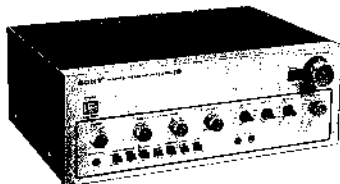


TA-4650

USA Model
(former and new types)

E Model
AEP Model



INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

GENERAL

System: Power amplifier section:
direct-coupled pure complementary
symmetry circuitry
Pre-amplifier:
direct-coupled two-stage phono,
flat and negative feedback control
circuitry

Power Requirements: 120 V ac, 60 Hz (USA model)
110, 127, 220 or 240 V ac, 50/50 Hz,
adjustable (AEP model)
100, 120, 220 or 240 V ac, 50/50 Hz,
adjustable (E model)

Power Consumption: 270W (by IEC standard)

Dimensions: approx.
480(w) x 168(h) x 323(d) mm,
18 7/8 x 6 5/8 x 12 3/4 inches (AEP model);
430(w) x 168(h) x 323(d) mm,
16 7/8 x 6 5/8 x 12 3/4 inches (E, USA model)
including projecting parts and controls

Weight: approx.
12.4 kg, 27 lb 5 oz (AEP model) at net
11.5 kg, 25 lb 6 oz (E, USA model)
15.2 kg, 33 lb 8 oz with shipping carton
(AEP model)
13.6 kg, 30 lb (E, USA model)

Dynamic Power Output: 100W (8 Ω)
110W (4 Ω)

Power Bandwidth: 5 Hz - 20 kHz
(IHF)

Harmonic Distortion: less than 0.1% at rated output
less than 0.05% at 1 W output

Intermodulation (IM) Distortion: less than 0.1% at rated output
less than 0.05% at 1 W output
160 Hz - 7 kHz = 4:1

Frequency Response: 2 Hz - 100 kHz ± 2 dB
(at 1 W output)

S/N ratio: greater than 110 dB, short-circuited
input

Residual Noise: less than 0.005 μ V (8 Ω)

Damping Factor: 45 (8 Ω), ≥ 1 kHz

Inputs: POWER INPUT
sensitivity 1 V RMS (for rated output)
impedance 50 k Ω

Outputs: SPEAKER terminals A, B
accept speakers of 4 Ω or more
HEADPHONE jack
accepts low- and high-impedance stereo
headphones

(Continued on next page.)

POWER AMPLIFIER SECTION

Continuous RMS

Power Output: at 1 kHz
less than 0.1% THD,
both channels driven
simultaneously
35 + 35 W (8 Ω)
30 + 30 W (4 Ω)
at 20 - 20,000 Hz
30 + 30 W (8 Ω)
30 + 30 W (4 Ω)
according to DIN 45500
35 + 35 W

SONY

SERVICE MANUAL

PREAMPLIFIER SECTION

- Harmonic Distortion:** less than 0.05% at rated output
Intermodulation (IM) Distortion: less than 0.05% at rated output
 (60Hz: 7kHz = 4:1)
Frequency response: PHONO 1, 2 RIAA equalization 50.5 dB
 TUNER
 AUX 1, 2
 TAPE 1, 2
 REC/PB (input) +10dB -100kHz^{±2} dB
 EXT ADPT 1, 2 (input)
Tone Controls: BASS:
 ±10dB at 50Hz (TURNOVER 250Hz)
 ±10dB at 100Hz (TURNOVER 500Hz)
 TREBLE:
 ±10dB at 10kHz (TURNOVER 2.5kHz)
 ±10dB at 20kHz (TURNOVER 5kHz)
Filters: LOW:
 6dB/octave attenuation below 35Hz
 HIGH:
 6dB/octave attenuation above 6kHz
Loudness Switch: +10dB at 50Hz
 (att. 30dB) +3dB at 10kHz

Inputs

	Sensitivity, Impedance	Maximum input capability*	S/N (weighting network)
PHONO 1, 2	2.5 mV 50 kΩ	300 mV	greater than 70 dB (B)
AUX 1, 2 TAPE 1, 2 REC/PB (input) EXT ADPT 1, 2 (input)	150 mV 100 kΩ		greater than 90 dB (A)

* The maximum input capability is measured at a 0.05% harmonic distortion.

Outputs

	Output voltage	Impedance
REC OUT 1, 2	150 mV	4.7 kΩ
PRE OUTPUT	1 V	3 kΩ
REC/PB	17 mV	82 kΩ
EXT ADPT 1, 2	150 mV	4.7 kΩ

Specification Label:

USA model

SONY	INTEGRATED STEREO AMPLIFIER		
	MODEL NO. TA-4650		
	AC 120V	60Hz	150W
	SERIAL NO. _____		
MADE IN JAPAN			

AEP model

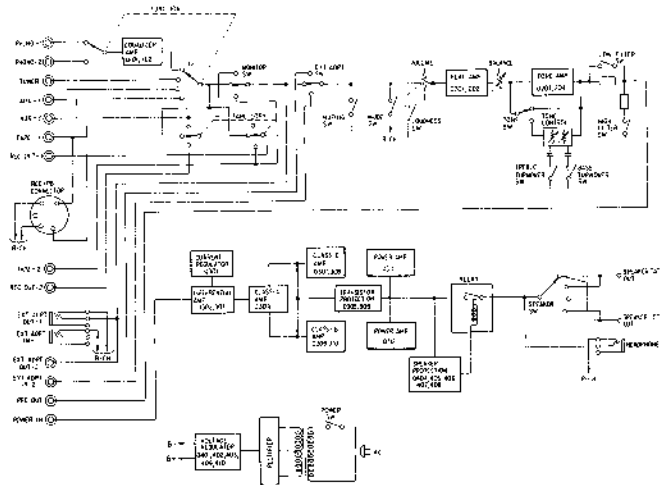
SONY	INTEGRATED STEREO AMPLIFIER		
	MODEL NO. TA-4650		
	AC 110, 120, 220, 240V ~ 50/60Hz; 270W		
	SERIAL NO. _____		
MADE IN JAPAN			

E model

SONY	INTEGRATED STEREO AMPLIFIER		
	MODEL NO. TA-4650		
	AC 100, 120, 220, 240V 50/60Hz; 270W		
	SERIAL NO. _____		
MADE IN JAPAN			

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

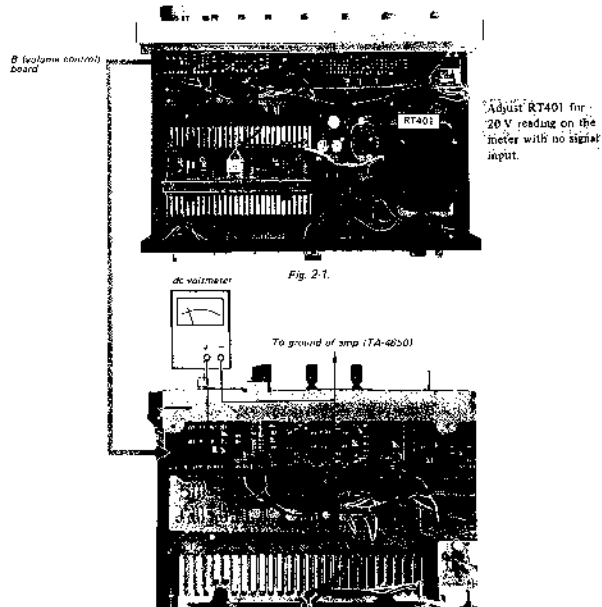


SECTION 2
ADJUSTMENTS

Note: Turn POWER on and allow about three minutes for warmup.

2-1. POWER SUPPLY VOLTAGE ADJUSTMENT

See Fig. 2-1 and 2-2.



2.2. DC BIAS ADJUSTMENT

Adjust RT301 and RT304 for 75 mV reading on the meter with no signal input.

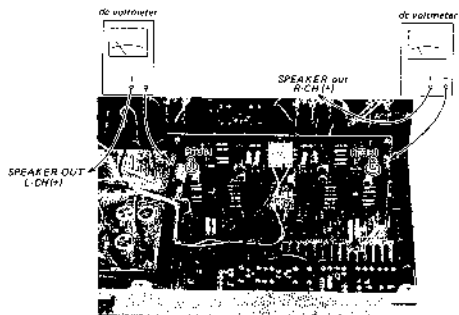
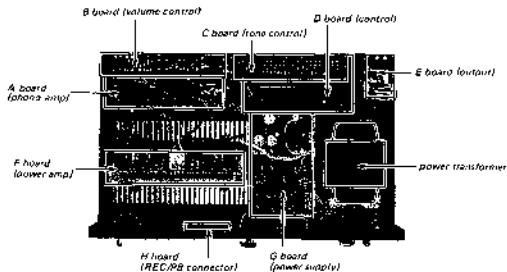


Fig. 2-3.

2.3. CHASSIS LAYOUT

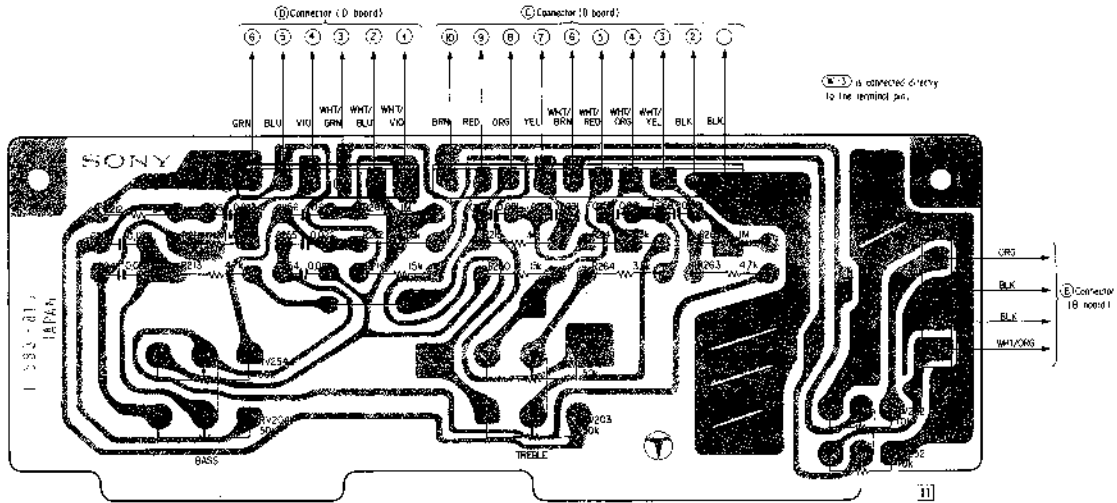


MEMO

A series of horizontal dashed lines provided for handwritten notes or a memo.

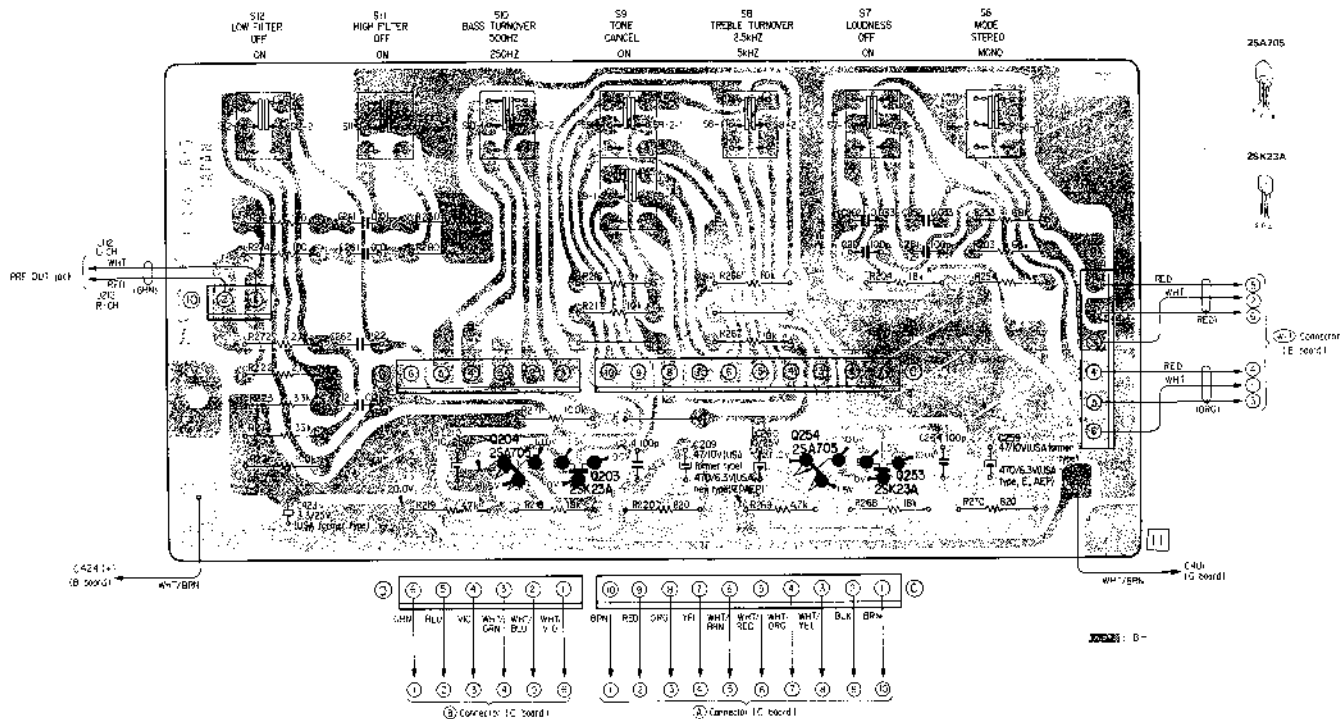
SECTION 3
DIAGRAMS

3-1. MOUNTING DIAGRAM - C Board (from control) -



Note. The lead wire of resistor (W273) should be wrapped the terminal pins of connector (E board)

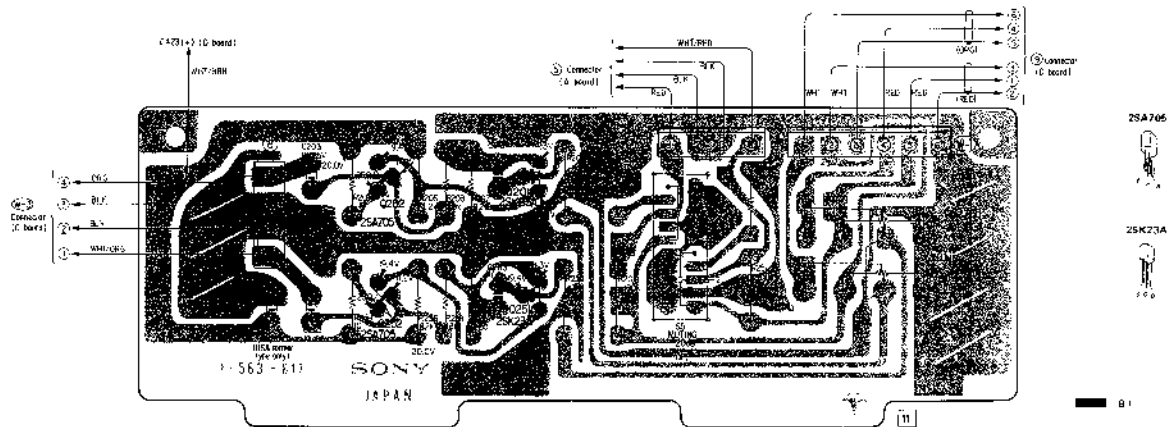
3.2. MOUNTING DIAGRAM - D Board (control) -
- Conductor Side -



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33. MOUNTING DIAGRAM - B Board (volume control) -

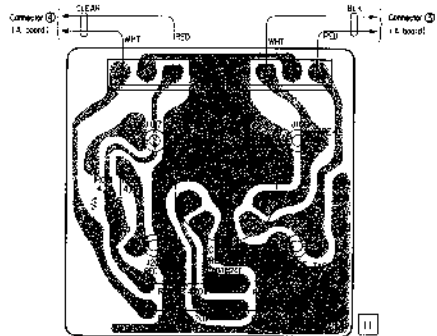
- Conductor Side -



Note: The lead wires of connectors (W41), (W42) should wire-wrap the integral pins of connector (2) (A board) and (5) (D board), respectively.

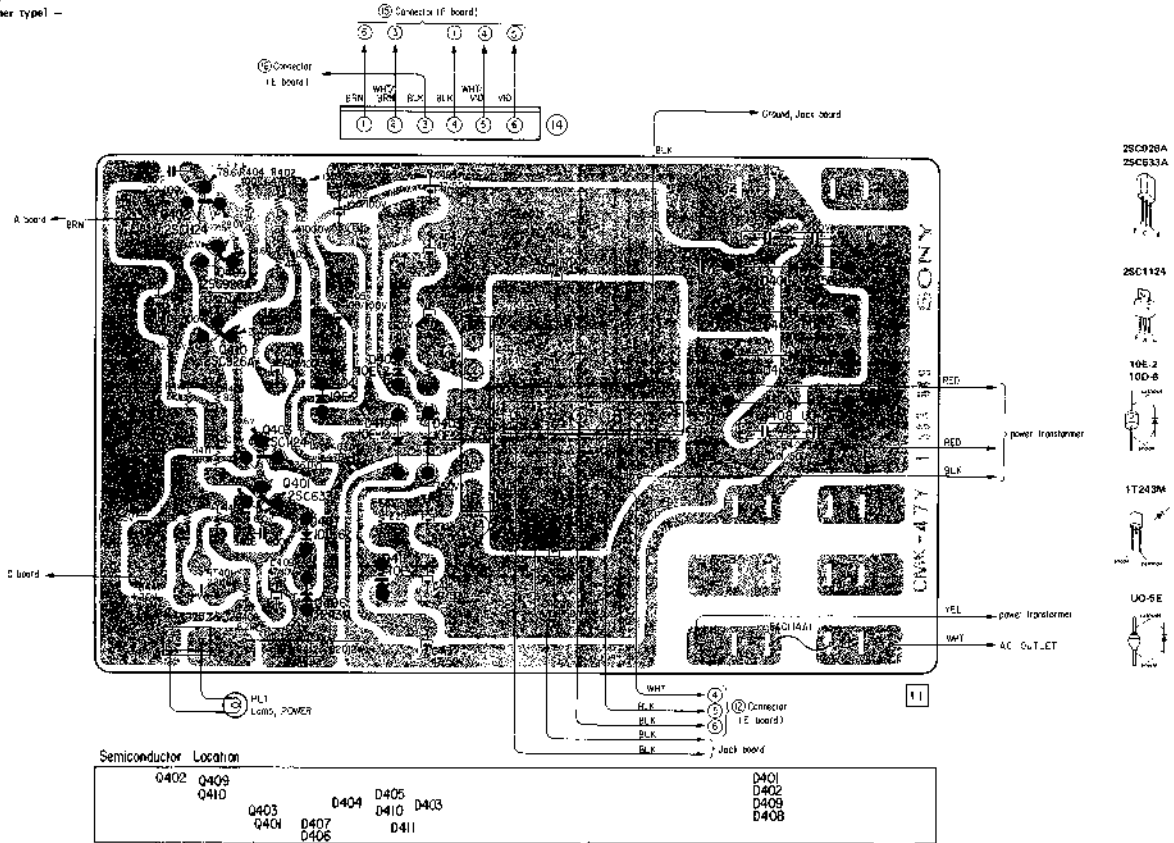
34. MOUNTING DIAGRAM - H Board (REC/PB connector) -

- Conductor Side -

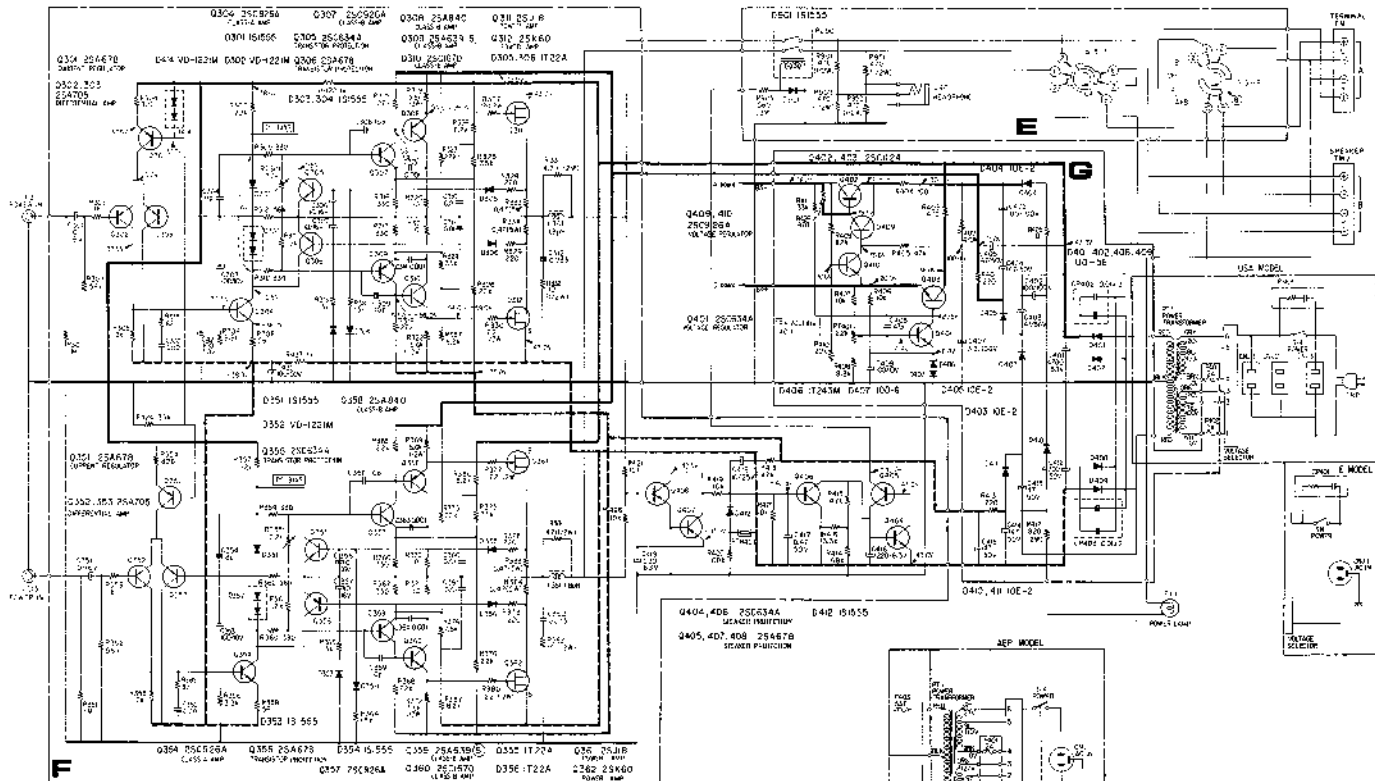


38. MOUNTING DIAGRAM - G Board (power supply) -

- Conductor Side -
- USA model (former type) -



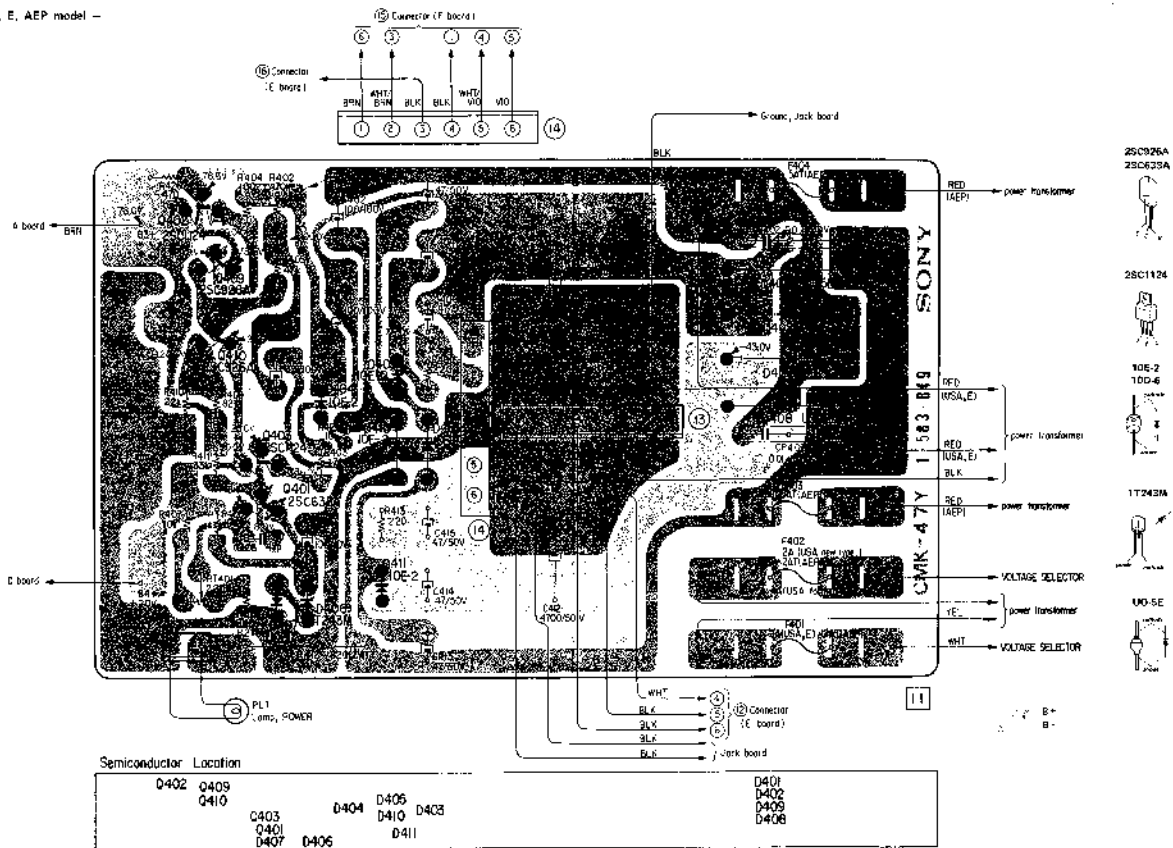
3.9. SCHEMATIC DIAGRAM — Power Amplifier Section —
— USA (new type), E, AEP model —



Note: All resistances values are in ohms. k = 1,000. M = 1,000k.
All capacitance values are in μ F except as indicated with p, which means pF.
All voltages are as measured with a VOM which has an input impedance of 20k ohms/volt. No signal in.
Voltage rat. dividers may be needed because of minimal protection information.

3-10. MOUNTING DIAGRAM - G Board (power supply) -

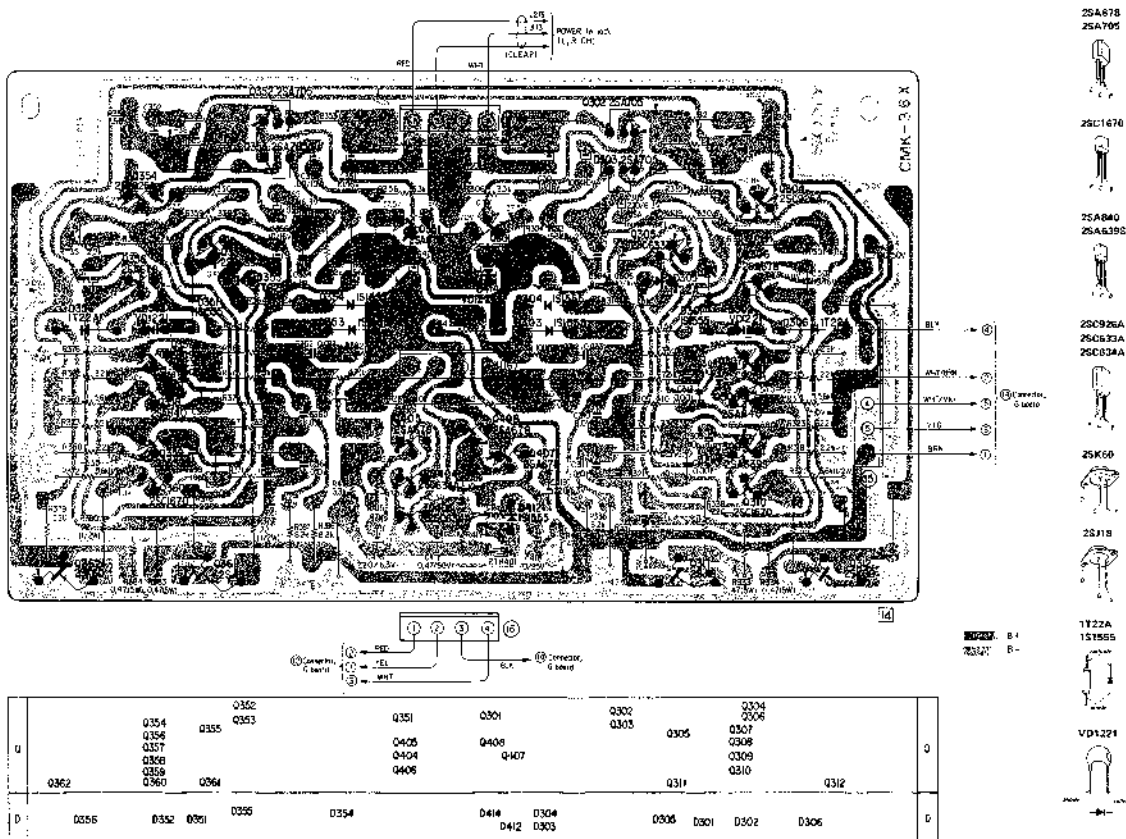
Conductor Side -
- USA (new type), E, AEP model -



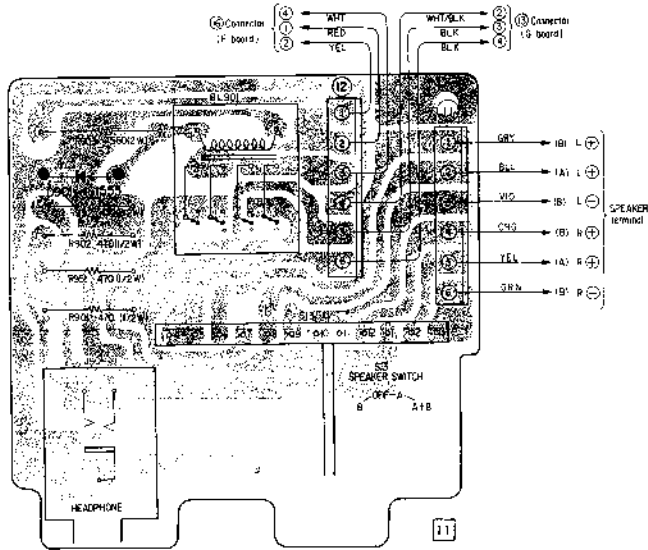
TA-4650 TA-4650

3-11. MOUNTING DIAGRAM - F Board (power amp) -

- Conductor Side -



3-12. MOUNTING DIAGRAM - E Board (output) -
 - Conductor Side -



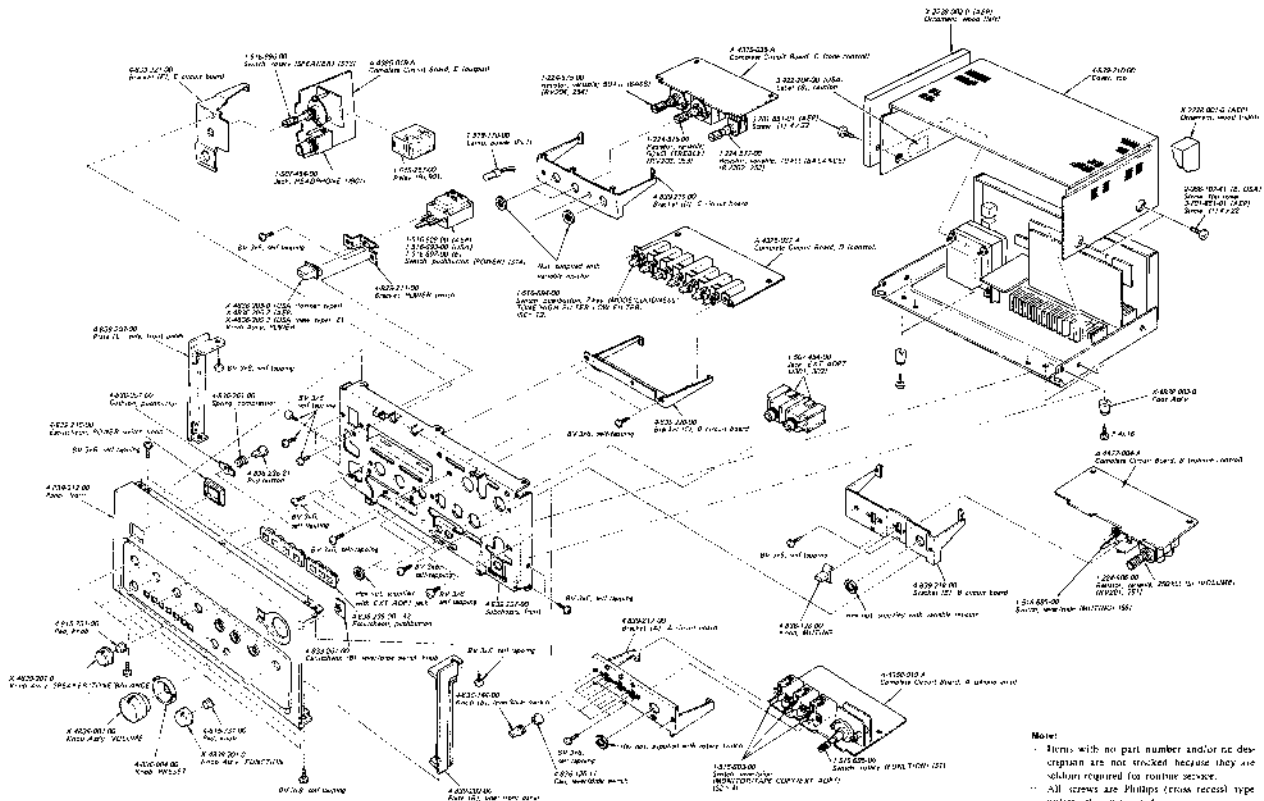
131565



MEMO

A series of horizontal dashed lines for handwritten notes.

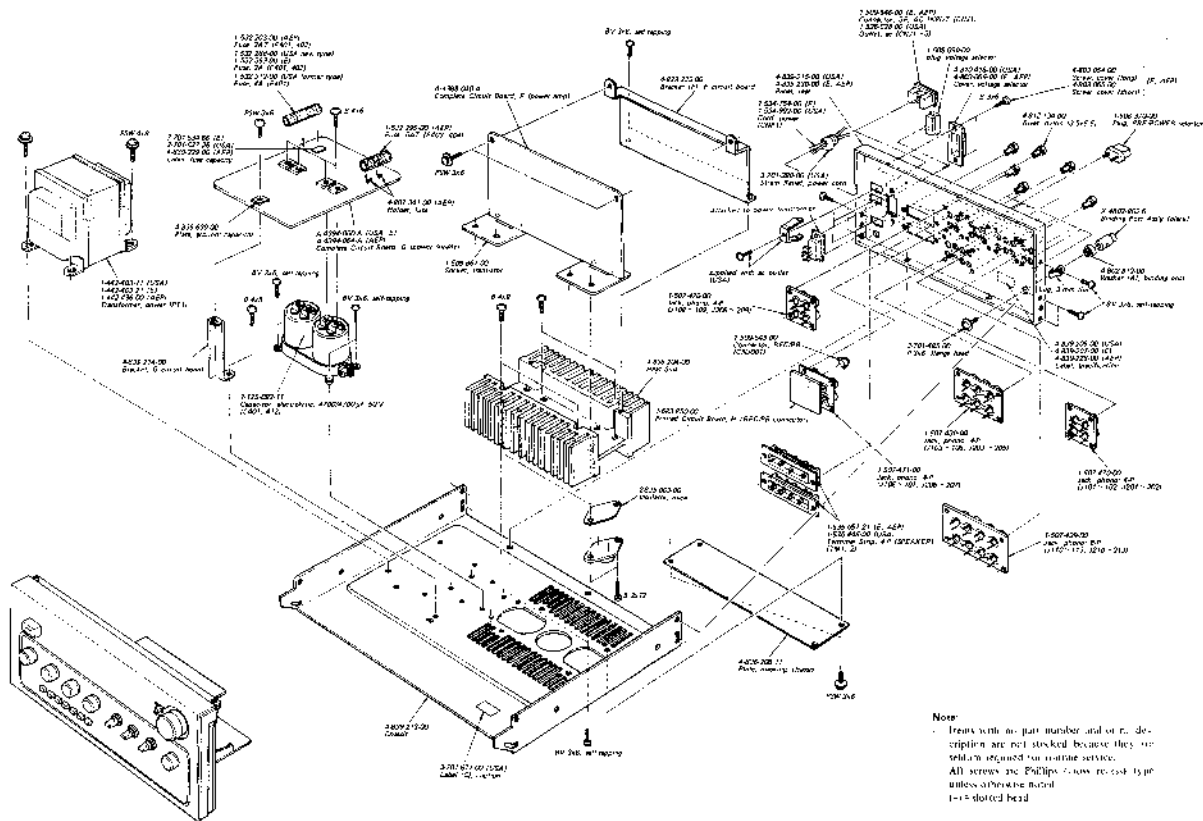
SECTION 4
EXPLODED VIEWS



Note:
 - Items with no part number and/or no description are not stocked because they are common required for routine service.
 - All screws are Phillips (cross recess) type unless otherwise noted.
 (-) = Slotted head

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Ref. No.	Part No.	Description
RT401	1-224-250-00	2.2k, adjustable (power voltage adj.)
RV201 (RV251)	1-224-505-00	250k(Ω), variable (VOLUME)
RV202 (RV252)	1-224-577-00	10k, variable (BALANCE)
RV203 (RV253)	1-224-576-00	50k, variable (TREBLE)
RV204 (RV254)	1-224-575-00	50k, variable (BASS)

SWITCHES

S1	1-516-695-00	Rotary (FUNCTION)
S2-S4	1-516-603-00	Lever/Slide (MONITOR, TAPE COPY, EXT ADPT)
S5	1-516-682-00	Lever/Slide (MUTING)
S6-S12	1-516-684-00	Pushbutton, 2-Key (MODE, LOUDNESS, TONE, HIGH FILTER, LOW FID FTR)
S13	1-516-696-00	Rotary (SPEAKER)
S14	1-516-628-00	Pushbutton (POWER) (AEP model)
	1-516-693-00	Pushbutton (POWER) (USA model)
	1-516-693-00	Pushbutton (POWER) (E model)

JACKS

J101, J102 (J201, J202)	1-507-476-00	Phone, 4-P
J103-J105 (J203-J205)	1-507-470-00	Phone, 6-P
J106, J107 (J206, J207)	1-507-471-00	Phone, 4-P
J108, J109 (J208, J209)	1-507-478-00	Phone, 4-P
J110-J113 (J210-J213)	1-507-429-00	Phone, 8-P
J301, J302	1-507-454-00	EXT ADPT
J901	1-507-454-00	HEADPHONE

MISCELLANEOUS

CN100	1-509-549-00	Connector, RLC/PB
CN11	1-509-546-00	Connector, 3-P: AC INPUT G, AEP model

CN11-CN13	1-526-528-00	Outlet, ac (USA model)
CNP1	1-534-754-00	Cord, power (E model)
	1-534-992-00	Cord, power (USA model)
CP401	1-231-957-31	Encapsulated Component (USA, E model)
CP402 CP403	1-182-355-11	Capacitor, Ceramic 0.01 μF 500V
	1-532-203-00	Fuse, 2AT (AEP model)
F401, F402	1-532-268-00	Fuse, 2A (USA model) (new type)
	1-532-363-00	Fuse, 2A (E model)
F403	1-532-212-00	Fuse, 4A (USA model) (new type)
F403, F404	1-532-299-00	Fuse, 5AT (AEP model)
PL1	1-518-170-00	Leads, power
PH401	1-800-340-00	Thermistor (positive)
RL901	1-515-257-00	Relay
TM1, TM2	1-525-057-21	Terminal Strip, 4-P (SPEAKER) (E, AEP model)
	1-526-446-00	Terminal Strip, 4-P (SPEAKER) (USA model)
	1-506-376-00	Plug, PRE/POWER selector
	1-508-693-00	Plug, voltage selector (USA model)
	1-509-667-00	Socket, transistor
	1-516-354-00	Pin, terminal

ACCESSORIES AND PACKING MATERIALS

Part No.	Description
X370-039-0	Cord Assy, warranty
1-506-713-00	Plug, shunting
3-429-125-00	Bag, polyethylene; unit
3-700-026-00	Bag, polyethylene; instruction manual
3-701-130-00	Bag, polyethylene; IEM card
3-701-743-00	Card, IEM
3-780-508-21	Manual, instruction (USA model)
3-780-510-11	Manual, instruction (AEP model)
	Manual, instruction (E model)
3-789-207-11	Schematic Diagram
4-839-225-00	Carton
4-839-226-00	Cushion