

Figure 1. Automatic Clock-Controlled Radio.

DESCRIPTION

Model 621 Automatic Clock-Controlled Radio is a six tube superheterodyne receiver contained in brown or ivory plastic cabinet. A PM (Permanent Magnet) speaker is used with the radio and the tubes are standard miniature tubes. The clock is a Telechron movement and is equipped with alarm.

SPECIFICATIONS:

Overall Dimensions:

Height — 6 inches

Width - 5 inches

Length - 10 inches

Weight — 6 pounds

Electrical Rating:

Line Voltage — 110-120 AC 60 cycle only Power Consumption — 28 watts

Tuning Frequency Range:

540 to 1620 KC

Intermediate Frequency:

455 KC

Electrical Power Output (Maximum):

1.7 watts

Loudspeaker:

Type — permanent magnet
Outside Cone Diameter — 4 inches
Voice Coil Impedance — 3.2 ohms @ 400 C.P.S.*
Magnet Rating — .68 Oz Alnico V.

*NOTE: Production runs were made using an 83009 speaker of 6 ohms impedance at 400 C.P.S. In those cases, T1 was 2500 to 6 ohm output, Part No. 89433.

TUBE COMPLEMENT:

NO.	TUBE	FUNCTION
V-1	6BJ6	R-F Amplifier
V-2	12BE6	Frequency Converter
V-3	6BJ6	1-F Amplifier
V-4	12AV6	2nd Detector — 1st Audio
V-5	50C5	Power Amplifier
V-6	35W4	Rectifier

SPECIAL SERVICE INFORMATION:

Resistances measured are D-C. Allow a 10% toleranc between values given and readings made.

1 st I-F Coil:

Primary — 17.5 ohms

Secondary — 17.5 ohms

2nd I-F Coil:

Primary — 12.2 ohms Secondary — 11.5 ohms

Oscillator Coil:

Primary -- 1 ohm

Secondary -- 5.5 ohms

I-F Trap:

Primary - 31.5 ohms

Ferro Loop:

Resistance — 1 ohm

SOCKET VOLTAGES:

The voltages shown on Schematic Diagram, figure 4 were measured under the following conditions:

- D.C. Voltages with a vacuum tube voltmeter from socket contacts to B minus.
- Filament voltages measured with a 1,000 ohms pe volt A.C. meter across the filament of each tube.
- 3. Volume and Tone Controls maximum.
- 4. 117 volts A.C. line.
- 5. Voltages are subject to a 10% variation.

For voltages, see figure 4.

OSCILLATOR CATHODE VOLTAGES:

Measured with an A-C vacuum tube voltmeter (input in pedance above 10 megohms) at 117 volts — A-C line.

1500 KC - 1.0 VAC

1000 KC - 1.0 VAC

750 KC - 1.1 VAC

540 KC - 1.1 VAC

MODEL 621

OPERATING INSTRUCTIONS

GENERAL:

This clock-radio operates on 110-120 volt, 60-cycle alternating current only.

The clock movement is self-starting and will begin operating when the cord is plugged into the proper outlet. The correct time is set by means of the Time Set Control at the right rear of the chassis. Turn the Time Set Control in a Clockwise Direction Only as Viewed From the Rear.

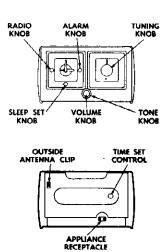


Figure 2. Controls and Connections.

AWAKE TO MUSIC AND BUZZER ALARM:

- 1. Adjust the radio for normal operation.
- Pull out Alarm Knob and set the small, rotating alarm dial for the desired awakening time. Turn Alarm Knob in counterclockwise direction only.
- 3. Turn the Radio Knob to the "AUTO" position.*
- *NOTE: Music will turn on exactly as set. Buzzer Alarm will sound ten minutes later as a reminder.
 - 4. Push Alarm Knob in if buzzer alarm is not desired.

TO OPERATE THE RADIO ONLY:

- 1. Turn the Radio Knob to the "ON" position.
- 2. Turn the Volume Knob to about middle position.
- 3. Select desired station with the Tuning Knob.
- 4. Adjust the Volume and Tone Knobs as desired.

TO AWAKEN TO BUZZER ALARM ONLY:

- Pull out Alarm Knob and set the small, rotating alarm dial for desired awakening time. Turn Alarm Knob in counterclockwise direction only.
- 2. Turn Radio Knob to "OFF" position.
- 3. Allow Alarm Knob to remain in the out position.

FOR SLUMBER MUSIC UP TO 60 MINUTES DURATION:

- 1. Adjust the radio for normal operation.
- Turn the Sleep Set Knob fully clockwise. Radio will operate 60 minutes, then shut off automatically. For playing time less than 60 minutes, set knob accordingly.
- 3. Turn Radio Knob to "AUTO" position.

CLOCK REPLACEMENT GENERAL:

When the clock becomes defective, do not attempt to repair it; replace it.

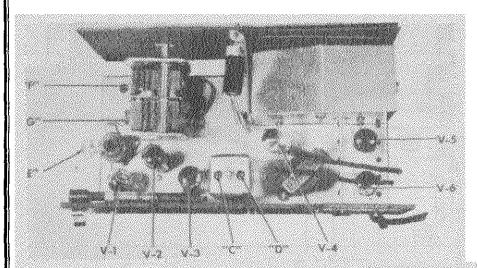
Tools required to replace clock are: soldering iron and 4-inch spin-tite wrench.

CLOCK REPLACEMENT PROCEDURE:

- Remove all control knobs. (Do not lose metal clip inside Volume Knob.)
- 2. Remove three screws from bottom of cabinet.
- 3. Remove chassis.
- Remove back and slide to one side being careful not to break loop leads.
- Remove three screws from face and remove dial face, backing card, and dial-face gasket. (Be sure to replace spacer between backing card and chassis behind the lower right hand screw during reassembly.)
- 6. Remove 12AV6, 50C5, and 35W4 tubes from chassis. (See tube location diagram on back of radio.)
- Remove two screws, located on the left side (viewing the radio from the front) of clock bracket, which hold cover in place. Remove cover.
- 8. Unsolder wires at clock, leading to chassis.*
- *NOTE: A-C leads to clock switch must be replaced so that the leads are fastened to the same points as before disassembly.
 - 9. Remove three nuts located on back of clock cover and remove clock.
 - Reassemble clock-radio following above procedure in the inverse order.

ALIGNMENT PROCEDURE

Alignment procedure consists of the step outlined in the Alignment Chart. See Figure 3 for location of trimmer Make certain each step is done with a minimum input signal. Connect output meter to speaker voice cail.



A, B, C, D - I-F Trimmers E - F Trop F - Osc. Trimmer G - Ant. Trimmer Note 1.

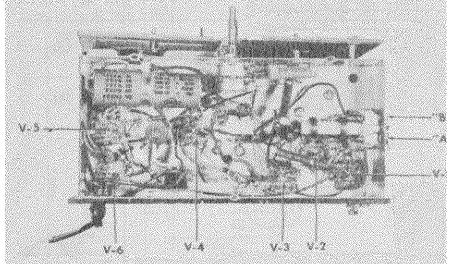
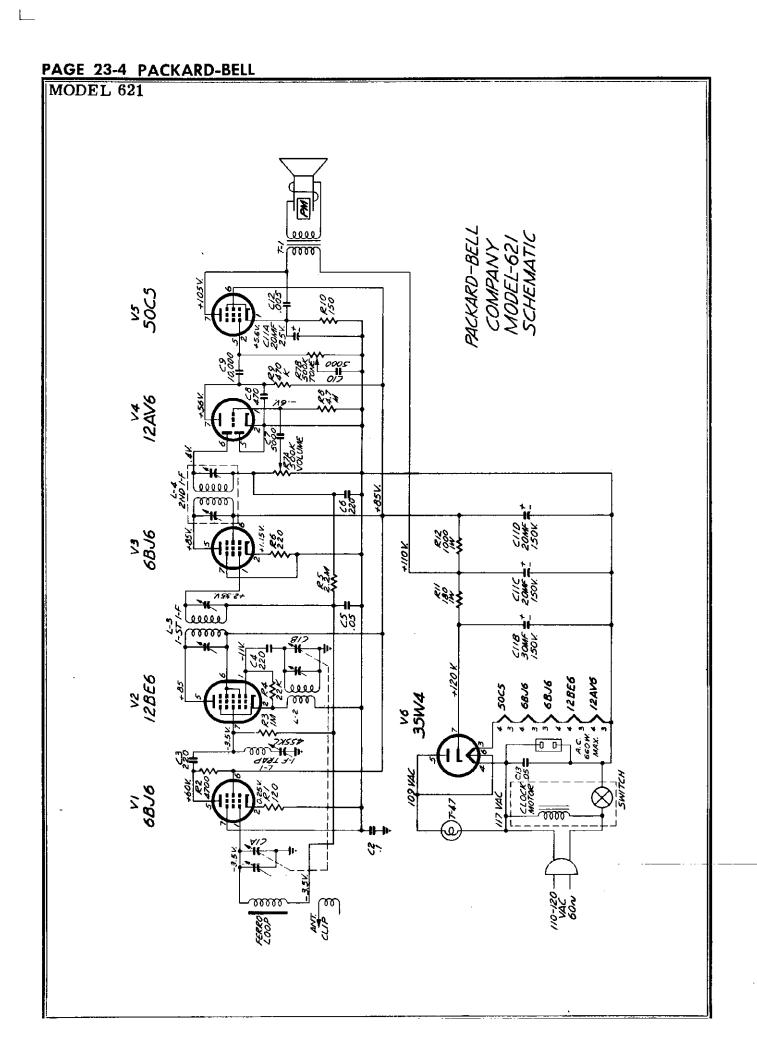


Figure 3. Chassis.

STEP	CONNECT TEST OSC. TO	TEST OSC. SETTING	POINTER SETTING	ADJUST FOR MAX. OUTPUT
1	Mixer Grid & Ground	455 KC	540 KC	Trimmers A,B,C & D
2	Mixer Grid & Ground	455 KC	540 KC	Trimmer E for minimum output
3	Mixer Grid & Ground	1620 KC	1620 KC	TrimmerF
4	Test Loop	1500 KC	1500 KC	TrimmerG
5	REPEAT STEPS	3 & 4		



REPLACEABLE PARTS

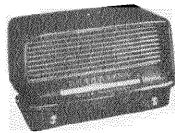
To be assured of genuine Packard-Bell replacement parts, order by the Packard-Bell part number from any of the following Packard-Bell Service Divisions.

LOS ANGELES	1101 So. Hope Street
SEATTLE	2310 Fourth Ave.
SAN DIEGO	3069 El Cajon Blvd.
SÁN FRANCISCO	1157 Post Street
RIVERSIDE	247 La Cadena Drive
SALT LAKE CITY	624 So. State Street
SOUTH GATE	8640 State Street

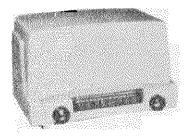
REF. SYMBO	L DESCRIPTION I	P.B. PART NO.	REF. SYMBOI	L DESCRIPTION	P.B. PART NO
	CAPACITORS			RESISTORS	
C1A & B C2 C3 C4 C5 C6	Variable, 2 gang Tubular, .1 Mfd. 200 volt Ceramic, 220 Mmf. G.P. Ceramic, 220 Mmf. G. P. Tubular, .05 Mfd. 200 volt Ceramic, 220 Mmf. G.P.	23528 23019 23915 23915 23017 23915 23931	R2 R3 R4 R5 R6 R8 R9	Carbon, 120 ohms, ½ watt, 10% Carbon, 4700 ohms, ½ watt, 10% Carbon, 1 megohm, ½ watt, 10% Carbon, 22,000 ohms, ½ watt, 10% Carbon, 2.2 megohms, ½ watt, 20% Carbon, 220 ohms, ½ watt, 10% Carbon, 4.7 megohms, ½ watt, 20% Carbon, 470,000 ohms, ½ watt, 20% Carbon, 150 ohms, ½ watt, 10%	73014 73033 73161 73041 73165 73017 73169 73157 73015
C8 C9	Ceramic, 5000 Mmf. G.P. Ceramic, 470 Mmf. G.P. Ceramic, 10,000 Mmf. G.P.	23931 23916 23939		Carbon, 180 ohms, 1 watt, 10% Carbon, 1000 ohms, 1 watt, 10%	73216 73225
C11A C11B C11C	Ceramic, 5000 Mmf. G.P. Electrolytic, 20 Mfd. 25 volt Electrolytic, 30 Mfd. 150 volt Electrolytic, 20 Mfd. 150 volt	23931 24034 24034 24034	TI (TRANSFORMER Output, 2,500 to 3.2 ohms MISCELLANEOUS PARTS	89417 *See not
C12	Electrolytic, 20 Mfd. 150 volt Tubular, .005 Mfd. 600 volt Tubular, .05 Mfd. 200 volt	24034 23004 23017		•	521-621 29343 32011 38128
R7A & B	CONTROLS Volume and Tone (Dual) 500,000 ohms.	25026	Clock Ass Clock Knd Tuning Ki Volume K		58038 58038- 52079 52074 52073
	COILS		Dial Lamp A-C Sock Dial Lite	o No. T-47 et Socket	54002 79096 79082
L-2 L-3	I-F Trop Oscillator 1st I-F, 455 KC 2nd I-F, 455 KC Loop	29005 29220 29045 29046 29343A	Speaker, *NOTE: P	ket, 7 pin miniature 4-inch P.M. Production runs were made using an 8. of 6 ohms impedance at 400 C.P.S. In T1 was 2500 to 6 ohm output, Part No	those case









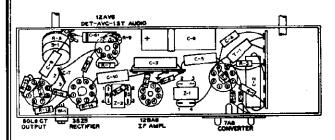


MODEL 52-542-1

SPECIFICATIONS

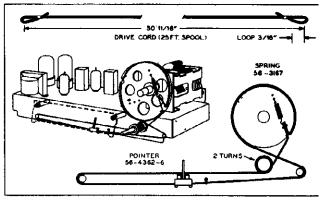
CABINET	
Model 52-540Phenolic, mottled	mahogany
Model 52-540-iPhe	solic, ivory
Model 52-541Phenolic, mottled	mahoqany
Model 52-541-IPhen	iolic, lvory
Model-52-542-IPhes	nolic, ivory

CIRCUIT5-tub	e superheterodyn
FREQUENCY RANGE	540—1630 ka
AUDIO OUTPUT	1.2 wat
OPERATING VOLTAGE105-12	5 volts, c.c. or d.
POWER CONSUMPTION	30 wat
AERIALHigh-impedance loop: connector	for external aeric
INTERMEDIATE FREQUENCY	455 k
PHILCO TUBES (5)	6, 5016Gt, 35 2 5G



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Figure 1. Symbolized Chassis, Showing Parts **Placement**



TP-7865F-

Figure 2. Drive-Cord Installation Details, Models 52-540 and 52-540-1

MODEL 52-541, CODE 123

Changes to parts list:

Springs, diffusion panel (2) 56-3587-1

The position of the pilot-lamp socket and mounting clip was changed from under the speaker to about center of the front side of the sub-base.

MODELS 52-540, 52-540-1, 52-541, 52-541-1, 52-542-1

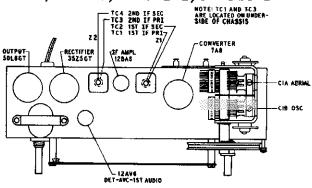


Figure 3. Top View, Showing Trimmer Locations

ALIGNMENT PROCEDURE

CONTROLS: Turn on radio and set volume SIGNAL GENERATOR: Connect as indicated control to maximum.

DIAL POINTER: Turn tuning condenser to full-mesh position. Set dial pointer to index mark, located to left of "55."

OUTPUT METER: Connect across voice-coil terminals.

in chart. Use modulated output.

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OUTPUT LEVEL: During alignment, attenuate signal-generator output to maintain outputmeter indication below 1.25 volts.

	SIGNAL CENERA	ATOR RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
l	Ground lead to 8—; output lead through .1-uf. condenser to pin 6 of 7A8 converter.	455 kc.	540 kc. (gang fully meshed)	Adjust tuning cores, in order given, for maximum output.	TC4—2nd 1-f sec. TC3—2nd 1-f pri. TC2—1st 1-f sec. TC1—1st 1-f pri.
2	Radiating loop; see note below.	1600 kc.	1600 kc.	Adjust trimmer for maximum output.	C1Bosc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust trimmer for maximum output.	C1A—aerial

RADIATING LOOP: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop antenna.

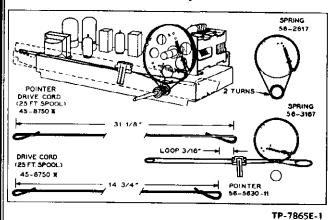
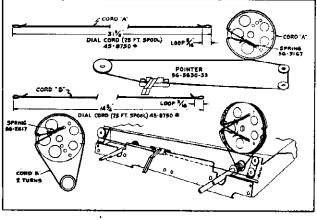
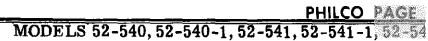


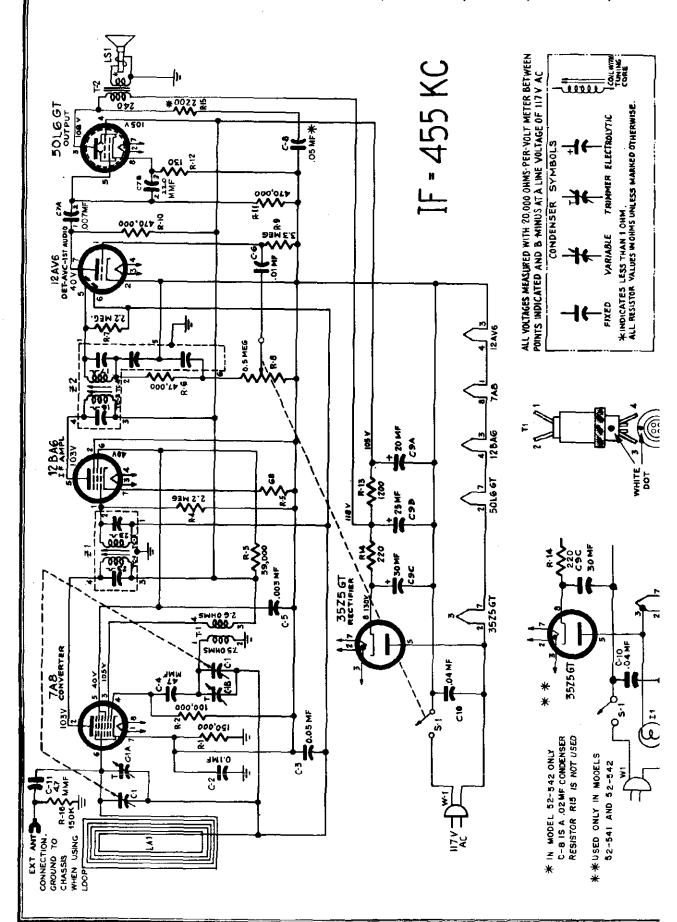
Figure 5. Drive-Cord Installation Details, Model 52-542-I

Figure 4. Drive-Cord Installation Details, Models 52-541 and 52-541-I



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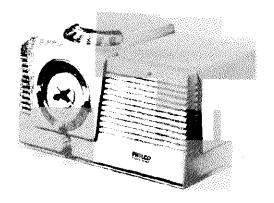
PAGE 23-4 PHILCO MODELS 52-540, 52-540-1, 52-541, 52-541-1, 52-542-1

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Service Part No.	MISCELLANEOUS	
Cı	Condenser, tuning gang	Daniel II	Šarvica
	Model 52-54031-2751-6	Description	Part No.
	Models 52-541 and 52-54231-2751	MODELS 52-540 AND 52-540-I	
C2	Condenser, i-f bypass, .1 µi,	Cabinet, mottled mahogany	10750
C3	Condenser, a-v-c by-pass, .05 µi	Cabinet, ivory	
C4	Condenser, d-c blocking, 47 µµf	Back	54-7777
CS	Condenser, screen by-pass, .003 µf	Fastener, back mounting (4)	
CB	Condenser, d-c blocking, .01 µf	Bafile, speaker Dial-backplate assembly	54-7761
C7	Condenser, dual ceramic 30-1239-4	Knob (2)	78-4638 54 4527 11
C7A	Condenser, d-c blocking, .007 µiPart of C7	Mount, rubber (3)	27,4771.1
C7B	Condenser, grid by-pass. 220 µµfPart of C7	Pointer	56-4382.6
C8	Condenser, tone compensation	Pulley-and-shaft assembly	76-3671-3
	Models 52-540 and 52-541: .05 µf,		
	Model 52-542: .02 µf	MODELS 52-541 AND 52-541-J	
Cs	· ·	Cabinet, mahogany Knob (2)	10747
CSA	Condenser, electrolytic, 3-section30-2573	Cabinet, ivory	
C9B	Condenser, filter, 20 µf., 150vPart of C9	Knob (2)	
CSC	Condenser, filter, 25 µi., 150vPart of C9	Back	
C10	Condenser filter, 30 µf., 150vPart of C9	Fastener, back mounting (4)	W2235F40
	Condenser, line by-pass, .04 µf45-3500-2*	Baffle, speaker	54-7761
C11	Condenser, external-aerial coupling, 4.7 µµf30-1230	Backplate, bracket and pulley assembly	78-6235
11	Pilot lamp (Models 52-541 and 52-542-1 only)34-2068	Dial-backplate assembly	76-4570
LAI	Loop aerial	Fastener, pilot-lamp shield mounting (2)	W2235-1FA9
	Models 52-540 and 52-540-I32-4052-33	Speed clip, grille mounting (4)	1W56920FE7
1	Models 52-541 and 52-541-I32-4052-31	Jewel	54-4304
ll	Model 52-542-I32-4052-38	Mount, rubber (3)	27-4771-1
LS1	Speaker, p-m	Pointer 5.6.7.6.30-!! Code 123, 56.2774 :: Spring, pointer drive	R.FS.P.
:	Models 52-540, 52-540-I, 52-541 and	Pulley-and-shaft assembly	55-3157
	52-541-I36-1627-5	Scale strap, dial mounting	/9-39/1-2
l	Model 52-542-I36-1825-3	LH	58.7373
RI	Resistor, leakage, 150.000 chms	RH	58-7373-1
R2	Resistor, grid return, 100,000 ohms66-4108340*	Socket assembly, pilot lamp	27-6233-8
R3	Resistor, screen dropping, 39,000 ohms66-3398340*	MODEL 52-542-I	
R4	Resistor, grid return, 2.2 megohms68-5228340*	Cabinet, ivory	
	Resistor, cathode bias, 68 ohms	Back	10769-8
	Resistor, i-f filter, 47,000 ohms	Fastener, back mounting (4)	W223EFE6
R7	Resistor, diode load, 2.2, megohms	Clips, baffle mounting	1W58920FE7
RS	Volume control, 500,000 ohms	Banie, speaker	. K4.7781
	Models 52-540 and 52-540-I33-5538-7	Dial scale	54-5104
ļ	Models 52-541 and 52-541-I33-5566-4	Screw, scale mounting (2) Dial-backplate assembly	1W14504FA1
	Model 52-542-I33-5566-4	Knob (2)	54.4718.33
	Resistor, grid return, 3.3 megohms66-5338340*	Backplate, bracket-and-pulley assembly	78.7049
R10	Resistor, plate load, 470,000 ohms	Fastener, pilot-lamp shield mounting (2)	W2235-1FA9
R11	Resistor, grid return, 470,000 ohms66-4478340*	Grille, pidstic	R4.4016.1
R12	Resistor, cathode bias, 130 ohms66-1133260*	Mount, rubber (3) Pointer	27-4771-1
R13	Resistor, filter, 1200 ohms	Spring, pointer drive	\$8.4189
R14 R15	Resistor, filter, 220 ohms, 1 watt	Pulley-and-shaft assembly	78.3871.2
*****	Resistor, tone compensation, 2200 ohms	Socket assembly, pilot lamp	27-6233-6
	(Models 52-540, 52-540-I, 52-541 and 52-541-I only)	PARTS COMMON TO ALL MODELS	
RIG	Resistor, cerial isolating, 150,000 ohms86-2228340	Bushing, pulley and shaft	27 6494
	Switch, off-onPart of R\$	Clamp, electrolytic mounting	58.14RR
T1	Transformer, oscillator32.4263	Drive cord, 25-foot spool	45-8750*
T2	Transformer, output	rastener, hairpin, pulley and shaft	57.1489F # 3
W 1	Line cord L-2183*	Socket, Loktal (1)	27-8269
Z 1	Transformer, st i-i	Socket, miniciture (2)	27-8285
Z2	Transformer, 2nd i-f 32.4240.	Spring, gang drive	27-5174
	100	The state of the s	39-401/

MODELS 52-544 52-544-I, 52-54



MODEL 52-544-1

SPECIFICATIONS

CABINET	
Model 52-544Molded phenolic, makegany	OPERATING VOLTAGE117 vol
Model 52-544-1	POWER CONSUMPTION30
Model 52-544-WMolded phenolic, white	AERIALHigh-impedance loop; connector for external
FREQUENCY RANGE540—1800 kc.	INTERMEDIATE FREQUENCY
AUDIO OUTPUTl watt	PHILCO TUBES (5)7A8. 12BA8, 12AV6, 5016G1

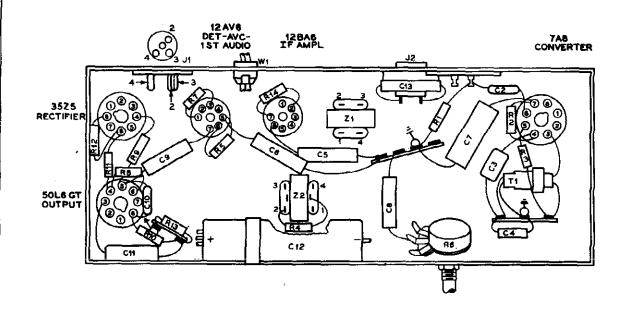


Figure 1. Base View, Showing Symbolized Chassis

MODELS 52-544, 52-544-I, 52-544-W

ALIGNMENT PROCEDURE

RADIO CONTROLS — Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT METER — Connect across voice-coil terminals.

SIGNAL GENERATOR — Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL — During alignment, adjust signal-generator output to hold output-meter reading below 1.25 volts.

	SIGNAL GENERATOR				
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Connect ground lead to B; output lead through .1-µi. condenser to grid (pin 8) of 7A8.	455 kc.	Tuning con- denser fully meshed.	Adjust tuning cores, in order given, for maximum output.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note below).	1800 kc.	1800 kc.	Adjust trimmer for maximum output.	C1B—Osc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust trimmer for maximum output.	C1A—Aerial

RADIATING LOOP: Make up a 6-8 turn, 8-inch-diameter loop, from insulated wire; connect to signal-generator leads and place near radio loop aerial.

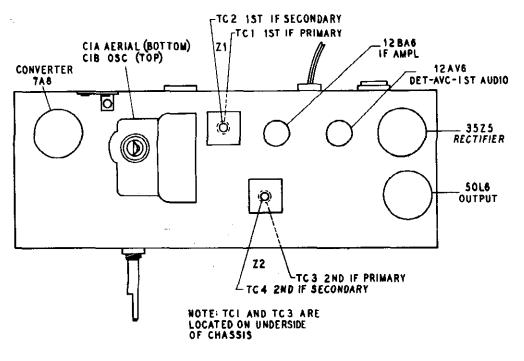
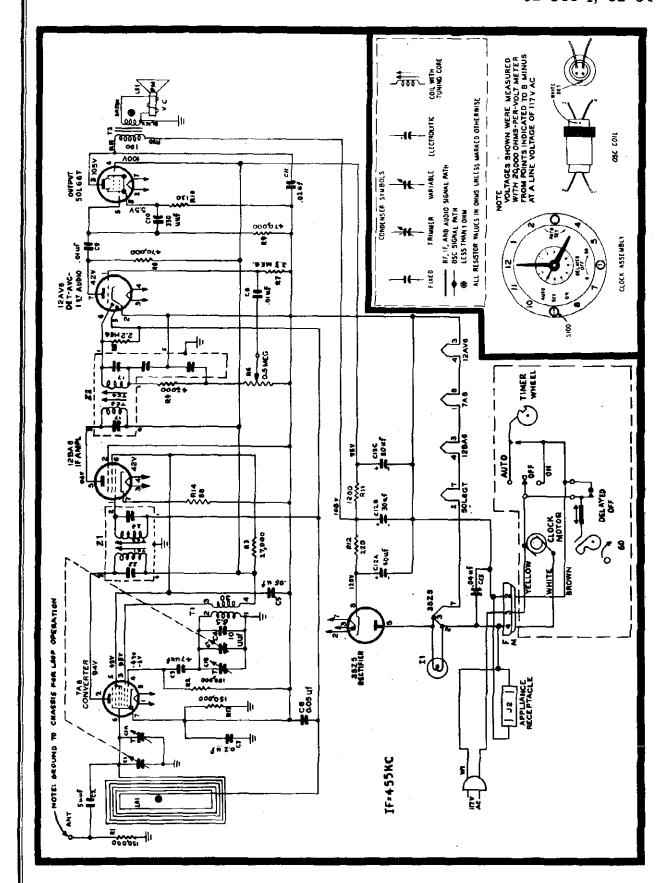


Figure 2. Top View, Showing Trimmer Locations

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MODELS 52-544 52-544-I, 52-54



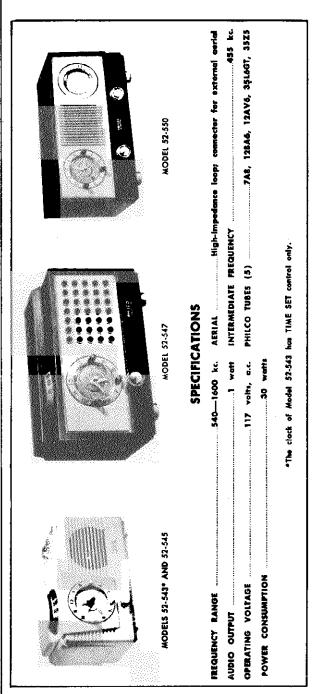
MODELS 52-544, 52-544-I, 52-544-W

PARTS LIST

NOTE: Part numbers marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part No.	MISCELLANEOUS	<u>.</u> .
31	Condenser, tuning gang, 2-section31-2751-5	Description	Service Part No.
CIA	Condenser, trimmer, aerialPart of Cl	Cabinet	
СІВ	Condenser, trimmer, oscillator	MODEL 52-544	10745
C2	Condenser, aerial coupling, 5 µµf30-1230	MODEL 51-544-I	
	Condenser, d-c blocking, 47 µµf60-00475417°	MODEL 52-544-W	
	Condenser, temperature compensating,	Back	
	7.5 µµ£30-1224-65	Fastener (4), back mounting	
C5	Condenser, screen by-pass, .05 µf	Baffie-and-cloth assembly	
C8	Condenser, a-v-c by-pass, .05 µf	Model 52-544	
C7	Condenser, by-pass, .2 µf45-3500-3*	Model 52-544-I	
C8	Condenser, d-c blocking, .01 µf45-3505-58	Model 52-544-W	
	Condenser, d-c blocking, .01 µf,	Jewel (used on mahogany and ivory cabinets)	54-4304
	Condenser, parasitic suppressor, 330 µµt	Jewel (used on white cabinet only) Knobs	54-4304-1
C11	Condenser, tone compensation, .02 µf61-0108*	MODEL 52-544	
	Condenser, electrolytic, 3-section30-2575-27		A= 444=
,	Condenser, filter, 30 uf., 150vPart of C12	VOLUMEAUTO-OFF-ON	
		DELAYED OFF	
	Condenser, filter, 25 µf., 150vPart of C12	AUTO SET	
ll	Condenser, filter, 20 µf., 150vPart of C12	TIME SET	54-4738-4
! !	Condenser, line filter, .04 µf	MODEL 52-544-I	ı
l.	Pilot lamp	VOLUME	54 4110
-	Socket, clock motor and switch27-6273	AUTO-OFF-ON	
li "	Receptacle, appliance, a-c76-3931	DELAYED OFF	
li .	Loop aerial	AUTO SET	54-4736-3
ll .	Speaker, p-m36-1627-8	TIME SET	54-4736-4
1	Resistor, isolating, 150,000 ohms68-4158340*	MODEL 52-544-W	
R2	Resistor, grid return, 100,000 ohms66-4108340*	VOLUME	27-4817-7
R3	Resistor, screen dropping, 27,000 ohms66-3278340*	AUTO-OFF-ON	
R4	Resistor i-f filter 47,000 ohms	DELAYED OFF	•
R5	Resistor, diode load, 2.2 megohms	AUTO SET	
R6	Volume control, 500,000 ohms33-5565-6	TIME SET	
R7	Resistor, grid return, 3.3 megohms66-5338340*	Clamp, electrolytic mounting	
Re :	Resistor, plate load, 470,000 ohms66-4478340*	Clip, pilot-lamp mounting	.55-3545-6FA3
R9	Resistor, grid return. 470,000 ohms66-4478340*	MODEL 52-544, 60-cycle	78.8792
R10 1	Resistor, cathode bias, 130 ohms66-1138340°	MODEL 52-544-I, 60-cycle	78-6724
R11 1	Resistor, filter, 1200 ohms	MODEL 52-544-W, 60-cycle	
R12	Resistor, filter, 220 ohms, 1 watt56-1224340°	Clock cover Dial scale, mahogany and ivory	
R13	Resistor, leakage, 150,000 ohms	Dial scale, white	
R14 1	Resistor, cathode bias. 68 ohms	Lead assembly, aerial	
S 1	Switch, AUTO-OFF-ONPart of clock assembly	Mount, rubber, gang mounting (3)	
T1 :	Transformer, oscillator	Shield, pilot lamp	
1	Transformer, outputPart of LS1	Socket, clock	27-6273-7
l	Line cordL-2183*	Socket, Loktal (1)	27-6269
	Transformer, 1st i-f 32-4160-6A	Socket, octal (2)	
	Transformer, 2nd i.f	Socket assembly, pilot lamp	27-6265

MODELS 52-543, 52-545, 52-547, 52-55



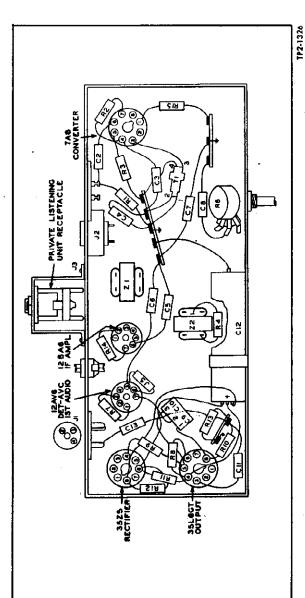


Figure 1. Model 52-550, Base View, Showing Symbolized Chassis

MODELS 52-543, -545, -547, -550

PRELIMINARY INFORMATION

Models 52-543, 52-545, 52-547, and 52-550 are electrically similar to Model 52-544, but they are housed in different style cabinets, and incorporate certain circuit refinements over Model 52-544.

The following diagrams and the Service Information and Parts List given on page 12 of this Service Manual are for Models 52-543, 52-545, 52-547, and 52-550 only. For Alignment Procedure and the basic Schematic Diagram and Parts List for all models, refer to 52-544.

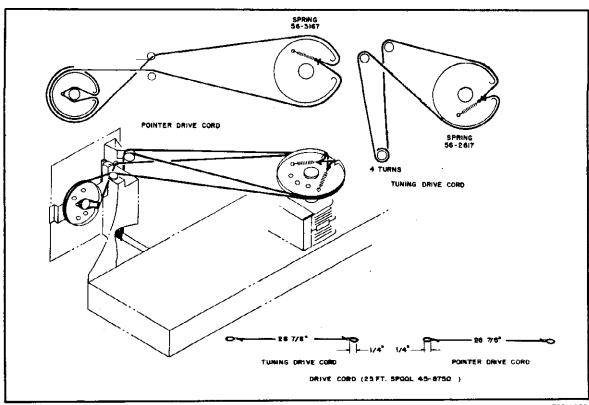


Figure 2. Model 52-550, Drive-Cord Installation Details

TP2-1325

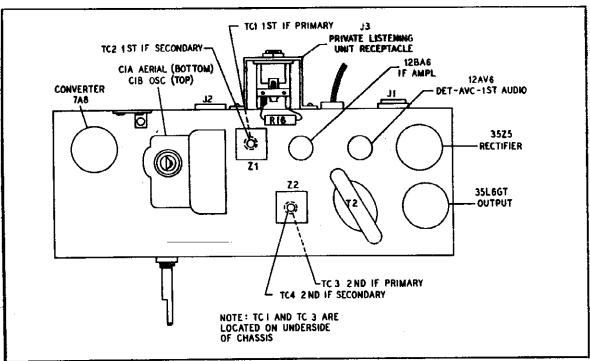
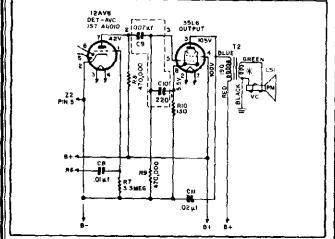


Figure 3. Model 52-550, Top View, Showing Trimmer Locations

TP2-1327

MODELS 52-543, 52-545, 5-2547, 52



PRIVATE LIST AUDIO COTUL ST AUDIO CO

Figure 4. Models 52-543, 52-545,-and TP2-1335 52-547, Output Circuit

Figure 5. Model 52-550, Output Circui

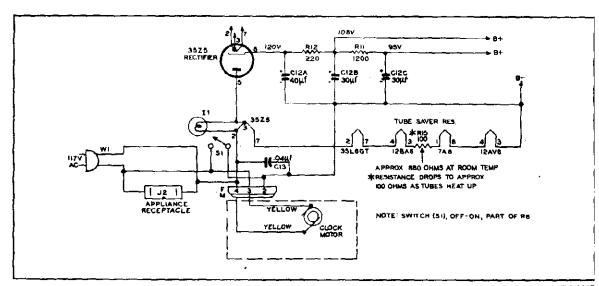


Figure 6. Model 52-543, Power and Clock Circuits

TP2-1337

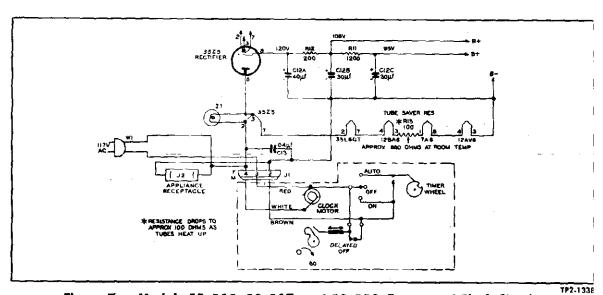


Figure 7. Models 52-545, 52-547, and 52-550, Power and Clock Circuits

MODELS 52-543, 52-545, 52-547, 52-550

SERVICE INFORMATION

MODELS 52-543, 52-545, 52-547, AND 52-550

Dual condenser, C9 and C10, Part No. 30-1239-4, used for audio coupling (.007 μ f.) and grid by-pass (220 $\mu\mu$ f.) respectively. Output tube changed from 50L6GT to a 35L6GT.

Isolating condenser, C7, Part No. 61-0113; from 7A8 converter-tube cathode to ground, was changed from a .2 μ f. condenser to a .1 μ f. condenser.

MODELS 52-543, 52-545, AND 52-547

Pilot light and bracket are mounted on rear of clock cover.

MODEL 52-543

Clock is nonautomatic; has TIME SET control only.

Appliance receptacle on rear of chassis is connected directly to a-c line. Appliance capacity is 1100 watts. OFF-ON switch is part of VOLUME control, R6.

MODEL 52-547

Loop assembly, LA1, is Part No. 32-4052-64.

MODEL 52-550

Included with this model is Philco Private Listening unit receptacle, J3, Part No. 42-1975-2. A shunt resistor, R16, has been provided from J3 to ground. This shunt resistor reduces volume to level required for Private Listening. R16 is a 3.3-ohm resistor, Part No. 66-9834540.

Loop assembly, LA1, is Part No. 32-4052-64. Speaker, p.m., LS1, is Part No. 36-1627-11.

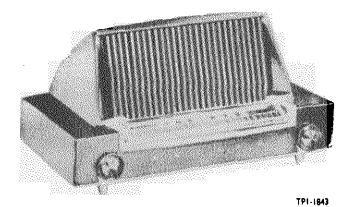
PARTS LIST

FOR MODELS 52-543, 52-545, 52-547, AND 52-550

For all parts not listed in this Service Manual, refer to Page 8.

MISCELLANEOUS

Description	Service Part No.	Description Serv	
Cabinet		TIME SET54-4736	i-11
Models 52-543M and 52-545M	10745-9	VOLUME 54-4	773
Model 52-5451	10745-10	44-J-1. FA FFAM 5 FFAI	
Model 52-547L	10908-1	Models 52-550M and 550L	
Model 52-547M	10908	AUTO SET	
Model 52-550L	10907-1	AUTO-OFF-ON	
Model 52-550M	10907	DELAYED OFF 54-473	
Back, cabinet		TUNING	
Models 52-543M, 52-545M, and 52-5451	54-8391	TIME SET54-4736	
Models 52-547L and 52-547M		VOLUME54-47	1 9-0
Models 52-550L and 52-550M	54-8637	Bracket-and-pulley acceptaly	
Baffle-and-cioth assembly		Models 52-550M cmd 52-550t	580
Models 52-543M and 52-545M	40-7730		
Model 52-5451		Clack cover-and-clip assembly	
MOUGH 52-345(.40-7700-1	Models 52-543M, 52-545M and 52-545f	
Knobs		Models 52-547M and 52-547L	
Model 52-543M		Models 52-550M and 52-550L	625
DIAL SCALE		Clock and plug assembly	
TIME SET		Model 52-543M 76-7	550
VOLUME-OFF-ON	.27-4815-9	Models 52-545M, 52-545I, 52-547M, and 52-547L76-7	
Models 52-545M and 52-5451		Models 52-550M and 52-550L 76-7	
AUTO SET	54-4736-10		
AUTO-OFF-ON	54-4736-9	Dial-and-backplate assembly	
DELAYED OFF	54-4736-9	Models 52-550M and 52-550L	57 9
DIAL SCALE	54-5055-5	Socket, clock	
TIME SET		Models 52-543M, 52-545M, 52-545I, 52-547M,	
YOLUME	.27-4815-9	and 52-547L 27-6	273
Mariata 20 247M and 20 2471		Models 52-550M and 52-550L	
Models 52-547M and 52-547L AUTO SET	EA AT24 10		
AUTO-OFF-ON		Plug, clock 54-48	78-2
DELAYED OFF		Tuning shaft56-9	659
		Shaft assembly, pointer	***
DIAL SCALE		andri assembly, pointer/0-/	361



MODEL 52-548

SPECIFICATIONS

CABINET	Molded plastic, maroon	INTERMEDIATE FREQUENCY	455 kc.
CIRCUIT	Four-tube superheterodyne plus rectifier	AERIAL	loop: provision for conn
FREQUENCY RANGE	540—1820 kc.		external aerial
AUDIO OUTPUT		PHILCO TUBES	7A8 converier, 7B7 1-1 for, 7C8 2nd det., avc
OPERATING VOLTAGE			audio. 50C5 output, \$5W
POWER CONSUMPTION	30 watts		tifier

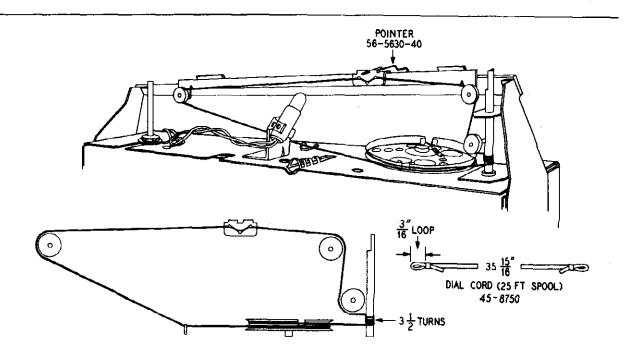


Figure 1. Drive-Cord Installation Details

TP1-1839

ALIGNMENT PROCEDURE

DIAL POINTER—Turn tuning condenser to full-mesh position. Set dial pointer to index mark, located to the left of "55".

CONTROLS—Set volume control to maximum, and tuning control as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Ground lead to B—, output lead as indicated in chart.

OUTPUT LEVEL—During alignment, attenuate signalgenerator output to hold output-meter indication below 1.25 volts.

STEP	SIGNAL GENER	ATOR		RADIO	
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST TRIMMER
1	Through a .01-µf. condenser to pin 6 of 7A8 converter tube.	455 kc.	Gang fully open.	Adjust, in order given, for maximum output. TC1 and TC4 are located at top of transformers.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note below).	1600 kc.	1600 kc.	Adjust for maximum.	C1B—osc. trimmer
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum.	C1A—ant. trimmer

RADIATING LOOP. Make up a 6—8-turn, 8-inch-diameter loop from insulated wire, connect to signal generator output leads, and place near radio loop.

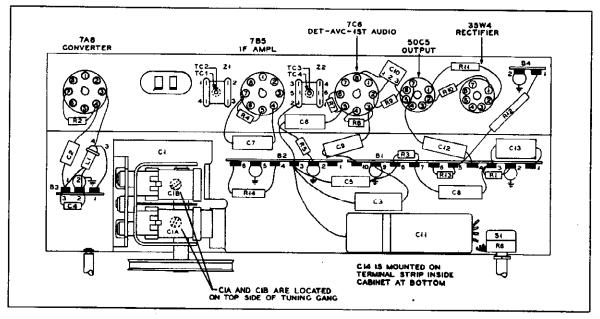
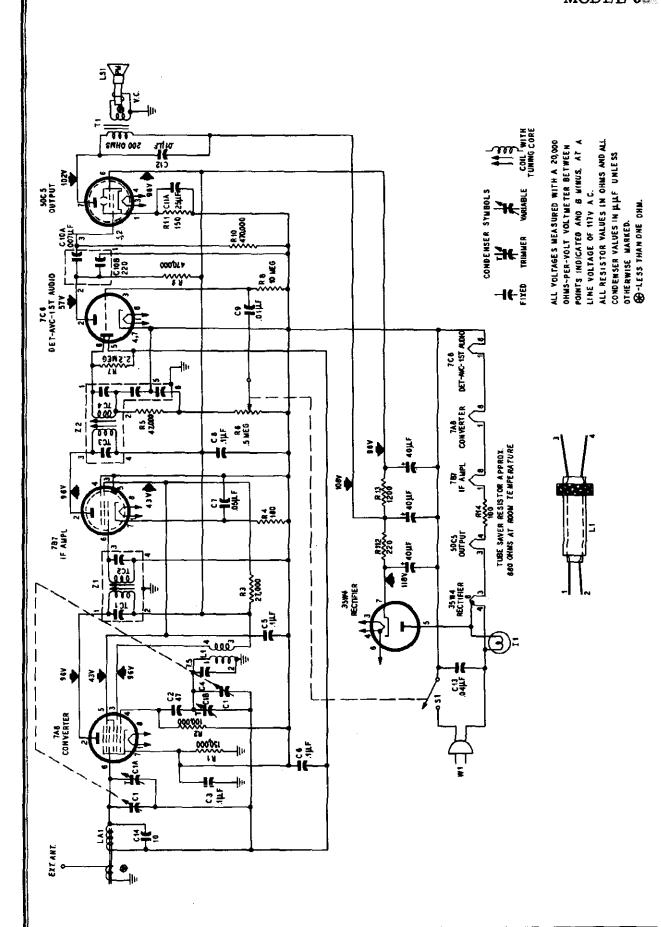


Figure 2. Base View, Showing Parts Placement and Alignment Points





PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol		Service Part No.	Reference Symbol	Description	Service Part No.
Cı	Condenser, tuning gang	751-10	R7	Resistor, diode load, 2.2 megohms	
CIĀ	Condenser, trimmer, aerial Part		RB	Resistor, grid return, 10 megohms	
CIB	Condenser, trimmer, oscillator Part		R9	Resistor, plate load, 470,000 ohms	
C2	Condenser, osc. grid, d-c blocking,		RIO	Resistor, grid return, 470,000 ohms	
	47 μμf	475417*	RII	Resistor, cathode bias, 150 ohms	
C3	Condenser, leakage, .1 µf	505-47	R12	Resistor, filter, 220 ohms, 2 watts	
C4	Condenser, temperature compensating,		R13	Resistor, filter, 1200 ohms	
C5	7.5 \(\mu f\)		R14	Resistor, surge limiting, 880 ohms of 100 ohms hot	
C6	Condenser, a-v-c by-pass, .1 μf .		51	Switch, off-on	
C7	Condenser, cathode by-pass, .05 µf6		T1	Transformer, output	
C8	Condenser, B+ by-pass, .1 µf		W 1	Line cord	
C9	Condenser, audio coupling, .01 µf		Zl	Transformer, 1st i-f	
C10	Condenser, dual ceramic30-	1239-4	Z2	Transformer, 2nd i-f	
ClOA	Condenser, audio coupling, .007 \(\mu f\) Part	of C10			
C10B	Condenser, grid by-pass, 220 µµfPart	of C10			
C11	Condenser, electrolytic, 4-section 30-2	575-32*		MISCELLANEOUS	
CIIA	Condenser, cathode by-pass, 25 μf Part	of Cll		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Clib	Condenser, filter, 40 µf. Part		Description		Service Part No.
Clic	Condenser, filter, 40 μf .		•		
CIID	Condenser, filter, 40 μf .				
C12	Condenser, tone compensation, .01 μf 45-3			or (5 required)	
C13	Condenser, line by-pass, .04 µf		-	2 required)	
C14	Condenser, aerial, fixed trimmer, 10 $\mu\mu f$. 30-1			scutcheon (2 required)	
11 L1	Pilot lamp, type 47		-	ate assembly	
LA1	Coil, oscillator			ord, 25-foot spool	·····
LAI	Loop antenna (Magnecor)			Aller attac	
Ri	Resistor, leakage, 150,000 ohms 66-4		-	ably, pilot	
R2	Resistor, grid return, 100,000 ohms 86-4				
R3	Resistor, dropping, 27,000 ohms 68-3			uning	**
R4	Resistor, cathode bias, 180 ohms			hairpin	
R5	Resistor, i-f filter, 47,000 ohms			per (3 required)	
R6	Resistor, volume control, .5 megohm			ctal (3 required)	
	(with switch)	566-36		iature (2 required)	
	MENT TO MODEL 52-548 ions to parts list:			(= requires)	ar-9493
[pinet, ivory		*************		.10887-3
	eutcheon, knob (2)				
Kno	ob (2)		*****	54	-4774-10
Sca	le				54-5128







MODEL 52-640

MODEL 52-641

SPECIFICATIONS

CABINET	Plastic, portable
CIRCUIT	Four-tube superheterodyne (plus selenium rectifier)
FREQUENCY RANGE	5401620 kc.
AUDIO OUTPUT A-c or d-c operation	IFA Illy sale.
Battery operation	130 millwidgs
Model 52-840	150 milliwates
Model 52-641	
OPERATING VOLTAGES	
Model 52-640	117 volts, a.c. or d.c.; 1.5-volt "A" and 90-volt "B" battery
Model 52-641	117 volts, a.c. or d.c.; 1.5-volt "A" and 67.5-volt "B" battery
POWER CONSUMPTION	•
A-c or d-c operation	11 waits
Battery operation	
Model 52-840	13 ma. from 90-volt "B" battery; 250 ma. from 1.5-volt "A" battery
Model 52-641	9.5 ma, from 67.5-volt "B" battery; 250 ma. from 1.5-volt "A" battery
AERIAL	•
Model 52-840	High-impedance loop: provision for connecting external aerial
Model 52-641	Magnecor high-impedance loop; provision for connecting external gerial
INTERMEDIATE FREQUENCY	455 kc,
PHILCO TUBES (4)	IRS converter, 1U4 1-f ampl., 1U5 det-a.v.c1st audio. 3V4 output
BATTERY TYPE	
Model 52-640	
Model 52-841	P-67 "B" battery; Type D "A" battery

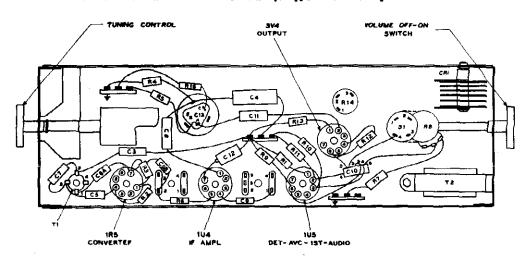


Figure 1. Bottom View, Showing Symbolized Chassis

MODELS 52-640, 52-641

ALIGNMENT PROCEDURE

DIAL POINTER—With tuning-condenser plates fully meshed, set pointer to coincide with first index hole above pointer.

OUTPUT METER—Connect across speaker voice coil terminals.

SIGNAL GENERATOR—Connect signal generator as indicated in chart. Use modulated output.

RADIO CONTROLS—Set volume control to maximum. Set tuning control and signal-generator frequency as indicated in chart.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to maintain output-meter reading below .5 volt.

NOTE: While the radio is being aligned, the batteries (if used) should be in the same position with respect to the chassis and loop as they are in the cabinet.

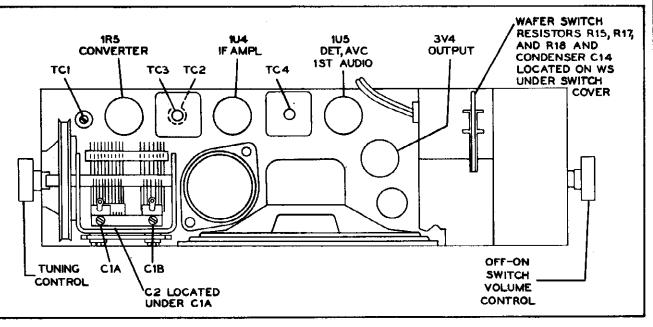


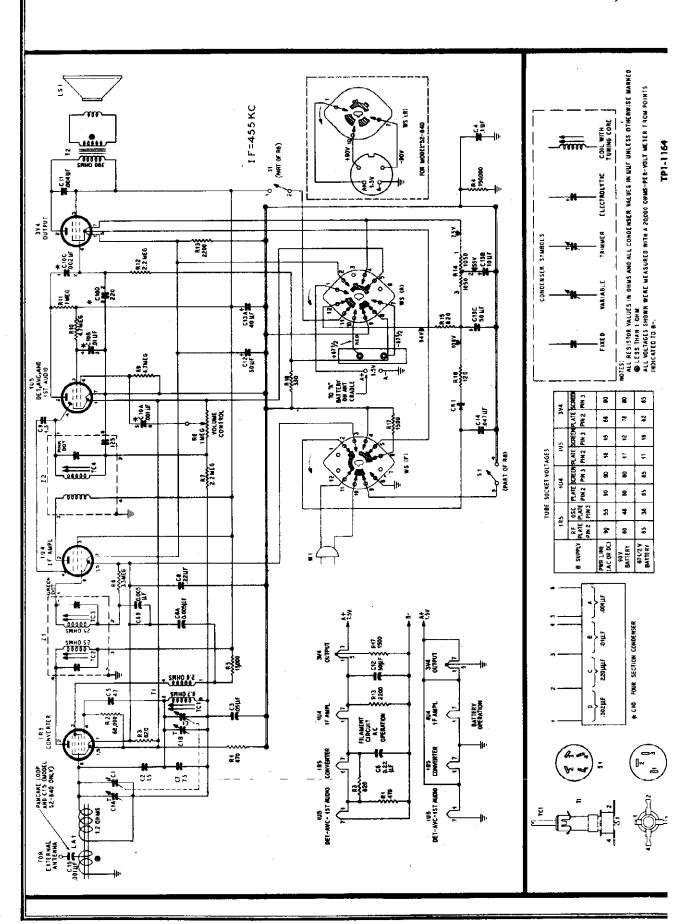
Figure 2. Top View, Showing Trimmer Locations

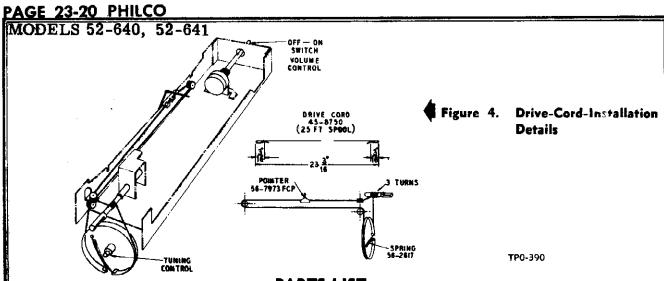
TPO-392

ALIGNMENT CHART

	SIGNAL GENERATO	R			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Through .1-µi. condenser to antenna section of tuning condenser.	455 kc.	Tuning gang fully meshed	Adjust, in order given, for maximum output.	TC4—2nd i-i sec. TC3—1st i-i sec. TC2—1st i-i pri.
2	Radiating loop. See note below.	1620 kc.	1620 kc.	Adjust for maximum output.	C1B—osc. trimmer
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum output.	C1A—aerial trimmer
4	Same as step 2.	535 kc.	Tuning gang fully meshed	Adjust for maximum output; then repeat steps 2 and 3 until no further increase in output is obtained. This step SHOULD NOT be necessary unless the oscillator transformer has been replaced.	TC1—osc. core

RADIATING LOOP: Make up a six-to-eight turn, 6-inch-diameter loop, using insulated wire; connect to signal-generator leads, and place near radio loop aerial.





PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are or improved. When ordering replacements, use only the "Service Part No."

Reference		Service
Symbol	Description	Part No.
Cl	Condenser, tuning gang, 2-section	
	Model 52-640	31-2735-3
	Model 52-641	31-2735-2
ClA	Condenser, trimmer, antenna	Part of C1
CIB	Condenser, trimmer, oscillator	Part of CI
C2	Condenser, neutralizing, 1.5 µµi	30-1221-3
C3	Condenser, a-v-c by-pass, .05 µf	61-0122
C4	Condenser, i-f by-pass, .1 µf	
C5	Condenser, d-c blocking, 47 µµf	1008001
CB	Condenser, dual ceramic	D-4 -1 CE
CGA	Condenser, osc. B+ by-pass, .004 µi Condenser, grid by-pass, .004 µi	Pan of Ce
C6B		
C7	Condenser, temperature compensation, 7.5 μμf.	30-1224-82
C8	Condenser, filament by-pass, .25 µf	30.4656.1
C9	Condenser, neutralizing, 1.5 µµf	30-1221-3
Cio	Condenser, ceramic, 4-section	30-1327
CloA	Condenser, d-c blocking, .001 µf	Part of C10
Clob	Condenser, acreen by-pass, .01 µf	Part of C10
CIDC	Condenser, d-c blocking, .002 µf	Part of C10
CIOD	Condenser, grid by-pass, 220 µµi	Part of C10
CII	Condenser, tone compensation, .004 µf.	61-0179*
C12	Condenser, electrolytic, filament by-pass	i.
\ \frac{1}{2}	50 µf., 25v	30-2417-12
C13	Condenser, electrolytic, 3-section	30-2568-39
C13A	Condenser, filter, 40 µf., 150v	Part of C13
C13B	Condenser, filter, 10 uf., 150v	Part of C13
C13C	Condenser, filter, 50 µf., 150v	Part of C13
C14	Condenser, line by-pass, .047 uf	45-3505-45*
C15	Condenser, antenna coupling, .001 µf.	45-3500-5
CRI	Selenium rectifier, 75 ma. at 117 volts	34-8003-1*
LA1	Loop aerial	
	Model 52-640 (flat loop)	32-4052-52
	Model 52-641 (Magnecor)	32-4455
LSI	Speaker, 4-inch p.m.	36-1627-21
RI	Resistor, current limiting, 470 ohms	66-1478340*
R2	Resistor, grid return, 68,000 ohms	66-3688340*
R3	Resistor, bias, 880 ohms	66-1888340
R4	Resistor, leakage, 150,000 ohms	66-4158340*
R5	Resistor, oscillator dropping, 15,000	
	ohms	86-3158340*
R6	Resistor, grid return, 3.3 megohms	66-5338340*
R7	Resistor, a-v-c filter, 2.2 megohms	
R8	Resistor, VOLUME control (with "off-on	00 7766 63
D0	switch), 1 megohm	33-5555-71
R9	Resistor, grid return, 4.7 megohms	90-34/6340

Reference Symbol	Description	Service Part No.
R10	Resistor, screen dropping, 4.7 megohm	s68-5478340°
R11	Resistor, plate load, 1 megohm	66-5108340*
R12	Resistor, grid return, 2.2 megohms	66-5228340*
R13	Resistor, bias, 2200 ohms	66-2228340*
R14	Resistor, filament dropping and filter 2100 ohms (center-tapped)	,
R15	Resistor, filter, 820 ohms	66-1828340*
R16	Resistor, current limiting, 120 chms	
R17	Resistor, bigs, 1500 ohms	
R18	Resistor, bias, 330 ohms	
\$1	Switch, off-on	
Ťì	Transformer, oscillator	
T2	Transformer, output	
W1	Line cord	
WS	Wafer switch, voltage change-over	
Zì	Transformer, 1st i-f	32-4160-4A
Z2	Transformer, 2nd i-f	

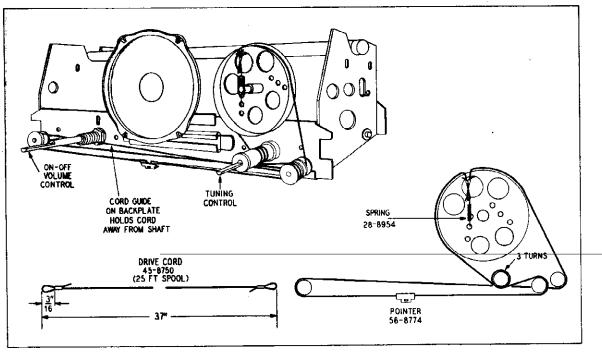
MISCELLANEOUS

Non-order to a	6 DA NI-
Description	Service Part No.
Cabinet, Model 52-640, maroon	
Back, maroon	
Clip (2), back	
Handle-and-bracket assembly	
Handle	
Knob assembly (2)	
Pointer	
Cabinet, Model 52-641, maroon	
Back, maroon	
Cabinet, Model 52-641, red	
Back, red	
Cabinet, Model 52-641, Nile	
Back, Nile	
Cabinet, Model 52-641, sand	
Back, sand	
Clip (2), back	
Fostener (2)	W2235-7FA9
Handle-and-bracket assembly	
Handle	
Hinge, l.h.	
Hinge, r.h.	
Knob (2)	
Pointer	
Scale, dial	
Baffle-and-cloth assembly	
Insulator, electrolytic-condenser mounting	
Cable-and-connector assembly, battery	41-3988
Drive cord (25-ft. spool)	
Mount, rubber, tuning gang	
Retaining ring	
Spring, drive cord	56-2617
Socket (2), tube, 1R5 and 1U4	
Socket (2), tube, 1U5 and 3V4	
Tube shield, 1U5	
Tuning shaft	56-7906FA42



SPECIFICATIONS

CABINET	Molded plastic, brown
CIRCUIT	Five-tube superheterodyne (plus selenium rectifier)
FREQUENCY RANGE	.540—1620. kc.
AUDIO OUTPUT	.180 milliwatts
OPERATING VOLTAGES	.117 volts, c.c. ex d.c.; er 9-volt "A" bettery end 90-volt "B" heattery
POWER CONSUMPTION	
A-c or d-c operation	.15 weite
Battery operation	.55 ma. at 9 velts, and 13 ma. at 90 volts
AERIAL	Magnetor high-impedance loop; provision for con- necting external aerial
INTERMEDIATE FREQUENCY	.265 kc.
PHILCO TUBES (5)	174 r.f ampl., 1R5 converter, 1U4 i.f ampl., 1U5 det-a.v.c.—lst audio, 3V4 output
BATTERY TYPE	.Phileo P-363



TP1-1711

Figure 1. Drive-Cord-Installation Details

ALIGNMENT PROCEDURE

POINTER—Set pointer to coincide with first index mark from left side of dial backplate (looking at backplate).

RADIO CONTROLS-Set volume control to maximum.

OUTPUT METER-Connect across voice-coil terminals.

SIGNAL GENERATOR-Use modulated output.

OUTPUT LEVEL—During alignment, adjust signal-generator output to maintain output-meter indication below .5 volt.

SPECIAL NOTE—The orientation of the loop with respect to the chassis and battery is critical for correct tracking. During

alignment, with the cabinet back (containing the loop) lying flat on the bench, the chassis should be laid on its back in approximately its normal relation to the loop, with a $\frac{1}{4}$ "-thick wooden board separating the loop and chassis. The battery should also be placed as close as possible to its normal position with respect to the chassis and loop.

CRITICAL LEAD DRESS—To secure proper padding capacity, the green lead from pin 6 of the 1R5 tube to Z1 must be dressed over wiring panel, away from chassis, and the green lead from Z1 to the tuning condenser must be dressed away from chassis.

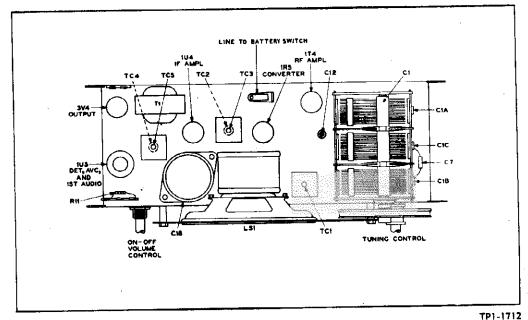


Figure 2. Top View, Showing Trimmer Locations

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ALIGNMENT CHART

	SIGNAL GENERATOR				
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Through a .l-µi. condenser to pin 6 of the 1R5 converter.	265 kc.	1620 kc. (gang fully open)	Adjust, in order given, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC2—1st i-f pri. TC3—1st i-f sec.
2	Radiating loop. See note below.	1620 kc.	1620 kc. (gang fully open)	Adjust for maximum output. If low-frequency dial tracking is far off, make adjustments in steps 3 and 4 before making this adjustment.	ClC—osc. shunt
3	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output while rocking tun- ing control.	C13—osc. series
4	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output. This adjustment should not be made unless dial tracking is off, or sensitivity is low at low-frequency end (580 kc.).	TC1—r-r sec.
5	Same as step 2.	1500 kc.	1500 kc. (index mark at right)	Adjust, in order given, for maximum output.	C1B—r-f trimmer C1A—gerial trimmer
6	Repeat steps 3 and 5 until no further improvement is obtained.				

RADIATING LOOP: Make up a six-to-eight-turn, 6-inch-diameter loop using insulated wire; connect to signal-generator leads and place near radio loop.

Philco Radio Model 52-643. Schematic Diagram Figure 3.

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general
replacement items. These numbers may not be identical with
those on factory parts; also, the electrical values of some replace-
ment items may differ from the values indicated in the schematic
diagram and parts list. The values substituted in any case are so
chosen that the operation of the radio will be either unchanged or
improved. When ordering replacements, use only the "Service
Part No."

Reference Symbol	Description	Service Part No.
Cl	Consender, tuning gang, 3-section	31.2747.2
CIA	Condenser, antenna trimmer	
C1B	Condenser, r-f trimmer	Part of Cl
CIC	Condenser, osc. trimmer	Part of C1
C2	Condenser, d-c blocking, 100 µµf6	2.110009001*
C3	Condenser, bias filter, .05 µf.	61-0122*
C4	Condenser, fixed trimmer, 4.7 µµf	30-1230
C5	Condenser, filament by-pass, .05 µl	B1-0122*
C6	Condenser, screen by-pass, .05 µf	61-0122*
C7	Condenser, neutralization, 1.5 µµf.	30-1221-3
C8	Condenser, a-v-c filter, .05 µf.	61-0122*
C9	Condenser, filament by-pass, .1 µf	61-0113*
C10	Condenser, filament by-pass, .1 µf	61-0113*
CII	Condenser, d-c blocking, 47 µµf	60-00475417*
C12	Condenser, osc. series padder, 600 to	
•	800 μμf	31-6473-16
C13	Condenser, tone compensation, .004 µf.	61-0179*
C14	Condenser, screen neutralizing, .003 µf.	61-0109*
C15	Condenser, line by-pass, .04 µf	45-3500-2*
C16	Condenser, ceramic, 4-section	30-1237
C16A	Condenser, screen by-pass, .01 µf	Part of C16
C16B	Condenser, by-pass, 200 µµf.	Part of C16
C16C	Condenser, d-c blocking, .002 µf,	Part of C16
C16D	Condenser, d-c blocking, .001 µi	Part of C16
C17	Condenser, electrolytic, 4-section	30-2568-26
C17A	Condenser, filament by-pass, 60 µf	Part of C17
C17B	Condenser, filter, 30 µf.	Part of C17
C17C	Condenser, filter, 10 µf.	Part of C17
C17D	Condenser, filter, 60 µf,	Part of C17
CR1	Selenium rectifier	34-8003*
LAI	Coil, antenna	32-4455-4
LS1	Speaker, 5-inch	38-1625
PLI	Plug and cable, battery	41-3712-5
R1 R2	Resistor, grid return, 1 megohm	66-5108340*
_	Resistor, current limiting, 100 ohms	66-1108340*
R3 R4	Resistor, grid return, 4.7 megohms	68-5478340*
R5	Resistor, grid return, 100,000 ohms	
R6	Resistor, oscillator coupling, 3300 ohms	66-2338340*
R7	Resistor, dropping, 15,000 ohms	68-3158340*
A/	Resistor, grid return, 82 ohms	55-0828340 *
Handle e	nd cover, plastic	••••••

Reference Symbol	Servic Description Part N	
R8	Resistor, grid return, 220 ohms66-12283	40*
R9	Resistor, a-v-c filter, 4.7 megohms66-54783	40.
R10	Resistor, neutralization, 2200 ohms66-22283	40°
R11	Resistor, a-v-c filter, 4.7 megohms66-54783	40.
R12	Resistor, i-f filter, 100,000 ohms	40°
R13	Resistor, VOLUME control, 1 megohm33-5566-	11
R14	Resistor, leakage, 150,000 ohms	
R15	Resistor, current limiting, 82 ohms56-08283	401
R16	Resistor, grid return, 4.7 megohms66-54783	40°
R17	Resistor, plate load, 1 megohm66-51083	40
R18	Resistor, screen dropping, 4.7 megohms66-54783	40.
R19	Resistor, grid return, 4.7 megohms66-54783	40*
R20	Resistor, grid return, 2.2 megohms66-52283	40*
R21	Resistor, current limiting, 330 ohms66-13383	40.
R22	Resistor, filter, 1000 ohms	40°
R23	Resistor, wire wound, 2-section33-343	1-7
R23A	Resistor, filament dropping, 950 ohmsPart of B	23
R23B	Resistor, filament dropping, 950 ohmsPart of B	23
R24	Resistor, wire wound, current limiting,	
	120 ohms33-1334-	14
S1	Switch, change-over42-18	99
S2	Switch, on-offPart of R	13
T1	Transformer, oscillator32-426	3-2
T2	Transformer, output32-85	28
W1	Line cordL21	83
Z 1	Transformer, r-f 32-439	AE
Z2	Transformer, 1st i-f32-4160-	2 A
Z3	Transformer, 2nd i-i32-4240-	δĀ

MISCELLANEOUS

MISCELLANEO(•
Description	Service Part No.
Cabinet complete	10883
Back	
Clip (2), back	58-3807-3
Handle assembly	76-6970
Scale	54-5127
Dial backplate assembly	76-7042
Backplate	56-9190FCP
Drive cord, 25-ft. spool	45-8750*
Pointer	56-8774
Spring, drive cord	28-8954
Shaft-and-pulley assembly	76-3671-4
Bushing	27-9437
Clip (1)	56-7057FA3
Knob (2)	54-4773-1
Mount (3), rubber	
Spring, retaining	
Shield, IU5 tube	56-5629FA3
Socket (4)	27-6203
Socket (1), 1U5 tube	27-6203-22
	54-4909

Handle mounting bracket, metal

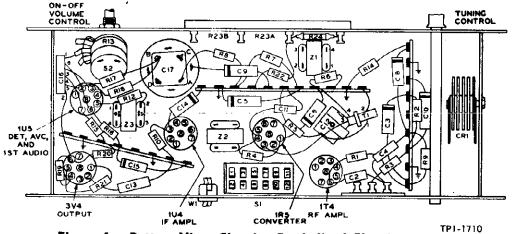
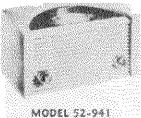


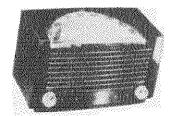
Figure 4. **Bottom View, Showing Symbolized Chassis**

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56-9583



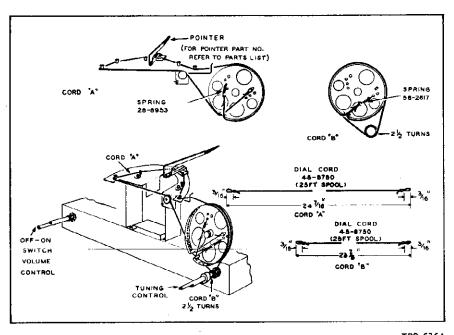




MODEL 52-942

SPECIFICATIONS

CABINET	
Model 52-940	Molded plastic, mahogany or gray, wide-angle dial
Model 52-941	Molded plastic, ivory, wide-angle dial
Model 52-942	Molded plastic, maroon, wide-angle dial
CIRCUIT	Five-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	.540—1620 kc.
AUDIO OUTPUT	.1 watt
OPERATING VOLTAGE	.105-120 volts, a.c. or d.c.
POWER CONSUMPTION	.30 watts
AERIAL	High-impedance loop; provision for connecting external
	gerial
INTERMEDIATE FREQUENCY	.455 kc.
PHILCO TUBES (6)	7B7 r-i ampl., 7A8 converter, 7B7 l-i ampl., 14B6 deta.v.clst audio, 35L6GT output, 35Z5GT rectifier



TP9-636A

Figure 1. Dial-Cord Installation Details

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MODELS 52-940, 52-941, 52-942

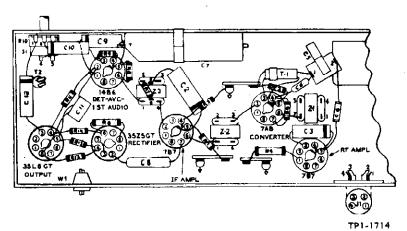


Figure 2. Bottom View, Showing Symbolized Chassis
ALIGNMENT PROCEDURE

DIAL POINTER: Turn tuning condenser to full-mesh position. Adjust pointer so that center of pointer carriage coincides with the first scribe line from the left.

OUTPUT METER: Connect across speaker voice coil.

SIGNAL GENERATOR: Connect as indicated in chart. Use modulated output.

OUTPUT LEVEL: During alignment, attenuate signalgenerator output to maintain an output-meter indication of 1.25 volts.

VOLUME CONTROL: Set to maximum.

CRITICAL DRESS: The green lead from the osc. section of C1 to C5 must be dressed away from the chassis, with all excess under the chassis.

ALIGNMENT CHART

STEP	SIGNAL GENERATOR			RADIO		
	CONNECTION DIAL TO RADIO SETTING		DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST	
1	Through a .l.µi. condenser to stator of r-f section of gang. Ground lead to B	455 kc.	Gang fully meshed	Adjust, in order given, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC3—1st i-f sec. TC2—1st i-f pri.	
2	Radiating loop. (See note below.)			Preset ½ turn from right.	C5-osc, series	
3	Same as step 2.	1620 kc.	1620 kc.	Adjust for maximum.	C1Bosc. shunt	
4	Same as step 2.	1500 kc.	1500 kc.	Adjust for meximum.	C1C-r-i C1A-aeriai	
5	Same as step 2.	580 kc.	580 kc.	Adjust for maximum while rocking tuning control.	C5—osc. series TC1—r-f core	
6	Repeat steps 3 and 4.	<u> </u>	ll			

RADIATING LOOP: Make up a 6-8 turn. 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop aerial. The loop aerial must be connected to the radio.

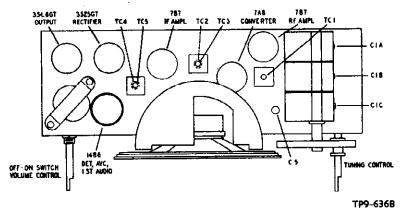
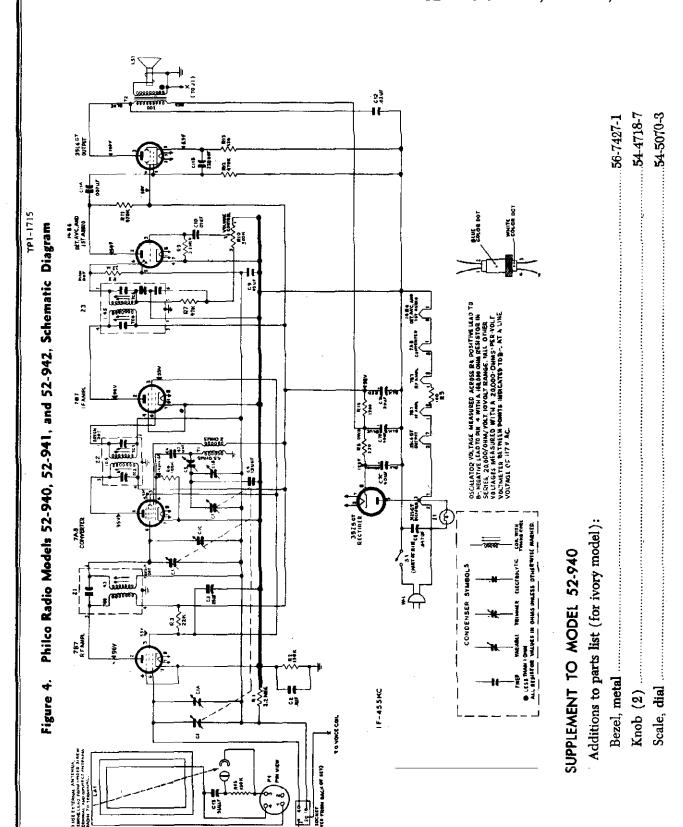


Figure 3. Top View, Showing Trimmer Locations

PHILCO PAGE 23-2 MODELS 52-940, 52-941, 52-94



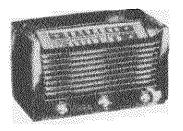
PAGE 23-28 PHILCO MODELS 52-940, 52-941, 52-942

PARTS LIST

NOTE: Part numbers marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference		MISCELLANEOUS	
Symbol	Part No.	Deter-Prior.	Service Part No.
CI	Condenser, tuning, 3-section31-2748-1	Cabinet, Model 52-940, mahogany	
CIA	Condenser, trimmer, cerial	Cabinet, Model 52-940, gray	
CIB	Condenser, trimmer, osc	Back Fastener (4), back	
CIC	Condenser, trimmer, r-f	Backplate, ornamental, mahogany cubinet	
C2	Condenser, by-pass, 1 µf	Backplate, ornamental, gray cabinet	58-7426-1FCP
C3	Condenser, by-pass, .05 μf	Fastener, backplate mtg.	
C4	Condenser, fixed trimmer, temperature comp., 13 µµf39-1224-68	Baffle	
CS	Condenser, padder, esc. series31-5473-17	Fastener (4), baffle mtg.	
C6	Condenser, d.c blocking, 47 µµí80-00475417	Bezel, metal	58-7427
C7		Speed nut (2), bezel mtg	
C7A	Condenser, electrolytic, 3-section30-2575-27	Dial scale, mahogany cabinet	
C7B	Condenser, filter, 30 µf., 150vPart of C7	Dial scale, gray cabinet	
C7C	Condenser, filter, 40 µf., 150v	Clip, scale mtg.	
C8	Condenser, filter, 40 µf., 150v	Knob (2), mahogany cabinet	
C9	Condenser, line by-pass .047 µf	Knob (2), gray cabinet Pointer	
C10	Condenser, d. blocking 01 ut 61-0122*	Cabinet, Model 52-941	
CII	Condenser, dec blocking, .01 µf	Back	
CIIA	Condenser, dual ceramic	Fastener (4), back	
CILE	Condenser, d-c blocking, .007 µf	Backplate, ornamental	
C12	• •	Fastener, backplate mtg	
C12	Condenser, tone compensation, .02 µf61-0108*	Baffle, cardboard	
n	Condenser, antenna coupling, 5 µµf30-1230	Fastener (4), baffle mtg.	
ll	Pilot lamp, 6—8v	Dial scale	
J1 LA1	Jack. aerial input	Clip, dial mtg.	
LAI	Loop cerial, Model 52-940	Knob (2)	- 1
LAI	Loop derial, Model 52-941	Pointer Cabinet, Model 52-942	
LSI	Loop cerial. Model 52-942	Back	
P1	Speaker, p-m, 4 in. x 6 in. oval	Fastener (4), back	
RI	Loop-derial plug	Backplate, ornamental	
R2	Resistor, a-v-c load, 2.2 megohms66-5228340*	Fastener, backplate mtg.	
R3	Resistor, leakage, 150,000 chms	Baffle, cardboard	
R4	Resistor, dropping, 22,000 ohms	Fastener (4), baffle mtg.	1
R5	Resistor, grid return, 100,000 ohms66-4108340*	Bezel, metal	
R6	Resistor, filter, 220 ohms, 1 watt	Dial scale	. 1
R7	Resistor, i-f filter, 47,000 ohms	Clip (2), dial mtg.	1
RB	Resistor, diode load, 2.2 megohms	Knob (2)	
R9	Resistor, grid return, 3.3 megohms66-5338340*	Pointer	
il -	Resistor, VOLUME control (with on-off	Backplate, pulley-and-clip assembly	P
	switch), 500,000 ohms	Clamp, electrolytic mtg. Dial cord, 25-foot spool	
Rii	Resistor, plate load, 470,000 ohms66-4478340°	Spring, gang drive	
R12	Resistor, grid return, 470.000 ohms66-4478340*	Spring, pointer drive	
R13	Resistor, cathode bias, 130 chms66-1138340*	Drive shaft	
R14	Resistor, filter, 1200 ohms66-2128340°	Bushing, drive shaft	
RiS	Resistor, leakage, 150,000 ohms	Spring (2), hairpin, drive shaft	11
· S 1	Switch, off-on	Panel, wiring, external aerial	, , , , ,
	Transformer, oscillator32-4263-2	Plug. gerial, 4-pin	(48)
1	Transformer, output	Rubber mount (4), gang mig.	
	Line cordL-2183*	Shield, tube. 14B6	
Z 1	Transformer, r-i32-4399-2A	Socket (4), Loktal	
	Transformer, 1st i-f32-4160A	Socket (2). octal	27-6174
Z3	Transformer, 2nd i-f32-4240-3A	Socket assembly, pilot lamp	27-6233-6
			<u></u>

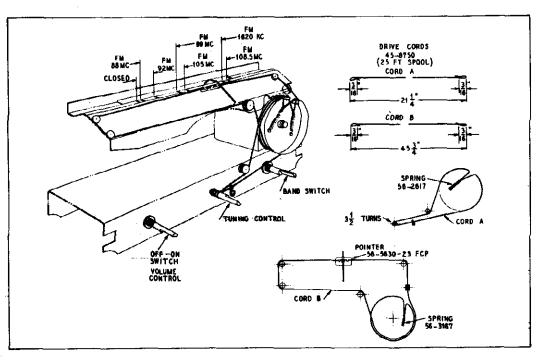
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MODEL 52-944

SPECIFICATIONS

CABINETPlastic table model
CIRCUIT Six-tube superheterodyne plus selenium rectifier
FREQUENCY RANGES
Broadcast
FM88—108 mc.
AUDIO OUTPUT
OPERATING VOLTAGE105-125 volts, a.c./d.c.
POWER CONSUMPTION45 watts
AFRIALBuilt-in pancake loop for AM. line cord for FM: provision for connecting external aerial
INTERMEDIATE FREQUENCY
AM455 kc.
FM9.1 mc.
PHILCO TUBES (6) 12AUS r.i ampl., 12AT7 converter, 12BAS 1st i.i ampl., 12AUS 2nd i.i ampl., 19 det.—a.v.c.—1st audio, 35C5 output



TP0-373

Figure 1. Dial-Cord Installation Details

AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. The AM alignment should be completed before the FM alignment is made.

DIAL POINTER—With tuning-condenser plates fully meshed, adjust pointer to coincide with index mark at low-frequency end of dial backplate.

RADIO CONTROLS—Set volume control to maximum, set band switch for broadcast reception, and set tuning control as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

SIGNAL GENERATOR—Use AM r-f signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to hold output-meter reading below 1.25 volts.

AM ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO			
	CONNECTION TO RADIO	DIAL	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST	
1	Ground lead to chassis. Output lead through a .1-µl. condenser to junction of LA1 and L8.	455 kc.	Gang fully open	Adjust for maximum output.	TC10—2nd AM i-f sec. TC9—2nd AM i-f pri. TC4—1st AM i-f sec. TC3—1st AM i-f pri.	
2	Radiating loop. See note below.	1620 kc.	1620 kc. (2nd index mark from right)	Adjust for maximum output.	CIC-osc. trimmer	
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maxi- mum output.	C1A—aerial trimmer	

RADIATING LOOP: Make up a six-to-eight turn, 6-inch-diameter loop from insulated wire; connect to generator terminals, and place near radio loop aerial. Radio loop aerial must be connected.

FM ALIGNMENT. PROCEDURE

Make AM alignment first

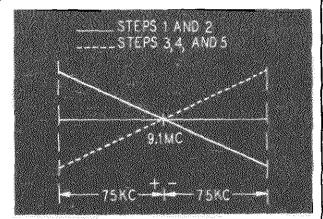
RADIO CONTROLS—Set volume control to maximum, set band switch for FM reception, and set tuning control as indicated in chart.

OSCILLOSCOPE—Connect ground lead to chassis. Connect vertical input to FM TEST jack, J2; connect horizontal input to horizontal sweep output of sweep generator. (Oscilloscope is used for steps 1 and 2.)

SWEEP GENERATOR—Use r-f' sweep signal generator. Connect ground lead to chassis. Connect output lead and set frequency and sweep width as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

NOTE: Before starting FM alignment, allow radio and signal generator to warm up for 15 minutes.



TP1-2111

Figure 2. Characteristic Curve of FM Detector

FM ALIGNMENT CHART

-	SIGNAL GENERATOR				
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Connect FM signal generator through a .01-µL condenser to control grid (pin 1) of 12AU6 2nd i-t amplifier.	9.1 mc. (75- kc. devia- tion).		Bulance and adjust detector for maximum indication on scope as shown in figure 5.	

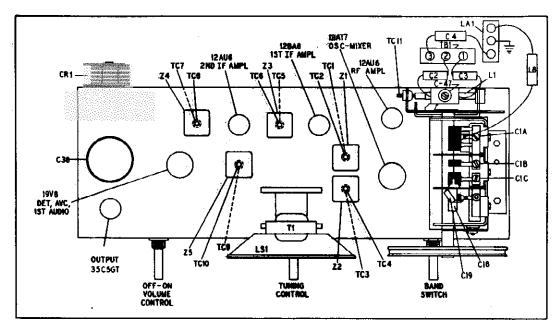


Figure 3. Top View, Showing Trimmer Locations

TP1-1762

FM ALIGNMENT CHART (Cont.)

STEP	SIGNAL GENERATOR				
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
2	Connect FM signal generator through a .01-µi. condenser to FM tuning gang stator lug. junction of C1 and pin 4 of L2.	Same as step 1.	Same as step 1.	Adjust for maximum indication on scope as shown in figure 5.	TC8—FM 2nd sec. TC5—FM 2nd pri. TC2—FM lst sec. TC1—FM 1st pri.
3	Connect FM signal generator to lug 2 of TB1, and ground side of generator to lug 3 of TB1. See note 1 below.	108.5 mc.	108.5 mc. (1st index mark from right).	Adjust for maximum indication on output meter.	C18-FM osc.
4	Same as step 3.	88 mc.	88 mc. (1st index mark from left).	Adjust for maximum indication on output meter. See note 2 below.	L5—FM osc.
5	Same as step 3.	105 mc.	105 mc. (3rd index mark from right).	Adjust for maximum indication on output meter while rocking tuning condenser.	ClB—FM r-f
6	Same as step 3.	105 mc.	105 mc.	Adjust for maximum indication on output meter.	C47—FM aeria
7	Same as step 3.	92 mc.	92 mc. (3rd index mark from left).	Adjust for maximum indication on output meter. See note 3 below.	L2—FM r-i coil.
If L1 is	replaced, adjust antenna inductance as i	ioliows:			
8	Same as step 3.	92 mc.	92 mc.	Adjust for maximum indication on output meter.	TC11—FM aeri

NOTE 1: For proper and accurate results, the signal-generator output impedance must be 300 ohms to match the input impedance of TI If the signal-generator output impedance is less than 300 chms, a resistor of the proper value may be used in series with the output les to make the impedance correct. For example, if the output impedance is 150 ohms, place a 150-ohm resistor in series with the output lea

NOTE 2: If oscillator frequency does not tune as low as 88 mc., compress the turns on the oscillator coil. If oscillator frequency tunes t low, spread the turns slightly. After coil is adjusted, repeat step 3.

NOTE 3: Check resonance of coil L2 by inserting end of a tuning wand, such as Philo Part No. 58-8100, in the coil. If output increas when iron end is placed in coil, compress turns slightly. If output increases when brass end is placed in coil, spread the turns. If output decreases when either end is placed in coil, no adjustment is necessary. After the coil is adjusted, readjust trimmer C1B and repeat sie 3 through 8 until no further adjustment is necessary.

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts: also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the sadio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol		Description	Service Part No.	Reference Symbol	Serv Description Part
Cı	Condenser,	tuning gang, 5-section	31-2762	C47	Condenser, FM gerial trimmer45-30
CIA	Condenser,	trimmer, BC aerial	Part of Cl	CRI	Selenium rectifier, 100 ma., 117v34-800
ClB		trimmer, FM r-f		II	Pilot lamp, frosted, 117v, 7 watts34-26
CIC	Condenser,	trimmer, BC oscillator	Part of Cl	J 1	Jack, male, α-c
C2		aerial isolating, 3.3 μμί		J2	Socket, FM test27-61
C3	Condenser,	aerial isolating, 220 µµf62-	122001001	L1	Coil, FM aerial, complete with grommet45-96
C4		aerial isolating, .01 µf		L2	Coil, FM r-132-441
C5		cathode by-pass, 22 µµf62-		L3	Choke, r-f, 3.3 µh32-4422
C6		d-c blocking, 100 μμf62-		L4	Choke, r-i, 3.3 µh
C7		screen by-pass, 220 µµf62-		L5	Coil, FM oscillator32-441
C8		oscillator grid, 100 µµf62-		L6	Choke, filament, 2.2 µh32-442
C9		d-c blocking, 220 μμf62-		L 7	Choke, filament, 2.2 µh32-442
C10		d-c blocking, .01 μf		L8	Choke, r-f, 4.1 µh32-406
C11	Condenser.	neutralizing, 3.9 μμf.	30-1221-14	LAl	AM loop and support assembly76-70
C12		d-c blocking, 220 μμf62-	122001001	LA2	Line-cord aerial, FMPart of '
C13	compense	fixed trimmer, temperature ating, 7.5 μμί	30-1224-8	LS1	Speaker, 4" p-m. including output trans- former36-161
C14	Condenser,	d-c blocking, 220 μμf62-	122001001*	R 1	Resistor, cathode bias, 120 ohms
C15	Condenser,	r-i by-pass, 220 μμί62-	122001001*	R2	Resistor, screen decoupling, 470 ohms66-1478;
C16	Condenser,	plate decoupling, .01 µf	30-4572	R3	Resistor, grid return, 15,000 ohms
C17	Condenser,	r-f by-pass, 100 μμί62-	110001001*	R4	Resistor, grid return, 2.2 megohms66-5228:
C18	Condenser,	trimmer, FM oscillator	31-6511	R5	Resistor, parasitic suppressor, 680 ohms66-1688:
C19		fixed trimmer, temperature		R6	Resistor, parasitic suppressor, 470 ohms66-1478:
		nting, 7.5 µµf		R7	Resistor, plate dropping, FM, 1000 ohms66-2108:
C20		$\alpha\text{-v-c}$ decoupling, .01 $\mu\text{f.}$		R8	Resistor, plate dropping, AM, 47,000
C21	Condenser,	screen by-pass, .002 µf	61-0062*		ohms
C22		neutralizing, .006 µf		R9	Resistor, plate dropping, 4700 ohms66-2478:
C23		i-f by-pass. 100 μμ62-		R10	Resistor, cathode bias, 47 ohms66-0478:
C24		cathode by-pass, .01 µi		R11	Resistor, screen decoupling, 1000 ohms66-2108:
C25		screen by-pass002 µf	61-0052*	R12	Resistor, plate decoupling, 2700 ohms66-2278:
C26	Condenser,	electrolytic, diode-load filter,	20.0417.7	R13	Resistor, grid return, 1 megohm66-5108:
11				R14	Resistor, cathode bias, 120 ohms66-1128:
C27		i-f by-pass, 150 μμf		R15	Resistor. a-v-c filter, 2.2 megohms66-5228:
C28		d-c blocking, .006 μf		R16	Resistor, decoupling, 470 ohms66-1478.
C29		i-f by-pass, 100 μμf62-		R17	Resistor, FM diode load, 47,000 ohms66-3478;
C30		de-emphasis, .004 μfi-i by-pass, 100 μμf		R18	Resistor, de-emphasis, 47,000 ohms66-3478:
C31 C32		i-i by-pass, 100 μμί62-		R19	Resistor, i-f filter, 47,000 ohms66-3478:
C32		plate by-pass, 680 µµf62		R20	Resistor, a-v-c load, 3.3 megohms66-5338(
C34	Condenser,	d-c blocking, .02 µf	61.0108*	R21	Volume control (with off-on switch),
C35	Condenser,	d-c blocking, .006 µf	81.0105*		500,000 ohms
C36		grid by-pass, 100 μμf62-		R22	Resistor, grid return, 10 megohms
C35		tone compensation, .02 µi		R23	Resistor, plate load, 470,000 ohms66-4478;
C37		electrolytic, 4-section		R24	Resistor, grid return, 470,000 ohms66-4478:
C38A		cathode by-pass, 25 µi., 25vP		R25	Resistor, cathode bias, 150 ohms
C38B		filter, 40 µf., 150vP		R26	Resistor, filter, 470 ohms, 1 watt
C38C		filter, 70 µt., 150vP		R27 R28	Resistor, filter, 150 ohms, 2 watts
C38D		filter, 40 μt., 150vP		-14T	2 watts
C39	Condenser.	filament by-pass, .005 µf	30-1238-1	R29	Resistor, current limiting, 100 ohms33-134
C40		line by-pass, 100 µµi62-		R30	Resistor, grid return, 2.2 megohms66-52281
C41		ceramic, 2-section		R31	Resistor, loading, 100 ohms66-11083
C41A		filament by-pass, .004 µfPo		S 1	Switch, off-onPart of F
C41B		filament by-pass, .004 µfPe		T1	Transformer, AM oscillator32-445
C42		line by-pass, .04 µf		T2	Transformer, outputPart of I
C43		filament by-pass, 100 µµf62		W1	Line cordL21
C44		plate decoupling, 220 µµf,66-		W2	Cable, FM aerial, 72-ohm twin lead41-39
C45		line by-pass, 100 µµt		WS	Switch, band, 2-wafer42-192-
C46		r-f by-pass, 100 μμf			•
114.14	Activement.	1 Far-1, 2 balan			

PARTS LIST (Cont.)

Reference Symbol	Description	Service Part No.	MISCELLANEOUS (Cont.)	Service
Zl	Transformer, FM, 1st i-f	32-4518A	Description	Part No.
Z2	Transformer, AM, 1st i-f	32-4516A	Dial backplate assembly	76-7040
Z3	Transformer, FM, 2nd i-f	32-4518-1A	Drive cord, 25-foot spool	45-8750*
Z4	Transformer, FM, 3rd i-f		Pointer5i	
Z5	Transformer, AM, 2nd i-f	32-4517A	Shaft, drive	
			Spring, gang drive	
	MISCELLANEOUS		Spring, pointer drive	
	Description	Service Part No.	Rubber mounts, gang (5)	
Cabinat	Description		Rubber mounts, speaker (2)	54-4651-1
	ange, and socket assembly		Socket, 12BA6 (i-f ampl.)	27-6265
	tener, back mtg. (4)		Socket, 12AU6 (i-f cmpl.)	27-8265
Baffle a	nd cloth assembly	40-7923	Socket, 12AU6 (r-f ampl.)	
Fas	tener, baffle mtg. (2)	W-2235-2FA9	Socket, 12AT7	
Dial sec	zle	54-5089-2	Socket 19V8	
Clip	o, scale mtg. (3)	58-7808FE11	Socket, 35C5	1
Knob, F	M-AM	54-4774-5		
Knob, t	uning	54-4774	Spacer, "T", speaker mtg. (2)	
Knob, v	olume-off-on	54-4774-4	Washer, speaker mtg. (2)	W52265F A9

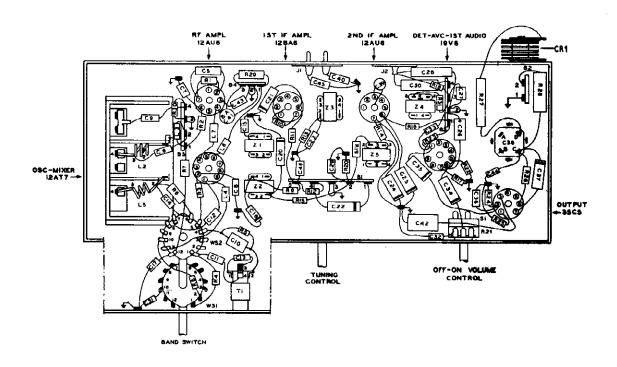


Figure 5. Symbolized Chassis, Showing Parts Placement

PHILCO PAGE 23 MODEL 52-1340, Codes 121, 1

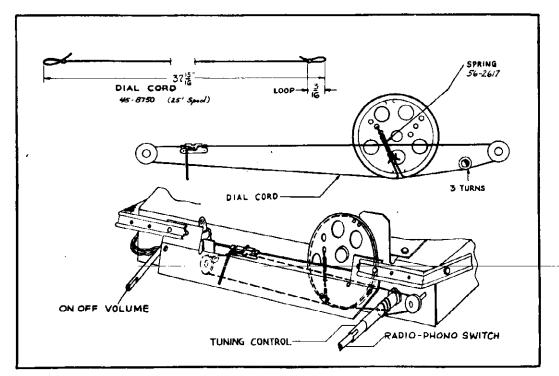


MODEL 52-1340

TP1-1836

SPECIFICATIONS

CABINET	Molded plastic, mottled mahogany
CIRCUIT	Five-tube superheterodyne
FREQUENCY RANGE	540-1620 kc.
AUDIO OUTPUT	3 watts
OPERATING VOLTAGE	105—120 volts, 60 cycles, c.c.
POWER CONSUMPTION	
Radio Position	35 watts
Phonograph Position	60 watts
INTERMEDIATE FREQUENCY	455 kg.:
AERIAL	Built-in high-impedance loop; provision for external aerial
PHILCO TUBES (5)	7A8 converter, 7B7 1-f camplifier, 7C6 2nd det, —a.v.c.—1st audio, 35L6GT output, 50Y7GT rectifier
PHONOGRAPH	Philco Model M-22 All-Speed Automatic Record



TP1-1835

Figure 1. Drive-Cord Installation Details

MODEL 52-1340, Codes 121, 122

ALIGNMENT PROCEDURE

DIAL POINTER—Turn tuning condenser to fullmesh position. Set dial pointer to index mark, located to left of "55".

CONTROLS—Set volume control to maximum, radiophono switch to RADIO position, and tuning control as indicated in chart. OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Ground lead to B-, and output lead as indicated in chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to hold output-meter indication below 1.25 volts.

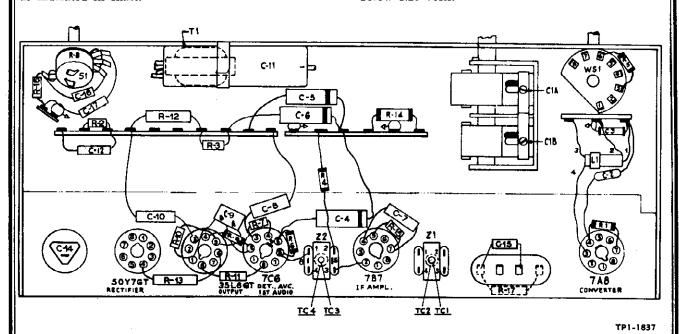


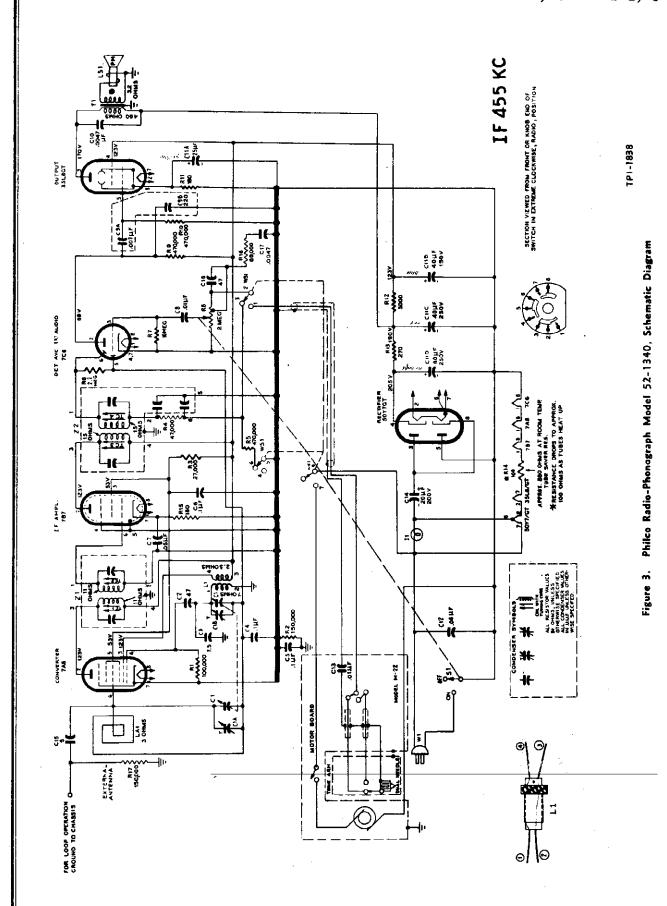
Figure 2. Base View, Showing Parts Placement and Alignment Points

ALIGNMENT CHART

STEP	SIGNAL GENERA	ATOR		ABUICT	
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST TRIMMER
1	Through a .01-µ1. condenser to pin 6 of 7A8 converter tube.	455 kc.	Gang fully open.	Adjust, in order given, for maximum output. TC2 and TC4 are located at top of transformers.	TC4—2nd i-f sec TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note below).	1600 kc.	1600 kc.	Adjust for maximum.	C1B—osc. trimmer
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum.	ClA—ant. trimmer

RADIATING LOOP: Make up a 6 to 8 turn, 8-inch-diameter loop from insulated wire, connect to signal generator output leads, and place near radio loop.

PHILCO PAGE 23 MODEL 52-1340, Codes 121, 1



PAGE 23-38 PHILCO MODEL 52-1340, Codes 121, 122

PARTS LIST

NOTE: Part numbers marked with an asterisk (*) are general replacement items. These numbers may not be identical with those on factory assemblies; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the receiver will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Service Part No.
CI	Condenser, tuning gang31-2751-9
ClA	Condenser, trimmer, aerialPart of C1
C1B	Condenser, trimmer, oscPart of C1
C2	Condenser, osc. grid, d-c blocking, 47 μμf80-00515307*
C3	Condenser, temperature compensating, 7.5 μμ30-1224-85
C4	Condenser, a-v-c by-pass, .1 µf61-0113*
CS	Condenser, by-pass, .1 µf61-0113*
CE '	Condenser, screen by-pass, .1 µf81-0113*
C7	Condenser, cathode by-pass, .05 µf81-0112
C8	Condenser, coupling, .01 µt81-0120*
C9	Condenser, dual ceramic30-1239-4
C9A	Condenser, d-c blocking, .007 µfPart of C9
CSB	Condenser, r-f by-pass, 220 µµfPart of C9
C16	Condenser, tone compensation, .0047 µf45-3505-58
C11	Condenser, electrolytic, 4-section30-2575-32*
CILA	Condenser, cathode by-pass, 25 µfPart of C11
CIIB	Condenser, filter, 40 µfPart of C11
Clic	Condenser, filter, 40 µfPart of C11
Clid	Condenser, filter, 40 µfPart of C11
C12	Condenser, line by-pass, .04 µf,30-1228-17
C13	Condenser, phono isolation, .01 µf61-0120*
C14	Condenser, voltage doubling, 20 µi. 200v30-2568-22
C15	Condenser, aerial blocking, 5µµf30-1230
C16	Condenser, high-frequency compensation, 47 µµf60-00515307
C17	Condenser, bass compensation, .0047 µi45-3505-56
n	Pilot kmp, type 4734-2084
Ll	Coil, oscillator32-4263
LA1	Loop antenna (Code 121)
LA1	Loop anienna (Code 122)78-2127-14
LS1	Speaker, 51/4" round38-1639-1
R1	Resistor, grid return, 100,000 ohms88-4108340*
R2	Resistor, leakage, 150,000 ohms86-4158340°
R3	Resistor, dropping, 27,000 ohms86-3278340*
R4	Resistor, i-f filter, 47,000 ohms
R5	Resistor, diode return, 470,000 ohms68-4478340*
R6	Resistor, diode load, 2.2 megohms86-5228340°
R7	Resistor, grid return, 10 megohms86-8108340*
R\$	Volume control, 2 megohms (with switch)33-5584-11
R9	Resistor, plate load, 470,000 ohms88-4478340*

Reference Symbol		rvice t No.
R10	Resistor, grid return, 470,000 ohms88-4476	8340*
R11	Resistor, cathode bias, 180 ohms66-1184	4340
R12	Resistor, filter, 5000 ohms33-133	5-95
R13	Resistor, filter, 270 ohms, 2 watts33-133	5-91
R14	Resistor, surge limiting, 880 ohms cold. 100 ohms hot	43-3
R15 ·	Resistor, cathode bias, 180 ohms68-118	8340
R16	Resistor, bass compensation, 68,000 ohms68-388	8340
R17	Resistor, aerial loading, 150,000 ohms68-415	8340
\$1	Switch, off-onPart of	of R8
Tl	Transformer, output32-	83841
W1	Line cordL	2183
WS1	Waier switch, radio-phono42-	1949
Z 1	Transformer, 1st i-i32-41	60A
Z2	Trunsformer, 2nd i-i32-42	140A

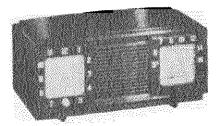
MISCELLANEOUS

Description	Service Part No.
Backplate assembly	
Cabinet, complete, Code 121	10840-2
Cabinet, complete, Code 122	10840-8
Hinge (2)	58-8603
Lid	54-4838
Lid support	56-6604
Changer Mounting Hardware	
Sleeve, rubber (3)	54-7798
Speed nut (3)	
Spring, heavy, top (3)	56-7059FA9
Spring, light, bottom (3)	
Dial scale	
Knob. off-on-volume	54-4843
Knob, radio-phono	54-4842
Knob, tuning	
Pilot-lamp socket assembly	
Fastener, pilot-lamp shield (2)	
Pointer	
Spring, pointer drive	
Socket, Loktal (3)	
Socket, octal (2)	
Tuning shaft	

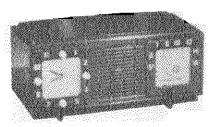
SPECIFICATIONS

CABINET	Molded phenolic
CIRCUITFive-tube Superhe	terodyne (plus rectifier)
FREQUENCY RANGES	
Standard Broadcast	5401620 kc.
Special Services	1700—3400 kc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	117 volts, a.c.

POWER CONSU	IMPTION30 watts
AERIAL	High-impedance loop;
	connector for external aerial
INTERMEDIATE	FREQUENCY455 kc.
PHILCO TUBES	
	12AV6 det.—a.v.c.—1st audio,
	35C5 output, 35W4 rectifier



MODEL 53-700



MODEL 53-701

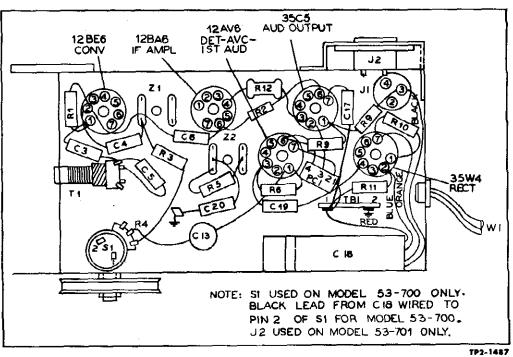


Figure 1. Base View, Showing Symbolized Chassis

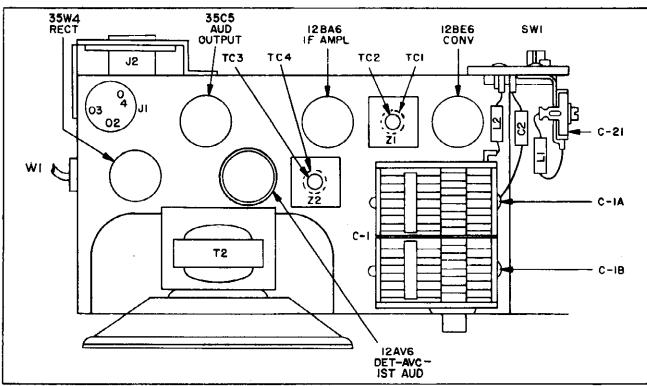
MODELS 53-700, 53-701

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR-Connect generator and set frequency as indicated in chart. Use modulated output. OUTPUT LEVEL-During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.



Top View, Showing Trimmer Locations

TP2-1488

ALIGNMENT CHART

\$TEP	SIGNAL GENERA	TOR				
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-µf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4-2nd i-f sec. TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Radiating loop (See note below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B-osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1-A-aerial (broadcast)
4	Same as step 2.	3200 kc.	3200 kc.	Special Services	Adjust trimmer for maximum output.	C21-aerial (special services)

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and

place near radio loop.

For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

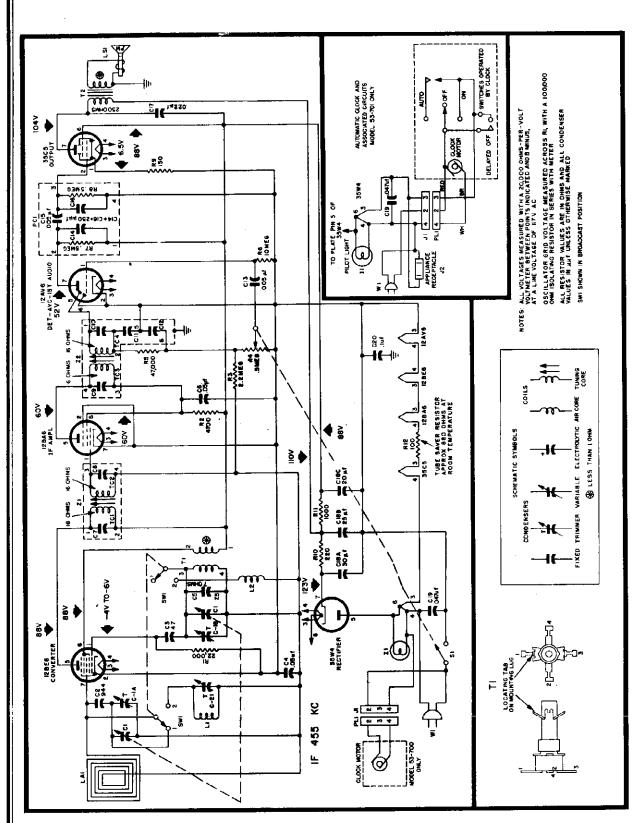


Figure 3. Philco Radio-Clock Models 53-700 and 53-701, Schematic Diagram

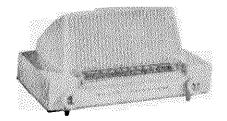
MODELS 53-700, 53-701

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference		Service	Reference		Service
Symbol	Description	Part No.	<u>Symbol</u>	Description	Part No.
Cl	Condenser, tuning gang	1-2751-13	R6	Resistor, grid return,	66 61 VOO 1V
C1A	Condenser, R-F trimmer	Part of Cl	מת	10 megohms	040
C1B	Condenser, oscillator trimmer	Part of CI	R7	Resistor, plate load, 500,000 ohms	Dest of DCI
C2	Condenser, antenna series	0 1000 05	100	Doctor and action	Part of FG1
l	tracker, 944 μμf.	0-1220-05	R8	Resistor, grid return, 500,000 ohms	Part of PCI
C3	Condenser, oscillator grid,	00.1000.4	R9	Resistor, cathode bias,	ratorior
	47 μμf.	3U-123U-4	ИA	150 ohms	66-1158940°
C4	Condenser, a-v-c by-pass, .05 µf45	る だい だ_ひむゅ	R10	Resistor, B plus filter,	
CE	.U3 μf	-0000-20	1110	220 ohms	66-1224340°
C5	Condenser, drift compensation, 7.5 $\mu\mu$ f.	M_1994_89	R11	Registor B plus filter.	Į.
Ce	Condenses serves by page	W-1224-00		1000 ohms	66-2108340°
C6	Condenser, screen by-pass, .05 \(\mu \text{f}\)45	L3505-98*	R12	Resistor, tube saver, 100	ohms33-1343-3
C7	Condenser, i-f tuning	Part of Z1	S1	Switch, off-on	Part of R4
C8	Condenser, i-f tuning	Part of 71	SW1	Switch broadcast-special	1
C9	Condenser, i-f tuning	Part of 72		services	42-1796-2
C10	Condenser, i-f tuning	Part of Z2	T1	Transformer, oscillator .	32-4453-6
Cii	Condenser, detector filtering	Part of Z2	$\bar{\mathbf{T}}\mathbf{\bar{2}}$	Transformer, output	32-8384*
C12	Condenser, detector filtering	Part of 72	wı	Line cord	L-2183*
C13	Condenser, audio coupling,		Z1	Transformer, 1st i-f	32-4161 A [
	.005 μf	30-1238-1	Z 2	Transformer, 2nd i-f	32-4240A
C14	Condenser, plate by-pass P	art of PC1		·	1
C15	Condenser, audio coupling.			MISCELLANEOUS	
	.005 afP	art of PC1			ervice Part No.
C16	Condenser, compensatingP	art of PC1	Descriptio	n	METAICE POLT 140.
C17	Condenser, tone compensation,		Cabinet		
	.022 µf. 45	5-3505-43*	Model 5	3-700	10924
C18	Condenser, electrolytic, 3-section	Ω	Model 59	3-700-I	10924-3
]	Model 700	30-2575-34	Model 5	3-701	10924-1
	Model 701	30-2575-36	Model 5	3-701-I	10924-2
C18A	Condenser, filter, 30 µf., 150v I	art of C18	Knobs		
C18B	Condenser, filter, 25 \(\mu f.\), 150v I	Part of C18	Model 5	3-700	F/ 1000 3
C18C	Condenser, filter, 20 µf., 150v I	art of C18	Clock		54-4983-1
C19	Condenser line by-pass.		Statio	n selector	54-49/8
	.05 μf4!	5-3505-62	Off-or		Z/-4815-10
C20	Condenser. B minus to chassis.		Model 5	3-7 00- I	#4 400g
	.1 μf4	5-3505-47°	Clock		
C21	Condenser, trimmer, special		Statio	n selector	07 401 E 10
1	services	31-6473-29		0 701	Z1-4010-1U
11	Lamp, pilot	34-2068	Model 5	3-701	<u> ይለ ለጠ</u> ደዊ 1
H 11	Jack, clock	27-6273	Clock	(4)	54 AQ78
j2 L1	Jack, appliance receptacle, a-c	76-3931	Statio	n selector	97,4815_10
lri	Coil, aerial, special services	.32-4561-3		A CAL T	
L2	Coil, oscillator shunt	. 3 Z-430Z -Z	Model 5	3-701-1 (4)	54_4983
LAl	Loop, part of cabinet back	(0- 1151	Clock	n selector	54-4978
LSI	Speaker, p-m	.:30-1027-5 oz eoze	Statio	n selector	27-4815-10
PL1	Plug, clock assembly	Z1-0Z13	Clock		
R1	Resistor, oscillator grid, 22,000 ohms 6	2 2002040	Modele	53-700 and 53-700-I	41-2041
	ZZ,UUU onms)-02200 4 0	Models	53-700 and 53-701-I	41-2041-1
R2	Resistor, i-f screen dropping,	2 07/192/10#		loop assembly	
	4700 ohms 6	J-214004U	Model '	700	76-77 57-1
R3	Resistor, a-v-c filter,	8 500864U#	Model	701	76-7757
11	2.2 megohms 6	v-J220340	Shiald +	be	56-5629FA3
R4	Resistor, volume control, .5 meg	90 EE <i>OO 4</i> 1	Clin nile	t lamp	W2563FA3
	Model 700	.ეე-000-41 ეე EEAE	Socket -	niniature (5)	27-6265
11	Model 701	600-000	Socket, II	sembly, pilot lamp	27-6233-6
R5	Resistor, diode load,	Q QATQQAD\$	Window	radio dial	54-4977
	47,000 ohms6	U-041004U	w muw,	radio diai	
11					

SPECIFICATIONS

CIRCUIT	Four-tube superheterodyne (plus rectifier)
FREQUENCY RANGES	
Standard broadcast	540-1620 kc.
Special service	1700-3400 kc.
AUDIO OUTPUT	1 watt
	105-120 volts, a.c. or d.c.
	30 watts
INTERMEDIATE FREQUENCY	455 kc.
AERIAL Magnecor h	igh-impedance loop; provision for connecting external aerial
PHILCO TUBES7A	8 converter, 7B7 i-f amplifier, 7C6 2nd det.,
	avc., 1st audio, 50C5 output, 35W4 rectifier



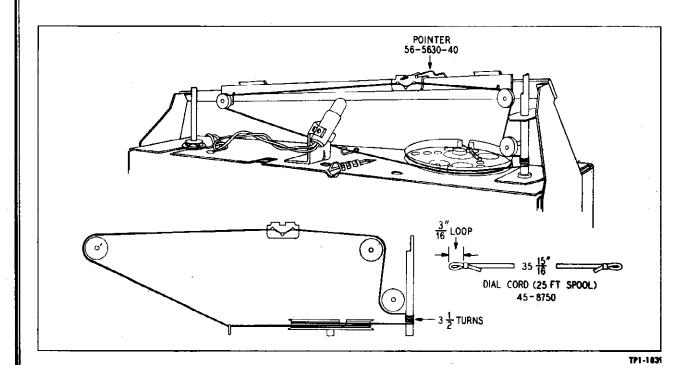


Figure 1. Drive-Cord Installation Details

MODEL 53-566

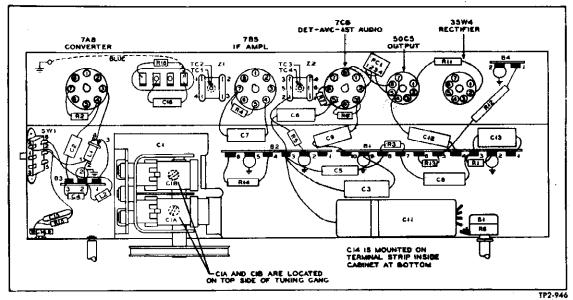


Figure 2. Base View, Showing Parts Placement and Alignment Points

ALIGNMENT PROCEDURE

DIAL POINTER—Turn tuning condenser to full-mesh position. Set dial pointer to index mark, located to the left of "55".

RADIO CONTROLS—Set volume control to maximum; set broadcast-special services switch, and tuning controls as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

SIGNAL CENERATOR—Connect signal-generator ground lead to B—, and output lead as indicated in chart. Set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to hold output-meter indication below 1.25 volts.

STEP	SIGNAL GENERATOR			TZULDA	
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	TRIMAMER
1	Through a .01-µf. condenser to grid (pin 6) of 7A8 converter tube.	455 kc.	Gang fully open.	Set broadcast-special services switch to broadcast position. Adjust, in order given, for maximum output. TC1 and TC4 are located at top of transformers.	TC4-2nd i-f sec. TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Radiating loop (see note below).	1630 kc.	*1630 kc.	Adjust for maximum.	C1B—esc.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum.	C1A—ceriel.
4	Same as step 2.	3200 kc.	3200 kc.	Set broadcast-special services switch to special service position. Adjust for maximum.	C14—special services
5	Repeat stops 3 and 4.				

RADIATING LOOP: Make up a 6-8 turn, 8-inch-diameter loop from insulated wire, connect to signal-generator leads, and place near radio loop.

*NOTE: For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

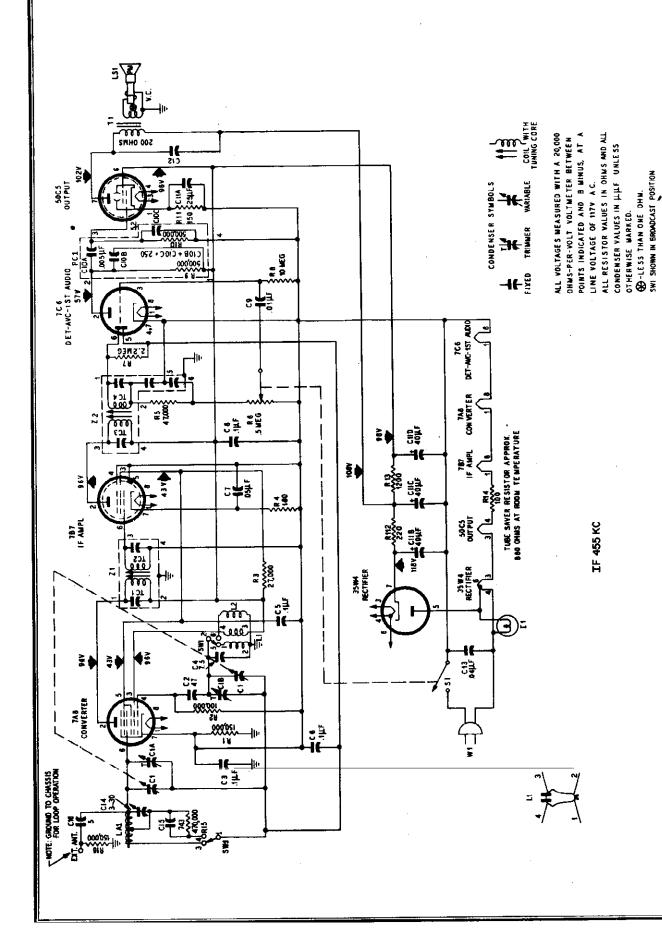


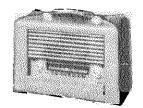
Figure 3. Philco Radio Model 53-566, Schematic Diagram

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang31-2751-10	R6	Resistor, volume control, .5	
CIA	Condenser, trimmer, aerial Part of Cl		megohm (with off-on switch	1)33-5566-36
CIB	Condenser, trimmer, oscillator Part of Cl	R7	Resistor, diode load,	
C2	Condenser, osc. grid,		2.2 megohms	66-522 8340 * [
	d-c blocking, 47 μμf60-00475417*	R8	Resistor grid return	
СЗ	Condenser, leakage, .1 μ f	Do	10 megohms	66-6108340*
Č4	Condenser, temperature	R9	Resistor, plate load,	D
[compensating, 7.5 μ f30-1224-65*	D10	500,000 ohms	Part of PC1
C5	Condenser, screen by-pass, .1 \(\mu \text{f.} \) 61-0113*	R10	Resistor, grid return,	D. J. CDOS
C6	Condenser, a-v-c by-pass, .1 µf61-0113*	D11	500,000 ohms	rart of PC1
C7	Condenser, cathode by-pass, .05 µf. 61-0122*	R11	Resistor, cathode bias, 150 ohms	00 11840404
C8	Condenser, B + by-pass, .1 \(\mu f \). 45-3505-47°		Recistor R plus filter	
C9	Condenser, audio coupling.	R12	Resistor, B plus filter, 220 ohms, 2 w	88 100E0408
:	.01 μf45-3505-58*	D10	Reciptor R while tilton	
C10A	Condenser, audio coupling.	R13	Resistor, B plus filter, 1200 ohms	BB 0100040#
ľ	.005 μfPart of PC1	R14		00-2120040
C10B	Condenser, plate by-pass	112.1	Resistor, surge limiting, 880 ohms cold, 100 ohms hot	. 99 1940 0
	(see schematic) Part of PC1	R15		00-1040-0
C10C	Condensor grid by nose	UTO	Resistor, aerial loading, 470,000 ohms	66 4479940
li .	(see schematic) Part of PC1	R16	Recistor agrical discharge	00-1110040
C11	Condenser, electrolytic, 4-section 30-2575-32*	IIIO	Resistor, aerial discharge, 150,000 ohms	66 41 K02 404
l	4-section	S1	Switch, off-on	Down of De
C11A	Condenser, cathode by-pass, 25 μ f. Part of C11	SW1	Switch, d.p.d.t., band selector	07.1702 and 01
	25 μf. Part of C11	TI TI	Transformer, output	27-070-12 -12
C11B	Condenser, filter, 40 µf. Part of C11	3371	Line cord	T 0100
C11C	Condenser, filter, 40 μ f. Part of C11	71	Transformer, 1st i-f	20.41604
C11D	Condenser, filter, 40 \(\mu \text{f.}\) Part of C11	Z1 Z2	Transformer, 1st 1-1	
C12	Condenser, tone compensation,	وبن	ransioning, and 1-1	
	.022 μf. 45-3505-43*	J	MISCELLANEOUS	
C13	Condenser, line by-pass, .04 \(\mu f \)30-1226-17°	Description	•	Service Part No.
C14	Condenser, aerial, adjustable			i
	trimmer 3-30 uuf. 31-6473-30	Cabinet,	mahogany	10887-4
C15	Condenser, series tracking, 743 μμf	Knob,	mahogany (2 required)	54-4774-9
	743 μμf60-10755311	Cabinet,	ivory	10887-5
C16	Condensor coriol counting	Knob	ivory (2 required)	54-4 77 4 -10}
	5 uuf. 30-1221-5	Knob	escutcheon (2 required)	54-4927
I1	Pilot lamp, type 4734-2068	rasten	er (5 required)	.w2235-1FA9
$\mathbf{L}_{\mathbf{I}}$	Coil. oscillator 32-4263	Dial-baci	kplate assembly	76-7056
L2	Coil, oscillator shunt 32-4562-3	Drive	cord, 25-foot spool	45-8750
LA1	Loop antenna (Magnecor)32-4565-1	Dial scal	le	54-5128-2
LS1	Speaker, p-m	Lamp as	sembly, pilot	76-1472
PC1	Printed circuit	romter		56-5630-40
R1	Resistor, leakage, 150,000 ohms 66-4158340°	Snart,	tuning	
R2	Resistor, grid return,	Spring	hataata	
n.c	100,000 ohms	opring	hairpîn	57-1468
R3	Resistor, dropping, 27,000 ohms 66-3278340*	Mount, r	ubber (3 required)	27-4596
R4	Resistor, cathode bias, 180 ohms . 66-1188340*	Socket, L	oktal (3 required)	27-0207
R5	Resistor, i-f filter, 47,000 ohms 66-3478340*	bocket, n	miniature (2 required)	27-0265





SPECIFICATIONS

MODEL 53-658

.265 l 104 (

CABINET 53-656Molded plastic 53-658Covered, wooden	POWER CONSUMPTION A-c or d-c operation
CIRCUIT Five-tube superheterodyne (plus selenium rectifier) FREQUENCY RANGES	at 9 AERIALMagnecor high-impedance loop; provision connecting external
Standard broadcast	INTERMEDIATE FREQUENCY
AUDIO OUTPUT	PHILCO TUBES
"A" battery and 90-volt "B" battery	BATTERY TYPEPhilco

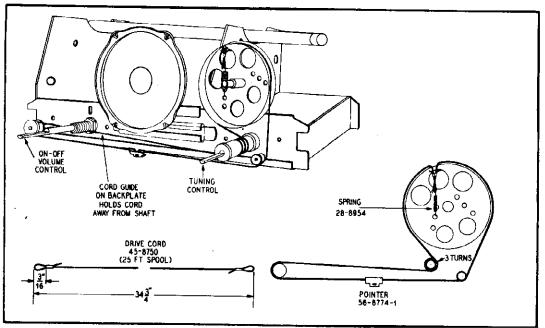


Figure 1. **Drive-Cord Installation Details**

TP2-1392

MODELS 53-656, 53-658

ALIGNMENT PROCEDURE

POINTER-Set pointer to coincide with first index mark from left side of dial backplate (looking at front of dial backplate).

RADIO CONTROLS—Set volume control to maximum; set broadcast-special services switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals. SIGNAL GENERATOR—Use modulated output.

OUTPUT LEVEL-During alignment, adjust signal-

generator output to maintain output-meter indication below .5 volt.

CRITICAL LEAD DRESS-To secure proper padding capacity, the green lead from pin 6 of the IR5 tube to ZI must be dressed over the wiring panel, away from the chassis. The white lead which connects the low end of the aerial (LA1) to the broadcast-special services switch (SW1), must be dressed taut between the low-end tie lug and the retaining spring.

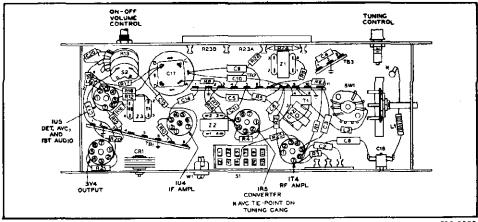


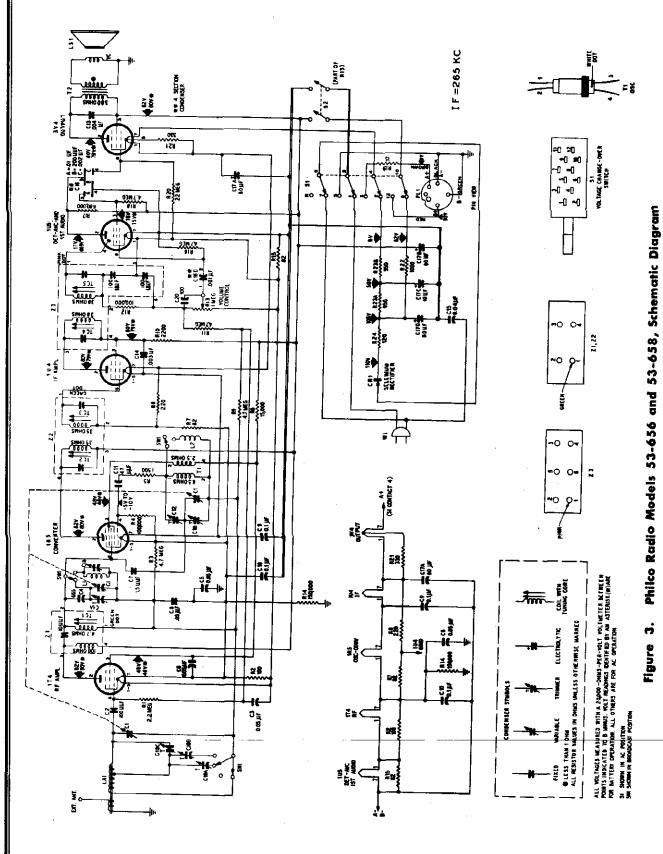
Figure 2. Top View, Showing Trimmer Locations

TP2-1393

	· SIGNAL GENERATOR			TZULDA	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	TRIMMER
1	Through a .1-µf. condenser to pin 6 of 1R5 converter.	265 kc.	1630 kc. (gang fully open)	Set broadcast-special services switch to broadcast position. Adjust, in order given, for maximum output.	TC5—2nd 1-f sec. TC4—2nd i-f prl. TC2—1st i-f pri. TC3—1st 1-f sec.
2	Radiating loop. See note below.	1630 kc.	*1630 kc. (gang fully open)	Adjust for maximum output. If low-frequency dial tracking is far off, make adjustments in steps 3 and 4 before making this adjustment.	C1B—osc. shunt
3	Same as step 2,	580 kc.	580 kc.	Adjust for maximum output while rocking tuning control.	C12—osc. series
4	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output. This adjustment should not be made unless dial tracking is off, or sensitivity is low at low-frequency and (580 kc.).	TC1
5	Same as step 2.	1500 kc.	1500 kc. (Index mark at right)	Adjust, in order given, for maximum output.	C1Ar-f C19ABC aerial
•	Repeat steps 3 and 5 until no	further impr	ovement is obtai	ned.	
7	Same as step 2.	3000 kc.	3000 ke.	Set broadcast-special services switch to special services position. Adjust, in order given, for maximum output.	C19C—5\$ aerial
•	Same as step 2.	1900 kc.	1900 kc.	Adjust, in order given, for maximum output.	C198—SS aeriai series tracker
•	Repeat steps 7 and 8, and the	n repeat step	5.		

NOTE: Make up a six-to-eight-turn, 6-inch diameter loop using insulated wire; connect to signal-generator loads and place near radio

proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.



MODELS 53-656, 53-658

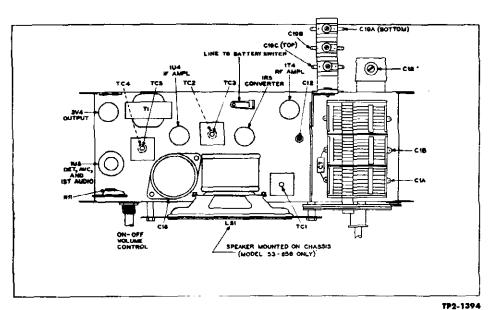


Figure 4. Bottom View, Showing Symbolized Chassis

PARTS LIST

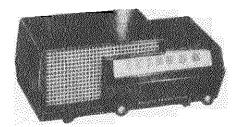
NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No
CI	Condensor, haning gang, 3-section	31-2748-
CIA	Condensor, r-f trimeter	Pert of C
CIP	Condensor, esc. frimmer	Pert of C
C2	Condensor, d-c blocking, 100 µ#f.	62-110009001
ci	Condensor, bias filter, .05 µf.	61-012 2
C4	Condenser, convertor tracking, 665 gaf.	30-1220- &
ČS.	Condensor, filement by-pass .05 sf	61-0122
Č6	Condensor, screen by-pess, .05 pf.	
Č7	Condenser, neutralization, 1.5 µµf.	30-1221-
CB	Condensor, e-v-c filter, .05 µf.	61-0122
C9	Condensor, Mamont by-pass, ,t µl.	
C10	Condensor, filament by-pass, .1 st.	61-0113
ĊII	Condensor, d-c blocking, 47 µµf,	60-0047342
C12	Condensor, esc. series pedder, 700 to 900 µµf.	31-6473-2
C13	Condensor, tone compensation .004 µf	61-017
C14	Condensor, screen neutralizing .903 µf	45-3505-4
C15	Condensor, Ilao by-pass, .04 µf.	45-3500-2
C16	Condensor, coronic, 4-section	
CIÓA	Condensor, screen by-pass, .01 µf.	Part of C1
C168	Condensor, by-pass, 200 µµf.	
CISC	Condenser, d-c blocking .002 µf.	Pert of C1
CIAD	Condensor, d-c blocking, .001 µf.	Part of C1
C17	Condensor, electrolysic, 4-section	30-2568-3
C17A	Condensor, filement by-pass, 60 µf.	
C170	Condensor, filter, 40 pl.	
C17C	Condenser, filter, 10 µf.	Part of Ct
C178	Condensor, filter, 40 µf.	
CIB	Candonser, \$5 hi-fraquency r-f frimmer	
C19	Condenser, merial trimmer, 3-section	
CISA	Condensor, BC ki-frequency	Pert of C1
C172	Condensor, \$5 low-frequency	Pert of C1
CIPC	Condensor, SS hi-frequency	Pert of C1
C20	Condensor, compensating, high-frequency, 100 µµ	
CR1	Selenium rectifier	
LZ	Call, escillator shunt	
LAI	Coll, seriel	
LST	Speaker, 5-lach	34-162
PL1	Plug-and-cable assembly, bettery	
R1	Resister, grid return, 2.2 megohms	
R2	Resistor, surrent limiting, 100 phras	
R 3	Resister, grid return, 4.7 megalims	
R4	Resistor, grid return, 100,000 shms	
R5	Resistor, secillator coupling, 1500 ohms	
R6	Resister, dropping, 15,000 chas	
R7	Resistor, grid return, \$2 ehms	64-0828340
RA	Resister, grid return, 220 ohnu	66-1228340
R9	Resistor, a-v-c filter, 4.7 magahms	
RIO	Resistor, neutralization, 2200 chms	
R11	Resister, a-v-c filter, 4.7 magehms	
R13	Resister, I-f filter, 100,000 chess	
RIJ	Resistor, velumo control, 1 magahm	
R14	Resister, lockage, 150,000 shets	
R15	Resister, current limiting, 82 shms	
E14	Resister, grid return, 4.7 magehne	

Reference Symbol	Description	Service Part No.
217	Resistor, plate loud, 680,000 ohms	
R13	Resistor, streen dropping, 4.7 megehne	66-547 8346 1
R19	Resistor, filament, 15 ohms	
R20	Resistor, grid return, 2.2 megohms	66-52283401
R21	Resistor, surrent limiting, 330 ohms	66-1338340
R22	Resistor, filter, 1000 ohms	66-2108340
R23	Resister, wire-wound, 2-section	
223A	Resistor, Alament dropping, 950 ohms	Pert of R23
#238	Resistor, filament dropping, 750 ohms	. Part of R23
R24	Resistor, wire-wound, current fimiting, 120 ohms	33-1334-14
51	Switch, change-over	42-1899
52	Switch, on-off	Part of R1:
\$W1	Band switch	42-198
T1	Transformer, escillator	
T2	Transformer, output	
Wi	Line cord	
Žī	Transformer, ref	
Z2	Transformer, 1st J-f	
Z3	Transformer, 2nd 1-f	
Book Clip, be	nt belge sek (2)	54-490 56-3807-
Back Clip, be Handle as Scale	set (2) seably	54-490 56-3807- 76-771 54-314
Back CHp, be Handle se Scale Knob (2)	(2)	54-490 56-3807- 76-771 54-314 54-4773-
Back Clip, be Handle se Scale Knob (2) Knob (1)	± (2)	54-490 54-3807- 76-771 54-314 54-4773- 54-4814-
Back Clip, be Handle se Scale Knob (2) Knob (1) Cabiner	ack (2)	\$4-490; 36-3807- 76-771; \$4-314; 54-4773- 54-4816-
Sack Clip, he Handle as Scale Knob (2) Knob (1) Cabiner Handle as	MODEL 33-438	54-490 54-3807- 74-771 54-314 54-4773- 54-4816- 1091- 74-748
Back Clip, he Handle as Scale Knob (2) Knob (1) Cabiner Handle as Scale	ack (2)	\$4-490; \$6-1807-; 76-771; 54-314; 54-4773-; 54-4816-; 1091; 76-748; 54-314;
Seck Clip, he Handle es Scale Knob (2) Knob (1) Cobiner Handle es Scale Knob, deor	MOSE 33-638	54-490; 56-3807-; 76-771; 54-314; 54-4773-; 54-4816-; 1091; 76-748; 54-514; 54-981;
Back CHp, he Handle or Scale Knob (2) Knob (1) Cabiner Handle or Scale Knob, cloor Knob, cloor Knob (2)	MODEL 33-638	54-490 54-3907-7 74-771 54-314 54-4773- 54-4816- 1091-74-748 54-314 54-981- 34-4527-3
Back CHp, he Hendle or Scole Knob (2) Knob (1) Cobiner Handle or Scole Knob deor Knob (2) Knob (2)	MODEL 33-638	54-490 54-3907- 74-771 54-314 54-4773- 54-4814- 1091- 76-768 54-514 54-981 54-4527-3 84-4514
Seck Clip, he Hondle as Scale Knob (2) Knob (1) Cabiner Handle as Scale Knob, deor Knob (2) Knob	MODEL 33-638	54-490 54-3807 74-771 54-314 54-4773 54-4816 1091 74-748 54-514 54-681 54-4816 74-227
Seck Clip, he Hondle as Scale Knob (2) Knob (1) Cabinet Handle as Scale Knob, door Knob (2) Knob (3) Rnob	MODEL 23-638	54-490, 56-3907- 76-7711 54-3141 54-4773- 54-4814- 10911 74-748 54-5141 54-9127-3 54-4816- 74-227-3 54-4816- 54-2815- 54-4816-
Seck CHp, be Hondie es Scale Knob (2) Knob (1) Cobiner Handle es Knob, deor K	MOOSE 33-434	54-490: 34-3807-71 54-314: 54-4773-1 54-4773-1 1091: 76-768 54-91: 54-91: 54-91: 54-81: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80: 56-80:
Seck CHp, he Hondle on Scale Knob (2) Knob (1) Cobiner Handle or Scale Knob (2) Knob (4) Hondle or Knob (4) Kno	MODEL 33-638	54-490. 36-3807- 76-771 54-814- 54-814- 1001- 76-76-76 56-811- 56-814- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81- 56-81-
Bock CHp, he Hondie on Scale Knob (2) Knob (1) Cobiner Handle or Scale Knob (2) Knob (2) Hondie (2) Knob (2) Knob (4) Hondie (4) Hinge Strike, boft Strike, setch	MODEL 33-634 MODEL 33-634 MODEL 33-635 and 53-655	54-490. 54-3807- 54-711- 54-711- 54-713- 54-4814- 1001- 74-746 54-813- 54-4814- 54-4814- 54-4814- 54-981- 54-981-
Buck CHp, be Hondle on Scale Knob (2) Knob (1) Cobiner Handle on Knob (2) Knob, dear Knob, dear Knob, dear Knob (2) Handle on Scale Knob, dear Knob (2) Handle on Scale	MODEL 33-638 seembly MODEL 33-638 MODEL 33-638 MODEL 33-636 and 53-659	54-4907- 54-3907- 76-771- 54-371- 54-371- 54-4773- 54-4773- 54-481- 54-514-
Buck CHp, be Hondle on Scale Knob (2) Knob (1) Cobiner Handle on Knob (2) Knob, dear Knob, dear Knob, dear Knob (2) Handle on Scale Knob, dear Knob (2) Handle on Scale	MODEL 33-634 MODEL 33-634 MODEL 33-635 and 53-655	54-4907- 54-3907- 76-771- 54-371- 54-371- 54-4773- 54-4773- 54-481- 54-514-
Buck Clip, be Honelle as Scale Knob (2) Knob (1) Cobiner Handle as Scale Knob, dear Knob, dear Knob (2) Handle as Scale Knob, dear Knob, dear Knob, dear Knob, dear Knob Buck catch Foot (4) Hings Strike, boff Strike, boff Strike, boff Diel-backplat Drive card	MODEL 33-638 seembly MODEL 33-638 seembly MODELS 33-656 and 53-659 in escembly 25-ft. speel	54-4907- 54-3807- 76-7714 54-374- 54-4773- 54-4816- 10-71 76-748 54-514 54-691 54-4816- 76-227 54-676 54-681 54-81 54-81 54-81 54-81 54-81 54-81 54-81 54-81
Back CHp, he Hondle or Scale Knob (2) Knob (1) Cobiner Handle or Scale Knob, door Knob (2) Knob (4) Handle or Scale Scale Scale Scale Handle or Ha	MODEL 33-638 Issembly MODEL 33-638 Issembly Accepts 33-656 and 53-658 In assembly , 28-41, appel	54-490; 54-3807-; 54-314; 54-314; 54-4814-; 54-4814-; 54-514; 54-217-; 54-4816-; 54-227-; 54-4816-; 54-227-; 54-281;
Buck Clip, be Honelle as Scale Knob (2) Knob (1) Cobiner Handle as Scale Knob, clear Knob (2) Knob (2) Knob, dear Knob (2) Knob, dear Knob, dear Knob, dear Knob, dear Knob Buck cetch Foot (4) Hingo Strikes, boft Drive cerd Drive cerd Drive cerd Spring, drive Spring, drive	MODEL 33-638 ssembly MODEL 33-638 ssembly MODELS 33-636 and 53-659 in essembly 25-th. speel	54-4907 54-3907- 76-771 54-374- 54-4773- 54-4814- 76-748- 54-514- 54-514- 54-514- 54-514- 54-515- 54-515- 54-515- 54-515- 54-515- 54-574- 21-695- 21-697- 2
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Back CHp, he Hondie or Scale Knob (2) Knob (1) Cobiner Handle or Scale Knob, deor Knob, deor Knob (4) Hingb Strite, boft Strite, satch Digl-backplain Drive card Pulitter Spring, dri Shaff-ond-politer Shaff-ond-politer Spring, reshab	MODEL 33-638 sombly MODEL 53-638 sombly Jacobs Sa-636 and 53-658 to escently Jacobs Sa-636 and 53-658 to escently Ger manably to (3) to (3)	54-490. 54-3807- 54-3807- 54-711- 54-814- 1001- 1001- 1001- 54-814- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-816- 54-8174- 28-895- 27-65-76-76-76-76-76-76-76-76-76-76-76-76-76-
Buck Clip, be Hondle on Scale Knob (2) Knob (1) Cobiner Handle on Scale Knob, daor Knob (2) Knob, daor Knob (2) Knob (2) Knob (2) Knob, daor Knob (2) Scale	MODEL 33-438 scenario y MODEL 33-438 scenario y MODEL 33-436 and 53-456 pa scenario y pa s	54-490 54-3807- 74-771 54-314- 54-4773- 54-4814- 54-514- 54-514- 54-4814- 54-4814- 54-4814- 54-4814- 54-481- 74-227- 54-81- 54-81- 74-772- 45-8790- 74-772- 45-8790- 74-772- 45-8790- 74-772- 28-895- 74-773- 28-895- 74-78-590- 74-78-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-59-590- 74-
Back Clip, he Hondie as Scale Knob (2) Knob (1) Cobiner Handie as Scale Knob (2) Knob (2) Knob (2) Knob (2) Knob (3) Handie as Scale Knob (4) Handie as Scale Knob (4) Hange Strites, bott Strites, earth Digl-backplain Drive card Painter Spring, dri Shaff-and-pu Maustr, rubbe Spring, crots Shiofd, 1US Shiofd, 1US	MODEL 33-638 sombly MODEL 53-638 sombly Jacobs Sa-636 and 53-658 to escently Jacobs Sa-636 and 53-658 to escently Ger manably to (3) to (3)	54-450 54-3807- 54-3807- 54-3814- 54-3814- 1091 1091 54-3814- 54-3814- 54-381- 54-4814- 54-4814- 54-4814- 54-4814- 54-981 54-981 54-981 54-981 55-981 55-874 55-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-875 56-8774 56-8774 56-8774 56-8774 56-8774

SPECIFICATIONS

	olded plastic, abony or Swedish re- ibe superheterodyne (plus rectifier)
FREQUENCY RANGE	the soperment odyne (plus recine)
	540 kc. to 1620 kc
	1700 kc. to 3400 kc
AUDIO OUTPUT	1 wat
	105 to 120 volts, a.c. or d.c
POWER CONSUMPTION	30 watt
AERIAL	High-impedance loop
	455 kg
	r, 12BA6 i-f amplifier, 12AV6 det.— t audio, 35C5 output, 35W4 rectifie



MODEL 53-563

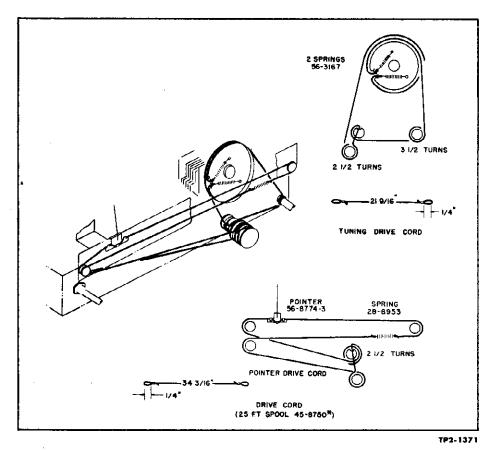


Figure 1. Dial-Cord Installation Details

PR-2174

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER-Connect across voice-cail terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signal-generator output to hold output-meter reading below 1.25 volts.

	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
7	Ground lead to B-; output lead through a .1-μf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	maximum output.TC1	TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (See note below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-8osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1-A—aerial (broadcast)
4	Same as step 2.	3200 kc.	3200 kc.	Special Services	Adjust trimmer for maximum output.	C21—aerial (special services).

NOTE: Make up a 6—8 turn, 6-inch-diameter loop from insulated wire, connect to signal-generator leads, and place near radio loop. The 1620-kc. index mark is located on the pointer rail, to the extreme right side as viewed from the front.

*For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

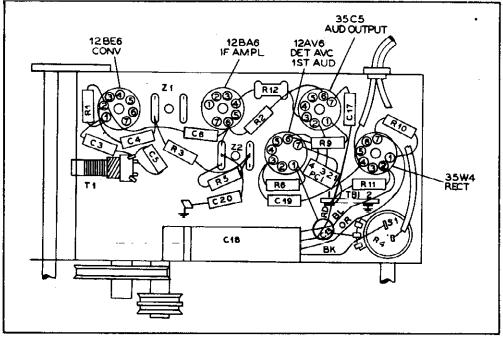


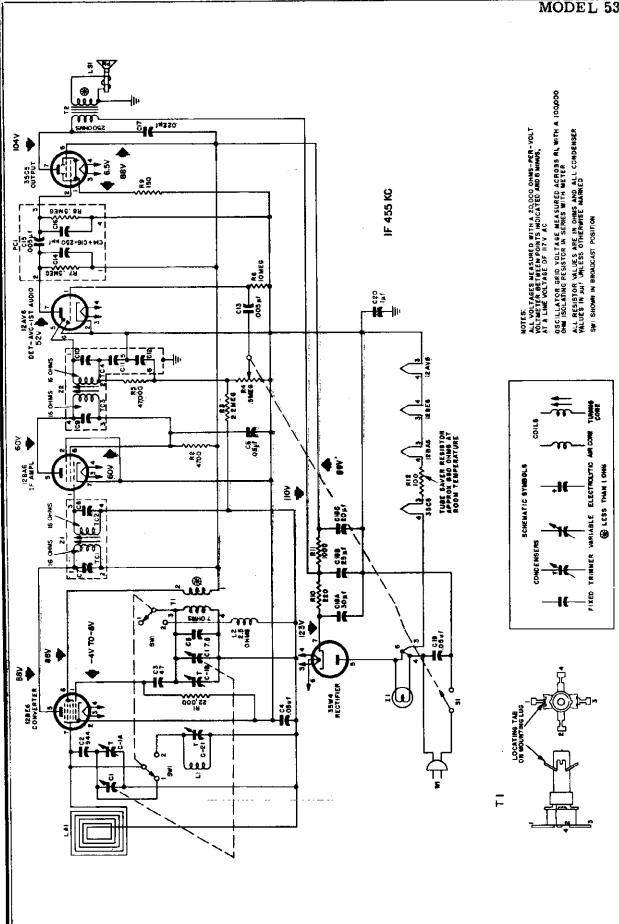
Figure 2. Base View, Showing Symbolized Chassis

TP2-1372



Philco Radio Model 53-563, Schematic Diagram

Figure 3.



@Tahn F Riden

MODEL 53-563

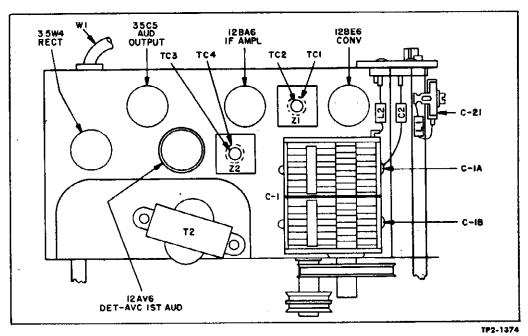


Figure 4. Top View, Showing Trimmer Locations

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

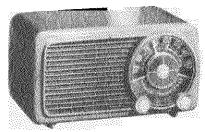
Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang	31-2751-14
C1A	Condenser, aerial trimmer	Part of C1
CIB	Condenser, oscillator trimmer	Part of C1
C2	Condenser, antenna series tracker, 944 µµf.	30-1220-65
Č3	Condenser, oscillator arid, 47 µµf.	30-1230-4
Č4	Condenser, a-v-c by-pass, .05 µf.	45-3505-28*
Č5	Condenser, drift compensation, 7.5 µµf.	30-1224-83
Č6	Condenser, screen by-pass, .05 \u03c4f.	45-3505-28*
C7	Condenser, i-f tuning	Part of Z1
C8	Condenser, i-f tuning	Part of Z1
Č	Condenser, i-f tuning	
CIO	Condenser, i-f luning	Part of Z2
cii	Condenser, detector filtering	Part of Z2
C12	Condenser, dectector filtering	Part of Z2
C13	Condenser, audio coupling, .005 uf.	30-1238-1
C14	Condenser, plate by-pass	Part of PC1
C15	Condenser, audio coupling, .005 \(mu \text{f.}\)	Part of PC1
C16	Condenser, compensating	Part of PC1
C17	Condenser, tone compensation, .022 µf	45-3505-43*
C18	Condenser, electrolytic, 3-section	30-2573
C18A	Condenser, filter, 30 µf., 150v	Part of C18
C18B	Condenser, filter, 25 µf., 150v	Part of C18
CIBC	Condenser, filter, 20 µf., 150v	Part of C18
C19	Condenser, line by-pass, .05 µf.	45-3505-621
C20	Condenser, B minus to chassis, .1 µf	. 45-3505-47
C21	Condenser, trimmer, special services	31-6473-29
11	Lamp, pilot	34-2061
L1	Coil, aerial, special services	32-4561-3
12	Coil oscillator shunt	32-4562-2
ĨĀ1	Loop, part of cabinet back	76-776
LSI	Speaker, p-m	36- 1627-:
R1	Resistor, oscillator grid, 22,000 ohms	66-3228340
R2	Resistor, i-f screen dropping, 4700 ohms	66-2748340
R3	Resistor, a-v-c filter, 2.2 megohms	66-5228340
R4	Resistor, volume control, .5 megohm	33-5566-4
R5	Resistor, diade load, 47,000 ohms	66.3478340

Reference Symbol	Description	Service Part No.
R6	Resistor, grid return, 10 megohms	66-6108340*
R7	Resistor, plate load, 500,000 ahms	Part of PC1
RB	Resistor, arid return, 500,000 ohms	Part of PC1
R9	Resistor, cathode bias, 150 ohms	
R10	Resistor, B plus filter, 220 ohms	66-1224340*
RII	Resistor, B plus filter, 1000 ohms	66-2108340*
R12	Resistor, tube saver, 100 ohms	.33-1343-3
Sł	Switch, off-on	Part of R4
SWI	Switch, broadcast-special services	42-1796-2
T1	Transformer, oscillator	32-4453-6
T2	Transformer, output	32-8384*
	Line cord	L-2183*
WI	Transformer, 1st i-f	32-4161A
Z1 Z2	Transformer, 2nd i-f	32-4240A

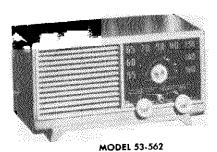
MISCELLANEOUS

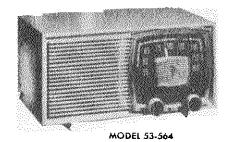
Description	Service Part No.
Cabinet, ebony	10918-1
Cabinet, Swedish red	10918-3
Back and-loop assembly	76-7764
Grille (plastic)	54-4966
Dial backplate (plastic)	54-4968
Drive cord, 25-foot spool	45-8750
Knob, red	54-4527-38
Knob, ebony	54-4527-37
Pointer, dial	56-8774-3
Pointer rail, bracket-and-pulley assembly	76-7767
Shaft, tuning	56-9807
Socket assembly, pilot lamp	27-6233-6*
Socker, 7-pin miniature	27-6265*
Spring, retaining	28-8610*
Spring	56-3167
Spring	28-8953

PHILCO PAGE 23-4 MODELS 53-561, 53-562, 53-56



MODEL 53-561





SPECIFICATIONS

OPERATING YOL		Yells, s.c. or c.
POWER CONSUM	APTION	36 wel
AERIAL	High	-impedance lec
INTERMEDIATE	FREQUENCY	455 k
PHILCO TUBES	12866 converter, 128	BA6 i-f amplific
12AV6 de	ta.v.c1st audio, 35C5 outpe	et, 35W4 rectif
CABINET		Molded plastic
CIRCUIT	Four-tube superheterodyna	(plus rectifier)
FREQUENCY RANG	E.	
Standard Bro	odcast540	kc. to 1620 kc.
Special Servi	ces1700	kc. to 3400 kc.
AUDIO OUTPUT		1 watt

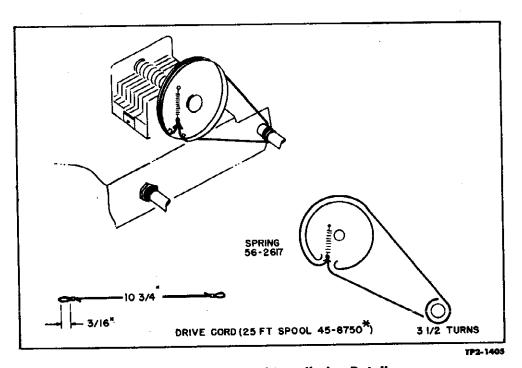


Figure 1. Dial-Cord Installation Details

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals. SIGNAL GENERATOR—Connect generator and set fre-

quency as indicated in chart. Use modulated output. OUTPUT LEVEL—During alignment, adjust signal-generator output to hold output-meter reading below 1.25 volts.

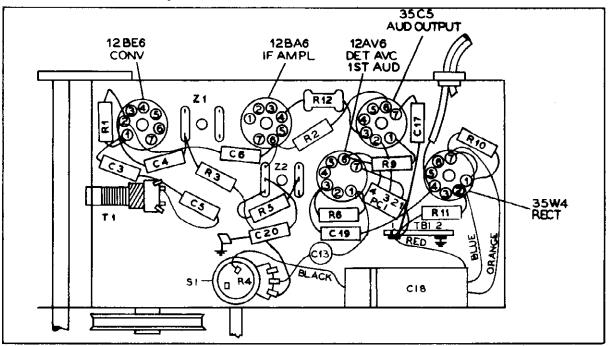


Figure 2. Base View, Showing Symbolized Chassis

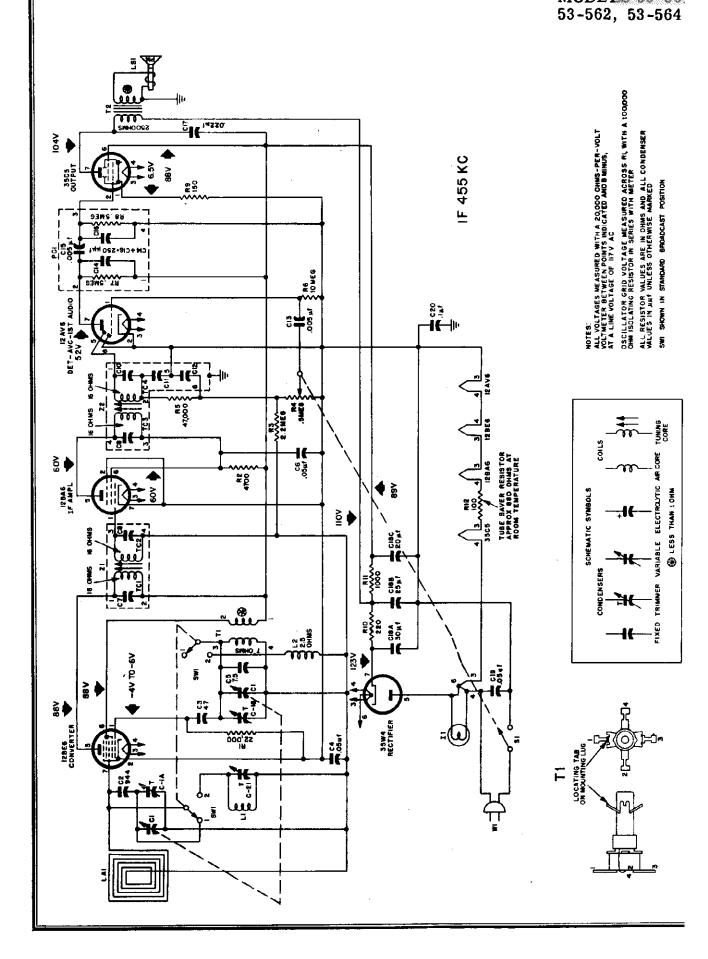
TP2-1406

	SIGNAL GENER	ATOR		RADIO	0	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-μf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers).	TC4-2nd i-f sec. TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Radiating loop (see NOTE below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	CI-A aerial (broadcast).
~4	Same as step 2.	3 20 0 ke.	3200 kc.	Special services	Adjust trimmer for maximum output.	C-21—aerial (special services).

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop.

*For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

MODELS 53-56



MODELS 53-561, 53-562, 53-564

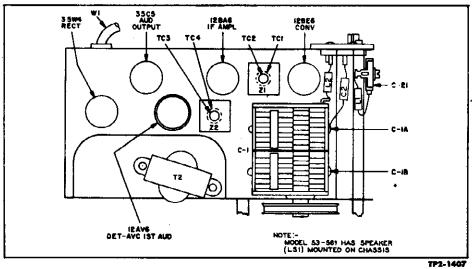


Figure 4. Top View, Showing Trimmer Locations

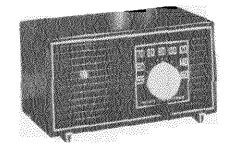
PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
Cl	Condenser, tuning gang	31-2751-14	W1	Line cord	L-2183*
C1A	Condenser, aerial trimmer	Part of C1	Z1	Transformer, 1st i-f	32-4161A
CIB	Condenser, osc. trimmer	Port of C1	72	Transformer, 2nd i-f	
C2	Condenser, aerial series tracker, 944 µµf.			•	
C3	Condenser, oscillator grid, 47 μμf			MISCELLANEOUS	
C4	Condenser, a-v-c by-pass, .05 µf.		Description		Service Part No.
C.S	Condenser, drift compensation, 7.5 µµl.			<u> </u>	201 THE 1 W
C6	Condenser, screen by-pass, .05 µf.		Cobinet		
C7	Condenser, i-f tuning	Part of Z1	Model 53		
CB	Condenser, i-f tuning				10925-1
'C9	Condenser, i-f tuning		Coloni	al green	10925-5
C10	Condenser, i-f luning			n	
C11	Condenser, detector filtering			beige	
C12	Condenser, detector filtering		Model 53		
ciá	Condenser, audio coupling, .005 µf.				10926-3
C14	Condenser, plate by-pass			green	
C15	Condenser, audio coupling, .005 µf.			rine	
C16	Condenser, compensating			• • • • • • • • • • • • • • • • • • •	
C17	Condenser, tone compensation, .022 µf.		Model 53		A THE PARTY OF THE
CIA	Condenser, electrolytic, 3-section			5-50-	10927-1
CTSA	Condenser, filter, 30 µf., 150v			oop Assembly	######################################
C188	Condenser, filter, 25 µf., 150v			3-561	76-7718
CISC	Condenser, filter, 20 µf., 150v			3-562	
C19	Condenser, line by-pass, .05 µf.			3-564	
C20	Condenser, B- to chassis, 1 µf.		Knob (2)		
C21	Condenser, trimmer, special service		Model 53	e.RA1	
lii i	Lamp, pilot			cabinet	54-4980-1
LAI	Loop, gerial			n cabinet	
ii	Coll, antenna, special services			beige cobinet	
12	Coil, oscillator shunt			ial Green cobinet	
เรา	Speaker, p-m		Model 53		
PC1	Printed circuit			n cabinet	54,4773,3
RI	Resistor, oscillator grid, 22000 ohms			abinet	
R2	Resistor, i-f screen dropping, 4700 ohms		,	green cobinet	
R3	Resistor, a-v-c filter, 2.2 megohms			green cabiner rine cabinet	
R4	Resistor, volume control		Model 53		
R5	Resistor, diode load, 47,000 ohms			3-304 In cabinet	54_4082
R6	Resistor, grid return, 10 megohms			i, 25-foot spool	
R7	Resistor, plate load, 500,000 ohms		Pointer, Dia		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Resistor, grid return, 500,000 ohms			3-561	54,4081
RO	Resistor, cathode bias, 150 ohms			3-562	
R10	Resistor, B plus filter, 220 ohms			3-564	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Resistor, B plus filter, 1000 ohms			r-304	
R12	Resistor, tube saver, 100 ohms			embly, pilot lamp	
\$12 \$1				pin miniciture	
SWI	Switch, off-on			pin miniory	
	Switch, broadcast-special services			laining	
T1	Transformer, oscillator				
T2	Transformer, output	32-5384	Spring		

SPECIFICATIONS

CABINET MODEL 53-560	Molded plastic
CIRCUIT	Four-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	Standard broadcast, 540 kc1620 kc.
AUDIO OUTPUT	1 wat
OPERATING VOLTAGE	105-120 volts, s.c. or d.c.
POWER CONSUMPTION	30 watts
	High-impedance loop
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES128	E6 converter, 12BA6 i-f amplifier, 12AV6 det a.v.c1st audio, 35C5 output, 35W4 rectifier



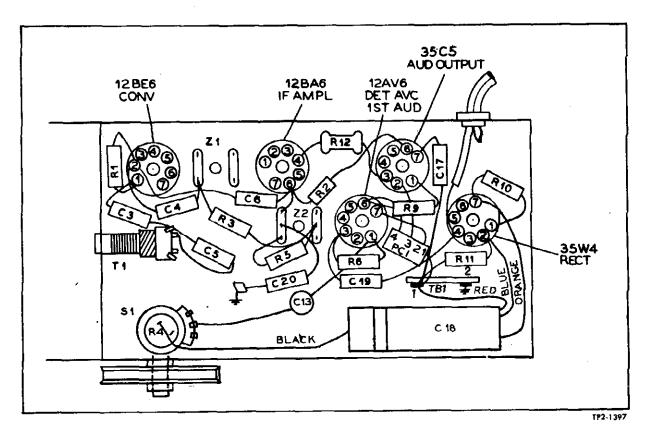


Figure 1. Base View, Showing Symbolized Chassis

MODEL 53-560

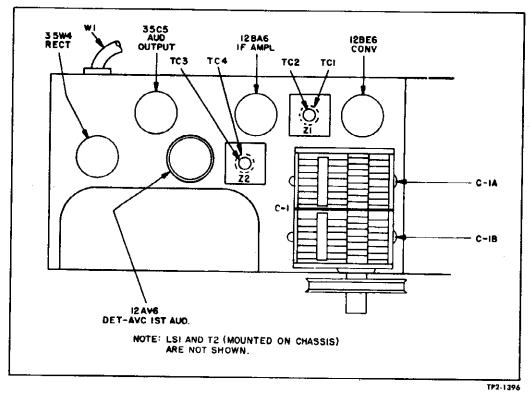


Figure 2. Top View, Showing Trimmer Locations

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart. OUTPUT METER—Connect across voice-coil terminals

SIGNAL GENERATOR-Connect signal generator

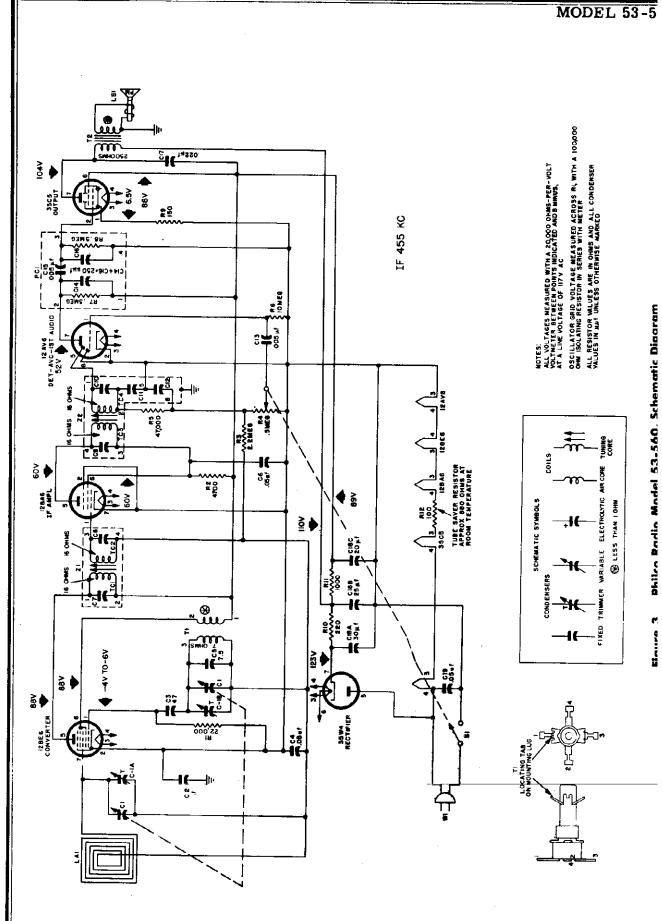
and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to hold output-meter reading below 1.25 volts.

STEP	SIGNAL GENERATO	R	1	RADIO	
Jier	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to 8-; output lead through a .1- μ f. condenser to grid (pin 7) of 12886.	455 kc.	Tuning gang fully open.	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformer.)	TC4—2nd 1-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note beläw),	1620 kc.	*1620 kc.	Adjust trimmer for maximum output.	С18—ок.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust trimmer for maximum output.	CTA-aerial

RADIATING LOOP: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire, connect to signal-generator leads, and place near radio loop.

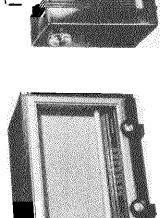
*NOTE: For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

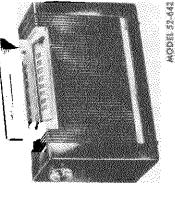


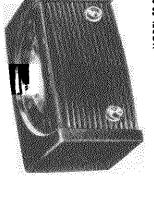
NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Sarvice Part No.	33-5566-41	.66-3478340	66-6108340*	Part of PC1	Part of PCI		66-1158340*	66-1224340*	66-2108340	33-1343-3	Part of R4	32-8384	L-2183	32-4161A	32-4240A		Service Part No.	10921	10921-2	10921-1	76-7705	54-4969	27-4815-8	54-4118	27-4815-10	20-0
Description	Resistor, volume control, .5 megohms (with off-on switch) .33-5566-41	Hesistor, diode load, 47,000 ohms, % w	Resistor, grid return, 10	Resistor, plate load,	Resistor, grid return,	Resistor, cathode bias,	150 ohms, ½ w Resistor, B plus filter,	220 ohms, 1 w	hesistor, b plus filter, 1000 ohms, ½ w	Resistor, tube saver, 100 ohms	Switch, off-on	Transformer, oscillator		Transformer, 1st i-f	Transformer, 2nd i-f	MISCELLANEOUS		Cabinet edony	ivory	gany	Cabinet back-and-loop assembly	Drive cord, 25-toot spool			gany ministers (K sequited)	Socket, 1-pm miniature (9 required)
Reference Symbol	R4	R5	R6	R7	R8	R9	R10		KII	R12	121	I.	:≅	ZIZ	Ħ		Description	Cabinet	Cabinet, ivory	Cabinet	Cabin	Drive o	Fbony	Ivor	Mahogany	Sucket
Service Part No.	31-2751-13 Part of C1	Fart of C1 45-3505-47	f. 30-1230-4	30,1994.83	45 SEDE 98*	Part of ZI	Part of Z1 Part of Z2	Part of Z2	Part of Z2		30-1238-1	Part of PC1	Part of PC1	Part of PC1	7	45-3505-43° on 30-2573	Part of C18	Part of C18	45-3505-62	36-1627-8	30-6001	\$07 00000 aa	00-3220340	66-2748340*	907 000 E	00-0220040
Description		Condenser, osc. trimmer Condenser, leakage, .1 µf.	Condenser, oscillator grid, 47 $\mu\mu$ f	0.0	Condenser, screen by-pass,	Condenser, i-f tuning	Condenser, i-f tuning Condenser, i-f tuning	^ .	Condenser, detector filtering Condenser, detector filtering	۸ . ۸	- 1	Condenser, plate by-pass		Condenser, plate by-pass		$022 \mu t$. Gordenser electrolytic. 3-section 30-2573		Condenser, filter, 25 μ t., 150v.	^	Speaker, p-m	Ü	-	22,000 onms, a w	4.700 ohms % w		megohms, # W
Reference Symbol	00.	90	88		90		පී					5 5 5 5 5		CI6		CIR	¥81	Class	֧֧֝֟֝֝֟֝֝֝֟֝֝֟֝֝֟֝ ֖֖֓		PCI			72	R3]	

52-642, MODELS 52-549,







MODEL 52-939

920 E 2204

MODEL 52-549

	4-tube supersprodyne	(plus rectifier)	1.2 watts	volts, a.c. or d.c.
	:	Y BANCE	AUDIO OUTPUT 1.2 watts	OPERATING VOLTAGE105-125 volts, a.c. or d.c.
CABINET	CIRCUIT	FRECITENC	AUDIO OU	OPERATIN

AERIAL High-impedance loop; connector for external aerial INTERMEDIATE FREQUENCY 455 kc. PHILCO TUBES (4 plus rectifier) 7A8, 12BA6, 12AV8, 35L6CT, 35Z5CT

MODEL 52-642

POWER CONSUMPTION A-c or d-c operation Battery operation 95 ms from 675-volt "R"	AERIAL provision for connecting external aerial	INTERMEDIATE FREQUENCY PHILCO TUBES (4) RATTERY TYPE P-67 "B" battery	TYPE D "A" battery
CABINET Plastic, portable CIRCUIT 4-tube superheterodyne plus selenium rectifier)	FREQUENCY RANGE 540-1620 kc. AUDIO OUTPUT A-c or d-c oneration 150 milliwatts	Battery operation 75 milliwatts OPERATING VOLTAGES 117 volts, a.c. or d.c.; 1.5-volt "A" and 67.5-volt "B" battery	

MODEL 52-939 CABINET CIRCUIT CIRCUIT FREQUENCY RANGE AUDIO OUTPUT OPERATING VOLTAGE 105-120 volts, a.c. or d.c.

MODELS **52-549,** 52-642, 52-939

ALIGNMENT PROCEDURE

The alignment procedures for the receivers covered by this manual are given in the service manuals listed below.

Model 52-549	same as	Model 52-541,	Pgs.	1-4
Model 52-642	same as	MIOGEL 52-04U. It	Z.D.	11-4V
Model 52-939	same as	Model 52-940, p	ogs.	25-28

SCHEMATIC DIAGRAMS

The schematic diagrams for the models in this manual are given in the service manuals listed above. Models 52-549 and 52-642 differ from the basic circuit only as described below.

MODEL 52-549 CIRCUIT

The circuit for this set differs from that of Model 52-541 only in the audio section. See figure 1 and Pg 1-4. These changes are as follows, and are in

addition to component part number changes given in the parts list in this service manual.

A condenser, C12, 220 $\mu\mu$ f., Part No. 62-122001011, is connected between the high side and the center arm of the volume control, R8. Condenser C12 is used for high-frequency compensation.

The tone-compensation condenser, C8, was changed from .05 μ f. to .03 μ f., Part No. 30-4517.

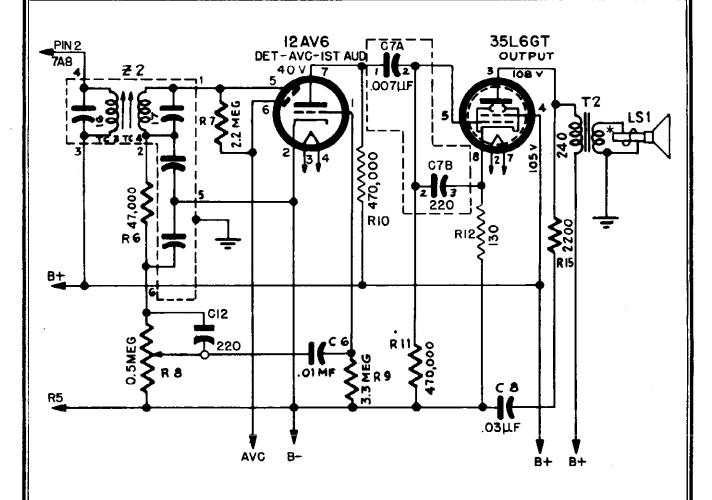


Figure 1: Model 52-549, Second Detector and Audio Amplifier Circuits

MODELS 52-54 52-642, 52-939

MODEL 52-642 CIRCUIT

The circuit for this set differs from that of Model 52-640 in that it includes a Private Listening Unit receptacle. See figure 2 and Pg17-20. The Private

Listening Unit receptacle, J3, Part No. 42-1975-: is wired into the circuit as shown in figure 2. A shur resistor, R19, Part No. 66-0108340, reduces volume t the correct level for Private Listening. R19, a 10-ohr resistor, is wired from J3 to chassis ground.

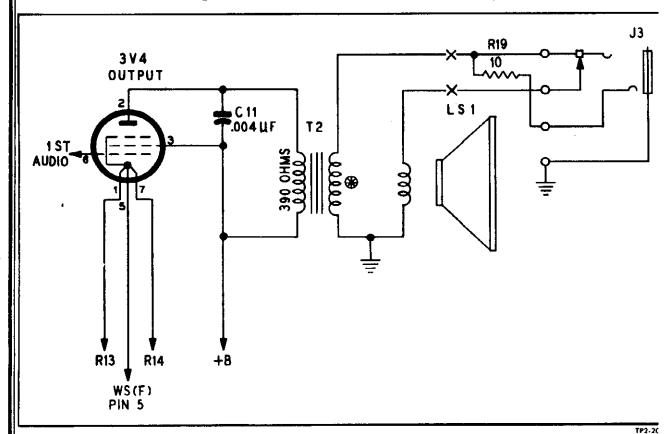
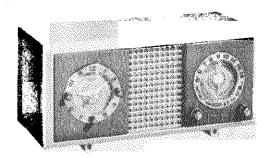


Figure 2. Model 52-642, Output Circuit Showing the Connections for a Private Listening Unit

	MODEL 52-549		MISCELLANEOUS (Co.	nt.)
Reference	Description	Service	MODEL 52-642	
Symbol Il	Pilot-lamp assembly	Part No. 76-1179-7	Description	Servic Part N
LA1	Loop aerial	32-4052-65	Cabinet	
LS1	Speaker, 6-inch, p.m.	36-1641-1	Teal green	10799-]
T2	Transformer, output	32-8384-2	Maroon	10799-1
	MISCELLANEOUS		Swedish red	10799-
İ	MODEL 52-549		Caribbean blue	10799-1
Description		Service	Nile green	10799-1
Description		Part No.	Arabian sand	10799-1
Cabinet	, mahogany	10910	Ebony	
Knob	(2)	54-4774-9	Knob (2) (all models)	54-47
			Pointer (all models)	56-7 973
Cabinet	t, light (blond)	10910-1	Scale (all models)	
Knob	(Ž)	54-4774-1 0		
			MODEL 52-939	
Cabinet	t, ebony	10910-2	Cabinet, ebony	76-754
Knob	(2)	54-4774-18	Back	
Scale	***************************************	54-5141	Knob (2)	
Back, c	abinet (all models)	54-8640	Pointer assembly	76-5341
Pointer	(all models)	56-8774-2	Scale	54-5071

SPECIFICATIONS

CABINET Molded plastic CIRCUIT Five-tube superheterodyne (plus rectifier)
FREQUENCY RANGE
Broadcast540 kc, to 1620 kc.
Special Services1700 kc. to 3400 kc.
AUDIO OUTPUT1 watt
OPERATING VOLTAGE 105-120 volts, a.c.
POWER CONSUMPTION 30 watts
ANTENNA Built-in, high-impedance loop
INTERMEDIATE FREQUENCY 455 kc.
PHILCO TUBES6BJ6 r-f ampl.; 12BE6 converter;
óBJó i-f ampi.; óAQ5 detector, a.v.c., 1st
audio; 35C5 output; 35W4 rectifier



MODEL 53-804

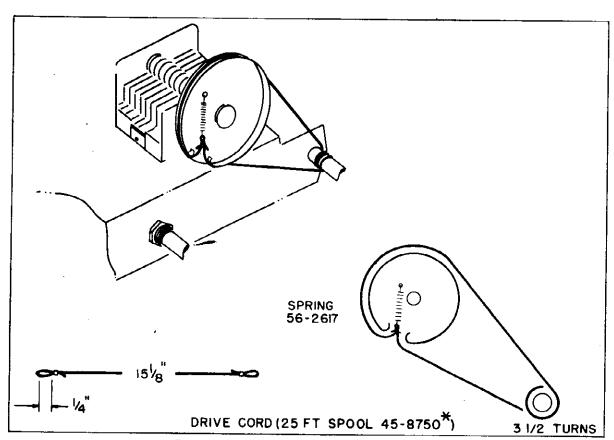


Figure 1. Drive-Cord Installation Details

TP2-1405A

ALIGNMENT PROCEDURE

GENERAL

RADIO CONTROLS—Set volume control for maximum output and tuning control as given in the alignment chart. Set band switch to broadcast position for first 5 steps, and to special services position for steps 6 and 7.

OUTPUT INDICATOR—Connect output indicator (either on oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f generator, connected as indicated in the alignment chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to maintain output indication below 1 volt.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

ALIGNMENT CHART

	SIGNAL GENERATOR		X	RADIO	
STEP	CONNECTION TO RADIO	DIAL	DIAL	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B—. Output lead through a .01-\pm\.condenser to pin 7 (mixer grid) of 12BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC5—2na i-f sec. TC4—2nd i-f pri. TC3—1st i-f sec. TC2—1st i-f pri.
63	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output.	CIC—osc. trimmer
က	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. (High-frequency adjustment)	CIB—mixer-grid trimmer CIA—r-f trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment)	TC1-r-f transformer
īО	Repeat steps 3 and 4 until no further improvement is obtained	further imp	rovement is obtained.	:	
9	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output.	C5-special-services mixer-grid trimmer C2-special-services r-f trimmer
2	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output. C3-special-services	C3—special-services r-f padder

NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop antenna. The loop antenna must be connected to the radio.

NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.

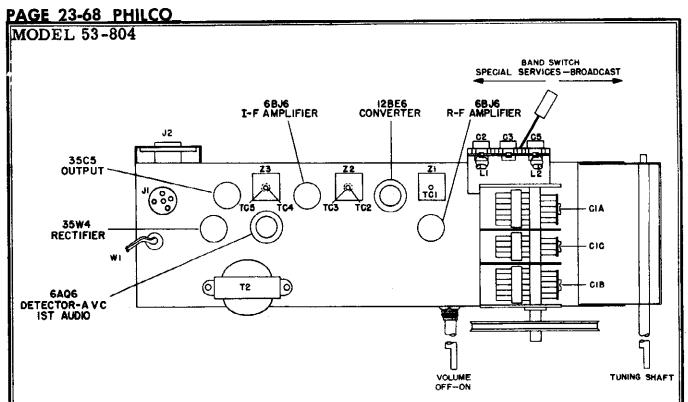


Figure 2. Top View, Showing Tuning Adjustments

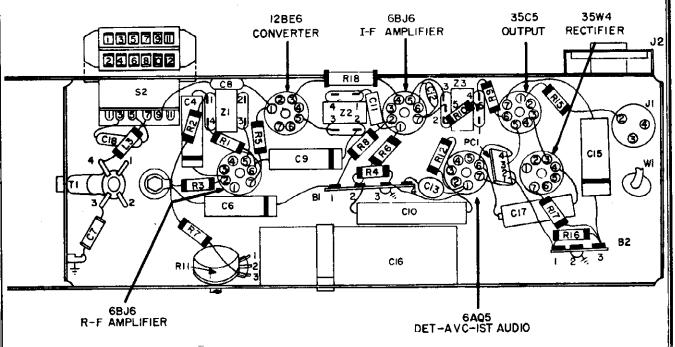
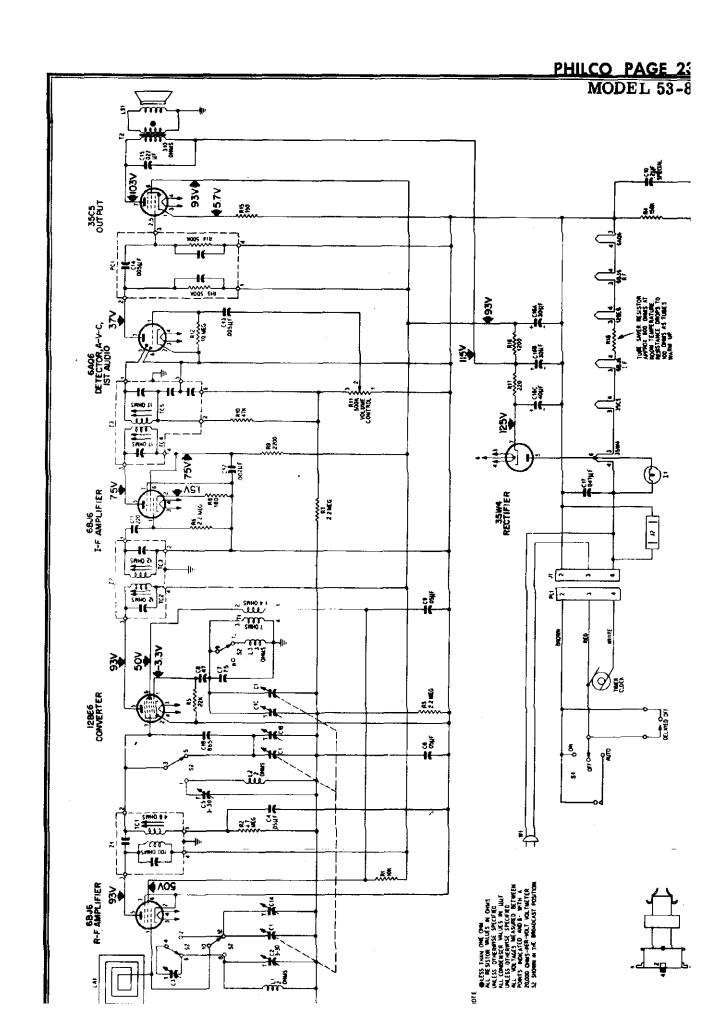


Figure 3. Base View, Showing Parts Placement



PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
	Condenser, tuning gang, 3-section	31-2771-2	R11	Volume control, 500,000 ohms	22 EKAK KI
ClA	Condenser, trimmer, antenna	Part of C1	R12	Resistor, grid leak, 10 megohins	
C1B	Condenser, trimmer, r-f	Part of C1	R13	Resistor, plate load, 500,000 ohms	
CIC	Condenser, trimmer, oscillator	Part of CI	R14	Resistor, grid leak, 500,000 ohms	
C2	Condenser, trimmer.		R15	Resistor, cathode bias, 150 ohms,	rart of PC1
	special services r-f	Part of CA1	1(10	1 watt	66-1154340*
C3	Condenser, padder, special services r-f	Part of CA1	R16	Resistor, B+ filter, 1200 ohms	
C4	Condenser, r-f by-pass, .05 µf	.30-4650-45*	R17	Resistor, B+ filter, 220 ohms, 1 wa	
C5	Condenser, trimmer.		R18	Resistor, tube saver, 100 ohms	
	special services mixer-grid		S2	Switch, band, broadcast-special ser-	
C6	Condenser, a-v-c by-pass, .05 µf	.30-4650-45*	TI	Transformer, oscillator	
C7	Condenser, fixed trimmer, 7.5 µµf	30-1224-65	T2	Transformer, output	32-8310-3
C8	Condenser, d-c blocking, 47 µµf		W1	Line cord	
C9	Condenser, screen by-pass, .05 µf	.30-4650-45*		Transformer, r-f	
C10	Condenser, special, B- to chassis, .2 µ	f30-4644	7.2	Transformer, 1st i-f	32-4160A
C11	Condenser, i-f coupling, 220 µµf62			Transformer, 2nd i-f	
C12	Condenser, screen by-pass, .002 µf	30-1238-8*		2 Total City 2 The 1-5 months and	V#-727VA
C13	Condenser, audio coupling, .005 µf.*	30-1238-1°		•	
C14	Condenser, d-c blocking, .005 µf	Part of PC1		MISCELLANEOUS	
C15	Condenser, tone compensation, .022 µf.		Descriptio	n	Service
C16	Condenser, electrolytic filter	30-2575-27			Part No.
C16A	Condenser, filter, 30 µf., 150v	Part of C16			
C16B	Condenser, filter, 30 µf., 150v	Part of C16	Bezel, radi	o	28-9039
C16C	Condenser, filter, 40 \(\mu f., \) 150v	Part of C16	Ring, be	zel	28-9171
C17	Condenser, line by-pass, .047 uf	.30-4650-45°	Cabinet		10965
C18	Condenser, fixed padder, 865 µµf	30-1220-68	Back an	d loop assembly	76-8098
CA1	Condenser assembly, trimmer		Cable asse	mbly, clock	41-3909-4
I i	Lamp, pilot	34-2068	Clamp, ele	ectrolytic condenser	56-1466
J1	Connector, clock cable, female	27-6273	Clock		41-2044-1
J2	Connector, appliance	76-3931		nd bracket assembly, clock	
LI	Coil, special services r-f	32-4561-4	Dial scale	and backplate assembly	76-8094
L2	Coil, special services mixer-grid	32-4561-4	Drive cord	, 25-ft. spool	45-87 5 0*
L3	Coil, oscillator shunt			drive-cord	
PC1	Printed circuit	30-6001		eaker	
PLI	Connector, clock cable, malePart of	f clock cable			
R]	Resistor, screen dropping, 10,000 ohms		Knob (2)		76-6373-2
	10,000 ohms	66-3108340°	Knob, ban	d switch	54-4998
R2	Resistor, a-v-c load, 4.7 megohms	66-5478340°			
R3	Resistor, a-v-c load, 2.2 megohms	66-5228340*	Rubber me	ount, gang mounting	27-4596
R4	Resistor, B— to chassis, 150,000 ohms			ing	
R5	Resistor, grid leak, 22,000 ohms		Spring,	retaining	28-8610
	Resistor, grid leak, 2.2 megohms		Shield, tub	e (2)	56-5629FA3
R7	Resistor, a-v-c load, 2.2 megohms	66-5228 340°	Socket ass	embly, pilot lamp	27-6233-6
R8	Resistor, cathode bias, 180 ohms	66-1188340*	Socket, tul	œ (2)	27-6203-14
	Resistor, screen dropping 2200 ohms			e (4)	
R10	Resistor, i-f filter, 47,000 ohms	66-3478340°	Speaker		36-1627-21

SPECIFICATIONS

CABINET		
CIRCUIT	Six-tube superheterodyne plus selenium rectifier	
FREQUENCY RANGES	·	
Broadcast	540—1620 kc.	
FM	88—108 mc.	2
AUDIO OUTPUT		
OPERATING VOLTAGE		
POWER CONSUMPTION		
ANTENNA	Built-in pancake loop for AM; line cord for FM	MODEL 53-958
INTERMEDIATE FREQUENCY		
AM	455 kc.	
FM	9.1 mc.	
PHILCO TUBES (6)	12BA6 r-f ampl., 12AT7 converter, 12BA6 deta.v.c1st audio, 35C5 output	1st i-f ampl., 12AU6 2nd i-f ampl., 19

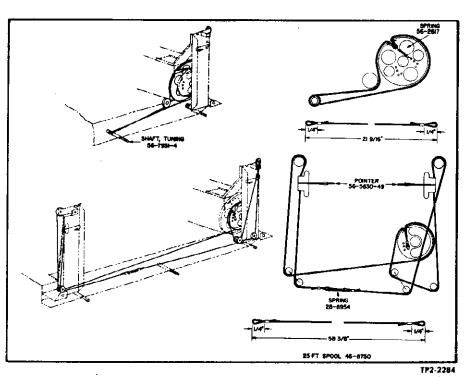


Figure 1. Drive-Cord Installation Details

AM ALIGNMENT PROCEDURE

GENERAL—Before starting the alignment, allow the radio and the signal generator to warm up for fifteen minutes. Make the alignment with the loop antenna connected to the radio. The AM alignment should be made before the FM alignment is made.

RADIO CONTROLS—Set the volume control to maximum. Set the band switch for broadcast reception. Set the tuning control as indicated in the AM alignment chart.

OUTPUT INDICATOR—Connect the output indicator (an oscilloscope or a 1,000-ohms-per-volt voltmeter) across the voice-coil terminals.

SIGNAL GENERATOR-Use an AM r-f signal generator with modulated output. Connect the generator to the radio, and set the frequency as indicated in the AM alignment chart.

OUTPUT LEVEL-During the alignment, the signal generator output should be attenuated to hold the output indication below 1 volt.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the index mark on the dial pointer rail assembly when the tuning gang is completely closed. See figure 3. (The pointer rail is the metal assembly upon which the pointer rides.)

CAUTION—One side of the a-c line is connected directly to the chassis. Therefore, an isolation transformer should be used when working with this chassis, to prevent injury to personnel or damage to test equipment.

AM ALIGNMENT CHART

	SIGNAL GENERATOR	RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to chassis. Output lead through a .1-\(\mu f \). condenser to pin 7 (grid) of 12AT7.	455 kc. (modu- lated)	Set tuning gang so that dial pointer coincides with the 1630-kc. mark. See figure 3.	Adjust for maximum output, in order given in next column.	TC10-2nd AM i-f sec. TC9-2nd AM i-f pri. TC4-1st AM i-f sec. TC3-1st AM i-f pri.
2	Radiating loop. See note below.	1630 kc. (modu- lated)	Same as step 1.	Adjust for maximum output.	C1C-osc. trimmer
3	Same as step 2.	1520 kc. (modu- lated)	Set tuning gang so that dial pointer coincides with 1520-kc. mark, See figure 3.	Adjust for maximum output, in order given in next column.	C1B-r-f trimmer C1A-antenna trimmer (high-frequency adjustment)
4	Same as step 2.	580 kc. (modu- lated)	Set tuning gang so that dial pointer coincides with 580-kc. mark. See figure 3.	Adjust for maximum output. Rock tuning gang while making this adjustment.	TC12-r-f transformer (low-frequency adjustment)
5	Repeat steps 3 and 4 until no furth	er improve	ment is obtained.		

NOTE: Make up a six-to-eight turn, 6-inch-diameter loop from insulated wire; connect to generator terminals, and place near radio loop antenna. The radio loop antenna must be connected to the radio.

FM ALIGNMENT PROCEDURE

(Using FM Test Equipment)

CENERAL—Before starting the alignment procedure, allow the radio and the test equipment to warm up for fifteen minutes. The AM alignment should be made before the FM alignment is made.

RADIO CONTROLS—Set the volume control to maximum. Set the band switch for FM reception. Set the tuning controls as indicated in the FM alignment chart.

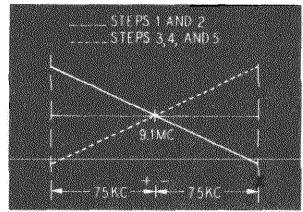
OUTPUT INDICATOR—The first two steps must be performed with the use of an oscilloscope. Connect the ground leads to the radio chassis. Connect the vertical input to the FM test jack, J2, and the horizontal input to the horizontal sweep output of the sweep signal generator. The remaining steps should be performed with the output indicator connected across the voice-coil terminals (either an oscilloscope or a 1000-ohmsper-volt voltmeter).

SWEEP GENERATOR—Use an FM sweep signal generator. Connect the generator to the radio as indicated in the FM alignment chart. Set the frequency and sweep width as indicated in the chart.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the index mark on the dial pointer rail assembly when the tuning gang is fully closed. See four 3

See figure 3.

CAUTION—One side of the a-c line is connected directly to the chassis. Therefore, an isolation transformer should be used when working with the chassis, to prevent injury to personnel or damage to test equipment.



TP1-2111

Figure 2. Characteristic Curve of FM Detector

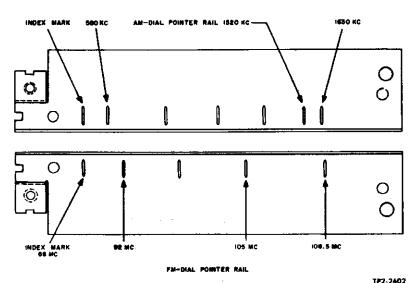
FM ALIGNMENT CHART

	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	5PECIAL INSTRUCTIONS	ADJUST	
1	Connect ground lead to chassis. Connect output lead through a .01-µf. condenser to control grid (pin 1) of 12AU6 2nd i-f amplifier (test point A). See figure 5.	9.1 mc. (75-kc. deviation)	88 mc. (gang fully meshed).	Adjust TC8 for balance and TC7 for maximum indication (maximum slope) on scope as shown in figure 2.	TC8-detector se TC7-detector p	
2	Connect ground lead to chassis. Connect output lead through a .01-\mu f. condenser to FM tuning gang stator lug, junction of C1 and pin 4 of L2 (test point B). See figure 5.	Same as step 1.	Same as step 1.	Adjust in order given in next column, for maximum indication (maximum slope) on scope as shown in figure 2.	TC6-FM 2nd i-f sec. TC5-FM 2nd i-f pri. TC2-FM 1st i-f sec. TC1-FM 1st i-f pri.	
3	Connect output lead to lug 2 of TB1, and ground side of generator to lug 1 of TB1 (test point C). See figure 4. See note 1 below.	108.5 mc.	Set tuning gang so that dial pointer coincides with 108,5-mc. mark. See figure 3.	Adjust for maximum indication on output indicator.	C18-FM osc. trimmer	
4	Same as step 3.	92 mc.	Set tuning gang so that dial pointer coincides with 92-mc. mark. See figure 3.	Adjust for maximum indication on output indicator. See note 2 below.	L5—FM osc. co	
5	Same as step 3.	105 mc.	Set tuning gang so that dial pointer coincides with 105-mc. mark. See figure 3.	Adjust for maximum indication on output indicator. Rock tuning gang while making this adjustment.	C113-FM mixer grid (high-frequency adjustment)	
6	Same as step 3.	Same as step 5.	Same as step 5.	Adjust for maximum indication on output indicator.	C4-FM r-f grid (high-frequency adjustment)	
7	Same as step 3.	92 mc.	Same as step 4.	Adjust for maximum indication on output indicator. See note 3 below.	L2-FM mixer (low-frequency adjustment)	
8	Same as step 3.	Same as step 7.	Same as step 4.	Adjust for maximum indication on output indicator.	TC11-FM r-f grid (low-frequency adjustment)	

NOTE 1: For accurate results, the signal-generator output impedance must be 300 ohms to match the input impedance of T If the signal-generator output impedance is less than 300 ohms, a resistor of the proper value should be used in series with output lead to make the impedance correct. For example, if the output impedance is 150 ohms, place a 150-ohm resistor in se with the output lead.

NOTE 2: With the conditions given in step 4 (step 6 of alternate procedure), if the oscillator is not tuned for maximum output, it may be necessary to compress or spread the coil turns to give maximum output. (Do not disturb the setting of the tuning gang while making any necessary adjustment.) After the coil is adjusted, repeat steps 3 and 4 (steps 5 and 6 of alternate procedure) until no further improvement is obtained. Then proceed to the next step.

NOTE 3: With the conditions given in step 7 (step 8 alternate procedure), if the mixer-grid circuit is not tuned maximum output, it may be necessary to compress or spr the coil turns to give maximum output. (Do not disturb setting of the tuning gang while making any necessary justment.) After the coil is adjusted, repeat steps 5 throug (steps 7 and 8 of alternate procedure) until no further provement is obtained. Then proceed to the next step.



AM and FM Pointer Rails, Showing Alignment Marks

ALTERNATE FM ALIGNMENT PROCEDURE

This alternate procedure is designed to be used where only AM test equipment is available.

GENERAL-Before starting the alignment procedure, allow the radio and signal generator to warm up for fifteen minutes. The AM alignment should be made before the FM alignment is made.

RADIO CONTROLS-Set the volume control to maximum. Set the band switch for FM reception. Set the tuning control as indicated in the chart.

OUTPUT INDICATOR-Use a 20,000-ohms-per-volt voltmeter.

SIGNAL GENERATOR—Use an AM r-f signal generator. Connect the generator to the radio, and set the frequency as indicated in the chart.

DIAL POINTER-Before the alignment is started, the dial pointer should be set to coincide with the index mark on the dial pointer rail assembly when the tuning gang is fully closed. See figure 3.

CAUTION—Refer to the CAUTION given in the regular FM alignment procedure.

*In order to perform this alignment it is necessary to place two 100,000-ohm resistors in series between the junction of R17 and C27 (pin 7 of 19V8) and ground. The output meter must be placed between the junction of these two resistors and the FM test jack, J2, for the first step of the alignment, and between the junction of these two resistors and ground for the remaining steps of the alignment with the negative meter lead at the junction of the two resistors. For the first step of the alignment, the meter needle should be set off zero to the first major scale mark by adjusting the meter zero adjust knob. After the first step has been completed, the needle can be set back to the zero mark. The purpose of this adjustment is to enable the serviceman to see a negative indication on the meter.

The output indication for all steps except the first one should be between 5 and 10 volts.

The two series resistors should be as nearly equal in value as possible (at least within 5% of each other).

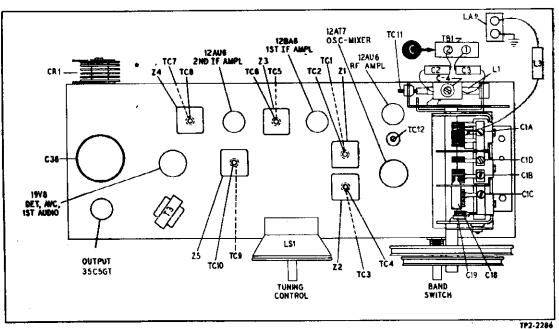


Figure 4. Top View, Showing Trimmer Locations

ALTERNATE FM ALIGNMENT CHART

	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST	
1	Connect ground lead to chassis. Connect output lead through a .01-\(\mu f\), condenser to pin 1 (grid) of 12AU6 2nd i-f amplifier (test point A). See figure 5.	9.1 mc. (modu- lated)	88 mc. (gang fully meshed)	Adjust for balance (zero indication on meter).	TC8-FM det. se	
2	Same as step 1.	Same as step 1.	Same as step 1.	Adjust for maximum output.	TC7-FM det. p	
3	Connect ground lead to chassis. Connect output lead through a .01-4f. condenser to pin 1 (grid) of 12BA6 1st i-f amplifier (test point D). See figure 5.	Same as step 1.	Same as step 1.	Adjust in order given in next column, for maximum output.	TC6-2nd FM i-f sec. TC5-2nd FM i-f pri.	
4	Connect ground lead to chassis. Connect output lead through a .01-\mu f. condenser to junction of C1 and pin 4 of L2 (test point B). See figure 5.	Same as step 1.	Same as step 1.	Adjust in order given in next column for maximum output.	TC2-1st FM i-f sec. TC1-1st FM i-f pri.	
5	Connect ground lead to pin 1 of TB1. Connect output lead to pin 2 of TB1 (test point C). See figure 4. See note 1 of regular FM alignment procedure.	108.5 mc.	Set tuning gamg so that dial pointer coincides with 108.5-mc, mark. See figure 3.	Adjust for maximum output.	C18—osc. trimme	
6	Same as step 5.	92 mc.	Set tuning gang so that dial pointer coincides with 92-mc. mark. See figure 3.	Adjust for maximum output. See note 2 of regular FM alignment procedure.	L5—FM osc. coi	
7	Same as step 5.	105 mc.	Set tuning gang so that dial pointer coincides with 105-mc. mark. See figure 3.	Adjust in order given in next column, for maximum output.	C1D-FM mixer grid C4-FM r-f gric (high-frequency adjustments)	
8	Same as step 5.	92 mc.	Same as step 6.	Adjust for maximum output. See note 3 of regular FM alignment procedure.	L2—FM mixer g (low-frequency adjustment)	
9	Same as step 5.	Same as step 6.	Same as step 6.	Adjust for maximum output.	TC11—FM r-f g (low-frequency adjustment)	

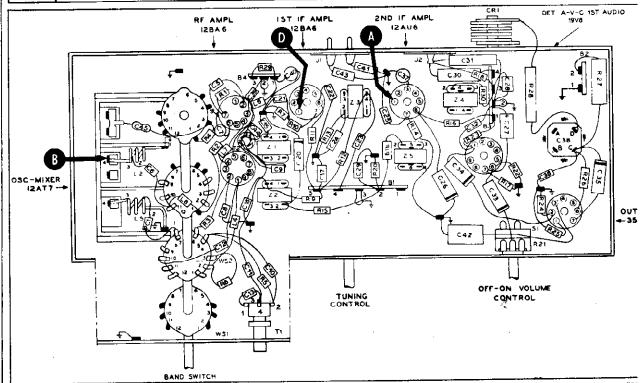


Figure 5. Base View, Showing Parts Placement

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Referen Symbo		Description	Service Part No.	Referen Symbo		Description	Se: Par
C1	Condenser	, tuning gang,			100 μμf.		62-I1000
	5-section	414445444444444444444444444444444444444	31-2762-2	C25		cathode by-pass,	
ClA	Condenser				01 µf		30-46
AND		nna		C26	Condenser,	screen by-pass,	
CIB		, trimmer, BC r-f	Part of Cl				
CIC	Condenser	, trimmer,	Down of C1	C27	Condenser,	diode load filter,	
CID		lator EM - 6		C00		/	"3U-2
C2		trimmer, FM r-f.		C28	Condenser,	i-f by-pass,	69.1150
UZ.	3.3 auf.	, antenna isolating	30-1224-49	C29		i-f by-pass,	02-1100
C3				020	100 uuf.		.62-1100
	220 uuf.	, antenna isolating	62-122001001°	C30		d-c blocking,	
C4		FM antenna trin			.006 μf		30-46
C5	Condencer	cathode by page		C31		de-emphasis,	
	22 µµf	, cathode by-pass,	62-022009001		.004 μf		30-46
C6	Condenser	, d-e blocking,		C32	Condenser.	plate by-pass,	
	220 μμf.		62-122001001*		680 μμf.		62-1680
C7	Condenser	, screen by-pass,		C33	Condenser,	audio coupling,	
			30-1238-1°	~~.			30-4
C8	Condenser	, oscillator grid,		C34	Condenser,	d-c blocking,	50.44
~		***************************************		C35			
C9	Condenser	, neutralizing, $1.5 ho$	μμt30-1221-7	C35	Condenser,	tone compensation	on, <i>QA_A4</i>
C10	Condenser,	, cathode by-pass,	90 4050 508	C36		plate decoupling	
C11	.υι μι			000	220 <i>uu</i> f.	prace decoupling	62-1220
C11 C1 2		, neutralizing, 2.2 ,	μμ1,30-1221-4	C37	Condenser.	filament by-pass,	
CIZ	Condenser,	, d-c blocking,	90 1004 BE		.005 μf.		30-]
C13		, fixed trimmer,		C38		electrolytic,	
	7.5 uuf.	, nacu unimei,	30-1224-65		4-section		
C14		, cathode by-pass,		C38A	Condenser,	cathode by-pass,	
. –	$220~\mu\mu f$.	,	Part of PC1		25 μf., 2	5v	Part o
C15						filter, 40 µf., 150	
	220 μμf.	, r-f by-pass,	62-122001001*			filter, 70 μf., 150	
C16	Condenser	, plate decoupling	,			filter, 40 μ f., 150	
		**************************************	30-4650-58*	C39	Condenser,	filament by-pass,	00 1700
C17	Condenser	, r-f by-pass,	75 1100000010	0.40	100 μμt.		62-11 0 0
010		***************************************	62-110009001*	C40	Condenser,	filament by-pass,	90.1
C18	Condenser	, trimmer, llator	21 6511 10	C41		lina her maa	
C19			31-0311-10	C41	innf	line by-pass,	69-1100
C1.3	3.3 auf	, fixed trimmer,	30-1224-30	C42		line by-pass,	
C20		, a-v-c decoupling		V24	.047 uf.	mic by-pass,	30-46
	.01 uf	accouping	, 30-4650-58*	C43		line by-pass,	
C21		, cathode by-pass,			100 μμf.) E	62-1100
•	220 μμf.		62-122001001°	C44	Condenser,	r-f by-pass,	
C22	Condenser	screen by-pass.			47 μμf		60-004
	θu μf		30-4650-54*	C45	Condenser,	d-c blocking,	
C 23	Condenser	neutralizing.		_ •-			
	.006 μf	***************************************	30-4650-57*	CR1		ectifier, 100 ma., 1	
C24	Condenser	, i-f by-pass,		I 1	Pilot lamn	BC	.34

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MODE	L 53-958				
Refer Sym		Service Part No.	Referen Symbo		Service Part No.
12	Pilot lamp, FM	34-2605	R21	Volume control (with off-on	
J1	Connéctor, male, a-c	27-6240-5		500,000 ohms	33-5566-44
J2	Connector, female, FM test	27-6180	R22	Resistor, grid return,	
Ll	Coil, FM antenna tuning	32-4532A		10 megohms	66-4478340°
L2	Coil, FM r-f	32-4415-2	R23	Resistor, plate load,	
LS	Choke, r-f	32-4061-3	R24	470,000 ohms	66-6108340*
I.4 L5	Choke, r-f, 3.3 µh.	32-4422-10	1127	Resistor, grid return, 470,000 ohms	RR 44702400
L6	Coil, FM oscillator	32-4414-6	R25	Resistor, cathode bias, 150 o	
L7	Choke, filament, 2.2 µh.	32-4422-8	R26	Resistor, filter, 470 ohms,	1111300-110040
L8	Choke, filament, 2.2 μh	32-4422-8		1 watt	66-1474340°
L9	Choke, r-f, 3.3 μ h	32-4422-10	R27	Resistor, filter, 150 ohms,	
L10	Primary, r-f transformer	Powt of TO	Tigo	2 watts	66-1155360*
LAI	AM loop and support asseml	rart or 12 hly 76.7896.1	R28	Resistor, current limiting, 2	22 ohms,
LA2	Line-cord aerial,	ory10-1000-1	R29	2 watts	
	FMPart of E	Back Assembly	R30	Resistor, loading, 100 ohms	66 1108940
LS1	Speaker		S1	Switch, off-on	Part of R91
PC1	Printed circuit, parasitic		T1	Transformer, AM oscillator	32-4569-1
RI	suppressor	30-6002	T2	Transformer, AM r-f	32-4572
N1	Resistor, cathode bias,	QQ 11000400	T3	Transformer, output	32-8596
R2	Resistor, screen decoupling,		W1	Line cordPart of	Back Assembly
	470 ohms	66-1478340*	ws	Switch, band, 4-wafer	42-1991
R3	Resistor, grid return,		Zl	Transformer, FM 1st i-f	32-4518A
	15,000 ohms	66-3158340*	Z2	Transformer, AM 1st i-f	32-4516A
R4	Resistor, grid return,		Z3	Transformer, FM 2nd i-f	32-4518-1A
R5	2.2 megohms		Z4	Transformer, FM detector	32-4310-4A
No	Resistor, parasitio suppressor 2200 ohms	, 66-9998946*	Z 5	Transformer, AM 2nd i-f	32-4517A
R6	Resistor, parasitic suppressor			MISCELLANEOUS	
	470 ohms	Part of PC1	Descripti	· ·	ervice Part No.
R7	Resistor, cathode bias, 33 ohms	66-0338340*	Cabinet	back assembly	76-7991
R8	Resistor, plate dropping, 47,000 ohms		Clip, pilo Dial back	ot lamp	56-3545FA3
R9			Dial back	plate, L.H	56-9932-1
	Resistor, plate dropping, 4700 ohms	66-2478340°	Dial scale	e, R.H	54-5159
R10	Resistor, cathode bias, 47 ohn	ns66-0478340°	Dial scal	e, L.H.	54-5159-1
R11	Resistor, screen decoupling,	77 41000 104	Drive cor	d, 25-foot spool	45-8750*
R12	1000 ohms	66-2108340*	Knob, Fl	M-AM	54-4774-28
MIZ	Resistor, plate decoupling, 680 ohms	66_1699940¢	Knob, tur	ning	54-4774-26
R13	Resistor, grid return,	00-1000140	Knoo, vo	lume-off-on	54-4774-27
	1 megohm	66-5108340°	Shoft to	2) ning	56-5630-49
R14	Resistor, cathode bias,		Spring g	ang drive	56 0617
	120 ohms	66-1128340°	Spring, pe	ointer drive	98-8054
R15	Resistor, a-v-c filter, 2.2 megohms	## 500634D¢	Socket, 19	2BA6 i-f ampl.	27-6265
R16	Resistor decoupling		Socket, 12	2AU6 i-f ampl.	27-6265
	Resistor, decoupling,	66-1478340°	Socket, 12	2BA6 r-f ampl	27-6275-1
R17	Resistor, FM diode load,		Socket, 12	2AT7	27-6203-6
_	47,000 ohms	66-3478340°	Socket, 19	9V8	27-62 03-6
R18	Resistor, de-emphasis,		Socket, 3	5C5	27-6203-12
DIO	47,000 ohms	66-3478340°	Shield, tu	be (2)	56-5629-3
R19	Resistor, i-f filter, 47,000 ohms	<i>QQ</i> 9.4700 404	Shield, tu	be base (I)	90-39/8-1FA3
R20	Resistor, a-v-e load,	00-3476340~	Socket ass	be base (2)sembly, pilot lamps (2)	
1	3.3 megohms	66-5338340*		airpin	
			- * b, vii	T	

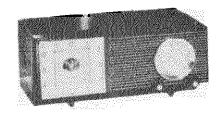
MODELS 53-70 53-706, 53-707

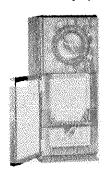
SPECIFICATIONS

MODEL 53-702	Molded plastic
MODELS 53-706, 53-707	Wood
CIRCUITFive-tube Superheterodyne	(plus rectifier)
FREQUENCY RANGES Standard Broadcast	540—1620 kc.
Special Services	.1 700—3400 kc.
AUDIO OUTPUT	1 watt

OPERATING VOLTAGE	117 voits,	a.c.
POWER CONSUMPTION	N30 w	etts
AERIAL	High-impedance I	оор
INTERMEDIATE FREQUI	NCY 455	kc.
PHILCO TUBES12	BE6 converter, 12BA6 i-f amplit	fier,
	12AV6 det.—a.v.c.—1st au	dio,
	35C5 output, 35W4 recti	fier







MODEL 53-706

MODEL 53-702

MODEL 53-707

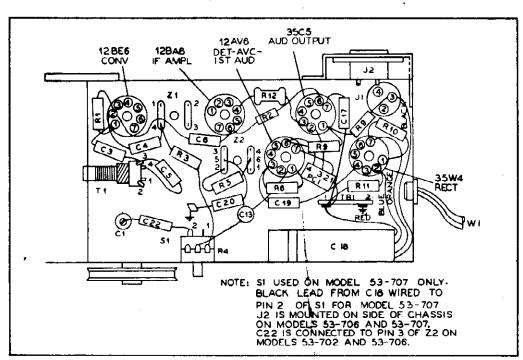


Figure 1. Base View, Showing Parts Placement

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MODELS 53-702, 53-706, 53-707

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output. OUTPUT LEVEL—During alignment, adjust signal-generator output to hold output-meter reading below 1.25 volts.

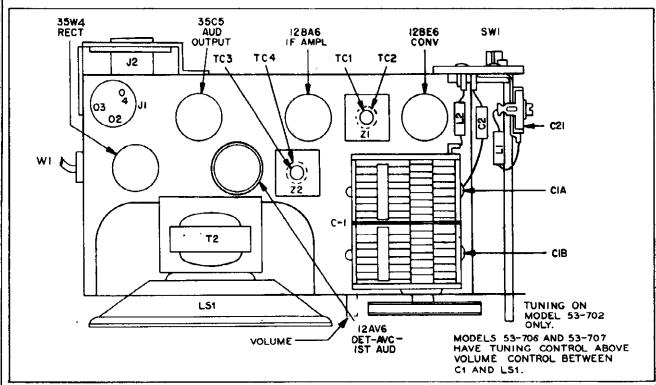


Figure 2. Top View, Showing Trimmer Locations

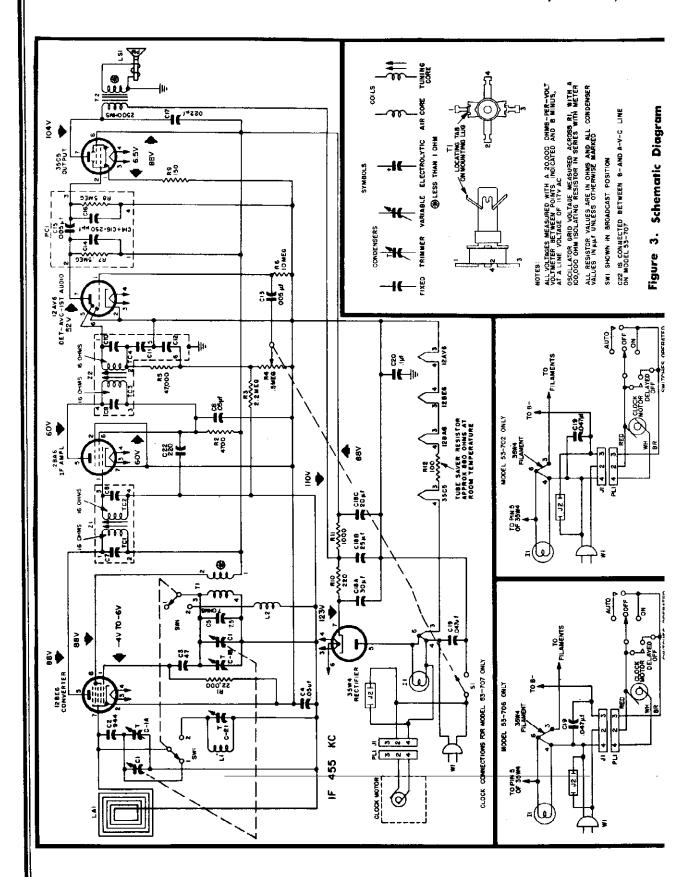
TP2-2278

ALIGNMENT CHART

	SIGNAL GENERATOR			•		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-µf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4-2nd i-f sec. TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Radiating loop (See note below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B-osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1-A—aerial (broadcast)
4	Same as step 2.	3200 ke.	3200 kc.	Special Services	Adjust trimmer for maximum output.	C21-aerial (special services)

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place near radio loop.

*For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.



MODELS 53-702, 53-706, 53-707

PARTS LIST

Service Part No.

.....10940 .10940-2

>10952 .10952-1

...**54-498**3-3 ...54-4557-6

....54-4983-354-4557-7 41-204376-800454-516056-10043-154-498956-10012

56-5629FA3 56-3978FA3 27-6265 27-6233-6 56-2817 28-8610 45-8750°

NOTE: Part numbers identified by an asterisk (°) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

I			
Reference Symbol	Description	Service Part No.	Reference Symbol Description
CI	Condenser, tuning gang	31-2751-14	MISCELLANEOUS
ClA	Condenser, r-f trimmer	Part of C1	DARTS COMMON TO ALL MODE
C1B C2	Condenser, oscillator trimmer	Part of C1	PARTS COMMON TO ALL MODE
	Condenser, aerial series tracker,	00 1000 OF	Description
C3	944 μμf Condenser, oscillator grid, 47 μμf	30-1220-05	Shield, tube
C4	Condenser, a-v-c by-pass, .05 μ f	20.4850.45¢	Shield, tube base
C5	Condenser, drift compensation, 7.5 $\mu\mu$ f	30-1224-83	Socket, tube (5)
C6	Condenser, screen by-pass, .05 µf	30-4650-45°	Spring, drive cord
C7	Condenser, i-f tuning	Part of Z1	Spring, retaining
C8	Condenser, i-f tuning	Part of Z1	Drive cord, 25-ft. spool
C9	Condenser, i-f tuning	Part of Z2	MODEL 53-702
C10	Condenser, i-f tuning	Part of Z 2	Cabinet
C11	Condenser, detector filtering	Part of Z2	Maroon
C12	Condenser, detector filtering	Part of Z2	Biege
C13	Condenser, audio coupling, .005 µf.	30-1238-1°	Knobs Maroon
C14 C15	Condenser, plate by-pass	Part of PC1	Clock (3)
C16	Condenser, audio coupling, .005 µf, Condenser, compensating	Part of PC1	Tuning and volume
C17	Condenser, tone compensation,	Fart of PC1	Biege
	.022 μf.	30-4650-43*	Clock (3) Tuning and volume
C18	Condenser, electrolytic, 3-section	30-2573	Clock
C18A	Condenser, filter, 30 µf., 150v.	Part of C18	Back-and-loon assembly
C18B	Condenser, filter, 25 µf., 150v	Part of C18	Maroon Biege
C18C	Condenser, filter, 20 \(\mu \text{f.}\), 150v	Part of C18	Backplate and clip assembly, pilot lamp
C20	Condenser, B minus to chassis, .1 μ f.	30-4030-45* 90-4650-47*	Scale
C21	Condenser, trimmer, special services	31-8473-29	Radio
C22	Condenser, a-v-c decoupling,		Clock Pointer
١	220 μμf6	2-122001001*	Clock cover
H	Lamp, pilot	34-2068	Shaft, tuning
i J1 i 12	Jack, clock	27-6273	MODEL 53-706
líi	Jack, appliance receptacle, a-c Coil, aerial, special services	76-3931	Cabinet
L2	Coil, oscillator shunt	32-4562-2	Mahogany
LA1	Loop, antennaPart of back-a	nd-loon ass'v	BlondKnobs
LS1	Speaker, p-m	36-1627-8	Mahogany
PC1	Coupling network	30-6001	Clock (3)
PLI	Plug, clock assembly	54-4878-2	Tuning and volume
R1 R2	Resistor, oscillator grid, 22,00 ohms Resistor, i-f screen dropping,	.66-3228340*	Blond Clock (3)
112	4700 ohms	BB_04792460	Tuning and volume
R3	Resistor, a-v-c filter, 2.2 megohms	.66-5228340*	Clock
R4	Resistor, volume control, 5 megohm		Back-and-loop assembly Lamp attachment
١,	Model 702	33-5565	Scale, radio
	Model 706	33-5565-50	Pointer
	Model 707	33- 5566-4 9	Mahogany
R5 R6	Resistor, diode load, 47,000 ohms	.66-3478340°	Clock cover
R7	Resistor, grid return, 10 megohms Resistor, plate load, 500,000 ohms	86-6108340°	Shaft, tuning
R8	Resistor, grid return, 500,000 ohms	Port of PC1	
R9	Resistor, cathode bias, 150 ohms	66-1158340*	MODEL 53-707
R10	Resistor, B plus filter, 220 ohms, 1 watt.	66-1224340*	CabinetKnobs
RII	Resistor, B plus filter, 1000 ohms	66-2108340*	Clock (3)
R12	Resistor, tube saver, 100 ohms	33-1343-3	Tuning and volume
Su SW1	Switch, off-on	Part of R4	Clock Back and Joon assembly
T1	Switch, broadcast-special services Transformer, oscillator	42-1796-2	Back-and-loop assembly Scale, radio
\mathbf{T}_{2}^{1}	Transformer, output	32-4453-6 70 20240	Pointer
wi	Line cord	T_2183*	Shaft, tuning
. Z1	Transformer, 1st i-f	32-4161A	Door, cabinet
7.2	Transformer, 2nd i-f	32-4240A	Hook, door

SPECIFICATIONS CABINET Plastic table model CIRCUIT _____Six-tube superheterodyne plus selenium rectifier FREQUENCY RANGES Broadcast _____540—1620 kc. AUDIO OUTPUT _____1 wait OPERATING VOLTAGE ______105---125 volts, a.c./d.c. POWER CONSUMPTION 45 watts AERIAL Built-in pancake loop for AM, line cord for FM; MODEL 53-956 provision for connecting external aerial INTERMEDIATE FREQUENCY AM455 kc. FM 9.1 mc. PHILCO TUBES (6) 12AU6 r-f ampl., 12AT7 converter, 12BA6 1st i-f ampl., 12AU6 2nd i-f ampl., 19Y8 det.-a.v.c.-1st audio, 35C5GT output

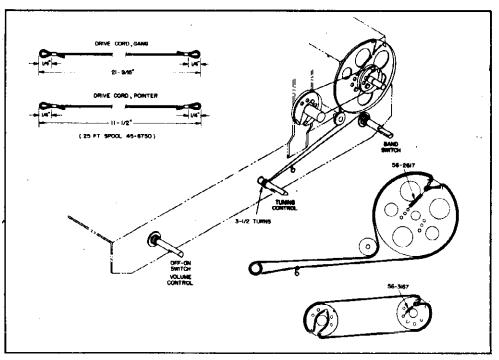


Figure 1. Drive-Cord Installation Details

TP2-226Q

AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. The AM alignment should be completed before the FM alignment is made.

DIAL POINTER—With tuning-condenser plates fully meshed, adjust pointer to coincide with index mark at low-frequency end of dial backplate.

RADIO CONTROLS—Set volume control to maximum, set band switch for broadcast reception, and set tuning control as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

SIGNAL GENERATOR—Use AM r-f signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to hold output-meter reading below 1.25 volts.

AM ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RAI	DIO	-
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to chassis. Output lead through a .1-µf. condenser to junction of LA1 and L8.	455 ke.	Gang fully open.	Adjust for maximum output, in order given.	TC10-2nd AM i-f sec. TC9-2nd AM i-f pri. TC4-1st AM i-f sec. TC3-1st AM i-f pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc. (2nd index mark from right).	Adjust for maxi- mum output.	C1C-osc. trimmer.
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maxi- mum output.	C1A-aerial trimmer.

RADIATING LOOP: Make up a six-to-eight turn, 6-inch-diameter loop from insulated wire; connect to generator terminals, and place near radio loop aerial. Radio loop aerial must be connected.

FM ALIGNMENT PROCEDURE

Make AM alignment first

RADIO CONTROLS—Set volume control to maximum, set band switch for FM reception, and set tuning control as indicated in chart.

OSCILLOSCOPE—Connect ground lead to chassis. Connect vertical input to FM TEST jack, J2; connect horizontal input to horizontal sweep output of sweep generator. (Oscilloscope is used for steps 1 and 2.)

SWEEP GENERATOR—Use FM r-f sweep signal generator. Connect output lead as given in chart. Set frequency and sweep width as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

NOTE: Before starting FM alignment, allow radio and signal generator to warm up for 15 minutes.

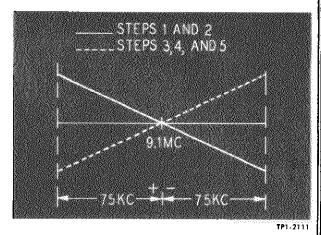


Figure 2. Characteristic Curve of FM Detector

FM ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
I	Ground lead to chassis. Output lead through a $.01-\mu f$. condenser to control grid (pin 1) of 12AU6 2nd i-f amplifier.	kc. devia-	88mc, (gang meshed).	Balance and adjust detector for maximum indication on scope, as shown in figure 2.	TC8-detector sec. TC7-detector pri.

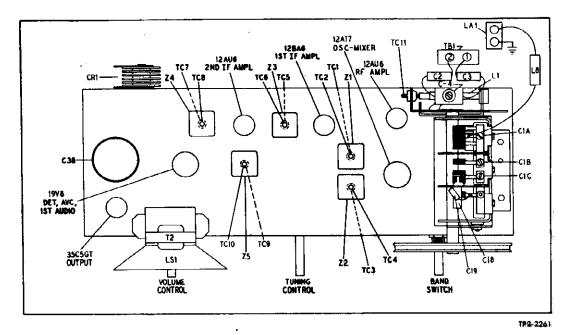


Figure 3. Top View, Showing Trimmer Locations

FM ALIGNMENT CHART (Cont.)

	SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL. SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
2	Cround lead to chassis. Output lead through a $.01-\mu f$, condenser to FM tuning gang stator lug, junction of C1 and pin 4 of L2.	Same as step 1.	Same as step 1.	Adjust for maximum indication on scope, as shown in figure 2.	TC8-FM 2nd i-f sec. TC5-FM 2nd i-f pri. TC2-FM 1st i-f sec. TC1-FM 1st i-f pri.
3	Ground lead to lug 3 of TB1. Output lead to lug 2 of TB1. See note 1 below.	108.5 mc.		Adjust for maximum indication on output meter.	C18-FM osc.
4	Same as step 3.	88 mc.		Adjust for maximum indication on output meter. See note 2 below.	L5-FM osc.
5	Same as step 3.	105 me.	105 mc. (3rd index mark from right).	Adjust for maximum indication on output meter while rocking tuning condenser.	C1B-FM r-f.
6	Same as step 3.	105 mc.	105 mc.	Adjust for maximum indication on output meter.	C4-FM aerial.
7	Same as step 3.	92 mc.	92 mc. (3rd index mark from left).	Adjust for maximum indication on output meter. See note 3 below.	L2–FM r-f coil.
If FM	aerial coil, L1, is replaced, it should	be adjusted	as directed in		
8	Same as step 3.	92 mc.	92 mc.	Adjust for maximum indication on output meter.	TC11-FM aerial.

NOTE 1: For accurate results, the signal-generator output impedance must be 300 ohms, to match the input impedance of TB1 If the generator impedance is less than 300 ohms, a resistor of the proper value may be used in series with the output lead to make the impedance correct. For example, if the output impedance is 150 ohms, place a 150-ohm resistor in series with the output lead

NOTE 2: If oscillator does not tune as low as 88 mc., compress the turns on the oscillator coil. If oscillator tunes too low, spread the turns slightly. After coil is adjusted, repeat step 3.

NOTE 3: Check resonance of coil L2 by inserting end of a tuning wand, such as Philco Part No. 56-6100, in the coil. If output increases when iron end is placed in coil, compress turns slightly. If output increases when brass end is placed in coil, spread th turns. If output decreases when either end is placed in coil, no adjustment is necessary. After the coil is adjusted, readjust trimme C1B and repeat steps 3 through 8 until no further improvement is obtained.

PAGE 23-86 PHILCO MODEL 53-956 383 16-11-12 AUS

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.	Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang, 5-section	1-2762-1	C38D	Condenser, filter, 40 µf., 150v	Part of C38
CIA	Condenser, trimmer, BC aerial	Part of C1	C39	Condenser, filament by-pass, .005 µf.	30-1238-1*
C1B	Condenser, trimmer, FM r-f	Part of Cl	C40	Condenser, line by-pass, 100 μμf6	2-110001021*
CIC	Condenser, trimmer, BC oscillator	art of C1	C41	Condenser, filament by-pass, .005 µ	f30-1238-1°
C2	Condenser, aerial isolating, 3.3 µµf	30-1 22 1	C42	Condenser, line by-pass, .047 #f	30-4650-45*
C3	Condenser, aerial isolating,		CR1	Selenium rectifier, 100 ma., 117v	
	220 μμf62-19	22001001°	11	Pilot lamp, frosted, 117v, 7 watts	
C4	Condenser, FM aerial trimmer	45-3034	J1	Jack, male, a-c	
C5	Condenser, cathode by-pass,		J2	Socket, FM test	27-6180
	22 μμf	22009001	L1	Coil, FM aerial, complete with	00 4500 1
C6	Condenser, d-c blocking, 220 µµf	30-6002	7.0	grommet	
C7	Condenser, screen by-pass,	200010019	L2	Coil, FM r-f	
	220 μμί	¥2001001°	L3 L4	Choke, r-f, 3.3 µh.	
C8	Condenser, oscillator grid,	10001021*	L5	Choke, r-f, 3.3 µh.	
CO			L6		
C10	Condenser, d-c blocking, 220 µµf62-19 Condenser, cathode by-pass,	PROVINCE	L7	Choke, filament, 2.2 μ h	
C10		-4 65 0-58*	L8	Choke, r-f, 4.1 μ h.	
C11	Condenser, neutralizing, 3.3 µµf30		LA1	AM loop and support assembly	
C12	Condenser, dec blocking 220 µµf62-13		LA2	Line-cord aerial, FM	
C18	Condenser, fixed trimmer, 7.5 $\mu\mu$ f30		LS1	Speaker, 4" p-m, including output	21 (01 77 1
C14	Condenser, cathode by-pass,	-1221-00	201	transformer	36-1625-14
011	220 μμf	22001001*	Rı	Resistor, cathode bias, 120 ohms	
C15	Condenser, r-f by-pass, 220 μμf62-1		R2	Resistor, screen decoupling,	-00 1120010
C16	Condenser, plate decoupling, .01 µf30			470 ohms	66-1478340*
C17	Condenser, r-f by-pass, 100 µµf62-1		R3	Resistor, grid return, 15,000 ohms	
C18	Condenser, trimmer, FM oscillator3		R4	Resistor, grid return, 2.2 megohms	
C19	Condenser, fixed trimmer, 7.5 µµf		R5	Resistor, parasitic suppressor,	
C20	Condenser, a-v-c decoupling, .01 µf,30			680 ohms	66-168 8340°
C2I	Condenser, screen by-pass, .002 µf30		R6	Resistor, parasitic suppressor,	
C22	Condenser, neutralizing, .008 µf3			470 ohms	66-1478340°
C23	Condenser, i-f by-pass, 100 µµf62-1		R7	Resistor, loading, 100 ohms	66-1108340*
C24	Condenser, cathode by-pass, .01 µf30)- 465 0-58*	R8	Resistor, plate dropping, AM,	
C25	Condenser, screen by-pass, .002 µf,30) -465 0-54*		47,000 ohms	
C26	Condenser, electrolytic, diode-load filter	,	R9	Resistor, plate dropping, 4700 ohms	66-2478340°
	2 μf., 50v		R10	Resistor, cathode bias, 47 ohms	66-0478340*
C27	Condenser, i-f by-pass, 150 μμf62-1		R11	Resistor, screen decoupling,	
C28	Condenser, d-c blocking, .006 µf3			1000 ohms	66-210 8340*
C29	Condenser, i-f by-pass, 100 μμf62-1		R12	Resistor, plate decoupling,	
C30	Condenser, de-emphasis, .004 µf3	0-4650-56*		2700 ohms	
C31	Condenser, plate decoupling,	*****	R13	Resistor, grid return, 1 megohm	
	220 µµf62-1	22001001	R14	Resistor, cathode bias, 120 ohms	
C32	Condenser, line by-pass, 100 µµf62-1		R15	Resistor, a-v-c filter, 2.2 megohms	
C33	Condenser, plate by-pass, 680 µµf62-1		R16	Resistor, decoupling, 470 ohms	66-14783 40 *
C34	Condenser, de blocking, .02 µf3		R17	Resistor, FM diode load,	00 04700404
C35	Condenser, d-c blocking, .006 µf3	v-403V-31°	1 210	47,000 ohms	
C36	Condenser, filament by-pass,	100010010	R18	Resistor, de-emphasis, 47,000 ohms	
C27		10001021°	RI9	Resistor, i-f filter, 47,000 ohms	
C37	Condenser, tone compensation,	L 4850 80*	R20 R21	Resistor, a-v-c load, 3.3 megohms	
C38	Condenser, electrolytic, 4-section3	0- 1 000-00 0-4650-46	I/AI	Volume control (with off-on switch) 500,000 ohms	33_5588_9A
C38A	Condenser, cathode by-pass,	v- 1 000-40	R22	Resistor, grid return, 10 megohms.	
COOA	25 μ f., 25vP	art of C38	R23	Resistor, plate load, 470,000 ohms.	
C38B	Condenser, filter, 40 µf., 150v		R24	Resistor, grid return, 470,000 ohms.	
CSSC	, , , ,	art of C38	II.	realiser, gift return, 470,000 tillis.	05 1110010

C38C

Condenser. filter. 70 uf.. 150vPart of C38

Reference Symbol	Service Description Part No.
R25	Resistor, cathode bias, 150 ohms66-1158340°
R26	Resistor, filter, 470 ohms, 1 watt66-1474340*
R27	Resistor, filter, 150 ohms, 2 watts66-1155360*
R28	Resistor, current limiting, 22 ohms,
	2 watts66-0225360*
R29	Resistor, current limiting, 100 ohms33-1343-3
R30	Resistor, grid return, 2.2 megohms66-5228340*
Sl	Switch, off-on Part of R21
Tl	Transformer, AM oscillator32-4569-1
T2	Transformer, outputPart of LS1
$\mathbf{w_1}$	Line cord41-3865-3
W2	Cable, FM aerial, 72-ohm twin lead41-3987
WS	Switch, band, 2-wafer42-1924-1
\mathbf{z}_{1}	Transformer, FM, 1st i-f32-4518A
Z 2	Transformer, AM, 1st i-f32-4516A
Z 3	Transformer, FM, 2nd i-f32-4518-1A
Z4	Transformer, FM, detector32-4310-4A
25	Transformer, AM, 2nd i-f32-4517A

MISCELLANEOUS

Description	Service Part No.
flange, and socket assembly	

MISCELLANEOUS (Cont.)

Description	Service Part No.
Fastener, back mtg. (4)	W-2235-FA9
Dial scale	
Knob, FM-AM	
Knob, tuning	54-4774-26
Knob, volume-off-on	54-4774-27
Clip, pilot lamp	56-3545-FA3
Drive cord, 25-foot spool	45-8750°
Pointer	
Shaft, drive	
Spring, gang drive	
Spring, pointer drive	
Rubber mount, speaker (2)	
Socket, 12BA6 (i-f ampl.)	
Socket, 12AU6 (i-f ampl.)	27-6265
Socket, 12AU6 (r-f ampl.)	
Socket, 12AT7	
Socket, 19V8	
Socket, 35C5	
Shield, tube (2)	
Shield, tube base (1)	
Shield, tube base (2)	
Socket, assembly, pilot lamp	•
Spring, hairpin	

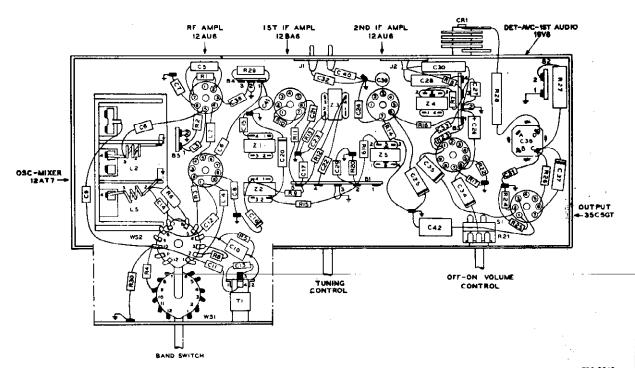
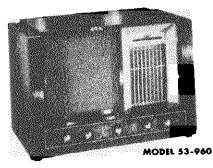


Figure 5. Base View, Showing Parts Placement

TP2-2263

.....Superheterodyna Circuit Frequency ranges Standard Broadcasts: .540 to 1.70 megacycles (555 to 176.5 meters) Short Wave 1: 1.7 to 5.3 megacycles (176.5 to 56.5 meters) Short Wave 2: 7.5 to 22.0 megacycles (40.0 to 13.62 meters) Band Spread: 49-Meter Band: 5.2 to 7.6 megacycles (57.7 to 39.4 meters) 31-Meter Band: 9.4 to 9.9 megacycles (31.9 to 30.3 meters) 25-Meter Band: 11.4 to 12.0 megacycles (26.3 to 25 meters) 19-Meter Band: 14.8 to 15.6 megacycles (20.3 to 19.2 16-Meter Band: 17.3 to 18.2 megacycles (17.3 to 16.5 13-Meter Band: 20.8 to 21.9 megacycles (14.4 to 13.7 meters)



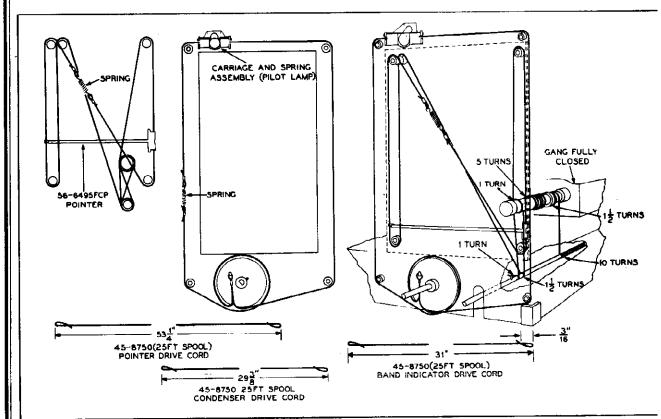


Figure 1. Drive-Cord Installation Details

ALIGNMENT PROCEDURE

DIAL POINTER: With the tuning-condenser plates fully meshed, adjust the dial pointer to coincide with the index mark (the second mark below "55") at the low-frequency end of the dial.

BAND-SPREAD TUNING CORES: With the tuning control at the extreme low-frequency setting, set oscillator core TC1C flush with the rear end of the oscillator coil form. Aerial core TC1A and r-f core TC1B should now extend approximately 1/16 inch beyond their coil forms.

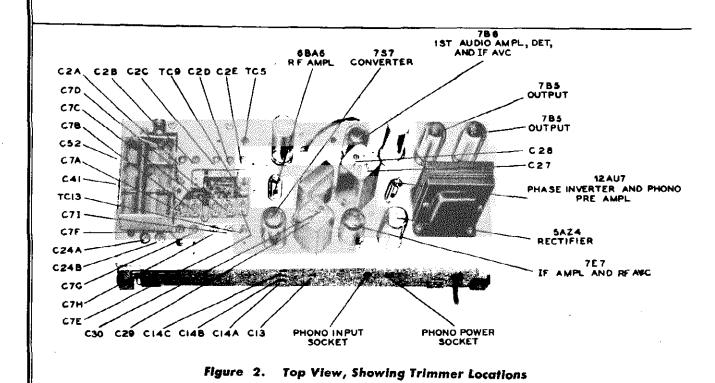
SIGNAL GENERATOR: Connect the ground lead to the chassis, and the output lead as indicated in the chart. Set the signal-generator frequency as indicated in the chart, and use modulated output.

RADIO CONTROLS: Set the volume control to maximum, and the tone control fully clockwise. Set the band switch and tuning control as indicated in the chart.

OUTPUT METER: Connect between the voice-coil lug on the speaker and the chassis.

OUTPUT LEVEL: During alignment, the signalgenerator output must be attenuated to maintain an output-meter reading below 1.5 volts.

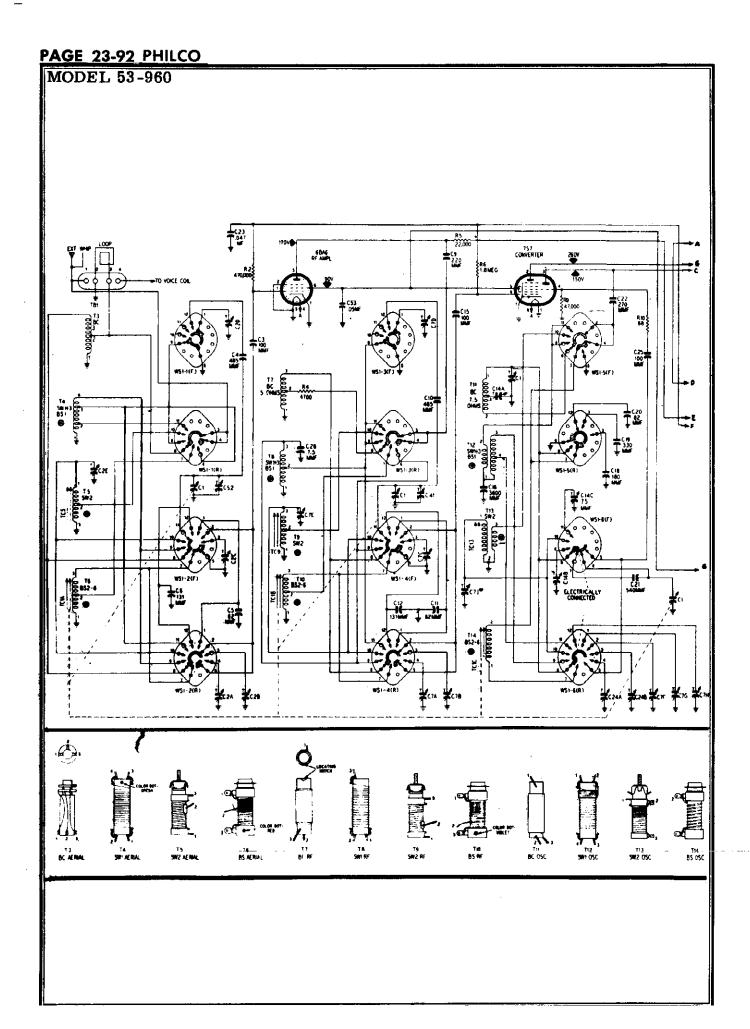
,	SIGNAL GENERATO	JR	í	RADI	/IO	1
STEP	CONNECTION TO RADIO	DIAL SETTING	BAND SWITCH	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Through a .1-µf. condenser to stator of r-f (center) section of Cl.	455 kc.	вс	Tuning gang fully open.	Adjust, in order given, for maximum output; then repeat.	C28-2nd i-f sec. C27-2nd i-f pri. C30-1st i-f sec. C29-1st i-f pri.
2	Through a 25-µµf. condenser to aerial terminal of TBl.	580 kc.	вс	580 kc.	Adjust for maximum output while rocking tuning control.	C14A-BC osc. (series)
,3	Same as step 2.	1500 kc.	ВС	1500 kc.	Adjust, in order given, for maximum output.	C13-BC osc. (shund C41-BC r-f C52-BC aerial
4	Through a 25-µµf. condenser to aerial terminal of TBI.	5.0 mc.	SW1	5.0 mc.	Adjust for maximum output.	C14B-SW1 osc.
5	Same as step 4.	7.5 mc.	BS1	7.5 mc.	Adjust, in order given, for maximum output.	C14C-BS1 osc. C7D-BS1 r-f C2D-BS1 aerial
6					Preset approximately % turn from tight position.	C7I-SW2 osc. C7E-SW2 r-f C2E-SW2 aerial
7	Same as step 4.	9.0 mc.	SW2	9.0 mc.	Adjust, in order given, for maximum output.	TC13-SW2 osc. TC9-SW2 r-f TC5-SW2 aerial
8	Same as step 4.	21.0 mc.	SW2	21.0 mc.	Adjust, in order given, for maximum output. Repeat steps 7 and 8 until maximum output is obtained.	C7I-SW2 osc. C7E-SW2 r-f C2E-SW2 aerial
9	Same as step 4.	15.2 mg.	BS4	15.2 mc.	Adjust, in order given, for maximum output.	C7F-BS4 osc. C7C-BS4 r-f C2C-BS4 aerial
10	Same as step 4.	9.7 mc.	BS2	9.7 mc.	Adjust for maximum output.	C7H-BS2 osc.
11	Same as step 4.	11.7 mc.	BS3	11.7 mc.	Adjust for maximum output.	C7G-BS3 osc.
12	Same as step 4.	17.8 mc.	BS5	17.8 mc.	Adjust, in order given, for maximum output.	C24B-BS5 osc. C7B-BS5 r-f C2B-BS5 aerial
13	Same as step 4.	21.5 mc.	BS6	21.5 mc.	Adjust, in order given, for maximum output.	C24A-BS6 osc. C7A-BS6 r-f C2A-BS6 aerial

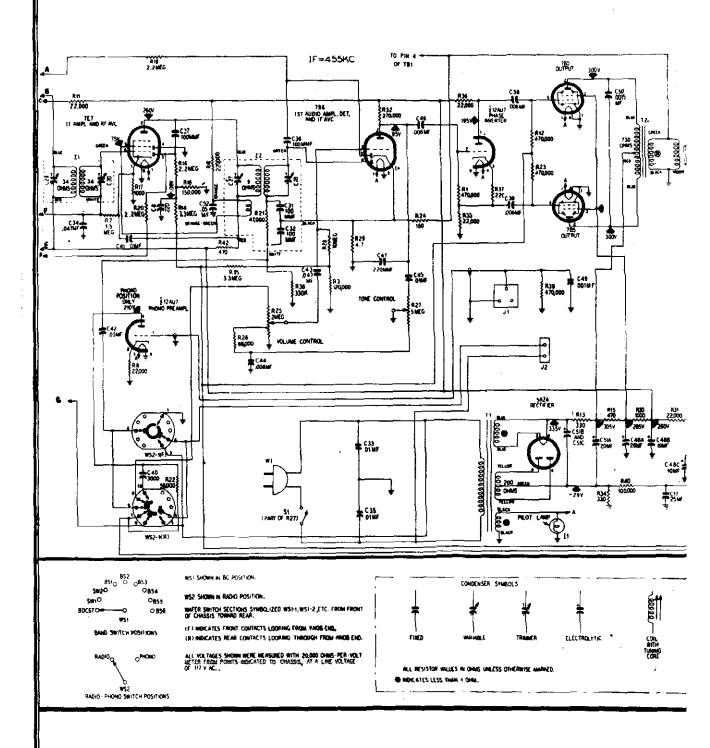


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Figure 3. Bottom View, Showing Symbolized Chassis

IST AUDIO AMPLIDETIAND IF AVC





PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and

may a	inci itom the voices indicoled in the schemol	ic alagram and
Referenc Symbol		Service Part No.
C1	Condenser, luning gong, 3-section	31-2741-2
C2 C2A	Condenser, trimmer, 3-section Condenser, period trimmer, 21.5 mc,	J1-03U7-3
C28	Condenser, eerial trimmer, 17.8 mc.	
C2D	Condenser, period trimmer, 15.2 mc. Condenser, period trimmer, 7.5 mc.	Part of C2
C2E	Condenser, serial trimmer, SW2 Condenser, d-c blocking, 100 µµt.	
C3 C4	Condenser, tracking, 851, 485 µµf.	30-1220-23
C4 C5	Condensor, tracking, \$51, 485 µµf, Condensor, shunt, \$52, 62 µµf. Condensor, shunt, \$52, 131 µµf.	30-1220-62
C6 C7		
	Candenser, r-f trimmer, 21.5 mr.	Port of C7
C7C	Condensor, r-f trimmer, 17.8 mc, Condensor, r-f trimmer, 15.2 mc, Condensor, r-f trimmer, 7.5 mc,	Part of C7
C70 C7E	Condensor, r-f trimmer, 7.5 mc.	Part of C7
C7F	Condenser, orf triumer, 5W2 Condenser, oscillator triumer, 15.2 mc, Condenser, oscillator triumer, 11.7 mc.	. Port of C7
C7G C7H	Condenser, oscillator trimmer, 11.7 mc.	Port of C7
ĆZI	Condenser, oscillator trimmer, 9.7 mc. Condenser, oscillator trimmer, 5W2	Port of C7
CB CT	Condenser, bios filter, 220 μμε. Condenser, d-c blocking, 220 μμε.	62-122001001
C10	Condenser, tracking, BS1, 485 guf.	30-1220-23
C11	Condenser, shunt, BS3, 62 µµf,	30-1220-62
C13	Condenser, occillator trimmer, BC	31-4308
C14	Condenser, tracking, BS1, 485 ggf. Condenser, shunt, BS3, 62 ggf. Condenser, shunt, BS3, 131 ggf. Condenser, socillator trimmer, BC Condenser, trimmer, 3-section	31-4477-4
C14A C148	Condenser, oscillator trimmer SWI	Part of C14
C14C	Condenser, ascillator trimmer, 7.5 mc. Condenser, d-c blocking, 100 µµt. Condenser, flued tracker, 3W1, 3600 µµt.	Port of C14
C15 C16	Condenser, fixed tracker, 3W1, 3600 uuf.	60-20365314
C17 C18	Condenser, bies filter, .25 μf. Condenser, oscillator divider, \$51, 190 μμf.	30-4588
C19	Condenser, escillator divider, BS2, 330 uuf.	60-10335317
C20	Condenser, oscillator divider, \$53, \$2 µuf.	60-00425237
C21	Condenser, oscillator divider, \$33, \$2 μμf. Condenser, tracking, \$51, 540 μμf. Condenser, d-c blocking, 270 μμf.	30-1220-61 60-10275417
C23	Condenser, a-v-c filter, .Q47 µf.	45-3505-28
C24 C24A	Condenser, trimmer, 2-section Condenser, oscillator trimmer, 21.5 mc.	B
C24B	Condenser, oscillator trimmer, 17.8 mc.	Part of C24
C25 C26	Condenser, oscillator trimmer, 17.8 mc. Condenser, d-c blocking, 100 µµI. Condenser, shunt, \$WI, 3.3 µµI. Condenser, primory trimmer, 2nd i-f	60-10105417
C27 C28	Condenser, primary trimmer, 2nd i-f	Peri of Z2
C29	Condenser, secondary trimmer, 2nd i-f Condenser, primary trimmer, 1st i-f	B
C30 C31	Condenser, secondary trimmer, 1st i-f Condenser, i-f filter, 100 μμt, (port of Z2) Condenser, i-f filter, 100 μμt, (port of Z2) Condenser, i-f filter, 100 μμt.	Port of 21
C32	Condenser, i-f filter, 100 µµf. (part of 22)	Peri of Z2
C33 C34	Condenser, line filter, .01 µt.	45-3505-92*
C35	Condenser, a-v-c filter, .047 µl. Condenser, line filter, .01 µl.	45-3505-28*
C36 C37	Cendenser, diode coupling, 100 µµf.	
C38	Condenser, diode coupling, 100 µµf. Condenser, d-c blocking, 1006 µf.	
C39 C40	Condenser, d-c blocking, 006 µf. Condenser, d-c blocking, 008 µf. Condenser, coupling, 003 µf. Condenser, d-c blocking, 01 µf.	30-4591
C41	Condenser, d-c blocking, .01 µf,	30-1238-6
C42 C43	Condenser, d-c blocking, .05 µf. Condenser, d-c blocking, .047 µf.	30-4519
C44	Condenser has commented ODS of	20.4461
C45 C46	Condenser, tone compensation, high-cut, .01 pf. Condenser, d-c blocking, .006 µf. Condenser, plate by-pass, 220 µµf.	30-4572 30-4691
Ç47	Condenser, plate by-pass, 220 µµf.	42-122001001
C48 C48A	Condenser, electrolytic, 3-section Condenser, filter, 20 st., 450v	
C486	Condenser, filter, 10 µt., 450v Condenser, filter, 10 µt., 450v	Pert of C48
C48C C49	Condenser, filter, 10 µt., 450v Condenser, grid return, .001 µt.	Part of C48
C30	Condenser, plate by-pass, .0015 µf.	
CS1 CS1A	Condenser, electrolytic, 3-section Condenser, filter, 10 µf., 450v	30-2570-15
C518	Condenser, filter, 10 µt., 450v Condenser, filter, 20 µt., 450v Condenser, filter, 10 µt., 430v	Peri of C51
C51C C52	Condenser, screen by-pass, .05 uf.	Pert of C51
C53	Condenser, screen by-pass, .05 µf.	30-4638
11 J1	Pilot lemp, 6.3v Socket, phono input	34-2064 27-61 26
J2	Socker, phone power Speaker, p-m, 10-inch	27-6200
L51 R1	Speaker, p-m, 10-inch Resistor, grid return, 470,000 ohms	
R2	Resistor, grid return, 470,000 okms	66-4478340*
#3 #4	Resistor, voltage divider, 120,000 akms Resistor, loading, 4700 akms	66-247 8340°
R5	Resistor, plate load, 22,000 ohms, 2 wetts	66-3775340°
R6 R7	Resistor, a-v-c divider, 1.8 megahms Resistor, a-v-c filter, 1.5 megahms Resistor, cathode bies, 22,000 ohms	66-5158340°
RE	Resistor, cethode bies, 22,000 ohms	66-3228340*
RP R10	Resistor, grid return, 47,000 ohms Resistor, parasitic suppressor, 68 ohms	66-0688350*

parts list. The values substituted in any case are so chosen that the operation of the radio will be either unchanged or improved.

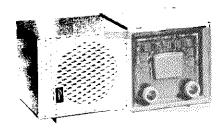
When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
R11	Resistor, plate lood, 22,000 ehms, 1 watt	66-3224340
212	Resistor, grid return, 470,000 phms	00-44/834U*
R13 R14	Resistor, filter, 330 ohms, 3 waits Resistor, a-v-c delay, 3.3 megahms	A6.1338340*
R15	Resistor, filter, 470 ohms, 1 watt	66-1474540*
R16	Resistor, never load, 2.2 monohus	. 66-5228340*
R17	Resister, cethede bies, 1000 éhms Resister, bies divider, 150,000 éhms	66-2108340°
216	Resister, bies divider, 150,000 ehms	66-4158340*
R19	Resistor, a-v-c filter, 2.2 magahms	66-5228340*
R20	Resistor, a-v-c filter, 2.2 megahms	
R21 R22	Resister, i-f filter, 47,000 ohms (part of Z2) Resister, phone peramptifier plate, 56,000 ohms	00-34/ 8340°
R22	Resister, grid return, 470,000 ohms	66-4478340"
R24	Register, Javerse feedback 150 phms	46-115 8350°
R25	Resistor, volume control, 2 megohms Resistor, bass compensation, 68,000 ohms	33-5535-34
R26	Resistor, bass compensation, 62,000 ohms	66-3688540*
R27	Resister, tone control, 5 megohas	33-5566-38
R28	Resistor, grid return, 10 meguhms	. 66-6108340° :
R29	Resistor, cethode degeneration, 4.7 ohiss Resistor, filter, 1000 ohiss, 1 watt	00-74/8340"
230	Resister, filter, 1000 ohms, I wall	44 22245401
R31 R32	Resistor, filter, 22,000 ohms, 2 watts Resistor, plate load, 270,000 ohms	40-3224340*
R32	Resistor, cothode load, 22,000 ohms	66-3228340*
R34	Resistor, bias voltage divider, 330 ohms, 3 watts	33-1334-8
R35	Resistor, load, 3.3 megohms	66-5338340
R36	Basistor, picta load, 22,000 okms	66-3228340°
R37	Resistor, cathode bias, 2700 ohms	66-2228340*
R30	Resister, diode load, 330,000 ohms	66-433434D*
R39	Resistor, grid return, 470,000 ahms	. 66-4478340*
R40 R41	Resistor, bles, 100,000 ohms Resistor, screen dropping, 220,000 ohms	00-4108340"
R42	Resister, piete filter, 470 ehms	AA.1478740
51	Switch, off-on	Part of R27
Ť	Trenferner, power	32-0584
T2	Transfermer, output	
T3	Transformer, BC cories	32-4033-15
74	Transformer, SW1 and \$\$1 corloi	32-4344
75	Transformer, SW2 periol	32-4204
16	Transformer, BS2, BS3, BS4, BS5, and BS6 merimi	32-3670
17	Transformer, IC r-f	32-4307
TE TO	Transformer, SW1 and 851 r-f Transformer, SW2 r-f	
710	Transformer, 852, 853, 854, 855, and 856 r-l	32-3671
TII	Transformer, BC ascillator	32-4370-2
T12	Transformer, SW1 and BS1 ascillator	32-4207-2
T13	Transformer, SW2 decillator	32-4208-2
T14	Transformer, BS2, BS3, BS4, BS5, and BS6 accillator	32-4212-2
791	Terminal board, aerial connection	38-91/0
TC1	Tuning-core assembly, 3-section	
TCIA	Tuning core, band spread, perial Tuning core, band spread, r-f	Part of TC1
TCIC	Tuning core, band spread, osc.	Port of TC1
TC2	Tuning core, SW2 period	Port of TS
TC3	Tuning core, \$W2 r-f	Port of TP
TC4	Tuning core, \$W2 osc.	Part of T13
WI	Line cord	41-3021
W\$1	Wafer switch, band-change	
W\$2	Wefer switch, redio-phono	42-1971
Z1 Z2	Transformer, 1st i-f Transformer, 2nd i-f	
	Irun Frystmer, 4nd 1-7	JE-+-76-1

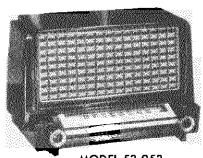
MISCELLAMEOUS

Description	Sarvica Part He.
Cabinet	10898
Back assembly	76-7502-1
Seffle assembly (part of cobinet)	40-8774
Coble, speaker	41-3714-2
Cord, drive (25-ft, speel)	45-9750
Diel-plate assembly	76-7333
Diel-scale assembly	76-4437
Pointer	56-6495PCP
Spring, indicator (2)	56-3066PA38
Spring, indicator (part of 76-5616)	56-2155
Drive-shaft-and-bearing assembly	Pert of WS1
Drem exsembly (band indicator)	
Knob, phono-radio	54-4774-11
Knob, band-selector	54-4774-12
Knob, lone, on-off	54-4774-13
Knob, tuning	
Knob, volume	54-4774-14
Loop, IC serial	
Pilot-lomp ossembly	76-1236-1
Plot-lamp-carriage-and-spring assembly	74-5616
Shield, tube	
Socket, Lohtal (6)	27-6207
Socker, 9-pin ministure	27-6203-18
Socket, 7-pin minigture	
Whip geriol	
	74.7404

MODELS 53-95 53-952, 53-954

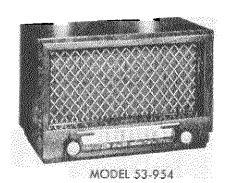


MODEL 53-950



MODEL 53-952

SPECIFICATIONS



Cabinet
Model 53-950 Phenolic, brown or ivor
Model 53-952 Phenolic, brown
Model 53-954 Wood, mahogany or blond
Circuit Five-tube superheterodyne (plus rectifier
Frequency Range
Broadcast
Special Services
Audio Output
Operating Voltage 105—120 volts, a.c. or d.
Power Consumption 30 wat
Antenna Built-in, high-impedance loa
Intermediate Frequency 455 k
Philco Tubes
ampl.; 6AQ6 det., a.v.c., 1st audie
35C5 output; 35W4 rectifie

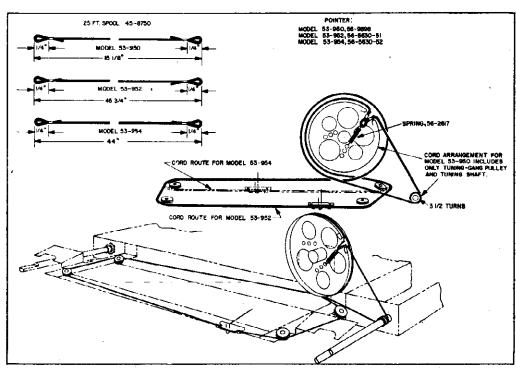


Figure 1. Drive-Cord Installation Details

TP2-2656

GENERAL

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control for maximum output and tuning control as given in the alignment chart. Set band switch to broadcast position for first 5 steps, and to special services position for steps 6 and 7. OUTPUT INDICATOR-Connect output indicator (either on oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR-Use an AM r-f generator, connected as indicated in the alignment chart. signal-generator output to maintain output indication below 1 volt.

the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning DIAL POINTER—Before the alignment is started, gang is fully meshed.

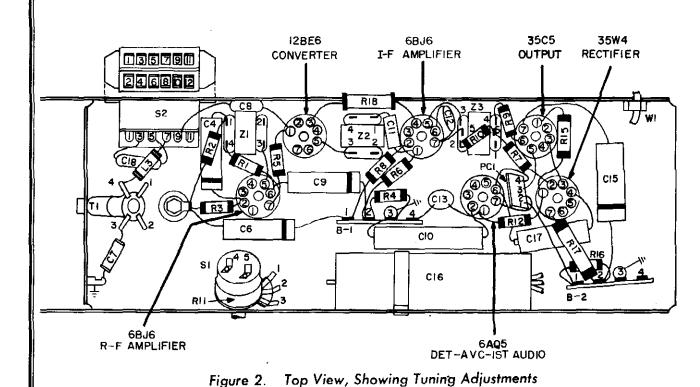
ALIGNMENT CHART

	SIGNAL GENERATOR		RJ	RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
П	Ground lead to B—. Output lead through a .01-µf. condenser to pin 7 (mixer grid) of 12BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC5-2nd i-f sec. TC4-2nd i-f pri. TC3-1st i-f sec. TC2-1st i-f pri.
8	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output. C1C-osc. trimmer	C1C-osc. trimmer
ဇ	Same as step 2.	1520 kc	Tune radio to generator signal.	Adjust for maximum output. (High-frequency adjustment)	CIB-mixer-grid trimmer CIA-r-f tlimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment)	TC1r-f transformer
ъ	Repeat steps 3 and 4 until no further improvement is obtained	further imp	rovement is obtained.		
9	Same as step 2.	3 200 kc.	Same as step 3.	Adjust for maximum output.	C5-special-services mixer-grid trinmer C2-special-services r-f trimmer
2	Same as step 2,	1800 kc.	Same as step 3.	Adjust for maximum output.	C3—special-services r-f padder

NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop antenna. The loop antenna must be connected to the radio.

NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.

MODELS 53-95 53-952, 53-954



BAND SWITCH SPECIAL SERVICES -BROADCAST 6BJ6 I-F AMPLIFIER I2BE6 CONVERTER 6BJ6 R-F AMPLIFIER LINE CORD 35C5 OUTPUT CIA 35W4 RECTIFIER, CIC CIB **6AQ6** DETECTOR-A.V.C. T2 MODELS 53-950, 53-952 T2 MODEL 53-954 VOLUME-OFF-ON MODELS 53-952, 53-954 VOLUME-OFF-ON MODEL 53-950 TUNING SHA

Figure 3. Base View, Model 53-950, Showing Parts Placement

MODELS 53-950, 53-952, 53-954

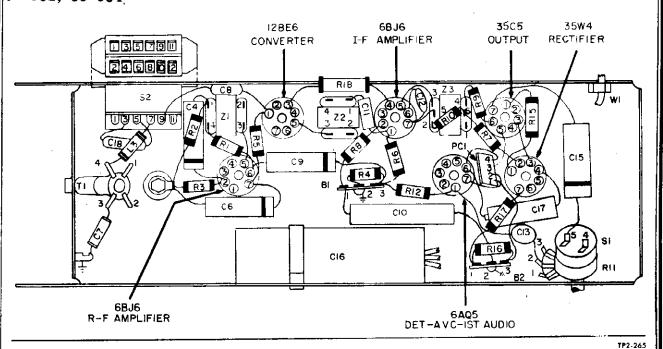


Figure 4. Base View, Models 53-952 and 53-954, Showing Parts Placement

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description Serv Part I		Description Service Part No.
C1	Condenser, tuning gang, 3 section Model 53-95031-27	C13	Condenser, audio coupling. 30-1238-1°
ClA	Models 53-952, 53-954	71-1 C14	Condenser, d-c blocking, .005 µf. Part of PC1
C1B C1C	Condenser, trimmer, r-f	C1 C15	Condenser, tone compensation, .022 µf30-4650-43°
C2	Condenser, trimmer, special services r-fPart of C	C16A	Condenser, electrolytic filter
C3	Condenser, padder, special services r-fPart of C	CA1 C16C	Condenser, filter, $30 \mu f$., $150v$ Part of C16 Condenser, filter, $40 \mu f$., $150v$ Part of C16 Condenser, line by-pass,
C4	Condenser, r-f by-pass, .05 μf30-4650-	45°	.047 μf
C5	Condenser, trimmer, special services mixer-gridPart of C	CAI C18	Condenser, fixed padder, 865 \(\mu \text{f.}\)30-1220-68
C6	Condenser, a-v-c by-pass, .05 µf30-4650-	.45* CA1	Condenser assembly, trimmer31-6477-17
C7	Condenser, fixed trimmer, 7.5 µµf. 30-1224	T 1	Lamp, pilot34-2068 Coil, special services r-f32-4561-4 Coil, special services mixer-grid32-4561-4
C8	Condenser, d-c blocking, 47 μμf60-00475	Τ Q	Coil, oscillator shunt 32-4562-1 Printed circuit 30-6001
C9	Condenser, screen by-pass, .05 µf30-4650-	R1	Resistor, screen dropping, 10,000 ohms66-3108340°
C10	Condenser, special, B – to chassis, .2 µf30-4	R2	Resistor, a-v-c load, 4.7 megohms66-5478340*
C11	Condenser, i-f coupling, 220 \(\mu\mu\text{f}\)62-1220010	B3	Resistor, a-v-c load, 2.2 megohms66-5228340*
C12	Condenser, screen by-pass, .002 µf30-1238	R4	Resistor, B- to chassis, 150,000 ohms66-4158340*

PARTS LIST (Continued)

Reference Symbol	Description Service Part No.	Description	Servic Part N
R5	Resistor, grid leak,	Socket, tube (2)	27-6203-
	22,000 ohms66-3228340°	Socket, tube (4)	27-620
R6	Resistor, grid leak,	Speed nut (4)	1W56920FI
	2.2 megohms66-5228340*		
R7	Resistor, a-v-c load, 2.2 megohms66-5228340°	MODEL 53-950	
R8	Resistor, cathode bias, 180 ohms	Cabinet, mahogany	109
	180 ohms 66-1188340 *	Cabinet, ivory	10938
R9	Resistor, screen dropping, 2200 ohms66-2228340°	Cabinet back and loop assembly	
	2200 ohms66-2228340*	Scale, mahogany	54-51
R10	Resistor, i-f filter, 47,000 ohms66-3478340*	Scale, ivory	54-5152
R11	Volume control, 500,000 ohms	Knob (2)	54-4 718-3
	Models 53-950, 53-95433-5566-43	Knob, band switch	54-499
	Model 53-95233-5566-46	Pointer	56-989
R12	Resistor, grid leak,	Shaft, tuning	56-9807
	10 megohms66-6108340°	Spring, retaining	28-86
R13	Resistor, plate load.	Speaker	45-97
	500,000 ohmsPart of PC1		
R14	Resistor, grid leak,	MODEL 53-952	
	500,000 ohmsPart of PC1	MODEL 33-932	
R15	Resistor, cathode bias.	Cabinet	1096
	150 ohms, 1 watt66-1154340°	Cabinet back and loop assembly	
R16	Resistor, B+ filter	Knob (2)	54 609
	1200 ohms	Knob, band switch	54-40
R17	Resistor R+ filter	Panel, diffusing	54-95: 54-90:
	220 ohms, 1 watt66-1224340°	Clin panel diffusing	EC 9507
R18	Resistor, tube saver, 100 ohms33-1343-3	Clip, panel diffusing	
SI	Switch, off-on Part of R11	Pointer Pointer	UCOC-UU
	Switch, broadcast-special services	Pointer rail assembly	
J .	Model 53-95042-1893-3	Scale, dial	7.6- 1 6
	Model 53-952 42-1893-5	Shaft, tuning	
	Model 53-954 42-1893-4	Spring, retaining	28-861
T 1	Transformer escillator 20 4450 0	Speaker	45-978
$\dot{\mathbf{T}}$	Transformer, oscillator 32-4453-2		
WI	Transformer, output32-8310-3	MODEL 53-954	
Ž1	Line cord L-2183*		
Z1 Z2	Transformer, r-f 32-4399-7A	Cabinet, mahogany	1095
Z2 Z3	Transformer, 1st i-f32-4160A	Cabinet, blond	10959-
L o	Transformer, 2nd i-f32-4240A	Back assembly, mahogany cabinet	76-806
		Back assembly, blond cabinet	76-8063-1
	MISCELLANEOUS	Loop assembly, antenna	76-2127-1
		Metal grille	56-1003
	PARTS COMMON TO ALL MODELS	Knob (2), mahogany	54-601
		Knob (2), blond	54-6019
Description	Service :	Knob, band switch	54-499
	Part No.	Panel, diffusing	54-881
		Clip, diffusing panel	56-3587
Drive core	d, 25-ft. spool45-8750*	Pointer	56-5630-5
Spring,	drive cord56-2617	Pointer rail assembly	76-798
Rubber m	ount, gang mtg. (3)27-4596	Shaft, tuning	56.Q207
Shield, tub	be (2)56-5629FA3	Spring, retaining	96-00
Socket acc	embly, pilot lamp27-6233-6	Speaker	

TP2-3229

MODEL 53-559

SPECIFICATIONS

CABINET	
ORCUIT	Four-tube superheterodyne (plus rectifier)
REQUENCY RANGE	
Standard Broadcast	540—1620 kc.
Special Services	1700—3400 kc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	105—120 volts, a.c. or d.c.
NTENNA	
STERMEDIATE PREQUENCY	455 kc.
HILCO TUBES	12BE6, converter; 12BA6, i-f amplifier; 12AV6.
······································	detector-a.v.c1st. audio: 35C5, output: 35W4, rectifier

NOTE: The antenna is mounted on the cabinet back. When removing the cabinet back, use care to avoid breaking the antenna leads.

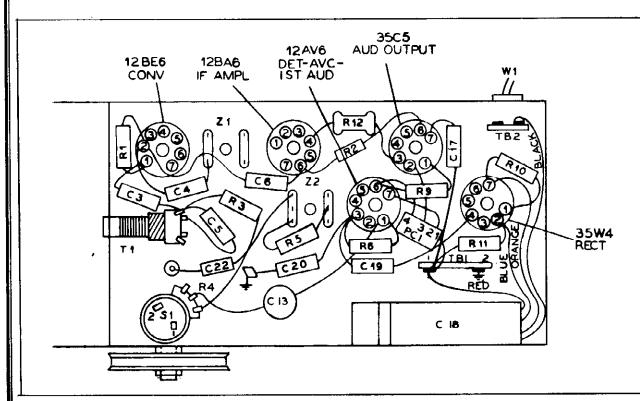


Figure 1. Base View, Showing Parts Placement

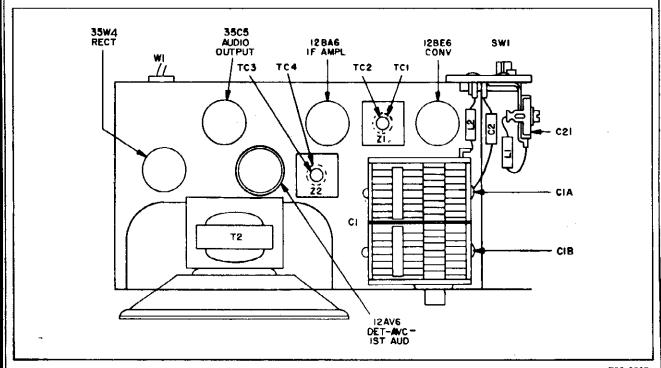


Figure 2. Top View, Showing Tuning Adjustments

TP2-3227

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

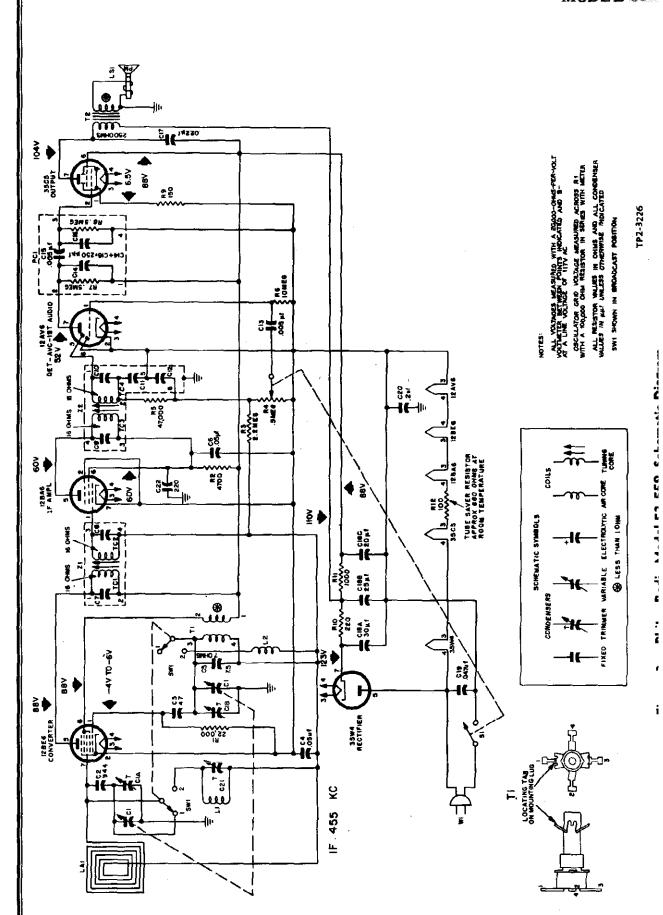
ALIGNMENT CHART

	SIGNAL GENERATOR			RAD	0	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND- SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground-lead to B-; output lead through a .1-µ1. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4-2nd if sec. TC3-2nd if pri. TC2-1st if sec. TC1-1st if pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1B—osc.
3	Same as step 2.	1500 kc	1500 kc.†	Broadcast	Adjust trimmer for maximum output.	C1A—antenna (broadcast)
4	Same as step 2.	3200 kc.	3200 kc.†	Special services	Adjust trimmer for maximum output.	C21—antenna (special services)

NOTE: Make up a 6 -8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place about 1 foot from radio loop. The position of the radio loop, with respect to the chassis, should be approximately the same as when both are mounted in the cabinet.

*To set the tuning gang to 1620 kc., fully open the tuning gang and insert a .006-inch nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

†To set the radio to this frequency, place chassis in cabinet, attach knob, and tune until pointer indicates the correct frequency. Then remove knob and take chassis from cabinet without disturbing the setting of the gang.



Service Part No.

56-5228340

36-1224340*

56.2108340

.33-1343-3

Part of R4

.32-8384-2* L-2183*

.32-4240A

.32-4161A

..42-1796-2

56-1158340*

36-6108340*

art of PC1

art of PC1

56-3478340

MODEL 53-559

NOTE: Part numbers identified by an asteriak (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

PARTS LIST

CI CIA CIB CIB C						
31.A 31.B	Condenser,	Condenser, tuning gang	31-2751-13	R3	Resistor, a-v-c filter, 2.2 megohms	. 36
9 13	Condenser,	Condenser, r-f trimmer	Part of Cl	# 4	g	e
	Condenser,	oscillator trimmer	Part of C1	RS		99
	Condenser,	antenna series tracker,		H6		99
	944 µµi.	***************************************	30-1220-65	R7	Resistor, plate load, 500,000 ohms Po	p.
•	ondenser,	Condenser, oscillator grid, 47 µut	30-1230-4	R8	Resistor and return 500.000 chms	ρ.
•	ondenser,	Condenser, G-v-c by-pass, .05 µt	30-4650-45	R9	Resistor cothode bios 150 ohms 66	ď
•	Jondenser,	Condenser, drift compensation, 7.5 µµf.	30-1224-83	RIG	Resistor R plus filter 220 ohme 66	
•	ondenser,	Condenser, acreen by-pass, .05 µf	30-4650-45	R11	Resistor. B plus filler. 1000 ohms 66	
	ondenser,	Condenser, Lf tuning	Part of Z1	HIZ	Besistor, tube sover, 100 ohms	
_	ondenser,	Condenser, i-f tuning	Part of Z1	SI	Switch off-on	
	ondenser.	•	Port of Z2	SW1	Switch, broadcast-special services	
_	ondenser,		Part of Z2	Ţ	Transformer, oscillator	
_	ondenser,	Condenser, detector filtering	Port of Z2	73	Transformer output	
C12 C	ondenser,	Condenser, detector filtering	Port of Z2	W	Line cord	
	ondenser,	Condenser, audio coupling, .005 µf	30-1238-1	12	Transformer 1st 1-f	
	ondenser,	Condenser, plate by-pass	Part of PC1	7.7	Transformer, 2nd i-f	
_	Condenser,	cudio coupling, .005 µf	Part of PC1			
_	Condenser,	Condenser, compensatingPart of PC1	Part of PC1		MISCELL ANEOUS	
C17 C	Condenser,	Condenser, tone compensation, .022 µl30-4650-43	30-4650-43			
C18 C	ondenser,	Condenser, electrolytic, 3-section30-2573	30-2573			
	Jondenser,	Condenser, filter, 30 pf., 150v	Part of C18	Description		
_	Sondenser,	Condenser, filter, 25 µf., 150v	Part of C18	• !		
_ ည	ondenser,	Condenser, filter, 20 pt., 150vPart of C18	Part of C18	Back-and-loc	Back-and-loop ass'y.	
_	ondenser,	Condenser, line by.pass, .047 μi 30-4650-45	30-4650-45*	Cabinet		
•	ondenser,	Condenser, B- to chassis, .2 µf30-4650-49	30-4650-49	Driftwo	Driftwood	
_	ondenser,	Condenser, trimmer, special services31-6473-29	31-6473-29	Mahoga	Mahogany	
_	condenser,	Condenser, r-f by-pass, 220 µul60-10225417	.60-10225417	Dial scale	Dial scale	
	oil, anten	Coil, antenna, special services32-4561-3	32-4561-3	Drive cord	Drive cord (25-ft. spool)	
_	oll, oscillo	Coll, oscillator shunt32-4562-2	32-4562-2	Fastener, be	Fastener, back	*
_	doo	LoopPart of cabinet back	cabinet back	Knob, tuning	Knob, tuning	
	peaker, p	Specker, p-m36-1627-8	36-1627-8	Knob, volun	Knob, volume	
PC1 P	rinted circ	Printed circuit30-6001	30-6001	Shield, tube	Shield, tube	56
RI R	lesistor, os	Resistor, oscillator grid, 22,000 ohms66-3228340*	66-3228340*	Socket, tube	Socket, tube (4)	
12 R	lesistor, i-f	Resistor, i-f screen dropping, 4700 ohms66-2478340*	66-2478340*	Socket, tube	Socket, tube (12AV6)	2

Service Part No.

....45-8750*

V2235FA9

.54.4978-254-4118 .5629FA3

10921-5 10921-6 28-9292

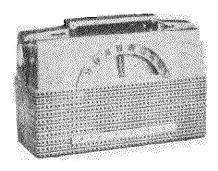
..76-7705-1

27-6203-14*

....27-6265

SPECIFICATIONS

CABINET	
CIRCUIT	Four-tube superheterodyne (plus selenium
	rectifier)
AUDIO OUTPUT	
A-C or d-c operation	150 milliwatts
Battery operation	90 milliwatts (75 milliwatts: battery-saver
• •	operation)
OPERATING VOLTAGE	117 volts, a.c. or d.c.
	1.5-volt "A" battery and 75-volt "B" battery
POWER CONSUMPTION	
A-C or d-c operation	ll watts
	10 ma. from 75-volt "B" Battery (9 ma.:
	battery-saver operation)
	260 ma. from 1.5-volt "A" battery
ANTENNA	Magnecor high-impedance loop with pro-
	vision for external antenna
INTERMEDIATE FREQUENCY	455 kc.
	1R5 converter, 1U4 i-f amplifier,
***************************************	1U5 detector-a.v.c. 1st audio.
	3V4 output
BATTERY TYPE	
DALLEL III	P77 "A" battery
	Til II Willer



MODEL 53-652

POINTER ASSEMBLY
76-8071

SPRING
28-8953

21/2 TURNS

DRIVE CORD, GANG
25 FT SPOOL 45-8750*

DRIVE CORD, POINTER

Figure 1. Dial-Cord Stringing Arrangement

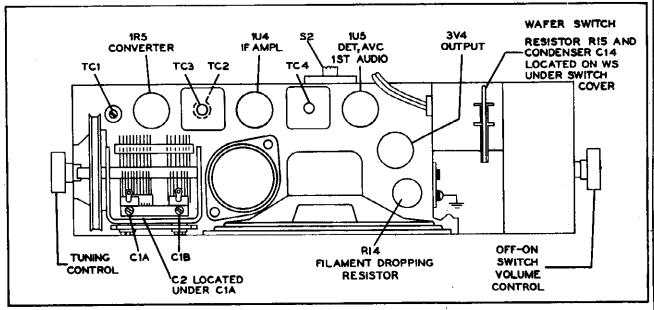


Figure 2. Top View, Showing Tuning Adjustments

TP2-3168

ALIGNMENT PROCEDURE

GENERAL—Allow the set and the test equipment to warm up for fifteen minutes before starting the alignment procedure.

DIAL POINTER—Before proceeding with the alignment, the dial pointer should be set to coincide with the index mark to the extreme left of the dial backplate when the tuning-condenser plates are fully meshed. See figure 4.

OUTPUT INDICATOR—Connect the output indicator (a 1000-ohm-per-volt, a-c voltmeter, or an oscilloscope) across the voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f signal gen-

erator. Connect the ground lead to B-, and connect the output lead as indicated in the alignment chart.

OUTPUT LEVEL—Attenuate the signal-generator output throughout the alignment so as to maintain the output level below .5 volt.

RADIO CONTROLS—Set the volume control to maximum. Set the tuning control as indicated in the alignment chart. During alignment of the radio, the batteries should be in the same position with respect to the chassis and the loop antenna as they normally are in the cabinet. It is recommended that a-c power be used when aligning the radio.

ALIGNMENT CHART

	SIGNAL GENERATO)R		RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Connect signal generator through a .1-µf. condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd i-f sec. TC3—1st i-f sec. TC2—1st i-f pri.
2	Use radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (See NOTE 2 below.)	Adjust for maximum output.	ClBosc. trimmer
3	Same as step 2.	1400 kc.	1400 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1A—antenna trimmer
4	Same as step 2.	600 kc.	600 kc. (See NOTE 2 below.)	Adjust for maximum output. Rock tuning gang while mak- ing this adjustment.	TC1—osc. core
5	Repeat steps 2, 3, and 4 until no f	urther improve	ment is obtained.		

NOTE 1. Use a 6-to-8-turn, 6-inch-diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

NOTE 2. The tuning condenser can be set to the proper frequency by turning it until the dial pointer coincides with the respective marks on the dial backplate. See figure 2.

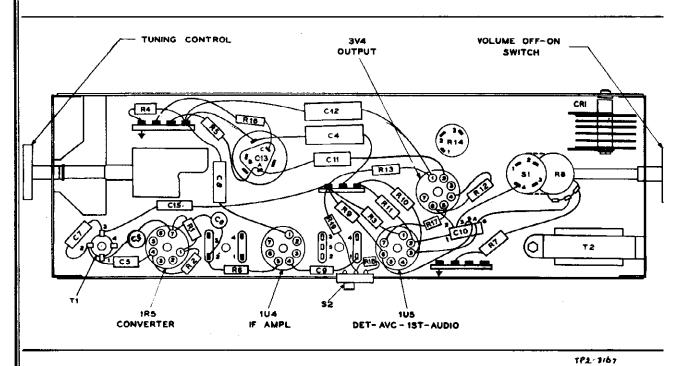
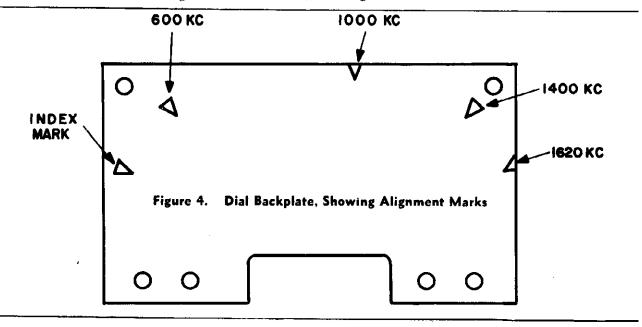
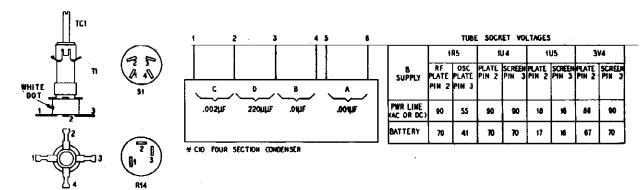
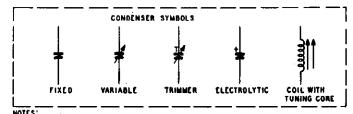


Figure 3. Base View, Showing Parts Placement







NOTES:
ALL RESISTOR VALUES IN OHMS AND ALL CONDENSER VALUES IN UNIF UNLESS OTHERWISE MARKED.

© LESS THAN 1 OHM

ALL VOLTAGES SHOWN WERE MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM POINTS INDICATED TO 8-.

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will either be unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
Cl	Condenser, tuning gang	31-2735-4
CIA	Condenser, trimmer, antenna	Part of Cl
ClB	Condenser, trimmer, oscillator	Part of C1
C2	Condenser, i-f neutralizing, 1.5 µµf	30-1221-7
C3	Condenser, screen by-pass, .004 µf	30-1239*
C4	Condenser, B- to chassis, .1 µf	30-4650-47*
C5	Condenser, d-c blocking, 47 µµf	60-00475420*
C6	Condenser, grid by-pass, .004 µf	30-1239*
C7	Condenser, temperature compensating, 7.5 µµf.	30-1224-83
C8	Condenser, filament by-pass, .25 µf	30-4656-1
C9	Condenser, neutralizing, 1.5 µµf	
C10	Condenser, audio circuit	30-1237
C10A	Condenser, audio coupling, .001 µf	
C10B	Condenser, screen by pass, .01 µi	Part of C10
C10C	Condenser, d-c blocking, .002 µf	Part of C10
ClOD	Condenser, grid by-pass, 220 µµf	Part of C10
C11	Condenser, tone compensation, .004 µf	30-4650-56*
C12	Condenser, electrolytic, filament by-pa	
C13	Condenser, electrolytic, filter	
C13A	Condenser, filter, 40 µf	Part of C13
C13B	Condenser, filter, 10 µf	•
C13C	Condenser, filter, 50 µf	
C14	Condenser, line by-pass, .047 uf	30-4650-45*
C15	Condenser, a-v-c by-pass, .05 µi	
CR1	Rectifier, selenium	
] 1	Private listening unit	42-1975-2
LA1	Coil, antenna	32-4455-9
LSi	Loudspeaker	36-1637
R1	Resistor, filament dropping, 920 ohms	66-1828340*
R2	Resistor, grid leak, 68,000 ohms	
R3	Resistor, cathode bias, 470 ohms	66-1478340°
R4	Resistor, B- to chassis, 150,000 ohms	66-4158340*
R5	Resistor, screen dropping, 15,000 ohms	66-3158340*
R6	Resistor, grid leak, 3.3 megohms	66-5338340*
R7	Resistor, a-v-c load, 2.2 megohms	66-5228340*
R8	Volume control, 1 megohm	33-5566-21
R9	Resistor, grid leak, 4.7 megohms	66-5478340*
R10	Resistor, screen dropping, 4.7 megohms	
R11	Resistor, plate load, 680,000 ohms	66-4688340*
R12	Resistor, grid leak, 2.2 megohms	66-5228340"
R13	Resistor, filament dropping, 2200 ohms	
R14	Resistor, limiting, 2100 ohms	
R15	Resistor, B+ filter, 820 ohms	66-1828340*
R16	Resistor, limiting, 120 ohms	33-1334-14

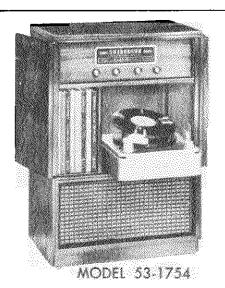
Reference Symbol	Servic Description Part N
R17	Resistor, filament dropping, 1500 ohms56-215834
R18	Resistor, battery economizer, 330 ohms66-133834
R19	Resistor, battery economizer, 560.ohms66-156834
R20	Resistor, private listening unit, 10 ohms66-010834
S1	Switch, on-offPart of R
S2	Switch, battery economizer
T 1	Transformer, oscillator32-4453-
T2	Transformer, output32-843
W1	Line cordL 218
WS1	Switch, wafer, battery to line42-1925-
Zl	Transformer, 1st i-f32-4160-47
Z2	Transformer, 2nd i-i32-4454-17

MISCELLANEOUS

Description	Servic Part N
Cabinet, light beige	
Back, cabinet, light beige	54-601
Handle, cabinet, light beige	54-601
Cabinet, spruce green	10954-
Back, cabinet, spruce green	54-6010-
Handle, cabinet, spruce green	54-6012-
Cable, battery	41-3988-
Clip, cabinet back (2)	56-916
Dial scale	56-998
Backplate assembly, dial	76-817
Window, dial	54-601
Drive cord, 25-ft. spool	45-875
Spring, gang drive	56-261
Spring, pointer drive	28-895
Fastener, speaker baffle (2)	W22 35-7ГД
Hinge, cabinet (2)	56-545
Insulator, tuning-condenser mtg	27-950
Knobs, (2) light beige or spruce green	54-601
Pointer assembly	76-807
Ring, handle mtg. (2)	56-998
Rubber mount, tuning-condenser mtg. (3)	27-4099-
Shaft, tuning	56-7906FA4
Shield, tube base	56-3978-1FA
Socket, tube (2)	27-620
Socket, tube (2)	27-6203-1
Spring, hairpin, shaft mtg.	28-861
Spring, retaining	57-1868FA1

SPECIFICATIONS

CABINET	Wood console, mahogany
CIRCUIT	Five-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	
Broadcast	540 kc. to 1620 kc.
Special Services	
AUDIO OUTPUT	4.5 watts
OPERATING VOLTAGE	
POWER CONSUMPTION	80 watts
ANTENNA	Built-in, low-impedance loop
	455 kc.
	E6 converter, osc., phono preampl; 6BJ6 i-f ampl;
	ector, a.v.c., 1st audio; 6AQ5 output; 6X4 rectifier



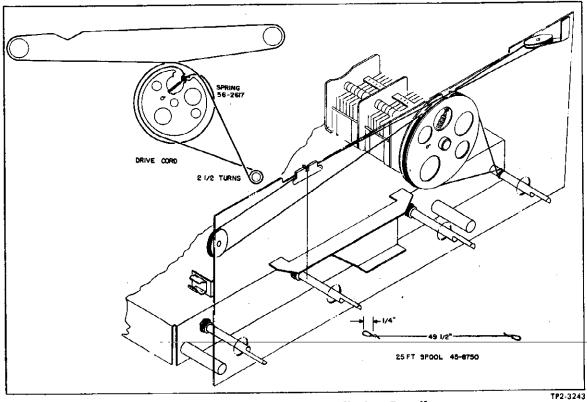


Figure 1. Drive-Cord Installation Details

ALIGNMENT PROCEDURE

GENERAL

RADIO CONTROLS—Set volume control for maximum output, and set tuning control as indicated in the alignment chart. Set band switch to broadcast position for first 5 steps, then to special services position for steps 6 and 7.

OUTPUT INDICATOR—Connect output indicator (either an oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f generator, connected as indicated in the alignment chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to maintain output indication below I volt.

DIAL POINTER—Before the alignment is started,

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL	DIAL	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to chassis. Output lead through a .01-µf. condenser to pin 7 (mixer grid) of 6BE6, converter.	455 kc.	Tuning gang fully open.	Adjust, in order given in next column, for maximum output.	TC6-2nd i-f sec. TC3-1st i-f pri. TC5-2nd i-f pri. TC4-1st i-f sec.
5	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output.	C1C-osc. trimmer
က	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. (High-fre-quency adjustment)	C1B—mixer-grid trimmer C1A—r-f trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment)	TC2-r-f trans- former
જ	Repeat steps 3 and 4 until no further improvement is obtained	er improvemer	at is obtained.		
9	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output.	C10-special services mixer grid trimmer C4-special services r-f trimmer
7	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output.	C2-special services r-f padder

NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place about I foot from radio loop antenna. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet. NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the

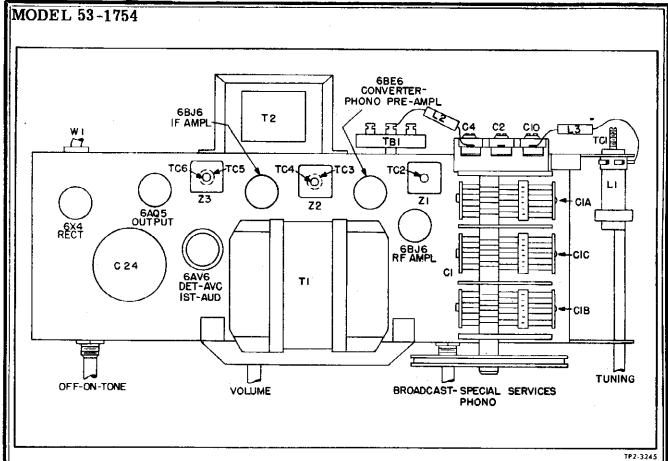


Figure 2. Top View, Showing Tuning Adjustments

6BE6 CONVERTER PHONO PRE-AMPL **6BJ6** 6AQ5 6X4 T2 OUTPUT IF AMPL RECT ∏wi RIZ @3_@ **(3**) 0 0 T3 R/S R17 WSI-B TUNING 6AV6 6BJ6 0 0 DET-AVC IST VOLUME AUDIO BROADCAST-SPECIAL OFF-ON TONE J2 SERVICES PHONO

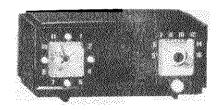
Figure 3. **Base View, Showing Parts Placement**

2000 2000 2000 2000 2000 68JG R-F AMPLIFIER

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol		Description	Service Part No.	Reference Symbol	•	Description	Service Part No.
C1	Condenser,	tuning gang, 3-section	31-2771-3	R10	Resistor,	cathode bias, 270 ohms	66-1275340*
CIA	Condenser, 1	trimmer, antenna	Part of C1	R11	Resistor,	screen dropping, 68,000 ohms	66-3688340*
C1B	Condenser, 1	trimmer, r-f	Part of C1	R12		plate dropping, 10,000 ohms	
CIC	Condenser, 1	trimmer, oscillator	Part of C1	R13	Resistor,	i-f filter, ,47,000 ohms	66-3478340*
C2	Condenser,	padder, special services r-f	Part of CA1	R14	Resistor,	diode load, 330,000 ohms	66-4338340*
C3	Condenser,	d-c blocking, 100 μμf,	62-110001001*	R15	Resistor,	tone compensation (bass boost)	66-3478340*
C4	Condenser, 1	trimmer, special services r-f	Part of CA1	R16	Resistor,	tone control, 5 megohms	33-5566-48
C5	Condenser,	cathode by-pass, .047 μ f	30-4650-45	R17	Resistor,	volume control, 2 megohms	
C6		screen by-pass, .047 µf			Resistor,	grid leak, 10 megohms	66-6108340*
C7		r-f by-pass, 5 μμf.				plate load, 220,000 ohms	
CB		fixed padder, 944 μμf.				grid leak, 470,000 ohms	
C9		d-c blocking, 100 μμf.				cathode bias, 330 ohms, 1 watt	
C10		rimmer, special services mixer-g				B+ filter, 1000 ohms	
C11		2-ν-c by-pass, .047 μf.				B+ filter, 270 ohms	
C12						plate load, preampl., 220,000 ohm	
		oscillator coupling, 47 μμf				•	
CI3		-f coupling, 220 μμf.		\$1		off-on	
C14		screen by-pass, .047 μ f				off-on, phono motorPart of M-24	
C15		plate by-pass, .01 µf.				ner, power	
C16		rudio coupling, .0068 μ f	30-4650-57			ner, output	
C17		one compensation (bass boost),		T3		ner, oscillator	
	.005 μf		30-1238-1*	WI		d	
C18	Condenser, t	one compensation, 47 $\mu\mu$ f	60-00475417	WST		oand	
C19	Condenser, t	one compensation (high cut) .01	μf. 30-1238-2*	Zl	Transform	ner, r-f	32-4399-7A
C20	Condenser, o	audio coupling, .005 μf,	30-1238-1*	Z 2		ner, 1st i-f	
C21	Condenser, c	d-c blocking, .007 µf	Part of PC1	Z3	Transform	ner, 2nd i-f	32-4240A
C22	Condenser, r	-f by-pass, 220 μμf	Part of PC1				
C23	Condenser, t	one compensation, .0033 μf	30-4650-89*			MISCELLANEOUS	
C24	Condenser, e	electrolytic filter	30-2584-32	Description	on		Service
C24A	Condenser, f	ilter, 20 µf,	Part of C24				Part No.
C24B	Condenser, f	ilter, 20 µf.		Cabinet			10985
C24C		ilter, 40 µf.		Back			54-8932
C24D		ilter, 10 µf.		Dome (4)			45-6190
C25		ine by-pass, .01 μf.					
C26		ine by-pass, .01 μf		-		2)	
C27	_	udio coupling (phono), .005 μf.)	
C28		ixed trimmer, 7.5 μμf			•		
CA1	_	ssembly, trimmer					
H.		•				'y	
,, 11		oly, pilot (2)					
	_ `	hong input				changer drawer)	
J2.		hono a-c				changer drawer)	
L1		G				mtg. (3)	
12		services r-f			-	mtg. (3)	
L3		services mixer grid			_	mtg. (3)	
L4		or shunt	· · · · · ·		-	drawer	
LA1		ā			-		
LST		")		Dial back	plate ass'	y	76-8321
PC1		it		Dial sc	ale		54-5184
RY		g-v-c, 1 megohm		Clip, sc	ale		56-475 6FE11
R2		ode bias, 82 ohms		Knob (3)			54-471B-20
R3		en dropping, 22,000 ahms		Knab			54-4718-21
R4		leak, 1 megohm				ning	
R5 .		ode bias, 27,000 ohms					
R6		liator grid leak, 33,000 ohms				,	
R7		(phono), 1 megohm			•	4	
R8		c load, 2.2 megohms		-	-	g mounting	
					-	-	
R9 '	Recistor arid	leak, 470,000 ohms	££ £47044A+	T. L.	14		EL ELANE IN



TP2-3233

MODEL 53-701X

SPECIFICATIONS

CABINET	Molded phenolic
CIRCUITFour-tube st	uperheterodyne (plus rectifier)
FREQUENCY RANGE	540—1620 kc.
AUDIO OUTPUT	
OPERATING VOLTAGE	117 volts, a.c.
POWER CONSUMPTION	30 watts
ANTENNA	

INTERM	EDIATE	FREQUENCY			4	155 kc
PHILCO	TUBES	12BE6,	converter;	12BA6,	i-i am	plifier
		12 AV 6,	det.—a.v.	c.—lst	audio;	35C5
		output:	35W4, rec	tifier		

NOTE: The antenna is mounted on the cabinet back. When removing the cabinet back, use care to avoid breaking the antenna leads.

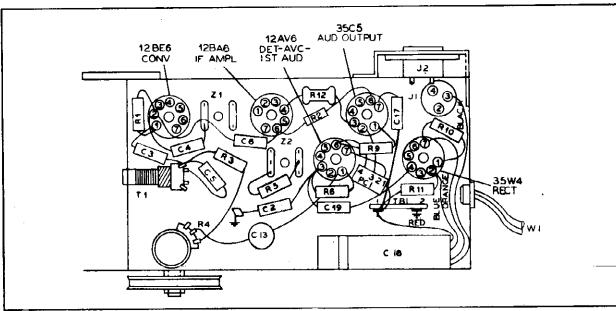


Figure 1. Base View, Showing Parts Placement

'P2-3Z31

MODEL 53-701X

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT METER—Connect across voice-call terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-\(\mu i\). condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4—2nd if sec. TC3—2nd if pri. TC2—1st if sec. TC1—1st if pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc.	Adjust trimmer for maximum output.	ClB—osc.
3	Same as step 2.	1500 kc.	1500 kc.†	Adjust trimmer for maximum output.	C1Aantenna

NOTE: Make a 6-8 turn. 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place about 1 foot from radio loop. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

[†]To set the radio to 1500 kc., place chassis in cabinet, attach knob to indicate previous setting of 1620 kc., and tune until pointer indicates 1500 kc. Then remove knob and take chassis from cabinet without disturbing gang setting.

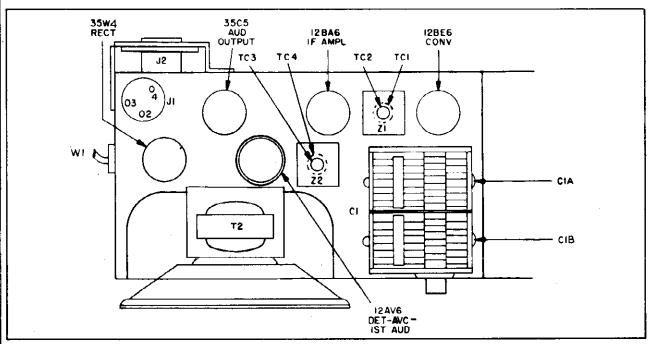
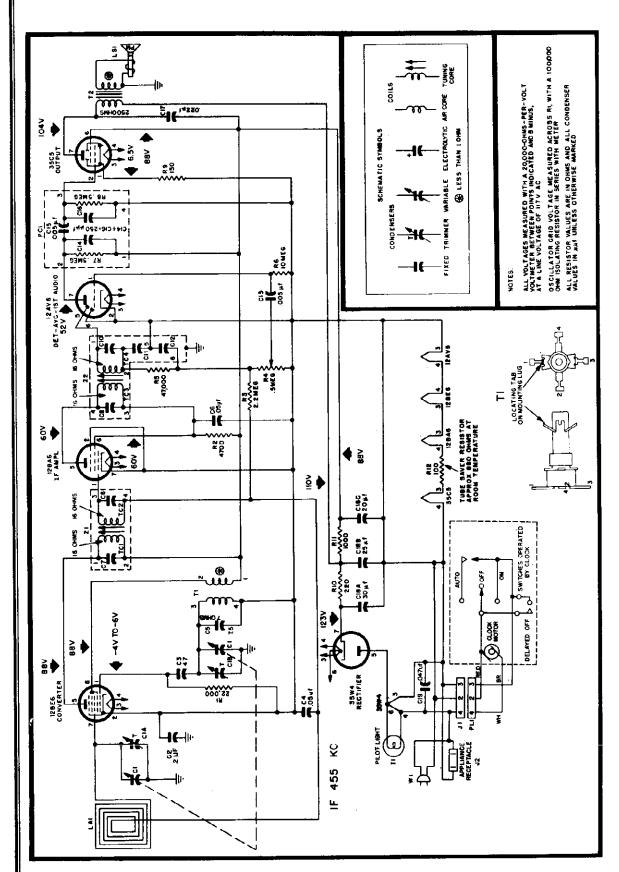


Figure 2. Top View, Showing Tuning Adjustments

^{*}To set the tuning gang to 1620 kc., fully open the gang and insert a .006-inch, nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.



TP2-3230

Philco Radio-Clock Model 53-701X, Schematic Diagram Figure 3.

fer from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may difonly the "Service Part No."

PARTS LIST

Symbol	Description	Part No.	Symbol	Description	ion Part No.
ច	Condenser, tuning gang31-2751-13	31-2751-13	R 3	Resistor, a-v-c filter, 2	Resistor, a-v-c filter, 2.2 medohms66-5228340
	Condenser, r-f trimmer	Part of C1		Resistor, volume contr	Resistor, volume control, 5 megohm33-5566-41
	Condenser, oscillator trimmer	Part of C1	RS	Resistor, diode load,	Resistor, diode load, 47,000 ohms
	Condenser, B- to chassis, .2 ut.	30-4650-49		Resistor, grid return,	Resistor, and return, 10 megohus66-6108340
	Condenser, oscillator grid, 47 µµf	30-1230-4		Resistor, plate load, 5	Resistor, plate load, 500,000 ohmsPart of PC1
	Condenser, a-v-c by-pass, .05 µf.	30-4650-45*		Resistor, grid return, 5	Resistor, and return, 500,000 ohmsPart of PC1
	Condenser, drift compensation, 7.5 µµf	30-1224-83		Resistor, cathode bias	Resistor, cathode bias, 150 ohms66-1158340
	Condenser, screen by-pass, .05 µf	30-4650-45*		Resistor, B plus filter,	Resistor, B plus filter, 220 ohms, I watt66-1224340
	Condenser, i-f tuning	Part of Z1		Resistor, B plus filter,	Resistor, B plus filter, 1000 ohms66-2108340*
	Condenser, i-f tuning	Part of Z1		Registor, tube saver,	Resistor, tube scaver, 100 ohms33-1343-3
	Condenser, i-f tuning	Part of Z2		Transformer, oscillator	Transformer, oscillator 33-4453-6
	Condenser, i-f tuning	Part of ZZ	T2	Transformer, output	Transformer, output 32-8384*
	Condenser, detector filtering	Part of ZZ		Line cord	Line cord 12183*
	Condenser, detector filtering	Part of Z2	21	Transformer, 1st i-f	Transformer, 1st i-f32-4161A
	Condenser, audio coupling, .005 µf	30-1238-1		Transformer, 2nd 1:4	Transformer, 2nd 1-f
	Condenser, plate by-pass	Part of PC1			
	Condenser, audio coupling, .005 µf	Part of PCI		A 11973171	21012
	Condenser, compensating	Part of PC1	٠	MISCELLANEOUS	
	Condenser, tone compensation, $022\mu t$.	30.4650-43			73
	Condenser, electrolytic, 3-section	30-2573	Description		Part No.
	Condenser, filter, 30 µl., 150v	Part of C18	·		
	Condenser, filter, 25 µt., 150v	Part of C18		#44: 004 44 /(0+4:0+44:0+1(++#**4+1)++#**	Cabinet10924-6
	Condenser, filter, 20 µl., 150v	Part of C18	Knobs	٠	
	Condenser, line by-pass, .047 µf	30-4650-45*		Clock (4 required)	54-4983
	Lamp, pilot	34.2068		lector	Station selector54-4978
	Jack, clock	27-6273		***************************************	Off-on54-4118
	Jack, appliance receptacle, a-c	76-3931	ប	Clock	41-2041-1
	Loop Part of	cabinet back		Back-and-loop assembly	76-7757-3
	Speaker, p-m	36-1627-8		Shield, tube	
	Printed circuit	30-6001		Clip, pilot lamp	W2563FA3
	Plug, clock assembly	27-6273		Socket, miniature (5 required)	27.6265
	Resistor, oscillator grid, 22,000 ohms .	66-3228340*		Socket assembly, pilot lamp	27-8233-6
	Designation to second descentiant 4700 ob-	- SE-2478340*	Ī	O 1000 and 1	

TP2-3248

MODEL 53-565

SPECIFICATIONS

CABINET	Molded plastic
CIRCUIT	Four-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	
Standard Broadcast	540 kc. to 1620 kc.
Special Services	
	l watt
OPERATING VOLTAGE	105 to 120 volts, a.c. or d.c.
POWER CONSUMPTION	30 watts
	High-impedance loop
INTERMEDIATE FREQUENCY	
PHILCO TUBES	
12AV6, det	.—a.v.c.—1st audio; 35C5, output; 35W4, rectifles
Note: The antenna is mounted on the use care to avoid breaking the	cabinet back. When removing the cabinet back,

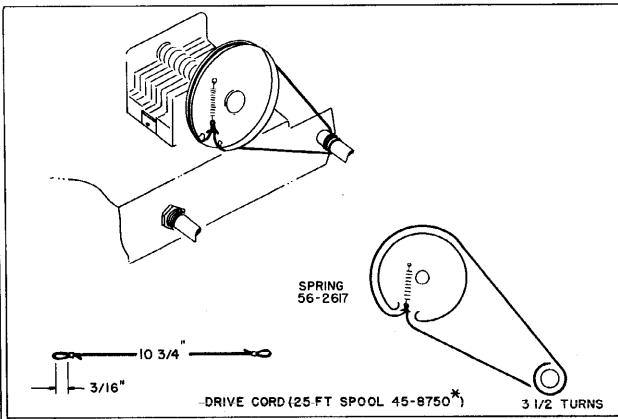


Figure 1. Diai-Cord Installation Details

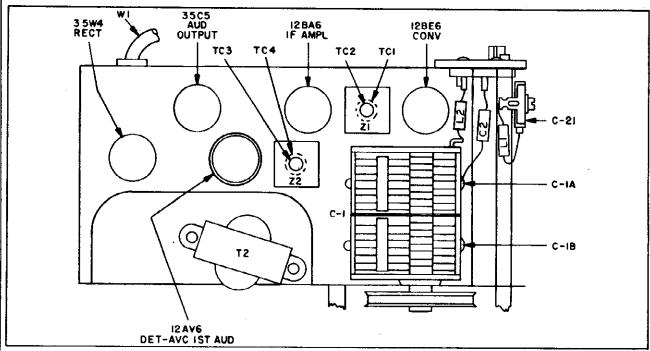


Figure 2. Top View, Showing Tuning Adjustments

TP2-1407

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

ALIGNMENT CHART

1	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND- SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B—; output lead through a .1-µf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Use radiating loop (see NOTE below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1B-osc.
3	Same as step 2.	1500 kc.	†1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1A-antenna (broadcast)
4	Same as step 2.	3200 kc.	— †3200 kc.	Special services	Adjust trimmer for maximum output.	C21—antenna (special services)

NOTE: Make up a 6–8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place about 1 foot from radio loop. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

^{*} To set the tuning gang to 1620 ke., fully open the gang and insert a .006-inch nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

[†] To set the tuning gang to this frequency, put the chassis into the cabinet, tune the dial until it indicates the proper frequency on the dial scale, and then remove the chassis from the cabinet without disturbing the gang setting.



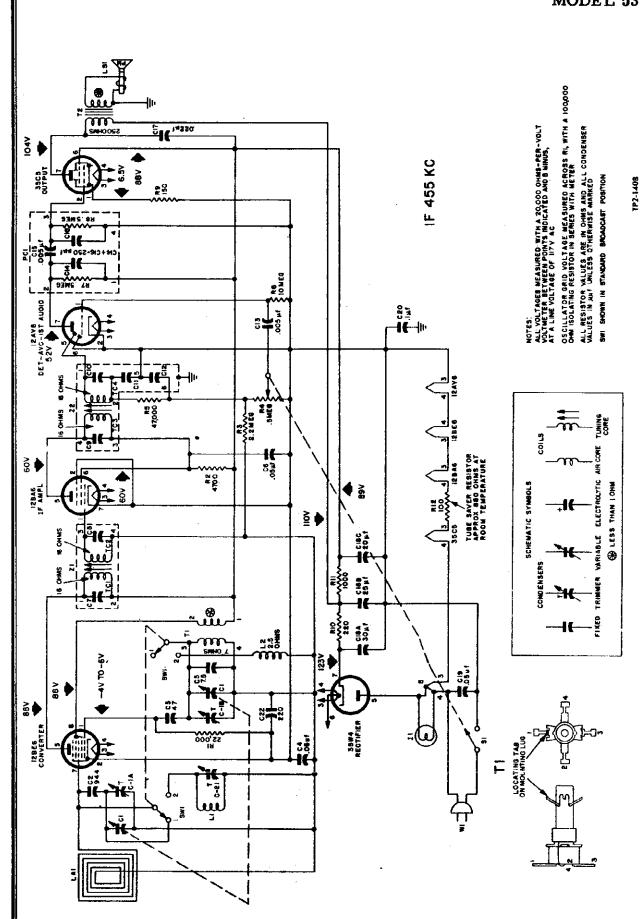


Figure 3. Philco Radio Model 53-565. Schematic Diagram

MODEL 565

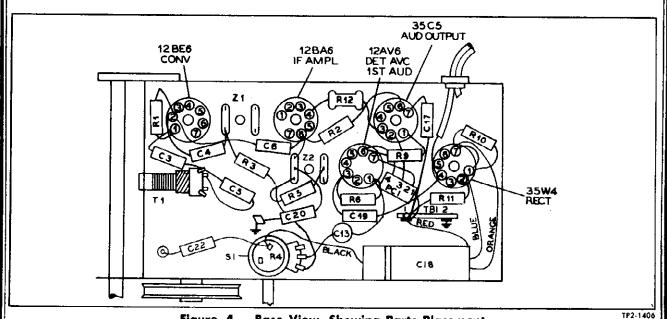


Figure 4. Base View, Showing Parts Placement

PARTS LIST

NOTE: Part numbers identified by an asterisk (°) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol		Service Part No.	Reference Symbol Description		Service Part No.
CI	Condenser, tuning gang	31-2751-14	R3	Resistor, a-v-c filter, 2.2 megohms	66-5228340*
CIA	Condenser, antenna trimmer	Part of C1	R4	Resistor, volume control	
C1B	Condenser, osc. trimmer	Part of C1	R5	Resistor, diode load, 47,000 ohms	
C2	Condenser, antenna series tracker, 944 $\mu\mu t$.	30-1220-65	Ró	Resistor, grid return, 10 megahms	66-6108340*
C3	Condenser, oscillator grid, 47 µf.	30-1230-4	R7	Resistor, plate load, 500,000 ahms	
C4	Condenser, a-v-c by-pass, .05 µf.	30-4650-45*	R8	Resistor, grid return, 500,000 ohms	Part of PC1
C5	Condenser, drift compensation, 7.5 $\mu\mu$ f	30-1224-83	R 9	Resistor, cathode bias, 150 ohms	
C6	Condenser, screen by-pass, .05 µf.	30-4650-45*	R10	Resistor, B plus filter, 220 ohms	
C7	Condenser, i-f tuning	Part of Z1	RIP	Resistor, B plus filter, 1000 ohms	66-2108340*
C8 -	Condenser, i-f tuning	Part of Z1	R12	Resistor, tube saver, 100 ohms	
C9	Condenser, i-f tuning	Part of Z2	\$1	Switch, off-on	
C10,	Condenser, i-f tuning	Part of 22	SW1	Switch, broadcast-special services	42-1796-2
CII	Condenser, detector filtering	Part of Z2	Tī	Transformer, oscillator	
C12	Condenser, detector filtering	Part of Z2	T2	Transformer, output	
C13	Condenser, audio coupling, .005 µf	30-1238-1	W1	Line cord	
C14	Condenser, plate by-pass	Part of PC1	Z 1	Transformer, 1st i-f	32-4161A
C15	Condenser, audio coupling, .005 \(mu f.\)	Part of PC1	22	Transformer, 2nd i-f	
C16	Condenser, compensating	Part of PC1			•
C17	Condenser, tone compensation, .022 µf	30-4650-43*		MISCELLANEOUS	
C18	Condenser, electrolytic, 3-section	30-2575-34			Service
CISA	Condenser, filter, 30 µf., 150v.	Part of C18	Descript	rtien	Part No.
C18B	Condenser, filter, 25 µt., 150v	Port of C1B	Cabinet	1	
	Condenser, filter, 20 µf., 150v	Part of C18	\$pr	ruce	10927-4
C19	Condenser, line by-pass, .05 μt .	30-4650-45*		ony	
	Condenser, B- to chassis, .1 µf.			d-loop assembly	
C21	Condenser, trimmer, special services	31-6473-29)	
11	Lamp, pilot	34-2068		ord, 25-foot spool	
LA1	Loop, antenna	of cabinet back		diel	
LI (Coil, antenna, special services	32-4561-3		uning	
L2	Coil, oscillator shunt	32-4562-2		assembly, pilot lamp	
	Speaker, p-m			7-pin miniature	
PC1 1	Printed circuit	30-6001	Socket (12AV6)		
R1	Resistor, oscillator grid, 22,000 ohms	66-3228340*		retoining	
R2	Resistor, i-f screen dropping, 4700 ohms	66-2478340*		dial cord	

SPECIFICATIONS

CABINET	Molded plants
CIRCUIT Fou	I-tube superheterodyne (plus rectifier)
FREQUENCY RANGF	
Standard Broadcast	540 kg to 1620 kg
Special Services	1700 kg to 3400 kg
AUDIO OUTPUT	
OPERATING VOLTAGE	
POWER CONSUMPTION	20
ANTENNA	High-impedance loop
INTERMEDIATE FREQUENCY	455 kg
PHILCO TUBES12BE6, c	onverter; 12BA6, i-f amplifier: 12AV6.
deta.v.cls	t audio; 35C5, output; 35W4, rectifier
NOTE: The antenna is mounted on the	cabinet back. When removing the

cabinet back, use care to avoid breaking the antenna leads.

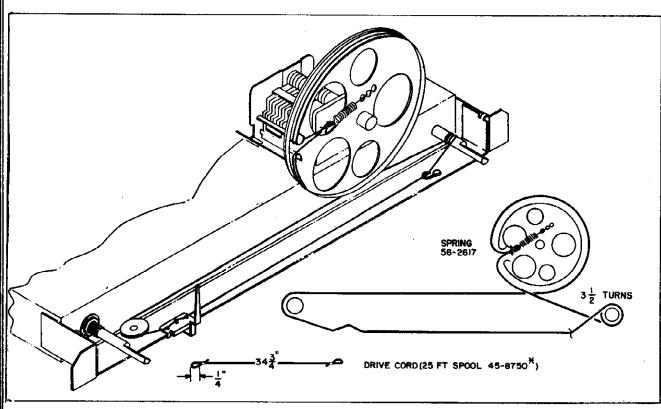


Figure 1. Dial-Cord Installation Details

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to hold output-meter reading below 1.25 volts.

ALIGNMENT CHART

	SIGNAL GENERATOR	1				
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND- SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground-lead to B—; output lead through a .1-jif. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4—2nd id sec. TC3—2nd id pri. TC2—1st id sec. TC1—1st id pri.
2	Radiating loop (see NOTE below).	1620 kc.	1620 kc.	Broadcast	Ädjust trimmer for maximum output.	ClB—osc.
3	Same as step 2.	1500 kc.	1500 kc.†	Broadcast	Adjust trimmer for maximum output.	C1A—antenna (broadcast)
4	Same as step 2.	3200 kc.	3200 kc.†	Special services	Adjust trimmer for maximum output.	C21—antenna (special services)

NOTE: Make up a 6-8 turn, 6-inch diameter loop from insulated wire; connect to signal-generator leads, and place 1 foot from radio loop. The position of the radio loop (LA1) with respect to the chassis, should be approximately the same as when both are mounted in the cabinet.

[†] Place radio chassis in cabinet and set pointer to proper frequency; then remove chassis and proceed with adjustment of designated

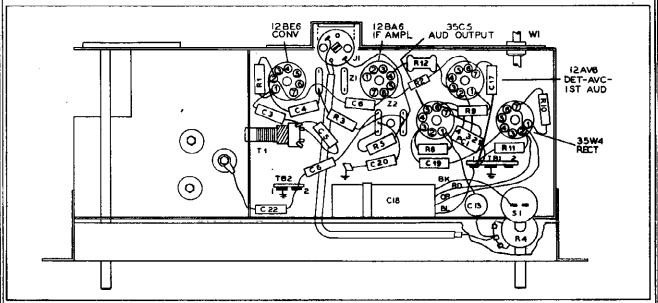
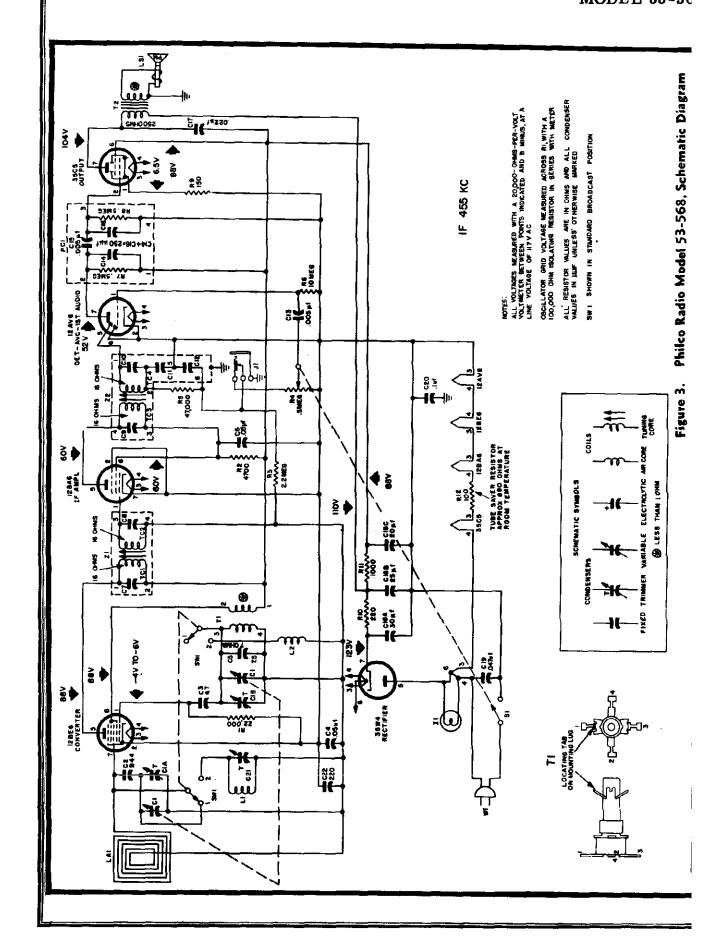


Figure 2. Base View. Showing Placement of Parts

^{*}To set the tuning gang to 1620 kc., fully open the tuning gang and insert a .006-inch nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting. Then proceed with the remainder of step 2.





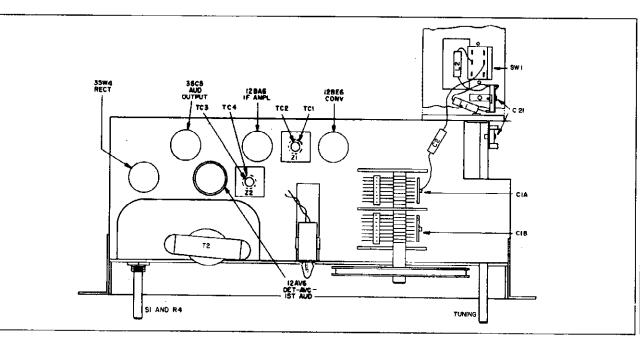


Figure 4. Top View, Showing Trimmer Locations.

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PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be either unchanged or improved. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
Cl	Condenser, tuning gang	31-2751-15
ClA	Condenser, antenna trimmer	Part of C1
CIB	Condenser, osc. trimmer	Door of C1
C2	Condenser, aerial series tracker, 944 aut.	.30-1220-65
C3	Condenser, oscillator grid, 47 $\mu\mu i$	30-1230-4
C4	Condenser, a-v-c by-pass, .05 μf	30-4650-45
C5	Condenser, drift compensation, 7.5 uuf	30-1224-83
C6	Condenser, screen by-pass, 05 µi	30-4650-45
C7	Condenser, i-i tuning	Part of Z1
C8	Condenser, i-i tuning	Part of 71
C9	Condenser, i-f tuning Condenser, i-f tuning	Part of Z2
C10	Condenser, i-f tuning	Part of Z2
C11	Condenser, detector tiltering	Dart of 72
C12	Condenser, detector filtering	Part of Z2
C13	Condenser, detector filtering	30-1238-1
C14	Condenser, plate by-pass	Part of PC1
C15	Condenser, plate by-pass Condenser, audio coupling, .005 µf	Part of PC1
C16	Concenser, compensating	Part of DC1
C17	Condenser, tone compensation, .022 uf	30.4650
C18	Condenser, electrolytic, 3-section	30-2753
CIBA	Condenser, filter, 30 µf., 150v	Part of C19
C18B	Concenser, filter, 25 ut., 150v	Part of C19
CISC	Condenser, filter, 20 ut., 150v	Part of C18
C19	Condenser, line by-pass, 05 uf.	30-4650-45
C20	Condenser, B- to chassis, .1 uf	30.4850.47*
C21	Condenser, frimmer, special services	31.6473.29
C22	Condenser, r-i by-pass	0-10225417
I1	Lamp, pilot	34.2000
Īī	Bracket and socket assembly, phone	76-8330
Ll	VOII, Unienna, special services	99_4561_9
L2	Coll, oscillator shunt	32-4582-2
LAI	Loop, antenna	76-7719
LS1	Speaker, p-m	38-1841.1
PC1	Printed circuit	30.6003
RI	Healstor, Oscillator grid, 22,000 ohms	B-3228340*
R2	Hesistor, 1-1 screen dropping, 4700 ohms if	8-2478340*
R3	Resistor, a-v-c filter, 2.2 megohms	86.5228340*
R4	nesistor, volume control, 5 megohm	33.5566.41
R5	Resistor, diode load, 47,000 ohms	6-3478340*

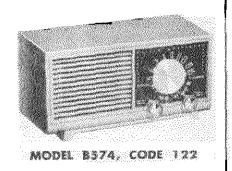
Reference Symbol	Description	Service Part No.	
R6	Resistor, grid return, 10 megohms	66-6108340	
R7	Resistor, plate load, 500,000 ohms		
R8	Resistor, grid return, 500,000 ohms		
R9	Resistor, cathode bias, 150 ohms		
R10	Resistor, B plus filter, 220 ohms		
R11	Resistor, B plus filter, 1000 ohms		
R 12	Resistor, tube saver, 100 ohms		
Sl	Switch, off-on		
SW1	Switch, broadcast-special services		
T 1	Transformer, oscillator		
T2	Transformer, output		
Wı	Line cord		
Z 1	Transformer, 1st i-f		
Z2	Transformer, 2nd i-f		

MISCELLANEOUS

Description	Service Part No
Cabinet, gray	10969
Cabinet back-and-loop assembly	76-7705
Cabinet back	54-6038
Dial scale	54-5173
Backplate, dial	28-9110
Clip, scale mounting (4 required)	1W60211FE7
Knob (2 required)	54-6034
Drive cord (25-foot spool)	45-8750
Pointer, dial	56-5630-55FCP
Rail assembly, pointer	76-8202
Shaft, tuning	56-9807
Socket assembly, pilot lamp	27-6233-6
Bracket and clip, pilot lamp	76-8272
Socket, 7-pin miniciture (4 required)	27-6265
ocket (12AV6)	27-6203-14
Shield, tube	56-5629FA3
pring	56-2617
Spring, retaining	28-8610

SPECIFICATIONS

CABINET	Molded plastic, ebony or Swedish red
CIRCUIT	Four-tube superheterodyne (plus rectifier)
FREQUENCY RANGE	
Standard Broadcast	540 kc. to 1620 kc.
Special Services	
AUDIO OUTPUT	l watt
OPERATING VOLTAGE	105 to 120 volts, a.c. or d.c.
POWER CONSUMPTION	30 watts
AERIAL	High-impedance loop
INTERMEDIATE FREOU	ENCY 455 kc.
PHILCO TUBES12BE6	converter, 12BA6 i-f amplifier, 12AV6 det.—



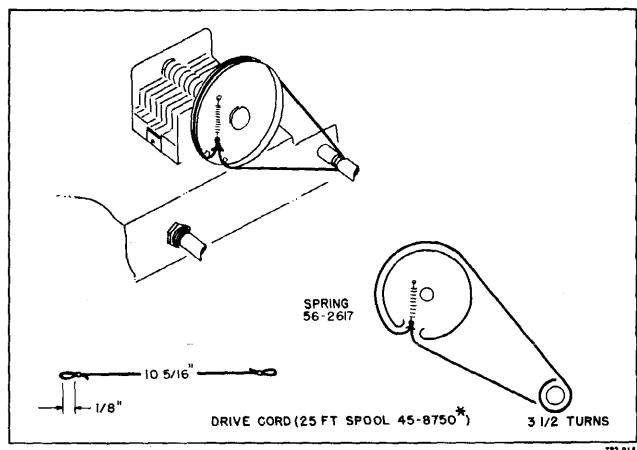


Figure 1. Dial-Cord Installation Details

TP3-915

SERVICE HINTS

REMOVING THE CHASSIS FROM THE CABINET

To remove the chassis from the cabinet, first remove the station selector knob, volume control knob, and, at the bottom-center of the dial scale, remove the dial scale retaining screw. A flat object (knife blade) placed under the bottom edge will assist in prying the scale out of the cabinet. Pull to remove the pointer from the tuning gang shaft. Remove the screws from the cabinet back, and pull the back away from the back of the cabinet (use care to prevent breaking the leads from the loop aerial) far enough to reach in and remove the pilot lamp and socket from the retaining clip. Unsolder the output transformer leads from the speaker. Then remove the chassis mounting screws from beneath the cabinet, and remove the chassis.

REMOVING THE SUBBASE

After removing the chassis from the cabinet, remove the subbase, using the following procedure.

- Remove the output transformer and dial light connections by pulling the jacks from the pins on the subbase.
- Unsolder the volume control and a-c switch leads, and unsolder and remove the loop aerial.
- 3. Spring the Special Services switch bracket off the tuning shaft.
- 4. At the rear of the panel, bend the hold down tabs out flush with the subbase, and remove.

PARTS REPLACEMENT

Whenever possible, replace all components and leads from the top side of the chassis. In cases where this is not possible, the components must be unsoldered when removed from the bottom. Use only a lightweight low-wattage iron of approximately 22.5 to 25 watts, and always use a low-melting-point solder. Extreme caution must be used to prevent solder from dropping or splashing, and to avoid lifting of the printed wiring foil. Use only the tip of the soldering iron at the solder point whenever heat is being applied. Hold the subbase in one hand while applying heat to the solder point and throw the solder off, with a downward thrust, as soon as it starts to melt. When the solder is removed, the part to be repaired or replaced can be lifted from its location. Insert the new part and secure it with just a drop of solder at each point.

REPLACING TUBE SOCKETS AND I-F TRANSFORMERS

To replace tube sockets and i-f transformers, follow the procedure given above for removing solder. Then use a sharp knife to sever the remaining thin bond of solder at the connections. With the solder removed, the part can be backed out of the slots. Before inserting the repaired or new part, clean all connections at the unsoldered lugs. Use caution when reinserting parts through the subbase slots, so that the foil is not lifted. When soldering is complete apply an electrical varnish to all repaired areas.

ALIGNMENT PROCEDURE

RADIO CONTROLS-Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signal-generator output to hold output-meter reading below 1.25 volts.

	SIGNAL GENERATOR						
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	TEULDA	
1	Ground lead to B-; output lead through a .1-\mu f. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	Adjust tuning cores, in order given, for maximum output. TC1 and TC3 are located at top of transformers.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.	
2	Radiating loop (See note below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	С1-Вовс.	
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1-A—aerial (broadcast)	
4	Same as step 2.	3200 kc.	3200 kc.	Special Services	Adjust trimmer for maximum output.	C21—aerial (special services)	

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire, connect to signal-generator leads, and place near radio loop. The 1620-kc. index mark is located on the pointer rail, to the extreme right side as viewed from the front

* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

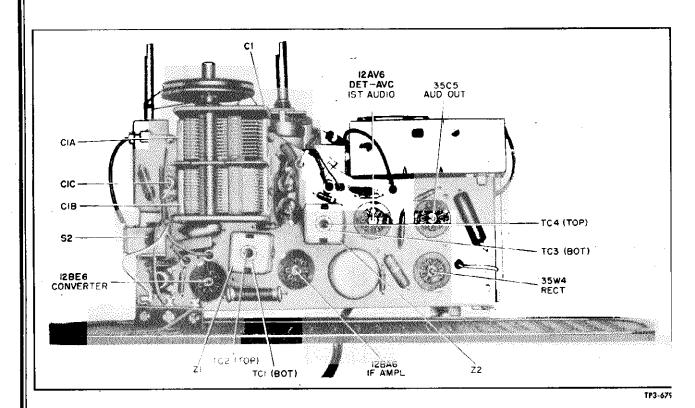


Figure 2. Top View, Showing Trimmer Locations

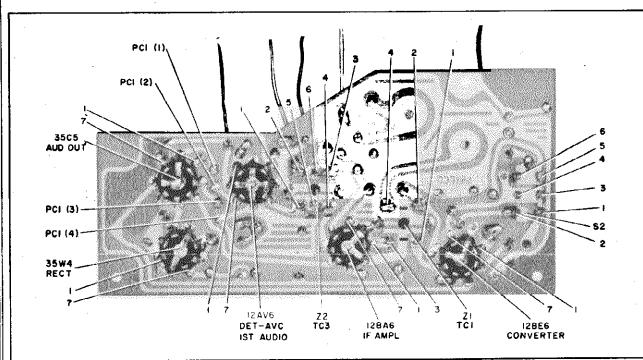
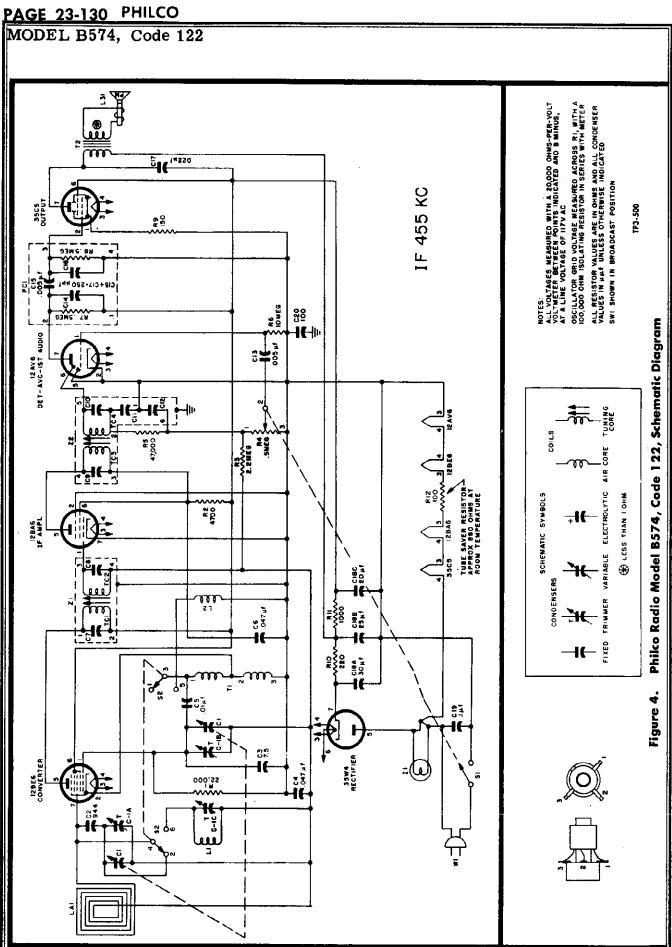


Figure 3. Base View, Showing Printed Wiring Circuit



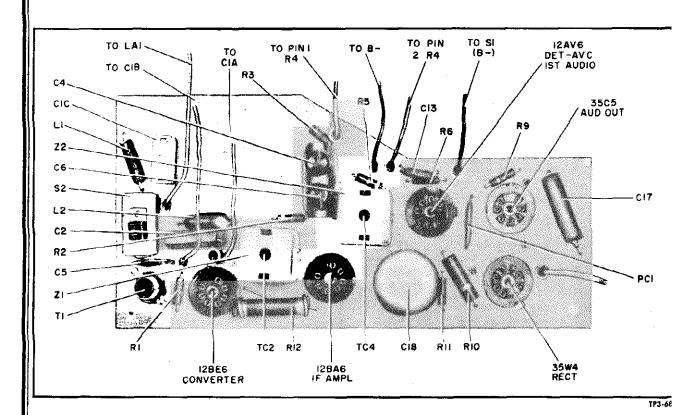


Figure 5. Top View, Showing Parts Placement

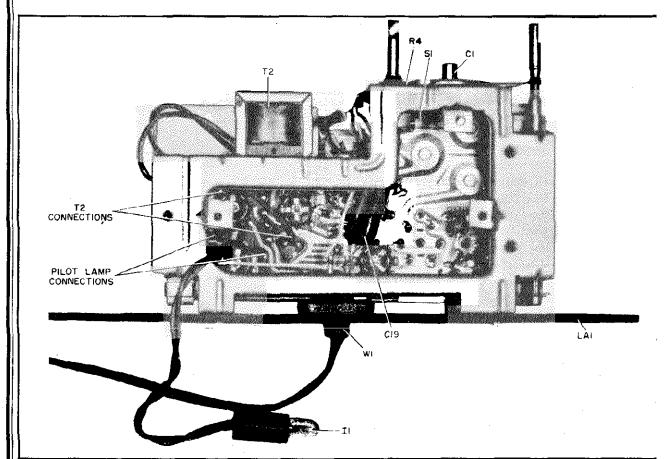


Figure 6. Bottom View, Showing Parts Placement

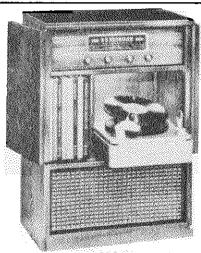
PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part No.	Reference Symbol	Description	Service Part No.
Cl	Condenser, tuning gang31-2751-16	R5	Resistor, diode load, 47,00 ohms	66-3478340°
ClA	Condenser, aerial trimmerPart of C1	R6	Resistor, grid return, 10 megohms	66-61083404
CIB	Condenser, oscillator trimmerPart of C1	R7	Resistor, plate load, 500,000 ohms	Part of PCI
C1C	Condenser, trimmer, Special Services31-6502-4	R8	Resistor, grid return, 500,000 ohms	Part of PC
C2	Condenser, antenna series tracker,	R9	Resistor, cathode bias, 150 ohms	.66-11 5 8340°
	944 µµf30-1220-65	'R10	Resistor, B plus filter, 220 ohms	66-1224340°
C3	Condenser, drift compensation, 7.5 µµf. 30-1224-83	R11	Resistor, B plus filter, 1000 ohms	.66-2108340°
C4	Condenser, a-v-c by-pass, .047 \(\mu \text{f.} \)30-4650-45	R12	Resistor, tube saver, 100 ohms	33-1343-8
C5	Condenser, oscillator grid, .01 µf30-1238-2	·S1	Switch, off-on	Part of R4
C6	Condenser, screen by-pass, .05 µf30-4650-45	S2	Switch, Broadcast-Special Services	42-1796-4
C7	Condenser, i-f tuningPart of Z1	T1	Transformer, oscillator	32-4582
C8	Condenser, i-f tuningPart of Z1	T2	Transformer, output	32-8384-5
C9	Condenser, i-f tuningPart of Z2	$\mathbf{W}1$	Line cord	L-2183°
C10	Condenser, i-f tuningPart of 7.2	Z 1	Transformer, 1st i-f	32-4583
C11	Condenser, detector filteringPart of Z2	Z 2	Transformer, 2nd i-f	
C12	Condenser, detector filteringPart of Z2			
C13	Condenser, audio coupling, .005 µf30-1238-1		******************************	
C14	Condenser, plate by-passPart of PCI		MISCELLANEOUS	
C15	Condenser, audio coupling, .005 µfPart of PC1			Service
C16	Condenser, compensatingPart of PC1	Description		Part No
C17	Condenser, tone compensation, .022 µf. 30-4650-43		spruce	
C18	Condenser, electrolytic, 3-section30-2583-1		tangerine	
C18A	Condenser, filter, 30 µf., 150vPart of C18		d-loop assembly	
C18B	Condenser, filter, 25 μ f., 150vPart of C18		, interlock, male	
C18C	Condenser, filter, 20 µf., 150vPart of C18	Dial back	plate, spruce	54-4972-9
C19	Condenser, line by-pass, .05 µf30-4650-47	Dial back	plate, tangerine	54-4972
C20	Condenser, B minus to chassis,	Dial scale	·	54-5147-3
	100 μμf	Drive cor	d, 25-foot spool	45-8750
II	Lamp, pilot34-2068	Knob		54-4773-3
Ll	Coil, aerial, Special Services32-4561-3	Pointer		28-9502
L2	Coil, oscillator shunt32-4562-2	Shaft, tur	ning	28-9312
LA1	Loop, part of cabinet back76-8362		switch operating	
LS1	Speaker, p-m36-1627-21		sembly, pilot lamp	
RI	Resistor, oscillator grid, 22,000 ohms66-3228340*		pilot lamp	
R2	Resistor, i-f screen dropping,		pin miniature	
	4700 ohms66-2748340°		pin miniature, 12AV6	
R3	Resistor, a-v-c filter, 2.2 megohms66-5228340°		tube	
R4	Resistor, volume control, .5 megohm33-5566-41		iring panel (less components)	

SPECIFICATIONS

CABINET	Wood console, mahogany		
CIRCUIT	Five-tube superheterodyne (plus rectifier)		
FREQUENCY RANGE	- , -		
Broadcast	540 kc. to 1620 kc.		
	1700 kc. to 3400 kc.		
AUDIO OUTPUT	4.5 watts		
OPERATING VOLTAGE	105—120 volts, a.c.		
	80 watts		
ANTENNA	Built-in, low-impedance loop		
	455 kc.		
PHILCO TUBES6BJ6 r-	f ampl; 6BE6 converter, osc., phono preampl; etor, a.v.c., 1st audio; 6AQ5 output; 6X4 rectifier		



MODEL B1754

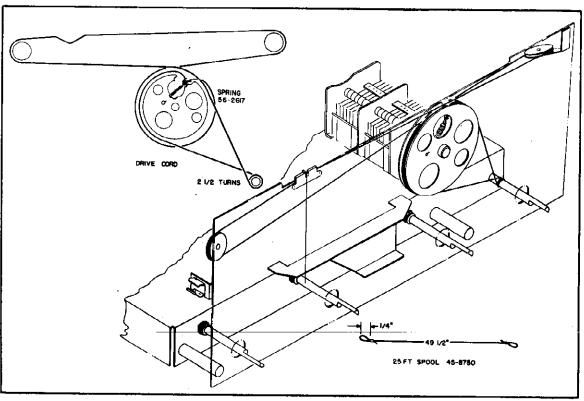


Figure 1. Drive-Cord Installation Details

MODEL B1754

GENERAL

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control for maximum output, and set tuning control as indicated in the alignment chart. Set band switch to broadcast position for first 5 steps, then to special services position for steps 6 and 7.

OUTPUT INDICATOR—Connect output indicator (either an oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f generator, connected as indicated in the alignment chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to maintain output indication below I volt.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	
. STEP	CONNECTION TO RADIO	DIAL	DIAL SETTING	SPECIAL INSTRUCTIONS	ABJUST
-	Ground lead to chassis. Output lead through a .01-uf. condenser to pin 7 (mixer grid) of 6BE6, converter.	455 kc.	Tuming gang fully open.	Adjust, in order given in next column, for maximum output.	TC6—2nd i-f sec. TC3—1st i-f pri. TC5—2nd i-f pri. TC4—1st i-f sec.
67	Radiating loop. See Note 1 below.	1620 kc.	1620 kc. See Note 2 below.	Adjust for maximum output.	CIC—08c. trimmer
m	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. (High-frequency adjustment).	C1B—mixer-grid trimmer C1A—r-f trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. (Low-frequency adjustment).	TC:2—r-f transformer TC1—ant. transformer
מי	Repeat steps 3 and 4 until no further improvement is obtained	improvement	is obtained.	-	
9	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output.	C10—special services mixergrid trimmer C4—special services rf trimmer
2	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output.	C2-special services r-f padder

NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place about I foot from radio loop antenna. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.

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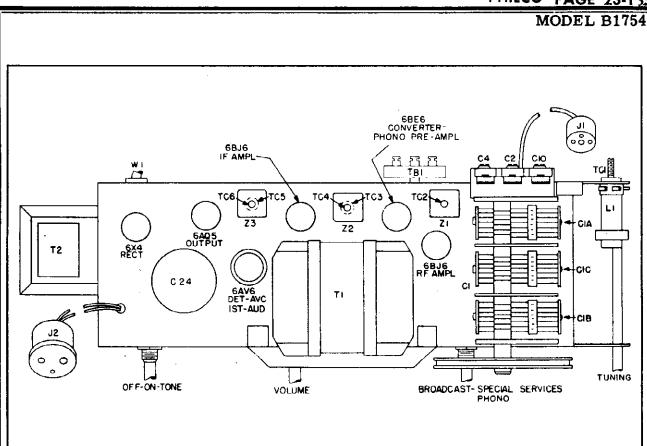
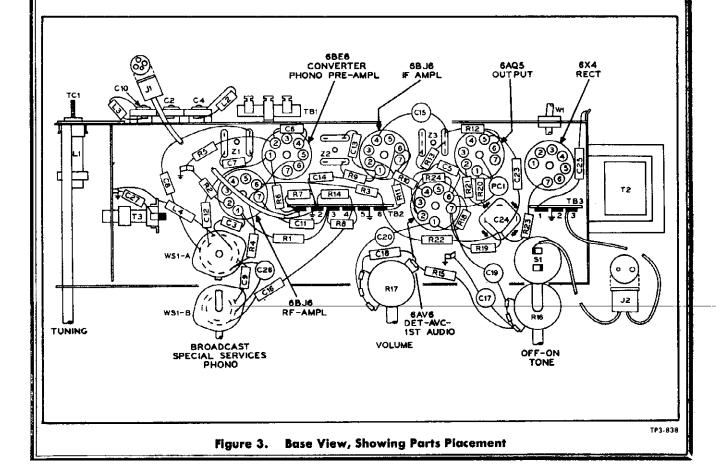


Figure 2. Top View, Showing Tuning Adjustments



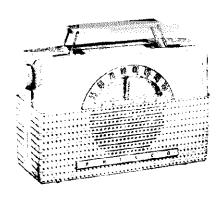
PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part No.	Reference Symbol	Servi Description Part N
Cl	Condenser, tuning gang, 3-section31-2771-3	R10	Resistor, cathode bias, 270 ohms66-127534
C1A	Condenser, trimmer, antenna Part of C1	R11	Resistor, screen dropping,
ClB	Condenser, trimmer, r-f Part of C1	R12	68,000 ohms 66-368834 Resistor, plate dropping, 10,000 ohms 66-310834
CIC	Condenser, trimmer, oscillator Part of C1	R12	Resistor, i-f filter, 47,000 ohms 66-347834
C2 C3	Condenser, padder, special services r-fPart of CA1. Condenser, d-c blocking, 100 µµf,62-110001001°	R14	Resistor, diode load, 330,000 ohms66-433834
C3 C4	Condenser, trimmer, special services r-fPart of CA1	R15	Resistor, tone compensation
C5	Condenser, r-f by-pass, 220 µµf62-122001001*		(bass boost)
C6	Condenser, r-f by-pass, 100 μμf62-110001001*	R16	Resistor, tone control, 5 megohms33-5566-
C7	Condenser, r-f by-pass, 5 µµf60-90505020	R17	Resistor, volume control, 2 megohms33-5535-
C8	Condenser, fixed padder, 865 µµf	R18	Resistor, grid leak, 10 megohms66-610834
C9	Condenser, harmonic suppression,	R19 R20	Resistor, plate load, 1 megohm66-510834
010	47 μμf60-00475417	R21	Resistor, grid leak, 470,000 ohms66-447834 Resistor, cathode bias, 330 ohms,
C10	Condenser, trimmer, special services	1(21	1 watt66-133434
C11	mixer-grid Part of CA1 Gondenser, a-v-c by-pass, .047 µf30-4650-45*	R22	Resistor, B+ filter, 1000 ohms
Č12	Condenser, oscillator coupling, 47 $\mu\mu$ f60-00475417	R23	Resistor, B+ filter, 270 ohms66-127534
C13	Condenser, i-f coupling, 220 µµf62-122001001*	R24	Resistor, diode load, 470,000 ohms66-447834
C14	Condenser, screen by-pass, .047 \(\mu f. \)30-4650-45*	S1	Switch, off-onPart of R
C15	Condenser, plate by-pass, .01 µf30-1238-2*	S2	Switch, off-on,
C16	Condenser, audio coupling, .0068 µf30-4650-57	T1	phono motorPart of M-24 Record Chang
C17	Condenser, tone compensation	T1 T2	Transformer, power 32-86 Transformer, output 32-8242-
C18	(bass boost), .005 \(\mu \)f	T3	Transformer, oscillator 32-32-42-
C19	Condenser, tone compensation, 47 μμf60-00475417	WI	Line cordL-218
CI9	Condenser, tone compensation (high cut) .01 μ f30-1238-2*	WS1	Switch, band 42-19
C20	Condenser, audio coupling, .005 μ f30-1238-1*	Z1	Transformer, r-f
C21	Condenser, d-c blocking, .007 µfPart of PC1	Z2	Transformer, 1st i-f32-416
C22	Condenser, r-f by-pass, 220 µµfPart of PC1	Z 3	Transformer, 2nd i-f 32-424
C23	Condenser, tone compensation,		
	.0033 µf30-4650-89°		MISCELLANEOUS
C24	Condenser, electrolytic filter30-2584-32		
C24A C24B	Condenser, filter, 20 μ f. Part of C24 Condenser, filter, 20 μ f. Part of C24	Description	Servi n Part I
C24C	Condenser, filter, 40 μ f. Part of C24		
C24D	Condenser, filter, 10 μ f. Part of C24	Cabinet,	mahogany106
C25	Condenser, line by-pass, .0068 µf30-4650-57	Back .	54-89 right hand (2)
C26	Condenser, audio coupling (phono),	Hinge,	left hand (2)
	.005 µf,30-1238-1	Cabinet,	blonde oak1098
C27	Condenser, fixed trimmer, 7.5 μμf30-1224-65	Back	54-893
CA1	Condenser assembly, trimmer 31-6477-17	Hinge,	right hand (2)56-9929
II	Lamp assembly, pilot (2)27-6233-4	Hinge,	left hand (2)56-992:45-61
J1 J2	Connector, phono input76-8262-1 Connector, phono a-c76-8366	Done (4)	(2)56-706:
Li	Coil, antenna 32-4413-2	Bullet cat	tch (2)45-6(
L2	Coil, special services r-f32-4561-5	Strike pla	te (2)45-60
L3	Coil, special services mixer grid32-4561-5	Changer	frame ass'y
L4	Coil, oscillator shunt32-4562-1	Rail as:	s'y., r.h. (changer drawer)
LA1	Loop antenna32-4394-13	Spring.	changer mtg. (3) 56-7059F
LS1	Speaker (10")36-1610-6	Spring,	changer mtg. (3)
PC1	Printed circuit	Sleeve,	changer mtg. (3)54-77
Ri			
R2	Resistor, r-f a-v-c, 1 megohm66-5108340*	Puli knob	, changer drawer56-84
	Resistor, r-f a-v-c, 1 megohm66-5108340° Resistor, cathode bias, 82 ohms66-0828340°	Pull knob Frame as	s'y45-97
R3	Resistor, r-f a-v-c, 1 megohm	Pull knob Frame as Dial back	s'y. 45-97 cplate ass'y. 76-88
R3	Resistor, r-f a-v-c, 1 megohm	Pull knob Frame as Dial back Dial so Clip, so	s'y. 45-97 cplate ass'y. 76-88 cale 54-51 cale 56-4756FF
	Resistor, r-f a-v-c, 1 megohm66-5108340° Resistor, cathode bias, 82 ohms66-0828340° Resistor, screen dropping, 22,000 ohms66-3225340° Resistor, plate load, preampl.,	Pull knob Frame as Dial back Dial sc Clip, so Knob (3)	s'y. 45-97. cplate ass'y. 76-86. cale 54-51. cale 56-4756FE 54-4718
R3 R4	Resistor, r-f a-v-c, 1 megohm	Pull knob I'rame as Dial back Dial sc Clip, sc Knob (3) Knob	s'y. 45-97 kplate ass'y. 76-85 cale 54-51 cale 56-4756FE 54-4718
R3 R4 R5	Resistor, r-f a-v-c, 1 megohm	Pull knob I'rame as Dial back Dial sc Clip, sc Knob (3) Knob Spring, sl	s'y. 45-9° xplate ass'y. 76-8° cale 54-51 cale 56-4756FE 54-4718 54-4718 naft retaining 28-80
R3 R4	Resistor, r-f a-v-c, 1 megohm	Pull knob Frame as Dial back Dial so Clip, so Knob (3) Knob Spring, sh Pointer	s'y. 45-9° xplate ass'y. 76-8° cale 54-5] cale 56-4756FE 54-4718 54-4718 caft retaining 28-8° 56-5630
R3 R4 R5	Resistor, r-f a-v-c, 1 megohm	Pull knob Frame as Dial back Dial sc Clip, sc Knob (3) Knob Spring, sl Pointer Socket (6	s'y. 45-97 cplate ass'y. 76-86 cale 54-51 cale 56-4756FE 54-4718 54-4718 caft retaining 28-81 50 27-62 AV6) 27-6203
R3 R4 R5 R6	Resistor, r-f a-v-c, 1 megohm	Pull knob Frame as Dial back Dial sc Clip, sc Knob (3) Knob Spring, sl Pointer Socket (6 Rubber n	s'y. 45-9° xplate ass'y. 76-8° cale 54-5] cale 56-4756FE 54-4718 54-4718 caft retaining 28-8° 56-5630

SPECIFICATIONS

CABINET	Plastic portable
	Four-tube superheterodyne (plus selenium
	rectifier)
AUDIO OUTPUT	20041102)
A-C or d-c operation	160 milliwatts
Battery operation	
OPERATING VOLTAGE	117 volts, a.c. or d.c.
}	1.5-volt "A" battery and 75-volt "B" battery
POWER CONSUMPTION	•
A-C or d-c operation	11 wat:s
	10 ms, from 75-volt "B" battery (7 ma.:
•	battery-saver operation)
•	
ANTENNA	260 ma. from 1.5-volt "A" battery Magnecor high-impedance loop with pro-
	vision for external antenna
INTERMEDIATE FREQUENCY	455 kc.
	1R5 converter, 1U4 i-f amplifier,
	1U5 detector-a.v.c. 1st audio,
BATTERY TYPE	P144 "B" battery
	P77 "A" battery



MODEL B652

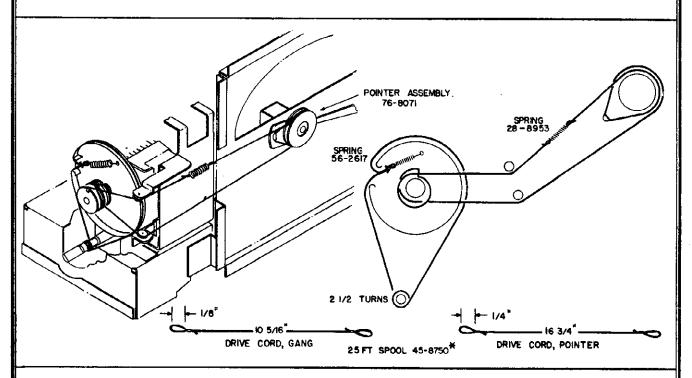


Figure 1. **Dial-Cord Stringing Arrangement**

MODEL B652

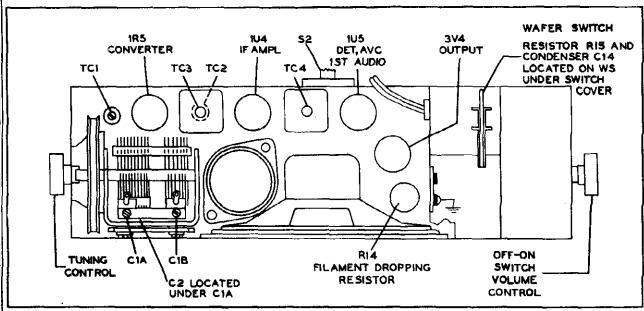


Figure 2. Top View, Showing Tuning Adjustments

TP2-3168

ALIGNMENT PROCEDURE

GENERAL—Allow the set and the test equipment to warm up for fifteen minutes before starting the alignment procedure.

DIAL POINTER—Before proceeding with the alignment, the dial pointer should be set to coincide with the index mark to the extreme left of the dial backplate when the tuning-condenser plates are fully meshed. See figure 4.

OUTPUT INDICATOR — Connect the output indicator (a 1000-ohm-per-volt, a-c voltmeter, or an oscilloscope) across the voice-coil terminals.

SIGNAL GENERATOR-Use an AM r-f signal gen-

erator. Connect the ground lead to B—, and connect the output lead as indicated in the alignment chart. OUTPUT LEVEL—Attenuate the signal-generator output throughout the alignment so as to maintain the output level below .5 volt.

RADIO CONTROLS—Set the volume control to maximum. Set the tuning control as indicated in the alignment chart. During alignment of the radio, the batteries should be in the same position with respect to the chassis and the loop antenna as they normally are in the cabinet. It is recommended that a-c power be used when aligning the radio.

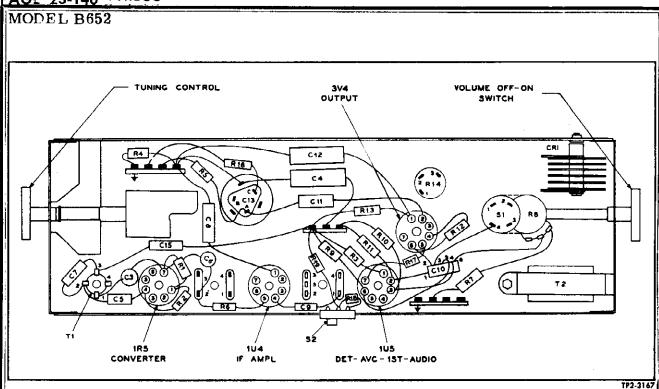
ALIGNMENT CHART

STEP	SIGNAL GENERATOR						
	CONNECTION TO RADIO	CONNECTION TO RADIO DIAL SETTING DIAL SETTING SPECIAL INSTRUCTIONS			TZULDA		
1	Connect signal generator through a .1-\(\mu f\). condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC4—2nd i-f sec. TC2—let i-f pri. TC3—1st i-f sec.		
2	Use radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1B—osc, trimmer		
3	Same as step 2.	1400 kc.	I400 kc. (See NOTE 2 below.)	Adjust for maximum output.	ClA-antenna trimmer		
4	Same as step 2.	600 kc.	600 kc. (See NOTE 2 below.)	Adjust for maximum output. Rock tuning gang while mak- ing this adjustment.	TC1—osc. core		
5	Repeat steps 2, 3, and 4 until no further improvement is obtained.						

NOTE 1. Use a 6-to-8-turn, 6-inch-diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.

NOTE 2. The tuning condenser can be set to the proper frequency by turning it until the dial pointer coincides with the respective marks on the dial backplate. See figure 2.

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Base View, Showing Parts Placement

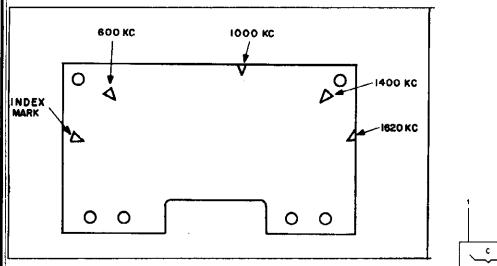


Figure 4. Dial Backplate, Showing Alignment Marks

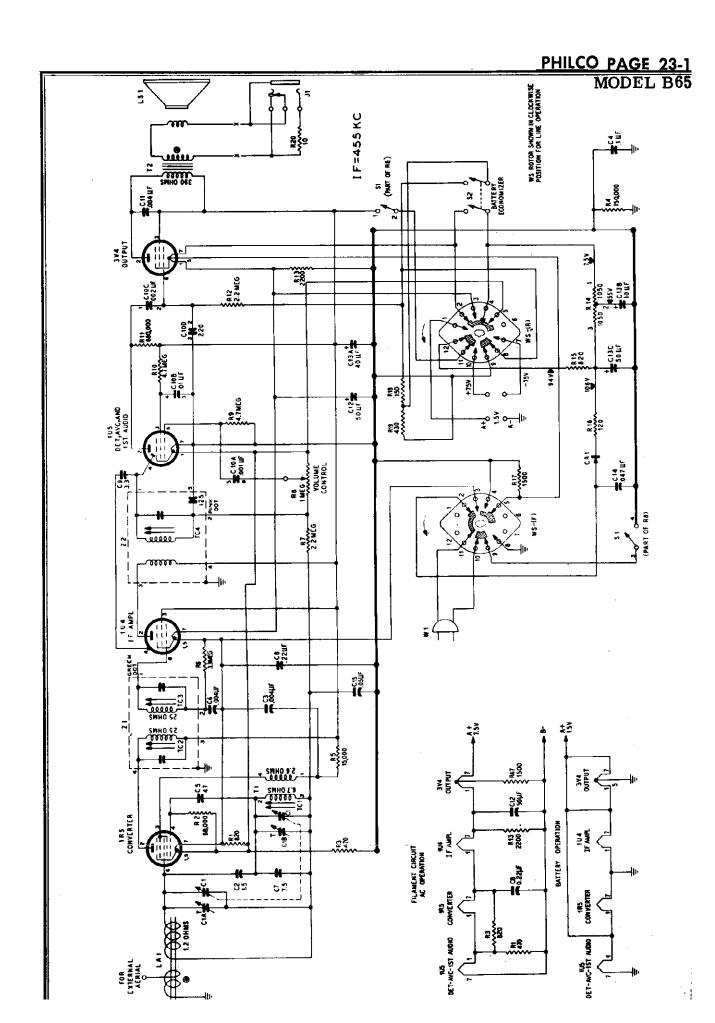
₩ł D	IITE OT	п (92 pm A AA S1
		≕ ∷: (
	T.	\	R14
a	3	4 5	6
,002 JJ F	220µµғ	B .O1µF	.001µF

		TUBI	E SOCI	ET VO	LTAGES	1		
	1R5		104		105		3V4	
B SUPPLY	RF PLATE PIN 2	PLATE	PLATE PIN 2	SCREEN Pin 3	PLATE PIN 2	SCREEN PIN 3	PLATE PIN 2	SCREEN PIN 3
PWR LINE	90	55	90	90	ls.	16	86	90
BATTERY	70	41	70	70	17	16	67	70

Γ			SYMBOLS		₁
	<u> </u>	#	#		100000
1	FIXED	VARIABLE	TRIMMER	ELECTROLYTIC	COIL WITH TUNING CORE

NOTES:
ALL RESISTOR VALUES IN OHMS AND ALL CONDENSER VALUES IN UUF UNLESS OTHERWISE MARKED.

(B) LESS THAN 1 OHM
ALL VOLTAGES SHOWN WERE MEASURED WITH A 20,000 OHMS-PER-VOLT METER FROM POINTS



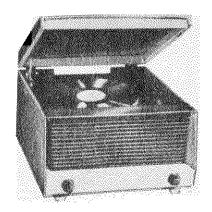
MODEL B652

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference	Service	Reference		Service
Symbol	Description Part No.	Symbol	Description	Part No.
C1	Condenser, tuning gang31-2735-4	SI	Switch, on-off	Part of R8
CIA	Condenser, trimmer, antennaPart of C1	S2	Switch, battery economizer	42-1796-3
C1B	Condenser, trimmer, oscillatorPart of C1	Ti	Transformer, oscillator	32-4453-1
C2	Condenser, i-f neutralizing, I.5 $\mu\mu$ f30-1221-7		Transformer, output	32-8434
C3	Condenser, screen by-pass, .004 \(\mu f \)30-1239*		Line cord	L2183°
C4	Condenser, B- to chassis, .1 \(\mu f \)30-4650-47°		Switch, wafer, battery to line	42-1925-1
C5	Condenser, d-c blocking, 47 µµf60-00475420°	Z 1	Transformer, 1st i-f	32-4160-4A
C6	Condenser, grid by-pass .004 µf30-1239*		Transformer, 2nd i-f	32-4454-1A
C7	Condenser, temperature compensating, 7.5 $\mu\mu$ f		MISSPILLANDAUS	
C8	Condenser, filament by-pass, .25 µf30-4656-1		MISCELLANEOUS	
C9	Condenser, neutralizing 3.3 µµf30-1221			Service
C10	Condenser, audio circuit30-1237	Descriptio		Part No.
C10A	Condenser, audio coupling .001 µfPart of C10	_		
C10B	Condenser, screen by-pass, .01 µfPart of C10		pine green	10904-10
C10C	Condenser, d-c blocking, .002 µfPart of C10	Back,	pine green	
C10D	Condenser, grid by-pass, 220 µµfPart of C10	Handle	, pine green	34-0012-3
C11	Condenser, tone compensation, .004 µf. 30-4650-56°	Jack, c	over	E4 0014 0
C12	Condenser, electrolytic, filament by-pass,	Knob	(2)	16054 19
_	50 μf	Cabinet,	cherry	E4 0010 &
CIS	Condenser, electrolytic, filter30-2568-39	Back,	cherry	#4 0010 D
C13A	Condenser, filter, 40 \(\mu \text{f.}\)Part of C13	Handle	, cherry	34-0012-0 84 4007 10
C13B	Condenser, filter, 10 μ f. Part of C13	Jack, o	over	#4 801 A 1
C13C	Condenser, filter, 50 μ f. Part of C13	Knob	(2)	10054 18
C14	Condenser, line by-pass, .047 µf30-4650-45°	Cabinet,	spruce green	10934-10 KA 6010 S
C15	Condenser, a-v-c by-pass, .05 µf30-4650-45*	Back,	spruce green	#4 en10-0
CR1	Rectifier, selenium 34-8003	Handle	, spruce green	54-0012-0 84 4027 9
J1	Private listening unit42-1975-2		over	E4 6016 2
LAI	Coil, antenna32-4455-9	Knob	(2)	1.057.19
LS1	Loudspeaker 36-1637	Cabinet,	pearl grey	54 BOID 0
RI	Resistor, filament dropping, 820 ohms66-1828340°		pearl grey	0-0109 NZ
R2	Resistor, grid leak, 68,000 ohms	Handle	e, pearl grey	54 ADR7 19
R3	Resistor, cathode bias, 470 ohms66-1478340°	Jack, e	(2)	54-R01R_0
R4	Resistor, B- to chassis, 150,000 ohms66-4158340*	Knob	attery	41_3088_1
R5	Resistor, screen dropping, 15,000 ohms 66-3158340*	Clin sale	inet back (2)	76-9182
R6	Resistor, grid leak, 8.3 megohms66-5338340°		e	58-9986
R7	Resistor, a-v-c load, 2.2 megohms		ate assembly, dial	76-8177
R8	Volume control, 1 megohm33-5566-21		w, dial	54-6011
R9	Resistor, grid leak, 4.7 megohms66-5478340	VV IIIdo	rd, 25-ft. spool	45-8750°
R10	Resistor, screen dropping, 4.7 megohms86-5478340°	Dilve coi	gang drive	56-2617*
R11	Resistor, plate load, 680,000 ohms66-4688340°	Spring,	pointer drive	28-8953
R12	Resistor, grid leak, 2.2 megohms66-5228340°	Factore	speaker baffle (2)	
R13	Resistor, filament dropping, 2200 ohms 66-2228340°	Hinge o	abinet (2)	56-5457
R14	Resistor, limiting, 2100 ohms33-3445	Inculator	tuning-condenser mtg.	27-9508
R15	Resistor, B+ filter, 820 ohms66-1828340°	Pointer	assembly	76-8071
R16	Resistor, limiting, 120 ohms33-1334-14	- 01	ndle mtg. (2)	56-9987
R17	Resistor filament dropping	D. LL	mount, tuning-condenser mtg. (3)	
	1500 ohms66-2158340		ning	
R18	Resistor hattery economizer	onart, tu	ube base	56-3978-1FA3
	150 ohms		ube (2)	
R19	Resistor, battery economizer,		ube (2)	
4	430 ohms66-1438340		nairpin, shaft mtg.	
R20	Resistor, private listening unit,	י שחרותה	INIFOID. SHAIL HILV	

CABINET	Molded plastic
CIRCUIT	Four-tube superheterodyne plus rectifier
FREQUENCY RANGES	
Broadcast	
Special Services	1700—3490 kc.
AUDIO OUTPUT	3 watts
OPERATING VOLTAGE	105120 volts, 60 cycles, a.c.
POWER CONSUMPTION	
Radio	
Phonograph	60 watts
INTERMEDIATE FREQUENCY	455 ke.
ANTENNA	Built-in high-impedance loop; provision
	for external antenna
PHILCO TUBES	7A8 converter; 7B7 i-f amplifier; 7C6
	detector-a.v.c1st audio; 35L6GT out-
	put; 50Y7GT rectifier
PHONOGRAPH	Philco Model M-24 All-Speed Automatic
	Record Changer



MODEL B1350

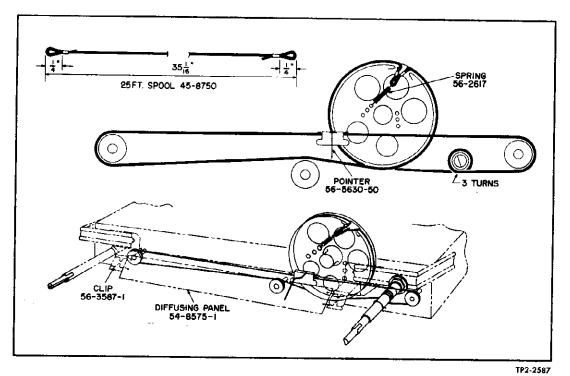


Figure 1. Drive-Cord Installation Details

MODEL B1350

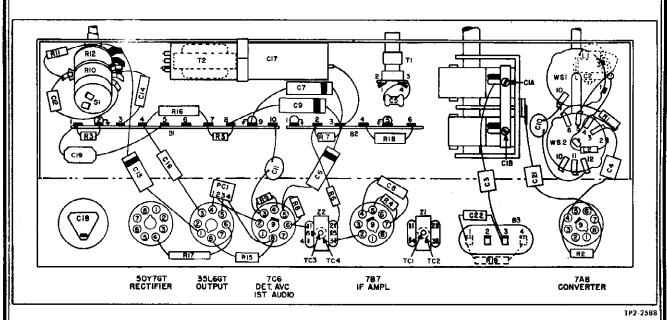


Figure 2. Base View, Showing Parts Placement and Alignment Points

ALIGNMENT PROCEDURE

GENERAL—In order to perform the alignment procedure it is necessary to remove the front of the cabinet from the back portion of the cabinet holding the record changer. This front part of the cabinet can be removed by loosening the front screws located on the bottom of the cabinet, and the screws located directly under the front of the changer lid.

DIAL POINTER—With the tuning-condenser plates fully meshed, set the dial pointer to coincide with the index mark located to the left of "55" on the dial scale.

CONTROLS—Set the volume control to maximum and the tone control to the treble position. Set the radio-phono switch to the broadcast position for the

first three steps of the procedure, and to the special services position for the last step. Set the tuning control as indicated in the chart.

OUTPUT INDICATOR—Connect the output indicator (a 1000-ohms-per-volt voltmeter or an oscilloscope) across the voice-coil terminals.

SIGNAL GENERATOR—Use an amplitude-modulated r-f generator. Connect the ground lead to B-, and the output lead as indicated in the chart.

OUTPUT LEVEL—During the alignment, attenuate the signal-generator output to maintain the output indication below 1 volt.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST TRIMMER	
1	Output lead through a .01-µf. condenser to grid (pin 6) of 7A8 converter tube.	455 kc. (modulated)	Gang fully open.	Adjust, in order given in next column, for maximum output. TC2 and TC4 are located at top of transformers.	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.	
2	Radiating loop (see note 1 below).	1620 kc.	1620 kc. (see note 2 below).	Adjust for maximum output.	CIB-oscillator trimmer	
3	Same as step 2.	1500 kc.	1500 kc.	Adjust for maximum output.	C1A—antenna trimmer (broadcast)	
4	Same as step 2.	3200 kc.	3200 kc.	Adjust for maximum output.	C2 — antenna trimmer (special services)	

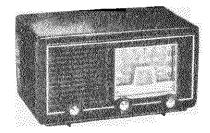
NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place near radio loop. NOTE 2: The tuning gang can be set to 1620 kc, by placing a piece of 6-mil flat shim stock between the heel of the rotor and the top of the stator plates, and moving the rotor until is holds the shim in place. Remove the shim before proceeding with the alignment.

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part Na		Description	Servi Part I
CI	Condenser, tuning gang31-2751-	R15	Resistor, cathode bias, 180 ohms	, <u> </u>
CIA	Condenser, trimmer, antenna		1 watt	66-1184 34
CIE	Condenser, trimmer, oscillatorPart of C		Resistor, filter, 5000 ohms, 7 wat	ts33-1335-
22	Condenser, trimmer, special services	R17	Resistor, filter, 270 ohms, 7 wat	
23	antenna 31-6473-3	2120	Resistor, tube saver, 100 ohms	
 :4	Condenser, series tracker, 725 µµf30-1220-60	1410	Resistor, aerial loading, 150,000 c	
5	Condenser, d-c blocking, 47 μμf60-00475426 Condenser, fixed trimmer, 7.5 μμf30-1224-68	, 01	Switch, off-on	
6	Condenser, a-v-c by-pass, .1 μ f30-1224-03		Transformer, oscillator	
7	Condenser, by-pass, .1 μ f	. 14	Transformer, output	
8	Condenser, cathode by-pass, .05 \(\mu \text{f.} \)30-4650-45	* ** *	Line cord	
9	Condenser, screen by-pass, .1 μ f30-4650-47		Wafer switch, 2-section	
10	Condenser, d-c blocking, .005 \(\mu \text{f.}\)30-1238-1	. 41	Transformer, 1st i-f	
11	Condenser, d-c blocking, .005 \(\mu \text{f.}\)30-1238-1		Transformer, 2nd i-f	32-424
12	Condenser, high-frequency compensation, 47 μμf			
13	Condenser, bass compensation, .0047 µf. 30-4650-56		MISCELLANEOUS	
214	Condenser, tone, .0047 µf304650-56			
15	Condenser, d-c blocking, .005 µfPart of PC		_	Servi
16	Condenser, tone compensation, .0047 \(\mu \)ft30-4650-56	Description		Part I
17	Condenser, electrolytic, 4-section30-2575-39	Cabinet	·······	
C17A	Condenser, cathode by-pass, 25 µf., 50vPart of C17		cover	
C17B	Condenser, filter, 40 \(\mu \text{f.}\), 150vPart of C17		(2)	
C17C	Condenser, filter, 40 \(\mu \text{f.}\), 250vPart of C17		······································	
C17D	Condenser, filter, 40 \(\mu \text{f., 250v}\) Part of C17		pport	
18	Condenser, voltage doubling, 20 µf.,	Binder	post	56-62
	200v30-2568-22		Mounting Hardware	
19	Condenser, line by-pass, .04 µf30-1226-17	•	rubber (3)	
80	Condenser, phono isolation, .01 µf30-4650-58°		nut (3)	W-2
21	Condenser, a-v-c decoupling, 220 μμf	Spring,	mounting, top (3)	56-7059F
22		~ ~p6,	mounting, bottom (3)	
14	Condenser, aerial blocking, 5 μμf	Diai scare	***************************************	
	Coil, antenna, special services 32-4561-5	Dile con	d, 25 ft. spool	45-87
i	Coil, oscillator shunt32-4562-1	root, roo	ber (4)	54-4
1	Loop assembly, antenna	Gasket, sp	peaker	
1	Speaker36-1639-1	KHOD, OII-	on-volume	54-484
1	Printed circuit, d-c blocking30-6001		io-phono-Special Services	54-484
,1	Resistor, grid return, 470,000 ohms66-4478340°	Knob, tun	ing	
	Resistor, grid leak, 100,000 ohms	Knob, ton	e	54-4841
	Resistor, B- to chassis, 150,000 ohms66-4158340*	Lead asse	mbly, antenna	76-14
:	Resistor, cathode bias, 180 ohms66-1188340°	Mounting	foot (4)	56-777
	Resistor, screen dropping, 27,000 ohms66-3278340°		bber (3)	
· }	Resistor, i-f filter, 47,000 ohms66-3478340°	Panel, diff	fusing	54-857
	Resistor, diode return, 470,000 ohms66-4478340*	Clip, di	ffusing panel (2)	56 -358
	Resistor, diode load, 2.2 megehms 66-5228340*	_ Pilot-lamp	socket assembly	76-1179
	Resistor, grid leak, 10 megohms66-6108340°		r, pilot-lamp shield (2)	
0	Volume control, 2 megohms (with off-on	Pointer		56-5630-
	switch and tone control)33-5563-55	Rail ass	embly, pointer	76-79
1	Resistor bass compensation	Spring.	pointer drive	56-261
	68,000 ohms66-3688340°	Socket, Lo	oktal (3)	27-620
2	Tone control, 5 megohmsPart of R10	Socket, or	rtal (2)	27-617
3	Resistor, plate load, 500,000 ohmsPart of PCI	Spring, ha	airpin	56-65
4	Resistor, grid leak, 500,000 ohmsPart of PC1	Tuning ab	aft	70 00F

CABINET	Plastic table model
CIRCUIT	Six-tube superheterodyne plus selenium
	rectifier
FREQUENCY RANGES	
Broadcast	540—1620 kc.
FM	88—108 mc.
AUDIO OUTPUT	l watt
OPERATING VOLTAGE	105—125 volts, a.c./d.c.
POWER CONSUMPTION	45 watts
AERIAL	Built-in pancake loop for AM, line cord
•	for FM; provision for connecting external
	aerial
INTERMEDIATE FREQUENCY	
AM	455 kc.
FM	9.1 mc.
PHILCO TUBES (6)	12AU6 r-f ampl., 12AT7 converter, 12BA6
	1st i-f ampl., 12AU6 2nd i-f ampl., 19V8
•	deta.v.c1st audio, 35C5GT output



MODEL B956

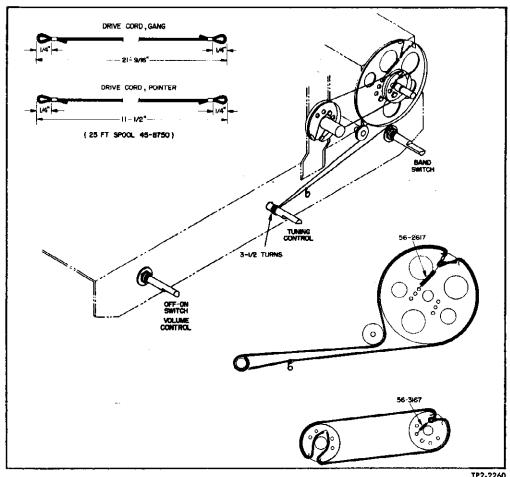


Figure 1. Drive-Cord Installation Details

TP2-2260

MODEL B956

AM ALIGNMENT PROCEDURE

Make alignment with loop aerial connected to radio. The AM alignment should be completed before the FM alignment is made.

DIAL POINTER—With tuning-condenser plates fully meshed, adjust pointer to coincide with index mark at low-frequency end of dial backplate.

RADIO CONTROLS—Set volume control to maximum, set band switch for broadcast reception, and set tuning control as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

SIGNAL CENERATOR—Use AM r4 signal generator, with modulated output. Connect generator and set frequency as indicated in chart.

OUTPUT LEVEL—During alignment, signal-generator output must be attenuated to hold output-meter reading below 1.25 volts.

AM ALIGNMENT CHART

	SIGNAL GENERATOR	IGNAL GENERATOR		RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST	
1	Ground lead to chassis. Output lead through a .1-\(\mu f\). condenser to junction, of LAI and L8.	455 ke.	Gang fully open.	Adjust for maximum output, in order given.	TC10—2nd AM if sec. TC9—2nd AM if pri. TC4—1st AM if sec. TC3—1st AM if pri.	
2	Radiating loop (see note below).	1620 kc.	1620 kc. (2nd index mark from right).	Adjust for maximum output.	C1C—osc, trimmer.	
3	Same as step 2.	1500 ke.	1500 kc.	Adjust for maximum output.	ClA—aerial trimmer.	

RADIATING LOOP: Make up a six-to-eight turn, 6-inch-diameter loop from insulated wire; connect to generator terminals, and place near radio loop aerial. Radio loop aerial must be connected.

FM ALIGNMENT PROCEDURE Make AM alignment first

RADIO CONTROLS—Set volume control to maximum, set band switch for FM reception, and set tuning control as indicated in chart.

OSCILLOSCOPE—Connect ground lead to chassis. Connect vertical input to FM TEST jack, J2; connect horizontal input to horizontal sweep output of sweep generator. (Oscilloscope is used for steps 1 and 2.)

SWEEP GENERATOR—Use FM r-f sweep signal generator. Connect output lead as given in chart. Set frequency and sweep width as indicated in chart.

OUTPUT METER-Connect across voice-coil terminals.

NOTE: Before starting FM alignment, allow radio and signal generator to warm up for 15 minutes.

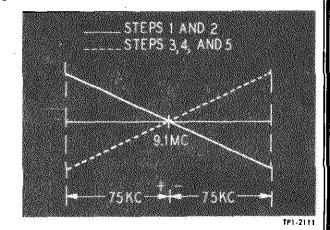


Figure 2. Characteristic Curve of FM Detector

FM ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST	
1	Ground lead to chassis. Output lead through a .01-af. condenser to control grid (pin 1) of 12AU6 2nd if amplifier.	kc. devia-	88 mc. (gang meshed).	Balance and adjust detector for max- mum indication on scope, as shown in figure 2.		

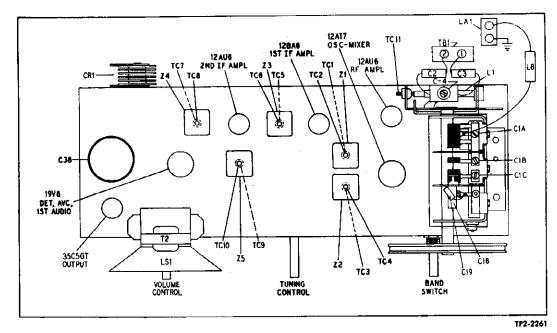


Figure 3. Top View, Showing Trimmer Locations

FM ALIGNMENT CHART (Continued)

	SIGNAL GENERATOR			RADIO	- -
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
2	Ground lead to chassis. Output lead through a .01-\mu f. condenser to FM tuning gang stator lug, junction of C1 and pin 4 of L2.	step 1.	Same as step 1.	Adjust for maximum indication on scope, as shown in figure 2.	sec. TC5—FM 2nd i-i pri. TC2—FM 1st i-i sec. TC1—FM 1st i-i pri.
3	Ground lead to lug 3 of TB1. Output lead to lug 2 of TB1. See note 1 below.		108,5 mc. (1st index mark from right).	Adjust for maximum indication on output meter.	C18—FM osc.
4	Same as step 3.	88 mc.	88 me. (1st index mark from left).		L5—FM osc.
5	Same as step 3.	105 mc.	105 mc.(3rd index mark from right).	output meter while rocking tuning condenser.	
6	Same as step 3.	105 mc.	105 mc.	Adjust for maximum indication on output meter.	
7	Same as step 3.	92 mc.	92 mc. (3rd index mark from left).		L2—FM r-f coil
If FM	aerial coil, Ll, is replaced, it should b	e adjusted	as directed in		
8	Same as step 3.	92 mc.	92 mc.	Adjust for maximum indication on output meter.	TC11—FM aeria

NOTE 1: For accurate results, the signal-generator output impedance must be 300 ohms, to match the input impedance of TB1 If the generator impedance is less than 300 ohms, a resistor of the proper value may be used in series with the output lead to make the impedance correct. For example, if the output impedance is 150 ohms, place a 150-ohm resistor in series with the output lead NOTE 2: If oscillator does not tune as low as 88 mc., compress the turns on the oscillator coil. If oscillator tunes too low, spread

the turns slightly. After coil is adjusted, repeat step 3.

NOTE 3: Check resonance of coil L2 by inserting end of a tuning wand, such as Philco Part No. 56-6100, in the coil. If output increases when iron end is placed in coil, compress turns slightly. If output increases when brass end is placed in coil, spread th turns. If output decreases when either end is placed in coil, no adjustment is necessary. After the coil is adjusted, readjust trimme

C1B and repeat steps 3 through 8 until no further improvement is obtained.

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Description Part No.	Reference Symbol	Service Description Part No
C1	Condenser, tuning gang, 5-section31-2762-1	C38D	Condenser, filter, 40 µf., 150vPart of C38
ClA	Condenser, trimmer, BC aerialPart of C1	C39	Condenser, filament by-pass, .005 µf30-1238-1
C1B	Condenser, trimmer, FM r-fPart of Cl	C40	Condenser, line by-pass, 100 µµf62-110001021
C1C	Condenser, trimmer, BC oscillatorPart of C1	C41	Condenser, filament by-pass, .005 µf30-1238-1
C2	Condenser, aerial isolating, 3.3 μμf30-1221	C42	Condenser, line by-pass, .047 µf30-4650-45
C3	Condenser, aerial isolating,	CR1	Selenium rectifier, 100 ma., 117v34-8003-1
	220 μμf62-122001001°	II	Pilot lamp, frosted, 117v, 7 watts34-2605
C4	Condenser, FM aerial trimmer 45-3034	J1	Jack, male, a-c27-6240-5
CS	Condenser, cathode by-pass,	J2	Socket, FM test27-6180
	33 µµf	L1	Coil, FM aerial, complete with
C6	Condenser, d-c blocking, 470 μμf. 62-147001021*		grommet32-4532A
C7	Condenser, screen by-pass,	L2	Coil, FM r-f32-4415-2
	220 μμf62-122001001°	L3	Choke, r-f, 3.3 \(\mu\)h32-4422-10
C8	Condenser, oscillator grid,	I.4	Choke, r-f, 3.3 µh32-4422-10
	100 μμf	L5	Coil, FM oscillator32-4414-5
C9	Condenser, d-c blocking, 220 µµf62-122001001°	L6	Choke, filament, 2.2 µh32-4422-8
C10	Condenser, cathode by-pass,	L7	Choke, filament, 2.2 µh32-4422-8
	.01 μf	L8	Choke, r-f, 4.1 µh32-4061-3
C11	Condenser, neutralizing, 3.3 µµf. 30-1224-49	LA1	AM loop and support assembly76-7836
C12	Condenser, d-c blocking 220 µµf82-122001001*	LA2	Line-cord aerial, FM Part of W1
C13	Condenser, fixed trimmer, 7.5 μμf30-1224-65	LS1	Speaker, 4" p-m, including output
C14	Condenser, cathode by-pass,		transformer36-1625-14
	220 μμf	R1	Resistor, cathode bias, 120 ohms66-I128340
C15	Condenser, r-f by-pass, 220 μμf62-122001001°	R2	Resistor, screen decoupling,
C16	Condenser, plate decoupling, .01 µf30-4650-58°		470 ohms66-1478340
C17	Condenser, r-f by-pass, 100 μμf62-110009001°	R3	Resistor, grid return, 15,000 ohms66-3158340
C18	Condenser, trimmer, FM oscillator31-6511-10	R4	Resistor, grid return, 2.2 megohms66-5228340
C19	Condenser, fixed trimmer, 7.5 µµf. 30-1224-8	R5	Resistor, parasitic suppressor,
C20	Condenser, a-v-c decoupling, .01 \(\mu \)f30-4650-58°		680 ohms66-1688340
C21	Condenser, screen by-pass, .002 µf30-4650-54*	R6	Resistor, parasitic suppressor,
C22	Condenser, neutralizing, .006 μf30-4650-57°	71.00	470 ohms66-1478340
C23 C24	Condenser, i-f by-pass, 100 µµf62-110001021°	R7	Resistor, loading, 100 ohms66-1108340
C25	Condenser, cathode by-pass, .01 µf30-4650-58°	R8	Resistor, plate dropping, AM,
C25	Condenser, screen by-pass, .002 µf30-4650-54*	70	47,000 ohms
C20	Condenser, electrolytic, diode-load filter, 2 \mu f., 50v30-2417-7	R9	Resistor, plate dropping, 4700 ohms66-2478340
C27	Condenser, i-f by-pass, 150 $\mu\mu$ f62-115001011°	R10	Resistor, cathode bias, 47 ohms66-0478340
C28	Condenser, d-c blocking, .006 \(\mu f.\)30-4650-57°	R11	Resistor, screen decoupling,
C29	Condenser, i-f by-pass, $100 \mu \mu f$ 62-110001021*	D10	1000 ohms 66-2108340
C30	Condenser, de-emphasis, .004 µf30-4650-56*	R12	Resistor, plate decoupling,
C31	Condenser, plate decoupling,	710	2700 ohms 66-2278340
CJI	220 μμf62-122001001*	R13	Resistor, grid return, 1 megohm66-5108340
C32	Condenser, line by-pass, $100 \mu \mu f$	R14	Resistor, cathode bias, 120 ohms66-1128340
C32		R15	Resistor, a-v-c filter, 2.2 megohms66-5228340
C34	Condenser, plate by-pass, 680 μμf62-168001001* Condenser, d-c blocking, .02 μf30-4650-60*	R16	Resistor, decoupling, 470 ohms66-1478340
C35	Condenser, d-c blocking, .006 μ f30-4650-57°	R17	Resistor, FM diode load,
C36	Condenser, filament by-pass,	7010	47,000 ohms
~00	100 μμf62-110001021°	R18	Resistor, de-emphasis, 47,000 ohms66-3478340
C37	Condenser, tone compensation,	R19	Resistor, i-f filter, 47,000 ohms66-3478340
J	.02 μf30-4650-60°	R20	Resistor, a-v-c load, 3.3 megohms66-5338340
C38	Condenser, electrolytic, 4-section30-4650-46	R21	Volume control (with off-on switch)
C38A	Condenser, cathode by-pass,	Doo	500,000 ohms
COOK	25 \mu f., 25vPart of C38	R22	Resistor, grid return, 10 megohms66-6108340
C38B	Condenser, filter, 40 μ f., 150 ν Part of C38	R23	Resistor, plate load, 470,000 ohms66-4478340
しいつむ	Condenser, inter, 40 hr., 1300 art of C30	R24	Resistor, grid return, 470,000 ohms66-4478340

PARTS LIST (Cont.)

Reference Symbol	Service Service Part No.
R25	Resistor, cathode bias, 150 ohms66-1158340°
R26	Resistor, filter, 470 ohms, 1 watt66-1474340*
R27	Resistor, filter, 150 ohms, 2 watts66-1155360*
R28	Resistor, current limiting, 22 ohms, 2 watts66-0225360*
R29	Resistor, current limiting, 100 ohms33-1343-3
R30	Resistor, grid return, 2.2 megohms66-5228340*
S 1	Switch, off-onPart of R21
Tl	Transformer, AM oscillator32-4569-1
T2	Transformer, outputPart of LS1
W1	Line cord41-3865-3
W2	Cable, FM aerial, 72-ohm twin lead41-3987
ws	Switch, band, 2-wafer42-1924-1
Zİ	Transformer, FM, 1st i-f32-4518A
Z2	Transformer, AM, 1st i-f32-4516A
Z 3	Transformer, FM, 2nd i-f32-4518-1A
Z4	Transformer, FM, detector32-4310-4A
Z 5	Transformer, AM, 2nd i-f 32-4517A

MISCELLANEOUS

Description	on			Service Part No.
Cabinet				10941
Back,	flange,	and sock	et assembly	76-7829

MISCELLANEOUS (Cont.)

Description	Service Part No.
Fastener, back mtg. (4)	W-2235-FA9
Dial scale	
Knob, FM-AM	
Knob, tuning	
Knob, volume-off-on	
Clip, pilot lamp	
Drive cord, 25-foot spool	45-8750*
Pointer	
Shaft, drive	56-79 31FA11
Spring, gang drive	
Spring, pointer drive	
Rubber mount, speaker (2)	
Socket, 12BA6 (i-f ampl.)	
Socket, 12AU6 (i-f ampl.)	
Socket, 12AU6 (r-f ampl.)	
Socket, 12AT7	
Socket, 19V8	27-6203-6
Socket, 35C5	
Shield, tube (2)	56-5629-3
Shield, tube base (1)	
Shield, tube base (2)	
Socket, assembly, pilot lamp	
Spring, hairpin	

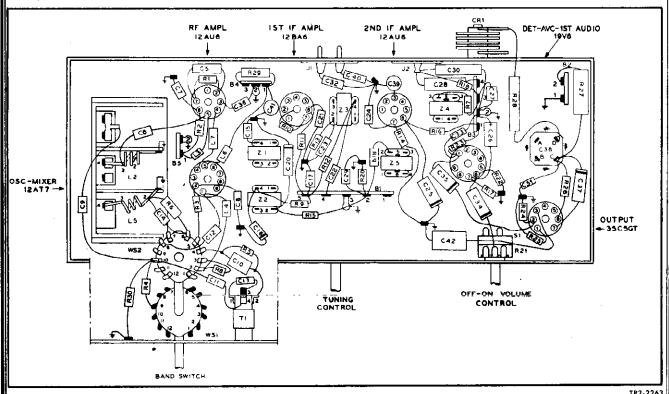
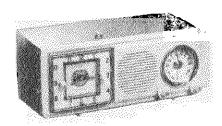


Figure 5. Base View, Showing Parts Placement

TP2-2263

CABINETFive-tube Superheterod	-
FREQUENCY RANGES Standard Broadcast Special Services	540—1620 kc. 1700—3400 kc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	117 volts, a.c.
POWER CONSUMPTION	30 watts
AERIAL	High-impedance loop
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES 12BE6 converter	, 12BA6 i-f amplifier, et.—a.v.c.—lst audio,



MODEL B714, CODES 121 AND 123

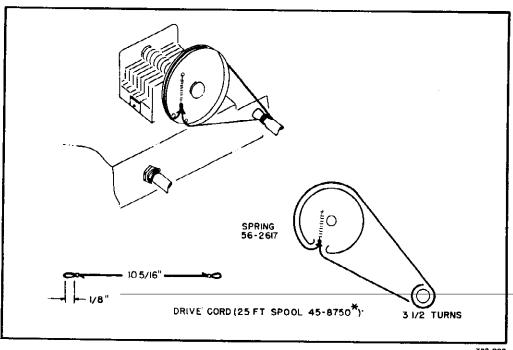


Figure 1. **Drive-Cord Installation Details**

TP3-933

MODEL B714, Codes 121, 123

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

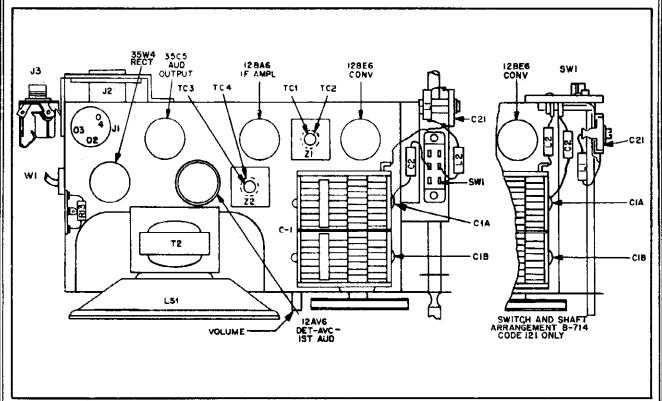


Figure 2. Top View, Showing Trimmer Locations

TP3-940

ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RADIO			
	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .l-µf, condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers,)	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (See note below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B—osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	C1-A—aerial (broadcast)
4	Same as step 2.	3200 kc.	3200 kc.	Special Services	Adjust trimmer for maximum output.	C21—aerial (special services)

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place near radio loop.

* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

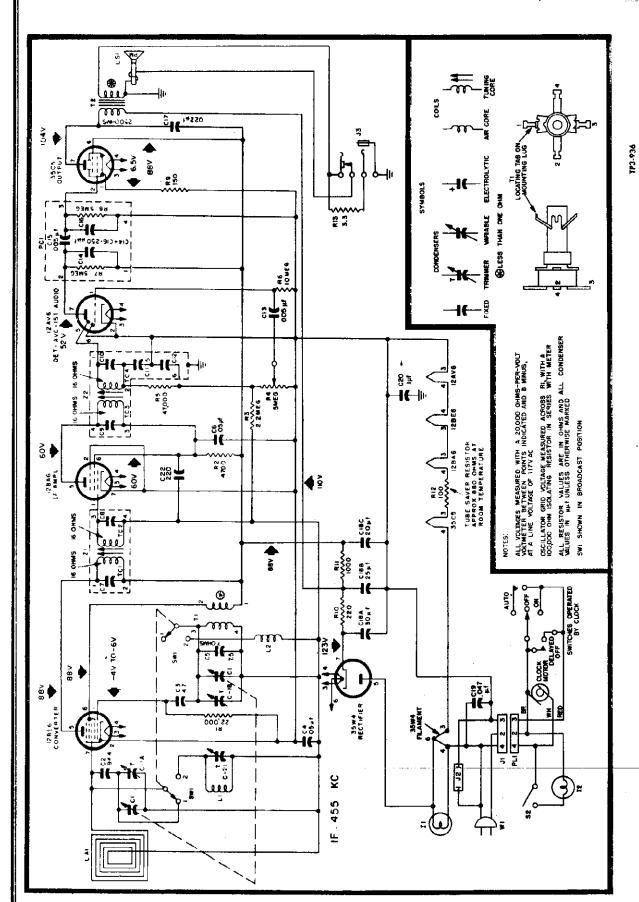


Figure 3. Philco Radio-Clock Model B714, Codes 121 and 123, Schematic Diagram

MODEL B714, Codes 121, 123

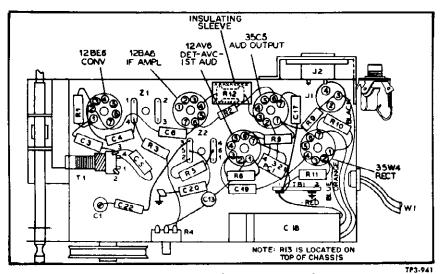


Figure 4. Base View, Showing Parts Placement

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

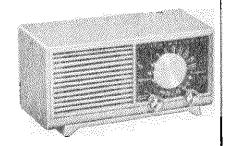
Reference Symbol	Service Description Part No	
CI	Condenser, tuning gang31-2751-1	4
C1A	Condenser, r-f trimmer Part of C	1
C1B	Condenser, oscillator trimmerPart of C	l
C2	Condenser, aerial series tracker,	E
CO	944 μμf. 30-1220-6	1
C3	Condenser, oscillator grid, 47 µµf30-1230- Condenser, a-v-c by-pass, .05 µf30-4650-45	•
C4 C5	Condenser, drift componenties, 75 and 20-1994-8	q
C6	Condenser, drift compensation, 7.5 $\mu\mu$ f. 30-1224-8. Condenser, screen by-pass, .05 μ f30-4650-45	5
C7	Condenser, i-f tuning Part of Z	1
	Condenser, i-f tuning Part of Z	i
C8	Condenser, i-f tuning Part of Z	
C9	Condenser, i-f tuningPart of Z	6
C10	Condenser, detector filtering	ő
C11	Condenser, detector interingrart of Z.	6
C12	Condenser, detector filtering	2
C13	Condenser, audio coupling, .005 µI30-1236-1	1
C14	Condenser, plate by-passPart of PC	Ţ
C15	Condenser, audio coupling, .005 µfPart of PC	1
C16	Condenser, compensating Part of PC	I
C17	Condenser, tone compensation, .022 µf30-4650-43	۰
A10	Condenser, electrolytic, 3-section30-257.	9
C18	Condenser, electrolytic, 5-section	o
C18A	Condenser, filter, 30 µf., 150v Part of Cl	0
C18B	Condenser, filter, 25 μ f., 150v Part of C1	0
C18C	Condenser, filter, 20 µf., 150v Part of C1 Condenser, line by-pass, 047 µf. 30-4650-45	Ġ.
C19	Condenser, line by-pass, .047 μr	
C20	Condenser, B minus to chassis, 1 µf. 30-4650-47	_
C21	Condenser, trimmer, special services31-6473-2	9
C22	Condenser, a-v-c decoupling,	
	220 µµf	
11	Lamp, pilot34-206	
12	Lamp, night light34-247	7
J1	Jack; clock27-627	3
J <u>2</u>	Jack, appliance receptacle, a-c76-393 Private listening unit42-1975-	1
J3	Private listening unit42-1975-	Z
Ll	Coil, aerial, special services32-4561-	.3
L2	Coil, oscillator shunt 32-4562-	.2
LAl	Loop, antennaPart of back-and-loop ass'y	y.
LS1	Speaker, p-m36-1627-	8
PC1	Coupling network30-600)1
PL1	Plug clock assembly 54-4878-	.2
Ri	Resistor, oscillator grid, 22,000 ohms 66-3228340)°
R2	Resistor, oscillator grid, 22,000 ohms 66-3228340 Resistor, i-f screen dropping, 4700 ohms 66-2478340	,*
R3	Resistor, a-v-c filter 2.2 megohms66-5228340)*
R4	Resistor, volume control, 5 megohm33-556	35
R5	Resistor, diode load, 47,000 ohms66-3478340	*

Reference Symbol	Description	Service Part No.
R6	Resistor, grid return, 10 megohms66	6108340*
R7	Resistor, plate load, 500,000 ohmsP	art of PCI
R8	Resistor, grid return, 500,000 ohmsP	art of PC1
R9	Resistor, cathode bias, 150 ohms66	-11583 40°
R10	Resistor, B plus filter, 220 ohms,	
	1 watt66	-1224340°
R11	Resistor, B plus filter, 1000 ohms66	-2108340°
R12	Resistor, tube saver, 100 ohms	33-1343-3
R13	Resistor, private listening unit.	
	3.3 ohms6	6-9333 54 0
S2	Switch, night light	42-2023
SW1	Switch, broadcast-special services	42-1796-2
T1	Transformer, oscillator	32-4453-6
T2	Transformer, output	32-8384°
W1	Line cord	L-2183*
ZI	Transformer, 1st i-f	.32-4161A
Z 2	Transformer, 2nd i-f	.32-4240A

MISCELLANEOUS

Description	Service Part No.
Cabinet	
White	10940-6
Knobs	F. 4000 F
Clock (3)	54-4983-5
Tuning and volume	54-4986-3
Clock	41-2042-2
Back-and-loop assembly	76-7807
Backplate and clip assembly, pilot lamp	76-8720
Scale	E4 400E
Radio	54-4985
_ Clock	54-4984
Pointer	56-9846
Clock cover	54-4989
Shaft, tuning	50-9807
Shield, tube	56-5629FA3
Shield, tube base	56-3978FA3
Socket, tube (4)	27-6265
Socket, tube, 12BE6	27-6203-14
Socket assembly, pilot lamp	27-6233-6
Socket assembly, night light	27-6233-110
Spring, drive cord	56-2617
Spring, retaining	28-8610
Drive cord, 25-ft. spool	45-8750*

CABINET	Molded plastic
CIRCUIT	our-tube superheterodyne (plus rectifier)
FREQUENCY RANGE Standard Broadcast Special Services	
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	
POWER CONSUMPTION	30 watts
AERIAL	High-impedance loop
INTERMEDIATE FREQUENCY	455 kc.
	a.v.c1st audio, 35C5 output, 35W4 rectifier



MODEL B574, CODE 121

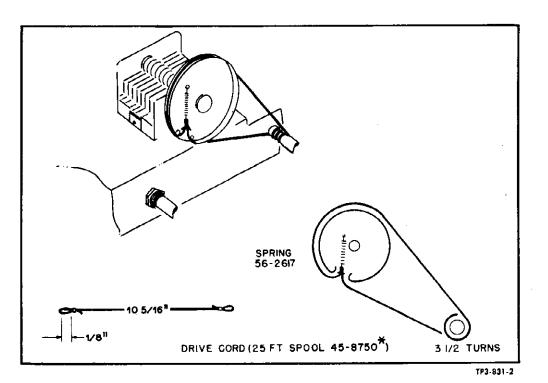


Figure 1. Dial-Cord Installation Details

MODEL B574, Code 121

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

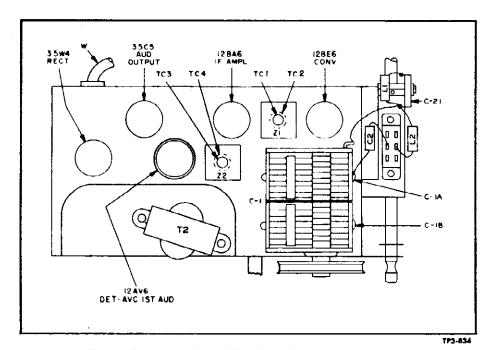


Figure 2. Top View, Showing Trimmer Locations

ALIGNMENT CHART

	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1.4f. condenser to grid. (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Broadcast	Adjust tuning cores, in order given, for maximum output. (TC1 and TC3 are located at top of transformers.)	TC4-2nd i-f sec. TC3-2nd i-f pri. TC2-1st i-f sec. TC1-1st i-f pri.
2	Radiating loop (see NOTE below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	Cl-A aerial (broadcast).
4	Same as step 2.	3200 kc.	3200 kc.	Special services	Adjust trimmer for maximum output.	C-21—aerial (special services)

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop.

* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

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LOCATING TAB F

Figure 3. Philes Radio Model B574, Code 121, Schematic Diagram

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MODEL B574, Code 121

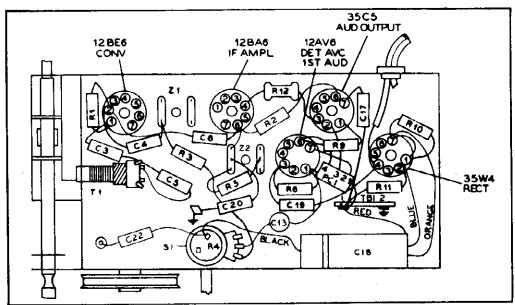


Figure 4. Base View, Showing Symbolized Chassis

TP3-829-1

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

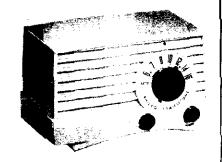
Reference Symbol	Description	Sarvice Part No.
Cl	Condenser, tuning gang	31-2751-14
ClA	Condenser, aerial trimmer	Part of Cl
C1B	Condenser, osc. trimmer	Part of Cl
C2	Condenser, aerial series tracker, 944 µµf.	.30-1220-65
C3	Condenser oscillator grid, 47 uut.	30-1230-4
C4	Condenser, a-v-c by-pass, .05 µf4	15-3505-28 *
C5	Condenser, drift compensation, 7.5 μμt	.30-1224-83
C6	Condenser, screen by-pass, .05 \(\mu \)f,4	15-3505-28"
C7	Condenser, i-f tuning	,Part of ZI
C8	Condenser, i-f tuning	Part of Z1
C9	Condenser, i-f tuning	Part of Z2
C10	Condenser i-f tuning	Part of Z2
C11	Condenser detector filtering	Part of Z2
C12	Condenser, detector filtering	Part of Z2
C13	Condenser audio coupling, .005 uf	30-1238-1
C14	Condenser, plate by-pass	Part of PCI
C15	Condenser audio coupling, 005 at	Part of PC1
C16	Condenser, compensating	Part of PUL
C17	Condenser, tone compensation, .022 \(\mu \text{t}\).	15-3505-43 "
C18	Condenser electrolytic, 3-section	30-2575-34
C18A	Condenser, filter, 30 µf., 150v	Part of C18
C18B	Condenser, filter, 25 µf., 150v	Part of C18
C18C	Condenser, filter, 20 µf., 150y	Part of C18
C19	Condenser, line by-pass, .047 µf	30-4650-45
C20	Condenser B. to chassis ut	4a-3aua-47°
C21	Condenser, trimmer, special service	81-6473-32
I1	Lamp pilot	34-2068
LA1	Loop, aerialPart of back-an	a-toob ass y.
L1	Coil, antenna, special services	32-4501-3
L2	Coil, oscillator shunt	32-4562-2
LS1	Speaker, p-m	36-1627-8
PC1	Printed circuit	30-0001
R1	Resistor, oscillator grid, 22,000 ohms	00-0228340*
R2	Resistor, i-f screen dropping,	00 04700400
	4700 ohm	bb-24/834U*

Reference Symbol	Description	Service Part No.
R3	Resistor, a-v-c filter, 2.2 megohms	66-5228340°
R4	Resistor, volume control	33-5566-41
R5	Resistor, diode load, 47,000 ohms	66-3478340°
R6	Resistor, grid return, 10 megohms	66-6108340°
R7	Resistor, plate load, 500,000 ohms	Part of PCI
R8	Resistor, grid return, 500,000 ohms	Part of PC1
R9	Resistor, cathode bias, 150 ohms	
R10	Resistor, B plus filter, 220 ohms	66-1224340°
RII	Resistor, B plus filter, 1000 ohms	66-2108340*
Ř12	Resistor, tube saver, 100 ohms	33-1343-3
Si	Switch, off-on	Part of R4
SW1	Switch, broadcast-special services	42-1796-2
Ti	Transformer, oscillator	32-4453-6
Ť2	Transformer, output	32-8384-4
wi	Line cord	L-2183°
Z1	Transformer, 1st i-f	32-4161 A
Z.1 Z.2	Transformer, 2nd i-f	32-4240A

MISCELLANEOUS

Description	Service Part No.
Cabinet spruce	10926-29
Cabinet, spruce	76-8362-1
Knob (2) Drive cord, 25-foot spool	54-4773-3
Drive cord, 25-foot spool	45-675V 92.0509ECD
Shaft, tuning Socket ass'y., pilot lamp Socket, 7-pin miniature, 12AV8	28-9475FA11
Socket ass'y nilot lamp	27-6233-80
Socket, 7-pin miniature, 12AV6	27-6203-14
Socket, 7-pin miniature, 12BE6, 12BA6 Socket, 7-pin miniature, 35C5, 35W4	27-6265
Socket, 7-pin miniature, 35C5, 35W4	27-6265-2
Spring retaining to	
Spring, drive cord	28-9473FA3
Brocket switch mounting	28-9474FA3
Bracket, switch mounting Switch bracket and padder ass'y.	76-8477

CABINET	Molded plastic
CIRCUIT	Four-tube superheterodyne (plus rectifier)
FREQUENCY RANGE Standard Broadcast	540 kc, to 1629 kc.
AUDIO OUTPUT	l watt
OPERATING VOLTAGE	105 to 120 volts, a.c. or d.c.
POWER CONSUMPTION	30 watts
AERIAL	High-impedance loop
INTERMEDIATE FREQUENCY	7455 kc.



MODEL B570

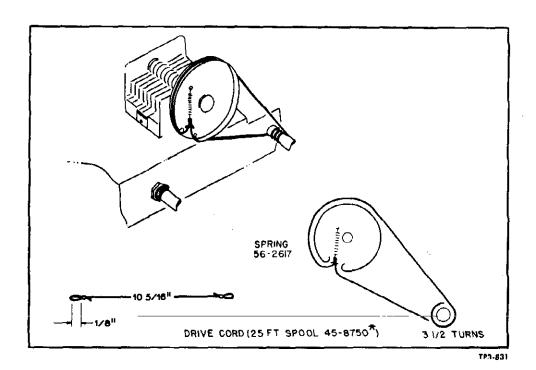


Figure 1. Dial-Cord Installation Details

MODEL B570, Code 121

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control and band switch, SW1, as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

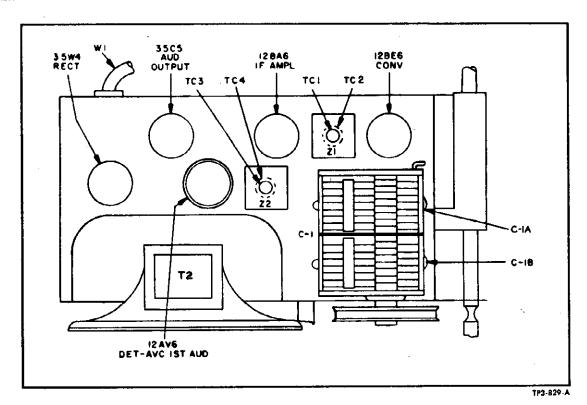


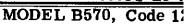
Figure 2. Top View, Showing Trimmer Locations

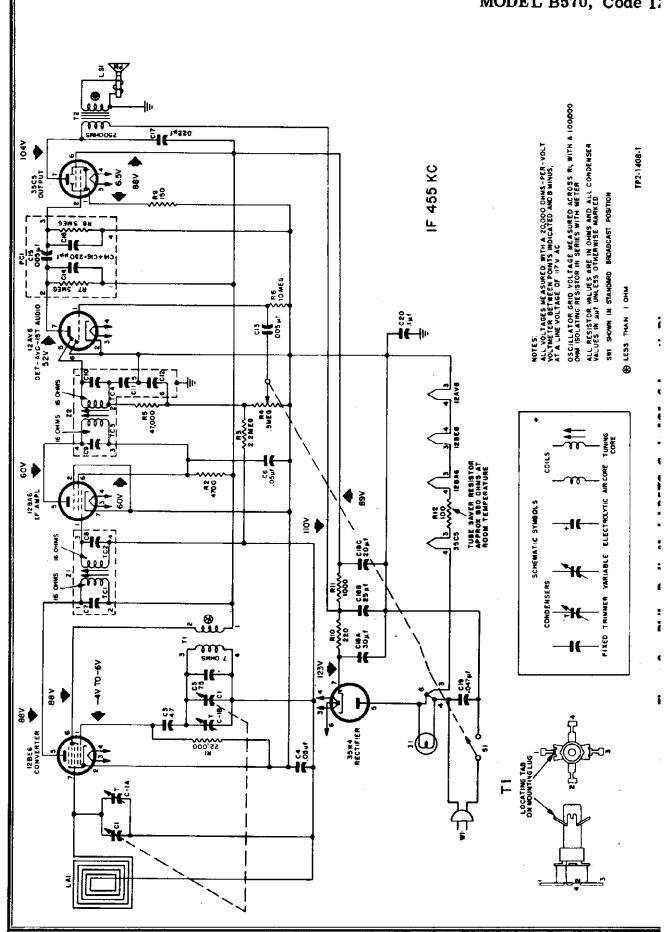
ALIGNMENT CHART

	SIGNAL GENERATOR		RADIO			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	BAND SWITCH SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-µf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Broadcast	Adjust tuning cores, in order given, for maximum output. (TCI and TC3 are located at top of transformers).	TC-4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see NOTE below).	1620 kc.	*1620 kc.	Broadcast	Adjust trimmer for maximum output.	C1-B osc.
3	Same as step 2.	1500 kc.	1500 kc.	Broadcast	Adjust trimmer for maximum output.	Cl-A aerial (broadcast).

NOTE: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop.

* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.





MODEL B570, Code 121

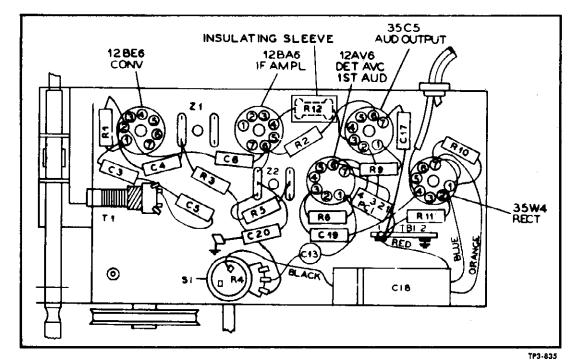


Figure 4. Base View, Showing Symbolized Chassis

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Description	Service Part No.
C1	Condenser, tuning gang	31-2751-14
C1A	Condenser, aerial trimmer	Part of CI
C1B	Condenser, osc. trimmer	Part of Cl
C3	Condenser, oscillator grid, 47 µµf	30-1230-4
C4	Condenser, a-v-c by-pass, .05 μ f	45-3505-28°
C5	Condenser, drift compensation 7.5 $\mu\mu$ f.	30-1224-83
C6	Condenser, screen by-pass, .05 μ f,	45-3505-28°
C7	Condenser, i-f tuning	Part of Z1
C8	Condenser, i-f tuning	Part of Z1
C9	Condenser, i-f tuning	Part of Z2
C10	Condenser, i-f tuning	Part of Z 2
C11	Condenser, detector filtering	Part of Z2
C12	Condenser, detector filtering	Part of Z2
C13	Condenser, audio coupling, .005 uf	30-1238-1
C14	Condenser, plate by-pass Condenser, audio coupling, .005 \(\mu f \)	Part of PCI
C15	Condenser, audio coupling, .005 µf	Part of PCI
C16	Condenser, compensating Condenser, tone compensation, .022 µf.	Part of PC1
C17	Condenser, tone compensation, .022 \(\mu f \).	45-3505-43°
C18	Condenser, electrolytic, 3-section	30-2575-34
C18A	Condenser, filter, 30 µf., 150v	Part of C18
C18B	Condenser, filter, 25 µf., 150v	Part of C18
C18C	Condenser, filter, 20 \(\mu \text{f., } 150v	Part of CIS
C19	Condenser line by-pass 05 uf	30-4650-45
C20	Condenser, B- to chassis, 1 uf.	45-3505-47°
11	Condenser, B- to chassis, .1 µf. Lamp, pilot Loop, aerial Part of back-an	34-2068
LA1	Loop, aerialPart of back-an	d-loop ass'y.
LS1	Speaker, p-m	36-1627-8
PC1	Printed circuit	30-6001
Ri	Resistor, oscillator grid, 22000 ohms	66-3228340°
R2	Destate of Control 1 and the	
1	4700 ohms	66-2478340°
R3	Resistor, a-v-c filter, 2.2 megohms	66- 5228 340°
Ř4	Resistor, volume control	33-3390-41
R5	Resistor, diode load, 47,000 ohms	66-3478340°
R6	Resistor, grid return, 10 megohms	66-6108340°
R7	Resistor, plate load, 500,000 ohms	Part of PC1
1 -11		

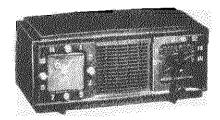
Reference Symbol	Description	Service Part No.
R8	Resistor, grid return, 500,000 ohms	Part of PC1
R9	Resistor, cathode bias, 150 ohms	
R10	Resistor, B plus filter, 220 ohms	
R11	Resistor, B plus filter, 1000 ohms	
R12	Resistor, tube saver, 100 ohms	
S1	Switch, off-on	
T1	Transformer, oscillator	
T2	Transformer, output	
Wı	Line cord	
Z 1	Transformor, 1st i-f	32-41614
Z2	Transformer, 2nd i-f	32-4240A

MISCELLANEOUS

Cabinet Cardinal Sand	10990
Cardinal	10990 10990-1
Sand	10990-1
Back-and-loop ass'y. Knob (2) Drive cord, 25-foot spool	76-8515-1
Knob (2)	54-6062
Drive cord, 25-foot spool	45-8750
Cardinal cabinet	54-6061
Cardinal cabinet Sand cabinet Shaft, tuning Socket ass'y., pilot lamp Socket, 7-pin miniature, 12AV6	54-6061
Shaft tuning	28-9475FA11
Socket ass'v. pilot lamn	27-6233-80
Socket, 7-pin ministure 12AV6	27-6303-14
Socket, 7-pin miniature, 12BE6, 12BA6	27-6265
Socket, 7-pin miniature, 35C5, 35W4	
Spring retaining (3)	1W60080FF7
Spring drive cord	58-9817
Spring, retaining (3) Spring, drive cord Bracket, switch operating	08-0472FA2
Bracket, switch mounting	20-04131'RO
Switch bracket and padder ass'v.	

CABINET	Molded phenolic
	superheterodyne (plus rectifier)
	540—1620 kc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	117 volts, a.c.
	30 watts
	High-impedance loop
	ENCY455 kc.
PHILCO TUBES12BE6,	converter; 12BA6, i.f amplifier;
· · · · · · · · · · · · · · · · · · ·	det.—a.v.c.—let audio; 35C5, 35W4, rectifier

NOTE: The antenna is mounted on the cabinet back. When removing the cabinet back, use care to avoid breaking the antenna leads.



MODEL B710

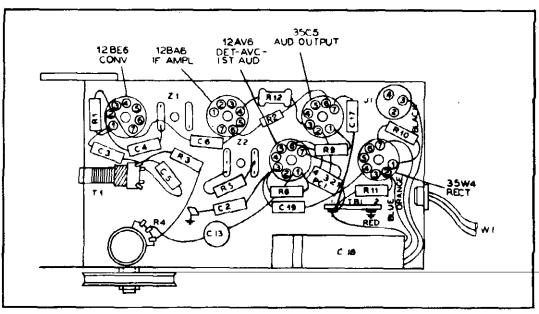


Figure 1. Base View, Showing Parts Placement

TP3-832

MODEL B710

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO]
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Ground lead to B-; output lead through a .1-\(\mu \)f. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Adjust tuning cores, in order given, for maximum output. (TCl and TC3 are located at top of transformers.)	TC4—2nd i-f sec. TC3—2nd i-f pri. TC-2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc.*	Adjust trimmer for maximum output.	C1B—osc.
3	Same as step 2.	1500 kc.	1500 kc.†	Adjust trimmer for maximum output.	C1Aantenna

NOTE: make a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place about 1 foot from radio loop. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

* To set the tuning gang to 1620 kc., fully open the gang and insert a .006-inch, nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

†To set the radio to 1500 kc., place chassis in cabinet, attach knob to indicate previous setting of 1620 kc., and tune until pointer indicates 1500 kc. Then remove knob and take chassis from cabinet without disturbing gang setting.

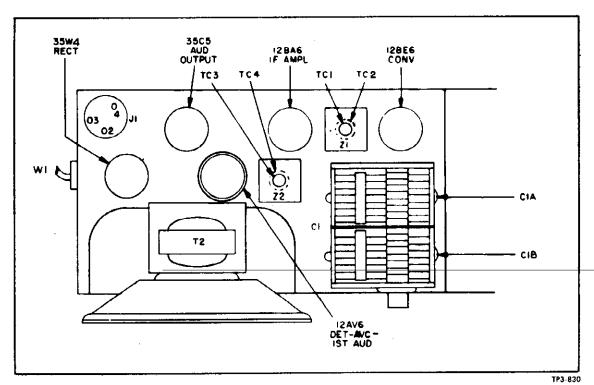
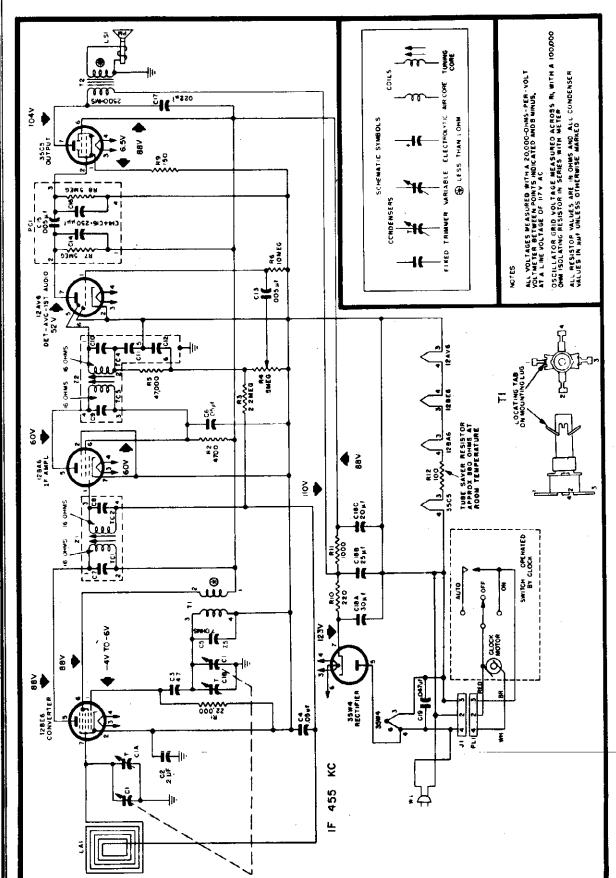


Figure 2. Top View, Showing Tuning Adjustments



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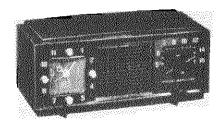
Figure 3. Philco Radio-Clock Model B710, Schematic Diagram

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

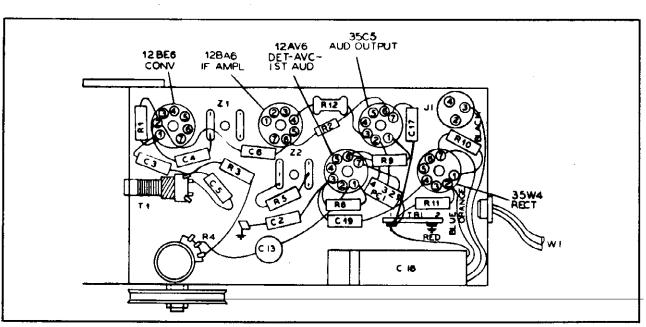
Reference Symbol	Service Description Part No.	Reference Symbol	Description	Service Part No.
Cl	Condenser, tuning gang31-2751-13	R3	Resistor, a-v-c filter, 2.2 megohms	_66-5228340*
ClA	Condenser, r-f trimmerPart of C1	R4	Resistor, volume control, .5 megohm	
C1B	Condenser, oscillator trimmerPart of C1	R5	Resistor, diode load, 47,000 ohms	
C2	Condenser, B- to chassis, .2 µf30-4650-49	R6	Resistor, grid return, 10 megohms	
C3	Condenser, oscillator grid, 47 µµf30-1230-4	R7	Resistor, plate load, 500,000 ohms	
C4	Condenser, a-v-c by-pass, .05 µf30-4650-45°	R8	Resistor, grid return, 500,000 ohms	
C5	Condenser, drift compensation, 7.5 µµf. 30-1224-83	R9	Resistor, cathode bias, 150 ohms	
C6	Condenser, screen by-pass, .05 µf30-4650-45°	R10	Resistor, B plus filter.	06-1156340*
C7	Condenser, i-f tuningPart of Z1	2120	220 ohms, 1 watt	66-1224340°
C8	Condenser, i-f tuningPart of Z1	R11	Resistor, B plus filter, 1000 ohms	
C3	Condenser, i-f tuningPart of Z2	R12	Resistor, tube saver, 100 ohms	
C10	Condenser, i-f tuningPart of Z2	Ti	Transformer, oscillator	
C11	Condenser, detector filteringPart of Z2	T2	Transformer, output	
C12	Condenser, detector filtering Part of Z2	WI	Line cord	
C13	Condenser, audio coupling, .005 \(\mu f. \)30-1238-1	7 1	Transformer, 1st i-f	· ·
C14	Condenser, plate by-passPart of PC1		Transformer, 2nd i-f	
C15	Condenser, audio coupling, .005 µfPart of PCI	22	Transformer, 200 1-1	3Z-4Z4UA
C16	Condenser, compensatingPart of PC1		MISCELLANEOUS	
C17	Condenser, tone compensation, .022 µf. 30-4650-43°		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
C18	Condenser, electrolytic, 3-section45-3037	Description		Service Part No.
	Condenser, filter, 30 µf., '150vPart of C18	Cabinet		
C18B	Condenser, filter, 25 \(\mu \text{f.}\), 150vPart of C18	Knobs		
C18C	Condenser, filter, 20 μ f., 150vPart of C18		required)	¥4 4000 a
C19	Condenser, line by-pass, .05 \(\mu f \)30-4650-45*	-	selector	
J1	Jack clock27-6273		SCICCUI	
LAI	LoopPart of cabinet back			
LS1	Speaker ass'y., p-m36-1627-23			
	Printed circuit30-6001		oop assembly	
PLI	Plug, clock assembly54-4878-2		be	
RI	Resistor, oscillator grid, 22,000 ohms66-3228340*	Socket, mi	niature (4 required)	27-6265*
R2	Resistor, i-f screen dropping,		niature (12AV6)	
	4700 ohms66-2478340*	Window, 1	adio dial	54-4977-5

CABINET	Molded phenolic
	Four-tube superheterodyne (plus rectifier)
	540—1620 kc.
AUDIO OUTPUT	1 watt
OPERATING VOLTAGE	
POWER CONSUMPTION	30 watts
ANTENNA	High-impedance loop
INTERMEDIATE FREQUENCY	455 ke.
PHILCO TUBES	12BE6, converter; 12BA6, i-f amplifier;
	12AV6, det.—a.v.c.—lst audio; 35C5, output; 35W4, rectifier



MODEL B711

NOTE: The antenna is mounted on the cabinet back. When removing the cabinet back, use care to avoid breaking the antenna leads.



TP3-832-1

Figure 1. Base View, Showing Parts Placement

MODEL B711, Code 121

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT METER—Connect across voice-coil terminals.

SIGNAL GENERATOR—Connect generator and set

frequency as indicated in chart. Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to hold output-meter reading below 1.25 volts.

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	ADJUST
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	
1	Ground lead to B—; output lead through a .1-μf. condenser to grid (pin 7) of 12BE6.	455 kc.	Tuning gang fully open.	Adjust tuning cores, in order given, for maximum output. (TCl and TC3 are located at top of transformers.)	TC4—2nd i-f sec. TC3—2nd i-f pri. TC2—1st i-f sec. TC1—1st i-f pri.
2	Radiating loop (see note below).	1620 kc.	1620 kc.*	Adjust trimmer for maximum output.	C1B—osc.
. 3	Same as step 2.	1500 kc.	1500 kc.†	Adjust trimmer for maximum output.	ClA—antenna

NOTE: Make a 6—8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads, and place about 1 foot from radio loop. The position of the radio loop with respect to the chassis should be approximately the same as when both are mounted in the cabinet.

* To set the tuning gang to 1620 kc., fully open the gang and insert a .006-inch, nonmetallic shim between the heel of the rotor and the top of the stator plates. Close the gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

† To set the radio to 1500 kc., place chassis in cabinet, attach knob to indicate previous setting of 1620 kc., and tune until pointer indicates 1500 kc. Then remove knob and take chassis from cabinet without disturbing gang setting.

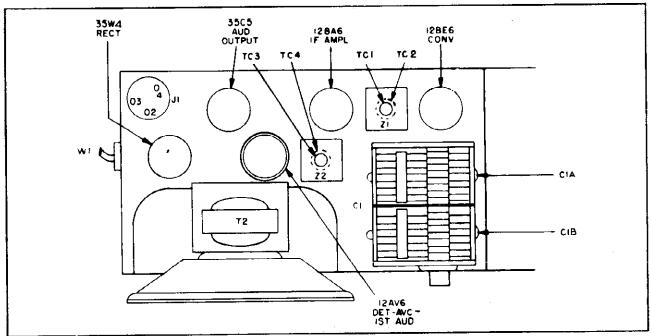
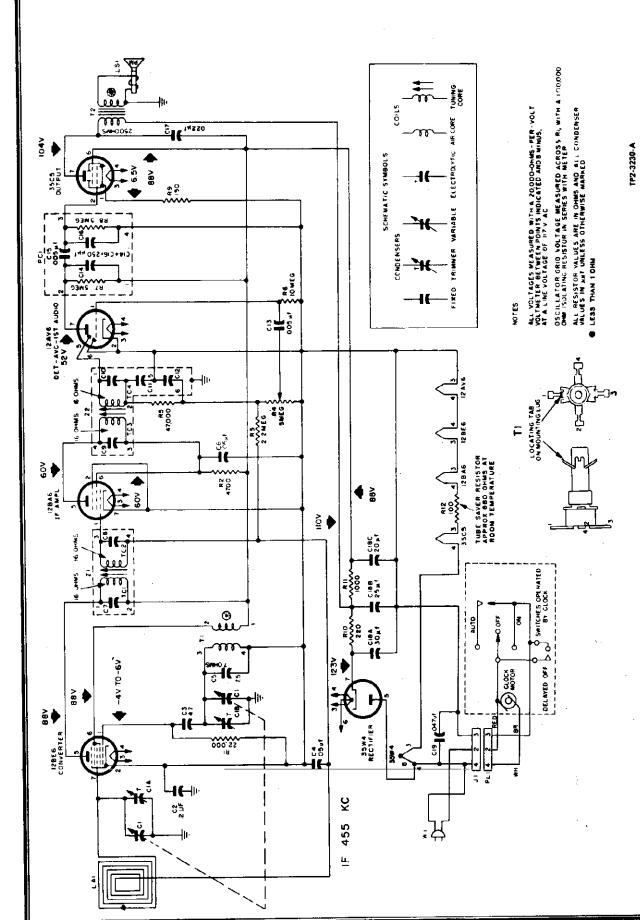


Figure 2. Top View, Showing Tuning Adjustments

TP3-830-1

PHILCO PAGE 23-17 MODEL B711, Code 12



Philco Radio-Clock Model B711, Code 121, Schematic Diagram Figure 3.

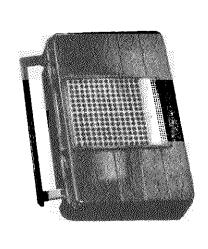
PAGE 23-172 PHILCO MODEL B711, Code 121

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Reference Symbol	Service Service Part No.	Reference Symbol	Service Description Part No.
CI	Condenser, tuning gang31-2751-13	R3	Resistor, a-v-c filter, 2.2 megohms66-5228340°
ClA	Condenser, r-f trimmerPart of C1	R4	Resistor, volume control, .5 megohm33-5565
ClB	Condenser, oscillator trimmerPart of C1	R5	Resistor, diode load, 47,000 ohms66-3478340°
C2	Condenser, B- to chassis, .2 \(\mu f \)30-4650-49	R6	Resistor, grid return, 10 megohms66-6108340
C3	Condenser, oscillator grid, 47 μμf30-1230-4	R7	Resistor, plate load, 500,000 ohmsPart of PC1
C4	Condenser, a-v-c by-pass, .05 µf30-4650-45°	R8	Resistor, grid return, 500,000 ohmsPart of PC1
C5	Condenser, drift compensation, 7.5 $\mu\mu$ f. 30-1224-83	R9	Resistor, cathode bias, 150 ohms66-1158340°
C6	Condenser, screen by-pass, .05 µf30-4650-45°	R10	Resistor, B plus filter, 220 ohms,
C7	Condenser, i-f tuningPart of Z1		l watt66-1224340°
C8	Condenser, i-f tuningPart of Z1	R11	Resistor, B plus filter, 1000 ohms66-2108340°
C9	Condenser, i-f tuning Part of Z2	R12	Resistor, tube saver, 100 ohms33-1343-3
C10	Condenser i-f tuning Part of Z2	Ti	Transformer, oscillator33-4453-6
C11	Condenser, detector filteringPart of Z2	T2	Transformer, output
C12	Condenser, detector filteringPart of Z2	\mathbf{w}_1	Line cordL2183°
CI3	Condenser, audio coupling, .005 µf30-1238-1	ZI	Transformer, 1st i-f32-4161A
C14	Condenser, plate by-passPart of PC1	Z 2	Transformer, 2nd i-f32-4240A
C15	Condenser, audio coupling, .005 µfPart of PC1		
C16	Condenser, compensating Part of PC1		MISCELLANEOUS
C17	Condenser, tone compensation, .022 µf. 30-4650-43*		
C18	Condenser, electrolytic, 3-section45-3037	Description	Service Part No.
C18A	Condenser, filter, 30 \(\mu f., \) 150vPart of C18		
C18B	Condenser, filter, 25 µf., 150vPart of C18		10924-12
C18C	Condenser, filter, 20 μ f., 150v Part of C18		
C19	Condenser, line by-pass, .047 \(\mu \)f30-4650-45*		4 required)54-4983-6
JI	Jack, clock27-6273		selector54-4978-5
LA1	LoopPart of cabinet back		.54-4815-8
LS1	Speaker ass'y., p-m36-1627-23		41-2041-6
PC1	Printed circuit30-6001		loop assembly76-7757-3
PLI	Plug, clock assembly 54-4878-2		be56-5629FA3
RI	Resistor, oscillator grid, 22,000 ohms 66-3228340°		iniature (4 required) 27-6265°
R2	Resistor, i-f screen dropping, 4700 ohms66-2478340°		iniature, 12BE627-8203-14
	4700 Offins	window,	radio dial

CABINET Plastic portable	CIRCUITFour-tube superheterodyne	AUDIO OUTPUT75 milliwatts	OPERATING VOLTAGE	POWER CONSUMPTION	ANTENNA Magnecor high-impedance	INTERMEDIATE FREQUENCY455 kg.	PHILCO TUBES 185 converter, 1U4 is amplifier, 1U5 detector-a.v.c. 1st audio, 3V4 output	BATTERY TYPE P144 "B" battery P77 "A" battery
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MODEL B650

ALIGNMENT PROCEDURE

GENERAL—Allow the set and the test equipment to warm up for fifteen minutes before starting the alignment procedure.

TUNING DIAL—Before proceeding with the alignment, set the index mark on the tuning dial to coincide with the index mark located on the chassis. See figure 1. The plates of the tuning condensers will be fully meshed.

OUTPUT INDICATOR—Connect the output indicator (a 1000-ohm-per-volt, a-c voltmeter, or an oscilloscope) across the voice-coil terminals.

SIGNAL GENERATOR—Use an AM r-f signal generator. Connect the ground lead to the chassis, and connect the output lead as indicated in the alignment chart.

OUTPUT LEVEL — Attenuate the signal-generator output throughout the alignment so as to maintain the output level below .3 volt.

RADIO CONTROLS—Set the volume control to maximum. Set the tuning control as indicated in the alignment chart. Set the Battery Saver Switch to the HI position.

MODEL B650

ALIGNMENT CHART

	SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Connect signal generator through a .l-µf. condenser to pin 6 (converter grid) of 1R5.	455 kc.	Tuning gang fully open.	Adjust for maximum output in order given.	TC3—2nd i-f sec. TC2—1st i-f sec. TC1—1st i-f pri.
2	Use radiating loop. (See NOTE 1 below.)	1620 kc.	1620 kc. (See NOTE 2 below.)	Adjust for maximum output.	ClB—osc. trimme
3	Same as step 2.	1400 kc.	1400 kc. (See NOTE 2 below.)	Adjust for maximum output.	C1A—antenna trimmer
4	Same as step 2.	600 kc.	600 kc. (See NOTE 2 below.)	Adjust for maximum output. Rock tuning gang while mak- ing this adjustment.	L1—antenna adjusting winding

- NOTE 1: Use a 6-to-8-turn, 6-inch-diameter loop made up of insulated wire. Connect to generator terminals, and place about one foot from radio loop.
- NOTE 2: The tuning condenser can be set to the proper frequency by turning the tuning dial until the frequency setting indicated in the chart coincides with the index mark on the chassis. See figure 1.

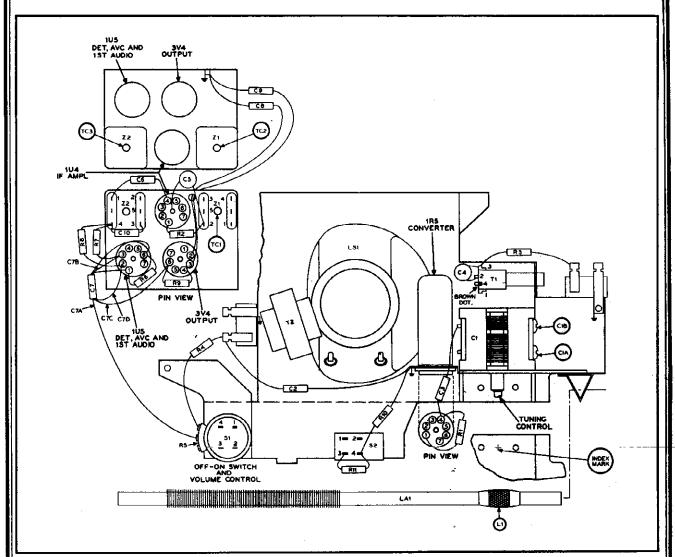
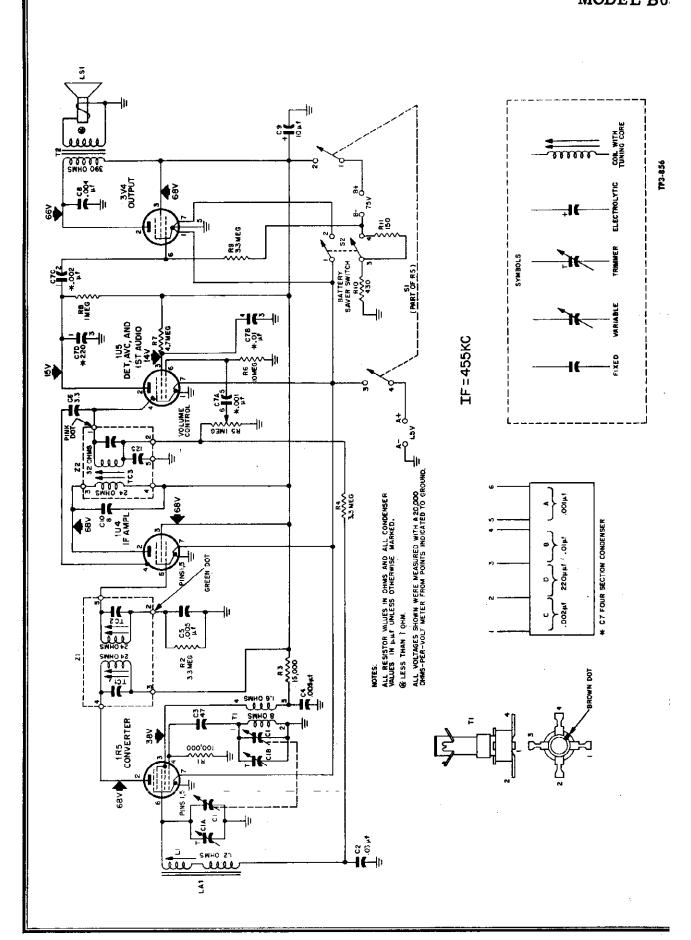


Figure 1. View Showing Tuning Adjustments and Parts Placement



PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Symbol	_	Description	Part No.
ວ	Condenser,	tuning gang	31-2772
CIA	Condenser,		Part of C1
CIB	Condenser,	trimmer, oscillator	Part of C1
CS	Condenser,	a-v-c by-pass, .03 µ	30-4650-0
ొ	Condenser,		62-047009011
2	Condenser,		30-1238-1
3	Condenser,		.30-1238-1
8	Condenser,		30-1221
હ	Condenser,		
C7A	Condenser,		Part of C7
C7B	Condenser,		uf
C7C	Condenser,	d-c blocking, .002	Part of C7
C1D	Condenser,		Part of C7
క	Condenser,		30-4650-56
පී	Condenser,	Condenser, electrolytic, filter, 10 pf30-2417-32	30-2417-32
CI0	Condenser,	Condenser, plate by-pass, 8 \(\mu \n \text{\mu} \)f30-1224-46	30-1224-46
[A]	Coil, antenna	Da	32-4600
LSI	Loudspeaker	***************************************	36-1652
RI	Resistor, gr	Resistor, grid leak, 100,000 ohms66-4108340	66-4108340
1 2	Resistor, gr	Resistor, grid leak, 3.3 megohms66-5338340	66-5338340
R3	Resistor, sci	Resistor, screen dropping, 15,000 ohms66-3158340	66-3158340
R4	Resistor, a-	Resistor, a-v-c load, 3.3 megohms	66-5338340
33	Resistor, vo	Resistor, volume control, 1 megohm33-5566-50	33-5566-50
R6	Resistor, gr	grid leak, 10 megohms	66-6108340
R7	Resistor, sci	Resistor, screen dropping, 4.7 megohms66-5478340	ns66-5478340
R8	Resistor, pla	plate load, I megohm	
R9	Resistor, gr	grid leak, 3.3 megohms66-5338340	66-5338340
R10	Resistor, bis	bias, 3V4, 430 ohms	66-1438340
R11	Resistor, ba	battery economizer, 150 ohms66-1158340	566-1158340

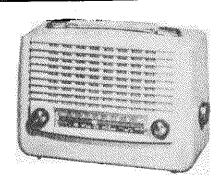
Reference Symbol	Ce Description	Service Part No.
S1	Switch, on-off	Part of R5
S2	Switch, battery economizer 42-1796-6	42-1796-6
Ţl	Transformer, oscillator 32-4574	32-4574
12	1	32-8628
12		2-4160-13A
22	Transformer, 2nd i-f32-4454-1A	32-4454-1A

MISCELLANEOUS

	Service
Description	Part No.
Cabinet, cherry11006-3	11006
Back, cabinet, cherry54-6077-3	54-6077-
Handle, cabinet, cherry54-6078-3	54-6078-3
Cabinet, sand11006-1	11006-
Back, cabinet, sand54-6077-1	54-6077-
Handle, cabinet, sand	54-6078-1
Cabinet, colonial green11006-2	11006-2
Back, cabinet, colonial green	54-6077-2
Handle, cabinet, colonial green	
Cable, battery41-3988-3	41-3988-3
Dial scale	54-608
Handle, battery-saver switch54-6081	54-6081
Knob, volume54-6082	54-608
Knob, tuning54-6082-1	54-6082-1
Socket, tube (2), 105, 3V427-6265-6	27-6265-6
Socket, tube (2), 1R5, 1U4	27-6265-7

SPECIFICATIONS

CABINET B656	
CIRCUIT	Five-tube superheterodyne (plus selenium rectifier)
FREQUENCY RANGES Standard broadcast Special services	
AUDIO OUTPUT	160 milliwatts
	S
DOWED CONCLINIONION	r



MODEL B656

POWER CONSUMPTION	MODEL BOSO
Battery operation	
AERIAL	Magnecor high-impedance loop; provision for connecting external aerial
INTERMEDIATE FREQUENCY	265 kc.
PHILCO TUBES	1T4 r-f amplifier, 1R5 converter, 1U4 i-f amplifier, 1U5 det.—a.v.c.—1st audio 3V4 output
BATTERY TYPE	Philco P-274

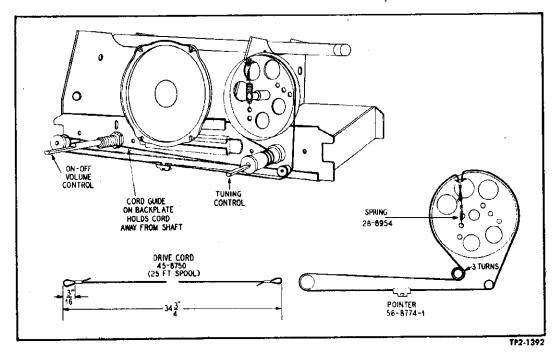


Figure 1. Drive-Cord Installation Details

MODEL B656

ALIGNMENT PROCEDURE

POINTER—Set pointer to coincide with first index mark from left side of dial backplate (looking at front of dial backplate).

RADIO CONTROLS—Set volume control to maximum; set hroadcast-special services switch, SW1, as indicated in chart.

OUTPUT METER --- Connect across voice-coil terminals.

SIGNAL GENERATOR-Use modulated output.

OUTPUT LEVEL—During alignment, adjust signalgenerator output to maintain output-meter indication below .5 volt.

CRITICAL LEAD DRESS—To secure proper padding capacity, the green lead from pin 6 of the 1R5 tube to Z1 must be dressed over the wiring panel, away from the chassis. The white lead which connects the low end of the aerial (LA1) to the broadcast-special services switch (SW1), must be dressed taut between the low-end tie lug and the retaining spring.

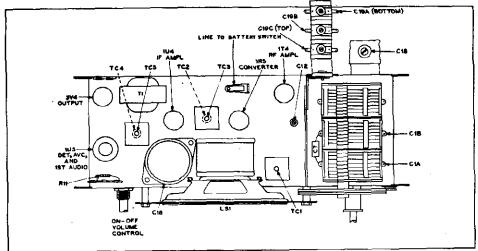


Figure 2. Top View, Showing Trimmer Locations

TP2-1394

	SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST TRIMMER	
1	Through a .l.µf. condenser to pin 6 of 1R5 converter.	265 kc.	1630 kc. (gang fully open)	Set broadcast-special services switch to broadcast position. Adjust, in order given, for maximum output.	TC5—2nd i-f sec. TC4—2nd i-f pri. TC2—1st i-f pri. TC3—1st i-f sec.	
2	Radiating loop. See note below.	1630 kc.	*1630 kc. (gang fully open)	Adjust for maximum output, If low-frequency dial tracking is far off, make adjustments in steps 3 and 4 before making this adjustment.	C1B—osc. shunt	
3	Same as stop 2.	580 kc.	580 kc.	Adjust for maximum output while rocking tuning control.	Cl2—osc. series	
4	Same as step 2.	580 kc.	580 kc.	Adjust for maximum output. This adjustment should not be made unless dial tracking is off, or sensitivity is low at low-frequency end (580 kc.).	TC1—r-f sec.	
5	Same as step 2.	1500 kc.	1500 ke. (index mark at right)	Adjust, in order given, for maximum output.	C1A—r-f C19A—BC aerial	
6	Repeat steps 3 and 5 until no f	urther improven	nent is obtained			
7	Same as step 2.	3000 ke.	3000 kc.	Set broadcast-special services switch to special services position. Adjust, in order given, for maximum output.	C19C—SS aerial C18—r-f	
8	Same as step 2.	1900 kc.	1900 kc.	Adjust, in order given, for maximum output.	C19B —SS serial series tracker	
9	Repeat steps 7 and 8, and then	repeat step 5.				

NOTE: Make up a six-to-eight-turn, 6-inch diameter loop using insulated wire; connect to signal-generator leads and place near radio loop.

* For proper adjustment of the oscillator trimmer, fully open the tuning gang and insert a .006-inch, non-metallic shim between the heel of the rotor and the top of the stator plates. Close the tuning gang sufficiently to hold the shim in place, and then remove the shim without disturbing the gang setting.

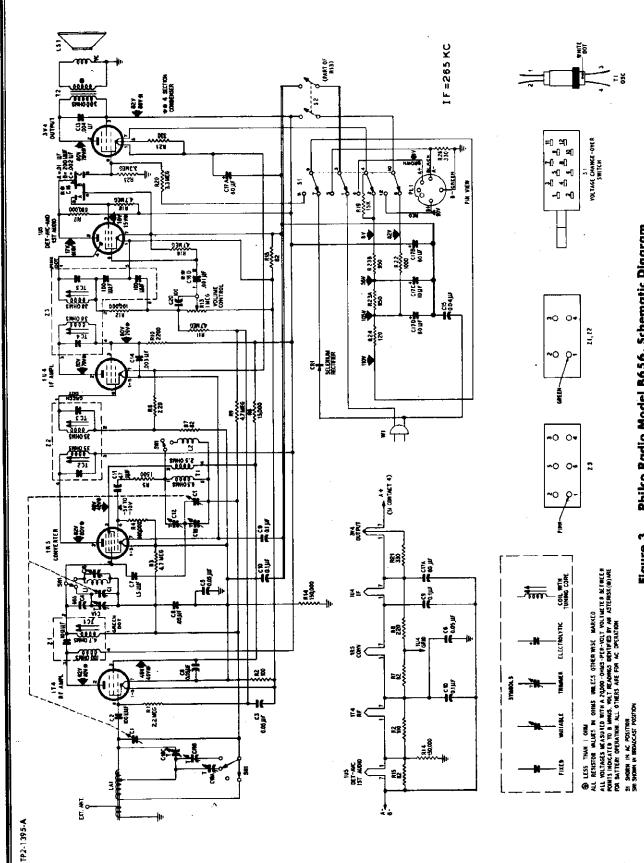


Figure 3. Philco Radio Model B656, Schematic Diagram

MODEL B656

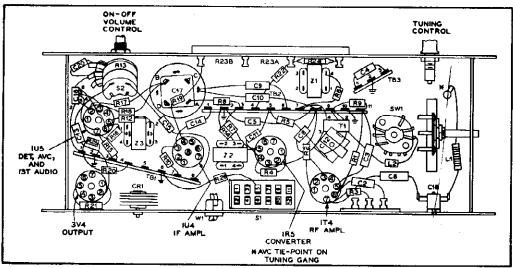


Figure 4. Bottom View, Showing Symbolized Chassis

TP2-1393-A

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

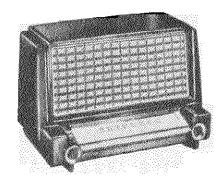
	ordering replacements, us	
Reference Symbol	Condenser, tuning gang, 3-section	Service Part No.
C1	Condenser, tuning gang, 3-section	31-2748-5
CIA	Condenser, r-f trimmer	Part of C1
ClB	Condenser, osc. trimmer	Part of C1
C2	Condenser, d-c blocking, 100 µµf.	62-110009001*
C3	Condenser, bias filter, .05 µf.	61-0122*
C4	Condenser converter tracking 685f	30 1000 BB
Č5	Condenser, converter tracking, 665 µµf Condenser, filament by-pass .05 µf	61_0199*
Č6	Condenser, manient by-pass 100 pr	01-0122 01 01000
C7	Condenser, screen by-pass, 0.5 µf. Condenser, neutralization, 1.5 µµf. Condenser, a-v-c filter, 0.5 µf. Condenser, flament by-pass, .1 µf.	20 1001 2
Č8	Contenser, neutralization, 1.5 µµr.	
Č9	Condenser, a-v-c miter, .05 ar.	01-0122
	Condenser, filament by-pass, .1 µt	61-0113*
C10	Condenser, filament by-pass, 1 µf	61-0113°
C11	Condenser, d-c blocking, 47 µµf.	60-00475420
C12	Condenser, osc. series padder, 700 to 900 µ	μf31-6473-28
C13	Condenser, tone compensation .004 µf	61-0179
C14	Condenser, screen neutralizing .003 µf	45-3505-61
C15	Condenser, line by-pass, .04 uf.	45-3500-2*
C16	Condenser, ceramic, 4-section	30-1237
C16A	Condenser, screen by-pass, .01 µf.	Part of C16
C16B	Condenser by pass 200f	Port of C18
Č16C	Condenser, by-pass, 200 µµf	Power of C16
CIGD	Condenses de blocking, 1002 µI.	Down of C10
C17	Condenser, d-c blocking, .001 µf	rarror C10
C17A	Condenser, electrolytic, 4-section	30-2568-58
C17B	Condenser, mament by-pass, ou µr	Part of C17
	Condenser, filter, 60 uf.	Part of C17
C17C	Condenser, filter, 10 µf.	Part of C17
C17D	Condenser, filter, 60 µf.	Part of C17
C18	Condenser, SS hi-frequency r-f trimmer Condenser, aerial trimmer, 3-section	31-6476-27
C19	Condenser, aerial trimmer, 3-section	31-6477-16
C19A	Condenser, BC hi-frequency	
C19B	Condenser, SS low-frequency	Part of C19
C19C	Condenser, BC hi-frequency Condenser, SS low-frequency Condenser, SS hi-frequency	Part of C19
C20	Condenser, compensating, high-frequency,	
CR1	Selenium rectifier	
L2	Coil, oscillator shunt	34-8003*
LAI	Cori, oscinator shunt	32-4562
LSI	Coil, aerial	32-4565
	Speaker, 5-inch	36-1625
PLI	Plug-and-cable assembly, battery Resistor, grid return, 2.2 megohms	41-3712-5
Ri	Resistor, grid return, 2.2 megohms	66-522 8340°
R2	Resistor, current limiting, 100 ohms	66 -1108340°
R3	Resistor, grid return, 4.7 megohms	66-5 478340°
R4	Resistor, grid return, 100,000 ohms	66-4 108340*
R5	Resistor, oscillator coupling, 1500 ohms	66-2158340*
R6	Resistor, dropping, 15,000 ohms	66-3158340*
R7	Resistor, grid return, 82 ohms	RR_0R2R340*
R8	Resistor, grid return, 220 ohms	66-1998340*
R9	Resistor, a-v-c filter, 4.7 megohms	RS_5478240*
RIO	Resistor neutralization 2200 ohme	## 00000 AV
RII	Resistor, neutralization, 2200 ohms Resistor, a-v-c filter, 4.7 megohms	**************************************
R12	Resistor, i-f filter, 100,000 ohms	"UPC012G-00
R13	Resistor volume sented 1 mag-1	00-410634U*
R14	Resistor, volume control, I megohm	20-0U1-21
	Resistor, leakage, 150,000 ohms	66-4158340*
R15	Resistor, current limiting, 82 ohms	66-0828340
R16	Resistor, grid return, 4.7 mcgohms	
R17	Resistor, plate load, 680,000 ohms	66-4688340*

Reference Symbol	Description	Service Part No.
R18	Resistor, screen dropping, 4.7 megohms	66-5478340°
R19	Resistor, filament, 15,000 ohms	66-3153546
R20	Resistor, grid return, 3.3 megohms	66-5338340
R21	Besistor, current limiting 330 ohms	66-13383405
R22	Resistor, filter, 1000 ohms	66-2108340*
323	Resistor, wire-wound, 2-section	33-3431-7
R23A	Resistor, filament dropping, 950 ohms	Part of R23
R23B	Resistor, filament dropping, 950 ohms	Part of R23
324	Resistor, wire-wound, current limiting, 120 of	ohms 33-1334-14
₹25	Resistor, grid return, 3.3 megohms	66-5338340
₹26	Resistor, bias resistor (battery operation),	
	330 ohms	66-1338340
51	Switch, change-over	
32	Switch, on-off	Part of R13
W1	Band switch	42-1980
r i	Transformer, oscillator	
72	Transformer, output	32-852
W1	Line cord	L218
51	Transformer, r-f	32-4399-6
.2	Transformer 1st i-f	20.4160.07
Z 3	Transformer, 2nd i-f	32-4240-6/
	MISCELLANEOUS	
Pescription	1	Service Part No
Cabinet, 1	light beige	
Book 1	ight hoige	¥4 400°

MISCELLANE	ANEOUS	
Description	Service Part No.	
Cabinet, light beige	10883-4	
Back, light beige		
Clip, back (2)	56-3807-3	
Handle assembly	76-7719	
Scale, light beige	54-5148	
Knob (2)	54-4773-1	
	54-4816-4	
Cabinet, pine green		
Back, pine green	54-4903-2	
Clip, back (2)	56-3807-3	
Handle assembly		
Scale, pine green		
Knob (2)	54-4773-5	
Knob (1)	76-6206-1	
Cabinet, charcoal gray	10883-6	
Back, charcoal gray	54-4903-3	
Clip, back (2)	56-3807-3	
Handle assembly		
Scale, charcoal gray		
Knob (2)		
	54-4816-6	
Dial-backplate assembly	76-7720	
Drive cord, 25-ft. spool		
Pointer		
Spring, drive cord		
Shaft-and-pulley assembly	76-7637	
Mount, rubber (3)	27-4596	
	57-1868FA11	
Shield, IU5 tube	56-5629FA3	
Socket (3)	27-6203	
Socket, 1U5 tube (1)	27-6203-22	
Socket. 3V4 tube (1)	27-6203-12	

SPECIFICATIONS

CABINET	Phenolic, brown
CIRCUIT	e-tube superheterodyne (plus rectifier)
FREQUENCY RANGE Broadcast	540—1620 kc.
Special Services AUDIO OUTPUT	1700—3400 kc. l watt
OPERATING VOLTAGE	
POWER CONSUMPTION	30 watts
ANTENNA	Built-in, high-impedance loop
INTERMEDIATE FREQUENCY	455 kc.
PHILCO TUBES61	BJ6 r-f ampl.; 12BE6 converter; 6BJ6 i-f ampl.; 6AQ6 det., a.v.c., 1st audio; 35C5 output: 35W4 recifier



MODEL BY64

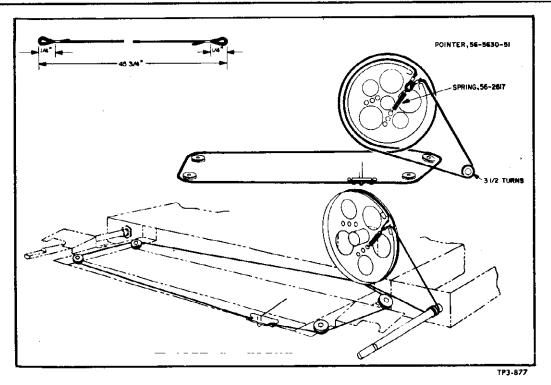


Figure 1. Drive-Cord Installation Details

MODEL B964

GENERAL

ALIGNMENT PROCEDURE

RADIO CONTROLS—Set volume control for maximum output and tuning control as given in the alignment chart. Set band switch to broadcast position for first 5 steps, and to special services position for steps 6 and 7.

OUTPUT INDICATOR—Connect output indicator (either on oscilloscope or a 1000-ohms-per-volt, a-c voltmeter) across voice-coil terminals.

SIGNAL GENERATOR—Use an AM r.f generator, connected as indicated in the alignment chart.

OUTPUT LEVEL—During alignment, attenuate signal-generator output to maintain output indication below I volt.

DIAL POINTER—Before the alignment is started, the dial pointer should be set to coincide with the dial scale mark to the left of "55" when the tuning gang is fully meshed.

ALIGNMENT CHART

	SIGNAL GENERATOR		*	RADIO	
41 41 41	CONNECTION TO RADIO	DIAL	DIAL	SPECIAL INSTRUCTIONS	ADJUST
	Ground lead to B— Output lead through a .01-µf. condenser to pin 7 (mixer grid) of 12BE6,	455 kc.	Tuning gang fully open.	Tuning gang fully open. Adjust in order given in TCS-2nd i-f sec. next column, for maximum TC4-2nd i-f pri. TC3-1st i-f sec. TC2-1st i-f pri.	TC5—2nd if sec. TC4—2nd if pri. TC3—1st i-f sec. TC2—1st i-f pri.
2	Radiating loop. See note 1 below.	1620 kc.	1620 kc. See note 2 below.	Adjust for maximum output, CIC-osc. trimmer	C1C-osc. trimmer
က	Same as step 2.	1520 kc.	Tune radio to generator signal.	Adjust for maximum output. C1B-mixer-grid (High-frequency adjustment) trimmer C1A-r-f trimme	C1B—mixer-grid trimmer C1A—rf trimmer
4	Same as step 2.	580 kc.	Same as step 3.	Adjust for maximum output. TC1-r-f transformer (Low-frequency adjustment)	TC1—r-f transformer
2	Repeat steps 3 and 4 until no further improvement is obtained.	ırther impro	vement is obtained.	:	
٥	Same as step 2.	3200 kc.	Same as step 3.	Adjust for maximum output. C5—special-services mixer-grid trimmer C2—special-services r-f trimmer	C5—special-services mixer-grid trimmer C2—special-services r-f trimmer
7	Same as step 2.	1800 kc.	Same as step 3.	Adjust for maximum output. C3-special-services	C3-special-services r-f padder

NOTE 1: Make up a 6-8 turn, 6-inch-diameter loop from insulated wire; connect to signal-generator leads and place near radio loop antenna. The loop antenna must be connected to the radio.

NOTE 2: To set the tuning gang to 1620 kc., place a piece of 6-mil flat shim stock beneath the heel of the rotor, and turn the rotor until it holds the shim firmly in place. Then remove the shim.

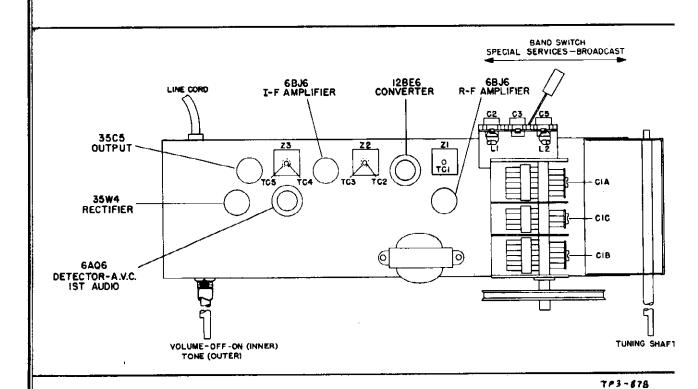


Figure 2. Top View, Showing Tuning Adjustments

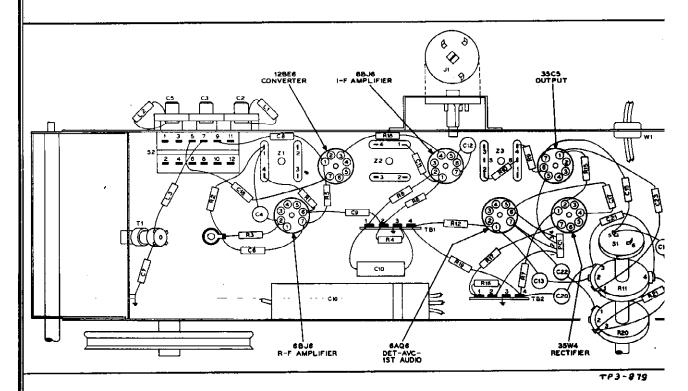


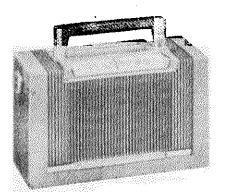
Figure 3. Base View, Showing Parts Placement

PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts. Also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation will be unchanged. When ordering replacements, use only the "Service Part No."

Symbol	Description Service Part No.	Reference Symbol	Description	Serv Part
C1	Condenser, tuning gang, 3 section31-2771-1	R13	Resistor, plate load, 500,000 ohms .	Part of
CIA	Condenser, trimmer, antennaPart of C1	R14	Resistor, grid leak, 500,000 ohms	Part of 1
C1B	Condenser, trimmer, r-fPart of C1	R15	Resistor, cathode bias, 150 ohms,	
CIC	Condenser, trimmer, oscillatorPart of Cl		1 watt	
C2	Condenser, trimmer, special services r-f Part of CA1	R16	Resistor, B+ filter, 1200 ohms	
C3	Condenser, padder, special services r-f Part of CA1	R17	Resistor, B+ filter, 220 ohms, 1 watt	
C4	Condenser, r-f by-pass, .01 \(\mu f \) 30-1238-2*	R18	Resistor, tube saver, 100 ohms	
C5	Condenser, trimmer, special services	R19	Resistor, diode load, 470,000 ohms	
	mixer-grid Part of CA1	R20	Resistor, tone control, 5 megohms	Part of :
C6	Condenser, a-v-c by-pass .05 μf30-4650-45°	R21	Resistor, tone compensation,	
C7	Condenser, fixed trimmer, 7.5 µµf30-1224-65		33,000 ohms	
C8	Condenser, d-c blocking, 47 µµf	S1	Switch, off-on	
C9	Condenser, screen by-pass, .05 \(\mu f \)	S2	Switch, broadcast-special services	
C10	Condenser, special, B- to chassis, .1 µf30-4644-3	TI	Transformer, oscillator	
CH	Condenser, i-f coupling, 220 μμf62-122001001*	T2	Transformer, output	
C12	Condenser, screen by-pass, .002 μf30-1238-8*	W1	Line cord	
C13	Condenser, audio coupling, .005 µf30-1238-1*	Z 1	Transformer, r-f	
C14	Condenser, d-c blocking, .005 µfPart of PC1	Z 2	Transformer, 1st i-f	
CIS	Condenser, tone compensation, .0033 µf. 30-4650-55	Z 3	Transformer, 2nd i-f	32-42
C16	Condenser, electrolytic filter45-3037-3			
C16A	Condenser, filter, 30 μ f., 150vPart of C16			
C16B	Condenser, filter, 30 µf., 150v Part of C16		MISCELLANEOUS	
C16C	Condenser, filter, 40 μ f., 150v Part of C16		ADTE COMMON TO ALL MOD	E1 6
C17	Condenser, line by-pass, .047 µf30-4650-45°	f	PARTS COMMON TO ALL MOD	ELS
C17 C18	Condenser, line by-pass, .047 μ f30-4650-45° Condenser, fixed padder, 1030 $\mu\mu$ f30-1220-72		PARTS COMMON TO ALL MOD	
C17 C18 C19	Condenser, line by-pass, .047 μ f30-4650-45° Condenser, fixed padder, 1030 $\mu\mu$ f30-1220-72 Condenser, bass comp., .01 μ f30-1238-2	Description		ELS Serv Part
C17 C18 C19 C20	Condenser, line by-pass, .047 μ f30-4650-45° Condenser, fixed padder, 1030 $\mu\mu$ f30-1220-72 Condenser, bass comp., .01 μ f30-1238-2 Condenser, phono coupling, .005 μ f30-1238-1	Description	1	Serv Part
C17 C18 C19 C20 C21	Condenser, line by-pass, .047 μ f30-4650-45° Condenser, fixed padder, 1030 $\mu\mu$ f30-1220-72 Condenser, bass comp., .01 μ f30-1238-2 Condenser, phono coupling, .005 μ f30-1238-1 Condenser, high comp., 100 $\mu\mu$ f62-110009001	Description Drive core	d, 25-ft. spool	Serv Part 45-87
C17 C18 C19 C20 C21 C22	Condenser, line by-pass, .047 μ f30-4650-45° Condenser, fixed padder, 1030 $\mu\mu$ f30-1220-72 Condenser, bass comp., .01 μ f30-1238-2 Condenser, phono coupling, .005 μ f30-1238-1 Condenser, high comp., 100 $\mu\mu$ f62-110009001 Condenser, tone comp., .002 μ f30-1238-8	Drive core Spring,	d, 25-ft. spooldrive cord	Serv Part 45-87
C17 C18 C19 C20 C21	Condenser, line by-pass, .047 μ f	Description Drive core Spring, Rubber m	d, 25-ft. spooldrive cordount, gang mtg. (3)	Serv Part 45-87. 58-2
C17 C18 C19 C20 C21 C22 C23	Condenser, line by-pass, .047 μf30-4650-45° Condenser, fixed padder, 1030 μμf30-1220-72 Condenser, bass comp., .01 μf30-1238-2 Condenser, phono coupling, .005 μf30-1238-1 Condenser, high comp., 100 μμf62-110009001 Condenser, tone comp., .002 μf30-1238-8 Condenser, cathode by-pass,	Description Drive core Spring, Rubber m Shield, tul	d, 25-ft. spooldrive cordount, gang mtg. (3)be (2)	\$erv Part 45-87 56-29 27-4
C17 C18 C19 C20 C21 C22 C23	Condenser, line by-pass, .047 μf30-4650-45° Condenser, fixed padder, 1030 μμf30-1220-72 Condenser, bass .comp., .01 μf30-1238-2 Condenser, phono coupling, .005 μf30-1238-1 Condenser, high comp., 100 μμf62-110009001 Condenser, tone comp., .002 μf30-1238-8 Condenser, cathode by-pass,	Description Drive core Spring, Rubber m Shield, tul	d, 25-ft. spooldrive cordount, gang mtg. (3)	\$erv Part 45-87 56-29 27-4
C17 C18 C19 C20 C21 C22 C23 CA1	Condenser, line by-pass, .047 μf30-4650-45° Condenser, fixed padder, 1030 μμf30-1220-72 Condenser, bass comp., .01 μf30-1238-2 Condenser, phono coupling, .005 μf30-1238-1 Condenser, high comp., 100 μμf62-110009001 Condenser, tone comp., .002 μf62-110009001 Condenser, cathode by-pass,	Description Drive corr Spring, Rubber m Shield, tul Socket ass Socket, tu	d, 25-ft. spool	45-87 45-87 56-2 27-4 56-56291 27-6203
C17 C18 C19 C20 C21 C22 C22 C23 CA1	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tul Socket, tul	d, 25-ft. spooldrive cord	45-87 45-87 56-2 27-4 56-56291 27-623 27-6203
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1	Condenser, line by-pass, .047 μf	Description Drive cord Spring, Rubber m Shield, tul Socket ass Socket, tul Socket, tul Speed nut	d, 25-ft. spool	45-87
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3	Condenser, line by-pass, .047 μf	Description Drive cord Spring, Rubber m Shield, tul Socket ass Socket, tul Socket, tul Speed nut	d, 25-ft. spooldrive cord	45-87
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1	Condenser, line by-pass, .047 μf	Description Drive cord Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet	d, 25-ft. spool	\$erv Part 45-87. 56-291 27-623 27-6203 27-62 27-62
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PCI R1	Condenser, line by-pass, .047 μ f	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban	d, 25-ft. spool	\$erv Part 45-87. 56-29. 27-623 27-6203 27-6. [W56920H 10. 76-8
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PCI R1 R2	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off-	d, 25-ft. spool	\$erv Part 45-87. 56-29. 27-623 27-6203 27-6. [W56920H 10 76-8 54-484
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PCI R1 R2 R3	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off-	d, 25-ft. spool	\$erv Part 45-87.
C17 C18 C19 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4	Condenser, line by-pass, .047 μf	Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, bar Knob, off- Knob, tone Knob, tun	d, 25-ft. spool	\$erv Part
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4 R5	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff	d, 25-ft. spool	\$erv Part
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4 R5 R6	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff Clip, pa	d, 25-ft. spool	\$erv Part 45-87
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4 R5 R6 R7	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff Clip, pa Pointer	d, 25-ft. spool	\$erv Part 45-87
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4 R5 R6 R7 R8	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off- Knob, ton Knob, tun Panel, diff Clip, pa Pointer	d, 25-ft. spool	\$erv Part 45-87
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PCI R1 R2 R3 R4 R5 R6 R7 R8 R9	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff Clip, pa Pointer Pointer rai Scale, dial	d, 25-ft. spool	\$erv Part 45-87
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PCI R1 R2 R3 R4 R5 R6 R7 R8 R9 R10	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff Clip, pa Pointer Pointer rai Scale, dial Shaft, tun	d, 25-ft. spool	\$erv Part 45-87
C17 C18 C19 C20 C20 C21 C22 C23 CA1 I1 L1 L2 L3 PC1 R1 R2 R3 R4 R5 R6 R7 R8 R9	Condenser, line by-pass, .047 μf	Description Drive core Spring, Rubber m Shield, tul Socket ass Socket, tu Socket, tu Speed nut Cabinet Knob, ban Knob, off- Knob, tone Knob, tun Panel, diff Clip, pa Pointer Pointer rai Scale, dial Shaft, tun Spring,	d, 25-ft. spool	\$erv Part 45-87

SPECIFICATIONS



MODEL B651

MODEL B651

CABINET	Molded plastic
CIRCUIT	Four-tube superheterodyne
FREQUENCY RANGE	(plus selenium rectifier) 540 kc.—1620 kc.
AUDĪO OUTPUT	
A.C. or d.c	
Battery	75 milliwatts
OPERATING VOLTAGE	
Line operation	
Battery operation	2 D cells and 67½-volt "B" battery
POWER CONSUMPTION	
A-C or d-c operation	15 watts10 ma. from 67½-volt "B" battery;
Battery operation	10 ma. from 671/2-volt "B" battery;
1 17777471111	260 ma. from 2 D cells
ANTENNA	Magnecor high-impedance loop with
INTERMEDIANE ERECTIONAL	provision for external antenna
INTERMEDIATE FREQUENCY PHILCO TUBES	455 kc.
PHILCO TUBES	1R5, converter;
	1U4, i-f amplifier;
	1155 delector o v.o. let andio.
	1U5, detector-a.v.clst audio;
RATTEDY TVDE	2374
BATTERY TYPE	

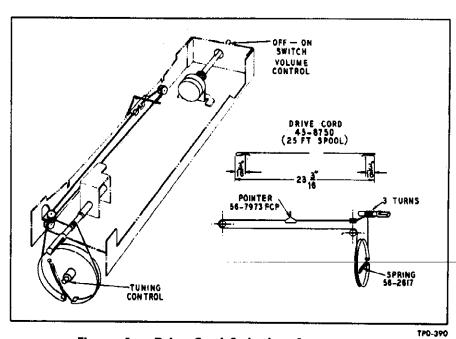


Figure 1. Drive-Cord Stringing Arrangement

MODEL B6

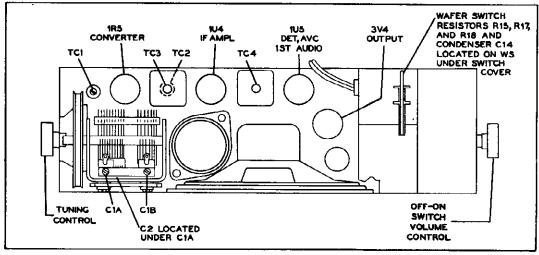


Figure 2. Top View, Showing Tuning Adjustments

TPO-392

ALIGNMENT PROCEDURE

DIAL POINTER—With tuning-condenser plates fully meshed, set pointer to coincide with alignment index mark on bottom of chassis.

OUTPUT INDICATOR — Connect output indicator (oscilloscope or 1000-ohms-per-volt a-c voltmeter) across voice-coil terminals.

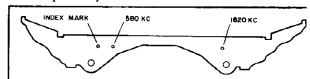
SIGNAL GENERATOR—Use AM r-f signal generator. Connect output leads as indicated in alignment chart.

RADIO CONTROLS—Set volume control to maximum. Set tuning control as indicated in chart.

OUTPUT LEVEL - During alignment, attenuate

signal-generator output to maintain output level belo .5 volt.

NOTE: While the radio is being aligned, the batteri should be in the same position with respect to chass and loop as they are when in the cabinet.



igure 3. Front View of Pointer Rail,
Showing Alignment Marks

ALIGNMENT CHART

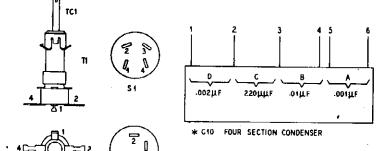
	' SIGNAL GENERATOR	R			
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	TZULGA
1	Output lead through a .l-µf. condenser to antenna section of tuning condenser or to pin 6 of converter (1R5). Ground lead to B		Tuning gang fully open.	Adjust, in order given for maximum output.	TC4—2nd i-f sec. TC2—1st i-f pri. TC3—1st i-f sec.
2	Radiating loop. See NOTE below.	1620 kc.	1620 kc.†	Adjust for maximum output.	C1B—osc. trimm
3	Same as step 2.	Between 1400 and 1500 kc.	Tune radio to generator signal.	Adjust for maximum output.	ClA—antenna trimmer
4	Same as step 2.	580 kc.	580 kc.†	Adjust for maximum output. Rock tuning gang while making this adjustment.	TCl—osc. core

NOTE: Use a 6-8 turn, 6-inch diameter loop made up of insulated wire. Connect to signal-generator leads, and place about 1 foot from radio loop antenna.

† The radio can be set to this frequency by tuning it until the dial pointer coincides with the proper alignment mark on the bottom of the chassis. See figure 3.

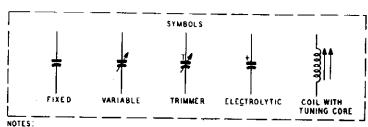






TUBE SOCKET VOLTAGES

	11	185		1 U4		105		374	
0 SUPPLY	R F PLATE PIN 2	OSC PLATE PIN 3	PLATE PIN 2	SCREEN PIN 3	PLATE PIN 2	SCREEN PIN 3	PLATE PIN 2	SCREEN PIN 3	
PWR LINE (AC OR DC)	90	55	90	90	18	16	86	90	
6716V BATTERY	65	38	65	65	17	16	62	65	



ALL RESISTOR VALUES IN OHMS AND ALL CONDENSER VALUES IN HILF UNLESS OTHERWISE MARKED.

⊕ LESS THAN 1 OHM

ALL VOLTAGES SHOWN WERE MEASURED WITH A 20,000-OHMS-PER-VOLT METER FROM POINTS INDICATED TO B-.

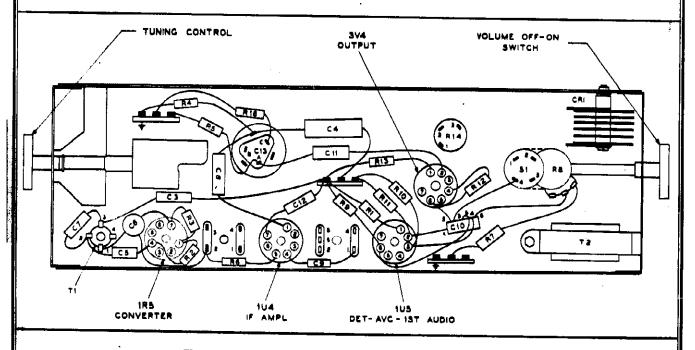


Figure 5. Base View, Showing Parts Placement

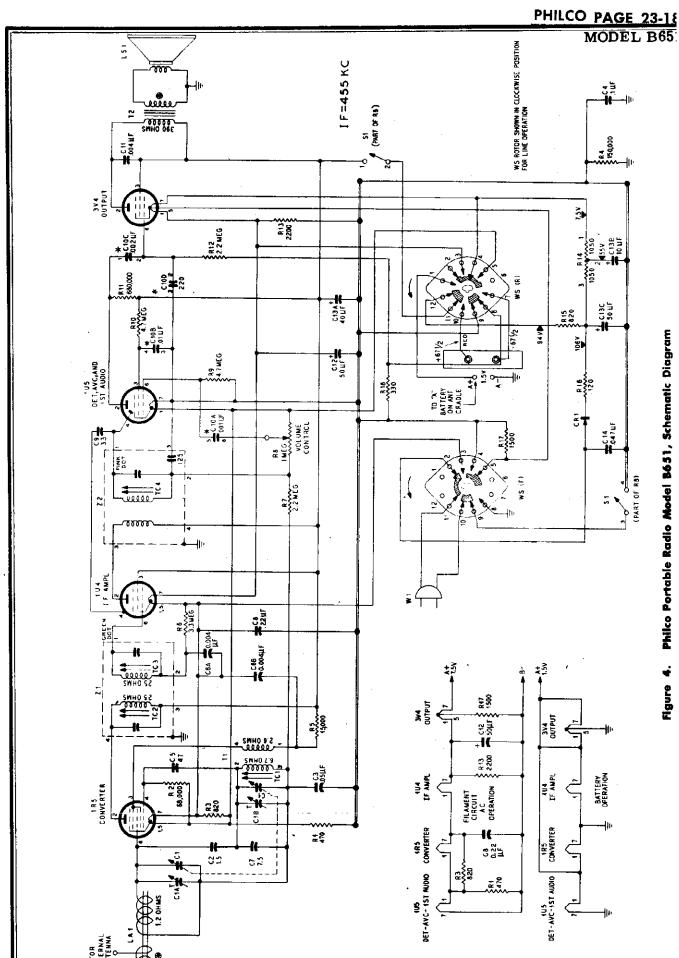


figure 4. Philco Portable Radio Model B651, Schematic Diagram

MODEL B651

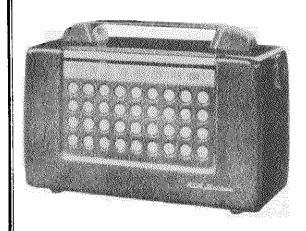
PARTS LIST

NOTE: Part numbers identified by an asterisk (*) are general replacement items. These numbers may not be identical with those on factory parts; also, the electrical values of some replacement items may differ from the values indicated in the schematic diagram and parts list. The values substituted in any case are so chosen that the operation of the radio will be unchanged. When ordering replacements, use only the "Service Part No."

C1A C C1B C C1B C C2	Condenser, tuning gang, 2-section	R13 R14 R15 R16 R17 R18 S1 T1 T2 W1 WS Z1 Z2	Resistor, bias, 2200 ohms	er,
C1B C C2	Condenser, trimmer, oscillator	R15 R16 R17 R18 S1 T1 T2 W1 WS Z1 Z2	2100 ohms (center-tapped) Resistor, filter, 820 ohms Resistor, current limiting, 120 ohms Resistor, bias, 1500 ohms Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	
C9 C3 C4 C5 C6 C6A C6B C7 C6B C6C10A C6C10B C6C10B C6C11A	Condenser, neutralizing, 1.5µµf	R16 R17 R18 S1 T1 T2 W1 WS Z1 Z2	Resistor, filter, 820 ohms Resistor, current limiting, 120 ohms Resistor, bias, 1500 ohms Resistor, bias, 330 ohms Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	
C3 C4 C5 C5 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6 C6	Condenser, a-v-c by-pass, .05 μ f	R16 R17 R18 S1 T1 T2 W1 WS Z1 Z2	Resistor, current limiting, 120 ohms Resistor, bias, 1500 ohms Resistor, bias, 330 ohms Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	
C4 C C5 C C66 C C68 C C7 C C8 C C9 C C10A C C10B C C10C C C10C C C10D C C111 C C12 C C13 C C13A C	Condenser, B- to ground, .1 \(\mu f \)	R17 R18 S1 T1 T2 W1 WS Z1 Z2	Resistor, bias, 1500 ohms Resistor, bias, 330 ohms Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	
24	Condenser, B- to ground, .1 \(\mu f \)	R18 S1 T1 T2 W1 WS Z1 Z2	Resistor, bias, 330 ohms Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	86-1338340°
C5 C66 C66 C66 C68 C69 C60 C60 C60 C60 C60 C60 C60 C60 C60 C60	Condenser, d-c blocking, 47 µµf	SI T1 T2 W1 WS Z1 Z2	Switch, off-on Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	
C6A C6B C7 C6B C6C C10A C6C C10B C6C C1	Condenser, osc. B+ by-pass, .004 \(\mu f \)	T1 T2 W1 WS Z1 Z2	Transformer, oscillator Transformer, output Line cord Wafer switch, voltage change-over. Transformer, 1st i-f Transformer, 2nd i-f	32-4453-1 32-8434 L2163 42-1928 82-4160-4A
C6A C C6B C C7 C C8 C C9 C C10A C C10B C C10C C C10D C C111 C C12 C C13 C C13A C	Condenser, osc. B+ by-pass, .004 \(\mu f \)	T2 W1 WS Z1 Z2	Transformer, output	32-8434 L2183 42-1928
C6B C C7 C C8 C C9 C C10A C C10B C C10C C C10D C C111 C C12 C C13 C C13A C	Condenser, grid by-pass, .004 μ f	W1 WS Z1 Z2	Wafer switch, voltage change-over. Transformer, 1st i-f	42-1925 82-4160-4 <i>A</i>
8	Condenser, temperature compensation, 7.5 \(\mu \mu \text{f} \). Condenser, filament by-pass, .25 \(\mu \text{f} \). Condenser, neutralizing, 3.3 \(\mu \mu \text{f} \). Condenser, ceramic, 4-section	WS Z1 Z2 Descriptio	Wafer switch, voltage change-over. Transformer, 1st i-f	42-1925 82-4160-4 <i>A</i>
C10A C10B C10C C10D CC111 CC12 CC13A CC13A CC13A CC13A CC	7.5 \(\mu\mu\mu\mathref{f}\). \(\ldots\) \(\mu\mathref{f}\). \(\ldots\). \(\mu\mathref{f}\). \(\mu\mathref{f}	Z1 Z2 Descriptio	Transformer, 2nd i-f	82-4160-4 <i>A</i>
C10A C C10B C C10C C C10D C C111 C C12 C C13 C	Condenser, filament by-pass, .25 μ f30-4656-1 Condenser, neutralizing, 3.3 $\mu\mu$ f30-1221 Condenser, ceramic, 4-section30-1237 Condenser, d-c blocking, .001 μ fPart of C10 Condenser, screen by-pass, .01 μ fPart of C10 Condenser, d-c blocking, .002 μ fPart of C10	Z2 Descriptio	Transformer, 2nd i-f	
C10A C C10B C C10C C C10D C C111 C C12 C C13A C	Condenser, neutralizing, 3.3 $\mu\mu$ f	Descriptio		32-4454-1 A
C10A C C10B C C10B C C10C C C10D C C11 C C12 C	Condenser, ceramic, 4-section			
C10A C C10B C C10C C C10D C C11 C C12 C	Condenser, d-c blocking, .001 μ fPart of C10 Condenser, screen by-pass, .01 μ fPart of C10 Condenser, d-c blocking, .002 μ fPart of C10		MISCELLANEOUS	
C10B C C10C C C10D C C11 C C12 C C13 C	Condenser, screen by-pass, .01 μ fPart of C10 Condenser, d-c blocking, .002 μ fPart of C10			
C10C C C10D C C11 C C12 C C13 C	Condenser, d-c blocking, .002 µfPart of C10			
C10D C C11 C C12 C C13 C			•	Service Part No.
011 C 012 C 13 C C13A C	Condenser, grid by pass, 220 pprart or Cro	Cabine	t, sand	_
12 C 13 C C13A C	Condenser, tone compensation, .004 µf. 30-4650-56°		c, cabinet, sand	
13 C	Condenser, electrolytic.		t, driftwood	
C13A C	filament by-pass, 50 μ f., 25 ν 30-2417-12		cabinet, driftwood	
C13A C	Condenser, electrolytic, 3-section30-2568-39		t, spruce green	
-	Condenser, filter, 40 \(\mu f\), 150vPart of C13		c, cabinet, spruce green	
C13B C	Condenser, filter, 10 μ f., 150vPart of C13			
_	Condenser, filter, 50 μ f., 150vPart of C13		battery	
			sub-base	
	Condenser, line by-pass, .047 µf30-4650-45*		switch	
•	Selenium rectifier, 75 ma. at 117 volts34-8003		ale	
	Loop untenna		cord (25-ft. spool)	
	Speaker, 4-inch, p-m36-1637		er, baffle mtg. (4 required)	
	Resistor, current limiting, 470 ohms66-1478340*		3, 16.5777555777766612 0055555566665577 577417 666666 77174 66666 77747766 77	
	Resistor, grid return, 68,000 ohms68-3688340*	Hinge,	R.H	56-7915-1
	Resistor, bias, 820 ohms66-1828340*		L.H	
4 R	Resistor, leakage, 150,000 oluns66-4158340°		or, capacitor mtg.	
5 R	Resistor, oscillator dropping,	Knob ((2 requir ed)	54-4773
	15,000 ohms66-3158340°	Namep	late	54-4884
	Resistor, grid return, 3.3 megohnis66-5338340*	Pointer		56-7978-1
	Resistor, a-v-c filter, 2.2 megohms66-5228340°	Ring, s	haft retaining	28-8610
8 R	Resistor, VOLUME control		r mount, tuning capacitor (3 required	
	(with "off-on" switch), 1 megohm33-5566-21		hinge (2 required)	•
	Resistor, grid return, 4.7 megohms66-5478340*		nuts, nameplate mtg. (2 required)	
	Resistor, screen dropping, 4.7 megohms66-5478340*	-	tuning	
	Resistor, plate load, 680,000 ohms66-4688340*		tube (1U5)	
112 R	Resistor, grid return, 2.2 megohms66-5228340*			
			Shifted before the state of the	
			cradle and antenna ass y.	

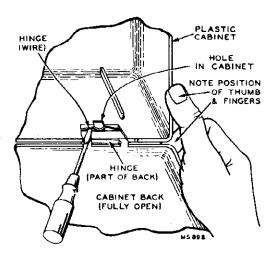
RADIO CORPORATION OF AMERICA PAGE 2 MODEL PX600, Ch. RC-11

Specifications



To Remove Hinges

Remove back from cabinet as described at right. Spread the hinge apart to remove it from the cabinet back.



Removal of Cabinet Back

Power Supply Rating Power Line Operation Battery Operated using RCA VS 057 Battery (Average battery life — 100 hrs. intermittent service) **Tube Complement** (2) RCA 1R5 Converter
(3) RCA 1T4 I.F.-Amplifier (4) RCA 1U5 Det. — AVC — 1st A.F. (5) RCA 3V4 Output A selenium rectifier is used. Weight (Approx.) With battery...9 lb. 6 oz Without battery ... 5 lb. 10 oz. Power Output ,150 wat Undistorted4 in. P.M Cabinet Dimensions
Height 8% in. Width 12% in. Depth 5% ir

To Remove Chassis:

- 1. Pull out battery and disconnect battery plug.
- 2. Unsolder the two loop antenna leads.
- Remove handle, remove the two large screws (under handle) in the top of the case.

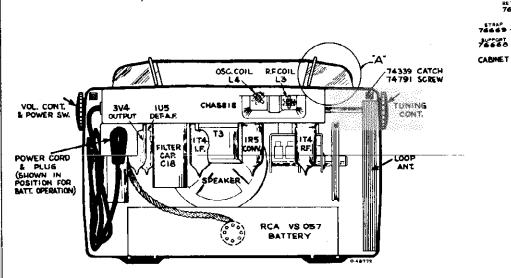
To Remove Cabinet Back

With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull the back straight to the rear using both hands.

76662

DETAIL "A"

76670



Rear View With Back Removed

PAGE 23-2 RADIO CORPORATION OF AMERICA

MODEL PX600, Ch. RC-1110

Alignment Procedure

Output Meter Alignment - If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator -- For all alignment operations, connect the low side of the test oscillator to the receiver chassis and keep the oscillator output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on AC operation an isolation transformer (117v./117v.) may be necessary for the receiver if the test oscillator is also AC operated.

Dial Pointer Position — With the tuning condenser fully mushed the center of the dial pointer should be in line with the score mark on the chassis.

_	Connect High	Sig.	_Dial	
Step	Side of Sig.	Gen.	Pointer	Adjust for
	Gen. to —	Output	Setting	Max. Output
1	Disconnect loop plate.	remove	chassis-	-remove bottom
2	Pin #6 of 1T4 I.F. Amplifier thru .005 mf.	455 kc	Quiet point	2nd I.F. Trans. T2 Top & Bottom
3	Pin #6 of 1R5 Converter thru .005 mf.		near 1600 kc	lst I.F. Trans. Tl Top & Bottom
4	Replace bottom Re-connect loop		install ch	assis in cabinet.
5′		1620 kc	min. cap.	1600 kc osc. trimmer C1-3T
6		1400 kc	1400 kc Signal	1400 kc r.t. & cmt. trimmers*
	Short wire			ohm resistor in
7	placed near	parallel	with r.f. t	uning cond. C1-2
8	loop for radiated signal	600 kc	600 kc Signal	L4 osc. core* while rocking gang
9.	1	Remove from r.f.		00 ohm resistor ond. C1-2.
10		600 kc	600 kc Signal	L3 r.f. core
11	Repeat Steps	5, 6, 7, 8	. 9 and 1	0.

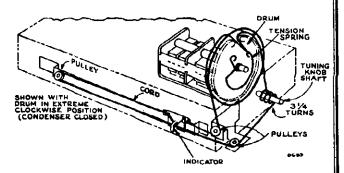
* The position of the battery affects loop inductance. The battery should be in place during steps 5 to 11.

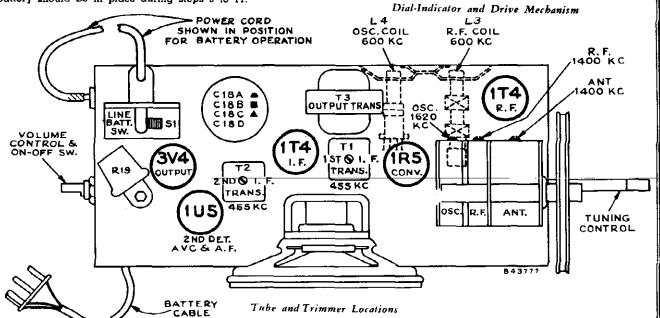
Critical Lead Dress

- 1. Dress all filament leads next to chassis.
- 2: Keep the leads short on the end of the three components (R1, R2, C2), which connect to the grid terminal (#6) of the r.f. socket.
- 3. Dress tuning condenser leads direct and avoid excess lead length.
- 4. Dress loop leads away from tuning drum and battery.
- 5. Dress r.f. plate lead against chassis base.
- 6. Dress a.v.c. lead against chassis base.
- 7. Dress +B lead to output transformer against chassis base.
- 8. Dress 1st a.f. plate resistor (R15) up and away from other wiring.
- 9. Dress all leads away from the ballast resistor. (R19).
- 10. Dress 1st a.f. grid resistor (R12) close to chassis.
- 11. Dress capacitor C3 in air between end apron and r.f. coil with foil end to tuning condenser frame.

CAUTION. -

Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.



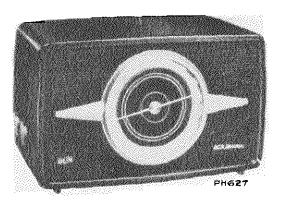


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STOCK No.			
	DESCRIPTION	STOCK No.	DESCRIPTION
		503327	27,000 ohms, ±10%, ½ watt
	CHASSIS ASSEMBLIES	504368	68,000 ohms, ±20%, ½ watt
	RC 1110	504410	100,000 ohms, ±20%, ½ watt
		504422	220,000 ohms, ±20%, ½ watt
76660	Capacitor—Variable tuning capacitor complete with drive drum C1-1, C1-2, C1-3	504510	l megohm, ±20%, ½ watt
73153	Capacitor—Ceramic, 4 mmf. C21	503518	1.8 megohm, ±10%, ½ watt
39622	Capacitor—Mica, 56 mmf	504547	4.7 megohm, ±20%, ½ watt
71514	Capacitor—Ceramic, 82 mmf. C2, C12	503556	5.6 megohm, ±10%, ½ watt
76659	Capacitor—Electrolytic, comprising 1 section of 50	503533	3.3 megohm, ±10%, ½ watt
	mfd., 150 volts, 1 section of 40 mfd., 150 volts, 1 section of 160 mfd., 25 volts and 1 section of 40 mfd.	503568	6.8 megohm, ±10%, ½ watt
	25 volts C18A, C18B, C18C, C18D	504610	10 megohm, ±20%, ½ watt
73595	Capacitor—Tubular, paper, .0022 mfd., 600 volts .C17	76658	Shaft—Tuning knob shaft
73795	Capacitor—Tubular, paper, .0033 mfd., 600 voltsC8	73117	Socket-Tube socket
73796	Capacitor—Tubular, paper, .0039 mid., 600 volts C19	76368	Spring—Drive cord spring
73561	Capacitor—Tubular, paper, 01 mid., 400 volts C13, C16	71039	Switch—"Line-Battery" switch
73562	Capacitor—Tubular, paper, .022 mfd., 400 voltsC14	71047	Transformer—Output transformer
73558	Capacitor—Tubular, paper, .047 mfd., 200 volts C4, C5	73129	Transformer-First I.F. transformer
73553	Capacitor—Tubular, paper, .047 mfd., 400 volts	75487	Transformer—Second I.F. transformer T2
75071	C3, C6, C9, C10 Capacitor—Tubular, moulded paper, .047 mid., 400 volts	33726	Washer—"C" washer for tuning knob shaft
73551	Capacitor-Tubular, paper, 0.1 mfd., 400 volts		SPEAKER ASSEMBLIES
73935	Clip—Mounting clip for I.F. transformers		971495-2
73114	Coil—Oscillator coil complete with adjustable core L4. L5	76402	Speaker—4" P.M. speaker complete with cone and voice coil (3.2 ohms)
74992	Coil—R.F. coil complete with adjustable core. L2, L3		MISCELLANEOUS
71041	Connector—5 contact male connector for battery cable		
74285	Control—Volume control and power switch R9, S2	76664	Antenna—Antenna loopLl
1 72953	Cord—Drive cord (approx. 47" overall length required)	76667	Back—Cabinet back complete with hinges
70022	Cord—Power cord and plug	76661	Board—Antenna loop lead terminal board complete with clip
74838	Grommet—Power cord strain relief (1 set)	76670	Bracket—Carrying handle strap bracket
72283	Grommet—Rubber grommet to mount tuning capaci-	76662	Bracket—Mounting bracket for handle (2 required)
	tor (3 required)	76666	Cabinet—Cabinet complete with escutcheon, dial,
18469	Plate—Bakelite mounting plate for electrolytic capacitor	70000	"RCA Victor" emblem, grille, baffle and loop-less back and hinges
76656	Pointer—Station selector pointer	74339	Catch—Cabinet back clip catch—fastens to cabinet front (2 required)
72602	Pulley—Drive cord pulley	74790	Hinge—Cabinet hinge (2 required)
74322	Rectifier—Selenium rectifier	76663	Knob—Control knob
74319	Resistor—Wire wound, 2650 ohms, 7 watts	76665	Retainer—Retainer for carrying handle strap (2 re-
73237	Resistor—Wire wound, 33 ohms, fuse typeR21		quired)
504010	Resistors—Fixed, composition:	74791	, , , , , , , , , , , , , , , , , , , ,
504210 503215	1000 ohms, ±20%, ½ watt	76671	screw—#6 x ½" cross recessed round head thread
503215 503218	1500 ohms, ±10%, ½ watt	/00/1	cutting screw for carrying handle
	1800 ohms, ±10%, ½ watt	74734	Spring—Spring clip for knob
503227	2700 ohms, ±10%, ½ watt R3	76669	Strap—Carrying handle strap
513233 504315	3300 ohms, ±10%, 1 watt	76668	Support—Handle assembly support (polystyrene) (2 required)

RADIO CORPORATION OF AMERICA PAGE

MODEL 1R81, Ch. RC1102, A, B



Model 1R81 "Livingston"

Specifications

Circuit Description

The receiver is provided with a tuned RF stage (VI 6AU6 or 6CB6) on both AM and FM bands.

The mixer section of the 6X8 tube (V2) operates as a pentode on AM reception and as a triode on FM reception. This provides best signal to noise ratio.

The range switch has five functions:

- 1. Selection of AM or FM tuning ranges.
- 2. Selection and distribution of AVC voltages. Full AVC is applied to V1, V2 and V3 in AM position. Delayed AVC is applied to V1 and V3 in FM position (V2 is not controlled).
- Controls the application of B+ voltages to the plate and screen circuits of V1 and V2 (disconnected in phono position).
- 4. Controls audio input to volume control.
- 5. Switches mixer section of V2 (6X8) from pentode operation on AM to triode operation in FM position.

The driver V4 (6AU6) and ratio detector V5 (6AL5) circuits are similar to those used in other RCA Victor AM-FM receivers.

The audio voltage controlled by the volume control is amplified by V6 (6AV6) and V7 (6V6GT).

The rectifier (V8) is type 5Y3GT.

Power Supply Rating..... 115 volts, 60 cycles, 70 watts

Loudspeaker

	ance at 400 cycles	
Tuning Drive Ratio.	71/4:1 (35/2	turns of kne
Dial Lamps (2)	Type No. 44, 6-8	volts, 0.25 ar
Power Output		

Cabinet Dimensions		
Height10 in.	Width161/2 in.	Depth9
Vitaioslas		101/1

0:00

Antennas:

The receiver has a built-in Ferrite rod antenna for A band and the FM antenna input is capacity coupled power line.

Under average conditions the receiver does not requ an external antenna. However, provision is made for t use of external antenna if desired—connect as indicat below:

AM antenna: Open the link (normally connects to minals #1 and #2). Connect a single wire antenna terminal #1.

FM antenna: Remove the built-in antenna lead fro #3 terminal. Connect the transmission line (3 ohm) from an external dipole antenna to termin #2 and #3.

Ground: An external ground can be attached to to minal #2 if desired. Under some conditions an external ground is detrimental to FM reception.

Note: For satisfactory reception on FM when using the built-in FM antenna the power cord must be fully extend and must not be coiled or hanked up.

Transformer Substitution:

A few receivers were manufactured using a substitute it transformer (T-3 2nd F.M.). The connections to this traformer differ from that shown in the schematic diagram follows:

THE ORIGINAL TRANSFORMER IS STAMPED 971168-3.
IN TRANSFORMERS STAMPED 971169-2, CONNECTIO

- TO TERMINALS B AND D ARE INTERCHANGED.
 - D IS CONNECTED TO CHASSIS.

B IS CONNECTED TO NO. 3 TERMINAL OF T4.

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MODEL 1R81, Ch. RC1102, A, B, C

ALIGNMENT PROCEDURE—LEAD DRESS

Alignment Procedure

Due to the use of separate I.F. transformers, there is little interaction between the 10.7 mc. and the 455 kc. adjustments.

There is a slight interaction of adjustments on the tuning condenser between AM and FM.

If a large amount of adjustment is required of any circuit, all others should be checked in the following order:

AM I.F.

AM Osc., ant. and r.f.

FM Osc., ant. and r.f.

Alignment Indicators:

For measuring the developed d c voltage across C29 during FM alignment an RCA VoltOhmyst or an equivalent meter should be used. An output meter connected across the voice coil is also needed to indicate minimum aidio output during FM Ratio Detector alignment.

The RCA VoltOhmyst can also be used to indicate audio outvoltage across the voice coil or developed voltage on the AVC bus.

For alignment operations connect the low side of the signal generator to the receiver chassis. The output of the signal generator should always be controlled to prevent over-loading or excessive AVC action.

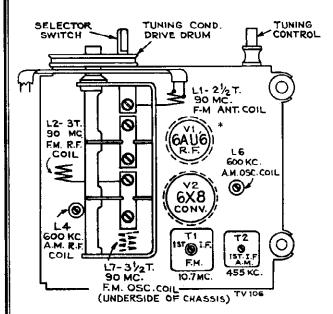
Oscilloscope Alignment:

It is preferable to use a sweep generator and oscilloscope for aligning I.F. and R.F. circuits to obtain a visual observation of curve shape during alignment.

With FM sweep generator connected between FM ant. (#3) terminal and chassis and oscilloscope connected between the junction of R28-C30 and chassis the overall FM response may be observed. There should be a peak to peak separation of not less than 180 kc, with 50 000 may input.

CRITICAL LEAD DRESS

- Dress diode lead from second I. F. away from filament lead going to 6AV6 1st audio tube socket.
- Lead from lug terminal "B" of the 1st FM transformer to rear switch wafer terminal #10 should not be changed from the original, 3 inches long plus or minus ¼" of #22 copper vinylite covered.
- A.C. leads from power switch on volume control should be dressed as far as possible from the audio-leads and audio coupling con-densers near or connecting to the volume control terminals.
- Ground straps between the R.F. shelf and the main chassis should not be relocated.
- The connection point of capacitor C10 is critical, therefore should not be altered. It must be connected to the function switch and not to the 1.F. transformer.



6AU6 is used as R.F. Amp. in RC-1102 6CB6 is used as R.F. Amp. in RC-1102A, RC-1102B, RC-1102C

FM Coil Locations

AM Alignment

RANGE SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output		
1	Pin 1 of V3 6BA6 in series with .01 mfd.		Quiet point	T4 bottom core (pri.). T4 top core (sec.).		
2	Pin 7 of V2 6X8 in series with .01 mfd.	455 kc.	at low freq. end.	T2 top core (sec.). T2 bottom core (pri.).		
3		1620 kc.	High freq. end of dial (min. cap.)	C1-\$T		
4	No. 1	1400 kc.	1400 kc. signal	C1-2T ant. C1-3T r.f.		
5	terminal on ant. input strip	Shunt a 10,000 ohm resistor across th				
6		600 kc.	600 kc. aignal	L6 osc.* (Rock gang.)		
7		Remove	Remove the 10,000 ohm resistor and peak L4 r.f.*			
	Repeat 3, 4, 5, 6 and 7					

* The correct adjustment of the OSC. (£6) core is that peak obtained with core fartherest away from the coil mounting clips. R.F. (L4) core should be set to the peak obtained (2 peaks are seldom obtainable) with core closest to the mounting clips.

FM Alignment

RANGE SWITCH IN FM POSITION -- VOLUME CONTROL MAXIMUM

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output		
1	Connect the d-c probe of a VoltOhmyat to the negatilead of the 2 mfd. capacitor C29 and the common le to chassis.					
2	Pin 1 of V4 6AU8 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles AM		T5 top core for max. d-c voltage across C29. T5 bottom core for min. audio output.*		
3	Pin 1 of V3 6BA6 in series with .01 mfd.	Adjust to provide 3 to 4 volts indi- cation on VoltOhmyst during alignment.	Quiet point at low freq. end.	†† T3 top core (sec.). T3 bottom core (pri.).		
4	Pin 7 of V2 6X8 in series with .01 mfd.			†† T1 top core (sec.). T1 bottom core (pri.).		
5	#3 ant. term. in	90 mc.	90 mc.	L7 osc.**		
6	series with a 300 ohm resistor.	106 mc.	106 mc. signal	C1-1T ant. C1-4T r.f.		
7	(Remove ant. lead from #3 term.)	90 mc.	90 mc. signal	L1 ant.** L2 r.f**		
8	Repeat Steps 5, 6 and 7 until further adjustment does not improve calibration.					

* Two or more points may be found which lower the audio output. At the correct point the minimum audio output is approached rapidly and is much lower than at any incorrect point.

†† Alternate loading may be necessary to provide accurate observation of peaks.

Alternate loading involves the use of a 680 ohm resistor to load the plate winding while the grid winding of the SAME TRANS-FORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 680 ohm resistor after T3 and T1 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

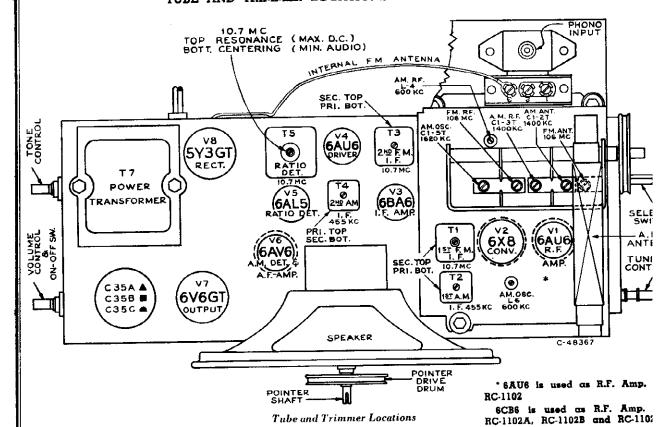
Extreme care should be used to avoid running the I.F. cores all the way through the winding and out the other end. Double peaks or serious overcoupling will result. The correct adjustment may be determined by starting the core all the way out (threads extended). The first peak obtained when tuning should be the correct peak.

** Note: FM antenna, mixer and oscillator coils are adjustable by increasing or decreasing the spacing between turns. The location of the tap on the antenna coil is ½ turn ± ½ turn from the ground end.

RADIO CORPORATION OF AMERICA PAGE

MODEL 1R81, Ch. RC1102, A, I

TUBE AND TRIMMER LOCATIONS-VOLTAGE DATA



VOLTAGE CHART

CATHODE CURRENTS (MA)

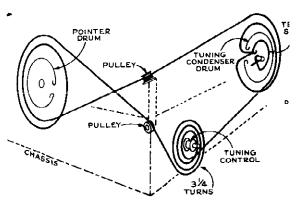
Tube	Туре	Elements	Pin No.	"A"	"FM"	Phono.
Tube	RF amp. 6AU6 (RC-1102)	Plate Screen Cathode Grid	5 6 7 1	195 100 0.2 1.0	178 80 0.3 -0.6	
1	RF amp. 6CB6 (RC-1102A)	Plate Screen Cathode Grid	5 6 2 1	195 84 0.4 - 0.4	151 64 0.45 5	== == ==
2	Mixer 6X8	Plate Screen Grid	9 8 7	64 64 -3.1	65 65 -2.2	==
	Овс. 6Х8	Plate Grid	3 2	83 -5.3	77 -1.1	
3	IF amp. 6BA6	Plate Screen Cathode Grid	5 6 7 1	200 122 0.7 -1.4	200 110 0.9 -0.4	210 124 0.9 -0.7
4	Driver 6AU6	Plate Screen Cathode	5 6 7	199 130 1.2	202 138 1.2	220 150 1.6
5	Ratio Det. 6AL5	_		_		
6	AF amp. 6AV6	Plate Grid	7	72 -0.8	72 -0.7	75 -0.7
7	Output 6V6GT	Plate Screen Cathode	3 4 8	244 200 10	248 210 10.5	248 230 12
8	Rectifier 5Y3GT	Fil.	8	260	262	265

The heater voltage of the mixer/oscillator tube (6X8) is approx. 4 volt lower than other tubes in the same circuit. This is due to the filament choke coils L10 and L11.

Voltages and currents measured with tuning condenser closed and no signal input should hold within ±20% with rated line voltage.

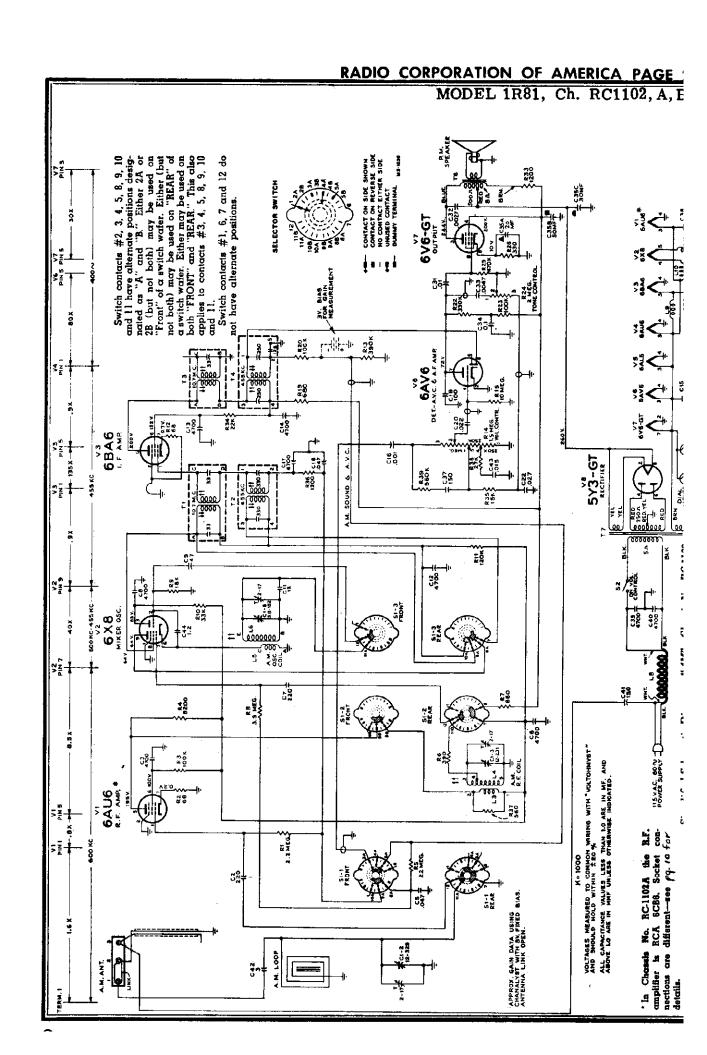
RCA VoltOhmyst used for measuring all voltages.

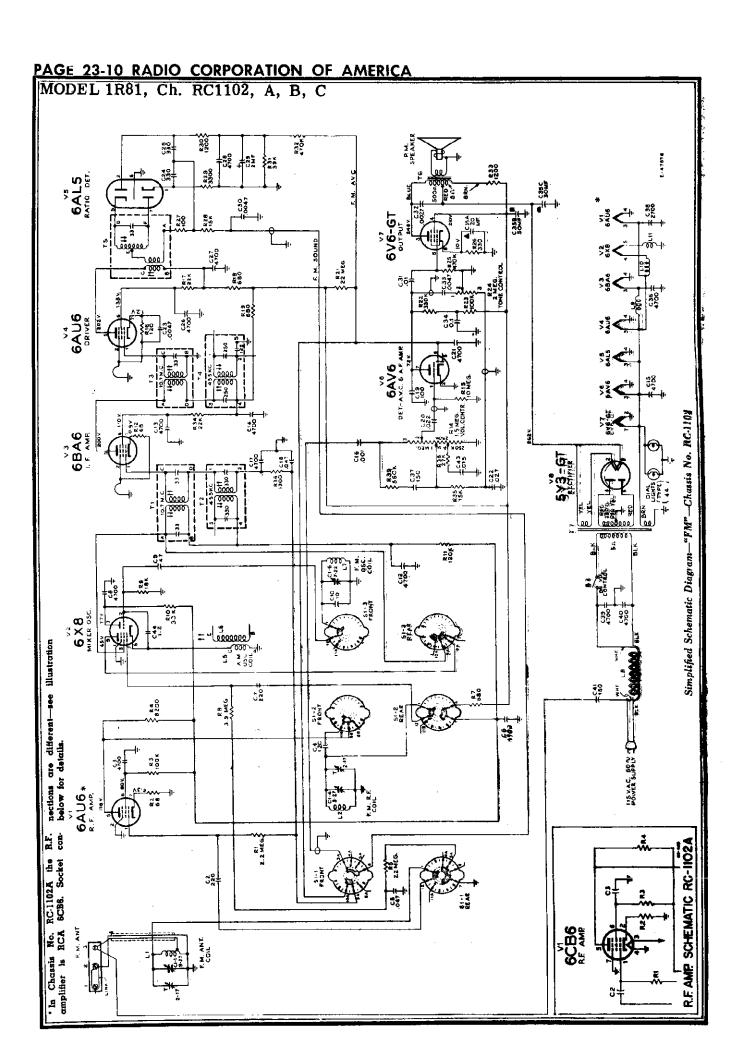
	Tube	Terminal	A.M.	F.M.	Ph
1	6AU6 (RC-1102)	7	2.9	4.0	-
	6CB6 (RC-1102A)	2	5-1	5.9	
2	6X8	6	4.6	4.6	-
3	6BA6	7	11.6	13.2	1
4	6AU6	7	10.4	10.2	1:
5	6AL5			Γ—	-
6	6AV6	2	0.3	0.3	0.
7	6V6GT	8	34	33.4	
8	5Y3GT	8	65	66	

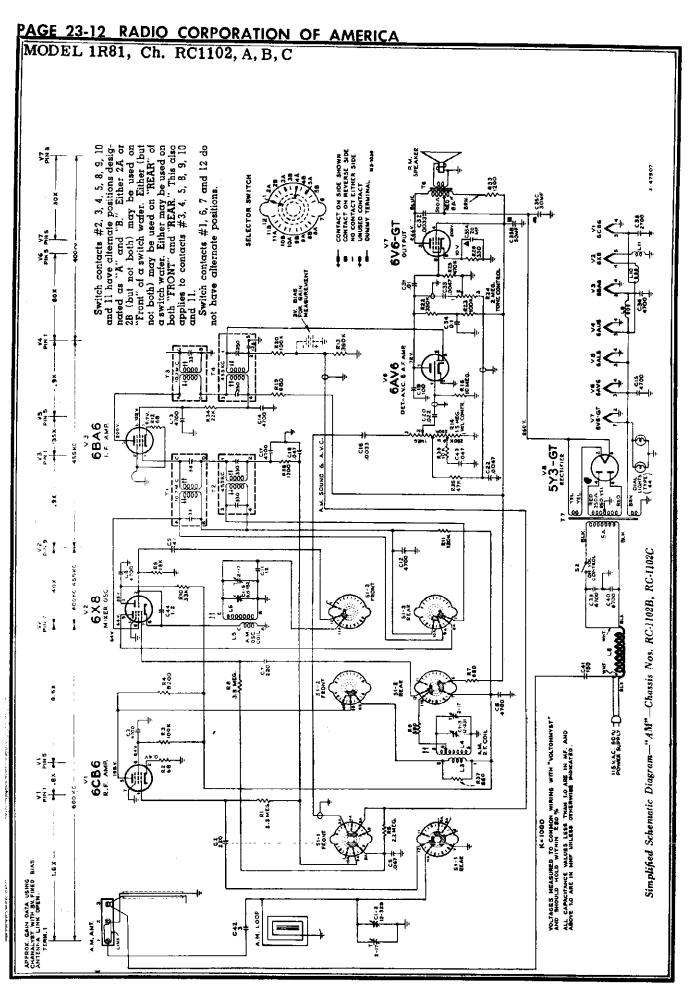


Dial Cord and Drive Assembly

PAGE 23-8 RADIO CORPORATION OF AMERICA MODEL 1R81, Ch. RC1102, A, B, C 500 25 328 R.F. amplifier grid thru RD6 (1200 ohms) and RI (2.2 meg.). This would cause the R.F. amplifier grid to conduct as a diode in the seem of a positive voltage on it. It is desired to have the I.F. amplifier to draw current under all operating conditions to provide best voltage regulation. T∵§ 48 \$25 \$ 233 \$ 200 3354 200 OALS T 30MF 25 SOME T 6V6-GT 10.5V 230V 4 200 1000 22 MEG. 6AU6 **}** #0 25 25 A.M. SOUND & A.V.C. žž 28 800 6BA6 **⊕** 20 TO ¥0. 5Y3-GT 25 R39 560k 148 SKC 1 ÇŠ. 222 <u>ه</u>ا Note: In PHONO operation the I.F. amplitier (BBAS) grid is "tree floating" from returned to ground) although plate and streen voltages are applied. However the grid cannot go positive due to its being tied to the 1 60 - 2000 - 1000 - 3 ę, = × 2.04 2.05 25. 25. 25. 25. Complete Schematic Diagram—Chassis No. RC-1102 음무 100 30° 51-3 FROM 6 X 8 KX FR 0SC. 器 3 5 1000000 <u>*</u> 200 ¥200 4700 T POWER SUPPLY S Š A.R. R.F.CO.L 6AU6* gắc Tầy ت روس **7.** 7. 682 different—see for ... for IA the Socket THE RESERVACE VALUES IN ORDE, AND SAL CAPACITANCE WALLES OF THE WASHINGTON OF AND ABOVE TO IN MAY. WOLVEST OF WASHINGTON COMPLON WIRING WITH VOLTAGE MEASURED TO COMPLON WIRING WITH \$20 % WITH RATED POWER LINE SARPLY. 2.2 MEG. PHONO © RC-1102A 22 MEG. RANGE SWITCH EHOWN IN PHOND POSITION 6086. 325 S1-1 REAE * In Chassis emplifier is nections are details. SWITCH SEQUENCE
- PHONO (MAX. C/CW)
- A-M (CENTER)
- F-M (MAX. CW.) COIL M. ANT. F.M. LM. LOOP gu‡



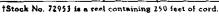


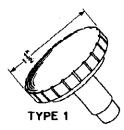


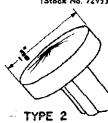
O John F. Rider

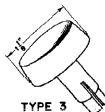
PAGE 23-14 RADIO CORPORATION OF AMERICA MODEL 1R81, Ch. RC1102, A, B, C

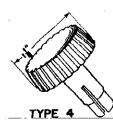
Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
	CHASSIS ASSEMBLIES	503233	3,300 ohms, ±10%, ½ watt (R29)
ì	RC 1102, RC 1102A	503282	8,200 ohms, ±10%, ½ watt (R4)
- [. 1	503310	8,200 ohms, ±10%, ½ watt (R4) 10,000 ohms, ±10%, ½ watt (R38 in RC-1102B, RC-1102 15,000 ohms, ±10%, ½ watt (R28) (R35 in RC-1102, R6
76343	Antenna-Ferrite rod antenna complete with coil less	503315	15,000 ohms, ±10%, 1/2 watt (R28) (R35 in RC-1102, R6
	masonite support and grommets		1102A)
12717	Board—Antenna terminal board	503316	18,000 ohms, ±10%, ½ watt (R9) (R40, R41, in RC-1102) RC-1102C)
76325 76333	Bracket—Drive cord pulley bracket with two (2) pulleys Capacitor—Variable tuning capacitor (C1-1, C1-2, C1-3,	503322	22 000 nbms +10% 16 watt (D17 D14)
,0333	C1-4, C1-5, C1-6)	503327	27 000 chms. +10%. 1/2 watt (838 in RC-1102, RC-1102
76677	Canacitor—Lacamic, 1.2 mmf, (C44)	513333	33,000 ohms, ±10%, I watt (R10)
57090	Capacitor—Ceramic, 3 mmf. (C42) Capacitor—Ceramic, 10 mmf. (C10)	503339	22,000 ohms, ±10%, ½ watt (R17, R34) 27,000 ohms, ±10%, ½ watt (R38 in RC-1102, RC-1102 33,000 ohms, ±10%, ½ watt (R10) 39,000 ohms, ±10%, ½ watt (R31 in RC-1102, RC-1102 47,000 ohms, ±10%, ½ watt (R35 in RC-1102, RC-1102)
76350	Capacitor—Ceramic, 10 mmf. (C10)	503347	47,000 ohms, ±10%, 1/2 watt (R35 in RC-1102B, RC-1102
76349	Capacitor—Ceramic, 12 mmf. (C11) Capacitor—Ceramic, 47 mmf. (C9) Capacitor—Ceramic, 100 mmf. (C19)	503410	100,000 ohma, ±10%, ½ watt (K3, R20, R23) 120,000 ohma, ±10%, ½ watt (K11)
76348 75437	Capacitor—Ceramic, 47 mmt, (C3)	503412 503433	330,000 ohms, ±10%, ½ watt (R11)
76347	Capacitor—Ceramic, 120 mmf. (C4)	503439	390,000 ohms, ±10%, ½ watt (R13)
44202	Capacitor—Ceramic, 150 mmf. (C37 in RC-1102, RC-	504447	470 000 ohms. +20%, 1/2 watt (R25, R32)
44202	1102A)	503456	560,000 ohms, ±10%, 1/2 watt (R39 in RC-1102, RC-1102
39632	Capacitor-Mica, 150 mmf. (C41)	504522	470,000 ohms, ±20%, ½ watt (R25, R32) 560,000 ohms, ±10%, ½ watt (R39 in RC-1102, RC-1102 2.2 megohm, ±20%, ½ watt (R1, R5) 3.9 megohm, ±10%, ½ watt (R8) 10 megohm, ±20%, ½ watt (R15) 22 megohm, ±20%, ½ watt (R15) 23 megohm, ±20%, ½ watt (R21)
75611	Capacitor—Ceramic, 220 mmf, (C2, C7)	503539	3.9 megohm, ±10%, ½ watt (R8)
39640	Capacitor-Mica, 330 mmf. (C24, C25)	504610	10 megohm, ±20%, ½ watt (R15)
39662	Capacitor-Mica, 2700 mmf. (C38)	504622	22 megohm, ±20%, ½ wart (R21)
73473	Capacitor—Ceramic, 4700 mmf. (C3, C6, C8, C13, C14, C15, C17, C21) (C23 in RC-1102B, RC-1102C) (C26, C27, C28,	7633 9 73584	Shaft—Tuning knob shaft Shield—Tube shield for V1, V6
	C36, C39, C40)	76331	Shield—Tube shield for V2
39668	Capacitor-Mica, 4700 mmf. (C12)	35787	Socket-Phono input socket (J1)
73747	Capacitor—Mica, 4700 mmf. (C12) Capacitor—Electrolytic, 2 mfd., 50 volts (C29)	73117	Socket-Tube socket, 7 pin, miniature
76330	Capacitor—Electrolytic comprising 1 section of 30 mfd.,	70827	Sorket—Tube socket, octal, water
'	350 volts, 1 section of 50 mfd., 300 volts and 1 section	76336	Socket—Tube socket, 9 pin, miniature, saddle mount Socket—Dial lamp socket
l	of 20 mfd., 25 volts (C35A, C35B, C35C)	35574	Socket—Dial lamp socket
75249	Capacitor-Tubular, paper, 001 mf., 600V (C16 in RC-	76332 76342	Spring—Drive cord spring Support—Antenna support (masonite) only
73818	1102, RC-1102A) Capacitor—Tubular, paper, .0027 mf., 1600V (C32 in RC-	76334	Switch—Function switch (SI-1, SI-2, SI-3)
12010	1102, RC-1102A)	76326	Transformer-Power transformer 117 volt 60 cycle (T7
73795	Capacitor—Tubular, paper, .0033 mf., 600V (C16 in RC-)	76327	Transformer-Output transformer (T6)
,,,,,,,	1102B, RC-1102C)	73743	Transformer—Ratio detector transformer (T5)
73819	1102B, RC-1102C) Capacitor—Tubular, paper, .0033 mf. 1600V (C32 in RC-	76335	Transformer—First 1.F. transformer—A.M. (T2)
) 1102B, RC-1102C)	75559	Iransformer—First i.f. transformer—r.M. { }
73920	Capacitor—Tubular, paper, .0047 mf., 600V (C22 in RC-1102B, RC-1102C) (C23 in RC-1102, RC-1102A) (C30, C33)	76328	Transformer—Second I.F. transformer—A.M. (T4) Transformer—Second I.F. transformer—F.M. (T3)
!	1102B, RC-1102C) (C23 in RC-1102, RC-1102A) (C30, C33)	76329	fransformer—Second I.F. transformer—F.M. (T3)
73561 73797	Capacitor—Tubular, paper, .01 mfd., 400 volts (C31) Capacitor—Tubular, paper, .015 mf., 600V (C43 in RC- 1102, RC-1102A)	33726	Washer—"C" washer for tuning knob shaft or for stati selector shaft and pulley
73562	Capacitor—Tubular, paper, .022 mfd., 400 volts (C20)	1	SPEAKER ASSEMBLIES
73554	Capacitor-Tubular, paper, .027 mf., 400V (C22 in RC-1102, RC-1102A)	ļ	Stamped 92586-6W, 92586-7W or 92586-8W RMA 274
73558	Capacitor-Tubular, paper, .047 mf., 200V (C5, C18) (C43 (75023	Cap-Dust cap
	in RC-1102B, RC-1102C)	75023	Cons—Cone and voice coil_assembly (3.2 ohms)
73784	Capacitor—Tubular, paper, 0.1 mfd., 200 volts (C34) Clip—Mounting clip for A.M.—L.F. transformers	76392	Speaker—8" P.M. (92586-7W) speaker complete with co
73935 76337	Call—Callistan call A M — camplete with adjustable	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	and voice coil
10331	Coil—Oscillator coil—A.M.—complete with adjustable core (L5, L6)	74664	Speaker-3" P.M. speaker (92536-8W) complete with co
76338	Coil-RF coil-A.Mcomplete with adjustable core	ì	and voice coil
	(L3, L4)	1	
76352	Coil—Oscillator coil—F.M. (L7) Coil—RF coil—F.M. (L2)	1	MISCELLANEOUS
76353	Coil—RF coil—F.M. (L2)	76359	Back—Cabinet back
76354	Coil—Antenna coil—F.M. (L1) Coil—Filament choke coil (L9)	76355	Bezel-Decorative bezel-round-for front of cabinet
71942 76351	Coil—Filament choke coil (L9) Coil—Filament choke coil (L10, L11)	Y2328 76678	Cabinet—Plastic cabinet—marcon Clip—Spring clip for cabinet back
76351 70342	Control—Volume control and power switch (R14, S2)	76363	Decal—Control function decal—early type (below knot
75538	Control—Tone control (R24)	76767	Decal—Control function decal—late type (above knob.
70392	Cord—Power cord and plug	76356	Dial-Polystyrene dial scale
72953	Cord—Drive cord (approx. 51" overall length required)	74782	Emblem="KCA Victor" emblem
74839	Fastener—Push fastener for RF shelf mounting (4 regid)	76360	Knob—Function switch knob—type #1
74838	Grommet—Power cord strain relief () set)	73378	Knob-Function switch knob-type #2
16058 76344	Grommet—Rubber grommet for RF shelf (4 req'd)	75712 76765	Knob—Function switch knob—type #3 Knob—Function switch knob—type #4
. 4077	Grommet-Rubber grommet for mounting ferrite red antenns to masonite support (2 req'd)	76361	Knob-tuning control, tone control or volume control
76345	Insert—Hard rubber insert for antenna mounting grom-	,,,,,,,	and power switch knob—type #1
,,-,-	mets (2 reg'd)	74711	Knob-tuning control, tone control or volume control
76340	Pan-Speaker pan essembly complete less station selector		and power switch knob—type #2
	pointer shaft and pulley	75714	Knob-tuning control, tone control or volume control
76341	Pulley-Station selector pointer shaft and pulley	-43	and power switch knob-type #3
76346	Resistor—Wire wound, 1200 ohms, 4 watte (R33)	76766	Knob—tuning control, tone control or volume control
03068	Resistors—Fixed, composition:	11891	and power switch knob—type f4 Lamp—Dial lamp—Mazda 44
03110	68 ohms, ±10%, ½ watt (R2, R12) 100 ohms, ±10%, ½ watt (R27) 120 ohms, ±10%, ½ watt (R16)	76425	Nameplate="AM-FM" nameplate (tenite)
	120 ahms +10% 14 watt (R16)	72765	Nut-Speed nut to fasten bezel assembly (4 reg'd)
03112 13133	330 ohms, ±10%, 1 watt (R26)	76362	Pointer-Station selector pointer
03112 13133 0313 9	330 ohms, ±10%, I watt (R26) 390 ohms, ±10%, ¼ watt (R6)	76357	Pointer—Station selector pointer Reflector—Dial scale reflector
503112 13133 503139 503156 503168	120 chms, ±16%, ½ watt (R16) 330 chms, ±10%, ½ watt (R26) 390 chms, ±10%, ½ watt (R6) 560 chms, ±10%, ½ watt (R37) 680 chms, ±10%, ½ watt (R7, R18, R19) 1,200 chms, ±10%, ½ watt (R30, R36)	76362 76357 76358 74734	Pointer-Station selector pointer











Differing Types of Knobs-Model 1R81

Change in Parts List:

CHASSIS ASSEMBLIES

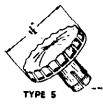
Add: 77232 77233

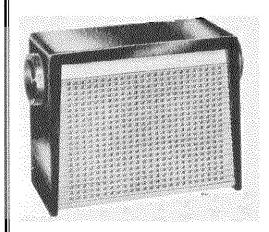
Knob-Function switch knob-type \$ Knob—Tuning control, tone control or volume control and power switch knob—type 5

(Type 5 knob is illustrated

MISCELLANEOUS

Delete: 76347 73784 Capacitor—Ceramic, 120 mmi (C4)
Capacitor—Tubular, paper, 0.1 mi, 200 volts (C34) Capacitor—Ceramic, 120 mmf (C4)
Capacitor—Tubular, paper, 0.1 mf. 400 volts
(C34) 76958 73551





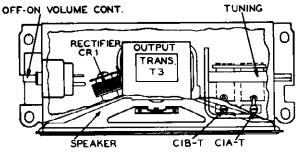
2R51 Black & Gray

2R52 Tan & Ivory

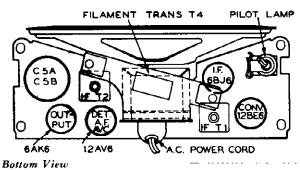
SPECIFICATIONS

Tuning Range Intermediate Frequen		540-1600 kc
Tube Complement: (1) RCA 12BE6 (2) RCA 6BJ6 (3) RCA 12AV6 (4) RCA 6AK6 RCA Stock No. Dial Lamp (1) Power Supply Rating 115 volts a.c., 60 cy	77292 Type No. 51	Converter I.F. Amplifier letAVC-A.F. Amp. Output Rectifier , 6-8 volts, 0.2 amp.
Loudspeaker: Size and type Voice Coil impeda	nce3.2	4 x 6 in. P.M. ohms at 400 cycles
Power Output: Undistorted Maximum		0.30 watts 0.45 watts
Tuning Drive Ratio		to 1 (Direct Drive)
Weight		4 lbs.
Cabinet Dimensions: Height5%"		Depth35/8"





Tube and Trimmer Locations



CRITICAL LEAD DRESS

- Oscillator coil should be centered in space provided and have at least 1/4 inch between winding and chassis.
- The filament wiring should be dressed down on chassis and away from audio leads and audio coupling condensers.
- The I.F. plate and grid leads, including the 2nd I.F. diode lead should be as short as practical.

- The output plate by pass condenser should be dre against the side of the chassis and away from the audio grid condenser and the diode filter resistor.
- Output transformer primary leads should be dre away from the selenium rectifier.
- The loop antenna should be accurately centered i position on the fishpaper cover. The ends must not ject beyond the fishpaper.

ALIGNMENT PROCEDURE

Test-Oscillator—For all alignment operations, connectlow side of the test-oscillator to the receiver chassis, keep the oscillator output as low as possible to avoid action.

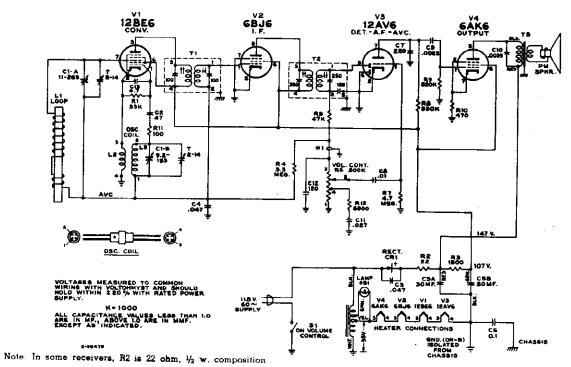
On a.c. operation an isolation transformer (115 v./1: may be necessary for the receiver if the test oscillat also a.c. operated.

Output Meter—Connect meter across speaker voice Turn volume control to maximum.

Step	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust followin max. ou
1	6BJ6 I-F grid through .01 mfd. capacitor	455 kc	Quiet- point	T2 (to and bot 2nd I-F.
2	Stator of CIA through .01 mfd.	itator of A through	1600 kc end of dial	Tl (to and bo lst I-F to
3	Short wire	1620 kc	Min. cap.	osc. trin C1B-
4	placed near loop to	1400 kc	1400 kc signal	ant. trin
5	radiate signal		Repeat step	s 3 and 4

PAGE 23-16 RADIO CORPORATION OF AMERICA MODELS 2-R-51, 2-R-52





Schematic Diagram

	T		
STOCE NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	503547	4.7 megohm, ±10%, 1/2 wait
	RC 1119—2R51 RC 1119A—2R52	76723	Socket-Lamp socket
77438	Antenna—Ferrite rod antenna complete with windingsLl	75780	Socket—Tube socket, 7 pin, miniature saddle-mounted
77440	Capacitor—Variable tuning capacitor	77441	Transformer-Filament transformer 117 volts AC T4
77471	Capacitor—Ceramic, 4.7 mmf. C13	74445	Transformer—Output transformer. T3
75609	Capacitor—Ceramic, 47 mmf. C2	77416	Transformer—lst I.F. transformer complete with adjustable
76347	Capacitor—Ceramic, 120 mm!		cores
75611	CIZI	77417	Transformer—2nd I.F. transformer complete with adjustable
77443		77400	Cores To
,,,,,,	volts and 1 section of 30 mid., 150 volts	77420	Washer-Shoulder washer (nylon) for mounting variable
77446	Capacitor—Tubular, paper, .0022 mfd., 400 volts	i	tuning capacitor
77447	T - F Table of Paper, South Mid., 400 Forts.		
77424	Capacitor—Tubular, paper, .01 mtd., 200 volts	- 1	SPEAKER ASSEMBLIES
77448	Capacitor—Tubular, paper, .027 mfd., 200 volts. C11	ĺ	922258-7
77422	Capacitor—Tubular, paper, .047 mfd., 400 volts	77451	Speaker—4" x 6" P.M. speaker complete with cone and voice
75071	Capacitor-Tubular, moulded paper, .047 mfd., 400 volts. C3	1	coil (3.2 ohms)
77423	Capacitor—Tubular, paper, 0.1 mfd., 400 volts. C6	1	
73935	Clip—Mounting clip for I.F. transformer	- 1	MISCELLANEOUS
77450	Coil—Oscillator coil L2 L3	77457	Case—Polystyrene case—black & beige—complete with
77442	Control—Volume control and power switch		speaker battle and screen assemblies less bottom cover for
70392	Cord—Power cord and plug		Model 2R51
77439	meaning cover for change	77465	Case—Polystyrene case—tan & ivory—complete with speaker
74838	Grommet—Power cord strain relief (1 set)		baffle and screen assemblies less bottom cover for Model 2R52
77405	Insulator—Bakelite insulator for variable tuning capacitor	77456	Clip—Spring clip to mount station selector pointer
77444		77458	Cover—Bottom cover—beige—for Model 2R51
28452		77466	Cover—Bottom cover—beige—for Model 2R51 Cover—Bottom cover—ivory—for Model 2R52
77292	Rectifier—Selenium rectifier CRI	77453	Dial—Dial knob—black & gold—for Model 2R51
77571	Resistor—Wire wound, fuse type, 22 ohms, 0.4 amps. R2	77464	Dial—Dial knob—tian & gold—for Model 2R52
503110	Resistor—Fixed, composition:—	77452	Knob—Volume control and power switch knob—black & gold
503110			—for Model 2R51
523215	470 ohms, ±10%, ½ watt	77463	Knob-Volume control and power switch knob-tan & gold-
503268		į j	for Model ZR52
503268	6800 ohms, ±10%, ½ watt R12	11765	Lamp—Pilot lamp—Mazda 51
503347	33,000 ohms, ±10%, ½ watt. R1	77455	Pointer—Station selector pointer
503433	47,000 ohms, ±10%, ½ watt	77454	Screw—#8-32 x 3/8" cross recessed truss head machine screw
503482		1 1	tor tastening bottom cover
503533		76783	Shield—Pilot lamp shield
		74734	Spring—Spring clip for volume control knob or dial knob
	IDDI V TO VOID BOX DISTRIBUTION	7	

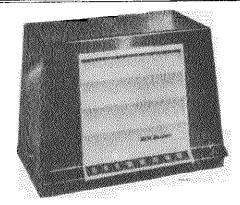
APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

RADIO CORPORATION OF AMERICA PAGE 23

MODELS 1X591, C RC1079K; 1X592, C RC1079L



1X592 Ivory



Specifications

Tuning Range 540-1600 kc Intermediate Frequency 455 kc	Power Output Undistorted
Tube Complement	Dial Lamps (2) Mazda type 1490, 3.2 volts, .16 am
(1) RCA 12SA7	Loudspeaker Size and Type
(4) RCA 50L6GT Output (5) RCA 35Z5GT Rectifier	Cabinet Dimensions Height 9½" Width 12½" Depth B!
Power Supply Rating	Weight 9 1
115 volts a.c., 50 to 60 cycles or d.c 30 watts	Tuning Drive Ratio 9 to 1 (4½ turns of kns

Alignment Procedure

Lead Dress

- Dress all heater leads down to chassis and away from all audio grid and plate wiring.
- 2. Dress power cord against chassis base.
- 3. Dress capacitor C18 against back apron.
- Dress capacitor C13 down to base alongside of shielded lead.
- 5. Dress output transformer leads down to chassis.
- 6. Dress capacitors C9 and C15 as direct as possible.
- Dress dial lamp leads on top of chassis between 12SQ7 and 50L6GT tubes; below chassis, as short as possible to rectifier socket.
- Dress excess loop leads away from tubes and clear of tuning condenser.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

On AC operation an isolation transformer (115 v./115 v.) may be necessary for the receiver if the test oscillator is also AC operated.

Dial Calibration

With the tuning condenser fully meshed, the dial pointer should be set to the first score mark at the left-hand end of the dial back plate. The four score marks represent:

Max cap. 600 kc 1400 kc min. cap.

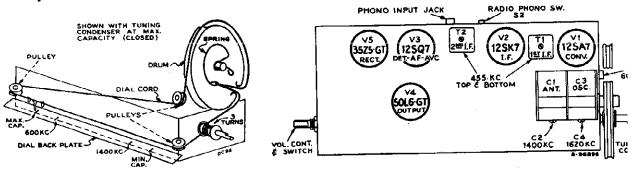
Dial Indicator and Drive Cord

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to-	Adjust the following for max. outpo
1	125K7 I-F grid through 0.1 mid. capacitor	or 455 kc	Quiet-point	T2 (top and bottom 2nd I-Y tran
2	Stator of C1 through 0.1 mfd.		1600 kc end of dial	*Tl (top and botton lst I-F tran
3		1620 kc	Min. cup.	C4 (osc.)
4	Short wire	1400 kc	1400 kc siqnel	+C2 (cant.
5	loop to radiate signal	600 kc	600 ke signal	L3 (osc.) Rock gan
6		Repeat	steps 3, 4 and	5.

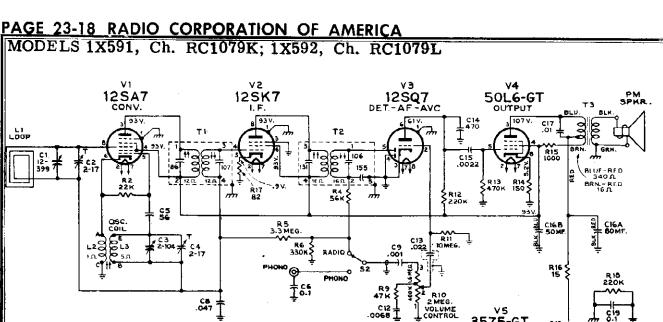
*Do not readjust T2 when test oscillator is connected to C1.

† When adjusting C2 (ant. trimmer) it is necessary to have speaker and loop in the same position and spacing as they have when assembled in the cabinet.

POWER SUPPLY POLARITY.—For operation on d.c., power plug must be inserted in the outlet for correct polar if the set does not function, reverse the plug. On a.c., rever of the plug may reduce hum.



Tube and Trimmer Locations



CATHODE CURRENTS
12SA7 10.05 MA
12SK7 10.25 MA
12SQ7 .13 MA
50L6-61 33.0 MA
3525-61 55.0 MA

K=1000

VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOHMYST SHOULD HOLD WITHIN \$20 % WITH RATED POWER SUPPLY. CAPACITOR VALUES GREATER THAN 1 ARE IN MF., LESS THAN 1 ARE IN MF. UNLESS OTHERWISE INDICATED.

.0068 T _ CONTROL	35Z5-GT	-UT / CH	OLI
V3 V1 V2 V4		121 V.	insulated From Chassi
A T T Z Z T T Z		DIAL LAN	APS
c-4 sematic Circuit Diagram	\$295-3	0 0 \$1 (ON VOL. CN	115V. POWER SUPPLY

				(31, 122, 21, 23,
Stock No.	DESCRIPTION		Stock No.	DESCRIPTION
	CHASSIS ASSEMBLIES		503422	220,000 ohms, ±10%, ½ watt (R12, R18)
l	RC 1079K—1X591	1 1	503433	330,000 ohms, ±10%, ½ watt (R6)
[503447	470,000 ohms, ±10%, ½ watt (R13)
l	RC 1079L—1X592		503533	3.3 megohm, ±10%, ½ watt (R5)
76584	Antenna—Antenna loop and back cover (L1)		503610	10 megohm, ±10%, ½ watt (R11)
74653	Capacitor—Variable tuning capacitor (C1, C2, C3, C4)		74659	Shait—Tuning knob shait and pulley
71924	Capacitor—Ceramic, 56 mmi. (C5)	1 1	74697	Socket—Dial lamp socket
75198	Capacitor—Ceramic, 470 mmf. (C14)		31251	Socket—Tube socket, octal, water
74662	Capacitor—Electrolytic, comprising I section of 80 mid.,	1	76368	Spring-Drive cord spring
	150 volts, and I section of 50 mfd., 150 volts (C16A.	ŀΙ	33634	Switch—Radio-phono switch (S2)
	C16B)	1	74654	Transformer—Output transformer (T3)
75643		H	74918	Transformer—First I.F. transformer (11)
73595	Capacitor—Tubular, paper, .0022 mfd., 600 volta (C15)		73037	Transformer—Second I.F. transformer (T2)
73789		H	33726	Washer—"C" washer for tuning knob shaft
73561				
73562	Capacitor—Tubular, paper, .022 mfd., 400 volts (C13)	1 1		SPEAKER ASSEMBLIES
73553				
73551				92586-5W
73935		1 1		RL 105 C13
74448	Coil—Oscillator coil complete with adjustable core (L2, L3)			RMA 274
33/8/	Connector—Phono input connector (socket)	1 1	75023	Cap-Dust cap
/34/4	Connector—Single contact male connector for speaker cable	1 1	75024	Cone—Cone and voice coil
74133			76392	
+72953				coil
70392				NOTE:—If stamping on speaker in instrument does not
	Grommet—Power cord strain relief (1 set)	l		agree with above speaker numbers, order replacement
72283	Grommet—Rubber grommet for mounting variable tuning capacitor			parts by referring to model number of instrument, number stamped on speaker and full description of part required.
71116	Lamp-Dial Jamp, Marda #1490		i	
76585	Pointer—Station selector pointer	1 1		MISCELLANEOUS
72602			Vaner	
]	Resistors—Fixed, composition:		Y2359	Cabinet—Plastic cabinet—maroon—for Model 1X591
504015	15 ohms, ±20%, ½ watt (R16)		X3231	Cabinet—Plastic cabinet—ivory—for Model 1X592 Cloth—Grille cloth only
503082	82 ohms, ±10%, ½ watt (R17)		76588	
503115	150 ohms, ±10%, ½ watt (R14)		76588	Emblem—"RCA Victor" emblem
513210	1000 ohms, ±10%, 1 watt (R15)		76587	Grille—Speaker grille and cloth assy.
503322	22,000 ohms, ±10%, ½ watt (R2)		74666	
503347	47,000 ohms, ±10%, 1/2 watt (R9)		74667	Knob—Control knob—ivory—for Model 1X592
503356	56,000 ohms, ±10%, ½ watt (R4)		74734	Spring—Retaining spring for knob
<u></u>			, ,, , , ,	Shimd required Shimd for Kuon

[†] Stock No. 72953 is a reel containing 250 feet of cord.

Change in Resistor:

In late production of these receivers the fusy resistor R16 is changed from 15 ohms, ½ watt to 33 ohms, 1 watt. The Stock No. of the 33 ohm resistor is 514033.

Change in Parts List:

The Service Data for these models lists only one emblem. The listed emblem (Stock No. 76588) is correct for Model 1X591 only and is maroon color. The correct emblem for Model 1X592 is Stock No. 74782 and is gold finish.

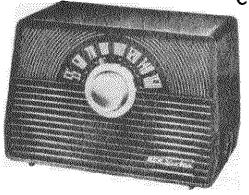
Change in Control Knob:

Late production of these models use control knobs with $\boldsymbol{\alpha}$ dimpled edge.

The stock Nos. of the dimpled knobs are as follows:
77234 Knob—Control knob—marcon—for Model 1X591
77235 Knob—Control knob—ivory—for Model 1X592

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MODELS 1X51, 1X52, 1X53 1X54, 1X55, 1X56, 1X57, Ch RC1104, A, B, -1, A-1, B-1, C, D, E



1X51 SERIES:

1X51	1X52	1X53
(Maroon)	(Ivory)	(Green)
IX54	`1X55	1X56
(Tan)	(Blue)	(Red)
	1X57	
	(White)	

Specifications

Tuning Range540-1600 kc	Chassis Identific	cation		
Intermediate Frequency455 kc Tube Complement	Model No.	1 X 51	1X52 1X57	1X53, 1X54 1X55, 1X56
CHASSIS NO. RC 1104. RC 1104A. RC 1104B (1) RCA 12SA7	Chassis No.	RC 1104 RC 1104-1 RC 1104C	RC 1104A RC 1104A-1 RC 1104D	RC 1104B RC 1104B-1 RC 1104E
(4) RCA 50L6GT	Power Supply 1		cles, or DC	30 wattı
CHASSIS NO. RC 1104-1, RC 1104A-1, RC 1104B-1 Same as above except rectifier is RCA 35W4 instead of RCA 35Z5GT.	Loudspeaker Size and Typ V.C. Impedar	00 100	3.2 ohn	4-inch PN ns at 400 cycle
CHASSIS NO. RC 1104C, RC 1104D, RC 1104E (1) RCA 12BE6		verali)	11%6″]	1.4 watt
Dial Lamp	Weight	***************************************		6 lbs. n∈

Dial Centering

If the mounting of the tuning condenser has been disturbed, it may be necessary to adjust its position after replacing the chassis in the cabinet. This may be done in the following manner:

- 1. Replace tuning knob.
- 2. Install chassis and tighten the mounting screws.
- Loosen the two screws which hold the tuning condenser mounting bracket to the chassis.
- Adjust the position of the tuning condenser mounting bracket so that the tuning knob may be rotated without binding on the cabinet.
- 5. The two screws should then be tightened to maintain this position

Power Supply Polarity

For operation on d.c. the power plug must be inserted in the outlet for correct polarity. If the set does not function, revers the plug. On a.c., reversal of the plug may reduce hum.

Replacement of Dial Lamp

To replace the dial lamp the back cover must be removed. It is secured to the cabinet with four spring clips. Use car to avoid breaking the lead wires from the back cover to the chassis. The dial lamp socket is located at the upper le corner of the speaker and may be removed by pullin diagonally up and to the right.

If higher than normal line voltage causes repeated burnin out of the dial light, it may be replaced with a type #4 lamp instead of the specified type #47. Type #44 wi provide less illumination than type #47, but it will last longe

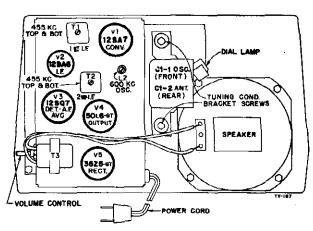
PAGE 23-20 RADIO CORPORATION OF AMERICA

MODELS 1X51 Series, Ch. RC1104, A, B, -1, A-1, B-1, C, D, E

Alignment Procedure

Critical Lead Dress

- 1. Dress all capacitors down against chassis. Connect outside foil of all capacitors as indicated in schematic diagram.
- 2. Locate C-10 in its mounting clip so that it butts against end of chassis.
- 3. Dress all circuit wiring against chassis.
- 4. Dress R-11 away from R-4.
- 5. Dress junction of R-2 and C-2 to prevent short circuits to chassis and dial back plate.



Tube and Trimmer Locations Chassis No. RC 1104, RC 1104A, RC 1104B For Chassis No. RC 1104-1, RC 1104A-1 and RC-1104B-1 the rectifier tube is type 35W4 instead of 35Z5GT.

Schematic Circuit Diagram

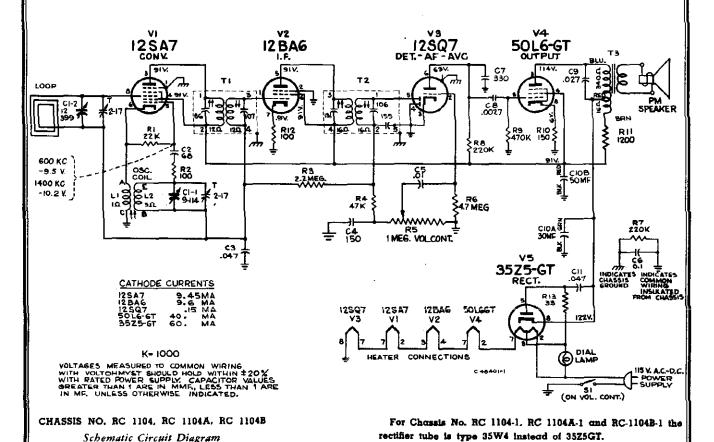
Test-Oscillator

For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

On AC operation an isolation transformer (115 v./115 v.) may be necessary for the receiver if the test oscillator is also AC operated.

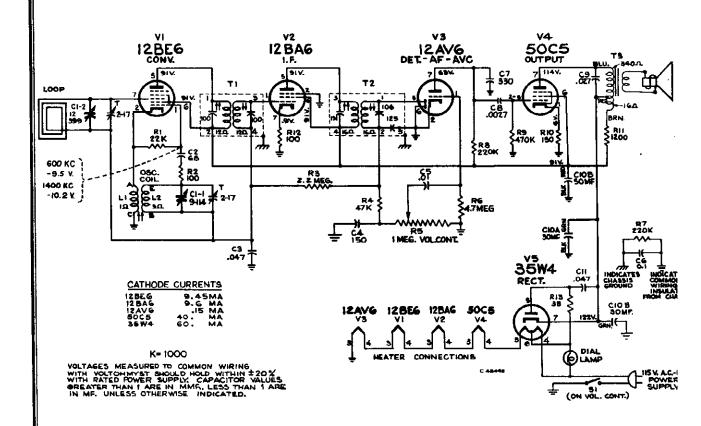
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for max. output
1	12BA6 I-F grid through .01 mid. capacitor	455 kc	Quiet-point 1600 kc.	*T2 (top and bottom) 2nd I-F trans.
2	Stator of C1-2 through .01 mfd.	135 MC	end of dial	T1 (top and bottom) 1st I-F trans.
3		1620 kc	Extreme clockwise (plates fully open)	osc. trimmer
4	Short wire	1400 kc	1400 kc signal	tant. trimmer
5	loop to radiate signal	600 kc	600 kc signal	L2 (osc.) Rock gang
G	1	Repeat	steps 3, 4 and	5.

- * Do not readjust T2 when test oscillator is connected to C1-2.
- † When adjusting ant, trimmer it is necessary to have the loop in the same position and spacing as it will have when assembled in the cabinet. This spacing is approximately $5\frac{1}{2}$ " from dial back plate to loop.



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MODELS 1X51 Series, Ch. RC110 A, B, -1, A-1, B-1, C, D, E



Schematic Circuit Diagram
CHASSIS NO. RC 1104C, RC 1104D, RC 1104E

Production Changes

In early production RC 1104, RC 1104A and RC 1104B:

R3 was 3.3 megohm (now 2.2 meg.).

R6 was 10 megohm (now 4.7 meg.).

R13 was omitted (plate circuit of rectifier tube).

A few 1st I.F. transformers (T1) were used which had an incorrect primary capacitor. To permit the use of these transformers, two 5 mmf. ceramic capacitors were added across the primary (Term. #1 to Term. #2).

In early production RC 1104-1, RC 1104A-1, and RC 1104B-1: R13 was omitted (plate circuit of rectifier tube).

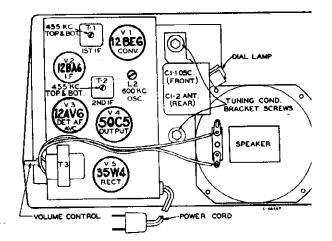
Change in Power Cord Location:

To incilitate wiring, the power cord in late production of these receivers has been changed to enter the chassis at the outer lower corner instead of the corner close to the speaker.

Change in Volume Control Knob:

The original volume control knob had a smooth outer edge. The knob used in late production has a dimpled edge. The Stock Nos. of the new knobs are listed below.

77140 Knob—Volume control knob—maroon—Model 1X51
77235 Knob—Volume control knob—ivery —Model 1X52
77237 Knob—Volume control knob—tan —Model 1X54
77238 Knob—Volume control knob—hlue —Model 1X55
77240 Knob—Volume control knob—red —Model 1X56
77236 Knob—Volume control knob—white —Model 1X56



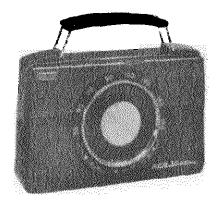
Ti.he and Trimmer Locations Chassis No. RC 1104C, RC 1104D, RC 1104E

PAGE 23-22 RADIO CORPORATION OF AMERICA MODELS 1X51 Series, Ch. RC1104

A, B, -1, A-1, B-1, C, D, E

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
	CHASSIS ASSEMBLIES	74734	Spring-Spring clip for tuning control knob
	RC 1104, RC 1104-1, RC 1104C Model 1X51	54414	Socket—Tube socket, octal, moulded, saddle-mounted
	RC 1104A, RC 1104A-1, RC 1104D Models 1X52, 1X57	70007	for 12SA7 and 12SQ7 tubes Socket—Tube socket, octal, wafer for 35Z5GT and
	RC 1104B, RC 1104B-1, RC 1104E Models 1X53. 1X54, 1X55, 1X56	70827	50L6GT tubes
76712		76714	Transformer—Output transformer (T3)
	1X51, 1X53. 1X54, 1X55 and 1X56	75486	Transformer-First I.F. transformer (T1)
76730	Antenna—Antenna loop and back cover for Models 1X52 and 1X57	75487	Transformer—Second I.F. transformer (T2)
76715 39624	Capacitor—Variable tuning capacitor (C1-1, C1-2)		SPEAKER ASSEMBLIES 971495-1
39632	Capacitor-Mica, 150 mmf. (C4)	76391	
72571	Capacitor-Mica. 330 mmf. (C7)	/6351	voice coil
76718	Capacitor—Electrolytic comprising 1 section of 50 mid., 150 volts and 1 section of 30 mid., 150 volts		MISCELLANEOUS
	(C10A, C10B)		
73599	Capacitor—Tubular, paper, .0027 mfd., 600 volts (C8)	Y2379	Cabinet—BLUE plastic cabinet less "RCA Victor" emblem for Model 1X55
73561	Capacitor—Tubular, paper, .01 mid., 400 volts (C5)	Y2377	Cabinet—GREEN plastic cabinet less "RCA Victor" emblem for Model 1X53
73554	1 4 4	Y2375	Cabinet—IVORY plastic cabinet less "RCA Victor"
73553	Capacitor—Tubular, paper, .047 mfd., 400 volts (C3, C11)		emblem for Model 1X52
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts (C5)	Y2373	Victor" emblem for Model 1X51
73935	1	Y2380	Cabinet—RED plastic cabinet less "RCA Victor" emblem for Model 1X56
74448	(L1, L2)	Y2378	Cabinet—TAN plastic cabinet less "RCA Victor" emblem for Model 1X54
74285	•	Y2376	
70392	,	() 120/0	emblem for Model 1X57
74838		76798	Clip-Speed clip for dial back plate (lower) (2 req'd
72283	Grommet—Rubber grommet for mounting variable capacitor	76799	for Models 1X51, 1X53, 1X54, 1X55, 1X56 Clip—Speed clip for dial back plate (lower) (2 reg'd
76713	Knob—Tuning control knob	} }	for Models 1X52, 1X57
31480	I = " -	76797	Clip—Speed clip for dial back plate (upper) (2 req'd
£14000	Resistors—Fixed, composition:—	73494	Clip—Spring clip to fasten antenna and back as
514033 504110		ļ	sembly to cabinet (4 req'd)
503115	l	76720	
513212	I	74782	
504322		76760	
504347	I	76758	Knob-Volume control knob-GREEN-ior Mode
504422			1X53
504447	· · · · · · · · · · · · · · · · · · ·	74667	Knob-Volume control knob-IVORY-for Mode 1X52
504522	<u> </u>	76719	Knob-Volume control knob-MAROON-for Mode
504547		/0/23	1X51
78802	Shield—Digi lamp shield for Models 1X52, 1X53. 1X54, 1X55, 1X56 and 1X57	76761	Knob-Volume control knob-RED-for Model 1X5
73584	Shield—Tube shield for 12AV6 tube	76759	Knob-Volume control knob-TAN-for Model 1X5
78723		74007	Knob-Volume control knob-WHITE-for Mode
76716	Socket—Tube socket, 7 pin miniature, water with center shield for 12BES, 12BAS and 12AV5 tubes	76721	1X57 Ring—Decorative ring for tuning knob (tastens t
74822	Socket—Tube socket, 7 pin miniature, wafer less center shield for 50C5 and 35W4 tubes	74734	cabinet) Spring—Spring clip for volume control knob

MODELS 2B400, 2B 2B402, 2B403, 2B404 2B405, Ch. RC1114

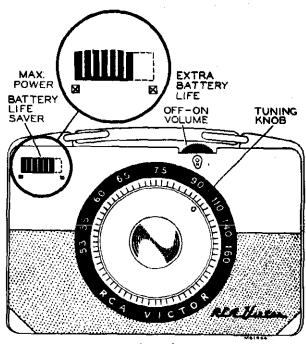


2 B 400 SERIES

2 B 400	2`B 401	2 B 402
Grey	Black	Ivory
2 B 403:	2 B 404	2 B 405

Specifications

Tuning Range540-1600 kc
Intermediate Frequency455 kc
Tube Complement:
1. RCA 1R5Converter
2. RCA 1U4
3. RCA 1U5
4. RCA 3V4Output
Loudspeaker
Size and type
Voice coil impedance11% ohms at 1000 cycles
Weight (with batteries)approx, 3% lbs.



Controls

Type of Battery	Current Drain			
	Normal Pos.	Saver Pos		
"A"1.5 volt (two)] RCA VS 236	0.25 стр.	0.20 amp		
"B"—67.5 volts	8.45 ma.	5.45 ma.		

Battery life is approximately 100 hrs. intermittent service battery-saver switch in "Normal" position. With switc "Saver" position, battery life is increased approximately

Power Quiput:

Undiatorte		***************************************					
		κοτασο					
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		, ,	-	0,0	_	•

Case Back

To remove—insert small coin in the slot at top rear of and pry open.

To replace—insert bottom edge into case and snap top in place.

Off-On Indicator

A window in the case (just below edge of volume co knob) indicates whether set is turned ON or OFF. "ON' pears in window when set is turned ON and disappears v set is turned OFF.

Battery-Life Saver Switch

Maximum power is obtained when the slider button is putoward left (outer edge of case). Extra battery life with seffect on performance is obtained with the slider button puto the right (toward center of case).

Battery Life

The life of the "A" and "B" batteries is approximately expression best performance all batteries should be replaced a same time.

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MCDELS 2B400, 2B401, 2B402, 2B403, 2B404, 2B405, Ch. RC1114

Output Meter.—Connect meter to voice coil terminals. Turn volume control to maximum position.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Note:—The ant coil is supplied pre-adjusted and cemented to rod. This makes further adjustment unnecessary. However when replacing ant assembly make certain that the coil end of the rod is fully entered in its rubber mounting grommet but does not extend through the grommet more than is required to permit the opposite end to fit inside the case.

Replacement of Component Parts

I. To Remove Back Cover

- Depress top of case midway between the handle supports, until the top end of the back separates from the main case.
- b. Pull the back cover back and up, thereby unhooking the retaining lugs in the bottom of the main case.

II. To Replace Batteries

- a. Remove back cover.
- b. Remove both "A" and "B" batteries. The "B" battery snap fasteners can best be removed by inserting a screwdriver under the snap fastener strip and prying upward.
- The "A" batteries can easily be removed by pulling up on the spring wire clips.
 - Note: The "A" and "B" batteries have approximately equal life and therefore it is advisable to replace all batteries at one time.

III. To Remove Chassis

- Remove dial knob by grasping with finger tips at two sides and pulling.
- b. Remove back cover.
- c. Remove batteries.
- d. Remove "A+" contacts by squeezing against case and sliding out of slots in case.
- e. Remove the four screws "A."
- Grasp the assembly by the speaker and pull the bottom end down and outward to clear the volume control knob.

IV. To Replace Chassis

- a. Observe the position of the battery save button extension in relation to the "battery-save" switch. This extension must engage with the center of the battery save switch.
- Replace in reverse order to that given for chassis removal.

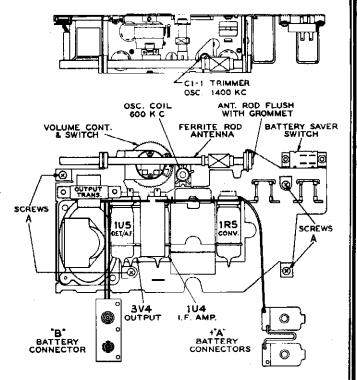
V. To Remove Hundle

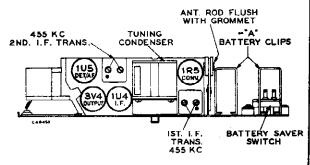
- α . Spread the square spring wire clips by pulling on one side of α clip.
- Allow the clip to return to its original shape but resting on the outside of the case.
- c. Pull the other side of the clip out of the case.

VI. To Replace Battery Save Switch Button

- a. Remove chassis.
- Spread the open end of the spring clip retainer no more than necessary to permit removal of clip.
- c. Slide the clip clear of the slider button.
- d. Turn slider button one-quarter turn and pull out of case.
- Replace button in reverse order—do not use excessive force in replacing spring clip.

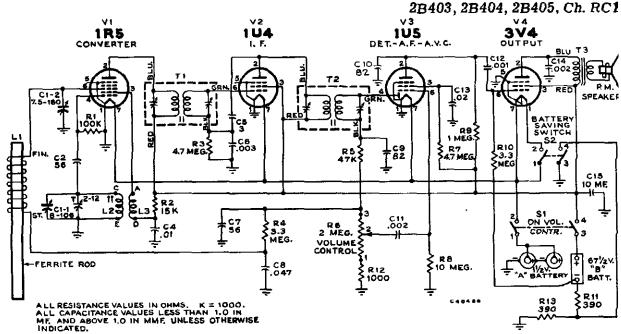
Steps	Connect high side of test osc. to—	Tune test- osc. to—	Turn radio dial to	Adjust the following for max. output
1	High side of cnt. coil (terminal lug on coil which is connected to Pin #\$ of 1R5 tube)	455 kc	Quiet point near 1608 kc	Trimmers of 2nd I-F trans
2				Trimmers of 1st I-P trans.
3		R	epeat steps 1 a	nd 2
4		1400 kc	14 Rock gang	Cl-IT (osc.)
5	Short wire placed near ant. coil for radiated signal	6 00 kc	60 Rock gang	1.2 (osc.)



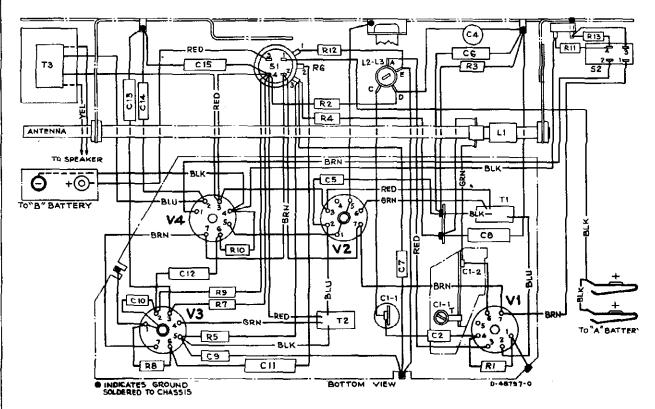


Tube and Trimmer Locations

MODELS 2B400, 2B401, 2B40 2B403, 2B404, 2B405, Ch. RC1



Schematic Diagram



Connection Diagram

CRITICAL LEAD DRESS

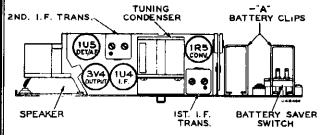
- I. Position Ferrite antenna rod as described above.
- Dress all bus wires, pigtail leads and non-insulated components away from chassis base and away from each other.
- Dress neutralizing expection C5 against front of chassis and with clearance under volume control knob. Utilize shielding effect of oscillator coll mounting bracket.
- 4. Dress all I-F transformer leads down to base.

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MODELS 2B400, 2B401, 2B402, 2B403, 2B404, 2B405, Ch. RC1114

Incorrect Tube Location Label:

A tew receivers were shipped with an incorrect tube location label in which the designation of 3V4 and 1U5 tubes were transposed. These may be readily identified by the label color. The incorrect label is BLUE, the correct label is YELLOW. The correct tube locations are illustrated below.



"A" Battery Lead:

A rubber band is used for the purpose of holding the "A" battery lead in a position where it will not be accidentally torn loose when replacing the battery. When servicing one of these receivers, make sure that this rubber band is around the i-f transformer shield can and holding the "A" battery lead against the chassis.

Correct Tonal Response:

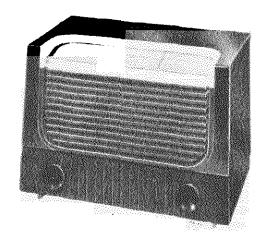
For correct tonal response it is necessary that the holes in the case, where the metal grille is attached, be closed. This is done at the factory by covering the tabs, on the inside of the case, with tape. Absence of this tape will adversely affect the tonal response of these receivers.

Correction to Parts List:

The Stock No. of the GREY case assembly for Model 2B400 is incorrectly listed as 76860. The correct Stock No. is 76838.

STOCK		STOCK	
No.	DESCRIPTION	No.	DESCRIPTION
	CHASSIS ASSEMBLIES	77163	Back-Case back-RED-for Model 2B405
	RC 1114	76859	
76847	Antenna—Ferrite rod antenna (L1)	77164	Model 2B400 Button—Battery saver switch slider button—BLACK—and
76846	Capacitor-Variable tuning capacitor (C1-1, C1-2)	'''197	spring clip for Model 2B401
57090		77165	Button—Battery saver switch slider button—IVORY—and
75784 75785	Capacitor—Ceramic, 56 mmf. (C2, C7) Capacitor—Ceramic, 82 mmf. (C9, C10)		spring clip for Model 2B402
73960	Capacitor—Ceramic, 10.000 mmf. (C4)	77166	Button—Battery saver switch slider button—GREEN—and spring clip for Model 2B403
73964	Capacitor—Electrolytic, 10 mid., 70 volts (C15)	77167	
72792	Capacitor—Tubular, paper, .001 mid., 200 volts (C12)	//	spring clip for Model 2B404
73750	Capacitor—Tubular, paper, .002 mfd., 200 volts (C11, C14)	77168	
73961 71928	Capacitor—Tubular, paper, .003 mid., 200 volts (C6) Capacitor—Tubular, paper, .02 mfd., 200 volts (C13)	76860	spring slip for Model 2B405 Case—Case assembly—GREY—less handle, links and
73558	Capacitor—Tubular, paper, .047 mid., 200 volts (C8)	'6860	back for Model 2B400
76852	Clip—"A" battery mounting clip (formed spring wire)	77154	Case—Case assemblyBLACK—less handle, links and
	(2 required)		back for Model 2B401
75010 75774	Clip—"C" clip and screw to mount output transformer	77155	Case—Case assembly IVORY—less handle, links and back for Model 2B402
/3//4	Coil—Oscillator coil complete with adjustable core (L2, L3)	77156	
76854	Contact—"A" battery contact (2 required)		back for Model 2B403
75773	Control-Volume control and power switch (R6, S1)	77157	
37396	Grommet—Rubber grommet for antenna rod (2 required)	77158	for Model 2B404 Case—Case assembly RED—less handle, links and back
76853 76851	Insulator—Bakelite insulator for ferrite rod antenna Knob—Volume control and power switch knob—less set	''136	for Model 2B405
10031	BCTOW	76860	Clip—Retaining spring clip for battery saver switch slider
76855	Lead—"B" battery lead complete with connector		button
	Resistor—Fixed, composition:—	76842 77169	Dial—Polystyrene dial scale—GREY—for Model 2B400 Dial—Polystyrene dial scale—BLACK—for Model 2B401
503139	390 ohms, +10%, ½ watt (R11, R13)	77170	Digl-Polystyre e digl scale—IVORY—for Model 2B402
504210 503315	1000 ohms, ±20%, ½ watt (R12) 15,000 ohms, ±10%, ½ watt (R2)	77171	
504347	47.000 ohms, ±20%, ½ watt (R5)	77172	
504410	100.000 ohms, +20%, 1/2 watt (R1)	77173 73844	Dial—Polystyrene dial scale—RED for Model 28405 Emblem—"RCA Victor" emblem
504510	1 megohm, ±20%, ½ watt (R9)	73843	Grille Metal grille perforated—GREY—for Model 2B400
504533	3.3 megohm, +20%, ½ watt (R4, R10)	77179	Grille—Metal grille—perforated—GOLD—for Models 2B401
504610	4.7 megohm, ±20%, ½ watt (R3, R7) 10 megohm, ±20%, ½ watt (R8)	77180	and 2B402
7.0527	Screw#6-32, x 3/16" socket head set screw for volume	77180	Grille—Metal grille—perforated—GREEN—for Model 2B403 Grille—Metal grille—perforated—TAN—for Model 2B404
	control knob	77182	Grille—Metal grille—perforated—RED—for Model 2B405
75780	Socket—Tube socket, 7 pin, miniature, saddle mounted	73839	Handle-Carrying handle-BLACK-for Models 2B400 and
76848 76849		77183	2B401
76850		77183	Handle—Carrying handle—BEIGE—for Model 2B402 Handle—Carrying handle—GREEN—for Model 2B403
75777		77185	Handle—Carrying handle BROWN—for Model 2B404
		77186	Handle-Carrying handle-RED-for Model 28405
	SPEAKER ASSEMBLY	76856 77174	Knob—Tuning control knob—GREY—for Model 2B400 Knob—Tuning control knob—BLACK—for Model 2B401
	92523-W	77175	Knob—Tuning control knob—IVORY— for Model 2B402
76373	Speaker—2" x 3" P.M. speaker complete with cone and	77176	Knob-Tuning control knob-GREEN-for Model 2B403
(i	woice coil MISCELLANEOUS	77177	Knob Tuning control knob—TAN—for Model 2B404
76841	Back—Case back GREY—for Model 2B400	77178 71840	Knob—Tuning control knob—RED—for Model 2B405 Link—Corrying handle link (2 reg'd)
77159	Back—Case back—BLACK—for Model ZB401	73858	Ring—Searing ring for tuning knob
77160	BackCase back-IVORY-for Model 2B402	70857	Screw—#4-40 x 1/2" cross recessed binder head machine
77161 77162	Back-Case back GREENior Model 28403	74734	screw for mounting chassis (4 reg'd)
//144	Back-Case back-TAN-for Model 2B404	/1/41	Spring—Spring clip for tuning control knob

MODELS 2X61, 2X62, (RC1080C, RC1080D



Model 2X61 Maroon

Model 2X62 Ivory

SPECIFICATIONS

Tuning Range 540—1600 kc Intermediate Frequency 455 kc	Dial Lamp 2 Mazda type 1490, 3.2 volts, 0.15 an Loudspeaker
Tube Complement	Size and type
(1) RCA 12SK7 R.F. Amplifier (2) RCA 12SA7 Converter (3) RCA 12SK7 I.F. Amplifier (4) RCA 12SQ7 DetA.V.CA.F. Amp.	Power Output Undistorted
(5) RCA 35L6GT Output	Tuning Drive Ratio 8.5 to 1 (41/4 turns of kno
(6) RCA 35Z5GT Rectifier	Weight 8 11
Power Supply Rating 115 volts d. c. or 50 to 60 cycles a. c	Cabinet Dimensions Height8%" Width11%" Depth71

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
110.	DESCRIPTION	140.	DESCRIPTION
İ	CHASSIS ASSEMBLIES	503112	120 ohms, ±10%, ½ watt, R4, R11
77143	RC 1080C-Model 2X61 RC 1080D-Model 2X62	503118	180 ohms, ±10%, 1/2 watt, Rl
//143	Antenna—Antenna loop and back cover assembly— marcon—for Model 2X61	503127 513212	270 chms, ±10%, ½ watt, R15 1200 chms, ±10%, 1 watt, R12
77144	Antenna Antenna loop and back cover assembly—	503312	12,000 ohms, ±10%, 1 watt, R2
	ivory—for Model 2X62	503322	22,000 ohms, ±10%, ½ watt, R3 56,000 ohms, ±10%, ½ watt, R7 100,000 ohms, ±10%, ½ watt, R6 220,000 ohms, ±10%, ½ watt, R6
77143	Back—Cabinet back cover and antenna loop assembly	503356	56,000 ohms, ±10%, 1/2 wett, R7
	-marcon-for Model 2X61	503410	100,000 ohms, ±10%, ½ watt, R16
77144	Back-Cabinet back cover and antenna loop assembly	503422	220,000 ohms, ±10%, ½ watt, R5, R6
77145	-ivory-for Model 2X62 Capacitor-Variable tuning capacitor complete with	503447 503522	470,000 ohms, ±10%, ½ watt, R10 2.2 megohm, ±10%, ¼ watt, R8
77140	drive drum, C1, C2, C3, C4, C5, C6	503547	4.7 megohm, ±10%, 1/2 watt, R9
39042	Capacitor—Ceramic, 47 mmf., C8	74691	Shaft—Tuning knob shaft
71924	Capacitor-Ceramic, 56 mmi., C9	74697	Socket—Digi lamp socket
73501	Capacitor-Ceramic, 150 mmf., C12, C13	54414	Socket—Tube socket
73473 74662	Capacitor—Ceramic, 4700 mmi., C20	76368	Spring-Drive cord spring
/4002	Capacitor—Electrolytic comprising 1 section of 80 mfd., 150 volts and 1 section of 50 mfd., 150 volts, C19A.	33634 73036	Switch—"Radio-Phono" switch, S2 Transformer—First I.F. transformer complete with a
	ClaB	/3030	tustable cores. Ti
73595	CapacitorTubular, paner, .0022 mid. 600 volts, C14	73037	Transformer—Second I.F. transformer complete with
73797	Capacitor-Tubular, paper, .015 mid., 600 volts, C16	1	justable cores, T2
73562	Capacitor—Tubular, paper, .022 mid., 400 volts, C15	73976	Transformer—Output transformer, T3 Washer—"C" washer for tuning knob shaft
73553	Capacitor-Tubular, paper, .047 mfd., 400 volts, C17, C18	35969	Washer—"C" washer for tuning knob shaft
73551 737 94	Capacitor—Tubular, paper, 0.1 mid., 400 volts, C10, C11		SPEAKER ASSEMBLIES
	Capacitor—Tubular, paper, 0.22 mfd., 400 volts, C21 Clip—Mounting clip for I.F. transformer	Į.	971495-3
	Coil—Oscillator coil complete with adjustable cores.	76391	Speaker-4" P.M. speaker complete with cone and vo
	I.3, I.4	1	coil (3.2 ohms)
73677	Coil—R.F. coil complete with adjustable cores, L1, L2		MISCELLANEOUS
35787	Connector—Phono input connector	Y2445	
75474	Connector—Single contact ma le connector for output transformer leads (2 regid)	12443	Cabinet—Plustic cabinet—marcon—complete with d escutcheon for Model 2X61
38410	Control—Volume control and power switch, R14, S1	T2446	Cabinet-Plastic cabinet - ivory - complete with d
72953	Cord—Drive cord (approx. 50" overall)		escutcheon for Model 2X62
70392	Cord—Power cord and plug	77146	Dial-Polystyrene dial scale
	Grommet-Power cord strain relief (1 set)		Escutcheon-Dial escutcheon
72283	Grommet—Rubber grommet for mounting tuning capa-	74931 72645	Knob—Control knob—marcon—for Model 2X61
77142	citor Pointer—Station selector pointer	72043	Knob—Control knob—ivory—for Model 2X62 Lamp—Dial lamp—Mazda 1490
	Pulley-Drive cord pulley	74301	Screw—#8 x %" binder head screw (cross recesse
	Resistor—Fixed, composition: '		for mounting digi
514033	33 ohms, ±20%, 1 watt, R13	30900	Spring—Retaining spring for knobs

[†] Stock No. 72953 is a reel containing 250 feet of cord.

PAGE 23-28 RADIO CORPORATION OF AMERICA

MODELS 2X61, 2X62, Ch. RC1080C, RC1080D

NOTE.—If reception is not obtained on d. c. operation, reverse plug in outlet receptacle. On a. c. operation this may reduce hum.

The position of the speaker is adjustable; the correct position is indicated on the illustration "Tube and Trimmer Locations."

ALIGNMENT PROCEDURE

Cathode Ray Alignment is the preferable method. Connections for the oscilloscope are shown on the schematic diagram.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

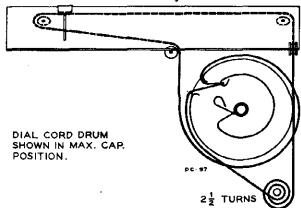
Test Oscillator.—Connect low side of test oscillator to common wiring in series with a .1 mf. capacitor. If the test oscillator is a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the test oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Step	Connect high side of sig. gen. to—	Sig. gen output	Turn radio dial to—	Adjust for peak output		
1	Pin No. 4 of 12SK7 tube	455 kc	0.4.4 - 1.04	Top and bottom		
2	Pin No. 8 of	435 EC	Quiet point near 600 kg	cores of T2		
	12SA7 tube			Top and bottom cores of Tl		
3		1620 kc	1620 kc	C6 Osc. C5 R.F. C4 Ant.		
4	"External Antenna"	Shunt C5 with 22,000 ohm resistor				
	terminal through 100 mmf, capacitor	600 kc	600 kc	L4 Osc. (Rock gang)		
5		Remove 22,000 ohm resistor from C5				
	•	600 kc	600 kc	L2 R.F.		
6		Repeat steps 3, 4 and 5				

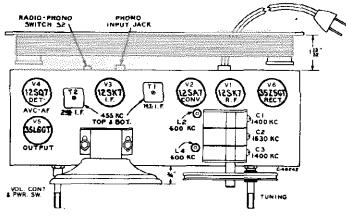
The position of the loop antenna in relation to the chassis affects adjustment of C4. The correct position is indicated on the illustration "Tube and Trimmer Locations."

Correction to Alignment Procedure:

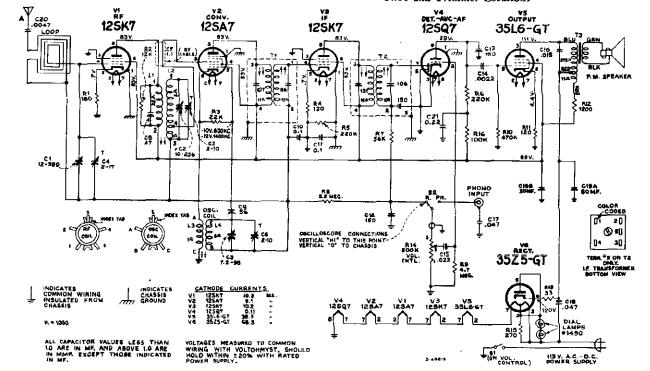
The oscillator trimmer C6 should be adjusted at 1620 kc as stated in the Service Data, but the r.f. trimmer (C5) and the antenna trimmer (C4) should be adjusted for maximum when the receiver is tuned to a 1400 kc signal.



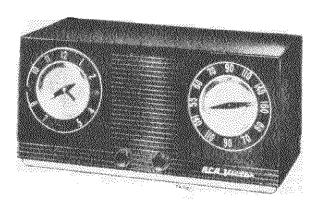
Dial Indicator and Drive Mechanism



Tube and Trimmer Locations



MODELS 2C521, 2C522, 2C52 Ch. RC1120, A, B, C



2C521 Maroon

2C522 Ivory 2C527 White

Specifications

Tuning Range	Loudspeaker:
Intermediate Frequency	Size and type
Tube Complement:	Voice Coil impedance3.2 ohms at 400 cyc
(1) RCA 12BE6Converter	• • • •
(2) RCA 12BA6	Power Output:
(3) RCA 12AV6	Undistorted1.2 wc
(4) RCA 50C5Output	Maximum
(5) RCA 35W4 Rectifier	
Power Supply Rating:	Tuning Drive Ratio
115 volts a.c., 60 cycles	Weight5½ 1
CAUTION:-DO NOT OPERATE ON D.C.	Cabinet Dimensions:
Appliance Rating	Height61/2" Width11%" Depth51/2"

Operating Instructions

This instrument can be used in any one of several ways. It may be used as a clock with alarm alone, radio, phonograph amplifier, or clock-controlled radio or appliance outlet. Instructions for the various uses follow:

Clock—Plug instrument into a.c. outlet. The clock will start to operate immediately. Set the correct time with the "TIME-SET" knob on the back panel of the instrument. To set the alarm, pull out the "ALARM" knob and turn counter-clockwise until the desired time is indicated by the alarm pointer. Leave knob out for alarm buzzer operation. Push knob in to turn off buzzer.

Radio—1. Push "RADIO" slide switch lever to the right, as viewed from the back. Turn "RADIO" knob on clock from "OFF" to "ON" position. Adjust volume and tuning knobs as required after 30 second warm-up. Turn clock "RADIO" knob to "OFF" position when finished listening.

- 2. To have radio turn itself off after a period of up to 60 minutes, set "SLEEP" knob to desired playing time. Turn clock "RADIO" knob "OFF."
- 3. To have radio turn itself on, turn tuning and volume knobs to desired position, and then set the alarm as explained above. Turn clock "RADIO" knob to "AUTO" position.
- 4. To have the radio turn itself off during any time within a 60 minute period and then turn itself on, after an off period of up to twelve hours, set the "SLEEP" and "ALARM"

knobs, and volume and tuning controls as explained priously. Turn clock "RADIO" knob to "AUTO" position

Appliances—1. To use appliance outlet, plug appliance into rear receptacle, and turn clock "RADIO" knob to "O position. If operation of the radio is not desired at same time, push radio slide-switch lever on the back pa to the off position (lever pushed to the left).

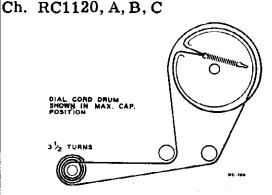
- 2. To start appliance automatically, proceed as aboexcept that the "ALARM" knob should be set to the desistarting time, and the clock "RADIO" knob set to "AUTO" position. To turn off appliance, turn clock "RADI knob to "OFF" position, or remove appliance plug if ra operation is desired.
- 3. To operate appliance for any time within a 60 min period, have appliance plugged in, with clock "RADI knob turned to "OFF" position. Set "SLEEP" knob desired operating period. Appliance will be turned automatically at the end of this period.

Phonograph—1. Make sure radio slide switch is (lever pushed to the right). Plug phonograph attachmadio plug into jack provided. Turn clock "RADIO" kr to "ON" position. If a spare a.c. receptacle is not availa for the record changer, the appliance outlet may be us to provide power.

CAUTION:—Keep clock "RADIO" knob "OFF" with instrument is not in use.

PAGE 23-30 RADIO CORPORATION OF AMERICA

MODELS 2-C-521 Series,



Dial Cord Drive

RADIO CHASSIS AND CLOCK SERVICE

Tube Service—To make tubes accessible for testing, remove the hex head screw at the lower right hand corner and the hex head screw at the left side of the appliance outlet on the back panel. The loop antenna and antenna trimmer are located on this back panel.

Radio Chassis Service—Proceed as above, removing the volume and tuning control knobs by pulling off, and also removing the three hex head screws and washers on the underside of the cabinet. Do Not remove the clock from the cabinet unless this is necessary for service. Lift off the shield on the underside of the chassis.

Clock Service—Proceed as above. Remove the three clock control knobs from the front of the cabinet by pulling off, taking care not to damage the clock control shafts. Using a small screwdriver or a small pry tool, remove the five sheet metal clips holding the clock to the cabinet. The clips will be found embedded in the plastic. The seal between the plastic and the metal teeth on the clips should be broken by lifting the metal edges till the teeth clear the plastic. To prevent scratching the plastic dial faces of the radio and clock, place the instrument face down on a thick soft cloth. When removing the clock, take care not to damage the molded-in plastic rim for mounting the clock.

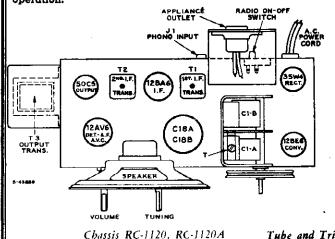
In remounting the clock, new sheet metal clips should be used. These should be heated until hot enough to soften the plastic slightly upon contact. Place the clock in its mounting rim and push the heated clips on tightly, using a pair of pliers or other holding tool.

Attachment of Record Player

The audio output cable of the record player should be terminated with a pin plug.

Plug the cable into the receptacle which is accessible from the back of the cabinet.

Insertion of the cable plug into the receptacle removes radio signal from the volume control. The record player cable must be removed from the receptacle to permit radio operation.



Alignment Procedure

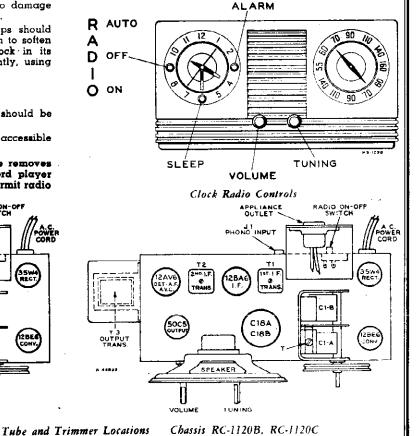
Step	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to	Adjust the following for max. output
1	12BA6 I-F grid through .l mid. capacitor		Quiet-	T2 (top and bottom) 2nd I-F trans.
2	Stator of C1-2 through .1 mfd.	455 kc	1600 kc end of dial	Tl (top and bottom) lst I-F trans.
3		1620 kc	Min. cap.	osc. trimmer
4	Short wire placed near	1400 kc	1400 kc signal	ant. trimmer
5	loop to radiate signal	Repeat steps 3 and 4.		

Test-Oscillator—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

On a.c. operation an isolation transformer (115 v./115 v.) may be necessary for the receiver if the test oscillator is also a.c. operated.

Lead Dress

- 1. Dress all capacitors down against chassis.
- C-15 must be located so that connection to Pin #1 of 12AV6 is short as possible and condenser butts against rim of volume control.
- Connect outside foil of all condensers as indicated in schematic diagram.
- 4. Dress Filament, B+ and B- leads down against chassis.
- Dress R2, 12BA6 cathode resistor, down against tube center post with leads to Pin 2 and Pin 7 as short as possible.
- 6. Dress R3 above and away from R7.



PAGE 23-32 RADIO CORPORATION OF AMERICA MODELS 2-C-521 Series,

Ch. RC1120, A, B, C

CHASSIS ASSEMBLIES R.C.1120. R.C.1120. R.C.1120. Model 2.C.521 R.C.1120. R.C.1120. Model 2.C.521 R.C.1120. R.C.1120. Model 2.C.521 R.C.120. R.C.1120. Model 2.C.521 R.C.120. R.C.1120. Model 2.C.521 R.C.120. R.C.1120.	STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RC-1120A. RC-1120C—Models 2-C-522. ZC-527 77387 77387 77387 77387 77388 RC-120C-frequency for mail. 77389 Conjustic—Caramic, 5 mmi. 77380 Capacitor—Caramic, 5 mmi. 77380 Capacitor—Caramic, 5 mmi. 77381 Capacitor—Caramic, 5 mmi. 77381 Capacitor—Caramic, 5 mmi. 77381 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77383 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77384 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77385 Capacitor—Tabular, paper, 07 mid., 400 volts. Cl3 77386 Capacitor—Capacitor, paper, 07 mid., 400 volts. Cl3 77387 Capacitor—Capacitor, paper, 07 mid., 400 volts. Cl3 77388		CHASSIS ASSEMBLIES		SPEAKER ASSEMBLIES
RC-1120A. RC-1120C—Models 2-C-522, 2C-527 77357 77357 77357 77357 77357 77358 7358		RC-1120. RC-1120B—Model 2-C-521		B12A512 RL108E7
complete with drive drum CIA, CIA CIB 77364 Capacitor—Ceramic, 47 mml CIA 7352 Capacitor—Ceramic, 55 mml Section 7353 Capacitor—Electrolytic comprising Section 7354 Capacitor—Tubular, paper, 01 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 07 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 01 mdl, 400 voits CIS 7355 Capacitor—Tubular, paper, 01 mdl, 400 voits CIS 7356 Capacitor—Tubular CIS CIS 7357 Capacitor—Tubular CIS CIS 7358 Capacitor—Tubular CIS CIS 7359 Capacitor—Tubular CIS CIS 7350 Capacitor—Tu			77226	
77367 Gapacitor—Ceramic, 5 mml. Cil. 77367 Capacitor—Ceramic, 27 mml. Cil. 77367 Capacitor—Ceramic, 55 mml. Cil. 77368 Capacitor—Ceramic, 55 mml. 77360 Capacitor—Ceramic, 55 mml. 77360 Capacitor—Libular, paper, 01 mid. 400 volts. Cil. 77361 Capacitor—Libular, paper, 07 mid. 400 volts. Cil. 77362 Capacitor—Libular, paper, 07 mid. 400 volts. Cil. 77363 Capacitor—Libular, paper, 07 mid. 400 volts. Cil. 77365 Cilp—Meaning clip for 1F. transformer 77365 Cilp—Meaning clip for 1F. transformer 77361 Capacitor—Phono input connector 77362 Cannector—Phono input connector 77363 Card—250 Drive Cord Reel (approx. 26 required) 77364 Capacitor—Control 77365 Cilp—Meaning clip for 1F. transformer 77367 Capacitor—Phono input connector 77360 Capacitor—Control 77360 Capa	77357		.	voice coil (3.2 ohms)
77350 Capacitor—Exeramic, 55 mmi. C3 77350 Capacitor—Exeramic, 55 mmi. C18A, C18B 77350 Capacitor—Tubular, paper, 01 mid., 400 volts. C15 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77353 Capacitor—Tubular, paper, 02 mid., 400 volts. C10 77355 Capacitor—Tubular, paper, 01 mid., 400 volts. C10 77356 Capacitor—Tubular, paper, 01 mid., 400 volts. C10 77357 Capacitor—Tubular, paper, 01 mid., 400 volts. C10 77358 Call—Oscillator coil Callador coil Calla	1	Capacitor—Ceramic, 6 mmf		MISCELLANEOUS
7350 Capacitor—Electrolytic comprising 1 section 18 ord 150 volts. 150 vo			77367	
150 volts,	73520	Capacitor—Electrolytic comprising 1 section		l
Capacitor—Tubular, paper, 0.7 mid., 400 volts. CID Capacitor—Tubular, 400 volts. CID Capacitor—Tubular, 400 volts. CID Capacitor—Tubular, 400 volts. CID Capacitor—Tubular, 400 volts			77904	· · · · · · · · · · · · · · · · · · ·
27353 Capacitor—Tubular, paper, 0.1 mid., 400 volts. C16 73551 Capacitor—Tubular, paper, 0.1 mid., 400 volts. C16 73555 Coli—Docalilator coil 73567 Canactor—Phon input connector 7357 Coli—Oscillator coil 7357 Connector—Phon input connector for 7359 Coli—Oscillator coil 7359 Connector—2 contact lemale connector for 7359 Connector—2 contact lemale connector for 7359 Control—Volume control. R8 7359 Control—Volume control. R8 7359 Control—Volume control. R8 7359 Control—Volume control. R8 7359 Control—Volume control. R8 7359 Control—Volume control. R8 7350 Coliman = Rubber grommet for mounting tuning capacitor 7350 Coliman = Rubber grommet for mounting tuning capacitor 7350 Picta—Backeite mounting plate for electrolytic Plate—Backeite mounting tuning capacitor 7350 Polito—Dial back plate (Composition:— 7350 Control—Volume control knolms Value R9 7361 Signification Value R9 7361 Signification Value R9 7362 Control—Volume control R8 73632 Control—Volume control R8 73632 Control—Volume control R8 73632 Control—Volume control R8 7364 Value—Dial back Value R9 7365 Polito—Backeite pulley Value R9 7365 Polito—Backeite pulley Value R9 7365 Signification Value R9 7367 Control—Volume control R8 7368 Polito—Backeite pulley Value R9 7369 Roll—Doli Dack Value R9 7360 Roll—Doli Dack Value R9 7361 Signification R9 73	1		77368	Antenna—Antenna loop complete with back cover
Capacitor—Tubular, poper, 0.1 mld., 400 wolts C16 Type Coll—Oscillator coil Coll—Oscillator Coll—Oscil		Capacitor—Tubular, paper, .047 mfd.,		
Transformer City Color City Color City Color City Color City Cit	73551		77905	Antenna—Antenna loop complete with back cover
Total Connector—Phono input connector 10	73935	Clip—Mounting clip for I.F. transformer		RC-1120C)
Solid Connector—2 contact female connector for applicance outlet (RC-1120R, RC-1120C) Rother R	1		77367	
Connector—2 contact lemale connector for appliance outlet (RC-1120R, RC-1120C) 77359 Control—Volume control R8 Cord—250' Drive Cord Reel (approx. 26" réquired) Cord—Power cord and plug Cover—Insulating cover lor electrolytic R7350 R7350 Cord—Power cord and plug Cover—Insulating cover lor electrolytic R7350 R7350 R7350 Plate—Barbiet mounting plate for electrolytic R7351 Plate—Barbiet mounting plate for electrolytic R7355 Plate—Barbiet mounting plate for electrolytic R7355 Plate—Dial back plate complete with pointed escutcheon RC-1120 RC-1120R) R7350 R7351 R7353 R7353 R7355 Plate—Dial back plate (RC-1120R) R8 R7356 R7356 R7356 R7357 R7357 R7357 R7357 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R7358 R8 R7359 R8 R7359 R8 R7359 R8 R7 R8 R7 R8 R8 R9 R9 R9 R9 R9 R9 R9 R9 R9 R9 R9 R9 R9	4 1	Connector—2 contact female connector for	97004	Includes C2
77359 Control—Volume control Rel (approx. 26" réquired) 77350 Cord—250" Drive Cord Rel (approx. 26" réquired) 77360 Cord—Power cord and plug tuning capacitor 28452 Cord—Ensulating cover for electrolytic 77360 Tuning capacitor 28452 Pulte—Barkelite mounting plate for electrolytic 77355 Plate—Barkelite mounting plate for electrolytic 77355 Plate—Dial back plate (RC-1120B, RC-1120C) 77364 Pointer—Station selector pointer 77365 77363 Pultey—Drive cord dieler pulley 77364 Pointer—Station selector pointer 77365 77363 Pulley—Drive cord dieler pulley 77364 Pointer—Station selector pointer 77363 Pulley—Drive cord dieler pulley 77372 7303115 100 ohms, ±10%, ½ watt R1 100 ohms, ±10%, ½ watt R1 130 ohms, ±10%, ½ watt R1 130 ohms, ±10%, ½ watt R1 130 ohms, ±10%, ½ watt R1 1303422 220.000 ohms, ±10%, ½ watt R1 1303422 220.000 ohms, ±10%, ½ watt R1 1303422 220.000 ohms, ±10%, ½ watt R1 1303422 23000 ohms, ±10%, ½ watt R1 1303422 23000 ohms, ±10%, ½ watt R1 13034	77901			maroon—for Model 2C521 (RC-1120B, RC-1120C)
Transformer—Output transformer (RC-1120R) Transformer—Output transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for mounting transformer (RC-1120R) Transformer—Rush for mounting transformer and plug for mounting transformer and plug invorvation Rack—Cabinet back complete with curvature and graph invorvation Rack—Cabinet back complete with mounted proving—Rush for mounting transformer invory—for Models 2C522, 2C522 (RC-1120R) RC-1120R) Transformer—Rush for mounting transformer and plug invorvation Rack—Cabinet back complete with mounted and grille cloth for Models 2C521 (RC-1120R) RC-1120R) Transformer—Rush for mounting transformer—Rush for mounting transformer—Rush for Models 2C521 (Rach—Habe back complete with mounted and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C522 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C522 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C521 (Radie board and grille cloth for Models 2C522 (Radie board and grille cloth for Models 2C522 (Radie board and grille cloth for Models 2C522 (Radie board and grille cloth for Models 2C52	77359		77368	
28451 Cover—Insulating cover for electrolytic 77365 Grommet—Rubber grommet for mounting tuning capacitor tuning capacitor 17355 Plate—Backleite mounting plate for electrolytic escucheon (RC-1120, RC-1120A) Plate—Dial back plate (RC-1120B, RC-1120C) 77354 Plate—Backleite mounting plate for electrolytic escucheon (RC-1120, RC-1120A) Pointer—Station selector pointer 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77365 Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) 77361 100 ohms, ±10%, ½ watt R1 100 ohms, ±10%, ½ watt R1 100 ohms, ±10%, ½ watt R1 1020 ohms, ±10%, ½ watt R1 100 ohms, ±10%, ½ watt R1 100 ohms, ±10%, ½ watt R1 103333 3, megohm, ±10%, ½ watt	72953	Cord—250' Drive Cord Reel (approx. 26" réquired)		Includes C2
Grommet—Rubber grommet for mounting tuning capacitor 28452 Plate—Bakelite mounting plate for electrolytic 27355 Plate—Dial back plate complete with pointed escutcheon (RC-1120 RC-1120B, RC-1120C) 77354 Pulte—Dial back plate (RC-1120B, RC-1120C) 77355 Pinter—Station selector pointer 77365 Pultey—Drive cord idler pulley 77365 Pulley—Drive cord idler pulley 77365 Pulley—Drive cord idler pulley 77367 Resistor—Fixed, composition:— 77368 77369 77360 7736		Cover—Insulating cover for electrolytic	77905	,
Plate—Dial back plate complete with pointed escutcheon (RC-1120, RC-1120C)	I I	Grommet—Rubber grommet for mounting	******	RC-1120C)
Plate—Dial back plate complete with pointed escutcheon (RC-1120, RC-1120A)	28452		X3304	
Pointer—Station selector pointer Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Pulley—Drive cord idler pulley Resistor—Fixed, composition:— Y2465 R2503033 R2503033 R2503033 R2503033 R2503033 R2503033 R2503033 R2503033 R2503033 R25030333 R2503033 R2503033 R250303	1	Plate—Dial back plate complete with pointed	X 3305.	
Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R2B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R2B, C9C, R4A, R4B) Printed Circuit PC1 (C9A, C9B, C9C, R2B, C9C, R2B, R2B, R2B, R2B, R2B, R2B, R2B, R2B	1 4		Y2463	
Resistor—Fixed, composition:— 503103 33 ohms, ±10%, ½ watt R1 503115 100 ohms, ±10%, ½ watt R2 503115 150 ohms, ±10%, ½ watt R5 513212 1200 ohms, ±10%, ½ watt R6 503339 39,000 ohms, ±10%, ½ watt R1 503342 220,000 ohms, ±10%, ½ watt R1 503422 220,000 ohms, ±10%, ½ watt R1 503421 100 ohms, ±10%, ½ watt R1 503422 220,000 ohms, ±10%, ½ watt R1 503422 220,000 ohms, ±10%, ½ watt R1 503533 3,3 megohm, ±10%, ½ watt R1 503610 10 megohm, ±10%, ½ watt R7 77352 Shalt—Tuning knob shaft (RC-1120, RC-1120A) 50353 Socket—Tube socket, 7 pin, miniature, moulded, saddle—Tube shield 77362 Switch—Radio power switch S1 77362 Transformer—Sirst 1.F. transformer, complete with adjustable cores T2, C6, C7, C8 77362 Transformer—Second I.F. transformer, complete with adjustable cores T2, C6, C7, C8 77360 RC-1120A) 77903 Transformer—Output transformer (RC-1120B, RC-1120B, RC-1120C) 77360 RC-1120C)	77365	Printed Circuit . PC1 (C9A, C9B, C9C, R4A, R4B)	Y2464	Cabinet—Plastic cabinet—ivory—complete with
South	77363		Y2465	/
503115 503115 513212 1200 ohms, ±10%, ½ watt 503339 39,000 ohms, ±10%, ½ watt 503422 220,000 ohms, ±10%, ½ watt 503422 220,000 ohms, ±10%, ½ watt 503423 33 megohm, ±10%, ½ watt 503610 10 megohm, ±10%, ½ watt 77363 53610 77363 53610 77364 77365 53610 77365 53610 77366 77367 77368 77368 77369 53610 77369 53610 77360 77361 77361 77362 77362 77363 77363 77363 77363 77363 77363 77363 77363 77363 77364 77365 77365 77365 77366 77366 77367 77368 77368 77368 77369 77369 77369 77369 77369 77360 77		33 ohms, ±10%, ½ watt		crystals for Model 2C527
Socket—Tube socket, 7 pin, miniciture, moulded, soddle-mounted Spring—Drive cord spring (RC-1120R, RC-1120A) Spring—Drive cord spring (RC-1120R, RC-1120A) Switch—Radio power switch			77372	
503347 47,000 ohms, ±10%, ½ watt		1200 ohms, ±10%, 1 watt	1	Emblem—"RCA Victor" emblem
503422 220,000 ohms, ±10%, ½ watt		47,000 ohms, ±10%, ½ watt	77369	
503610 10 megohm, ±10%, ½ watt		220,000 ohms, ±10%, ½ watt	1	
77358 77909 76870 76870 76870 76870 76870 77115 Sheft—Tuning knob shaft (RC-1120B, RC-1120C) Shield—Tube shield Socket—Tube socket, 7 pin, minicature, moulded saddle-mounted 77361 77902 32875 75486 75487 75487 75487 75487 75487 75782 77903 77903 77903 77904 77903 77903 77904 77905 77905 77906 77906 77907 77908 77908 77908 77909			1 1	
76870 Shield—Tube shield 77115 Socket—Tube socket, 7 pin, miniciture, moulded 51955 Socket—Tube socket, 7 pin, miniciture, moulded, 51955 Socket—Tube socket, 7 pin, miniciture, moulded, 51955 Socket—Tube socket, 7 pin, miniciture, moulded, 51955 Socket—Tube socket, 7 pin, miniciture, moulded, 51956 Spring—Drive cord spring (RC-1120, RC-1120A) 51957 Spring—Drive cord spring (RC-1120, RC-1120C) 51958 Spring—Drive cord spring (RC-1120, RC-1120C) 51959 Spring—Drive cord spring (RC-1120, RC-1120C) 51959 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120C) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120, RC-1120A) 51950 Spring—Drive cord spring (RC-1120A)	77358	Shaft—Tuning knob shaft (RC-1120, RC-1120A)	22224	maroon—for Model 2C521
77115 Socket—Tube socket, 7 pin, miniature, moulded 51955 Socket—Tube socket, 7 pin, miniature, moulded, 51955 Socket—Tube socket, 7 pin, miniature, moulded, 51955 Socket—Tube socket, 7 pin, miniature, moulded, 51955 Socket—Tube socket, 7 pin, miniature, moulded, 51956 Socket—Tube socket, 7 pin, miniature, moulded, 51957 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, 51958 Socket—Tube socket, 7 pin, miniature, moulded, socket—It be for Model 2C527 Nut—Speed nut to fasten "RCA Victor" emblem to cobinet Window—Polystyrene window for radio or timer 6 dials CLOCK ASSEMBLY Clock—If clock mechanism repair becomes necessary, remove the clock from the radio. The RCA Victor Distributor in your area will advise you of the address of the nearest authorized service station for clock mechanisms. Repair facilities 6 and replacement parts are available at these	76870		773/4	
saddle-mounted 77361 Spring—Drive cord spring (RC-1120, RC-1120A) 77902 Spring—Drive cord spring (RC-1120B, RC-1120C) 32875 Switch—Radio power switch 75486 Transformer—First I.F. transformer, complete with adjustable cores	77115	Socket—Tube socket, 7 pin, miniature, moulded	77375	Knob-Tuning control or volume control knob-
77902 Spring—Drive cord spring (RC-1120B, RC-1120C) 32875 Switch—Radio power switch 75486 Transformer—First I.F. transformer, complete with adjustable cores	21323		77013	
32875 75486 Switch—Radio power switch 75487 Transformer—First I.F. transformer, complete with adjustable cores Transformer—Second I.F. transformer, complete with adjustable cores Transformer—Output transformer (RC-1120, RC-1120A) Transformer—Output transformer (RC-1120B, RC-1120C) Adials CLOCK ASSEMBLY Clock—If clock mechanism repair becomes necessary, remove the clock from the radio. The RCA Victor Distributor in your area will advise you of the address of the nearest authorized service station for clock mechanisms. Repair facilities and replacement parts are available at these		Spring—Drive cord spring (RC-1120, RC-1120A) Spring—Drive cord spring (RC-1120B, RC-1120C)	77491	cabinet
with adjustable cores	32875	Switch—Radio power switch	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
75487 Transformer—Second I.F. transformer, complete with adjustable cores	75486		-	CLOCK ASSEMBLY
77362 Transformer—Output transformer (RC-1120, RC-1120A) 77903 Transformer—Output transformer (RC-1120B, RC-1120C) Victor Distributor in your area will advise you of the address of the nearest authorized service station for clock mechanisms. Repair facilities and replacement parts are available at these	75487	Transformer—Second I.F. transformer, complete		
77903 Transformer—Output transformer (RC-1120B, station for clock mechanisms. Repair facilities RC-1120C) and replacement parts are available at these	77362	Transformer—Output transformer (RC-1120,		Victor Distributor in your area will advise you
33726 Washer—"C" washer for tuning knob shaft authorized service stations.		Transformer—Output transformer (RC-1120B, RC-1120C)		station for clock mechanisms. Repair facilities
	33726	Washer—"C" washer for tuning knob shaft		authorized service stations.

MODEL 36QP, Ch. RC1116, RC1116

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connectifor the oscilloscope are shown in the Schematic Diagram.

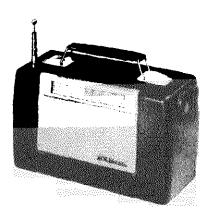
Output Meter Alignment—If this method is used, connect meter across the voice coil, and turn the receiver volume con to maximum.

Test-Oscillator—For all alignment operations, connect the 1 side of the test-oscillator to the receiver chassis, and keep oscillator output low to avoid a-v-c action.

NOTE—If the test-oscillator is also a.c. operated it may be nec sary to use an isolation transformer for the receiver during all ment and to connect the low side of the test oscillator to comn wiring—reversal of the plug may reduce hum.

Dial Indicator—With tuning condenser in full mesh, the it cator should be set to the position shown in the illustration "T Indicator and Drive Mechanism."

Oscillator tracks above signal on all bands. Use minimum pacity peak on oscillator trimmer adjustments and maximum pacity peak on ant, and R.F. trimmer adjustments.



Specifications

Tuning Ranges Standard Broadcast ("A" Band) .520-1605 kc. (576-186 m.) Medium Wave ("B" Band) 2.3-7 mc. (131-42.8 m.) Short Wave ("C" Band) .7-22 mc. (42.8-13.7 m.)	S
Intermediate Frequency455 kc.	
Tube Complement	
(1) RCA 1T4 R.F. Amplifier (2) RCA 1L6 Converter	L
(3) RCA 1T4 I.F. Amplifier	Γ
(4) RCA 1U5 DetA.V.CA.F. Amp.	
(5) RCA 3V4	
One selenium rectifier is used for 105/125 v. operation. Two selenium rectifiers are used for 210/250 v. operation.	\vdash
Power Supply Ratings	
Power Line Operation	-
Chassis RC-1116	
A three-position switch on chassis RC-1116A must be in the	\
correct position for the available power supply.	Г
Power Consumption	
117 v. a.c	T
Battery Pack Operation: Battery packRCA #VS-057	ì
Current consumption"A" (9 v.) 50 ma.; "B" (90 v.) 14 ma.	Γ
Average battery life	-
Power Output Maximum270 milliwattsWith 10% distortion150 milliwatts	_
Loudspeaker Size and type4" (10.2 cm.) P.M. dynamic	1
Voice coil impedance	1
Dimensions (overall) Height	
Antennes	
This receiver has a built-in loop antenna for "A" band reception and a telescoping rod antenna for "B" and "C" bands. The tele-	
scoping rod antenna should be extended to its full height for best	-
short wave reception.	L
An external antenna and ground may be connected to the ANT	

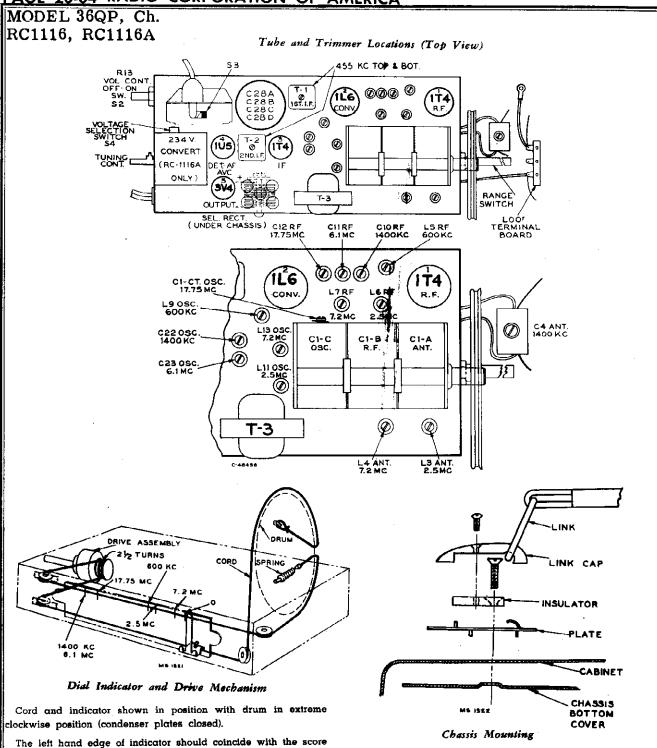
and GND screws at the end of the chassis. This may improve

reception on all bands.

Step	Connect high side of test osc. to—	Tune test	Range Switch	Turn radio dial to—	Adjust fo maximus output—		
1	I.F cmp. grid (pin #6) in series with .01 mf.			quiet point	T2 top & botte		
2	Converter grid (pin #6) in series with .01 mf.	455 kc.	A	near 600 kc.	T1 top & bott		
3		17.75 mc.		17.75 mc.	C1C-T (or C12 (R.F		
4	Rod ant. lead in series with	7.2 mc.	C	7.2 mc.	L13 (osc L7 (R.F. L4 (cnt.)		
5	dummy cost.	Repeat Steps 3 and 4.					
8	(33 ohms in series with 18 mmi.)	6.1 mc.		6.1 mc.	C23 (os: C11 (R.F		
7		2.5 mc.	В	2.5 mc.	L11 (osc L\$ (R.F.) L3 (ant.		
8		Repeat Steps 6 and 7.					
9	Yellow loop	1400 kc.		1400 kc.	C22 (osc C10 (R.E		
10	lead in series with .01 mf.	800 kc.	A	600 kc.	1.9 (osc. 1.5 (R.F.		
11	Repeat Steps 9 and 10.						
12	Assemble receiver, connect loop ant. leads. Connect : ant. lead. Install and connect battery.						
13	Short wire placed near	1400 kc.	A	1400 kc.	C4 (loo)		
14	receiver for	2.5 mc.	В	2.5 mc.	*†L3 (cm		
15	radiated signal	7.2 mc.	C	7.2 mc.	*†L4 (an		

- * Rock gang while adjusting.
- †Extend rod antenna to full height.

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To Remove Chassis

1. Pull out battery and disconnect battery plug.

marks on the dial back plate at the frequencies indicated.

- 2. Remove red wire from rod antenna.
- Pull out on the two plastic loop supports to permit the loop antenna to be removed. When reinstalling, wedge the supports to the cabinet with two small pieces of wood (toothpick or equivalent).
- 4. Unsolder speaker voice coil leads.
- Remove handle (see illustration above). Remove knobs (pull out).
- Remove the two screws under link caps (visible when link caps are removed).

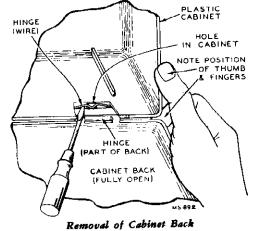
To Remove Hinges

Remove back from cabinet as described above. Spread the hinge apart to remove it from the cabinet back.

To Remove Cabinet Back

With the back fully open, grip the cabinet as illustrated. Insert a screwdriver under one hinge and pry the center of the hinge out of the opening in the cabinet while maintaining pressure on the back with the fingers and on the cabinet with the thumb. Repeat this procedure with the other hinge. Pull the back straight to the rear using both hands.

MODEL 36QP, Ch. RC1116, RC1116A

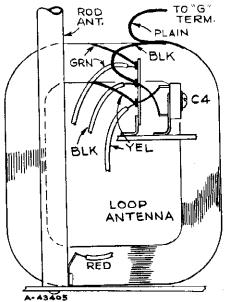


- CRITICAL LEAD DRESS
- 1. Dress all filament leads close to the chassis.
- 2. Dress 33 ohm fuse resistor (R-18) up and away from all wiring.
- 3. Dress R-21 up and away from chassis.
- 4. Dress five section ceramic capacitor (C-27) close to chassis.
- 5. Keep "hot-side" lead of neutralizing capacior (C-18) as short as possible and dress capacitor away from IF tube socket.
- 6. Dress C-19 up and away from IF transformer.
- 7. Dress all leads away from "C" oscillator coil.
- 8. Dress C-25 away from "B" oscillator coil.
- 9. Keep leads on R-3 as short as possible and dress close to 1L6 socket.
- 10. Dress R-1 and R-2 close to chassis base.
- 11. Dress loop leads away from tuning drum.
- 12. Dress lead from oscillator grid of 1L6 (pin #6) with ¼" to 1/8" spacing from capacitor-resistor assembly C-14/R-6.

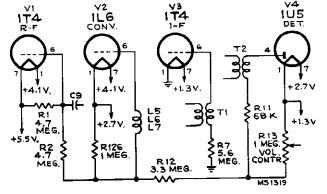
Power Line Operation

A power cord is stored alongside of the battery inside the case. Its plug is inserted in a socket on the chassis. For power line operation: remove the plug from its socket and insert it into a convenient power supply outlet.

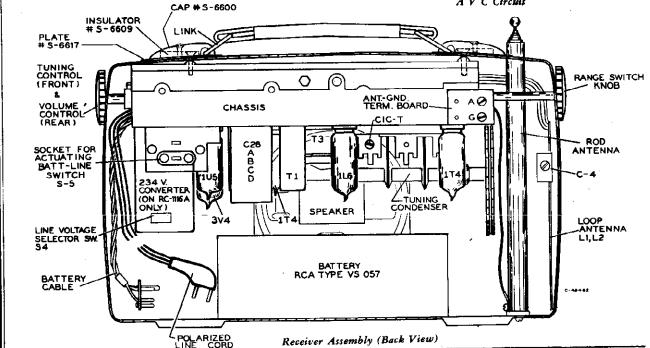
Make sure that the power cord passes through the notch provided in the side of the back cover.



Loop Antenna Connections



A V C Circuit

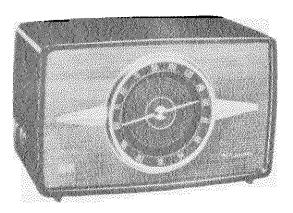


PAGE 23-36 RADIO CORPORATION OF AMERICA MODEL 36QP, Ch. RC1116A 234 V- CONVERTER (ACTUATED BY LINE PLUS) TUNE BATT p 00000 3×4 0vTPUT 20MF S. CAPACITY VALUES (UNLESS OTHERWISE) LESS THAN 1 IN MAF *** VOLTAGES MEASURED TO COMMON WIRING WITH VOLTOHMYST, SMOULD HOLD WITHIN 20% ON CORRECT POWER SUPPLY. ON BATTERY OPERATION "A" VOLTAGES ARE SLIGHTLY HIGHER AND "B" VOLTAGES ARE SLIGHTLY LOWER. RESISTANCE VALUES IN OHMS. K+1000 105 2ND. DET-AVC & AF 38 27E .005 <u>25</u> 25.00 H CERAMIC C27 \$2 \$2 1 1 mm l 5.8 5.8 \$**5**8 .≻<mark>∓</mark>.∓ ⋛≢≝ 3.34662 600000 ٢ ** (\$600KC -6 K ** (\$7.5 MC -0.5 V ** (\$7.5 MC -10.2 V ** (\$7.5 MC -10.2 V ** (\$7.5 MC -2.3 V ** (\$7. خففة لتففة COILS £7.63 TERMINAL VIEW 38 4)) 있을

			
STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLY	S-6587	3.9 megohm, ½ watt (R10)
	RC1116	S-5176	4.7 megohm, ½ watt (R1, R2)
	, north	S-5177	5.6 megohm. ½ watt (R7)
S-6561	Board—ANT-GND terminal board	S-6588	10 megohm, ½ watt (R14)
S-6562	Bracket-Dial cord pulley bracket complete with two pul-	S-6589	Shaft—Tuning control drive shaft assembly
0.000	leys—(tuning drum end.)	S-6322 S-6590	Socket—Tube socket for V1 (1T4) or V2 (1L6) Socket—Tube socket for V3 (1T4)
S-6563 75189	Capacitor—Trimmer capacitor, 4-20 mmf. (C11, C12, C23) Capacitor—Trimmer capacitor, 7-30 mmf. (C10, C22)	S-6591	Socket—Tube socket for V4 (1U5) or V5 (3V4) tubes
/3103	Capacitors—Fixed	S-4511	Spacer—Metal spacer for mounting tuning condenser
S-5128	Ceramic, 4 mmi. (C18)		(3 reg'd)
45233	Ceramic, 100 mmf. (C2)	S-4485	Spring—Drive cord tension spring
S-5131	Ceramic, 120 mmf. (C9, C13)	S-6592	Switch—Tuning range switch (SI-A, SI-B, SI-C)
S-6724	Mica, 430 mmf. (C25)	S-5186 S-5229	Switch—Battery-line switch assembly (S3) Transformer—First I-F transformer (T1)
S-5136 S-5942	Mica, 1800 mmf. (C26) Mica, 4700 mmf. (C24)	S-5223	Transformer—Second I-F transformer (T2)
S-6564	Ceramic, .0022 mf. (C3)	S-6593	Transformer—Output transformer (T3)
S-4853	Molded paper, .0033 mf., 600V. (C17)		
S-9371	Ceramic, .0047 mf. (C21)		CHASSIS ASSEMBLIES
S-5469	Molded paper, .0047 mf., 600V. (C30)		RC1116A
S-6326	Ceramic, .01 mf. (C19)	.	Same as RC1116 except for
75877 S-6565	Ceramic, dual, two sections of .01 mf. (C5A, C5B) Ceramic, five sections, (.002 mf. C27A) (150 mmf. C27B)	1	addition of 234V. converter
2-3303	(.005 mf. C27C) (100 mmf. C27D) (.005 mf. C27E)	1	
S-4706	Molded paper, .047 mf., 400V. (C6, C16, C31, C32, C33)	S-6594	Converter—117V./234V. converter assembly complete
S-5144	Molded paper, .047 mf., 600V. (C34)	74322 S-6595	Rectifier—Selenium rectifier (SR2)
S-5145	Electrolytic, 10 mf., 150V. (C20)	3-0393	Resistor—Tapped wire wound resistor 700 and 950 ohn (R17A, R17B)
S-5146	Electrolytic, comprising one section of 40 mf., 25V., one	S-6596	Switch-117V./234V. converter switch (S4)
	section of 60 mf., 150V., one section of 160 mf., 25V., and one section of 20 mf., 150V. (C28A, C28B, C28C,		
	C28D)		SPEAKER ASSEMBLY
S-4523	Capacitor and Resistor—Assembly comprising 56 mmi.		STAMPED 970654-2
	capacitor and 33 ohm resistor (C14, R6)	S-6597	Speaker-4 inch PM speaker complete with cone and voice
S-4454	Clip—Clip for mounting I-F transformers (2 req'd)		coil
S-6567	Coil-"A" band oscillator coil complete with adjustable	j	
S-6568	core (L8, L9) Coil—"B" band oscillator coil complete with adjustable		MISCELLANEOUS
50500	core (L10, L11)	S-6598	Antenna—"A" band loop antenna (L2)
S-6569	Coil-"C" band oscillator coil complete with adjustable	S-6599	Antenna-Telescoping rod antenna
	core (L12, L13)	S-6622	Back—Cabinet back—GREY
S-6570	Coil—"A" band R-F coil complete with adjustable core	S-6623	Back—Cabinet back—RED
S-6571	Coil—"B" band R-F coil complete with adjustable core	S-6600 S-6601	Cap—Carrying handle link cap (2 req'd) Capacitor—Trimmer capacitor and bracket assembly (C4
	(L6)	S-6602	Case—Plastic case (front and back) GREY—less handl
S-6572	Coil—"C" band R-F coil complete with adjustable core		grille and loop antenna
	(17)	S-6603	Case—Plastic case (front and back) RED—less handl
S-6573 S-6574	Coil—"B" band ant. coil (L3)		grille and loop antenna
S-6575	Coil—"C" band ant. coil (IA) Condenser—Variable tuning condenser (Cl-A, Cl-B, Cl-C)	S-6604	Catch—Metal catch (on case front) to hold cabinet bac
S-6576	Control—Volume control and on-off switch (R13, S2)	S-6605	(2 req'd) Clip—Metal clip (on case back) to hold cabinet back (
S-6577	Cover-Chassis bottom cover	J-0000	red(q)
S-6578	Cord-Tuning indicator drive cord (41 inches required)	S-6606	Grille—Perforated metal grille
S-5149	Cord—Power line attachment cord	S-4463	Grommet—Rubber grommet for speaker mounting
S-4464	Grommet—Rubber grommet to mount tuning condenser		(4 req'd)
S-6579	(3' req'd) Indicator—Tuning indicator pointer	S-6607	Dial—Plastic dial scale
S-6580	Pin—Axle pin for drive cord pulleys (tuning control end)	S-6355 74790	Emblem—"RCA Victor" emblem Hinge—Cabinet hinge (2 req'd)
S-6581	Plate—Dial back plate	S-6608	Handle—Carrying handle—less links
18469	Plate—Insulating plate to mount electrolytic capacitor	S-6609	Insulator—Insulating plate (under link caps)
S-5159	Plug—Five pin plug for battery cable	S-6610	Knob-Tuning knob-GREY
S-5123 S-6582	Pulley—Drive cord pulley (tuning control end) (2 req'd)	S-6611	Knob—Tuning knob—RED
S-6582 S-6583	Rectifier—Selenium rectifier (SR1) Resistor—Armored wire wound, 2300 ohms, 7 watt (R20)	S-6612	Knob—Range switch knob—GREY
- 3003	Resistors—Fixed Composition	S-6613 S-6614	Knob—Range switch knob—RED Knob—Volume control knob—GREY
S-6584	33 ohms, 1 watt (R18)	8-6615	Knob—Volume control knob—RED
3-6723	82 ohms, ½ watt (R5)	S-6616	Link—Carrying handle link (2 req'd)
S-5163	1500 ohms, ½ watt (R24)	S-6617	Plate-Decorative plate for top of cabinet (under lir
S-5164 S-5167	1800 ohms, ½ watt (R9, R21, R22, R25) 2700 ohms, ½ watt (R23)	E 0010	caps) (2 req'd)
36714	15,000 ohms, ½ watt (R4)	S-6618	Screw—#6-32 X %" hex head machine screw for mour ing speaker (4 reg'd)
11	15,000 ohms, 1 watt (R19)	S-6619	Screw—#4 self tapping screw to hold clip catch to call
S-6395	22,000 ohms, 1/2 watt (R8)		inet front (2 req'd)
	68,000 ohms, ½ watt (R11)	S-6620	Screw—#6 self tapping oval head screw to hold dial
	180,000 ohms, ½ watt (R3)	1	cabinet (2 req'd) or link caps to insulator plate (
S-5647 S-6240	220,000 ohms, ½ watt (R15)	0 0001	req'd)
11	11 megohm, ½ watt (R16, R26) 3.3 megohm, ½ watt (R12)	S-6621 S-6086	Spacer—Metal spacer for speaker mounting (4 req'd) Spring—Retaining spring for knobs
11 - 51.75	(4.1.1)		

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MODEL 3-RF-91, Ch. RC1129



Model 3-RF-91 "Woodland"
Maroon

SPECIFICATIONS

TUNING RANGES	
Standard Broadcast (AM)	
Frequency Modulation (FM)	88-108 mc.
Intermediate FrequenciesAN	455 kc., FM-10.7 mc.
TUBE COMPLEMENT	
(1) RCA 6CB6	
(2) RCA 6X8	Mixer-Oscillator
(3) RCA 6BA6	. (AM-FM) I.F. Amplifier
(4) RCA 6AU6	2nd FM I.F. Stage
(5) RCA 6AU6	3rd FM I.F. Stage
(6) RCA 6AL5	F.M. Detector
(7) RCA 6AV6	AM DetAVC-Audio
(8) RCA 6V6-GT	Audio Output
(9) RCA 5Y3-GT	Rectifier

CIRCUIT DESCRIPTION

This instrument, a deluxe AM-FM table radio, has nine tubes, including rectifier. RF circuits, contained on a two tube sub-chassis, include RF amplification for both bands and a combination mixer-oscillator circuit. Special shielding and filtering have been incorporated to reduce oscillator radiation. The mixer is pentode connected for AM operation; triode connected for FM operation. AM IF circuits use an IF amplifier and conventional diode detector with AVC. FM IF circuits include three IF stages and a ratio detector. The two tube audio amplifier has an adjustable tone control circuit with combination bass and, treble compensation, A hum-bucking circuit uses the tapped-winding output transformer. A ferrite core AM antenna, and line cord FM antenna, allow reception without the use of external antennas. A phono jack at the instrument rear permits the use of a record player attachment.



(Left side of cabinet)

(Right side of cabinet)

Radio Controls

 Maximum
 3.5 watts

 TUNING DRIVE RATIO
 .7½:1 (3% turns of knob)

 NET WEIGHT
 .19 lbs.

DIMENSIONS (Overall)

POWER SUPPLY RATING

Height 10" Width 161/2" Depth 9"

OPERATING INSTRUCTIONS

RADIO—Turn OFF-VOLUME control about half-way in a clockwise direction to turn receiver ON and provide for medium VOLUME. Allow a short warm-up period. Set FUNCTION control at desired service—AM or FM. Rotate TUNING control to move the pointer to the desired AM or FM frequency. Adjust VOLUME and TONE controls as desired.

PHONOGRAPH—Connect attachment to PHONO jack at instrument rear. Switch the FUNCTION control to "PH" position. Turn on receiver and adjust VOLUME and TONE controls as desired.

ANTENNAS:

Under average conditions the receiver does not require an external antenna. However, provision is made for the use of external antenna if desired—connect as indicated below:

AM antenna: Open the link (normally connects terminals #1 and #2). Connect a single wire antenna to terminal #1.

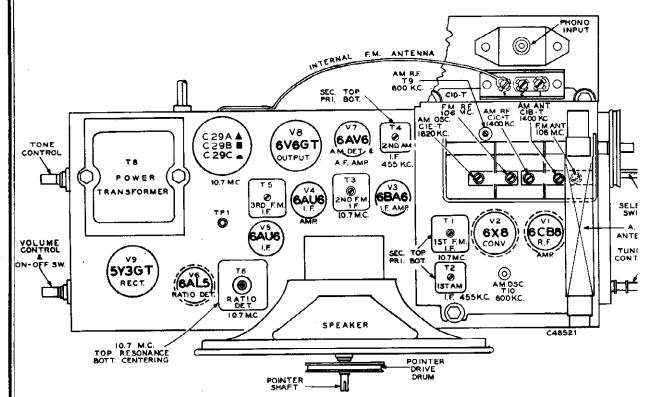
FM antenna: Remove the built-in antenna lead from #3 terminal. Connect the transmission line (300 ohm) from an external dipole antenna to terminals #2 and #3.

Ground: An external ground can be attached to terminal #2 if desired. Under some conditions an external ground is detrimental to FM reception.

NOTE: For satisfactory reception on FM when using the built-in FM antenna the power cord must be fully extended and must not be coiled or hanked up.

MODEL 3-RF-Ch. RC1129

TUBE AND TRIMMER LOCATIONS—VOLTAGE DATA



Tube and Trimmer Locations

VOLTAGE CHART

Tube	Type	Elements	Pin No.	"AM"	"FM"	Phono.
1	RF amp. 6CB6	Plate Screen Cathode Grid	5 6 2 1	195 96 0.4 -1.4	128 65 0.5 -0.2	
2	Mixer 6X8	Plate Screen Grid	9 8 7	39 39 -2.8	38 38 -1.5	
	Osc. 6XB	Plate Grid	3 2	79 -6.1	66 -2.3	
3	IF amp. 6BA6	Plate Screen Cathode Grid	5 6 7 1	195 122 0.8 -1.6	187 100 0.9	218 130 0.9 -1.2
4	IF amp. 6AU6	Plate Screen Cathode	5 6 7	200 65 0.55	195 62 0.55	222 69 0.65
5	IF amp. 6AU6	Plate Screen Cathode Grid	5 6 7 1	52 49 0.36 -0.34	50 47 0.35 -0.34	56 53 0.4 -0.3
6	Ratio Det. 6AL5	_	_	_		
7	AF amp. 6AV6	Plate Grid	7	69 -0.8	69 -0.8	73 -0.8
8	Output 6V6GT	Plate Screen Cathode	3 4 8	242 200 11.1	240 195 10.7	243 222 12.5
9	Rectifier 5Y3GT	Fil.	8	257	254	260

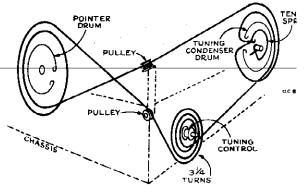
The heater voltage of the mixer/oscillator tube (6X8) is approx. 0.4 volt lower than other tubes in the same circuit. This is due to the filament choke coils L7 and L8.

Voltages and currents measured with tuning condenser closed and no signal input should hold within $\pm 20\%$ with rated line voltage.

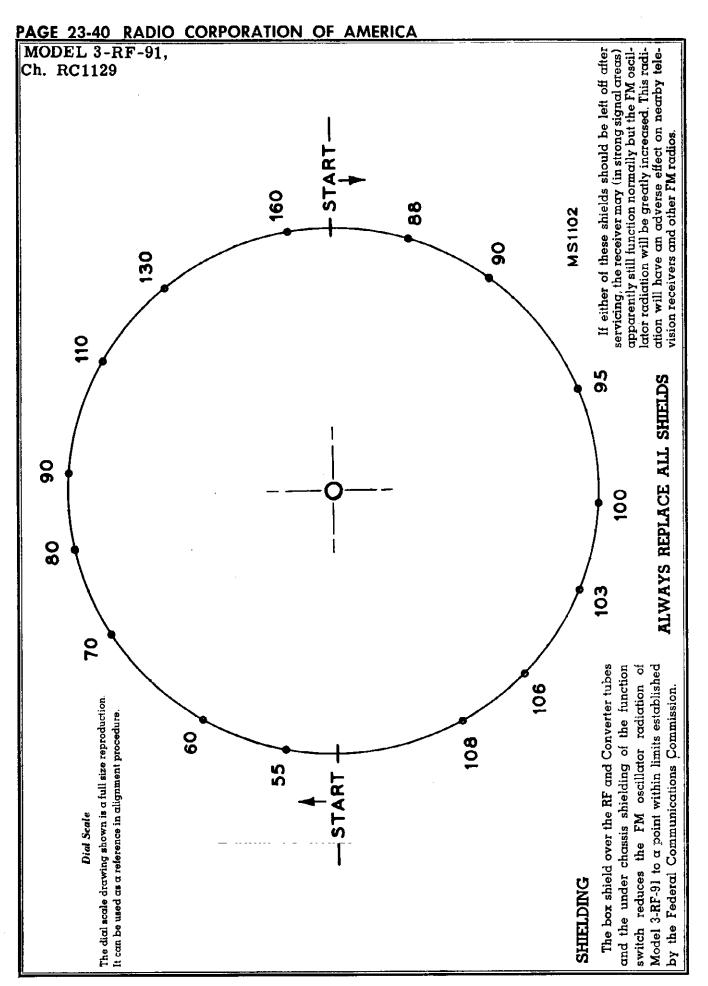
RCA VoltOhmyst used for measuring all voltages.

CATHODE CURRENTS (MA)

	Tube	Terminal	"Ам"	"FM"	Phono.
1	6CB6	2	6.2	7.9	_
2	6X8	6	5.2	5.2	_
3	6BA6	7	11.6	13.4	13.8
4	6AU6	7	5.0	4.7	5,4
5	6AU6	7	3.3	3.0	3.6
6	6AL5	_			_
7	6AV6	2	0.3	0.3	0.36
8	6V6GT	8	34	33	37
9	5Y3GT	8	67	69	62
					4



Dial Cord and Drive Assembly



MODEL 3-RF-Ch. RC1129

ALIGNMENT PROCEDURE

Due to the use of separate I.F. transformers, there is little interaction between the 10.7 mc. and the 455 kc. adjustments.

There is a slight interaction of adjustments on the tuning condenser between AM and FM.

If a large amount of adjustment is required of any circuit, all others should be checked in the following order:

FM I.F. AM I.F. AM Osc., ant. and r.f. FM Osc., ant. and r.f.

Final adjustment of AM ant. trimmer should be made with chassis and antenna in cabinet.

Alignment Indicators:

For measuring the developed d-c voltage across C36 during FM alignment an RCA VoltOhmyst or an equivalent meter should be used. An output meter connected across the voice coil is also needed to indicate minimum audio output during FM Ratio Detector alignment.

The RCA VoltOhmyst can also be used to indicate audio output voltage across the voice coil or developed voltage on the AVC bus.

Signal Generator:

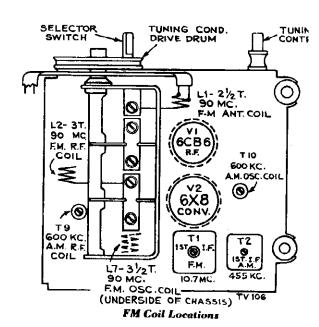
For alignment operations connect the low side of the signal generator to the receiver chassis. The output of the signal generator should always be controlled to prevent over-loading or excessive AVC action.

Oscilloscope Alignment:

It is preferable to use a sweep generator and oscilloscope for aligning I.F. and R.F. circuits to obtain a visual observation of curve shape during alignment.

With FM sweep generator connected between FM ant. (#3) terminal and chassis, and oscilloscope connected between the junction of R39-C32 and chassis, the overall FM linearity may be observed. With 100% FM modulation there should be a peak-to-peak separation of 150 kc. with 50,000 microvolts input before noticeable distortion of the sine wave is present.

For FM alignment of the ratio detector, connect oscilloscope to junction of 56K resistors as in alignment table, adjusting T6 top and bottom cores for 10.7 mc. crossover and balanced peaks. When aligning other FM tuned circuits, connect oscilloscope to TP1. Follow alignment table sequence, adjusting for maximum gain and symmetry.



AM Alignment

RANGE SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to-	Sig. gen. output	Turn radio dial to—	Adjust for peak outpu		
1	Pin 1 of V3 6BA6 in series with .01 mfd.	455 kc.	Quiet point	T4 bottom core (pri.) T4 top core (sec.)		
2	Tap terminal T9 term. 4 in series with .01 mfd.	455 kc.	435 RC.	455 RC.	freq. end	T2 top core (sec.) T2 bottom core (pri.)
3	No. 1	1620 kc.	High freq. end of dial (min. cap.)	ClE-T		
4		1400 kc.	1400 kc. signal	ClB-T ant. ClC-T r.f.		
5	ant, input strip	Shunt a 10,000 ohm resistor across the r.f. section of the gang.				
6		600 kc.	600 kc. signal	T10 osc.* (Rock gang		
7].	Remove the 10,000 ohm resistor and peak T9 r.f.*				
8	Repeat 3, 4, 5, 6 and 7					

* The correct adjustment of the Osc. (T10) core is that politained with core furtherest away from the coil moun clips. R.F. (T9) core should be set to the peak obtaine peaks are seldom obtainable) with core closest to the main clips.

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MODEL 3-RF-91, Ch. RC1129

CRITICAL LEAD DRESS

- Lead from lug terminal "B" of the 1st FM transformer to rear switch wafer terminal #10 should not be changed from the original, 3 inches long plus or minus "4" of #22 copper vinylite covered.
- A.C. leads from power switch on volume control should be dressed as far as possible from the audio-leads and audio coupling condensers near or connecting to the volume control terminals.
- Ground straps between the R.F. shelf and the main chassis should not be relocated.
- The connection point of capacitor C13 is critical, therefore should not be altered. It must be connected to the function switch and not to the I.F. transformer.

RANGE SWITCH FUNCTIONS

The range switch has five functions:

- 1. Selection of AM or FM tuning ranges.
- Selection and distribution of AVC voltages. Full AVC is applied to V1, V2 and V3 in AM position. No AVC is used on FM operation, the grid circuits of V1, V2, V3 being grounded through S1A.
- Controls the application of B+ voltages to the plate and screen circuits of VI and V2 (disconnected in phono position).
- 4. Controls audio input to volume control.
- Switches mixer section of V2 (6X8) from pentode operation on AM to triode operation in FM position, and selects proper I.F. transformer (AM or FM).

FM Alignment

TT Alternate loading may be necessary to provide accurate observation of peaks.

Alternate loading involves the use of a 680 ohm resistor to load the plafe winding while the grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time. Remove the 680 ohm resistor after T3 and T1 have been aligned.

Oscillator frequency is above signal frequency on both AM and FM.

Extreme care should be used to avoid running the I.F. cores all the way through the winding and out the other end.

** Note: FM antenna, mixer and oscillator coils are adjustable by increasing or decreasing the spacing between turns. The location of the tap on the antenna coil is % turn to % turn from the ground end.

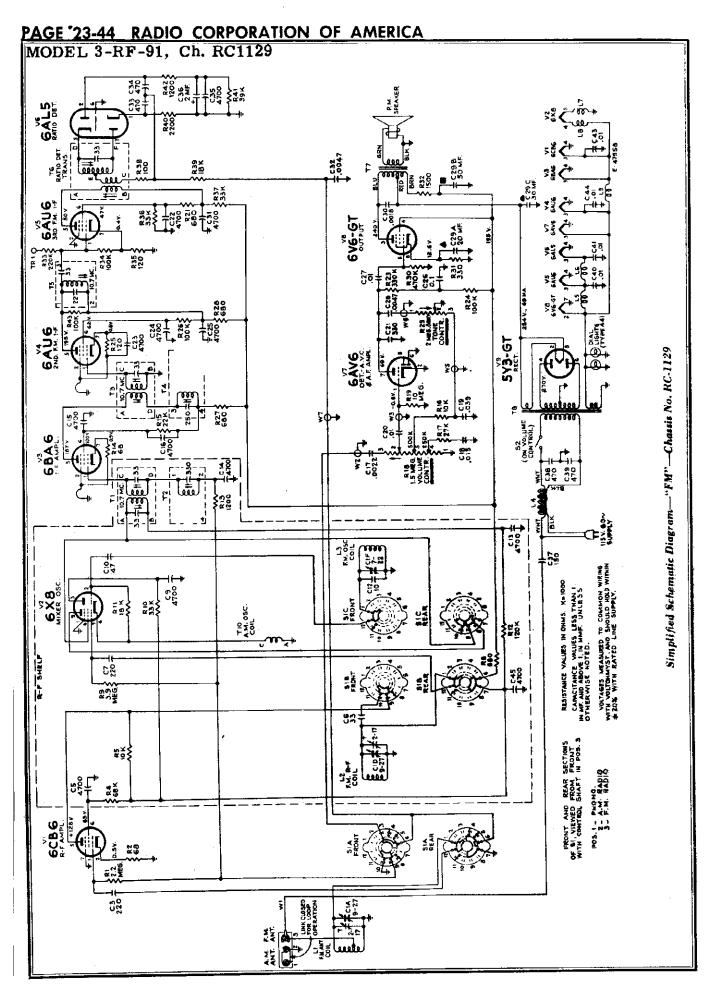
RANGE SWITCH IN FM POSITION— VOLUME CONTROL MAXIMUM—TONE CONTROL CENTER

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output	
1	Pin 1 of V5 6AU6 in series with .01 mfd.	10.7 mc. modulated 30% 400 cycles	Quiet point at low freq. end		
2	Connect Voresistor, Adju	T6 top core for max. d-c voltage across C36			
3	Shunt R41 w connected in a from center j junction	T6 bottom core for 0 volts d-c			
4	Pin 1 of V3 6BA6 in series with .01 mfd.	10.7 mc. modulated	Quiet point at low	VoltOhmyst conn. to TP1. ††T5 top core. T3 top & bottom	
5	Stator of C1D in series with .01 mid.	30% 400 cycles	freq. end	titl top and bottom cores	
6	FM Ant.	90 mc.	90 mc.	Remove bottom shield. **Osc. coil L3	
7	270 ohm resistor in series #3	106 mc.	106 mc. signal	Replace bottom shield. CIA-T ant., CID-T r.f.	
8	ierm.	90 mc.	90 mc.	"*Ll cent. L2 r.f.	
9	Repeat steps 6, 7, and 8 until further adjustment does not improve calibration.				

CORE PEAKING

Incorrect peaking can seriously affect gain and bandwidth. The correct peak is noted for the various coils and transformers.

- The RF transformer core screw should be adjusted on the peak position furtherest removed from the coil mounting clip. An incorrect peak may sometimes be obtained with the core screw almost all the way into the clip.
- 2. The oscillator coil (AM) should be adjusted on the peak obtained with the core coming out the lug end of the coil. When adjusting from the top of the chassis, this is the peak with the core furtherest into the coil.
- 3. The position of the FM IF transformer screws should be noted after adjustment. These cores should be peaked with the core part way out of the coil toward the adjusting hole. It is possible to run the IF cores all the way through the FM windings and obtain a second peak. This will cause serious overcoupling and should be avoided by using a marked adjusting stick. The correct peak is always the first peak obtained when the core is started in from the "backed all the way out" position.



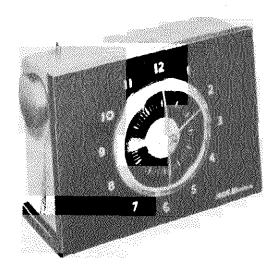
© John F. Rider

RADIO CORPORATION OF AMERICA PAGE 25 MODEL 3-RF-91, Ch. RC11 2000 12000 12000 12000 1400 1410 1841 1841 453 534 470 174 174 170 GALS RATIO DET. 22005 다다. 급 원학 _c32 7.0047 R38 550 X 1 [H \$º°2 837 33K 6AU6 380. FM. 1-F T.00 T.004 6V6-GT £33 220¥ R35 260 V. 52 MA R24 6AU6 2ND. F.M. HF 5Y3-6T 6AV6 DET.-A.Y.C. & A.F. AMPL. R20 390K 100K 25° -5°-R27 9 25.5± 1.05± **፮**Φ₩ ፮Φ₩ S2 (OH VOLUME CONTROL) 6848 FF AMPL: C38 C39 C39 455 KG 30-14 \$5°5° ¥ C13 ₽ FM. OSC COIL 55 6 42 MIXER 0SC. 4700 RESISTANCE VALUES IN OHMS. K=1000 CAPACITANCE VALUES LESS THAN I IN MF AND ABOVE I, IN MMF. UNLESS OTHER WISE NOTED. ~×\$ \$55 \$75 NOTE:- NO VOLTAGE APPLIED TO 6CB6 AND 6CB6 AND POS. 1 - PHONO. 222 SIB 90 PRONT AND REACHOS

OF SI, VIEWED FROM FRONT
WITH CONTROL SHAFT IN MAX.
WOUNTER CLOCKWISE POS, 1.
PHONO.
POS, 1. PHONO.
3. P. M. RADIO
3. P. M. RADIO. 16.50 15.50 **\$** .%₹<u>L</u> 6C'S R-F AMPL: SIA PHONO (P LINKCLOSED FOR LOOP OPERATION 7 # CIA 220 ₹8 C.828-21 ANT. F.M. 20

No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES	503168	680 ohms, ±10%, ½ watt (R8, R21, R27, R28)
	RC1129		
	NC1123	503212	1200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R13, R42)
12717	Board-Antenna terminal board	503222	2200 ohms, ±10%, ½ watt (R40)
76333	Capacitor—Variable tuning capacitor (CIA, CIB,	503233	3300 ohms, ±10%, ½ watt (R6)
80480	CIC, CID, CIE, CIF)	503310	10,000 ohms, ±10%, ½ watt (R\$, R16)
73473	Capacitor—Fixed, ceramic, 4700 mmt., +100%,	503318	18,000 ohms, ±10%, ½ watt (R11, R39)
	-0%, 500 volts D.C., High "K" disc (C5, C9,	503322	$22,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R15)}$
	C14, C15, C16, C22, C23, C24, C25, C31, C35,	503327	
	C45)		$27,000 \text{ ohms, } \pm 10\%, \frac{1}{2} \text{ watt (R17)}$
22000		503333	33.000 ohms, ±10%, ½ watt (R36)
73960	Capacitor—Fixed, ceramic, 10,000 mmf., +100%,	513333	33,000 ohms, $\pm 10\%$, 1 watt (R10, R37)
	-0%, 500 volts D.C., High "K" disc (C40, C41,	503339	39,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R41)
1	C43, C44)		
76552	Capacitor—Fixed, ceramic, insulated, 330 mmf.,	503368	68,000 ohms, ±10%, ½ watt (R4)
, 0000		503410	100,000 chms, $\pm 10\%$, $\frac{1}{2}$ watt (R22, R24, R
22222	±10%, 500 volts D.C., High "K" disc (C21)		R34, R43)
77277	Capacitor—Fixed, ceramic, non-insulated, 3 mmf.,	503412	
	± 1 mmf., 500 volts D.C., Temp. coef. ± 0 (C2)		120,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R12)
76350	Capacitor—Fixed, ceramic, non-insulated, 10	503422	220,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R33)
, , , ,	mmf., ±0.5 mmf., 500 volts D.C. Temp coef. =	503433	330,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R23)
ł		503439	390,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R20)
[470 (C12)		
76349	Capacitor—Fixed, ceramic, non-insulated, 12 mmf.,	503447	470,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R30)
	$\pm 10\%$, 500 volts D.C. Temp coef. $= -330$ (C11)	503522	2.2 megohm, $\pm 10\%$, $\frac{1}{2}$ watt (R1, R3)
70596	Capacitor—Fixed, ceramic, non-insulated, 33 mmf.	503539	
, 5000		1 1	3.9 megohm, ±10%, ½ watt (R9)
	$\pm 10\%$, 500 volts D.C. Temp coef. ± 0 (C6)	503610	$10 \text{ megohm}, \pm 10\%, \frac{1}{2} \text{ watt (R19)}$
39042	Capacitor—Fixed, ceramic, non-insulated, 47 mmf.,	76339	Shaft—Tuning knob shaft
	$\pm 10\%$, 500 volts D.C. Temp coef. $= -750$ (C10)	73584	Shield—Tube shield for V2
71920	Capacitor—Fixed, ceramic, non-insulated, 220		
, 1020		76331	Shield—Tube shield for V1, V6
ļ	mmf., $\pm 10\%$, 500 volts D.C. Temp. coef. $= -750$	35574	Socket—Dial lamp socket
	(C3, C7)	73117	Socket—Tube socket, 7 pin, miniature, wafer :
	Capacitor—Fixed, mica:		V1 and V7
39632		77937	
	150 mmf., ±10%, 500 volts D.C. (C37)	//33/	Socket—Tube socket, 7 pin, miniature, wafer
77941	470 mmf., ±10%, 300 volts D.C. (C33, C34)		V3, V4, V5, V6
39644	470 mmf., ±20%, 500 volts D.C. (C38, C39)	70827	Socket—Tube socket, octal, wafer for V8, V9
39668	4700 mmf., ±20%, 500 volts D.C. (C13)	76336	Socket-Tube socket, 9 pin, miniature, sade
73747		1 7 7 7 7 7	bocker tube socker, 5 pm, minigitire; sage
	Capacitor—Electrolytic, 2 mfd., 50 volts (C36)	20000	mounted for V2
76330	Capacitor—Electrolytic comprising 1 section of 30	76332	Spring—Drive cord spring
	mfd., 350 volts, 1 section of 50 mfd., 300 volts, and	76334	Switch—Function switch (S1)
	I section of 20 mfd., 25 volts (C29A, C29B, C29C)	76335	
	Capacitor—Fixed, tubular, paper:		Transformer—First I.F. transformer—A.M. (T2)
77040		75559	Transformer—First I.F. transformer—F.M. (T1)
77942	0.0022 mfd., 200 volts (C17)	76328	Transformer—Second I.F. transformer—A.M. (T4
73920	0.0047 mfd., 600 volts (C28, C32)	76329	Transformer—Second I.F. transformer—F.M. (T3
77424	0.01 mfd., 200 volts (C20)	1 1	ridisionier-Second I.I. transformerr.M. (1)
73561	0.01 mfd., 400 volts (C27)	77939	Transformer—Third I.F. transformer—F.M.—co
		1 1	plete with adjustable core (T5)
77943	0.015 mfd., 200 volts (C18)	77940	Transformer—Output transformer (T7)
77989	0.039 mfd., 200 volts (C19)		ridustoffier—Output tidustormer (1/)
73558	0.047 mfd., 200 volts (C4)	76326	Transformer—Power transformer, 117 volts,
73551	0.1 mid., 400 volts (C26)	1 1	cycle (T8)
		77938	Transformer—Ratio detector transformer comple
73851	0.0018 mfd., 1600 volts, oil impregnated (C30)	1	with adjustable core (T6)
73935	Clip—Mounting clip for I.F. transformer	1 22200	with deligitable cole (10)
76354	Coil—Antenna coil—F.M. (L1)	33726	Washer—"C" washer for station selector poin
71942	C-1 Fil 1 (27 70 70)		shaft and pulley and for tuning knob shaft
	Coil—Filament choke coil (L5, L6, L9)		
76351	Coil—Filament choke coil (L7, L8)		SPEAKER ASSEMBLIES
76337	Coil—Oscillator coil—A.M.—complete with ad-		92586-8-W RMA-274
. 500,	instable (Tio)	75024	Cone—Cone and voice coil (3.2 chms)
55555	justable core (T10)	74664	Speaker-8" P.M. speaker complete with cone a
77973	Coil—Oscillator coil—F.M. (L3)		moise soil (2.2 short)
76338	Coil—R.F. coil—A.M.—complete with adjustable		voice coil (3.2 ohms)
	core (T9)		MISCELLANEOUS
30000		76343	Antenna—Ferrite rod antenna complete with c
76353	Coil—RF coil—F.M. (L2)	'''	loss mesonite and distanting complete with C
35787	Connector—Phono input connector (J1)	l acces	less masonite support and grommets
76460	Contact—Test point contact (TP1)	76359	Back—Cabinet back
77936	Control Ton and Lance	77944	Bezel—Decorative bezel—round—for front of co
	Control—Tone control (R29)	1 1 1	inet
70342	Control-Volume control and power switch (R18,	Y2519	Cabinet—Plastic cabinet less decals
1	S2)		Clie Manufacturine less decois
72953		76678	Clip—Mounting clip for cabinet back (4 require
12000	Cord—250' Drive cord reel—approx. 50" overall	76767	Decal—Control function decal
	required	76356	Dial-Polystyrene dial scale
70392	Cord—Power cord and plug	77033	Emblem—"RCA Victor" emblem
74839	Fostener Push fostenes for		Casamat Bull.
	Fastener—Push fastener for mounting RF shelf	77950	Grommet—Rubber grommet for mounting ferr
74838	Grommet—Power cord strain relief (1 set)	, , , ,	rod antenna to masonite support (2 required)
16058	Grommet—Rubber grommet for RF shelf (4	77951	Insert—Hard rubber insert for antenna mounting
	required)	''''	growness (2 partial)
	.vquitou)	1 77000	grommets (2 required)
	LCMD-1)ici lcmn-Manda A4	77232	Knob-Function switch knob-maroon
11891	Lamp—Dial lamp—Mazda 44		Knob—Tuning control, tone control or volume co
	Pan—Speaker pan assembly complete less storten	77233	
11891	Pan—Speaker pan assembly complete less station	77233	trol and nower switch knob-masson
11891 76340	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley	i	trol and power switch knob-marcon
11891 76340 76341	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley	77947	trol and power switch knob—maroon Nameplate—"AM-FM" nameplate
11891 76340	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley	i	trol and power switch knob—maroon Nameplate—"AM-FM" nameplate
11891 76340 76341	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts	77947	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4:
11891 76340 76341	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32)	77947 72765	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4: quired)
11891 76340 76341 52436	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition:	77947	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4: quired) Nut—Speed nut to fasten "RCA Victor" or "A
11891 76340 76341 52436	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition:	77947 72765 73203	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 : quired) Nut—Speed nut to fasten "RCA Victor" or "A FM" emblems to cabinet
11891 76340 76341 52436	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14)	77947 72765	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 : quired) Nut—Speed nut to fasten "RCA Victor" or "Al FM" emblems to cabinet
76340 76341 52436 503068 503110	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14) 100 ohms, ±10%, ½ watt (R38)	77947 72765 73203 77948	trol and power switch knob—maroon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 : quired) Nut—Speed nut to fasten "RCA Victor" or "A FM" emblems to cabinet Pointer—Station selector pointer
11891 76340 76341 52436 503068 503110 503112	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14) 100 ohms, ±10%, ½ watt (R38) 120 ohms, ±10%, ½ watt (R25, R35)	77947 72765 73203 77948 77945	trol and power switch knob—maroon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 : quired) Nut—Speed nut to fasten "RCA Victor" or "A FM" emblems to cabinet Pointer—Station selector pointer Reflector—Dial scale reflector
11891 76340 76341 52436 503068 503110 503112	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14) 100 ohms, ±10%, ½ watt (R38) 120 ohms, ±10%, ½ watt (R25, R35)	77947 72765 73203 77948 77945 77946	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 nameplate) Nut—Speed nut to fasten "RCA Victor" or "Al FM" emblems to cabinet Pointer—Station selector pointer Reflector—Dial scale reflector Screen—Grille screen
11891 76340 76341 52436 503068 503110 503112 503133	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14) 100 ohms, ±10%, ½ watt (R38) 120 ohms, ±10%, ½ watt (R25, R35) 330 ohms, ±10%, ½ watt (R7)	77947 72765 73203 77948 77945 77946 74734	trol and power switch knob—marcon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 nameplate) Nut—Speed nut to fasten "RCA Victor" or "Al FM" emblems to cabinet Pointer—Station selector pointer Reflector—Dial scale reflector Screen—Grille screen
76340 76341 52436 503068 503110 503112	Pan—Speaker pan assembly complete less station selector pointer shaft and pulley Pulley—Station selector pointer shaft and pulley Resistor—Fixed, wire wound, 1500 ohms, 4 watts (R32) Resistor—Fixed, composition: 68 ohms, ±10%, ½ watt (R2, R14) 100 ohms, ±10%, ½ watt (R38) 120 ohms, ±10%, ½ watt (R25, R35)	77947 72765 73203 77948 77945 77946	trol and power switch knob—maroon Nameplate—"AM-FM" nameplate Nut—Speed nut to fasten bezel to cabinet (4 : quired) Nut—Speed nut to fasten "RCA Victor" or "Al FM" emblems to cabinet Pointer—Station selector pointer Reflector—Dial scale reflector

MODELS 2C511, 2C51 2C513, 2C514, Ch. RC1



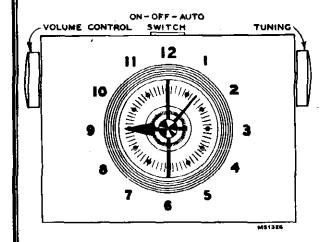
2C511 2C512 2C513 2C514 Black & Gray Ivory Red Two Tone Gray

SPECIFICATIONS

Tuning Range	Loudspeaker:
Intermediate Frequency455 kc	Size and type
Tube Complement:	Voice Coil impedance
(1) RCA 12BE6 Converter (2) RCA 6BJ6 I.F. Amplifier (3) RCA 12AV6 DetAVC-A.F. Amp. (4) RCA 6AK6 Output RCA Stock No. 77292 Rectifier	Power Output: 0.19 Undistorted 0.35 Maximum 0.35 Tuning Drive Ratio 1 to 1 (Direct I
Power Supply Rating: 115 volts a.c., 60 cycles	Weight 41 Dimensions (overall): Height 6" Width 8½" Depth 4

OPERATING INSTRUCTIONS

This instrument contains a timer-type electric clock mechanism which may be used to automatically actuate the self-contained a.c. radio. The radio may also be operated independently of the clock mechanism.



Clock Radio Controls

CLOCK—1. Plug instrument into 115 v. a.c. outlet clock will start to operate immediately. Set the correct by turning clockwise, the "TIME" knob located a center of the instrument back. To set the alarm, tur "ALARM" knob clockwise until the desired time is cated by the alarm pointer extension on the hour I Pull knob out for alarm buzzer operation. To turn off by push knob in.

RADIO—1. To obtain radio operation independen the clock, push the slide switch lever at the top cabinet to the left. "ON" position. Adjust volume and ing control knobs as required after approximately 30 ond warm-up. To increase volume turn knob clockwi viewed from volume control side panel. Push slides lever to the center "OFF" position when finished liste

2. To automatically actuate the radio by the clock is anism, make initial volume and station setting described in section 1 above. Set the "ALARM" know the time desired. Push slide switch lever to the "AUTO" position. If the alarm buzzer knob is pulled the alarm will sound approximately ten minutes after radio starts operating. Push alarm knob in to tustiate the radio will turn itself off after a pericapproximately one hour if the slide switch remains: "AUTO" position after start of playing.

CAUTION—Reep slide switch "ON-OFF-AUTO" le "OFF" position when instrument is not in use. Locate i ment so that "TIME" and "ALARM" knobs have movement.

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MODELS 2C511, 2C512, 2C513, 2C514, Ch. RC1118

ALIGNMENT PROCEDURE

Output Meter Alignment—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test-Oscillator—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid AVC action.

On a.c operation an isolation transformer (115 v./115 v.) may be necessary for the receiver if the test oscillator is also a.c. operated.

ALIGNMENT TABULATION

Step	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. output
1	6BJ6 1-F grid through 01 mfd. capacitor	455.1	Quiet- point	T2 (top and bottom) 2nd I-F trans.
2	Stator of C1-A through .01 mfd.	455 kc	1600 kc end of dial	Tl (top and bottom) lst I-F trans.
3		1620 kc	Min. cap.	osc. trimmer C1B-T
4	Short wire placed near	1400 kc	1400 kc signal	ant. trimmer CIA-T
5	loop to radiate signal	600 kc	600 kc (rock)	(osc. coil) Slug L3
6		Rep	eat steps 3,	4, and 5

RADIO CHASSIS AND CLOCK SERVICE

TOOL REQUIREMENTS—A small #1 size cross-head screwdriver is required for disassembly of the radio into its major cabinet and chassis components.

TUBE SERVICE—Disassembly—To make tubes accessible for testing, remove the volume and tuning control knobs by pulling oif. Unscrew counterclockwise the alarm and time knobs from their shafts. Invert the cabinet and remove only the two cross-head screws along the back underside of the cabinet. Place the cabinet in its normal position. Using only firm hand pressure, press down alternately at front right and left sides of the cabinet top, midway between the "ON-OFF-AUTO" slide switch lever and the cabinet sides, forcing down and backward, to disengage the molded-in plastic catches. Then lift off the cabinet rear cover.

Assembly—To reassemble, proceed in the reverse order, sliding the cabinet rear cover into its track on the cabinet base. Lift the front corners up slightly to clear the two molded-in pads at each front corner of the cabinet base. Then press down and snap-in the upper front edge of the cabinet rear cover under the top rim of the cabinet base. Make sure the slide switch and switch lever are in corresponding center "OFF" positions. Reassemble clock and radio knobs, and the two screws securing the cabinet rear cover.

RADIO CHASSIS SERVICE—Disassembly—To service chassis, open case as described above. In addition, remove the single cross-head screw remaining at the front underside of the cabinet and also the two cross-head screws located on the chassis near the tuning gang and the volume control. Lift out the chassis and remove the four self-tapping cross-head screws holding the bottom cover to the chassis. Lift off the bottom cover.

Assembly—Reassemble in the reverse order. Secure the bottom cover to the chassis with the four self-tapping screws. Next, insert the single self-tapping screw holding the chassis to the bottom of the cabinet base. Center the chassis mounting holes so that they line up with the holes in the cabinet and replace the two cross-head machine screws. Tighten just sufficiently to hold the chassis firmly. Do not turn the screws to the possible limit of travel unless this is necessary to hold the chassis firmly. The average receiver may have a $\frac{1}{2}$ clearance between the chassis

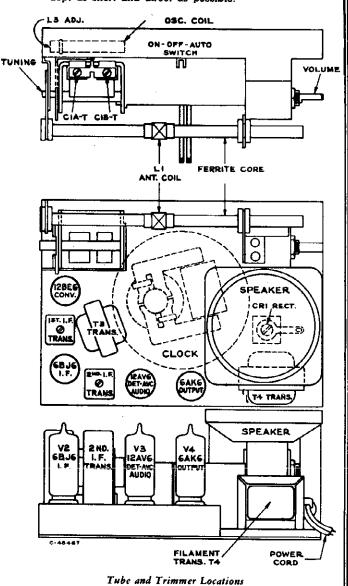
metal panel and molded plastic boss. If any of the four foam rubber cushions on the bottom cover register in the clock face after assembly, push the excess length under the "Z" tabs of the bottom cover.

CLOCK SERVICE—Disassembly—To service clock, remove chassis and bottom cover as described above. In addition, remove the three screws holding the speaker to the speaker mounting bracket. Remove the two hex nuts holding the clock to the chassis pan recess. Lift the clock out. Unsolder the clock leads at the clock terminals.

Assembly—Proceed in the reverse order. Solder clock leads, and secure clock to chassis pan with two hex head nuts. Reassemble speaker to speaker mounting bracket.

CRITICAL LEAD DRESS

- Filament leads should be dressed away from secondary output lead, terminal #1, of 2nd I.F. Transformer and secondary output lead, terminal #1, of 1st I.F. transformer.
- Connect the outside foil of capacitors as shown on schematic.
- Dress electrolytic capacitor leads and filament transtormer leads away from selenium rectifier.
- 4. Plate and grid leads of 12BE6 and 6BJ6 tubes should be kept as short and direct as possible.

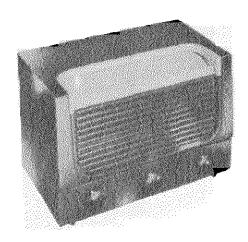


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2C513, 2C514, Ch. RC1118

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES	77414	Transformer—Output transformer
	RC 1118—Model 2C511 RC 1118A—Model 2C512	77416	Transformer—lst. I.F. transformer complete with
{	RC 1118B—Model 2C513 RC 1118C—Model 2C514		adjustable cores
77410	Antenna—Ferrite rod antenna complete with	77417	Transformer—2nd. I.F. transformer complete with
7,	windingsLl		adjustable cores
77408	Capacitor—Variable tuning capacitorCIA, CIB	77420	Washer—Shoulder washer (nylon) for variable
77471	Capacitor—Ceramic, 4.7 mmf		tuning capacitor mounting (3 req'd)
75609	Capacitor—Ceramic, 47 mmf		SPEÄKER ASSEMBLIES
75641	Capacitor—Ceramic, 390 mmf. C12		971920-1
75198	Capacitor—Ceramic, 470 mmf	77428	Speaker—3" P.M. speaker complete with cone and
77427			voice coil (3.2 ohms)
//42/	Capacitor—Electrolytic comprising 1 section of 50 mfd., 150 wolts and 1 section of 30	 	MISCELLANEOUS
]	mid., 150 volts	77430	Back—Polystyrene cabinet back—gray tan—for
77425	Capacitor—Tubular, paper, .0015 mfd., 200		Model 2C511
1	volts	77505	Back—Polystyrene cabinet back—ivory—for Model
77488	Capacitor—Tubular, paper, .0056 mid., 400		2C512
	volts	77507	Back—Polystyrene cabinet back—red—for Model
77424	Capacitor—Tubular, paper, .01 mfd., 200 voltsC8		2C513
77422	Capacitor—Tubular, paper, .047 mfd., 400 voltsC4	77509	Back—Polystyrene cabinet back—gray—for Model
75071	Capacitor—Tubular, moulded, .047 mfd., 400	77433	2C514
	volts	77429	Button—Slide button for function switch less clip
77423	Capaciter—Tubular, paper, 0.1 mfd., 400 voltsC6	//425	Case — Polystyrene case front — black — complete with window less back for Model 2C511
77421	Clip—"C" clip for mounting speaker	77504	Case — Polystyrene case front — ivory — complete
75010	Clip—"C" clip for mounting output transformer		with window less back for Model 2C512
73935	Clip—Mounting clip for I.F. transformer	77506	Case—Polystyrene case front—red—complete with
77411	Coil—Oscillator coil complete with adjustable		window less back for Model 2C513
22400	core	77508	Case — Polystyrene case front — gray — complete
77409 70392	Control—Volume control	75104	with window less back for Model 2C514
77404	Cord—Power cord and plug	77434	Clip—Spring clip for function switch slide button
	Cover—Chassis bottom cover	77498	Dial—Dial knob—gray tan—for Model 2C511
77419	Cushion—Foam rubber cushion for speaker rim or bottom cover	77499	Dial—Dial knob—ivory—for Model 2C512 Dial—Dial knob—red—for Model 2C513
74838	Grommet—Power cord strain relief (1 set)	77500	Dial—Dial knob—gray—for Model 2C514
77418	Grommet—Rubber grommet for mounting ferrite	77432	Knob—Volume control knob—gray tan—for Model
// 110	rod antenna	1 // 102	2C511
77405	Insulator—Bakelite insulator for variable tuning	77501	Knob-Volume control knob-ivory-for Model
	capacitor		2C512
77406	Insulator—Ferrite rod antenna mounting insulator	77502	Knob-Volume control knob-red-for Model
	L.H.		2C513
77407	Insulator—Ferrite rod antenna mounting insulator	77503	Knob—Volume control knob—gray—for Model
77000	R.H.	77412	2C514 Knob—Timer knob
77292	Rectifier—Selenium rectifier	77437	1
503022	Resistor—Fixed, composition:—	//43/	Screw—#6 x 1/4" cross recessed truss head tapping screw for mounting chassis
	22 ohms, ±10%, ½ watt	77436	Screw—#6-32 x 1/6" cross recessed truss head
503139	100 ohms, ±10%, ½ watt R11 390 ohms, ±10%, ½ watt R10	11.33	machine screw for mounting chassis to case
532215	1500 ohms, ±10%, 2 watts	77435	Screw—#6-32 x 1/6" cross recessed truss head
503333	33,000 ohms, ±10%, ½ watt		machine screw for fastening case assembly
503347	47,000 ohms, ±10%, ½ watt	74734	Spring—Spring clip for dial knob or volume control
503433	330,000 ohms, ±10%, ½ watt	77407	knob
503482	820,000 ohms, ±10%, ½ watt	77467	Washer—Knob Washer—felt
503533	3.3 megohm, ±10%, ½ watt		CLOCK ASSEMBLY
503547	4.7 megohm, ±10%, ½ watt	* * *	Clock—If clock mechanism repair becomes neces-
75780	Socket—Tube socket, 7 pin. miniature, saddle		sary, remove the clock from the radio. The RCA Victor Distributor in your area will advise you
	mounted		of the address of the nearest authorized service
77415	Switch—Function switch		station for clock mechanisms. Repair facilities
77413	Transformer—Filament transformer 117 volts A.C.		and replacement parts are available at these
	inputT4		authorized service stations.
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MODEL 2-X-62 Ch. RC1085B



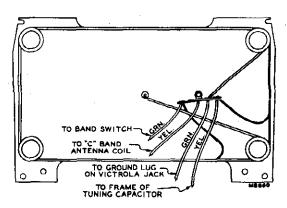
Specifications

Tuning Ranges	Loudspeaker
Standard Broadcast ("A" Band) 540-1600 kc	Type 971495-9W
Short Wave ("C" Band) 5.8-18.0 mc	V. C. Impedance3.2 ohms at 400 cycle
Intermediate Frequency 455 kc	Power Output
Tube Complement	Undistorted 0.85 wat
(1) RCA 12BA6	Maximum 1.2 wat
(2) RCA 12BE6Converter	Weight
(3) RCA 12BA6I. F. Amplifier	Cahinet Dimensions
(4) RCA 12SQ7Det A.F A.V.C.	
(5) RCA 35L6GTOutput	Height85% in. Width1134 in. Depth71/2 it
(6) RCA 35Z5Rectifier	Tuning Drive Ratio
Dial Lamp	NOTE: If reception is not obtained on DC, revers
Power Supply Rating	plug in outlet receptacle. This may also reduce hum o
115 volts, D.C. or 50 to 60 cycles, A.C35 watts	AC operation.

Operating Instructions

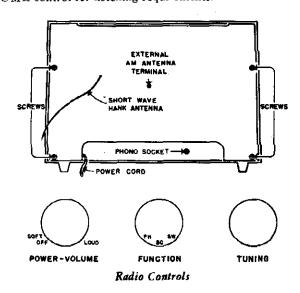
Radio—Turn power on with POWER-VOLUME control and set about half-way for volume. Set the FUNC-TION Control for the type of program desired and allow 30 to 40 second warm-up period when the dial will be fully illuminated.

Tune in desired station with TUNING Control making slow and careful setting in conjunction with volume control for Short Wave reception. Make final setting of VOLUME control to suit requirements.

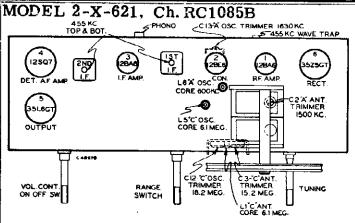


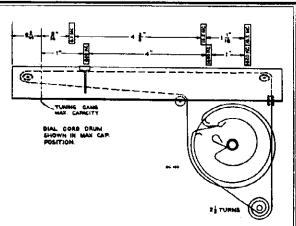
Loop Antenna Leads

Phonograph Operation—Plug in record changer attachment to phono socket on lower chassis apron. Set FUNC TION switch to "PH" (phono) position. Adjust VOI UME control for listening requirements.



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Tube and Trimmer Locations

Dial Indicator and Drive Mechanism

ALIGNMENT PROCEDURE

Steps	Connect the High Side of The Test Osc. to—	Tune Test Osc.	Range Switch to-	Turn Radio Dial	Adjust for maximum output	
1	Pin No. 1 of 12BA6 I.F. amp? tube in series with 0.1 mfd.		"A"		Top and bottom T2 2nd I.F. Trans.	
2	Pin No. 7 of 12BE6 Converter tube in series with 0.1 mfd.	455 kc.			Quiet Point near 1600 kc.	*Top and bottom Ti 1st I.F. Trans
3	Pin No. 1 of 12BA6 R.F. tube in series with 0.1 mfd.				L2 wave trap for minimum output.	
4	(Radiated signal) short piece of wire placed near ant.	1620 kc.	"A"	1620 kc. (Cap. min.)	C-13 "A" Osc.	
5		1400 kc.		1400 kc.	C-2 "A" ant.	
6		600 kc.		600 kc.	L6 "A" Osc. Rocking gang.	
7	Repeat steps 4, 5 and 6.					
	Center terminal on loop antenna Term, board through 47 mfd. Low side to loop primary terminal	18.2 mc.		18.2 mc. (Min. cap.)	++C-12 "C" Osc.	
•		15.2 mc,	"C"	15.2 mc.	***†C-3 "C" Ant.	
10		6.1 mc.		6.1 mc.	††L-5 "C" Osc. L-1 "C" Ant.	
11	Repeat steps 8, 9, and 10 as necessary.					

^{*}Use 18K resistor across primary when aligning secondary, across secondary when aligning primary.

Test Oscillator—Connect low side of test oscillator to common wiring in series with a .1 mf. capacitor. If the test oscillator is a. c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the test oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Output Meter Alignment—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

49m 6.5 7 8 9 3m 11 25m 13 14 9m 16 6m
55 60 70 80 100 120 140 160

RCATuctor

MAX. CAP.

Dial Scale Actual Size

^{**}Two peaks should be found, use one having lowest capacity.

^{***}Two peaks should be found, use one having highest capacity.

[†]Radio dial tuned to 15.2 mc. as in step 9, tune test osc. to 16.11 mc. where a weaker signal should be heard.

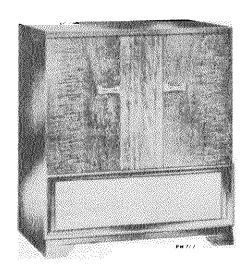
^{††}Radio dial tuned to 6.1 mc. as in step 10, tune test osc. to 7.01 mc. where a weaker signal should be heard.

RADIO CORPORATION OF AMERICA PAGE MODEL 2-X-62) Ch. RC1085B 20 0-46663 €158 + DIAL LAMPS ALL CAMCITANCE WALUED LESS THAN 1.0 ARE IN ME AND ABOVE 1.0 ARE IN MANE EXCEPT THOSE INDICATED. 문화**> 등**중 4 M V-B OUTPUT BBLG-GT 謞 tube servicing by lowering loop back. They should be evenly spaced to maintain low capacity and dressed to prevent touching gang plates. All R.F. leads to coils should be short and direct. Dress other leads and components away from coils. 髭 V-4 DET.-A.F.-AMC. N25Q7 VOLTAGES MEASURED TO COMMON WIRING WITH "VOLTOHMYST" AND SHOULD HOLD WITHIN # 20% 靐卓 æ === CRITICAL LEAD DRESS V-2 CONVERTER 12BE6 Dress all heater leads and pilot light leads down to chassis and away from all audio grid and plate wiring. Dress all exposed leads away from each other and away from chassis to prevent short circuits. Leads to loop antenna are long and draped to permit 2§ ~~ ريش روس 58 - 55 がい 2.4 32 7 7 2 ¥ 33 FRONT AND REAR SECTION OF SHI VIEWED PROM PROM PRONT WITH THE CONTROL SMART IN EXTREME C/CLOCKWISE POSITION® (PNON 28 T 52 رخ نې ~; ×8 22 r 🗆 💱 18 35

	T		T
STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
1	CHASSIS ASSEMBLIES		Resistor—Fixed, composition:—
1	CHASSIS ASSEMBLIES RC-1085B	514033	100 0mme, ==01 = watty
1 '	NO-1003B	503082	
77217	Antenna—Antenna loop and back cover—maroon	503112	
77217	The state of the s	503118	
//21.	Back-Cabinet back cover and antenna loop assemblymaroon	503127	
71042	1		
77216		503210	
	drive drum	513212	
74924	Capacitor—Mica trimmer, dual 3-35 mmf	503333	, — : : , := :: — : : : : : : : : : : : : : : : :
74923	Capacitor—Mica trimmer, 4-70 mmf	503356	[
71924	Capacitor—Ceramic, 56 mmf	503410	
73501	Capacitor—Ceramic, 150 mmf	1	, , , , , , , , , , , , , , , , , , , ,
38831	Capacitor—Mica, 620 mmf	1 1	470,000 ohms, ±10%, ½ watt
39665	Capacitor—Mica, 3600 mmf		2.2 megohm, ±20%, ½ watt
73473	Capacitor—Ceramic, 4700 mmf	1 1	4.7 megohm, ±20%, ½ watt
72312	- · · · · · · · · · · · · · · · · · · ·	1	Shaft—Tuning knob shaft
1 '	150 volts and 1 section of 80 mfd., 150 volts		Socket—Dial lamp socket
1	C17A, C17B		Socket—Tube socket, 7 pin, miniature for V1, V2, V3
73595	Capacitor—Tubular, paper, .0022 mfd., 600 volts. C15	54414	
73561	Capacitor—Tubular, paper, 01 mfd., 400 volts	I meneg	V6 Spring—Drive cord andre
73797	Capacitor—Tubular, paper, .015 mid., 600 volts		Spring—Drive cord spring Switch—Salactor switch
73562	Capacitor—Tubular, paper, 022 mid., 400 volts C20		Switch—Selector switch SI
73553	Capacitor—Tubular, paper, .047 mfd., 400 volts C7, C8, C19	(74910)	Transformer—First 1.F. transformer complete with adjustable cores
73551	C7, C8, C19 Capacitor—Tubular, paper, 0.1 mfd., 400 volts	73037	Transformer—Second I.F. transformer complete with
1	Capacitor—Tubular, paper, 0.1 mid., 400 volts	1	adjustable cores
1	Clip—Mounting clip for I.F. transformer		Transformer—Output transformer
	Coil—Mounting clip for I.F. transformer Coil—Antenna coil—"C" band L1	1	Washer—"C" washer for tuning knob shaft
1	Coil—Oscillator coil—"A" band—complete with adjust-	()	1
1 /4320	Coil—Oscillator coil—"A" band—complete with adjustable core	()	SPEAKER ASSEMBLIES
74926	Coil—Oscillator coil—"C" band—complete with adjust-	()	971495-9W
	able core	77218	Speaker-4" P.M. speaker complete with cone and
1	Coil—Peaking coil (12 muh.) L3, R1	(''''')	voice coil (3.2 ohms)
72618	Coil—Peaking coil (20 muh.)	i J	
1	Coil—Series wavetrap coil (455 KC) complete with ad-	ı J	MISCELLANEOUS
	justable core	Y2447	Cabinet—Plastic cabinet—marcon—complete with dial
	Connector—Phono input connector		escutcheon
75474	Connector—Single contact male connector for output transformer leads (2 regid.)		Dial—Polystyrene dial scale
38410	transformer leads (2 req d.) Control—Volume control and power switchR19, S2	77241	Escutcheon—Dial escutcheon
1 1	Control—Volume control and power switchR19, S2 Cord—250' Drive Cord Reel (approx. 50" reg'd.)	75761	Grommet—Rubber grommet for mounting speaker (4
	Cord—250 Drive Cord Reel (approx. 50 req'd.) Cord—Power cord and plug	1 1	req'd.)
	Grommet—Power cord strain relief (1 set)	77219	Knob—Selector switch knob—maroon
	Grommet—Power cord strain relief (1 set) Grommet—Rubber grommet for chassis base	74931	Knob—Tuning control or volume control and power switch knob—maroon
	Grommet—Rubber grommet for chassis base Grommet—Rubber grommet for mounting tuning ca-	71116	switch knob—maroon Lamp—Dial lamp—Mazda 1490
, 10000 J	Grommet—Rubber grommet for mounting tuning ca-		Lamp-Dial lamp-Mazda 1490 Screw-#8 x %" cross recessed binder head screw for
	Lead—Antenna lead—"C" band	/430.	Screw—#6 x % cross recessed binder head screw for mounting dial
-	Pointer—Station selector pointer	30900 8	Spring—Retaining spring for knobs
<u> </u>			spling—sierdining spring 101
	· · · · · · · · · · · · · · · · · · ·		

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

MODEL 2-S-7 Ch. RC1117D



SPECIFICATIONS

Tuning Range 540 - 1600 kc.
Intermediate Frequency 455 kc.
Tube Complement 1. RCA 12BE6 Converter 2. RCA 12BA6 I.F. Amplifier 3. RCA 6AQ6 Detector—A.F. Amplifier 4. RCA 6AQ6 Phase Inverter 5. RCA 35C5 Push Pull Output
A selenium rectifier Stock #76871 is used.
Power Supply Rating 115 volts A.C., 60 cycles
Dial Lamps (2) Mazda type 51, 6-8 volts, 0.2 amp.

45 RPM CENTENPOST PLACED OVER CENTER SPINDLE PICK UP ARM REST		
STABILIZER FOR 33 1/3 OR 45 RPM RECORDS CONTROL		
FOR 78 RPM RECORDS WELL FOR 45 RPM CENTERPOST SPEED CONTROL		
Record Changer Controls		

Loudspeaker		A# 5.3
Voice coil impeda	nce 3.2 ol	
Power Output		
At 10% distortion. Maximum		2.0 west
Cabinet Dimension	ns	
Height 32¼"	Width 281/2"	Depth 191/4
Tuning Drive Ratio	D 14¼:1 (7½	turns of knok
Record Changer (930409-5, or -10)	
Turntable speed . Record capacity .	up to fourteen 7 in or twelve 10 inch or ten 12 inch	ch RCA type
Pickup (Stock No.	or ten 10 in. and 1 75475). Crystal with 1	lZ in. intermixed
Weight	. Oz. O Ozyałczi witti	repideedbie sty

RECORD CHANGER CONTROLS

The record changer has a dual control on the mote board and a stylus selector control on the pickup arm. The inner control (circular knob) is the OFF-ON-REJECT control Turning this knob to the center position energizes the mote and starts the turntable, when turned to the right (clockwise it starts the mechanism into complete automatic operation. The mechanism will shut off automatically after the larecord has been played but can be shut off manually I turning this knob to the left (counter-clockwise).

The outer control (double ended lever) is the speed co trol. It has three normal positions, "33", "45", "78" to sele the turntable speed desired and a neutral position (midwe between "45" and "78"). The control should be turned this neutral position if the changer is not expected to be use for an extended period of time.

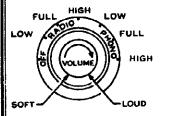
The stylus control has two normal positions (right a left) and one shipping position (lever pointing up). Whe playing 33½ or 45 r.p.m. records the lever is turned so th "33-45" is visible on the TOP of the lever; likewise for r.p.m. records "78" should be visible on the TOP.

The removable centerpost is for use with 45 r.p.m. record having the large centerhole. It must be placed over the center spindle with the "RCA" trademark monogram FAING to the FRONT. When not in use it is placed in a weat the front of the motorboard.

To load or remove records, the record stabilizer is lifted and turned off-side. After loading it is turned to the cent where it rests on top of the stack of records.

PAGE 23-56 RADIO CORPORATION OF AMERICA

MODEL 2-S-7, Ch. RC1117D

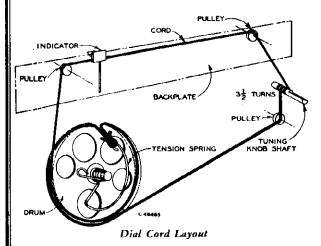




Radio Controls

Critical Lead Dress

- 1. Dress all leads away from R22.
- Dress all filament leads down to chassis.
- 3. Dress output plate leads down to chassis.
- 4. Dress R12 close to chassis.



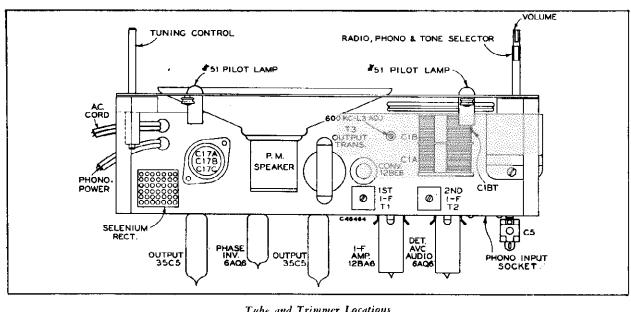
Alignment Procedure

Output Meter.—Connect meter across speaker voice coil. Turn volume control to maximum.

Test Oscillator.—Connect low side of test oscillator to common wiring in series with a .1 mf. capacitor. If the test oscillator is a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the fest oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the fol- lowing for max. output	
ı	I.F. grid, in series with .1 mfd.		Quiet point 1,600 kc end of dial	Pri. & Sec. 2nd I.F. transformer	
2	Converter grid in series with .1 mfd.	455 kc		Pri. & Sec. 1st I.F. transformer	
N	NOTE—ANTENNA LOOP MUST BE IN CABINET FOR THE FOLLOWING				
3	Short wire placed near loop for	1,620 kc	Extreme R. H. end (gang open)	C22 (osc.)	
4		1,400 kc	1,400 kc	C5 (cont.)	
[600 kc	1.3	
5	signal `	600 kc	Signal	(Rock Gang)	

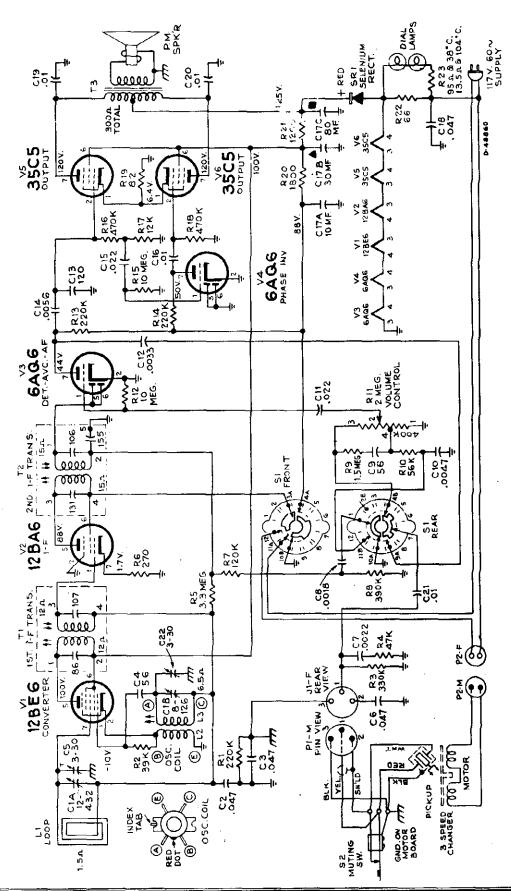
Dial Pointer Adjustment.—Rotate tuning condenser fully counterclockwise (plates fully meshed). Adjust indicator pointer so that it is $3^{15}\!\!/_{6}$ " from the left hand edge of the dial back plate.



Tube and Trimmer Locations

MODEL 2-S

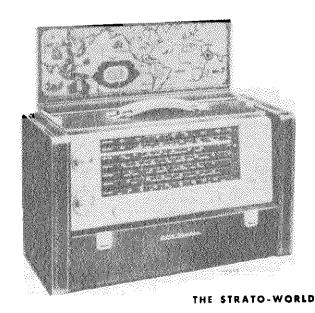
Ch. RC1117



Schematic Diagram-Chassis RC-1117C

PAGE 23-58 RADIO CORPORATION OF AMERICA MODEL 2-S-7, Ch. RC1117D

	· .		
STOCK No.	PART DESCRIPTION	STOCK No.	PART DESCRIPTION
	CHASSIS ASSEMBLIES	74697	Socket—Dial lamp socket
	RC1117D	77115	Socket—Tube socket, 7 pin, miniature, moulded
7687 6		51955	Socket—Tube socket, 7 pin, miniature, moulded sad-
76867	Antenna—Antenna loop and back cover, L1 Capacitor—Variable tuning capacitor, C1A, C1B	maaaa	dle-mounted
76872	Capacitor—Adjustable trimmer, 2.5—30 mmf., C5,	76368	Spring—Drive cord spring
	C22	76873 77122	Switch—Function switch less volume control, SI
77116	Capacitor—Fixed, ceramic, insulated, temp. coef.—	74918	Transformer—Output transformer, T3 Transformer—First I.F. transformer complete with
	-3300, 56 mmf., ±20%, 500 volts DC, C4	1	adjustable cores, Tl
00000	Capacitor—Fixed, ceramic, insulated, high K type—	73037	Transformer—Second I.F. transformer complete with
93603 76347	56 mmf., ±10%, 500 volts, C9		adjustable cores, T2
73013	120 mmf., ±20%, 500 volts, C13 Capacitor—Electrolytic: comprising 1 section of 80	33726	Washer—"C" washer for tuning knob shaft
, 3013	mfd., 150 volts, 1 section of 30 mfd., 150 volts and 1		SPEAKER ASSEMBLIES
	section of 10 mid., 150 volts, C17A, C17B, C17C		92586-4W RL10504 RMA-274
	Capacitor—Fixed, tubular, paper:	75024	Cone—Cone and voice coil (3.2 ohms)
73851	.0018 mfd., 1600 volts, C8, C21	74664	Speaker—8" P.M. speaker complete with cone and
73595	0022 mfd., 600 volts, C7	''	voice coil (3.2 ohms)
73795 73920	.0033 mfd., 400 volts, C12 .0047 mfd., 400 volts, C10		MISCELLANEOUS
73788	.0056 mfd., 400 volts, C14	71000	
73561	.01 mfd., 400 volts, C16, C19, C20	71892 70142	Catch—Bullet catch and strike Clamp—Dial clamp (1 set)
73562	.022 mfd., 400 volts, C11, C15	X3351	Cloth—Grille cloth for blonde mahogany instruments
73553	.047 mfd., 400 volts, C2, C3, C6	X3350	Cloth—Grille cloth for mahogany or walnut instru-
75071	Capacitor—Fixed, tubular, moulded paper: .047 mfd.,		ments
73935	400 volts, C18	30870	Connector—2 contact male connector for motor
76866	Clip—Mounting clip for I.F. transformer Coil—Oscillator coil complete with adjustable core,	74100	cable, P2
, 5000	L2, L3	74192	Connector—3 contact male connector for pickup cable, Pl
36422	Connector—Phono input connector, 11	77898	Decal—Control function decal for blonde mahogany
77114	Connector—Single contact male connector for loop		instruments
77.47.4	lead -	77897	Decal—Control function decal for mahogany or wal-
75474	Connector—Single contact male connector for		nut instruments
3086 8	speaker cable Connector—2 contact female connector for motor	74273 77889	
	cable, P2	74205	Dial—Glass dial scale Escutcheon—Dial scale escutcheon less dial
76874	Control-Volume control, R11	74838	Grommet—Power cord strain relief (1 set)
72953	Cord-250' Drive Cord Reel (approx. 54" overall	77402	Handle—Pullout handle for record changer mech-
72600	l regid)		anism
73690 7483 8	Cord—Power cord and plug Grommet—Power cord strain relief (1 set)	74308	Hinge—Door hinge (1 set)
72283	Grommet—Rubber grommet for mounting variable	77892	Knob—Function switch knob—beige—for blonde ma- hogany instruments (outer)
•	capacitor	77891	Knob—Function switch knob—maroon—for mahog-
11765	Lamp-Dial lamp-Mazda 51		any or walnut instruments (outer)
28452	Plate—Bakelite mounting plate for electrolytic	77382	Knob—Tuning control knob—beige—for blonde ma-
77926 77378	Plate—Dial back plate complete less dial	prace	hogany instruments (inner)
76871	Pointer—Station selector pointer Rectifier—Selenium rectifier, SR1	77386	Knob—Tuning control knob—beige—for blonde ma-
73072	Resistor—Normal value 95 ohms, @ 38°C with nega-	75945	hogany instruments (outer) Knob—Tuning control knob—maroon—for mahog-
	tive temperature coefficient, R23	(,,,,,,)	any or walnut instruments (inner)
77379	Resistor—Wire wound, 66 ohms, 5 watts, R22	77385	Knob—Tuning control knob—maroon—for mahog-
500000	Resistors—Fixed, composition:		any or walnut instruments (outer)
503082	82 ohms, ±10%, ½ watt, R19	75464	Knob-Volume control knob-beige for blonde ma-
503127 513212	270 ohms, ±10%, ½ watt, R6 1200 ohms, ±10%, 1 watt, R21	74000	hogany instruments (inner)
503218	1800 ohms, ±10%, 1 watt, R20	74963	Knob—Volume control knob—maroon—for mahog- any or walnut instruments (inner)
503312	12,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt, R17	77894	Pan—Record changer mounting pan—beige—for
503339	$39,000 \text{ ohms, } \pm 10\%, \frac{1}{2} \text{ watt, R2}$		blonde mahogany instruments
503347	47,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt, R4	77893	Pan—Record changer mounting pan—plum—for
503356	56,000 ohms, ±10%, ½ watt, R10		mahogany or walnut instruments
503412 503422	120,000 ohms, ±10%, ½ watt, R7	76421	Pin—Slide mechanism stop pin
503433	220,000 ohms, ±10%, ½ watt, R1, R13, R14 330,000 ohms, ±10%, ½ watt, R3	77896 74113	Pull—Door pull
503439	390,000 ohms, ±10%, 1/2 watt. R8	77895	Screw—#8-32 x 1" trimit head screw for door pull Slide—Mounting pan slide mechanism
503447	470,000 ohms, $\pm 10\%$, ½ watt, R16, R18	76422	Spring—Retaining spring for slide mechanism stop
503515	1.5 megohm, ±10%, ½ watt, R9		pin
503533	3.3 megohm, $\pm 10\%$, ½ watt. R5	30330	Spring—Retaining spring for knobs 74963 and 75464
503610 76869	10 megohm, $\pm 10\%$, $\frac{1}{2}$ watt, R12, R15	76837	Spring—Retaining spring for knobs 75945, 77382,
76869 76870	Shaft—Tuning knob shaft Shield—Tube shield	70000	77385, 77386, 77891, 77892
, 50,0	purerd—Inde suield	72936	Stop—Door stop
1			



Specifications

Standard Broadcast "A" Band 540-1600 kc "B" Band 2.0-4.0 mc "C" Band 4.0-8.0 mc
31 Meter Spread Band 9.45-9.85 mc 25 Meter Spread Band 11.55-12.05 mc 19 Meter Spread Band 14.90-15.55 mc 16 Meter Spread Band 17.50-18.20 mc
Intermediate Frequency
Power Supply Rating 115 volts, d.c., or 25 to 60 cycles a.c20 watts
or
Battery Operation using RCA VS047 Battery Battery voltage "A" 9 volts, "B" 90 volts Battery current "A" 56 ma., "B" 14.5 ma.
230 volts d.c., or 25 to 60 cycles a.c. using
230 Volta d.c., of 23 to 00 Cycles d.c. dailig

Tuning Ranges

RK-186 Converter Accessory

Tube Complement
(1) RCA 1U4
(2) RCA 1L6
(3) RCA 1U4
(4) RCA 1U5 DetAVC-1st A
(5) RCA 3V4Outr
RCA Stock No. 78101Selenium Rectif
Loudspeaker
Size and Type
Voice coil impedance
Power Output
Undistorted
Maximum
Tuning Drive Ratio
Weight (Approximate)
Less Battery
With Battery (RCA VS047)
Dimensions (Overall)
Height 11½ in. Width 17½ in. Depth 8 in.

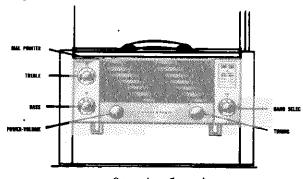
Operating Instructions

Rotate POWER-VOLUME knob to right until a click is heard, and advance for about half a turn. Rotate BAND SELEC-TOR knob until desired band marking on knob is directly beneath the red triangle. A white indicator will appear at right of desired band on dial. To obtain reception on any one of the six Short Wave bands, the telescopic rod antenna must be used. See instructions under "General Information." Rotate TUNING knob until dial pointer indicates desired frequency marking on the desired band. Rotate TREBLE and BASS tone control knobs as desired. Treble tone increases as TREBLE knob is rotated clockwise. BASS tone increases as BASS knob is rotated counterclockwise.

Headphones — A "PHONES" receptacle, for connection of headphones, is located on the rear of the chassis. Should individual listening be desired, any standard headphone set with standard plug may be inserted, automatically disconnecting the speaker.

Ground Terminal - A terminal for ground connection is located on the rear of the chassis. To improve reception in

weak-signal areas, connect a ground wire from this t minal ("GND") to a cold-water pipe, or other suital ground. "GND" connection is not necessary when operati on power line.



Operating Controls

PAGE 23-60 RADIO CORPORATION OF AMERICA

MODEL 3-BX-671, Ch. RC-1125

Circuit Description

The seven band 3BX671 portable instrument is a sensitive three-way receiver designed to operate from an AC or DC power source, or from a self-contained battery pack. With the addition of an RK-186 converter, the receiver may be operated on 210-250 volts AC or DC. A chassis jack is provided for this converter.

The receiver incorporates a 7 band tuner covering the broadcast band "A band"; two short wave bands, 2-4 mc. and 4-8 mc. "B and C bands"; also four short wave spread bands, 31, 25, 19, and 16 meters. The superheterodyne circuit is used with a tuned R.F. stage preceding the pentagrid converter on all bands; one I.F. stage; a combined AVC, detector, and A.F. stage; and a power amplifier stage. A selenium rectifier is used.

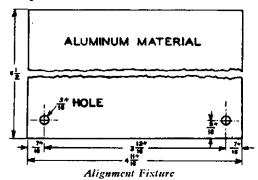
R.F. tuning is done by means of a ganged six section variable capacitor. Three large sections are used for the A, B, and C bands with series tracking capacitors. Also, three small 3 plate sections for electrical band spread are used on the four spread bands. The tuner, including the function switch, coil and trimmer assembly, R.F. and converter tubes and gang capacitor, is a completely detachable unit featuring high efficiency with small physical size. The special design permits access to the coil and trimmer adjustments from the rear.

A headphone jack is located on the chassis rear apron for individual listening. This jack automatically disconnects the speaker when the headphone plug is inserted. The slide rule type dial includes 7 separate scales on a slotted escutcheon to provide speaker openings. Continuously variable treble and bass tone controls are provided. This receiver features 3 separate antenna systems. A large flat loop built within the hinged lid-includes a primary for external antenna connection, when desired. A Ferrite rod antenna with a long cable and provided with suction cups to permit mounting on a window or wall for improved pickup in shielded areas is supplied. The preceding antennas are used only on the standard broadcast band. A telescoping vertical rod antenna is provided for use on all short wave bands.

All tubes and the battery may be serviced by opening the hinged back cover. A terminal is provided on the back apron of the cover for an external ground connection, if desired. A line voltage compensator switch is mounted on the chassis rear apron under a caution label of instructions. The switch is to be used only in areas of substandard line voltage.

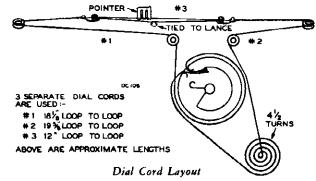
Alignment Fixture

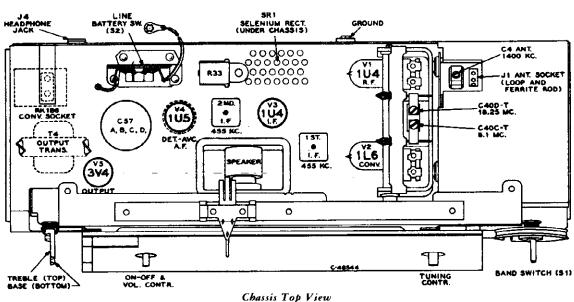
To obtain maximum sensitivity when chassis is reinserted in case after alignment, the alignment fixture shown below should be secured to the tuner side of the chassis during alignment to simulate the effect of the case. The sheet metal clips and hardware on the dust cover base may temporarily be used to hold the fixture to the chassis.



CHASSIS REMOVAL

- 1. Turn tuning knob until gang is fully closed.
- Open cabinet back, pull out battery, and disconnect battery plug.
- Remove pull-off type volume, tuning, band selector, and tone control knobs.
- 4. Remove the four machine screws holding the chassis to the case.
- Pull chassis out and simultaneously slightly downward, to enable dial pointer mechanism to clear top back edge of case.





MODEL 3-BX-6 Ch. RC-1125

Alignment Procedure

Output Meter Alignment - If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator - For all alignment operations, connect the low side of the test oscillator to the receiver chassis and keep the oscillator output as low as possible to avoid AVC action.

Close gang and set dial pointer to mark on dial plate.
Turn volume and treble tone controls to maximum clockwise
position. Turn base tone control to maximum counterclockwise
position.

positi				
STEP	CONNECT HIGH SIDE OF SIG. GEN. TO	SIGNAL GEN. OUTPUT	DIAL POINTER SETTING	ADJUST FOR MAXIMUM OUTPUT
1.	Pin #6 of 1U4 I.F. Amp. thru 0.01 mfd.	455 kg	"A" Band Quiet	T3 top and bottom cores
2.	Pin #6 of 1L6 Conv. thru 0.01 mfd.		point neur 1600 kc	T2 top and bottom cores
3.	Install bottom covin place. Connection between sig. generated	er, Secure i 24 mmi rator lead	aluminum d. in serie and C39.	alignment fixture s with 22 chms
4.		18.25 mc	16M Band Right hand stop	"C40D-T top of gang
5.		17.5 mc	16M Band Left hand stop	Til Osc.
6.		17.8 mc	16M Band 17.8 mc Signal	Rock gang, Pea Lll R.F. + L5 Ant
7.		14.9 mc	19M Band Left hand stop	T10 Osc.
g.		15.2 mc	19M Band 15.2 mc Signal	Rock gang, — Pea L12 R.F. + L6 Ant.
9.		11.55 mc	25M Band Left hand stop	T9 Osc.
10.		11.8 mc	25M Band 11.8 mc Signal	Rock gang, —Pea L13 R.F. + L7 Ant.
11.		9.45 mc	JIM Band Left hand stop	TS Osc.
12.	C39, term. 7 on S1D	9.6 mc	31M Band 9.6 mc Signal	Rock gang, — Pea L14 R.F. + L8 Ant.
13.	thru dummy load indicated	8.1 mc	"C" Band Right hand stop	*C40C-T top of gang. C16 R.F. C7 Ant.
14.		3.9 mc	"C" Band Left hand stop	T7 Osc. L9 R.F. L4 Ant.
15.	}	Repeat s		l 14 until maximun btained.
16.		4.05 mc	"B" Band Right hand stop	C32 Osc. C18 R.F. C5 Ant.
17.	•	1.97 mc	"B" Band Left hand	76 Osc. 110 R.F. 13 Ant.
18.		Repeat s gain is fixture a Plug in l	teps 16 and obtained. nd install coop cable.	17 until maximum Remove alignmen chassis in cabinet
19.		1620 kc	"A" Band Right hand stop	C31 Osc.
20.	Short length of wire	1400 kc	"A" Band 1400 kc Signal	C20 R.F. C4 Ant.
21.	teceivet Beat	600 kc	"A" Band 600 kc Signal	Rock gang, —Pea 75 Osc. trans., + Ti R.F.
	1	Repeat s	teps 19, 20	and 21 until maxi
22.		Dagestan	plug Will enna plug.	ed. Exchange loop a external Ferrit Extend cable to
23.	1	1400 kc	"A" Band 1400 kc	C43 Ferrite

The tuning range and dial calibration of the succeeding bands depend upon the accuracy of this adjustment. Avoid aligning on image. The local oscillator is 455 kc higher in frequency than the RF on all bands.

Battery operation of the receiver is preferable duri alignment; on AC operation, an isolation transforn (117v./117v.) may be necessary for the receiver if the t oscillator is also AC operated.

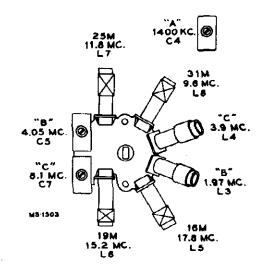
Critical Lead Dress

1. Dress all filament leads next to chassis.

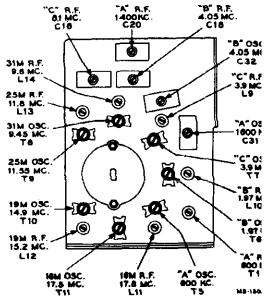
- Use short pigtail leads on all by-pass and coupli capacitors associated with R.F. circuits.
- Dress gang condenser leads direct and short as possil to switch without strain.
- Connect neutralizing capacitor C50, 0.51 MMFD acr converter socket with short leads and away from otl components.
- 5. Dress power line compensator resistor to clear s rounding components and bottom cover.
- Dress coil pigtail leads away from each other and fr coils.
- 7. Dress blue converter plate lead down to base.
 8. Dress volume control leads down to base.

CAUTION -

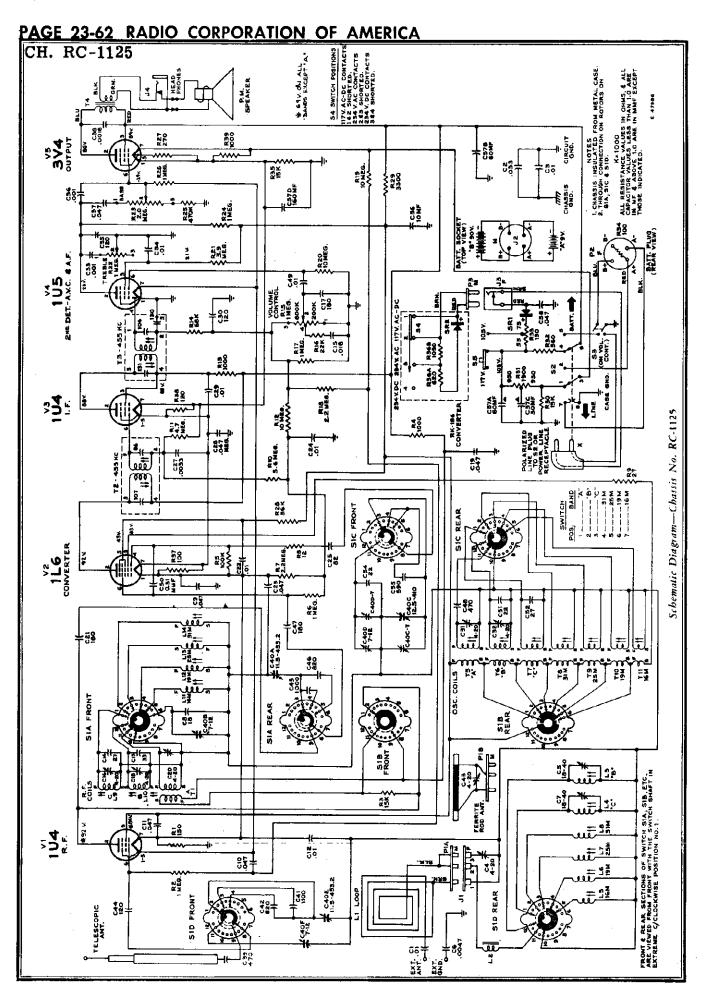
Do not remove any tubes from the chassis with the operating and the plug connected to the power li Damage to tubes may result.



Tuner Adjustment Locations-Antenna

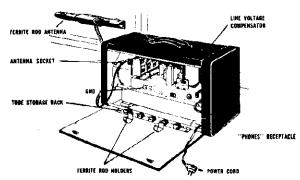


Tuner Adjustment Locations-Oscillator and R.F.



MODEL 3-BX-67 Ch. RC-1125

General Information



Rear View

AC-DC OPERATION

For 105 to 125 volts, 25-60 cycles AC or 105 to 125 volts DC operation — Be sure that the power line used has the correct voltage and frequency before turning on the receiver. Open case back, remove power cord plug from chassis socket, and insert in outlet. Feed power cord through the notch on the lower right side of the case back. RK-186 VOLTAGE CONVERTER

For 210 to 250 volts, 25-60 cycles AC or 210 to 250 volts DC operation — Pull open case back and remove L-shaped metal bracket held by single self-tapping screw located between headphone jack and power cord. Insert RK-186 Converter in socket provided with metal tab facing to the rear. Secure RK-186 Converter to chassis by replacing screw through tab hole.

BATTERY OPERATION

Installation of Battery Pack—Insert battery cable plug into battery socket, installing battery pack with plug side facing toward the front.

For Battery Operation — Insert polarized power cord plug all the way into the chassis socket. Store excess power cord neatly to the right side of the battery pack. Close case back securely.

CARE OF INSTRUMENT CASE

To best preserve the appearance and serviceability of the instrument case, keep it clean. For this purpose, any mild soap will do, if applied as a lather and the dirt removed with a dry, clean cloth. Abrasives, commercial cleaning fluids, nail polish remover and the like should not be used. Should leather become dry from cleaning or aging, t natural oils should be replaced. For restoration purpose a number of applications of 10 to 20 per cent of sulfonat castor, or neatsfoot, or cod oil may be made as require

LINE VOLTAGE COMPENSATOR

Weak reception may result from sub-normal power livoltage. If determined as the cause (check voltage rativith power company), the Line Voltage Compensator provided to improve reception by switching to "LOW LII VOLTAGE" position. To use, break the caution label seamd move the switch slot to the right. Use of this feature is not recommended unless the line voltage is 105 voor less.

USE OF ANTENNAS

Built-In Loop — For Standard Broadcast

Contained in the hinged lid of the case, this antenna in use as long as it remains plugged into the anten socket. It is possible to improve reception by rotating t receiver.

Ferrite Rod — For Standard Broadcast — Low Signal/No Areas

To improve reception within steel buildings, automobil etc., the ferrite rod antenna may be used. Remove lo antenna plug from its socket. Remove ferrite rod anten from spring clips inside back cover, unwind wire extensic and insert cable plug into antenna socket. The ferrite rantenna may be secured on a window in a horizon position, by pressing the suction cups firmly against 1 glass. Reception may be improved by changing the pction of the antenna.

External — For Standard Broadcast — Weak Signal Area

A terminal for outside antenna connection is located the hinged lid of the case. Connect a wire to this termin and suspend approximately 60 to 100 feet in space, least 50 feet in a horizontal position.

Telescopic Rod - For Short Wave

Concealed within the case on the right, this antenna used for reception on any one of the six Short Wabands. To use, press release button on lower right side case, and antenna top will appear above its openis Grasp antenna top, and pull up antenna sections us a distinct snap or click results. For best reception, sections should be fully extended.

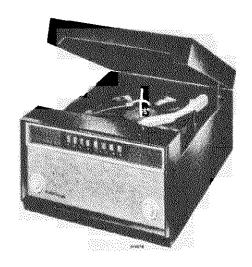
NOTE: Short Wave reception is impossible unless bott (Satin Finish) section of antenna is snapped into elevated position.

Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
	CHASSIS ASSEMBLIES	78140	33 mmf., ±10%, 500 volts (C13)
	RC 1125	78142	120 mmf., + 10%, 500 volts (C30, C35, C44) Capacitor—Fixed, headed-lead:—
78135	Board—Baffle board and grille screen less speaker	78137	0.51 mmi., ±10%, 500 volts (C50)
78104	Board—''Gnd'' board		Capacitor—Fixed, mica:—
78091	Bushing - Fibre bushing for chassis mounting shelf	39644	470 mmt., ±5%, 500 volts (C48)
78108	Capacitor—Variable tuning capacitor complete with drive drum (C40A, C40B, C40C, C40D, C40E, C40F,	76932 74929	470 mmt. ±20%, 300 volts (C39) 590 mmi., ±2%, 500 volts (C55)
	C40C-T, C40D-T)	78143	820 mm1., ±5%, 300 volts (C42, C46)
78146	Capacitor—Capacitor (82 mml.) and resistor (12 ohms)	39652	1000 mmf., +5%, 300 volts (C45)
	assembly (C25, R8)	78144	1100 mmt. ±2%, 500 volts (C41)
70100	Capacitor-Adjustable, mica:	78095	Capacitor—Electrolytic comprising — 1 section of 60 mtd., 350 volts, 1 section of 60 m
78130 78131	4-20 mmf. (C4, C16, C18, C20) 4 20 mmf. (C31, C32)	78033	150 volts, 1 section of 30 mfd., 150 volts, 1 sec
78132	20-50 mmf. (C5, C7)	. [of 160 mfd., 25 volts (C57A, C57B, C57C, C5
	Capacitor—Fixed, ceramic, High "K" disc:		Capacitor—Fixed, electrolytic:
73960	10,000 mmf., +100%, -0%; 500 volts (C, C12, C22,	78145	10 mfd , 150 volts (C56)
	C24, C29, C34) Capacitor—Fixed, ceramic, non-insulated:	75643	Capacitor—Fixed paper moulded:— .001 mfd., 1000 volts (C33, C36)
33101	22 mmf., $\pm 10\%$, 500 voits	73851	.0018 mfd., 1600 volts (C38)
	Temp. coef 750 (C51, C54)	73795	.0033 mfd., 600 volts (C27)
72570	27 mmf., ±10%, 500 volts	73920	.0047 mfd., 600 volts (C6)
	Temp. coef750 (C52) Capacitor—Fixed, ceramic, insulated, High "K" type:	73561 58476	.01 mfd., 400 volts (C49) .018 mfd., 400 volts (C15)
78138	18 mmi., ±10%, 500 volts (C8)	73552	. 033 mfd., 400 volts (C2)
78139	180 mmf., ±10%, 500 volts (C17, C21, C47)	73558	.047 mfd., 200 volts (C9, C10, C23, C28, C37)
-:	Capacitor—Fixed, ceramic, non-insulated, High "K"	73553	.047 mtd., 400 volts (C11, C19)
70141	type:	73592 73935	.047 mfd., 600 volts (C58) Clip—Mounting clip for I.F. transformer
78141	27 mmi., ±10%, 500 volts (C14)	/3933	CitpModiting City for 1.1. Houstonier

PAGE 23-64 RADIO CORPORATION OF AMERICA MODEL 3-BX-671,

Ch. RC-1125

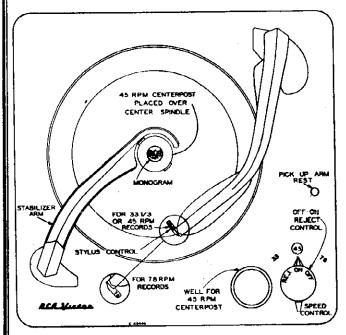
		•	
Stock No.	DESCRIPTION	Stock No.	DESCRIPTION
78123 78124	Coil—Antenna coil—"B" band (L3) Coil—Antenna coil—"C" band (L4)	74918	Transformer—lat 1.F. transformer complete with ad-
78128	Coil—Antenna coil—16 meter band (15)	73037	justable core (T2) Transformer—2nd 1.F. transformer complete with ad-
78127 78126	Coil—Antenna coil—19 meter band (L6) Coil—Antenna coil—25 meter band (L7)	78100	ustable core (13)
78125 78129	Coil—Antenna coil—31 meter band (L8) Coil—Loading coil (L2)	33726	Transformer—Output transformer (T4) Washer—"C" washer for tuning knob shaft
78109 78110	Coil—Loading coil (L2) Coil—Oscillator coil—'A" band (T5) Coil—Oscillator coil—'B" band (T6)	İ	SPEAKER ASSEMBLIES 971933-2
78111 78115	Coil—Oscillator coil—''C'' band (T7) Coil—Oscillator coil—16 meter band (T11)	74378	Gasket-Rubber gasket (314") for speaker
78114 78113	Coil—Oscillator coil—19 meter band (T10) Coil—Oscillator coil—25 meter band (T9)	78147	Speaker—514" P.M. speaker complete with cone and voice coil (3.2 ohms)
78112 78116	Coil—Oscillator coil—31 meter band (TS)		MISCELLANEOUS
78117 78118	Coil—RF coil—"A" band (T1) Coil—RF coil—"B" band (T10) Coil—RF coil—"C" band (L9)	78196 78187	Antenna—Ferrite rod antenna complete with winding Antenna—Lid and antenna loop assembly complete
78122	Coil—RF coil—16 meter band (L11)	78157	(L1, C1) Antenna—Telescopic antenna
78121 78120	Coil—RF coil—19 meter band (L12) Coil—RF coil—25 meter band (L13) Coil—RF coil—31 meter band (L14)	78184 78158	Back—Case back complete Bearing—Bearing (phenolic tube) for telescopic an-
78119 7903	Connector—Eurphone jack (J4)	78183	tenna Bearing—Case lid bearing
71040	Connector—2 contact female connector for 220 volt operation (J3)	78174	Bracket—"U" shape bracket (clevis) for carrying handle links
38904	Connector—2 contact female connector for AC line cord	78166 78165	Button—Telescopic antenna push button
78133	Connector—3 contact female connector for antenna leads (J1)	75967 78190	Cap—Telescopic antenna screw on cap Capacitor—Adjustable, mica, 4-20 mmi. (C43)
30567	Connector—4 contact female connector for battery cable (P2)	78153	Case—Case only for ferrite rod antenna Case—Case less sides, handle, links, feet front and
78094 78093	Control—Bass tone control (R23) Control—Treble tone control (R22)	78170 78186	back cover Catch—Case catch
78092 70022	Control—Volume control and power switch (R15, S3) Cord—Power cord and plug	78185	Catch—Case back catch—part of case back Clip—Mounting clip for ferrite rod antenna
*72953	*Cord—Station selector pointer drive cord (approx. 15" overall)	78411 78177	Clip—Clip for case catch—bottom Connector—3 contact male connector for antenna loop
72953	Cord—Station selector pointer drive cord (approx. 22"	78162	and for ferrite rod antenna (PIA, PIB) Contact—Bottom contact for telescopic antenna
72953	overall) Cord—Station selector pointer or band indicator pointer drive cord (approx. 24" overall)	78163	Contact—Formed spring clip and contact for telescopicantenna—upper
78242	Cushion—Rubber cushion for baffle board (41/6" long)	78164 78195	Contact—Lower contact and push button catch Cover—Bottom cover for ferrite rel antenna
78105 78097	Cushion—Rubber cushion for baffle board (101/2" long) Eyelet—Station selector pointer drive cords connecting	78191 78159	Cup—Suction cup for ferrite rod antenna case Cushion—Adhesive cushion for bottom of antenna
74838	eyelet Grommet—Power cord strain relief (1 set)	75470	bearing Cushion—Rubber cushion for battery support
16058	Grommet—Rubber grommet for mounting gang capac- itor	78193	Cushion—Rubber spacer cushion (1/4" x 13/16" dia.) for ferrite rod antenna
71851 78086	Grommet—Rubber grommet for speaker mounting Guide—Station selector pointer guide rail and pulley	78194	Cushion—Rubber spacer cushion (1/1" x .328" I.D. x 13/16" O.D.) for ferrite rod antenna
78099	casembly Nut-Speed nut for tuner shield	78181 77012	Dial-Dial scale less escutcheon Emblem-"RCA Victor" emblem
78098	Nut-Speed nut for baffle board mounting (4 req'd) or for tuner shield	78182 78169	Escutcheon—Dial scale escutcheon less dial Foot—Rubber foot
78103 18469	Nut—Speed nut (twin type) to fasten pointer bracket Plate—Bakelite mounting plate for electrolytic	78173 78156	Handle—Carrying handle Hinge—Hinge for back cover (2 reg'd)
78090 78087	Pointer—Band indicator pointer Pointer—Station selector pointer	78167 78171	Insulator—Nylon insulator for case lid Latch—Latch for back cover
78107 72602	Pulley—Band indicator drive pulley and knob assembly Pulley—Drive cord pulley—part of pointer guide rail	78187 78175	Lid—Case lid and antenna loop assembly (L1, C1) Link—Carrying handle link
78101	or for station selector pointer drive cord pulley Rectifier—Selenium rectifier (SRI)	78149 78151	Knob—Bass tone control knob
78136	Resistor-Wire wound: -	78150 78148	KnobRange switch knob Knob
78102	comprising 1 section of 75 ohms, 5 watts and 1 section of 55 ohms, 5 watts (R33)	ł	Knob—Tuning control or volume control and power switch knob
	dual 950 ohms, 31/2 watts (R31) Resistor—Fixed, composition:—	78414 73203	Map—World map and time chart Nut—Speed nut to fasten "RCA Victor" emblem
503027 503110	27 ohms, ±10%, ½ watt (R9) 100 ohms, ±10%, ½ watt (R34, R37)	78192	Plate—Bakelite plate for territe rod antenna trimmer capacitor
503112 503115	100 ohms. ± 10%, ½ watt (R34, R37) 120 ohms. ± 10%, ½ watt (R38) 150 ohms. ± 10%, ½ watt (R1)	78172 78180	Plate-Mounting plate for carrying handle Rack-Spare tube rack
503127 513156	270 ohms, ±10%, ½ watt (R27) 560 ohms, ±10%, 1 watt (R32)	78183	Screw—#4-40 x 1/4" cross recessed flat head tapping screw to fasten dial to escutcheon
503210 503233	1000 ohms, ±10%, 1/2 watt (R4, R13, R39) 3300 ohms, ±10%, 1/2 watt (R29)	77974 77975	Side—Case side—L.H.—complete with leather belting Side—Case side—R.H.—complete with leather belting
503315 503322	15,000 ohms, ±10%, ½ watt (R3, R30, R35) 22,000 ohms, ±10%, ½ watt (R16)	78188 78160	Spring—Case lid spring Spring—Push-up spring for telescopic antenna
503356 503368		74734 78154	Spring—Spring clip for control knobs Strap—Leather strap for L.H. case side
503410 503447	100,000 ohms, ±10%, ½ watt (R5)	78155 78413	Strap—Leather strap for R.H. case side Strap—Strap for holding ferrite rod antenna lead
503510 503522	56,000 chms, ±10%, ½ watt (R28) 68,000 chms, ±10%, ½ watt (R14) 100,000 chms, ±10%, ½ watt (R5) 470,000 chms, ±10%, ½ watt (R25) 1 megchm, ±10%, ½ watt (R2, R6, R17, R24, R26), 2.2 megchm, ±10%, ½ watt (R7, R18) 3.9 megchm, ±10%, ½ watt (R1) 4.7 megchm, ±10%, ½ watt (R11) 5.6 megchm, ±10%, ¼ watt (R10) 10 megchm, ±10%, ¼ watt (R12, R19, R20) Shott—Tuning kneb sheft	78168 78161	Support—Battery support (wood) Support—Telescopic antenna bearing support—at top
503539 503547	3.9 megohm, ±10%, ½ watt (R21)	77467	of antenna Washer—Felt washer for knob
503556	5.6 megohm, ±10%, ¼ watt (R10)	78152 78178	Washer—Insulating washer for control knobs Washer—Insulating washer for case lid pivot
503610 78088	raning know shell	78179 78412	Washer-Vellutex washer for dial and besel mounting Washer-Vellutex washer for case catch clip
78089 73584	Shield—Bakelite shield for tuner unit Shield—Tube shield	"""	RK 186 CONVERTER
78134 73117	Socket—Tube socket, miniature, 7 pin, floating Socket—Tube socket, miniature, 9 pin, wafer	78303	Connector—2 contact male connector (P3)
74305 76332	Spring—Band indicator pointer drive cord spring Spring—Station selector pointer drive cord spring	77958 78302	Rectifier—Selenium rectifier (SR2) Resistor—Wire wound, comprising:
71039 78096	Switch—Battery switch (S2) Switch—Weak signal area switch (S5)		I section of 620 ohms, 10 watts, and I section of 1050 ohms, 5 watts (R36)
78106	Switch—Range switch (SI)	78304	Switch—Voltage change switch (S4)



SPECIFICATIONS

Tuning Range 540 - 1600 kc.
Intermediate Frequency 455 kc.
Tube Complement 1. RCA 12BE6
Power Supply Rating 1. 115 volts A.C., 60 cycles

Dial Lamps (2) Mazda type 51, 6-8 volts, 0.2 amp.



Record Changer Controls

Loudspeaker Size and type Voice coil impede	ance3.2 ol	5" x 7" P
Power Output		
Undistorted Maximum		2.0 w
Cabinet Dimension		
Height 10"	Width 16%"	Depth 20
Tuning Drive Rati	io 14¼:1 (7	1/2 turns of kno
Record Changer ((930409-5, -10 or -	11)
	up to fourteen 7 i or twelve 10 inch or ten 12 inch or ten 10 in. and	inch RCA type 12 in. intermiz
Record capacity	up to fourteen 7 i or twelve 10 inch or ten 12 inch	inch RCA type 12 in. intermiz

RECORD CHANGER CONTROLS

The record changer has a dual control on the man board and a stylus selector control on the pickup arm. inner control (circular knob) is the OFF-ON-REJECT con Turning this knob to the center position energizes the man attacks the turntable, when turned to the right (clockwit it starts the mechanism into complete automatic opera. The mechanism will shut off automatically after the record has been played but can be shut off manually turning this knob to the left (counter-clockwise).

The outer control (double ended lever) is the speed trol. It has three normal positions, "33", "45", "78" to see the turntable speed desired and a neutral position (mid between "45" and "78"). The control should be turne this neutral position if the changer is not expected to be use for an extended period of time.

The stylus control has two normal positions (right

The stylus control has two normal positions (right left) and one shipping position (lever pointing up). We playing 33% or 45 r.p.m. records the lever; likewise for r.p.m. records "78" should be visible on the TOP.

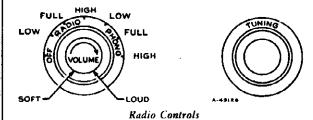
The removable centerpost is for use with 45 r.p.m. rec

The removable centerpost is for use with 45 r.p.m. rec having the large centerhole. It must be placed over center spindle with the "RCA" trademark monogram I ING to the FRONT, When not in use it is placed in α at the front of the motorboard.

To load or remove records, the record stabilizer is I and turned off-side. After loading it is turned to the cowhere it rests on top of the stack of records.

<u>PAGE 23-66 RADIO CORPORATION OF AMERICA</u>

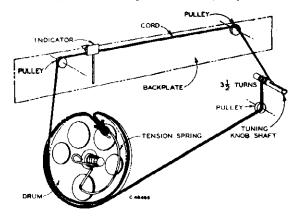
MODEL 2US7. Ch. RC1117A, C



Service Hints

All tubes, except the 12BE6, are accessible for testing by lifting up one side of the cabinet and removing the tubes from the rear chassis apron. To service the 12BE6 tube and the pilot lights, remove the lour wood screws holding the sloping panel at the front of the record changer compartment. This panel also holds the loop antenna.

To remove the radio chassis for service, first remove the push-on type knobs. Secure the record changer pickup arm to the center post and rest the cabinet on its side. Remove loop antenna connections, and pickup arm audio plug. Hook-on connectors are used to connect a.c. power from the radio chassis to the phono motor. These connectors are covered by taped-over black insulating sleeves located in one corner of the cabinet. Push back sleeves and unhook. Remove the four flat-head wood screws holding the chassis mounting board to the bottom of the cabinet. Slide chassis out of cabinet, then remove the three ¼ inch hex head self-tapping screws holding the chassis to the panel.



Dial Cord Layout

Alignment Procedure

Output Meter.--Connect meter across speaker voice coil. Turn volume control to maximum

Test Oscillator.—Connect low side of test oscillator to common wiring in series with a .1 mf. capacitor. If the test oscillator is a.c. operated it may be necessary to use an isolation transformer for the receiver during alignment and the low side of the test oscillator connected directly to common wiring at the electrolytic capacitor. Keep the oscillator output low to prevent a-v-c action.

Steps	Connect the high side of test-oscillator to—	·Tune test-osc. to	Turn radio dial to—	Adjust the fol- lowing for max. output
ì	I.F. grid, in series with .1 mid.		Quiet point	Pri. & Sec. 2nd I.F. transformer
2	Converter grid in series with .1 mfd.	455 kc	1,600 kc end of dial	Pri. & Sec. 1st I.F. transformer
NC N	TE.—ANTENNA MUST BE IN C	LOOP A	ND RECORD OR THE FO	CHANGER LLOWING
3	Short wire	1,620 kc	Extreme R. H. end (gang open)	C13-T (osc.)
4	placed near	1,400 kc	1,400 kc	C5 (cmt.)
	radiated .			

Critical Lead Dress

600 kc

1. Dress C15 (.022 mid. at grid of phase inverter) over tube sacket away from filament leads.

Signal

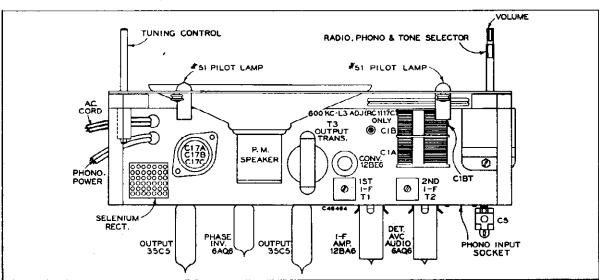
(Rock Gang)

Keep all filament leads close to chassis.

Repeat steps 3, 4 & 5 if necessary

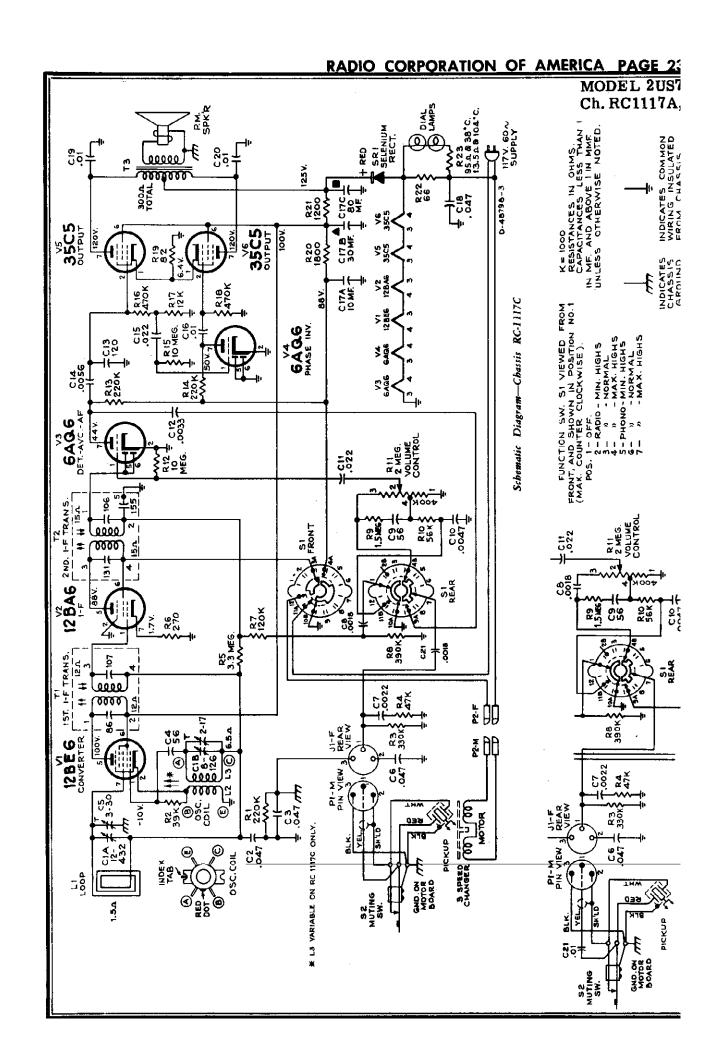
- Keep leads of R26 (270 ohms at I-F amplifier cathode) short as possible.
- Connect outside foil of all capacitors as indicated in schematic diagram.
- 5. Dress output plate bypasses, C19 and C20, as near chassis as possible.

Dial Pointer Adjustment.—Rotate tuning condenser fully counterclockwise (plates fully meshed). Adjust indicator pointer so that it is $3^{15}\!/\!_{16}$ " from the left hand edge of the dial back plate.



5

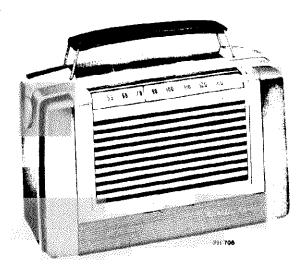
Tube and Trimmer Locations



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MODEL 2US7, Ch. RC1117A, C

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES	503356	56,000 ohms, ±10%, ½ watt, R10
	RC1117A, RC1117C	503412	120,000 ohms, ±10%, 1/2 watt, R7
70007	Capacitor—Variable tuning capacitor complete with	504422	220,000 ohms, ±20%, 1/2 watt, RI, RI3, RI4
76867	drive drum, ClA, ClB	503433	330,000 ohms, ±10%, ½ watt, R3
93603	Capacitor—Ceramic, 56 mmf., C9	503439	390,000 ohms, ±10%, ½ watt, R8
77116	Capacitor—Ceramic, 56 mmf., C4	503447	470,000 ohms, ±10%, ½ watt, R16
76347	Capacitor—Ceramic, 120 mmf., C13	504447	470,000 ohms, ±20%, ½ watt, R18
76872	Capacitor—Adjustable trimmer, 2.5—30 mmf., C5	503515	1.5 megohm, ±10%, ½ watt, R9
73013	Compaign Floritolytic comprising 1 section of 80	504533	3.3 megohm, ±20%, ½ watt, R5
1	l mid 150 volts section of 30 mid., 150 volts	504610	10 megohm, ±20%, ½ watt, R12, R15
i	and 1 section of 10 mid., 150 volts, C17A, C17B,	76869	Shaft—Tuning knob shaft
mage 1	C17C Capacitor—Tubular, paper, .0018 mid., 1600 volts,	76870	Shield—Tube shield for V1, V2, V3
73851	C8. C21 (RC1117C only)	74697	Socket—Dial lamp socket
73595	Capacitor—Tubular, paper, .0022 mid., 600 volts, C7	51955	Socket—Tube socket, 7 pin, miniature, moulded,
73795	Capacitor—Tubular, paper, .0033 mid., 400 volts,	1	saddle-mounted
/3/93	C12	77115	Socket—Tube socket, 7 pin, miniature, mouided
73920	Capacitor-Tubular, paper, .0047 mfd., 600 volts,	76368	Spring—Drive cord spring
	C10	76873	Switch—Function switch less volume control, Sl
73788	Capacitor—Tubular, paper, .0056 mfd., 400 volts, C14	77113	Terminal—Phono lead assembly terminal (knife) disconnect type)
73561	Capacitor—Tubular, paper, .01 mfd., 400 volts, C16, C19, C20	74918	Transformer—First I.F. transformer complete with adjustable cores, Tl
73562	Capacitor—Tubular, paper, .022 mfd., 400 volts, C11, C15	73037	Transformer—Second I.F. transformer complete with adjustable cores, T2
73553	C2, C3, C6	77122 33726	l
75071	volts, C18		SPEAKER ASSEMBLIES
73935 76866	Coil—Oscillator coil, L2, L3	76875	and voice coil (3.2 ohms)
36422			MISCELLANEOUS
74192	cable, J1 Connector—3 contact male connector for shielded pickup cable, P1	76876	(L1)
77114	l l l l l l l l l l l l l l l l l l l	77350	C21) (For RC1117A only)
76874	Control-Volume control, R11	74273	
72953		76877 76588	
70392	Cord—Power cord and plug		
74838	Grommet—Power cord strain relief (1 set)	74225	
72283	Grommet—Rubber grommet to mount variable tun-	76878	
	ing capacitor (3 req'd)	76879	
11765	Lamp—Dial lamp—Mazda 51	76895 72692	
28452	Plate—Bakelite mounting plate for electrolytic		
76865		76882	
III	pulleys less dial	76881	
76868		76883 76880	
76871	Rectifier—Selenium rectifier, SRI	71095	
73038	Resistor—Wire wound, 66 ohms, 5 waits, R22	72765	
73072	negative temperature coefficient R23		control escutcheon
III	Resistor—Fixed, composition: 2 82 ohms, ±10%, ½ watt, R19	76894	
503082		30330	.
503127	1 1000 -1 +10% 1 street P21	14270	tion switch knobs
513212		76893	
HI FAAAT	5 1000 Onms, - 1070, 72 wall, 1640	1 ,000	in cabinet (2 req'd)
503218	110 000 -1 +10% 1/2 m-4 P17	•	
503312	2 12,000 ohms, ±10%, ½ watt, R17	7182	
₩ I I	2 12,000 ohms, ±10%, ½ watt, R17 9 39,000 ohms, ±10%, ½ watt, R2	7182 7722	Stud—Stud and screw (1 set) for cabinet lid hinge

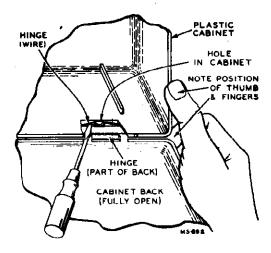


Specifications

Tuning Range
Power Supply Rating
Power Line Operation
115 volts, d. c. or 50 to 60 cycles a. c
or
Battery Operated using RCA VS 057W Battery (Average battery life—100 hrs. intermittent service) Battery current
Tube Complement
(1) RCA 1T4
(3) RCA 1T4
(4) RCA 1U5 Det. — AVC — 1st A.F.
(5) RCA 3V4Output
A selenium rectifier is used.

To Remove Hinges

Remove back from cabinet as described at right. Spread the hinge apart to remove it from the cabinet back.



Removal of Cabinet Back

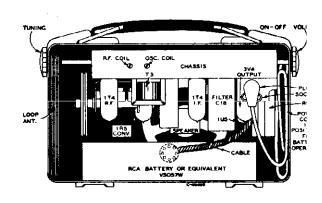
Weight (Approx.) Without battery4 lb	. 10 oz.	With batt	ery7 lb. 12
Power Output			
Undistorted	. .		170 w
Maximum			320 v
Loudspeaker			4 in. F
Voice Coil impedance			
Cabinet Dimensions			_
Height 8 in. Wi	idth12	21⁄2 in. I	Depth5%

To Remove Chassis:

- 1. Pull out battery and disconnect battery plug.
- 2. Unsolder the two loop antenna leads.
- Remove the two large screws (under handle) in the of the case.

To Remove Cabinet Back

With the back fully open, grip the cabinet as illustral Insert a screwdriver under one hinge and pry the center the hinge out of the opening in the cabinet while metaining pressure on the back with the fingers and on cabinet with the thumb. Repeat this procedure with other hinge. Pull the back straight to the rear using k hands.



Rear View With Back Removed

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MODEL 2BX63, Ch. RC-1115

Alignment Procedure

Output Meter Alignment — If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

Test Oscillator — For all alignment operations, connect the low side of the test oscillator to the receiver chassis and keep the oscillator output as low as possible to avoid AVC action.

Battery operation of the receiver is preferable during alignment; on AC operation an isolation transformer (117v./117v.) may be necessary for the receiver if the test oscillator is also AC operated.

Dial Pointer Position — With the tuning condenser fully meshed the center of the dial pointer should be in line with the score mark on the chassis.

Cian	Connect High Side of Sig.	Sig.	Dial Pointer	Adjust for	
Step	Gen. to —	Output	Setting	Max. Output	
1	Disconnect loop plate.		chassis-	remove bottom	
2	Pin #6 of 1T4 I.F. Amplifier thru .005 mf.		Quiet point	2nd I.F. Trans. T2 Top & Bottom	
3	Pin #6 of 1R5 Converter thru .005 mf.	455 kc	near 1600 kc	lst I.F. Trans. T1 Top & Bottom	
4	Replace bottom cover and install chassis in cabinet. Re-connect loop.				
5		1620 kc	min. cap.	1600 kc osc. trimmer C1-3T	
6	:	1400 kc	1400 kc Signal	1400 kc r.f. & ant. trimmers*	
7	Short wire placed near			ohm resistor in uning cond. C1-2	
8	loop for radiated signal	600 kc	600 kc Signal	L4 osc. core* while rocking gang	
9	- mainta signar	Remove from r.i.		00 ohm resistor ond. C1-2.	
10		600 kc	600 kc Signal	L3 r.f. core	
11	Repeat Steps 5	5, 6, 7, 8,	9 cand 10		

*The position of the battery affects loop inductance. The battery should be in place during steps 5 to 11.

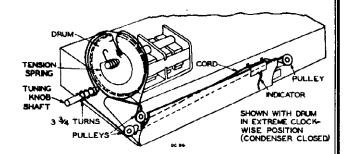
Critical Lead Dress

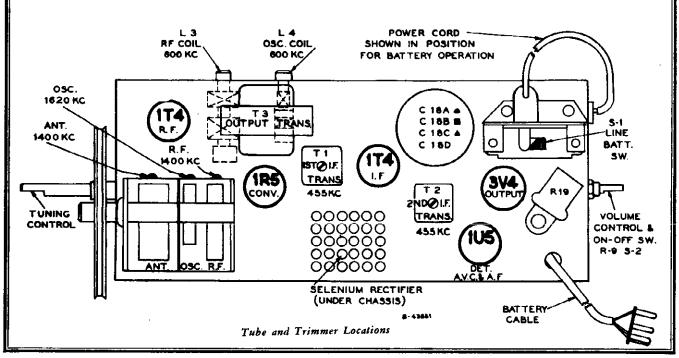
- 1. Dress all filament leads next to chassis.
- 2. Use short pigtail leads on components to V1, Pin 6.
- 3. Dress gang leads direct to avoid excess lead length.
- 4. Dress loop leads away from gang tuning drum,
- 5. Dress capacitors C3, C4, C6 for RF shielding.
- 6. Use short pigtail lead on C21 to V3-2 and dress away from Pin 6.
- 7. Dress capacitors C13 and C17 direct and down to base.

CAUTION.

Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.

Dial-Indicator and Drive Mechanism



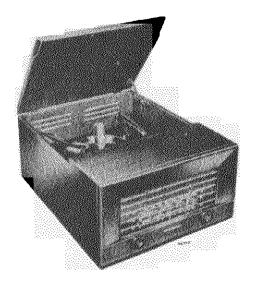


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MODEL 2BX63, Ch. RC-1115

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHACGIC ACCEMBING	513233	3300 ohms, ±10%, 1 watt
Ì	CHASSIS ASSEMBLIES RC-1115	504 315	15,000 ohms, ±20%, ½ watt
	10-1110	503327	27,000 ohms, ±10%, ½° wattR14
77054	Capacitor—Variable tuning capacitor complete with	504368	68,000 ohms, ±20%, ½ wattR10
1 //034	drive drum	504410	100,000 ohms, ±20%, ½ wattR5
73153	Capacitor—Ceramic, 4 mmf	503422	220,000 ohms, ±10%, ½ watt
39622	Capacitor—Mica, 56 mmf,	504510	1 megohm, ±20%, ½ watt
71514	Capacitor—Ceramic, 82 mmf	503518	1.8 megohm, ±10%, ½ watt
51416	Capacitor—Mica, 180 mmi	503533	3.3 megohm, ±10%, ½ watt
76659	Capacitor—Electrolytic comprising 1 section of 50	504547	4.7 megohm, ±20%, ½ watt
/ / / /	mid., 150 volts, 1 section of 40 mid., 150 volts, 1	50 3556	5.6 megohm, ±10%, ½ watt
1	section of 160 mfd., 25 volts and 1 section of 40	50 3568	6.8 megohm, ±10%, ½ watt
	mid., 25 volts	504610	10 megohm, ±20%, ½ watt
73595	Capacitor—Tubular, paper, .0022 mfd., 600 voltsC17	73117	Socket—Tube socket, 7 pin, miniature
73795	Capacitor—Tubular, paper, .0033 mfd., 600 volts . C8	76368	Spring—Drive cord spring
73796	Capacitor—Tubular, paper, 0039 mfd., 600 volts C19	71039	Switch—"Line-Battery" switch
73561	Capacitor—Tubular, paper, .01 mfd., 400 volts C13, C16	73129	Transformer—First I.F. transformer complete with adjustable cores
73562	Capacitor—Tubular, paper, .022 mfd., 400 volts	75487	Transformer—Second I.F. transformer complete with
73558	Capacitor—Tubular, paper, .047 mfd., 200 volts C4, C5, C9, C10	71047	adjustable cores
73553	Capacitor—Tubular, paper, .047 mfd., 400 volts C3, C6	71047 33726	Transformer—Output transformer
75071	Capacitor—Tubular, moulded paper, .047 mfd., 400 volts		SPEAKER ASSEMBLIES
73551	Capacitor—Tubular, paper, oil impregnated, 0.1 mfd., 400 volts.		971495-7W RL-108B10
73935	Clip—Mounting clip for I.F. transformer	77055	Speaker-4" P.M. speaker complete with cone and
73114	Coil—Oscillator coil complete with adjustable core	77000	voice coil (3.2 ohms)
	L4, L5		1 1000
74992	Coil—RF coil complete with adjustable core . L2, L3		MISCELLANEOUS
71041	Connector—5 contact male connector or battery cable	77068	Antenna—Antenna loop assembled to polystyrene
72776	Connector—Single contact pin connector or output transformer leads (2 req'd)	77060	frame and support
75474	Connector—Single contact male connector for output transformer leads	77061	strikes Cap—Carrying handle cap and chassis support
74285	Control-Volume control and power switch R9, S2	77065	Case Case front—less handle, handle support, caps,
72953	Cord—250' Drive Cord Reel (approx. 50" required)		links and chassis mounting screw
70022	Cord—Power cord and plug	77064	Emblem—"RCA Victor" emblem
77051	Dial—Metal dial scale complete with (3) pulleys	77057	Eyelet—Metal eyelet for mounting loop assembly
74838	Grommet—Power cord strain relief (1 set)	77066	<u> </u>
72283	Grommet—Rubber grommet for mounting variable capacitor	77056 77063	Grommet—Rubber grommet for mounting loop assembly Handle—Carrying handle
18469	Plate—Bakelite mounting plate for electrolytic	74790	Hinge—Cabinet hinge (2 req'd)
77053	Pointer—Station selector pointer	77248	
	Pulley—Drive cord pulley	77062	Link—Carrying handle link
	Rectifier—Selenium rectifier	77013	1
74319	Resistor—Wire wound, 2650 ohms, 7 wattsR19 Resistor—Fixed, composition:—	76671	Screw—#6 x 1/2" cross recessed self-tapping round head screw for mounting loop
514033 504210	33 ohms, ±20%, 1 watt	77058	Screw—#8-32 x 7/16" cross recessed pan head machine screw for mounting loop
	1500 ohms, ±10%, ½ watt	74734	Spring—Spring clip for knobs
503218	1	77467	_
503227		77067	Window—Clear vinylite dial window

MODEL 35Q Ch. RC-1054



Specifications

Tuning Ranges
Standard Broadcast ("A" Band) 520-1605 kc. (576-186 m.) Medium Wave ("B" Band) 2.3-7 mc. (131-42.8 m.) Short Wave ("C" Band) 7.0-22 mc. (42.8-13.7 m.)
Intermediate Frequency
Tube Complement Converter (1) RCA-12BE6 Converter (2) RCA-6BI6 I. F. Amplifier (3) RCA-12AV6 DetA.V.CA.F. Amp. (4) RCA-50L6GT Output (5) RCA-35W4 Rectifier
Power Supply 1. 105-125 v. 60 cycles A.C
Note: Instruments having power supply #1 or #2 may be converted to 50 cycle operation by the addition of a conversion spring sleeve to the record changer motor shaft. Instruments having power supply #2 employ a step-down transformer but the power cord which extends from the chassis may be connected direct to a 117 v. A.C. power supply.
Record Changer 930409-6. for 60 or 50 cycle operation 930409-4 for 25 cycle operation Turntable speed. 33½, 45 or 78 r.p.m. Record capacity Up to fourteen 7 inch RCA type or twelve 10 inch, or ten 12 inch, or ten 10 in. and 12 in. intermixed. Pickup (Stock No. 162A001) Ceramic with replaceable styli
Tuning Drive Ratio
Cabinet Dimensions (overall) Height 10%" (27 cm.) Width 16%" (42 cm.) Depth 22½" (57 cm.) Weight 29 lbs. (13.2 kg.)
Loudspeaker
Size and Type 6½" (16 cm.) P.M. V.C. Impedance 3.2 ohms at 400 cycles
Power Output Undistorted .1.0 watt Maximum .1.8 watt

Alignment Procedure

Test-Oscillator.—For all alignment operations, connect the low of the test-oscillator to the receiver chassis, and keep the oscillator or low to avoid a-v-c action.

Note: If the test-oscillator is a-c operated, it may be necessary to an isolation transformer (117v./117v.) for the receiver during aligns and connect the low side of the test-oscillator to common wiring—reve of the plug may reduce hum.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning is fastened in the cabinet and cannot be used for reference during a ment, therefore a calibration scale is attached to the indicator-drive-drum which is mounted on the shaft of the gang condenser. The settir the gang condenser is read on this scale, which is calibrated in deg

As the first step in r-f alignment, check the position of the drum. "180°" mark on the drum scale must be vertical and directly over center of the gang-condenser shaft when the plates are fully meshed

Pointer for Calibration Scale—Improvise a pointer for the calition scale by fastening a piece of wire to the gang-condenser frame, bend the wire so that it points to the "180" mark on the calibration swhen the plates are fully meshed. The correct setting of the gang in deg for each alignment frequency, is given in the alignment table.

Dial-Indicator Adjustment—After fastening the chassis in the cab attach the dial indicator to the drive cable with indicator at the end bration mark, and gang condenser fully meshed. The indicator has a for attachment to the cable.

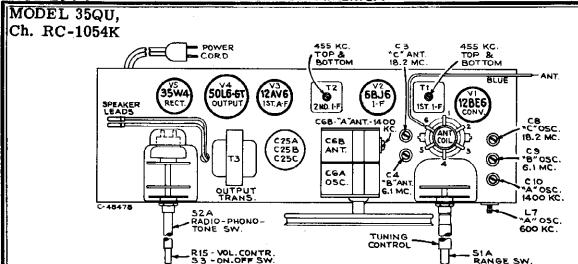
Step	Connect high side of test osc. to—	Tune test	Range switch	Turn radio dial to—	Adjust max.ou	
1	6BJ6 grid (Pin No. 1) in series with .01 mf				T-2 top ar bottor	
2	12BE6 grid (in No. 7) Pin series with .01 mf	455 kc	A	Quiet point near 600 kc	T-1' top as botto	
3		1400 kc		1400 kc 30°	C10 or C6-B a	
4	Antenna lead in series with 220 mmf	600 kc	A	600 kc 145°	L7 os (rock ge	
5		Repeat steps 3 and 4				
6	Antenna lead in series	6.1 mc	В	6.1 mc 30.3°	C9 osc C4 ani	
7	with 300 ohms	18.2 mc	С	18.2 mc 36°	C8 osc C3 an	

* Do not readjust T-2.

† If two peaks are found—adjust at minimum capacity peak.

t Rock gang while adjusting—use maximum capacity peak.
NOTE: Oscillator tracks above signal on all bands.

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AS RPM CENTERPOST
PLACED OVER
CENTER SPINOLE

FOR 33 1/3
OR 45 RPM
REST

FOR 76 RPM
RECORDS

WELL FOR
42 RPM
CENTERPOST

CENTEROST

APPLIAGE

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Tube and Trimmer Locations

Critical Lead Dress

- 1. Dress C2 away from antenna coil windings.
- 2. Keep body of C15 away from chassis base.
- All wires from the antenna and oscillator coils to the band switch are critical for length and should not be changed.
- Dress any slack in lead from oscillator coil (C band secondary terminal) toward end of chassis.
- 5. Dress (C14-R3) away from chassis base.
- Dress output plate lead next to chassis keeping it umder —B and +B leads.
- 7. Dress phono cable under C29.
- 8. Dress R20 next to rear chassis aprox.

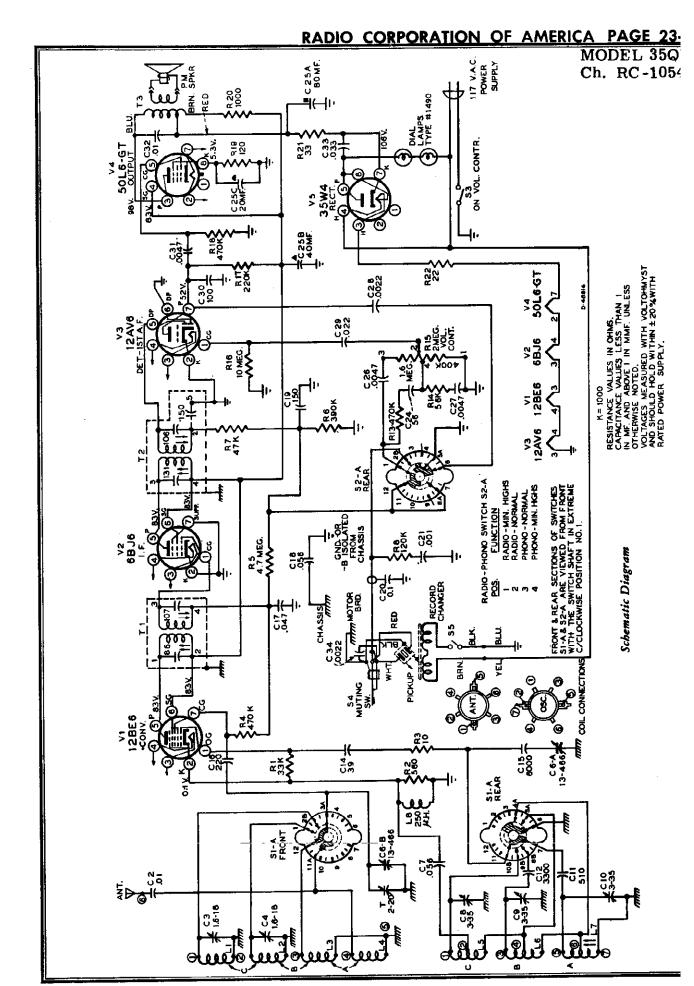
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550 KC 700 1200 1400 600 800 1000 DELHI - GUATEMALA CARACAS - MADRAS CARTAGENA MOSCOW 120 CALCUTTA, BUMBAY 90 MARAGAIBO - ROME 60 REYKJAVIK 49 LONDON Ш 4 5 7 mc 2.5 3 **JOHANNESBURG** LISBON - HAVANA MANILA HAVANA VATICAN CITY 41 SANTIAGO 25 GENEVA PARIS RID DE 31 JANEIRO **19** QUITE 16 N.Y. 13 M 20 22 8 14 16 18 ШC 10

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

Reduced Reproduction of Receiver Dial Scale and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 145° on the calibration scale corresponds to approximately 600 kc on "A" band, stc. Read instructions under "Alignment Procedures."



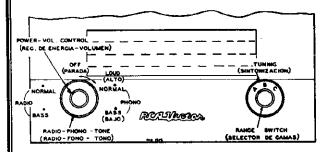
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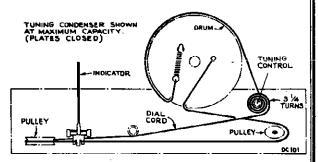
MODEL 35QU, Ch. RC-1054K

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	Chassis assembly	S-4624	390,000 ohms, ½ watt (R6)
	RC-1084K	S-4476	470,000 ohms, ½ watt (R4, R18)
		S-6479	470,000 ohms, ½ watt (R13)
S-8032	Bracket—Dial cord pulley bracket complete with one large	8-4478	4.7 megohm, ½ wait (R5)
8-6033	pulley (left)	S-5517	10 megohm, ½ watt (R16)
5-003	Bracket—Dial cord pulley bracket complete with one large pulley (right)	S-6651	Sleeve—Tuning control sleeve
	Fixed Capacitors:	S-4483	Socket-Tube socket-octal-for 50L6GT tube
8-6634	Ceramic, 56 mmf (C24)	8-6322	Socket—Tube socket—miniature for 12BE8 tube
S-6635	Ceramic, 100 mmf (C30)	S-6652	Socket-Tube socket-miniature for 6BJ6, 12AV6 and
S-6636	Ceramic, 150 mmf (C19)	1	35W4 tubes
S-6637	Ceramic, 220 mmf (C16)	B-6037	Socket—Dial lamp socket and lead assembly
S-6300	Mica, 510 mmf (C11)	S-5710	Spacer-Metal spacer for tuning condenser mounting
S-4441	Mica, 3300 mmf (C12)		(3 reg'd)
S-4442	Mica, 6000 mmf (C15)	8-4485	Spring—Tension spring for tuning drive cord
S-6638		S-8653	Switch—Tuning range switch (S1-A, S1-B)
S-4607	Molded paper, .001 mf, 600v, (C21)	8-4487	Transformer—First I-F transformer (T1)
S-4443	Molded paper, .0022 mf, 600v, (C28)	S-4488	Transformer—Second I-F transformer (T2)
	Molded paper, .0047 mf, 600v. (C26, C31)	S-6654	Transformer—Output transformer (T3)
S-5469	Molded paper, .0047 mf, 600v. (C27)	8-6179	Washer—"C" washer to retain tuning control sleeve
S-6326	Ceramic, .01 mf. (C2)		
8-4609	Molded paper, .01 mf, 800v. (C32)		SPEAKER ASSEMBLY
S-4732	Molded paper, .022 mf, 400v. (C29)	0 1	(STAMPED 970687-7, 8 or 9)
S-6639	Molded paper, .033 mf, 1000v, (C33)	8-6046	Cone—Cone and voice coil assembly
S-4448	Molded paper, .047 mf, 200v, (C17)	S-6662	Speaker-61/2 inch P.M. speaker complete with cone and
8-4449	Molded paper, .058 mf, 400v. (C7, C18)	k	voice coil.
S-4634	Molded paper, .1 mf, 400v. (C20)	L I	MISCELLANEOUS
S-4452	Electrolytic, 30 mf and 40 mf at 150v, and 20 mf at 25v. (C25A, C25B, C25C)	8-6655	Capacitor-Molded paper, .0022 mf, 1000v. (C34)
8-4450	Capacitor—Trimmer capacitor, two sections of 1.6— 18 mmf (C3, C4)	S-5734 S-6656	Decal—"Victrola" decal Decal—Control function decal for front of cabinet (1 set)
S-4516	Capacitor—Trimmer capacitor, three sections of 3-35	S-6657	Dial—Plastic dial scale
5-4510	mmf (C8, C9, C10)	S-6665	Emblem—"RCA Victor" emblem
S-6640	Capacitor—Variable tuning capacitor (C6-A, C6-B)	8-5735	Fnot—Rubber foot for cabinet (4 reg'd)
S-4453	Capacitor and Resistor—Assembly comprising 39 mmf capacitor and 10 ohm resistor (C14, R3)	8-4502	Grommet—Rubber grommet for chassis mounting (4 reg'd)
S-4454	Clip—Mounting clip for I-F transformers	8-6043	Grommet-Rubber grommet for speaker mounting
S-6641	Coil-"A-B-C" bands antenna coil (Ll, L2, L3, L4)		(4 reg'd)
S-6642	Coil-"A-B-C" bands oscillator coil (LS, L6, L7)	B-6658	Hinge-Cabinet lid hinge (2 reg'd)
S-4457	Coil and Resistor—Assembly comprising 250 microhenry	S-6044	Indicator—Station indicating pointer
	coil and 560 ohm resistor (L8, R2)	8-6511	Knob-Radio-Phono switch control knob for walnut
S-6643	Control—Volume control and tone switch (R15, S2-A)	8-6512	Knob-Radio-Phono switch control knob for oak finish
S-4458	Cord—Tuning drive cord (approx. 49 inches required)	1 2.00.	instruments
S-5463	Cord—Power line attachment cord	74963	Knob-Volume control and on-off switch knob for walnut
S-6311	Core—Adjustable core for oscillator coil	H	finish instruments
S-4464	Grommet—Rubber grommet for tuning capacitor mount- ing (3 reg'd)	8-9206	Knob—Volume control and on-off switch knob for oak finish instruments
S-4466	Insulation—Insulating plate for mounting electrolytic	74959	Knob—Tuning control knob for walnut finish instruments
0 0000	capacitor	S-9204	Knob-Tuning control knob for oak finish instruments
S-6316	Nut—Speed nut for mounting of oscillator adjustable core. Resistors—Fixed, composition:	8-6513	Knob—Range switch control knob for walnut finish instruments
S-6644	22 ohms, 1 watt (R22)	S-6514	Knob-Range switch control knob for oak finish
S-6645	33 ohms, 1 watt (R21)		instruments
S-6646	120 ohms, ½ watt (R19)	S-4508	Lamp—Dial lamp—Mazda type #1490 (2 reg'd)
B-6647	1000 ohms, 1 watt (R20)	S-6659	Spacer—Metal spacer for chassis mounting (4 reg'd)
S-6648	33,000 ohms, ½ watt (RI)	8-6530	Spacer—Metal spacer for speaker mounting (4 reg'd)
S-6392	47,000 ohms, ½ watt (R7)	8-5744	Stud—Internal thread stud for mounting lid hinge
S-6649	56,000 ohms, ½ watt (R14)		(8 req'd)
S-6396		5-4659	Support—Cabinet lid support
	120,000 ahms, ½ watt (R8)	S-0661	Transformer—234/117v. 50-60 cycle step-down transformer
S-6650	220,000 ohms, ½ watt (R17)		te te state of the

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

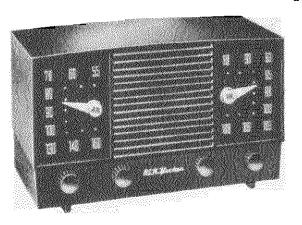


Radio Controls



Dial-Indicator and Drive Mechanism

MODEL 2-XF-91, (RC1121, Forbes



Model 2-XF-91 "Forbes" Maroon

SPECIFICATIONS

TUNING RANGE	POWER SUP
Standard Broadcast (AM)	40-1600 kc 115 volts, 50-0
Frequency Modulation (FM)	455 kc LOUDSPEAK
(i) RCA 6Bj6	Amplifier AUDIO POW
(2) RCA 19X8 Mixer	=
(3) RCA 12BA6LF,	
(4) RCA 12AU6	TIMING DOL
(6) RCA 12AL5	WEI MERCH
(8) RCA 35C5	
RCA Stock No. 77519Seleniur	n Rectifier Height

CIRCUIT DESCRIPTION

This instrument, an AM-FM table radio, has eight tubes, plus selenium rectifier. Individual dials are provided for AM and FM bands. RF circuits, contained on a two tube sub-chassis, include RF amplification for both bands and a combination mixeroscillator circuit. The input circuit to the FM RF stage is broadbanded, and is tuned to the approximate FM band center at 100 mc. The mixer is pentode connected for AM operation; triode connected for FM operation. AM IF circuits use an IF amplifier and conventional diode detector with AVC. FM IF circuits include three IF amplifier stages and a discriminator detector. The two tube audio amplifier has an adjustable tone control circuit with combination bass and treble compensation. A hum-bucking circuit uses the tapped-winding output transformer. An inbuilt AM loop antenna, and line cord FM antenna, allow reception without the use of external antennas. A phono jack at the instrument rear permits the use of a record player attachment.

Radio Controls

OFF-VOLUME

TONE

FUNCTION

TUNING



NET WEIGHT.....8

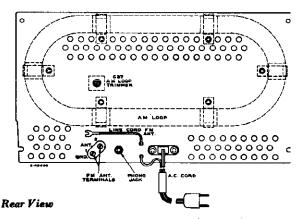
IMENSIONS (Overcil) eight..... 816" Width..... 13%6"

OPERATING INSTRUCTIONS

Depth.....7

RADIO — Turn OFF-VOLUME control about half-way in clockwise direction to turn receiver ON and provide for med VOLUME. Allow a short warm-up period. Set FUNCTION at trol at desired service — AM or FM. Rotate TUNING control move the pointers to the desired AM or FM frequency. Do touch the pointers themselves. Adjust VOLUME and TC controls as desired.

PHONOGRAPH — Connect attachment to PHONO jack at strument rear. Switch the FUNCTION control to "PH" posit Turn on receiver and adjust VOLUME and TONE controls desired.



PAGE 23-78 RADIO CORPORATION OF AMERICA

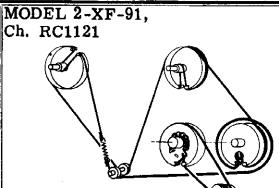


DIAGRAM OF DIAL CORD WITH GANG IN (PLATES GLOSED)

Dial and Drive Cord Drive

ALIGNMENT PROCEDURE

ALIGNMENT INDICATORS:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate maximum audio output during AM alignment. Connect the output meter across the speaker voice coil. The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure AVC voltage. When audio output is being measured, the volume control should be turned to maximum. Adjust tone control to mid-position.

SIGNAL GENERATOR:

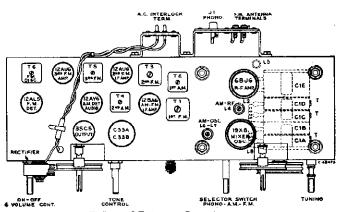
For all alignment operations, connect the low side of the signal generator to the receiver chassis. If output measurement is used for AM alignment, the output of the signal generator should be kept as low as possible to avoid AVC action.

If an FM sweep generator is used for FM alignment, adjust for 10.7 mc, 0.4 mc sweep. Connect oscilloscope across C26, adjusting discriminator T6 top core for 10.7 mc crossover, and T6 bottom core for balanced peaks. Peak separation should be approximately 330 kc. When aligning the other FM tuned circuits, connect oscilloscope lead through a 220K resistor to pin 1 of V5. Follow alignment table sequence, adjusting for maximum gain and symmetrical curves.

Tube Socket Voltages

Tube Type and Function	Tube Element	Pin No.	AM	FM	Phono
V1 6BJ6 R.F. Amp.	Plate Screen Cathode Grid	5 6 2 1	94 94 0.7 0.5	92 92 0.9 0	92 92 0.5 -0.6
V2 19X8 Mixer Osc.	Plate Screen Cathode Grid Plate Grid Cathode	9 1 6 7 3 2 6	75 75 0 -1.6 85 -3.3	80 80 0 -2.3 85.6 -3	80 60 -2.3 74 -0.3
V3 12BA6 I.F. Amp.	Plate Screen Cathode Grid	5 6 7 1	94 94 0.8 -0.4	92 92.3 0.9 -0.2	90 90 0.8 0.2
V4 12AU6 2nd I.P. Amp. (F.M.)	Plate Screen Cathode Grid	5 6 7 1	95 95 0.8 0	93.5 94.1 0.8 0	92 92 0.8 0
V5 12AU6 3rd l.F. Amp. (F,M.)	Plate Screen Cathode Grid	5 6 7 1	74 74 0.3 -0.2	73 73 0.3 -0.4	72 72 0.4 -0.2
V6 12AL5 F.M. Det.	Plate Cathode Plate Cathode	2 5 7 1	=	=	1111
V7 12AV6 A.M. Det. Audio Amp.	Plate Grid Plate (Diode)	7 1 5	58 -0.8 -0.5	57 -0.8 -0.3	57 0.8 0.3
V8 35C5 Audio Output	Plate Screen Cathode Grid	7 6 1 2-5	130 96 5.1	130 94.5 5.0	130 94.5 5.0

Rectifier output should be approximately 139 volts, 70 mg.



Tube and Trimmer Locations

AM Alignment FUNCTION SWITCH IN AM POSITION

Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output			
1	Pin No. 1 of V3 in series with .01 mfd. 455 kc.		Quiet point at high	T4 bottom core (sec.) T4 top core (pri.)			
2	Tap lug 4 on AM RF coil	(mod.)	freq. end	T2 bottom core (sec.) T2 top core (pri.)			
3		1620 kc. .(mod.)	1620 kc.	ClA-T (osc.)			
4	Chart wire	1400 kc. (mod.)	1400 kc.	C37 (ant.) C1C-T (ri.)			
5	Short wire placed near loop for radiated signal	600 kc. (mod.)	600 kc.	L6 (osc.) with 10,000 ohm resistor from C1C RF stator to gnd. (rocking gang)			
6				L4 (RF) with the 10,000 ohms removed			
7	Repeat steps 4, 5 and 6 until maximum gain is obtained						

FM Alignment FUNCTION SWITCH IN FM POSITION—VOLUME CONTROL MINIMUM_TONE CONTROL CENTER

MINIMUM—TONE CONTROL CENTER						
Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max, output		
1	Pin No. 1 of V5-12AU6			T6 top core for zero d.c. (across C26) T6 bottom core for maximum d.c. (junction of R24 and R25)		
2	Pin No. 1 of V4-12AU6	10.7 mc. low	†T5 top core			
3	Pin No. 1 of V3-12BA6		frequency end	T3 top core †*T3 bottom core		
4	C1D Stator			Ti top core †*Ti bottom core		
5	, , , , , , , , , , , , , , , , , , ,	90 mc.	90 mc.	†FM osc. L8		
6		106 mc.	106 mc.	†FM R.F. ClD-T		
7	FM Ant. terminals thru 270	90 mc.	90 mc.	†FM R.F. L2		
8	ohm resistor	Repeat :	steps 6 and 7 us gain is obtain			
9		100 mc.	100 mc.	†FM Ant. coil L5		

^{*}If necessary for accurate peaking, the winding in the same transformer not being peaked should be loaded with a 680 chm resistor. †Connect VoltOhmyst to pin 1 of V5 through a 220K isolating resistor with 1/4 inch maximum exposed lead at grid terminal end. Output adjusted for 1 volt d.c. Dress VoltOhmyst lead away from input circuits.

Oscillator frequency is above signal frequency on both AM and FM

PAGE 23-80 RADIO CORPORATION OF AMERICA

MODEL 2-XF-91,
Ch. RC-1121 5₹ +

RADIO CORPORATION OF AMERICA MODEL 2-XF-9 Ch. RC1121 28 у**р**-*<u>\$</u> EL 47958 28 R - BOOD

NOTE: THAT IS IN WE ARE ABOVE IN THE PRICE UPLESS OTHERWISE WOTED. Incentable welve of 20 mars has 9 to 50 meantons 25 šű: žē 85 22 # # = | [388] = 8 0 + 10 0 + 10 15 th 25 10000 ±3 ٣ **1377** NOTES:
FRONT AND REAR SECTIONS OF FUNCTION SWITCH SI'A AND SN-S
ARE VERMED SROAN PRONT WITH THE SWITCH SHAFF IN EXTREME
COUNTER-CLOCKWISE POSSTOR 8, (FINONS) 28 23 3

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CRITICAL LEAD DRESS

Dress C28 down on chassis and against terminal board. Run filament lead between V5 and V6 on side of V6 socket

FM IF Transformer grid and plate leads should be short

Ϋ́

4 6

opposite C28. All ceramic button 4700 uut condensers should have leads

တ်

9

TS terminal 6 side. C27 should ground in hole near terminal 5 of V6 with short

R24 and R25 leads should be kept as short as possible and direct as possible and kept low, near chassis. C26 leads should be kept as short as possible. C32 leads should be kept as short as possible.

switch when wrapping short bus leads to switch. Keep leads V5 pin 5, to T6 term 1, as short as possible and

cacillator coil should not be tilted over toward function

Ž

'n

as short as possible.
Green lead from AM oscillator stator gang terminal to AM oscillator coil should be dressed against front of shield box and up above filament choke. ö

RF plate choke L1, should be dressed at least 1/8" away from AM R.F. coil L4 and at least 1/8" from shield. Ë

12. Mixer grid condenser C7 should be dressed away from FM oscillator gang stator terminal and away from leads connecting to terminals 8 and 9 of V2 socket.

chokes L10 and L11 should be raised a minimum 13. Filament

15. Condenser C2 should have lead on antenna terminal 14. Use varnished tubing only on choke and leads coming through shield partition slot.

not more than 3/16" long to prevent possible contact of lead or body to "Hot" chassis.

Condensers C3 and C35 should use varnished tubing, not <u>.</u>9

vinyl, to prevent breakthrough crossing chassis edge.
17. Oscillator grid condenser C17 should have short leads and be dressed away from filament choke L10.
18. Leads from loop terminal to chassis terminal board should

have a minimum of three twists.

12 AUG

12 X U6

13 FM 10.7M

PAGE 23-82 RADIO CORPORATION OF AMERICA

STOCK No.	PART DESCRIPTION	STOCK No.	PART DESCRIPTION
	CHASSIS ASSEMBLIES	77519	Rectifier—Selenium rectifier, 100 MA (CR1)
	RC1121	76346	Resistor—Wire wound, 1200 ohms, 4 watts (R13)
77520	Bushing—Laminated bushing (%" long with shoul-		Resistor—Fixed, composition:
,,,,,,,	der) for station selector pointer pulley and shaft	503022	22 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R27)
	assembly.	503068	68 ohms, ±10%, ½ watt (R16, R30)
77522	Capacitor—Variable tuning capacitor (C1A, C1B,	503112	120 ohms, $\pm 10\%$, ½ watt (R19, R21)
	CIC, CID, CIE, CIA-T, CIC-T, CID-T)	503115	150 ohms, ±10%, ½ watt (R12)
70997	Capacitor—Fixed, ceramic, non-insulated, 5.6 mmf.,	503122	220 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R1, R17, R20)
	±1 mmf., 500 volts D.C. Temp. coef. = 0 (C2)	503227	2700 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R4)
77530	Capacitor-Fixed, ceramic, non-insulated, 7 mmf.,	503282	8200 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R31)
	±.5 mmf., 500 volts D.C. Temp. coef. = 80 (C15)	503310	10,000 ohms, ±10%, ½ watt (R6, R14, R23)
33380	Capacitor—Fixed, ceramic, non-insulated, 12 mmi.,	503318	18,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R3)
	\pm 5%, 500 volts D.C. Temp. coef. $=$ 0 (C6)	503347	47,000 ohms, $\pm 10\%$, ½ watt (R18)
77531	Capacitor—Fixed, ceramic, non-insulated, 47 mmf.,	502410	100,000 ohms, ±5%, ½ watt (R24, R25)
	\pm 10%, 500 volts D.C. Temp. coef. \pm 0 (C17)	503410	100,000 ohms, ±10%, ½ watt (R15, R22, R26)
77532	Capacitor—Fixed, ceramic, non-insulated, 130 mmf.,	503422	220,000 chms, ±10%, ½ watt (R10)
	$\pm 2\frac{1}{2}\%$, 500 volts D.C. Temp. coef. $\equiv -750$ (C18)	503447 503522	470,000 ohms, ±10%, ½ watt (R11)
39636	Capacitor—Fixed, mica, 220 mmf., 500 volts D.C. (C7)	503539	2.2 megohm, ±10%, ½ watt (R5)
75792	Capacitor—Fixed, ceramic, insulated, 330 mmf.,	503547	3.9 megohm, ±10%, ½ watt (R2)
	±20%, 500 volts D.C. High K (C9)	77527	4.7 megohm, ±10%, ½ watt (R8)
76992	Capacitor—Fixed, mica, 470 mmf., 300 volts D.C.	75192	Shaft—Tuning knob shaft Shield—Tube shield for V1
	(C26, C31)	76331	Shield—Tube shield for V2
39644	Capacitor—Fixed, mica, 470 mmi., 500 volts D.C. (C3)	77087	
73473	Capacitor—Fixed, ceramic, 4700 mmi., +100%,	1,,00,	Socket—Tube socket, 7 pin, miniature, moulde saddle mounted for V1
	-0%, 500 volts D.C. High K disc (C5, C8, C19, C21,	76336	Socket—Tube socket, 9 pin, miniature, moulde
	C22, C23, C24, C25, C29, C30, C36, C38, C39)	1	saddle mounted for V2
73520	Capacitor—Electrolytic comprising 1 section of 80 mfd., 150 volts and 1 section of 50 mfd., 150 volts (C33A, C33B)	-73117	Socket—Tube socket, 7 pin, miniciture, wafer for V V4. V5, V6, V7, V8
77533	Capacitor—Fixed, miniature, tubular, paper, .001	31970	Spring—Dial cord spring
	mid., 200 volts D.C. (C27)	31418	Spring-Drive cord spring
73920	Capacitor—Fixed, tubular, paper, .0047 mfd., 600	77524	Switch—Function switch (S1)
	volts (C12, C13, C28)	77517	Transformer—Output transformer (T7)
73561	Capacitor-Fixed, tubular, paper, .01 mid., 400 volts	77511	Transformer—Ratio detector transformer — comple
- 1	(C10)		with adjustable cores (T6)
73594	Capacitor—Fixed, tubular, paper, .01 mfd., 600 volts (C14)	76335	Transformer—First I.F. transformer—A.M.—comple with adjustable cores (T2)
73562	Capacitor—Fixed, tubular, paper, .022 mfd., 400 volts (C11)	77514 76328	Transformer—First I.F. transformer—F.M.—comple with adjustable cores (T1)
73558	Capacitor—Fixed, tubular, paper, .047 mid., 200	70320	Transformer—Second I.F. transformer—A.M.—complete with adjustable cores (T4)
75071	volts (C4) Capacitor—Fixed, tubular, moulded, .047 mfd., 400 volts (C32)	77513	Transformer—Second I.F. transformer—F.M.—con plete with adjustable cores (T3)
73551	Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C35)	77512	Transformer—Third I.F. transformer—F.M.—comple with adjustable cores (T5)
73935	Clip—Mounting clip for I.F. transformers	33726	Washer—"C" washer for station selector point
77538	Coil-Antenna coil-F.M. (L5)	34272	l Pulley and shaft or tuning knob shaft
77534	Coil—Choke coil (L1)	34373	Washer—"C" washer to fasten idler pulleys
77535	Coil—Choke coil (L9, L10, L11)		CDERALD Section
77526	Coil—Oscillator coil—A.M.—complete with adjust-		SPEAKER ASSEMBLIES
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	able core (L6, L7)]	971933-1
77537 77525	Coil—Oscillator coil—F.M. (L8) Coil—RF coil—A.M.—complete with adjustable core (L3, L4)	77539	Speaker—51/4" P.M. speaker complete with com and voice coil (3.2 ohms)
77536	Coil—RF coil—F.M. (L2)		MICCELLENGOUS
77528	Connector—Combination phono input connector and	,,,,	MISCELLANEOUS
	antenna terminal board (II)	77543	Antenna—Antenna loop and back assembly con
75474	Connector—Single contact male connector for speaker lead	77543	plete with power cord (includes C37) Back—Cabinet back complete with loop, capacite
77529	Connector—Two (2) contact male connector for power cord	Y2467	and power cord (includes C37) Cabinet—Maroon plastic cabinet less "RCA Victor emblem and function decal
77516	Control—Tone control (R9)	77544	Capacitor—Adjustable mica trimmer 2.20 mm

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

77544

77545

77542

77033

77548

77547

73203

77541

77540

73992

76837

Capacitor-Adjustable, mica trimmer, 3-30 mmf.

Knob-Tuning control, tone control or volume con-

Nut-Speednut to fasten "RCA Victor" emblem to

Spring—Retaining spring for knobs (knob to shaft)

Cord-Power cord and plugs

Decal—Control function decal

Knob Function switch knob

cabinet.

Emblem-"RCA Victor" emblem

trol and power switch knob

Pointer—Station selector pointer—A.M.

Pointer—Station selector pointer—F.M.
Retainer—Knob retainer (knob to cabinet)

77515

72953

77523

16058

77521

72602

77510

required)

(4 required)

pointers

and shaft bushing

hub

Control—Tone control (R9)
Control—Volume control and power switch (R7, S2)

250' Dial Cord Reel—Dial cord (approx. 49" overall

Drum-Variable tuning capacitor drive drum and

Grommet-Rubber grommet for mounting RF shelf

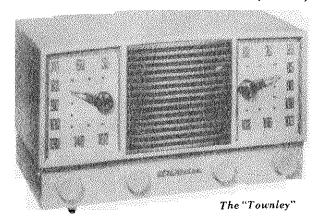
Nut-Speednut for station selector pointer pulley

Pulley—Idler pulley for indicator cord (2 required)
Pulley—Pulley and shaft (split) for station selector

Drive cord (approx. 11" overall required)

RADIO CORPORATION OF AMERICA PAGE 23-

MODELS 2-XF-931, -932, -933, -934, -935, Ch. RC1121A, Townle



2-XF-931 Maroon

2.XF-932 Ivory

2-XF-933 Green

2-XF-934 Red

2-XF-935

Beige

SPECIFICATIONS

TUNING HANGE	
Standard Broadcast (AM)	540-1600 kc
Frequency Modulation (FM)	
Intermediate Frequency (AM)	455 kc
Intermediate Frequency (FM)	10.7 mc
TUBE COMPLEMENT	
(1) RCA 6Bj6	R.F. Amplifier
(2) RCA 19X8	Mixer-Oscillator
(3) RCA 12BA6	I.F. Amplifier
(4) RCA 12AU6	
(5) RCA 12AU6	FM I.F. Amplifier
(6) RCA 12AL5	
(7) RCA 12AV6	
(8) RCA 35C5	
RCA Stock No. 77519	

CIRCUIT DESCRIPTION

This instrument, on AM-FM table radio, has eight tubes, plus selenium rectifier. Individual dials are provided for AM and FM bands. RF circuits, contained on a two tube sub-chassis, include RF amplification for both bands and a combination mixeroscillator circuit. The input circuit to the FM RF stage is broadbanded, and is tuned to the approximate FM band center at 100 mc. The mixer is peniode connected for AM operation; triode connected for FM operation. AM IF circuits use on IF amplifier and conventional diode detector with AVC. FM IF circuits include three IF amplifier stages and a discriminator detector. The two tube audio amplifier has an adjustable tone control circuit with combination bass and treble compensation. A hum-bucking circuit uses the topped-winding output transformer. An inbuilt AM loop antenna, and line cord FM antenna, allow reception without the use of external antennas. A phono jack at the instrument rear permits the use of a record player attachment.

OFF-VOLUME

FUNCTION

TUNING

Radio Controls

POWER SUPPLY RATING

CAUTION: DO NOT OPERATE ON D.C.

DIAL LAMPS...... 2 No. 47, 6-8 volts, 0.15 cm

LOUDSPEAKER

Size and Type...

AUDIO POWER OUTPUT

Undistorted1.0 wa Maximum1.3 wa

TUNING DRIVE RATIO......9:1 (41/2 turns of king

NET WEIGHT..... 8 12

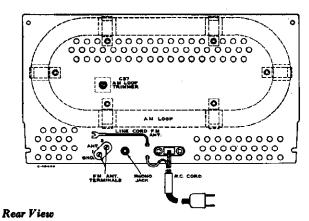
DIMENSIONS (Overall)

Height..... 81/2" Width..... 139/16" Depth..... 73/

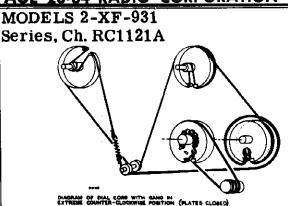
OPERATING INSTRUCTIONS

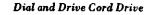
RADIO - Turn OFF-VOLUME control about half-way in clockwise direction to turn receiver ON and provide for mediu VOLUME. Allow a short warm-up period. Set PUNCTION co trol at desired service — AM or FM. Rotate TUNING control move the pointers to the desired AM or FM frequency. Adju VOLUME and TONE controls as desired.

PHONOGRAPH -- Connect attachment to PHONO jack at i strument rect. Switch the FUNCTION control to "PH" positio Turn on receiver and adjust VOLUME and TONE controls (desired.



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ALIGNMENT PROCEDURE

ALIGNMENT INDICATORS:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate maximum audio output during AM alignment. Connect the output meter across the speaker voice coil. The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure AVC voltage. When audio output is being measured, the volume control should be turned to maximum. Adjust tone control to mid-position.

SIGNAL GENERATOR:

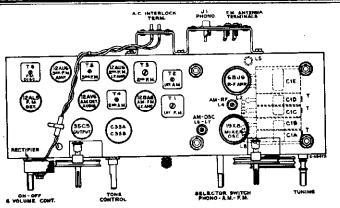
For all alignment operations, connect the low side of the signal generator to the receiver chassis. If output measurement is used for AM alignment, the output of the signal generator should be kept as low as possible to avoid AVC action.

If an FM sweep generator is used for FM alignment, adjust for 10.7 mc, 0.4 mc sweep. Connect oscilloscope across C26, adjusting discriminator T6 top core for 10.7 mc crossover, and T6 bottom core for balanced peaks. Peak separation should be approximately 330 kc. When aligning the other FM tuned circuits, connect oscilloscope lead through a 220K resistor to pin 1 of V5. Follow alignment table sequence, adjusting for maximum gain and symmetrical curves.

Tube Socket Voltages

Tube Type	Tube	Pin	АМ	FM	Phono
Function T	Element	No.	AM	r M.	rnono
V1 6BJ6	Plate Screen	5 6	94 94	92 92	92 92
R.F. Amp.	Cathode Grid	2	0.7 -0.5	0.9	0.5 -0.6
V2 19X8	Plate Screen	9 1	75 75	80 80	80 80
Mixer	Cathode Grid Plate	6 7	-1.6 85	0 -2.3 85.6	0 -2.3 74
Osc.	Grid Cathode	3 2 6	-3.3 -	37	-0.3
V3 12BA6	Plate Screen	5 6	94 94	92 92.3	90 90
I.F. Amp.	Cathode Grid	7	0.8 0.4	0.9 -0.2	0.8 0.2
V4 12AU6	Plate Screen	5 6	95 95	93.5 94.1	92 92
2nd I.F. Amp. (F.M.)	Cathode Grid	7 1	0.8	0.8	0.8
V5 12AU6	Plate Screen	5 6	74 74	73 73	72 72
3rd I.F. Amp. (F.M.)	Cathode Grid	7 - 1	0.3	0.3	0.4
V6 12AL5	Plate	-	-0.2	- 0.4	
F.M. Det.	Cathode Plate Cathode	2 5 7 1	=	=	=
V7 12AV6 A.M. Det.	Plate Grid	7	58 -0.8	57 0.6	57 0.8
Audio Amp,	Plate (Diode)	5	−0.5	-0.3	-0.3
V8 35C5 Audio Output	Plate Screen Cathode Grid	7 6 1 2-5	130 96 5.1	130 94.5 5.0	130 94.5 5.0

Rectifier output should be approximately 139 volts, 70 ma.



Tube and Trimmer Locations

AM Alignment

FUNCTION SWITCH IN AM POSITION

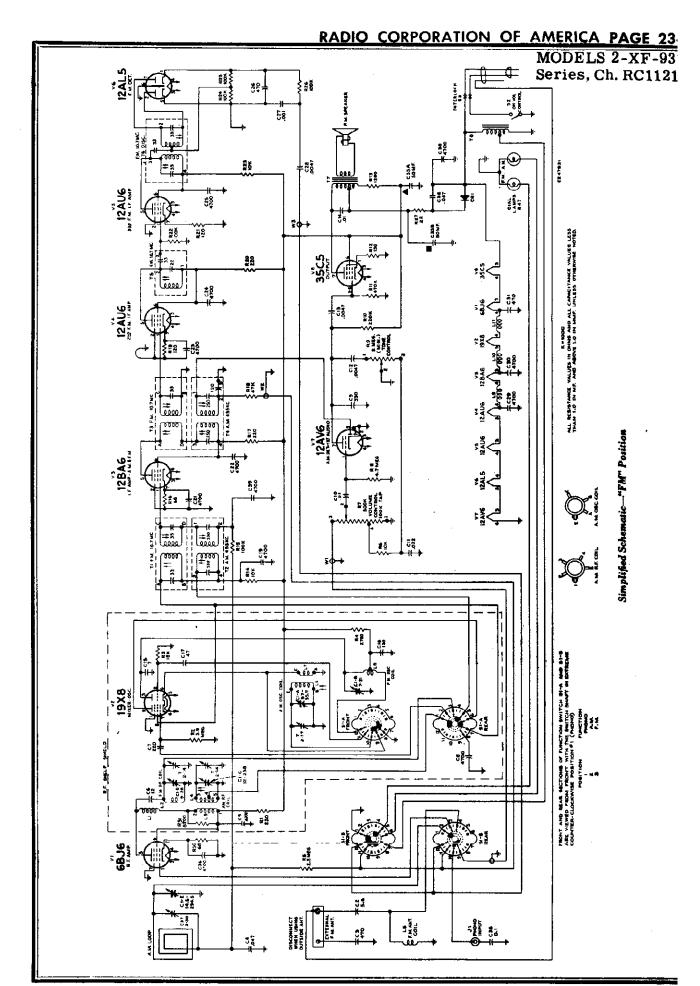
Stěps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for peak output	
1	Pin No. 1 of V3 in series with .01 mfd.	455 kc.	Quiet point at high	T4 bottom core (sec.) T4 top core (pri.)	
2	Tap lug 4 on AM RF coil	(mod.)	freq. end	T2 bottom core (sec.) T2 top core (pri.)	
3		1620 kc. (mod.)	1620 kc.	ClA-T (osc.)	
4	Short wire	1400 kc. (mod.)	1400 kc.	C37 (ant.) C1C-T (rt.)	
5	Short wire placed near loop for radiated signal	600 kc. (mod.)	600 kc.	L6 (osc.) with 10,000 chm resistor from C1C RF stator to gnd. (rocking gang)	
6	.			L4 (RF) with the 10,000 ohms removed	
7	Repeat steps 4, 5 and 6 until maximum				

FM Alignment FUNCTION SWITCH IN FM POSITION—VOLUME CONTROL

	MINIMU	M-TONE C	ONTROL CE	NIER
Steps	Connect high side of sig. gen. to—	Sig. gen. output	Turn radio dial to—	Adjust for max. output
1	Pin No. 1 of V5-12AU6		Quiet	T6 top core for zero d.c. (across C26) T6 bottom core for maximum d.c. (junction of R24 and R25)
2	Pin No. 1 of V4-12AU6	10.7 mc.	point at low	†T5 top core
3	Pin No. 1 of V3-12BA6		frequency end	T3 top core †"T3 bottom core
4	C1D Stator			T1 top core +*T1 bottom core
5		90 mc.	90 mc.	†FM osc. L8
6	1	106 mc.	106 mc.	†FM R.F. C1D-T
7	FM Ant. terminals thru 270	90 mc.	90 mc.	†FM R.F. L2
8	ohm resistor	Repeat	steps 6 and 7 u gain is obtain	ntil maximum ned
9		100 mc.	100 mc.	†FM Ant. coil L5

*If necessary for accurate peaking, the winding in the same transformer not being peaked should be loaded with a 680 ohm resistor. †Connect VoltOhmyst to pin 1 of V5 through a 220K isolating resistor with 1/4 inch maximum exposed lead at grid terminal end. Output adjusted for 1 volt d.c. Dress VoltOhmyst lead away from input circuits.

Oscillator frequency is above signal frequency on both AM and FM



PAGE 23-86 RADIO CORPORATION OF AMERICA MODELS 2-XF-931 Series, Ch. RC1121A SE 471836 흥 22 *** Simplified Schematic-"AM" Position 54 34

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28. 28. 28. 28. 28.

C28 C32 **R**24 4.00 leads.

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PAGE 23-88 RADIO CORPORATION OF AMERICA MODELS 2-XF-931 Series, Ch. RC1121A

Special Contents—Success of Contents—Success o	STOCK No.	PART DESCRIPTION	STOCK No.	PART DESCRIPTION
Bushing—Leminosed bushing (*** long with shock-ded for station selector pointer pulley and shock ded lopment and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock development and selector pointer pulley and shock		CHASSIS ASSEMBLIES	77527	Shaft—Tuning knob shaft
January Laminated hashing (1st long with about day for station selector polary of short of action as short polary on short pol				
des for station selector pointer pulley and shorth Consention, "Graphic promotion termine popelities (CL CL) CLC CLD, CLE CLAT, CLCT, CLDT) Coperation—Fased, creamine, monitorinated, 7 mand. 2.5 man, 500 vois D.C. Temp, cost. = 760 CLS Coperation—Flaced, creamine, monitorinated, 7 mand. 2.10 m., 500 vois D.C. Temp, cost. = 700 CLS Coperation—Flaced, creamine, monitorinated, 7 mand. 2.10 m., 500 vois D.C. Temp, cost. = 700 CLS Coperation—Flaced, creamine, monitorinated, 7 mand. 2.10 m., 500 vois D.C. Temp, cost. = 700 CLS Coperation—Flaced, creamine, monitorinated, 7 mand. 2.10 m., 500 vois D.C. Temp, cost. = 700 CLS Coperation—Flaced, creamine, 700 mand. 500 vois D.C. (CC) Coperation—Flaced, manifer, man, 500 vois D.C. (CC) Coperation—Flaced, manifer, 500 vois D.C. (CC) C	77520			
Casembly, Control of the Control of	11320			
Gegester-Wardelbe hander coposition G.J.A. C.J.B. Good C. C. C. C. C. C. C. C. C. C. C. C. C.			77087	
Colly CLIA, CLIA, Control, collected, 5th mand, 21 mand, 500 value C. Temp, cost. = 0.1023 (20) and 1.20 value D.C. temp, cost. = 0.1023 (20) and 1.20 value D.C. temp, cost. = 0.1023 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.20 value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) and 1.2024 (20) value D.C. temp, cost. = 0.1024 (20) value D.C. temp, cos	77522	Capacitor—Variable tuning capacitor (C1A, C1B,	76336	
Coperior—Fixed, ceromic monitarilated. 7 mml. 2.1 mml., 500 voils D.C. Franç. cert. = 16 (CLS) 3390			70000	
7.33.0 Call mail. 300 volta D.C. Tenpe, cost = 30 (C1) 2.33.0 Caporitor—Fixed, ceromic, non-insulated, 12 mail. 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Tenpe, cost = 30 (C1) 2.35.0 Volta D.C. Telpe, insulated, 30 mail. 2.35.0 Volta D.C. Telpe, insulated, 30 mail. 2.35.0 Volta D.C. Telpe, insulated, 30 mail. 2.35.0 Volta D.C. Telpe, volta D.C. Telpe, volta D.C. Copporter—Fixed, ceromic, insulated, 30 mail. 2.35.0 Volta D.C. Telpe, volta D.C. Telpe, volta D.C. Copporter—Fixed, ceromic, insulated, 30 mail. 2.35.0 Volta D.C. Telpe, volta D.C. Telpe, volta D.C. Copporter—Fixed, volta D.C. Telpe, volta D.C. T	70997	Capacitor—Fixed, ceramic, non-insulated, 5.6 mmf.,	73117	
Copecitor—Fixed corrents, non-handided, 12 mail. -±5%, 500 vols D.C. Temp. coed. = 0 (Col. mail. Copecitor—Fixed, ceremic, non-handided, 130 mail. -±2%, 500 vols D.C. Temp. coed. = 0 (Col. mail. Copecitor—Fixed, ceremic, non-handided, 130 mail. -±2%, 500 vols D.C. Temp. coed. = 740 (Cil) -5%, 500 vols D.C. Temp. coed. = 740		± 1 mmi., 500 volts D.C. Temp. coef. ± 0 (C2)	''	
Coposition—Fixed, curroutic, non-healistided, 12 mml. 25%, 500 volta D.C. Temp. cost. = 10 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. Temp. cost. = 20 (C17) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. High K (C3) 25%, 500 volta D.C. Edit mice. 470 mml. 500 volta D.C. (C3) 25%, 500 volta D.C. Edit mice. 470 mml. 500	77530	Capacitor—rixed, ceramic, non-insulated, / mmi.,	31970	Spring—Dial cord spring
±3%, 500 volts D.C. framp. code. = 0 (CS) maint. Copocition—Fixed controls: noninanisted. (30 maint. 273732 (Capcettor—Fixed, controls: noninanisted.) (30 maint. 27384, 500 volts D.C. framp. code. = 770 (CS) Copocition—Fixed controls: noninanisted. (30 maint. 27385, 500 volts D.C. framp. code. = 770 (CS) Copocition—Fixed mice. (470 maint.) 300 volts D.C. (CS) Copocition—Fixed mice. (470 maint.) 300 volts D.C. (CS) Copocition—Fixed mice. (470 maint.) 300 volts D.C. (CS) Copocition—Fixed mice. (470 maint.) 4100%43%, 700 volts D.C. fixed mice. (470 maint.) 4100%43%, 700 volts D.C. fixed mice. (470 maint.) 4100%43%, 700 volts D.C. fixed fix	22200			Spring—Drive cord spring
Copector—Fixed, concerning and standard of panels of the control o	33300			
2.10%, 500 volts D.C. Temp. coef. = 0 (C17) 2.00 (C17)	77531		77666	
Copyritor—Fixed. Inc. 20 mml., 500 vola D.C. (27) Copyritor—Fixed. Inc. 270 mml., 500 vola D.C. (27) Copyritor—Fixed. Inc. 470 mml., 500 vola D.C. (27) Copyrit			27517	
### with odjustable cores (TE) ### composition—Traced, common in a complete with control of the	77532			
Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .022 mid., 400 Copocitor—Fixed, thibular, poper, .047 mid., 300 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .01 mid., 400 volts Copocitor—Fixed, thibular, poper, .022 mid., 400 Copocitor—Fixed, thibular, poper, .047 mid., 400 volts Copocitor—Fixed, thibular, poper, .047 mid., 300 volts (Ci). Copocitor—Fixed, thibular, poper, .047 mid., 300 volts (Ci). Copocitor—Fixed, thibular, poper, .047 mid., 300 volts (Ci). Copocitor—Fixed, thibular, poper, .047 mid., 400 volts (C	****		1	
### 200			76335	Transformer—First I.F. transformer—A.M.—complet
Capacitor—Fased, mice. 470 mail. 300 volta D.C. (2) Capacitor—Fased, mice. 470 mail. 300 volta D.C. (2) Capacitor—Fased, externite. 4700 mail. + 100% capacitor—Fased, externite. 4700 mail. + 100% capacitor—Fased, externite. 4700 mail. + 100% capacitor—Fased, or comprise (1) account of 88 capacitor—Fased, capacitor. 400 mail. + 100% capacitor—Fased.	13/34		1	
CORPORTION—Flaced, mice. 470 mml. 500 volts D.C. (C2) Copportion—Flaced, mice. 470 mml. 500 volts D.C. (C3) Copportion—Flaced, mice. 670 mml. 500 volts D.C. (C3) Copportion—Flaced, tubular, paper. 0.01 mid. 200 volts D.C. (C3) Copportion—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.04 mid. 500 volts COPPORTION—Flaced, tubular, paper. 0.1 mid. 500 volts COPPORTION—Flaced, tubular,	76992		77514	
Copportion—Flazed, micra, 470 mm.I., 500 volts D.C. (C2) 79327 79328 Copportion—Electrolytic comprising 1 section of 80 mid., 150 volts Copportion—Electrolytic comprising 1 section of 80 mid., 150 volts Copportion—Electrolytic comprising 1 section of 80 mid., 150 volts Copportion—Flazed, midling, poper, 001 mid., 400 volts Copportion—Flazed, tubular, poper, 01 mid., 500 volts Copportion—Flazed, tubular, poper, 01 mid., 500 volts Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 021 mid., 200 Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 021 mid., 400 Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 022 mid., 400 Copportion—Flazed, tubular, poper, 023 mid., 400 Copportion—Flazed, tubular, poper, 023 mid., 400 Copportion—Flazed, tubular, poper, 023 mid.,	70002		70000	
Copacitor: Fixed, ceramic, 4700 mml. +100%, -0% stored in CN lipids (disc CS, CS) as (21), -0% stored in CN lipids (disc CS, CS, CS) as (22), -0% stored in CN lipids (disc CS, CS) as (22), -0% stored in CN lipids (disc CS) as (23), -0% and (disc Value of Capacitors—Recovipte comprising 1 section of 80 mid. 150 volts and 1 section of 90 mid. 150 volts and 1 section of 90 mid. 150 volts and 1 section of 90 mid. 150 volts and 1 section of 90 mid. 150 volts and 1 section of 90 mid. 150 volts and 1 section of 90 mid. 150 volts and 150 volts (C12, C13, C39). Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C11) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C12) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C13) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C3) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) volts (C3) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (13), 10, 111) capacitor—Fixed, tubular, paper, .0.1 mid., 400 volts (C3) coll—Choke coil (39644		76328	
-0.9. 500 youlg 10.5 High a clase Ca. 20. (20.11) -0.9. 500 young 10.5 High a clase Ca. 20. (20.	73473		77512	
75320 102. Local, Loca			7,020	plete with adjustable cores (T3)
Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.12, Cl. C.23) 73520 Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.14) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .047 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Copecitor—Fixed, thinking, poper, .01 mid., 400 volus (C.13) Coll—Choke coil (II), .11) Coll—Choke coi			77512	
C33A. C32B control—Fixed. ministure. tubular. paper. 001 mid. 200 voits D.C. (C27) Capacitor—Fixed. tubular. paper. 01 mid. 400 voits (C10) Capacitor—Fixed. tubular. paper. 02 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 02 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 02 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 02 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 02 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C11) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C12) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C13) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. tubular. paper. 0.1 mid. 400 voits (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete with adjustable core (C3) Capacitor—Fixed. complete	73520			with adjustable cores (T5)
Capacitor—Fixed, inhilature, tubular, paper, .001 73581 Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C10) 73582 Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C10) 73583 Capacitor—Fixed, tubular, paper, .022 mid., 400 Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C14) Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C32) 73593 Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C33) 73593 Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C33) 73593 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C35) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C37) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C37) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C35) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C34) Capacitor—Fixed, tubular, paper, .047 mid., 400 volts			33726	Washer-"C" washer for station selector points
mid. 200 volts D.C. (C27) 23562 Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C12, C13, C28) 23563 Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C12, C13, C28) 23564 Capacitor—Fixed, tubular, paper, .02 mid., 400 volts (C12, C13, C28) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 200 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 200 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 200 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23565 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23567 Capacitor—Fixed, tubular, paper, .02 mid., 400 volts (C13) 23568 Capacitor—Fixed, tubular, paper, .02 mid., 400 volts (C13) 23568 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23568 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23568 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23569 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23569 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23569 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23575 Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C13) 23576 Cap	49244			
Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C12, C13, C22) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C14) 73592 Capacitor—Fixed, tubular, paper, .022 mid., 400 volts (C14) 73593 Capacitor—Fixed, tubular, paper, .022 mid., 400 volts (C14) 73594 Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C4) 73595 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C4) 73596 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C4) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C4) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C4) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C4) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C5) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 mid., 400 volts (C6) 73597 Capacitor—Fixed, tubular, paper, .047 73597 Capacitor—Fixed, tubular, paper, .047 73597 Capacitor—Fixed, tubular, paper, .047 73597 Capacitor—Fixed, tubular, paper, .047 73597 Capacitor—Fixed, tubular, paper, .047 73597	/1000		34373	Washer—"C" washer to fasten idler pulleys
volts (C12, C13, C28) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C10) Capacitor—Fixed, tubular, paper, .02 mid., 400 volts (C10) Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C11) Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C11) Capacitor—Fixed, tubular, paper, .04 mid., 400 volts (C11) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C11) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C32) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .01 mid., 400 volts (C33) Capacitor—Fixed, tubular, paper, .07 mid.,	73920			420 - 200 - 400 - 400
Capacitor—Fixed, tubular, paper, 01 mid., 400 volts (Capacitor—Fixed, tubular, paper, 022 mid., 400 volts (Ci) Capacitor—Fixed, tubular, paper, 022 mid., 400 volts (Ci) Capacitor—Fixed, tubular, paper, 022 mid., 400 volts (Ci) Capacitor—Fixed, tubular, paper, 047 mid., 200 volts (Ci) Capacitor—Fixed, tubular, paper, 047 mid., 200 volts (Ci) Capacitor—Fixed, tubular, paper, 047 mid., 400 volts (Ci) Capacitor—Fixed, tubu				
Capacitor—Fixed, tubular, paper, .01 mfd., 600 volts (C14) Capacitor—Fixed, tubular, paper, .022 mfd., 400 volts (C11) Capacitor—Fixed, tubular, paper, .047 mfd., 200 volts (C1) Capacitor—Fixed, tubular, paper, .047 mfd., 200 volts (C1) Capacitor—Fixed, tubular, paper, .047 mfd., 200 volts (C1) Capacitor—Fixed, tubular, paper, .047 mfd., 200 volts (C1) Capacitor—Fixed, tubular, paper, .047 mfd., 400 volts (C1) Capacitor—Fixed, tubular, paper, .047 m	73561			
(Call) 73582 Capector—Fixed, tubular, paper, 0.47 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.47 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.47 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.47 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.1 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.1 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.1 mid., 400 volts (Cal) 73593 Capector—Fixed, tubular, paper, 0.1 mid., 400 volts (Cal) 73594 Capector—Fixed, tubular, paper, 0.1 mid., 400 volts (Cal) 73595 Call—Choke coil (I.) Call—Choke coil (I.) (I.) (I.) Call—Choke coil (I.) (I.) (I.) (I.) Call—Choke coil (I.) (I.) (I.) (I.) Call—Callier coil—F.M. (I.8) Call—R. Call—M. (I.2) Call—R. Call—M. (I.2) Call—R. Call—M. (I.2) Control—One control (R) Control—One control (R) Typis Control—One control (R) Typis Dive cord (approx. If overall required) Dive cord (approx. If overall required) Typis		(C10)	77539	
Capacitor—Fixed, tubular, poper, 0.42 mid., 400 volus (CII) Capacitor—Fixed, tubular, poper, 0.47 mid., 200 volus (CII) Capacitor—Fixed, tubular, poper, 0.47 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.47 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.47 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.1 mid., 400 volus (CI) Capacitor—Fixed, tubular, poper, 0.47 mid., 40	73594			tind voice con (3.2 onins)
Capacitotr—Fixed, itsular, poper, 0.47 mid., 200 78551 Capacitotr—Fixed, tubular, poper, 0.47 mid., 200 78561 Capacitotr—Fixed, tubular, moulded, 0.47 mid., 400 78562 Capacitotr—Fixed, tubular, moulded, 0.47 mid., 400 78563 Capacitotr—Fixed, tubular, moulded, 0.47 mid., 400 78563 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78563 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78563 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78563 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78563 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78564 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78565 Capacitotr—Fixed, tubular, poper, 0.1 mid., 400 78566 Capacitotra—Fixed, tubular, poper,			ļ	MISCELLANEOUS
Capacitor—Fixed, tubular, paper, .047 mid., 200 volts (C4) Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C3) Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C3) Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C3) Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C3) Capacitor—Fixed, tubular, paper, 0.1 mid., 400 volts (C3) Cip—Mounting clip for 1.F. transformers Cip—Mounting clip for 1.F. transformers Cip—Choke coil (II), 110, 111) Call—Choke coil (II), 110, 111) Call—Choke coil (II), 110, 111) Call—Chock coil (II), 110, 111) Call—Rocallitor coil—F.M. (L8) Call—RF coil—F.M. (L8) Call—RF coil—F.M. (L8) Call—RF coil—F.M. (L2) Call—RF co	73562		77549	
78570 Copicior Fixed, tubular, moulded, .047 mld. 400 volts (C32) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C37) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C37) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C37) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C33) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, paper, 0.1 mld. 400 volts (C35) Copicior Fixed, tubular, pape	****		77043	
Capacitor Fixed, tubular, moulded, .047 mld., 400 volts (C32) Capacitor—Fixed, tubular, paper, 0.1 mld., 400 volts (C33) Capacitor—Fixed, tubular, paper, 0.1 mld., 400 volts (C33) Capacitor—Fixed, tubular, paper, 0.1 mld., 400 volts (C33) Cip.—Mounting clip for I.P. transformers Cip.—Mounting clip for I.P. transformers Cip.—Antenna coni—F.M. (L5) Coll—Choke coil (L3), 110, 111) Coll—Choke coil (L3), 110, 111) Coll—Choke coil (L3), 110, 111) Coll—Ric coil—F.M. (L6) Coll—Ric coil—F.M. (L6) Coll—Ric coil—F.M. (L6) Coll—Ric coil—F.M. (L6) Coll—Ric coil—F.M. (L2) Control—Connector—Combination phono input connector and antenna terminal board (I1) Control—Tone control (I1) Control—Volume control and power switch (I7, S2) Zon Control—Volume control and power switch (I7, S2) Zon Coll—Colled tubulary Control—Tone control (IR) Drive cord (approx. I1" overall required) Drive cord (approx. I1" overall requ	/3338		77543	
volts (C32) volts (C32) volts (C32) 73555 73565 73575 73575 73575 73575 73575 73575 73575 73575 73576 73576 73576 73577 7357 7357 73577 7357 7	75071			
Coston the property of the state of the property of the proper	700.4		Y2468	Cabinet—Margon plastic cabinet less "RCA Victor
Cip—Mounting clip for LF, transformers Cip—Mounting clip for LF, transformers Collin—Chartenen coin—F.M. (L5) Colli—Choke coil (L1) Coll—Choke coil (L2), L10, L111 Coll—Oscillator coil—A.M.—complete with adjustable core (L5, L7) Coll—Oscillator coil—F.M. (L8) Collin—F. coil—R.M.—complete with adjustable core (L3, L4) Collin—Choke coil (L8), L10, L111 Coll—Oscillator coil—F.M. (L8) Collin—F. coil—R.M.—complete with adjustable core (L3, L4) Coll—F. coil—F.M. (L2) Connector—Combination phone input connector and antenna terminal board (II) Connector—Single contact male connector for special colline connector and connector—Two (2) contact male connector for special colline connector—Two (2) contact male connector for special colline connector—Two (2) contact male connector for special colline connector for special colline connector (R9) Connector—Two (2) contact male connector for special colline connector for special colline connector for control—Volume control (R9) Connector—Two (2) contact male connector for special colline connector for power colline connector for power colline connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline control—Volume control—Volume control (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connector (R9) Connector—Two (2) contact male connector for power colline connecto	73551			
77538 Coil—Choke coil (II-1) 77537 Coil—Choke coil (II-1) 77538 Coil—Choke coil (II-1) 77536 Coil—Choke coil (II-1) 77537 Coil—Choke coil (II-1) 77537 Coil—Choke coil (II-1) 77537 Coil—Choke coil (II-1) 77538 Coil—Settletor coil—F.M. (I.8) 77539 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77539 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77530 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77531 Coil—RF coil—F.M. (I.2) 77532 Connector—Combination phono input connector and antenna terminal board (II) 77532 Connector—Combination phono input connector for speaker lacat 77532 Connector—Combination phono input connector for speaker lacat 77531 Coil—T.M. (I.2) 77532 Connector—Combination phono input connector for speaker lacat 77532 Connector—Voil (II-1) 77532 Connector—Combination phono input connector for power cord 77540 Control—Voilme control and power switch (II-7, S2) 77541 Coil—T.M. (II-1) 77542 Coil—T.M. (II-1) 77543 Coil—T.M. (II-1) 77544 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77545 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77546 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77547 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77548 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77549 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77540 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77541 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77542 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77544 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77547 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77547 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77548 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77549 Coil—A.M.—complete with adjustable core (II-1) 77540 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77541 Coil—RF coil—A.M.—complete with adjustable core (II-1) 77541 Coil—A.M.—co		(C35)	Y2469	
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77536 Coll—Choice coll U.S. 110, 111) 77537 Coll—Collicitor coll—AM.—complete with adjustable core (1.6, 1.7) 77537 Coll—Oscillator coll—AM.—complete with adjustable core (1.6, 1.7) 77537 Coll—RF coll—AM.—complete with adjustable core (1.6, 1.7) 77538 Coll—RF coll—AM.—complete with adjustable core (1.6, 1.7) 77539 Coll—RF coll—AM.—complete with adjustable core (1.6, 1.7) 77539 Coll—RF coll—FM. (1.2) 77530 Coll—RF coll—FM. (1.2) 77531 Coll—RF coll—FM. (1.2) 77541 Coll—RF coll—FM. (1.2) 77542 Coll—RF coll—FM. (1.2) 77543 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77545 Control—Tone control (R9) 77546 Coll—RF coll—FM. (1.2) 77547 Coll—RF coll—FM. (1.2) 77548 Coll—RF coll—FM. (1.2) 77549 Coll—RF coll—FM. (1.2) 77549 Coll—RF coll—FM. (1.2) 77540 Coll—RF coll—FM. (1.2) 77540 Coll—RF coll—FM. (1.2) 77541 Coll—RF coll—FM. (1.2) 77541 Coll—RF coll—FM. (1.2) 77542 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77547 Coll—RF coll—FM. (1.2) 77548 Coll—RF coll—FM. (1.2) 77549 Coll—RF coll—FM. (1.2) 77540 Coll—RF coll—FM. (1.2) 77540 Coll—RF coll—FM. (1.2) 77541 Coll—RF coll—FM. (1.2) 77542 Coll—RF coll—FM. (1.2) 77543 Coll—RF coll—FM. (1.2) 77544 Coll—RF coll—FM. (1.2) 77545 Coll—RF coll—FM. (1.2) 77546 Coll—RF coll—FM. (1.2) 77547 Coll—RF coll—FM. (1.2) 77548 Coll—RF coll—FM. (1.2) 77549 Coll—FM. (1.2) 77540 Coll—RF coll—FM. (1.2) 77551 Coll—RF coll—FM. (1.2) 77552 Coll—FM. (1.2) 77553 Coll—FM. (1.2) 77554 Coll—FM. (1.2) 77555 Coll—FM. (1.2) 77556 Coll—FM. (1.2) 77557 Coll—FM. (1.2) 77557 Coll—FM. (1.2) 77558 Coll—FM. (1.2) 77559 Coll—FM. (1.2) 77550 Coll—FM. (1.2) 77550 Coll—FM. (1.2) 77551 Coll—FM. (1.2) 77552 Coll—FM. (1.2) 77553 Coll—FM. (1.2) 77554 Coll—FM. (1.2) 77555 Coll—FM. (1.2) 77555 Coll—FM. (1.2) 77556 Coll—FM.			12470	Cobinet Green plastic cobinet less "NCA Victor
Coll—Oscillator call—A.M.—complete with adjustable able care (16, 17) 77532 77535 Coll—R.C. coll—A.M.—complete with adjustable core (16, 17) 77536 Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (13, 14) Coll—R.C. coll—A.M.—complete with adjustable core (14) Coll—R.C. coll—A			V2421	
cable core (L6, L7) 77537 77537 77538 Coil—RF coil—A.M.—complete with adjustable core (L3, L4) Coil—RF coil—A.M.—complete with adjustable core (L3, L4) Coil—RF coil—F.M. (L2) Coil—RF coil—F.M. (L2) Coil—RF coil—F.M. (L2) 77528 77547 77548 77547 77549 77549 77540 77540 77540 77541 77541 77541 77541 77542 77543 Connector—Two (2) contact male connector for power cord and plugs 77543 77545 Control—Volume control and power switch (R7, S2) 77554 77555 Control—Volume control and power switch (R7, S2) 77555 77556 Control—Volume control and power switch (R7, S2) 77557 77558 77559 77559 77550 Control—Volume control and power switch (R7, S2) 77550 Drive cord (approx. 11" overall required) Drive cord (approx. 48" overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Pulley—Pulley and short (spin) for station selector pointers and show—Incomos—for Mod 2.XF-931 77554 77555 77555 77555 77556 77566 77567 77567 77567 77568 77568 77568 77568 77568 77569 77560 77560 77560 77560 77560 77560 77560 77560 77560 77560 77560 77560 77561 77561 77561 77561 77561 77561 77562 77562 77562 77562 77562 77562 77563 77564 77564 77566 77566 77566 77567 77567 77567 77567 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77568 77560			1271	
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Coil—RF coil—A.M.—complete with adjustable core (I.3. L4) 77538 (Cap—Station selector pointer cop—F.M. Coil—RF coil—R.M. (L2) Coil—RF coil—R.M. (L2) Connector—Combination phono input connector and antennat terminal board (II) Connector—Single contact male connector for speaker leadt Connector—Two (2) contact male connector for power cord cord Control—Tone control (R9) Connector—Two (2) contact male connector for power cord Control—Volume control and power switch (R7, S2) 250° Dial Cord Reel—Dial cord (approx. 48° overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Drive cord (approx. 11" overall required) Pulley—Islem pulley for indicator cord (2 required) T7513 1809 31480 3150 3181 3180 3181 3180 3181 3180 3181 3180 3181 3180 3181 3180 3181 3180 3181 3180 3181 3180 3181 380 381 3	77537		1	
(13, 14) 77538 77547 77548 77549 77540 77540 77540 775410 77541 77529 77541 77529 77541 77529 77541 77529 77542 77542 77542 77543 77544 77529 77544 77529 77545 77546 77546 77546 77546 77547 77547 77547 77548 77548 77548 77549 77549 77540 77540 77540 77540 77540 77541 77541 77541 77541 77541 77542 77542 77543 77544 77544 77544 77545 77546 77546 77547 77547 77548 77548 77548 77549 77549 77540 77540 77540 77540 77540 77540 77540 77540 77541 77540 77540 77540 77540 77540 77540 77540 77540 77541 77540 77551 77551 77551 77552 77552 77553 77554 77554 77554 77554 77554 77557 77557 77559 77559 77550 77560 77550 77550 77550 77550 77550 77550 77550 77550 77550			77559	
Connector—Combination phone input connector and antennate terminal board (II) connector—Two (2) contact male connector for special lacad Connector—Two (2) contact male connector for power cord cord Control—Tone control (R8) Control—Tone control (R9) Control—Tole control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch (R7, S2) Control—Volume control and power switch knob—secure for mounting RF shell (required) Drive cord (approx. 11" overall required) Comp—Dial lamp (Mazda 47) Nut—Speedult for siction selector pointers pulley and shoft bushing Pulley—Pulley and shoft (spith) for station selector pointers 77519 Resistor—Wire wound. 1200 chms. 4 worts (R13) Resistor—Wire wound. 1200 chms. 4 worts (R13) Resistor—Wire wound. 1200 chms. 4 worts (R13) Resistor—Wire wound. 1200 chms. 4 worts (R13) Resistor—Wire composition: 220 chms. ±10%. ½ wortt (R18, R20) 100.000 chms. ±10%. ½ wortt (R18, R21) 100.000 chms. ±10%. ½ wortt (R18, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (R14, R23) 100.000 chms. ±10%. ½ wortt (
matenan terminal board (II) Connector—Single contact male connector for speaker lacad Connector—Single contact male connector for speaker lacad Connector—Two (2) contact male connector for power cord Control—Tone control (R9) Control—Tone control (R9) 250' Dial Cord Reel—Dial cord (approx. 49" overall required) Drum Variable tuning capacitor drive drum and hub Crommet—Rubber grommet for mounting RF shell (4 required) 1480 Lamp—Dial lamp (Maxda 47) 77521 77520 77520 77521 77521 77522 77522 77523 77523 77524 77524 77524 77524 77526 77526 77527 77527 77529 77529 77520 77520 77520 77521 77521 77521 77521 77522 77522 77522 77523 77523 77524 77524 77524 77524 77526 77527 77529 77529 77520 77520 77521 77521 77521 77521 77522 77522 77522 77523 77523 77524 77524 77524 77524 77526 77527 77529 77529 77520 77520 77521 77521 77521 77521 77522 77522 77522 77523 77523 77524 77524 77524 77524 77524 77525 77526 77526 77527 77527 77528 77528 77529 77529 77529 77520 77520 77520 77521 77521 77521 77521 77522 77522 77522 77523 77524 77524 77524 77524 77525 77526 77527 77527 77528 77528 77529 77529 77529 77529 77520 77520 77520 77520 77520 77521 77521 77521 77521 77522 77520 77520 77520 77521 77521 77521 77522 77522 77520 77520 77521 77521 77521 77522 77520 77520 77520 77521 77521 77521 77521 77522 77522 77522 77523 77524 77524 77524 77524 77526 77527 77527 77528 77528 77529 77529 77520 77520 77520 77520 77520 77520 77520 77520 77520 77520 77520 77521 77521 77521 77521 77521 77522 77522 77520 7			77544	
Connector—Single contact male connector for speaker lead (modern—wo (2) contact male connector for power cord (control—Tone coatrol (R9) 77516 77516 77517 77517 77517 77518 77518 77519 77519 77519 77510 77523 77523 77524 77524 77524 77525 77525 77525 77526 77527 77527 77528 77528 77529 77529 77529 77520 77520 77520 77521 77520 77521 77521 77522 77522 77522 77523 77524 77524 77525 77525 77526 77526 77527 77527 77528 77529 77529 77520 77520 77520 77521 77521 77520 77521 77522 77522 77522 77523 77524 77524 77525 77525 77526 77526 77527 77527 77528 77528 77529 77529 77529 77520 77520 77520 77520 77521 77520 77521 77520 77521 77522 77522 77523 77524 77524 77525 77526 77526 77527 77527 77528 77528 77529 77529 77529 77520 77520 77520 77520 77521 77520 77521 77520 77521 77520 77521 77520 77521 77520 77520 77521 77520 77521 77520 77520 77521 77520 77521 77520 77521 77520 77521 77520 77521 77520 77521 77520 77520 77521 77520 7752	77528			
Specific India Connector Two Connector Two Connector Two Connector Two Connector Two Connector Two Control Two				
77529 Connector—Two (2) contact male connector for power cord 77548 77548 77548 77556 77516 77516 77516 77516 77516 77516 77516 77516 77516 77516 77516 77516 77516 77516 77517 77523 77523 77523 77523 77523 77523 77523 77524 77524 77524 77525 77525 77525 77526 77526 77526 77527 77527 77527 77527 77527 77528 77528 77529 77	75474			
77516 Control—Tone control (R9) Control—Tone control (R9) 2.XF.931 Knob—Function switch knob—ivery—for Mod 2.XF.931 Knob—Function switch knob—ivery—for Mod 2.XF.932 250° Dial Cord Reel—Dial cord (approx. 48" overall required) Drive cord (approx. 11" overall required)	77570			
77516 Control—Volume control (R9) Control—Volume control and power switch (R7, S2) 230 Dial Cord Reel—Dial cord (approx. 48" overall required) 77523 Drum Variable tuning capacitor drive drum and hub Crommet—Rubber grommet for mounting RF shelf (4 required) 77553 Knob—Function switch knob—red—for Mod 2.XF-932 Knob—Function switch knob—red—for Mod 2.XF-933 Knob—Function switch knob—red—for Mod 2.XF-933 Knob—Function switch knob—red—for Mod 2.XF-934 Knob—Function switch knob—red—for Mod 2.XF-935 Knob—Function control knob—beige—for Mod 2.XF-935 Knob—Function control knob—red—for Mod 2.XF-935 Knob—Function switch knob—red—for Mod 2.XF-936 Knob—Function control knob—red—for Mod 2.XF-936 Knob—Function control knob—red—for Mod 2.XF-936 Knob—Function control knob—red—for Mod 2.XF-936 Knob—Function control knob—red—for Mod 2.XF-936 Knob—Function control knob—control or volume or trol and power switch knob—worse—for Mod 2.XF-936 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-938 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-936 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-938 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-936 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-938 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2.XF-938 Knob—Tuning control, tone control or volume or trol and power switch knob—red—for	//343			
77515 Control—Volume control and power switch (R7, 52) 250' Dial Cord Reel—Dial cord (approx. 48' overall required) Drive cord (approx. 11'' overall required) Drive cord (approx. 11'' overall required) 77523 Thorm - Variable tuning capacitor drive drum and hub Grommet—Rubber grommet for mounting RF shelf (4 required) Lamp—Dial lamp (Mazda 47) Trivial pulley for indicator cord (2 required) Pulley—Pulley and shaft (split) for station selector pointers pulley and shaft (split) for station selector pointers Resistor—Excel composition: 22 chms. ±10%, ½ watt (R12) Resistor—Wire wound, 1200 chms. 4 watts (R13) Resistor—Wire wound, 1200 chms. 4 watts (R13) Trivial power switch knob—green—for Moc 2.XF-932 Xnob—Tuning control, tone control or volume or trol and power switch knob—green—for Moc 2.XF-933 Xnob—Tuning control, tone control or volume or trol and power switch knob—green—for Moc 2.XF-933 Xnob—Tuning control, tone control or volume or trol and power switch knob—green—for Moc 2.XF-933 Xnob—Tuning control, tone control or volume or trol and power switch knob—selge—for Moc 2.XF-935 Xnob—Tuning control, tone control or volume or trol and power switch knob—selge—for Moc 2.XF-935 Xnob—Tuning control, tone control or volume or trol and power switch knob—selde—for Moc 2.XF-932 Xnob—Tuning control, tone control or volume or trol and power switch knob—selde—for Moc 2.XF-933 Xnob—Tuning control, tone control or volume or trol and power switch knob—beige—for Moc 2.XF-933 Xnob—Tuning control, tone control or volume or trol and power switch knob—beige—for Moc 2.XF-932 Xnob—Tuning control, tone control or volume or trol and power switch knob—trol or volume or trol and power switch knob—trol or volume or trol and power switch knob—trol or volume or trol and	77516		''**	
235 250 Dial Cord Reel—Dial cord (approx. 49" overall required) 77522 Rob—Function switch knob—green—for Mod 2xF-933 Drum - Variable tuning capacitor drive drum and hub 77554 Rob—Function switch knob—red—for Mod 2xF-934 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—beige—for Mod 2xF-935 Rnob—Function control knob—marcoom—for Mod 2xF-935 Rnob—Funing control, tone control or volume or trol and power switch knob—wory—for Mod 2xF-935 Rnob—Funing control, tone control or volume or trol and power switch knob—wory—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume or trol and power switch knob—red—for Mod 2xF-933 Rnob—Tuning control, tone control or volume			77550	Knob-Function switch knob-ivory-for Mod
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775523 Drum - Variable tuning capacitor drive drum and hub 16058 (4 required) 11480 Lamp—Dial lamp (Maxda 47) 11590 Lamp—Dial lamp (Maxda 47) 11591 radiability of raidian selector pointers pulley and shaft bushing 17510 Pulley - Idler pulley for indicator coad (2 required) 17510 Pulley—Pulley and shaft (split) for station selector pointers 17510 Resistor—Wire wound. 1200 ohms. 4 watts (R13) 18000-Resistor—Fixed, composition: 18000-R		required)	77552	Knob-Function switch knob-green for Mod
hub Grommet—Rubber grommet for mounting RF shell (I required) Aump—Dial lamp (Maxda 47) Nut—Speednut for station selector pointers pulley and shaft bushing Pulley—Idler pulley and shaft (split) for station selector pointers Pulley—Idler pulley and shaft (split) for station selector pointers Rectifier—Selenium rectifier, 100 MA (CRI) Resistor—Wire wound, 1200 ohms, 4 watts (RI3) Resistor—Fixed, composition: 22 ohms, ±10%, ½ watt (R27) S03022 S03028 S03112 S03112 S03112 S03122 S03088 S03112 S03123 S03124 S03136 S03125 S03125 S03126 S03126 S03126 S03127 S03127 S03128 S0312			1	
16058 Grommet—Rubber grommet for mounting RF shelf (4 required) Lamp—Dial lamp (Maxda 47) Nut—Speednut for station selector pointers pulley and shaft bushing T7551 Nut—Speednut for station selector pointers pulley and shaft (split) for station selector pointers Pulley—Rulley and shaft (split) for station selector pointers Pulley—Pulley and shaft (split) for station selector pointers Pulley—Pulley and shaft (split) for station selector pointers T7551 Resistor—Fixed, composition: T7551 Resistor—Fixed, composition: T7551 Resistor—Fixed, composition: T7551	77523		77556	
31480 Lamp	10000		99664	
1490 1.0	16058		77334	
NutSpeednut for station selector pointers pulley and shaft bushing 17520 2XF-931 2XF-931 220 ohms. ±10%. ½ watt (R12) 220 ohms. ±10%. ½ watt (R13) 230 ohms. ±10%. ½ watt (R13) 230 ohms. ±10%. ½ watt (R13) 230 ohms. ±10%. ½ watt (R13) 230 ohms. ±10%. ½ watt (R14) 230 ohms. ±10%. ½ watt (R15, R20) 220 ohms. ±10%. ½ watt (R18) 230 ohms. ±10%. ½	21400		77547	
72802 Pulley - Idler pulley for indicator cord (2 required) Pulley - Idler pulley and shaft (split) for station selector pointers 77510 Pulley - Pulley and shaft (split) for station selector pointers 77518 Recisiter—Selenium rectifier, 100 MA (CR1) 786346 Resistor—Wire wound, 1200 ohms, 4 worth (R13) Resistor—Fixed, composition: 22 ohms, ± 10%, ½ worth (R16, R30) 120 ohms, ± 10%, ½ worth (R18, R20) 150 ohms, ± 10%, ½ worth (R19, R21) 150 ohms, ± 10%, ½ worth (R12) 220 ohms, ± 10%, ½ worth (R12) 230 ohms, ± 10%, ½ worth (R1, R17, R20) 230322 200 ohms, ± 10%, ½ worth (R1, R17, R20) 230322 200 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R23) 10,000 ohms, ± 10%, ½ worth (R18, R22, R26) 100			''**'	
Pulley Idler pulley for indicator cord (2 required)	77341			
77510 Pulley—Pulley and shaft (split) for station selector pointers 77519 Resistor—Selenium rectifier, 100 MA (CR1) 77519 Resistor—Fixed, composition: 503022 22 chms. ± 10%, ½ watt (R18, R30) 503112 120 chms. ± 10%, ½ watt (R19, R21) 503112 150 chms. ± 10%, ½ watt (R12) 503122 220 chms. ± 10%, ½ watt (R12) 503122 20 chms. ± 10%, ½ watt (R12) 503123 150 chms. ± 10%, ½ watt (R12) 503124 220 chms. ± 10%, ½ watt (R1, R27) 503125 30318 10.000 chms. ± 10%, ½ watt (R31) 503310 10.000 chms. ± 10%, ½ watt (R3) 503317 47,000 chms. ± 10%, ½ watt (R18) 503410 100,000 chms. ± 10%, ½ watt (R18) 503410 220,000 chms. ± 10%, ½ watt (R18) 503410 100,000 chms. ± 10%, ½ watt (R18) 503410 220,000 chms. ± 10%, ½ watt (R18) 503410 300,000 c	72602		77549	Knob-Tuning control, tone control or volume co
Pointers Pointers			·	trol and power switch knob-ivery-for Mod
Resistor—Wire wound, 1200 ohms, 4 watts (R13) Resistor—Fixed, composition; 22 ohms, ±10%, ½ watt (R16, R30) 120 ohms, ±10%, ½ watt (R18, R30) 120 ohms, ±10%, ½ watt (R19, R21) 150 ohms, ±10%, ½ watt (R12) 150 ohms, ±10%, ½ watt (R13) 100 ohms, ±10%, ½ watt (R3) 100 ohms, ±10%, ½ watt (R18) 100 ohms, ±10%, ½ watt (R18) 100 ohms, ±10%, ½ watt (R18) 100 ohms, ±10%, ½ watt (R18, R22, R26) 100 ohms, ±10%, ½ watt (R10) 100 ohms, ±10%, ½ watt (R1		pointers		
Resistor—Fixed, composition: 2.XF-932 2.2 chms, ±10%, ½ watt (R27) 503102 120 chms, ±10%, ½ watt (R19, R21) 503115 150 chms, ±10%, ½ watt (R19, R21) 77553 505122 220 chms, ±10%, ½ watt (R12, R17, R20) 2700 chms, ±10%, ½ watt (R12, R17, R20) 2700 chms, ±10%, ½ watt (R4) 77553 8200 chms, ±10%, ½ watt (R4) 77553 8200 chms, ±10%, ½ watt (R4) 77553 8200 chms, ±10%, ½ watt (R4) 77553 77563 7			77551	
503022 20 chms, ±10%, ½ wortt (R127) 503108 68 chms, ±10%, ½ wortt (R16, R30) 503112 120 chms, ±10%, ½ wortt (R19, R21) 503115 503112 200 chms, ±10%, ½ wortt (R12) 503122 700 chms, ±10%, ½ wortt (R1, R20) 503227 2700 chms, ±10%, ½ wortt (R14) 503228 200 chms, ±10%, ½ wortt (R14) 503310 10.000 chms, ±10%, ½ wortt (R3) 503310 118,000 chms, ±10%, ½ wortt (R3) 503311 18,000 chms, ±10%, ½ wortt (R3) 503312 10.000 chms, ±10%, ½ wortt (R3) 503313 10.000 chms, ±10%, ½ wortt (R3) 503314 47,000 chms, ±10%, ½ wortt (R18) 503410 100,000 chms, ±5%, ½ wortt (R18) 503410 100,000 chms, ±10%, ½ wortt (R18) 503410 100,000 chms, ±10%, ½ wortt (R18) 503410 100,000 chms, ±10%, ½ wortt (R18) 503410 100,000 chms, ±10%, ½ wortt (R18) 503410 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 220,000 chms, ±10%, ½ wortt (R16) 503422 503422 50340 50	76346			
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120 ohms, ±10%, ½ watt (R19, R21) 77553 2.XF-934			//555	
150 ohms, ±10%, ½ watt (R12) 27553 270 ohms, ±10%, ½ watt (R1, R17, R20) 270 ohms, ±10%, ½ watt (R1, R17, R20) 270 ohms, ±10%, ½ watt (R4) 270 ohms, ±10%, ½ watt (R4) 270 ohms, ±10%, ½ watt (R4) 270 ohms, ±10%, ½ watt (R3) 2753311 275331 275331 275331 275331 275331 275331 2753			1	
503122 200 chms, ±10%, ½ wortt (R1, R17, R20). 503282 2700 chms, ±10%, ½ wortt (R31) 503310 10.000 chms, ±10%, ½ wortt (R6, R14, R23) 503318 18.000 chms, ±10%, ½ wortt (R18) 503318 18.000 chms, ±10%, ½ wortt (R18) 503318 10.000 chms, ±10%, ½ wortt (R18) 503310 10.000 chms, ±10%, ½ wortt (R18) 503310 10.000 chms, ±10%, ½ wortt (R18) 503310 10.000 chms, ±10%, ½ wortt (R18) 503310 10.000 chms, ±10%, ½ wortt (R18) 77567 100.000 chms, ±5%, ½ wortt (R18, R22, R26) 503410 100,000 chms, ±10%, ½ wortt (R15, R22, R26) 503422 20,000 chms, ±10%, ½ wortt (R10) 503424 770.000 chms, ±10%, ½ wortt (R10) 77561 Window—Polystyrane window for LH. alds			77553	
503227 2700 ohms, ±10%, ½ wcit (R4) 503282 200 ohms, ±10%, ½ wcit (R3) 503310 10,000 ohms, ±10%, ½ wcit (R3) 503318 18,000 ohms, ±10%, ½ wcit (R3) 503318 18,000 ohms, ±10%, ½ wcit (R3) 503347 47,000 ohms, ±10%, ½ wcit (R18) 503410 100,000 ohms, ±10%, ½ wcit (R18) 503410 100,000 ohms, ±10%, ½ wcit (R18) 503422 220,000 ohms, ±10%, ½ wcit (R10) 503423 220,000 ohms, ±10%, ½ wcit (R10) 503424 470,000 ohms, ±10%, ½ wcit (R10) 503425 22, megohm, ±10%, ½ wcit (R5) 503427 470,000 ohms, ±10%, ½ wcit (R5)			1	trol and power switch knob-belge for Mod
S03262 8200 ohms, ± 10%, ½ wort (R31)			I	2-XF-935
10,000 ohms, ±10%, ½ wott (R6, R14, R23) 77563 R2000 ohms, ±10%, ½ wott (R18) 77563 R2000 ohms, ±10%, ½ wott (R18) 77563 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16" x 3/16 for mounting metal grills to cabinet 77557 Red-Cork and rubber ped (1/32" x 3/16"	503282	8200 ohms, ± 10%, ½ wort (R31)	73203	Nut-Speed nut to fosten "RCA Victor" emblem
503447 47,000 ohms, ± 10%, ½ wort (R18) 77557 Fointer—Station selector pointer Fointer—Station selector Fointer—Station selector Fointer—Station selector Fointer—Station selector Fointer—Station selector Fo	503310	10.000 ohms. ±10%, ½ wott (R5, R14, R23)		
502410 100,000 ohms, ±5%, ½ watt (R24, R25) 77557 Pointer—Station selector pointer 503410 100,000 ohms, ±10%, ½ watt (R15, R22, R26) 73892 Retainer—Each retainer (knob to cobinet) 503422 220,000 ohms, ±10%, ½ watt (R10) 76837 Spring—Retaining spring for knob (knob to short for LH. side) 503427 2.2 megohm, ±10%, ½ watt (R1) Window—Polystyrane window for LH. side 503522 2.2 megohm, ±10%, ½ watt (R5)			77563	
100,000 chms, ±10%, ½ watt (R15, R22, R26) 73992 Retainer—Knob retainer disable to cabinet 503442 220,000 chms, ±10%, ½ watt (R10) 78837 Spring—Retaining spring for knobs (knob to short 503447 470,000 chms, ±10%, ½ watt (R1) 77561 Window—Polystyrane window for L.H. side cabinet				
503422 220,000 chms, ± 10%, ½ watt (R10) 78837 Spring—Rectaining spring for knobs (knob to short 503447 470,000 chms, ± 10%, ½ watt (R1) 77581 Window—Polystyrane window for LH. alds 503522 2.2 megohn, ± 10%, ½ watt (R5)				
503447 470,000 ohms, ±10%, ½ wott (R11) 77581 Window-Polystyrane window for L.H. side cubinet				
503522 2.2 megohm, ±10%, ½ want (R5) cabinet				
			""	
	2032XX			



Specifications

Tuning Range	
Standard Broadcast (AM)	540-1600 kc.
Frequency Modulation (FM)	
Intermediate Frequency (AM)	
Intermediate Frequency (FM)	10.7 mc.
Tube Complement	•
Tube Used	Function
Radio Chassi	s RC1111
(1) RCA 6CB6	R-F Amplifier
(2) RCA 6J6	Mixer and Oscillator
(3) RCA 6BA6	I-F Amplifier
(4) RCA 6AU6	F-M Driver
(5) RCA 6ALS	Ratio Detector
(6) RCA 6AV6	.AM DetAVC-A-F Amplifier
Audio Chass	is RS141
(1) RCA 6C4	
(2) RCA 6V6GT	Audio Output
(3) RCA 6V6GT	
(4) RCA 5Y3GT	
Lamps	
Dial (2)	#51, 6-8 volts, 0.2 amp.
Jewel (1)	

Power Supply Rating115 volts, 60 cycles, 100 wa
Audio Power Output Rating
Radio undistorted 8 watts, maximum 9 we Phonograph
Loudspeaker (92569-12W)
Size and Type
Tuning Drive Ratio9:1 (4½ turns of kno
Net Weight
Dimensions (overall)
Height 35½ in. Width 35 in. Depth 23
Record Changer (930409-5, or -10)
Turntable Speed331/3, 45 or 78 r.p.m.
Record Capacity Up to fourteen 7 inch RCA type or twelve 10 inch
or ten 12 inch
or ten 10 inch and 12 inch intermin
Pickup (Stock No. 75475) Crystal with replaceable st

General Description

This instrument is a Victrola combination having nine tubes, plus one rectifier. It has a modern style cabinet in either walnut, mahogany, or limed oak finish. The entire receiver (with the exception of the power supply and speaker) is built as a unit with the automatic record changer for "pull-out" operation. The three speed record changer is nested over the radio chassis on a plastic case. Record storage space is provided for both large and small diameter records.

For standard broadcast reception, a loop antenna is mounted on the roll-out unit back. A folded dipole is mounted inside the cabinet for use on the FM band. Provision is made for connecting an external antenna for either the broadcast or FM bands.

By rotating the function switch, the 2S10 can be operated as:

 Phonograph sound channel for the three speed record changer.

- 2. Standard broadcast "A" band receiver (540-1600 k
- 3. Broadcast "FM" band receiver (88-108 mc).

The function switch controls the internal connections for

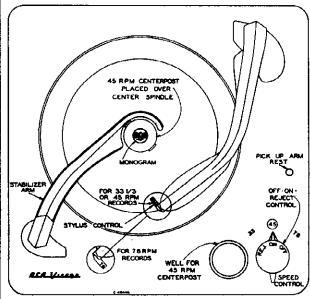
- A. RF-IF stage AVC voltages from AM or FM detector.
- B. Audio amplifier input from any one of three channe
- C. B+ voltage application to RF-IF circuits.
- D. Audio output tube bias voltage. In phonograph opetion, R2 is disconnected from R107, increasing available power output for phonograph operation.
- E. Selection of tuned circuits for AM or FM operation.

A horizontal tilted slide rule type dial is located along the front face of the plastic roll-out case. The dial is edge-lighted both ends by dial lamps. An amber jewel lamp, visible at 1 bottom front, glows whenever the set is in operation.

PAGE 23-90 RADIO CORPORATION OF AMERICA

MODEL 2-S-10, Ch. RC1111

Record Changer



Controls

Record Changer Controls

The record changer has a dual control on the motor-board and a stylus selector control on the pickup arm. The inner control (circular knob) is the OFF-ON-REJECT control. Turning this knob to the center position energizes the motor and starts the turntable, when turned to the right (clockwise) it starts the mechanism into complete automatic operation. The mechanism will shut off automatically after the last record has been played but can be shut off manually by turning this knob to the left (counter-clockwise).

The outer control (double ended lever) is the speed control. It has three normal positions, "33", "45", "78" to select the turntable speed desired and a neutral position (midway between "45" and "78"). The control should be turned to this neutral position if the changer is not expected to be in use for an extended period of time.

The stylus control has two normal positions (right and left) and one shipping position (lever pointing up). When playing 33½ or 45 r.p.m. records the lever is turned so that "33-45" is visible on the TOP of the lever; likewise for 78 r.p.m. records "78" should be visible on the TOP.

The removable centerpost is for use with 45 r.p.m. records

having the large centerhole. It must be placed over the center spindle with the "RCA" trademark monogram FACING to the FRONT. When not in use it is placed in a well at the front of the motorboard.

To load or remove records, the record stabilizer is lifted and turned off-side. After loading it is turned to the center where it rests on top of the stack of records.

Record Changer Adjustments

Landing Adjustment

Only one landing adjustment is necessary. The landing position of the stylus is adjusted by means of the eccentric stud (20A), mounted on the pickup arm support bracket. When adjusted for correct landing on one side of record, the landing position for other sizes of records is automatically corrected.

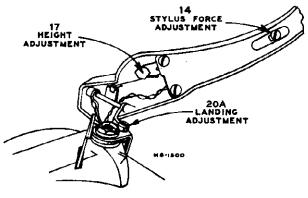
Pickup Arm Height Adjustment

The pickup arm height during cycle is adjusted by means of the hex head screw (17), located in the pickup arm.

Turn control knob to "REJ" and rotate turntable by hand until arm has risen to its maximum height. Adjust screw so that stylus is 1% above turntable.

Stylus Force Adjustment

Stylus force should be 7½ to 9½ grams. Loosen screw (14), and move slide until the correct force is obtained.



Adjustments

Tripping

The tripping method used in this mechanism is a velocity method. Velocity tripping is effective between 43/4" and 31/4" diameters, when the stylus moves inward 1/8" or more per revolution of the turntable. No adjustment is required.

Radio

Operating Instructions

RADIO—Turn extreme right hand FUNCTION knob to "AM" or "FM" radio position as desired. Turn OFF-VOLUME Knob "ON" and advance to mid-position for medium volume. Allow approximately 20 seconds for tube warm-up. With TUNING knob, select desired station indicated by dial pointer. Set tone controls for most pleasing reception. Turn BASS control counter-clockwise and TREBLE control clockwise for full tone. Adjust volume level as desired.

PHONOGRAPH—Turn extreme right hand FUNCTION knob to "PH" position. Turn OFF-VOLUME knob "ON" and advance to mid-position for medium volume. Set tone controls as indicated above for best tone. Refer to RECORD CHANGER section for operational information.

OFF-VOLUME BASS TREBLE TUNING PH-AM-F











MS-1994

Radio Controls

Roll-Out Mechanism

Record Changer Mounting

The record-changer is mounted in a roll-out carriage. The changer mechanism is mounted on springs and should be tree floating.

Roll-out Carriage Removal

Roll-out carriage has two stop pins, (one at the back end of each slide) he'd in place by retaining spring. To remove roll-out carriage, it is first necessary to pull the retaining springs out of the slides with a pair of long nose pliers, the stop pins are then easily removed. The roll-out carriage may then be removed from the front of the cabinet after disconnecting its connecting cables.

Roll-out Carriage Travel

The roll-out carriage has a normal movement limitation of approximately 10 inches. If it does not have this amount of movement, it may be due to an obstruction or from slippage or creeping of the balls of the slide mechanism. Travel restriction due to slippage or creeping of balls in the slide mechanism can be corrected by exerting slightly greater pull until the normal travel limitation is reached. The carriage should then operate to its full travel with normal pull.

<u>PAGE</u> MODEL 2-S-10, Ch. RC11

Tube Socket Voltages

CORRECT ALIGNMENT OF THE AM R.F. STAGES REQUIRES THAT THE FM R.F. STAGES BE ALIGNED FIRST Alignment Procedure

Alignment Indicators:

An RCA VoltOhmyst or equivalent meter is necessary for measuring developed d-c voltage during FM alignment. Connections are specified in the alignment tabulation. An output meter is also necessary to indicate minimum audio output during FM Ratio Detector alignment. Connect the output meter

across the speaker voice coil.

The RCA VoltOhmyst can also be used as an AM alignment indicator, either to measure audio output or to measure a-v-c voltage.

When audic output is being measured the volume control should be turned to meximum. Adjust tone controls for maximum highs and lows during alignment.

Signal Generator:

adjusted to provide accurate resonance indication at all times. If output measurement is used for AM alignment the output of the signal generator should be kept as low as possible to For all alignment operations connect the low side of the nal generator to the receiver chassis. The output should be avoid a-v-c action. signal

RANGE SWITCH IN AM POSITION AM Alignment

➂	RANGE S	WITCH II	RANGE SWITCH IN AM POSITION	ITION	
Steps	Connect high side of sig. gen. to-	Sig. gen. output	Turn radio dial to—	Adjust for peak output	
_	Pin No. 1 of V3 in series with O1 mfd.	455 kc.	Outet point	T4 bottomt core (sec.). T4 kp core (pri.).	• • • • • • • • • • • • • • • • • • • •
7	To stator of Cl-F	(mod.)	freq. end	T2 topf core (sec.). T2 bottom core (pri.).	<u> </u>
Θ	PERFORM	PERFORM IN ALLGINMENT		BEFORE PROCEEDING	
m		1620 kg. (mod.)	1620 kc.	CIB-T (osc.).	
*	5	1400 hc. (mod.)	1400 kc.	CID.T (aut.). CIE.T (rf.).	
tr)	placed mear placed mear loop for rediated rignal	600 kc. (atod.)	.ca 009	LB (osc.) with 10,000 ohm resistor from RF stator to gnd. (rocking gang)	6 <u>9</u> 6
•		,		L7 (RF) with the 10,000 ohms removed.	Ø 8 5
-	Repeat steps 4, 3	3 and 6 until	no improvem	Repeat stope 4, 3 and 6 until no improvement in sensitivity is obtained.	

Oscillator frequency is above signal frequency on both AM and FM. © ® © encircled letters indicate recommended alignment sequence

SWITCH IN FM POSITION-VOLUME CONTROL MAXIMUM FM Alignment FUNCTION **(e)**

4. a	Connect a sweep generator to the antenna terminals thru 120 obms in each side of line. Connect an oscilloscope to junction of R33 and C35 to check response and linearity of FM band. Peak to peak separation should not be less than 180 kc.	the antenna sect an oscilla and lineari	p generator to le of line. Cons check respons on should not by	Connect a sweep generator to the antenna term obms in each side of line. Connect an oscilloscop- R33 and C35 to check response and linearity of to peak separation should not be less than 180 kc.	9
က်			7 and 8	Repeat steps 6, 7	6
-i (1	L1 (ant.) and L2 (r. f.)	90 mc Signal	90 asc		8
Vol	C1.F trimmer (ant.) and C1.C trimmer (r. f.)	106 mc Signal	106 mc	To FM antenna terminals thru 120 ohns in each side of line	7
>4	LB (osc.)	90 mc	эш 06		9
02544	*Top (sec.) & bottom (pri.) cores of 13 *Top (sec.) & bottom (pri.) cores of 11	98 BC	10.7 mc	Thru 470 ohms to C1-F. Con- nect gnd. end of cable close to V2 cathode ground on ri- shalf.	60
			. E pa	Repeat steps 2 and 3	+
	†Bottom of driver trans. T3 for min. audio output		modulated	with .01 mf.	દ
7 7 7	Top of driver trans. TS for max. d-c voltage		, 10.7 mc AM	Pin #1 of 6AU6	7
\$ o	Connect the d-c probe of a VoltObmyst to the negative lead of the 2 mid. capacitor C39 and the common lead to chassis. Adjust sig. ean. output to provide approx. — 4 v. indication during alignment.	Ohmyst to the samon lead to -4 v. indicati	probe of a Volk C39 and the or ovide approx.	Connect the d-c probe of a Vol 2 mid. capacitor C39 and the gen. output to provide approx.	1
F E	Adjust for max. output	Turn radio dial to—	Sig. gen. outpnt	Connect high side of sig. gen. to-	Stepe

correct point the minimum audic cutput is approached rapidly and is much *Use a 680 ohm resistor to load the plate winding while the grid winding re loaded, it is necessary to increase the 10.7 mc input to maintain the -4 Two or more points may be found which lower the audio output. At the of the same trans is being peaked. Then the grid winding is loaded with the 880 ohm resistor while the plate winding is being peaked. When windings ower than at any incorrect point.

18, L1 and L2 are adjustable by increasing or decreasing the specing

9:1 between turns. Oscillator signal tracks above signal frequency.

The proper adjustment of the I.F. cores can be determined by starting the core all the way out. The first peak obtained is the correct one.

Tube Type and Function	Tube	Pin No.	МА	ž	Phono
V1 6CB6 R-7 Amp.	Plate Screen Cathode	1000	215 74 0.4	0.62	111
313 011	Ping E	7	8.0	4.0	
200	Grid	100	7		1
Osc. and Mixer	Plate Grid	~ •	-2.0	-1.2	П
V3 6BA6	Plate	ro «	210	210	11
J-F Amp.	Cathod.		000	0.7	Ш
V4 6AU6	Plate	80 K	216	216	
Driver	Cathode Grid) Pv	1.5	50	11
VS 6ALS Retio Det.	11	11	11	11	11
V6 6AV6 Audio Amp.	Plate	7	-0.7	88	104
V7 6C4 Phase Inverter	Plate Cathode Grid	87.0	87.5 -11 -16	88111	21.1.1 52.0.1
V8 6V6GT V9 6V6GT Audio Power Output	Mate Screen Cathode Grid	⊍ 4@8	300 224 0 -17	300 224 0 -17	298 292 0 -21
V10 5Y3GT Rectifier	Ji.	60	308	308	LOE

41309% with ikages messured with VoltOhmyst and should hold within i line voltage. Tuning condenser closed—no signal imput.

Critical Lead Dress

The 1st F.M. I.F. plate lead should be dressed away from the R.F. plate.

Dress the lat A.M. I.F. plate lead to S.2 wafer away from the A.M. R.F. coil.

The ground strap between the R.F. Shelf and the main

chassis should be well soldered and kept as short as practicable but yet allow some flexibility for the R.F. Shelf. Dress A.C. power switch wires away from all audio

Dress C-26 down toward base between terminal board and side apron. C-18 bypass should ground as close to the ø, ശ

All leads, from the R.F. shelf, leaving through the shields must be kept as short as possible so as to minimize F.M. ground strap as practicable.

Dress C-25 away from arm of volume control.

All leads, from the R.F. shelf, leaving through i

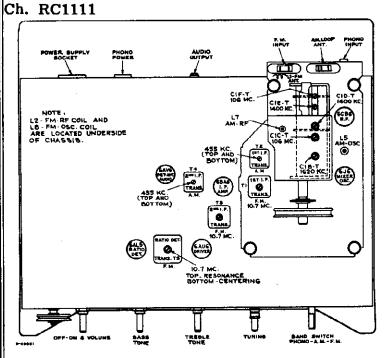
input leads and components.

Dress all leads away from RI in the RS141 chassis.
All leads for F.M. should be kept short especially on the R.F. shelf. Dress A.C. leads in the RS141 chassis away from oscillator radiation. တ်

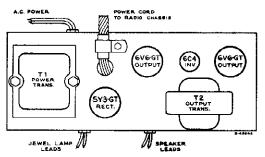
Oliobn R. Rider

PAGE 23-92 RADIO CORPORATION OF AMERICA

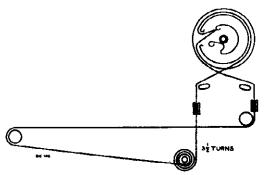
MODEL 2-S-10,



RC1111 Chassis-Tube and Trimmer Locations



RS141-Audio Amplifier Chassis



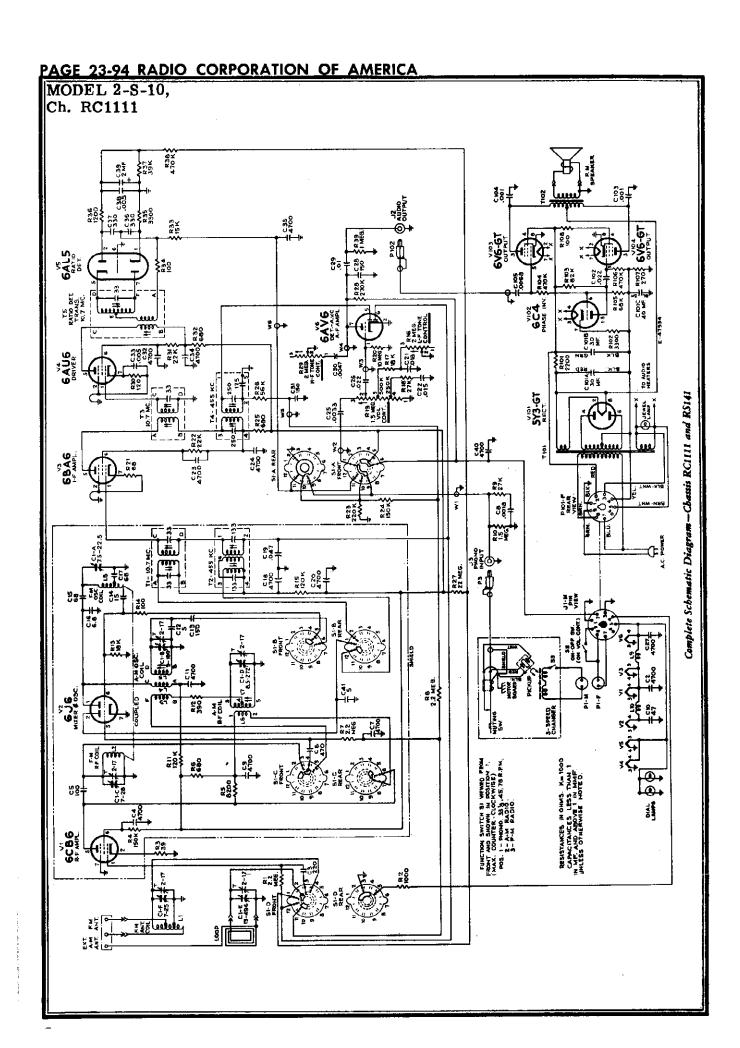
Dial Cord Drive

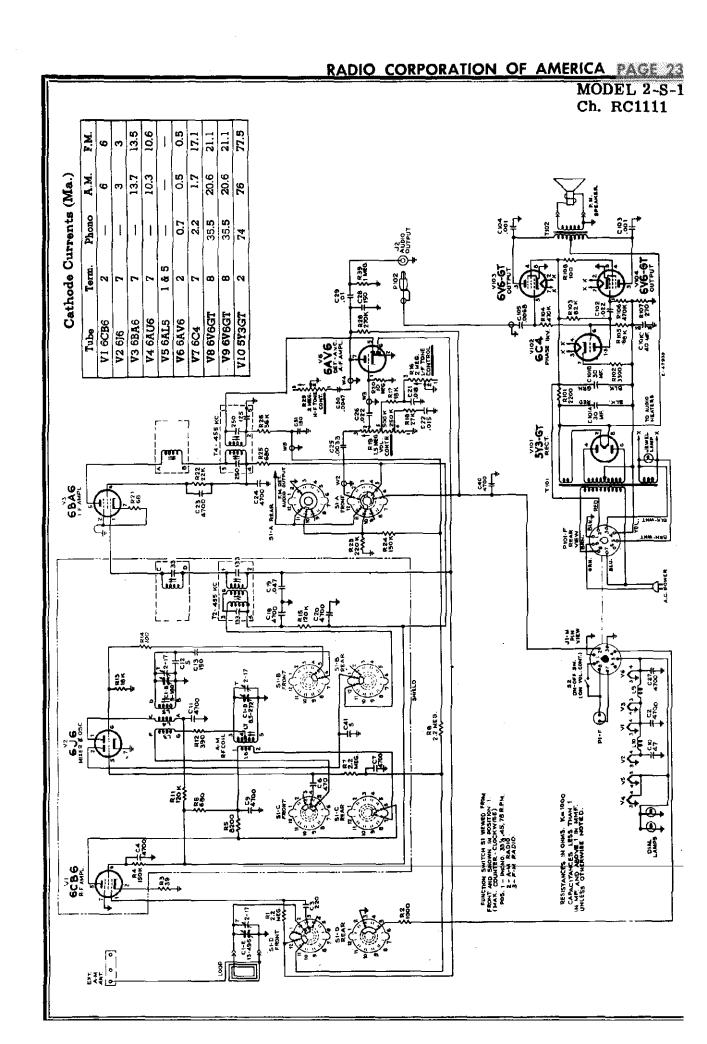
STOCK NO.	PART DESCRIPTION	STOCK NO.	PART DESCRIPTION
	CHASSIS ASSEMBLIES	77315	Coil-Oscillator coil-FM (L8)
	RC 1111	77305	Coil—R.F. coil—AM—complete with adjustable core (L6, L7)
77308	Capacitor - Variable tuning capacitor (C1-A, C1-B,	77314	Coil—R.F. coil—FM (L2)
BBC10	Cl-C, Cl-D, Cl-E, Cl-F)	75543	Connector—2 contact female connector for phon power cable (P1)
75613 77352	Capacitor—Ceramic, 5 mmf. (C12, C41) Capacitor—Ceramic, 6.8 mmf. (C16)	74879	Connector-2 contact female connector for an
39044	Capacitor—Ceramic, 15 mmf. (C14)		tenna leads
76348	Capacitor—Ceramic, 47 mmf. (C10)	75062	Connector-9 contact male connector for power
75612	Capacitor—Ceramic, 68 mmf. (C15, C17)	35787	input (J1) Connector—Single contact female connector for
39396 75614	Capacitor—Ceramic, 100 mmf. (C5) Capacitor—Ceramic, 150 mmf. (C13, C28, C31)	33161	audio cable (J2)
75611	Capacitor—Ceramic, 220 mmf. (C3)	33742	Connector-Single contact female connector for
39640	Capacitor-Mica, 330 mmf. (C36, C37)		phono cable (J3)
39644	Capacitor-Mica, 470 mmf. (C6)	75562 75561	Control—Tone control—H.F. (R29) Control—Tone control—L.H. (R16)
73473	Capacitor - Ceramic, 4700 mmf. (C2, C4, C7, C9, C11, C18, C20, C23, C24, C27, C32, C34,	75537	Control—Volume control and power switch (R1
	C35, C40)		S2)
73747	Capacitor-Électrolytic 2 mfd., 50 volts (C39)	7295 3	Cord-250' Drive Cord Reel (approx. 57" overs
77468	Capacitor—Tubular, paper, .0018 mfd., 600 volts	75564	reg'd) Coupling—Spring coupling for function swite
73795	(C8) Capacitor—Tubular, paper, .0038 mfd., 600 volts	15504	extension shaft
13190	(C25)	74839	Fastener-Push fastener to fasten RF shelf (4 req'
73920	Capacifor-Tubular, paper, .0047 mtd., 600 volts (C30)	16058	Grommet—Rubber grommet for mounting RF she (4 reg'd)
72490	Capacitor—Tubular, paper, .005 mid., 200 volts (C33, C38)	75548	Grommet—Rubber grommet for mounting slid (4 rea'd)
73561	Capacitor-Tubular, paper, .01 mid., 400 volts	11765	Lamp-Dial lamp-Mazda 51
	(C29)	77311	Latch-Bottom cover latch
73797	Capacitor—Tubular, paper, .015 mfd., 600 volts	77486 76421	Nut—Speed nut for latch adjustment screw Pin—Slide mechanism stop pin
77469	(C22) Capacitor—Tubular, paper, 018 mid., 200 volts	72602	Pulley-Drive cord pulley
	(C21)	35641	Pulley-Drive cord pulley-13/8" dia.
73562	Capacitor-Tubular, paper, .022 mfd., 400 volts	P02020	Resistor—Fixed, composition:—
73558	(C26) Capacitor—Tubular, paper, .047 mid., 200 volts	503039 503068	39 ohms, ±10%, ½ watt (R3) 68 ohms, ±10%, ½ watt (R21)
13000	(C19)	503110	68 ohms, ±10%, ½ watt (R21) 100 ohms, ±10%, ½ watt (R14, R34)
73935	Clip-Mounting clip for I.F. transformer for 75558	503112	120 ohms, ±10%, ½ watt (R30) 390 ohms, ±10%, ½ watt (R12) 680 ohms, ±10%, ½ watt (R6, R25, R32) 1000 ohms, ±10%, ½ watt (R2)
	& 76328	503139 503168	390 ohms, ±10%, ½ watt (K12)
77313	Coil—Antenna coil—FM (L1) Coil—Filament choke coil (L9, L10)	503168	1000 ohms +10% 1/2 watt (R2)
71942 75569	Coil—Pliament choke coil (15, 110) Coil—Oscillator coil—AM—complete with adjust-	502212	$1200 \text{ onms}, \pm 5\%, \frac{1}{2} \text{ watt} (530)$
.0000	able core (L3, L4, L5)	502233	3300 ohms, ±5%, ½ watt (R35)

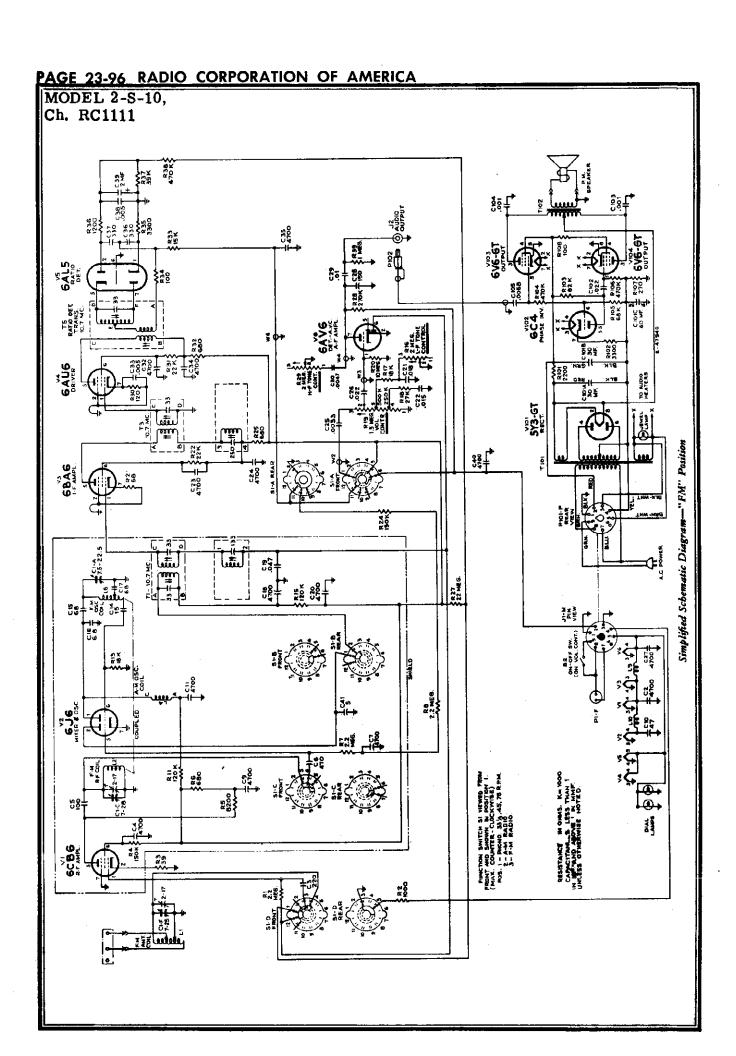
Parts (Continued)

MODEL 2-S-1(Ch. RC1111

STOCK NO.	PART DESCRIPTION	STOCK NO.	PART DESCRIPTION
EGGGGG	9900 share 1 100f 1/ 4 /PE\	72600	Cond Borrer and and along
503282	8200 ohms, ±10%, ½ watt (B5)	73690	Cord—Power cord and plug
503315	15,000 ohms, ±10%, ½ watt (R33)	74838	Grommet—Power cord strain relief (1 set)
503318	18,000 ohms, ±10%, ½ watt (n13, n12)	72776	Pin—Contact pin for speaker lead (2 req'd)
503322	18,000 ohms, ±10%, ½ watt (R13, R17) 22,000 ohms, ±10%, ½ watt (R22, R31)	73637	Resistor—Wire wound, 2200 ohms, 5 watts (R10
503327	$27,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R9, R18)}$	800110	Resistor—Fixed, composition:—
503339	39,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R37)	503110	100 ohms, ±10%, ½ watt (K108)
503356	$56,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R26)}$	522127	270 ohms, $\pm 5\%$, 2 watts (R107)
503412	$120,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R11, R15)}$	502233	3300 ohms, $\pm 5\%$, $\frac{1}{2}$ watt (R102)
503415	$150,000 \text{ ohms}, \pm 10\%, \frac{1}{2} \text{ watt (R4, R24)}$	503368	100 ohms, ±10%, ½ watt (R108) 270 ohms, ±5%, 2 watts (R107) 3300 ohms, ±5%, ½ watt (R102) 68,000 ohms, ±10%, ½ watt (R105)
503422	220,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R23)	503382	82,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R103) 470,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R104, R106)
503427	270,000 ohms, $\pm 10\%$, $\frac{1}{2}$ watt (R28)	503447	470,000 ohms, $\pm 10\%$, $\frac{1}{2}$ wast (R104, R106)
503447	22,000 ohms, ±10%, ½ watt (R22, R31) 27,000 ohms, ±10%, ½ watt (R9, R18) 39,000 ohms, ±10%, ½ watt (R37) 56,000 ohms, ±10%, ½ watt (R26) 120,000 ohms, ±10%, ½ watt (R11, R15) 150,000 ohms, ±10%, ½ watt (R4, R24) 220,000 ohms, ±10%, ½ watt (R23) 270,000 ohms, ±10%, ½ watt (R28) 470,000 ohms, ±10%, ½ watt (R38)	31364	Socket—Pilot lamp socket
503510	1 megchm, ±10%, ½ watt (R19) 1.5 megchm, ±10%, ½ watt (R10) 2.2 megchm, ±10%, ½ watt (R1, R7, R8) 10 megchm, ±10%, ½ watt (R20)	31251	Socket-Tube socket, octal, water
503515	1.5 megohm, $\pm 10\%$, $\frac{1}{2}$ watt (R10)	73117	Socket-Tube socket, 7 pin, miniature, wafer
503522	$2.2 \text{ megohm}, \pm 10\%, \frac{1}{2} \text{ watt (R1, R7, R8)}$	77323	Transformer—Output transformer (T102)
503610	10 megohm, ±10%, ½ watt (R20)	75566	Transformer-Power transformer, 117 volt,
504622	22 megonm, ±20%, 1/2 watt (n21)		cycle (T101)
77303	Shaft—Extension shaft for function switch	1	
75540	Shaft—Tuning knob shaft		SPEAKER ASSEMBLIES
73584	Shield—Tube shield for V1, V6		92569-12W
75192	Shield—Tube shield for V2		
773 10	Slide—Slide mechanism (2 req'd)		RMA-274
31364	Socket—Dial lamp socket	76600	Cone Cone and makes mil /2 2 about
74179	Socket-Tube socket, 7 contact, miniature, wafer	75682	Cone—Cone and voice coil (3.2 ohms)
	for V1, V3, V4, V5	76093	Speaker-12" P.M. speaker complete with co
73117	Socket—Tube socket, 7 contact, miniature, wafer		and voice coil (3.2 ohms)
	for V6	1	NOTE: If stamping on speaker in instrume
77306	Socket—Tube socket, 7 pin, moulded, saddle-		does not agree with above speaker number, ord
	mounted for V2	i	replacement parts by referring to model number
77312	Spring—Actuating spring for bottom cover latch		of instrument, number stamped on speaker a
76332	Spring-Drive cord spring		full description of part required.
75563	Spring-Retaining spring for function switch ex-		
	tension shaft	1	MISCELLANEOUS
76422	Spring-Retaining spring for slide mechanism	1	
	stop pin	77332	Antenna—Antenna loop—less cable
77304	Support-Polystyrene support for FM oscillator	74649	Antenna-F.M. antenna
	coil complete with mounting bracket	77327	Back-Back-light brown-for chassis and chang
77307	Switch-Function switch (S1)	1	rollout assembly for blonde mahogany inst
75559	Transformer-1st. I.F. transformer-FM-complete	į	ments
	with adjustable cores (T1)	77326	Back-Back-maroon-for chassis and change
75558	Transformer-1st. I.F. transformer-AM-complete	ļ	rollout assembly for mahogany or walt
	with adjustable cores (T2)		instruments
76328	Transformer-2nd. I.F. transformer-AM-com-	77325	Back-Cabinet back
	plete with adjustable cores (T4)	75707	Board-Antenna terminal board
75560	Transformer-2nd. I.F. transformer-FM-com-	71599	Bracket—Pilot lamp bracket
	plete with adjustable cores (T3)	72437	Cable—Shielded pickup cable complete with]
73743	Transformer-Ratio detector transformer complete	ļ	plug
	with adjustable core (T5)	13103	Cap—Pilot lamp cap (Jewel)
33726	Washer-"C" washer for tuning knob shaft or	71892	Catch-Bullet catch and strike for cabinet do
	drive cord pulley	X3222	Cloth-Grille cloth for blonde mahogany inst
	anto cona pano,		ments
	ROLLOUT MECHANISM ASSEMBLIES	X3130	Cloth-Grille cloth for mahogany or walt
77210	Branket Diallams sanket branket † #		instruments
77319	Bracket—Dial lamp socket bracket—L.H. Bracket—Dial lamp socket bracket—R.H.	30870	Connector-2 contact male connector for rece
77318	Bracket—Dial lamp socket bracket—R.H. Dial—Polystyrene dial scale	1	changer power cable
77320 77321		74882	Connector -2 contact male connector for anter
77321	Escutcheon—Dial scale escutcheon less dial Frame—Plastic mounting frame—light brown—for	1	loop cable
44314	chassis and record changer for blonde ma-	74752	Connector -2 contact male connector for anter
			lead
77316	hogany instruments Frame—Plastic mounting frame—maroon—for chas-	71984	Decal-"RCA Victor" decal
11310		74273	Decal—"Victrola" decal
	sis and record changer for mahogany or walnut	37396	Grommet-Rubber grommet for speaker mount
77322	instruments Pointer—Station selector pointer	74308	Hinge-Cabinet door hinge (1 set)
11766	Pointer-Station selector pointer	77330	Knob-Function switch knob-marcon
	AMPLIFIER ASSEMBLIES	77331	Knob-Function switch knob-tan
		77328	Knob-Tuning control, tone control or volume c
	RS 141		trol and power switch knob-maroon
77324	Capacitor-Electrolytic comprising 1 section of 30	77329	Knob-Tuning control, tone control or volume co
	mfd., 450 volts, 1 section of 30 mfd., 350 volts	1	trol and power switch knob-tan
	and I section of 40 mfd., 25 volts (C101A,	11765	Lamp-Pilot lamp-Mazda 51
	C101B, C101C)	73 6 34	Nut Speed nut for speaker mounting screws
7564 3	Capacitor-Tubular, paper, oil impregnated, .001	77335	Plate-Back plate for lower door pull (2 req'd)
- 50 20	mfd., 1000 volts (C103, C104)	77334	Pull-Cabinet door pull-lower (2 req'd)
73789	Capacitor—Tubular, paper, .0068 mfd., 400 volts	77333	Pull-Cabinet door pull-upper-(4 req'd)
	(C105)	75623	Screw-#8-32 x 5/8" trimit head screw for up
73562	Capacitor—Tubular, paper, .022 mfd., 400 volts	1	door pull
	(C102)	74113	Screw-#8-32 x 1" trimit head screw for lov
72583	Cable—Shielded audio cable complete with pin		door pull
. = 500	plug (Includes P102)	74734	Spring-Spring clip for knobs
		75902	Spring-Suspension spring for main cable
75064	Connector - 9 contact female connector for power		







MODEL 10,

ELECTRICAL SPECIFICATIONS

TUBE COMPLEMENT: 11 tubes plus rectifier—6CB6 RF amp., 12AT7 mixer, 12AT7 osc, and AFC., (2) 6CB6 IF amp., (2) 6AU6 limiters, 6AU5 FM det., 6AV6 AM det. and audio amp., 12AX7 audio amp., 12AX7 phono pre-amp., 6X5GT rectifier.

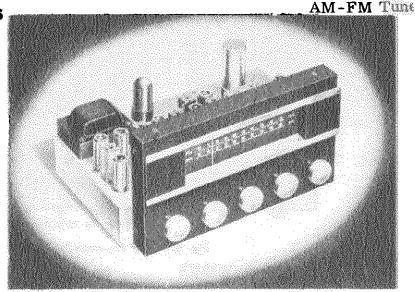
CONTROLS: Bass, Off-On-Volume, FM-AM-PH-TV selector, Tuning, Treble.

ANTENNA: FM-300 ohm or 72 ohm input. AM-high or low impedance transformer input. Lownoise loop also provided for AM and FM.

SENSITIVITY: FM-5 microvolts for 30 db. quieting. AM-5 microvolts for 0.5 volts output at either detector or audio amplifier.

FM DRIFT: Negligible with Automatic Frequency Control. Without AFC, ± 20 kc. after 10 sec. warmup.

OUTPUT: Capability up to 2 volts at less than 1/2% distortion from cathode follower. For use with either high or low gain amplifiers with input input ance of 10,000 ohms or higher. Cathode follower connection direct from detector also provided.



AM INTERSTATION WHISTLE FILTER: 25 db. rejection at 10 kc., I db. at 7 kc.

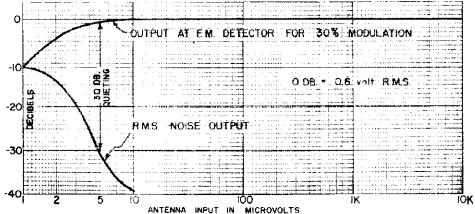
POWER CONSUMPTION: 105-125 volts, 60 cps., 50 watts. SHIPPING WEIGHT: 16 lbs.

DIMENSIONS: 131/2" x 91/2" x 7" high.

BANDWIDTH: FM—190 kc.; AM —8.5 kc. TONE COMPENSATION: Bassivariable up to 16 db. boost of 14 db. cut at 60 cps. Treble variable up to 15 db. boost or 15 db. cut at 10,000 cps.

PHONO PRE-AMPLIFIER: 31 db. gain plus 22 db. bass compensation.

INTERMEDIATE FREQUENCIES: FM-10.7 mc.; AM-455 kc.



rig. 1. FM Limiting Characteristic

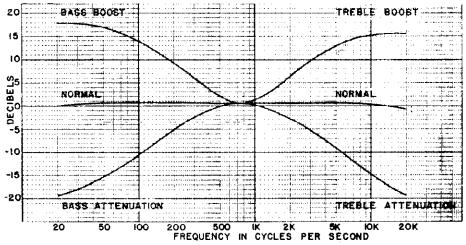
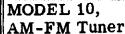


Fig. 2. Audio Characteristic



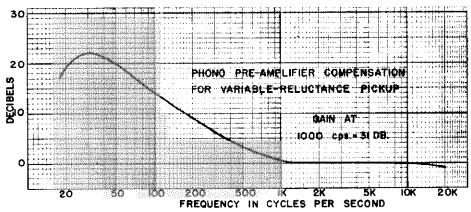


Fig. 3. Phono Pre-amplifier Characteristic

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UNPACKING

These instructions cover the operation and installation of the Craftsmen 10 FM-AM Tuner. The entire manual should be read before installing the unit, since much general information is included that will be of value in making any custom-built installation.

As soon as the tuner has been unpacked, examine it for any apparent damage which might have occured in shipment. Should any sign of damage be found, file a claim immediately with the carrier stating the extent of the damage.

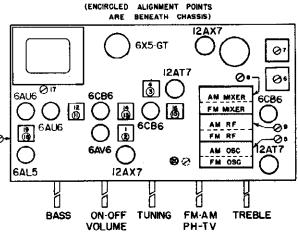
Included with the C10 tuner chassis should be the $^{\Theta}$ O

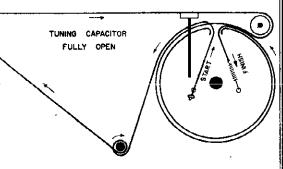
- 1 3B023 Brass escutcheon
- 1 7X403 AM low-impedance antenna
- 1 7A604A Shielded audio cable

GENERAL - Considerable thought should be given in respect to the installation of the chassis in order to obtain maximum benefit from the operating ease the chassis offers. The dial and controls should be positioned for easy access and reading which, in many cases, can be improved with a sloping front panel. If the mounting board cannot be readily tilted, wooden spacers can be inserted under the front mounting holes to provide the necessary inclination. Position the knobs sufficiently above any front projection to provide ample finger clearance for adjusting the knobs.

The types and orientation of the tubes used in the tuner permit satisfactory operation regardless of mounting position.

Other considerations in layout are accessibility to the rear for interconnections, sufficient clearance from any metal for the AM loop to insure good pickup, and ample air space above the tubes to prevent any deterioration to a finished wooden cabinet top from tube heat. Where the spacing is necessarily close, this effect may be alleviated with a thin sheet of bright metal tacked beneath the vulnerable surface.





Dial Cord Drive.

FM Tuner

ALIGNMENT PROCEDURE — To set pointer, completely mesh tuning capacitor and align pointer with last reference mark at low frequency end of dial. Volume control should be in maximum clockwise position. Output of signal generator should be no higher than necessary to obtain an output reading. Low side signal generator and indicating meter should be connected d ectly to chassis at all times. Use an insulated screwdriver w 1/8" thick blade for adjusting IF transformers.

TUBE	FUNCTION	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9
6CB6	RF AMP.	0	2.4	0	6.3*	145	145	2.4		
12AT7	MIXER	154	0	2.1	0	0	-0.9	-0.9	0	6.3*
12AT7	OSC-AFC	150	1.8	0	0	0	182	-0.7	1.8	6.3*
6CB6	1st IF	-0.3	1.7	6.3*	0	150	150	0		i
6CB6	2nd IF	0	2.1	6.3*	lo	150	150	0		
6AU6	1st LIMITER	-0.3	0	6.3*	lo	39	39	lo	-y-	
6AU6	2nd LIMITER	-0.8	lo	6.3*	lo	48	48	lo		
6AL5	FM DET.	0	-5.8	6.3*	lo	-0.8	lo	-4		
6AV6	AM DET, & AUDIO AMP.	0	0.9	57	57	0.6	-0.6	106		
12AX7	CATHODE-FOLLOWER	200	19	35	57	57	200	19	35	57
12AX7	PHONO PRE-AMP	81	lo	1	57	57	59	lo	0.9	57
6X5-GT	RECTIFIER		58	196*		196*		58	228	

*AC Voltages measured at 1,000 ohms per volt.

DC Voltages measured with vacuum-tube voltmeter.

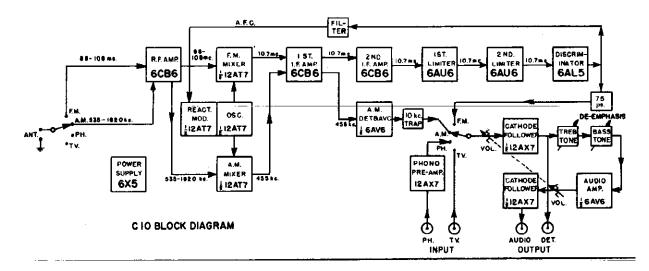
Socket connections are shown as bottom views.

Measurements are with no signal applied and bandswitch in FM position.

Measured values are from socket pin to common negative.

Line voltage maintained at 115 volts for voltage readings.

		SIGNAL GENE	RATOR]			
		Coupling	Freq.	Modulation	Dial Setting	Indicating Metes	Adjust	Indication
	l	.01 µf to pin 7 of 12AT7	455 kc	400 cps AM	Point of no interference	AC voltmeter at Audio output	1, 2, 3, & 4	Maximum deflection
	2	220 μμf to AM ant, input	1500 kc	400 cps AM	1500 kc	Same as above	5	Maximum deflection
Alignment	3	Same as above	600 kc	400 cps AM	Tune for maxi- mum response	Same as above	6 & 7	Maximum deflection
AM Alig	4	Same as above	1400 kc	400 cps AM	Tune for maxi- mum response	Same as above	8 & 9	Maximum deflection
	5	Repeat Steps 3 & 4						
	6	Same as above	1400 kc	10 kc AM	Tune for maxi- mum response	Same as above	10	Null
	7	.01 µf to pin 2 of 12AT7	10.7 mc	None	Point of no interference	Neg. DC VTVM across R31	11, 12, 13, 14, 15, & 16	Maximum deflection
ent	8	Same as above	10.7 mc	None	Same as above	Neg. DC VTVM at junction R62 & R63	17 & 18	Maximum deflection
FM Alignment	9	Same as above	10.7 mc	None	Same as above	Zero center scale DC VTVM at Det. Output	19	Zero volts between positiv
FM /	10	270 n Carbon to FM ant, input	106 mc	400 cps FM + 25 kc	106 mc	AC voltmeter at Audio output	20	Maximum deflection
	11	Same as above	90 mc	Same as above	Tune for maxi- mum response	Same as above	Contract or extend coil spring L2, L4	Maximum deflection
	12	Same as above	98 mc	400 cps FM + 250 kc	98 mc	Vertical input oscillo- scope at Det. Output		Check symmetry of "S"sh



MODEL 10, AM-FM Tuner

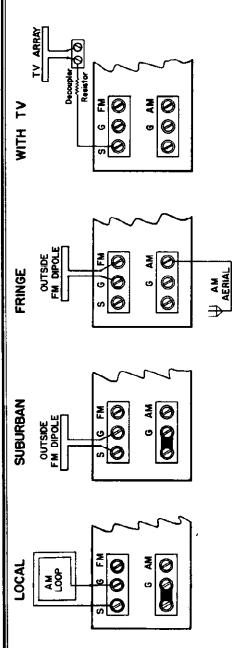


Fig. 6. Antenna Arrangements

For reception in local or urban localities, loop the flexible ribbon lead (furnished) around the cabinet interior and connect to terminals marked "S" and "G". Finally connect the shorting link between the blank terminal and "G". This ribbon lead forms a low-noise, low-impedance AM loop antenna and should be formed into the largest one or two turn loop practical in the available cabinet space. This loop also provides FM reception since terminal "S" is internally switched to the FM input.

Installations remote from stations might require outside antennas of a more elaborate nature. Connect exterior FM antennas to terminals "FM" and "G", or if to be used as an AM aerial as well, then connect to "S" and "G". Long-line AM aerials can be connected directly to the

high-impedance input "AM" (link disconnected) or if brought down through a low-impedance line, to "AM" with the link in place.

Finally for installations including television, it is usually convenient to use the TV antenna to feed the FM and AM signals as well. This can be done by coupling lightly (through a 1000-ohm resister) from terminal "S" to one side of the TV antenna terminals.

TELEVISION - Complete suggested interconnections for installations including television are shown in Figure 7. In general, it is desirable not to operate a television unit while attempting either FM or AM reception because of the various types of interference that may be encountered.

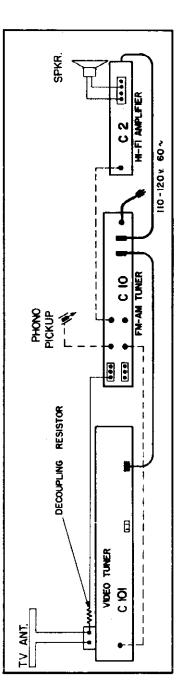


Fig. 7. Typical Installation Interconnections

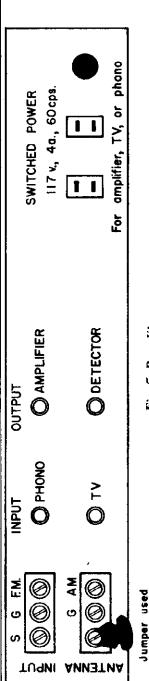


Fig. 5. Rear View

with AM Loop

A cathode-follower connection directly following the FM and AM detectors is available at the receptacle labeled Detector Output. This output bypasses the entire C10 audio system including the bass and treble controls and is useful for feeding recording amplifiers which have preset tone compensation while using the Amplifier Output for monitoring purposes. An audio amplifier with selfcontained controls might also be fed from the Detector

From either the Audio Output or Detector Output cathode-follower, as much as 50 feet of shielded cable can be used for inter-connection without undue loss of high-Output.

frequency response.

R152, shunting this jack are recommended for use with a amplifier compensated (see Figure 3) for use with variablereluctance type cartridges. The input resistors, R151 and GE cartridge; recommendations for other cartridges and PHONO - The Phono Input jack feeds a premicrophone usage are as follows.

R152 and C154, Add jumper from Phono Input jack to For a crystal-type phonograph cartridge, either use the TV input or remove 12AX7 pre-amplifier, R151, previous connection from C154.

PHONO PRE-AMPLIFIER ADAPTATIONS

Cartridge Type	Cartridge Type Input Resistance Wiring	Wiring
GÉ	13.5KΩ	Use as found.
Pickering	27KΩ	Remove one 27KA resistor.
Audak	54KΩ	Cut top of one $27K\Omega$, cut bottom of other $27K\Omega$, twist & solder free resistor pigtails.
Microphone	1 M Ω	Add jumper across $3300\mu\mu f$ capacitor, C153. Replace two 27KR input resistors with 1MR.

ANTENNA ARRANGEMENTS

possible for use with the C10 as shown in Figure 6 and ANTENNA - Several antenna arrangements are the best arrangements will depend on the particular installation. The various antenna arrangements make use of AM

inputs at either high-impedance (shorting link removed) or low-impedance (shorting link in place), a single-ended FM input and an input marked "S" connected internally through a switch to either the FM or AM input. MODEL 10, AM-FM Tuner

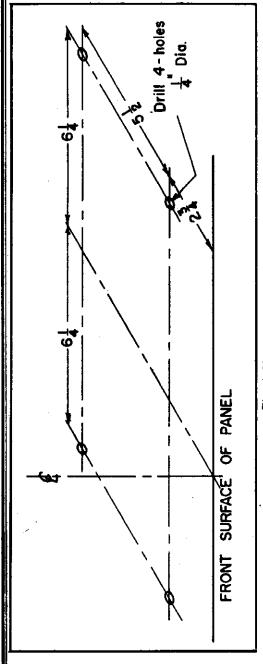


Fig. 4. Mounting Hole Layout

VENTILATION - Considerable ventilation must be provided to carry off the heat dissipated by the receiver. A chimney effect" can be utilized advantageously in wall or bookcase installations by providing ports near the bottom and top of the enclosure to effect a flow of air past the chassis.

ASSEMBLY - The front panel cutouts should be made first by using the full-scale template provided. Note that this template is laid out symmetrically about the center knob and above the bottom mounting surface of the rubber shock mounts. Locate and drill the mounting holes

as shown in Figure 4, Insert the studs on the rear of the dial escutcheon into the two 3/16-in. diameter holes in the panel and secure the escutcheon with the two #6-32 nuts provided.

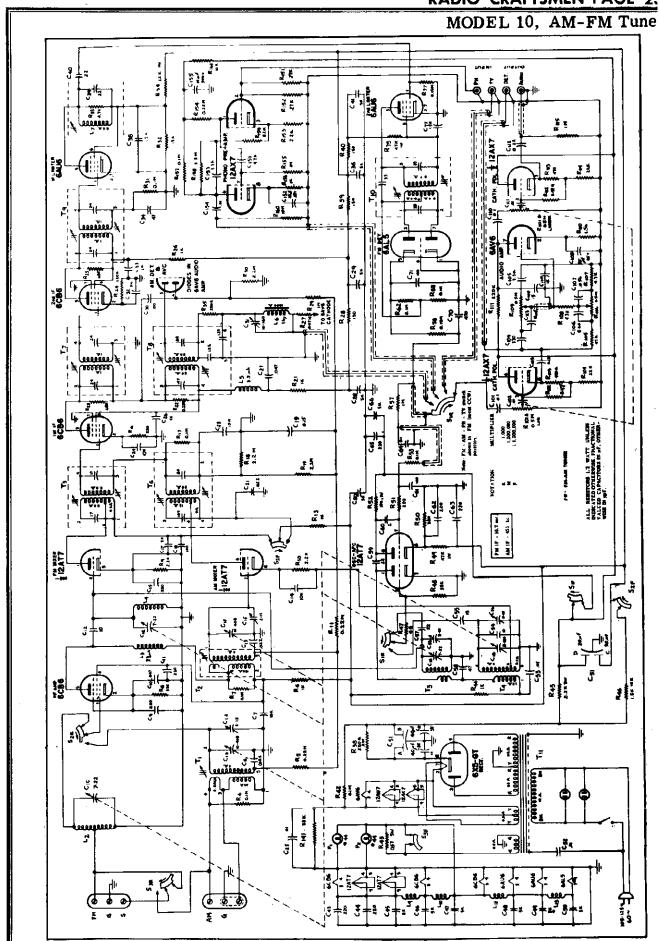
Remove the five press-fit knobs (use a steady outward pull on the knob) and the four mounting screws and washers found in the chassis mounts. Locate the chassis so that a 1/16-in. clearance exists between the inward flange of the escutcheon and the dial glass. Replace the four washers and screws and finally press the five knobs on their shafts, noting that the lettering uppermost on the channel knob indicates the channel selected for use.

ELECTRICAL CONNECTIONS

AUDIO SYSTEM - A cathode-follower Amplifier Output jack, furnishing up to 2 volts at less than 1/2 % distortion from 20 to 20,000 cps., (refer to Figure 2) and the associated shielded audio cable have been provided to connect the C10 into new or existing audio systems. Any audio amplifier, such as the Craftsmen 2 or 500 Amplifier,

with an input impedance of 10,000 ohms or greater can be operated from this output.

The audio amplifier power line cord should be plugged into the AC outlet on the rear of the chassis so that the amplifier can be turned on simultaneously with the FM-AM tuner.

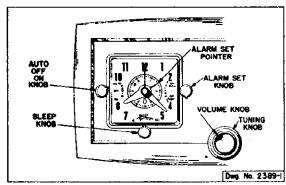


MODEL 10, AM-FM Tuner

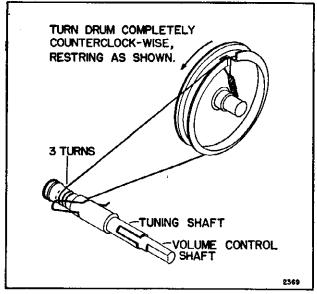
PARTS LIST

Part No.	Ref. No.	Desci	ription	Part No.	Ref. No.	Desc	ription
	CAPACITOR	t, Ganged Tuning			RES	SISTORS	
175007		22 μμf,	FM Osc. Tuning			/	Carbon
(15001		08 μμ t ,	AM Osc. Tuning	RC20AE6R8K	R47	6.8 Ω, 1/2w,	_
		22 μμ1,	FM RF Tuning	RC20AE151K	R28, R39, R40	150 Ω , 1/2w,	Carbon
	C1D 10-4	08 μμ f ,	AM RF Tuning	RC20AE221K		220 Ω, 1/2w,	Carbon
			FM Conv. Tuning	RC20AE331K	R8, R50	330 Ω, 1/2w,	Carbon
			AM Conv. Tuning	RC20AE152K	R110	1.5 K Ω , $1/2$ w,	Carbon
	C1b 2-	15 μμf, AM Osc	. Mica Trimmer	RC20AE102K		1000 Ω, 1/2w,	Carbon
			F Mica Trimmer		R26, R44, R15	6	Carbon
	C1f 2-	15 muf, AM Con		RC20AE222K	R9, R10, R153	2.2K Ω, 1/2w,	
				RC20AE472K	R33, R107	4.7K Ω, 1/2w,	Carbor Carbor
	CAPACITO	RS, Ceramic		RC20AE103K	R161	10K Ω, 1/2w,	Carbo
my ann	C56	1-6 $\mu\mu$ f, 500v,	Trimmer	RC20AE153K	R32	15K Ω, 1/2w,	Carbo
17X402	C60	2 μμ1, 500v,	Tubular	RC 20A E 223K	R104, R114	22K Ω, 1/2w,	Carbo
CC20CK2R0D	C54, C12	10 μμf, 500v,	Tubular	RC20AE273K	R151, R152	27K Ω, $1/2$ w, 33K Ω, $1/2$ w,	Carbo
CC20SL100M	C55, C109, C113		Tubular	RC20AE333K	R41, R48		Carbo
CC20SL150M	C40	22 μμf, 500v,	Tubular	RC20AE473K	R105, R108	47K Ω , 1/2w, 68K Ω , 1/2w,	Carbo
CC20\$L220M CC20CK220M	C39, C57, C59	22 μμf, 500v,	NPO	RC20AE683K	R23, R25	82K Ω, 1/2w,	Carbo
	C34, C58	47 μμf, 500v,	Tubular	RC20AE823K	R159	100K O 1/2w;	Carbo
CC20UK470M	C18, C30, C61,	100 μμf, 500v,	Tubular	RC20AE104K		100K Ω, 1/2w,	Curbo
CC20SL101M	C71	100 /1/11, 0001,			R31, R42, R53		
CC208L221M	C8, C9, C11,	220 μμf, 500v,	Tubular	2000154545	R62, R63, R15	150K Ω, 1/2w,	Carbo:
CC 20011221M	C15, C43, C44,	Δπο μμι, στοί,		RC 2UAL 194K	R58, R77	220K Ω, 1/2w,	Carbo
	C62, C63, C65			RC20AE224K	R5, R11,		ÇMIDO.
CC25SL471K	C70	470 μμf, 500v,	Tubular		R22, R35, R11	11,	
CC20ZZ102X		1000 μμf, 500v,	Tubular		R154	4807 O 1/2m	Carbo
CC2022104A	C114	1000 μμ1, 0001,	4424141	RC20AE474K	R27, R102,	470K Ω , 1/2w,	Carpoi
107701		5000 μμf, 500v,	Disc	1	R112	136 0 1/200	Carbo
18X 701	C66, C28, C29,	σοσο μμι, σοστ,		RC20AE105K	R29, R57,	1M Ω , $1/2w$,	Carbo
	C32, C36, C41,				R115, R155	9 934 O 1/9m	Carbo
	C45, C46, C47,			RC 20AE 225K	- , .	2.2M Ω , 1/2w, 3.3M Ω , 1/2w,	Carbo
	C48, C49, C50			RC20AE335K	R158	10M Ω, 1/2w,	Carbo
18X704	C7. C14. C102. 1	10,000 μμf, 500v,	Disc	RC20AE106K	R160	2,2K Ω, 1w,	Carbo
1011.01	C111, C23, C59	10,000 μμ-, 1101,		RC3UAT.ZZZK	R54	2.2K Ω, 1W,	Carbo
18X705	C38, C77	1500 $\mu\mu$ f, 500v,	Disc	RC30AE103K	R52 R34	22K 12, 1w,	Carbo
	,			RC30AE223K		47K Ω, 1w,	Carbo
				RC30AE473K	R49, R75	2.2K 22, 2w,	Carbo
	CAPACITO	RS, Mica		RC40AE222K	R45 R103, R113	470 Ω, 1/2w,	Wire Woun
				RW0471K	R38	220 Ω, 2w,	Wire Woun
17X205		-160 μμf, 300v,	Trimmer		R43	0.47 Ω, 5w,	Wire Wour
CM20A331K	C104	330 υμf, 500v,	Molded		R46	1 5K Ω. 10w.	Wire Woun
				RWX152K	R106, R109	A SM O 1/4w.Cs	rhon Potentiomete
	CAPACITO	ORS, Paper		238715	R101	0.5M Ω, 1/4w,Ca	rbon Potentiomete
		, ,		238727	RIOI	0.5M \O, 1/4w,	and Switc
CP10M4222K	C151	.0022 μf, 400v,	Tubular				
CP10M4332K	C 105, C 153	.0033 μf, 400v,	Tubular				
CP10M4562K	C106	.0056 μf, 400v,	Fubular	1	COILS	& CHOKES	
CP10M4103M	C25, C154	.01 μf, 400v,	Tubular				T. C ()
CP10M6103M	C52	.01 μf, 600v,		5A209	L4		FM Conv. Co
CP10M4223M	C21, C6,	.022 μf, 400v,	Tubular	5A210	L2		FM RF Co
	C13			55402	L3, L5		3.3 μ h Chol
CP10M4473M	C10, C27	,047 μf, 400v,	Tubular		L.7		FM Limiter Co
CP10M4563K	C107	.056 μf, 400v,	Tubular	011 100	L9, L10, L11	,	1.0 μ h Cho
CP10M4104M	C64, C101, C11	0 , 1 μf, 400v,	Tubular	1	L13		1 E 10 E 17/1
CP10M2224M	C103, C112	0.22 μf, 200v,	Tubular	198406	L6		1 h, 10 kc Filt
CP10M4154M	C19	0.15 μf, 400v,	Tubular	L			
				-	SWI	ITCHES	
	CAPACITORS,	Flactrolytic		4S006A	S1, S2, S3	4 Pos., 3	section Band Swite
	·	-	M. b.ile		,	·	
CE8H2501P	C155	10 μf, 250v,	Tubular Tubular		TRANS	SFORMERS	
CE8H0202P	C108, C152	25 μf, 25v,	Twist Mount			•	
18S022	C51A	40 μf, 300v, 40 μf, 300v,	I WIST MOUNT	5X005	T10	10.7 m	c FM Discriminat
	C51B	30 µf, 300v,		5X013	T5		.7 mc FM Convert
	C51C			5X014	T7, T9		10.7 mc FM
	C51D	20 μf, 300v,		5X014 5X015	T6	4	55 kc AM Convert
				5X016	T8	· ·	455 kc AM
				5A 208	Т3		FM Os
				5A218	T4		AM Os
	PILOT I	LIGHTS		5A219	T2		AM F
1	4			5A220A	T1		AM A
15X003	P1, P2	1	No. 44 Pilot Light	19S208A	T)1		Power Transform

MODELS CR-41A, -42 -43A, Ch. 4D16-A



Front Cabinet View



Dial Stringing Diagram

SERVICE DATA

Power Supply. 115 volts, 60 cycles AC only, 24 watts.

Frequency Range 540 to 1600 Kc.

455 Kc. Intermediate Freq.

At 1000 Kc., 60 Kc. at 1000 x Selectivity...

signal.

Sensitivity.............. ...150 u. v. per meter.

1.0 watts undistorted, 1.25 watt Power Output

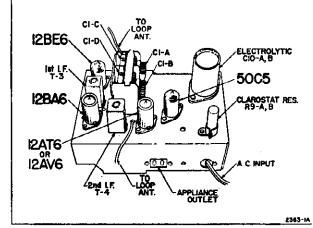
maximum.

4" PM., v.c. impedance, 3.2 ohm: Loud Speaker.

Tube Complement.

12BE6, Converter, 12BA6, IF Amplifier 12AV6, or 12AT6,

Detector AVC Audio 50C5, Audio output



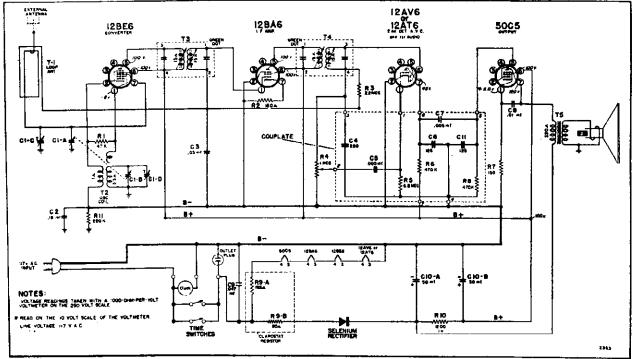
Chassis View

ALIGNMENT PROCEDURE

Loop must be connected and volume set to maximum.

,	SIGNAL	GENERATOR				
Frequency	Coupling Capacitor	Connection to Radio	Ground Connection	TUNER SETTING	ADJUST FOR MAXIMUM OUTPUT	
455 kc.	.1 mf.	12BE6, Pin 7	ACROSS \SSIS	(Capacitor fully open) (plates out of mesh)	Top and bottom Cores in output and input 1.F. cans	
1620 kc.	.) mf.	12BE6, Pin 7	CHA	(Capacitor fully open) (plates out of mesh)	Oscillator trimmer C1-D on gang	
535 kc.	.1 mf.	128E6, Pin 7	80	Capacitor fully closed	Check for adequate range	
1400 kc.		Lay Generator lead near back of cabinet	HEAVY BUS	Tune in 1400 kc. signal	Antenna trimmer C1-C on gang	

MODELS CR-41A, -42A, -43A, Ch. 4D16A



SCHEMATIC DIAGRAM

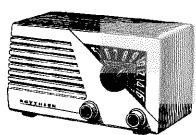
PARTS LIST

Please specify part number and chassis model number when ordering replacements.

Use only Genuine Factory Replacement Parts

		Use only Genuine	Selling	, Kepideemem			Selling
Ref. No.	Part No.	Description	Price	Ref. No.	Part No.	Description	Price
	CAI	PACITORS			49A-11324	Tension spring	.05
C1A, B	8A-19740	2-gang condenser	\$3.00	1	21J-19594	Selenium rectifier	2.20
C1C, D		Trimmers on gang	•	1	R5C-19734-87	Cabinet (ivory)	5.65
C2	8D-11111	.18 mfd. x 400 volts, paper	.35	1	R5C-19734-86	Cabinet (mahogany)	4.05
Č3	8D-14460	.05 mfd. x 200 volts, paper	.35	1	5C-19734-89	Cabinet (red)	5.75
	\	220 mmf.		1	6A-20309	Dial glass	.75
C4	(incl. in	.005 mfd.		1	5B-20711-74	Clock knob (CR-41)	.05
C5	couplate)			1	58-20711-88	Clock knob (CR-42)	.05
C6, 11	Conbigue	125 mmf.		İ	5B-19794-74	Volume knob (mahogany)	.10
C7	,	.005 mfd.			5B-19795-74	Tuning knob (mahogany)	.30
C8	8D-17258	.01mfd. x 200 volts, paper	.25	I	5B-19794-88	Volume knob (ivory)	.10
C9	8J-16081	.047 mfd. x 400 volts, paper	.30	1	5B-19795-88	Tuning knob (ivory)	.30
C10A, B	8C-15262	Electrolytic condenser	1.80		85B-19794-90	Knob-Volume (red)	.10
C4, 5, 6, 7, 11					858-19795-90	Knob-Tuning (red)	.30
R5, 6, 8	201-19303	Couplate	.90		5B-20711-91	Knob (clock) (CR-43)	.05
		•			23A-16328	Line cord lock	.05
		RESISTORS			14M-20212	A.C. line cord and plug	1.40
R1	9B1-82	47K ohms, 1/2 watt, 10%	.25		15C-16007	Tube socket, 7-prong miniature	
R2. 7	9B1-62	150 ohms, 1/2 watt, 10%	.25		2M-17589 or	Tube shield base	.05
R2, / R3	9B1-33	2.2 megohms, 1/2 watt, 20 %	.25	1		Tube shield base	.05
	10B-19797		.80	İ	2M-19187	Tube shield	
R4	14/41-001	1. megohm volume control	.60	ł	2M-17588 or		.10
R5	(incl. in	6.8 megohms, 1/2 watt,			2M-19188	Tube shield	.10
R6	`	470K ohms, 1/2 watt			19B-19802	A.C. receptacle	.30
RB	(couplate)	470K ohms 1/2 watt			15B-10076	Lytic mounting base	.05
R9A, B	, 9M-19778	195 ohms, 5 watts and 50 ohms			18A-19739	4" P.M. speaker	4.65
KYA, D	7101-17//0	5 watt, clarostat	,95		43D-20510	Tinnerman clip	.02
B10	984-63	1200 ohms, 2 watts, 10%	.35		29J-16690	Rubber washer	.02
R10	981-27	220K ohms, 1/2 wett, 20%	.25		42A8-20210	Chassis mounting bolt	.03
R11	751-27	220K Onns, 72 warr, 20 70	.2.5		2M-10096	Cinch button (loop back)	.05
	TRANCEO	DATE AND COLLS		ŀ	3M-20268	Time set knob	.05
		RMERS AND COILS		İ	2F-20616	Bezel	3.40
T1	13E-20995	Loop antenna assembly	1.40		2F-21022	Bezel	3.40
T2	13D-19064	Oscillator coil	60		21 M-20996	Clock assembly (CR-41)	11.31
T3, 4	138-17731	I. F. transformers	1.45		21 M-20997	Clock assembly (CR-43)	11.31
T5	12C-17595-1	Audio output transformer	1.00		23J-20343	Cardboard baffle	.05
					25E-19234	Rubber channel	.05
	MI	SCELLANEOUS		1	38A-20854	Fibre barrier (UL)	.05
	3A-19798	Tuning shaft	.45		9M-19778	Clarostat resistor	.95
	49A-18851	Spring clip	.02		2C-21001	Dial scale (CR-41 & CR-42)	.35
	2G-20329	Dial pointer	.30		2C-21002	Dial scale (CR-43)	.45

MODELS R-51A -52A, Ch. 5D157-1



Front Cabinet View

SERVICE DATA

Power Supply......115 volts, DC or 50-60 cycle, AC 24 watts.

Frequency Range.....540 to 1600 Kc. Intermediate Freq...455 Kc.

Selectivity..... At 1000 Kc., 60 Kc., at 1000 x

signal

Sensitivity......150 u. v. per meter

Power Output.........0.8 watts undistorted, 1.0 watt maximum

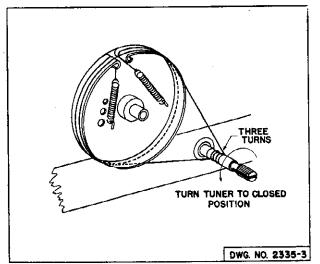
Loud Speaker......4" PM., v.c. impedance, 3.2-ohm

Tube Complement....

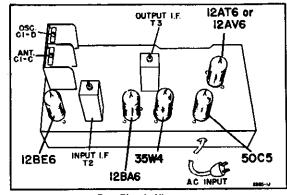
12BE6, Converter 12BA6, IF Amplifier 12AV6, or 12AT6,

50C5, Audio output 35W4, Rectifier

Detector, AVC, Audio



Dial Stringing Diagram



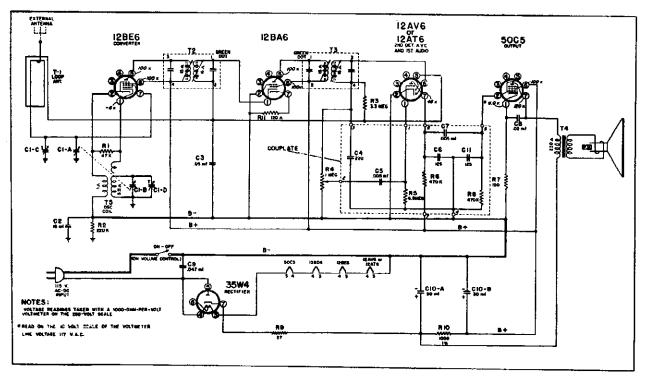
Top Chassis View

ALIGNMENT PROCEDURE

Loop must be connected and set volume to meximum.

	SIGNA	L GENERATOR		1	ADHIET FOR	INPUT FOR
Frequency	Coupling Capacitor	Connection to Radio	Ground Connection	TUNER SETTING	ADJUST FOR MAXIMUM OUTPUT	50-MILLIWATI OUTPUT
455 kc.	.l mf	128E6, Pin 7	ACROSS \SSIS	Capacitor fully open (plates out of mesh)	Top and bottom Cores in output and input I.F. cans	65 microvalts
1620 kc.	.l mf	12BE6, Pin 7		Capacitor fully open (plates out of mesh)	Oscillator trimmer C1-D on gang	70 microvolts
535 kc.	.1 mf.	12BE6, Pin 7	BUSS LEAD TER OF CH/	Capacitor fully closed	Check for adequate range	70 microvolts
1400 kc.		Lay generator lead near back of cabinet	HEAVY BUS CENTER	Tune in 1400 Kc. signal	Antenna trimmer C-1C on gang	200 to 400 microvolts
400 cycles	.1 mf.	12AT6, Pin 1	A O			.06 volts

-52A, Ch. 5D157-A



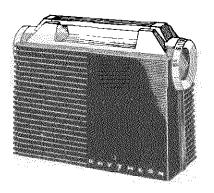
SCHEMATIC DIAGRAM

LIST OF PARTS

Please specify part number and chassis model number when ordering replacements. Use only Genuine Factory Replacement Parts

Ref. No.	Part No.	Description	Price	Ref. No.	Part No.	Description	Price
	C	apacitors		ļ	D	ial Parts	
C1A-B	8A-20992	2-gang condenser	\$2.85	į	3A-18166	Tuning shaft	\$.20
C1C-D		Trimmers on gang		ĺ	40A-17591	Bushing	.0:
C2	8D-11111	.18 mfd x 400 volts	.35		29E-17592	Spring washer	.0!
C3	8D-10770	.05 mfd x 200 volts	.25	ł	43D-17609	Tinnerman clip	.0!
C4-5-6-7-11-	201-19303	Couplate	.90		29C-10630	"C" washer	.0!
and R5-6-8		F		i	53A-18547	Dial string (approx 20")	.0!
C8	8D-10774	.02 mfd x 400 volts	.25	1	49A-11324	Take up spring	.0! !0.
C9	8J-16081	.047 mfd x 400 volts	.30		2D-20217	Pointer bracket	.0!
C10-A-B	8C-17391	Electrolytic condenser	1.25		2G-20329	Pointer	30
•,•,•		,			200-20227	Shaft and pulley assembly	.20
				ļ	49A-11324	Coil spring	.0
	4	Resistors		ļ	6D-20984	Dial scale	1.20
R1	9B1-82	47K ohms, 1/2 watt, 10%	.25				
R2	9B1-27	220K ohms, 1/2 watt, 20%	.25	1	Mic	cellaneous	
R3	981-34	3.3 megohms, 1/2 watt, 20%	.25	1			
Ř4	10A-18126	Volume control and switch	1.05	Ī	5C-20990-65	Cabinet (mahogany)	4.60
R5-6-8		See Couplate			5C-20990-87	Cabinet (white)	5.95
R7	9B1-52	150 ohms, 1/2 watt, 10%	.25		5B-18164-74	Knob (mahogany)	.30
R9	9B1-43	27 ohms, 1/2 watt, 10%	.25		58-18164-88	Knob (white)	.30
R10	982-62	1000 ohms 1 watt, 10%	. 3U		18A 17579	Speaker, 4" P.M.	2.64
R11	9B1-51	120 ohms, 1/2 watt, 20 %	.25		2H-17588 or	Tube shield	.10
RII	761-31	120 011113, 72 4811, 20 30			2H-19188	Tube shield	.10
					2М-17589 ог	Tube shield base	.05
	Transfo	rmers and Coils			2M-19187	Tube shield base	.05
		· mers ene cons			2M-17580	I.F. locking clip	.05
T1	13E-21028	Loop antenna assembly	1.40		15C-16007	7-prong, socket	.15
T2-3	13B-17731	I.F. transformer	1.45	!	15B-10440	Octal socket	.15
T4	12C-17595	Output transformer	1.00		14M-10088-4	AC line cord and plug	1.00
	R 12C-19302	•			2D-15432-2	Loop mounting bracket	.35
T5	13D-17583	Oscillator coil	.70		23A-10344	Line cord lock	.05

MODEL PR-5 Ch. 4P12A



GENERAL DESCRIPTION

This model is a 3-way portable radio with 4 tubes plus a selenium rectifier and uses a built-in antenna. The receiver will operate on 115 volts, 50 to 60 cycles AC, or 115 volts DC, or on the self-contained batteries. When using the radio on AC, reversing the plug may reduce hum. If the radio does not operate in one minute on direct current (DC), reverse the plug. When bat-

tery operation is desired, the line cord plug is insert into a socket switch on the chassis (see bottom cabil view), the insertion automatically moves the switch of tacts for battery operation. When the line cord plug out of the chassis switch, the batteries are automatical disconnected.

SPECIFICATIONS

Power Supply......115 volts, DC or 50-60 cycles AC, 25 watts.

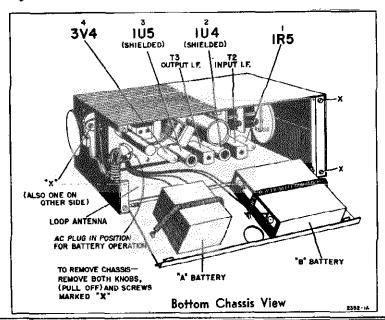
A Battery—7.5 volts, 50 milliamperes.

B Battery—90 volts, 14 milliamperes

Frequency Range....540 to 1600 kc.

Intermediate Freq...455 kc.

Selectivity......At 1000 kc., 60 kc. at 1000 x signal



PAGE 23-6 RAYTHEON

MODEL PR-51A, Ch. 4P12A

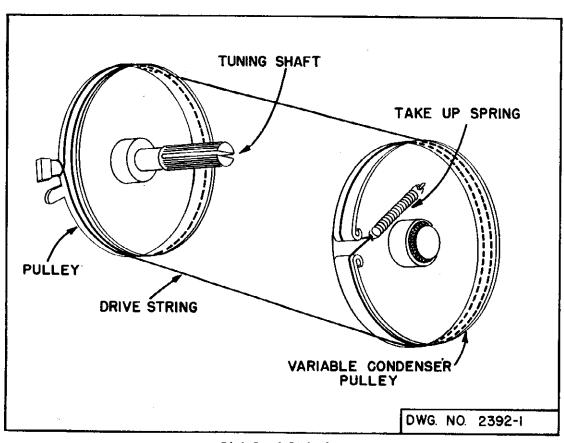
Mfgr.	A	В
RCA	VS-065	VS-090
General	31	132
Ray-O-Vac	P-751	4390
Eveready	717	490
Burgess	C5	N60

BATTERY REPLACEMENT

Since the receiver is small and compact, not every A or B Battery will fit in the space provided. Listed to the left are the five most common manufactured types to be used for replacements.

CAUTION:

When battery operation is desired, the excess line cord length must be rolled up and placed in the position shown in the bottom chassis view above.



Dial Cord Stringing

ALIGNMENT PROCEDURE

The Alignment Procedure below includes the sensitivities at the input of various stage. All measurements are based on an output of 50 milliwatts. This may be measured by disconecting the speaker voice coil and substituting a 3.2 ohm, 5 watt resistor across the secondary winding of the output transformer. A reading of .4 volts AC across this resistor will be equivalent to a

50 milliwatt output with speaker connected. The volume control must be set to maximum.

The signal source must be an accurately calibrated signal generator capable of supplying the frequencies designated, modulated 30% with a 400-cycle audio signal. A 400-cycle audio signal is required for the audio measurement. Variations in sensitivities of plus or minus 25% are usually permissible.

Ch. 4P12A

FREQUENCY	COUPLING CAPACITOR	DIAL SETTING	CONNECTION TO RADIO	GROUND CONNECTION	ADJUST	INPUT FOR 50 MILLIWATTS OUT
455 kc.	.1 mfd.	1000 kc.	Pin No. 6 of 1R5	B— (shell of lytic)	I.F. slugs	100 microvolts
1620 kc.	.1 mfd.	1600 kc.	Pin No. 6 of 1R5	B— (shell of lytic)	C1-B Osc. Trim. on gang	
1400 kc.	Radiation Loop	1400 kc.	Radiation loop	None	C-2 Antenna Trim. on gang	250 microvolts
400 cycles	.05 mfd.		Pin No. 6 of 1U5	B— (shell of lytic)		.040 volts
400 cycles	.05 mfd.		Pin No. 6 of 3V4	B— (shell of lytic)		3 volts

PARTS LIST When ordering parts, specify part number and complete model number

Ref. No.	Part No.	Description	Price	Ref. No.	Part No.	Description
		apacitors	!		Mis	cellaneous
	•	apacii			20A-19588	A.C D.C. battery switch
C1A-C	8A-21093	2 gang condenser	2.70		18A-19586	5" PM speaker
C1-B		Trimmer on gang	_		21J-19615	Selenium rectifier
C2		Trimmer on gang	_ '		201-19996	Audio couplate
Č3	8G-14459	220 mmf, ceramic	.25		201-15005	Filpec
C4, 5	8D-17268	.02 mfd x 200 volts	.25		15C-16007	7 prong, miniature socket
C6	8D-18042	.25 mfd x 100 volts	.35		2H-17008	Tube shield base
C7	8D-17785	.005 mfd x 200 volts	.25	1	2H-19188	Tube shield
Č8	8G-13962	.005 mfd x 450 volts	.25	į	14M-15724	A.C. line cord
Č9	8J-16081	.047 mfd x 400 volts	.30		5M-19963	Line cord lock
C10A, B, C, D		40-200-40-50 mfd, lytic	2.95	l	14A-16919	"B" Battery cable
C11	8D-11251	.09 mfd x 400 volts	.25		14A-19846	"A" battery cable
C12	8D-14460	.05 mfd x 200 volts	.35			
011					Çal	binet Parts
		Resistors			2M-19585	Clip, cabinet side channel
	, and 404	3.3 1/	.25		2M-19609	Bottom cover
R1, 4, 15	9B1-104	3.3 megohms, ½ watt, 10%	.25		49A-19612	Spring, battery
R2	9B1-86	100K ohms, 1/2 watt, 10 %	.25	j	2M-19614	Stud
R3	9B1-78	22K ohms, 1/2 watt, 10%	.25	1	27C-6030	Rivet
R5	9B1-108	6.8 megohms, /2 watt, 10%	.23		2D-19610	Bracket
R6		or Volume control and switch,	1.20		2M-17580	I.F. clip
	10A-19596	1 megohm	.30		62D-19893	Antenna clip
R7, 8	9B1-155	680 chms, 1/2 watt, 5%]	6M-20077	Clamp, battery cable
R9	9 81-37	10 megohms, 1/2 watt, 20%	.25		5C-21144-94	Cabinet (red)
R10	9B1-159	1K ohms, 1/2 watt, 5%	.30	1	5C-21045-95	Escutcheon
R11	9C-19770	30 ohms, 2 watts, 10%	.20		2D-21016	Handle brecket
R12	9B2-169	2700 ohms, 1 watt, 5%	.35	1	5M-20993-95	Handle
R13	9M-19833	2650 ohms, 10 watts, clarostat	.95		2M-21017	Handle strap
R14	C981-90	220K ohms, 1/2 watt, ±10%	.25	1	38A-21173	Shield (fibre)
R16	C-9B1-95	560K ohms, $\frac{1}{2}$ watt, $\pm 10\%$.25		2C-21104	Chassis shield
					3M-20246	Shoulder stud
(Coils, Tran	sformers and Chokes				
			1.30		41 M-20124 29E-20247	Fibre spacer Spring washer
<u>T1</u>	13E-19844	Loop antenna assembly	1.45			Volume knob
T2	13B-17397	Input I.F. transformer	1.45		58-21009-95	
T3	138-17397	Output I.F. transformer		I	58-21154-95	Tuning knob
T4	12C-19591	Audio output transformer	1.85		200-21102	Tuning shaft assembly
T5	13D-19595	Oscillator coil	.80		2C-21103	Speaker shield (UL)