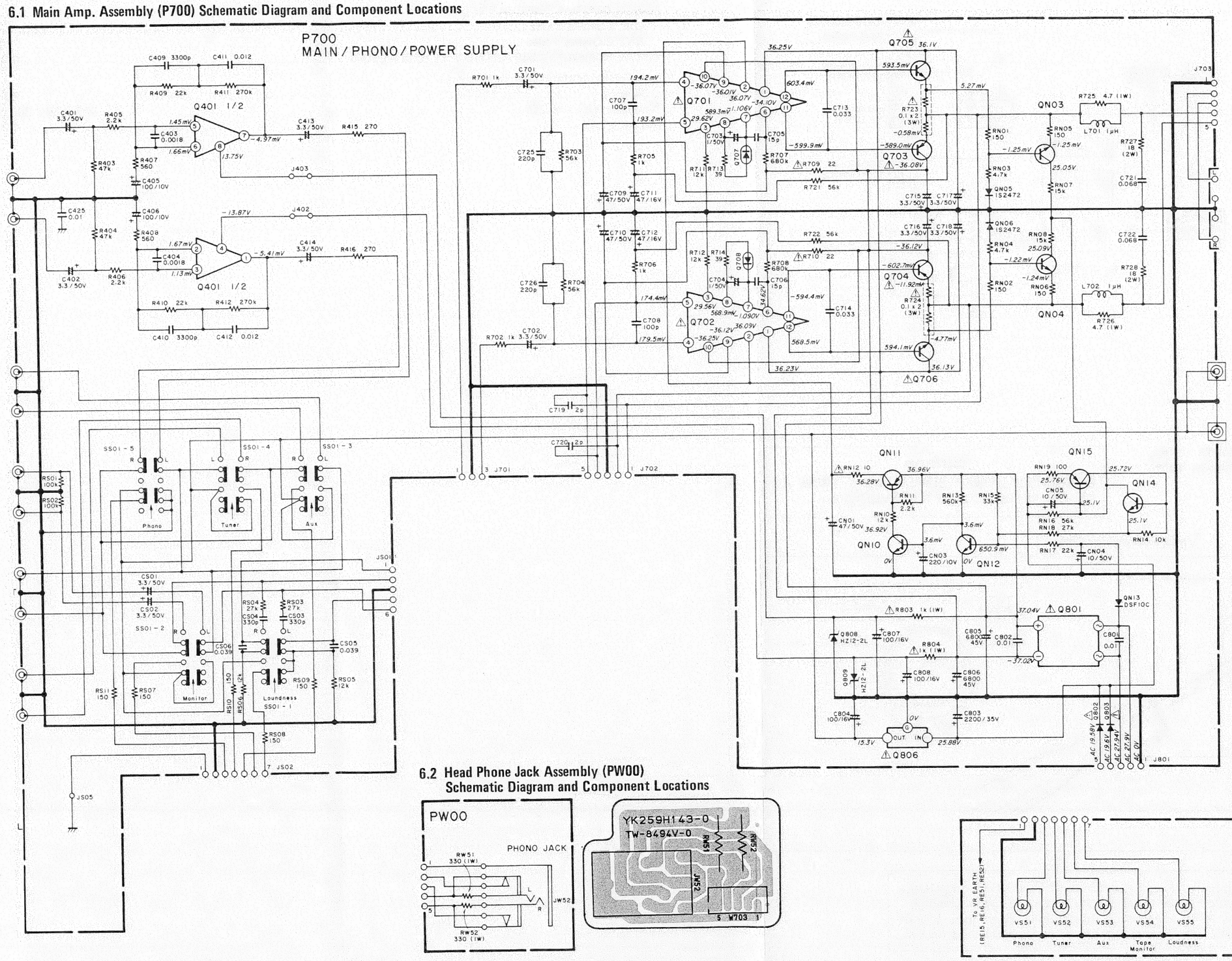
5. TECHNICAL SPECIFICATIONS

POWER OUTPUT PER CHANNEL
DIN 8 OHMS 1 kHz . . . . . 33 W
RMS 8 OHMS 1 kHz . . . . . 30 W
TOTAL HARMONIC DISTORTION AT RMS 8 OHMS 0.05%

Signal-to-Noise Ratio (IHF-A Network)
Aux . . . . . 90 dB
Dimensions (W x H x D) . . . . . 416 x 80 x 200 mm
Weight . . . . . 4.2 kg

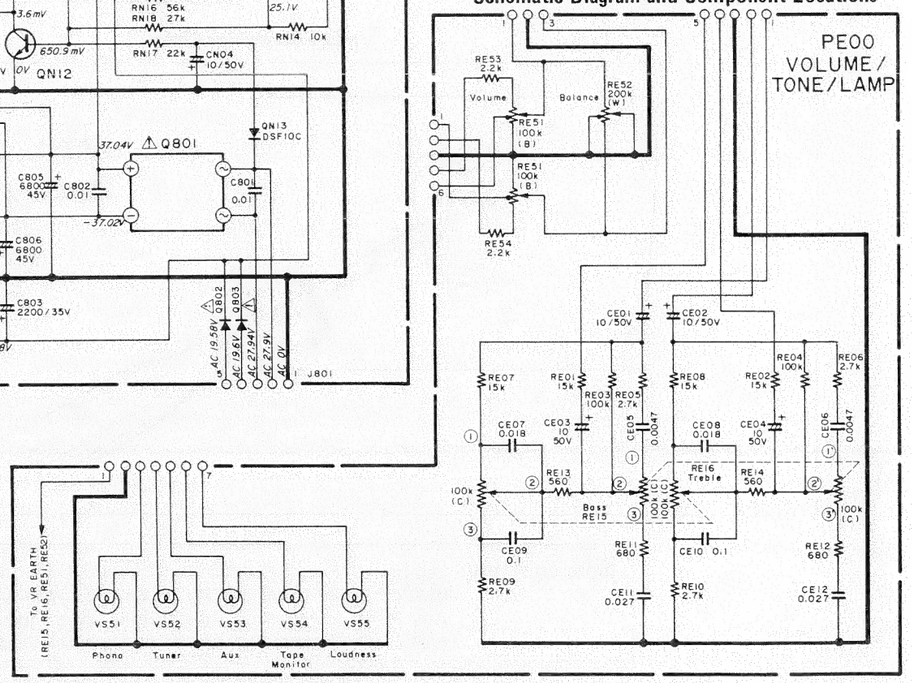
6. SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

6.1 Main Amp. Assembly (P700) Schematic Diagram and Component Locations

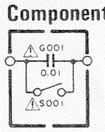


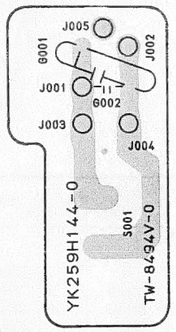
6.2 Head Phone Jack Assembly (PW00) Schematic Diagram and Component Locations

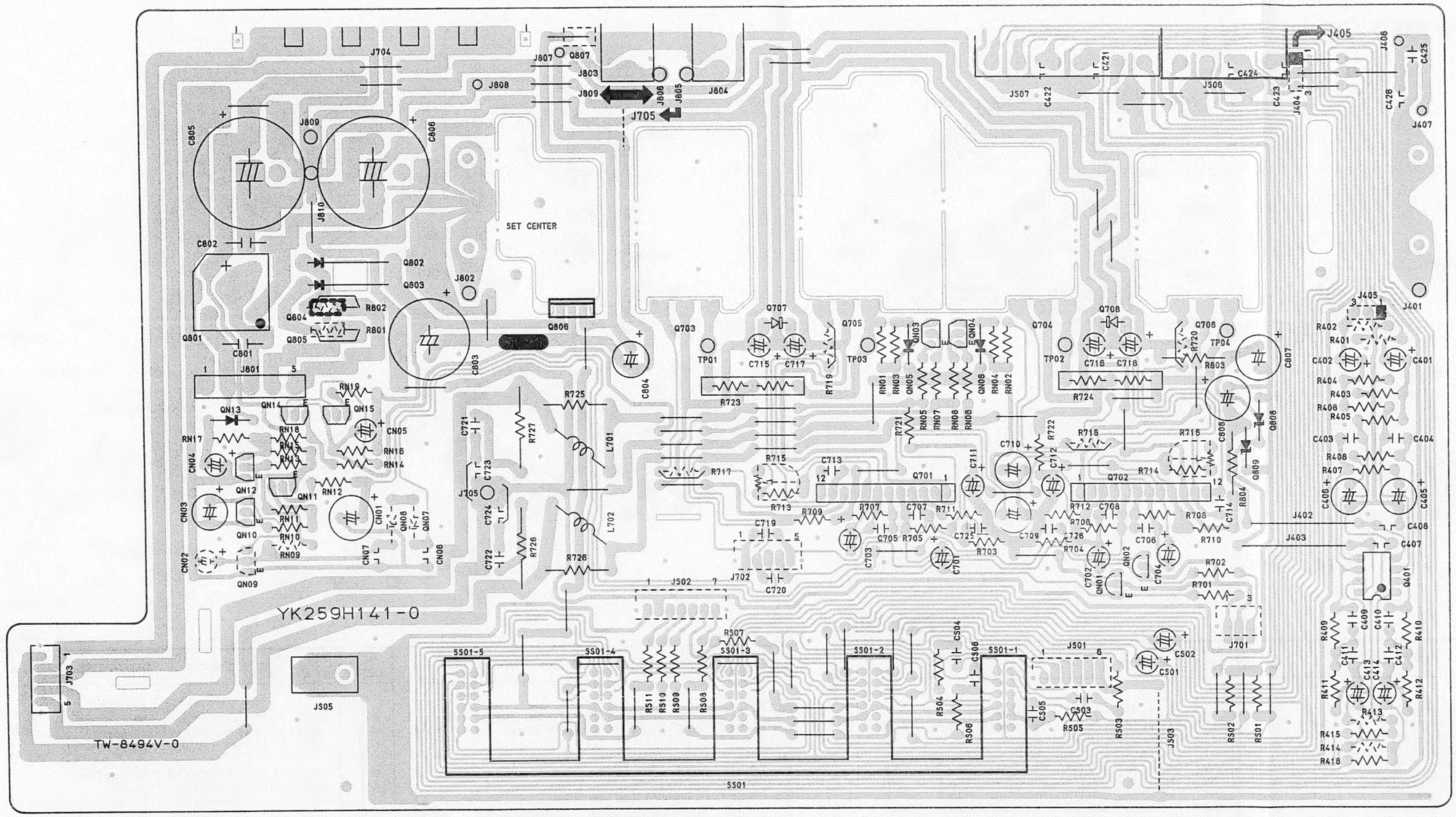
6.3 Volume/Tone/Lamp. Assembly (PE00) Schematic Diagram and Component Locations

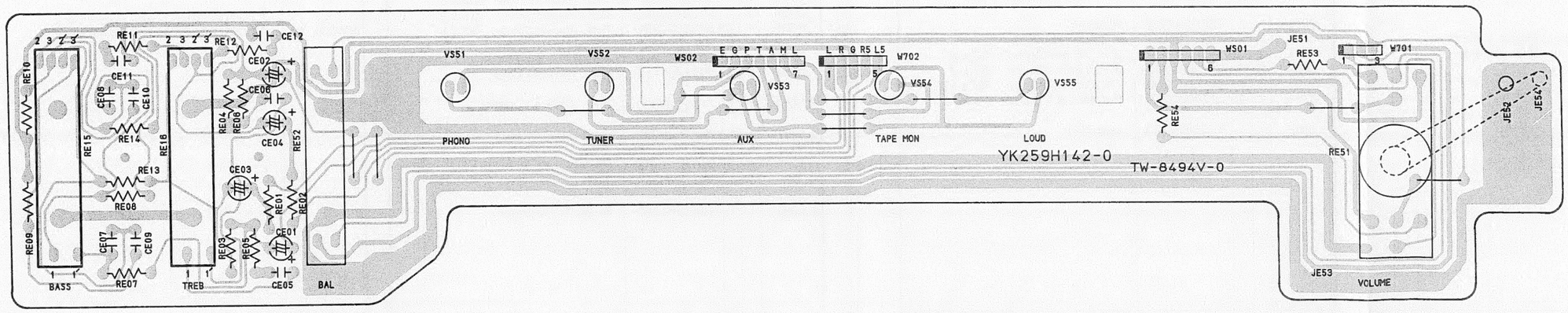


6.4 Power Switch Assembly (PG00) Schematic Diagram and Component Locations

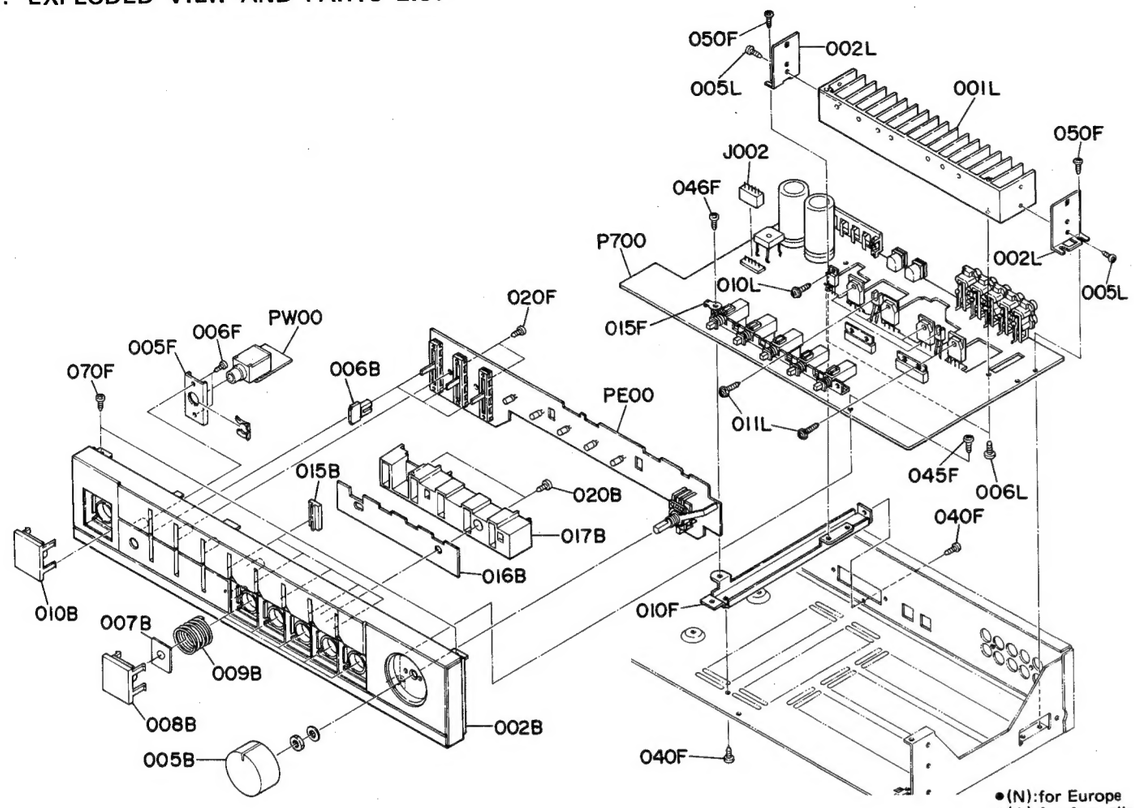






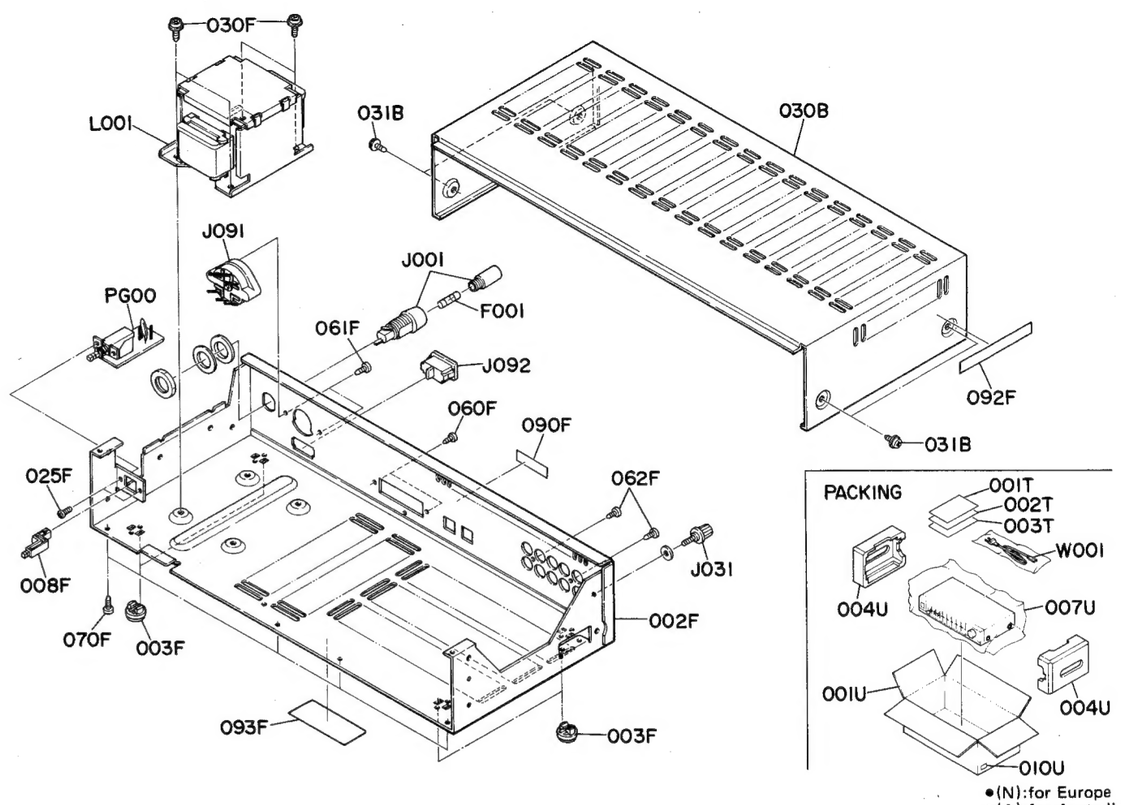


7. EXPLODED VIEW AND PARTS LIST



REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION
A	1	1	259H248400	Front Panel Assembly
002B	1	1	259H248010	Front Panel
008B	5	5	444H270010	Button, Selector
009B	5	5	444H115010	Spring, Selector Button
010B	1	1	444H270010	Button, Power
015B	5	5	259H158010	Window, Selector
016B	1	1	259H158020	Window, Green
017B	1	1	259H274010	Reflector, Lamp
020B	2	2	51280308B0	B.H. Tapped Screw B3 x 8
007B	1	1	259H056010	Buffer Button
005B	1	1	259H154010	Knob, Master Volume
006B	3	3	259H154020	Knob, Slide Volume

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION
005F	1	1	259H104020	Retainer, Headphone
006F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
010F	1	1	259H104030	Retainer
015F	1	1	135H005010	Clamper, Earth
020F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
040F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
045F	1	1	51280308B0	B.H. Tapped Screw B3 x 8
046F	1	1	51280308B0	B.H. Tapped Screw B3 x 8
050F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
070F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
001L	1	1	259H267010	Heatsink
002L	2	2	259H104010	Retainer, Heatsink
005L	2	2	51280308B0	B.H. Tapped Screw B3 x 8
006L	2	2	51280308B0	B.H. Tapped Screw B3 x 8
010L	5	5	51780312B0	Fin Neck B.T. Screw B3 x 12
011L	2	2	51780312B0	Fin Neck B.T. Screw B3 x 12
J002	1	1	YJ06001050	Jack (5P)



REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION
030B	1	1	259H257010	Lid, Top Cover
031B	4	4	51260408U0	B.T. Screw B4 x 8
002F	1	1	259H105010	Chassis
003F	4	4	258H057010	Leg
008F	1	1	259H121010	Link, Power Switch
025F	2	2	51100308A9	B.H.M. Screw B3 x 8
030F	4	4	52040408A0	H. Head Bolt, S.F H4 x 8
060F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
061F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
062F	2	2	51280308B0	B.H. Tapped Screw B3 x 8
070F	4	4	51280308B0	B.H. Tapped Screw B3 x 8
090F	1	1	2112265110	Indicator, Serial No.
092F	1	1	2911861140	Label, Top Cover
093F	1	1	2911861110	Label, Bottom Cover
⚠F001	1	1	FS10080800	Fuse, 800mA 250V
⚠J001	1	1	YJ08000290	Jack, Fuse Holder
J031	1	1	YL03010250	Terminal, GND
⚠J091	1	1	BY05080050	Voltage Selector
⚠J092	1	1	YP04000580	Plug, AC Inlet
⚠L001	1	1	TS16801080	Power Transformer

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION
				PACKING
001T	1	1	259H851310	User Manual
002T	1	1	259H851320	User Manual, Spec
003T		1	9631000090	Warranty Card
001U	1	1	259H801010	Packing Case
004U	2	2	259H809010	Cushion
007U	1	1	9090808030	Polyethylene Sheet
010U	1		9526019060	Serial No. Card
010U		1	9526019030	Serial No. Card
⚠W001	1		ZC01805010	A.C. Power Cord
⚠W001		1	ZC02006020	A.C. Power Cord

8. ELECTRICAL PARTS LIST

●(N):for Europe
●(A):for Australia

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION			
				P700-MAIN AMP CIRCUIT BOARD			
P700	1	1	YK259H1410	P.W. Board, Main Amp			
	1	1	ZZ259H8410	P.W. Board Assembly			
				P700-CAPACITORS			
C401	1	1	EA33505030	Elect	3.3μF		50V
C402	1	1	EA33505030	Elect	3.3μF		50V
C403	1	1	DF16182310	Film	1800pF	±10%	
C404	1	1	DF16182310	Film	1800pF	±10%	
C405	1	1	EA10701030	Elect	100μF		10V
C406	1	1	EA10701030	Elect	100μF		10V
C409	1	1	DF16332310	Film	3300pF	±10%	
C410	1	1	DF16332310	Film	3300pF	±10%	
C411	1	1	DF16123310	Film	0.012μF	±10%	
C412	1	1	DF16123310	Film	0.012μF	±10%	
C413	1	1	EA33505030	Elect	3.3μF		50V
C414	1	1	EA33505030	Elect	3.3μF		50V
C425	1	1	DK18103310	Ceramic	0.01μF	±10%	
C701	1	1	EA33505030	Elect	3.3μF		50V
C702	1	1	EA33505030	Elect	3.3μF		50V
C703	1	1	EA10505030	Elect	1μF		50V
C704	1	1	EA10505030	Elect	1μF		50V
C705	1	1	DD15150370	Ceramic	15pF	±5%	
C706	1	1	DD15150370	Ceramic	15pF	±5%	
C707	1	1	DD15101370	Ceramic	100pF	±5%	
C708	1	1	DD15101370	Ceramic	100pF	±5%	
C709	1	1	EA47605030	Elect	47μF		50V
C710	1	1	EA47605030	Elect	47μF		50V
C711	1	1	EA47601630	Elect	47μF		16V
C712	1	1	EA47601630	Elect	47μF		16V
C713	1	1	DF16333310	Film	0.033μF	±10%	
C714	1	1	DF16333310	Film	0.033μF	±10%	
C715	1	1	EA33505030	Elect	3.3μF		50V
C716	1	1	EA33505030	Elect	3.3μF		50V
C717	1	1	EA33505030	Elect	3.3μF		50V
C718	1	1	EA33505030	Elect	3.3μF		50V
C719	1	1	DD10020370	Ceramic	2pF	±0.25pF	
C720	1	1	DD10020370	Ceramic	2pF	±0.25pF	
C721	1	1	DF16683310	Film	0.068μF	±10%	
C722	1	1	DF16683310	Film	0.068μF	±10%	
C725	1	1	DK16221300	Ceramic	220pF	±10%	
C726	1	1	DK16221300	Ceramic	220pF	±10%	
C801	1	1	DK18103560	Ceramic	0.01μF		
C802	1	1	DK18103560	Ceramic	0.01μF		
C803	1	1	EA22803590	Elect	2200μF		35V
C804	1	1	EA10701630	Elect	100μF		16V
C805	1	1	EB68804540	Elect	6800μF		45V
C806	1	1	EB68804540	Elect	6800μF		45V
C807	1	1	EA10701630	Elect	100μF		16V
C808	1	1	EA10701630	Elect	100μF		16V
CN01	1	1	EA47603530	Elect	47μF		35V
CN03	1	1	EA22701030	Elect	220μF		10V
CN04	1	1	EA10605030	Elect	10μF		50V
CN05	1	1	EA10605030	Elect	10μF		50V
CS01	1	1	EA33505030	Elect	3.3μF		50V
CS02	1	1	EA33505030	Elect	3.3μF		50V
CS03	1	1	DK16331300	Ceramic	330pF	±10%	
CS04	1	1	DK16331300	Ceramic	330pF	±10%	
CS05	1	1	DF16393310	Film	0.039μF	±10%	
CS06	1	1	DF16393310	Film	0.039μF	±10%	

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION		
				P700-RESISTORS (All Resistors are ±5% and ¼W)		
R403	1	1	GD05473140	47KΩ		
R404	1	1	GD05473140	47KΩ		
R405	1	1	GD05222140	2.2KΩ		
R406	1	1	GD05222140	2.2KΩ		
R407	1	1	GD05561140	560Ω		
R408	1	1	GD05561140	560Ω		
R409	1	1	GD05223140	22KΩ		
R410	1	1	GD05223140	22KΩ		
R411	1	1	GD05274140	270KΩ		
R412	1	1	GD05274140	270KΩ		
R415	1	1	GD05271140	270Ω		
R416	1	1	GD05271140	270Ω		
R701	1	1	GD05102140	1KΩ		
R702	1	1	GD05102140	1KΩ		
R703	1	1	GD05563140	56KΩ		
R704	1	1	GD05563140	56KΩ		
R705	1	1	GD05102140	1KΩ		
R706	1	1	GD05102140	1KΩ		
R707	1	1	GD05684140	680KΩ		
R708	1	1	GD05684140	680KΩ		
⚠ R709	1	1	RF05220140	22Ω, Fusible		
⚠ R710	1	1	RF05220140	22Ω, Fusible		
R711	1	1	GD05123140	12KΩ		
R712	1	1	GD05123140	12KΩ		
R713	1	1	GD05390140	39Ω		
R714	1	1	GD05390140	39Ω		
R721	1	1	GD05563140	56KΩ		
R722	1	1	GD05563140	56KΩ		
⚠ R723	1	1	BW10000090	0.1Ω x 2	±5%	3W,Compo.
⚠ R724	1	1	BW10000090	0.1Ω x 2	±5%	3W,Compo.
R725	1	1	GA05047010	4.7Ω		1W
R726	1	1	GA05047010	4.7Ω		1W
R727	1	1	GA05180020	18Ω		2W
R728	1	1	GA05180020	18Ω		2W
⚠ R803	1	1	GA05102010	1KΩ		1W
⚠ R804	1	1	GA05102010	1KΩ		1W
RN01	1	1	GD05151140	150Ω		
RN02	1	1	GD05151140	150Ω		
RN03	1	1	GD05472140	4.7KΩ		
RN04	1	1	GD05472140	4.7KΩ		
RN05	1	1	GD05151140	150Ω		
RN06	1	1	GD05151140	150Ω		
RN07	1	1	GD05153140	15KΩ		
RN08	1	1	GD05153140	15KΩ		
RN10	1	1	GD05123140	12KΩ		
RN11	1	1	GD05222140	2.2KΩ		
⚠ RN12	1	1	RF05100140	10Ω, Fusible		
RN13	1	1	GD05564140	560KΩ		
RN14	1	1	GD05103140	10KΩ		
RN15	1	1	GD05333140	33KΩ		
RN16	1	1	GD05563140	56KΩ		
RN17	1	1	GD05223140	22KΩ		
RN18	1	1	GD05273140	27KΩ		
RN19	1	1	GD05101140	100Ω		
RS01	1	1	GD05104140	100KΩ		
RS02	1	1	GD05104140	100KΩ		
RS03	1	1	GD05273140	27KΩ		
RS04	1	1	GD05273140	27KΩ		
RS05	1	1	GD05123140	12KΩ		

●(N):for Europe
●(A):for Australia

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION		
RS06	1	1	GD05123140	12KΩ		
RS07	1	1	GD05151140	150Ω		
RS08	1	1	GD05151140	150Ω		
RS09	1	1	GD05151140	150Ω		
RS10	1	1	GD05151140	150Ω		
RS11	1	1	GD05151140	150Ω		
				P700-SEMICONDUCTORS		
Q401	1	1	HC10008090	IC	NJM4558DD	
⚠ Q701	1	1	HC10097060	IC	MPC1270H	
⚠ Q702	1	1	HC10097060	IC	MPC1270H	
⚠ Q703	1	1	HT111352B0	Transistor	2SA1135(O or Y)	
⚠ Q704	1	1	HT111352B0	Transistor	2SA1135(O or Y)	
⚠ Q705	1	1	HT326652B0	Transistor	2SC2665(O or Y)	
⚠ Q706	1	1	HT326652B0	Transistor	2SC2665(O or Y)	
Q707	1	1	HV00006080	Varistor	STV-3H	
Q708	1	1	HV00006080	Varistor	STV-3H	
⚠ Q801	1	1	HD20008290	Diode	S4VB-20	
⚠ Q802	1	1	HD20009290	Diode	2SV-20	
⚠ Q803	1	1	HD20009290	Diode	2SV-20	
⚠ Q806	1	1	HC38515090	IC	NJM78M15	
Q808	1	1	HD30009010	Zener	HZ12-2L	
Q809	1	1	HD30009010	Zener	HZ12-2L	
QN03	1	1	HT327852B0	Transistor	2SC2785(J or H)	
QN04	1	1	HT327852B0	Transistor	2SC2785(J or H)	
QN05	1	1	HD20002210	Diode	1S2472	
QN06	1	1	HD20002210	Diode	1S2472	
QN10	1	1	HT327852B0	Transistor	2SC2785(J or H)	
QN11	1	1	HT111752B0	Transistor	2SA1175(J or H)	
QN12	1	1	HT327852B0	Transistor	2SC2785(J or H)	
QN13	1	1	HD20022030	Diode	DSF-10C	
QN14	1	1	HT327852B0	Transistor	2SC2785(J or H)	
QN15	1	1	HT111752B0	Transistor	2SA1175(J or H)	
				P700-MISCELLANEOUS		
J402	1	1	75062501P0	Jumper, 25mm		
J403	1	1	75062501P0	Jumper, 25mm		
J704	1	1	YT03040230	Terminal, Speaker (4P)		
J801	1	1	YP06001050	Plug (5P)		
J803	1	1	YJ04001030	Jack, Deck		
J804	1	1	YJ04001030	Jack, Tuner		
JS05	1	1	YL01010110	Terminal, Earth Lug		
JS06	1	1	YT02040470	Terminal, RCA Jack (4P)		
JS07	1	1	YT02060180	Terminal, RCA Jack (6P)		
SS01	1	1	SP04050270	Push Switch		
W701	1	1	YU03120260	Jumper Lead (3P)		
W702	1	1	YU05120260	Jumper Lead (5P)		
W703	1	1	YU05120260	Jumper Lead (5P)		
WS01	1	1	YU06100260	Jumper Lead (6P)		
WS02	1	1	YU07120260	Jumper Lead (7P)		

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

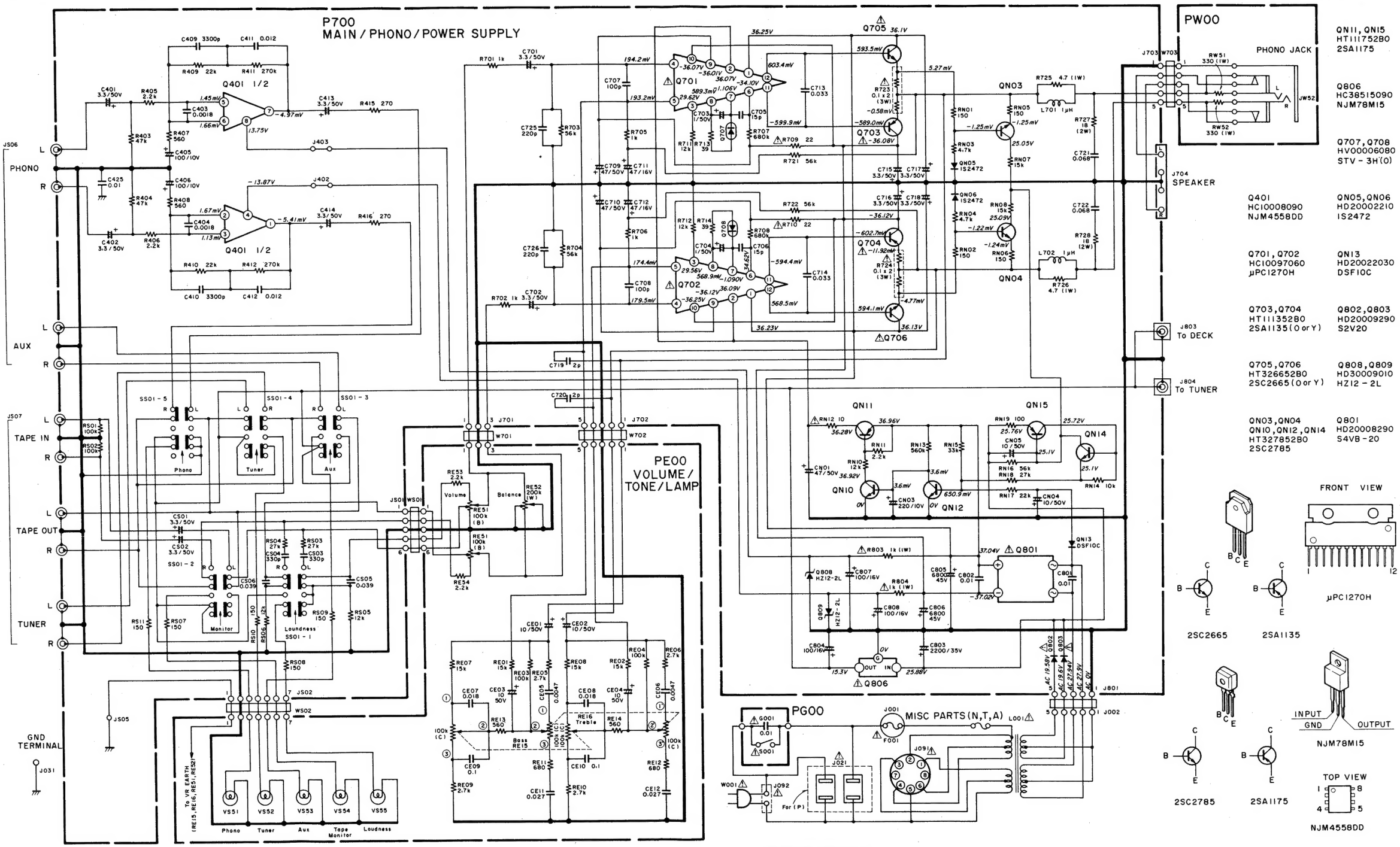
●(N):for Europe
●(A):for Australia

REF. DESIG.	Q'TY N	Q'TY A	PART NO.	DESCRIPTION			
				PE00-VOL./TONE/LAMP CIRCUIT BOARD			
PE00	1	1	YK259H1420	P.W. Board, Vol./Tone/Lamp			
	1	1	ZZ259H8420	P.W. Board Assembly			
				PE00-CAPACITORS			
CE01 ~ CE04	4	4	EA10605030	Elect	10μF		50V
CE05	1	1	DF16472310	Film	4700pF	±10%	
CE06	1	1	DF16472310	Film	4700pF	±10%	
CE07	1	1	DF16183310	Film	0.018μF	±10%	
CE08	1	1	DF16183310	Film	0.018μF	±10%	
CE09	1	1	DF16104310	Film	0.1μF	±10%	
CE10	1	1	DF16104310	Film	0.1μF	±10%	
CE11	1	1	DF16273310	Film	0.027μF	±10%	
CE12	1	1	DF16273310	Film	0.027μF	±10%	
				PE00-RESISTORS (All Resistors are ±5% and ¼W)			
RE01	1	1	GD05153140	15KΩ			
RE02	1	1	GD05153140	15KΩ			
RE03	1	1	GD05104140	100KΩ			
RE04	1	1	GD05104140	100KΩ			
RE05	1	1	GD05272140	2.7KΩ			
RE06	1	1	GD05272140	2.7KΩ			
RE07	1	1	GD05153140	15KΩ			
RE08	1	1	GD05153140	15KΩ			
RE09	1	1	GD05272140	2.7KΩ			
RE10	1	1	GD05272140	2.7KΩ			
RE11	1	1	GD05681140	680Ω			
RE12	1	1	GD05681140	680Ω			
RE13	1	1	GD05561140	560Ω			
RE14	1	1	GD05561140	560Ω			
RE15	1	1	RS01040320	100KΩ(C) x 2, Variable			
RE16	1	1	RS01040320	100KΩ(C) x 2, Variable			
RE51	1	1	RM01040830	100KΩ(B) x 2, Variable			
RE52	1	1	RX02040080	200KΩ(W), Variable			
RE53	1	1	GD05222140	2.2KΩ			
RE54	1	1	GD05222140	2.2KΩ			
				PE00-MISCELLANEOUS			
VS51 ~ VS55	5	5	IN10080610	Lamp	50mA	8V	
				PG00-POWER SWITCH CIRCUIT BOARD			
PG00	1	1	YK259H1440	P.W. Board, Power Switch			
	1	1	ZZ259H8440	P.W. Board Assembly			
⚠ G001	1	1	DK18103840	Ceramic Cap.	0.01μF		250V
⚠ S001	1	1	SP01010730	Push Switch, Power			
				PW00-HEADPHONE JACK CIRCUIT BOARD			
PW00	1	1	YK259H1430	P.W. Board, Headphone Jack			
	1	1	ZZ259H8430	P.W. Board Assembly			
RW51	1	1	GA05331010	Resistor	330Ω	±5%	1W
RW52	1	1	GA05331010	Resistor	330Ω	±5%	1W
JW52	1	1	YJ01001770	Jack, Headphone			

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

Model PM140



QN11, QN15	
HT111752B0	
2SA1175	
Q806	
HC38515090	
NJM78M15	
Q707, Q708	
HV00006080	
STV - 3H(0)	
Q401	QN05, QN06
HC10008090	HD20002210
NJM4558DD	IS2472
Q701, Q702	QN13
HC10097060	HD20022030
µPC1270H	DSF10C
Q703, Q704	Q802, Q803
HT111352B0	HD20009290
2SA1135(O or Y)	S2V20
Q705, Q706	Q808, Q809
HT326652B0	HD30009010
2SC2665(O or Y)	HZ12 - 2L
QN03, QN04	Q801
QN10, QN12, QN14	HD20008290
HT327852B0	S4VB - 20
2SC2785	

Components and wiring are subject to change for modification without notice.

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only orignal parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.