

43

1992

ADDITIONAL



# Service Manual

ORDER NO.  
ARP1569

STEREO AMPLIFIER

# A-616 MARK II

# A-616 MARK II-S

HEZ  
HEZ

- Refer to the service manual ARP1405, A-616/HEZ, A-616-S/HEZ TYPES.

**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O. Box 1760, Long Beach, California 90801 U.S.A.  
**PIONEER ELECTRONICS OF CANADA, INC.** 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada  
**PIONEER ELECTRONIC [EUROPE] N.V.** Keetberglaan 1, 2740 Beveren, Belgium  
**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

1992

# 1. 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 ★★ and ★.

★★ **GENERALLY MOVES FASTER THAN ★**

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 <sup>1</sup>	561.....	RD1/4PS	⊕	⊕	⊕	J
47kΩ	47 × 10 <sup>3</sup>	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 × 10 <sup>1</sup>	5621.....	RN1/4SR	⊕	⊕	⊕	F
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**Miscellaneous Parts List**

**P.C. BOARD ASSEMBLIES**

Mark	Symbol & Description	Part No.
	Tone AMP assembly	AWZ1461
	Power AMP assembly	AWZ1463
	PHONO AMP assembly	AWZ1464
	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	2SA1302
△ ★★	Q1, Q2	2SC3281
△	C3 Electrolytic capacitor (12000μF/56V x 2)	ACH1043
	C5, C6 Ceramic capacitor	CCDSL101K500
	C1 Ceramic capacitor	CKDYB472K50
△ ★	T1 Power transformer	ATS1083
△ ★★	S1 Push switch (POWER)	ASG-552 (ASG-550)
△ ★★	FU1 Fuse (T2.5A/250V)	AEK-403
△ ★★	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 (AWZ1461)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC301	M5220P
★★	Q301, Q302	2SA992
★★	Q303, Q304	2SC1845
★	D301, D305, D306 LED (POWER, TAPE3/ADPT LOUDNESS)	AEL1004
★	D302 LED (LINE DIRECT)	AEL1010

**SWITCHES**

Mark	Symbol & Description	Part No.
★★	S301, S302 Push switch (TAPE3, LOUDNESS)	ASG1019

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C303, C304	CCCSL470J50 (CCDSL470J50)
	C321, C322	CCDSL390J50
	C325, C326	CEAS010M50
	C339, C340	CEAS100M25
	C301, C302, C305-C308, C317, C318, C331, C332	CEAS2R2M50
	C333, C334	CEAS221M25
	C323, C324	CEAS470M10
	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 (250KΩx2: BALANCE)	ACT1027
★★	VR302, VR303 Variable resistor (100KΩx2: BASS, TREBLE)	ACT1028
	Other resistors	RD1/4PM□□□J

**Power AMP Assembly (AWZ1463)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC101, IC102	PA0016
★★	Q143	2SA1048 (2SA1115)
★★	Q117, Q118, Q131, Q132	2SA1145
★★	Q135A, Q136A	2SA968
★★	Q113—Q116	2SA992
★★	Q103—Q112, Q137, Q138	2SC1845
★★	Q145	2SC2235
★★	Q133B, Q134B	2SC2238
★★	Q139, Q141, Q144	2SC2458 (2SC2603)
★★	Q119, Q120, Q129, Q130	2SC2705
★★	Q101, Q102	2SK389NK
★	D131	RD12ESB
★	D101—D114, D127—D130	1SS131

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C109—C112	CQSA150J50
	C101, C102	CCCSL221J50 (CCDSL221J50)
	C113, C114	CCCSL271J50 (CCDSL271J50)
	C125—C128 C123, C124, C155	CCDSL101K500 CCDSL151J50
	C139—C142 C119—C122 C129, C130 C135 C134	CCDSL221J50 CCDSL680J50 CEANP010M50 CEASR47M100 CEAS221M16
	C131, C137, C138 C107, C108 C103, C104 C105, C106	CEAS471M6 CEYA471M50 CFTXA473J50 CKCYB122K50 (CKDYB122K50)
	C133	CKCYF103Z50 (CKDYF103Z50)
	C151—C154	CQMXA562J100

**RESISTORS**

Mark	Symbol & Description	Part No.
⚠	R203, R204 Wire wound resistor (0.22Ωx2: 5W)	ACN-146
	R113—R116 R107—R110, R131—R134	RDR1/4PM□□□J RD1/2PM□□□J
⚠	R171—R182, R187—R190, R207, R208, R217	RD1/4PMF□□□J
	R218, R220—R222, R231	RD1/8PM□□□J
⚠	R125—R128, R139—R142, R147, R148, R151, R152, R183—R186, R195—R198	RFA1/4PS□□□J
	Other resistors	RD1/4PM□□□J

**Phono AMP Assembly (AWZ1464)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC501, IC502	M5220P
★★	Q505—Q510	2SC1845
★★	Q501—Q504	2SK369
★	D503, D504	1SS131

**SWITCH**

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

**COILS**

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

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C541, C542	CCDSL220J50
	C535, C536	CCDSL221J50
	C505, C506, C531, C532	CCDSL271J50
	C521, C522	CEXA220M25
	C511, C512	CEXA221M25
	C509, C510	CEXA470M25
	C525, C526	CEXA471M25
	C513, C514, C517, C518	CFTXA224J50
	C515, C516	CFTXA333J50
	C519, C520	CFTXA563J50
	C507, C508	CKCYB821K50 (CKDYB821K50)
	C533, C534	CKDYB331K50
	C537—C540, C543	CKDYF103Z50
	C545, C546	CEAS470M10

## RESISTORS

Mark	Symbol & Description	Part No.
	R527—R530, R533, R534, R537, R538, R541, R542	RDR1/4PM □□□J
	R505, R506, R568	RD1/8PM □□□J
	Other resistors	RD1/4PM □□□J

## OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED)	AKB1025
	1P pin jack (PHONO: WHITE)	AKB1026

## 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.
	R701—R716	RD1/4PM □□□J

## OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1, TAPE2 PLAY)	AKB1007
	6P pin jack (CD, TUNER, LINE IN)	AKB1008

## REC Out Assembly

### CAPACITORS

Mark	Symbol & Description	Part No.
	C807, C808	CCDSL181J50
	C809, C810	CKDYB391K50

## RESISTORS

Mark	Symbol & Description	Part No.
	R803—R810	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	CEAS3R3M50

## RESISTORS

Mark	Symbol & Description	Part No.
	R401, R402	RD1/2PM331J
	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	CKDYB391K50

## RESISTORS

Mark	Symbol & Description	Part No.
★★	VR801 Variable resistor (60KΩx2: VOLUME)	ACW-136
	Other resistors	RD1/4PM □□□J

## Power Supply Assembly

### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC601	M5F78M24L
★★	IC602	M5F79M24L
★★	Q603	2SA1145
★	D607	RD5.1EB (HZ5.1EB)
★	D603—D606, D608, C616	S5566 (11E2)
★	D609—D611	1SS131
★	D612—D615	30D2FC-2

**COILS**

Mark	Symbol & Description	Part No.
	L603, L604 Inductor (10mH)	LTA103J

**CAPACITORS**

Mark	Symbol & Description	Part No.
△	C617, C618 (0.01 μF/AC400V)	ACG1003
	C615, C616 (0.01 μF/AC150V)	ACG1005
	C607, C608	CEAS010M50
	C619, C620	CEAS100M50
	C610	CEAS101M50
	C611	CEAS3R3M50
	C605, C606	CEAS471M50
	C609	CKCYB471K50 (CKDYB471K50)

**RESISTORS**

Mark	Symbol & Description	Part No.
△	R605, R606	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
	Other resistors	RD1/4PM□□□J

**Speaker Terminal Assembly**

**RELAIRES**

Mark	Symbol & Description	Part No.
★★	RY901, RY902 Relay (SPEAKER PROTECTION)	ASR-112
★★	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

**COILS**

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

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C901—C904	CFTXA104J50
	C905—C908	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.
	4P Speaker Terminal	AKE1006

**Headphone Assembly**

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C951, C952	CQMA392K50

**OTHERS**

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

**2. PACKING**

**PARTS LIST OF PACKING**

Mark	No.	Parts No.	Description
	1	AHA1070	Front rear pad
	2	AHD1467	Packing case (Black)
		AHD1468	Packing case (Silver)
	3	ARC1093	Operating instructions (German)
	101		Polyethylene sheet

### 3. EXPLODED PARTS LIST

**NOTES:**

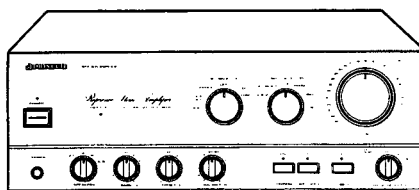
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 $\star\star$  **GENERALLY MOVES FASTER THAN  $\star$**   
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
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Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
$\Delta$ $\star\star$	1	2SA1302	Transistor (Q3, Q4)		31	AMR1161	Joint arm
$\Delta$ $\star\star$	2	2SC3281	Transistor (Q1, Q2)		32	AMR1178	Joint
$\Delta$	3	ACH1043	Electrolytic capacitor (1200 $\mu$ F/56V x 2, C3)		33	ANL1006	Long shaft assembly
	4	CCDSL101K500	Ceramic capacitor (C5, C6)		34	ABA1048	Screw
	5	CKDYB472K50	Ceramic capacitor (C1)		35	ABA-297	Screw
$\Delta$ $\star$	6	ATS1083	Power transformer (AC220/240V, T1)		36	ABA-298	Screw
$\Delta$ $\star\star$	7	ASG-552 (ASG-550)	Push switch (POWER, S1)		37	ABA1004	Screw
$\star\star$	8	ASU1003	Remote slide rotary switch (REC SELECTOR, S3)		38	ABA1009	Screw
$\star\star$	9	ASU1005	Remote slide rotary switch (INPUT SELECTOR, S2)		39	ABA1011	Screw
$\star\star$	10	ASU1007	Remote slide rotary switch (PHONO SELECTOR, S4)		40	ABN-065	Shaft nut
$\Delta$ $\star\star$	11	AEK-403	Fuse (FU1 T2.5A/250V)	$\Delta$	41	ADG1019	AC power cord
$\Delta$ $\star\star$	12	AEK-407	Fuse (FU2, FU3 T400mA/250V)		42	ABA1006	Screw (3 x 8)
	13	AMR1158	Leg assembly		43	ABA1014	Screw (4 x 12)
	14	ANK1028	Shield plate		44	FBT40P080FZK	Screw (4 x 8) (Black)
	15	AAB1036	Knob L (VOLUME) (Black)			FBT40P080FCR	Screw (4 x 8) (Silver)
		AAB1037	Knob L (Silver)		45	NK90FUC	Nut
	16	AAB1038	Knob M (REC, INPUT SELECTOR) (Black)		46	VMZ30P060FCU	Screw (3 x 6)
		AAB1039	Knob M (Silver)		47	AWZ1461	Tone AMP assembly
	17	AAB1040	Knob S (Black) (PHONO SELECTOR, BALANCE, TREBLE, BASS, SPEAKERS B)		48	AWZ1463	Power AMP assembly
		AAB1041	Knob S (Silver)		49	AWZ1464	PHONO AMP assembly
	18	AAD1162	Knob (Black) (LOUDNES, ADPT/TAPE3)		50	ABA1047	Screw (GND)
		AAD1163	Knob (Silver)		101		Input selector assembly
	19	AAD1164	Knob (LINE DIRECT) (Black)		102		REC Out assembly
		AAD1165	Knob (Silver)		103		Speaker switch assembly
	20	AAD1168	Knob (POWER) (Black)		104		Main volume assembly
		AAD1169	Knob (POWER) (Silver)		105		Speaker terminal assembly
	21	AAM-030	Name plate		106		Headphone assembly
	22	AMB1200	Panel base (Black)		107		Terminal (2P)
		AMB1201	Panel base (Silver)		108		Terminal (GND)
	23	AMR1160	LED lens		109		Trans frame
	24	ANB1214	Front panel (Black)		110		Right frame
		ANB1215	Front panel (Silver)		111		Rear panel
	25	ANE1075	Bonnet case (Black)		112		Panel stay
		ANE1076	Bonnet case (Silver)		113		Bottom plate
	26	ABH1033	Coil spring A		114		Heat sink holder
	27	ABH1034	Coil spring B		115		Heat sink
	28		Damper		116		Heat sink
	29	AEC-882	Strain relief		117		Volume holder
$\Delta$	30	AEE1014	Mica sheet		118		Cushion
					119		Spacer
					120		Cushion rubber
					121		Boss
					122		Pin grommet
					123		Binder
					124		Power supply assembly

# Service Manual

**PIONEER**  
The future of sound and vision.

PION-01770



**ORDER NO.  
ARP 1405**

**STEREO AMPLIFIER**

# A-616 A-616-S

MODELS A-616 AND A-616-S COME IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Applicable model		Power requirement	Destination
	A-616	A-616-S		
HEZ	○	○	AC220V, 240V (switchable)*	West Germany
HE	○	—	AC220V, 240V (switchable)*	European continent
HB	○	—	AC220V, 240V (switchable)*	United Kingdom
SD	○	—	AC110V, 120V—127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

\*Change the primary wiring of the power transformer.

- This service manual is applicable to the HEZ type.
- As to the HE, HB and SD types, please refer to the additional service manual (ARP1421).

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**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O. Box 1760, Long Beach, California 90801 U.S.A.  
**PIONEER ELECTRONICS OF CANADA, INC.** 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada  
**PIONEER ELECTRONIC [EUROPE] N.V.** Keetberglaan 1, 2740 Beveren, Belgium  
**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

YO © MAY 1987

# 1. SPECIFICATIONS

Continuous power output (both channels driven)  
 20 Hz to 20 kHz, T.H.D. 0.005%, 8Ω ..... 80W + 80W  
 20 Hz to 20 kHz, T.H.D. 0.008%, 4Ω ..... 100W + 100W

DIN continuous power output (both channels driven)  
 1 kHz, T.H.D. 1%, 8Ω ..... 80W + 80W  
 1 kHz, T.H.D. 1%, 4Ω ..... 120W + 120W

Power bandwidth  
 0.01%, 8Ω ..... 5 Hz – 50 kHz

Damping factor  
 (1 kHz/20 Hz to 20 kHz), 8Ω ..... 200/70

Dynamic power output (on EIA dynamic test signal)  
 8Ω ..... 85W + 85W  
 4Ω ..... 130W + 130W  
 2Ω ..... 150W + 150W

Total harmonic distortion  
 (measured by Audio Spectrum Analyzer)  
 20 Hz to 20 kHz, 70W, 8Ω ..... 0.005%

Input sensitivity/impedance  
 PHONO (MM) ..... 2.5 mV/50 kΩ  
 PHONO (MC) ..... 0.2 mV/100Ω  
 CD, TUNER, LINE, TAPE ..... 150 mV/50 kΩ

PHONO overload level  
 1 kHz, T.H.D. 0.008% (MM/MC) ..... 200 mV/19 mV

Output level/impedance  
 TAPE REC, ADAPTOR OUTPUT ..... 150 mV/2.2 kΩ

Frequency response  
 PHONO (MM), 20 Hz to 20 kHz ..... ±0.2 dB  
 PHONO (MC), 20 Hz to 20 kHz ..... ±0.3 dB  
 CD, TUNER, LINE, TAPE 1 Hz to 150 kHz ..... +0  
 -3 dB

Tone control  
 BASS ..... ±8 dB (100 Hz)  
 TREBLE ..... ±8 dB (10 kHz)

Loudness contour (volume control set at -40 dB position)  
 +5 dB (100 Hz)/+3 dB (10 kHz)

Filter (SUBSONIC) ..... 7 Hz (12 dB/oct)

Signal-to-Noise ratio (IHF short circuit, A network)  
 PHONO (MM, 5 mV input/MC, 0.5 mV input) ... 93 dB/74 dB  
 CD, TUNER, LINE, TAPE ..... 108 dB

Signal-to-Noise ratio (DIN, continuous power/50 mW)  
 PHONO (MM/MC) ..... 74 dB/65 dB  
 CD, TUNER, LINE, TAPE ..... 92 dB/66 dB

## Power Supply/Miscellaneous

Power requirements  
 U.K., Australian models ..... a.c.240V, 50/60 Hz  
 Other destination models ..... AC 110V/120 –  
 127V/220V/240V (switchable), 50/60 Hz

Power consumption  
 U.K., Australian models ..... 650W  
 Other destination models ..... 650W

Dimensions ..... 420(W) × 435(D) × 162(H) mm  
 16-1/2(W) × 17-1/8 (D) × 6-3/8 (H) in

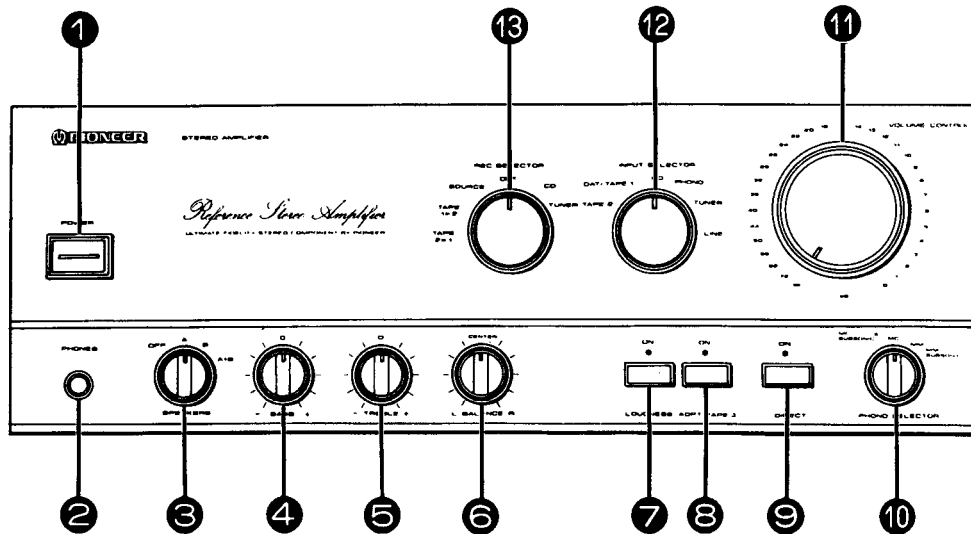
Weight ..... 14kg (30 lb 14 oz)

## Accessories

Operating instructions ..... 1

- Specifications and design subject to possible modification without notice due to improvements.

# 2. 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 moved to the right, low-frequency tones are emphasized; when moved 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 moved to the right, high-frequency tones are emphasized; when moved 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, move toward the LEFT position and if the left side is louder, move toward the RIGHT position.

**NOTE:**

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

**7 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.*

**8 ADPT 1/TAPE 3 switch/indicator**

(ADPT/TAPE 3 switch in the A-616)

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.*

**9 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 through the various frequency adjusting circuits.

**10 PHONO SELECTOR switch**

Set in accordance with the type of cartridge used in your record turntable.

**MM:**

Set to this position when using an MM (moving magnet) cartridge, or an MC (moving coil) cartridge with high output of 1 mV or more.

**MC:**

Set to this position when using an MC (moving coil) cartridge.

**MM SUBSONIC/MC SUBSONIC:**

Subsonic filter for MC or MM cartridges to cut ultralow frequency noise less than 7 Hz generated when playing a warped record.

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

**11 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.*

**12 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.

**13 REC SELECTOR switch**

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

**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 copy:**

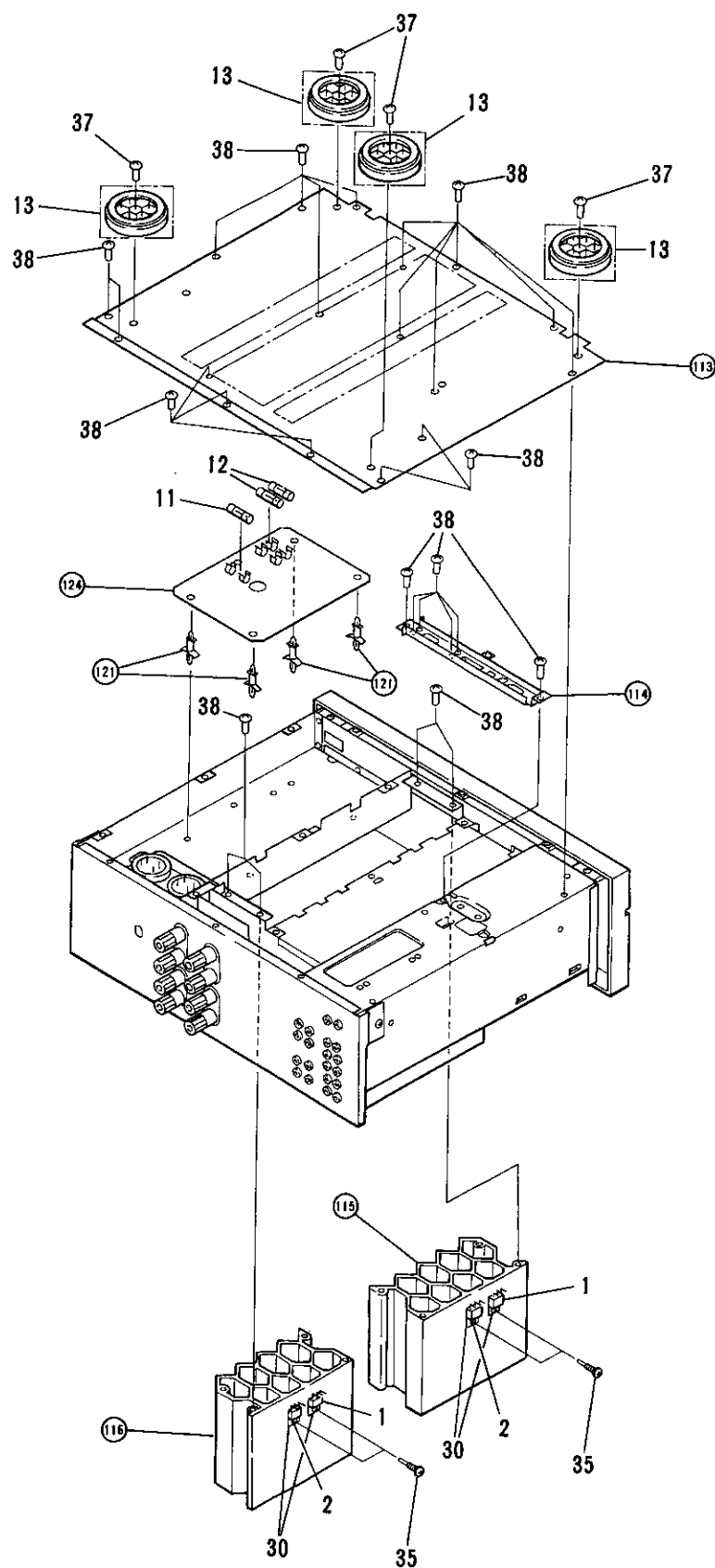
1 ► 2 — To record (copy) from the tape deck of DAT/TAPE 1 terminals, over to the tape deck of TAPE 2 terminals.

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.*

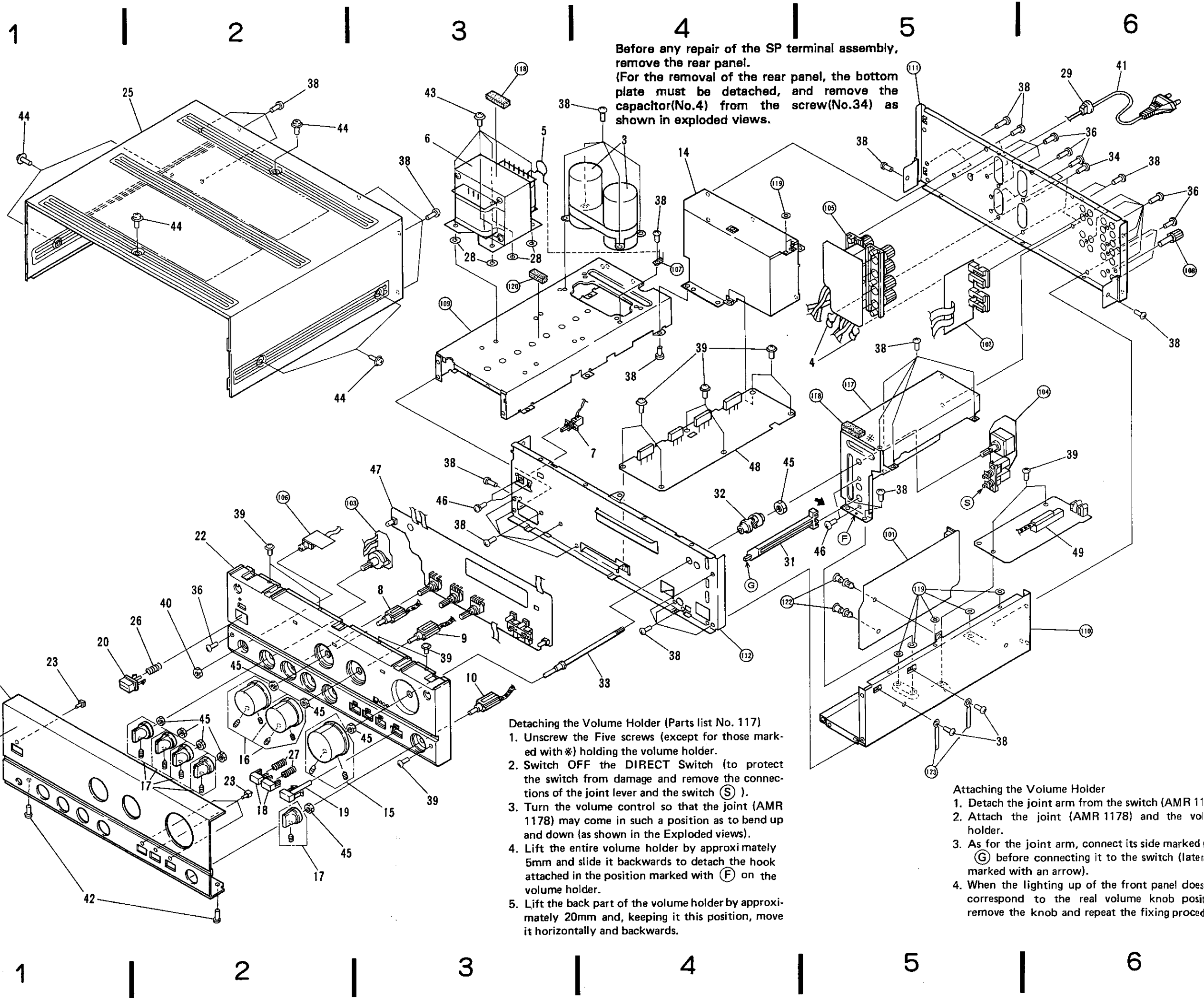
### 3. EXPLODED VIEWS AND PARTS LIST



**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  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.
- 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.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
$\Delta$ $\star\star$	1	2SA1302	Transistor (Q3, Q4)		31	AMR1161	Joint arm
$\Delta$ $\star\star$	2	2SC3281	Transistor (Q1, Q2)		32	AMR1178	Joint
$\Delta$	3	ACH1043	Electrolytic capacitor (1200 $\mu$ F/56V x 2, C3)		33	ANL1006	Long shaft assembly
	4	CCDSL101K500	Ceramic capacitor (C5, C6)		34	ABA1035	Screw
	5	CKDYB472K50	Ceramic capacitor (C1)		35	ABA-258	Screw
$\Delta$ $\star$	6	ATS1083	Power transformer (AC220/240V, T1)		36	ABA-298	Screw
$\Delta$ $\star\star$	7	ASG-552 (ASG-550)	Push switch (POWER, S1)		37	ABA1004	Screw
$\star\star$	8	ASU1003	Remote slide rotary switch (REC SELECTOR, S3)		38	ABA1009	Screw
$\star\star$	9	ASU1005	Remote slide rotary switch (INPUT SELECTOR, S2)		39	ABA1011	Screw
$\star\star$	10	ASU1007	Remote slide rotary switch (PHONO SELECTOR, S4)		40	ABN-065	Shaft nut
$\Delta$ $\star\star$	11	AEK-403	Fuse (FU1 T2.5A/250V)	$\Delta$	41	ADG1019	AC power cord
$\Delta$ $\star\star$	12	AEK-407	Fuse (FU2, FU3 T400mA/250V)		42	ABA1006	Screw (3 x 8)
	13	AMR1158	Leg assembly		43	ABA1014	Screw (4 x 12)
	14	ANK1028	Shield plate		44	FBT40P080FZK	Screw (4 x 8) (Black)
	15	AAB1036	Knob L (VOLUME) (Black)		45	FBT40P080FCR	Screw (4 x 8) (Silver)
		AAB1037	Knob L (Silver)		46	NK90FUC	Nut
	16	AAB1038	Knob M (REC, INPUT SELECTOR) (Black)		47	VMZ30P060FCU	Screw (3 x 6)
		AAB1039	Knob M (Silver)		48	AWZ1461	Tone AMP assembly
	17	AAB1040	Knob S (Black) (PHONO SELECTOR, BALANCE, TREBLE, BASS, SPEAKERS B)		49	AWZ1463	Power AMP assembly
		AAB1041	Knob S (Silver)		101	AWZ1464	PHONO AMP assembly
	18	AAD1162	Knob (Black) (LOUDNES, ADPT/TAPE3)		102		Input selector assembly
		AAD1163	Knob (Silver)		103		REC Out assembly
	19	AAD1164	Knob (LINE DIRECT) (Black)		104		Speaker switch assembly
		AAD1165	Knob (Silver)		105		Main volume assembly
	20	AAD1168	Knob (POWER) (Black)		106		Headphone assembly
		AAD1169	Knob (POWER) (Silver)		107		Terminal (2P)
	21	AAM-030	Name plate		108		Terminal (GND)
	22	AMB1200	Panel base (Black)		109		Trans frame
		AMB1201	Panel base (Silver)		110		Right frame
	23	AMR1160	LED lens		111		Rear panel
	24	ANB1103	Front panel (Black)		112		Panel stay
		ANB1104	Front panel (Silver)		113		Bottom plate
	25	ANE1075	Bonnet case (Black)		114		Heat sink holder
		ANE1076	Bonnet case (Silver)		115		Heat sink
	26	ABH1033	Coil spring A		116		Heat sink
	27	ABH1034	Coil spring B		117		Volume holder
	28	ABE1008	Damper		118		Cushion
	29	AEC-882	Strain relief		119		Spacer
	30	AEE1014	Mica sheet		120		Cushion rubber
					121		Boss
					122		Pin grommet
					123		Binder
					124		Power supply assembly



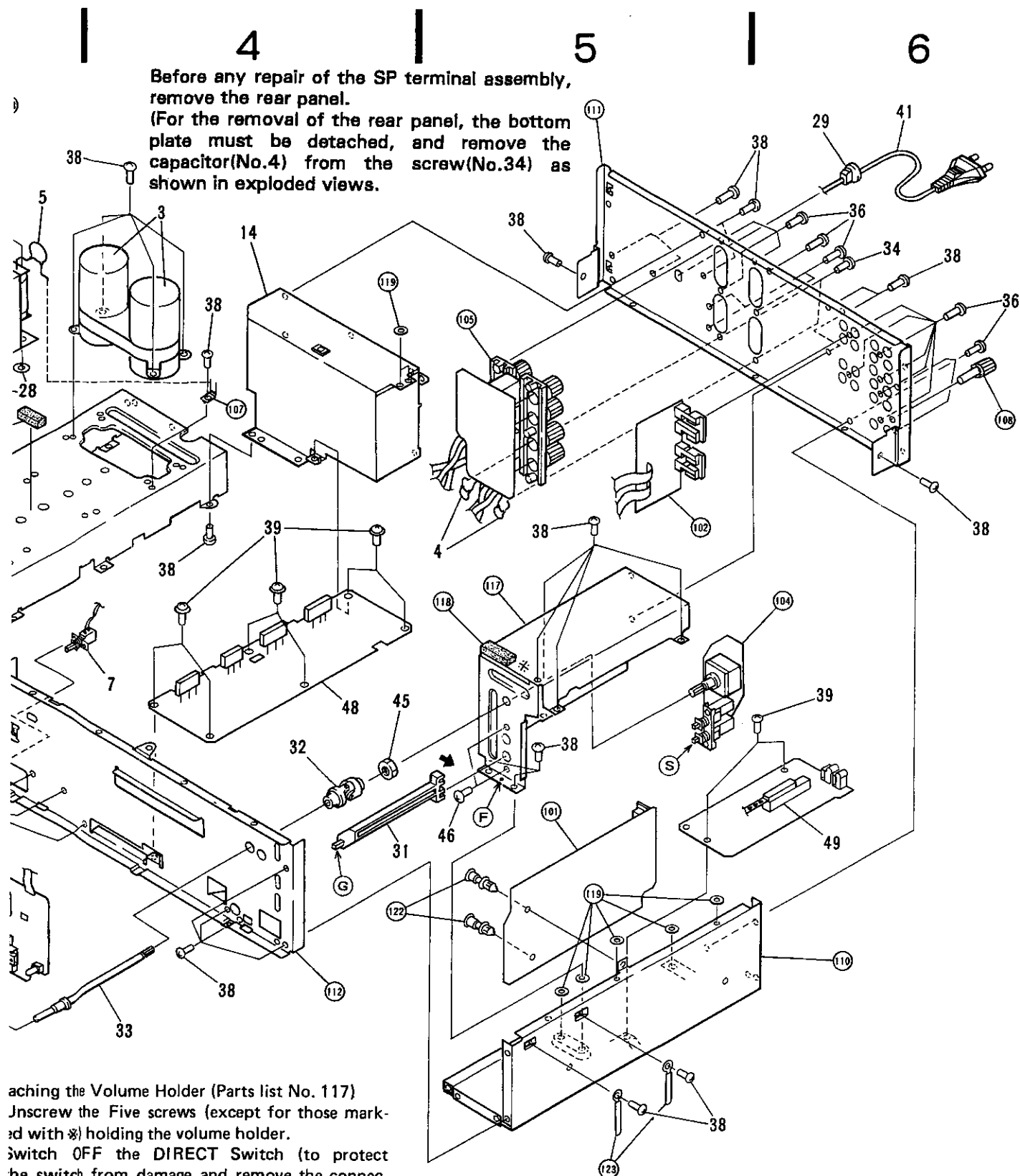
Before any repair of the SP terminal assembly, remove the rear panel.  
 (For the removal of the rear panel, the bottom plate must be detached, and remove the capacitor (No.4) from the screw (No.34) as shown in exploded views.

**Detaching the Volume Holder (Parts list No. 117)**

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.



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.34) as shown in exploded views.

Attaching the Volume Holder (Parts list No. 117)  
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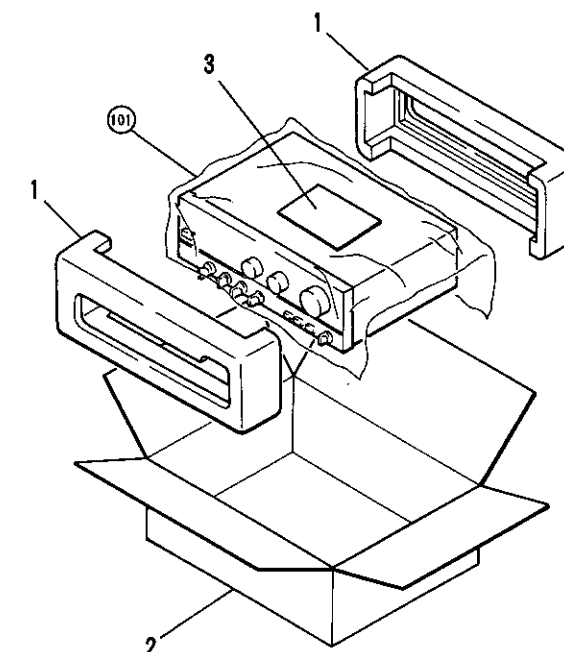
**Attaching the Volume Holder**

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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).
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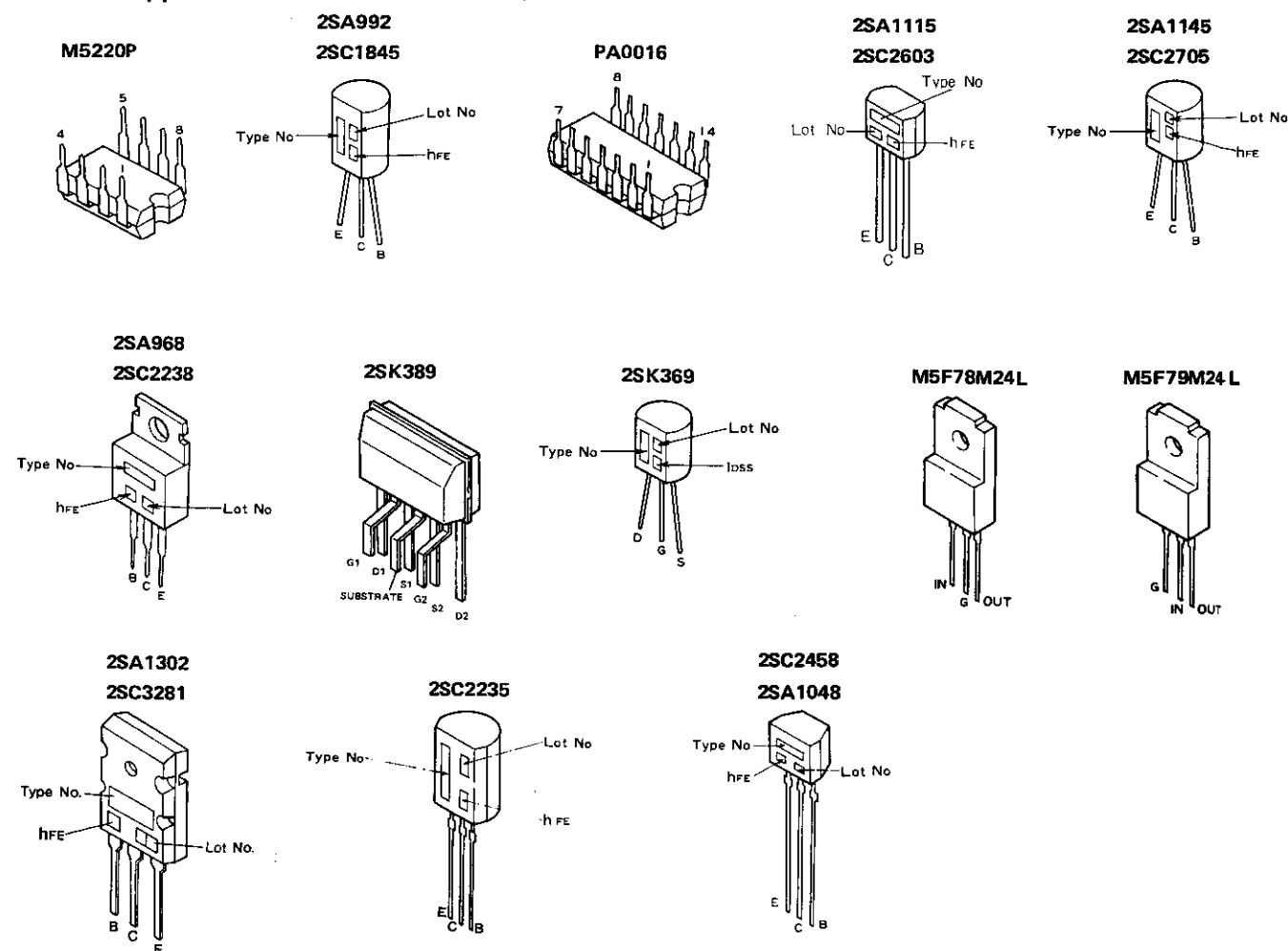
**4. PACKING**

**PARTS LIST OF PACKING**

Mark	No.	Part No.	Description
	1	AHA1070	Front rear pad
	2	AHD1237	Packing case (Black)
		AHD1238	Packing case (Silver)
	3	ARC1047	Operating instructions (German)
	101		Polyethylene sheet



**External Appearance of Transistors and ICs**



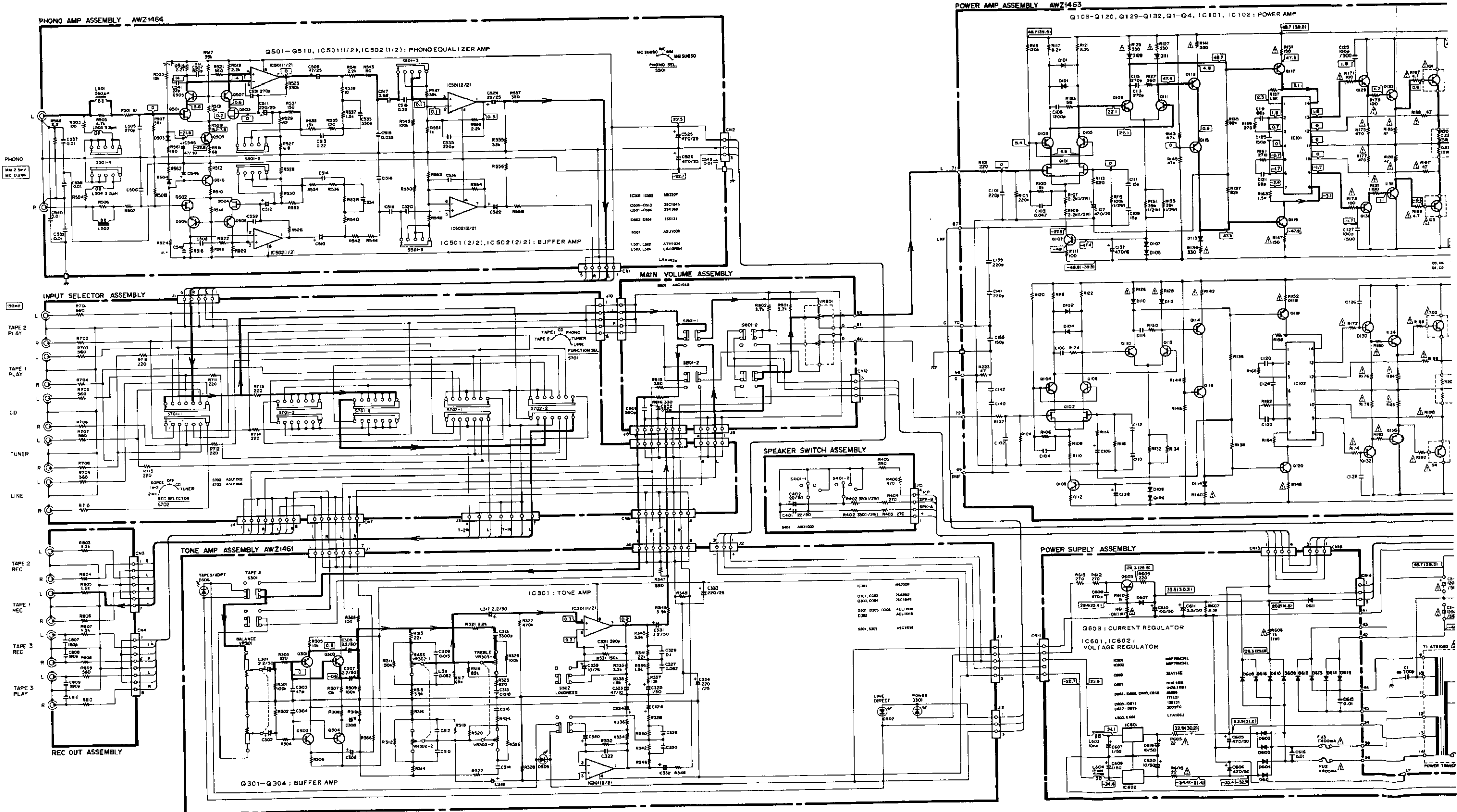
# 5. SCHEMATIC DIAGRAM

A

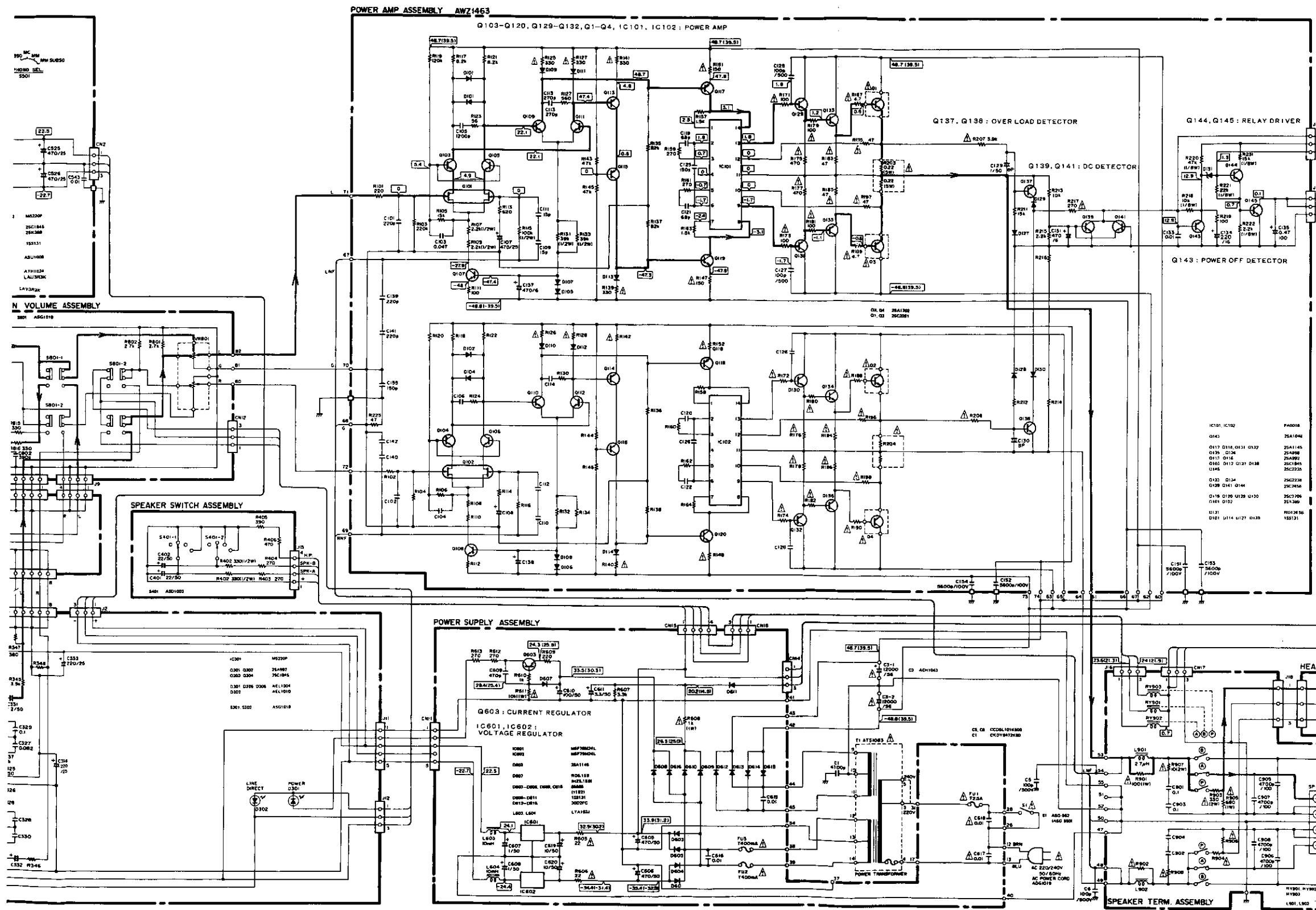
B

C

D



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



- 1 RESISTORS:  
 Indicated as 1/2W, 1% tolerance unless otherwise noted; 1/4W, 5% tolerance.
- 2 CAPACITORS:  
 Indicated as capacity (uF) (Voltage (V) unless otherwise noted) of inductor without voltage is 50V except electrolytic capacitor.
- 3 VOLTAGE CURRENT:  
 □ Signal voltage at (95W+95W 4ohm) out (1KHz)  
 □ DC voltage (V) at no input signal  
 □ mA DC current at no input signal
- 4 OTHERS:  
 \* Signal route  
 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.
- 5 SWITCHES:  
 TONE AMP ASSEMBLY  
 S201: TAPES 3 (ON-OFF)  
 S202: LOUDNESS (ON-OFF)  
 SPEAKER SWITCH ASSEMBLY  
 S401: SPEAKERS A, B (OFF-A-B-A-B)  
 PHONO AMP ASSEMBLY  
 S501: PHONO SEL. (MC-MC-MC-20)  
 INPUT SELECTOR ASSEMBLY  
 S701: FUNCTION SEL. (TAD-TA1-CD-PHONO-TUNER-LINE)  
 S702: REC. SEL. (2-3-1-2-3-SOURCE-OFF-CD-TUNER)  
 MAIN VOLUME ASSEMBLY  
 S801: DIRECT (ON-OFF)  
 G1: POWER (ON-OFF)

**Line Voltage Selection**  
 Line voltage can be changed with following steps.  
 1. Disconnect the AC power cord.  
 2. Remove the top cover.  
 3. Change the connection wire (To Power transformer) of Terminal No. 3 (WHITE) as follows.

Voltage	Terminal No. 3	Terminal No. 5
220V	Gray wire	.....
240V	.....	Gray wire

A

B

C

D

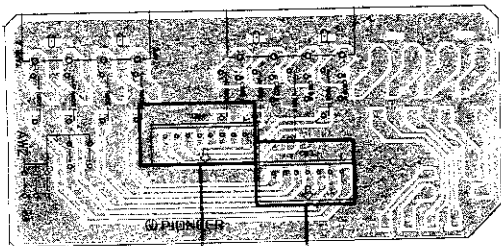


# 6. P.C.BOARDS CONNECTION DIAGRAM

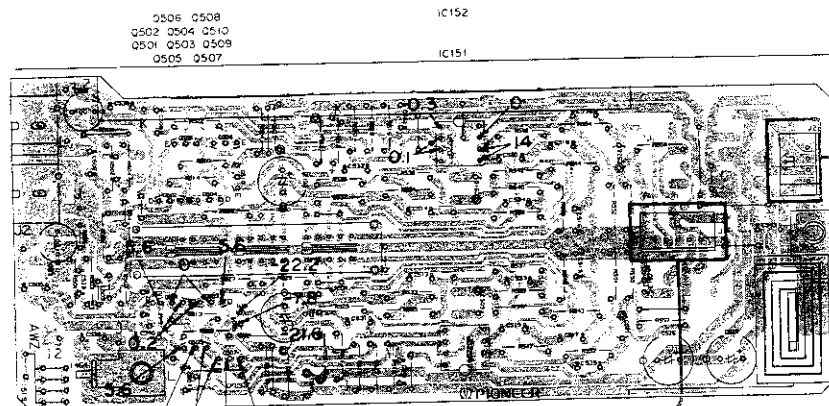
## POWER AMP ASSEMBLY AWZ1463

A

REC OUT ASSEMBLY

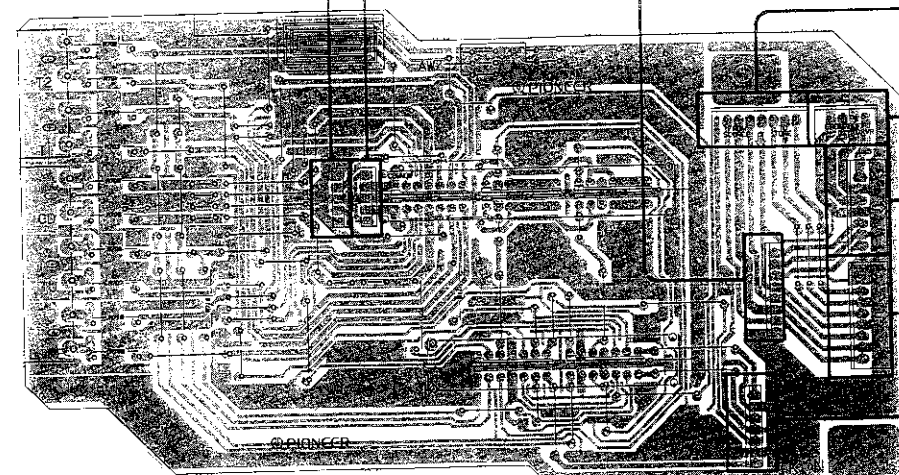


B



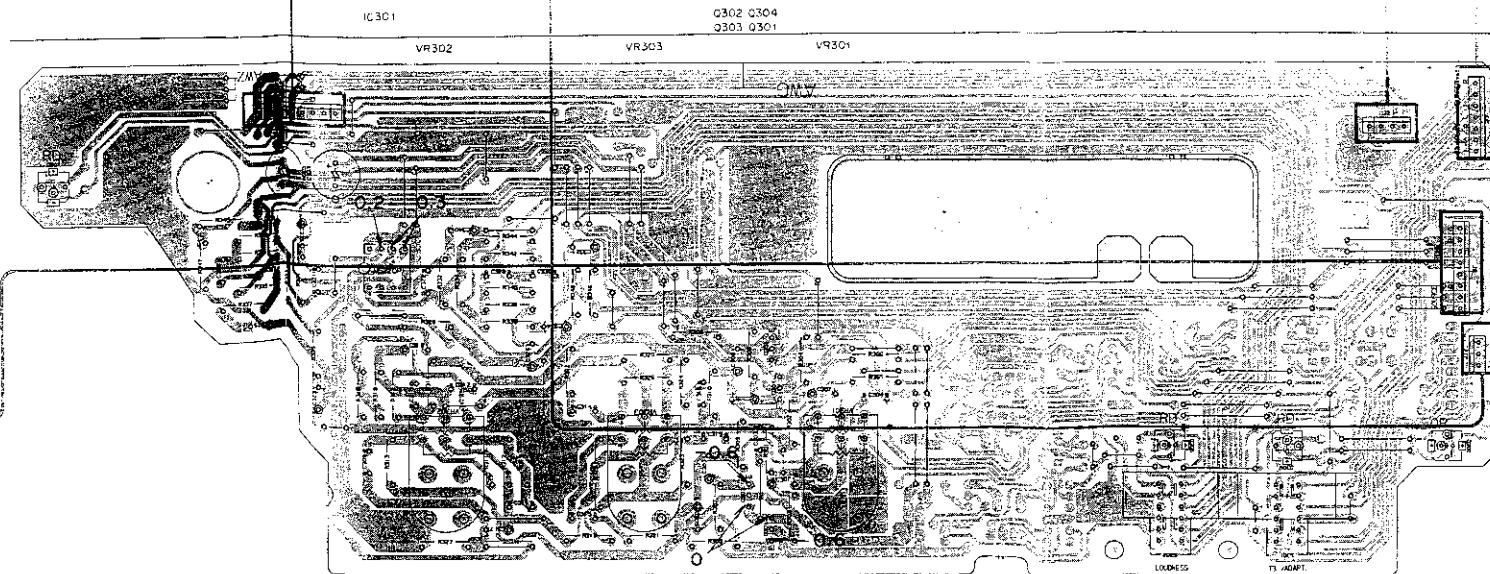
PHONO AMP ASSEMBLY AWZ1464

C



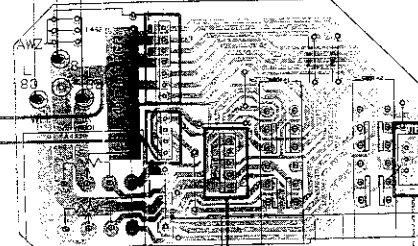
INPUT SELECTOR ASSEMBLY

D

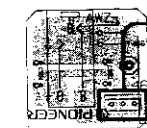


TONE AMP ASSEMBLY AWZ1461

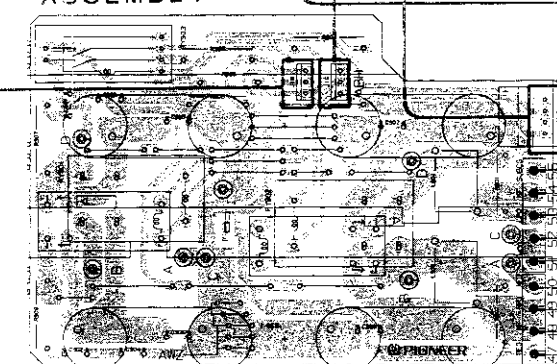
MAIN VOLUME ASSEMBLY



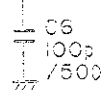
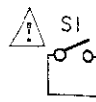
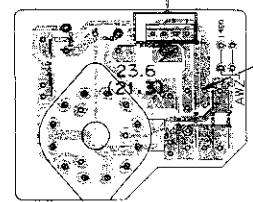
SPEAKER TERMINAL ASSEMBLY



HEADPHONE ASSEMBLY



SPEAKER SWITCH ASSEMBLY



1

2

3

4

5

6

1

2

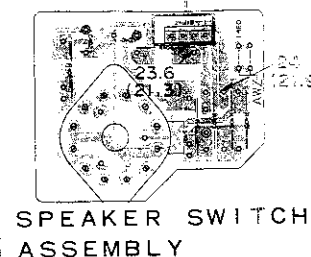
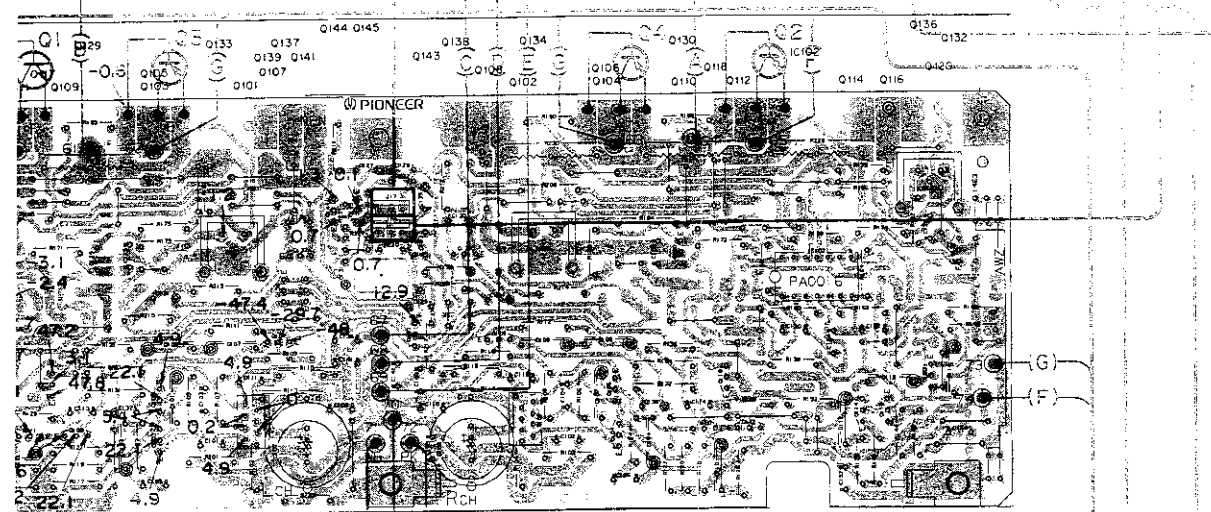
3

4

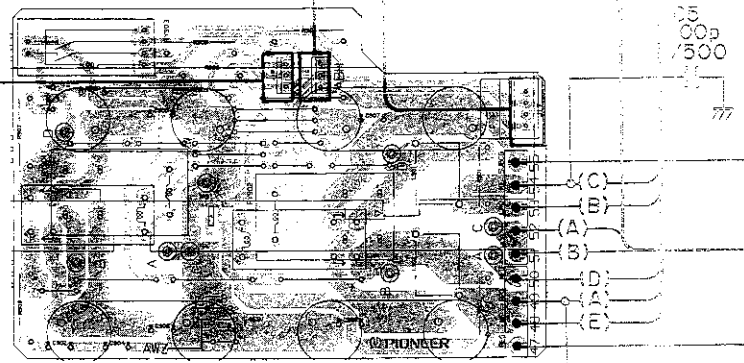
5

6

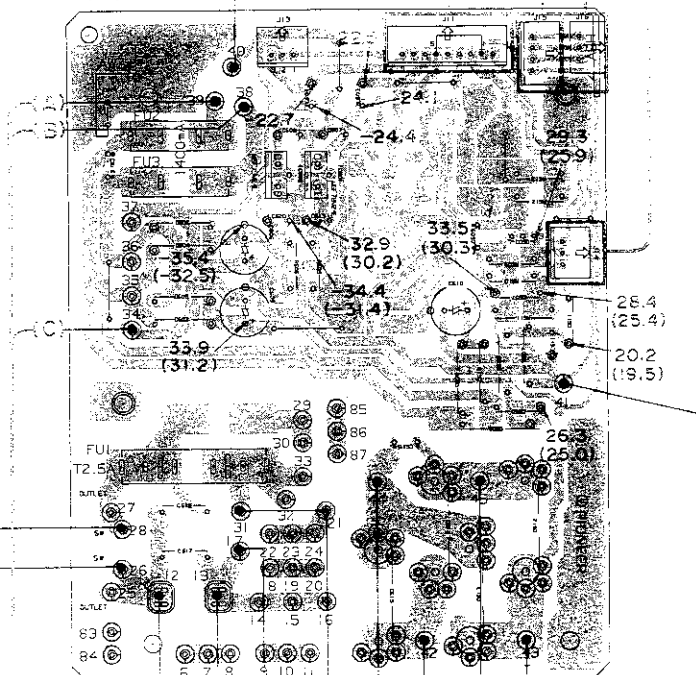
ASSEMBLY AWZ1463



SPEAKER TERMINAL ASSEMBLY



POWERSUPPLY ASSEMBLY



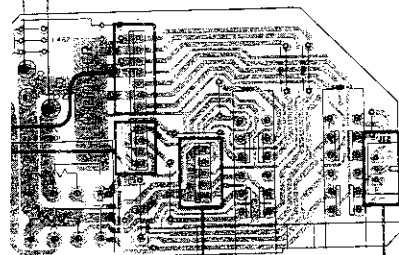
NOTE  
 1. This P.C.B. connection diagram is viewed from the parts mounted side.  
 2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504		Transistor
Q215		Radiator type transistor
D203		Diode
R237		Resistor
C513		Capacitor (Polarized)
C518		Capacitor (Non-polarized)

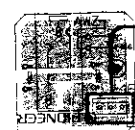
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

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.

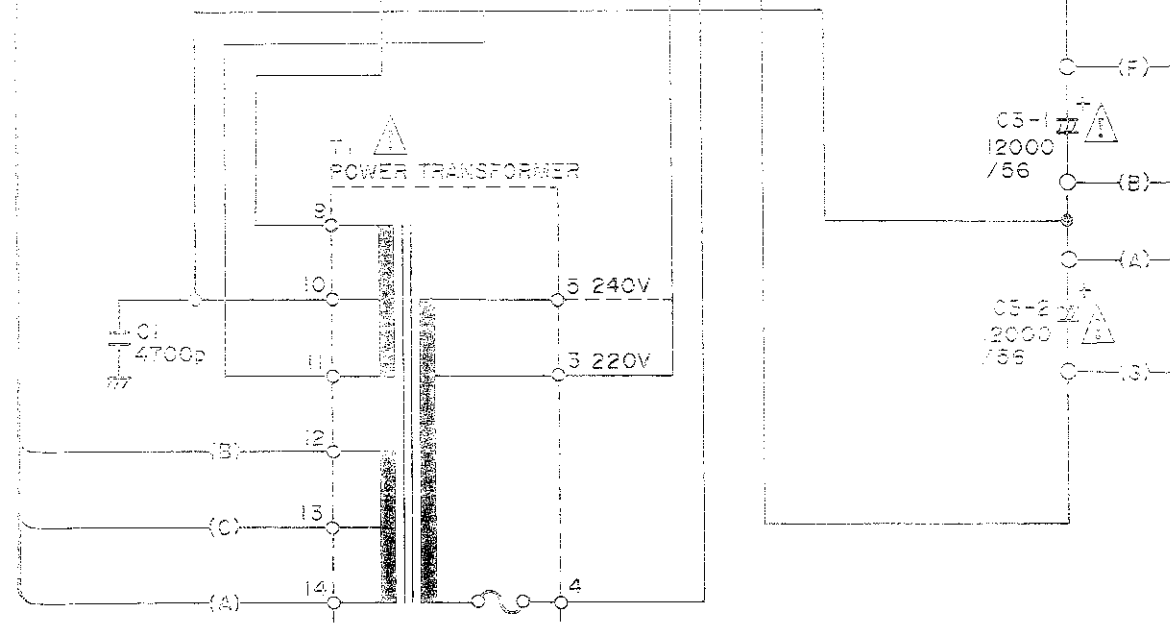
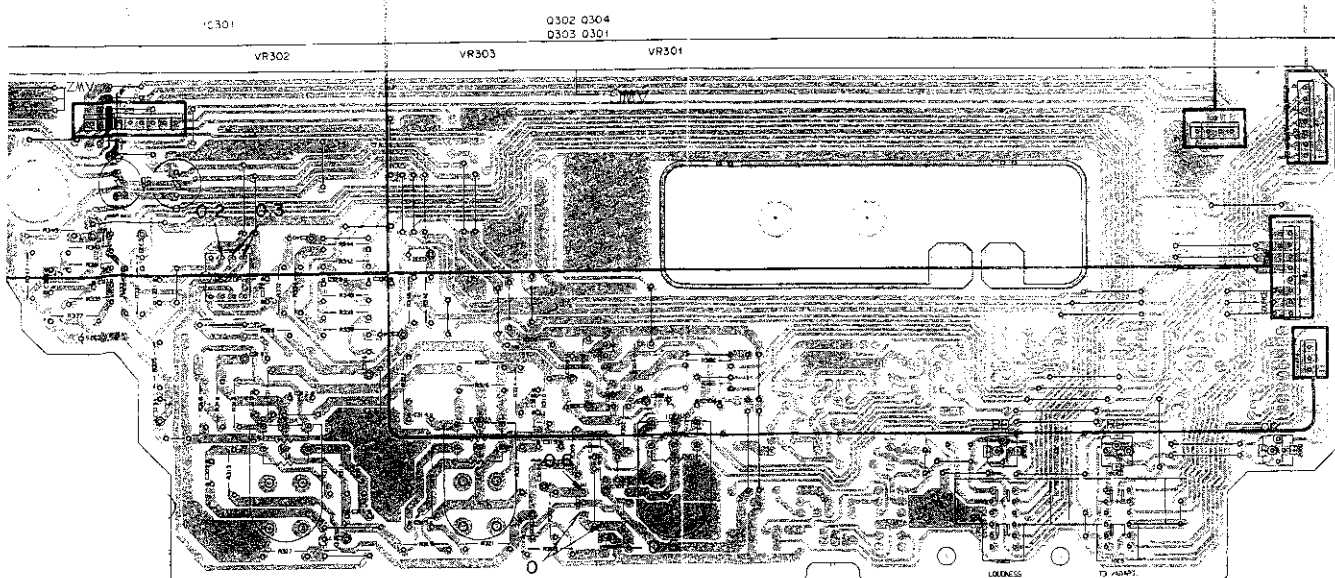
MAIN VOLUME ASSEMBLY



HEADPHONE ASSEMBLY



TONE AMP ASSEMBLY AWZ1461





# 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 ★★ and ★.
- ★★ **GENERALLY MOVES FASTER THAN ★**
- 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 <sup>1</sup>	561.....	RD1/4PS ⊕ ⊕ ⊕ J
47kΩ	47 × 10 <sup>3</sup>	473.....	RD1/4PS ⊕ ⊕ ⊕ J
0.5Ω	0R5.....		RN2H ⊕ ⊕ ⊕ K
1Ω	010.....		RSIP ⊕ ⊕ ⊕ 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.....	RN1/4SR ⊕ ⊕ ⊕ F
--------	-----------------------	-----------	-----------------

**Miscellaneous Parts List**

**P.C. BOARD ASSEMBLIES**

Mark	Symbol & Description	Part No.
	Tone AMP assembly	AWZ1461
	Power AMP assembly	AWZ1463
	PHONO AMP assembly	AWZ1464
	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.
Δ ★★	Q3, Q4	2SA1302
Δ ★★	Q1, Q2	2SC3281
Δ	C3 Electrolytic capacitor (12000μF/56V x 2)	ACH1043
	C5, C6 Ceramic capacitor	CCDSL101K500
	C1 Ceramic capacitor	CKDYB472K50
Δ ★	T1 Power transformer	ATS1083
Δ ★★	S1 Push switch (POWER)	ASG-552 (ASG-550)
Δ ★★	FU1 Fuse (T2.5A/250V)	AEK-403
Δ ★★	FU2, FU3 Fuse (T400mA/250V)	AEK-407
Δ	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 (AWZ1461)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC301	M5220P
★★	Q301, Q302	2SA992
★★	Q303, Q304	2SC1845
★	D301, D305, D306 LED (POWER, TAPE3/ADPT LOUDNESS)	AEL1004
★	D302 LED (LINE DIRECT)	AEL1010

**SWITCHES**

Mark	Symbol & Description	Part No.
★★	S301, S302 Push switch (TAPE3, LOUDNESS)	ASG1019

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C303, C304	CCCSL470J50 (CCDSL470J50)
	C321, C322	CCDSL390J50
	C325, C326	GEAS010M50
	C339, C340	CEAS100M25
	C301, C302, C305-C308, C317, C318, C331, C332	CEAS2R2M50
	C333, C334	CEAS221M25
	C323, C324	CEAS470M10
	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 (250KΩx2: BALANCE)	ACT1027
★★	VR302, VR303 Variable resistor (100KΩx2: BASS, TREBLE)	ACT1028
	Other resistors	RD1/4PM ⊕ ⊕ ⊕ J

**Power AMP Assembly (AWZ1463)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC101, IC102	PA0016
★★	Q143	2SA1048 (2SA1115)
★★	Q117, Q118, Q131, Q132	2SA1145
★★	Q135, Q136	2SA968
★★	Q113-Q116	2SA992
★★	Q103-Q112, Q137, Q138	2SC1845
★★	Q145	2SC2235
★★	Q133, Q134	2SC2238
★★	Q139, Q141, Q144	2SC2458 (2SC2603)
★★	Q119, Q120, Q129, Q130	2SC2705
★★	Q101, Q102	2SK389
★	D131	RD12ESB
★	D101-D114, D127-D130	1S131

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C109-C112	CQSA150J50
	C101, C102	CCCSL221J50 (CCDSL221J50)
	C113, C114	CCCSL271J50 (CCDSL271J50)
	C125-C128	CCDSL101K500
	C123, C124, C155	CCDSL151J50
	C139-C142	CCDSL221J50
	C119-C122	CCDSL680J50
	C129, C130	CEANP010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131, C137, C138	CEAS471M6
	C107, C108	CEYA471M50
	C103, C104	CFTXA473J50
	C105, C106	CKCYB122K50 (CKDYB122K50)
	C133	CKCYF103Z50 (CKDYF103Z50)
	C151-C154	CQMXA562J100

**RESISTORS**

Mark	Symbol & Description	Part No.
Δ	R203, R204 Wire wound resistor (0.22Ωx2: 5W)	ACN-146
Δ	R107-R110, R131-R134	RD1/2PM ⊕ ⊕ ⊕ J
Δ	R171-R182, R187-R190, R207, R208, R217	RD1/4PMF ⊕ ⊕ ⊕ J
Δ	R218, R220-R222, R231	RD1/8PM ⊕ ⊕ ⊕ J
Δ	R125-R128, R139-R142, R147, R148, R151, R152, R183-R186, R195-R198	RFA1/4PS ⊕ ⊕ ⊕ J
	Other resistors	RD1/4PM ⊕ ⊕ ⊕ J

**Phono AMP Assembly (AWZ1464)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC501, IC502	M5220P
★★	Q505-Q510	2SC1845
★★	Q501-Q504	2SK369
★	D503, D504	1S131

**SWITCH**

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

**COILS**

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

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C541, C542	CCDSL220J50
	C535, C536	CCDSL221J50
	C505, C506, C531, C532	CCDSL271J50
	C521, C522	CEXA220M25
	C511, C512	CEXA221M25
	C509, C510	CEXA470M25
	C525, C526	CEXA471M25
	C513, C514, C519, C520	CFTXA224J50
	C515, C516	CFTXA333J50
	C517, C518	CFTXA684J50
	C507, C508	CKCYB821K50 (CKDYB821K50)
	C533, C534	CKDYB331K50
	C537-C540, C543	CKDYF103Z50
	C545, C546	CEAS470M10

## RESISTORS

Mark	Symbol & Description	Part No.
★★	VR301 Variable resistor (250K $\Omega$ x2: BALANCE)	ACT1027
★★	VR302, VR303 Variable resistor (100K $\Omega$ x2: BASS, TREBLE)	ACT1028
	Other resistors	RD1/4PM□□□J

## Power AMP Assembly (AWZ1463)

## SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC101, IC102	PA0016
★★	Q143	2SA1048 (2SA1115)
★★	Q117, Q118, Q131, Q132	2SA1145
★★	Q135, Q136	2SA968
★★	Q113-Q116	2SA992
★★	Q103-Q112, Q137, Q138	2SC1845
★★	Q145	2SC2235
★★	Q133, Q134	2SC2238
★★	Q139, Q141, Q144	2SC2458 (2SC2603)
★★	Q119, Q120, Q129, Q130	2SC2705
★★	Q101, Q102	2SK389
★	D131	RD12ESB
★	D101-D114, D127-D130	1SS131

## CAPACITORS

Mark	Symbol & Description	Part No.
	C109-C112	CQSA150J50
	C101, C102	CCCSL221J50 (CCDSL221J50)
	C113, C114	CCCSL271J50 (CCDSL271J50)
	C125-C128 C123, C124, C155	CCDSL101K500 CCDSL151J50
	C139-C142 C119-C122 C129, C130 C135 C134	CCDSL221J50 CCDSL680J50 CEANP010M50 CEASR47M100 CEAS221M16
	C131, C137, C138 C107, C108 C103, C104 C105, C106	CEAS471M6 CEYA471M50 CFTXA473J50 CKCYB122K50 (CKDYB122K50) CKCYF103Z50 (CKDYF103Z50)
	C133	CKCYF103Z50 (CKDYF103Z50)
	C151-C154	COMXA562J100

## RESISTORS

Mark	Symbol & Description	Part No.
△	R203, R204 Wire wound resistor (0.22 $\Omega$ x2: 5W)	ACN-146
△	R107-R110, R131-R134 R171-R182, R187-R190, R207, R208, R217	RD1/2PM□□□J RD1/4PMF□□□J
△	R218, R220-R222, R231 R125-R128, R139-R142, R147, R148, R151, R152, R183-R186, R195-R198	RD1/8PM□□□J RFA1/4PS□□□J
	Other resistors	RD1/4PM□□□J

## Phono AMP Assembly (AWZ1464)

## SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC501, IC502	M5220P
★★	Q505-Q510	2SC1845
★★	Q501-Q504	2SK369
★	D503, D504	1SS131

## SWITCH

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

## COILS

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

## CAPACITORS

Mark	Symbol & Description	Part No.
	C541, C542 C535, C536 C505, C506, C531, C532 C521, C522 C511, C512	CCDSL220J50 CCDSL221J50 CCDSL271J50 CEXA220M25 CEXA221M25
	C509, C510 C525, C526 C513, C514, C519, C520 C515, C516 C517, C518	CEXA470M25 CEXA471M25 CFTXA224J50 CFTXA333J50 CFTXA684J50
	C507, C508	CKCYB821K50 (CKDYB821K50)
	C533, C534 C537-C540, C543 C545, C546	CKDYB331K50 CKDYF103Z50 CEAS470M10

## RESISTORS

Mark	Symbol & Description	Part No.
	R527-R530, R533, R534, R537, R538, R541, R542 R505, R506, R568 Other resistors	RDR1/4PM□□□J RD1/8PM□□□J RD1/4PM□□□J

## OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED) 1P pin jack (PHONO: WHITE)	AKB1025 AKB1026

## 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.
	R701-R716	RD1/4PM□□□J

## OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1, TAPE2 PLAY) 6P pin jack (CD, TUNER, LINE IN)	AKB1007 AKB1008

## REC Out Assembly

## CAPACITORS

Mark	Symbol & Description	Part No.
	C807, C808 C809, C810	CCDSL181J50 CKDYB391K50

## RESISTORS

Mark	Symbol & Description	Part No.
	R803-R810	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 Other resistors	RD1/2PM331J 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	CKDYB391K50

## RESISTORS

Mark	Symbol & Description	Part No.
★★	VR801 Variable resistor (60K $\Omega$ x2: VOLUME)	ACW-136
	Other resistors	RD1/4PM□□□J

## Power Supply Assembly

## SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC601	M5F78M24L
★★	IC602	M5F79M24L
★★	Q603	2SA1145
★	D607	RD5.1EB (HZ5.1EB)
★	D603-D606, D608, C616	S5566 (11E2)
★	D609-D611	1SS131
★	D612-D615	30D2FC

**COILS**

Mark	Symbol & Description	Part No.
	L603, L604 Inductor (10mH)	LTA103J

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C617, C618 (0.01 $\mu$ F/AC400V)	ACG1002
	C615, C616 (0.01 $\mu$ F/AC150V)	ACG1005
	C607, C608	CEAS010M50
	C619, C620	CEAS100M50
	C610	CEAS101M50
	C611	CEAS3R3M50
	C605, C606	CEAS471M50
	C609	CKCYB471K50 (CKDYB471K50)

**RESISTORS**

Mark	Symbol & Description	Part No.
$\triangle$	R605, R606	RD1/4PMFL220J
$\triangle$	R608	RS1LMF102J
$\triangle$	R611	RS1PMF103J
	Other resistors	RD1/4PM $\square\square\square$ J

**Speaker Terminal Assembly**

**RELAIIES**

Mark	Symbol & Description	Part No.
★★	RY901, RY902 Relay (SPEAKER PROTECTION)	ASR-112
★★	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

**COILS**

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

**CAPACITORS**

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

**RESISTORS**

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

**Headphone Assembly**

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C951, C952	CQMA392K50

**OTHERS**

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

*ADDITIONAL*

 **PIONEER**  
The future of sound and vision.

# *Service Manual*

**ORDER NO.  
ARP1421**

**STEREO AMPLIFIER**

# **A-616**

**HE, HB, SD**

- For servicing these types, please refer to the A-616/HEZ service manual (ARP1405) with the exception of this additional service manual.

- This additional service manual is applicable to the HE, HB and SD types.

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**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan  
**PIONEER ELECTRONICS SERVICE INC.** P.O. Box 1760, Long Beach, California 90801 U.S.A.  
**PIONEER ELECTRONICS OF CANADA, INC.** 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada  
**PIONEER ELECTRONIC [EUROPE] N.V.** Keetberglaan 1, 2740 Beveren, Belgium  
**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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# 1. CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

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

The A-616/HE, HB and SD types are the same as the A-616/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		A-616/ HEZ type	A-616/ HE type	A-616/ HB type	A-616/ SD type	
	POWER AMP assembly	AWZ1463	AWZ1518	AWZ1518	AWZ1518	
	PHONO AMP assembly	AWZ1464	AWZ1519	AWZ1519	AWZ1519	
	Headphone assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	Power supply assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	Speaker terminal assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	Input selector assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	REC out assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	Main volume assembly	Non Supply	Non Supply	Non Supply	Non Supply	
	Screw	ABA1035	.....	.....	.....	
	C5,C6 Ceramic capacitor	CCDSL101K500	.....	.....	.....	
	C1 Ceramic capacitor	CKDYB472K50	.....	.....	.....	
	Operating instructions (German)	ARC1047	.....	.....	.....	
	Operating instructions (Spanish)	.....	.....	.....	ARC1065	
	Operating instructions (English)	.....	.....	ARB1090	ARB1090	
	Operating instructions (English/German/French/Italian)	.....	ARE1064	.....	.....	
$\Delta$	AC Power Cord	ADG1019	ADG1019	ADG-051	ADG1016	
$\Delta\star\star$	Fu1 Fuse (T2.5A/250)	AEK-403	AEK-403	AEK-512	.....	
$\Delta\star\star$	Fu1,Fu4 Fuse (3.15A)	.....	.....	.....	AEK-124	
$\Delta\star\star$	Fu2,Fu3 Fuse (T400mA/250V)	AEK-407	AEK-407	AEK-504	.....	
$\Delta\star\star$	Fu2,Fu3 Fuse (500mA)	.....	.....	.....	AEK-136	
$\Delta$	AC socket 3P(AC OUTLET)	.....	.....	.....	AKP-515	
$\Delta\star\star$	S2 Line voltage Selector (AC110V/120-127V/220V/240V)	.....	.....	.....	AKX-507	
$\Delta\star$	T1 Power transformer (AC220/240V)	ATS1083	ATS1083	ATS1083	.....	
$\Delta\star$	T1 Power transformer (AC110V/120-127V/220V/240V)	.....	.....	.....	ATS1084	

## 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  $\Delta$  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.
- For your parts Stock Control, the fast moving items are indicated with the marks **★ ★** and **★**.  
**★ ★ GENERALLY MOVES FASTER THAN ★**  
 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 <sup>1</sup>	561.....	RD1/4PS	⊙	⊙	⊙	J
47kΩ	47 × 10 <sup>3</sup>	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 × 10 <sup>1</sup>	5621.....	RN1/4SR	⊙	⊙	⊙	F
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### POWER AMP Assembly (AWZ1518)

#### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC101, IC102	PA0016
★★	Q143	2SA1048 (2SA1115)
★★	Q117, Q118, Q131, Q132	2SA1145
★★	Q135, Q136	2SA968
★★	Q113-Q116	2SA992
★★	Q103-Q112, Q137, Q138	2SC1845
★★	Q145	2SC2235
★★	Q133, Q134	2SC2238
★★	Q139, Q141, Q144	2SC2458 (2SC2603)
★★	Q119, Q120, Q129, Q130	2SC2705
★★	Q101, Q102	2SK389
★	D131	RD12ESB
★	D101-D114, D127-D130	1SS131

#### CAPACITORS

Mark	Symbol & Description	Part No.
	C101, C102	CCCSL221J50 (CCDSL221J50)
	C113, C114	CCCSL271J50 (CCDSL271J50)
	C125-C128 C123, C124	CCDSL101K500 CCDSL151J50
	C119-C122 C129, C130 C135 C134	CCDSL680J50 CEANP010M50 CEASR47M100 CEAS221M16

Mark	Symbol & Description	Part No.
	C131, C137, C138 C107, C108 C103, C104 C105, C106	CEAS471M6 CEYA471M25 CFTXA473J50 CKCYB152K60 (CKDYB152K60)
	C133	CKCYF103Z50 (CKDYF103Z50)
	C109~C112	CQSA150J50

#### RESISTORS

Mark	Symbol & Description	Part No.
$\Delta$	R203, R204 Wire wound resistor (0.22Ω×2: 5W)	ACN-146
$\Delta$	R107-R110, R131-R134 R171-R182, R187-R190, R207, R208, R217	RD1/2PM⊙⊙⊙J RD1/4PMF⊙⊙⊙J
$\Delta$	R218, R220-R222, R231 R125-R128, R139-R142, R147, R148, R151, R152, R183-R186, R195-R198	RD1/8PM⊙⊙⊙J RFA1/4PS⊙⊙⊙J
	Other resistors	RD1/4PM⊙⊙⊙J

### Phono AMP Assembly (AWZ1519)

#### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC501, IC502	M5220P
★★	Q505-Q510	2SC1845
★★	Q501-Q504	2SK369
★	D503, D504	1SS131

#### SWITCH

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

#### CAPACITORS

Mark	Symbol & Description	Part No.
	C541, C542	CCDSL220J50
	C535, C536	CCDSL221J50
	C505, C506, C531, C532	CCDSL271J50
	C545, C546	CEAS470M10
	C521, C522	CEXA220M25
	C511, C512	CEXA221M25
	C509, C510	CEXA470M25
	C525, C526	CEXA471M25
	C513, C514	CFTXA224J50
	C515, C516	CFTXA333J50
	C517, C518	CFTXA224J50
	C519, C520	CFTXA563J50
	C507, C508	CKCYB821K50 (CKDYB821K50)
	C533, C534	CKDYB331K50
	C537-C540, C543 C529, C530	CKDYF103Z50 CFTXA103J50

#### RESISTORS

Mark	Symbol & Description	Part No.
	R527-R530, R533, R534, R537, R538, R541, R542	RDR1/4PM⊙⊙⊙J
	R568	RD1/8PM⊙⊙⊙J
	Other resistors	RD1/4PM⊙⊙⊙J

#### OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED)	AKB1025
	1P pin jack (PHONO: WHITE)	AKB1026

### 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.
	R711-R716	RD1/4PM221J

#### OTHERS

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1, TAPE2 PLAY)	AKB1007
	6P pin jack (CD, TUNER, LINE IN)	AKB1008

### REC Out Assembly

#### RESISTORS

Mark	Symbol & Description	Part No.
	R803-R808	RD1/4PM⊙⊙⊙J

#### OTHERS

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

### Main Volume Assembly

#### SWITCH

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

#### RESISTORS

Mark	Symbol & Description	Part No.
★★	VR801 Variable resistor (60KΩ×2: VOLUME)	ACW-136
	R801, R802	RD1/4PM27J

**Phono AMP Assembly (AWZ1519)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC501, IC502	M5220P
★★	Q505—Q510	2SC1845
★★	Q501—Q504	2SK369
★	D503, D504	1SS131

**SWITCH**

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

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C541, C542	CCDSL220J50
	C535, C536	CCDSL221J50
	C505, C506, C531, C532	CCDSL271J50
	C545, C546	CEAS470M10
	C521, C522	CEXA220M25
	C511, C512	CEXA221M25
	C509, C510	CEXA470M25
	C525, C526	CEXA471M25
	C513, C514	CFTXA224J50
	C515, C516	CFTXA333J50
	C517, C518	CFTXA224J50
	C519, C520	CFTXA563J50
	C507, C508	CKCYB821K50 (CKDYB821K50)
	C533, C534	CKDYB331K50
	C537—C540, C543	CKDYF103Z50
	C529, C530	CFTXA103J50

**RESISTORS**

Mark	Symbol & Description	Part No.
	R527—R530, R533, R534, R537, R538, R541, R542	RDR1/4PM □□□J
	R568	RD1/8PM □□□J
	Other resistors	RD1/4PM □□□J

**OTHERS**

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED)	AKB1025
	1P pin jack (PHONO: WHITE)	AKB1026

**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.
	R711—R716	RD1/4PM221J

**OTHERS**

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1, TAPE2 PLAY)	AKB1007
	6P pin jack (CD, TUNER, LINE IN)	AKB1008

**REC Out Assembly**

**RESISTORS**

Mark	Symbol & Description	Part No.
	R803—R808	RD1/4PM □□□J

**OTHERS**

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

**Main Volume Assembly**

**SWITCH**

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

**RESISTORS**

Mark	Symbol & Description	Part No.
★★	VR801 Variable resistor (60K $\Omega$ x2: VOLUME)	ACW-136
	R801, R802	RD1/4PM272J

**Power Supply Assembly**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
★★	IC601	M5F78M24L
★★	IC602	M5F79M24L
★★	Q603	2SA1145
★	D607	RD5.1EB (HZ5.1EB)
★	D603—D606, D608, C616	S5566 (11E2)
★	D609—D611	1SS131
★	D612—D615	30D2FC-2

**COILS**

Mark	Symbol & Description	Part No.
	L603, L604 Inductor (10mH)	LTA103J

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C617, C618 (0.01 $\mu$ F/AC400V)	ACG1003
	C615, C616 (0.01 $\mu$ F/AC150V)	ACG1005
	C607, C608	CEAS010M50
	C619, C620	CEAS100M50
	C610	CEAS010M50
	C611	CEAS3R3M50
	C605, C606	CEAS471M50
	C609	CKCYB471K50 (CKDYB471K50)

**RESISTORS**

Mark	Symbol & Description	Part No.
△	R605, R606	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
	Other resistors	RD1/4PM □□□J

**Speaker Terminal Assembly**

**RELAIIES**

Mark	Symbol & Description	Part No.
★★	RY901, RY902 Relay (SPEAKER PROTECTION)	ASR-112
★★	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

**COILS**

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

**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.
	Speaker Terminal(4P)	AKE1006

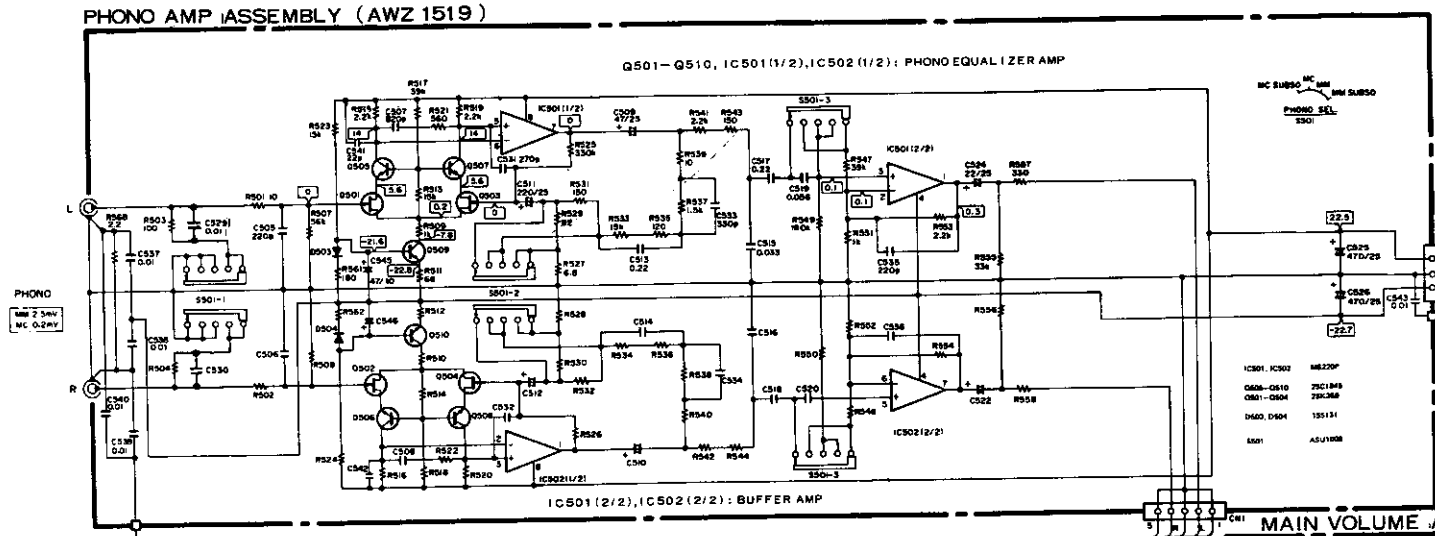
**Headphone Assembly**

**OTHERS**

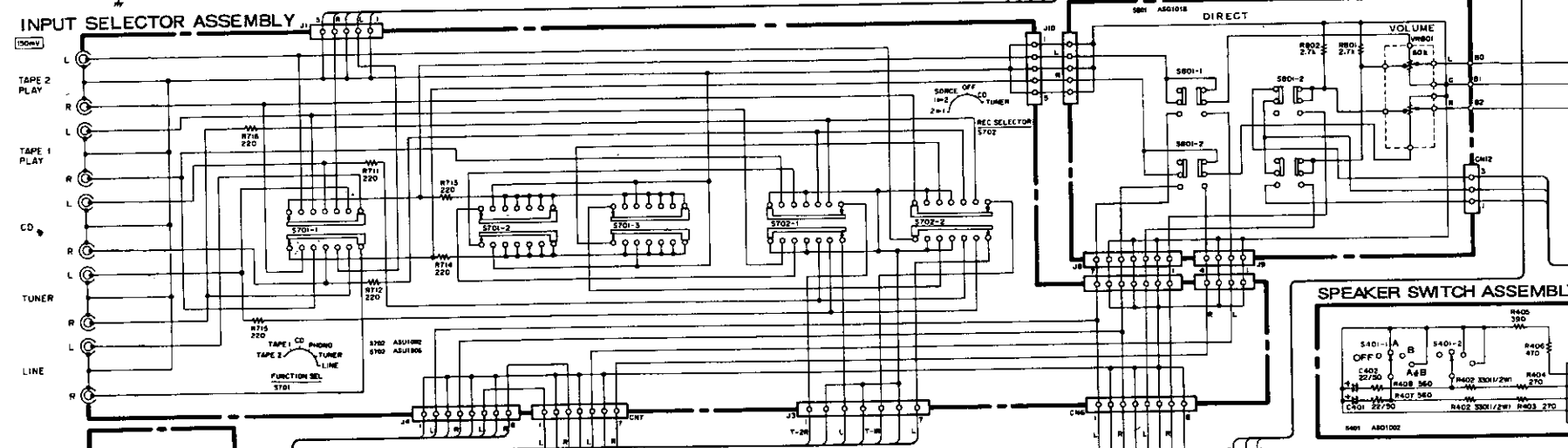
Mark	Symbol & Description	Part No.
	Headphone jack (PHONES)	AKN1002

### 3. SCHEMATIC DIAGRAMS

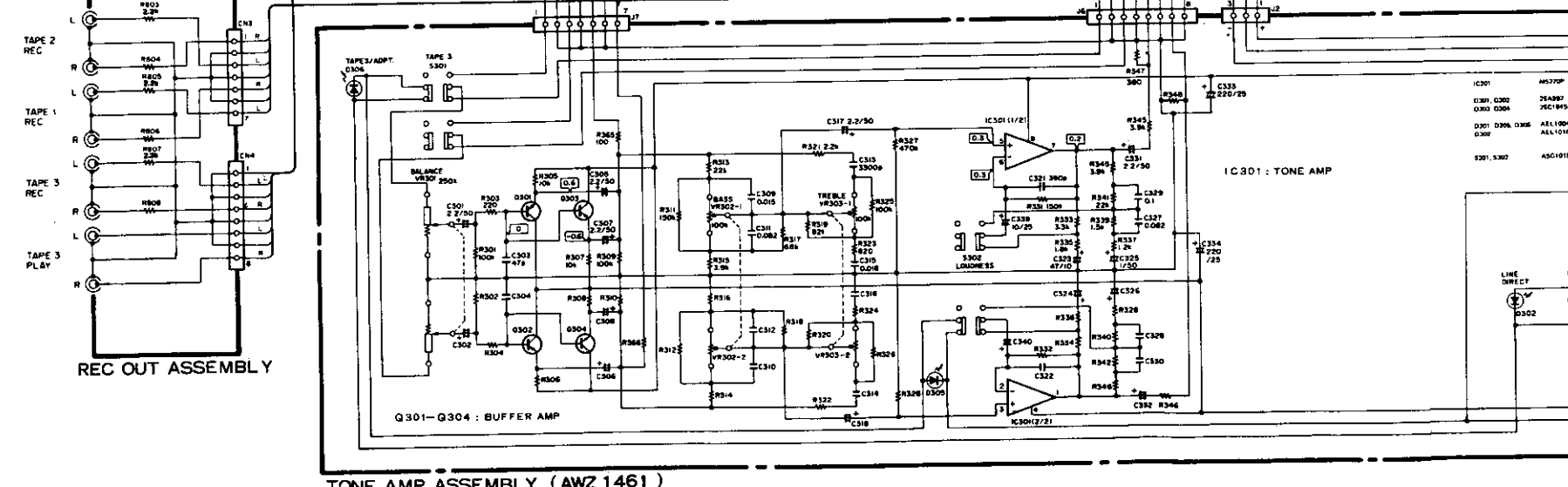
A



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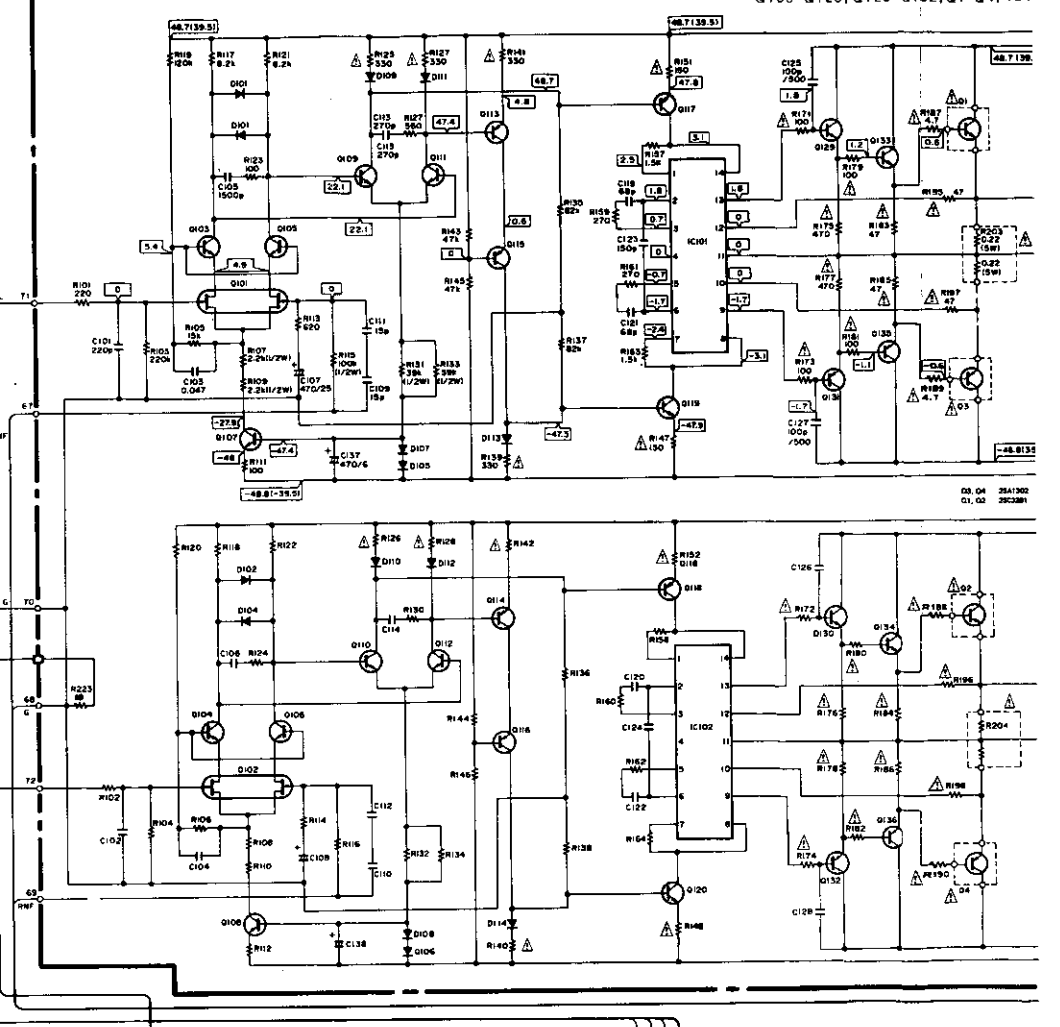


C

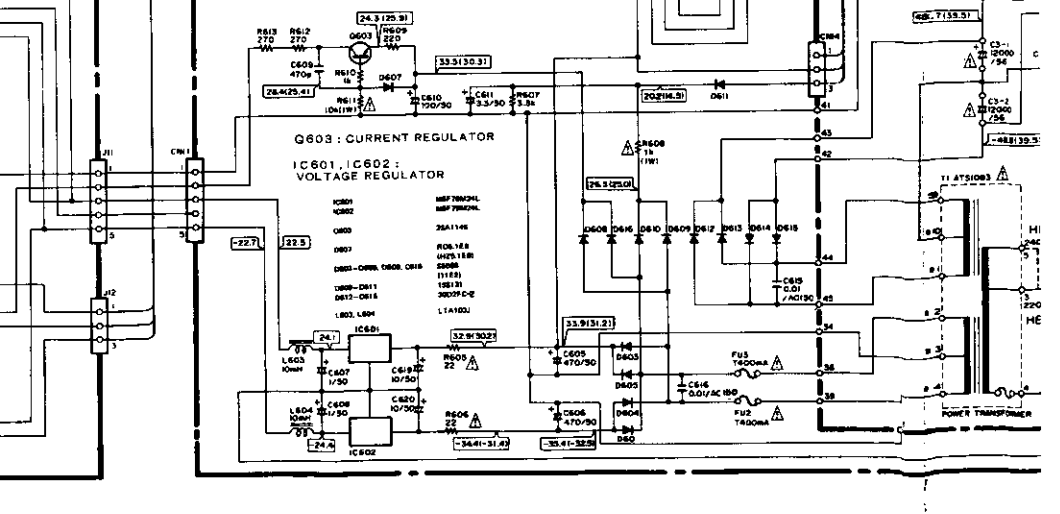


D

POWER AMP ASSEMBLY (AWZ 1518)

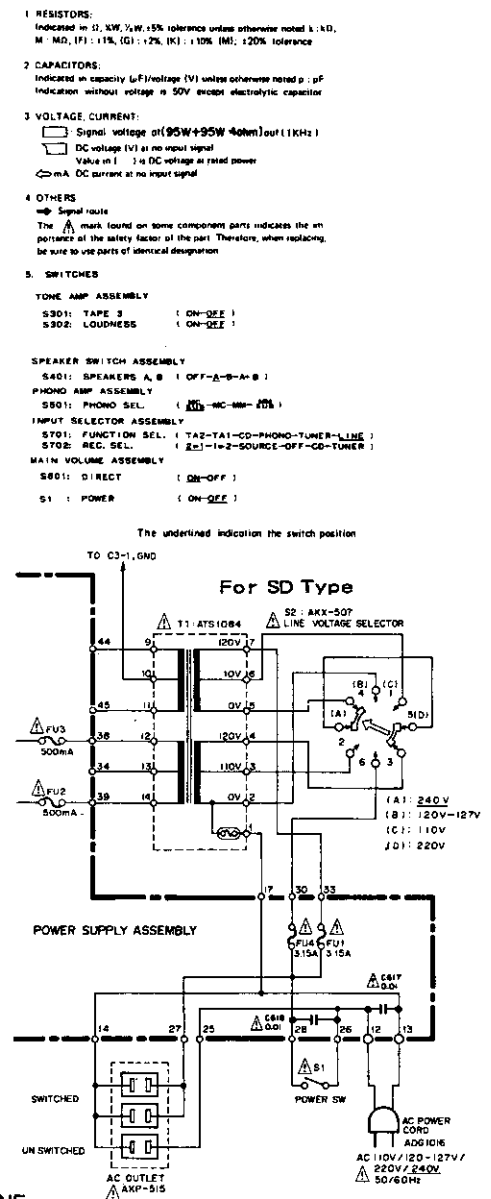
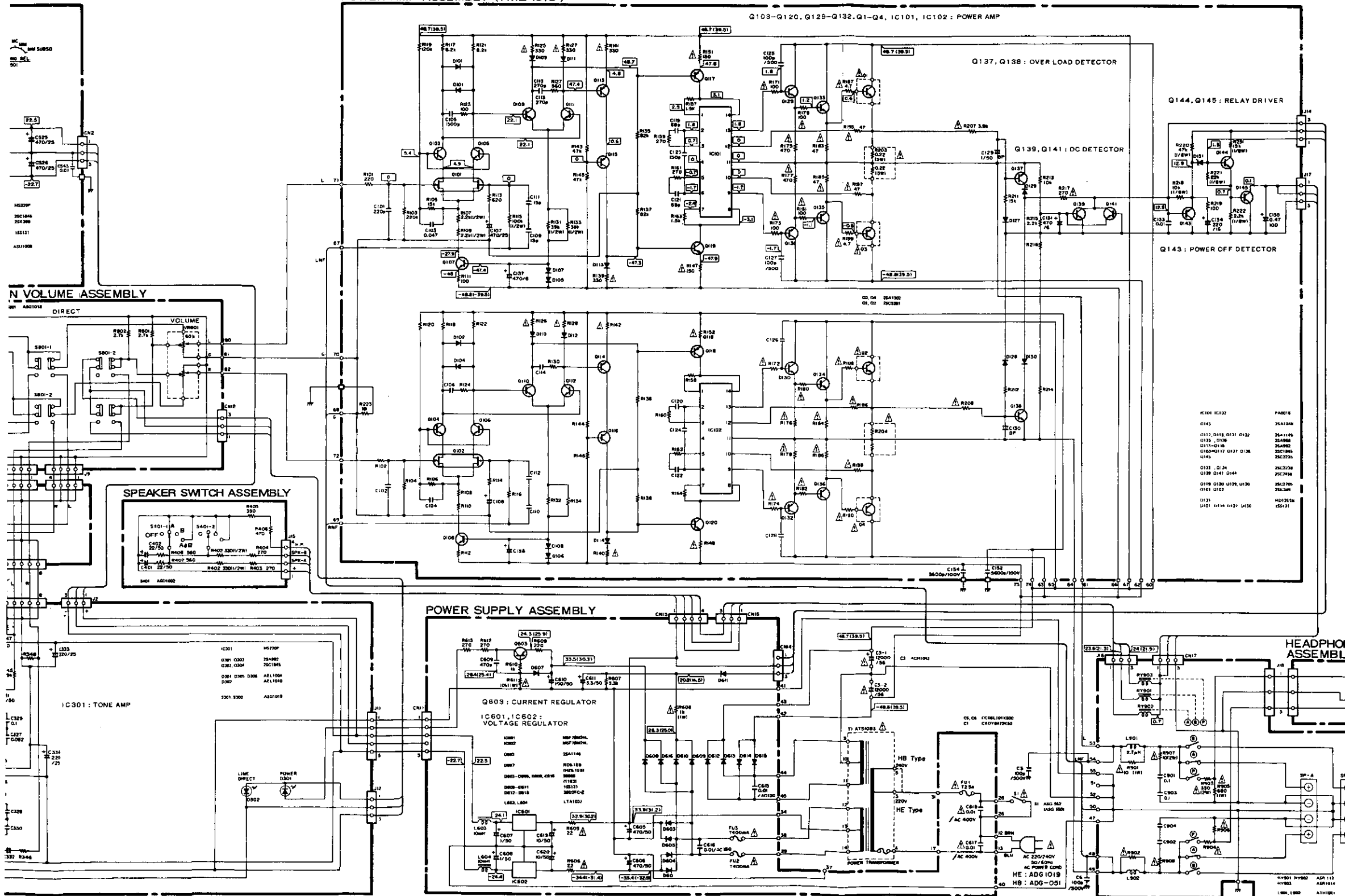


POWER SUPPLY ASSEMBLY





POWER AMP ASSEMBLY (AWZ 1518)



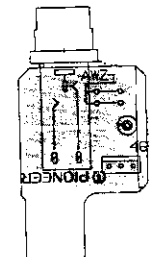
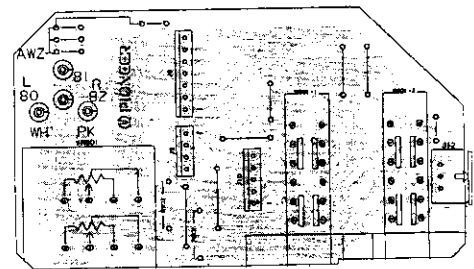
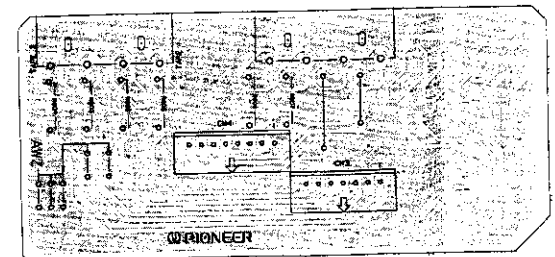
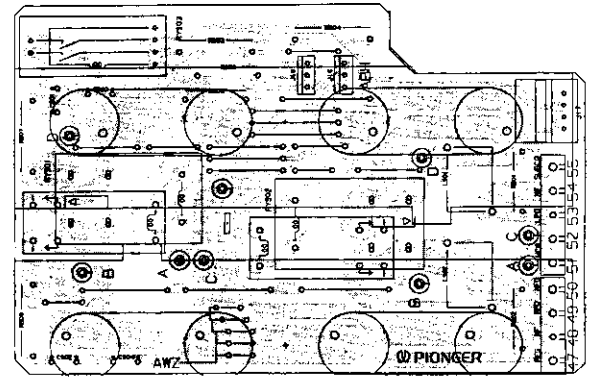
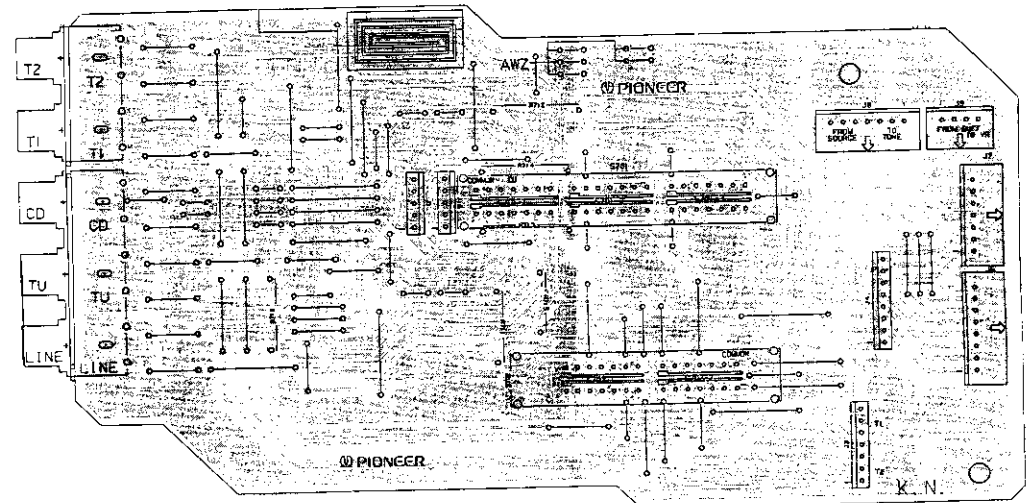
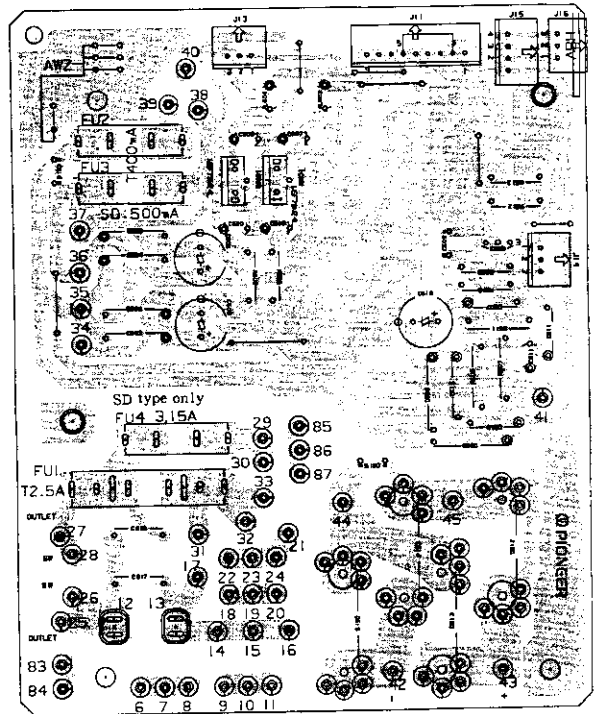
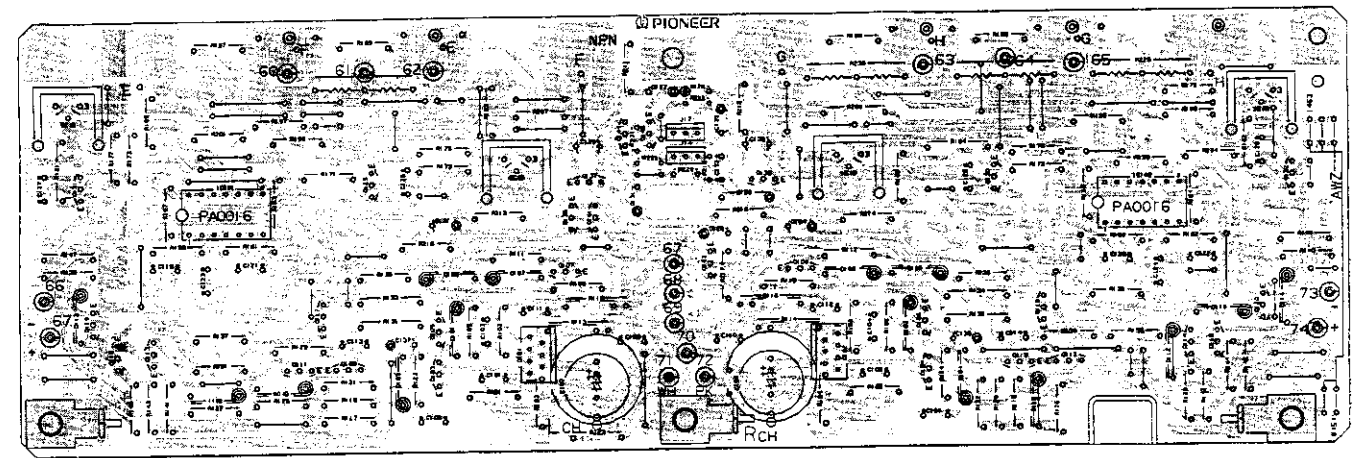
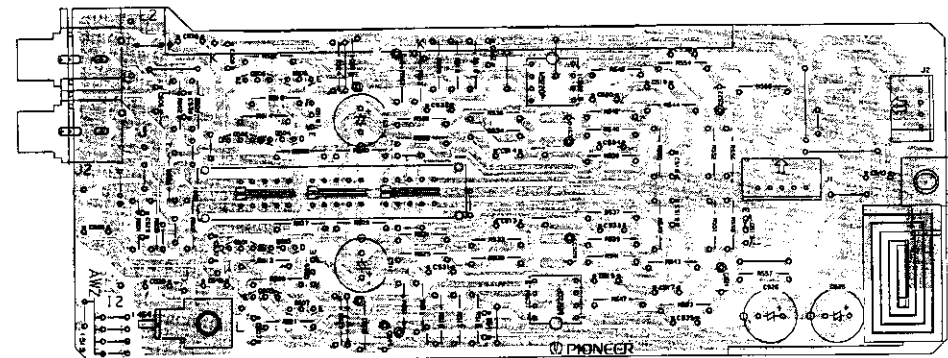
A

B

C

D

4. P.C. BOARD PATTERNS

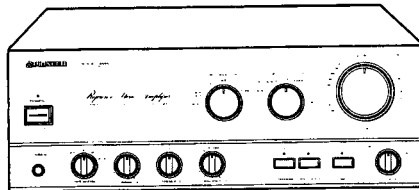


	HE type	HB type	SD type
FU1	T2.5A	T2.5A	3.15A
FU2	T400mA	T400mA	500mA
FU3	T400mA	T400mA	500mA
FU4	.....	.....	3.15A

*ADDITIONAL*

# *Service Manual*

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



**ORDER NO.  
ARP1683**

**STEREO AMPLIFIER**

# **A-616**

# **A-616-S**

- Refer to the service manual ARP1405, A-616.
- This manual is applicable to the A-616/HEZ, HE, HB, SD, KC and A-616-S/HEZ types.
- This service manual includes the most up-to-date informations.

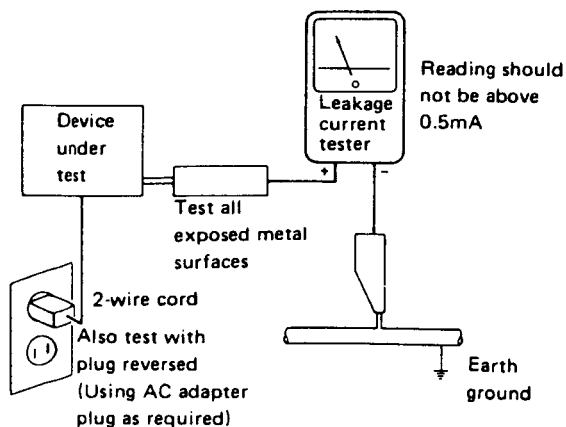
# SAFETY INFORMATION

## 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  $\Delta$  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  $\Delta$  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.

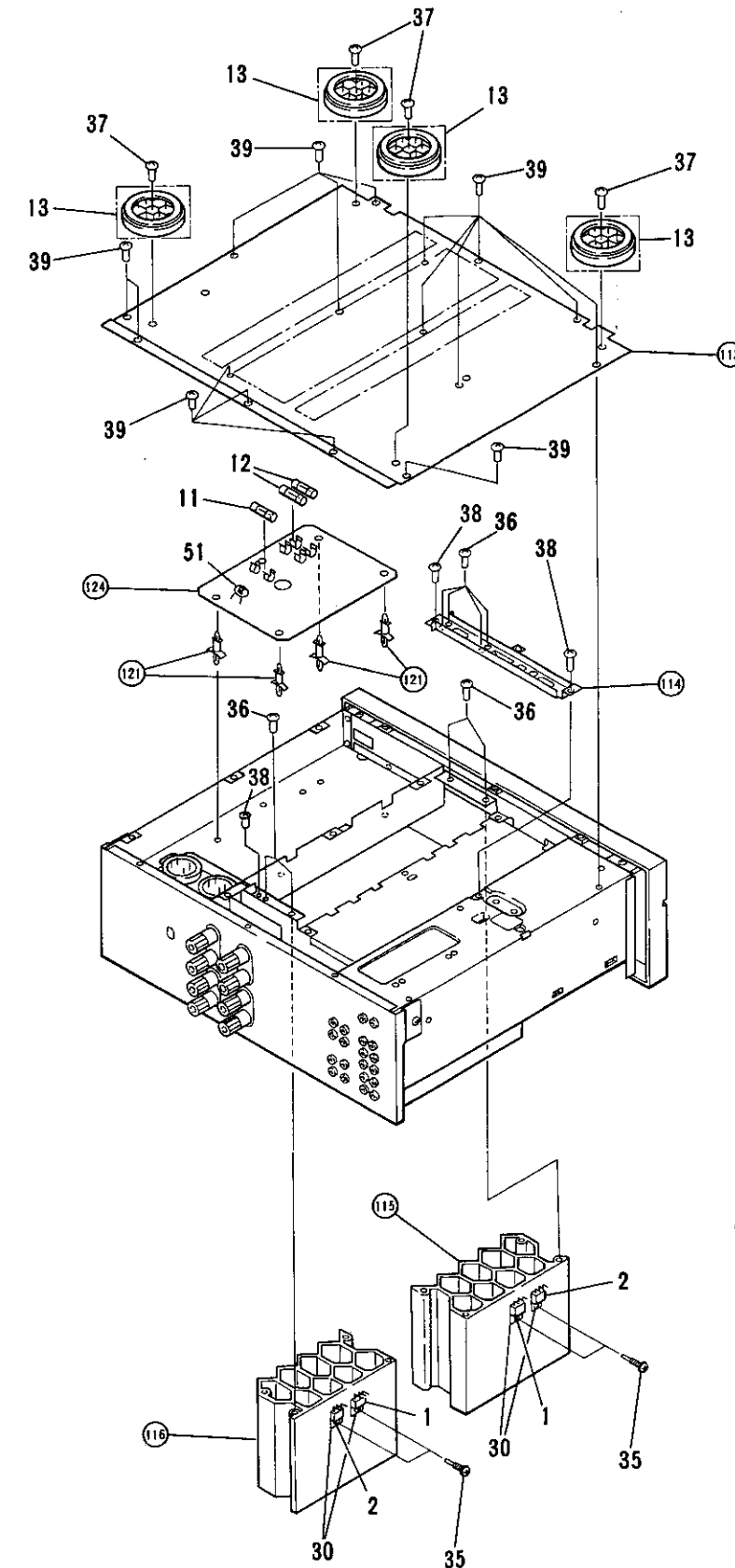
Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
$\Delta$	1	2SA1302	Transistor(Q3,Q4)		29	AEC-882	Strain relief
$\Delta$	2	2SC3281	Transistor(Q1,Q2)		30	AEE1014	Mica sheet
$\Delta$	3	ACH1043	Electrolytic capacitor (1200 $\mu$ F/56V $\times$ 2, C3)		31	AMR1161	Joint arm
	4	CCDSL101K500	Ceramic capacitor (C5,C6)		32	AMR1178	Joint
	5	CKDYB472K50	Ceramic capacitor (C1)		33	ANL1006	Long shaft assembly
	6	ATS1083	Power transformer (AC220/240V,T1)		34	ABA1048	Screw
$\Delta$	7	ASG-552	Push switch (POWER,S1)		35	ABA-297	Screw
$\Delta$	8	ASU1003	Remote slide rotary switch (REC SELECTOR, S3)		36	ABA-298	Screw
	9	ASU1005	Remote slide rotary switch (INPUT SELECTOR, S2)		37	ABA1004	Screw
	10	ASU1007	Remote slide rotary switch (PHONO SELECTOR, S4)	$\Delta$	38	ABA1009	Screw
	11	AEK-403	Fuse (FU1 T2.5A/250V)		39	ABA1011	Screw
$\Delta$	12	AEK-407	Fuse(FU2 FU3 T400mA/ 250V)		40	ABN-065	Shaft nut
	13	AMR1158	Leg assembly		41	ADG1019	AC Power cord
	14	ANK1028	Shield plate		42		.....
	15	AAB1036	Knob L (VOLUME) (Black)		43	ABA1014	Screw (4 $\times$ 12)
		AAB1037	Knob L (Silver)		44	FBT40P080FZK	Screw (4 $\times$ 8) (Black)
	16	AAB1038	Knob M (REC,INPUT SELECTOR) (Black)			FBT40P080FCR	Screw (4 $\times$ 8) (Silver)
		AAB1039	Knob M (Silver)		45	NK90FUC	Nut
	17	AAB1040	Knob S (Black)		46	VMZ30P060FCU	Screw (3 $\times$ 6)
		AAB1041	Knob S (Silver) (PHONO SELECTOR, BALANCE,TREBLE,BASS, SPEAKERS B)		47	AWZ1461	Tone AMP assembly
	18	AAD1162	Knob (Black)		48	AWZ1463	Power AMP assembly
		AAD1163	Knob (Silver)		49	AWZ1464	PHONO AMP assembly
	19	AAD1164	Knob (LINE DIRECT) (Black)		50	ABA1047	Screw
		AAD1165	Knob (Silver)		51	AEH1005	Acetate tape B2
	20	AAD1168	Knob (POWER) (Black)		101		Input selector assembly
		AAD1169	Knob (POWER) (Silver)		102		REC Out assembly
	21	AAM-030	Name plate		103		Speaker switch assembly
	22	AMB1200	Panel base (Black)		104		Main volume assembly
		AMB1201	Panel base (Silver)		105		Speaker terminal assembly
	23	AMR1160	LED Lens		106		Headphone assembly
	24	ANB1103	Front panel (Black)		107		Terminal (2P)
		ANB1104	Front panel (Silver)		108		Terminal (GND)
		ANB1214	A-616 MARK II (Black)		109		Trans frame
		ANB1215	A-616 MARK II (Silver)		110		Right frame
	25	ANE1075	Bonnet case (Black)		111		Rear panel
		ANE1076	Bonnet case (Silver)		112		Panel stay
	26	ABH1033	Coil spring A		113		Bottom plate
	27	ABH1034	Coil spring B		114		Heat sink holder
	28		.....		115		Heat sink
					116		Heat sink
					117		Volume holder
					118		Cushion
					119		Spacer
					120		Cushion rubber
					121		Boss
					122		Pin gromet
					123		Binder
					124		Power supply assembly
					125		Bumper

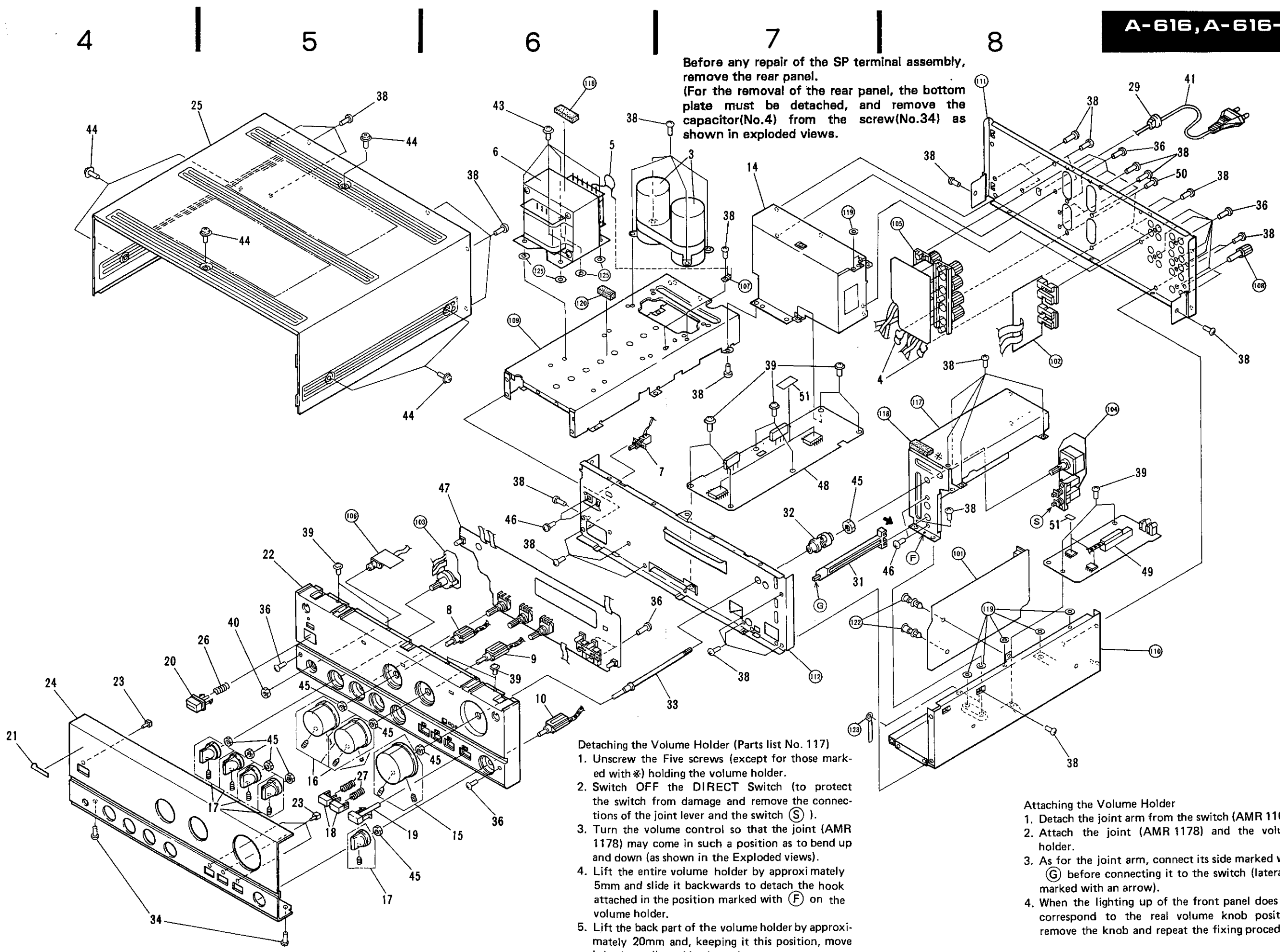
A

B

C

D





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.34) as shown in exploded views.

- Detaching the Volume Holder (Parts list No. 117)**
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 116i).
  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.

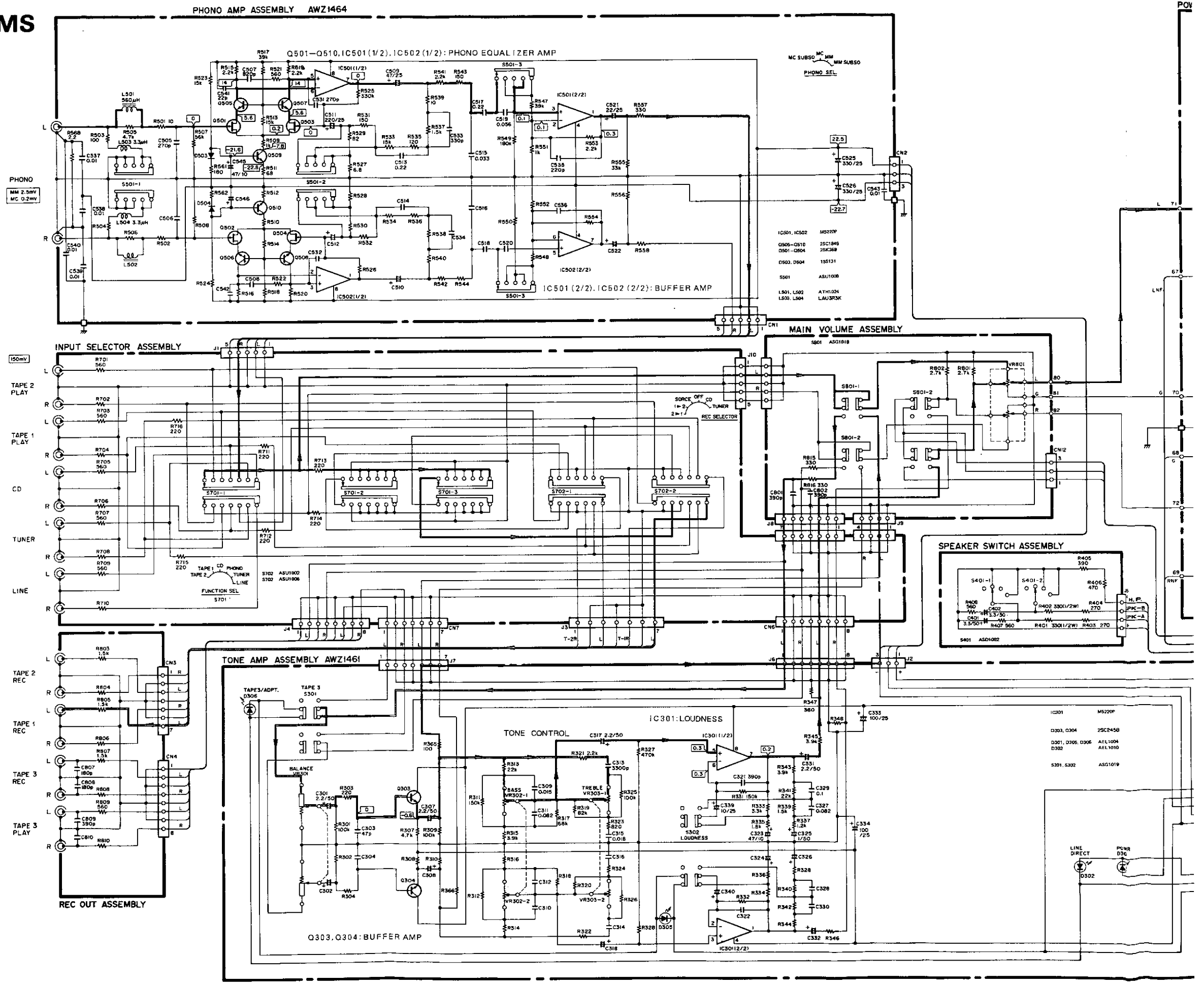
# 2. SCHEMATIC DIAGRAMS

A

B

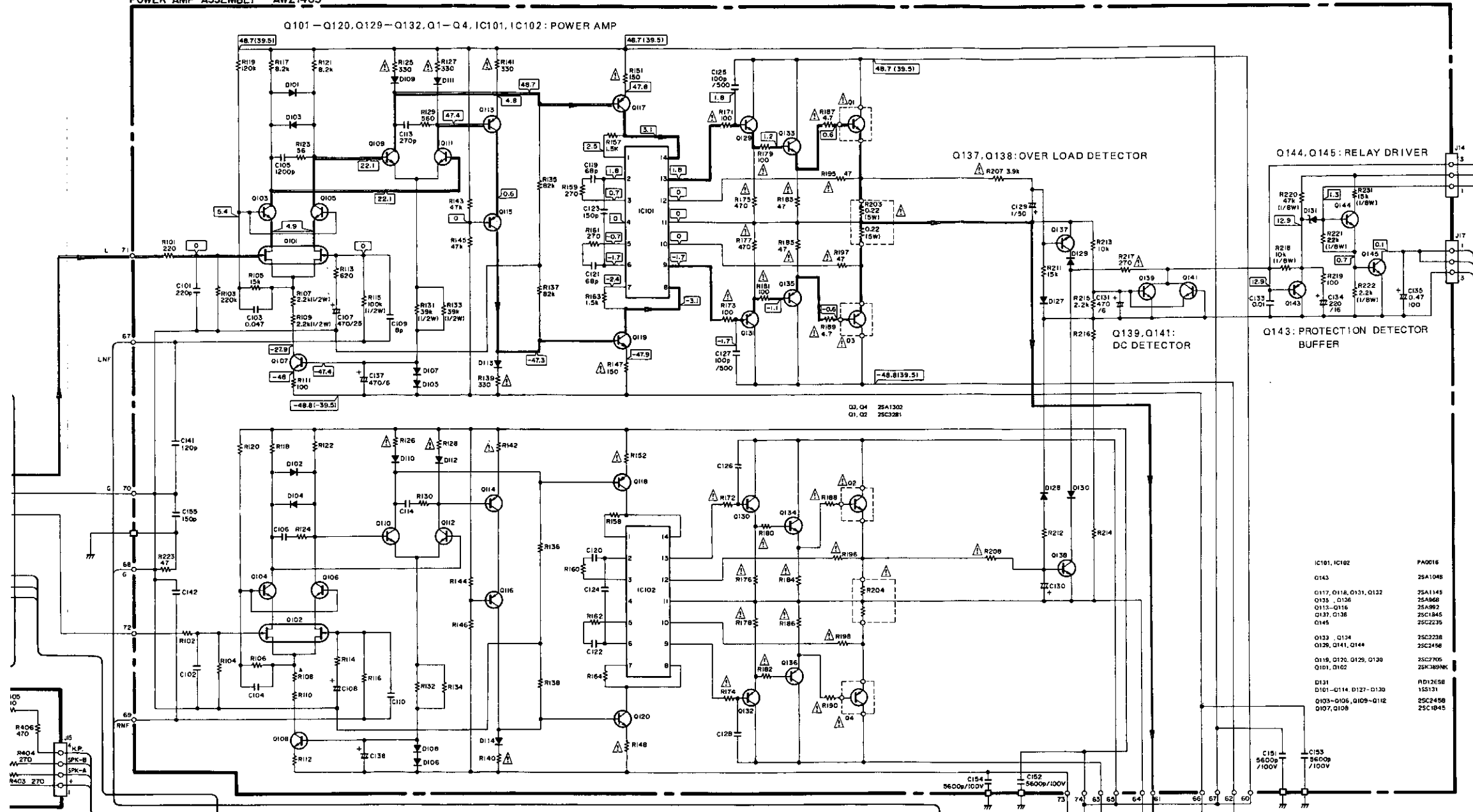
C

D



POWER AMP ASSEMBLY AWZ1463

Q101-Q120, Q129-Q132, Q1-Q4, IC101, IC102: POWER AMP



- RESISTORS:**  
Indicated in Ω, kΩ, MΩ, 5% tolerance unless otherwise noted k, M, M, MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M) : ±20% tolerance
- CAPACITORS:**  
Indicated in capacity (μF)/voltage (V) unless otherwise noted p, μF  
Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE, CURRENT:**  
□ Signal voltage at (95W+95W 40hm) out (1KHz)  
▭ 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  $\Delta$  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.
- SWITCHES**  
TONE AMP ASSEMBLY  
S301: TAP3 (ON-OFF)  
S302: LOUDNESS (ON-OFF)

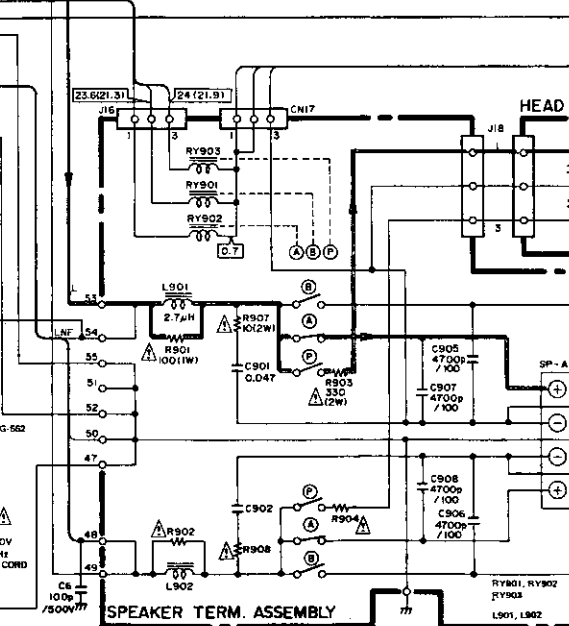
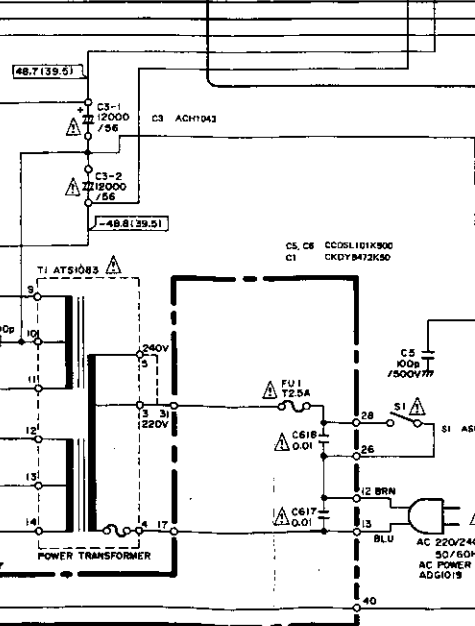
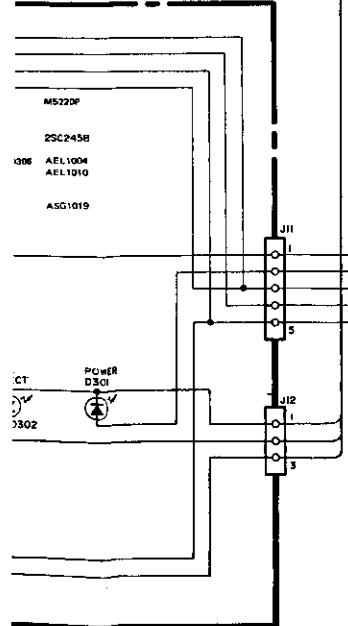
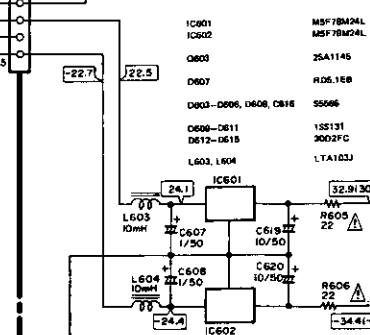
The underlined indication the switch position

IC101, IC102	PA0016
Q143	2SA1045
Q117, Q118, Q131, Q132	2SA1145
Q133, Q136	2SA3668
Q135-Q136	2SA3852
Q137, Q138	2SC1845
Q145	2SC2235
Q133, Q134	2SC2238
Q126, Q141, Q144	2SC2456
Q116, Q120, Q125, Q126	2SC2705
Q101, Q102	2SK3898NK
Q131	RD12658
D101-Q114, D127-Q130	15S131
Q103-Q105, Q109-Q112	2SC2456
D107, D108	2SC1845

POWER SUPPLY ASSEMBLY

POWER OFF DETECTOR

Q603: CURRENT REGULATOR  
IC601, IC602: VOLTAGE REGULATOR









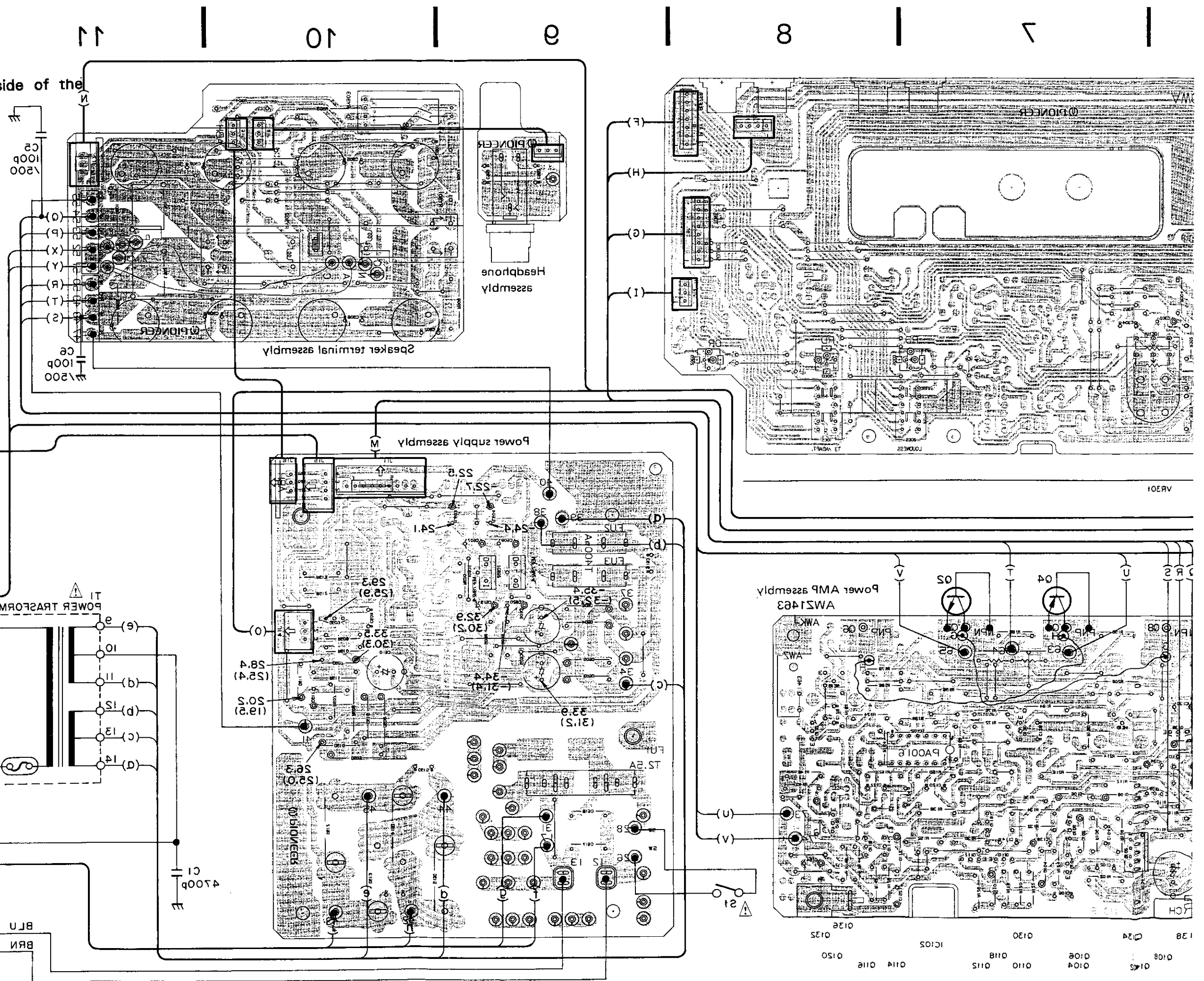
NOTE:  
This picture shows the foil side of the printed circuit.

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  $\Delta$  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%).

560 $\Omega$	56 $\times 10^1$	561.....	RD1/4PS $\text{\textcircled{5}}$ $\text{\textcircled{6}}$ $\text{\textcircled{1}}$ J
47k $\Omega$	47 $\times 10^3$	473.....	RD1/4PS $\text{\textcircled{4}}$ $\text{\textcircled{7}}$ $\text{\textcircled{3}}$ J
0.5 $\Omega$	0R5.....		RN2H $\text{\textcircled{0}}$ $\text{\textcircled{5}}$ K
1 $\Omega$	010.....		RSIP $\text{\textcircled{0}}$ $\text{\textcircled{1}}$ $\text{\textcircled{0}}$ K

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

5.62k $\Omega$	562 $\times 10^1$	5621.....	RN1/4SR $\text{\textcircled{5}}$ $\text{\textcircled{6}}$ $\text{\textcircled{2}}$ $\text{\textcircled{1}}$ F
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**Miscellaneous Prts List**

**P.C. BOADE ASSEMBLIES**

Mark	Symbol & Description	Part No.
	Tone AMP assembly	AWZ1461
	Power AMP assembly	AWZ1463
	PHONO AMP assembly	AWZ1464
	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.
$\Delta$	Q3, Q4	2SA1302
$\Delta$	Q1, Q2	2SC3281
$\Delta$	C3 Electrolytic capacitor (12000 $\mu$ F/56V $\times$ 2)	ACH1043
	C5, C6 Ceramic capacitor	CCDSL101K500
	C1 Ceramic capacitor	CKDYB472K50
$\Delta$	T1 Power transformer	ATS1083
$\Delta$	FU1 Fuse (T2.5A/250V)	AEK-403
$\Delta$	FU2, FU3 Fuse (T400mA/250V)	AEK-407
$\Delta$	AC power cord	ADG1019
$\Delta$	S1 Push switch (POWER)	ASG-552
	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 (AWZ1461)**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC301	M522OP
	Q303, Q304	2SC2458
	D301, D305, D306 LED (POWER, TAPE3/ADPT LOUDNESS)	AEL1004
	D302 LED (LINE DIRECT)	AEL1010

**SWITCHES**

Mark	Symbol & Description	Part No.
	S301, S302 Push switch (TAPE3, LOUDNESS)	ASG1019

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C303, C304	CCCSL470J50
	C321, C322	CCDSL390J50
	C325, C326	CEAS $\text{\textcircled{O}}$ 10M50
	C339, C340	CEAS100M25
	C301, C302, C307, C308, C317, C318, C331, C332	CEAS $\text{\textcircled{2}}$ R2M50
	C333, C334	CEAS101M25
	C323, C324	CEAS470M10
	C329, C330	CFTK $\text{\textcircled{A}}$ 104J50
	C309, C310	CFTK $\text{\textcircled{A}}$ 153J50
	C315, C316	CFTK $\text{\textcircled{A}}$ 183J50
	C311, C312, C327, C328 C313, C314	CFTK $\text{\textcircled{A}}$ 823J50 CQI $\text{\textcircled{A}}$ 332K50

**RESISTORS**

Mark	Symbol & Description	Part No.
	VR301 Variable resistor (250K $\Omega$ $\times$ 2: BALANCE)	AC $\text{\textcircled{1}}$ 027
	VR302, VR303 Variable resistor (100K $\Omega$ $\times$ 2: BASS, TREBLE)	AC $\text{\textcircled{1}}$ 028
	Other resistor	RD $\text{\textcircled{1}}$ 4PM $\text{\textcircled{0}}$ $\text{\textcircled{0}}$ $\text{\textcircled{0}}$ J

## Power AMP Assembly (AWZ1463) SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC101, IC102	PA0016
	Q143	2SA1048
	Q117, Q118, Q131, Q132	2SA1145
	Q135, Q136	2SA968
	Q113 - Q116	2SA992
	Q107, Q108, Q137, Q138	2SC1845
	Q145	2SC2235
	Q133, Q134	2SC2238
	Q103 - Q106, Q109 - Q112, Q139,	2SC2458
	Q141, Q144	
	Q119, Q120, Q129, Q130	2SC2705
	Q101, Q102	2SK389NK
	D131	RD12ESB
	D101 - D114, D127 - D130	1SS131

## CAPACITORS

Mark	Symbol & Description	Part No.
	C109, C110	CMA080D500
	C101, C102	CCCSL221J50
	C113, C114	CCCSL271J50
	C125 - C128	CCCSL101K500
	C123, C124, C155	CCCSL151J50
	C141, C142	CCCSL121J50
	C119 - C122	CCDSL680J50
	C129, C130	CEAS010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131, C137, C138	CEAS471M6
	C107, C108	CEXA471M25
	C103, C104	CFTXA473J50
	C105, C106	CKCYB122K50
	C133	CKCYF103Z50
	C151 - C154	CQMXA562J100

## RESISTORS

Mark	Symbol & Description	Part No.
⚠	R203, R204 Wire wound resistor (0.22Ω × 2.5W)	ACN - 146
	R107 - R110, R131 - R134	RD1/2PM□□□J
⚠	R171 - R182, R187 - R190, R207, R208, R217	RD1/4PMF□□□J
	R101 - R104, R113 - R116	RDR1/4PM□□□J
	R218, R220 - R222, R231	RD1/8PM□□□J
⚠	R125 - R128, R139 - R142, R147, R148, R151, R152, R183 - R186 R195 - R198	RFA1/4PS□□□J
	Other resistors	RD1/4PM□□□J

## Phono AMP Assembly (AWZ1464) SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC501, IC502	M5220P
	Q505 - Q510	2SC1845
	Q501 - Q504	2SK369
	D503, D504	1SS131

## SWITCH

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

## COILS

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

## CAPACITORS

Mark	Symbol & Description	Part No.
	C541, C542	CCDSL220J50
	C535, C536	CCDSL221J50
	C505, C506, C531, C532	CCDSL271J50
	C521, C522	CEXA220M25
	C511, C512	CEXA221M25
	C509, C510	CEXA470M25
	C525, C526	CEXA331M25
	C513, C514, C517, C518	CFTXA224J50
	C515, C516	CFTXA333J50
	C519, C520	CFTXA563J50
	C507, C508	CQSA821J50
	C533, C534	CKDYB331K50
	C537 - C540, C543	CKDYF103Z50
	C545, C546	CEAS470M10

## RESISTORS

Mark	Symbol & Description	Part No.
	R527 - R530, R533, R534, R537, R538, R541, R542	RDR1/4PM□□□J
	R505, R506, R568	RD1/8PM□□□J
	Other resistors	RD1/4PM□□□J

## OTHERS

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO: RED)	AKB1025
	1P pin jack (PHONO: WHITE)	AKB1026

**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 - R716	RD1/4PM□□□J

**OTHERS**

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1, TAPE2 PLAY)	AKB1007
	6P pin jack (CD, TUNER, LINE IN)	AKB1008

**REC Out Assembly**

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C807, C808 C809, C810	CCDSL181J50 CKDYB391K50

**RESISTORS**

Mark	Symbol & Description	Part No.
	R803 - R806, R807, R808 R809, R810	RD1/4PM□□□J RD1/8PM152J

**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 Other resistors	RD1/2PM331J 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 (60KΩ × 2: VOLUME)	ACW - 136
	Other resistors	RD1/4PM□□□J

**Power Supply Assembly  
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC601	M5F78M24L
	IC602	M5F79M24L
	Q603	2SA1145
	D607	RD5.1EB
	D603 - D606, D608, D616	S5566
	D609 - D611	1SS131
	D612 - D615	30D2FC - 2

**COILS**

Mark	Symbol & Description	Part No.
	L603, L604 inductor (10mH)	LTA103J

**CAPACITORS**

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

**RESISTORS**

Mark	Symbol & Description	Part No.
△	R605, R606	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
	Other resistors	RD1/4PM□□□J

**Speaker Terminal Assembly****RELAIIES**

Mark	Symbol & Description	Part No.
	RY901,RY902 Relay (SPEAKER PROTECTION)	ASR-112
	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

**COILS**

Mark	Symbol & Description	Part No.
	L901,L902 AC choke coil (2.7 $\mu$ H)	ATH1021

**CAPACITORS**

Mark	Symbol & Description	Part No.
	C901,C902	CFTXA473J50
	C905-C908	CQMXA472J100

**RESISTORS**

Mark	Symbol & Description	Part No.
$\triangle$	R901,R902	RS1LMF101J
$\triangle$	R907,R908	RS2LMF100J
$\triangle$	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 AND KC TYPES

### 1. CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

- Parts without part number cannot be supplied.
- 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.

The A-616/HE, HB, SD and KC types are the same as the A-616/HEZ type with the exception of the following sections.

Mark	Symbol & Description	Part No.				
		A-616/ HEZ type	A-616/ HE type	A-616/ HB type	A-616/ SD type	A-616/ KC type
	POWER AMP assembly	AWZ1463	AWZ1518	AWZ1518	AWZ1518	AWZ1518
	PHONO AMP assembly	AWZ1464	AWZ1519	AWZ1519	AWZ1519	AWZ1519
	Headphone 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
	Input selector assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	REC out assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Main volume assembly	Non Supply	Non Supply	Non Supply	Non Supply	Non Supply
	Screw (GND)	ABA1047	ABA-298	ABA-298	ABA-298	ABA-298
	C5,C6 Ceramic capacitor	CCDSL101K500	.....	.....	.....	.....
	C1 Ceramic capacitor	CKDYB472K50	.....	.....	.....	.....
	Operating instructions (German)	ARC1047	.....	.....	.....	.....
	Operating instructions (Spanish)	.....	.....	.....	ARC1066	.....
	Operating instructions (English)	.....	.....	ARB1090	ARB1090	ARE1071
	Operating instructions (English/German/French/Italian)	.....	ARE1064	.....	.....	.....
$\Delta$	AC Power Cord	ADG1019	ADG1019	ADG-051	ADG1016	ADG-077
$\Delta$	Fu1 Fuse (T2.5A/250)	AEK-403	AEK-403	AEK-512	.....	.....
$\Delta$	Fu1,Fu4 Fuse (3.15A)	.....	.....	.....	AEK-124	.....
$\Delta$	Fu1 Fuse (6.3A)	.....	.....	.....	.....	AEK-309
$\Delta$	Fu2,Fu3 Fuse (T400mA/250V)	AEK-407	AEK-407	AEK-504	.....	.....
$\Delta$	Fu2,Fu3 Fuse (500mA)	.....	.....	.....	AEK-136	AEK-136
$\Delta$	AC socket 3P(AC OUTLET)	.....	.....	.....	AKP-515	AKP-515
$\Delta$	S2 Line voltage Selector (AC110V/120-127V/220V/240V)	.....	.....	.....	AKX-507	.....
$\Delta$	T1 Power transformer (AC220/240V)	ATS1083	ATS1083	ATS1083	.....	.....
$\Delta$	T1 Power transformer (AC110V/120-127V/220V/240V)	.....	.....	.....	ATS1084	.....
$\Delta$	T1 Power transformer (AC120V)	.....	.....	.....	.....	ATS1128
	Strain relief	AEC-882	AEC-882	AEC-882	AEC-882	AEP-113
	Push switch (POWER)	ASG-552	ASG-552	ASG-552	ASG-552	ASG-550

### 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  $\Delta$  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. 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%).

560 $\Omega$	$56 \times 10^1$	561.....	RD1/4PS $\Delta$ $\Delta$ J
47k $\Omega$	$47 \times 10^3$	473.....	RD1/4PS $\Delta$ $\Delta$ J
0.5 $\Omega$	0R5.....		RN2H $\Delta$ $\Delta$ K
1 $\Omega$	010.....		RSIP $\Delta$ $\Delta$ K

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

5.62k $\Omega$	$562 \times 10^1$	5621.....	RN1/4SR $\Delta$ $\Delta$ F
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#### Power AMP Assembly (AWZ1518)

##### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC101,IC102	PA0016
	Q143	2SA1048
	Q117,Q118,Q131,Q132	2SA1145
	Q135,Q136	2SA968
	Q113-Q116	2SA992
	Q107,Q108,Q137,Q138	2SC1845
	Q145	2SC2235
	Q133,Q134	2SC2238
	Q103-Q106,Q109-Q112,Q139, Q141,Q144	2SC2458
	Q119,Q120,Q129,Q130	2SC2705
	Q101,Q102	2SK389NK
	D131	RD12ESB
	D101-D114,D127-D130	1SS131

##### CAPACITORS

Mark	Symbol & Description	Part No.
	C101,C102	CCCSL221J50
	C113,C114	CCCSL271J50
	C125-C128	CCDSL101K500
	C123,C124	CCDSL151J50
	C119-C122	CCDSL680J50
	C129,C130	CEAS010M50
	C135	CEASR47M100
	C134	CEAS221M16
	C131,C137,C138	CEAS471M6
	C107,C108	CEYA471M25
	C103,C104	CFTXA473J50
	C105,C106	CKCYB152K50
	C133	CKCYF103Z50
	C109-C112	CMA150J500

#### RESISTORS

Mark	Symbol & Description	Part No.
$\Delta$	R203,R204 Wire wound resistor (0.22 $\Omega$ x 2:5W)	ACN-146
$\Delta$	R107-R110,R131-R134	RD1/2PM $\Delta$ $\Delta$ J
$\Delta$	R171-R182,R187-R190,R207, R208,R217	RD1/4PMF $\Delta$ $\Delta$ J
$\Delta$	R218,R220-R222,R231	RD1/8PM $\Delta$ $\Delta$ J
$\Delta$	R125-R128,R139-R142,R147, R148,R151,R152,R183-R186	RFA1/4PS $\Delta$ $\Delta$ J
	R195-R198	
	R101-R104,R113-R116	RDR1/4PM $\Delta$ $\Delta$ J
	Other resistors	RD1/4PM $\Delta$ $\Delta$ J

#### Phono AMP Assembly (AWZ1519)

##### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC501,IC502	M5220P
	Q505-Q510	2SC1845
	Q501-Q504	2SK369
	D503,D504	1SS131

##### SWITCH

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

##### CAPACITORS

Mark	Symbol & Description	Part No.
	C541,C542	CCDSL220J50
	C505,C506,C535,C536	CCDSL221J50
	C531,C532	CCDSL271J50
	C521,C522	CXA220M25
	C511,C512	CXA221M25
	C546,C545	CEAS470M10

Mark	Symbol & Description	Part No.
	C509,C510	CEXA470M25
	C525,C526	CEXA331M25
	C513,C514,C517,C518	CFTXA224J50
	C515,C516	CFTXA333J50
	C519,C520	CFTXA563J50
	C529,C530	CFTXA103J50
	C507,C508	CQSA821K50
	C533,C534	CKDYB331K50
	C537-C540,C543	CKDYF103Z50

**RESISTORS**

Mark	Symbol & Description	Part No.
	R527-R530,R533,R534,R537, R538,R541,R542	RDR1/4PM□□□J
	R568	RD1/8PM2R2J
	Other resistors	RD1/4PM□□□J

**OTHERS**

Mark	Symbol & Description	Part No.
	1P pin jack (PHONO:RED)	AKB1025
	1P pin jack (PHONO:WHITE)	AKB1026

**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.
	R711-R716	RD1/4PM221J

**OTHERS**

Mark	Symbol & Description	Part No.
	4P pin jack (TAPE1,TAPE2 PLAY)	AKB1007
	8P pin jack (CD,TUNER,LINE IN)	AKB1008

**REC Out Assembly**

**RESISTORS**

Mark	Symbol & Description	Part No.
	R803-R806	RD1/4PM222J
	R807,R808	RD1/8PM222J

**OTHERS**

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

**Main Volume Assembly**

**SWITCH**

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

**RESISTORS**

Mark	Symbol & Description	Part No.
	VR801 Variable resistors (60KΩ × 2: VOLUME)	ACW-136
	R801,R802	RDR1/4PM272J

**Power Supply Assembly**

**SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC601	M5F78M24L
	IC602	M5F79M24L
	Q603	2SA1145
	D607	RD5.1EB
	D603-D606,D608,D616	S5566
	D609-D611	1SS131
	D612-D615	30D2FC-2

**COILS**

Mark	Symbol & Description	Part No.
	L603,L604 Inductor (10mH)	LTA103J

**CAPACITORS**

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

**RESISTORS**

Mark	Symbol & Description	Part No.
△	R605,R606	RD1/4PMFL220J
△	R608	RS1LMF102J
△	R611	RS1PMF103J
	Other resistors	RD1/4PM□□□J

**Speaker Terminal Assembly**

**RELAIIES**

Mark	Symbol & Description	Part No.
	RY901,RY902 Relay (SPEAKER PROTECTION)	ASR-112
	RY903 Relay (HEADPHONE PROTECTION)	ASR1014

**COILS**

Mark	Symbol & Description	Part No.
	L901,L902 AF choke coil (2.7 μH)	ATH1021

**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.
	Speaker Terminal (4P)	AKE1006

**Headphone Assembly**

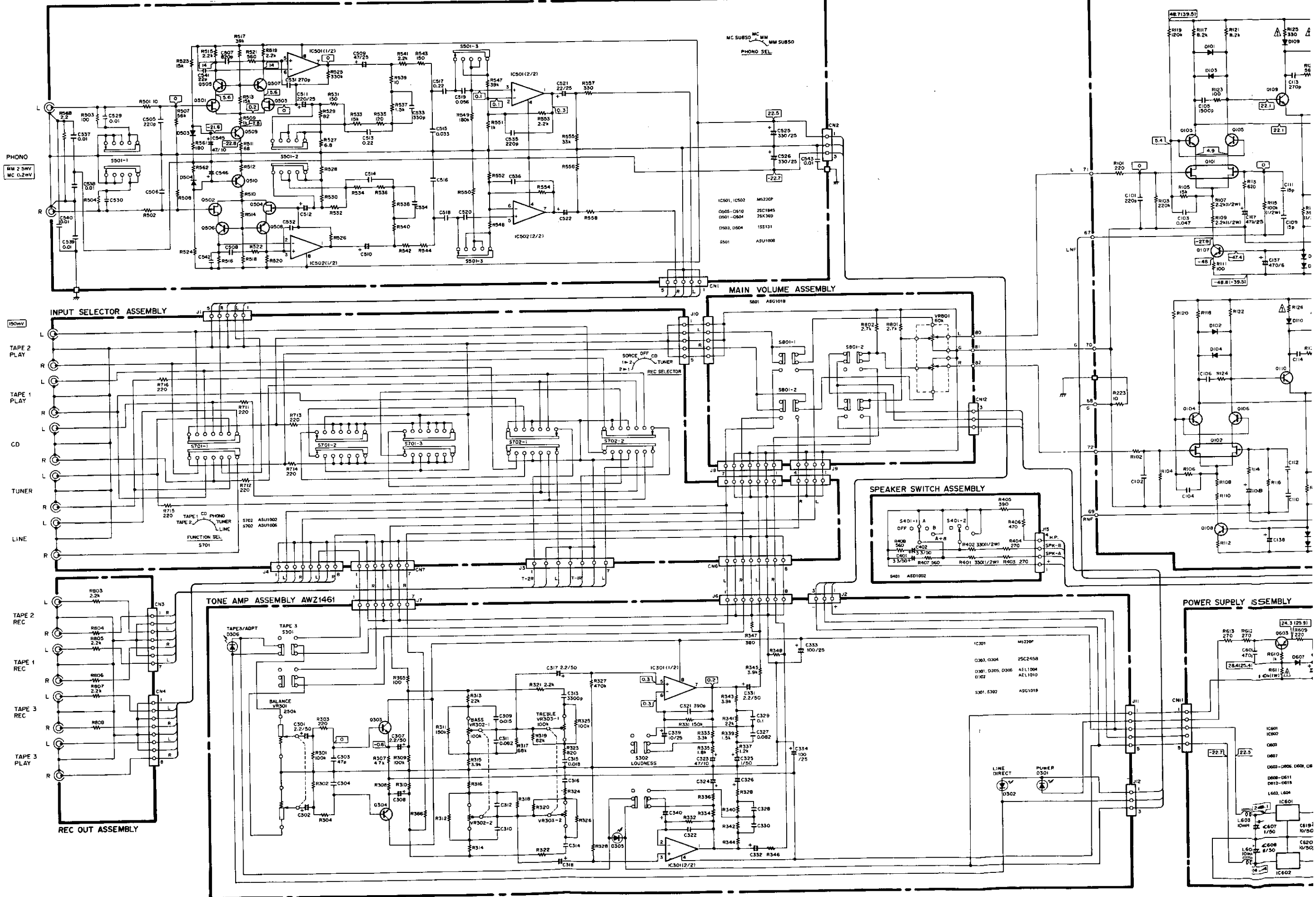
**OTHERS**

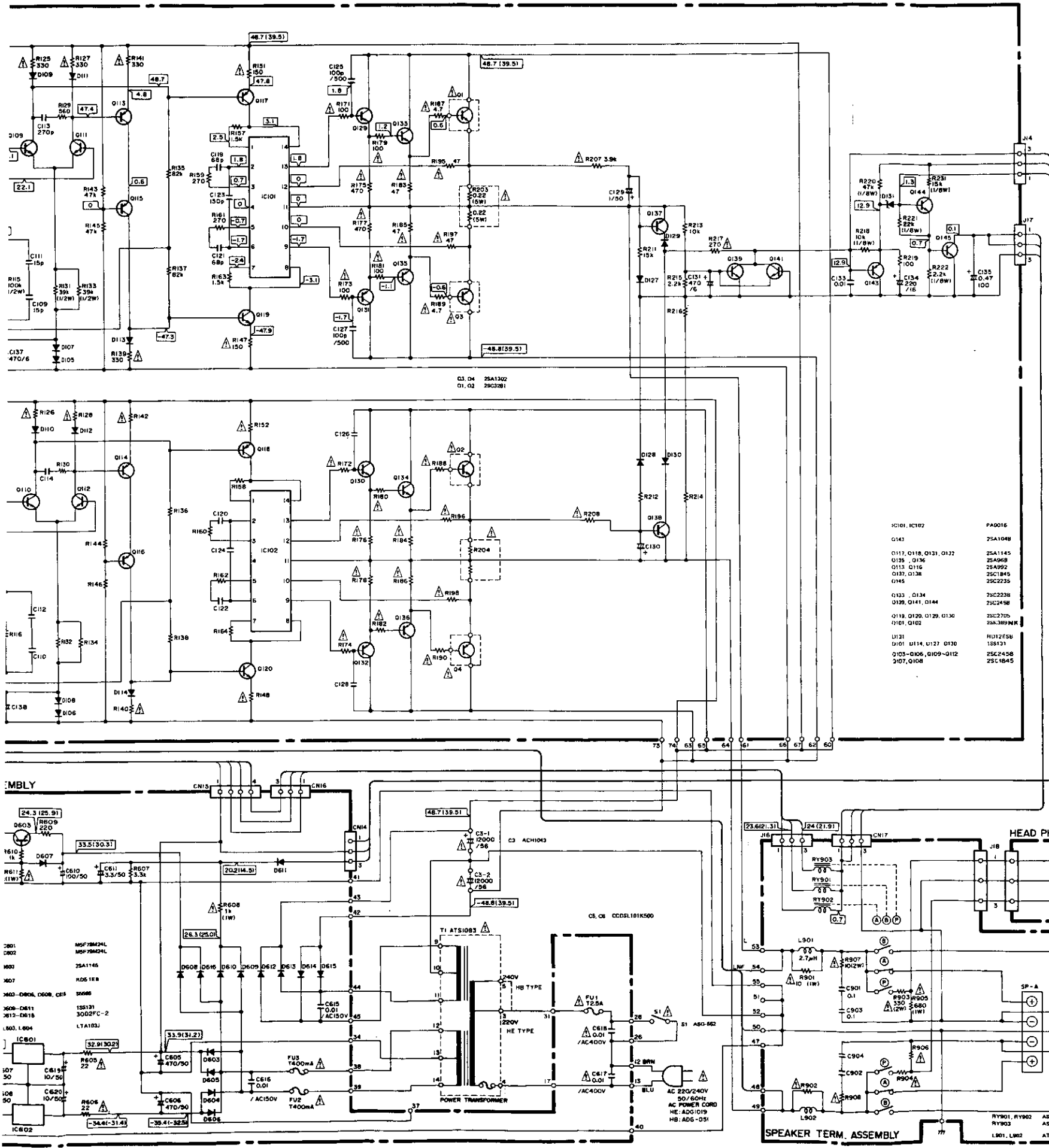
Mark	Symbol & Description	Part No.
	Headphone jack (PHONOS)	AKN1002

3. SCHEMATIC DIAGRAM

PHONO AMP ASSEMBLY AWZ1519

POWER AMP ASSEMBLY AWZ1518





- 1. RESISTORS:**  
Indicated in Ω, kΩ, MΩ, 1/2W, 1/4W, 15% tolerance unless otherwise noted k: kΩ, M: MΩ, (F): 1%, (G): 1/2%, (K): 10% (M): 20% 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 (95W+95W 4ohm) out (1kHz)  
◻: DC voltage (V) at no input signal  
Value in ( ) is DC voltage at rated power  
◁: mA: DC current at no input signal
- 4. OTHERS:**  
→: Signal route  
△: 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**
- AMP ASSEMBLY**  
S301: TAPE SEL (ON-OFF)  
S302: LOUDNESS (ON-OFF)
- SPEAKER SWITCH ASSEMBLY**  
S401: SPEAKERS A, B (OFF-A-B-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. (2-1-2-SOURCE-OFF-CD-TUNER)
- MAIN VOLUME ASSEMBLY**  
S801: DIRECT (ON-OFF)  
S1: POWER (ON-OFF)

**Line voltage selection (HE, HB TYPES)**

- Line voltage can be changed with following steps.
1. Disconnect the AC power cord.
  2. Remove the top cover.
  3. Change the connection wire (To Power transformer) of Terminal No. 3 (White) as follows.

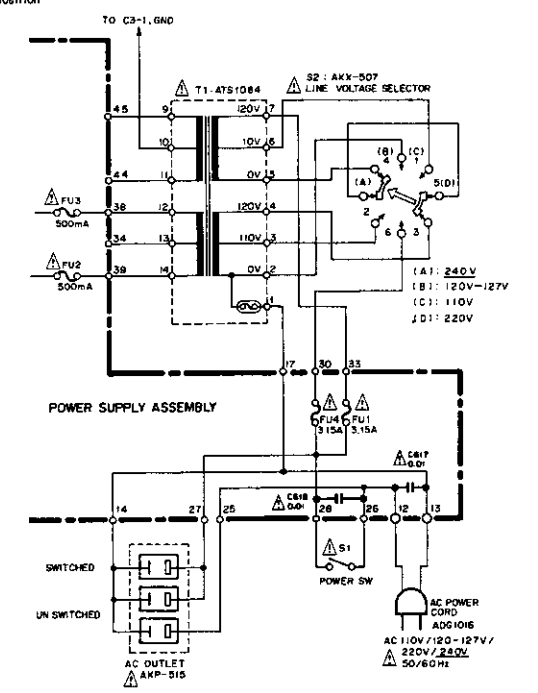
Voltage	Terminal No. 3	Terminal No. 5
220 V	White	.....
240 V	.....	White

4. Stick the voltage level on the rear panel.

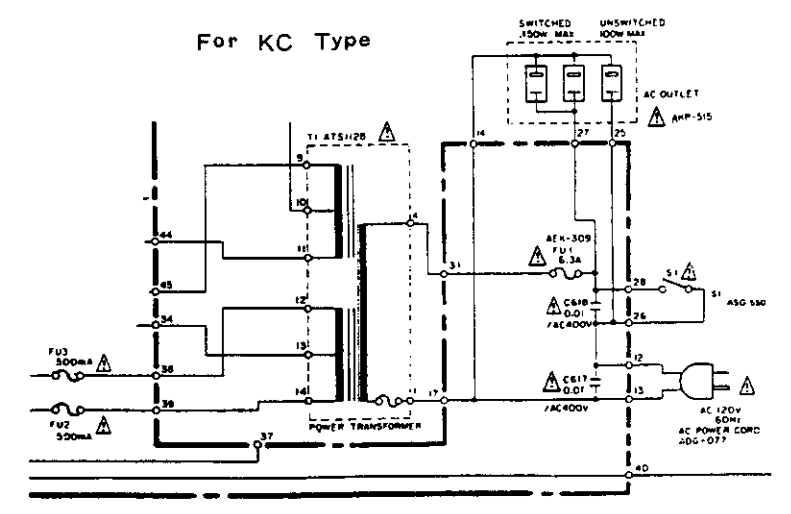
Part No.	Description
AAX-193	220V level
AAX-192	240V level

The underlined indication the switch position

**For SD Type**

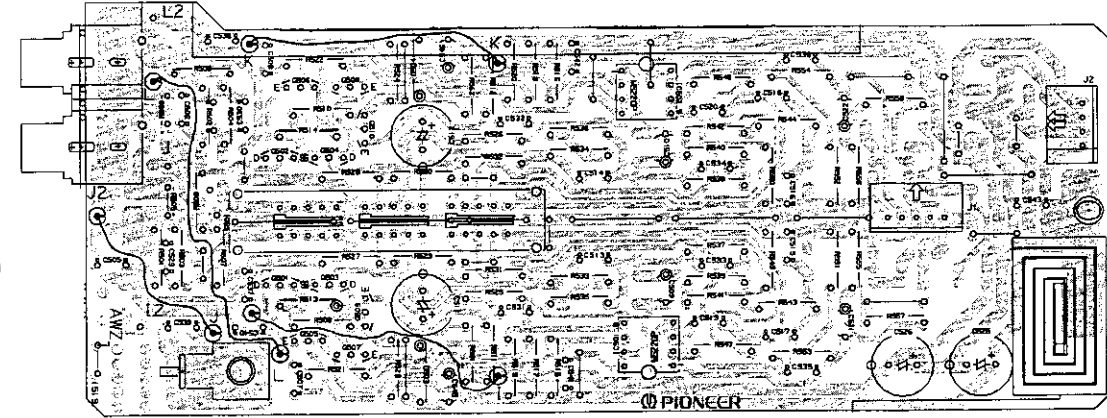


**For KC Type**

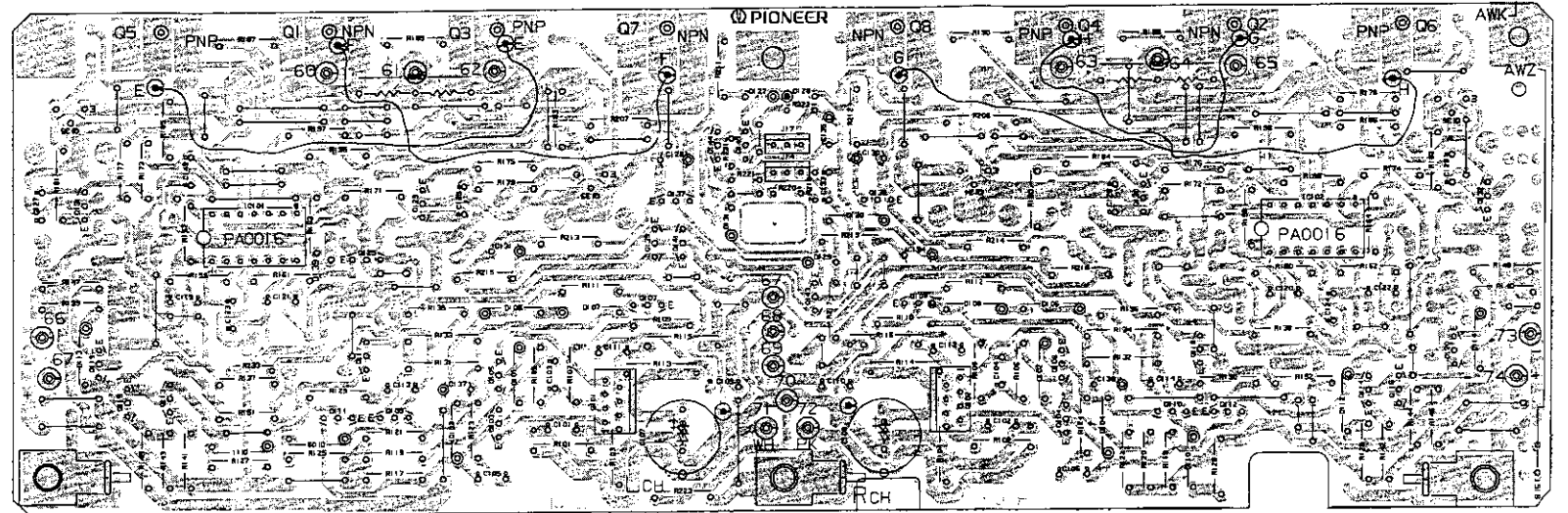


4. P.C. BOARD PATTERNS

A

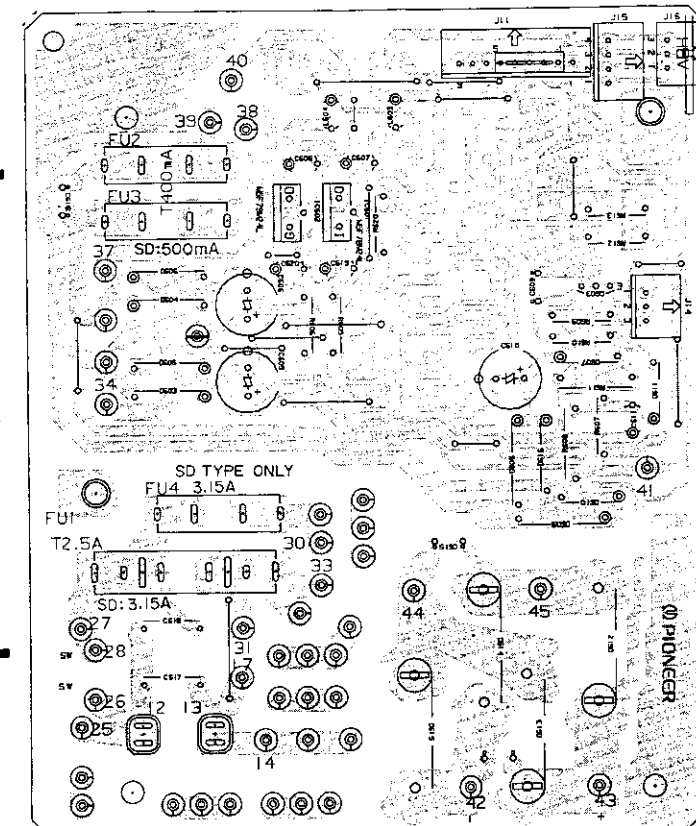


PHONO AMP ASSEMBLY (AWZ 1519)

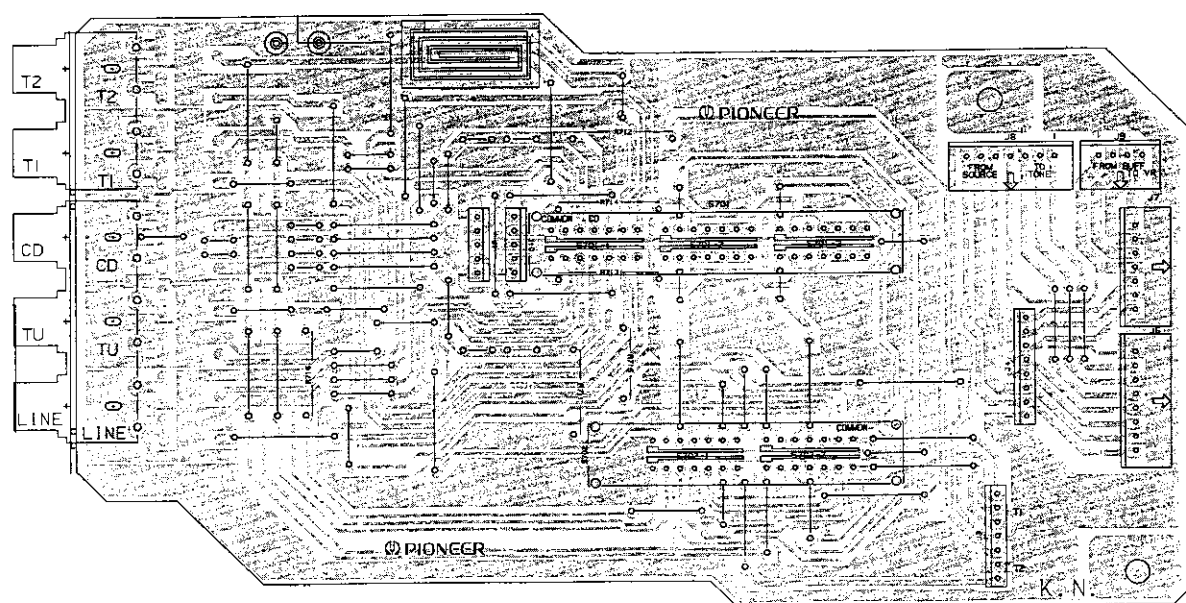


POWER AMP ASSEMBLY (AWZ 1518)

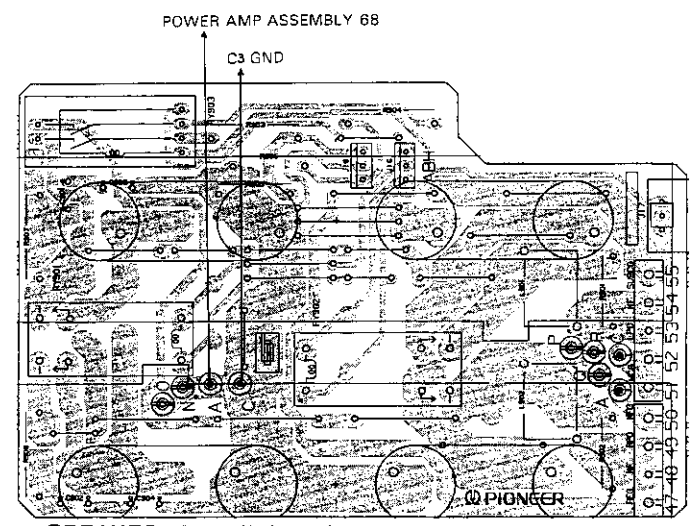
B



POWER SUPPLY ASSEMBLY

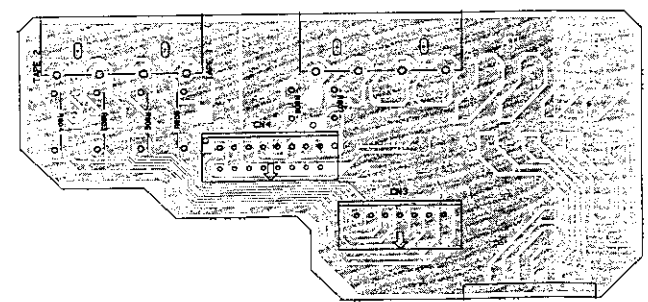


INPUT SELECTOR ASSEMBLY

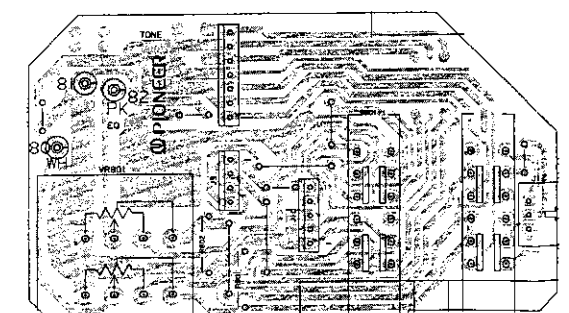


SPEAKER TERMINAL ASSEMBLY

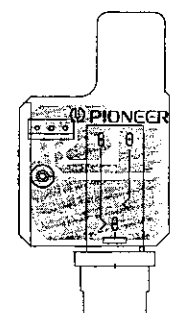
C



REC OUT ASSEMBLY



MAIN VOLUME ASSEMBLY



HEADPHONE ASSEMBLY

D

	HE type	HB type	SD type
FU1	T2.5A	T2.5A	3.15A
FU2	T400mA	T400mA	500mA
FU3	T400mA	T400mA	500mA
FU4	...	...	3.15A

1

2

3

4

5

6



2

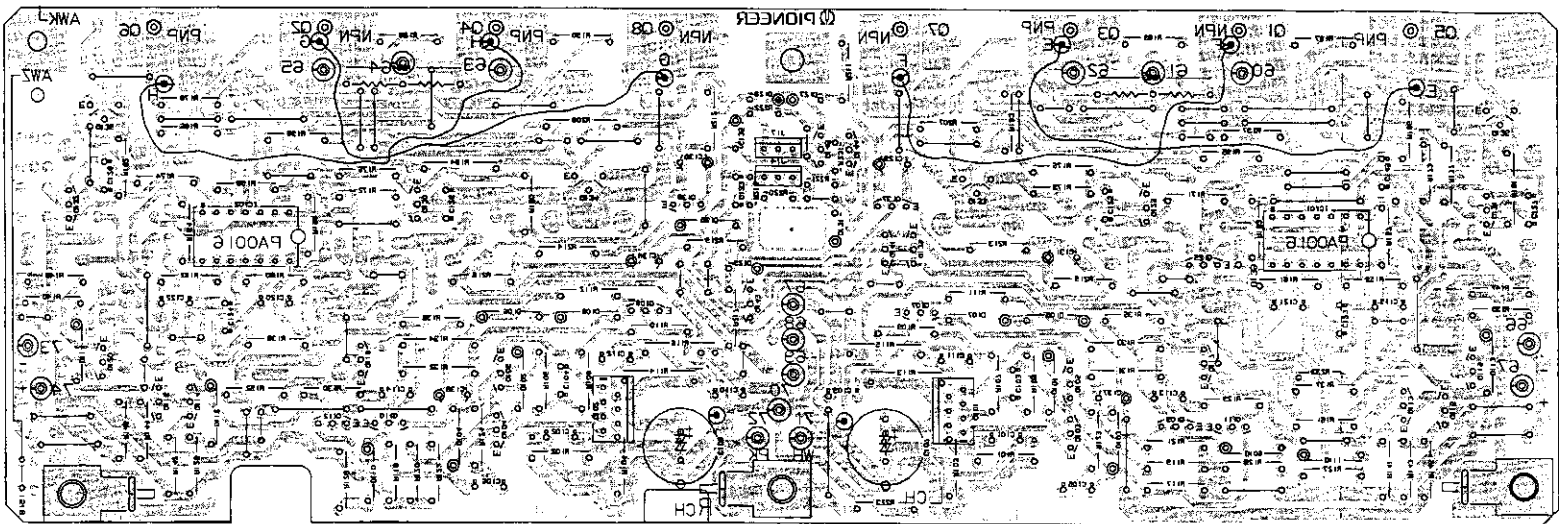
4

3

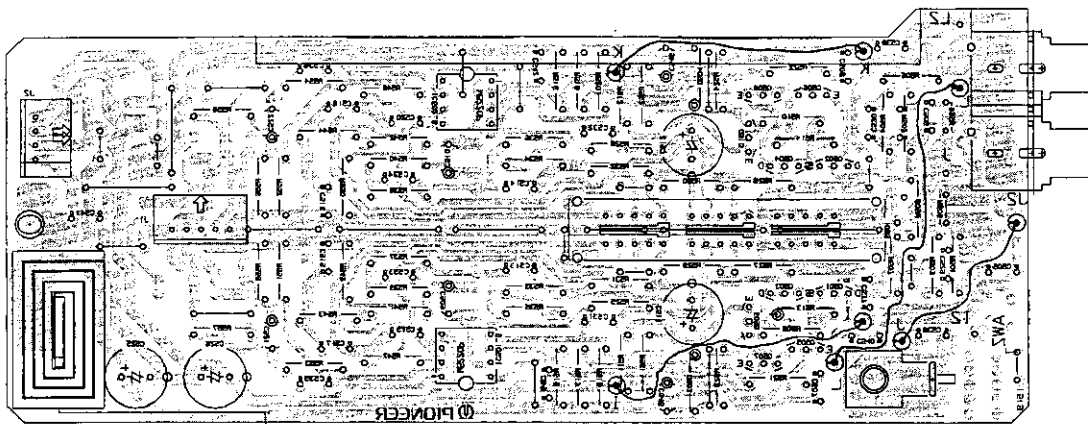
2

1

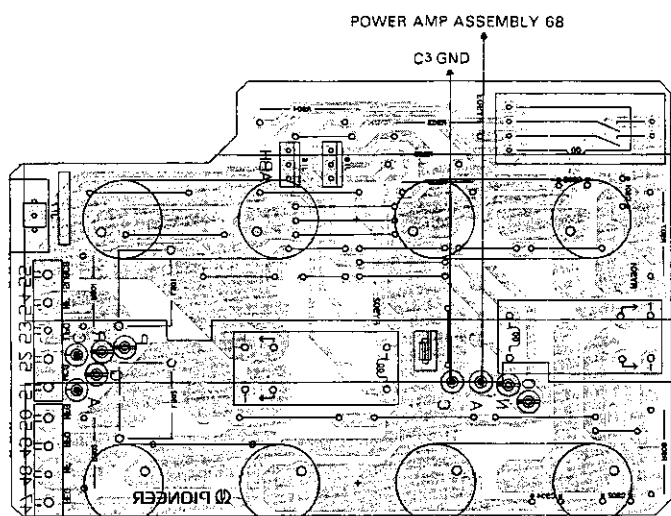
NOTE:  
This picture shows the foil side of the printed circuit.



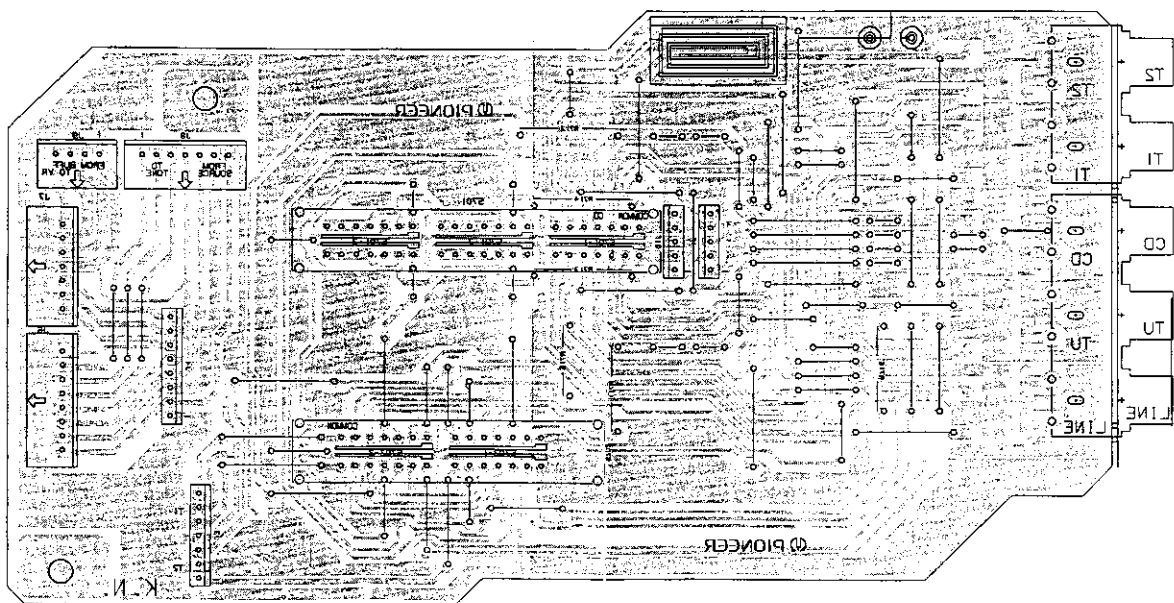
POWER AMP ASSEMBLY (AWS 1218)



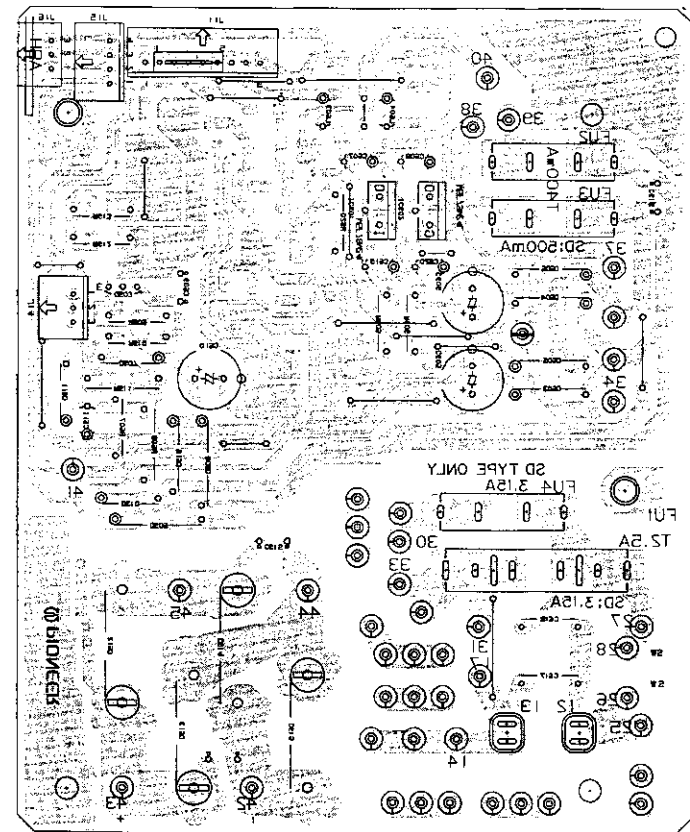
PHONO AMP ASSEMBLY (AWS 1219)



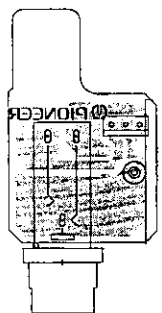
SPEAKER TERMINAL ASSEMBLY



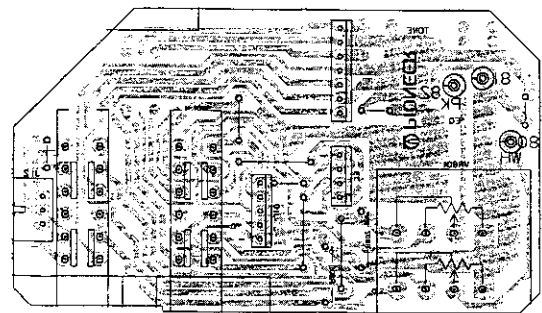
INPUT SELECTOR ASSEMBLY



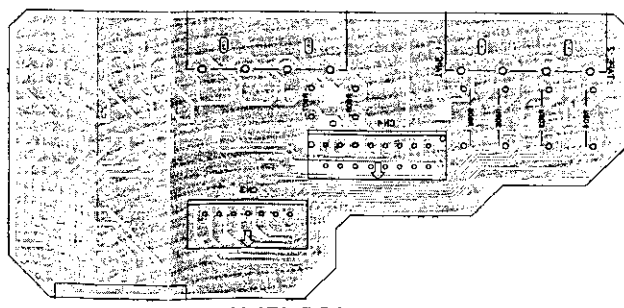
POWER SUPPLY ASSEMBLY



HEADPHONE ASSEMBLY



MAIN VOLUME ASSEMBLY



REC OUT ASSEMBLY

HE type	HB type	SD type
FU1 T2.5A	A2.5A	3.15A
FU2 T400m	Am400m	500m
FU3 T400m	Am400m	500m
FU4 . . . . .	. . . . .	3.15A