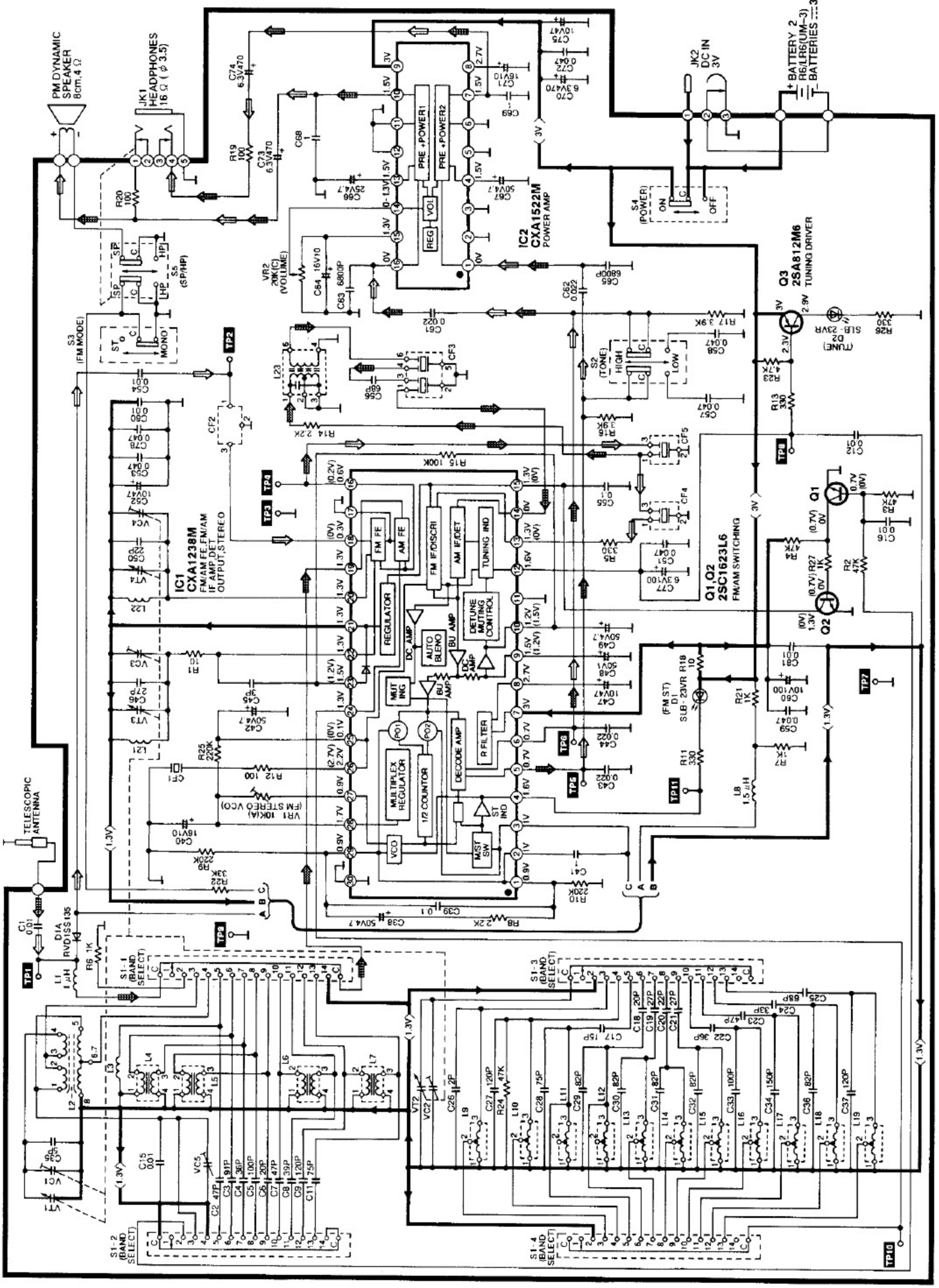
■ Schematic Diagram

: FM Signal Line : AM Signal Line : + B Line



■ Measurements and Adjustments

• ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
• Set power source voltage to 3 V DC. • Set operation switch to ON. • Set band select switch to FM, LW, MW or SW1~9.	• Set volume control to maximum. • Output of signal generator should be no higher than necessary to obtain an output reading.

• FM ALIGNMENT

(The parts other than the ones listed below are aligned at the factory before they are supplied. Therefore, alignment of those parts is unnecessary when used for replacement.)

	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig.1 and Fig.2)	REMARKS
	CONNECTIONS	FREQUENCY				
	FM-RF ALIGNMENT					
(1)	Connect to test point **TP2** through FM dummy antenna. Negative side to test point **TP3**	87.0MHz	Tuning capacitor fully closed.	Phones Jack (16 Ω) (Fabricate the plug as shown in Fig.3 and then connect the lead wires of the plug to the measuring instrument.)	L21 (FM OSC Coil)	Adjust for maximum output.
(2)	〃	109.0MHz	Tuning capacitor fully open.	〃	VC3 (FM OSC Trimmer)	〃
(3)	〃	90.0 MHz	Tune to signal	〃	L22 (FM ANT Coil)	〃
(4)	〃	106.0 MHz	〃	〃	VC4 (FM ANT Trimmer)	1. Adjust for maximum output. 2. Repeat steps (1) ~ (4).
	FM STEREO ALIGNMENT					
(5)	〃	90.0 MHz (90 dB, 0 % Mod.)	〃	Connect to test point **TP10** . Negative side to test point **TP7** .	VR1	1. Set the volume control to minimum. 2. Adjust VR1 for 76.0 kHz ± 50 Hz reading on frequency counter.

• AM ALIGNMENT

	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig.1 and Fig.2)	REMARKS
	CONNECTIONS	FREQUENCY				
	AM-IF ALIGNMENT					
(6)	Connect to test point **TP10** . Negative side to test point **TP7** .	460 kHz	Point of non-interference. (on/about 600kHz)	Phones Jack (16 Ω) (Fabricate the plug as shown in Fig.3 and then connect the lead wires of the plug to the measuring instrument.)	L23 (AM IFT)	Adjust for maximum output.
	MW-RF ALIGNMENT					
(7)	Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	515 kHz	Tuning capacitor fully closed.	〃	L9 (MW OSC Coil)	〃
(8)	〃	1650 kHz	Tuning capacitor fully open.	〃	VC2 (MW OSC Trimmer)	〃
(9)	〃	600 kHz	Tune to signal	〃	(*1) L2 (MW ANT Coil)	Adjust for maximum output. Adjust L2 by moving coil along the ferrite core.
(10)	〃	1400 kHz	〃	〃	VC1 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (7) ~ (10).
	(*1) Fix antenna coil with wax after completing alignment.					
	LW-RF ALIGNMENT					
(11)	〃	140 kHz	Tuning capacitor fully closed.	〃	L10 (LW OSC Coil)	Adjust for maximum output.
(12)	〃	170 kHz	Tune to signal	〃	(*2) L2 (LW ANT Coil)	Adjust for maximum output. Adjust L2 by moving coil along the ferrite core.
(13)	〃	270 kHz	〃	〃	VC5 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (11) ~ (13).
	(*2) Fix antenna coil with wax after completing alignment.					

NOTE:

Before SW-RF alignment, be sure to prepare the following;

1. Set the output frequency of signal generator to 1000 kHz.
2. Turn the set to MW-band.
3. Adjust the tuning capacitor so that it receives 1000 kHz of output frequency and its output becomes maximum.
4. Fix tuning capacitor as this position, and make alignment of SW1 ~ SW9 on the following table.

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		INDICATOR (ELECTRONIC VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig.1 and Fig.2)	REMARKS
		CONNECTIONS	FREQUENCY			
	SW-RF ALIGNMENT					
(14)	SW1	Connect to test point **TP1** through ceramic capacitor (0.001μF). Negative side to test point **TP3** .	4.929 MHz	Phones Jack (16 Ω) (Fabricate the plug as shown in Fig.3 and then connect the lead wires of the plug to the measuring instrument.	L7 (SW1 ANT Coil) L19 (SW1 OSC Coil)	Adjust for maximum output.
(15)	SW2	〃	6.062 MHz	〃	L18 (SW2 OSC Coil)	〃
(16)	SW3	〃	7.201 MHz	〃	L6 (SW3 ANT Coil) L17 (SW3 OSC Coil)	〃
(17)	SW4	〃	9.677 MHz	〃	L16 (SW4 OSC Coil)	〃
(18)	SW5	〃	11.827 MHz	〃	L5 (SW5 ANT Coil) L15 (SW5 OSC Coil)	〃
(19)	SW6	〃	13.654 MHz	〃	L14 (SW6 OSC Coil)	〃
(20)	SW7	〃	15.312 MHz	〃	L4 (SW7 ANT Coil) L13 (SW7 OSC CIL)	〃
(21)	SW8	〃	17.665 MHz	〃	L12 (SW8 OSC Coil)	〃
(22)	SW9	〃	21.561 MHz	〃	L3 (SW9 ANT Coil) L11 (SW9 OSC Coil)	Adjust for maximum output. Repeat steps (14) ~ (22).

• ALIGNMENT POINTS (Please refer to Printed Circuit Board Diagram for test point locations.)

AM IFT 460kHz L23
MW ANT 600kHz L2
FM OSC 87.0MHz L21
FM ST 76.0kHz ± 50Hz VR1
SW6 OSC 13.654MHz L14
LW ANT 170kHz L2
FM ANT 90.0MHz L22
SW4 OSC 9.677MHz L16
SW8 OSC 17.665MHz L12
LW OSC 140kHz L10
SW3 OSC 7.201MHz L17
MW OSC 515kHz L9
SW9 OSC 21.561MHz L11
SW7 OSC 15.312MHz L13
SW1 ANT 4.929MHz L7
SW3 ANT 7.201MHz L6
SW5 ANT 11.827MHz L5
SW9 ANT 21.561MHz L3
SW1 OSC 4.929MHz L19
SW5 OSC 11.827MHz L15
SW7 ANT 15.312MHz L4
LW ANT 270kHz VC5
SW2 OSC 6.062MHz L18

Fig.1

MW OSC 1650kHz VC2
MW ANT 1400kHz VC1
FM ANT 106.0MHz VC4
FM OSC 109.0MHz VC3

Fig.2

To phones jack
16 Ω
16 Ω
L ch
R ch
To measuring instrument

Fig.3