

# ST-V3L

AEP Model  
UK Model



## FM STEREO/FM-AM TUNER

### SPECIFICATIONS

#### GENERAL

**System:** PLL quartz-locked digital synthesizer system  
FM stereo, FM/AM superheterodyne tuner

**Power Requirements:** AEP model: 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz  
UK model: 240 V ac (or 220 V ac adjustable by authorized Sony personnel), 50 Hz  
Memory back-up power: 3 V dc, two batteries, IEC designation R6 (size AA)  
Battery life: approx. 1 year with Sony SUM-3(NS) New Super batteries

**Power Consumption:** 8 watts

**Dimensions:** Approx. 355(w) x 55(h) x 270(d) mm  
14(w) x 2 1/4(h) x 10 3/4(d) inches  
including projecting parts and controls

**Weight:** Approx. 2.2 kg, 4 lbs 15 oz net  
Approx. 2.8 kg, 6 lbs 3 oz in shipping carton

#### FM TUNER SECTION

**Tuning Range:** 87.5 MHz - 108 MHz

**Antenna Terminals:** 300 Ω, balanced  
75 Ω, unbalanced  
ST-V3L available in West Germany only:  
75 Ω, IEC connector

**Intermediate Frequency:** 10.7 MHz

#### 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.

	ST-V3L (at 40 kHz deviation)
Sensitivity	at 46 dB quieting 17.3 dBf, 4 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable Sensitivity	10.3 dBf, 1.8 μV (IHF) 1.7 μV (S/N = 26 dB)
Signal-to-noise Ratio	76 dB (mono) 71 dB (stereo)
Harmonic Distortion at 1 kHz	0.15 % (mono) 0.3 % (stereo)
IM Distortion	0.15 % (mono) 0.3 % (stereo)
Separation at 1 kHz	45 dB
Frequency Response	40 Hz - 12.5 kHz ± 0.5 dB 30 Hz - 15 kHz +0.5 -2.0 dB
Selectivity	at 300 kHz 70 dB

- Continued on page 2 -

**SONY**  
**SERVICE MANUAL**



<b>Capture Ratio:</b>	1.0 dB
<b>AM Suppression Ratio:</b>	54 dB
<b>Image Response Ratio:</b>	50 dB
<b>IF Response Ratio:</b>	90 dB
<b>Spurious Response Ratio:</b>	70 dB
<b>RF Intermodulation:</b>	60 dB (IHF)
<b>Muting Threshold:</b>	Approx. 25 dBf, 10 µV
<b>Output Level/impedance:</b>	at 75 kHz deviation 550 mV, 3.3 kΩ

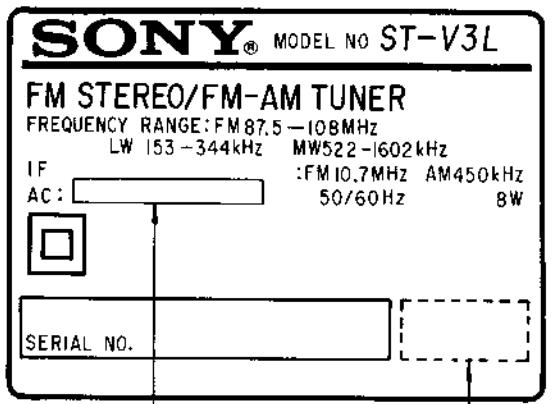
**MW/LW TUNER SECTION**

		<b>MW</b>	<b>LW</b>
	<b>Tuning Range</b>	522 kHz – 1,602 kHz	153 kHz – 344 kHz
<b>Antenna</b>	ferrite-rod antenna	provided	provided
	external antenna terminal	provided	provided
	<b>Intermediate Frequency</b>	450 kHz	450 kHz
<b>Usable Sensitivity</b>	ferrite-rod antenna	200 µV/m (at 999 kHz)	500 µV/m (at 230 kHz)
	external antenna	30 µV (at 999 kHz)	50 µV (at 230 kHz)
	<b>Signal-to noise Ratio</b>	54 dB	54 dB
	<b>Harmonic Distortion</b>	0.3 %	0.3 %
	<b>Selectivity</b>	35 dB (9 kHz)	35 dB (9 kHz)

While the information given is true at the time of printing, small 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 —



AEP model: 220V –  
UK model: 240V –

FTZ  
(G-AEP model)

**FEATURES**

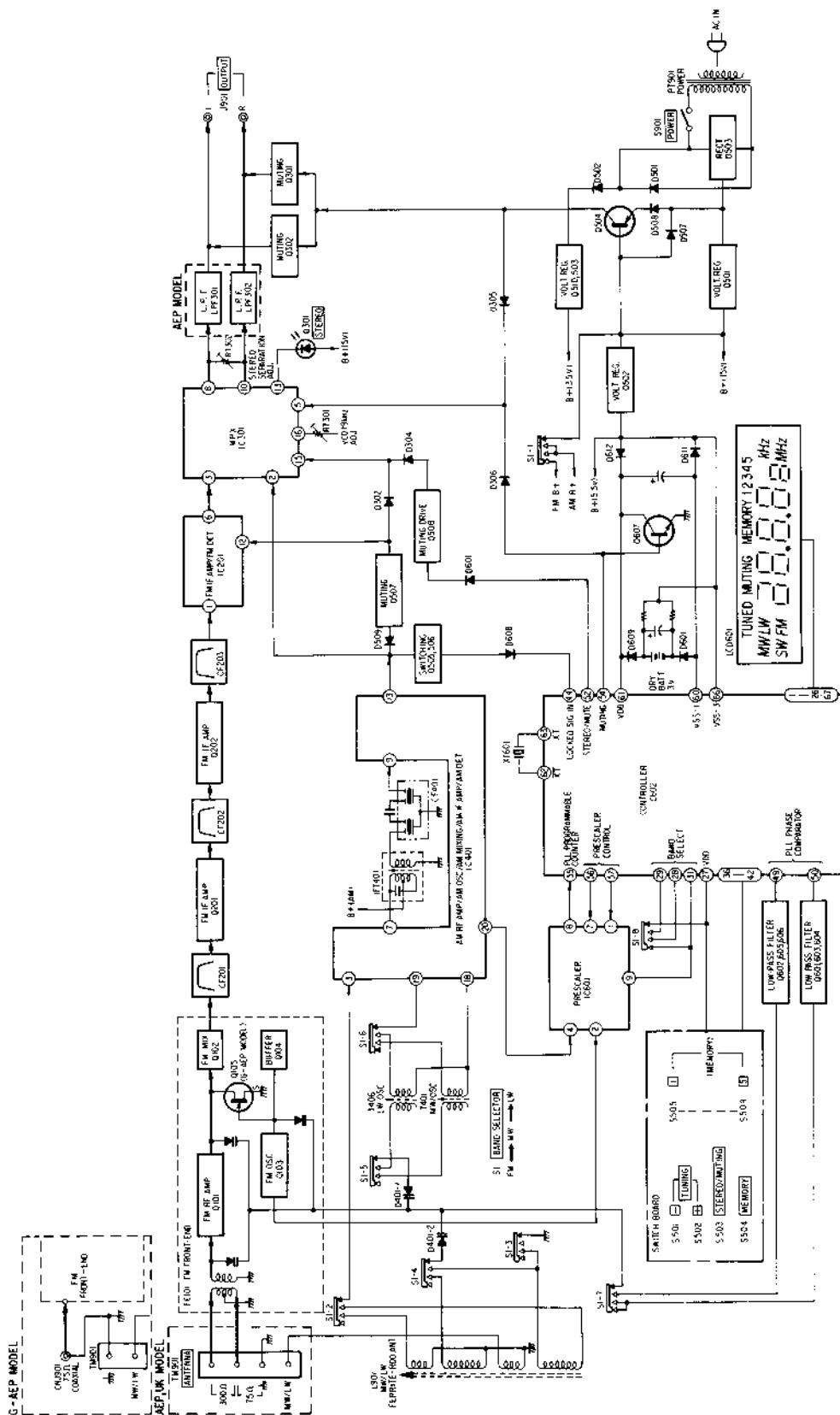
The Sony ST-V3L FM stereo/FM-AM tuner provides accurate and easy tuning with digital synthesizer system in a remarkably compact cabinet.

- The quartz-locked frequency-synthesizer system allows accurate and stable tuning that is not affected by temperature variations or long period usage.
- Each station preset button allows you to memorize 3 stations: one station for each band, and to select these memorized stations with the touch of a button.
- In the manual tuning mode, quick and accurate station selection is possible with an electronic digital readout on the frequency display window.
- The back-lighted LCD (liquid crystal display) window clearly shows the frequency received, band, tuning, muting, memory standby and the selected station preset button number.
- The memory back-up batteries retain the memory contents when the power is turned off.
- An FM muting circuit is incorporated to eliminate any interstation noise.
- Slim, smart case.

# SECTION 1

## OUTLINE

### 1-1. BLOCK DIAGRAM

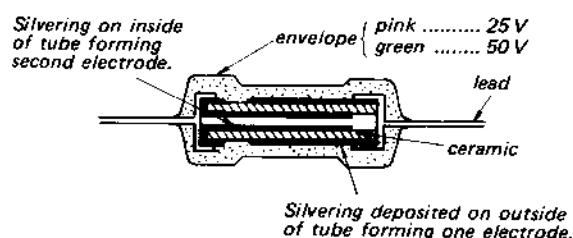


## 1-2. THE CERAMIC CAPACITORS

This set uses tube-type ceramic capacitors whose shape is identical with the carbon resistors. Be careful not to use resistors instead of capacitors in repairing.

Disc-type ceramic capacitors can be used for replacing those originally used in the set.

Two kinds of drilled holes are provided in some patterns for mounting the tube-type and disc-type ceramic capacitors. Use appropriate holes where applicable.



### COLOR CODE (in pF)

Color	1st or 2nd Digit	Multiplier	Tolerance	Temperature characteristic
brown	1	$10^1$		Y
red	2	$10^2$		D
orange	3	$10^3$		
yellow	4	$10^4$		RH
green	5			
blue	6			
violet	7			UJ
gray	8		$\pm 30\%$	X
white	9			SL
black	0	$10^0$	$\pm 20\%$	CH
gold		$10^{-1}$	$\pm 5\%$	V
silver		$10^{-2}$	$\pm 10\%$	B

### • IF OFFSET ADJUSTMENT (FM IF)

#### Diode Installations Depending on the Ceramic Filters (CF201 – 203)

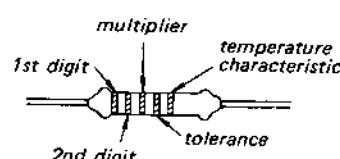
This set employs three ceramic filters (CF201 – 203) which should have the same colour marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D604 – 605) installation is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



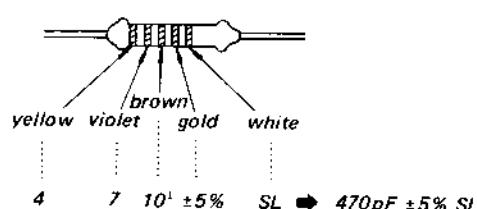
Ceramic filter		Diode installation		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	D604	D605	
White	10.750	X	O	10.750
Red	10.700	X	X	10.700
Black	10.650	O	X	10.650

O: installed  
X: not installed

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same colour coding should be used for CF201 through CF203.



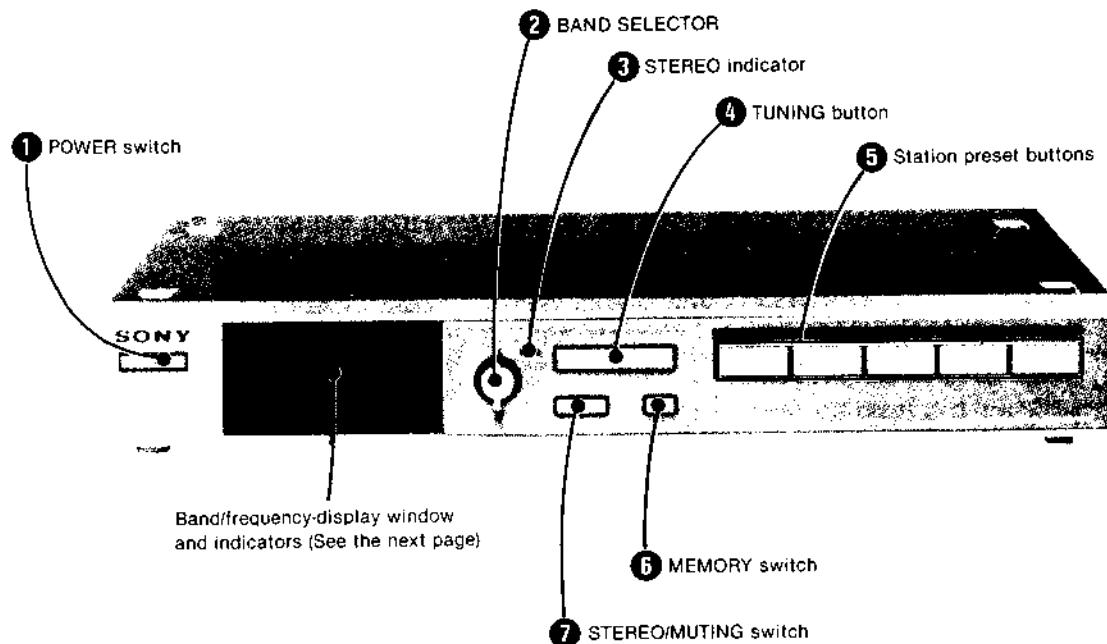
Example:



### 1-3. LOCATION AND FUNCTION OF CONTROLS

Each number in the photo is keyed to the descriptive text.

The photo shows the model ST-V3L.



#### ① POWER switch

Depress to turn on the power. To turn the power off, press the switch again.

#### ② BAND SELECTOR

Selects the desired band: FM, MW or LW. The selected band will be indicated in the band/frequency-display window.

#### ③ STEREO indicator

This indicator will light when an FM stereo program of sufficient signal strength is tuned in with the STEREO/MUTING switch engaged.

#### ④ TUNING button

Press either side of this button to change the frequency. Press the left side ( - ) to go to a lower frequency and the right side ( + ) to go to a higher. To change the frequency continuously until the desired frequency is received, keep the button depressed. The frequency figures will change rapidly. To change the frequency slowly, successively press and immediately release the button.

#### ⑤ Station preset buttons

To call up a memorized station, press the appropriate button.

#### ⑥ MEMORY switch

Press to operate memory circuit. The MEMORY indicator will appear in the band/frequency-display window for a few seconds indicating that the memory circuit is standing by.

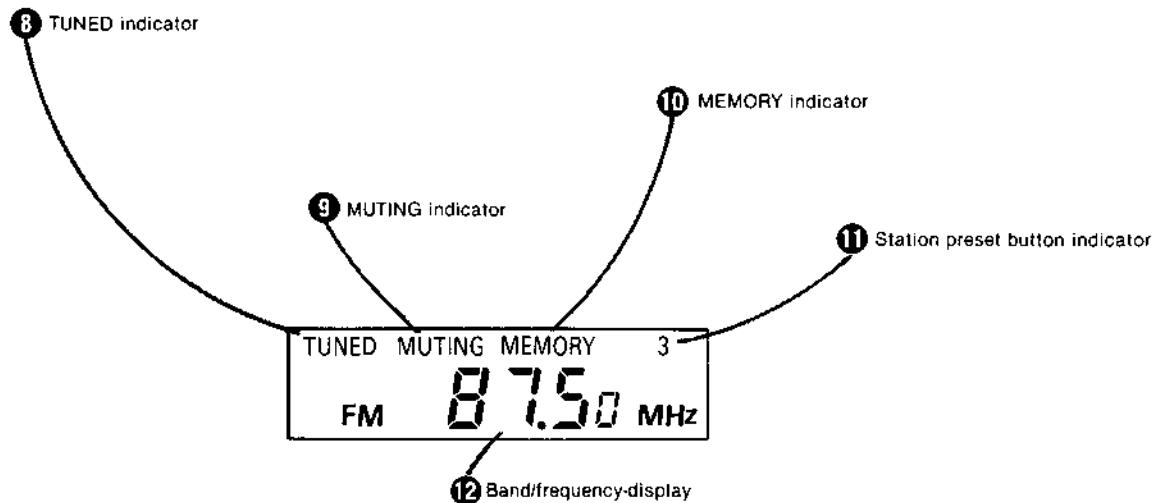
#### ⑦ STEREO/MUTING switch

This switch serves the dual purpose of a mode and FM muting switch.

Normally keep this switch engaged (the MUTING indicator illuminates) to eliminate FM interstation noise while tuning from station to station. The tuner operates in stereo mode for stereo sound sources and will be automatically switched to mono mode for monaural sound sources.

When you want to tune in a very weak station, or when an FM program is too noisy, press the switch to disengage it. (The MUTING indicator will go out.) This will enable the tuner to receive weak stations, although the stereo feature is sacrificed. In this case, keep the amplifier volume down to avoid speaker damage caused by the interstation noise.

## BAND/FREQUENCY-DISPLAY WINDOW AND INDICATORS

**⑧ TUNED indicator**

This indicator illuminates when a sufficiently strong signal is tuned in.

**⑨ MUTING indicator**

This indicator illuminates when the STEREO/MUTING switch is engaged in FM reception.

**⑩ MEMORY indicator**

When the MEMORY switch is pressed, "MEMORY" will appear for a few seconds indicating that the memory circuit is standing by.

**⑪ Station preset button indicator**

When the station preset button is pressed, a figure from 1 to 5 corresponding to the pressed button will appear.

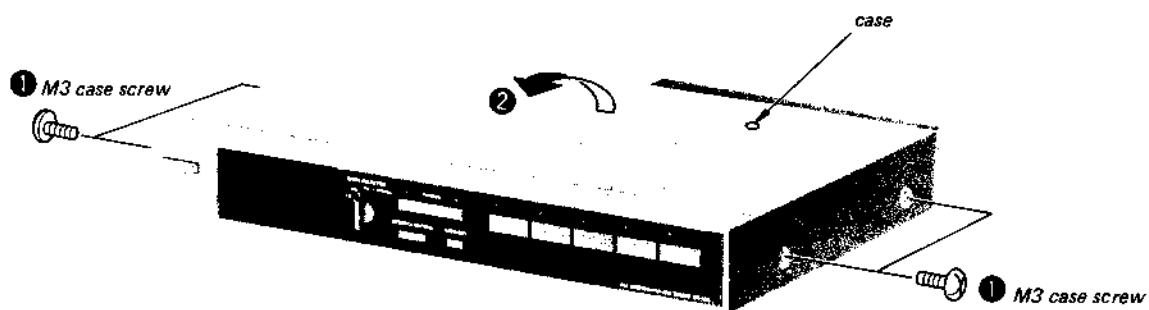
**⑫ Band/frequency-display**

Permits reading the received frequency at a glance from the figures.

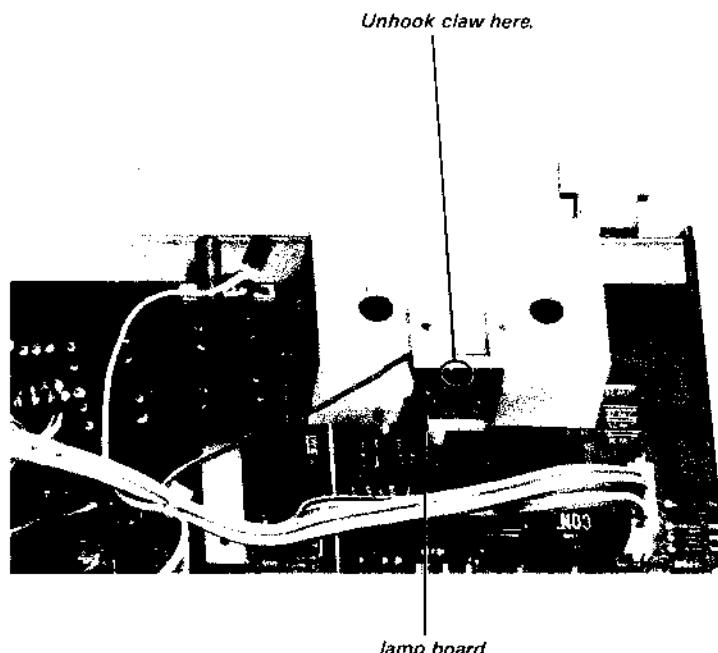
## SECTION 2 DISASSEMBLY

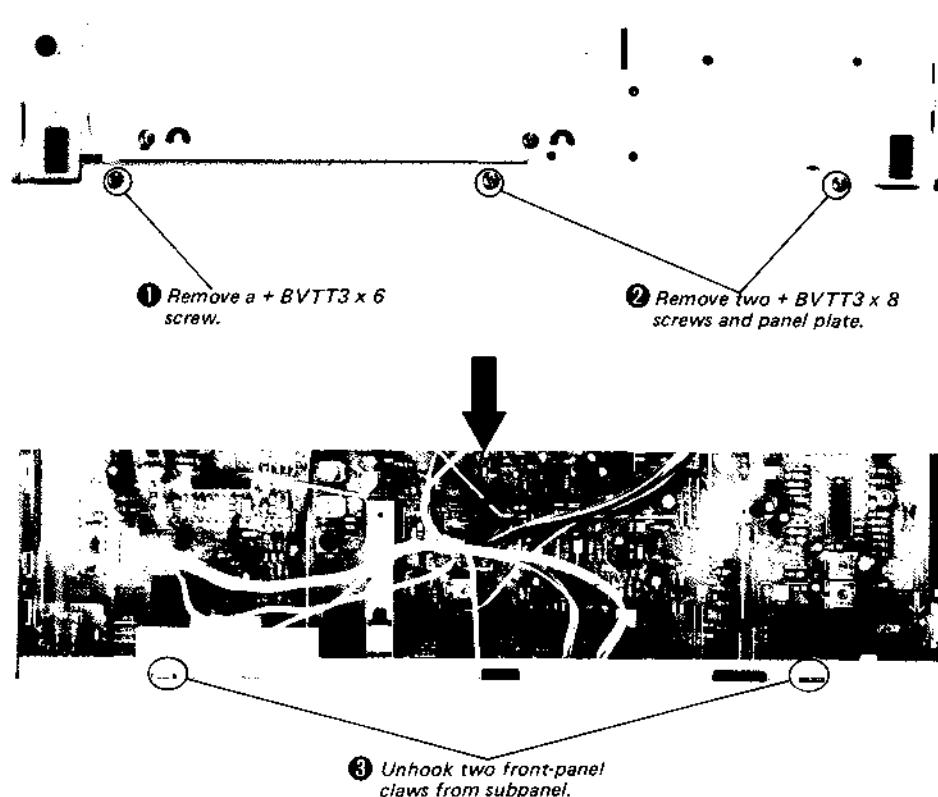
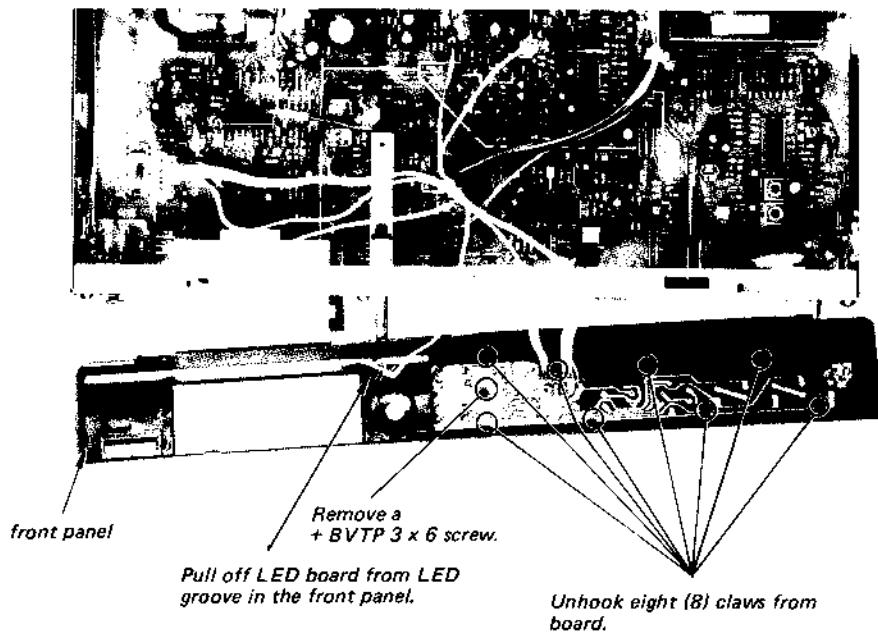
Note: Follow the disassembly procedure in the numerical order given.

### CASE

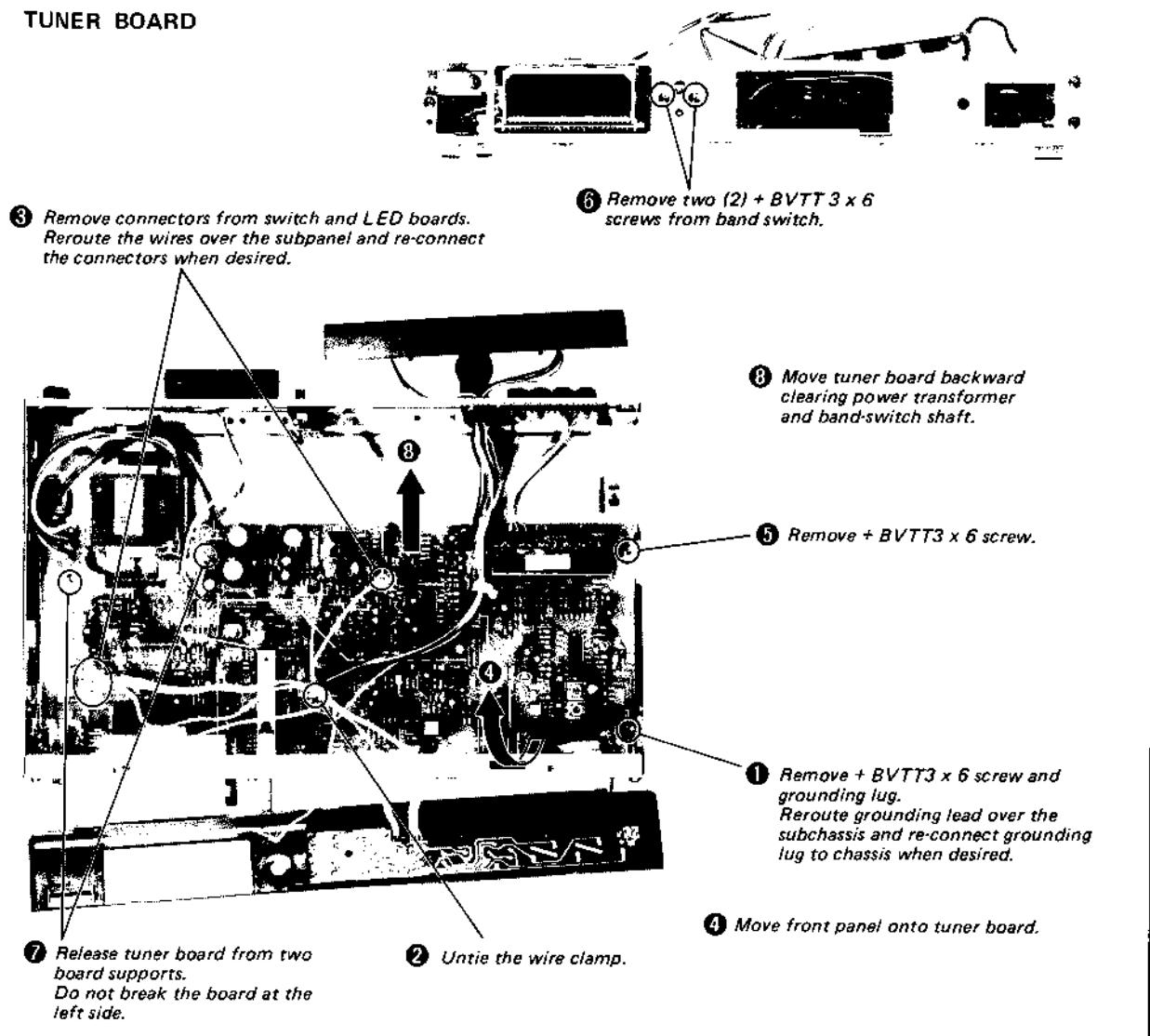


### LAMP BOARD AND LAMP PL901

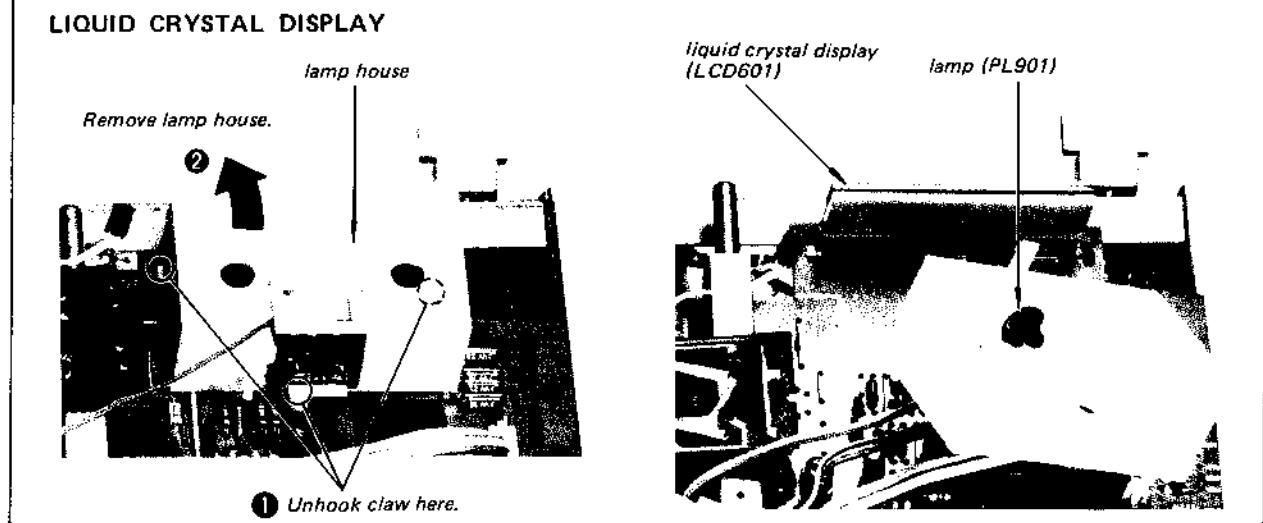


**FRONT PANEL****SWITCH BOARD/LED BOARD**

## TUNER BOARD



## LIQUID CRYSTAL DISPLAY

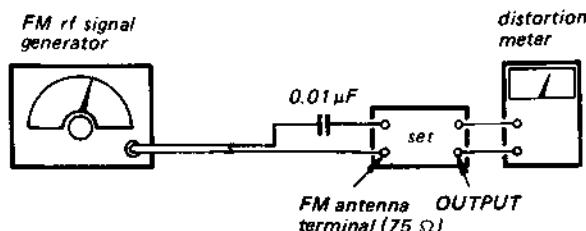


## SECTION 3

### ADJUSTMENTS

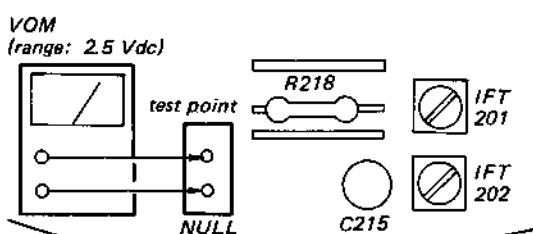
**FM SECTION**
**FM Discriminator Alignment**
**Setting:**

BAND SELECTOR switch . . . . FM  
STEREO/MUTING switch . . . . OFF

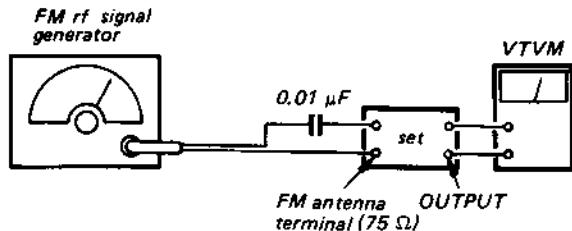
**Procedure:**


**Carrier frequency:** 98 MHz  
**Output level:** 1 mV (60 dB)  
**Modulation:** - 400 Hz, 40 kHz deviation (100%)

1. Tune the set to 98MHz.
2. Adjust IFT201 for 0 V reading on the VOM. . . . . NULL Adjustment
3. Adjust IFT202 for a minimum reading on the distortion meter. . . . . Distortion Adjustment


**FM Muting Level Adjustment**
**Setting:**

BAND SELECTOR switch . . . . FM  
STEREO/MUTING switch . . . . ON

**Procedure:**


**Carrier frequency:** 98 MHz  
**Modulation:** 400 Hz, 40 kHz deviation (100%)  
**Output level:** 10 μV (20 dB)

1. Tune the set to 98 MHz.
2. Adjust RT201 for a point the VTVM reading just drops to 0 V.

RT201

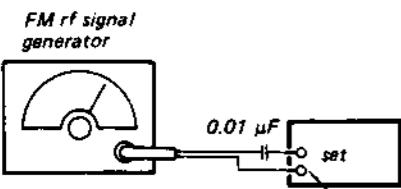
IFT201

IFT202



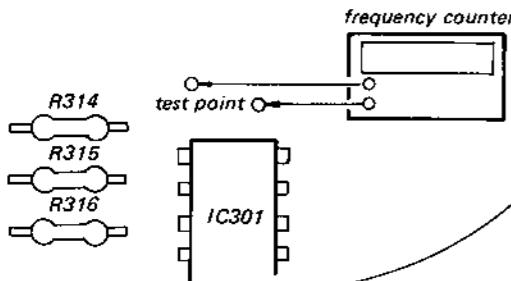
**VCO Adjustment**

Setting: BAND SELECTOR switch: FM  
STEREO/MUTING switch: OFF

**A) Regular Method****Procedure:**

Carrier frequency: 98 MHz  
Modulation: no modulation  
Output level: 1 mV (60 dB)

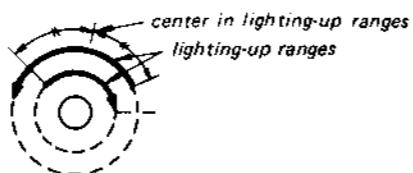
1. Tune the set to 98 MHz.
2. Adjust RT301 for  $19 \text{ kHz} \pm 50 \text{ Hz}$  on the counter.



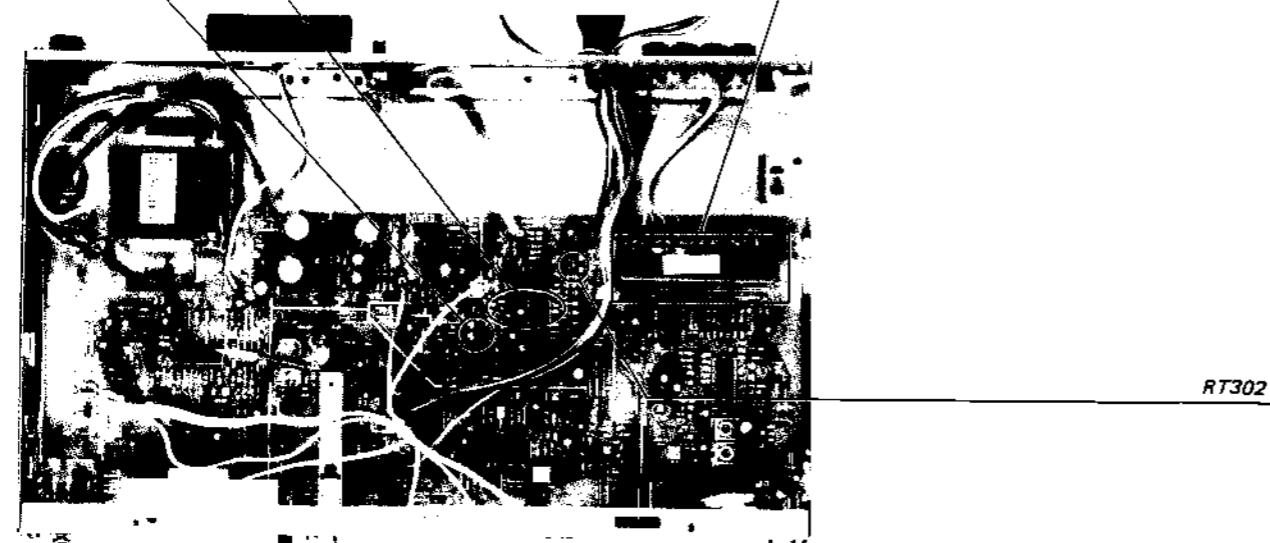
RT301

**B) Simple Method****Procedure:**

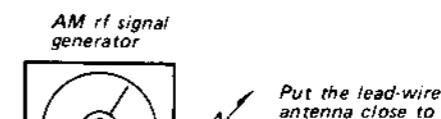
1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT301 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT301 at the center of the lighting-up range of both turns as shown below.



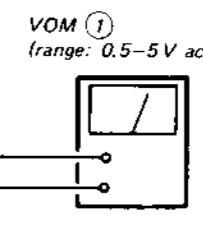
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.

**MW/LW SECTION****Setting:**

BAND SELECTOR switch: MW/LW



30% amplitude modulation by 400 Hz signal



VOM ① (range: 0.5-5 V ac)

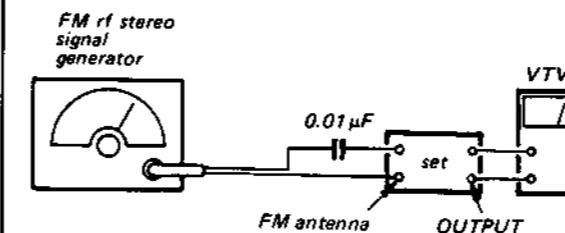
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW FREQUENCY
reading on VOM ②
frequency indication
adjustment part

MW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	frequency indication	adjustment
$22 \pm 0.2 \text{ V}$	$1,602 \text{ kHz}$	CT401
$1.6 \pm 0.1 \text{ V}$	$522 \text{ kHz}$	T401

**FM Stereo Separation Adjustment****Setting:**

BAND SELECTOR switch.....FM  
STEREO/MUTING switch .....ON (STEREO)

**Procedure:**

Carrier frequency: 98 MHz  
Output level: 1mV (60 dB)  
Modulation: Stereo

Audio (1 kHz):  $16.25 \text{ kHz}$  deviation (45 %)  
Pilot (19 kHz):  $7.5 \text{ kHz}$  deviation (10 %)  
Sub-channel (38 kHz)  $16.25 \text{ kHz}$  deviation (45 %)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RT302 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT302 for minimum reading.

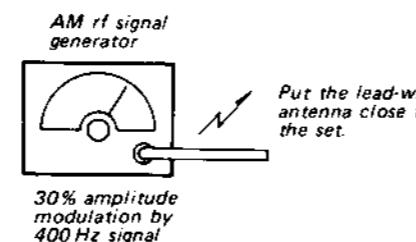
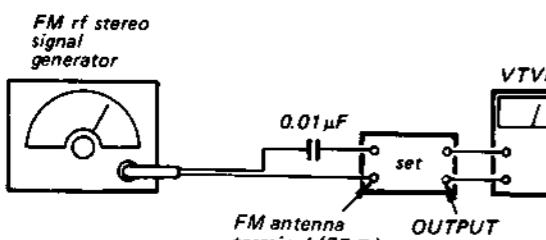
L-CH Stereo separation: (A) - (B)  
R-CH Stereo separation: (C) - (D)

The separations of both channels should be equal.

C308  
R30  
RT3

**MW/LW SECTION****Setting:**

BAND SELECTOR switch: MW/LW

**FM Stereo Separation Adjustment****Setting:**BAND SELECTOR switch.....FM  
STEREO/MUTING switch .....ON (STEREO)**Procedure:**

Carrier frequency: 98 MHz  
Output level: 1mV (60 dB)  
Modulation: Stereo  
  
Audio (1 kHz): 16.25 kHz deviation (45 %)  
Pilot (19 kHz): 7.5 kHz deviation (10 %)  
Sub-channel (38 kHz) 16.25 kHz deviation (45 %)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RT302 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT302 for minimum reading.

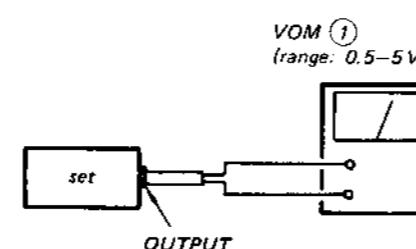
L-CH Stereo separation: (A) - (B)  
R-CH Stereo separation: (C) - (D)

The separations of both channels should be equal.

MW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	18.5 ± 0.2 V	2.2 ± 0.1 V
frequency indication	344 kHz	153 kHz
adjustment part	CT407	T406

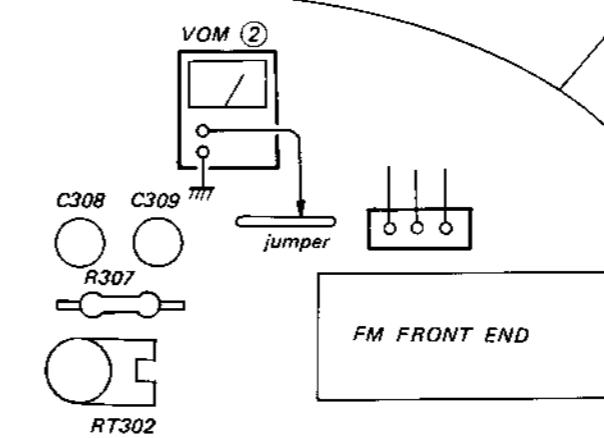
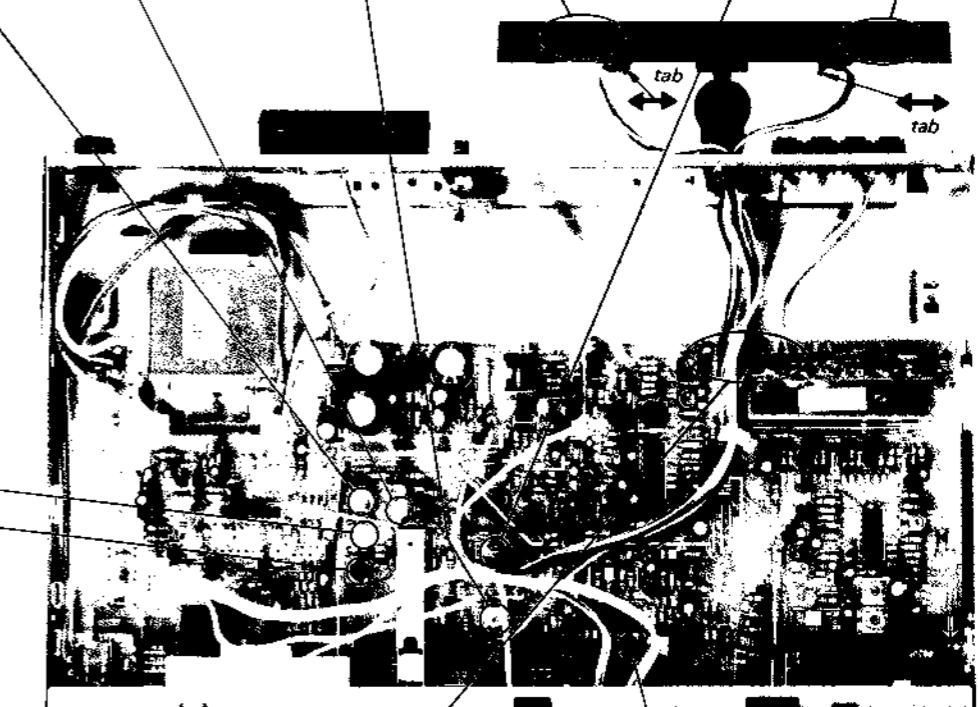
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
1,404 kHz	603 kHz

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ① .	
310 kHz	170 kHz



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	frequency indication	adjustment part
22 ± 0.2 V	1,602 kHz	CT401
1.6 ± 0.1 V	522 kHz	T401



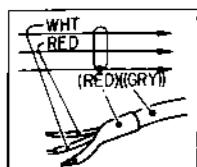
## 4-1. MOUNTING DIAGRAM

Semiconductor Lead Layout . . . See page 20.

SECTION 4  
DIAGRAMS

## Note: (for Mounting Diagram)

- Color code of sleeving over the end of the jacket.



- indicates side identified with part number.
- B+ pattern
- signal path
- L-CH signal path
- R-CH signal path

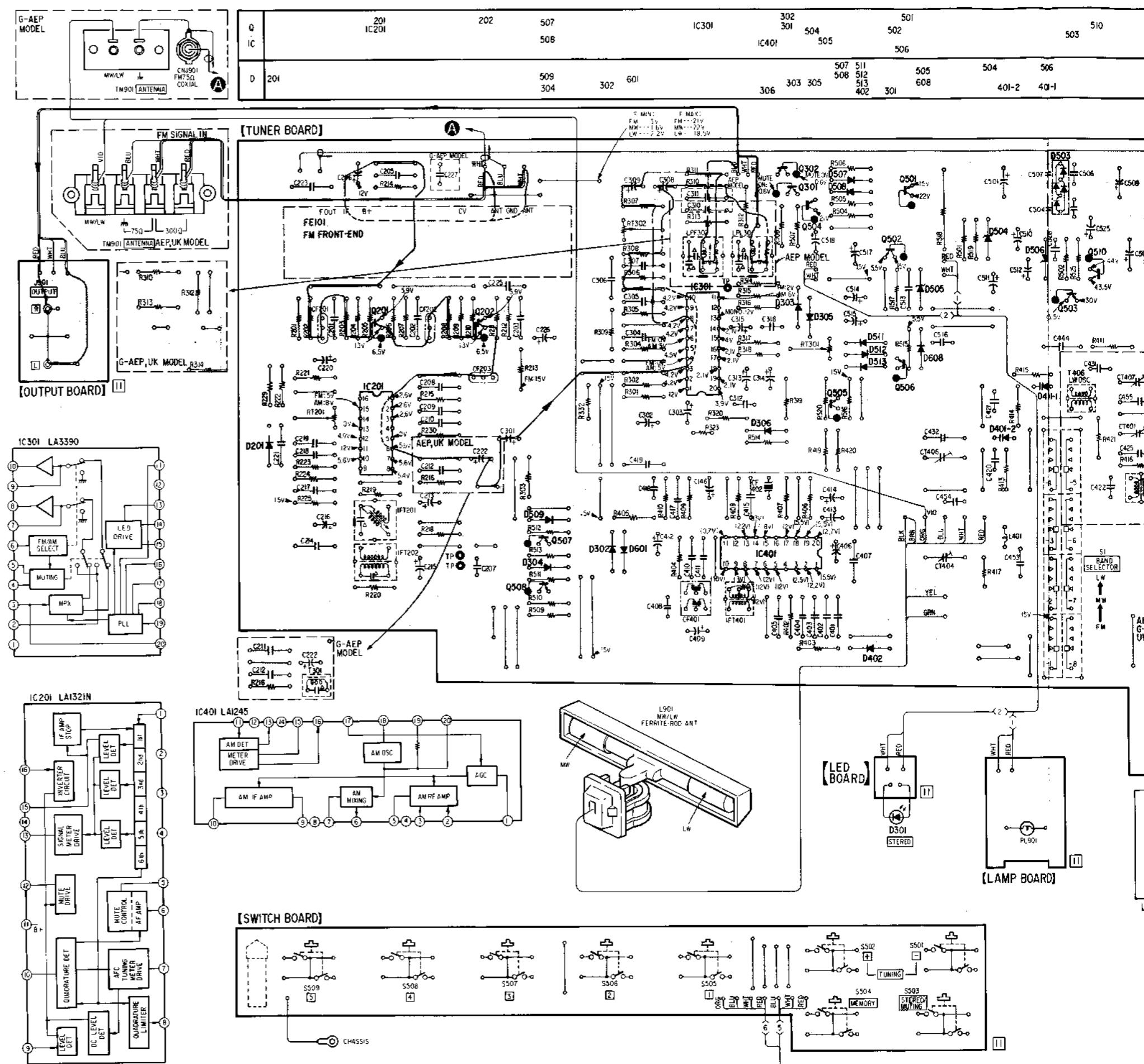
## Note: (for Schematic Diagram)

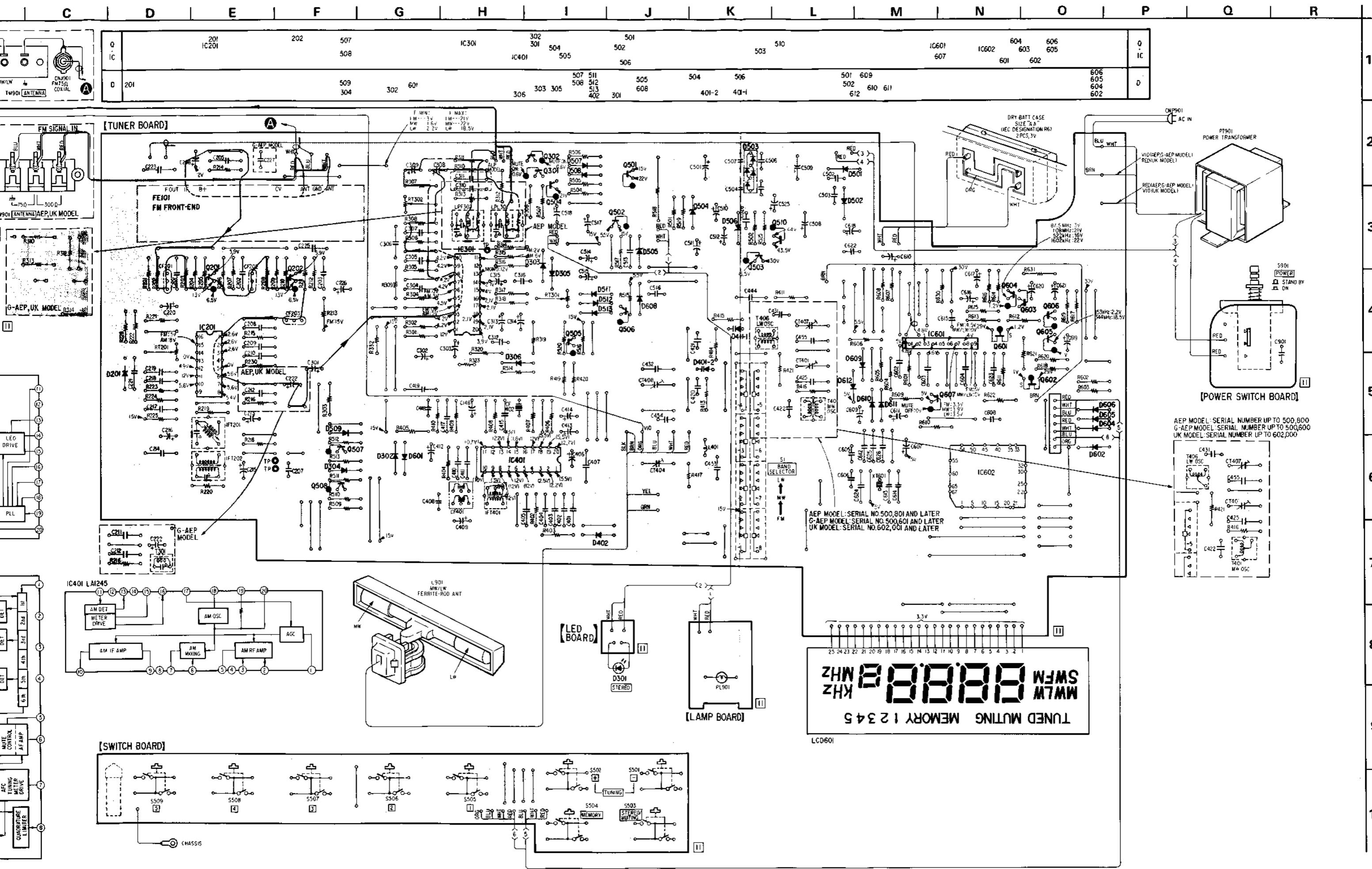
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$  :  $\mu\mu\text{F}$   
 $50\text{VW}$  or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms,  $\frac{1}{2}\text{W}$  unless otherwise noted.  
 $\text{k}\Omega$  :  $1000\Omega$ ,  $\text{M}\Omega$  :  $1000\text{k}\Omega$
- adjustment for repair.
- B+ bus.
- Readings are taken under no-signal (detuned) conditions with a VOM ( $50\text{k}\Omega/\text{V}$ ).
- ( ) : AM
- Switch

Ref. No.	Switch	Position
S1	BAND SELECTOR	FM
S501	TUNING/+	OFF
S502	TUNING/-	OFF
S603	STEREO MUTING	OFF
S504	MEMORY	OFF
S505-509	1-5	OFF
S901	POWER	OFF

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

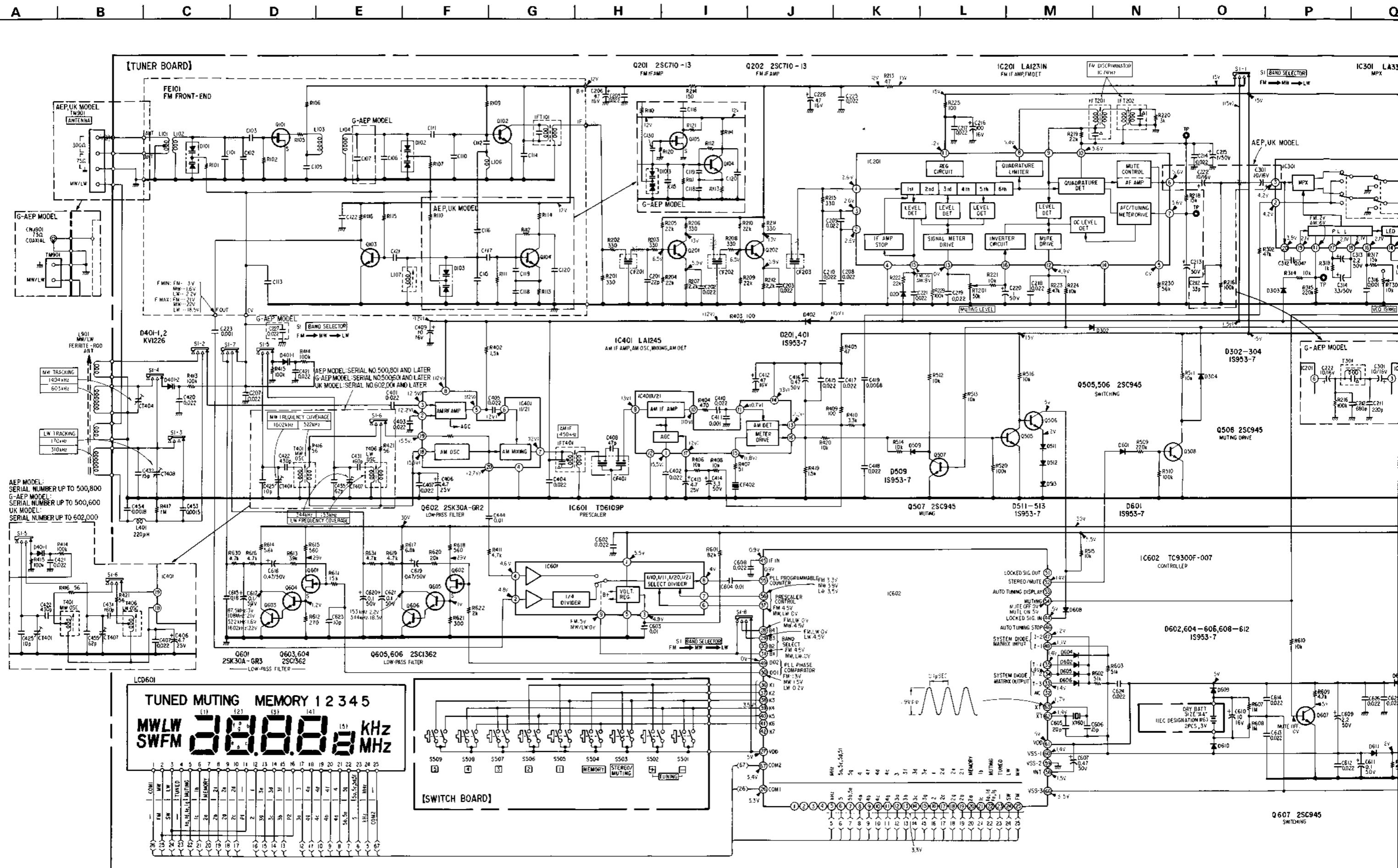
Note: Voltages are measured with a VOM ( $50\text{k}\Omega/\text{V}$ ).

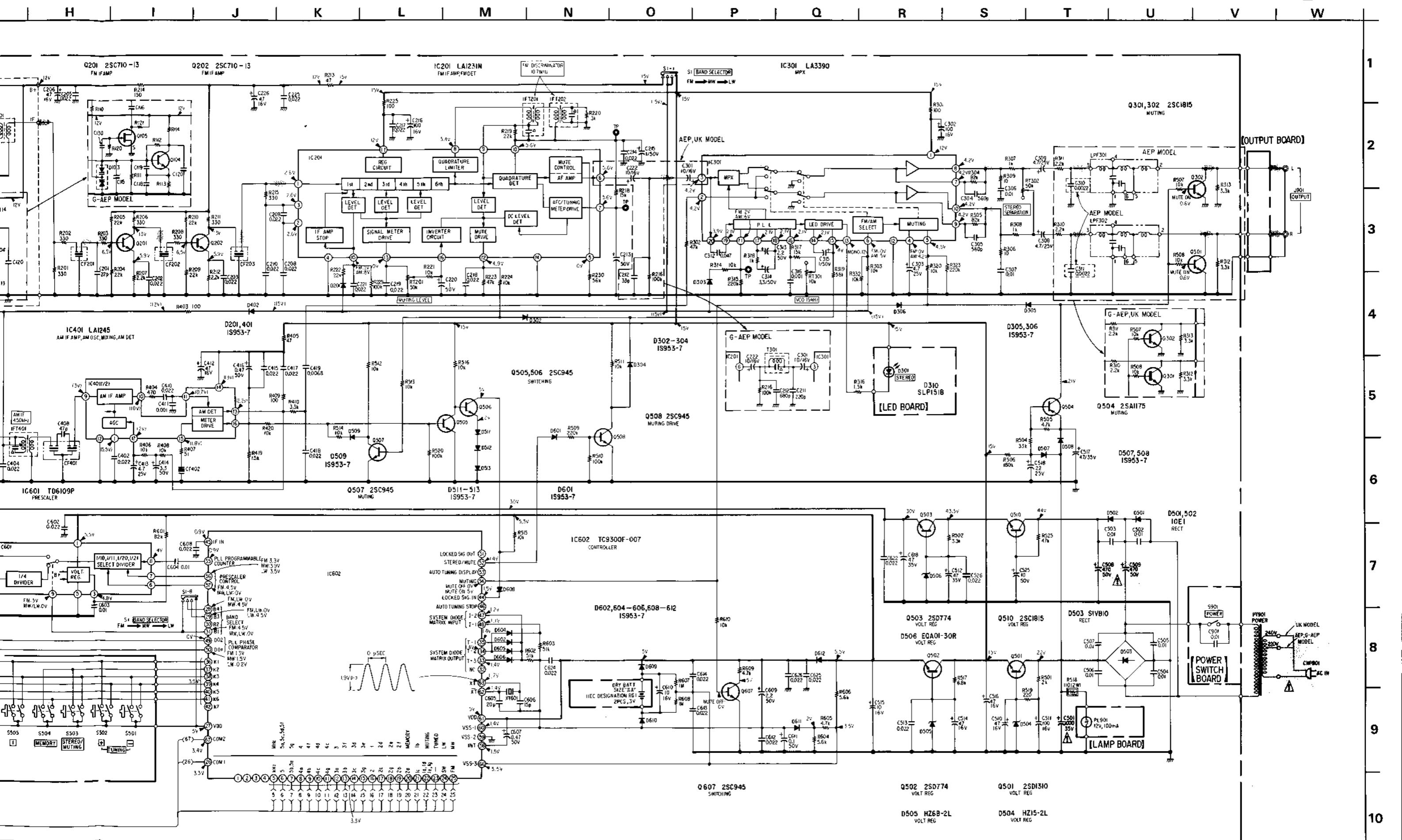




# ST-V3L ST-V3L

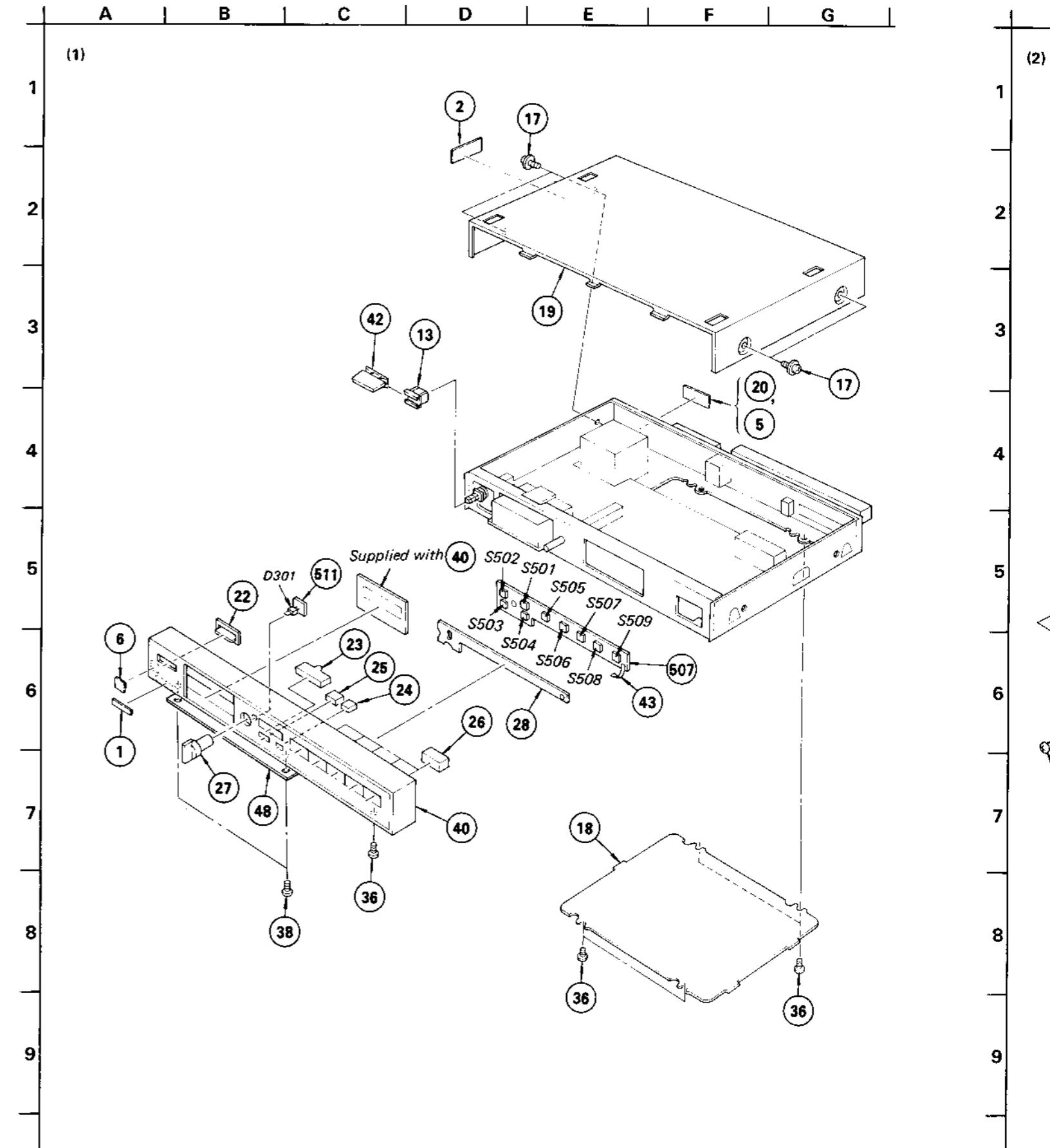
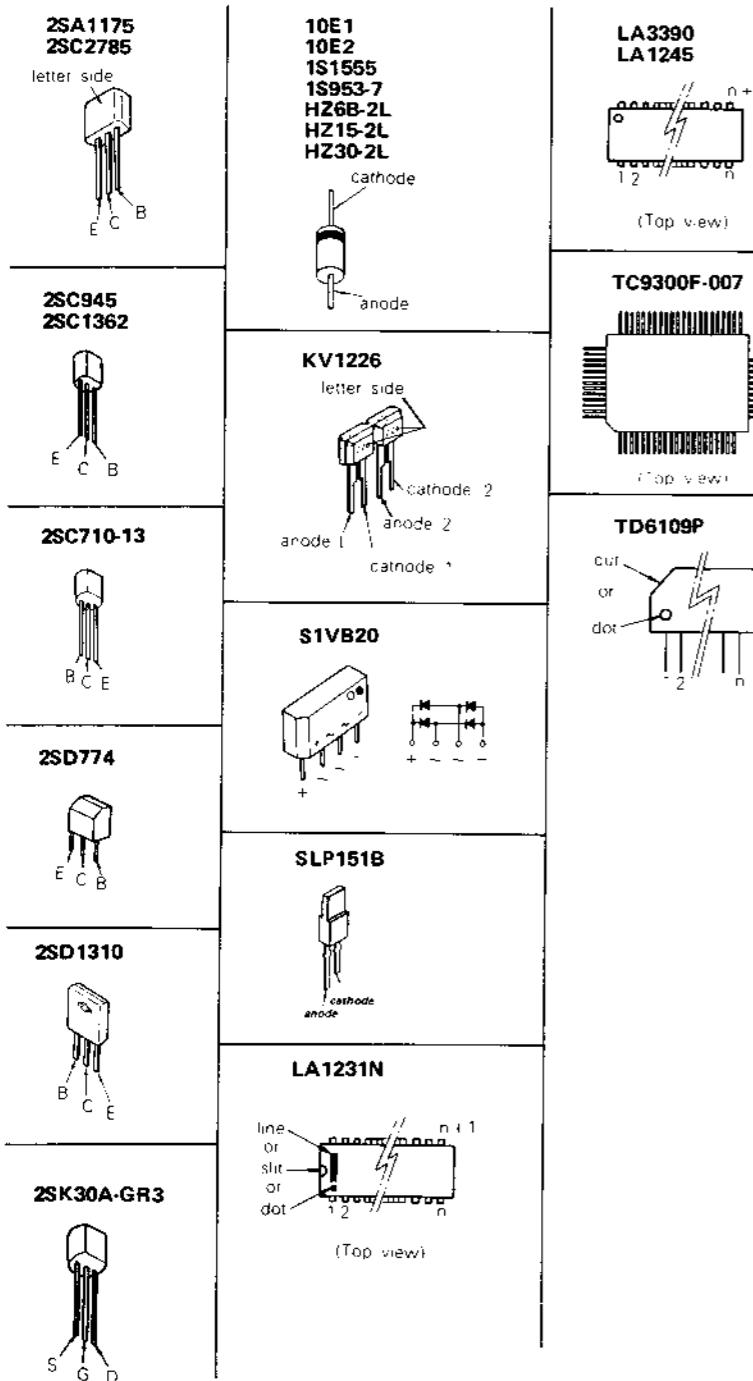
## 4-2. SCHEMATIC DIAGRAM





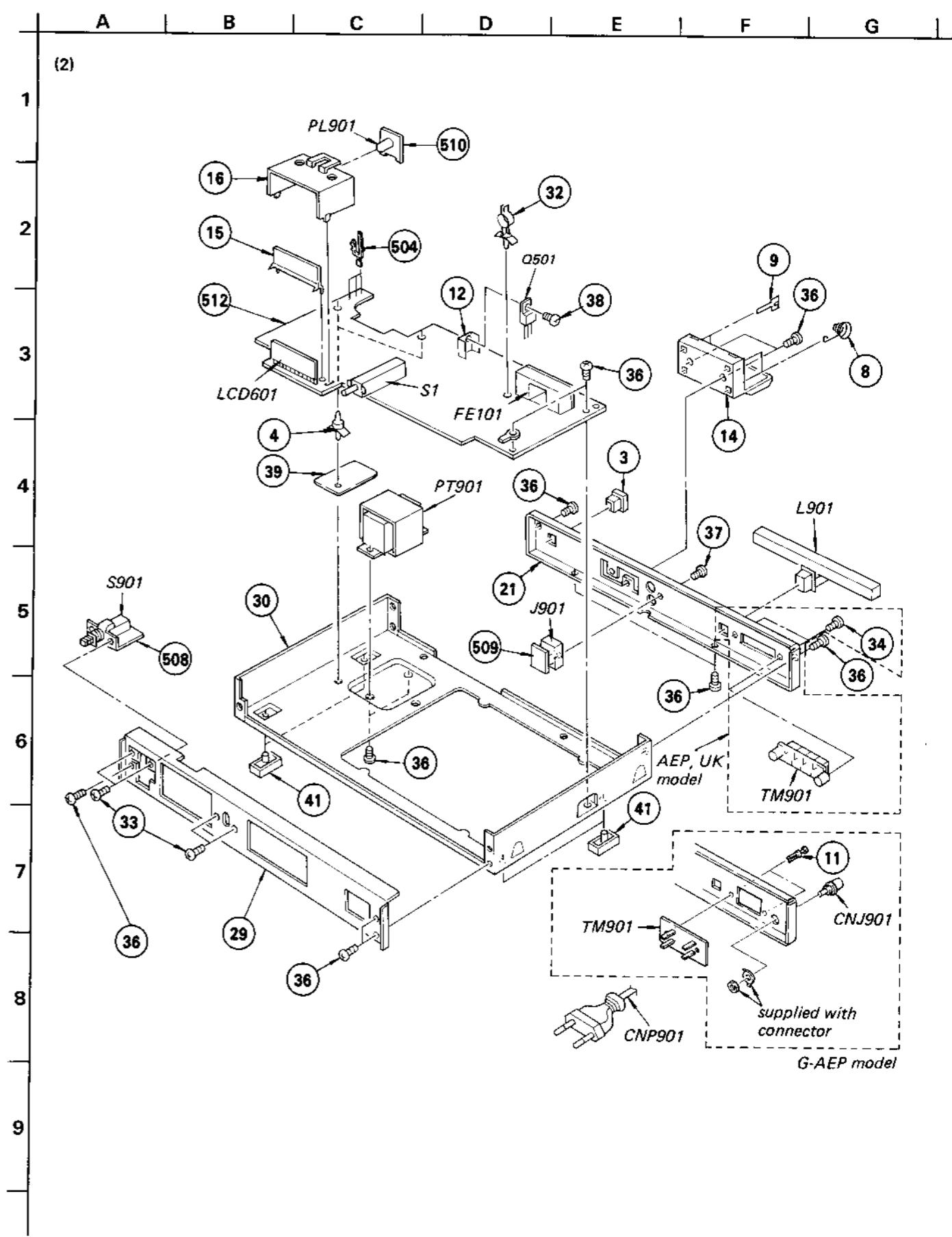
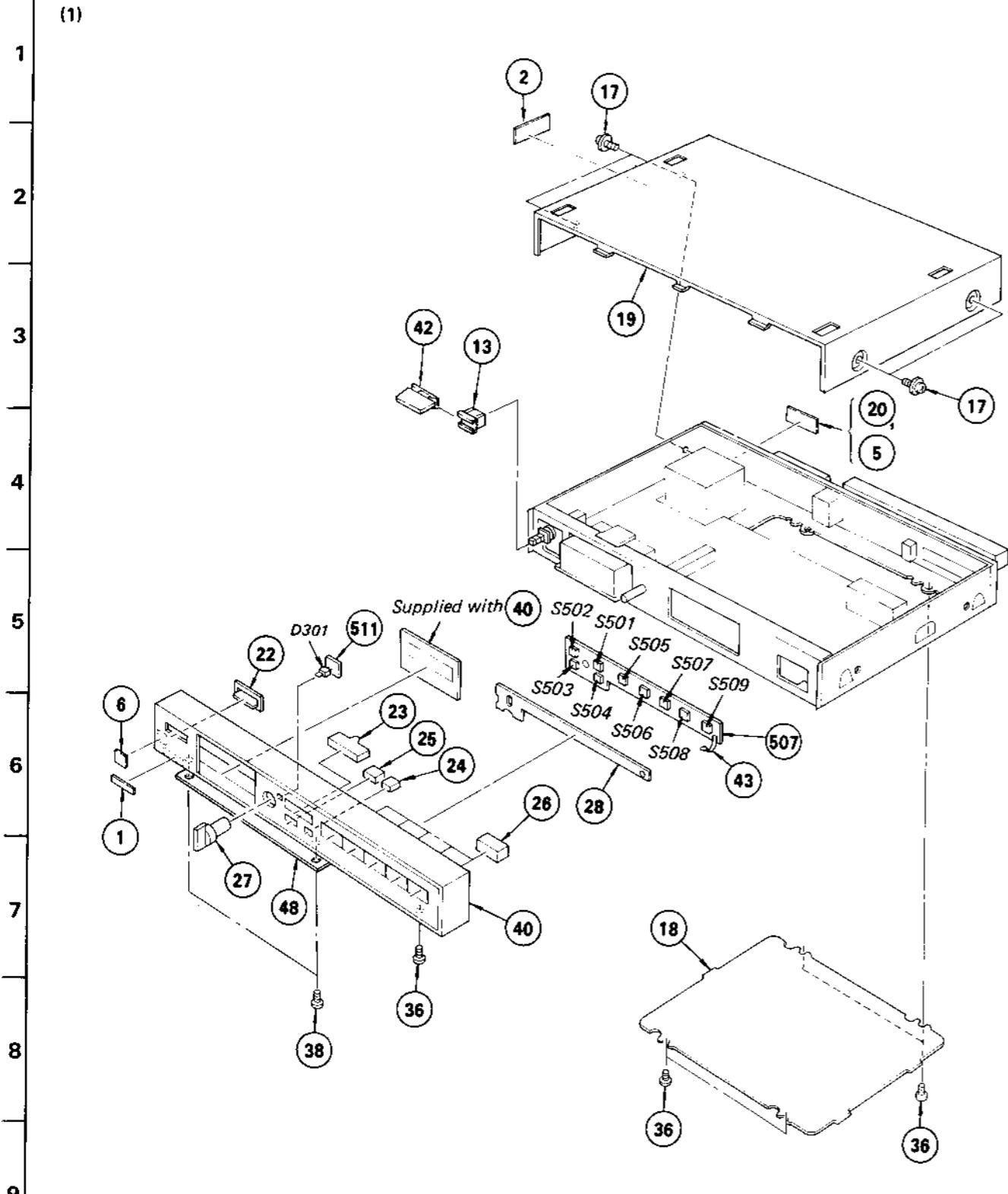
## EXPLODED VIEWS AND PARTS LIST

## • SEMICONDUCTOR LEAD LAYOUT



## EXPLODED VIEWS AND PARTS LIST

A | B | C | D | E | F | G |



GENERAL SECTION

No.	Part No.	Description
1	3-701-690-00	(UK).....LABEL, MADE IN JAPAN
2	3-703-043-00	(UK).....LABEL, MAIN CAUTION
3	3-703-244-00	BUSHING, CORD
4	3-703-353-01	SUPPORT, PC BOARD
5	3-703-590-00	(G-AEP)....LABEL, FTZ
6	3-703-710-01	STICKER, SONY SYMBOL (12)
7	3-831-441-11	CUSHION, 23X4X0.5
8	3-883-424-00	SPRING
9	3-883-428-00	PLATE, TERMINAL (POSITIVE)
10	4-808-716-00	PROTECTOR (C)
11	4-812-134-00	(G-AEP)....RIVET, NYLON
12	4-875-327-01	HEAT SINK
13	4-875-466-00	JOINT (F2), KNOB
14	4-875-530-00	CASE, BATTERY
15	4-884-848-00	ILLUMINATOR (ST)
16	4-884-856-00	HOUSE, LAMP
17	4-886-821-11	SCREW, M3 CASE
18	4-886-844-01	PLATE, BOTTOM
19	4-886-845-11	CASE
20	4-886-960-01	(G-AEP)....LABEL, MODEL NUMBER
20	4-886-960-11	(AEP).....LABEL, MODEL NUMBER
20	4-886-961-01	(UK).....LABEL, MODEL NUMBER
21	4-886-965-00	(AEP,UK)...PLATE, JACK
21	4-886-966-01	(G-AEP)...PLATE, JACK
22	4-886-976-00	ESCRUTCHEON, POWER KNOB
23	4-888-205-00	KNOB (A), PUSH
24	4-888-206-00	KNOB (B), PUSH
25	4-888-207-00	KNOB (C), PUSH
26	4-888-208-00	KNOB (F), PUSH
27	4-888-210-00	KNOB, SELECT, BAND
28	4-888-212-00	PLATE, PREVENTION
29	4-888-213-00	PANEL, SUB
30	4-888-214-01	CHASSIS
31	.....	
32	4-888-226-00	CLIP, STAND-OFF
33	7-682-647-01	SCREW +PS 3X6
34	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
35	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3
36	7-685-871-01	SCREW +BVTT 3X6 (S)
37	3-703-470-00	SCREW, +BV TERMINAL
38	7-685-872-01	SCREW +BVTT 3X8 (S)
39	9-911-863-XX	INSULATOR
40	A-4322-496-A	PANEL ASSY
41	X-4886-405-1	FOOT ASSY
42	X-4886-903-0	KNOB (L.S) ASSY, POWER

GENERAL SECTION

No.	Part No.	Description
43	4-888-230-00	SPRING, CONTACT
44	.....	
45	4-888-231-00	BRACKET, HOLDING
46	4-888-232-00	SPACER
47	3-703-473-00	SCREW
48	4-888-231-00	PLATE, PANEL

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	1-501-161-00	(AEP,UK)....ANTENNA, FEEDER
102	1-528-027-11	BATTERY, NEW SUPER (SUM-3)(NS)
103	1-556-793-21	CORD, CONNECTION
104	3-701-630-00	BAG, POLYETHYLENE
105	3-773-300-11	(AEP,UK).....MANUAL, INSTRUCTION
105	3-773-300-41	(AEP,G-AEP)....MANUAL, INSTRUCTION
106	4-875-574-00	Sheet, PROTECTION
107	4-886-982-00	INDIVIDUAL CARTON
108	4-886-997-00	CUSHION (RIGHT), UPPER
109	4-886-998-00	CUSHION (LEFT), UPPER
110	4-886-999-00	CUSHION (RIGHT), LOWER
111	4-888-201-00	CUSHION (LEFT), LOWER
112	4-888-219-00	SPACER, FERRITE-ROD ANTENNA

## 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 ( $\Delta-\Delta\Delta-\Delta\Delta-\Delta\Delta-\Delta\Delta-\Delta\Delta-\Delta\Delta-X$  or  $\Delta-\Delta\Delta\Delta-\Delta\Delta\Delta-\Delta\Delta\Delta-X$ ) may be different from those used in the set.

## CAPACITORS:

- All capacitors are in  $\mu$ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF: $\mu$ F, PF: $\mu$ pF.

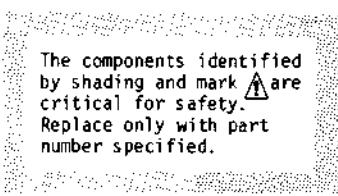
## RESISTORS:

- 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 :  $\mu$ H



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

## SEMICONDUCTORS

In each case, U : u, for example:  
UA... :  $\mu$ A..., UPA... :  $\mu$ PA..., UPC... :  $\mu$ PC,  
UPD... :  $\mu$ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	.....	
502	▲;1-535-115-00	TERMINAL
503	▲;1-535-118-00	TERMINAL
504	▲;1-535-416-00	TERMINAL
505	▲;1-560-060-00	PIN, CONNECTOR 2P
506	▲;1-560-338-00	PIN, CONNECTOR 7P
507	▲;1-609-846-00	PC BOARD, S-1
508	▲;1-609-847-00	PC BOARD, POWER SWITCH
509	▲;1-609-848-00	PC BOARD, OUTPUT
510	▲;1-609-849-00	PC BOARD, LAMP
511	▲;1-609-850-00	PC BOARD, LED
512	▲;1-609-852-00	PC BOARD, TUNER
C201	1-161-263-00	CERAMIC
C202	1-161-494-00	CERAMIC
C203	1-161-494-00	CERAMIC
C205	1-161-494-00	CERAMIC
C206	1-123-319-00	ELECT
C207	1-101-005-00	CERAMIC
C208	1-161-494-00	CERAMIC
C209	1-161-494-00	CERAMIC
C210	1-161-494-00	CERAMIC
C211	1-161-321-00	(G-AEP)....CERAMIC
C212	1-161-265-00	(AEP,UK)...CERAMIC
C212	1-161-321-00	(G-AEP)....CERAMIC
C213	1-123-380-00	ELECT
C214	1-161-494-00	CERAMIC
C215	1-123-380-00	ELECT
C216	1-123-320-00	ELECT
C217	1-161-494-00	CERAMIC
C218	1-161-494-00	CERAMIC
C219	1-161-494-00	CERAMIC
C220	1-123-380-00	ELECT
C221	1-161-494-00	CERAMIC
C222	1-123-356-00	ELECT
C223	1-161-323-00	CERAMIC
C225	1-161-494-00	CERAMIC
C226	1-123-319-00	ELECT
C227	1-101-005-00	(G-AEP)....CERAMIC
C301	1-123-356-00	ELECT
C302	1-123-320-00	ELECT
C303	1-123-328-00	ELECT
C304	1-161-320-00	CERAMIC
C305	1-161-320-00	CERAMIC
C306	1-161-330-00	CERAMIC
C307	1-161-330-00	CERAMIC
C308	1-123-328-00	ELECT

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C309	1-123-328-00	ELECT
C310	1-161-326-00	(AEP)...CERAMIC
C311	1-161-326-00	(AEP)...CERAMIC
C312	1-101-006-00	CERAMIC
C313	1-123-353-00	ELECT
C314	1-123-354-00	ELECT
C315	1-123-380-00	ELECT
C316	1-104-077-00	POLYSTYRENE
C401	1-161-494-00	CERAMIC
C402	1-161-494-00	CERAMIC
C403	1-161-494-00	CERAMIC
C404	1-161-494-00	CERAMIC
C405	1-161-494-00	CERAMIC
C406	1-123-328-00	ELECT
C407	1-161-494-00	CERAMIC
C408	1-161-267-00	CERAMIC
C409	1-123-356-00	ELECT
C410	1-161-494-00	CERAMIC
C411	1-161-323-00	CERAMIC
C412	1-123-319-00	ELECT
C413	1-123-328-00	ELECT
C414	1-123-354-00	ELECT
C415	1-161-494-00	CERAMIC
C416	1-123-351-00	ELECT
C417	1-161-494-00	CERAMIC
C418	1-101-005-00	CERAMIC
C419	1-161-329-00	CERAMIC
C420	1-101-005-00	CERAMIC
C421	1-101-005-00	CERAMIC
C422	1-103-716-00	POLYSTYRENE
C425	1-161-301-00	CERAMIC
C431	1-103-706-00	POLYSTYRENE
C432	1-161-295-00	CERAMIC
C444	1-161-330-00	CERAMIC
C453	1-161-053-00	CERAMIC
C454	1-102-120-00	CERAMIC
C455	1-161-344-00	CERAMIC
C501	1-123-349-00	ELECT
C502	1-101-004-00	CERAMIC
C503	1-101-004-00	CERAMIC
C504	1-101-004-00	CERAMIC
C505	1-101-004-00	CERAMIC
C506	1-101-004-00	CERAMIC
C507	1-101-004-00	CERAMIC
C508	1-123-363-00	ELECT
C509	1-123-363-00	ELECT

## NOTE:

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- 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 (△-△△-△△-XX or △-△△△-△△△-X) may be different from those used in the set.

## CAPACITORS:

- All capacitors are in  $\mu\text{F}$ . Common capacitors are omitted. Refer to the following lists for their part numbers.  
MF: $\mu\text{F}$ , PF: $\mu\mu\text{F}$ .

## 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

- MH : mH, UH :  $\mu\text{H}$

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

## SEMICONDUCTORS

- In each case, U : u, for example:  
UA...:  $\mu\text{A}\dots$ , UPA...:  $\mu\text{PA}\dots$ , UPC...:  $\mu\text{PC}$ , UPD...:  $\mu\text{PD}\dots$

ELECTRICAL PARTS

Ref.No.	Part No.	Description	Value	Tolerance	Voltage
C510	1-161-494-00	CERAMIC	0.022MF	30%	25V
C511	1-123-320-00	ELECT	100MF	20%	16V
C512	1-123-359-00	ELECT	47MF	20%	35V
C513	1-161-494-00	CERAMIC	0.022MF	30%	25V
C514	1-123-319-00	ELECT	47MF	20%	16V
C515	1-123-356-00	ELECT	10MF	20%	16V
C516	1-123-319-00	ELECT	47MF	20%	16V
C517	1-123-359-00	ELECT	47MF	20%	35V
C518	1-123-330-00	ELECT	22MF	20%	25V
C525	1-123-356-00	ELECT	10MF	20%	50V
C526	1-101-005-00	CERAMIC	0.022MF	50V	
C602	1-161-494-00	CERAMIC	0.022MF	30%	25V
C603	1-161-330-00	CERAMIC	0.01MF	30%	25V
C604	1-161-330-00	CERAMIC	0.01MF	30%	25V
C605	1-101-974-00	CERAMIC	20PF	5%	50V
C606	1-102-851-00	CERAMIC	15PF	5%	50V
C607	1-123-351-00	ELECT	0.47MF	20%	50V
C608	1-161-494-00	CERAMIC	0.022MF	30%	25V
C609	1-123-353-00	ELECT	2.2MF	20%	50V
C610	1-123-356-00	ELECT	10MF	20%	16V
C611	1-123-607-00	ELECT	0.1MF	20%	50V
C612	1-161-494-00	CERAMIC	0.022MF	30%	25V
C613	1-161-494-00	CERAMIC	0.022MF	30%	25V
C614	1-161-494-00	CERAMIC	0.022MF	30%	25V
C615	1-130-635-00	FILM	0.18MF	5%	50V
C616	1-123-351-00	ELECT	0.47MF	20%	50V
C617	1-161-494-00	CERAMIC	0.022MF	30%	25V
C618	1-123-359-00	ELECT	47MF	20%	35V
C619	1-123-351-00	ELECT	0.47	20%	50V
C620	1-123-607-00	ELECT	0.1MF	20%	50V
C621	1-123-607-00	ELECT	0.1MF	20%	50V
C622	1-101-005-00	CERAMIC	0.022MF	50V	
C623	1-161-259-00	CERAMIC	10PF	5%	50V
C624	1-161-494-00	CERAMIC	0.022MF	30%	25V
C625	1-161-494-00	CERAMIC	0.022MF	30%	25V
C626	1-161-494-00	CERAMIC	0.022MF	30%	25V
C901	1-101-004-00	CERAMIC	0.01MF	50V	
CF201	1-527-968-71	FILTER, CERAMIC			
CF202	1-527-968-71	FILTER, CERAMIC			
CF203	1-527-968-71	FILTER, CERAMIC			
CF401	1-527-937-00	FILTER, CERAMIC			
CF402	1-527-981-00	FILTER, CERAMIC			
CNJ901	1-561-919-00	(G-AEP).....SOCKET, CONNECTOR			
<b>ACNP901.1-551-427-11 (AEP,G-AEP)....CORD, POWER, EUO PLUG</b>					
<b>ACNP901.1-556-562-00 (UK).....CORD, POWER</b>					

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CT401	1-141-180-00	CAP, TRIMMER 15P
CT404	1-141-180-00	CAP, TRIMMER 15P
CT407	1-141-180-00	CAP, TRIMMER 15P
CT408	1-141-180-00	CAP, TRIMMER 15P
Q201	8-719-815-55	DIODE 1S1555
O301	8-719-901-52	DIODE SLP1518
O302	8-719-815-55	DIODE 1S1555
O303	8-719-815-55	DIODE 1S1555
O304	8-719-815-55	DIODE 1S1555
O305	8-719-815-55	DIODE 1S1555
D306	8-719-815-55	DIODE 1S1555
D401	8-719-912-27	DIODE KV1226
D402	8-719-815-55	DIODE 1S1555
D501	8-719-200-02	DIODE 1OE2
D502	8-719-200-02	DIODE 1OE2
D503	8-719-511-20	DIODE S1WB20
D504	8-719-910-52	DIODE HZ15-2L
D505	8-719-910-65	DIODE HZ682L
D506	8-719-913-02	DIODE HZ30-2L
D507	8-719-815-55	DIODE 1S1555
D508	8-719-815-55	DIODE 1S1555
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
O513	8-719-815-55	DIODE 1S1555
D601	8-719-815-55	DIODE 1S1555
D602	8-719-815-55	DIODE 1S1555
D604	8-719-815-55	DIODE 1S1555
D605	8-719-815-55	DIODE 1S1555
D606	8-719-815-55	DIODE 1S1555
D608	8-719-815-55	DIODE 1S1555
D609	8-719-815-55	DIODE 1S1555
D610	8-719-815-55	DIODE 1S1555
FE101	A-4344-029-A	(AEP,UK)....FRONT END, FM
FE101	A-4344-031-A	(G-AEP)....FRONT END, FM
IC201	8-759-812-31	IC LA1231N
IC301	8-759-833-90	IC LA3390
IC401	8-759-812-45	IC LA1245
IC601	8-759-201-03	IC TD6109P
IC602	8-759-201-31	IC TC9300F-007
IFT201	1-404-400-00	TRANSFORMER, DISCRIMINATOR
IFT202	1-404-401-00	TRANSFORMER, DISCRIMINATOR
IFT401	1-404-413-00	TRANSFORMER, IF

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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  $\mu$ F. Common capacitors are omitted. Refer to the following lists for their part numbers.  
MF: $\mu$ F, PF: $\mu\mu$ F.

## 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 :  $\mu$ H

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

## SEMICONDUCTORS

In each case, U :  $\mu$ , for example:  
UA...:  $\mu$ A..., UPA...:  $\mu$ PA..., UPC...:  $\mu$ PC,  
UPD...:  $\mu$ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
J901	I-507-843-00	JACK, PIN 2P
L401	I-407-173-XX	MICRO INDUCTOR 220UH
L901	I-402-011-21	ANTENNA, FERRITE-ROD (LW/MW)
LCD601	I-806-643-00	DISPLAY PANEL, LIQUID CRYSTAL
LPF301	I-235-164-00	(AEP,UK)...FILTER, LOW PASS
LPF302	I-235-164-00	(AEP,UK)...FILTER, LOW PASS
PL901	I-518-511-00	LAMP, PILOT
Q201	8-729-671-13	TRANSISTOR 2SC710-13
Q202	8-729-671-13	TRANSISTOR 2SC710-13
Q301	8-729-178-54	TRANSISTOR 2SC2785
Q302	8-729-178-54	TRANSISTOR 2SC2785
Q501	8-729-103-33	TRANSISTOR 2SD1310
Q502	8-729-177-43	TRANSISTOR 2SD774
Q503	8-729-177-43	TRANSISTOR 2SD774
Q504	8-729-117-54	TRANSISTOR 2SA1175
Q505	8-729-178-54	TRANSISTOR 2SC2785
Q506	8-729-178-54	TRANSISTOR 2SC2785
Q507	8-729-178-54	TRANSISTOR 2SC2785
Q508	8-729-178-54	TRANSISTOR 2SC2785
Q510	8-729-178-54	TRANSISTOR 2SC2785
Q601	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q602	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q603	8-729-664-48	TRANSISTOR 2SC1362-48
Q604	8-729-664-48	TRANSISTOR 2SC1362-48
Q605	8-729-664-48	TRANSISTOR 2SC1362-48
Q606	8-729-664-48	TRANSISTOR 2SC1362-48
Q607	8-729-178-54	TRANSISTOR 2SC2785
R201	I-246-461-00	CARBON 330 5% 1/4W
R202	I-246-461-00	CARBON 330 5% 1/4W
R203	I-246-461-00	CARBON 330 5% 1/4W
R204	I-246-505-00	CARBON 22K 5% 1/4W
R205	I-246-505-00	CARBON 22K 5% 1/4W
R206	I-246-461-00	CARBON 330 5% 1/4W
R207	I-246-481-00	CARBON 2.2K 5% 1/4W
R208	I-246-461-00	CARBON 330 5% 1/4W
R209	I-246-505-00	CARBON 22K 5% 1/4W
R210	I-246-505-00	CARBON 22K 5% 1/4W
R211	I-246-461-00	CARBON 330 5% 1/4W
R212	I-246-481-00	CARBON 2.2K 5% 1/4W
R213	I-246-441-00	CARBON 47 5% 1/4W
R214	I-246-453-00	CARBON 150 5% 1/4W
R215	I-246-461-00	CARBON 330 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R216	I-246-521-00	CARBON 100K 5% 1/4W
R218	I-246-501-00	CARBON 15K 5% 1/4W
R219	I-246-505-00	CARBON 22K 5% 1/4W
R220	I-246-484-00	CARBON 3K 5% 1/4W
R221	I-246-497-00	CARBON 10K 5% 1/4W
R222	I-246-505-00	CARBON 22K 5% 1/4W
R223	I-246-513-00	CARBON 47K 5% 1/4W
R224	I-246-497-00	CARBON 10K 5% 1/4W
R225	I-246-449-00	CARBON 100 5% 1/4W
R229	I-246-521-00	CARBON 100K 5% 1/4W
R230	I-246-515-00	CARBON 56K 5% 1/4W
R301	I-246-449-00	CARBON 100 5% 1/4W
R302	I-246-513-00	CARBON 47K 5% 1/4W
R303	I-246-497-00	CARBON 10K 5% 1/4W
R304	I-246-519-00	CARBON 82K 5% 1/4W
R305	I-246-519-00	CARBON 82K 5% 1/4W
R306	I-246-425-00	CARBON 10 5% 1/4W
R307	I-246-473-00	CARBON 1K 5% 1/4W
R308	I-246-473-00	CARBON 1K 5% 1/4W
R309	I-246-425-00	CARBON 10 5% 1/4W
R310	I-246-481-00	CARBON 2.2K 5% 1/4W
R311	I-246-481-00	CARBON 2.2K 5% 1/4W
R312	I-246-485-00	CARBON 3.3K 5% 1/4W
R313	I-246-485-00	CARBON 3.3K 5% 1/4W
R314	I-246-497-00	CARBON 10K 5% 1/4W
R315	I-246-529-00	CARBON 220K 5% 1/4W
R316	I-246-477-00	CARBON 1.5K 5% 1/4W
R317	I-246-501-00	CARBON 15K 5% 1/4W
R318	I-246-473-00	CARBON 1K 5% 1/4W
R319	I-246-515-00	CARBON 56K 5% 1/4W
R320	I-246-497-00	CARBON 10K 5% 1/4W
R322	I-246-497-00	CARBON 10K 5% 1/4W
R323	I-246-529-00	CARBON 220K 5% 1/4W
R402	I-246-477-00	CARBON 1.5K 5% 1/4W
R403	I-246-449-00	CARBON 100 5% 1/4W
R404	I-246-465-00	CARBON 470 5% 1/4W
R405	I-246-441-00	CARBON 47 5% 1/4W
R406	I-246-497-00	CARBON 10K 5% 1/4W
R407	I-246-442-00	CARBON 51 5% 1/4W
R408	I-246-497-00	CARBON 10K 5% 1/4W
R409	I-246-449-00	CARBON 100 5% 1/4W
R410	I-246-485-00	CARBON 3.3K 5% 1/4W
R411	I-246-489-00	CARBON 4.7K 5% 1/4W
R413	I-246-521-00	CARBON 100K 5% 1/4W
R414	I-246-521-00	CARBON 100K 5% 1/4W
R415	I-246-521-00	CARBON 100K 5% 1/4W
R416	I-246-443-00	CARBON 56 5% 1/4W

## 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  $\mu$ F. Common capacitors are omitted. Refer to the following lists for their part numbers.  
MF: $\mu$ F, PF: $\mu$ uF.

## 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 :  $\mu$ H

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

## SEMICONDUCTORS

In each case, U :  $\mu$ , for example:  
UA... :  $\mu$ A..., UPA... :  $\mu$ PA..., UPC... :  $\mu$ PC,  
UPD... :  $\mu$ PD...

ELECTRICAL PARTS

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>				
R417	1-246-545-00	CARBON	1M	5%	1/4W	
R419	1-246-477-00	CARBON	1.5K	5%	1/4W	
R420	1-246-497-00	CARBON	10K	5%	1/4W	
R421	1-246-443-00	CARBON	56	5%	1/4W	
R501	1-246-480-00	CARBON	2K	5%	1/4W	
R502	1-246-485-00	CARBON	3.3K	5%	1/4W	
R504	1-246-509-00	CARBON	33K	5%	1/4W	
R505	1-246-489-00	CARBON	4.7K	5%	1/4W	
R506	1-246-527-00	CARBON	180K	5%	1/4W	
R507	1-246-497-00	CARBON	10K	5%	1/4W	
R508	1-246-497-00	CARBON	10K	5%	1/4W	
R509	1-246-529-00	CARBON	220K	5%	1/4W	
R510	1-246-521-00	CARBON	100K	5%	1/4W	
R511	1-246-497-00	CARBON	10K	5%	1/4W	
R512	1-246-497-00	CARBON	10K	5%	1/4W	
R513	1-246-497-00	CARBON	10K	5%	1/4W	
R514	1-246-497-00	CARBON	10K	5%	1/4W	
R515	1-246-497-00	CARBON	10K	5%	1/4W	
R516	1-246-497-00	CARBON	10K	5%	1/4W	
R517	1-246-493-00	CARBON	6.8K	5%	1/4W	
R518	1-206-641-00	METAL OXIDE	110	5%	2W F	
R519	1-246-457-00	CARBON	220	5%	1/4W	
R520	1-246-521-00	CARBON	100K	5%	1/4W	
R525	1-246-513-00	CARBON	47K	5%	1/4W	
R601	1-246-519-00	CARBON	82K	5%	1/4W	
R602	1-246-514-00	CARBON	51K	5%	1/4W	
R603	1-246-514-00	CARBON	51K	5%	1/4W	
R604	1-246-491-00	CARBON	5.6K	5%	1/4W	
R605	1-246-489-00	CARBON	4.7K	5%	1/4W	
R606	1-246-491-00	CARBON	5.6K	5%	1/4W	
R607	1-246-545-00	CARBON	1M	5%	1/4W	
R608	1-246-545-00	CARBON	1M	5%	1/4W	
R609	1-246-489-00	CARBON	4.7K	5%	1/4W	
R610	1-246-497-00	CARBON	10K	5%	1/4W	
R611	1-246-501-00	CARBON	15K	5%	1/4W	
R612	1-246-459-00	CARBON	270	5%	1/4W	
R613	1-246-511-00	CARBON	39K	5%	1/4W	
R614	1-246-491-00	CARBON	5.6K	5%	1/4W	
R615	1-246-467-00	CARBON	560	5%	1/4W	
R616	1-246-489-00	CARBON	4.7K	5%	1/4W	
R617	1-246-493-00	CARBON	6.8K	5%	1/4W	
R618	1-246-467-00	CARBON	560	5%	1/4W	
R619	1-246-489-00	CARBON	4.7K	5%	1/4W	
R620	1-246-504-00	CARBON	20K	5%	1/4W	
R621	1-246-460-00	CARBON	300	5%	1/4W	

ELECTRICAL PARTS

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>				
R622	1-246-480-00	CARBON	2K	5%	1/4W	
R630	1-246-489-00	CARBON	4.7K	5%	1/4W	
R631	1-246-489-00	CARBON	4.7K	5%	1/4W	
RT201	1-226-238-00	RES, ADJ, CARBON 50K				
RT301	1-228-505-00	RES, ADJ, METAL GLAZE 10K				
RT302	1-226-238-00	RES, ADJ, CARBON 50K				
S1	1-554-266-00	SWITCH, ROTARY SLIDE				
S501	1-552-174-00	SWITCH, PUSH				
S502	1-552-174-00	SWITCH, PUSH				
S503	1-552-174-00	SWITCH, PUSH				
S504	1-552-174-00	SWITCH, PUSH				
S505	1-552-174-00	SWITCH, PUSH				
S506	1-552-174-00	SWITCH, PUSH				
S507	1-552-174-00	SWITCH, PUSH				
S508	1-552-174-00	SWITCH, PUSH				
S509	1-552-174-00	SWITCH, PUSH				
S901	1-553-072-21	SWITCH, PUSH (AC POWER)				
T301	1-235-126-00	(G-AEP)...ENCAPSULATED COMPONENT				
T401	1-405-953-00	(AEP;SERIAL No. UP TO 500800, (G-AEP;SERIAL No. UP TO 500600, (UK;SERIAL No. UP TO 602000) .....COIL, MW OSC				
T401	1-405-927-00	(AEP;SERIAL No. 500801 AND LATER, (G-AEP;SERIAL No. 500601 AND LATER, (UK;SERIAL No. 602001 AND LATER) .....COIL, MW OSC				
T406	1-405-954-00	(AEP;SERIAL No. UP TO 500800, (G-AEP;SERIAL No. UP TO 500600, (UK;SERIAL No. UP TO 602000) .....COIL, LW OSC				
T406	1-405-914-00	(AEP;SERIAL No. 500801 AND LATER, (G-AEP;SERIAL No. 500601 AND LATER, (UK;SERIAL No. 602001 AND LATER) .....COIL, LW OSC				
T901 A	1-447-560-00	TRANSFORMER, POWER				
TM901	1-536-705-41	(AEP,UK)...TERMINAL BOARD (ANTENNA)				
TM901	1-536-743-00	(G-AEP)....TERMINAL BOARD (ANTENNA)				
XT601	1-527-995-00	VIBRATOR, CRYSTAL				

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- 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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UPD...:  $\mu PD$ ...