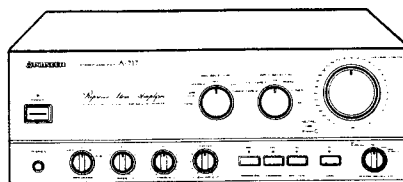




Service Manual



STEREO AMPLIFIER

A-717

MODEL A-717 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Power requirement	Export destination
HEZ	AC220V,240V (Switchable)	West Germany
HE	AC220V,240V (Switchable)*	European continent
HB	AC220V,240V (Switchable)*	United Kingdom
KUC	AC120V only	U.S.A. and Canada
SD/G	AC110V,120V-127V,220V,240V (Switchable)	U.S. Military

*Change the primary fuse (FU1) of the power supply assembly.

- This service manual is applicable to the HEZ type.
- As to the other types, please refer to additional service manual.

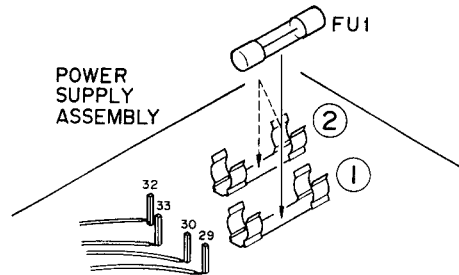
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LINE VOLTAGE SELECTION

1. Disconnect the AC power cord
2. Remove the Bonnet case
3. Change the position of the FU1 on the power supply assembly as follows.

Voltage	Fuse FU1 Position
220V	①
240V	②



1. SPECIFICATIONS

Dauerleistung (beide Kanäle)
 20 Hz bis 20 kHz, 0.003% Klirr, an 8 Ohm ... 95W + 95W
 20 Hz bis 20 kHz, 0.005% Klirr, an 4 Ohm ... 140W + 140W

Dauerleistung nach DIN (beide Kanäle)
 1 kHz, 1% Klirr, an 8 Ohm 100W + 100W
 1 kHz, 1% Klirr, an 4 Ohm 150W + 150W

Leistungsbandbreite
 Dämpfungsfaktor
 (1 kHz/20 Hz bis 20 kHz) an 8 Ohm 200/70

Dynamikleistung (mit EIA-Dynamik-Testsignal)
 8 Ohm 120W + 120W
 4 Ohm 180W + 180W
 2 Ohm 250W + 250W

Klirrfaktor (gemessen mit Tonspektrumanalysator)
 20 Hz bis 20 kHz, 95W, an 8 Ohm 0,003%

Eingangsempfindlichkeit/-impedanz
 PHONO (MM) 2,5 mV/50 kOhm
 PHONO (MC) 0,2 mV/100 Ohm
 CD, TUNER, LINE, TAPE 150 mV/50 kOhm

PHONO-Übersteuerungsgrenze
 1 kHz, 0,008% Klirr (MM/MC) 200 mV/19 mV

Ausgangspegel/-impedanz
 TAPE REC, ADAPTOR OUTPUT 150 mV/2,2 kOhm

Frequenzgang
 PHONO (MM), 20 Hz bis 20 kHz ±0,2 dB
 PHONO (MC), 20 Hz bis 20 kHz ±0,3 dB
 CD, TUNER, LINE, TAPE, 1 Hz bis 150 kHz +0
 -3 dB

Klangregler
 BASS ±8 dB (100 Hz)
 TREBLE ±8 dB (10 kHz)
 Loudness (Lautstärkeregler: -40 dB) ... +5 dB (100 Hz)/+3 dB
 (10 kHz)

Subsonicfilter 17 Hz (12 dB/Okt.)

Fremdspannungsabstand (IHF kurzgeschlossen, A-Netzwerk)
 PHONO (MM: 5 mV, MC: 0,5 mV Eingang) 95 dB/77 dB
 CD, TUNER, LINE, TAPE 108 dB

Fremdspannungsabstand (DIN, Dauerleistung/50 mW)
 PHONO (MM) 74 dB/65 dB
 CD, TUNER, LINE, TAPE 92 dB/66 dB

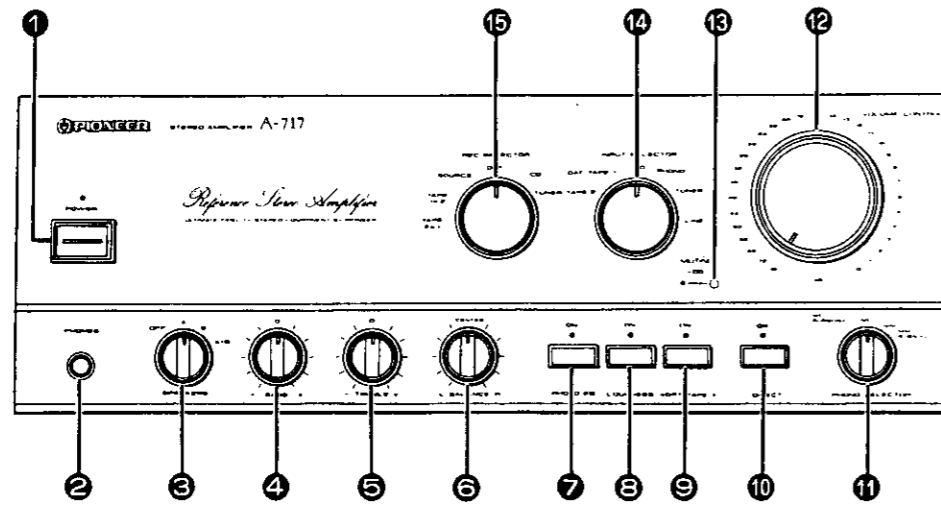
Stromversorgung/Allgemeines

Netzanschluß 220V ~, 50/60 Hz
 Leistungsaufnahme 820W
 Abmessungen (B x T x H) 420 x 435 x 162 mm
 Gewicht 19 kg

Zubehör

- Bedienungsanleitung 1
- Änderungen der technischen Daten und des Designs zum Zwecke der Verbesserung vorbehalten.

2. FRONT PANEL FACILITIES



1 POWER switch/indicator
Press to turn power to the unit ON and OFF.

2 PHONES jack
When using headphones, insert the plug into this jack.

3 SPEAKERS selector switch
Use this switch to listen to the speaker systems connected to the SPEAKERS terminals.

OFF:
Released position: No sound is heard from the speaker system. Set to this position when listening with headphones.

A:
For reproduction of sound with the speaker systems connected to the SPEAKERS A terminals.

B:
For reproduction of sound with the speaker systems connected to the SPEAKERS B terminals.

A + B:
For reproduction of sound with the speaker systems connected to SPEAKERS A and B terminals.

4 BASS tone control
Use to adjust the low-frequency tone. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized; when turned to the left, low-frequency tones are de-emphasized.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

5 TREBLE tone control
Use to adjust the high-frequency tone. The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized; when turned to the left, high-frequency tones are de-emphasized.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

6 BALANCE control
Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the LEFT position and if the left side is louder turn toward the RIGHT position.

NOTE:
This function does not operate when the DIRECT switch is in the ON position.

7 PHONO EQ switch/indicator
When not using a phono input, turn the phono equalizer power circuit off in order to prevent it from collecting noise during playback of other sources.

ON:
The indicator lights. Always set to this position when using a phono input. Immediately after turning ON, audio signal will be muted for several seconds until circuit operation becomes stable.

OFF:
The indicator goes off. Set to this position when not using a phono input.

8 LOUDNESS switch/indicator
Use when listening at low volume levels.

ON:
The indicator lights. Boosts low and high frequencies to give added punch to playback even at low volume.

OFF:
The indicator goes off. Should normally be left in this position.

NOTE:
This switch does not operate when the DIRECT switch is in the ON position.

9 ADPT 1/TAPE 3 switch/indicator
Use this switch to listen to tape playback, or to listen to the sounds being recorded during tape recording.

ON:
The indicator lights. Press when listening to the playback sound of the tape deck or the adaptor connected to the ADPT 1/TAPE 3 PLAY terminals, or to monitor the sound being recorded on the tape deck connected to the ADPT 1/TAPE 3 REC terminals.

OFF:
The indicator goes off. Normally leave the switch in this position.

NOTE:
When the DIRECT switch is set to ON, this function does not operate and no signal is output at the ADPT 1/TAPE 3 REC terminals.

10 DIRECT switch/indicator
Use this switch/indicator when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits and adaptor terminals (ADPT 1/TAPE 3, ADPT 2, BASS, TREBLE, BALANCE, LOUDNESS).

ON:
When the switch is in this position, the indicator lights and the signals input from the input terminals are reproduced without passing through the various frequency adjusting circuits. This results in flat, pure sound which is a more faithful reproduction of the input source.

OFF:
When the switch is in this position, the indicator goes out and the signal passes through the various frequency adjusting circuits.

11 PHONO SELECTOR switch
Set in accordance with the type of cartridge used in your record turntable.

MM:
Set to this position when using a moving magnet cartridge, or a moving coil cartridge with high output of 1 mV or more.

MC:
Set to this position when using a moving coil cartridge.

MM SUBSONIC/MC SUBSONIC:
Subsonic filter for moving coil or moving magnet cartridges to cut ultralow frequency noise less than 7 Hz generated when playing a warped record.

When using a high-output moving coil cartridge, set this switch to MM or MM SUBSONIC.

12 VOLUME CONTROL
Use to adjust volume level.

NOTE:
This unit is equipped with a circuit that attenuates the effect of tone and loudness controls as volume is turned up.

13 MUTING switch/indicator
Use to temporarily cut sound volume.

ON:
The indicator lights. The sound volume will be cut off.

OFF:
The indicator goes off. The sound will return to its previous volume.

14 INPUT SELECTOR switch
Use to select playback source.

LINE:
Set to this position when listening to the programs from a component connected to the LINE terminals.

TUNER:
Set to this position when listening to AM or FM broadcasts with a tuner.

PHONO:
Set to this position when listening to record playback on a turntable.

CD:
Set to this position when listening to a compact disc playback with a CD player.

DAT/TAPE 1:
For playback with a tape deck or digital audio tape deck connected to the DAT/TAPE 1 terminals.

TAPE 2:
For playback with a tape deck connected to the TAPE 2 terminals.

15 REC SELECTOR switch
Switch to select recording signal. When set at other than SOURCE or OFF position, signals of other equipment can be recorded during playback on the equipment selected by INPUT SELECTOR switch.

TUNER:
To record the equipment of TUNER terminals.

CD:
To record the equipment of CD terminals.

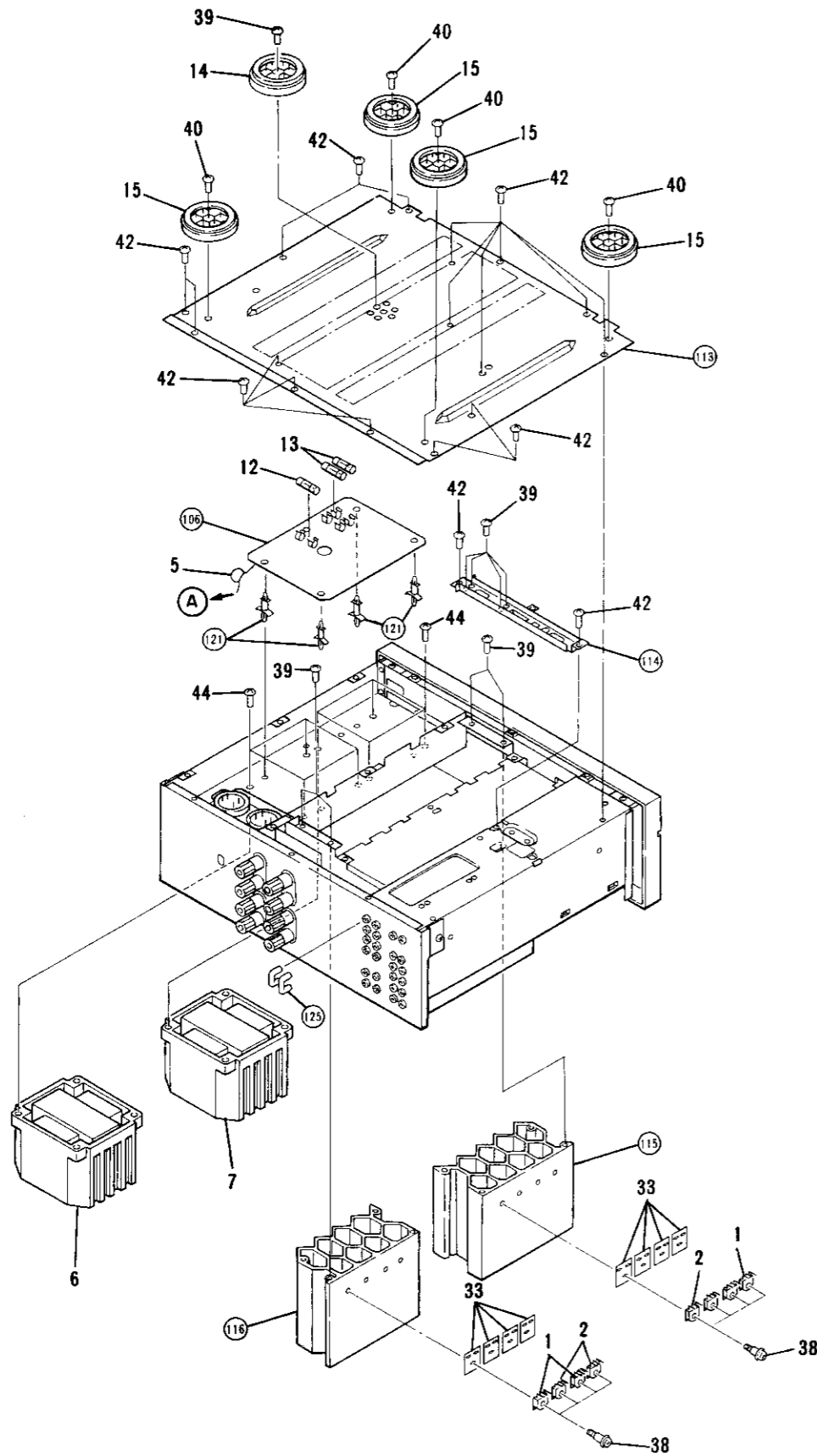
OFF:
In this position, nothing from the REC terminals of DAT/TAPE 1 and TAPE 2 will be output. Select it when not recording, the tape deck will be disconnected, improving sound quality.

SOURCE:
To record the equipment selected by INPUT SELECTOR switch.

TAPE:
1 ▶ 2 — To record (copy) from the tape deck of DAT/TAPE 1 terminals, over to the tape deck of TAPE 2 terminals.
2 ▶ 1 — To record (copy) from the tape deck of TAPE 2 terminals, over to the tape deck of DAT/TAPE 1 terminals.

NOTE:
The REC SELECTOR switch has no effect on the ADPT 1/TAPE 3 terminals recording output.

3. EXPLODED VIEWS AND PARTS LIST

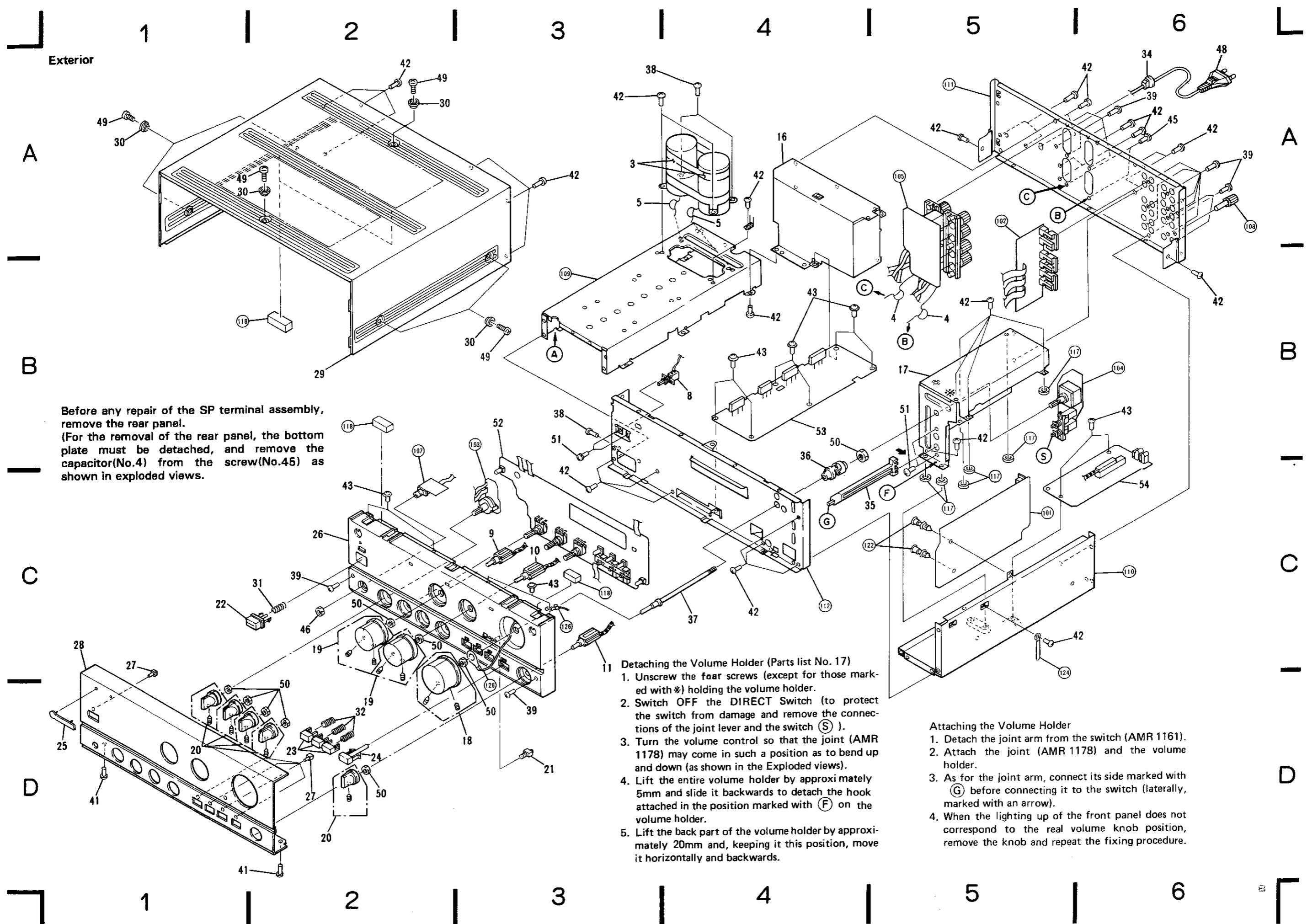


NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- For your parts Stock Control, the fast moving items are indicated with the marks $\star\star$ and \star .
 $\star\star$ **GENERALLY MOVES FASTER THAN \star**
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List of Exterior

Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
$\Delta\star\star$	1	2SA1265N	Transistor(Q3,Q4,Q5,Q6)		35	AMR1161	Joint arm
$\Delta\star\star$	2	2SC3182N	Transistor(Q1,Q2,Q7,Q8)		36	AMR1178	Joint
Δ	3	ACH1045	Electrolytic capacitor (C3 22,000 μ F/63V x 2)		37	ANL1007	Long shaft assembly
	4	CCDSL101J500	Ceramic capacitor(C4,C5)		38	ABA-297	Screw
	5	CKDYB472K50	Ceramic capacitor(C1,C2,C6)		39	ABA-298	Screw
$\Delta\star$	6	ATS1087	Power transformer (AC220V/240V,T1)		40	ABA1004	Screw
$\Delta\star$	7	ATS1088	Power transformer (AC220V/240V,T2)		41	ABA1006	Screw
$\Delta\star\star$	8	ASG-553	Push switch(POWER,S1)		42	ABA1009	Screw
$\star\star$	9	ASU1003	Remote slide rotary switch (REC SELECTOR,S3)		43	ABA1011	Screw
$\star\star$	10	ASU1005	Remote slide rotary switch (INPUT SELECTOR,S2)		44	ABA1034	Screw
$\star\star$	11	ASU1007	Remote slide rotary switch (PHONO SELECTOR,S4)		45	ABA1035	Screw
$\Delta\star\star$	12	AEK-400	Fuse(FU1 T4A/250V)		46	ABN-065	Shaft nut
$\Delta\star\star$	13	AEK-407	Fuse(FU2 FU3 T400mA/250V)		47	.....
	14	AMR1158	Leg assembly		48	ADG1019	AC Power cord
	15	AMR1159	Leg assembly		49	BBZ40P080FZK	Screw
	16	ANK1029	Shield plate		50	NK90FUC	Nut
	17	ANK1031	Volume holder		51	VMZ30P060FCU	Screw
	18	AAB1036	Rotary knob L(VOLUME)		52	AWZ1472	Tone AMP assembly
	19	AAB1038	Rotary knob M (REC,INPUT SELECTOR)		53	AWZ1480	Power AMP assembly
	20	AAB1040	Rotary knob S (PHONO SELECTOR, BALANCE, TREBLE, BASS, SPEAKERS B)		54	AWZ1453	PHONO AMP assembly
	21	AAD1016	Tact Knob B		101		Input selector assembly
	22	AAD1168	Power knob (POWER)		102		REC Out assembly
	23	AAD1162	Push knob (LOUDNESS, ADPT1/TAPE3)		103		Speaker switch assembly
	24	AAD1164	Direct knob (DIRECT)		104		Main volume assembly
	25	AAM-030	Name plate		105		Speaker terminal assembly
	26	AMB1200	Panel base		106		Power supply assembly
	27	AMR1160	LED Lens		107		Headphone assembly
	28	ANB1105	Front panel		108		Terminal (GND)
	29	ANE1075	Bonnet case		109		Trans frame
	30	ABE1009	Washer		110		Right frame
	31	ABH1033	Coil spring A		111		Rear panel
	32	ABH1034	Coil spring B		112		Panel stay
	33	AEC-818	Mica sheet		113		Bottom plate
	34	AEC-882	Strain relief		114		Heat sink holder
					115		Heat sink
					116		Heat sink
					117		Spacer
					118		Cushion rubber
					119		Binder
					120		Binder
					121		Boss
					122		Pin gromet
					123		Spacer
					124		Binder
					125		Jumper plug
					126		Cord (GND)



Before any repair of the SP terminal assembly, remove the rear panel.
 (For the removal of the rear panel, the bottom plate must be detached, and remove the capacitor(No.4) from the screw(No.45) as shown in exploded views.

- Detaching the Volume Holder (Parts list No. 17)**
1. Unscrew the four screws (except for those marked with *) holding the volume holder.
 2. Switch OFF the DIRECT Switch (to protect the switch from damage and remove the connections of the joint lever and the switch (S)).
 3. Turn the volume control so that the joint (AMR 1178) may come in such a position as to bend up and down (as shown in the Exploded views).
 4. Lift the entire volume holder by approximately 5mm and slide it backwards to detach the hook attached in the position marked with (F) on the volume holder.
 5. Lift the back part of the volume holder by approximately 20mm and, keeping it this position, move it horizontally and backwards.

- Attaching the Volume Holder**
1. Detach the joint arm from the switch (AMR 1161).
 2. Attach the joint (AMR 1178) and the volume holder.
 3. As for the joint arm, connect its side marked with (G) before connecting it to the switch (laterally, marked with an arrow).
 4. When the lighting up of the front panel does not correspond to the real volume knob position, remove the knob and repeat the fixing procedure.

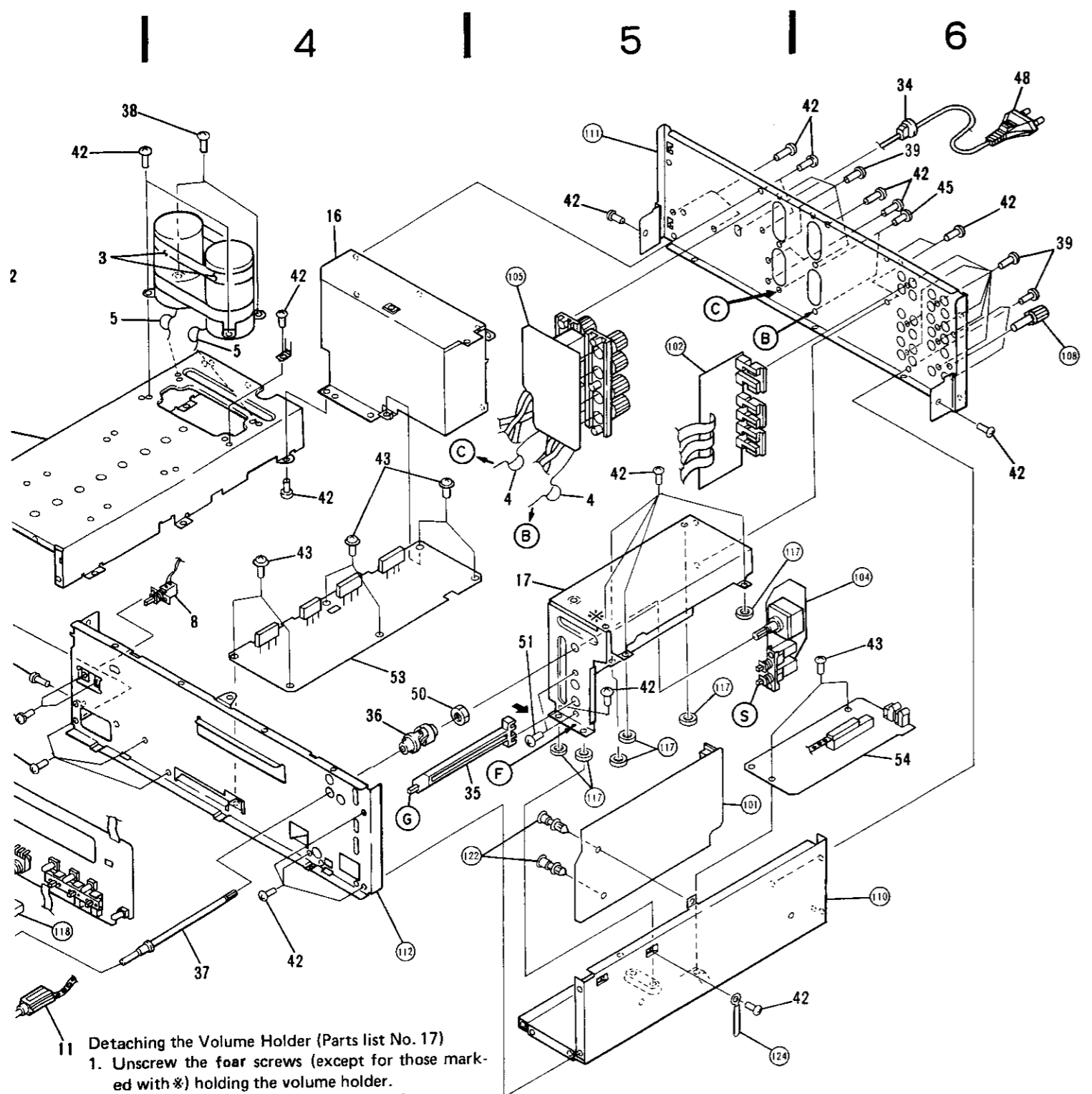
4. P.
 PARTS
 Mark

Externa
 2SC184
 2SA992
 Type No.

M5F78M

PA0016

2SC332
 Type No.



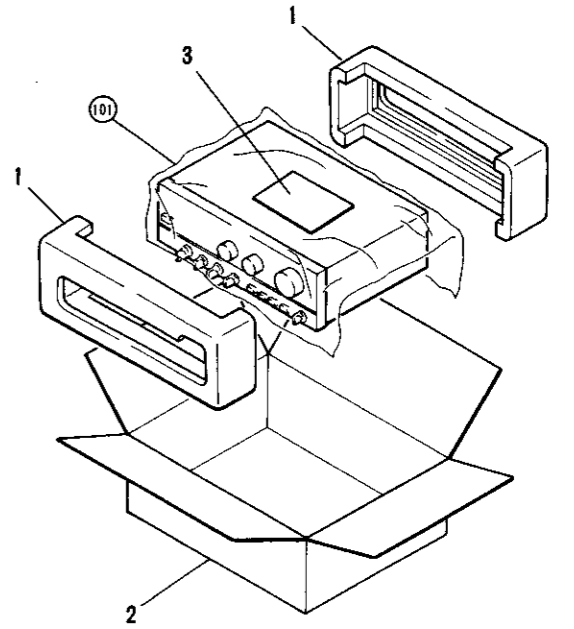
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 4. When the lighting up of the front panel does not correspond to the real volume knob position, remove the knob and repeat the fixing procedure.

4. PACKING

PARTS LIST OF PACKING

Mark	No.	Parts No.	Description
	1	AHA1070	Front rear pad
	2	AHD1240	Packing case
	3	ARC1047	Operating instruction (German)
	101		Packing sheet



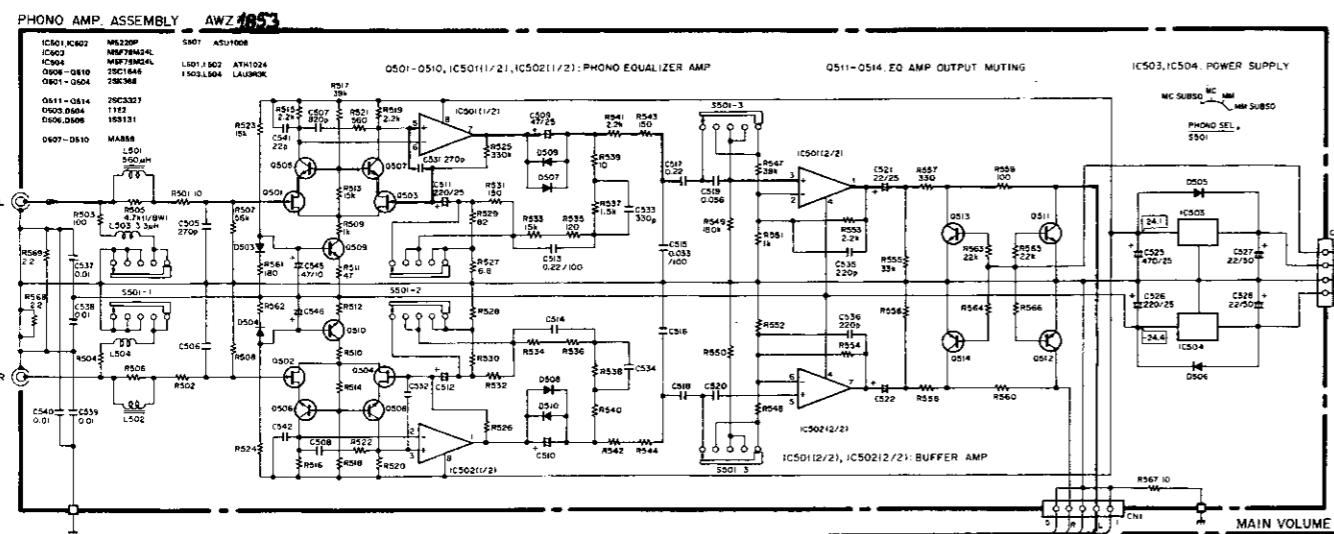
External Appearance of Transistors and ICs

<p>2SC1845 2SA992</p>	<p>2SC2603 2SA1115</p>	<p>2SC2458 2SA1048</p>	<p>2SA1145 2SC2705</p>
<p>M5F78M24L</p>	<p>M5F79M24L</p>	<p>2SK369</p>	<p>2SK389</p>
<p>PA0016</p>	<p>M5220P</p>	<p>2SC2238 2SA968</p>	<p>2SA1265N 2SC3182N</p>
<p>2SC3327</p>	<p>M74LS74AP</p>		

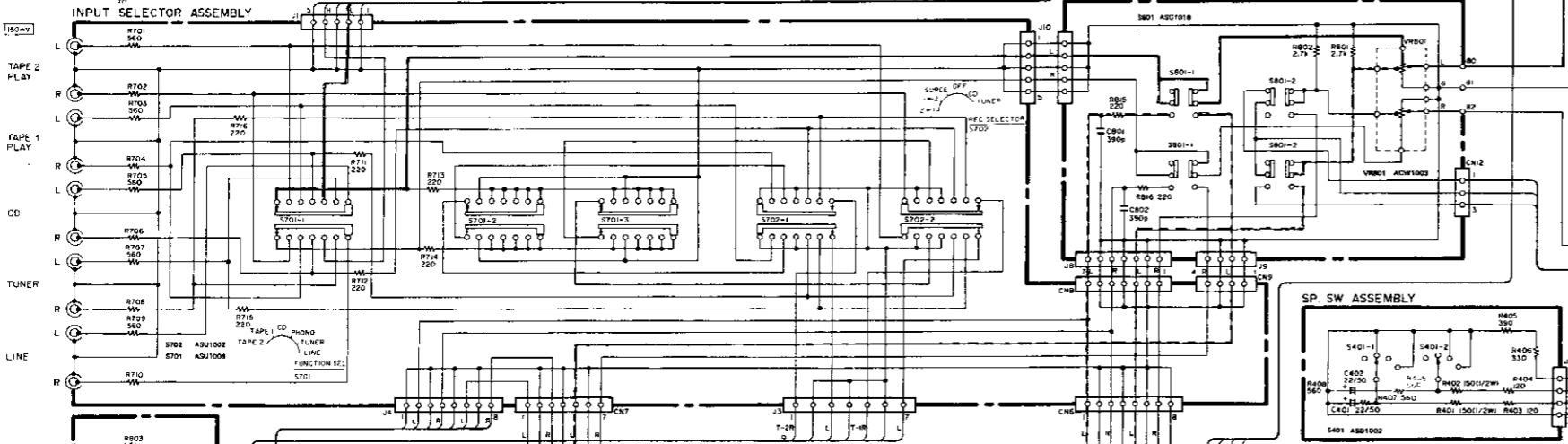
L
A
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5. SCHEMATIC DIAGRAM

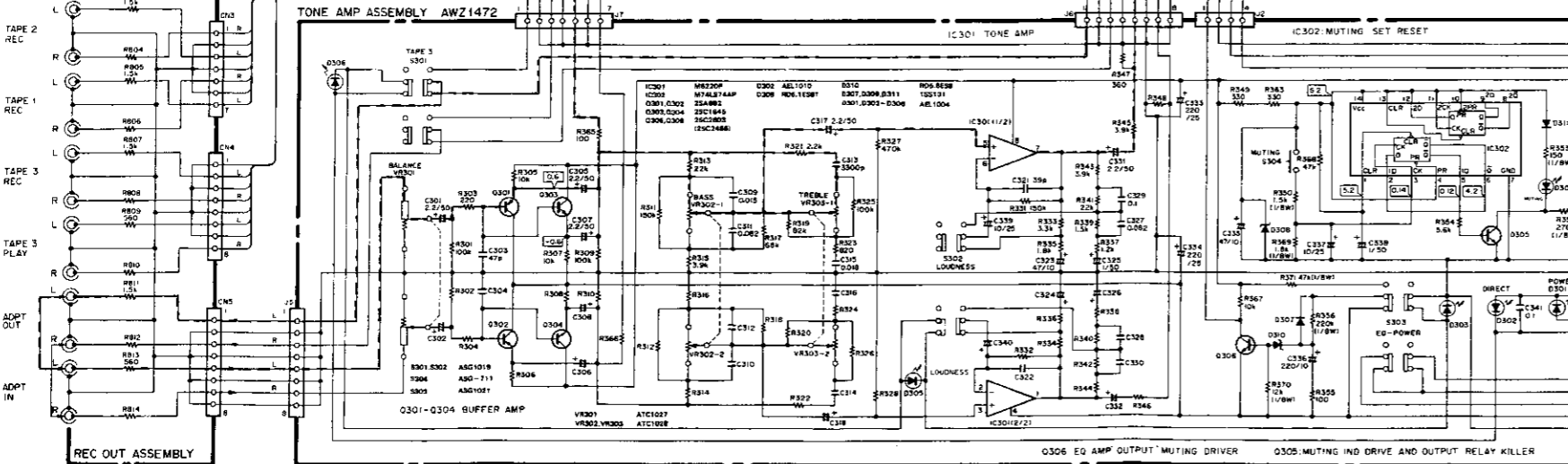
A



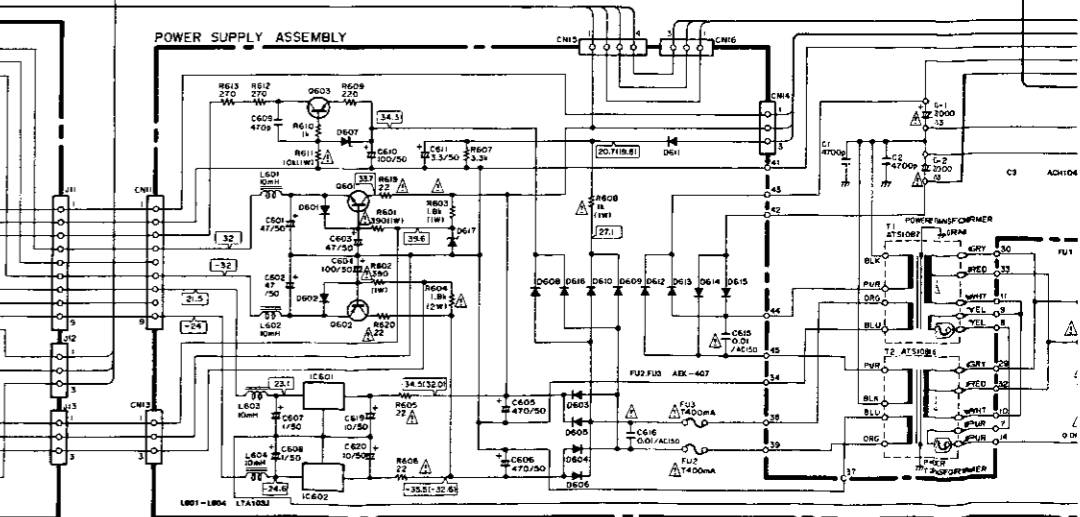
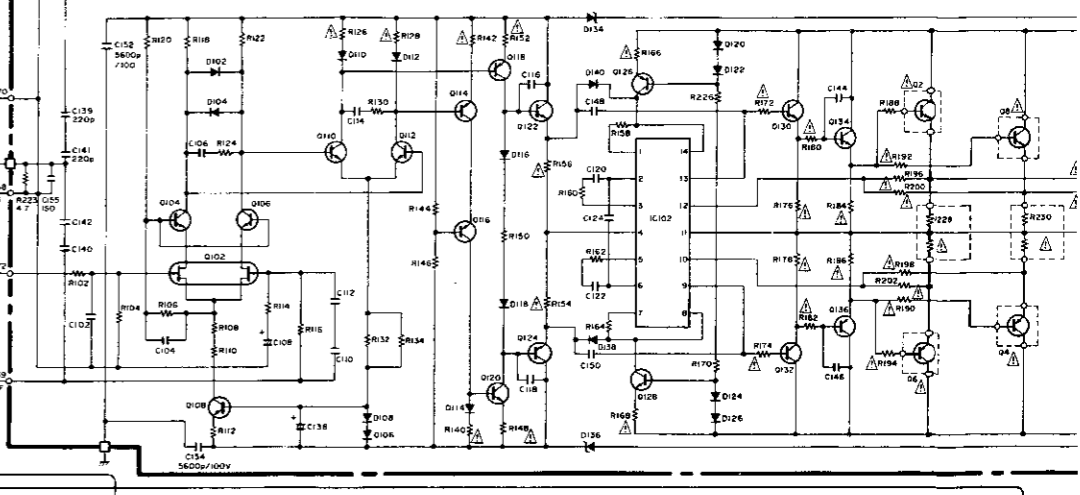
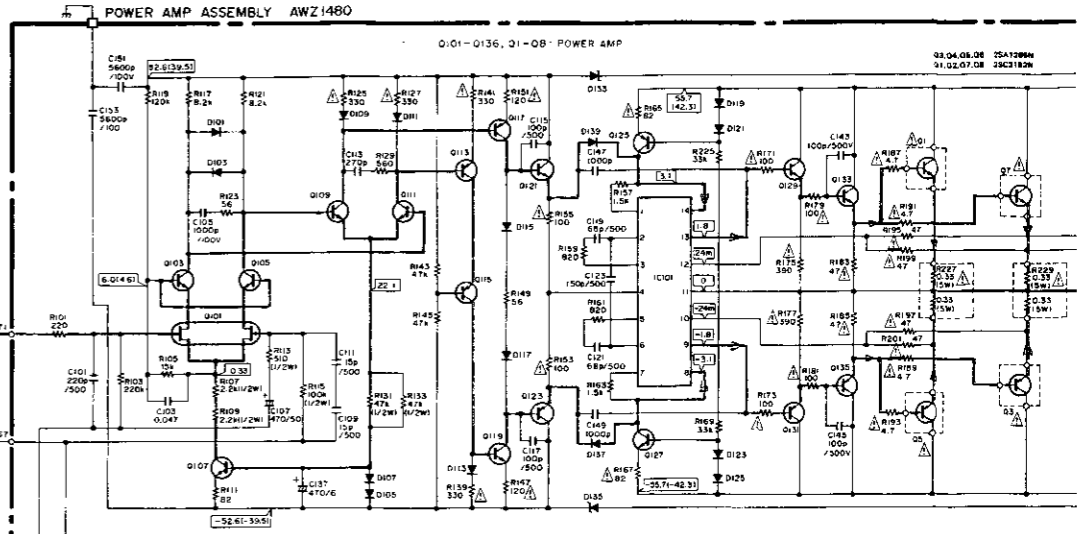
B



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D



---LINE DIRECT (S801) OFF

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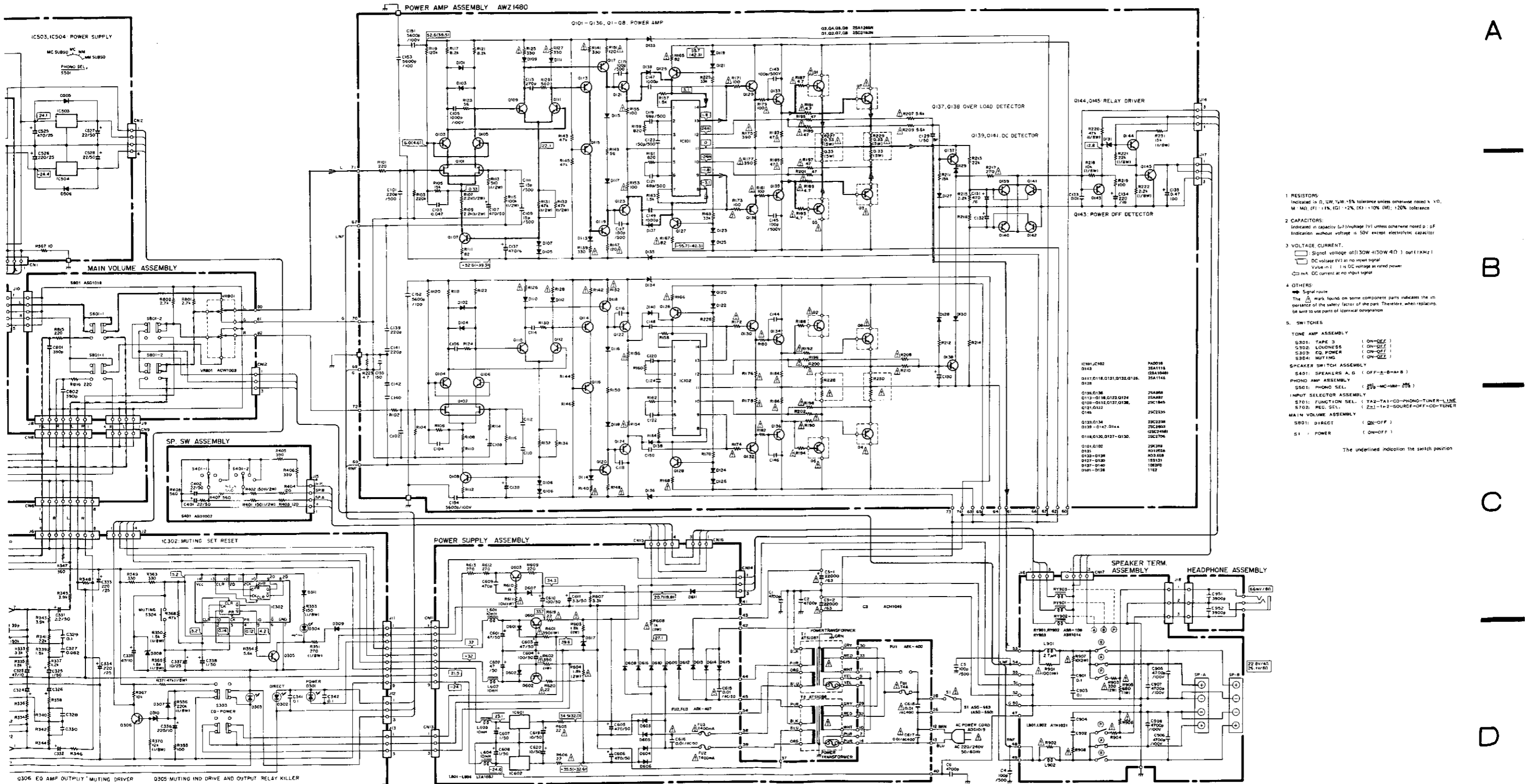
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NOTE:
 The indicated semiconductors are representative ones only.
 Other alternative semiconductors may be used and are
 listed in the parts list.



- 1 RESISTORS
 Indicated in Ω, kΩ, MΩ, % tolerance unless otherwise noted. k = 10³, M = 10⁶. (F) = 1%, (G) = 2%, (K) = 10%, (M) = 20% tolerance.
 - 2 CAPACITORS
 Indicated in capacity (μF) or voltage (V) unless otherwise noted. pF = picofarad. Indication without voltage is 50V except electrolytic capacitor.
 - 3 VOLTAGE CURRENT
 □ Signal voltage at (130W ±30W 40) out (1kHz)
 □ DC voltage (V) at no input signal
 Value in 1 = 1 is DC voltage at rated power
 □ mA, DC current at no input signal
 - 4 OTHERS
 → Signal route
 The Δ mark found on some component parts indicates the in-
 parance of the safety factor of the part. Therefore, when replacing,
 be sure to use parts of identical designation.
 - 5 SWITCHES
 TONE AMP ASSEMBLY
 S301: TAPE 3 (ON-OFF)
 S302: LOUDNESS (ON-OFF)
 S303: EQ POWER (ON-OFF)
 S304: MUTING (ON-OFF)
 SPEAKER SWITCH ASSEMBLY
 S401: SPEAKERS A, G (OFF-ON-B-P-A-B)
 PHONO AMP ASSEMBLY
 S501: PHONO SEL. (MC-MM-20%)
 INPUT SELECTOR ASSEMBLY
 S701: FUNCTION SEL. (TA2-TA1-CD-PHONO-TUNER-LINE)
 S702: REC. SEL. (2-1-1-2-SOURCE-OFF-CD-TUNER)
 MAIN VOLUME ASSEMBLY
 S801: DIRECT (ON-OFF)
 S1 : POWER (ON-OFF)
- The underlined indication the switch position

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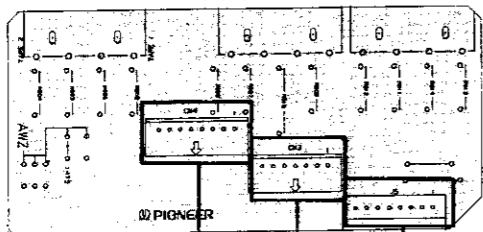
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6. P.C. BOARDS CONNECTION DIAGRAM

A

REC OUT ASSEMBLY

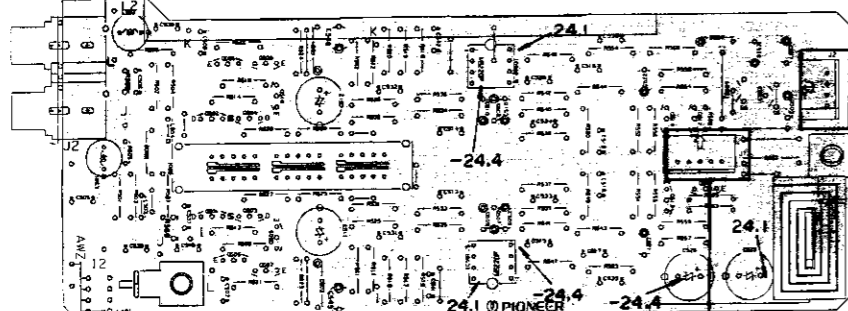


B

Q506 Q508
Q502 Q504 Q510
Q501 Q503 Q509
Q505 Q507

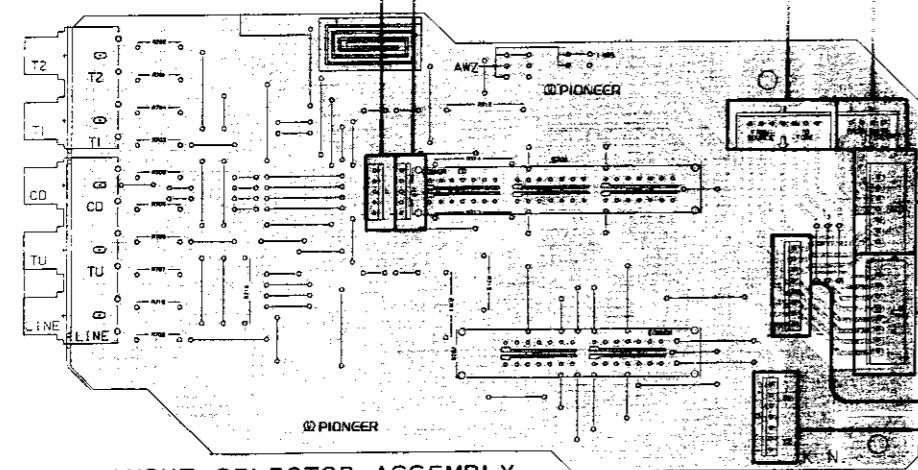
IC152

IC151



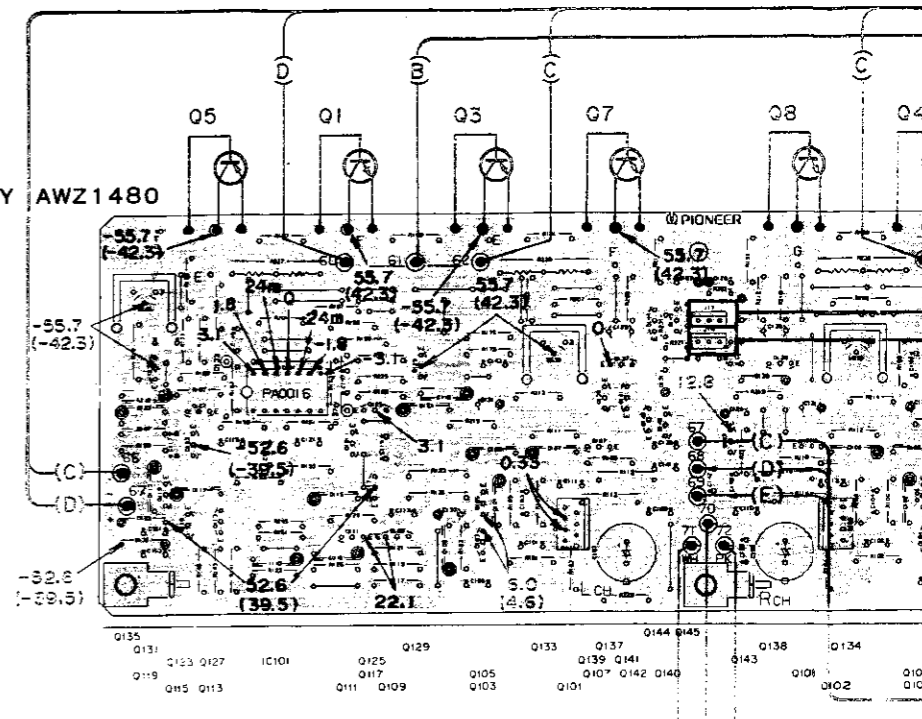
PHONO AMP. ASSEMBLY AWZ 1853

C

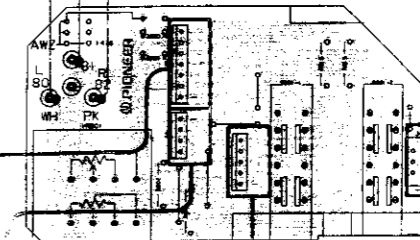


INPUT SELECTOR ASSEMBLY

POWER AMP. ASSEMBLY AWZ1480

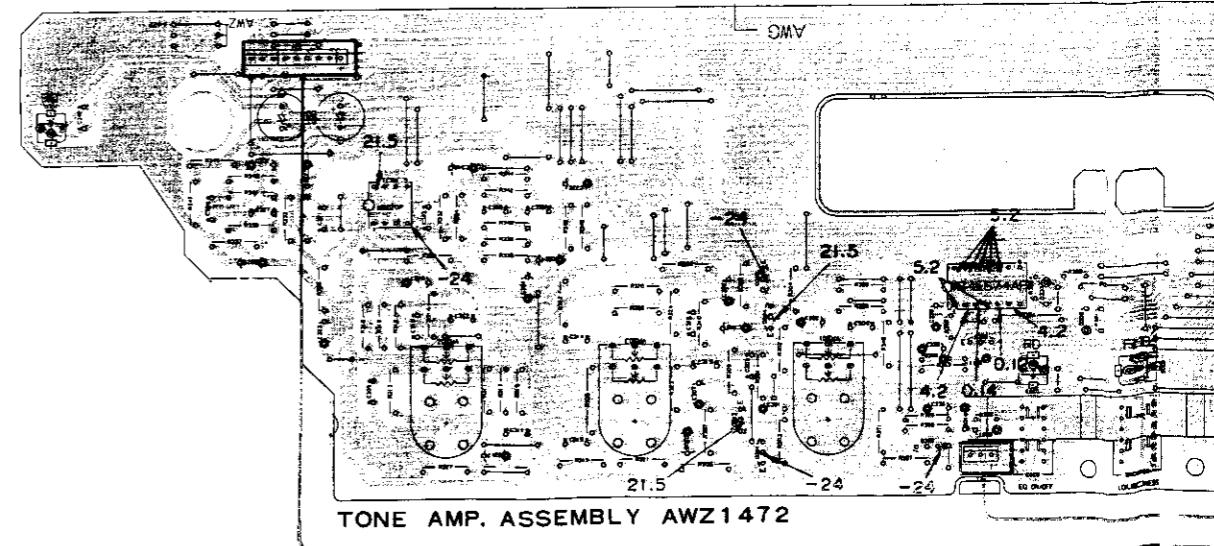


MAIN VOLUME ASSEMBLY



HEAD F

D



TONE AMP. ASSEMBLY AWZ1472

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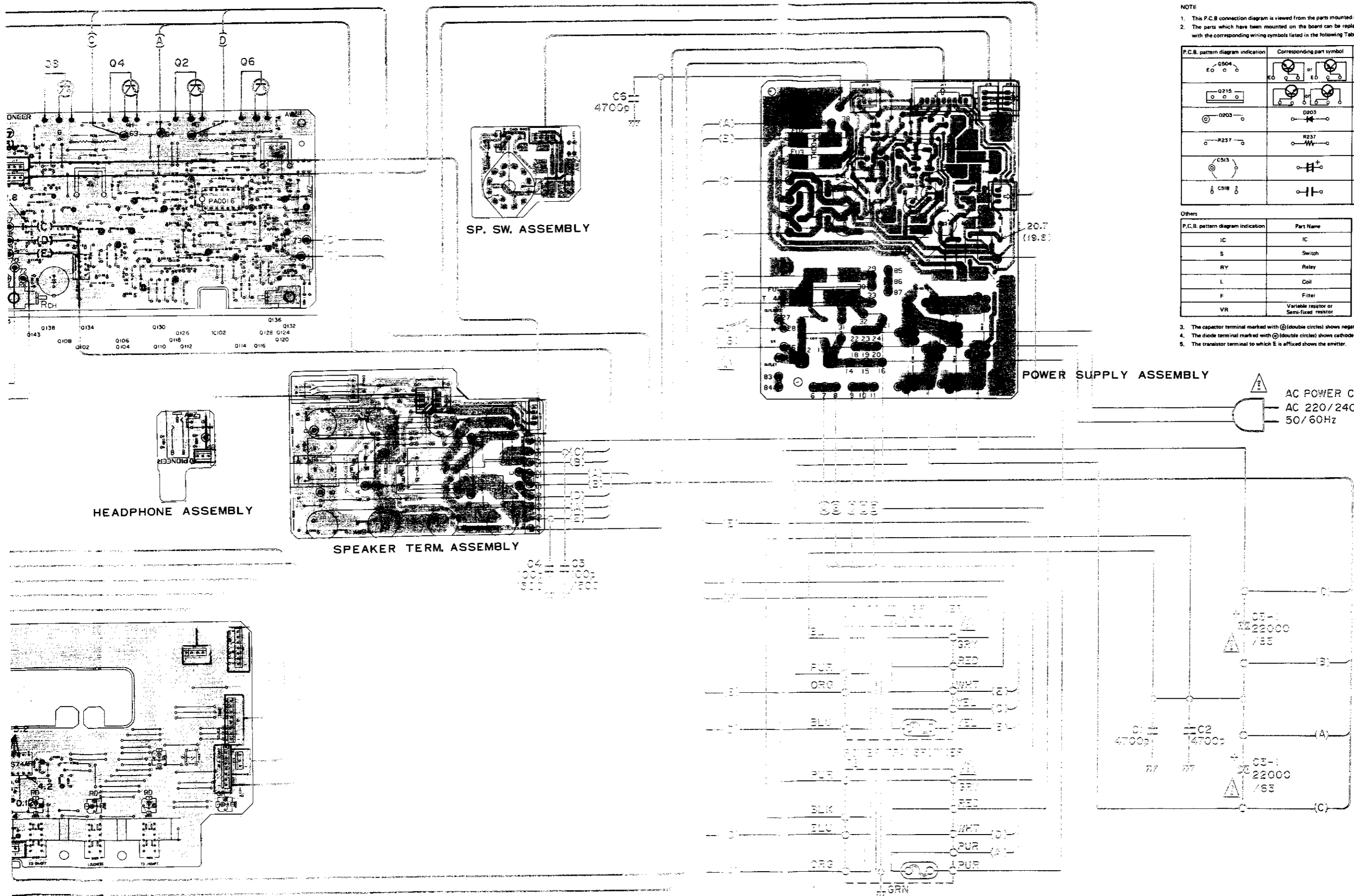
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NOTE
 1. This P.C.B. connection diagram is viewed from the parts mounted side.
 2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
C504 EO		Transistor
0215		Radiator type transistor
0203		Diode
R237		Resistor
C513		Capacitor (Polarity)
C518		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.

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7. ELECTRICAL PARTS LIST

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 Δ 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.
- For your parts Stock Control, the fast moving items are indicated with the marks $\star\star$ and \star .
 $\star\star$ GENERALLY MOVES FASTER THAN \star
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- 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 56×10^1 561.....RD1/4PS \square \square \square J
 $47k\Omega$ 47×10^3 473.....RD1/4PS \square \square \square J
 0.5Ω 0R5.....RN2H \square \square \square K
 1Ω 010.....RS1P \square \square \square K
 Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
 $5.62k\Omega$ 562×10^1 5621.....RN1/4SR \square \square \square F

Miscellaneous Parts List

P.C. BOADE ASSEMBLIES

Mark	Symbol & Description	Part No.
	Tone AMP assembly	AWZ1472
	Power AMP assembly	AWZ1480
	PHONO AMP assembly	AWZ1481
	Input selector assembly	
	REC Out assembly	
	Speaker switch assembly	
	Main volume assembly	
	Power supply assembly	
	Speaker terminal assembly	
	Headphone assembly	

OTHERS

Mark	Symbol & Description	Part No.
$\Delta\star\star$	Q3,Q4,Q5,Q8	2SA1265N
$\Delta\star\star$	Q1,Q2,Q7,Q8	2SC3182N
Δ	C3 Electrolytic capacitor (22,000 μ F/63V x 2)	ACH1045
	C4,C5 Ceramic capacitor	CCDSL101J500
	C1,C2,C6 Ceramic capacitor	CKDYB472K50
$\Delta\star$	T1 Power transformer (220V/240V)	ATS1087
$\Delta\star$	T2 Power transformer (220V/240V)	ATS1088
$\Delta\star\star$	S1 Push switch (POWER)	ASG-553 (ASG-550)
$\Delta\star\star$	FU1 Fuse (T4A/250V)	AEK-400
$\Delta\star\star$	FU2,FU3 Fuse (T400mA/250V)	AEK-407
Δ	AC power cord	ADG1019
$\star\star$	S3 Remote slide rotary switch (REC SELECTOR)	ASU1003
$\star\star$	S2 Remote slide rotary switch (INPUT SELECTOR)	ASU1005
$\star\star$	S4 Remote slide rotary switch (PHONO SELECTOR)	ASU1007

Tone AMP Assembly (AWZ1472)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
$\star\star$	IC301	M5220P
$\star\star$	IC302	M74LS74AP
$\star\star$	Q301,Q302	2SA992
$\star\star$	Q303,Q304	2SC1845
$\star\star$	Q305,Q306	2SC2803 (2SC2458)
\star	D301,D303-D306 LED (POWER,TAPE3/ADPT LOUDNESS)	AEL1004
\star	D302 LED (DIRECT)	AEL1010
\star	D308	RD5.1ESB1
\star	D310	RD5.6ESB
\star	D307,D309,D311	1SS131

SWITCHES

Mark	Symbol & Description	Part No.
$\star\star$	S301,S302 Push switch (TAPE3,LOUDNESS)	ASG1019
$\star\star$	S304 Tact switch (MUTING)	ASG-711
$\star\star$	S303 Push switch (EQ-POWER)	ASG1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C303,C304	CCCSL470J50 (CCDSL470J50)
	C321,C322	CCDSL390J50
	C325,C326,C338	CEAS010M50
	C337,C339,C340	CEAS100M25
	C317,C318,C331,C332	CEAS2R2M50
	C336	CEAS221M10
	C333,C334	CEAS221M25
	C323,C324,C335	CEAS470M10
	C301,C302,C305-C308	CEXA2R2M50
	C329,C330,C341,C342	CFTXA104J50
	C309,C310	CFTXA153J50
	C315,C316	CFTXA183J50
	C311,C312,C327,C328	CFTXA823J50
	C313,C314	CQMA332K50

RESISTORS

Mark	Symbol & Description	Part No.
$\star\star$	VR301 Variable resistor (250K Ω x 2: BALANCE)	ATC1027
$\star\star$	VR302,VR303 Variable resistor (100K Ω x 2: BASS, TREBLE)	ATC1028
	R350,R351,R353,R368-R371 Other resistor	RD1/8PM \square \square \square J RD1/4PM \square \square \square J

Power AMP Assembly (AWZ1480)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
$\star\star$	IC101,IC102	PA0018
$\star\star$	Q143	2SA1115 (2SA1048)
$\star\star$	Q117,Q118,Q131,Q132,Q125, Q126	2SA1145
$\star\star$	Q135,Q136	2SA968
$\star\star$	Q113-Q116,Q123,Q124	2SA992
$\star\star$	Q103-Q112,Q137,Q138, Q121,Q122	2SC1845
$\star\star$	Q145	2SC2235
$\star\star$	Q133,Q134	2SC2238
$\star\star$	Q139,Q140-Q142	2SC2803 (2SC2458)
$\star\star$	Q119,Q120,Q127-Q130,	2SC2705
$\star\star$	Q101,Q102	2SK389
\star	D131	RD12ESB
\star	D133-D136	RD3.0EB
\star	D127-D130	1SS131
\star	D137-D140	10E2FD
\star	D101-D126	11E2

CAPACITORS

Mark	Symbol & Description	Part No.
	C109-C112	CMA150J500
	C101,C102	CMA221J500
	C113,C114	CCDSL271J50
	C123,C124	CMA151J500
	C139-C142	CCDSL221J50
	C119-C122	CMA880J500
	C129,C130	CEANP010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131,C137,C138,C132	CEAS471M6
	C107,C108	CEXA471M50
	C103,C104	CFTXA473J50
	C105,C106	CQMA102J100
	C133	CKCYF103Z50 (CKDYF103Z50)
	C151-C154	CQMXA562J100
	C155	CCDSL151J50
	C147-C150	CKDYB102K50
	C115-C118,C143-C146	CMA101J500

RESISTORS

Mark	Symbol & Description	Part No.
Δ	R227-R230 (0.33 Ω x 2.5W)	ACN-139
Δ	R107-R110,R131-R134	RD1/2PM \square \square \square J
Δ	R147-R152,R165-R168, R171-R178,R183-R194, R207-R210,R217	RD1/4PMF \square \square \square J
	R113-R116	RDR1/2PM \square \square \square
	R101-R104	RDR1/4PM \square \square \square
Δ	R125-R128,R139-R142, R149,R150,R153-R156, R179-R182,R195-R202	RFA1/4PS101J
	R218,R220-R222,R231 Other resistors	RD1/8PM \square \square \square J RD1/4PM \square \square \square J

Phono AMP Assembly (AWZ1453)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
$\star\star$	IC501,IC502	M5220P
$\star\star$	IC503	M5F78M24L
$\star\star$	IC504	M5F79M24L
$\star\star$	Q505-Q510	2SC1845
$\star\star$	Q501-Q504	2SK369
$\star\star$	Q511-Q514	2SC3327
\star	D503,D504	11E2
\star	D505,D506	1SS131
\star	D507-D510	MA859

SWITCH

Mark	Symbol & Description	Part No.
$\star\star$	S501 Remote slide switch (PHONO SELECTOR)	ASU1008

COILS

Mark	Symbol & Description	Part No.
	L501,L502 Inductor (560 μ H)	ATH1024
	L503,L504 Inductor (3.3 μ H)	LAU3R3K

CAPACITORS

Mark	Symbol & Description	Part No.
	C541,C542	CCDSL220J50
	C535,C536	CCDSL221J50
	C605,C606,C631,C632	CCDSL271J50
	C621,C522	CEXA220M25
	C511,C512,C526	CEXA221M25
	C509,C510	CEXA470M25
	C625	CEXA471M25
	C519,C520	CFTXA568J50
	C615,C516	CQPXA333J2A
	C517,C518	CFTXA224J50
	C507,C508	CQSA821J50
	C533,C534	CKCYB331K50 (CKDYB331K50)
	C545,C546	CEAS470M10
	C527,C528	CEXA220M50
	C537-C540	CKCYF103Z50 (CKDYF103Z50)
	C513,C514	CQPXA224J2A

RESISTORS

Mark	Symbol & Description	Part No.
	R501-R504,R507,R508, R527-R544	RDR1/4PM□□□J
	R505,R506,R563-R566, R568,R569	RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO:RED)	AKB1027
	1P pin jack (PHONO:WHITE)	AKB1028

Input Selector Assembly

SWITCH

Mark	Symbol & Description	Part No.
★★	S702 Remote slide switch (REC SELECTOR)	ASU1002
★★	S701 Remote slide switch (FUNCTION SELECTOR)	ASU1006

RESISTORS

Mark	Symbol & Description	Part No.
	R701-R704,R707-R710, R713-R716	RD1/4PM□□□J
	R705,R706,R711,R712	RDR1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1,TAPE2 PLAY)	AKB1007
	6P pin jack (CD,TUNER,LINE IN)	AKB1029

REC Out Assembly

RESISTORS

Mark	Symbol & Description	Part No.
	R803-R814	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1 REC,TAPE2 REC,TAPE3 REC,TAPE3 PLAY)	AKB1009

Speaker Switch Assembly

SWITCH

Mark	Symbol & Description	Part No.
★★	S401 Rotary switch (SPEAKER A,B)	ASD1002

CAPACITORS

Mark	Symbol & Description	Part No.
	C401,C402	CEAS220M50

RESISTORS

Mark	Symbol & Description	Part No.
	R401,R402	RD1/2PM151J
	R407,R408	RD1/4PMF561J
	Other resistors	RD1/4PM□□□J

Main Volume Assembly

SWITCH

Mark	Symbol & Description	Part No.
★★	S801 Push switch (LINE DIRECT)	ASG1018

CAPACITORS

Mark	Symbol & Description	Part No.
	C801,C802	CKCYB391K50 (CKDYB391K50)

RESISTORS

Mark	Symbol & Description	Part No.
★★	VR801 Variable resistors (60K Ω x 2:VOLUME)	ACW1003
	R815,R816	RD1/4PM□□□J
	R801,R802	RDR1/4PM□□□J

Power Supply Assembly

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC601	M5F78M24L
★★	IC602	M5F79M24L
★★	Q603	2SA1145
★★	Q602	2SA992
★★	Q601	2SC2705
★	D617	RD30ESB2
★	D607	RD5.1EB (HZ5.1EB)
★	D603-D606,D608,D616	S5566 (11E2)
★	D609-D611,D601,D602	1SS131
★	D612-D615	30D2FC

COILS

Mark	Symbol & Description	Part No.
	L601-L604 Inductor (10mH)	LTA103J

CAPACITORS

Mark	Symbol & Description	Part No.
△	C617,C618 (0.01 μ F/AC400V)	ACG1003
△	C615,C616 (0.01 μ F/AC150V)	ACG1005
	C607,C608	CEAS010M50
	C619,C620	CEAS100M50
	C604,C610	CEAS101M50
	C611	CEAS3R3M50
	C605,C606	CEXA471M50
	C609	CKCYB471K50 (CKDYB471K50)
	C601-C603	CEAS470M60

RESISTORS

Mark	Symbol & Description	Part No.
△	R605,R606,R619,R620	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
△	R601,R602	RS1PMF391J
△	R603,R604	RS2LMF182J
	Other resistors	RD1/4PM□□□J

Speaker Terminal Assembly

RELAYS

Mark	Symbol & Description	Part No.
★★	RY901,RY902 Relay(SPEAKER PROTEC TION)	ASR-106
★★	RY903 Relay (HEADPHONE PROTEC TION)	ASR1014

COILS

Mark	Symbol & Description	Part No.
	L901,L902 Inductor (2.7mH)	ATH1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C901-C904	CFTXA104J50
	C905-C908	COMXA472J100

RESISTORS

Mark	Symbol & Description	Part No.
△	R901,R902	RS1LMF101J
△	R905,R906	RS1PMF681J
△	R907,R908	RS2LMF100J
△	R903,R904	RS2LMF331J

Headphone Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C951,C952	COMA392K50

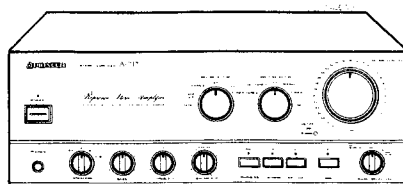
OTHERS

Mark	Symbol & Description	Part No.
	Headphone jack (PHONOS)	AKN1002

ADDITIONAL

Service Manual

 **PIONEER**[®]
The future of sound and vision.



**ORDER NO.
ARP1684**

STEREO AMPLIFIER

A-717

- Refer to the service manual ARP1437, A-717.
- This manual is applicable to the HEZ, HE, HB, SD/G and KUC types.
- This service manual includes the most up-to-date informations.

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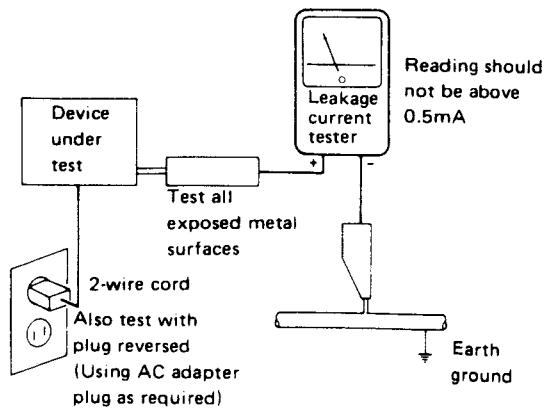
SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

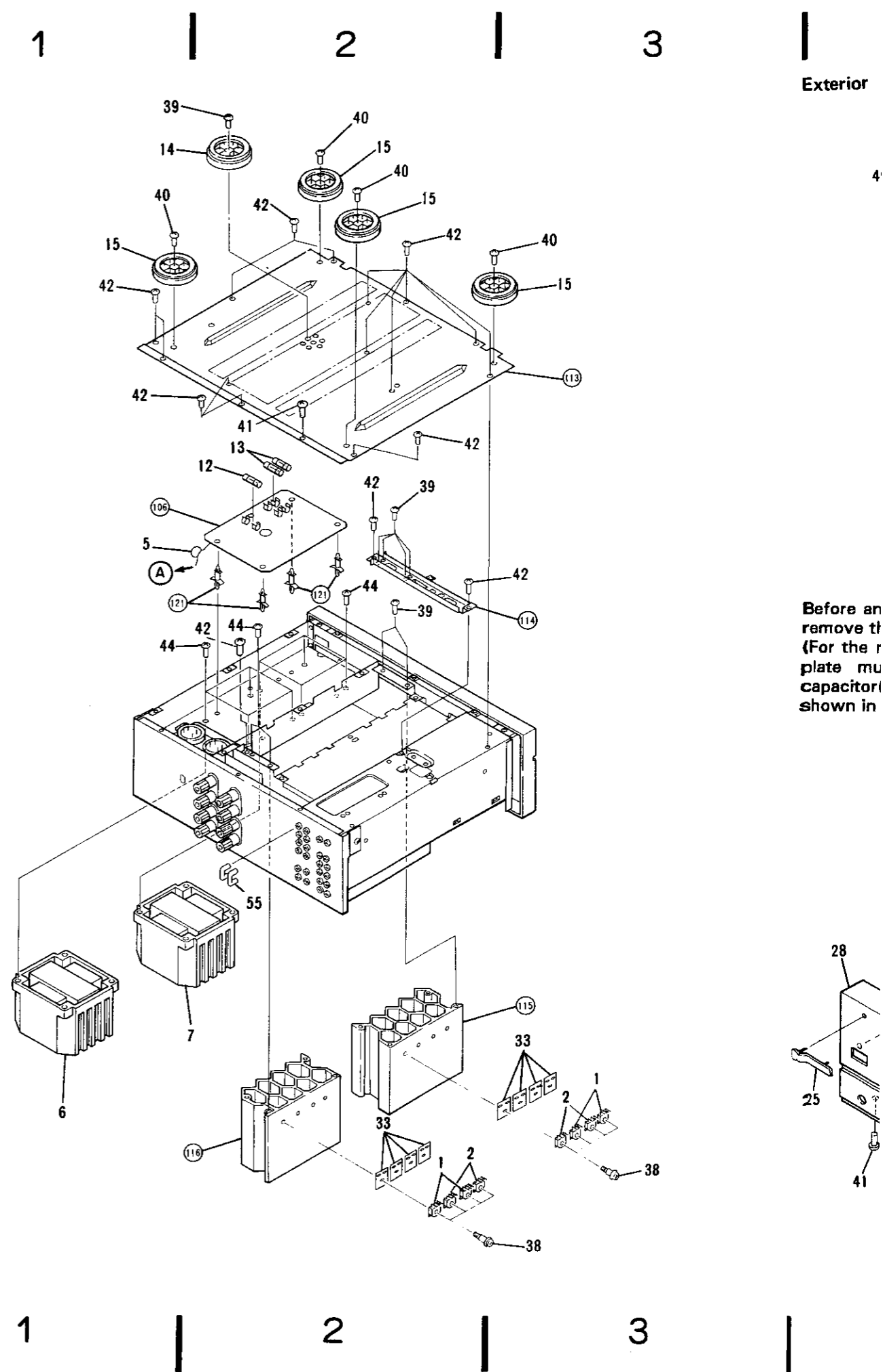
1. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.

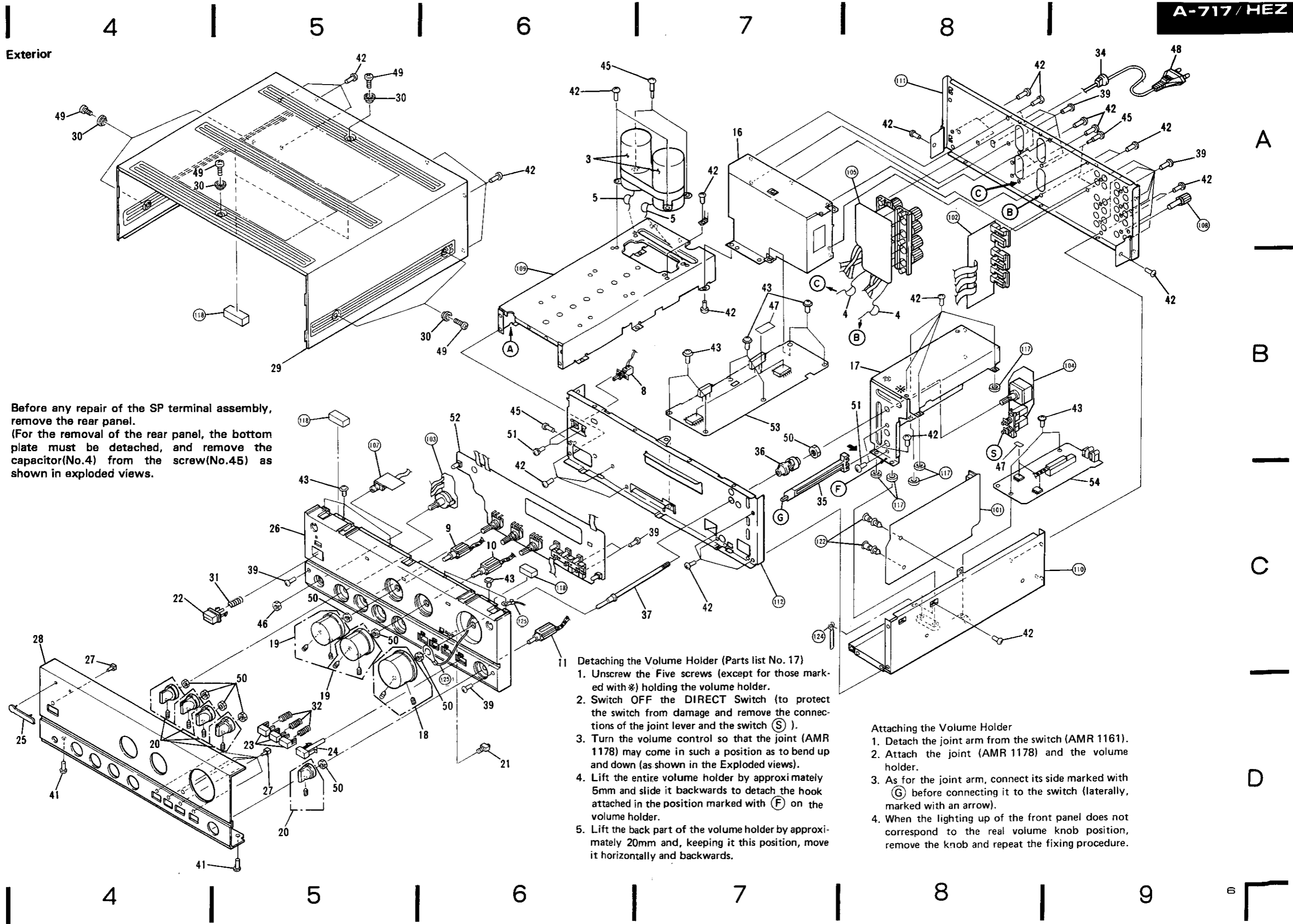
Parts List of Exterior

Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
Δ	1	2SA1265N	Transistor(Q3,Q4,Q5,Q6)		35	AMR1161	Joint arm
Δ	2	2SC3182N	Transistor(Q1,Q2,Q7,Q8)		36	AMR1178	Joint
Δ	3	ACH1045	Electrolytic capacitor (C3 22,000 μ F/63V x 2)		37	ANL1007	Long shaft assembly
	4	CCDSL101K500	Ceramic capacitor(C4,C5)		38	ABA-297	Screw
	5	CKDYB472K50	Ceramic capacitor(C1,C2,C6)		39	ABA-298	Screw
Δ	6	ATS1087	Power transformer (AC220V/240V,T1)		40	ABA1004	Screw
Δ	7	ATS1088	Power transformer (AC220V/240V,T2)		41	ABA1048	Screw
	8	ASG-553	Push switch(POWER,S1)		42	ABA1009	Screw
	9	ASU1003	Remote slide rotary switch (REC SELECTOR,S3)		43	ABA1011	Screw
	10	ASU1005	Remote slide rotary switch (INPUT SELECTOR,S2)	Δ	44	ABA1034	Screw
	11	ASU1007	Remote slide rotary switch (PHONO SELECTOR,S4)		45	ABA1047	Screw
Δ	12	AEK-400	Fuse(FU1 T4A/250V)		46	ABN-065	Shaft nut
Δ	13	AEK-407	Fuse(FU2 FU3 T400mA/ 250V)		47	AEH1005	Acetate tape B2
	14	AMR1158	Leg assembly		48	ADG1019	AC Power cord
	15	AMR1159	Leg assembly		49	BBZ40P080FZK	Screw
	16	ANK1029	Shield plate		50	NK90FUC	Nut
	17	ANK1031	Volume holder		51	VMZ30P060FCU	Screw
	18	AAB1036	Rotary knob L(VOLUME)		52	AWZ1472	Tone AMP assembly
	19	AAB1038	Rotary knob M (REC,INPUT SELECTOR)		53	AWZ1480	Power AMP assembly
	20	AAB1040	Rotary knob S (PHONO SELECTOR, BALANCE,TREBLE,BASS, SPEAKERS B)		54	AWZ1853	PHONO AMP assembly
	21	AAD1016	Tact Knob B (MUTING)		55	AKM1019	Plug (Pin-jack)
	22	AAD1188	Power knob (POWER)		101		Input selector assembly
	23	AAD1182	Push knob (LOUDNESS, ADPT/TAPE3)		102		REC Out assembly
	24	AAD1184	Direct knob (LINE DIRECT)		103		Speaker switch assembly
	25	AAM--030	Name plate		104		Main volume assembly
	26	AMB1200	Panel base		105		Speaker terminal assembly
	27	AMR1180	LED Lens		106		Power supply assembly
	28	ANB1105	Front panel		107		Headphone assembly
		ANB1216	Front panel (MARK II)		108		Terminal (GND)
	29	ANE1075	Bonnet case		109		Trans frame
	30	ABE1009	Washer		110		Right frame
	31	ABH1033	Coil spring A		111		Rear panel
	32	ABH1034	Coil spring B		112		Panel stay
	33	AEC-818	Mica sheet		113		Bottom plate
	34	AEC-882	Strain relief		114		Heat sink holder
					115		Heat sink
					116		Heat sink
					117		Spacer
					118		Cushion rubber
					119	
					120	
					121		Boss
					122		Pin gromet
					123	
					124		Binder
					125	



Before an
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capacitor
shown in

Exterior

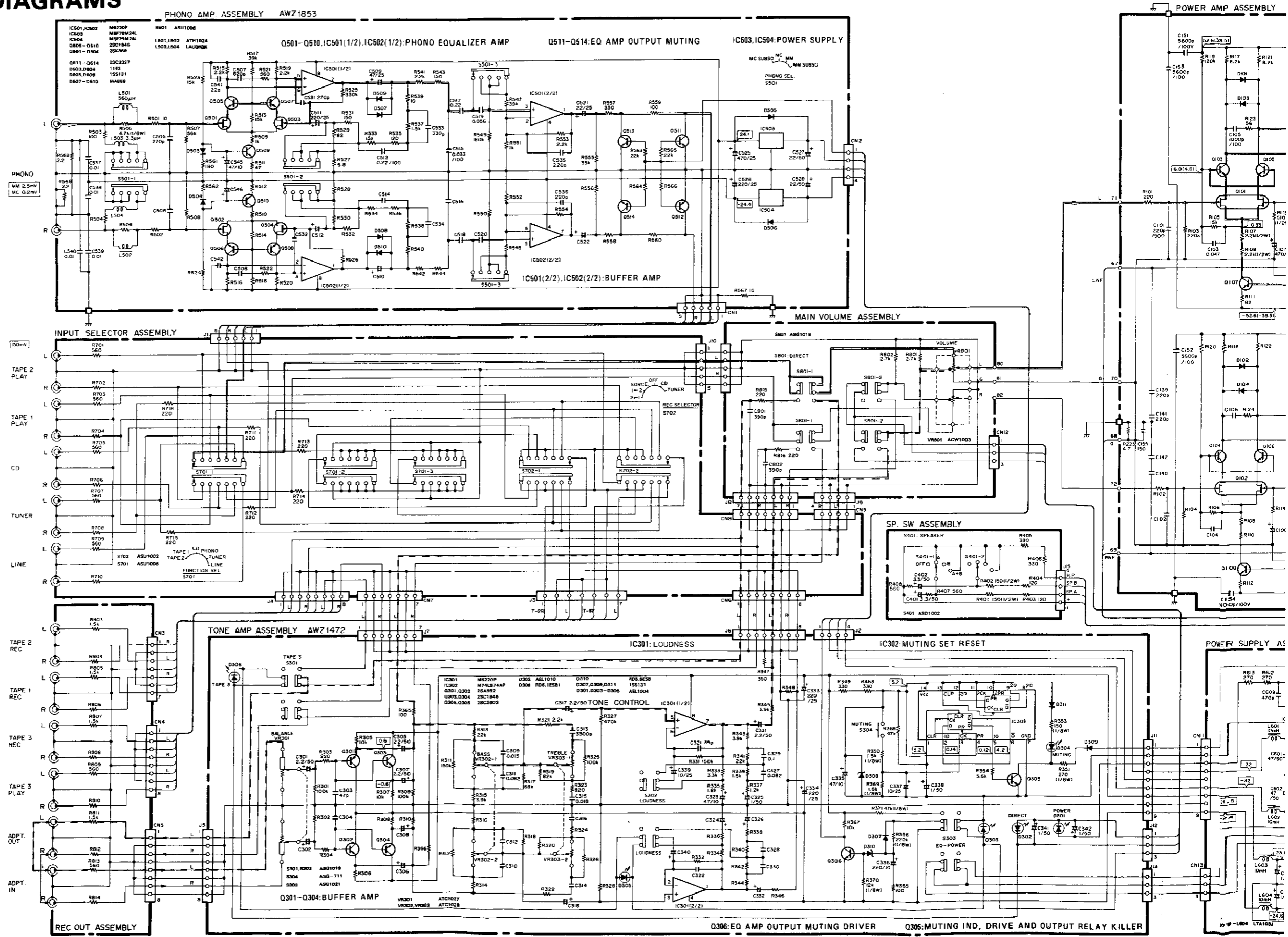


Before any repair of the SP terminal assembly, remove the rear panel.
 (For the removal of the rear panel, the bottom plate must be detached, and remove the capacitor(No.4) from the screw(No.45) as shown in exploded views.

- 11 Detaching the Volume Holder (Parts list No. 17)
1. Unscrew the Five screws (except for those marked with*) holding the volume holder.
 2. Switch OFF the DIRECT Switch (to protect the switch from damage and remove the connections of the joint lever and the switch (S)).
 3. Turn the volume control so that the joint (AMR 1178) may come in such a position as to bend up and down (as shown in the Exploded views).
 4. Lift the entire volume holder by approximately 5mm and slide it backwards to detach the hook attached in the position marked with (F) on the volume holder.
 5. Lift the back part of the volume holder by approximately 20mm and, keeping it this position, move it horizontally and backwards.

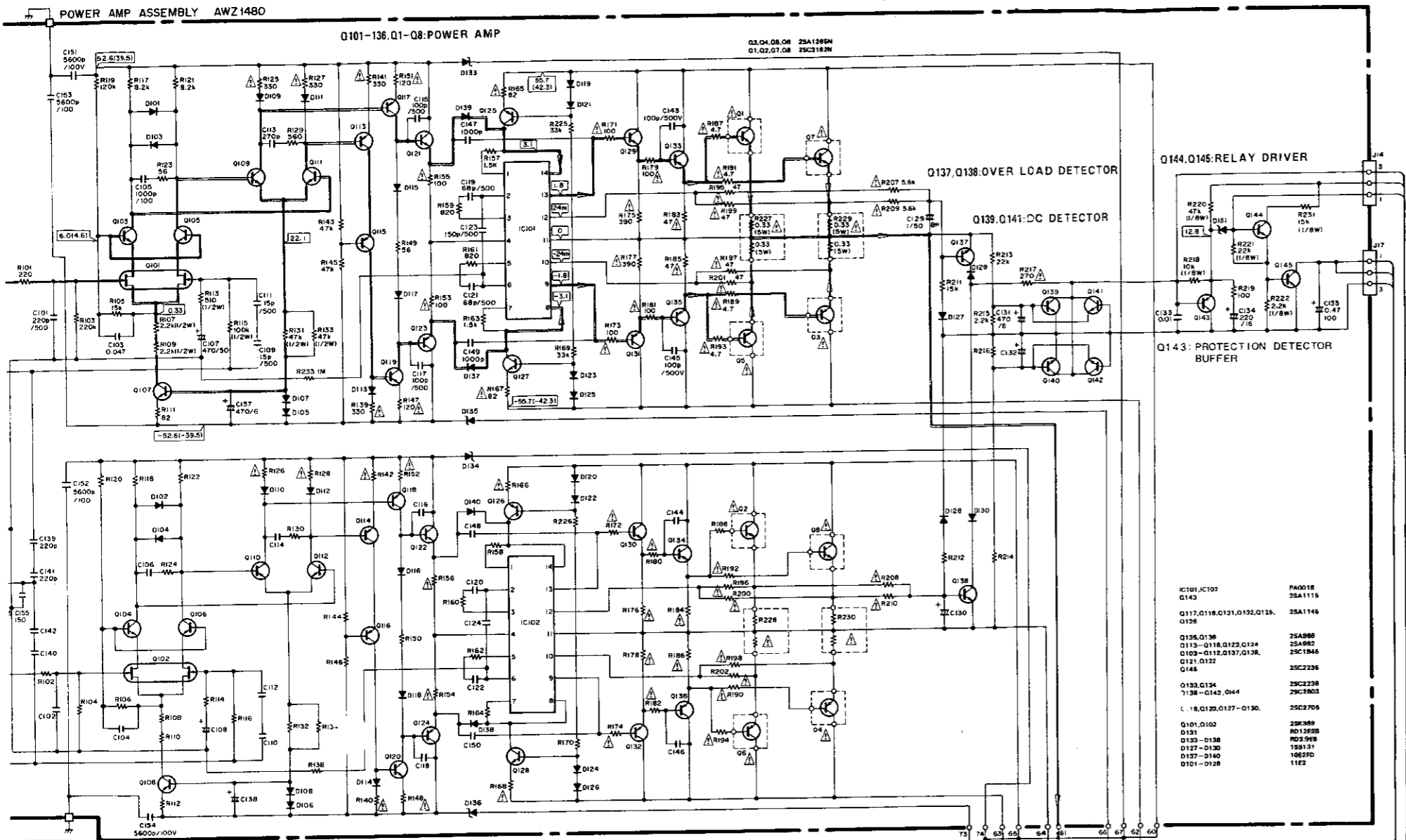
- Attaching the Volume Holder
1. Detach the joint arm from the switch (AMR 1161).
 2. Attach the joint (AMR 1178) and the volume holder.
 3. As for the joint arm, connect its side marked with (G) before connecting it to the switch (laterally, marked with an arrow).
 4. When the lighting up of the front panel does not correspond to the real volume knob position, remove the knob and repeat the fixing procedure.

2. SCHEMATIC DIAGRAMS

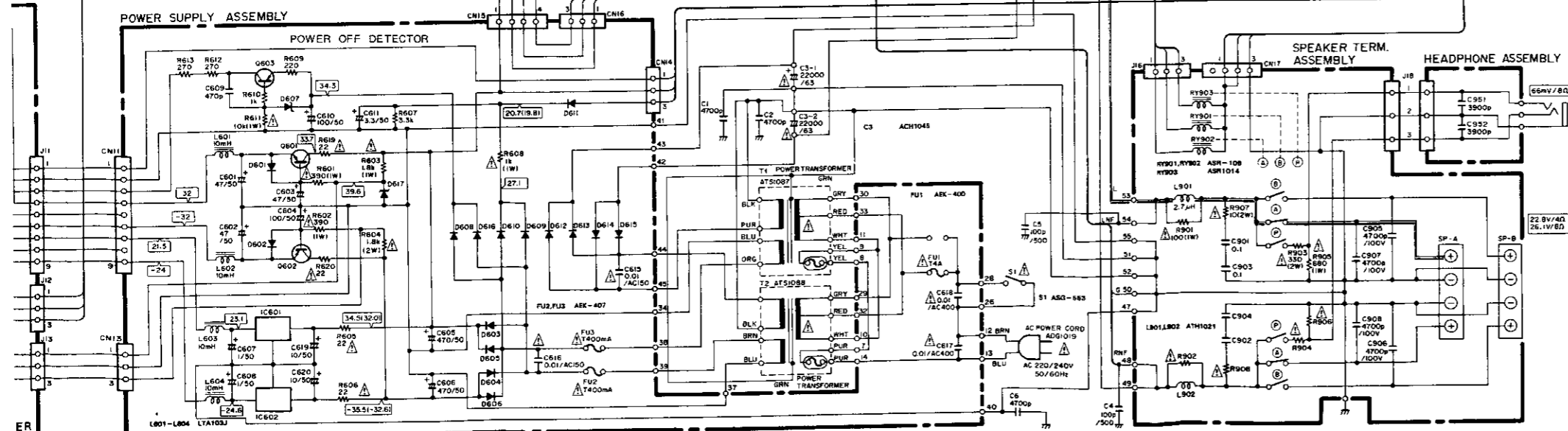


---:LINE DIRECT(S801)OFF

IC801 M6220P Q802 2S
IC802 M74L874AP Q803 2S
Q804 2S
Q805 2S



- RESISTORS:**
Indicated in Ω, %W, %W, 15% tolerance unless otherwise noted k: kΩ, M: MΩ, (F): ±1%, (G): ±2%, (K): ±10% (M): ±20% tolerance
 - CAPACITORS:**
Indicated in capacity (μF)/voltage (V) unless otherwise noted p: pF
Indication without voltage is 50V except electrolytic capacitor.
 - VOLTAGE, CURRENT:**
□ Signal voltage at (130W-130W 4Ω) out (1 kHz)
□ DC voltage (V) at no input signal
Value in () is DC voltage at rated power.
◁ mA, DC current at no input signal
 - OTHERS:**
→ Signal route
The Δ 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.
 - SWITCHES**
- PA0018**
25A1116
- Q101, Q102 PA0018
Q143 25A1116
- Q117, Q118, Q131, Q132, Q128, Q126 25A1146
- Q136, Q138 25A988
Q113-Q118, Q122, Q124 25A982
Q109-Q112, Q137, Q138, Q131, Q132 25C1846
Q146 25C2236
Q133, Q134 25C2238
Q138-Q142, Q144 25C2803
C118, Q120, Q127-Q130 25C2705
- Q101, Q102 25B3088
Q131 RD1288B
Q133-Q138 RD398B
Q127-Q130 15B131
Q137-Q140 10E2FD
Q101-Q128 11E2
- The underlined indication the switch position

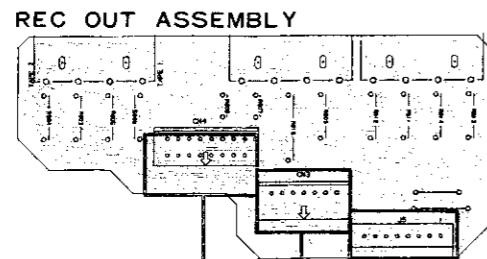


- KB01 88F7862AL Q802 25A1146 D817 RD30582
KB02 88F7862AL Q803 25A982 D807 RD8.1E9
D801 25C2706
- Q803-D808, D808, D816 58468 Q809-D811, D801, D802 15B131
D812-D816 D802-2

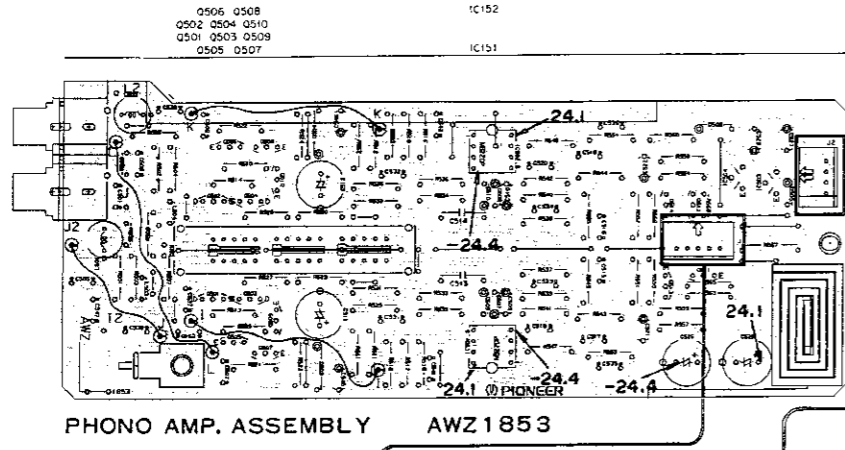
1 | 2 | 3 | 4 | 5 | 6

3. P.C. BOARDS CONNECTION DIAGRAM

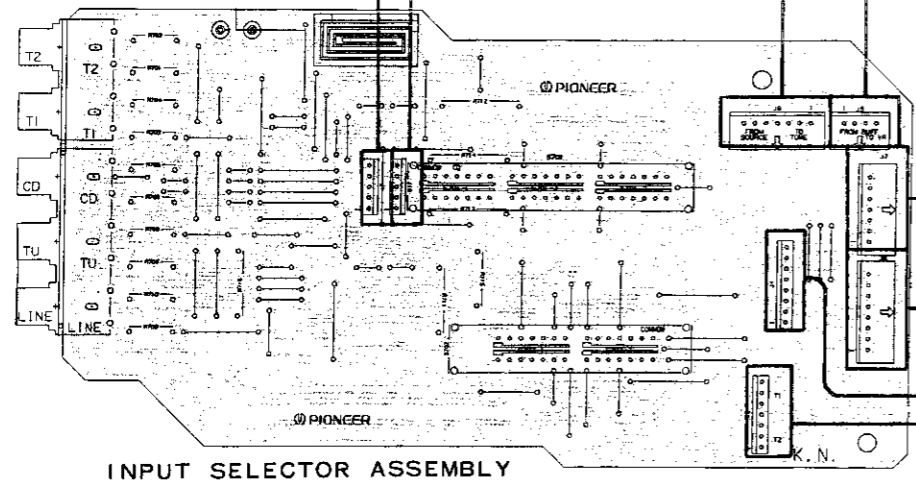
A



B

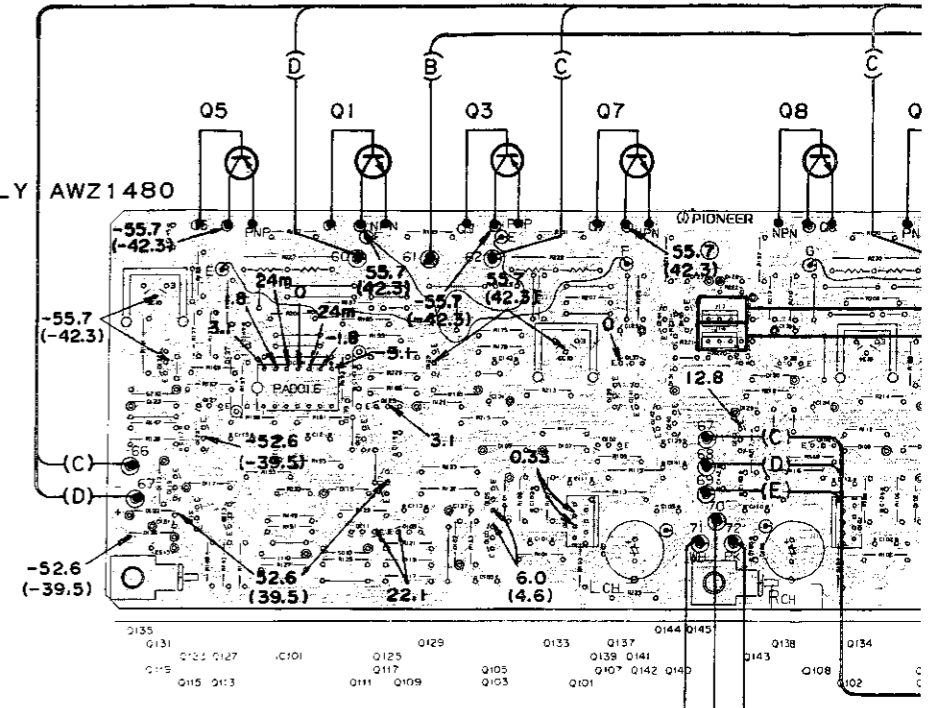


C

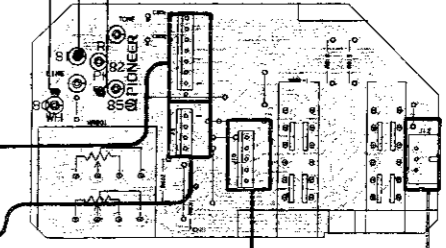


D

POWER AMP. ASSEMBLY AWZ1480

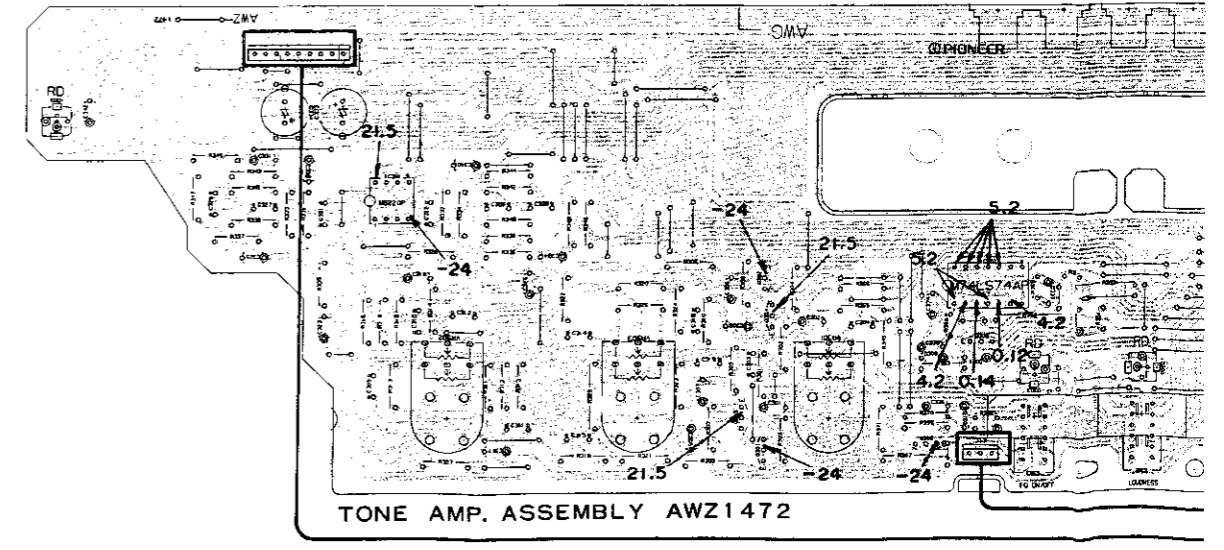


MAIN VOLUME ASSEMBLY



HEA

TONE AMP. ASSEMBLY AWZ1472



1

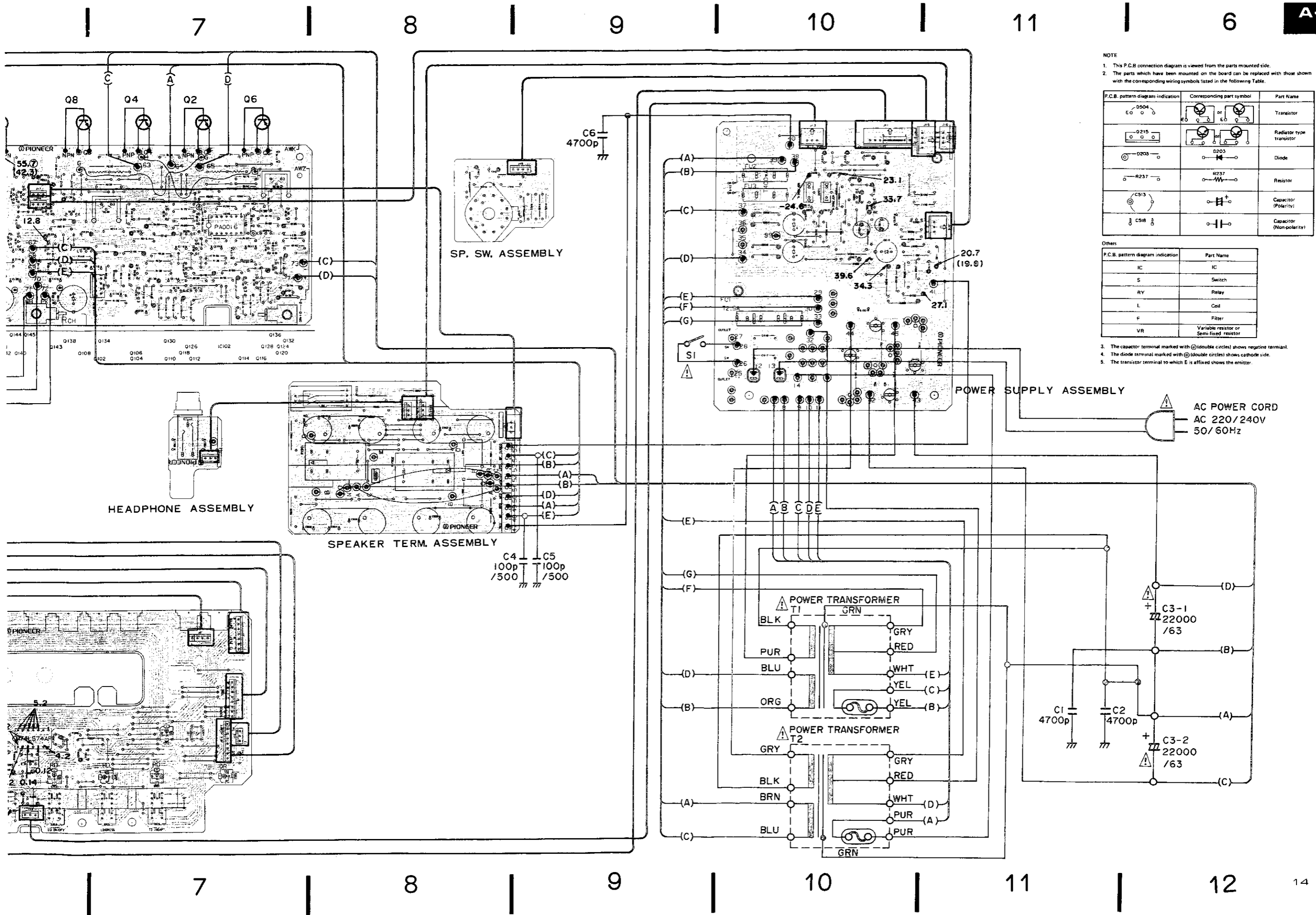
2

3

4

5

6



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
Q504 EO	EO Q	Transistor
Q215 O	O Q	Radiator type transistor
D203 O	O D	Diode
R237 O	O R	Resistor
C513 O	O C	Capacitor (Polarity)
C518 O	O C	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

- The capacitor terminal marked with ⊕ (double circles) shows negative terminal.
- The diode terminal marked with ⊕ (double circles) shows cathode side.
- The transistor terminal to which E is affixed shows the emitter.

A

B

C

D

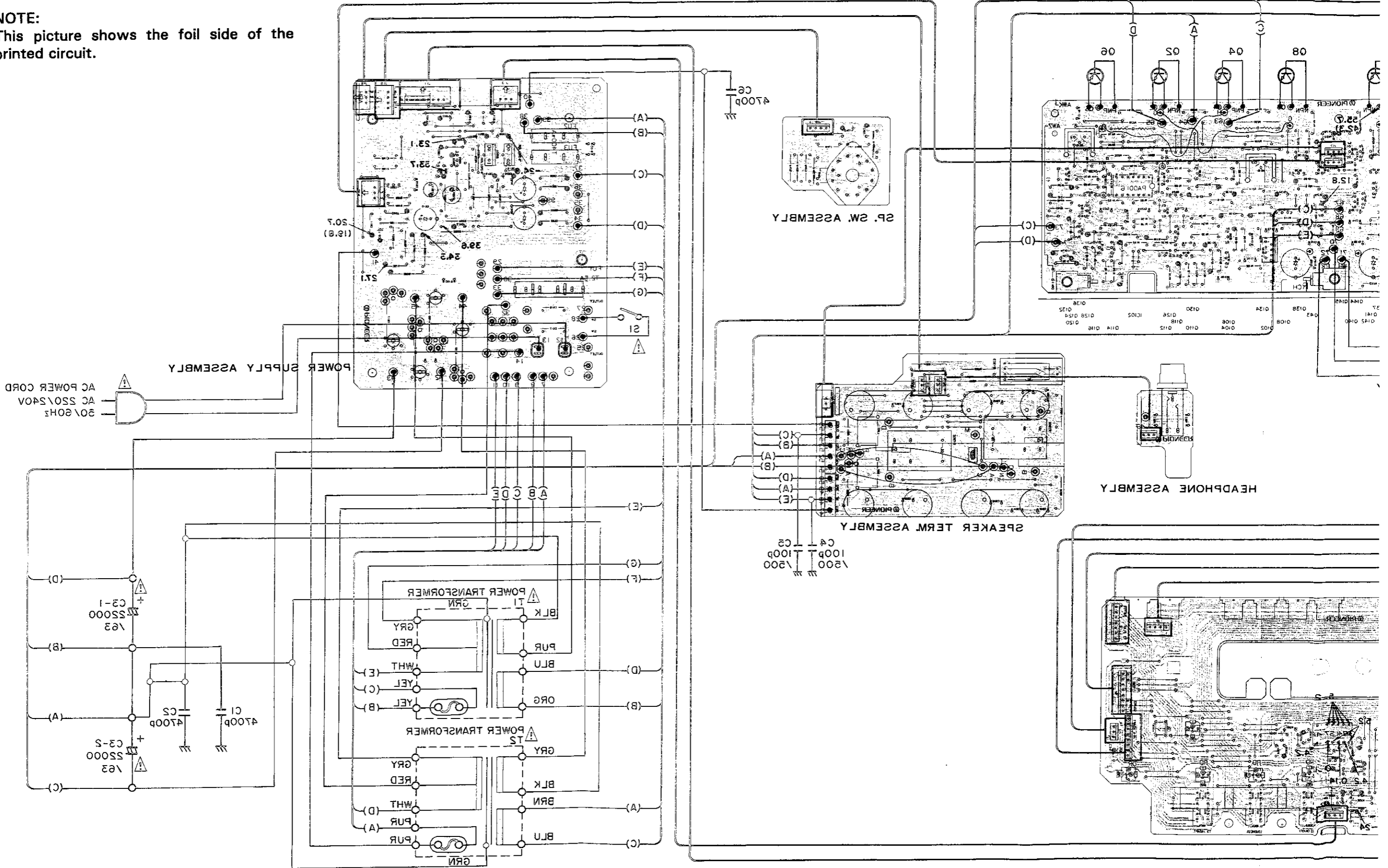
NOTE:
This picture shows the foil side of the
printed circuit.

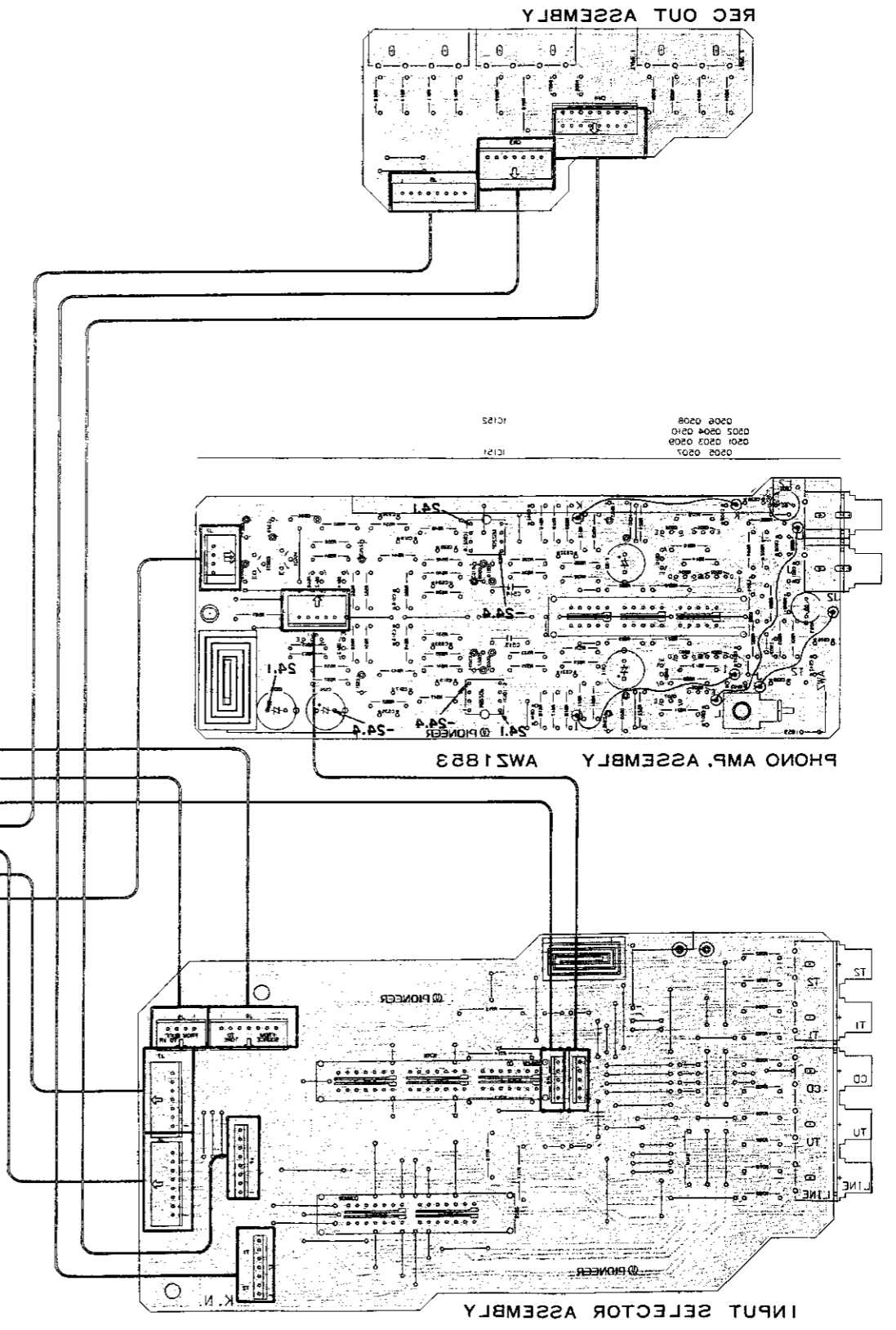
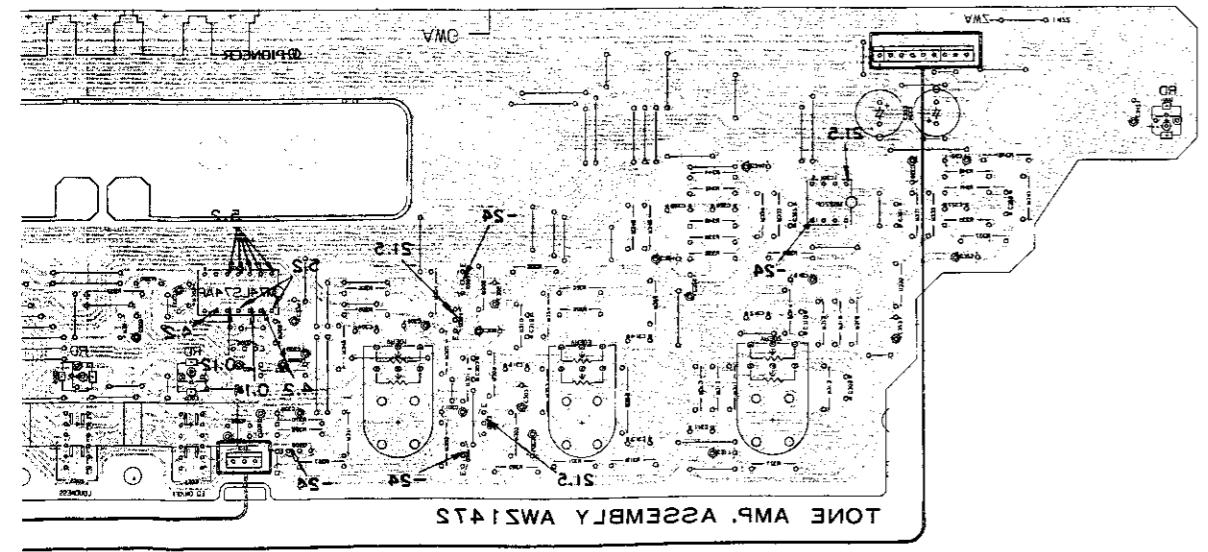
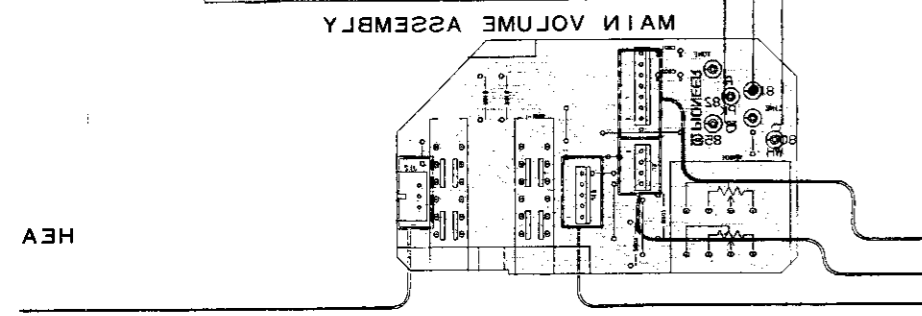
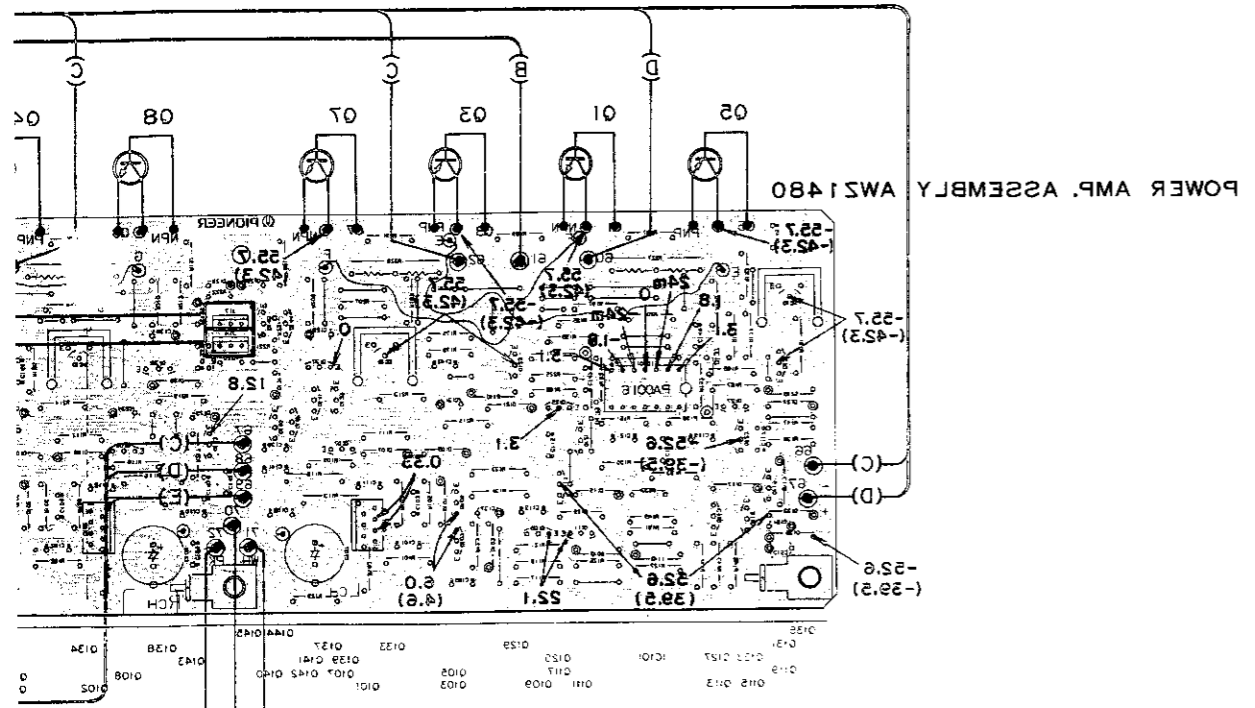
A

B

C

D





4. ELECTRICAL PARTS LIST

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 Δ 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 × 10¹ 561..... RD1/4PS ⊗ ⊗ J
 47kΩ 47 × 10³ 473..... RD1/4PS ⊗ ⊗ J
 0.5Ω 0R5..... RN2H ⊗ ⊗ K
 1Ω 010..... RS1P ⊗ ⊗ K

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

5.62kΩ 562 × 10¹ 562I..... RN1/4SR ⊗ ⊗ F

Miscellaneous Parts List

P.C. BOADE ASSEMBLIES

Mark	Symbol & Description	Part No.
	Tone AMP assembly	AWZ1472
	Power AMP assembly	AWZ1480
	PHONO AMP assembly	AWZ1853
	Input selector assembly	
	REC Out assembly	
	Speaker switch assembly	
	Main volume assembly	
	Power supply assembly	
	Speaker terminal assembly	
	Headphone assembly	

OTHERS

Mark	Symbol & Description	Part No.
⊗	Q3,Q4,Q5,Q6	2SA1265N
⊗	Q1,Q2,Q7,Q8	2SC3182N
⊗	C3 Electrolytic capacitor (22,000μF/63V × 2)	ACH1045
	C4,C5 Ceramic capacitor	CCDSL101K500
	C1,C2,C6 Ceramic capacitor	CKDYB472K50
⊗	T1 Power transformer (220V/240V)	ATS1087
⊗	T2 Power transformer (220V/240V)	ATS1088
⊗	S1 Push switch (POWER)	ASG-553
⊗	FU1 Fuse (T4A/250V)	AEK-400
⊗	FU2,FU3 Fuse (T400mA/250V)	AEK-407
⊗	AC power cord	ADG1019
	S3 Remote slide rotary switch (REC SELECTOR)	ASU1003
	S2 Remote slide rotary switch (INPUT SELECTOR)	ASU1005
	S4 Remote slide rotary switch (PHONO SELECTOR)	ASU1007

Tone AMP Assembly (AWZ1472)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	M5220P
	IC302	M74LS74AP
	Q301,Q302	2SA992
	Q303,Q304	2SC1845
	Q305,Q306	2SC2603
	D301,D303-D306 LED (POWER,TAPE3/ADPT LOUDNESS)	AEL1004
	D302 LED (DIRECT)	AEL1010
	D308	RD5.1ESB1
	D310	RD5.6ESB
	D307,D309,D311	1SS131

SWITCHES

Mark	Symbol & Description	Part No.
	S301,S302 Push switch (TAPE3,LOUDNESS)	ASG1019
	S304 Tact switch (MUTING)	ASG-711
	S303 Push switch (EQ-POWER)	ASG1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C303,C304	CCCSL470J50
	C321,C322	CCDSL390J50
	C325,C326,C338,C341,C342	CEAS010M50
	C337,C339,C340	CEAS100M25
	C317,C318,C331,C332	CEAS2R2M50
	C336	CEAS221M10
	C333,C334	CEAS221M25
	C323,C324,C335	CEAS470M10
	C301,C302,C305-C308	CExA2R2M50
	C329,C330	CFTXA104J50
	C309,C310	CFTXA153J50
	C315,C316	CFTXA183J50
	C311,C312,C327,C328	CFTXA823J50
	C313,C314	CQMA332K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301 Variable resistor (250KΩ × 2: BALANCE)	ACT1027
	VR302,VR303 Variable resistor (100KΩ × 2: BASS, TREBLE)	ACT1028
	R350,R351,R353,R356, R368-R371	RD1/8PM ⊗ ⊗ ⊗ J
	Other resistor	RD1/4PM ⊗ ⊗ ⊗ J

Power AMP Assembly (AWZ1480)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC101,IC102	PA0016
	Q143	2SA1115
	Q117,Q118,Q125,Q126,Q131, Q132	2SA1145
	Q135,Q136	2SA968
	Q113-Q116,Q123,Q124	2SA992
	Q103-Q112,Q121,Q122,Q137, Q138	2SC1845
	Q145	2SC2235
	Q133,Q134	2SC2238
	Q139,Q140-Q142,Q144	2SC2603
	Q119,Q120,Q127-Q130, Q101,Q102	2SC2705
		2SK389
	D131	RD12ESB
	D133-D136	RD3.9EB
	D127-D130	1SS131
	D137-D140	10E2FD
	D101-D126	11E2

CAPACITORS

Mark	Symbol & Description	Part No.
	C109-C112	CMA150J500
	C101,C102	CMA221J500
	C113,C114	CCDSL271J50
	C123,C124	CMA151J500
	C139-C142	CCDSL221J50
	C119-C122	CMA680J500
	C129,C130	CEANP010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131,C132,C137,C138	CEAS471M6
	C107,C108	CExA471M50
	C103,C104	CFTXA473J50
	C105,C106	CQMXA102J100
	C133	CKCYF103Z50
	C151-C154	CQMXA562J100

	C155	CCDSL151J50
	C147-C150	CKDYB102K50
	C115-C118,C143-C146	CMA101J500

RESISTORS

Mark	Symbol & Description	Part No.
⊗	R227-R230 (0.33Ω × 2.5W)	ACN-139
⊗	R107-R110,R131-R134	RD1/2PM ⊗ ⊗ ⊗ J
⊗	R147,R148,R151,R152,R165-R168,R171-R178,R183-R194, R207-R210,R217	RD1/4PM ⊗ ⊗ ⊗ J
	R113-R116	RDR1/2PM ⊗ ⊗ ⊗
	R101-R104	RDR1/4PM ⊗ ⊗ ⊗
⊗	R125-R128,R139-R142, R149,R150,R153-R156, R179-R182,R195-R202	RFA1/4PS101J
	R138,R218,R220-R222,R231, R233	RD1/8PM ⊗ ⊗ ⊗ J
	Other resistors	RD1/4PM ⊗ ⊗ ⊗ J

Phono AMP Assembly (AWZ1853)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC501,IC502	M5220P
	IC503	M5F78M24L
	IC504	M5F79M24L
	Q505-Q510	2SC1845
	Q501-Q504	2SK369
	Q511-Q514	2SC3327
	D503,D504	11E2
	D505,D506	1SS131
	D507-D510	MA859

SWITCH

Mark	Symbol & Description	Part No.
	S501 Remote slide switch (PHONO SELECTOR)	ASU1008

COILS

Mark	Symbol & Description	Part No.
	L501,L502 Inductor (560 μ H)	ATH1024
	L503,L504 Inductor (3.3 μ H)	LAU3R3K

CAPACITORS

Mark	Symbol & Description	Part No.
	C541,C542	CCDSL220J50
	C535,C536	CCDSL221J50
	C505,C506,C531,C532	CCDSL271J50
	C545,C546	CEAS470M10
	C521,C522	CEXA220M25
	C527,C528	CEXA220M50
	C511,C512,C526	CEXA221M25
	C509,C510	CEXA470M25
	C525	CEXA471M25
	C519,C520	CFTXA563J50

	C515,C516	CQPXA333J2A
	C517,C518	CFTXA224J50
	C507,C508	CQSA821J50
	C533,C534	CKCYB331K50
	C537-C540	CKCYF103Z50
	C513,C514	CQPXA224J2A

RESISTORS

Mark	Symbol & Description	Part No.
	R501-R504,R507,R508, R527-R544	RDR1/4PM□□□J
	R505,R506,R563-R566, R568,R569	RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED)	AKB1027
	1P pin jack (PHONO: WHITE)	AKB1028

Input Selector Assembly SWITCH

Mark	Symbol & Description	Part No.
	S702 Remote slide switch (REC SELECTOR)	ASU1002
	S701 Remote slide switch (FUNCTION SELECTOR)	ASU1006

RESISTORS

Mark	Symbol & Description	Part No.
	R701-R704,R707-R710, R713-R716	RD1/4PM□□□J
	R705,R706,R711,R712	RDR1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1,TAPE2 PLAY)	AKB1007
	6P pin jack (CD,TUNER,LINE IN)	AKB1029

REC Out Assembly

RESISTORS

Mark	Symbol & Description	Part No.
	R803-R806,R809-R814 R807,R808	RD1/4PM□□□J RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1 REC,TAPE2 REC,TAPE3 REC,TAPE3 PLAY)	AKB1009

Speaker Switch Assembly SWITCH

Mark	Symbol & Description	Part No.
	S401 Rotary switch (SPEAKER A,B)	ASD1002

CAPACITORS

Mark	Symbol & Description	Part No.
	C401,C402	CEAS3R3M50

RESISTORS

Mark	Symbol & Description	Part No.
	R401,R402 R407,R408 R403-R406	RD1/2PM151J RD1/4PMF561J RD1/4PM□□□J

Main Volume Assembly SWITCH

Mark	Symbol & Description	Part No.
	S801 Push switch (LINE DIRECT)	ASG1018

CAPACITORS

Mark	Symbol & Description	Part No.
	C801,C802	CKCYB391K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR801 Variable resistors (60K Ω \times 2: VOLUME)	ACW1003
	R815,R816 R801,R802	RD1/4PM221J RDR1/4PM272J

Power Supply Assembly SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC601 IC602	M5F78M24L M5F79M24L
	Q603 Q602 Q601	2SA1145 2SA992 2SC2705
	D617 D607 D603-D606,D608,D616 D601,D602,D609-D611 D612-D615	RD30ESB2 RD5.1EB S5566 1SS131 3ODF2FC-2

COILS

Mark	Symbol & Description	Part No.
	L601-L604 Inductor (10mH)	LTA103J

CAPACITORS

Mark	Symbol & Description	Part No.
	C617,C618 (0.01 μ F/AC400V)	ACG1003
	C615,C616 (0.01 μ F/AC150V)	ACG1005
	C607,C608	CEAS010M50
	C619,C620	CEAS100M50
	C610	CEAS101M50
	C604	CEHAQ101M50
	C611	CEAS3R3M50
	C605,C606	CEXA471M50
	C609	CKCYB471K50
	C601-C603	CEAS470M50

RESISTORS

Mark	Symbol & Description	Part No.
	R605,R606,R619,R620	RD1/4PMFL220J
	R608	RS1LMF102J
	R611	RS1PMF103J
	R601,R602	RS1PMF391J
	R603,R604	RS2LMF182J
	Other resistors	RD1/4PM□□□J

Speaker Terminal Assembly RELAYS

Mark	Symbol & Description	Part No.
	RY901,RY902 Relay(SPEAKER PROTEC TION)	ASR-106
	RY903 Relay (HEADPHONE PROTEC TION)	ASR1014

COILS

Mark	Symbol & Description	Part No.
	L901,L902 Inductor (2.7 μ H)	ATH1021

CAPACITORS

Mark	Symbol & Description	Part No.
	C901-C904 C905-C908	CFTXA104J50 CQMXA472J100

RESISTORS

Mark	Symbol & Description	Part No.
	R901,R902	RS1LMF101J
	R905,R906	RS1PMF681J
	R907,R908	RS2LMF100J
	R903,R904	RS2LMF331J

OTHERS

Mark	Symbol & Description	Part No.
	Speaker Terminal (4P)	AKE1006

Headphone Assembly CAPACITORS

Mark	Symbol & Description	Part No.
	C951,C952	CQMA392K50

OTHERS

Mark	Symbol & Description	Part No.
	Headphone jack (PHONOS)	AKN1002

5. FOR HE, HB, SD/G AND KUC TYPES

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.

The A-717/HE, HB, SD/G and KUC types are the same as the A-717/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				
		A-717/HEZ type	A-717/HE type	A-717/HB type	A-717/SD/G type	A-717/KUC type
	Power AMP assembly	AWZ1480	AWZ1487*	AWZ1487*	AWZ1670*	AWZ1670*
	PHONO AMP assembly	AWZ1853	AWZ1488	AWZ1488	AWZ1695	AWZ1695
	Main Volume assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	REC out assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Input Selector assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Head Phone assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Power Supply assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Speaker terminal assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	AC Power Cord	ADG1019	ADG1019	ADG-051	ADG1016	ADG-077
	Fu1 Fuse (T4A/250)	AEK-400	AEK-400	.....	.....	AEK1002
	Fu1 Fuse (8A)	.....	.....	.....	.....	.....
	Fu4 Fuse (T4A/250)	.....	.....	AEK-514	.....	.....
	Fu1, Fu4 Fuse (4A)	.....	.....	.....	AEK-125	.....
	Fu2, Fu3 Fuse (T400mA/250V)	AEK-407	AEK-407	AEK-504	.....	.....
	Fu2, Fu3 Fuse (500mA)	.....	.....	.....	AEK-136	AEK-136
	Strain relief	AEC-882	AEC-882	AEC-882	AEC-882	AEP-113
	AC socket (OUTLETS 3P)	.....	.....	.....	AKP-515	AKP-515
	S2 Linevoltage Selector (110V/120-127V/220V/240V)	.....	.....	.....	AKX-507	.....
	Packing case	AHD1240	AHD1240	AHD1240	AHD1307	AHD1240
	Operating instructions (German)	ARC1047	.....	.....	.....	.....
	Operating instructions (Spanish)	.....	.....	.....	ARC1065	.....
	Operating instructions (English)	.....	.....	ARB1090	ARB1090	ARB1091
	Operating instructions (English/German/French/Italian)	.....	ARE1064	.....	.....	.....
	T1 Power transformer (220/240V)	ATS1087	ATS1087	ATS1087	.....	.....
	T1 Power transformer (120V)	.....	.....	.....	.....	ATS1107
	T1 Power transformer (110V/120-127V/220V/240V)	.....	.....	.....	ATS1089	.....
	T2 Power transformer (220/240V)	ATS1088	ATS1088	ATS1088	.....	.....
	T2 Power transformer (110V/120-127V/220V/240V)	.....	.....	.....	ATS1090	.....
	T2 Power transformer (120V)	.....	.....	.....	.....	ATS1108
	C4, C5 Ceramic capacitor	CCDSL101K500	.....	.....	.....	.....
	C1, C2, C6 Ceramic capacitor	CKDTB472K50	.....	.....	.....	.....
	Spacer (For packing)	.....	.....	.....	AHB1006	.....
	Screw	ABA1047	ABA-298	ABA-298	ABA-298	ABA-298

The assembly marked with an asterisk (*) consist of parts of different numbers but are configured in the same manner.

2. ELECTRICAL PARTS LIST

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 Δ 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 × 10¹ 561..... RD1/4PS □ □ J
 47kΩ 47 × 10³ 473..... RD1/4PS □ □ J
 0.5Ω 0R5..... RN2H □ □ K
 1Ω 010..... RS1P □ □ K

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

5.62kΩ 562 × 10¹ 5621..... RN1/4SR □ □ □ F

Power AMP Assembly AWZ1487

(For HE and HB types),

AWZ1670 (For SD/G and KUC types)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC101, IC102	PA0016
	Q143	2SA1115
	Q117, Q118, Q131, Q132, Q125, Q126	2SA1145
	Q135, Q136	2SA968
	Q113-Q116, Q123, Q124	2SA992
	Q103-Q112, Q137, Q138, Q121, Q122	2SC1845
	Q145	2SC2235
	Q133, Q134	2SC2238
	Q139-Q142, Q144	2SC2603
	Q119, Q120, Q127-Q130	2SC2705
	Q101, Q102	2SK389
	D131	RD12ESB
	D133-D136	RD3.9EB
	D127-D130	1SS131
	D137-D140	10E2FD
	D101-D126	11E2

CAPACITORS

Mark	Symbol & Description	Part No.
	C109-C112	CMA150J500
	C101, C102	CMA221J500
	C113, C114	CKCYB561K50
	C123, C124	CMA151J500
	C119-C122	CMA680J500
	C129, C130	CEANP010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131, C137, C138, C132	CEAS471M6

Mark	Symbol & Description	Part No.
	C107, C108	CEXA471M50
	C103, C104	CFTXA473J50
	C105, C106	CQMXA102J100
	C133	CKCYF103Z50

RESISTORS

Mark	Symbol & Description	Part No.
	C143-C146	CMA470J500
	C147-C150	CKDYB102K50
	C115-C118	CMA101J500
	C151-C154	CEAS010M100
	R227-R230 (0.33Ω × 2/5W)	ACN-139
	R107-R110, R131-R134	RD1/2PM □ □ □ J
	R147, R148, R151, R152, R165-R168, R171-R178, R183-R194, R207-R210, R217	RD1/4PMF □ □ □ J
	R113-R116	RDR1/2PM □ □ □ J
	R101-R104, R223	RDR1/4PM □ □ □ J
	R125-R128, R139-R142, R149, R150, R153-R156, R179-R182, R195-R202	RFA1/4PS □ □ □ J
	R138, R218, R220-R222, R231, R233	RD1/8PM □ □ □ J
	Other resistors	RD1/4PM □ □ □ J

**Phono AMP Assembly
AWZ1488 (For HE and HB types),
AWZ1695 (For SD/G and KUC types)
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC501, IC502	M5220P
	IC503	M5F78M24L
	IC504	M5F79M24L
	Q505 - Q510	2SC1845
	Q501 - Q504	2SK369
	Q511 - Q514	2SC3327
	D503, D504	11E2
	D505, D506	1SS131
	D507 - D510	MA859

SWITCH

Mark	Symbol & Description	Part No.
	S501 Remote slide switch (PHONO SELECTOR)	ASU1008

CAPACITORS

Mark	Symbol & Description	Part No.
	C535, C536	CCCSSL221J50
	C531, C532	CCCSSL271J50
	C505, C506	CCDSL221J50
	C521, C522	CEXA220M25
	C511, C512, C526	CEXA221M25

Mark	Symbol & Description	Part No.
	C509, C510	CEXA470M25
	C525	CEXA471M25
	C519, C520	CFTXA563J50

(For HE and HB types)
CFTXA224J50
(For SD/G and KUC types)

Mark	Symbol & Description	Part No.
	C515, C516	CQPXA333J2A
	C517, C518	CFTXA224J50

(For HE and HB types)
CFTXA684J50
(For SD/G and KUC types)

Mark	Symbol & Description	Part No.
	C507, C508	CQSA821J50
	C533, C534	CKCYB331K50
	C545, C546	CEAS470M10
	C527, C528	CEXA220M50

Mark	Symbol & Description	Part No.
	C529, C530	CFTXA103J50
	C537 - C540	CKCYF103Z50
	C513, C514	CQPXA224J2A

RESISTORS

Mark	Symbol & Description	Part No.
	R501 - R504, R507, R508, R527 - R544	RDR1/4PM□□□J
	R563 - R566, R568, R569	RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO:RED)	AKB1027
	1P pin jack (PHONO:WHITE)	AKB1028

**Input Selector Assembly
SWITCHES**

Mark	Symbol & Description	Part No.
	S702 Remote slide switch (REC SELECTOR)	ASU1002
	S701 Remote slide switch (FUNCTION SELECTOR)	ASU1006

RESISTORS

Mark	Symbol & Description	Part No.
	R707 - R710, R713 - R716 R711, R712	RD1/4PM□□□J RDR1/4PM221J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (DAT/TAPE1, TAPE2 PLAY)	AKB1007
	6P pin jack (CD, TUNER, LINE)	AKB1029

REC Out Assembly

CAPACITORS

Mark	Symbol & Description	Part No.
	C813, C814	CKMYB221K50

RESISTORS

Mark	Symbol & Description	Part No.
	R803 - R808, R811, R812	RD1/4PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (DAT/TAPE1 REC, TAPE2 REC, ADPT1/TAPE3 REC, ADPT1/TAPE3 PLAY)	AKB1009

Main Volume Assembly

SWITCH

Mark	Symbol & Description	Part No.
	S801 Push switch (DIRECT)	ASG1018

RESISTORS

Mark	Symbol & Description	Part No.
	VR801 Variable resistors (80kΩ × 2: VOLUME)	ACW1003
	R801, R802	RDR1/4PM272J

**Power Supply Assembly
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC601	M5F78M24L
	IC602	M5F79M24L
	Q603	2SA1145
	Q602	2SA992
	Q601	2SC2705

Mark	Symbol & Description	Part No.
	D617	RD30ESB2
	D607	RD5.1EB
	D603 - D606, D608, D616	S5566
	D609 - D611, D601, D602	1SS131
	D612 - D615	3ODF2FC - 2

COILS

Mark	Symbol & Description	Part No.
	L601 - L604 Inductor (10mH)	LTA103J

CAPACITORS

Mark	Symbol & Description	Part No.
△	C617, C618 (0.01μF/AC400V) (UL.CSA AC125V)	ACG1003
△	C615, C616 (0.01μF/AC150V)	ACG1005
	C607, C608	CEAS010M50
	C619, C620	CEAS100M50
	C610	CEAS101M50

Mark	Symbol & Description	Part No.
	C611	CEAS3R3M50
	C605, C606	CEXA471M50
	C609	CKCYB471K50
	C601 - C603	CEAS470M50
	C604	CEHAQ101M50

RESISTORS

Mark	Symbol & Description	Part No.
△	R605, R606, R619, R620	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
△	R601, R602	RS1PMF391J
△	R603, R604	RS2LMF182J
	Other resistors	RD1/4PM□□□J

Speaker Terminal Assembly

RELAYS

Mark	Symbol & Description	Part No.
	RY901, RY902 Relay (SPEAKER PROTECTION)	ASR - 106
	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

COILS

Mark	Symbol & Description	Part No.
	L901, L902 AF choke coil (0.7μH)	ATH1011

CAPACITORS

Mark	Symbol & Description	Part No.
	C901 - C904	CFTXA104J50

RESISTORS

Mark	Symbol & Description	Part No.
△	R901, R902	RS1LMF100J
△	R905, R906	RS1PMF681J
△	R907, R908	RS2LMF100J
△	R903, R904	RS2LMF331J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (SPEAKERS)	AKE1006

Headphone Assembly

OTHERS

Mark	Symbol & Description	Part No.
	Headphone jack (PHONES)	AKN1002

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Part No.

CEXA471M50
CFTXA473J50
CQMXA102J100
CKCYF103Z50

CMA470J500
CKDYB102K50
CMA101J500
CEAS010M100

Part No.

ACN - 139
RD1/2PM□□□J
RD1/4PMF□□□J

RDR1/2PM□□□J
RDR1/4PM□□□J
RFA1/4PS□□□J

RD1/8PM□□□J

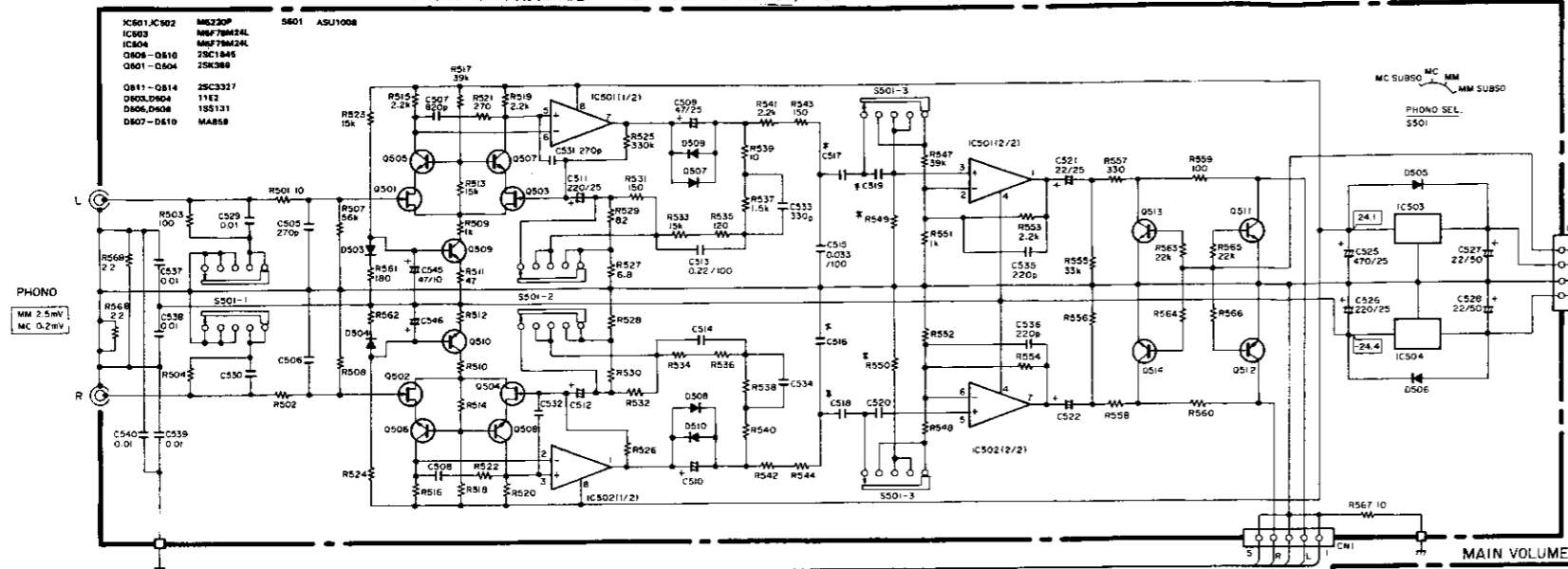
RD1/4PM□□□J

3. SCHEMATIC DIAGRAM

PHONO AMP. ASSEMBLY AWZ1488(For HE and HB), AWZ1695(For SD/G,KUC)

POWER AMP ASSEMBLY AWZ1487(For HE and HB), AWZ1670(For SD/G,KUC)

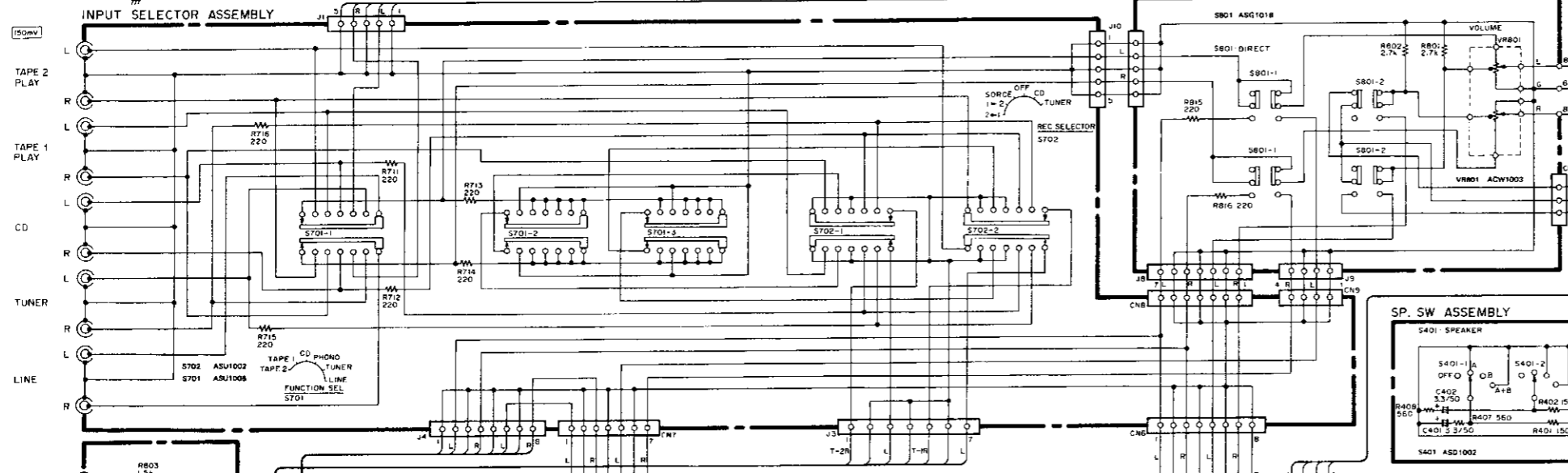
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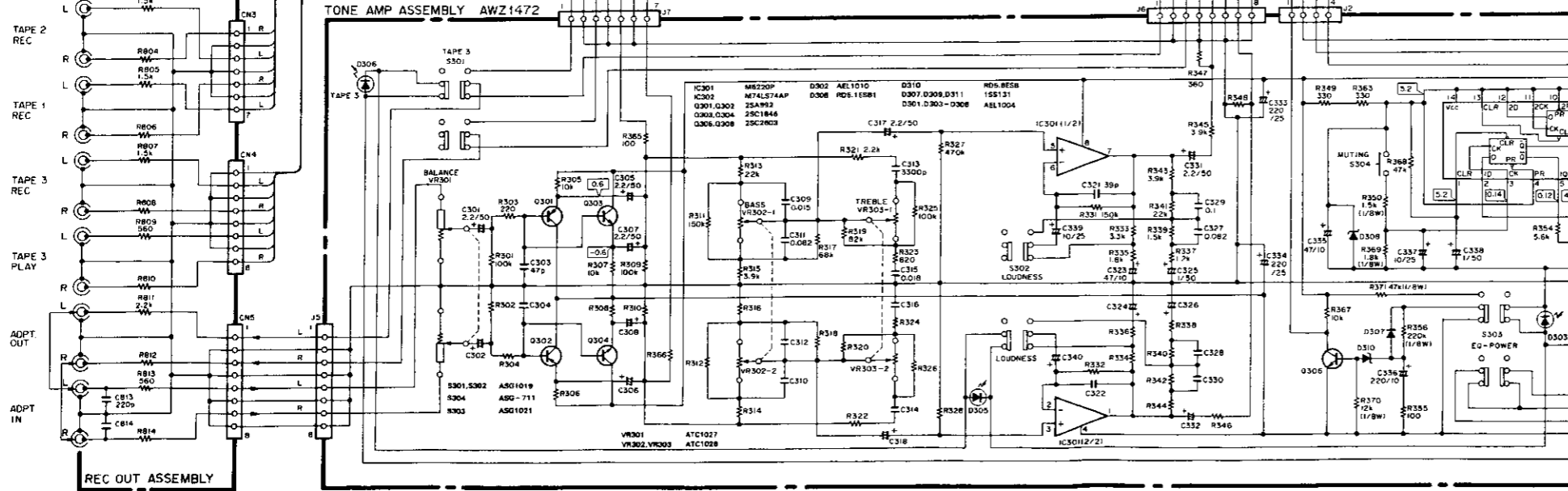
*NOTE:
The values C517,C518,C519,C520,R549 and R550, which are the symbols of wiring sections in the PHONO AMP ASSEMBLY, vary according to their intended purpose of use. Refer to the following table:

Parts No.	Types	SD/G and KUC Type	HE and HB Types
C517 and C518		0.68μF/ 50V	0.22μF/ 50V
C519 and C520		0.22μF/ 50V	0.056μF/ 50V
R549 and R550		100kΩ	180kΩ

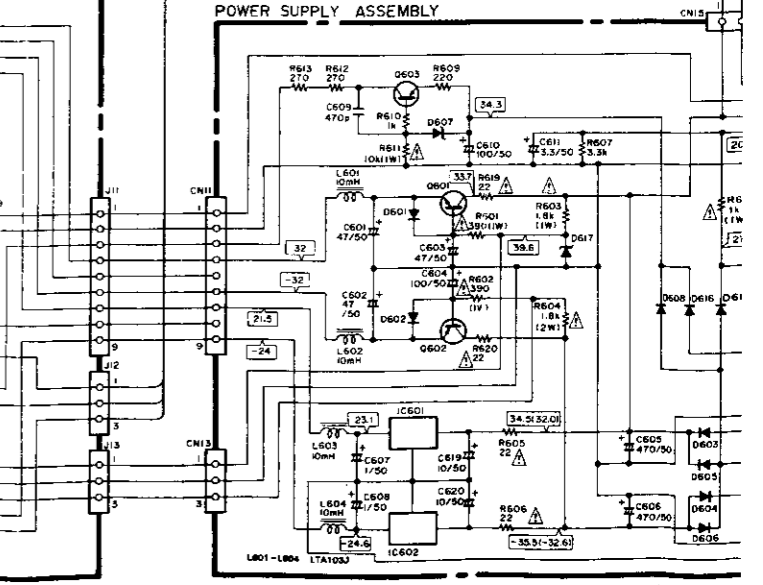
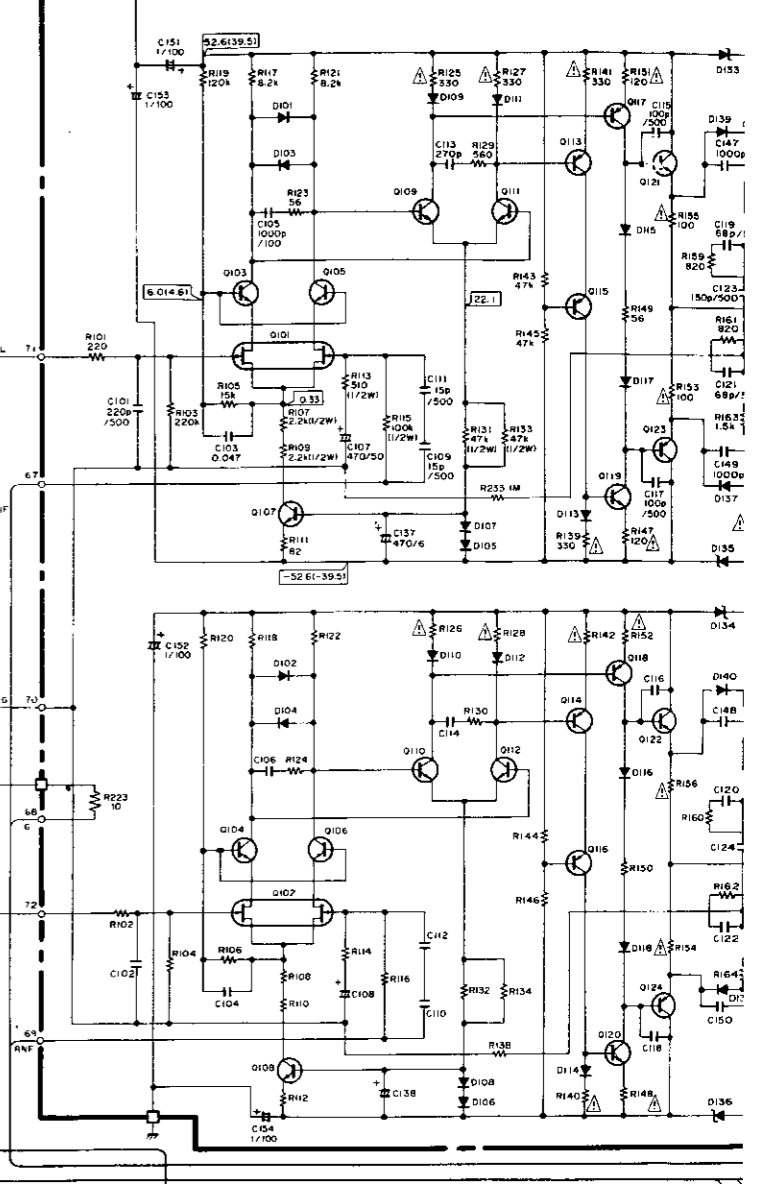
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C

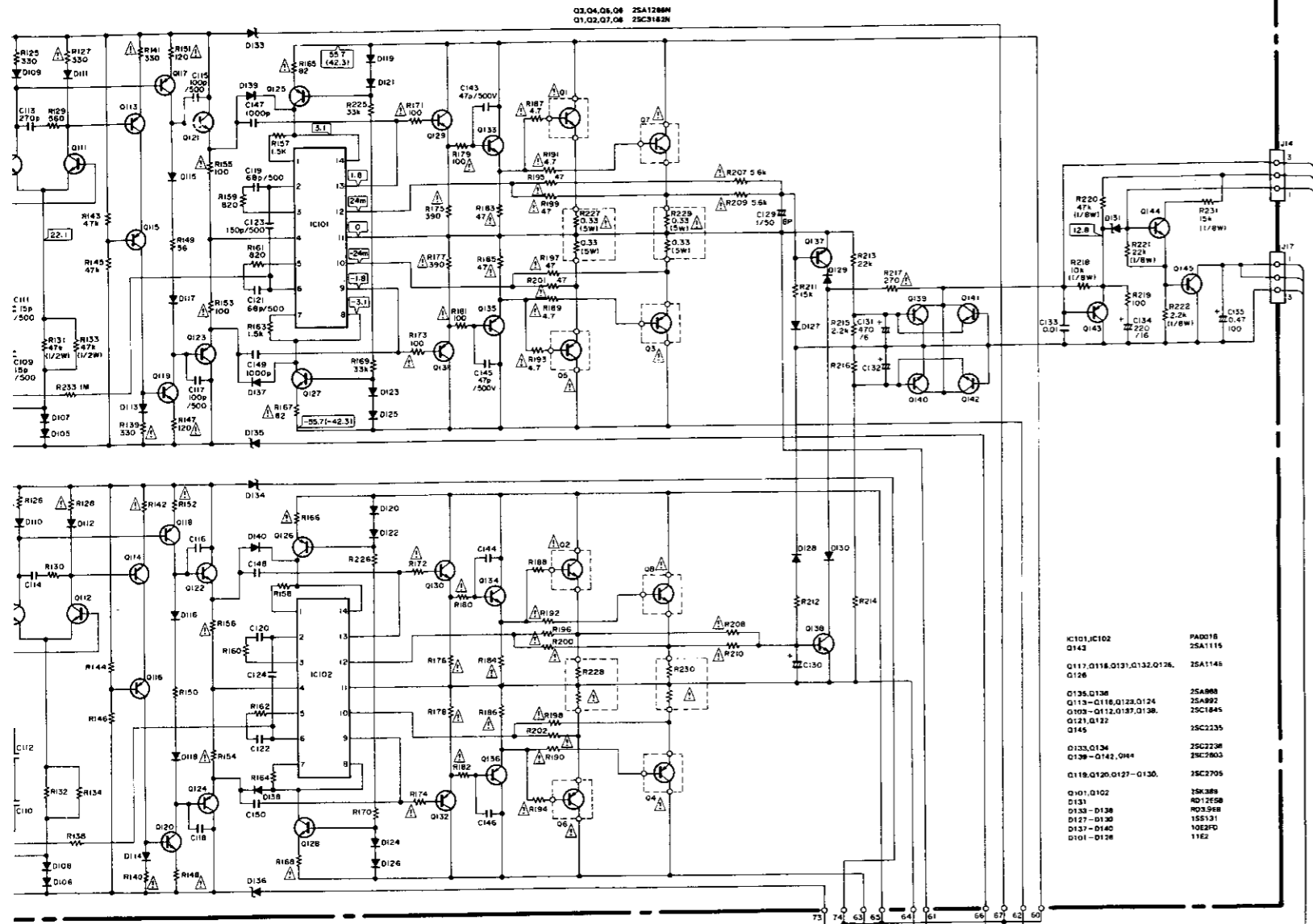


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IC301 M8220P
IC302 M8220P
D601 2SC2708
D602 2SA992
D603 2SA992
D604 2SC2708
D605 2SC2708
D606 2SA992
D607 2SA992
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D699 2SA992
D700 2SA992

(For HE and HB), AWZ1670 (For SD/G, KUC)

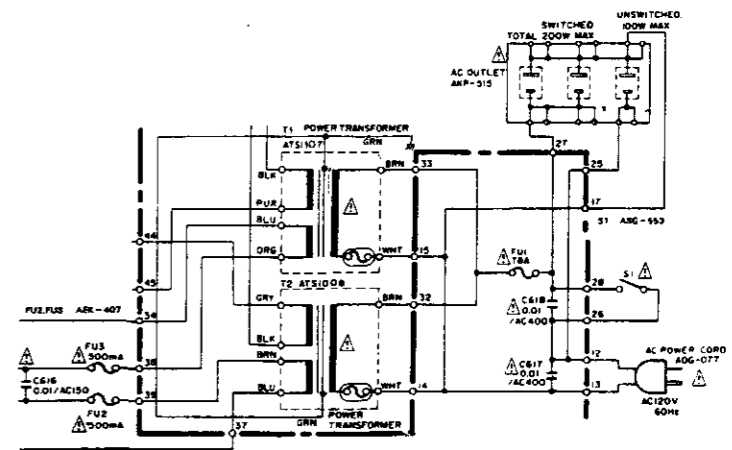


- 1 RESISTORS:
Indicated in Ω, kΩ, MΩ, 5% tolerance unless otherwise noted; k, M, M, MΩ, 1%, 1%, 1%, 1%, 1%, 10%, 10%, 10%, 10% tolerance
 - 2 CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted; p, pF
Indication without voltage is 50V except electrolytic capacitor
 - 3 VOLTAGE, CURRENT:
□ Signal voltage at (130W/430W/4Ω) out (1kHz)
□ DC voltage (V) at no input signal
Value in 1/3 DC-voltage at rated power
◁ mA DC current at no input signal
 - 4 OTHERS:
→ Signal route
The Δ 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.
 - 5 SWITCHES
- TONE AMP ASSEMBLY
S301: TAP E (ON-OFF)
S302: LOUDNESS (ON-OFF)
S303: EQ POWER (ON-OFF)
S304: MUTING (ON-OFF)
- SPEAKER SWITCH ASSEMBLY
S401: SPEAKERS A, B (OFF-A-B-A-B)
- PHONO AMP ASSEMBLY
S501: PHONO SEL. (MC-MM-JB)
- INPUT SELECTOR ASSEMBLY
S701: FUNCTION SEL. (TA2-TA1-CD-PHONO-TUNER-LINE)
S702: REC. SEL. (2-1-2-SOURCE-OFF-CD-TUNER)
- MAIN VOLUME ASSEMBLY
S801: DIRECT (ON-OFF)
S1: POWER (ON-OFF)
- The underlined indication the switch position

⊗ Fuses enclosed in: □
Fu 1 and Fu 4 are not used simultaneously but alternately depending on the line voltage applied in the particular zone where the system is used as shown in the following chart:

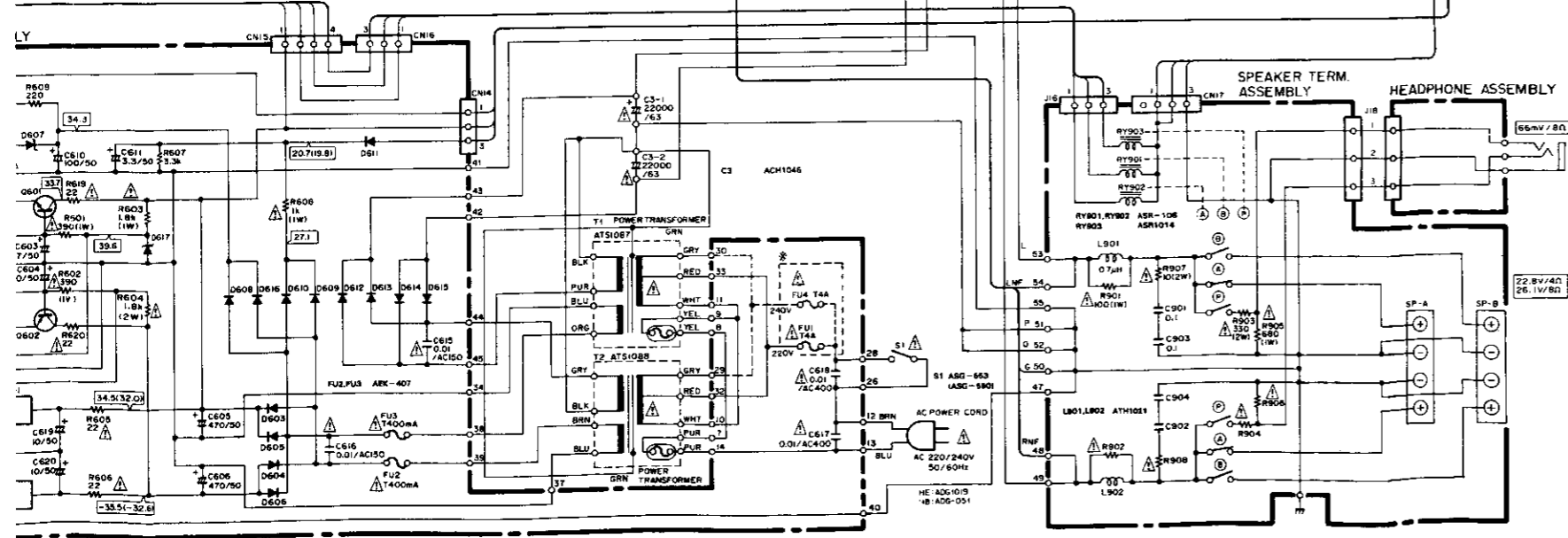
Line voltage	Fu 1	Fu 4
220V	Used	Not used
240V	Not used	Used

FOR KUC TYPE

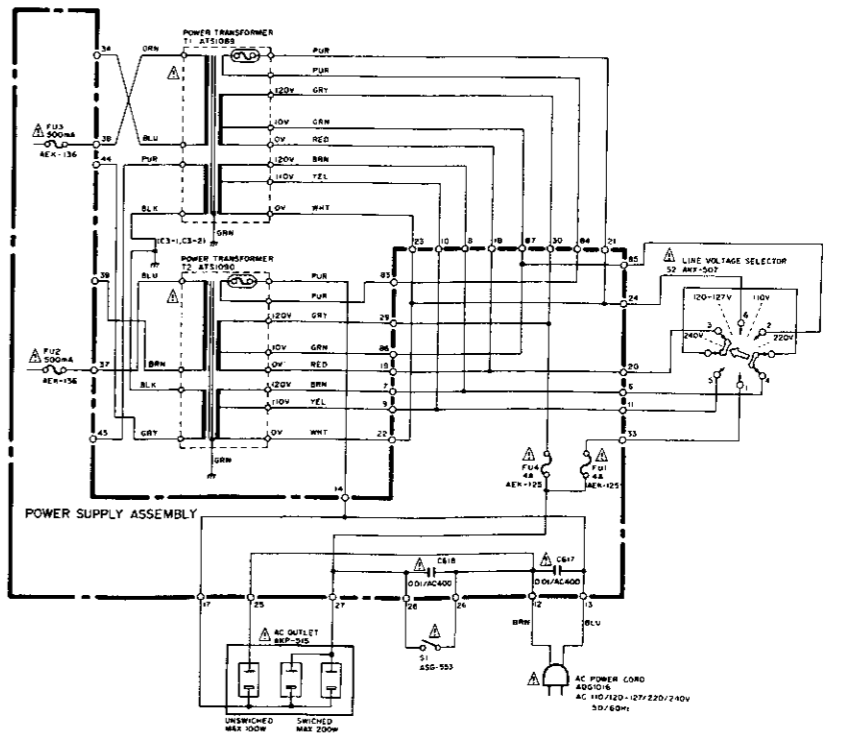


A

B



FOR SD/G TYPE

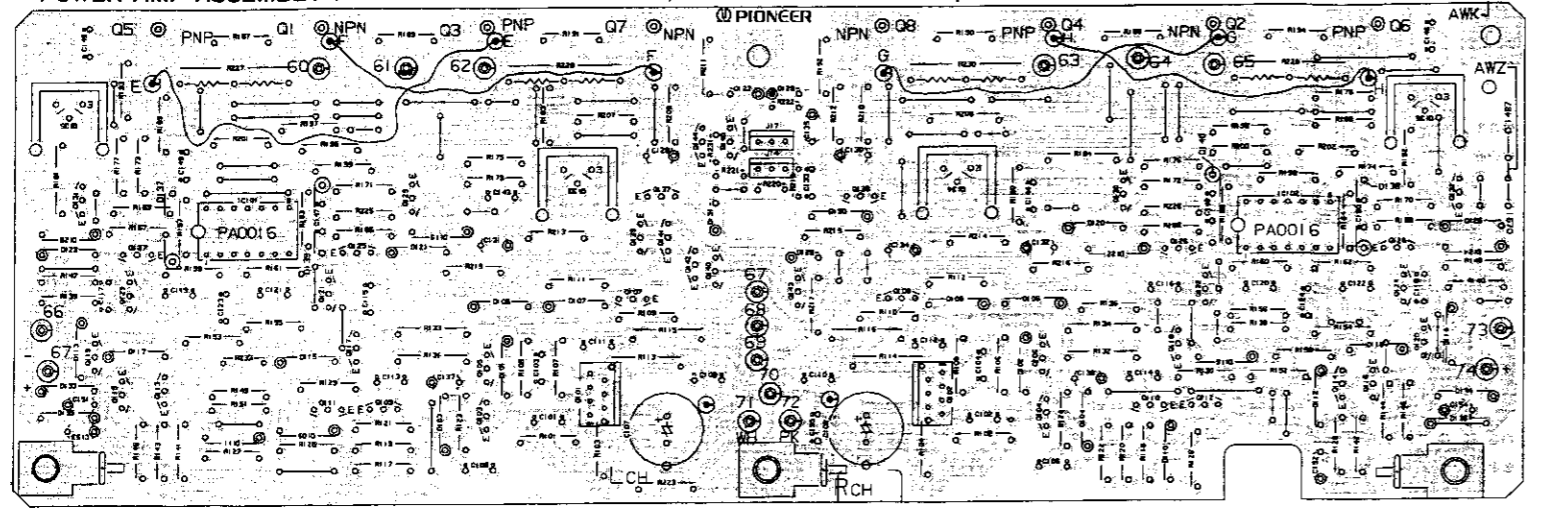


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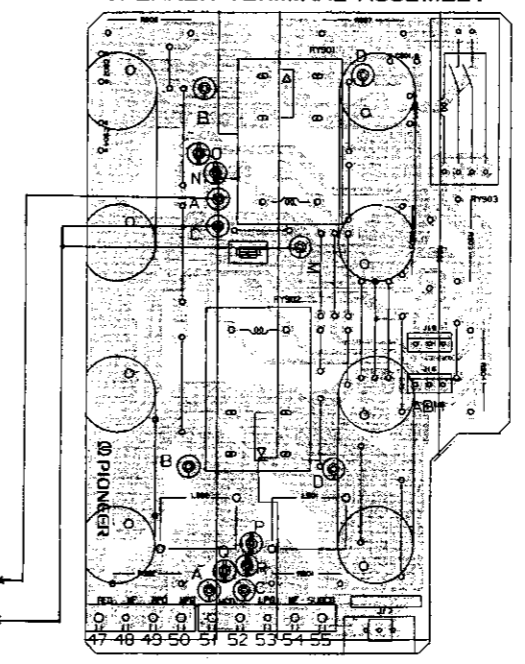
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4. P.C. BOARD PATTERNS

POWER AMP ASSEMBLY (AWZ1487 FOR HE AND HB, AWZ1670 FOR SD / G, KUC)



SPEAKER TERMINAL ASSEMBLY



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
Q504	Q504	Transistor
Q215	Q215	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	C513	Capacitor (Polarity)
C518	C518	Capacitor (Non-polarity)

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.

