

# AIR-7/8

## SERVICE MANUAL



**AIR-7:**  
**Canadian Model**  
**AEP Model**  
**E Model**

**AIR-8:**  
**US Model**

### SPECIFICATIONS

Circuit system	AIR/PSB/AM: Dual conversion superheterodyne FM: Superheterodyne	EBP-6 battery case (optional) using four IEC designation R14 batteries (size C)
Frequency range	AIR: 108–136 MHz PSB: 144–174 MHz (Canadian and AEP-2 models of AIR-7, AIR-8) FM: 76.0–108.0 MHz AM: 150–2,194 kHz LW: 150–530 kHz (150–529 kHz*) MW: 531–1602 kHz (530–1600 kHz*) SW: 1602–2194 kHz (1601–2194 kHz*) * MW tuning interval: 10 kHz	Battery life Approx. 9 hours for air band, PSB and AM reception Approx. 10 hours for FM reception When listening for four hours a day at normal volume, using Sony SUM-3(NS) New Super batteries
Antennas	AIR/PSB/FM: Helical antenna MW/LW/SW: Built-in ferrite bar antenna External antenna jack AIR/PSB/FM: BNC connector AM (LW/MW/SW): minijack	Dimensions Approx. 90 × 179 × 50 mm (w/h/d) (3 <sup>5</sup> / <sub>8</sub> × 7 <sup>1</sup> / <sub>8</sub> × 2 inches) including projecting parts and controls, not including the helical antenna
Speaker	Approx. 7 × 3.5 cm (2 <sup>7</sup> / <sub>8</sub> × 1 <sup>3</sup> / <sub>8</sub> inches)	Weight Approx. 600 g (1 lb 5 oz) including batteries, shoulder strap and the helical antenna
Power output	400 mW (at 10% harmonic distortion)	
Output	Earphone jack (minijack)	
Power requirements	6V dc Four IEC designation R6 batteries (size AA) (for radio/computer back-up) BP-23 rechargeable battery pack (optional) DC IN 6V jack accepts: Appropriate ac power adaptor listed on page 2 for use on house current DCC-127A or DCC-120 car battery cord (optional) for use with 12V car battery DCC-240 car battery cord (optional) for use with 24V car battery	Note: There are two types of AEP model. These differences are as follows. AEP-1: 3 bands (AIR, AM and FM) AEP-2: 4 bands (AIR, PSB, AM and FM)

**AIR BAND/FM/AM PLL SYNTHESIZED RECEIVER**  
**PSB/AIR/FM/AM PLL SYNTHESIZED RECEIVER**



# SONY®

## HOUSE CURRENT

Where used	AC power adaptor	Input voltage of adaptor
Canadian	AC-9	120 V ac, 60 Hz
AEP	AC-456C	220 V ac, 50 Hz (110 V ac adjustable, 50/60 Hz)
E	AC-4A	110, 120, 220 or 240 V ac adjustable, 50/60 Hz
US	AC-12	120 V ac, 60 Hz

## FEATURES

- The AIR-7 and AIR-8 portable receiver receives the air traffic control frequencies, 108–136MHz, as well as standard FM and AM broadcasts. With Canadian, AEP-2 models of AIR-7 and AIR-8, PSB (144–174MHz) can also be received.
- The quartz controlled PLL (Phase Locked Loop) synthesizer system uses a microcomputer to make pinpoint tuning easy. The tuned frequency is displayed digitally.
- Choice of direct, scan, manual or memory tuning.
- Up to 40 (Canadian, AEP-2 models of AIR-7 and AIR-8) or 30 (AEP-1, E models of AIR-7) stations can be memorized so that they can be tuned in at the press of a key.
- Air band and PSB can be received more easily with the memory scanning, program function, priority function and delay function.
- Squelch control to suppress noise while tuning and during intervals between communications.
- The key protect function operates at the press of a key to lock the keys on the front face so they cannot be operated by accident.
- Helical antenna for high sensitivity and selectivity has BNC connector for attachment to the receiver.
- Four different power sources: batteries, house current, rechargeable battery pack or car battery.

## \* PSB (Public Service Band)

On the PSB, you can monitor police, fire, forestry conservation, VHF weather, marine, highway maintenance, land mobile, and other public safety radio services. The general frequency allocation is shown on the dial scale. NOTICE: In certain localities, it is illegal to listen to police or other governmental transmissions. Check with your local authorities.

## MELF (Metal Electrodes Face-Bonding) Components

## Warning

If MELF components are forcibly removed from the printed circuit board with pincers or pliers, the circuit board pattern is likely to peel away. Always remove MELF components according to the procedure described on the next page.

MELF components are soldered directly to the surface of the printed circuit board.

MELF resistors and capacitors have the same dimensions and are distinguished by their background colors: light brown for resistors, and pink or light green for capacitors.

The MELF resistor color coding is the same as for conventional resistors, and MELF capacitor color coding is the same as for tube-type ceramic capacitors.

Components larger than resistors and without a color code are cross conductors, which are used instead of jumper wires.

## 1. Structure

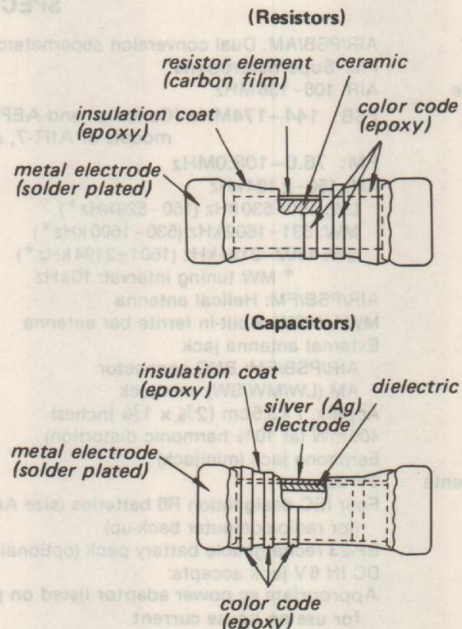
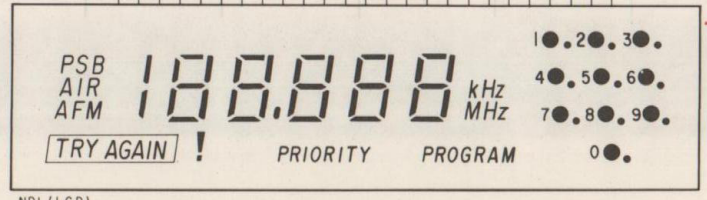
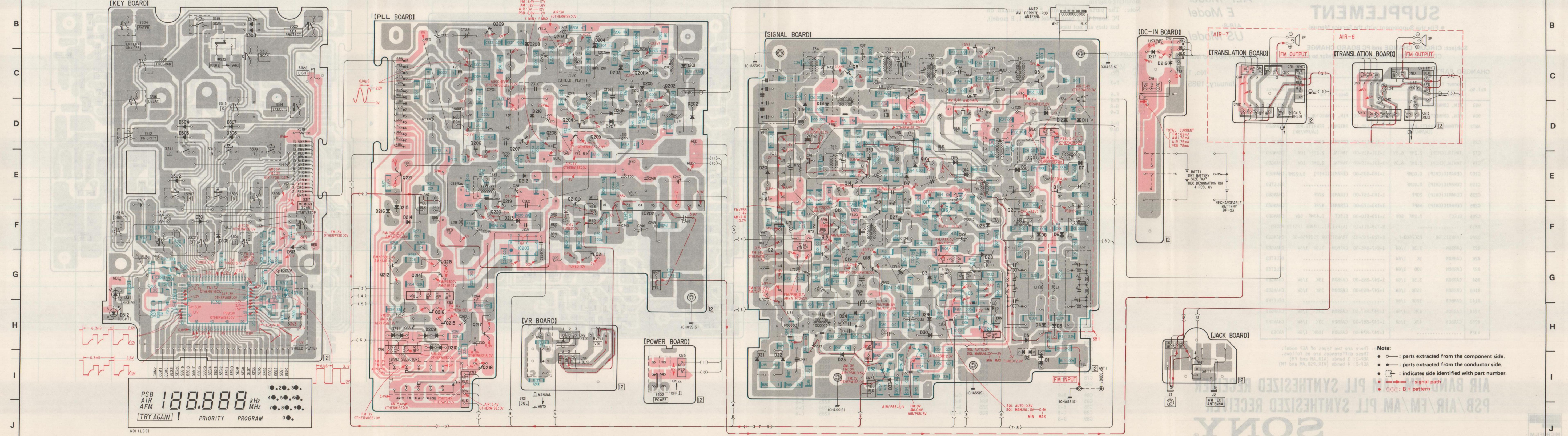


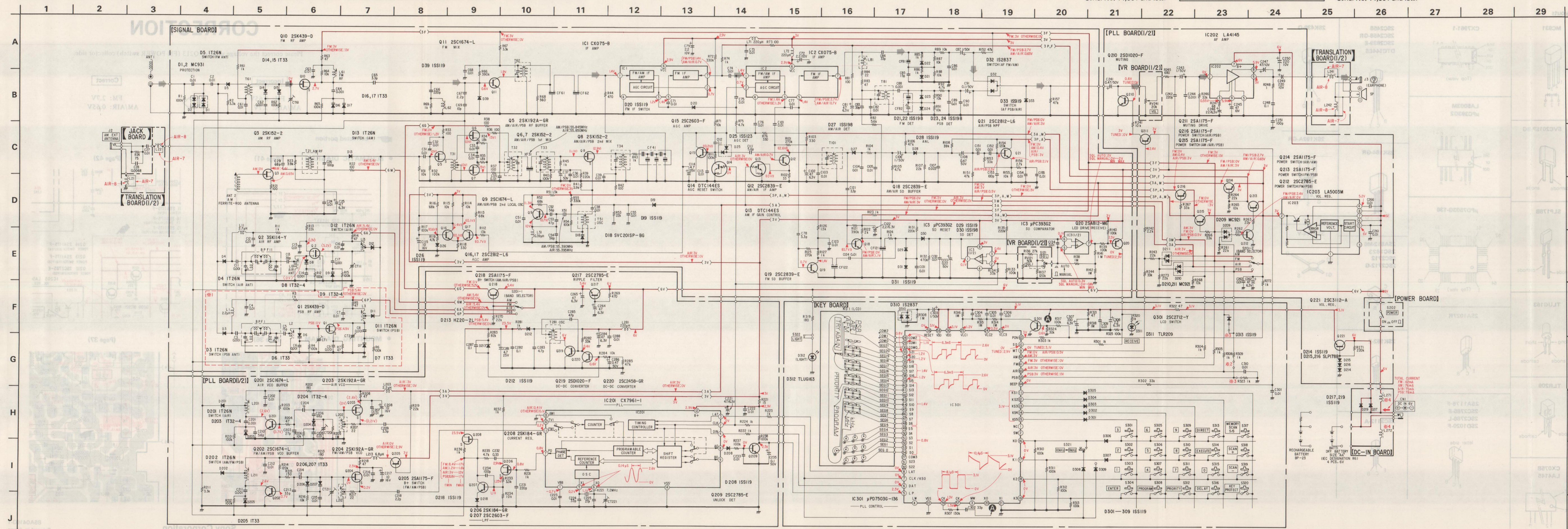
Fig. 1



Q																									Q									
IC																									IC									
	301																																	
	IC301																																	
311	304	307	309	208	208	203	204	201	202	IC1	IC2	12	13	14	15	9	17	10	16	3	IC3	20	5	1										
312	302	303	306	308	216	215	210	211	204	206	203	205	210	211	21	18	19	18	23	24	25	39	27	17	16	31	15	13	12	11	7			
					211	214	209	213	218	218	212	213	213	213	201	202	20	19	18	23	24	25	39	27	17	16	31	15	13	12	11	7		
																	21	22																



**Note:**  
 ● ○ — parts extracted from the component side.  
 ● ○ — parts extracted from the conductor side.  
 ● ○ — indicates side identified with part number.  
 — signal path  
 — B + pattern



**NOTE:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\mu\text{F}$ :  $\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- : signal path.
- △ : internal component.
- : B + bus.
- : adjustment for repair.
- Total current is measured at detuned mode with VOL knob turned to the counterclockwise (MIN).
- Power voltage is 6V and fed with regulated dc power supply from DC IN 6V (external power input) jack. Voltages are dc with respect to ground in detuned mode. Voltage variations may be noted due to normal production tolerances. Measured at FM 76.000MHz on LCD. no mark: FM ( ) : AM/AIR/PSB ( ) : AM/AIR ( ) : AIR

**Switch**

Ref. No.	Switch	Position
S121	SOL	MANUAL
S201	BAND SELECTOR	FM
S202	POWER	OFF
S301	3	OFF
S302	2	OFF
S303	1	OFF
S304	ENTER	OFF
S305	6	OFF
S306	5	OFF
S307	4	OFF
S308	PROGRAM	OFF
S309	9	OFF
S310	8	OFF
S311	7	OFF
S312	PRIORITY	OFF
S313	DIRECT	OFF
S314	EXECUTE	OFF
S315	0	OFF
S316	DELAY	OFF
S317	MEMORY SCAN S/S	STOP
S318	SCAN +	OFF
S319	SCAN -	OFF
S320	KEY PROTECT	OFF
S321	10kHz/9kHz SELECT	10kHz
S322	LIGHT	OFF

**NOTE:** Parts marked # 1 to 4 differ from each model.

	AIR-7		AIR-8
	AEP-1, E model	Canadian, AEP-2 model	
# 1 (PSB RF CIRCUIT)	mounted on PC board, but not used	used	
# 2 (R309)	mounted on PC board, but not used	used	
# 3 (R323, D313)	used	mounted on PC board, but not used	
# 4 (L271, 272)	shorted		mounted

# CORRECTION

Please correct the voltage value of Q213 (FM POWER switch) collector side.

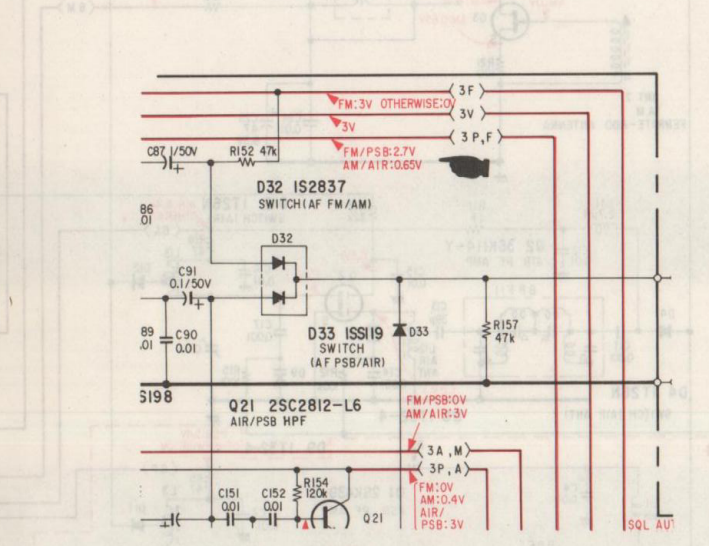
**Incorrect**  
FM: 0.65V  
AM/AIR: 2.7V



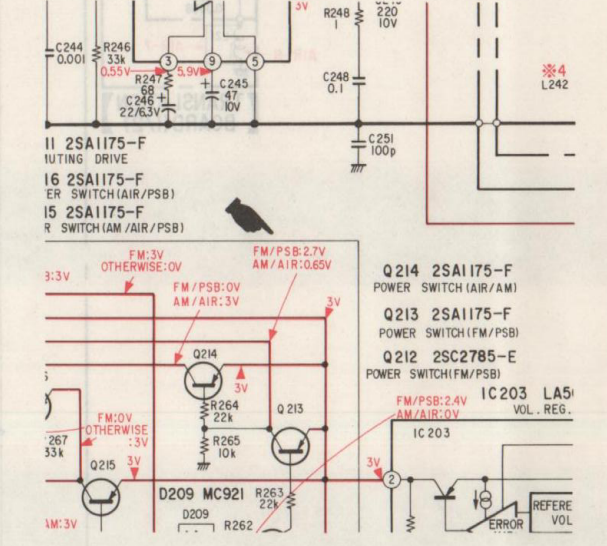
**Correct**  
FM: 2.7V  
AM/AIR: 0.65V

● : corrected portion

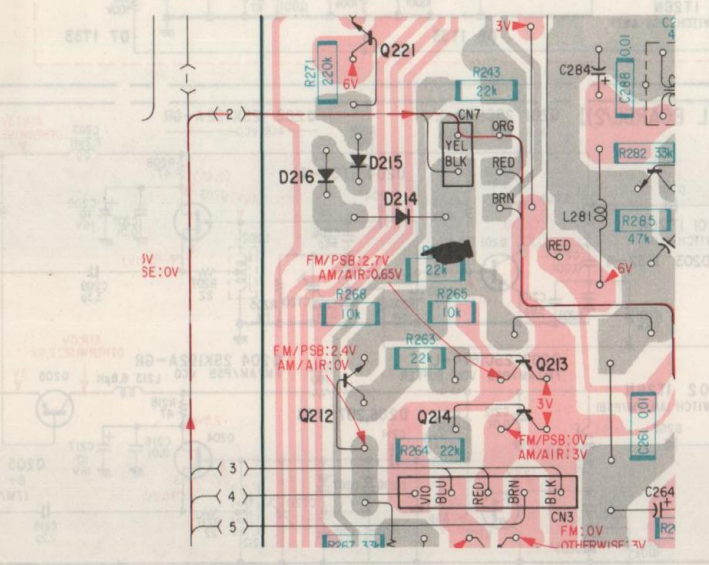
### ● SCHEMATIC DIAGRAM (Page 41)



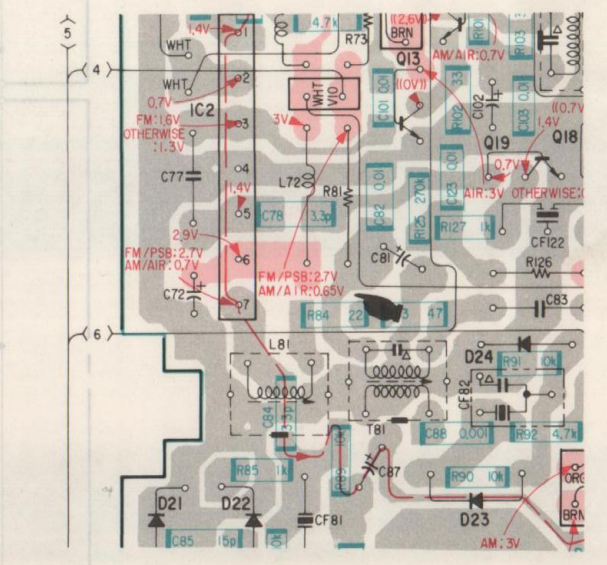
### (Page 42)



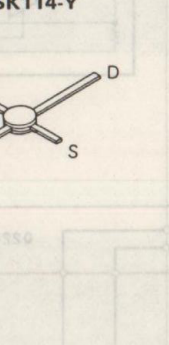
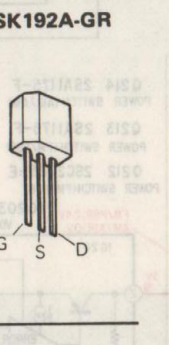
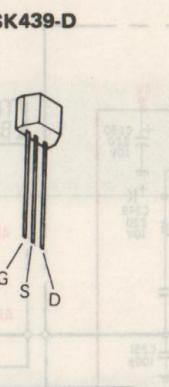
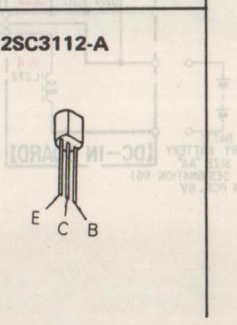
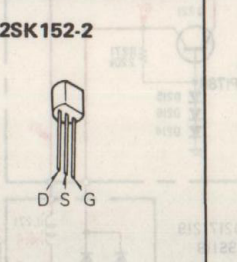
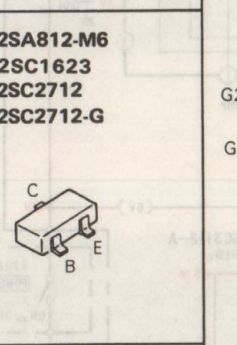
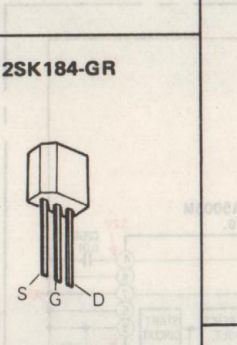
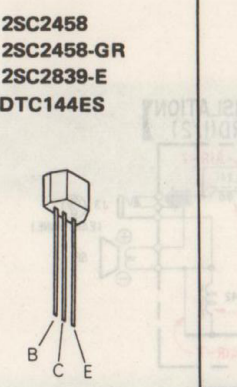
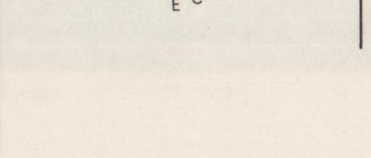
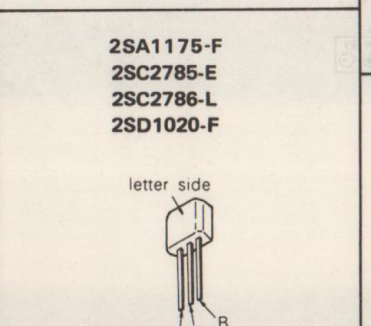
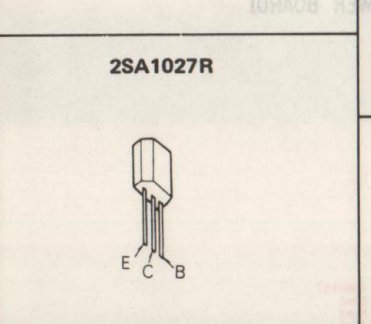
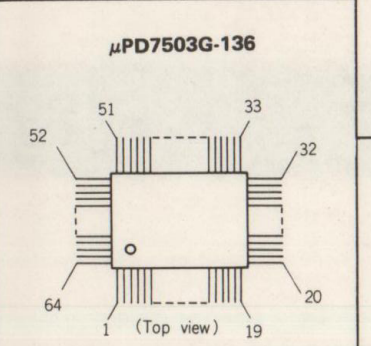
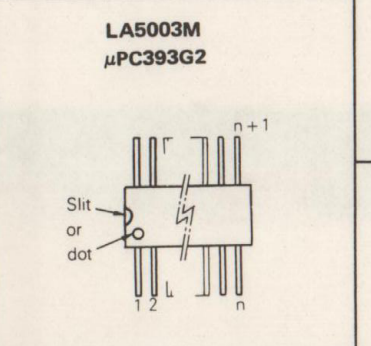
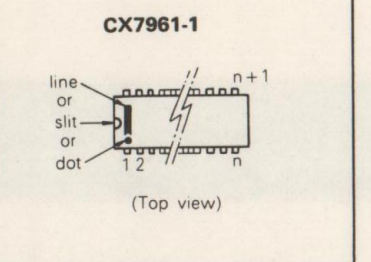
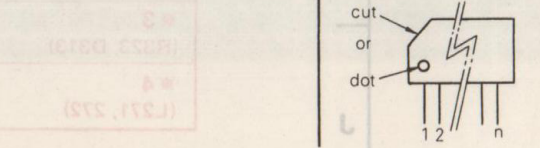
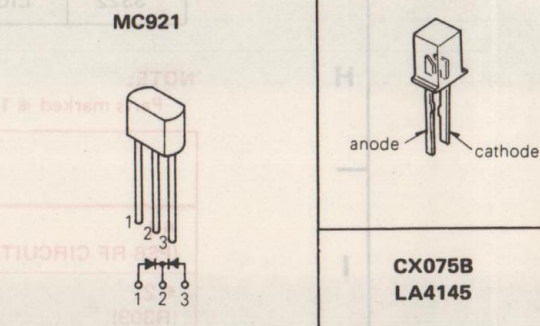
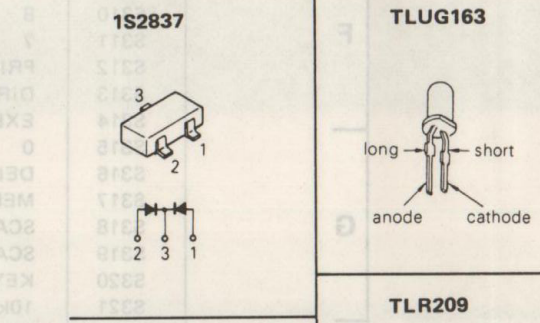
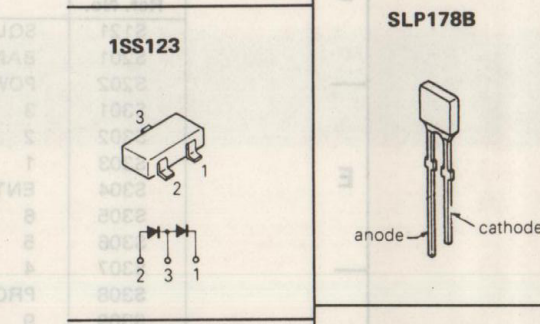
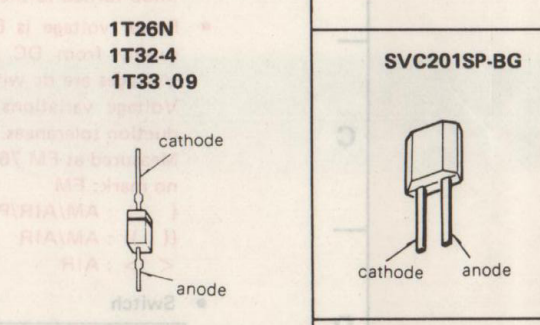
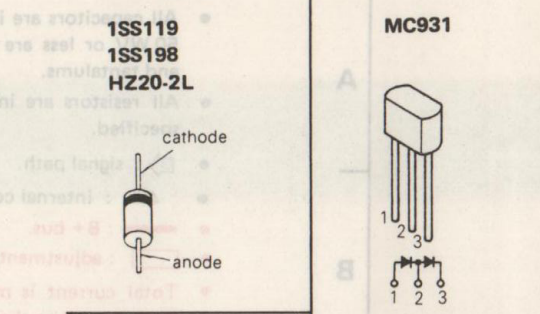
### ● MOUNTING DIAGRAM (Page 36)



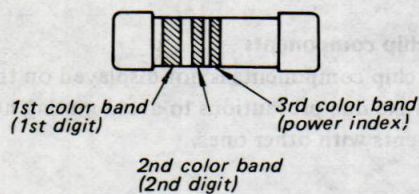
### (Page 37)



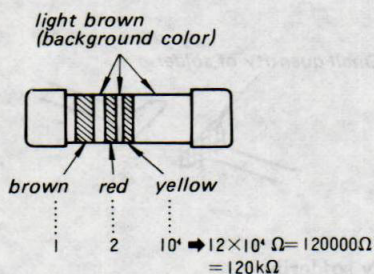
### ● Semiconductor Lead Layouts



2. Color Code Reading



(Example of Resistor)



(Example of Capacitor)

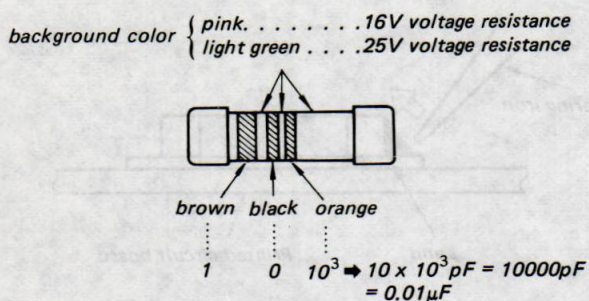


Fig. 2

3. How to Remove MELF Components and Mount Replacements

Use a soldering iron of at least 40W with an iron tip 4 mm in diameter and file the tip down to the angle shown in the diagram.

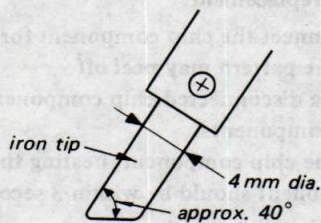


Fig. 3

1. Bring the flat surface of the soldering iron in equal contact with both soldered ends of the component.
2. The solder should melt in about 4 seconds. (The solder will melt more readily if a small amount of solder is attached to the iron tip and the iron tip is placed against the component.)
3. Once the solder has melted, tap the component aside with the tip of the soldering iron, and remove it from the board.

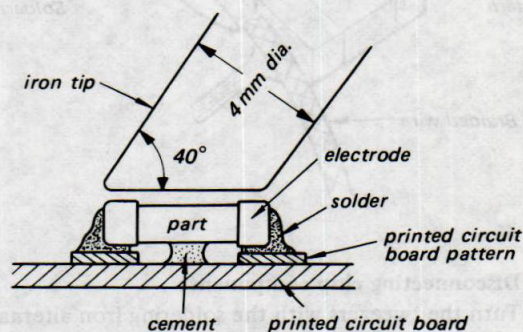


Fig. 4

4. Use lead type resistors to replace the MELF components. This replacement may be mounted with short leads (see Fig. 5).

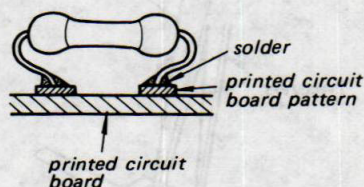


Fig. 5

Note: Use 3216 type chip components to replace the MELF capacitor components. See page 4 for mounting of chip components.

### Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

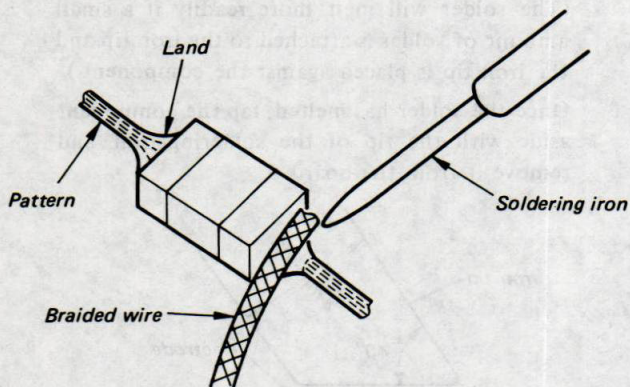
#### Precautions for replacement

1. Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.
2. Never re-use a disconnected chip component. Dispose of all old chip components.
3. To protect the chip component, heating time for attaching the component should be within 3 seconds.

#### ○ Removing chip components

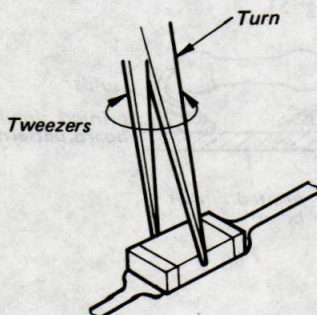
##### (1) Removing solder at electrode

Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



##### (2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off. Never re-use a disconnected chip component.



##### (3) Smoothing the soldered surface

After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

#### ○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

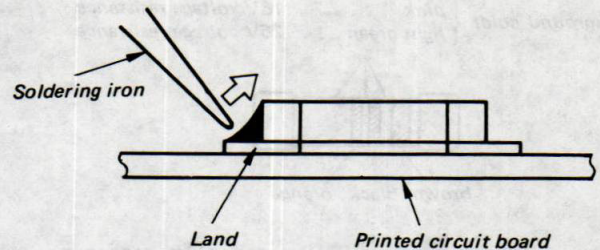
##### (1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



##### (2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



##### (3) Speedy soldering of electrode on the other side

Solder the electrode on the other side in the same way as in (2) above.



—SERVICING NOTE—

**Note on Parts Replacement**

This set uses MELF components. To increase the mounting density of components on PC board, the land where MELF component is to be connected is common to the land where ordinary component is to be connected.

Accordingly, when removing the ordinary components, the MELF component will be also removed. Be sure to solder MELF components when replacing the parts.

**Note:** The MELF components are secured with locking compound.

**Note on Variable Capacitance Diodes Replacement in Antenna Tank Circuit and First Local Oscillator VCO Circuit**

Variable capacitance diodes in antenna tank circuit and first local oscillator VCO circuit have the same voltage-capacitance characteristic.

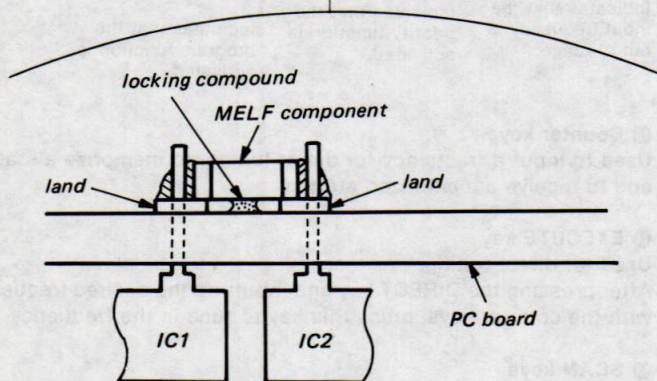
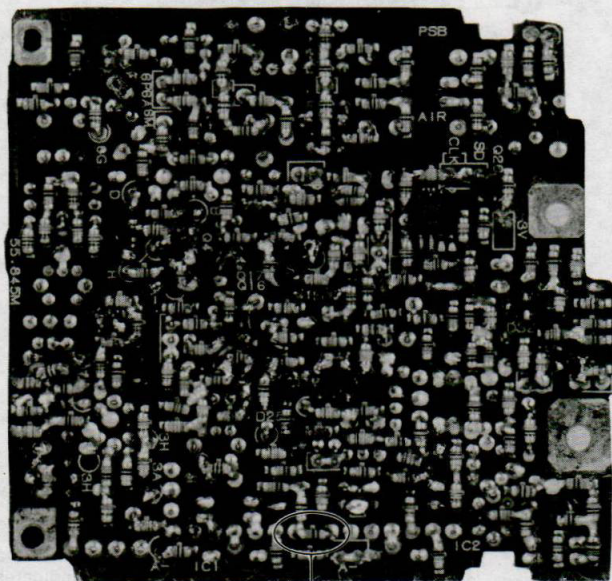
- FM/AM/PSB band  
D6, 7, 14, 15, 16, 17, 205, 206, 207: 1T33 (to be same characteristic)
- AIR band  
D8, 9, 203, 204: 1T32 (to be same characteristic)

When replacing these variable capacitance diodes, same characteristic diodes should be used.

(If not, tracking error or sensitivity change will be occurred.)

— Replacement parts —

- For FM/AM/PSB band ..... One set (9 diodes)  
Part No. 8-713-309-00
- For AIR band ..... One set (4 diodes)  
Part No. 8-713-240-00



## LOCATION AND FUNCTION OF CONTROLS

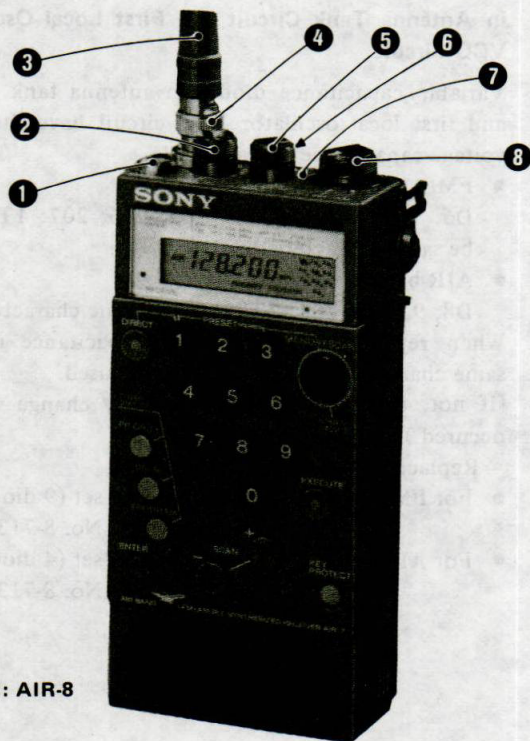


Photo : AIR-8

**1 POWER switch**

Depress to turn on the receiver (▲ ON).  
To turn the receiver off, press it again (■ OFF).

**2 VOL (volume) control**

Turn clockwise for more volume. It can be depressed (▲) to allow the SQL (squelch) control to be adjusted more easily.

**3 Helical antenna (supplied)**

Used for AIR band, PSB and FM reception.

**4 ANT (antenna) connector**

Connect the supplied helical antenna or the BNC connector of an optional external antenna for AIR band, PSB and FM reception.

**5 SQL (squelch) control**

Used for cutting background noise while tuning and during intervals between communications. Normally, depress the control (▲ AUTO). Press it again to set to ■ MANUAL, and adjust the squelch level manually.

When performing auto tuning or memory scan tuning or program scan tuning, set the SQL control at the position where the RECEIVE indicator goes out.

**6 (earphone) jack**

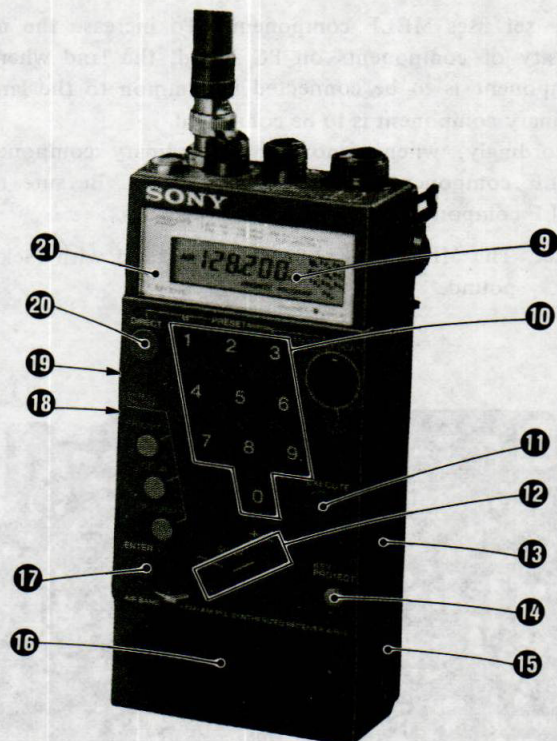
Connect the supplied earphone for private listening.  
This jack is also used for connecting an external speaker or recording broadcast on a tape recorder.

**7 AM EXT (external) ANTENNA jack**

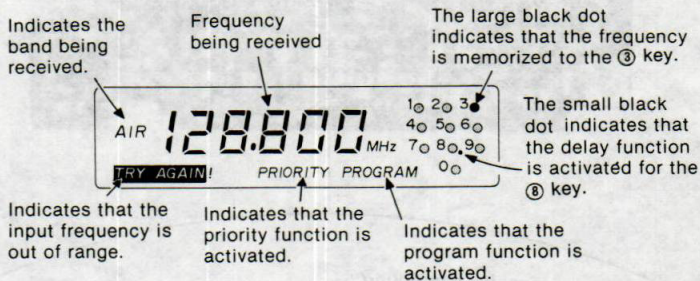
Connect an optional external antenna for AM reception.

**8 Band selector**

Select the desired band: PSB, AIR, FM or AM

**9 Display (LCD)**

Displayed as follows:

**10 Counter keys**

Used to input a frequency for direct tuning, to memorize a station and to receive a memorized station.

**11 EXECUTE key**

Used for direct tuning.  
After pressing the DIRECT key and inputting the desired frequency with the counter keys, press this key to tune in the frequency.

**12 SCAN keys**

Used for scan tuning and manual tuning.  
When you press the ⊕ (plus) or ⊖ (minus) key, the frequency is increased or decreased by the intervals shown on page 9.  
If you keep the key pressed, the frequency changes continuously.

**13 LIGHT switch**

The display is illuminated when this switch is pressed.

**14 KEY PROTECT key**

When this key is pressed once, the keys on the front face are locked and no longer function.  
To release this key, press it again.

**15 DC IN 6 V (external power input) jack**

For operation from an external power source.

**16 Speaker****17 ENTER key**

Used to memorize a frequency.  
After inputting the desired frequency, while pressing this key, press the counter keys at which the frequency is to be memorized.

**18 Battery compartment (rear)****19 9 kHz/10 kHz selector (inside battery compartment)**

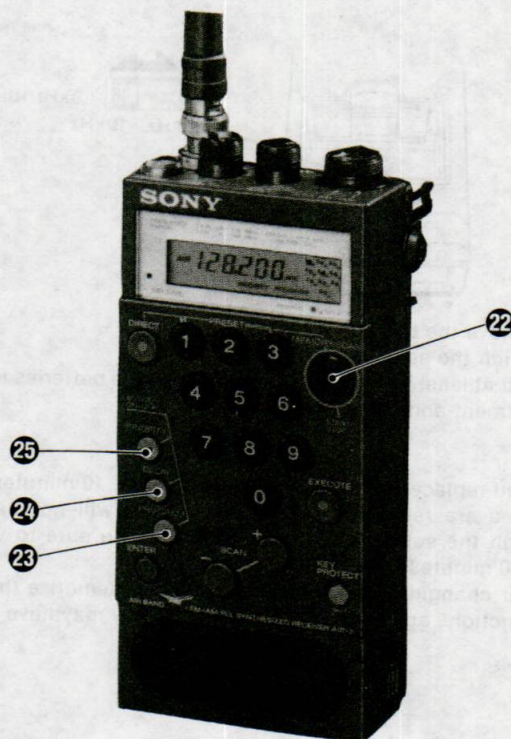
Used to change the MW tuning interval.

**20 DIRECT key**

Used for direct tuning.

**21 RECEIVE indicator (LED)**

When a signal or a noise is received, this indicator lights in red.

**KEYS FOR AIR BAND AND PSB RECEPTION**  
 (indicated in green)
**22 MEMORY SCAN key**

Used for memory scan tuning.

**23 PROGRAM key**

Used to initiate the program function. See page 13.

**24 DELAY key**

Used to initiate the delay function. See page 14.

**25 PRIORITY key**

Used to initiate the priority function. See page 14.

## POWER SOURCES

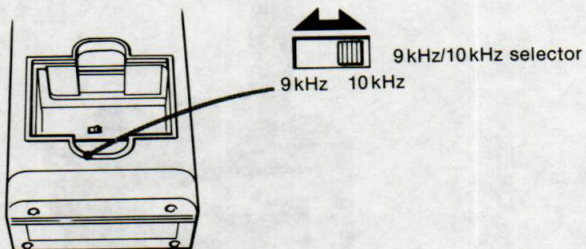
The internal batteries are also used to back up the built-in microcomputer. Be sure to keep the batteries installed even when the receiver is operated on other power sources.

**HOW TO CHANGE THE MW TUNING INTERVAL**

The MW tuning interval is factory preset to 10kHz or 9kHz to match the local frequency allocation system.

If you use the receiver in an area where the frequency allocation system is based on the other interval, change the position of the 9 kHz/10 kHz selector in the battery compartment as follows.

rear



- 1 Remove the batteries.
- 2 Switch the selector.
- 3 Wait at least 10 minutes, then put back the batteries in the compartment and close the lid.

**Notes**

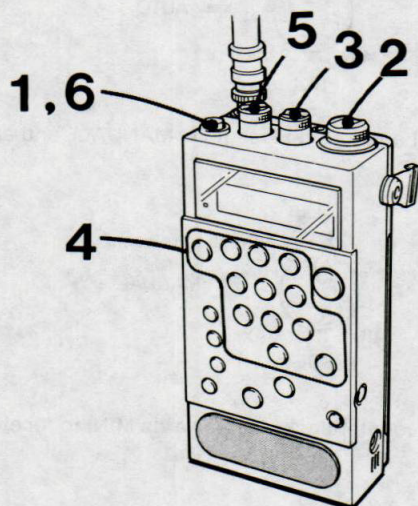
- If you replace the batteries within approx. 10 minutes after the batteries are removed, the tuning interval will not be changed although the selector has been switched. Be sure to wait for at least 10 minutes.
- After changing the MW tuning interval, memorize the stations and functions again, as the previous memory may have been erased.

FM/AM/AIR/PSB reception

## DIRECT TUNING

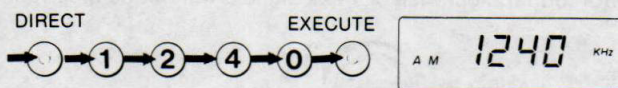
If you know the frequency of a station to be received, you can tune in the station easily by direct tuning.

The numbers in the illustration refer to the sequence of operation.

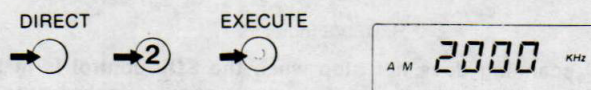


- 1 Depress the POWER switch (■ ON).
- 2 Set the band selector to the desired band.
- 3 Set the SQL control to MIN with ■ MANUAL set.
- 4 Press the DIRECT key, input the frequency of the station to be received using the counter keys, then press the EXECUTE key. The station will be tuned in.

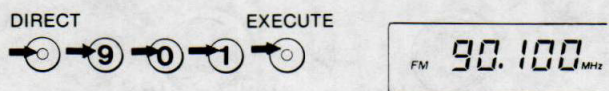
### Example: AM 1240 kHz



### AM 2000 kHz

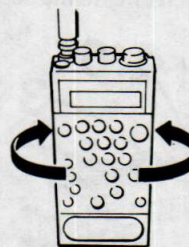


### FM 90.10 MHz



- 5 Adjust the volume with the VOL control.
- 6 After listening, press the POWER switch again to turn the receiver off (■ OFF).

**For AM reception**, the built-in ferrite bar antenna functions. Since this antenna is directional, rotate the set horizontally for optimum reception, if necessary.



**Note:** After pressing the DIRECT key or a counter key, press the next key within 5 seconds. If you do not, the previous station will return.

The frequency received by this receiver is displayed in steps of the following intervals, depending on the bands.

- AIR: 0.025 MHz
- PSB: 0.005 MHz
- FM: 0.050 MHz
- LW: 1 kHz
- MW: 9kHz or 10kHz \*
- SW: 1 kHz

This is because the frequencies are allocated at these intervals. Therefore, if you input a frequency between the interval, the frequency at the interval just below will be tuned in and displayed. For example, if you input AM 1242 kHz with the tuning interval set to 10 kHz, AM 1240 kHz will be tuned in and displayed.

\* This tuning interval can be also set to 10kHz or 9kHz by switching the 9kHz/10kHz selector in the battery compartment. See page 8.

### If you input a wrong frequency

Press the DIRECT key again and input the correct frequency.

### The **TRY AGAIN!** indication

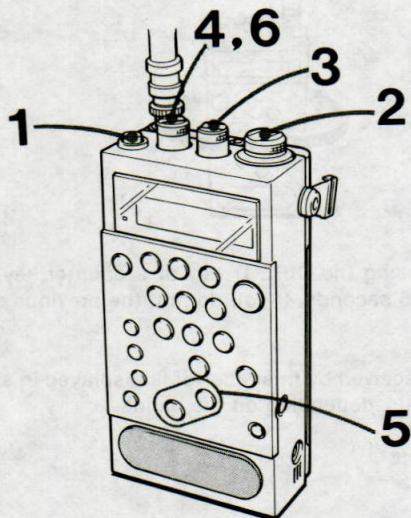
If you input a frequency outside the frequency range (AIR 108-136 MHz, PSB 144-174 MHz, FM 76.0-108.0 MHz, AM 150-2194 kHz), the indication **TRY AGAIN!** will blink in the display. When you input a proper frequency, **TRY AGAIN!** indication will disappear. If you leave **TRY AGAIN!** indication blinking, it will disappear after about 5 seconds, and the tuned station's frequency will reappear.

FM/AM/AIR/PSB reception

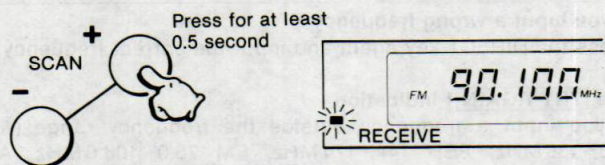
## SCAN TUNING

Use scan tuning to automatically scan the stations in the frequency range of the band being received. Scanning stops automatically at each station.

The numbers in the illustration refer to the sequence of operations.



- 1 Depress the POWER switch (■ ON).
- 2 Set the band selector to the desired band.
- 3 Depress the SQL control (■ AUTO).
- 4 Turn the VOL control slightly clockwise.
- 5 Press the SCAN ⊕ or ⊖ key for at least 0.5 second to start scanning, then release the key. The display changes continuously and stops automatically when a station is received. Pressing the ⊕ key, the tuned frequency is increased. Pressing the ⊖ key, the frequency is decreased.



Repeat step 5 until the desired station is received.

- 6 Adjust the volume with the VOL control.

- For AM reception, if necessary rotate the set horizontally for optimum reception.
- To stop scanning, press the ⊕ or ⊖ key momentarily.

After listening, set the POWER switch to ■ OFF.

**If stations cannot be tuned in by scan tuning with the SQL control set to ■ AUTO,** press the SQL control again (■ MANUAL) and turn the control slowly counterclockwise (towards MIN). Be careful not to turn this control too far counterclockwise.

**If scanning stops a little before a station,** tune in the frequency more precisely by manual tuning (See page 11.).

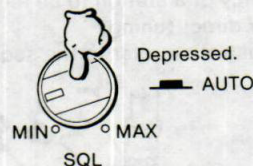
### Note on scanning

Scanning is performed in the range of the band being received, at the intervals shown on page 9. When the upper limit of the frequency of that band is reached, the dial is scanned back to the lower limit, and vice versa.

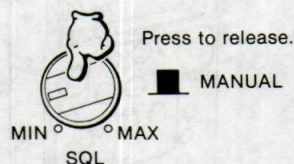
### HOW TO USE THE SQL CONTROL

Normally, depress the SQL control (■ AUTO).

Signals and noise below the factory-set level will be suppressed.



Press this control again to release it (■ MANUAL), and adjust the squelch level.



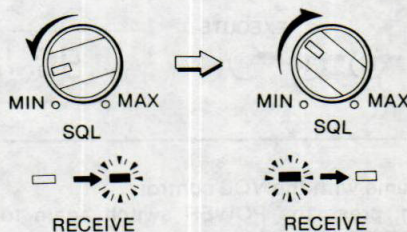
Turn the control counterclockwise (towards MIN) to receive weaker signals.



- If you attempt to perform scan tuning or memory scan tuning and scanning does not begin when the SQL control is in the ■ AUTO position, set the control to ■ MANUAL and turn the control slowly clockwise (towards MAX). At the level at which the RECEIVE indicator goes out, scanning will begin. Be careful not to turn the control too far clockwise or weak signals will not be received.



- If scanning does not stop when the SQL control is in the ■ AUTO position, turn the control slowly counterclockwise (towards MIN). When the RECEIVE indicator lights up, turn the control clockwise again until the indicator goes out.

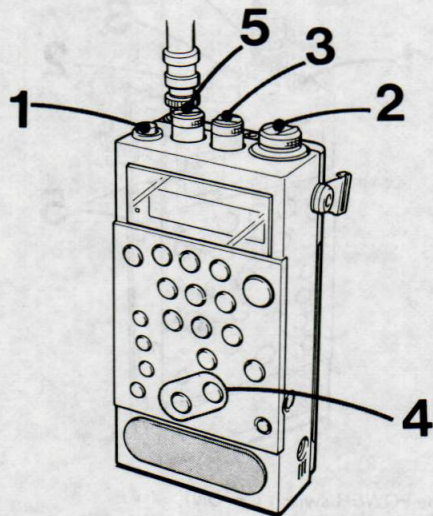


FM/AM/AIR/PSB reception

## MANUAL TUNING

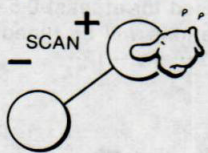
Use manual tuning when you do not know the frequency of the station you want to tune in, or when you want to tune in a station more precisely after scan tuning.

The numbers in the illustration refer to the sequence of operations.

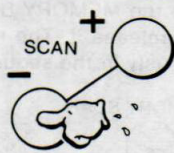


- 1 Depress the POWER switch (  $\blacksquare$  ON).
- 2 Set the band selector to the desired band.
- 3 Set the SQL control to MIN.
- 4 ① Keep the SCAN  $\oplus$  or  $\ominus$  key pressed until the desired station is received.

For higher frequencies



For lower frequencies



- ② Press the SCAN key momentarily to tune the station precisely. Each time the key is pressed, the frequency is increased or decreased by the intervals shown on page 9.

- 5 Adjust the volume with the VOL control.

After listening, set the POWER switch to  $\blacksquare$  OFF.

FM/AM/AIR/PSB reception

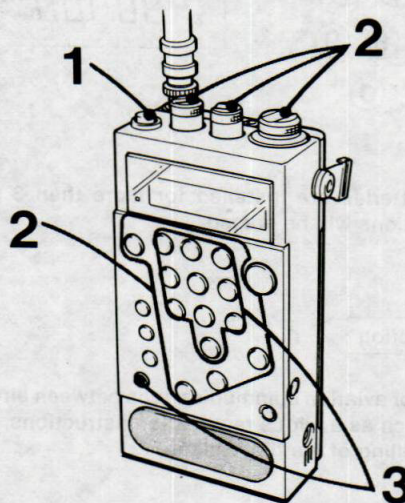
## MEMORY TUNING

Once the frequencies of the stations you want to tune in are memorized, all you have to do is to push a key.

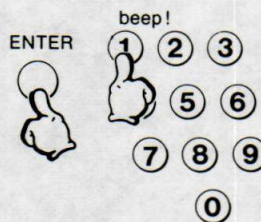
One FM, one AM, one AIR and one PSB station can be memorized to a key, or a total of 40 stations (Canadian, AEP-2 models of AIR-7 and AIR-8) or 30 stations (AEP-1, E models of AIR-7) to all the counter keys.

### HOW TO MEMORIZE A STATION

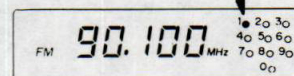
The numbers in the illustration refer to the sequence of operations.



- 1 Depress the POWER switch (  $\blacksquare$  ON).
- 2 Tune in the desired station using any tuning method—direct tuning (page 9), scan tuning (page 10) or manual tuning (page 11).
- 3 While pressing the ENTER key, press one of the counter keys. A beep sounds and the corresponding dot appears.



Indicates that the station is memorized to ①.



### Notes

- The frequencies memorized to all the counter keys at the factory are as follows:

AIR: 108 MHz  
 PSB: 144 MHz  
 FM: 76 MHz

AM: 531 kHz (530kHz in Canadian model of AIR-7 and AIR-8)

- If you memorize another station of the same band to a key on which you have already memorized a station, the previous station will be erased.

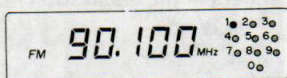
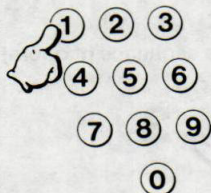
You cannot erase a station without memorizing another station.

**To check your memory**

After memorizing the stations, press each counter key in turn to check that the desired stations have been memorized correctly. You can recall a station any time by pressing its counter key.

**HOW TO RECEIVE A MEMORIZED STATION**

Turn the power on, select the band and press the appropriate counter key. The memorized station will be received.



**Note:** If no batteries are installed for more than 3 minutes, all memorized stations will be erased.

**AIR/PSB reception**

You can monitor aviation communications between aircraft and airport towers, such as a pilot's request for instructions, report of his position, and filling of his flight plans.

**For type 1 and 2 models,** you can monitor police, fire, forestry conservation, VHF weather, traffic and other public safety radio services, as well as the air band.

**Direct tuning, scan tuning, manual tuning and memory tuning**

Tuning procedure is the same as for FM or AM reception. See pages 9 to 12.

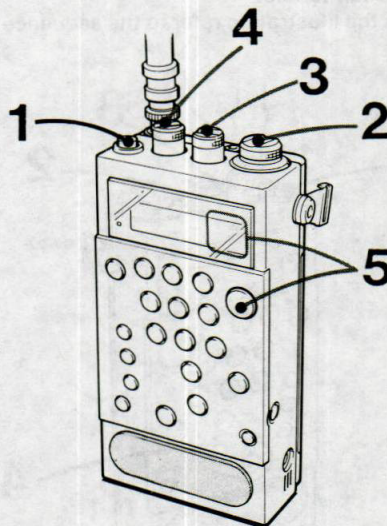
If necessary, set the SQL control to **MANUAL** and adjust it. (See page 10.)

**AIR/PSB reception****MEMORY SCAN TUNING**

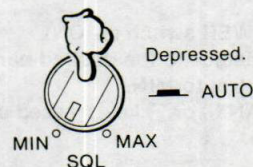
The stations memorized on the counter keys are scanned in sequence at the press of the MEMORY SCAN key and scanning stops automatically when a signal is received.

Memorize frequencies to all counter keys. (See "How to memorize a station" on page 11.)

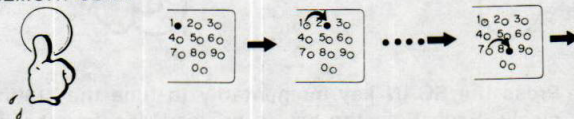
Follow the numbered sequence.



- 1 Depress the POWER switch ( **ON** ).
- 2 Set the band selector to AIR or PSB.
- 3 Depress the SQL control ( **AUTO\*** ).



- 4 Adjust the volume with the VOL control.
- 5 Keep the MEMORY SCAN key pressed for at least 0.5 second, then release it. The memorized stations will be tuned in continuously in the sequence 1)→2)→3)→...→0)→1)→...\*.

**MEMORY SCAN**

When there is a signal, scanning will stop. If the signal disappears, scanning begins again.

**To stop scanning,** press the MEMORY SCAN key again.

**To start scanning again when memory scanning has automatically stopped,** keep the MEMORY SCAN key pressed for at least 0.5 second and release it.

Each time you press the MEMORY SCAN key momentarily, a memorized station is tuned in.

Using the program function, you can change the sequence of memory scanning. (See page 13.)

\* When noise is heard while tuning, set the SQL control to **MANUAL** and turn it slowly clockwise.



AIR/PSB reception

**PROGRAM FUNCTION**

The program function is used to change the sequence of memory scanning or scan only certain keys.

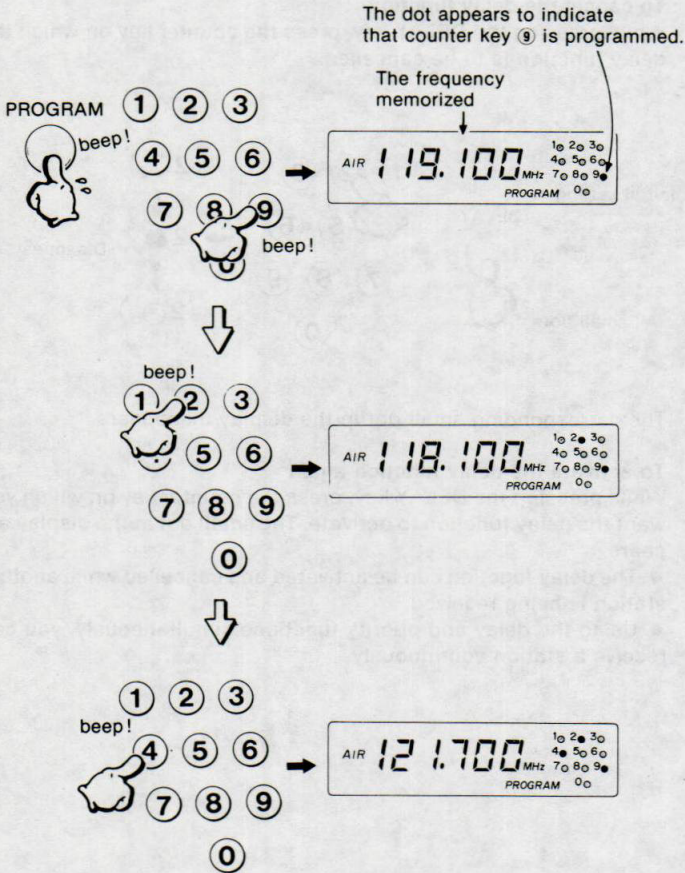
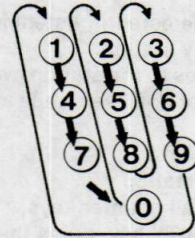
**How to activate the program function**

Memorize frequencies to all counter keys.

Follow the numbered sequence.

- 1 While pressing the PROGRAM key, press the counter keys in the desired sequence.

- The sequence of programmed scanning is factory set as follows.



- Since only 10 keys can be programmed, even if the eleventh key is pressed, it is not programmed.
- The program function can be activated and cancelled while another station is being received.

**To cancel the program function**

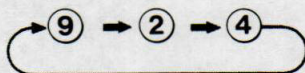
Press the PROGRAM key again. The PROGRAM indication in the display disappears. In this case, the sequence of memory scanning reverts to 1→2→3→...→0→1→...

- During programming, the previous station is received.
- You can program the counter keys in any desired sequence of up to 10 scanning points, including programming the same counter key more than once.

- 2 Press the MEMORY SCAN key to start memory scanning.

To scan stations 9, 2 and 4

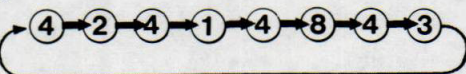
MEMORY SCAN



Example of programming

To tune in a certain station memorized to the 4 key

PROGRAM



AIR/PSB reception

## PRIORITY FUNCTION

If you are particularly interested in listening to a certain station, designate it as the priority station.

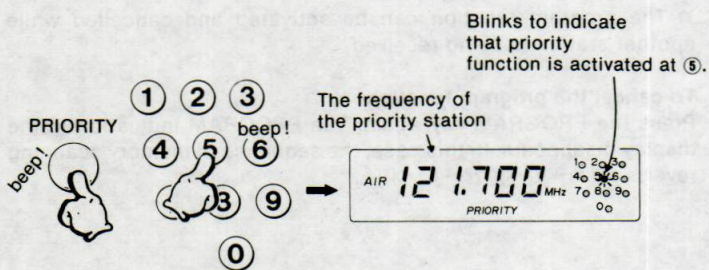
The set automatically tunes to the station every 3 seconds to check whether there is a signal or not, even while another station is being received.

### To designate the priority station

Memorize frequencies to all counter keys.

While pressing the PRIORITY key, press the counter key to which the desired frequency is memorized.

If more than two counter keys are pressed, the last key pressed designates the priority station.



- The PRIORITY indication appears in the display. A beep sounds and the corresponding dot blinks.
- When the priority station is tuned in every 3 seconds, the station being received will be interrupted for a fraction of a second.

### To cancel the priority station

Press the PRIORITY key again. The PRIORITY indication and the dot in the display disappear.

- The priority function can be activated and cancelled while another station is being received.

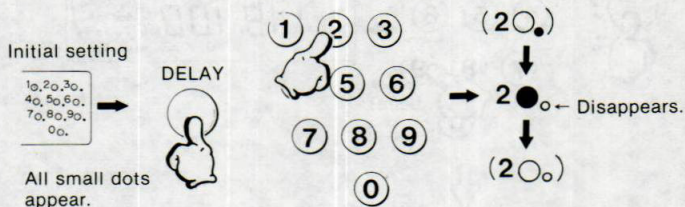
AIR/PSB reception

## DELAY FUNCTION

Using the delay function, the station being received will be kept tuned in during memory scanning after the signal stops for approx. 2 seconds, i.e. during the interval between communications. The delay function is activated on all counter keys at the factory.

### To cancel the delay function

While pressing the DELAY key, press the counter key on which the delay function is to be cancelled.



The corresponding small dot in the display disappears.

### To activate the delay function again

While pressing the DELAY key, press the counter key on which you want the delay function to activate. The small dot in the display appears.

- The delay function can be activated and cancelled while another station is being received.
- Using the delay and priority functions simultaneously, you can receive a station continuously.

### • IC301's (PLL CONTROL IC $\mu$ PD7503-136) TERMINAL FUNCTIONS

Terminal No.	Terminal Name	Function	Terminal No.	Terminal Name	Function
1	NC	This terminal is not used on this set.	33	S21	Signal output for LCD segment.
2	SW		34	S20	
3	MW		35	S19	
4	LW		36	S18	
5	LP		37	S17	
6	DAT	38	S16		
7	CLK/KS0	39	S15		
		40	S14		
		41	S13		
		42	S12		
8	LAT	43	S11		
9	MT	44	S10		
10	SD	45	S9		
		46	S8		
11	KS1	Signal output for key matrix scanning.	47	S7	
12	KS2		48	S6	
13	KS3		49	S5	
14	KS4		50	S4	
15	KS5		51	S3	
16	K0	Signal input for key matrix scanning.	52	S2	
17	K1		53	S1	
18	K2		54	S0	
19	K3		55	PSB	Input for PSB band switching. PSB mode: H, otherwise: L For 3 band model, fix to L.
20	X2	This terminal is not used on this set.	56	RESET	Reset terminal
21	X1	Connected to the ground.	57	CK	System clock pulse oscillation terminal. (Approx. 120kHz)
22	VSS	Ground terminal			
23	VLC3	Input for LCD power supply.	58	VDD	Power supply terminal.
24	VLC2		59	CK	System clock pulse oscillation terminal. (Approx. 120kHz)
25	VLC1				
26	VDD	Power supply terminal.	60	AIR	Input for AIR band switching. AIR mode: H, otherwise: L
27	COM3	This terminal is not used on this set.	61	FM	Input for FM band switching.
28	COM2	Common signal output for LCD.	62	AM	Input for AM band switching.
29	COM1		63	PON	Input for power supply switching. POWER ON: H, OFF: L
30	COM0				
31	S23	This terminal is not used on this set.	64	BEEP	Signal output for beep sound. (Approx. 2kHz)
32	S22				

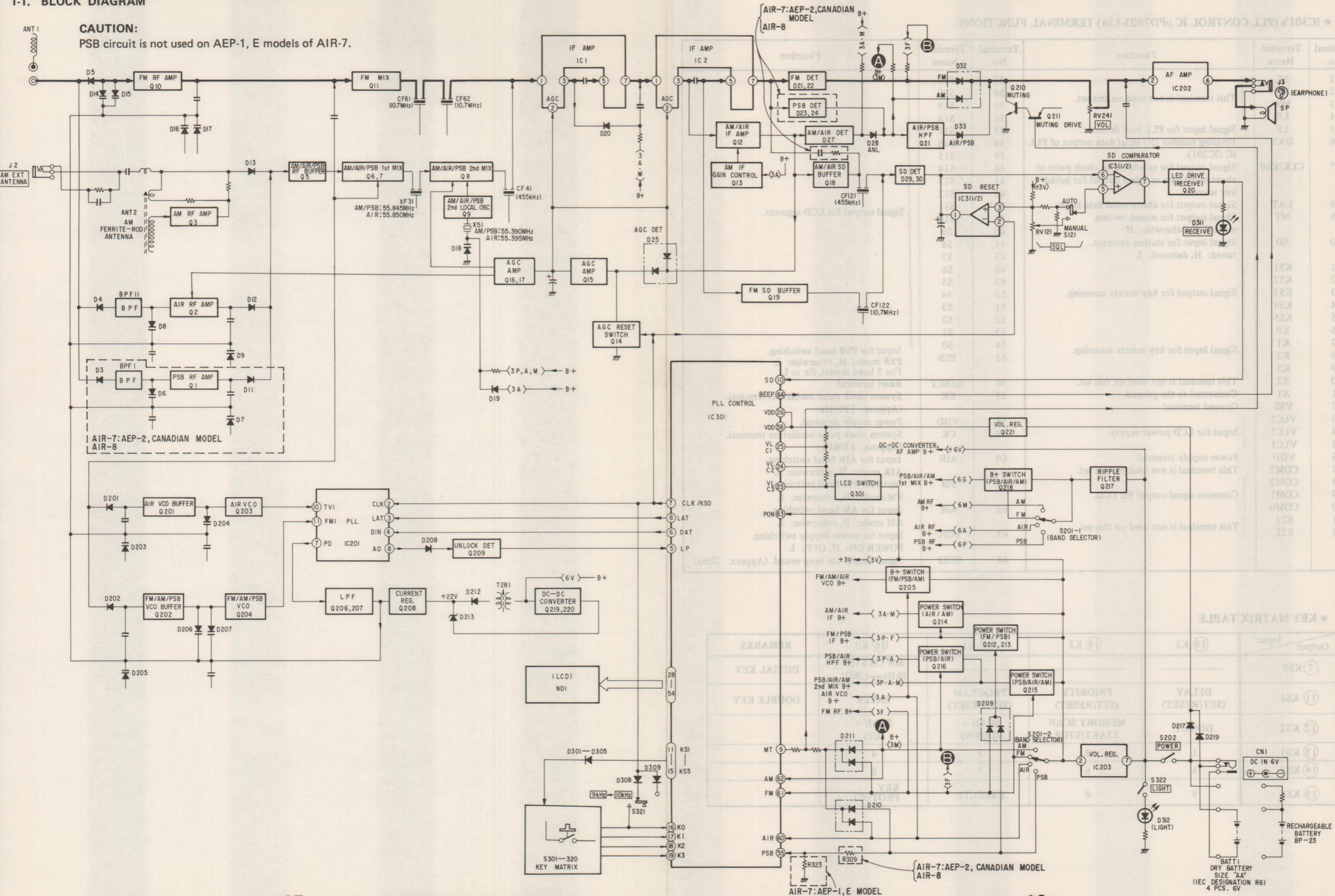
### • KEY MATRIX TABLE

Output	Input	⑰ K3	⑱ K2	⑲ K1	⑳ K0	REMARKS
⑦ KS0					MW CH STEP 9kHz $\leftrightarrow$ 10kHz	INITIAL KEY
⑪ KS1	DELAY (SET/RESET)		PRIORITY (SET/RESET)	PROGRAM (SET/RESET)	ENTER	DOUBLE KEY
⑫ KS2	DIRECT		MEMORY SCAN START/STOP	SCAN - (DOWN)	SCAN + (UP)	
⑬ KS3		1	2	3	4	
⑭ KS4		5	6	7	8	
⑮ KS5		9	0	EXECUTE	KEY PROTECT	

SECTION 1  
OUTLINE

1-1. BLOCK DIAGRAM

**CAUTION:**  
PSB circuit is not used on AEP-1, E models of AIR-7.



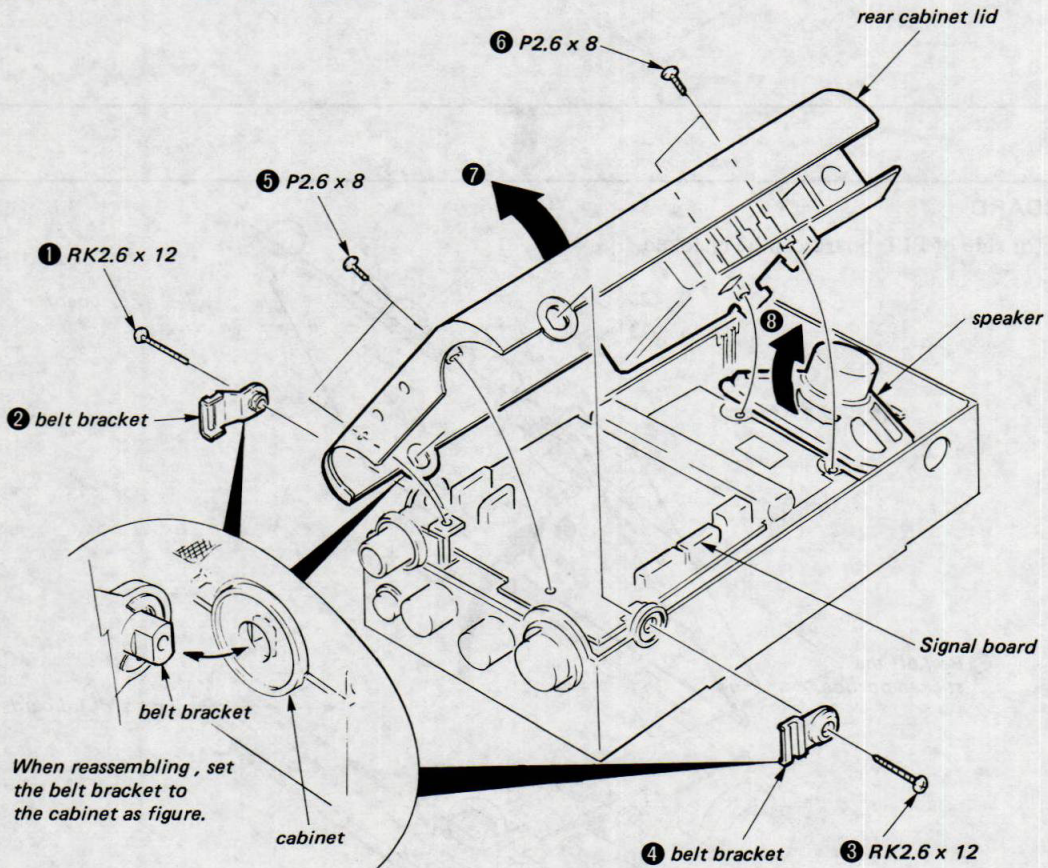
## SECTION 2 DISASSEMBLY

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

Remove the battery holder.

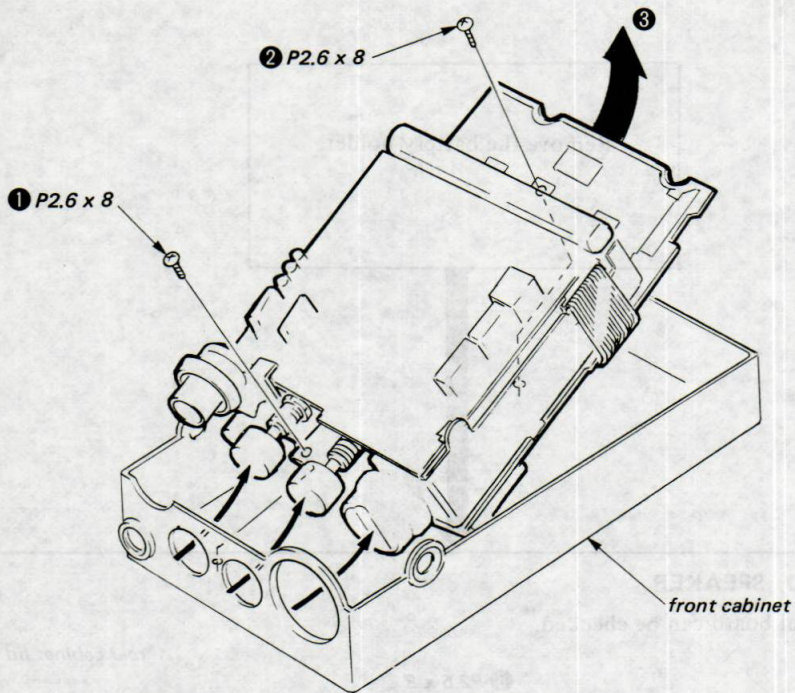
### REAR CABINET LID, SPEAKER

Conductor side of signal board can be checked.



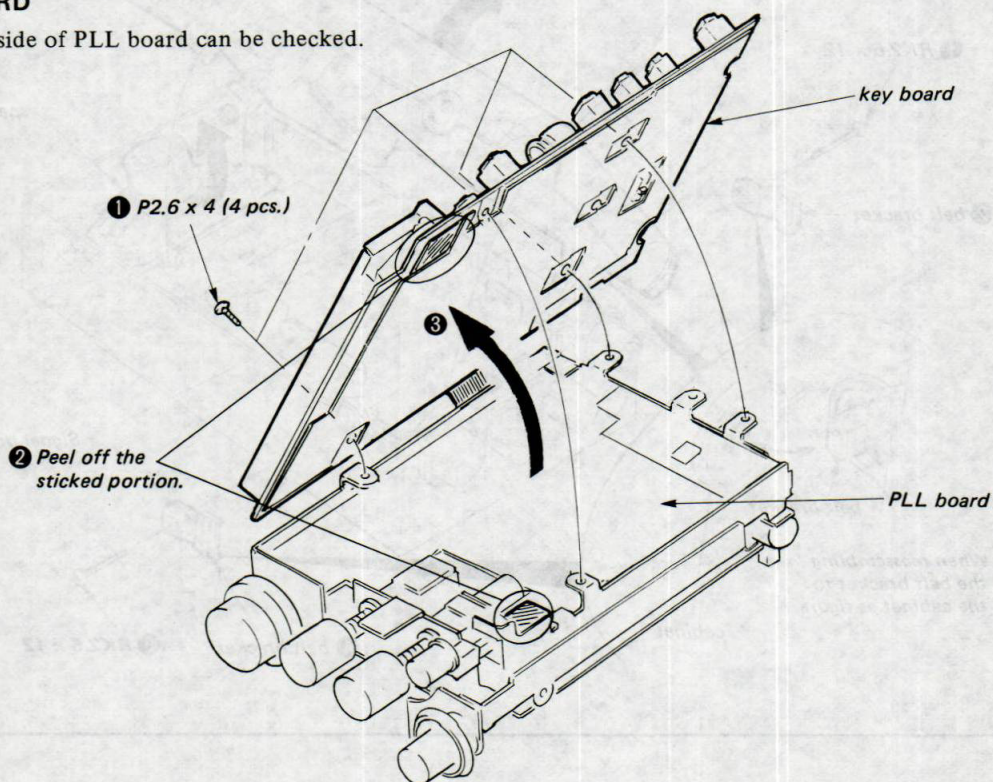
SECTION 3  
DISASSEMBLY

### FRONT CABINET



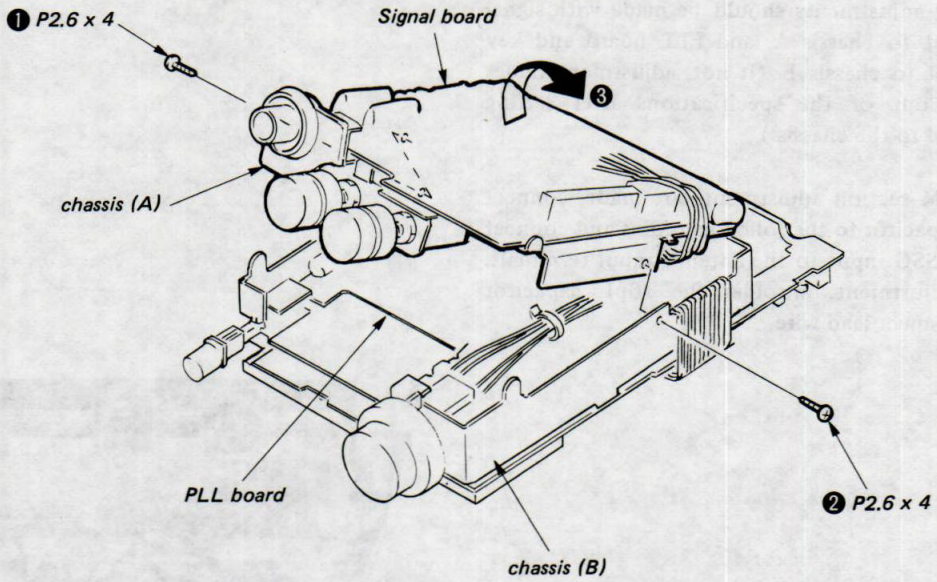
### KEY BOARD

Conductor side of PLL board can be checked.



**CHASSIS (A)**

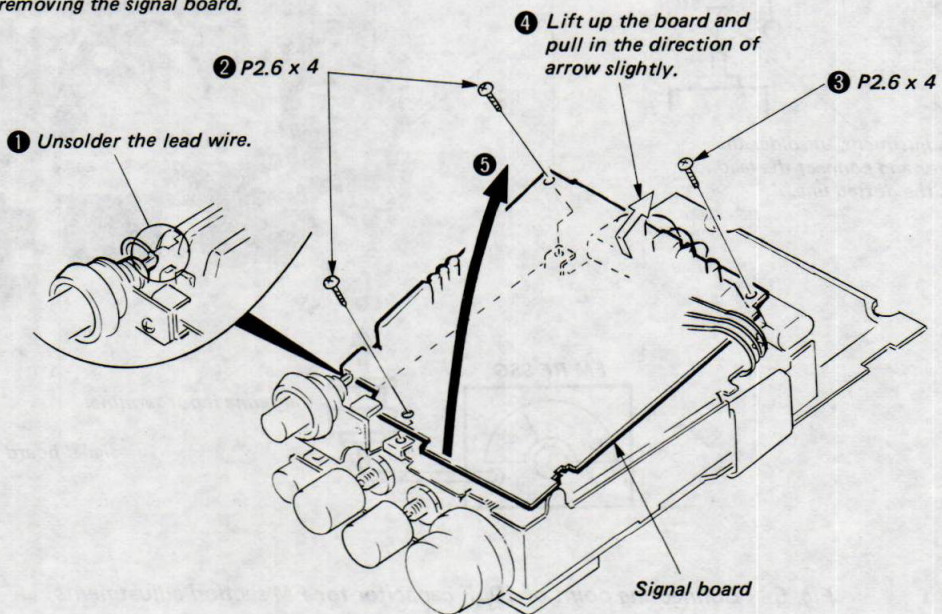
Conductor side of PLL board can be checked.



**SIGNAL BOARD**

Conductor side of signal board can be checked.

*Note: Be careful not to break the lead wire when removing the signal board.*



## SECTION 3 ADJUSTMENTS

### 3-1. ELECTRICAL ADJUSTMENTS

#### Note On Adjustment

- Adjustments should be made in the order given in this service manual.
- Tracking adjustments should be made with signal board set to chassis A, and PLL board and key board set to chassis B. (If not, adjustment values will be out of the specifications after setting the board to the chassis.)
- When FM section adjustments are made, connect 10pF capacitor to the following point and connect FM RF SSG input to the antenna input terminals. After adjustment, unsolder the 10pF capacitor and reconnect lead wire.

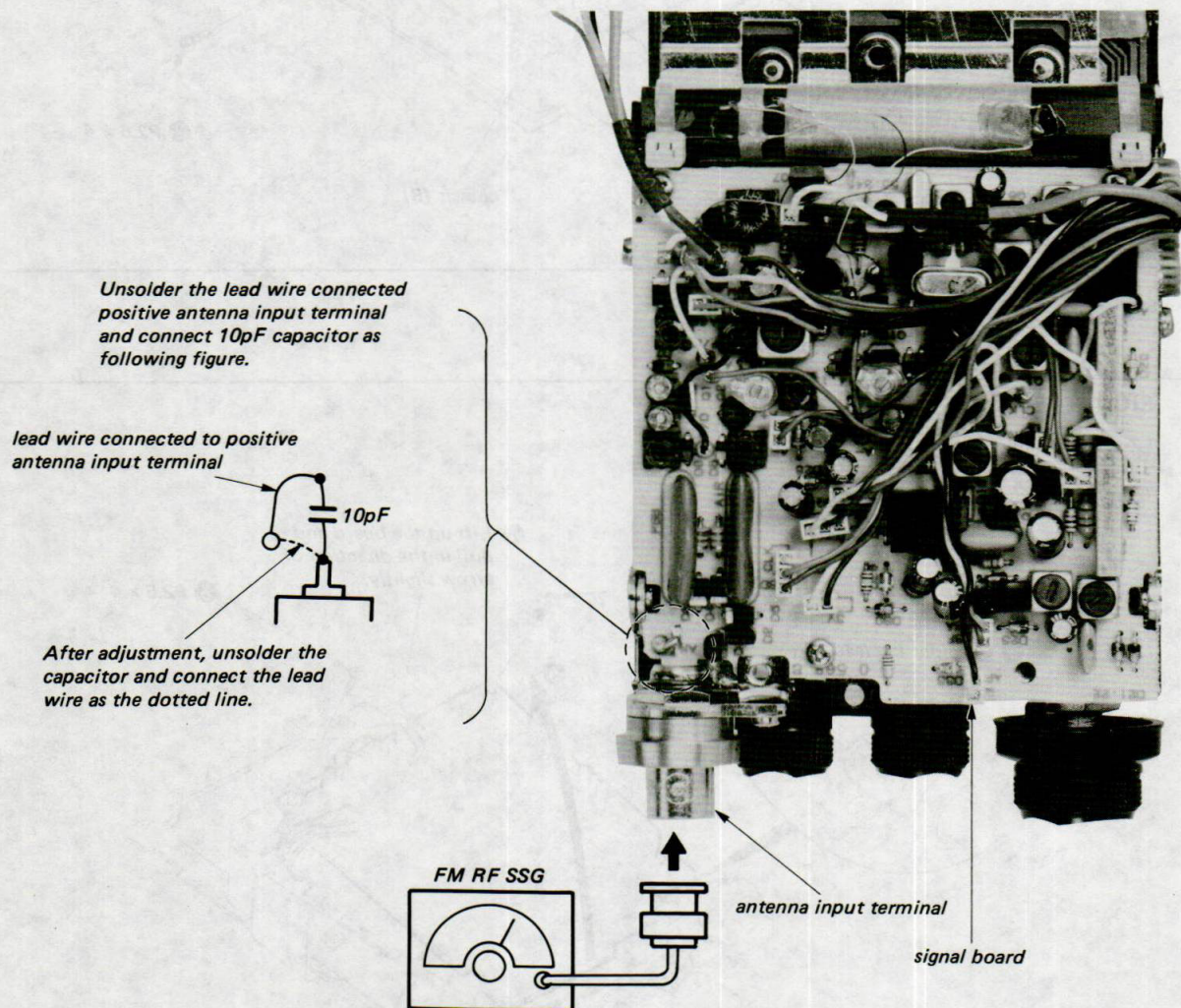


Fig. 6 Connecting point of 10pF capacitor for FM section adjustments

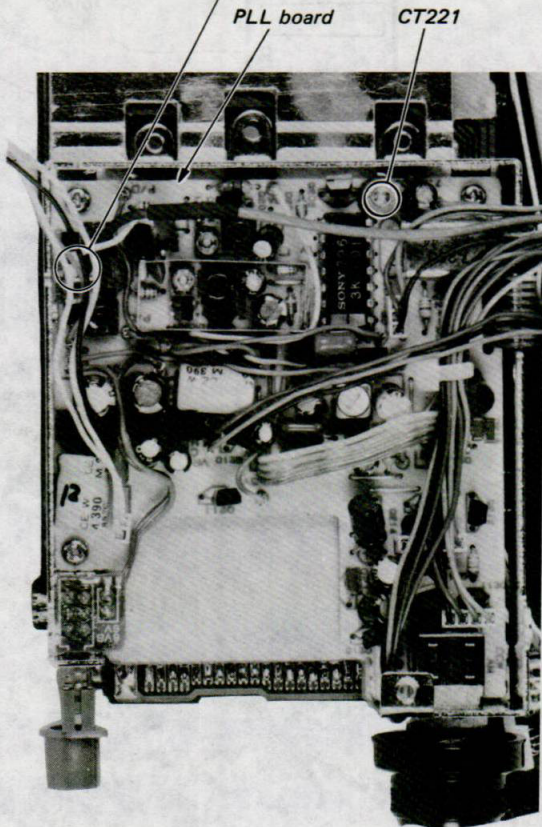
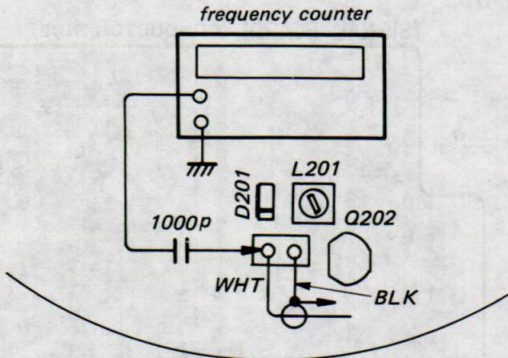


**Reference Frequency Adjustment**

**Setting:** Band selector: FM

**Procedure:**

1. Set the receiving frequency to 76MHz.
2. Adjust CT221 so that the frequency counter reads  $86.7 \pm 0.0001$ MHz.

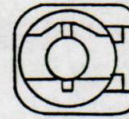


**AIR VCO Adjustment**

**Setting:** Band selector: AIR

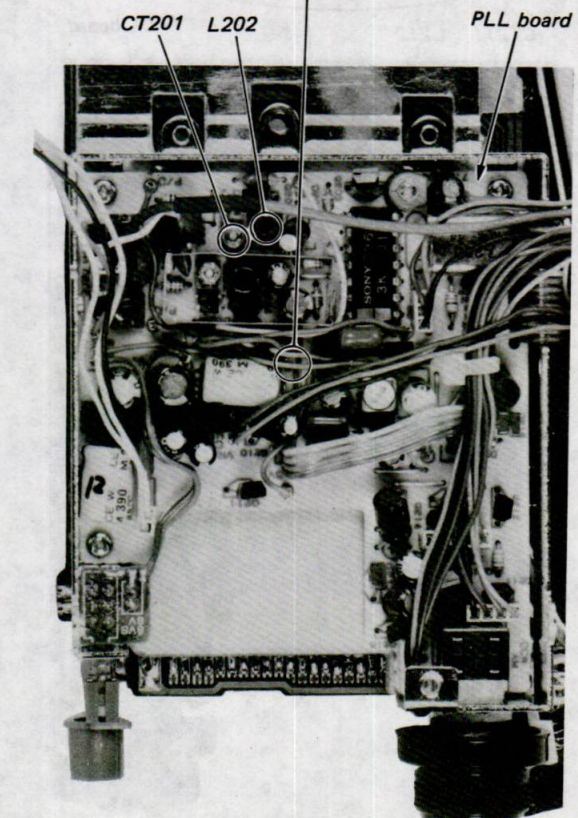
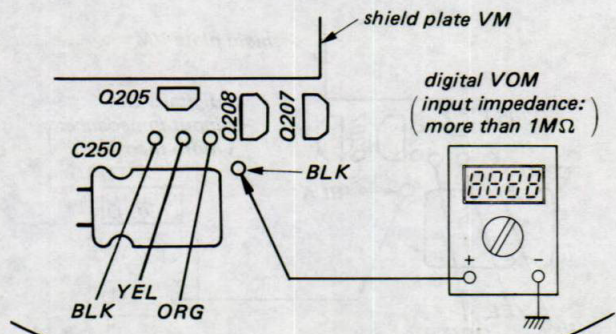
**Procedure:**

1. Set the receiving frequency to 108MHz.
2. Set CT201 to the mechanical center.



(MECHANICAL CENTER POSITION)

3. Adjust L202 so that the digital VOM reads 3.25V.



**FM/PSB/AM VCO Adjustment**

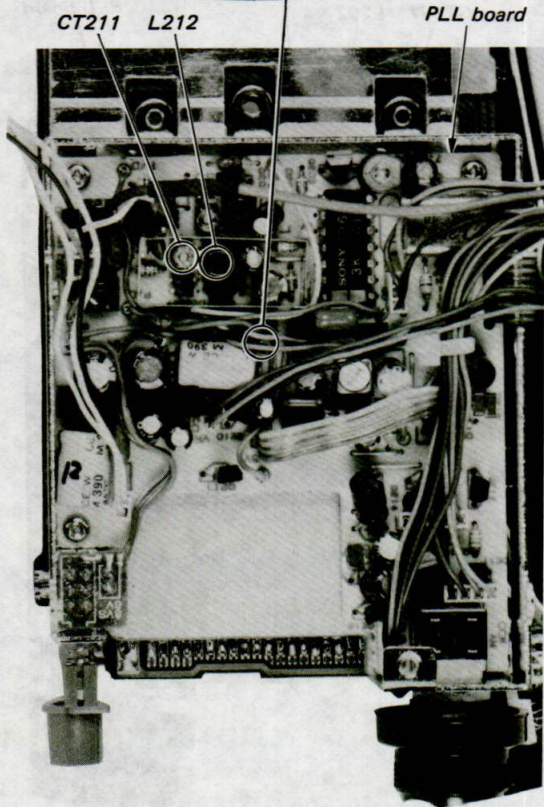
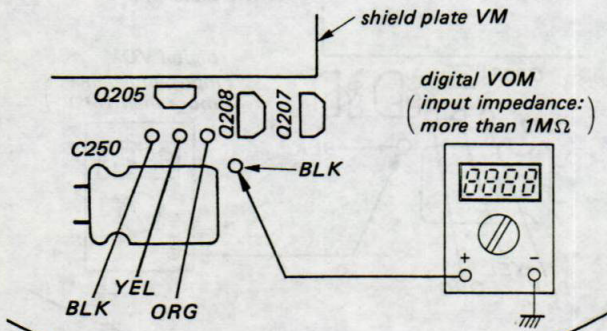
**Setting:** Band selector: AM

**Procedure:**

1. Set the receiving frequency to 150kHz.
2. Set CT211 to the mechanical center.



3. Adjust L212 so that the digital VOM reads 1.25V.

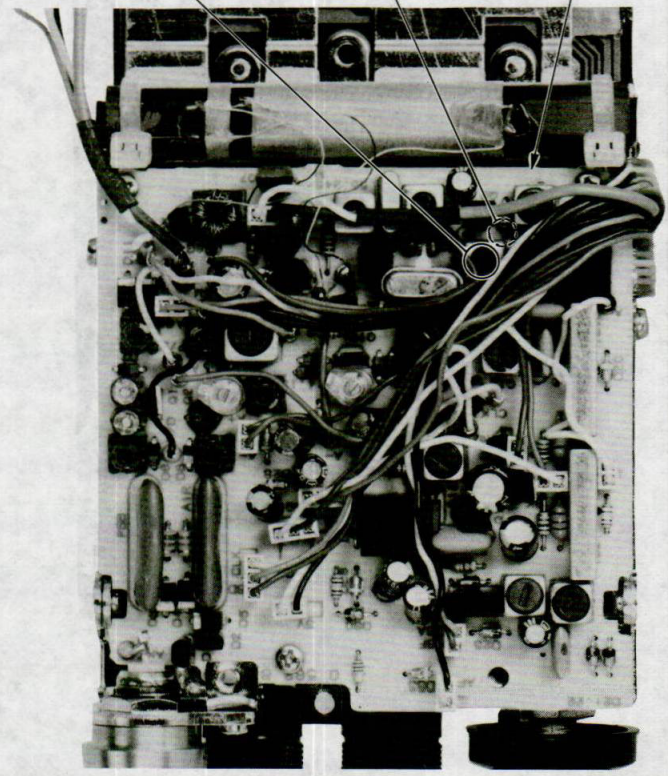
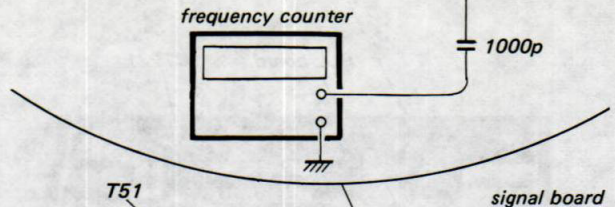
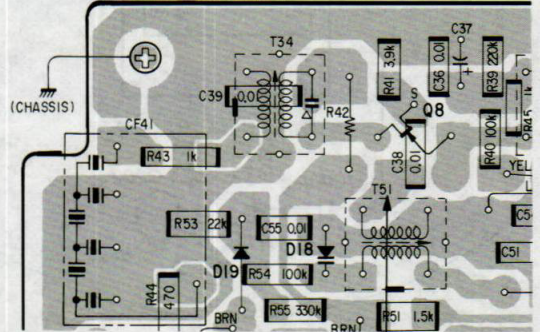


**PSB/AIR/AM Second Local Oscillator VCXO Adjustment**

**Procedure:**

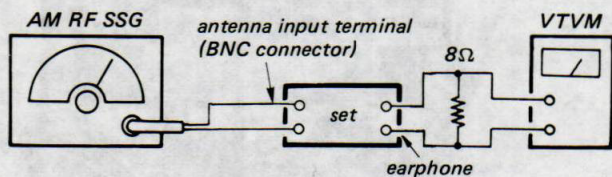
1. Band selector: AM  
Receiving frequency is free.
2. Adjust T51 so that the frequency counter reads  $55.390 \pm 0.0001$  MHz.
3. Band selector: AIR  
Receiving frequency is free.
4. Confirm that the frequency counter reads  $55.395 \pm 0.001$  MHz.

[SIGNAL BOARD] (CONDUCTOR SIDE)



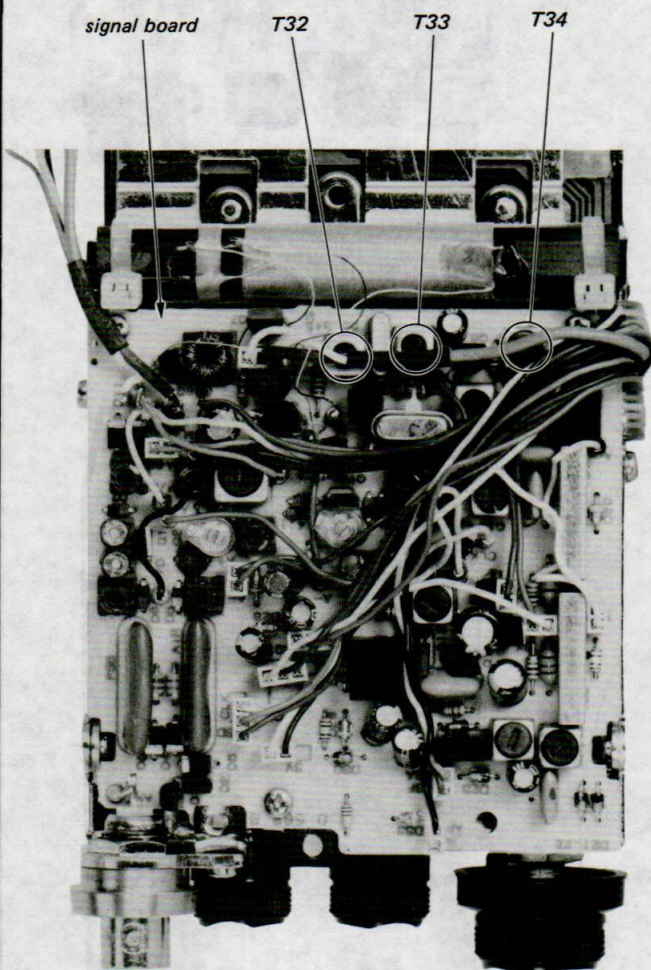
**PSB/AIR/AM IF Adjustment**

**Setting:** Band selector: AIR

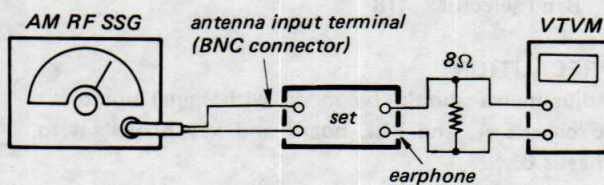
**Procedure:**

**Carrier frequency:** 122MHz  
**Modulation:** 30% amplitude modulation by 1kHz signal  
**Output level:** As low as possible around 0dB

1. Tune the set to 122MHz.
2. Adjust T32, T33, T34 for a maximum reading on VTVM.

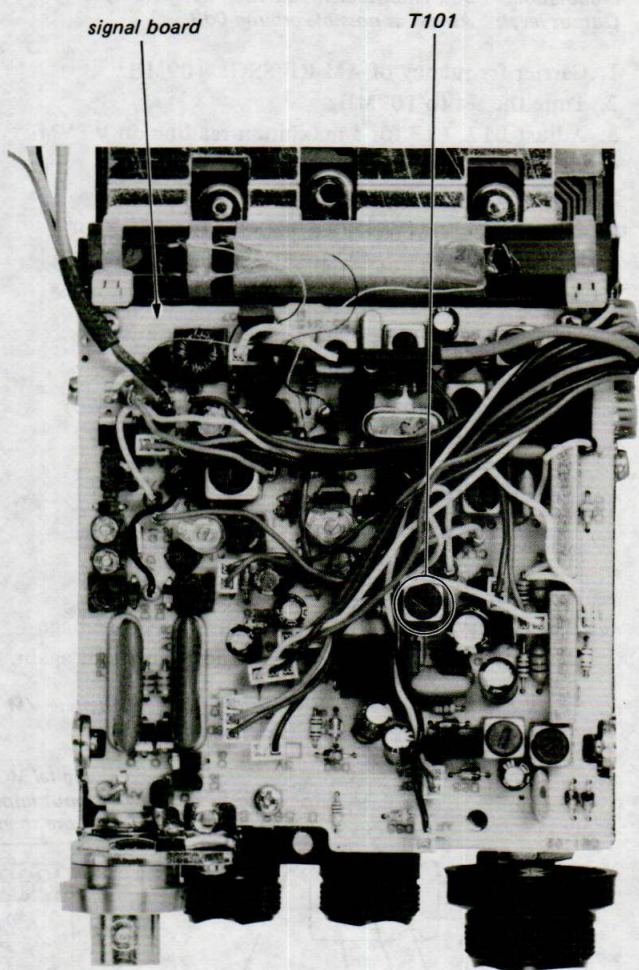
**AIR/AM Detector Adjustment**

**Setting:** Band selector: AIR

**Procedure:**

**Carrier frequency:** 122MHz  
**Modulation:** 30% amplitude modulation by 1kHz signal  
**Output level:** As low as possible around 0dB

1. Tune the set to 122MHz.
2. Adjust T101 for a maximum reading on VTVM.



## AIR Tracking Adjustment

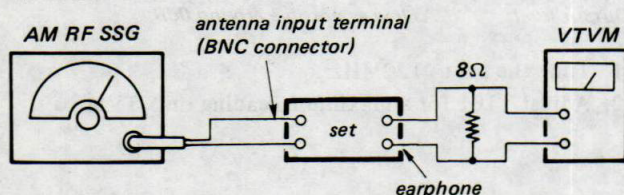
### Setting:

1. This adjustment should be made after AIR VCO Adjustment (See page 23).
2. Band selector: AIR

### PRECAUTION:

Adjustments should be made with signal board set to chassis A, and PLL board and key board set to chassis B.

### Procedure:



**Modulation:** 30% amplitude modulation by 1kHz signal  
**Output level:** As low as possible around 0dB

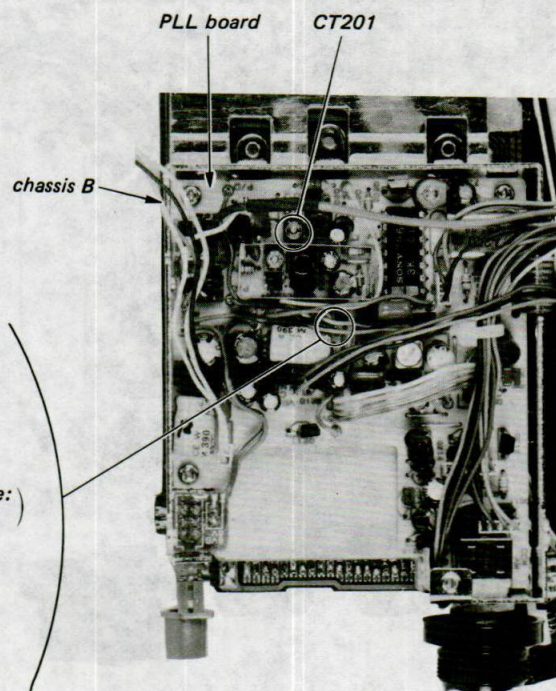
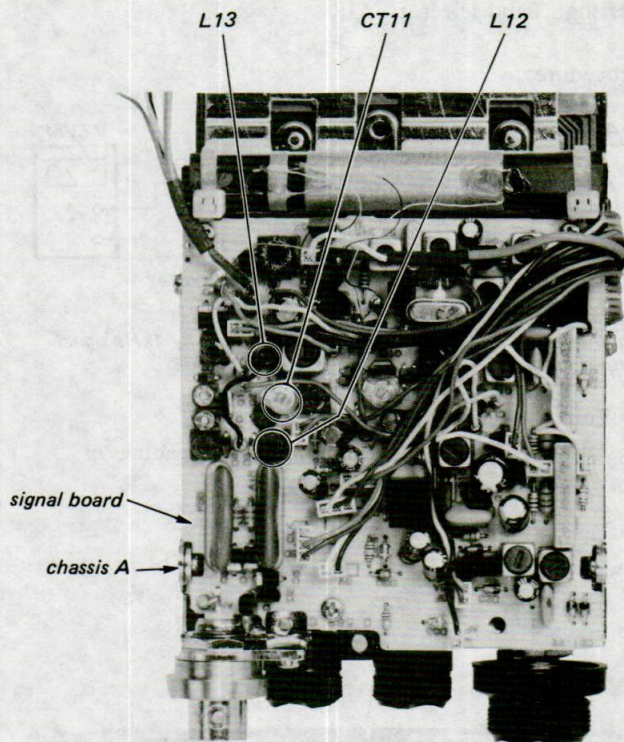
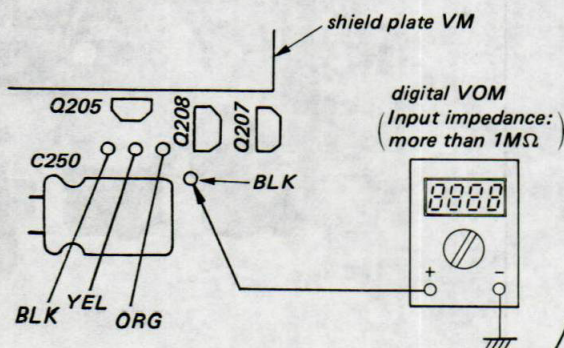
1. Carrier frequency of AM RF SSG: 109MHz
2. Tune the set to 109MHz.
3. Adjust L12, L13 for a maximum reading on VTVM.
4. Carrier frequency of AM RF SSG: 136MHz
5. Tune the set to 136MHz.
6. Adjust CT11, CT201 for a maximum reading on VTVM.
7. Repeat steps 1 – 6 two or three times.

**Note:** The adjustment should be finally done at step 6.

8. After adjustment, make sure that AIR VCO dc voltage is as follows at the receiving frequency of 108MHz and 136MHz.

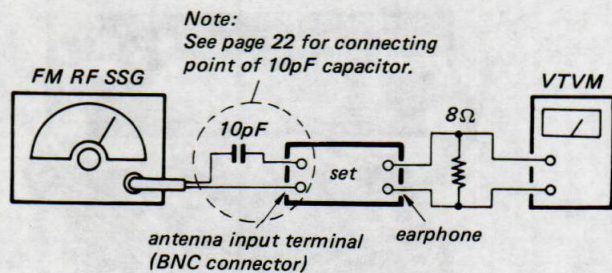
receiving frequency	AIR VCO dc voltage
108MHz	3.25 ±0.5V
136MHz	13.4 $\begin{matrix} +2 \\ -1.5 \end{matrix}$ V

If necessary, make AIR VCO adjustment (See page 23). After that, make AIR tracking adjustment again.



**FM IF Adjustment**

**Setting:** Band selector: FM

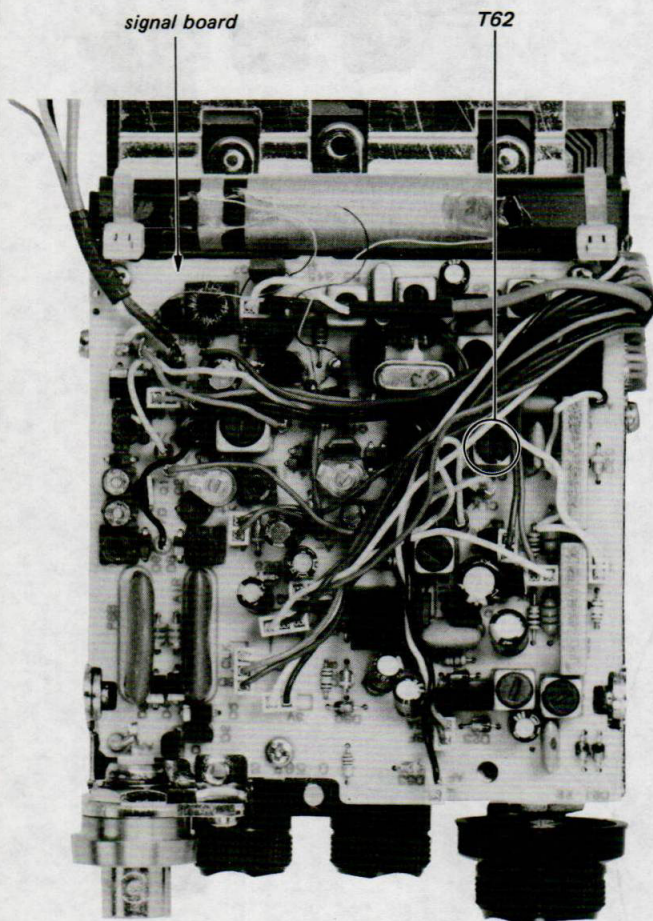
**Procedure:**

**Carrier frequency:** 93MHz

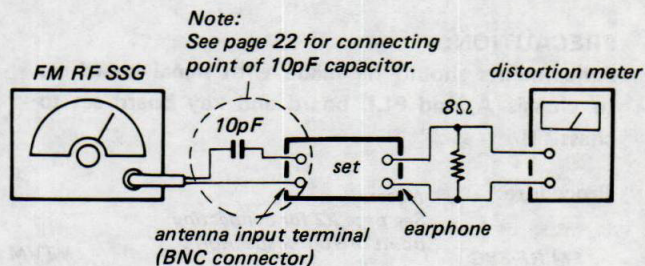
**Modulation:** ± 22.5kHz frequency deviation by  
400Hz signal (30%)

**Output level:** As low as possible around 10dB

1. Tune the set to 93MHz.
2. Adjust T62 for a maximum reading on VTVM.

**FM Discriminator Adjustment**

**Setting:** Band selector: FM

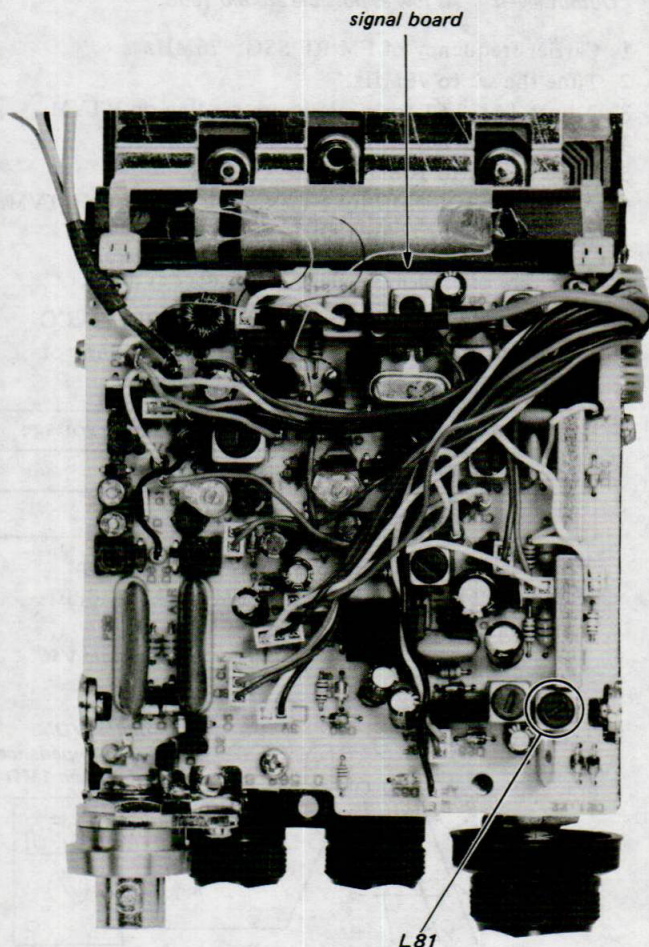
**Procedure:**

**Carrier frequency:** 93MHz

**Modulation:** ± 22.5kHz frequency deviation by  
400Hz signal (30%)

**Output level:** 54dB

1. Tune the set to 93MHz.
2. Adjust L81 for a minimum reading on distortion meter.



**FM Tracking Adjustment**

**Setting:**

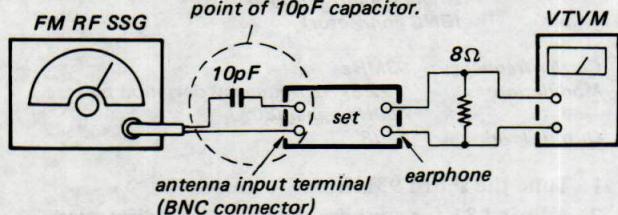
- This adjustment should be made after FM/PSB/AM VCO adjustment (See page 24).
- Band selector: FM

**PRECAUTION:**

Adjustments should be made with signal board set to chassis A, and PLL board and key board set to chassis B.

**Procedure:**

*Note:*  
See page 22 for connecting point of 10pF capacitor.



**Modulation:**  $\pm 22.5\text{kHz}$  frequency deviation by 400Hz signal (30%)  
**Output level:** As low as possible around 10dB.

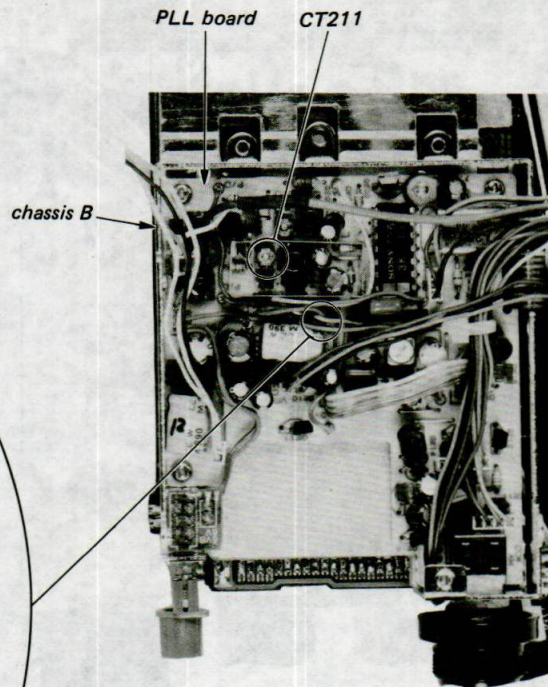
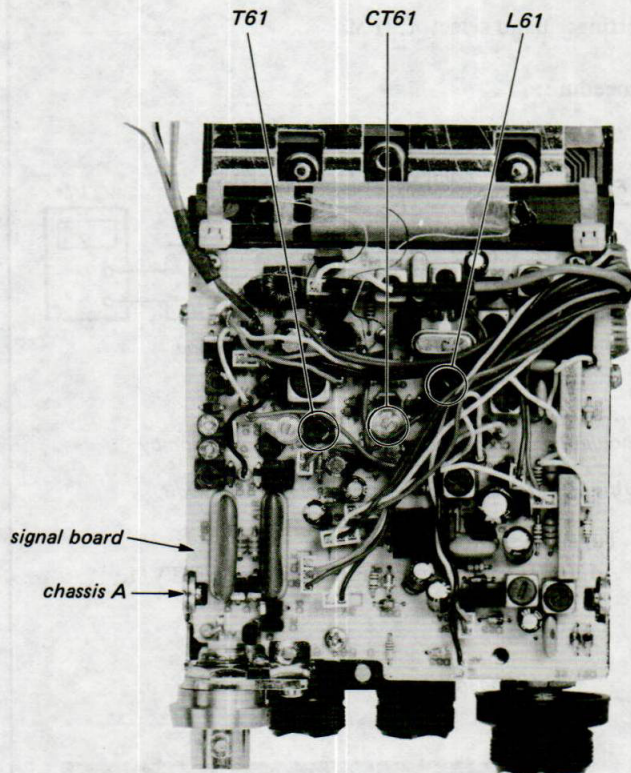
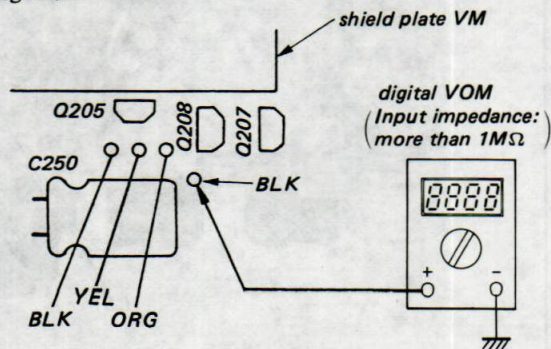
1. Carrier frequency of FM RF SSG: 76MHz
2. Tune the set to 76MHz.
3. Adjust T61, L61 for a maximum reading on VTVM.
4. Carrier frequency of FM RF SSG: 108MHz
5. Tune the set to 108MHz.
6. Adjust CT61, CT211 for a maximum reading on VTVM.
7. Repeat steps 1 – 6 two or three times.

**Note:** The adjustment should be finally done at step 6.

8. After adjustment, make sure that FM/PSB/AM VCO dc voltage is as follows at the receiving frequency of 76MHz and 108MHz.

receiving frequency	FM/PSB/AM VCO dc voltage
76MHz	8.5 $\pm$ 0.7V
108MHz	17.4 $\pm$ 1.5V

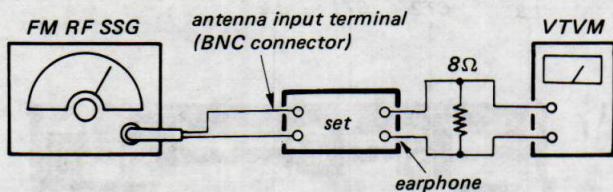
If necessary, make FM/PSB/AM VCO adjustment (See page 24). After that, make FM tracking adjustment again.



### PSB Discriminator Adjustment

**Setting:** Band selector: PSB

**Procedure:**

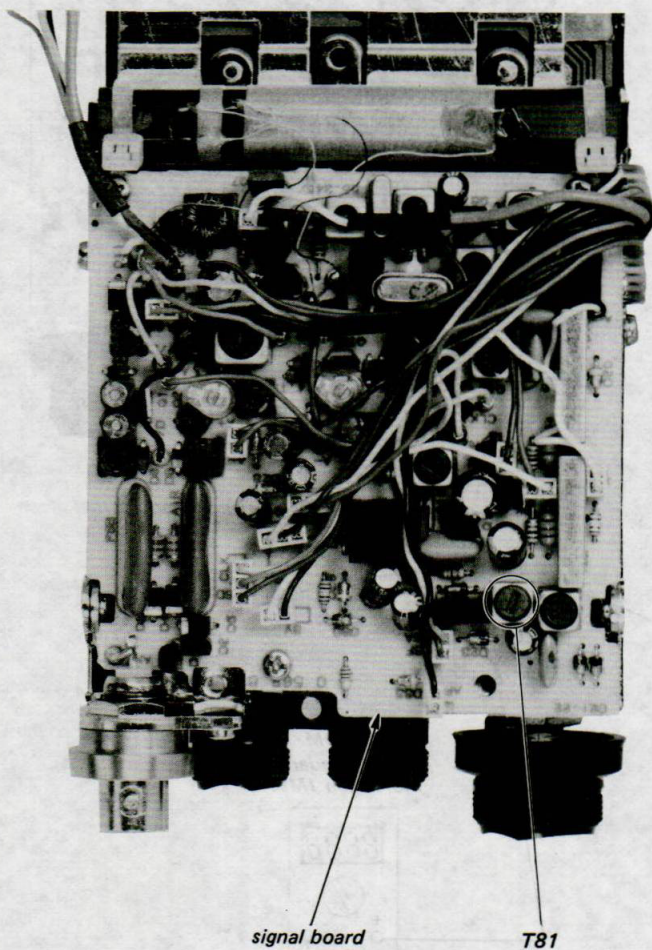


**Carrier frequency:** 150MHz

**Modulation:** 3.5kHz frequency deviation by  
1kHz signal

**Output level:** As low as possible around  $-5\text{dB}$

1. Tune the set to 150MHz.
2. Adjust T81 for a maximum reading on VTVM.



## PSB Tracking Adjustment

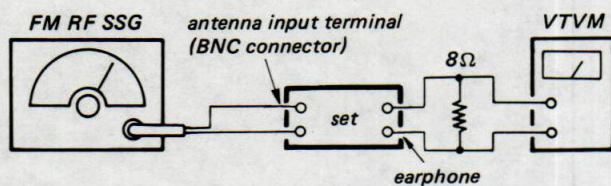
### Setting:

- This adjustment should be made after FM/PSB/AM VCO adjustment and FM tracking adjustment. (See page 24 and 28.)
- Band selector: PSB

### PRECAUTION:

Adjustments should be made with signal board set to chassis A, and PLL board and key board set to chassis B.

### Procedure:



**Modulation:** 3.5kHz frequency deviation by 1kHz signal

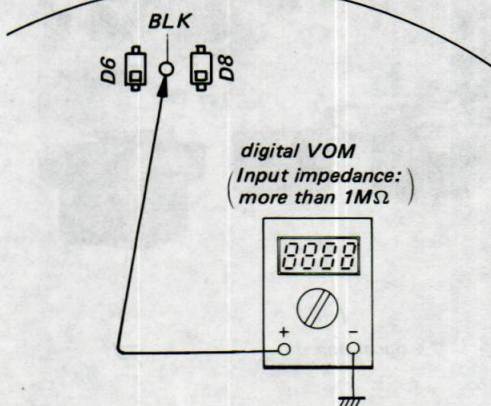
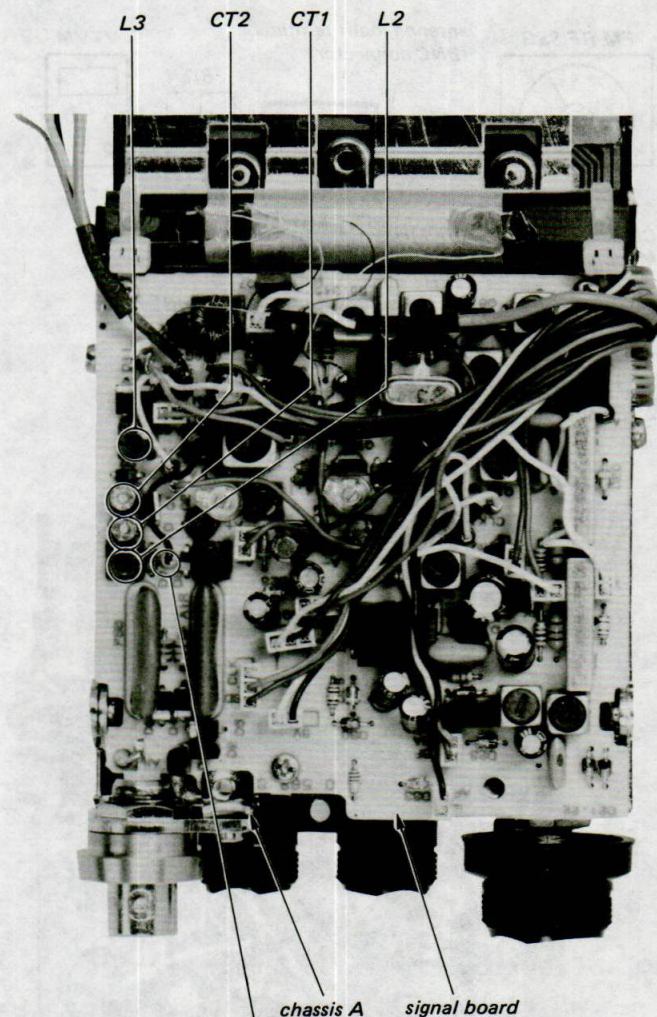
**Output level:** As low as possible around -5dB

1. Carrier frequency of FM RF SSG: 150MHz
2. Tune the set to 150MHz.
3. Adjust L2, L3 for a maximum reading on VTVM.
4. Carrier frequency of FM RF SSG: 174MHz
5. Tune the set to 174MHz.
6. Adjust CT1, CT2 for a maximum reading on VTVM.
7. Repeat 1 - 6 steps two or three times.

**Note:** The adjustment should be finally done at step 6.

8. After adjustment, make sure that FM/PSB/AM VCO dc voltage is as follows at the receiving frequency of 144MHz and 174MHz.

receiving frequency	FM/PSB/AM VCO dc voltage
144MHz	8.9 ±0.7V
174MHz	17.1 ±1.5V





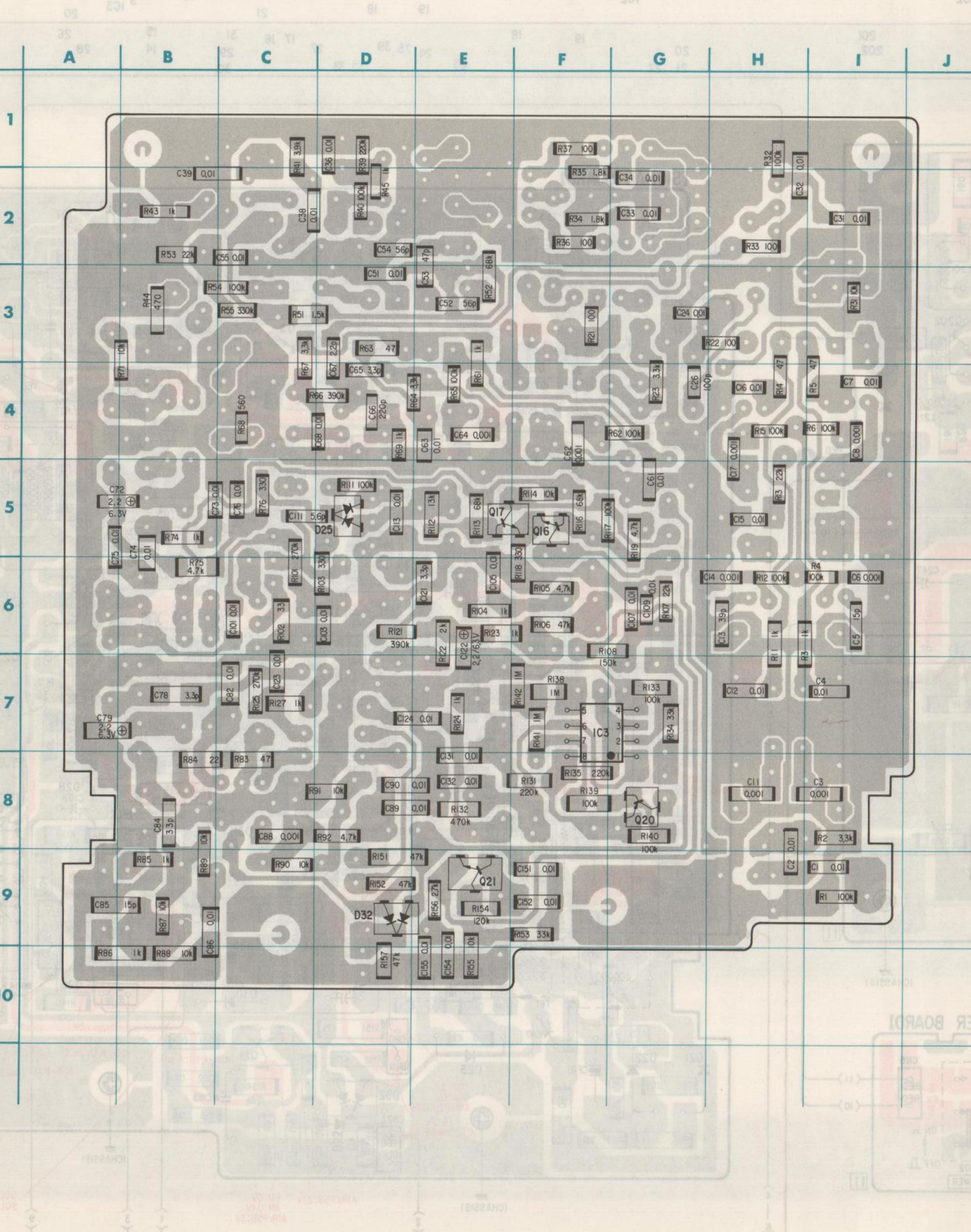
Location for MELF and Chip Components on Mounting Diagram

The table below shows the location for MELF and chip components to look for them easily on the mounting diagram.

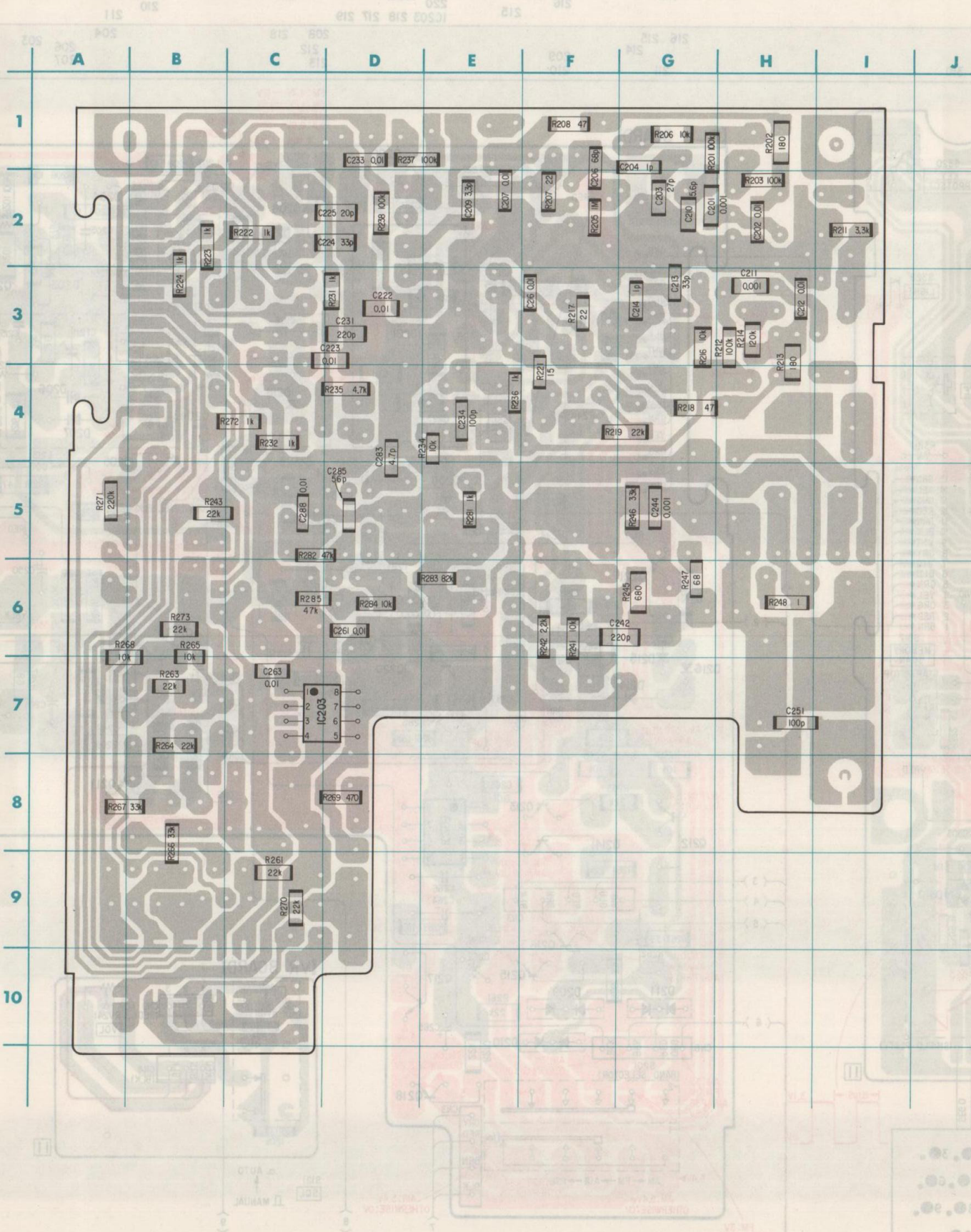
Note: The parts marked with \* are mounted on PC board for 3 band model (AEP-1, E model), but they are not used.

SIGNAL BOARD				PLL BOARD			
SEMICONDUCTORS		CAPACITORS		RESISTORS		IC	
Ref. No.	Location No.	Ref. No.	Location No.	Ref. No.	Location No.	Ref. No.	Location No.
IC3	F-7	C1	I-9	C90	D-8	R1	I-9
		C2	H-9	C101	C-6	R2	I-8
Q16	F-5	*C3	I-8	C103	D-6	*R3	H-6
Q17	E-5	*C4	I-7	C105	E-6	*R4	I-6
Q20	G-8	*C5	I-6	C107	G-6	*R5	I-4
Q21	E-9						
D25	D-5	*C6	I-6	C109	G-6	*R6	I-4
D32	D-9	*C7	I-4	C111	C-5	R11	H-6
		*C8	I-4	C113	D-5	R12	H-6
		C11	H-8	C121	E-6	R13	H-5
		C12	H-7	C122	E-6	R14	H-4
						R105	F-6
		C13	H-6	C123	C-7	R15	H-4
		C14	H-6	C124	D-7	R21	F-3
		C15	H-5	C131	E-8	R22	H-3
		C16	H-4	C132	E-8	R23	G-4
		C17	H-5	C151	F-9	R31	I-3
		C24	G-3	C152	F-9	R32	H-1
		C26	G-4	C154	E-10	R33	H-2
		C31	I-2	C155	E-10	R34	F-2
		C32	H-2			R35	F-2
		C33	G-2			R36	F-2
		C34	G-2			R37	F-1
		C36	D-1			R39	D-1
		C38	C-2			R40	D-2
		C39	B-2			R41	C-1
		C51	D-3			R43	B-2
		C52	E-3			R44	B-3
		C53	E-3			R125	C-7
		C54	D-2			R127	C-7
		C55	C-2			R131	F-8
		C61	G-5			R52	E-3
						R53	B-2
		C62	F-4			R54	C-3
		C63	E-4			R134	G-7
		C64	E-4			R135	F-8
		C65	D-4			R138	F-7
		C66	D-4			R62	G-4
						R63	D-3
		C67	D-3			R64	D-4
		C68	D-4			R141	F-7
		C72	A-5			R142	F-7
		C73	B-5			R151	D-9
		C74	B-5			R152	D-9
						R153	F-9
		C75	A-5			R69	D-4
		C76	C-5			R71	A-3
		C78	B-7			R74	B-5
		C79	A-7			R75	B-6
		C82	C-7			R76	C-5
		C84	B-8			R83	C-8
		C85	A-9			R84	B-8
		C86	B-9			R85	B-9
		C88	C-8			R86	A-10
		C89	D-8			R87	B-9

4-1. MOUNTING DIAGRAM - Signal Board -

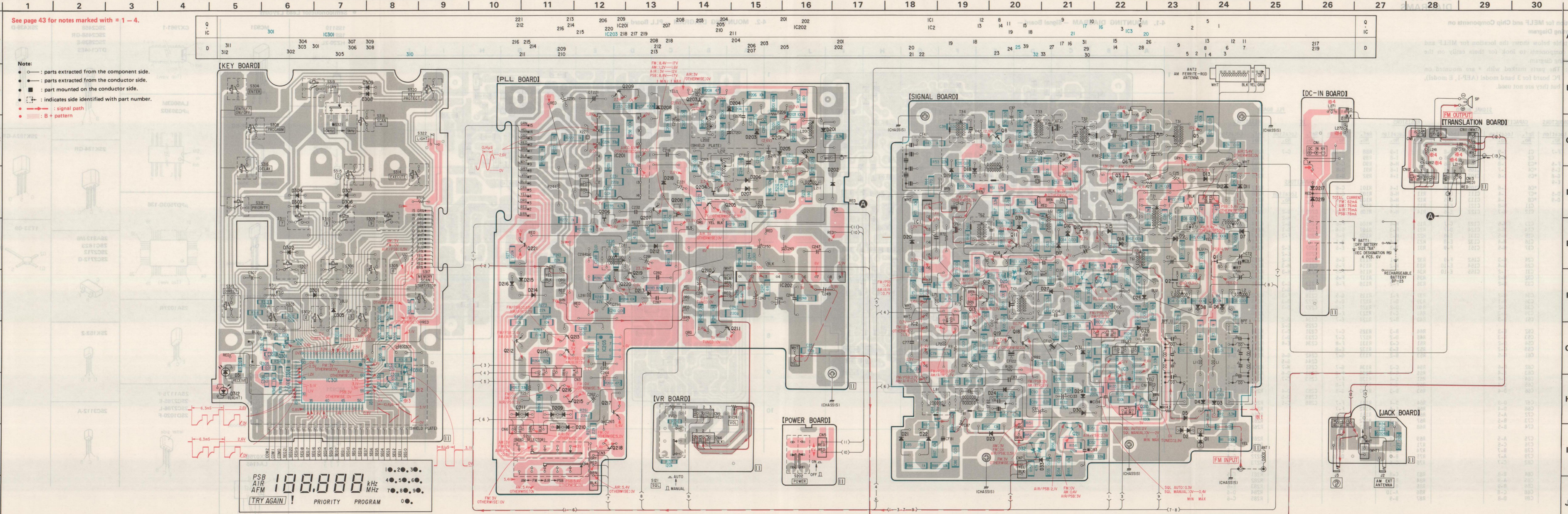


4-2. MOUNTING DIAGRAM - PLL Board -



• Semiconductor Lead Layouts

1SS119 1SS198 H220-2L 	MC931 	CX7961-1 	2SC2458 2SC2458-GR 2SC2839-E DTC144ES 	2SK439-D 
1T26N 1T32-4 1T33-09 	SVC201SP-BG 	LA5003M μPC393G2 	2SK184-GR 	2SK192A-GR 
1SS123 	SLP178B 	μPD7503G-136 	2SA812-M6 2SC1623 2SC2712 2SC2712-G 	1T33-09 
1S2837 	TLUG163 	2SA1027R 	2SK152-2 	
MC921 	TLR209 	2SA1175-F 2SC2785-E 2SC2786-L 2SD1020-F 	2SC3112-A 	
	CX075B LA4145 			



See page 43 for notes marked with \* 1 - 4.

- Note:**
- : parts extracted from the component side.
  - : parts extracted from the conductor side.
  - ◼: part mounted on the conductor side.
  - ⊘: indicates side identified with part number.
  - : signal path
  - ▨: B + pattern

[KEY BOARD]

[PLL BOARD]

[SIGNAL BOARD]

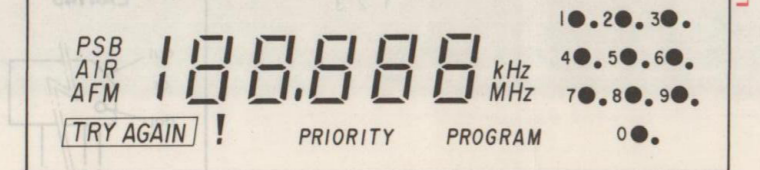
[DC-IN BOARD]

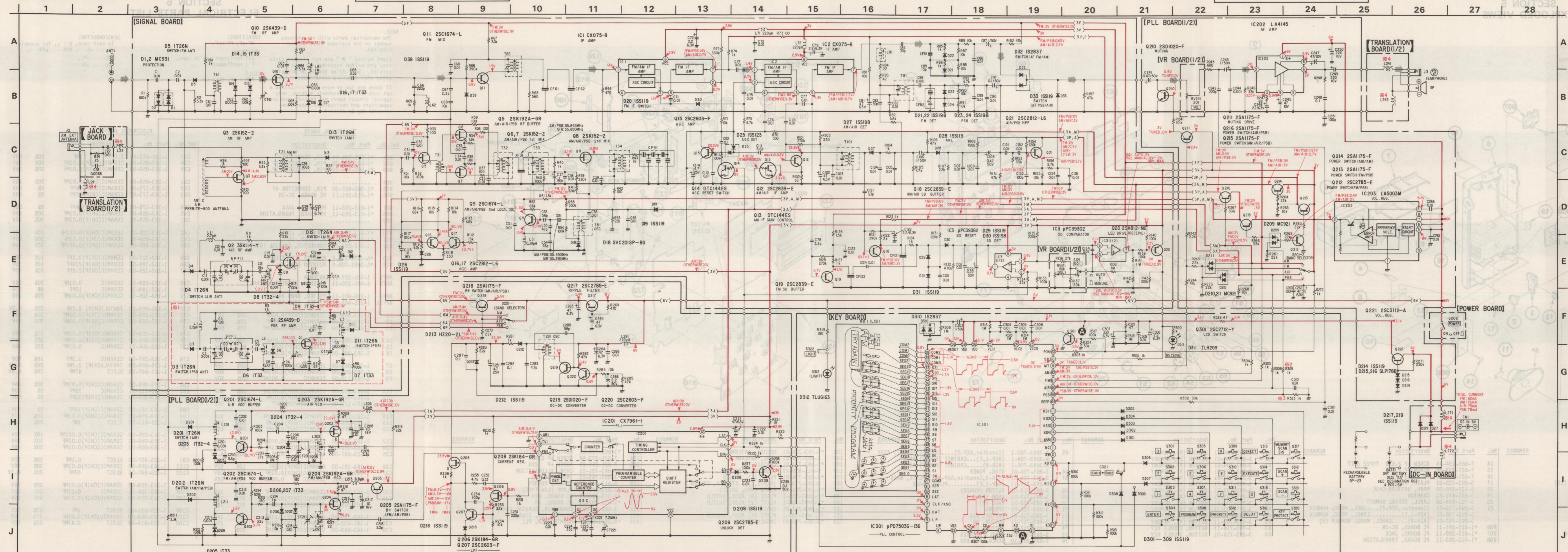
[VR BOARD]

[POWER BOARD]

[JACK BOARD]

[FM OUTPUT (TRANSLATION BOARD)]





**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
- : signal path.
- △ : internal component.
- : B+ bus.
- : adjustment for repair.
- Total current is measured at detuned mode with VOL knob turned to the counterclockwise (MIN).
- Power voltage is 6V and fed with regulated dc power supply from DC IN 6V (external power input) jack. Voltages are dc with respect to ground in detuned mode. Voltage variations may be noted due to normal production tolerances. Measured at FM 76.000MHz on LCD.
- No mark: FM
- ( ) : AM/AIR/PSB
- ( ) : AM/AIR
- < > : AIR

**Switch**

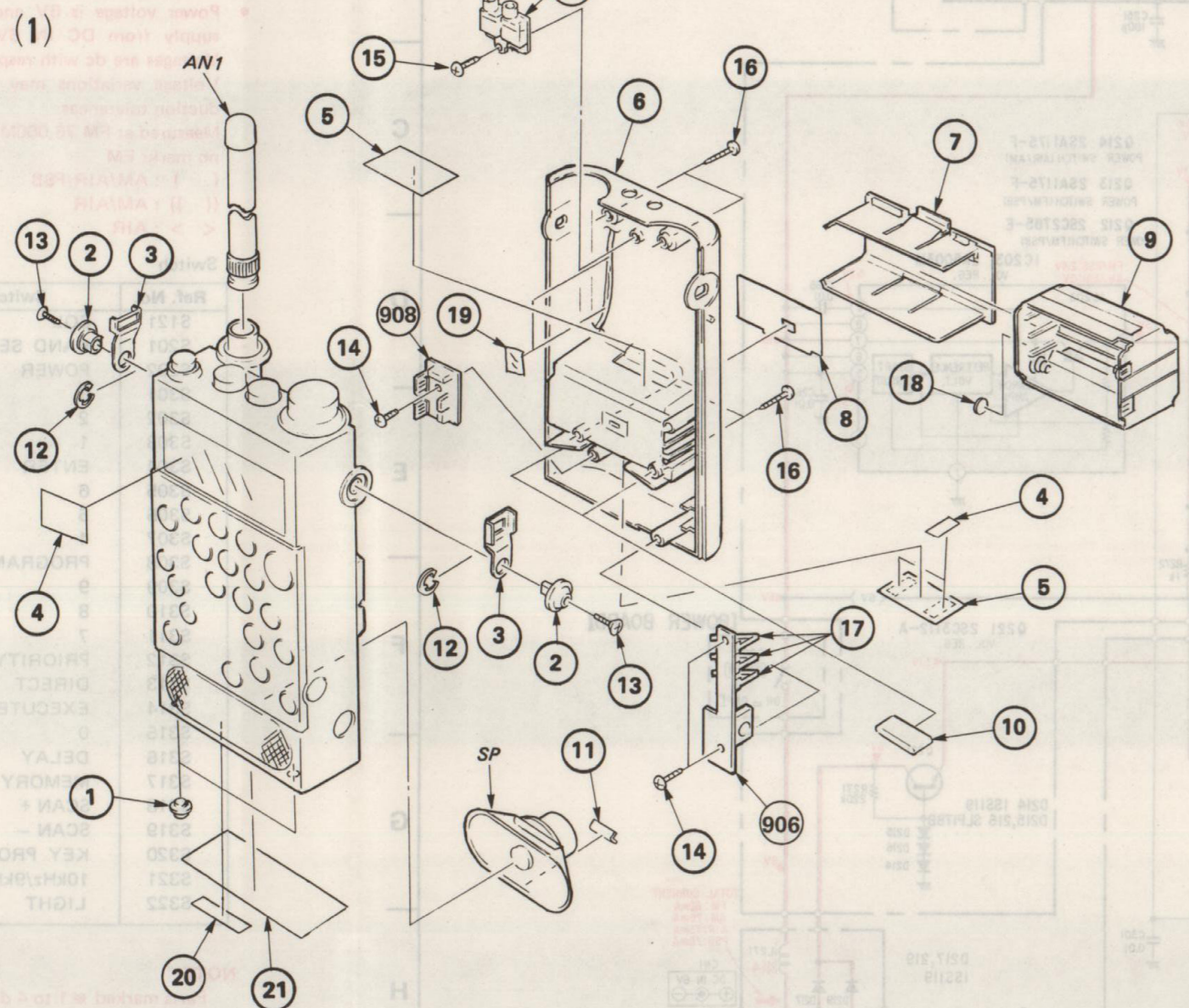
Ref. No.	Switch	Position
S121	SQL	MANUAL
S201	BAND SELECTOR	FM
S202	POWER	OFF
S301	3	OFF
S302	2	OFF
S303	1	OFF
S304	ENTER	OFF
S305	6	OFF
S306	5	OFF
S307	4	OFF
S308	PROGRAM	OFF
S309	9	OFF
S310	8	OFF
S311	7	OFF
S312	PRIORITY	OFF
S313	DIRECT	OFF
S314	EXECUTE	OFF
S315	0	OFF
S316	DELAY	OFF
S317	MEMORY SCAN S/S	STOP
S318	SCAN +	OFF
S319	SCAN -	OFF
S320	KEY PROTECT	OFF
S321	10kHz/9kHz SELECT	10kHz
S322	LIGHT	OFF

**NOTE:**  
Parts marked \* 1 to 4 differ from each model.

	AIR-7	AIR-8
* 1	AEP-1, E model	Canadian, AEP-2 model
* 2	mounted on PC board, but not used	used
* 3	not mounted	mounted
* 4	mounted	not mounted
	shorted	mounted

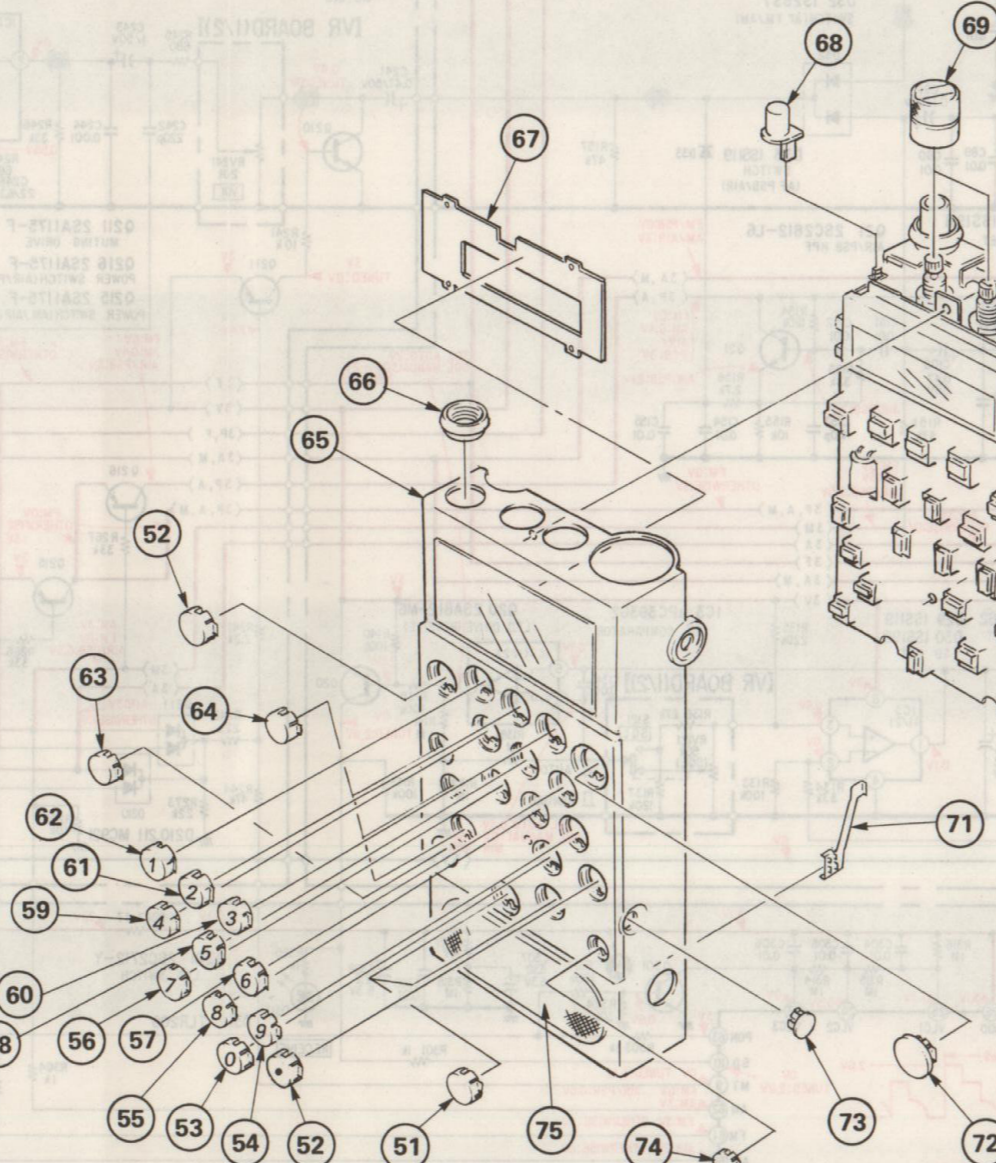
SECTION 5 EXPLODED VIEWS

NOTE:  
 The mechanical parts with no reference number in the exploded views are not supplied.  
 Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.  
 The construction parts of an assembled part are indicated with a collation number on the remark column.



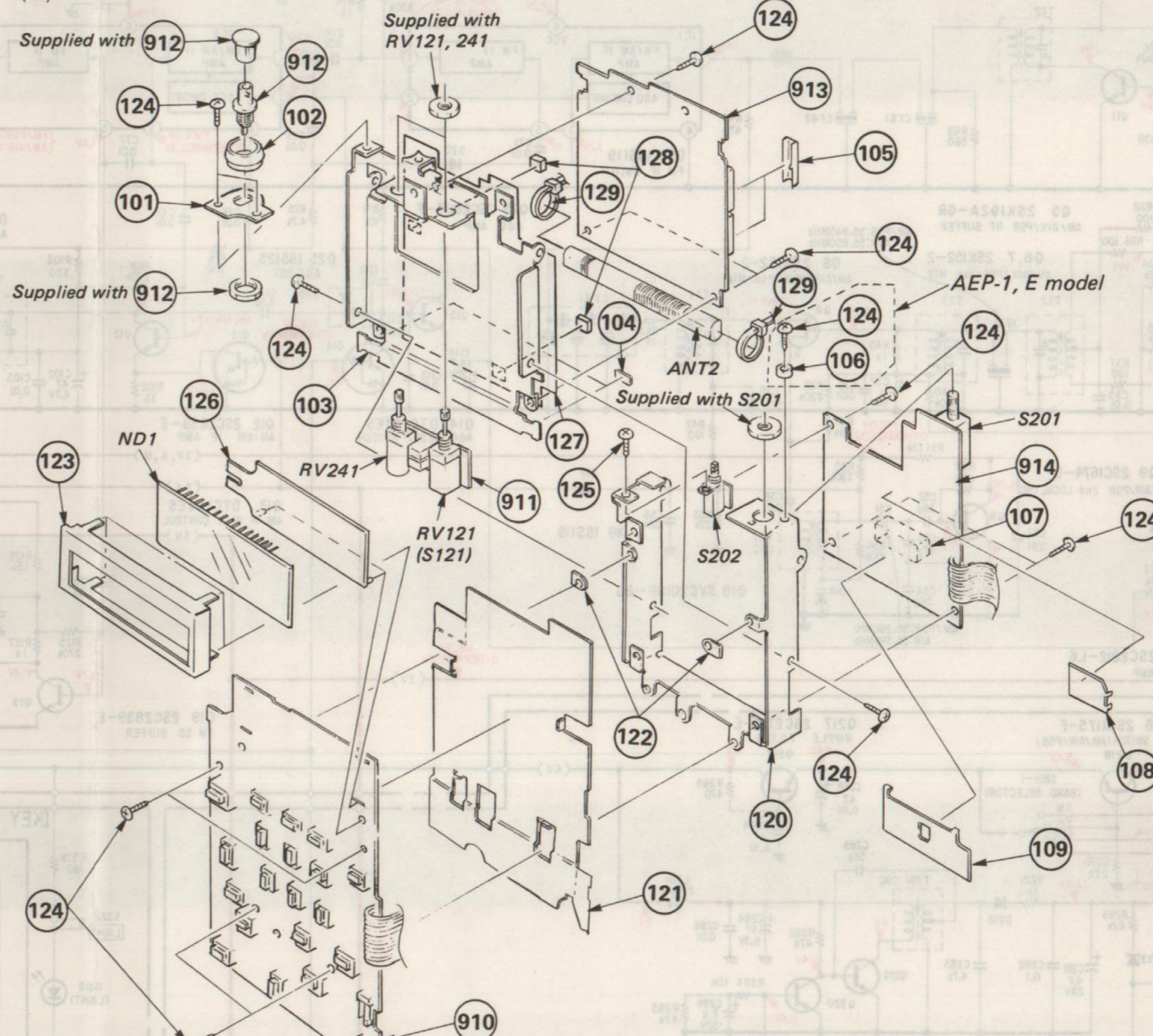
No.	Part No.	Description	REMARKS
1	3-427-542-00	STOPPER	
2	3-893-726-01	COLLAR, BELT	
3	3-893-730-01	BRACKET, BELT	
4	*3-703-709-01	STICKER, SONY SYMBOL (15)	
5	3-893-722-01	PLATE, BLIND	
6	3-893-710-01	LID, REAR, CABINET	
7	3-893-706-01	HOLDER, BATTERY	
8	3-893-736-01	LABEL, STEP, MM CH	
9	X-3564-820-0	HOLDER ASSY, BATTERY	
10	3-881-931-00	CUSHION, SPEAKER	
11	9-911-838-XX	CUSHION, SPEAKER	
12	7-624-109-04	STOP RING 5.0, TYPE -E	
13	7-621-662-80	SCREW +RK 2.6X12	

(2)



No.	Part No.	Description	REMARKS
51	3-893-704-11	BUTTON (B), MEMORY	
52	3-893-704-01	BUTTON (B), MEMORY	
53	3-893-703-01	BUTTON (A), MEMORY	
54	3-893-703-91	BUTTON (A), MEMORY	
55	3-893-703-81	BUTTON (A), MEMORY	
56	3-893-703-71	BUTTON (A), MEMORY	
57	3-893-703-61	BUTTON (A), MEMORY	
58	3-893-703-51	BUTTON (A), MEMORY	
59	3-893-703-41	BUTTON (A), MEMORY	
60	3-893-703-31	BUTTON (A), MEMORY	
61	3-893-703-21	BUTTON (A), MEMORY	
62	3-893-747-01	(AIR-8)...LABEL, MODEL NUMBER (U)	
63	*1-613-291-11	PC BOARD, DC-IN	
64	3-893-716-11	BUTTON, DOUBLE KEY	
65	3-893-716-01	BUTTON, DOUBLE KEY	

(3)



No.	Part No.	Description	REMARKS
101	*3-893-720-01	HOLDER, ANTENNA	
102	3-893-719-01	RING, ANTENNA	
103	*3-893-711-01	CHASSIS (A)	
104	9-911-838-XX	CUSHION, SPEAKER	
105	*3-893-734-01	PLATE (I), SHIELD	
106	3-893-733-01	(AEP-1,E)...STOPPER, COLLER	
107	*3-893-751-01	PLATE (VM), SHIELD	
108	*3-893-705-1	PLATE (D) ASSY, SHIELD	
109	*X-3893-705-1	PLATE (V) ASSY, SHIELD	
110	3-893-712-01	CHASSIS (B)	
111	*1-613-296-11	PC BOARD, KEY	
112	*1-613-297-11	PC BOARD, VR	
113	*1-562-261-21	CONNECTOR, COAXIAL (BNC)	
114	*X-3893-701-1	PLATE (K) ASSY, SHIELD	
115	*3-893-750-01	INSULATOR (K)	

NOTE:  
 The mechanical parts with no reference number in the exploded views are not supplied.  
 Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.  
 If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

Ref.No.	Part No.	Description	REMARKS
901	*1-508-995-00	PIN, CONNECTOR	
902	*1-560-456-00	PIN, CONNECTOR 2P	
903	*1-560-466-00	PIN, CONNECTOR 3P	
904	.....	PIN, CONNECTOR 4P	
905	*1-560-467-00	PC BOARD, DC-IN	
906	*1-613-291-11	PC BOARD, JACK	
907	*1-613-292-11	PC BOARD, TRANSLATION	
908	*1-613-293-11	PC BOARD, TRANSLATION	
909	.....	PC BOARD, TRANSLATION	
910	*1-613-296-11	PC BOARD, KEY	
911	*1-613-297-11	PC BOARD, VR	
912	1-562-261-21	CONNECTOR, COAXIAL (BNC)	
913	*A-3660-519-A	MOUNTED PCB, SIGNAL	
914	*A-3661-009-A	MOUNTED PCB, PLL	

CAPACITORS:  
 MF:µF, PF:µµF.  
 RESISTORS:  
 All resistors are in ohms.  
 F : nonflammable  
 COILS:  
 MMH : mH, UH : µH

SEMICONDUCTORS  
 In each case, U : u., for example:  
 UA... : uA..., UPA... : uPA...,  
 UPD... : uPD...

Ref.No.	Part No.	Description	REMARKS
C37	1-123-611-00	ELECT 1MF	20% 50V
C38	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C39	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C51	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C52	1-163-175-00	CERAMIC(CHIP)56PF	5% 50V
C53	1-163-173-00	CERAMIC(CHIP)47PF	5% 50V
C54	1-163-175-00	CERAMIC(CHIP)56PF	5% 50V
C55	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C61	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C62	1-163-205-00	CERAMIC(CHIP)0.001MF	10% 50V
C63	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C64	1-163-205-00	CERAMIC(CHIP)0.001MF	10% 50V
C65	1-162-327-00	CERAMIC(CHIP)3.3PF	10% 50V
C66	1-163-189-00	CERAMIC(CHIP)220PF	10% 50V
C67	1-162-325-00	CERAMIC(CHIP)2.2PF	10% 50V
C68	1-163-059-00	CERAMIC 0.01MF	30% 16V
C69	1-162-199-31	CERAMIC 10PF	5% 50V
C71	1-162-306-31	CERAMIC(CHIP)0.01MF	20% 16V
C72	1-135-099-00	TANTAL(CHIP) 2.2MF	20% 6.3V
C73	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C74	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C75	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C76	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C77	1-162-306-31	CERAMIC 0.01MF	20% 16V
C78	1-162-327-00	CERAMIC 3.3PF	10% 50V
C79	1-135-099-00	TANTAL(CHIP) 2.2MF	20% 6.3V
C81	1-123-647-00	ELECT 47MF	20% 6.3V
C82	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C83	1-162-213-31	CERAMIC 39PF	5% 50V
C84	1-163-169-00	CERAMIC(CHIP)33PF	5% 50V
C85	1-163-161-00	CERAMIC(CHIP)15PF	5% 50V
C86	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C87	1-123-611-00	ELECT 1MF	20% 50V
C88	1-163-205-00	CERAMIC(CHIP)0.001MF	10% 50V
C89	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C90	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C91	1-123-607-00	ELECT 0.1MF	20% 50V
C101	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C102	1-123-647-00	ELECT 47MF	20% 6.3V
C103	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C104	1-162-306-31	CERAMIC 0.01MF	20% 16V
C105	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C106	1-123-611-00	ELECT 1MF	20% 50V
C107	1-163-059-00	CERAMIC(CHIP)0.01MF	30% 16V
C108	1-123-610-00	ELECT 0.47MF	20% 50V



## ELECTRICAL PARTS

Ref.No.	Part No.	Description
L72	1-408-579-31	MICRO INDUCTOR 220UH
L81	1-404-567-11	TRANSFORMER, IF
L201	1-459-553-11	COIL (WITH CORE)
L202	1-459-552-11	COIL (WITH CORE)
L203	1-408-555-00	MICRO INDUCTOR 2.2UH
L211	1-459-554-11	COIL (WITH CORE)
L212	1-459-550-11	COIL
L213	1-408-561-11	MICRO INDUCTOR 6.8UH
L241	1-407-882-00	(AIR-8)...COIL
L242	1-407-882-00	(AIR-8)...COIL
L271	1-407-882-00	(AIR-8)...COIL
L272	1-407-882-00	(AIR-8)...COIL
L281	1-408-579-31	MICRO INDUCTOR 220UH
ND1	1-806-918-11	DISPLAY PANEL, LIQUID CRYSTAL
Q1	8-729-301-27	TRANSISTOR 2SK439-D
Q2	8-729-203-19	TRANSISTOR 3SK114-Y
Q3	8-729-800-42	TRANSISTOR 2SK152-2
Q5	8-729-200-66	TRANSISTOR 2SK192A-GR
Q6	8-729-800-42	TRANSISTOR 2SK152-2
Q7	8-729-800-42	TRANSISTOR 2SK152-2
Q8	8-729-800-42	TRANSISTOR 2SK152-2
Q9	8-729-178-62	TRANSISTOR 2SC2786-L
Q10	8-729-301-27	TRANSISTOR 2SK439-D
Q11	8-729-178-62	TRANSISTOR 2SC2786-L
Q12	8-729-883-92	TRANSISTOR 2SC2839-E
Q13	8-729-900-89	TRANSISTOR DTC144ES
Q14	8-729-900-89	TRANSISTOR DTC144ES
Q15	8-729-606-33	TRANSISTOR 2SC2603-F
Q16	8-729-100-66	TRANSISTOR 2SC1623
Q17	8-729-100-66	TRANSISTOR 2SC1623
Q18	8-729-883-92	TRANSISTOR 2SC2839-E
Q19	8-729-883-92	TRANSISTOR 2SC2839-E
Q20	8-729-100-76	TRANSISTOR 2SA812-M6
Q21	8-729-100-66	TRANSISTOR 2SC1623
Q201	8-729-178-62	TRANSISTOR 2SC2786-L
Q202	8-729-178-62	TRANSISTOR 2SC2786-L
Q203	8-729-200-66	TRANSISTOR 2SK192A-GR
Q204	8-729-200-66	TRANSISTOR 2SK192A-GR
Q205	8-729-117-54	TRANSISTOR 2SA1175-F
Q206	8-729-218-43	TRANSISTOR 2SK184-GR
Q207	8-729-606-33	TRANSISTOR 2SC2603-F
Q208	8-729-218-43	TRANSISTOR 2SK184-GR
Q209	8-729-178-55	TRANSISTOR 2SC2785-E
Q210	8-729-102-03	TRANSISTOR 2SD1020-F

## ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q211	8-729-612-77	TRANSISTOR 2SA1027R
Q212	8-729-178-55	TRANSISTOR 2SC2785-E
Q213	8-729-612-77	TRANSISTOR 2SA1027R
Q214	8-729-612-77	TRANSISTOR 2SA1027R
Q215	8-729-612-77	TRANSISTOR 2SA1027R
Q216	8-729-612-77	TRANSISTOR 2SA1027R
Q217	8-729-178-55	TRANSISTOR 2SC2785-E
Q218	8-729-612-77	TRANSISTOR 2SA1027R
Q219	8-729-102-03	TRANSISTOR 2SD1020-F
Q220	8-729-606-33	TRANSISTOR 2SC2603-F
Q221	8-729-201-83	TRANSISTOR 2SC3112-A
Q301	8-729-271-22	TRANSISTOR 2SC2712-G
R1	1-247-879-00	CARBON 100K 5% 1/6W
R2	1-247-843-00	CARBON 3.3K 5% 1/6W
R3	1-247-831-00	CARBON 1K 5% 1/6W
R4	1-247-879-00	CARBON 100K 5% 1/6W
R5	1-247-799-00	CARBON 47 5% 1/6W
R6	1-247-879-00	CARBON 100K 5% 1/6W
R7	1-247-799-00	CARBON 47 5% 1/6W
R11	1-247-831-00	CARBON 1K 5% 1/6W
R12	1-247-879-00	CARBON 100K 5% 1/6W
R13	1-247-863-00	CARBON 22K 5% 1/6W
R14	1-247-799-00	CARBON 47 5% 1/6W
R15	1-247-879-00	CARBON 100K 5% 1/6W
R21	1-247-807-00	CARBON 100 5% 1/6W
R22	1-247-807-00	CARBON 100 5% 1/6W
R23	1-247-843-00	CARBON 3.3K 5% 1/6W
R24	1-247-804-00	CARBON 75 5% 1/6W
R26	1-247-831-00	CARBON 1K 5% 1/6W
R27	1-247-807-00	CARBON 100 5% 1/6W
R31	1-247-855-00	CARBON 10K 5% 1/6W
R32	1-247-879-00	CARBON 100K 5% 1/6W
R33	1-247-807-00	CARBON 100 5% 1/6W
R34	1-247-837-00	CARBON 1.8K 5% 1/6W
R35	1-247-837-00	CARBON 1.8K 5% 1/6W
R36	1-247-807-00	CARBON 100 5% 1/6W
R37	1-247-807-00	CARBON 100 5% 1/6W
R38	1-247-807-00	CARBON 100 5% 1/6W
R39	1-247-887-00	CARBON 220K 5% 1/6W
R40	1-247-879-00	CARBON 100K 5% 1/6W
R41	1-247-845-00	CARBON 3.9K 5% 1/6W
R42	1-247-807-00	CARBON 100 5% 1/6W
R43	1-247-831-00	CARBON 1K 5% 1/6W
R44	1-247-823-00	CARBON 470 5% 1/6W
R45	1-247-831-00	CARBON 1K 5% 1/6W
R51	1-247-835-00	CARBON 1.5K 5% 1/6W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description
R52	1-247-875-00	CARBON 68K 5% 1/6W
R53	1-247-863-00	CARBON 22K 5% 1/6W
R54	1-247-879-00	CARBON 100K 5% 1/6W
R55	1-247-891-00	CARBON 330K 5% 1/6W
R61	1-247-831-00	CARBON 1K 5% 1/6W
R62	1-247-879-00	CARBON 100K 5% 1/6W
R63	1-247-799-00	CARBON 47 5% 1/6W
R64	1-247-843-00	CARBON 3.3K 5% 1/6W
R65	1-247-879-00	CARBON 100K 5% 1/6W
R66	1-247-893-00	CARBON 390K 5% 1/6W
R67	1-247-843-00	CARBON 3.3K 5% 1/6W
R68	1-247-825-00	CARBON 560 5% 1/6W
R69	1-247-831-00	CARBON 1K 5% 1/6W
R71	1-247-855-00	CARBON 10K 5% 1/6W
R72	1-247-891-00	CARBON 330K 5% 1/6W
R73	1-247-807-00	CARBON 100 5% 1/6W
R74	1-247-831-00	CARBON 1K 5% 1/6W
R75	1-247-847-00	CARBON 4.7K 5% 1/6W
R76	1-247-819-00	CARBON 330 5% 1/6W
R81	1-247-807-00	CARBON 100 5% 1/6W
R82	1-247-849-00	CARBON 5.6K 5% 1/6W
R83	1-247-799-00	CARBON 47 5% 1/6W
R84	1-247-791-00	CARBON 22 5% 1/6W
R85	1-247-831-00	CARBON 1K 5% 1/6W
R86	1-247-831-00	CARBON 1K 5% 1/6W
R87	1-247-855-00	CARBON 10K 5% 1/6W
R88	1-247-855-00	CARBON 10K 5% 1/6W
R89	1-247-855-00	CARBON 10K 5% 1/6W
R90	1-247-855-00	CARBON 10K 5% 1/6W
R91	1-247-855-00	CARBON 10K 5% 1/6W
R92	1-247-847-00	CARBON 4.7K 5% 1/6W
R101	1-247-889-00	CARBON 270K 5% 1/6W
R102	1-247-795-00	CARBON 33 5% 1/6W
R103	1-247-819-00	CARBON 330 5% 1/6W
R104	1-247-831-00	CARBON 1K 5% 1/6W
R105	1-247-847-00	CARBON 4.7K 5% 1/6W
R106	1-247-871-00	CARBON 47K 5% 1/6W
R107	1-247-863-00	CARBON 22K 5% 1/6W
R108	1-247-883-00	CARBON 150K 5% 1/6W
R111	1-247-879-00	CARBON 100K 5% 1/6W
R112	1-247-858-00	CARBON 13K 5% 1/6W
R113	1-247-875-00	CARBON 68K 5% 1/6W
R114	1-247-855-00	CARBON 10K 5% 1/6W
R115	1-247-855-00	CARBON 10K 5% 1/6W
R116	1-247-875-00	CARBON 68K 5% 1/6W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description
R117	1-247-879-00	CARBON 100K 5% 1/6W
R118	1-247-819-00	CARBON 330 5% 1/6W
R119	1-247-847-00	CARBON 4.7K 5% 1/6W
R121	1-247-893-00	CARBON 390K 5% 1/6W
R122	1-247-838-00	CARBON 2K 5% 1/6W
R123	1-247-831-00	CARBON 1K 5% 1/6W
R124	1-247-831-00	CARBON 1K 5% 1/6W
R125	1-247-889-00	CARBON 270K 5% 1/6W
R126	1-247-835-00	CARBON 1.5K 5% 1/6W
R127	1-247-831-00	CARBON 1K 5% 1/6W
R131	1-247-887-00	CARBON 220K 5% 1/6W
R132	1-247-895-00	CARBON 470K 5% 1/6W
R133	1-247-879-00	CARBON 100K 5% 1/6W
R134	1-247-867-00	CARBON 33K 5% 1/6W
R135	1-247-887-00	CARBON 220K 5% 1/6W
R136	1-247-865-00	CARBON 27K 5% 1/6W
R137	1-247-881-00	CARBON 120K 5% 1/6W
R138	1-247-903-00	CARBON 1M 5% 1/6W
R139	1-247-879-00	CARBON 100K 5% 1/6W
R140	1-247-879-00	CARBON 100K 5% 1/6W
R141	1-247-903-00	CARBON 1M 5% 1/6W
R142	1-247-903-00	CARBON 1M 5% 1/6W
R143	1-247-879-00	CARBON 100K 5% 1/6W
R151	1-247-871-00	CARBON 47K 5% 1/6W
R152	1-247-871-00	CARBON 47K 5% 1/6W
R153	1-247-867-00	CARBON 33K 5% 1/6W
R154	1-247-881-00	CARBON 120K 5% 1/6W
R155	1-247-855-00	CARBON 10K 5% 1/6W
R156	1-247-841-00	CARBON 2.7K 5% 1/6W
R157	1-247-871-00	CARBON 47K 5% 1/6W
R201	1-247-879-00	CARBON 100K 5% 1/6W
R202	1-247-813-00	CARBON 180 5% 1/6W
R203	1-247-879-00	CARBON 100K 5% 1/6W
R204	1-247-799-00	CARBON 47 5% 1/6W
R205	1-247-903-00	CARBON 1M 5% 1/6W
R206	1-247-855-00	CARBON 10K 5% 1/6W
R207	1-247-791-00	CARBON 22 5% 1/6W
R208	1-247-799-00	CARBON 47 5% 1/6W
R211	1-247-843-00	CARBON 3.3K 5% 1/6W
R212	1-247-879-00	CARBON 100K 5% 1/6W
R213	1-247-813-00	CARBON 180 5% 1/6W
R214	1-247-881-00	CARBON 120K 5% 1/6W
R215	1-247-811-00	CARBON 150 5% 1/6W
R216	1-247-855-00	CARBON 10K 5% 1/6W
R217	1-247-791-00	CARBON 22 5% 1/6W
R218	1-247-799-00	CARBON 47 5% 1/6W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description	22K	5%	1/6W
R219	1-247-863-00	CARBON	22K	5%	1/6W
R221	1-247-787-00	CARBON	15	5%	1/6W
R222	1-247-831-00	CARBON	1K	5%	1/6W
R223	1-247-831-00	CARBON	1K	5%	1/6W
R224	1-247-831-00	CARBON	1K	5%	1/6W
R231	1-247-831-00	CARBON	1K	5%	1/6W
R232	1-247-831-00	CARBON	1K	5%	1/6W
R233	1-247-843-00	CARBON	3.3K	5%	1/6W
R234	1-247-855-00	CARBON	10K	5%	1/6W
R235	1-247-847-00	CARBON	4.7K	5%	1/6W
R236	1-247-831-00	CARBON	1K	5%	1/6W
R237	1-247-879-00	CARBON	100K	5%	1/6W
R238	1-247-879-00	CARBON	100K	5%	1/6W
R241	1-247-855-00	CARBON	10K	5%	1/6W
R242	1-247-839-00	CARBON	2.2K	5%	1/6W
R243	1-247-863-00	CARBON	22K	5%	1/6W
R244	1-247-871-00	CARBON	47K	5%	1/6W
R245	1-247-827-00	CARBON	680	5%	1/6W
R246	1-247-867-00	CARBON	33K	5%	1/6W
R247	1-247-803-00	CARBON	68	5%	1/6W
R248	1-249-001-00	CARBON	1	5%	1/6W
R261	1-247-863-00	CARBON	22K	5%	1/6W
R262	1-247-863-00	CARBON	22K	5%	1/6W
R263	1-247-863-00	CARBON	22K	5%	1/6W
R264	1-247-863-00	CARBON	22K	5%	1/6W
R265	1-247-855-00	CARBON	10K	5%	1/6W
R266	1-247-867-00	CARBON	33K	5%	1/6W
R267	1-247-867-00	CARBON	33K	5%	1/6W
R268	1-247-855-00	CARBON	10K	5%	1/6W
R269	1-247-823-00	CARBON	470	5%	1/6W
R270	1-247-863-00	CARBON	22K	5%	1/6W
R271	1-247-887-00	CARBON	220K	5%	1/6W
R272	1-247-831-00	CARBON	1K	5%	1/6W
R273	1-247-863-00	CARBON	22K	5%	1/6W
R281	1-247-831-00	CARBON	1K	5%	1/6W
R282	1-247-871-00	CARBON	47K	5%	1/6W
R283	1-247-877-00	CARBON	82K	5%	1/6W
R284	1-247-855-00	CARBON	10K	5%	1/6W
R285	1-247-871-00	CARBON	47K	5%	1/6W
R301	1-247-831-00	CARBON	1K	5%	1/6W
R302	1-247-867-00	CARBON	33K	5%	1/6W
R303	1-247-831-00	CARBON	1K	5%	1/6W
R304	1-247-831-00	CARBON	1K	5%	1/6W
R305	1-247-831-00	CARBON	1K	5%	1/6W
R306	1-247-831-00	CARBON	1K	5%	1/6W
R307	1-247-882-00	CARBON	130K	5%	1/6W

## ELECTRICAL PARTS

Ref.No.	Part No.	Description	1M	5%	1/6W
R308	1-247-903-00	CARBON	1M	5%	1/6W
R309	1-247-831-00	(AIR-8,Canadian,AEP-2)...CARBON	1K	5%	1/6W
R310	1-247-879-00	CARBON	100K	5%	1/6W
R311	1-247-879-00	CARBON	100K	5%	1/6W
R312	1-247-879-00	CARBON	100K	5%	1/6W
R313	1-247-879-00	CARBON	100K	5%	1/6W
R314	1-247-903-00	CARBON	1M	5%	1/6W
R315	1-247-903-00	CARBON	1M	5%	1/6W
R316	1-247-903-00	CARBON	1M	5%	1/6W
R317	1-247-879-00	CARBON	100K	5%	1/6W
R318	1-247-903-00	CARBON	1M	5%	1/6W
R319	1-247-813-00	CARBON	180	5%	1/6W
R320	1-247-831-00	CARBON	1K	5%	1/6W
R321	1-247-799-00	CARBON	47	5%	1/6W
R322	1-247-799-00	CARBON	47	5%	1/6W
R323	1-247-831-00	(AEP-1,E)....CARBON	1K	5%	1/6W
R324	1-247-866-00	CARBON	30K	5%	1/6W
RV121	1-230-538-11	RES, VAR, CARBON (WITH SW) 50K, SQL			
RV241	1-230-537-11	RES, VAR, CARBON (WITH SW) 20K, VOL			
S121	1-230-538-11	RES, VAR, CARBON (WITH SW) 50K, SQL			
S201	1-554-955-11	SWITCH, ROTARY, BAND SELECT			
S202	1-554-957-11	SWITCH, PUSH (1 KEY)			
S301	1-553-349-00	SWITCH, PUSH, 3			
S302	1-553-349-00	SWITCH, PUSH, 2			
S303	1-553-349-00	SWITCH, PUSH, 1			
S304	1-553-349-00	SWITCH, PUSH, ENTER			
S305	1-553-349-00	SWITCH, PUSH, 6			
S306	1-553-349-00	SWITCH, PUSH, 5			
S307	1-553-349-00	SWITCH, PUSH, 4			
S308	1-553-349-00	SWITCH, PUSH, PROGRAM			
S309	1-553-349-00	SWITCH, PUSH, 9			
S310	1-553-349-00	SWITCH, PUSH, 8			
S311	1-553-349-00	SWITCH, PUSH, 7			
S312	1-553-349-00	SWITCH, PUSH, PRIORITY			
S313	1-553-349-00	SWITCH, PUSH, DIRECT			
S314	1-553-349-00	SWITCH, PUSH, EXECUTE			
S315	1-553-349-00	SWITCH, PUSH, 0			
S316	1-553-349-00	SWITCH, PUSH, DELAY			
S317	1-553-349-00	SWITCH, PUSH, MEMORY SCAN S/S			
S318	1-553-349-00	SWITCH, PUSH, SCAN +			
S319	1-553-349-00	SWITCH, PUSH, SCAN -			
S320	1-553-349-00	SWITCH, PUSH, KEY PROTECT			
S321	1-553-977-31	SWITCH, SLIDE, 10kHz/9kHz SELECT			
S322	1-554-956-11	SWITCH, LEAF, LIGHT			
SP	1-503-374-11	SPEAKER			

ELECTRICAL PARTS

ACCESSORY & PACKING MATERIAL

Ref.No.	Part No.	Description
T21	1-426-194-11	TRANSFORMER, HIGH-FREQUENCY
T31	1-426-193-11	TRANSFORMER, HIGH-FREQUENCY
T32	1-404-448-00	TRANSFORMER, IF
T33	1-404-568-11	TRANSFORMER, IF
T34	1-404-191-00	TRANSFORMER, IF
T51	1-406-052-00	COIL (OSC)
T61	1-459-557-11	COIL (WITH CORE)
T62	1-404-126-00	IFT (SMALL TYPE)
T81	1-404-191-00	TRANSFORMER, IF
T101	1-404-127-00	IFT (SMALL TYPE)
T281	1-406-112-11	COIL (OSC)
X51	1-567-302-11	VIBRATOR, CRYSTAL, 55.400MHZ
X221	1-567-310-11	VIBRATOR, CRYSTAL, 7.2MHZ
XF31	1-527-372-00	FILTER, CRYSTAL, 55.845MHZ

No.	Part No.	Description	REMARKS
151	1-504-059-11	MAGNETIC EARPHONE(ME-20H)	
152	3-701-295-00	BAG, POLYETHYLENE (FOR PRINTED MATTER)	
153	3-890-830-00	BAG, POLYETHYLENE (FOR SET)	
154	3-893-708-01	BELT, CARRYING	
155	3-893-736-01	LABEL, STEP, MW CH	
156	3-893-740-01	CASE, ACCESSORY	
157	3-893-745-01	CUSHION (UPPER)	
158	3-893-742-01	(Canadian,AEP-2)...INDIVIDUAL CARTON	
	3-893-743-01	(AEP-1,E).....INDIVIDUAL CARTON	
	3-893-748-01	(AIR-8).....INDIVIDUAL CARTON	
159	*3-893-744-01	CUSHION (LOWER)	
160	3-990-002-12	(Canadian,AEP,E)...MANUAL, INSTRUCTION	
	3-990-002-21	(AIR-8)...MANUAL, INSTRUCTION	
	3-990-002-41	(AEP).....MANUAL, INSTRUCTION	



# AIR-7/8

AIR-7/8

AIR-7/8

AIR-7/8

## SONY SERVICE MANUAL

US Model  
AIR-8  
Canadian Model  
AEP Model  
UK Model  
E Model  
AIR-7

### SUPPLEMENT-2

File this supplement with the Service Manual.

Subject: PC BOARD CHANGE  
(Except Canadian Model)

MELF components used as resistors, capacitors, and diode have been changed to chip components on the production.

Because of this, pc board have been changed.

### 1. SEMICONDUCTOR LEAD LAYOUTS

<b>CX075B</b> 	<b>2SA1175</b> <b>2SC2785</b> <b>2SC2786</b> <b>2SC2786-L</b> <b>2SD1020-F</b> 	<b>2SK192A</b> 	<b>SVC201SP-BG</b> 	<b>SLP281C-50</b> 
<b>CX7961A-1</b> 	<b>2SA812</b> <b>2SC1623</b> 	<b>2SK439-D</b> letter side 	<b>1SS123</b> 	<b>TLR209</b> 
<b>LA4145</b> 	<b>2SC3112</b> 	<b>3SK114-Y</b> 	<b>1SS279</b> 	
<b>LA5003M</b> <b>μPC393G2</b> 	<b>2SK152-2</b> 	<b>MC921</b> letter side 	<b>1S2837</b> cathode 	
<b>μPD7503G-136</b> 	<b>2SK184-GR</b> 	<b>MC931</b> letter side 	<b>1T32-4</b> <b>1T33-09</b> 	
<b>DTC144ES</b> <b>2SA1048-GR</b> <b>2SC2839</b> <b>2SC634SP</b> 		<b>RD20ES-B2</b> <b>1SS119</b> <b>1SS198</b> 	<b>SLP178B</b> 	

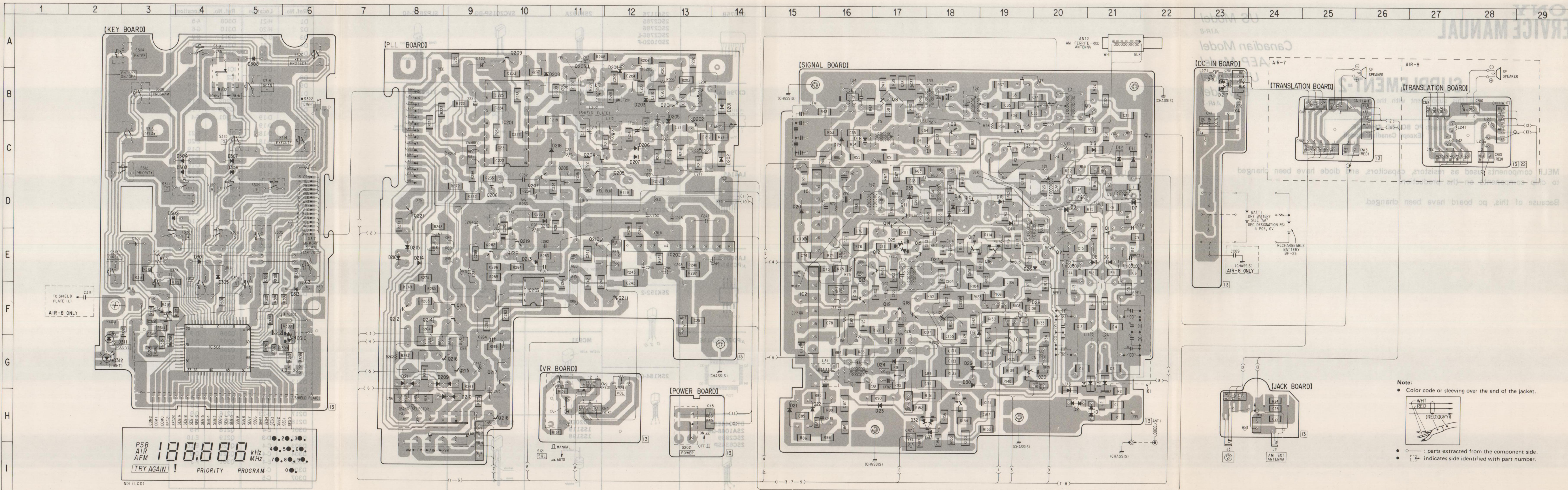
### • Semiconductor Location

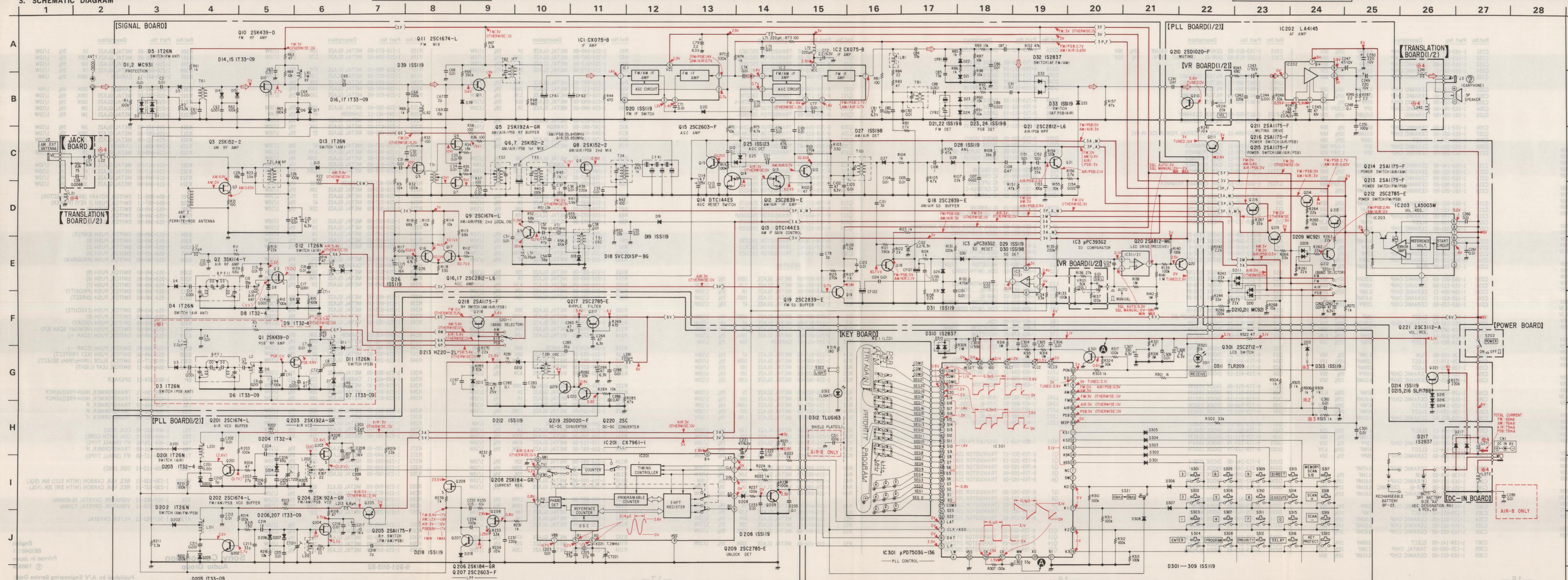
Ref. No.	Location	Ref. No.	Location
D1	H-21	D308	A-5
D2	H-20	D310	G-6
D3	G-21	D311	G-2
D4	G-21	D312	G-2
D5	G-20	D313	F-6
D6	E-21		
D7	D-21	IC1	D-15
D8	E-21	IC2	F-15
D9	D-20	IC3	G-19
D11	C-21	IC201	B-10
D12	C-21	IC202	E-13
D13	C-21	IC203	F-10
D14	D-19	IC301	G-4
D15	D-19		
D16	D-18	Q1	E-21
D17	D-18	Q2	E-20
D18	C-16	Q3	C-19
D19	C-16	Q5	B-21
D20	D-15	Q6	C-19
D21	H-15	Q7	B-19
D22	H-15	Q8	B-17
D23	H-17	Q9	C-18
D24	G-17	Q10	D-18
D25	E-17	Q11	D-17
D26	E-20	Q12	E-17
D27	E-18	Q13	F-16
D28	F-19	Q14	D-17
D29	G-18	Q15	E-17
D30	G-18	Q16	E-19
D31	F-18	Q17	E-18
D32	H-18	Q18	F-17
D33	H-18	Q19	F-17
D39	D-17	Q20	G-20
D201	B-14	Q21	H-18
D202	C-14	Q201	B-13
D203	B-12	Q202	C-13
D204	B-12	Q203	A-11
D205	B-13	Q204	C-11
D206	C-12	Q205	C-12
D207	C-12	Q206	D-9
D208	B-10	Q207	D-10
D209	G-9	Q208	D-11
D210	H-9	Q209	A-10
D211	G-8	Q210	E-11
D212	D-10	Q211	F-12
D213	E-10	Q212	F-8
D214	E-8	Q213	F-9
D215	E-8	Q214	F-9
D216	E-8	Q215	G-9
D217	B-23	Q216	G-9
D218	C-11	Q217	G-10
D301	E-4	Q218	H-9
D302	D-3	Q219	E-10
D303	C-4	Q220	E-10
D304	C-4	Q221	D-8
D305	E-4	Q301	F-3
D306	C-5		
D307	C-5		

AIR-7/8  
SERVICE MANUAL  
Canadian Model  
US Model

2. PRINTED WIRING BOARDS

- Refer to page 3 for semiconductor lead layouts.
- Refer to page 4 for semiconductor location.



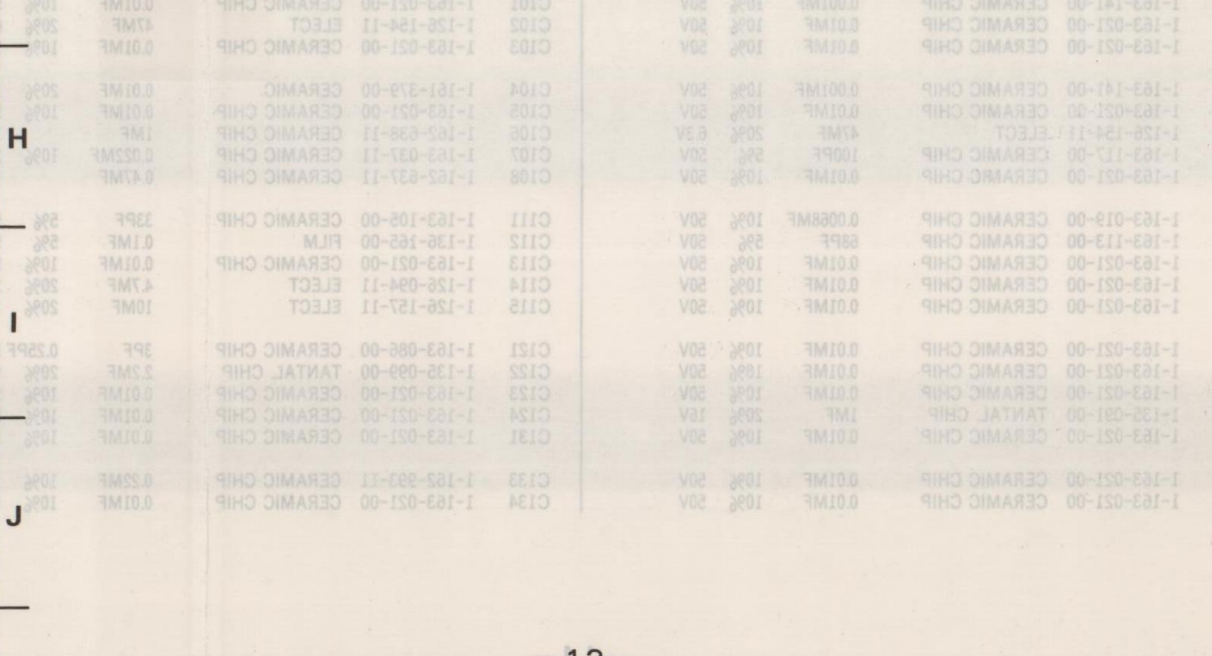


- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\text{F} \times 10^{-6}$ . 50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
  - $\Delta$ : internal component.
  - B+ Line
  - Total current is measured at detuned mode with VOL knob turned to the counterclockwise (MIN).
  - Power voltage is dc 6V and fed with regulated dc power supply from external power voltage jack.
  - Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions. Measured at FM 76.000MHz on LCD.
  - no mark: FM
  - ( ) : AM/AIR/PSB
  - ( ) : AM/AIR
  - ( ) : AIR
  - Voltagess are taken with a VOM (50  $\text{kHz/V}$ ).
  - Voltage variations may be noted due to normal production tolerances.
  - Waveforms are taken with an oscilloscope.
  - Voltage variations may be noted due to normal production tolerances.
  - Signal path.

Ref. No.	Switch	Position
S121	SQL	MANUAL
S201	BAND SELECTOR	FM
S202	POWER	OFF
S301	3	OFF
S302	2	OFF
S303	1	OFF
S304	ENTER	OFF
S305	6	OFF
S306	5	OFF
S307	4	OFF
S308	PROGRAM	OFF
S309	9	OFF
S310	8	OFF
S311	7	OFF
S312	PRIORITY	OFF
S313	DIRECT	OFF
S314	EXECUTE	OFF
S315	0	OFF
S316	DELAY	STOP
S317	MEMORY SCAN S/S	OFF
S318	SCAN+	OFF
S319	SCAN-	OFF
S320	KEY PROTECT	OFF
S321	10kHz/9kHz SELECT	10kHz
S322	LIGHT	OFF

**NOTE:** Parts marked \* 1 to 4 differ from each model.

	AEP-1, E model	AEP-2, UK model	AIR-8
* 1 (PSB RF CIRCUIT)	mounted on PC board, but not used	used	
* 2 (R309)	mounted on PC board, but not used	used	
* 3 (R323, D313)	used	mounted on PC board, but not used	
* 4 (L21, 22, 241, 242, 271, 272)	shorted		mounted



4. ELECTRICAL PARTS LIST

- NOTE:
• Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
• Items marked "\*" are not stocked since they are seldom required for routine service.
• If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

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

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