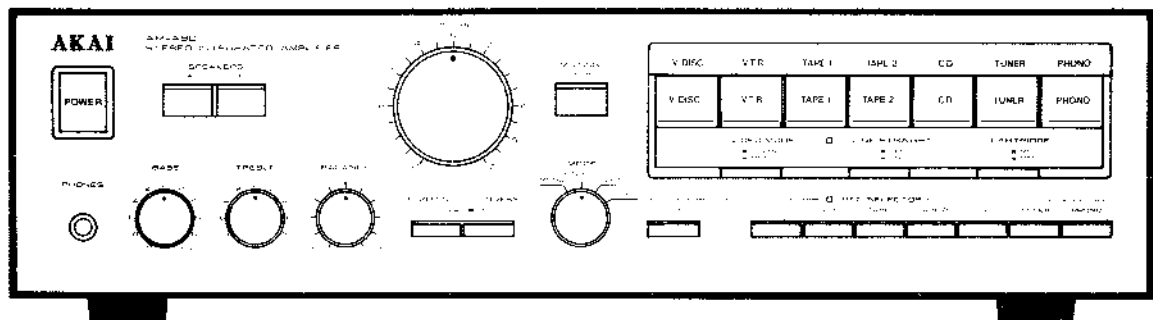


# SERVICE MANUAL



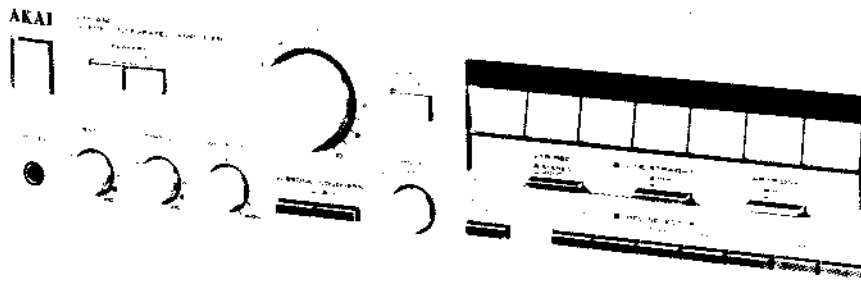
STEREO INTEGRATED AMPLIFIER

MODEL **AM-A90**

# ABBREVIATIONS FOR SERVICE MANUAL

## MODEL AM-A90

ABBREVIATIONS	EXPLANATION
AC	Alternating Current
AMP	AMPlifier
CD	Compact Disc
DC	Direct Current
GND	GrouND
MC	Moving Coil
MM	Moving Magnet
PCB	Printed Circuit Board
REC	RECOrd
SW	SWitch
V.DISC	Video DISC
VR	Variable Resistance
VTR	Video Tape Recorder



## STEREO INTEGRATED AMPLIFIER

### MODEL **AM-A90**

SECTION 1	SERVICE MANUAL .....	3
SECTION 2	PARTS LIST .....	11

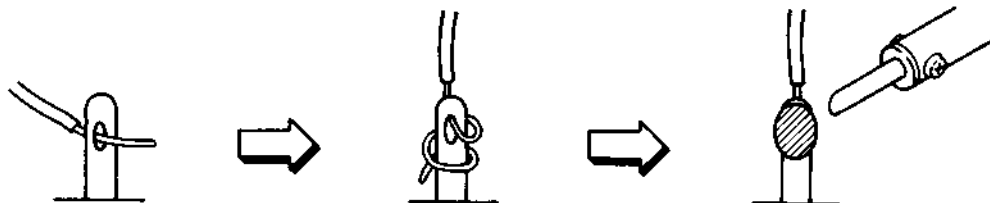
# SAFETY INSTRUCTIONS

## SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for **C** or **A**, specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

## PRECAUTIONS DURING SERVICING

1. Parts identified by the **Δ** symbol parts are critical for safety.  
Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulation Tape
  - 2) PVC tubing
  - 3) Spacers (Insulating Barriers)
  - 4) Insulation sheets for transistors
  - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



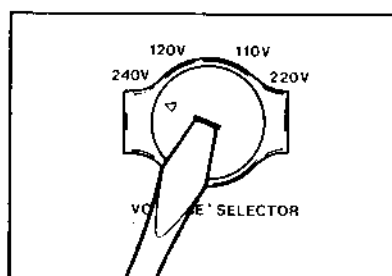
6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## VOLTAGE CONVERSION

Models for Canada, USA, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V, or 240V as required.

If your machine's can be converted:

Before connecting the power cord, turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.



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SECTION 1

**SERVICE MANUAL**

TABLE OF CONTENTS

I. SPECIFICATIONS .....	4
II. DISMANTLING OF UNIT .....	5
III. CONTROLS .....	6
IV. PRINCIPAL PARTS LOCATION .....	7
V. ADJUSTMENTS .....	8
1. EQ AMP DC BALANCE ADJUSTMENT .....	8
2. IDLING CURRENT ADJUSTMENT .....	8
VI. PC BOARD TITLE AND IDENTIFICATIONS .....	9

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

# I. SPECIFICATIONS

## POWER AMPLIFIER SECTION

RATED POWER OUTPUT 20Hz to 20kHz	8 ohms      4 ohms 130W/0.5%    180W/0.7%
POWER OUTPUT (by FTC) 20Hz to 20kHz DIN                      1kHz	130W/0.5%    180W/0.7% 140W/0.7%
POWER BANDWIDTH (IHF -3dB, 8 ohms)	10Hz to 80kHz (1.0%)
S/N (IHF-A)	
PHONO (MM)	86dB
PHONO (MC)	67dB
CD/AUX	100dB
RESIDUAL NOISE (8 ohms)	0.2mV
CHALLENGE SEPARATION (IHF, 1kHz)	60dB
DAMPING FACTOR (1kHz, 8 ohms)	30
REQUIRED SPEAKER IMPEDANCE FOR USA, CANADA and EUROPE (EXCEPT UK and FRG)	A or B: 6 to 16 ohms A and B: 12 to 16 ohms
FOR UK, FRG, AUSTRALIA and OTHER COUNTRIES	A or B: 4 to 16 ohms A and B: 8 to 16 ohms

## PRE AMPLIFIER SECTION

### VIDEO SECTION

INPUT SENSITIVITY/IMPEDANCE	
VTR	1Vp-p/75 ohms
V. DISC	1Vp-p/75 ohms
OUTPUT LEVEL/IMPEDANCE	1Vp-p/75 ohms

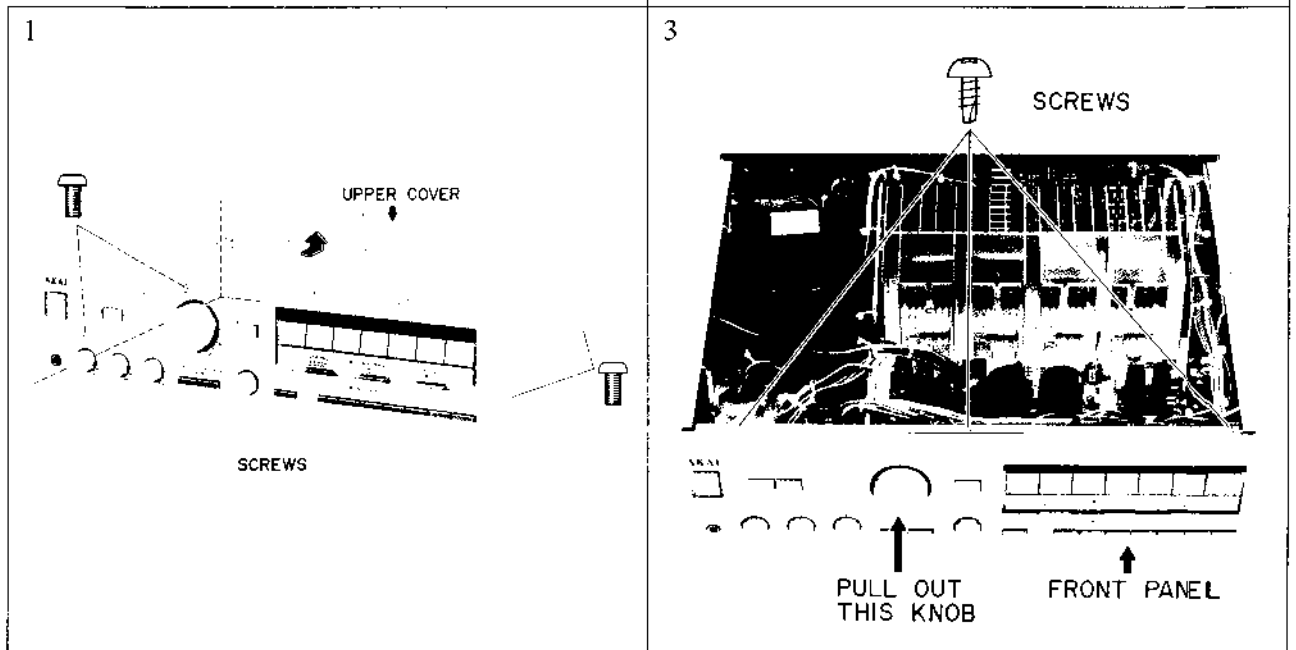
### AUDIO SECTION

INPUT SENSITIVITY/IMPEDANCE	
PHONO (MC)	0.2mV/100 ohms
PHONO (MM)	2.0mV/47k ohms
CD/AUX	150mV/47k ohms
TUNER	150mV/47k ohms
TAPE	150mV/47k ohms
VTR (AUDIO)	150mV/47k ohms
V. DISC (AUDIO)	150mV/47k ohms
OUTPUT LEVEL/IMPEDANCE	
TAPE REC	150mV/1k ohms
FREQUENCY RESPONSE	
PHONO (RIAA DEVIATION)	±0.2dB
TUNER, CD/AUX, TAPE	5Hz to 100kHz (-3dB)
TONE CONTROL	
BASS	±8dB
TREBLE	±8dB
SUBSONIC FILTER	-3dB (at 18Hz)
PHONO MAX. INPUT LEVEL	
MC	25mV
MM	250mV
POWER REQUIREMENTS	120V, 60Hz for USA & Canada 220V, 50Hz for Europe except UK 240V, 50Hz for UK & Australia 110V/120V/220V/240V, 50Hz/60Hz convertible for other countries
DIMENSIONS	440(W) × 120(H) × 410(D)mm (17.3 × 4.7 × 16.1 inches)
WEIGHT	12.5kg (27.6 lbs)

\* For improvement purposes, specifications and design are subject to change without notice.

## II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.



### III. CONTROLS

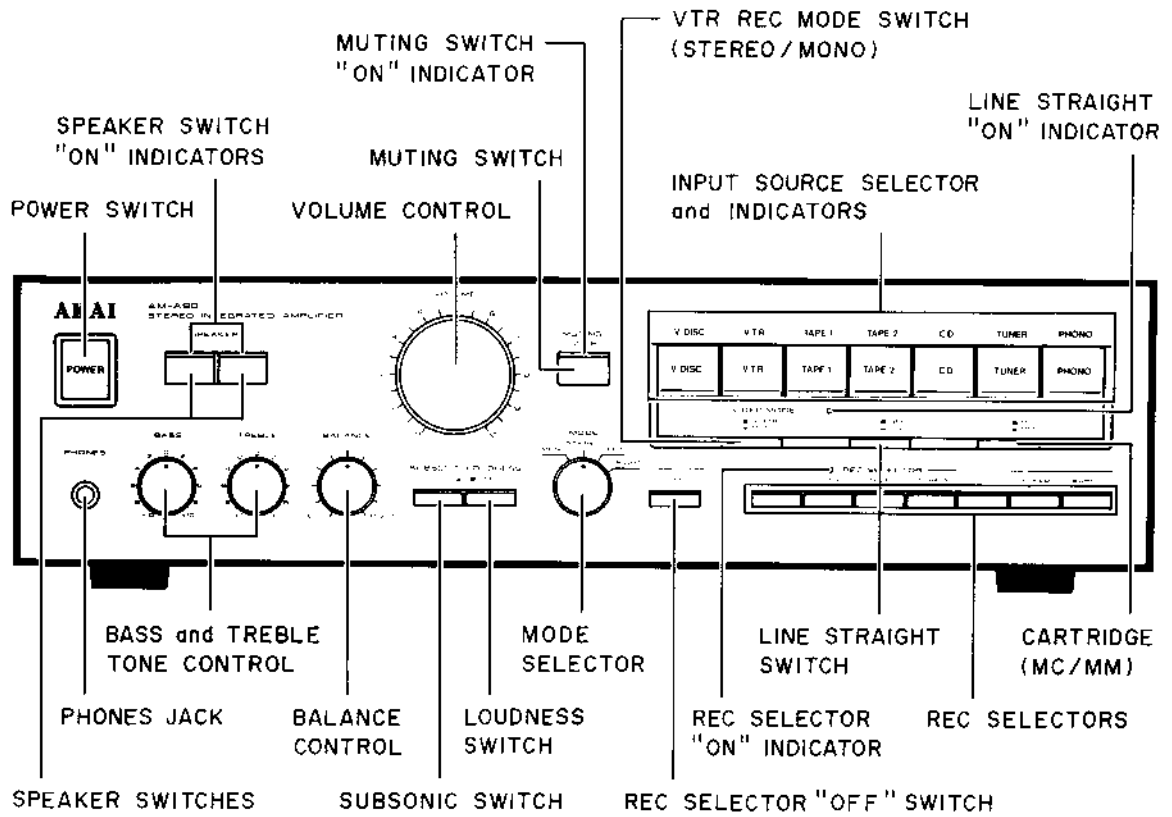


Fig. 3-1 Front View

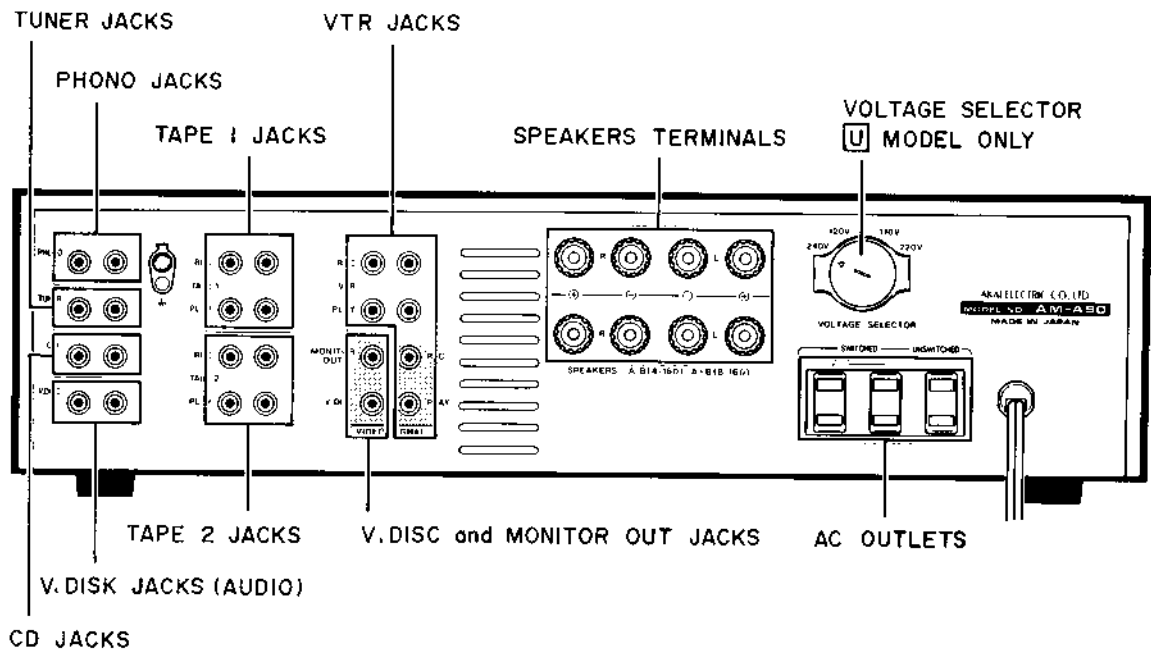


Fig. 3-2 Rear View



# IV. PRINCIPAL PARTS LOCATION

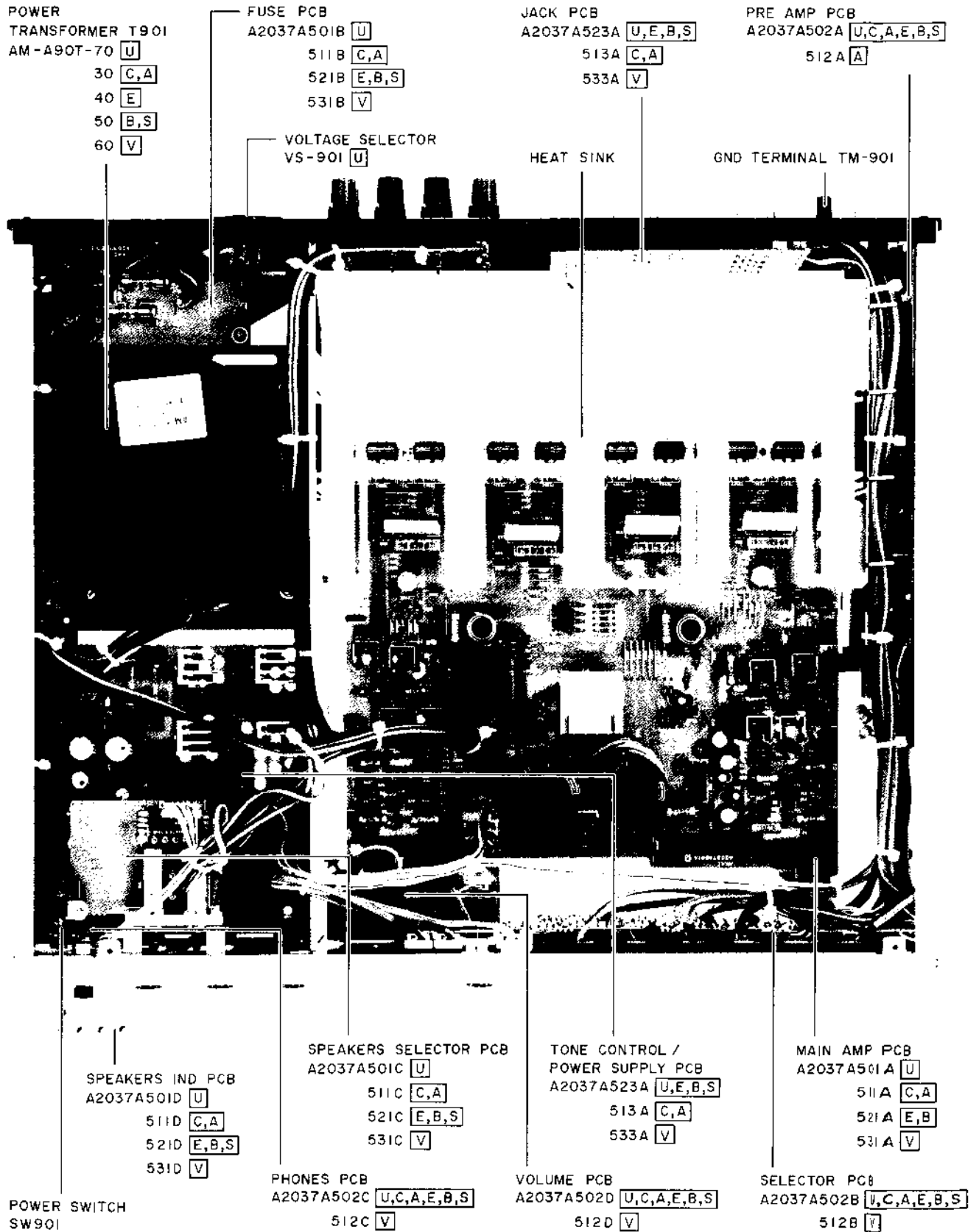


Fig. 4-1

## V. ADJUSTMENTS

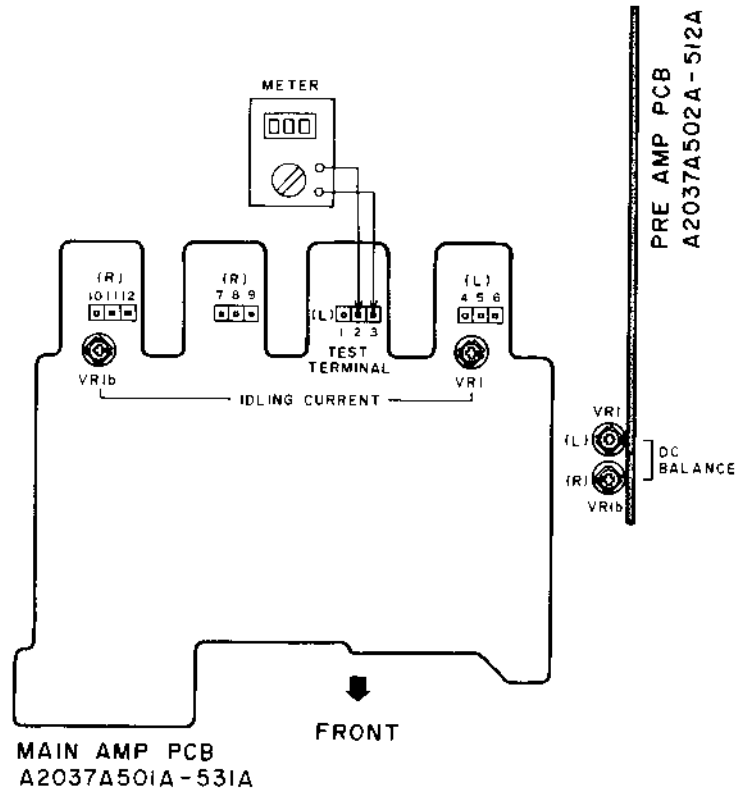


Fig. 5-1

### 5-1. EQ AMP DC BALANCE ADJUSTMENT

- 1) Set the REC SELECTOR to PHONO (MM) mode.
- 2) Connect an Oscilloscope to TAPE REC OUT.
- 3) Adjust VR1 (on EQUALIZER PCB) so that the DC Voltage is less than 1mV DC.
- 4) Adjust VR<sub>1b</sub> (R-ch) in the same manner as above.

### 5-2. IDLING CURRENT ADJUSTMENT

NOTE: 1.

This adjustment should be executed within 30 sec. after the power is turned on.

- 1) Connect a Digital Voltmeter (DC range) to the test terminal pin ① and ②, ② and ③, ④ and ⑤, ⑤ and ⑥ respectively, and measure the voltages (four voltages).
- 2) Connect the digital voltmeter to the test terminal in which the highest voltage has been measured and adjust VR1 so that the voltage between the test terminal is 3mV DC.  
(The minimum voltage between these test terminal should be more than 1mV DC.)
- 3) Adjust VR<sub>1b</sub> (R-ch) in the same manner as above.  
(Use the test terminal pins ⑦ to ⑫ when measuring voltages for R-ch).

NOTE: 2.

The maximum tolerance of the voltages should be within 0.6mV to 5mV.

(Because of the difference in characteristics of the FET used.)

ATTENTION:

Precaution when replacing the power FET (TR902 to TR905 and TR902b to TR905b).

Make sure that to discharge the power supply voltage by connecting a resistor (100Ω/10W) between C13 pins (+ and -) and also between C12 pins (+ and -) after turn off the power for the safety and the protection of the FET.

## VI. PC BOARD TITLE AND IDENTIFICATIONS

PC BOARD TITLE	PC BOARD	PC BOARD NUMBER	REMARKS
MAIN AMP	PC BOARD	A2037A501A	U
		511A	CA
		521A	EB
		531A	V
SELECTOR	PC BOARD	A2037A502B	UCAEBS
		512B	V
PRE AMP	PC BOARD	A2037A502A	UCAEBS
		512A	V
TONE CONTROL/POWER SUPPLY PC BOARD	PC BOARD	A2037A523A	UEBS
		513A	CA
		533A	V
JACK	PC BOARD	A2037A523B	UEBS
		513B	CA
		533B	V
SPEAKERS SELECTOR	PC BOARD	A2037A501C	U
		511C	CA
		521C	EB
		531C	V
SPEAKERS IND	PC BOARD	A2037A501D	U
		511D	CA
		521D	EB
		531D	V
SPEAKERS TERMINAL	PC BOARD	A2018D5070	V ONLY
PHONES	PC BOARD	A2037A502C	UCAEBS
		512C	V
FUSE	PC BOARD	A2037A501B	U
		511B	CA
		521B	EB
		531B	V
VOLUME	PC BOARD	A2037A502D	UCAEBS
		512D	V



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SECTION 2

**PARTS LIST**

TABLE OF CONTENTS

RECOMMENDED SPARE PARTS .....	13
1. PC BOARD BLOCK .....	14
2. PRE AMP PC BOARD .....	14
3. TONE CONTROL/POWER SUPPLY PC BOARD .....	15
4. MAIN AMP PC BOARD .....	15
5. JACK PC BOARD .....	16
6. SELECTOR PC BOARD .....	16
7. SPEAKER SLECTOR PC BOARD .....	16
8. SPEAKER IND PC BOARD .....	16
9. VOLUME PC BOARD .....	16
10. HEAD PHONE PC BOARD .....	16
11. SPEAKER TERMINAL PC BOARD (V ONLY) .....	16
12. FUSE PC BOARD .....	16
13. ASSEMBLY BLOCK .....	16
14. FINAL ASSEMBLY BLOCK .....	18
15. INDEX .....	19

Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

## ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description of each part. If any of this information is omitted, there are instances in which parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because part numbers and part definitions and supply in the Preliminary Parts List may have been the subject of changes, please use this parts list for all future reference.

## HOW TO USE THIS PARTS LIST

1. This Parts List shows those parts which are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts" from which these parts should be selected and parts.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the parts list

a) Mechanism Block

b) P.C Board Block

### 2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1 <sup>x</sup>	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

### 6. SYS. CON. P C BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-1C1	EI-324536	IC HD14049BP
6-1C2	EI-336801	IC MB8841-564M
6-1C3	EI-331661	IC SN7405N
6-1C4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

5. The kind of part and its installation position can both be determined by the Part Number. To determine where a part number is listed, utilize the Parts Index at the end of the Parts List. It is necessary first of all to find the Part Number. This can be accomplished by using the Reference Number listed at the right of the part number in the Parts Index.

## WARNING

**⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS**

## AVERTISSEMENT

**⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT**

## RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.	PART NO.	DESCRIPTION
1 N	BT-355474	△ TRANS POWER AM-A90T-30 (C,A)
2 N	BT-355475	△ TRANS POWER AM-A90T-40 (F)
3 N	BT-355476	△ TRANS POWER AM-A90T-50 (B,S)
4 N	BT-361997	△ TRANS POWER AM-A90T-60 (V)
5 N	BT-355473	△ TRANS POWER AM-A90T-70 (U)
6 N	ED-355425	D LED BG-5725-B7 GREEN
7	ED-356424	D LED BG5525S GREEN
8	ED-354114	D LED BR5507S RED
9	ED-355426	D LED PR-5705S-B7 RED
10	ED-345555	D SILICON DBB10C 200/1.0A
11	ED-348990	D SILICON H DS446
12	ED-301911	D SILICON H DS448
13 N	ED-355437	D SILICON PB-102F
14	ED-348786	D SILICON RB154 400/1.5A
15	ED-346613	D ZENER H HZ11 C3
16	ED-310387	D ZENER H HZ12 B2
17	ED-328486	D ZENER H HZ15 3
18	ED-315759	D ZENER H HZ16 1
19	ED-324013	D ZENER H HZ20 2
20	ED-332336	D ZENER H HZ20 3
21	ED-329051	D ZENER H HZ24 3
22	ED-346625	D ZENER H HZ30 3
23	ED-346603	D ZENER H HZ6 A1
24 N	EF-355226	△ FUSE BET T 1.00A 250V [B]
25 N	EF-359517	△ FUSE BET T 6.30A 250V [B]
26 N	EF-360692	△ FUSE CES6 125V 10.00A [C,A]
27	EF-623103	△ FUSE SEMKO T 1.00A 250V [U,E,V,S]
28	EF-224605	△ FUSE SEMKO T 6.30A 250V [U]
29	EF-310229	△ FUSE TSC 125V 1.00A [C,A]
30	EF-309392	△ FUSE TSC 125V 1.25A [C,A]
31	EI-345474	△ IC HA12002
32	EI-355697	△ IC M5221P
33	EI-344764	IC M5218P-21
34 N	EL-355435	PL LEAD 14.3V 80MA
35	EQ-355431	△ RELAY POWER G4W2212P 12V
36 N	EQ-355458	RELAYSIG G2Q-187P-V 12V
37	EQ-348929	△ RELAY SIG G5A-232P 2TR 12V
38 N	ER-359522	△ R CT WR22+R22/5W
39 N	ES-355407	△ SW PUSH ESB-99713V TV-8
40	ES-349070	△ SW SELECTOR YKS11-0002 02-4 [U]
41	ES-345481	SW PUSH SPEA12089A 04-2N
42	ES-348841	SW PUSH SPEA12090A 04-2S
43 N	ES-355417	SW PUSH SPEA71 7 THROW
44 N	ES-355418	SW PUSH SPEA84 8 THROW
45 N	ES-355428	SW PUSH SPUJ241
46 N	ES-355436	SW ROTARY SRBU244
47 N	ES-355433	SW PUSH SPUL241
48 N	ET-355414	△ TR FET 2SJ115 O,Y
49 N	ET-355413	△ TR FET 2SK405 O,Y
50	ET-355782	△ TR 2SD1247 T,U
51 N	ET-360750	TR FET 2SJ74 BL
52	ET-321016	TR FET 2SK117 GR,BL
53 N	ET-360749	TR FET 2SK170 BL
54 N	ET-359827	TR FET 2SK246 BL
55	ET-337759	TR FET 2SK246 GR
56	ET-338244	TR 2SA1207 R,S
57	ET-348829	TR 2SA1209 S,T
58	ET-348834	TR 2SA1220 Q,P
59	ET-345626	TR 2SA1248 S,T
60	ET-355626	TR 2SA992 E,F
61	ET-347143	TR 2SC1845 E,F
62	ET-308141	TR 2SC2603 G
63	ET-348835	TR 2SC2690 Q,P
64	ET-348830	TR 2SC2909 S,T
65	ET-348831	TR 2SC2911 S,T
66	ET-345625	TR 2SC3116 S,T
67	ET-349081	TR 2SC3383 S,T
68	ET-310148	TR 2SD612K E,F

REF. NO.	PART NO.	DESCRIPTION
69	EV-380204	R S-FIX H SR19R 3P 0.15W 102
70	EV-338118	R S-FIX V H1052A 3P 0.15W 104
71 N	EV-355456	VR ROTARY RKDA10 10S
72 N	EV-355457	VR ROTARY RKDA2S 100KCX2
73 N	EV-355466	VR ROTARY RKDA20 100KCX2
74 N	EV-355427	VR ROTARY RKGGA20-250KBX2

"NOTE" N : New Parts

### SYMBOL FOR DESTINATION

[A]	: AAL (USA)
[B]	: UK (England)
[C]	: CSA (Canada)
[E]	: CEE (Europe)
[S]	: SAA (Australia)
[U]	: U/T (Universal Area)
[V]	: VDE (West Germany)

## 1. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
1-1A	BA-A2037A020A	PC PRF BLK AM-A90 (U,C,A,E,B,S)
1-1B	BA-A2037A020B	PC PRE BLK AM-A90 (V)
1-2A	BA-A2037A040A	PC TONE BLK AM-A90 (U,E,B,S)
1-2B	BA-A2037A040E	PC TONE BLK AM-A90 (C,A)
1-2C	BA-A2037A040B	PC TONE BLK AM-A90 (V)
1-3A	BA-A2037A030A	PC MAIN BLK AM-A90 (U)
1-3B	BA-A2037A030B	PC MAIN BLK AM-A90 (C,A)
1-3C	BA-A2037A030C	PC MAIN BLK AM-A90 (E,B,S)
1-3D	BA-A2037A030D	PC MAIN BLK AM-A90 (V)

### NOTE:

- (1) PC PRE BLK consists of following PC BOARDS.
  - PRE AMP PC BOARD
  - SELECTOR PC BOARD
  - VOLUME PC BOARD
  - HEAD PHONE PC BOARD
- (2) PC TONE BLK consists of following PC BOARDS.
  - TONE CONTROL/POWER SUPPLY PC BOARD
  - JACK PC BOARD
- (3) PC MAIN BLK consists of following PC BOARDS
  - MAIN AMP PC BOARD
  - SPEAKER SELECTOR PC BOARD
  - SPEAKER IND PC BOARD
  - FUSE PC BOARD

## 2. PRE AMP PC BOARD

REF. NO.	PART NO.	DESCRIPTION
2-IC1	EI-355697	IC M5221P
2-TR1	ET-360749	TR FET 2SK170 BL
2-TR2	ET-360750	TR FET 2SJ74 BL
2-TR3	ET-345625	△ TR 2SC3116 S,T
2-TR4	ET-345626	△ TR 2SA1248 S,T
2-TR5	ET-355626	TR 2SA992 E,F
2-TR6	ET-347143	TR 2SC1845 E,F
2-TR7	ET-348834	TR 2SA1220 Q,P
2-TR8	ET-348835	TR 2SC2690 Q,P
2-TR9	ET-348831	TR 2SC2911 S,T
2-TR10	ET-348829	TR 2SA1209 S,T
2-D1	ED-301911	D SILICON H DS448
2-D2,3	ED-328486	D ZENER H HZ15 3
2-D4 to 7	ED-348990	D SILICON H DS446
2-VR1	FV-338118	R S-FIX V H1052A 3P0.15W 104
2-L1	EO-337684	COIL FIX 2 FL12R751E 751K [V]
2-RL1	EQ-348929	RELAY SIG G5A-232P 2TR 12V
2-R1	ER-346929	R MF H 1/4W 473J
2-R5,8	ER-359825	△ R OMF H S20 FS 2W 621J
2-R27	ER-359508	R MF H 1/4W 5103G
2-R28	ER-359509	R MF H 1/4W 4703G
2-R29	ER-359510	R MF H 1/4W 5602G
2-R30	ER-359511	R MF H 1/4W 3302G
2-R31	ER-359512	R MF H 1/4W 5102G
2-R32	ER-359513	R MF H 1/4W 4702G
2-R33	ER-359514	R MF H 1/4W 5601G
2-R34	ER-359516	R MF H 1/4W 3301G
2-R43,46	ER-359524	△ R OMF H S20 FS 2W 362J
2-R47,48	ER-338187	R MF H 1/4W 153J
2-C1A	EC-349083	△ C STY V CUT CQ09S2B 101J 125DC [EXCEPT V]
2-C1B	EC-350675	△ C STY V CUT CQ09S2B 331J 125DC [V]
2-C2	EC-350745	△ C STY V CUT CQ09S2B 102J 125DC
2-C3	EC-355434	△ C MY V MKT 105K 100DC
2-C4	EC-343892	△ C PP V F05 FPS 1302G 100DC
2-C5	EC-359530	C PP V F05 PP 3601G 50DC
2-C6	EC-343917	△ C PP V F07 FPS 1303G 100DC
2-C7	EC-359531	C PP V F05 PP 3602G 50DC
2-C8	EC-345656	C PP V F05 PP 473J 50DC
2-J1	EJ-337404	PIN J AJC-052-ABB P 6P
2-J2	EJ-337424	PIN J AJC-034-ABB P 2P



### 3. TONE CONTROL/POWER SUPPLY

#### PC BOARD

REF. NO.	PART NO.	DESCRIPTION
<b>TONE CONTROL/POWER SUPPLY PC BOARD</b>		
3-IC1	EI-344764	IC M5218P-21
3-TR1,2	ET-337759	TR FET 2SK246 GR
3-TR3	ET-345625	△ TR 2SC3116 S,T
3-TR4	ET-345626	TR 2SA1248 S,T
3-TR5,6	ET-337759	TR FET 2SK246 GR
3-TR7	ET-345625	△ TR 2SC3116 S,T
3-TR8	ET-345626	△ TR 2SA1248 S,T
3-TR9	ET-310148	△ TR 2SD612K F,F
3-TR10	ET-359827	TR FET 2SK246 BL
3-D1	ED-348786	△ D SILICON RB154 400/1.5A
3-D2 to 5	ED-346625	△ D ZENER H HZ30 3
3-D6,7	ED-315759	△ D ZENER H HZ16 1
3-D8 to 11	ED-329051	△ D ZENER H HZ24 3
3-D12	ED-345555	△ D SILICON DBB10C 200/1.0A
3-D13	ED-310387	△ D ZENER H HZ12 B2
3-D14	ED-332336	△ D ZENER H HZ20 3
3-VR1	EV-355456	VR ROTARY RKDA10 105
3-VR2	EV-355457	VR ROTARY RKDA2S 100KCX2
3-VR3	EV-355466	VR ROTARY RKDA20 100KCX2
3-R18	FR-324184	△ R CB H S10 FS RDS 1/4W 121J
3-R19,20	ER-359823	R MF H 1/4W 203J
3-R21	ER-324184	△ R CB H S10 FS RDS 1/4W 121J
3-R22,23	ER-359826	△ R OMF H S20 FS 2W 302J
3-R24	ER-324184	△ R CB H S10 FS RDS 1/4W 121J
3-R25,26	FR-346929	R MF H 1/4W 473J
3-R27,29	ER-324184	△ R CB H S10 FS RDS 1/4W 121J
3-R30	ER-359824	△ R OMF H S20 FS 2W 822J
3-C8,9	EC-201640	C EC V CUT SM 331M 100DC
<b>ASSEMBLY BLOCK</b>		
3-F3A	EF-309392	△ FUSE TSC 125V 1.25A [C,A]
3-F3B	EF-623103	△ FUSE SEMKO T 1.00A 250V [U,E,V,S]
3-F3C	EF-355226	△ FUSE BET T 1.00A 250V [B]
3-F4A	EF-309392	△ FUSE TSC 125V 1.25A [C,A]
3-F4B	EF-623103	△ FUSE SEMKO T 1.00A 250V [U,E,V,S]
3-F4C	EF-355226	△ FUSE BET T 1.00A 250V [B]
3-F5A	EF-310229	△ FUSE TSC 125V 1.00A [C,A]
3-F5B	EF-623103	△ FUSE SEMKO T 1.00A 250V [U,E,V,S]
3-F5C	EF-355226	△ FUSE BET T 1.00A 250V [B]

### 4. MAIN AMP PC BOARD

REF. NO.	PART NO.	DESCRIPTION
4-IC1	EI-355697	△ IC M5221P
4-IC2	EI-345474	IC HA12002
4-TR1	ET-321016	TR FET 2SK117 GR,BL
4-TR2	ET-348835	TR 2SC2690 Q,P
4-TR3	ET-348834	TR 2SA1220 Q,P
4-TR4	ET-348830	TR 2SC2909 S,T
4-TR5	ET-348830	TR 2SC2909 S,T
4-TR6	ET-348829	△ TR 2SA1209 S,T
4-TR7	ET-348831	△ TR 2SC2911 S,T
4-TR8	ET-348831	△ TR 2SC2911 S,T
4-TR9	ET-348829	△ TR 2SA1209 S,T
4-TR10	ET-348830	TR 2SC2909 S,T
4-TR11	ET-348830	TR 2SC2909 S,T
4-TR12	ET-338244	TR 2SA1207 R,S
4-D1	ED-324013	D ZENER H HZ20 2
4-D2	ED-324013	D ZENER H HZ20 2
4-D3	ED-348990	D SILICON H DS446
4-D4	ED-346613	D ZENER H HZ11 C3
4-D5	ED-346613	D ZENER H HZ11 C3
4-D6	ED-348990	D SILICON H DS446
4-D7	ED-346603	D ZENER H HZ6 A1
4-D8 to 12	ED-301911	D SILICON H DS448
4-D13	ED-355437	△ D SILICON PB-102F
4-D14	ED-348990	D SILICON H DS446
4-D15	ED-348990	D SILICON H DS446
4-D16	ED-301911	D SILICON H DS448
4-SW1	ES-355428	SW PUSH SPUJ241
4-SW2	ES-355436	SW ROTARY SRBU244
4-VR1	EV-380204	R S-FIX H SR19R 3P 0.15W 102
4-L1	EO-332116	COIL FIX 2 103AK-006A 2R2K
4-RL1	EQ-355431	RELAY POWER G4W2212P 12V
4-R4A	ER-362240	R MF H 1/4W 105J
4-R4B	ER-338183	R MF H 1/4W 104J
4-R5	ER-359521	△ R OMF H S20 FS 2W 332J
4-R8	ER-359521	△ R OMF H S20 FS 2W 332J
4-R9	ER-311760	R MF H 1/4W 1802F
4-R10	ER-311760	R MF H 1/4W 1802F
4-R15	FR-341331	△ R OMF H S15 FS 1W 181J
4-R16	ER-341331	△ R OMF H S15 FS 1W 181J
4-R22	FR-333429	△ R CB H S10 FS RDS 1/4W 682J
4-R22	ER-333429	△ R CB H S10 FS RDS 1/4W 682J
4-R24	FR-325638	△ R OMF H S15 FS 1W 271J
4-R27	ER-325638	△ R OMF H S15 FS 1W 271J
4-R30	FR-322787	△ R CB H S10 FS RDS 1/4W 100J
4-R31	ER-322787	△ R CB H S10 FS RDS 1/4W 100J
4-R32	ER-328071	△ R CB H S10 FS RDS 1/4W 392J
4-R33 to 36	ER-324185	△ R CB H S10 FS RDS 1/4W 221J
4-R37	ER-316802	△ R CB H S10 FS RDS 1/4W 471J
4-R38	ER-359522	△ R CT W R22+R22/5W
4-R39	ER-359522	△ R CT W R22+R22/5W
4-R50	ER-359520	△ R OMF H S20 FS 2W 120J
4-R52	ER-359520	△ R OMF H S20 FS 2W 120J
4-R65	ER-359521	△ R OMF H S20 FS 2W 332J
4-R68	FR-359823	R MF H 1/4W 203J
4-R69	ER-338183	R MF H 1/4W 104J
4-C1	EC-344155	C PP V F05 PP 181J 50DC
4-C2	EC-345655	C PP V F05 PP 223J 50DC
4-C3A	EC-362238	C PP V F05 PP 203J 50DC [EXCEPT V]
4-C3B	EC-359525	C PP V F05 PP 823J 50DC [✓]
4-C4	EC-359829	C PP V F05 PP 151J 50DC
4-C5	EC-345656	C PP V F05 PP 473J 50DC
4-C9	EC-355461	△ C MY V MKT 334K 100DC
4-C12	EC-355462	△ C EC V SNP 133M 71.00C
4-C13	EC-355462	△ C EC V SNP 123M 71.00C

## 5. JACK PC BOARD

REF. NO.	PART NO.	DESCRIPTION
5-TR1	ET-308141	TR 2SC2603 G
5-TR2	ET-308141	TR 2SC2603 G
5-TR3	ET-308141	△ TR 2SC2603 G
5-TR4	ET-308141	△ TR 2SC2603 G
5-RL1	EQ-355458	RELAY SIG G2Q-187P-V 12V
5-R8	ER-324337	△ R CB H S10 FS RSD 1/4W 560J
5-R17	ER-322591	△ R CB H S10 FS RDS 1/4W 101J
5-R18	ER-322591	△ R CB H S10 FS RDS 1/4W 101J
5-J3 to 5	EJ-336915	PIN J AJC-054-ABB P 4P
5-J6	EJ-355459	PIN J YKC21-0157 P 4P

## 6. SELECTOR PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-TR1 to 3	FT-349081	TR 2SC3383 S,T
6-D1	ED-354114	D LED BR5507S RED
6-D2	ED-355425	D LED BG-5725-B7 GREEN
6-D3	ED-355426	D LED PR-5705S-B7 RED
6-SW1	ES-355417	SW PUSH SPEA71 7 THROW
6-SW2	ES-355418	SW PUSH SPEA84 8 THROW
6-SW3	ES-348841	SW PUSH SPEA12090A 04-2S
6-SW4	ES-345481	SW PUSH SPEA12089A 04-2N
6-SW5	ES-348841	SW PUSH SPEA12090A 04-2S
6-SW6	ES-345481	SW PUSH SPEA12089A 04-2N
6-IN1 to 7	FL-355435	PL LEAD 14.3V 80MA

## 7. SPEAKER SELECTOR PC BOARD

REF. NO.	PART NO.	DESCRIPTION
7-SW1	ES-355433	SW PUSH SPUL241
7-R1	ER-306416	△ R OMF H S20 FS 2W 271J
7-R2	ER-306416	△ R OMF H S20 FS 2W 271J

## 8. SPEAKER IND PC BOARD

REF. NO.	PART NO.	DESCRIPTION
8-D1 to 4	ED-356424	D LED BG5525S GREEN

## 9. VOLUME PC BOARD

REF. NO.	PART NO.	DESCRIPTION
9-VR1	EV-355427	VR ROTARY RKGA20-250KBX2

## 10. HEAD PHONE PC BOARD

REF. NO.	PART NO.	DESCRIPTION
10-R1	ER-557583	△ R OMF H FS 2W 431J
10-J19	EJ-348846	PHONE J 3P HLJ0540 6.3

## 11. SPEAKER TERMINAL PC BOARD (V ONLY)

REF. NO.	PART NO.	DESCRIPTION
11-TM902	EJ-342935	TERMINAL W/SCREW YKD31-0132 P 8P [V]

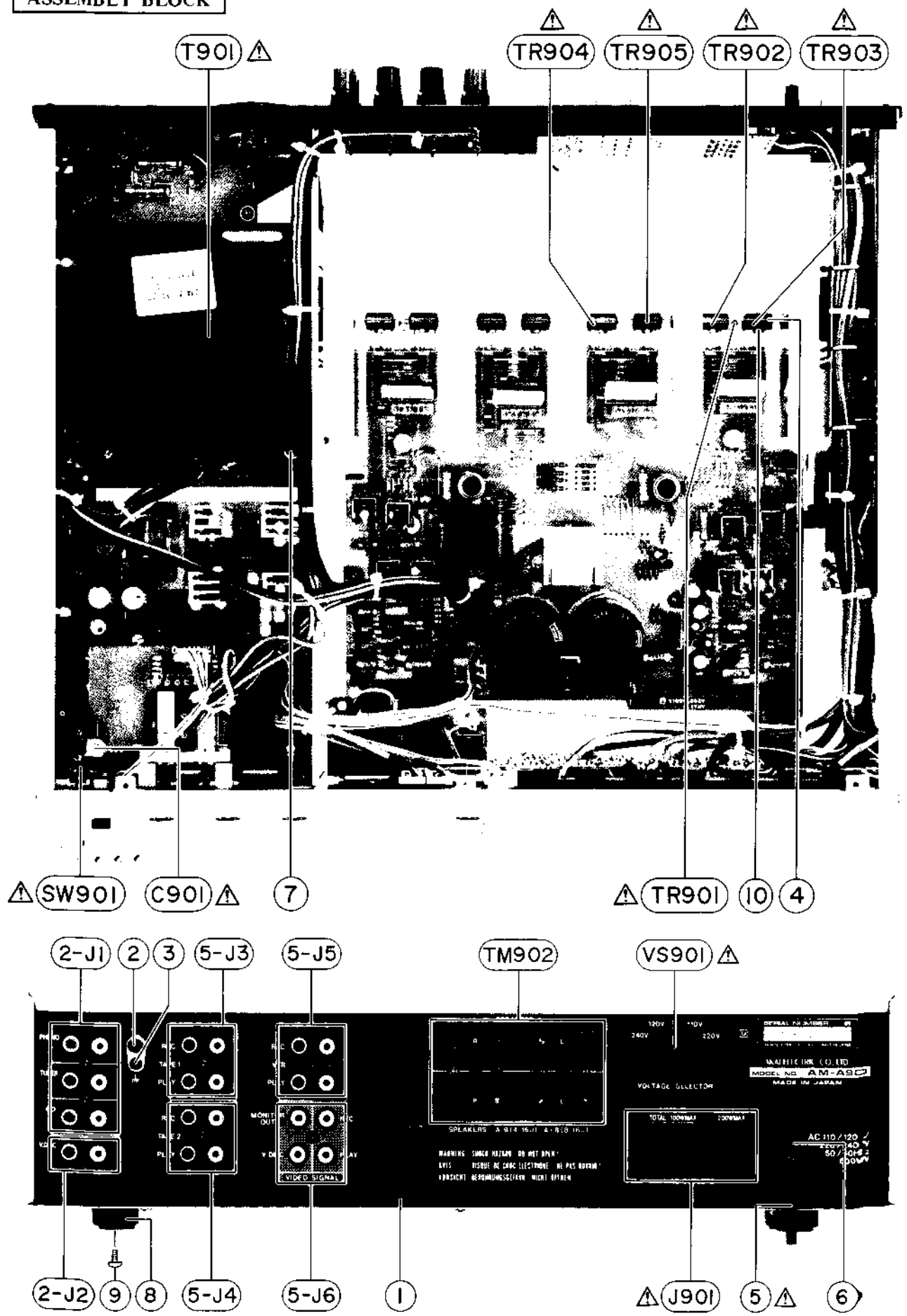
## 12. FUSE PC BOARD

REF. NO.	PART NO.	DESCRIPTION
<b>FUSE PC BOARD</b>		
12-L1	EO-338409	COIL LF FKOB160MH02 250UH [V]
<b>ASSEMBLY BLOCK</b>		
12-F1A	EF-242605	△ FUSE SEMKO T 6.30A 250V [U]
12-F1B	EF-360692	△ FUSE CES6 125V 10.00A [C,A]
12-F1C	EF-242605	△ FUSE SEMKO T 6.30A 250V [E,V,S]
12-F1D	EF-359517	△ FUSE BET T 6.30A 250V [B]
12-F2	EF-242605	△ FUSE SEMKO T 6.30A 250V [U]

## 13. ASSEMBLY BLOCK

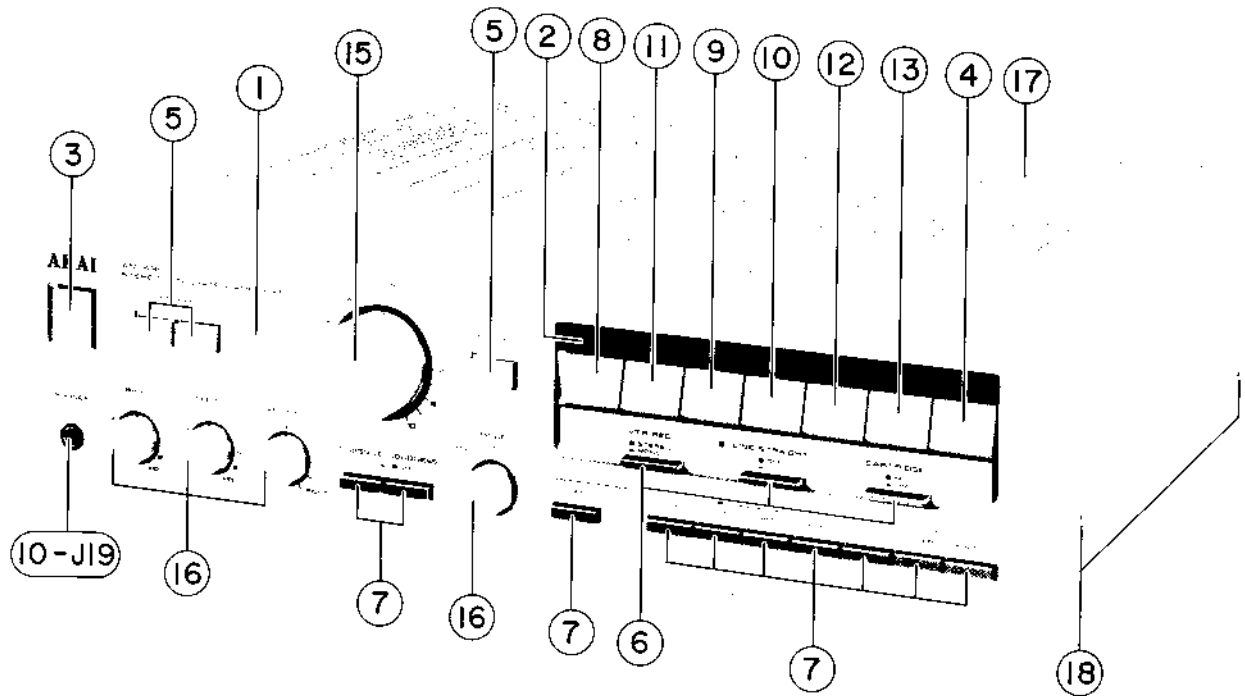
REF. NO.	PART NO.	DESCRIPTION
<b>ASSEMBLY BLOCK</b>		
13-1A	SP-358664E	PANEL REAR AM-A90 (U)
13-1B	SP-358664F	PANEL REAR AM-A90 (A,C)
13-1C	SP-358664G	PANEL REAR AM-A90 (F)
13-1D	SP-358664H	PANEL REAR AM-A90 (B,S)
13-1E	SP-358664K	PANEL REAR AM-A90 (V)
13-2	EJ-329610	TERMINAL W/SCREW UB-0067 L1P
13-3	ZS-319460	T2BR30X06STL BZN PROJECTION
13-4	EZ-345459	TRANSISTOR SUPPORT BFG-20T0-3P
13-5A	EW-374894	△ AC CORD 2 CORES VM-0129A, VFF U/T [U]
13-5B	EW-349427	△ AC CORD 2 CORES KP-8W, SPT-2 UC [C,A]
13-5C	EW-347897	△ AC CORD 2 CORES VM0364, LCFL EV [E,V]
13-5D	EW-346249	△ AC CORD 2 CORES LCFL2x0.75 B [B]
13-5E	EW-338517	△ AC CORD KP-560, LISA-2F S [S]
13-6	EZ-631945	STRAIN RELIEF SR-4N-4
13-7	ZS-345624	ST PAN40x08STL CMT CUP [POWER TRANS FIX]
13-8	SA-312465	FOOT CIRCULAR (A) PART CA
13-9	ZS-325495	T2BR30x06STL CMT [FOOT FIX]
13-10	ZS-345436B	SCREW TRANSISTOR (B)
13-T901A	BT-355473	△ TRANS POWER AM-A90T-70 (U)
13-T901B	BT-355474	△ TRANS POWER AM-A90T-30 (C,A)
13-T901C	BT-355475	△ TRANS POWER AM-A90T-40 (E)
13-T901D	BT-355476	△ TRANS POWER AM-A90T-50 (B,S)
13-T901E	BT-361997	△ TRANS POWER AM-A90T-60 (V)
13-TR901	ET-355782	△ TR 2SD1247 T,U
13-TR902	ET-355413	△ TR FET 2SK405 O,Y
13-TR903	ET-355413	△ TR FET 2SK405 O,Y
13-TR904	ET-355414	△ TR FET 2SJ115 O,Y
13-TR905	ET-355414	△ TR FET 2SJ115 O,Y
13-VS901	ES-349070	△ SW SELECTOR YKS11-0002 02-4 [U]
13-SW901	ES-355407	△ SW PUSH ESB-9971 JV TV-8
13-J901A	EJ-337405	△ SOCKET OUTLET S2T733T164 JUC 3x2P [U]
13-J901B	EJ-352642	△ SOCKET OUTLET S2T733T114T [C,A]
13-TM902A	EJ-337406	TERMINAL W/SCREW ANB-024-AAA S 8P [U,C,A,E,B,S]
13-TM902B	EJ-342935	TERMINAL W/SCREW YKD31-0132 P 8P [V]
13-C901A	EC-320548	△ C CE V F 103Z 250AC [U]
13-C901B	EC-338411	△ C CE V FZ 103P 400AC [C,A,E, V,B,S]
<b>PRE AMP PC BOARD</b>		
2-J1	EJ-337404	PIN J AJC-052-ABB P 6P
2-J2	EJ-337424	PIN J AJC-034-ABB P 2P
<b>JACK PC BOARD</b>		
5-J3	EJ-336915	PIN J AJC-054-ABB P 4P
5-J4	EJ-336915	PIN J AJC-054-ABB P 4P
5-J5	EJ-336915	PIN J AJC-054-ABB P 4P
5-J6	EJ-355459	PIN J YKC21-0157-P 4P

ASSEMBLY BLOCK



PARTS LIST

## FINAL ASSEMBLY BLOCK



### 14. FINAL ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
<b>PANEL FRONT BLOCK</b>		
14-1	BD-A2037A060A	PANEL FRONT BLK AM-A90
14-1B	BD-A2037A060C	PANEL FRONT BLK AM-A90-B
14-2	SE-358656	WINDOW FILTER
14-3	SK-345231A	CAP POWER
14-3B	SK-345231C	CAP POWER-B
14-4	SK-B358655A7	KNOB PUSH (D-13) PART
14-4B	SK-B358655B7	KNOB PUSH (D-14) B PART (PHONO-B)
14-5	SK-358649A	KNOB PUSH (A)
14-5B	SK-358649B	KNOB PUSH (A)-B
14-6	SK-358651A	KNOB PUSH (B)
14-6B	SK-358651B	KNOB PUSH (B)-B
14-7	SK-358653A	KNOB PUSH (C)
14-7B	SK-358653B	KNOB PUSH (C)-B
14-8	SK-B358655A1	KNOB PUSH (D-1) PART (V. DISC)
14-8B	SK-B358655B1	KNOB PUSH (D-2) B PART (V. DISC-B)
14-9	SK-B358655A2	KNOB PUSH (D-3) PART (TAPE 1)
14-9B	SK-B358655B2	KNOB PUSH (D-4) B PART (TAPE 1-B)
14-10	SK-B358655A3	KNOB PUSH (D-5) PART (TAPE 2)
14-10B	SK-B358655B3	KNOB PUSH (D-6) B PART (TAPE 2-B)
14-11	SK-B358655A4	KNOB PUSH (D-7) PART (VTR)
14-11B	SK-B358655B4	KNOB PUSH (D-8) B PART (VTR-B)

REF. NO.	PART NO.	DESCRIPTION
14-12	SK-B358655A5	KNOB PUSH (D-9) PART (CD)
14-12B	SK-B358655B5	KNOB PUSH (D-10) B PART (CD-B)
14-13	SK-B358655A6	KNOB PUSH (D-11) PART (TUNER)
14-13B	SK-B358655B6	KNOB PUSH (D-12) B PART (TUNER-B)
<b>FINAL ASSEMBLY BLOCK</b>		
14-14x	ZS-447840	T2 BR 30x08STL CMT [PANEL FRONT FIX]
14-15	SK-358657A	KNOB MAIN VOLUME
14-15B	SK-358657B	KNOB MAIN VOLUME-B
14-16	SK-358658A	KNOB VOLUME
14-16B	SK-358658B	KNOB VOLUME-B
14-17	SP-358673A	COVER UPPER
14-17B	SP-358673B	COVER UPPER-B
14-18	ZS-322570	ST BID40x08STL NI3 [COVER UPPER FIX]
14-18B	ZS-322580	ST BID40x08STL BNI [COVER UPPER FIX]
<b>HEAD PHONE PC BOARD</b>		
10-J19	FJ-448846	PHONE J 3P HLJ0540 6.3

**NOTE:**

PANEL FRONT BLK consists of 14-2 to 14-13B.

**SYMBOL FOR COLOR VARIATION**

NON : STANDARD COLOR

B : BLACK

# INDEX

PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.
BA-A2037A020A	1-1A	EF-355226	3-F4C	ER-359520	4-R52	EW-347897	13-5C		
BA-A2037A020B	1-1B	EF-355226	3-F5C	ER-359521	4-R5	EW-349427	13-5B		
BA-A2037A030A	1-3A	FF-359517	12-F1D	ER-359521	4-R8	EW-374894	13-5A		
BA-A2037A030B	1-3B	FF-360692	12-F1B	ER-359521	4-R65	EZ-345459	13-4		
BA-A2037A030C	1-3C	EF-623103	3-F3B	ER-359522	4-R38	EZ-631945	13-6		
BA-A2037A030D	1-3D	FF-623103	3-F4B	ER-359522	4-R39	SA-312465	13-8		
BA-A2037A040A	1-2A	FF-623103	3-F5B	ER-359524	2-R43	SE-358656	14-2		
BA-A2037A040B	1-2C	EI-344764	3-IC1	ER-359524	2-R46	SK-B358655A1	14-8		
BA-A2037A040E	1-2B	EI-345474	4-IC2	ER-359823	3-R19	SK-B358655A2	14-9		
BD-A2037A060A	14-1	EI-355697	2-IC1	ER-359823	3-R20	SK-B358655A3	14-10		
BD-A2037A060C	14-1B	EI-355697	4-IC1	ER-359823	4-R68	SK-B358655A4	14-11		
BT-355473	13-T901A	EJ-329610	13-2	ER-359824	3-R30	SK-B358655A5	14-12		
BT-355474	13-T901B	EJ-336915	5-J3	ER-359825	2-R5	SK-B358655A6	14-13		
BT-355475	13-T901C	EJ-336915	5-J4	ER-359825	2-R8	SK-B358655A7	14-4		
BT-355476	13-T901D	EJ-336915	5-J5	ER-359826	3-R22	SK-B358655B1	14-8B		
BT-361997	13-T901E	EJ-337404	2-J1	ER-359826	3-R23	SK-B358655B2	14-9B		
EC-201640	3-C8	FJ-337405	13-	ER-362240	4-R4A	SK-B358655B3	14-10B		
EC-201640	3-C9		J901A	ER-557583	10-R1	SK-B358655B4	14-11B		
FC-320548	13-C901A	EJ-337406	13-	ES-345481	6-SW4	SK-B358655B5	14-12B		
IC-338411	13-C901B		TM902A	ES-345481	6-SW6	SK-B358655B6	14-13B		
EC-343892	2-C4	EJ-337424	2-J2	ES-348841	6-SW3	SK-B358655B7	14-4B		
EC-343917	2-C6	FJ-342935	11-	ES-348841	6-SW5	SK-B345231A	14-3		
EC-344155	4-C1		TM902	ES-349070	13-VS901	SK-345231C	14-3B		
EC-345655	4-C2	FJ-342935	13-	ES-355407	13-SW901	SK-358649A	14-5		
EC-345656	2-C8		TM902B	ES-355417	6-SW1	SK-358649B	14-5B		
EC-345656	4-C5	EJ-448846	10-J19	ES-355418	6-SW2	SK-358651A	14-6		
EC-349083	2-C1A	EJ-352642	13-	FS-355428	4-SW1	SK-358651B	14-6B		
EC-350675	2-C1B		J901B	ES-355433	7-SW1	SK-358653A	14-7		
EC-350745	2-C2	EJ-355459	5-J6	ES-355436	4-SW2	SK-358653B	14-7B		
EC-355434	2-C3	EL-355435	6-IN5	FT-308141	5-TR1	SK-358657A	14-15		
EC-355461	4-C9	EL-355435	6-IN6	ET-308141	5-TR2	SK-358657B	14-15B		
EC-355462	4-C12	EL-355435	6-IN7		to 4	SK-358658A	14-16		
EC-355462	4-C13	EL-355435	6-IN1	ET-310148	3-TR9	SK-358658B	14-16B		
EC-359525	4-C3B		to 4	ET-321016	4-TR1	SP-358664F	13-1A		
EC-359530	2-C5	EO-332116	4-L1	ET-337759	3-TR1	SP-358664V	13-1B		
EC-359531	2-C7	EO-337684	2-L1	ET-337759	3-TR2	SP-358664G	13-1C		
EC-359829	4-C4	EO-338409	12-L1	ET-337759	3-TR5	SP-358664H	13-1D		
EC-362238	4-C3A	EQ-348929	2-RL1	ET-337759	3-TR6	SP-358664K	13-1E		
ED-301911	2-D1	EQ-355431	4-RL1	ET-338244	4-TR12	SP-358673A	14-17		
ED-301911	4-D8	EQ-355458	5-RL1	ET-345625	2-TR3	SP-358673B	14-17B		
ED-301911	4-D9	ER-306416	7-R1	ET-345625	3-TR3	ZS-319460	13-3		
	to 12	ER-306416	7-R2	ET-345625	3-TR7	ZS-322570	14-18		
ED-301911	4-D16	ER-311760	4-R9	ET-345626	2-TR4	ZS-322580	14-18B		
ED-310387	3-D13	ER-311760	4-R10	ET-345626	3-TR4	ZS-325495	13-9		
ED-315759	3-D6	ER-316802	4-R37	ET-345626	3-TR8	ZS-345436B	13-10		
ED-315759	3-D7	ER-322591	5-R17	ET-345626	3-TR8	ZS-345624	13-7		
ED-324013	4-D1	ER-322591	5-R18	FT-347143	2-TR6	ZS-447840	14-14x		
ED-324013	4-D2	RR-322787	4-R30	ET-348829	2-TR10				
ED-328486	2-D2	FR-322787	4-R31	ET-348829	4-TR6				
ED-328486	2-D3	FR-322787	4-R31	ET-348829	4-TR9				
		ER-324184	3-R18	ET-348830	4-TR4				
ED-329051	3-D8	ER-324184	3-R21	ET-348830	4-TR5				
	to 11	ER-324184	3-R24	ET-348830	4-TR10				
ED-332336	3-D14	ER-324184	3-R27	ET-348830	4-TR11				
ED-345555	3-D12	ER-324184	3-R29	ET-348831	2-TR9				
ED-346603	4-D7	ER-324185	4-R33	ET-348831	4-TR7				
ED-346613	4-D4		to 36	ET-348831	4-TR8				
ED-346613	4-D5	FR-324337	5-R8	FT-348834	2-TR7				
ED-346625	3-D2	ER-325638	4-R24	ET-348834	4-TR3				
ED-346625	3-D3	ER-325638	4-R27	ET-348835	2-TR8				
	to 5	ER-328071	4-R32	ET-348835	4-TR2				
ED-348786	3-D1	FR-333429	4-R21	ET-349081	6-TR1				
ED-348990	2-D4	ER-333429	4-R22	ET-349081	6-TR2				
	to 7	FR-338183	4-R4B	ET-349081	6-TR3				
ED-348990	4-D3	ER-338183	4-R69	ET-355413	13-TR902				
ED-348990	4-D6	ER-338187	2-R47	ET-355413	13-TR903				
ED-348990	4-D14	ER-338187	2-R48	ET-355414	13-TR904				
ED-348990	4-D15	ER-341331	4-R15	ET-355414	13-TR905				
ED-354114	6-D1	ER-341331	4-R16	ET-355626	2-TR5				
ED-355425	6-D2	ER-346929	2-R1	ET-355782	13-TR901				
ED-355426	6-D3	ER-346929	3-R25	ET-359827	3-TR10				
ED-355437	4-D13	FR-346929	3-R26	FT-360749	2-TR1				
ED-356424	8-D1	ER-359508	2-R27	ET-360750	2-TR2				
	to 4	FR-359509	2-R28	EV-338118	2-VR1				
FF-242605	12-F1A	ER-359510	2-R29	FV-355427	9-VR1				
FF-242605	12-F1C	ER-359511	2-R30	EV-355456	3-VR1				
FF-242605	12-F2	ER-359512	2-R31	FV-355457	3-VR2				
FF-309392	3-F3A	FR-359513	2-R32	EV-355466	3-VR3				
FF-309392	3-F4A	ER-359514	2-R33	EV-380204	4-VR1				
FF-310229	3-F5A	ER-359516	2-R34	EW-338517	13-5E				
FF-355226	3-F3C	ER-359520	4-R50	FW-346249	13-5D				



# AKAI

## SCHMATIC DIAGRAM AND PC BOARDS

### MODEL AM-A90

#### LOCATION OF COMPONENTS

- TRs  
 TR1.....2C  
 TR2.....2D  
 TR3.....1C  
 TR4.....2C  
 TR6.....2E  
 TR7.....1D  
 TR8.....2D  
 TR9.....3E  
 TR10....3E

- IC  
 IC1.....1F

- CONNECTORS  
 W301....1E  
 W302....1E  
 W303....1E  
 W304....2F  
 W305....1F  
 W308....1E  
 W309....1E  
 W310....1F

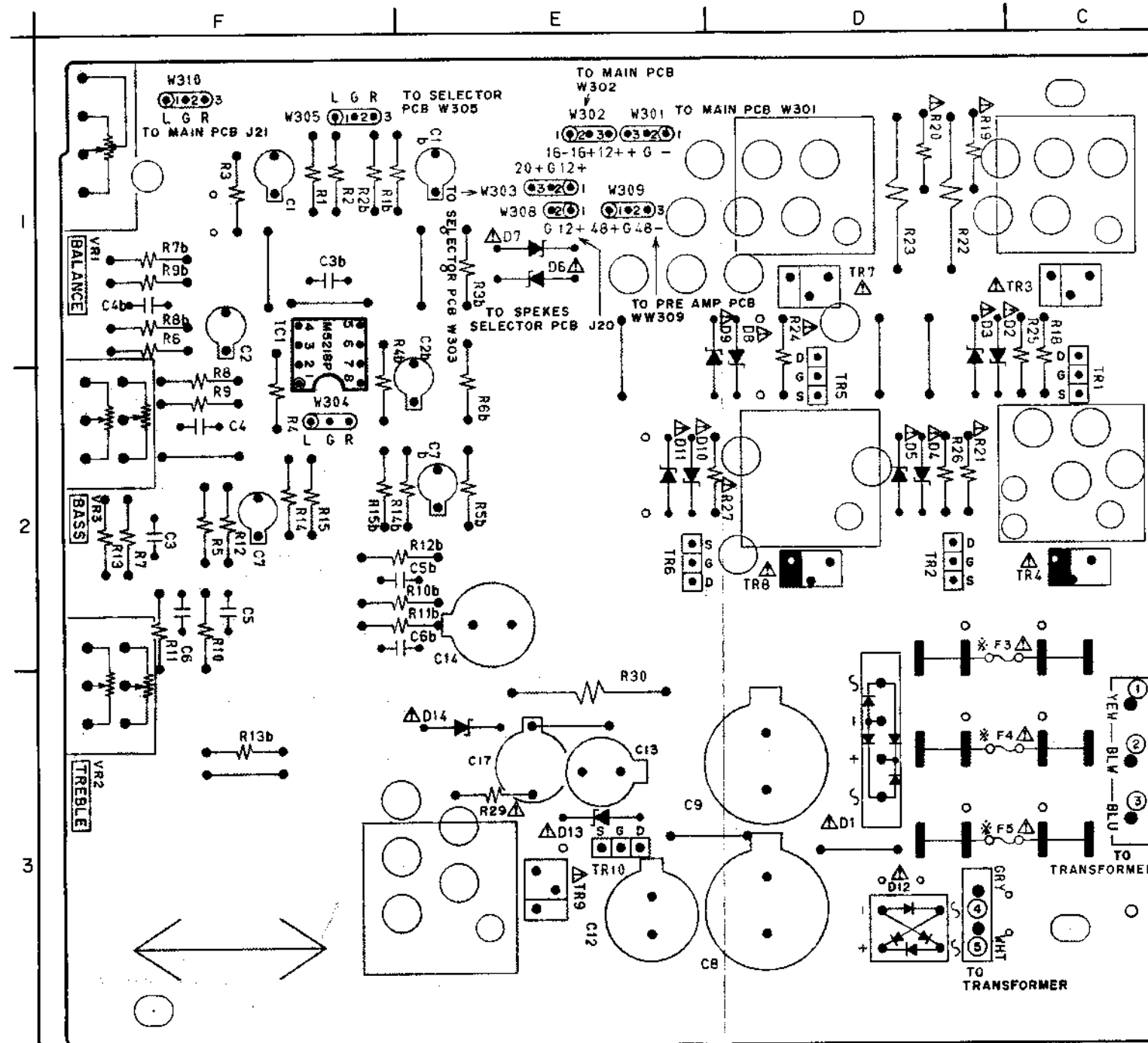
- TR1,2,5,6.....2SK246 (GR)  
 TR3,7.....2SC3116 (S.T)  
 TR4,8.....2SA1248 (S.T)  
 TR9.....2SD612K (E.F)  
 TR10.....2SK246 (BL)



2SK246



2SA1248  
 2SC3116  
 2SD612K



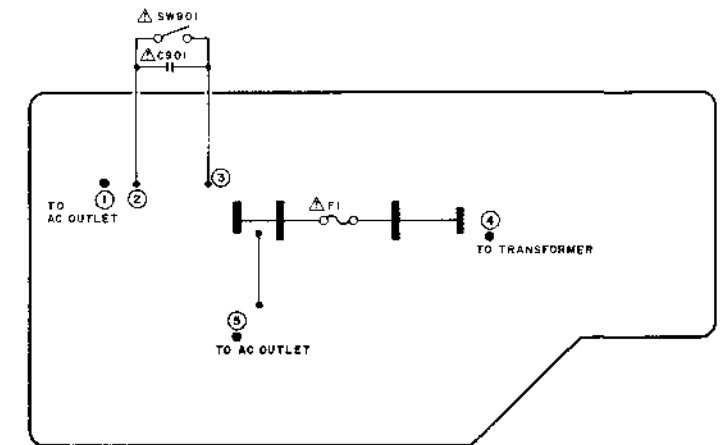
TONE CONTROL/POWER SUPPLY PCB A2037B523A

U.E.B.S  
 513A C.A  
 533A V

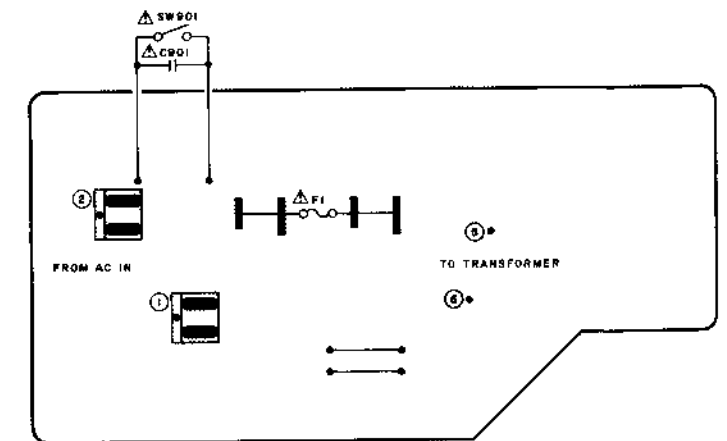
	C.A	U.E.V.S	B
F3	1.25A 125V	T1A 250V	T1A 250V
F4	1.25A 125V	T1A 250V	T1A 250V
F5	1A 125V	T1A 250V	T1A 250V

- = NPN TRANSISTOR
- = PNP TRANSISTOR
- = FIELD EFFECT TRANSISTOR

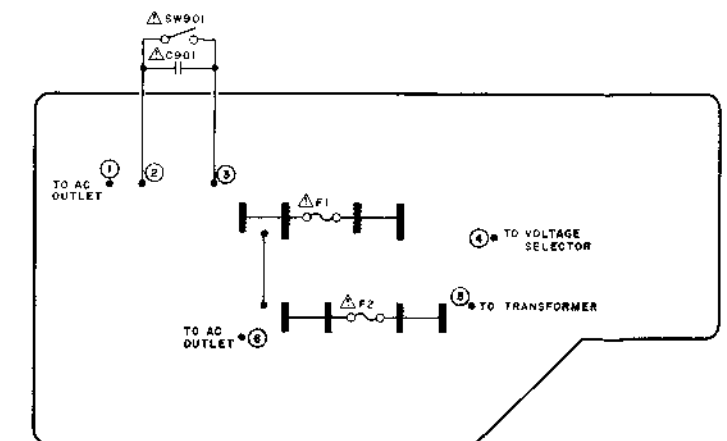
WARNING:  $\Delta$  INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
 AVERTISSEMENT:  $\Delta$  IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



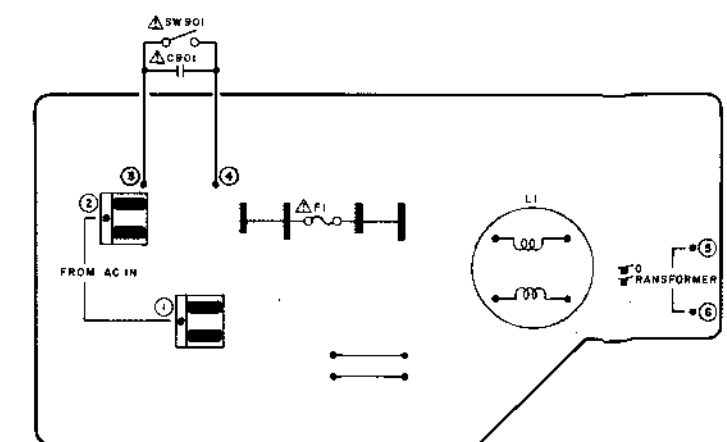
FUSE PCB A2037A511B C.A



FUSE PCB A2037A521B E.B.S



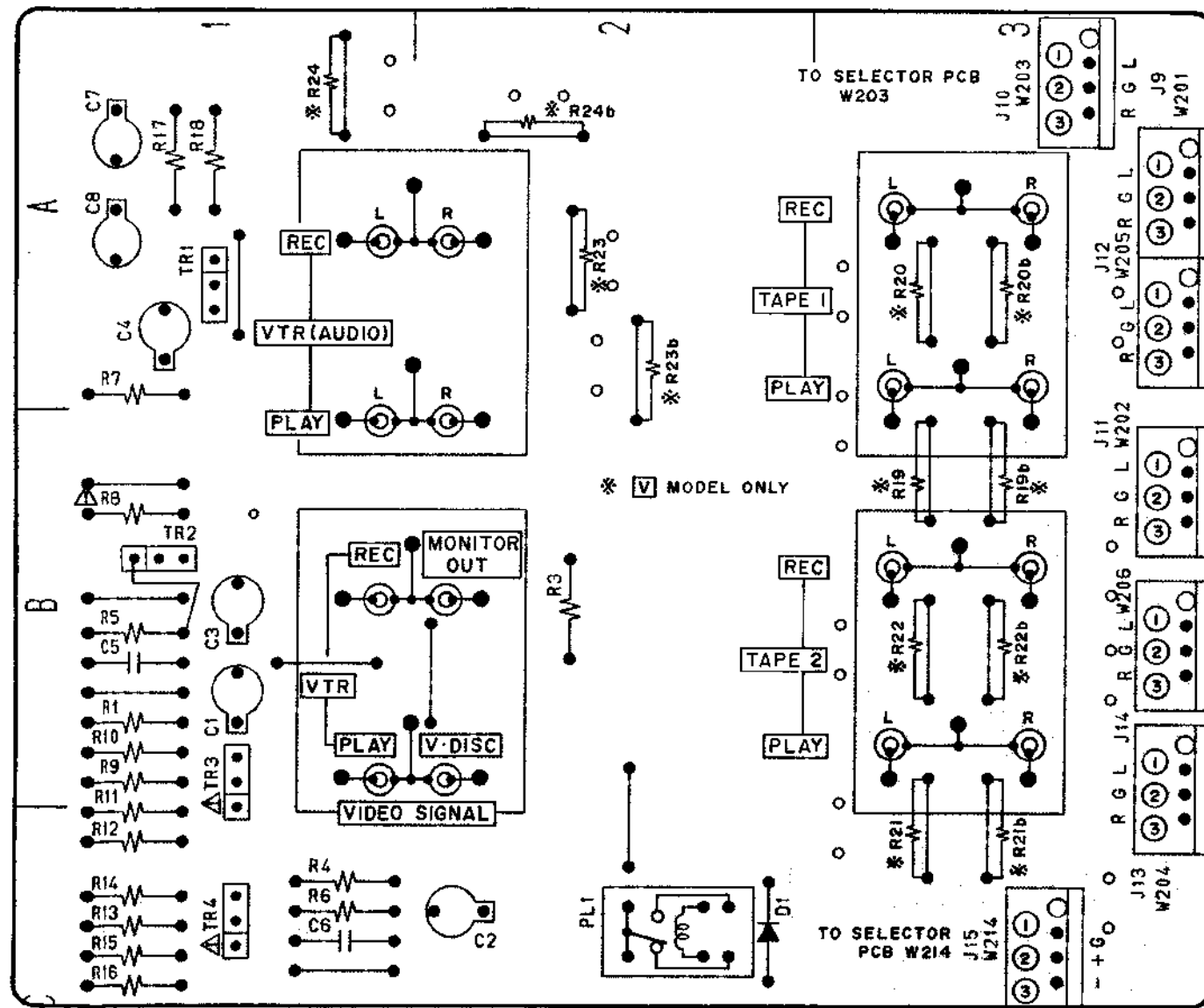
FUSE PCB A2037A501B U



FUSE PCB A2037A531B V





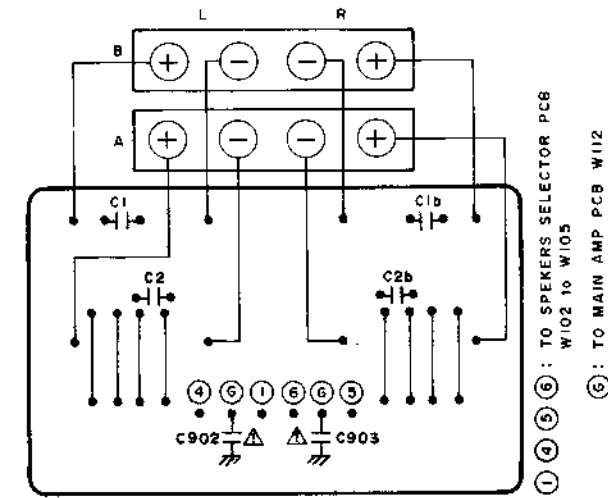


: NPN TRANSISTOR  
 B  
 TR, S  
 TR1 to 4 ---- 2SC603(E,F)

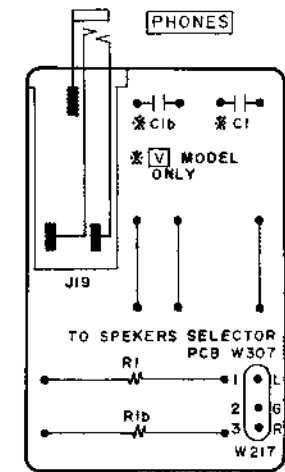
2SC603

JACK PCB A2037B523B U.E.B.S  
 513B C.A  
 533B V

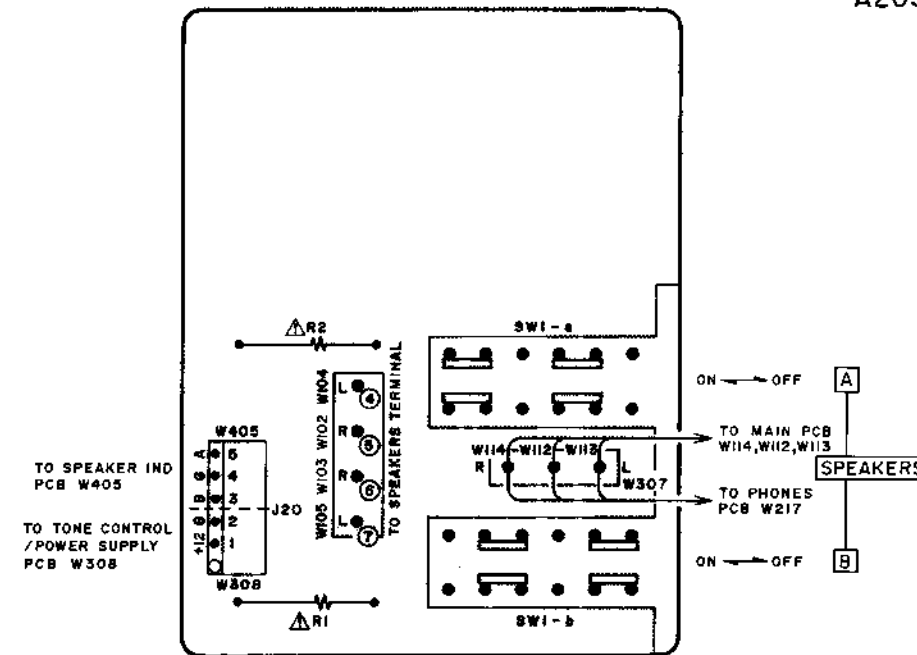
WARNING: INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
 AVERTISSEMENT: IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



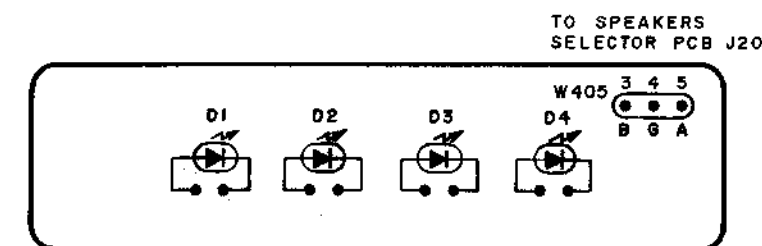
SPEAKERS TERMINAL PCB  
 A2018D5070 V MODEL ONLY



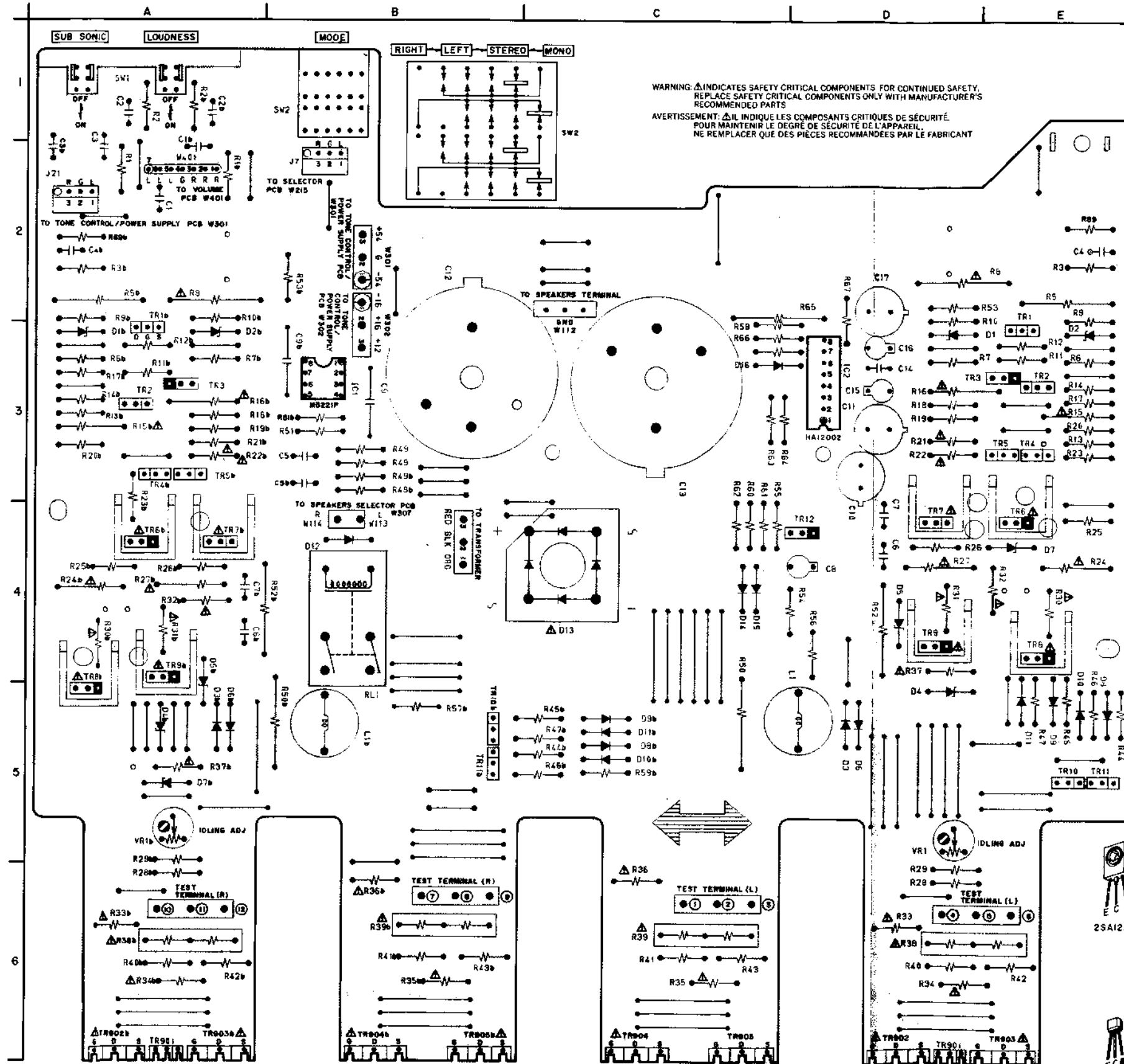
PHONES PCB  
 A2037A502C U.C.A.E.B.S  
 A2037A512C V



SPEAKERS SELECTOR PCB  
 A2037A501C U  
 511C C.A  
 521C E.B.S  
 531C V



SPEAKERS IND PCB A2037A501D U  
 511D C.A  
 521D E.B.S  
 531D V



WARNING:  $\Delta$  INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.  
 AVERTISSEMENT:  $\Delta$  IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

LOCATION OF COMPONENTS

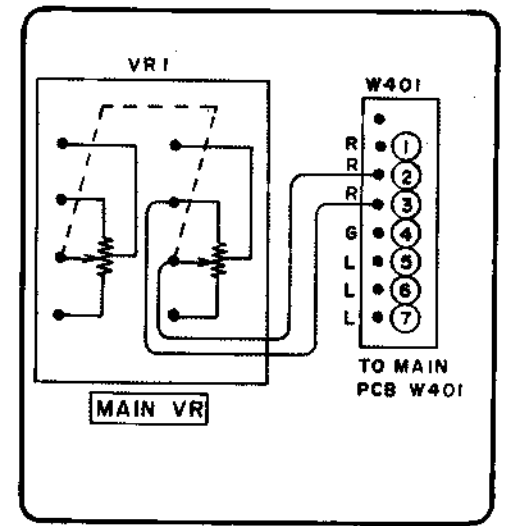
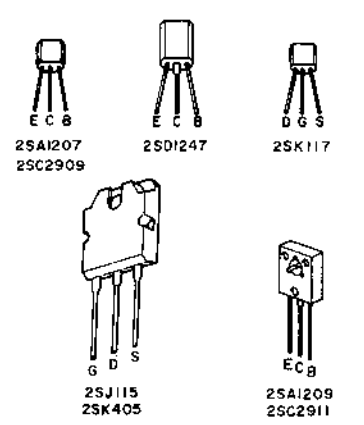
- ICs  
 IC1.....3B  
 IC2.....3D
- TRs  
 TR1 to 5.....3E  
 TR1b to 5b.....3A  
 TR6,7,9.....4E  
 TR6b,7b,9b.....4A  
 TR8,10,11.....5E  
 TR8b,10b,11b.....5A  
 TR10b,11b.....5B  
 TR12.....4D  
 TR901.....6E  
 TR901b,902b,903b.....6A  
 TR902,905.....6D  
 TR903.....6E  
 TR904.....6C  
 TR904b,905b.....6B

CONNECTORS

- W111,113,114.....4B  
 W112.....2C  
 W301.....2B  
 W302.....3B  
 W401,J21.....2A  
 J7.....2B

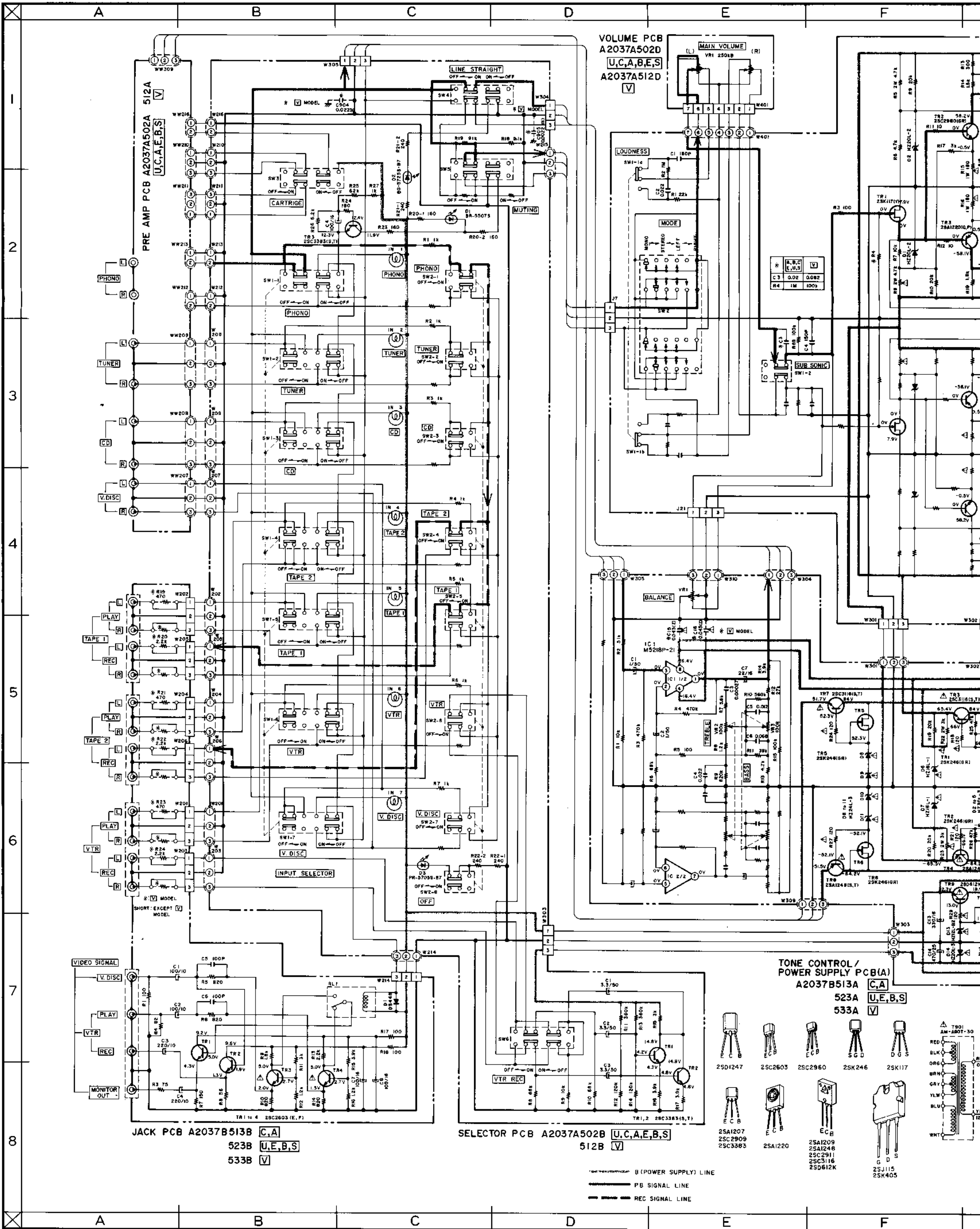
- TR1.....2SK117(Y)  
 TR2.....2SC2960(GR)  
 TR3.....2SA1220(Q,P)  
 TR4,5,10,11.....2SC2909(S,T)  
 TR6,9.....2SA1209(S,T)  
 TR7,8.....2SC2911(S,T)  
 TR12.....2SA1207(S,T)  
 TR901.....2SD1247(T,U)  
 TR902,903.....2SK405(O,Y)  
 TR904,905.....2SJ115(O,Y)

- $\Delta$  = NPN TRANSISTOR  
 $\square$  = PNP TRANSISTOR  
 $\square$  = FIELD EFFECT TRANSISTOR



VOLUME PCB  
 A2037A502D U.C.A.B.E.S  
 A2037A521D V

MAIN AMP PCB A2037A501A U  
 511A C,A  
 521A E,B,S  
 531A V



PRE AMP PCB A2037A502A 512A  
U,C,A,B,E,S

VOLUME PCB A2037A502D  
U,C,A,B,E,S  
A2037A512D

JACK PCB A2037B513B C,A  
523B U,E,B,S  
533B V

SELECTOR PCB A2037A502B U,C,A,B,E,S  
512B V

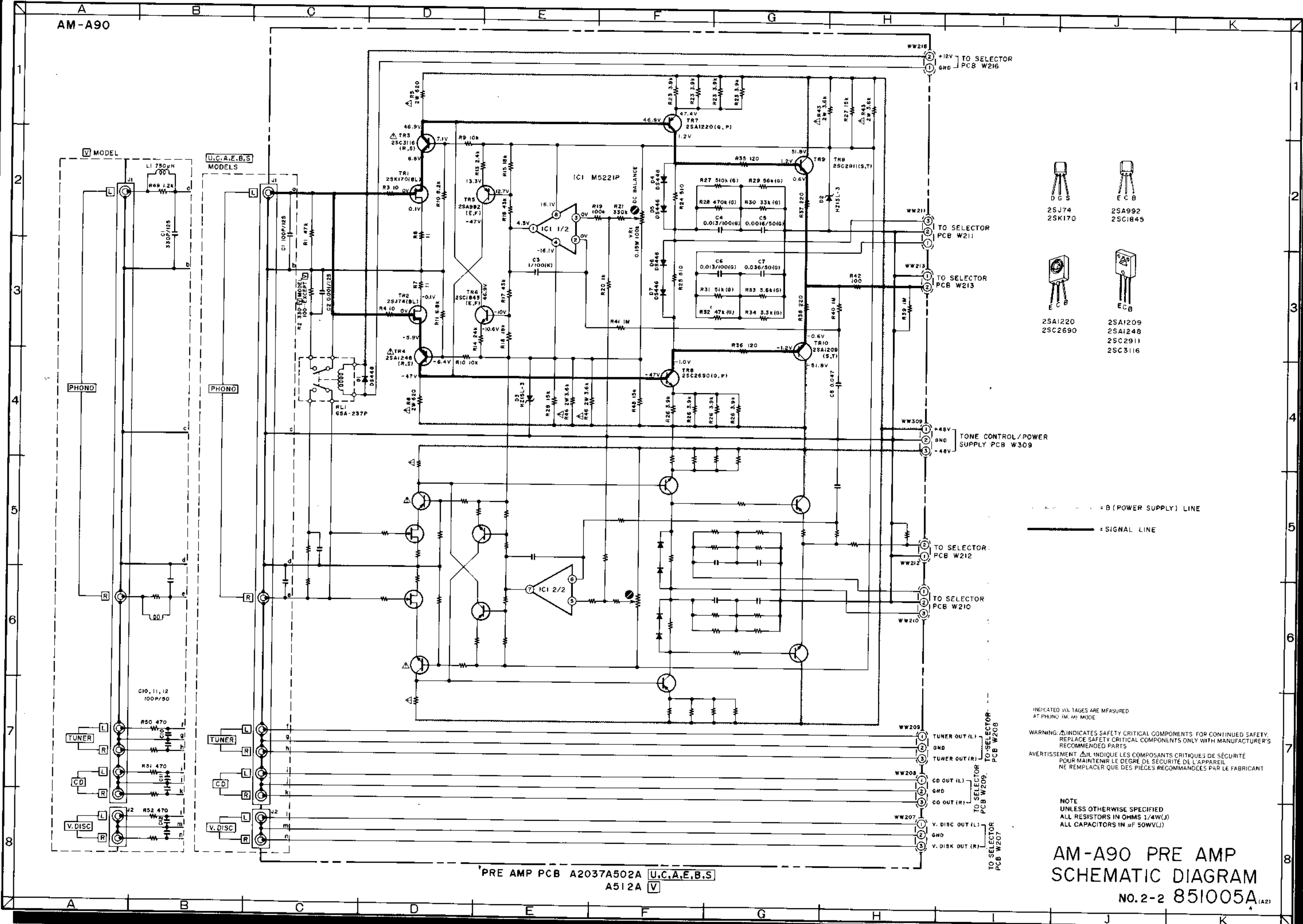
TONE CONTROL / POWER SUPPLY PCB(A)  
A2037B513A C,A  
523A U,E,B,S  
533A V

- 25D1247
- 25C2603
- 25C2960
- 25K246
- 25K117
- 25A1207
- 25C2909
- 25C3383
- 25A1220
- 25A1209
- 25A1248
- 25C2911
- 25C3116
- 25D612K
- 25J115
- 25K405
- 25K117

B (POWER SUPPLY) LINE  
PB SIGNAL LINE  
REC SIGNAL LINE



AM-A90



- DGS  
2SJ74  
2SK170
- ECB  
2SA992  
2SC1845
- ECB  
2SA1220  
2SC2690
- ECB  
2SA1209  
2SA1248  
2SC2911  
2SC3116

--- B (POWER SUPPLY) LINE  
 ——— SIGNAL LINE

INDICATED VOLTAGES ARE MEASURED AT PHONO (M, AM) MODE

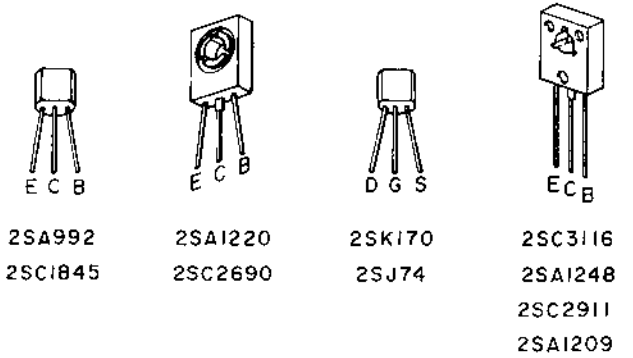
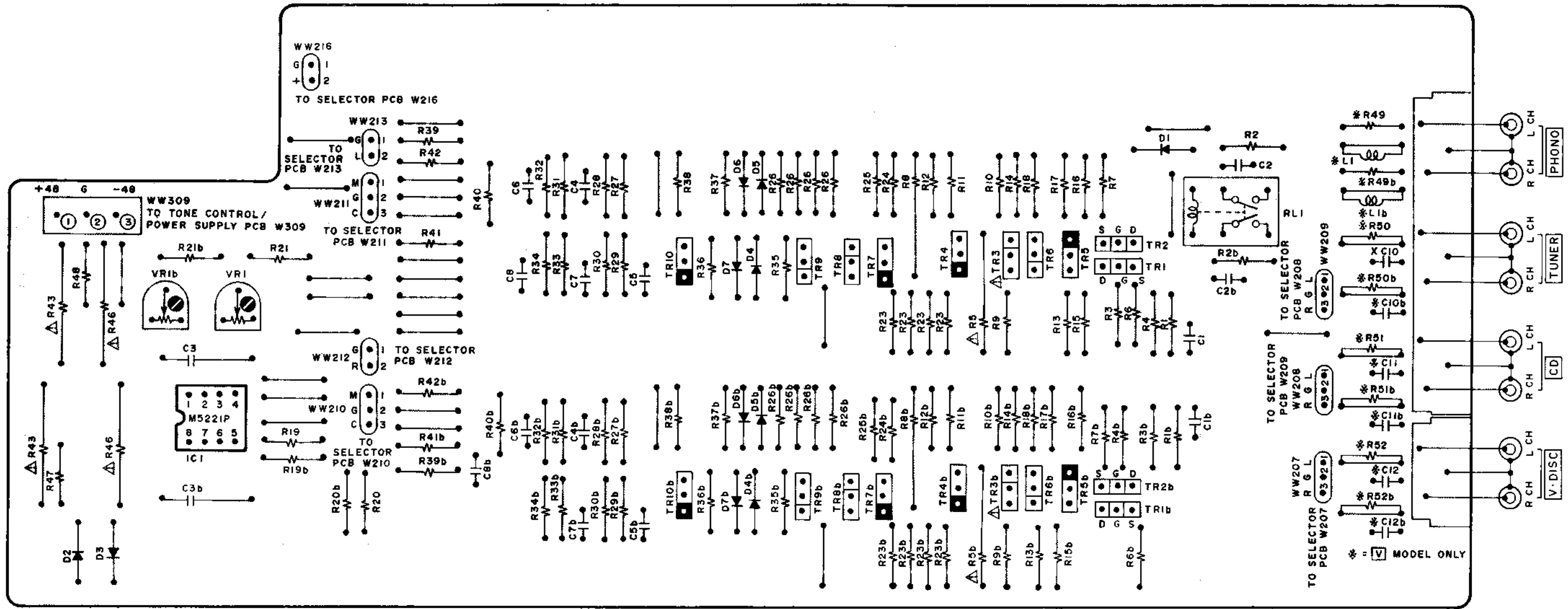
WARNING:  $\Delta$  INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT:  $\Delta$  IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL. NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

NOTE  
 UNLESS OTHERWISE SPECIFIED  
 ALL RESISTORS IN OHMS 1/4W(J)  
 ALL CAPACITORS IN  $\mu$ F 50WV(L)

AM-A90 PRE AMP  
 SCHEMATIC DIAGRAM  
 No. 2-2 851005A (A2)

PRE AMP PCB A2037A502A U.C.A.E.B.S.  
 A512A V



= FILED EFFECT TRANSISTOR  
 = NPN TRANSISTOR  
 = PNP TRANSISTOR

- PRE AMP PCB A2037A502A U.C.A.E.B.S  
512A V
- TR1,1b.....2SK170(BL)
  - TR2,2b.....2SJ74(BL)
  - TR3,3b.....2SC3116(R,S)
  - TR4,4b.....2SA1248(R,S)
  - TR5,5b.....2SA992(E,F)
  - TR6,6b.....2SC1845(E,F)
  - TR7,7b.....2SA1220(Q,P)
  - TR8,8b.....2SC2690(Q,P)
  - TR9,9b.....2SC2911(S,T)
  - TR10,10b.....2SA1209(S,T)

WARNING: \*INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.  
 REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S  
 RECOMMENDED PARTS.  
 AVERTISSEMENT: \*INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE.  
 POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL,  
 NE REMPLACEZ QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.