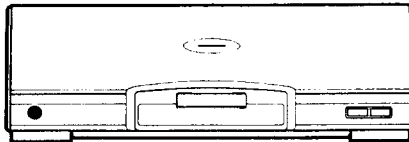


# Service Manual

**PIONEER®**  
The Art of Entertainment



ORDER NO.  
ARP2382

STEREO POWER AMPLIFIER

# M-J300

## M-J400

## M-J500

M-J 300, M-J 400 AND M-J 500 HAVE THE FOLLOWING :

Type	Model			Power Requirement	Remarks
	M-J 300	M-J 400	M-J 500		
HB	○	○	○	AC 220 V-230 V, AC 230-240 V(switchable)*	
HE	○	○	○	AC 220 V-230 V, AC 230-240 V(switchable)*	
SD	○	—	○	AC 110 V, 120 V-127 V, 220 V, 240 V(switchable)	

\* Change the connection of the power transformer's primary wiring.

- This manual is applicable to the M-J 300/HB, HE, SD, M-J 400/HB, HE, M-J 500/HB, HE and SD types.
- As to the M-J 300/HE, SD, M-J 400/HB, HE, M-J 500/HB, HE and SD types, refer to page 17.
- These products are components of systems. As to the system composition, refer to the system manuals.
- Each of these products does not function properly when independent ; to avoid malfunctions, be sure to connect it to the prescribed system components, otherwise damage may result.

## CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST	2
2. SCHEMATIC DIAGRAMS	6
3. PCB CONNECTION DIAGRAMS	9
4. PCB PARTS LIST	15
5. FOR M-J 300/HE, SD, M-J 400/HB, HE, M-J 500/HB, HE AND SD TYPES	17
6. PANEL FACILITIES	19
7. SPECIFICATIONS	19

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# 1. EXPLODED VIEWS, PACKING AND PARTS LIST

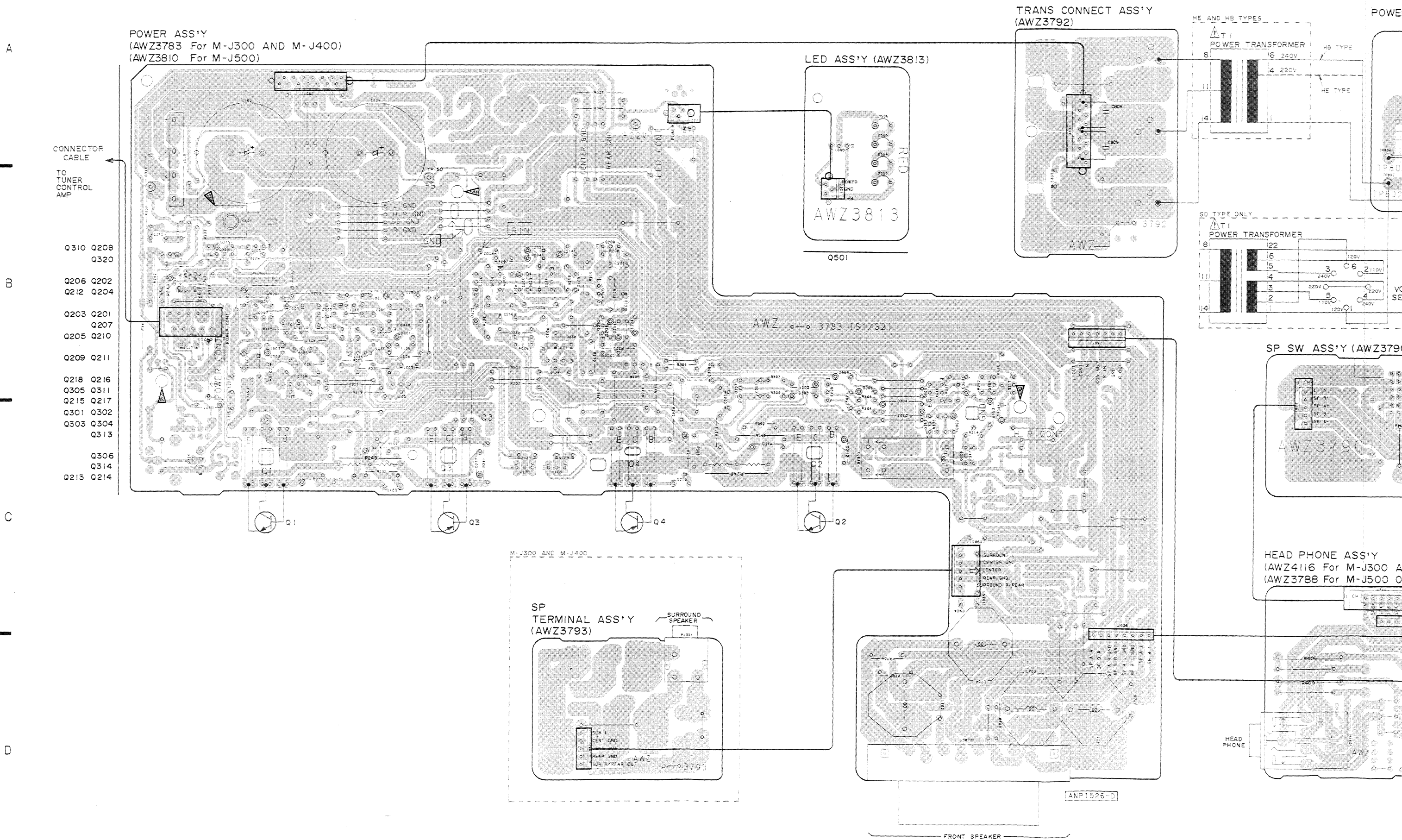
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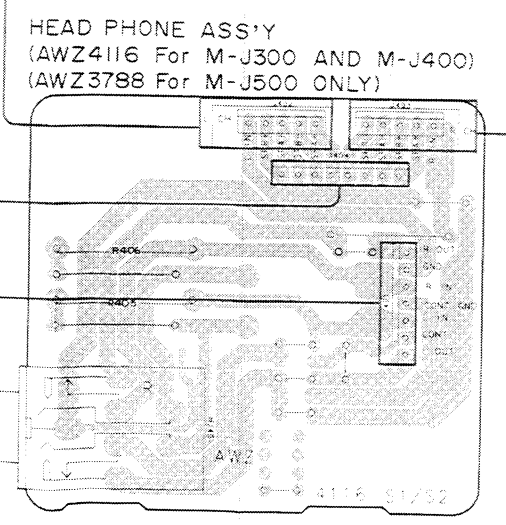
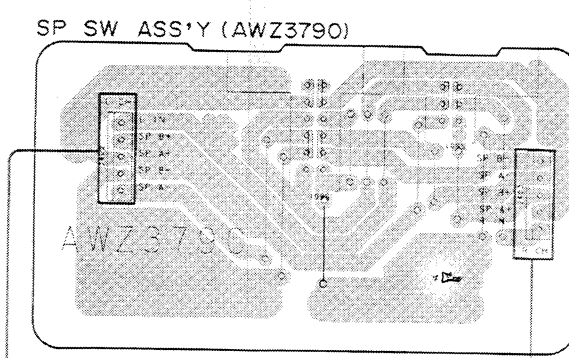
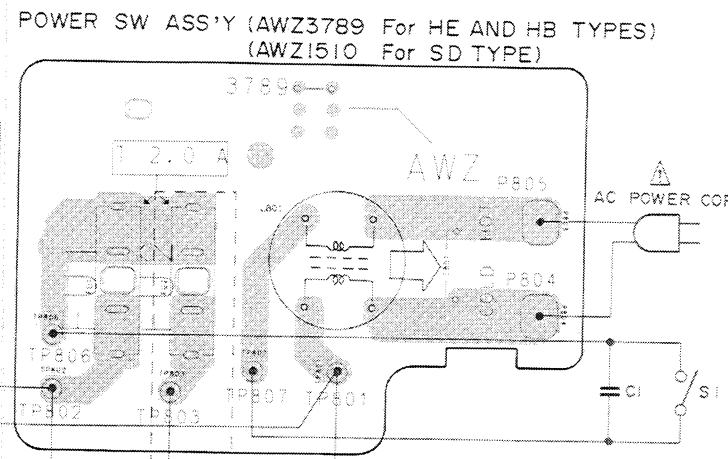
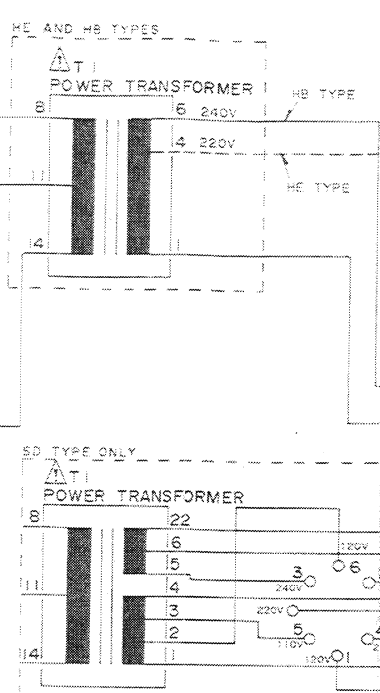
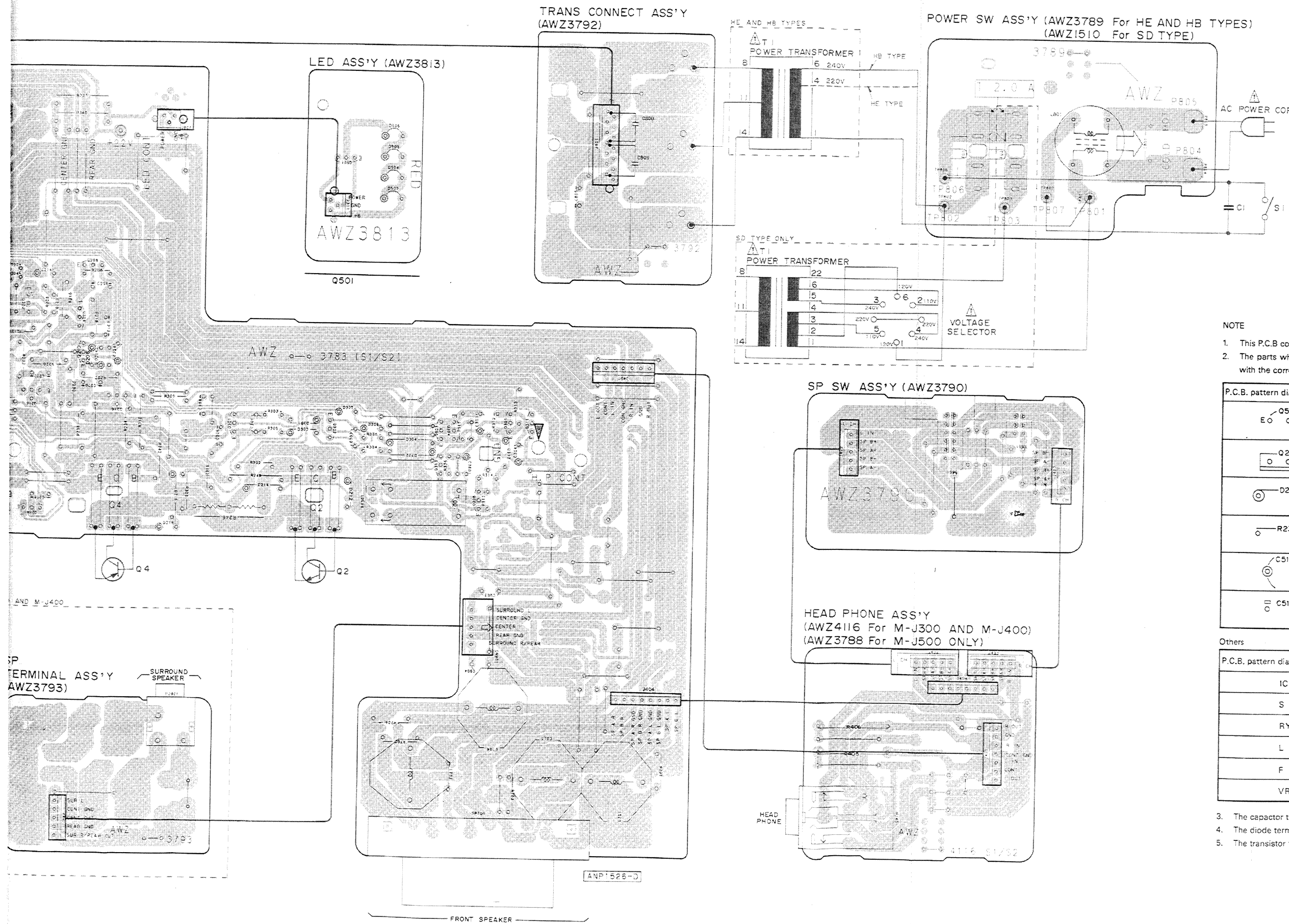
- The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## 1.1 PARTS LIST

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1.	POWER BUTTON	AAD2109	$\Delta$	31.	CAPACITOR FOR POWER (C1)	ACG1003
	2.	INDICATOR LENS(PLS)	AAK2224	$\Delta$	32.	FUSE (FU1, 4A)	AEK-511
	3.	B TYTE	ABA1093		33.	SCREW	ABA1147
	4.	BIND B TYTE	ABA-298		34.	BIND B TYTE	ABA1009
	5.	B TYTE	ABA1011		35.	CONNECTOR CABLE(J)	ADE1117
	6.	BIND 3×18B TYTE	ABA1018	$\Delta$	36.	TRANSISTOR(Q3, Q4)	2SA1302
	7.	B TYTE 3×10	ABA-283	$\Delta$	37.	FUSE (FU, 4A)(SD only)	AEK-511
	8.	B TYTE 3×14	ABA1082	$\Delta$	38.	TRANSISTOR(Q1, Q2)	2SC3281
	9.	P TYTE 2.6×8	ABA1095		39.	REINFORCED PLATE	ANG1635
	10.	POWER BUTTON SPRING	ABH1079	$\Delta$	40.	PUSH SWITCH(S1)	ASG1035
$\Delta$	11.	POWER CORD	ADG1103	$\Delta$	41.	POWER TRANSFORMER(T1)	ATS1380
$\Delta$	12.	AC CORD STOPPER	AEC-882	●	42.	POWER ASS'Y	AWZ3783
	13.	PCB SUPPORT	AEC1010	●	43.	POWER SW ASS'Y	AWZ3789
	14.	PCB SUPPORT	AEC1216	●	44.	TRANS CONNECT ASS'Y	AWZ3792
	15.	PCB SPACER	AEC1303	●	45.	SP TERMINAL ASS'Y	AWZ3793
	16.	BINDER	AEP-215	●	46.	SP SW ASS'Y	AWZ3790
	17.	MIKA SHEET	AEE1014	●	47.	LED ASS'Y	AWZ3813
	18.	FRONT PANEL ASS'Y	AMB1910	●	48.	HEAD PHONE ASS'Y	AWZ4116
	19.	PCB MOLD	AMR1525		49.	FOOT ASS'Y	AMR1937
	20.	CHASSIS	ANA1161	$\Delta$	50.	VOLTAGE SELECTOR	AKX-507
	21.	REAR PANEL	ANC1795		51.	SPEAKER KNOB	AAD2107
	22.	BONNET(MTL)	ANE1320		52.	SPEAKER KNOB	AAD2148
	23.	P.C.B. HOLDER	ANG1609				
	24.	.....					
	25.	CHASSIS COVER	ANG1627				
	26.	HEAT SINK	ANH1266				
	27.	SCREW	BBZ26P080FMC				
	28.	SCREW	BCZ30P100FZK				
	29.	FOOT ASS'Y(ABS)	RXA1448				
	30.	BINDER	AEC-826				

### 3. PCB CONNECTION DIAGRAMS





NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

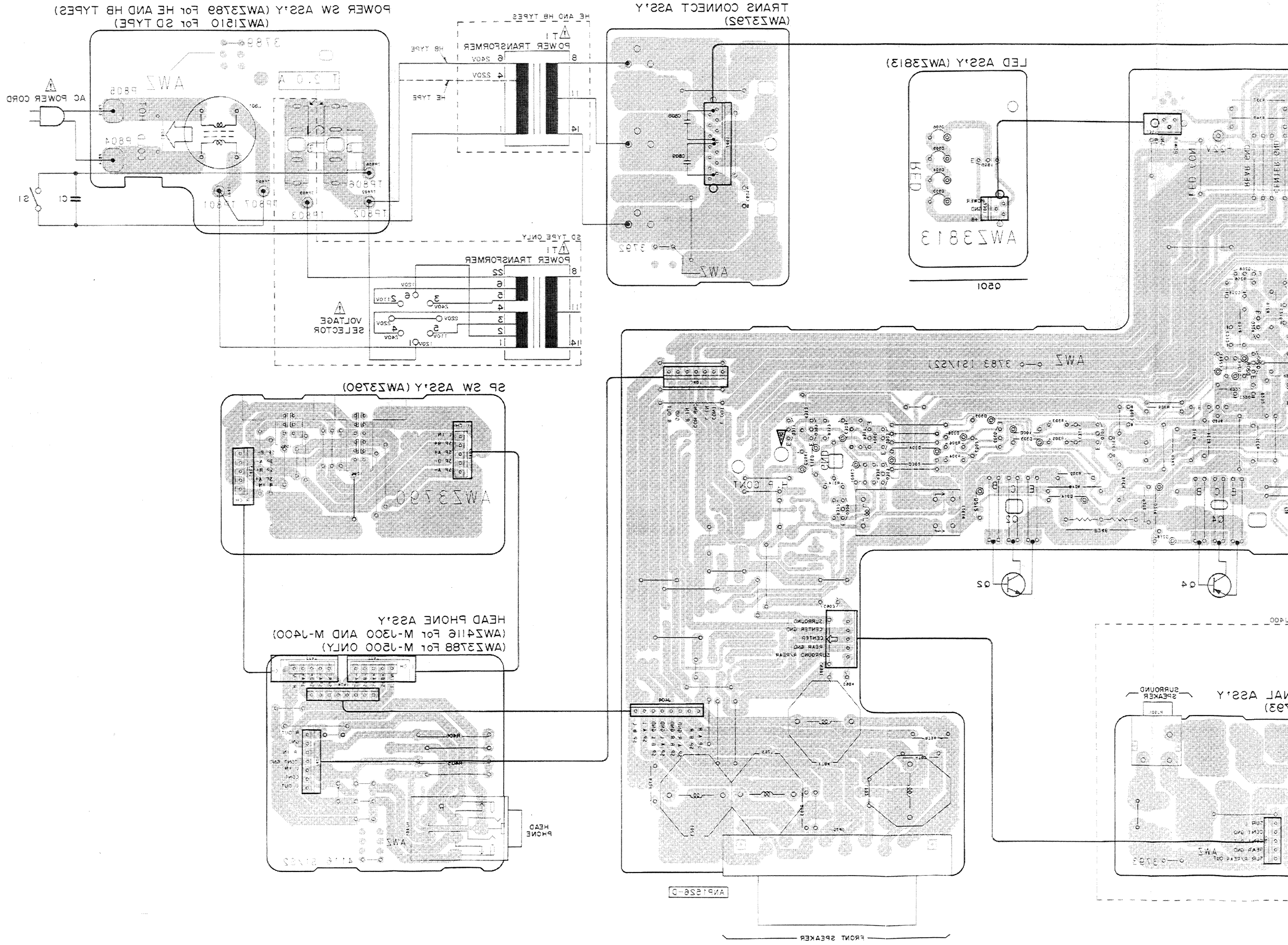
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊖ (double circles) shows negative terminal.
4. The diode terminal marked with ⊖ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.



This P.C.B. connection diagram is viewed from the foil side.



A

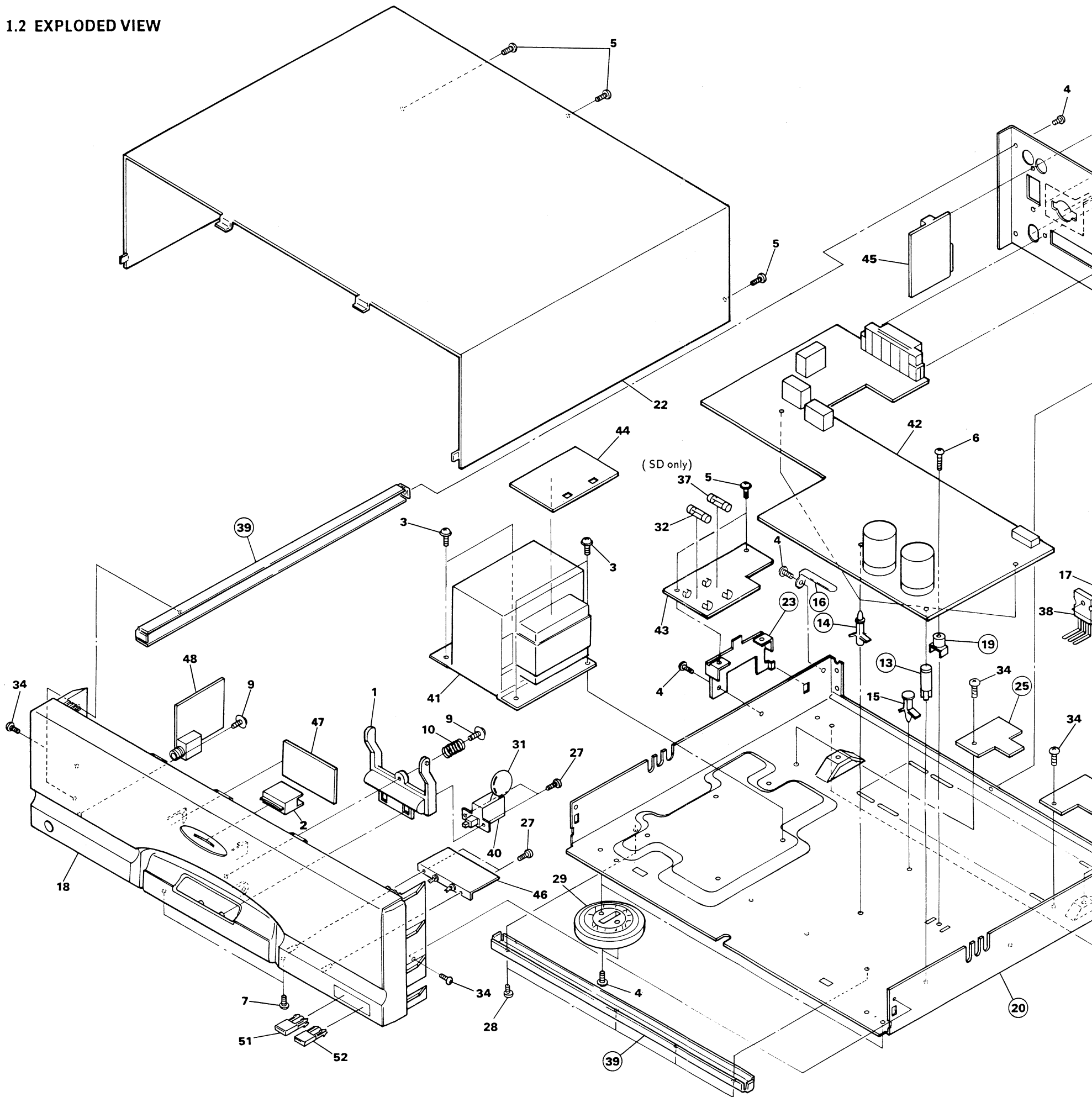
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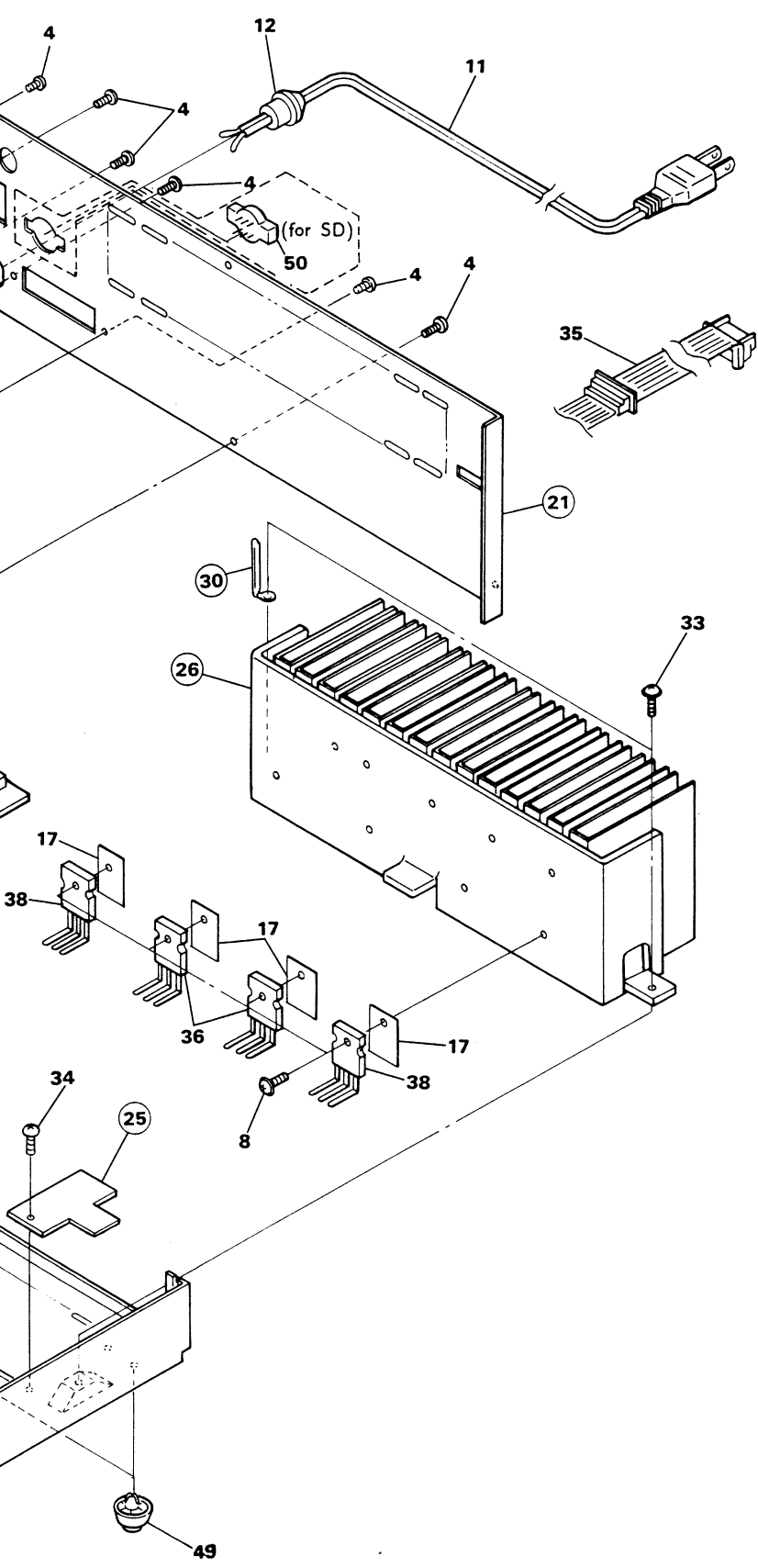
C

D



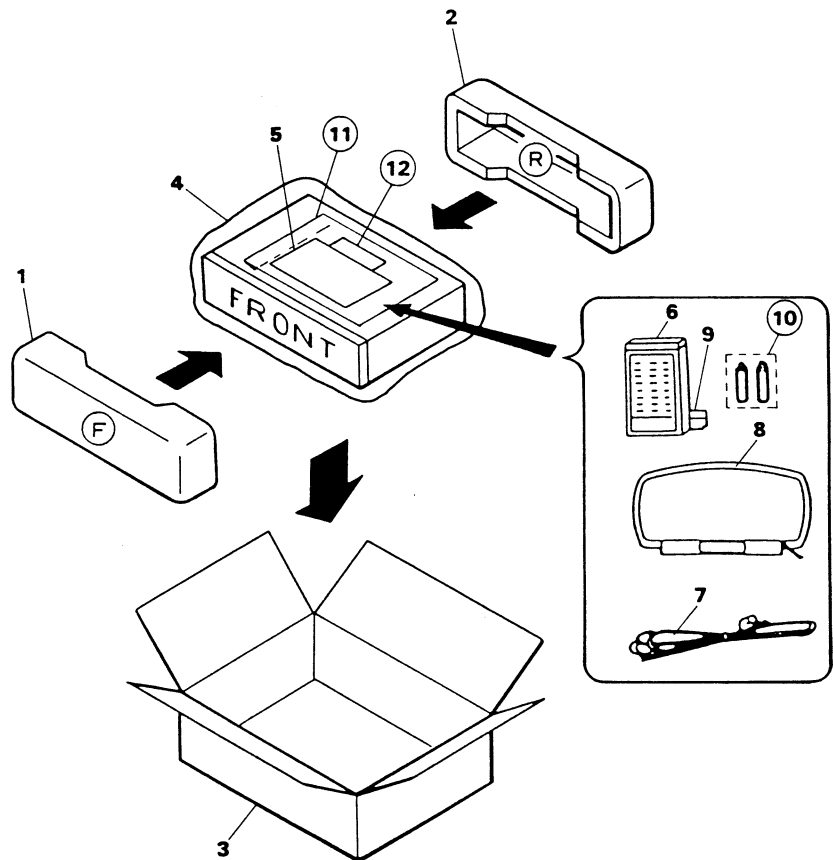
1.2 EXPLODED VIEW





### 1.3 PACKING

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
1.	FRONT PAD	AHA1493	7.	FM ANTENNA	ADH1005
2.	REAR PAD	AHA1494	8.	AM LOOP ANTENNA Ass'y	ATB1006
3.	PACKING CASE	AHD2192	9.	BATTERY COVER	AZN2172
4.	PACKING SHEET	AHG1016	10.	BATTERY (IEC R03, AAA)	AEX-021
5.	OPERATING INSTRUCTIONS (English, French)	ARE1215	11.	LITERATURE BAG	AHG-117
6.	REMOTE CONTROL UNIT (CU-MJ002)	AXD1237	12.	WARRANTY CARD	ARW-088

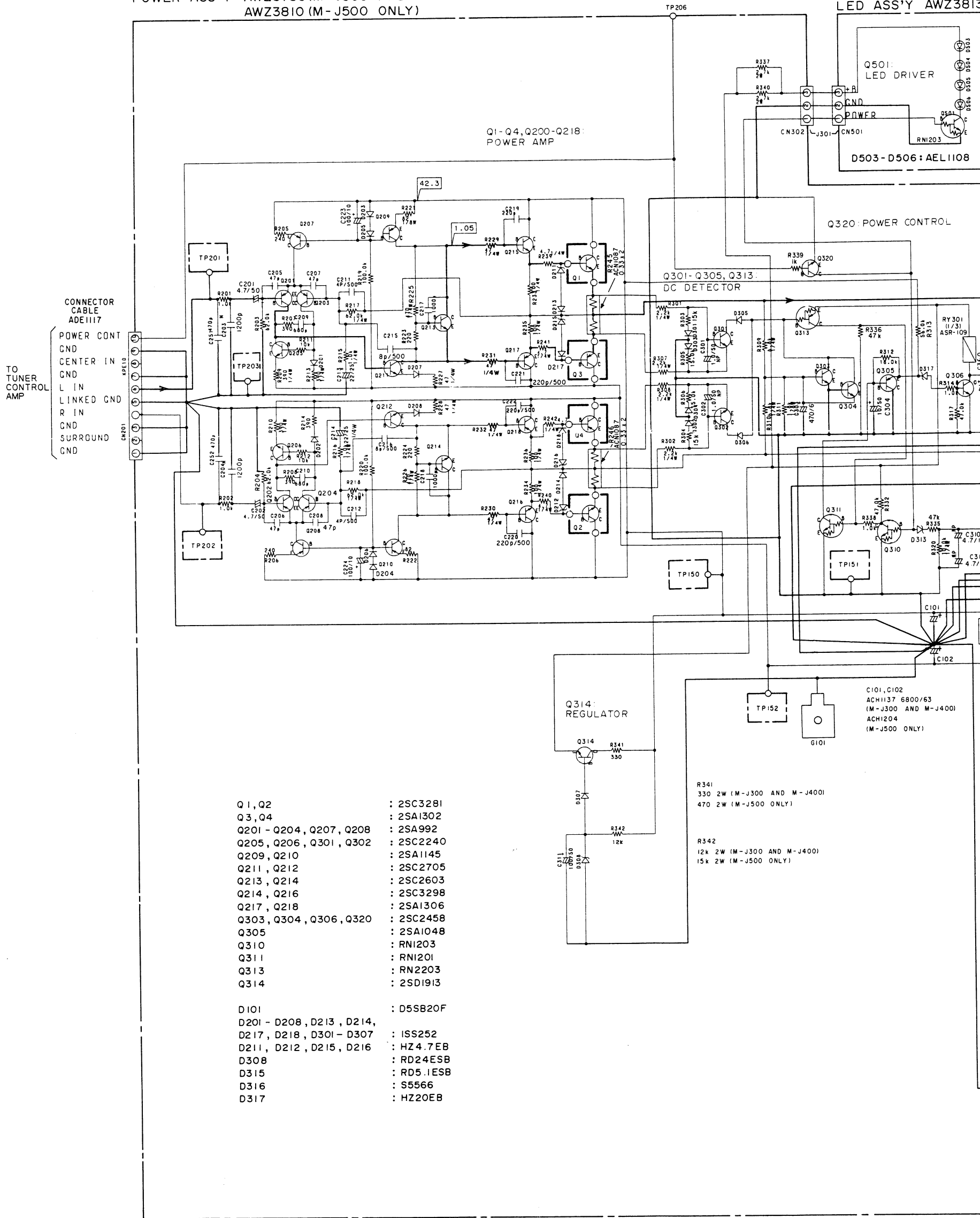




2. SCHEMATIC DIAGRAMS

POWER ASS'Y AWZ3783(M-J300 AND M-J400)  
AWZ3810 (M-J500 ONLY)

A  
B  
C  
D  
E  
F



- |                          |            |
|--------------------------|------------|
| Q 1, Q2                  | : 2SC3281  |
| Q 3, Q4                  | : 2SA1302  |
| Q201 - Q204, Q207, Q208  | : 2SA992   |
| Q205, Q206, Q301, Q302   | : 2SC2240  |
| Q209, Q210               | : 2SA1145  |
| Q211, Q212               | : 2SC2705  |
| Q213, Q214               | : 2SC2603  |
| Q214, Q216               | : 2SC3298  |
| Q217, Q218               | : 2SA1306  |
| Q303, Q304, Q306, Q320   | : 2SC2458  |
| Q305                     | : 2SA1048  |
| Q310                     | : RNI203   |
| Q311                     | : RNI201   |
| Q313                     | : RN2203   |
| Q314                     | : 2SD1913  |
|                          |            |
| D101                     | : D5SB20F  |
| D201 - D208, D213, D214, |            |
| D217, D218, D301 - D307  | : ISS252   |
| D211, D212, D215, D216   | : HZ4.7EB  |
| D308                     | : RD24ESB  |
| D315                     | : RD5.1ESB |
| D316                     | : S5566    |
| D317                     | : HZ20EB   |

1. RESISTORS:

Indicated in  $\Omega$ , 1/8, 1/6, 1/4W,  $\pm 5\%$  tolerance unless otherwise noted k: k $\Omega$ , M: M $\Omega$ , (F):  $\pm 1\%$ , (G):  $\pm 2\%$ , (K):  $\pm 10\%$ , (M):  $\pm 20\%$  tolerance.

2. CAPACITORS:

Indicated in capacity ( $\mu$ F)/voltage(V) unless otherwise noted p: pF. Indication without voltage is 50 V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

$\square$  V : Signal voltage at 80 W + 80 W, 8  $\Omega$  output(1 kHz).  
 $\square$  : DC voltage (V) at no input signal.  
 Value in ( ) is DC voltage at rated power.  
 $\leftarrow$  mA; DC current at no input signal.

4. OTHERS:

$\rightarrow$  : Signal route  
 $\odot$  : Adjusting point  
 The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.  
 \* marked capacitors and resistors have parts numbers.  
 This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES: (The underline indicates the switch position)  
 S1: ON-OFF

Line Voltage Selection (H)

Line voltage can be changed

1. Disconnect the AC power
2. Remove the top cover.
3. Change the connection of f
4. Stick the line voltage label

Parts No.	Description
AXX-193	220 V label
AXX-192	240 V label

WZ3813

EL1108

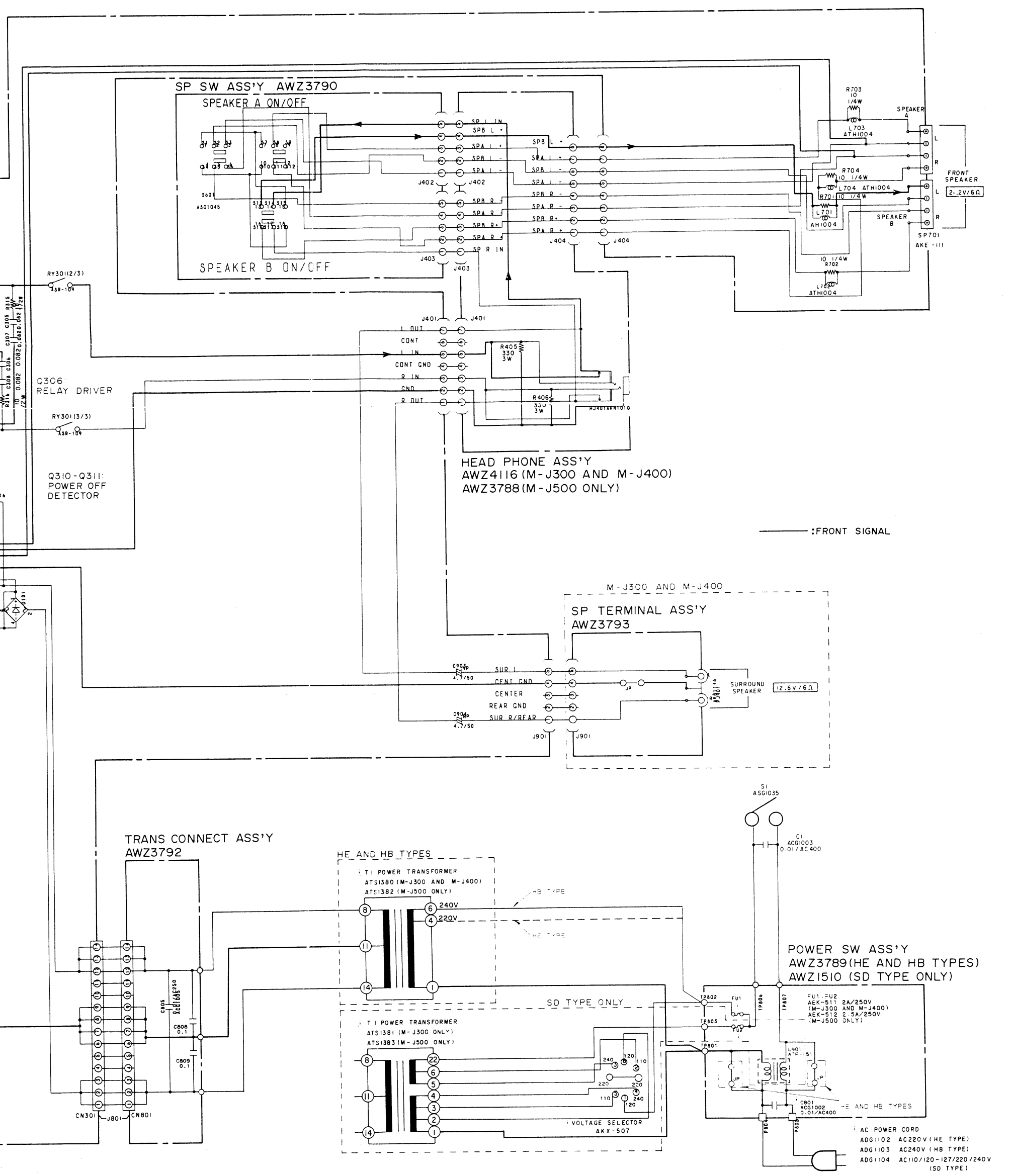
ROL

J400

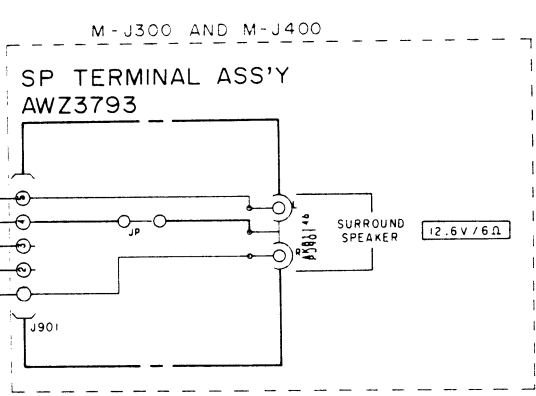
Section (HB and HE TYPES)

- changed with the following steps.
- AC power cord.
- cover.
- ection of the power transformer lead wire.
- tage label on the rear panel.

Description	Label
220 V label	----- 220 V-230 V
240 V label	————— 240 V



—:FRONT SIGNAL



POWER SW ASS'Y  
AWZ3789 (HE AND HB TYPES)  
AWZ1510 (SD TYPE ONLY)

- AC POWER CORD
- ADG1102 AC220V (HE TYPE)
- ADG1103 AC240V (HB TYPE)
- ADG1104 AC110/120-127/220/240V (SD TYPE)

## 4. PCB PARTS LIST

**NOTES :**

- Part without part number cannot be supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

*Ex.1* When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	56 × 10 <sup>1</sup>	561	.....	RD1/4PS	5	6	1	J
47kΩ	47 × 10 <sup>3</sup>	473	.....	RD1/4PS	4	7	3	J
0.5Ω	0R5		.....	RD2H	0	R	5	K
1Ω	010		.....	RD1P	0	1	0	K

*Ex.2* When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	562 × 10 <sup>1</sup>	5621	.....	RD1/4SR	5	6	2	1	F
--------	-----------------------	------	-------	---------	---	---	---	---	---

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
------	-----	-------------	-----------	------	-----	-------------	-----------

**LIST OF ASSEMBLIES**

●	POWER ASS'Y	AWZ3783
●	POWER SW ASS'Y	AWZ3789
●	SP SW ASS'Y	AWZ3790
●	TRANS CONNECT ASS'Y	AWZ3792
●	SP TERMINAL ASS'Y	AWZ3793
●	LED ASS'Y	AWZ3813
●	HEADPHONE ASS'Y	AWZ4116

D315	ZENER DIODE	RD5.1ESB
D316	DIODE	S5566
D317	ZENER DIODE	HZ20EB

**RELAY**

RY301	RELAY	ASR - 109
-------	-------	-----------

**COILS**

L701 - L704	COIL	ATH1004
-------------	------	---------

●POWER ASS'Y(AWZ3783)

**SEMICONDUCTORS**

Q201 - 204	TRANSISTOR	2SA992
Q205,206	TRANSISTOR	2SC2240
Q207,208	TRANSISTOR	2SA992
Q209,210	TRANSISTOR	2SA1145
Q211,212	TRANSISTOR	2SC2705
Q213,214	TRANSISTOR	2SC2603
Q215,216	TRANSISTOR	2SC3298
Q217,218	TRANSISTOR	2SA1306
Q301,302	TRANSISTOR	2SC2240
Q303,304	TRANSISTOR	2SC2458
Q305	TRANSISTOR	2SA1048
Q306	TRANSISTOR	2SC2458
Q310	TRANSISTOR	RN1203
Q311	TRANSISTOR	RN1201
Q313	TRANSISTOR	RN2203
Q314	TRANSISTOR	2SD1913
Q320	TRANSISTOR	2SC2458
D101	DIODE	D5SB20F
D201 - 208	DIODE	1SS252
D211,212	ZENER DIODE	HZ4.7EB
D213,214	DIODE	1SS252
D215,216	ZENER DIODE	HZ4.7EB
D217,218	DIODE	1SS252
D301 - 307	DIODE	1SS252
D308	ZENER DIODE	RD24ESB

**CAPACITORS**

C101,C102	ELECTROLYTIC CAPACIT	ACH1137
C201	ELECTROLYTIC CAPACIT	CEJA4R7M50
C202	ELECTR.CAPACITOR	CEAS4R7M50
C203,204	MYLAR FILM CAPACITOR	CQMA122K50
C205	AXIAL CERAMIC C.	CCPUSL470J50
C206 - 208	CERAMIC CAPACITOR	CCCSL470J50
C209,210	CERAMIC CAPACITOR	CKCYB681K50
C211,212	CERAMIC CAPACITOR	CCCSL040C500
C213,214	ELECTR.CAPACITOR	CEAS220M25
C215,216	CERAMIC CAPACITOR	CCCSL080D500
C217,218	CERAMIC CAPACITOR	CKCYB102K50
C219	CERAMIC CAPACITOR	CCCSL221J50
C220 - 222	CERAMIC CAPACITOR	CCCSL221K500
C223,224	ELECTR.CAPACITOR	CEAS101M10
C301,302	ELECTR.CAPACITOR	CEANP010M50
C303	ELECTROLYTIC CAPACIT	CEAS471M6
C304	ELECTR.CAPACITOR	CEAS100M50
C305 - 308	AUDIO FILM CAPACITOR	CFTXA823J50
C310	ELECTROLYTIC CAPACIT	CEANP4R7M100
C311	ELECTR.CAPACITOR	CEAS101M50
C312	ELECTROLYTIC CAPACIT	CEANP4R7M100
C360	ELECTR.CAPACITOR	CEASR47M50
C903,904	ELECTROLYTIC CAPACIT	CEANP4R7M50

Mark	No.	Description	Parts No.
<b>RESISTORS</b>			
	R209,210	FUSLIBLE RESISTOR	RFA1/4PS391J
	R213,214	FUSLIBLE RESISTOR	RFA1/4PS391J
	R215,216	CARBON FILM RESISTOR	RD1/4PM102J
	R217,218	CARBON FILM RESISTOR	RD1/4PM623J
	R225,226	CARBON FILM RESISTOR	RD1/4PM471J
	R227-232	FUSLIBLE RESISTOR	RFA1/4PS470J
	R233-236	CARBON FILM RESISTOR	RD1/4PMFL101J
	R239-242	FUSLIBLE RESISTOR	RFA1/4PS4R7J
	R245,246	RESISTOR (0.33, 5W)	ACN1087
	R301,302	CARBON FILM RESISTOR	RD1/4PMF222J
	R307,308	CARBON FILM RESISTOR	RD1/4PM222J
	R309,310	CARBON FILM RESISTOR	RD1/4PM682J
	R315,316	CARBON FILM RESISTOR	RD1/2PMF100J
	R320	CARBON FILM RESISTOR	RD1/4PM103J
	R337,340	METAL OXIDE RESISTOR	RS2LMF272J
	R341	METAL OXIDE RESISTOR	RS2LMF331J
	R342	METAL OXIDE RESISTOR	RS2LMF123J
	R701-704	FUSLIBLE RESISTOR	RFA1/4PS100J
	Other resistors		RD1/8PM□□□J

**OTHERS**

CN201	CONNECTOR(10P)	KPE10
	SCREW	BBZ30P080FZK
	SPEAKER TERMINAL 8-P	AKE-111

**●POWER SW ASS'Y(AWZ3789)**

**CAPACITORS**

C801	CKA (0.01/AC400V)	ACG1002
C808,809		CQMXA104J100

**●SP SW ASS'Y(AWZ3790)**

**SWITCHES**

S601	PUSH SWITCH	ASG1045
------	-------------	---------

**●TRANS CONNECT ASS'Y (AWZ3792)**

**CAPACITORS**

C805	CKA (0.01/AC250V)	ACG1005
------	-------------------	---------

**●SP TERMINAL ASS'Y(AWZ3793)**

**OTHERS**

	PIN JACK 2-P	AKB1146
--	--------------	---------

**●LED ASS'Y(AWZ3813)**

**SEMICONDUCTORS**

Q501	TRANSISTOR	RN1203
D503-506	LED(RED)	AEL1108

Mark	No.	Description	Parts No.
<b>●HEADPHONE ASS'Y(AWZ4116)</b>			
<b>RESISTORS</b>			
	R405,406	METAL OXIDE RESISTOR	RS3LMF331J
<b>OTHERS</b>			
	JACK		AKN1010



## 5. FOR M-J300/HE, SD, M-J400/HB, HE, M-J500/HB, HE AND SD TYPES

### CONTRAST OF MISCELLANEOUS PARTS

**NOTES :**

- Parts without part number cannot be supplied.
- Parts marked by “●” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

**M-J300/HE, SD, M-J400/HB, HE, M-J500/HB, HE, SD and M-J300/HB have the same construction except for the following :**

Mark	Symbol & Description	Part No.								Remarks
		M-J300/ HE type	M-J300/ HE type	M-J300/ SD type	M-J400/ HB type	M-J400/ HE type	M-J500/ HE type	M-J500/ HE type	M-J500/ SD type	
●	POWER Assembly	AWZ3783	AWZ3783	AWZ3783	AWZ3783	AWZ3783	AWZ3810	AWZ3810	AWZ3810	
●	POWER SW Assembly	AWZ3789	AWZ3789	AWZ1510	AWZ3789	AWZ3789	AWZ3789	AWZ3789	AWZ1510	
●	HEAD PHONE Assembly	AWZ4116	AWZ4116	AWZ4116	AWZ4116	AWZ4116	AWZ3788	AWZ3788	AWZ3788	
●	SP TERMINAL Assembly	AWZ3793	AWZ3793	AWZ3793	AWZ3793	AWZ3793	.....	.....	.....	
△	Power Transformer (AC 220/240V)	ATS1380	ATS1380	.....	ATS1380	ATS1380	ATS1382	ATS1382	.....	
△	Power Transformer T1 (AC 110/120-127/220/240V)	.....	.....	ATS1381	.....	.....	.....	.....	ATS1383	
△	Fuse FU1, FU2 (2A 250V)	AEK-511	AEK-511	AEK-511	AEK-511	AEK-511	.....	.....	.....	
△	Fuse FU1, FU2 (2.5A 250V)	.....	.....	.....	.....	.....	AEK-512	AEK-512	AEK-512	
△	Voltage Selector	.....	.....	AKX-507	.....	.....	.....	.....	AKX-507	
△	AC Power Cord	ADG1103	ADG1102	ADG1104	ADG1103	ADG1102	ADG1103	ADG1102	ADG1104	
	Caution 220V	.....	.....	Non supply	.....	.....	.....	.....	Non supply	
	Front Panel	AMB1910	AMB1910	AMB1910	AMB1909	AMB1909	AMB1902	AMB1902	AMB1902	
	Operating Instructions (English, French)	ARE1215	ARE1215	ARE1215	ARE1213	ARE1213	ARE1213	ARE1213	ARE1213	
	Operating Instructions (German, Italian)	.....	ARC1314	.....	.....	ARC1312	.....	ARC1312	.....	
	Operating Instructions (Dutch, Swedish, Spanish, Portuguese)	.....	ARC1317	.....	.....	ARC1316	.....	ARC1316	.....	
	Packing Case	AHD2192	AHD2192	AHD2192	AHD2191	AHD2191	AHD2190	AHD2190	AHF2190	
	Remote Control unit (CU-MJ002)	AXD1237	AXD1237	AXD1237	.....	.....	.....	.....	.....	
	Remote Control unit (CU-MJ003)	.....	.....	.....	AXD1236	AXD1236	AXD1236	AXD1236	AXD1236	
	Battery Cover	AZN2172	AZN2172	AZN2172	AZN2103	AZN2103	AZN2103	AZN2103	AZN2103	

# M-J300, M-J400, M-J500

## POWER ASSEMBLY

The POWER assembly AWZ3783 and AWZ3810 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ3783	AWZ3810	
	C101, 102 C201 R341 R342	ACH1137 CEJA4R7M50 RS2LMF331J RS2LMF123J	ACH1204 CEAS4R7M50 RS2LMF471J RS2LMF153J	

## POWER SW ASSEMBLY

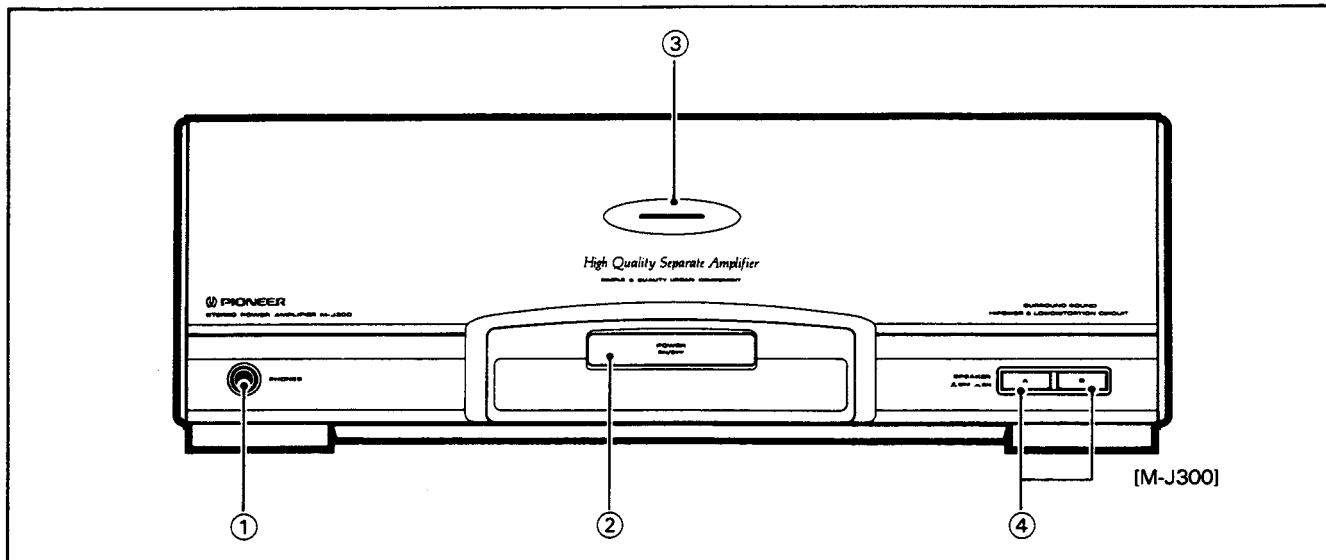
The POWER SW assembly AWZ3789 and AWZ1510 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ3789	AWZ1510	
△	L801	.....	ATF-151	

## HEAD PHONE ASSEMBLY

Although HEAD PHONE assembly AWZ4116 and AWZ3788 are different in part number, they consist of the same components.

## 6. PANEL FACILITIES



### ① PHONES jack

For stereo headphones.

**NOTE:**

There is no output from the speakers when headphones are plugged into PHONES jack.

### ② POWER ON/OFF switch

This is the switch for electric power.

When the power is ON, the power indicator ③ lights.

### ③ Power indicator

### ④ SPEAKERS buttons

Speakers connected to the rear panel SPEAKERS A, B terminals can be switched ON/OFF independently.

**NOTE:**

When the speaker system is connected to only one speaker terminal (A or B) and both A and B buttons are ON, there will be no sound. Turn ON only the selector to which the speaker system is connected.

## 7. SPECIFICATIONS

**[M-J300/M-J400]**

Continuous Power Output (DIN) ..... 80 W + 80 W  
 (1 kHz, T.H.D. 1%, 8Ω)  
 Music power (DIN) ..... 250 W + 250 W (1 kHz, T.H.D. 1%, 8Ω)  
 Total Harmonic Distortion (1 kHz, 40 W, 8 Ω) ..... 0.09 %\*\*

**[M-J500]**

**[Multi-voltage model]**

**Continuously Average Power Output is 85 Watts\* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz, with no more than 0.9 %\*\* total harmonic distortion.**

\* Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.

Music music power ..... 1,000 W

**[U.K. and European models]**

Continuous Power Output (DIN) ..... 100 W + 100 W  
 (1 kHz, T.H.D. 1%, 8 Ω)  
 Music power (DIN) ..... 345 W + 345 W  
 (1 kHz, T.H.D. 1%, 8 Ω)  
 Total Harmonic Distortion (1 kHz, 50 W, 8 Ω) ..... 0.09 %\*\*

**Power Supply/Miscellaneous**

**Power requirements**

U.K. model ..... a.c. 240 Volts~, 50/60 Hz  
 European model ..... a.c. 220 - 230 Volts~, 50/60 Hz  
 Multi-voltage model ..... AC 110 V/120 - 127 V/220 V/240 V  
 (switchable), 50/60 Hz

**Power consumption**

M-J300/M-J400 ..... 300 W  
 M-J500 ..... 375 W  
 Dimensions ..... 360 (W) x 338 (D) x 120.5 (H) mm  
 Weight  
 M-J300/M-J400 ..... 6.9 kg  
 M-J500 ..... 7.6 kg

**Accessories**

Operating instructions ..... 1  
 Remote control unit ..... 1  
 Dry cell batteries "AAA" (IEC R03/UM-4) ..... 2

\*\* Measured By Audio Spectrum Analyzer.