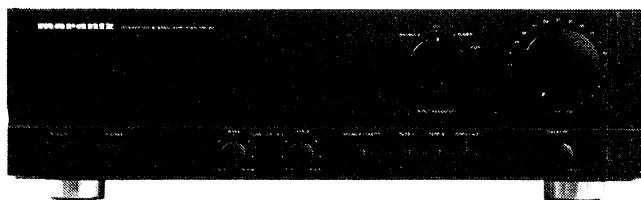


Service Manual

74 PM30/01B/02B/05B/07B
10B/12B/15B/17B

Stereo amplifier



PM-30



PM-30SE

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model PM-30/PM-30SE

First issue: 1990

4822 725 50912

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, correct part number has to be specified. 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 at the following addresses:

AUSTRIA HORNYPHON Vertriebsgesellschaft GmbH Wienerbergstrasse 1 A 1101 Wien Austria Telex: 132.332	FINLAND MARANTZ DIVISION OF OY PHILIPS Ab Kaivokatu 8 00100 Helsinki Finland Telex: 124811	GREAT BRITAIN MARANTZ AUDIO U.K. Ltd Unit 15/16 Saxon Way Industrial Estate Moor Lane Harmondswoth UB7 0LW Great Britain Telex: 935196	SAUDI ARABIA AL ALAMIAH ELECTRONICS P.O. Box 5954 University Street Riyadh 11432 Saudi Arabia Telex: 401530	SWITZERLAND MARANTZ Technischer Service Duenstrasse 3 3186 Dudingon Switzerland
BELGIUM SVD DIVISION MARANTZ Industrialaan 1 1720 Groot-Bijgaarden Belgium Telex: 24466	FRANCE MARANTZ FRANCE 4 Rue Bernard Palissy 92600 Asnières France Telex: 611651	GREECE SHERTON ELECTRONICS S.A. P.O.Box 21025 Hippocratus Street 188 Athens 11471 Greece Telex: 216.795	SOUTH AFRICA MARANTZ DIVISION OF PHILIPS S.A. Main Road Martindale P.O. Box. 58088 Newville 21114 South Africa	TURKEY DOGRUOL Ltd. I.M.C. 6 Blok N°6310 Unkapani Istanbul Turkey Telex: 22085
CHILE MARANTZ DIVISION OF PHILIPS S.A. Av. Santa Maria, 0760 Casilla 2687 Santiago Telex: 240.235	GERMANY MARANTZ GERMANY GmbH Alexanderstrasse 1 2000 Hamburg Germany	JAPAN MARANTZ JAPAN, Inc. 35-1, 7-chome, Sagamiono Sagamihara-shi, Kanagawa Japan	SPAIN PHONO S.A. Ignacio Iglesias 10 Badalona (Barcelona) Spain Telex: 59355	MALTA CACHIA & GALEA Republic Street, 68D Valletta Telex: 1682
DENMARK MARANTZ DIVISION OF PHILIPS SERVICE A/S Prags Boulevard 80 Postbox 1919 DK-2300 København S Denmark Telex: 31201	THE NETHERLANDS Elpro Marantz Wint Hontlaan 28 3526 KV Utrecht The Netherlands Telex: 4748	KUWAIT AL ALAMIAH ELECTRONICS Ussama Building Fahd al Saleem Street P.O. Box 23781 Safat-Kuwait Telex: 22694	SWEDEN MARANTZ DIVISION OF PHILIPS Försäljning AB Tegeluddsvägen 1 S-115 84 Stockholm Sweden Telex: 14060	PORTUGAL MARANTZ Divisao philips S.A. service Ourelra-carnaxide 2795 LinDA-A-VELHA Telex: 43906
	NORWAY MARANTZ DIVISION OF PHILIPS A/S Sandstuveien 40 0680 Oslo 6 Norway Telex: 72640	ITALY MARANTZ ITALIANA S.P.A. Via Chiese, 74 20126 Milano Italy		

MARANTZ INTERNATIONAL
Vestdijk 9
5600 MD Eindhoven
The Netherlands
Phone: +31/40.758290
Telefax: +31/40.75.82.99
Telex: 35000 PHTC NL routing IND NLMTFAT

TECHNICAL SPECIFICATIONS (DIN)

Power Amplifier Section

IHF Dynamic Power
2 ohms : 65W
4 ohms : 60W
8 ohms : 42W

Power Output Per Channel
DIN 8 ohms 1 kHz 1% THD : 38W
FTC 4 ohms 40-20 kHz 0.06% THD : 40W
FTC 8 ohms 40-20 kHz 0.03% THD : 35W

Total Harmonic Distortion at 8 ohms : 0.015%
I.M. Distortion at 8 ohms : 0.015%
Damping Factor : 100

Phono Amplifier Section

MM Cartridge Input
Frequency Difference : ±0.5 dB
Input Sensitivity : 2.5 mV
Input Impedance : 47k Ohms

High Level Section

Frequency Response : 10-60 kHz
Signal to Noise Ratio (A weighted) : 87 dB
Input Sensitivity : 150 mV
Input Impedance : 33k Ohms
Tape Output Level [Phono (MM) 5 mV 1 kHz Input] : 300 mV
Tape Output Impedance (Phono) : 220 Ohms
Tone Control Action 100 Hz : ±6 dB
10 kHz : ±6 dB

General

Power Requirements
2 Voltage version : 220V/240V
4 Voltage version : 110V-240V

Power Consumption (Rated Power)
AB Class Moode : 135W
A Class Moode : -

Dimensions
Panel Width : 420 mm
Panel Height : 118 mm
Depth : 280 mm

Weight
Unit alone : 10 kg

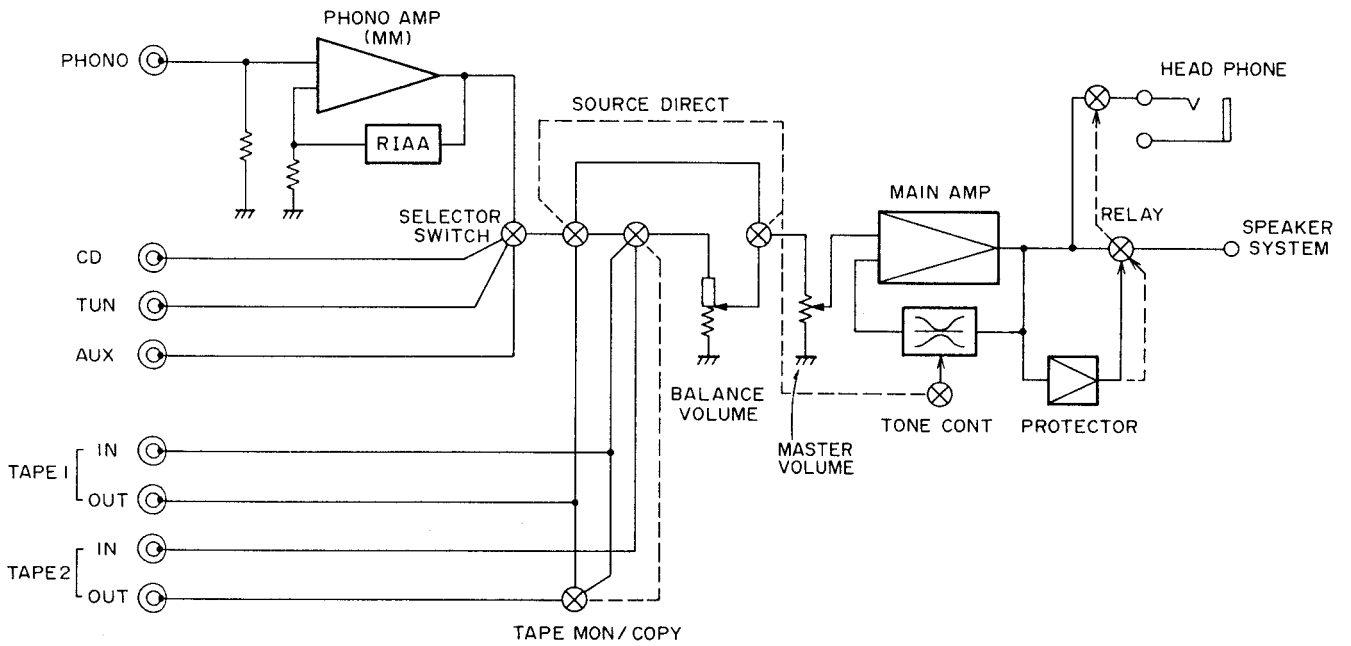
Specifications and appearance are subject to change for modification without notice.

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.

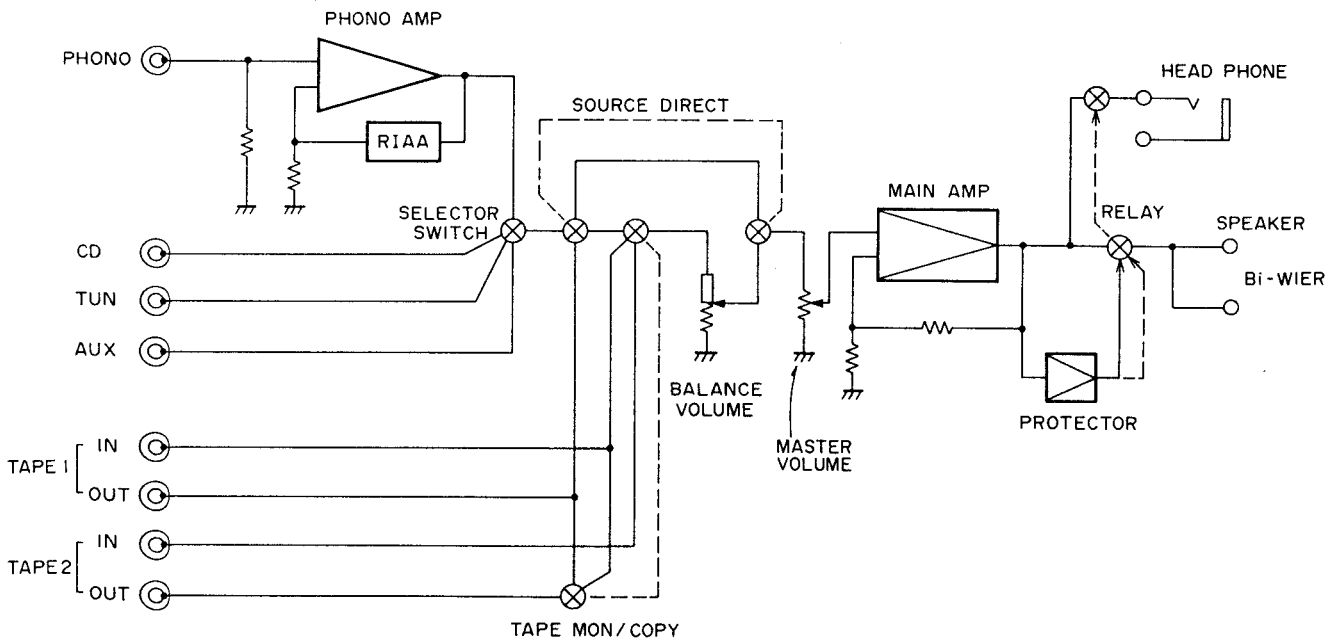
In case of difficulties, do not hesitate to contact the Technical Department at abovementioned address.

1. BLOCK DIAGRAM

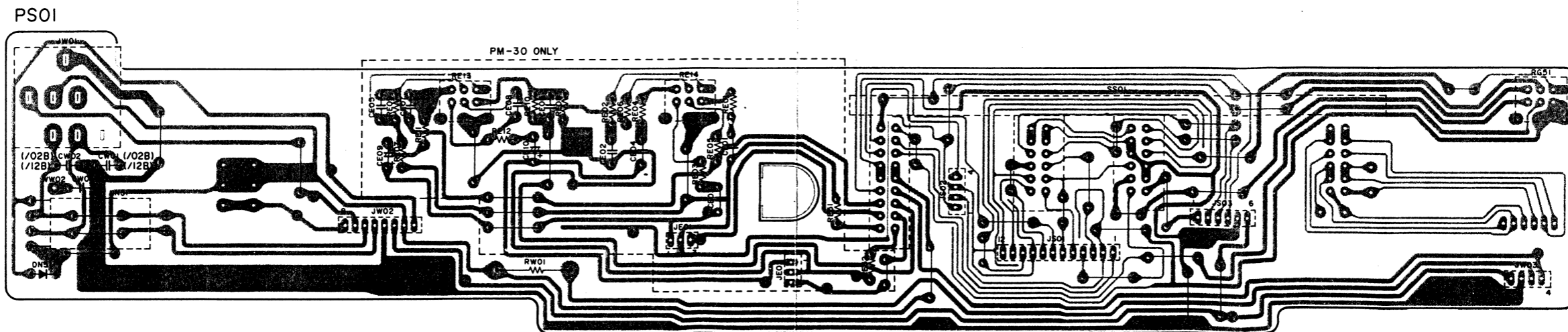
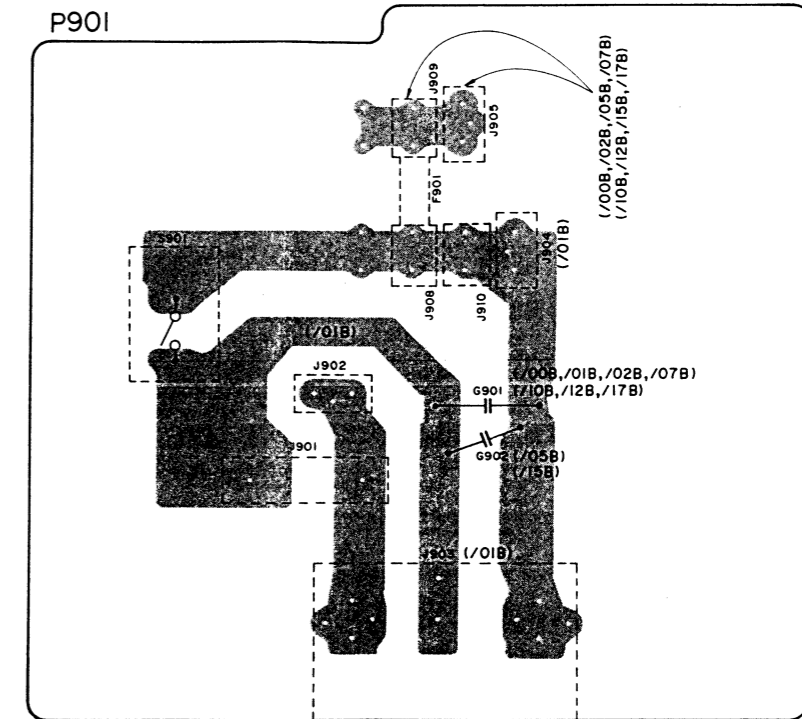
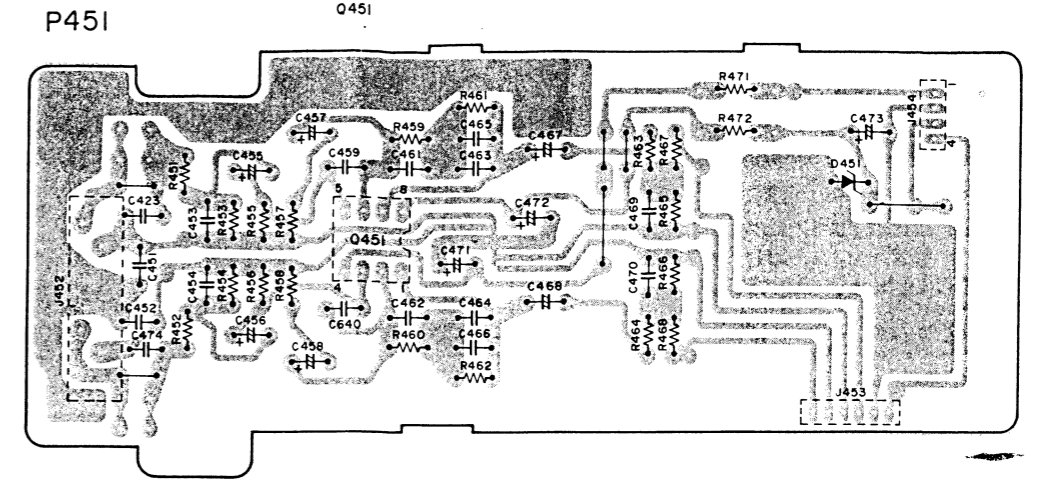
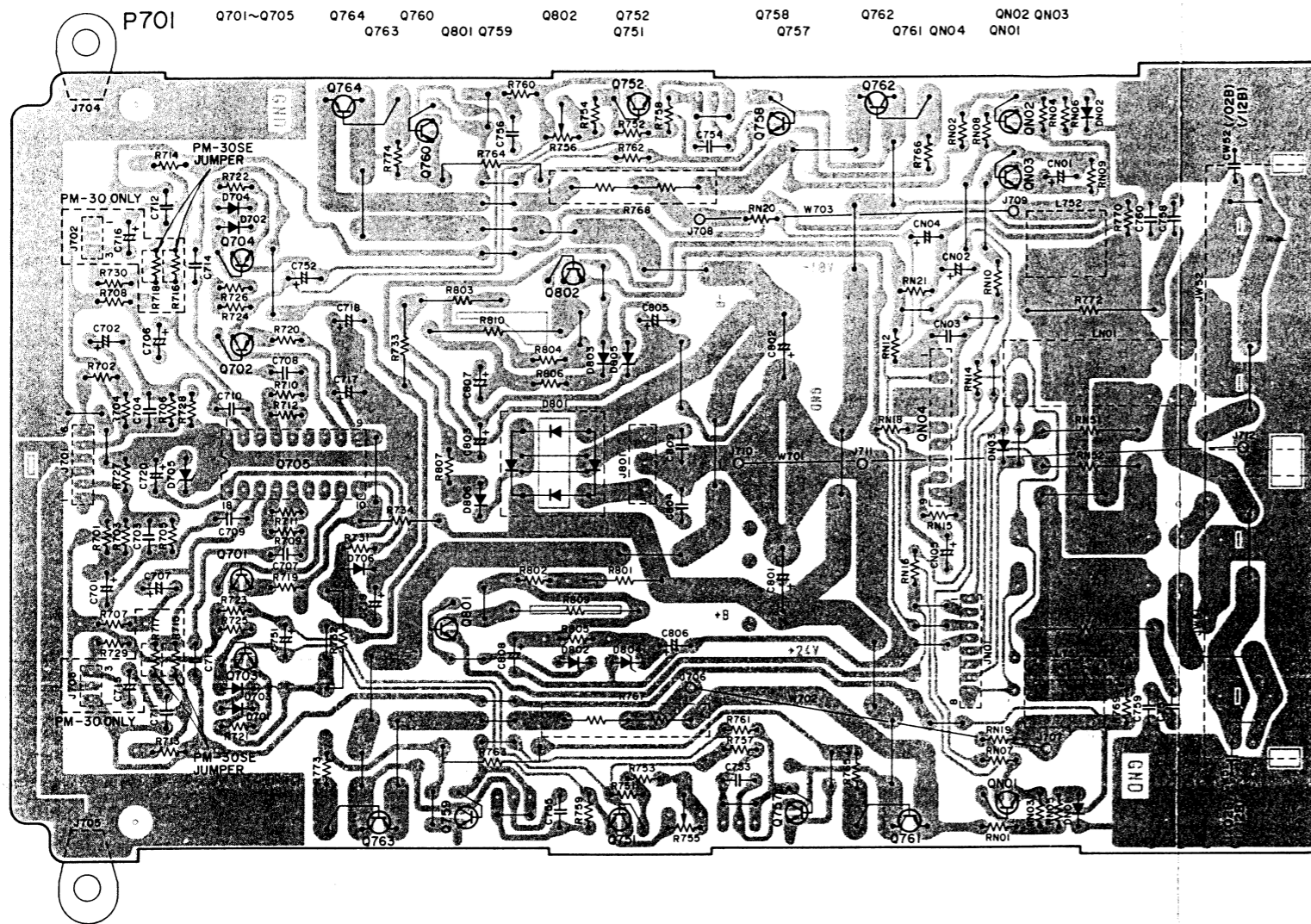
PM-30



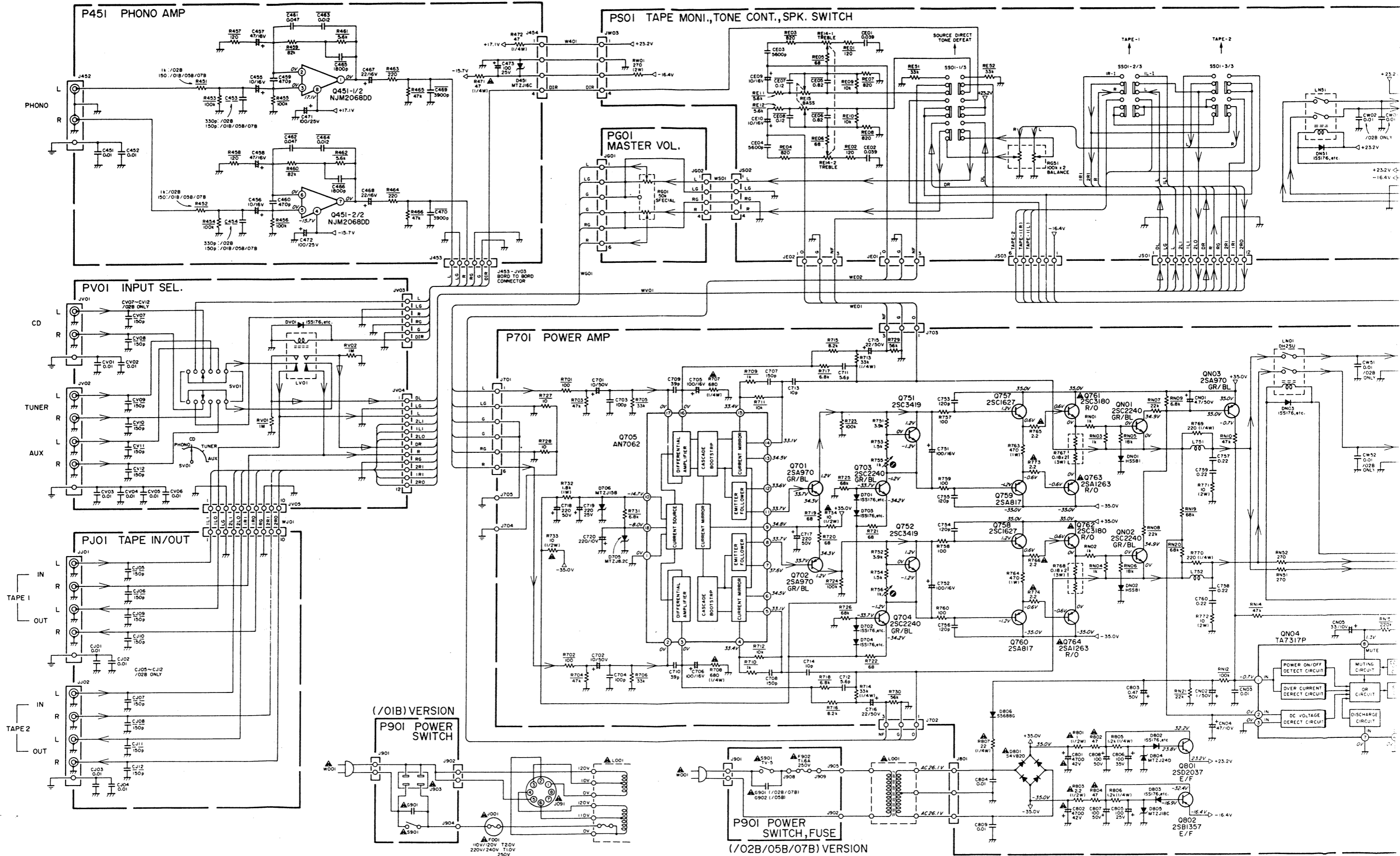
PM-30SE



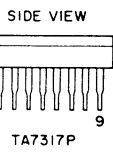
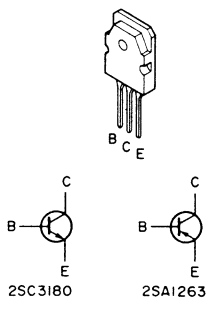
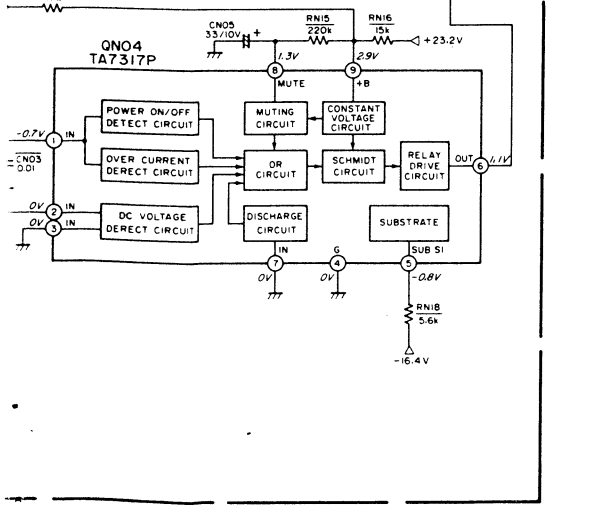
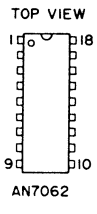
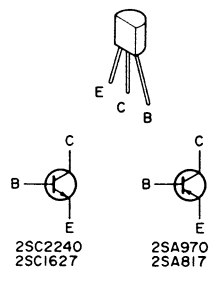
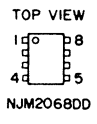
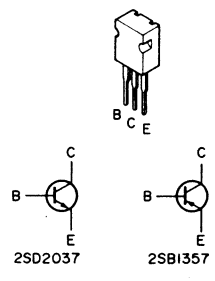
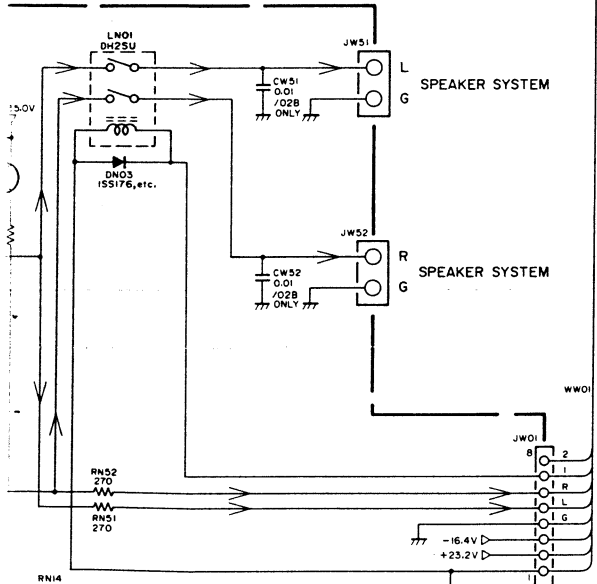
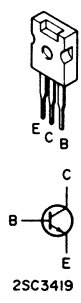
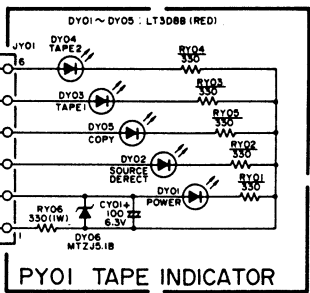
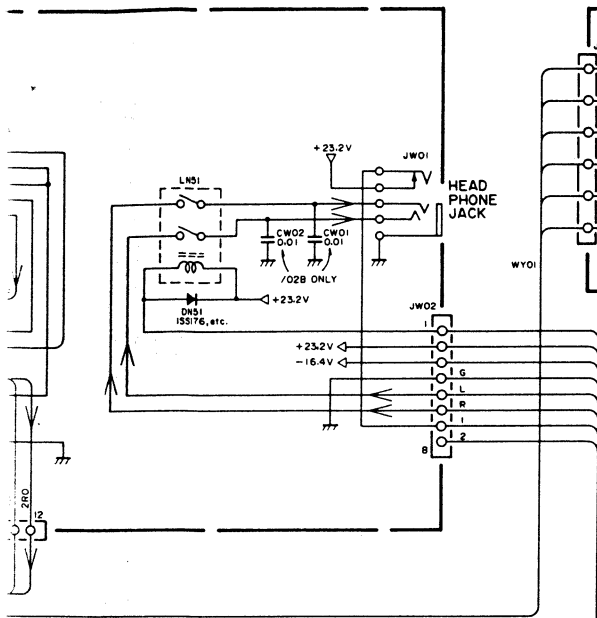
2. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern side)



PM-30



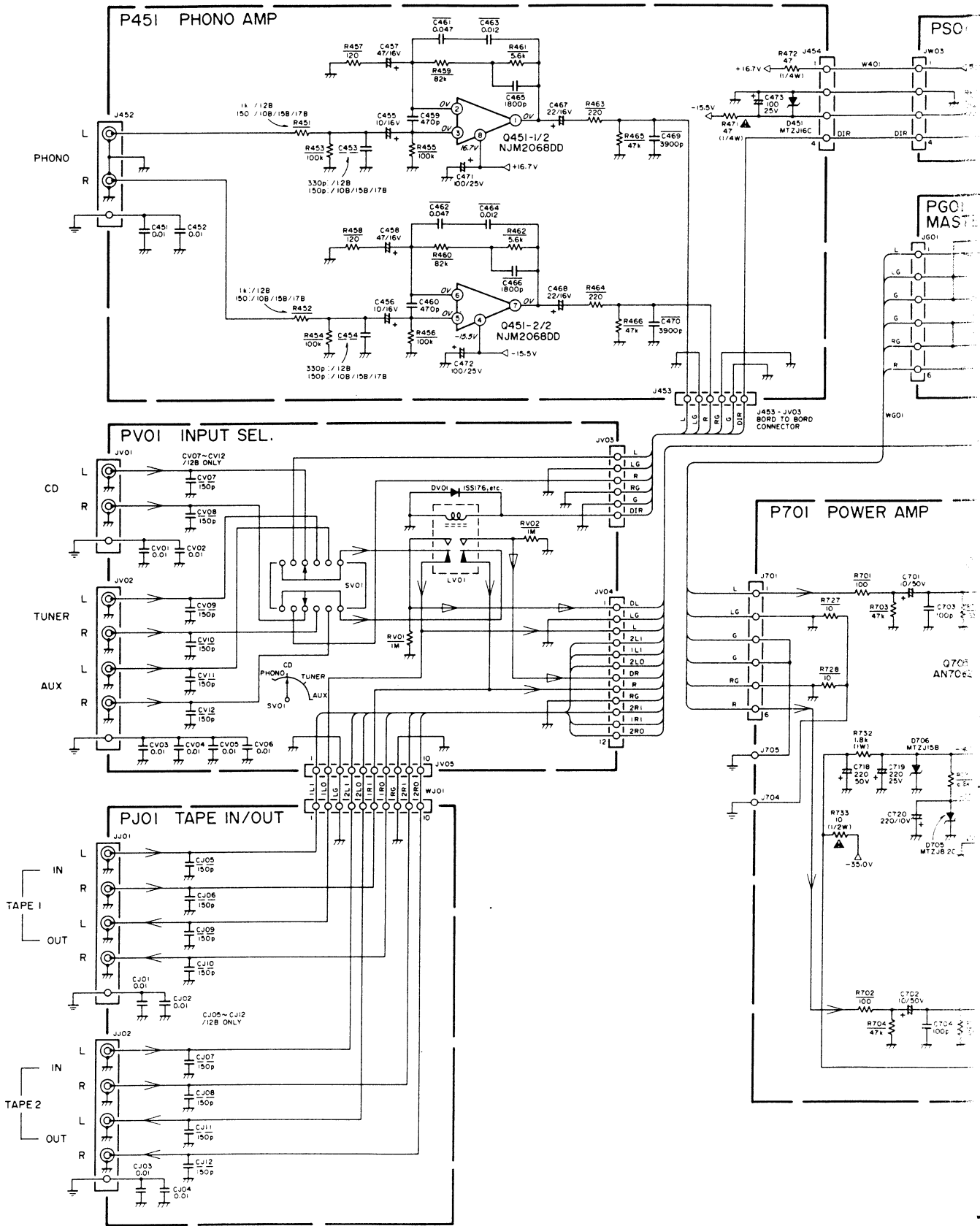
NOTE ON SAFETY:
 Symbol ▲ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ▲. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

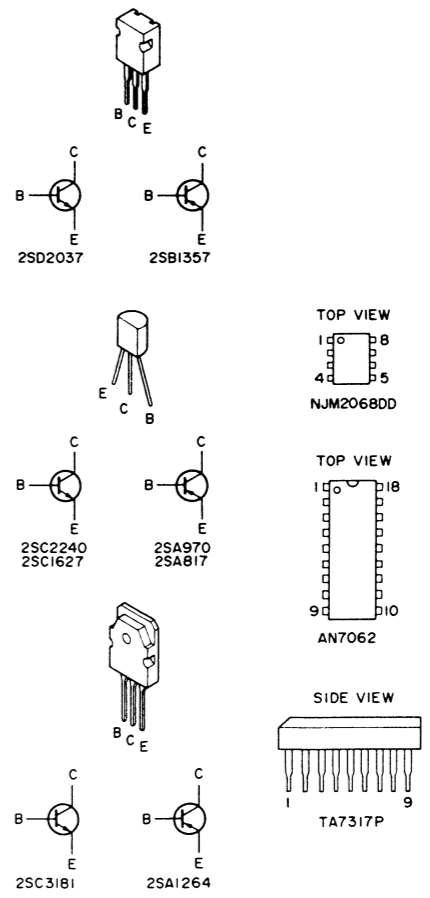
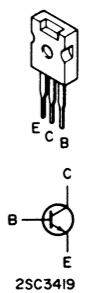
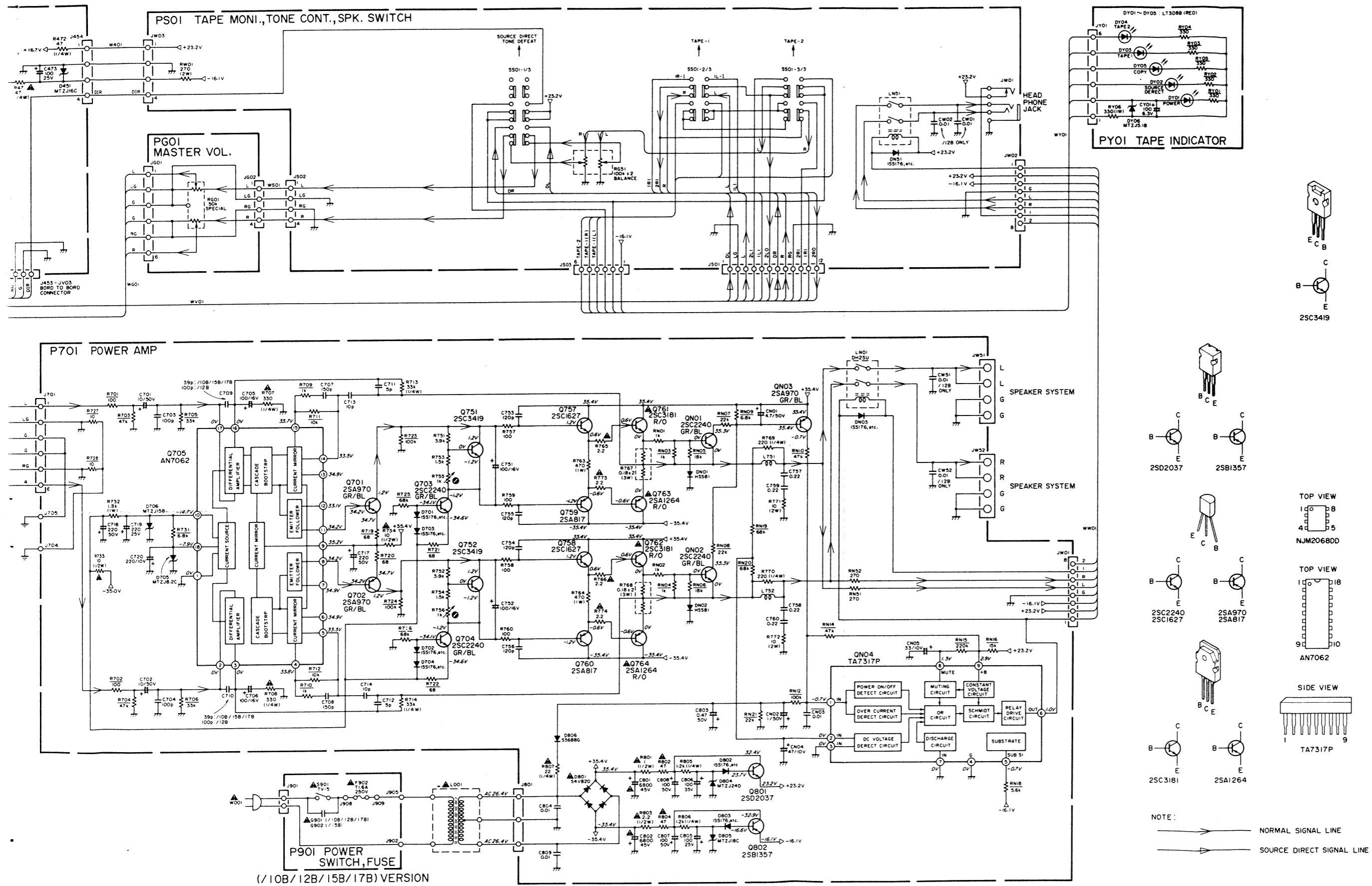


NOTE:
 ———>——— NORMAL SIGNAL LINE
 ———>——— SOURCE DIRECT SIGNAL LINE

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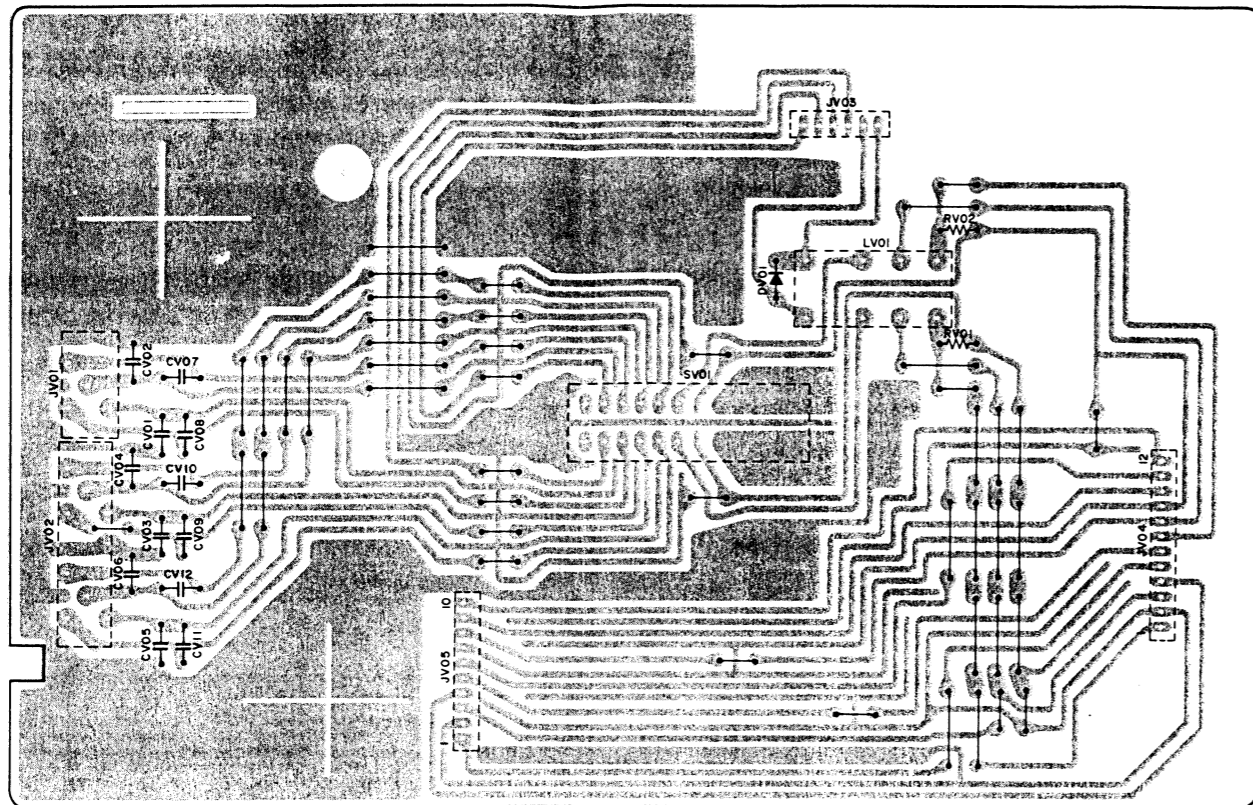
PM-30SE



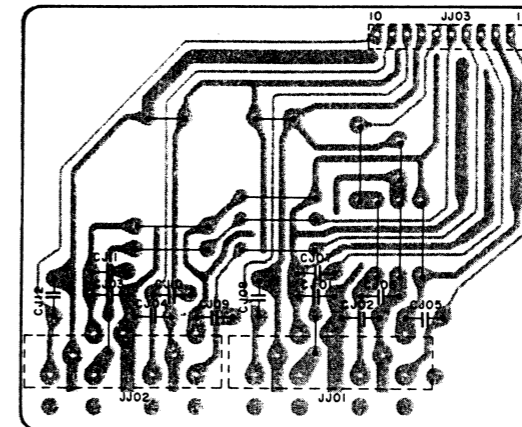


NOTE:
 → NORMAL SIGNAL LINE
 → SOURCE DIRECT SIGNAL LINE

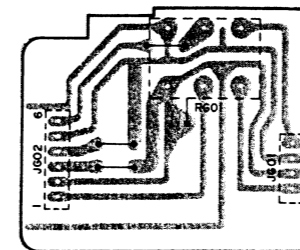
PV01



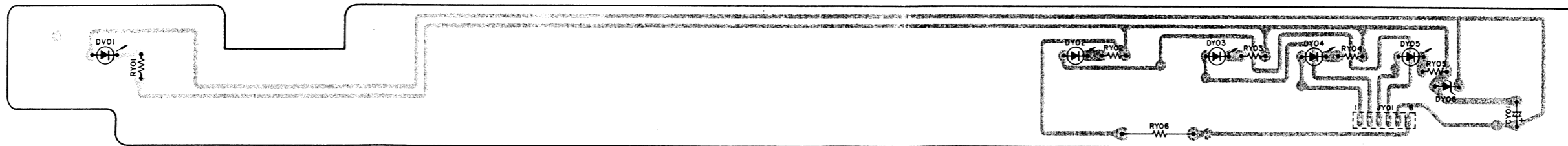
PJ01



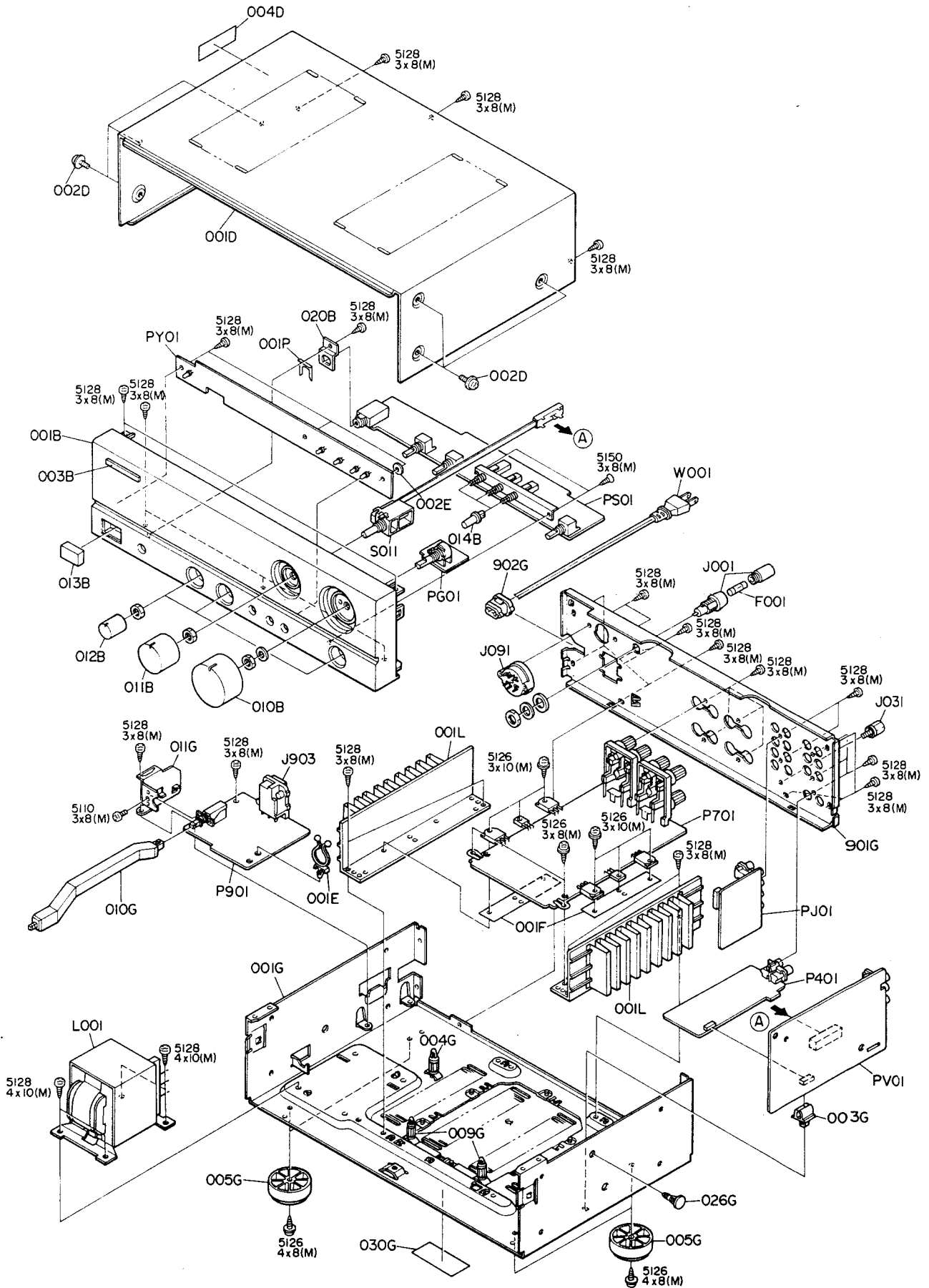
PG01



PY01



3. EXPLODED VIEW AND PARTS LIST



REF. DESIG.	PART NO.	DESCRIPTION
001B	4822 425 40176	Front Panel Assembly /01B/02B/05B/07B
	4822 425 40179	Front Panel Assembly /10B/12B/15B/17B
003B	4822 459 10943	Badge
010B	4822 413 41544	Knob, Volume
011B	4822 413 41545	Knob, Selector
012B	4822 413 41589	Knob, Tone/Balance
	4822 413 31551	/01B/02B/05B/07B Knob, Tone/Balance /10B/12B/15B/17B
013B	4822 410 60395	Button, Power
014B	4822 410 60343	Button, Speaker
002D	4822 501 11008	Screw
001F	4822 466 92914	Sheet, DENKA
005G	4822 462 41477	Leg
010G	4822 404 60628	Link, Power Switch
902G	4822 532 60948	Bushing, AC Cord /02B/07B/01B/10B/12B/17B
	4822 532 61184	Bushing, AC Cord /05B/15B
001P	4822 401 11351	Clamper, Phono Jack
▲ F001	4822 070 31002	Fuse, 1A 250V /01B
▲ F002	4822 253 30206	Fuse, 2A 250V /01B
▲ J001	4822 256 30233	Jack, Fuse Holder /01B
J031	4822 290 40297	Terminal, GND
▲ J091	4822 272 10227	Voltage Selector /01B
▲ J092	4822 265 10092	Jack, AC Adapter /01B
▲ L001	4822 146 21554	Power Transformer /02B/05B/07B/10B/12B/15B/17B
	4822 146 21567	Power Transformer /01B
S011	4822 273 10214	Rotary Switch, Selector
001T	4822 736 20695	User Manual /01B/02B/05B/07B
	4822 736 20715	User Manual /10B/12B/15B/17B

4. IDLING CURRENT ADJUSTMENT

- Before switching the power ON, set the Master Volume control to the minimum position and the Balance and Tone controls to the center positions. Also set semi-fixed resistors R755 (L CH) and R756 (R CH) on PCB P701 to the center positions.
- Each of the cement resistors R767 (L CH) and R768 (R CH) on the PCB P701 is provided with three test points. Connect a digital voltmeter, set for the DC voltage input, to the test points at the two extremities of the three test points of R767 or R768.
- After the setup above, switch the power ON and adjust semi-fixed resistor R755 (L CH) or R756 (R CH) on PCB P701 according to the digital voltmeter reading. The target setting value is 15 mV (41.6 mA) for both the L CH and R CH.

Please refer to the table below.

Elapsed time after power ON	Idling current setting value
30 sec. - 1 min.	15 mV
1 min. - 2 min.	16 mV
2 min. - 4 min.	16.6 mV
More than 4 min.	15 mV

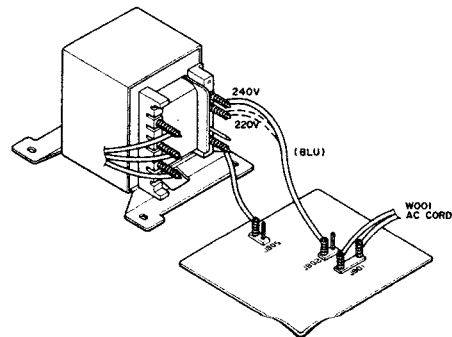
Note on Safety:

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.

5. HOW TO CHANGE THE SUPPLY VOLTAGE (/02B/05B/07B/10B/12B/15B/17B Versions)

With the /05B/07B/15B/17B Versions, the rated supply voltage of 240V can be changed to 220V. In the same way, the 220V rated supply voltage of the /02B/10B/12B Versions can be changed to 240V.

Refer to the following diagram for the voltage change procedure.



6. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing

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

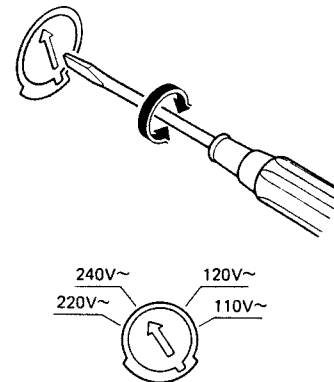
7. VOLTAGE CONVERSION

• EUROPEAN MODEL ONLY

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

VOLTAGE SELECTOR

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



8. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

- R***: (1) GD05 --- 140. Carbon film fixed resistor. $\pm 5\%$. 1/4W
 R***: (2) GD05 --- 160. Carbon film fixed resistor. $\pm 5\%$. 1/6W
 ① --- Resistance value

Examples

① Resistance value

0.1 Ω ...	001	10 Ω ...	100	1k Ω ...	102	100k Ω ...	104
0.5 Ω ...	005	18 Ω ...	180	2.7k Ω ...	272	680k Ω ...	684
1 Ω ...	010	100 Ω ...	101	10k Ω ...	103	1M Ω ...	105
6.8 Ω ...	068	390 Ω ...	391	22k Ω ...	223	4.7M Ω ...	475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C***: CERAMIC CAP.

- (1) DD1 --- 370. Ceramic condenser
 Disc type
 Temp. coeff. P350 ~ N1000, 50V
 ① --- Capacity value
 ② --- Tolerance

Examples

① Tolerance (Capacity deviation)

$\pm 0.25\%$...	0
$\pm 0.5\%$...	1
$\pm 5\%$...	5

* Tolerance of COMMON PARTS handled here are as follows:

0.5pF ~ 5pF	...	$\pm 0.25\%$			
6pF ~ 10pF	...	$\pm 0.5\%$			
12pF ~ 560pF	...	$\pm 5\%$			
② Capacity value					
0.5pF...	005	3pF...	030	100pF...	101
1pF...	010	10pF...	100	220pF...	221
1.5pF...	015	47pF...	470	560pF...	561

C***: CERAMIC CAP.

- (1) DK16 --- 300. High dielectric constant ceramic condenser
 Disc type
 Temp. chara. 2B4, 50V
 ① --- Capacity value

Example

② Capacity value

100pF...	101	1000pF...	102	10000pF...	103
470pF...	471	2200pF...	222		

C***: ELECTROLY CAP. ($\frac{\square}{\square}$), FILM CAP. ($\frac{\square}{\square}$)

- (1) EA --- 10. Electrolytic condenser
 One-way lead type. Tolerance $\pm 20\%$
 ① --- Dielectric strength
 ② --- Capacity value

Examples

① Capacity value

0.1 μ F...	104	4.7 μ F...	475	100 μ F...	107
0.33 μ F...	334	10 μ F...	106	330 μ F...	337
1 μ F...	105	22 μ F...	226	1100 μ F...	1108
				2200 μ F...	228

② Working voltage

6.3V...	006	25V...	025
10V...	010	35V...	035
16V...	016	50V...	050

- (2) DF15 --- 350. Plastic film condenser
 One-way type, Mylar $\pm 5\%$ 50V
 ① --- Capacity value

Examples

① Capacity value

0.001 μ F (1000pF)...	102	0.1 μ F...	104
0.0018 μ F...	182	0.56 μ F...	564
0.01 μ F...	103	1 μ F...	105
0.015 μ F...	153		

REF. DESIG.	PART NO.	DESCRIPTION
		PG01-MASTER VOLUME CIRCUIT BOARD
RG01	4822 101 30653	Variable Resistor 50K Ω
		PJ01-TAPE IN/OUT CIRCUIT BOARD
CJ01 } CJ04	4822 122 32486	Ceramic Cap. 0.01 μ F +80% -20%
JJ01 JJ02	4822 266 30284	Terminal, 4P RCA
		PS01-TAPE/TONE/SPK. CIRCUIT BOARD
CE09	4822 124 90352	Elect Cap. 10 μ F 16V /01B/02B/05B/07B
CE10	4822 124 90352	Elect Cap. 10 μ F 16V /01B/02B/05B/07B
CW01	4822 122 32486	Ceramic 0.01 μ F +80% -20% /02B/12B
CW02	4822 122 32486	Ceramic 0.01 μ F +80% -20% /02B/12B
RE13	4822 100 30139	Variable Resistor 50K Ω (C) /01B/02B/05B/07B
RE14	4822 100 30139	Variable Resistor 50K Ω (C) /01B/02B/05B/07B
RG51 RW01	4822 100 30138 4822 116 60455	Variable Resistor 100K Ω (MN) Metal Resistor 270 Ω $\pm 5\%$ 2W
DN51	4822 130 33305	Diode 1SS176, etc.
JW01	4822 267 31227 4822 267 31229	Jack, Headphone /01B/02B/05B/07B Jack /10B/12B/15B/17B
LN51	4822 280 20196	Relay
SS01	4822 276 12956	Push Switch
		PV01-INPUT SELECTOR CIRCUIT BOARD
CV01 } CV06	4822 122 32486	Ceramic Cap. 0.01 μ F +80% -20%
DV01	4822 130 33305	Diode 1SS176, etc.
JV01 JV02	4822 266 30282 4822 266 30284	Terminal, 2P RCA Terminal, 4P RCA
LV01	4822 280 20195	Relay, SZ-2104
SV01	4822 277 21412	Slide Switch, Selector

REF. DESIG.	PART NO.	DESCRIPTION
		PY01-TAPE INDICATOR CIRCUIT BOARD
CY01	4822 124 21737	Elect Cap. 100 μ F 6.3V
RY06	4822 111 50474	Resistor 330 Ω $\pm 5\%$
DY01 } DY05 DY06	4822 130 80326 4822 130 80317	L.E.D. LT3D8B (RED) Zener Diode RD5.1JB2/MTZJ5.1B
		P451-PHONO AMP. CIRCUIT BOARD
		P451-CAPACITORS
C451	4822 122 32486	Ceramic 0.01 μ F +80% -20%
C452	4822 122 32486	Ceramic 0.01 μ F +80% -20%
C453	4822 126 11069	Ceramic 150pF $\pm 10\%$ /01B/05B/07B
	4822 121 51037	Film 150pF $\pm 5\%$ /10B/12B/15B/17B
C454	4822 126 11069	Ceramic 150pF $\pm 10\%$ /01B/05B/07B
	4822 121 51037	Film 150pF $\pm 5\%$ /10B/12B/15B/17B
C455	4822 124 90352	Elect 10 μ F 16V
C456	4822 124 90352	Elect 10 μ F 16V
C457	4822 124 41539	Elect 47 μ F 16V
C458	4822 124 41539	Elect 47 μ F 16V
C459	4822 126 11127	Ceramic 470pF $\pm 10\%$ /02B
C460	4822 126 11127	Ceramic 470pF $\pm 10\%$ /02B
C461	4822 121 42764	Film 0.047 μ F $\pm 5\%$ /10B/12B/15B/17B
C462	4822 121 42764	Film 0.047 μ F $\pm 5\%$ /10B/12B/15B/17B
C463	4822 121 42755	Film 0.012 μ F $\pm 5\%$ /10B/12B/15B/17B
C464	4822 121 42755	Film 0.012 μ F $\pm 5\%$ /10B/12B/15B/17B
C465	4822 121 42758	Film 1800pF $\pm 5\%$ /10B/12B/15B/17B
C466	4822 121 42758	Film 1800pF $\pm 5\%$ /10B/12B/15B/17B
C467	4822 124 90358	Elect 22 μ F 16V
C468	4822 124 90358	Elect 22 μ F 16V
C469	4822 121 42763	Film 3900pF $\pm 5\%$ /10B/12B/15B/17B
C470	4822 121 42763	Film 3900pF $\pm 5\%$ /10B/12B/15B/17B
C471	4822 124 41535	Elect 100 μ F 25V /01B/02B/05B/07B
	4822 124 90365	Elect 220 μ F 25V /10B/12B/15B/17B
C472	4822 124 41535	Elect 100 μ F 25V /01B/02B/05B/07B
	4822 124 90365	Elect 220 μ F 25V /10B/12B/15B/17B
C473	4822 124 41535	Elect 100 μ F 25V /01B/02B/05B/07B
	4822 124 90365	Elect 220 μ F 25V /10B/12B/15B/17B

REF. DESIG.	PART NO.	DESCRIPTION
		P451-RESISTORS
▲ R471 R472	4822 111 90731 4822 111 30006	47 Ω $\pm 2\%$ $\frac{1}{4}$ W, Fuse 47 Ω $\pm 5\%$ $\frac{1}{4}$ W
		P451-SEMICONDUCTORS
D451	4822 130 80498	Zener RD16JB2/MTZJ16C
Q451	4822 209 73064	IC NJM2068DD
		P451-MISCELLANEOUS
J452	4822 265 20355	Terminal, 2P RCA
		P701-POWER AMP. CIRCUIT BOARD
		P701-CAPACITORS
CN01	4822 124 22274	Elect 4.7 μ F 50V
CN02	4822 124 41543	Elect 1 μ F 50V
CN04	4822 124 22275	Elect 47 μ F 10V
CN05	4822 124 23417	Elect 33 μ F 10V
CW51	4822 122 32486	Ceramic 0.01 μ F +80% -20% /02B/12B
CW52	4822 122 32486	Ceramic 0.01 μ F +80% -20% /02B/12B
C701	4822 124 22571	Elect 10 μ F 50V
C702	4822 124 22571	Elect 10 μ F 50V
C703	4822 121 51517	Film 100pF $\pm 5\%$
C704	4822 121 51517	Film 100pF $\pm 5\%$
C705	4822 124 90354	Elect 100 μ F 16V
C706	4822 124 90354	Elect 100 μ F 16V
C707	4822 121 51037	Film 150pF $\pm 5\%$ /01B/02B/05B/07B
	4822 121 51037	Film 150pF $\pm 5\%$ /10B/15B/17B
	4822 126 11069	Ceramic 150pF /12B
C708	4822 121 51037	Film 150pF $\pm 5\%$ /01B/02B/05B/07B
	4822 121 51037	Film 150pF $\pm 5\%$ /10B/15B/17B
C709	4822 126 11069	Ceramic 150pF /12B
	4822 126 11068	Ceramic 39pF $\pm 5\%$ /01B/02B/05B/07B
	4822 121 43135	Film 39pF $\pm 5\%$ /10B/15B/17B
C710	4822 126 10364	Ceramic 100pF /12B
	4822 121 43135	Ceramic 39pF $\pm 5\%$ /01B/02B/05B/07B
	4822 121 43135	Film 39pF $\pm 5\%$ /10B/15B/17B
C711	4822 126 10364 4822 126 11126	Ceramic 100pF /12B Ceramic 5.6pF $\pm 10\%$ /01B/02B/05B/07B
	4822 121 43128	Film 10pF $\pm 10\%$ /10B/12B/15B/17B
C712	4822 126 11126	Ceramic 5.6pF $\pm 10\%$ /01B/02B/05B/07B
	4822 121 43128	Film 10pF $\pm 10\%$ /10B/12B/15B/17B
C713	4822 126 11125	Ceramic 10pF $\pm 5\%$ /01B/02B/05B/07B
	4822 121 43128	Film 10pF $\pm 10\%$ /10B/12B/15B/17B

REF. DESIG.	PART NO.	DESCRIPTION
C714	4822 126 11125	Ceramic 10pF ±5% /01B/02B/05B/07B
	4822 121 43128	Film 10pF ±10% /10B/12B/15B/17B
C715	4822 124 90362	Elect 22μF 50V /01B/02B/05B/07B
C716	4822 124 90362	Elect 22μF 50V /01B/02B/05B/07B
C717	4822 124 90366	Elect 220μF 50V
C718	4822 124 90366	Elect 220μF 50V
C719	4822 124 41535	Elect 100μF 25V /01B/02B/05B/07B
	4822 124 90365	Elect 220μF 25V /10B/12B/15B/17B
C720	4822 124 41535	Elect 100μF 25V /01B/02B/05B/07B
	4822 124 90365	Elect 220μF 25V /10B/12B/15B/17B
C751	4822 124 90354	Elect 100μF 16V
C752	4822 124 90354	Elect 100μF 16V
C753 } C756	4822 121 43126	Film 120pF ±5%
▲ C801	4822 124 23458	Elect 4700μF 42V /01B/02B/05B/07B
	4822 124 42044	Elect 6800μF 45V /10B/12B/15B/17B
▲ C802	4822 124 23458	Elect 4700μF 42V /01B/02B/05B/07B
	4822 124 42044	Elect 6800μF 45V /10B/12B/15B/17B
C803	4822 124 22273	Elect 0.47μF 50V
C804	4822 122 32486	Ceramic 0.01μF +80% -20%
C805	4822 124 41535	Elect 100μF 25V
C806	4822 124 41536	Elect 100μF 35V
C807	4822 124 90355	Elect 100μF 50V
C808	4822 124 90355	Elect 100μF 50V
C809	4822 122 32486	Ceramic 0.01μF +80% -20%
P701-RESISTORS		
RN01	4822 111 91257	1KΩ ±5% 1/6W
RN02	4822 111 91257	1KΩ ±5% 1/6W
RN51	4822 116 60455	270Ω ±5% 2W, Metal
RN52	4822 116 60455	270Ω ±5% 2W, Metal
▲ R707	4822 116 82608	680Ω ±2% ¼W, Fuse
	4822 116 81748	330Ω ±2% ¼W, Fuse /12B/15B
▲ R708	4822 116 82608	680Ω ±2% ¼W, Fuse
	4822 116 81748	330Ω ±2% ¼W, Fuse /12B/15B
R713	4822 273 10214	33KΩ ±5% ¼W
R714	4822 273 10214	33KΩ ±5% ¼W

REF. DESIG.	PART NO.	DESCRIPTION
R732	4822 116 60343	1.8KΩ ±5% 1W
▲ R733	4822 116 60313	10Ω ±5% ¼W, Fusible
▲ R734	4822 116 60313	10Ω ±5% ¼W, Fusible
R755	4822 100 11373	4.7KΩ, Trimming
R756	4822 100 11373	4.7KΩ, Trimming
R757	4822 111 91285	100Ω ±5% 1/6W
R758	4822 111 91285	100Ω ±5% 1/6W
R759	4822 111 91285	100Ω ±5% 1/6W
R760	4822 111 91285	100Ω ±5% 1/6W
R763	4822 116 60267	470Ω ±5% 1/6W
R764	4822 116 60267	470Ω ±5% 1/6W
▲ R765	4822 111 91424	2.2Ω ±5% 1/6W
▲ R766	4822 111 91424	2.2Ω ±5% 1/6W
R767	4822 116 82049	0.18Ωx2 ±10% 3W
R768	4822 116 82049	0.18Ωx2 ±10% 3W
R769	4822 116 52849	220Ω ±5% ¼W
R770	4822 116 52849	220Ω ±5% ¼W
R771	4822 111 90726	10Ω ±5% 2W
R772	4822 111 90726	10Ω ±5% 2W
▲ R773	4822 111 91424	2.2Ω ±5% 1/6W
▲ R774	4822 111 91424	2.2Ω ±5% 1/6W
▲ R801	4822 116 60306	1Ω ±5% ¼W, Fusible
▲ R802	4822 111 90731	47Ω ±2% ¼W, Fuse
▲ R803	4822 111 60308	2.2Ω ±5% ¼W, Fusible
▲ R804	4822 111 90731	47Ω ±2% ¼W, Fuse
R805	4822 111 91423	1.2KΩ ±5% ¼W
R806	4822 111 91423	1.2KΩ ±5% ¼W
▲ R807	4822 113 90119	22Ω ±2% ¼W, Fuse
P701-SEMICONDUCTORS		
DN01	4822 130 80837	Diode HSS81
DN02	4822 130 80837	Diode HSS81
DN03	4822 130 33305	Diode 1SS176, etc.
D701	4822 130 33305	Diode 1SS176, etc.
D704	4822 130 80273	Zener RD8.2J82/MTZJ8.2C
D705	4822 130 80273	Zener RD8.2J82/MTZJ8.2C
D706	4822 130 80322	Zener RD15JB1/MTZJ15B
▲ D801	4822 130 31007	Diode S4VB-20
D802	4822 130 33305	Diode 1SS176, etc.
D803	4822 130 33305	Diode 1SS176, etc.
D804	4822 130 80116	Zener RD24JB2/MTZJ24D
D805	4822 130 80498	Zener RD16JB2/MTZJ16C
▲ D806	4822 130 80839	Diode S5688G
QN01	4822 130 43233	Transistor 2SC2240(GR, BL)
QN02	4822 130 43233	Transistor 2SC2240(GR, BL)
QN03	4822 130 42951	Transistor 2SA970(GR, BL)
QN04	4822 290 83312	IC TA7317P
Q701	4822 130 42951	Transistor 2SA970(GR, BL)
Q702	4822 130 42951	Transistor 2SA970(GR, BL)
Q703	4822 130 43233	Transistor 2SC2240(GR, BL)
Q704	4822 130 43233	Transistor 2SC2240(GR, BL)
Q705	4822 209 83732	IC AN7062P
Q751	4822 130 60526	Transistor 2SD1508
Q752	4822 130 60526	Transistor 2SD1508
Q757	4822 130 60696	Transistor 2SC1627(O, Y)
Q758	4822 130 60696	Transistor 2SC1627(O, Y)
Q759	4822 130 69693	Transistor 2SA817(O, Y)

REF. DESIG.	PART NO.	DESCRIPTION
Q760	4822 130 60693	Transistor 2SA817(O, Y)
▲ Q761	4822 130 60697	Transistor 2SC3180N(R, O) /01B/02B/05B/07B
▲ Q761	4822 130 43305	Transistor 2SC3181(R, O) /10B/12B/15B/17B
▲ Q762	4822 130 60697	Transistor 2SC3180N(R, O) /01B/02B/05B/07B
▲ Q762	4822 130 43305	Transistor 2SC3181(R, O) /10B/12B/15B/17B
▲ Q763	4822 130 60694	Transistor 2SA1263N(R, O) /01B/02B/05B/07B
▲ Q763	4822 130 43018	Transistor 2SA1264(R, O) /10B/12B/15B/17B
▲ Q764	4822 130 60694	Transistor 2SA1263N(R, O) /01B/02B/05B/07B
▲ Q764	4822 130 43018	Transistor 2SA1264(R, O) /10B/12B/15B/17B
Q801	4822 130 61179	Transistor 2SD2037(E, F)
Q802	4822 130 61176	Transistor 2SB1357(E, F)
P701-MISCELLANEOUS		
JW51	4822 290 81363	Terminal, Speaker /01B/05B/07B
	4822 290 81373	Terminal, Speaker /02B
	4822 290 60837	Terminal, Speaker /10B/15B/17B
	4822 290 60841	Terminal, Speaker /12B
JW52	4822 290 81364	Terminal, Speaker /01B/05B/07B
	4822 290 81373	Terminal, Speaker /02B
	4822 290 60836	Terminal, Speaker /10B/15B/17B
	4822 290 60839	Terminal, Speaker /12B
LN01	4822 280 20197	Relay, DH2SU
L751	4822 157 51739	Coil, Speaker
L752	4822 157 51739	Coil, Speaker
P901-POWER SWITCH CIRCUIT BOARD		
▲ F902	4822 070 31002	Fuse 1A 250V /02B/05B/07B/10B/12B/15B/17B
▲ G901	4822 121 43732	Film Cap. 0.01μF ±20% /01B/02B/07B/10B/12B/17B
▲ G902	4822 122 33276	Ceramic Cap. 0.01μF ±20% /05B/15B
▲ J903	4822 264 30313	Jack, AC Outlet /01B
▲ S901	4822 276 11654	Push Switch, Power

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.