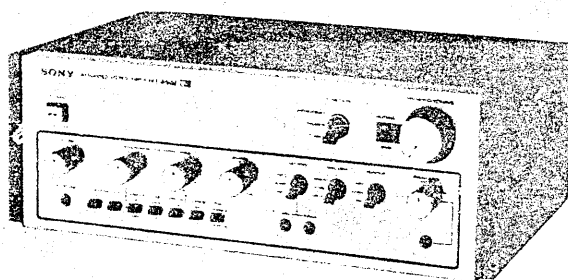


TA-5650

US Model
Canadian Model
UK Model
AEP Model



P691626

Discard TA-5650 service manual previously issued for UK and AEP Models.
This service manual contains former information.

INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements: 120 V ac, 60 Hz (US, Canadian Model)
110, 127, 220 or 240 V ac adjustable, 50/60 Hz (UK and AEP Model)

Power Consumption: 160 W (US Model)
320 VA (Canadian Model)
440 W (UK, AEP Model)

Dimensions: Approx. 460(w) x 168(h) x 323(d) mm
18 1/8(w) x 6 5/8(h) x 12 3/4(d) inches
Including projecting parts and controls

Weight: Approx. 13.4 kg, 29 lb 9 oz (net)
Approx. 16 kg, 35 lb 4 oz (in shipping carton)

Harmonic Distortion: Less than 0.1 % at rated output
Less than 0.08 % at 1 W output

IM Distortion: Less than 0.1 % at rated output
(60 Hz : 7 kHz = 4 : 1)
Less than 0.08 % at 1 W output

Frequency Response (at 1 W output): 2 Hz - 100 kHz ± 0 dB

S/N Ratio: Greater than 110 dB, short-circuited input

Residual Noise: Less than 0.02 μ W (8 Ω)

Damping Factor: 50 (8 Ω , at 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
HEADPHONES jack
Accepts low and high-impedance stereo headphones

POWER AMPLIFIER SECTION

Continuous RMS Power Output: At 1 kHz
(less than 0.1 % THD, both channels driven simultaneously)
60 + 6 J W (8 Ω)
50 + J W (4 Ω)
At 20 Hz - 20 kHz
50 + 50 W (8 Ω)
55 + 55 W (8 Ω)
according to DIN 45500

Dynamic Power Output: 160 W (8 Ω)
(IHF constant power supply method)
140 W (4 Ω)

Power Bandwidth (IHF): 5 - 40,000 Hz

0 dB = 0.775 V

- continued on page 2 -

THE QUALITY OF
THIS MANUAL IS
THE BEST THAT
IS AVAILABLE

SONY

SERVICE MANUAL

TA-5650

PREAMPLIFIER SECTION

Harmonic Distortion: Less than 0.05 % at rated output
 IM Distortion: Less than 0.05 % at rated output
 (60 Hz : 7 kHz = 4 : 1)
 Frequency Response: PHONO 1, 2 RIAA equalization ± 0.5 dB
 TUNER
 AUX 1, 2, 3
 TAPE 1, 2
 REC/PB (input)
 EXT ADPT 1, 2 (input)
 } 10 Hz -
 } 100 kHz ± 0 dB
 (TONE: CANCEL)
 Tone Controls: BASS:
 ± 10 dB at 50 Hz (TURNOVER 250 Hz)
 ± 10 dB at 100 Hz (TURNOVER 500 Hz)
 TREBLE:
 ± 10 dB at 10 kHz (TURNOVER 2.5 kHz)
 ± 10 dB at 20 kHz (TURNOVER 5 kHz)
 Filters: LOW:
 12 dB/octave attenuation below 30 Hz
 HIGH:
 12 dB/octave attenuation above 9 kHz
 Loudness switch: + 10 dB at 50 Hz
 (att. 30 dB) + 3 dB at 10 kHz
 Inputs:

	Sensitivity	Impedance	Maximum input capability*	S/N (weighting network)
PHONO 1, 2	2.5 mV	50 k ohms	300 mV	greater than 70 dB (B)
AUX 1, 2, 3 TAPE 1, 2 REC/PB (input) EXT ADPT 1, 2 (input)	150 mV	250 k ohms	—	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 k ohms
PRE OUTPUT	1 V	1 k ohm
REC/PB	17 mV	82 k ohms
EXT ADPT 1, 2	150 mV	4.7 k ohms

Specification Labels:

US Model

SONY	INTEGRATED STEREO AMPLIFIER
	MODEL NO. TA-5650
	AC 120V 60Hz 160W
	SERIAL NO. _____
MADE IN JAPAN	

Canadian Model

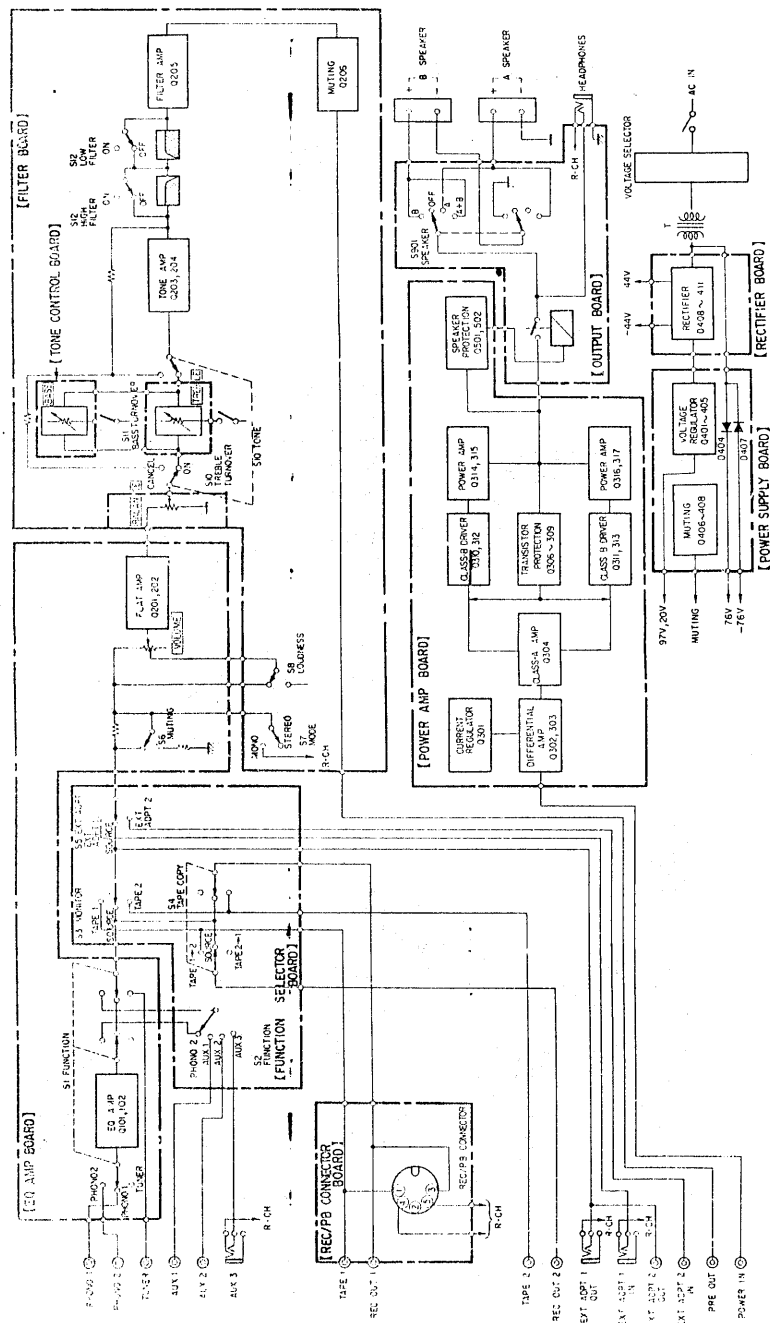
SONY	INTEGRATED STEREO AMPLIFIER
	MODEL NO. TA-5650
	AC 120V 60Hz 320VA
	SERIAL NO. _____
MADE IN JAPAN	

UK and AEP Models

SONY	INTEGRATED STEREO AMPLIFIER
	MODEL NO. TA-5650
	AC 110/127/220/240V ~ 50/60Hz 440W
	SERIAL NO. _____
MADE IN JAPAN	

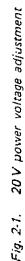
Note: * UK Model: Serial No. 600,001 and later
 AEP Model: Serial No. 500,001 and later

SECTION 1 BLOCK DIAGRAM

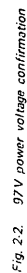


1000

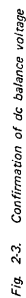
2.1. 20 V POWER VOLTAGE ADJUSTMENT



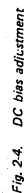
After 20 V power voltage adjustment, confirm that the emitter voltage of Q401 shows $97\text{ V} \pm 5\text{ V}$.



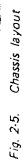
1. Set the SPEAKER switch to "A" position.
2. Connect the dc voltmeter across the SPEAKER OUT "A".
3. Confirm that the dc voltage at SPEAKER OUT "A" shows $0V \pm 50\text{ mV}$.



Adjust RT301 and RT351 for 90 mV reading on the meter with no input signal.

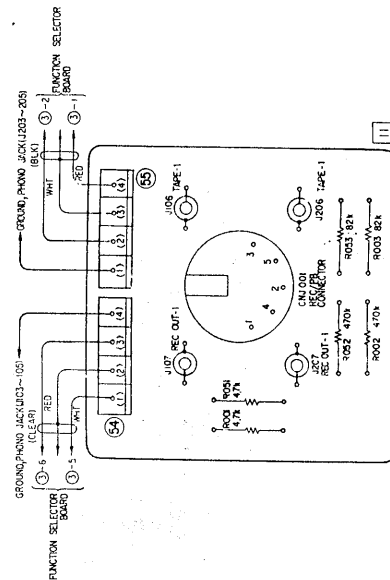


1000

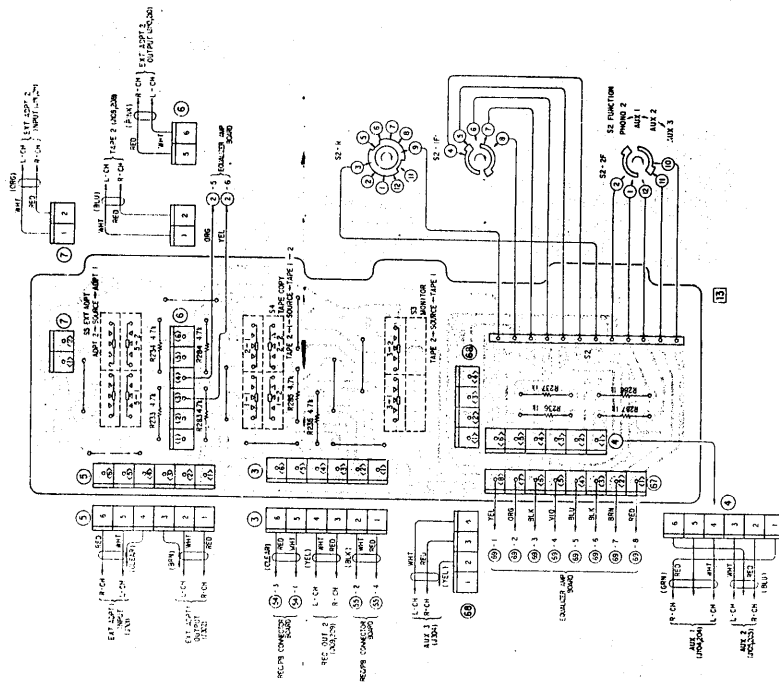


3-1. MOUNTING DIAGRAM - REC/PB CONNECTOR BOARD -

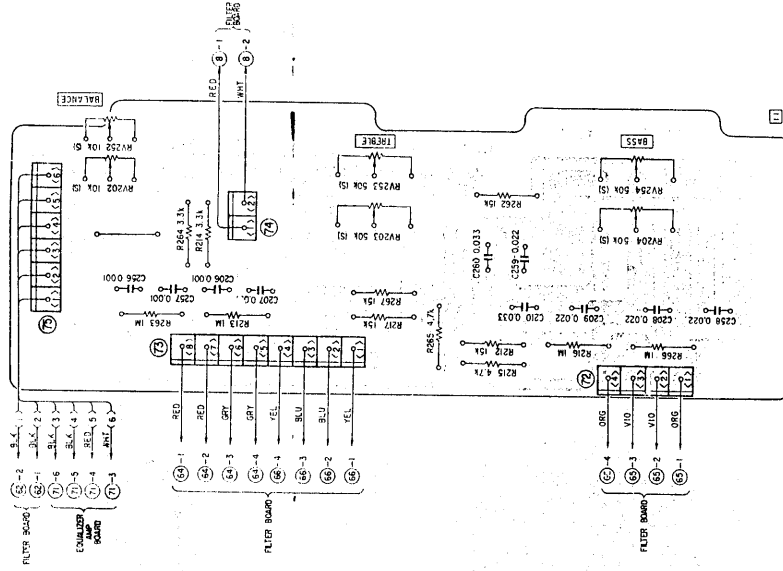
— Conductor Side —



3.2. MOUNTING DIAGRAM - FUNCTION SELECTOR BOARD -
- Conductor Side -

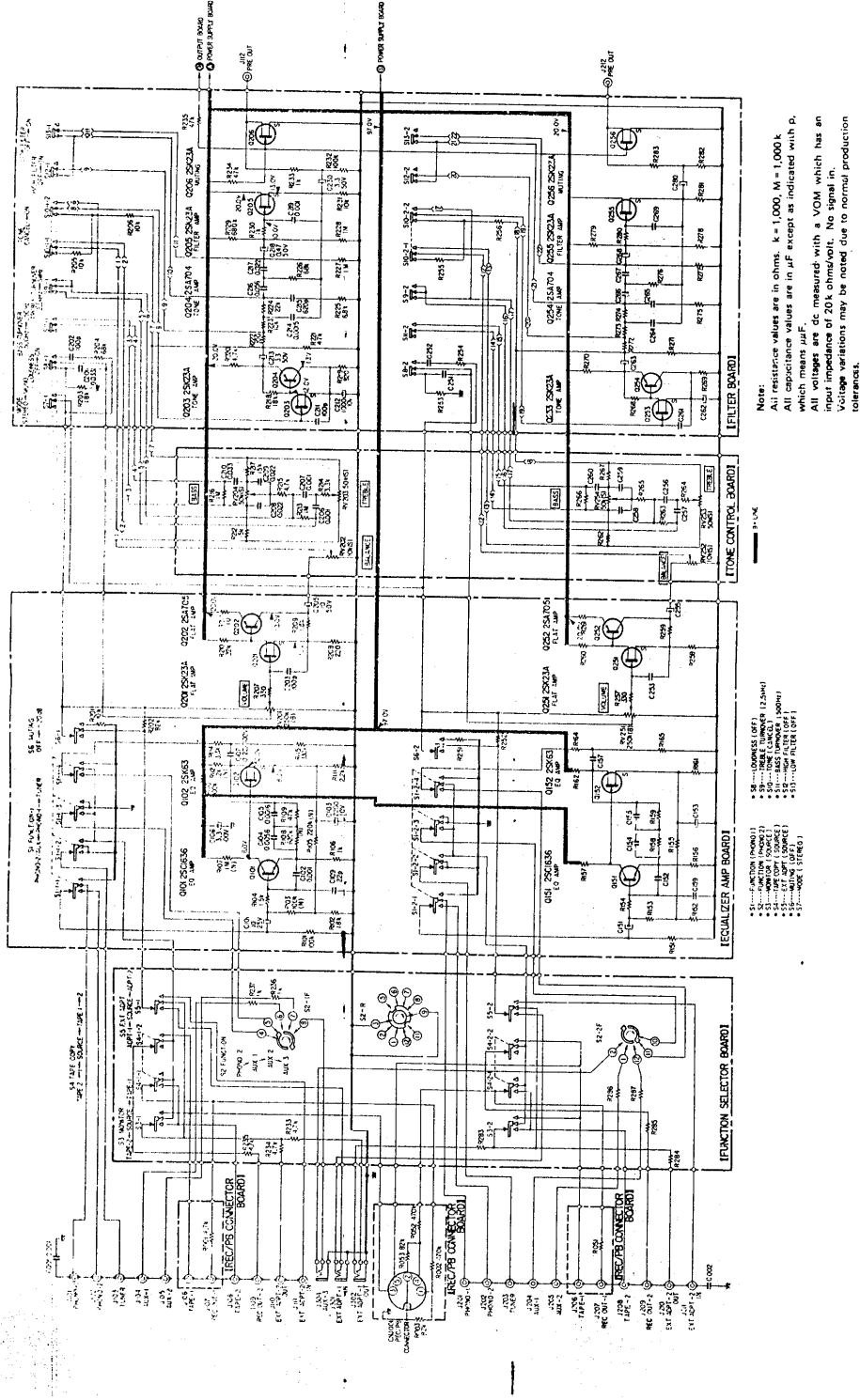


3.3. MOUNTING DIAGRAM - TONE CONTROL BOARD -
- Conductor Side -



UK Model: Up to Serial No 1000
AEP Model: Up to Serial No 1000

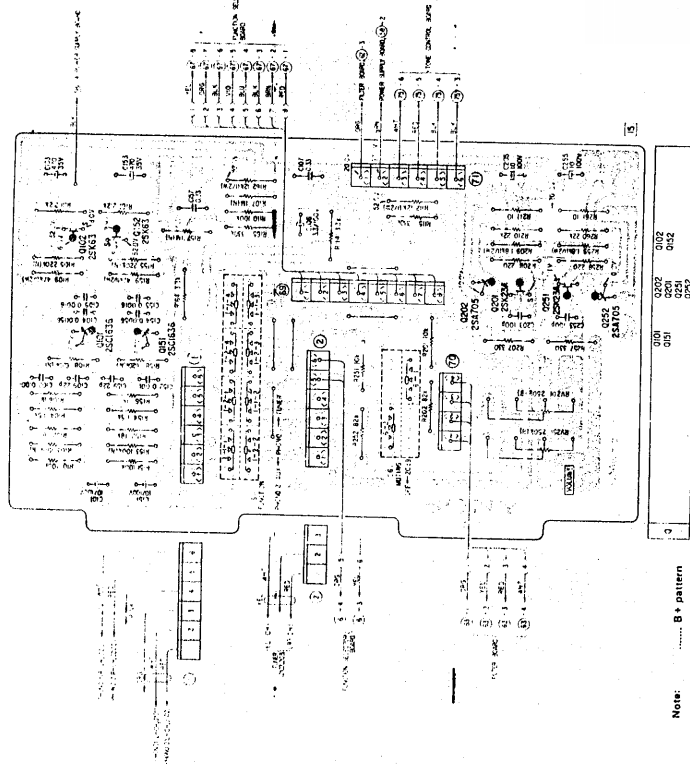
3-6. SCHEMATIC DIAGRAM 1 - PREAMPLIFIER SECTION -



TA-5650 TA-5650

3-7. MOUNTING DIAGRAM - EQUALIZER AMPLIFIER BOARD -
- Conductor Side -

US Model: Serial No. 300,001 and later
Canadian Model: Serial No. 300,001 and later
UK Model: Serial No. 600,351 and later
AEP Model: Serial No. 501,301 and later

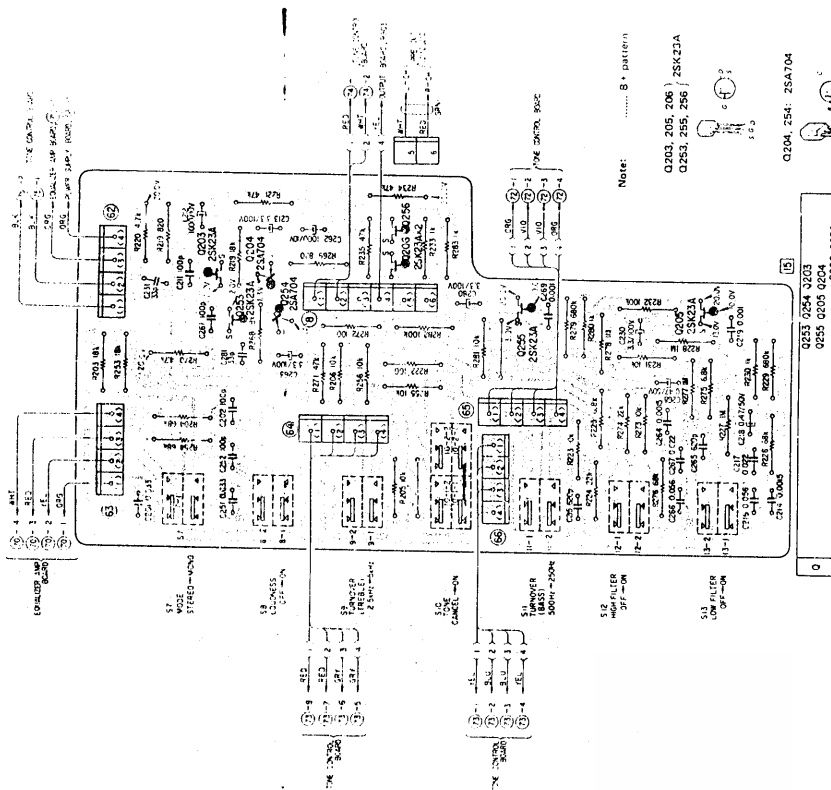


Note: B+ pattern

- Q101, 151: 35C1836
- Q102, 152: 7K463
- Q201, 251: 25K23A
- Q202, 252: 25A705

3-8. MOUNTING DIAGRAM - FILTER BOARD -
- Conductor Side -

US Model: Serial No. 300,001 and later
Canadian Model: Serial No. 300,001 and later
UK Model: Serial No. 600,351 and later
AEP Model: Serial No. 501,301 and later



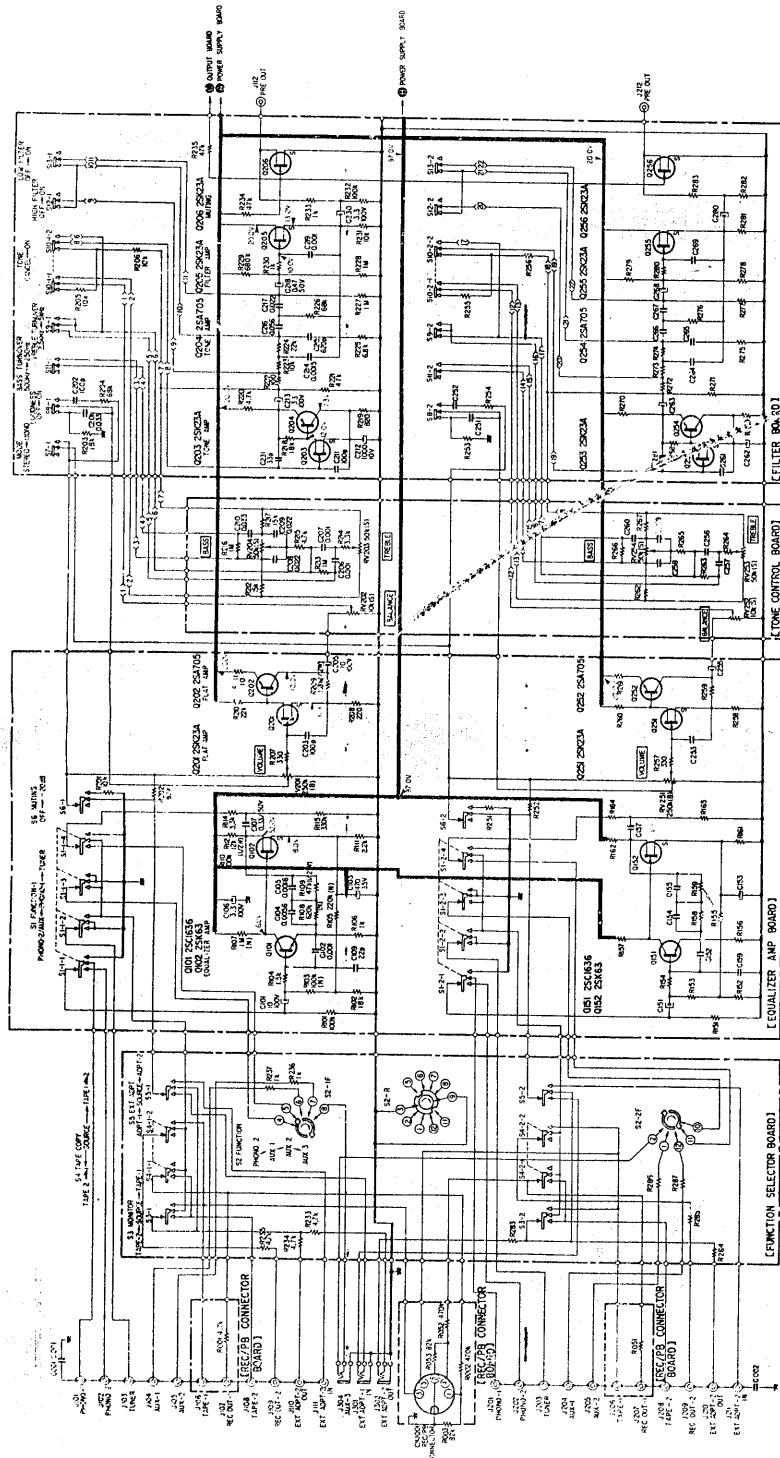
Note: B+ pattern

- Q203, 205, 206: 25K23A
- Q253, 255, 256: 25K23A
- Q204, 254: 25A704
- Q253, 255, 256: 25K23A
- Q254, 254: 25A704
- Q255, 255, 256: 25K23A
- Q256, 255: 25K23A

1A-5030 1A-5030

3-9. SCHEMATIC DIAGRAM - PREAMPLIFIER SECTION -

US Model: Serial No. 800,001 and later
 Canadian Model: Serial No. 700,001 and later
 UK Model: Serial No. 600,351 and later
 AEP Model: Serial No. 501,001 and later



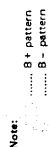
Note:
 All resistance values are in ohms, k = 1,000, M = 1,000 k.
 All capacitance values are in μ F except as indicated with p, which means pF.
 All values are measured with a VOM which has an input impedance of 20 k ohms/volt. No signal in.
 Voltage variations may be noted $\pm$ to normal production tolerances.

3-10. SCHEMATIC DIAGRAM - POWER AMPLIFIER SECTION -

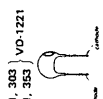
Note:
All resistance values are in ohms. $k = 1,000$, $M = 1,000$ k.
All capacitance values are in μF except as indicated with p ,
which means pF .
All voltages are dc measured with a VOM which has an input
impedance of $20\text{ k}\Omega/\text{volt}$. No signal in.
Voltage variations may be noted due to normal production
tolerances.

— Conductor Side —

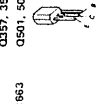
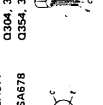
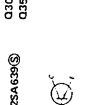
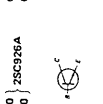
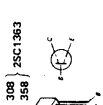
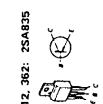
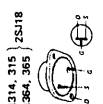
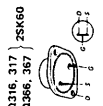
— Conductor Side —



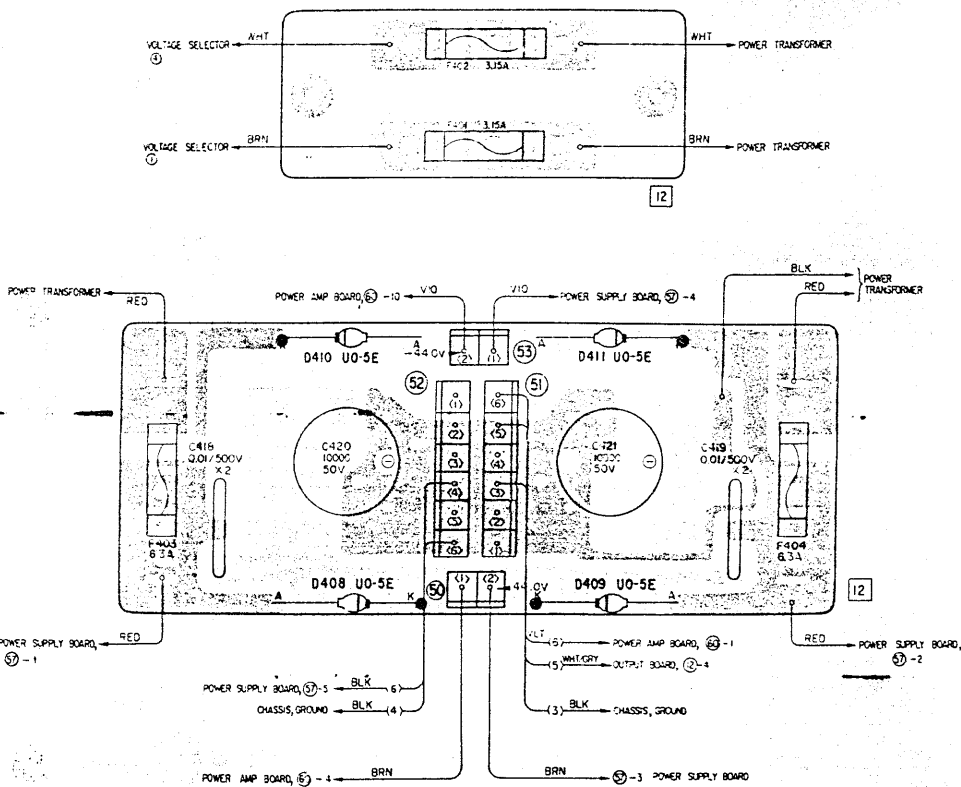
D308, 309	{	1T22A
D358, 359		
D302, 352	{	1S1555
D304 ~ 307		
D354 ~ 357		
D501		



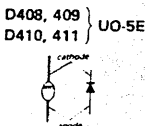
- 20 -



3-14. MOUNTING DIAGRAM — RECTIFIER/FUSE BOARDS —
 — Component Side —

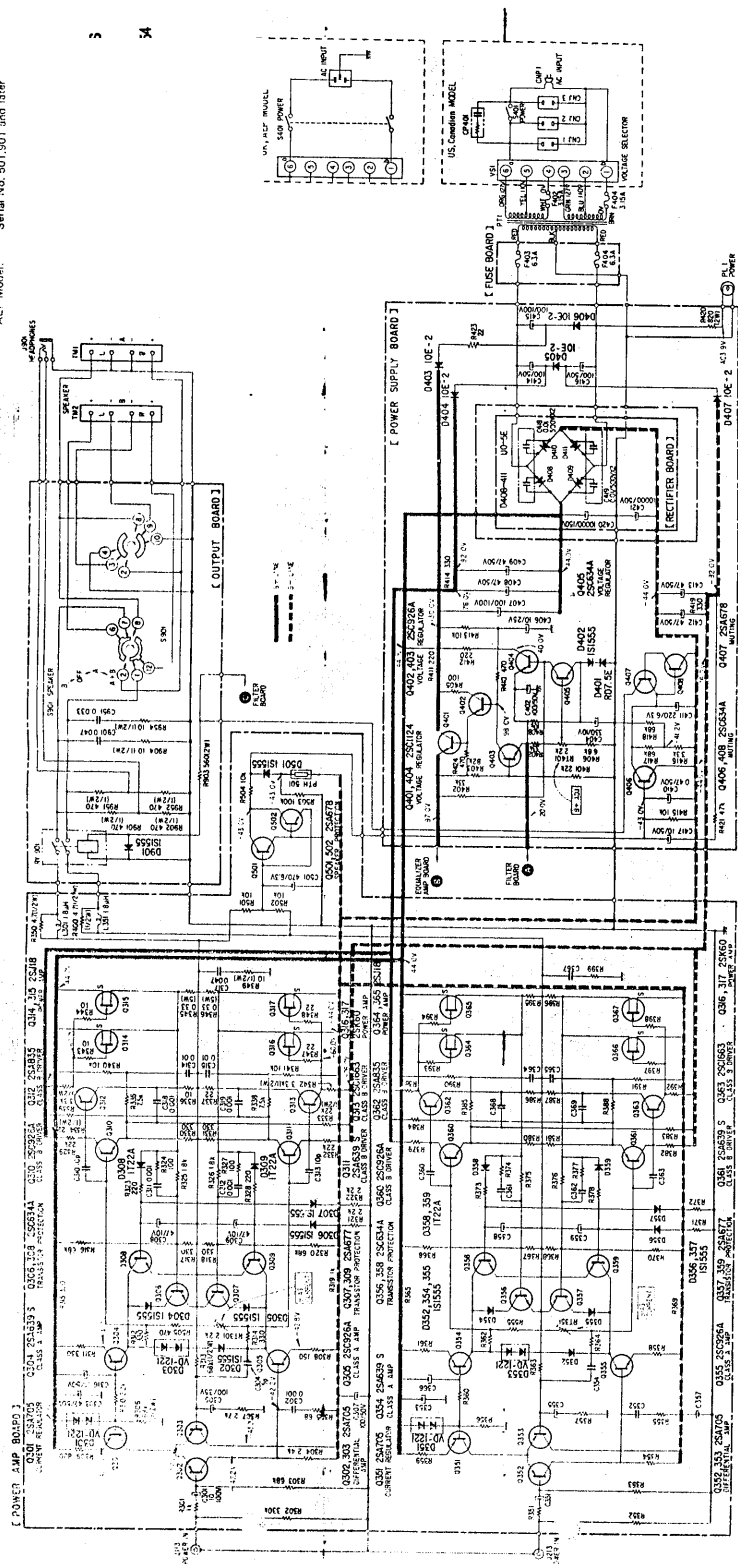


Note:
 B + pattern
 B - pattern



3-15. SCHEMATIC DIAGRAM - POWER AMPLIFIER SECTION -

US Model:	Serial No. 600,001 and later
Canadian Model:	Serial No. 700,001 and later
UK Model:	Serial No. 600,351 and later
AEP Model:	Serial No. 501,901 and later

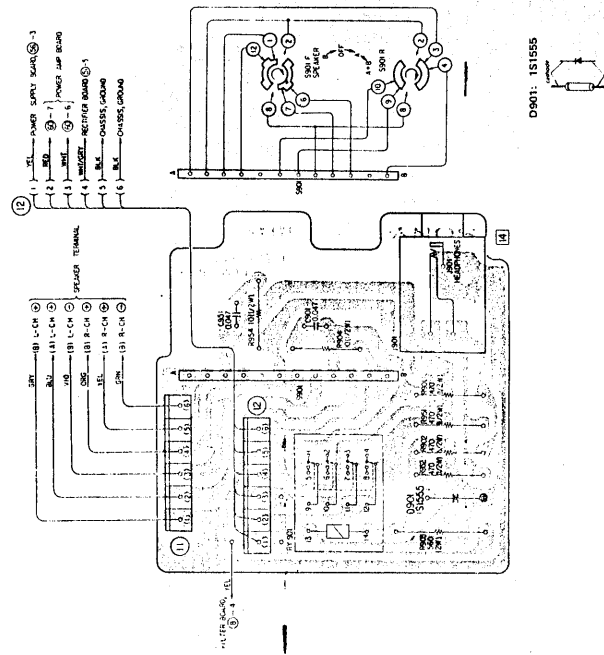


Note:
All capacitance values are in ohms. $k = 1,000$, $M = 1,000$ k
All resistance values are in μF except as indicated with p,
which means μF .
All voltages are dc measured with a VOM which has an input
impedance of 20 k ohms/volt. No signal in.
Voltage variations may be noted due to normal production
tolerances.

3-17. MOUNTING DIAGRAM - OUTPUT BOARD --

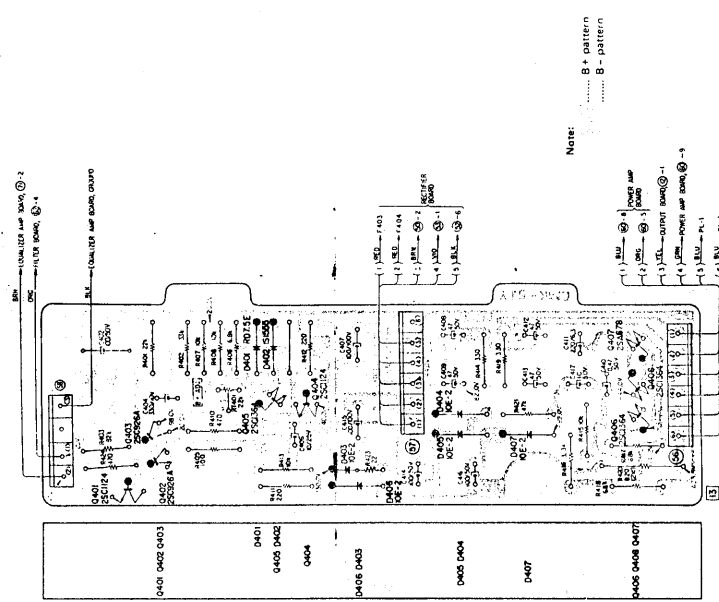
-- Conductor Side --

US Model:	Serial No. 800,001 and later
Canadian Model:	Serial No. 700,001 and later
UK Model:	Serial No. 600,351 and later
AEP Model:	Serial No. 501,901 and later

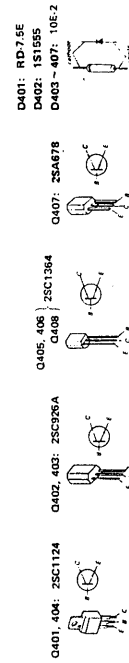


3-18. MOUNTING DIAGRAM - POWER SUPPLY BOARD -
- Conductor Side -

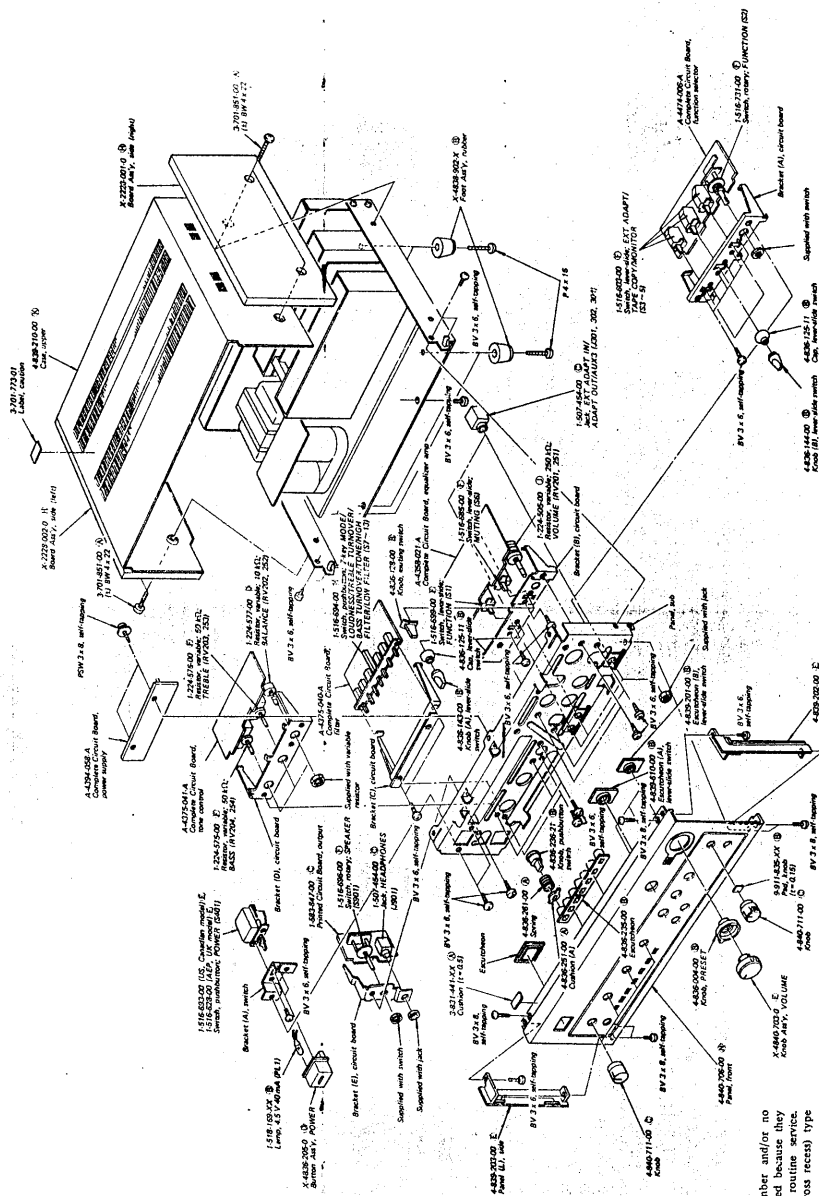
US Model:	Serial No. 800,001 and later
Canadian Model:	Serial No. 700,001 and later
UK Model:	Serial No. 600,351 and later
AEP Model:	Serial No. 501,901 and later



Note:

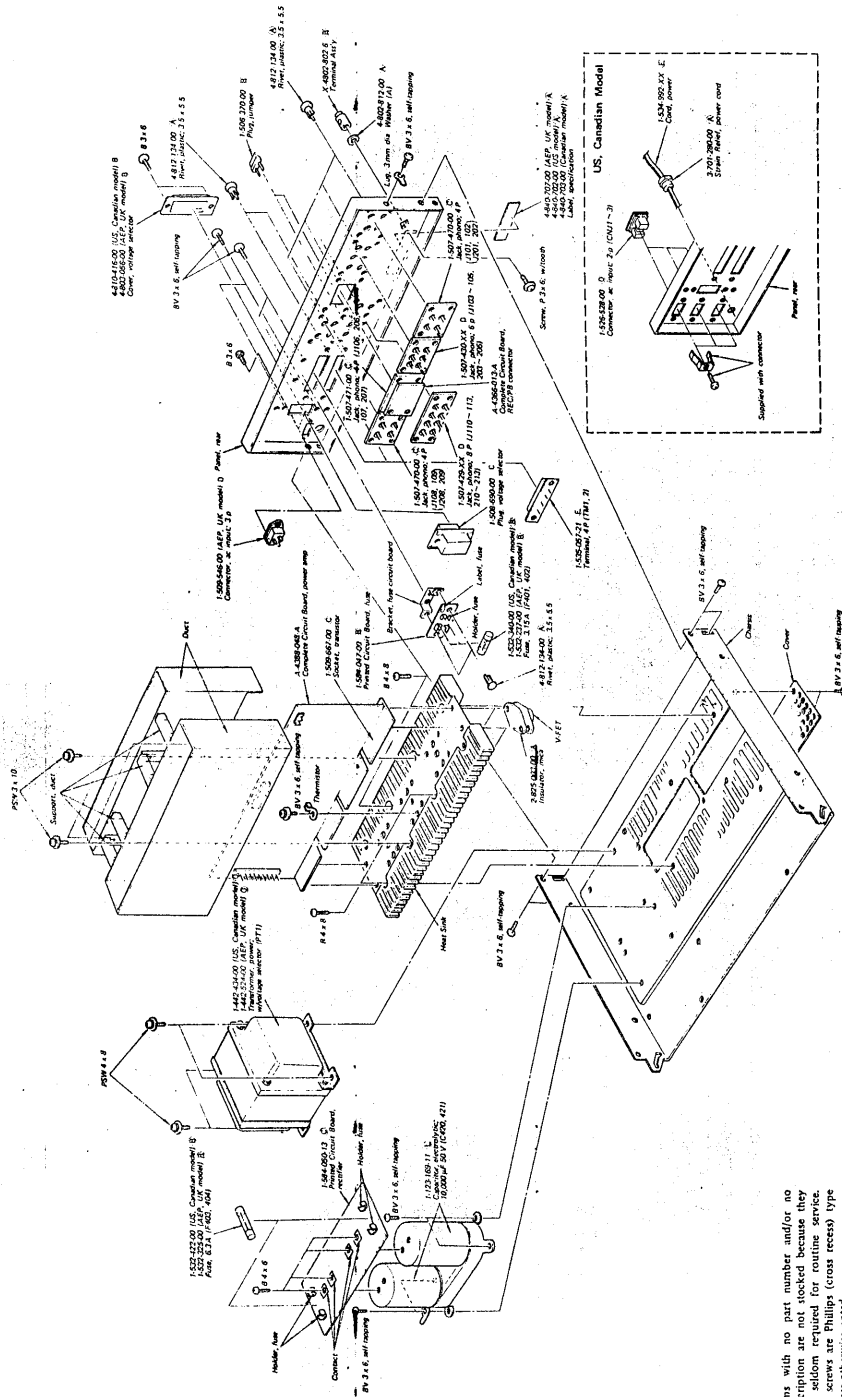


SECTION 4
EXPLODED VIEWS



Note:
 1. Items with no part number and/or no description are not stocked because they are seldom required for routine service.
 2. All screws are Phillips (cross recess) type unless otherwise noted.
 3. (C) = slotted head
 4. The correct letters (A to D) are applicable for European model only.

(2)



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- The circled letters (Ⓢ to Ⓠ) are applicable for European model only.

SECTION 5 ELECTRICAL PARTS LIST

TA-5650 TA-5650

Note: The circled letters (A, to Z) are applicable for European model only.

Mark	Applicable Serial No.
1	US model: Serial No. 500,001 and later UK model: Serial No. 500,001 and later Canada model: Serial No. 500,001 and later AEP model: Serial No. 500,001 and later

Ref. No. Part No. Description

COMPLETE CIRCUIT BOARDS

- A-4358-021-A Equalizer Amp
- A-4356-011-A REC/PB Connector
- A-4375-040-A Filter
- A-4375-041-A TO-2 Control
- A-4388-018-A Power Amp
- A-4394-038-A Power Supply
- A-4471-006-A Function Selector

PRINTED CIRCUIT BOARDS

- I-583-947-00 Output
- I-584-047-00 Rectifier
- I-584-050-13 Rectifier

SEMICONDUCTORS

Transistors

- Q101,151
- Q102,152
- Q201,251
- Q202,252
- Q301,351
- Q302,352
- Q303,353
- Q304,354
- Q305,355
- Q306,356
- Q307,357
- Q308,358
- Q309,359
- Q310,360
- Q311,361
- Q312,362
- Q313,363

- 2SC1636
- 2SK63
- 2SK23A
- 2SA705
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A
- 2SK23A

COIL

- L301,351

TRANSFORMER

- PT1
- PT2

- I-443-134-00 Power (USA, Canada model)
- I-443-134-00 Power (AEP, UK model)

Note: The circled letters (A, to Z) are applicable for European model only.

Ref. No. Part No. Description

CAPACITORS

All capacitors are in μF and electrolytic type unless otherwise indicated.
30 or less working volts are omitted except for electrolytic type. ($p = \mu\text{F}$)

- C001,002 1-102-074-11 A 0.001 ceramic
- C101,151 1-121-748-11 A 10 25V
- C102,152 1-121-126-11 A 10 100V
- C103,153 1-108-227-12 A 0.001 mylar
- C104,154 1-121-659-11 B 2200 10V
- C105,155 1-121-361-11 B 470 35V
- C106,156 1-103-743-11 B 0.0056 polystyrol
- C107,157 1-103-709-11 A 0.0016 polystyrol
- C108,158 1-121-995-11 B 3.3 100V mylar
- C109,159 1-105-729-12 A 0.22 100V mylar
- C110,160 1-108-822-12 A 0.33 50V ceramic
- C111,161 1-102-967-11 A 21p ceramic
- C112,162 1-108-591-12 A 0.033 mylar
- C113,163 1-102-973-11 A 100p ceramic
- C114,164 1-102-973-11 A 10 50V
- C115,165 1-121-126-11 A 10 100V
- C116,166 1-108-555-12 A 0.001 mylar
- C117,167 1-108-587-12 A 0.022 mylar
- C118,168 1-108-591-12 A 0.033 mylar
- C119,169 1-102-973-11 A 100p ceramic
- C120,170 1-121-736-11 B 1000 10V
- C121,171 1-121-914-11 B 3.3 50V
- C122,172 1-121-995-11 B 3.3 100V
- C123,173 1-108-559-12 A 0.0015 mylar
- C124,174 1-103-720-11 A 620p polystyrol
- C125,175 1-108-597-12 A 0.056 mylar
- C126,176 1-108-587-12 A 0.022 mylar
- C127,177 1-121-911-11 A 0.47 50V
- C128,178 1-108-227-12 A 0.001 mylar
- C129,179 1-121-914-11 B 3.3 50V
- C130,180 1-102-963-11 A 33p ceramic

TA-5550

Note: The circled letters (A) to (Z) are applicable for European model only.

Note: The circled letters (A) to (Z) are applicable for European model only.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
RESISTORS					
All resistors are in ohms. Regular type resistors are in ohms, carbon and composition resistors are omitted. Check the schematic diagram for the resistance values. (k = 1000, M = 1000000)					
R109,159	1-344-913-11	47k 1/4W carbon	S7-13	1-516-694-00	Push, Tally: NODE, LOUDNESS, TREBLE TURNOVER, BASS TURNOVER, TONE, HIGH FILTER, LOW FILTER
R112,162	1-344-899-11	12k 1/4W carbon		1-516-693-00	Pushbutton, POWER (AEP, UK model)
R209,259	1-344-879-11	1.8k 1/4W carbon		1-516-692-00	Pushbutton, POWER (USA, Canada model)
R306,356	1-344-912-11	68k 1/4W carbon		1-516-696-00	Rotary, SPEAKER
R313,363	1-344-917-11	68k 1/4W carbon	JACKS		
R333,383	1-344-905-11	22k 1/4W carbon	CN1001	1-509-549-00	Connector, REC/PB
R334,384	1-344-905-11	22k 1/4W carbon	CN11-3	1-526-538-00	Connector, ac: 2-p (USA, Canada model)
R339,389	1-211-650-11	3.3k 1/4W carbon	1-509-546-00	1-509-546-00	Connector, ac: 3-p (AEP, UK model)
R342,392	1-211-650-11	3.3k 1/4W carbon	J101,701	1-507-470-00	Phono, 4-p: PHONO 1, 2
R345,395	1-211-657-11	0.35 5W wire-wound	J102,702	1-507-439-XX	Phono, 6-p: TUNER, AUX 1, 2
R346,396	1-211-590-11	10 1/4W carbon	J103-105	1-507-471-00	Phono, 4-p: TAPE 1, REC OUT 1
R349,399	1-244-817-11	4.7 1/4W carbon	J106,706	1-507-470-00	Phono, 4-p: TAPE 2, REC OUT 2
R350,450	1-244-817-11	4.7 1/4W carbon	J109,709	1-507-429-XX	Phono, 8-p: EXT ADPT 2, PRE OUT, POWER IN
R420	1-206-662-11	820 2W metal oxide	J110-113	1-507-454-00	EXT ADAPT IN, ADAPT OUT, AUX 3
R901,951	1-344-865-11	470 1/4W carbon	J301,302	1-507-454-00	EXT ADAPT IN, ADAPT OUT, AUX 3
R902,952	1-206-638-11	560 2W metal oxide	J304	1-507-454-00	HEADPHONES
R903	1-211-590-11	10 1/4W carbon	MISCELLANEOUS		
R904,905	1-224-505-00	250k variable; VOLUME	CP401	1-231-057-31	Encapsulated Component (USA, Canada model)
R905	1-224-577-00	10k variable; BALANCE	F401,402	1-532-340-00	Fuse, 3.15A (USA, Canada model)
R906	1-224-576-00	50k variable; TREBLE	F403,404	1-532-327-00	Fuse, 3.15A (AEP, UK model)
R907	1-224-575-00	50k variable; BASS	F405,406	1-532-325-00	Fuse, 6.3A (AEP, UK model)
R908	1-224-575-00	50k variable; BASS	PL1	1-518-169-XX	Lamp, 4.5V 40mA
R909	1-224-575-00	50k variable; BASS	RY901	1-518-257-00	Relay
SWITCHES					
S1	1-516-699-00	Lever-side, FUNCTION	S7-13	1-516-694-00	Push, Tally: NODE, LOUDNESS, TREBLE TURNOVER, BASS TURNOVER, TONE, HIGH FILTER, LOW FILTER
S2	1-516-721-00	Rotary, FUNCTION		1-516-693-00	Pushbutton, POWER (AEP, UK model)
S3-S	1-516-603-00	Lever-side, EXT ADAPT, TAPE COPY, MONITOR		1-516-692-00	Pushbutton, POWER (USA, Canada model)
S6	1-516-685-00	Lever-side, Muting		1-516-696-00	Rotary, SPEAKER

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