

DENON

Hi-Fi Integrated Amplifier

SERVICE MANUAL MODEL PMA-300V

SOLID-STATE INTEGRATED AMPLIFIER

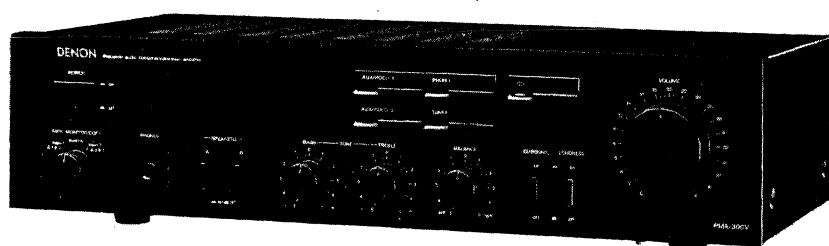


TABLE OF CONTENTS

SPECIFICATIONS	2
NAME AND FUNCTION OF PARTS	3
CONNECTIONS	4
METHOD OF ADJUSTMENTS	5
REMOVAL EACH SECTION	6
BLOCK DIAGRAM	7
SEMICONDUCTORS	7
PRINTED WIRING BOARD PATTERNS AND PARTS LIST	
ETC9067 POWER AMP UNIT	9
WIRING DIAGRAM	12
SCHEMATIC DIAGRAM	13
EXPLODED VIEW OF CHASSIS AND CABINET & PARTS LIST	14

NIPPON COLUMBIA CO., LTD.

SPECIFICATIONS

POWER AMPLIFIER SECTION

Rated Output Power:	Both channel drives (TUNER → SP OUT) 60 Watts minimum rms per channel (8 ohm Load) with less than 0.05% total harmonic distortion from 20 Hz to 20 kHz. 1 kHz (4 ohm Load) 80 W + 80 W (DIN, T.H.D 1%)
Total Harmonic Distortion:	0.008% (20 Hz — 20 kHz at —3 dB rated output 8 ohm Load)
Input Sensitivity:	150 mV
Input Impedance:	30 k ohm

EQUALIZER AMPLIFIER SECTION

Equalizer Amplifier Output:
(REC OUT Terminal)

Input Sensitivity/Input Impedance:	Rated Output: 150 mV
	PHONO MM 2.5 mV 47 k ohm
	MC 250 μ V 100 ohm
	CD, VIDEO-1, VIDEO-2, TUNER/AUX, TAPE
RIAA Deviation:	150 mV 30 k ohm
	PHONO MM within ± 0.5 dB (20 Hz — 20 kHz)
	MC within ± 0.5 dB (35 Hz — 20 kHz)
Maximum Input Level:	PHONO MM 160 mV/1 kHz
	MC 12 mV/1 kHz

OVERALL CHARACTERISTICS

SN Ratio (IHFA Network):	PHONO MM 86 dB (input terminals short-circuited for 5.0 mV input)
	MC 68 dB (input terminals short-circuited for 500 μ V input)
	TUNER/AUX, CD, TAPE, VIDEO-1, VIDEO-2
	98 dB (input terminals short-circuited)

Tone Control Adjustable Range:

Filtering Characteristics:
Loudness Characteristics:

BASS	100 Hz ± 8 dB
TREBLE	10 kHz ± 8 dB
SUBSONIC	16 Hz, 12 dB/oct
Low frequency	100 Hz + 7 dB
High frequency	10 kHz + 6 dB

AC OUTLET:

(For U.S.A., Canada and Asia)

POWER SOURCE:

POWER CONSUMPTION:

DIMENSIONS:

WEIGHT:

SWITCHED x 2, 100 W (Total)
UNSWITCHED x 1,250 W
Germany and France AC 220 V, 50 Hz
U.K. and Australia AC 240 V, 50 Hz
U.S.A. and Canada AC 120 V, 60 Hz
Asia 110/120/220/240 V, 50/60 Hz (Multiple)
115 W (U.S.A.); 120 W (IEC);
115 W (Multiple) 2.2 A (CSA)
434 mm (17-3/32")W x 112 mm (4-13/32")H x 281 mm (11-1/16")D (including rubber feet, control knobs, and terminals.)
5.8 kg (12 lbs 13 oz)

Design and specifications are subject to change without prior notice.

NOTE: The following codes correspond to the appropriate models.
E2 for Europe, EU for U.S.A., EA for Australia, EK for U.K.
E1 for Asia and EC for Canada.
This Service Manual is prepared based on E2 Black Version.

For United Kingdom model only.

WARNING:

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

For Australia model only.

FOR YOUR SAFETY

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

For U.S.A. and Canada models.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

NAMES AND FUNCTIONS OF PARTS

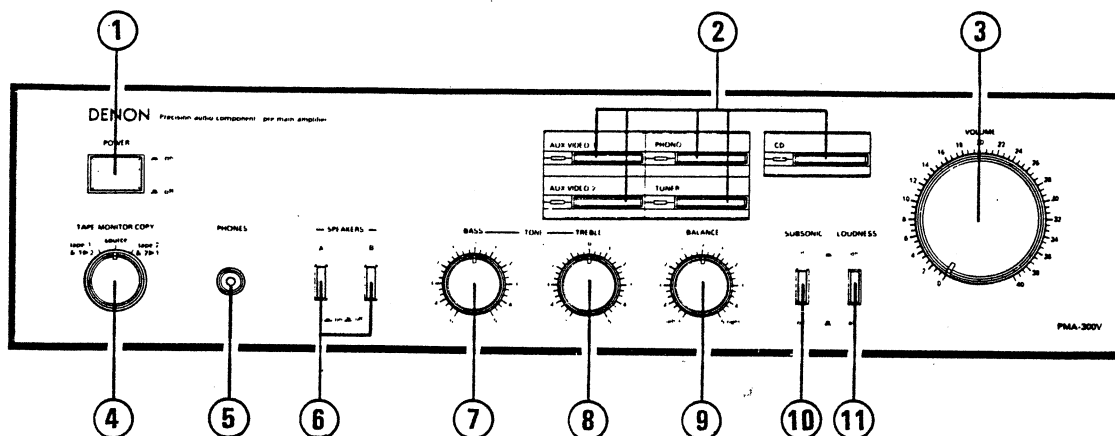


Fig. 1

- | | |
|---|---|
| ① POWER (Power switch) | ⑦ BASS (Regulation of low notes) |
| ② INPUT SELECTOR (Input signal selection button)
• CD, • PHONO, • TUNER, • AUX/VIDEO 1,
• AUX/VIDEO 2 | ⑧ TREBLE (Regulation of high notes) |
| ③ VOLUME (Adjustment of the volume) | ⑨ BALANCE (Balance adjustment) |
| ④ TAPE MONITOR/COPY (Tape monitor/Copy switch) | ⑩ SUBSONIC (Subsonic filter button) |
| ⑤ PHONES (Headphone Jack) | ⑪ LOUDNESS (Loudness button) |
| ⑥ SPEAKERS (Speaker selection switch)
• A, • B (on, off) | ⑫ CARTRIDGE (Cartridge changeable switch)
(Back Panel Side)
• MM, • MC. |

Video Input Function

The PMA-300V provides a video input function. The image selection circuitry gives preference to VIDEO-1 for all settings of the INPUT SELECTOR button, unless VIDEO-2 has been specified. This function might be used, for example, to watch a TV monitor while playing a compact disc. In this case it would connect the image input circuitry of the VIDEO-1 terminal to the image output of a video recorder, tape recorder, or video disc recorder. The resultant monitor out signal would be sent to the TV monitor, for "background video" audio-visual entertainment combining sound and images.

CONNECTIONS

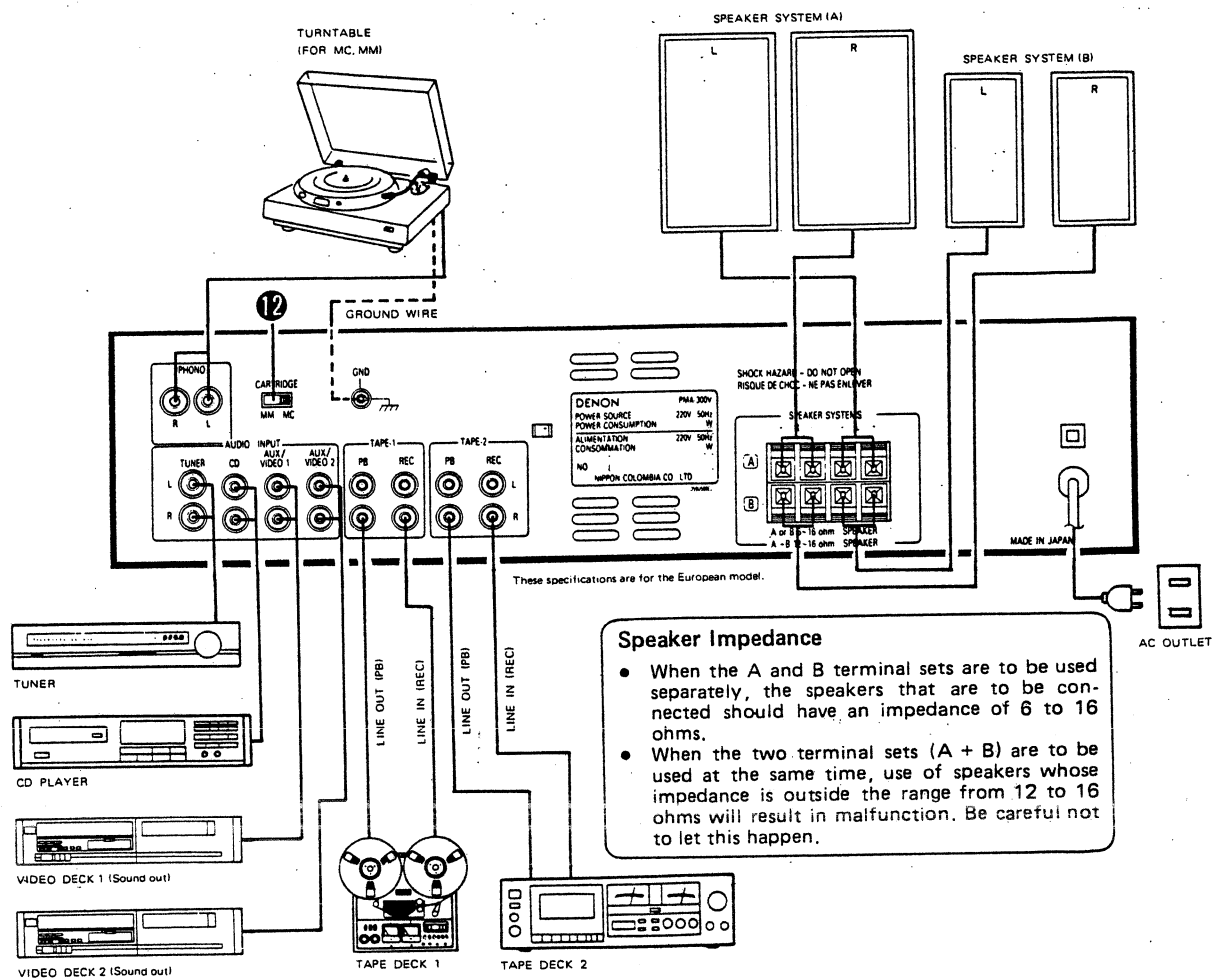
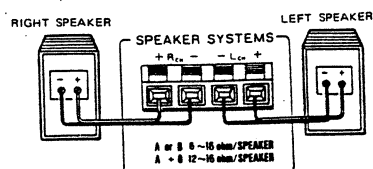


Fig. 2

Connection to the Speaker System

Connect the speaker system for the left channel (the left side as viewed facing the front) to the L speaker terminal on the back panel, and the speaker system for the right channel to the R terminal.

- When connecting the speaker terminals to the speaker systems, make certain to connect the polarities correctly (+ to + and - to -).
- During connection, be careful that the inner wires in the speaker cords do not protrude from the terminals to contact any other terminal, and that the inner wires in the separate speaker cords do not contact each other.



Connecting the speaker Cords



Lift the lock piece on the terminal to its upright position and insert the cord. Then set the lock.

METHOD OF ADJUSTMENTS

When making adjustments, be sure the power supply is at the rated voltage and the room air is in normal condition with respect to temperature and humidity.

IDLE CURRENT ADJUSTMENT (Fig. 3)

1. Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the unit under normal conditions. Adjust the range of ambient temperature to $15 - 30^{\circ}\text{C}$.
2. Set the following switches as follows:
 - POWER (power switch) to off
 - VOLUME (VOLUME CONTROL) to 0 ($\curvearrowright$)
 - SPEAKERS (speaker terminal) to no load (speakers disconnected)
3. Remove the top cover and connect a DC digital voltmeter to the test points of ETC9067 (Power Amp units) (between the positive terminal TP $\oplus$ (R89) and the negative terminal TP $\ominus$ (R91), and between the positive TP $\oplus$ (R90) and the negative terminal TP $\ominus$ (R92)).
4. (1) Connect Power cord to AC outlet, and turn Power Switch "on" (—). Within 10 seconds turn VR5 (Lch) and VR6 (Rch) clockwise so that the DC voltmeter reads $2.0 \pm 0.1 \text{ mVDC}$
- (2) Then after 5 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads $5 \pm 0.5 \text{ mV}$
- (3) And after 15 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads $8 \pm 3 \text{ mV}$

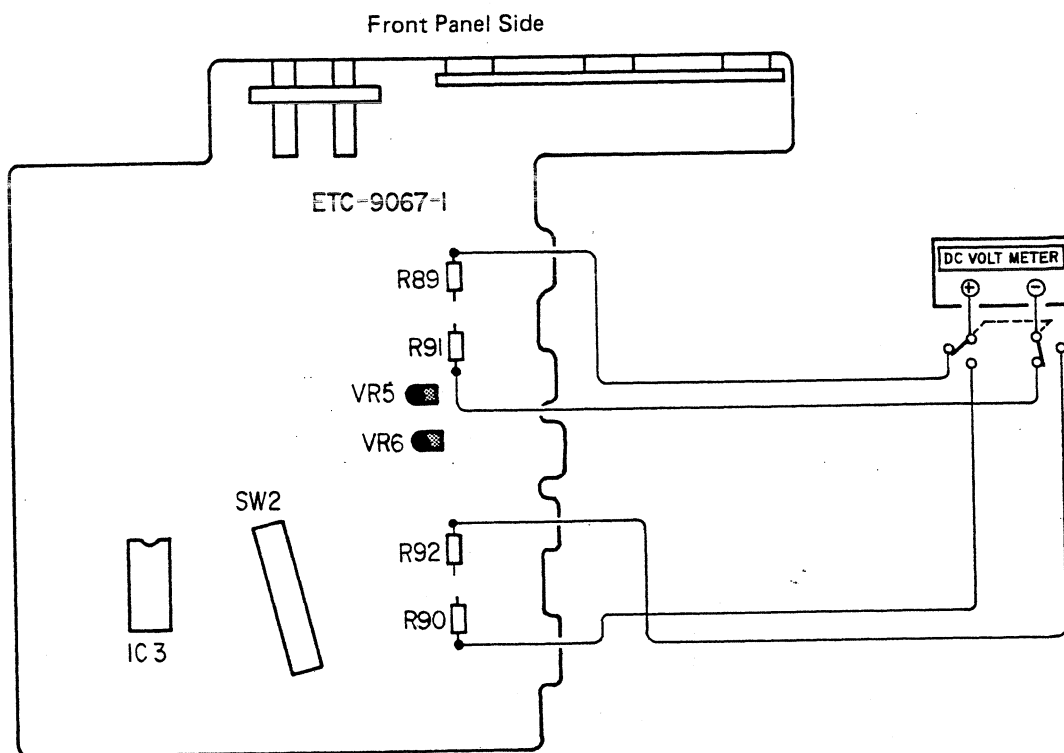
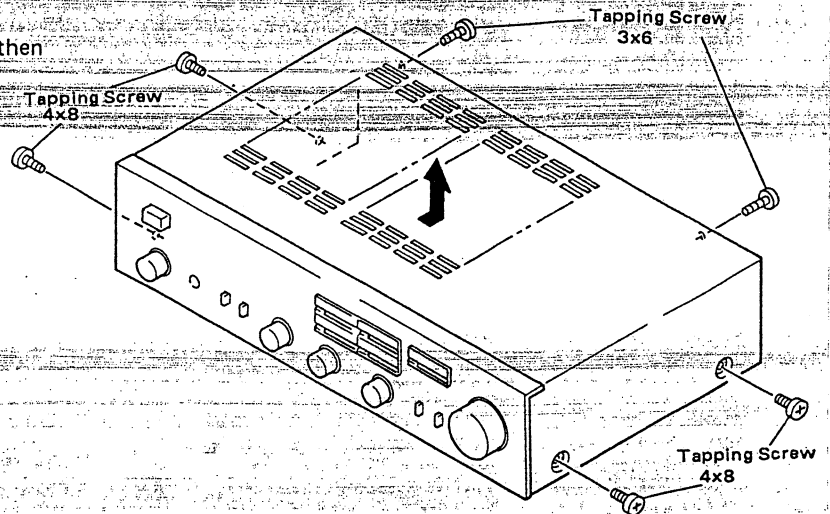


Fig. 3

REMOVAL EACH SECTION (Reverse the procedure to install the covers.)

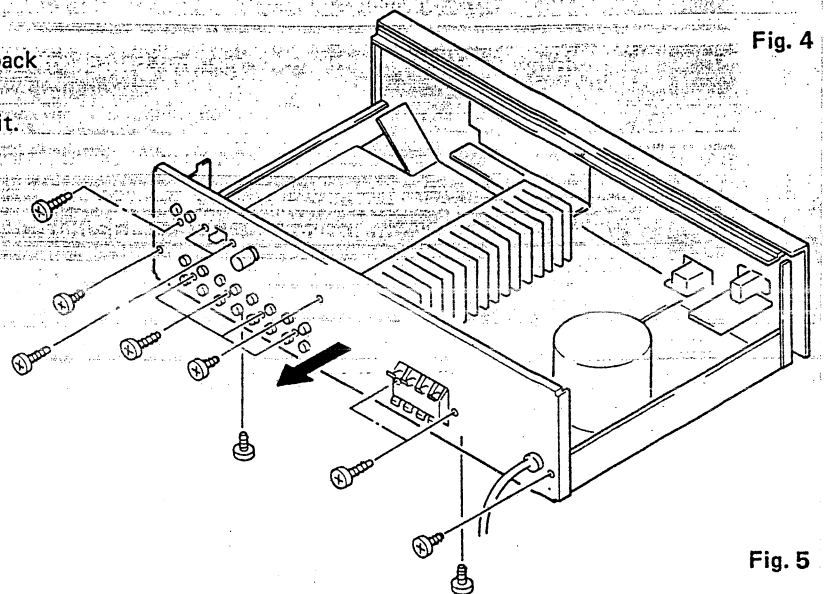
1. How to remove top cover (Fig. 4)

- 1) Remove the six screws holding the top cover in place.
- 2) Pull out the sides of the cover to free it, then lift off the cover.



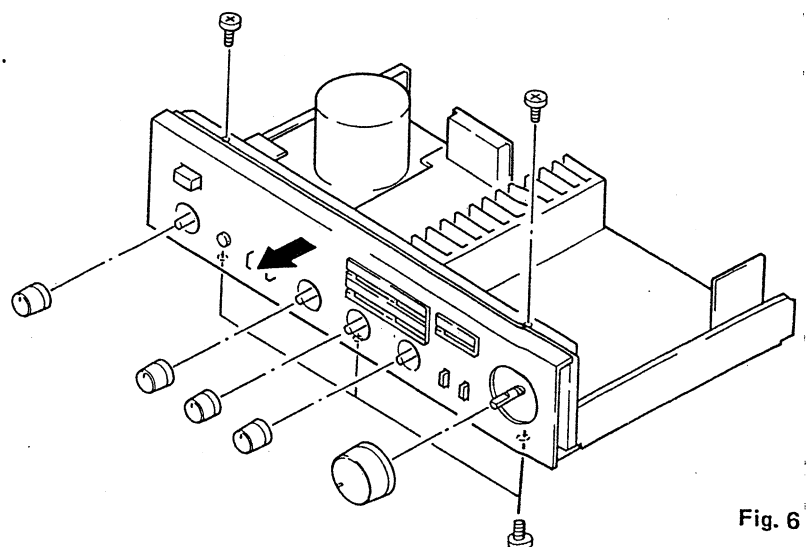
2. How to remove the back panel (Fig. 5)

- 1) Remove the fourteen screws holding the back panel in place.
- 2) Pull the back panel toward you and remove it.



3. How to remove the front panel (Fig. 6)

- 1) Pull off the five knobs.
- 2) Remove the five screws holding the front panel in place.
- 3) Pull the front panel toward you and remove it.



BLOCK DIAGRAM

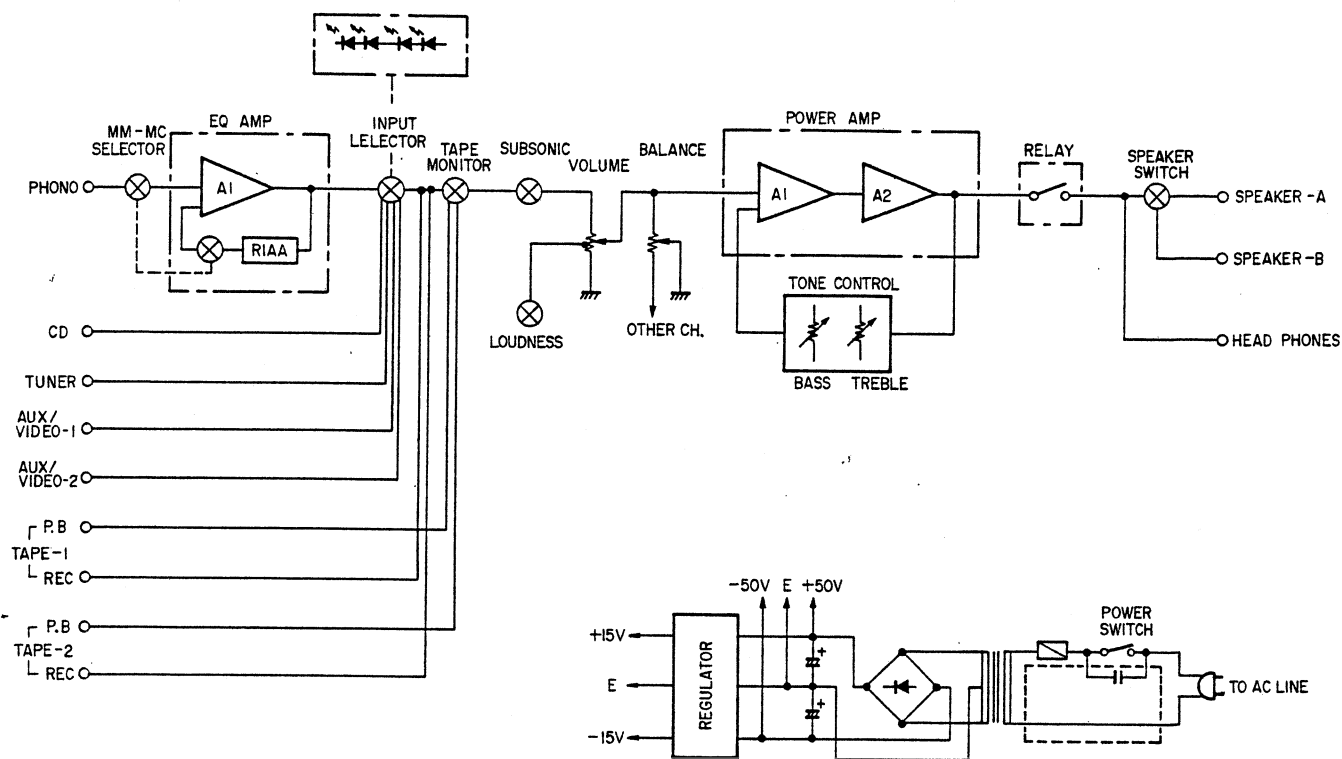


Fig. 7

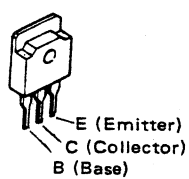
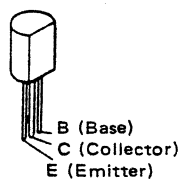
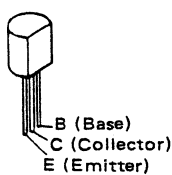
SEMICONDUCTORS

• TRANSISTORS (Including FET)

2SC1815(BL)
2SA1015(Y)
2SC2878(A/B)
2SA988(E/F)
2SC1841(E/F)

2SB647A(C)
2SD667A(C)

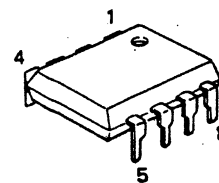
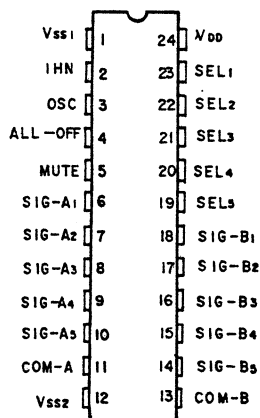
2SA1104(O)/(Y)
2SC2579(O)/(Y)



• IC's

TC9152P (Toshiba)

M5218P (Mitsubishi)
M5220P (Mitsubishi)

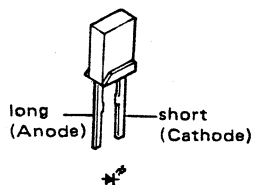


• DIODES (Including Zener, LED)

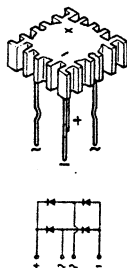
HZ16-2
HZ24-2



SEL1121R (Red)



D5FB20



1S5133

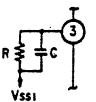
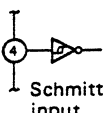
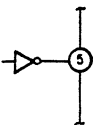
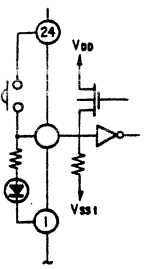
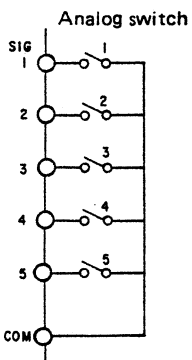


1S2076A



TC9152P (Toshiba)

FUNCTION OF EACH TERMINAL

TERMINAL NO.	SYMBOL	FUNCTION	REMARKS
2	INH	Inhibit input terminal. Normal operation at "H" level, inhibit operation at "L" level.	
3	OSC	C.R connecting terminal for oscillator. With this oscillation frequency, muting time and switching time of analog will be set.	
4	ALL-OFF	Specified OFF input terminal of all analog switches. Applying "H" level to turn off all analog switches.	 Schmitt trigger input
5	MUTE	Output terminal of muting signal. By receiving of "H" level at select input terminals (SEL-1 ~ SEL-5), this terminal becomes "H" level for settled time and within this time analog switch will shift.	
23 22 21 20 19	SEL-1 SEL-2 SEL-3 SEL-4 SEL-5	Select input terminals for respective analog switches. Turn SEL-1 ~ SEL-5 terminals to "H" level to turn on respective analog switches. SEL-1 ~ SEL-5 are all reciprocal reset. These terminals are in conjunction with driver output I/O terminals.	
6/18	SIG-A ₁ SIG-B ₁	Signal input terminal 1. Select SEL-1 to turn on analog switch 1 and this terminal will conduct to COM terminal.	 Analog switch
7/17	SIG-A ₂ SIG-B ₂	Signal input terminal 2. Select SEL-2 to turn on analog switch 2 and this terminal will conduct to COM terminal.	
8/16	SIG-A ₃ SIG-B ₃	Signal input terminal 3. Select SEL-3 to turn on analog switch 3 and this terminal will conduct to COM terminal.	
9/15	SIG-A ₄ SIG-B ₄	Signal input terminal 4. Select SEL-4 to turn on analog switch 4 and this terminal will conduct to COM terminal.	
10/14	SIG-A ₅ SIG-B ₅	Signal input terminal 5. Select SEL-5 to turn on analog switch 5 and this terminal will conduct to COM terminal.	
11/13	COM-A COM-B	Common terminal for analog switches.	
24 1 12	V _{DD} V _{SS1} V _{SS2}	Power supply voltage applying terminal. For control system V _{DD} -V _{SS1} . For analog switch system V _{DD} -V _{SS2} .	

PRINTED WIRING BOARD PATTERNS AND PARTS LIST

ETC9067 POWER AMP UNIT PARTS LIST for E2

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2630317006	M-5220P	IC (MITSUBISHI)
IC002	2630257001	M-5218P	IC (MITSUBISHI)
IC003	2620581004	TC9152P	IC (TOSHIBA)
TR001	2730198015	2SC1815(BL)	TRANSISTOR
TR002	2710102005	2SA1015(Y)	TRANSISTOR
TR003	2730198015	2SC1815(BL)	TRANSISTOR
TR004, 005	2730253015	2SC2878(A/B)	TRANSISTOR
TR007, 008	2710131021	2SA988(E/F)	TRANSISTOR
TR009, 010	2730235020	2SC1841(E/F)	TRANSISTOR
TR011, 012	2710131021	2SA988(E/F)	TRANSISTOR
TR013, 014	2730235020	2SC1841(E/F)	TRANSISTOR
TR015, 016	2730198015	2SC1815(BL)	TRANSISTOR
TR017, 018	2720053005	2SB647A(C)	TRANSISTOR
TR019, 020	2740060007	2SD667A(C)	TRANSISTOR
TR025, 026	2730198015	2SC1815(BL)	TRANSISTOR
TR027	2710102005	2SA1015(Y)	TRANSISTOR
TR028	2730253015	2SC2878(A/B)	TRANSISTOR
TR029	2730198015	2SC1815(BL)	TRANSISTOR
TR030	2720053005	2SB647A(C)	TRANSISTOR
TR031	2740060007	2SD667A(C)	TRANSISTOR
TR032	2730198015	2SC1815(BL)	TRANSISTOR
DO01 ~005	2760401002	1SS133	DIODE
DO06	2760256008	HZ16-2	ZENER
DO09 ~016	2760049011	1S2076A	DIODE
DO17, 018	2760256008	HZ16-2	ZENER
DO19	2760356005	D5FB20(4001)	DIODE
DO20 ~024	3939261001	SEL1121R(RED)	LED
DO25	2760049011	1S2076A	DIODE
DO27	2760220021	HZ24-2	ZENER
DO28, 029	2760237001	RV06	DIODE

RESISTORS (not included Carbon Film $\pm 5\%$, 1/4W type)

RO71, 074	2412379929	560 ohm	$\pm 5\%$	1/4W	CARBON (NBS)
RO75, 078	2412377947	100 ohm	$\pm 5\%$	1/4W	CARBON (NBS)
RO83, 086	2412369010	1.0 ohm	$\pm 5\%$	1/4W	CARBON (NBS)
RO87, 088	2412379903	470 ohm	$\pm 5\%$	1/4W	CARBON (NBS)
RO89 ~092	2442013080	0.22 ohm	$\pm 5\%$	1W	METAL OXIDE FILM (NBF)
RO93, 094	2440015022	6.8 ohm	$\pm 5\%$	1W	METAL OXIDE FILM (NBF)
RO97, 098	2440015022	6.8 ohm	$\pm 5\%$	1W	METAL OXIDE FILM (NBF)
RO99, 100	2440038025	560 ohm	$\pm 5\%$	1W	METAL OXIDE FILM (NBF)
RO123	2440096025	680 ohm	$\pm 5\%$	2W	METAL OXIDE FILM (NBF)
RO131, 132	2440038025	560 ohm	$\pm 5\%$	1W	METAL OXIDE FILM (NBF)
RO141 ~144	2412379000	470 ohm	$\pm 5\%$	1/4W	CARBON (NBS)
RO145	2430032002	0.47 ohm	$\pm 10\%$	3W	WIRE WOUND
VR001	2119018004	VARIABLE RESISTOR 100k ohm MAIN			←
VR005, 006	2116000002	SEMIFIXED RESISTOR 5k ohm (BIAS)			
VR02 ~04	2119026009	VARIABLE RESISTOR (TONE, BALANCE)			

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C001, 002	2533631009	150pF	±5%	50V	CERAMIC
C003, 004	2544132005	10μF		16V	ELECTROLYTIC
C005, 006	2544161050	1000μF	±20%	6.3V	ELECTROLYTIC
C007, 008	2551122011	0.056μF	±5%	50V	PLASTIC FILM
C009, 010	2551121041	0.015μF	±5%	50V	PLASTIC FILM
C011, 012	2531055014	560pF	±10%	50V	CERAMIC
C013, 014	2544132005	10μF		16V	ELECTROLYTIC
C015, 016	2531024003	0.01μF	+80,—20%	50V	CERAMIC
C017, 018	2544146004	1μF		50V	ELECTROLYTIC
C019	2531004007	1000pF	±10%	50V	CERAMIC
C020 ~022	2531024003	0.01μF	+80,—20%	50V	CERAMIC
C023	2544146004	1μF		50V	ELECTROLYTIC
C025, 026	2544146004	1μF		50V	ELECTROLYTIC
C027, 028	2549014018	0.22μF	±20%	50V	ELECTROLYTIC
C029, 030	2551083008	0.082μF	±10%	50V	PLASTIC FILM
C031, 032	2531004007	1000pF	±10%	50V	CERAMIC
C033, 034	2544146004	1μF		50V	ELECTROLYTIC
C035, 036	2533627000	100pF	±5%	50V	CERAMIC
C037, 038	2533603008	10pF	±0.5pF	50V	CERAMIC
C039, 040	2544132005	10μF		16V	ELECTROLYTIC
C041, 042	2544146004	1μF		50V	ELECTROLYTIC
C043 ~046	2531025002	0.022μF	+80,—20%	50V	CERAMIC
C047 ~050	2533639001	330pF	±5%	50V	CERAMIC
C051 ~054	2533623004	68pF	±5%	50V	CERAMIC
C055 ~058	2531024003	0.01μF	+80,—20%	50V	CERAMIC
C059 ~062	2544180057	2.2μF	±20%	63V	ELECTROLYTIC
C063 ~066	2533619005	47pF	±5%	50V	CERAMIC
C067, ~070	2531024003	0.01μF	+80,—20%	50V	CERAMIC
C071, 072	2531025002	0.022μF	+80,—20%	50V	CERAMIC
C073 ~076	2544180057	2.2μF	±20%	63V	ELECTROLYTIC
C077, 078	2531025002	0.022μF	+80,—20%	50V	CERAMIC
C079 ~082	2531008003	4700pF	±10%	50V	CERAMIC
C083, 084	2551074004	0.015μF	±10%	50V	PLASTIC FILM
C085, 086	2551085006	0.12μF	±10%	50V	PLASTIC FILM
C087, 088	2531009002	6800pF	±10%	50V	CERAMIC
C089, 090	2551081000	0.056μF	±10%	50V	PLASTIC FILM
C091	2544005006	330μF		6.3V	ELECTROLYTIC
C092	2544127007	220μF		6.3V	ELECTROLYTIC
C093, 094	2544146004	1μF		50V	ELECTROLYTIC
C095	2544164031	220μF		25V	ELECTROLYTIC
C096	2544138009	47μF		25V	ELECTROLYTIC
C097, 098	2546112007	4700μF	±20%	56V	ELECTROLYTIC

Ref. No.	Part No.	Part Name & Descriptions
C099	2544180001	1μF ±20% 100V ELECTROLYTIC
C100	2531052004	4700pF +100 -0% 50V CERAMIC
AC101	2538003014	4700pF ±20% 400V (AC) CERAMIC
C103, 104	2533633007	180pF ±5% 50V CERAMIC
C105, 106	2531059007	1200pF ±10% 50V CERAMIC
C111 ~114	2533637003	270pF ±5% 50V CERAMIC
C117, 118	2546112007	4700μF ±20% 56V ELECTROLYTIC
SWITCHES & RELAY		
SW001	2124119008	SLIDE SW (MC/MM)
SW002	2124254002	SLIDE SW (REMOTE) (T.MONI)
SW03, 04	2129533003	2P PUSH SW (FIL, LOUD)
SW005	2129532004	2P PUSH SW (SPEAKER)
SW006	2124409006	POWER SWITCH (POWER)
SW007 ~011	2124407008	TACT SWITCH
RL001	2140041008	RELAY DC 24V

Ref. No.	Part No.	Part Name & Descriptions	Qty
OTHER PARTS			
	2229067107	P.W. BOARD	1
	2090008120	JUMPER WIRE P=10mm	111
	2090008104	JUMPER WIRE P=15mm	4
	EP-5667H1	TERMINAL PIN L=21mm	27
L001, 002	2359003002	FTZ CHOKE COIL	2
L003, 004	2359001004	INDUCTOR (1μH)	2
	2020022008	FUSE HOLDER 2 FOR AC LINE 4 FOR POWER OUT	6
F001, 002	2061015090	FUSE (5A)	2
AF003	2061015032	FUSE (2.5A)	1
	2050274004	2P CONNECTOR BASE (PH, TU)	2
	2050150005	4P CONNECTOR BASE (TAPE-2, CD, V1)	2
	2050152003	6P CONNECTOR BASE (TAPE-1, V2)	1
	2050151004	8P PUSH TERMINAL (SPEAKER)	1
	2048191005	HEADPHONE JACK	1
	2050099001	TERMINAL P=5x7	1
	2050185038	3P WIRE HILDER (FOR HEADPHONE)	1
	2050243064	6P WIRE HOLDER	1
	2050243077	7P WIRE HOLDER	1
	2050256064	6P JP CONNECTOR	1
	2050256006	7P JP CONNECTOR	1

ETC0967E for EU
(Same as ETC9067 (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions
OTHER PARTS		
F001, 002	2061046027	FUSE (5A) (2) CHANGE
AF003	2061046027	FUSE (5A) CHANGE
	5130854011	FUSE LABEL (3) ADD
L001, 002	2359003002	FTZ CHOKE COIL (2) DELETE

ETC9067D for E1
(Same as ETC9067 (for E2) except the followings.)

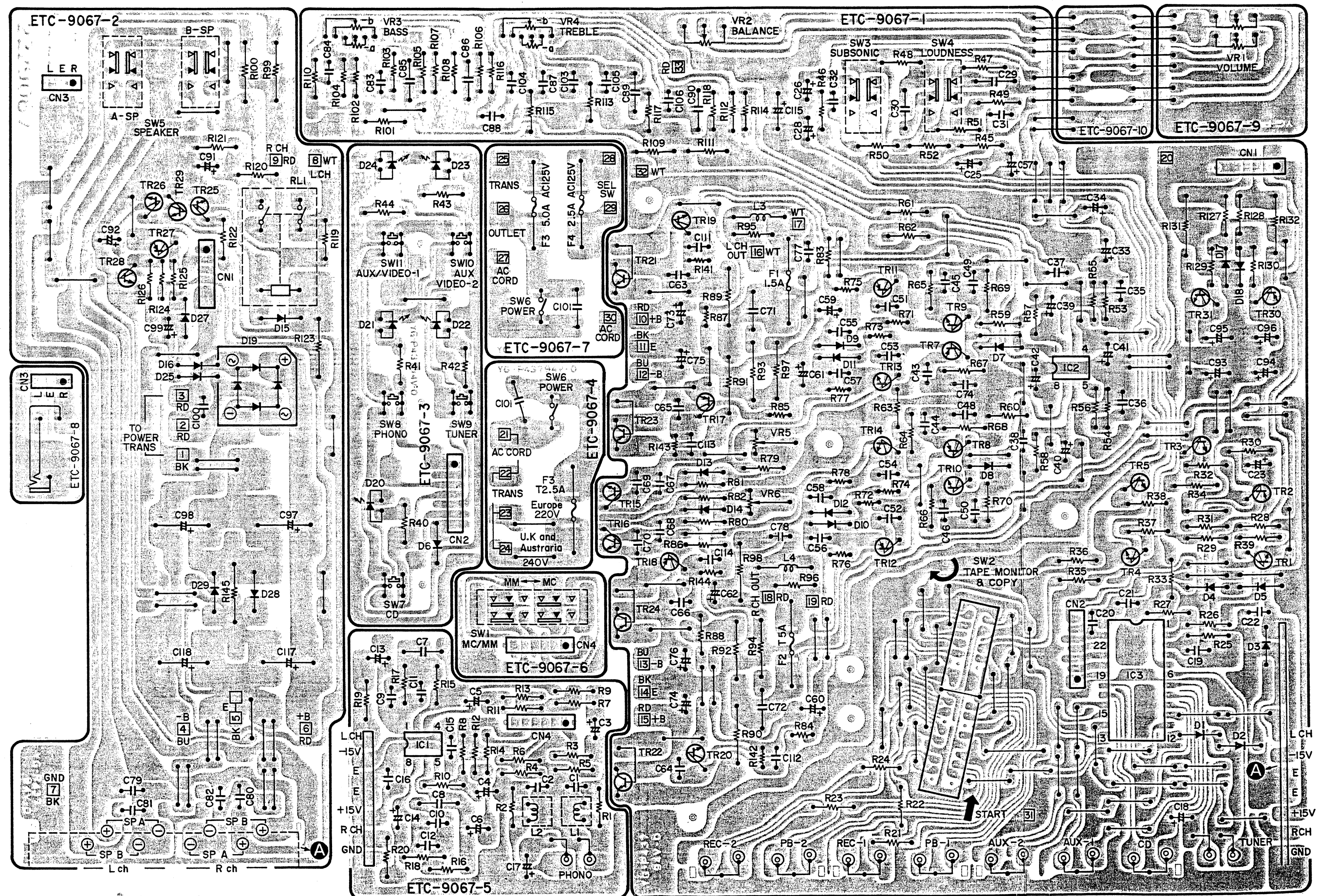
Ref. No.	Part No.	Part Name & Descriptions
RESISTORS		
R001, 002	2412100004	2.2k ohm ±5% 1/4W CARBON DELETE
OTHER PARTS		
F001, 002	2061035012	FUSE 5A (T) (2) CHANGE
AF003	2061035012	FUSE 5A (T) CHANGE
AF004	2061015032	FUSE 2.5A ADD
L001, 002	2539003002	FTZ CHOKE COIL (2) DELETE
	2020022008	FUSE HOLDER (4) CHANGE
	5130854011	FUSE LABEL (2) DELETE

ETC9067F for EK
(Same as ETC9067 (for E2) except the followings.)

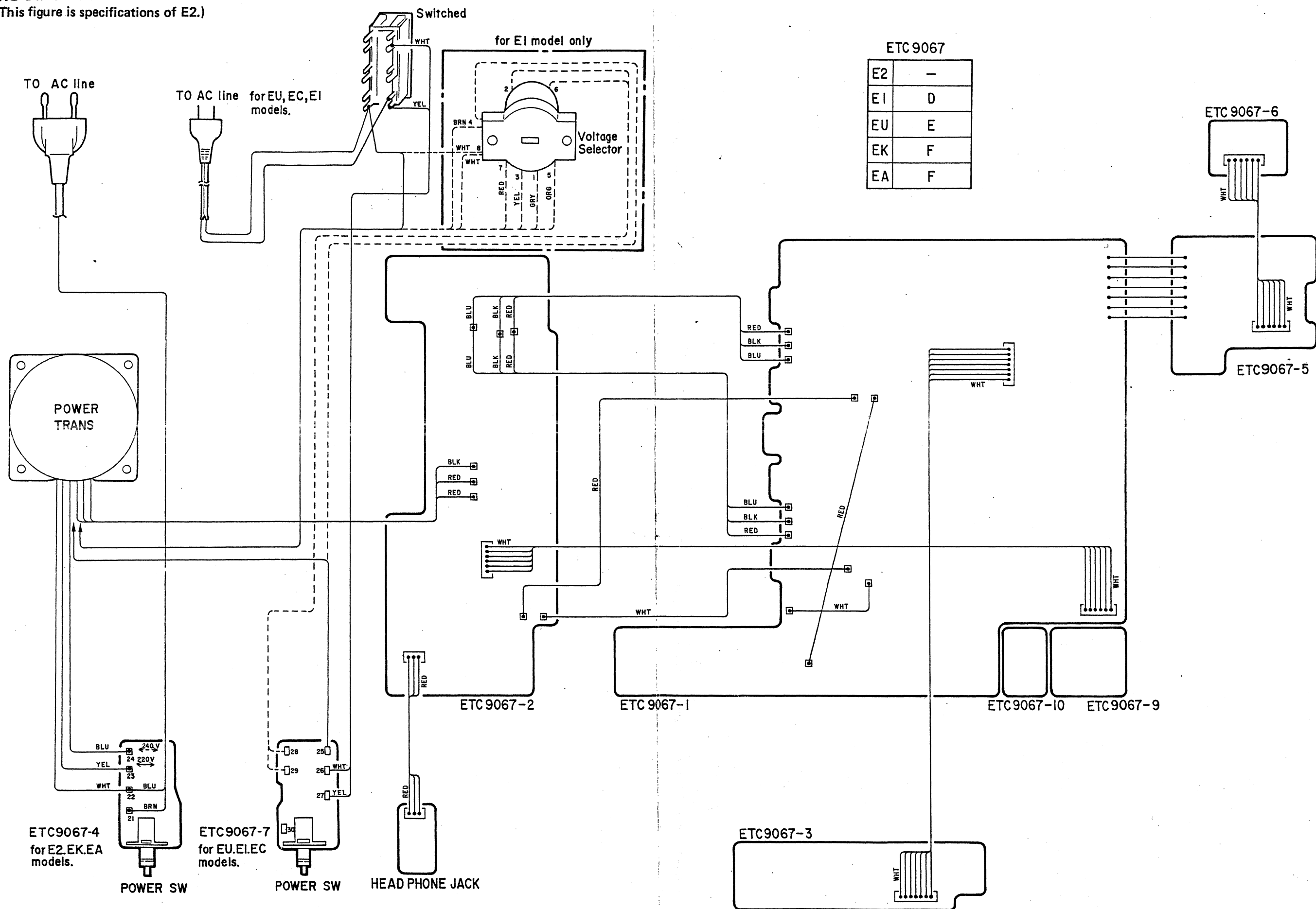
Ref. No.	Part No.	Part Name & Descriptions
RESISTORS		
R001, 002	2412100004	2.2k ohm ±5% 1/4W CARBON DELETE
CAPACITORS		
C079 ~082	2531008003	4700pF ±10% 50V CERAMIC DELETE
OTHER PARTS		
L001, 002	2539003002	FTZ CHOKE COIL (2) DELETE
	2090008160	JUMPER WIRE P=10mm (118) CHANGE

ETC9067C for EC
(Same as ETC9067 (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions
OTHER PARTS		
F001, 002	2061046027	FUSE (5A) (2) CHANGE
AF003	2061046027	FUSE (5A) CHANGE
	5130854011	FUSE LABEL (3) ADD
L001, 002	2359003002	FTZ CHOKE COIL (2) DELETE

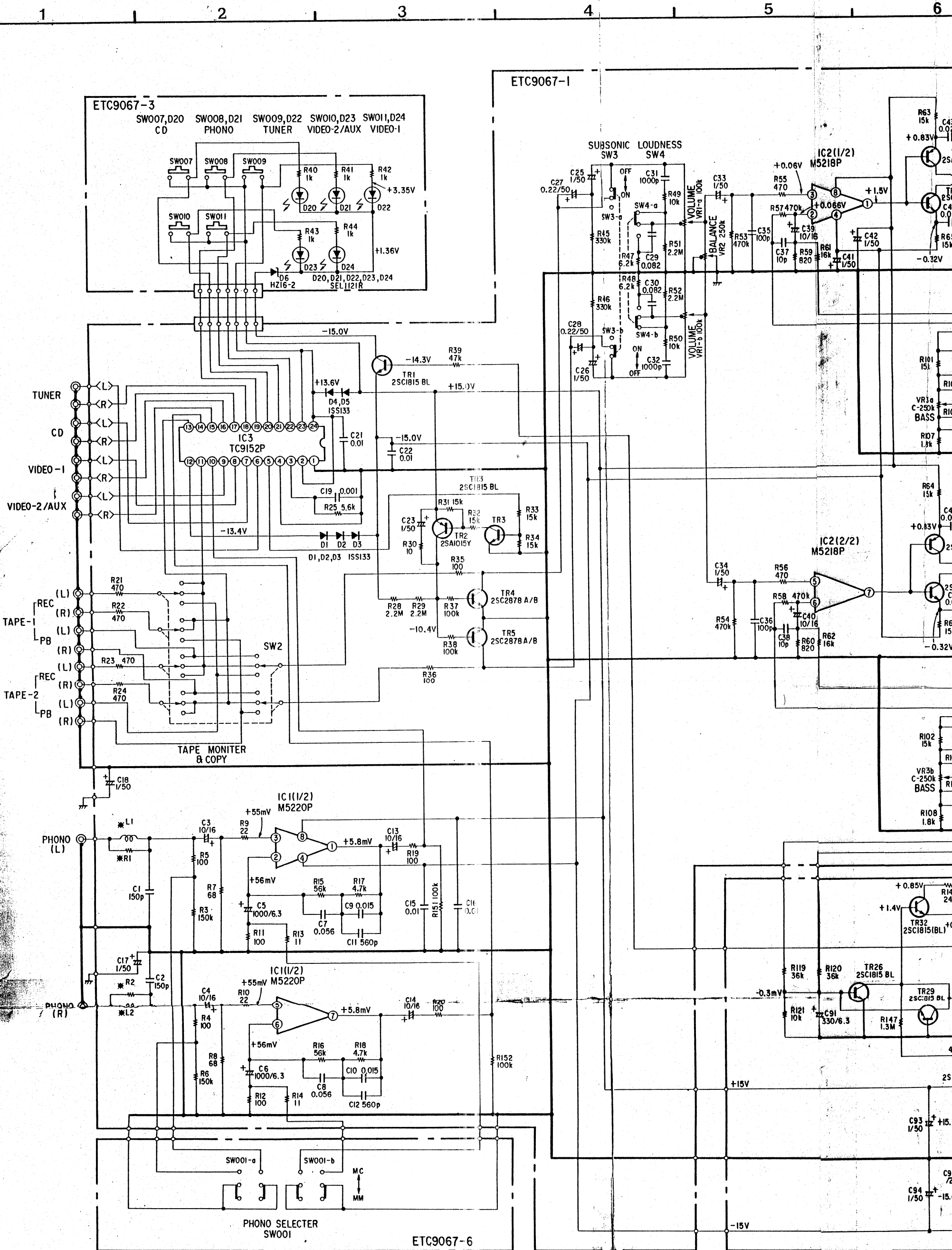


WIRING DIAGRAM (This figure is specifications of E2.)



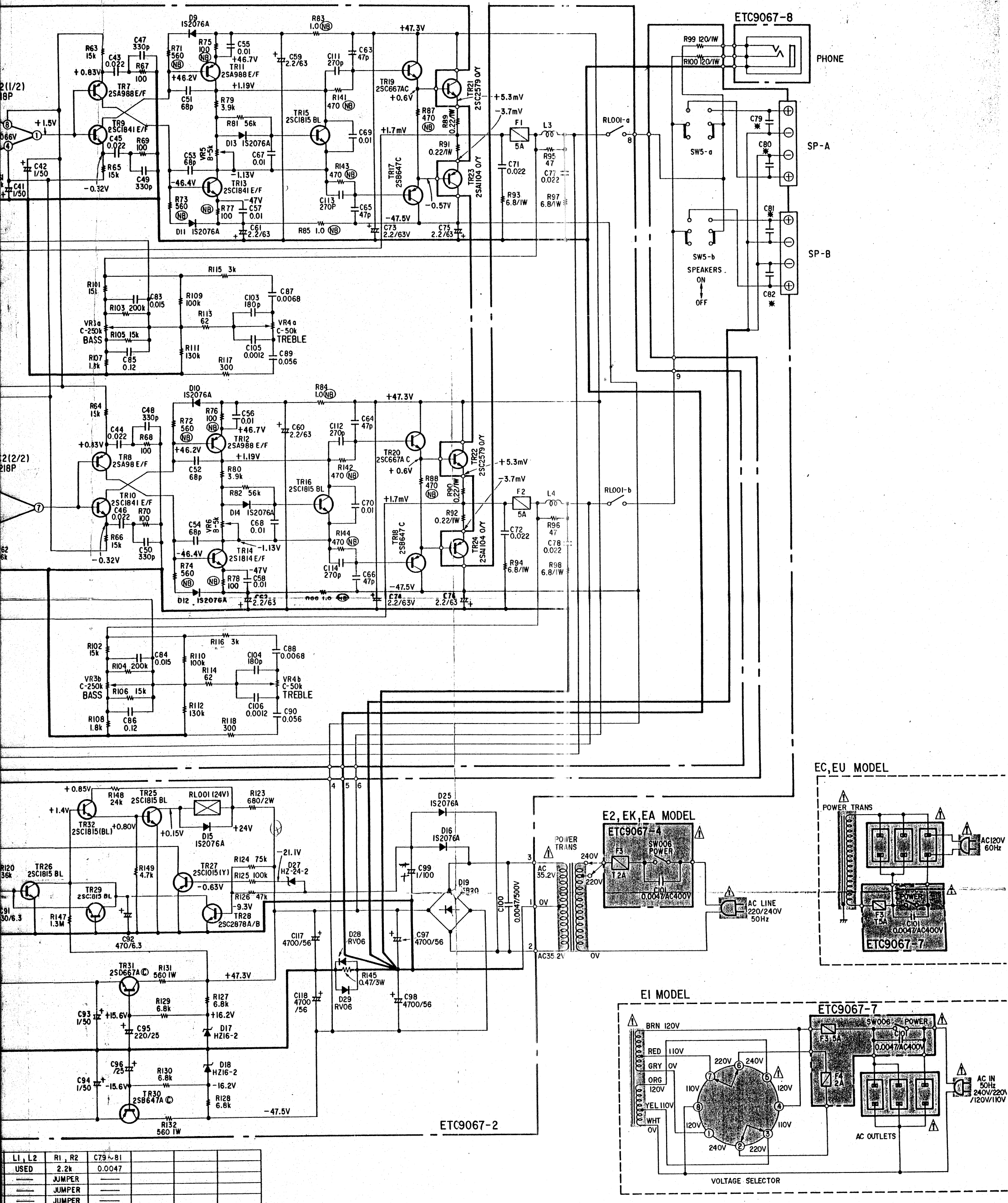
ETC 9067	
E2	—
EI	D
EU	E
EK	F
EA	F

SCHEMATIC DIAGRAM



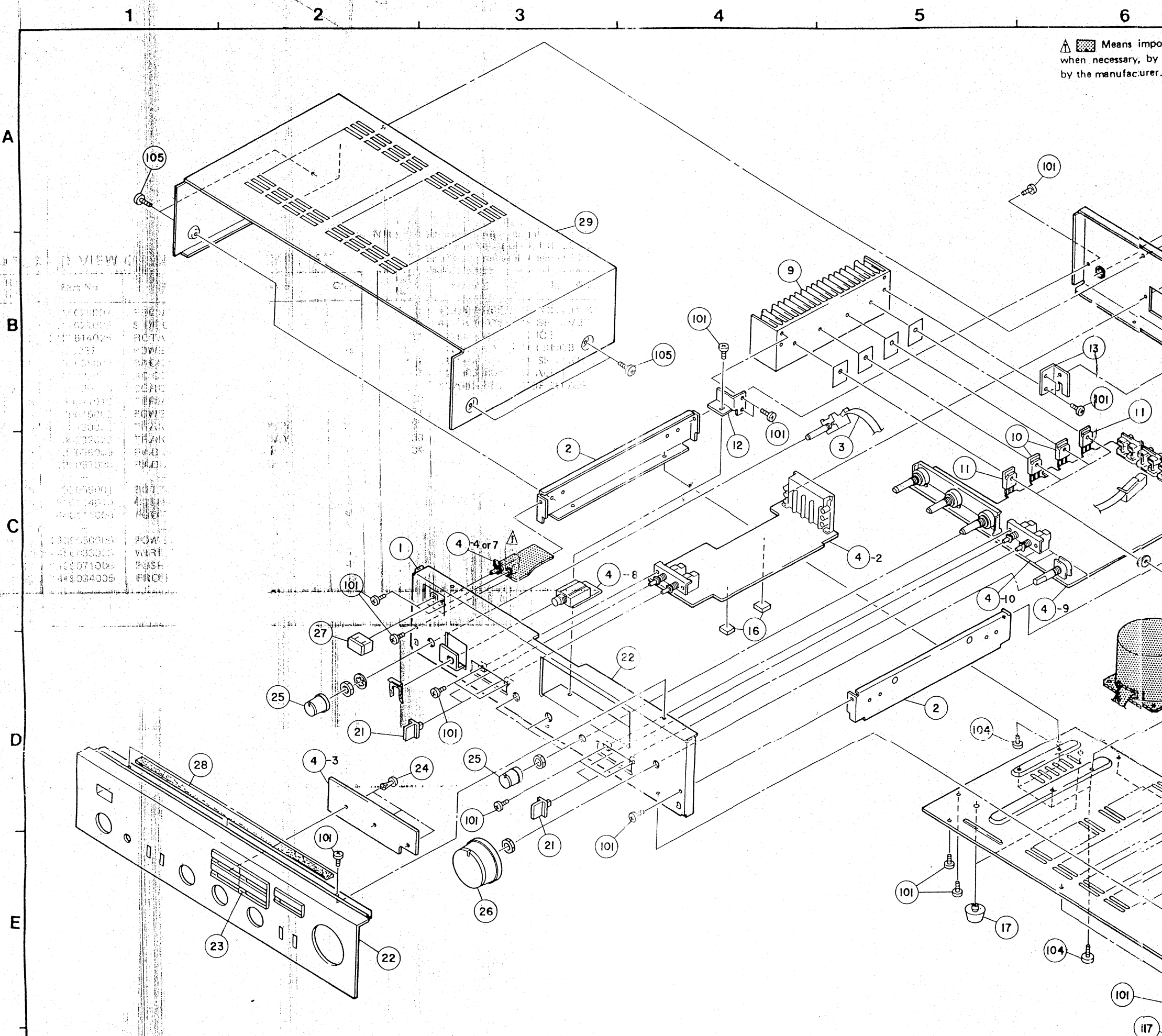
※	L1, L2	R1, R2	C79, C80
E2	USED	2.2k	0.004
E1	—	JUMPER	—
EK	—	JUMPER	—
EU	—	JUMPER	—

⚠ Means important safety item, which must be replaced when necessary, by a part specified or meeting the specification by the manufacturer.



NOTES
ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

EXPLODED VIEW OF CHASSIS AND CABINET (This figure is specifications of E2.)



Note 1. See addendum list right side for the parts with asterisk (*) on the Ref. No. and the other parts not included in the list.
 2. * marked not included EXPLODED OF CHASSIS AND CABINET.
 3. This list is prepared based on E2 BLACK VERSION.

EXPLODED VIEW OF CHASSIS AND CABINET

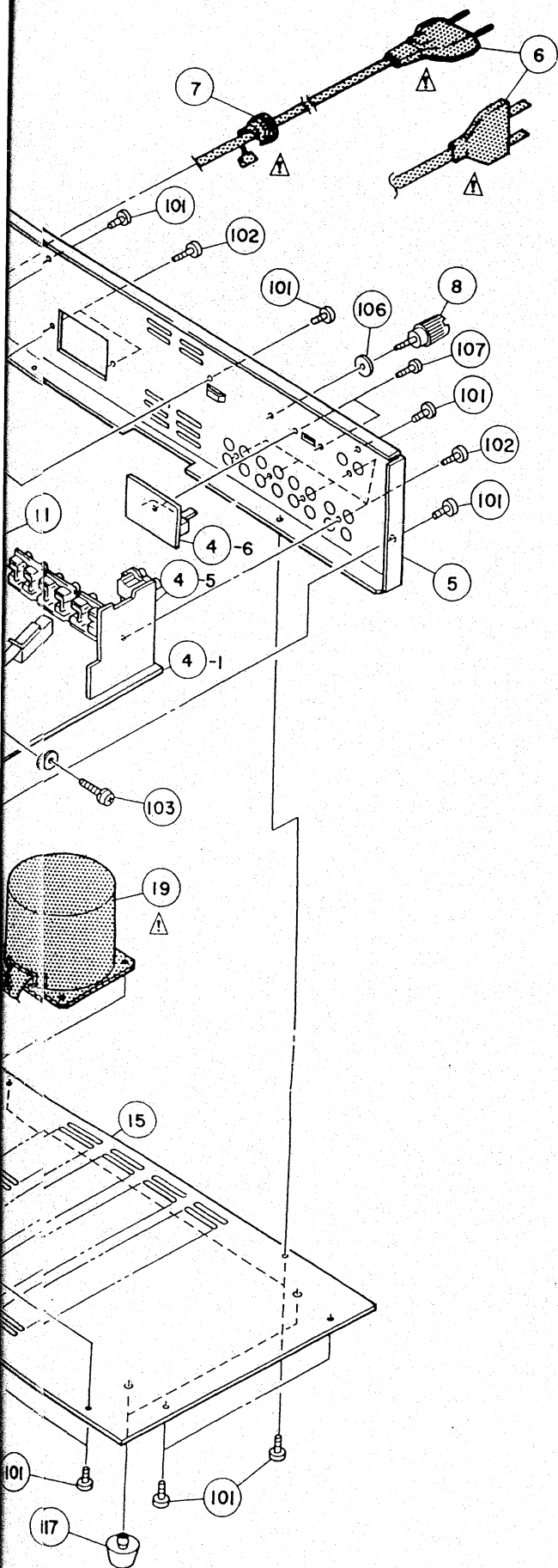
Ref. No.	Part No.	Part Name & Descriptions	Q'ty
1	4119026007	FRONT CHASSIS	1
2	4119027006	SIDE CHASSIS	2
3	2123614025	ROTARY REMOTE SW	2
*4	ETC9067	POWER AMP UNIT ASS'Y	1s
*5	1059058002	BACK PANEL	1
*6	2062002031	ACCORD	1
*7	4450020005	CORD BUSH (4K-4)	1
8	2050071016	TERMINAL ASS'Y	1
9	4179015003	POWER RADIATOR	1
10	2710130022	TRANSISTOR 2SA1104(O)/(Y)	2
11	2730232023	TRANSISTOR 2SC2579(O)/(Y)	2
12	4129056009	RADIATOR BRACKET (F)	1
13	4129057008	RADIATOR BRACKET (R)	1
14	—	—	1
15	1059059001	BOTTOM COVER	1
16	4610114010	CUSHION	2
17	1040111000	FOOT	4
18	—	—	—
*19	2339550009	POWER TRANS ASS'Y	1
*20	4450033005	WIRE CLAMP BAND	6
*21	1139071006	PUSH KNOB (T)	4
*22	1449034005	FRONT PANEL ASS'Y	1s

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
**23	1139079105	FUNCTION KNOB ASS'Y	1s
24	4770210016	PUSH RIVET	3
*25	1129021024	KNOB	4
*26	1129008021	VR KNOB	1
*27	1139070104	PUSH KNOB (P)	1
28	1220069008	SPACER	1
29	1029015004	TOP COVER	1
30	—	—	—
31	—	—	—
32	—	—	—
33	—	—	—
34	—	—	—

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
SCREWS, WASHERS, NUTS			
*101	4737002034	TAPPING SCREW (S) BLACK 3x6	33
102	4737500044	TAPPING SCREW (P) BLACK 3x8	7
103	4700012022	CROSS PAN SCREW WITH SW, W 3x12	4
104	4737004016	TAPPING SCREW (S) 4x6	4
*105	4737007000	TAPPING SCREW (S) BLACK 4x8	4
106	4770018001	WASHER (P-87)	1
107	4713813001	TAPPING SCREW BLACK 2.6x4	2
108	—	—	—
109	—	—	—
PACKING & ACCESSORIES (not included EXPLODED VIEW)			
201	5040079012	STYLEN PAPER	1
202	5050075006	CABINET COVER	1
203	5039125100	CUSHION	2
*204	5019102062	CARTON CASE	1
*205	5139111014	COLOR LABEL (BLACK)	2
206	5119174000	INST. MANUAL	1
*207	5138295009	CONTROL CARD	1

E:2
(Ssa)

ns important safety item, which must be replaced,
ary, by a part specified or meeting the specification
of the manufacturer.



WARNING:

1. Component parts

Parts marked with ⚡ and/or shading in this service manual have special characteristics important to safety. Be sure to use the specified parts for replacement.

2. Leakage current

Before returning the appliance to customer, test the leakage current when the power plug is connected. Use a calibrated (with an error of not more than 5%) leakage current tester and measure the leakage current from any exposed metal to the earth ground. Reverse the power plug polarity and test the above again.

Any current measured MUST NOT EXCEED 0.5 milliamps. Corrective measure must be taken if it exceeds the limit.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

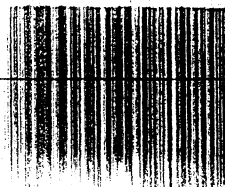


The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD.
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



ADDENDUM LIST

Ref. No.	Part Name & Descriptions	Part No.				
		E1/EP1 for Asia	EU for U.S.A.	EA for Australia	EK for U.K.	EC for Canada
4	POWER AMP UNIT ASS'Y	ETC9067D	ETC9067E	ETC9067F	ETC9067F	ETC9067C
5	BACK PANEL	1059063000	1059062001	1059058002	1059058002	1059062001
6	AC CORD	206031026	2062039004	2062012018	2062024006	2062039004
7	CORD BUSH	4450028007	4450020005	4450020005	4450020005	4450020005
19	POWER TRANS ASS'Y	2339553006	2339551008	2339550108	2339550108	2339551008
50	AC OUTLET (POLARIZED)	2033926007	2033926007	—	—	2033926007
51	CAPACITOR 0.01μF/400V (AC)	2538010007	2538010007	—	—	2538010007
52	VOLTAGE SEL. SW.	2120186006	—	—	—	—
53	FUSE LABEL	—	5130607096	—	—	5130607096
54	VOLTAGE LABEL	—	—	5130362008	5130362008	—
55	BLIND SHEET	—	—	5130348006	—	—
56	EARTH LABEL	—	—	5130140000	—	—
57	NOTICE SHEET	—	—	5130209006	—	—
58	NOTICE SHEET	—	—	5130210008	—	—
101	TAPPING SCREW(S) BLACK 3x6	4737002034 (35)	4737002034 (33)	4737002034 (33)	4737002034 (33)	4737002034 (33)
110	—	—	—	—	—	—
111	—	—	—	—	—	—
112	—	—	—	—	—	—
113	—	—	—	—	—	—
114	—	—	—	—	—	—
204	CARTON CASE	5019102062	5019123038	—	5019102062	5019123038
207	CONTROL CARD	—	—	—	—	—
210	SAFETY INSTRUCTION	—	5111041102	—	—	—
211	WARRANTY IN ENVELOPE	—	5150349108	—	—	5150349108
212	DANGEROUS MARK	—	5138266009	—	—	—
213	CAUTION SHEET	—	—	—	5130364006	—
214	VOLTAGE LABEL	—	—	—	5130362008	—

E2 GOLD VERSION PARTS LIST

(Same as BLACK VERSION except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	Qty
21	1139071019	PUSH KNOB (T)	4
22	1449034018	FRONT PANEL ASS'Y	1s
23	1139079118	FUNCTION KNOB ASS'Y	1s
25	1129021011	KNOB	4
26	1129008018	VR KNOB	1
27	1139070117	PUSH KNOB (P)	1
105	4737014006	TAPPING SCREW (S) 4x8	4
204	5019102088	CARTON CASE	1
205	5139111001	COLOR LABEL (GOLD)	2