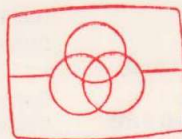


## TA-F222ES

## SERVICE MANUAL



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US Model  
AEP Model  
UK Model  
E Model



## SPECIFICATIONS

## AUDIO POWER SPECIFICATIONS

## US model

## POWER OUTPUT AND TOTAL HARMONIC DISTORTION :

With 8-ohm loads, both channels driven, from 20 - 20,000 Hz; rated 80 watts per channel minimum RMS power, with no more than 0.006% total harmonic distortion from 250 milliwatts to rated output.

## Harmonic distortion

Less than 0.005 % at 10 watts (6 ohms)  
Less than 0.004 % at 10 watts (8 ohms)

## Intermodulation (IM) distortion

(60 Hz : 7 kHz = 4 : 1) Less than 0.006 % at rated output (6 ohms)  
Less than 0.006 % at rated output (8 ohms)

— Continued on page 2 —

## OTHER SPECIFICATIONS

## Amplifier section

## Continuous RMS power output

(both channels driven simultaneously)

AEP, UK, E model

At 20 Hz - 20 kHz

80 + 80 watts (0.006% THD, 8 ohms)

At 1 kHz

100 + 100 watts (0.006% THD, 6 ohms)

US model

At 20 Hz - 20 kHz

80 + 80 watts (0.006% THD, 8 ohms)


## Power bandwidth (IHF)

10 Hz - 80 kHz

## Dynamic headroom

1.2 dB ('78 IHF)

## SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

INTEGRATED STEREO AMPLIFIER  
**SONY**®



Slew rate 125 V/μ sec.  
 250 V/μ sec. (inside)  
 Dynamic range TUNER, CD, TAPE 1,2, VIDEO 1,2 : 120dB  
 Channel separation (at 1 kHz)  
 PHONO MC : 80 dB  
 MM : 95 dB  
 TUNER, CD, TAPE 1,2, VIDEO 1,2 : 100dB

Frequency response  
 PHONO : RIAA equalization curve ±0.2 dB  
 TUNER }  
 CD } 5 Hz - 200 kHz  $\pm_{-3}^0$  dB  
 TAPE 1,2 }  
 VIDEO 1,2 (audio) }

Residual noise Less than 25 μV (8 ohms, network A)  
 Damping factor 125 (8 ohms, 1 kHz)  
 Inputs

	Setting of the CARTRIDGE load selector	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	MM	2.5 mV	50 kilohms	150 mV	87 dB 83 dB* (A, 2.5 mV)
	MC	0.17 mV	100 ohms	9 mV	68 dB 71 dB* (A, 170 μV)
TUNER, CD TAPE 1, 2 VIDEO 1,2 (audio)		150 mV	50 kilohms		97 dB 102 dB* (A, 150 mV)

\* '78 IHF

Outputs  
 VIDEO 1,2  
 Voltage 1 Vp-p  
 Impedance 75 ohms  
 REC OUT 1  
 Voltage 150 mV  
 Impedance 1 kilohms  
 SPEAKER A, B  
 Accepts speakers of 6 - 16 ohms.  
 HEADPHONES  
 Accepts low and high impedance headphones.  
 VIDEO 1 OUT (audio) 150 mV 1 kilohms  
 VIDEO 1 OUT 1 Vp-p 75 ohms

Tone controls BASS  
 ±8 dB at 60 Hz (turnover freq. 300 Hz)  
 TREBLE  
 ±6 dB at 10 kHz (turnover freq. 5 kHz)  
 Bass boost + 5 dB at 50 Hz  
 Subsonic filter 6 dB/octave attenuation below 15 Hz

General System  
 Integrated stereo amplifier  
 Power amplifier section  
 Legato linear, pure-complementary, Darlington OCL SEPP amplifier  
 Preamplifier section  
 Equalizer section : Low-noise equalizer amp (MC or MM cartridge load selectable)  
 Audio Current Transfer section : Bridge-balance type voltage-to-current converter with dc servo amp

Power requirements  
 AEP model: 220 V ac, 50/60 Hz  
 UK model: 240 V ac, 50 Hz  
 US model: 120 V ac, 60 Hz  
 E model: 120, 220, or 240 V ac adjustable, 50/60 Hz

Power consumption  
 AEP, UK, E model: 200 W  
 US model: 250 W

AC outlets  
 AEP, UK model: 1 switched, 100 watts max.  
 US model: 2 switched, total 100 watts max.  
 2 unswitched, total 100 watts max.  
 E model: 1 switched, 100 watts max.  
 1 unswitched 100 watts max.

Dimensions  
 Approx. 430 x 130 x 375 mm (w/h/d)  
 (17 x 5 1/8 x 14 7/8 inches)

Weight  
 including projecting parts and controls  
 AEP, UK, E model:  
 Approx. 11.5 kg (25 lbs 6 oz) net  
 Approx. 13 kg (28 lbs 11 oz) in shipping carton  
 US model:  
 Approx. 12.1 kg (26 lbs 11 oz) net  
 Approx. 13.6 kg (30 lbs) in shipping carton



SECTION 1  
DISASSEMBLY

**SAFETY CHECK-OUT (US Model)**

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

**LEAKAGE TEST**

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

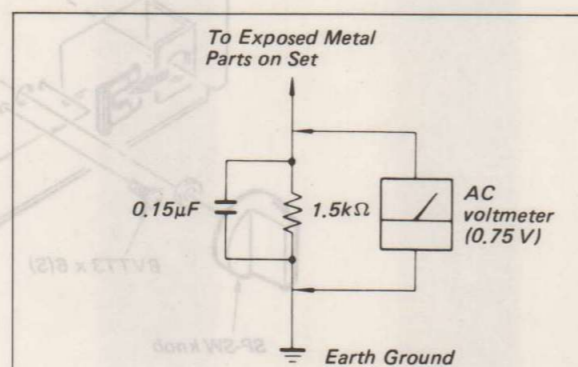
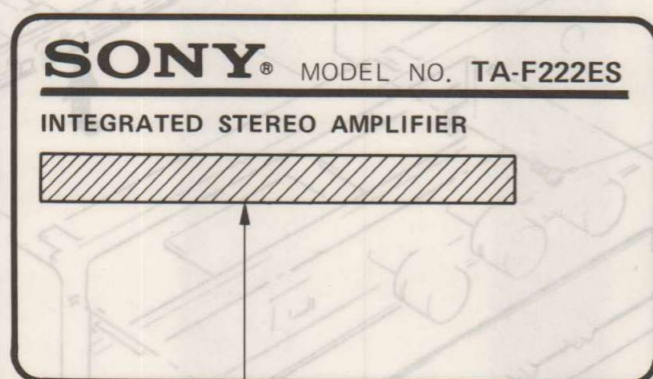


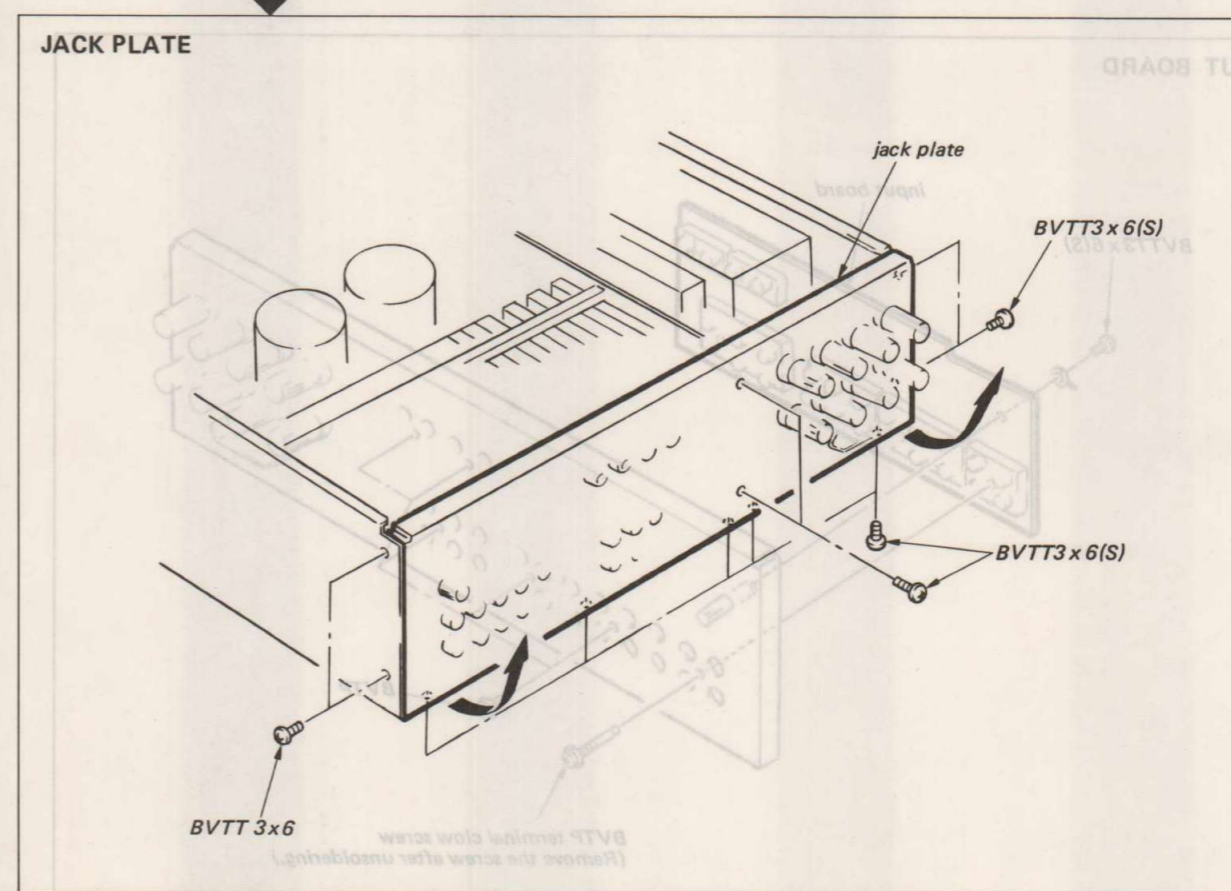
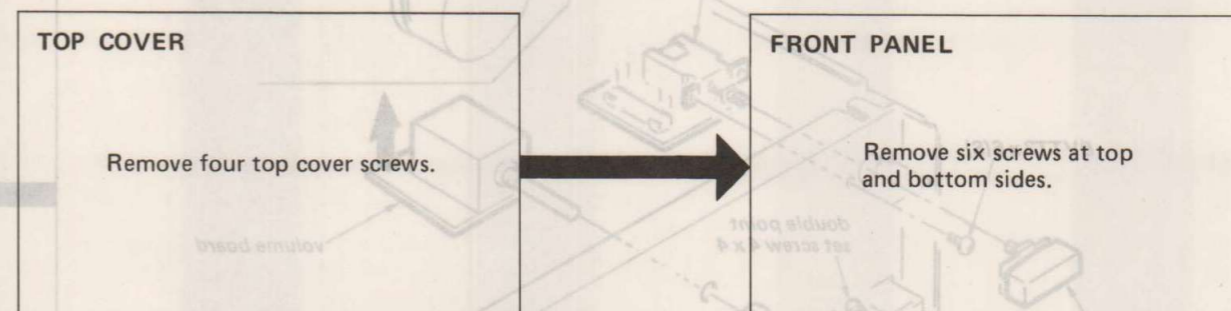
Fig. A. Using an AC voltmeter to check AC leakage.

**MODEL IDENTIFICATION**

—Specification Label—



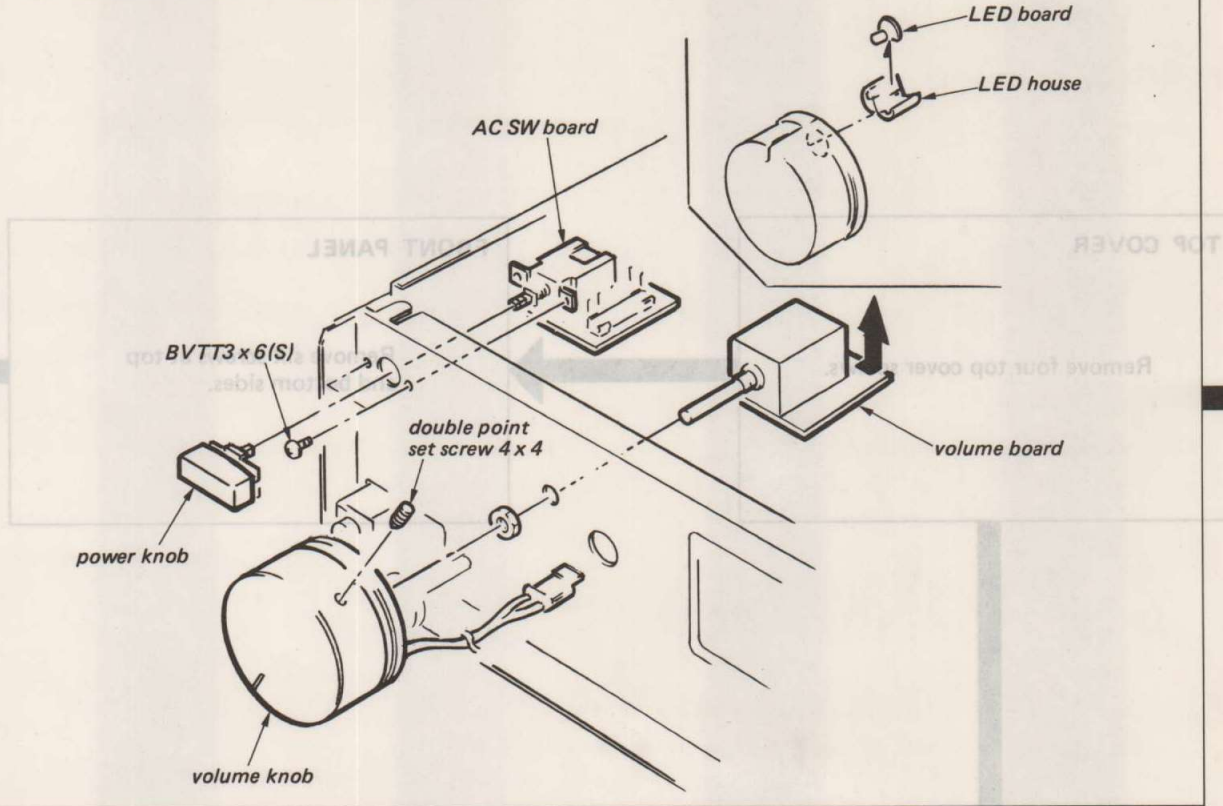
US Model: AC: 120 V ~ 60 Hz	200 W
AEP Model: AC: 220 V ~ 50/60 Hz	200 W
UK Model: AC: 240 V ~ 50/60 Hz	200 W
E Model: AC: 120/220/240 V ~ 50/60 Hz	200 W
G•AEP Model: AC: 220 V ~ 50/60 Hz	200 W



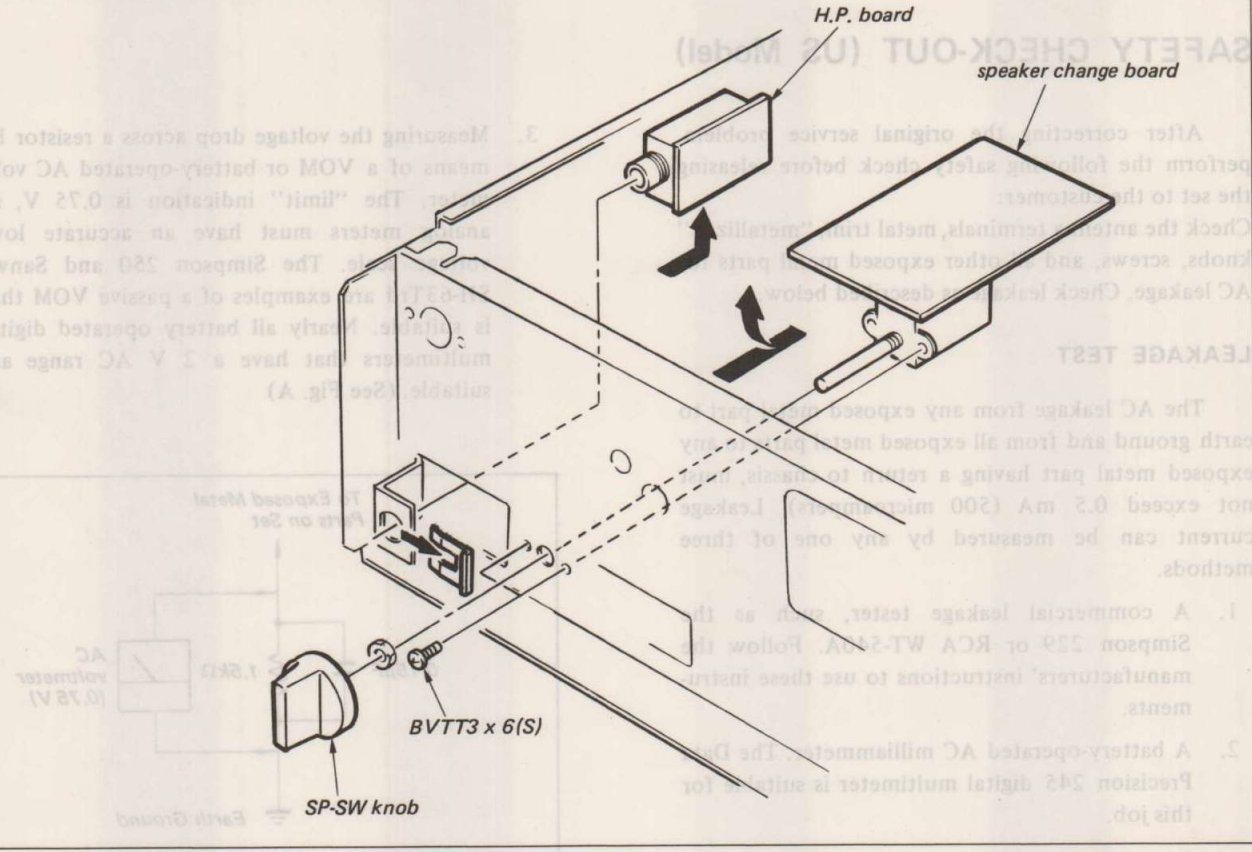


SECTION 1  
DISASSEMBLY

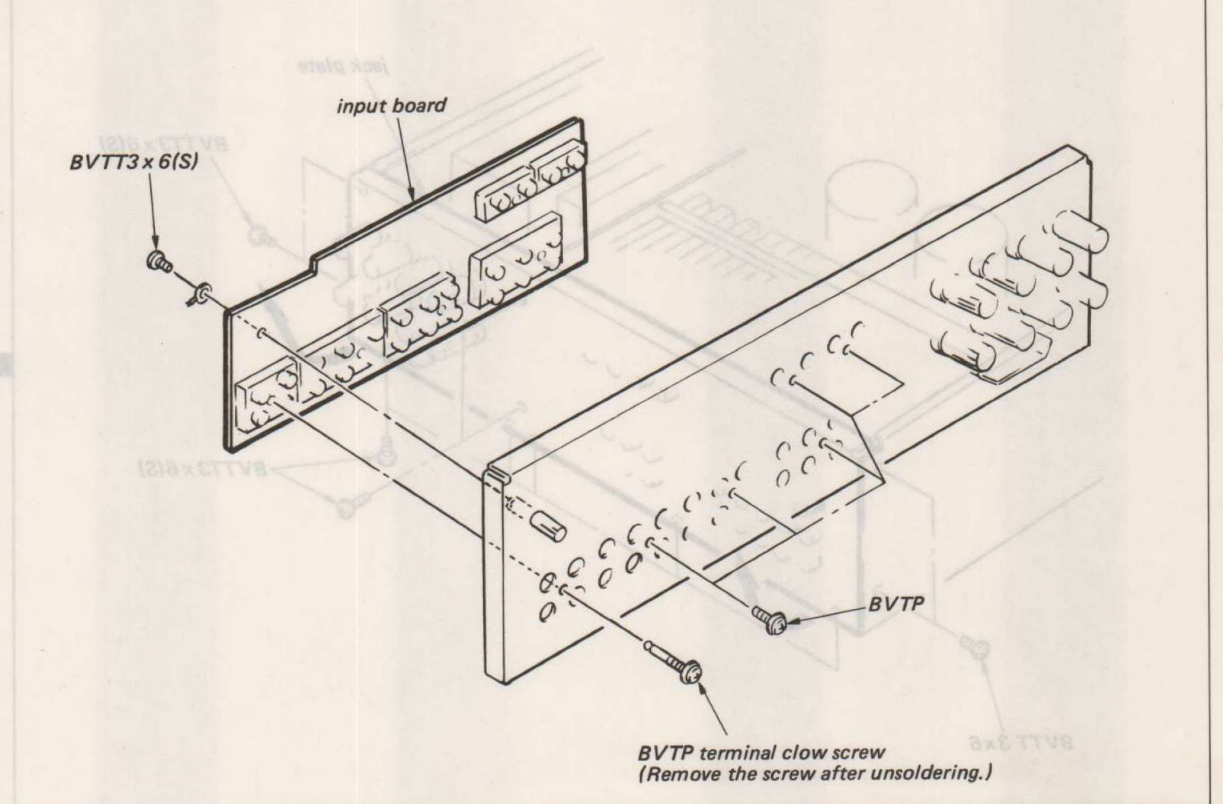
AC SW BOARD/VOLUME BOARD/LED BOARD



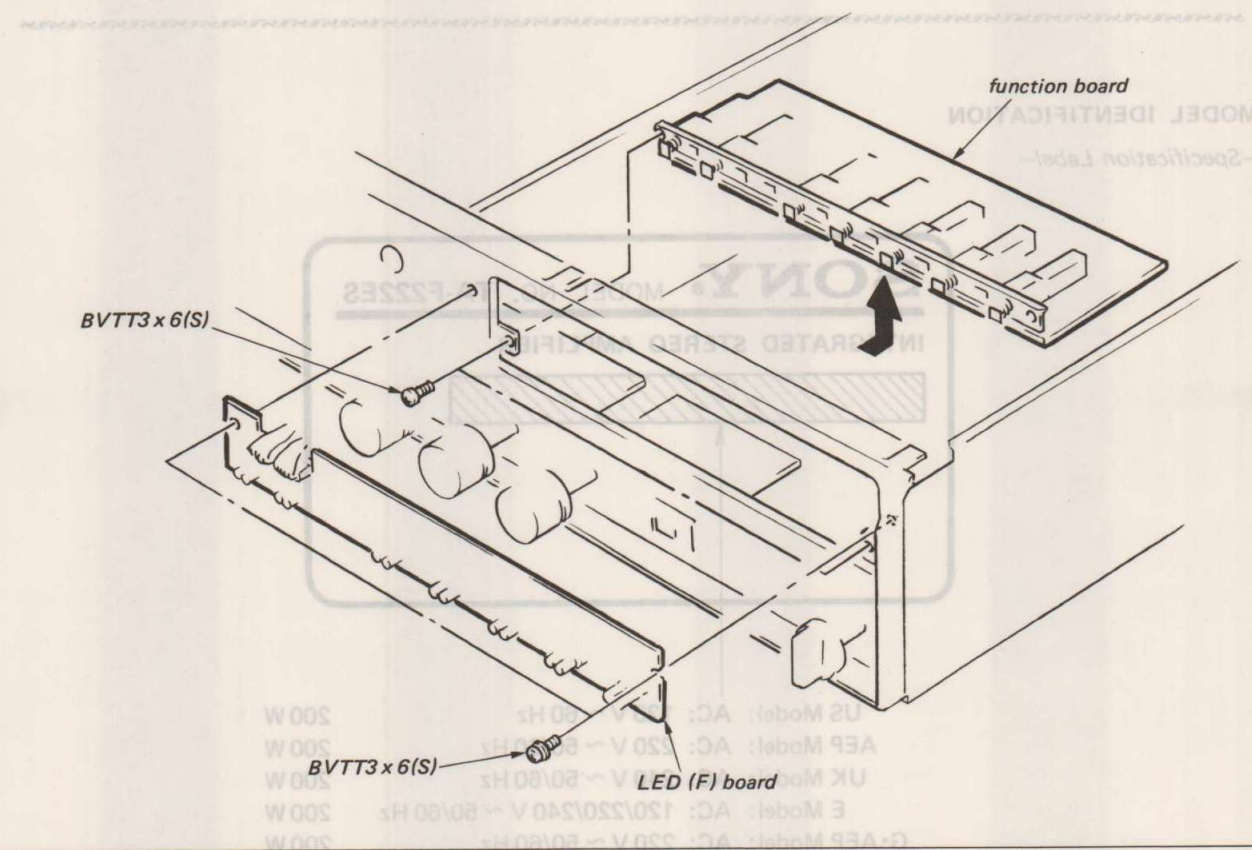
H.P. BOARD/SPEAKER CHANGE BOARD



INPUT BOARD



FUNCTION BOARD/LED (F) BOARD

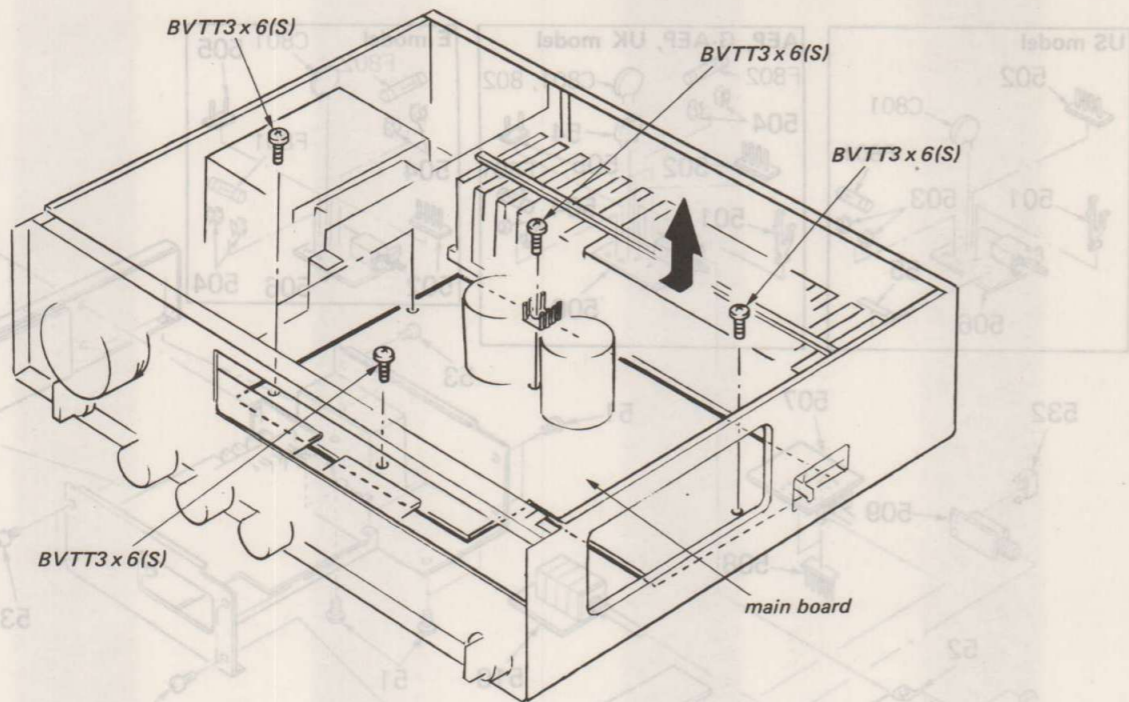




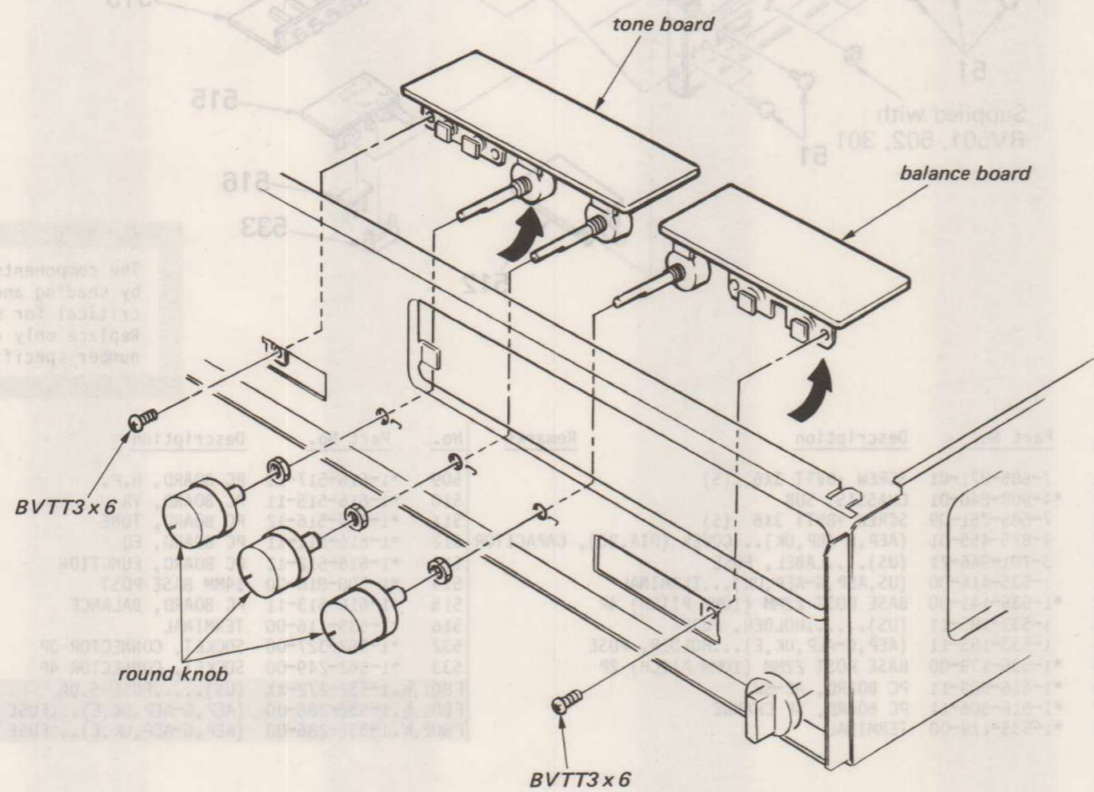
SECTION 2

ADJUSTMENTS

MAIN BOARD



TONE BOARD/BALANCE BOARD



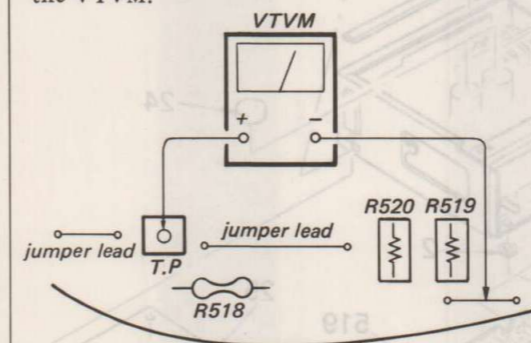
Note:

1. When repairing or replacing the power transistors, be sure to replace the resistors (R526-531 or R576-581) in power section and make the DC BIAS adjustment.
2. Set the VOLUME switch to MIN before the POWER switch is turned on. Turn RT501 and RT551 counterclockwise.
3. Wait for about 5 minutes to warm up the set after the power switch is turned on and make the DC BIAS adjustment.

DC BIAS ADJUSTMENT (with no signal input)

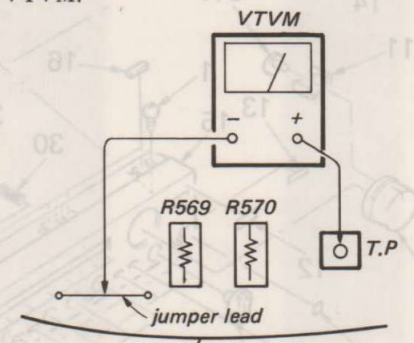
- L-CH -

Adjust RT501 for 6mV reading on the VTVM.



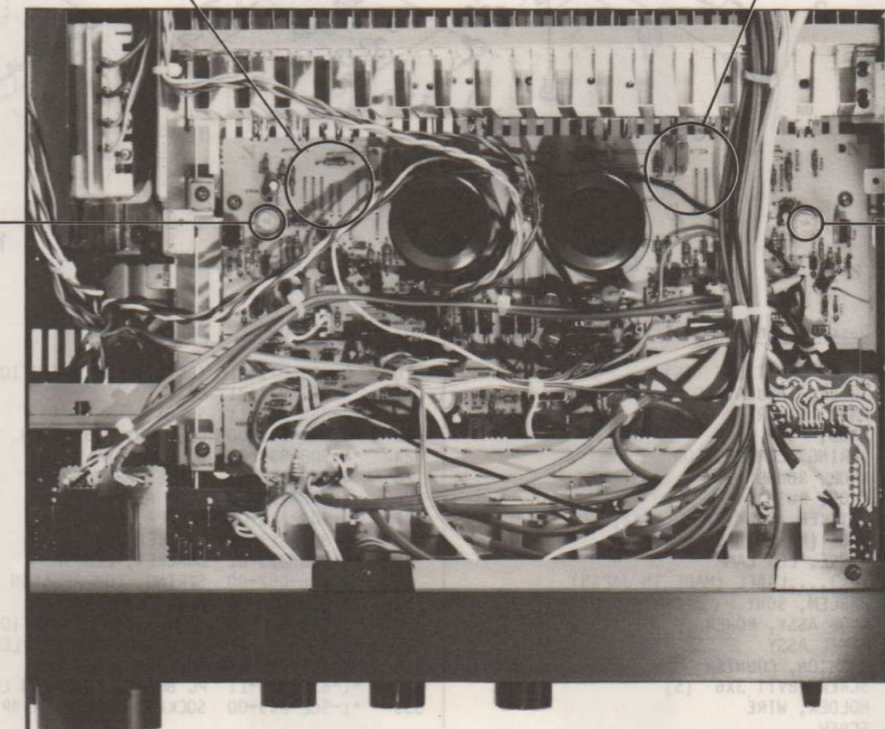
- R-CH -

Adjust RT551 for 6mV reading on the VTVM.



RT501 (L-CH)

RT551 (R-CH)





SECTION 3


EXPLODED VIEW AND PARTS LIST

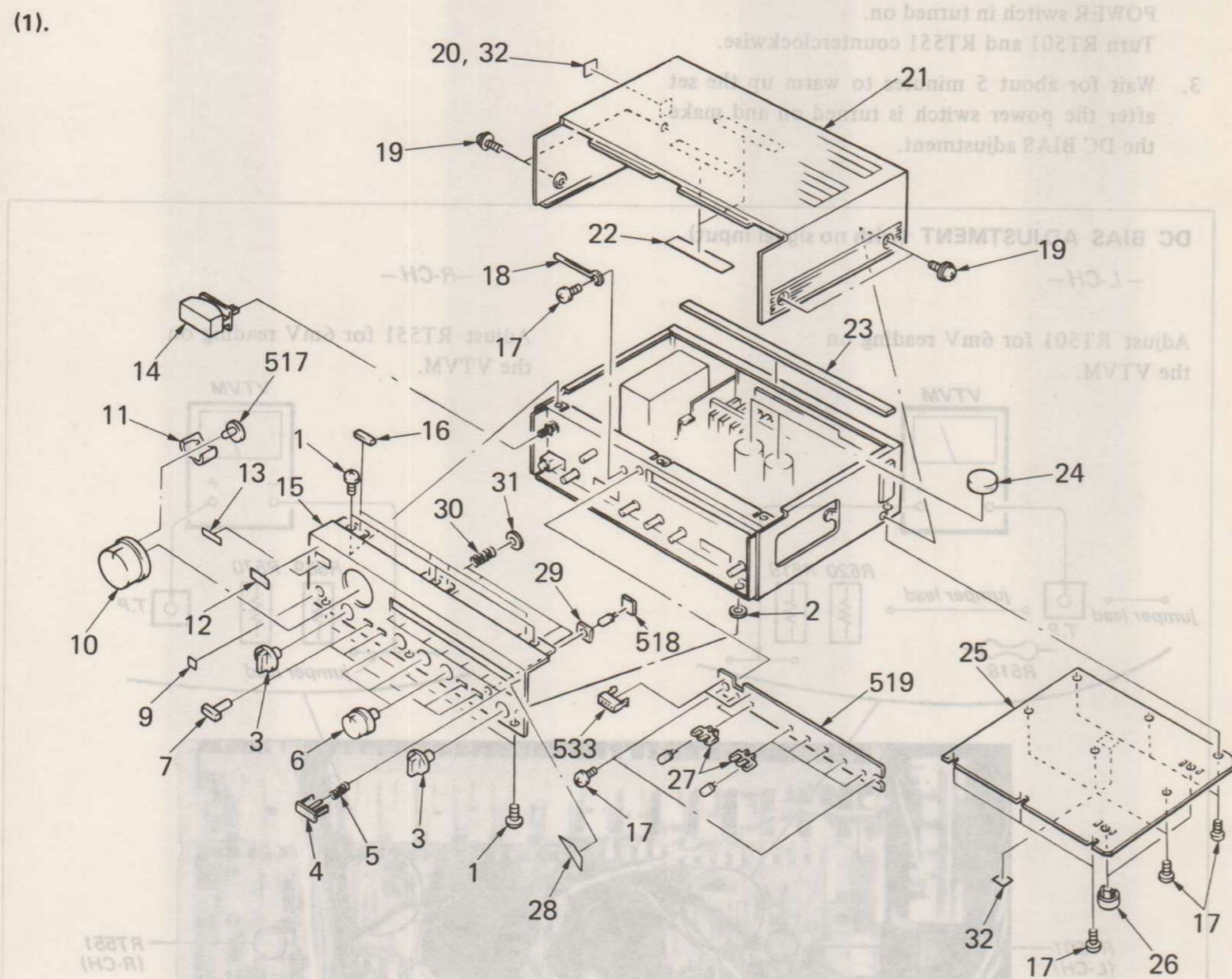
NOTE:

The mechanical parts with no reference number in the exploded views are not supplied.

Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

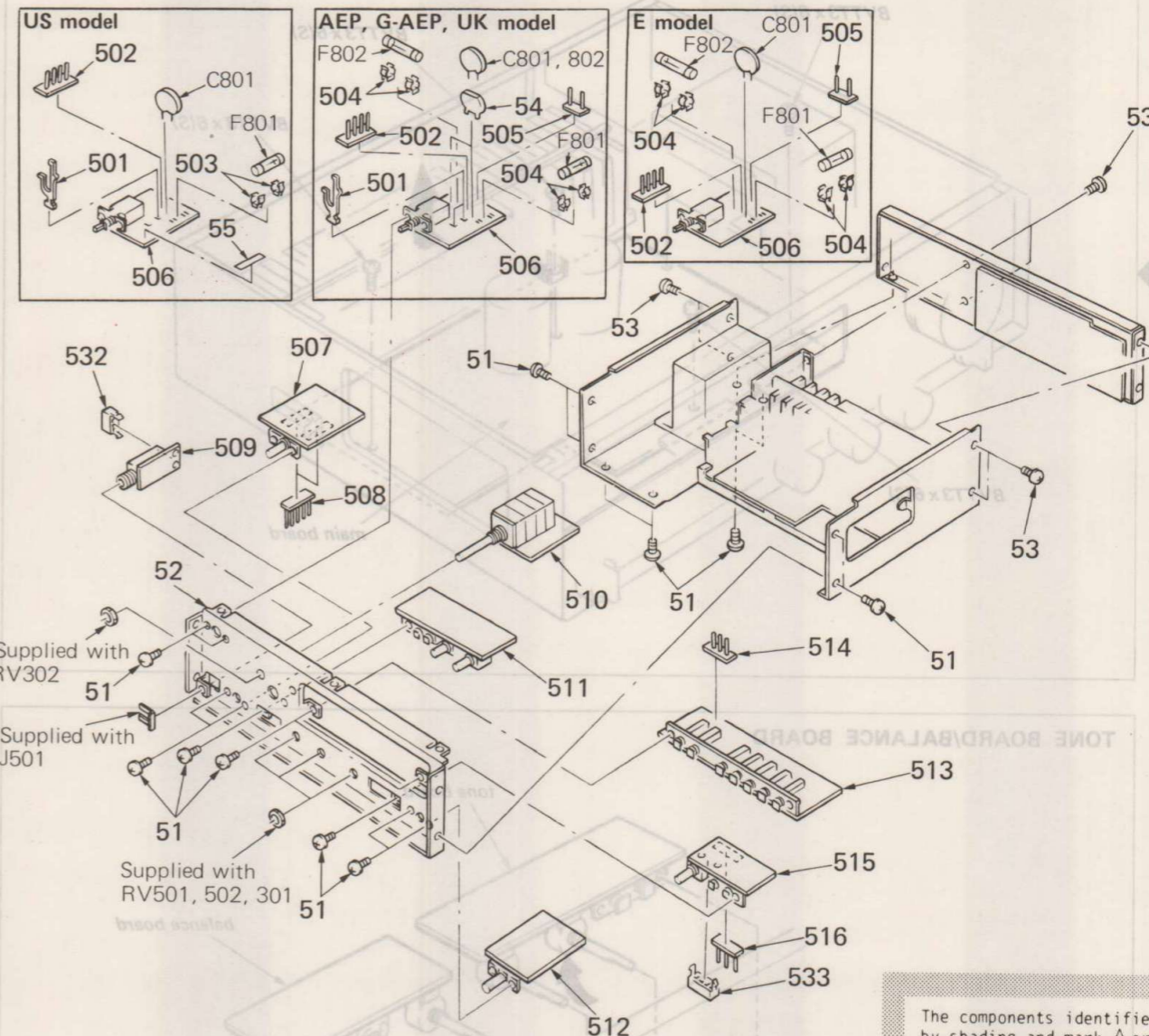
The construction parts of an assembled part are indicated with a collation number in the remark column.




The components identified by shading and mark  are critical for safety. Replace only with part number specified.




No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	7-685-751-09	SCREW +BVTT 3X6 (S)		20	3-703-079-21	(UK)...LABEL, CAUTION (BACK)	
2	4-402-063-11	SHEET, INSULATING		21	4-885-927-21	CASE	
3	4-908-838-01	KNOB, SQUARE		22	*4-885-983-11	SHEET	
4	4-908-836-01	KNOB, PUSH		23	*4-848-642-00	CUSHION, VIBRATION	
5	2-267-020-00	SPRING, COMPRESSION		24	*4-908-834-01	CUSHION	
6	4-908-839-01	KNOB, ROUND		25	*4-885-922-02	PLATE, BOTTOM	
7	4-885-956-01	KNOB, PUSH		26	X-4864-303-0	FOOT ASSY	
9	3-703-710-41	STICKER, SONY SYMBOL (12)		27	*4-905-210-01	HOLDER, LED	
10	X-4885-908-1	KNOB (NA-50) ASSY, R		28	4-889-813-21	STICKER (C)	
11	*4-901-919-00	HOUSE, LED LAMP		29	*4-908-835-01	BRACKET, LED	
12	*3-701-690-00	(UK)...LABEL (MADE IN JAPAN)		30	4-866-652-00	SPRING, COMPRESSION	
13	3-304-974-01	EMBLEM, SONY		31	4-862-338-00	RING, STOPPER	
14	X-4885-901-0	KNOB ASSY, POWER		32	*3-703-680-00	(US)...LABEL, CAUTION, SUB, NEW UL	
15	X-4885-915-1	PANEL ASSY		517	*1-616-514-11	PC BOARD, PROTECT LED	
16	9-911-845-XX	CUSHION, COUNTER		518	*1-616-519-11	PC BOARD, GEQ LED	
17	7-685-871-01	SCREW +BVTT 3X6 (S)		519	*1-616-518-11	PC BOARD, FUNCTION LED	
18	*3-701-822-00	HOLDER, WIRE		533	*1-562-249-00	SOCKET, CONNECTOR 4P	
19	4-889-321-11	SCREW					

(2).



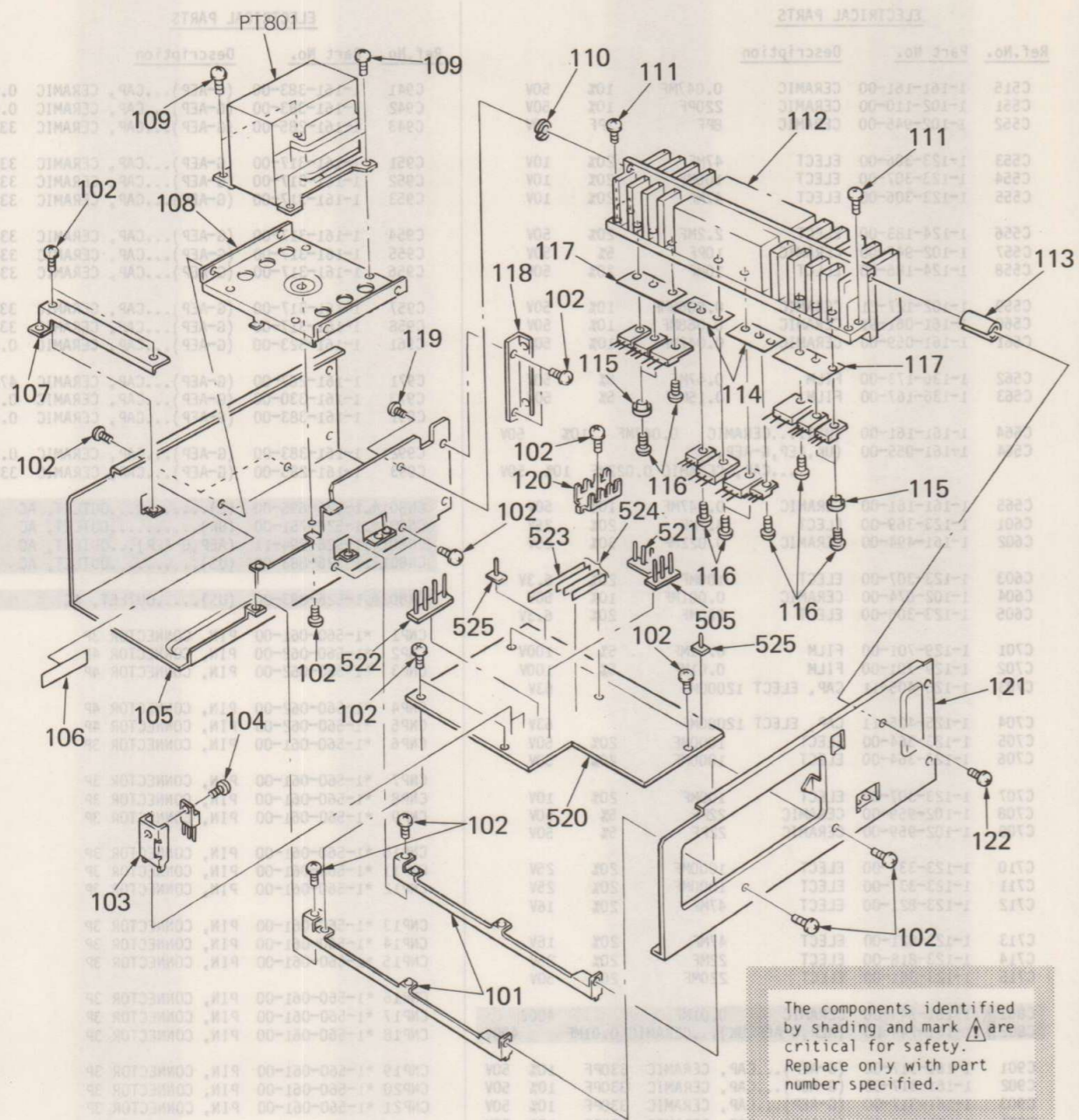
No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	7-685-871-01	SCREW +BVTT 3X6 (S)		509	*1-616-517-11	PC BOARD, H.P.	
52	*4-908-840-01	CHASSIS, SUB		510	*1-616-515-11	PC BOARD, VR	
53	7-685-751-09	SCREW +BVTT 3X6 (S)		511	*1-616-516-12	PC BOARD, TONE	
54	4-875-455-01	(AEP,G-AEP,UK)...COVER (DIA.20), CAPACITOR		512	*1-616-511-11	PC BOARD, EQ	
55	3-701-946-21	(US)...LABEL, FUSE		513	*1-616-512-12	PC BOARD, FUNCTION	
501	1-535-416-00	(US,AEP,G-AEP,UK)...TERMINAL		514	*1-508-810-00	14MM BASE POST	
502	*1-535-141-00	BASE POST 22MM (10MM PITCH) 4P		515	*1-616-513-11	PC BOARD, BALANCE	
503	1-533-185-11	(US)...HOLDER, FUSE		516	*1-535-116-00	TERMINAL	
504	1-533-183-11	(AEP,G-AEP,UK,E)...HOLDER, FUSE		532	*1-562-327-00	SOCKET, CONNECTOR 3P	
505	*1-535-139-00	BASE POST 22MM (10MM PITCH) 2P		533	*1-562-249-00	SOCKET, CONNECTOR 4P	
506	*1-616-509-11	PC BOARD, AC-SW		F801 	*1-532-272-XX	(US)...FUSE 5.0A	
507	*1-616-506-11	PC BOARD, SP CHANGE		F801 	*1-532-286-00	(AEP,G-AEP,UK,E)...FUSE 2.5A TIME-LAG	
508	*1-535-118-00	TERMINAL		F802 	*1-532-286-00	(AEP,G-AEP,UK,E)...FUSE 2.5A TIME-LAG	

The components identified by shading and mark  are critical for safety. Replace only with part number specified.



SECTION 4  
ELECTRICAL PARTS LIST

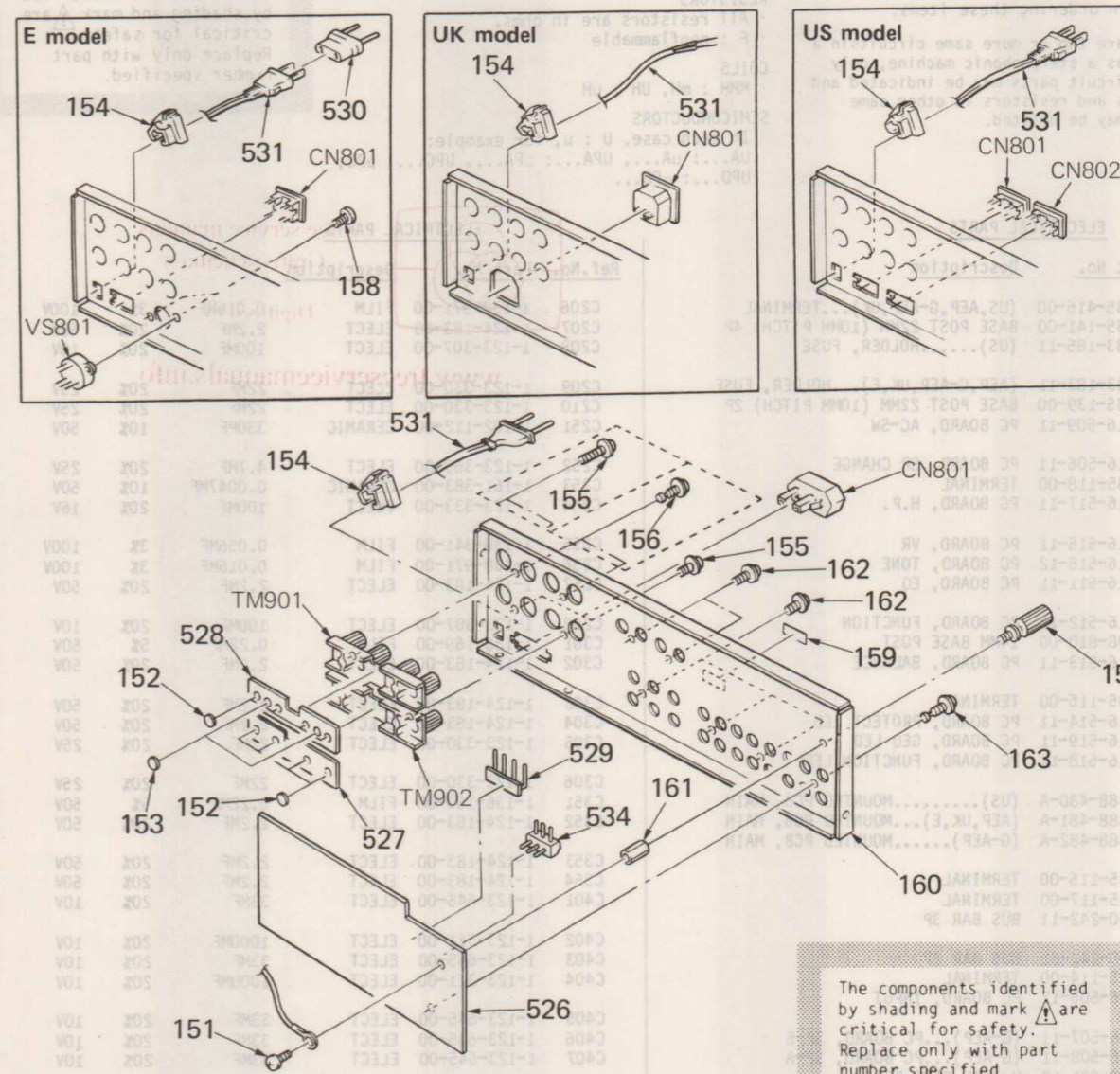
(3).



The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
101	*4-889-824-00	CHANNEL		119	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
102	7-685-871-01	SCREW +BVTT 3X6 (S)		120	*4-880-404-01	(AEP,G-AEP,UK,E).....PLATE, GROUND	
103	*3-309-144-01	HEAT SINK			*4-880-404-11	(US)....PLATE, GROUND, CONCENTRATION	
104	2-259-121-11	SCREW, TR		121	*4-889-826-00	PLATE, SIDE, RIGHT	
105	*4-889-829-00	PLATE, SIDE, LEFT		122	7-685-649-19	SCREW +BVTP 3X14 TYPE2 N-S	
106	*3-703-044-26	(US)....LABEL, CAUTION		505	*1-535-139-00	BASE POST 22MM (10MM PITCH) 2P	
107	*4-885-980-01	REINFORCEMENT		520	*A-4388-480-A	(US).....MOUNTED PCB, MAIN	
108	*4-885-916-00	BRACKET, TRANSFORMER			*A-4388-481-A	(AEP,UK,E)....MOUNTED PCB, MAIN	
109	7-685-881-01	SCREW +BVTT 4X8 (S)			*A-4388-482-A	(G-AEP).....MOUNTED PCB, MAIN	
110	4-908-811-01	SPACER		521	*1-535-115-00	TERMINAL	
111	7-685-876-01	SCREW +BVTT 3X16 (S)		522	*1-535-117-00	TERMINAL	
112	*4-885-998-11	HEAT SINK		523	*1-560-242-11	BUS BAR 3P	
113	4-908-809-01	SPACER		524	*1-560-242-61	BUS BAR 2P	
114	*4-885-995-01	SHEET, INSULATING		525	*1-535-114-00	TERMINAL	
115	2-371-561-00	BUSHING (P), INSULATING		PT801A	1-448-173-11	(US).....TRANSFORMER, POWER	
116	2-259-121-21	SCREW, TR		PT801A	1-448-264-11	(UK).....TRANSFORMER, POWER	
117	*4-908-815-01	SHEET, INSULATING		PT801A	1-448-265-11	(E).....TRANSFORMER, POWER	
118	*4-889-819-00	BRACKET		PT801A	1-448-266-11	(AEP,G-AEP)....TRANSFORMER, POWER	

(4).



The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
151	7-685-871-01	SCREW +BVTT 3X6 (S)		163	4-887-711-21	SCREW, TERMINAL, CLAW, +BVTP	
152	*4-843-416-11	(G-AEP)....PLATE, FIXED, CAP		526	*1-616-505-12	PC BOARD, INPUT	
153	*4-908-843-01	(G-AEP)....PLATE		527	*1-616-507-11	(G-AEP)....PC BOARD, SP-B	
154	3-703-244-00	(US,AEP,G-AEP,UK)....BUSHING (2104), CORD		528	*1-616-508-11	(G-AEP)....PC BOARD, SP-A	
	3-703-571-00	(E).....BUSHING (S)(4516), CORD		529	*1-508-831-12	H TYPE BASE POST	
155	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S		530	$\Delta$ 1-526-565-00	(E)....AC PLUG ADAPTOR	
156	3-703-473-00	(G-AEP)....SCREW, TERMINAL		531	$\Delta$ 1-551-884-00	(UK).....CORD, POWER	
157	X-4854-207-0	TERMINAL ASSY, GROUND			$\Delta$ 1-555-795-00	(AEP,G-AEP)....CORD, POWER	
158	7-685-751-09	SCREW +BVTT 3X6 (S)			$\Delta$ 1-556-091-00	(E).....CORD, POWER	
159	*4-908-827-01	(US).....LABEL, MODEL NUMBER (U2)			$\Delta$ 1-557-577-11	(US).....CORD, POWER	
	*4-908-828-01	(E).....LABEL, MODEL NUMBER (E2/3)		534	*1-508-878-00	BASE POST	
	*4-908-829-01	(AEP).....LABEL, MODEL NUMBER (AE1)		CN801A	1-526-695-00	(E).....OUTLET, AC (2 GANG)	
	*4-908-830-01	(G-AEP)....LABEL, MODEL NUMBER (AE4)		CN801A	1-526-751-00	(UK).....OUTLET, AC	
	*4-908-831-01	(UK).....LABEL, MODEL NUMBER (UK1)		CN801A	1-526-794-11	(AEP,G-AEP)....OUTLET, AC	
160	*4-908-842-11	(US).....PLATE, JACK		CN801A	1-526-883-00	(US).....OUTLET, AC	
	*4-908-842-21	(AEP,G-AEP)....PLATE, JACK		CN802A	1-526-883-00	(US).....OUTLET, AC	
	*4-908-842-31	(UK).....PLATE, JACK		TM901	1-536-767-00	TERMINAL BOARD, SPEAKER	
	*4-908-842-41	(E).....PLATE, JACK		TM902	1-536-767-00	TERMINAL BOARD, SPEAKER	
161	*2-280-622-41	SUPPORT (M3), HEXAGON		VS801A	1-526-576-31	(E)....SELECTOR, POWER VOLTAGE	
162	3-701-589-21	SCREW, SELF-TAPPING					



SECTION 4 ELECTRICAL PARTS LIST

NOTE:

Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS: MF:µF, PF:µµF.

RESISTORS: All resistors are in ohms. F : nonflammable

COILS: MMH : mH, UH : µH

SEMICONDUCTORS: In each case, U : µ, for example: UA....: µA..., UPA....: µPA..., UPC....: µPC, UPD....: µPD...

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Lists various electrical components like terminals, base posts, PC boards, and capacitors.

Table with columns: Ref.No., Part No., Description. Lists various electrical components like film capacitors, resistors, and ceramic capacitors.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Lists various electrical components like ceramic capacitors, resistors, and film capacitors.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Lists various electrical components like capacitors, resistors, and connectors.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.



ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP39	*1-560-061-00	PIN, CONNECTOR 3P
CNP40	*1-560-061-00	PIN, CONNECTOR 3P
CNP41	*1-560-061-00	PIN, CONNECTOR 3P
CNP51	*1-564-506-11	PLUG, CONNECTOR 3P
CNP52	*1-564-506-11	PLUG, CONNECTOR 3P
CNP53	*1-564-506-11	PLUG, CONNECTOR 3P
CNP54	*1-564-506-11	PLUG, CONNECTOR 3P
CNP55	*1-564-506-11	PLUG, CONNECTOR 3P
CNP56	*1-564-506-11	PLUG, CONNECTOR 3P
CNP57	*1-564-506-11	PLUG, CONNECTOR 3P
CNP58	*1-564-506-11	PLUG, CONNECTOR 3P
CNP59	*1-564-506-11	PLUG, CONNECTOR 3P
CNP60	*1-564-506-11	PLUG, CONNECTOR 3P
CNP61	*1-564-506-11	PLUG, CONNECTOR 3P
CNP62	*1-564-506-11	PLUG, CONNECTOR 3P
D201	8-719-100-42	DIODE RD6.8E-B3
D211	8-719-905-06	DIODE GL-5NG6
D212	8-719-905-06	DIODE GL-5NG6
D213	8-719-905-06	DIODE GL-5NG6
D214	8-719-905-06	DIODE GL-5NG6
D215	8-719-905-06	DIODE GL-5NG6
D216	8-719-905-06	DIODE GL-5NG6
D217	8-719-905-06	DIODE GL-5NG6
D218	8-719-900-21	DIODE GL-2HY1
D251	8-719-100-42	DIODE RD6.8E-B3
D501	8-719-100-57	DIODE RD10E-B2
D502	8-719-902-97	DIODE EQA01-06R2
D503	8-719-107-94	DIODE 1SS202-1
D504	8-719-107-94	DIODE 1SS202-1
D505	8-719-107-94	DIODE 1SS202-1
D506	8-719-107-94	DIODE 1SS202-1
D507	8-719-107-94	DIODE 1SS202-1
D551	8-719-100-57	DIODE RD10E-B2
D552	8-719-902-97	DIODE EQA01-06R2
D553	8-719-107-94	DIODE 1SS202-1
D554	8-719-107-94	DIODE 1SS202-1
D555	8-719-107-94	DIODE 1SS202-1
D556	8-719-107-94	DIODE 1SS202-1
D557	8-719-107-94	DIODE 1SS202-1
D601	8-719-200-02	DIODE 10E-2
D602	8-719-107-94	DIODE 1SS202-1
D603	8-719-905-06	DIODE GL-5NG6
D604	8-719-107-94	DIODE 1SS202-1
D605	8-719-107-94	DIODE 1SS202-1
D654	8-719-107-94	DIODE 1SS202-1
D655	8-719-107-94	DIODE 1SS202-1
D701	8-719-230-24	DIODE 30DL4
D702	8-719-230-24	DIODE 30DL4
D703	8-719-230-24	DIODE 30DL4
D704	8-719-230-24	DIODE 30DL4
D705	8-719-902-97	DIODE EQA01-06R2
D706	8-719-936-12	DIODE EQA01-12R
F801	1-532-272-XX	(US).....FUSE 5.0A
F801	1-532-286-00	(AEP,G-AEP,UK,E)...FUSE 2.5A TIME-LAG
F802	1-532-286-00	(AEP,G-AEP,UK,E)...FUSE 2.5A TIME-LAG
IC201	8-759-923-90	IC BA4560
IC301	8-759-900-72	IC NE5532P
IC302	8-759-990-82	IC TL082CP

ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC351	8-759-900-72	IC NE5532P
IC401	8-759-801-61	IC LA7220
IC601	8-759-101-23	IC UPC1237H
J101	1-507-910-11	JACK, PIN 4P
J102	1-507-914-21	JACK, PIN 6P
J103	1-507-914-21	JACK, PIN 6P
J104	1-507-914-21	JACK, PIN 6P
J105	1-562-916-11	JACK, PIN 2P
J106	1-562-916-11	JACK, PIN 2P
J501	1-507-669-00	JACK (HEADPHONE)
L501	*1-422-031-00	COIL, AIRCORE
L551	*1-422-031-00	COIL, AIRCORE
L901	1-413-101-00	(G-AEP)...COIL, INPUT 220UH
L902	1-413-101-00	(G-AEP)...COIL, INPUT 220UH
L951	1-413-101-00	(G-AEP)...COIL, INPUT 220UH
L952	1-413-101-00	(G-AEP)...COIL, INPUT 220UH
PT801	1-448-173-11	(US).....TRANSFORMER, POWER
PT801	1-448-264-11	(UK).....TRANSFORMER, POWER
PT801	1-448-265-11	(E).....TRANSFORMER, POWER
PT801	1-448-266-11	(AEP,G-AEP)...TRANSFORMER, POWER
Q201	8-729-354-52	TRANSISTOR 2SC2545-E
Q202	8-729-354-52	TRANSISTOR 2SC2545-E
Q251	8-729-354-52	TRANSISTOR 2SC2545-E
Q252	8-729-354-52	TRANSISTOR 2SC2545-E
Q401	8-729-606-33	TRANSISTOR 2SC2603F
Q402	8-729-606-33	TRANSISTOR 2SC2603F
Q403	8-729-606-33	TRANSISTOR 2SC2603F
Q404	8-729-107-98	TRANSISTOR 2SC3622A-L
Q501	8-759-103-64	TRANSISTOR UPA68H-K
Q502	8-729-663-47	TRANSISTOR 2SC1364
Q503	8-729-663-47	TRANSISTOR 2SC1364
Q504	8-729-612-77	TRANSISTOR 2SA1027R
Q505	8-729-612-77	TRANSISTOR 2SA1027R
Q506	8-729-366-61	TRANSISTOR 2SD666-B
Q507	8-729-612-77	TRANSISTOR 2SA1027R
Q508	8-729-104-91	TRANSISTOR 2SA1383
Q509	8-729-104-18	TRANSISTOR 2SC3514
Q510	8-729-180-93	TRANSISTOR 2SD809
Q511	8-729-107-53	TRANSISTOR 2SC2275A
Q512	8-729-118-53	TRANSISTOR 2SA985P
Q513	8-729-301-82	(US).....TRANSISTOR 2SC3519Y
Q513	8-729-302-83	(AEP,G-AEP,UK,E)...TRANSISTOR 2SC3284
Q514	8-729-301-86	(US).....TRANSISTOR 2SA1386Y
Q514	8-729-302-80	(AEP,G-AEP,UK,E)...TRANSISTOR 2SA1303
Q551	8-759-103-64	TRANSISTOR UPA68H-K
Q552	8-729-663-47	TRANSISTOR 2SC1364
Q553	8-729-663-47	TRANSISTOR 2SC1364
Q554	8-729-612-77	TRANSISTOR 2SA1027R
Q555	8-729-612-77	TRANSISTOR 2SA1027R
Q556	8-729-366-61	TRANSISTOR 2SD666-B
Q557	8-729-612-77	TRANSISTOR 2SA1027R
Q558	8-729-104-91	TRANSISTOR 2SA1383
Q559	8-729-104-18	TRANSISTOR 2SC3514
Q560	8-729-180-93	TRANSISTOR 2SD809
Q561	8-729-107-53	TRANSISTOR 2SC2275A
Q562	8-729-118-53	TRANSISTOR 2SA985P

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q563	8-729-301-82	(US).....TRANSISTOR 2SC3519Y
Q563	8-729-302-83	(AEP,G-AEP,UK,E)...TRANSISTOR 2SC3284
Q564	8-729-301-86	(US).....TRANSISTOR 2SA1386Y
Q564	8-729-302-80	(AEP,G-AEP,UK,E)...TRANSISTOR 2SA1303
Q601	8-729-612-77	TRANSISTOR 2SA1027R
Q651	8-729-612-77	TRANSISTOR 2SA1027R
Q701	8-729-201-56	TRANSISTOR 2SK246-GR2
Q702	8-729-201-56	TRANSISTOR 2SK246-GR2
Q703	8-729-606-33	TRANSISTOR 2SC2603F
Q704	8-729-612-77	TRANSISTOR 2SA1027R
Q705	8-729-103-33	TRANSISTOR 2SD1310
Q706	8-729-377-12	TRANSISTOR 2SA771
Q707	8-729-606-33	TRANSISTOR 2SC2603F
Q708	8-729-612-77	TRANSISTOR 2SA1027R
Q709	8-729-180-93	TRANSISTOR 2SD809
R101	1-246-545-00	CARBON 1M 5% 1/4W
R102	1-246-545-00	CARBON 1M 5% 1/4W
R103	1-246-545-00	CARBON 1M 5% 1/4W
R104	1-247-713-11	CARBON 1K 5% 1/4W
R105	1-246-545-00	CARBON 1M 5% 1/4W
R106	1-246-545-00	CARBON 1M 5% 1/4W
R107	1-247-713-11	CARBON 1K 5% 1/4W
R108	1-246-545-00	CARBON 1M 5% 1/4W
R109	1-246-545-00	CARBON 1M 5% 1/4W
R110	1-247-713-11	CARBON 1K 5% 1/4W
R151	1-246-545-00	CARBON 1M 5% 1/4W
R152	1-246-545-00	CARBON 1M 5% 1/4W
R153	1-246-545-00	CARBON 1M 5% 1/4W
R154	1-247-713-11	CARBON 1K 5% 1/4W
R155	1-246-545-00	CARBON 1M 5% 1/4W
R156	1-246-545-00	CARBON 1M 5% 1/4W
R157	1-247-713-11	CARBON 1K 5% 1/4W
R158	1-246-545-00	CARBON 1M 5% 1/4W
R159	1-246-545-00	CARBON 1M 5% 1/4W
R160	1-247-713-11	(US,AEP,UK,E)...CARBON 1K 5% 1/4W
R201	1-247-119-00	(US,AEP,UK,E)...CARBON 330 5% 1/4W
R201	1-247-702-11	(G-AEP)...RES, CARBON 150 5% 1/4W
R202	1-247-700-11	CARBON 100 5% 1/4W
R203	1-249-469-11	CARBON 100K 5% 1/4W
R204	1-249-469-11	CARBON 100K 5% 1/4W
R205	1-247-713-11	CARBON 1K 5% 1/4W
R206	1-247-713-11	CARBON 1K 5% 1/4W
R207	1-247-700-11	CARBON 100 5% 1/4W
R208	1-247-725-11	CARBON 10K 5% 1/4W
R209	1-249-286-11	CARBON 1.5M 5% 1/3W
R210	1-214-771-00	METAL 56K 1% 1/4W
R211	1-214-745-00	METAL 4.7K 1% 1/4W
R212	1-214-705-00	METAL 100 1% 1/4W
R213	1-214-677-00	METAL 6.8 1% 1/4W
R214	1-247-704-11	CARBON 220 5% 1/4W
R215	1-249-469-11	CARBON 100K 5% 1/4W
R216	1-247-135-00	CARBON 1.5K 5% 1/4W
R251	1-247-119-00	(US,AEP,UK,E)...CARBON 330 5% 1/4W
R251	1-247-702-11	(G-AEP)...RES, CARBON 150 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R252	1-247-700-11	CARBON 100 5% 1/4W
R253	1-249-469-11	CARBON 100K 5% 1/4W
R254	1-249-469-11	CARBON 100K 5% 1/4W
R255	1-247-713-11	CARBON 1K 5% 1/4W
R256	1-247-713-11	CARBON 1K 5% 1/4W
R257	1-247-700-11	CARBON 100 5% 1/4W
R258	1-247-725-11	CARBON 10K 5% 1/4W
R259	1-249-286-11	CARBON 1.5M 5% 1/3W
R260	1-214-771-00	METAL 56K 1% 1/4W
R261	1-214-745-00	METAL 4.7K 1% 1/4W
R262	1-214-705-00	METAL 100 1% 1/4W
R263	1-214-677-00	METAL 6.8 1% 1/4W
R264	1-247-704-11	CARBON 220 5% 1/4W
R265	1-249-469-11	CARBON 100K 5% 1/4W
R266	1-247-135-00	CARBON 1.5K 5% 1/4W
R301	1-249-469-11	CARBON 100K 5% 1/4W
R302	1-214-733-00	METAL 1.5K 1% 1/4W
R303	1-214-727-00	METAL 820 1% 1/4W
R304	1-214-727-00	METAL 820 1% 1/4W
R305	1-214-733-00	METAL 1.5K 1% 1/4W
R306	1-249-469-11	CARBON 100K 5% 1/4W
R307	1-249-469-11	CARBON 100K 5% 1/4W
R308	1-247-708-11	CARBON 470 5% 1/4W
R309	1-247-725-11	CARBON 10K 5% 1/4W
R310	1-247-119-00	CARBON 330 5% 1/4W
R330	1-247-708-11	CARBON 470 5% 1/4W
R351	1-249-469-11	CARBON 100K 5% 1/4W
R352	1-214-733-00	METAL 1.5K 1% 1/4W
R353	1-214-727-00	METAL 820 1% 1/4W
R354	1-214-727-00	METAL 820 1% 1/4W
R355	1-214-733-00	METAL 1.5K 1% 1/4W
R356	1-249-469-11	CARBON 100K 5% 1/4W
R357	1-249-469-11	CARBON 100K 5% 1/4W
R358	1-247-708-11	CARBON 470 5% 1/4W
R359	1-247-725-11	CARBON 10K 5% 1/4W
R360	1-247-119-00	CARBON 330 5% 1/4W
R380	1-247-708-11	CARBON 470 5% 1/4W
R401	1-247-702-11	CARBON 150 5% 1/4W
R402	1-247-702-11	CARBON 150 5% 1/4W
R403	1-247-725-11	CARBON 10K 5% 1/4W
R404	1-247-702-11	CARBON 150 5% 1/4W
R405	1-247-702-11	CARBON 150 5% 1/4W
R406	1-247-725-11	CARBON 10K 5% 1/4W
R407	1-247-696-11	CARBON 47 5% 1/4W
R408	1-247-125-00	CARBON 560 5% 1/4W
R409	1-247-696-11	CARBON 47 5% 1/4W
R410	1-247-125-00	CARBON 560 5% 1/4W
R411	1-247-167-00	CARBON 33K 5% 1/4W
R412	1-247-177-00	CARBON 82K 5% 1/4W
R413	1-247-129-00	CARBON 820 5% 1/4W
R414	1-247-143-00	CARBON 3.3K 5% 1/4W
R415	1-247-143-00	CARBON 3.3K 5% 1/4W
R416	1-247-149-00	CARBON 5.6K 5% 1/4W
R417	1-247-713-11	CARBON 1K 5% 1/4W
R418	1-249-469-11	CARBON 100K 5% 1/4W
R419	1-247-725-11	CARBON 10K 5% 1/4W
R420	1-247-163-00	CARBON 22K 5% 1/4W

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.



ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description, and values. Includes parts like R421, R501, R502, R503, R504, R505, R506, R507, R508, R509, R510, R511, R512, R513, R514, R515, R516, R517, R518, R519, R520, R521, R522, R523, R524, R525, R526, R527, R528, R529, R530, R531, R532, R533, R534, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R572.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description, and values. Includes parts like R573, R574, R575, R576, R577, R578, R579, R580, R581, R582, R583, R584, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R657, R658, R660, R701, R702, R703, R704, R705, R706, R707, R708, R709, R710, R711, R712, R713, R714, R715, R716, R717, R718, R751, R901, R902, R903, R904, R905, R906, R907, R908, R909, R941, R942, R943, R951.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description, and values. Includes parts like R952, R953, R954, R955, R956, R957, R958, R959, R991, R992, R993, RT501, RT551, RV301, RV302, RV501, RV502, RY501, S201, S301, S302, S501, S503, S801, S801, TM901, TM902, VS801.

ACCESSORY & PACKING MATERIAL

Table with columns: Part No., Description. Includes items like 2-297-403-00 SHEET (LARGE), PROTECTION; 3-701-630-00 BAG, POLYETHYLENE; 3-760-648-11 MANUAL, INSTRUCTION; 4-885-949-01 CUSHION (FRONT), UPPER; 4-885-950-01 CUSHION (REAR), UPPER; 4-885-951-01 CUSHION (FRONT), LOWER; 4-885-952-01 CUSHION (REAR), LOWER; 4-908-833-01 INDIVIDUAL CARTON.


The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

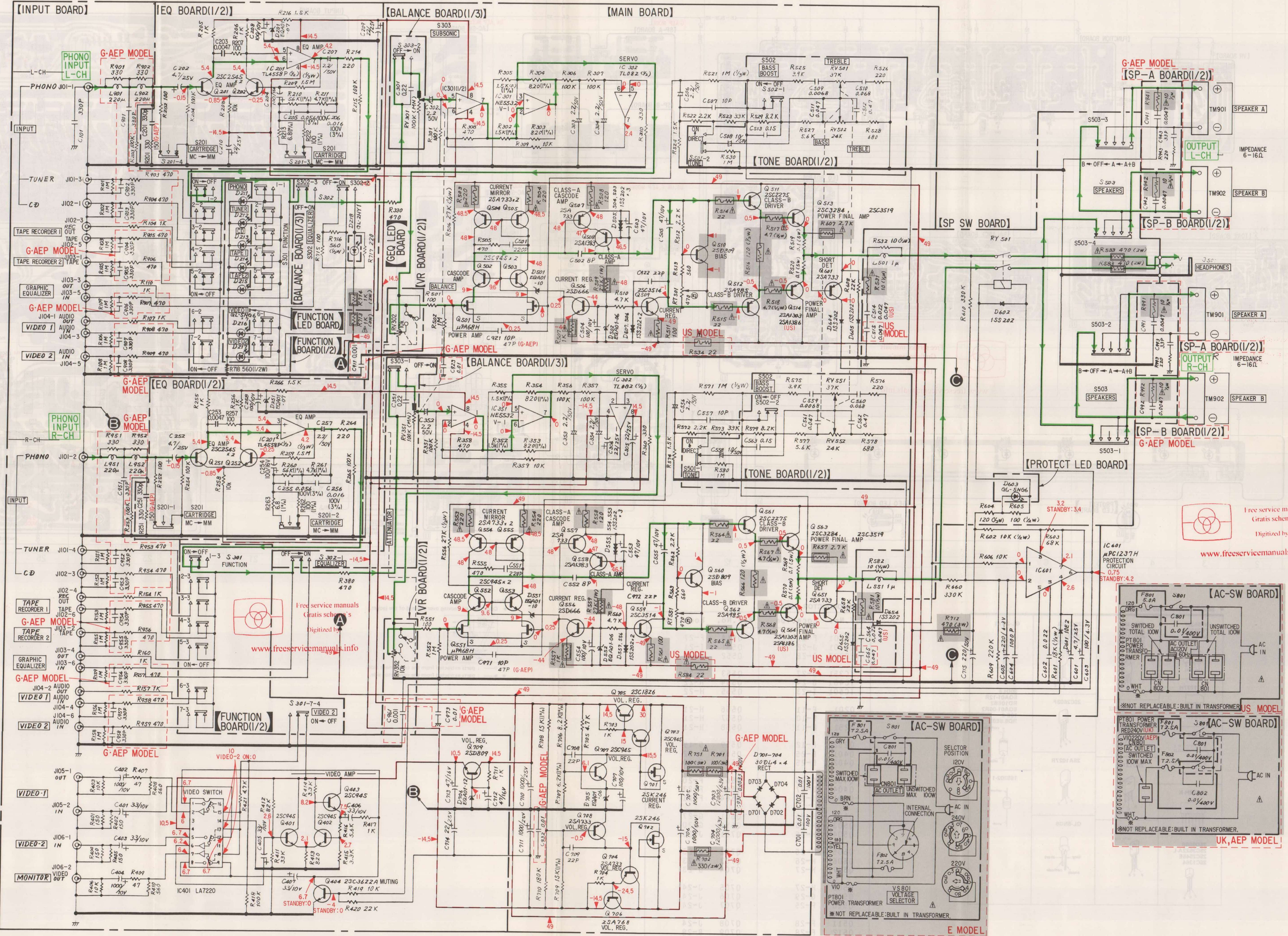







# SONY INTEGRATED STEREO AMPLIFIER TA-F222ES

US Model  
AEP Model  
UK Model  
E Model

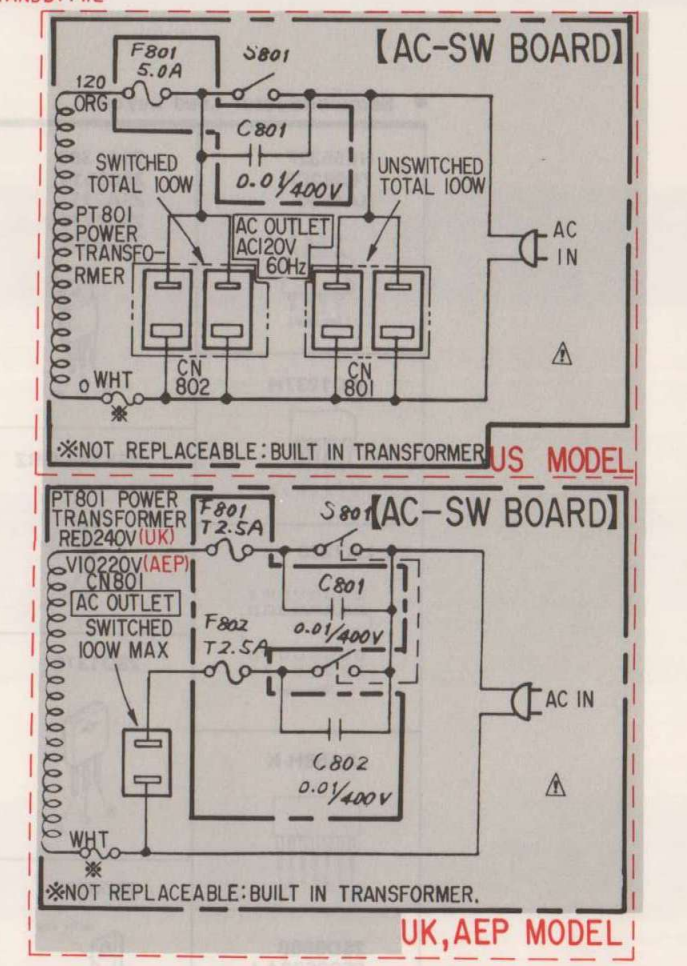
Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

SCHEMATIC DIAGRAM

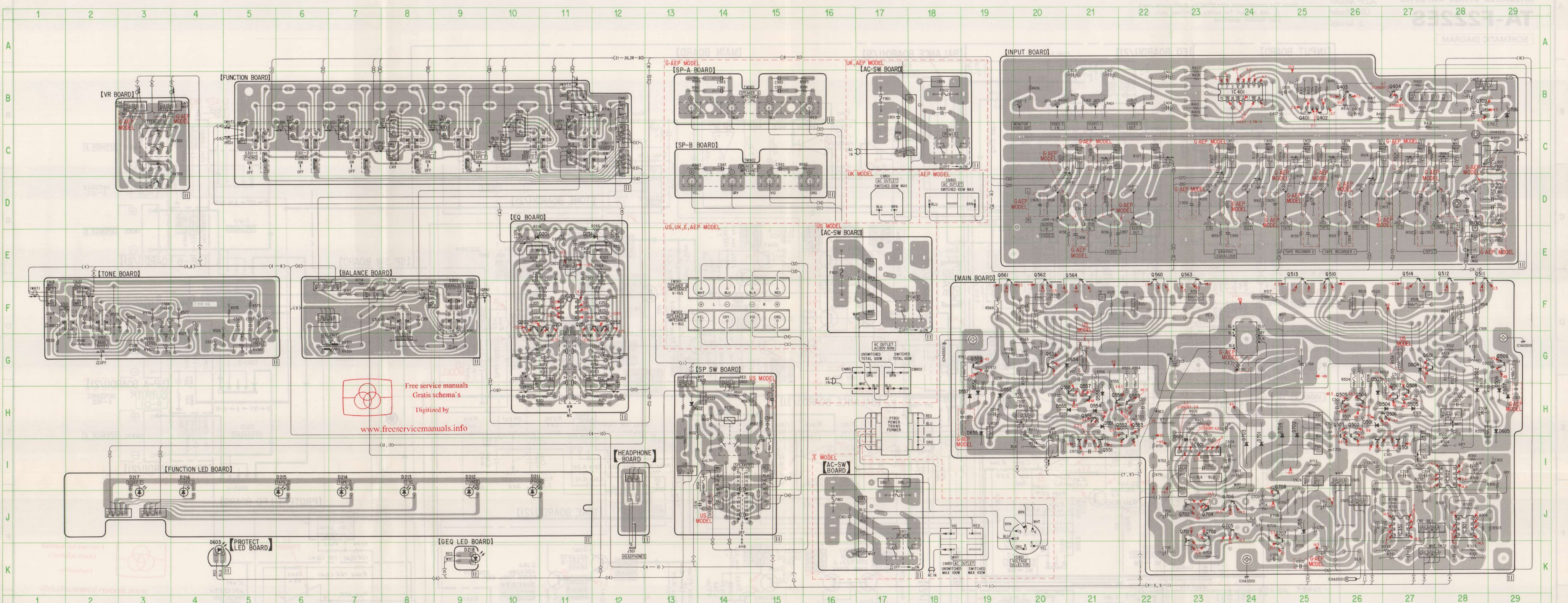


- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF: pF
  - 50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
  -  : signal path.
  -  : nonflammable resistor.
  -  : fusible resistor.
  -  : B+ bus.
  -  : B- bus.
  - Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken under no-signal conditions with a VOM (50 k $\Omega$ /V).
  - Voltage variations may be noted due to normal production tolerances.

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**Semiconductor Lead Layout**

NE5532P TL082CP BA4560	2SA1383 2SC3514 2SA771 2SC2276 2SA988P	2SC3284 2SA1303 2SC3519Y 2SA1386Y	GL-2HY1
μPC1237H	2SK246-GR2	2SC2603F	30DL4 EQA01-12R RD10EB2 EQA01-06R2 10E-2 RD6.8EB3
LA7220	2SD1310	2SA1027R	cathode anode
μPA68H-K	2SD809	GL-5NG6	cathode anode
2SD666B 2SC3622A-L 2SC2545E 2SC1364			long short cathode anode

**SEMICONDUCTOR LOCATION**

Ref.No.	Location	Ref.No.	Location
IC201	F-11	Q514	F-27
IC301	J-28	Q551	I-21
IC302	I-28	Q552	H-22
IC351	J-27	Q553	H-22
IC401	B-24	Q554	H-22
IC601	I-23	Q555	H-22
Q201	F-11	Q556	H-21
Q202	F-10	Q557	H-21
Q251	F-11	Q558	H-21
Q252	F-12	Q559	G-19
Q401	B-25	Q560	F-22
Q402	B-25	Q561	F-19
Q403	B-26	Q562	F-20
Q404	B-27	Q563	F-23
Q501	I-27	Q564	F-21
Q502	H-26	Q601	G-27
Q503	H-26	Q651	G-20
Q504	H-26	Q701	J-23
Q505	H-26	Q702	J-23
Q506	H-26	Q703	J-23
Q507	H-27	Q704	J-23
Q508	H-27	Q705	J-24
Q509	G-29	Q706	J-24
Q510	F-25	Q707	J-24
Q511	F-28	Q708	J-24
Q512	F-28	Q709	B-28
Q513	F-25		

**Note:**  
● Color code of sleeving over the end of the jacket.  
  
○ : parts extracted from the component side.  
● : parts extracted from the conductor side.



