Service
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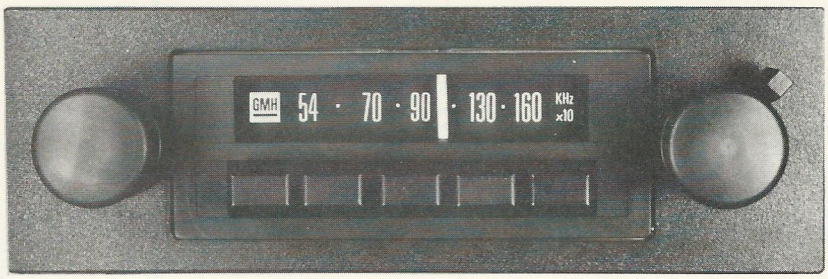


Service Manual

12 V

SPECIFICATIONS

TUNING RANGE	525 to 1615 KHz
INTERMEDIATE FREQUENCY	455 KHz
SENSITIVITY	16dB or better (at 0.5 watt output)
SPEAKER IMPEDANCE	4 ohms
SEMICONDUCTORS	3 IC.s
VOLTAGE	12v negative to earth
CURRENT	0.5 amp. maximum

Subject to modification

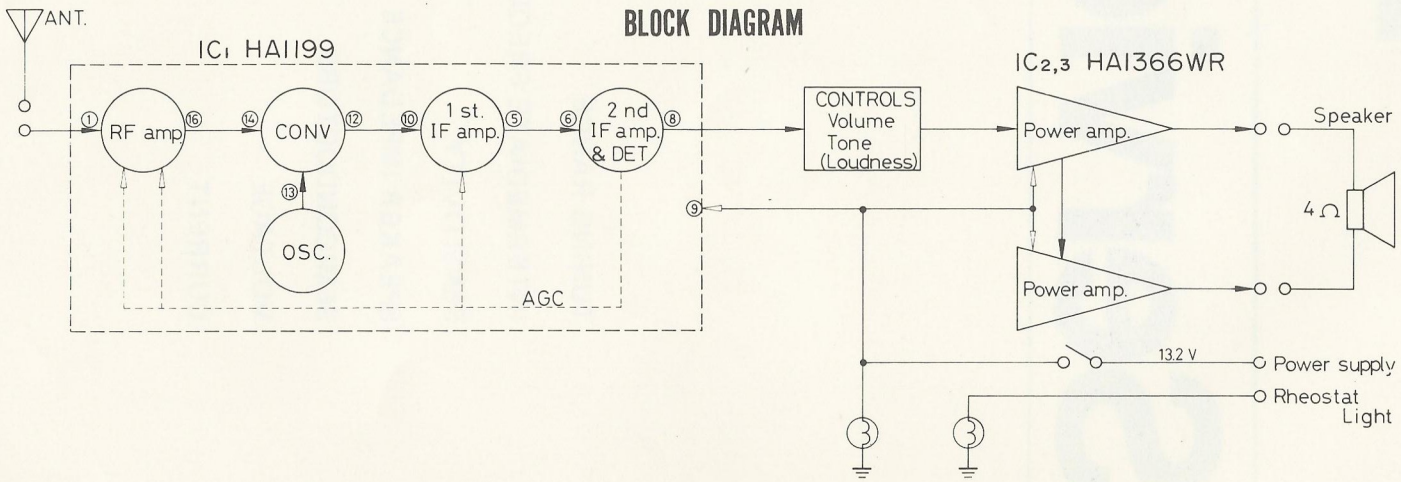
4802 725 17024

PHILIPS

Ref. No.	Description			Service Code
Capacitors				
C1	30pF	50V	Ceramic	4802 122 47048
C2, 12, 13, 15	.01μF	50V	Ceramic	4822 122 30043
C3, 23	2200pF	50V	Ceramic	4802 121 47151
C4	4.7μF	25V	Electrolytic	4802 124 47034
C5	120pF	50V	Ceramic	4822 122 30093
C6, 29, 30	.1μF	50V	Mylar	4802 121 47134
C7	1000pF	50V	Ceramic	4802 122 47022
C8, 18	.047μF	25V	Ceramic	4802 121 47167
C9	240pF	50V	Ceramic	4802 122 47123
C10	680pF	50V	Ceramic	4822 122 30053
C11	2pF	50V	Ceramic	4822 122 31036
C14	8pF	50V	Ceramic	4822 120 21052
C16	22μF	16V	Electrolytic	4802 124 47021
C17	100μF	16V	Electrolytic	4802 124 47049
C19	.015μF	25V	Ceramic	4802 121 47161
C20	10μF	16V	Electrolytic	4802 124 47044
C21	.2μF	12V	Ceramic	4802 122 47109
C22	.05μF	12V	Ceramic	4802 122 47054
C24, 25, 27, 28	100μF	10V	Electrolytic	4802 124 47002
C26	.033μF	25V	Ceramic	4802 121 47165
C31, 32	1000μF	10V	Electrolytic	4802 124 47003
C33	2200μF	16V	Electrolytic	4802 124 47019
C34	.01μF	50V	Ceramic	4822 122 30043
C35, 37	.022μF	50V	Ceramic	4802 122 47108
C36, 38, 39	200pF	50V	Ceramic	4802 122 47077
CV2, CV3	20 to 50pF		Trimmer	4802 125 57042
Resistors				
Note: All resistors are standard values and tolerances unless specified otherwise.				
RV1, 2, S1	10K + 20K + Switch			4802 102 27075

Ref. No.	Description	Service Code
Integrated Circuits		
IC1	HA1199	4802 209 87122
IC2, IC3	HA1366WR	4802 209 87167
Coils and Transformers		
L4	Choke 4.7μH	4802 158 17104
L5	Choke (Filter) 1.8mH	4802 152 27035
L6	Choke (Filter) .85μH	4802 157 47036
L7	Choke (Filter) 50μH	4802 158 17042
L8, 9, 10	Choke (Filter) .74μH	4802 158 17077
T1	AM Osc. coil	4802 156 27097
T2, 3	AM IF Coil	4802 153 17165
T4, 5	AM IF Coil	4802 153 17166
Miscellaneous Electrical		
	Tuner Assy (incl. Coils, P'Buttons & Tuning Shaft	4802 210 17085
	Pushbuttons (order in sets of 5)	4802 410 27034
	Tuning Shaft (incl. CV1)	4802 535 77083
J1	Receptacle (Antenna)	4802 320 17027
NL1	Neon Lamp (Substitute)	4822 134 20016
PL1	Lamp (Dial Light)	4822 134 40301
	Socket (PL1)	4802 255 27008
PL2	Lamp (Power Indicator)	4802 134 47022
	Speaker	4802 240 27053
	Dial/Escutcheon Assy	4802 459 57037
	Knob Front	4802 413 47148
	Knob Rear (Winged)	4802 411 57032
	Knob Rear (Non-Winged)	4802 413 47149
	Washer 9mm	4802 532 17014
	Nut 9mm	4802 502 17016
	Nut, Barrel	4802 505 17028
	Escutcheon (Trim Plate)	4802 459 87041

BLOCK DIAGRAM



SCHEMATIC

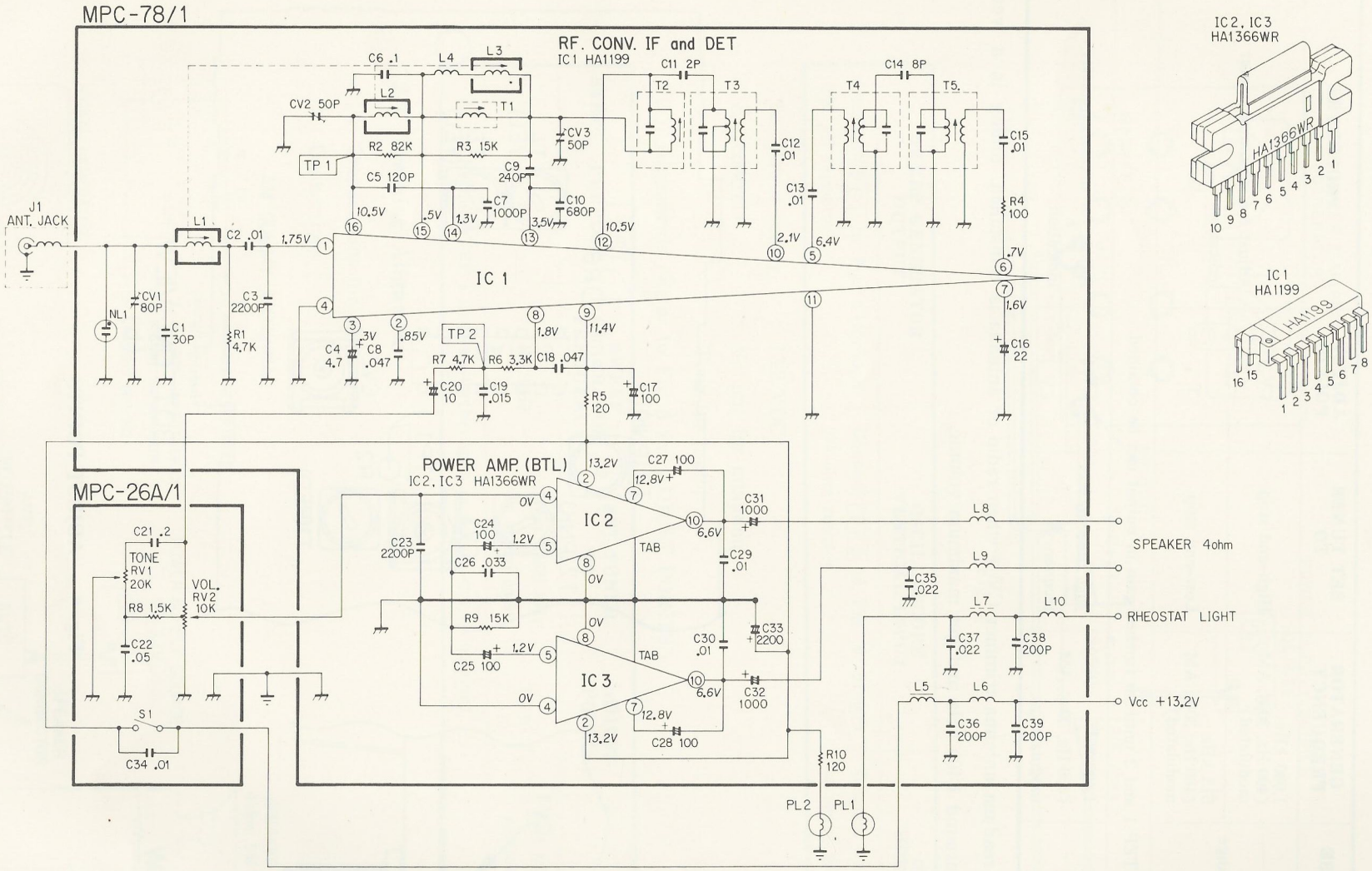


Fig. 2

NOTES:

1. All resistance in ohms, K $= 10^3$, M $= 10^6$
2. All capacitance in μF, P $= \mu\mu$F
3. DC voltages against the chassis measured with 100,000 ohm per volt meter, power supply set at +13.2 VDC, no signal input.
4. Do not connect a 2-ohm speaker load such as two x 4-ohm speakers **in parallel.** IC_2 and IC_3 function as a BTL (Balanced Transformer-Less) circuit and their outputs must be terminated in a 4-ohm (min) load (i.e. equivalent load of 2-ohms across each IC output).

WIRING ON PC BOARD

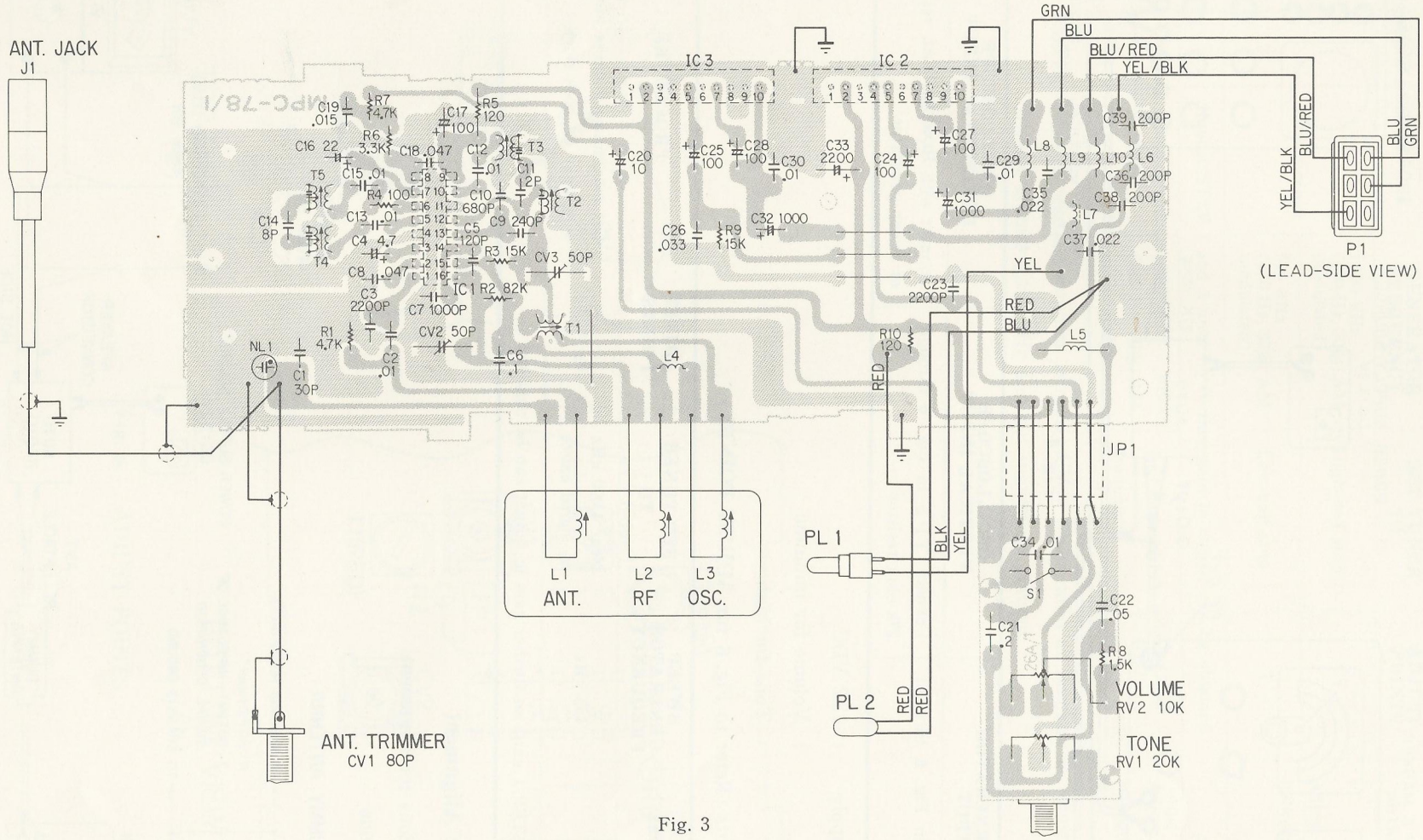


Fig. 3

Pin No. / I C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
I C 1	1.75V	.85V	.3V	0V	6.4V	.7V	1.6V	1.8V	11.4V	2.1V	0V	10.5V	3.5V	1.3V	.5V	10.5V
I C 2		13.2V		0V	1.2V		12.8V	0V		6.6V						
I C 3		13.2V		0V	1.2V		12.8V	0V		6.6V						

ALIGNMENT

〔1〕 IF Alignment

(1) Preparations for alignment

a. Connections

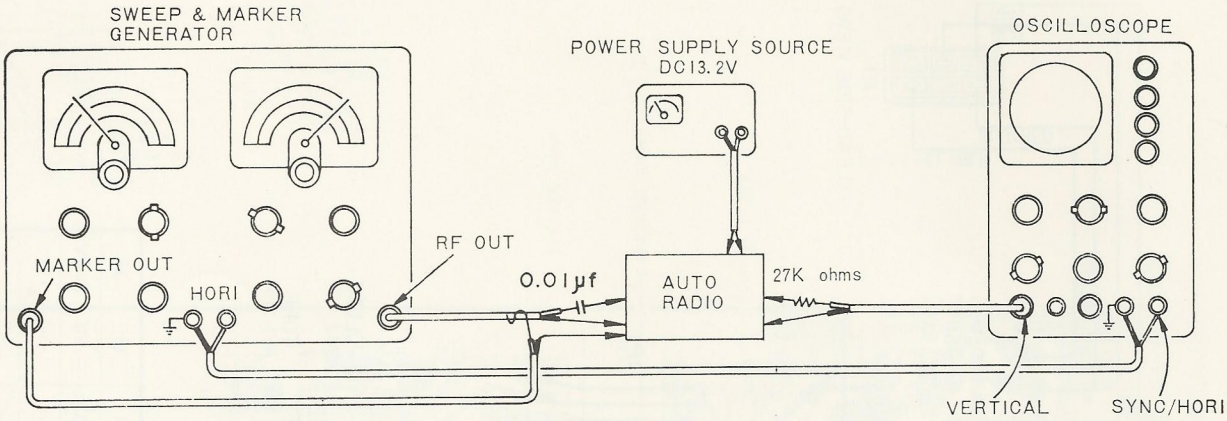


Fig. 4

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Connect TP1 in Fig. 6 through 0.01 μF capacitor	Connect TP2 in Fig. 6 through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

b. Power supply : 13.2 VDC

c. controls : Volume for minimun
Tone for high

(2) Alignments (Refer to Fig. 6 for ADJUST POINTS.)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	SET TUNER TO	ADJUST POINTS	PROCEDURE
1	IF	455 kHz	Near 1,000 kHz no signal exists	T_2 to T_5	Get maximum IF curve and best symmetry on both sides.
2	Repeat STEP 1 until no further gain in output can be obtained.				

〔2〕 Tracking Alignment

(1) Preparations for alignment

a. Connections

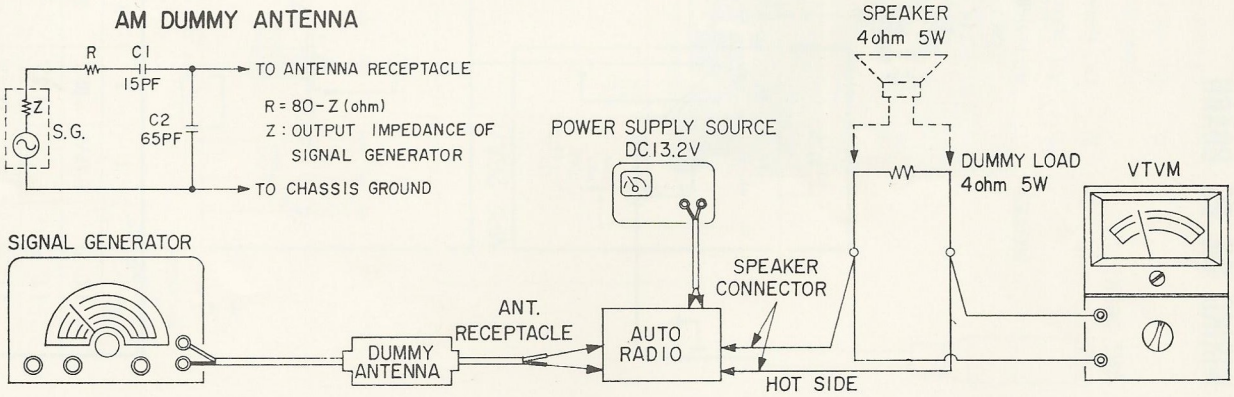


Fig. 5

b. Power supply : 13.2 VDC

c. Controls : Volume for maximum

Tone for high

(2) Alignment (Refer to Fig. 6 for ADJUST POINTS.)

STEP	PURPOSE	GENERATOR FREQUENCY	SET TUNER TO	ADJUST POINTS	PROCEDURE
1	Tuning range	1,630 kHz (400 Hz, 30%, AM modulated)	High-end stop	CV_3	Adjust for maximum meter indication.
2		515 kHz (400 Hz, 30%, AM modulated)	Low-end stop	T_1	
3	Repeat STEP 1 and 2 until no further gain in output can be obtained.				
4	Tracking	1,400 kHz (400 Hz, 30%, AM modulated)	Just tune in SG frequency	CV_2	Adjust for maximum meter indication.
5				CV_1	

NOTE: Always readjust antenna trimmer CV_1 when radio or antenna is reinstalled, tuning in a weak station around 1,400 kHz and get maximum volume.

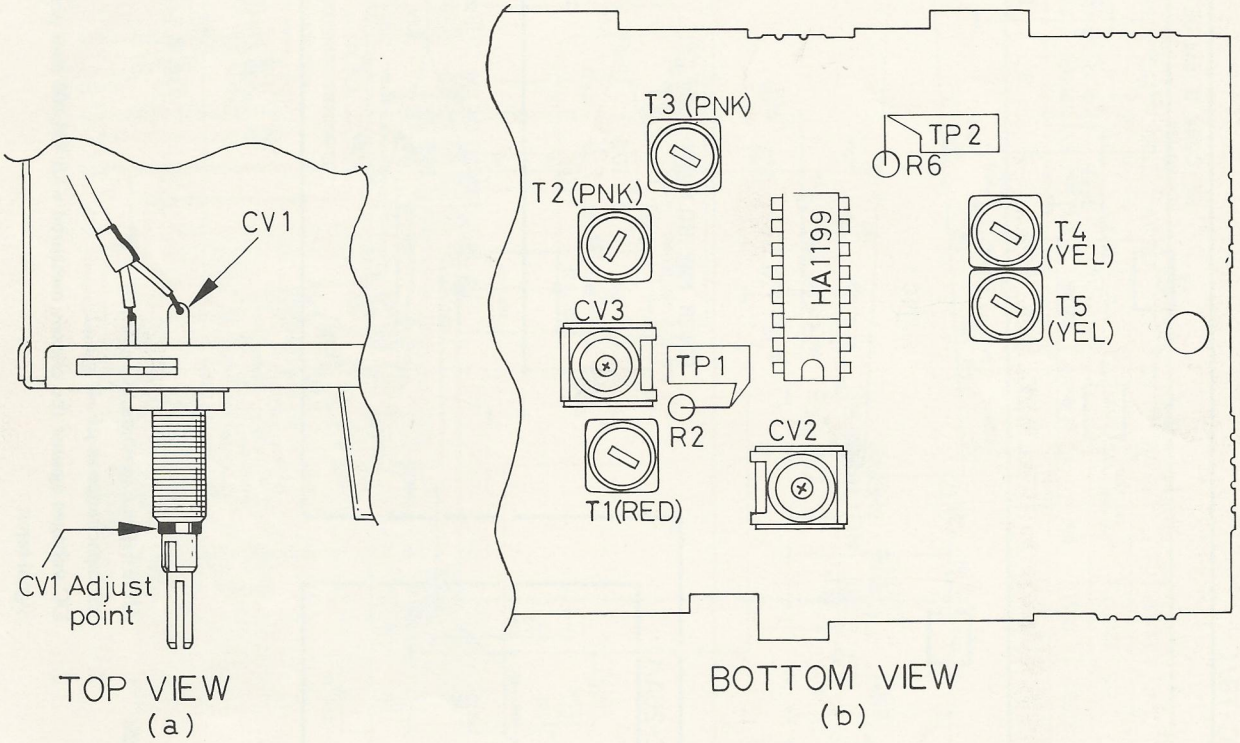


Fig. 6 ADJUST POINTS