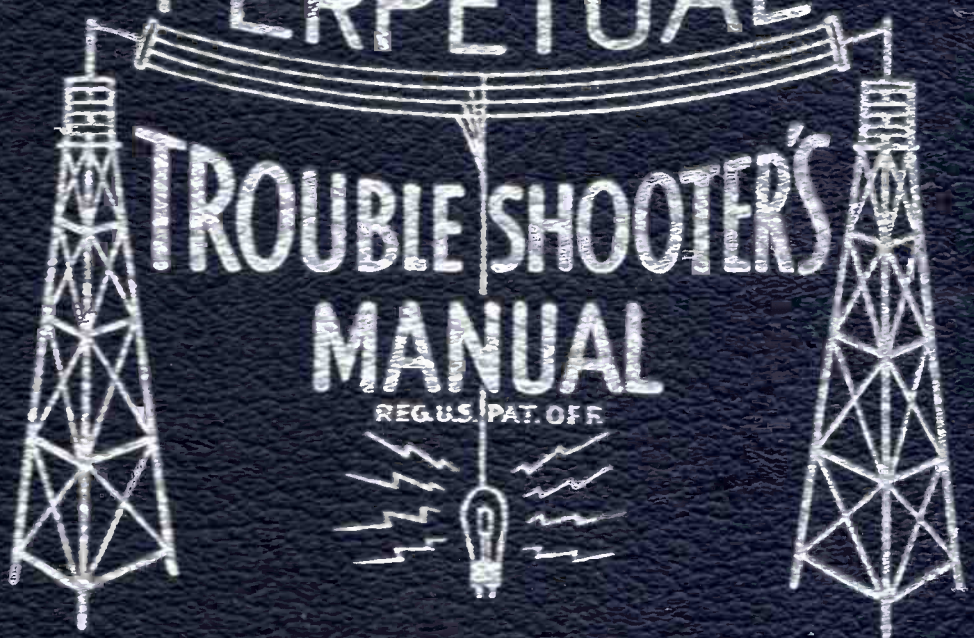
VOLUME XVI

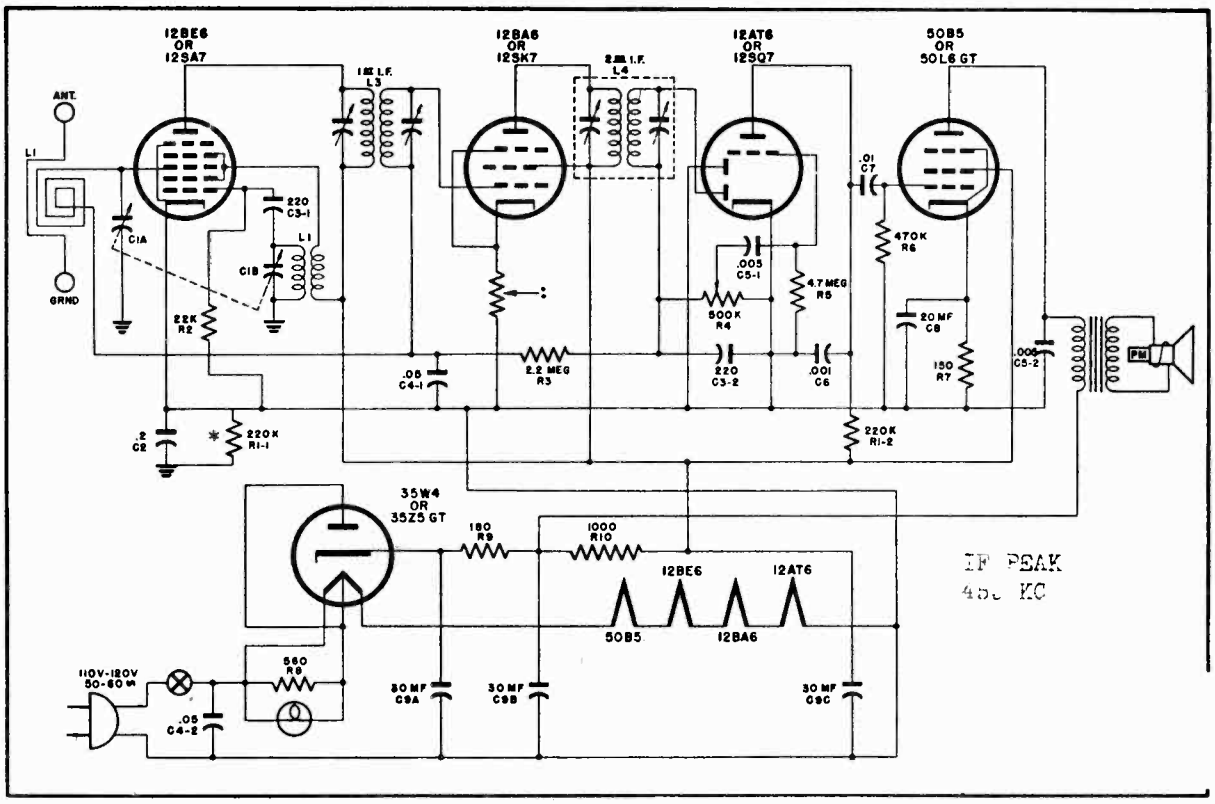
PERPETUAL TROUBLE SHOOTER'S MANUAL

REG. U.S. PAT. OFF.



JOHN F. RIDER

PACKARD BELL CO. MODEL 5DA



*R1-1, 220,000 ohm resistor, is used only in sets utilizing metal, octal base tubes.

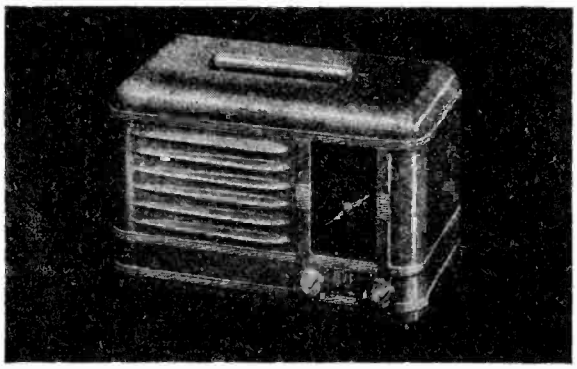
:180 ohm ½ watt resistor used for sets employing miniature glass tubes.

TABLE OF REPLACEABLE PARTS

PART NO.	REF. SYMBOL	DESCRIPTION
21004-AL		Cabinet, plastic: ivory
21004-BG		Cabinet, plastic: walnut
23503	C1A,B	Capacitor, variable
23018	C2	Capacitor, paper: .2 Mfd., 200 volt
23228	C3-1 C3-2	Capacitor, mica: 220 Mmf., 20%
23009	C4-1 C4-2	Capacitor, paper: .05 Mfd., 400 volt
23004	C5-1 C5-2	Capacitor, paper: .005 Mfd., 600 volt
23001	C6	Capacitor, paper: .001 Mfd., 600 volt
23006	C7	Capacitor, paper: .01 Mfd., 600 volt
24032	C8 C9A,B&C	Capacitor, electrolytic: 3 X 30 Mfd. 150 volt & 20 Mfd., 25 volt
28013		Clip, electrolytic
29308	L1	Loop, antenna
29203	L2	Coil, oscillator
29002	L3	Coil, 1st I.F.: 455 KC
29004D	L4	Coil, 2nd I.F.: 455 KC
32012-AB		Cord, AC:6' brown rubber
32011-AL		Cord, AC:6' white plastic
38032		Dial scale, stationized
38047		Dial scale, export
49009-AL		Handle, ivory
49009-AG		Handle, walnut
52027A-AL		Knob, plastic: ivory
52021A-BG		Knob, plastic: walnut
54002		Dial, lamp, bayonet base: T-47
55003		Crystal, dial
62000B		Panel, loop
68126		Instruction label

PART NO.	REF. SYMBOL	DESCRIPTION
73049	R1-1 R1-2	Resistor, carbon: 220,000 ohms, 20%, ½ watt
73041	R2	Resistor, carbon: 22,000 ohms, 10%, ½ watt
73055	R3	Resistor, carbon: 2.2 megohms, 20%, ½ watt
25001A	R4	Control, volume: 500,000 ohms, with AC switch
73057	R5	Resistor, carbon: 4.7 megohms, 20%, ½ watt
73051	R6	Resistor, carbon: 470,000 ohms, 20%, ½ watt
73081	R7	Resistor, carbon: 150 ohms, 10%, 1 watt
73022	R8	Resistor, carbon: 560 ohms, 10%, ½ watt
73077	R9	Resistor, carbon: 180 ohms, 10%, 1 watt
73071	R10	Resistor, carbon: 1000 ohms, 10%, 1 watt
77015		Shaft, dial drive
79002		Socket, tube: octal base, 8 prong wafer type
79012		Socket, tube: 8 prong miniature
79033		Socket, dial lamp: bayonet base
78029B		Shield, cabinet: paper
83004		Speaker, permanent magnet: 4"
84001		Spring, dial drive
84016		Spring, handle
89411		Transformer, output

AN EARLY RUN OF THESE RECEIVERS UTILIZED MINIATURE GLASS TUBES, CONSEQUENTLY THE INFORMATION SHOWN HAS BEEN COMPILED TO ACCOMODATE MINIATURE GLASS OR [redacted] OCTAL BASE TUBES.



SPECIFICATIONS

Overall Dimensions:
Height . . . . . 6" Depth . . . . . 5"
Width . . . . 9¼" Weight . . 5¾ lbs.

Electrical Rating:
Line Voltage . . . 110-120 volts AC-DC
Power Consumption . . . 28 watts

Tuning Frequency Range:
540 to 1740 KC

Intermediate Frequency:
455 KC

Electrical Power Output:
Maximum . . . 1.7 watts

Loudspeaker:
Type . . . Permanent Magnet
Outside Cone Diameter . . . 4"
Voice Coil Impedance . . . 3.2 ohms at 400 cycles
Magnet Rating . . . 1.0 Oz. Alnico 5

Tubes:

Tube		Function
No. 1	12BE6 or 12SA7	Frequency Converter
No. 2	12BA6 or 12SK7	I. F. Amplifier
No. 3	12AT6 or 12SQ7	Detector Amplifier
No. 4	50B5 or 50L6-GT	Power Amplifier
No. 5	35W4 or 35Z5-GT	Rectifier

All D.C. voltages measured with a vacuum tube voltmeter from socket contacts to ground buss.—A.C. voltages measured with a 1000 ohms per volt A.C. meter from socket contacts to ground buss.*—Volume Control maximum.—No signal.—117 volts A.C. line voltage.—All voltages shown are positive D.C. unless otherwise noted.
*NOTE: Filament voltages should be measured across the filament of the tube.

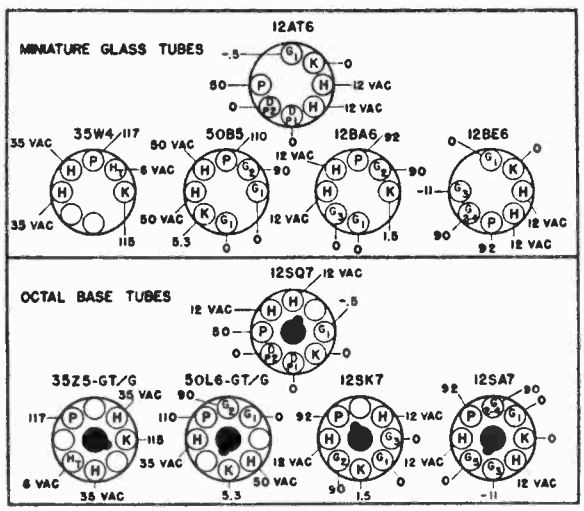


FIGURE 1—SOCKET VOLTAGES

GENERAL INFORMATION

Model 5DA is a superheterodyne receiver employing five tubes and a permanent magnet speaker. This model is for operation on AC or DC current and is enclosed in a plastic cabinet.

SPECIAL SERVICE INFORMATION

Stage Gain Measurements:

Measurements taken with volume control maximum. — AVC shorted out.
Standard Output . . . 50 milliwatts
Dummy antenna . . . 200 Mmf.
Converter Grid to 1st I.F. Grid . . . 71X at 1000 KC
Converter Grid to 1st I.F. Grid . . . 78X at 455 KC
1st I.F. Grid to 2nd Detector . . . 77X at 455 KC
Overall Audio Gain . . . 375X at .5 watts 400 cycles

Oscillator Grid Voltages:

At 117 volts AC line voltages. — Measurements made with an A.C. vacuum tube voltmeter input loading above 10 megohms.
600 KC . . . 15 volts AC 1500 KC . . . 20 volts AC

D.C. Resistance Measurements:

1st I.F. Coil
Primary . . . 17.5 ohms Secondary . . . 17.5 ohms
2nd I.F. Coil
Primary . . . 14.5 ohms Secondary . . . 14.5 ohms
Oscillator Coil
Primary . . . 1.2 ohms Secondary . . . 4.5 ohms

ALIGNMENT PROCEDURE

Alignment Procedure consists of the four steps outlined in the Alignment Procedure Chart.

For Step No. 1, I.F. Alignment, connect the leads of a test oscillator to the mixer grid and the ground buss through an .01 Mfd. capacitor (dummy load). Upon completion of this step "Rock" the variable condenser to assure that the I.F.s have been aligned to the correct frequency. Output should remain constant at any setting of the variable condenser.

Steps 2 to 4 employ a Hazeltine Standard Test Loop No. 1150, or a reasonable substitute. Connect the test oscillator leads across this loop and place it in a vertical position about two feet from the receiver loop.

IMPORTANT NOTICE: Make certain that each step is done with a minimum input signal.

ALIGNMENT CHART

STEP	CONNECT TEST OSC. TO	TEST OSC. SETTING	POINTER SETTING	ADJUST FOR MAX. OUTPUT
1	Mixer Grid & Grd. .01 Mfd. Cap.	455 KC	540 KC	Trimmers A, B, C, & D
2	Standard* Test Loop	1740 KC	1740 KC	Trimmer E to 1740 KC
3	Standard* Test Loop	1500 KC	1500 KC	Trimmer F
4	Standard* Test Loop	600 KC	600 KC	Loop

*NOTE: Hazeltine Standard Test Loop No. 1150 or a reasonable substitute.

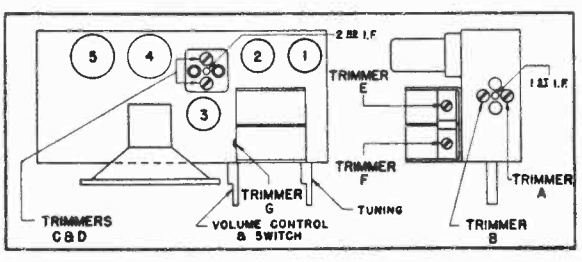
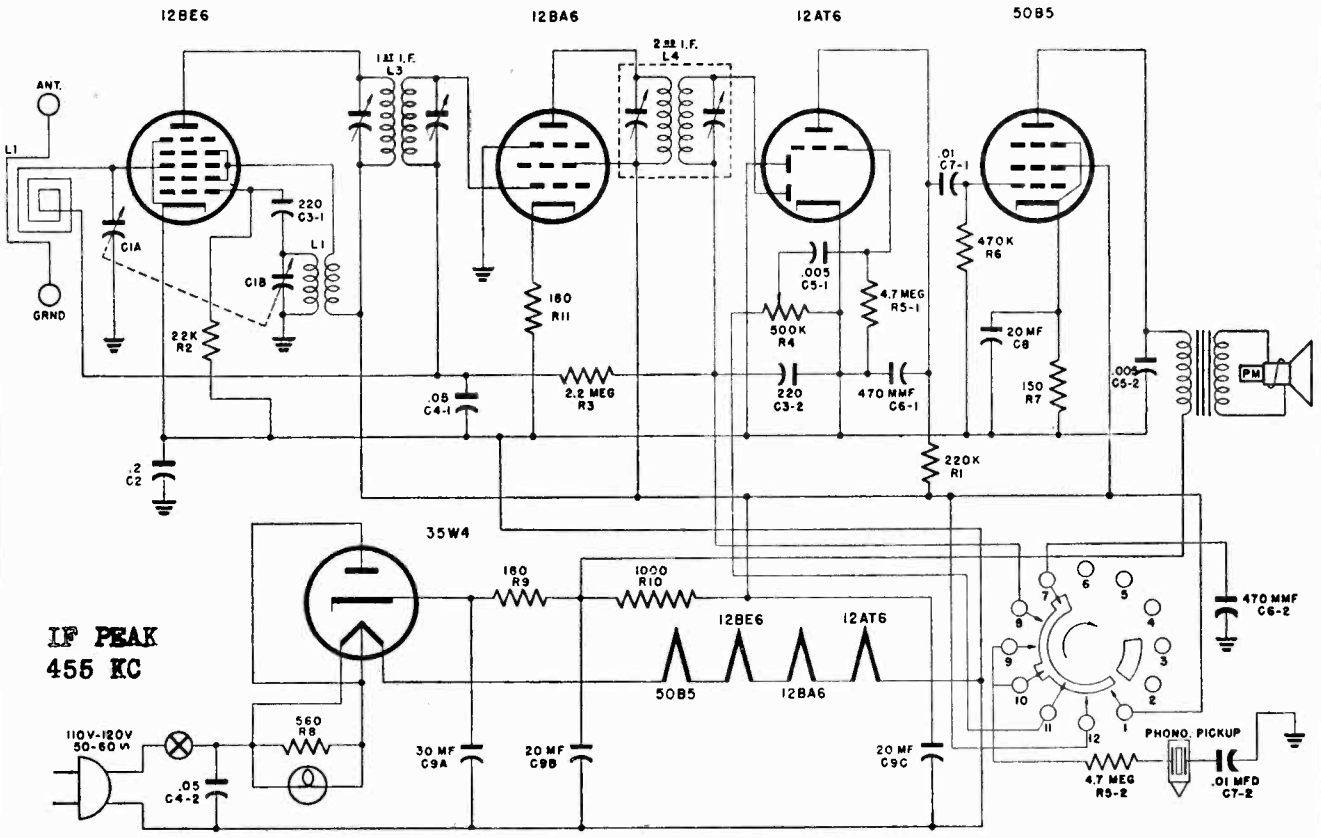


FIGURE 2—TRIMMER LOCATION

PACKARD BELL CO.

MODEL 568

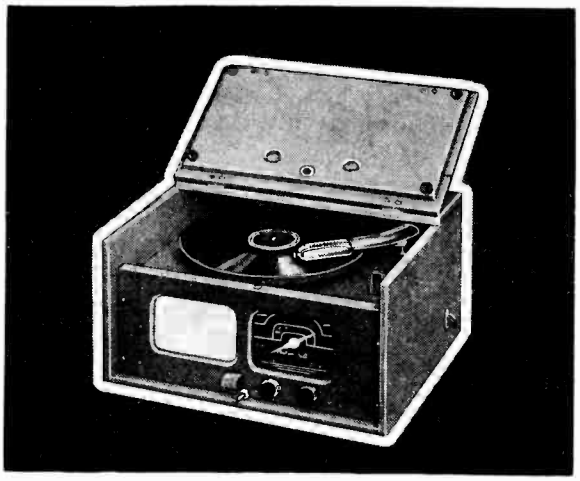


PART NO.	REF. SYMBOL	DESCRIPTION
18004A		Bracket, pilot light
18012		Pick-up rest
20001B		Button plug
21027B		Cabinet, power cord holder
21046C		Cabinet, wood: fabricoid covered
23503	C1A & B	Capacitor, variable: two gang with pulley
23018	C2	Capacitor, paper: .2 Mfd., 200 volt
23228	C3-1 C3-2	Capacitor, mica: 220 Mmf., 20%
23009	C4-1 C4-2	Capacitor, paper: .05 Mfd., 400 volt
23004	C5-1 C5-2	Capacitor, paper: .005 Mfd., 600 volt
23916	C6-1 C6-2	Capacitor, mica: 470 Mmf., 20%
23006	C7-1 C7-2	Capacitor, paper: .01 Mfd., 600 volt
24032	C8 C9 A,B & C	Capacitor, electrolytic: 30 Mfd., 2 x 20 Mfd., 150 WV & 25 Mfd., 25 WV
28013		Clip, electrolytic
29320	L1	Loop antenna
29203	L2	Coil, oscillator
29002	L3	Coil, 1st I.F.: 455 KC
29004D	L4	Coil, 2nd I.F.: 455 KC
32012-AB		Cord, AC: 6' brown rubber
38044B		Dial scale, stationized
38053		Dial scale, export
41002		Escutcheon, AC switch
52014		Knob, bar
54002		Lamp, dial: bayonet base
55008		Crystal, dial
58012		Motor, phono
59003		Needle, phono: permanent, osmium tip
62030A		Panel, cabinet
62031A		Panel, motor
63023		Pick-up arm
63024		Pick-up cartridge

PART NO.	REF. SYMBOL	DESCRIPTION
65042A		Plate, paper: dial
66013		Plug, phono
66008		Plug, phono motor
67005		Pointer, dial
73049	R1	Resistor, carbon: 220,000 ohms, 20%, ½ watt
73041	R2	Resistor, carbon: 22,000 ohms, 10%, ½ watt
73055	R3	Resistor, carbon: 2.2 megohms, 20%, ½ watt
25001A	R4	Control, volume: 500,000 ohms, with AC switch
73057	R5-1 R5-2	Resistor, carbon: 4.7 megohms, 20%, ½ watt
73051	R6	Resistor, carbon: 470,000 ohms, 20%, ½ watt
73081	R7	Resistor, carbon: 150 ohms, 10%, 1 watt
73022	R8	Resistor, carbon: 560 ohms, 10%, ½ watt
73077	R9	Resistor, carbon: 180 ohms, 10%, 1 watt
73071	R10	Resistor, carbon: 1000 ohms, 10%, 1 watt
73016	R11	Resistor, carbon: 180 ohms, 10%, ½ watt
77017		Shaft, dial drive
78019		Shield, AC switch
78026		Shield, phono plug
79004		Socket, phono
79007		Socket, phono motor
79012		Socket, tube: 7 prong miniature
79033		Socket, dial lamp: bayonet base
83004		Speaker, permanent magnet: 4"
84001		Spring, dial drive
86005B		Switch, rotary: radio-phono
86701A		Switch, slide: AC phono motor
89411		Transformer, output

MODEL 568

PACKARD BELL CO.



SPECIFICATIONS

Overall Dimensions:

Width . . . . . 15" Depth . . . 13⅛"
Height . . . 7¾" Weight . . 15 lbs.

Electrical Rating:

Line Voltage . . . 110-120 volts AC
Power Consumption . . . 43 watts

Tuning Frequency Range: 540 to 1740 KC

Intermediate Frequency: 455 KC

Electrical Power Output:

Maximum . . . 1.7 watts

Loudspeaker:

Type . . . Permanent Magnet
Outside Cone Diameter . . . 4"
Voice Coil Impedance . . . 3.2 ohms at 400 cycles
Magnet Rating . . . 1.0 Oz. Alnico 5

Tubes:

12BE6 Frequency Converter
12BA6 I. F. Amplifier
12AT6 Detector Amplifier
50B5 Power Amplifier
35W4 Rectifier

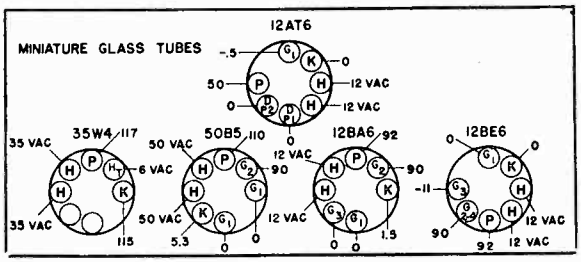


FIGURE 1—SOCKET VOLTAGES

All D.C. voltages measured from socket contacts to ground buss with a vacuum tube voltmeter. — A.C. voltages measured with a 1000 ohms per volt A.C. meter from socket contacts to ground buss.* — volume control maximum. — No Signal. — 117 A.C. line voltage. — All voltages shown are positive D.C. unless otherwise noted.

*NOTE: Filament voltages should be measured across the filament of the tube.

GENERAL INFORMATION

Model 568 is a combination superheterodyne receiver and phonograph. This model employs a permanent magnet speaker and a specially designed "Hi-Q" loop antenna. The model is capable of playing ten or twelve-inch records and is enclosed in a fabricoid covered carrying case.

IMPORTANT: While it is true this model uses a conventional "AC-DC" circuit, it must be confined to AC operation due to the AC phonograph motor.

NOTE: The 3 position Radio-Phono switch shown in the Schematic Diagram was used in the major portion of this model. A very small quantity utilized a 4 position switch. The overall wiring differs very little; the extra position on the 4 position switch provides a "Radio-Tone" position.

SPECIAL SERVICE INFORMATION

Stage Gain Measurements:

Measurements taken with volume control maximum. — AVC shorted out.

Standard Output . . . 50 milliwatts
Dummy Antenna . . . 200 Mmf.
Converter Grid to 1st I.F. Grid . . . 71X at 1000 KC
Converter Grid to 1st I.F. Grid . . . 78 X at 455 KC
1st I.F. to 2nd Detector . . . 77X at 455 KC
Overall Audio Gain . . . 375X at .5 watts 400 cycles

Oscillator Grid Voltages:

600 KC . . . 15 volts AC 1500 KC . . 20 volts AC

DC Resistance Measurements:

1st I.F. Coil
Primary . . . 17.5 ohms Secondary . . 17.5 ohms
2nd I.F. Coil
Primary . . . 14.5 ohms Secondary . . 14.5 ohms
Oscillator Coil
Primary . . . 1.2 ohms Secondary . . 4.5 ohms

ALIGNMENT PROCEDURE

Alignment Procedure consists of the four steps outlined in the Alignment Chart.

For Step No. 1, I.F. Alignment, connect the leads of a test oscillator to the mixer grid and the ground buss through an .01 Mfd. capacitor (dummy load). Upon completion of this step "Rock" the variable condenser to assure that the I.F.s have been aligned to the correct frequency. Output should remain constant at any setting of the variable condenser.

Steps 2 to 4 employ a Hazeltine Standard Test Loop No. 1150 or a reasonable substitute. Connect the test oscillator leads across this loop and place it in a vertical position about two feet from the receiver loop.

IMPORTANT NOTICE: Make certain that each step is done with a minimum input signal.

ALIGNMENT CHART

STEP	CONNECT TEST OSC: TO	TEST OSC. SETTING	POINTER SETTING	ADJUST FOR MAX. OUTPUT
1	Mixer Grid & Grd. .01 Mfd. Cap.	455 KC	540 KC	Trimmers A, B, C & D
2	Standard* Test Loop	1740 KC	1740 KC	Trimmer E to 1740 KC
3	Standard* Test Loop	1500 KC	1500 KC	Trimmer F
4	Standard* Test Loop	600 KC	600 KC	Loop

*NOTE: Hazeltine Standard Test Loop or a reasonable substitute.

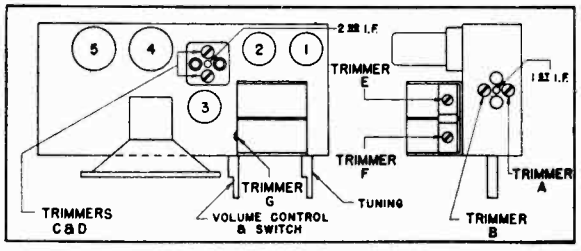
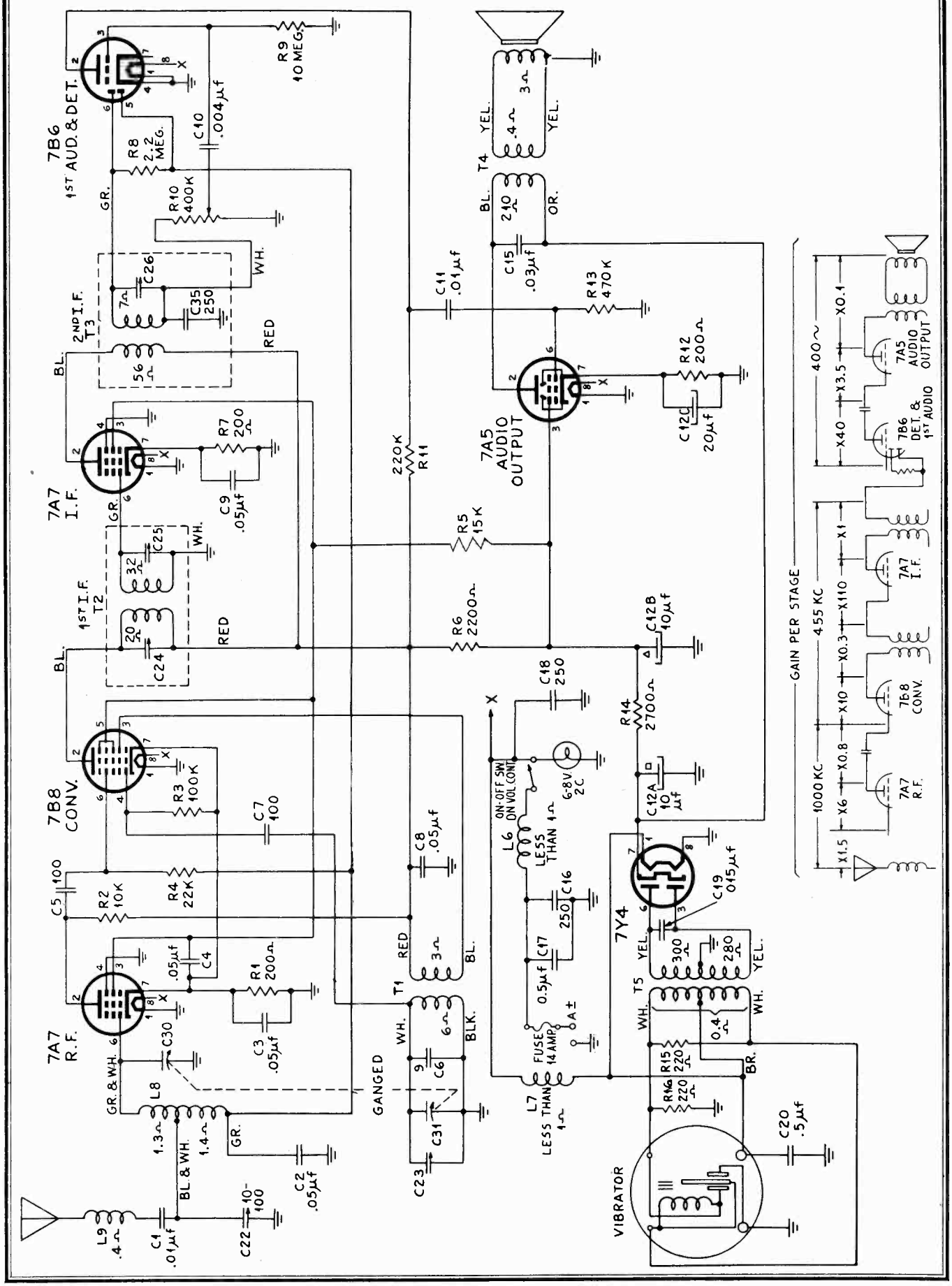


FIGURE 2—TRIMMER LOCATION

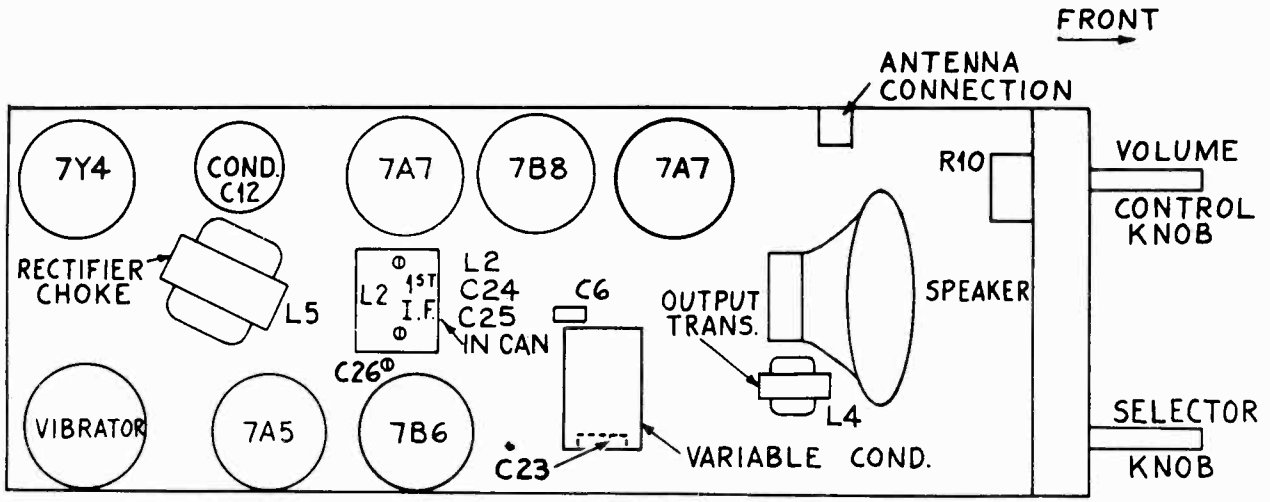
MODEL CR-2

PHILCO CORP.

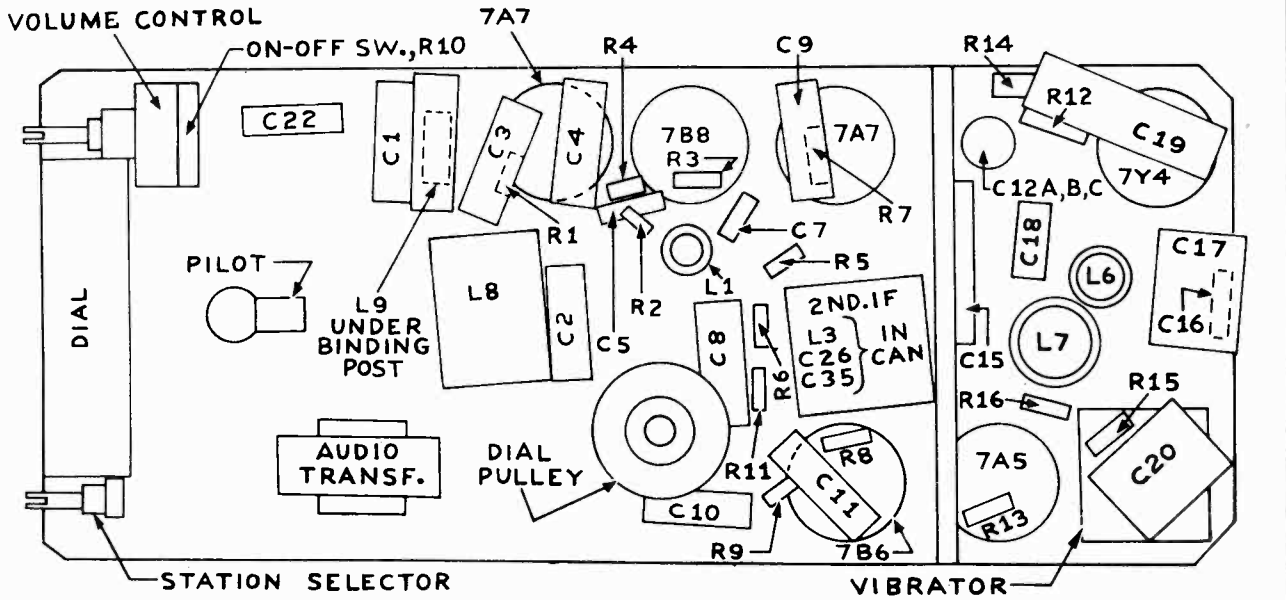


MODEL CR-2

PHILCO CORP.



TOP VIEW OF CHASSIS



BOTTOM VIEW OF CHASSIS

ALIGNMENT PROCEDURE

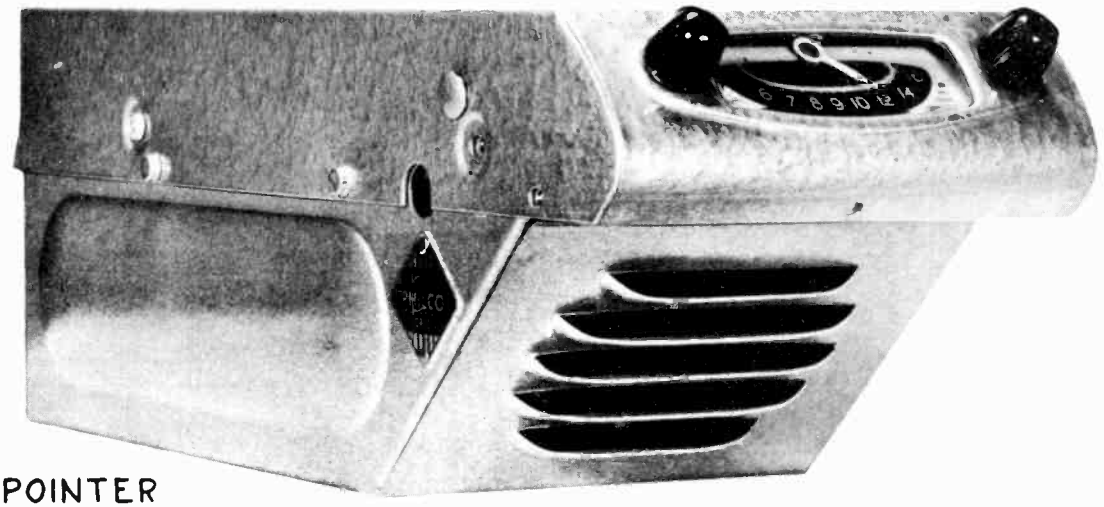
CONNECT AN OUTPUT METER ACROSS THE VOICE COIL AND THE SPEAKER. CONNECT A SIGNAL GENERATOR THRU A .01 mf CONDENSER TO THE ANTENNA LEAD. MESH THE VARIABLE TUNING CONDENSER FULLY. (PIN 4 OF THE 7B8 SHOULD BE GROUNDED WHILE ALIGNING THE IF STAGE) SET THE SIGNAL GENERATOR TO 455 KC. TURN THE VOLUME CONTROL OF THE RECEIVER TO MAXIMUM. TURN UP THE OUTPUT OF THE SIGNAL GENERATOR SO THAT THERE IS A SMALL DEFLECTION ON THE OUTPUT METER. NOW ADJUST IF TRIMMERS C26, C25 AND C24 FOR A MAXIMUM DEFLECTION ON THE METER.

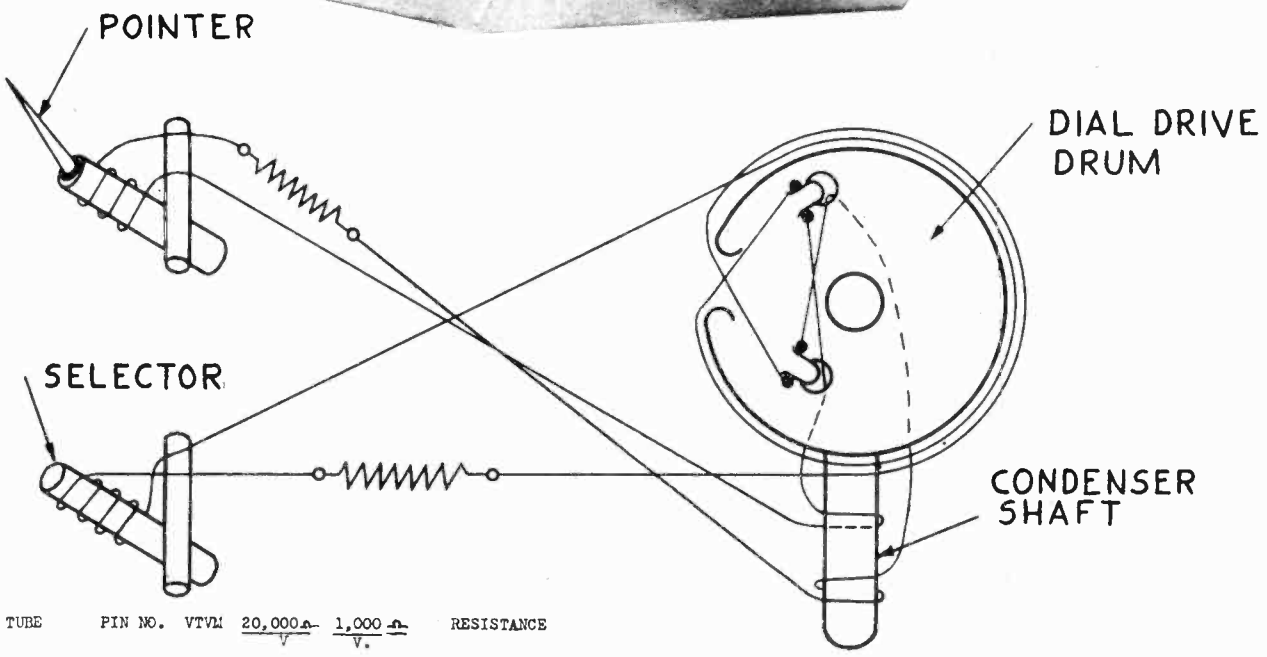
TO ALIGN THE OSCILLATOR STAGE, CONNECT THE SIGNAL GENERATOR THRU A 50 MMF CONDENSER TO THE ANTENNA LEAD. TUNE BOTH THE RECEIVER AND THE SIGNAL GENERATOR TO 1600 KC. TURN UP THE OUTPUT OF THE SIGNAL GENERATOR SO THAT THERE IS A SMALL DEFLECTION ON THE OUTPUT METER. ADJUST OSCILLATOR TRIMMER C23, FOR A MAXIMUM DEFLECTION ON THE METER.

TO ALIGN RF STAGE FOLLOW ABOVE PROCEDURE EXCEPT THAT THE RECEIVER AND SIGNAL GENERATOR ARE TUNED TO 1400 KC AND TRIMMER C22 IS ADJUSTED FOR MAXIMUM DEFLECTION ON THE OUTPUT METER.

MODEL CR-2

PHILCO CORP.





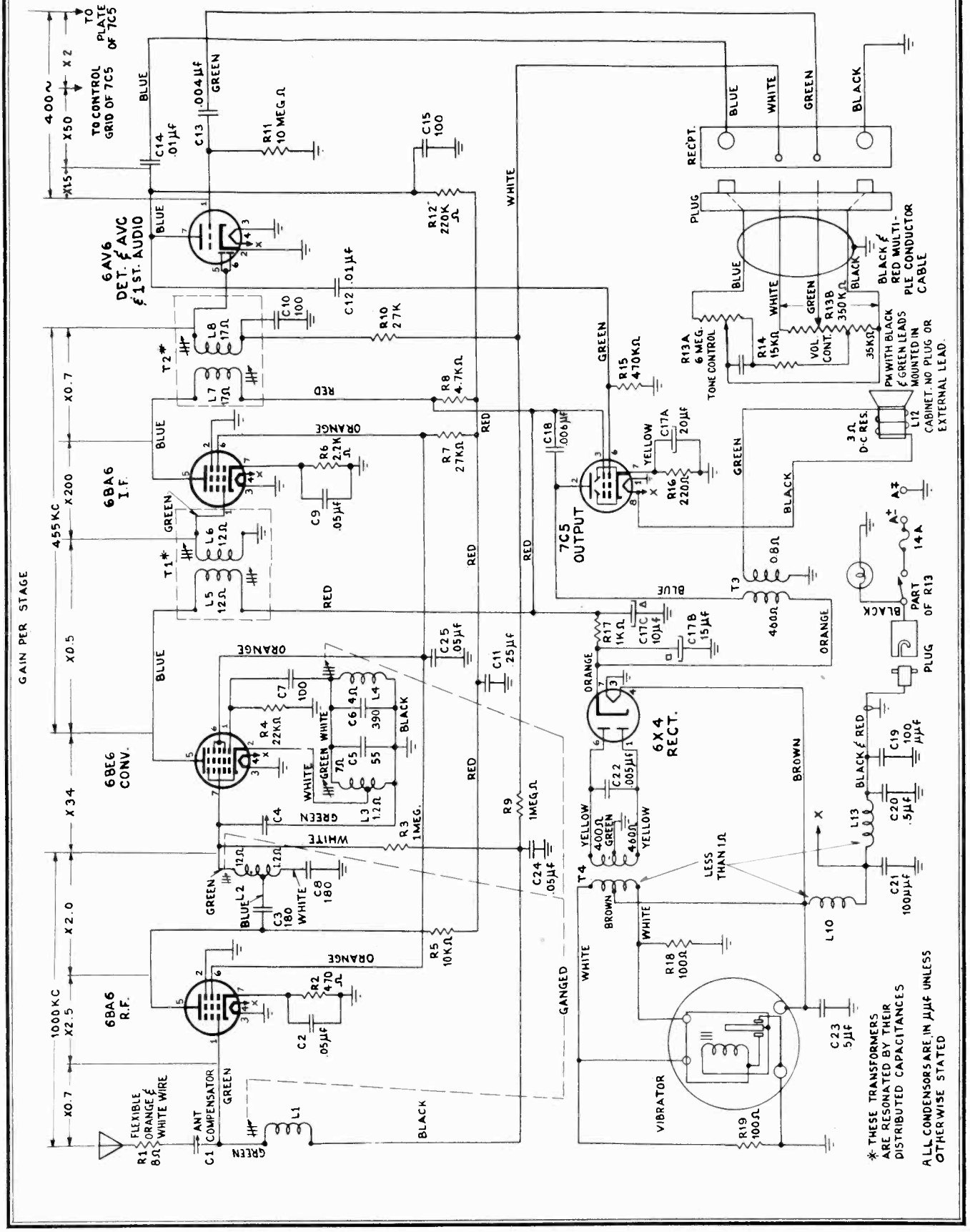
TUBE	PIN NO.	VTVM	20,000Ω/V	1,000Ω/V	RESISTANCE
7 A 7 RF	1	0	0	0	0
	2	55V.	51V.	46V.	OVER 5 MEG.
	3	47V.	46V.	43V.	OVER 5 MEG.
	4	0	0	0	0
	5	0	0	0	0
	6	-1.2V.	35V.	-.04V.	2.7 MEG.
	7	1.1V.	1V.	1V.	200Ω
	8	6.2V.	6V.	6.1V.	.3Ω
7 B 8 CONVERTER	1	0	0	0	0
	2	78V.	77V.	72V.	OVER 5 MEG.
	3	78V.	77V.	72V.	OVER 5 MEG.
	4	-12V.	-8.3V.	-3.3V.	125 K
	5	47V.	46 V	48V.	OVER 5 MEG.
	6	-1.05 V.	.16V.	-.01V.	2.8 MEG.
	7	1.15V.	1V.	1V.	200Ω
	8	6.2V.	6V.	6V.	.3Ω
7 A 7 IF	1	0	0	0	0
	2	78V.	76V.	71V.	OVER 5 MEG.
	3	48V.	46V.	43V.	OVER 5 MEG.
	4	0	0	0	0
	5	0	0	0	0
	6	0	0	0	30Ω
	7	1.15V.	1V.	1V.	210Ω
	8	6.2V	6V.	6V.	.3Ω
7 B 6 DET. & 1st AUDIC	1	0	0	0	0
	2	57V.	54V.	23V.	OVER 5 MEG.
	3	-.95V.	-.36V.	-.1V.	OVER 5 MEG.
	4	0	0	0	.2Ω
	5	-1V.	-.28V.	-.03V.	2.7 MEG.
	6	-1.2V.	-.42V.	-.05V.	380 K.
	7	0	0	0	0
	8	6.2V.	6V.	6V.	.3Ω

7A5 AUDIO OUTPUT	1	0	0	0	0
	2	124V.	124V.	120V.	OVER 30 MEG.
	3	95V.	97V.	90V.	OVER 30 MEG.
	4	--	—	—	—
	5	—	--	—	--
	6	.05V.	0	0	650 K
	7	6.3V.	6V.	6V.	210Ω
	8	6.2V.	6V.	6V.	.3Ω
7Y4 RECTIFIER	1	6.2V.	6V.	6.1V.	.3Ω
	2	—	—	—	—
	3	A C	A C	A C	240Ω
	4	—	—	—	—
	5	—	—	—	—
	6	A C	A C	A C	260Ω
	7	130V.	120V.	120V.	OVER 5 MEG.
	8	0	0	0	0
VIBRATOR 2 3 / 1 4 Bottom View	1	0	0	0	0
	2	6V.	5.7V.	6V.	.6Ω
	3	6V.	5.7V.	6V.	.6Ω
	4	6.2V.	5.9V.	6.2V.	.4Ω

VOLTAGE MEASURED WHEN "A" VOLTAGE = 6.4V., THE CONDENSER FULLY MESHED AND VOLUME CONTROL AT MINIMUM.

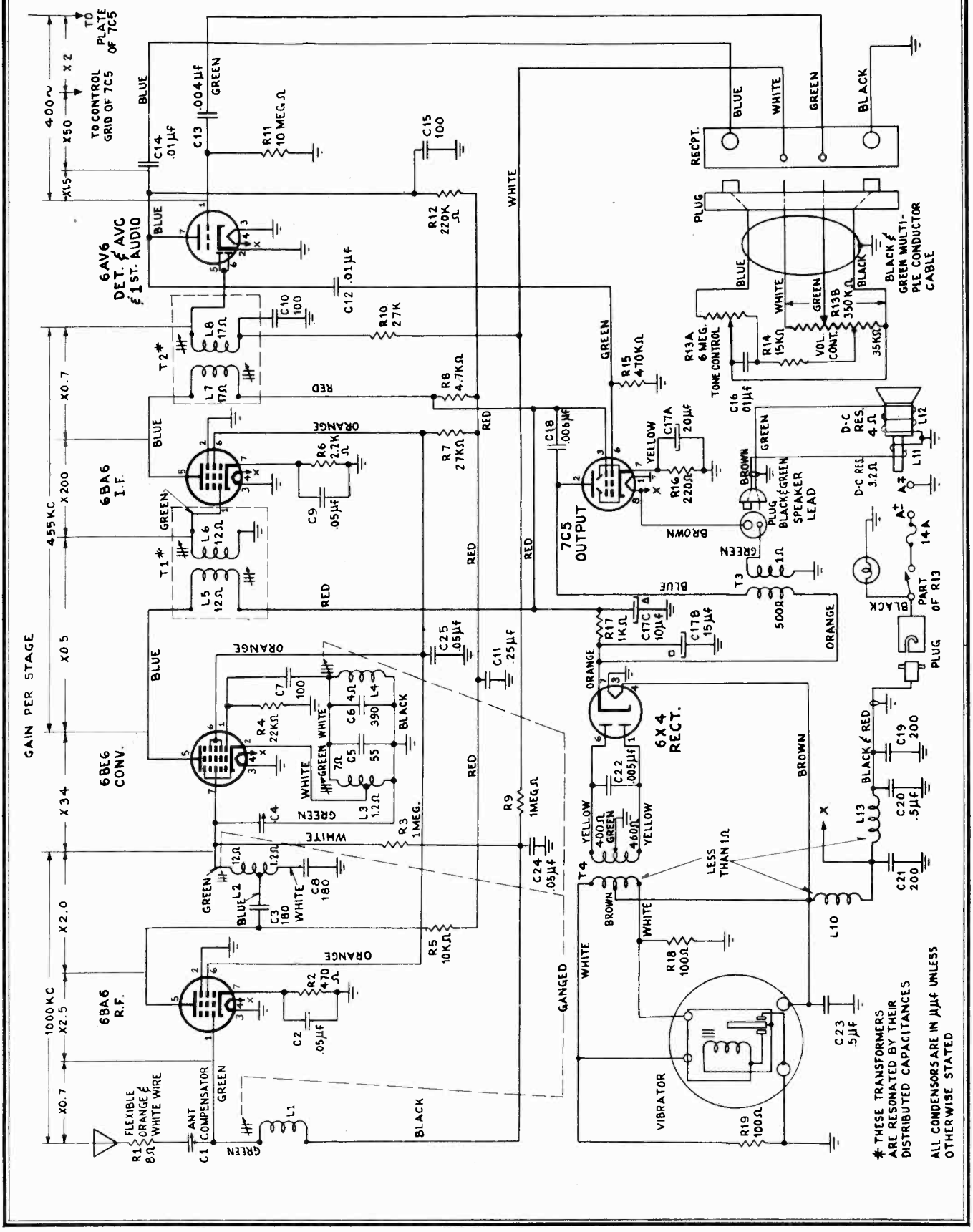
MODEL CR-4

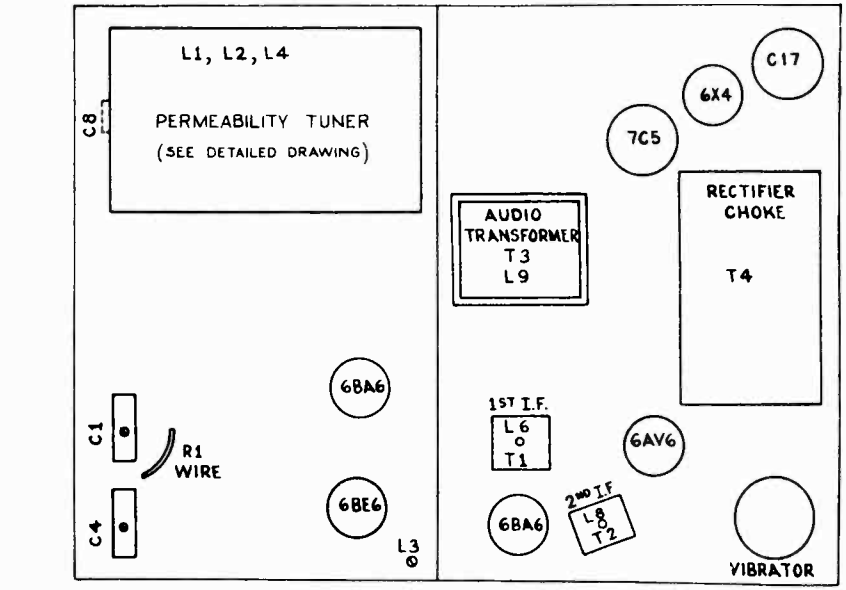
PHILCO CORP.



MODEL CR-6

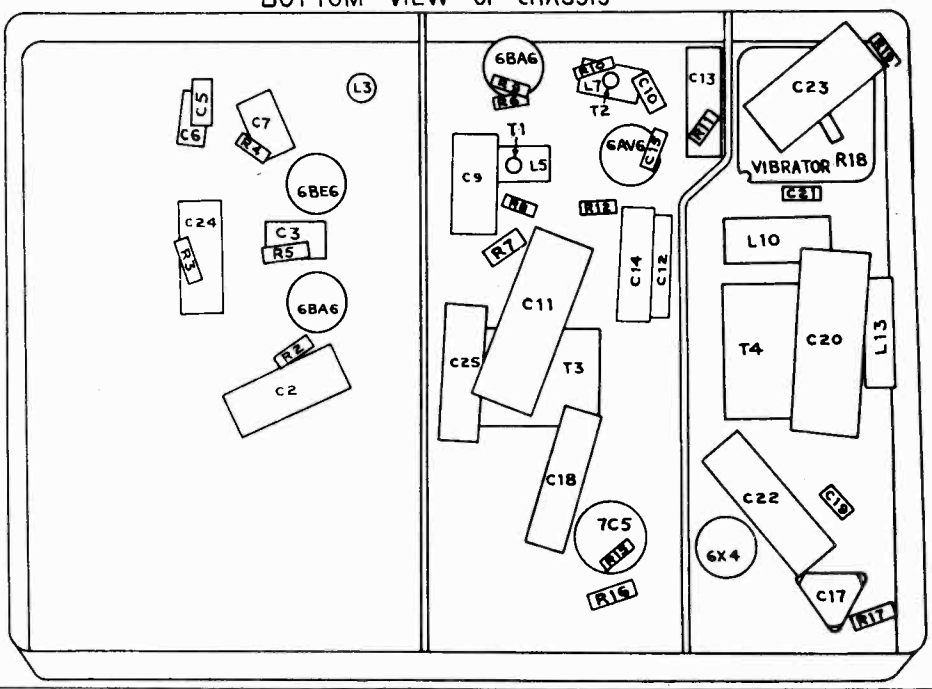
PHILCO CORP.





TOP VIEW OF CHASSIS

BOTTOM VIEW OF CHASSIS



ALIGNMENT PROCEDURE

TO ALIGN SET, CONNECT ALL LEADS AND CABLES FROM THE CONTROL UNIT TO THE CHASSIS HOUSING. CONNECT THE SPEAKER TO THE CHASSIS HOUSING. CONNECT THE OUTPUT METER TO THE VOICE COIL OF THE SPEAKER. SET RECEIVER VOLUME CONTROL TO MAXIMUM. CONNECT THE SIGNAL GENERATOR THROUGH A .01 MF CONDENSER TO THE ANTENNA LEAD OF THE RECEIVER. TUNE RECEIVER TO ITS LOWEST FREQUENCY. (TUNING SLUG INSERTED IN COIL AS FAR AS POSSIBLE.
SET SIGNAL GENERATOR TO 455KC AND SET THE OUTPUT SO THAT A DEFLECTION ON THE OUTPUT METER IS JUST NOTICEABLE. ADJUST SLUGS L8, L7, L6, AND L5 (IN ORDER GIVEN) FOR A MAXIMUM DEFLECTION ON THE METER.

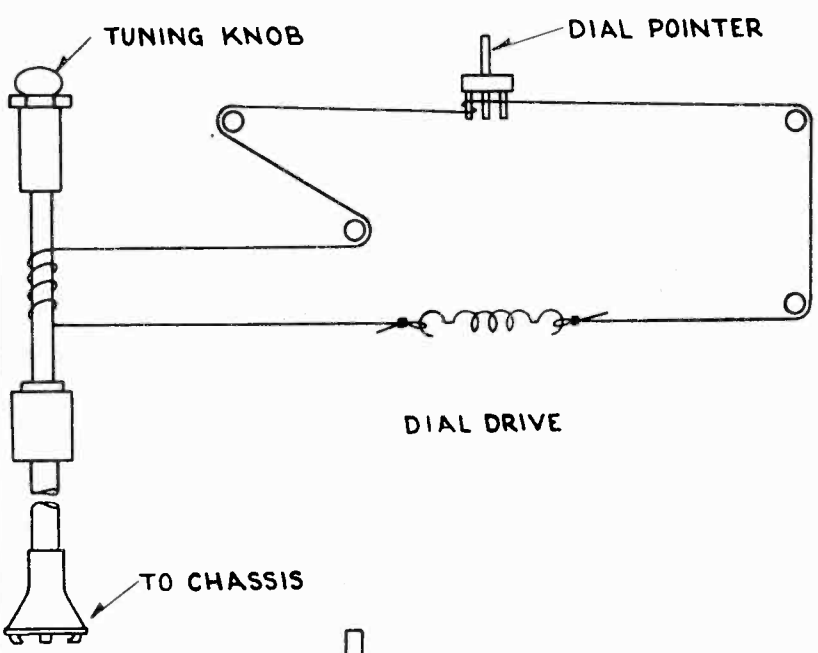
NEXT CONNECT THE SIGNAL GENERATOR THROUGH A 50MMF CONDENSER TO THE ANTENNA LEAD. SET THE SIGNAL GENERATOR AND THE RECEIVER TO 600KC. THE VOLUME OF THE RECEIVER SHOULD BE AT MAXIMUM AND THE OUTPUT OF THE SIGNAL GENERATOR IS GREAT ENOUGH SO THAT A DEFLECTION IS JUST POSSIBLE ON THE OUTPUT METER. ADJUST L3 FOR MAXIMUM DEFLECTION.

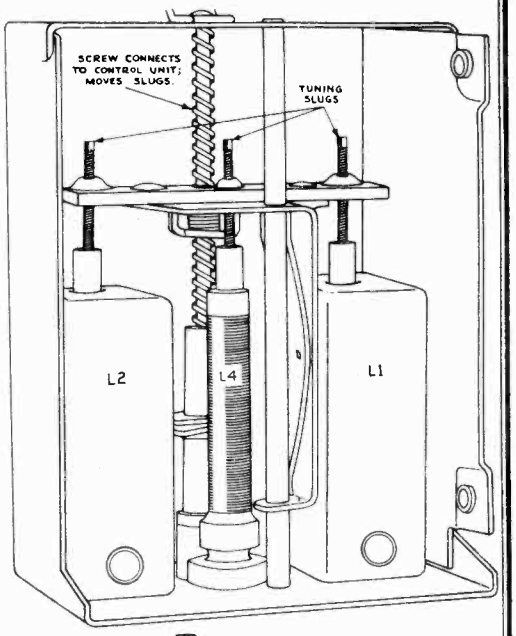
REPEAT THE ABOVE SETUP AT 800KC, AND ADJUST C4 FOR MAXIMUM DEFLECTION.

REPEAT ABOVE SETUP AT 1400KC AND ADJUST C1 FOR MAXIMUM DEFLECTION.

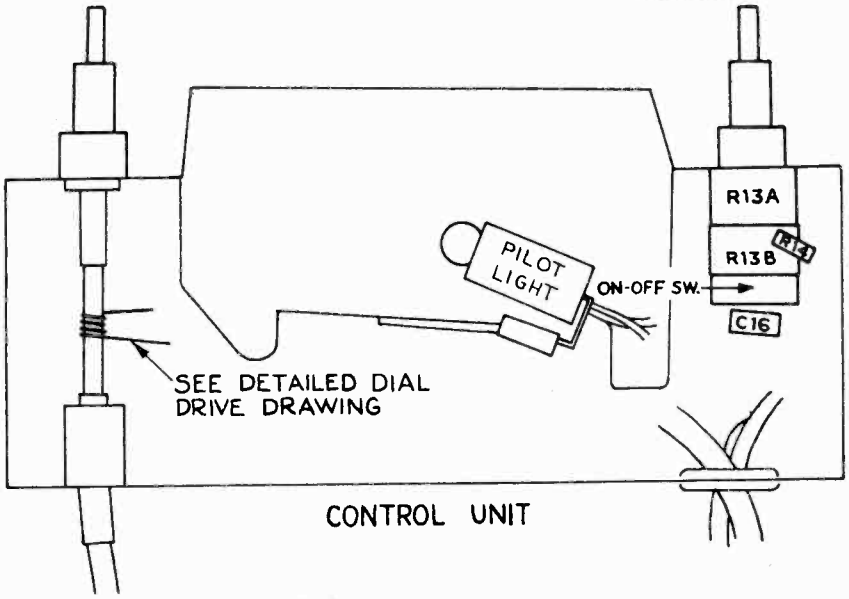
MODELS CR-4, CR-6

PHILCO CORP.





PERMEABILITY TUNER



CONTROL UNIT

TUBE	PIN NO.	VTVM	20,000 Ω/V	1,000 Ω/V	RESISTANCE
6 B A 6 RF	1	-0.65V	-2 V	0 V.	1.2 MEG.
	2	0V	0 V	0 V.	0
	3	0V	0 V	0 V.	0
	4	5.5V	5.3V.	5.4V.	0.5 Ω
	5	166V	160V.	160V.	OVER 5 MEG.
	6	60V	58V	52V.	OVER 5 MEG.
	7	1.44 V	1.3 V.	1.3 V.	500 Ω
6 B E 6 CONV	1	-3.5V	-2.5V	-1.2V.	24 K
	2	0V.	0V.	0V.	1.4 Ω
	3	0V	0V.	0V.	0
	4	5.5V	5.5V	5.4V	0.5 Ω
	5	220V	220V.	200V.	OVER 5 MEG.
	6	60V	59V.	51V.	OVER 5 MEG.
	7	-0.6V	-0.1V.	0V.	2.2 MEG.
6 B A 6 IF	1	0V	0V	0V	17.5 Ω
	2	0V	0V	0V	0
	3	0V	0V	0V	0
	4	5.5V	5.4V	5.4V	0.4 Ω
	5	220V	210V	210V	OVER 5 MEG.
	6	60V	58V	52V	OVER 5 MEG.
	7	3.3V	3.0V	2.8V	2K
6 A V 6 DET & 1ST AUDIO	1	-0.7V	-0.4V.	-0.1V	10 MEG
	2	0V	0V.	0V.	0
	3	0V	0V	0V.	0
	4	5.5V	5.3V.	5.4V.	0.4 Ω
	5	-0.75V	-0.5V.	-0.2V.	280 Δ
	6	-0.75V	-0.5V.	-0.2V.	300 Δ
	7	105V	100V	54V	OVER 5 MEG.

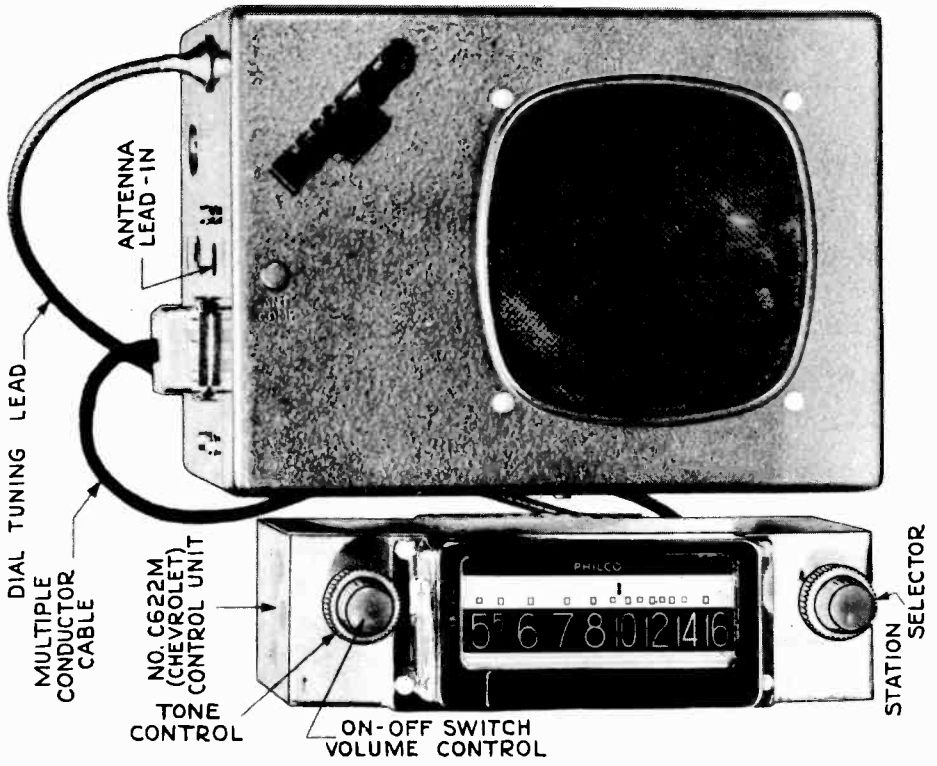
7 C 5 AUDIO OUTPUT	1	0	0	0	0
	2	220V	210V.	200V.	OVER 5 MEG.
	3	220V	210V.	200V.	OVER 5 MEG.
	4	235V	230V	220V	OVER 5 MEG.
	5	—	—	—	—
	6	0.05V	0V.	0V	400 K
	7	7.7V	8V.	8V	210 Ω
	8	5.5V	5.3	5.5V	0.4 Ω
6 X 4 RECTIFIER	1	A.C.	A.C.	A.C.	460 Ω
	2	0V	0V.	0V.	0
	3	0V	0V.	0V.	0
	4	5.4V	5.2V.	5.3V.	0.5 Ω
	5	—	—	—	—
	6	A.C.	A.C.	A.C.	420 Ω
	7	237V	220V.	220V.	OVER 5 MEG.
VIBRATOR 2 3 / 1 4	1	0V	0V.	0V.	0
	2	5.3V	5.0V	5.2V	.8 Ω
	3	5.3V	5.0V	5.2V	.8 Ω
	4	5.4V	5.2V	5.3V	.6 Ω

VOLTAGE MEASURED WITH "A" VOLTAGE = 6.0 V, TUNING SLUG AT LOWEST FREQUENCY, VOLUME CONTROL AT MINIMUM, TONE CONTROL FULLY CLOCKWISE.

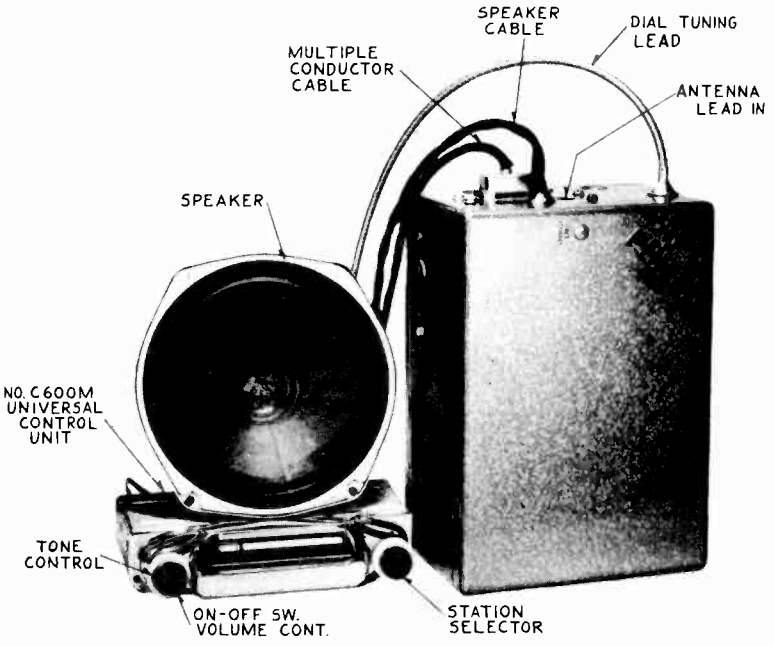
MODELS CR-4, CR-6

PHILCO CORP.

CR-4

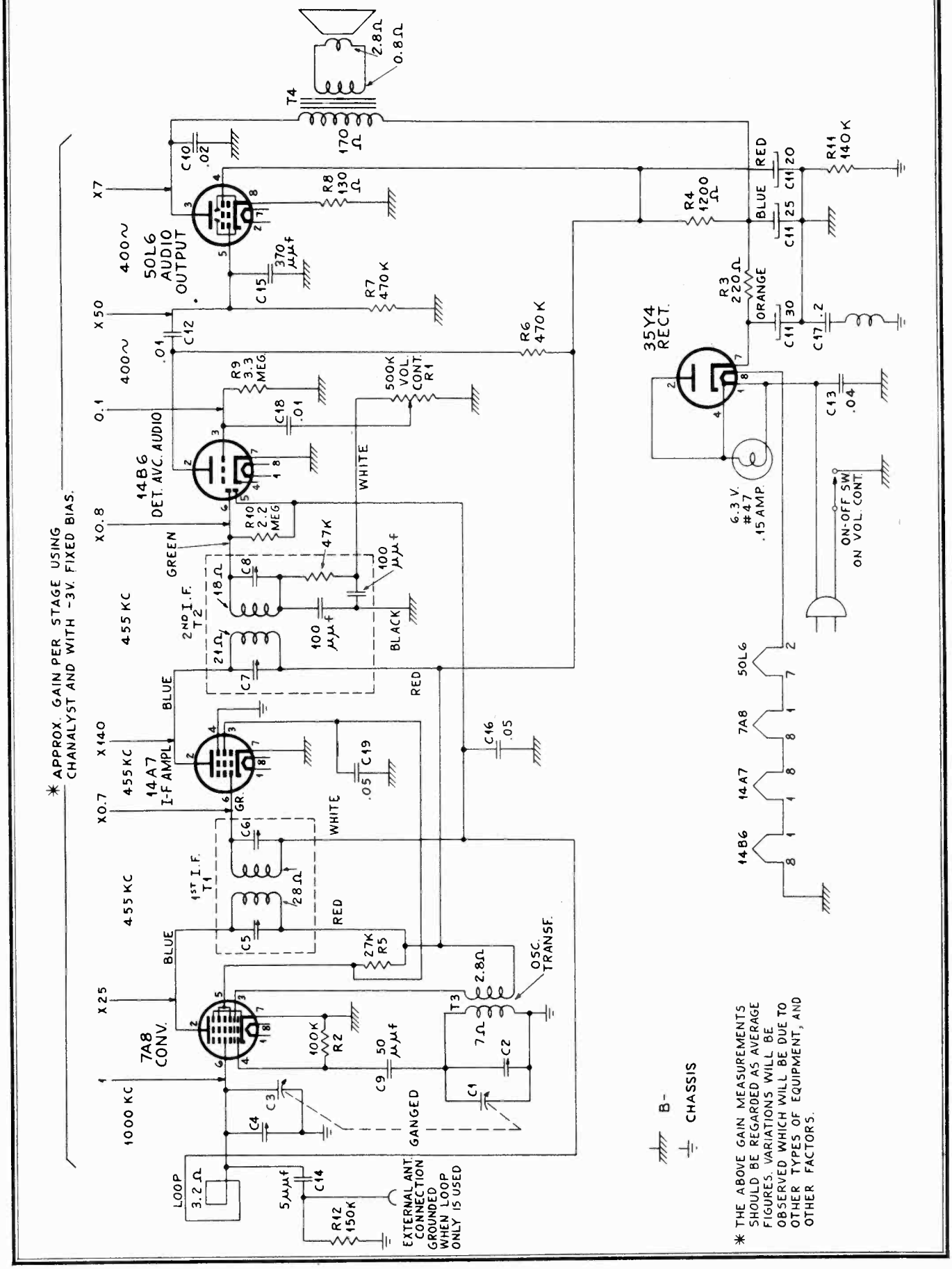


CR-6



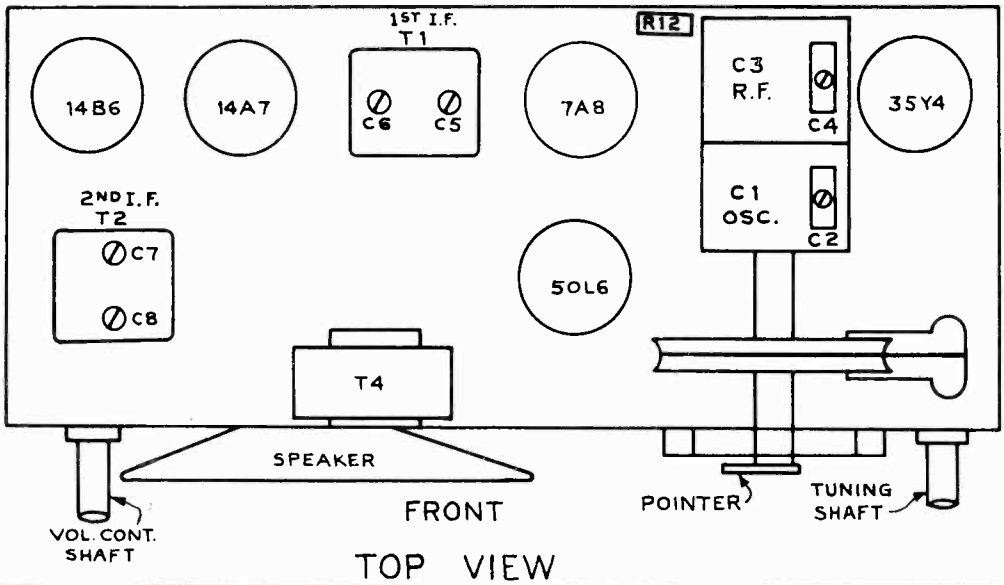
MODEL 46-200

PHILCO CORP.

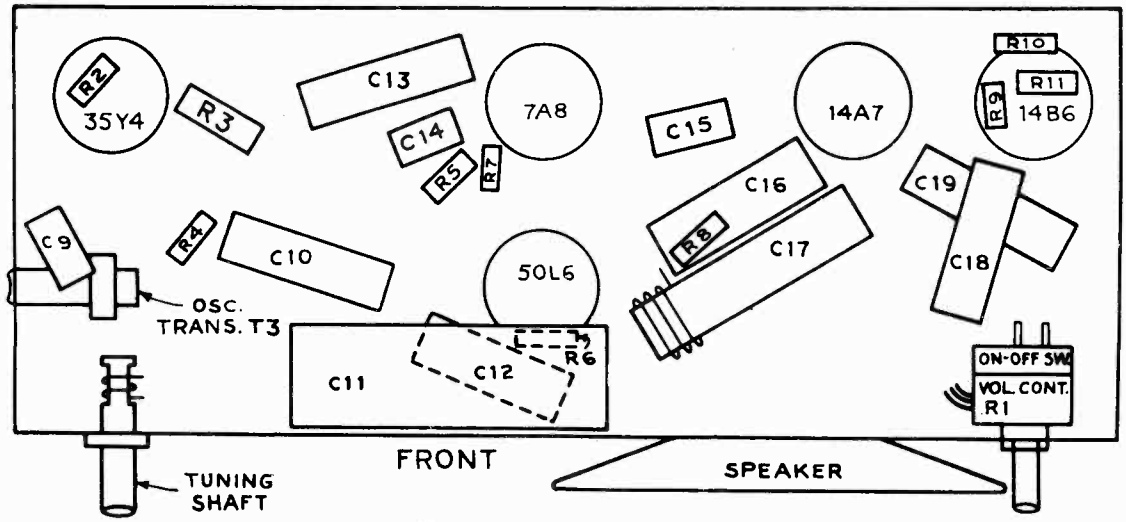


MODEL 46-200

PHILCO CORP.



TOP VIEW



BOTTOM VIEW

ALIGNMENT

Remove the chassis from the cabinet and connect the output meter to the left terminal (High) and the center terminal (Low) of the three lug terminal strip on the rear of the chassis.

Connect the Signal generator to the standard Hazeltine loop, Model 1150 and couple it loosely to the receiver loop.

Set the Volume at maximum, and fully mark the tuning condenser.

The output of the signal generator should be just sufficient to give a readable deflection on the output meter.

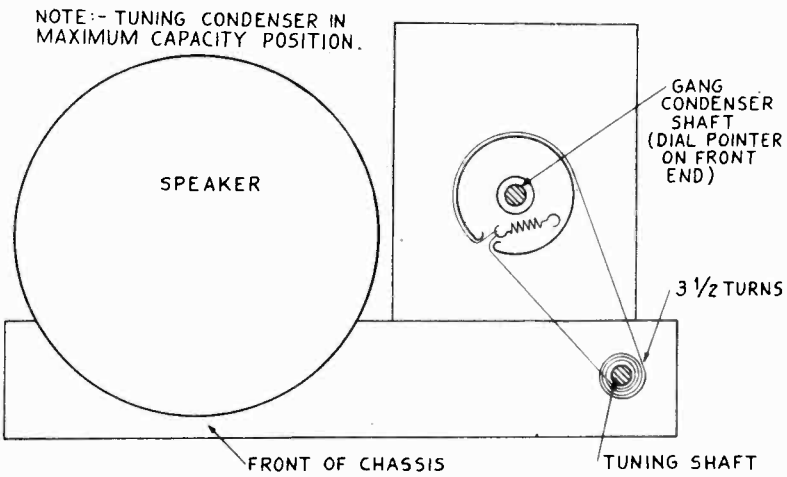
Set the signal generator to 455 KC and adjust the IF trimmers for maximum output in the following order: C8, C7, C6, C5.

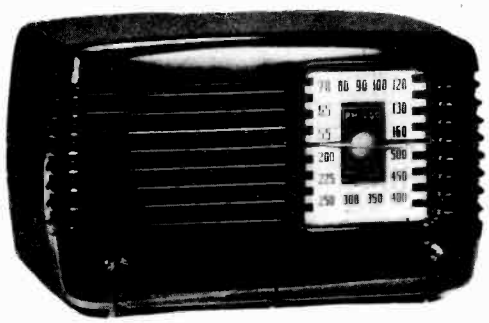
Set the signal generator and receiver to 1600 KC and adjust the oscillator trimmer C2 for maximum output.

Set the signal generator and receiver to 1400 KC and adjust the RF trimmer C4 for maximum output.

MODEL 46-200

PHILCO CORP.





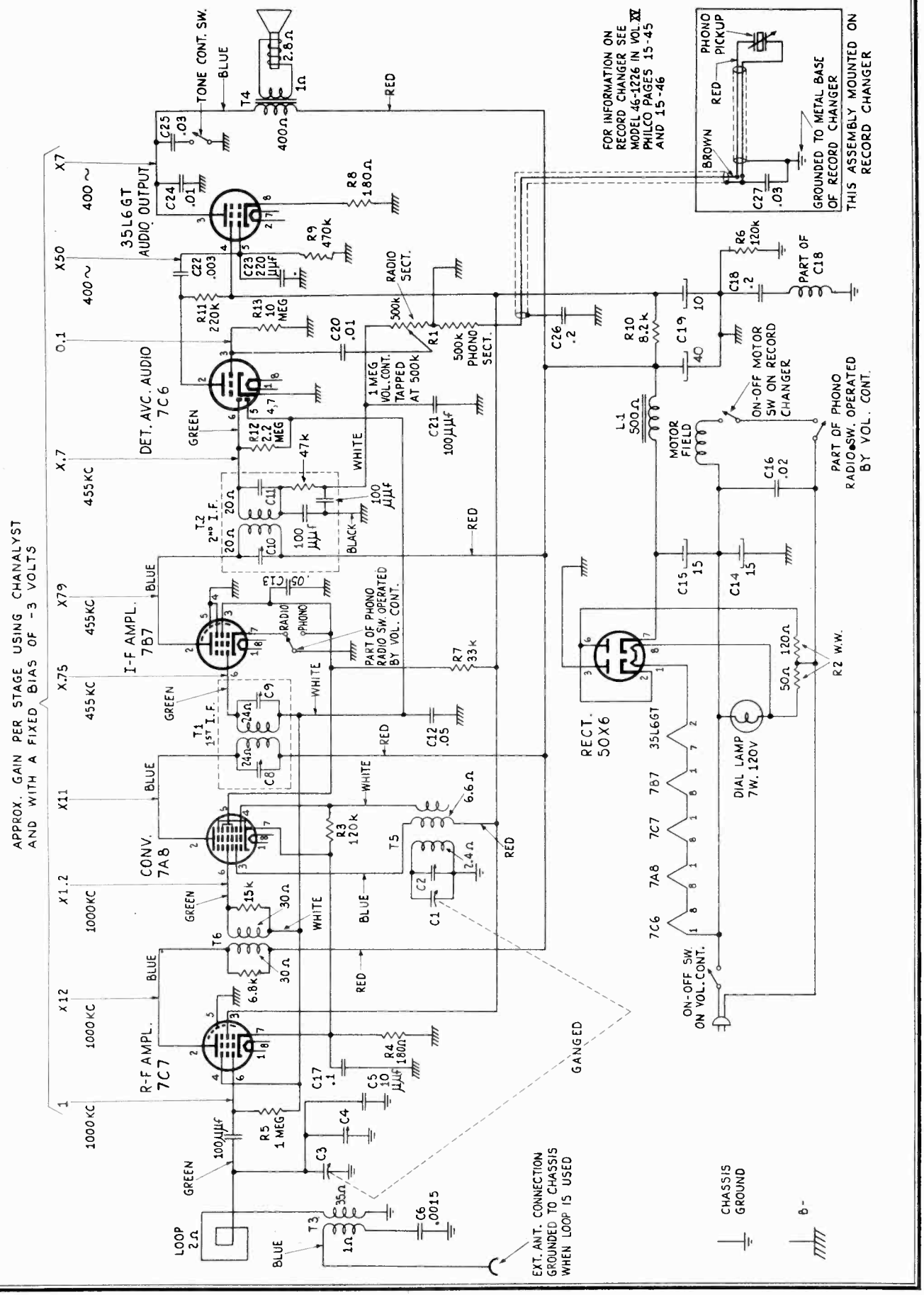
SOCKET	PIN	VTVM	20,000 Ω / P.V.	1,000 Ω / P.V.	RESISTANCE
7A8	1	AC	AC	AC	30 Ω
CONV.	2	100	100	100	OVER 2 MEGS.
	3	100	100	100	OVER 2 MEGS.
	4	-12	-8.6	-4.2	900 K
	5	44	44	38	OVER 2 MEGS.
	6	-1	-0.8	-0.4	2.8 MEGS.
	7	0	0	0	0
	8	AC	AC	AC	24 Ω
14A7	1	AC	AC	AC	12 Ω
I-F AMPL.	2	100	100	100	OVER 2 MEGS.
	3	43	43	38	OVER 2 MEGS.
	4	0	0	0	0
	5	0	0	0	0
	6	-1	-0.8	-0.4	2.8 MEGS.
	7	0	0	0	0
	8	AC	AC	AC	24 Ω
14B6	1	AC	AC	AC	12 Ω
DET.	2	56	54	16	OVER 2 MEGS.
A.V.C.	3	-1	-0.6	-0.4	3 MEGS.
AUDIO	4	0	0	0	0
	5	-1	-0.8	-0.4	2.8 MEGS.
	6	-1	-0.6	-0.3	5.2 MEGS.
	7	0	0	0	0
	8	0	0	0	0
50L6GT	1	56	54	16	OVER 2 MEGS.
AUDIO	2	AC	AC	AC	75
OUTPUT	3	105	105	105	OVER 2 MEGS.
	4	100	100	100	OVER 2 MEGS.
	5	0	0	0	400 K
	6	-1	-0.8	-0.4	2.8 MEGS.
	7	AC	AC	AC	32 Ω
	8	6	6	6	130 Ω
35Y4	1	AC	AC	AC	105 Ω
	2	AC	AC	AC	105 Ω
	3	-12	-8.6	-4.2	90 K
	4	AC	AC	AC	105
	5	100	100	100	OVER 2 MEGS.
	6	0	0	0	0
	7	125	125	125	OVER 2 MEGS.
	8	AC	AC	AC	75 Ω

All voltage and resistance measurements made with respect to B-.
And with a line voltage of 116 V.A.C.

There is a resistance of 140 K. between B- and chassis ground.

MODEL 46-1203

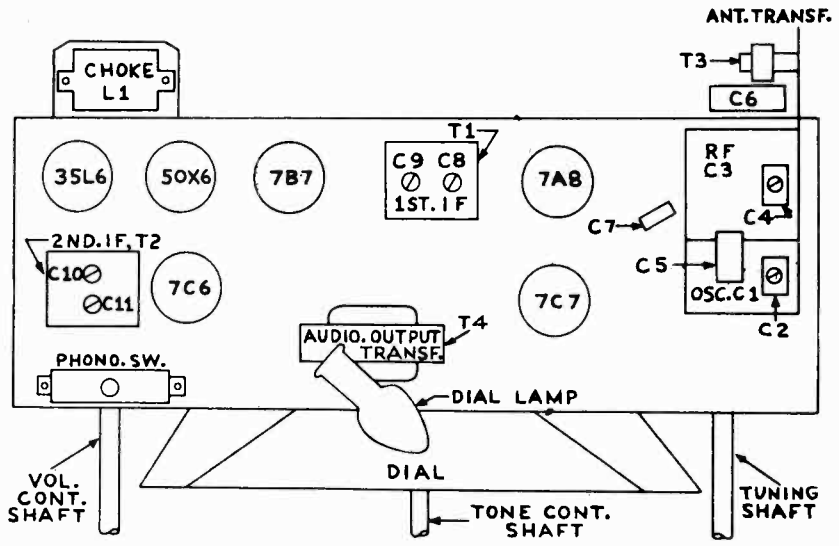
PHILCO CORP.



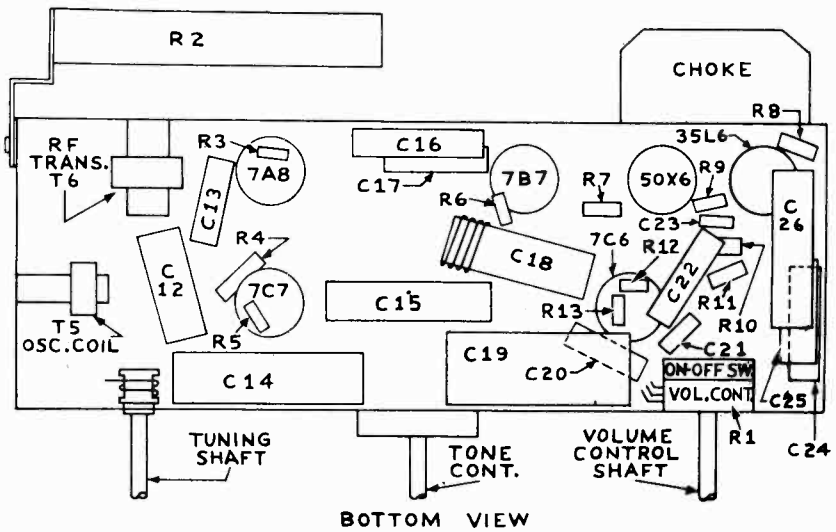
RECORD CHANGER: Philco 46-1226, Philco P.15-45

PHILCO CORP.

MODEL 46-1203



TOP VIEW



BOTTOM VIEW

ALIGNMENT

This receiver may be aligned with the chassis in the cabinet.

Connect the output meter to the center terminal (Low) and the right terminal (High) of the three lug terminal strip mounted on the rear of the chassis.

Connect the signal generator to the standard Hazeltine loop Model 1150 and couple it loosely to the receiver loop. Set the volume control at maximum, and fully mesh the tuning condenser.

The output of the signal generator should be just sufficient to give a readable deflection on the output meter.

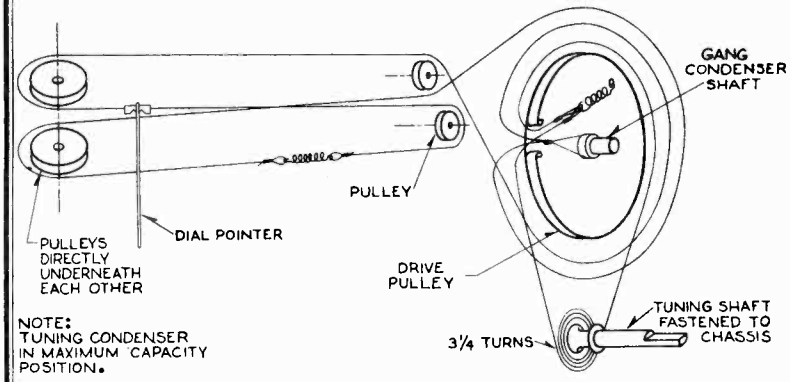
Set the signal generator to 455 KC and adjust the IF trimmers for maximum output in the following order: C11,C10,C9,C8.

Set the signal generator and receiver to 1600 KC and adjust the oscillator trimmer C2 for maximum output.

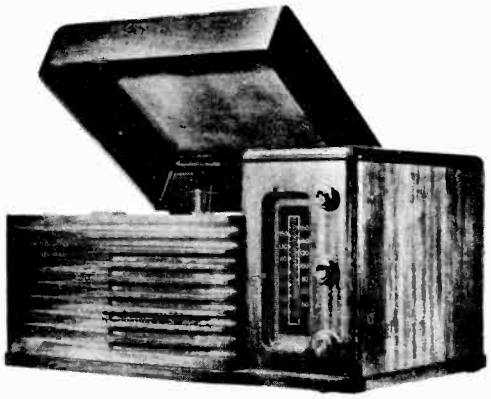
Set the signal generator and receiver to 1400 KC and adjust the RF trimmer C4 for maximum output.

MODEL 46-1203

PHILCO CORP.



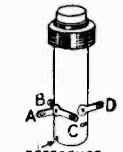
NOTE:
TUNING CONDENSER IN MAXIMUM CAPACITY POSITION.



SOCKET	PIN NO.	VTVM	20,000 Ω / P.V.	1,000 Ω / P.V.	RESISTANCE
7C7	1	100 V	100 V	100 V	OVER 5 MEG
RF	2	170 V	165 V	165 V	OVER 5 MEG
	3	115 V	108 V	108 V	OVER 5 MEG
	4	-4.5 V	-2.2 V	-2 V	2.8 MEG
	5	0 V	0 V	0 V	0
	6	-1.3 V	-0.3 V	0 V	3.8 MEG
	7	1.3 V	0.8 V	.8 V	190 Ω
	8	100 V	100 V	100 V	OVER 5 MEG
7A8	1	100 V	100 V	100 V	OVER 5 MEG
CONVERTER	2	167 V	160 V	160 V	OVER 5 MEG
	3	113 V	110 V	110 V	OVER 5 MEG
	4	-12.5 V	-4.4 V	-2 V	130 K
	5	65 V	65 V	56 V	OVER 5 MEG
	6	-4.5 V	-2 V	-0.2 V	2.8 MEG
	7	1.3 V	0.8 V	0.9 V	190 Ω
	8	100 V	100 V	100 V	OVER 5 MEG
7B7	1	100 V	100 V	100 V	OVER 5 MEG
IF	2	170 V	160 V	160 V	4.4 MEG
	3	65 V	65 V	57 V	4.6 MEG
	4	0 V	0 V	0 V	0
	5	0 V	0 V	0 V	0
	6	-1.5 V	-0.4 V	-0.2 V	2.8 MEG
	7	0	0	0	0
	8	100 V	100 V	100 V	OVER 5 MEG
7C6	1	100 V	100 V	100 V	OVER 5 MEG
AVC	2	78	74	35	OVER 5 MEG
DETECTOR	3	-0.8 V	-0.5 V	-0.2 V	10 MEGS.
	4	0 V	0 V	0 V	0
	5	-4.4 V	-1.2 V	-0.2 V	2.8 MEG
	6	-4.3 V	-1.5 V	-0.8 V	600 K
	7	0 V	0 V	0 V	0
	8	100 V	100 V	100 V	OVER 5 MEG
35L6GT/G	1	0 V	0 V	0 V	0
	2	100 V	100 V	100 V	OVER 5 MEG
	3	155 V	150 V	150 V	OVER 5 MEG
	4	118 V	115 V	115 V	OVER 5 MEG
	5	0 V	0 V	0 V	500 K
	6	173 V	165 V	165 V	OVER 5 MEG
	7	100 V	100 V	100 V	OVER 5 MEG
	8	7.9 V	7.6 V	7.8 V	190 Ω
50X6	1	100 V	100 V	100 V	OVER 5 MEG
RECTIFIER	2	100 V	100 V	100 V	OVER 5 MEG
	3	0 V	0 V	0 V	0
	4	173 V	170 V	170 V	OVER 5 MEG
	5	120 V	115 V	110 V	OVER 5 MEG
	6	100 V	100 V	100 V	OVER 5 MEG
	7	200 V	200 V	200 V	OVER 5 MEG
	8	100 V	100 V	100 V	OVER 5 MEG

With respect to B-: Line Voltage 116 V

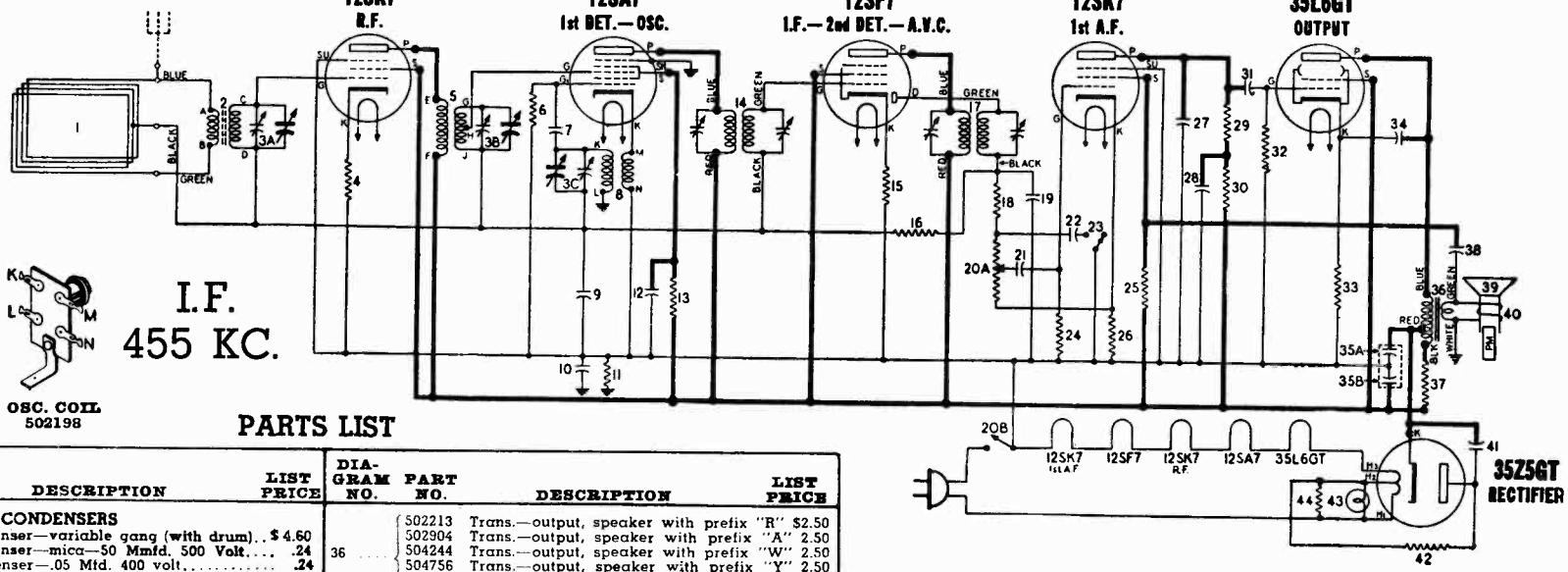
On-Off switch in off position Volume control at minimum
Radio-Phono switch on radio Tone control in left (counterclockwise position)



ANT. COUPLING COIL 502121

R. F. COIL 502142

OSC. COIL 502198



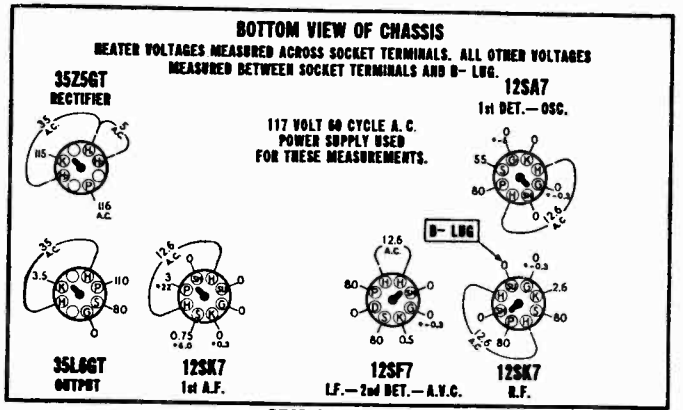
PARTS LIST

DIAGRAM NO.	PART NO.	DESCRIPTION	LIST PRICE
		CONDENSERS	
3A-3B-3C	502123	Condenser—variable gang (with drum)	$ 4.60
7	502159	Condenser—mica—50 Mmfd. 500 Volt	.24
9	502157	Condenser—.05 Mfd. 400 volt	.24
10	502158	Condenser—.2 Mfd. 400 volt	.36
12	502262	Condenser—.25 Mfd. 200 Volt	.36
19	502160	Condenser—mica—110 Mmfd. 500 Volt	.24
21	502453	Condenser—.002 Mfd. 400 Volt	.20
22	502470	Condenser—.0008 Mfd. 400 Volt	.20
27	502160	Condenser—Mica—110 Mmfd. 500 Volt	.24
28	502153	Condenser—.05 Mfd. 200 Volt	.24
31	502156	Condenser—.004 Mfd. 400 Volt	.20
34	502151	Condenser—.01 Mfd. 400 Volt	.20
35A-35B	500256	Condenser — electrolytic A-40 Mfd. 150 Volt B-20 Mfd. 150 Volt	1.50
38	502152	Condenser—.02 Mfd. 400 Volt	.24
41	502157	Condenser—.05 Mfd. 400 Volt	.24
		RESISTORS	
4	502125	Resistor—carbon 220 Ohms 1/4 watt	.12
6	502130	Resistor—carbon 22,000 Ohms ¼ Watt	.12
11	502133	Resistor—carbon 220,000 Ohms ¼ Watt	.12
13	502291	Resistor—carbon 4700 Ohms. ¼ Watt	.12
15	502264	Resistor—carbon 47 Ohms ¼ Watt	.12
16	502269	Resistor—carbon 3.3 Meg. ¼ Watt	.12
18	502131	Resistor—carbon 47,000 Ohms ¼ Watt	.12
20A-20B	502145	Volume control 500,000 Ohms (with switch)	1.25
24	502136	Resistor—carbon 10 Meg. ¼ Watt	.12
25	502135	Resistor—carbon 2.2 Meg. ¼ Watt	.12
26	502128	Resistor—carbon 2200 Ohms ¼ Watt	.12
29-30	502133	Resistor—carbon 220,000 Ohms ¼ Watt	.12
32	502134	Resistor—carbon 470,000 Ohms ¼ Watt	.12
33	502138	Resistor—carbon 130 Ohms ¼ Watt	.12
37	502469	Resistor—carbon 1500 Ohms 1 Watt	.16
42	502574	Resistor—carbon 33 Ohms ½ Watt	.12
44	502140	Resistor—carbon 390 Ohms ¼ Watt	.12
		COILS & TRANSFORMERS	
1	502504	Loop Antenna	2.90
2	502121	Coil—antenna coupling	1.64
5	502142	Coil—R.F.	2.26
8	502198	Coil—oscillator	1.32
14	502102	Transformer 1st I.F.	2.30
17	502103	Transformer 2nd I.F.	2.30
36	502213	Trans.—output, speaker with prefix "R"	$2.50
	502904	Trans.—output, speaker with prefix "A"	2.50
	504244	Trans.—output, speaker with prefix "W"	2.50
	504756	Trans.—output, speaker with prefix "Y"	2.50
	504758	Trans.—output, speaker with prefix "Z"	2.50
	504781	Trans.—output, speaker with prefix "C"	2.50
		OTHER ELECTRICAL PARTS	
23	500546	Switch-tone control	0.84
39	502214	Cone & voice coil, spkr. with prefix "R"	2.50
	502903	Cone & voice coil, spkr. with prefix "A"	2.50
	504245	Cone & voice coil, spkr. with prefix "W"	2.50
	504757	Cone & voice coil, spkr. with prefix "Y"	2.50
	504759	Cone & voice coil, spkr. with prefix "Z"	2.50
	504782	Cone & voice coil, spkr. with prefix "C"	2.50
40	502998	Speaker—P.M. dynamic (5 inch)	6.60
43	118921	Lamp—dial (Mazda 47) 6-8V. 150 Ma.	.15
		MISCELLANEOUS PARTS	
	502502	Back for cabinet	.30
	116467	Base for mtg. electrolytic condenser	.04
	502476	Cabinet—ivory (Model 3-1AX)	5.00
	502477	Cabinet—mahogany (Model 3-2AX)	4.60
	502506	Clamp—dial scale mtg.	.04
	112745	Clip—coil mtg.	.01
	114955	Clip—retainer on end of dial cord	.01
	500497	Clip—retainer for cabinet back	.02
	116563	Connector—for antenna leads	.01
	117057	Cord—dial drive (55 in. required) per ft.	.05
	500324	Cover—cardboard, for elect. cond.	.04
	502598	Dial scale—glass	1.40
	501186	Grounding plate (under I.F. trans. can)	.10
	502564	Knob—ivory (Model 3-1AX)	.08
	502563	Knob—mahogany (Model 3-2AX)	.08
	502367	Pointer	.16
	81145	Retaining ring for tuning shaft	.01
	119087	Ring for dial cord	.01
	17063	Screw—No. 6 x ¼	.01
	114628	Screw—No. 8 x ½ chassis mtg.	.01
	502173	Shaft—tuning control	.15
	116690	Socket—octal base	.12
	160392	Socket—octal (rectifier)	.16
	500499	Socket—dial lamp (with leads)	.44
	161384	Spring—dial cord tension	.06
	111456	Washer—spring washer for tuning shaft	.005

SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (*).

VOLUME ON FULL WITH NO SIGNAL — DIAL TUNED TO 540 KC.



REAR OF CHASSIS

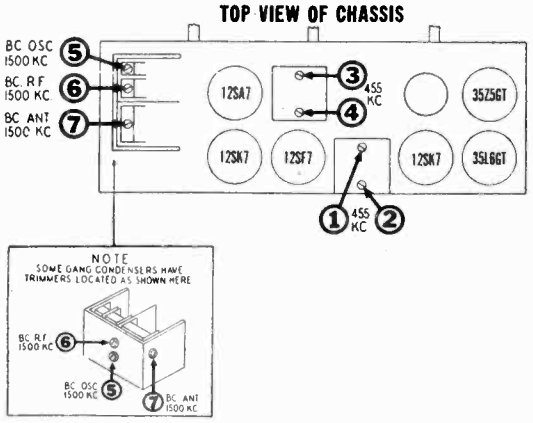
*—Measured with vacuum tube voltmeter

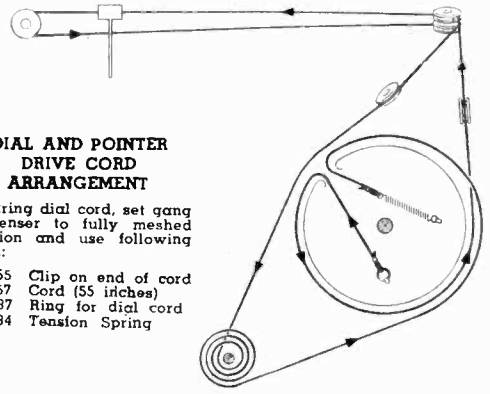
ALIGNMENT PROCEDURE

1. Remove chassis and loop antenna from cabinet. Reconnect loop to chassis and space it approximately same distance from chassis as when installed in cabinet.
2. Note that there are four calibrating lines stamped into the metal dial frame. When gang condenser is fully meshed, dial pointer should be in the position indicated by first line at the left. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.
3. Connect an output meter across the speaker voice coil or from plate of 35L6GT tube to B— through a .1 Mfd. condenser (see voltage chart for convenient B— connection).
4. Connect ground lead from signal generator to B— through a .25 Mfd. condenser.
5. Set volume control at maximum volume position and use a weak signal from the signal generator.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECTION OF SIG. GENERATOR OUTPUT TO RECEIVER	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
200 MMFD. Mica Condenser	Control Grid of 12SA7	455 KC	Any point where it does not affect the signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Set pointer to 1500 KC reference line stamped into metal dial plate (first line at the right)	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Tune to 1500 KC generator signal	6	Broadcast R.F.	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Tune to 1500 KC generator signal	7	Broadcast Antenna	Adjust for maximum output.

TOP VIEW OF CHASSIS





DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

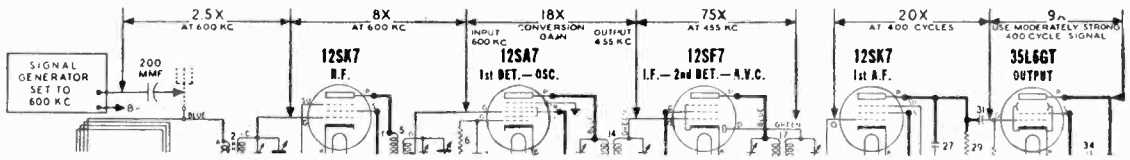
114955 Clip on end of cord
117057 Cord (55 inches)
119087 Ring for dial cord
161384 Tension Spring

APPROXIMATE STAGE GAIN DATA

Be sure R.F. and I.F. stages are accurately aligned before measuring gain. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. A vacuum tube voltmeter may be used for audio gain measurements. Observe following precautions:

1. For all gain measurements connect signal generator as shown. Use 600 KC. signal with 400 cycle modulation (use nearby frequency if local station interferes.)
2. For R.F. and I.F. measurements connect negative terminal of a 3 volt battery (two 1½ volt cells in series) to A.V.C. lead and positive terminal to B—. This provides a definite operating point. IMPORTANT: Disconnect battery when measuring audio stage gains.
3. Be sure radio is carefully tuned to generator signal (use weak signal for sharp tuning.)
4. When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

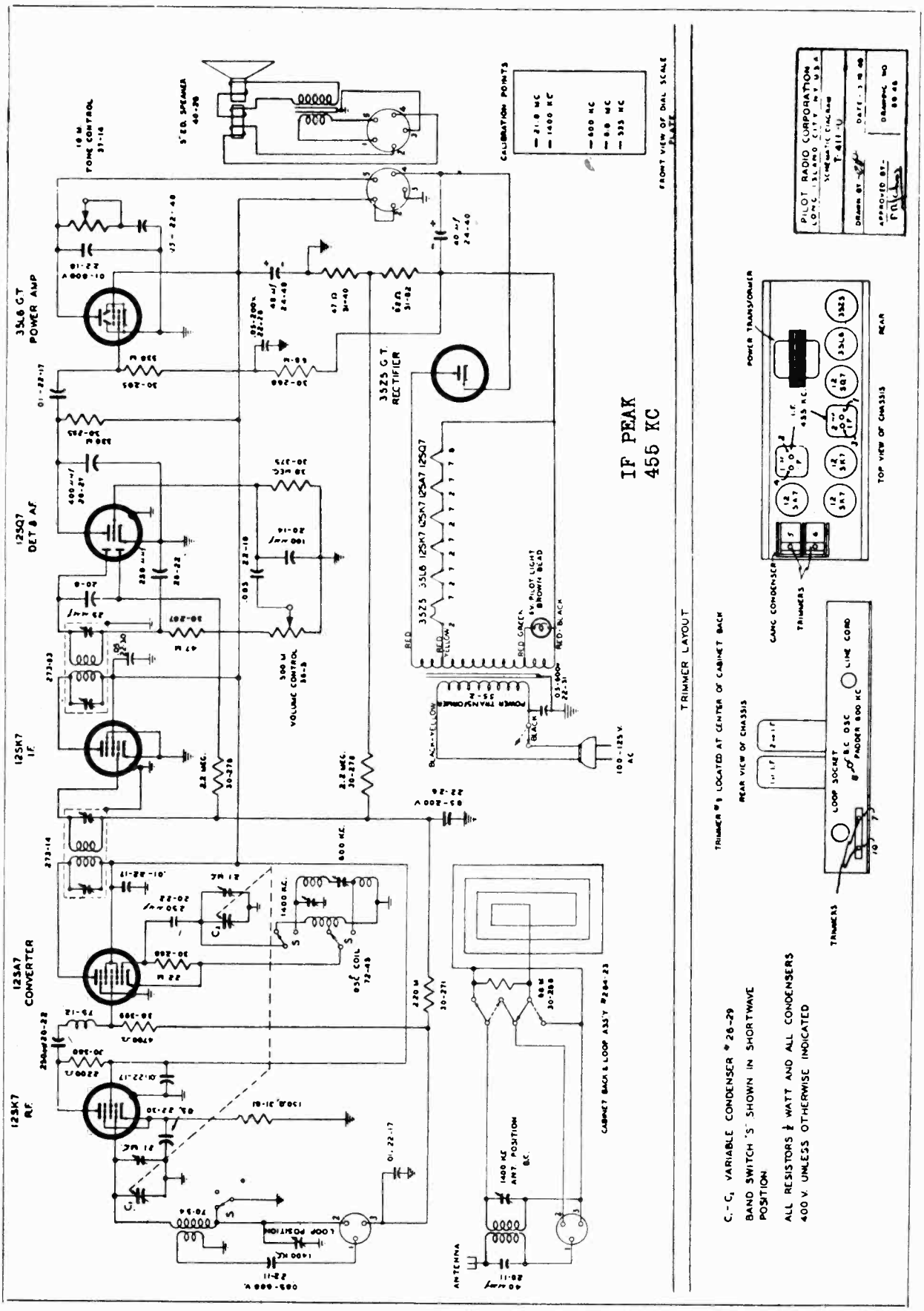
The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.

MODEL T-411-U

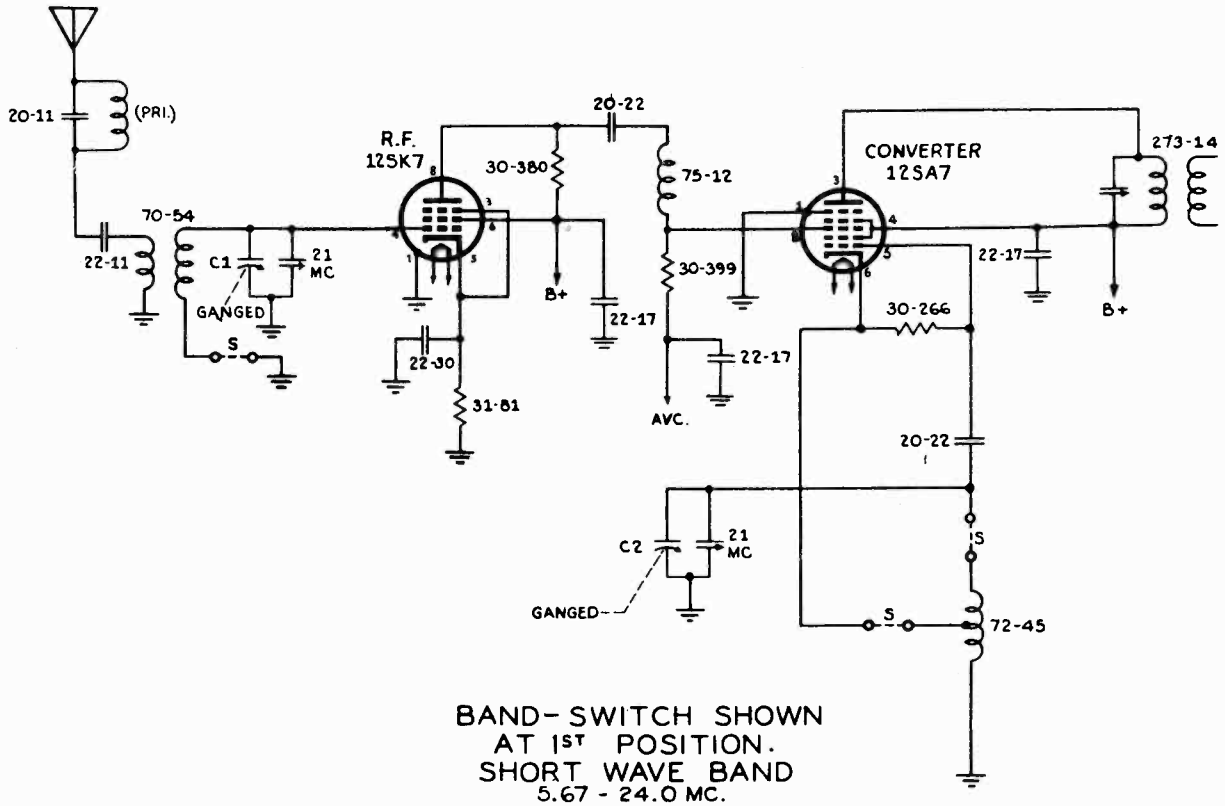
PILOT RADIO CORP.



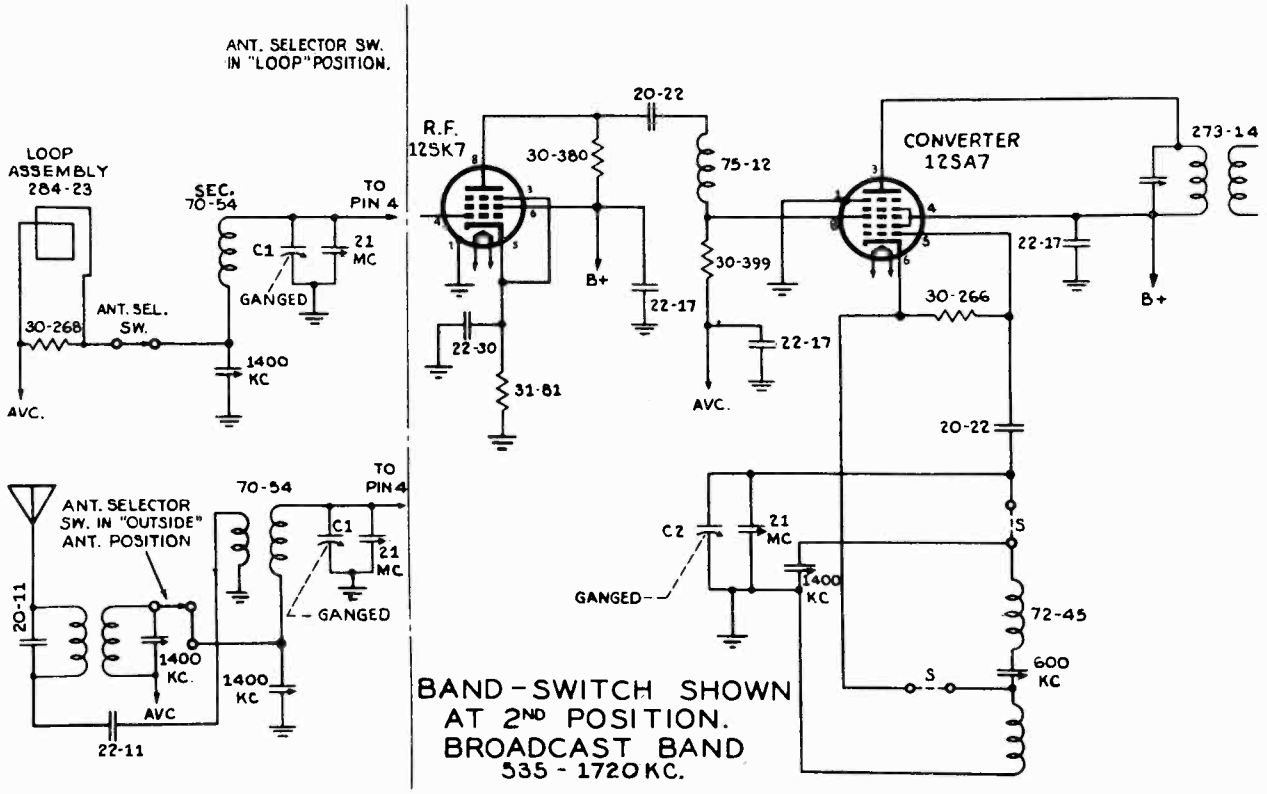
"clarified schematics"

MODEL T-411-U

PILOT RADIO CORP.



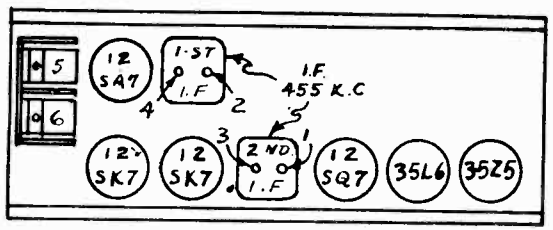
BAND-SWITCH SHOWN
AT 1ST POSITION.
SHORT WAVE BAND
5.67 - 24.0 MC.



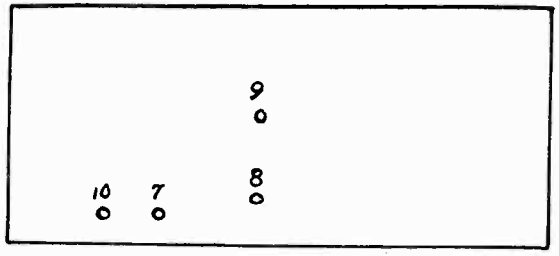
BAND-SWITCH SHOWN
AT 2ND POSITION.
BROADCAST BAND
535 - 1720 KC.

ALIGNMENT CHART

STEP	CIRCUIT ALIGNED	RECEIVER		SIGNAL GENERATOR		DUMMY ANTENNA	ADJUSTMENTS (All maximum output)
		BAND SWITCH	DIAL POINTER	FREQUENCY	CONNECTION		
1	IF	BC	Low end of dial	455 KC	Grid of 12SK7 RF	0.1 mfd.	#1, 2, 3, 4
2	SW	SW	E	21 MC	Antenna Post	400 ohm carbon resistor	First #5 Then #6
3	BC	BC	D	1400 KC	Antenna Post	200 mmfd. mica capacitor	#7
4	BC	BC	C	600 KC	Antenna Post	200 mmfd. mica capacitor	#8
5	Repeat steps 3 and 4						
6	BC	BC	Set for broadcast station near 1400 KC			——	#9 and #10



TOP



BACK

E — 21.0 MC
D — 1400 KC
C — 600 KC
B — 6.0 MC
A — 535 KC

Alignment should be attempted only if a low range A.C. meter, a signal generator, and insulated alignment tools are at your disposal. The A.C. meter is used as an outputmeter. The signal generator must cover a frequency range from 450 kc to 24 mc.

The output of the signal generator must always be kept at its lowest possible value. This is to prevent the automatic volume control of the receiver from interfering with accurate alignment.

During alignment, the line voltage feeding the receiver power supply should be kept at approximately 117 volts.

For all alignments, connect the outputmeter across the voice coil. With the volume control turned fully clockwise, tune for a maximum reading.

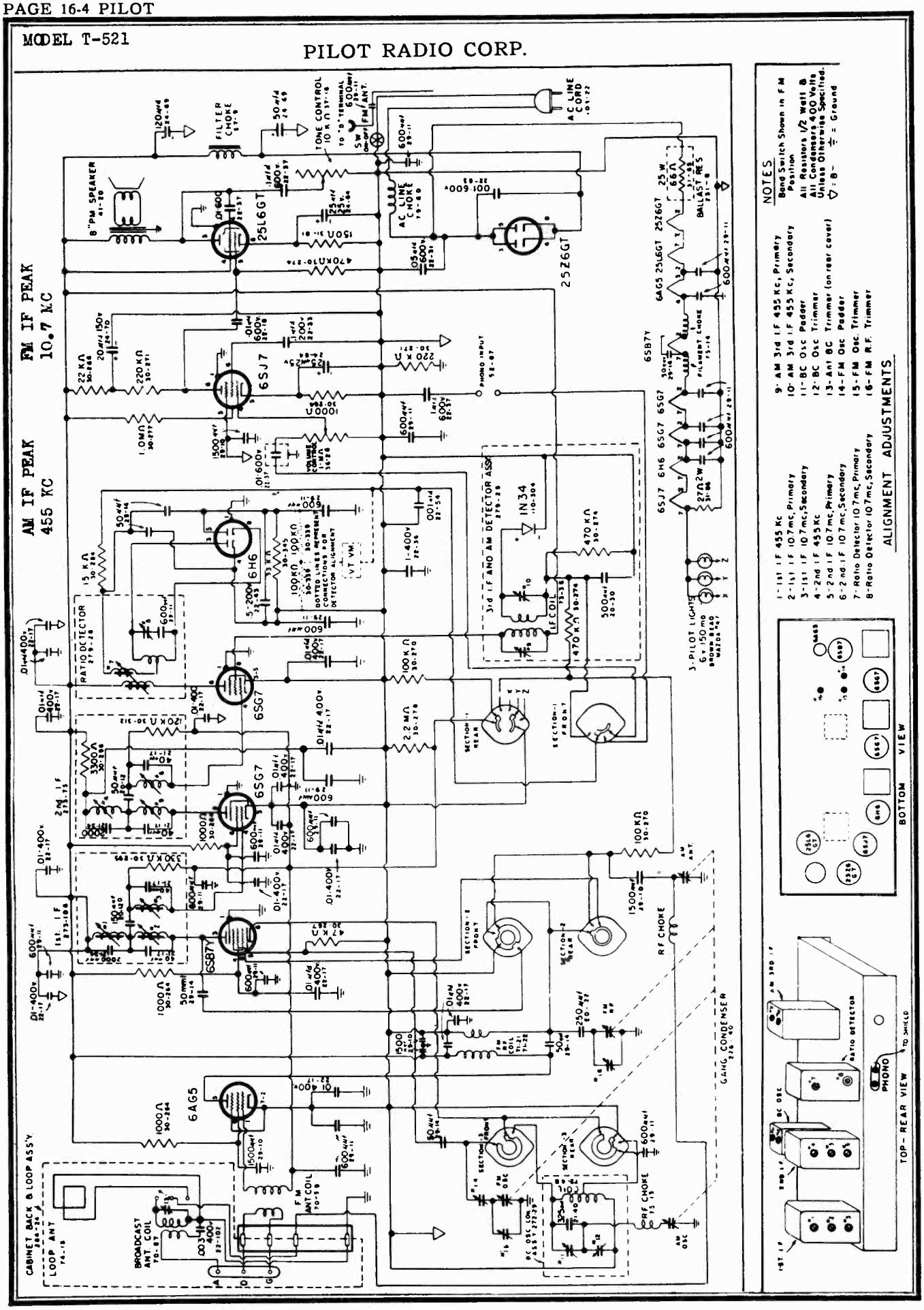
TUNING RANGE

Broadcast Band—535 to 1720 kc or 174 to 561 meters.

Short Wave Band—5.67 to 24.0 mc or 12.5 to 53.6 meters.

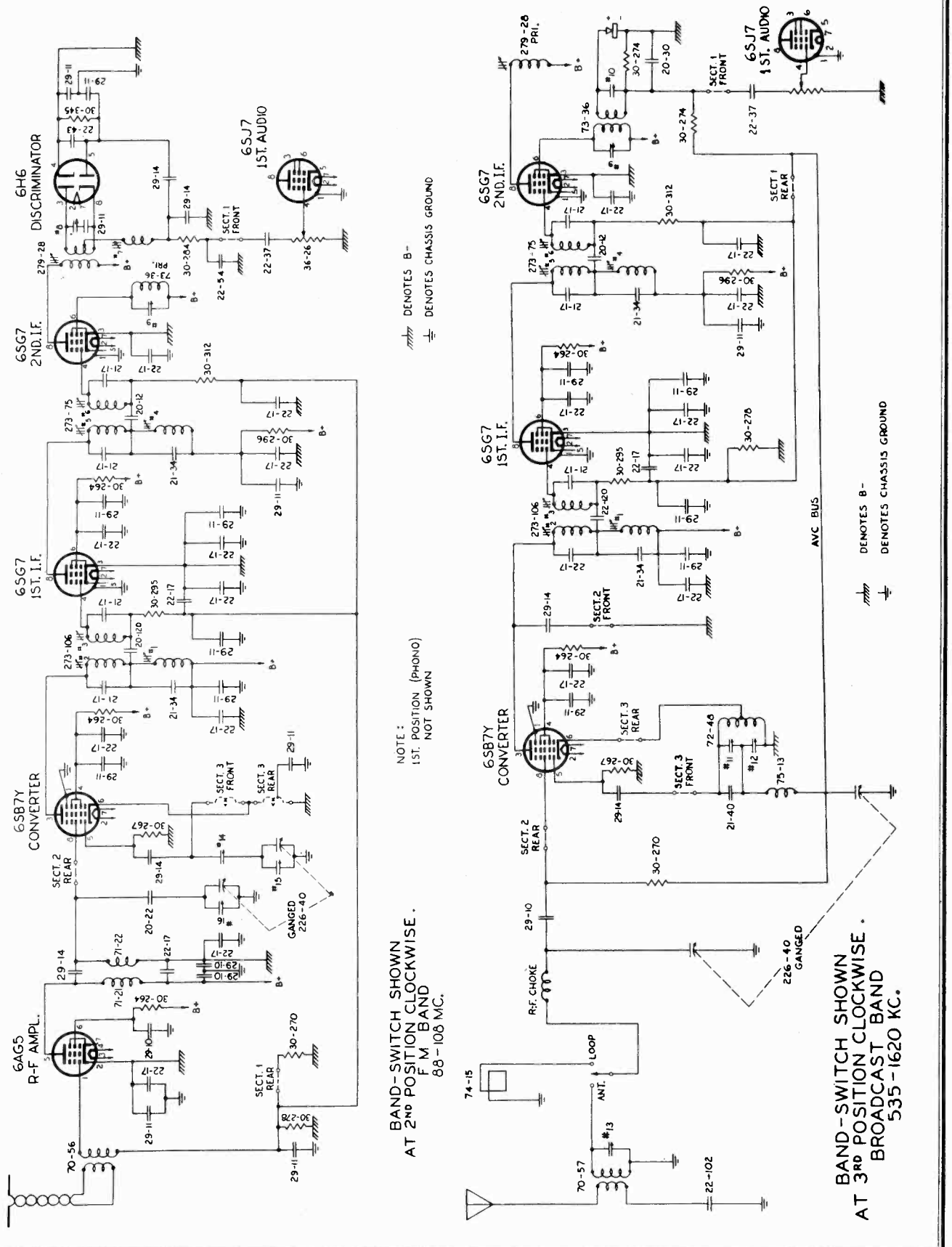
MODEL T-521

PILOT RADIO CORP.



MODEL T-521

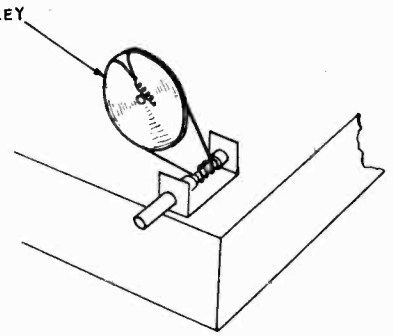
PILOT RADIO CORP.

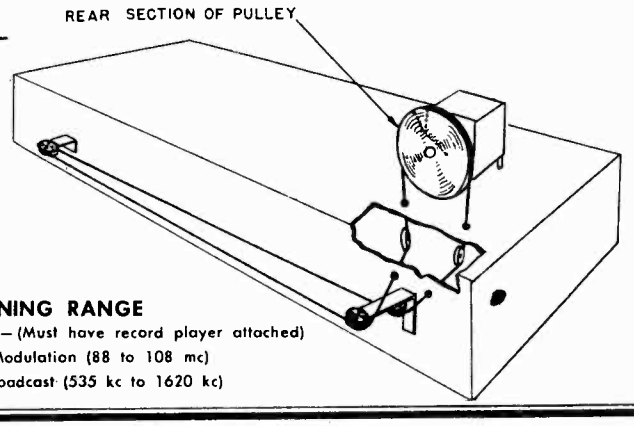


ALIGNMENT CHART

(FOLLOW SEQUENCE AS INDICATED)

CIRCUIT ALIGNED	STEP	RECEIVER		SIGNAL GENERATOR		METER CONNECTIONS		TRIMMER OR SLUG ADJUST	PROCEDURE
		BAND SWITCH	DIAL POINTER	FREQ.	CONNECTIONS	TYPE See List			
AM I.F.	1	BC	55	455 KC	Through .1 MFD cap. to Grid of 6SB7Y	A	Across Voice-Coil of Speaker	1, 4, 9, 10	Adjust for Maximum Output
FM I.F.	2	FM	88	10.7 MC	Through .1 MFD cap. to Grid of 6SB7Y	A	Across Voice-Coil of Speaker	2, 3, 5, 6, 7, 8	Adjust for Maximum Output
Ratio-detector	3	FM	88	10.7 MC	Through .1 MFD cap. to Grid of 6SB7Y	B	*From:* Junction of two 100K resistors connected across 47K load resistor of the ratio detector. *To:* Audio output of ratio detector. (See Circuit Diagram)	8	Adjust meter to zero. (Check proper zero set. Meter should register reverse polarity when trimmer is turned slightly to the right, and then to the left of zero output)
Broadcast R.F.	4	BC	150	1500 KC	Through 200 mmf. cap. to Antenna "A" Post on back.	A	Across Voice-Coil of Speaker	12, 13	Adjust for maximum output
	5	BC	60	600 KC	Through 200 mmf. cap. to Antenna "A" Post on back.	A	Across Voice-Coil of Speaker	11	Adjust for maximum output while rocking variable condenser
	6	REPEAT STEPS 4 AND 5 AND REPLACE BOTTOM COVER OF CHASSIS							
Frequency Modulation R.F.	7	FM	106	106 MC	To "D" and "G" Antenna Terminals	A	Across Voice-Coil of Speaker	15, 16	Adjust for maximum output
	8	FM	90	90 MC	To "D" and "G" Antenna Terminals	A	Across Voice-Coil of Speaker	14	Adjust for maximum output
	9	REPEAT STEPS 7 AND 8							





FM Antenna

Special attention should be given to the selection of the antenna used on F.M. The receiver as shipped from the factory contains a built-in "line-cord" aerial that is connected by a spade lug to terminal "D" on the rear of the receiver. This aerial will be found satisfactory for many conditions.

Improved results on weak or distant stations, or in locations unfavorable to F.M. reception, can be had by using the "Pilot" F.M. antenna, packed with each set.

To install the special "Pilot" F.M. antenna, connect the spade lugs at the base of the "T" shaped aerial to terminals "D" and "G" on the rear of the receiver. The two remaining ends may be stretched out under a rug or fastened to a moulding. Try to locate a favorable position in the room, preferably near the window, in order to take advantage of the directional effect of this antenna.

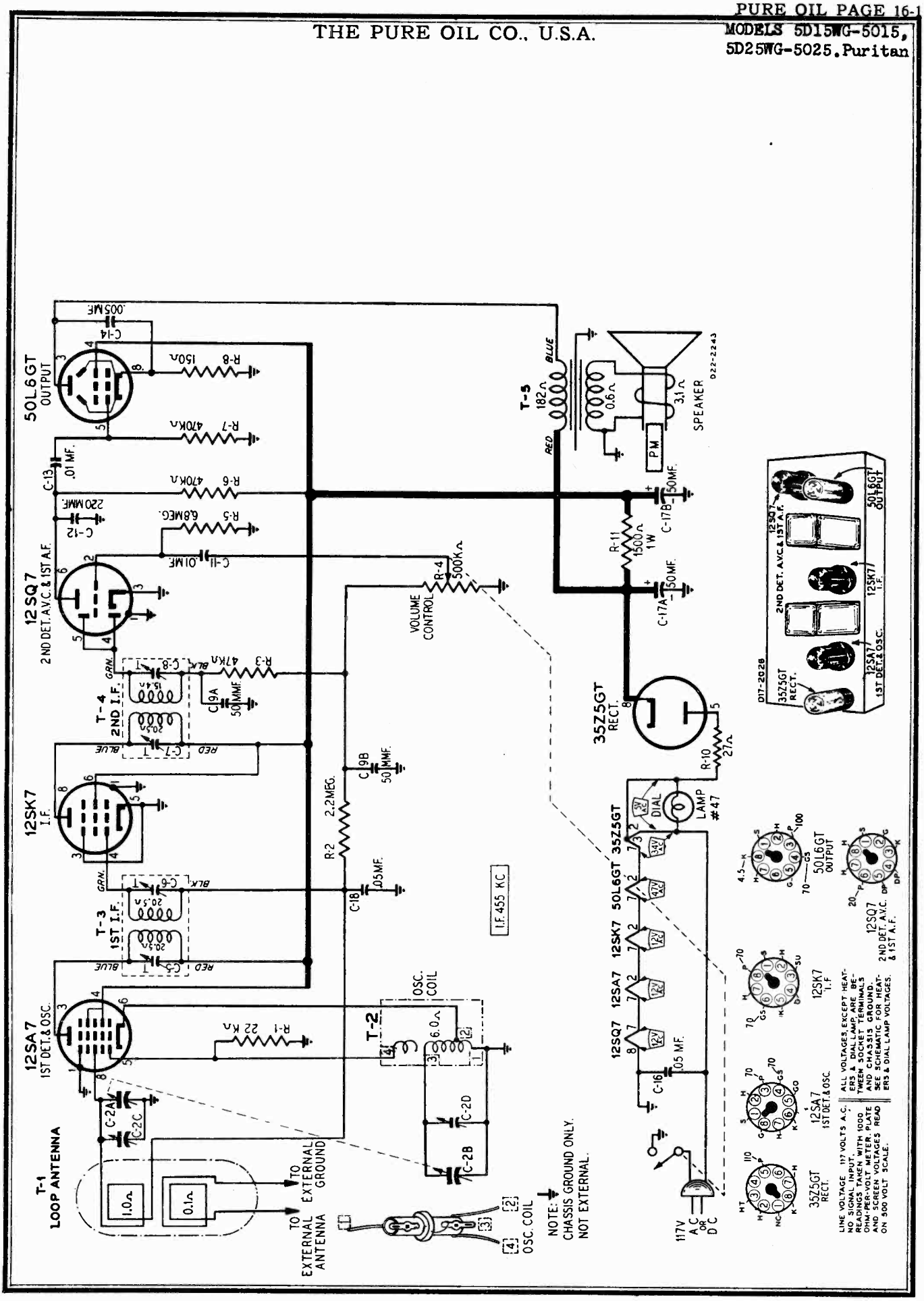
In rare cases, where the receiver is located a great distance from the station or is centrally located in a steel building, an outside dipole antenna may be found necessary. Where an outside dipole is used, the ends of the lead-in, should be connected to "D" and "G" terminals on the rear of the receiver.

TUNING RANGE

Band (1) — Phonograph — (Must have record player attached)
Band (2) — Frequency Modulation (88 to 108 mc)
Band (3) — Standard Broadcast (535 kc to 1620 kc)

THE PURE OIL CO., U.S.A.

MODELS 5D15WG-5015, 5D25WG-5025, Puritan

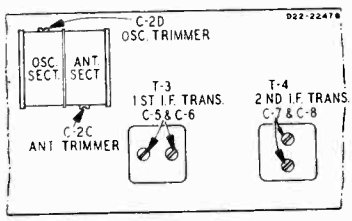


MODELS 5D15WG-5015,
5D25WG-5025, Puritan

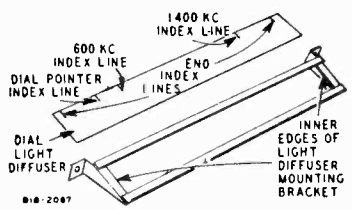
THE PURE OIL CO., U.S.A.

SPECIFICATIONS

5 Tube Superheterodyne, including Rectifier Tube
Tuning Frequency Range.....540 to 1600 KC
Power Consumption.....30 watts (At 117 volts AC)
Power Output....1.5 watt maximum, .9 watt (10% distortion)
Intermediate Frequency.....455 KC
Speaker.....5" PM Dynamic



DIAL CALIBRATION



In order to align the receiver, the dial pointer must be positioned on the dial string correctly with reference to the dial. Index lines are provided on the dial light diffuser for this purpose.

Before aligning the receiver (or when replacing the dial light diffuser) check the position of the diffuser strip, making certain that the two extreme index lines are aligned with the inner edges of the diffuser mounting bracket opening. The bracket should be crimped to prevent movement of the diffuser strip. To position the dial pointer, turn the large drive pulley to the maximum counterclockwise position. The dial pointer should be directly over the dial pointer index line. (See illustration).

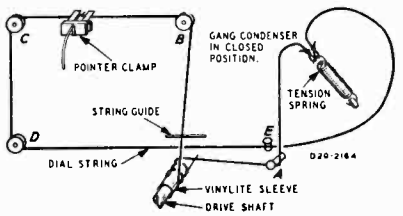
ALIGNMENT PROCEDURE

Check dial pointer position, see DIAL CALIBRATION paragraph.
Volume Control—Maximum All Adjustments.
Allow Chassis and Signal Generator to "Heat Up" for several Minutes.
The equipment in column at right is required for aligning:
Signal Generator which will provide an accurately calibrated signal at the test frequencies as listed.
Output Indicating Meter: Non-Metallic Screwdriver.
Dummy Antennas—.1 mf., 50 mmf.
Blocking Condenser—.1 mf.

SIGNAL GENERATOR					
FREQUENCY SETTING	ANTENNA CONNECTION	GROUND CONNECTION	DUMMY ANTENNA	GANG CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustration)
455 KC	Control Grid 12SK7—I.F. Prong No. 4	Chassis Base Through .1 mf. Condenser	.1 mf.	Turn Rotor to full open	2nd I.F. (C-7) & (C-8)
455 KC	Control Grid 12SA7—1st Det. Prong No. 8	Same As Above	.1 mf.	Turn Rotor to full open	1st I.F. (C-5) & (C-6)
1620 KC	Control Grid 12SA7—1st Det. Prong No. 8	External Ground Clip On Loop	.1 mf.	Turn Rotor to full open	Oscillator (C-2D)
1400 KC	External Antenna Clip On Loop	Same As Above	50 mmf.	Turn dial to 1400 KC. See Note A	Antenna (C-2C)

DRIVE CORD REPLACEMENT

Turn the large drive pulley to the maximum counterclockwise position. Use a new 10X48 drive cord assembly, tie one end to the tension spring and fasten the other end of the spring to the drive pulley. Install the cord as shown in the illustration. Wind 2¾ turns counterclockwise around the tuning shaft with the turns progressing away from the chassis. After string is installed, stretch the tension spring and tie free end of cord to spring.



REPLACEMENT PARTS LIST

NOTICE: There is a model number label on the chassis. This label identifies the radio as to chassis, dial and issue letter. When ordering parts or writing, give ALL information appearing on this label.

MISCELLANEOUS

12A432	5" Speaker	
3A303	Tube Socket, Octal (8 prong) Molded	
10A297	Knob (Brown)	
10A300	Knob (Ivory)	
55X255	Cabinet (Ivory)	
55X313	Cabinet (Brown)	
28X292	Snap Buttons (mounting loop to cabinet)	
14X334	Speaker Baffle	
13X328	Line Cord Assembly	

TRANSFORMERS AND COILS

9A1916	T-1	"B" Range Loop Antenna Assembly
9A1914	T-2	Oscillator Coil Assembly
9A1808	T-3	1st I.F Coil Assembly
9A1809	T-4	2nd I-F Coil Assembly
51X132	T-5	Output Transformer

CAPACITORS

14A194	C-2A, C-2B, C-2C, C-2D	Gang Condenser Assembly	
	C-5, C-6	Part of T-3 (1st I-F Coil)	
	C-7, C-8	Part of T-4 (2nd I-F Coil)	
47X112	C-9A, C-9B	50-50 mmf.	Dual Mica
B66103	C-11, C-13	.01 mf 200V.	Tubular
47X468	C-12	220 mmf	Molded
D66502	C-14	.005 mf 400V.	Tubular
D66503	C-16	.05 mf 400V.	Tubular
45X341	C-17A	50 mf 150V.	Dry Electrolytic
	C-17B	50 mf 150V.	
B66503	C-18	.05 mf 200V.	Tubular

RESISTORS

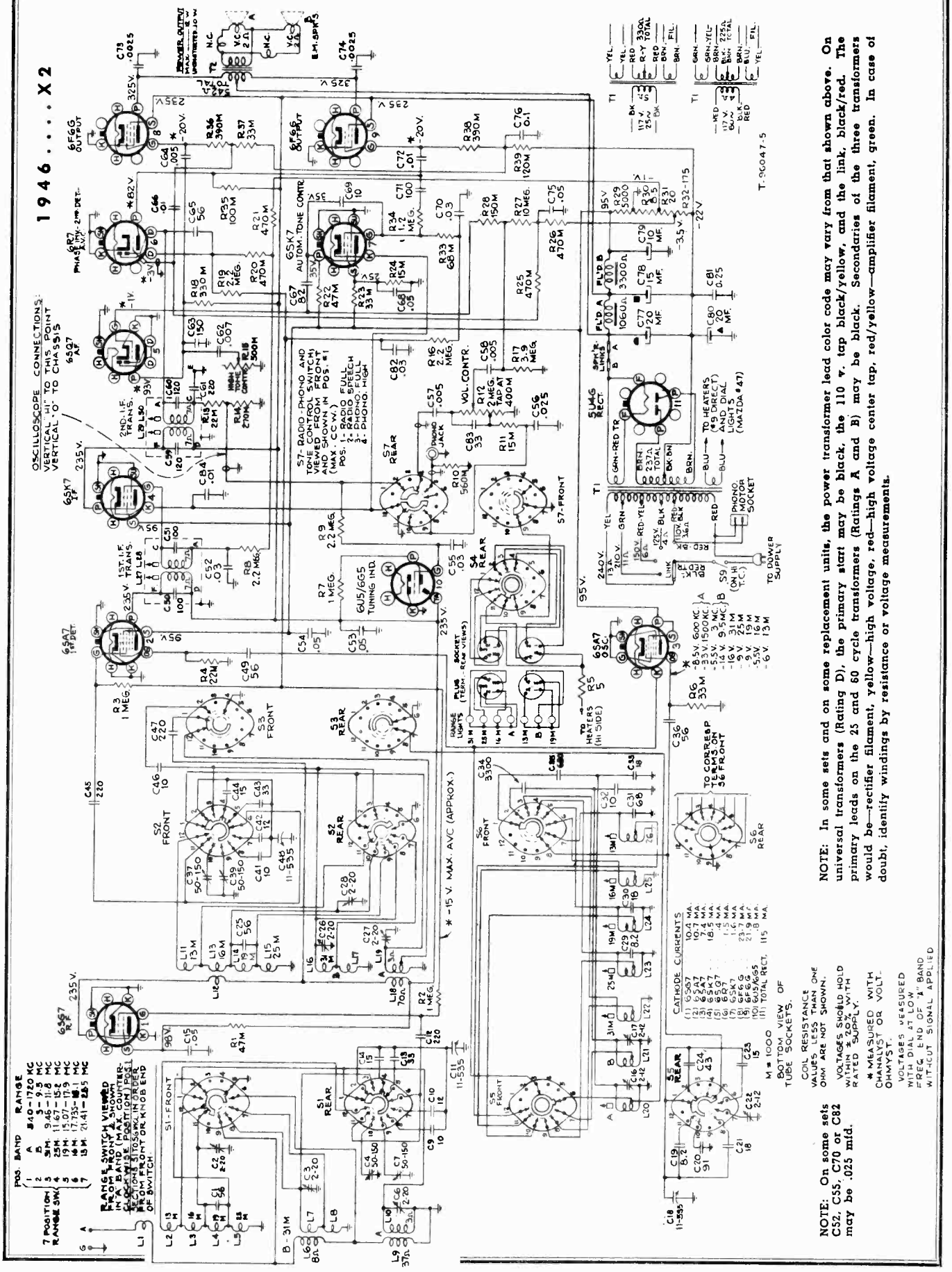
B84223	R-1	22,000 ohms	0.5 watt Carbon
B85225	R-2	2.2 meg.	0.5 watt Carbon
B85473	R-3	47,000 ohms	0.5 watt Carbon
36X352	R-4	500,000 ohms	Volume control and line switch
B85685	R-5	6.8 meg.	0.5 watt Carbon
B84474	R-6	470,000 ohms	0.5 watt Carbon
B85474	R-7	470,000 ohms	0.5 watt Carbon
B84151	R-8	150 ohms	0.5 watt Carbon
B84270	R-10	27 ohms	0.5 watt Carbon
C85152	R-11	1500 ohms	1.0 watt Carbon

DIAL AND DRIVE ASSEMBLY

26A466	Pointer Bracket Assembly complete with light diffuser holder, string guide and idler pulleys
41X74	Dial light diffuser
15X223	Pointer
6X21	Rubber Grommet (Mtg. gang condenser)
20X329	Cond. Cushion Stud (Mtg. gang condenser)
26X482	Drive shaft
19X192	"C" Washer (for drive shaft)
10X48	Drive cord assembly
28X95	Drive cord tension spring
7A194	Pilot light socket assembly
	No. 47 Pilot light
58X688	Dial
30X508	Dial clamp (upper)
30X509	Dial clamp (lower)

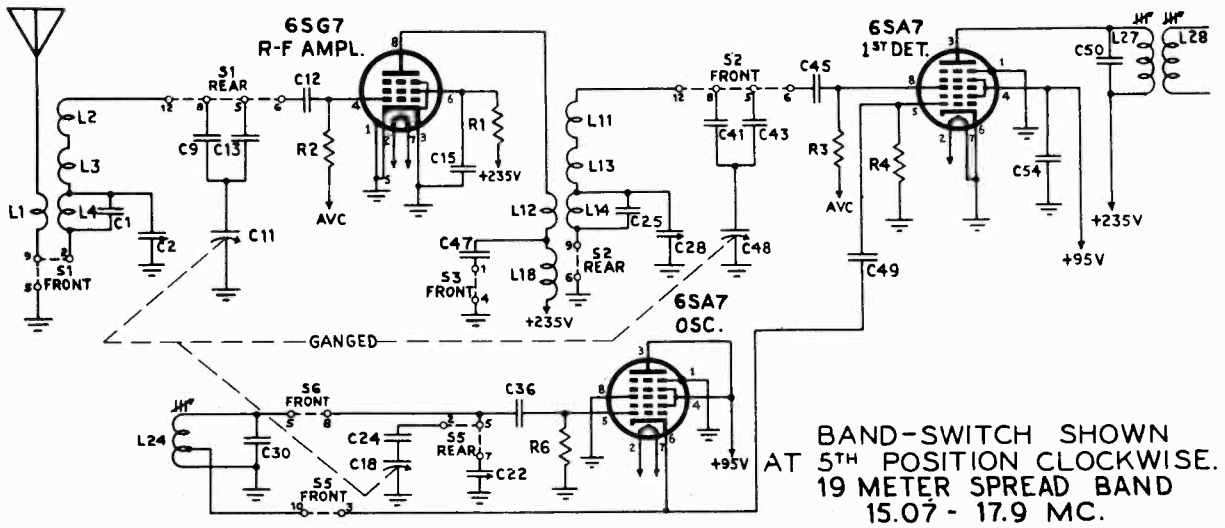
RCA MFG. CO.

MODEL Q36, Chassis RC585

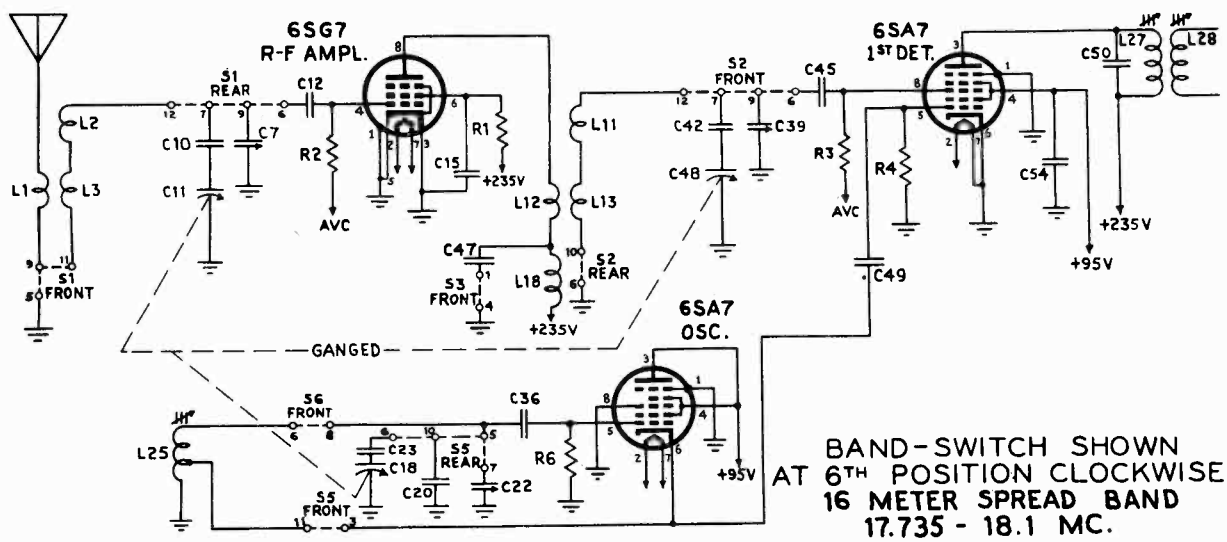


MODEL Q36

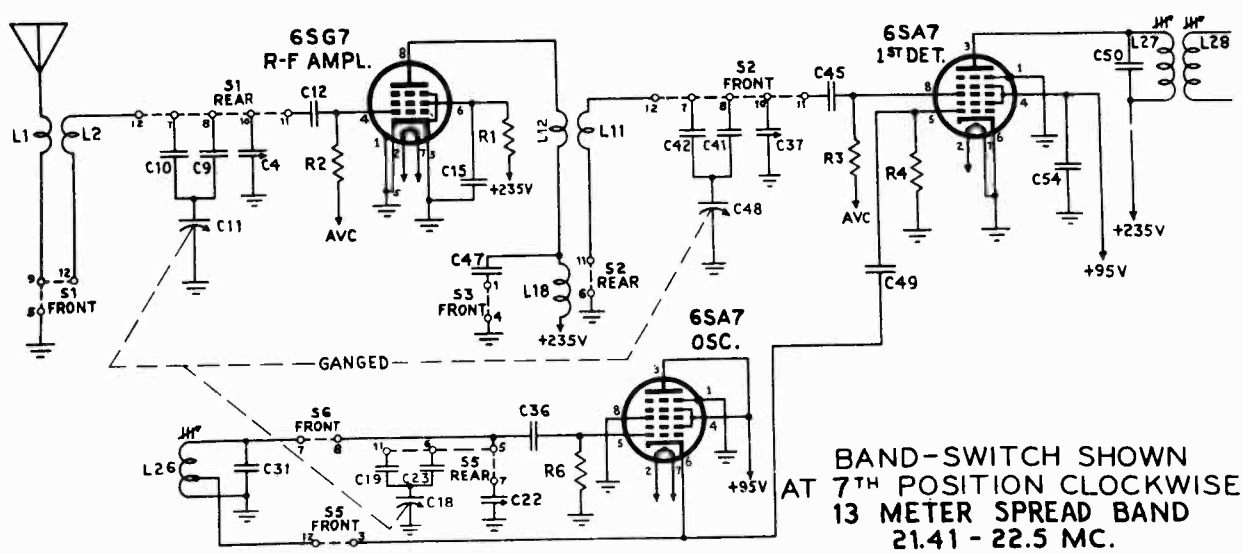
RCA MFG. CO.



BAND-SWITCH SHOWN AT 5TH POSITION CLOCKWISE.
19 METER SPREAD BAND
15.07 - 17.9 MC.



BAND-SWITCH SHOWN AT 6TH POSITION CLOCKWISE.
16 METER SPREAD BAND
17.735 - 18.1 MC.



BAND-SWITCH SHOWN AT 7TH POSITION CLOCKWISE.
13 METER SPREAD BAND
21.41 - 22.5 MC.

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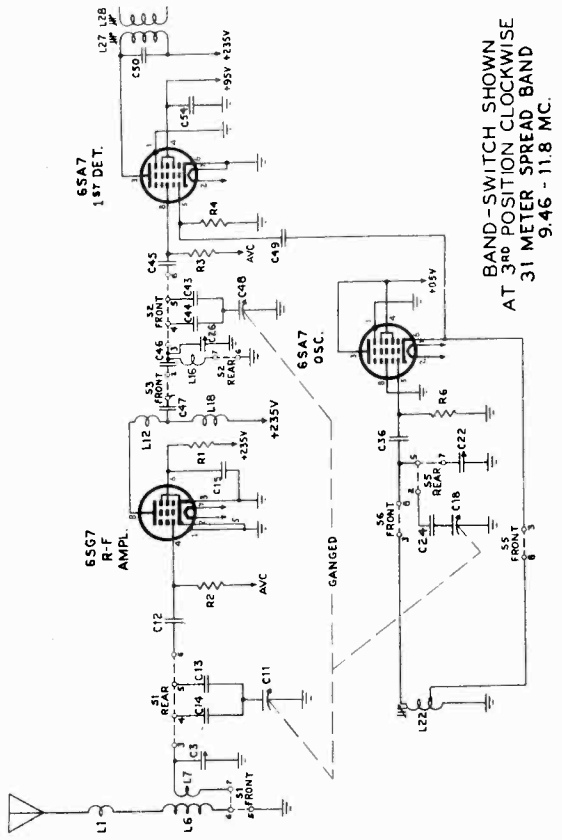
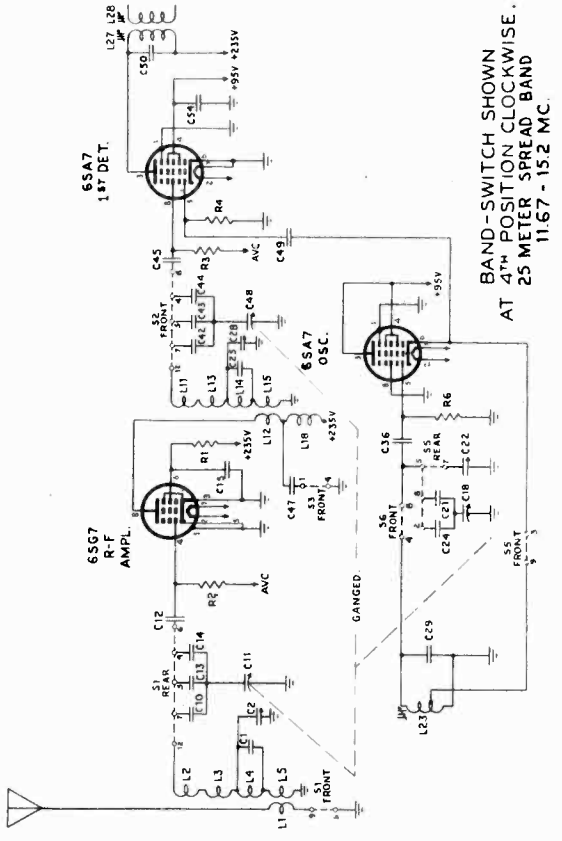
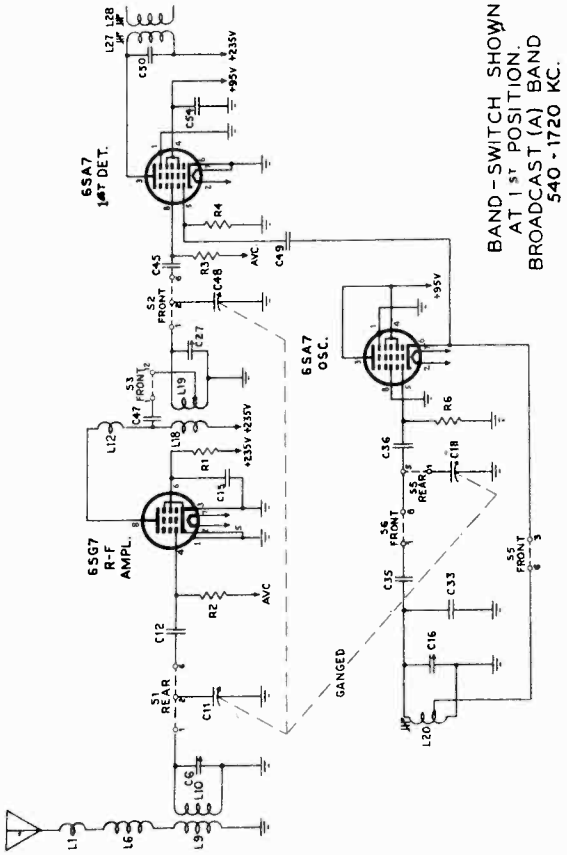
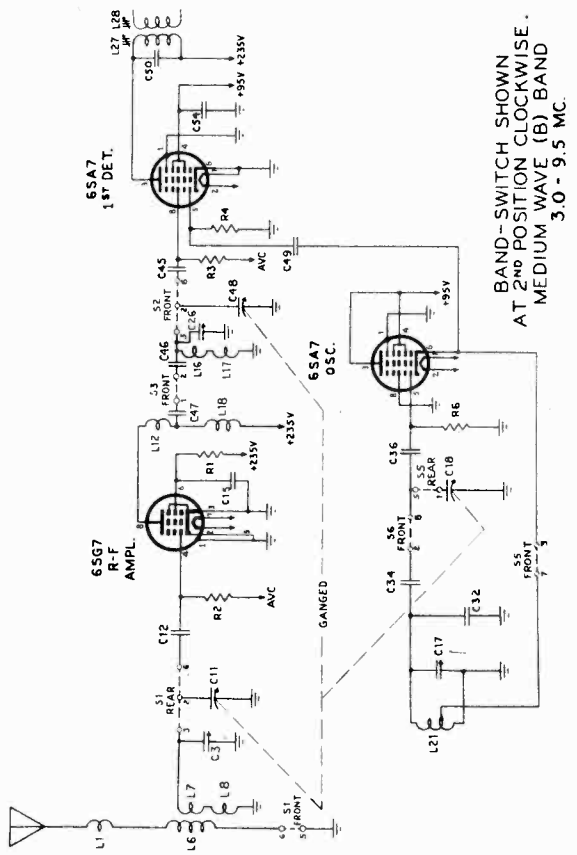








MODEL Q36

RCA MFG. CO.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown on the Schematic Circuit Diagram.

Output Meter Alignment.—If this method is used, connect the meter across either 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 a-v-c action.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser.

As the first step in r-f alignment, check the position of the drum, it should correspond to that shown in the Dial Inaicator and Drive Mechanism drawing when the gang condenser plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.

The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Receiver Dial with Calibration Scale.—To determine the corresponding frequency for any setting of the calibration scales, refer to the dial drawing.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the oscillator coil magnetite-core for each spread-band so that these stations come in at the correct points on the dial.

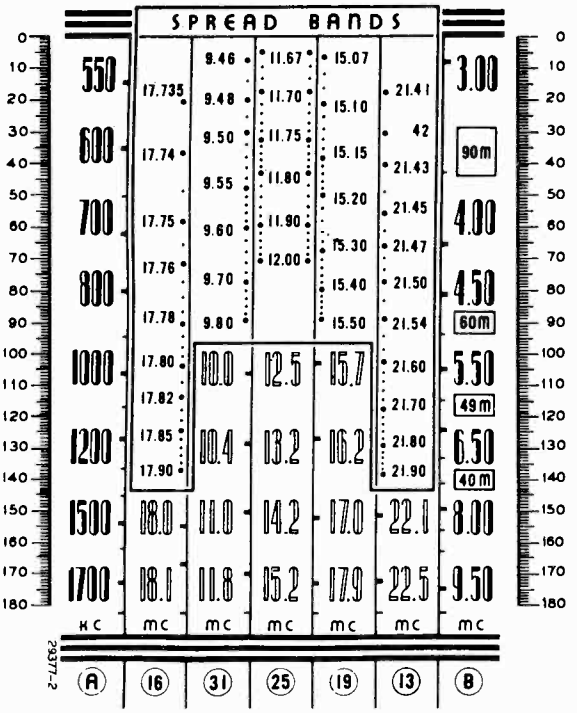
In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal-controlled oscillator, or by zero-beating against standard broadcast stations.

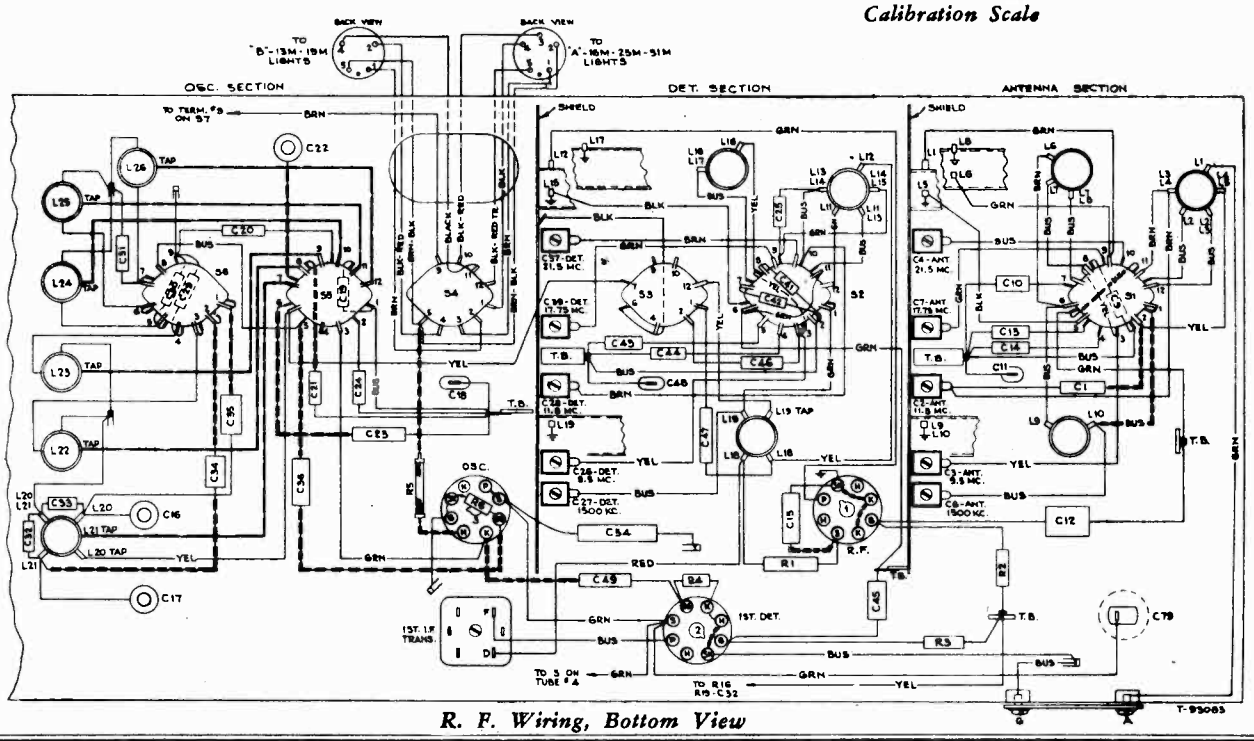
When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the oscillator coil magnetic-core for each band should be retouched so that the stations come in at the correct points on the dial.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with the indicator to the line under "Spread Bands" on the glass dial plate with the gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

For additional information, refer to booklet "RCA Victor Receiver Alignment."



Receiver Dial with Calibration Scale



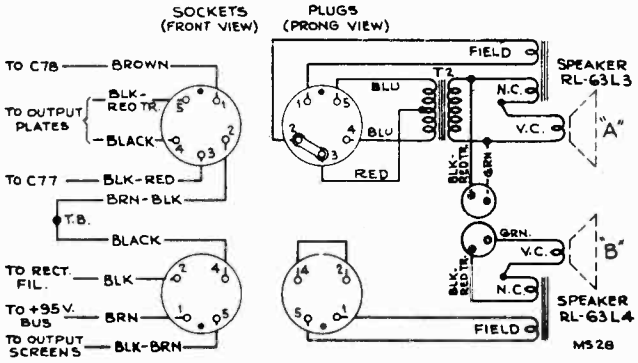
R. F. Wiring, Bottom View

RCA MFG. CO.

Alignment Procedure

Precautionary Lead Dress.—

1. All leads in the R.F. assembly should be dressed away from coils, switch assemblies, capacitors, shield plates, and mounting plates.
2. All capacitors in the R.F. assembly should be dressed apart from each other and away from the Range Switch drive shaft.
3. All indicating light cable leads to S4 should be dressed toward the shield plate and away from all other leads and components.
4. Leads and components connected to the oscillator and 1st Detector tube sockets must not impede the flexible mounting.
5. The green lead from pin 4 of the oscillator tube socket to pin 4 of the 1st Detector should be dressed close to C54.
6. All excess power transformer leads should be dressed back between transformer and rear chassis apron and close to chassis base.
7. The capacitors that connect the volume control and tone control should be dressed away from other parts.



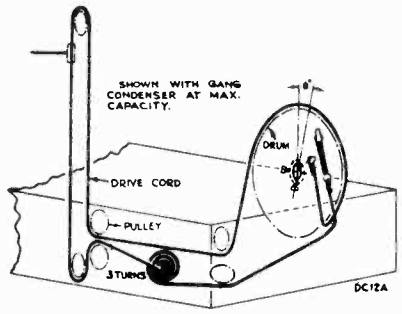
Loudspeaker Connections

Loudspeaker.—It is essential that the two speaker cones move in and out together, i.e. in phase. For an outline of test methods refer to RCA Victor Supplementary Information—No. 5 "Speaker Phasing."

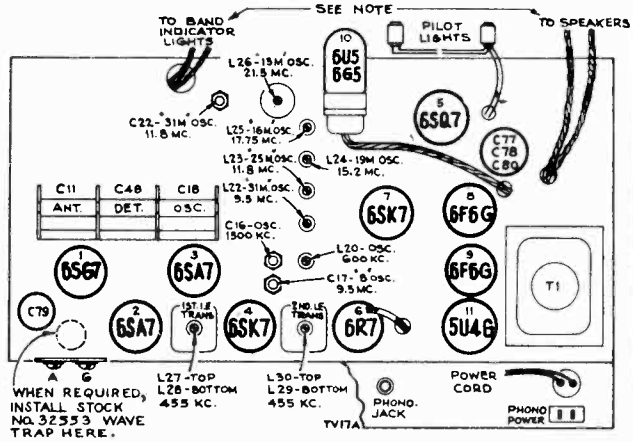
ALIGNMENT TABLE

Steps	Connect the high side of test osc. to—	Tune test osc. to—	Turn Range Switch to—	Turn Radio Dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	"A" Band	Quiet point near 600 kc (35°)	L30-L29 2nd I-F trans.
2	6SA7 Det. grid in series with .01 mfd.				L28-L27 1st I-F trans.
3	Antenna terminal in series with 200 mmfd.	1500 kc	"A" Band	1500 kc (154°)	C16 (osc.) C27 (det.) C6 (ant.)
4		600 kc	"A" Band	600 kc (35°)	L20* Rock in
5	Repeat steps 3 and 4 until aligned				
6	Antenna terminal in series with 300 ohms	9.5 mc	"31M" Band	9.5 mc (30°)	L22 (osc.)* C26 (det.) C3 (ant.)
7		11.8 mc	"31M" Band	11.8 mc (170°)	C22 (osc.) **
8	Repeat steps 6 and 7				
9	Antenna terminal in series with 300 ohms	9.5 mc	"B" Band	9.5 mc (175.5°)	C17 (osc.) **
10		11.8 mc	"25M" Band	11.8 mc (43°)	L23 (osc.)* C28 (det.) C2 (ant.)
11		15.2 mc	"19M" Band	15.2 mc (50°)	L24 (osc.)*
12		17.75 mc	"16M" Band	17.75 mc (58°)	L25 (osc.)*** C39 (det.) C7 (ant.)
13		21.5 mc	"13M" Band	21.5 mc (77°)	L26 (osc.)*** C37 (det.) C4 (ant.)

* If two peaks can be obtained, use the one obtained when the core screw is farthest out (counter-clockwise).
** Use minimum capacity peak if two can be obtained.
*** If two peaks can be obtained use the one obtained when the core screw is farthest in (clockwise).
NOTE: Oscillator tracks above signal on all except the 16M and 13M bands.



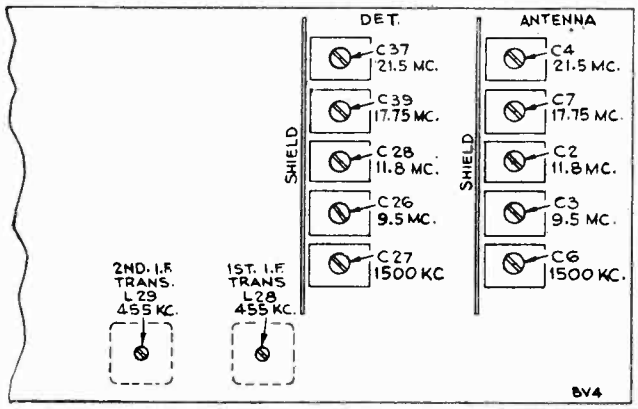
Dial-Indicator and Drive Mechanism



Tube and Trimmer Locations (Top View)

Caution.—The sockets used on the band indicator light cables are identical to those used on the speaker cables. In connecting, care should be taken to assure that the cables are plugged to the proper units.

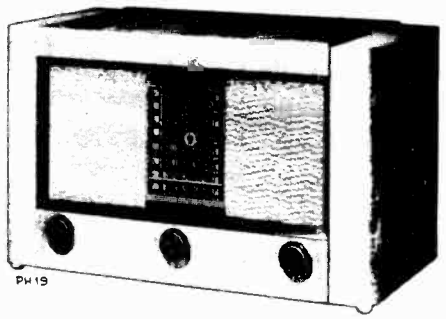
Use of Wave Trap.—Should interference from a powerful nearby station require the use of a wave trap, install a Stock No. 32553 trap behind antenna and ground terminal board as indicated above. Connect coil lug to antenna connection, ground connection is made to chassis through coil mounting foot. Adjust capacitor to resonance with interfering station.



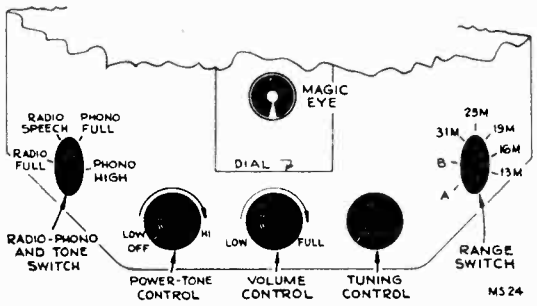
Trimmer Locations (Bottom View)

MODEL Q36

RCA MFG. CO.



Model Q36



Location of Controls

Specifications

Frequency Ranges

Standard Broadcast ("A" Band)	540-1,720 kc (556-174 m)
Medium Wave ("B" Band)	3.0-9.5 mc (100-31.6 m)
"31" Meter Spread Band	9.46-11.8 mc (31.7-25.4 m)
"25" Meter Spread Band	11.67-15.2 mc (25.7-19.8 m)
"19" Meter Spread Band	15.07-17.9 mc (19.9-16.8 m)
"16" Meter Spread Band	17.735-18.1 mc (16.9-16.6 m)
"13" Meter Spread Band	21.41-22.5 mc (14.0-13.4 m)
Intermediate Frequency	455 kc

Tube Complement

(1)	RCA-6SG7	R-F Amplifier
(2)	RCA-6SA7	1st Detector
(3)	RCA-6SA7	Oscillator
(4)	RCA-6SK7	I-F Amplifier
(5)	RCA-6SQ7	A-F Amplifier
(6)	RCA-6R7	Phase Inverter, 2nd Detector
(7)	RCA-6SK7	Automatic Tone Control
(8)	RCA-6F6G	Power output
(9)	RCA-6F6G	Power output
(10)	RCA-6U5/6G5	Tuning indicator
(11)	RCA-5U4G	Rectifier
Pilot Lamps	9-type 47; 6.3 volts, 0.15 amps.	

Power Output Rating

Undistorted	10 watts
Maximum	12 watts

Loudspeakers

One Model RL-63L3 and one model RL-63L4

Type (Electrodynamic)	8 inches
V-C Impedance at 400 c.p.s.	2.2 ohms

Victrola Attachment

A jack is provided on the rear of chassis for connection to a Victrola Attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug.

A 110-volt outlet for Victrola attachment is available on back of the chassis.

Cabinet Dimensions

Height	14¾ inches
Width	24¾ inches
Depth	12⅞ inches
Net Weight	approx. 49 pounds
Shipping Weight	approx. 56 pounds
Chassis Base Dimensions (inches) Height, 3½; Length, 22; Depth 13	
Over-all Chassis Height	12¾ inches
Tuning Drive Ratio	25 to 1

Power Supply Ratings

Symbol	Voltages	Frequency (cycles)	Watts
Rating A	105 to 125, nominal 117	25 to 60	135
Rating B	105 to 125, nominal 117	50 to 60	135
Rating D	(See below)	40 to 60	135

110 position	100 min.	115 max.
125 position	115 min.	135 max.
150 position	135 min.	165 max.
210 position	190 min.	230 max.
240 position	220 min.	260 max.

Note: Shipped in 240-volt position. To change, remove round cover on top of transformer case and move link to required position.

CAUTION: Remove power cord from line receptacle before changing link position.

Automatic Tone Control.—

The Model Q36 incorporates a circuit for automatically attenuating noise and selective fading distortion components.

Basically the circuit is a combination of a high pass filter and variable inverse feedback controlled by the AVC voltage.

Capacitor C71 (100 mmf.) and resistor R34 (1.2 meg.) couple the plate of the 6R7 (tube 6) to the grid of the 6SK7 (tube 7). The plate of this tube is connected to the grid of the 6SQ7 (tube 5) through capacitor C67 (82 mmf.). The grid bias for the 6SK7 (tube 7) is obtained from the AVC bus through R16 (2.2 meg.) and R33 (68M).

The values of C71, R34, C67 and R33 are such that this inverse feedback loop passes only the high audio frequencies therefore they are the frequencies that are attenuated in the output of the audio system. The amount of attenuation of the "highs" is controlled by the negative voltage on the AVC bus.

When the incoming signal is weak the AVC voltage is close to zero, the gain of the ATC 6SK7 is large and the attenuation of the highs is a maximum; when the incoming signal is strong the AVC voltage becomes more negative thus decreasing the gain and thereby increasing the high frequency response of the audio system. The cathode of the 6SK7 (tube 7) is grounded only when S7 is switched to either "Radio" position; the ATC circuit is inoperative when S7 is in either of the "Phono" positions.

With an R.F. input of 100 microvolts the audio frequency response at 2000 cycles is down approximately 20 db. as compared to the response obtained with an RF input of 10,000 microvolts.

If desired, the amount of high frequency attenuation at a particular value of input signal below approximately 10,000 microvolts may be varied by changing the value of R33. Increasing R33 will increase the attenuation of the "highs"; decreasing R33 will decrease the attenuation.

A quick check of the operation of the circuit may be made by tuning in a weak station and then pulling the 6SK7 (tube 7) out of its socket, a very noticeable increase in the high frequency audio response will indicate that the circuit is functioning properly.

As can be well appreciated by the foregoing explanation of ATC operation, it is desirable to use an antenna with good signal pickup when full fidelity is required. Short length antennas should be avoided whenever possible.

MODEL QB13 Replacement Parts

STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES
	QB13 (RC-612)
35622	Bracket—Mounting bracket for tuning knob shaft and flywheel
37976	Bracket—Tone control mounting bracket
35642	Calibrator—Drive drum calibrator scale
34654	Capacitor—Mica trimmer, triple, 2.5-10 mmf. (C1, C2, C3)
12714	Capacitor—Air trimmer, 2-12 mmf. (C4, C7, C14)
35646	Capacitor—Ceramic, 6 mmf. (C36)
45465	Capacitor—Ceramic, 15 mmf. (C33)
36012	Capacitor—Ceramic, 15 mmf. (C37)
35644	Capacitor—Ceramic, 47 mmf. (C8, C12)
39623	Capacitor—Mica, 56 mmf. (C17)
70586	Capacitor—Mica, 68 mmf. (C9)
35645	Capacitor—Ceramic, 68 mmf. (C13)
39628	Capacitor—Mica, 100 mmf. (C29)
39634	Capacitor—Mica, 180 mmf. (C34)
39636	Capacitor—Mica, 220 mmf. (C16)
70687	Capacitor—Mica, 560 mmf. (C5)
70687	Capacitor—Mica, 3000 mmf. (C6)
70602	Capacitor—Tubular, .0025 mfd., 400 volts (C23, C24)
70606	Capacitor—Tubular, .005 mfd., 400 volts (C25, C26)
70610	Capacitor—Tubular, .01 mfd., 400 volts (C39)
70615	Capacitor—Tubular, .05 mfd., 400 volts (C19, C35, C48)
71010	Capacitor—Tubular, .07 mfd., 400 volts (C22)
70618	Capacitor—Tubular, 0.25 mfd., 400 volts (C28)
70617	Capacitor—Tubular, 0.1 mfd., 400 volts (C46)
70619	Capacitor—Tubular, 0.5 mfd., 400 volts (C38)
72121	Capacitor—Electrolytic, 5 mfd., 50 volts (C47)
37250	Capacitor—Electrolytic, 20 mfd., 250 volts (C32)
37867	Capacitor—Electrolytic, 30 mfd., 250 volts (C30)
35631	Coil—Antenna coil, 25 meter and 19-13 meter bands (L1, L2, L3)
35632	Coil—Antenna coil, "A" band, "B" band and 31 meter band (L4, L5, L6, L7, L18).
35623	Coil—Oscillator coil, "A" and "B" band (L8, L9)
35626	Coil—Oscillator coil, 31 meter band (L10)
35625	Coil—Oscillator coil, 25 meter band (L11)
35624	Coil—Oscillator coil, 19-13 meter band (L12)
35619	Condenser—Variable tuning condenser (C10, C11)
37833	Control—Volume control and power switch (R6, S6)
32634	Cord—Drive cord (approx. 30" overall length) NOTE: Before assembling, stretch to full length.
34662	Cord—Indicator cord (approx. 54" overall length) NOTE: Before assembling, stretch to full length.
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil
31259	Core—Adjustable core and stud for 19-13 meter band, 25 meter band or 31 meter band oscillator coils
12006	Core—Adjustable core and stud for I-F transformers
35627	Drum—Drive drum less calibrator
35638	Flywheel—Tuning knob shaft flywheel
70930	Grommet—Rubber mounting grommet for tuning condenser (4 required)
5119	Plug—3 contact female plug for speaker cable
14404	Plug—7 prong plug for power input cable
35641	Pulley—Drive cord pulley
35630	Pulley—Idler pulley, between tuning knob shaft and range switch shaft
8063	Resistor—330 ohms, ½ watt (R19)
30498	Resistor—390 ohms, ½ watt (R17)
30734	Resistor—5600 ohms, ¼ watt (R7)
30151	Resistor—18,000 ohms, 1 watt (R4)
30492	Resistor—22,000 ohms, ¼ watt (R5)
30685	Resistor—33,000 ohms, ½ watt (R2)
30180	Resistor—120,000 ohms, ½ watt (R9, R18)
30648	Resistor—470,000 ohms, ¼ watt (R11)
30652	Resistor—1 megohm, ¼ watt (R1)
30162	Resistor—1.2 megohm, ½ watt (R10)
30649	Resistor—2.2 megohms, ½ watt (R3)
30992	Resistor—10 megohms, ½ watt (R8)
14350	Screw—No. 8-32 square head set screw for drive drum
35633	Shaft—Range switch indicator shaft
35637	Shaft—Tuning knob shaft
35787	Socket—Phono input socket
36500	Socket—Tube socket, miniature
31251	Socket—Tube socket
*72870	Socket—Tube socket, cushion mounted
12007	Spring—Retaining spring for I-F transformers core and stud assemblies
31261	Spring—Retaining spring for oscillator coils, core and studs assemblies
31418	Spring—Tension spring for drive cord or indicator cord
35640	Support—Drive pulley support complete with one pulley
35639	Support—Drive pulley support complete with three (3) pulleys
35621	Switch—Range switch (S1, S2, S3, S4)
33397	Switch—Tone control switch (S5)
37898	Transformer—Driver transformer (T1)
*72835	Transformer—Output transformer (T2)
35636	Transformer—First I. F. transformer (T4, L13, L14, C15, C16)
35628	Transformer—Second I. F. transformer (T5, L15, L16, C20, C21)
33726	Washer—"C" washer for idler pulley
2917	Washer—"C" washer for tuning knob shaft
	VIBRATOR POWER SUPPLY RS-115
4289	Body—Fuse connector body
4288	Cap—Fuse connector cap
39644	Capacitor—Mica, 470 mmf. (C42, C44)
71008	Capacitor—Tubular, .008 mfd., 1200 volts (C43)
*70641	Capacitor—Tubular, .01 mfd., 1000 volts (C40)
37877	Capacitor—Electrolytic, 16 mfd., 350 volts (C41)
37834	Case—Power supply case less cover
14289	Clip—Battery clips (1 set)
37925	Coil—Choke coil (L21)
37836	Cover—Power supply case cover
4286	Ferrule—Fuse connector ferrule and bushing
5140	Fuse—5 ampere
4290	Insulator—Fuse connector insulator
14409	Plug—7 contact female plug for power supply cable
34765	Resistor—100 ohms, ¼ watt (R15)
38896	Resistor—1200 ohms, 1 watt (R14)
71991	Resistor—2200 ohms, 1 watt (R16)
12241	Socket—Vibrator socket
4284	Spring—Fuse connector spring
35544	Transformer—Vibrator transformer (T3, C45, L22)
35543	Vibrator—Plug-in vibrator
4285	Washer—Fuse connector insulating washer
	SPEAKER ASSEMBLIES 92519-1
70578	Cone—Cone and voice coil assembly
5118	Plug—3 prong male plug for speaker cable
70577	Speaker—6½" P.M. speaker complete with cone and voice coil less plug
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS ASSEMBLIES
70833	Board—Baffle board and grille for QB12 & QB13
Y1382	Cabinet—Plastic cabinet for QB12 & QB13
71089	Decal—Trademark decal for QB12 & QB13
70579	Decal—Trademark decal for QB11
35654	Dial—Glass dial scale
36658	Extension—Tune control shaft extension for QB11
37838	Frame—Dial frame assembly less indicator
X1611	Grille—Cabinet grille cloth for Model QB11
37396	Grommet—Rubber grommet for mounting speaker (4 required) for QB12 & QB13
70839	Grommet—Rubber grommet for mounting chassis (4 required) for QB12 & QB13
70580	Indicator—Station selector indicator
35652	Knob—Range indicator knob
35651	Knob—Range switch knob
35650	Knob—Tone control knob
34489	Knob—Tuning or volume control knob for QB11
70663	Knob—Tuning or volume control knob for QB12 & QB13
14270	Spring—Retaining spring for tone control, volume control, range switch or tuning knob
4982	Spring—Retaining spring for range indicator knob

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

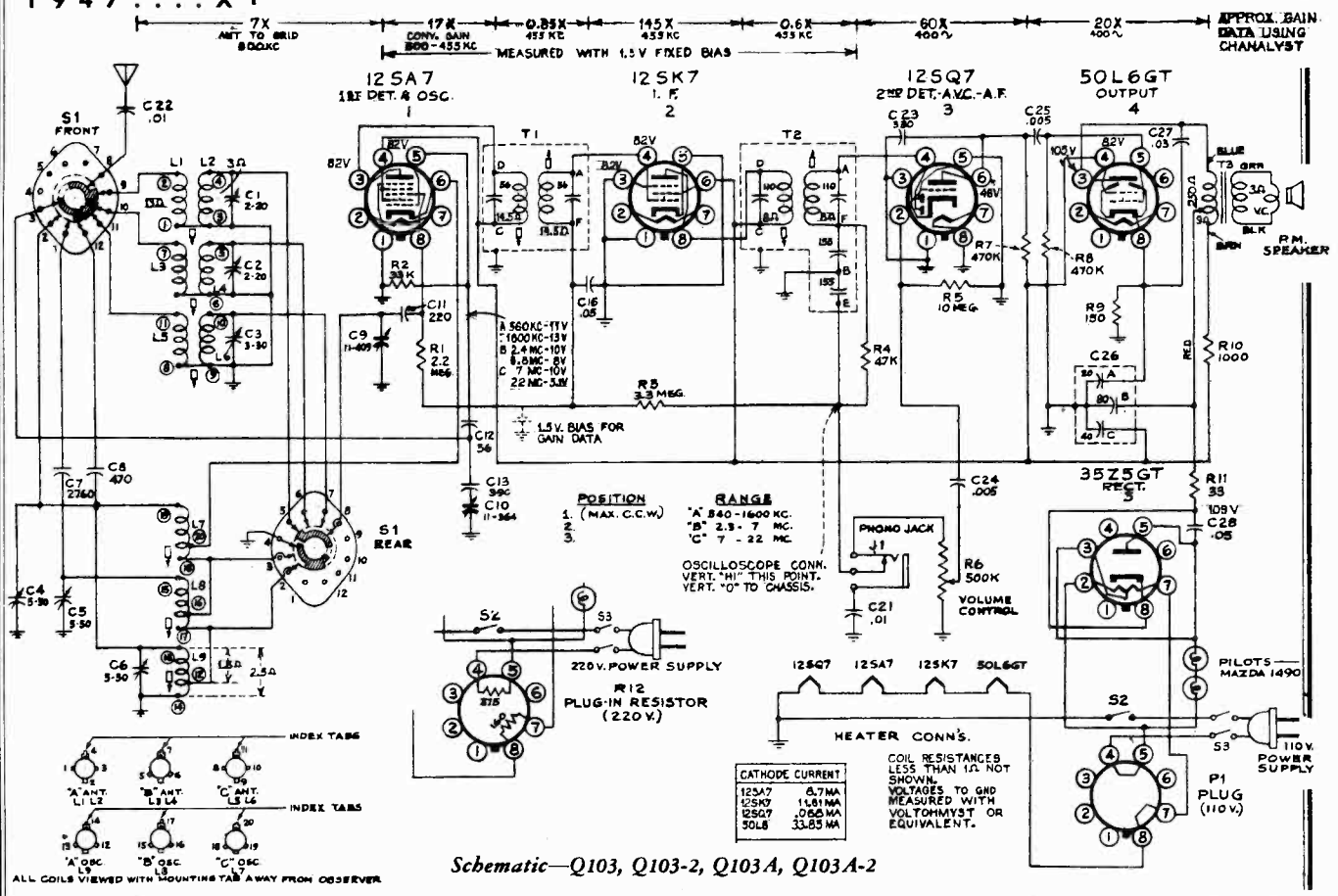
*This is the first time this stock number has appeared in service data.

MODEL Q36

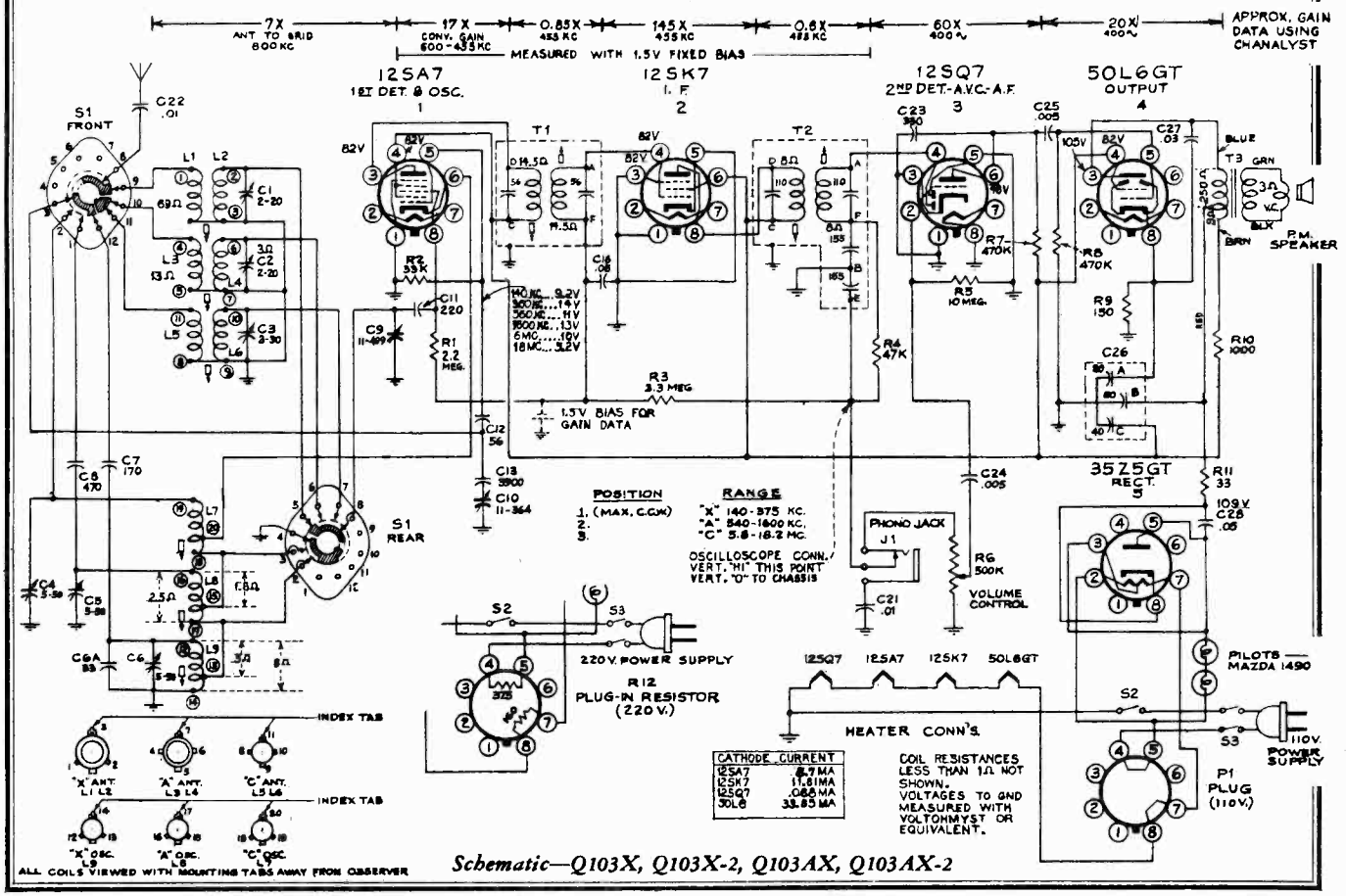
Stock No.	Description
	CHASSIS ASSEMBLIES RC-585
39791	Bearing—Tuning knob shaft bearing
37053	Board—"Antenna-Ground" board
39799	Bracket—Long bracket complete with three (3) drive cord pulleys
39800	Bracket—Upper bracket complete with one (1) drive cord pulley
36397	Calibrator—Drive drum calibrator
12884	Capacitor—Air trimmer, 2-12 mmf. (C16, C17, C22)
70597	Capacitor—Ceramic, 8.2 mmf. (C19, C29)
33098	Capacitor—Ceramic, 10 mmf. (C32)
45486	Capacitor—Ceramic, 10 mmf. (C9, C41, C46)
39604	Capacitor—Mica, 10 mmf (C69)
70595	Capacitor—Ceramic, 12 mmf. (C10, C42)
45465	Capacitor—Ceramic, 15 mmf. (C14, C23, C44)
39041	Capacitor—Ceramic, 18 mmf. (C21, C33)
71020	Capacitor—Ceramic, 18 mmf. (C30)
39616	Capacitor—Mica, 33 mmf. (C83)
70596	Capacitor—Ceramic, 33 mmf. (C13, C43)
71022	Capacitor—Ceramic, 43 mmf. (C24)
39794	Capacitor, Mica trimmer, consisting of 2 sections of 50-150 mmf. and 3 sections of 2-20 mmf. (C2, C3, C4, C6, C7 and C26, C27, C28, C37, C39)
39622	Capacitor—Mica, 56 mmf. (C65)
70594	Capacitor—Ceramic, 56 mmf. (C1, C25)
70598	Capacitor—Ceramic, 56 mmf. (C36, C49)
70593	Capacitor—Ceramic, 68 mmf. (C31)
39626	Capacitor—Mica, 82 mmf. (C67)
71021	Capacitor—Ceramic, 91 mmf. (C20)
39628	Capacitor—Mica, 100 mmf. (C50, C51, C71)
39630	Capacitor—Mica, 120 mmf. (C59, C60)
39632	Capacitor—Mica, 150 mmf. (C63)
39636	Capacitor—Mica, 220 mmf. (C12, C45, C47, C61)
39648	Capacitor—Mica, 680 mmf. (C35)
39664	Capacitor—Mica, 3300 mmf. (C34)
71008	Capacitor—Tubular, .0025 mfd., 1600 volts (C73, C74)
70606	Capacitor—Tubular, .005 mfd., 200 volts (C57, C58)
70627	Capacitor—Tubular, .005 mfd., 600 volts (C84)
70629	Capacitor—Tubular, .007 mfd., 600 volts (C62)
70610	Capacitor—Tubular, .01 mfd., 200 volts (C66)
70631	Capacitor—Tubular, .01 mfd., 600 volts (C72, C84)
70612	Capacitor—Tubular, .025 mfd., 200 volts (C56)
70613	Capacitor—Tubular, .03 mfd., 200 volts (C52, C55, C70, C82)
70615	Capacitor—Tubular, .05 mfd., 400 volts (C54, C68, C75)
70636	Capacitor—Tubular, .05 mfd., 600 volts (C15, C53)
70617	Capacitor—Tubular, 0.1 mfd., 200 volts (C76)
70618	Capacitor—Tubular, 0.25 mfd., 200 volts (C81)
33879	Capacitor—Electrolytic, 10 mfd., 300 volts (C79)
34393	Capacitor—Electrolytic, consisting of 1 section of 20 mfd., 450 volts; 1 section of 15 mfd., 350 volts; and 1 section of 20 mfd., 25 volts (C77, C78, C80)
39797	Coil—Antenna coil, "A" band (L9, L10)
39796	Coil—Antenna coil, "B" and 31 meter bands (L6, L7, L8)
39792	Coil—Antenna or R.F. coil, 25, 19, 16, and 13 meters (L1, L2, L3, L4, L5, L11, L12, L13, L14, L15)
39804	Coil—Oscillator coil, "A" and "B" bands (L20, L21)
39808	Coil—Oscillator coil, 13 and 16 meter bands (L25, L26)
39805	Coil—Oscillator coil, 19 meter bands (L24)
39806	Coil—Oscillator coil, 25 meter band (L23)
39807	Coil—Oscillator coil, 31 meter band (L22)
39795	Coil—R.F. coil, "A" band (L18, L19)
39798	Coil—R.F. coil, "B" band and 31 meter band (L16, L17)
39785	Condenser—Variable tuning condenser (C11, C18, C48)
39788	Control—Tone control and power switch (R15, S9)
39789	Control—Volume control (R12)
34662	Cord—Indicator cord (approx. 63 in. overall length)
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil
12006	Core—Adjustable core and stud for I.F. transformers
31259	Core—Adjustable core and stud for 13 meter, 16 meter, 19 meter, 25 meter, and 31 meter bands oscillator coils
36396	Drum—Drive drum less calibrator
18469	Plate—Bakelite mounting plate for capacitor # 34393
5040	Plug—4 contact female plug for speaker or band indicator cable
12493	Plug—5 contact female plug for speaker or band indicator cable
35973	Pulley—Drive cord pulley
36637	Receptacle—A.C. power receptacle
36842	Resistor—Flexible, wire wound 5 ohms, 1 watt (R5)
39803	Resistor—Voltage divider consisting of 1 section of 155 ohms, 3 watt; 1 section of 20 ohms, 0.2 watt; 1 section of 8.5 ohms, 0.1 watt; and 1 section of 5000 ohms, 2.5 watt (R29, R30, R31, R32)
36714	Resistor—15,000 ohms, ½ watt (R11, R24)
30492	Resistor—22,000 ohms, ¼ watt (R4, R13)
30685	Resistor—33,000 ohms, ½ watt (R6, R23, R37)
30787	Resistor, 47,000 ohms, ½ watt (R22)
30495	Resistor, 47,000 ohms, 1 watt (R1)
14138	Resistor—68,000 ohms, ½ watt (R33)
3252	Resistor, 100,000 ohms, ½ watt (R35)
30180	Resistor—120,000 ohms, ¼ watt (R39)
14020	Resistor—150,000 ohms, ¼ watt (R28)
30651	Resistor—270,000 ohms, ¼ watt (R14)
14983	Resistor—330,000 ohms, ½ watt (R18)
11988	Resistor—390,000 ohms, ¼ watt (R36, R38)
30648	Resistor—470,000 ohms, ¼ watt (R20, R21, R25, R26)
30653	Resistor—560,000 ohms, ¼ watt (R10)
30652	Resistor—1 megohm, ¼ watt (R2, R3, R7)
30162	Resistor—1.2 megohm, ½ watt (R34)
30649	Resistor—2.2 megohms, ½ watt (R8, R9, R16, R19)
70592	Resistor—3.9 megohms, ¼ watt (R17)
30992	Resistor—10 megohms, ½ watt (R27)
14350	Screw—#8-32 square head set screw for drive drum
39790	Shaft—Tuning knob shaft and flywheel
31365	Socket—Lamp socket
35787	Socket—Phono input socket
31252	Socket—Tube socket
34964	Socket—Tuning tube socket
21410	Spring—Indicator cord spring
12007	Spring—Retaining spring for I.F. transformers, core and stud assemblies
31261	Spring—Retaining spring for oscillator coils' core and stud assemblies and for 13 meter band oscillator coil, core and stud
39787	Switch—Radio-phono switch (S7)
39793	Switch—Range switch (S1, S2, S3, S4, S5, S6)
35636	Transformer—First I.F. transformer (L27, L28, C50, C51)
36615	Transformer—Second I.F. transformer (L29, L30, C59, C60, C61)
39786	Transformer—Power transformer—105-125 volts, 25 to 60 cycle (T1) (Rating A)
36044	Transformer—Power transformer—105-125 volts, 50 to 60 cycle (T1) (Rating B)
34183	Transformer—Power transformer—110-126-150-210-240 volts, 40 to 60 cycle (T1, S8) (Rating D)
33726	Washer—"C" washer for drive cord pulley
2917	Washer—"C" washer for tuning shaft
	SPEAKER ASSEMBLIES RL-63L3
13867	Cap—Dust cap
12079	Coil—Field coil—1060 ohms
11469	Coil—Neutralizing coil
71825	Cone—Cone complete with voice coil
30868	Plug—2 contact female plug
31539	Plug—5 prong male plug
37997	Transformer—Output transformer
	SPEAKER ASSEMBLIES RL-63L4
13867	Cap—Dust cap
71826	Coil—Field coil—3300 ohms
11469	Coil—Neutralizing coil
71825	Cone—Cone complete with voice coil
30870	Plug—2 prong male plug
5039	Plug—4 prong male plug
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS ASSEMBLIES
39819	Back—Cabinet back
30716	Clip—Tuning tube clip
70579	Decal—Trade mark decal
70665	Dial—Glass dial scale
70686	Indicator—Station selector indicator
70664	Knob—Radio-phono, or range switch knob
70663	Knob—Tone control, volume control, or tuning knob
31480	Lamp—Dial lamp
39816	Plate—Dial back plate less indicator, tube clip and dial
5039	Plug—4-prong male plug for band indicator cable
12587	Plug—5-prong male plug for band indicator cable
31482	Screw—#8-32 square head set screw for radio-phono switch shaft
36658	Shaft—Radio-phono switch shaft
31365	Socket—Lamp socket
14270	Spring—Retaining spring for radio-phono or range switch knobs and for tone control, volume control, or tuning knobs

MODELS Q103,-2,A,A-2,Ch.RC1044
MODELS Q103X,-2,AX,AX-2,Ch.RC1044B
1947....X1

RCA MFG. CO.

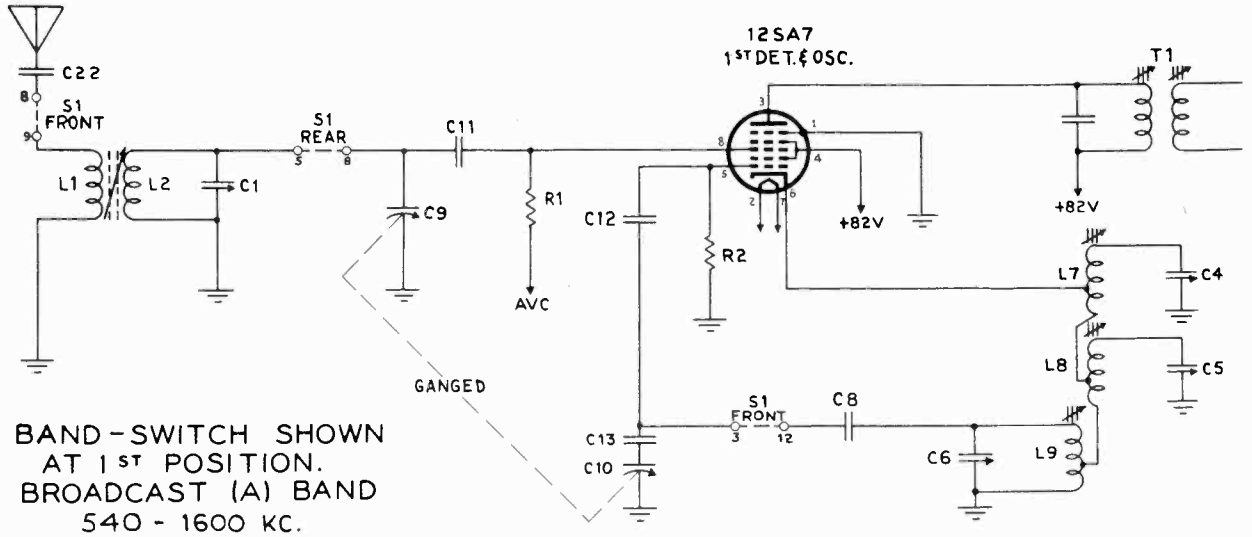


Schematic—Q103, Q103-2, Q103A, Q103A-2

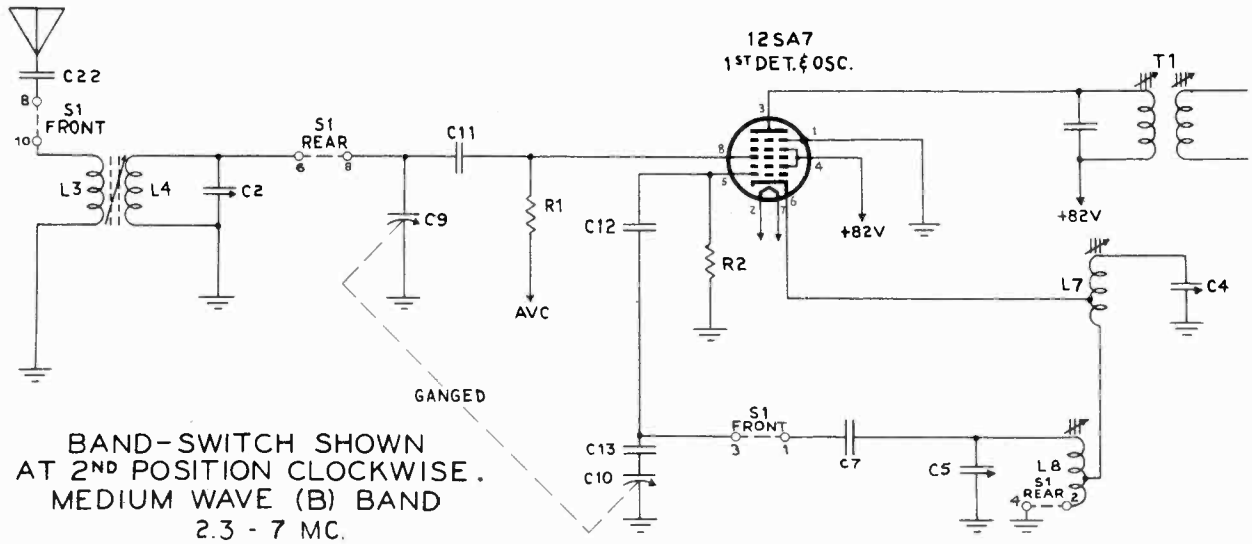


Schematic—Q103X, Q103X-2, Q103AX, Q103AX-2

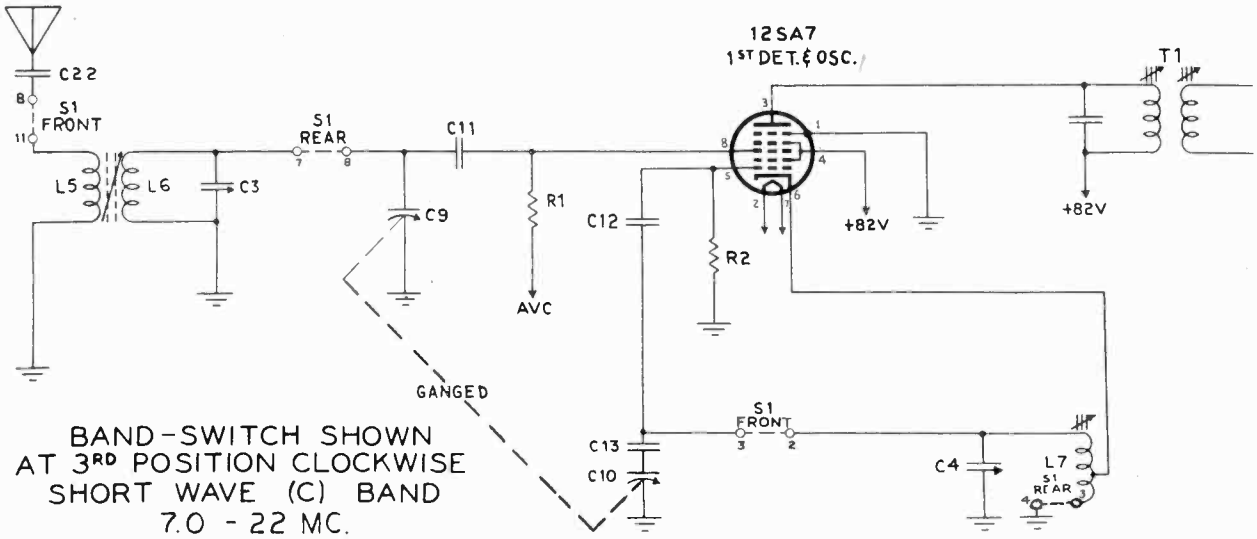
RCA MFG. CO.



BAND-SWITCH SHOWN AT 1ST POSITION. BROADCAST (A) BAND 540 - 1600 KC.



BAND-SWITCH SHOWN AT 2ND POSITION CLOCKWISE. MEDIUM WAVE (B) BAND 2.3 - 7 MC.

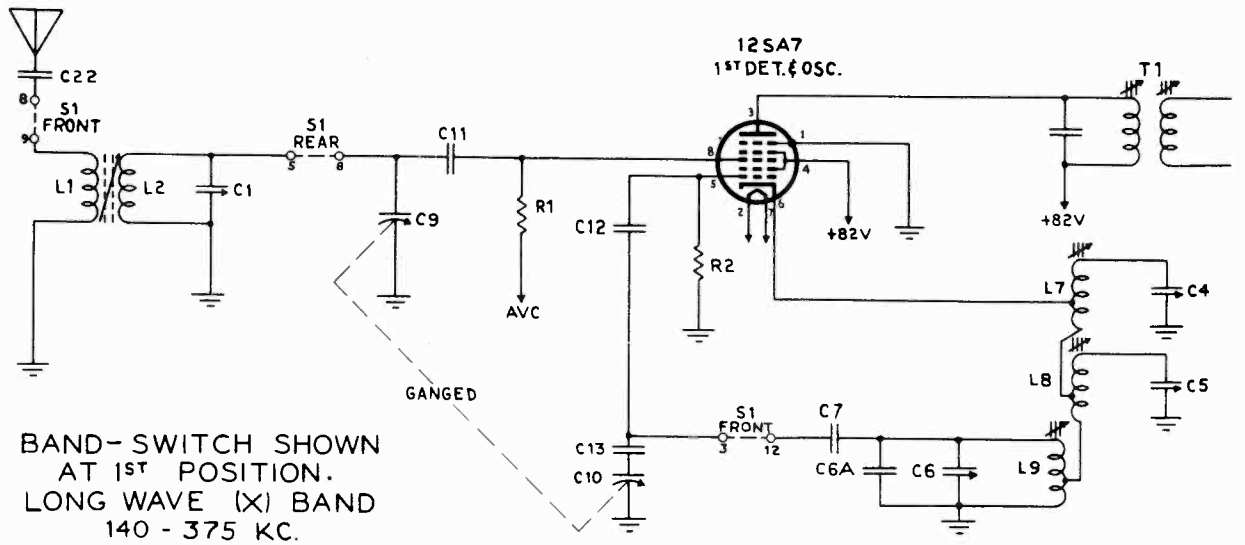


BAND-SWITCH SHOWN AT 3RD POSITION CLOCKWISE SHORT WAVE (C) BAND 7.0 - 22 MC.

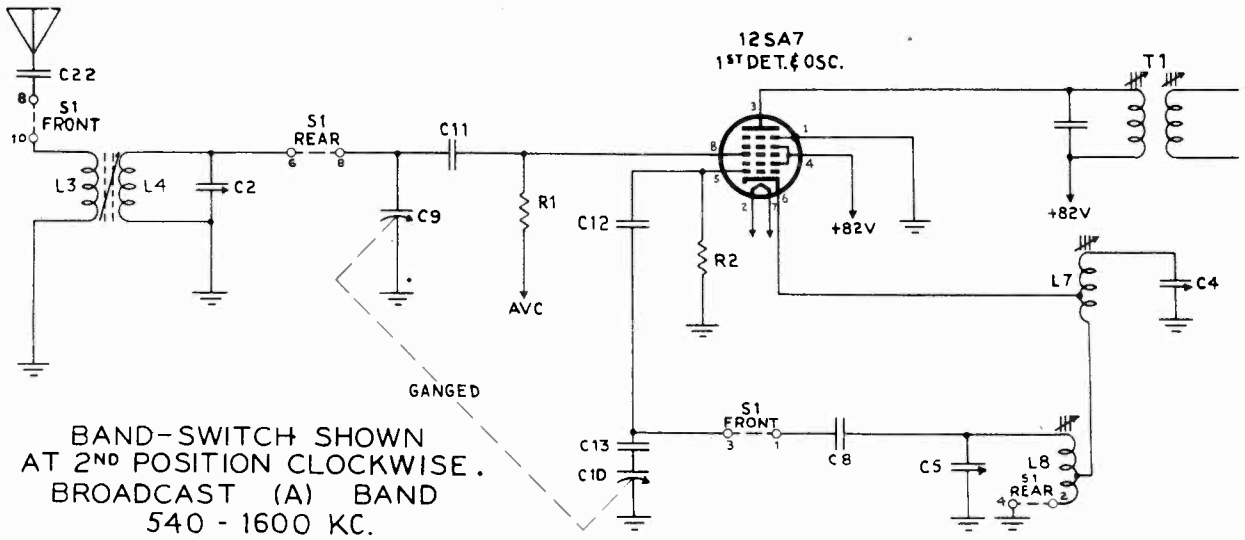
"clarified schematics"

MODELS Q103X,-2,AX,AX-2

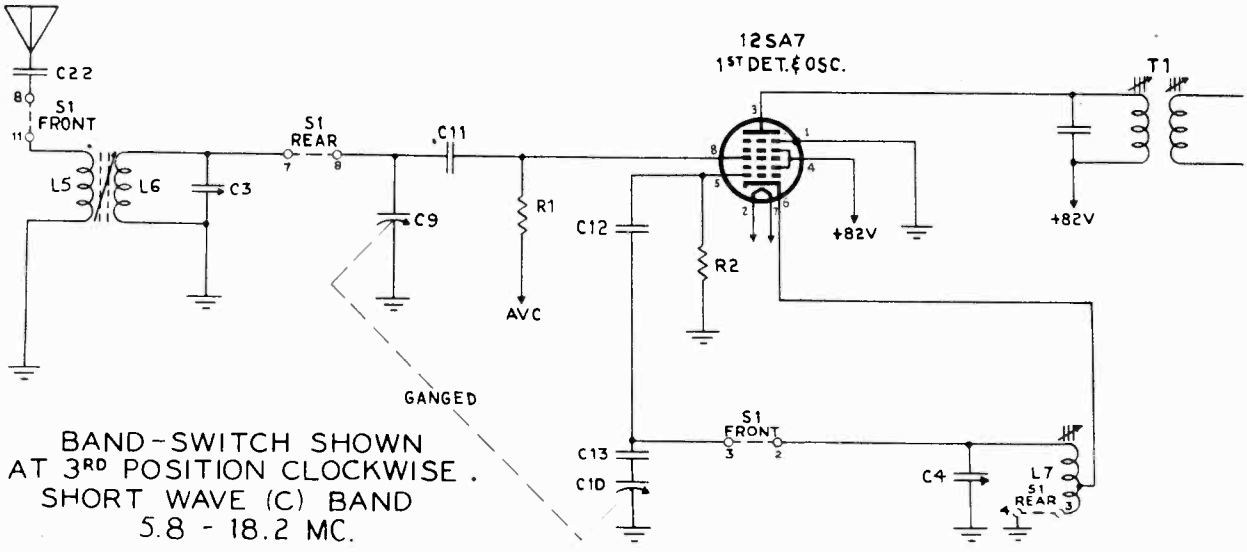
RCA MFG. CO.



BAND-SWITCH SHOWN AT 1ST POSITION. LONG WAVE (X) BAND 140 - 375 KC.



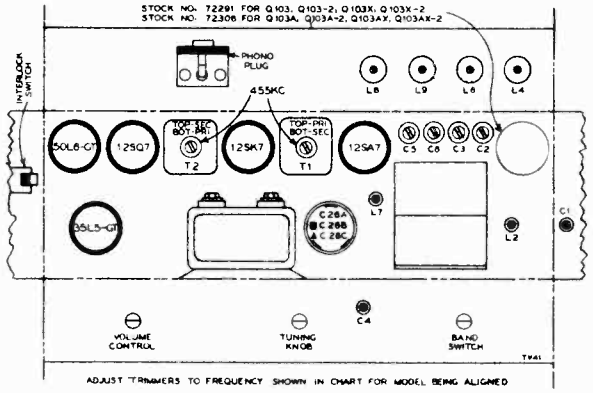
BAND-SWITCH SHOWN AT 2ND POSITION CLOCKWISE. BROADCAST (A) BAND 540 - 1600 KC.



BAND-SWITCH SHOWN AT 3RD POSITION CLOCKWISE. SHORT WAVE (C) BAND 5.8 - 18.2 MC.

RCA MFG. CO.

MODELS Q103,-2,A,A-2
MODELS Q103X,-2,AX,AX-2



Tube and Trimmer Locations

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown on the Schematic Circuit Diagram.

Output Meter Alignment.—If this method is used, connect the meter across either 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 a-v-c action.

Alignment.—With the gang condenser in full mesh, the pointer should be set three inches from the left edge of the dial back plate. This point corresponds to the first mark on the dial scale to the left of "550" kc. on "A" band. To find any calibration point it is necessary to draw a line on the dial scale drawing through the desired freq., so that the line passes through the same reading on the top and bottom rule scales. For instance, 1300 kc. on "A" band will correspond to a dial indicator setting of 7¾" from the LEFT EDGE of the dial back plate. Move the indicator the desired distance by turning the tuning knob. ONCE THE INDICATOR HAS BEEN SET AT FULL MESH, MOVE THE INDICATOR ONLY BY TURNING THE TUNING KNOB.

Alignment Table Q103X, Q103X-2, Q103AX, Q103AX-2

Steps	Connect high side of test-osc. to—	Tune test osc. to—	Range Switch	Move indicator to—	Adjust following for max. output—
1	12SK7 I-F grid in series with .01 mfd. condenser	455 kc	A Band	Quiet point around 600 kc	T2 top and bottom core
2	12SA7 1st Det. grid in series with .01 mfd. condenser				T1 top and bottom core
3§	Antenna lead (blue) in series with a 300 ohm resistor	15.2 mc	C Band	15.2 mc	C4 osc.† C3 ant.‡
4		6.1 mc		6.1 mc	L7 osc.* L6 ant.
5	Repeat steps 3 and 4 until aligned				
6	Antenna lead in series a 200 mmf. condenser	1300 kc	A Band	1300 kc	C5 osc. C2 ant.
7		600 kc		600 kc	L8 osc. L4 ant.
8		Repeat steps 6 and 7 until aligned			
9		350 kc	X Band	350 kc	C6 osc. C1 ant.
10		150 kc		150 kc	L9 osc. L2 ant.
11		Repeat steps 9 and 10 until aligned			

Dial Indicator Adjustment.—After the set has been aligned, replace it in the cahinet. Turn the tuning knob until the condenser is in full mesh. The indicator should now be under the first mark on the dial scale face to the left of "550" kc on "A" band. If it is not, press out on the metal strip at the bottom of the dial glass. The metal strip will swing out exposing the dial indicator, which may be moved by sliding it along the dial string until it is at the desired point when the gang condenser is fully closed. If the indicator is more than a half inch off, the calibration should be rechecked.

Alignment.—The most satisfactory method of aligning or checking the ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce inaccuracy on the band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal-controlled oscillator, or by zero-beating against standard broadcast stations.

When a test oscillator is employed for alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be retouched so that the stations come in at the correct points on the dial.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

***Caution:** This is an AC-DC type chassis with one side of the power line connected to the metal base, which is also—B. Connection from the signal generator must have a large (.1 MFD) capacitor in the ground side to prevent damage to the generator attenuator, unless the power source to the receiver is isolated from ground.

Alignment Table, Q103, Q103-2, Q103A, Q103A-2

Steps	Connect high side of test-osc. to—	Tune test osc. to—	Range Switch	Move indicator to—	Adjust following for max. output—
1	12SK7 I-F grid in series with .01 mfd. condenser	455 kc	A Band	Quiet point around 600 kc	T2 top and bottom core
2	12SA7 1st Det. grid in series with .01 mfd. condenser				T1 top and bottom core
3§	Antenna lead (blue) in series with a 300 ohm resistor	18.2 mc	C Band	18.2 mc	C4 osc.† C3 ant.‡
4		7.2 mc		7.2 mc	L7 osc.* L6 ant.
5		Repeat steps 3 and 4 until aligned			
6		6.1 mc	B Band	6.1 mc	C5 osc.† C2 ant.
7		2500 kc		2500 kc	L8 osc. L4 ant.
8		Repeat steps 6 and 7 until aligned			
9	Antenna lead (blue) in series with a 200 mmf condenser	1300 kc	A Band	1300 kc	C6 osc. C1 ant.
10		600 kc		600 kc	L9 osc. L2 ant.
11		Repeat steps 9 and 10 until aligned			

*Use min inductance if two peaks can be found.
†Use min. capacity if two peaks can be found.
‡Use max. capacity if two peaks can be found.
§Bottom shield cover in place after I-F's are aligned.

MODELS Q103,-2,A,A-2
MODELS Q103X,-2,AX,AX-2

RCA MFG. CO.

Specifications

Frequency Ranges Chassis No. RC-1044

Standard Broadcast ("A" Band)	540-1600 kc (555-187 m)
Medium Wave ("B" Band)	2.3-7.0 mc (130-42.2 m)
Short Wave ("C" Band)	7.0-22 mc (42.2-13.6 m)

Frequency Ranges Chassis No. RC-1044B

Long Wave ("X" Band)	140-375 kc (2,222-780 m)
Standard Broadcast ("A" Band)	540-1600 kc (555-187 m)
Short Wave ("C" Band)	5.8-18.2 mc (51.7-16.5 m)

Intermediate Frequency ..... 455 kc

RCA Tube Complement

(1) RCA-12SA7	1st Detector-Oscillator
(2) RCA-12SK7	I-F Amplifier
(3) RCA-12SQ7	2nd Detector, A.V.C., and A-F Amplifier
(4) RCA-50L6GT	Power Output
(5) RCA-35Z5GT	Rectifier

Power Supply Ratings (D-C or 50 to 60 cycles A-C)

Q103, Q103-2, Q103X, Q103X-2—105-125 volts	30 watts
Q103A, Q103A-2, Q103AX, Q103AX-2—210-250 volts	60 watts

Power Output Rating

Undistorted	.9 watts
Maximum	1.5 watts

Loudspeaker

Type	4 x 6 in. elliptical PM
Voice Coil Impedance	3.4 ohms at 400 cycles

Tuning Drive Ratio ..... 20 to 1

Dimensions (Inches)	Width	Height	Depth
Cabinet (Outside)	15	9¾	7
Chassis Base (Outside)	13	2⅛	4½
Chassis Overall	13	9¾	4½

Weight, Net ..... 9 lbs.
Weight Shipping ..... 11 lbs.

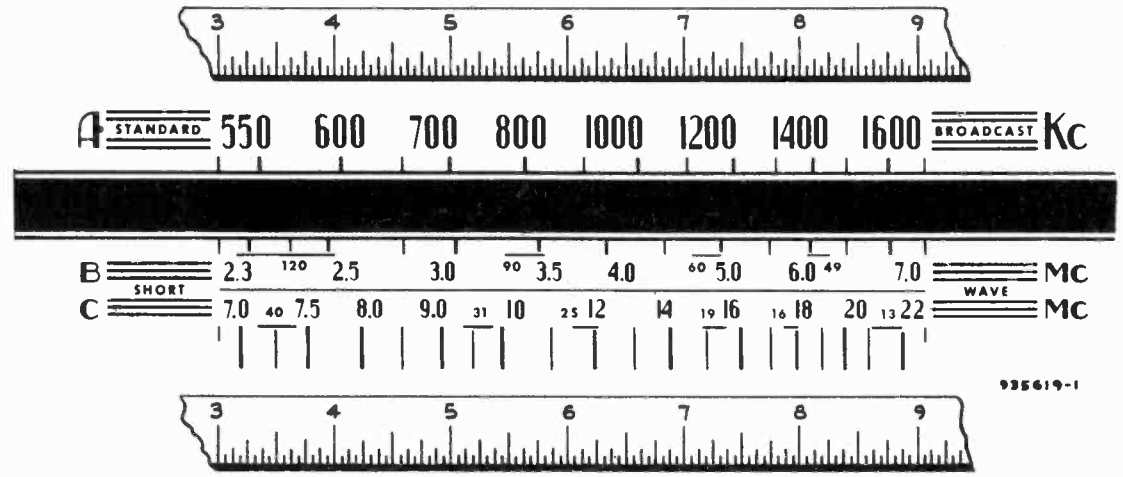
Phonograph Attachment.—A jack is provided on the bottom of the chassis for connection to a phonograph. The cable from the attachment should be terminated in a Stock No. 31048 plug. Plug must be removed when radio is in use.

When the phonograph is in use the volume control on the radio should be at minimum.

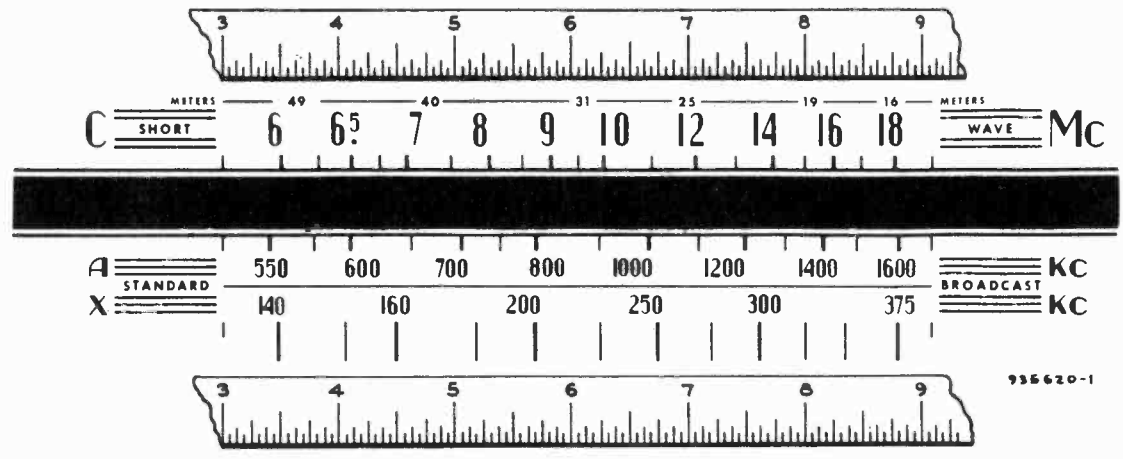
Plug-In Resistor.—Either a plug-in resistor or a shorting plug is used with these sets. The plugs are physically interchangeable and may be used to convert the set from 110 to 220 volts or from 220 to 110 volts. DANGER—Do not attempt to use these sets on 220 volts unless the plug-in RESISTOR is used. If the shorting plug is in place, serious damage will result. Consult the instrument label for original rating.

Disassembly.—Remove the screws holding the chassis bottom plate to the cabinet. Remove the chassis from the cabinet by removing the knobs and tilting the cabinet so that the chassis will slide back and out. Looking at the chassis from the front, a switch is visible on the left apron in the rear. This is an interlock switch. The set will not function out of the cabinet unless this switch is closed. A small screw through the interlock actuating arm and the hole in the chassis bottom plate will serve to keep the switch closed. When the chassis is replaced in the cabinet, remove the screw so that the switch will function.

Model	Bands	Power Supply	Cabinet
Q103	"A"-"B"-"C"	110V	Brown
Q103A	"A"-"B"-"C"	220V	Brown
Q103-2	"A"-"B"-"C"	110V	Ivory
Q103A-2	"A"-"B"-"C"	220V	Ivory
Q103X	"X"-"A"-"C"	110V	Brown
Q103AX	"X"-"A"-"C"	220V	Brown
Q103X-2	"X"-"A"-"C"	110V	Ivory
Q103AX-2	"X"-"A"-"C"	220V	Ivory



Reduced Reproduction of Receiver Dial, RC-1044, and Corresponding Rule Scales



Reduced Reproduction of Receiver Dial, RC-1044B, and Corresponding Rule Scales

The corresponding position of the dial indicator in inches, from the left hand edge of the dial plate, for any frequency can be determined by drawing a line from the frequency to a point on the bottom rule scale passing through the same point on the top rule scale. For example 600 kc on the dial scale corresponds to a dial indicator setting of 4⅛" from the left hand edge of the dial plate, etc. Read instructions under "Alignment Procedure."

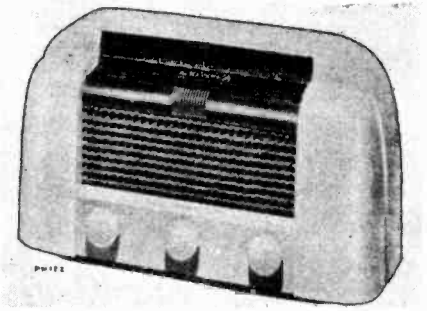
RCA MFG. CO.

MODELS Q103,-2,A,A-2
MODELS Q103X,-2,AX,AX-2

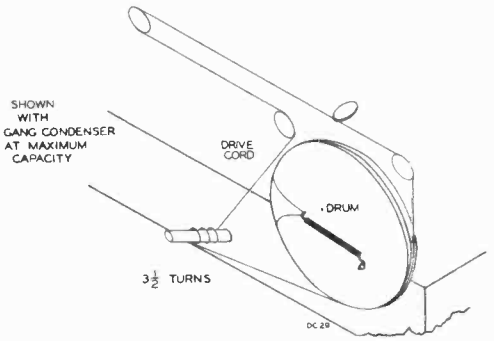
PRECAUTIONARY LEAD DRESS

1. Dress output plate capacitor and output transformer leads down next to chassis.
2. Dress 12SQ7 grid resistor down next to chassis, and away from power ground wire to switch.
3. Dress lead from 2nd I-F transformer to volume control down to chassis and away from adjacent parts.
4. Keep grid end of R1 as short as possible.

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, reverse the plug. On a-c, reversal of the plug may reduce hum.

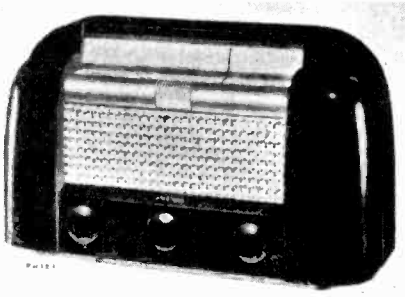


Q103-2, Q103A-2
Q103X-2, Q103AX-2



Dial-Indicator and Drive Mechanism

Q103, Q103A
Q103X, Q103AX



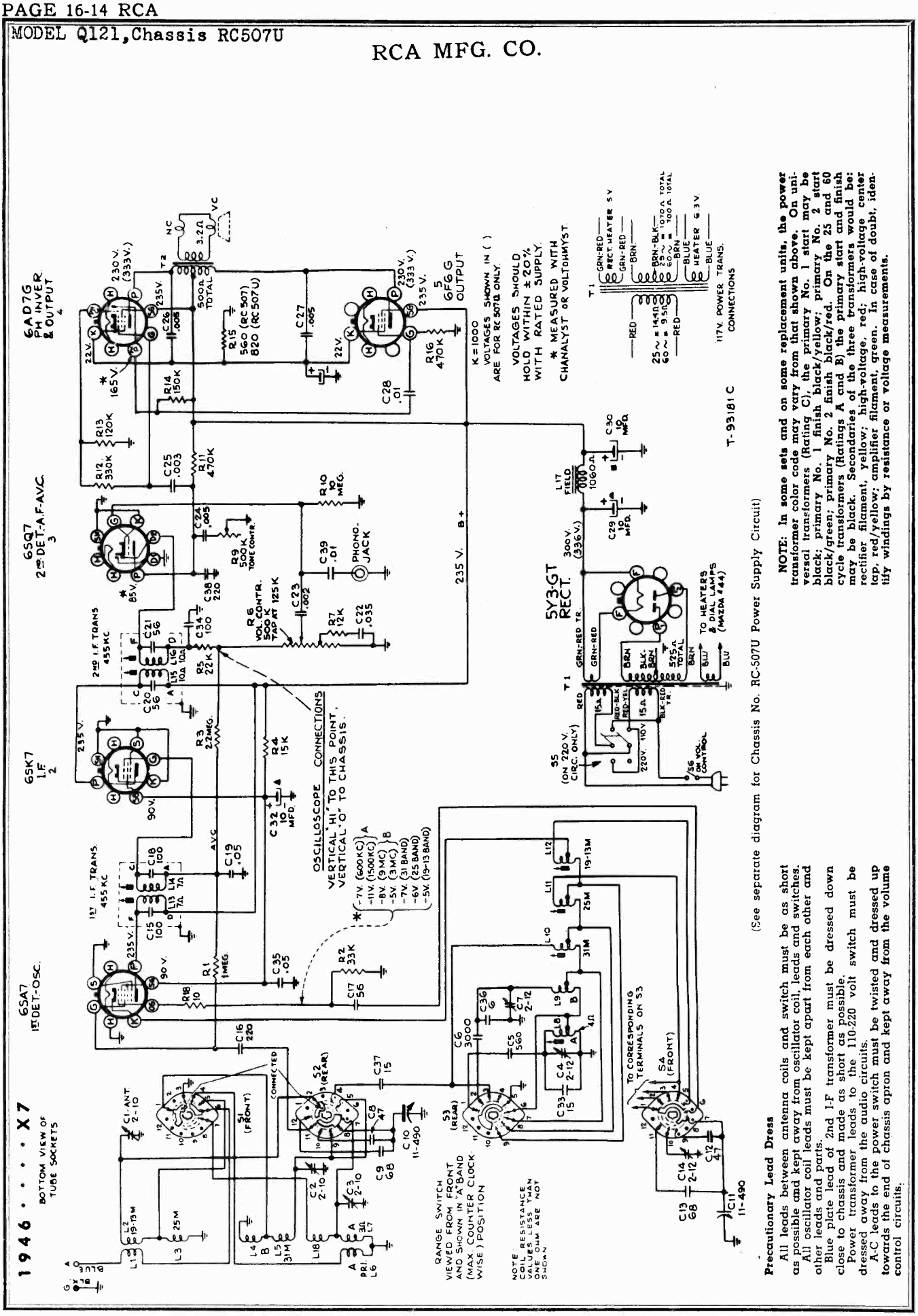
Replacement Parts

STOCK NO.	DESCRIPTION
	CHASSIS ASSEMBLIES RC-1044—Q103, Q103-2, Q103A, Q103A-2 RC-1044B—Q103AX, Q103AX-2, Q103X, Q103X-2
*72306	Capacitor—Mica trimmer, 3-30 mmf. (C3)
*72307	Capacitor—Mica trimmer, 5-50 mmf. (C4)
39616	Capacitor—Mica, 33 mmf. (C6A for Q103AX, Q103AX-2, Q103X, Q103X-2)
39622	Capacitor—Mica, 56 mmf. (C12)
*72794	Capacitor—Ceramic, 170 mmf. (C7 for Q103AX, Q103AX-2, Q103X, Q103X-2)
39636	Capacitor—Mica, 220 mmf. (C11)
72571	Capacitor—Mica, 330 mmf. (C23)
*72814	Capacitor—Ceramic, 470 mmf. (C8)
*72305	Capacitor—Mica trimmer, comprising 2 sections of 2-20 mmf. and 2 sections of 5-50 mmf. (C1, C2, C5, C6)
*72795	Capacitor—Mica, 2760 mmf. (C7 for Q103, Q103-2, Q103A, Q103A-2)
*72637	Capacitor—Mica, 3900 mmf. (C13)
*71699	Capacitor—Molded paper, .005 mfd., 400 volts (C24, C25)
71770	Capacitor—Molded paper, .01 mfd., 400 volts (C21, C22)
*72815	Capacitor—Molded paper, .03 mfd., 400 volts (C27)
*71702	Capacitor—Molded paper, .05 mfd., 400 volts (C16, C28)
*72281	Capacitor—Electrolytic, comprising 1 section of 80 mfd., 150 volts, 1 section of 40 mfd., 150 volts and 1 section of 20 mfd., 25 volts (C26)
*72576	Coil—Antenna coil, "A" band (L1, L2 for Q103 and Q103A, Q103-2, Q103A-2; L3, L4 for Q103AX, Q103X, Q103X-2, Q103AX-2)
*72298	Coil—Antenna coil, "B" band for Q103, Q103-2, Q103A, and Q103A-2 (L3, L4)
*72299	Coil—Antenna coil, "C" band for Q103, Q103-2, Q103A, and Q103A-2 (L5, L6)
*72276	Coil—Antenna coil, "C" band for Q103AX, Q103AX-2, Q103X, Q103X-2 (L5, L6)
*72297	Coil—Antenna coil, "X" band for Q103AX, Q103AX-2, Q103X, Q103X-2, (L1, L2)
*72575	Coil—Oscillator coil, "A" band (L9 for Q103, Q103A, Q103-2, Q103A-2, L8 for Q103AX, Q103X, Q103X-2, Q103AX-2)
*72302	Coil—Oscillator coil, "B" band for Q103, Q103-2, Q103A, and Q103A-2 (L8)
*72303	Coil—Oscillator coil, "C" band for Q103, Q103-2, Q103A, and Q103A-2 (L7)
*72274	Coil—Oscillator coil, "C" band for Q103AX, Q103AX-2, Q103X, Q103X-2 (L7)
*72300	Coil—Oscillator coil, "X" band for Q103AX, Q103AX-2, Q103X, Q103X-2 (L9)
*72294	Condenser—Variable tuning condenser (C9, C10)
38410	Control—Volume control and power switch (R6, S2)
34662	Cord—Drive cord (approx. 56" overall length)
70384	Drum—Drive drum
72283	Grommet—Rubber grommet for mounting tuning condenser and speaker
70429	Grommet—Rubber grommet for mounting tube socket
*72547	Indicator—Station selector indicator
71116	Lamp—Dial lamp, Mazda No. 1490
*72548	Plate—Dial back plate complete with drive cord pulleys
36230	Pulley—Drive cord pulley
71290	Resistor—33 ohms, 1 watt (R11)
30880	Resistor—150 ohms, ½ watt (R9)
71916	Resistor—1000 ohms, 1 watt (R10)
30685	Resistor—33,000 ohms, ½ watt (R2)
30787	Resistor—47,000 ohms, ½ watt (R4)
30648	Resistor—470,000 ohms, ½ watt (R7, R8)
30649	Resistor—2.2 megohms, ½ watt (R1)
31417	Resistor—3.3 megohms, ½ watt (R3)
30992	Resistor—10 megohms, ½ watt (R5)
*72577	Shaft—Tuning knob shaft
71115	Socket—Lamp socket
*72295	Socket—Phono-input socket (J1)
37605	Socket—Tube socket
31319	Socket—Tube socket
70390	Spring—Drive cord spring
*72745	Switch—Interlock switch, slide type, D.P.D.T. (S3)
*72304	Switch—Range switch (S1)
*72545	Transformer—First I. F. transformer (T1)
70918	Transformer—Second I. F. transformer (T2)
*72296	Transformer—Output transformer (T3)
33726	Washer—"C" washer for tuning shaft
	SPEAKER ASSEMBLIES 922258-2
71058	Speaker—4" x 6" P.M. speaker complete with cone and voice coil. NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS
71122	Baffle—Speaker baffle
*71123	Bottom—Case bottom
Y1354	Cabinet—Brown plastic cabinet for Q103, Q103A, Q103X, Q103AX
Y1355	Cabinet—Ivory plastic cabinet for Q103-2, Q103A-2, Q103X-2, Q103AX-2
*72578	Clamp—Dial clamp (2 required)
*72686	Decal—Power switch decal
*72687	Decal—Range switch decal for Q103AX, Q103AX-2, Q103X, Q103X-2
*72747	Decal—Range switch decal for Q103, Q103-2, Q103A and Q103A-2
*72609	Dial—Glass dial scale for Q103, Q103A, Q103-2, Q103A-2
*72610	Dial—Glass dial scale for Q103AX, Q103X, Q103X-2, Q103AX-2
71127	Foot—Cabinet foot (walnut) for Q103, Q103A, Q103AX, Q103X (4 required)
71128	Foot—Cabinet foot (ivory) for Q103-2, Q103A-2, Q103AX-2, Q103X-2 (4 required)
70473	Knob—Tuning knob (walnut) for Q103, Q103A, Q103AX, Q103X
70474	Knob—Tuning knob (ivory) for Q103-2, Q103A-2, Q103AX-2, Q103X-2
*72549	Knob—Volume control or range switch knob (walnut) for Q103, Q103A, Q103AX, Q103X
*72550	Knob—Volume control or range switch knob (ivory) for Q103-2, Q103A-2, Q103AX-2, Q103X-2
71126	Nut—Speed nut to fasten hand grip screen (4 required)
*72291	Plug—Shorting plug for Q103, Q103-2, Q103X, Q103X-2
*72308	Resistor—Plug-in resistor for Q103A, Q103A-2, Q103AX and Q103AX-2 (R12)
71125	Screen—Protective screen for hand grip
*72746	Slide—Interlock switch actuating slide
30900	Spring—Retaining spring for knobs
71130	Spring—Retaining spring for front strip
71129	Strip—Finished strip for cabinet front
34373	Washer—"C" washer to hold interlock actuating

*This is the first time this Stock No. has appeared in Service data.

MODEL Q121, Chassis RC507U

RCA MFG. CO.



(See separate diagram for Chassis No. RC-507U Power Supply Circuit)

NOTE: In some sets and on some replacement units, the power transformer color code may vary from that shown above. On universal transformers (Rating C), the primary No. 1 start may be black; primary No. 1 finish black/yellow; primary No. 2 start black/green; primary No. 2 finish black/red. On the 25 and 60 cycle transformers (Ratings A and B) the primary start and finish may be black. Secondaries of the three transformers would be: rectifier filament, yellow; high-voltage center tap, red/yellow; amplifier filament, green. In case of doubt, identify windings by resistance or voltage measurements.

Precautionary Lead Dress

All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.

All oscillator coil leads must be kept apart from each other and other leads and parts.

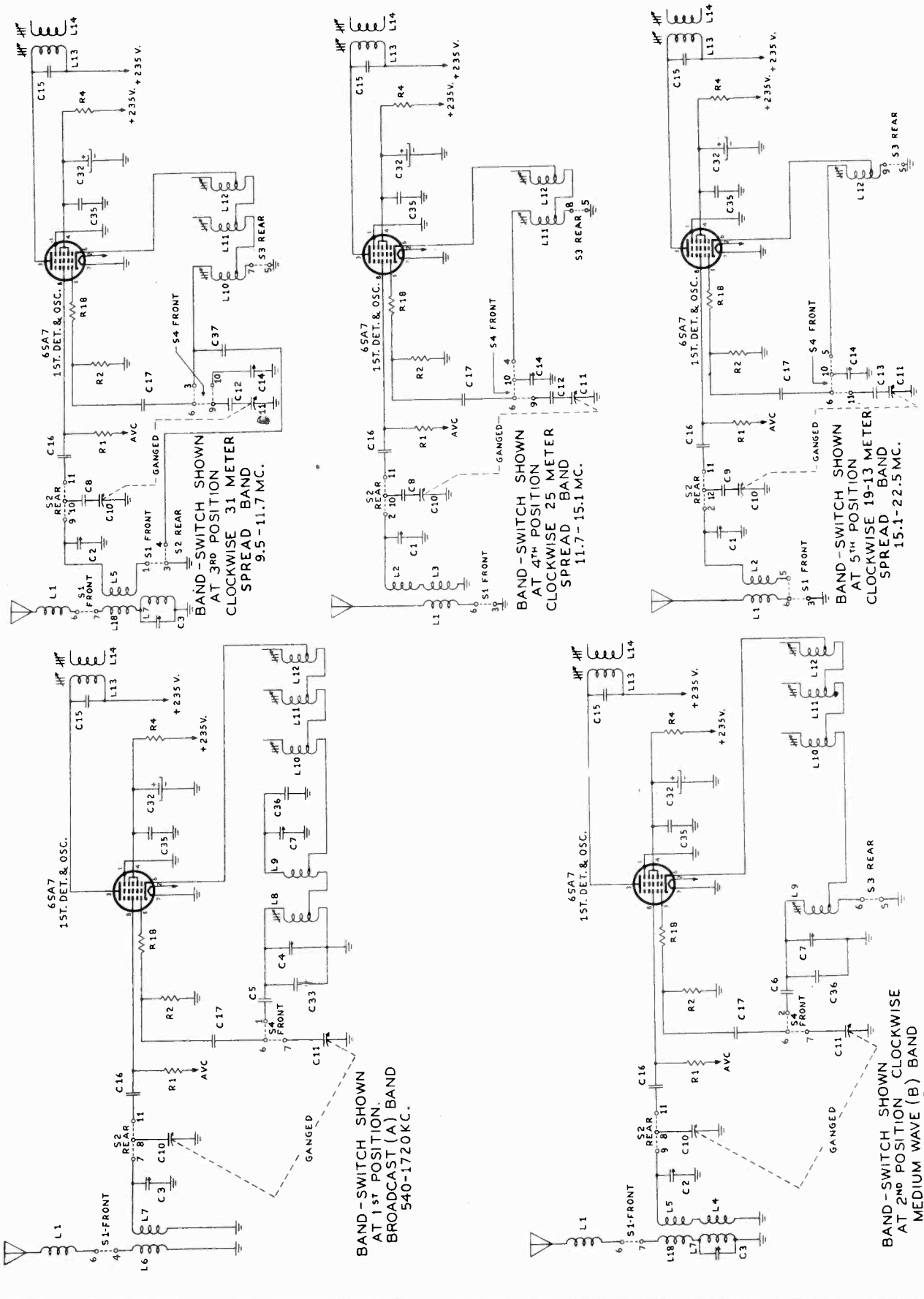
Blue plate lead of 2nd I.F transformer must be dressed down close to chassis and made as short as possible.

Power transformer leads to the 110-220 volt switch must be dressed away from the audio circuits.

A-C leads to the power switch must be twisted and dressed up towards the end of chassis apron and kept away from the volume control circuits.

MODEL Q121

RCA MFG. CO.



RCA MFG. CO.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown on the Schematic Circuit 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.—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.

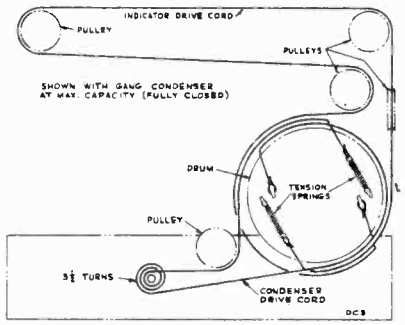
Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on tho drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

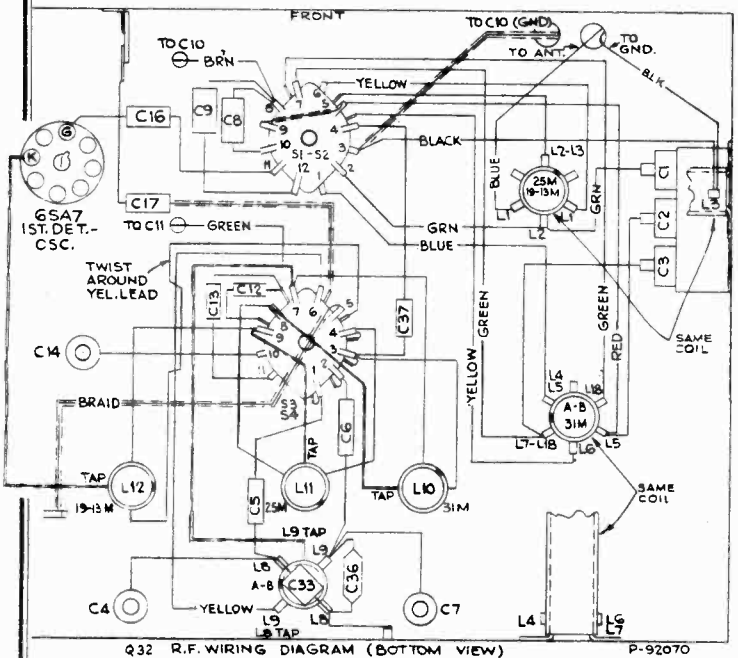
To determine the corresponding frequency for any setting of the calibration scales, refer to the calibration scale drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark (the first mark on "A" band to the left of "550"), and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.



Dial-Indicator and Drive Mechanism



Q32 R.F. WIRING DIAGRAM (BOTTOM VIEW) P-92070

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each spread-band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillaor, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal-controlled oscillator, or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be retouched so that the stations come in at the correct points on the dial.

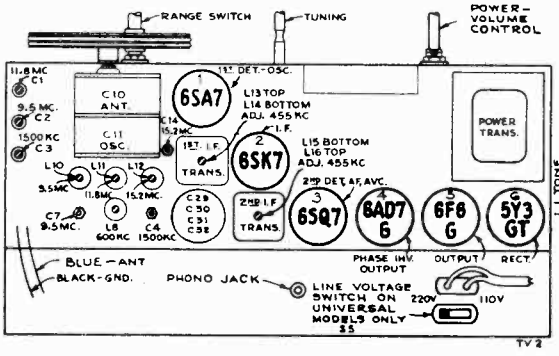
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L15 and L16 2nd I-F Trans.
2	6SA7 1st Det. grid in series with .01 mfd.				L13 and L14 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25 M	138.5°	L11 (osc.)** C1 (ant.)
4		15.2 mc		17°	C14 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13 M	156°	L12 (osc.)**
7		9.5 mc	31 M	156°	L10 (osc.)** C2 (ant.)
8		9.5 mc	B	11.5°	C7 (osc.)***
9		1,500 kc	A	26°	C4 (osc.) C3 (ant.)
10		600 kc		150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

** If two peaks can be obtained use the one obtained when the core screw is farthest out (counter-clockwise).

*** Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.



Tube and Trimmer Locations

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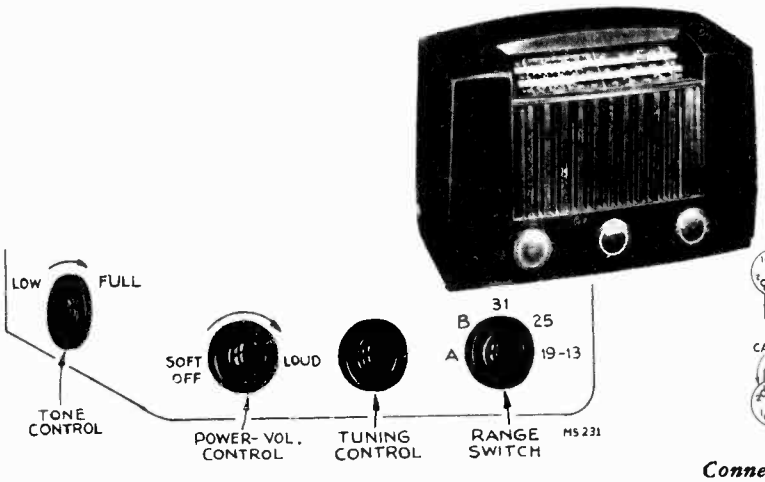
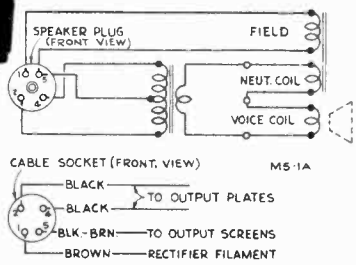


Location of Controls



Connections and Colors of Loudspeaker and Cable for Chassis No. RC-507

Electrical and Mechanical Specifications

Chassis No. RC-507U differs from Chassis No. RC-507 in that it is equipped with a permanent magnet dynamic loudspeaker. Other than the loudspeaker and required changes to the power supply filter, and output tubes bias circuits, the chassis are identical.

Frequency Ranges

Standard Broadcast ("A" Band)	540-1,720 kc (556-174 m)
Medium Wave ("B" Band)	3.0-9.5 mc (100-31.6 m)
"31" Meter Spread Band	9.5-11.7 mc (31.6-25.6 m)
"25" Meter Spread Band	11.7-15.1 mc (25.6-19.9 m)
"19-13" Meter Spread Band	15.1-22.5 mc (19.9-13.3 m)

Intermediate Frequency ..... 455 kc

Tube Complement

(1) RCA-6SA7	1st Detector-Oscillator
(2) RCA-6SK7	I-F Amplifier
(3) RCA-6SQ7	2nd Detector, A-F Amplifier, A.V.C.
(4) RCA-6AD7-G	Phase Inverter, Power Output
(5) RCA-6F6-G	Power Output
(6) RCA-5Y3-GT	Rectifier

Power Output Rating

Undistorted	3 watts
Maximum	3.5 watts

Loudspeaker

Chassis No. RC-507	Identification No. 92517-1
Type (Electrodynamic)	6½ inches
V-C Impedance at 400 c.p.s.	3.4 ohms
Chassis No. RC-507U	Identification No. 92570-1
Type (P.M. dynamic)	6½ inches
V-C Impedance at 400 c.p.s.	3.4 ohms

Cabinet Dimensions (Inches)

	Height	Width	Depth
Q121 (Plastic)	10⅞	16¼	7⅝

Net Weight (pounds)	21
Shipping Weight (pounds)	25
Chassis Base Dimensions (inches)	Height, 2¾; Width, 15⅛; Depth, 5¼
Over-all Chassis Height	9¼ inches
Tuning Drive Ratio	25 to 1

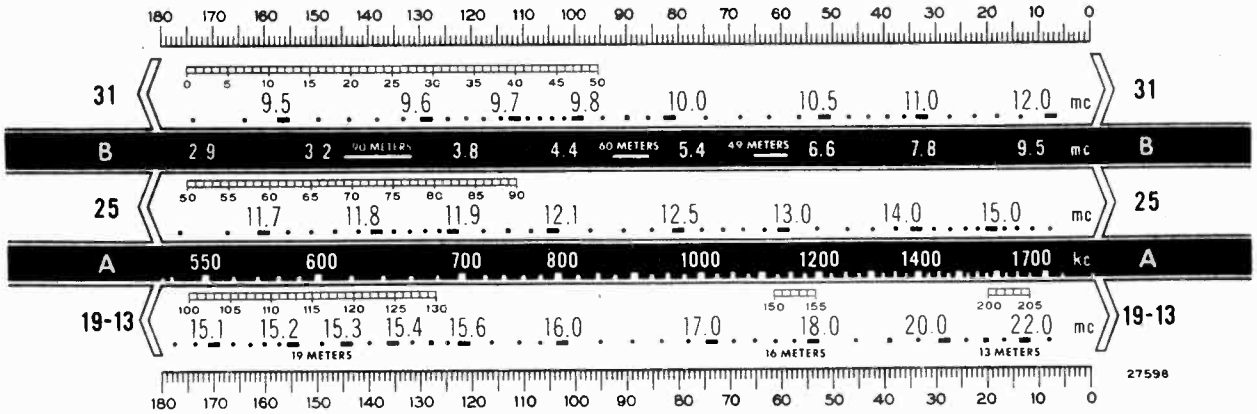
Power Supply Ratings

Symbol	Voltages	Frequency (cycles)	Watts
Rating A	105 to 125 volts, 117 nominal	25 to 60	65
Rating B	105 to 125 volts, 117 nominal	50 to 60	65
Rating C	105 to 125 volts, 117 nominal 210 to 250 volts, 234 nominal	50 to 60	65

(Shipped in 210-250 volt position)

Phonograph Attachment.—A jack is provided on the rear of chassis for connection to a Phonograph Attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug.

When Phonograph is not in use its plug should be removed. When Phonograph is in use the volume control on the radio should be at minimum and, if necessary, tune set off frequency from any very strong station.

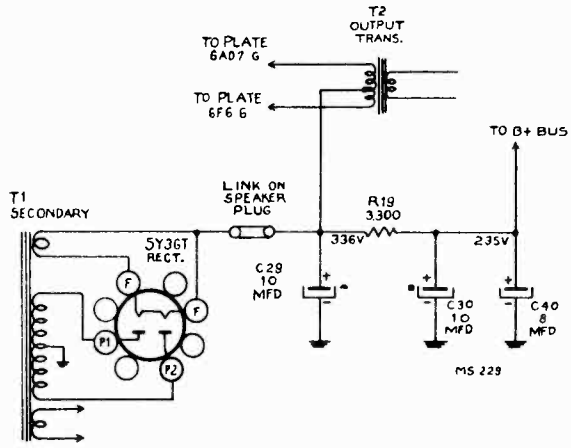


Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

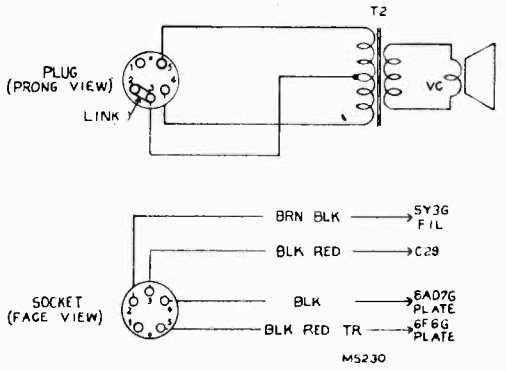
The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example 150° on the calibration scale corresponds to 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

MODEL Q121

RCA MFG. CO.



Chassis No. RC-507U Power Supply Circuit Diagram



Connections and Colors of Loudspeaker and Cable for Chassis No. RC-507U

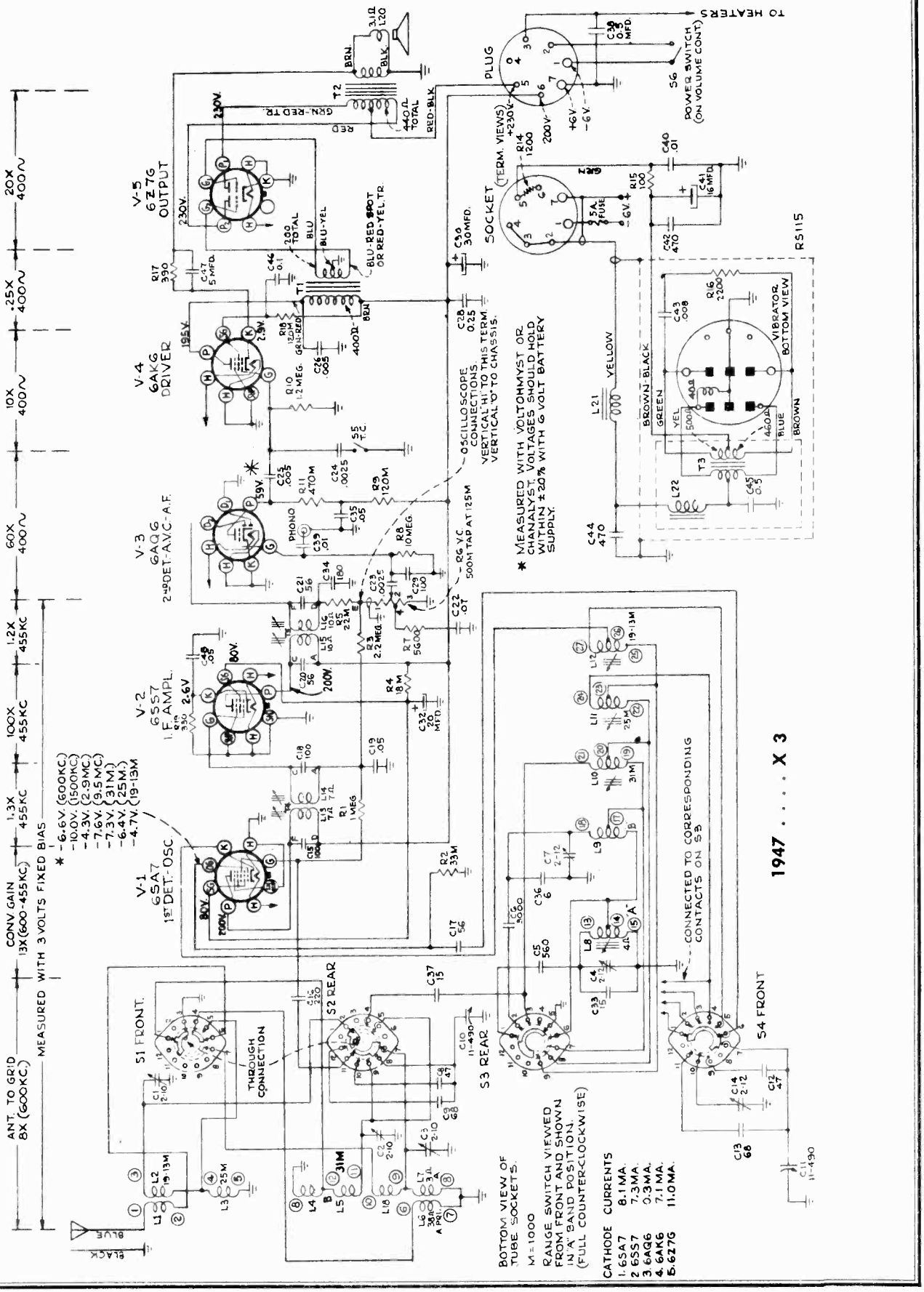
Replacement Parts

NOTE: The replacement parts listed below are applicable to both chassis except where specifically indicated.

STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC-507 and RC-507U
35622	Bracket—Flywheel and tuning shaft mounting support
37976	Bracket—Support bracket for tone control
35642	Calibrator—Drive drum calibrator
12714	Capacitor—Air trimmer, 2-12 mmf. (C4, C7, C14)
34654	Capacitor—Mica trimmer, comprising three sections of 2.5-10 mmf. (C1, C2, C3)
35646	Capacitor—Ceramic, 6 mmf. (C36)
36012	Capacitor—Ceramic, 15 mmf. (C37)
39041	Capacitor—Ceramic, 18 mmf. (C33)
70582	Capacitor—Ceramic, 47 mmf. (C8, C12)
39622	Capacitor—Mica, 56 mmf. (C17)
35645	Capacitor—Ceramic, 68 mmf. (C13)
70586	Capacitor—Mica, 68 mmf. (C9)
39628	Capacitor—Mica, 100 mmf. (C15, C18, C34)
39636	Capacitor—Mica, 220 mmf. (C16, C38)
70667	Capacitor—Mica, 560 mmf. (C5)
70687	Capacitor—Mica, 3000 mmf. (C6)
70585	Capacitor—Tubular, .0015 mfd., 1500 volts (C23)
70644	Capacitor—Tubular, .0025 mfd., 700 volts (C25)
70627	Capacitor—Tubular, .005 mfd., 500 volts (C24)
70648	Capacitor—Tubular, .005 mfd., 1000 volts (C27, C26)
70610	Capacitor—Tubular, .01 mfd., 400 volts (C28, C39)
70614	Capacitor—Tubular, .035 mfd., 400 volts (C22)
70615	Capacitor—Tubular, .05 mfd., 400 volts (C19, C35)
33014	Capacitor—Electrolytic, comprising 3 sections of 10 mfd., 450 volts, and 1 section of 20 mfd., 25 volts (C29, C30, C31 C32)
72139	Capacitor—Electrolytic, 8 mfd., 450 volts (RC-507U only) (C40)
35632	Coil—Antenna coil, "A", "B" and 31 meter bands (L4, L5, L6, L7 L18)
35631	Coil—Antenna coil, spread band (L1, L2, L3)
35623	Coil—Oscillator coil, "A" and "B" band (L8, L9)
35624	Coil—Oscillator coil, 19-13 meter band (L12)
35625	Coil—Oscillator coil, 25 meter band (L11)
35626	Coil—Oscillator coil, 31 meter band (L10)
35619	Condenser—Variable tuning condenser (C10, C11)
35629	Control—Tone control (R9)
35620	Control—Volume control and power switch (R6, S6)
32834	Cord—Drive cord (approx. 28" overall length)
34662	Cord—Indicator cord (approx. 53" overall length)
35788	Core—Adjustable core and stud for "A" and "B" band oscillator coil
31259	Core—Adjustable core and stud for 19-13 meter band, 25 meter band and 31 meter band oscillator coils
35627	Drum—Drive drum less calibrator
35638	Flywheel—Tuning shaft flywheel
70930	Grommet—Rubber grommet for mounting tuning condenser (4 required)
5040	Plug—4 contact female plug for speaker cable (RC-507 only)
12493	Plug—5 contact female plug for speaker cable (RC-507U only)
35641	Pulley—Drive cord pulley
35630	Pulley—Idler pulley
34761	Resistor—10 ohms, ¼ watt (R18)
30735	Resistor—560 ohms, 1 watt (RC-507 only) (R15)
39050	Resistor—820 ohms, 1 watt (RC-507U only) (R15)
48674	Resistor—3,300 ohms, 4 watt (RC-507U only) (R19)
30436	Resistor—12,000 ohms, ¼ watt (R7)
35595	Resistor—15,000 ohms, 3 watt (R4)
30492	Resistor—22,000 ohms, ¼ watt (R5)
30685	Resistor—33,000 ohms, ¼ watt (R2)
30180	Resistor—120,000 ohms, ¼ watt (R13)
30493	Resistor—150,000 ohms, ½ watt (R14)
14983	Resistor—330,000 ohms, ¼ watt (R12)
30648	Resistor—470,000 ohms, ½ watt (R11, R16)
30652	Resistor—1 megohm ¼ watt (R1)
30649	Resistor—2.2 megohms, ¼ watt (R3)
30992	Resistor—10 megohms, ¼ watt (R10)
14350	Screw—#8-32 square head set screw for drive drum
35633	Shaft—Extension shaft for range switch
35637	Shaft—Tuning knob shaft
31364	Socket—Lamp socket
14278	Socket—Phono input socket
31251	Socket—Tube socket
31261	Spring—Retaining spring for oscillator coils core and studs
31418	Spring—Tension spring for drive or indicator cord
35640	Support—Drive cord pulley support complete with one pulley
35639	Support—Drive cord pulley support complete with three pulleys
35621	Switch—Range switch (S1, S2, S3, S4)
32827	Switch—Voltage change switch (S5)
35636	Transformer—First I-F transformer (L13, L14, C15, C18)
35628	Transformer—Second I-F transformer (L15, L16, C20, C21)
32852	Transformer—Power transformer, 117 or 235 volt, 50 to 60 cycle (Rating "C") (T1)
35588	Transformer—Power transformer 117 volt, 25 to 60 cycle (Rating "A") (T1)
2917	Washer—"C" washer to fasten tuning shaft
33726	Washer—"C" washer to fasten idler pulley
	SPEAKER ASSEMBLY Stamped 92517-1J (For RC-507 only)
70578	Cone—Cone and voice coil assembly
5118	Plug—4 prong male speaker plug
70583	Speaker—6½" E.M. speaker complete with cone and voice coil, less output transformer and plug
70584	Transformer—Output transformer (T2)
	SPEAKER ASSEMBLY Stamped 92570-1J (For RC-507U only)
72425	Speaker—6½" P.M. speaker complete with cone and voice coil, less output transformer and plug
31539	Plug—5 prong speaker plug
70584	Transformer—Output transformer (T2)
	MISCELLANEOUS
*72143	Back—Cabinet back
70833	Board—Baffle board and grille cloth
Y1382	Cabinet—Plastic cabinet
70579	Decal—Trade mark decal
35654	Dial—Glass dial scale
35647	Frame—Dial frame only less indicator and dial
70580	Indicator—Station selector indicator
35651	Knob—Range switch knob
35652	Knob—Range indicator knob
35650	Knob—Tone control knob
34489	Knob—Tuning or volume control knob
11891	Lamp—Dial lamp, Mazda 44
14270	Spring—Retaining spring for knobs #34489, 35650 or 35651
4982	Spring—Retaining spring for knob #35652

RCA MFG. CO.

MODEL QB13, Chassis RC529A, RC612



For parts list, see P.16-7

"clarified schematics"

MODEL QB13

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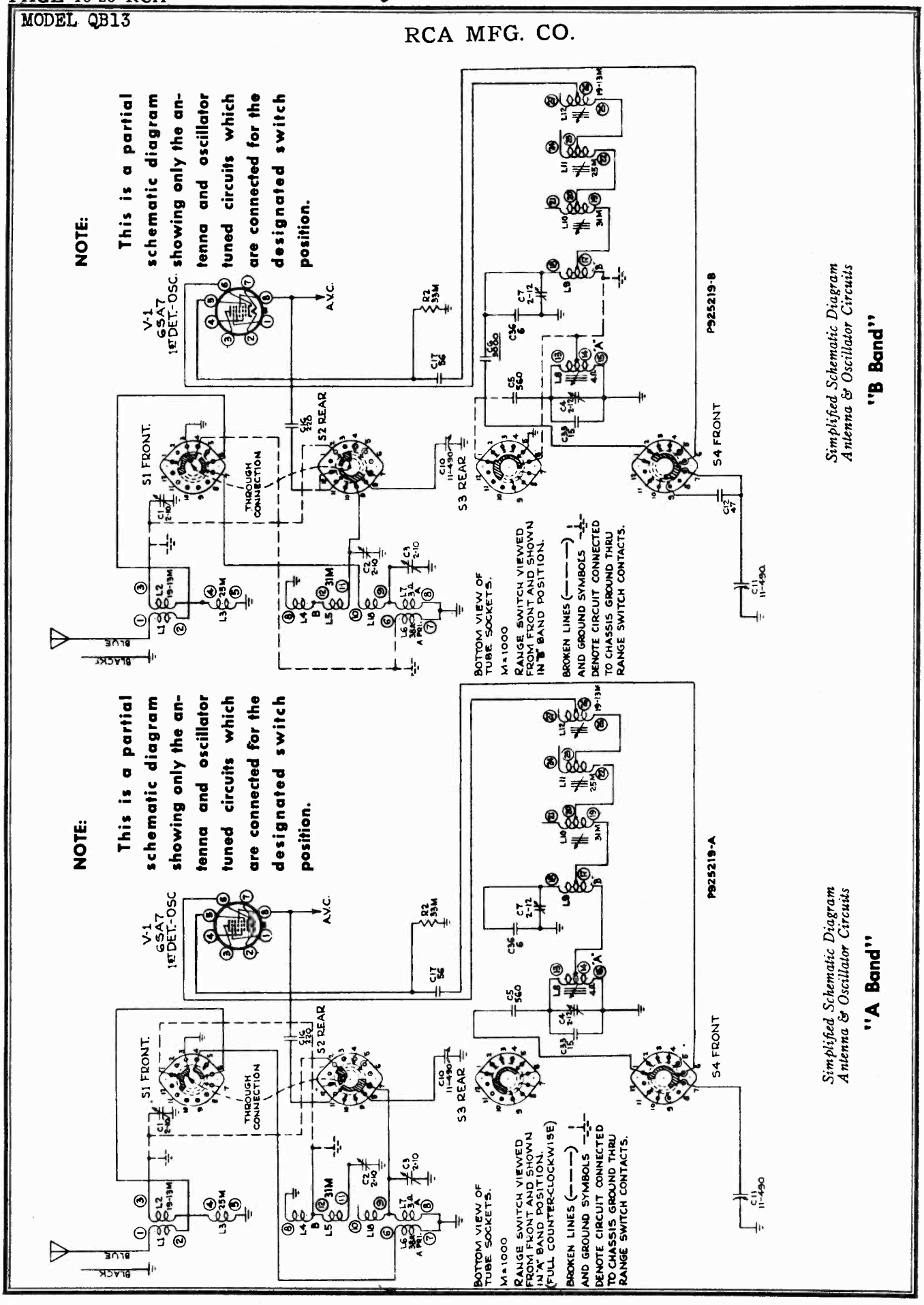

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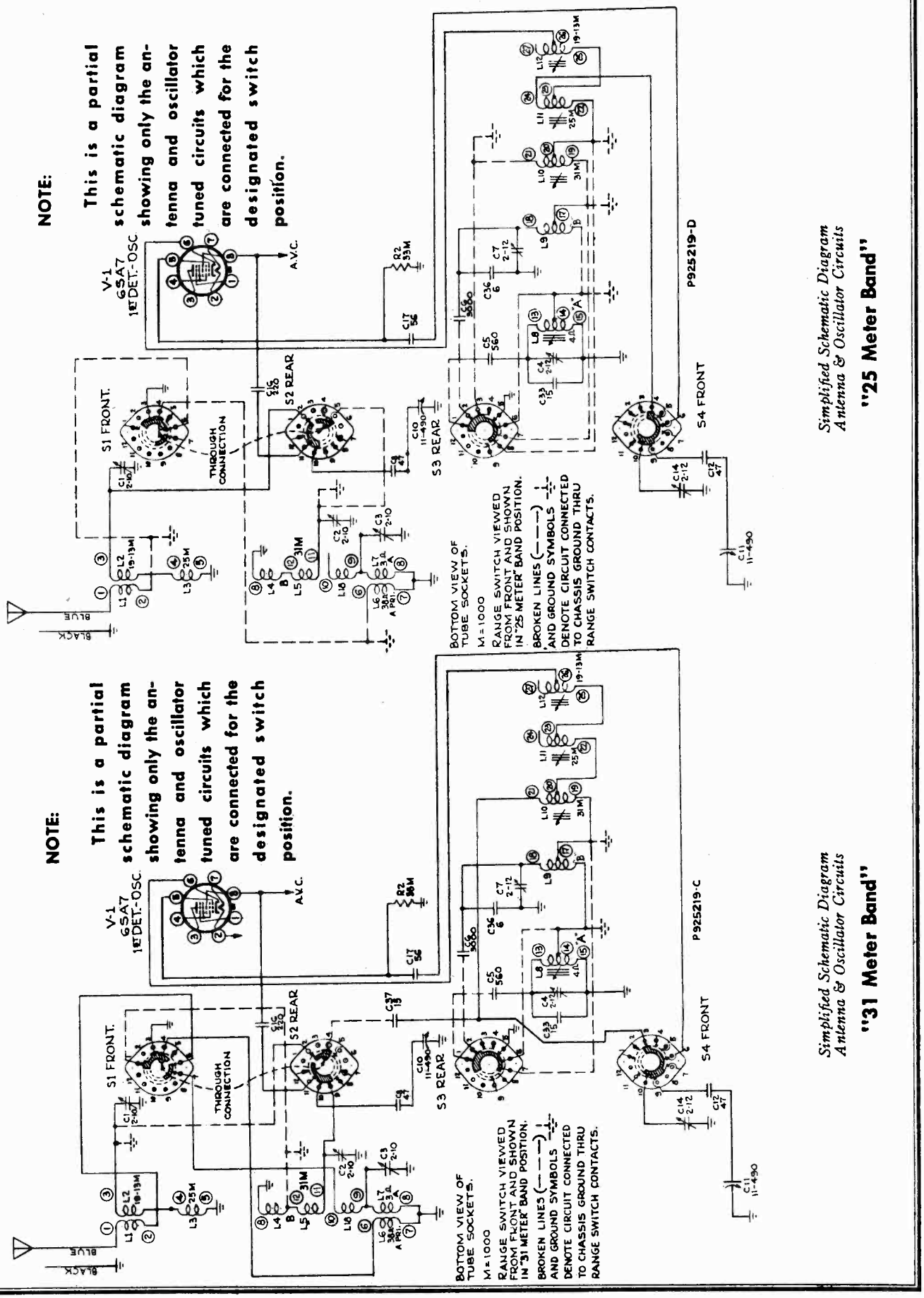
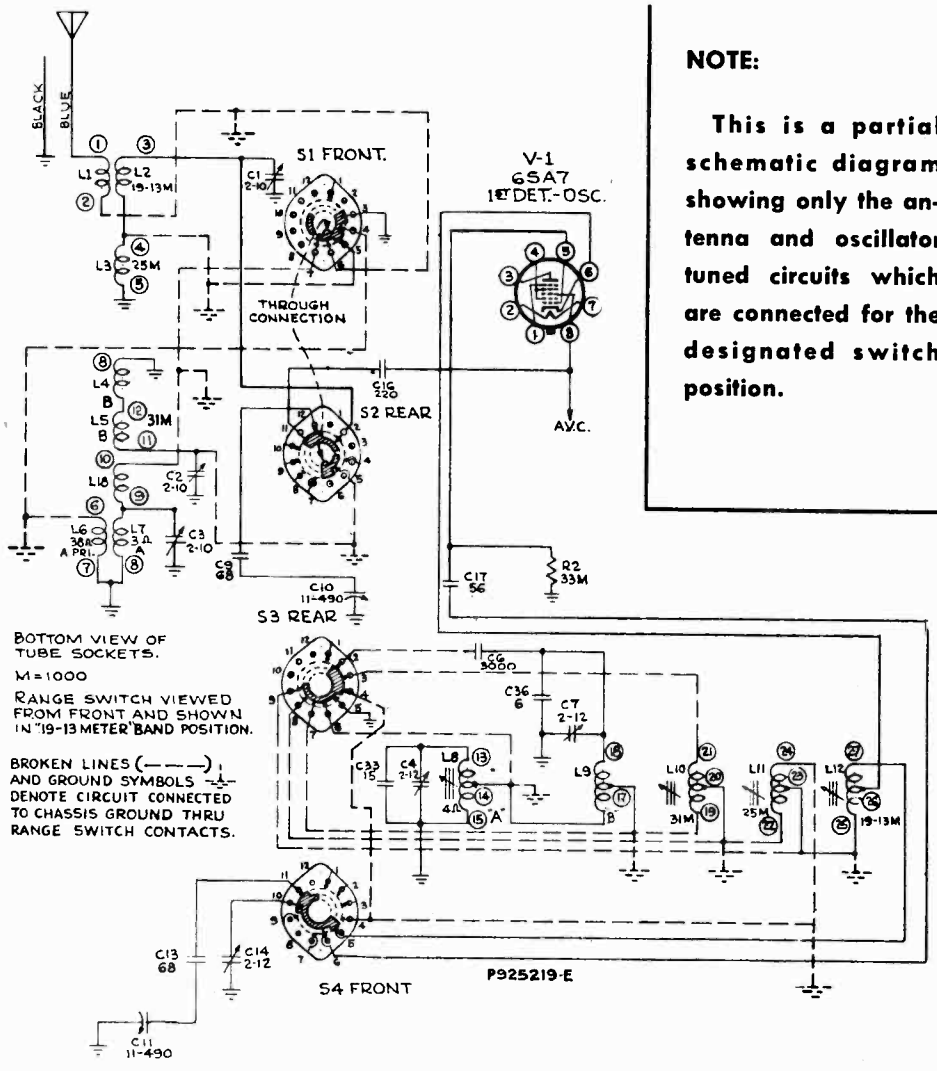
MODEL QB13



"clarified schematics"

MODEL QB13

RCA MFG. CO.



NOTE:

This is a partial schematic diagram showing only the antenna and oscillator tuned circuits which are connected for the designated switch position.

Simplified Schematic Diagram
Antenna & Oscillator Circuits

"19-13 Meter Band"

RCA MFG. CO.

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the 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.—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.

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical and dire tly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Receiver Dial with Calibration Scale.—To determine the corresponding frequency for any setting of the calibration scales, refer to the dial with calibration scale drawing.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the oscillator coil magnetite-core for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of the test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator, or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the oscillator coil magnetite-core for each band should be re-touched so that the stations come in at the correct points on the dial.

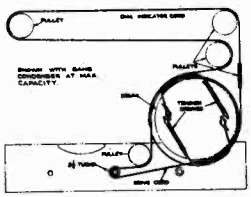
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid in series with .01 mfd.	455 kc	A	Quiet point near 180°	L16—L15 2nd I-F transformer
2	1st Det. grid, in series with .01 mfd.				L14—L13 1st I-F transformer
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L11 (osc.)* C1 (ant.)
4		15.2 mc		17°	C14 (osc.)***
5		Repeat steps 3 and 4.			
6		15.2 mc	19-13M	156°	L12 (osc.)*
7		9.5 mc	31M	156°	L10 (osc.)* C2 (ant.)
8		9.5 mc	B	11.5°	C7 (osc.)**
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C4 (osc.)** C3 (ant.)
10		600 kc		150°	L8 (osc.)* (Rock gang.)
11		Repeat steps 9 and 10.			

*If two peaks can be obtained, use the one obtained when the core screw is farthest out (counter-clockwise).

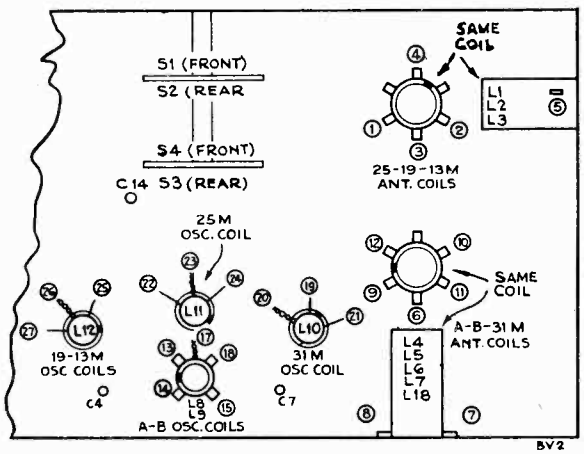
**Use minimum capacity peak if two can be obtained.

***Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

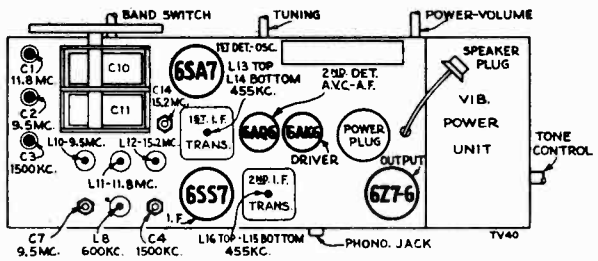
NOTE: Oscillator tracks above signal on all bands.



Dial-Indicator and Drive Mechanism



Coil and Band Switch Locations (Bottom Chassis View)



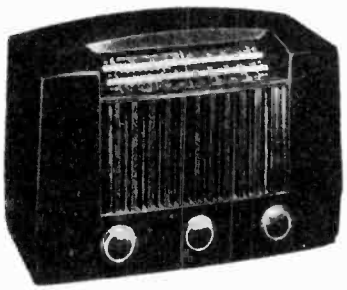
Tube and Trimmer Locations (Top Chassis View)

Precautionary Lead Dress.

1. Twist yellow lead from terminal 14 of L8 to terminal 6 of S3 with the lead from terminal 27 of L12 to terminal 5 of S4.
2. All other oscillator coil leads must be kept apart from each other as well as from other leads and parts. No two leads may be less than ⅛ inch apart.
3. The lead from the tap on 19-13 oscillator coil to pin number 6 (K) of 6SA7 socket should be dressed up and away from all parts as far as possible.
4. Condensers C8, C9 and C16 must be as far away from all metal parts as possible.
5. All leads from the antenna coil to the range switch should be dressed together.
6. The green lead from pin 4 (SG) of 6SA7 socket to pin 6 (SG) of 6SS7 socket should be dressed down against the chassis and away from the I.F. terminals.
7. All leads and parts must clear the tuning flywheel by at least ⅛ inch.
8. The leads to the power switch should be twisted together and dressed away from other leads and parts as much as possible.
9. Capacitor C34 must be mounted edgewise and close to the chassis with the leads as short as possible.
10. The green lead from term. C of 1st I-F trans to pin 4 (G) of 6SS7 must be short and close to chassis under all other leads.

MODEL QB13

RCA MFG. CO.



Electrical and Mechanical Specifications

Frequency Ranges

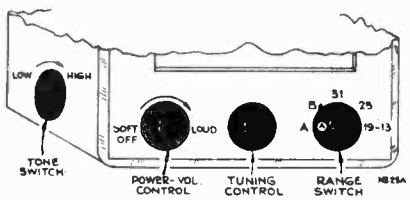
Standard Broadcast ("A" Band)	540-1,720 kc (555-174 m)
Medium Wave ("B" Band)	2.9-9.5 mc (103-31.6 m)
"31" Meter Spread Band	9.5-12 mc (31.6-25 m)
"25" Meter Spread Band	11.7-15 mc (25.6-20 m)
"19-13" Meter Spread Band	15.1-22 mc (19.9-13.6 m)

Intermediate Frequency ..... 455 kc

RCA Tube Complement

RC-529A	RC-612	
(1) RCA-6SA7	RCA-6SA7	1st-Det.—Osc.
(2) RCA-6S7*	RCA-6SS7	I-F Amplifier
(3) RCA-6T7-G*	RCA-6AQ6	2nd-Det., A.V.C., and 1st Audio
(4) RCA-6J7	RCA-6AK6	Driver
(5) RCA-6Z7-G	RCA-6Z7G	Power Output

*In some units, a 6K7 may be substituted for the 6S7 and a 6Q7 in place of the 6T7G.



Location of Controls

Power Supply Rating

With vibrator power supply unit (RS-115):

6.3 volts, total current drain *RC-529A	3.35 amperes
RC-612	3.2 amperes

*If both tube substitutions are made, the total current consumption will be increased to 3.65 Amperes.

Power Output	RC-529A	RC-612
Undistorted	3.1 watts	2.1 watts
Maximum	4.5 watts	3.1 watts

Loudspeaker (92519-1)

Type	6½ inch, permanent-magnet dynamic
Voice-coil Impedance at 400 cycles	3.4 ohms

		Height	Length	Depth
Cabinet Dimensions	QB11	11⅝"	17⅛"	7½"
	QB12 & QB13	10⅞"	16¼"	7⅝"

Net Weight	QB11	21.5 lbs.
	QB12 & QB13	20.0 lbs.
Tuning Drive Ratio		25:1

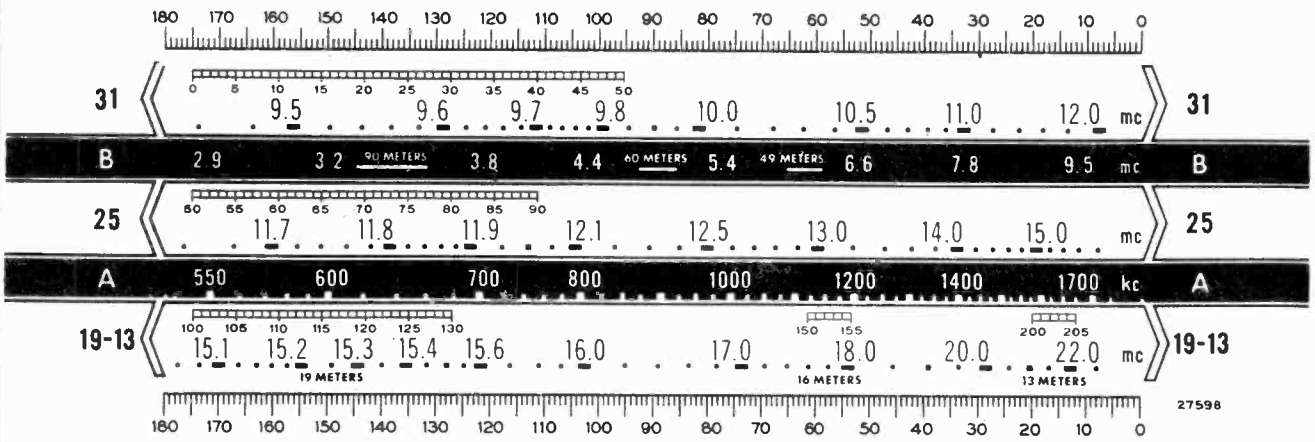
Phonograph Attachment

A jack is provided on the rear of chassis for connecting a Phonograph attachment to the audio amplifying circuit.

When Phonograph attachment is in use, the volume control on the radio should be at minimum, and, if necessary, tune set off frequency from any very strong station.

When Phonograph attachment is not in use its plug should be disconnected.

RECEIVER DIAL WITH CALIBRATION SCALE

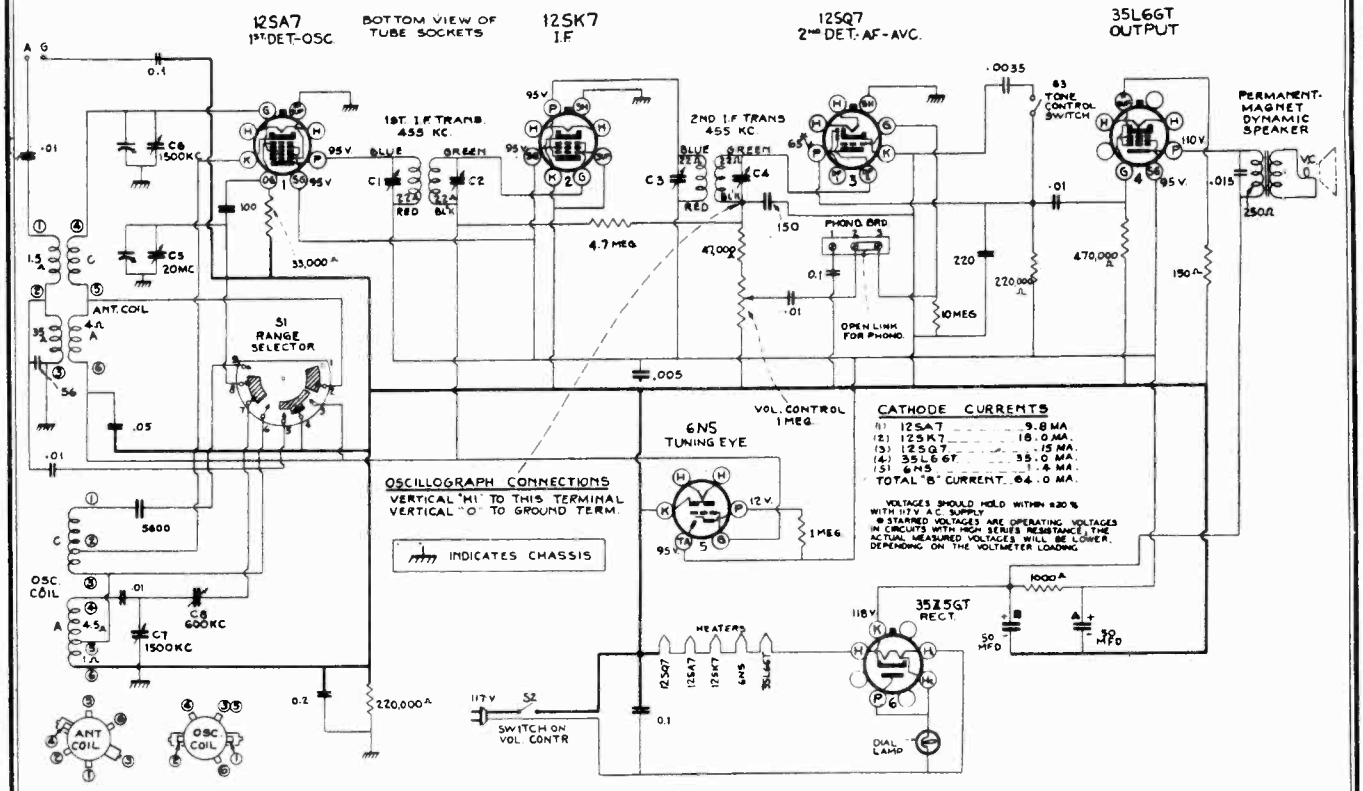


Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

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: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

RCA MFG. CO.

MODEL X60, Chassis RC474D



STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC-474D)
33719	Belt—Push button adjusting belts
34024	Board—"Antenna-Ground" board
34025	Board—"Radio-Phono" board
33731	Button—Push button
30766	Cap—Rubber shield for Magic Eye
33629	Capacitor—Trimmer capacitor comprising of 2 sections (C7, C8)
12723	Capacitor—56 mmfd., moulded mica
12720	Capacitor—100 mmfd., moulded mica
12725	Capacitor—150 mmfd., moulded mica
12694	Capacitor—220 mmfd., moulded mica
13895	Capacitor—5,600 mmfd., moulded mica
30303	Capacitor—.0035 mfd., 700 volts
33584	Capacitor—.005 mfd., 1,200 volts
4937	Capacitor—.01 mfd., 500 volts
11315	Capacitor—.015 mfd., 400 volts
4870	Capacitor—.025 mfd., 400 volts
32787	Capacitor—.05 mfd., 400 volts
4839	Capacitor—0.1 mfd., 400 volts
34505	Capacitor—0.2 mfd., 300 volts
34212	Capacitor—Comprising 2 sections of 50 mfd., each, 150 volts
30716	Clip—Magic Eye clip
33732	Coil—Antenna coil
33733	Coil—Oscillator coil
33635	Condenser—Tuning condenser and drum assembly
33631	Control—Volume control and power switch
32634	Cord—Tuning condenser drive cord
33633	Indicator—Station selector pointer
11765	Lamp—Dial lamp—Mazda No. 51
33734	Plate—Dial plate complete less condenser and button
30880	Resistor—150 ohms, ½ watt
30152	Resistor—1,000 ohms, 1 watt

STOCK No.	DESCRIPTION
14284	Resistor—22,000 ohms, 1/10 watt
13998	Resistor—22,000 ohms, ½ watt
12454	Resistor—33,000 ohms, ½ watt
12412	Resistor—47,000 ohms, ½ watt
12264	Resistor—220,000 ohms, ½ watt
12285	Resistor—470,000 ohms, ½ watt
30271	Resistor—4.7 megohm, ½ watt
13601	Resistor—10 megohm, ½ watt
33438	Screw—Magic Eye clip screw
33725	Shaft—Tuning knob drive shaft and retainer
31365	Socket—Dial lamp socket
13871	Socket—Magic Eye socket
31319	Socket—Tube socket
31418	Spring—Tuning condenser drive cord spring
33720	Spring—Push arm return spring
33946	Switch—Range switch (S1)
34336	Switch—Tone control switch (S3)
33722	Transformer—First i-f transformer (C1, C2)
34026	Transformer—Second i-f transformer (C3, C4)
33726	Washer—"C" washer for drive shaft
	SPEAKER ASSEMBLIES (RL 85-2)
32907	Cap—Cone center dust cap
34554	Cone—Speaker cone and voice coil
84803	Transformer—Output transformer
	MISCELLANEOUS ASSEMBLIES
31456	Cover—8-protective covers for push button markers
34270	Dial—Glass dial scale
33637	Escutcheon—Dial and button escutcheon
30863	Knob—Tuning, tone, range or volume control
33973	Marker—1 set push button markers
30900	Spring—Retaining spring for knob or button

Short-Wave Sensitivity:

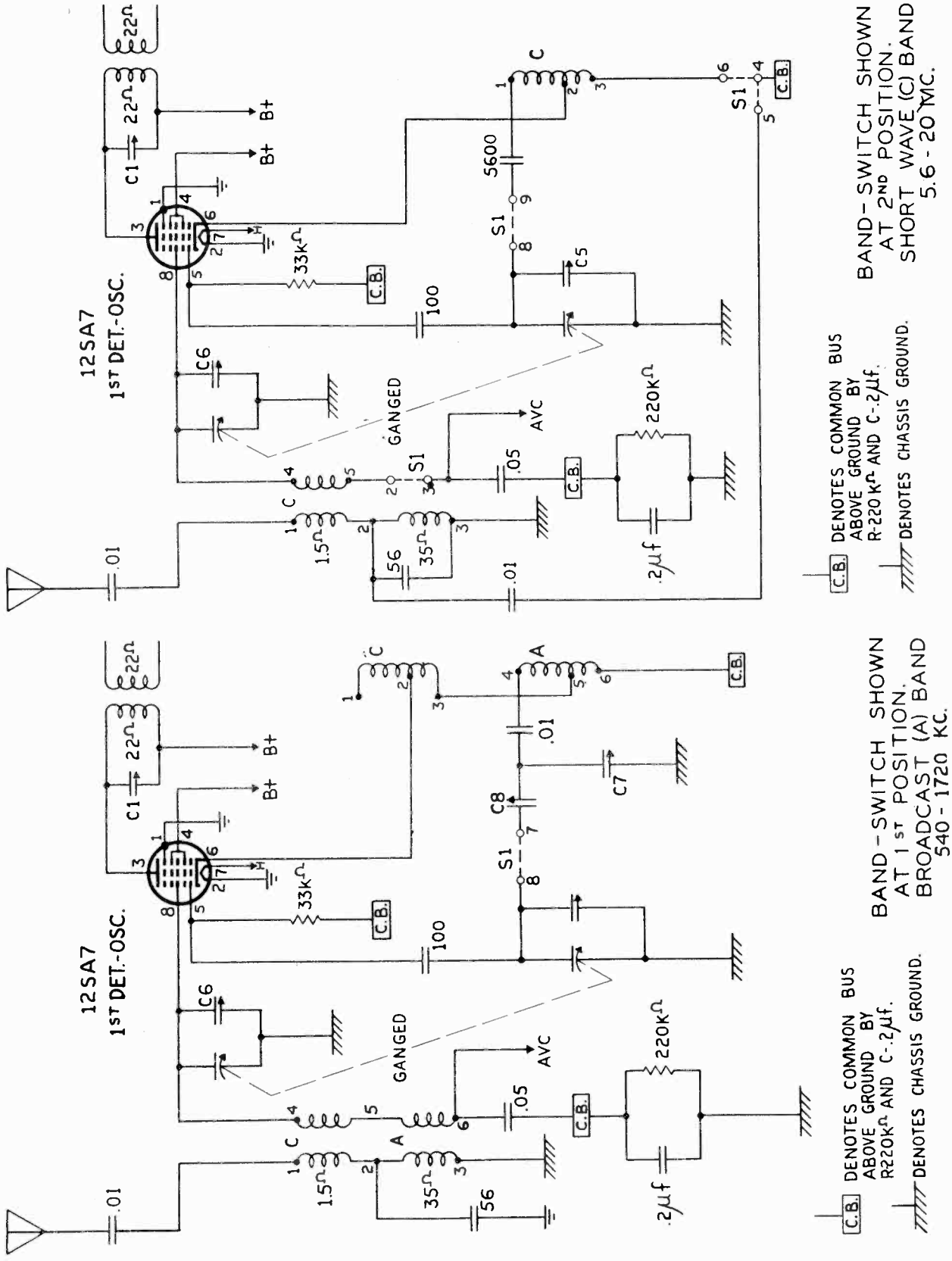
Where insufficient sensitivity is noted on the short-wave band of Model X-60, addition of capacity coupling of 3 or 4 mmfd. between signal and oscillator grids of converter tube will usually restore normal sensitivity to entire band. This coupling can be effected in several ways:

(a) Unsolder one grid lead, take several turns around other lead to give desired capacity, resolder.
(b) Twist several turns of insulated wire around both grid leads to give desired value of capacity coupling.
(c) Install a 3 to 4 mmfd. capacitor between tube grids.

"clarified schematics"

MODEL X60

RCA MFG. CO.



RCA MFG. CO.

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast	540-1,720 kc
Short Wave	5.6-20 mc
Intermediate Frequency	455 kc
Number of Push Buttons	Six

TUBE COMPLEMENT

(1) RCA-12SA7	First Detector-Oscillator
(2) RCA-12SK7	I-F Amplifier
(3) RCA-12SQ7	Second Detector, A-F, and A.V.C.
(4) RCA-35L6GT	Power Output
(5) RCA-6N5	Magic Eye
(6) RCA-35Z5GT	Rectifier
Dial Lamp	Mazda No. 51, 7.5 volts, 0.20 amp.

POWER OUTPUT (125 volts, 60 cycle supply)

Undistorted	0.8 watts
Maximum	1.4 watts

POWER SUPPLY RATINGS

A-C Rating	105-125 volts, 50-60 cycles, 35 watts
D-C Rating	105-125 volts, direct current, 35 watts

LOUDSPEAKER (RL 85-2)

Type	5-inch permanent magnet dynamic
V.C. impedance at 400 cycles	4.5 ohms

	Height	Width	Depth
Cabinet Dimensions (inches)	9⅝	16	7
Chassis Base Dimensions (inches)	2-3/16	12¼	5¾
Overall Chassis Height	6⅝ inches		
Shipping Weight	15 pounds		
Tuning Drive Ratio	10:1		

Adjustments for Push-Button Tuning

The push-buttons should be adjusted for six favorite stations after the receiver has been operating for a brief warm-up period. Each button may be set up to any standard broadcast station. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Pull off the push-buttons and loosen the push-button rods with a small screwdriver.

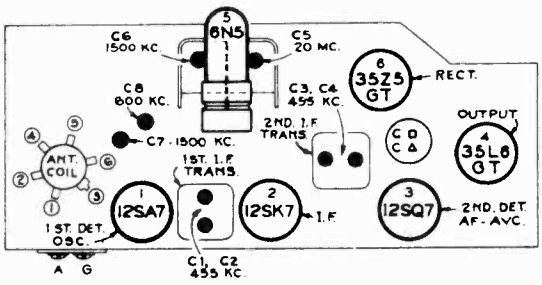
2. Check to be sure the link connection on back of chassis is in "Radio" position (connected between terminals 2 and 3).

3. Press in push-button No. 1 (left) as far as it will go without undue pressure, hold in, retune station with manual control if necessary for best reception, and then carefully tighten up the rod. Do not tighten more than ¼ turn after the screw begins to grip or damage to the mechanism may result.

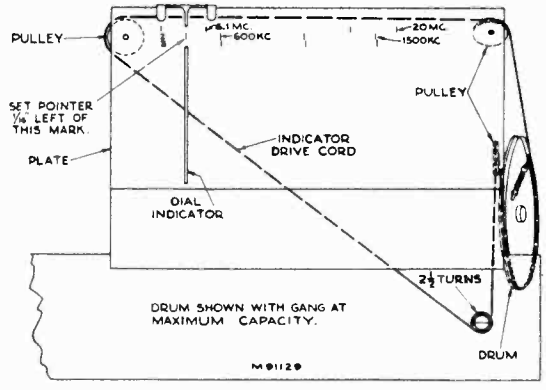
4. Replace the push-button on its shaft.

5. Proceed in a similar manner for the remainder of the push-buttons.

6. Insert the station marker tabs in the recesses above the push-buttons.



Tube and Trimmer Locations



Dial-Indicator and Drive Mechanism

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic drawing.

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 ground binding post, and keep the output as low as possible to avoid A.V.C. action.

Calibration Marks.—The tuning dial is fastened in the cabinet and can not be used for reference during alignment. Therefore calibration marks corresponding to dial readings of 600 kc, 1,500 kc, 6.1 mc, and 20 mc have been stamped in the plate on the front of the chassis as shown in the accompanying drawing. These marks are used for reference during alignment.

Dial Indicator Adjustment.—With the gang condenser in full mesh, the indicator should point 1/16 inch to the left of the mark at the extreme left (low frequency) end of the dial scale.

Steps	Connect the high side of the test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Antenna terminal	455 kc	"A" Band Quiet Point between 550-750 kc	C3 and C4 (2nd I-F trans.)
2				C1 and C2 (1st I-F trans.)
3	Antenna terminal in series with 300 ohms	20 mc	"C" Band 20 mc calibration mark	C5 (osc.) *
4	Antenna terminal in series with 200 mmf.	1,500 kc	"A" Band 1,500 kc calibration mark	C7 (osc.) C6 (ant.)
5		600 kc	"A" Band 600 kc calibration mark	C8 (osc.) Rock gang
6	Repeat step 4			

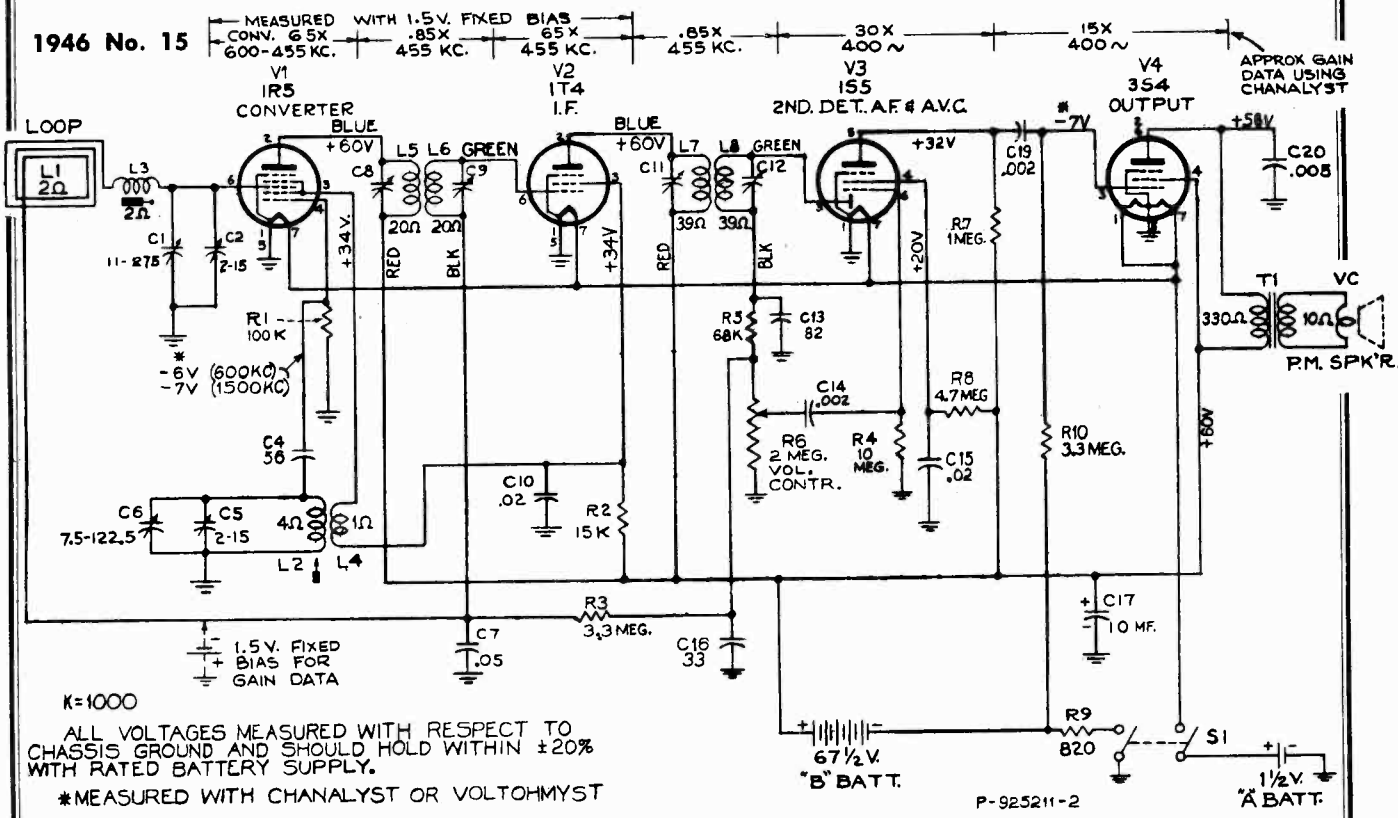
* Use minimum peak if two can be obtained. Check to determine that C5 has been adjusted properly by tuning receiver to approximately 19.09 mc where a weaker signal should be received.

Note: Oscillator tracks above signal on both bands.

MODEL 54B5, Chassis RC1047

RCA MFG. CO.

IF PEAK 455 KC



Alignment Procedure

Test Oscillator.—Connect test oscillator as indicated in chart keeping the output as low as possible to avoid A V C action.

Output Meter.—Connect a high resistance AC voltmeter in series with a .1 mfd capacitor from top lug of TB1 (plate of 354) to ground. Turn volume control to maximum position.

Fig. 1 shows the modifications necessary to convert a case into a convenient shield to be used as a substitute for the regular case in the Ant. Osc. alignment.

When using the dummy case for the osc. alignment, the loop assembly must be raised slightly so that osc. trimmer becomes accessible.

Steps	Connect the high side of test osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	lug of C2, (located on rear of gang) through a .01 mfd. capacitor	455 kc	Quiet point near 1,600 kc	C11, C12 2nd I-F trans.
2		455 kc	Quiet point near 1,600 kc	C8, C9 1st I-F trans.
3	**Antenna coupling loop thru 200 mmf. capacitor	1,600 kc	1,600 kc	C5 (osc.)
4		1,500 kc	1,500 kc	C2 (ant.)
5		600 kc	600 kc	L2 (osc.) (Rock gang)
6	Repeat steps 4 and 5 for final adjustments.			

*The IF transformers can be aligned with chassis out of case.

**Steps 3, 4 and 5 require a coupling loop from the signal generator to feed a signal into the receiver loop located in the back. This loop should be approximately one turn of 6 x 3½ inches coupled to the signal generator through a 200 mmf. capacitor, and loosely coupled to the receiver loop antenna at about 1¾ inches distance, so as not to disturb the receiver loop inductance. Ground test oscillator through .1 mf. capacitor to receiver chassis.

CRITICAL LEAD DRESS

1. Dress blue, green and black leads of second IF transformer as direct as possible. If excess lead exists, dress down side of socket and flat against chassis to transformer opening.

2. Cross the green and the black leads inside the first IF transformer can, keeping the green lead to the outside. Load coil bracket is to separate the blue and the green leads.

3. Dress audio coupling capacitor C14 and the lead to the volume control up and underneath shelf supporting the output transformer.

4. Wire in the three capacitors pyramided behind the speaker with enough space behind the battery holder to allow holder to move when battery is replaced. Dress the ground leads of these capacitors to keep from shorting the off-on switch.

5. Observe the outside foil connections on all paper capacitors, also the polarity of the electrolytic capacitor C17.

6. Keep blue and red leads of output transformer above the mounting shelf.

7. Dress all leads as far as possible from loading coil.

8. Dress leads to gang as far as possible from all metal parts.

9. Dress loop leads to keep from interfering with battery replacement.

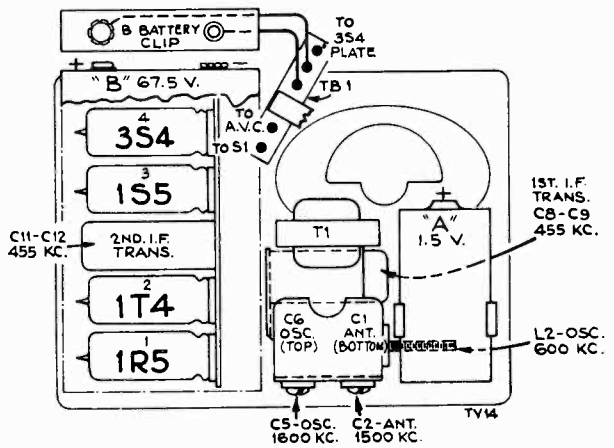


Fig. 4

NOTE:
A rubber band should be placed around each tube for cushioning.
Dirty tube contacts may be mistaken for a defective tube.

RCA MFG. CO.

Replacement of Component Parts

I. To remove tubes:
- a. Slide back cover towards handle.
- b. Remove both batteries.
- c. Pry tubes out of sockets by gently wedging small screwdriver between base of tubes and sockets.

II. To replace batteries:
- a. Slide back cover towards handle.
- b. Remove, either or both, the "A" and "B" battery as the case may warrant. The "B" battery snap fasteners can best be removed by inserting a screwdriver under the snap fastener strip and prying upward.

III. To remove loop:
- a. Remove "A" and "B" batteries (see item II).
- b. Unsolder loop leads from terminals on battery holder.
- c. Remove four mounting screws "B" in the four corners as indicated in fig. 2 and lift off.

IV. To remove chassis:
- a. Remove loop.
- b. Remove the two screws "H" holding the switch bracket.
- c. Remove the two chassis mounting screws "A", fig. 2.

V. To remove speaker
- a. Remove volume control knob by loosening set screw and pull.
- b. Unsolder voice coil leads, and remove the two mounting screws "C", fig. 2.
- c. Slide speaker out.

VI. To remove output transformer:
- a. Remove speaker and keep it clear of metal particles.
- b. Drill out mounting rivet, and bend tabs (when replacing use small screw).
- c. Unsolder leads and lift out.

VII. To remove chassis mounting plate:
- a. Unsolder copper strip under 3S4 tube.
- b. Remove two screws (F) holding tube shelf to front plate. These screws are located between tubes 1R5 and 1T4, also 3S4 and 1S5. Rubber shock mounts may stick on studs, pry loose.
- c. Remove nut (G) beneath tube shelf below second I-F transformer.
- d. Remove screw (G) beneath the negative terminal of "A" battery holder, and also screw (G) adjacent to volume control below "A" battery holder.
- e. Carefully invert the chassis.
- f. Remove volume control wheel (loosen set screw and pull off).
- g. Lift the mounting plate off.

VIII. To remove volume control:
- a. Remove "A" battery holder.
- b. Unsolder volume control leads.
- c. Remove chassis mounting plate (see item VII).
- d. Remove volume assembly by bending tabs and lifting out.

IX. To remove oscillator coil:
- a. Remove battery holder.
- b. Remove chassis mounting plate.
- c. Unsolder oscillator coil leads.
- d. Remove coil by unsnapping spring mounting clips from angle bracket.

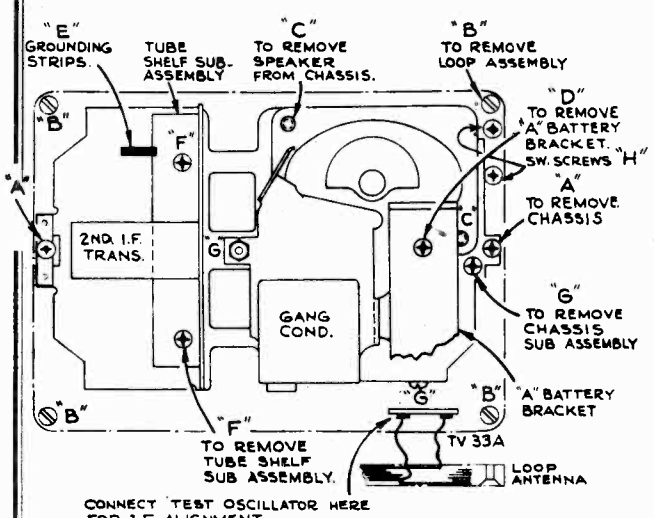
X. To remove 1st I-F transformer:
- a. Remove speaker.
- b. Unsolder four leads from 1st I-F transformer.
  1. Blue to plate of 1R5 tube.
  2. Green to grid of 1T4 tube.
  3. Red to B + terminal of 5 lug terminal board adjacent to output transformer.
  4. Black to AVC terminal of same strip as above.
- c. Remove connections as required from two lug terminal board adjacent to 1st I-F transformer to permit this terminal board to be moved to a position free of the 1st I-F transformer.
- d. Unsolder and bend mounting tabs straight on the I-F transformer can. These tabs are immediately below the 2nd I-F transformer on tube shelf.
- e. Slip 1st I-F transformer forward toward volume control and out.

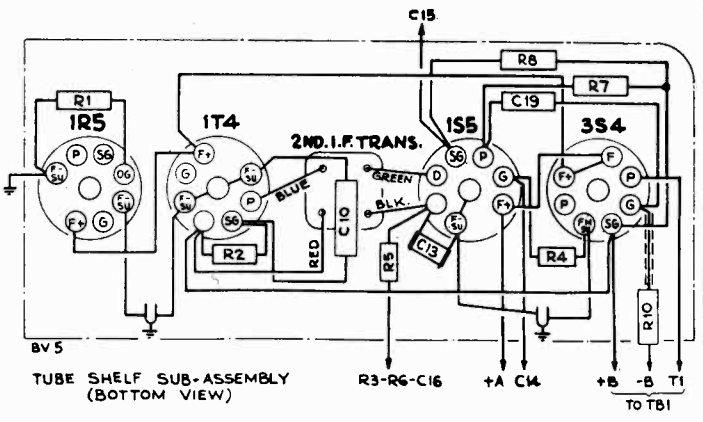
Note: It is possible to fold the 1st I-F transformer out the front of the chassis if the front plate is removed. This will eliminate the unsoldering of leads from the two lug terminal board.

XI. To remove 2nd I-F transformer:
- a. Carefully remove the two 0.02 uf C10, C15 capacitors.
- b. Carefully depress the two leads (B+ and A+) near the I-F transformer case mounting lugs and unsolder these tabs from the tube mounting shelf and bend out.
- c. Unsolder the blue (plate of 1T4), green (grid of 1S5), red (B+ on terminal board), and black leads.
- d. Remove 2nd I-F transformer.

XII. To remove tuning condenser:
- a. Remove chassis mounting plate (see item VII).
- b. Unsolder leads to tuning gang.
- c. Loosen loading coil if necessary.
- d. Remove two mounting screws and lift out.

Tools required:
1. One Phillips No. 1 screwdriver.
2. One small insulated alignment tool.
3. Allen wrench for a #6 set screw. (Use to remove volume control wheel.)





MODEL 54B5

RCA MFG. CO.

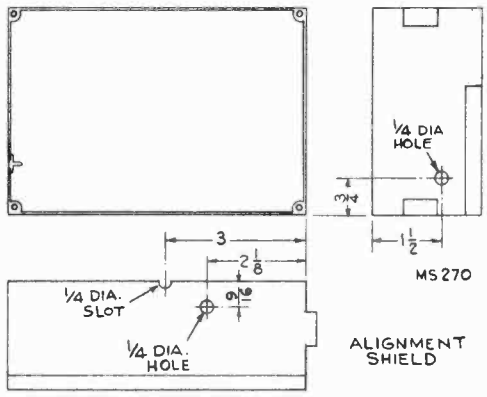


Fig. 1

Specifications

Frequency Range ..... 550-1,600 kc

Intermediate Frequency ..... 455 kc

Power Supply

Type Battery	Current Consumption	Approximate Life (Intermittent Duty)
"A"—1.5 volt RCA-VS 036 or VS 001	0.25 amperes	5-6 hours
"B"—67.5 volts RCA-VS 016	8.5 milliamperes	25-40 hours

Power Output ..... Undistorted 0.05 watts ..... Maximum 0.12 watts

Loudspeaker

Type Permanent-Magnet Dynamic Elliptical ..... 2 x 3 in.

Voice Coil Impedance ..... 11¾ ohms at 1000 cycles

Replacement Parts

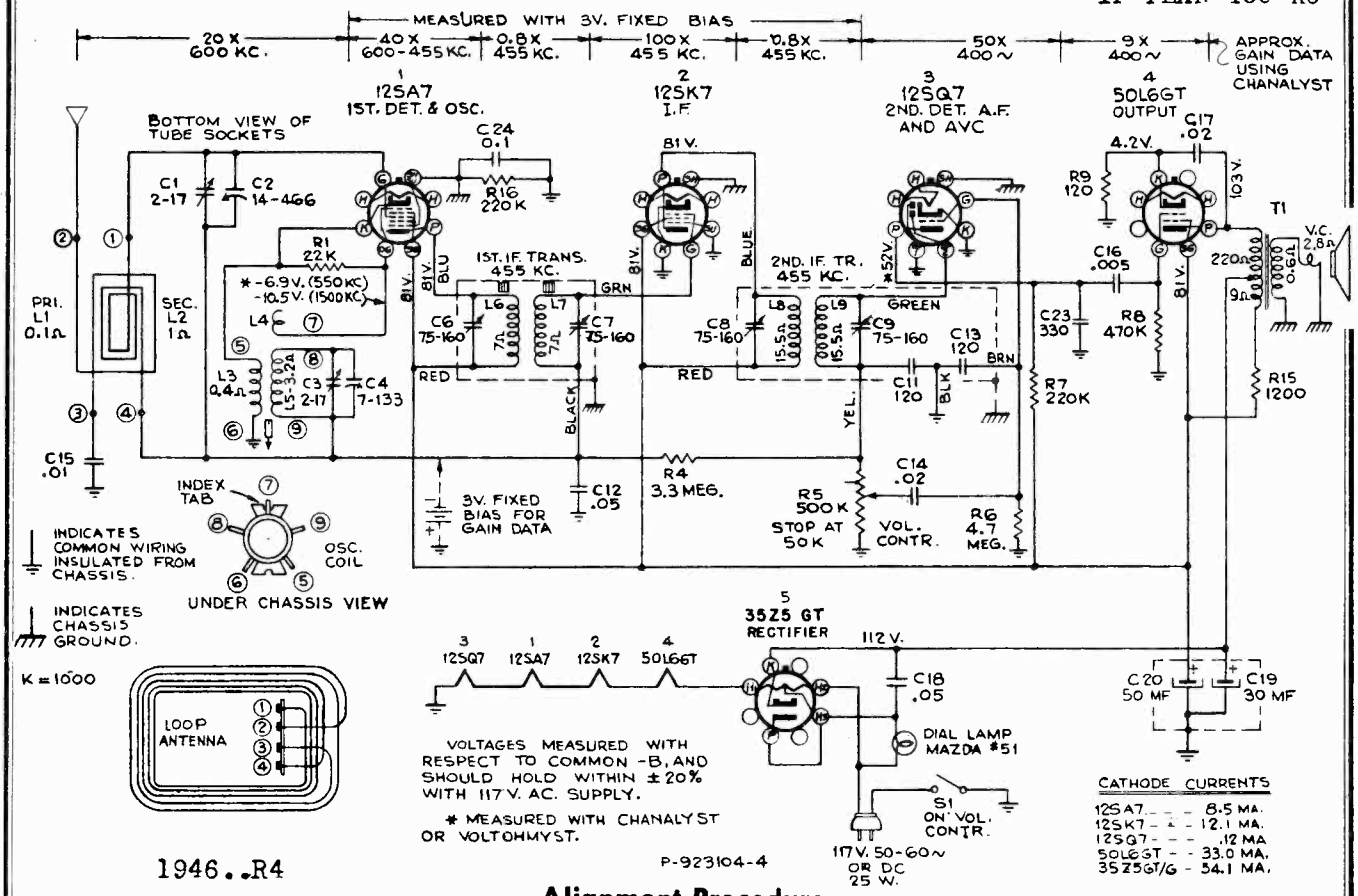
STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1047
70423	Band—Rubber band for tubes
70444	Board—Speaker terminal board (5 contact)
70445	Board—Terminal board (1 contact)
33111	Capacitor—Ceramic, 33 mmf. (C16)
71924	Capacitor—Ceramic, 56 mmf. (C4)
71514	Capacitor—Ceramic, 82 mmf. (C13)
72315	Capacitor—Tubular, .002 mfd., 150 volts (C14, C19)
70627	Capacitor—Tubular, .005 mfd., 600 volts (C20)
70453	Capacitor—Tubular, .02 mfd., 100 volts (C10, C15)
71013	Capacitor—Tubular, .05 mfd., 400 volts (C7)
36718	Capacitor—Electrolytic, 10 mfd., 60 volts (C17)
*72215	Coil—Loading coil (L3)
70443	Coil—Oscillator coil (L2, L4)
*72227	Condenser—Variable tuning condenser (C1, C2, C5, C6)
*72228	Control—Volume control (R6)
70429	Grommet—Rubber grommet to mount tube support assembly (2 required)
*72229	Holder—Battery holder
*72225	Insulator—Insulator for chassis panel
*72226	Knob—Volume control knob
*72224	Panel—Front panel
14076	Resistor—820 ohms, ¼ watt (R9)
36714	Resistor—15,000 ohms, ¼ watt (R2)
14138	Resistor—68,000 ohms, ¼ watt (R5)
3252	Resistor—100,000 ohms, ¼ watt (R1)
30652	Resistor—1 megohm, ¼ watt (R7)
31417	Resistor—3.3 megohms, ¼ watt (R3, R10)
30931	Resistor—4.7 megohms, ¼ watt (R8)
30992	Resistor—10 megohms, ¼ watt (R4)
70527	Screw—#6-32 x 5/16" set screw for volume control knob
70436	Socket—Tube socket
*72230	Support—Tube support less tube socket and transformer
*72231	Switch—Power switch (S1)
70440	Transformer—Output transformer (T1)
70442	Transformer—First I. F. transformer (L5, L6, C8, C9)
70437	Transformer—Second I. F. transformer (L7, L8, C11, C12)
	SPEAKER ASSEMBLY 92523-3W RL95-4
70428	Speaker—2 x 3" P.M. speaker complete with cone and voice coil
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS
*72233	Back—Case back
*72238	Case—"Jewel Box" case less front cover and divider strip
*72241	Cover—Front cover only less screen
*72243	Frame—Loop frame only less loop winding
*72235	Handle—Carrying handle
*72232	Knob—Tuning knob
*72234	Link—Link for carrying handle (2 required)
*72244	Loop—Loop winding only (L1)
*72237	Mounting—One set of hardware to mount chassis
*72242	Screen—Front cover screen only
*72240	Screw—Drive screws for Divider strip and front panel (total of 4 required)
*72236	Screw—Flat head screw for mounting loop (4 required)
70425	Spring—Tuning knob spring clip
*72239	Strip—Divider strip

*This is the first time this Stock No. has appeared in Service Data.

RCA MFG. CO.

MODELS 61-8, 61-9,
Chassis RC1034

IF PEAK 455 KC



1946..R4

Alignment Procedure

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn receiver the 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 a-v-c action.

Calibration Scale.—The glass tuning dial may be removed from the cabinet and mounted above the pointer for reference during alignment. The extreme left hand mark of the Standard Broadcast scale must be in line with the left hand mark on the dial backing plate.

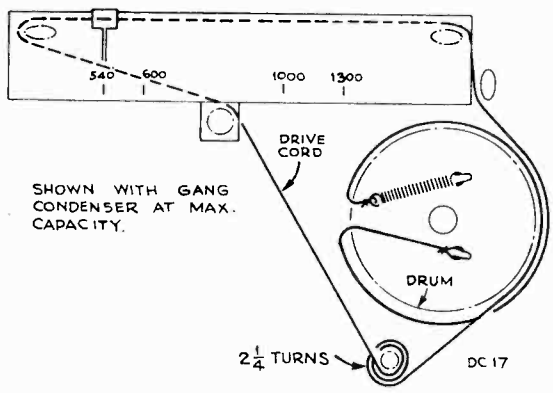
Dial Backing Plate.—In the event that only the chassis is returned for service, the marks on the dial backing plate may be used during alignment; refer to the Dial Indicator and Drive Mechanism drawing for corresponding frequencies.

Dial Pointer.—With the gang condenser in full mesh the dial pointer should be set to the left hand reference mark on the dial backing plate.

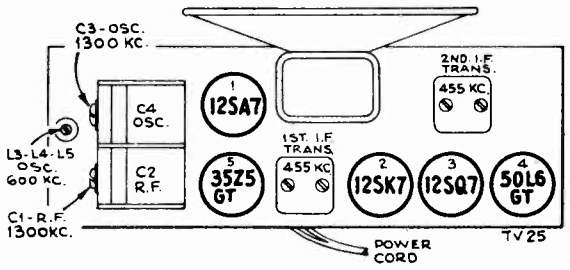
For additional information refer to booklet, "RCA Victor Receiver Alignment."

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	12SK7 I-F grid through 0.1 mfd. capacitor	455 kc	Quiet-point 1,600 kc end of dial	C8 and C9 2nd I-F transformer
2	Stator of C2 through 0.1 mfd.			*C6 and C7 1st I-F transformer
3	Ant. lead in series with 200 mmfd.	1,300 kc	1,300 kc	C3 (osc.) C1 (ant.)
4		600 kc	600 kc "A" Band	L5 (osc.) Rock gang
5	Repeat steps 3 and 4			

*Do not readjust C8 or C9 when test oscillator is connected to C2.



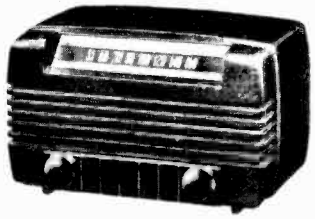
Dial-Indicator and Drive Mechanism



Tube and Trimmer Locations

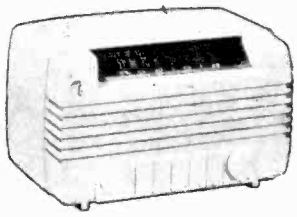
MODELS 61-8,61-9

RCA MFG. CO.



61-8
(Brown Plastic)

61-9
(Ivory Plastic)



Specifications

Frequency Range ..... 540-1600 kc

Intermediate Frequency ..... 455 kc

Power Output

Undistorted ..... 1.0 watt
Maximum ..... 1.5 watts

Tube Complement

(1) RCA Radiotron 12SA7 ..... Converter
(2) RCA Radiotron 12SK7 ..... I-F Amplifier
(3) RCA Radiotron 12SQ7 ..... 2nd Det., A.V.C., and A-F Amplifier
(4) RCA Radiotron 50L6GT ..... Power Output
(5) RCA Radiotron 35Z5GT ..... Rectifier

Pilot Lamp ..... Mazda No. 51, 6-8 volts, 0.2 amp.

Loudspeaker (922258-1)

Type ..... 4" x 6" PM
V. C. Impedance ..... 3.4 ohms at 400 cycles

Cabinet Dimensions	Height	Width	Depth
Cabinet (Outside)	7"	11¾"	7½"
Shipping Weight			9 lbs.
Tuning Drive Ratio			20:1

Power Supply Rating

105-125 volts, AC, 50 or 60 cycles, or DC ..... 30 watts

POWER SUPPLY POLARITY.—For operation on DC, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On AC, reversal of the plug may reduce hum.

Critical Lead Dress

1. Dress blue and green leads of both I-F transformers back in shield cans, leaving them as short as possible.
2. Dress all heater leads next to chassis.
3. Dress power cord toward output transformer away from volume control and audio circuits.
4. Dress capacitor (C14) toward switch and parallel to chassis length.
5. Dress capacitor (C16) back against rear chassis apron.
6. Dress capacitor (C17) over and towards 50L6 socket perpendicular to capacitor (C14) and (C16).
7. Dress pilot lamp leads over second I-F transformer and away from tubes.
8. Dress blue lead from output transformer against front apron and away from I-F leads.
9. Dress contact on oscillator section of gang condenser back away from oscillator coil (L3, 4, 5) adjustment.

Replacement Parts

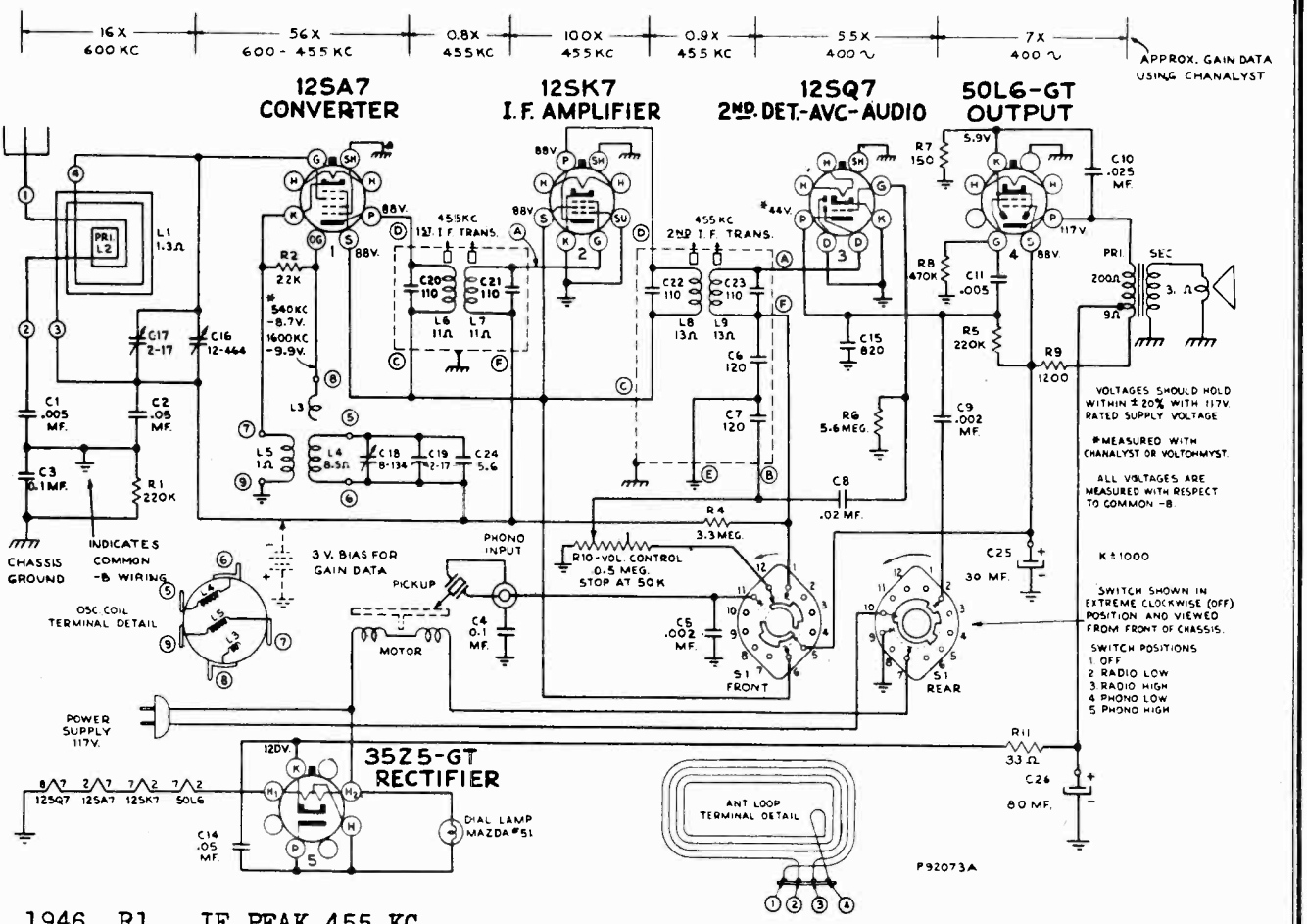
STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1034
70389	Bearing—Tuning knob shaft bearing
39640	Capacitor—Mica, 330 mmf. (C23)
70606	Capacitor—Tubular, .005 mfd., 400 volts (C16)
70610	Capacitor—Tubular, .01 mfd., 200 volts (C15)
70611	Capacitor—Tubular, .02 mfd., 400 volts (C14, C17)
70615	Capacitor—Tubular, .05 mfd., 400 volts (C12, C18)
70617	Capacitor—Tubular, 0.1 mfd., 400 volts (C24)
70408	Capacitor—Electrolytic, comprising 1 section of 50 mfd., 150 volts and 1 section of 30 mfd., 150 volts (C19, C20)
70477	Coil—Oscillator coil (L3, L4, L5)
70463	Condenser—Variable tuning condenser complete with drum (C1, C2, C3, C4)
70322	Control—Volume control and power switch (R5, S1)
32634	Cord—Drive cord (approximately 38")
70464	Drum—Drive drum
70469	Indicator—Station selector indicator
11765	Lamp—Dial lamp—Mazda 51
70468	Loop—Antenna loop (L1, L2)
70462	Plate—Dial back plate complete with drive cord pulleys less dial
36230	Pulley—Drive cord pulley
30189	Resistor—120 ohms, ¼ watt (R9)
6134	Resistor—1200 ohms, 1 watt (R15)
30492	Resistor—22,000 ohms, ½ watt (R1)
14583	Resistor—220,000 ohms, ¼ watt (R7, R16)
30648	Resistor—470,000 ohms, ¼ watt (R8)
31417	Resistor—3.3 megohms, ¼ watt (R4)
30931	Resistor—4.7 megohms, ¼ watt (R6)
70467	Shaft—Tuning knob shaft

STOCK No.	DESCRIPTION
34449	Socket—Lamp socket
37605	Socket—Tube socket—moulded
70390	Spring—Drive cord tension spring
70465	Transformer—First I.F. transformer (L6, L7, C6, C7)
70466	Transformer—Second I.F. transformer (L8, L9, C8, C9, C11, C13)
70385	Transformer—Output transformer (T1)
33726	Washer—"C" washer for tuning knob shaft
	SPEAKER ASSEMBLY 922258-1
70470	Speaker—4" x 6" P.M. elliptical speaker complete NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS
*71794	Back—Cabinet back for Radiola 61-8
*71795	Back—Cabinet back for Radiola 61-9
Y1365	Cabinet—Brown plastic cabinet for Radiola 61-8
Y1366	Cabinet—Ivory plastic cabinet for Radiola 61-9
70475	Clamp—Dial clamp (1 set)
*71796	Dial—Glass dial scale
37831	Fastener—Push fastener (1 set) for cabinet back
70474	Knob—Control knob—ivory—for Radiola 61-9
70473	Knob—Control knob—mottled walnut—for Radiola 61-8
30900	Spring—Retaining spring for knob

*THIS IS THE FIRST TIME THIS STOCK NUMBER HAS APPEARED IN PRINT.

RCA MFG. CO.

MODEL 62-1, Chassis RC1017A, RC-1017B



1946..R1 IF PEAK 455 KC

Replacement Parts—Radio Only

STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES RC 1017A RC 1017B
70389	Bearing—Tuning knob shaft bearing
70407	Button—Plug button (2 required)
70997	Capacitor—Mica, 5.6 mmf. (C24)
39650	Capacitor—Mica, 820 mmf. (C15)
70601	Capacitor—Tubular, .002 mfd., 400 volts (C5, C9)
70606	Capacitor—Tubular, .005 mfd., 400 volts (C1, C11)
70611	Capacitor—Tubular, .02 mfd., 400 volts (C8)
70612	Capacitor—Tubular, .025 mfd., 400 volts (C10)
70615	Capacitor—Tubular .05 mfd., 400 volts (C2, C14)
70617	Capacitor—Tubular, 0.1 mfd., 400 volts (C3, C4)
*72312	Capacitor—Electrolytic, comprising 1 section of 30 mfd., 150 volts and 1 section of 80 mfd., 150 volts (C25, C26)
70403	Coil—Oscillator coil
70383	Condenser—Variable tuning condenser complete with drum
72756	Control—Volume control
32634	Cord—Drive cord (approx. 48" overall length)
70392	Cord—Power cord
70384	Drum—Drive drum
70397	Gear—Power or radio-phono switch gear
70395	Gear—Volume control gear and spring assembly
70404	Indicator—Station selector indicator
70391	Insulator—Bakelite insulator for phono input socket
11765	Lamp—Dial lamp
*72311	Loop—Antenna loop
70382	Plate—Dial back plate complete with pulleys less dial
30868	Plug—2 contact female plug for "AC" cable
36230	Pulley—Drive cord pulley
*72313	Resistor—33 ohms, 1 watt (R11)
30880	Resistor—150 ohms, ¼ watt (R7)
6134	Resistor—1200 ohms, 1 watt (R9)
30492	Resistor—22,000 ohms, ¼ watt (R2)
14583	Resistor—220,000 ohms, ¼ watt (R1, R5)
30648	Resistor—470,000 ohms, ¼ watt (R8)
12928	Resistor—3.3 megohms, ¼ watt (R4)
31455	Resistor—5.6 megohms, ¼ watt (R6)
14974	Screw—#8-32 x 3/16" long set screw for lower gear
70388	Shaft—Tuning knob shaft
34449	Socket—Lamp socket
35787	Socket—Phono input socket
27605	Socket—Tube socket—moulded
70390	Spring—Drive cord tension spring
70396	Spring—Volume control gear tension spring
70394	Switch—Power or radio phono switch
70386	Transformer—First I.F. transformer
70387	Transformer—Second I.F. transformer
70385	Transformer—Output transformer
33726	Washer—"C" washer for tuning knob shaft
70406	Washer—Spring washer for volume control
	SPEAKER ASSEMBLY 922279-1
70405	Speaker—4" x 6" P.M. speaker complete
70470	Speaker—4" x 6" elliptical P.M. speaker complete with cone and voice coil
	SPEAKER ASSEMBLY 922258-2
71058	Speaker—4" x 6" P.M. elliptical speaker complete with cone and voice coil
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS
70398	Clamp—Dial clamps (1 set)
70709	Dial—Glass dial
71595	Feet—Rubber feet (4 required)
70707	Hinge—Lid hinge (2 required)
70401	Knob—Power switch and radio-phono switch knob
70400	Knob—Tuning knob
70399	Knob—Volume control knob
71815	Mounting—One set of hardware consisting of four springs, two spring washers and two rubber washers to mount record changer
14270	Spring—Retaining spring for knobs
71824	Stud—Stud and screw to mount lid hinge (1 set)
39545	Support—Lid support

* THIS IS THE FIRST TIME THIS STOCK NUMBER HAS APPEARED IN PRINT.

MODEL 62-1

RCA MFG. CO.

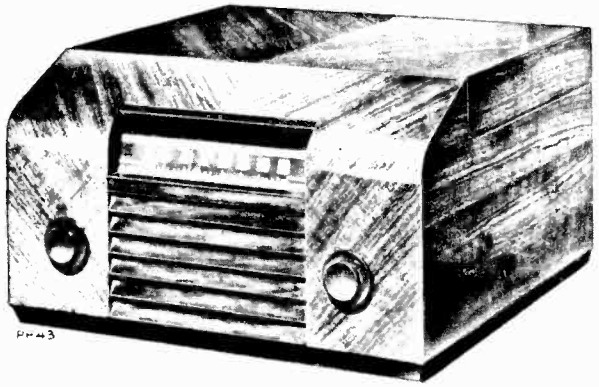
Electrical and Mechanical Specifications

Five-Tube, Single-Band, Superheterodyne Receiver

Frequency Range	540-1,600 kc
Intermediate Frequency	455 kc
Power Output	
Undistorted	1.5 watts
Maximum	2.4 watts
Loudspeaker (922279-1) "PM" or 922258-2	
Size	4 x 6 inch, elliptical
V.C. Impedance	3.4 ohms at 400 cycles
Power Supply Rating	
105-125 volts, AC, 60 cycles	60 watts

IMPORTANT Do not plug instrument into a d-c supply.

	Height	Width	Depth
Cabinet dimensions (inches)	10½	17¼	17¼
Chassis overall (inches)	6⅝	14	6¼
Chassis base (inches)	1⅝	14	3¾
Tuning Drive Ratio			14:1



Phonograph

Type	Automatic (960260-2)
Record Capacity	Twelve 10-in., Ten 12-in.
Turntable Speed	78 r.p.m.
Type Pickup	Crystal
Motor Power Consumption	25 watts

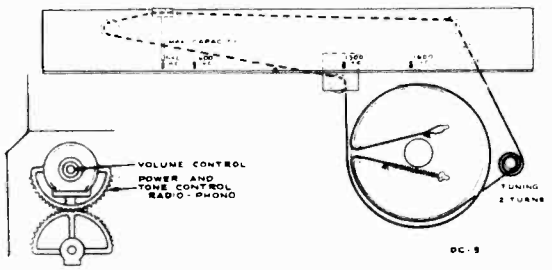
Alignment Procedure

CAUTION.—CLOSE TUNING CONDENSER PLATES COMPLETELY (C-C-W) BEFORE REMOVING CHASSIS FROM CABINET.

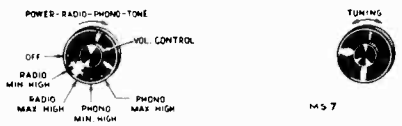
Take off both wooden strips on bottom of cabinet by removing wood screws before loosening chassis bolts.

CRITICAL LEAD DRESS.—

1. All filament wires should be dressed close to chassis.
2. Dress lead from switch to phono jack close to chassis and away from power cord.
3. Dress capacitor between 12SQ7 grid and terminal board away from chassis and away from other parts.
4. Dress all exposed leads away from each other and away from chassis to prevent short circuits.
5. In instrument assembly the lead from the rear section of gang to loop shall be dressed away from chassis and other wires to loop.



Dial Pointer Adjustment.—Rotate tuning condenser fully counter-clockwise (plates fully meshed). Adjust indicator pointer to left (max. cap.) mark on dial back plate.



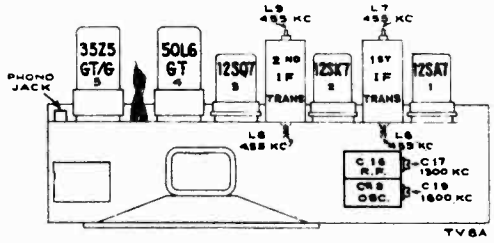
Control Positions

Test Oscillator.—Connect high side of test oscillator as shown in chart. Connect low side through a .01 mf capacitor to common "—B." Keep the output signal as low as possible to avoid a.v.c. action.

Output Meter.—Connect meter across speaker voice coil. Turn volume control clockwise to radio maximum high position (3) for alignment.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I.F. grid, in series with .01 mfd.	455 kc	Quiet point 1600 kc end of dial	L8 and L9 2nd I.F. transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I.F. transformer
NOTE.—ANTENNA LOOP AND RECORD CHANGER MUST BE IN CABINET				
3	Antenna terminal in series with 220 mmfd.	1600 kc	Gang at minimum	C19 (osc.)
4	Radiated signal	1300 kc	Signal frequency	C17 (ant.)
5	Repeat steps 3 and 4.			

* Do not readjust L8 or L9 when test oscillator is connected to 1st Det.

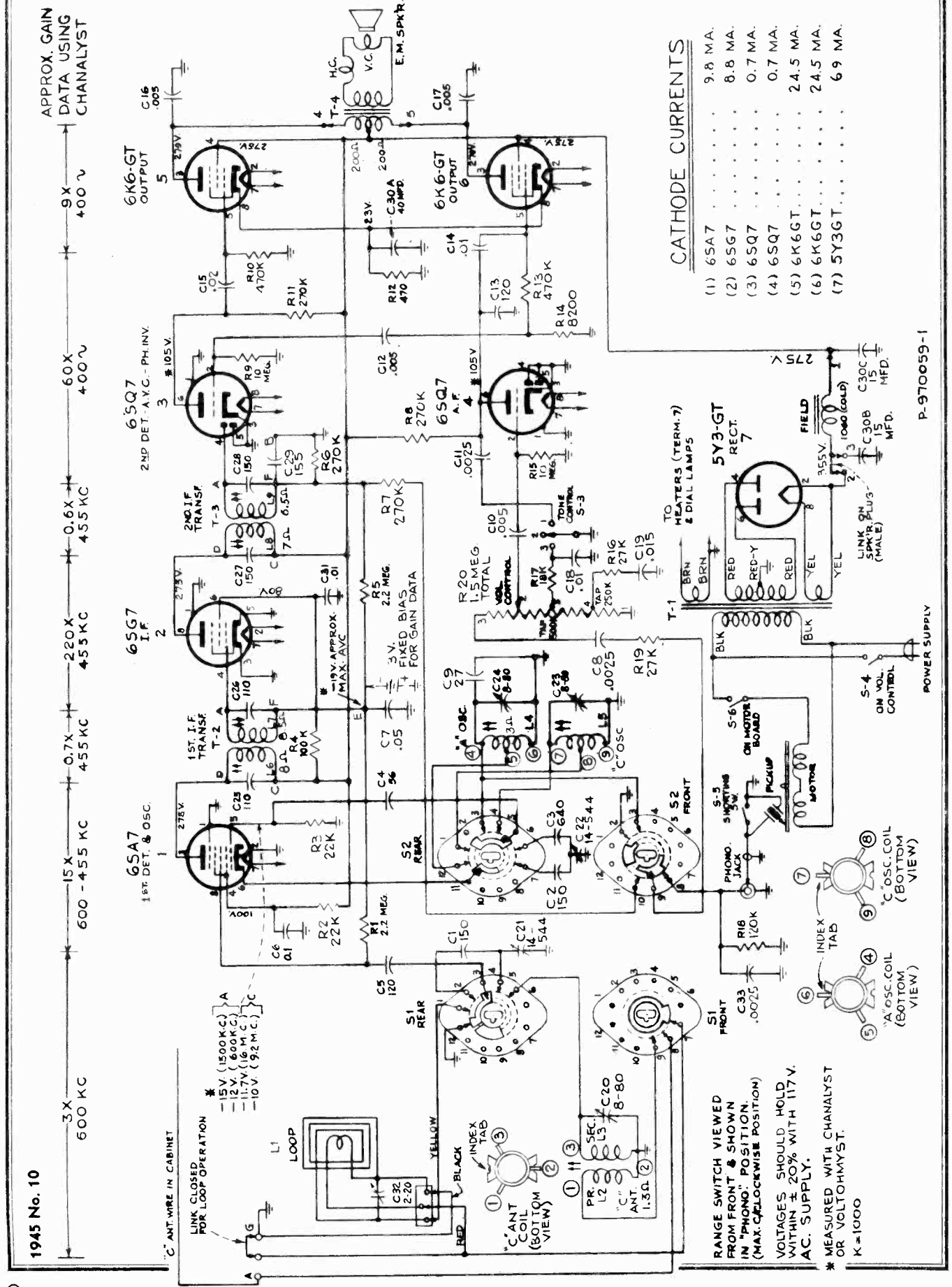


Power Supply.—Although this model employs an ac-dc chassis, it is not suitable for use on d.c., as this would damage the motor.

Reversal of plug in outlet receptacle may reduce hum.

RCA MFG. CO.

MODELS 67V1, 67AV1,
Chassis RC6C6

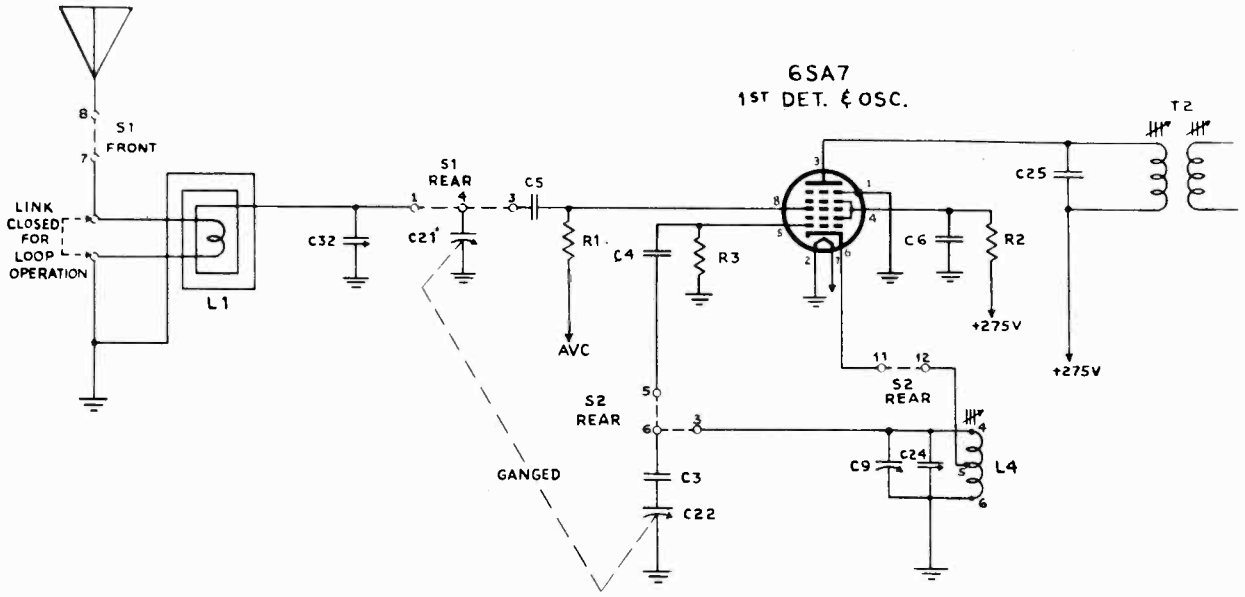


RECORD CHANGER: RCA 960260-1, RCD.CH.P.15-17

"clarified schematics"

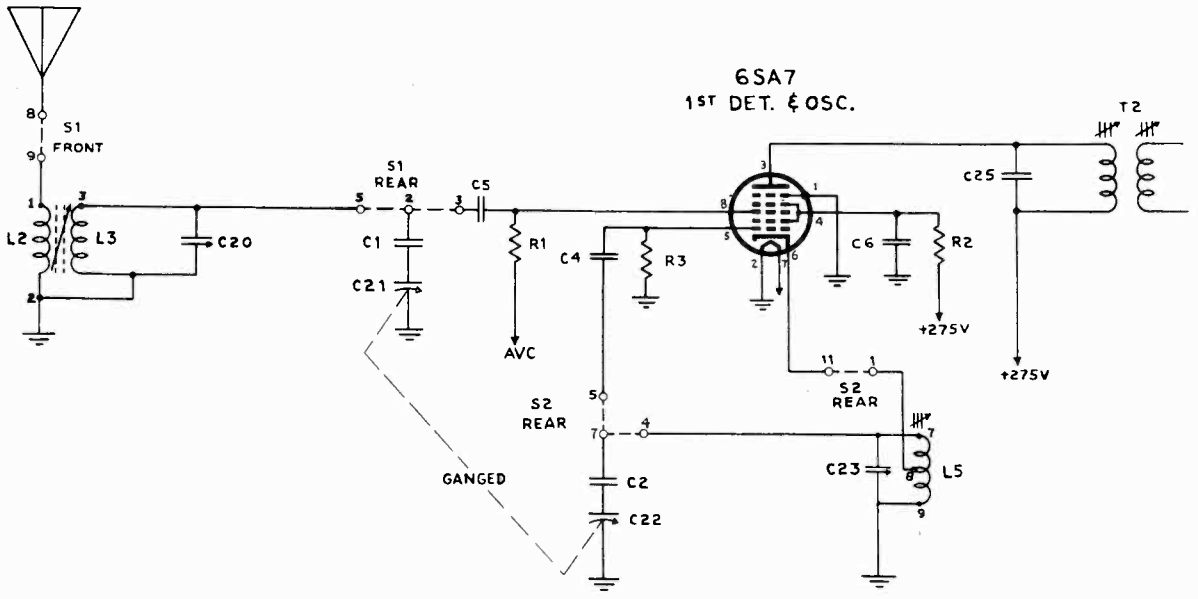
MODELS 67V1, 67AV1

RCA MFG. CO.

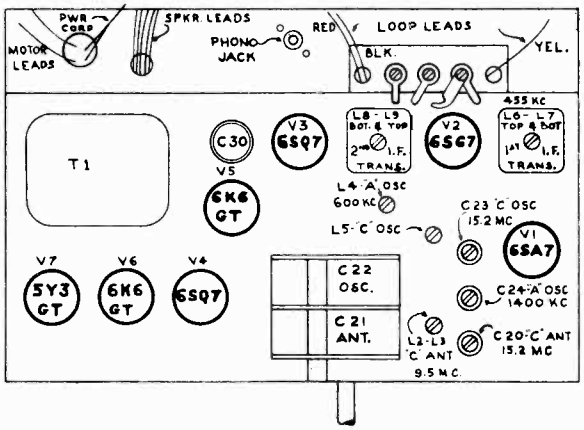


BAND-SWITCH SHOWN
AT 2ND POSITION CLOCKWISE.
BROADCAST BAND
540 - 1600 KC.

NOTE:
1ST POSITION (PHONO)
NOT SHOWN.



BAND-SWITCH SHOWN
AT 3RD POSITION CLOCKWISE.
SHORT WAVE BAND
9.2 - 16 MC.

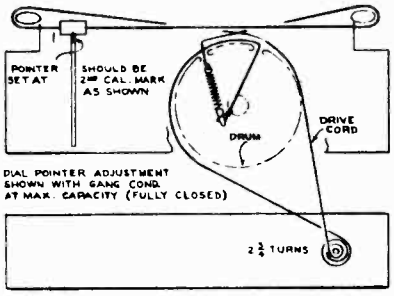


TOP VIEW

Steps	Connect high side of test oscillator to—	Tune test oscillator to—	Turn radio dial to—	Adjust the following for maximum peak output
1	6SG7 grid in series with .01 mfd.	455 kc.	Broadcast Quiet Point at 550 kc. end of dial	L8, L9 (2nd I-F Trans.)
2	6SA7 grid in series with .01 mfd.			L6, L7 (1st I-F Trans.)
3	Yellow lead on loop in series with 200 mmfd. (link closed)	1,400 kc.	Broadcast 1400 kc.	C24 (osc.)
4		600 kc.	Broadcast 600 kc.	L4 (osc.) Rock gang
5		Repeat steps 3 and 4.		
6	Antenna terminal in series with 47 mmfd.	15.2 mc.	Short Wave 15.2 mc.	C23 (osc.)* C20 (ant.)
7		9.5 mc.	Short Wave 9.5 mc.	L5 (osc.) L3 (ant.)
8		Repeat steps 6 and 7		
9	Install and connect chassis in cabinet with link closed. Tune in a radiated signal of 1400 kc. on broadcast band and peak C32 on loop.			

* Use minimum capacity peak if two can be obtained. Check for selection of correct peak by tuning the receiver to approximately 14.3 mc., where a weaker signal should be received.

Oscillator tracks 455 kc. above signal on both bands.



DIAL INDICATOR AND DRIVE MECHANISM

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 a-v-c action

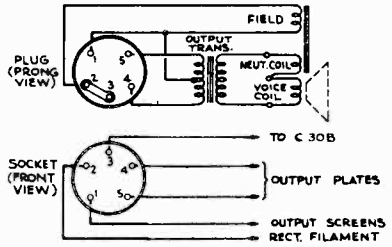
Calibration Scale.—The dial scale printed in this service note may be temporarily attached to the chassis for quick reference during alignment.

Using Printed Dial Scale.—

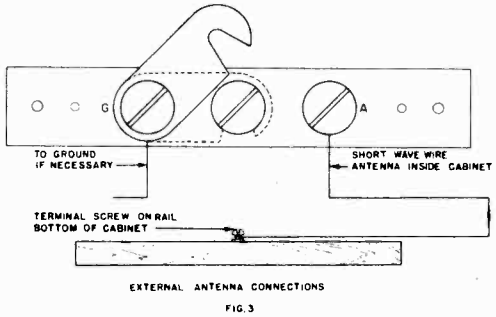
1. Cut out the printed dial scale, or, better still, make a tracing of the scale.
2. With gang at full mesh the pointer should be set to the second reference mark from the left hand end of the dial backing plate.
3. Place the printed dial scale or the tracing under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the dial scale in place.

Note.—It is not recommended that the glass dial scale in the cabinet be removed as an alignment reference. This glass dial scale is fastened to the bezel with sheet metal lugs bent over the scale to hold it in place. Removing the glass dial scale will necessitate bending the lugs, resulting in their weakening and subsequent breakage.

"C" Band Reception.—For best reception on "C" band with an outside antenna, adjust the trimmer screw of C20 on the antenna coil. Turn screw carefully with an insulated screwdriver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band. If returning to internal antenna at any time, close the link on the center terminal and readjust "C" band antenna trimmer C20 for best reception on 31-meter band.



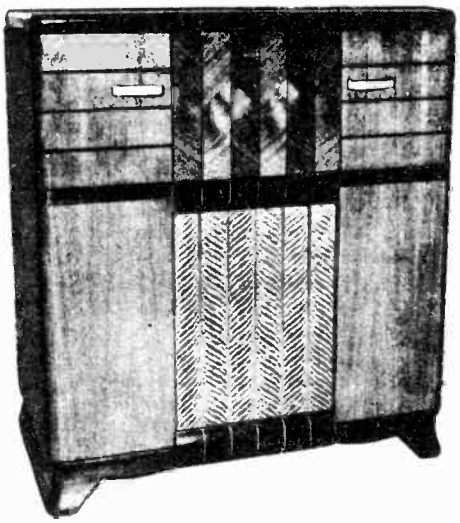
SPEAKER CONNECTIONS



WHEN USING EXTERNAL ANTENNA, OPEN LINK AND CONNECT LEAD-IN TO TERMINAL SCREW.

MODELS 67V1,67AV1

RCA MFG. CO.



Critical Lead Dress:

1. Dress speaker cable leads down next to chassis.
2. Dress output plate capacitors next to chassis.
3. Dress plate lead of output tube away from grid of audio amplifier.
4. Dress all a-c leads away from volume control down next to chassis.
5. Dress R16 away from a-c leads at on-off switch.
6. Dress R2 away from side of chassis.

Note.—In order to remove the chassis from the cabinet, remove the knobs and the connecting cables, then unscrew the four slotted hex head screws from the two "L" brackets bolted to the rear of the chassis. The chassis may then be slid out toward the bottom rear of the cabinet. Do not remove the hinge screws or the two large nuts in the rear of the chassis. When replacing the chassis, make sure that the tapered pins on the front of the chassis fit into the holes on the metal runners screwed to the cabinet door.

Specifications

Circuit Description

The receiver is a seven tube superheterodyne employing push-pull power output. AVC is applied to the converter and i-f tubes. The broadcast band utilizes a standard loop antenna, and the short wave antenna is a wire tacked in the cabinet.

Dimensions

	Cabinet	Chassis (overall)
Height (inches)	34	5⅝
Width (inches)	31	11⅛
Depth (inches)	16¼	8
Tuning Drive Ratio		14:1

Frequency Ranges

Standard Broadcast "A"	540-1,600 kc
Short Wave "C"	9.2-16 mc
Intermediate Frequency	455 kc

Tube Complement

(1) RCA-6SA7	1st Det., Oscillator
(2) RCA-6SG7	I-F Amplifier
(3) RCA-6SQ7	2nd Det., A. V. C. and Phase Inverter
(4) RCA-6SQ7	A-F Amplifier
(5) RCA-6K6-GT	Power Output
(6) RCA-6K6-GT	Power Output
(7) RCA-5Y3-GT	Rectifier

Power Supply Rating (including Phono Motor)

105-125 volts, 60 cycles	95 watts
Pilot Lamps	(2) Mazda No. 51, 6-8 volts, 0.2 amp.
Compartment Lamp	(1) Mazda No. 55, 6-8 volts, 0.4 amp.

Loudspeaker

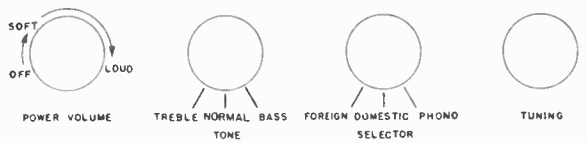
Electrodynamic	92566-1W
Size	12-inch
V. C. impedance at 400 cycles	2.2 ohms

Power Output Rating

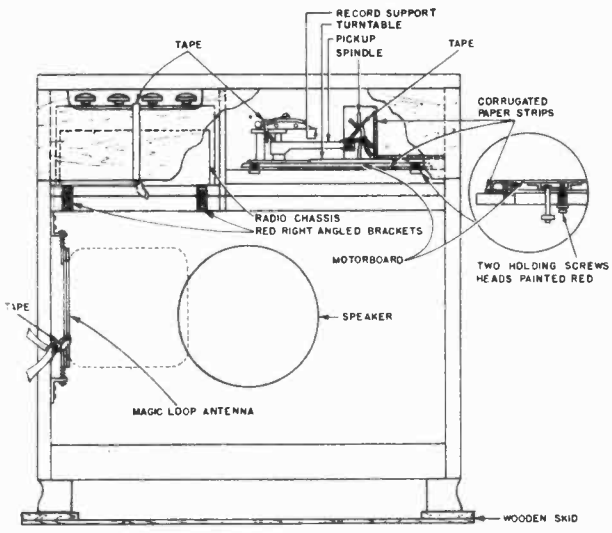
Undistorted	5 watts
Maximum	6.5 watts

Phonograph

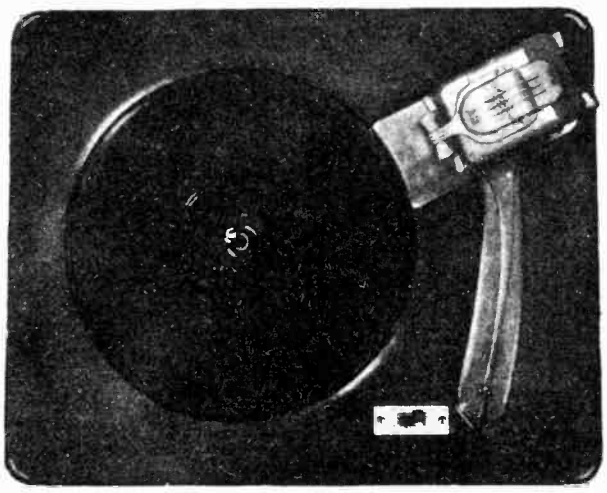
Type	Automatic 960260-1
Record Capacity	Twelve 10-in., Ten 12-in.
Turntable	78 r.p.m. type
Type Pickup	Crystal
Motor Power consumption (115 v., 60 cycles)	30 watts



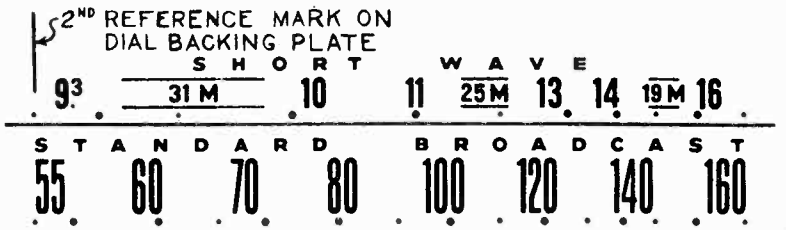
FRONT PANEL CONTROLS



BACK VIEW

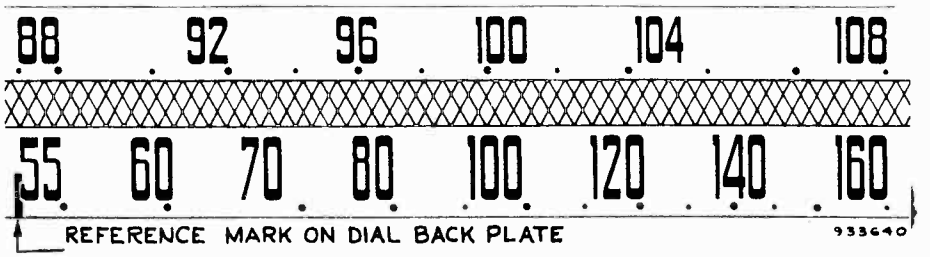


MODELS 67V1,67AV1



The dial scale drawing shown is a full size reproduction. It can be used as a reference in alignment procedure.

MODELS 68R1,68R2,68R3,68R4



The dial scale drawing shown is a full size reproduction. It can be used as a reference in alignment procedure.

Replacement Parts

For Automatic Mechanism Parts refer to Service Data for Model 960260-1

STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (RC 606)
*71601	Board—"Ant. ground" board
*71606	Bracket—Dial bracket with drive cord pulley (L. H.)
*71605	Bracket—Dial bracket with drive cord pulley (R. H.)
*71615	Capacitor—Ceramic, 27 mmf. (C9)
71924	Capacitor—Ceramic, 56 mmf. (C4)
*71610	Capacitor—Mica trimmer, 3 sections 8-80 mmf. (C20, C23, C24)
*71614	Capacitor—Ceramic, 120 mmf. (C5, C13)
*71612	Capacitor—Silvered mica 150 mmf. (C1, C2)
*71613	Capacitor—Mica, 640 mmf. (C3)
70623	Capacitor—Tubular, .0025 mfd., 600 volts (C8, C11, C33)
70648	Capacitor—Tubular, .005 mfd., 1060 volts (C16, C17)
70627	Capacitor—Tubular, .005 mfd., 600 volts (C10, C12)
70631	Capacitor—Tubular, .01 mfd., 600 volts (C14, C18, C31)
71135	Capacitor—Tubular, .015 mfd., 600 volts (C19)
*70633	Capacitor—Tubular, .02 mfd., 600 volts (C15)
70615	Capacitor—Tubular, .05 mfd., 400 volts (C7)
70617	Capacitor—Tubular, 0.1 mfd., 400 volts (C6)
37889	Capacitor—Comprising 2 sections 15 mfd., 450 volts, and 1 section 40 mfd., 25 volts (C30A, C30B, C30C)
*71633	Coil—"A" band oscillator coil (L4)
*71632	Coil—"C" band antenna coil (L2, L3)
*71634	Coil—"C" band oscillator coil (L5)
*71600	Condenser—Variable tuning condenser (C21, C22)
70342	Control—Volume control and power switch (R20, S4)
37534	Cord—Drive cord (approx. 45" overall length)
*71609	Drum—Drive drum
*72069	Grommet—Rubber grommet for rear mounting feet
*71608	Indicator—Station selector indicator
*71607	Plate—Dial back plate
38932	Plug—Pin plug for loop lead
12483	Plug—Speaker cable plug, 5 contact (female)
36230	Pulley—Drive cord pulley mounted on dial bracket
*71611	Resistor—470 ohms, 2 watt (R13)
14250	Resistor—8,200 ohms, ½ watt (R14)
3218	Resistor—18,000 ohms, ½ watt (R17)
30492	Resistor—22,000 ohms, ½ watt (R3)
48925	Resistor—22,000 ohms, 2 watt (R2)
30409	Resistor—27,000 ohms, ½ watt (R16, R19)
3253	Resistor—100,000 ohms, ½ watt (R4)
30180	Resistor—120,000 ohms, ½ watt (R18)
30651	Resistor—270,000 ohms, ½ watt (R6, R7, R8, R11)
30648	Resistor—470,000 ohms ½ watt (R10, R13)
30649	Resistor—2.2 megohms, ½ watt (R1, R5)
30992	Resistor—10 megohms, ½ watt (R9, R15)
*71604	Shaft—Tuning shaft
35787	Socket—Input socket
30868	Socket—Motor cable socket, 2 contact (female) (67V1)
31364	Socket—Pilot lamp socket
31251	Socket—Tube socket
31418	Spring—Indicator cord tension spring
*71602	Switch—Range switch (S1, S2)
*71603	Switch—Tone control switch (S3)
*71625	Transformer—First I.F transformer T2 (L6, L7, C25, C26)
*71631	Transformer—Second I.F transformer T3 (L8, L9, C27, C28, C29)
31380	Transformer—Power transformer 117 volts 50/60 cycle (T1)
35969	Washer—"C" washer for tuning shaft
	SPEAKER ASSEMBLIES (92586-1W) (RL70R2)
13067	Cap—Dust cap
*71147	Clamp—Clamp to hold metal cone suspension (2 required)
12079	Coil—Field coil—1,060 ohms
11468	Coil—Neutralising coil
36145	Cone—Cone complete with voice coil
31539	Plug—5 prong male plug for speaker
71148	Speaker—12" P. M. speaker complete with cone and voice coil less output transformer and plug
*71145	Suspension—Metal cone suspension
36871	Transformer—Output transformer (T4)
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS ASSEMBLIES
*71859	Bar—Grille bar
70545	Bracket—Antenna loop mounting bracket complete with spring (2 required)
*71819	Bracket—Door check mounting bracket
36481	Button—Plug button
38584	Capacitor—Mica trimmer 2-20 mmf. (C32)
*71820	Check—Radio compartment door check assembly less spring
X1615	Cloth—Grille cloth
70547	Cover—Compartment lead cover
*71799	Decal—Control function decal
*71768	Decal—Trade mark decal
*71817	Dial—Glass dial scale
*71816	Escutcheon—Dial scale escutcheon less dial
11889	Grommet—Rubber grommet to cushion chassis front apron (2 required)
*71766	Hinge—Cabinet lid hinge
*71764	Hinge—Cabinet door hinge (2 required)
12103	Jewel—Pilot lamp cap
*71822	Knob—Range switch or tone switch knob
71821	Knob—Volume control or tuning knob
5117	Lamp—Compartment lamp
11765	Lamp—Dial lamp
*71813	Loop—Antenna loop complete (L1, C32)
*71815	Mounting—One set of hardware to mount record changer—consisting of four springs, two spring washers and two rubber washers
*71858	Pull—Door pull
37800	Shade—Compartment lamp shade
36422	Socket—3 contact socket (female) for loop leads
*71818	Spring—Door check spring
30900	Spring—Retaining spring for knobs
*71765	Support—Cabinet lid support
*71814	Washer—Rubber washer for door check

* THIS IS THE FIRST TIME THIS STOCK NUMBER HAS APPEARED IN PRINT.

Replacement Parts

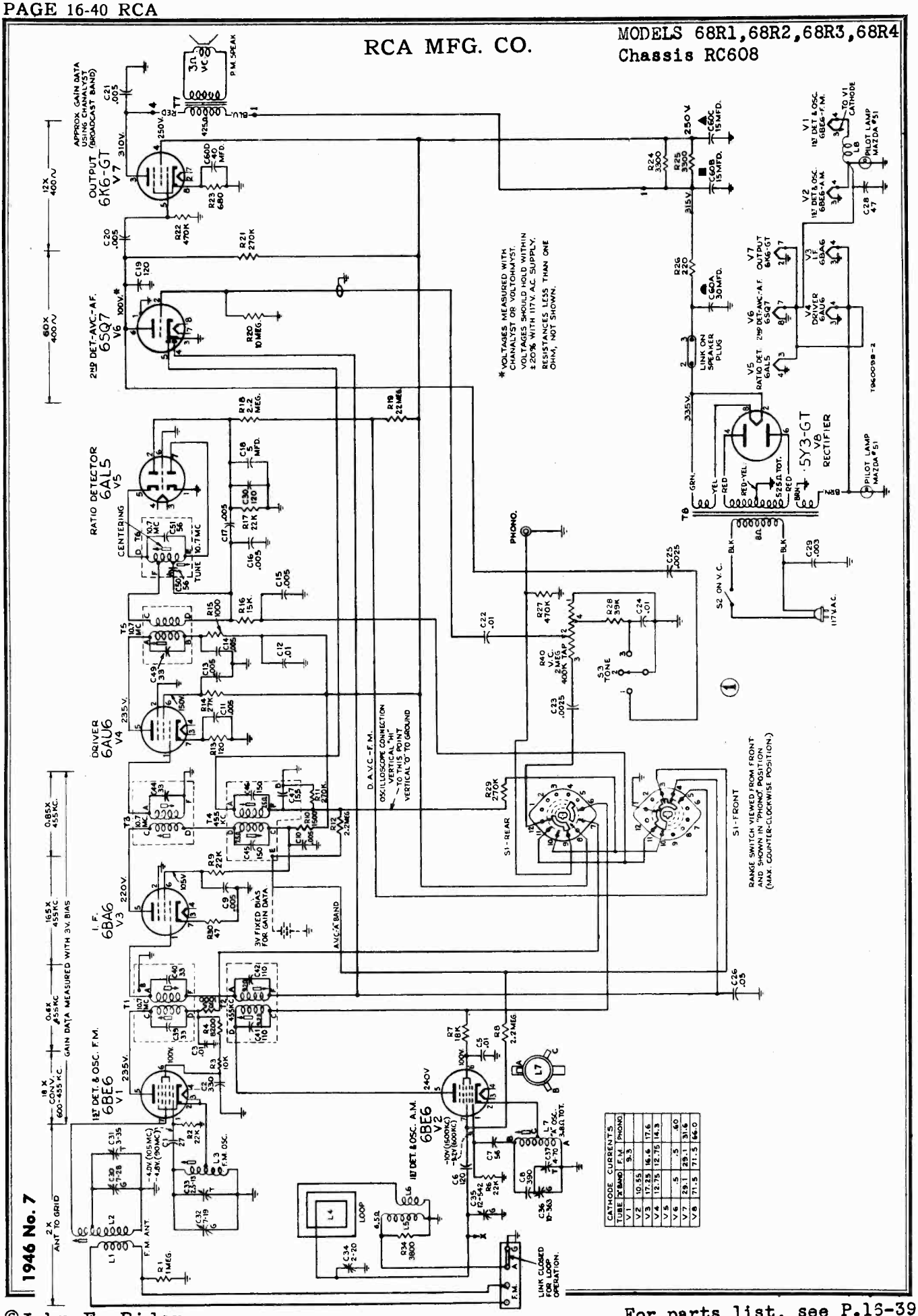
STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLY RC608
72058*	Board—"F.M.—Antenna—Ground" board
72046*	Capacitor—Mica trimmer, 2.5-13 mmf. (C33)
38357	Capacitor—Mica trimmer, 2-20 mmf. (C34)
71808	Capacitor—Mica trimmer, 3-35 mmf. (C31)
72334*	Capacitor—Mica trimmer, 4-70 mmf. (C37)
72570*	Capacitor—Ceramic, 27 mmf. (C1)
39042	Capacitor—Ceramic, 47 mmf. (C28)
71924	Capacitor—Ceramic, 56 mmf. (C7)
71614	Capacitor—Ceramic 120 mmf. (C6, C19, C30)
72571*	Capacitor—Mica, 330 mmf. (C2)
72639*	Capacitor—Mica, 390 mmf. (C8)
70602	Capacitor—Tubular, .0025 mfd., 400 volts (C25, C23)
71087*	Capacitor—Molded paper, .003 mfd., 1000 volts (C29)
72490*	Capacitor—Tubular, .005 mfd., 200 volts (C11, C15, C16, C17)
71553	Capacitor—Tubular, .005 mfd., 400 volts (C9, C10, C13, C14)
70606	Capacitor—Tubular, .005 mfd., 400 volts (C39)
70648	Capacitor—Tubular, .005 mfd., 1000 volts (C21)
71023	Capacitor—Tubular, .01 mfd., 200 volts (C22, C24)
71025	Capacitor—Tubular, .01 mfd., 400 volts (C3, C4, C5, C12)
71551	Capacitor—Tubular, .05 mfd., 200 volts (C26)
72121	Capacitor—Electrolytic, 5 mfd., 50 volts (C18)
72271*	Capacitor—Electrolytic comprising (C60A, C60B, C60C, C60D) 1 section of 30 mfd., 450 volts, 1 section of 15 mfd., 450 volts, 1 section of 15 mfd., 350 volts and 1 section of 40 mfd., 25 volts
72335*	Coil—F.M. Antenna Coil (L1, L2)
72336*	Coil—F.M. Oscillator Coil (L3)
72574*	Coil—Filament choke Coil (L8)
36031	Coil—Loop primary Coil (L5, L6)
72333*	Coil—Oscillator Coil—"A" band (L7)
72059*	Condenser—Variable tuning condenser, less mounting bracket and trimmers (C32, C35, C36, C61)
38604	Control—Volume control and power switch (R40, S2)
34662	Cord—Drive cord (approx. 80" overall length)
70302	Cord—Power cord
71799	Grommet—Rubber grommet for mounting R.F. shelf (3 req'd)
72069	Grommet—Rubber grommet for rear mounting feet (2 req'd)
72061*	Indicator—Station selector indicator
72159*	Loop—Antenna loop complete (L4, L5, L6, C34, R34)
72142	Plate—Dial back plate complete with pulleys
12493	Plug—5 contact female plug for speaker cable
36230	Pulley—Drive cord pulley
30732	Resistor—47 ohms, ½ watt (R30)
30189	Resistor—120 ohms, ½ watt (R13)
53005	Resistor—220 ohms, 2 watts (R26)
19233	Resistor—680 ohms, 1 watt (R23)
34766	Resistor—1000 ohms, ½ watt (R5, R15)
72762*	Resistor—1500 ohms, 1 watt (R10)
19525	Resistor—3300 ohms, 2 watts (R24, R25)
38888	Resistor—8200 ohms, 1 watt (R4)
71914	Resistor—10,000 ohms, 1 watt (R3)
36714	Resistor—15,000 ohms, ½ watt (R16)
30158	Resistor—18,000 ohms, 2 watts (R7)
71089	Resistor—22,000 ohms, 1 watt (R9)
30492	Resistor—22,000 ohms, ½ watt (R2, R6, R17)
30400	Resistor—27,000 ohms, ½ watt (R14)
30147	Resistor—39,000 ohms, ½ watt (R28)
30651	Resistor—270,000 ohms, ½ watt (R11, K21, R29)
30648	Resistor—470,000 ohms, ½ watt (R22, R27)
30652	Resistor—1 megohm, ½ watt (R1)
30649	Resistor—2.2 megohms, ½ watt (K8, R12, R18)
30992	Resistor—10 megohms, ½ watt (R20)
71917	Resistor—22 megohms, ½ watt (R19)
72055*	Shaft—Tuning knob shaft
35787	Socket—Input socket, Phono.
31364	Socket—Lamp socket
72516*	Socket—Tube socket—miniature
31251	Socket—Tube socket—Octal
31418	Spring—Tension spring for drive cord
72060*	Switch—Range switch (S1)
71603	Switch—Tone switch (S3)
71625	Transformer—First I.F. Transformer—A.M. (T2, C41, C42)
72583*	Transformer—First I.F. Transformer—F.M. (T1, C39, C40)
71631	Transformer—Second I.F. Transformer—A.M. (T4, C45, C46, C47)
72723*	Transformer—Second I.F. Transformer—F.M. (T3, C44)
71935	Transformer—Driver transformer (T5, C49)
71975	Transformer—Power transformer—117 volt, 60 cycle (T8)
71934	Transformer—Ratio detector transformer (T6, C50, C51)
35969	Washer—"C" washer for tuning shaft
	SPEAKER ASSEMBLIES 92573-1K
72728*	Cone—Cone and voice coil assembly
31539	Plug—5 prong male plug for speaker
72332*	Transformer—Output transformer (T7)
	NOTE: If stamping on speaker in instrument does not agree with above speaker number, order replacement parts by referring to model number of instrument, number stamped on speaker and full description of part required.
	MISCELLANEOUS ASSEMBLIES
71864	Antenna—Di-pole antenna
72537*	Back—Cabinet back for Model 68R1
72538*	Back—Cabinet back for Model 68R2
72509*	Back—Cabinet back for Model 68R3, 68R4
72539*	Baffle—Baffle and grille assembly for 68R1, 68R2
Y1306	Cabinet—Brown plastic cabinet for Model 68R1
Y1307	Cabinet—Ivory plastic cabinet for Model 68R2
72536*	Clip—Spring clip for dial (1 set) for 68R1 and 68R2
72337*	Clip—Spring clip for dial for 68R3, 68R4
X1631	Cloth—Grille cloth for 68R3
X1644	Cloth—Grille cloth for 68R4
72653*	Dial—Glass dial scale for 68R1, 68R2, 68R3
72813*	Dial—Glass dial scale for 68R4
36153	Fastener—Push fastener for cabinet back for 68R1, 68R2
71595	Feet—Rubber feet (4 req'd) for 68R3, 68R4
71821	Knob—Control knob—maroon for Model 68R1, 68R3, 68R4
70474	Knob—Control knob—ivory—for Model 68R2
11765	Lamp—Dial lamp—Mazda No. 51
30900	Spring—Retaining spring for knobs

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

*This is the first time this Stock No. has appeared in print

RCA MFG. CO.

MODELS 68R1,68R2,68R3,68R4
Chassis RC608



CATHODE CURRENTS			
TUBE	A BAND	F.M.	PHONO
V1		9.3	
V2	10.55		
V3	17.25	16.6	17.6
V4	12.75	12.75	14.3
V5			
V6	.5	.5	.60
V7	29.1	29.1	31.6
V8	71.5	71.5	64.0

For parts list, see P.16-39

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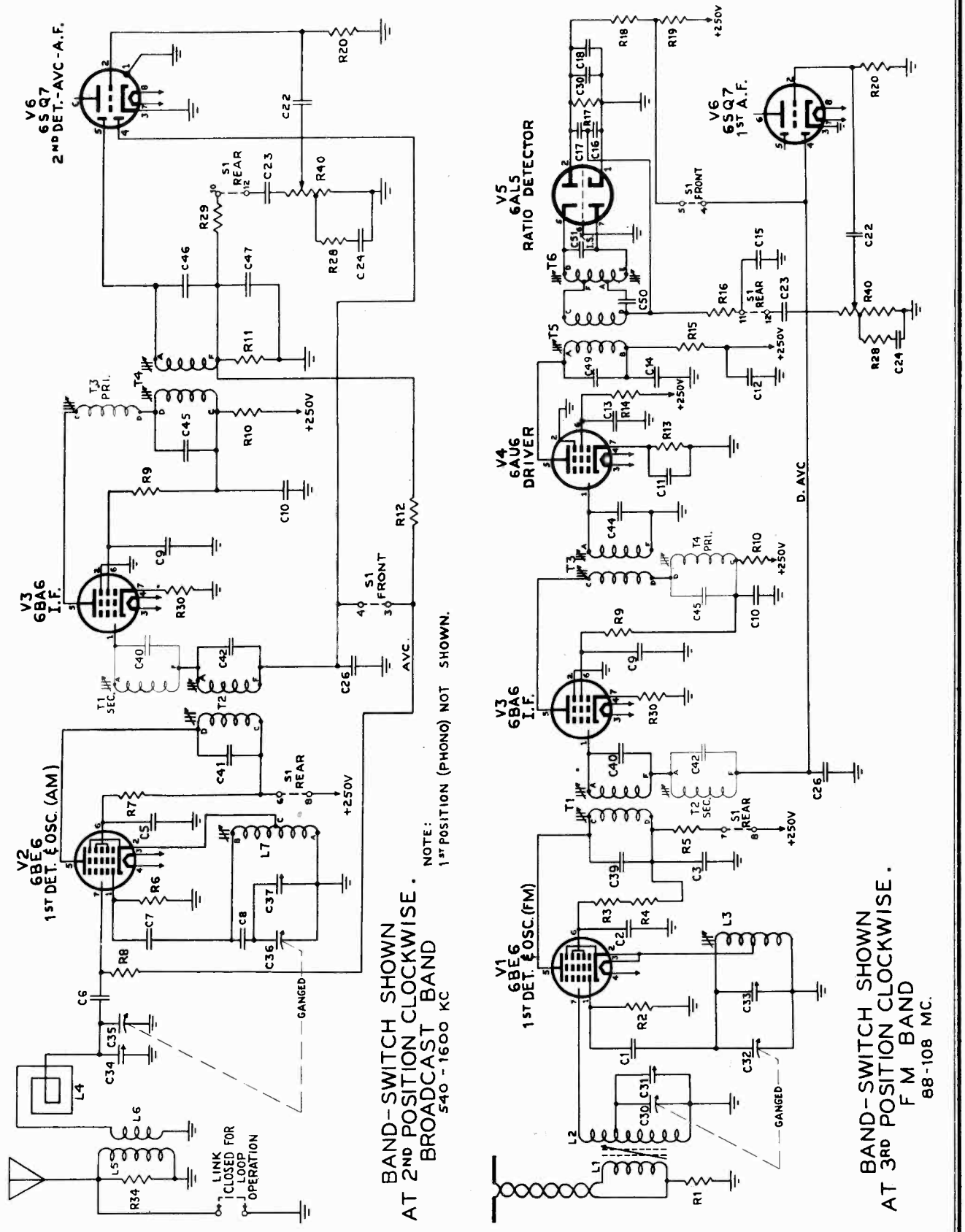
MODELS 68R1,68R2, 68R3,68R4



MODELS 68R1,68R2,
68R3,68R4

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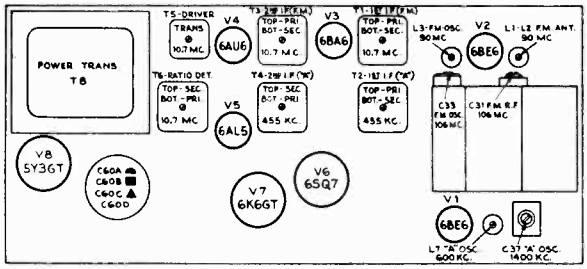

Tube and Trimmer Locations (Top View)

FM I.F. R.F. Alignment*

Range Switch in FM Position

Steps	Connect the high side of the test-osc. to—	Connect the ground side of the test-osc. to—	Tune test-osc. to—	Radio dial turned to—	Adjust
1	Connect the d-c probe of a VoltOhmyst to the negative lead of the 5 mfd. electrolytic condenser, C18, and the common lead of the meter to chassis ground.				
2	To one terminal of the FM antenna in series with .01 mfd.	To the other terminal of the FM antenna.	10.7 mc. 30% mod. at 400 cycles. (AM)	Maximum capacity. (Fully meshed)	†T3, bottom core for maximum d-c across C 18. Load the plate winding of T3 with a 680 ohm resistor.‡
3	Same as 2.				T3, top core for maximum d-c across C 18. Load the grid winding of T3 with the 680 ohm resistor used in Step 2.
4	Same as 2.				T1, bottom core for maximum d-c across C 18. Load the plate winding of T1 with the 680 ohm resistor.
5	Same as 2.				T1, top core for maximum d-c across C 18. Load the grid winding of T1 with the 680 ohm resistor.
6	To one terminal of the FM antenna in series with a 120 ohm resistor.	To the other terminal of the antenna in series with a 120 ohm resistor.	106 mc.	106 mc.§	Condensers C33 and C31 for maximum d-c output across C18.
7	Same	Same	90 mc.	90 mc.	Coils L2 and L3 for maximum d-c output across C18.
8	Repeat steps 6 & 7 until further adjustment no longer improves calibration.				

*Correct alignment of the 455 kc. I.F. requires that the 10.7 mc. FM I.F. be aligned previously.

†This method is known as alternate loading which involves the use of a 680 ohm resistor to load the plate winding while the grid winding of the *same* transformer is peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked.

‡When the windings are loaded it may be necessary to increase the 10.7 mc input since the gain will decrease resulting in a small or no reading across C18. This reading should be maintained at 2-4 volts, by adjusting the input, as each transformer is aligned.

§Completely mesh the gang and see that the pointer goes to mechanical maximum calibration point at low end of band. (Reference mark on dial back plate).

Alignment Procedure

Test Oscillator—

For all alignment operations, unless specified, keep the output as low as possible to avoid A.V.C. action. Ground lead of test-osc. to chassis ground, unless specified.

Output Meter—

To correctly observe the point of minimum a-f output, it is necessary to connect an output meter across the voice coil, and turn the receiver volume control to maximum.

"A" Band Alignment*

Range Switch in BC Position

Steps	Connect the high side of the test osc. to—	Tune test osc. to—	Turn the radio dial to—	Adjust for max. peak output.
1	AM converter grid, pin 1, 6BE6 in series with .01 mfd.	455 kc.	"A" Band Quiet point at high freq. end.	†T4—Top core T4—Bottom core
2				T2—Bottom core T2—Top core
3	Antenna lead in series with 200 mmf.	1400 kc.	"A" Band 1400 kc calibration pt.	C37—Osc. C34—Ant. (Loop)
4		600 kc.	"A" Band 600 kc calibration pt.	L7—Osc. Rock in.
5	Repeat steps 3 and 4 until aligned			
6	When chassis is installed, readjust C34 on the loop for max. output at 1400 kc.			

*Correct alignment of the 455 kc. I.F. requires that the 10.7 mc. FM I.F. be aligned previously.

†Align T4 and T2 by means of alternate loading. Use a 47,000 ohm resistor instead of a 680 ohm resistor. Alternate loading is explained in "FM I.F.-R.F. Alignment."

FM Ratio Detector Alignment

Range Switch in FM Position

Steps	Connect the high side of the test osc. to—	Tune test-osc. to—	Turn volume control to—	Adjust
1	Connect a 680 ohm resistor between pins 5 & 7 of the ratio detector tube 6AL5. Connect the d-c probe of a VoltOhmyst to the negative lead of the 5 mfd. electrolytic condenser, C18. The common lead of the meter to ground.			
2	Driver grid, pin 1, of the 6AU6 in series with .01 mfd.	10.7 mc. 30% mod. 400 cycles (AM) Approx. .25 Volt output	Maximum Volume	*Driver transformer, T5 for maximum d-c across C18.
3	Remove the meter leads and disconnect the 680 ohm resistor from the 6AL5. Connect two 68,000 ohms (±1%) resistors in series, across the 22,000 ohm ratio detector load resistor, R17. Connect the common lead of the VoltOhmyst to the center point of the 68,000 ohm resistors, and the d-c probe to terminal "A" of the ratio detector transformer, T6. Set the meter to the 0-30 VDC scale.			
4	Same as in Step 2.	Same as in Step 2. Approx. .25 Volt output.	Maximum volume.	†T6 bottom core for zero d-c balance. T6 top core for min. audio output.‡
5	Reconnect VoltOhmyst as in Step 1, omitting 680 ohm resistor.			
6	Repeat Step 2.			
7	Remove ALL connections.			

*Approximately 14.5 volts.

†Near the correct core position the zero point is approached rapidly and continued adjustment causes the indicated polarity to reverse. A slow approach to the zero point is an indication of severe detuning, and the bottom core should be turned in the opposite direction.

‡The zero d-c balance and the minimum a-f output should occur at the same point. If such is not the case, the two cores should be adjusted until both occur with no further adjustment of either core. It may be advantageous to adjust both cores simultaneously, watching the VoltOhmyst, and the output meter, hooked across the voice coil, for the point at which both zero d-c and minimum a-f output occur.

Note:—Two or more points may be found which will satisfy the condition required in Step 4. T6 top core should be correctly adjusted when approximately 1/8 inch of threads extend above the can, therefore, it is desirable to start adjustment with the top core in its furthest "in" position and turn out, while adjusting the bottom core, until the first point of minimum a-f and zero d-c is reached.

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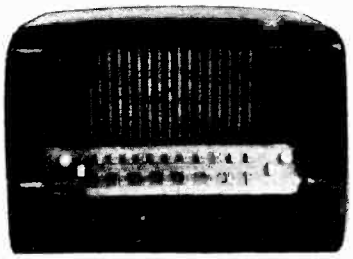
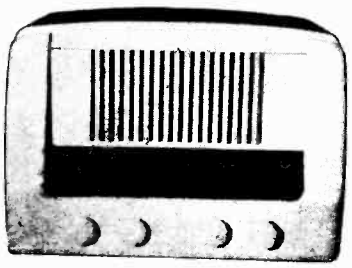
MODELS 68R1, 68R2, 68R3, 68R4

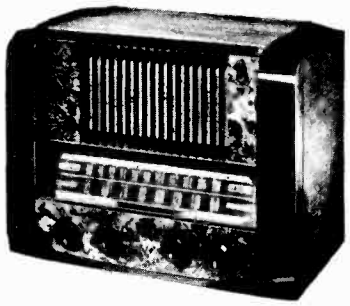


68R1



68R2

68R3



68R4

Circuit Description

These receivers are eight tube, table model, superhetrodyne radios, incorporating two separate converters, one for the FM band and the other for the broadcast band. The range switch has a position in which these models can be operated as a phonograph sound channel.

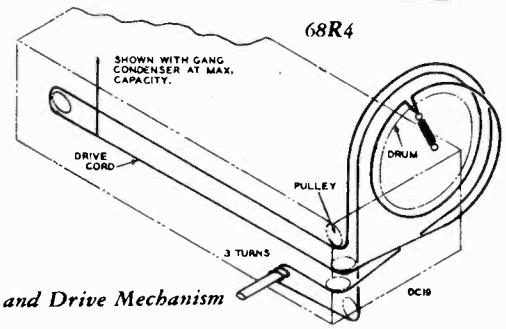
Ratio Detector—

These sets utilize a FM detector known as the "Ratio Detector." This type of circuit eliminates the necessity for a limiting stage preceding the detector, and has an inherent insensitivity to amplitude modulated signals. It is desirable, that before attempting to service these receivers, that this type of circuit be completely understood. Special care should be taken in alignment, and all precautions should be carefully observed.

Note:—Two antennas, a loop for broadcast reception and a folded dipole for FM, are contained in the cabinet. Because of the directional characteristic of these antennas, it may be necessary, when interference is encountered, to rotate the cabinet until a point of minimum interference is found. In some locations, a phenomenon known as "Multi-Path Reception" exists which produces distortion on FM. This is not a fault of the receiver. If this condition is suspected, remove the set to another location, and check it there. An external FM antenna, such as the RCA Dipole and Reflector, Stock #225, will eliminate, or appreciably reduce this effect.

Standard Broadcasts—

To install an external antenna for Standard Broadcasts, the link on the terminal board on the chassis in the back of the cabinet must be opened. Then connect the antenna, which should be a wire 40 to 60 feet long, to the terminal marked "A". A connection from "G" to ground should not be necessary but may be advantageous.



Dial-Indicator and Drive Mechanism

Electrical and Mechanical Specifications

Frequency Range

Broadcast ("A" Band)	540-1600 kc.
Frequency Modulation (FM Band)	88-108 mc.

Intermediate Frequency

Broadcast	455 kc.
Frequency Modulation	10.7 mc.

Tube Complement

(1) RCA 6BE6	1st Det. & Osc. FM
(2) RCA 6BE6	1st Det. & Osc. AM
(3) RCA 6BA6	I-F Amplifier
(4) RCA 6AU6	Driver
(5) RCA 6AL5	Ratio Detector
(6) RCA 6SQ7	2nd Det., A.V.C., and A-F Amplifier
(7) RCA 6K6 GT	Power Output
(8) RCA 5Y3 GT	Rectifier

Power Supply Rating

105-125 volts, 60 cycles ..... 64 watts

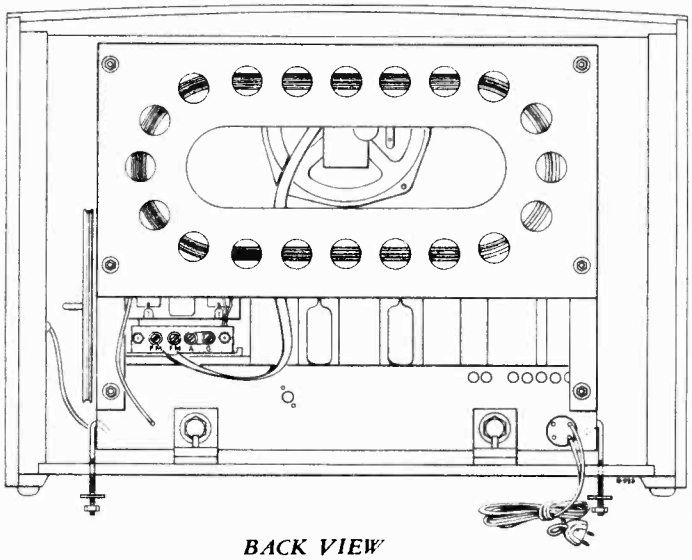
Pilot Lamps ..... (2) Mazda No. 51, 6-8 volts, 0.2 amp.

Loudspeaker 940923-7

Size	5" x 7" elliptical PM
V.C. Impedance	3.4 ohms at 400 cycles

Power Output

Undistorted	2.0 watts
Maximum	4.0 watts



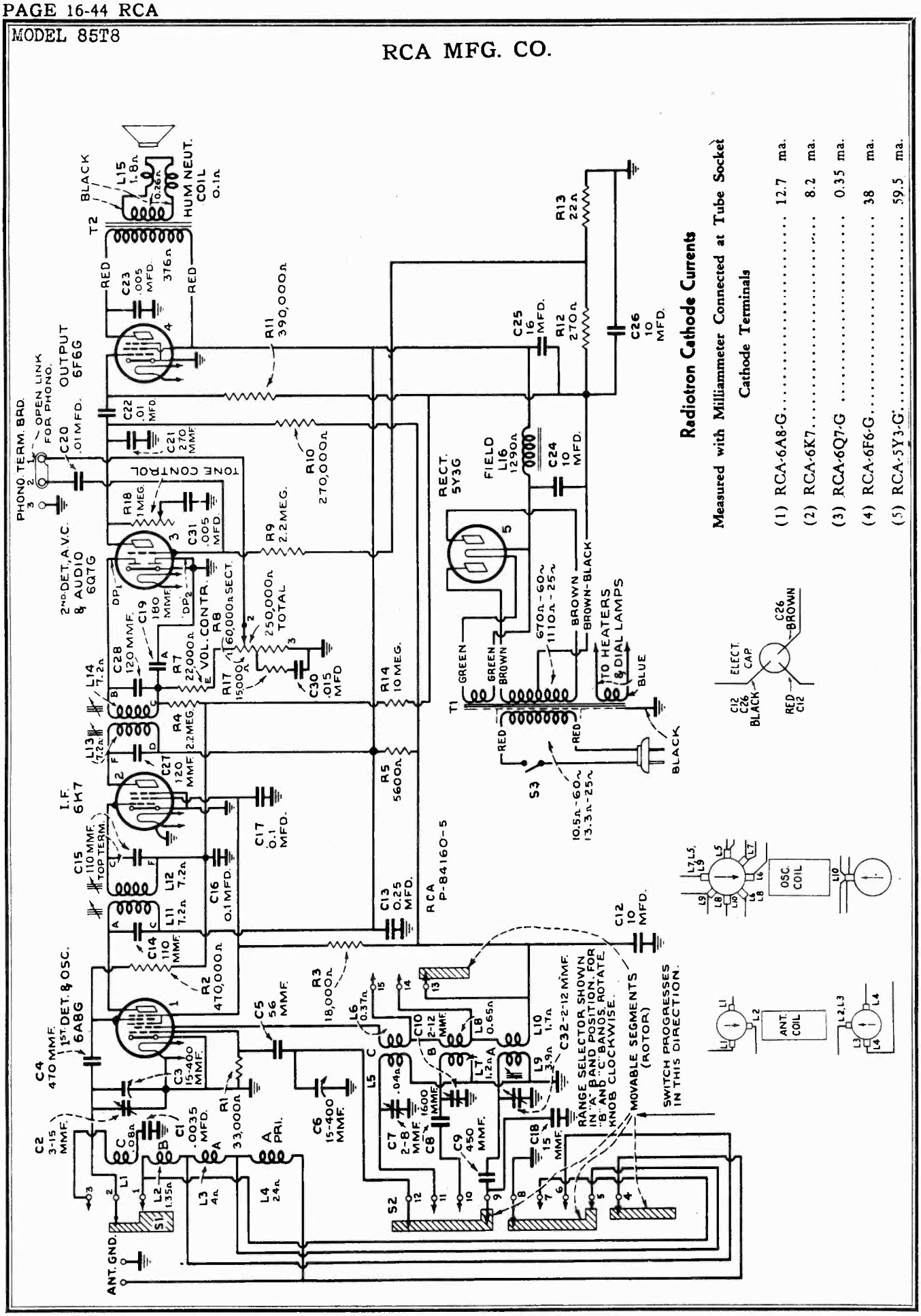
BACK VIEW

Critical Lead Dress

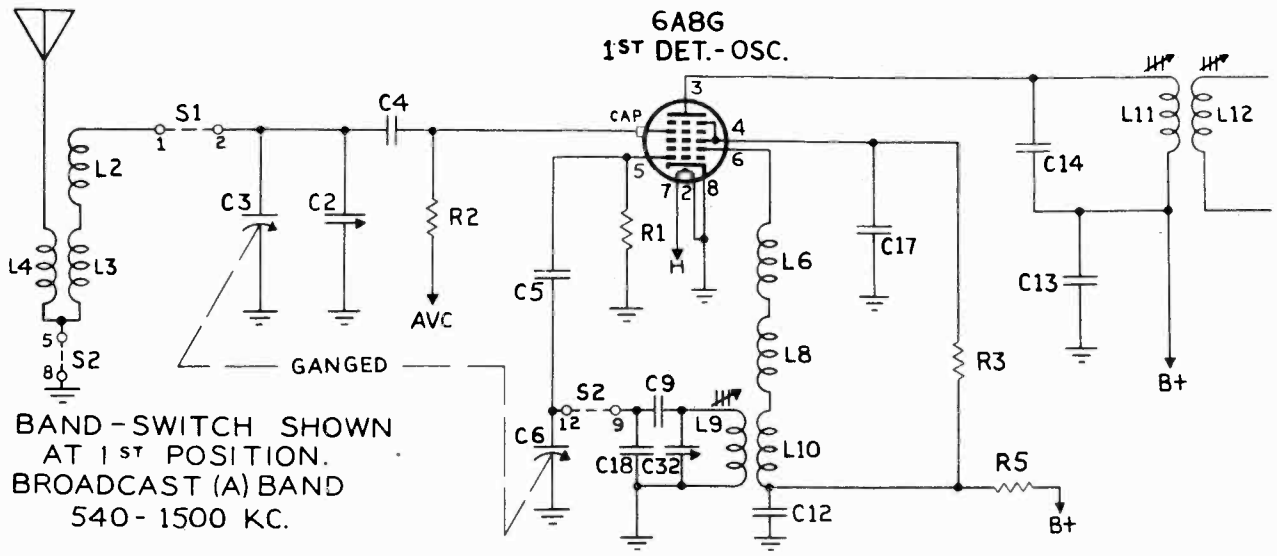
1. Dress capacitor C-1 near chassis base.
2. Dress lead from pin No. 5, No. 1 6BE6 to terminal C, of transformer T1, as near the bottom of the FM shelf as possible.
3. Dress capacitor C-23 next to chassis.
4. The lead from capacitor C-23 to the high side of the volume control must be dressed next to chassis along front apron.
5. Dress resistor R-20 near chassis base.
6. Dress all a-c leads away from volume control.
7. Solder FM antenna coil primary leads to terminal board with as short a lead length as practical.
8. Make all FM leads as short as possible. Dress of all other leads should be similar to original wiring.
9. The lead from pin No. 2, 6BA6, to ground must be dressed as close to the base and as near to the back apron as possible. This lead provides degeneration for the IF stage and neither its length, nor the point at which it is grounded to the chassis should be changed.

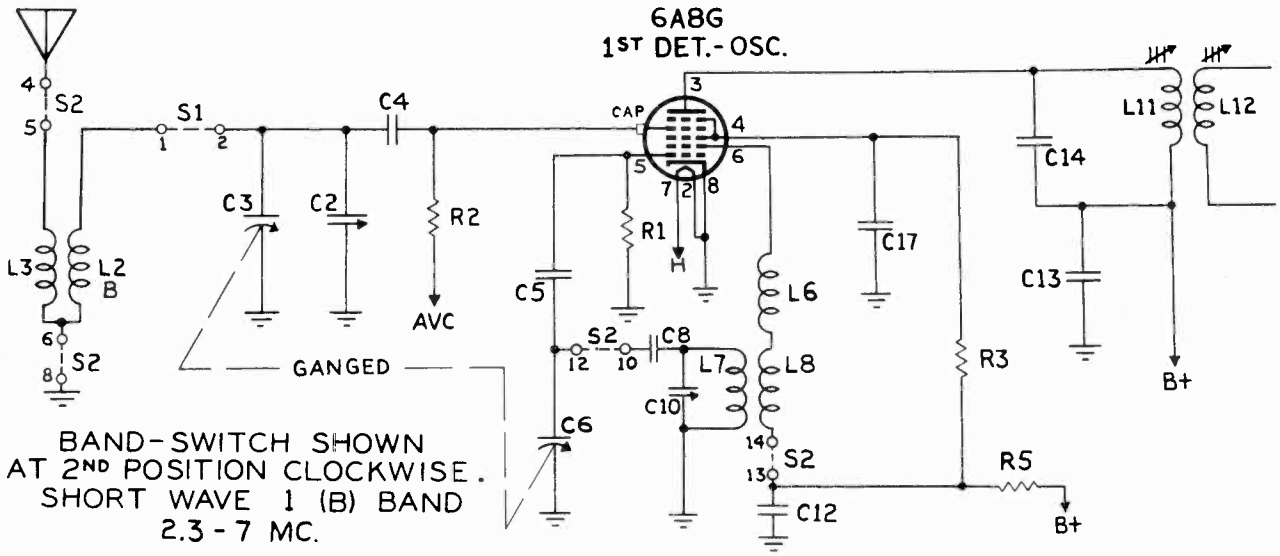
MODEL 85T8

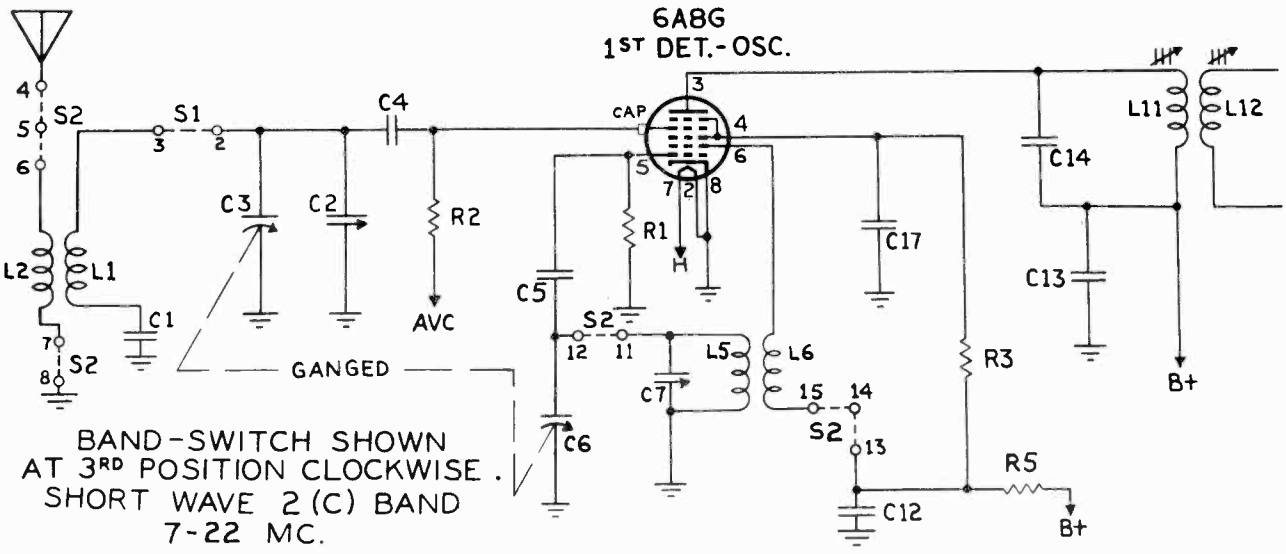
RCA MFG. CO.



RCA MFG. CO.







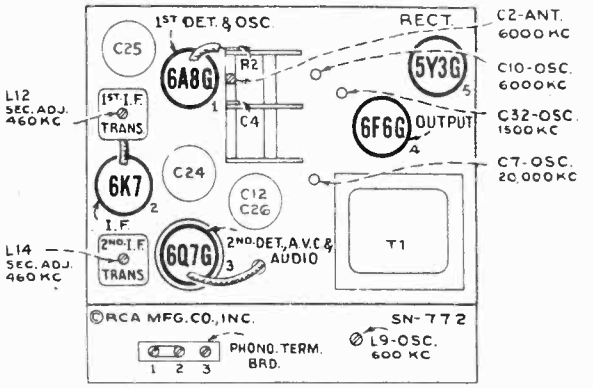
RCA MFG. CO.

Alignment Procedure

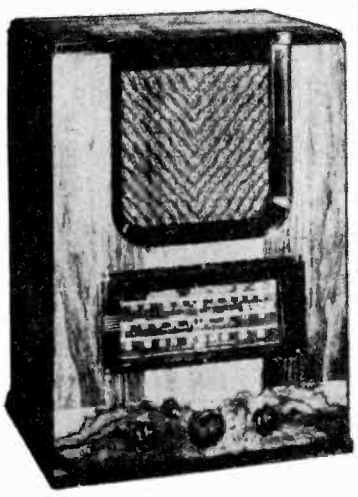
Calibrate the tuning dial by adjusting dial pointer to the low-frequency (end) calibration mark on dial with the gang tuning-condenser plates in full-mesh position. The pointer is soldered in place on the drive cable.

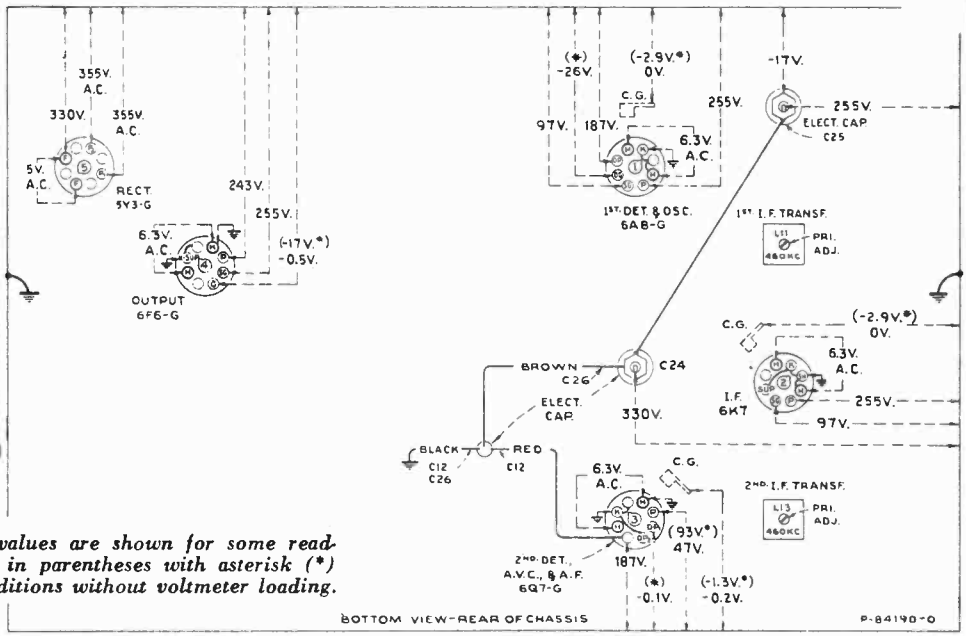
STEP	CONNECT HIGH SIDE OF TEST OSC. TO -	TUNE TEST OSC TO -	TURN RADIO DIAL TO	ADJUST THE FOLLOWING FOR MAX. OUTPUT
1	I-F Grid in series with 0.01 mfd	460 Kc	Quiet point near 600 Kc "A" Band	L14 L13 2nd I-F Trans.
2	1st Det. Grid in series with 0.01mfd			L12 L11 1st I-F Trans.
3	Antenna in series with 300 ohms	6000 Kc	6000 Kc "B" Band	C10 C2 Osc. Ant.
4		20000 Kc	20000 Kc "C" Band	C7▲ Osc.
5	Antenna in series with 200 mmfd	1500 Kc	1500 Kc "A" Band	C32 Osc.
6		600 Kc	600 Kc "A" Band	L9 L-F Osc. Rock Gang
7		*Repeat Step 5*		

▲ *Use maximum capacity peak.*
Osc. tracks 460 Kc below signal on "C" Band.



Radiotron, Coil and Trimmer Locations





Note: Two voltage values are shown for some readings. The value shown in parentheses with asterisk (*) indicates operating conditions without voltmeter loading.

Radiotron Socket Voltages and Trimmer Locations

Measured at 115 volts, 60-cycle supply—Tuned to approximately 1,000 kc ("Standard Broadcast")
No signal being received—Volume control minimum—Tone control optional

RCA MFG. CO.

Electrical Specifications

FREQUENCY RANGES

"Standard Broadcast" (A)	540-1,500 kc
"Short Wave—1" (B)	2,300-7,000 kc
"Short Wave—2" (C)	7,000-22,000 kc

R-F ALIGNMENT FREQUENCIES

"Short Wave—1" (B)	6,000 kc (osc., ant.)
"Short Wave—2" (C)	20,000 kc (osc.)
"Standard Broadcast" (A)	600 kc (osc.), 1,500 kc (osc.)

INTERMEDIATE FREQUENCY ..... 460 kc

RADIOTRON COMPLEMENT

(1) RCA-6A8-G	First Detector—Oscillator
(2) RCA-6K7	Intermediate Amplifier
(3) RCA-6Q7-G	Second Detector, A.V.C., and A-F Amp.
(4) RCA-6F6-G	Power Output
(5) RCA-5Y3-G	Full-Wave Rectifier

POWER SUPPLY RATINGS

Rating A	105-125 volts, 50-60 cycles, 75 watts
Rating B	105-125 volts, 25-60 cycles, 75 watts
Rating C	105-125/200-250 volts, 50-60 cycles, 75 watts

PILOT LAMPS (2) ..... 6.3 volts, 0.25 amp.

POWER OUTPUT RATING

Undistorted	2.5 watts
Maximum	4.5 watts

LOUDSPEAKER

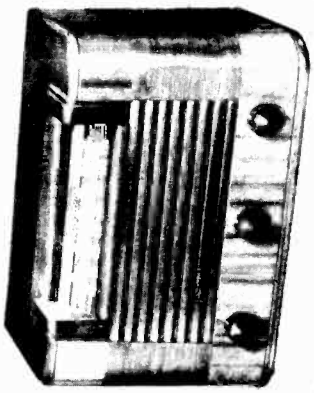
Type	8-inch Electrodynamic
V.C. Impedance	2.2 ohms at 400 cycles

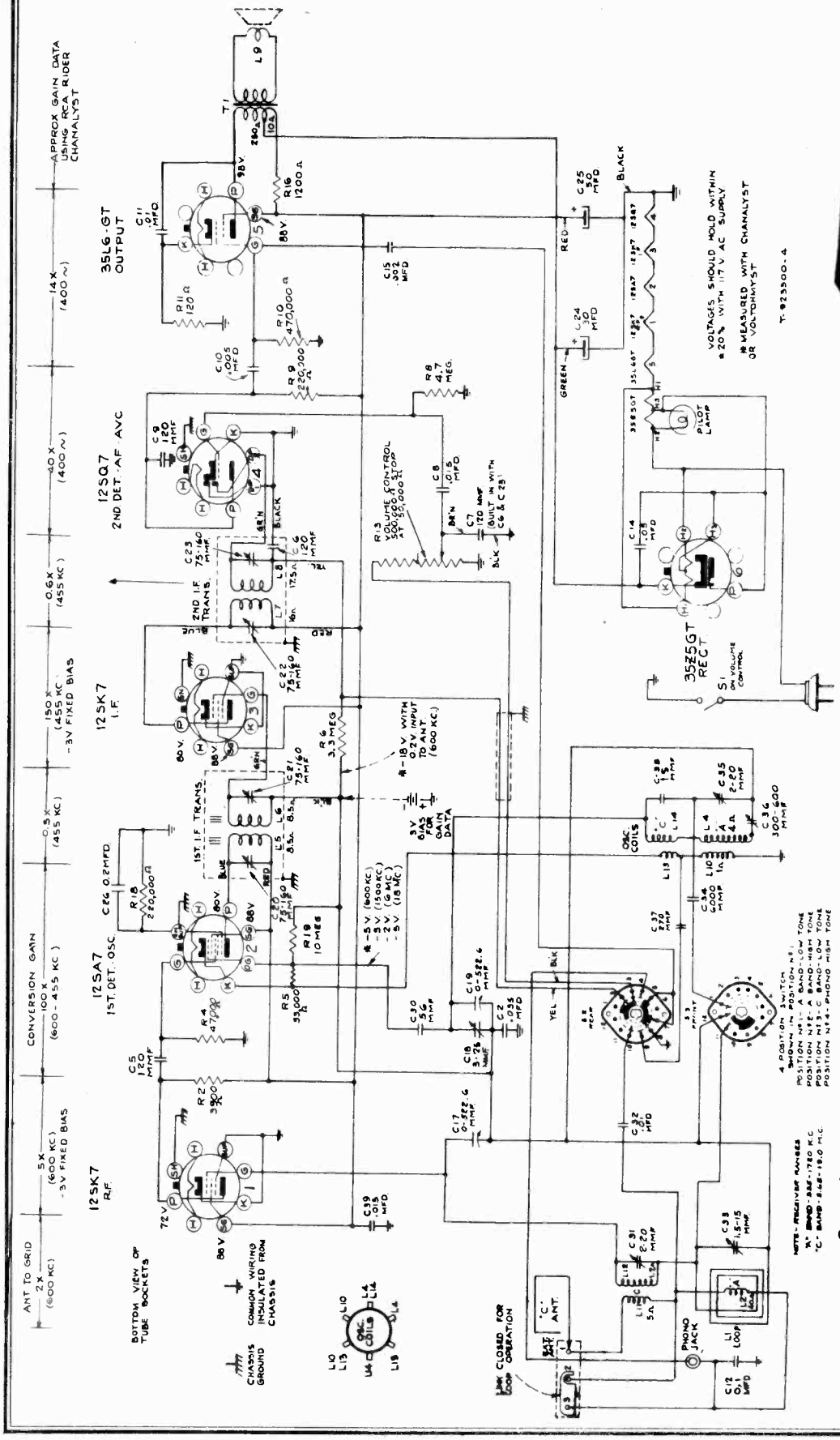
REPLACEMENT PARTS

STOCK No.	DESCRIPTION
	RECEIVER ASSEMBLIES
14380	Arm—Hub and arm for operating band indicator shutter—fastens on range switch shaft
14352	Belt—Station selector drive belt
13216	Board—Antenna and ground terminal board
12717	Board—Phonograph terminal board
12607	Cap—Top shield cap for first i-f transformer
12581	Cap—Top shield cap for second i-f transformer
11350	Cap—Grid contact cap
12807	Capacitor—Adjustable trimmer (short) (C7)
12714	Capacitor—Adjustable trimmer (medium) (C32)
12896	Capacitor—15 mmfd. (C18)
12723	Capacitor—56 mmfd. (C5)
14262	Capacitor—110 mmfd. (C14, C15)
12404	Capacitor—120 mmfd. (C27, C28)
12406	Capacitor—180 mmfd. (C19)
12488	Capacitor—270 mmfd. (C21)
12812	Capacitor—450 mmfd. (C9)
30433	Capacitor—470 mmfd. (C4)
30592	Capacitor—1,600 mmfd. (C8)
30303	Capacitor—.0035 mfd. (C1)
4838	Capacitor—.005 mfd. (C23, C31)
14393	Capacitor—.01 mfd. (C20, C22)
11315	Capacitor—.015 mfd. (C30)
4839	Capacitor—0.1 mfd. (C16, C17)
12484	Capacitor—0.25 mfd. (C13)
11203	Capacitor—10 mfd. (C24)
30577	Capacitor Pack—Comprising two sections, each 10 mfd. (C12), C26)
5212	Capacitor—16 mfd. (C25)
4358	Clamp—Mounting clamp for capacitor pack, Stock No. 30577
30621	Coil—Antenna coil (L1, L2, L3, L4)
30579	Coil—Oscillator coil (L5, L6, L7, L8, L9, L10)
30573	Condenser—2-gang variable tuning condenser (C2, C3, C6)
30586	Cord—Station selector indicator pointer cord
12800	Core—Adjustable core and stud for oscillator coil
12006	Core—Adjustable core and stud for i-f transformers
30622	Dial—Station selector dial scale
30581	Disc—Band indicator disc with celluloid window
30572	Drive—Vernier drive shaft and pinion gear for variable condenser
30584	Drum—Station-selector drive-cord drum with set screws
30583	Indicator—Station-selector indicator pointer and holder assembly
5226	Lamp—Dial lamp
14028	Nut—Jamb nut for adjustable capacitor, Stock Nos. 12807 and 12714
30587	Pulley—Drive-belt pulley for condenser shaft
14636	Pulley—Drive-belt idler pulley
14525	Resistor—22 ohms, carbon type, ½ watt (R13)
13819	Resistor—270 ohms, insulated, wire-wound, 1.1 watt (R12)
11298	Resistor—5,600 ohms, carbon type, 1 watt (R5)
12695	Resistor—15,000 ohms, insulated, ½ watt (R17)
30151	Resistor—18,000 ohms, insulated, 1 watt (R3)
14284	Resistor—22,000 ohms, carbon type, 1/10 watt (R7)
12454	Resistor—33,000 ohms, insulated, ½ watt (R1)
12199	Resistor—270,000 ohms, insulated, ½ watt (R10)
13005	Resistor—390,000 ohms, carbon type, 1/10 watt (R11)
11452	Resistor—470,000 ohms, carbon type, 1/10 watt (R2)
11626	Resistor—2.2 meg., carbon type, ½ watt (R4, R9)
13601	Resistor—10 meg., insulated, ½ watt (R14)
30582	Retainer—Band indicator disc retainer
14343	Ring—Retaining ring for range switch shaft
14350	Screw—No. 8-32 x 3/16-inch square-head set screw for drum, Stock No. 30584; arm, Stock No. 14380, and pulley, Stock No. 30587
14340	Shaft—Drive pulley and knob shaft—fastens on range-switch shaft
3682	Shield—Radiotron shield
12008	Shield—I-f transformer shield can
5119	Socket—3-contact speaker cable socket
11196	Socket—8-contact Radiotron socket
14114	Socket—Dial lamp socket
12007	Spring—Retaining spring for core, Stock No. 12006
30585	Spring—Tension spring for pointer cord
30588	Spring—Tension spring for idler pulley
30620	Switch—Range switch (S1, S2)
30574	Tone control and power switch (R18, S3)
14376	Transformer—First i-f transformer (L11, L12, C14, C15)
14308	Transformer—Second i-f transformer (L13, L14, C19, C27, C28, R7)
30571	Transformer—Power transformer, 105-125 volts, 25-60 cycles (T1)
30617	Transformer—Power transformer, 105-125 and 200-250 volts, 50-60 cycles (T1)
30575	Volume Control (R8)
	REPRODUCER ASSEMBLIES (RL-63F-1)
14356	Board—3-contact reproducer terminal board
13866	Cap—Cone center dust cap
12012	Coil—Field coil (L16)
11469	Coil—Hum neutralizing coil (L17)
12642	Cone—Reproducer cone and dust cap (L15)
5118	Plug—3-contact male plug for reproducer
14360	Reproducer—Complete
14358	Screw—Screw, washer, and lockwasher to hold core in yoke
14365	Transformer—Output transformer (T2)
14357	Washer—Spring washer to hold field coil
	MISCELLANEOUS ASSEMBLIES
30593	Escutcheon—Dial escutcheon and crystal
14359	Knob—Station selector knob
14269	Knob—Tone control, volume control, or range-switch knob
14267	Screw—Chassis mounting screw and washer assembly
14270	Spring—Retaining spring for knob, Stock No. 14269
4982	Spring—Retaining spring for knob, Stock No. 14359

MODEL 515

RCA MFG. CO.





Specifications

FREQUENCY RANGE ..... { 535-1,720 kc / 5.74-19 mc

Intermediate Frequency ..... 455 kc

POWER SUPPLY RATINGS

AC Rating.. 105-125 volts, direct current, or 50-60 cycles, 30 watts

POWER OUTPUT (125 volt, 60 cycle supply)

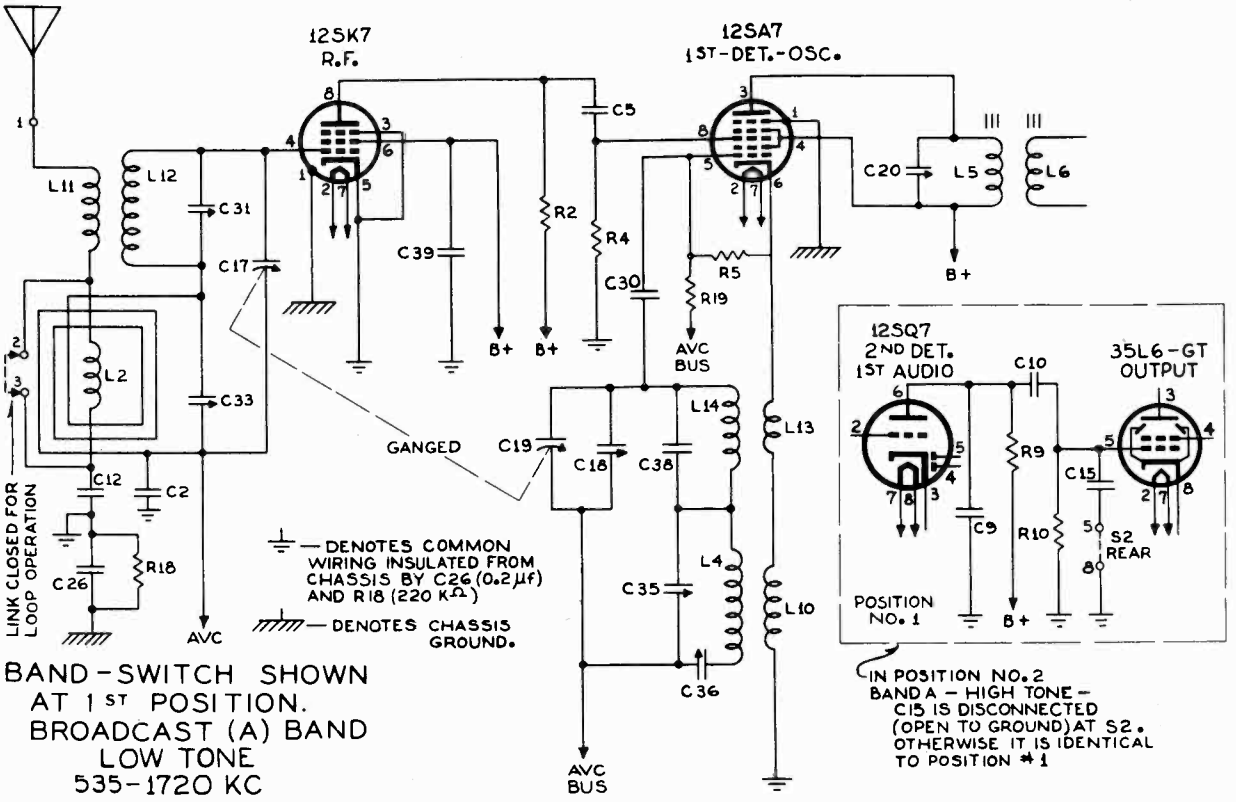
Undistorted ..... 0.9 watts Maximum ..... 1.4 watts

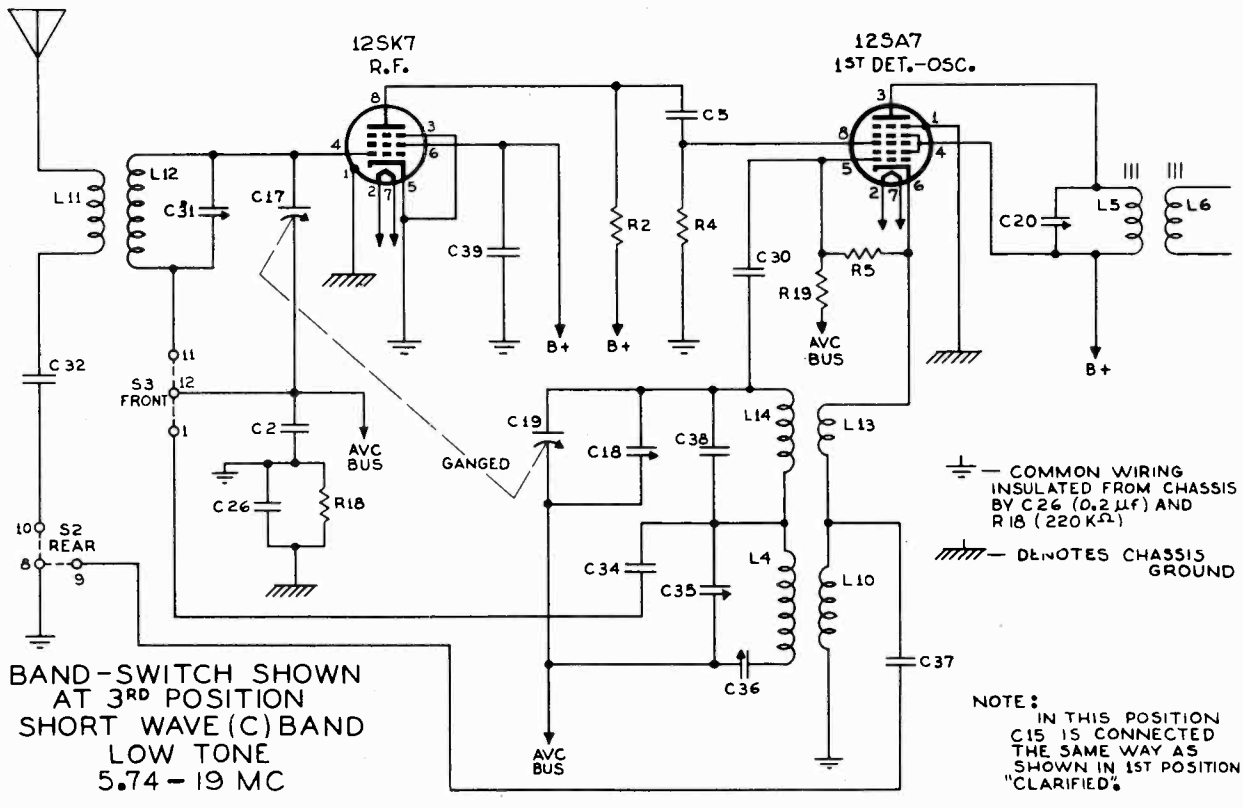
LOUDSPEAKER (RL-81-B2) ..... 5-inch permanent-magnet dynamic

Voice Coil Impedance at 400 cycles ..... 4 ohms

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, reverse the plug. On a-c, reversal of the plug may reduce hum.

RCA MFG. CO.





MODEL 515

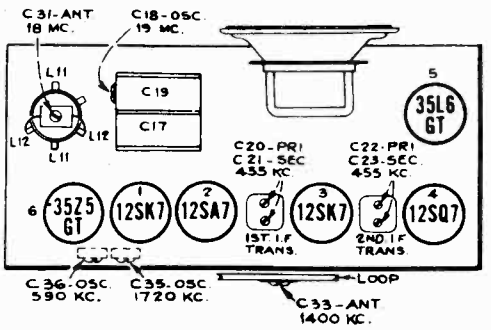
RCA MFG. CO.

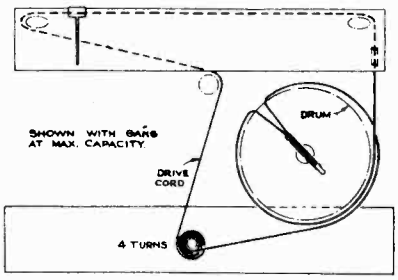
Alignment Procedure

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

Steps	Connect the high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid in series with 0.1 mfd.	455 kc	"A" Band Quiet Point 1,600 kc end of dial	C23, C22 2nd I-F Trans.
2	1st Det. grid in series with 0.1 mfd.			C21, C20 1st I-F Trans.
3	Ant. terminal in series with 47 mmfd.	19 mc	"C" Band 19 mc	C18 (osc.)
4	Radiated Signal, 18 mc		"C" Band Resonance on Signal	C31 (ant.)
5	Radiated Signal, 6.1 mc			L12*
6	Ant. terminal in series with 200 mmfd.	1,720 kc	"A" Band 1,720 kc	C35 (osc.)
7	Radiated signal (Link closed)	1,400 kc	Resonance on Signal	C33 (ant.)
8	Ant. terminal in series with 200 mmfd.	590 kc	"A" Band 590 kc	C36 (osc.)
9	Repeat steps 6, 7 and 8			

* Adjust by dressing proximity of AVC lead to coil.





Precautionary Lead Dress.—

1. Dress all capacitors, leads, etc., coming close to osc. coil rigidly and as far as possible from it.
2. Dress blue lead from loop trimmer against loop and around outside of 35Z5GT tube.
3. Dress leads of 120 mmfd. capacitor from terminal board to grid of 12SA7 as short and direct as possible.
4. Dress blue lead from SW ant. coil through same hole in base through which green lead from stator of rear section of the variable condenser passes.

Replacement Parts

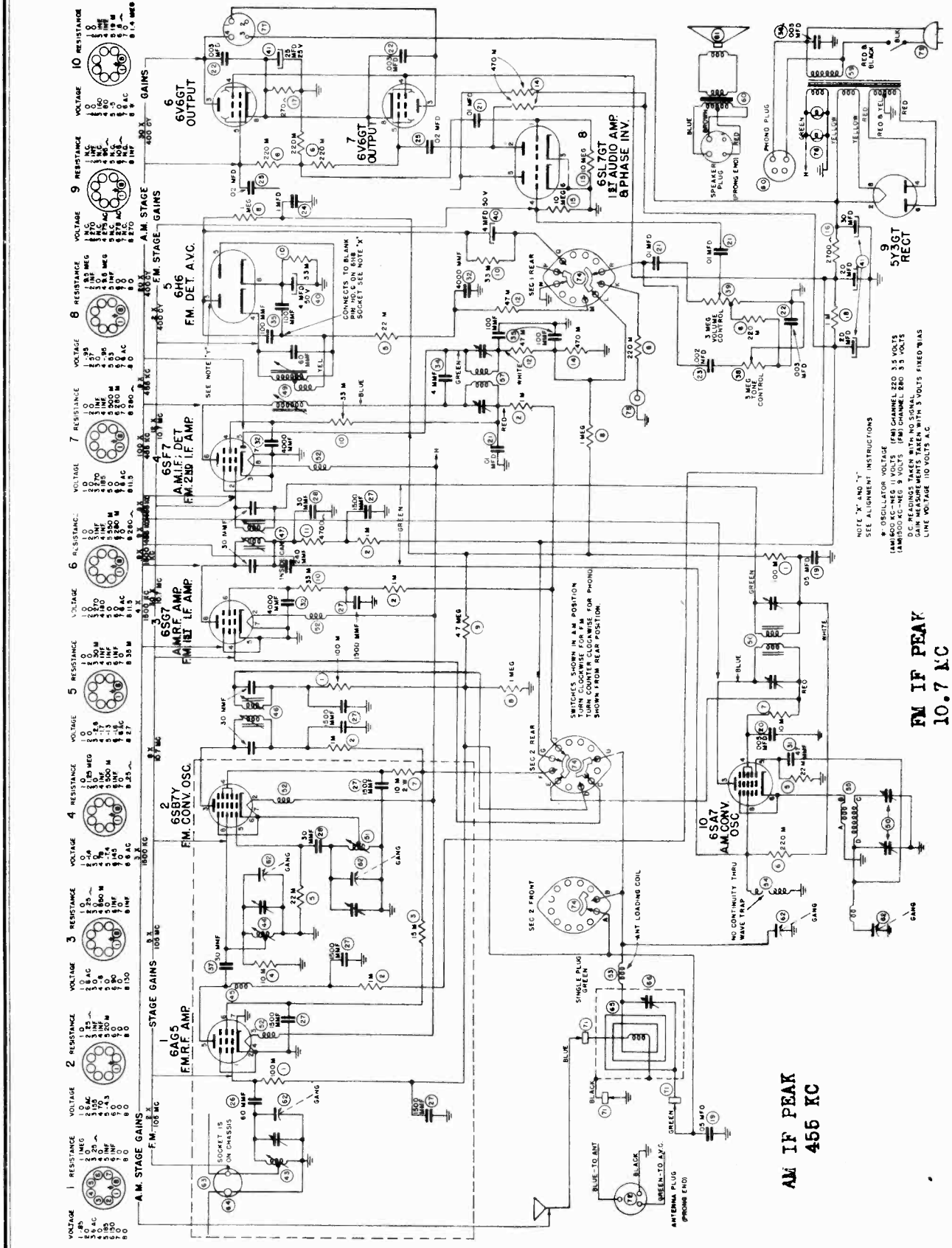
Insist on genuine factory-tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK No.	DESCRIPTION	Unit List Price
	CHASSIS ASSEMBLIES (RC-1000C)	
36947	Board—"Antenna-Ground" and phono input board	.25
35998	Capacitor—Mica trimmer for loop	.25
36880	Capacitor—Mica trimmer—1 section 2-20 mmfd. and 1 section 300-800 mmfd.	.60
11859	Capacitor—Adjustable trimmer—3-30 mmfd.	.25
12896	Capacitor—15 mmfd.	.35
12723	Capacitor—56 mmfd.	.35
12724	Capacitor—120 mmfd.	.35
12488	Capacitor—270 mmfd.	.35
31405	Capacitor—6,000 mmfd.	.75
34506	Capacitor—.0018 mfd.	.25
33584	Capacitor—.005 mfd.	.25
4937	Capacitor—.01 mfd.	.25
11315	Capacitor—.015 mfd.	.20
5196	Capacitor—.035 mfd.	.20
32787	Capacitor—.05 mfd.	.20
4839	Capacitor—0.1 mfd.	.30
34505	Capacitor—0.2 mfd.	.30
36301	Capacitor—Electrolytic comprising 1 section of 30 mfd. 150 volts, and 1 section of 50 mfd. 150 volts	1.25
35713	Coil—Antenna coil	.75
35096	Coil—Loop primary coil	.50
36937	Coil—Oscillator coil	.85
36876	Condenser—Two gang variable tuning condenser	3.00
36242	Control—Volume control and power switch	1.50
32634	Cord—Drive cord (approx. 50 inches long overall)	.10
36237	Drum—Tuning condenser drive cord drum	.25
37068	Indicator—Station selector indicator	.20
36882	Loop—Antenna loop complete	2.00
36877	Loop—Loop winding only—less support, primary coil, and trimmer	.55
37928	Plate—Dial back plate complete	1.00
36230	Pulley—Drive cord pulley	.04
30189	Resistor—120 ohms, ½ watt	.20
6134	Resistor—1,200 ohms, 1 watt	.22
12955	Resistor—3,900 ohms, ½ watt	.20
12454	Resistor—33,000 ohms, ½ watt	.20
12412	Resistor—47,000 ohms, ½ watt	.20
12264	Resistor—220,000 ohms, ½ watt	.20
30648	Resistor—470,000 ohms, ½ watt	.20
12928	Resistor—3.3 meg., ½ watt	.20
30271	Resistor—4.7 meg., ½ watt	.20
30992	Resistor—10 meg., ½ watt	.20
36897	Shaft—Tuning knob shaft	.10
34449	Socket—Dial lamp socket	.30
31251	Socket—Tube socket	.25
31418	Spring—Drive cord spring	.05
36881	Switch—Range switch	1.25
36232	Transformer—First I.F. transformer	1.50
36233	Transformer—Second I.F. transformer	1.50
36800	Transformer—Output transformer	1.30
33726	Washer—"C" washer to hold tuning shaft	.02
	SPEAKER ASSEMBLIES (RL-81B2)	
35570	Cone—Cone complete with voice coil	1.20
37612	Speaker—5-inch permanent magnet speaker complete with cone and voice coil—less output transformer	3.50
	MISCELLANEOUS ASSEMBLIES	
36302	Back—Cabinet back—less red lead wire and terminal	.15
36873	Clamp—Dial clamp	.10
37929	Dial—Glass dial scale	
37831	Fastener—Push-on fastener	.10
37386	Knob—Range switch knob	.25
36541	Knob—Tuning or volume control knob	.20
11765	Lamp—Dial lamp, Mazda No. 51	.15
11349	Spring—Retaining rings for knobs	.05

ALL PRICES ARE SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE.

RADIO & TELEV. INC.

MODELS SF-6810,T-4000, T-4000-1/2,D-6876

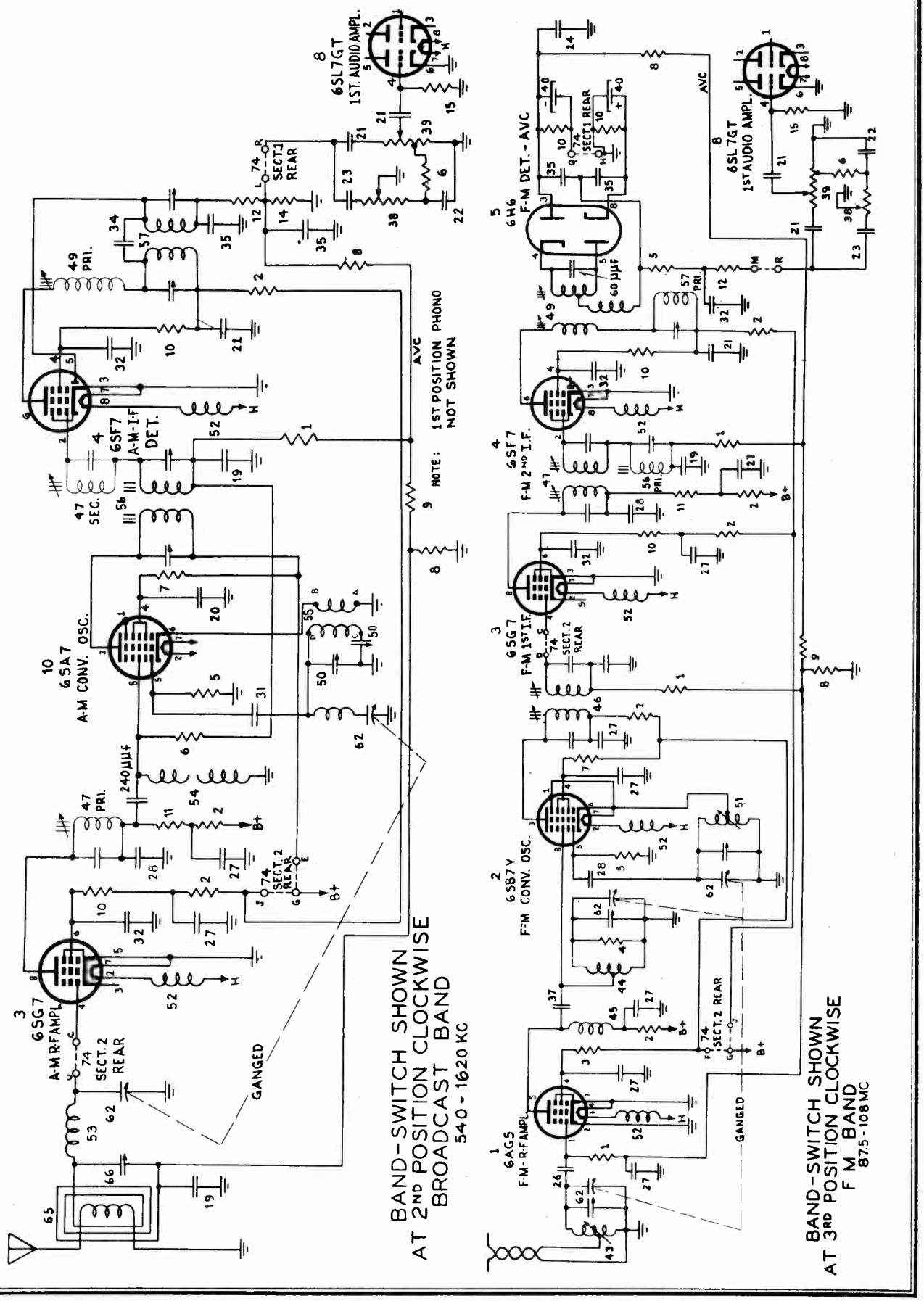


RECORD CHANGER: Farnsworth P-51, RCD. CH. P.15-1

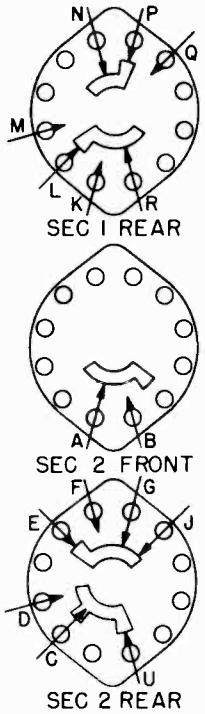
"clarified schematics"

MODELS SF-6810,T-4000, T-4000-1/2,D-6876

RADIO & TELEV. INC.



BAND SWITCH DECKS

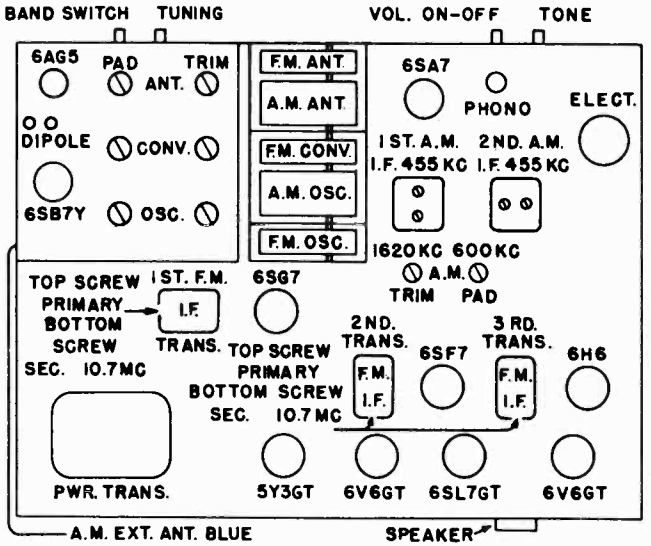


Letters on terminals of switches and coils shown on this page correspond to similarly lettered terminals on the switches and coils shown in the circuit diagam.

FM ANTENNA—The folded dipole antenna built into this instrument gives satisfactory reception under normal conditions. For best results an outdoor dipole is recommended.

GROUND—A ground connection is not normally required unless an outside aerial is used. The ground connection is made by attaching one end of a length of wire to a water pipe, radiator or pipe driven into the ground and connecting the other end to the black wire found at the rear of the receiver. A gas pipe or electrical conduit must not be used for a ground.

CHASSIS LAYOUT

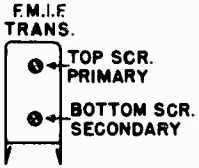


ELECTRICAL SPECIFICATIONS:

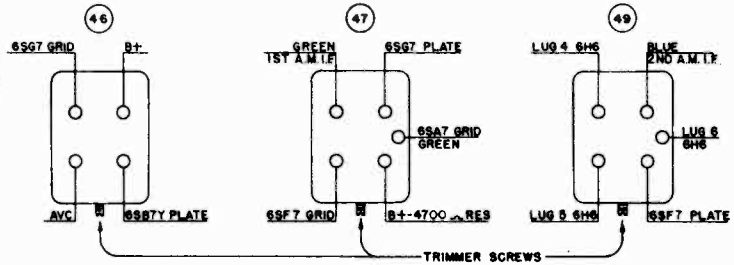
Ten tube, 60 cycle A. C., 105-125 volt operated superheterodyne receiver with built-in loop antenna and FM folded dipole. AM Broadcast band tuning range 540 Kc. to 1620 Kc. FM band range 87.5 Mc. to 108 Mc. calibrated in channel numbers from 200 to 300.

Speaker 12" PM
Voice coil impedence 3.5 ohms

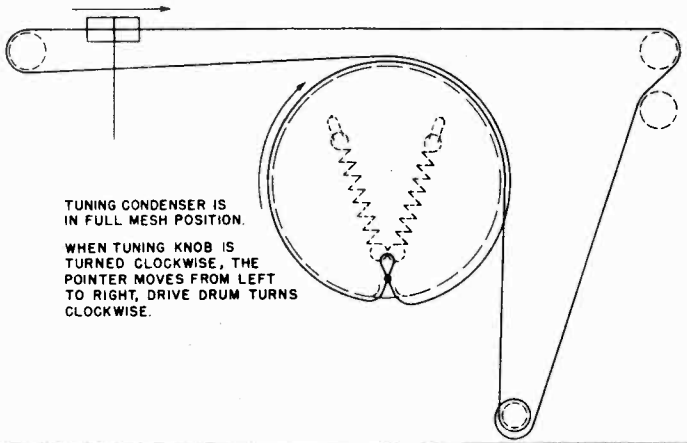
Power output
Radio-7 watts
Phono-9 watts



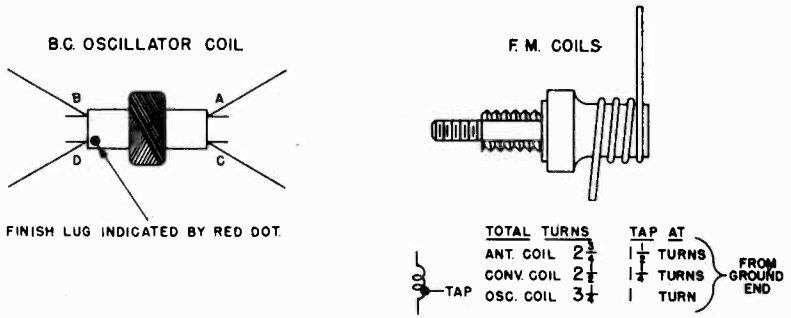
BOTTOM VIEW FM I.F. TRANS.



DIAL STRINGING



BROADCAST AND FM COILS



OSCILLISCOPE ALIGNMENT OF FM BAND

A. Equipment required will be an oscilliscope, a frequency modulated signal generator covering the range 87.5 to 108.5 mc on fundamentals, a sweep generator producing a signal of 10.7 mc and sweeping at least 150 kc each side of 10.7 mc, and an output meter.

B. The vertical or "Y" axis terminals of the oscilliscope should be connected between pin 3 of the 6H6 discriminator and ground. The sweep voltage of the sweep generator should be fed to the horizontal or "X" axis terminals of the 6SF7 tube through a condenser of approximately 3300 mmfd.

C. Remove the negative lead of the 4 mfd. electrolytic from pin #3 of 6H6 socket. Remove 6SL7 tube from socket. Turn the set on and turn both the tone control and the volume control all the way to the right. Detune the secondary of the third FM I.F. transformer by turning the bottom slug screw out as far as possible. Adjust the primary, top slug screw, until pattern (a) appears on the oscilliscope. Adjust the secondary, bottom slug screw, until pattern "b" is obtained on the oscilliscope and until both sides of this pattern are symmetrical.

D. Remove the 10.7 mc output of the sweep generator from the grid of the 6SF7 tube and connect to the grid of the 6SG7. Align the second FM I.F. transformer as in paragraph "C".

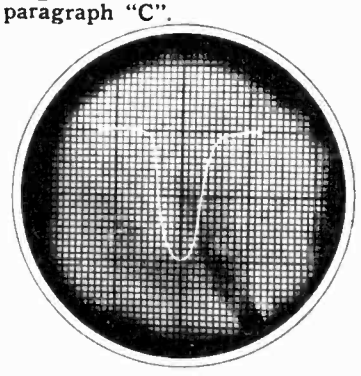
E. Connect the 10.7 ms output of the sweep generator to the signal grid of the 6SB7Y, (pin 8). Detune secondary of the first FM I.F. transformer and tune primary as before for pattern (a). Tune secondary for pattern "c" and make both sides of pattern as symmetrical as possible. This completes alignment of the FM I.F. transformers.

F. Reconnect the negative lead of the 4 mfd. electrolytic to pin #3 of the 6H6 socket and move the oscilliscope leads to pin #6 of the 6H6 socket and ground. With the sweep generator connected to the 6SB7Y signal grid as before, the discriminator pattern (d) should appear on the oscilliscope if the I.F. alignment instructions have been followed carefully. Remove the oscilloscope and sweep generator leads and reinstall 6SL7 tube in socket. Never adjust AM I.F. transformers without rechecking FM I.F. alignment.

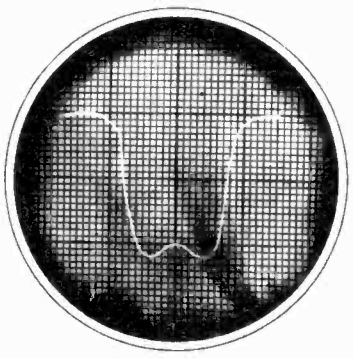
G. Connect the 87.5 to 108.5 mc signal generator to the antenna socket of the receiver through a 300 ohm resistor. The generator should be frequency modulated at some frequency in the audible range. Connect output meter across secondary of output transformer. Tune receiver to channel 300 on FM dial. With signal generator set at 107.9 mc adjust oscillator trimmer condenser, third from front, for maximum reading on output meter. Set signal generator to 87.9 mc and tune receiver to channel 200 on FM dial. Adjust oscillator coil screw, third from front, (see chassis layout) for maximum reading on output meter. Recheck oscillator setting for channel 300.

Tune signal generator and receiver to 5 mc (channel 285 approx.). Adjust converter signal grid trimmer condenser, second from front, for maximum reading on output meter. Tune signal generator and receiver to 92 mc, (channel 220 approx.) and adjust converter coil screw, (second from front), to maximum reading on output meter. Recheck converter trimmer setting at 105 mc (channel 285 approx.).

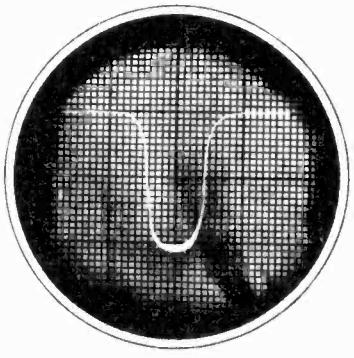
I. Repeat operations of paragraph (G) for antenna trimmer condenser and coil. This completes FM R.F. alignment.



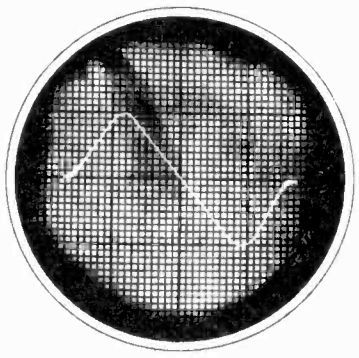
A



B



C



D

ALIGNMENT INSTRUCTIONS AM BAND

An output meter and a signal generator calibrated at 455 Kc., 600 Kc., 1500 Kc. and 1600 Kc., are required to properly align these receivers on AM band. Keep the output of the signal generator as low as possible to prevent AVC action and false settings. Connect the high side of the generator to the blue wire found at rear of set and low side to the black wire.

STEPS	DUMMY ANTENNA	SET GENERATOR AT	SET GANG AT	ADJUST	LOCATED	
1	SET VOLUME AND TONE CONTROLS AT MAXIMUM					MAXIMUM OUTPUT
2	200 MMF.	455 Kc.	Minimum	2nd. I.F. Trimmers *	Top of I.F. Transformers	
3				1st. I.F. Trimmers *		
4		1600 Kc.	1600 Kc.	B. C. Osc. Trimmer	See Chassis Layout	
5		1500 Kc.	1500 Kc.	B. C. R. F. Trimmer	On Loop	
6		600 Kc.	600 Kc. Rock Gang	600 Kc. Padder	See Chassis Layout	
7		Recheck 1500 Kc.				

* Recheck after FM alignment.

ALTERNATE FM ALIGNMENT PROCEDURE

Necessary Equipment:
Signal Generator
Voltohmyst

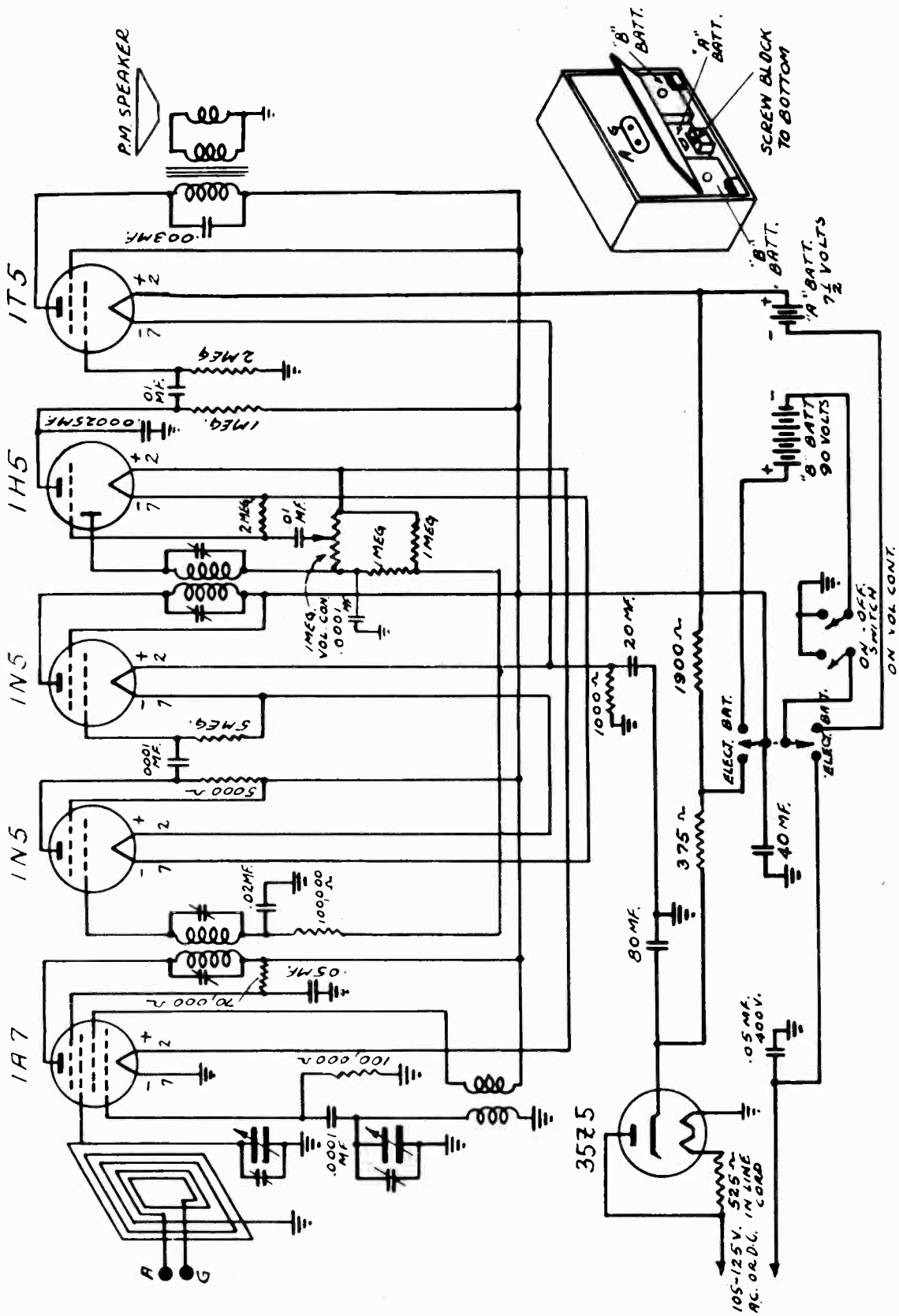
Connect Voltohmyst from ground to pin 6 of 6H6 (audio, marked X on Schematic). Connect generator tuned to 10.7 mc, to pin #4 on 6SG7. Turn secondary slug of 3rd FM I.F. (closest to chassis) out as far as it will go. Tune Primary of 3rd I.F. for maximum negative voltage. Next tune Secondary slug for zero voltage. (As Sec. slug is tuned voltage will go up slowly then start decreasing rapidly, tune slug till it reaches zero). Next connect voltmeter between ground and pin #3 (marked Y on Schematic) on 6H6 socket (AVC). Turn Secondary slug of 2nd FM I.F. out as far as it will turn. Tune primary for maximum negative voltage. Then tune secondary for maximum negative voltage. Move generator to pin #8 of 6SB7Y socket. Follow same procedure as on 2nd I.F. for the 1st. I.F. transformer. I.F. is now aligned.

RF ALIGNMENT:

With Voltohmyst still connected between ground and pin #3 on 6H6 socket, connect generator between ground and small pin of dipole antenna socket. Use very short leads on generator and a 300 ohm resistor as a dummy antenna. Set generator at 87.5 mc and gang closed. Adjust oscillator slug for maximum voltage. Adjust generator to 108.5 mc and gang to minimum and adjust oscillator trimmer for maximum voltage. Go back and check low frequency end. Next set generator at 92 mc, tune in signal on receiver, approximately 220 on dial. Adjust converter and antenna slug for maximum voltage output. Set generator at 105 mc. Tune in signal on receiver, approximately 280 on dial. Tune converter and antenna trimmer for maximum voltage output. Check adjustment of antenna and converter slugs at 92 mc.

MODEL SF-6810—PARTS LIST

Ref. No.	Part No.	DESCRIPTION	List Price
1	77214	100M Ohms	$ .15
2	77262	1000 Ohms	.15
3	77265	15 M Ohms	.15
4	77212	10 M Ohms	.15
5	77266	22 M Ohms	.15
6	77216	220 M Ohms	.15
7	77013	10 M Ohms 2 Watt	.25
8	77218	1 Megohm	.15
9	77272	4.7 Megohms	.15
10	77267	33 M Ohms	.15
11	77211	4700 Ohms	.15
12	77213	47 M Ohms	.15
14	77217	470 M Ohms	.15
15	77274	10 Megohms	.15
16	77243	2700 Ohm Molded Resistor 4.7 Watt	.50
17	77189	270 Ohms, 2 Watt	.25
18	77304	1000 Ohms, 2 Watt	.20
19	25196	.05 Mfd. 600 Volt	.20
20	25183	.005 Mfd. 600 Volt	.15
21	25194	.01 Mfd. 600 Volt	.20
22	25184	.003 Mfd. 600 Volt	.20
23	25185	.002 Mfd. 600 Volt	.15
24	25215	.1 Mfd. 600 Volt	.20
25	25031	.005 Mfd. Buffer Capacitor, 600 Volt	.30
26	25333	60 MMF. Ceramic Capacitor	.25
27	25273	1500 MMF. Ceramic Capacitor	.30
28	25329	30 MMF. Ceramic Capacitor, N-150	.20
31	25193	47 MMF. Mica Capacitor	.30
32	25271	4000 MMF. Ceramic Capacitor	.65
34	25327	4 MMF. Ceramic Capacitor	.60
35	25188	100 MMF. Mica Capacitor	.25
37	25332	30 MMF. Ceramic Capacitor, N-750	.20
38	78072	Tone Control, 3 Megohms	.80
39	78120	Volume Control, 3 Megohms	1.10
40	25316	4 Mfd., 50 V. Electrolytic Capacitor	.80
41	25214	Electrolytic Capacitor 20 Mfd., 20 Mfd., 30 Mfd., 450 volt. 25 Mfd., 25 Volt	3.10
43	38690	FM Antenna Coil	1.05
44	38691	FM Convertor Coil	1.05
45	58471	FM RF Choke	.10
46	38683	1st. FM I.F. Transformer	3.75
47	38684	2nd. FM I.F. Transformer	4.05
49	38685	3rd. FM I.F. Transformer	4.35
50	26240	B. C. Osc. Trimmer Strip	.75
51	38692	FM Oscillator Coil	1.05
52	38661	Heater Choke	.25
53	38845	Antenna Loading Coil	.50
54	38484	Wave Trap Coil	.55
55	38694	BC Oscillator Coil	.65
56	38681	1st. AM I.F. Transformer	2.40
57	38682	2nd. AM I.F. Transformer	2.40
59	94204	Power Transformer	7.90
60	94195	Output Transformer	4.55
61	81126	Speaker	20.05
62	26237	Gang Capacitor	8.85
63	11325	FM Dipole and Plug	1.15
64	80361	FM Dipole Socket	.10
65	38835	Loop Antenna	6.65
66	26031	Loop Antenna Trimmer	.35
71	80256	Loop Antenna Socket	.10
72	80252	Antenna 3-Prong Plug	.10
74	90214	Band Switch	2.65
75	80030	Phono Input Socket	.10
76	42185	Dial Lamp, 250 Ma.	.15
77	80385	Speaker Socket	.10
79	27118	Line Cord	1.10
80	11274	Phono AC Socket	.75
	31385	Glass Dial	2.95
	04089	Dial Background	1.55
	11257	Dial Pointer	.55
	17019	Drive Drum	.25
	05089	Drive Cord (42 inches) and springs	.25
	67444	Knob	.20
	80325	Mica Filled Octal Socket for 6SB7Y	.25
	80139	Molded Octal Socket	.15
	80239	Molded Octal Socket for Rectifier	.10
	80362	2-Prong FM Antenna Plug	.10
	80319	Miniature Tube Socket	1.85
	22147	Pickup Cable	1.20
	71223	Phono Needle	1.20



MODEL BP-12

RADIO WIRE TELEVISION

This receiver will operate either from batteries contained within the case or from the regular Electric mains (AC or DC) on voltages from 105 to 125. A self-contained antenna is built in and will give good performance from stations not too remote. Where signal strength is poor or where reception from great distances is required, Antenna (A) and Ground (G) terminals are provided. These are located on the rear of the case. An antenna from 50 to 100 feet long may be used.

BATTERIES - The following batteries are required where no electric power is abailable:

7½ Volt "A" - USALITE #687, BURGESS #G5, GENERAL #5-H-5 - or equivalent (4-3/8" X 3⅛" X 2-3/4") - 1 Required

45 Volt "B" - USALITE #624, BURGESS #B30, GENERAL #V-30-B, EVEREADY #762 ADVANCE #267 - or equivalent (5-11/32" X 2-17/32" X 4-3/16") - 2 Required

TO INSTALL BATTERIES - Access to the battery compartment may be had by opening the bottom flap on the back of the cabinet. Insert the "B" batteries on each side, slide the "A" into place, then screw the wood block to the bottom to hold batteries. (See diagram).
With the ELEC-BATT switch on the front panel in the BATT position, the receiver is now ready for operation as a portable unit. When prolonged operation in the "ELECTRIC" position is contemplated (as during the winter season), it is advisable to remove the batteries and store them in a cool, dry place. DO NOT leave exhausted batteries in the carrying case as chemical action may expand the batteries and make it difficult to remove them.

WAVE BAND: The range covered is as follows:
175 - 555 METERS (1720 - 540 KC)

OPERATION

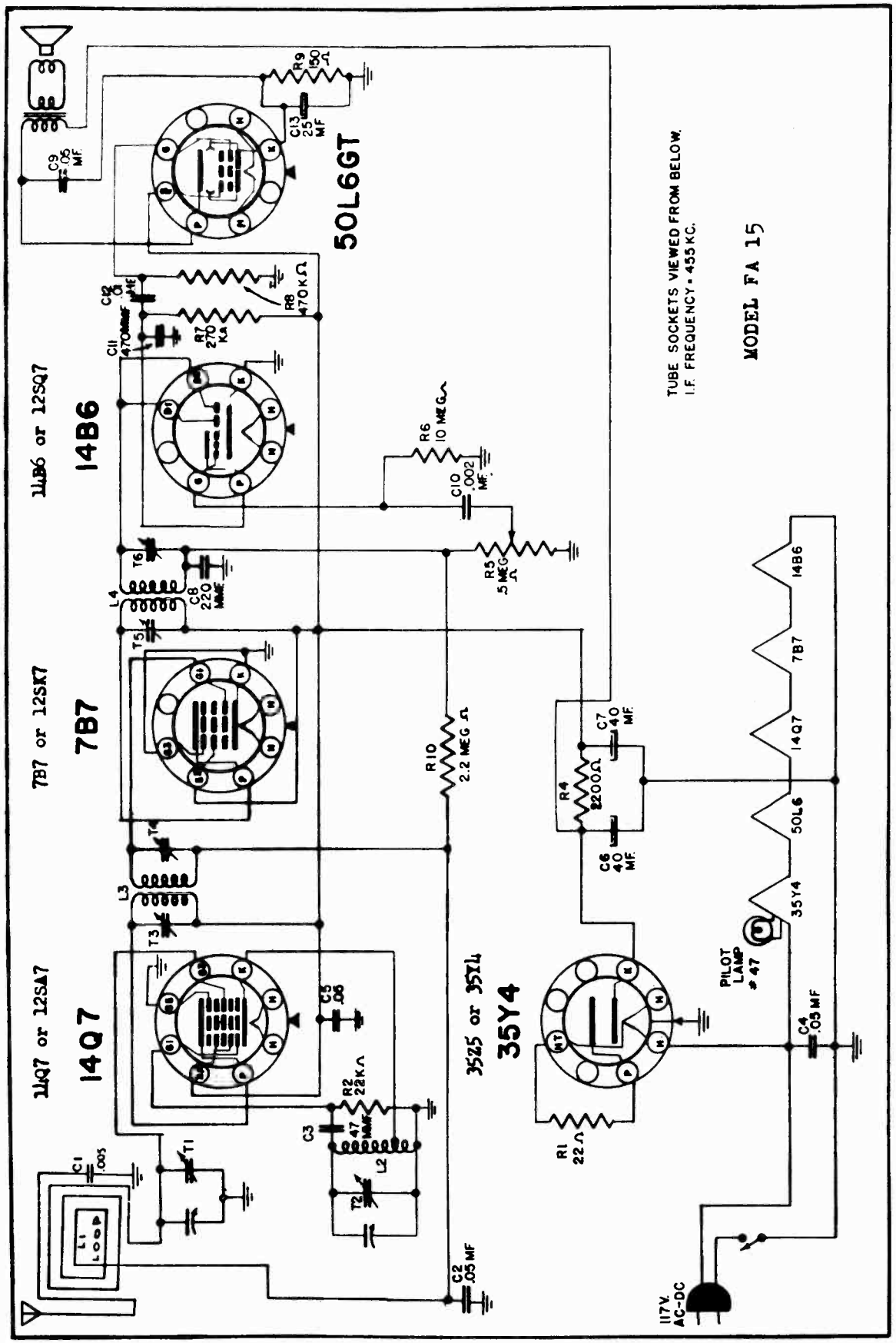
BATTERY	ELECTRIC
After the batteries have been installed in accordance with the instructions given above, set the slide switch on the front of the cabinet to the right.	Open the small door on the rear of the cabinet providing access to the power cord which can be plugged into any outlet (105 to 125 Volts AC or DC.) Slide the switch on the front of the cabinet to the left.

The receiver may now be operated by turning the LEFT hand knob to the right, (Clockwise). The Volume is turned up and the station tuned in. (Right hand knob). By rotating the cabinet slowly (when the self-contained loop is used) maximum signal with minimum noise may be obtained. The direction effect is lost when a large antenna is used, but in this case, ample signal is obtained to be heard above the noise level. The volume is adjusted for the desired level.

NOTE:- When this set is to be operated from the 115-125 Volt DC line and no signal can be tuned in with the power switch in the "ELECTRIC" position, reverse the plug in the light socket one-half turn. When operating on AC, a slight hum may be heard on some stations. Reversing the line plug one-half turn in the socket will alleviate this condition.

RADIO WIRE TELEVISION

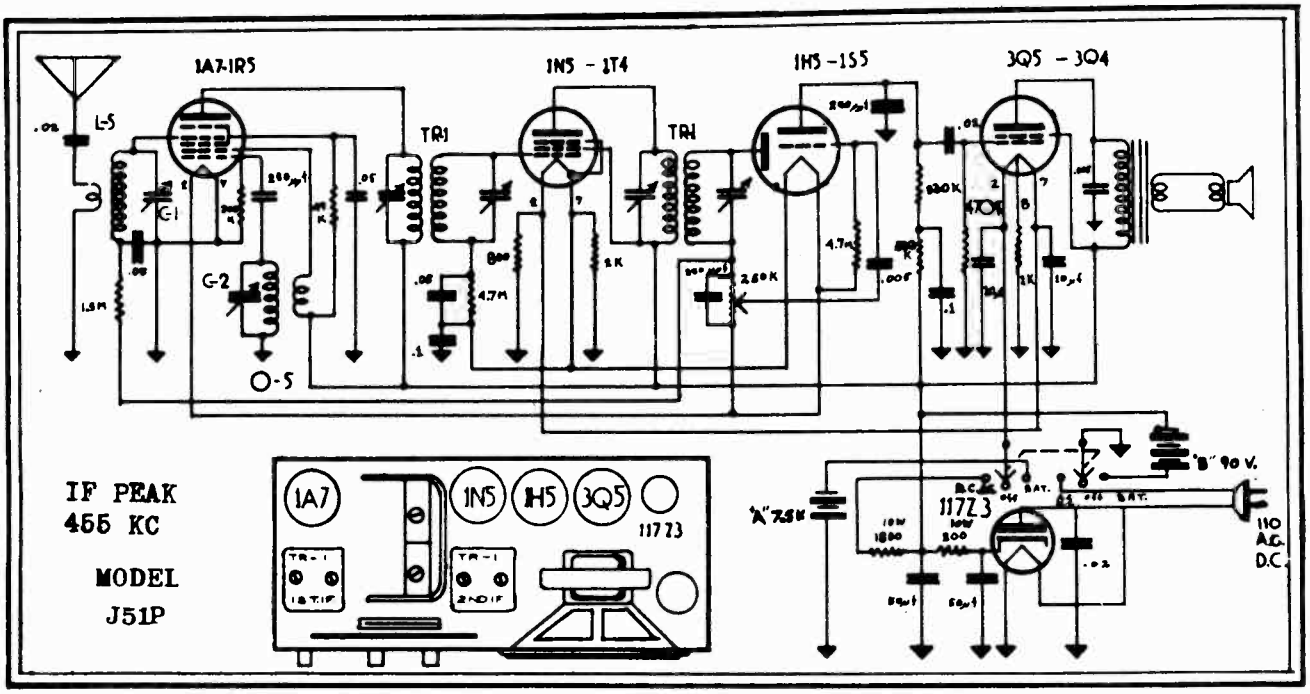
MODEL FA-15

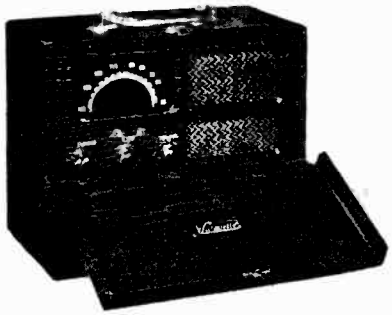


C-1	Paper, .005 mfd., 400 volts	C-8	Mica, 220 mmfd., 500 volts	R-2	22,000 ohms, 2 W.	R-9	150 ohms, 1 W.
C-2	Paper, .05 mfd., 400 volts	C-9	Paper, .05 mfd., 400 volts	R-4	2200 ohms, ½ W.	R-10	2.2 Megohms, ¼ W.
C-3	Mica, 47 mmfd., 500 volts	C-10	Paper, .002 mfd., 400 volts	R-5	Volume Control & Switch	L-1	Loop Aerial
C-4	Paper, .05 mfd., 400 volts	C-11	Mica, 470 mmfd., 500 volts	R-6	10 Megohms, ¼ W.	L-2	Oscillator Coil
C-5	Paper, .05 mfd., 400 volts	C-12	Paper, .01 mfd., 400 volts	R-7	270,000 ohms, ½ W.	L-3	First I.F Transformer
C-6, C-7, C-13	Electrolytic, 40x40, 150 V, 25 mfd., 25V.	R-1	22 ohms, ½ W.	R-8	470,000 ohms, ¼ W.	L-4	Second I.F Transformer

MODEL J51P

RADIO WIRE TELEVISION





This is a portable, 5-tube superheterodyne radio, designed for operation from a self-contained battery pack or a power line of 115 volts AC or DC current. It has a tuning range from 550 to 1700 kilocycles.

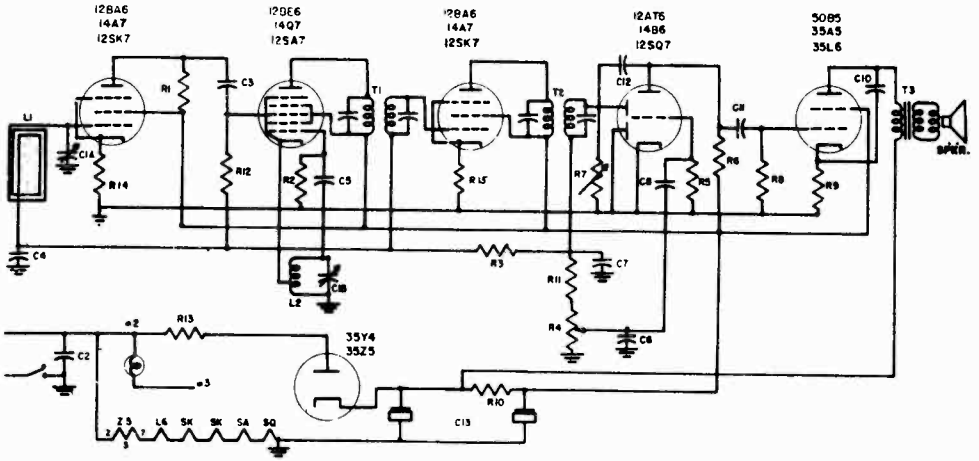
power supply

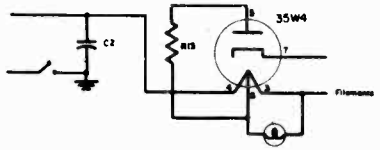
The battery pack is a standard pack made by the Eveready Company (No. 754). The Burgess equivalent is the Burgess No. G6M60 or the Ray O Vac equivalent. The life of the packs depend on how often the radio is used on batteries.

CAUTION: When NOT in use, be SURE that the center knob is in the OFF position, else batteries will be damaged or drained, affecting the operation. If reception becomes weak or distorted, have the batteries checked by your dealer or service man.

THE INTERMEDIATE FREQUENCY IS 455 KC. TO ALIGN, SET THE OSCILLATOR TO 550 AND 1650 KC, ALIGNING THE RF AT 1500 KC.

TUBES: The following tubes, together with their substitutes in certain models, are used: 1A7 or 1R5 Mixer-Oscillator, 1N5 or 1T4 IF Amplifier, 1H5 or 1S5 Detector-RF Amplifier-AVC, 3Q5 or 3Q4 Power Amplifier or Audio Amplifier, and 117Z3 rectifier.



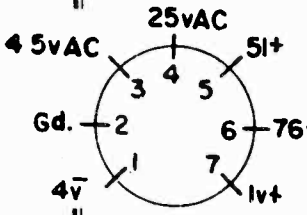


IF PEAK
455 KC

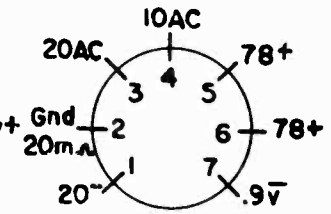
CIRCUIT SYMBOL	PART NO.	DESCRIPTION
C1	CV-10009	Condenser, Variable with Pulley.
C2	CP-14503	Condenser, Paper .05 Mfd. 400 volts.
C3	CH-15250	Condenser, Mica 25 mmf. 500 volts.
C4	CP-12503	Condenser, Pdper .05 Mfd. 200 volts.
C5	CH-15500	Condenser, Mica 50 mmf. 500 volts.
C6-C7	CH-15251	Condenser, Mica 250 mmf. 500 volts.
C8, C11	CP-14103	Condenser, Paper .01 mfd. 400 volts.
C10	CP-14203	Condenser, Paper .02 mfd. 400 volts.
C12	CP-14302	Condenser, Paper .003 mfd. 400 volts.
C13	CL-10007	Condenser, Electrol. 50/30 mfd. 150 volts.
L1	AL-10010	Loop Antenna.
L2	TRC-10000D	Coil, Oscillator
R1	RC-34701	Resistor, Carbon 4700 ohm ½ watt.
R2	RC-32202	Resistor, Carbon 22000 ohm ½ watt.
R3	RC-32204	Resistor, Carbon 2.2 megohm ½ watt.

CIRCUIT SYMBOL	PART NO.	DESCRIPTION
R4	VC-11105	Cantrol, Volume 1 megohm with switch.
R5	RC-31005	Resistor, Carbon 10 megohm ½ watt.
R6	RC-32203	Resistor, Carbon 220,000 ohm ½ watt.
R7	VC-13105	Control, Tone 1 megohm.
R8, R12	RC-34703	Resistor, Carbon 470,000 ohm ½ watt.
R9, R14	RC-31500	Resistor, Carbon 150 ohm ½ watt.
R10	RC-41001	Resistor, Carbon 1000 ohm 1 watt.
R11	RC-31003	Resistor, Carbon 100,000 ohm ½ watt.
R13	RC-30220	Resistor, Carbon 22 ohm ½ watt.
R15	RC-33300	Resistor, Carbon 330 ohm ½ watt.
SPKR	SO-10002	Speaker, Oval 4 x 6.
T1	TS-10000	Transformer, I. F. Input.
T2	TS-10001	Transformer, I. F. Output.
T3	TO-10000	Transformer, Output.

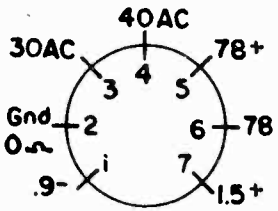
All grid voltages measured with 200,000 ohms per volt meter and other voltages with 1000 ohms per volt meter.



12BA6



12BE6



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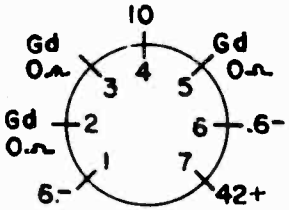
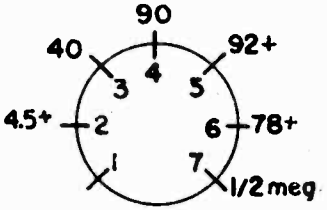
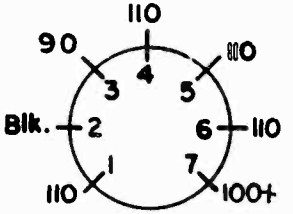


12AT6



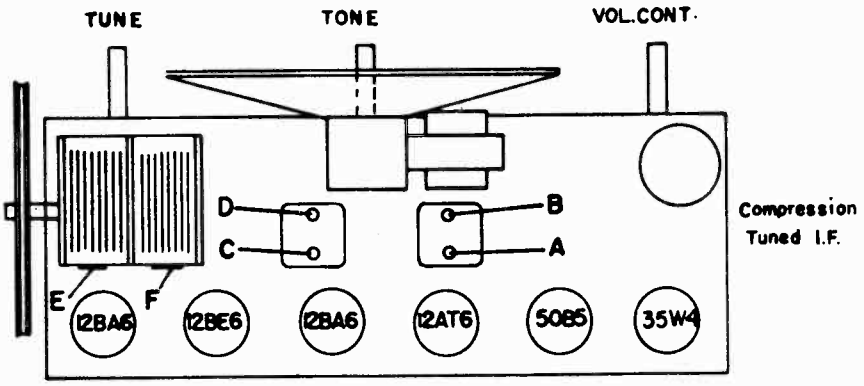
50B5

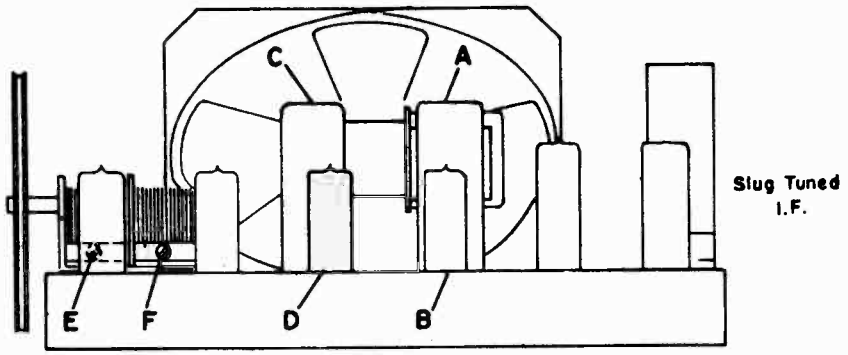


35W4

MODEL MC-11

RADIO WIRE TELEVISION





Tubes used (6) 12BA6 RF amplifier; 12BE6 converter; 12BA6 IF amplifier; 12AT6 Det., AVC, AF; 50B5 power output; and 35W4 rectifier.

Power supply 110-125 volts AC/DC.

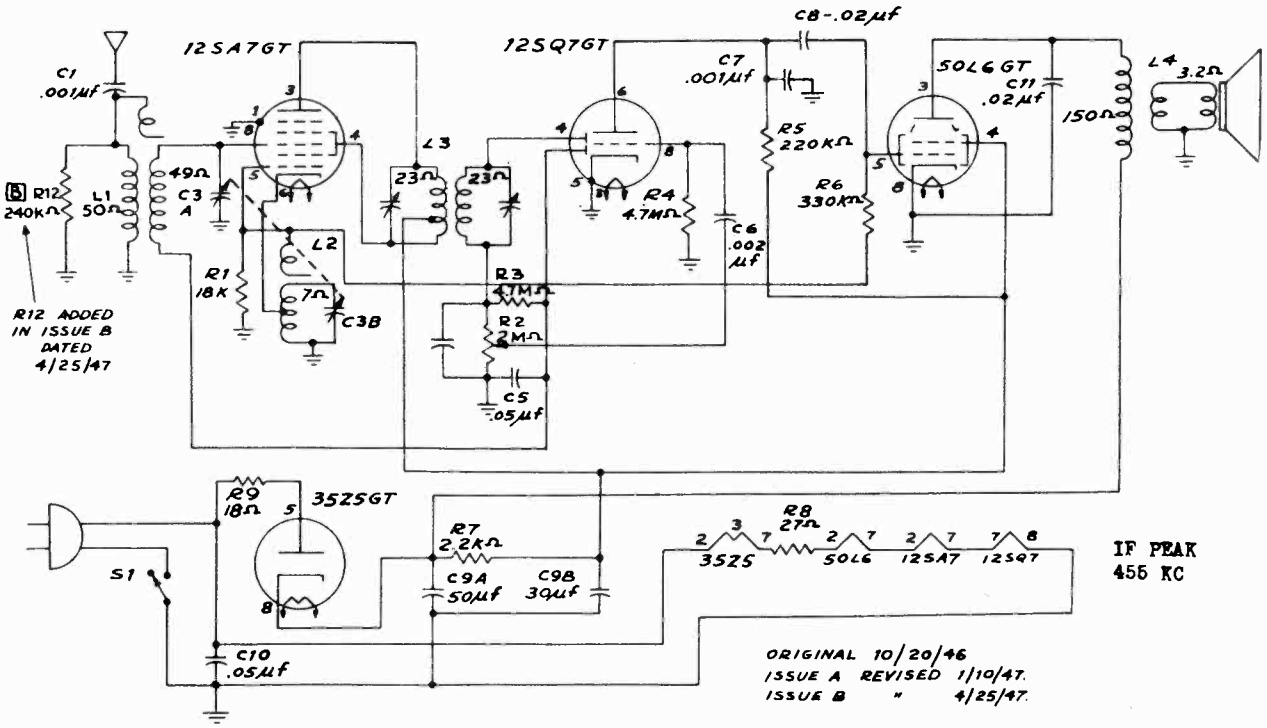
Tuning Range—Broadcast 550 Kc to 1720 Kc Rating .24 amp @ 117 volts AC/DC.

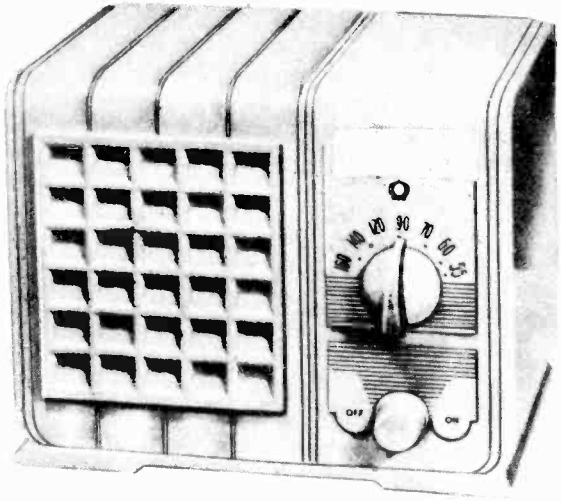
ALIGNMENT INSTRUCTIONS — READ CAREFULLY

Use isolation transformer if available. If not, connect a capacitor in series with low side to chassis. Volume control should be at a maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

Dummy Antenna	Signal Generator Coupling	Signal Generator Frequency	Gang Condenser Position	Output Meter	Adjust	Remarks
.05 Mfd.	High side of Mixer tube Grid (12BE6)	455 Kc	Stator Turned out to minimum Capacity position	Across Voice Coil	A, B, C, D	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1720 Kc	Stator Turned out to minimum Capacity position	Across Voice coil	E	Fashion loop from few turns of wire and radiate signal into set. Adjust for maximum output.
	Loop	1500 Kc	Tune gang to resonance	Across Voice coil	F	Fashion loop from few turns of wire and radiate signal into set. Adjust for maximum output.

RADIONIC EQUIPMENT CO.



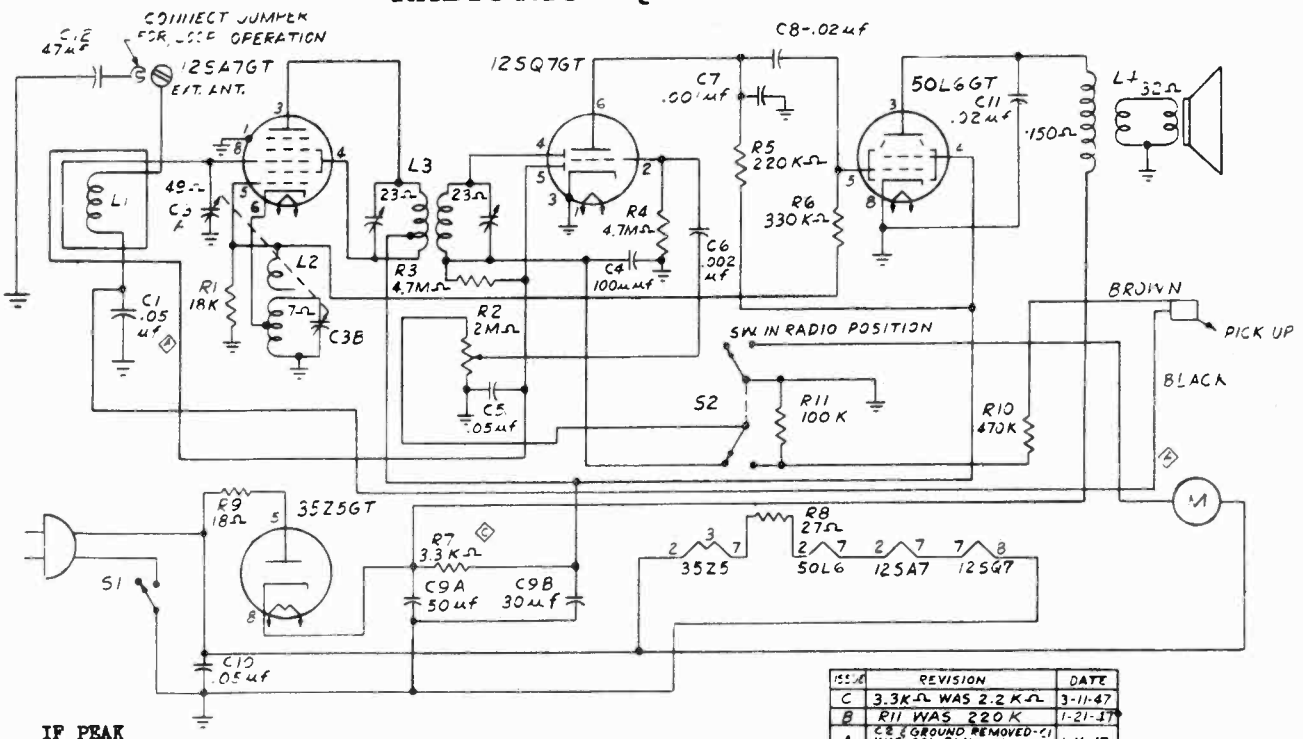


DESCRIPTION		PRICE
Paper condenser	.05/400 v.	.21
" "	.01/ "	.18
" "	.002/ "	.17
" "	.02/ "	.18
" "	.05/200 v.	.19
" "	.005/ "	.17
" "	.001/500 v.	.18
Mica "	100 mmf	.19
" "	47 "	.17
Resistor	10K ohm ½w.	.05
"	4.7 meg ohm ½w.	.05
"	220 ohm ½ w.	.05
"	2200 ohm 2 w.	.18
"	18 ohm ½ w.	.05
"	47 " 1 w.	.10
"	330K ohm ½ w.	.05

	DESCRIPTION	PRICE
	Plastic cabinet walnut	2.40
5877	Speaker and output transformers	3.19
39156	Plastic knob tuning	.30
39157	" " volume	.13
62192	Cabinet back	.25
	Instruction book	.05
1673	Variable condenser	3.65
2073	Electrolytic condenser unit 50-30 mf 150 v.	1.60
2479	Volume control with switch 2 meg ohm	1.20
28182	Antenna coil	1.05
28184	Oscillator coil	.75
3376	I.F. transformer	2.05
5580	Antenna hank	.37
	Line cord	.75

MODEL 240T

RADIONIC EQUIPMENT CO.



ISS'D	REVISION	DATE
C	3.3K Ω WAS 2.2 KΩ	3-11-47
B	R11 WAS 220 K	1-21-47
A	C2 & GROUND REMOVED-C1 WAS .001-BLK. LEAD BETWEEN XTAL & C1 ADDED	1-14-47

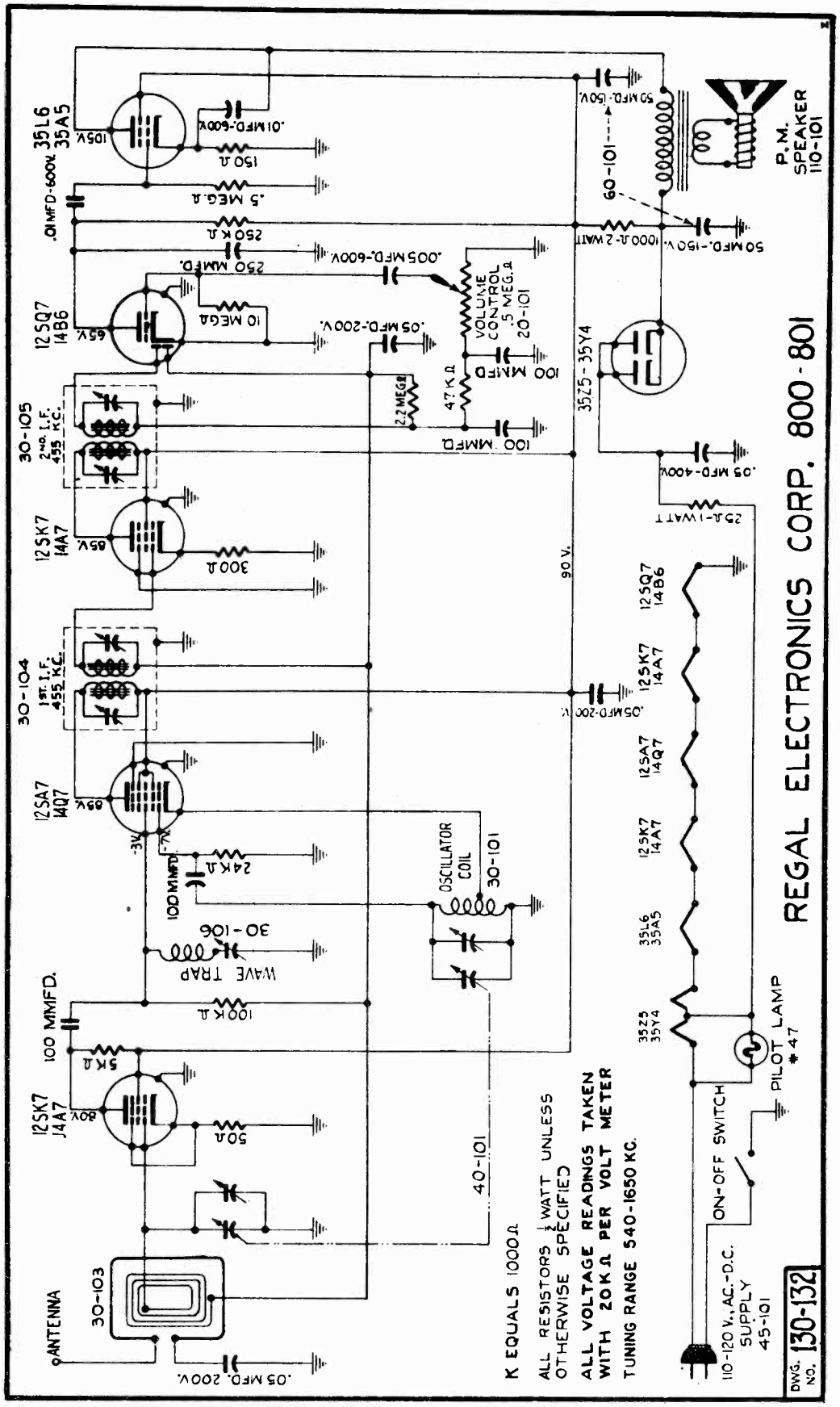
ORIGINAL DRAWING 1-10-47

IF PEAK
455 KC

DESCRIPTION	PRICE
Paper condenser .05 mf 400 v.	.21
" " .002 200 v.	.17
" " .02 "	.18
" " .05 "	.19
" " .001 "	.17
Ceramic 100 mmf 500 volts	.18
16K ohms ¼ w.	.15
4.7 meg ohms ¼ w.	.15
220K " ¼ w.	.15
2200 " 2 w.	.18
18 " ½ w.	.15
47 " 1 w.	.15
330K " ¼ w.	.15
470K " ¼ w.	.15

	DESCRIPTION	PRICE
A403	Cabinet, wood less lid	13.35
5877	Speaker and output transformer	3.31
39160	Knob, tuning wood	.30
39161	Knob, (volume, phono-radio)	.15
59307	Instruction book	.05
1675	Variable condenser	4.00
2073	Electrolytic condenser unit 50-30 mf/150 v.	1.70
2480	Volume control 2 meg with switch	1.20
28184	Oscillator coil	.75
28185	Antenna coil (chassis 470-1)	.80
3376	I.F. transformer	2.20
28186		
28189	Loop and loading coil (chassis 470-2)	1.75
5559	Line cord	.75
3828	Switch radio/phono	.85
6343	Pick-up arm and rest	7.65
6418	Motor and turntable 8"	8.70
	Lifetime needle	1.30

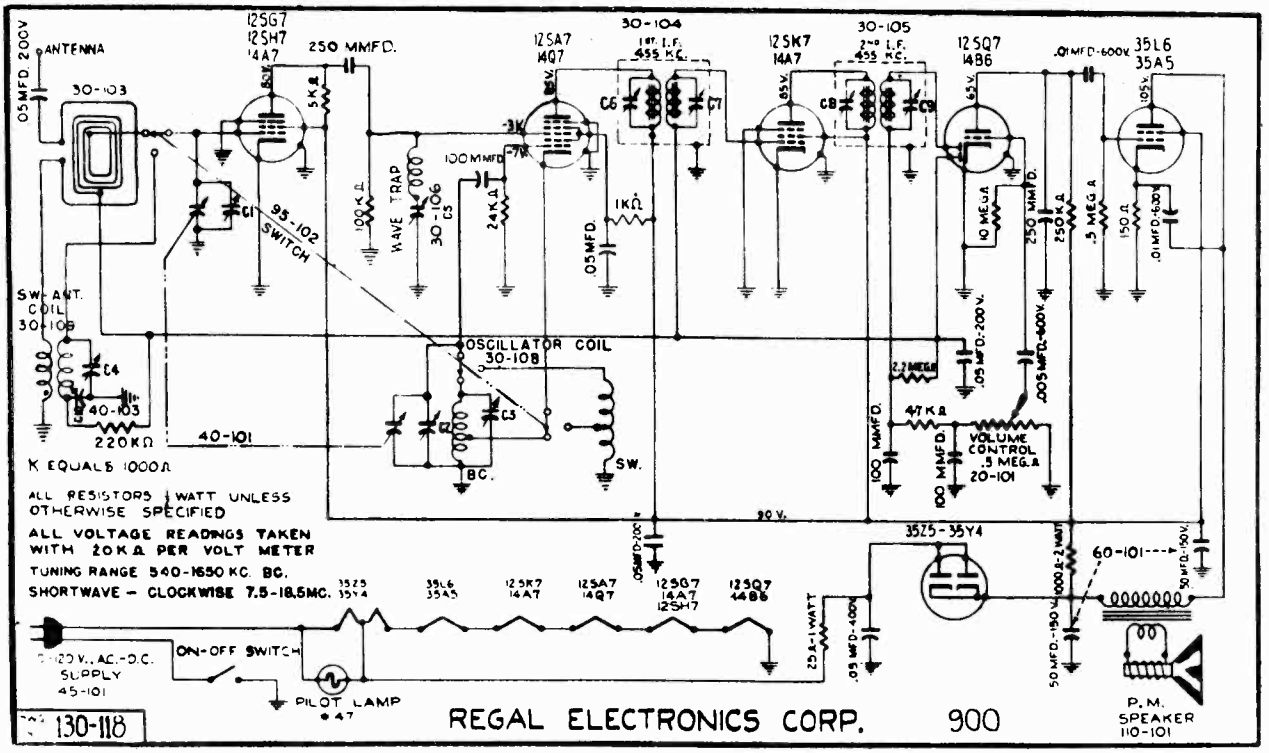
REGAL ELECTRONICS CORP.



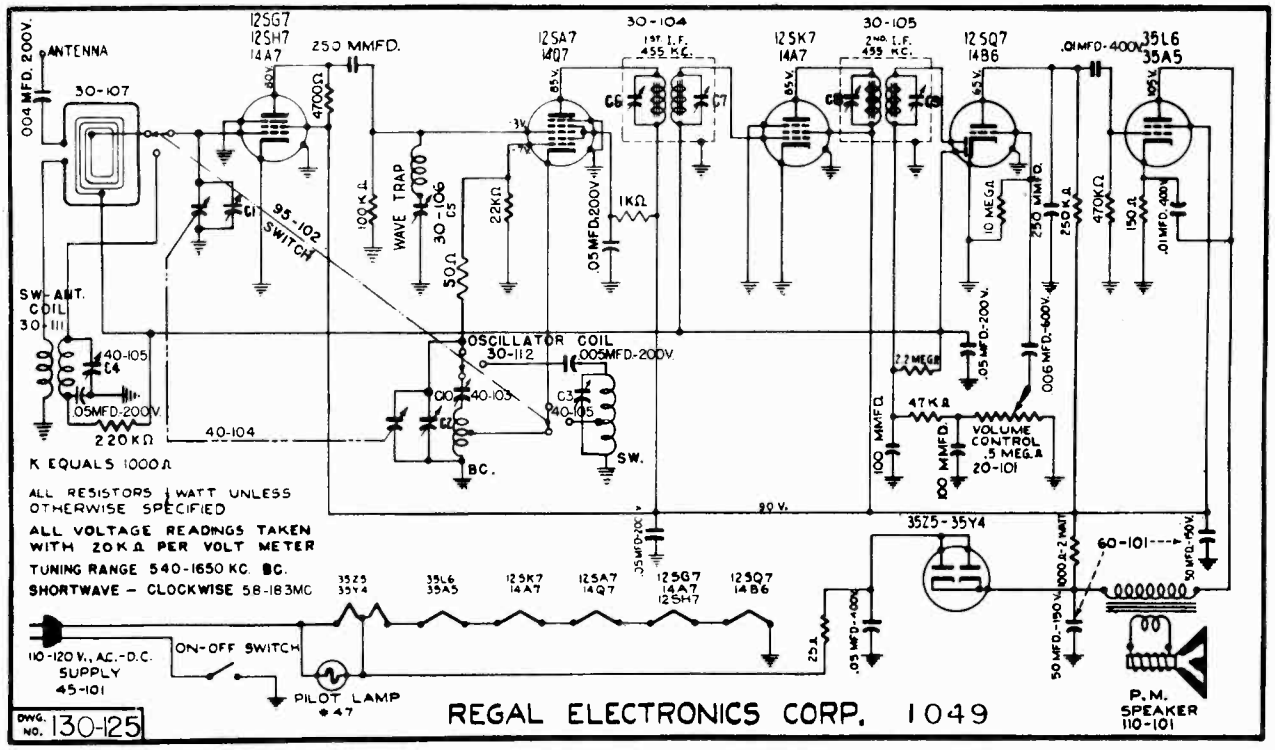
MODEL 900
MODEL 1049

REGAL ELECTRONICS CORP.

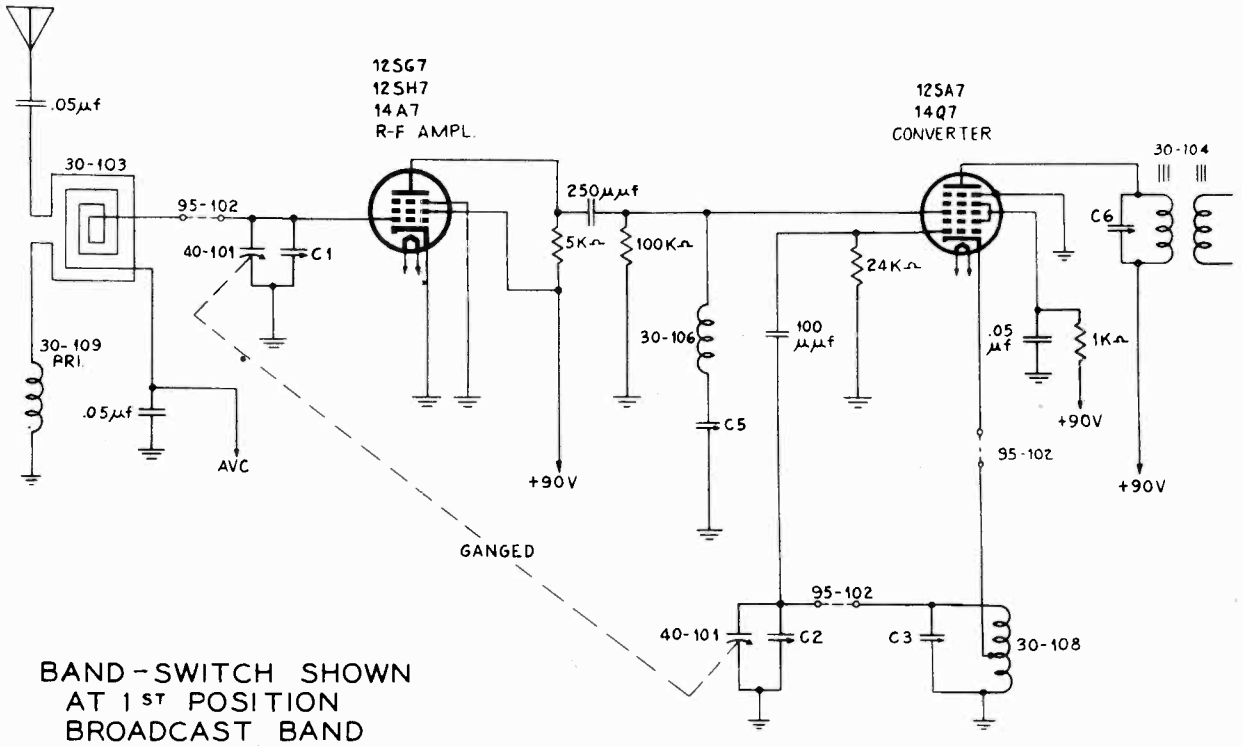
MODEL 900



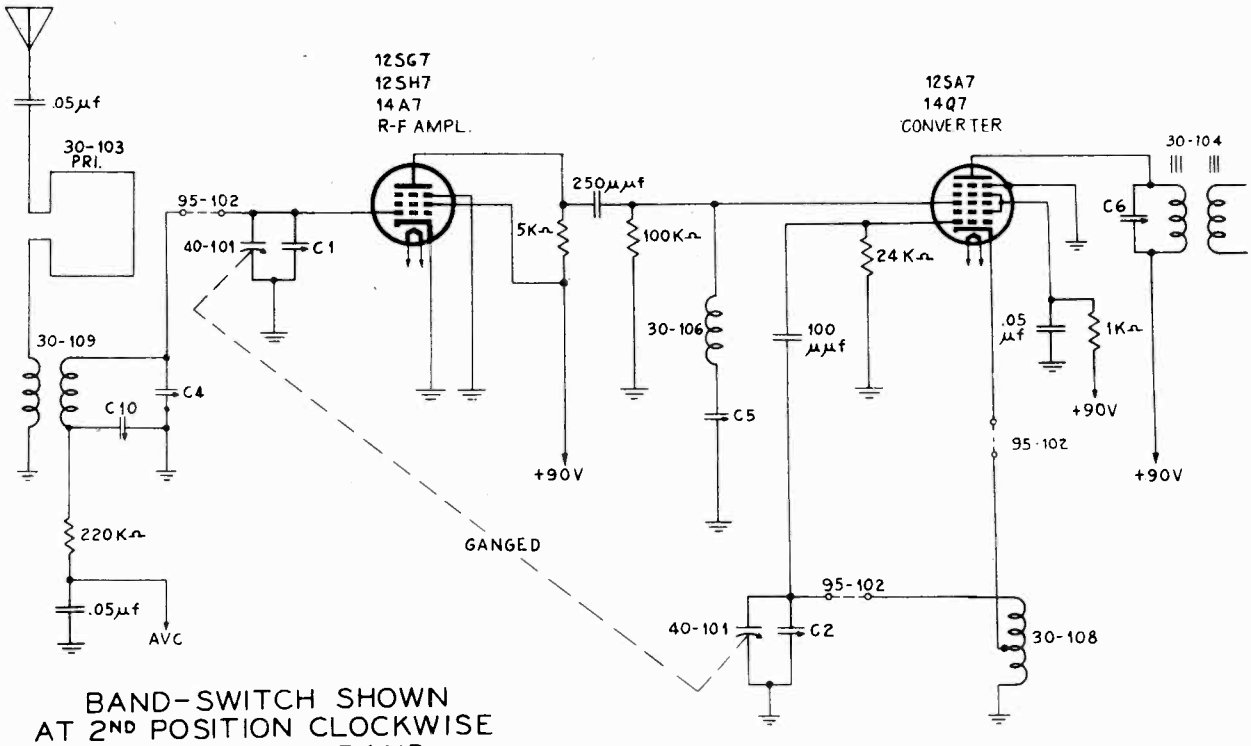
MODEL 1049



REGAL ELECTRONICS CORP. MODEL 900

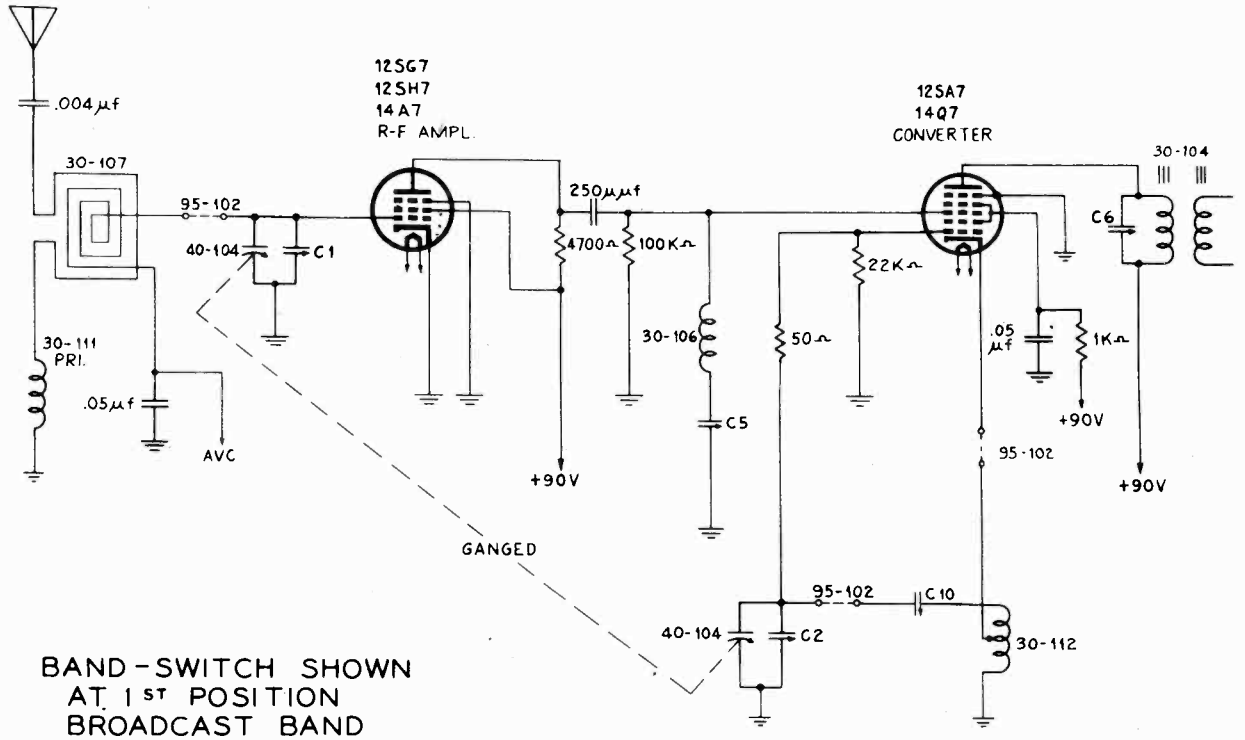


BAND-SWITCH SHOWN
AT 1ST POSITION
BROADCAST BAND
540-1650 KC.

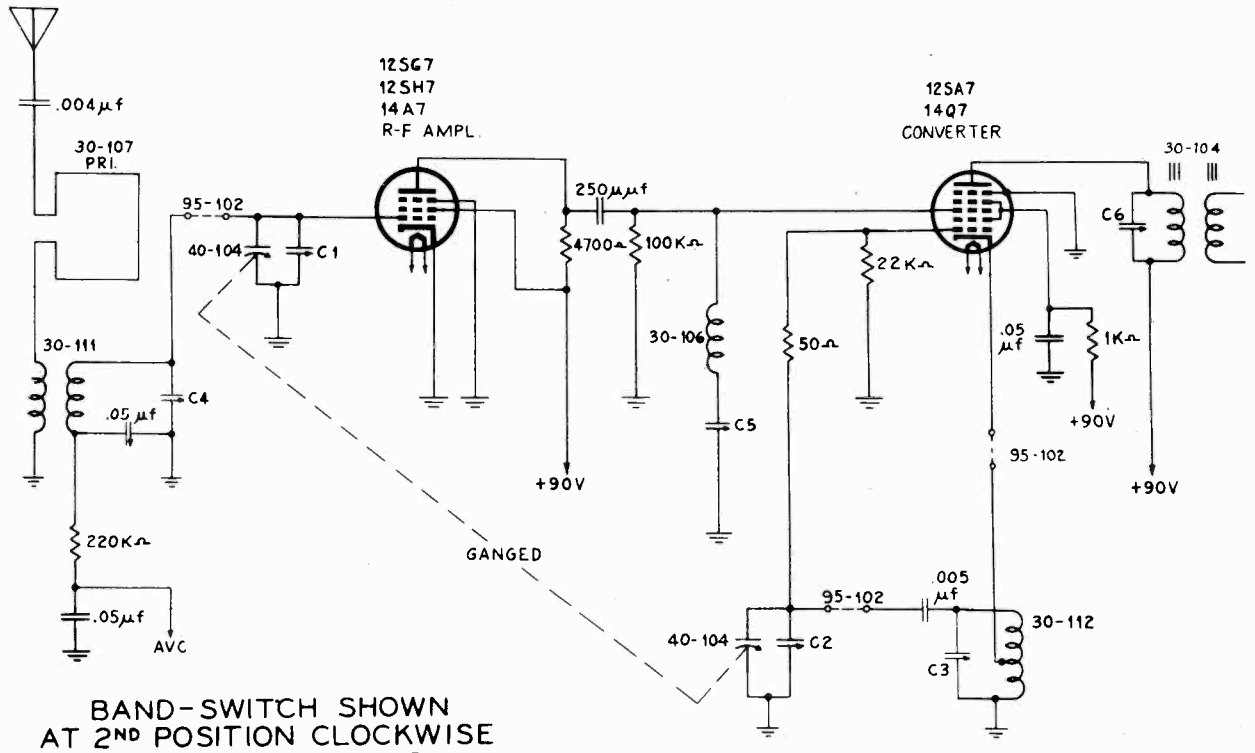


BAND-SWITCH SHOWN
AT 2ND POSITION CLOCKWISE
SHORT WAVE BAND
7.5-18.5 MC.

MODEL 1049 REGAL ELECTRONICS CORP.



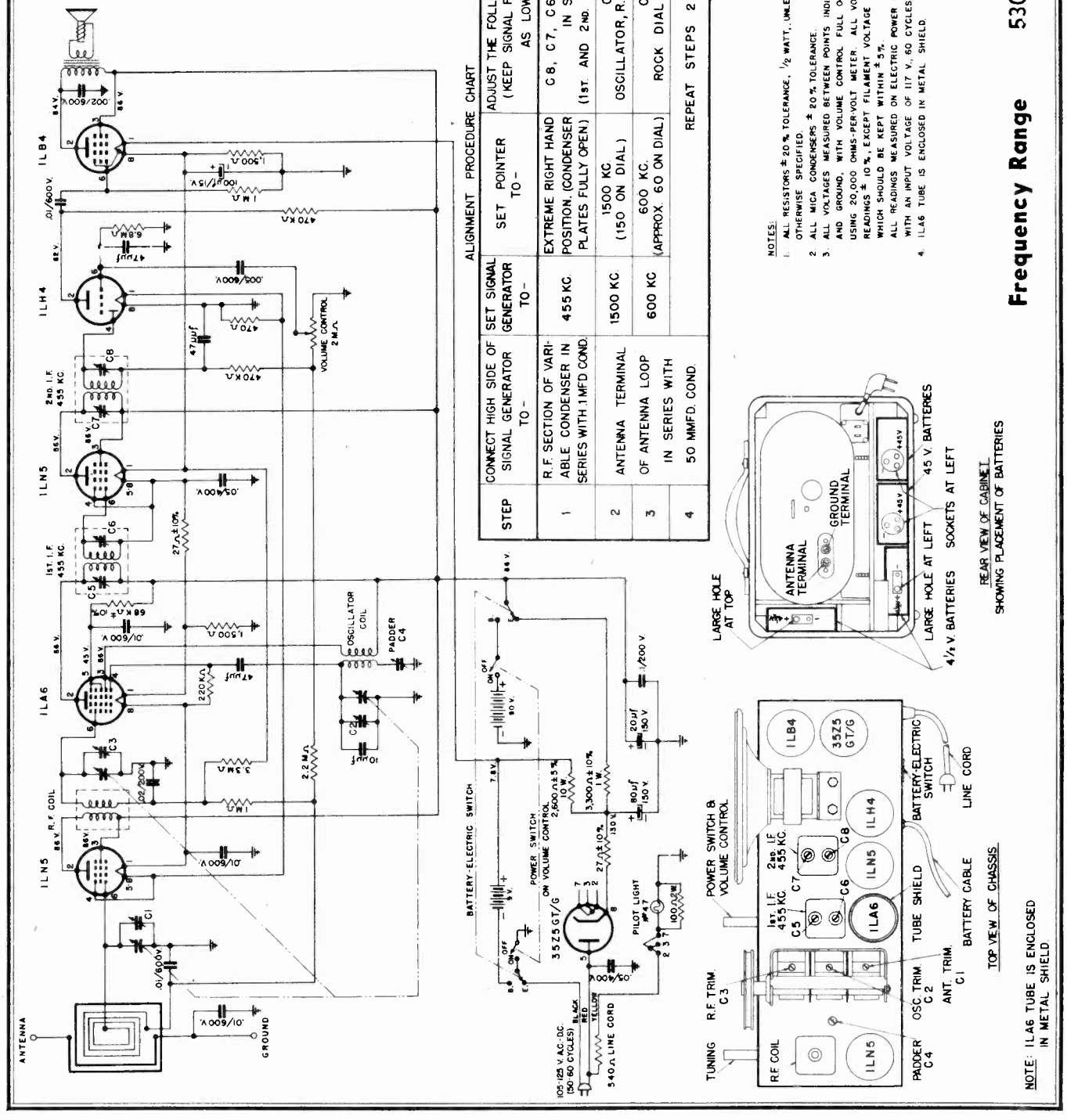
BAND-SWITCH SHOWN
AT 1ST POSITION
BROADCAST BAND
540-1650 KC.



BAND-SWITCH SHOWN
AT 2ND POSITION CLOCKWISE
SHORT WAVE BAND
5.8-18.3 MC.

MODEL L-266

REXEL MERCHANDISE CO.



MODEL L-266

REXEL MERCHANDISE CO.

WHEN SERVICING THIS RECEIVER DO NOT PLACE CHASSIS ON A GROUNDED METALLIC BENCH.

For tube replacement it is not necessary to remove the chassis from the cabinet. Access to the tubes may be made by removing the center screw on the loop holding same to the bracket, and then lifting loop carefully off the bracket so as to avoid breaking of wires connecting same.

For ALIGNMENT the chassis must be removed from case. Remove first batteries and then the three screws holding chassis to the bottom of the shelf.

ALIGNMENT

Equipment Required: Modulated r-f signal generator; output meter; insulated screw driver; two .1 mfd 400 volt and one 50 mmfd 400 volt condensers.

Turn variable condenser fully counterclockwise (plates fully closed) and check that pointer coincides with the first thin calibration mark on the dial. Connect the output meter and signal generator as follows:

Output meter: Connect across voice coil and turn volume control to maximum.

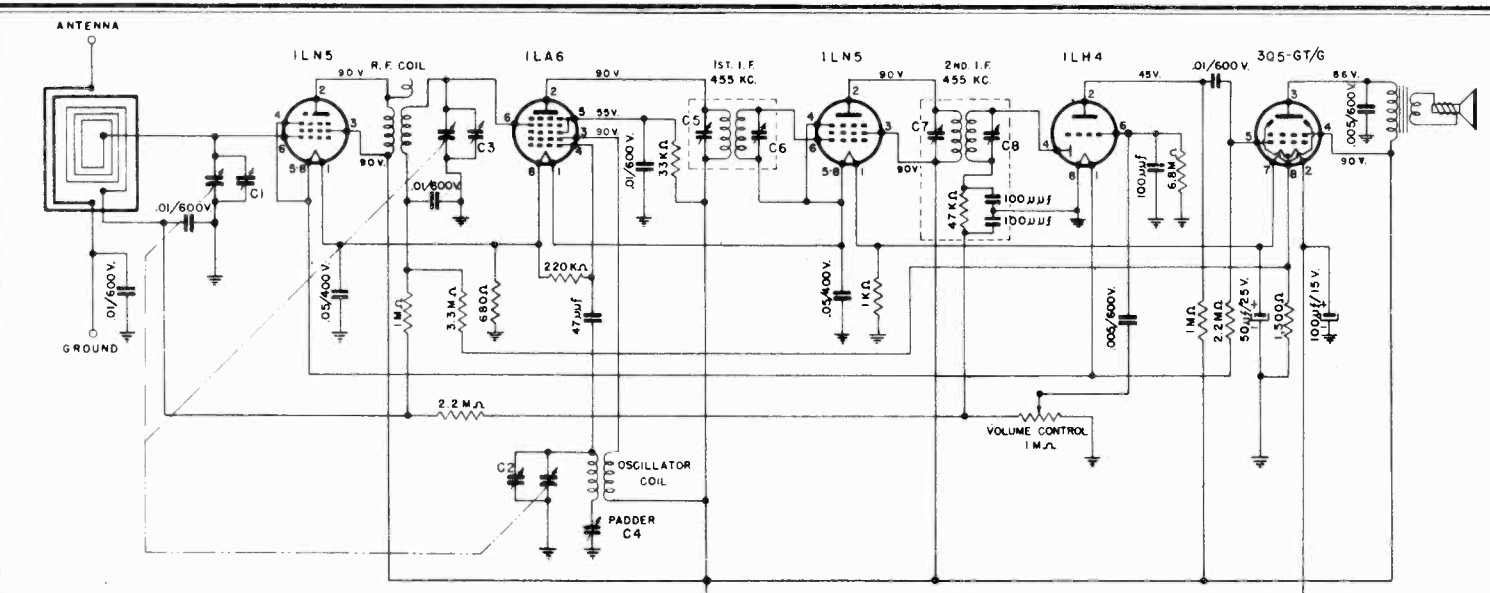
Signal generator: Connect the low side of the signal generator to the receiver chassis thru a .1 mfd condenser and keep output as low as possible, then proceed in the sequence shown on the alignment chart.

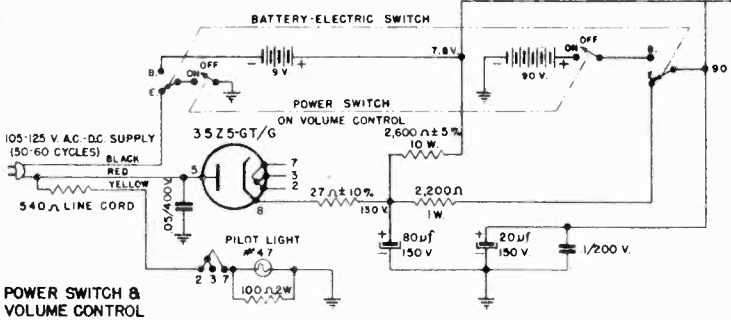
BATTERIES

The batteries recommended for this receiver are two #746 "Eveready" 4½ volt batteries (National Carbon Co.) and two #482 "Eveready" 45 volt batteries (National Carbon Co.) or replacement types of equal size and voltage. To replace batteries, remove back of cabinet by pulling at top of back. Batteries are accessible without removing chassis or loop. Consult layout drawing for correct placement and connections of batteries.

REPLACEMENT PARTS

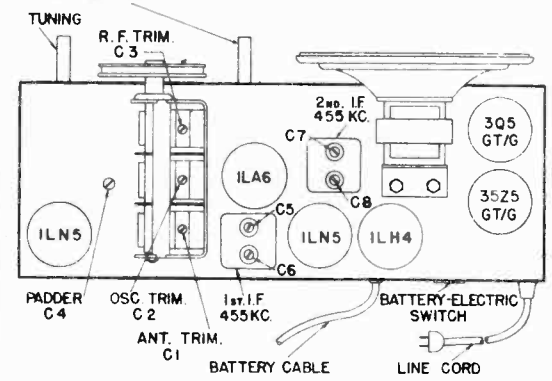
Part No.	Description
BK-405	Bracket-Resistor mounting bracket
BT-232	Battery-4½ volt battery (A)
BT-233	Battery-45 volt battery (B)
BU-187	Bulb-pilot light bulb 6.3v (#47 Mazda)
CA-472	Cabinet-portable cabinet
CB-335	Cable-battery cable
CL-176	Coil-R.F. coil, shielded
CL-177	Coil-oscillator coil
CO-182	Condenser-80/20/150WV & 100/15WV electrolytic condenser
CR-299	Crystal-dial crystal
CT-388	Condenser-220-680 mmfd padder condenser
CV-146	Condenser-3 gang variable condenser (with pulley)
DL-391	Dial-metal dial scale
ES-274-3	Escutcheon-moulded escutcheon
KN-260	Knob-walnut knob
KN-261	Knob-walnut knob with dot
LC-315	Line Cord-540 ohms resistance line cord
LP-178	Loop-Antenna
PO-395	Pointer-dial pointer
PT-383	Control-volume control 2 megohms with D.P.S.T. switch
RCM20A100M	Condenser-10 mmfd ±20% mica condenser
RCM20A470M	Condenser-47 mmfd ±20% mica condenser
RCP10W2104A	Condenser-.1-200WV paper tubular condenser
RCP10W2203A	Condenser-.02/200WV paper tubular condenser
RCP10W4503A	Condenser-.05/400WV paper tubular condenser
RCP10W6103A	Condenser-.01/600WV paper tubular condenser
RCP10W6202M	Condenser-.002/600WV paper tubular condenser
RCP10W6502A	Condenser-.005/600WV paper tubular condenser
RE-407	Resistor-2600 ohms ±5% 10 watt resistor
REB105M	Resistor-1 megohm ±20% ½ watt resistor
REB152M	Resistor-1500 ohms ±20% ½ watt resistor
REB224M	Resistor-220,000 ohms ±20% ½ watt resistor
REB225M	Resistor-2.2 megohms ±20% ½ watt resistor
REB270K	Resistor-27 ohms ±10% ½ watt resistor
REB335M	Resistor-3.3 megohms ±20% ½ watt resistor
REB471M	Resistor-470 ohms ±20% ½ watt resistor
REB474M	Resistor-470,000 ohms ±20% ½ watt resistor
REB683K	Resistor-68,000 ohms ±10% ½ watt resistor
REB685M	Resistor-6.8 megohms ±20% ½ watt resistor
REC332K	Resistor-3300 ohms ±10% 1 watt resistor
RED101M	Resistor-100 ohms ±20% 2 watt resistor
SD-607	Shield-Tube Shield
SK-156	Speaker-5" P.M. Speaker with output transformer
SO-572	Socket-pilot light socket assembly
SP-191	Spring-Drive shaft retaining spring
SW-185	Switch-battery-electric D.P.D.T. slide switch
TR-186	Transformer-I.F. 455 K.C. Transformer



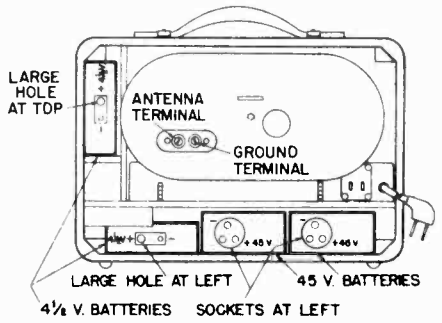


ALIGNMENT PROCEDURE CHART

STEP	CONNECT HIGH SIDE OF SIGNAL GENERATOR TO -	SET SIGNAL GENERATOR TO -	SET POINTER TO -	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)
1	R.F SECTION OF VARIABLE CONDENSER IN SERIES WITH .1 MFD COND.	455 KC.	EXTREME RIGHT HAND POSITION. (CONDENSER PLATES FULLY OPEN)	C8, C7, C6, C5 AND REPEAT IN SAME ORDER (1ST. AND 2ND. I.F TRANSFORMERS)
2	ANTENNA TERMINAL OF ANTENNA LOOP IN SERIES WITH 50 MMFD. COND.	1500 KC.	1500 KC (150 ON DIAL)	C2, C3, C1 (OSCILLATOR, R.F. AND ANTENNA TRIMMERS)
3		600 KC.	600 KC. (APPROX. 60 ON DIAL)	C4 (PADDER) ROCK DIAL FOR MAXIMUM SIGNAL
4		REPEAT STEPS 2 AND 3		



TOP VIEW OF CHASSIS



REAR VIEW OF CABINET SHOWING PLACEMENT OF BATTERIES

NOTES

1. ALL RESISTORS ± 20% TOLERANCE, ½ WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS ± 20% TOLERANCE.
3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND GROUND, WITH VOLUME CONTROL FULL ON, USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ± 10%, EXCEPT FILAMENT VOLTAGE WHICH SHOULD BE KEPT WITHIN ± 5%.
4. ALL READINGS MEASURED ON ELECTRIC POWER OPERATION WITH AN INPUT VOLTAGE OF 117 V, 60 CYCLES, A.C.

Frequency Range 530 - 1700 kc.

REXEL MERCHANDISE CO.

MODEL L-266-A

MODEL L-266-A

REXEL MERCHANDISE CO.

WHEN SERVICING THIS RECEIVER DO NOT PLACE CHASSIS ON A GROUNDED METALLIC BENCH

For tube replacement it is not necessary to remove the chassis from the cabinet. Access to the tubes may be made by removing the center screw on the loop holding same to the bracket, and then lifting loop carefully off the bracket so as to avoid breaking of wires connecting same.

For ALIGNMENT the chassis must be removed from case. Remove first batteries and then the three screws holding chassis to the bottom of the shelf.

ALIGNMENT

Equipment Required: Modulated r-f signal generator; output meter; insulated screw driver; two .1 mfd 400 volt and one 50 mmfd 400 volt condensers.

Turn variable condenser fully counterclockwise (plates fully closed) and check that pointer coincides with the first thin calibration mark on the dial. Connect the output meter and signal generator as follows:

Output meter: Connect across voice coil and turn volume control to maximum.

Signal generator: Connect the low side of the signal generator to the receiver chassis thru a .1 mfd condenser and keep output as low as possible, then proceed in the sequence shown on the alignment chart.

BATTERIES

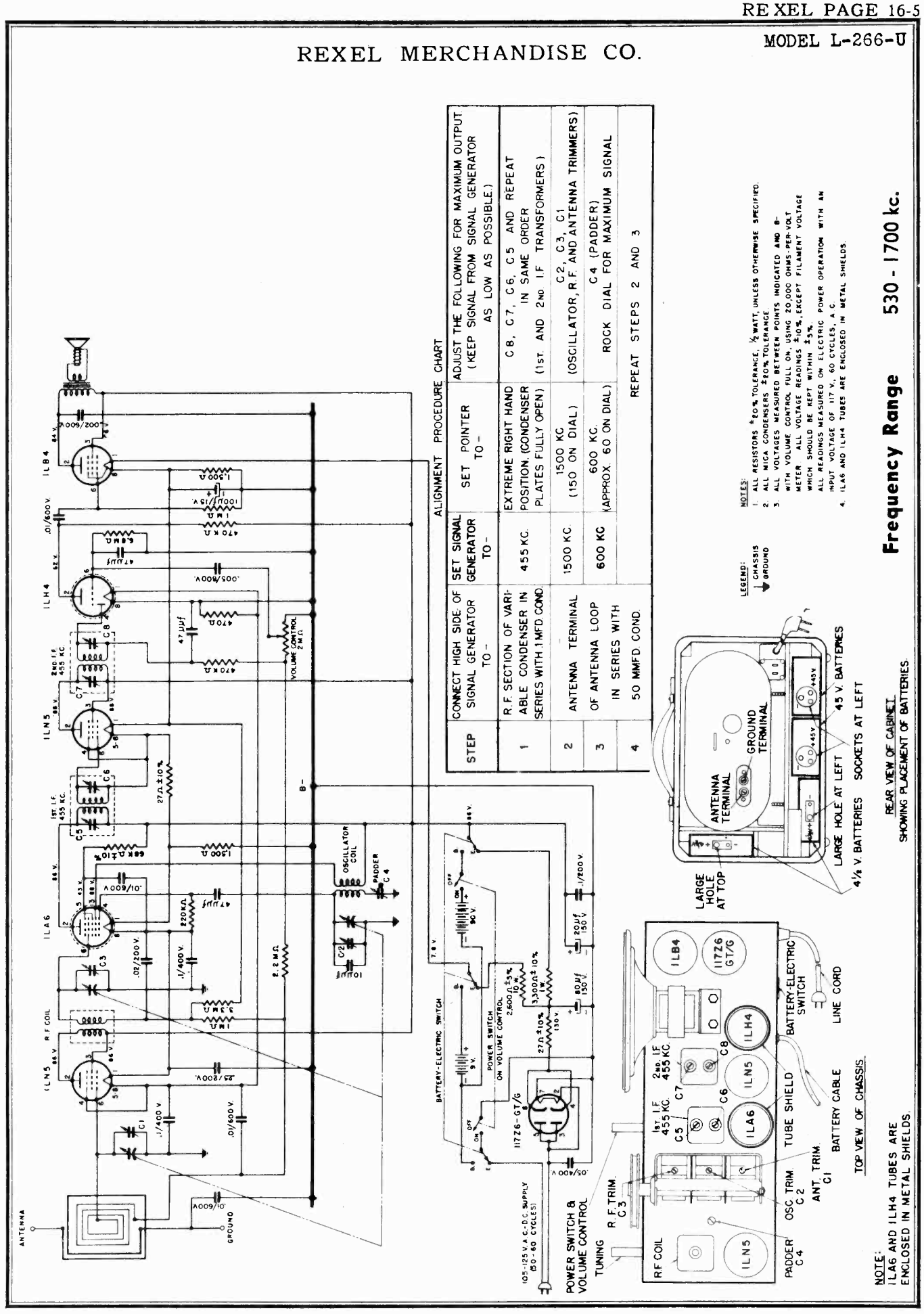
The batteries recommended for this receiver are two #746 "Eveready" 4½ volt batteries (National Carbon Co.) and two #482 "Eveready" 45 volt batteries (National Carbon Co.) or replacement types of equal size and voltage. To replace batteries, remove back of cabinet by pulling at top of back. Batteries are accessible without removing chassis or loop. Consult layout drawing for correct placement and connections of batteries.

REPLACEMENT PARTS

Part No.	Description
BK-405	Bracket-Resistor mounting bracket
BU-187	Bulb-pilot light bulb 6.3v (#47 Mazda)
CA-472	Cabinet-portable cabinet
CB-335	Cable-battery cable
CL-177	Coil-oscillator coil
CL-630	Coil-R.F. coil
CO-182	Condenser-80/20/150WV & 100/15WV electrolytic condenser
CO 808	Condenser-50 mfd /25 W.V. electrolytic condenser
CR-299	Crystal-dial crystal
CT-388	Condenser-220-680 mmfd padder condenser
CV-146	Condenser-3 gang variable condenser (with pulley)
DL-391	Dial-metal dial scale
ES-274-3	Escutcheon-moulded escutcheon
KN-260	Knob-walnut knob
KN-261	Knob-walnut knob with dot
LC-315	Line Cord-540 ohms resistance line cord
LP-178	Loop-Antenna
PO-395	Pointer-dial pointer
PT-576	Control-volume control 1 megohm with D.P.S.T. switch
RCM20A101M	Condenser-100 mmf ±20% mica condenser
RCM20A470M	Condenser-47 mmfd ±20% mica condenser
RCP10W2104A	Condenser-.1/200WV paper tubular condenser
RCP10W4503A	Condenser-.05/400WV paper tubular condenser
RCP10W6103A	Condenser-.01/600WV paper tubular condenser
RCP10W6502A	Condenser-.005/600WV paper tubular condenser
RE-407	Resistor-2600 ohms ±5% 10 watt resistor
REB102M	Resistor-1000 ohms ±20% ½ watt resistor
REB105M	Resistor-1 megohm ±20% ½ watt resistor
REB152M	Resistor-1500 ohms ±20% ½ watt resistor
REB224M	Resistor-220,000 ohms ±20% ½ watt resistor
REB225M	Resistor-2.2 megohms ±20% ½ watt resistor
REB270K	Resistor-27 ohms ±10% ½ watt resistor
REB333M	Resistor-33,000 ohms ±20% ½ watt resistor
REB335M	Resistor-3.3 megohms ±20% ½ watt resistor
REB681M	Resistor-680 Ohms ±20% ½ watt resistor
REB685M	Resistor-6.8 megohms ±20% ½ watt resistor
REC 222M	Resistor-2200 ohms ±20% 1 watt resistor
RED101M	Resistor-100 ohms ±20% 2 watt resistor
SK-476	Speaker-5" P.M. Speaker with output transformer
SO-572	Socket-pilot light socket assembly
SP-191	Spring-Drive shaft retaining spring
SW-185	Switch-battery-electric D.P.D.T. slide switch
TR-707	Transformer-I.F. 455 K.C. input-Transformer
TR-708	Transformer-Output I.F. 455 K.C. Transformer with built-in I.F. filter

REXEL MERCHANDISE CO.

MODEL L-266-U



MODEL L-266-U

REXEL MERCHANDISE CO.

For tube replacement it is not necessary to remove the chassis from the cabinet. Access to the tubes may be made by removing the center screw on the loop holding same to the bracket, and then lifting loop carefully off the bracket so as to avoid breaking of wires connecting same.

For ALIGNMENT the chassis must be removed from case. Remove first batteries and then the three screws holding chassis to the bottom of the shelf.

ALIGNMENT

Equipment Required: Modulated r-f signal generator; output meter; insulated screw driver; two .1 mfd 400 volt and one 50 mmfd 400 volt condensers.

Turn variable condenser fully counterclockwise (plates fully closed) and check that pointer coincides with the first thin calibration mark on the dial. Connect the output meter and signal generator as follows:

Output meter: Connect across voice coil and turn volume control to maximum.

Signal generator: Connect the low side of the signal generator to the receiver chassis thru a .1 mfd condenser and keep output as low as possible, then proceed in the sequence shown on the alignment chart.

BATTERIES

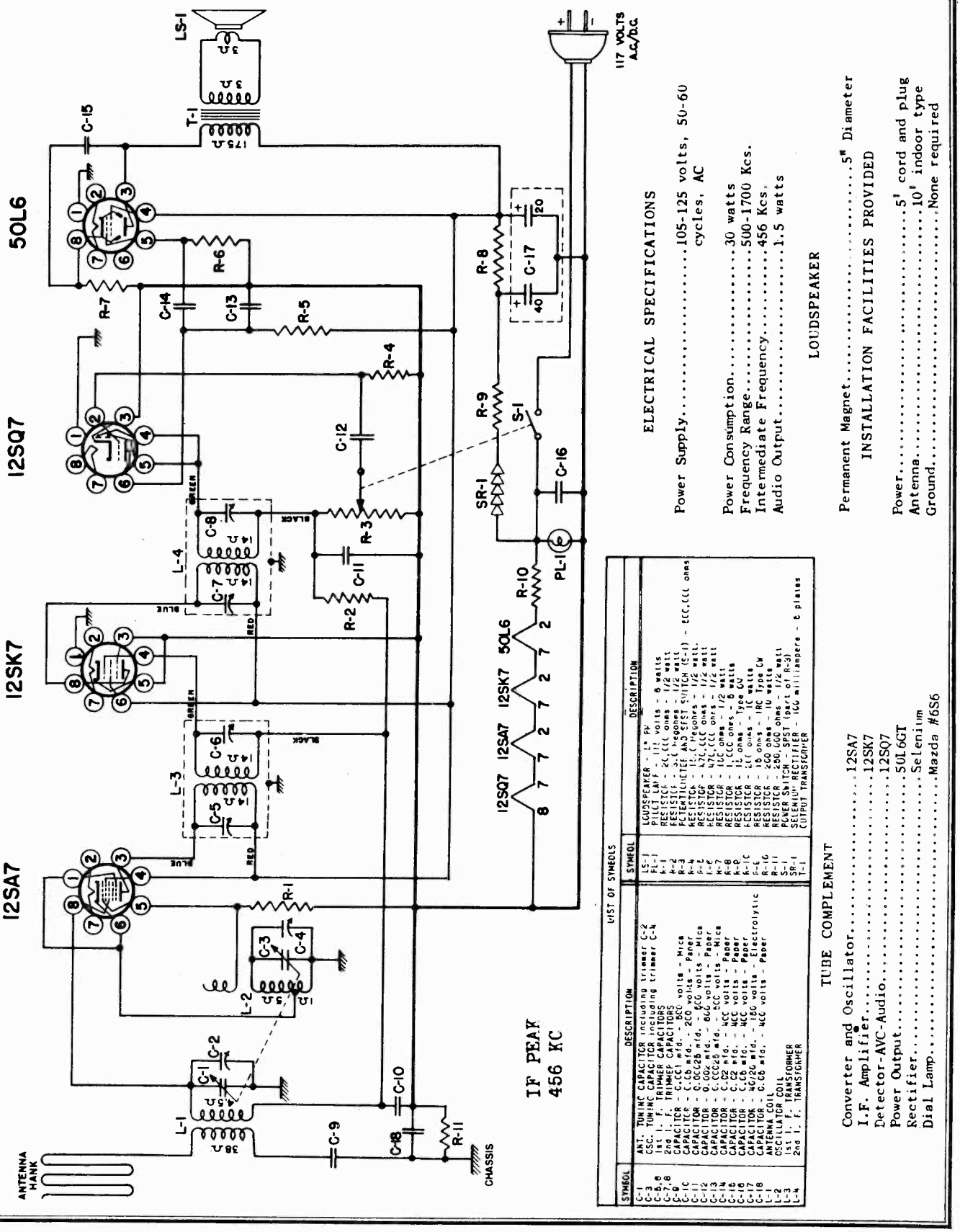
The batteries recommended for this receiver are two #746 "Eveready" 4½ volt batteries (National Carbon Co.) and two #482 "Eveready" 45 volt batteries (National Carbon Co.) or replacement types of equal size and voltage. To replace batteries, remove back of cabinet by pulling at top of back. Batteries are accessible without removing chassis or loop. Consult layout drawing for correct placement and connections of batteries.

REPLACEMENT PARTS

Part No.	Description
BK-405	Bracket-Resistor mounting bracket
CA-472	Cabinet-portable cabinet
CB-335	Cable-battery cable
CL-176	Coil-R.F. coil, shielded
CL-177	Coil-oscillator coil
CO-182	Condenser-80/20/150W.V. & 100/15W.V. electrolytic condenser
CR-299	Crystal-dial crystal
CT-388	Condenser-220-680 mmfd padder condenser
CV-146	Condenser-3 gang variable condenser (with pulley)
DL-391	Dial-metal dial scale
ES-274-1	Escutcheon-moulded escutcheon
KN-260	Knob-walnut knob
KN-261	Knob-walnut knob with dot
LC-223	Line Cord
LP-178	Loop-Antenna
PO-395	Pointer-dial pointer
PT-383	Control-volume control 2 megohms with D.P.S.T. switch
RCM20A100M	Condenser-10 mmfd ±20% mica condenser
RCM20A470M	Condenser-47 mmfd ±20% mica condenser
RCP10W2104A	Condenser-.1/200W.V. paper tubular condenser
RCP10W2203A	Condenser-.02/200W.V. paper tubular condenser
RCP10W2254A	Condenser-.25/200W.V. paper tubular condenser
RCP10W4104L	Condenser-.1/400W.V. paper tubular condenser
RCP10W4503A	Condenser-.05/400W.V. paper tubular condenser
RCP10W6103A	Condenser-.01/600W.V. paper tubular condenser
RCP10W6202M	Condenser-.002/600W.V. paper tubular condenser
RCP10W6502A	Condenser-.005/600W.V. paper tubular condenser
RE-407	Resistor-2600 ohms ±5% 10 watt resistor
REB105M	Resistor-1 megohm ±20% ½ watt resistor
REB152M	Resistor-1500 ohms ±20% ½ watt resistor
REB224M	Resistor-220,000 ohms ±20% ½ watt resistor
REB225M	Resistor-2.2 megohms ±20% ½ watt resistor
REB270K	Resistor-27 ohms ±10% ½ watt resistor
REB335M	Resistor-3.3 megohms ±20% ½ watt resistor
REB471M	Resistor-470 ohms ±20% ½ watt resistor
REB474M	Resistor-470,000 ohms ±20% ½ watt resistor
REB683K	Resistor-68,000 ohms ±10% ½ watt resistor
REB685M	Resistor-6.8 megohms ±20% ½ watt resistor
REC332K	Resistor-3300 ohms ±10% 1 watt resistor
SD-607	Shield-Tube Shield
SK-156	Speaker-5" P.M. Speaker with output transformer
SP-191	Spring-Drive shaft retaining spring
SW-193	Switch-battery-electric T.P.D.T. slide switch
TR-186	Transformer-I.F. 455 K.C. Transformer

MODEL C5TS3

RYAN SALES CO.



LIST OF SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
C-1	ANT. TUNING CAPACITOR including trimmer C-2	LS-1	LOUDSPEAKER - 5" PM
C-3	OSC. TUNING CAPACITOR including trimmer C-4	PL-1	PILOT LAMP - 117 volts - 6 watts
C-5,6	1st I. F. TRIMMER CAPACITORS	R-1	RESISTOR - 25,000 ohms - 1/2 watt
C-7,8	2nd I. F. TRIMMER CAPACITORS	R-2	RESISTOR - 1 megohm - 1/2 watt
C-9	CAPACITOR - 0.001 mfd. - 500 volts - Mica	R-3	POTENTIOMETER - 1 MEG with SPST SWITCH (S-1) - 500,000 ohms
C-10	CAPACITOR - 0.006 mfd. - 200 volts - Paper	R-4	RESISTOR - 47,000 ohms - 1/2 watt
C-11	CAPACITOR - 0.0002 mfd. - 600 volts - Mica	R-5	RESISTOR - 47,000 ohms - 1/2 watt
C-12	CAPACITOR - 0.002 mfd. - 600 volts - Paper	R-6	RESISTOR - 100 ohms - 1/2 watt
C-13	CAPACITOR - 0.0002 mfd. - 500 volts - Mica	R-7	RESISTOR - 1,000 ohms - 1/2 watt
C-14	CAPACITOR - 0.02 mfd. - 400 volts - Paper	R-8	RESISTOR - 15 ohms - Type GW
C-15	CAPACITOR - 0.02 mfd. - 400 volts - Paper	R-9	RESISTOR - 250 ohms - 10 watts
C-16	CAPACITOR - 0.05 mfd. - 400 volts - Paper	R-10	RESISTOR - 15 ohms - IRC Type GW
C-17	CAPACITOR - 40/20 mfd. - 150 volts - Electrolytic	R-11	RESISTOR - 250,000 ohms - 1/2 watt
C-18	CAPACITOR - 0.05 mfd. - 400 volts - Paper	SR-1	POWER SWITCH - SPST (part of R-3)
L-1	ANTENNA COIL	S-1	SELENIUM RECTIFIER - 100 milliampere - 6 plates
L-2	OSCILLATOR COIL	T-1	OUTPUT TRANSFORMER
L-3	1st I. F. TRANSFORMER		
L-4	2nd I. F. TRANSFORMER		

ELECTRICAL SPECIFICATIONS

Power Supply.....105-125 volts, 50-60 cycles, AC

Power Consumption.....30 watts
Frequency Range.....500-1700 Kcs.
Intermediate Frequency.....456 Kcs.
Audio Output.....1.5 watts

LOUDSPEAKER

Permanent Magnet.....5" Diameter

INSTALLATION FACILITIES PROVIDED

Power.....5' cord and plug
Antenna.....10' indoor type
Ground.....None required

TUBE COMPLEMENT

Converter and Oscillator.....12SA7
I.F. Amplifier.....12SK7
Detector-AVC-Audio.....12SQ7
Power Output.....50L6GT
Rectifier.....Selenium
Dial Lamp.....Mazda #6S6

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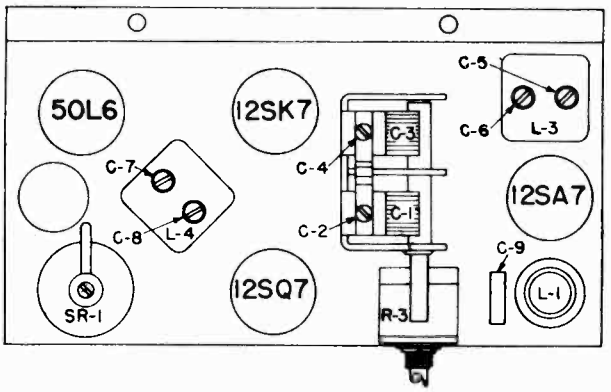


FIG. 1 - Tube and Trimmer Locations (Top View)

ALIGNMENT PROCEDURE

Alignment Frequencies:

I.F. .....456 Kcs.
R.F. .....1500 Kcs.

I. F. Alignment:

Connect output meter across the voice coil. Turn the receiver volume control to maximum. Connect high side of the alignment oscillator, through a .05 mfd. capacitor, to the converter grid.

Set alignment oscillator at 456 Kcs. and adjust output to give the lowest conveniently readable indication on the output meter. Adjust trimmers C-7 and C-8 in 2nd I.F. transformer to give maximum indication on output meter. Repeat this procedure for trimmers C-5 and C-6 in the 1st I.F. transformer. Repeat procedure to check accuracy.

R. F. Alignment:

Retain output meter connected as above and receiver volume control set at maximum. Connect alignment oscillator to antenna.

Set alignment oscillator at 1500 Kcs. and place in operation. Rotate receiver tuning capacitor (C-1 and C-3) to give maximum signal indication on output meter. Adjust output of alignment oscillator to give the lowest conveniently readable indication on the output meter. Adjust oscillator trimmer C-4 to peak the signal indication on output meter. Then, adjust antenna trimmer C-2 to further peak the signal. Repeat procedure to check accuracy.

Trimmer locations are shown in Figure 1.

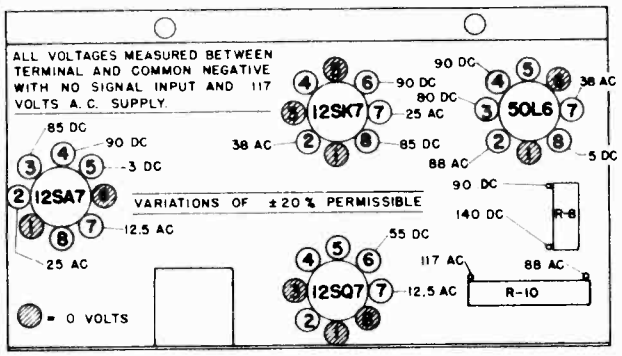


FIG. 2 - Socket Terminal Voltages (Bottom View)

NOTES:

An electronic voltmeter may be connected to the AVC bus and used for alignment indication in lieu of the output meter across the voice coil.

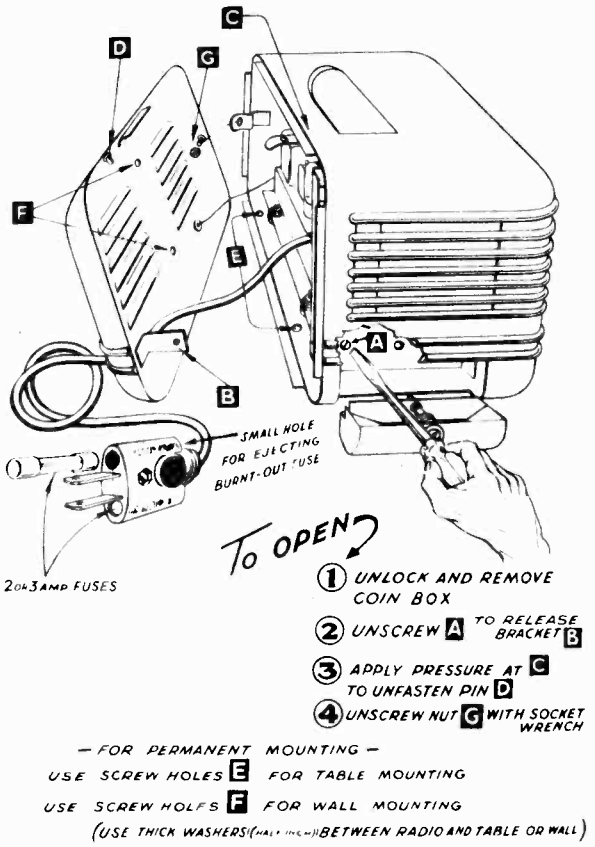
An electronic voltmeter or a voltmeter with a minimum resistance of 20,000 ohms per volt should be used for voltage measurements.

The polarity of the power connection must be correct when operating the receiver on direct current. If the receiver does not operate when the power plug is first inserted, remove and re-insert in opposite position. Reversal of plug position on alternating current supply may reduce hum in some cases.

If the ELECTONE is to be used in a location remote from broadcasting stations or the reception of distant stations is desired, an outdoor antenna and a ground connection may be utilized. The outdoor antenna should be connected to the indoor antenna and the ground lead to the chassis.

GENERAL DESCRIPTION

The Model C5TS3 ELECTONE is a four tube and rectifier super-heterodyne broadcast entertainment receiver designed for operation from either a direct or alternating current power source. The circuit utilizes multi-unit tubes and incorporates automatic volume control. The chassis is enclosed in an all-metal cabinet of modern styling and having the following dimensions: Width 12"; Depth 7"; Height 7".



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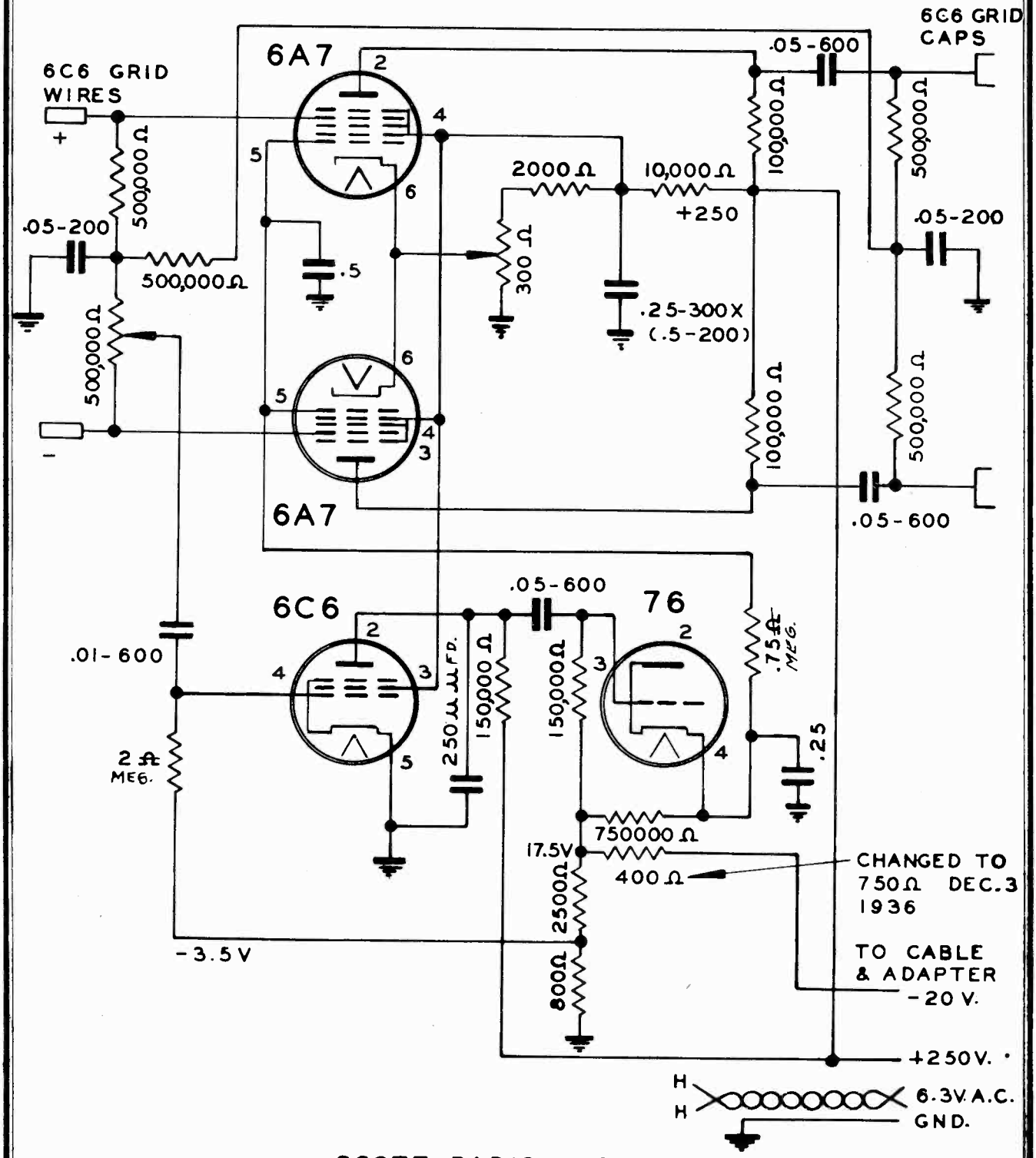
VOL. RANGE EXPANDER



SCOTT RADIO LABORATORIES INC.
CHICAGO 40 ILLINOIS