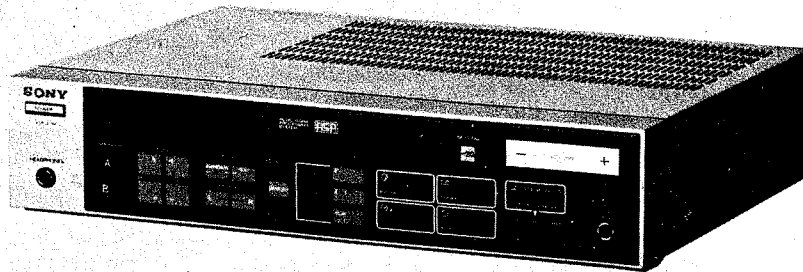


US Model 162  
 AEP Model  
 UK Model  
 E Model

81960



## INTEGRATED STEREO AMPLIFIER

### SPECIFICATIONS

#### Amplifier section

#### Continuous RMS Power Output:

(both channels driven simultaneously) At 1 kHz  
 110 + 110 W (5% THD, 6Ω)  
 100 + 100 W (0.05% THD, 6Ω)  
 At 20 Hz – 20 kHz (0.05% THD)  
 80 + 80 W (6Ω)  
 According to DIN 45500  
 80 + 80 W (6Ω)

#### WARNING!!

THIS SET USES THE SWITCHING-TYPE POWER-SUPPLY CIRCUIT, WHICH IS DIRECTLY CONNECTED TO THE AC POWER LINE. AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD.


#### Inputs:

	Sensitivity	Impedance	Maximum input capability (1 kHz)	S/N (weighting network, input level)
PHONO	2.5 mV (-50 dB)	50 kΩ	120 mV (-16 dB)	80 dB 76 dB* (A, 2.5 mV(-50 dB))
TUNER, CD, AUX, TAPE, AUX (TAPE 2)	150 mV (-14.5 dB)	50 kΩ	—	100 dB 89 dB* (A, 150 mV(-14.5 dB))

\*1978 IHF

— Continued on page 2 —

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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.



MICROFILM

# SONY

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## SERVICE MANUAL

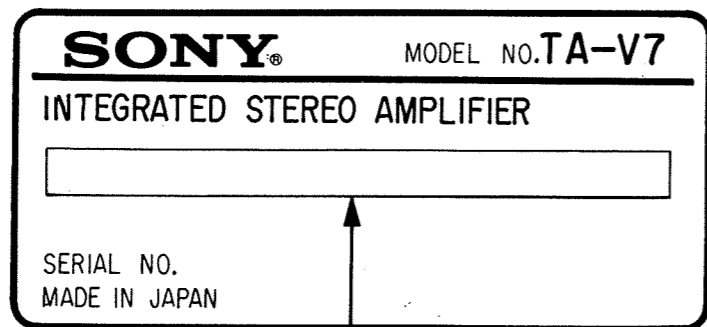
162

**Power Bandwidth (IHF):** 10 Hz – 30 kHz  
**Dynamic Headroom:** 1.2 dB ('78 IHF)  
**Harmonic Distortion:** Less than 0.05% at rated output  
**Intermodulation (IM) Distortion:** Less than 0.05% at rated output  
**(60 Hz: 7kHz=4 : 1)**  
**Frequency Response:** PHONO: RIAA equalization curve  $\pm 0.3$  dB  
 TUNER, CD, AUX, TAPE, AUX (TAPE 2):  
 5 Hz – 100 kHz  $\pm 0.3$  dB  
**Residual Noise:** Less than 35  $\mu$ V (6  $\Omega$ , network A)  
**Damping Factor:** 50 (6  $\Omega$ , 1 kHz)  
**Outputs:** REC OUT  
 Voltage 150 mV (-14.5 dB)  
 Impedance 4.7 k $\Omega$   
 SPEAKER A, B  
 Accepts speakers of 6 – 16  $\Omega$ .  
 HEADPHONES  
 Accepts low and high impedance headphones.  
**Tone Controls:** BASS  
 $\pm 10$  dB at 50 Hz (turnover freq. 500 Hz)  
 TREBLE  
 $\pm 10$  dB at 15 kHz (turnover freq. 2 kHz)  
**Subsonic Filter:** 6 dB/octave attenuation below 15 Hz  
**High Filter:** 6 dB/octave attenuation above 9 kHz  
**Muting:** -20 dB

**General**  
**System:** Preamplifier section: low-noise IC NF type equalizer amp.; NF-CR type ASP tone control  
 Power amplifier section: pure-complementary SEPP OCL power amplifier with all stages direct coupled  
 Power supply section: pulse power supply circuitry  
**Power Requirements:** AEP model: 220 V ac, 50/60 Hz  
 UK model: 240V ac, 50/60 Hz  
 E1 model: 220 – 240 V ac, 50/60 Hz  
 US/E2 model: 120 V ac, 50/60 Hz  
**Power Consumption:** 88 watts  
**AC Outlets:** AEP/UK model:  
 1 switched, 100 watts max.  
 E1/E2/US model:  
 1 switched, 1 unswitched, total 100 watts max.  
**Dimensions:** Approx. 355(w) x 80(h) x 250(d) mm  
 14(w) x 3<sup>1</sup>/<sub>4</sub>(h) x 9<sup>7</sup>/<sub>8</sub>(d) inches  
 including projecting parts and controls  
 Approx. 3.6 kg, 8 lbs net  
 Approx. 4.1 kg, 9 lbs 1 oz in shipping carton  
**Weight:**

While the information given is true at the time of printing, production changes in the course of our company's policy of improvement through research and design might not necessarily be indicated in the specifications.  
 We would ask you to check with your appointed Sony dealer if clarification on any point is required.

**MODEL IDENTIFICATION**  
 -Specification Label-



US model: AC: 120V 60Hz 88W  
 AEP model: AC: 220V~ 50/60Hz 88W  
 E1 model: AC: 220-240V~ 50/60Hz 88W  
 E2 model: AC: 120V~ 50/60Hz 88W  
 UK model: AC: 240V~ 50/60Hz 88W

**FEATURES**

The TA-V7 integrated stereo amplifier incorporates a number of technical breakthroughs in circuit design. On its attractive front panel, most of the controls and switches are "touch pad" switches and the tone, filter and volume settings are shown by fluorescent displays.

**HIGHLIGHTS OF THE TA-V7'S CIRCUIT**

**ASP (Audio Signal Processor) IC in the preamplifier stage**  
 The Audio Signal Processor IC developed by Sony can digitally control the tone, filter and volume settings. The ASP IC also permits electronic program source selection. Mechanical controls and switches have been practically eliminated from the front panel. In combination with a microcomputer and a non-volatile memory IC, the ASP IC offers greater flexibility — an Acoustic Function, an ability to store and recall two sets of tonal adjustments.

**Legato linear power amplifier stage**

The operation of the power amplifier stage is stable without any observable distortion up through the higher frequencies. We call this power amp "Legato Linear" because its switching distortion is very low and its output waveform smooth.

**Simple, straight signal path layout**

A heat-pipe cooling system and the ASP IC layout near the input and output terminals minimize wiring losses and allow low distortion operation.

**CD (compact disc) inputs**

Independent CD inputs are provided to connect a brand-new CD player to your stereo system.

**Wireless remote control operation**

Using the optional ST-V7/V7L system control tuner, various operations — power on/off, program selection, acoustic setting selection, muting on/off and volume adjustment — can be remotely controlled.

**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 2V AC range are suitable. (See Fig. A)

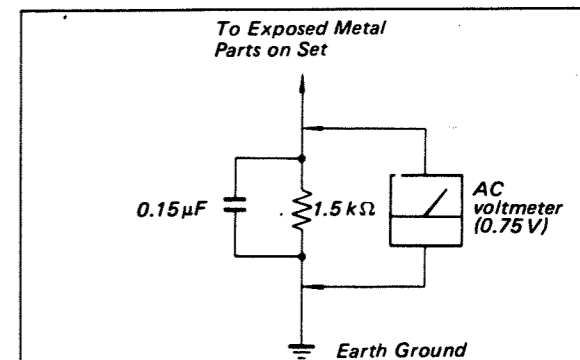
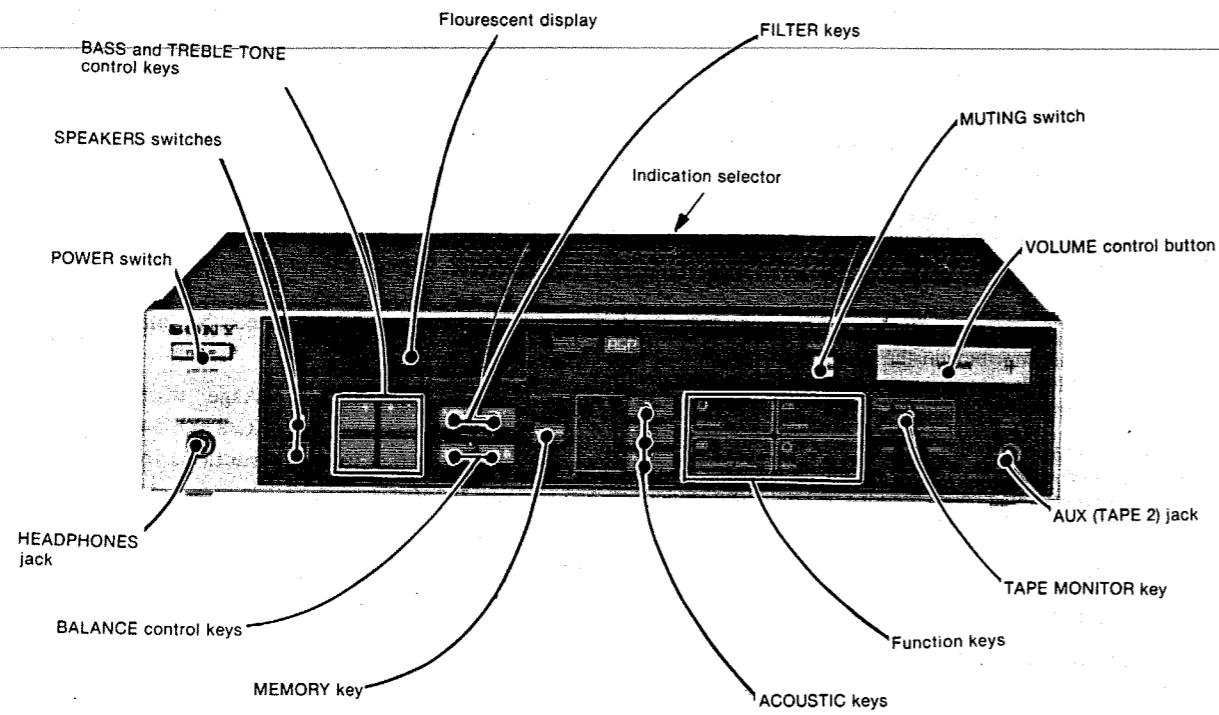


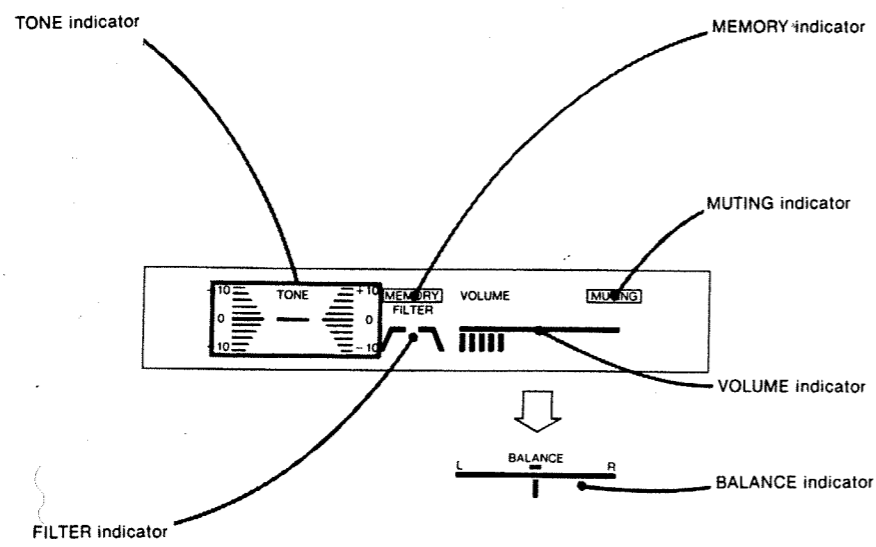
Fig. A. Using an AC voltmeter to check AC leakage.

# SECTION 1 OUTLINE

## 1-1. LOCATION AND FUNCTION OF CONTROLS

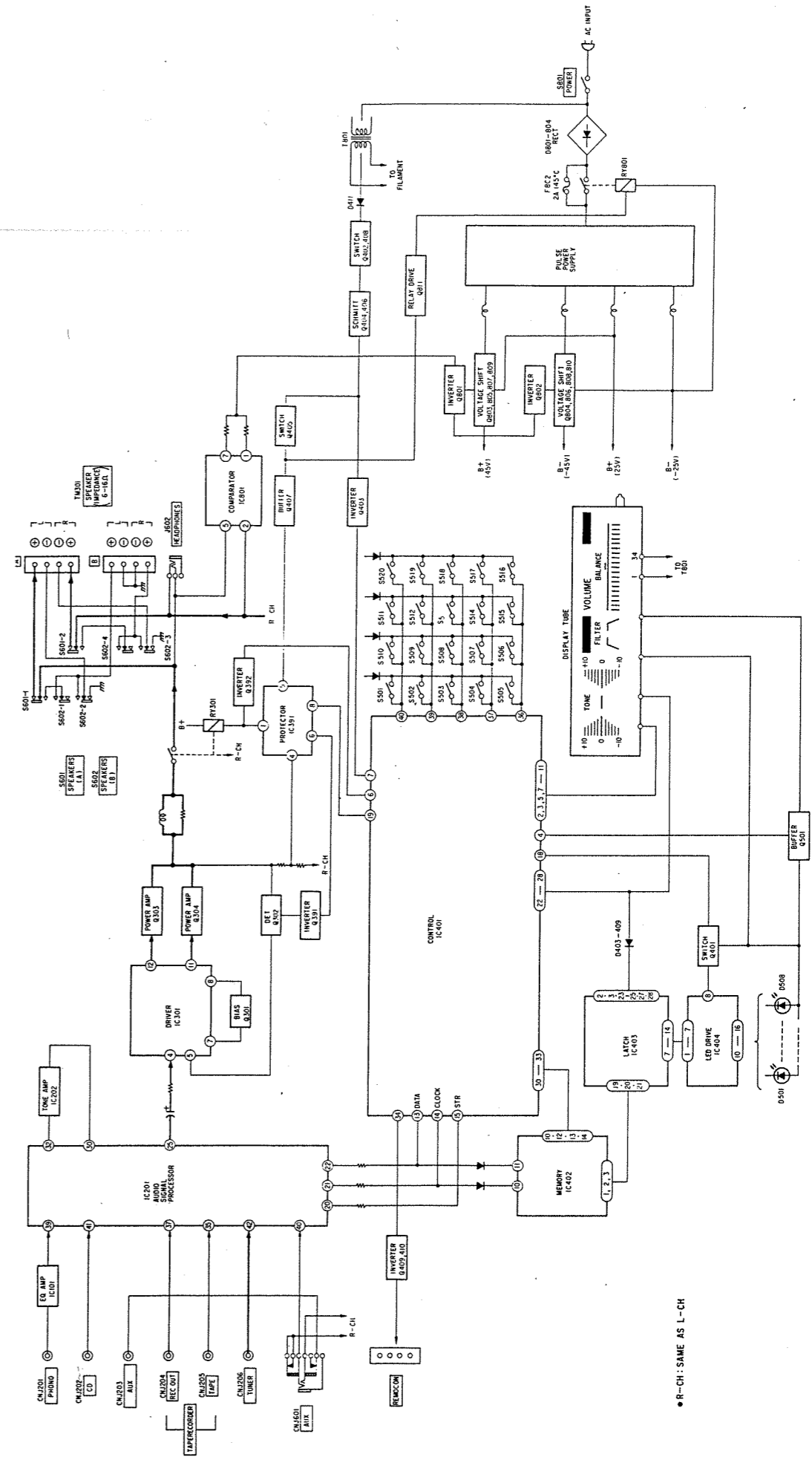


### Flourescent display section



## TA-V7 TA-V7

### 1-2. BLOCK DIAGRAM



• R-CH : SAME AS L-CH

### 1-3. ASP Audio Signal Processor IC CX789

On the tremendous progress of digital techniques, also concerning designs and functions of audio equipment, feather touch switches and remote controlling systems become possible.

In the audio equipment in near future, it is a matter how to shorten signal paths remarkably and to decrease their contacts for improving the quality of sound, that is, electronic controlling of the equipment is required.

Sony has challenged such problems and made ASP IC with Sony's semiconductor engineering through the concept of "Simple & Straight".

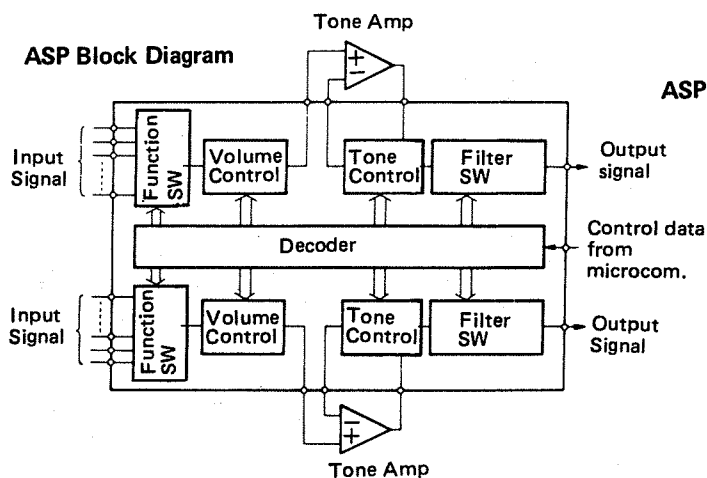
The ASP IC consists of low distortion semiconductor switches (MOS-FET) using an SIPOS (semi-insulating-polycrystalline-silicon) as the gate electrode, a semiconductor variable resistor with poly-Si resistor, an analog part including a selector, and a logic part controlling the preceding parts.

ASP IC has the following features:

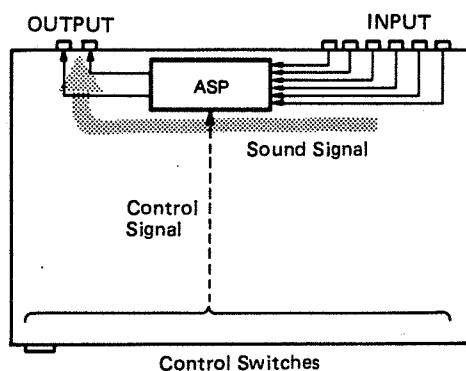
- Provide volume and tone controlling circuits for R and L channels, filter circuit, and input selectional function.
- Sufficient performance in various characteristics required for a Hi-Fi audio.
- Electronic controlling of the preceding functions in conjunction with a microprocessor.

TA-V7 accommodates an ASP to near the input terminals, so only a signal controlling the ASP IC flows between the operation panel (front) and the connection panel (rear). The signal route from output to input is made in the minimum distance. The improvement of sound quality based on the concept of "Simple & Straight" is remarkably obtained compared with conventional equipment using semiconductor switches and relays.

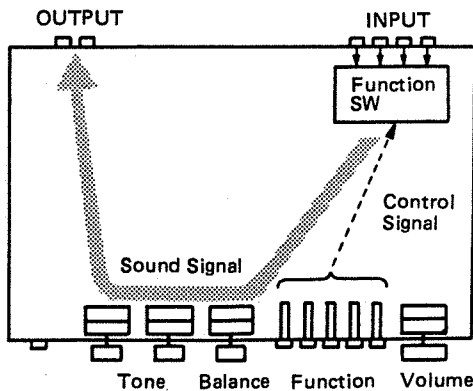
Moreover, since this ASP IC is controlled by a microprocessor, this equipment also offers more attractive features such as sound state memory, concentrating display using an FL indicator, etc., than conventional ones.



ASP IC accommodated amplifier



Conventional amplifier

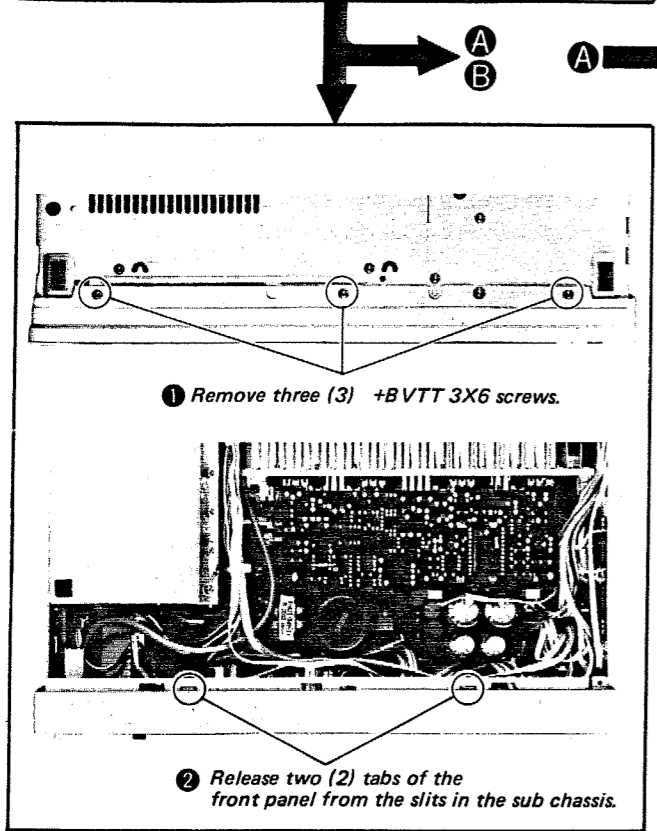


SECTION 2  
DISASSEMBLY

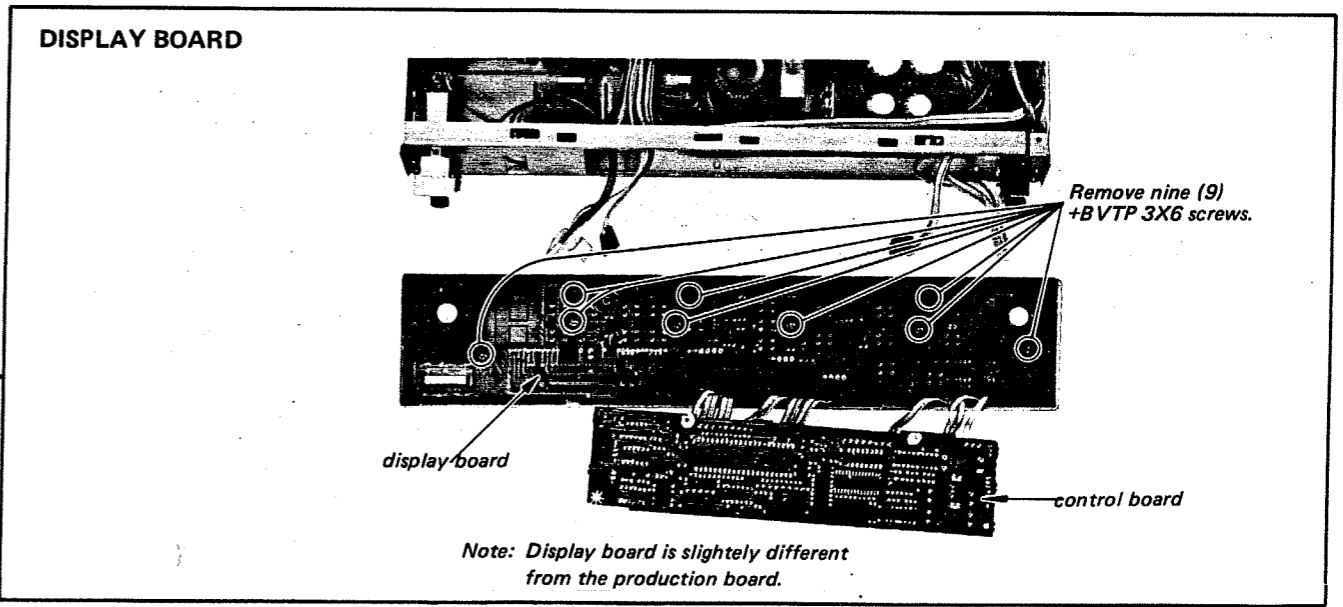
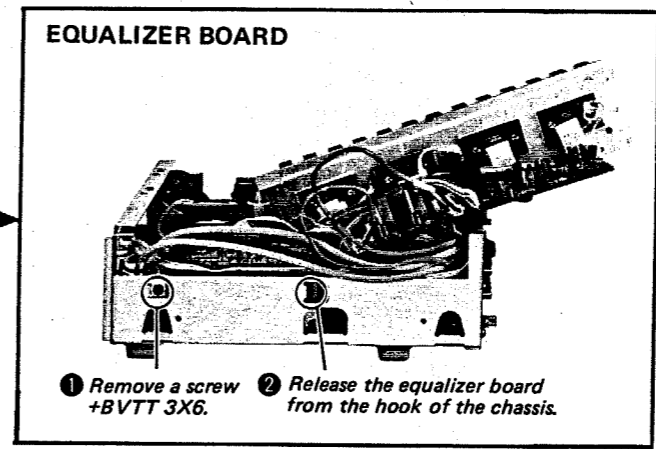
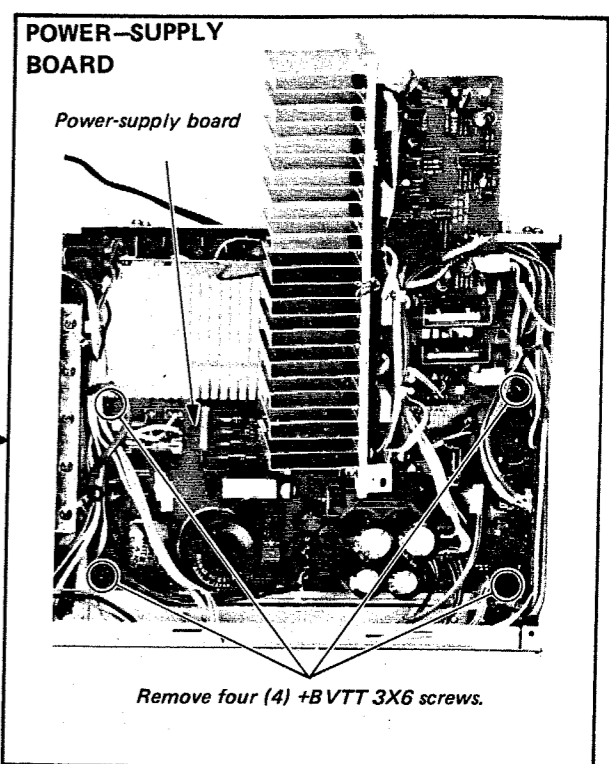
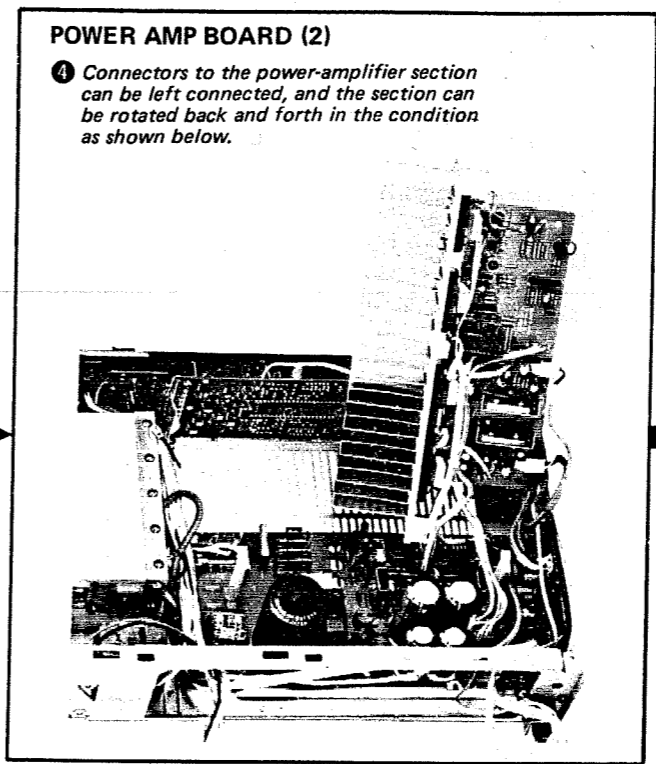
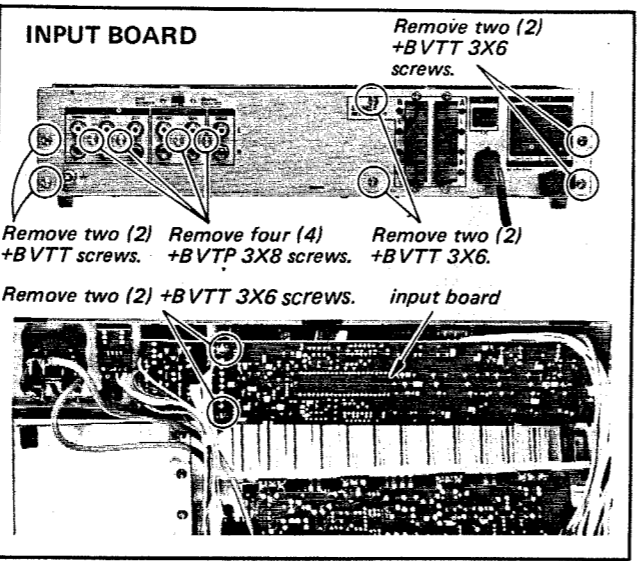
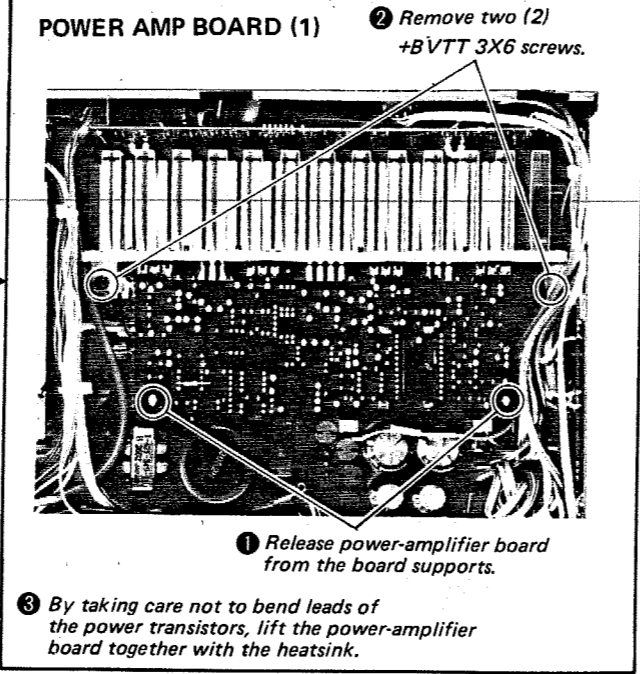
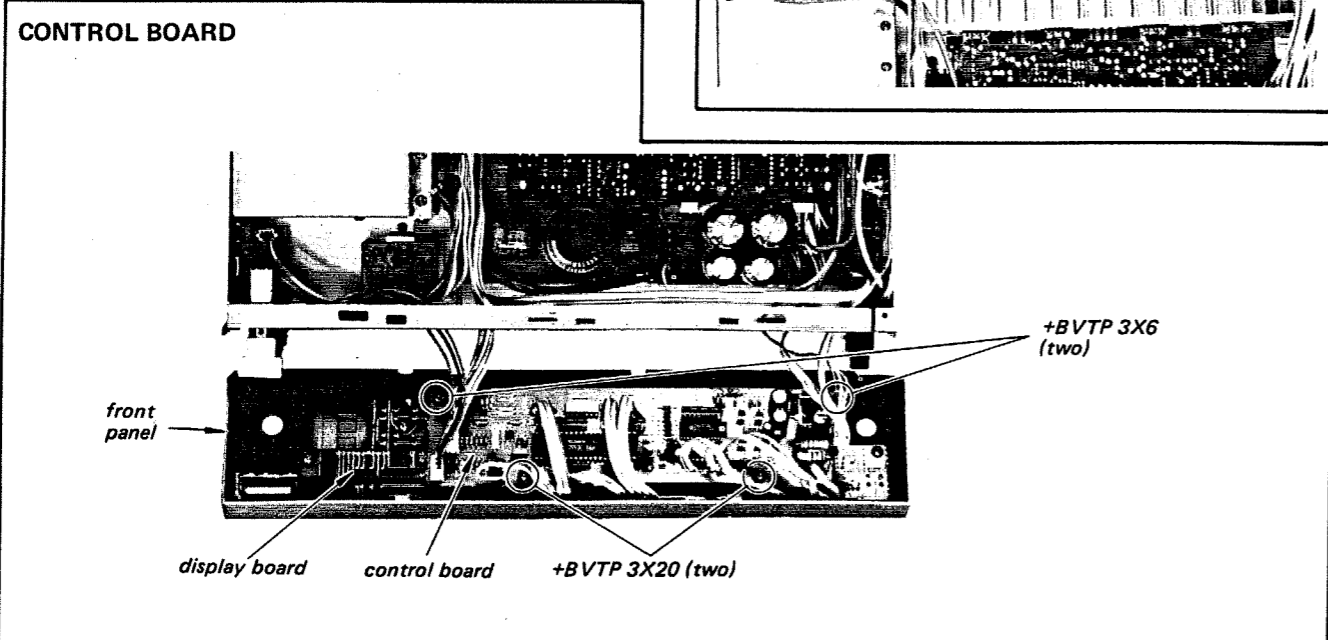
2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

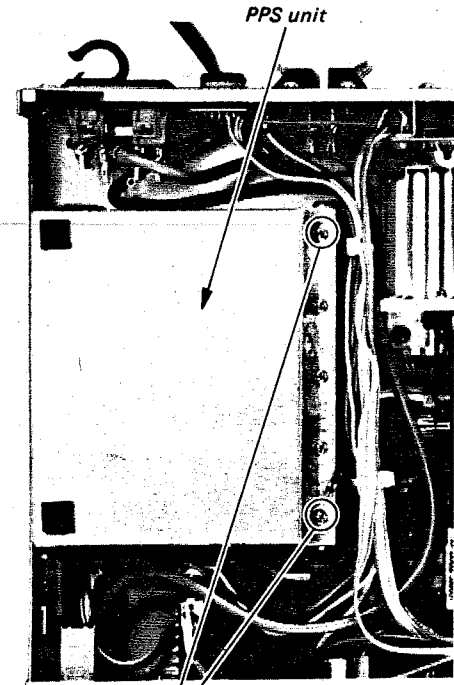
**CASE**  
Remove four M3 case screws.



**CONTROL BOARD**

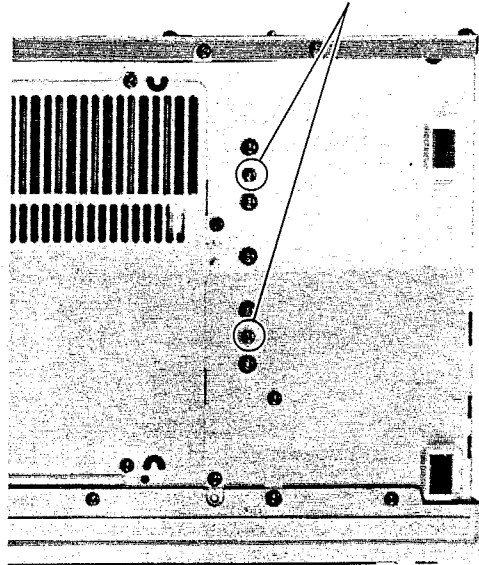


**PPS UNIT (1)**



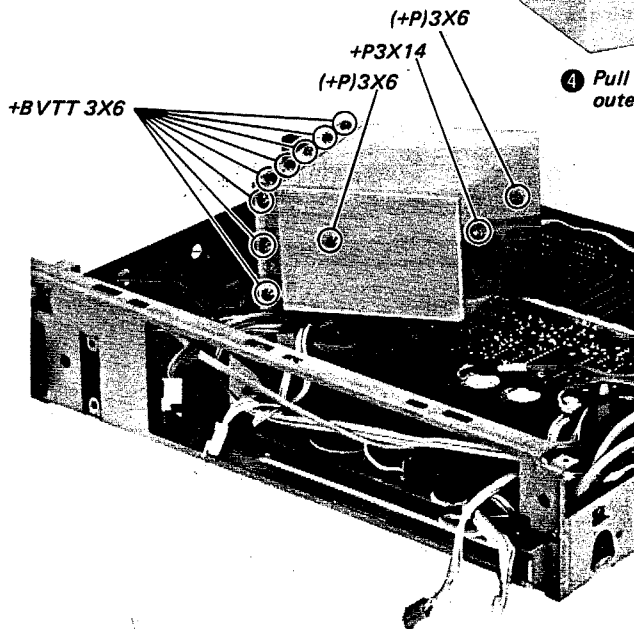
① Remove two (2) +BVTT 3X6 screws which fasten grounding lugs at each corner.

② Remove two (2) +BVTT 3X6 screws.  
 Note: The second ones from each end of the screw row of seven (7).



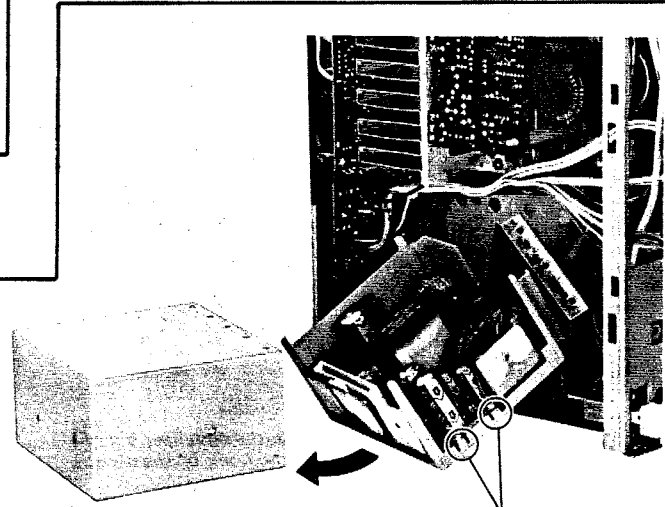
**PPS UNIT (2)**

③ Remove fourteen (14) +BVTT 3X6 screws, two +P3X6 screw and one +P3X14 screw.



④ Pull off the aluminum outer casing.

⑤ Release two tabs of the plastic case and remove the PPS board out of the casing.



⑥ PPS board

Note: Checking and repairing to the PPS circuit can be made by connecting the grounding lug from the PPS circuit to the chassis ground in this condition. Heat-sinking is not required for a short period under no-signal condition.

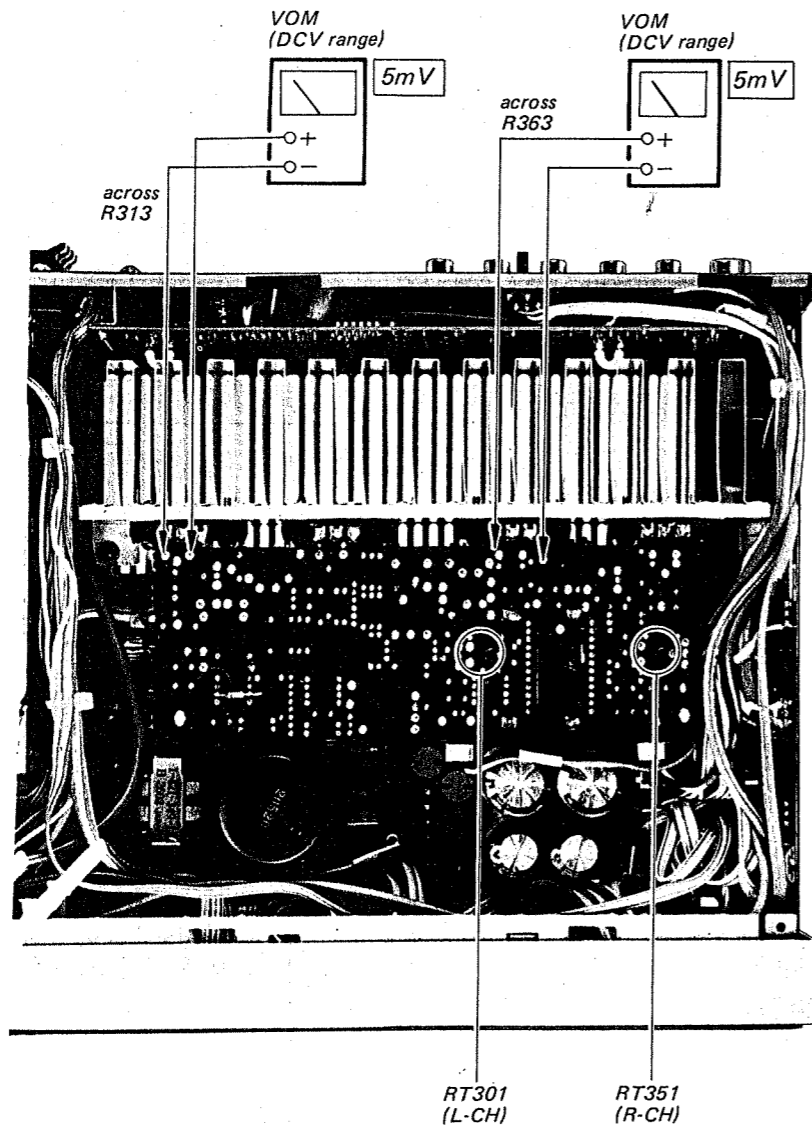
SECTION 3  
ADJUSTMENTS

3-1. ELECTRICAL ADJUSTMENT

DC BIAS ADJUSTMENT

Procedure:

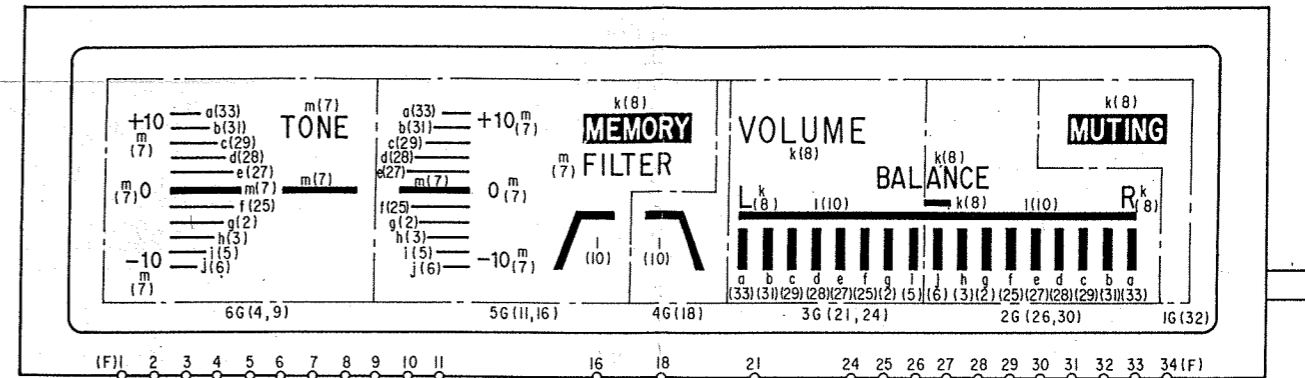
After warming up, adjust RT-301 (L-CH) and RT-351 (R-CH) for a 5mVdc indication across R313 (L-CH) and R363 (R-CH) under no-signal condition.



Note: Mechanical adjustment is not applicable to this unit.

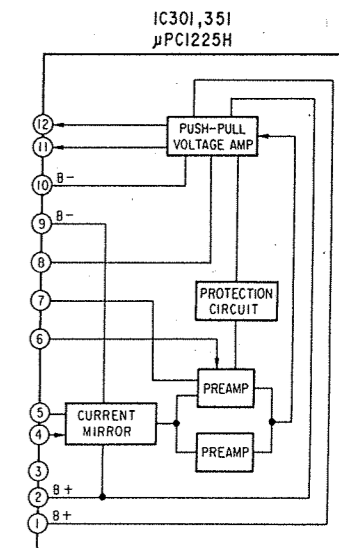
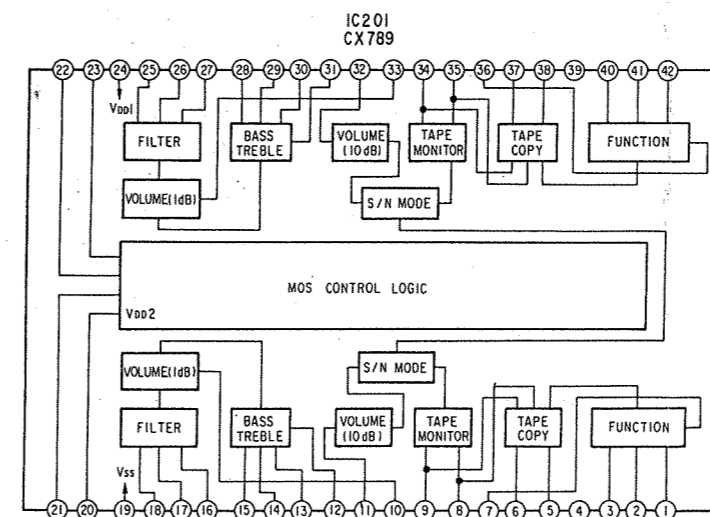
When Q903 and Q904 in the PPS unit are to be replaced, matched pair of them should be used. See page 32 for part numbers.

DISPLAY TUBE ELECTRODE DIAGRAM



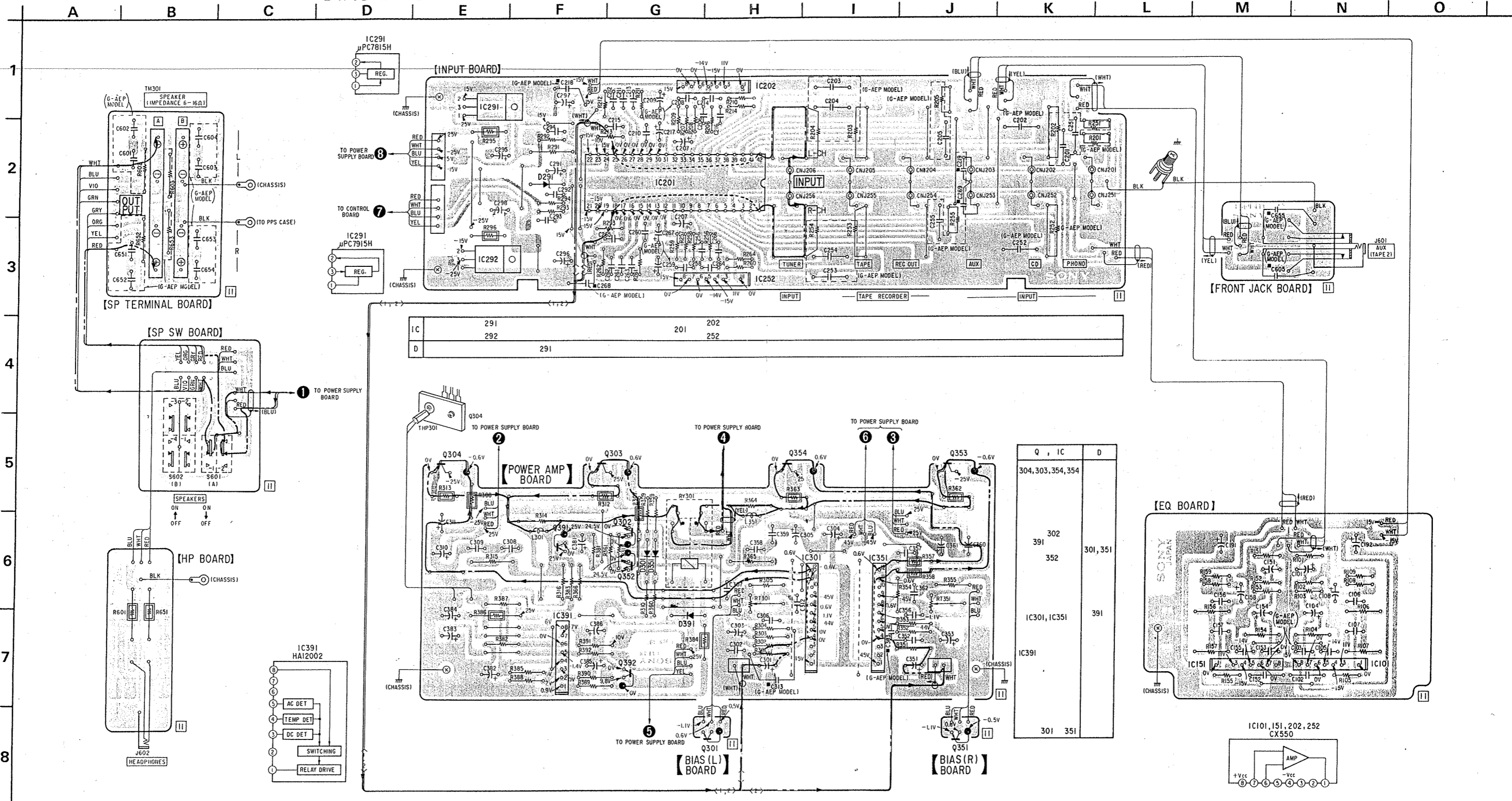
Electrode Connection

Terminal No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Connection Electrode	F	P(g)	P(h)	6G	P(i)	P(j)	P(m)	P(k)	6G	P(l)	5G	NP	NP	NP
Terminal No	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Connection Electrode	NP	5G	NP	4G	NP	NP	3G	NP	NP	3G	P(i)	2G	P(e)	P(d)
Terminal No	29	30	31	32	33	34								
Connection Electrode	P(o)	2G	P(b)	1G	P(a)	F								

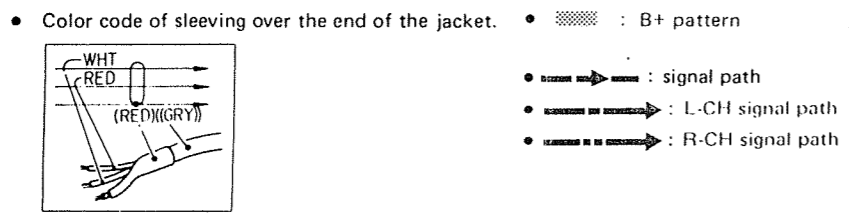


4-1. MOUNTING DIAGRAM (1)  
- Conductor Side -

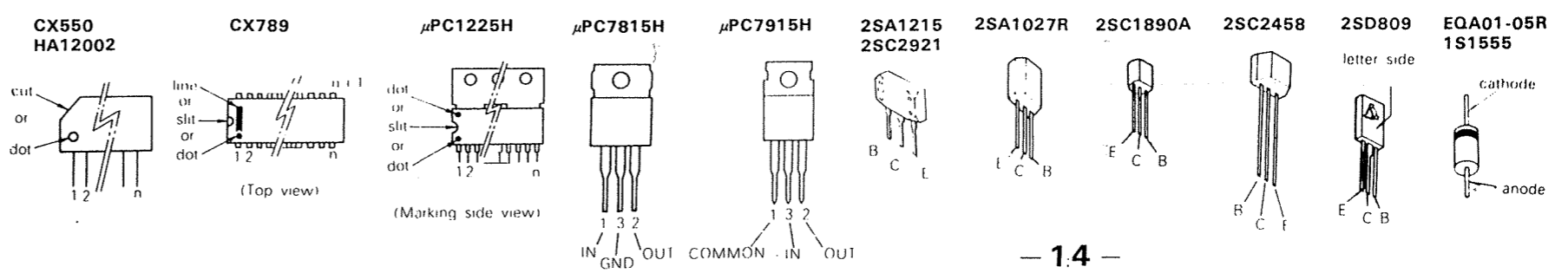
SECTION 4  
DIAGRAMS



Note:

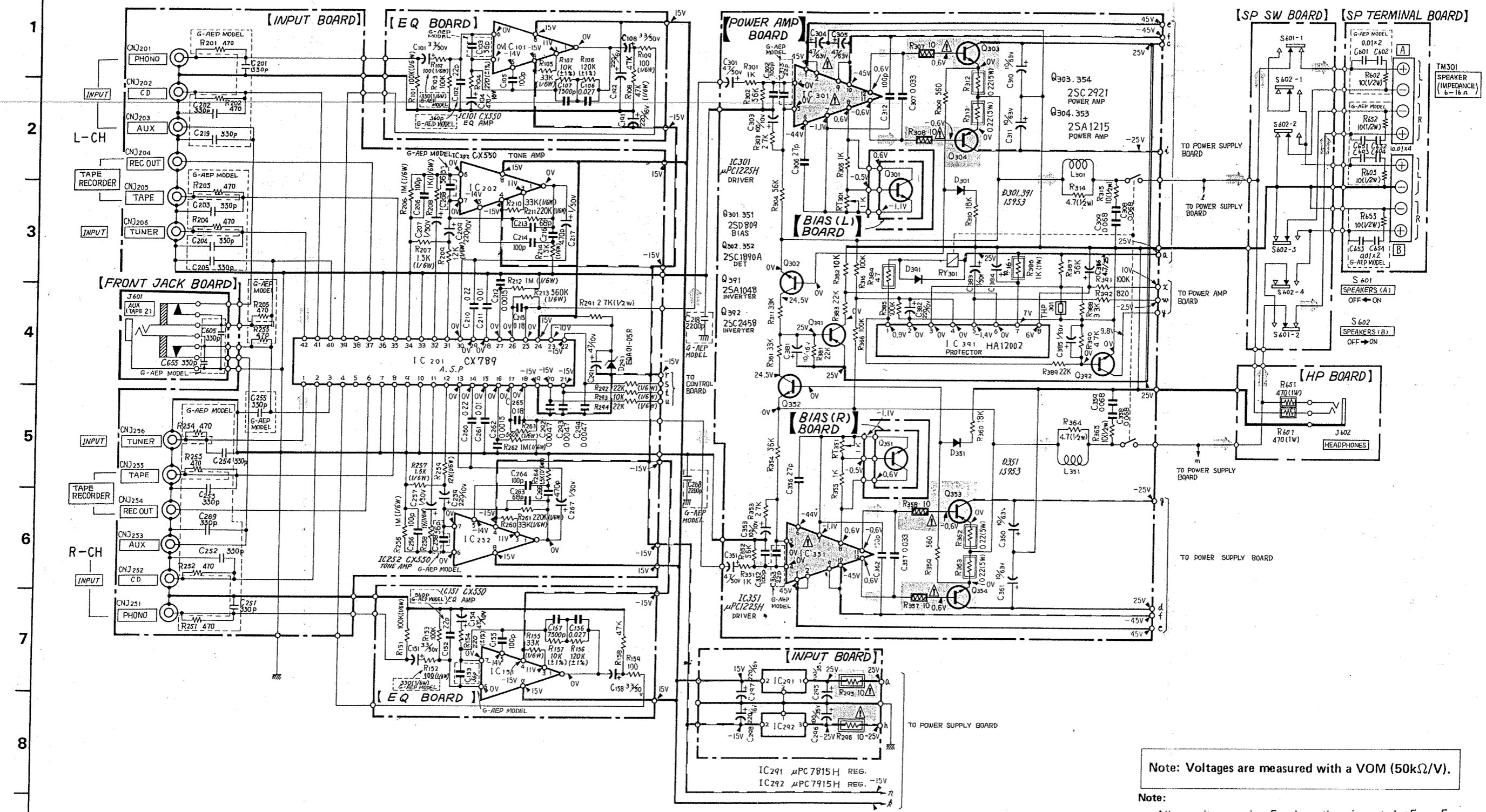


Semiconductor Lead Layouts





4-2. SCHEMATIC DIAGRAM (1)



Note: Voltages are measured with a VOM (50kΩ/V).

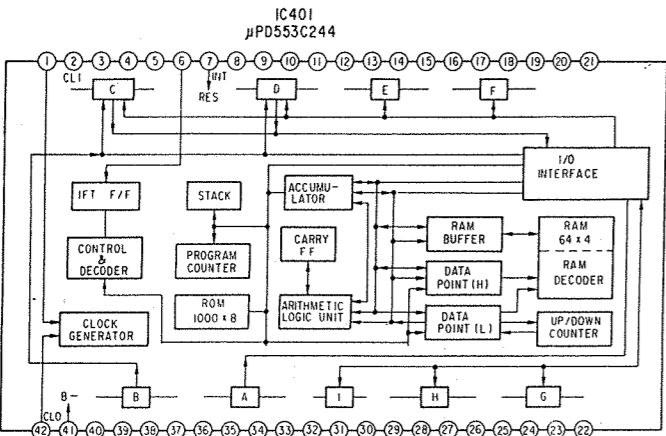
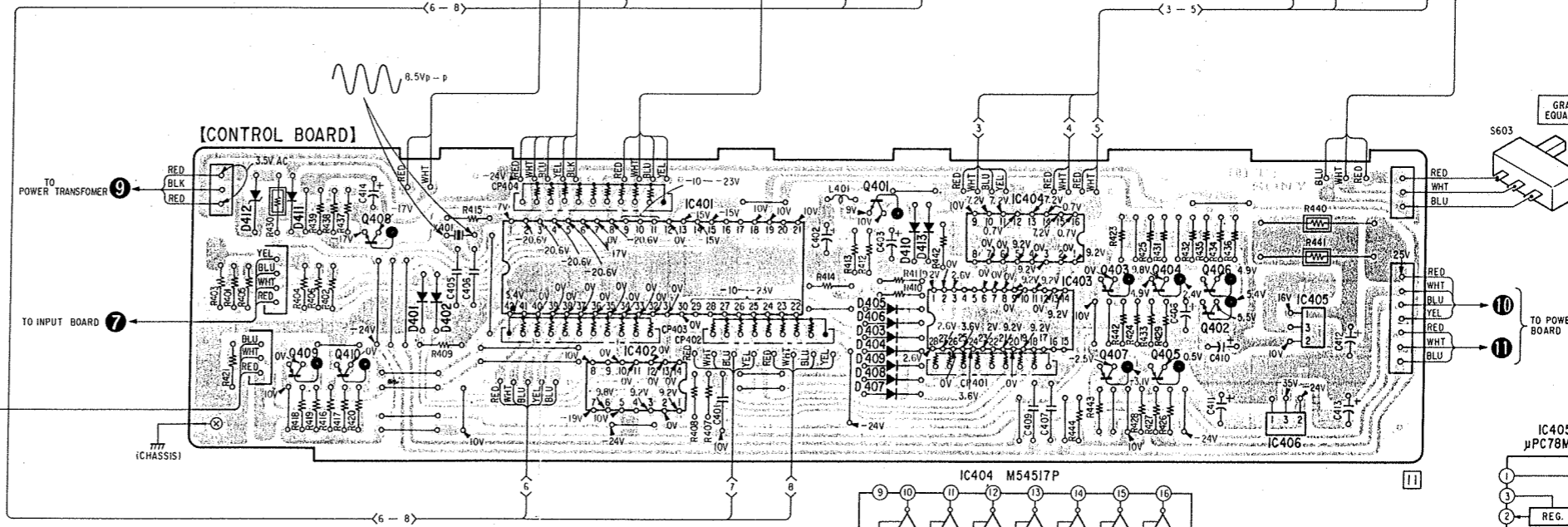
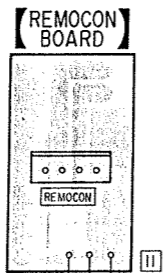
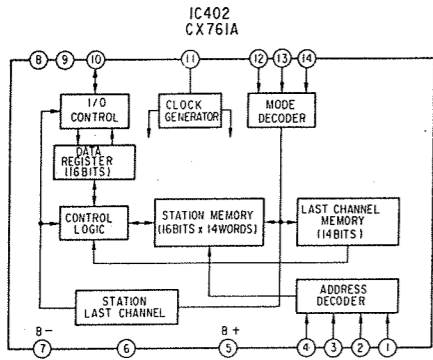
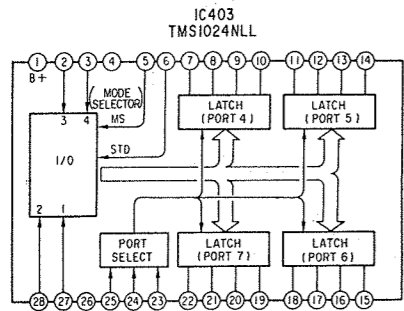
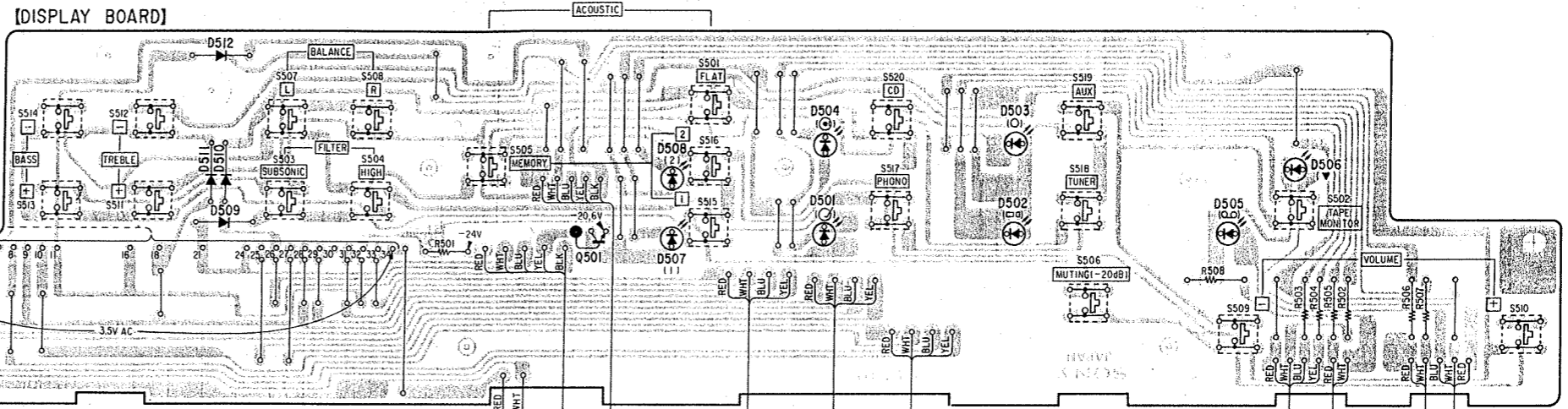
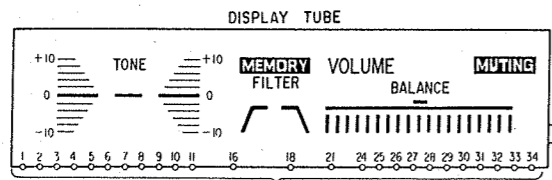
- Note:
- All capacitors are in μF unless otherwise noted. pF : μF
  - 50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
  - : nonflammable resistor.
  - : adjustment for repair.
  - : B+ bus.
  - : B- bus.
  - : signal path

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

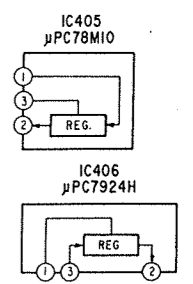
# TA-V7 TA-V7

## 4.3. MOUNTING DIAGRAM (2)

Q	501										
D	512 511,510 509				508 507	504 501				503 502	505 506



Q	408	IC401		401	IC404		403	404	406	IC405	
IC	409 410							407 405	402	IC406	
D	412 411	401,402						410,413 405 406 403 404 409 408 407			



### Semiconductor Lead Layouts

CX761A  
M54517P  
TMS1024N2L  
μPD553C-244

μPC78M10H

μPC7924H

2SA1027R

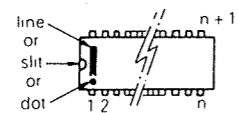
2SC2458

GL-5PG21  
GL-5PG23

TLUG163

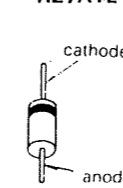
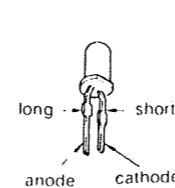
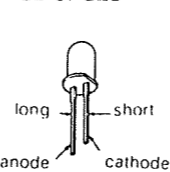
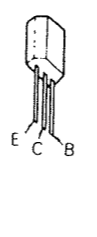
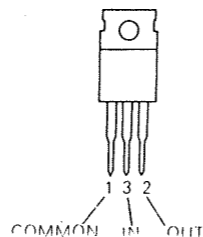
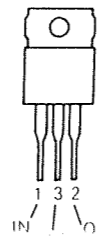
1S1555  
HZ7A1L

Note:  
● : B + pattern  
○ : 1 - 1

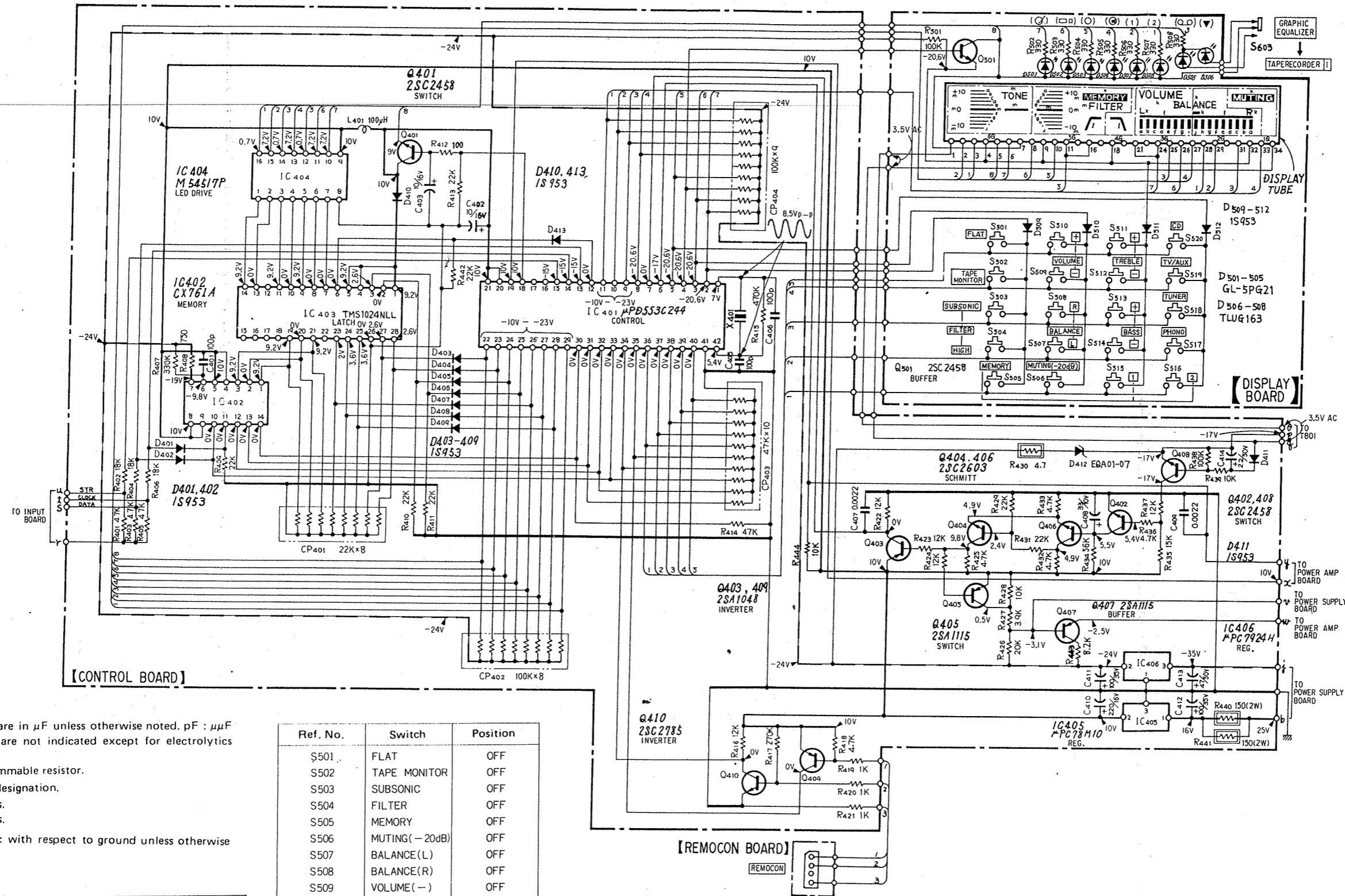


(Top view)

17



4.4. SCHEMATIC DIAGRAM (2)

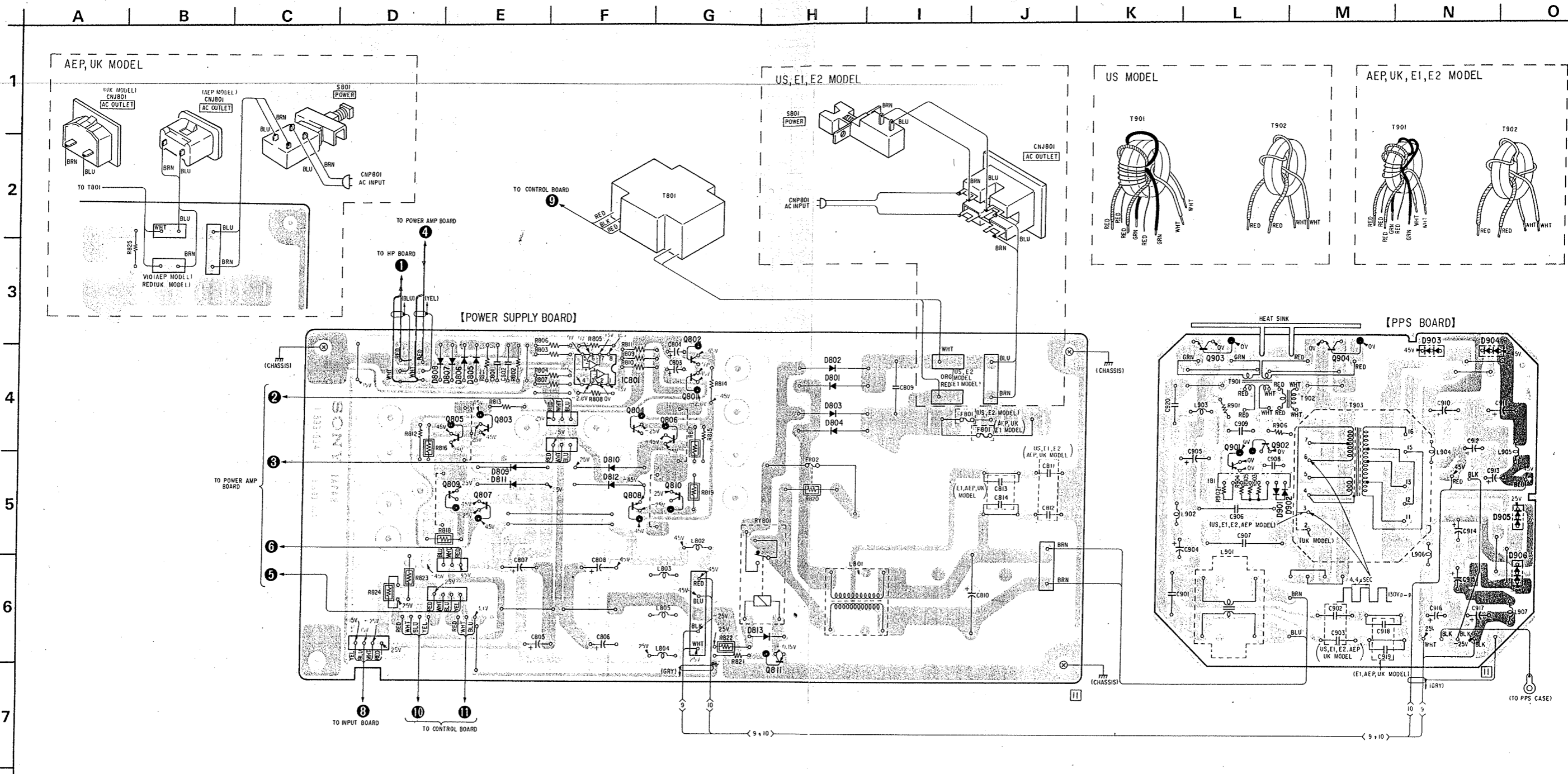


- Note:
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\text{F} \times 10^{-6}$ . 50WV or less are not indicated except for electrolytics and tantalums.
  - : nonflammable resistor.
  - : panel designation.
  - : B+ bus.
  - : B- bus.
  - Voltages are dc with respect to ground unless otherwise noted.

Note: Voltages are measured with a VOM (50k $\Omega$ /V).

Ref. No.	Switch	Position
S501	FLAT	OFF
S502	TAPE MONITOR	OFF
S503	SUBSONIC	OFF
S504	FILTER	OFF
S505	MEMORY	OFF
S506	MUTING(-20dB)	OFF
S507	BALANCE(L)	OFF
S508	BALANCE(R)	OFF
S509	VOLUME(-)	OFF
S510	VOLUME(+)	OFF
S511	TREBLE(+)	OFF
S512	TREBLE(-)	OFF
S513	BASS(+)	OFF
S514	BASS(-)	OFF
S515	MEMORY(1)	OFF
S516	MEMORY(2)	OFF
S517	PHONO	OFF
S518	TUNER	OFF
S519	TV/AUX	OFF
S520	CD	OFF

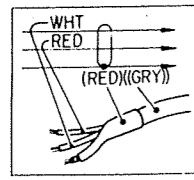
4-5. MOUNTING DIAGRAM (3)  
—Conductor Side—



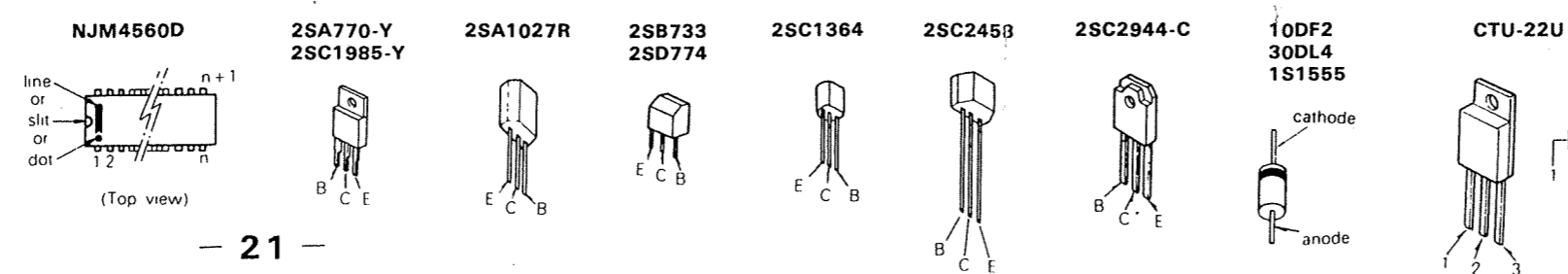
Q																	
IC		805 809	803 807			IC801	804 808	802 806 810									
D		808,807,806,805							811								
				809 811			810 812			802 801 803 804							
									813								

Q		903	902		904									
D			901,902			903		904					905 906	

Note:  
• Color code of sleeving over the end of the jacket.

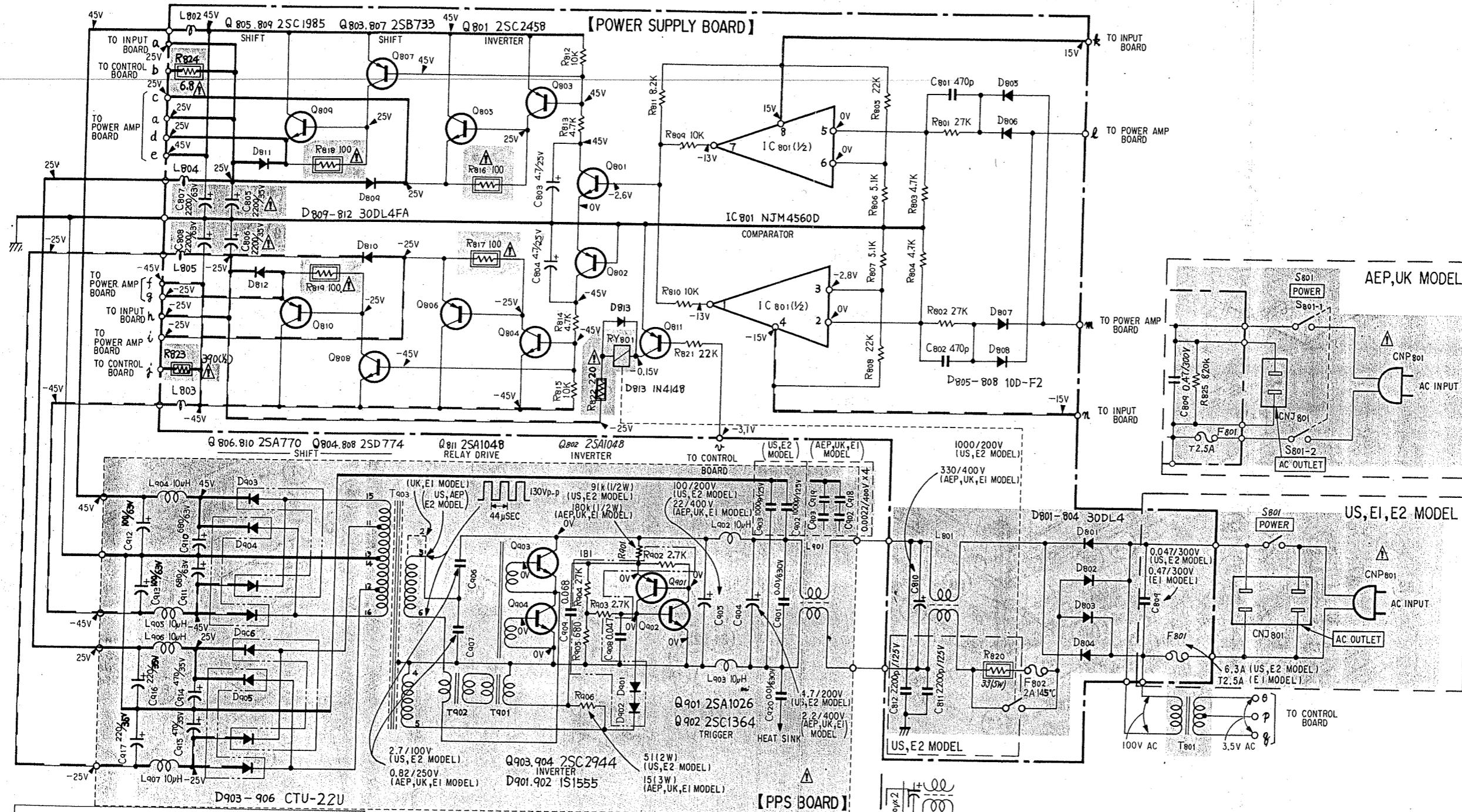


Semiconductor Lead Layouts



• B+ pattern  
• B- pattern

4-6. SCHEMATIC DIAGRAM (3)



Note: Voltages are measured with a VOM (50kΩ/V).

Note:

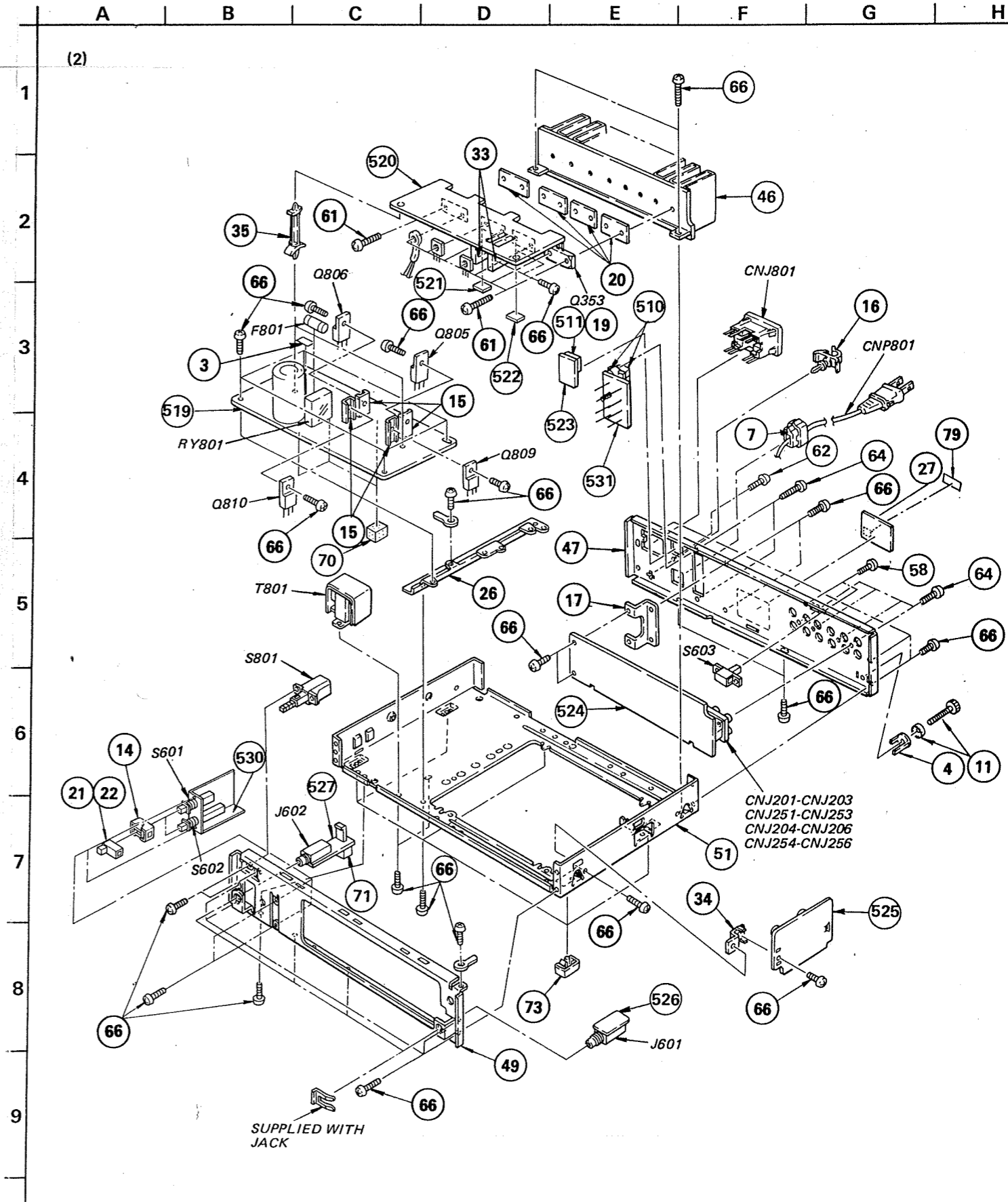
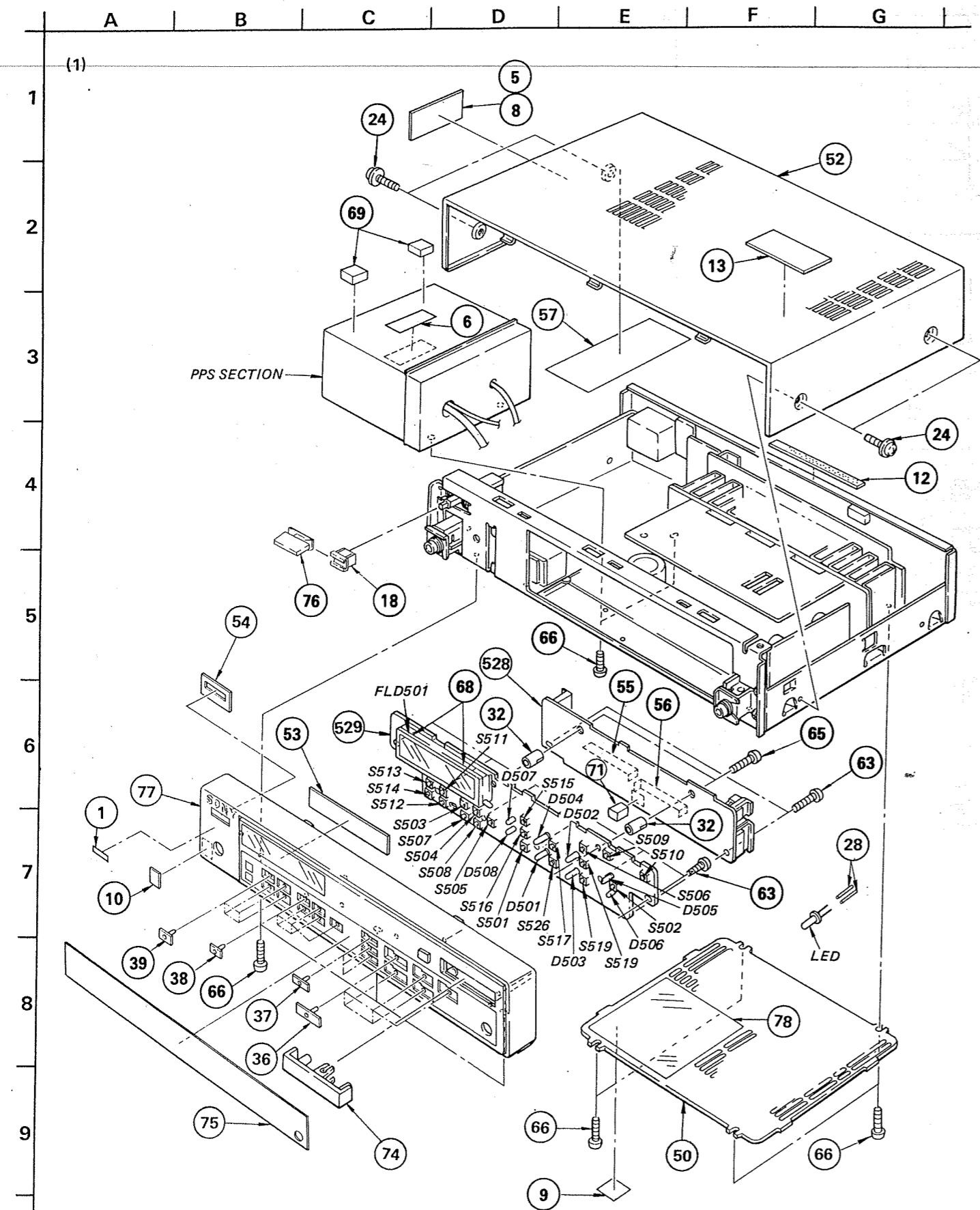
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- : panel designation.
- : adjustment for repair.
- : B+ bus.
- : B- bus.

- Voltages are dc with respect to ground unless otherwise noted.
- Switch

Ref. No.	Switch	Position
S801	POWER	OFF

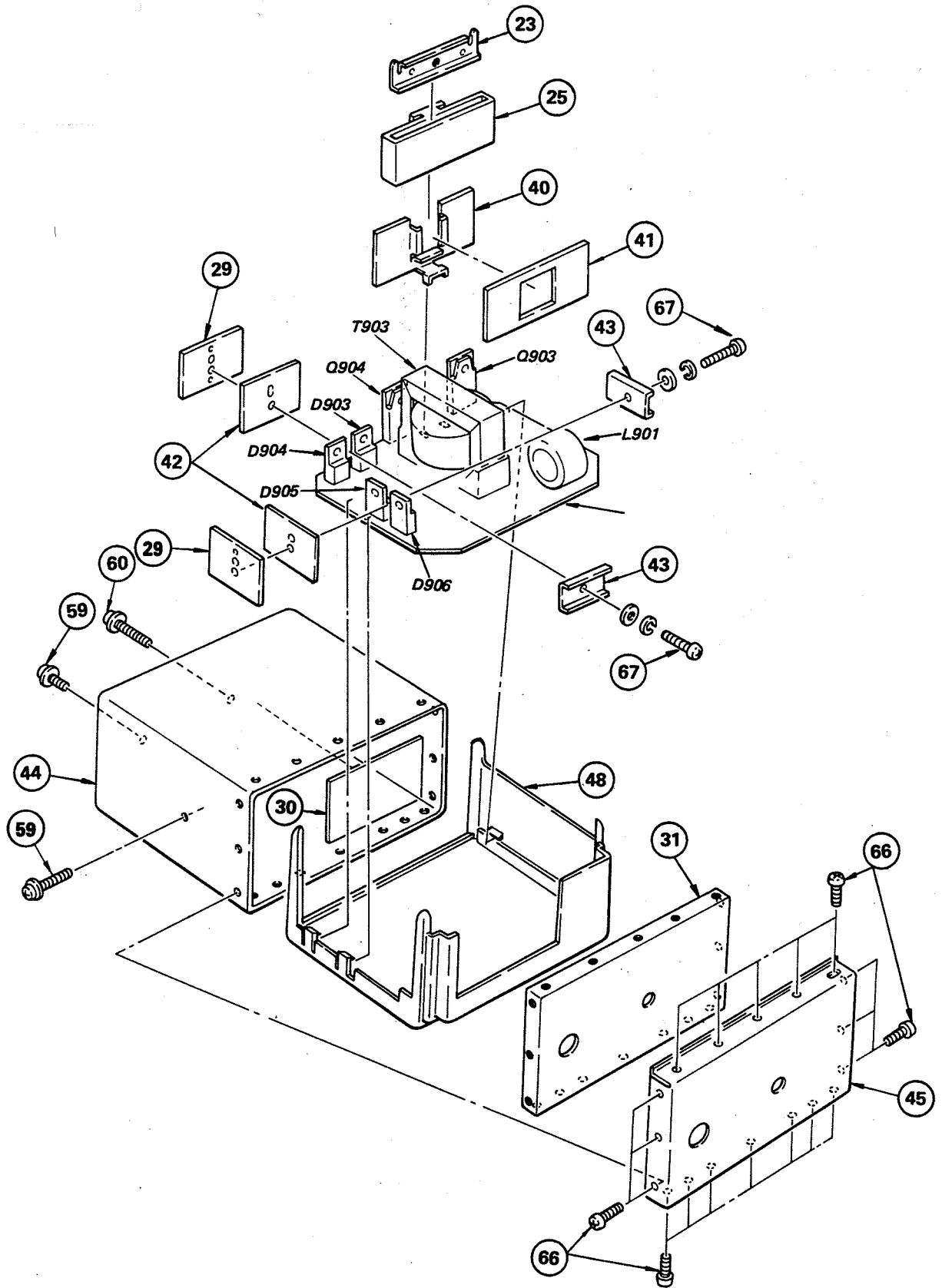
Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

SECTION 5  
EXPLODED VIEWS AND PARTS LIST



A B C D E F G

(3)



GENERAL SECTION

No.	Part No.	Description
1	3-701-690-00	(UK)...LABEL, MADE IN JAPAN
2	3-701-822-00	HOLDER, WIRE
3	3-701-948-18	(E1,AEP,G-AEP,UK)...LABEL, FUSE
4	3-701-993-00	SPACER, TERMINAL
5	3-703-043-00	(UK)...LABEL, MAIN CAUTION
6	3-703-044-00	(US)...LABEL, CAUTION
7	3-703-244-00	BUSHING, CORD
8	3-703-678-00	(US)...LABEL, UL CAUTION
9	3-703-680-00	(US)...LABEL, SUB CAUTION
10	3-703-710-01	STICKER, SONY SYMBOL (12)
11	3-706-165-00	(E1,E2,US,UK)...SCREW
12	3-831-441-XX	CUSHION, PANEL
13	4-861-045-00	LABEL, CAUTION
14	4-864-307-00	RING
15	4-866-647-00	HEAT SINK
16	4-869-217-00	CLIP, CORD
17	4-875-413-00	HOLDER, CHASSIS
18	4-875-466-00	JOINT (F2), KNOB
19	4-882-034-00	SPACER, TERMINAL, 2 GANG
20	4-885-901-00	SHEET, RADIATION
21	4-886-814-21	KNOB (A), SPEAKER
22	4-886-814-31	KNOB (B), SPEAKER
23	4-886-820-00	RETAINER
24	4-886-821-11	SCREW, M3 CASE
25	4-886-830-00	RETAINER, TRANSISTOR
26	4-886-836-00	CHANNEL
27	4-886-848-00	(US)...LABEL, MODEL NUMBER
27	4-886-850-00	(AEP,G-AEP)...LABEL, MODEL NUMBER
27	4-886-851-00	(UK)...LABEL, MODEL NUMBER
27	4-886-852-00	(E1)...LABEL, MODEL NUMBER
27	4-886-853-00	(E2)...LABEL, MODEL NUMBER
28	4-886-864-00	SPACER, LED
29	4-886-867-00	HEAT SINK (SMALL), DIODE
30	4-886-868-01	(E1,AEP,G-AEP,UK)...SHEET, INSULATING, HEAT SINK, TR
30	4-886-868-11	(E1,AEP,G-AEP,UK)...SHEET, INSULATING, HEAT SINK, TR
30	4-886-868-21	(US,E2)...SHEET, INSULATING, HEAT SINK, TR
31	4-886-869-00	COVER, SUPPLY CASE, POWER
32	4-886-873-00	SPACER
33	4-886-874-00	HEAT SINK (SMALL)
34	4-886-876-00	BRACKET, PC BOARD
35	4-886-877-00	SPACER, PC BOARD
36	4-886-879-00	BLOCK (D), PUSH

GENERAL SECTION

No.	Part No.	Description
37	4-886-880-00	BLOCK (E), PUSH
38	4-886-881-00	BLOCK (F), PUSH
39	4-886-882-00	BLOCK (G), PUSH
40	4-886-883-00	BRACKET (LARGE), TRANSISTOR
41	4-886-884-00	SHEET (LARGE), INSULATING
42	4-886-885-00	SHEET, INSULATING
43	4-886-886-00	RETAINER (SMALL), DIODE
44	4-886-887-00	CASE, POWER SUPPLY
45	4-886-888-00	COVER (2), CASE, POWER SUPPLY
46	4-886-889-00	HEAT SINK
47	4-886-891-11	(US)...PLATE, JACK
47	4-886-891-21	(AEP,G-AEP)...PLATE, JACK
47	4-886-891-31	(UK)...PLATE, JACK
47	4-886-891-41	(E1,E2)...PLATE, JACK
48	4-886-892-00	HOLDER, P.P.S PC BOARD
49	4-886-893-00	PANEL, SUB
50	4-886-894-01	PLATE, BOTTOM
51	4-886-895-00	CHASSIS
52	4-886-896-00	CASE
53	4-886-897-00	PLATE, FROSTED
54	4-886-976-00	ESCUTCHEON, POWER KNOB
55	4-888-036-00	PLATE (A), SHIELD
56	4-888-037-00	PLATE (B), SHIELD
57	4-888-039-00	LABEL
58	7-621-255-45	SCREW +P 2X6
59	7-682-147-01	SCREW +P 3X6
60	7-682-151-01	SCREW +P 3X14
61	7-682-551-04	SCREW +B 3X14
62	7-685-132-11	SCREW +P 2.6X5 TYPE2 NON-SLIT
63	7-685-645-11	SCREW +BVTP 3X6 TYPE2 IT-3
64	7-685-646-11	SCREW +BVTP 3X8 TYPE2 IT-3
65	7-685-651-11	SCREW +BVTP 3X20 TYPE2 IT-3
66	7-685-871-01	SCREW +BVTT 3X6 (S)
67	7-686-529-01	SCREW, TOTSU PSW 3X10
68	9-911-839-XX	CUSHION
69	9-911-841-XX	CUSHION
70	9-911-842-XX	CUSHION (A)
71	9-911-846-XX	CUSHION (B)
72	9-911-863-XX	SHEET, INSULATING
73	X-4886-405-1	FOOT ASSY
74	X-4886-803-0	KNOB ASSY, CONTROL
75	X-4886-804-2	SHEET ASSY, FUNCTION
76	X-4886-903-0	KNOB (L.S) ASSY, POWER
77	X-4886-814-0	PANEL ASSY
78	4-886-878-00	SHEET, INSULATION
79	3-703-591-00	(G-AEP)...LABEL, FTZ

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	3-701-630-00	BAG, POLYETHYLENE
102	3-703-391-00	(US)...INSTRUCTION, SAFEGUARD
103	3-703-669-01	(G-AEP)...INSTRUCTION, FTZ
104	3-703-299-41	(AEP,G-AEP)...MANUAL, INSTRUCTION
104	3-773-299-11	(E1,E2,AEP,UK)...MANUAL, INSTRUCTION
104	3-773-299-21	(US)...MANUAL, INSTRUCTION
105	4-855-809-00	SHEET, PROTECTION
106	1-526-565-00	(E1)...AC PLUG ADAPTOR
107	4-888-012-00	CUSHION, TOP-RIGHT
108	4-888-013-00	CUSHION, TOP-LEFT
109	4-888-014-00	CUSHION, BOTTOM-RIGHT
110	4-888-015-00	CUSHION, BOTTOM-LEFT
111	4-888-011-00	INDIVIDUAL CARTON

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	1-507-746-21	JACK, PIN 6P
502	1-508-809-00	BASE POST (14MM) 2P
503	1-508-812-00	BASE POST (14MM) 5P
504	1-508-878-00	BASE POST
505	1-517-072-00	(E2,US)...HOLDER, LAMP
506		
507	1-533-131-00	(E1,AEP,G-AEP,UK)...HOLDER, FUSE
508	1-535-135-00	BASE POST 14MM (10MM PITCH)
509	1-535-416-00	TERMINAL
510	1-536-705-21	TERMINAL BOARD (SP)
511	1-560-039-00	PIN, CONNECTOR
512	1-560-061-00	PIN, CONNECTOR 3P
513	1-560-062-00	PIN, CONNECTOR 4P
514	1-560-200-00	BASE POST, MCD CONNECTOR 2P
515	1-560-338-00	PIN, CONNECTOR 7P
516	1-562-249-00	SOCKET, CONNECTOR 4P
517	1-562-250-00	SOCKET, CONNECTOR 5P
518	1-609-403-00	PC BOARD, PPS
519	1-609-404-00	PC BOARD, POWER SUPPLY
520	1-609-405-00	PC BOARD, POWER OUTPUT
521	1-609-406-00	PC BOARD, BIAS L
522	1-609-407-00	PC BOARD, BIAS R
523	1-609-408-00	PC BOARD, REMOCON
524	1-609-409-00	PC BOARD, INPUT
525	1-609-410-00	PC BOARD, EQUALIZER
526	1-609-411-00	PC BOARD, TAPE 2 INPUT
527	1-609-412-00	PC BOARD, HEADPHONE JACK
528	1-609-413-00	PC BOARD, CONTROL
529	1-609-414-00	PC BOARD, DISPLAY
530	1-609-415-00	PC BOARD, SPEAKER SWITCH
531	1-609-416-00	PC BOARD, SPEAKER TERMINAL
532	A-4358-114-A	MOUNTED PCB, EQUALIZER
533	A-4375-171-A	MOUNTED PCB, CONTROL
534	A-4388-345-A	MOUNTED PCB, POWER OUTPUT
535	A-4394-324-A	MOUNTED PCB, POWER SUPPLY
C101	1-124-090-00	ELECT 3.3MF 20% 50V
C102	1-161-263-00	CERAMIC 22PF 5% 50V
C104	1-124-072-00	ELECT 470MF 20% 10V
C105	1-102-973-00	CERAMIC 100PF 5% 50V
C106	1-130-625-00	FILM 0.027MF 5% 50V
C107	1-104-098-00	POLYSTYRENE 0.0075MF 5% 50V
C108	1-124-090-00	ELECT 3.3MF 20% 50V
C191	1-123-321-00	ELECT 220MF 20% 16V
C192	1-123-321-00	ELECT 220MF 20% 16V

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

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

SEMICONDUCTORS

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

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

SEMICONDUCTORS

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



ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C207	1-124-088-91	ELECT	1MF	20%	50V
C209	1-124-070-91	ELECT	220MF	20%	10V
C210	1-130-636-00	FILM	0.22MF	5%	50V
C211	1-130-620-00	FILM	0.01MF	5%	50V
C212	1-108-559-00	MYLAR	0.0015MF	5%	50V
C213	1-101-888-00	CERAMIC	68PF	5%	50V
C214	1-102-973-00	CERAMIC	100PF	5%	50V
C215	1-130-635-00	FILM	0.18MF	5%	50V
C216	1-102-824-00	CERAMIC	430PF	5%	50V
C217	1-124-088-91	ELECT	1MF	20%	50V
C218	1-102-121-00	(G-AEP)...CERAMIC	0.0022MF	5%	50V
C219	1-102-112-00	(G-AEP)...CERAMIC	330PF	5%	50V
C226	1-102-824-00	CERAMIC	430PF	5%	50V
C257	1-124-088-91	ELECT	1MF	20%	50V
C259	1-124-070-91	ELECT	220MF	20%	10V
C263	1-101-888-00	CERAMIC	68PF	5%	50V
C264	1-102-973-00	CERAMIC	100PF	5%	50V
C267	1-124-088-91	ELECT	1MF	20%	50V
C291	1-123-306-00	ELECT	47MF	20%	10V
C292	1-108-571-00	MYLAR	0.0047MF	5%	50V
C293	1-108-571-00	MYLAR	0.0047MF	5%	50V
C294	1-108-571-00	MYLAR	0.0047MF	5%	50V
C295	1-123-345-00	ELECT	100MF	20%	35V
C296	1-123-345-00	ELECT	100MF	20%	35V
C297	1-123-321-00	ELECT	220MF	20%	16V
C298	1-123-321-00	ELECT	220MF	20%	16V
C301	1-123-369-00	ELECT	4.7MF	20%	50V
C302	1-102-973-00	CERAMIC	100PF	5%	50V
C303	1-124-069-00	ELECT	100MF	20%	10V
C304	1-123-373-00	ELECT	47MF	20%	63V
C305	1-123-373-00	ELECT	47MF	20%	63V
C306	1-107-286-00	MICA	27PF	5%	100V
C307	1-130-626-00	FILM	0.033MF	5%	50V
C308	1-130-630-00	FILM	0.068MF	5%	50V
C309	1-130-630-00	FILM	0.068MF	5%	50V
C310	1-123-370-00	ELECT	10MF	20%	63V
C311	1-123-370-00	ELECT	10MF	20%	63V
C312	1-107-300-91	MICA	100PF	5%	100V
C313	1-102-259-00	(G-AEP)...CERAMIC	22PF	5%	50V
C381	1-123-356-00	ELECT	10MF	20%	16V
C382	1-123-475-00	ELECT	220MF	20%	10V
C383	1-123-380-00	ELECT	1MF	20%	50V
C384	1-123-356-00	ELECT	10MF	20%	16V
C385	1-123-380-00	ELECT	1MF	20%	50V
C386	1-123-328-00	ELECT	4.7MF	20%	25V
C401	1-161-271-00	CERAMIC	100PF	5%	50V
C402	1-123-356-00	ELECT	10MF	20%	16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C403	1-123-356-00	ELECT	10MF	20%	16V
C405	1-161-271-00	CERAMIC	100PF	5%	50V
C406	1-161-271-00	CERAMIC	100PF	5%	50V
C407	1-161-494-00	CERAMIC	0.022MF	30%	25V
C408	1-123-305-00	ELECT	33MF	20%	10V
C409	1-161-494-00	CERAMIC	0.022MF	30%	25V
C410	1-123-485-00	ELECT	220MF	20%	16V
C411	1-123-504-00	ELECT	100MF	20%	35V
C412	1-123-504-00	ELECT	100MF	20%	35V
C413	1-123-512-00	ELECT	47MF	20%	50V
C414	1-123-353-00	ELECT	2.2MF	20%	50V
C605	1-102-112-00	(G-AEP)...CERAMIC	330PF	5%	50V
C801	1-161-319-00	CERAMIC	470PF	10%	50V
C802	1-161-319-00	CERAMIC	470PF	10%	50V
C803	1-123-328-00	ELECT	4.7MF	20%	25V
C804	1-123-328-00	ELECT	4.7MF	20%	25V
C805	1-123-350-00	ELECT	220MF	20%	35V
C806	1-123-350-00	ELECT	220MF	20%	35V
C807	1-124-358-00	ELECT	220MF	20%	63V
C808	1-124-358-00	ELECT	220MF	20%	63V
C809	1-130-678-00	(E2,US).....FILM	0.047MF	20%	125V
C809	1-130-701-51	(E1,AEP,G-AEP,UK)...FILM	0.47MF	20%	300V
C810	1-125-222-00	(E1,AEP,G-AEP,UK)...ELECT(BLOCK)	330MF	20%	400V
C810	1-125-223-00	(E2,US).....ELECT	100MF	20%	200V
C811	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C811	1-161-747-00	(E2,US).....CERAMIC	0.0022MF	20%	125V
C812	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C812	1-161-747-00	(E2,US).....CERAMIC	0.0022MF	20%	125V
C813	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C814	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C901	1-130-141-00	MYLAR	0.01MF	20%	630V
C902	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C902	1-161-746-00	(E2,US).....CERAMIC	0.001MF	10%	125V
C903	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C903	1-161-746-00	(E2,US).....CERAMIC	0.001MF	10%	125V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C904	1-124-318-51	(E1,AEP,G-AEP,UK)...ELECT	2.2MF	20%	400V
C904	1-123-938-00	(E2,US).....ELECT	4.7MF	20%	200V
C905	1-123-402-00	(E1,AEP,G-AEP,UK)...ELECT	22MF	20%	400V
C905	1-124-359-00	(E2,US).....ELECT	100MF	20%	63V
C906	1-130-618-00	(E1,AEP,G-AEP,UK)...MYLAR	0.82MF	10%	250V
C906	1-130-695-00	(E2,US).....FILM	2.7MF	10%	100V
C907	1-130-618-00	(E1,AEP,G-AEP,UK)...MYLAR	0.82MF	10%	250V
C907	1-130-695-00	(E2,US).....FILM	2.7MF	10%	100V
C908	1-108-595-00	MYLAR	0.047MF	5%	50V
C909	1-108-599-00	MYLAR	0.068MF	5%	50V
C910	1-124-300-00	ELECT	680MF	20%	63V
C911	1-124-300-00	ELECT	680MF	20%	63V
C912	1-123-374-00	ELECT	100MF	20%	63V
C913	1-123-374-00	ELECT	100MF	20%	63V
C914	1-124-348-00	ELECT	470MF	20%	35V
C915	1-124-348-00	ELECT	470MF	20%	35V
C916	1-124-346-00	ELECT	220MF	20%	35V
C917	1-124-346-00	ELECT	220MF	20%	35V
C918	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C919	1-161-734-00	(E1,AEP,G-AEP,UK)...CERAMIC	0.0022MF	20%	400V
C920	1-130-141-00	MYLAR	0.01MF	20%	630V
CNJ201	1-507-741-21	JACK, PIN 6P			
CNJ202	1-507-741-21	JACK, PIN 6P			
CNJ203	1-507-741-21	JACK, PIN 6P			
CNJ204	1-507-741-21	JACK, PIN 6P			
CNJ205	1-507-741-21	JACK, PIN 6P			
CNJ206	1-507-741-21	JACK, PIN 6P			
CNJ251	1-507-741-21	JACK, PIN 6P			
CNJ252	1-507-741-21	JACK, PIN 6P			
CNJ253	1-507-741-21	JACK, PIN 6P			
CNJ254	1-507-741-21	JACK, PIN 6P			
CNJ255	1-507-741-21	JACK, PIN 6P			
CNJ256	1-507-741-21	JACK, PIN 6P			
CNJ801A1	526-694-00	(AEP,G-AEP).....OUTLET, AC			
CNJ801A1	526-695-00	(E1,E2,US).....OUTLET, AC (2 GANG)			
CNJ801A1	526-751-00	(UK).....OUTLET, AC			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP801A1	534-817-XX	(AEP,G-AEP).....CORD, POWER
CNP801A1	551-472-00	(E1,E2).....CORD, POWER
CNP801A1	551-506-XX	(US).....CORD, POWER
CNP801A1	556-562-00	(UK).....CORD, POWER
CP403	1-231-786-00	COMPOSITION CIRCUIT BLOCK
CP404	1-231-612-00	COMPOSITION CIRCUIT BLOCK
D291	8-719-936-05	DIODE EQA01-05R
D301	8-719-815-55	DIODE 1S1555
D391	8-719-815-55	DIODE 1S1555
D401	8-719-815-55	DIODE 1S1555
D402	8-719-815-55	DIODE 1S1555
D403	8-719-815-55	DIODE 1S1555
D404	8-719-815-55	DIODE 1S1555
D405	8-719-815-55	DIODE 1S1555
D406	8-719-815-55	DIODE 1S1554
D407	8-719-815-55	DIODE 1S1555
D408	8-719-815-55	DIODE 1S1555
D409	8-719-815-55	DIODE 1S1555
D410	8-719-815-55	DIODE 1S1555
D411	8-719-815-55	DIODE 1S1555
D412	8-719-910-71	DIODE HZ7A1L
D413	8-719-815-55	DIODE 1S1555
D501	8-719-903-30	DIODE GL-5PG3
D502	8-719-903-30	DIODE GL-5PG3
D503	8-719-903-30	DIODE GL-5PG3
D504	8-719-903-30	DIODE GL-5PG3
D505	8-719-907-26	DIODE GL-5PG21
D506	8-719-800-14	DIODE TLUG163
D507	8-719-800-14	DIODE TLUG163
D508	8-719-800-14	DIODE TLUG163
D509	8-719-815-55	DIODE 1S1555
D510	8-719-815-55	DIODE 1S1555
D511	8-719-815-55	DIODE 1S1555
D512	8-719-815-55	DIODE 1S1555
D801	8-719-230-24	DIODE 30DL4
D802	8-719-230-24	DIODE 30DL4
D803	8-719-230-24	DIODE 30DL4
D804	8-719-230-24	DIODE 30DL4
D805	8-719-210-12	DIODE 10DF2
D806	8-719-210-12	DIODE 10DF2
D807	8-719-210-12	DIODE 10DF2
D808	8-719-210-12	DIODE 10DF2
D809	8-719-230-24	DIODE 30DL4
D810	8-719-230-24	DIODE 30DL4
D811	8-719-230-24	DIODE 30DL4

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- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

F : nonflammable

COILS

MMH : mH, UH : μH

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

SEMICONDUCTORS

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

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
D812	8-719-230-24	DIODE 30DL4
D813	8-719-815-55	DIODE 1S1555
D903	8-719-300-22	DIODE CTU-22U
D904	8-719-300-22	DIODE CTU-22U
D905	8-719-300-22	DIODE CTU-22U
D906	8-719-300-22	DIODE CTU-22U
F801	1-532-286-00	(E1,AEP,G-AEP,UK)...FUSE, TIME-LAG
F801	1-532-422-00	(E2)...FUSE
F801	1-532-509-00	(US)...FUSE, GLASS TUBE; 6.3A
F802	1-532-556-00	FUSE, TEMPERATURE
FLD501	1-519-283-00	INDICATOR TUBE, FLUORESCENT
IC101	8-759-305-50	IC CX-550
IC201	8-757-890-00	IC CX-789
IC202	8-759-305-50	IC CX-550
IC291	8-759-171-15	IC UPC7815H
IC292	8-759-179-15	IC UPC7915H
IC301	8-759-100-87	IC UPC1225H
IC391	8-759-320-02	IC HA12002
IC401	8-759-101-01	IC UPD553C-244
IC402	8-757-611-00	IC CX-761A
IC403	8-759-990-23	IC TMS1024N2L
IC404	8-759-645-17	IC M54517P
IC405	8-759-170-10	IC UPC78M10H
IC406	8-759-179-24	IC UPC7924H
IC801	8-759-745-60	IC N4M4560D
IB1	1-232-053-00	COMPOSITION CIRCUIT BLOCK
J601	1-507-729-00	JACK, LARGE TYPE
J602	1-507-669-00	JACK
L301	1-420-872-00	COIL, AIR CORE
L401	1-407-169-XX	MICRO INDUCTOR 100UH
L801	1-421-259-00	(E2,US)...COIL, LINE FILTER
L801	1-421-349-00	(E1,AEP,G-AEP,UK)...COIL, CHOKE
L802	1-421-370-00	COIL, CHOKE
L803	1-421-370-00	COIL, CHOKE
L804	1-421-370-00	COIL, CHOKE
L805	1-421-370-00	COIL, CHOKE
L901	1-421-259-00	(E2,US)...COIL, LINE FILTER
L901	1-421-349-00	(E1,AEP,G-AEP,UK)...COIL, CHOLK
L902	1-421-461-00	COIL, CHOKE
L903	1-421-461-00	COIL, CHOKE
L904	1-421-461-00	COIL, CHOKE
L905	1-421-461-00	COIL, CHOKE
L906	1-421-461-00	COIL, CHOKE
L907	1-421-461-00	COIL, CHOKE

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q301	8-729-180-93	TRANSISTOR 2SD809
Q302	8-729-309-08	TRANSISTOR 2SC1890A
Q303	8-729-300-35	TRANSISTOR 2SC2921
Q304	8-729-300-21	TRANSISTOR 2SA1215
Q353	8-729-300-21	TRANSISTOR 2SA1215
Q354	8-729-300-35	TRANSISTOR 2SC2921
Q391	8-729-281-52	TRANSISTOR 2SA1048
Q392	8-729-245-83	TRANSISTOR 2SC2458
Q401	8-729-245-83	TRANSISTOR 2SC2458
Q402	8-729-245-83	TRANSISTOR 2SC2458
Q403	8-729-281-52	TRANSISTOR 2SA1048
Q404	8-729-245-83	TRANSISTOR 2SC2458
Q405	8-729-281-52	TRANSISTOR 2SA1048
Q406	8-729-245-83	TRANSISTOR 2SC2458
Q407	8-729-281-52	TRANSISTOR 2SA1048
Q408	8-729-245-83	TRANSISTOR 2SC2458
Q409	8-729-281-52	TRANSISTOR 2SA1048
Q410	8-729-245-83	TRANSISTOR 2SC2458
Q501	8-729-245-83	TRANSISTOR 2SC2458
Q801	8-729-245-83	TRANSISTOR 2SC2458
Q802	8-729-281-52	TRANSISTOR 2SA1048
Q803	8-729-113-33	TRANSISTOR 2SB733-U2
Q804	8-729-177-43	TRANSISTOR 2SD774
Q805	8-729-300-44	TRANSISTOR 2SC1985-Y
Q806	8-729-300-42	TRANSISTOR 2SA770-Y
Q807	8-729-113-33	TRANSISTOR 2SB733-U2
Q808	8-729-177-43	TRANSISTOR 2SD774
Q809	8-729-300-44	TRANSISTOR 2SC1985-Y
Q810	8-729-300-42	TRANSISTOR 2SA770-Y
Q811	8-729-281-52	TRANSISTOR 2SA1048
Q901	8-729-602-67	TRANSISTOR 2SA1026-7
Q902	8-729-663-47	TRANSISTOR 2SC1364
Q903	X-4873-603-1	(E2,US)...TRANSISTOR ASSY (PAIR OF 2SC2944-C)
Q903	X-4873-604-1	(E1,AEP,G-AEP,UK)...TRANSISTOR ASSY (PAIR OF 2SC2625-D)
Q904	X-4873-603-1	(E2,US)...TRANSISTOR ASSY (PAIR OF 2SC2944-C)
Q904	X-4873-604-1	(E1,AEP,G-AEP,UK)...TRANSISTOR ASSY (PAIR OF 2SC2625-D)
R101	1-247-879-00	CARBON 100K 5% 1/6W
R102	1-247-807-00	CARBON 100 5% 1/6W
R103	1-247-879-00	CARBON 100K 5% 1/6W
R104	1-214-713-00	METAL 220 1% 1/4W
R105	1-247-867-00	CARBON 33K 5% 1/6W
R106	1-214-779-00	METAL 120K 1% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R107	1-214-753-00	METAL 10K 1% 1/4W
R108	1-247-871-00	CARBON 47K 5% 1/6W
R109	1-247-807-00	CARBON 100 5% 1/6W
R206	1-247-903-00	CARBON 1M 5% 1/6W
R207	1-247-835-00	CARBON 1.5K 5% 1/6W
R208	1-247-831-00	CARBON 1K 5% 1/6W
R209	1-247-857-00	CARBON 12K 5% 1/6W
R210	1-247-867-00	CARBON 33K 5% 1/6W
R211	1-247-887-00	CARBON 220K 5% 1/6W
R212	1-247-903-00	CARBON 1M 5% 1/6W
R213	1-247-897-00	CARBON 560K 5% 1/6W
R214	1-247-835-00	CARBON 1.5K 5% 1/6W
R291	1-244-883-00	CARBON 2.7K 5% 1/2W
R292	1-247-863-00	CARBON 22K 5% 1/6W
R293	1-247-855-00	CARBON 10K 5% 1/6W
R294	1-247-863-00	CARBON 22K 5% 1/6W
R295	1-202-854-00	(US)...COMPOSITION 10 1/4W
R295	1-247-083-00	(E1,E2,AEP,G-AEP,UK)...CARBON 10 5% 1/4W F
R296	1-202-854-00	(US)...COMPOSITION 10 1/4W
R296	1-247-083-00	(E1,E2,AEP,G-AEP,UK)...CARBON 10 5% 1/4W F
R301	1-246-473-00	CARBON 1K 5% 1/4W
R302	1-246-515-00	CARBON 56K 5% 1/4W
R303	1-246-483-00	CARBON 2.7K 5% 1/4W
R304	1-246-515-00	CARBON 56K 5% 1/4W
R305	1-246-473-00	CARBON 1K 5% 1/4W
R307	1-247-083-00	(E1,E2,AEP,G-AEP,UK)...CARBON 10 5% 1/4W F
R308	1-247-083-00	(E1,E2,AEP,G-AEP,UK)...CARBON 10 5% 1/4W F
R309	1-246-467-00	CARBON 560 5% 1/4W
R310	1-246-503-00	CARBON 18K 5% 1/4W
R311	1-246-509-00	CARBON 33K 5% 1/4W
R312	1-217-156-00	RES, METAL PLATE 0.22
R313	1-217-156-00	RES, METAL PLATE 0.22
R314	1-244-817-00	CARBON 4.7 5% 1/2W
R315	1-244-825-00	CARBON 10 5% 1/2W
R316	1-246-521-00	CARBON 100K 5% 1/4W
R381	1-246-505-00	CARBON 22K 5% 1/4W
R382	1-246-497-00	CARBON 10K 5% 1/4W
R383	1-246-505-00	CARBON 22K 5% 1/4W
R384	1-247-099-00	CARBON 47 5% 1/4W F
R385	1-246-521-00	CARBON 100K 5% 1/4W
R386	1-213-143-00	METAL OXIDE 1K 5% 1W F

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R387	1-246-515-00	CARBON 56K 5% 1/4W
R388	1-246-485-00	CARBON 3.3K 5% 1/4W
R389	1-246-505-00	CARBON 22K 5% 1/4W
R390	1-246-489-00	CARBON 4.7K 5% 1/4W
R391	1-246-521-00	CARBON 100K 5% 1/4W
R392	1-246-471-00	CARBON 820 5% 1/4W
R401	1-247-847-00	CARBON 4.7K 5% 1/6W
R402	1-247-861-00	CARBON 18K 5% 1/6W
R403	1-247-847-00	CARBON 4.7K 5% 1/6W
R404	1-247-861-00	CARBON 18K 5% 1/6W
R405	1-247-847-00	CARBON 4.7K 5% 1/6W
R406	1-247-861-00	CARBON 18K 5% 1/6W
R407	1-247-891-00	CARBON 330K 5% 1/6W
R408	1-247-828-00	CARBON 750 5% 1/6W
R409	1-247-863-00	CARBON 22K 5% 1/6W
R410	1-247-863-00	CARBON 22K 5% 1/6W
R411	1-247-863-00	CARBON 22K 5% 1/6W
R412	1-247-807-00	CARBON 100 5% 1/6W
R413	1-247-863-00	CARBON 22K 5% 1/6W
R414	1-247-871-00	CARBON 47K 5% 1/6W
R415	1-247-895-00	CARBON 470K 5% 1/6W
R416	1-247-857-00	CARBON 12K 5% 1/6W
R417	1-247-889-00	CARBON 270K 5% 1/6W
R418	1-247-871-30	CARBON 47K 5% 1/6W
R419	1-247-831-00	CARBON 1K 5% 1/6W
R420	1-247-831-00	CARBON 1K 5% 1/6W
R421	1-247-831-00	CARBON 1K 5% 1/6W
R422	1-247-857-00	CARBON 12K 5% 1/6W
R423	1-247-857-00	CARBON 12K 5% 1/6W
R424	1-247-857-00	CARBON 12K 5% 1/6W
R425	1-247-847-00	CARBON 4.7K 5% 1/6W
R426	1-247-862-00	CARBON 20K 5% 1/6W
R427	1-247-845-00	CARBON 3.9K 5% 1/6W
R428	1-247-855-00	CARBON 10K 5% 1/6W
R429	1-247-863-00	CARBON 22K 5% 1/6W
R430	1-247-079-00	CARBON 4.7 5% 1/4W
R431	1-247-863-00	CARBON 22K 5% 1/6W
R432	1-247-847-00	CARBON 4.7K 5% 1/6W
R433	1-247-847-00	CARBON 4.7K 5% 1/6W
R434	1-247-873-00	CARBON 56K 5% 1/6W
R435	1-247-859-00	CARBON 15K 5% 1/6W
R436	1-247-847-00	CARBON 4.7K 5% 1/6W
R437	1-247-857-00	CARBON 12K 5% 1/6W
R438	1-247-879-00	CARBON 100K 5% 1/6W
R439	1-247-855-00	CARBON 10K 5% 1/6W

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RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

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

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ELECTRICAL PARTS

Ref.No.	Part No.	Description					
R440	1-206-644-00	METAL OXIDE	150	5%	2W	F	
R441	1-206-644-00	METAL OXIDE	150	5%	2W	F	
R442	1-247-863-00	CARBON	22K	5%	1/6W		
R443	1-247-853-00	CARBON	8.2K	5%	1/6W		
R444	1-247-855-00	CARBON	10K	5%	1/6W		
R501	1-247-879-00	CARBON	100K	5%	1/6W		
R502	1-246-461-00	CARBON	330	5%	1/4W		
R503	1-246-461-00	CARBON	330	5%	1/4W		
R504	1-246-461-00	CARBON	330	5%	1/4W		
R505	1-246-461-00	CARBON	330	5%	1/4W		
R506	1-246-461-00	CARBON	330	5%	1/4W		
R507	1-246-461-00	CARBON	330	5%	1/4W		
R508	1-246-461-00	CARBON	330	5%	1/4W		
R601	1-213-139-00	METAL OXIDE	470	5%	1W	F	
R651	1-213-139-00	METAL OXIDE	470	5%	1W	F	
R801	1-246-507-00	CARBON	27K	5%	1/4W		
R802	1-246-507-00	CARBON	27K	5%	1/4W		
R803	1-246-489-00	CARBON	4.7K	5%	1/4W		
R804	1-246-489-00	CARBON	4.7K	5%	1/4W		
R805	1-246-505-00	CARBON	22K	5%	1/4W		
R806	1-246-490-00	CARBON	5.1K	5%	1/4W		
R807	1-246-490-00	CARBON	5.1K	5%	1/4W		
R808	1-246-505-00	CARBON	22K	5%	1/4W		
R809	1-246-497-00	CARBON	10K	5%	1/4W		
R810	1-246-497-00	CARBON	10K	5%	1/4W		
R811	1-246-495-00	CARBON	8.2K	5%	1/4W		
R812	1-246-497-00	CARBON	10K	5%	1/4W		
R813	1-246-489-00	CARBON	4.7K	5%	1/4W		
R814	1-246-489-00	CARBON	4.7K	5%	1/4W		
R815	1-246-497-00	CARBON	10K	5%	1/4W		
R816	1-247-107-00	CARBON	100	5%	1/4W	F	
R817	1-247-107-00	CARBON	100	5%	1/4W	F	
R818	1-247-107-00	CARBON	100	5%	1/4W	F	
R819	1-247-107-00	CARBON	100	5%	1/4W	F	
R820	1-205-599-00	(E1,AEP,G-AEP,UK)...CEMENTED	75	10%	5W		
R820	1-205-681-00	(E2,US)...CEMENTED	33	10%	5W		
R821	1-246-505-00	CARBON	22K	5%	1/4W		
R822	1-247-116-00	CARBON	220	5%	1/4W	F	
R823	1-247-230-00	CARBON	390	5%	1/2W	F	
R824	1-247-082-00	COMPOSITION	6.8		1/4W	F	
R825	1-246-543-00	(E1,AEP,G-AEP,UK).CARBON	820K	5%	1/4W		
R901	1-244-927-00	(E1,AEP,G-AEP,UK).CARBON	180K	5%	1/2W		
R901	1-246-520-00	(E2,US)...CARBON	81K	5%	1/4W		

ELECTRICAL PARTS

Ref.No.	Part No.	Description					
R906	1-206-480-00	(E2,US)...METAL OXIDE	51	5%	2W		
R906	1-206-515-00	(E1,AEP,G-AEP,UK)...METAL OXIDE	15	5%	3W	F	
RT301	1-226-233-00	RES, ADJ, CARBON 1K					
RY301	1-515-501-00	RELAY					
RY801	1-515-347-00	RELAY					
S501	1-554-303-00	SWITCH, KEY BOARD					
S502	1-554-303-00	SWITCH, KEY BOARD					
S503	1-554-303-00	SWITCH, KEY BOARD					
S504	1-554-303-00	SWITCH, KEY BOARD					
S505	1-554-303-00	SWITCH, KEY BOARD					
S506	1-554-303-00	SWITCH, KEY BOARD					
S507	1-554-303-00	SWITCH, KEY BOARD					
S508	1-554-303-00	SWITCH, KEY BOARD					
S509	1-554-303-00	SWITCH, KEY BOARD					
S510	1-554-303-00	SWITCH, KEY BOARD					
S511	1-554-303-00	SWITCH, KEY BOARD					
S512	1-554-303-00	SWITCH, KEY BOARD					
S513	1-554-303-00	SWITCH, KEY BOARD					
S514	1-554-303-00	SWITCH, KEY BOARD					
S515	1-554-303-00	SWITCH, KEY BOARD					
S516	1-554-303-00	SWITCH, KEY BOARD					
S517	1-554-303-00	SWITCH, KEY BOARD					
S518	1-554-303-00	SWITCH, KEY BOARD					
S519	1-554-303-00	SWITCH, KEY BOARD					
S520	1-554-303-00	SWITCH, KEY BOARD					
S601	1-553-761-00	SWITCH, PUSH (2 KEY)					
S602	1-553-761-00	SWITCH, PUSH (2 KEY)					
S603	1-554-391-00	SWITCH, SLIDE					
S801	1-553-447-00	(AEP,G-AEP,UK)...SWITCH, PUSH (AC POWER)					
S801	1-553-319-00	(E1,E2,US)...SWITCH, PUSH (AC POWER)					
T801	1-447-521-00	(E1,UK)...TRANSFORMER, POWER					
T801	1-447-519-00	(E2,US)...TRANSFORMER, POWER					
T801	1-447-520-00	(AEP,G-AEP)...TRANSFORMER, POWER					
T901	1-543-098-00	CORE					
T901	1-543-100-00	CORE					
T902	1-543-100-00	CORE					
T903	1-447-523-00	(E2,US)...TRANSFORMER, CONVERTER					
T903	1-447-524-00	(E1,AEP,G-AEP,UK)...TRANSFORMER, CONVERTER					
THP301	1-800-427-00	POSISTOR					
X401	1-527-979-00	OSCILLATOR, CERAMIC					

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- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

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

SEMICONDUCTORS

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