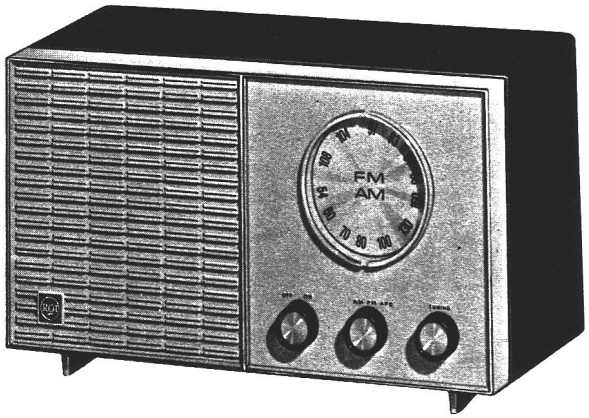
RCA VICTOR



Model RHC 13W—Gray/Walnut Gr.

RADIO

SERVICE DATA

RHC 13 Series

SPECIFICATIONS

FREQUENCIES	TUNING	IF
AM	535-1605 kc	455 kc
FM	87.5-108.5 mc	10.7 mc

TUBE COMPLEMENT

(V1) RCA 17C9	FM RF Amp & Converter
(V2) RCA 12BE6	AM Converter
(V3) RCA 12BA6	AM & 1st FM IF Amplifier
(V4) RCA 12AU6	2nd FM IF Amplifier
(V5) RCA 12AV6	AM Detector & IF Amplifier
(V6) RCA 50C5	Output
(CR1) Type 1N60, (CR2) Type 1N60	FM Detector
(CR3) Type 1N3756	Rectifier
(CR4) Type 1S554	FM AFC

POWER OUTPUT

Maximum	2 watts
Undistorted	1 watt

LOUDSPEAKER

4" PM	8 ohm v.c.

POWER SUPPLY

120 volts, 50 to 60 cycle or DC	35 watts

TUNING DRIVE 7½:1 (3¾ turns of knob)

DIMENSIONS (approx.)

Height	5⅝"	Width	10"	Depth	4½"
Weight (approx.)	4.1 lbs.				

DESCRIPTION

The model RHC 13 is a table model radio designed to be operated from AC or DC power lines for the reception of AM or FM broadcasts. It is contained in a one-piece plastic cabinet with a hardboard "snap-in" back cover.

Three controls (On-Off/Volume, AM/FM/AFC, Tuning) are provided on the front panel for the operation of this instrument. A ferrite rod antenna is utilized for reception of the AM band from 535 kilocycles to 1605 kilocycles, and a "Wav/A/Tron" line cord antenna is employed for reception of the FM band from 87.5 megacycles to 108.5 megacycles. If desired an external FM antenna may be connected to the FM antenna terminals on the back cover.

The circuitry of this instrument features a minimum amount of switching, none of which is in the RF circuits. Four tubes and a silicon rectifier handle the signal when operated in the AM mode and an additional fifth tube is used in the FM mode.

A power line interlock connector is attached to the back cover to remove power from this instrument when the back cover is removed.

WARNING

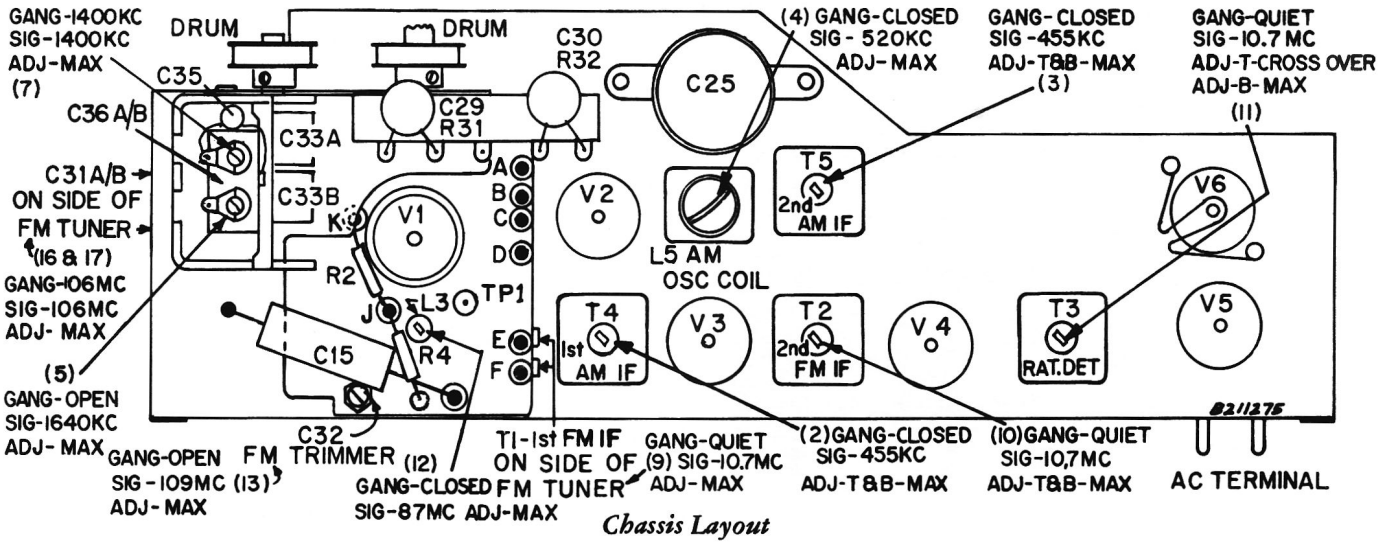
THIS CHASSIS IS CONNECTED DIRECTLY TO THE POWER LINE, THEREFORE AN ISOLATION TRANSFORMER SHOULD BE USED TO AVOID SHOCK HAZARD DURING SERVICING.

SUPPLEMENTARY INFORMATION LISTINGS	
Issue	Subject

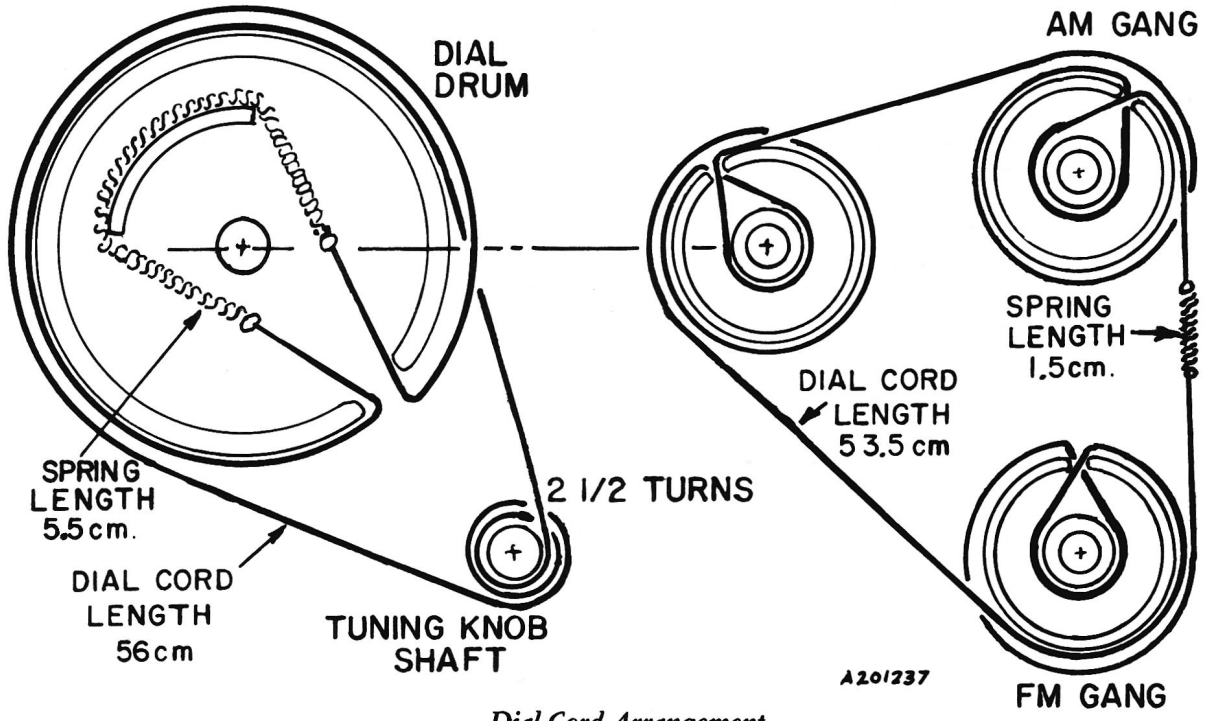
ISSUED BY
SERVICE DIVISION PUBLICATIONS
RCA VICTOR COMPANY, LTD.
MONTREAL, CANADA

Price 35c

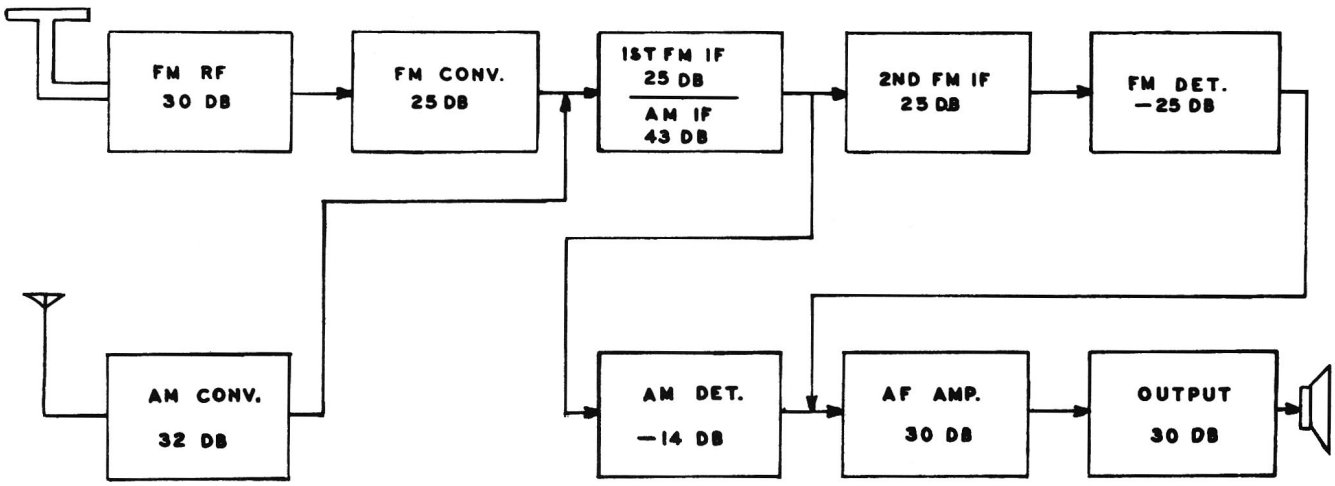
1967 No. 2.
Printed in Canada.



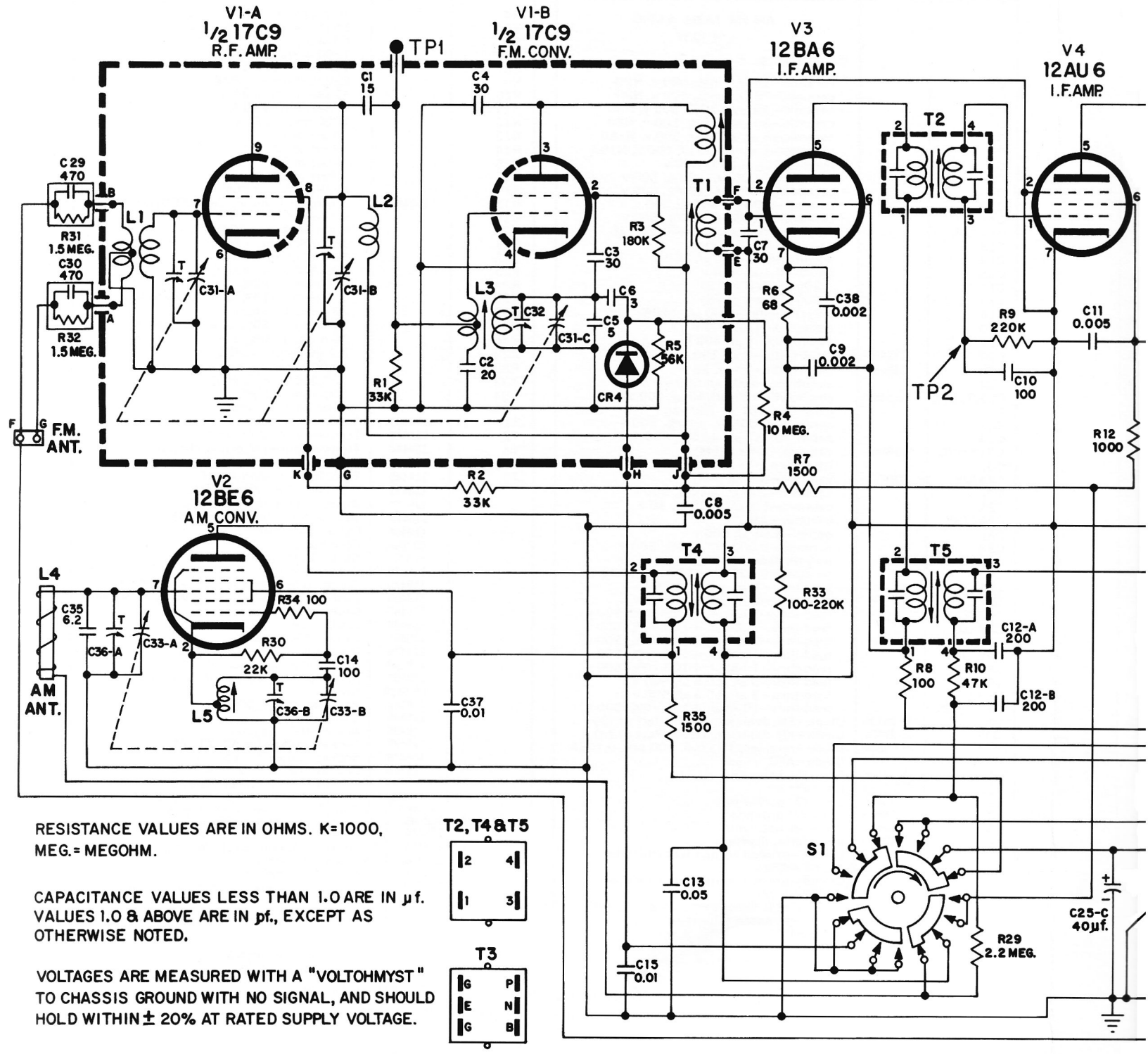
Chassis Layout



Dial Cord Arrangement



Block and Gain Diagram

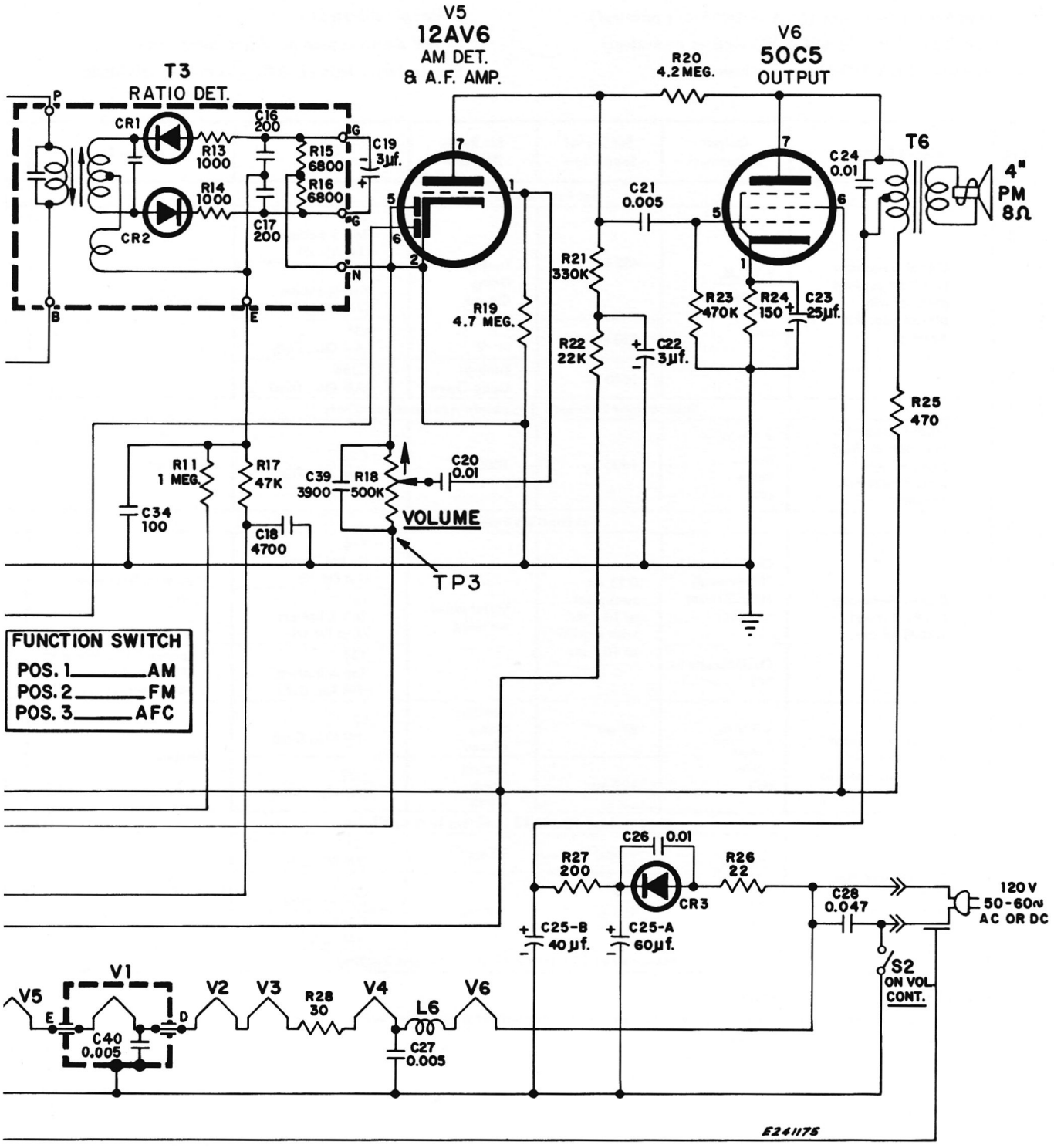


RESISTANCE VALUES ARE IN OHMS. K=1000, MEG.= MEGOHM.

CAPACITANCE VALUES LESS THAN 1.0 ARE IN µf. VALUES 1.0 & ABOVE ARE IN pf., EXCEPT AS OTHERWISE NOTED.

VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" TO CHASSIS GROUND WITH NO SIGNAL, AND SHOULD HOLD WITHIN ± 20% AT RATED SUPPLY VOLTAGE.

Schematic Diagram



Schematic Diagram

ALIGNMENT PROCEDURE

INSTRUMENTS REQUIRED

1. RF Signal/Sweep Generator (RCA WR-50B or equivalent) or TV/FM Sweep Generator (RCA WR-69A or equivalent) and RF Signal Generator (RCA WR-50A or equivalent)
2. TV/FM Marker Generator (RCA WR-99A or equivalent)
3. Vacuum-Tube Voltmeter (RCA WV-98B or equivalent)
4. Oscilloscope (RCA WO-91A or equivalent)

GENERAL CONDITIONS

1. Signal input must be kept as low as possible to avoid overloading or clipping. (Use highest possible sensitivity of output indicator)
2. Signal and Marker frequencies must be accurate. (Crystal controlled or calibrated)
3. Marker insertion must not distort input signal.
4. Standard modulation is 400 cycles at 30% amplitude.

Step	Signal Source—	Output Indicator—	Set Signal Source to—	Set Radio Dial to—	Adjust	Adjust for	Step
1	Set Function Switch to AM						1
2	Signal Generator to a loop or short piece of wire placed near AM Antenna	V.T.V.M. across voice coil	455 kc	Tuning Gang Closed	T4 Top & Bottom (1st AM IF)	Maximum	2
3					T5 Top & Bottom (2nd AM IF)		3
4			520 kc		L5* (AM Osc. Coil)		4
5			1640 kc	Tuning Gang Open	C36B (AM Osc. Trim)		5
6	Repeat steps 2 through 5 to obtain maximum sensitivity						6
7	Signal Generator to a loop or short piece of wire placed near AM Antenna	V.T.V.M. across voice coil	1400 kc	1400 kc	C36A (AM Ant. Trim)	Maximum	7
8	Set Function Switch to FM						8
9	Sweep Generator to TP1 through a 0.05 μf cap.	Oscilloscope to TP2 through 100,000 ohm resistor	0.25 mc sweep set at 10.7 mc with marker at 10.7 mc	Quiet point on band	T1‡ (In FM Tuner) (1st FM IF)	Maximum balanced curve	9
10					T2 Top & Bottom (2nd FM IF)		10
11		Oscilloscope to TP3			T3† Top & Bottom (FM Rat. Det.)	Balanced "S" curve with 10.7 mc marker at zero cross-over	11
12	Signal Generator across FM Antenna Terminals	V.T.V.M. across voice coil	87 mc	Tuning Gang Closed	L3 (FM Osc. Coil)	Maximum	12
13			109 mc	Tuning Gang Open	C32 (FM Osc. Trim)		13
14	Repeat steps 12 and 13 to obtain best maximum						14
15	Signal Generator across FM Antenna Terminals	V.T.V.M. across voice coil	90 mc	90 mc	L2** (FM RF Coil)	Maximum	15
16			106 mc	106 mc	C31B (FM RF Trim)		16
17					C31A (FM Ant. Trim)		17
18	Repeat steps 15 through 17 to obtain best tracking						18

*L5 is adjusted by moving loop inside of coil.

†T3 top core is adjusted for zero cross-over at 10.7 mc. Bottom core is adjusted for a maximum balanced curve.

‡T1 is two separate coils on the side of the FM tuner.

**L2 is adjusted by spreading or contracting the coils.

REPLACEMENT PARTS LIST

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

SYMBOL NO.	STOCK NO.	DESCRIPTION
		AM-FM TABLE RADIO
		RHC 13-W
		CAPACITORS:
C1		ceramic—15 μf, ±5%, 500 v, NPO
C2		ceramic—20 μf, ±5%, 500 v, N80
C3		ceramic—30 μf, ±10%, 500 v, N80
C4		ceramic—30 μf, ±10%, 500 v, N80
C5		ceramic—5 μf, ±0.5 μf, 500 v, N150
C6		ceramic—3 μf, ±0.25 μf, 500 v, N150
C7		mica—30 μf, ±10%, 500 v
C8		ceramic—0.005 μf, ±20%, 500 v
C9		ceramic—0.002 μf, ±20%, 500 v
C10		ceramic—100 μf, ±10%, 500 v
C11		ceramic—0.005 μf, ±20%, 500 v
C12A/B		ceramic—dual section 200/200 μf
C13		paper—0.05 μf, 400 v
C14		polyethylene—100 μf, 500 v
C15		paper—0.1 μf, 400 v
C16		200 μf (Part of T3)
C17		200 μf (Part of T3)
C18		polyethylene—4700 μf, ±10%, 125 v
C20		paper—0.01 μf, 400 v
C21		paper—0.005 μf, 400 v
C22	118456	electrolytic—3 μf, 150 v
C23	118457	electrolytic—25 μf, 25 v
C24		oil tubular—0.01 μf, 500 v
C25/A/B/C	118458	electrolytic—60/40/40 μf, 200 v
C26		ceramic—0.01 μf, 150 vac
C27		ceramic—0.005 μf, ±20%, 500 v
C28		paper—0.047 μf, ±20%, 450 vac
C31A/B/C	*63-8823	variable—tuning (FM)
C32		trimmer—1—5 μf
C33A/B	118461	variable—tuning (AM)
C34		ceramic—100 μf, ±10%, 500 v
C35		ceramic—6.2 μf, ±.05 μf, 500 v
C36A/B		trimmer—AM
C37		paper—0.01 μf, 500 v
C38		ceramic—0.002 μf, ±20%, 500 v
C39		polyethylene—3900 μf
C40		ceramic—0.005 μf, +100—0%, 500 v
CP1 (B)		feed-thru—3 μf, ±0.5 μf, 500 v
CP2 (A)		feed-thru—3 μf, ±0.5 μf, 500 v
CP3 (C)		feed-thru—1000 μf, +100—0%, 500 v
CP4 (D)		feed-thru—1000 μf, +100—0%, 500 v
CP5 (K)		feed-thru—1000 μf, +100—0%, 500 v
CP6 (J)		feed-thru—1000 μf, +100—0%, 500 v
CP7 (H)		feed-thru—1000 μf, +100—0%, 500 v
CP8 (E)		feed-thru—3 μf, ±0.5 μf, 500 v
CP9 (F)		feed-thru—3 μf, ±0.5 μf, 500 v
CP10 (TP)		feed-thru—1000 μf, +100—0%, 500 v
CR1	63-22724	Diode—FM detector, 1N60 (Part of T3)
CR2	63-22724	Diode—FM detector, 1N60 (Part of T3)
CR3	*63-8824	Diode—rectifier, 1N3756, 400 prv, 0.125A
CR4	*63-8825	Diode—AFC, 1S55
L1	*63-8826	Coil—FM antenna
L2	*63-8827	Coil—FM RF
L3	*63-8828	Coil—FM oscillator
L4	118440	Coil—AM antenna
L5	118441	Coil—AM oscillator
L6	118442	Coil—filter, filament
PC1		Circuit—printed component (Includes C29-R31)
PC2		Circuit—printed component (Includes C30-R32)
		RESISTORS: fixed, composition, ½ watt, unless noted otherwise
R1		33,000 ohm, ±10%, ¼ w
R2		33,000 ohm, ±10%, ¼ w
R3		180,000 ohm, ±10%, ¼ w
R4		10 megohm, ±10%
R5		56,000 ohm, ±10%, ¼ w
R6		68 ohm, ±20%
R7		1500 ohm, ±20%
R8		100 ohm, ±20%
R9		220,000 ohm, ±20%
R10		47,000 ohm, ±20%
R11		1 megohm, ±20%
R12		1000 ohm, ±20%
R13		Part of T3
R14		Part of T3
R15		Part of T3
R16		Part of T3
R17		47,000 ohm, ±20%
R18	118463	control—"Volume," with "Off/On" switch
R19		4.7 megohm, ±20%
R20		4.2 megohm, ±20%
R21		330,000 ohm, ±20%
R22		22,000 ohm, ±20%
R23		470,000 ohm, ±20%
R24		150 ohm, ±20%
R25		470 ohm, ±10%, 2 w, wirewound
R26		22 ohm, 1 w, fuse
R27		200 ohm, ±10%, 2 w, wirewound
R28		30 ohm, ±10%, 1 w
R29		2.2 megohm, ±20%
R30		22,000 ohm, ±20%
R33		220,000 ohm, ±20%
R34		100 ohm, ±20%
R35		1500 ohm, ±20%
S1	118467	Switch—function
T2	118443	Transformer—2nd FM IF
T3	118444	Transformer—FM ratio detector
T4	118445	Transformer—1st AM IF
T5	118445	Transformer—2nd AM IF
	118471	Antenna—FM "Wav/A/Tron"
	118473	Board—mounting PC1, PC2
	118472	Board—terminal (2 required)
	118468	Cable—AC power
	*63-8829	Case-back
	Y4477	Case—front, walnut
	118476	Chassis—metal
	118479	Connector—2 contact, male, interlock
	118493	Cushion—FM tuner mounting (3 required)
	118482	Drum—dial
	118483	Drum—AM & idler
	118495	Drum—FM drive
	118489	Insulator—heat, cabinet top
	118490	Insulator—heat, cabinet side
	118491	Insulator—control panel mounting
	*63-8830	Knob
	118480	Retainer—tube, 50C5
	118485	Shaft—tuning
	118486	Shaft—dial and idler
	118477	Socket—tube—for V2, V3, V4, V5
	118478	Socket—tube—for V6
	118466	Speaker—8 ohm, 2 w, 4" P.M. (Including output transformer)
	118487	Spring—dial cord tension, gang drive
	118488	Spring—dial cord tension, tuning drive
	118481	Support—control mounting plate
	118484	Support—antenna (on IF can)
	118494	Support—antenna (on tuning cap)
	118470	Terminal—antenna
	118475	Tuner—FM complete
	118492	Washer—insulating—for control mounting plate
	*88-2685	Book—Customer Instruction

* Indicates New Stock Items.

Only items listed under stock numbers are available as Replacement Parts.

All parts subject to change or withdrawal without notice.