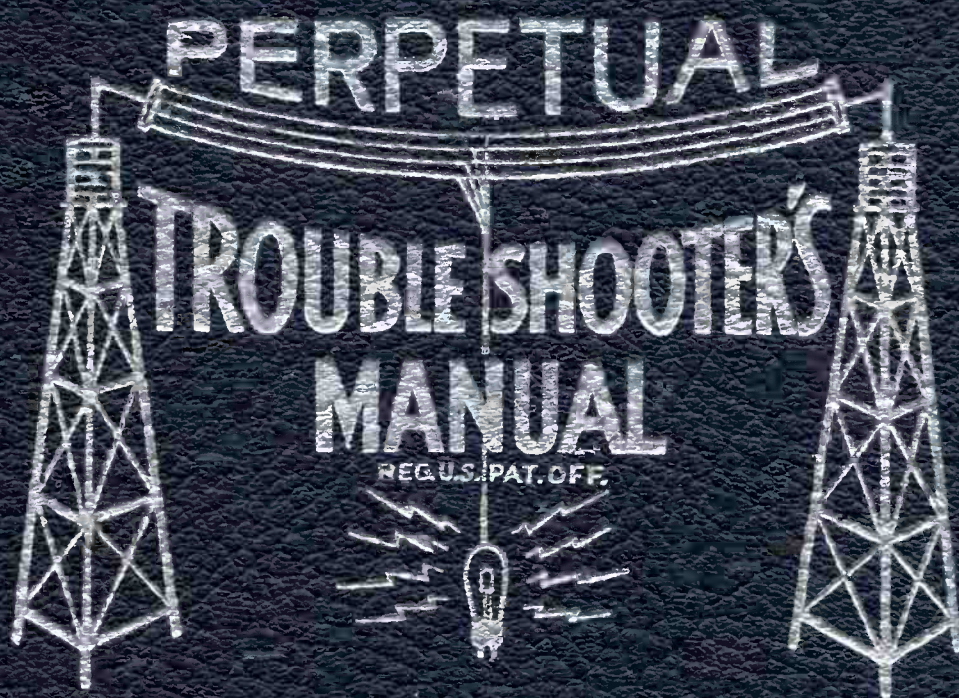


VOLUME X



JOHN F. RIDER



**PERPETUAL**  
**TROUBLE SHOOTER'S MANUAL**  
Reg. U.S. Pat. Off.

**VOLUME X**

by

**JOHN F. RIDER**



**JOHN F. RIDER PUBLISHER, INC.**

**404 Fourth Avenue**

**New York 16, N.Y.**

*Other Books*  
by  
JOHN F. RIDER

---

CATHODE-RAY TUBE AT WORK  
SERVICING SUPERHETERODYNES  
SERVICING RECEIVERS BY MEANS OF RESISTANCE  
MEASUREMENT

PERPETUAL TROUBLE SHOOTER'S MANUAL

VOLUME I  
VOLUME II  
VOLUME III  
VOLUME IV  
VOLUME V  
VOLUME VI  
VOLUME VII  
VOLUME VIII  
VOLUME IX  
VOLUME X  
VOLUME XI  
VOLUME XII  
VOLUME XIII

VOLUMES I TO V ABRIDGED

ALIGNING PHILCO RECEIVERS, VOLUMES I AND II

AUTOMATIC FREQUENCY CONTROL SYSTEMS

FREQUENCY MODULATION

SERVICING BY SIGNAL TRACING

THE OSCILLATOR AT WORK

THE METER AT WORK

VACUUM TUBE VOLTMETERS

AN HOUR A DAY WITH RIDER

ON

RESONANCE AND ALIGNMENT

AUTOMATIC VOLUME CONTROL

ALTERNATING CURRENTS IN  
RADIO RECEIVERS

D-C. VOLTAGE DISTRIBUTION IN  
RADIO RECEIVERS

+

A-C. CALCULATION CHARTS

BY

R. LORENZEN

*The servicing data appearing on Philco, RCA and other pages carrying individual copyright notices, are copyrighted by the respective companies and are reproduced herein with their permission.*

*Entire contents copyrighted 1939 by John F. Rider.*

In order to cooperate with the United States Government, this book has been made in strict conformity with WPB regulations of essential materials. In all other respects it is equivalent to the latest prior edition.

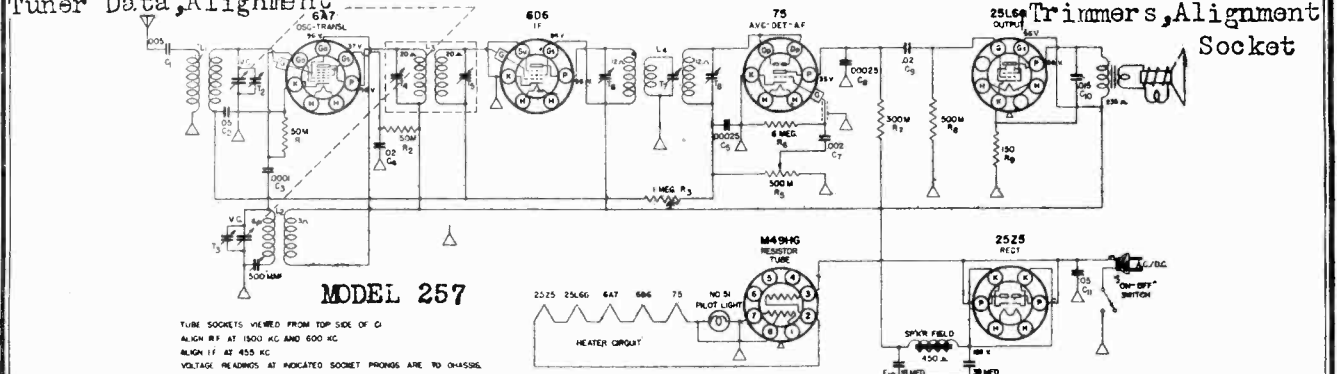
MODEL 912

Schematic, Socket, Trimmers  
Tuner Data, Alignment

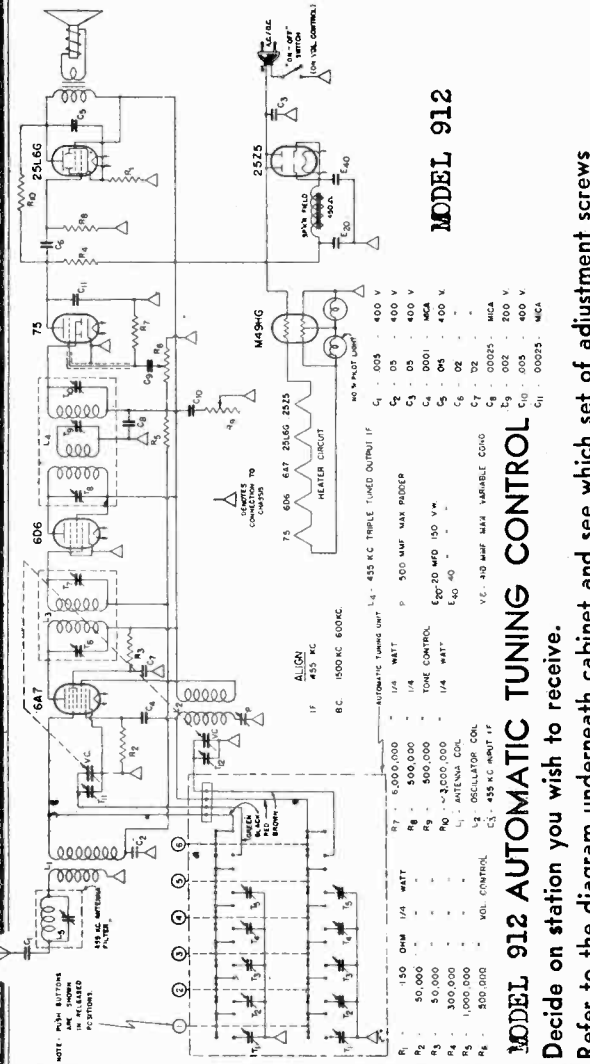
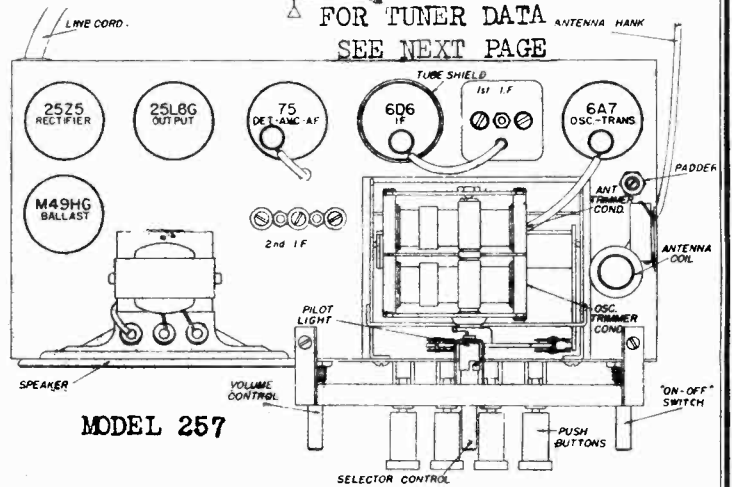
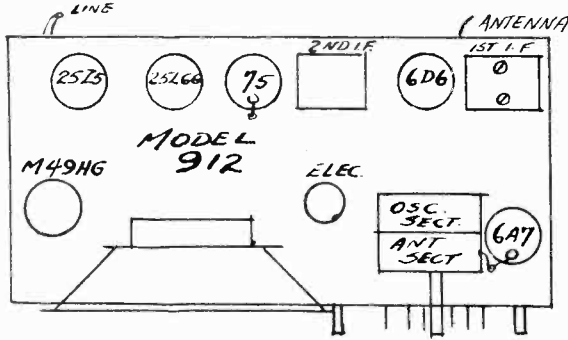
AIR KING PRODUCTS CORP.

MODEL 257

Schematic, Voltage,  
Trimmers, Alignment  
Socket



TUBE SOCKETS VIEWED FROM TOP SIDE OF C  
ALSO R1 AT 1500 KC AND 600 KC  
ALIGN IF AT 455 KC  
VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS



MODEL 912 AUTOMATIC TUNING CONTROL

Decide on station you wish to receive.

Refer to the diagram underneath cabinet and see, which set of adjustment screws will have a tuning range that includes the frequency of the station desired. This is the pair of screws to be adjusted for this particular station. The ranges of the adjustment screws are divided into two groups, one group covering from 530-1100 kc, the other covering from 625-1600 kc.

From the same diagram, after finding where the proper pair of adjustment screws are located, trace dotted line connecting these screws to one of the push buttons. This is the button which, after the adjustments are completed, will tune in the station.

Push button located "IN."

Turn volume control knob on full (to the extreme right) and adjust screw marked "O" until desired station is heard. (In this case until WJZ is heard.) If when making this adjustment, a number of stations can be brought in as the screw is turned and it is doubtful which station is the correct one, press button No. 6 (Manual Tuning) "IN" and move dial pointer by turning station selector knob, to the number on the dial that corresponds to the frequency of the station. (Turn pointer to 76 on the dial. This corresponds to WJZ's frequency 760 kc. The number on the dial must be multiplied by ten to give the frequency in kilocycles.) Listening to the program being broadcast will identify the station when adjusting screw "O."

Adjust screw marked "A" for maximum volume, retarding the volume control and readjusting if necessary. This completes the adjustments for this particular station.

Cut out name of station from list supplied and insert in button.

Insert celluloid disc.

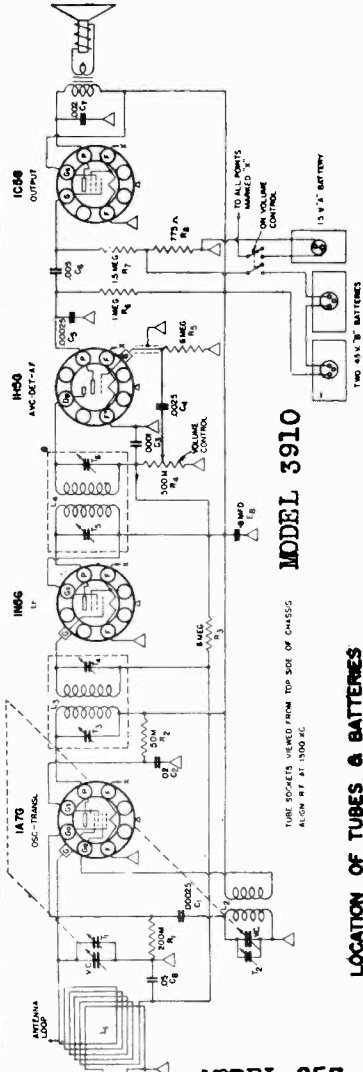
In a like manner, select a station for each of the other buttons (four other buttons) and make necessary adjustments for each station.



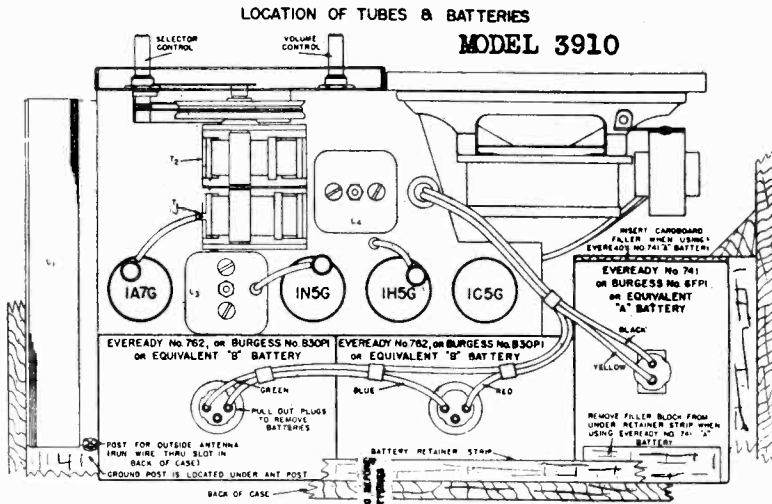
MODEL 257  
Tuner Data  
MODEL 3905  
Schematic, Voltage  
Alignment, Socket

AIR KING PRODUCTS CORP.

MODEL 3910  
Schematic, Socket



MODEL 3910



MODEL 3910

MODEL 257

**AUTOMATIC TUNING:** There are four push buttons on the front panel which can be set so that by simply pushing the button marked with a station's call letters, any of four different stations may be received.

Allow the receiver to warm up for 20 minutes before making the station adjustments.

Decide on the station you wish to receive.

Tune to this station as accurately as possible with the selector knob.

Next, push in this button as far as possible, being careful not to disturb the station setting on the dial.

Turn this push button knob about one turn to the left, or until it starts to unscrew easily.

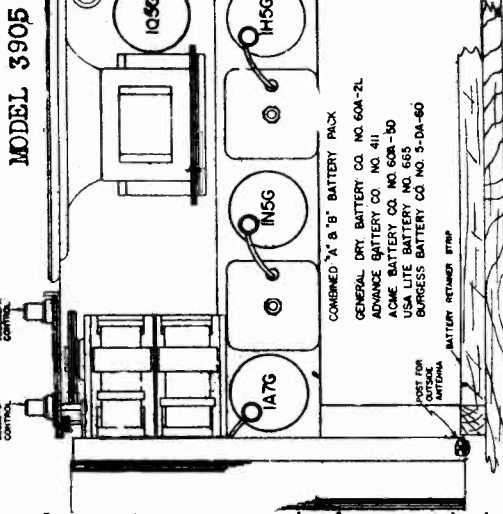
Holding the button at the "IN" position, screw the push button knob to the right until it is tight.

Cut out name of station from list supplied and insert in face of button.

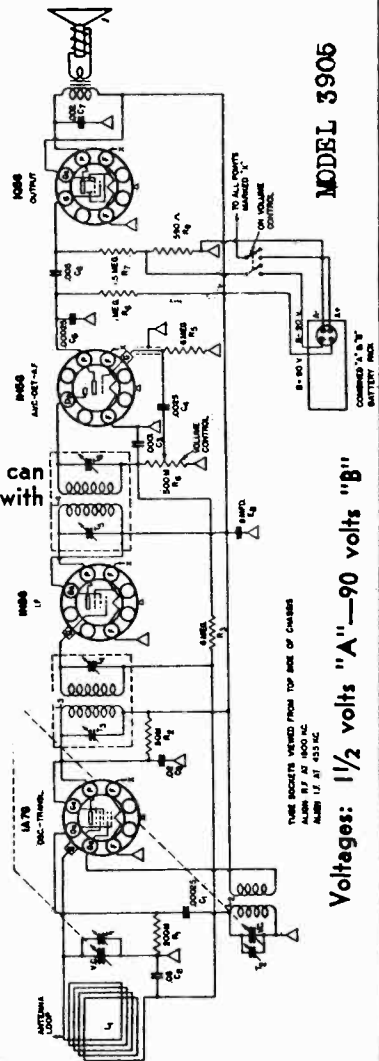
Insert celluloid disk.

This completes the adjustments for one station. The three other buttons may be set in a similar manner.

MODEL 3905



MODEL 3905

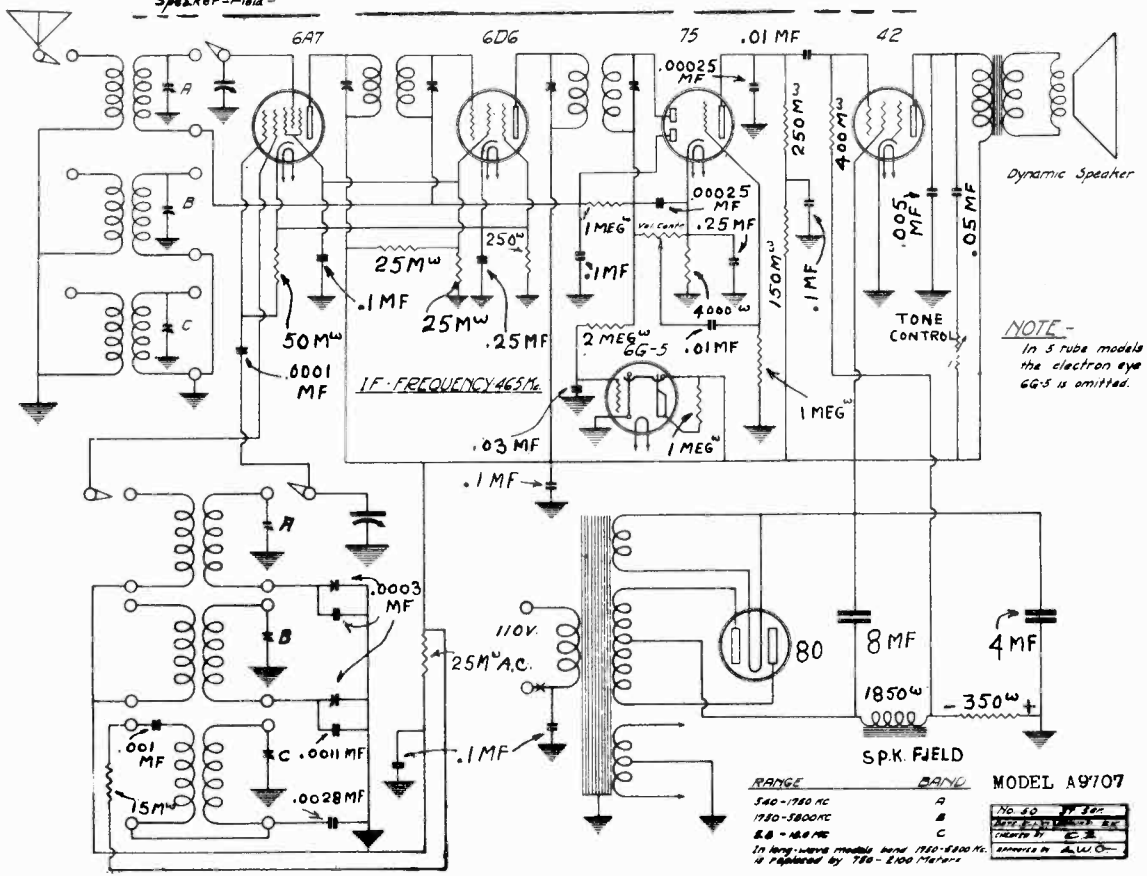
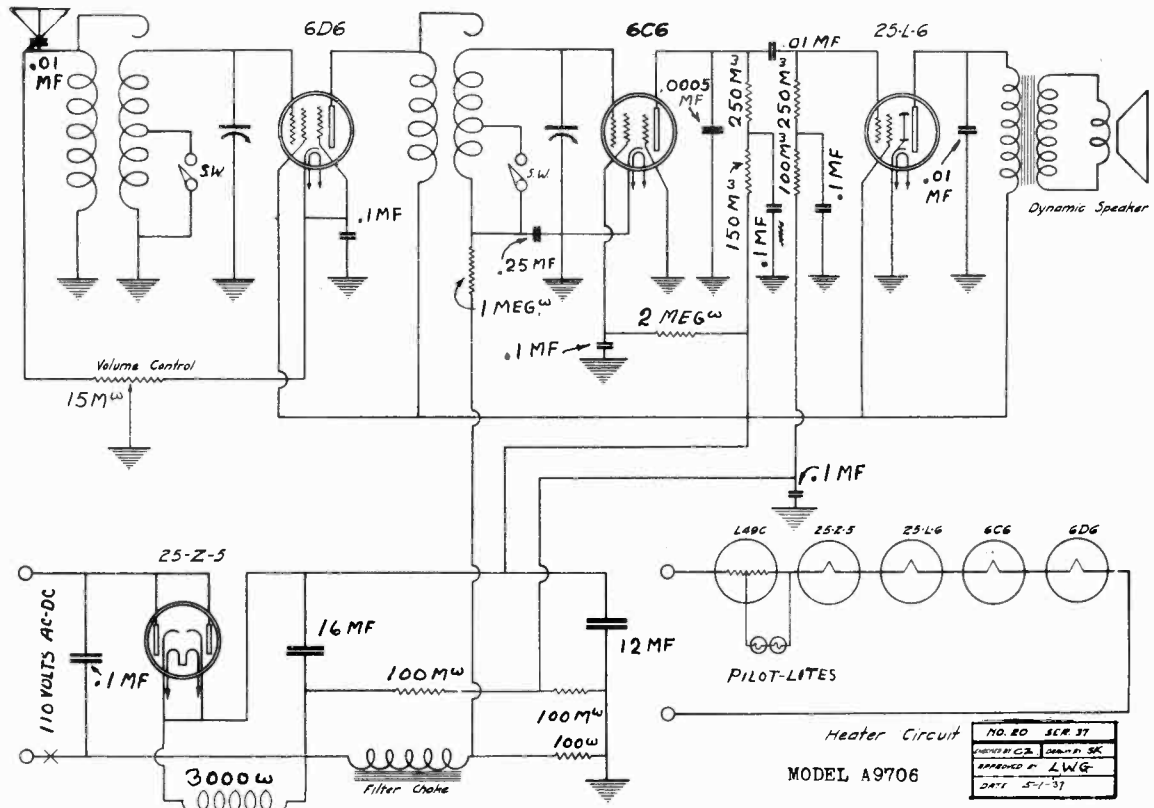


MODEL 3905

Voltages: 1 1/2 volts "A"—90 volts "B"

ALLIED RADIO CORP.

MODEL A-9706  
MODEL A-9707  
Schematics



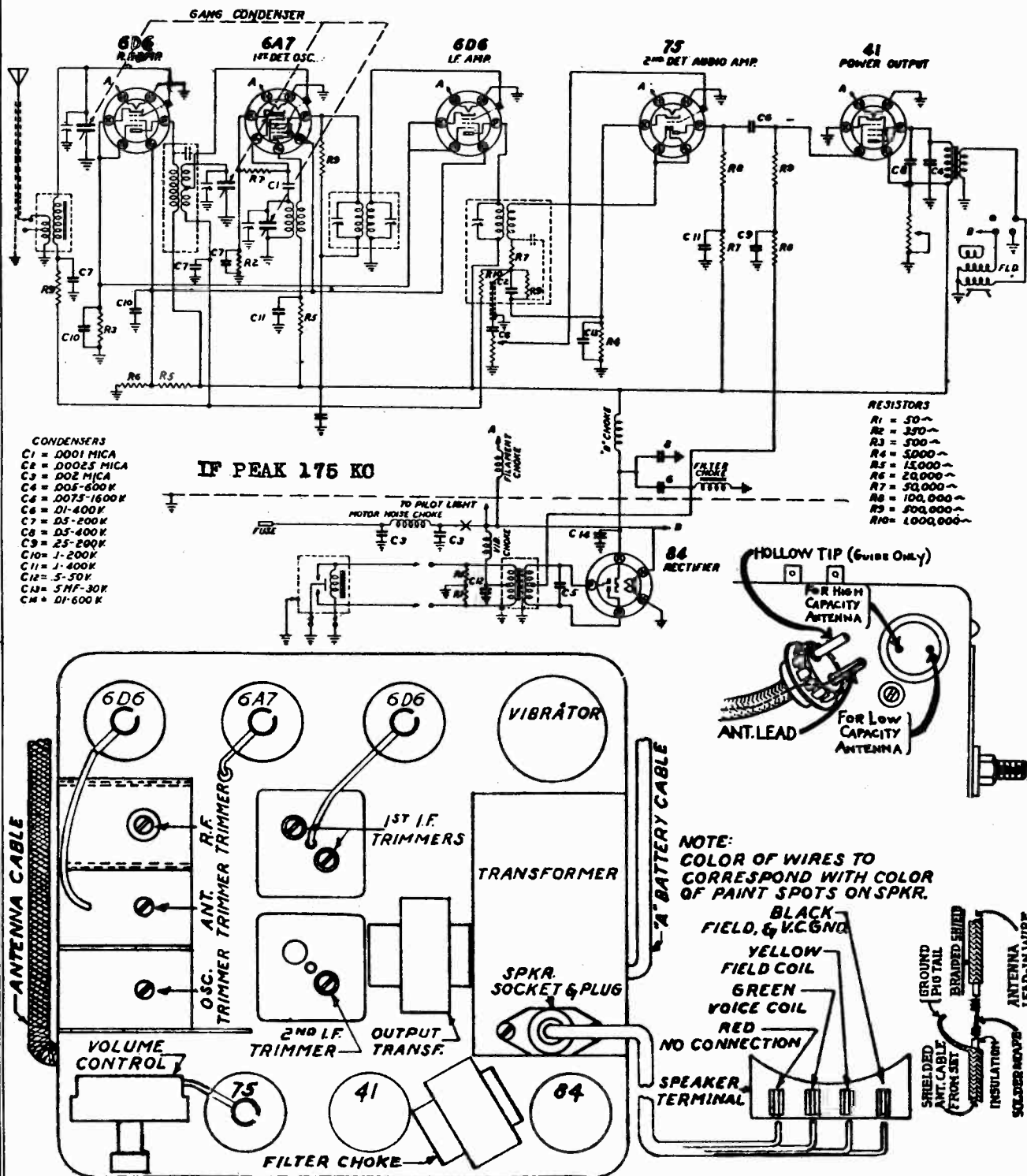


MODELS A-9780, A-9781

Chassis B-6

Schematic, Socket, Alignment  
Trimmers

ALLIED RADIO CORP.



**IF ALIGNMENT** - Adjust Generator to 175 KC, connect output to grid of 6A7, the omission of series cond and resistor to block out AVC action. Generator grounded to chassis. Align trimmers of IF transformers (three).

**OSCILLATOR** - Adjust Generator to 1400 KC, connect through 100 MMFD cond. to the antenna of receiver. Adjust 1st section of gang condenser trimmer to max. peak.

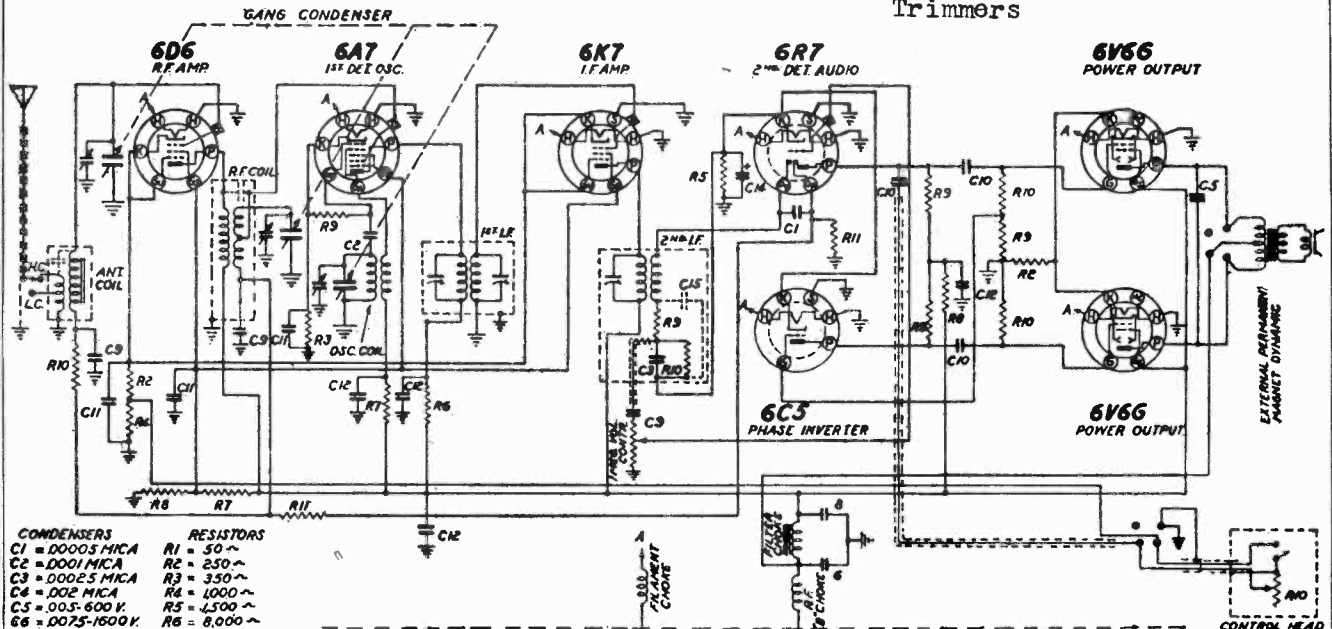
**RF ALIGNMENT** - Adjust the Antenna and RF trimmers on gang condenser to maximum peak at 1400 KC. Repeat all adjustments for maximum performance.

ALLIED RADIO CORP.

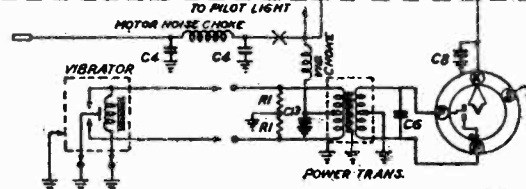
MODEL A-9784

Chassis B-8

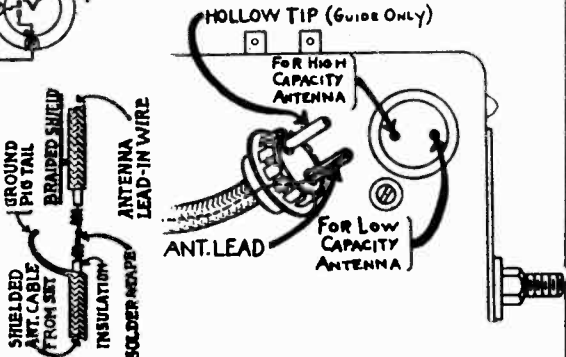
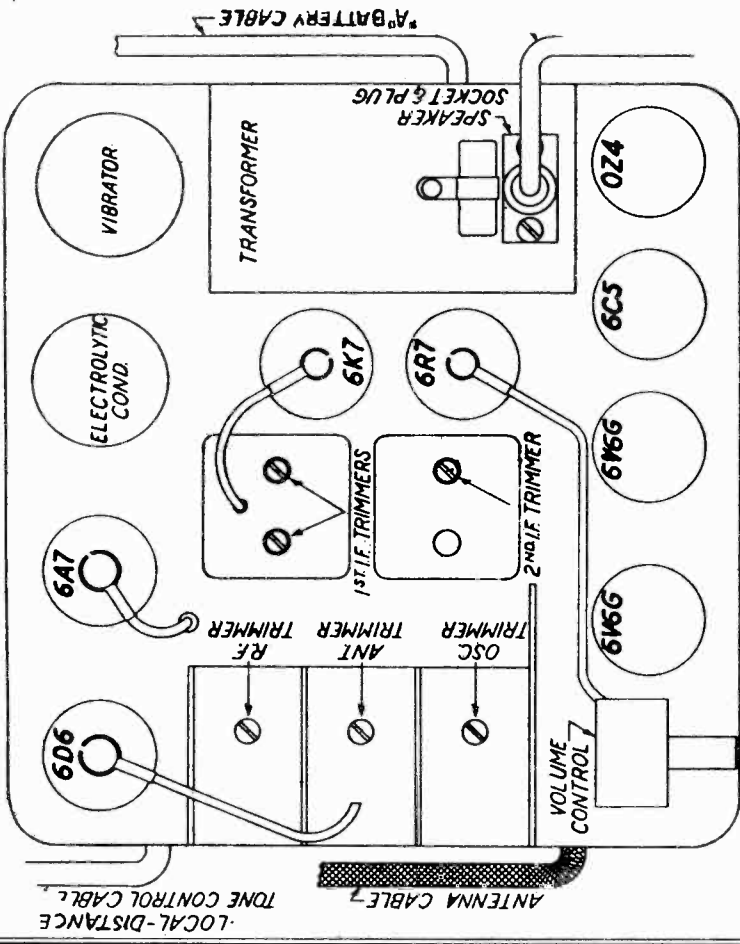
Schematic, Socket, Alignment Trimmers



- | CONDENSERS       |                   | RESISTORS        |                        |
|------------------|-------------------|------------------|------------------------|
| C1 = 00005 MICA  | R1 = 50 $\sim$    | C7 = .01-200K    | R7 = 15,000 $\sim$     |
| C2 = 0001 MICA   | R2 = 250 $\sim$   | C8 = .01-600V    | R8 = 20,000 $\sim$     |
| C3 = 00025 MICA  | R3 = 350 $\sim$   | C9 = .25-200K    | R9 = 30,000 $\sim$     |
| C4 = .002 MICA   | R4 = 1,000 $\sim$ | C10 = .25-400K   | R10 = 250,000 $\sim$   |
| C5 = .005-600V   | R5 = 4,500 $\sim$ | C11 = .1-200V    | R11 = 1,000,000 $\sim$ |
| C6 = .0075-1600V | R6 = 8,000 $\sim$ | C12 = .1-400V    |                        |
|                  |                   | C13 = .5-50V     |                        |
|                  |                   | C14 = .5 ELEC.   |                        |
|                  |                   | C15 = 00025 MFD. |                        |
- CAPACITY WINDING



IF PEAK 175 KC.



ALIGNMENT

**I.F. ALIGNMENT.** Adjust the test oscillator to 175 K.C. and connect the output directly to the grid of the first detector tube (6A7), without the use of any series condenser or resistor; the omission of series condenser and resistor to block out the AVC action. The ground on the test oscillator can be connected to the chassis ground. Align the trimmers of the first and second I.F. transformers to peak or maximum reading on the output meter.

**OSCILLATOR ALIGNMENT.** Adjust the test oscillator to 1400 K.C. and connect the output to the antenna through a .001 mfd. mica condenser to give the equivalent of a low capacity type average auto antenna. Set the dial pointer to 1400 K.C. and adjust the oscillator trimmer to peak. (Front section of gang condenser.)

**R.F. ALIGNMENT.** The next step is to adjust the center and rear trimmers of the gang condenser to peak. The center section of the gang condenser tunes the antenna amplifier stage (6D6 tube), and the rear condenser section tunes the detector grid coil of the 6A7 tube.

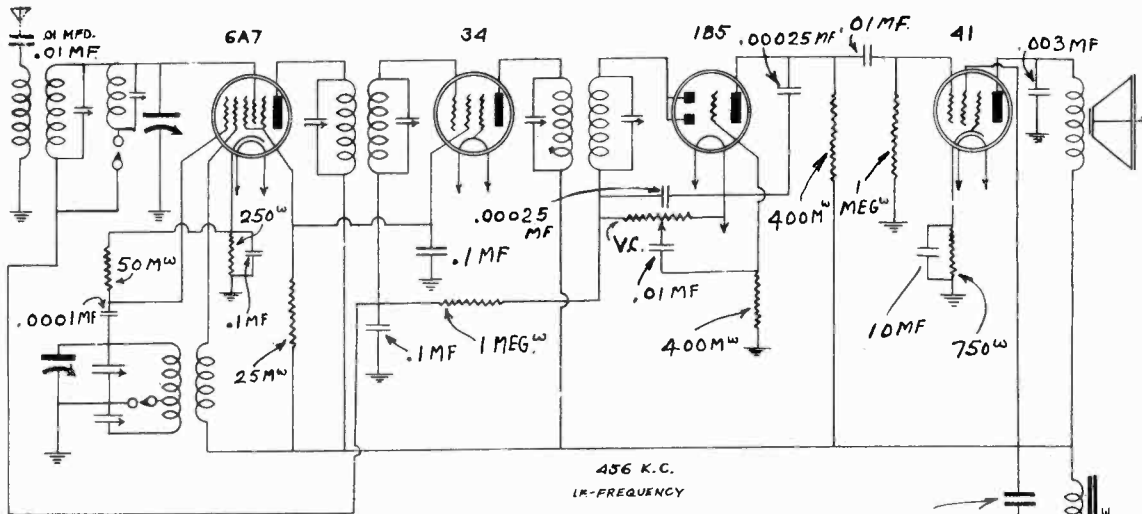


MODEL A-9809

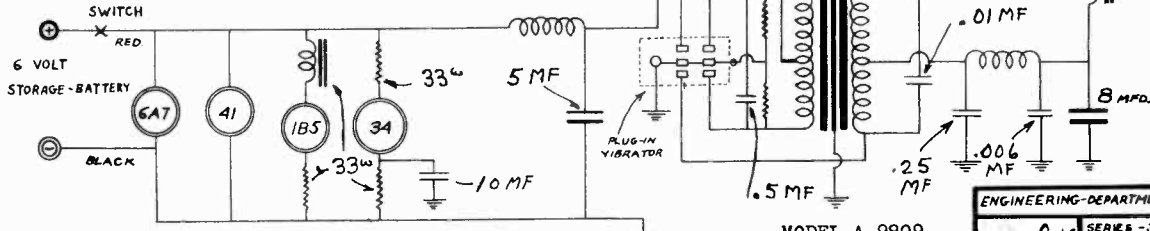
MODEL A-9811

Schematics

ALLIED RADIO CORP.



4 TUBE SUPERHETERODYNE.  
6 VOLT STORAGE BATTERY OPERATION.

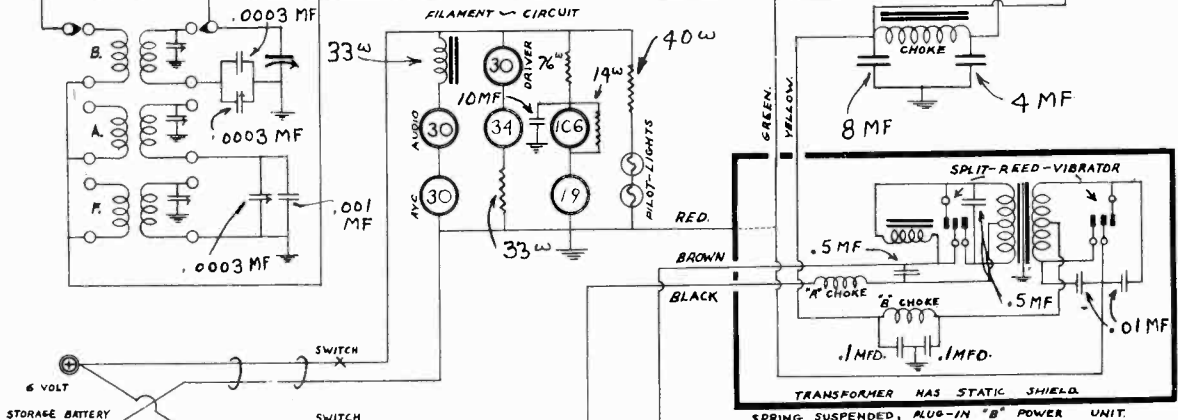
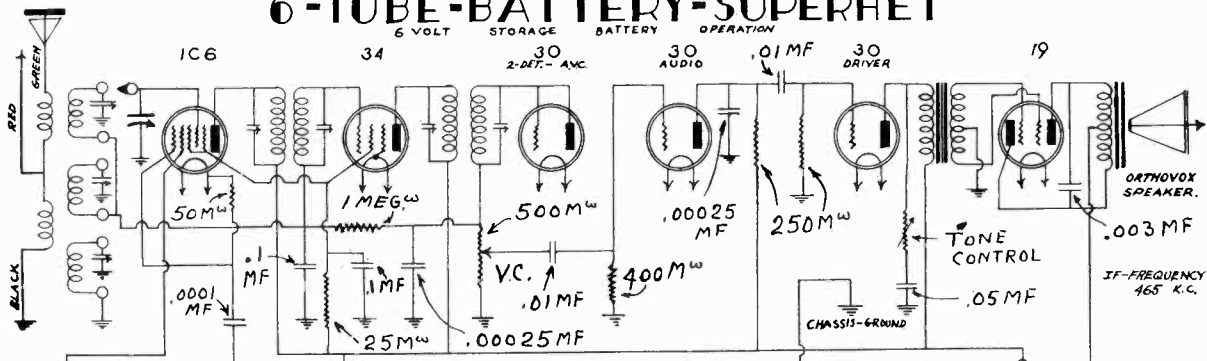


MODEL A 9809

ENGINEERING DEPARTMENT  
RPR BY *DWG* SERIES -37  
480

6-TUBE-BATTERY-SUPERHET

6 VOLT STORAGE BATTERY OPERATION



MODEL A9811

CIRCUIT DIAGRAM FOR UNITS  
STARTING FROM SERIAL NUMBER - 10703

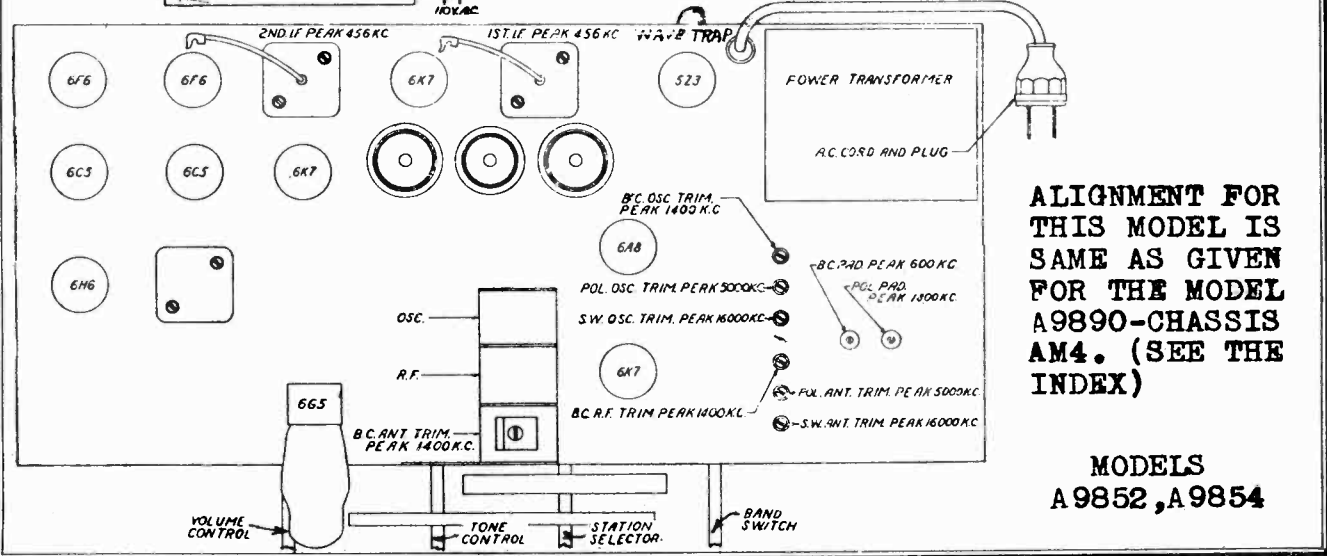
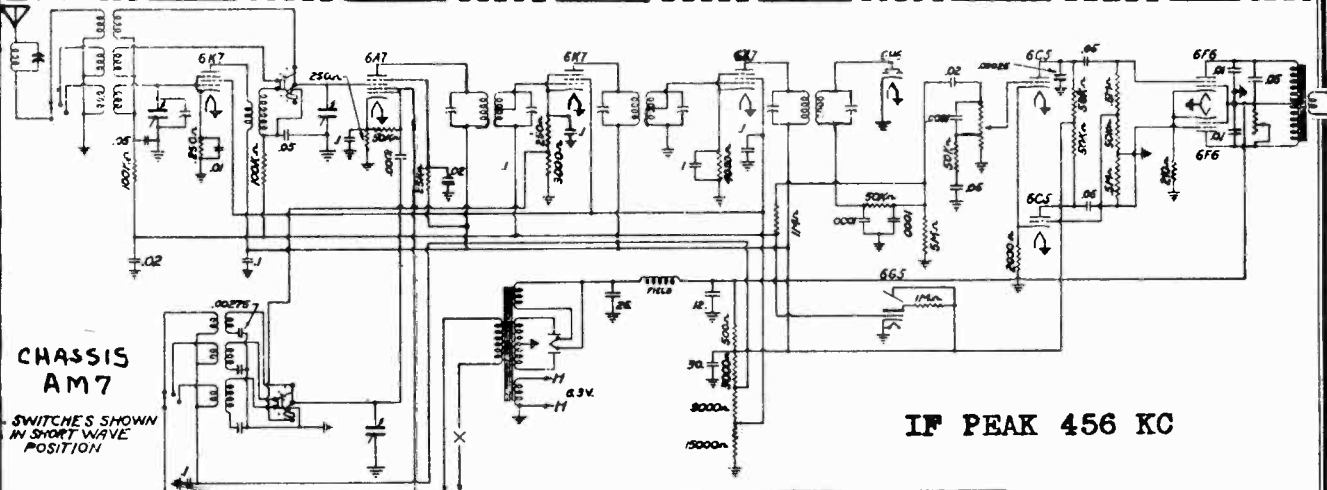
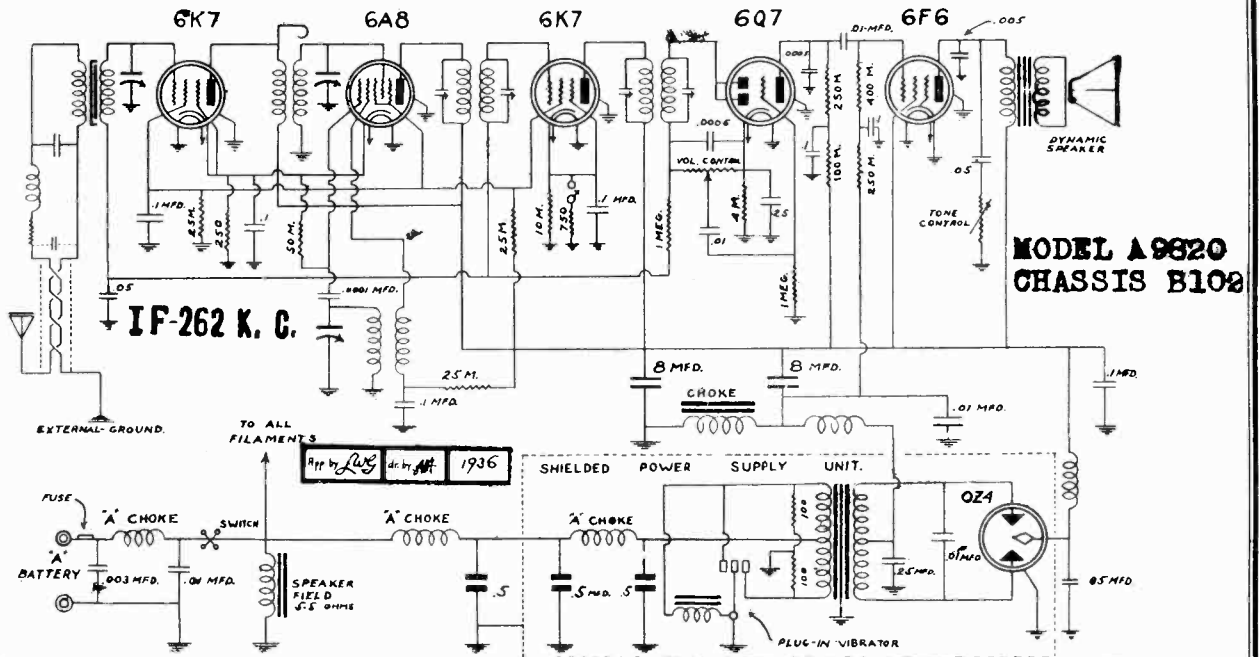
ENGINEERING DEPARTMENT  
RPR BY *DWG* *AN* 1936  
MODEL

MODELS A-9852, A-9854  
Chassis AM-7  
Schematic, Socket  
Trimmers, Alignment

ALLIED RADIO CORP.

MODEL A-9820  
Chassis B-102  
Schematic

6-TUBE - AUTO - SUPERHET  
"DE-LUXE" MODEL



ALIGNMENT FOR THIS MODEL IS SAME AS GIVEN FOR THE MODEL A9890-CHASSIS AM4. (SEE THE INDEX)

MODELS A9852, A9854



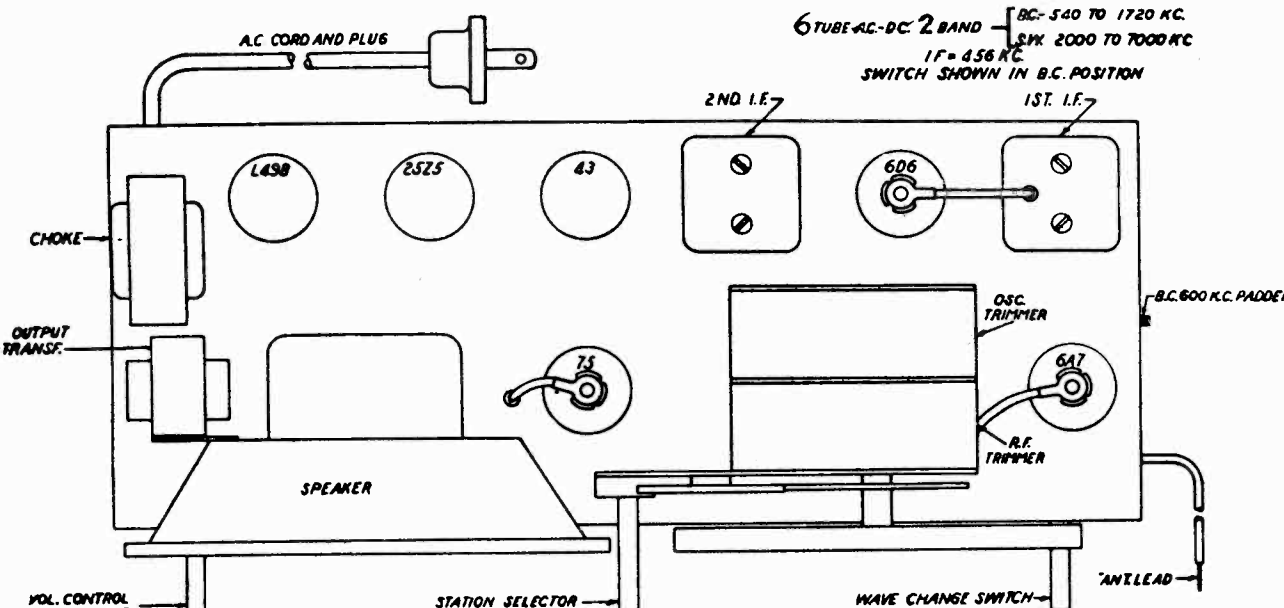
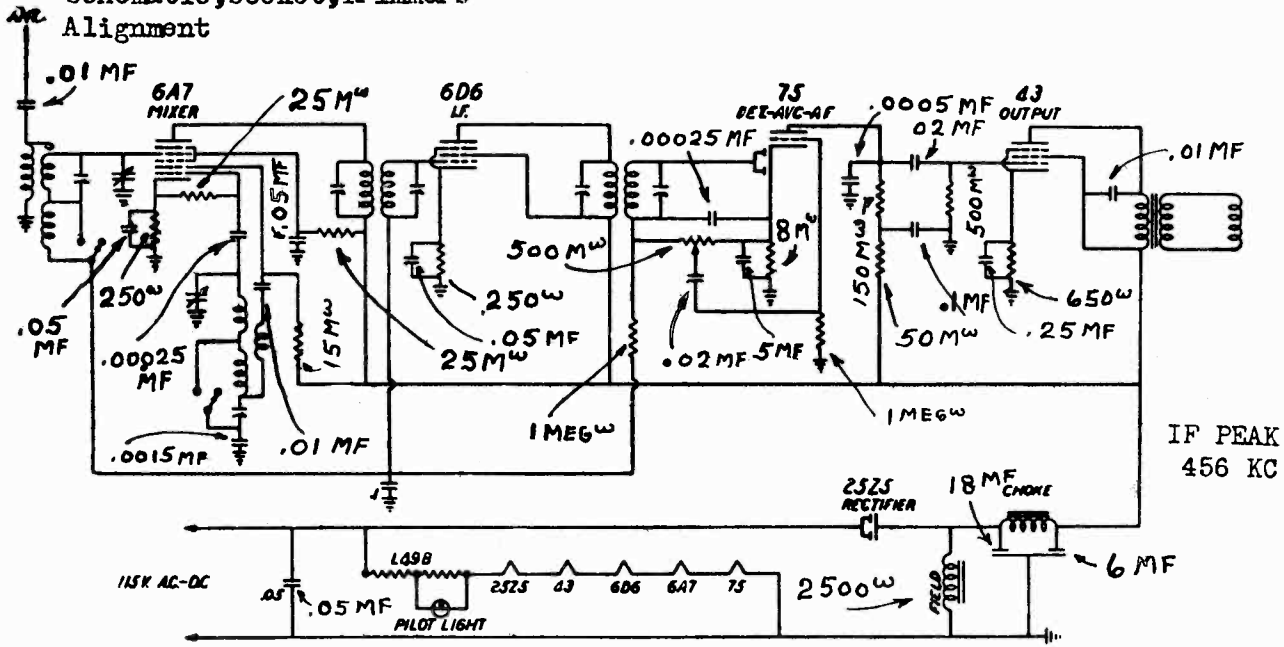
ALLIED RADIO CORP.

MODEL A-9851

Chassis B-2

Schematic, Socket, Trimmers

Alignment



ALIGNMENT DATA

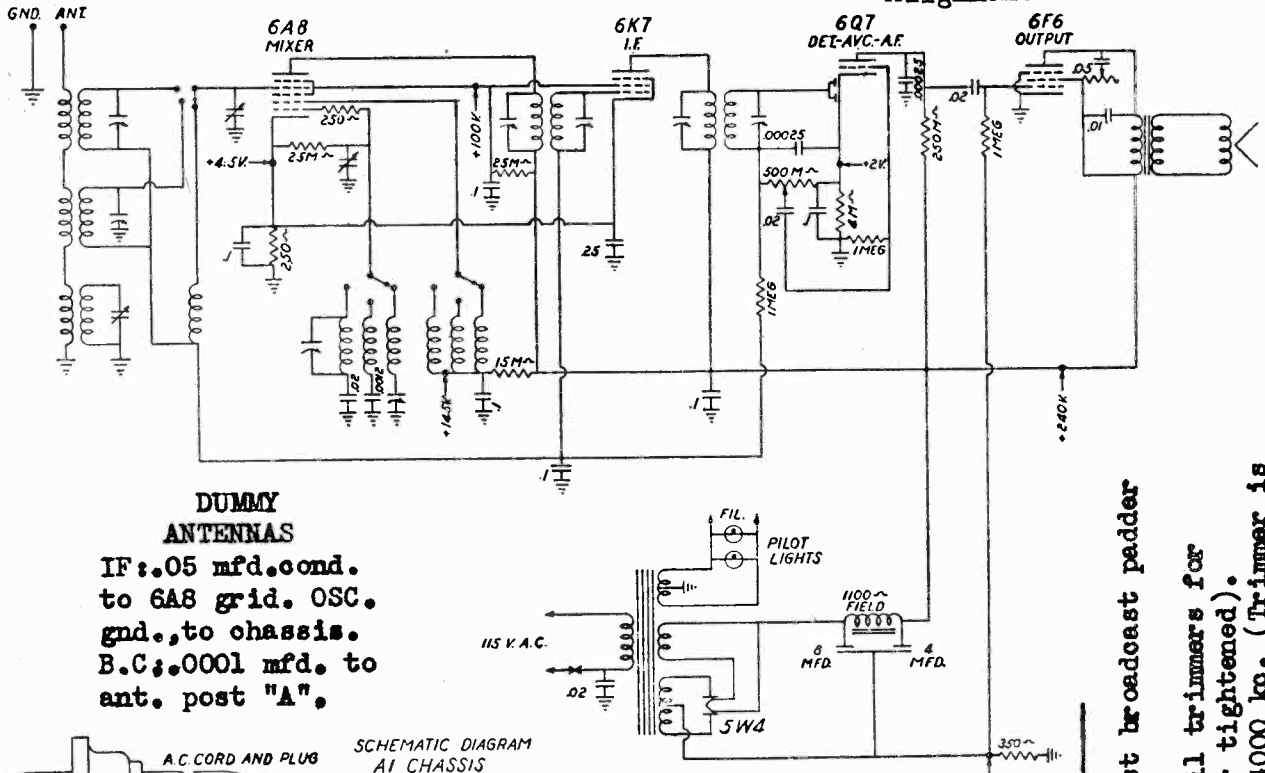
**INTERMEDIATE FREQUENCY** - Connect the Signal Generator to Grid of 6A7 tube through a .05 MFD. condenser. Ground Generator to Ground of Chassis. Set Generator at 456 KC and adjust Trimmers on IF Transformers for maximum peak.

**BROADCAST BAND** - Connect the Generator to the Antenna of receiver through a .0001 MFD condenser. Ground Generator to Ground of Chassis. Range switch in Broadcast Position. Set Generator to 1400 KC and adjust Oscillator and RF Trimmers to Maximum peak. Dial of Receiver set on 1400 KC.

Pad the Broadcast Band at 600 KC, rocking the variable condenser during the adjustment.

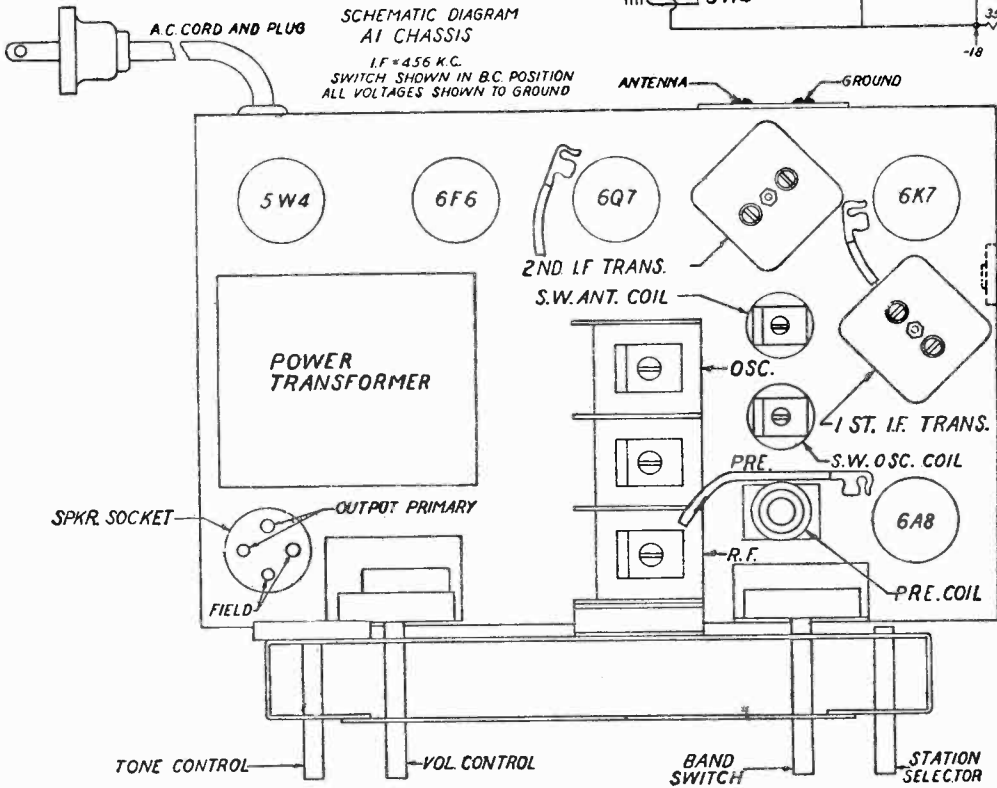
**SHORTWAVE BAND** - Set Receiver and Generator to 6000 KC. Range switch in SW Position. Adjust SW Antenna Trimmer for maximum peak. No Oscillator adjustment is needed on this range.

ALLIED RADIO CORP. MODELS A-9857, A-9857E  
 Chassis A-1  
 Schematic, Socket, Trimmers Alignment



**DUMMY ANTENNAS**  
 IF: .05 mfd. cond. to 6A8 grid. OSC. gnd., to chassis. B.C.: .0001 mfd. to ant. post "A",

**SCHEMATIC DIAGRAM A1 CHASSIS**  
 I.F. = 456 K.C.  
 SWITCH SHOWN IN B.C. POSITION  
 ALL VOLTAGES SHOWN TO GROUND



**Five Tube AC Superheterodyne**

**A1 Chassis**

This receiver is designed to operate from a power supply main of 110-120 volts, 60 cycle alternating current (AC). Never plug into a DC outlet.

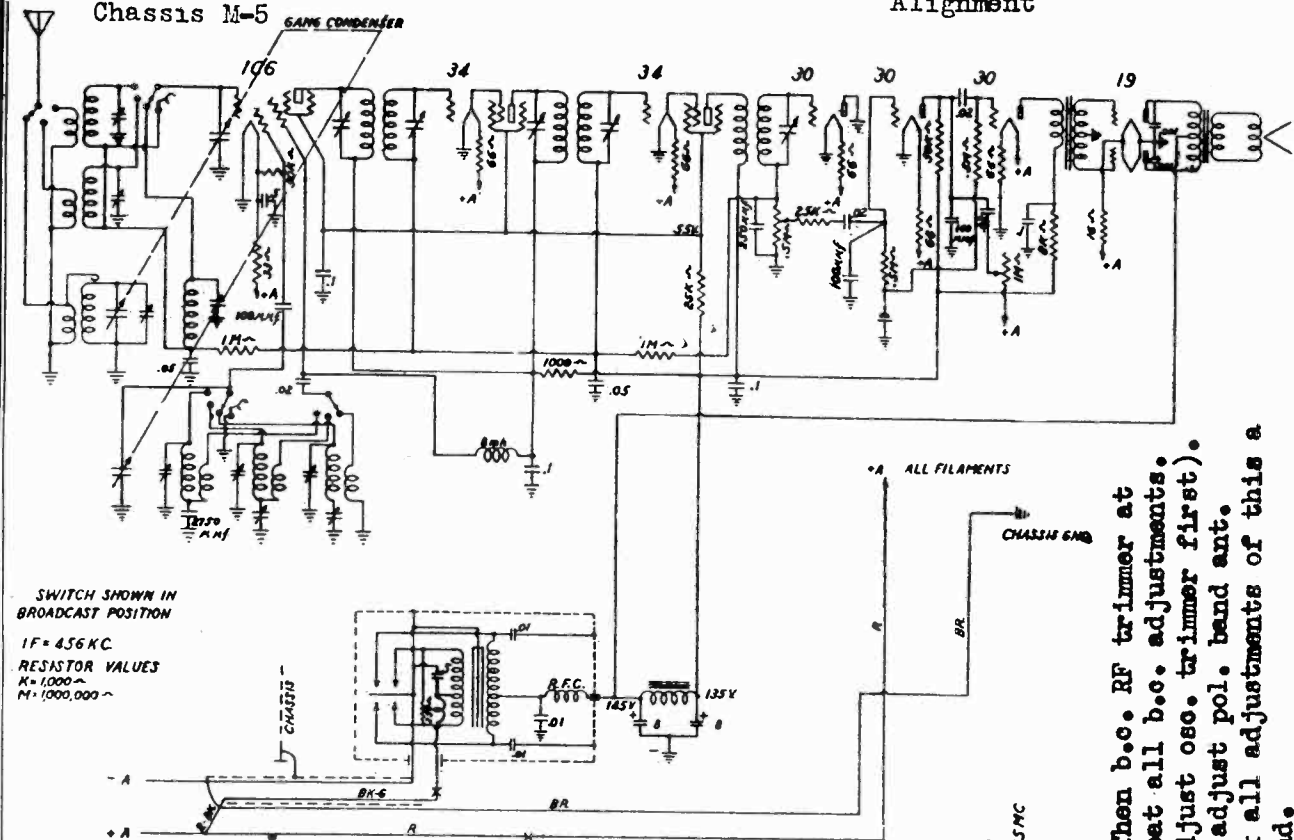
**CONVENTIONAL ALIGNMENT. SEE SPECIAL SECTION VOL. VIII.**  
**IF:** Peak all four IF trimmers at 456 kc.  
**BROADCAST BAND:** Adjust oscillator trimmer at 1400kc. Adjust broadcast padder at 600kc. Then repeat adjustment at 1400kc.  
**FOREIGN BAND:** Adjust s.w. oscillator and s.w. antenna coil trimmers for 14000kc peak. (Start with osc. trimmer loose, ant. trimmer tightened).  
**POLICE BAND:** Adjust antenna coil trimmer to resonance at 4000 kc. (Trimmer is located on top of the chassis, right front corner alongside wave band switch).

MODELS A-9861, A-9862, A-9863

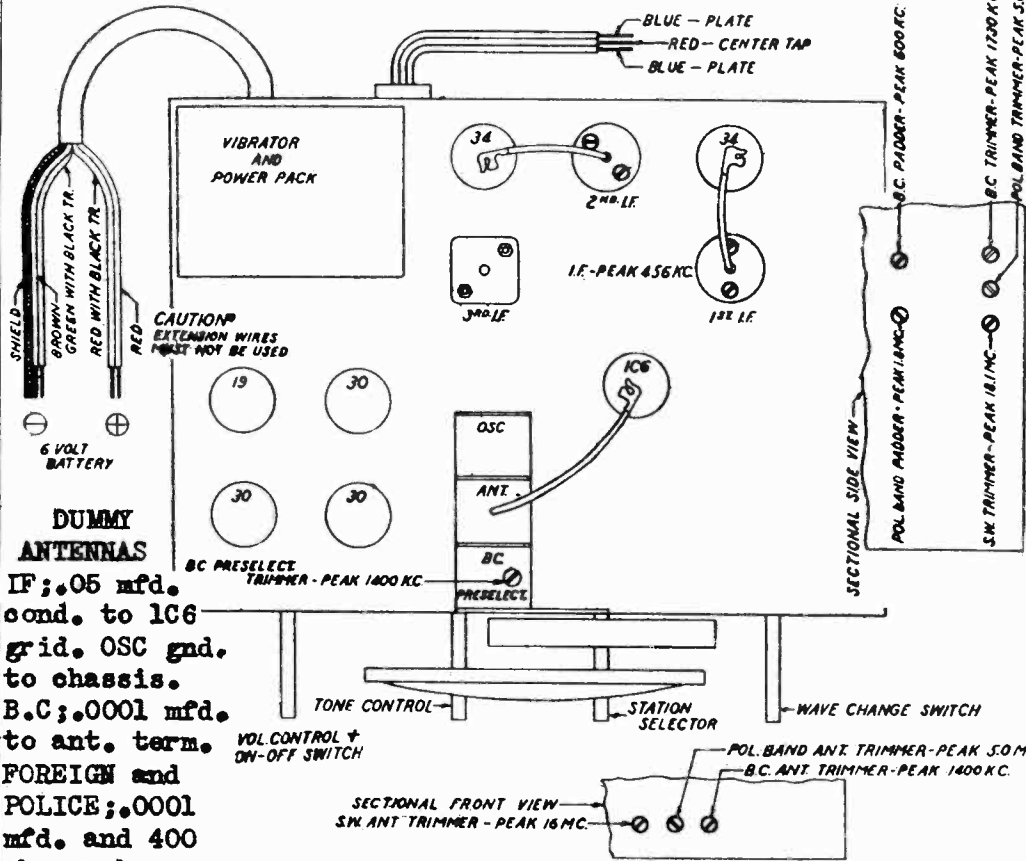
A-9864, A-9865, A-9866 ALLIED RADIO CORP.

Schematic, Socket, Trimmers Alignment

Chassis M-5



SWITCH SHOWN IN BROADCAST POSITION  
 IF = 456 KC  
 RESISTOR VALUES  
 A = 1,000  
 M = 1,000,000



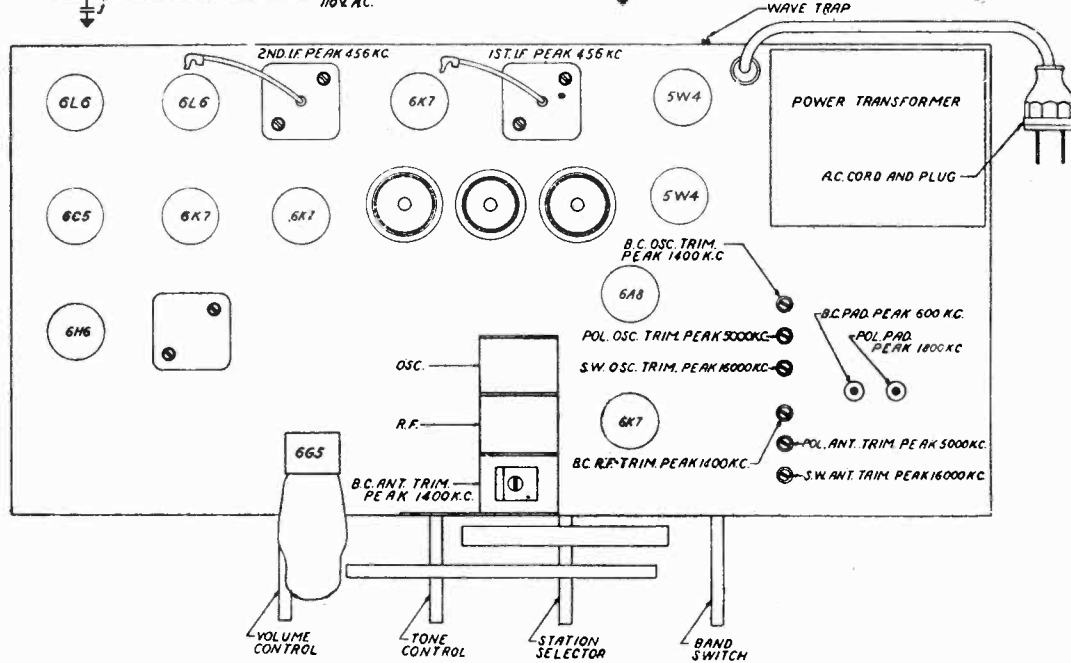
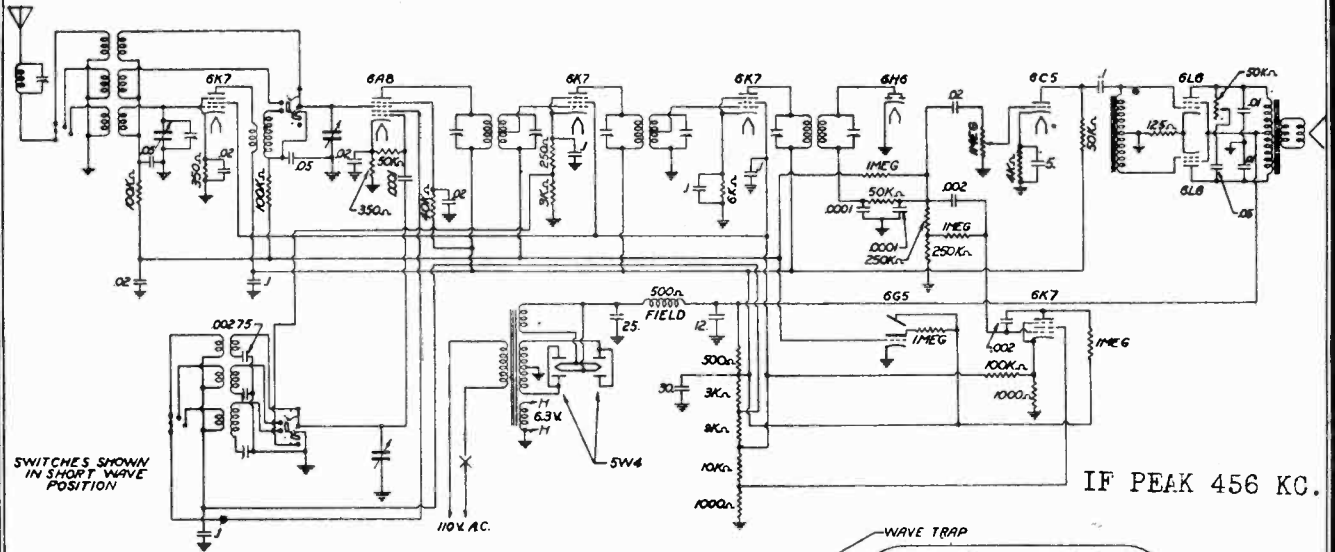
**6 Volt Battery Superheterodyne  
 M5 Chassis**

IF; .05 mfd. cond. to 1C6 grid. OSC gnd. to chassis. B.C; .0001 mfd. to ant. term. FOREIGN and POLICE; .0001 mfd. and 400 ohm carbon resistor in series, to ant. term.

CONVENTIONAL ALIGNMENT, SEE SPECIAL SECTION VOL. VII.  
 IF: Align all five IF trimmers at 456 kc.  
 BROADCAST BAND: Peak b.c. preselect. trimmer at 1400 kc. Then b.c. RF trimmer at 1400 kc. Adjust b.c. osc. padder at 600 kc. for peak. Repeat all b.c. adjustments.  
 FOREIGN BAND: Peak SW osc. and SW trimmer at 14000 kc. (adjust osc. trimmer first).  
 POLICE BAND: Peak pol. band osc. trimmer at 4000 kc. Then adjust pol. band ant. trimmer to peak. Adjust pol. band padder at 1800 kc. Check all adjustments of this a band. These three adjustments are all required on this band.



MODEL A-9891  
 ALLIED RADIO CORP. Chassis AM-4  
 Schematic, Socket, Trimmers  
 Alignment



**ALIGNMENT DATA**

**IF ALIGNMENT** - Wave change switch on BC position. Generator connected to grid of 6A8 thru a .05 MFD condenser, and align six IF trimmers to peak.

**BROADCAST** - Connect Generator to ANT lead thru 1000 MMFD condenser. Receiver, Generator set to 1400 KC, adjust Oscillator trimmer to peak, then RF trimmers. Pad the Oscillator circuit at 600 KC while rocking variable condenser.

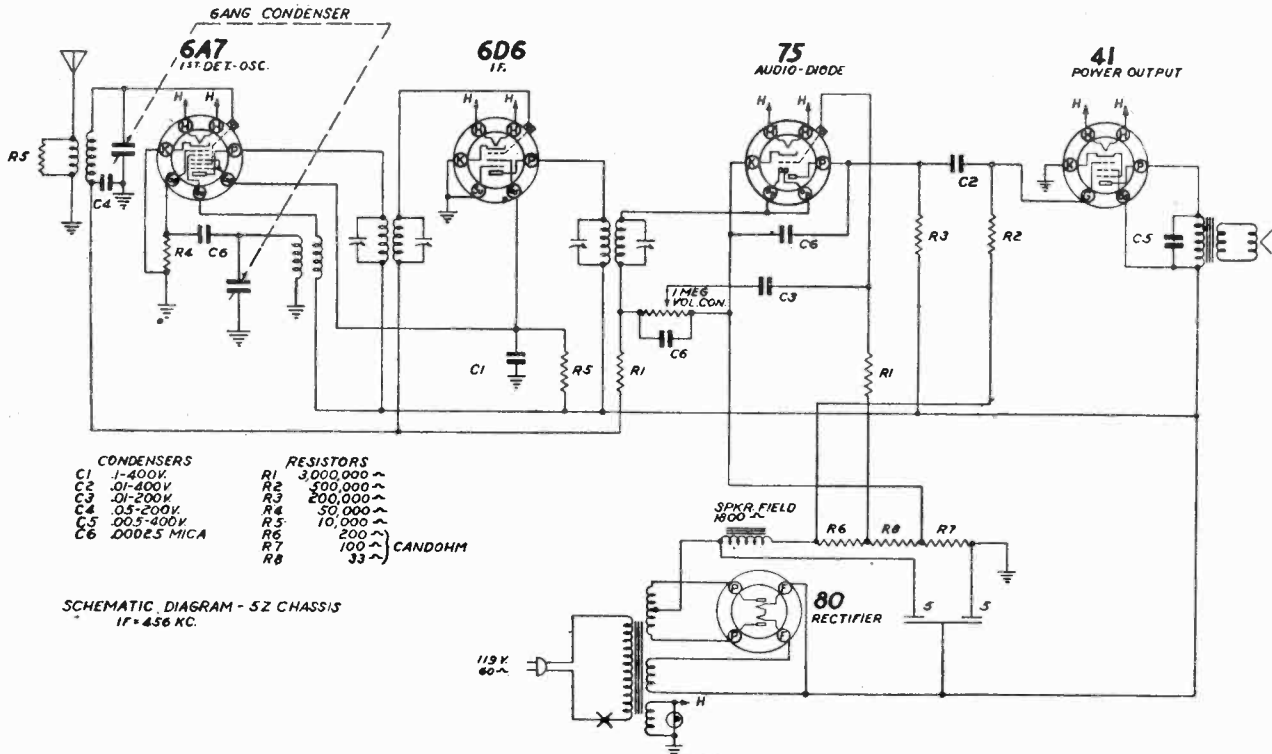
**POLICE** - Replace 1000 MMFD condenser with 400 ohm resistor in series with 100 MMFD condenser and connect Generator to ANT lead. Generator and receiver set to 4000 KC, adjust Oscillator and ANT Police trimmers to maximum peak. Reset the Generator and receiver to 1800 KC, rock variable condenser while padding OSC.

**FOREIGN** - Set Generator and Receiver to 14000 KC, adjust Oscillator trimmer, and the Foreign ANT trimmer to peak. Readjust receiver to 13100 KC, generator still at 14000 KC and check for image response which should be weaker. Adjustments should be started with oscillator trimmer loose and ANT trimmer tight. Repeat all adjustments for maximum performance of the receiver.

**WAVE TRAP** - Used only in event of code interference, adjusted to 456 KC.

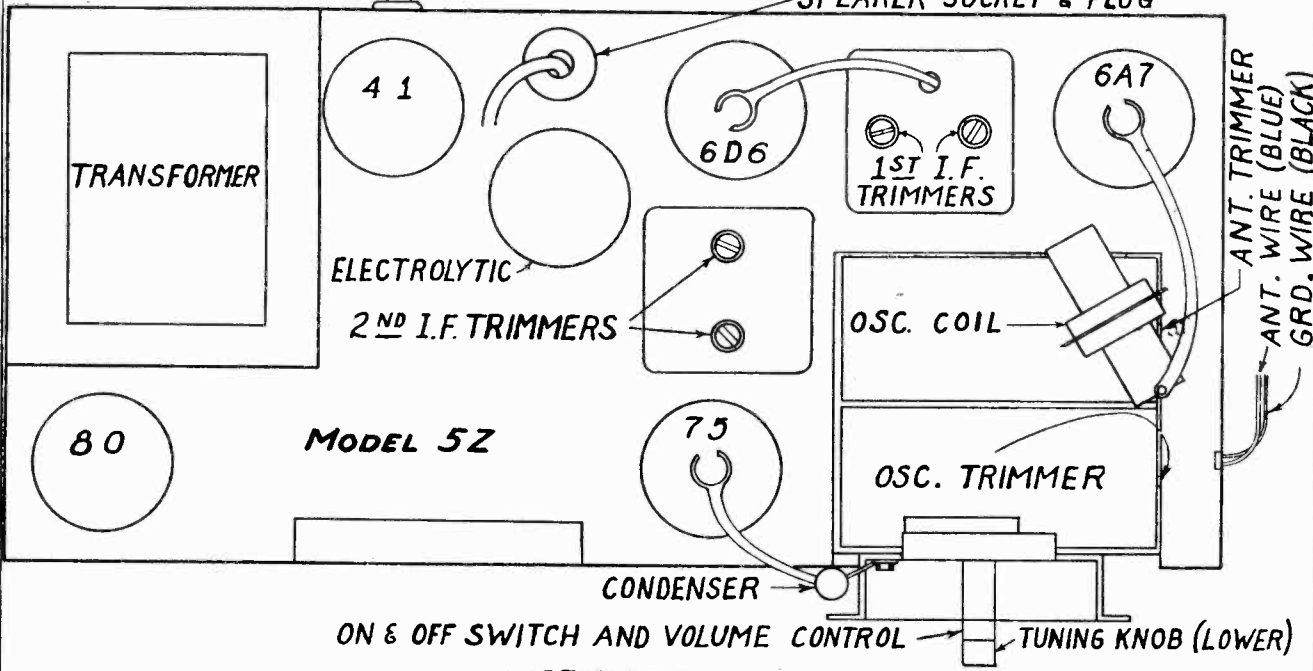
MODELS A-10500, A-10501  
 Chassis 5Z  
 Schematic, Socket, Trimmers  
 Alignment

ALLIED RADIO CORP.



<b>CONDENSERS</b>	<b>RESISTORS</b>
C1 1-400V	R1 3,000,000 Ω
C2 .01-400V	R2 500,000 Ω
C3 .01-200V	R3 200,000 Ω
C4 .05-200V	R4 50,000 Ω
C5 .005-400V	R5 10,000 Ω
C6 .00025 MICA	R6 200 Ω
	R7 100 Ω
	R8 33 Ω

SCHEMATIC DIAGRAM - 5Z CHASSIS  
 IF = 456 KC.

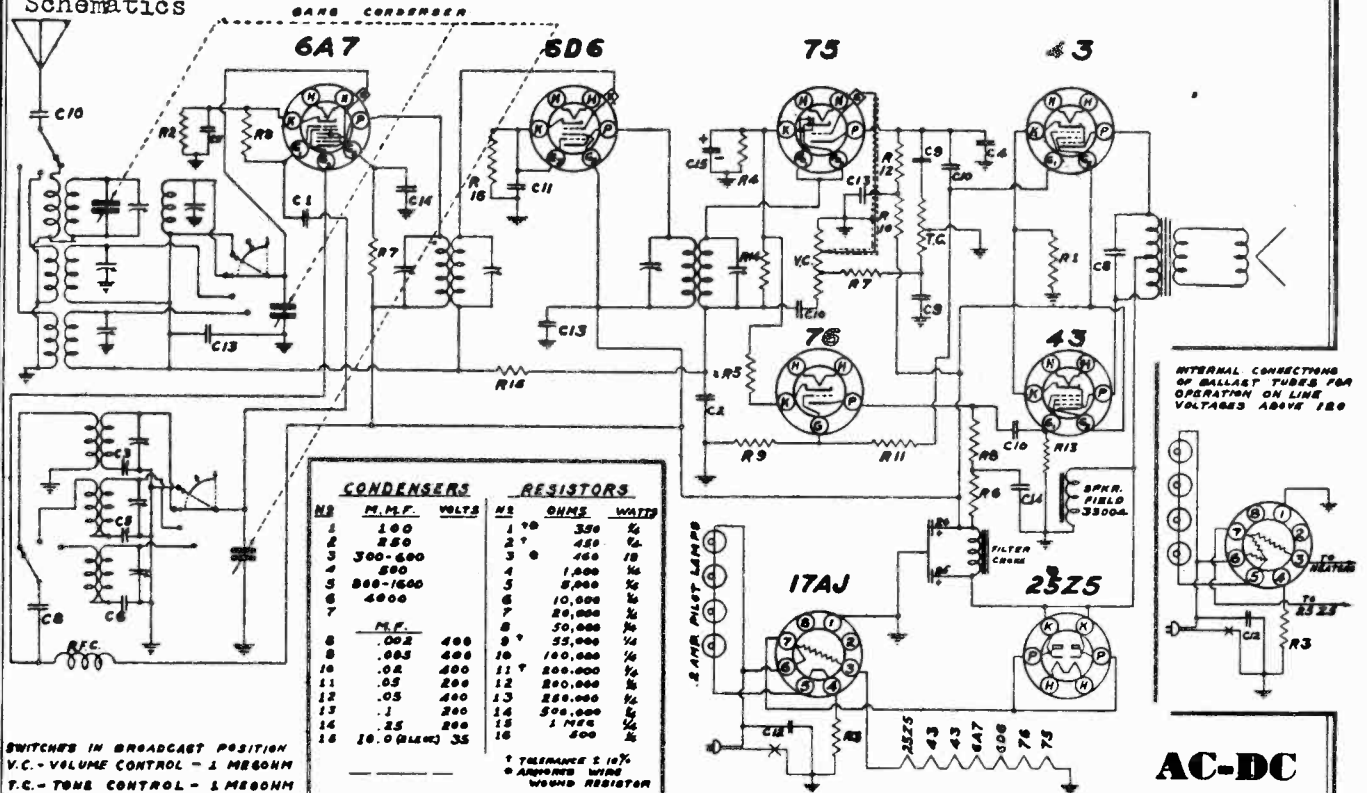


ALIGNMENT DATA

**IF ALIGNMENT** - Wave switch on B.C. position. Generator connected to grid of 6A7 tube through a .05 MFD Cond. Align four trimmers.  
**BROADCAST** - Connect generator to ANT. lead (blue) through a 200 MMFD cond. Gang condenser at minimum, generator set at 1730 KC, adj. OSC. trimmer to peak. Set generator to 1400 KC and adjust ANT. trimmer to peak. Generator and receiver set to 600 KC. Rock

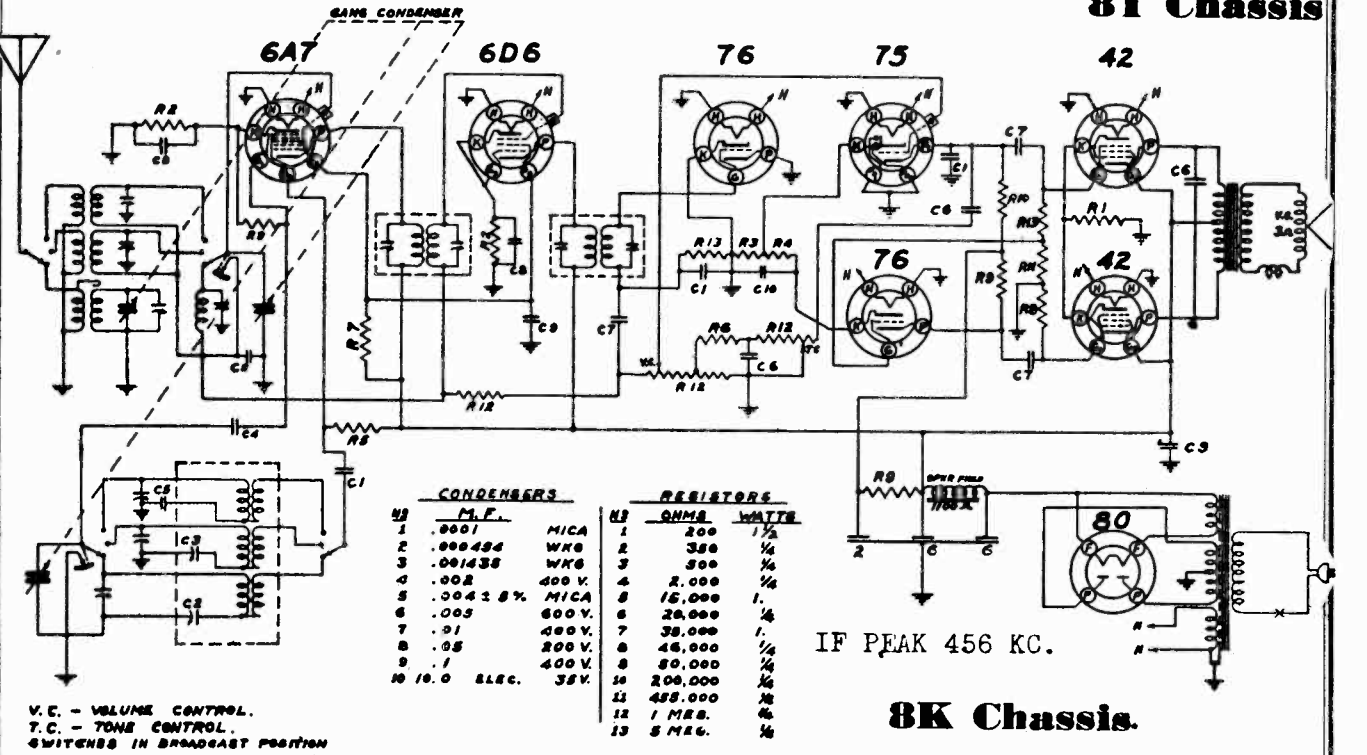
MODELS A-10515 to A-10518  
Chassis 8-T  
Schematics

MODELS A-10510 to A-10513  
incl. ALLIED RADIO CORP. incl. Chassis 8-K



IF PEAK 456 KC.

8T Chassis



IF PEAK 456 KC.

8K Chassis.

8K and 8T are designed to operate over three tuning ranges with a pointer swing of 340°; the broadcast range which extends from 535 to 1730 Kilocycles (KC) (173 to 560 meters), Police and Aviation Band which extends from 1.7 to 5.6 Megacycles (MC) (53 to 176 Meters) and the International Short Wave Band which extends from 5.6 to 18.1 Megacycles (MC) (16.5 to 53 Meters). This latter range is the one which includes the four internationally assigned bands—the 19, 25, 31 and 49 meter bands.



MODELS A-10510 to A-10513  
Chassis 8-K  
MODELS A-10515 to A-10518  
Chassis 8-T  
incl. ALLIED RADIO CORP.  
incl.

Alignment, Socket  
Trimmers, Tuner

ALIGNMENT DATA, 8K-8T.

**GENERAL DATA**  
The alignment of this receiver requires the use of a test oscillator that will cover the frequencies 4000, 5800, 6000, 16,000 and 18,100 KC and an output meter to be connected across the primary or secondary of the output transformer. If possible, all alignments should be made with the volume control on maximum, and the test oscillator output as low as possible, to prevent the A/C from operating and giving false readings.

**CORRECT ALIGNMENT PROCEDURE**  
The intermediate frequency (I.F.) stage should be aligned first. The I.F. transformers have been properly adjusted and peaked. The Broadcast Band should always be the next procedure, after which, either at both of the Short Wave Bands may be aligned.

**HOW TO TUNE IN STATIONS ON THE TELEPHONE DIAL**  
The proper direction of rotation of the dial can be determined by turning the dial in the direction which will not allow the wide space adjacent to the pointer to cover into the space at the bottom of the dial. See Fig. (1).

**PROCEDURE FOR ADJUSTING THE TELEPHONE DIAL BUTTONS**  
Shown in Fig. 1 is the approximate frequency range that each button will cover. Note: If 2 stations happen to fall within the range of one button, one station will necessarily have to be tuned in with the selector knob.

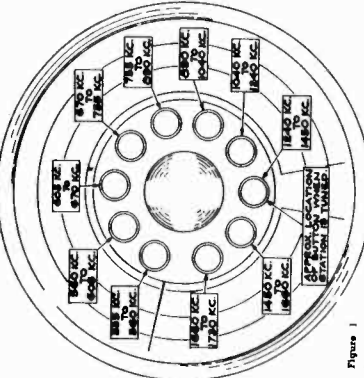


Figure 1

- Choose one of the stations out of the list of stations selected and by means of the station selector very carefully tune in this station, noting at the same time the exact pointer location on the dial.
- Now select the proper button for the first station chosen by referring to Fig. 1 and noting the button into whose range the station falls. For example, station WGN with a frequency of 720 KC comes under the button whose frequency ranges from 670 to 733 KC. Usually the button nearest the tuning point or the bottom of the dial will be the proper button.
- Loosen the button by unscrewing it (not the dial) to turn to the left. Now press the button in all the way and rock the dial back and forth a trifle until a click is heard. Do not release the button now but set the pointer to its former location and with the dial in this position, being careful not to move it, proceed to tighten the button by turning it in the opposite direction (to the right). Make sure the button is very securely tightened as it may get out of adjustment.
- From the station call sheet supplied remove the proper station disc and insert into the push button so that the wording is horizontal when the button is at the bottom, and then insert a clear celluloid insert. Follow this same procedure for the remaining buttons.

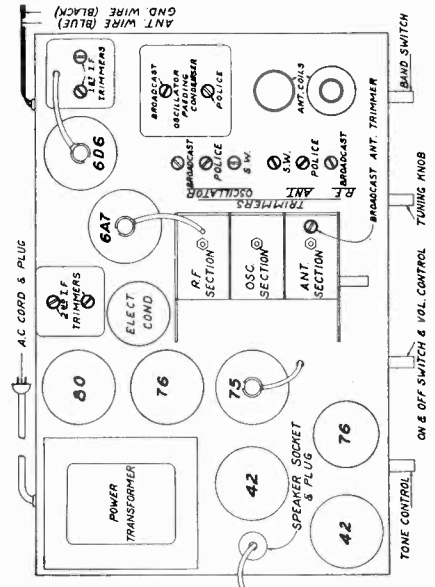
The police band is adjusted by first replacing the dummy with a 400 ohm resistor and setting the oscillator trimmer to receive this signal, then set the output meter to give maximum output. Next, set the oscillator to 1800 KC and "pad" the circuit of this frequency as described in the instructions for padding the broadcast circuit.

The short wave band is adjusted by setting the gang of minimum, adjust the "short wave oscillator trimmer" to receive this signal, then set the output meter to give maximum output. As there is no variable low frequency padding condenser on this band, the sensitivity of the receiver should be checked at 6000 KC to determine whether the circuits are in line with the antenna and oscillator coils, as well as the .004 mica padding condenser, should be tested for defects at sometimes these components become subject to mechanical or electrical injuries, despite their rugged construction and liberal ratings.

With the wave switch in the Broadcast Band and the gang condenser set at minimum, adjust the test oscillator to 455 KC and connect the output to the grid of the first detector tube (6A7) through a .0025 microfarad capacitor. The test oscillator is not grounded to one side of the power line. In case one side is connected to ground, connect a large condenser from ground on the test oscillator to ground of the chassis. Align all four I.F. trimmers to peak or maximum reading on the output meter.

**BROADCAST BAND ALIGNMENT**  
Connect the output of the signal generator to the antenna coil through a .0025 microfarad capacitor. Set the gang condenser at minimum, adjust the "oscillator trimmer" to receive this signal. Make no other adjustments at this frequency. Then set the generator to 1400 KC and tune in this signal by rotating the gang to 1400 on the dial. Adjust the "prescaler" and 600 KC trimmer in the signal on the tweeter. Note: Approximately the same sensitivity should be noted at this point as was at 1400 KC. The

MODELS A10510, A10511, A10512, A10513 Chassis 8K.



Eight Tube AC Telephone Dial  
All Wave Superheterodyne

This receiver is designed to operate from a power supply main of 110-120 volts, 60 cycle alternating current (AC). Never plug into a DC outlet.

**BALLAST TUBES**  
This receiver is designed to operate from any 60 cycle AC (alternating current) or DC (direct current) power supply main of 110 to 120 volts. However by the use of the proper tube (listed below) any one of the following line voltages can be employed: 115, 130, 150, 230.

Type Tube	Line Voltage	Cycle
17A	115 Volts	60 Cycle
33A	130 Volts	60 Cycle
M50E3	150 Volts	60 Cycle
M130E3	230 Volts	60 Cycle

ANDREA RADIO CORP.

MODEL 1F5  
Service Chart

**Checking Tube Failures:** If you have de-service work. Different tubes display quite terminated that the fault lies in the set and definite symptoms of failure. With the Chart not in the antenna, the first source of trouble provided here, it is easy to locate the defec- to examine is the tubes. Consequently, a set of tested tubes must be at hand for television

1862 Sound I.F.	No sound
6S7 Detector and 1st Audio	Microphonic howl
	No sound
	Distortion
	Noise in speaker
6V6G Audio Output	No sound
	Weak, distorted

**Other Failures:** If, after checking the tubes, reception of pictures or sound is not satisfactory, go through the Sight and Sound Chart.

**SIGHT AND SOUND CHART**

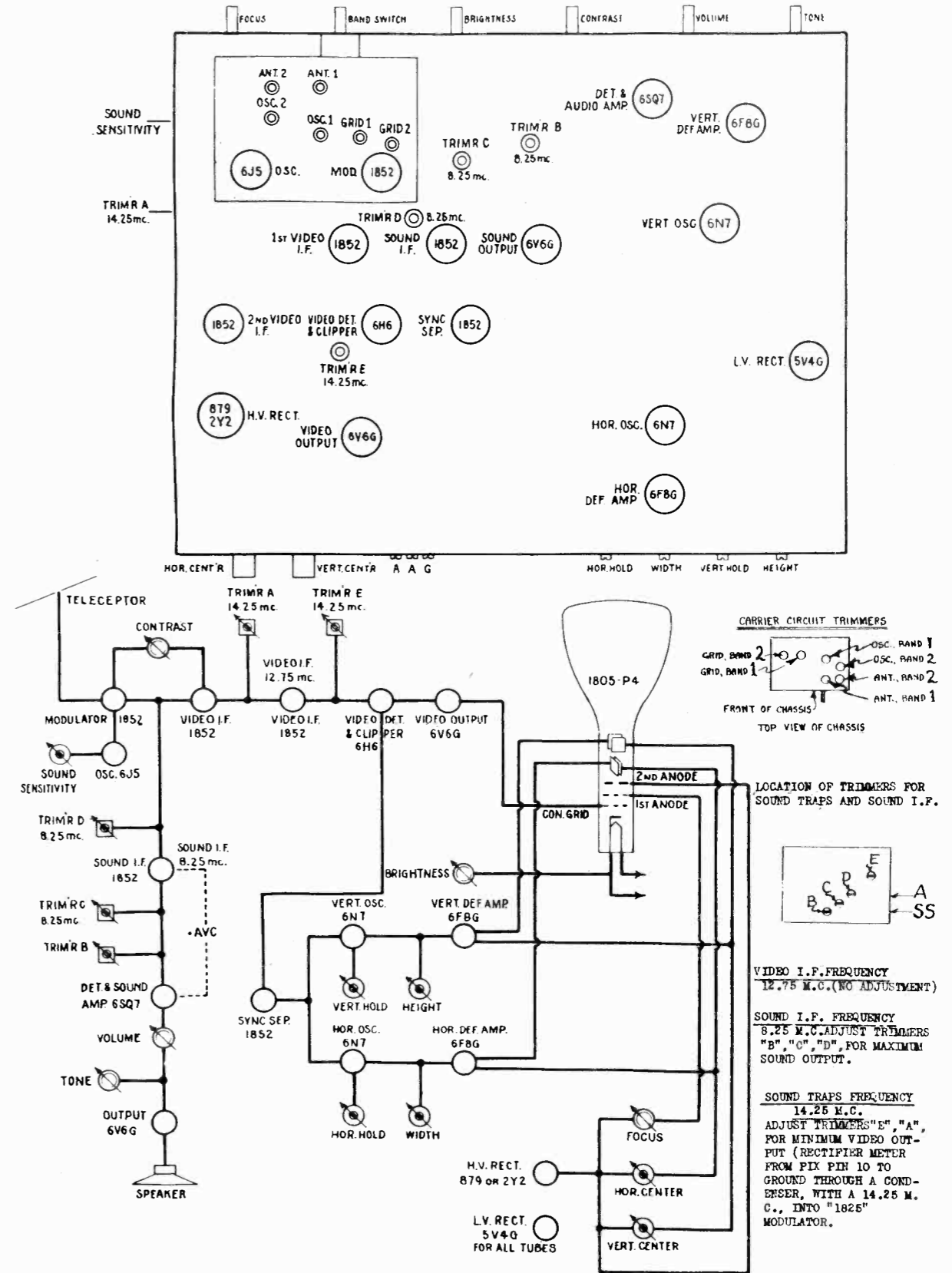
SYMPTOM	REMEDY
Picture will not hold vertical sync	Adjust vertical hold control. Do this with contrast control as low as possible. Insufficient Signal: Antenna must be oriented, moved to more favorable location, or raised in height. Ratio of signal to noise may be too low. Increase height of antenna. If lead is over 100 ft. long, coaxial cable may be required. Note: May be due to losses introduced by antenna leads to other television receivers. Remove such leads. Interference: Ratio of signal to noise may be too low. See Insufficient Signal notes above.
Picture tears	Adjust horizontal hold control. Interference: Ignition interference may cause tearing in all or part of the picture area. See Insufficient Signal notes above.
Picture shows horizontal distortion	Adjust horizontal hold control. Interference: See Insufficient Signal notes above.
Picture is broken by angular pattern	Interference: See Insufficient Signal notes above.
Picture has white retrace lines	Brightness control too high, contrast control too low. Insufficient signal: If contrast control is at maximum see Insufficient Signal notes above. Transmitter adjustment is not correct.
Picture is distorted by sound	Adjust trimmers A and E for minimum signal at 14.25 mc. Adjust trimmers B, C, and D for maximum audio output at 8.25 mc., and check adjustment of Sound Sensitivity trimmer at the side of the chassis.
Pictures without sound	As a last resort, after you have checked everything else, realign R.F. plunger condensers.
Pictures and sound weak	

**CHART INDICATING TUBE FAILURES**

Tube and Function	Picture	Sound	Sync	Miscellaneous
1862 Modulator	Picture	No sound	Slipping	Tube is microphonic, gray bars appear when cabinet is tapped, or when loud audio signals are heard.
6J5 Oscillator	Distorted picture	No sound	Slipping	
1862 1st Video I.F.	No picture	Sound O.K.		
1862 2nd Video I.F.	No picture	Sound O.K.		
6H6 Video Detector and Clipper	No picture	Sound O.K.		
6V6G Video Output	No picture	Sound O.K.		
1862 Sync Separator	Picture	Sound O.K.		
6N7 Vertical Oscillator	Insufficient height	Sound O.K.		
6F8G Vertical Deflection Amp.	Out of frame	Sound O.K.		
6N7 Horizontal Oscillator	Insufficient height	Sound O.K.		
6F8G Horizontal Deflection Amp.	Insufficient width	Sound O.K.		
879 or 2Y2 High Voltage Rectifier	No picture	Sound O.K.		Centering controls have no effect.
5V4G Low Voltage Rectifier	No picture	No sound		Momentary picture, screen blooms, picture disappears.
1805-P4 Picture Tube	Momentary	No sound		Yellow spot: burn, due to operation at excessive brightness.
	Spot			Dull picture due to long use of picture tube
	Dull			Note: If faulty picture size can not be corrected by size or hold controls, look for open connection from cable to picture tube socket.
	Odd Size			

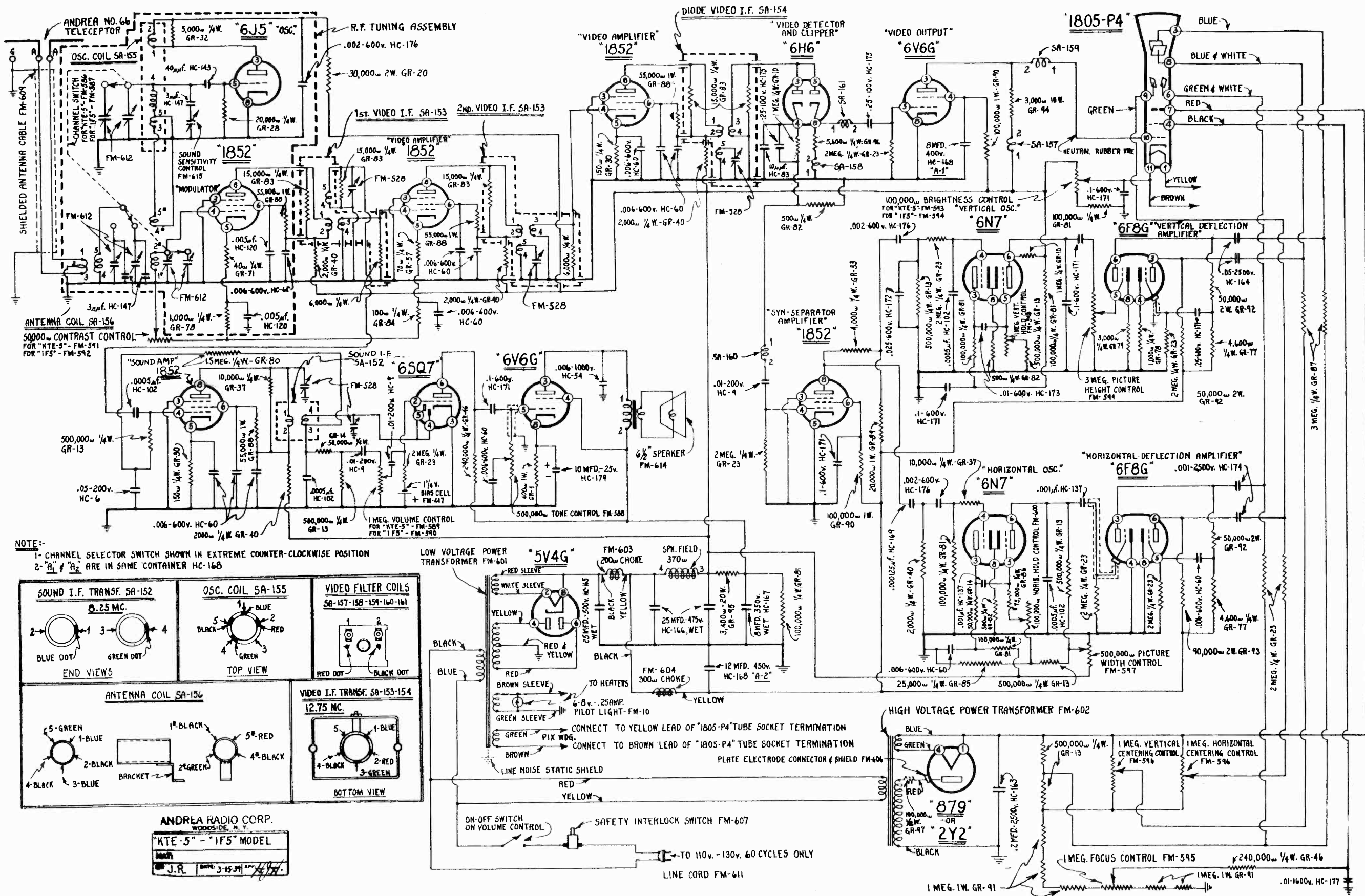
ANDREA RADIO CORP.

MODEL 1F5  
Socket, Alignment  
Video Block Diagram

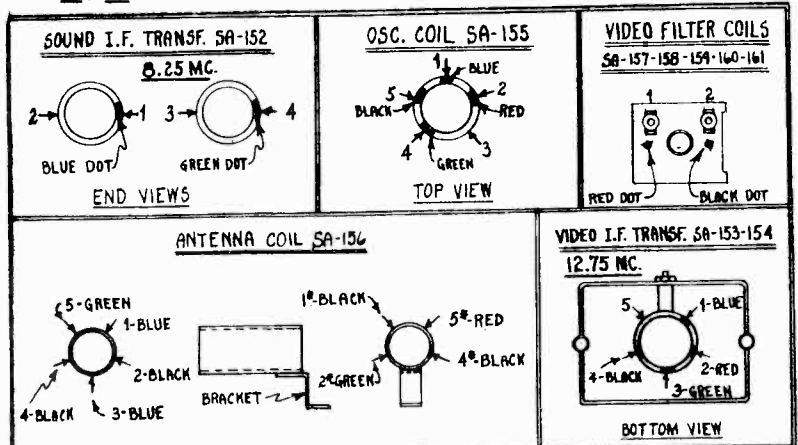


ANDREA RADIO CORP.

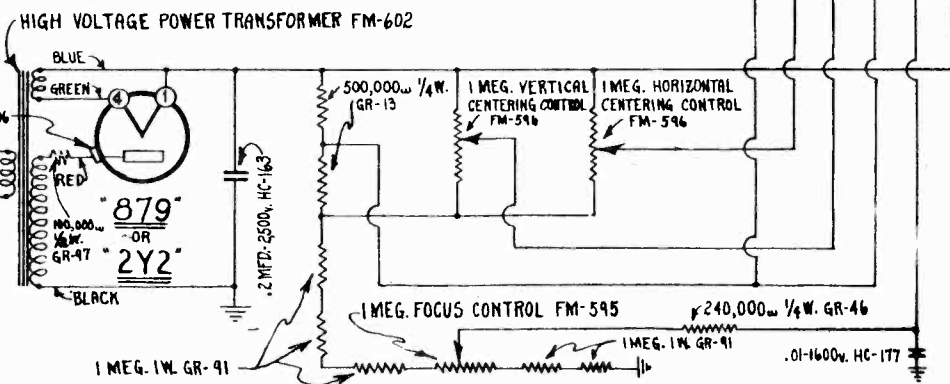
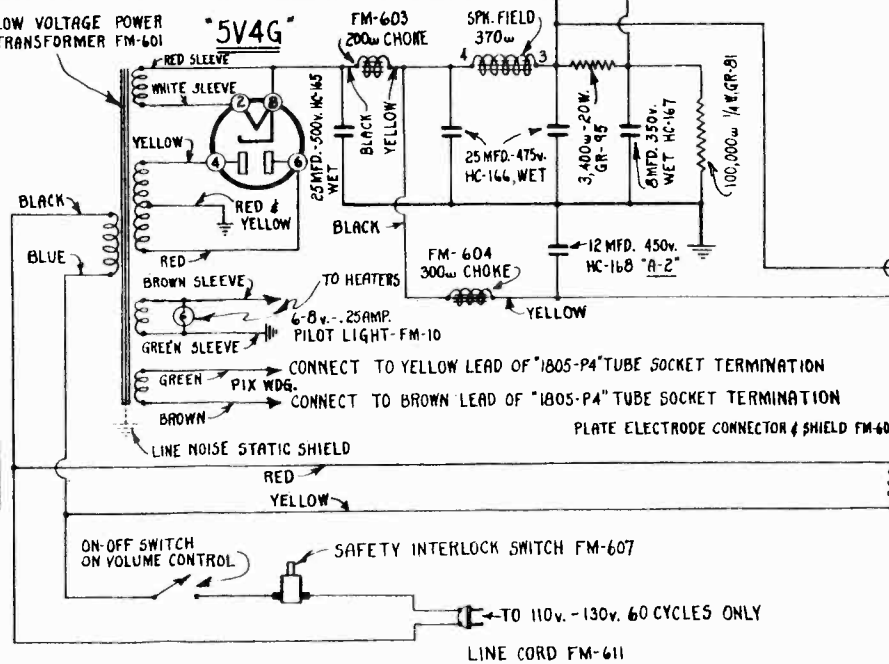
MODEL 1F5 Schematic, Coils



NOTE:-  
 1- CHANNEL SELECTOR SWITCH SHOWN IN EXTREME COUNTER-CLOCKWISE POSITION  
 2- "A<sub>1</sub>" & "A<sub>2</sub>" ARE IN SAME CONTAINER HC-168



ANDREA RADIO CORP.  
 WOODSIDE, N. Y.  
 "KTE-5" - "1F5" MODEL  
 J.R. DATE 3-15-39





Trimmers, Socket

BELMONT RADIO CORP.

MODEL 403, Series A  
Schematic, Voltage

Power Output..... 200 Milliwatts Undistorted, 300 Milliwatts Maximum

Slight adjustments to the oscillator and antenna circuits can be made without removing the chassis from the cabinet through two holes on the front of the radio cabinet under the nameplate (see Fig. 4).

PARTS (SERIAL No. 9C617100 and UP)

Diagram Ref. No. Part No. Description

RESISTORS

- 200M ohm— $\frac{1}{4}$  w.
- 4M ohm— $\frac{1}{4}$  w.
- 40M ohm— $\frac{1}{4}$  w.
- 100M ohm— $\frac{1}{4}$  w.
- 1000 ohm— $\frac{1}{4}$  w.
- 19M ohm— $\frac{1}{4}$  w.
- 2 megohm— $\frac{1}{4}$  w.
- 1 megohm— $\frac{1}{4}$  w.
- 1 megohm volume control
- 500M ohm— $\frac{1}{4}$  w.
- 750 ohm— $\frac{1}{4}$  w.
- 2 megohm— $\frac{1}{4}$  w.
- 5M ohm— $\frac{1}{4}$  w.

CONDENSERS

- 2 gang variable condenser
- .05 x 200 v.
- Loop ant. trimmer on gang
- Oscillator trimmer on gang
- .00025 mica
- .05 x 200 v.
- .01 x 200 v.
- .01 x 200 v.
- .01 x 200 v.
- .01 x 200 v.
- .001 mica
- .001 mica
- .01 x 200 v.
- .00025 mica
- .01 x 200 v.
- .25 mid. .25 w.
- .5 x 200 v.
- .003 x 600 v.

IC5G

IH5G

IN5G

IA7G

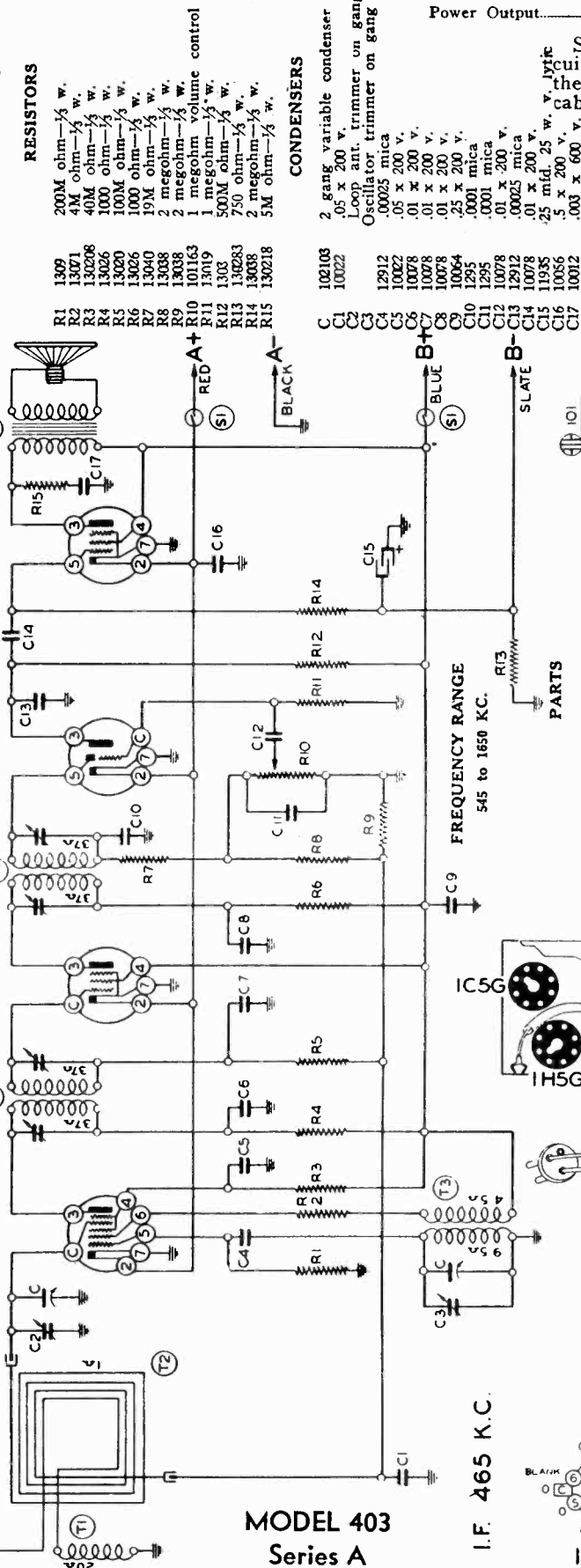
MODEL 403  
Series A

Frequency Range  
545 - 1650 Kilocycles

1 P. AMP

2ND DET AVC  
1ST AUDIO

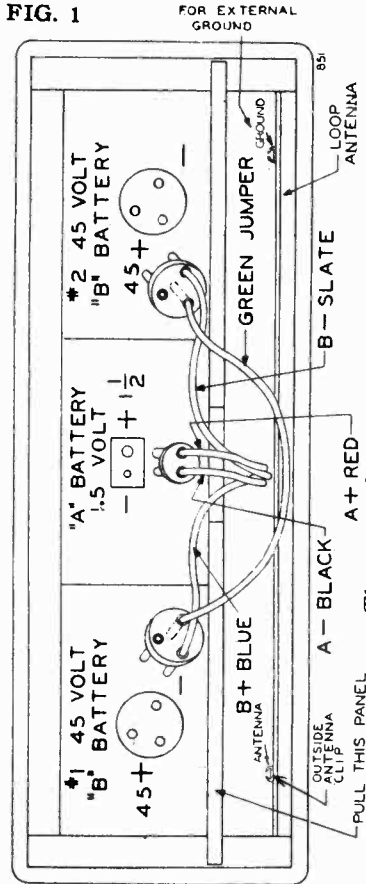
OUTPUT



- PARTS
- T1 1236 Antenna load coil (on loop)
  - T2 120257 Loop antenna coil (complete)
  - T3 110110 Oscillator coil
  - T4 106142 Input I.F. coil
  - T5 108143 Output I.F. coil
  - T6 114158 5" P.M. Speaker
  - S1 Off-on switch D.P.S.T. on vol. control

Broadcast Band 1 1/2-Volt Battery Operated  
Superheterodyne Receiver with Self-Contained Loop Antenna

FIG. 1



PULL THIS PANEL OUT TO INSTALL OR REMOVE BATTERIES "A", "B". The approximate current consumption is as follows: "A"—200ma., "B"—12.5ma.

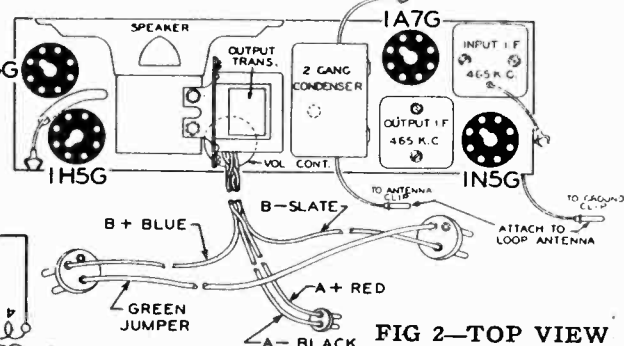
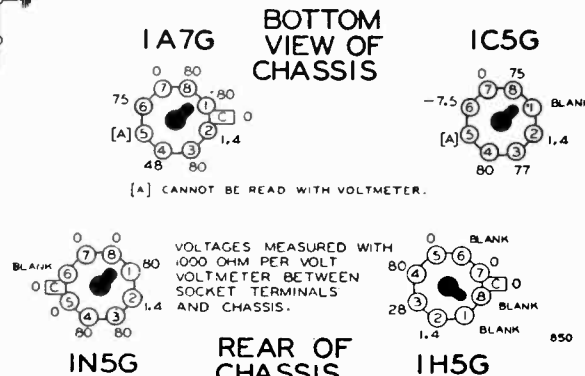


FIG 2—TOP VIEW



BOTTOM VIEW OF CHASSIS

A ground is essential when an outside antenna is employed.

MODEL 403, Series A Alignment  
 MODEL 418, Series A Alignment, Voltage Tuner Data

BELMONT RADIO CORP.

ALIGNMENT PROCEDURE

- The following equipment is required for aligning:
- An all wave 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., 200 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1A7G I. F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1735 Kc.	200 mmf.	Antenna lead	Rotor full open (Plates out of mesh) Set dial at 1400 Kc.	Trimmer—Top of rear section of gang (See Fig. 1) Trimmer—Top of front section of gang (See Fig. 1)	Broadcast Oscillator Antenna Broadcast	Adjust to maximum output Adjust to maximum output
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1A7G Tube	Rotor full open (Plates out of mesh)	Four trimmers on top (See Fig. 1)	Output and input I. F.	(See Note "A") Adjust to maximum output
BROAD-CAST BAND	1650 Kc.	200 mmf.	Grid of 1A7G Tube	Rotor full open (Plates out of mesh)	Trimmer (C3) front section of gang (See Fig. 4)	Oscillator	(See Note "A") Adjust to maximum output
	1400 Kc.		See Note "C"	Set dial at 1400 Kc.	Trimmer (C2) rear section of gang (See Fig. 4)	Antenna	(See Note "B") Adjust to maximum output

NOTE "A" — A 1 megohm resistor must be connected between the two loop antenna leads from the chassis when aligning the I. F. transformers and setting the oscillator trimmer, (C3). The loop antenna must be disconnected from the chassis.

NOTE "B" — Remove the 1 megohm resistor from the loop antenna leads; mount the chassis and the loop antenna in the cabinet; connect the loop antenna to the chassis. Adjust trimmer (C2). (See note "C.")

NOTE "C" — Lay the output lead from the signal generator in back of the loop antenna. Turn up the output of the generator, picking up the energy in the loop antenna without any electrical connection from the signal generator.

PROCEDURE FOR SETTING THE AUTOMATIC LEVERS: MODEL 418 SERIES A.

There are six levers on the front of the radio by means of which six stations may be selected. (See "B" Fig. 2). Make a list of local stations you tune in regularly; any number up to and including six.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

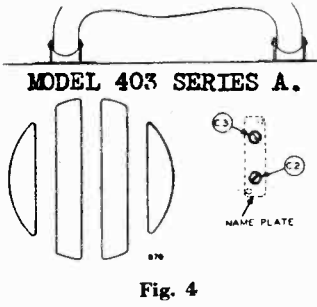
Above each automatic tuner lever an opening in the cabinet is provided for inserting the call letter tabs, (See "A" Fig. 2).

Insert the call letter tabs in the rectangular openings in the cabinet above each of the automatic tuner levers. One of the small celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 2) the station indicated on the station call letter tab above this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station indicated on the call letter tab above this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.



BOTTOM VIEW OF CHASSIS

D.C. VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS & CHASSIS. VOLUME CONTROL AT MINIMUM. ANTENNA GROUNDED. 1.5 VOLT "A" AND 90 VOLT "B" BATTERIES. A — CANNOT BE READ WITH VOLTMETER.



MODEL 418 SERIES A.

REAR OF CHASSIS

BELMONT RADIO CORP.

MODEL 418, Series A  
Schematic, Socket  
Trimmers

Broadcast Band 1 1/2-Volt Battery Operated  
Superheterodyne Receiver

Frequency Range—530 - 1735 Kilocycles

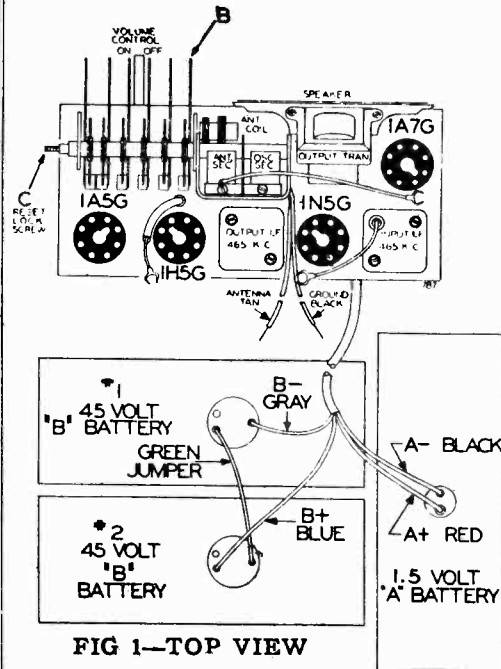


FIG 1—TOP VIEW

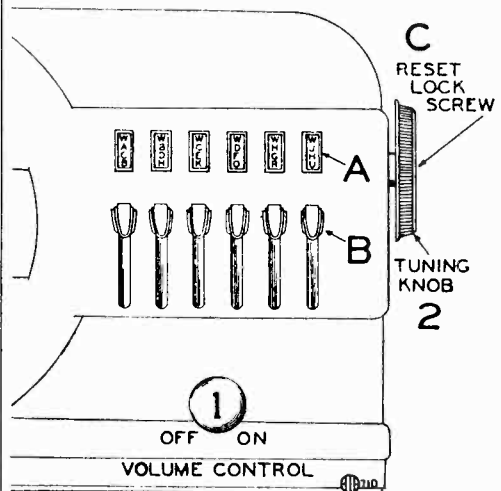
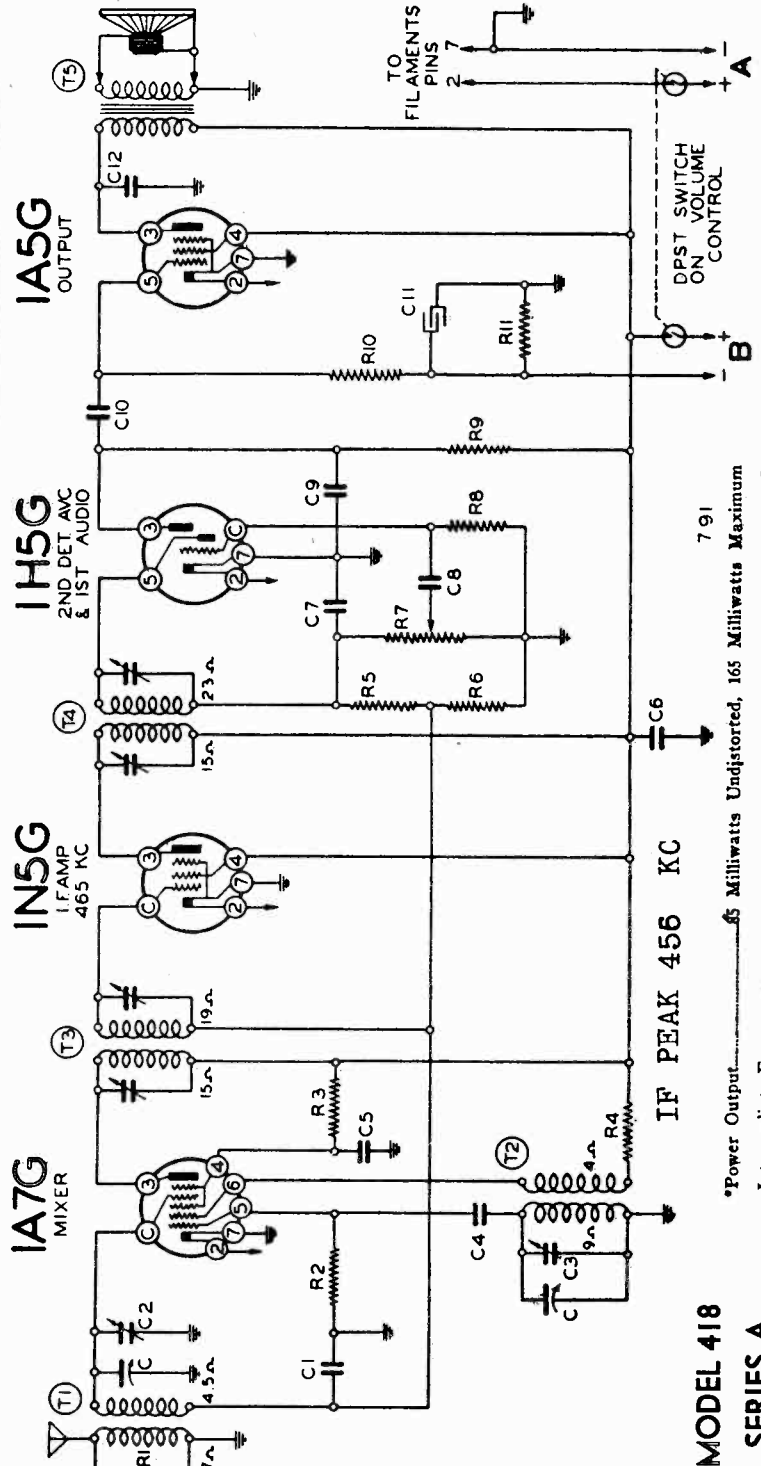


FIG. 2—FRONT VIEW

Circuit Reference No.	Part No.	Description
<b>RESISTORS</b>		
R1	13021	20M ohm—1/2 w.
R2	1309	200M ohm—1/2 w.
R3	130208	40M ohm—1/2 w.
R4	13031	1500 ohm—1/2 w.
R5	13038	2 megohm—1/2 w.
R6	13038	2 megohm—1/2 w.
R7	101155	1 megohm volume control
R8	13019	1 megohm—1/2 w.
R9	130268	350M ohm—1/2 w.
R10	13019	1 megohm—1/2 w.
R11	130267	550 ohm—1/2 w.
<b>CONDENSERS</b>		
C	10287 B	2 gang variable condenser
C1	1009	.05 x 200 v.
C2		Antenna Trimmer
C3		Oscillator Trimmer
C4	12912	.00025 mica
C5	10064	.25 x 200 v.
C6	10064	.25 x 200 v.
C7	1295	.0001 mica
C8	10011	.01 x 400 v.
C9	1295	.0001 mica
C10	10011	.01 x 400 v.
C11	11952	25 mfd. x 25 w. v.
C12	10037	.003 x 600 v.



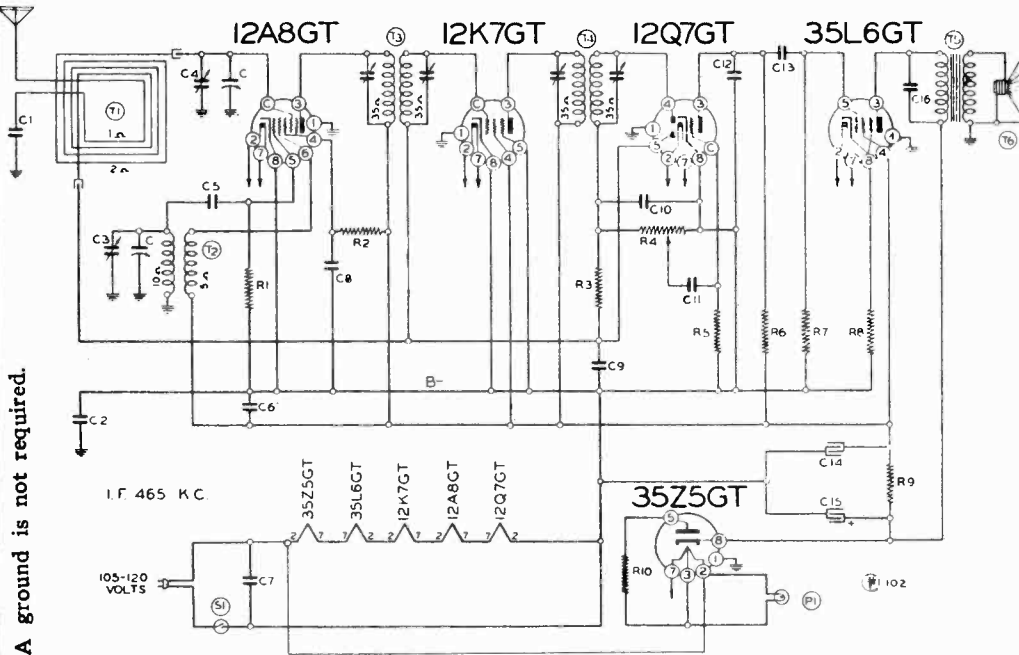
7 91  
\*Power Output.....45 Milliwatts Undistorted, 165 Milliwatts Maximum  
Intermediate Frequency.....465 KC.

MODEL 418  
SERIES A



MODEL 519  
Schematic, Voltage  
Alignment

BELMONT RADIO CORP.



**TUBES:**  
**DESCRIPTION:**  
The tube complement of this chassis consists of the following octal base glass tubes.  
The type and function of each tube is as follows:  
1—Type 12A8GT Mixer, First Detector-oscillator.  
1—Type 12K7GT I. F. Amplifier.  
1—Type 12Q7GT Second Detector, A.V.C. and First Audio.  
1—Type 35L6GT Beam Output Amplifier.  
1—Type 35Z5GT High Vacuum Rectifier.

PARTS (Serial No. 620,000 and up)

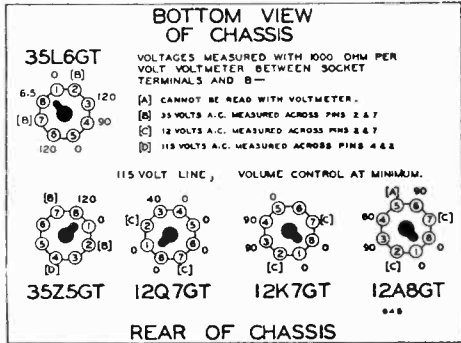


FIG. 3

Circuit Diagram Ref. No.	Part No.	Description
<b>RESISTORS</b>		
R1	13012	50M ohm— $\frac{1}{2}$ w.
R2	130149	15M ohm— $\frac{1}{2}$ w.
R3	1304	3 megohm— $\frac{1}{2}$ w.
R4	101164	1 megohm—volume control
R5	130225	15 megohm— $\frac{1}{2}$ w.
R6	13011	250M ohm— $\frac{1}{2}$ w.
R7	1303	500M ohm— $\frac{1}{2}$ w.
R8	130166	150 ohm— $\frac{1}{2}$ w.
R9	130282	2M ohm—1 watt
R10	130215	25 ohm— $\frac{1}{2}$ w.
<b>CONDENSERS</b>		
C	102102	2 gang variable condenser
C1	1292	.0005 mica
C2	10091	.15 x 400 v.
C3		Oscillator Trimmer on Gang
C4		Antenna Trimmer on Gang
C5	12912	.00025 Mica
C6	1009	.05 x 200 v.
C7	1001	.1 x 400 v.
C8	10022	.05 x 200 v.
C9	10022	.05 x 200 v.
C10	1295	.0001 Mica
C11	10071	.004 x 600 v.
C12	12912	.00025—Mica
C13	10011	.01 x 400 v.
C14	11982	30 mfd. lytic
C15	11982	30 mfd. lytic
C16	10095	.035 x 400 v.
<b>PARTS</b>		
T1	120255	Loop Antenna
T2	110112	Oscillator Coil
T3	108140	Input I. F.—465 kc.
T4	108141	Output I. F.—465 kc.
T5	10587	Output Transformer
T6	114157	4" P.M. Speaker
P1	10794	Pilot Light T44
S1		Off-on switch on volume control

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
  - Connect B - of radio chassis to ground post of signal generator through .1 Mfd. condenser.
  - Connect dummy antenna value in series with generator output lead.
  - Connect output meter across primary of output transformer.
  - Allow chassis and signal generator to "heat up" for several minutes.
- The following equipment is required for aligning:
- An all wave signal generator.
  - Output indicating meter.
  - Non-metallic screwdriver.
  - Dummy antennas—.1 Mfd.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 12A8GT	Rotor full open (Plates out of mesh)	Four Trimmers on Top (See Fig. 1)	Output and Input I.F.	Adjust to maximum output
BROADCAST BAND	1650 Kc.	.1 MFD.	Grid of 12A8GT	Rotor full open (Plates out of mesh)	Trimmer bottom of rear section of gang. (See bottom of radio)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	See Note "A"		Set dial at 1400 Kc.	Trimmer bottom of front section of gang. (See bottom of radio)	Broadcast Antenna	Adjust to maximum output

NOTE "A" Lay the output lead from the generator in back of the loop antenna. Turn up the output of the generator, picking up the energy in the loop antenna without any electrical connection from the generator.

FREQUENCY RANGE	
Power Consumption	540 to 1650 K.C. 40 Watts
Power Output	1.3 Watts Undistorted, 2.5 Watts Maximum
Intermediate Frequency	465 K.C.

BELMONT RADIO CORP.

MODEL 519  
Socket, Trimmers, Tuner  
MODEL 520, Series A  
Alignment

MODEL 519

PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:

There are six levers on the front of the radio by means of which six stations may be selected, (See "B" Fig. 2).

Make a list of local stations you tune in regularly; any number up to and including six.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

On the front of each automatic tuner button an opening is provided for inserting the call letter tabs. (See "A" Fig. 2).

Insert the call letter tabs in the rectangular openings in each of the automatic tuner levers. One of the small celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 2) the station you have assigned to this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station assigned to this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.

Now rotate the tuning knob (No. 2) to the right (clockwise) as far as it will turn, and with a coin (half dollar), tighten the special locking screw ("C") in the center of the tuning knob, (See Fig. 2).

It is VERY IMPORTANT that this locking screw is turned until it is ABSOLUTELY TIGHT.

This screw will lock in place all the stations you have selected on the automatic tuner levers. (Note: Locking screw "C" is loose when radio is shipped from factory);

If you should desire to change any station you selected to another, hold the tuning knob No. 2 securely and with a coin loosen the locking screw "C" one or two turns; select the new station as explained. Be sure to retighten the locking screw, otherwise the stations you have selected will not stay adjusted to the levers.

The automatic dial is now set up for quick tuning. Press down on the lever and—your favorite station is selected.

FIG. 2—FRONT VIEW

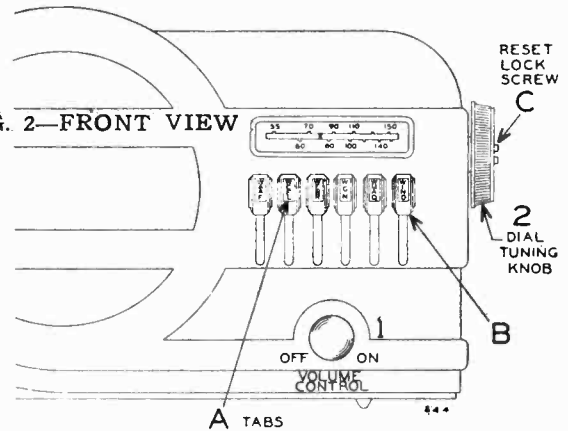
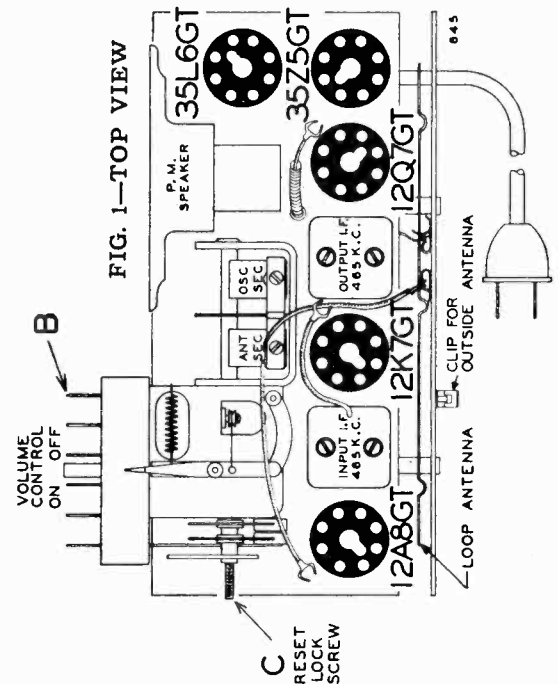


FIG. 1—TOP VIEW



MODEL 520 SERIES A.  
ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect B - of radio chassis, to ground post of signal generator through .1 Mfd. condenser.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—.1 mf., 100 mmf.

FREQUENCY RANGE  
530 to 1720 K.C.

BAND	SIGNAL GENERATOR		Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
	Frequency Setting	Dummy Antenna					
I. F.	465 Kc.	.1 MFD.	Grid of 6A8	Rotor full open (Plates out of mesh)	Two trimmers (See Fig. 3)	I. F.	Adjust to maximum output
BROADCAST BAND	1720 Kc.	100 mmf.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	100 mmf.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Broadcast Antenna	Adjust to maximum output

MODEL 520, Series A  
Schematic, Socket  
Trimmers,  
Voltage

BELMONT RADIO CORP.

**Broadcast Band A. C. - D. C.  
Superheterodyne Receiver  
Frequency Range 530-1720 Kilocycles**

For setting Automatic Levers  
see Model 418.

CHASSIS MODEL 520  
Series A

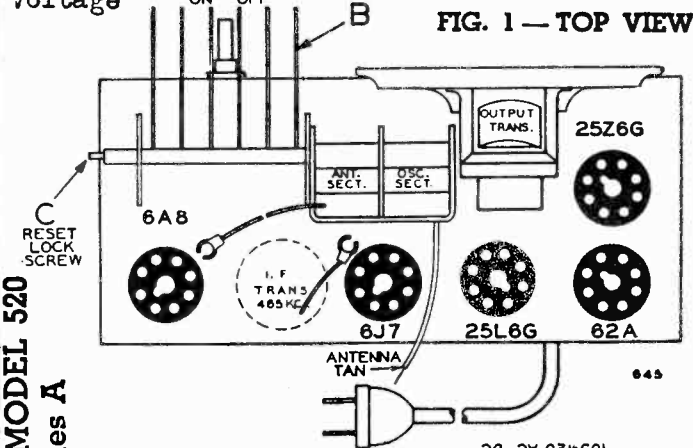
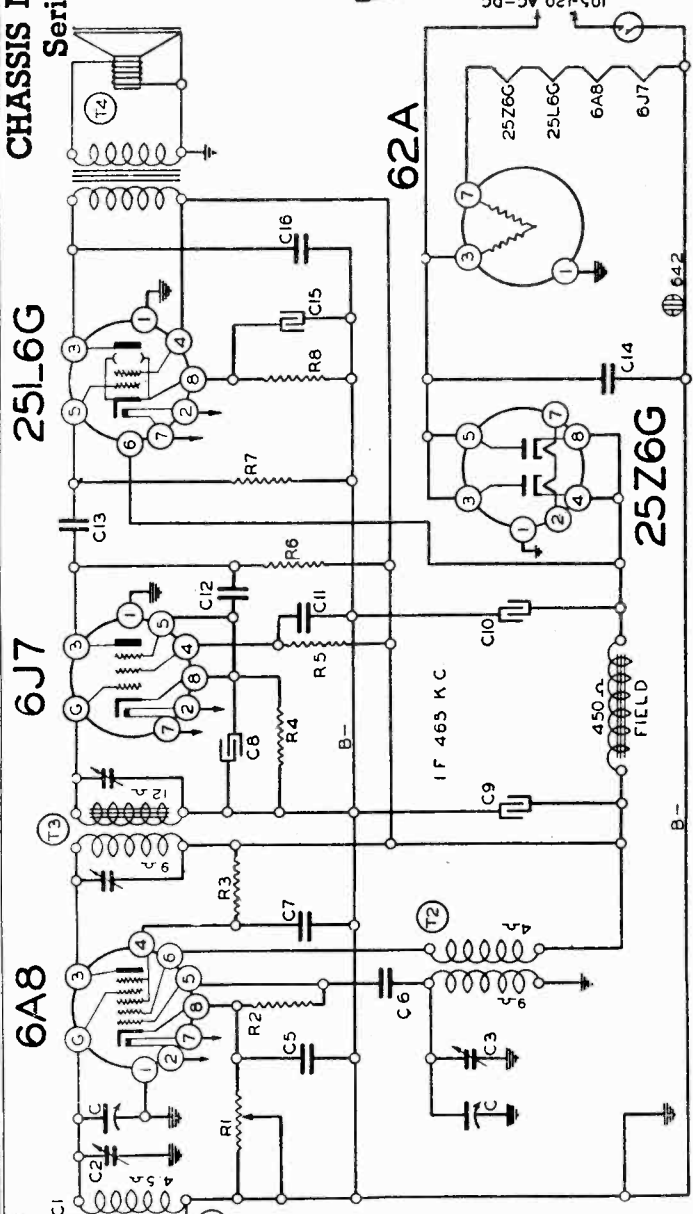


FIG. 1 - TOP VIEW



Power Consumption.....800 Milliwatts Undistorted, 45 Watts  
Power Output.....1300 Milliwatts Maximum I. F. Frequency 465 K. C.

Code No.	Part No.	Description
C7	1009	.05 x 200 v.
C8	11971	5 mfd. x 25 v. lytic
C9	11970	30 mfd. x 150 v. lytic
C10	11970	30 mfd. x 150 v. lytic
C11	10020	.1 x 200 v.
C12	1292	.0005 mica
C13	10026	.02 x 400 v.
C14	1001	.1 x 400 v.
C15	11970	40 mfd. x 25 w. v. lytic
C16	10095	.035 x 400 v.
CONDENSERS		
C9, C10 and C15	in one unit, part no. 11970	
T1	11110	Antenna Coil
T2	11095	Oscillator Coil
T3	108123	I. F. Transformer—465 kc.
T4	114130	5 inch Dynamic Speaker
RESISTORS		
R1	10138	20M ohm volume control
R2	13012	50N ohm—1/2 w.
R3	13014	35N ohm—1/2 w.
R4	13082	10N ohm—1/2 w.
R5	13088	2-megohm—1/2 w.
R6	13045	250M ohm—1/2 w.
R7	1303	500M ohm—1/2 w.
R8	130251	160 ohm—1/2 w.
PARTS		
T1	11110	Antenna Coil
T2	11095	Oscillator Coil
T3	108123	I. F. Transformer—465 kc.
T4	114130	5 inch Dynamic Speaker

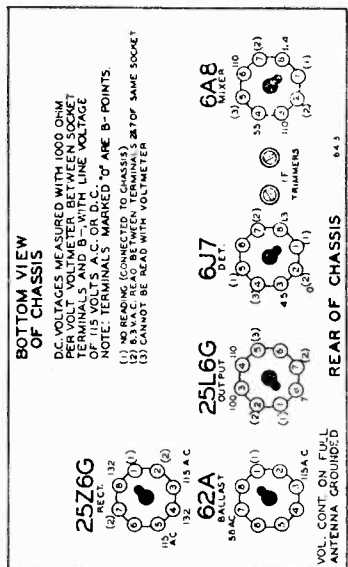


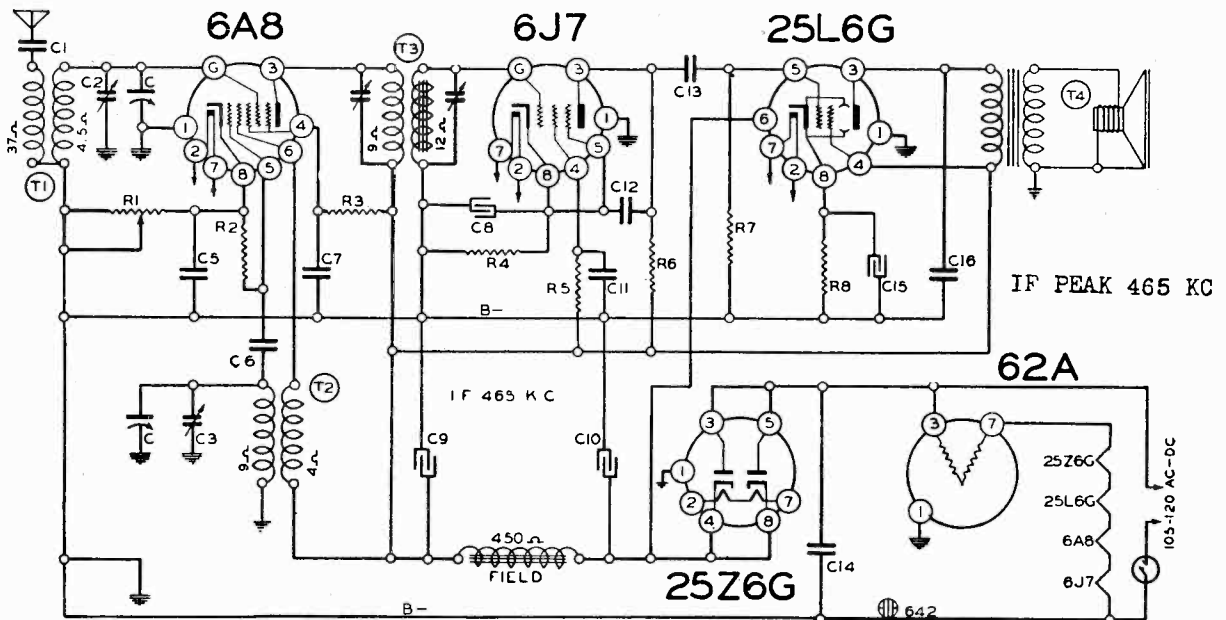
FIG. 3

- TUBES:**
- 1—Type 6A8 Pentagrid Mixer, First Detector-oscillator.
  - 1—Type 6J7 Second Detector.
  - 1—Type 25L6G Beam Output Amplifier.
  - 1—Type 25Z6G High Vacuum Rectifier.
  - 1—Type 62A Ballast Tube.

**DESCRIPTION:**  
The tube complement of this chassis consists of the following octal base glass and metal tubes.  
The type and function of each tube is as follows:

BELMONT RADIO CORP.

MODEL 521, Series A  
Schematic



CHASSIS MODEL 521  
Series A

When ordering parts always mention complete factory model number, series and issue.

LIST OF REPAIR PARTS (Serial No. 286700 and up)

Use Only Genuine Factory Replacement Parts

Part No.	Circuit Diagram Reference	Description	No. Used in Set	List Price Each	Part No.	Diagram Circuit Reference	Description	Used in Set	Price Each
<b>CONDENSERS</b>									
1001	C14	.1 x 400 Volt Tubular Condenser.....	1	\$.25	115251		Support Bracket for Automatic Tuning Mechanism (Mounts to Variable Condenser)	1	.10
1009	C5, C7	.05 x 200 Volt Tubular Condenser.....	2	.25			Support End Bracket for Automatic Tuning Mechanism	1	.10
10020	C11	.1 x 200 Volt Tubular Condenser.....	1	.25	115251B		Tuner Cam	6	.05
10026	C13	.02 x 400 Volt Tubular Condenser.....	1	.25			Key Washers (Used on Each Side of Tuner Cams)	13	.02
10095	C16	.035 x 400 Volt Tubular Condenser.....	1	.25	115146		Lever Complete with 117309 Roller.....	6	.15
11971	C8	5 MFD x 25 Volt Electrolytic Condenser.....	1	.50	117418		Shaft for Tuner Levers.....	1	.10
11970	C9, C10, C15	30 MFD x 150 V; 30 MFD x 150 V; 40 MFD x 25 V. Electrolytic Condenser (for 60 cycle)	1	1.50	117416		Spacer.....	4	.03
11972	C9, C10, C15	60 MFD x 150 V; 60 MFD x 150 V; 40 MFD x 25 V. Electrolytic Condenser (for 25 cycle)	1	1.50	117419		Spacer.....	2	.03
1292	C1, C12	.0005 Mica Type Condenser—20%.....	2	.25	117417		Locking Collar (for Right End of Cam Shaft)	1	.10
12912	C6	.00025 Mica Type Condenser—20%.....	1	.25	117390		Locking Screw (Lock Tuner Cams; Inserted Through Center of Tuning Knob)	1	.10
<b>RESISTORS</b>									
1303	R7	500M Ohm—1/4 Watt Resistor—20%.....	1	.20	131181		Compression Spring Washer (Used Between Locking Collar and First Tuner Cam on Right End of Cam Shaft)	1	.02
13012	R2	50M Ohm—1/4 Watt Resistor—20%.....	1	.20	120204		Hair Pin Spring for Tuner Levers.....	6	.03
13038	R5	2 Megohm—1/4 Watt Resistor—20%.....	1	.20	128173BR		Brown Spring for Tuner Levers.....	6	.10
13045	R6	250M Ohm—1/4 Watt Resistor—20%.....	1	.20	128173W		Ivory Spring for Tuner Levers.....	6	.10
130194	R3	35M Ohm—1/4 Watt Resistor—10%.....	1	.20	112445		Set of 2 Sheets of Station Call Letters.....	1	.15
130251	R8	160 Ohm—1/4 Watt Resistor—10%.....	1	.20	112336		Clear Pyralin Tabs for Station Call Letter Tabs	6 doz.	.10
130252	R4	6M Ohm—1/4 Watt Resistor—20%.....	1	.20					
<b>COILS</b>									
108123	T3	I. F. Transformer Coil Assembly. Less Card-board Cover.....	1	1.25			When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.		
11095	T2	Oscillator Coil Assembly Complete.....	1	.50			Mica condensers are coded with an additional dot indicating tolerance:		
111110	T1	Antenna Coil Assembly Complete.....	1	.75					
<b>SOCKETS</b>									
12193		Eight Prong Octal Socket.....	3	.15					
12194		Seven Prong Octal Socket.....	2	.15					
<b>SPEAKER</b>									
114130	T4	Five Inch Dynamic (Field Resis. 450 Ohms)	1	3.50					
<b>MISCELLANEOUS</b>									
101138	R1	Volume Control & On-Off Switch (20M Ohm)	1	1.00					
10287	C, C2, C3	Two Gang Variable Condenser.....	1	2.50					
10798		Line Cord and Plug.....	1	.50					
115241		Cover Shield for 108123 I. F. Coil.....	1	.10					
128178BR		Brown Bakelite Cabinet Complete.....	1	2.50					
128178W		Ivory Finish Bakelite Cabinet Complete.....	1	3.00					
128202		Back for Cabinet (Specify Color).....	1	.10					
128203BR		Brown Bakelite Knob (Volume).....	1	.10					
128203W		Ivory Bakelite Knob (Volume).....	1	.15					
128190BR		Brown Bakelite Knob (Tuning).....	1	.15					
128190W		Ivory Bakelite Knob (Tuning).....	1	.20					
128173BR		Brown Buttons for Tuner Levers.....	6	.10					
128173W		Ivory Buttons for Tuner Levers.....	6	.10					
62A		Ballast Resistor (in Tube, Shell and Base).....	1	.75					

Tubes are coded and guaranteed by the tube manufacturer.  
 Prompter service can be rendered on adjustments if defective tubes are returned direct to the tube manufacturer rather than through our factory.  
 All resistors are RMA color coded—specify value and/or resistor number (per schematic diagram) and model number.

When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.

Mica condensers are coded with an additional dot indicating tolerance:

Tolerance percent	Color of Dot
2 1/4%	White
5%	Green
10%	Blue
15%	Yellow
20%	Red
More Than 20%	None

All prices quoted are list and are subject to the usual trade discounts. Shipments are F.O.B. our Factory. When remitting in advance, please include postage.

WE CANNOT SUPPLY SPEAKER, CONES OR FIELDS SEPARATELY. WE CAN REPLACE OR REPAIR A DAMAGED SPEAKER FOR \$1.00 NET, IF IT IS RETURNED TO OUR FACTORY, TRANSPORTATION CHARGES PREPAID.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

BRC—CHGO

Form 5996 7M 9-38



MODEL 521, Series A  
 Socket, Trimmers, Voltage Alignment, Tuner  
 BELMONT RADIO CORP.

POWER SUPPLY:

Caution:—This radio, unless otherwise marked, must be operated from 105-125 volts, A.C. or D.C. supply only. If you are in doubt as to the voltage rating of the power supply, consult your local power company before inserting plug. Do not insert plug unless all tubes are in their proper sockets.

Receivers of this model which are to be used on voltages other than 105-125 volts, 50/60 cycle, are so marked. The power consumption of this receiver is 45 watts.

HOW TO REMOVE CABINET:

CAUTION:—Always disconnect the line cord from the house current before removing the chassis from the cabinet.

To remove chassis from the cabinet unscrew the locking screw in the center of the tuning knob and pull tuning knob and volume knob off their shafts. Remove the back of the cabinet and the two screws that hold the chassis to the cabinet. Pull off the six buttons on the Automatic levers. Move the chassis toward back of cabinet so that control shafts and tuner assembly clear holes in cabinet, then chassis can be slipped out.

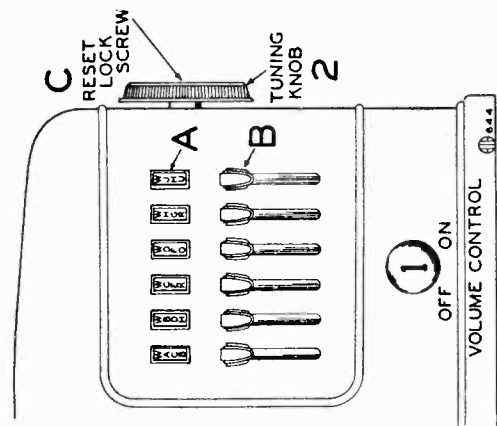


FIG. 2 — FRONT VIEW

The procedure for setting the Automatic Tuning Levers in this receiver is the same as that for Model 633 with the exception that this receiver has six levers instead of five.

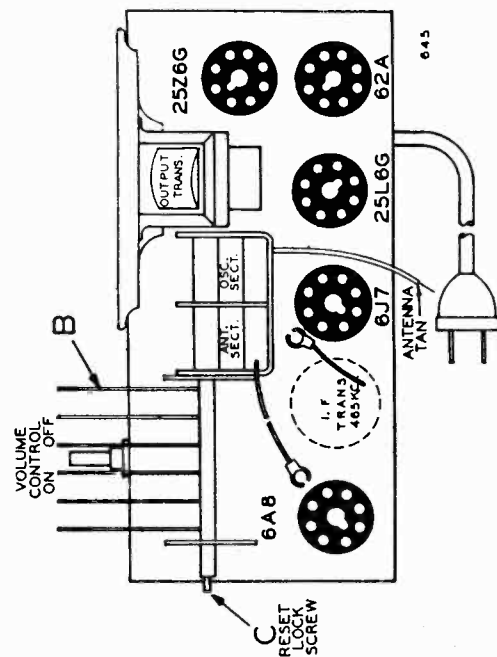


FIG. 1 — TOP VIEW

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
  - Connect B of radio chassis to ground post of signal generator through .1 Mfd. condenser.
  - Connect dummy antenna value in series with generator output lead.
  - Connect output meter across primary of output transformer.
  - Allow chassis and signal generator to "heat up" for several minutes.
- The following equipment is required for aligning:
- An all wave signal generator.
  - Output indicating meter.
  - Non-metallic screwdriver.
  - Dummy antennas—1 ml., 100 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6A8	Rotor full open (Plates out of mesh)	Two trimmers (See Fig. 3)	I. F.	Adjust to maximum output
BROADCAST BAND	1720 Kc.	100 mmf.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	100 mmf.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Broadcast Antenna	Adjust to maximum output

**FREQUENCY RANGE**  
 530 to 1720 K.C.  
 45 Watts  
 800 Milliwatts Undistorted, 1300 Milliwatts Maximum  
 Intermediate Frequency.....465 K.C.

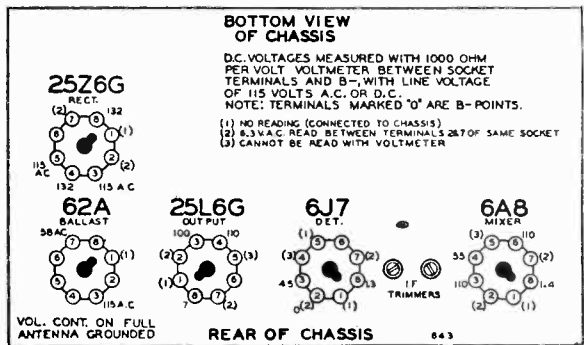
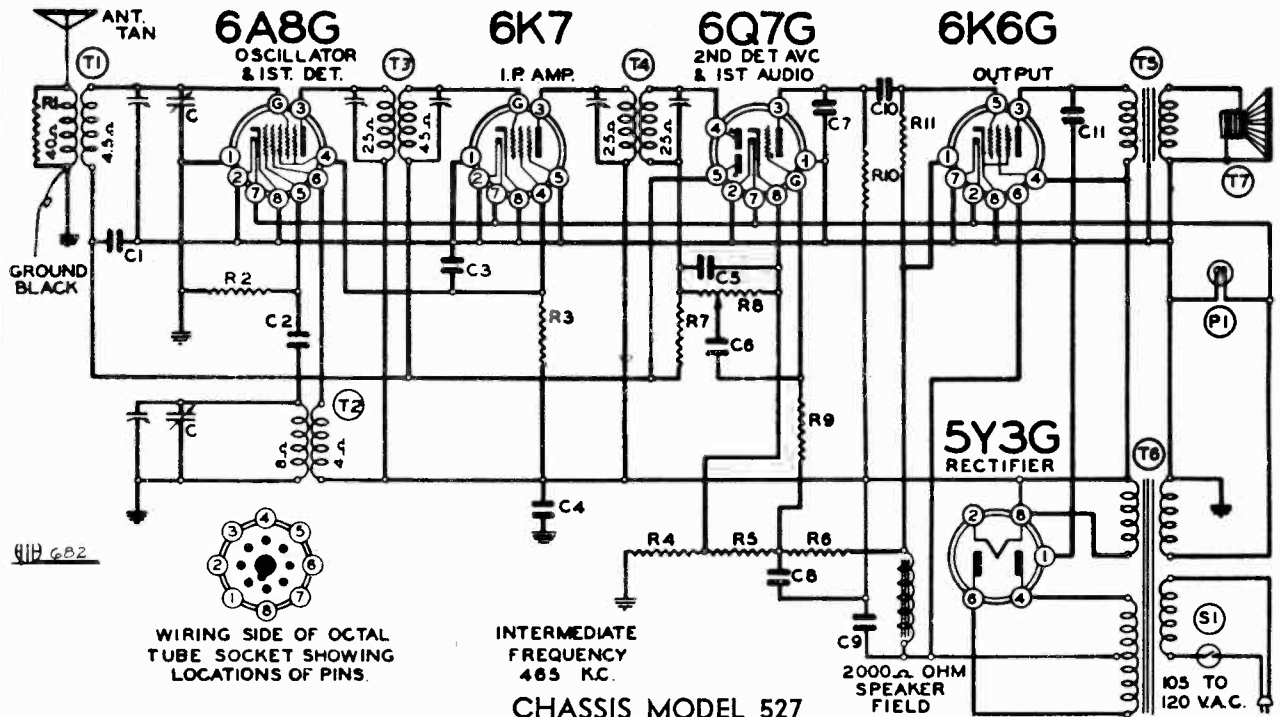


FIG. 3

BELMONT RADIO CORP.

MODEL 527, Series A  
Schematic



When ordering parts always mention complete factory model number, series and issue.

**LIST OF REPAIR PARTS (Serial No. 307600 and up)**

Use Only Genuine Factory Replacement Parts

Part No.	Circuit Diagram Reference	Description	List Price Each	Part No.	Circuit Diagram Reference	Description	List Price Each
<b>CONDENSERS</b>							
1001	C3	.1 x 400 Volt Tubular Condenser.....	.25	115250		Lever Complete with 117309 Roller.....	.10
1009	C1	.05 x 200 Volt Tubular Condenser.....	.25	115256		Dial Bracket Housing (For Dial Scale) Complete with Two Brass Idler Pulleys.....	.25
10011	C6, C10	.01 x 400 Volt Tubular Condenser.....	.25	115143		Key Washers (Used on each Side of Tuner Cams).....	.02
10013	C4	.05 x 400 Volt Tubular Condenser.....	.25	115146		Cams.....	.05
10019	C11	.06 x 600 Volt Tubular Condenser.....	.25	115253		Crown Gear (Mounts on Cam Shaft. Used to Drive Pinion Shaft and Gear for Pointer Drive String).....	.10
11947E	C8, C9	Dual 5 Mfd. x 250 W. V. Filter Condenser.....	1.50	117405		Locking Collar (For Right End of Cam Shaft to Compress Tuner Cams).....	.10
1292	C7	.0005 Mica Type Condenser—20%.....	.25	117424		Locking Screw (For Center of Tuning Knob; Lock Tuner Cams).....	.10
1295	C5	.0001 Mica Type Condenser—20%.....	.25	117409		Shaft for Tuner Levers.....	.15
12912	C2	.00025 Mica Type Condenser—20%.....	.25	117406		Brass Spacer (Between Crown Gear and 1st Cam).....	.03
<b>RESISTOR</b>							
10635	R4, R5, R5	65 Ohm, 450 Ohm, 220 Metal Clad Resistor.....	.35	117407		Brass Spacer (Between Cams; Three Used).....	.03
1309	R10	200M Ohm—1/2 Watt Resistor—20%.....	.20	117408		Brass Spacer (Between 4th and 5th Cam).....	.03
13012	R2	50M Ohm—1/2 Watt Resistor—20%.....	.20	117411		Pinion Gear.....	.07
13021	R1, R3	20M Ohm—1/2 Watt Resistor—20%.....	.20	117412		Shaft for Pinion Gear (Drives Pointer String).....	.15
130118	R11	600M Ohm—1/2 Watt Resistor—20%.....	.20	1209		Linen Drive String.....	.10
130170	R7, R9	3 Megohm—1/2 Watt Resistor—25%.....	.20	120163		Take-up Spring for Drive String.....	.05
<b>COILS</b>							
10895E	T4	Output I. F. Coil Assembly Complete with Can.....	1.25	120211		Hair Pin Spring for Tuner Levers.....	.02
10896F	T3	Input I. F. Coil Assembly Complete with Can.....	1.25	131181		Compression Spring Washer (Used Between Locking Collar and First Tuner Cam).....	.02
11073	T2	Oscillator Coil Assembly Complete.....	.50	112499		Pointer.....	.15
11192	T1	Antenna Coil Assembly Complete.....	.60	112501		Dial Scale (Calibrated).....	.50
<b>SOCKETS</b>							
12193		Eight Prong Octal Base Tube Sockets.....	.15	112500		Light Diffuser (For Dial Scale).....	.15
12195		Five Prong Octal Base Tube Socket.....	.10	112514		Set of Station Call Letter Sheets.....	.15
<b>TRANSFORMERS</b>							
104149	T6	50/60 Cycle Power Transformer 105-115 Volt Primary 104—25/60 Cycle Power Transformer 105-115 Volt Primary 104—40/60 Cycle Power Transformer Universal Primary 10555D T5 Output Transformer for Speaker.....	2.75	112515		Clear Pyralin Tabs for Station Call Letters.....	Doz.
<b>SPEAKER</b>							
114133	T7	Five Inch Dynamic Speaker (Field 2000 Ohms).....	3.00	128192		Bakelite Button for Levers (Specify Color; 4 Used).....	.15
10555D	T5	Output Transformer for Speaker.....	1.00	128192B		Bakelite Button for Levers (Specify Color; 1 Used) Special Type, Has Rim on Both Sides to Block Light Between Lever Buttons).....	.15
<b>MISCELLANEOUS</b>							
101141	R8, S1	Volume Control and Switch (500M Ohms).....	1.00	Tubes are coded and guaranteed by the tube manufacturer.			
10290	C	Two Gang Variable Condenser.....	2.50	Prompter service can be rendered on adjustment if defective tubes are returned direct to the tube manufacturer rather than through our factory.			
10555D	T5	Output Transformer for Speaker.....	1.00	All resistors are RMA color coded—specify value and/or resistor number (per schematic diagram) and model number.			
10798		Line Cord and Plug.....	.50	When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.			
128163BR		Brown Bakelite Cabinet Complete (with Carton).....	3.00	Mica condensers are coded with an additional dot indicating tolerance:			
128163W		Ivory Bakelite Cabinet Complete (with Carton).....	5.00	Tolerance percent		Color of Dot	
128207BR		Brown Bakelite Knob (Tuning).....	.15	2 1/2%	White	5%	Green
128207W		Ivory Bakelite Knob (Tuning).....	.20	10%	Blue	15%	Yellow
128203BR		Brown Bakelite Knob (Volume).....	.10	20%	Red	More Than 20%	None
128203W		Ivory Bakelite Knob (Volume).....	.15	All prices quoted are list and are subject to the usual trade discounts.			
128205		Back for Cabinet (Specify Color).....	.10	Shipments are F.O.B. our Factory. When remitting in advance, please include postage.			
<b>DIAL PARTS LIST</b>							
10794	P1	6-8 Volt Pilot Light Bulb Type 44.....	.10	WE CANNOT SUPPLY SPEAKER CONES, OR FIELDS SEPARATELY. WE CAN REPLACE OR REPAIR A DAMAGED SPEAKER FOR \$1.00 NET. IF IT IS RETURNED TO OUR FACTORY, TRANSPORTATION CHARGES PREPAID.			
107203		Socket and Bracket for Pilot Light.....	.10	PRICES SUBJECT TO CHANGE WITHOUT NOTICE.			
115255		Support Bracket for Automatic Tuning Mechanism (Mounts to Variable Condenser).....	.10				
115254		Support End Bracket for Automatic Tuning Mechanism.....	.10				

MODEL 527, Series A  
 Socket, Trimmers  
 Voltage, Alignment  
 Tuner Data

BELMONT RADIO CORP.

For Instructions for setting Automatic  
 Tuning Levers, see Model 633

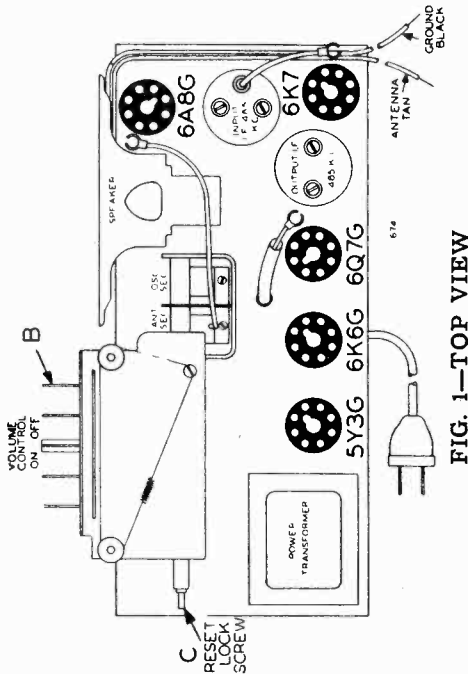
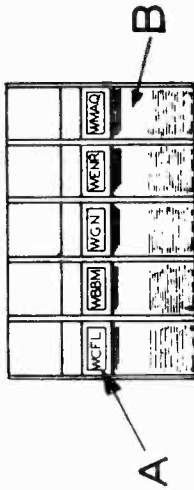
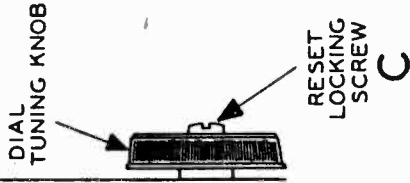


FIG. 1—TOP VIEW



676



OFF ON  
 VOLUME  
 CONTROL

FIG. 2—FRONT VIEW

ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
  - Connect radio chassis to ground post of signal generator with a short heavy lead.
  - Connect dummy antenna value in series with generator output lead.
  - Connect output meter across primary of output transformer.
  - Allow chassis and signal generator to "heat up" for several minutes.
- The following equipment is required for aligning:
- An all wave signal generator.
  - Output indicating meter.
  - Non-metallic screwdriver.
  - Dummy antennas—1 mf., 100 mmi.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6A8G	Rotor full open (Plates out of mesh)	Four trimmers (See Fig. 1)	Input I. F. and Output I. F.	Adjust to maximum output
BROAD-CAST BAND	1720 Kc.	100 mmi.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	100 mmi.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Broadcast Antenna	Adjust to maximum output

**FREQUENCY RANGE**  
 535 to 1720 K.C.  
 Power Consumption \_\_\_\_\_ 50 Watts  
 Power Output \_\_\_\_\_ 1 Watt Undistorted, 1.7 Watts Maximum  
 Intermediate Frequency \_\_\_\_\_ 465 K.C.

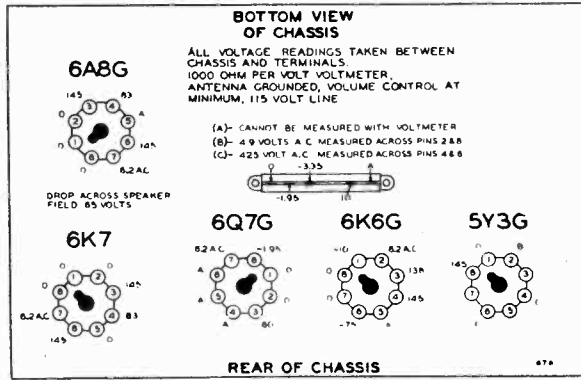
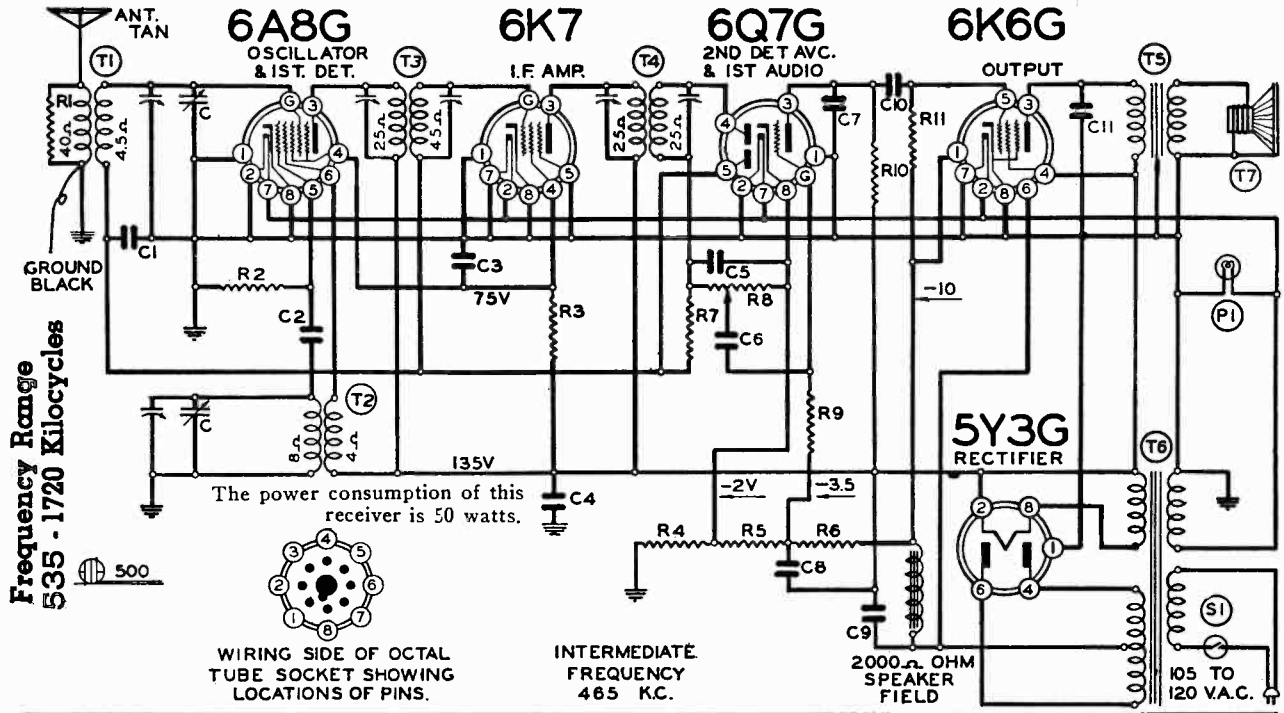


FIG. 3

BELMONT RADIO CORP.

MODEL 529  
Schematic



LIST OF REPAIR PARTS (Serial No. 542,699 and up)

Use Only Genuine Factory Replacement Parts

Part No.	Circuit Diagram Reference	Description	List Price Each	Part No.	Circuit Diagram Reference	Description	List Price Each
<b>CONDENSORS</b>							
100-1	C3	1 x 400 volt Tubular Condenser	.25	107-97	PI	6-8 Volt Pilot Light Bulb Type 51	.10
100-9	C1	.05 x 200 volt Tubular Condenser	.25	107-152		Pilot Light Bracket and Socket	.10
100-11	C6, C10	.05 x 400 volt Tubular Condenser	.25	112-370		Top and Bottom Wood Pulley Complete with 117-287 Shaft for Indicator Film	.05
100-13	C4	.05 x 400 volt Tubular Condenser	.25	112-371		Drive Drum for Indicator Film	.10
100-19	C11	.006 x 600 volt Tubular Condenser	.25	112-372		Indicator Film	.10
119-47D	C8, C9	Dual 5MFD x 250 W. V. Filter Condenser	1.50	112-373		Center Wood Idler Pulley for Indicator Film	.03
129-2	C7	.0005 Mica Type Condenser - 20%	.25	112-374		Dial Scale (Calibrated)	.35
129-5	C5	.0001 Mica Type Condenser - 20%	.25	112-376		Support Bracket for Automatic Tuning Mechanism (Mounts to Variable Condenser)	.10
129-12	C2	.00025 Mica Type Condenser - 20%	.25	115-134		Support Bracket for Automatic Tuning Mechanism (Right End of Mechanism)	.10
<b>RESISTORS</b>							
106-35	R4, R5, R6	65 Ohm, 45 Ohm, 220 Ohm Metal Clad	.35	115-136		Lever Complete with 117-290 Roller	.25
130-9	R10	200M Ohm - 1/2 Watt Resistor - 20%	.20	115-144		Dial Bracket Housing (For Dial Scale)	.20
130-12	R2	50M Ohm - 1/3 Watt Resistor - 20%	.20	117-256		Brass Spacer (Used on Cam Shaft Between Second and Third Tuner Cam on Left Side of Tuner Assembly)	.05
130-21	R1	20M Ohm - 1/3 Watt Resistor - 20%	.20	117-257		Locking Screw for Tuning Knob	.10
130-118	R11	600M Ohm - 1/3 Watt Resistor - 20%	.20	117-258		Tuner Cam	.05
130-21	R3	20M Ohm - 1/2 Watt Resistor - 20%	.20	117-283		Locking Collar (For Right End of Cam Shaft)	.15
130-170	R7, R9	3 Megohm - 1/3 Watt Resistor - 25%	.20	117-359		Spacers (Used on Cam Shaft to Mount Dial Housing Assembly)	.05
<b>COILS</b>							
108-95B	T4	Output L.F. Coil Assembly Complete with can	1.25	117-285		Brass Spacer (Used on Cam Shaft Between Drive Drum and Tuner Cam to Left of Drive Drum)	.05
108-96	T3	Input L.F. Coil Assembly Complete with can	1.25	117-286		Brass Spacer (Used on Cam Shaft Between Drive Drum and Tuner Cam to Right of Drive Drum)	.05
110-73	T2	Oscillator Coil Assembly Complete	.50	120-181		Hair Pin Spring for Tuner Lever	.02
111-92	T1	Antenna Coil Assembly Complete	.60	120-163		Take-Up Spring for Indicator Film	.05
<b>SOCKETS</b>							
121-93		Eight Prong Octal Socket for "6K6"	.15	128-173BR		Moulded Button Keys for Automatic Tuner Levers	.10
121-93		Eight Prong Octal Socket for "6Q7"	.15	131-43		Cinch Buttons (Used to Fasten Dial Scale to Dial Housing)	.03
121-93		Eight Prong Octal Socket for "6A8"	.15	131-141		Compression Spring Washer (Used Between Locking Collar and first Tuner Cam on Right End of Cam Shaft)	.02
121-93		Eight Prong Octal Socket for "5Y3"	.15	131-157		Key Washers (Used on Each Side of Tuner Cams)	.02
121-94		Seven Prong Octal Socket for "6K7"	.15	Tubes are coded and guaranteed by the tube manufacturer.			
<b>TRANSFORMERS</b>							
104-129	T6	50/60 Cycle Transformer 105-115 volt Primary	2.75	Prompter service can be rendered on adjustment if defective tubes are returned direct to the tube manufacturer rather than through our factory.			
104-130		25/60 Cycle Transformer 105-115 volt Primary	1.00	All resistors are RMA color coded—specify value and/or resistor number (per schematic diagram) and model number.			
104-134		40/60 Cycle Transformer Universal Primary	1.00	When ordering condensers, specify part number, model number and/or capacitor (per schematic diagram) and model number.			
<b>SPEAKER</b>							
114-111	T7	Five Inch Dynamic Speaker (Field 2000 Ohms)	3.00	Mica condensers are coded with an additional dot indicating tolerance:			
105-55c	T5	Output Transformer for Speaker (Mounted on Chassis)	1.00	Tolerance percent			
<b>MISCELLANEOUS</b>							
101-107	R8, S1	Volume Control and Switch (500M Ohms)	1.00	2 1/2% White			
102-78	G	Two Gang Variable Condenser	3.00	5% Green			
105-55c	T5	Output Transformer for Speaker	1.00	10% Blue			
107-98		Line Cord and Plug	.50	15% Yellow			
117-133		Brass Bushings for Mounting Bottom Plate	.02	20% Red			
118-48B		Bottom Cover Plate for Chassis	.35	More Than 20% None			
128-134E		Black Bakelite Volume Knob	.10	All prices quoted are list and are subject to the usual trade discounts.			
128-134BR		Walnut Bakelite Volume Knob	.10	Shipments are F.O.B. our Factory. When remitting in advance, please include postage.			
128-134W		Ivory Bakelite Volume Knob	.10	WE CANNOT SUPPLY SPEAKER CONES, OR FIELDS SEPARATELY. WE CAN REPLACE OR REPAIR A DAMAGED SPEAKER FOR \$8.95 NET, IF IT IS RETURNED TO OUR FACTORY, TRANSPORTATION CHARGES PREPAID.			
128-137E		Black Bakelite Tuning Knob	.10	PRICES SUBJECT TO CHANGE WITHOUT NOTICE.			
128-137BR		Walnut Bakelite Tuning Knob	.10				
128-137W		Ivory Bakelite Tuning Knob	.15				
128-142E		Black Bakelite Cabinet Complete Including Baffle, Grill Cloth and Carton	3.00				
128-142BR		Walnut Bakelite Cabinet Complete Including Baffle, Grill Cloth and Carton	3.00				
128-142W		Ivory Bakelite Cabinet Complete Including Baffle, Grill Cloth and Carton	3.00				
128-101		Baffle Board	.10				
128-102		Grill Cloth Back and Front	.15				
128-102B		Grill Cloth, For Side	.05				
132-82		No. 6 x 32 x 1/2 Bottom Plate Mounting Screws, Doz.	.07				
134-48B		Rubber Grommet (For Bottom Plate)	.03				
134-66E		Black Felt Shield for Lever Openings in Cabinet	.05				
134-66BR		Walnut Felt Shield for Lever Openings in Cabinet	.05				
134-66W		Ivory Felt Shield for Lever Openings in Cabinet	.05				



## MODEL 529

Socket, Trimmers  
Alignment, Tuner Data

## BELMONT RADIO CORP.

## SERVICE NOTES:

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt.

All voltages as indicated on diagram are measured with 115 volts on the primary of the power transformer.

Resistances of coil windings are indicated in ohms on the schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Excessive hum, stuttering, low volume and a reduction in all D.C. voltages is usually caused by a shorted electrolytic condenser; open by-pass condensers frequently cause oscillation and distorted tone.

Transformers are available and chassis are sometimes equipped with transformers for operation on 25, 40 and 60 cycles (see parts list).

## ALIGNING INSTRUCTIONS:

**CAUTION:**—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. Remove the knobs and the four bolts which are used to fasten the chassis.

All adjustments should be made with a non-metallic screwdriver.

## RESONANCE INDICATOR:

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 6K6G output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

## ALIGNING I.F. TRANSFORMERS: (465 K.C.):

Part No. 108-95B Output I.F. Transformer

Part No. 108-96 Input I. F. Transformer

These I.F. transformers have two adjustments, both of which are accessible from the top of chassis (see Fig. 1).

1. With volume control full on (the extreme right of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:

- Connect external oscillator set at 465 kilocycles, in series with .1 mfd. condenser, to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-95B) to resonance.
- Move oscillator output clip from grid of 6K7 to grid of 6A8G and adjust input I.F. transformer (No. 108-96) to resonance.
- With oscillator still connected to 6A8G, readjust output I.F. transformer (108-95B) if necessary.

## 1. R.F. ALIGNMENT: (535-1720 K.C.)

1. With the gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with a 100 mmf. condenser to the antenna lead and chassis ground and make the following adjustments:

- With external oscillator set at 1720 kilocycles, adjust oscillator trimmer to resonance. This adjustment is on the top of rear section of variable gang condenser. (See Fig. 1).
- Re-set external oscillator to 1400 kilocycles, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance. (Top of front section of gang condenser).
- Check sensitivity at 600 and 1000 kilocycles.

## PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:

There are five levers on the dial by means of which five stations may be selected, (See "B" Fig. 2).

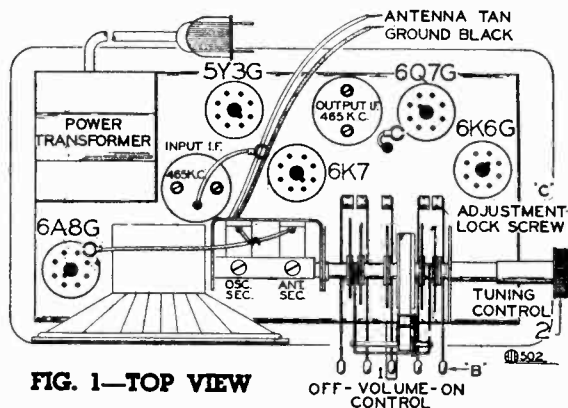


FIG. 1—TOP VIEW

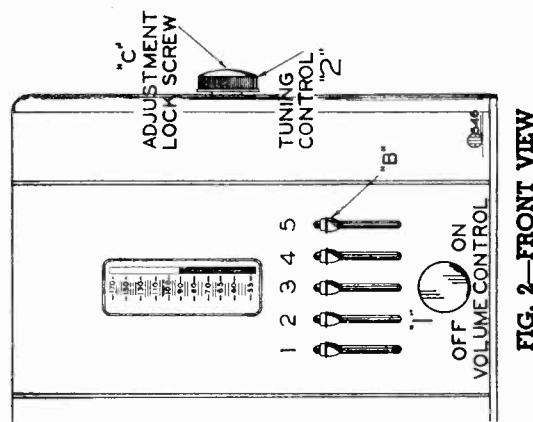


FIG. 2—FRONT VIEW

Make a list of local stations you tune in regularly; any number up to and including five.

Numbers are placed on the cabinet above each automatic tuner levers. These numbers (1 to 5) are used to designate the stations you have chosen them to represent.

Any order of grouping can be used, either by assigning call letters for the levers numerically (1 to 5) or arranging them to correspond with the calibration on the dial scale, namely, starting with the lowest frequency station on the right and so on up in frequency to the highest frequency station on the left.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 2) the station you have assigned to this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station assigned to this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.

Now rotate the tuning knob (No. 2) to the right (clockwise) as far as it will turn, and with a coin (half dollar), tighten the special locking screw ("C") in the center of the tuning knob, (See Fig. 1).

It is VERY IMPORTANT that this locking screw is turned until it is ABSOLUTELY TIGHT.

This screw will lock in place all the stations you have selected on the automatic tuner levers. (Note: Locking screw "C" is loose when radio is shipped from factory).

If you should desire to change any station you selected to another, hold the tuning knob No. 2 securely and with a coin loosen the locking screw "C" one or two turns; select the new station as explained. Be sure to retighten the locking screw, otherwise the stations you have selected will not stay adjusted to the levers.

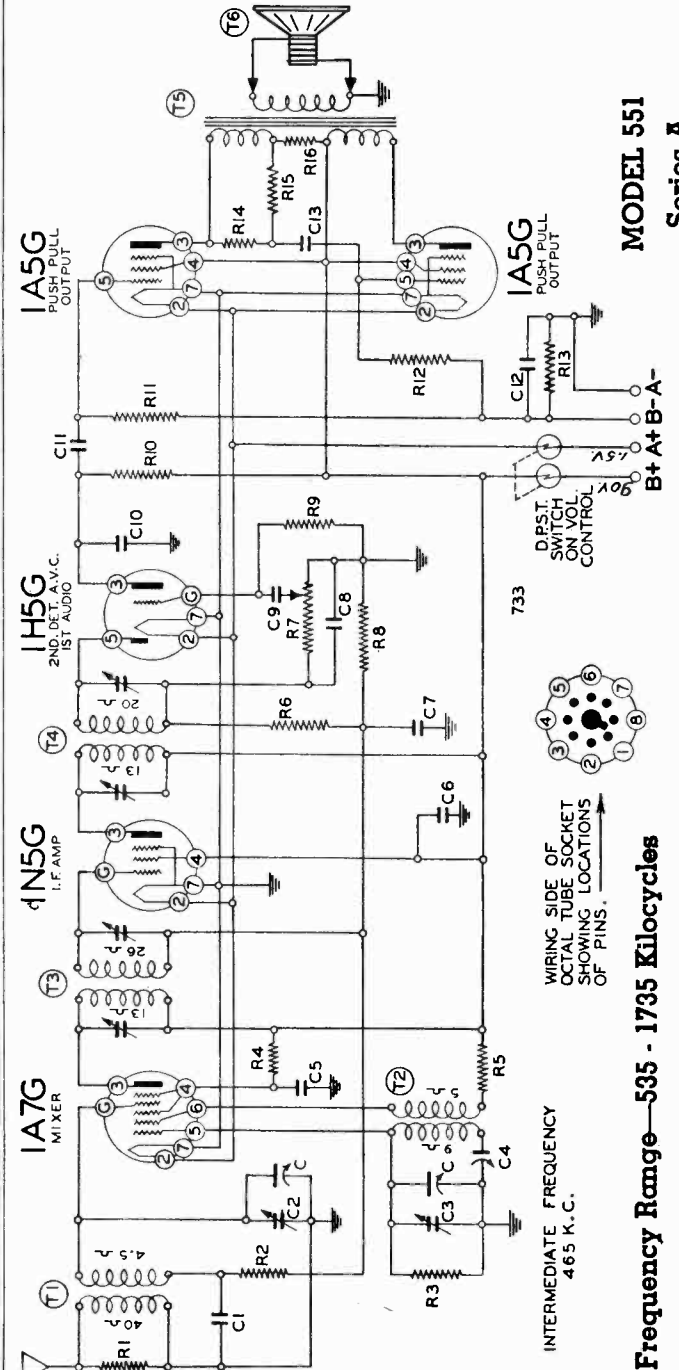
BELMONT RADIO CORP.

MODEL 551, Series A  
Schematic, Voltage  
Socket, Trimmers

Circuit Reference No. Part No. Description

- RESISTORS**
- R1 13021 20M ohm—1/4 w.
  - R2 13020 100M ohm—1/4 w.
  - R3 1309 200M ohm—1/4 w.
  - R4 130208 40M ohm—1/4 w.
  - R5 13071 4M ohm—1/4 w.
  - R6 13038 2 megohm—1/2 w.
  - R7 101140 1 megohm—volume control
  - R8 13038 2 megohm—1/2 w.
  - R9 13019 1 megohm—1/2 w.
  - R10 13037 750M ohm—1/2 w.
  - R11 13019 1 megohm—1/2 w.
  - R12 13022 1 megohm—1/2 w.
  - R13 13022 350 ohm—1/2 w.
  - R14 13022 25M ohm—1/2 w.
  - R15 13022 1000 ohm—1/2 w.
  - R16 130264 1000 ohm—1/2 w.
- CONDENSERS**
- C 10289 2 gang Variable Condenser
  - C1 1009 .05 x 200 v.—25%
  - C2 Antenna Section Trimmer
  - C3 Oscillator Section Trimmer
  - C4 Series Pad
  - C5 .5 x 200 v.—20%
  - C6 .5 x 200 v.
  - C7 .0001 Mica
  - C8 .001 x 400 v.
  - C9 .01 x 300 v.
  - C10 .01 x 300 v.
  - C11 10 mid x 25 volts—lytic
  - C12 .01 x 200 v.
  - C13 10078

- PARTS**
- T1 11192B Antenna Coil Complete
  - T2 11096 Oscillator Coil Complete
  - T3 10811C Input I. F. Complete
  - T4 10812 Output I. F. Complete
  - T5 10578 Output Transformer
  - T6 114137 6" P. M. Speaker



MODEL 551  
Series A

Broadcast Band 1 1/2-Volt Battery Operated  
Superheterodyne Receiver

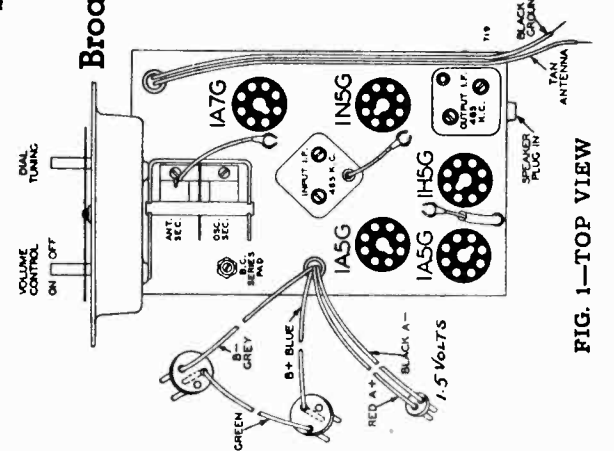
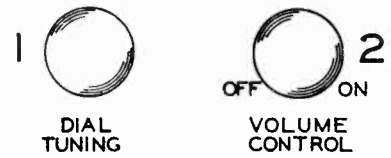
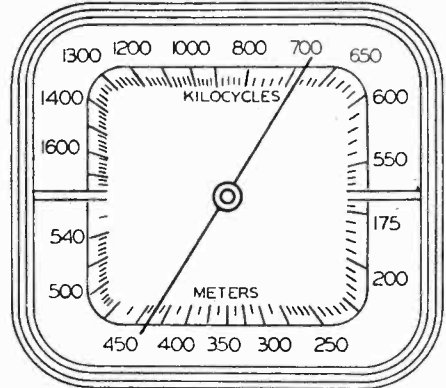
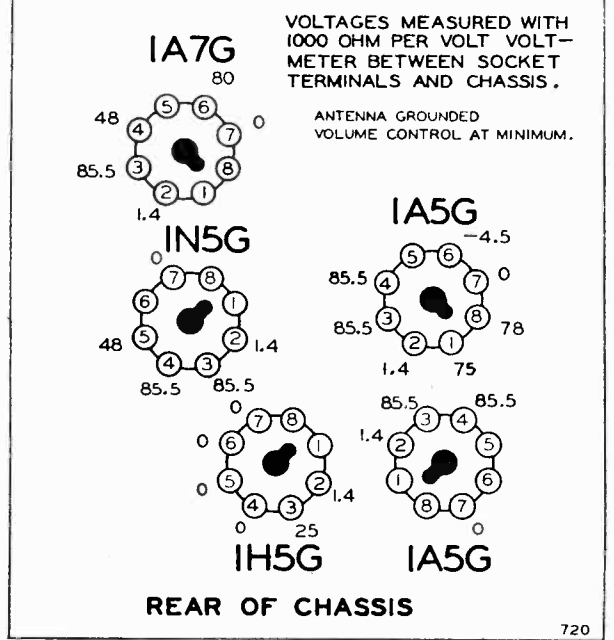


FIG. 1—TOP VIEW

BOTTOM VIEW OF CHASSIS



720

MODEL 551, Series A  
Alignment

BELMONT RADIO CORP.

**5 TUBE**  
**Frequency Range—535 - 1735 Kilocycles**

**MODEL 551**  
**Series A**

**Broadcast Band 1 1/2-Volt Battery Operated**  
**Superheterodyne Receiver**

caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good.

tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. All voltages as indicated on the voltage chart are measured with a new set of batteries.

**DESCRIPTION:**  
The tube complement of this chassis consists of the following tubes.

**ALIGNING INSTRUCTIONS:**  
**CAUTION:**—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low battery voltage, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet. Remove the knobs and the 3 bolts which are used to fasten the chassis.

Resistances of coil windings are indicated in ohms on the schematic circuit diagram. To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

All adjustments should be made with a non-metallic screw driver.

The approximate current consumption is as follows:  
"A"—ma, "B"—ma.

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the chassis are measured with volume control full on, all

Adjustments should be made with a non-metallic screw driver.

**SERVICE NOTES:**  
Voltages taken from different points of circuit to chassis are measured with volume control full on, all

**ALIGNMENT PROCEDURE**

The following equipment is required for aligning:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 ml., 200 mmf.

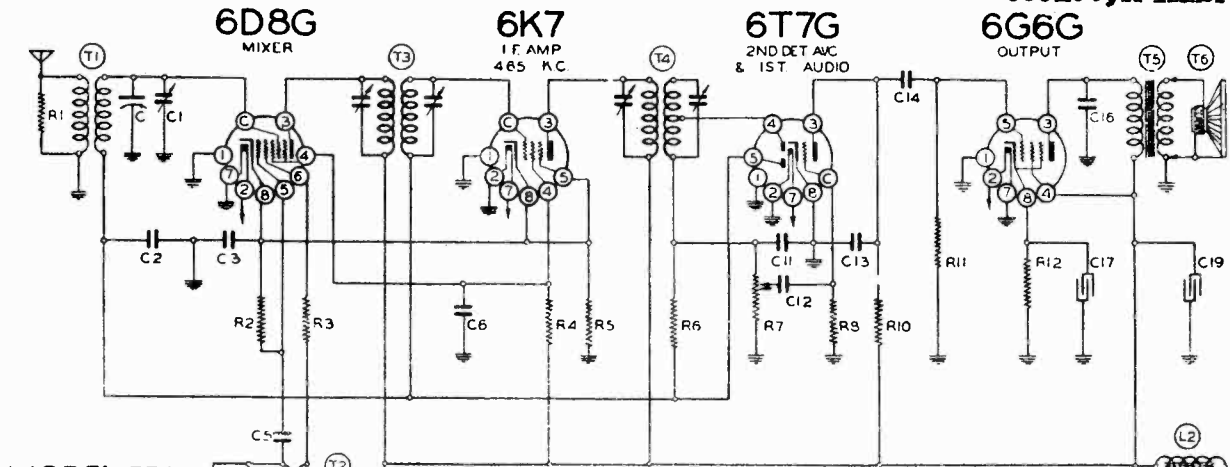
BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 1N5G I. F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 1A7G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROADCAST BAND	1735 Kc.	200 mmf.	Antenna lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Antenna Broadcast	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Set dial at 600 Kc.	B.C. Series Pad (See Fig. 1)	Broadcast oscillator series pad	Adjust to maximum, rock dial. (See note "A")

**NOTE "A"** Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained. Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.

**FREQUENCY RANGE**  
535 to 1735KC.  
\*Power Output.....130 Milliwatts Undistorted, 270 Milliwatts Maximum  
Intermediate Frequency .....465 KC.  
\*Power Output Measured Across 3 Ohm Voice Coil.

BELMONT RADIO CORP.

MODEL 553, Series A  
Schematic, Voltage  
Socket, Trimmers



MODEL 553  
SERIES A

Circuit Diagram No. Part No.

RESISTORS		
R1	13017	10M ohm—1/4 w.
R2	13012	50M ohm—1/4 w.
R3	13092	1000 ohm—1/4 w.
R4	130157	12M ohm—1/4 w.
R5	13097	200 ohm—1/4 w.
R6	1304	3 megohm—1/4 w.
R7	101150	1 megohm volume control
R8	130225	15 megohm—1/4 w.
R9	13097	200 ohm—1/4 w.
R10	130266	200M ohm—1/4 w.
R11	130102	500M ohm—1/4 w.
R12	13093	450 ohm—1/4 w.
R13	130168	100 ohm—1/4 w.

CONDENSERS		
C	10295	2 gang variable condenser
C1	1009	Antenna Trimmer
C2	10064	.05 x 200 v.
C3	1295	.25 x 200 v.
C4	10020	.0001 mica
C5	10020	.1 x 200 v.
C6	10020	.1 x 200 v.
C7	10040	.5 x 120 v.

Circuit Diagram No. Part No. Description		
C9	10040	.5 x 120 v.
C10	10011	.01 x 400 v.
C11	12960	.00015 mica
C12	10011	.01 x 400 v.
C13	1292	.0005 mica
C14	1009	.05 x 200 v.
C15	10073	.008 x 1200 v.
C16	10019	.006 x 600 v.
C17	11979	20 mfd. x 25 w. volt
C18	10020	.1 x 200 v.
C19	11979	16 mfd. x 200 w. volt
C20	11979	16 mfd. x 200 w. volt

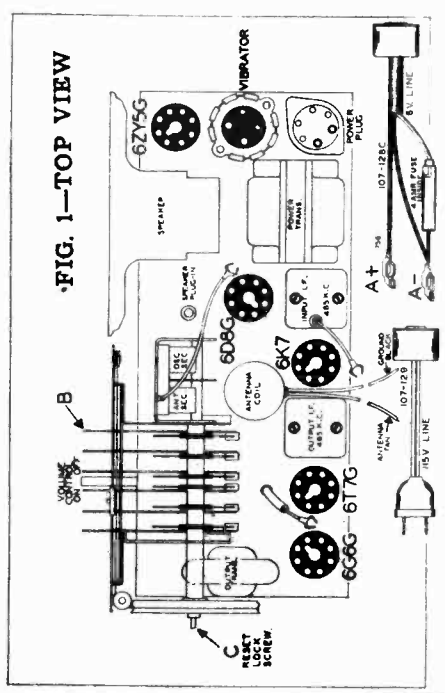
WIRING SIDE OF CABLE RECEPTACLE

FACE VIEW OF POWER CORD SOCKETS

115 VOLT AC LINE SOCKET

6 VOLT BATTERY LINE SOCKET

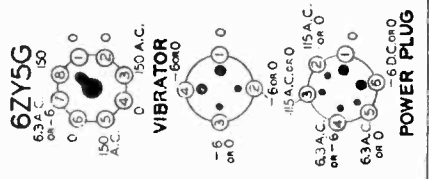
- For 6 volt storage battery operation:
  - Use cable No. 107128C.
  - Connect the lead (containing the fuse receptacle) marked A negative (-) to the negative (-) post of the storage battery.
  - Connect the lead marked A positive (+) to the positive (+) post of the storage battery.
- For 105-115 volts, 60 cycle operation:
  - Use special cable No. 107129.
  - Plug receptacle of cable into power socket on chassis.



Broadcast Band A. C. and 6-Volt Storage Battery Operated Superheterodyne Receiver

BOTTOM VIEW OF CHASSIS

VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS & CHASSIS. (1)—CANNOT BE READ WITH VOLTMETER.



Frequency Range—535 - 1735 Kilocycles



MODEL 553, Series A  
Alignment, Tuner Data  
Notes

BELMONT RADIO CORP.

**TO REMOVE CHASSIS FROM THE CABINET:**

Remove the four bolts which are used to fasten the chassis to the cabinet shelf; pull the knobs off their shafts and pull off the six button lever keys on front of dial.

**PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:**

There are six levers on the dial by means of which six stations may be selected, (See "B", Fig. 2).

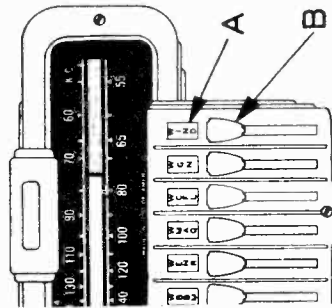


FIG. 2.—FRONT VIEW

**SERVICE NOTES:**

Voltage taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt.

All voltages are to be measured with 6.3 volts input to receiver.  
Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good. If fuse blows out frequently and insulating sleeve has been properly placed over fuse, the trouble is probably in the vibrator, it should be replaced. Do not attempt to make any adjustments on the vibrators.

Excessive hum, stuttering, low volume and a reduction in all D. C. voltages is usually caused by a shorted electrolytic condenser; open by-pass condensers frequently cause oscillation and distorted tone.

**ALIGNING INSTRUCTIONS:**

**CAUTION:**—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low battery voltage, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet.

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

- An all wave 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., 200 mmf.

The following equipment is required for aligning.

Press down any one of the six Automatic levers. Holding it down, tune in by means of tuning knob No. 2 any one of your favorite stations. Turn the tuning knob very slowly back and forth until signal is clearest. The station will then be accurately tuned in.

Release this lever and press down any other Automatic lever. Hold this lever down and tune in by means of knob No. 2 another favorite station.

Follow this procedure until stations have been set on all the levers. Hold tuning knob securely with left hand to prevent it from turning and with a coin or screw driver, tighten the special locking screw ("C") in the center of the tuning knob, (See Fig. 2).

This screw will lock in place all stations you have selected on the Automatic levers. (Note: Locking Screw "C" is loose when radio is shipped from factory).

If you should desire to change any station you selected to another, hold the tuning knob securely and loosen locking screw ("C") one or two turns; select the new station as explained.

**BE SURE TO RETIGHTEN THE LOCKING SCREW, OTHERWISE THE STATIONS WILL NOT STAY ADJUSTED TO THE LEVERS.**

Above each Automatic lever an opening in the escutcheon is provided for inserting station call letters, (See "A", Fig. 2).

Punch the correct station call letter tabs from the set of sheets supplied and insert them into the rectangular openings in the escutcheon above each of the levers. One of the small, clear celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

The Automatic Tuner dial is now set up for quick tuning. Press down on the lever and your favorite station is selected.

**ALIGNMENT PROCEDURE**

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6K7 I. F. Tube	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6D8G	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	200 mmf.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Antenna Broadcast	Adjust to maximum output

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

After each band is completed, repeat the procedure as a final check.

Power Consumption—40 Watts (at 115 Volts 50/60 Cycles) or 2.5 Amperes at 6.3 Volts  
Power Output—6 Watts Undistorted, 1 Watt Maximum

MODEL 553  
SERIES A

FREQUENCY RANGE  
535 to 1735 Kc.

BELMONT RADIO CORP.

MODEL 577C

Above Serial 203070

Schematic, Voltage, Notes

**GENERATOR INTERFERENCE**

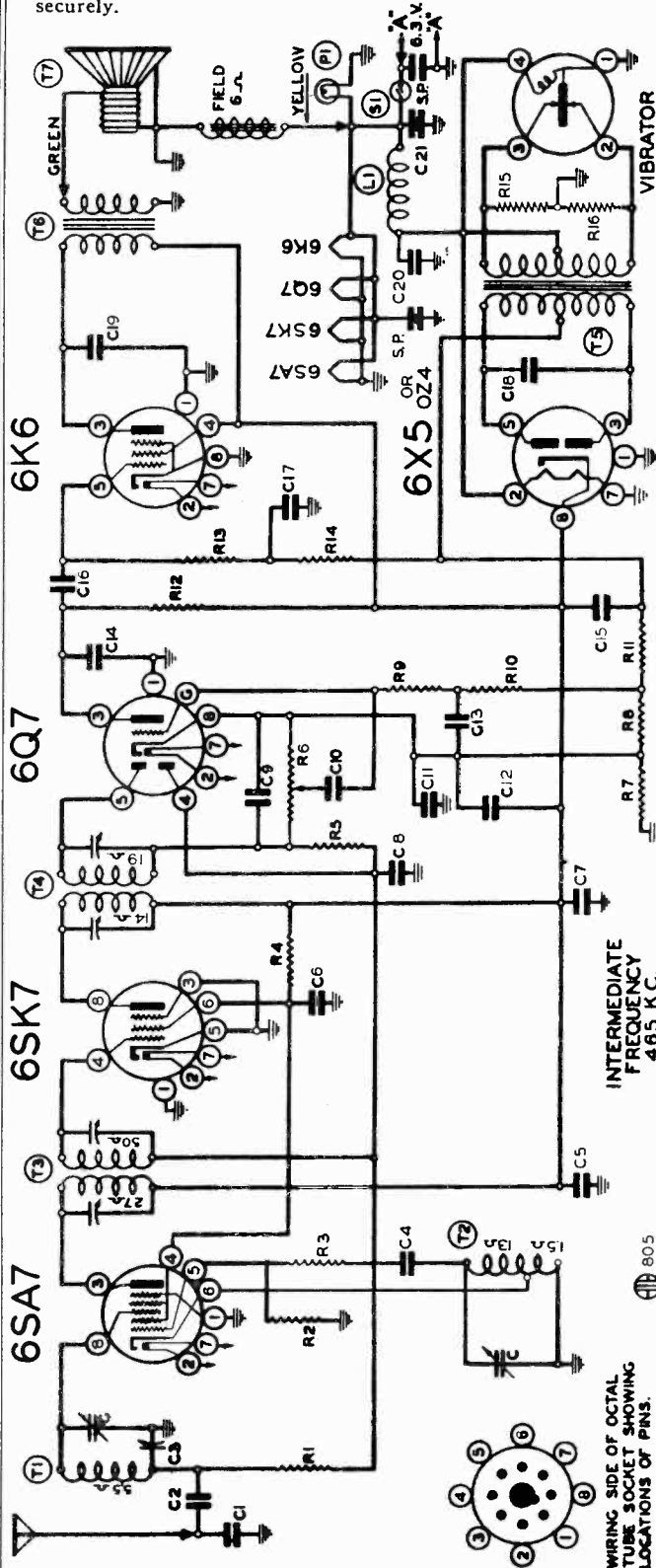
Remove the generator cutout mounting screw and fasten the condenser (100-81) bracket on the generator cutout mounting lug. Replace the cutout mounting screw and tighten down securely.

Connect the condenser lead to the battery terminal of the cutout. The generator condenser is absolutely necessary as it is used to eliminate a high pitched whining noise which would otherwise be heard as the motor is accelerated

**CONNECTIONS TO BATTERY**

The battery cable, number 107-82, (red wire with fuse receptacle at one end and terminal lug at other end) must be connected to battery terminal of ammeter. At the same time connect ammeter capacitor, number 100-82, to battery terminal of ammeter, other end of condenser to any convenient grounded screw on back of instrument panel. Make certain that insulating sleeve is slipped over fuse when fuse is placed in receptacle, before connecting to short battery cable from receiver.

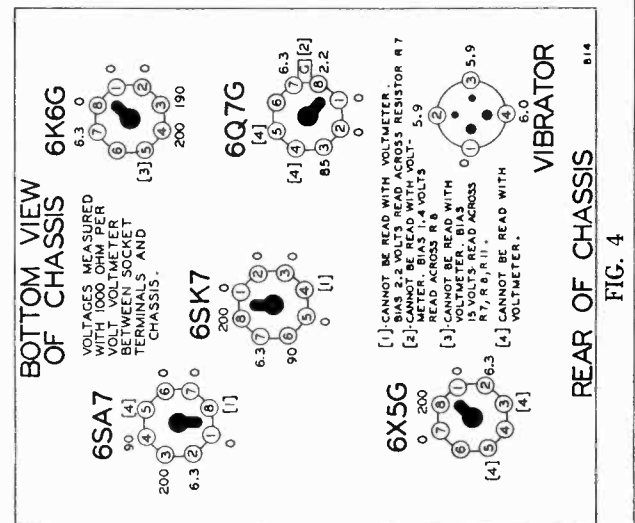
When connected properly, the discharge due to current drawn by the receiver should not indicate on the ammeter. This is important, since if improperly connected, as shown by the deflection of ammeter, additional motor interference may be encountered.



**ADJUST ANTENNA TRIMMER**

Tune in a weak signal at approximately 600 K.C. with volume control about three-fourths on. Adjust trimmer screw "X" until maximum output is obtained. (See Fig. 1, Adjustment "X" on right side of radio)

Code Part No.	Description	Code Part No.	Description
R1	250M ohm - 1/4 w. 20%	T1	Antenna coil complete
R2	20M ohm - 1/4 w. 10%	T2	Oscillator coil complete
R3	10 ohm - 1/4 w. 10%	T3	Input I.F. 465 kc. - complete
R4	10M ohm - 1 w. 10%	T4	Output I.F. 465 kc. - complete
R5	3 megohm - 1/4 w. 20%	T5	Power Transformer
R6	50 ohm - 1/4 w. 10%	T6	Output Transformer
R7	30 ohm - 1/4 w. 10%	T7	5" Dynamic Speaker
R8	2 megohm - 1/4 w. 20%	L1	"A" Filter Choke
R9	1 megohm - 1/4 w. 20%	L2	6.8 v. pilot light
R10	250 ohm - 1 watt 10%	S1	Off-on Switch on Volume Control
R11	250M ohm - 1/4 w. 20%	SP	Spark Plates
R12	250M ohm - 1/4 w. 20%		
R13	100 ohm - 1/4 w. 10%		
R14	100 ohm - 1/4 w. 10%		
R15	100 ohm - 1/4 w. 10%		
R16	100 ohm - 1/4 w. 10%		
C1	2 gang variable condenser		
C2	.0002 Mica 20%		
C3	.01 x 400 v. 25%		
C4	Antenna Trimmer		
C5	.00025 Mica 20%		
C6	.1 x 400 v. 25%		
C7	.1 x 200 v. 25%		
C8	.0001 Mica		
C9	.05 x 200 v. 25%		
C10	.0001 Mica 20%		
C11	.01 x 200 v. 25%		
C12	.1 x 200 v.		
C13	8 mid. lytic		
C14	.01 x 200 v.		
C15	.0005 Mica		
C16	8 mid. lytic		
C17	.01 x 400 v. 25%		
C18	.006 x 600 v.		
C19	.005 x 1200 v.		
C20	.5 x 120 v. + 50-10%		
C21	.5 x 120 v. + 50-10%		
C22	C12 and C15 in same unit.		



January 1939  
Serial No. 203070 Up

MODEL 577C

Above Serial 203070

BELMONT RADIO CORP.

MODEL 677C

Tuner Data

**SERVICE NOTES** Alignment, Socket, Trimmers  
Tuner Data

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the bottom view.

In order to prevent signal from acting upon A.V.C. and affecting accuracy of voltage measurements, aerial and ground leads should be short circuited while making measurements.

All voltages are to be measured with 6.3 volts input to receiver. Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good. If fuse blows out frequently and insulating sleeve has been properly placed over fuse, the trouble is probably in the vibrator, it should be replaced. Do not attempt to make any adjustments on the vibrators.

**ALIGNING INSTRUCTIONS**

All of the adjustments have been very carefully set with signal generators at the factory and require no further adjustment, unless it becomes necessary to replace a coil or transformer, or if the adjustments have been tampered with in the field. Under no circumstances attempt any adjustments without first making certain that adjustment is necessary and only after voltages, tubes and condensers have been checked and found to be normal. To properly re-align this receiver, a test oscillator, as well as an output meter, must be used.

**DUMMY ANTENNAS**

The dummy antennas referred to in the following instructions are:

- "I.F. Dummy" —A .5 mfd. condenser connected in series with the test oscillator output lead.
- "Broadcast Dummy"—A 125 mmfd. condenser connected in series with the output lead of the test oscillator.

**RESONANCE INDICATOR**

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 6K6 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

**I.F. ALIGNMENT: (465 K.C.)**

1. With variable condenser in its minimum capacity position (plates entirely out of mesh) and with volume control full on, connect test oscillator set at 465 K.C. in series with I.F. dummy antenna, to grid of 6SK7 I.F. tube.
2. Adjust trimmer condensers of output I.F. transformer No. 108121 to resonance with oscillator.
3. Move test oscillator connection to grid of 6SA7 tube and adjust trimmer condensers of input I.F. transformer No. 108139 to resonance with oscillator. There are two adjustments on each and they are accessible from the top of the transformer shield and should be adjusted with an insulated screw driver. (See Fig. 3—top view, page 3.)

**BROADCAST ALIGNMENT**

1. With variable condenser in its minimum capacity position, connect test oscillator set at 1550 K.C. in series with broadcast dummy to the antenna lead of receiver.
2. Adjust oscillator trimmer of variable condenser to resonance. (This adjustment is the rear section of the two-gang condenser—see top view, Fig. 3.)
3. Shift test oscillator to 1400 K.C. and pick up signal by rotating condenser and adjust antenna trimmer (front section of gang condenser) to resonance (see top view, Fig. 3.)
4. Re-set test oscillator to 600 K.C. and rotate variable condenser to 600 K.C. Adjust series pad in the antenna circuit for maximum gain. This pad is mounted on the side of the antenna can, adjustment "X."

5. Go back and check 1400 K.C. If adjustment is made here, check 600 K.C. again.
6. Check for sensitivity at 1000 K.C. by setting test oscillator to this frequency and picking up the signal by rotating variable condenser. Under no circumstances bend plates of variable condenser sections to correct tracking.

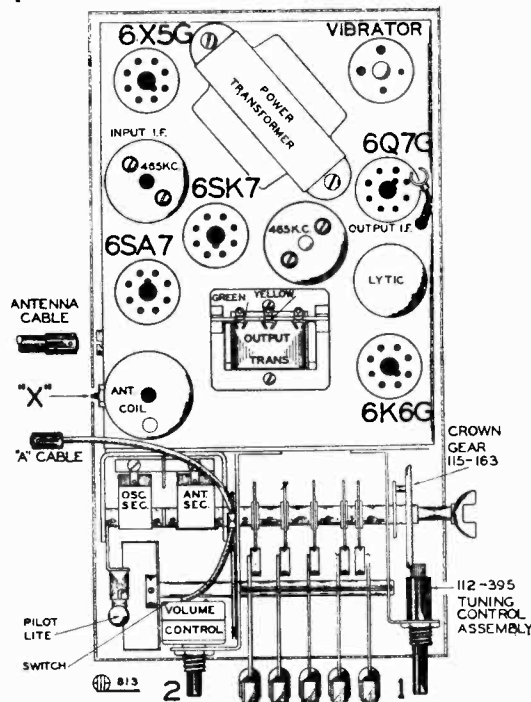


FIG. 3—TOP VIEW

**PROCEDURE FOR SETTING THE AUTOMATIC LEVERS**

There are five levers on the dial by means of which five stations may be selected, (See "B" Fig. 2).

Make a list of local stations you tune in regularly; any number up to and including five.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

On the front of each automatic tuner lever an opening is provided for inserting the call letter tabs, (See "A" Fig. 2).

Insert the call letter tabs in the rectangular openings of each of the automatic tuner levers. One of the small celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 1) the station you have assigned to this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station assigned to this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.

Now rotate the tuning knob (No. 1) to the right (clockwise) as far as it will turn, and tighten the special locking screw ("C") located on left side of tuner dial assembly (See Fig. 2).

It is VERY IMPORTANT that this locking screw is turned until it is ABSOLUTELY TIGHT.

This screw will lock in place all the stations you have selected on the automatic tuner levers. (Note: Locking screw "C" is loose when radio is shipped from factory.)

If you should desire to change any station you selected to another, loosen the locking screw "C" one or two turns, select the new station as explained. Be sure to retighten the locking screw, otherwise the stations you have selected will not stay adjusted to the levers.

The automatic dial is now set up for quick tuning. Press down on the lever and your favorite station is selected.





MODEL 633, Series A  
Alignment, Tuner, Parts

BELMONT RADIO CORP.

**ALIGNMENT PROCEDURE**

- Volume control—Maximum all adjustments.
- Connect B - of radio chassis to ground post of signal generator through .1 Mfd. condenser.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator.
- Output indicating meter.
- Non-metallic screwdriver.
- Dummy antennas—1 mf., 100 mmf.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	470 Kc.	.1 MFD.	Grid of 6A8G	Rotor full open (Plates out of mesh)	Four trimmers (See Fig. 1)	Output and input I. F.	Adjust to maximum output
BROAD-CAST BAND	1720 Kc.	100 mmf.	Antenna Lead	Rotor full open (Plates out of mesh)	Trimmer—Top of rear section of gang (See Fig. 1)	Broadcast Oscillator	Adjust to maximum output
	1400 Kc.	100 mmf.	Antenna Lead	Set dial at 1400 Kc.	Trimmer—Top of front section of gang (See Fig. 1)	Broadcast Antenna	Adjust to maximum output

FREQUENCY RANGE  
535 to 1720 K.C.

Power Consumption .....45 Watts  
Power Output .....1.2 Watts Undistorted, 2.1 Watts Maximum  
Intermediate Frequency .....470 K.C.

**PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:**

There are five levers on the front of the radio by means of which five stations may be selected, (See "B" Fig. 2).

Make a list of local stations you tune in regularly; any number up to and including five.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

Above each automatic tuner lever an opening in the cabinet is provided for inserting the call letter tabs, (See "A" Fig. 2).

Insert the call letter tabs in the rectangular openings in the cabinet above each of the automatic tuner levers. One of the small celluloid tabs supplied should be snapped in place over each of the station call letter tabs.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 2) the station indicated on the station call letter tab above this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station indicated on the call letter tab above this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.

Now rotate the tuning knob (No. 2) to the right (clockwise) as far as it will turn, and with a coin (half dollar), tighten the special locking screw ("C") in the center of the tuning knob, (See Fig. 2).

It is VERY IMPORTANT that this locking screw is turned until it is ABSOLUTELY TIGHT.

This screw will lock in place all the stations you have selected on the automatic tuner levers. (Note: Locking screw "C" is loose when radio is shipped from factory).

**ALIGNING INSTRUCTIONS:**

CAUTION:—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltage, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet.

**HOW TO REMOVE CABINET:**

CAUTION:—Always disconnect the line cord from the house current before removing the chassis from the cabinet.

To remove chassis from the cabinet unscrew the locking screw in the center of the tuning knob and pull tuning knob and volume knob off their shafts. Remove the back of the cabinet and the two screws that hold the chassis to the cabinet. Pull off the five buttons on the Automatic levers. Move the chassis toward back of cabinet so that control shafts and tuner assembly clear holes in cabinet, then chassis can be slipped out.

9-38

**SPEAKER**

Five Inch Dynamic Speaker (450 Ohm Field)..... 3.00  
Output Transformer for Speaker..... .75

**MISCELLANEOUS**

Volume Control and Switch (1 Megohm)..... 1.00  
Two Gang Variable Condenser..... 2.50  
Output Transformer for Speaker..... .75  
Line Cord and Plug..... .50  
Brown Bakelite Cabinet Complete..... 3.00  
Ivory Finish Bakelite Cabinet Complete..... 3.50  
Brown Bakelite Volume Knob..... .10  
Ivory Bakelite Volume Knob..... .10  
Brown Bakelite Tuning Knob..... .15  
Ivory Bakelite Tuning Knob..... .20  
Back for Cabinet (Specify Color)..... .10  
Brown Buttons for Tuner Levers..... .10  
Ivory Buttons for Tuner Levers..... .10  
Ballast Resistor (in Tube Shell with Base)..... .75

**DIAL PARTS LIST**

10794 P1 6-8 Volt Pilot Light Type T-44..... .10  
102201 Socket and Bracket for Pilot Light..... .10  
115224 Support Bracket for Automatic Tuning Mechanism (Mounts to Variable Condenser)..... .10  
115176 End Support Bracket for Automatic Tuning Mechanism..... .10  
117398 Brass Pulley (String Drive for Pointer; Mounts on Cam Shaft at Variable Condenser End)..... .15  
117399 Brass Pulley (String Drive for Pointer; Mounts on Right End of Cam Shaft with Spring Take-Up Take-Up Spring for Drive Spring Pulley)..... .15  
120200 Tuner Cams (Five Used)..... .05  
117258 Keywashers (Used on Each Side of Tuner Cams)..... .02  
131157 Keywashers (Two Used; Have Holes to Attach Take-Up Spring)..... .02  
131157B Lever Complete with 117337 Roller..... .15  
115174 Lever Shaft..... .15  
117401 Locking Collar (for Right End of Cam Shaft)..... .15  
117400 Compression Spring Washer (for Locking Collar)..... .02  
131141 Locking Screw (Lock Tuner Cams; Inserted through Center of Tuning Knob)..... .10  
117390 Hairpin Springs (for Tuner Levers)..... .03  
120181 Brass Spacer (Three Used on Cam Shaft)..... .05  
117256 Brass Spacer (One Used on Cam Shaft)..... .05  
117340 Bracket for Dial Scale Complete with Two Small Brass Pulleys and Bushing for Pointer Shaft..... .20  
115249 Threaded Pulley and Stud for Pointer..... .10  
117403 Pointer..... .25  
112489 Dial Scale Calibrated..... .35  
112487 Crystal (Cover for Dial Scale)..... .25  
112488 Cinch Buttons (Fasten Dial Scale to Bracket)..... .01  
13143 Set of Call Letter Sheets..... .15  
112445GW Clear Celluloid Tabs for Station Call Letters... Doz. .10  
112336 Brown Bakelite Buttons for Tuner Levers..... .10  
128173BR Ivory Bakelite Buttons for Tuner Levers..... .10  
128173W

Mica condensers are coded with an additional dot indicating tolerance:

Tolerance Percent	Color of Dot
2 1/2%	White
5%	Green
10%	Blue
15%	Yellow
20%	Red
More Than 20%	None

All prices quoted are list and are subject to the usual trade discounts. Shipments are F.O.B. our Factory. When remitting in advance, please include postage.

WE CANNOT SUPPLY SPEAKER, CONES OR FIELDS SEPARATELY. WE CAN REPLACE OR REPAIR A DAMAGED SPEAKER FOR \$0.90 NET. IF IT IS RETURNED TO OUR FACTORY, TRANSPORTATION CHARGES PREPAID.

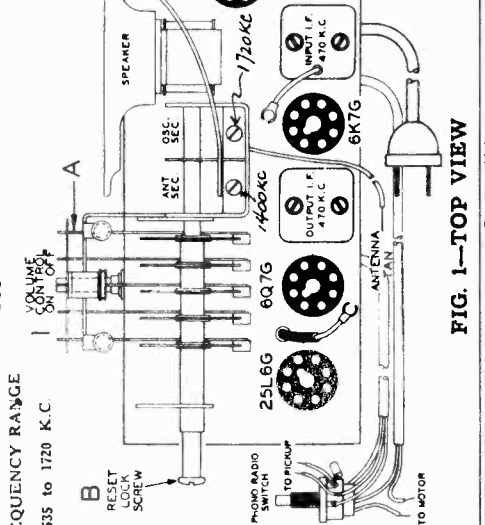
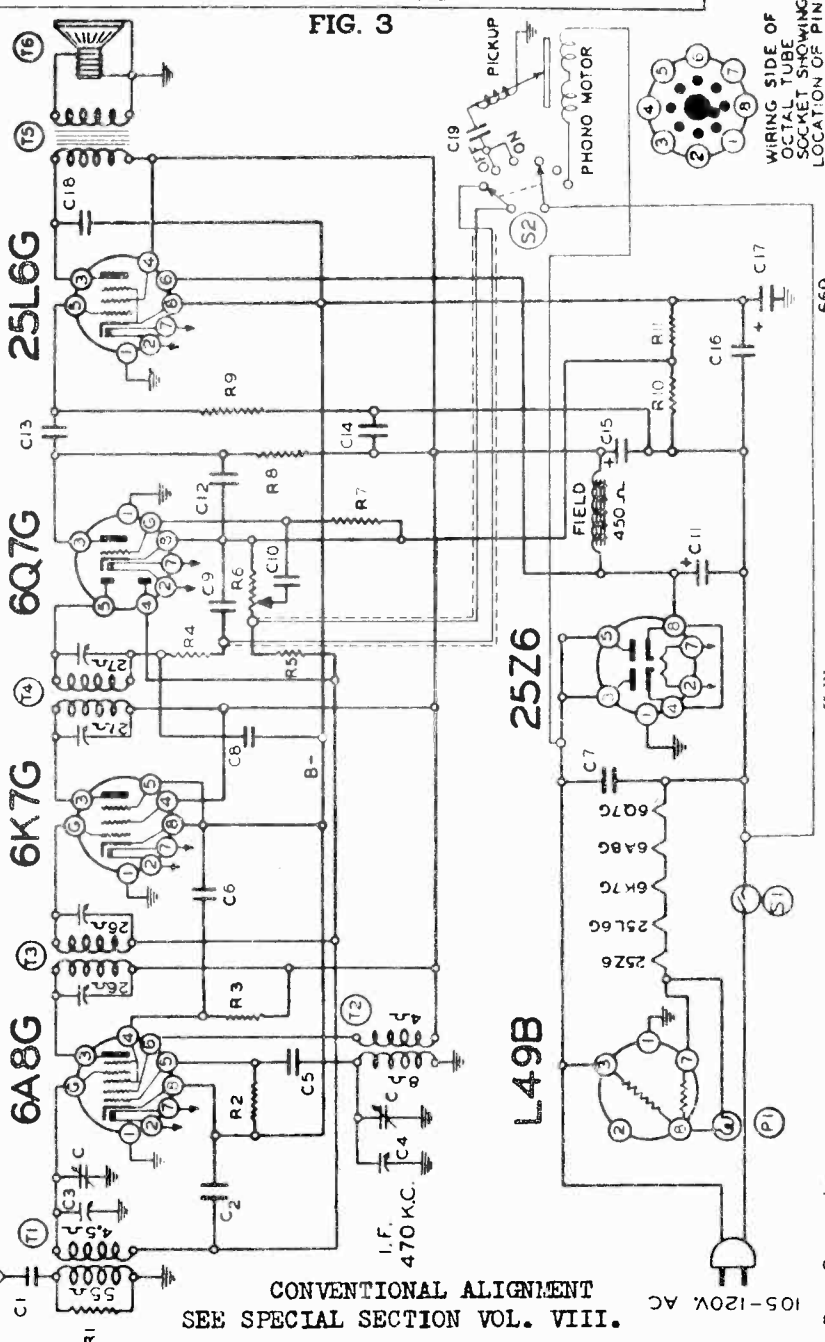
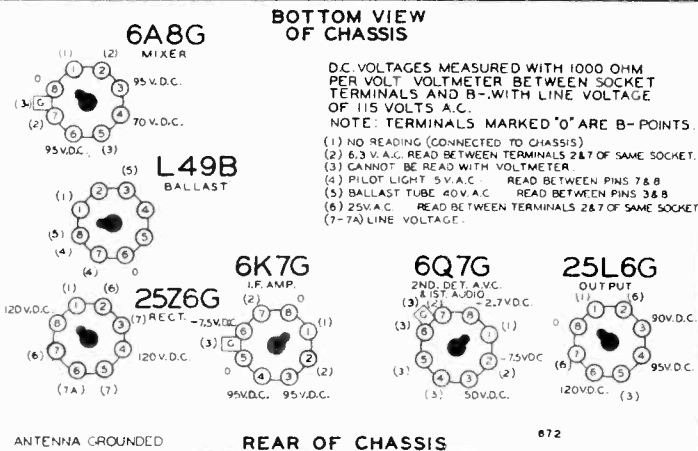
PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

Voltage, Alignment

BELMONT RADIO CORP. Schematic, Socket, Trimmers

MODEL 634, Series A

IF 470 kc. Dummy ant. .1mf. cond. to grid of 6K7G tube. Variable plates out of mesh. Adjust 1st. IF trimmers to max. output. As above, connect to grid of 6A8G tube. Adjust 2nd IF trimmers to max. output. B.C. 1720 kc, osc. sec. Variable plates out of mesh. Dummy ant. 100 mmf. to ant. lead. Adjust b.c. osc. trimmer to max. output. At 1400 kc ant. sec. Dummy ant. 100 mmf. Variable set at 1400 kc. Adjust ant. sec. trimmer to max. output.



FREQUENCY RANGE  
535 to 1720 K.C.

Power Consumption  
12 Watts Undistorted, 2.1 Watts Maximum

Power Output  
55 Watts

No. Code	Part No.	Description
R1	13017	10M ohm—1/2 w.
R2	13012	50M ohm—1/2 w.
R3	13014	15M ohm—1/2 w.
R4	13012	50M ohm—1/2 w.
R5	13017	30M ohm—1/2 w.
R6	10119	1 megohm volume control
R7	13025	150M ohm—1/2 w.
R8	13011	75 ohm—1/2 w.
R9	13011	75 ohm—1/2 w.
R10	13031	50 ohm—1/2 w.
R11	13017	10M ohm—1/2 w.
C1	10088	2 gang variable condenser
C2	1282	.005 mica
C3	10026	.005 mica
C4		400
C5		400
C6		400
C7	12912	Oscillator Trimmer—on gang
C8	1009	Antenna Trimmer—on gang
C9	10885F	.00025 mica
C10	1001	.05 x 200 v.
C11	1295	.1 x 400 v.
C12	10001	.0001 mica
C13	1295	.0001 mica
C14	1295	.0001 mica
C15	1295	.0001 mica
C16	1295	.0001 mica
C17	1295	.0001 mica
C18	1295	.0001 mica
C19	1295	.0001 mica
C20	1295	.0001 mica
C21	10110R	Antenna Coil Complete
T1	11023	Oscillator Coil Complete
T2	10885F	Input I. F.—470 kc. complete
T3	10885F	Output I. F.—470 kc. complete
T4	10885F	5th Dynatron (450 ohm field)
T5	114116D	Off on Speaker on volume control
S1		Phono Switch
S2		T-41 Pilot Light
P1	10794	

MODEL 634, Series A  
Tuner, Phono Data, Parts

BELMONT RADIO CORP.

CHASSIS MODEL 634

Series A

When ordering parts always mention complete factory model number, series and issue.

LIST OF REPAIR PARTS (Serial No. 281300 and up)

Use Only Genuine Factory Replacement Parts

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>CONDENSERS</b>			
1001	C7	.1 x 400 Volt Condenser	.25
1009	C6, C14	.05 x 200 Volt Condenser	.25
10011	C10, C13	.01 x 400 Volt Condenser	.25
10026	C2, C19	.02 x 400 Volt Condenser	.25
10067	C18	.025 x 400 Volt Condenser	.25
10091	C17	.15 x 400 Volt Condenser	.25
11953C	C11, C15, C16	30 MFD-30 MFD-40 MFD Electrolytic Condenser (for 60 Cycle)	1.50
11962C	C11, C15, C16	60 MFD-60 MFD-40 MFD Electrolytic Condenser (for 25 Cycle)	1.75
1292	C1	.0005 Mica Type Condenser-20%	.25
1295	C8, C9	.0001 Mica Type Condenser-20%	.25
12912	C5	.00025 Mica Type Condenser-20%	.25

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>RESISTORS</b>			
13011	R9	250M Ohm-1/4 Watt Resistor-20%	.20
13012	R2, R4	50M Ohm-1/4 Watt Resistor-20%	.20
13017	R1	10M Ohm-1/4 Watt Resistor-20%	.20
13010	R8	150M Ohm-1/4 Watt Resistor-20%	.20
130149	R3	15M Ohm-1/4 Watt Resistor-20%	.20
130170	R5	3 Megohm-1/4 Watt Resistor-25%	.30
130174	R11	50 Ohm-1/4 Watt Resistor-10%	.20
130225	R7	15 Megohm-1/4 Watt Resistor-30%	.20
130231	R10	75 Ohm-1/4 Watt Resistor-10%	.20

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>COILS</b>			
10882F	T3	Input I. F. Coil Assembly Complete with Can	1.25
10883F	T4	Output I. F. Coil Assembly Complete with Can	1.25
11073	T2	Oscillator Coil Assembly Complete	.50
111108	T1	Antenna Coil Assembly Complete	.75

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>SOCKETS</b>			
12193		Eight Prong Octal Sockets	.15

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>SPEAKER</b>			
114116D	T6	Five Inch Dynamic Speaker (450 Ohm Field)	3.00
10560	T5	Output Transformer for Speaker	.75

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>MISCELLANEOUS</b>			
101139	R6, S1	Volume Control and Switch (1 Megohm)	1.00
10288	C, C3, C4	Two Gang Variable Condenser	2.50
10560	T5	Output Transformer for Speaker	.75
10798		Line Cord and Plug	.50
128134BR		Brown Bakelite Volume Knob	.10
128189BR		Brown Bakelite Tuning Knob	.15
128173BR		Brown Buttons for Tuner Levers	.10
L49B		Ballast Resistor (in Tube Shell with Base)	.75

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>PHONOGRAPH PARTS LIST</b>			
104138	T7	Motor Complete with Turntable and Mounting Screws, Washers, etc.	6.50
12221		Turntable Only Less Motor	.50
107181		Phono Connector Cable	.10
107182		Motor Connector Cable	.10
115102		Needle Cup	.10
114120		Pick-Up Arm Complete	4.95
12541C	S2	Phono-Radio Switch	.75
12335		Indicator Plate for Phono-Radio Switch	.15
128109B		Wood Knob for Phono-Radio Switch	.15

**PROCEDURE FOR SETTING THE AUTOMATIC LEVERS:**

There are five levers on the dial by means of which five stations may be selected, (See "A" Fig. 2).

Make a list of local stations you tune in regularly; any number up to and including five.

Numbers are placed on the cabinet above each of the automatic tuner levers. These numbers (1 to 5) are used to designate the stations instead of station call letter tabs.

Assign Stations for the levers numerically letting the numbers represent the stations you have chosen.

Press DOWN ALL THE WAY any one of the automatic tuner levers. Holding it down FIRMLY, tune in by means of the tuning knob (No. 2) the station you have assigned to this lever. Turn the tuning knob very slowly back and forth (while still holding lever in downward position) until the signal is clearest. The station will then be accurately tuned in. Release the lever.

Press down another automatic tuner lever. Holding it down FIRMLY, carefully tune in the station assigned to this lever. Release this lever.

Follow this procedure until you have selected all of your favorite stations.

Part No.	Circuit Diagram Reference	Description	List Price Each
<b>DIAL PARTS LIST</b>			
10794	P1	6-8 Volt Pilot Light Type T-44	.10
107201		Socket and Bracket for Pilot Light	.10
115224		Support Bracket for Automatic Tuning Mechanism (Mounts to Variable Condenser)	.10
115176		End Support Bracket for Automatic Tuning Mechanism	.10
117398		Brass Pulley (String Drive for Pointer; Mounts on Cam Shaft at Variable Condenser End)	.15
117399		Brass Pulley (String Drive for Pointer; Mounts on Right End of Cam Shaft with Spring Take-Up)	.15
120200		Take-Up Spring for Drive Spring Pulley	.03
117258		Tuner Cams (Five Used)	.05
131157		Keywashers (Used on Each Side of Tuner Cams)	.02
131157B		Keywashers (Two Used; Have Holes to Attach Take-Up Spring)	.02
115174		Lever Complete with 117337 Roller	.15
117401		Lever Shaft	.15
117400		Locking Collar (for Right End of Cam Shaft)	.15
131141		Compression Spring Washer (for Locking Collar)	.10
117390		Locking Screw (Lock Tuner Cams; Inserted through Center of Tuning Knob)	.02
120181		Hairpin Springs (for Tuner Levers)	.03
117256		Brass Spacer (Three Used on Cam Shaft)	.05
117340		Brass Spacer (One Used on Cam Shaft)	.05
115249		Bracket for Dial Scale Complete with Two Small Brass Pulleys and Bushing for Pointer Shaft	.20
117403		Threaded Pulley and Stud for Pointer	.10
112489		Pointer	.25
112487		Dial Scale Calibrated	.35
112488		Crystal (Cover for Dial Scale)	.25
13143		Cinch Buttons (Fasten Dial Scale to Bracket)	.01
128173BR		Brown Bakelite Buttons for Tuner Levers	.10

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

Now rotate the tuning knob (No. 2) to the right (clockwise) as far as it will turn, and with a coin (half dollar), tighten the special locking screw ("B") in the center of the tuning knob, (See Fig. 1).

It is VERY IMPORTANT that this locking screw is turned until it is ABSOLUTELY TIGHT.

This screw will lock in place all the stations you have selected on the automatic tuner levers. (Note: Locking screw "B" is loose when radio is shipped from factory).

If you should desire to change any station you selected to another, hold the tuning knob No. 2 securely and with a coin loosen the locking screw "B" one or two turns; select the new station as explained. Be sure to retighten the locking screw, otherwise the stations you have selected will not stay adjusted to the levers.

The automatic dial is now set up for quick tuning. Press down on the lever and your favorite station is selected.

**RADIO-PHONOGRAPH SWITCH:**

The knob for the Radio-Phonograph Switch is located in the front left hand corner of the phonograph compartment. It is marked with a pin and under the knob an escutcheon plate is marked as follows: "Radio"—"Phono Off"—"Phono On"

Rotating the knob so that the pin marker on the knob is in line with the word "Radio" the switch is in radio playing position; when the pin is in line with the word "Phono Off" the switch disconnects the radio and connects the phonograph pick-up; when the pin is in line with the word "Phono-On" the switch connects the phonograph motor and is in phonograph playing position. The motor must be started by hand. Press down on the turntable with the fingers, spread and give the record and turntable a quick spin in a clockwise direction. The motor can be started rotating in either direction. For proper operation, however, it must rotate in a clockwise (to the right) direction.

To stop the phonograph motor turn the switch knob to "Phono-Off" position.

To disconnect phonograph entirely turn switch knob to extreme left to "Radio" position.

Volume control knob No. 1 on front of the radio controls the volume in either case; for radio, or for phonograph.

Trimmers, Voltage  
Above Serial 50672

# BELMONT RADIO CORP.

MODEL 677, Issue C  
Schematic, Socket

## TUBE COMPLEMENT

The tube complement of this chassis consists of the following octal base glass and metal tubes which are interchangeable with metal tubes.

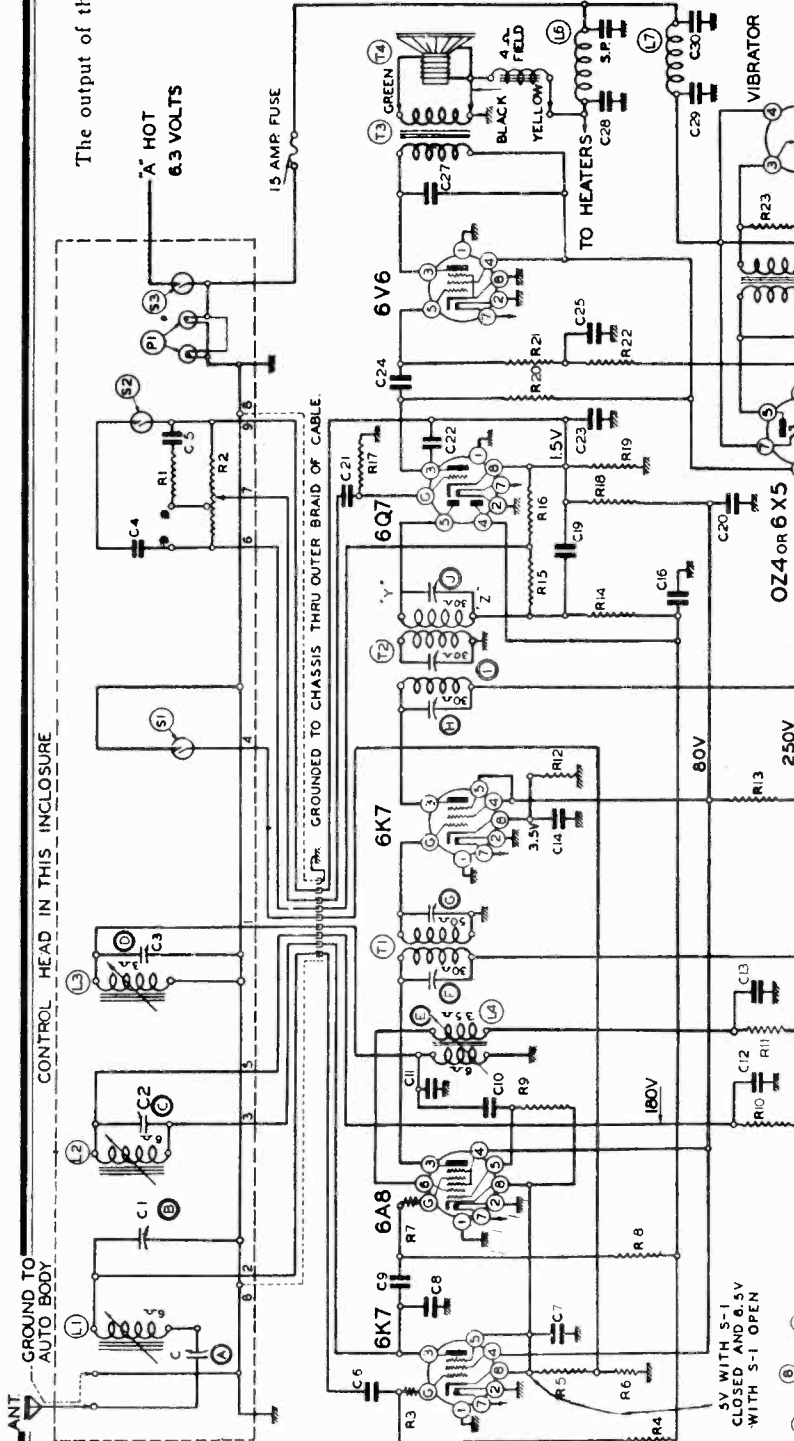
- 1—Type No. 6K7—Remote Cut-off Pentode as an R.F. Amplifier.
- 1—Type No. 6A8—Pentagrid Converter (composite first detector and oscillator).
- 1—Type No. 6K7—Remote Cut-off Pentode as an I.F. Amplifier.
- 1—Type No. 6Q7G—Duplex Diode Triode Second Detector, A.V.C. and First Audio.
- 1—Type No. 6V6—Beam—Power Amplifier.
- 1—Type No. OZ4—Rectifier.

By-pass block—.25 x 200 v.  
.01 x 1400 v. condenser  
.008 x 800 v. condenser  
.002 mica  
.5 x 120 v. condenser  
.5 x 120 v. condenser  
Spark Plate  
C12, C20, C25 in same unit  
C17, C18 in same unit

### PARTS

- 111101 Antenna Permeability Coil Complete
- 10940 R. F. Permeability Coil Complete
- 11084 Oscillator Permeability Coil Complete
- 11075 Adjustable Shunt Oscillator Coil
- 10562 Filter Choke—250 ohms
- 10566 "A" Choke
- 10566 "A" Choke
- 108120 Input I. F. Coil Complete—465 kc.
- 109115 Output Transformer
- 10961 8" Dynamic Speaker
- 14113 Power Transformer
- 104132 Sensitivity Switch
- 12547 Tone Control Switch
- 10797 Off-on switch on volume control 6-8 v. pilot light (2)

The output of the receiver is 6 watts.



### PARTS (Serial No. 50672 and up)

Code Part No.	Description
C	CONDENSERS
C1	Antenna Trimmer—Max. 600 min. 100
C2	Antenna Trimmer—Wkg. 380 min.
C3	Antenna Trimmer—30-100 min.
C4	Oscillator Trimmer—30 min.
C5	.002 x 600 v. condenser
C6	.006 x 600 v. condenser
C7	.00005 mica
C8	.000035 mica
C9	.00005 mica
C10	.00025 mica
C11	.00027 mica
C12	By-pass block .25 x 400 v.
C13	.05 x 400 v. condenser
C14	.05 x 200 v. condenser
C15	.1 x 400 v. condenser
C16	.1 x 200 v. condenser
C17	12.0 mid. x 400 v. lyric
C18	12.0 mid. x 400 v. lyric
C19	.0001 mica
C20	By-pass block—.25 x 400 v.
C21	.01 x 400 v. condenser
C22	.001 mica
C23	.02 x 400 v. condenser
C24	.01 x 400 v. condenser
C25	11624
C26	10036
C27	10089
C28	1296
C29	10031
C30	10031
SP	SP
R	RESISTORS
R1	30M ohm—1/2 w.
R2	1.2 megohm—1/2 w.
R3	500 ohm—1/2 w.
R4	1 megohm—1/2 w.
R5	400 ohm—1/2 w.
R6	350 ohm—1/2 w.
R7	500 ohm—1/2 w.
R8	1 megohm—1/2 w.
R9	50M ohm—1/2 w.
R10	20M ohm—1/2 w.
R11	50M ohm—1/2 w.
R12	30M ohm—1/2 w.
R13	1 megohm—1/2 w.
R14	100M ohm—1/2 w.
R15	600M ohm—1/2 w.
R16	100M ohm—1/2 w.
R17	40M ohm—1/2 w.
R18	40M ohm—1/2 w.
R19	250M ohm—1/2 w.
R20	200M ohm—1/2 w.
R21	100 ohm—1/2 w.
R22	100 ohm—1/2 w.
R23	13056
R24	13056
L	LYTIC COND
L1	111101
L2	10940
L3	11084
L4	11075
L5	10562
L6	10566
L7	10566
T1	108120
T2	109115
T3	10961
T4	14113
T5	104132
S1	12547
S2	12547
P1	10797

NOTE: Remote Tuner Units marked issue C were designed only to operate with radio chassis units marked issue C.

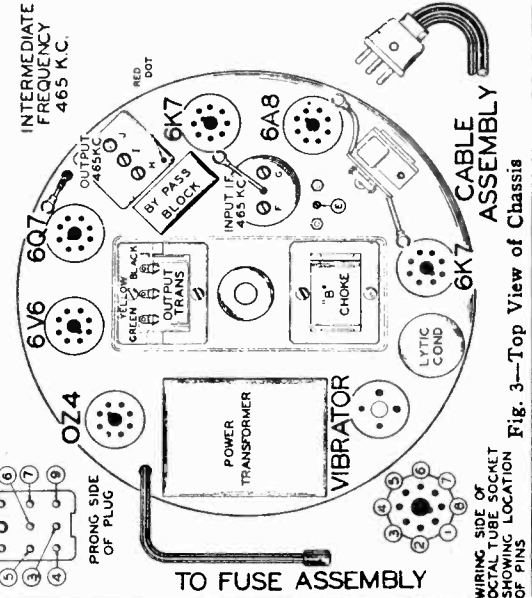


Fig. 3—Top View of Chassis

**SERVICE NOTES**

Voltages taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the circuit diagram.

In order to prevent signal from acting upon A.V.C. and affecting accuracy of voltage measurements, aerial and ground leads should be short circuited while making measurements.

All voltages are to be measured with 6.3 volts input to receiver. Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good. If fuse blows out frequently and insulating sleeve has been properly placed over fuse, the trouble is probably in the vibrator, it should be replaced. Do not attempt to make any adjustments on the vibrators.

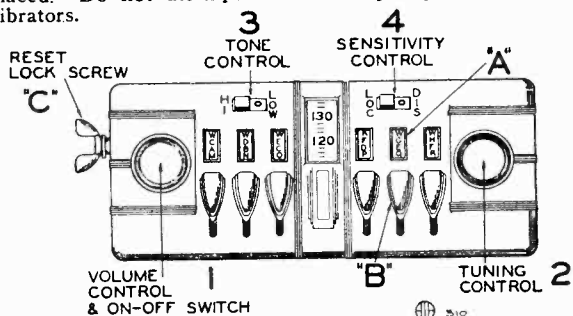


Fig. 2—Front View of Remote Tuner Unit

**ALIGNING INSTRUCTIONS**

All of the adjustments have been very carefully set with signal generators at the factory and require no further adjustment, unless it becomes necessary to replace a coil or transformer, or if the adjustments have been tampered with in the field. Under no circumstances attempt any adjustments without first making certain that adjustment is necessary and only after voltages, tubes and condensers have been checked and found to be normal. To properly re-align this receiver, a test oscillator, as well as an output meter, must be used.

**DUMMY ANTENNAS**

The dummy antennas referred to in the following instructions are:

- "I.F. Dummy" —A .5 mfd. condenser connected in series with the test oscillator output lead.
- "Broadcast Dummy"—A 125 mmfd. condenser connected in series with the output lead of the test oscillator.

**RESONANCE INDICATOR**

Use as a resonance indicator an output meter connected across the primary of the speaker input transformer, or by means of an adapter between the plate and screen terminals of the type 6V6 output tube. Maximum deflection of the meter indicates resonance. Use only enough signal to get a readily readable output. A low range output meter or the low scale of a multi-range meter should be used.

**I.F. ALIGNMENT: (465 K.C.)**

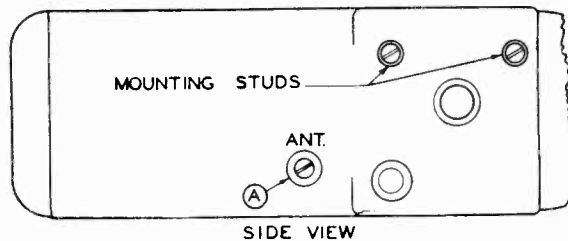
**IMPORTANT:**

To align the output I.F. transformer without using a cathode ray oscillograph a 10M ohm resistor must be shunted across the tertiary coil of this unit.

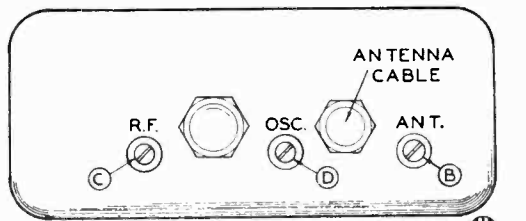
Connect the resistor as indicated by points "Y" and "Z" on the circuit diagram as follows:

Locate the wires coming from the bottom of the output I.F. coil assembly on the underside of the radio chassis.

The white lead with green tracer which is connected to diode plate terminal No. 5 on the 6Q7 tube socket is one point



SIDE VIEW



BACK VIEW

Fig. 4

and the white lead with brown tracer which is connected to the end terminal of the terminal strip is the other point. Proceed as follows:

1. With the dial of the Remote Tuner Unit set at 1400 K.C. and with volume control full on, connect test oscillator set at 465 K.C. in series with I.F. dummy to grid of 6K7 I.F. tube.
2. Adjust trimmers "H" and "I" of output I.F. transformer for maximum gain, (See Fig. 3, top view).
3. Disconnect the 10M ohm resistor which has been shunted across the tertiary winding and adjust trimmer "J" for maximum gain.
  - (a) This transformer is now correctly tuned. Under no circumstances re-adjust trimmers "H" and "I" after the 10M ohm resistor has been removed.
  - (b) For alignment of the output I.F. transformer using a cathode ray oscillograph the 10M ohm resistor is not used and the procedure is similar to the alignment of any two circuit I.F. transformer; merely tune for a symmetrical curve of maximum amplitude.
  - (c) Output connections for the cathode ray oscillograph should be made to pin No. 8 on 6Q7 tube socket and to the end terminal on the terminal strip; at this point the diode load resistors terminate.
4. Move test oscillator connection to grid of 6A8 tube and adjust trimmer condensers "F" and "G" of input I.F. transformer for maximum gain.

NOTE: A red dot on top of output I.F. can designate location of trimmer "H"

**BROADCAST ALIGNMENT:**

1. With the dial on the Remote Tuner Unit set at 1560 K. C., connect test oscillator set at 1560 K. C. in series with broadcast dummy to the antenna lead of receiver.
2. Adjusts oscillator trimmer (adjustment "D", on back of Remote Tuner Unit) to resonance. (See Fig. 4, back view).
3. Re-set test oscillator to 1400 K. C. and pick up signal by rotating dial on Remote Tuner Unit. Adjust R. F. Trimmer (adjustment "C", on back of Remote Tuner Unit), to resonance. (See Fig. 4, back view).

**CAUTION:** In order to realize maximum gain out of the antenna adjustments, back out antenna shunt trimmer (adjustment "B") on back of remote tuner unit all the way out and then adjust antenna series trimmer (adjustment "A") on side of remote tuner unit to resonance.

4. Re-set test oscillator to 600 K.C. and rotate Remote Tuner Unit dial to 600 K. C. Adjust shunt oscillator adjustment "E", rotating dial to and fro at the same time adjusting shunt oscillator for maximum gain. This adjustment is accessible from the top of the radio chassis, (See Fig. 3, top view).
5. Go back and check 1400 K. C. If adjustment is made here, check 600 K. C. again.





**ALIGNMENT PROCEDURE**

Failure to operate, noisy or weak reception is usually due to defective tubes, the tubes making poor contact with sockets or grid clips making poor contact with the caps of the tubes. Tubes may be checked very easily by replacing with other tubes which are known to be good. If fuse blows out frequently, the trouble is probably in the vibrator, it should be replaced. Do not attempt to make any adjustments on the vibrators.

**ALIGNING INSTRUCTIONS:**

All of the adjustments have been very carefully set with signal generators at the factory and require no further adjustment, unless it becomes necessary to replace a coil or transformer, or if the adjustments have been tampered with in the field. Under no circumstances attempt any adjustments without first making certain that adjustment is necessary and only after voltages, tubes and condensers have been checked and found to be normal. To properly re-align this receiver, a test oscillator, as well as an output meter, must be used.

**SERVICE NOTES:**

Voltages taken from different points of circuit to chassis are measured with volume control full on, all six tubes in their sockets and speaker connected, with a 6.3 volt meter having a resistance of 1000 ohms per volt. These voltages are clearly indicated on the voltage chart.

In order to prevent signal from acting upon A.V.C. and affecting accuracy of voltage measurements, aerial and ground leads should be short circuited while making measurements.

All voltages are to be measured with 6.3 volts input to receiver. Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagram.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating which is known to be good, until the defective unit is located.

The following equipment is required for aligning:

- An all wave 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., 125 mmf.

The output I. F. and audio amplifier including the power supply is contained in the speaker case.

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The R. F. oscillator, I. F. and audio amplifier including the power supply is contained in the speaker case.

The I. F. frequency used is 465 K. C. The output I. F. and audio amplifier including the power supply is contained in the speaker case.

**SIGNAL GENERATOR**

BAND	Frequency Setting	Dummy Antenna	Connection to Radio	Remote Tuner Dial Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6SK7 I. F. Tube	Set dial at 1400 Kc.	Trimmers C19, C20	Output I. F.	See note "A" Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6SK7	Set dial at 1400 Kc.	Trimmer C21	Output I. F.	See note "B" Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6A8	Set dial at 1400 Kc.	Trimmers C14, C15	Input I. F.	Adjust to maximum output
BROADCAST BAND	1565 Kc.	125 mmf.	Antenna lead	Set dial at 1565 Kc.	Trimmer C5	Oscillator	Adjust to maximum output
	1400 Kc.	125 mmf.	Antenna lead	Set dial at 1400 Kc.	Trimmers C1, C3	Antenna, and R. F.	Adjust to maximum output
	600 Kc.	125 mmf.	Antenna lead	Set dial at 600 Kc.	Trimmer C2	Antenna series adj.	See note "C" Adjust to maximum output

**NOTE "A" IMPORTANT:** To align the output I. F. transformer without using a cathode ray oscillograph a 10M ohm resistor must be shunted across the diode tuned circuit. Connect the resistor as indicated by points "X" and "Y" on the circuit diagram and the bottom view of the radio chassis Fig. 5. A red dot on top of output I. F. can designate location of trimmer "C19."

**NOTE "B":** Before adjusting trimmer C21 disconnect the 10M ohm resistor. Under no circumstances re-adjust trimmers C19 or C20 after the 10M ohm resistor has been removed.

For alignment of the output I. F. transformer using a cathode ray oscillograph the 10M ohm resistor is not used.

**NOTE "C":** Maximum gain for this adjustment depends on the capacity of the antenna system of the car in which the radio is installed. For the proper alignment of this adjustment see "Adjusting Antenna Trimmer."

**ALIGNMENT OF THE IRON CORES**

The iron cores for the antenna, R. F. and oscillator permeability coils have been very carefully adjusted at the factory and require no further adjustment, unless it becomes necessary to replace a coil, or if the adjustments have been tampered with.

The procedure for aligning the iron cores will be supplied with replacement coils when ordered.

**TUBE COMPLEMENT:**

The tube complement of this chassis consists of the following:

- 1—Type No. 6A8—Pentagrid Converter (composite first detector and oscillator).
- 1—Type No. 6SK7—Remote Cut-off Pentode as an I. F. Amplifier.
- 1—Type No. 6K7 R. F. Amplifier.
- 1—Type No. 607—Duplex Diode Triode Second Detector, A.V.C. and First Audio.
- 1—Type No. 6J5G—Driver Amplifier.
- 1—Type No. 6N7—Push-Pull Output Amplifier.

**IMPORTANT—ADJUSTING ANTENNA TRIMMER:**

Tune in any weak station between 600 and 800 kc. Make sure that the antenna shunt trimmer on the Bottom of the Remote Tuner is turned all the way out (counter clockwise), (see adjustment "C1," Fig. 4).

Adjust antenna series trimmer on the side of the remote Tuner Unit. For maximum output. (See adjustment "C2," Fig. 4).

**NOTE:** If resonance (maximum output) cannot be obtained within the range of the antenna series trimmer "C2," turn the adjustment screw all the way out (counter clockwise) and then adjust the antenna shunt trimmer "C1" on the bottom of the remote tuner unit for a peak of maximum output.

The above arrangement will cover any antenna capacity that is now in use.

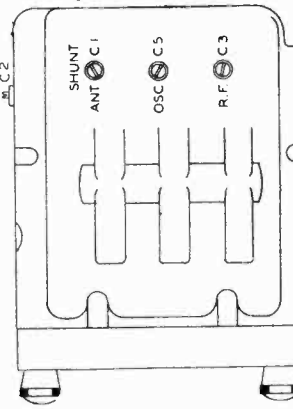
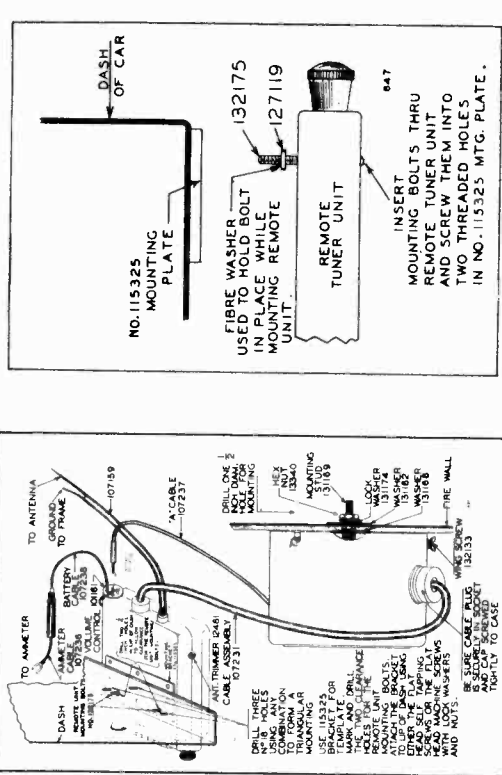


Fig. 4.—Bottom View of Remote Tuner

# BELMONT RADIO CORP.

MODEL 678, Issue A  
Tuner Data, Notes



**Fig. 1A—General Installation View**

**CONNECTIONS TO BATTERY:**

**CAUTION:** Before making any battery connections, check the polarity of the vibrator unit (consult the manual for the storage battery) whether it corresponds with the polarity of the storage battery in the car.

The radio is shipped from the factory with the vibrator inserted in its socket so that it will operate in cars in which the positive (+) post of the storage battery is grounded to the frame of the car.

In cars in which the negative (-) post of the storage battery is grounded to the frame of the car, the vibrator must be socketed so that the positive (+) post of the vibrator is opposite the red dot on the top of the transformer cover, (see Fig. 3, top view of radio chassis).

Check the polarity of the storage battery in car either by checking the actual wire connections on the battery or by using a voltmeter.

The ammeter cable, number 107236 (red wire with fuse receptacle at one end and terminal lug at other end), must be connected to battery terminal of ammeter. At the same time, connect ammeter capacitor, number 10082 to battery terminal of ammeter. The end of capacitor to any convenient grounded screw on back of the transformer cover.

Make certain the fuse is in the receptacle and the ammeter cable is properly connected to the short cable number 107238, coming from the Remote Tuner Unit. (See Fig. 1A.)

In some installations it is advisable to connect the ammeter cable to the terminal on the ammeter which will not allow the current drawn by the radio to indicate on the ammeter, an additional motor interference may be encountered.

**GENERATOR INTERFERENCE:**

Remove the generator cutout mounting screw and fasten the condenser (10081) bracket on the generator cutout mounting lug. Replace the condenser cutout mounting screw and tighten the generator cutout.

Connect a high pitch condenser to the battery terminal of the generator cutout. The generator condenser is a shunt which would be used to eliminate a high pitched whining noise which would otherwise be heard as the motor is accelerated.

**Fig. 1B—Remote Mounting**

**ANTENNA CONNECTION:**

In the antenna plug, a cable into the back of the remote tuner cable is connected to the antenna cable as far as possible and ground the pigtail of the antenna cable shield at the antenna end.

If a 3/16 inch shielded antenna cable is regularly supplied, long enough for hinge type antenna is used, this cable will be connected to the antenna cable as far as possible and ground the pigtail of the antenna cable shield at the antenna end.

The antenna cable should be pushed up into the column as far as possible. The reason for this is that ignition interference may be picked up by any unshielded portion of the antenna cable. If an under car or running board antenna is used, the pigtail of the antenna cable should be extended to the antenna in all cases. The antenna cable must be grounded at the extreme antenna end. If it is not grounded at the extreme antenna end, the end of the shielded extension and that it is well grounded at the extreme antenna end.

To extend the antenna cable shielding, the antenna lead wire should be covered with heavy insulation, such as loom, near the top of the antenna cable and the wires which connect together, care being taken that no strand of the shield touches the antenna wire.

Aerials suitable for steel roof and convertible cars can be purchased from your dealer.

The majority of 1937, 1938 and 1939 cars have steel roofs, and a running board or other car antenna such as the fifth pole, door hinge or over the top type must be used. The 1936 Chrysler Motor cars (except Plymouth—but including the Buick, Dodge and DeSoto) have a steel roof, separated from the body proper, which is used as an antenna.

**PROCEDURE FOR SETTING THE AUTOMATIC PUSHBUTTONS:**

These pushbuttons on the Remote Tuner Unit by means of which stations may be set up for automatic tuning (see B, Fig. 2).

Make a list of local stations you tune in regularly; any

number up to and including six.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

On the top of each pushbutton a slot is provided for inserting the call letter tabs, (see A, Fig. 2).

Insert the call letter tabs.

**NOW, PROCEED AS FOLLOWS:—**

1. Push the dial tuning knob in hard enough to make it latch in.
2. Rotate the dial tuning knob to the left (counter-clockwise), until the knob can not be turned any further without forcing it.

You will note that as the knob is rotated it will turn easily until the pointer reaches the end of the dial scale and then a slight amount of force will be required to rotate the knob any further. This indicates that the tuning mechanism is completely unlocked. At this point do not force the knob any further. The tuner mechanism is now unlocked.

(NOTE—Automatic tuner mechanism is locked tight when radio is shipped from the factory.)

3. Push in all the way any one of the pushbuttons and both the dial tuning knob and the pushbutton should be pushed hard enough to make them stay latched in.
4. Turn the dial tuning knob in firmly when the pushbutton is latched in, until the tuner mechanism in the Remote Tuner unit which is so constructed to release the dial tuning knob entirely when a pushbutton is pressed in. When setting up stations for automatic tuning, however, it is necessary that both the dial tuning knob and the pushbutton be latched in together.
5. Press in on the pushbutton which is latched in. Holding it in firmly, turn the dial tuning knob very slowly on the dash panel to the left of the steering column. Mount the unit as close to the steering column as possible to allow clearance for the emergency brake which is mounted on the extreme left hand side of some makes of cars.
6. Details of the dial tuning mechanism are shown in Fig. 1A and Fig. 1B.

It may be necessary in some instances to move dash panel, light switches or car radio to the left to give sufficient clearance for the Remote Tuner Unit. Mount very satisfactorily under the dash panel to the left of the steering column. Mount the unit as close to the steering column as possible to allow clearance for the emergency brake which is mounted on the extreme left hand side of some makes of cars.

Details of the dial tuning mechanism are shown in Fig. 1A and Fig. 1B.

The bracket No. 115325 for mounting the Remote Tuner Unit has three rows of holes to facilitate the best mounting in all makes of cars.

Use the bracket as a template, marking the lip of the dash for three mounting holes for the bracket and two clearance holes for the Remote Tuner unit mounting bolts. (See Fig. 1A.)

Mount the bracket using either the flat head self-tapping screws or the flat head machine screws, lockwashers and nuts supplied.

Insert the two Remote Tuner Unit mounting bolts through the holes in the unit using the two fibre washers to hold the bolts in place while mounting the unit to the bracket (see Fig. 1B). Screw the mounting bolts into the threaded holes in the dash panel. Push the unit forward so that the Remote Unit can be mounted forward or further back as desired. Fasten the unit securely.

Connect the battery cable, number 107237 coming from the radio case to the pin on the volume control assembly on the rear of the Remote Tuner Unit.

Connect the R. F. cable assembly (cable number 107231) by inserting the plug of the cable into the receptacle socket on the Remote Tuner Unit. Screw the threaded cap of the cable assembly to the threaded fitting on the radio case securely. (See Fig. 1A.)

**Important:** This cable should not be altered in any manner.

This unit has been carefully designed to facilitate servicing; the entire case can be removed by loosening three wing head screws, exposing all tubes, vibrator and receiver circuits. A large accessible being located on the side and bottom of the case. (See Fig. 4), a full size eight inch electro dynamic speaker is used.

The output of the receiver is 9 watts.

**TUNER UNIT MOUNTING:**

It may be necessary in some instances to move dash panel, light switches or car radio to the left to give sufficient clearance for the Remote Tuner Unit. Mount very satisfactorily under the dash panel to the left of the steering column. Mount the unit as close to the steering column as possible to allow clearance for the emergency brake which is mounted on the extreme left hand side of some makes of cars.

Details of the dial tuning mechanism are shown in Fig. 1A and Fig. 1B.

The bracket No. 115325 for mounting the Remote Tuner Unit has three rows of holes to facilitate the best mounting in all makes of cars.

Use the bracket as a template, marking the lip of the dash for three mounting holes for the bracket and two clearance holes for the Remote Tuner unit mounting bolts. (See Fig. 1A.)

Mount the bracket using either the flat head self-tapping screws or the flat head machine screws, lockwashers and nuts supplied.

Insert the two Remote Tuner Unit mounting bolts through the holes in the unit using the two fibre washers to hold the bolts in place while mounting the unit to the bracket (see Fig. 1B). Screw the mounting bolts into the threaded holes in the dash panel. Push the unit forward so that the Remote Unit can be mounted forward or further back as desired. Fasten the unit securely.

Connect the battery cable, number 107237 coming from the radio case to the pin on the volume control assembly on the rear of the Remote Tuner Unit.

Connect the R. F. cable assembly (cable number 107231) by inserting the plug of the cable into the receptacle socket on the Remote Tuner Unit. Screw the threaded cap of the cable assembly to the threaded fitting on the radio case securely. (See Fig. 1A.)

**Important:** This cable should not be altered in any manner.

This unit has been carefully designed to facilitate servicing; the entire case can be removed by loosening three wing head screws, exposing all tubes, vibrator and receiver circuits. A large accessible being located on the side and bottom of the case. (See Fig. 4), a full size eight inch electro dynamic speaker is used.

The output of the receiver is 9 watts.

3. To release the last pushbutton push in very slightly any one of the other pushbuttons. This will trip the latching mechanism.

4. To lock the tuner mechanism push on the dial tuning knob, make it latch in and rotate the dial tuning knob to the right (clockwise) until the knob can not be turned any further without forcing it (NOTE: All the pushbuttons must be in out position when locking the tuner mechanism.)

**RADIO LOCATION AND MOUNTING:**

Determine the most satisfactory mounting position.

Lift the radio case up and temporarily hold it in the proper position. The case should be mounted high enough to avoid interference with the steering column. Mount the Remote Tuner unit in respect to the radio case should be considered. The limiting factor being the length of special connector cable which connects the Remote Tuner unit to the radio case. (This cable should not be altered in any manner).

Mark location for the mounting bolt, drill one one-half inch (1/2") hole, making certain that the paint around the hole is scraped off. There shall be a scraped area to insure a good ground connection between receiver and the frame of the car.

**CAUTION:** Before fastening the radio unit read very carefully the paragraph on "CONNECTIONS TO BATTERY." This concerns the polarity of the vibrator unit and must be thoroughly understood as the radio will not operate unless the polarity of the vibrator unit corresponds with the polarity of the storage battery in the car.

The radio is shipped from the factory with the vibrator inserted in its socket so that it will operate in cars in which the positive (+) post of the storage battery is grounded to the frame of the car.

In cars in which the negative (-) post of the storage battery is grounded to the frame of the car, the vibrator must be socketed so that the positive (+) post of the vibrator is opposite the red dot on the top of the transformer cover, (see Fig. 3, top view of radio chassis).

Check the polarity of the storage battery in car either by checking the actual wire connections on the battery or by using a voltmeter.

The ammeter cable, number 107236 (red wire with fuse receptacle at one end and terminal lug at other end), must be connected to battery terminal of ammeter. At the same time, connect ammeter capacitor, number 10082 to battery terminal of ammeter. The end of capacitor to any convenient grounded screw on back of the transformer cover.

Make certain the fuse is in the receptacle and the ammeter cable is properly connected to the short cable number 107238, coming from the Remote Tuner Unit. (See Fig. 1A.)

In some installations it is advisable to connect the ammeter cable to the terminal on the ammeter which will not allow the current drawn by the radio to indicate on the ammeter, an additional motor interference may be encountered.

**GENERATOR INTERFERENCE:**

Remove the generator cutout mounting screw and fasten the condenser (10081) bracket on the generator cutout mounting lug. Replace the condenser cutout mounting screw and tighten the generator cutout.

Connect a high pitch condenser to the battery terminal of the generator cutout. The generator condenser is a shunt which would be used to eliminate a high pitched whining noise which would otherwise be heard as the motor is accelerated.

**CAUTION:** Before fastening the radio unit read very carefully the paragraph on "CONNECTIONS TO BATTERY." This concerns the polarity of the vibrator unit and must be thoroughly understood as the radio will not operate unless the polarity of the vibrator unit corresponds with the polarity of the storage battery in the car.

**TUNER UNIT MOUNTING:**

It may be necessary in some instances to move dash panel, light switches or car radio to the left to give sufficient clearance for the Remote Tuner Unit. Mount very satisfactorily under the dash panel to the left of the steering column. Mount the unit as close to the steering column as possible to allow clearance for the emergency brake which is mounted on the extreme left hand side of some makes of cars.

Details of the dial tuning mechanism are shown in Fig. 1A and Fig. 1B.

The bracket No. 115325 for mounting the Remote Tuner Unit has three rows of holes to facilitate the best mounting in all makes of cars.

Use the bracket as a template, marking the lip of the dash for three mounting holes for the bracket and two clearance holes for the Remote Tuner unit mounting bolts. (See Fig. 1A.)

Mount the bracket using either the flat head self-tapping screws or the flat head machine screws, lockwashers and nuts supplied.

Insert the two Remote Tuner Unit mounting bolts through the holes in the unit using the two fibre washers to hold the bolts in place while mounting the unit to the bracket (see Fig. 1B). Screw the mounting bolts into the threaded holes in the dash panel. Push the unit forward so that the Remote Unit can be mounted forward or further back as desired. Fasten the unit securely.

Connect the battery cable, number 107237 coming from the radio case to the pin on the volume control assembly on the rear of the Remote Tuner Unit.

Connect the R. F. cable assembly (cable number 107231) by inserting the plug of the cable into the receptacle socket on the Remote Tuner Unit. Screw the threaded cap of the cable assembly to the threaded fitting on the radio case securely. (See Fig. 1A.)

**Important:** This cable should not be altered in any manner.

This unit has been carefully designed to facilitate servicing; the entire case can be removed by loosening three wing head screws, exposing all tubes, vibrator and receiver circuits. A large accessible being located on the side and bottom of the case. (See Fig. 4), a full size eight inch electro dynamic speaker is used.

The output of the receiver is 9 watts.

MODEL 751, Series A  
 MODEL 867, Series A  
 Tuner Data

BELMONT RADIO CORP.

MODEL 767 Series A  
 Tuner Data

**Model 751 Series A**

**SERVICE NOTES:**

Voltage taken from different points of circuit to chassis are measured with volume control full on, all tubes in their sockets and speaker connected, with a volt meter having a resistance of 1000 ohms per volt.

IN ORDER TO PREVENT SIGNAL FROM ACTING UPON AVC AND AFFECTING ACCURACY OF VOLTAGE MEASUREMENTS, AERIAL AND GROUND LEADS SHOULD BE SHORT CIRCUITED WHILE MAKING MEASUREMENTS.

All voltages are to be measured with 115 volts A.C. line or a fully charged 6 volt storage battery.

Resistances of coils and transformer windings are indicated in ohms on schematic circuit diagrams.

To check for open by-pass condensers, shunt each condenser with another condenser of the same capacity and voltage rating, which is known to be good, until the defective unit is located.

Excessive hum, stuttering, low volume and a reduction in all D.C. voltages is usually caused by a shorted electrolytic condenser, open by-pass condensers frequently cause oscillation and distorted tone.

**SETTING THE AUTOMATIC TUNER LEVERS:**

**IMPORTANT**—Read carefully before setting the automatic levers.

There are six levers by means of which six stations may be selected. Make a list of local stations or stations you tune in regularly; any number up to and including six.

Punch out from the set of station call letter tabs supplied, the call letters of the stations you have selected.

On the front of each automatic tuner lever button an opening is provided for inserting the call letter tabs.

Insert the call letter tabs in the rectangular openings of each of the automatic tuner buttons. One of the small celluloid tabs supplied should be inserted into place over each of the station call letter tabs.

**NOW, PROCEED AS FOLLOWS:—**

1. Pull the dial tuning knob all the way out (See Illus. "B," Fig 3), and rotate the tuning knob to the left (counterclockwise) until it cannot be turned any further (See Illus. "D," Fig. 3). This will unlock the automatic tuner mechanism. (NOTE:—Automatic tuner mechanism is locked tight when radio is shipped from the factory.)

2. Press down all the way any one of the automatic tuner levers. Holding it down firmly, press in on the dial tuning knob No. 3 and tune in the station indicated on the station call letter tab on this lever. You will note that in order to

tune the station, the dial tuning knob will have to be pressed in (See Illus. "E," Fig. 3). Turn the dial tuning knob very slowly back and forth (while still holding the automatic tuner lever in downward position), noting the width of the shadow on the screen of the cathode-ray tuning indicator. Minimum width on the tuning indicator indicates the ideal tuning position (resonance). The station will then be clearest and accurately tuned in.

3. Press down another automatic tuner lever. Holding it down firmly, press in on the dial tuning knob and carefully tune in the station indicated on the call letter tab on this lever.

4. Follow this procedure until you have selected all of your favorite stations.

5. Pull the dial tuning knob all the way out (See Illus. "B," Fig. 3) and rotate the tuning knob to the right (clockwise) until it cannot be turned any further (See Illus. "C," Fig. 3). This will lock the automatic tuner mechanism and the stations you have set up for automatic tuning will be locked in place. After you have locked the tuner mechanism, push the dial tuning knob in.

6. If you should desire to change any station you selected to another, pull the dial tuning knob all the way out and rotate the knob to the left (counterclockwise) and unlock the tuner mechanism. Select the new station as explained.

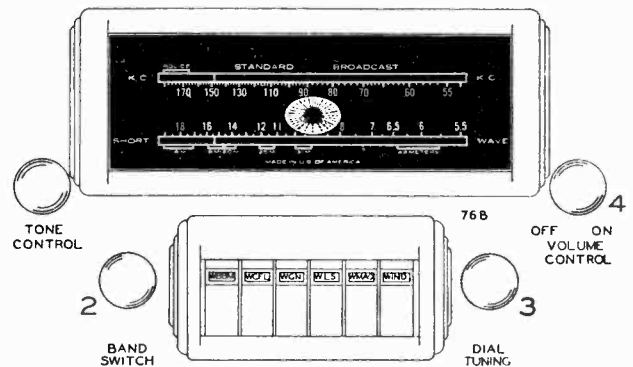


FIG. 2—FRONT VIEW

(NOTE:—If the dial mechanism works hard when setting up a new station for one of the automatic tuner levers, it is due to the tuner mechanism not being unlocked all the way. Pull the dial tuning knob out all the way and rotate the knob to the left (counterclockwise) until it will turn no further. The dial mechanism should work freely with the tuner lever pressed down.)

7. After you have selected the new station, pull the dial tuning knob all the way out and rotate the knob to the right (clockwise) to lock the tuner mechanism. Be sure the knob is turned until it will turn no further, then press the dial tuning knob in.

8. The automatic tuner levers are now set up for quick tuning. Press down the lever key and—YOUR FAVORITE STATION IS SELECTED!

The important steps to remember when setting up stations on the tuner levers for automatic tuning are:

1. To unlock the tuner mechanism pull the dial tuning knob all the way out. You may find it necessary to rotate the knob slightly when pulling it out to make certain that the gears mesh properly. Rotate the dial tuning knob to the left (counterclockwise) as far as it will turn without forcing.

2. To set a lever, press down all the way and hold in this position while tuning in by means of the dial tuning knob the station you want this lever to be tuned to. (NOTE:—you will notice that it will be necessary to keep pressing in on the dial tuning knob while tuning in the station as a spring tends to push the knob out.) Set all the levers in the same manner before locking the mechanism.

3. To lock the tuner mechanism pull the dial tuning knob all the way out. Rotate the dial tuning knob to the right as far as it will turn making certain that it is tight, but it is not necessary to use force.

4. After locking or unlocking the tuner mechanism always return the dial tuning knob to its normal position (pushed in).

**KNOB NO.3 (DIAL TUNING)**

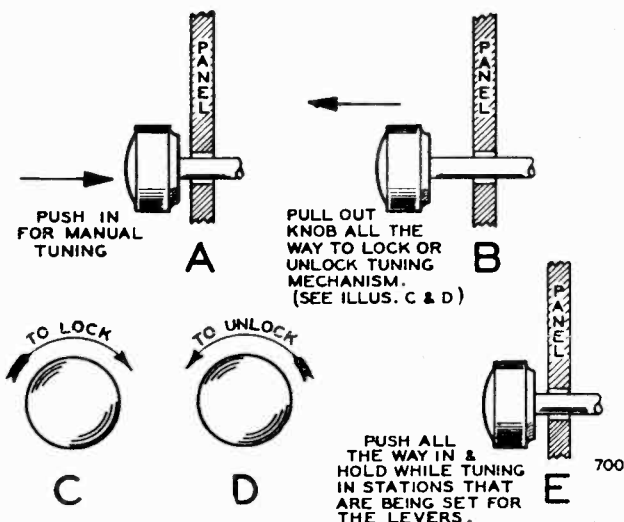


FIG. 3





MODEL 751, Series A  
Alignment, Socket  
Trimmers, Notes

BELMONT RADIO CORP.

ALIGNMENT PROCEDURE

- The following equipment is required for aligning:
- An all wave 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., 200 mmf. and 400 ohms.
- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
  - Connect dummy antenna value in series with generator output lead.
  - Connect output meter across primary of output transformer.
  - Allow chassis and signal generator to "heat up" for several minutes.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6K8G	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROAD-CAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer C10 (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1500 Kc.	Trimmer C3 (See Fig. 4)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer C6 (See Fig. 4)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer C8 (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer C5 (See Fig. 4)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 6 Mc.	Trimmer C7 (See Fig. 4)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A")

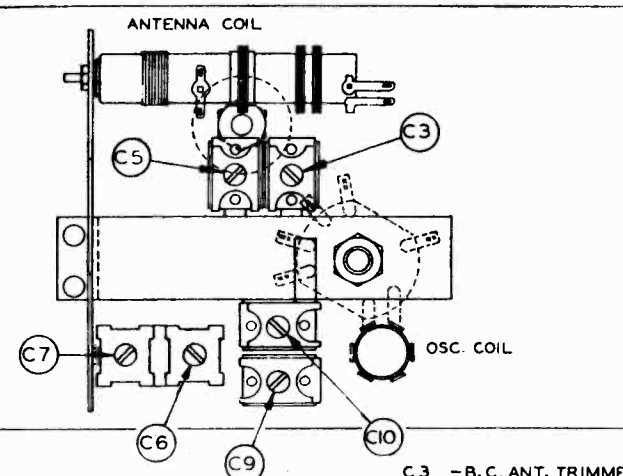
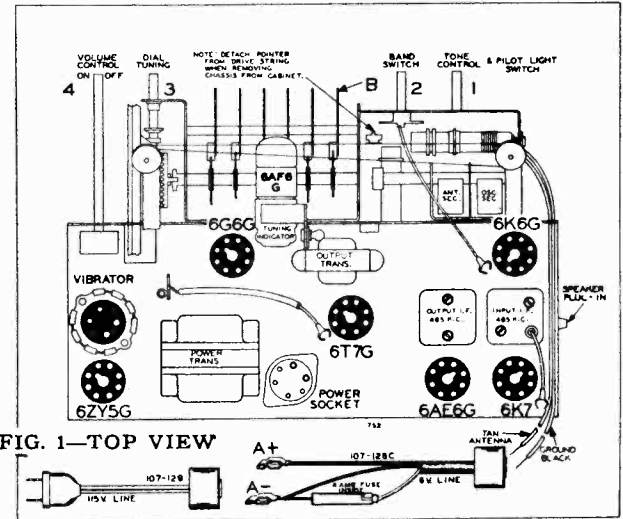
ALIGNING INSTRUCTIONS:

CAUTION:—No aligning adjustments should be attempted without first thoroughly checking over all possible causes of trouble, such as poor installations, open or grounded antenna systems, low battery voltage, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet.

To remove the chassis from the cabinet, remove the four bolts which are used to fasten the chassis to the cabinet bottom; pull the knobs off their shafts and detach the pointer from the drive string (see Fig. 1, top view).

NOTE:—On the side of the string dial drum a calibrated scale is provided for aligning this chassis to the frequencies listed in the alignment procedure. Attach a pointer so that it will indicate proper dial setting in respect to the position of the variable condenser.

- For 6 volt storage battery operation:
  - Use cable No. 107128C.
  - Connect the lead (containing the fuse receptacle) marked A negative (—) to the negative (—) post of the storage battery.
  - Connect the lead marked A positive (+) to the positive (+) post of the storage battery.
- For 105-125 volts, 50/60 cycle operation:
  - Use special cable No. 107129.
  - Plug receptacle of cable into power socket on chassis.



- C3 - B.C. ANT. TRIMMER
- C5 - S.W. ANT. TRIMMER
- C9 - S.W. OSC. TRIMMER
- C10 - B.C. OSC. TRIMMER
- C6 - B.C. OSC. PAD
- C7 - S.W. OSC. PAD

Model 751  
Series A

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC. After each band is completed, repeat the procedure as a final check.



MODEL 767, Series A  
Alignment, Trimmers  
Voltage

BELMONT RADIO CORP.

ALIGNMENT PROCEDURE

Model 767 Series A

NOTE "A" Turn the dial back and forth slightly (rock) and adjust trimmer until the peak of greatest intensity is obtained.

NOTE "B" 1400KC is the image frequency of 2330KC. Adjust Trimmer (C3) until a minimum output is obtained.

- The following equipment is required for aligning:
- An all wave 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., 200 mmf. and 400 ohms.

- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a snort heavy lead.
- Connect dummy antenna value in series with generator output lead.
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted (in Order Shown)	Trimmer Function	Adjustment
I. F.	465 Kc.	.1 MFD.	Grid of 6K7	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Output I. F.	Adjust to maximum output
	465 Kc.	.1 MFD.	Grid of 6K8G	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Two trimmers on top (See Fig. 1)	Input I. F.	Adjust to maximum output
BROADCAST BAND	1730 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Rotor full open (Plates out of mesh)	Trimmer (C9) (See Fig. 4)	Broadcast oscillator	Adjust to maximum output
	1500 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 1500 Kc.	Trimmer (C6) (See Fig. 4)	Broadcast antenna	Adjust to maximum output
	600 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer (C12C) (See Fig. 4)	Broadcast oscillator series pad	Adjust to maximum rock dial. (See note "A.")
	465 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Set Dial at 600 Kc.	Trimmer (C1) (See Fig. 4)	I. F. Wave Trap	Adjust for minimum output
IMAGE REJECTION ADJUSTMENTS	2330 Kc.	200 mmf.	Antenna lead	Broadcast (Extreme left rotation)	Pick up signal at 1400 Kc. on dial	Trimmer (C3) (See Fig. 4)	Image rejection	Adjust for minimum output (See note "B")
SHORT WAVE BAND	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 17 Mc.	Trimmer (C8) (See Fig. 4)	Short Wave oscillator	Adjust to maximum output
	17 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Dial Set at 17 Mc.	Trimmer (C7) (See Fig. 4)	Short Wave antenna	Adjust to maximum output
	6 Mc.	400 ohms	Antenna lead	Short Wave (Extreme right rotation)	Set Dial at 6 Mc.	Trimmer (C13) (See Fig. 4)	Short Wave oscillator series pad	Adjust to maximum rock dial. (See note "A.")

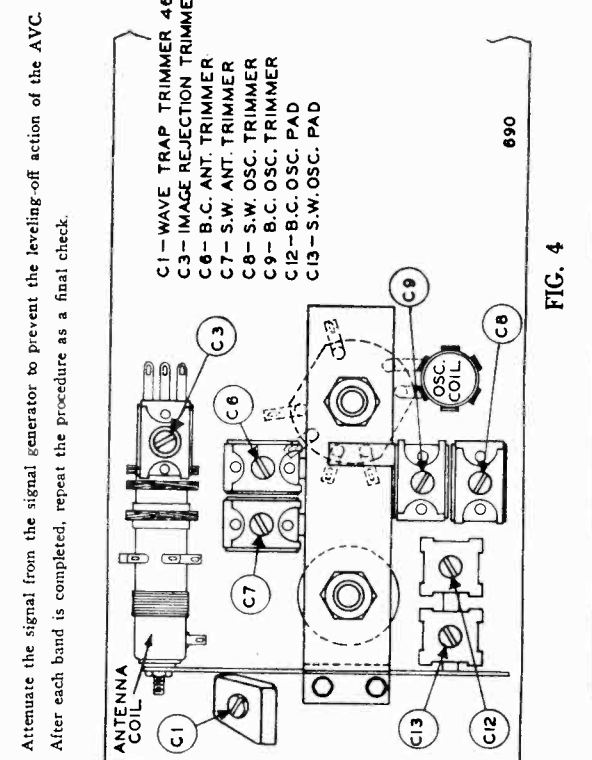
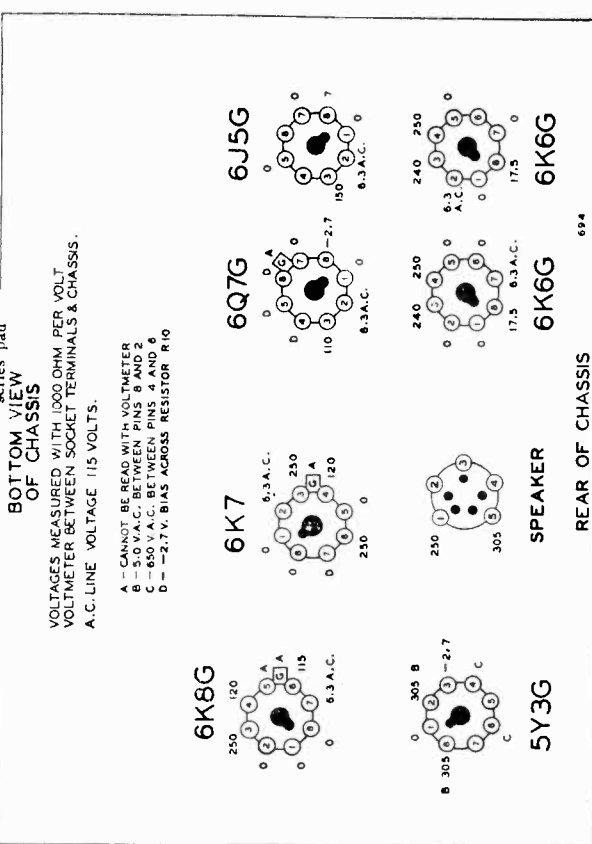


FIG. 4

BELMONT RADIO CORP.

MODEL 867, Series A

Schematic, Voltage

BAND

DIAL SCALE

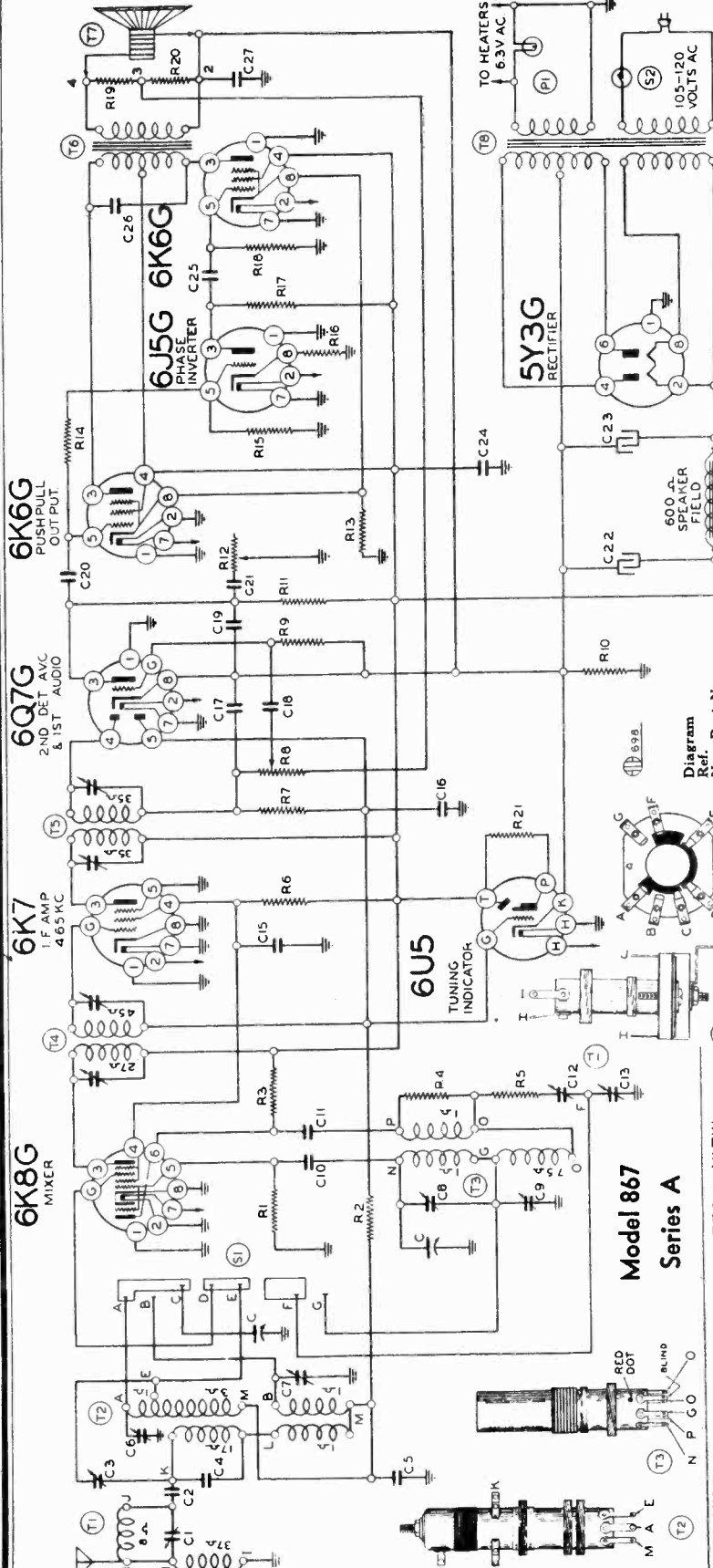
FREQUENCY RANGE

Tuner Data

Broadcast ..... Upper ..... 540 to 1730 KC. (Kilocycles)

Short Wave ..... Lower ..... 5.6 to 18.0 MC. (Megacycles)

FOR SETTING AUTOMATIC TUNER LEVERS, SEE INDEX.



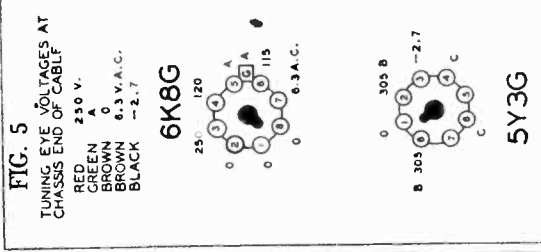
- RESISTORS**
- 13094 50M ohm— $\frac{1}{2}$  w.
  - 13011 250M ohm— $\frac{1}{4}$  w.
  - 13030 25M ohm—1 watt
  - R4 13031 150 ohm— $\frac{1}{4}$  w.
  - R5 130231 75 ohm— $\frac{1}{2}$  w.
  - R6 13030 25M ohm— $\frac{1}{2}$  w.
  - R7 1304 3 megohm— $\frac{1}{2}$  w.
  - R8 130275 15 megohm— $\frac{1}{4}$  w.
  - R9 130270 30 megohm— $\frac{1}{4}$  w.
  - R10 130210 100M ohm— $\frac{1}{2}$  w.
  - R11 101145 300 ohm—1 watt
  - R12 130220 400M ohm— $\frac{1}{4}$  w.
  - R13 130163 100M ohm— $\frac{1}{4}$  w.
  - R14 130103 5M ohm— $\frac{1}{2}$  w.
  - R15 130218 50M ohm— $\frac{1}{4}$  w.
  - R16 13094 500M ohm— $\frac{1}{2}$  w.
  - R17 130102 100 ohm— $\frac{1}{4}$  w.
  - R18 130168 25 ohm— $\frac{1}{4}$  w.
  - R19 130215 1 megohm— $\frac{1}{10}$  in tuning indicator sockets
  - R20 130210
  - R21 130110
- CONDENSERS**
- 10292 2 gang variable condenser
  - C1 Wave Trap Trimmer
  - C2 .01 x 400 v.
  - C3 Image Adj. Trimmer
  - C4 .000125 mica
  - C5 129131
  - C6 12469
  - C7 12465
  - C8 12470
- REACTORS**
- 108125 Wave Trap
  - T1 11112 B. C. and S. W. Antenna Coils
  - T2 11098 B. C. and S. W. Oscillator Coils
  - T3 108105B Input I. F.—465 kc.
  - T4 108106M Output I. F.—465 kc.
  - T5 10544B Output Transformer
  - T6 14135 8" Dynamic Speaker (600 ohm field)
  - T7 14136 10" Dynamic Speaker (600 ohm field)
  - T8 104143B Power Transformer
  - T9 12388 Wave Band Switch
  - S1 0.6 v. Pilot Light
  - S2 6.8 v. Pilot Light

PARTS (Serial No. 8J271900 and up)

- RESISTORS**
- 12470 B. C. Oscillator Trimmer
  - C9 .00005 mica
  - C10 .02 x 600 v.
  - C11 10025 .000422 compression type
  - C12 12466 B. C. Oscillator Pad
  - C13 12466 .001366 compression type
  - C15 1001 S. W. Oscillator Pad
  - C16 1002 .05 x 200 v.
  - C17 1002 .005 x 600 v.
  - C18 10019 .005 x 600 v.
  - C19 12929 .005 mica
  - C20 10026 .02 x 400 v.
  - C21 10013 .05 x 400 v.
  - C22 11974 10 mfd. lytic—350 w. v.
  - C23 11973 16 mfd. lytic—400 w. v.
  - C24 1001 .1 x 400 v.
  - C25 10026 .02 x 400 v.
  - C26 10012 .03 x 600 v.
  - C27 10020 .1 x 200 v.

Model 867 Series A

FIG. 5 BOTTOM VIEW OF CHASSIS VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS & CHASSIS. A.C. LINE VOLTAGE 115 VOLTS.

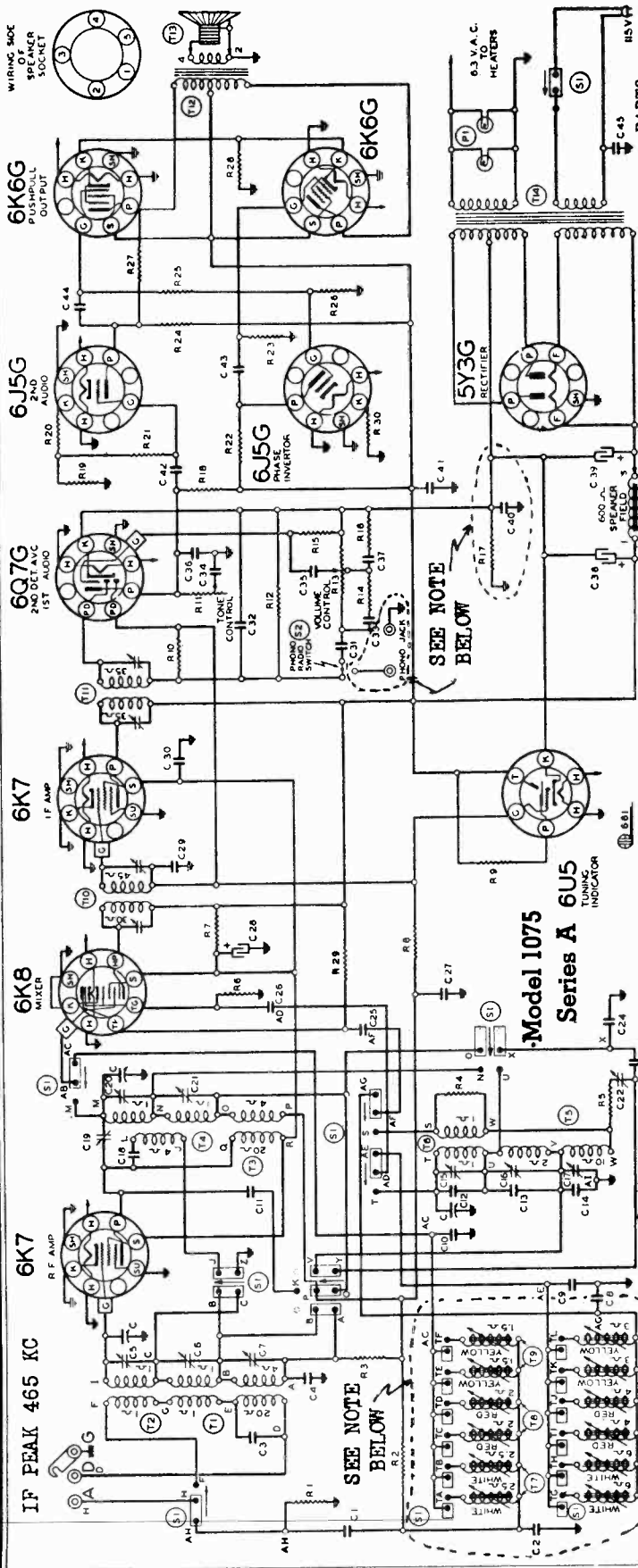






BELMONT RADIO CORP.

MODEL 1075,  
Series A, B  
Schematic



**CONDENSERS**

C1	1025	.02 x 60 v.
C2	12971	.02 Mica
C3	12940	.001 Mica
C4	10693	.05 mid-350 v.v. lytic
C5	C6	16 mid-400 v.v. lytic
C7	C8	1 x 200 v.
C9	C10	1 x 400 v.
C11	C12	.02 x 400 v.
C13	C14	.02 x 400 v.
C15	C16	.02 x 600 v.
C17	C18	3 $\mu$ g. variable
C19	C20	C38 and C39 in same unit
C21	C22	.20 mid. x 6 v. lytic
C23	C24	.002 Mica
C25	C26	.00010 Mica
C27	C28	.00015 Mica
C29	C30	.00015 Mica
C31	C32	.00015 Mica
C33	C34	.00015 Mica
C35	C36	.00015 Mica
C37	C38	.00015 Mica
C39	C40	.00015 Mica
C41	C42	.00015 Mica
C43	C44	.00015 Mica
C45	C46	.00015 Mica

**RESISTORS**

R1	130179	20M ohm
R2	130241	200M ohm
R3	130205	100M ohm
R4	130235	1500 ohm
R5	130197	20 ohm
R6	13094	50M ohm
R7	130237	12,500 ohm
R8	130103	100M ohm
R9	130110	1 megohm (in Tuning Indicator Socket)
R10	1304	3 megohm
R11	10129	Tone Control (250M ohm)
R12	1303	500M ohm
R13	10128	Volume Control (1 megohm)
R14	1309	200M ohm
R15	130225	15 megohm
R16	130236	30M ohm
R17	130240	250M ohm
R18	130172	50M ohm
R19	13082	40M ohm
R20	130234	6M ohm
R21	130103	100M ohm
R22	130103	500M ohm
R23	130103	100M ohm
R24	130165	400M ohm
R25	13084	50M ohm
R26	130163	400M ohm
R27	130220	300 ohm
R28	130220	15M ohm
R29	130123	3M ohm
R30	130193	250M ohm
R31	13011	250M ohm
R32	13011	250M ohm

**CONDENSERS**

C1	10011	.01 v 400 v.
C2	10071	.004 x 600 v.
C3	129114	.0003 Mica
C4	10078	.01 x 200 v.
C5	11964	10 mid-350 v.v. lytic
C6	11964	16 mid-400 v.v. lytic
C7	10020	1 x 200 v.
C8	10074	1 x 400 v.
C9	10066	.02 x 400 v.
C10	10026	.02 x 400 v.
C11	10026	.02 x 400 v.
C12	10026	.02 x 400 v.
C13	10026	.02 x 400 v.
C14	10026	.02 x 400 v.
C15	10026	.02 x 400 v.
C16	10026	.02 x 400 v.
C17	10026	.02 x 400 v.
C18	10026	.02 x 400 v.
C19	10026	.02 x 400 v.
C20	10026	.02 x 400 v.
C21	10026	.02 x 400 v.
C22	10026	.02 x 400 v.
C23	10026	.02 x 400 v.
C24	10026	.02 x 400 v.
C25	10026	.02 x 400 v.
C26	10026	.02 x 400 v.
C27	10026	.02 x 400 v.
C28	10026	.02 x 400 v.
C29	10026	.02 x 400 v.
C30	10026	.02 x 400 v.
C31	10026	.02 x 400 v.
C32	10026	.02 x 400 v.
C33	10026	.02 x 400 v.

**RESISTORS**

R1	111105	B. C. Antenna Coil
R2	111106	B. W. M. W. Antenna Coil
R3	10945	B. C. R. F. Coil
R4	10946	S. W. C. Oscillator Coil
R5	11091	S. W. M. W. Oscillator Coil
R6	10556B	Output Transformer
R7	114126	Dynamic Speaker (600 ohm field)
R8	104143	Power Transformer
R9	112466	Push Button Switch
R10	112466	Phono Radio Switch
R11	112466	(2) 6-8 volts pilot lights

**CONDENSERS**

C1	11083	11083 B Low Frequency Tuner Coils
C2	11082	11082 Medium Frequency Tuner Coils
C3	11081	11081 B High Frequency Tuner Coils
C4	108105H	108105H Input I. F. -465 kc.
C5	108106G	108106G Output I. F. -465 kc.

**RESISTORS**

R1	11083	11083 B Low Frequency Tuner Coils
R2	11082	11082 Medium Frequency Tuner Coils
R3	11081	11081 B High Frequency Tuner Coils
R4	108105H	108105H Input I. F. -465 kc.
R5	108106G	108106G Output I. F. -465 kc.

**CONDENSERS**

C1	10011	.01 v 400 v.
C2	10071	.004 x 600 v.
C3	129114	.0003 Mica
C4	10078	.01 x 200 v.
C5	11964	10 mid-350 v.v. lytic
C6	11964	16 mid-400 v.v. lytic
C7	10020	1 x 200 v.
C8	10074	1 x 400 v.
C9	10066	.02 x 400 v.
C10	10026	.02 x 400 v.
C11	10026	.02 x 400 v.
C12	10026	.02 x 400 v.
C13	10026	.02 x 400 v.
C14	10026	.02 x 400 v.
C15	10026	.02 x 400 v.
C16	10026	.02 x 400 v.
C17	10026	.02 x 400 v.
C18	10026	.02 x 400 v.
C19	10026	.02 x 400 v.
C20	10026	.02 x 400 v.
C21	10026	.02 x 400 v.
C22	10026	.02 x 400 v.
C23	10026	.02 x 400 v.
C24	10026	.02 x 400 v.
C25	10026	.02 x 400 v.
C26	10026	.02 x 400 v.
C27	10026	.02 x 400 v.
C28	10026	.02 x 400 v.
C29	10026	.02 x 400 v.
C30	10026	.02 x 400 v.
C31	10026	.02 x 400 v.
C32	10026	.02 x 400 v.
C33	10026	.02 x 400 v.

**RESISTORS**

R1	111105	B. C. Antenna Coil
R2	111106	B. W. M. W. Antenna Coil
R3	10945	B. C. R. F. Coil
R4	10946	S. W. C. Oscillator Coil
R5	11091	S. W. M. W. Oscillator Coil
R6	10556B	Output Transformer
R7	114126	Dynamic Speaker (600 ohm field)
R8	104143	Power Transformer
R9	112466	Push Button Switch
R10	112466	Phono Radio Switch
R11	112466	(2) 6-8 volts pilot lights

**CONDENSERS**

C1	11083	11083 B Low Frequency Tuner Coils
C2	11082	11082 Medium Frequency Tuner Coils
C3	11081	11081 B High Frequency Tuner Coils
C4	108105H	108105H Input I. F. -465 kc.
C5	108106G	108106G Output I. F. -465 kc.

**RESISTORS**

R1	11083	11083 B Low Frequency Tuner Coils
R2	11082	11082 Medium Frequency Tuner Coils
R3	11081	11081 B High Frequency Tuner Coils
R4	108105H	108105H Input I. F. -465 kc.
R5	108106G	108106G Output I. F. -465 kc.

Series B only

Series A only

Series B only

Series B only

Series B only

Series B only

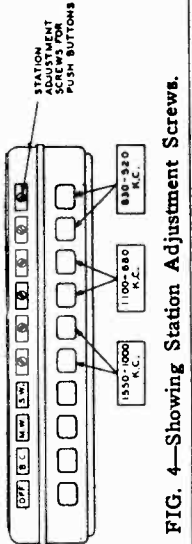


FIG. 4—Showing Station Adjustment Screws.

**Model 1075 Series B**  
Series A and Series B are similar. Series A differs from Series A as shown above.



BELMONT RADIO CORP.

MODEL 1075, Series A, B  
Socket, Trimmers, Voltage  
Phono, Notes

BAND	DIAL SCALE	FREQUENCY RANGE
Broadcast	Upper Scale "BC"	535 to 1690 KC. (Kilocycles)
Medium Wave	Center Scale "MW"	1.66 to 5.5 MC. (Megacycles)
Short Wave	Lower Scale "SW"	5.5 to 18.0 MC (Megacycles)

ALIGNING INSTRUCTIONS:

**CAUTION:**—No aligning adjustments should be attempted without first thoroughly checking over all other possible causes of trouble, such as poor installations, open or grounded antenna systems, low line voltages, defective tubes, condensers and resistors. In order to properly align this chassis, an oscillator (generator) is absolutely necessary. No aligning adjustments should be attempted with the chassis in the cabinet.

To remove the chassis from the cabinet, remove the four bolts which are used to fasten the chassis to the cabinet bottom; pull the knobs off their shafts and detach the pointer from the drive string (see Fig. 2, top view).

**NOTE:**—On the back of the string dial drum a calibrated scale is provided for aligning this chassis to the frequencies listed in the alignment procedure. Attach a pointer so that it will indicate proper dial setting in respect to the position of the variable condenser.

DIAL CALIBRATION:

To correct dial calibration rotate the tuning knob to the right until the dial pointer reaches the extreme end of the dial scale; then rotate the tuning knob to the left until the pointer reaches the other extreme end of the dial scale.

Stop clamps on the pointer slider bar make the pointer self aligning thereby correcting dial calibration.

POWER SUPPLY:

**Caution:**—This radio, unless otherwise marked, must be operated from 105-115 volts, 50-60 cycle A. C. supply only. If you are in doubt as to the voltage and frequency rating of the power supply, consult your local power company before inserting plug. Do not insert plug unless all tubes and speaker plug are in their proper sockets.

Receivers of this model which are to be used on voltages or frequencies other than 105-115 volts, 50-60 cycles are so marked. The power consumption of this receiver is 100 watts.

PHONOGRAPH CONNECTIONS:

A phonograph connector and switch are provided on the rear of the chassis. To operate, insert plug on end of phonograph pick-up lead into connector on chassis and move phonograph switch to "Phono" position. Volume and tone may be controlled by using the controls on the front of the radio.

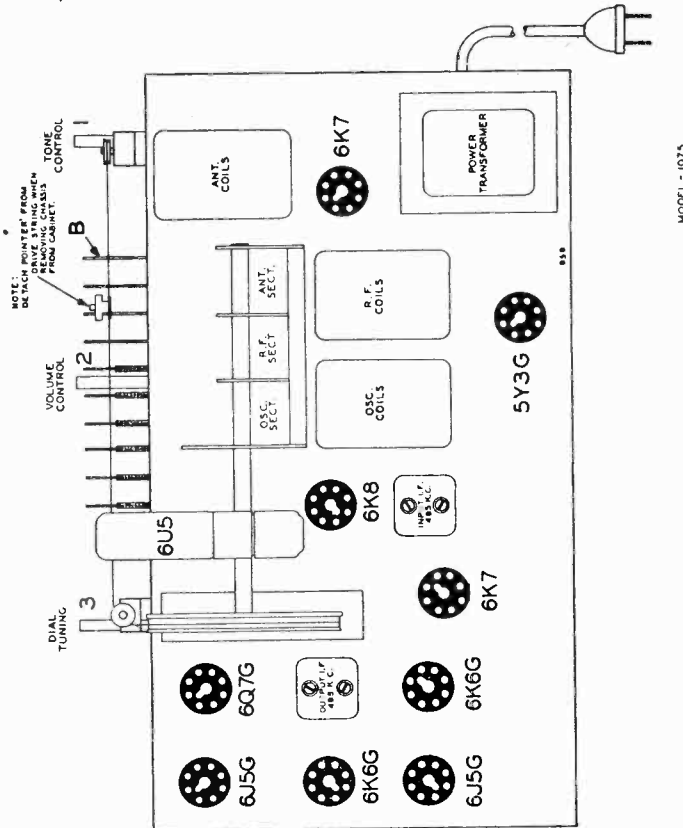


FIG. 2—TOP VIEW

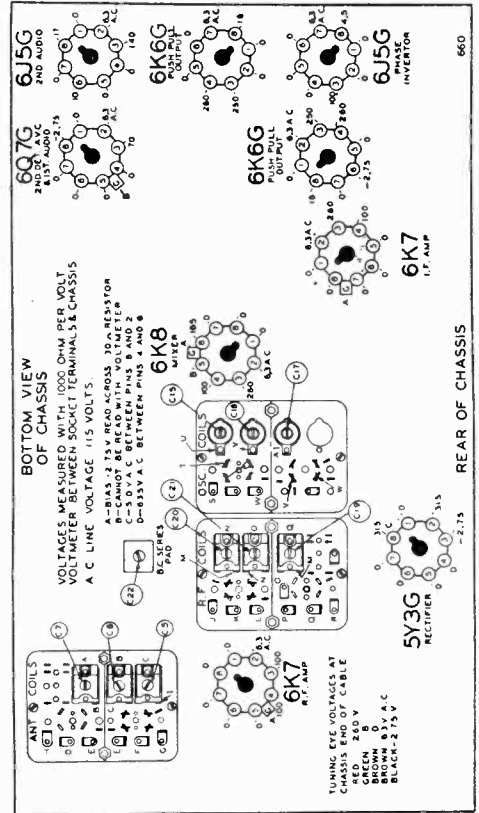


FIG. 5

MODEL 1075, Series A, B  
Tuner Data, Notes, Parts

BELMONT RADIO CORP.

**PROCEDURE FOR SETTING THE AUTOMATIC STATION PUSHBUTTONS:**

**Important:** Allow the radio to "warm up" for about 15 minutes before setting the station adjustment screws for the pushbuttons.

Only a single adjustment for each station is required in setting up your favorite stations for automatic pushbutton operation. These adjustments are located at the front of the chassis shown in Fig. 4 and are accessible through the station call letter tab holes. The only equipment needed is a small screw driver to make the adjustments.

Make a list of your favorite local stations, those which you tune in regularly. Put down the frequency (kilocycle number) of these stations. There may be 2, 3, 5 or any number up to and including six in this list.

If you do not know the broadcasting frequencies, consult your local newspaper or a radio log book. They can also be obtained by pressing the button marked "Broadcast" on the left and tuning in the stations manually, noting the numbers on the dial at which they are received.

The automatic station pushbuttons are grouped to cover specific frequency ranges.

The range of the frequencies covered by each button are given below and are also shown in Fig. 4. Only stations within the frequency ranges given can be obtained on a particular button. Counting the station buttons from left to right, looking at the front of the set, the frequency ranges are as follows:

1. 1550 to 1000 Kilocycles.
2. 1550 to 1000 Kilocycles.
3. 1100 to 680 Kilocycles.
4. 1100 to 680 Kilocycles.
5. 830 to 520 Kilocycles.
6. 830 to 520 Kilocycles.

This means that any station which has a kilocycle number lying between 1550 and 1000 K.C. can be set up on either Button 1 or Button 2. Any station which has a kilocycle number lying between 1100 and 680 K.C. can be set on either Button 3 or Button 4. Any station which has a kilocycle number lying between 830 and 520 K.C. can be set on either Button 5 or Button 6.

After you have made up your list of stations, press button marked "Broadcast" and tune set manually until station selected having the highest frequency is tuned in and the program noted. Press button covering frequency range in which station is located (See Fig. 4). Adjust screw through station tab opening above button pressed until the same station is heard clearly and tuning indicator indicates that it is correctly tuned.

**TRANSFORMERS**

104143	T14	50/60 Cycle Power Transformer 105-115 Volt Primary	4.00
104147		25/60 Cycle Power Transformer 105-115 Volt Primary	
104		25/60 Cycle Power Transformer Universal Primary	
104J44		40/60 Cycle Power Transformer Universal Primary	
10556B	T12	Output Transformer for Speaker	1.50

**SPEAKER**

114126	T13	Twelve Inch Dynamic Speaker (600 Ohm Field)	7.00
10556B	T12	Output Transformer for Speaker	1.50

**MISCELLANEOUS**

101128	R13	Volume Control (1 Megohm)	1.00
101129	R11	Tone Control (250M Ohm)	.75
10280	C	Three Gang Variable Condenser	5.00
10556B	T12	Output Transformer for Speaker	1.50
1075		Line Cord and Plug	.50
11378		Antenna and Ground Terminal Strip	.25
11535		Shield for Ant., R.F., Osc., Coils	.15
115229		Tube Shield	.15
12561	S2	Phono-Radio Switch	.25
13437		Rubber Grommet for Variable Condenser Mounting	.02
13447		Rubber Chassis Mounting Cushions	.05
13244		No. 10-32 x 1/4" Chassis Mounting Bolts	.01

**AUTOMATIC PUSHBUTTON ASSEMBLY PARTS**

112466		Pushbutton Tuner Assembly Complete with Coils and Switch Mechanism	12.00
12562		Switch Assembly for Pushbutton Tuner (Less Coils)	4.50
11083	T7	Low Frequency Coil	1.25
11083B	T7	Low Frequency Coil	1.25
11082	T8	Medium Frequency Coil (Two Used)	1.25
11081	T9	High Frequency Coil	1.25
11081B	T9	High Frequency Coil	1.25
112492		Moulded Escutcheon for Pushbuttons (10 Hole)	.50
12199		Pushbuttons	.10

Press pushbutton marked "Broadcast" and tune in next station selected. Press button covering frequency range in which station is located. Adjust screw through station tab opening above button pressed until the same station is heard clearly and with maximum volume.

Follow this procedure for each button until you have selected all of your stations. The automatic buttons are now set up for quick tuning and no further adjustment is necessary.

**NOTE:** In setting up the pushbuttons, station identification may require switching back and forth to button marked "Broadcast" until the same program is heard for both. If the same program is heard on more than one station, find the station on dial tuning and select the proper one on the pushbutton by comparing the order or sequence of programs with that on dial tuning.

Punch out the station call letter tabs of the stations you have set up for the automatic buttons from the set of sheets supplied and insert them into the rectangular openings in the escutcheon. One of the small, clear celluloid tabs supplied should be snapped into place over each of the station call letter tabs.

**ANTENNA AND GROUND CONNECTIONS:**

Antenna connections are made on the terminal board, with terminals marked "A" and "D" on the rear of chassis. When using a conventional antenna connect the lead-in to terminal "A". The ground lead should be connected to Terminal "G". When using a Doublet Antenna, connect one lead-in of the doublet to "A" and the other lead-in to "D". Connect a ground wire to Terminal "G". (See Fig. 1).

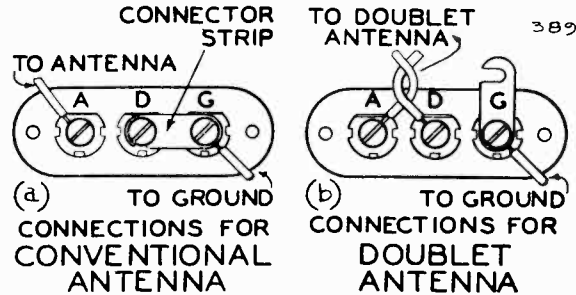


FIG. 1

**COILS FOR PUSHBUTTON TUNER ASSEMBLY**

11083	T7	Low Frequency Coil	1.25
11083B	T7	Low Frequency Coil	1.25
11082	T8	Medium Frequency Coils (Two Used)	1.25
11081	T9	High Frequency Coil	1.25
11081B	T9	High Frequency Coil	1.25

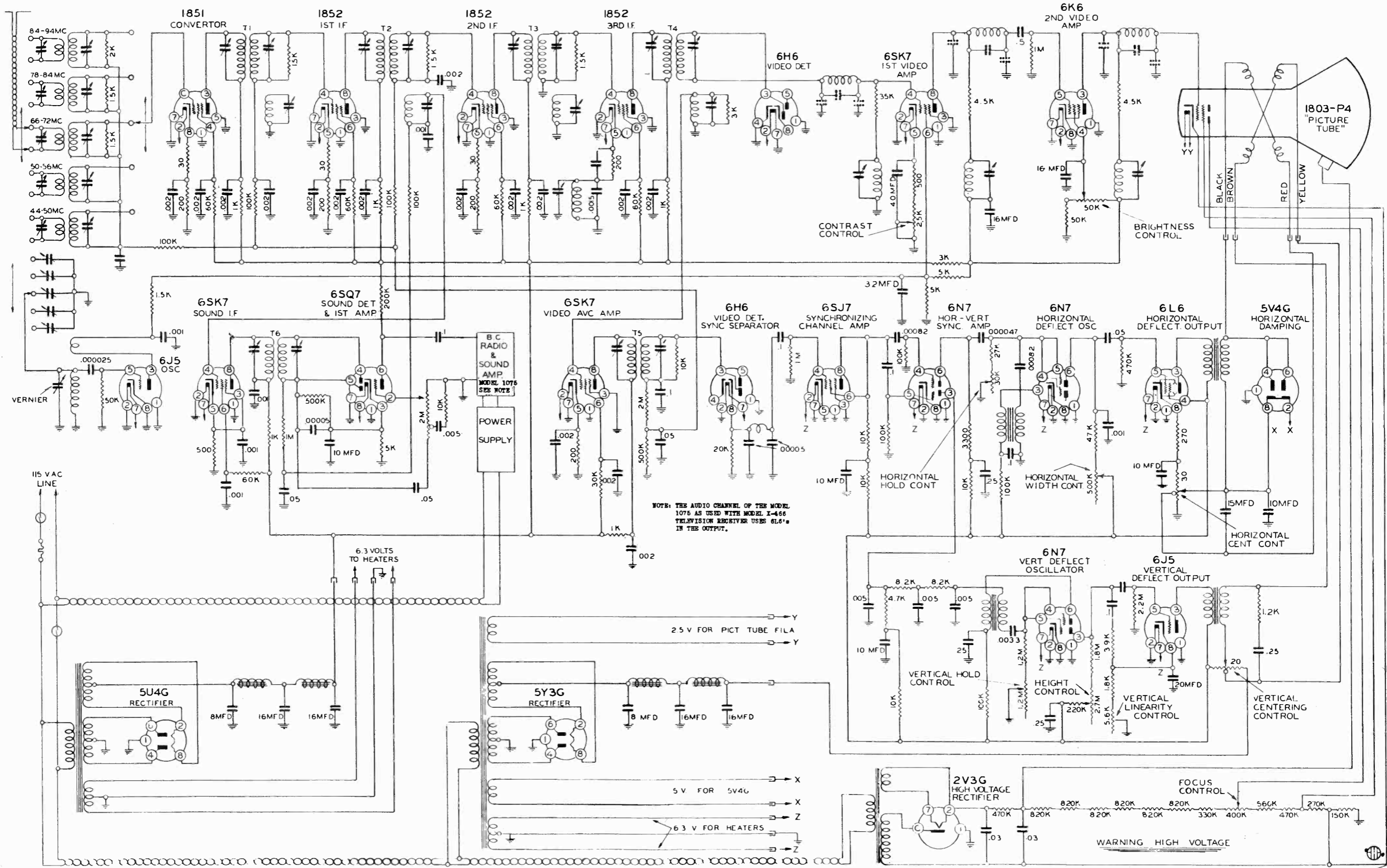
**DIAL PARTS LIST**

112509		Dial Scale (Calibrated)	1.00
112495		Moulded Escutcheon for Dial	.75
112446		Set of 2 Sheets Station Call Letters	.15
112336		Clear Pyralin Tabs for Station Call Letters, Doz.	.10
128199		Pushbuttons	.10
112492		Moulded Escutcheon for Pushbuttons (10 Hole)	.50
128195		Bakelite Knobs	.15
112459		Drive Drum Complete with Bushing and Set Screw	.25
112468C		Background Diffuser for Dial Complete with 115208 Slider Bar for Pointer	.50
112436		Carriage for Pointer (Attach Pointer to String Drive)	.03
112431		Pointer	.15
115234		Stop Clamps (Attach to Slider Bar; Limit Travel of the Pointer)	.08
112469		Manual Tuning Control (Shaft)	.50
115235		Bracket Complete with Idler Pulley (for Drive String)	.20
11774		Collar for Manual Tuning Control Shaft	.10
1209		Linen Drive String	.10
120145		Take-Up Spring for Drive String	.05
10794		6-8 Volt Pilot Light Bulb Type 44	.10
107178B		Socket and Bracket for Pilot Light	.15

**CATHODE-RAY TUNING INDICATOR PARTS**

107112	R9	Cable and Socket Assembly (with 1 Megohm Resistor in Socket)	.75
117211		Bracket for Tuning Indicator	.15
11757B		Clamp for Tuning Indicator	.15
11757C		Wing Bolt	.05

TELEVISION & BROADCAST RECEIVER  
B. R. C. MODEL X-466



NOTE: THE AUDIO CHANNEL OF THE MODEL 1075 AS USED WITH MODEL X-466 TELEVISION RECEIVER USES 6L6 IN THE OUTPUT.

WARNING HIGH VOLTAGE



BELMONT RADIO CORP.

MODEL X-466  
Voltage, Notes

TUBE DESCRIPTION	VOLTAGE ON PIN # TO GND. (NO SIGNAL CONDITION)							
	1	2	3	4	5	6	7	8 CAP
1851 Convertor	0	6.3 AC	290	150	0		0	2 0
1852 - 1st I.F.	0	6.3 AC	0	0	2	150	0	290
1852 - 2nd I.F.	0	6.3 AC	0	0	2	150	0	290
1853 - 3rd I.F.	0	0	0	0	2	150	6.3 AC	290
6H6 Video	0	6.3	0	0	N.C.		0	N.C.
6SK7 1st video amp.	0	0	0	0	3-10	100 v.6.3 AC		180
6K6G 2nd video	0	6.3	150	70-150	0	N.C.	0	0
6J5 Osc.	0	0	95 v.approx.	N.C.	0	N.C.	6.3 AC	0
6SK7 Sound I.F. amp.	0	0	4.5 v.	0	4.5	100	6.3 AC	290
6SQ7 Sound Det.	0	0	1.5	0	0	70	0	6.3 AC
6SK7 Video AVC Amp	0	6.3 AC	0	0	2	110	0	290
6H6 Video Det. Sync.	0	0	0	N.C.	N.C.		6.3 AC	0
6SJ7 Sync.Channel Amp.	0							
5U4G Rectifier	0	Pin 2-8 5 AC		280 AC		280 AC	N.C.	N.C.
5Y3G Rectifier	0	Pin 2-8 5 AC		280 AC		280 AC	N.C.	N.C.
6SJ7 Sync.Channel Amp.	0	Pin 2-7 6.3 AC	0	0	0	110		110
6N7 Hor.Vert. Sync.Amp.	0	Pin 2-7 6.3 AC	195	0	0	205		0
6N7 Hor.Osc.	0	Pin 2-7 6.3 AC	105	-22	-22	200		0
6L6 Hor.Output	0	Pin 2-7 6.3 AC	Cannot be Checked	300	0			24
5V4 Hor.Damping	0	Pin 2-8 5.0 AC	0	0		0		0-13 v.
6N7 Vert.Osc.	0	Pin 2-7 6.3 AC	290	-50	-50	20		0
6J5 Vert.Output	0	Pin 2-7 6.3 AC	300	300	0	6		13 v.approx.
2V3G *	0	7000 <sub>0</sub>					Pin 2-7 2.5 v.	0 □ 6000AC

\* Great caution should be exercised in checking high voltage circuits. It is best never to attempt to measure heater voltage on the 2V3G. If the tube lights brightly, it is sufficient indication that the heater voltage is correct. To measure high voltage, disconnect power supply and insert 0-5 m.a. meter in ground end of bleeder chain. (With protection fuse) current should read about 1 m.a. when power supply is reconnected. If bleeder current is appreciably off measure individual resistors in chain, to see if difficulty is there. Thus by replacing rectifier tubes an appropriate check of transformer the high voltage circuits can be checked without the use of dangerous probes.

- Electrostatic voltmeter
- 0 Special High resistance voltmeter

CADILLAC DIV.—GEN. MOTORS

MODEL C-8  
Schematic, Voltage  
Sensitivity

Sensitivity  
Manual Tuning  
Automatic Tuning

1 Microvolt at .5 Watt Output  
1 Microvolt at .5 Watt Output

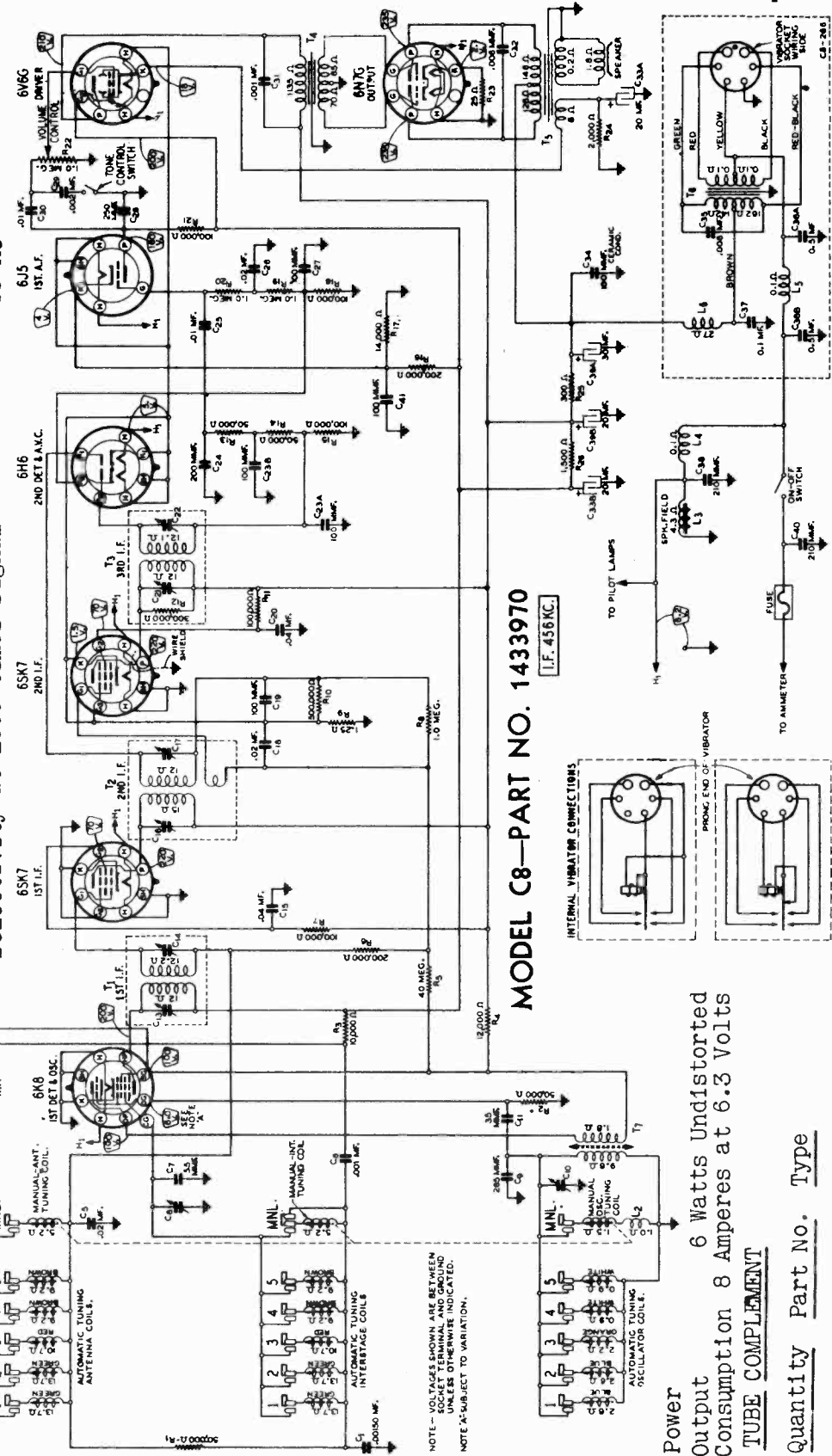
CADILLAC 1939 AUTOMATIC RADIO

Tuning Range  
Manual Tuning  
Buttons 1 & 2 (Left to right)  
Buttons 3 (Center)  
Buttons 4 & 5  
Speaker  
6" Electro Dynamic  
35 KC

530 to 1550 KC  
540 to 970 KC  
670 to 1250 KC  
820 to 1560 KC

65K7 1ST I.F.  
65K7 2ND I.F.  
6H6 2ND DET. & A.C.  
6J5 1ST A.F.  
6V6G 6W6G

MODEL C8—PART NO. 1433970  
[I.F. 456 KC.]



Power  
Output 6 Watts Undistorted  
Consumption 8 Amperes at 6.3 Volts  
TUBE COMPLEMENT

Quantity	Part No.	Type
3	1213392	65K7
1	1213393	6K8
1	1213395	6H6
1	1213394	6J5
1	1213396	6V6G
1	7233587	6N7G

Antenna Capacity Screw Settings  
Low Capacity Setting - In tight (clockwise) -- 59 mmf. -- Total of antenna and shielded cable.  
High Capacity Setting -- Out (counter clockwise) -- 193 mmf. -- Total of under car antenna and shielded lead.  
Antenna Trimmer Range ±15 mmf. of above antenna capacities

MODEL C-8  
Socket, Trimmers  
Chassis

CADILLAC DIV.—GEN. MOTORS

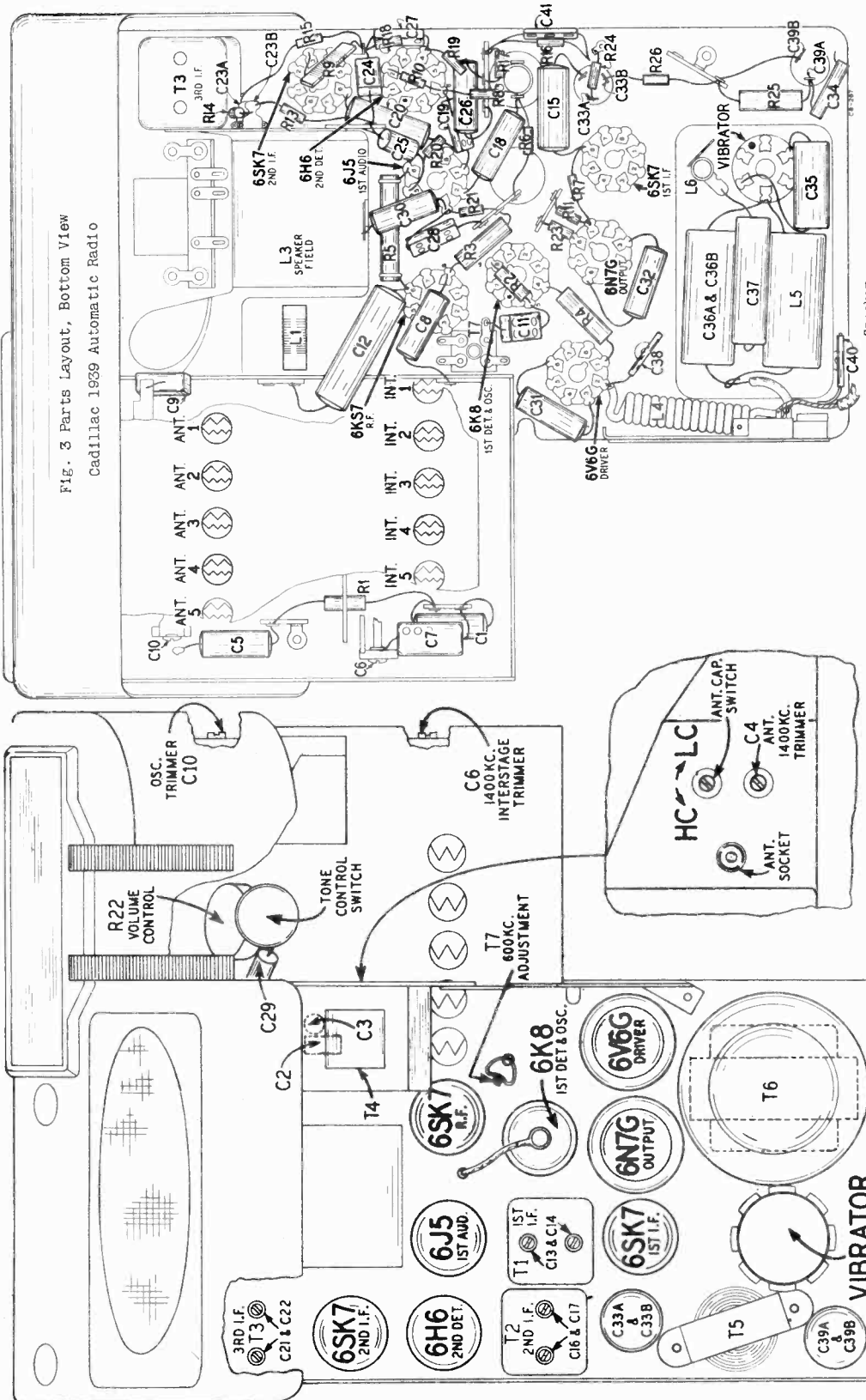


Fig. 3 Parts Layout, Bottom View  
Cadillac 1939 Automatic Radio

ce-268 Fig. 2 Parts Layout, Top View  
Cadillac 1939 Automatic Radio

When ordering parts for speakers, specify part number of speaker and speakers preceding part number stamped on the speaker.

6" Dynamic Speaker  
Cone & voice coil assembly for above speaker.  
Wire screen to cover front of speaker  
Cardboard ring for above wire screen

Original Part Number	Replacement Part Number	Illus. No.	Description	Socket	List Price
34267	1428011	2	Tube socket—Octal (8 prong)		12A319
34276	1435452	1	Vibrator socket (6 prong molded)		1434972
26A129	1435453	1	Antenna connection socket and bracket assembly		1435454
		1	6" Dynamic Speaker		\$5.86
		1	Cone & voice coil assembly for above speaker.		1.75
		1	Wire screen to cover front of speaker		.56
		1	Cardboard ring for above wire screen		.05

## MODEL C-8

## CADILLAC DIV.—GEN. MOTORS Tuner, Alignment Notes

The manual interstage tuning coil is short-circuited.

The automatic tuning Oscillator coil, No. 1, is capacity coupled to the Oscillator grid of the 6K8 tube.

Two stages of I.F. amplification are employed, using 6SK7 tubes. The primary and secondaries of each of the I.F. transformers are tuned by small trimmer condensers. Directly below the secondary of the 2nd I.F. is a third winding which couples the control grid circuit of the 2nd I.F. tube to the 2nd I.F. transformer.

The signal voltage across the secondary of the 2nd I.F. transformer is used to drive the plate of the AVC section of the 6H6 tube. AVC voltage is applied to the control grid circuits of the R.F., 1st detector and 1st and 2nd I.F. tubes. The rectified output of the 2nd detector section of the 6H6 tube is applied to the control grid of the 6J5 tube.

At no signal, the 6J5 tube is biased to cut off by virtue of the current flowing through resistor network R16 and 17. This gives a constant potential across R17, which keeps the tube biased to cut off when no signal is being received. When a station is being received, a positive voltage is applied to the control grid by both sections of the 6H6 tube through resistor networks R13, 14 and 15, and R18, 19 and 20, causing a very rapid reduction in bias so that the noise gate or noise limiter does not affect the sensitivity of the receiver. This is a very outstanding development in automobile radio circuit design and provides unusually quiet operation.

The 6J5 is resistance coupled to the 6V6G driver tube. The 6V6G is transformer coupled to the 6W7G output tube. This tube is a class "B" power amplifier and combines two triodes in one envelope. A 6" electro dynamic reproducer is employed.

Regeneration, or negative feed-back, is used in the audio amplifier. The voltage developed across the separate small secondary of the output transformer is fed back into the cathode circuit of the driver tube. The voltage fed back is of the proper phase to reduce the amplitude of certain frequencies. This results in a reduction in distortion.

A synchronous type vibrator is used in the power unit. This vibrator interrupts the current through the primary of the power transformer and also rectifies the current in the secondary circuit.

#### ALIGNMENT AND CALIBRATION PROCEDURE

The following equipment is required for proper alignment:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
- An Output Indicating Meter.
- Non-metallic screwdriver.
- Dummy Antennas - .1mf., and 35 mmf.

The Radio Chassis must be removed from the case, but the front cover must remain on the chassis with all screws in place. THIS IS ABSOLUTELY NECESSARY TO ALIGN.

The Volume Control must be at maximum for all adjustments.

The Normal-Quiet Control must be in the Normal position for all adjustments.

The Antenna Capacity Switch (See Fig. 2.) screw should be in the maximum clockwise position for the Low Capacity (Vacuum Type) Antenna. The total capacity of the Low Capacity Antenna and the shielded lead is 59 mmf.

Connect Radio Chassis to Ground Post of Signal Generator with a short heavy lead.

Allow chassis and Signal Generator to "Heat Up" for several minutes.

Attenuate the signal from the signal generator to prevent the leveling-off action of the AVC.

Refer to Alignment Charts

#### FEATURES

The 1939 Cadillac Automatic Radio is an 8-tube automobile radio covering the standard wave band incorporating the very latest developments in automobile radio engineering. The outstanding features are:

1. Permeability tuning, providing a dual input circuit to the 1st detector, one for manual tuning and one for automatic push button tuning, is used.
2. A new noise-limiting circuit in the audio system controlled by signal voltage developed by the 2nd detector and the AVC network, providing for the first time effective noise-limiting action without affecting sensitivity.
3. Two stages of Intermediate Frequency, increasing considerably Automatic Volume Control action.
4. A three-circuit Automatic Tuner, providing the same sensitivity on both manual and automatic tuning sections.
5. An OFF-switch incorporated in the push button operating mechanism to provide practically complete automatic operation, making it necessary to push only one button to select a station, tune and turn on the radio.

#### MANUAL TUNING CIRCUIT

When the manual tuning button is depressed, the manual antenna tuning coil is connected to the grid of the 6SK7 R.F. amplifier tube through a series motor noise filter. The plate of the R.F. tube is fed through a resistor and is capacity coupled to the detector grid of the 6K8 tube through the manual intermediate tuning coil. This grid is also controlled by the AVC system through the manual intermediate tuning coil. The manual oscillator tuning coil is capacity coupled to the oscillator grid of the 6K8 tube in parallel with the fixed oscillator coil 17 which also functions as the low frequency adjustment.

All the automatic tuning coils are open circuited when the manual tuning button is depressed.

Manual tuning is accomplished by varying the inductance of the manual tuning coils by changing the permeability of the magnetic circuit. This is done by moving an iron core of special design in and out of the coil by rotating the manual station selector drum.

The extreme position of the iron cores within the coils has been precision adjusted at the factory and should not be disturbed.

#### AUTOMATIC TUNING CIRCUIT

Automatic tuning is accomplished by the use of a new and highly efficient three-circuit push button permeability tuner.

The tuning of the R.F. Interstage and Oscillator semi-fixed tuned circuits, is accomplished by varying the inductance of the coils by changing the permeability of the intermediate circuit and by moving the iron core in and out of the coil. The iron cores within the coils are rigidly secured to a brass rod. This brass rod moves in and out of the coils as the adjustment screw is turned, changing the inductance of the coils, giving the same result as the variable tuning condenser across the coil except that this method is more precise and stable, and it is not affected by moisture or temperature changes as is the case with a normal tuning condenser.

#### ALIGNMENT

Alignment between the Oscillator, Antenna and Interstage automatic tuning coils is obtained by changing the Antenna (center) and Interstage (rear) coil positions while the iron cores are held stationary on the shaft. To describe the connections for automatic tuning, let us assume that button No. 1 is depressed

The automatic tuning antenna coil, No. 1, is connected to the grid of the R.F. tube. The plate of the R.F. tube is fed through a resistance and is capacity coupled to the automatic tuning interstage coil, No. 2, which is connected to the control grid of the 6K8 tube.

MODEL C-8

Tuner, Alignment Data CADILLAC DIV.—GEN. MOTORS

ALIGNMENT CHART NUMBER ONE

SIGNAL GENERATOR Frequency Setting	Connection at Radio	Dummy Antenna	Button Depressed	Inductive Tuner and Dial Setting	Adjust Trimmers to Maximum
<b>I.F. ADJUSTMENT</b>					
456 KC	Control Grid (prong No. 4) 6SK7 2nd I.F. Tube See Note A	.1 mf.	Manual	1550 KC	3rd I.F. (C21) & (C22) See Fig. 2
456 KC	Control Grid (prong No. 4) 6SK7 1st I.F. Tube	.1 mf.	Manual	1550 KC	2nd I.F. (C16) & (C17) See Fig. 2
456 KC	Control Grid (top cap) 6X8 1st Det. Tube	.1 mf.	Manual	1550 KC	1st I.F. (C13) & (C14) See Fig. 2
<b>OSCILLATOR ADJUSTMENT</b>					
1550 KC	Control Grid (top cap) 6X8 1st Det. Tube	.1 mf.	Manual	1550 KC	Osc. (C10)
<b>1400 KC ADJUSTMENT</b>					
1400 KC	Antenna Cable - See Note B	35 mmf.	Manual	Tune to Maximum Output with station selector drum.	Int. 1400 KC (C6) Ant. 1400 KC (C4) See Fig. 2
<b>600 KC ADJUSTMENT</b>					
600 KC	Antenna Cable	35 mmf.	Manual	Tune to Maximum Output with station selector drum.	600 KC (T7) See Fig. 2 Rocking Adjustment - Note C
<b>1400 KC READJUSTMENT</b>					
1400 KC	Antenna Cable	35 mmf.	Manual	Tune to Maximum Output with station selector drum.	Osc. (C10) See Fig. 2 Rocking Adjustment - Note C

NOTE A - Insert antenna cable at chassis and short circuit open end of cable to cable shield for all I.F. and oscillator adjustments.

NOTE B - Remove antenna cable short circuit and insert 35 mmf. condenser between open end of antenna cable and signal generator.

NOTE C - Rotate station selector drum back and forth and turn the adjusting screw until the peak of greatest intensity is obtained.

ALIGNMENT CHART NUMBER TWO

CAUTION - DO NOT CHANGE SETTING OF ANY TRIMMERS THAT HAVE BEEN ADJUSTED UP TO THIS POINT.

SIGNAL GENERATOR Frequency Setting	Connection at Radio	Dummy Antenna	Button Depressed	Automatic Tuner Setting	Adjust Coil Positions to Maximum Output
<b>AUTOMATIC TUNER ADJUSTMENTS AND ALIGNMENT</b>					
				WITH BUTTON DE-PRESSED, TURN AUTOMATIC TUNER ADJUSTING SCREW TO MAXIMUM OUTPUT.	See Note D
700 KC	Antenna Lead	35 mmf.	No. 1	Adjusting Screw No. 1	Antenna Coil No. 1
700 KC	Antenna Lead	35 mmf.	No. 2	Adjusting Screw No. 2	Interstage Coil No. 1
850 KC	Antenna Lead	35 mmf.	No. 3	Adjusting Screw No. 3	Antenna Coil No. 2
1100 KC	Antenna Lead	35 mmf.	No. 4	Adjusting Screw No. 4	Interstage Coil No. 2
1100 KC	Antenna Lead	35 mmf.	No. 5	Adjusting Screw No. 5	Antenna Coil No. 3
					Interstage Coil No. 3
					Antenna Coil No. 4
					Interstage Coil No. 4
					Antenna Coil No. 5
					Interstage Coil No. 5

NOTE D - At the top of the automatic tuning unit can be seen ten round openings - See Fig. 3. Through these openings can be seen the ten "W" openings on the other side of the unit. Insert a thin blade screw driver through the round openings and in the "W" opening of the proper button and adjust the position of the coil by twisting the screw driver until maximum output is obtained.

ADJUSTING ANTENNA 1400 KC TRIMMER

After the radio is installed and the car antenna is connected, it is necessary to readjust the antenna 1400 KC trimmer.

There are two small holes in the chassis case near the antenna connection through which the antenna capacity and antenna trimmer adjustments are to be made. See Fig. 2. With the Cadillac Vacuum Antenna, the screw marked "Capacity" should be set to the extreme clockwise position. With the Cadillac Under Car or Running Board Antenna, the screw marked "Capacity" should be set to the extreme counter clockwise or high capacity position.

To adjust trimmer, tune in a weak signal at approximately 1400 KC with the volume control about three-fourths on, turn the adjusting screw (marked trim) in or out until maximum output is obtained. On Vacuum Antenna this adjustment should be made with antenna fully extended.

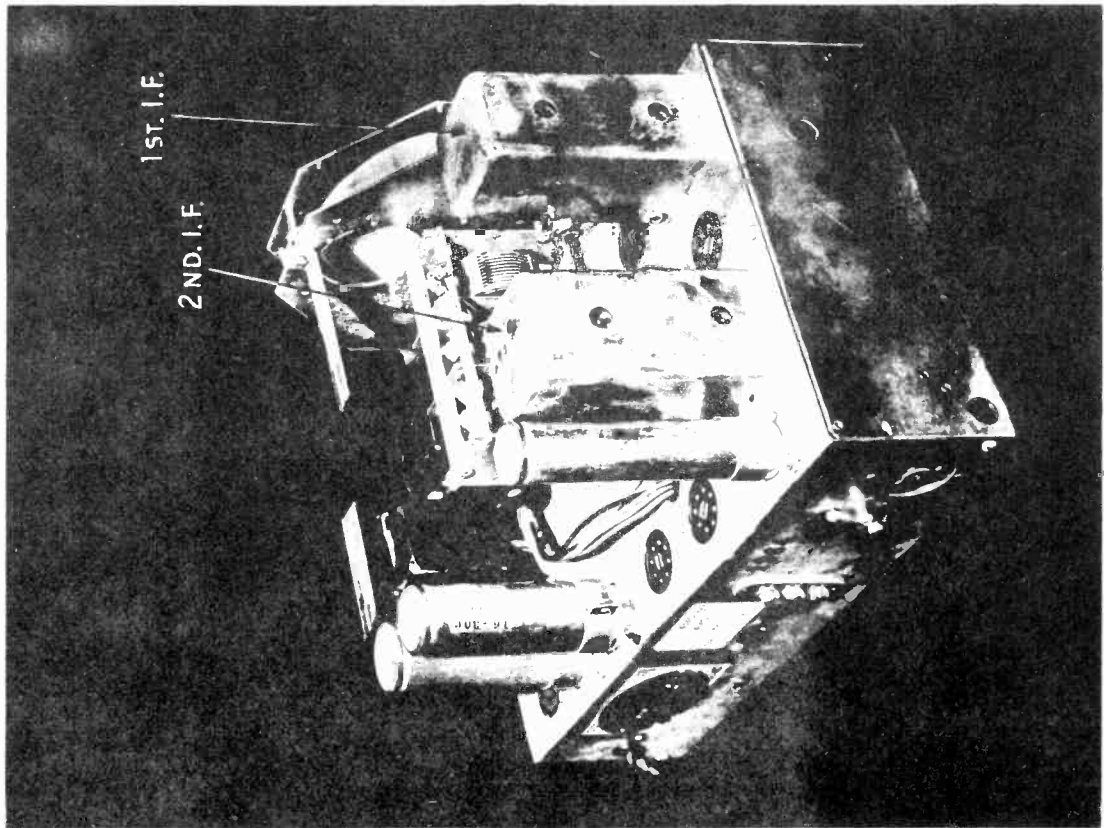
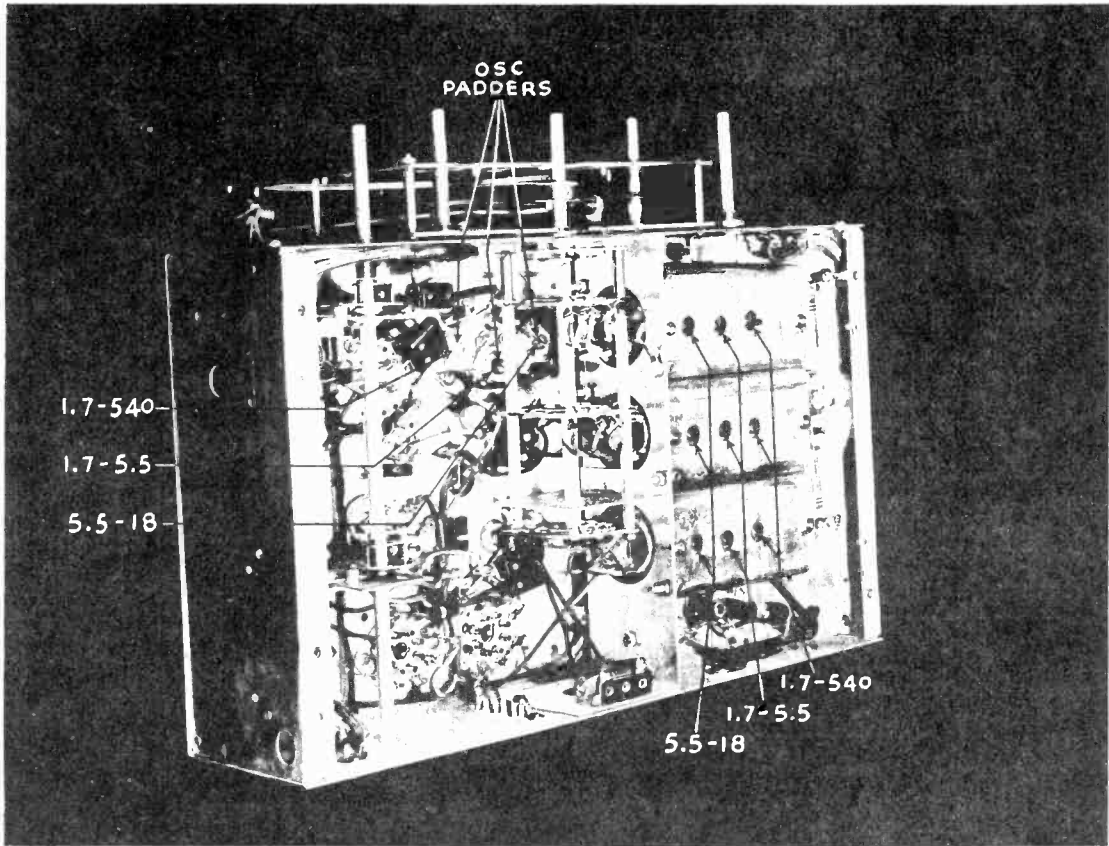






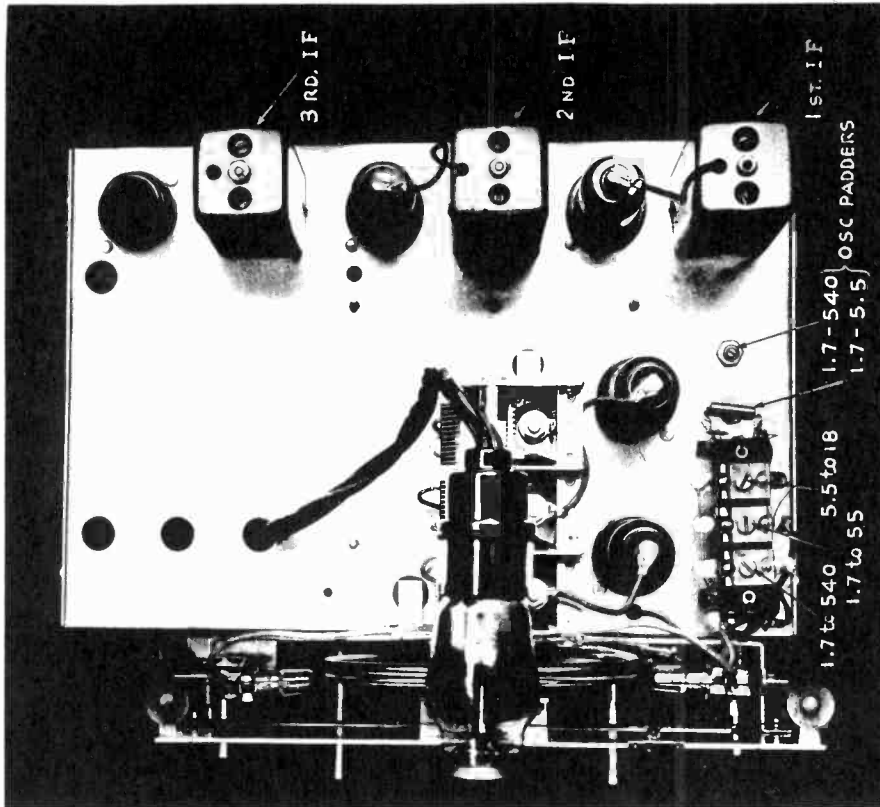
CAPEHART CORPORATION

MODEL E-1  
Trimmers, Chassis



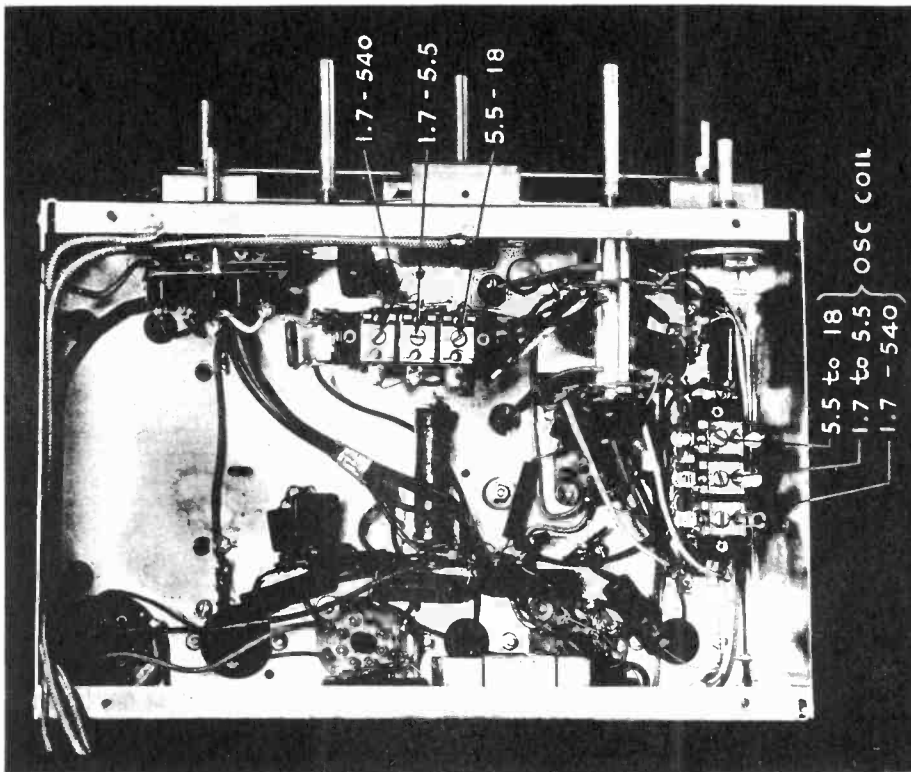
MODEL 110-G, Panamuse  
Trimmers, Chassis  
Alignment

CAPEHART CORPORATION



Broadcast band ----- 1400 kc  
 1st H-F band ----- 5.0 mc  
 2nd H-F band ----- 17 mc  
 After the oscillator coil trimmer has been set, align the r-f trimmers. Next set the oscillator padding condensers of the various bands at the following frequencies:

Broadcast band ----- 550 kc  
 1st H-F band ----- 2.0 mc  
 2nd H-F band ----- 6.0 mc



ALIGNMENT INSTRUCTIONS

When aligning the i-f stages, short the oscillator section of the tuning condenser to ground. Set test oscillator to 465 kc and connect to the grid of the 6A8 first detector. Set the i-f trimmers for maximum reading of the output meter connected across the voice coil.

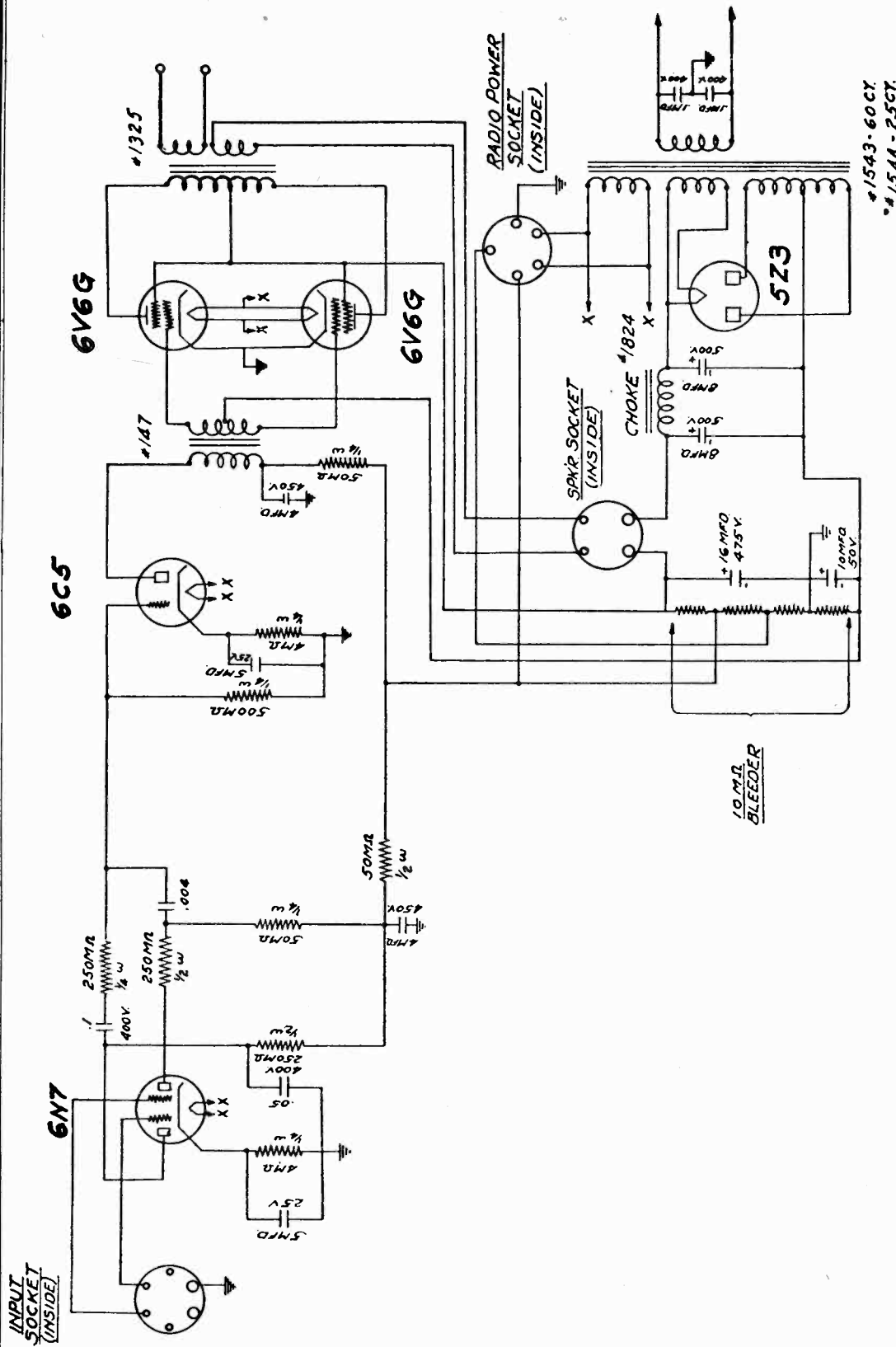
When aligning the r-f amplifier, connect the test oscillator to the antenna post, after removing ground from the tuning condenser mentioned above. Regardless of which band is being aligned, start with the oscillator coil trimmer with the dial set on the high-frequency end of the band at the following frequencies:





MODEL 110-G, Panamuse  
Amplifier Schematic

CAPEHART CORPORATION



**SCHEMATIC-PANAMUSE-AMPLIFIER**  
**WIRING-DIAGRAM**

**W-941**  
MAR. 24/30B  
G.F. RIDER

20106 - 60CY  
20107 - 25CY

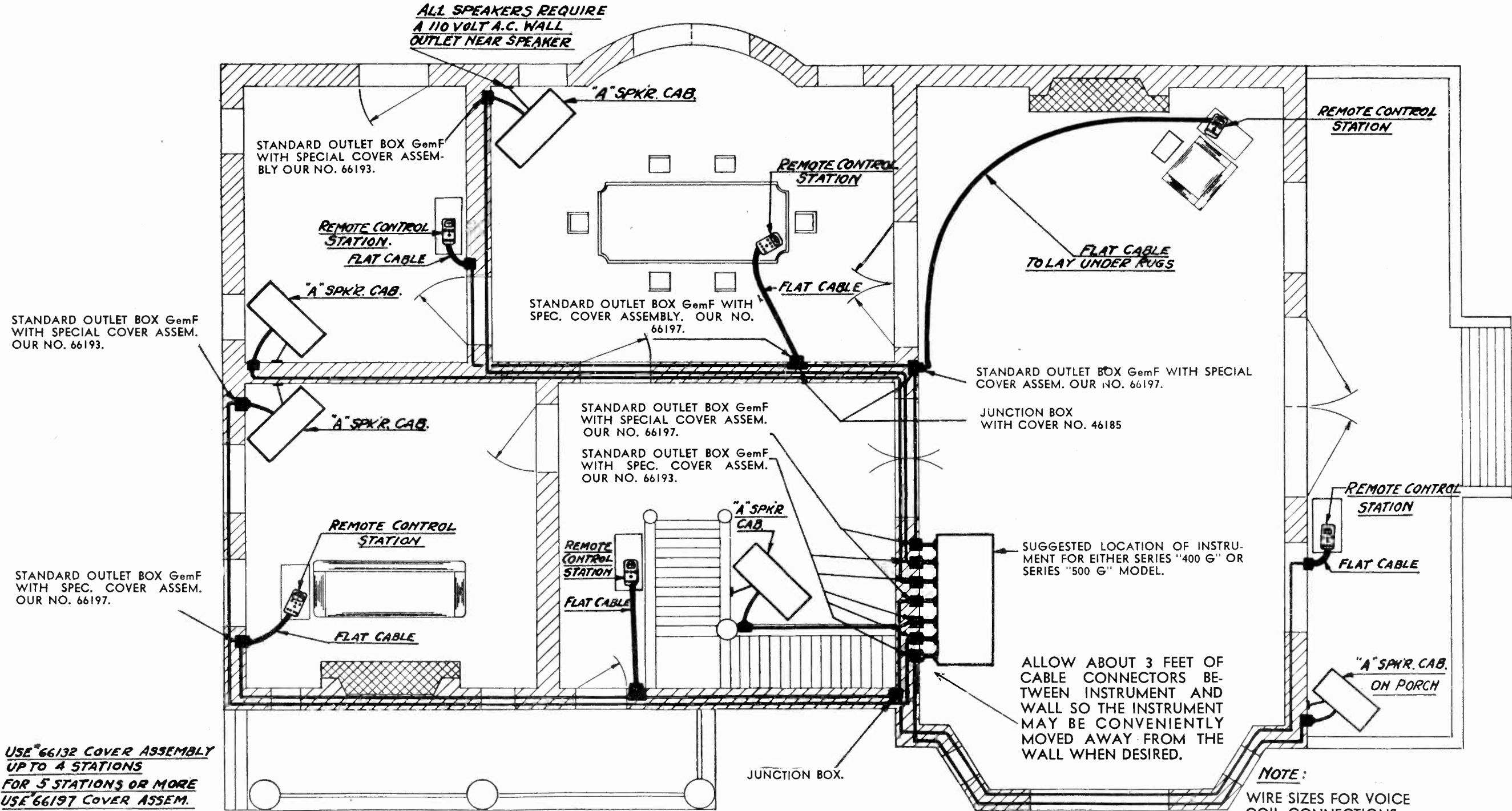


MODELS 400-G,500-G Series  
Remote Control Installation

CAPEHART CORPORATION

*THIS DRAWING SHOWS A CAPEHART REMOTE INSTALLATION OF 5 REMOTE SPEAKERS AND 6 REMOTE CONTROL STATIONS. THE WIRES FOR THESE CONTROL STATIONS HAVE BEEN RUN FROM A SET OF BASEBOARD OUTLET BOXES MOUNTED IN THE BASEBOARD AT THE REAR OF THE INSTRUMENT THROUGH CONDUIT PIPES TO THE BASEBOARD OUTLET BOXES AT THE REMOTE LOCATIONS.*

ALL SPEAKERS REQUIRE  
A 110 VOLT A.C. WALL  
OUTLET NEAR SPEAKER



USE 66132 COVER ASSEMBLY UP TO 4 STATIONS  
FOR 5 STATIONS OR MORE USE 66197 COVER ASSEM.

THE CAPEHART, INCORPORATED  
Fort Wayne, Ind., U. S. A.

CAPEHART REMOTE CONTROL INSTALLATION

AVAILABLE ON MODELS OF THE SERIES 400G AND SERIES 500G INSTRUMENTS



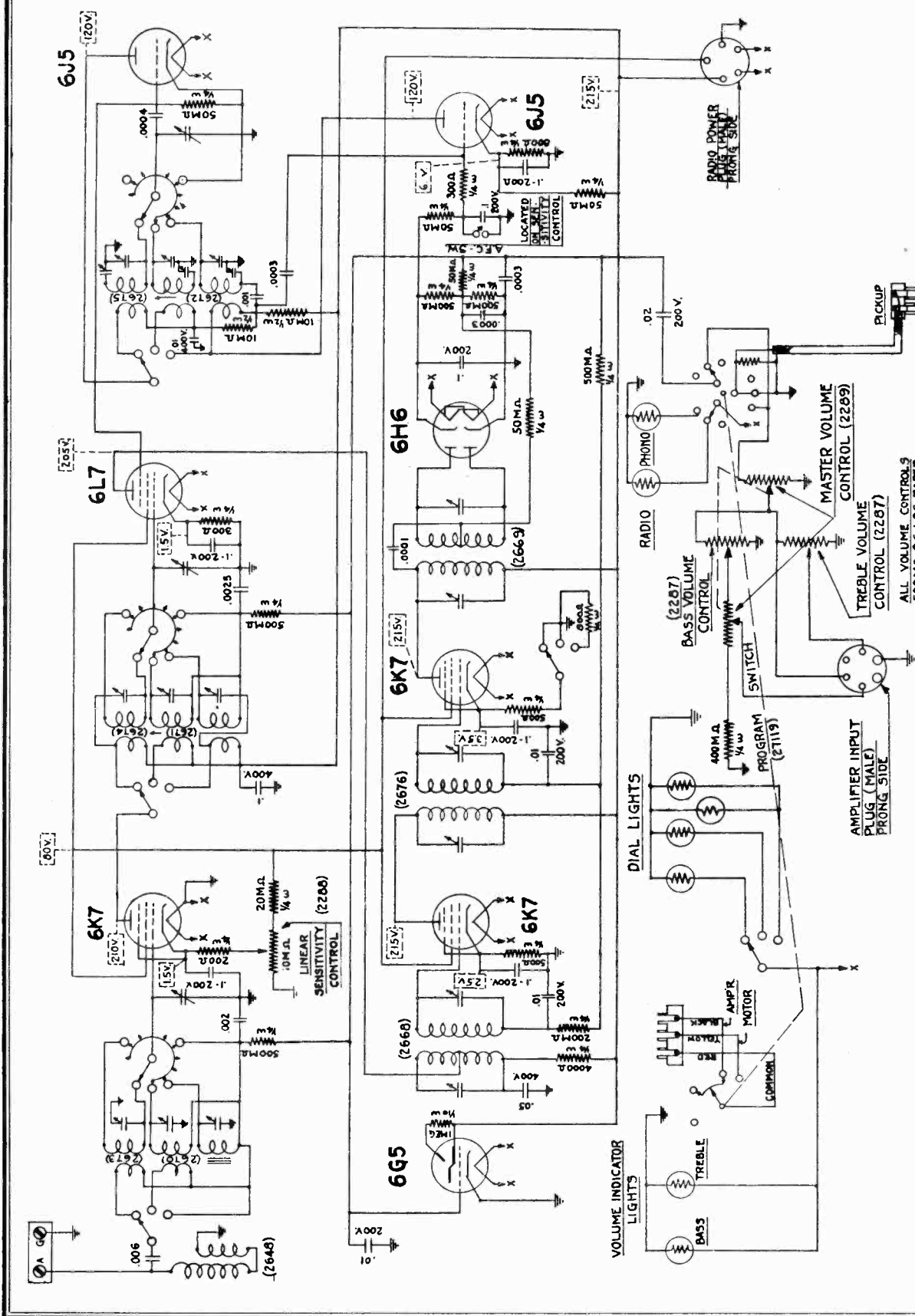




# CAPEHART CORPORATION

MODEL 400-G  
Tuner Schematic  
Voltage

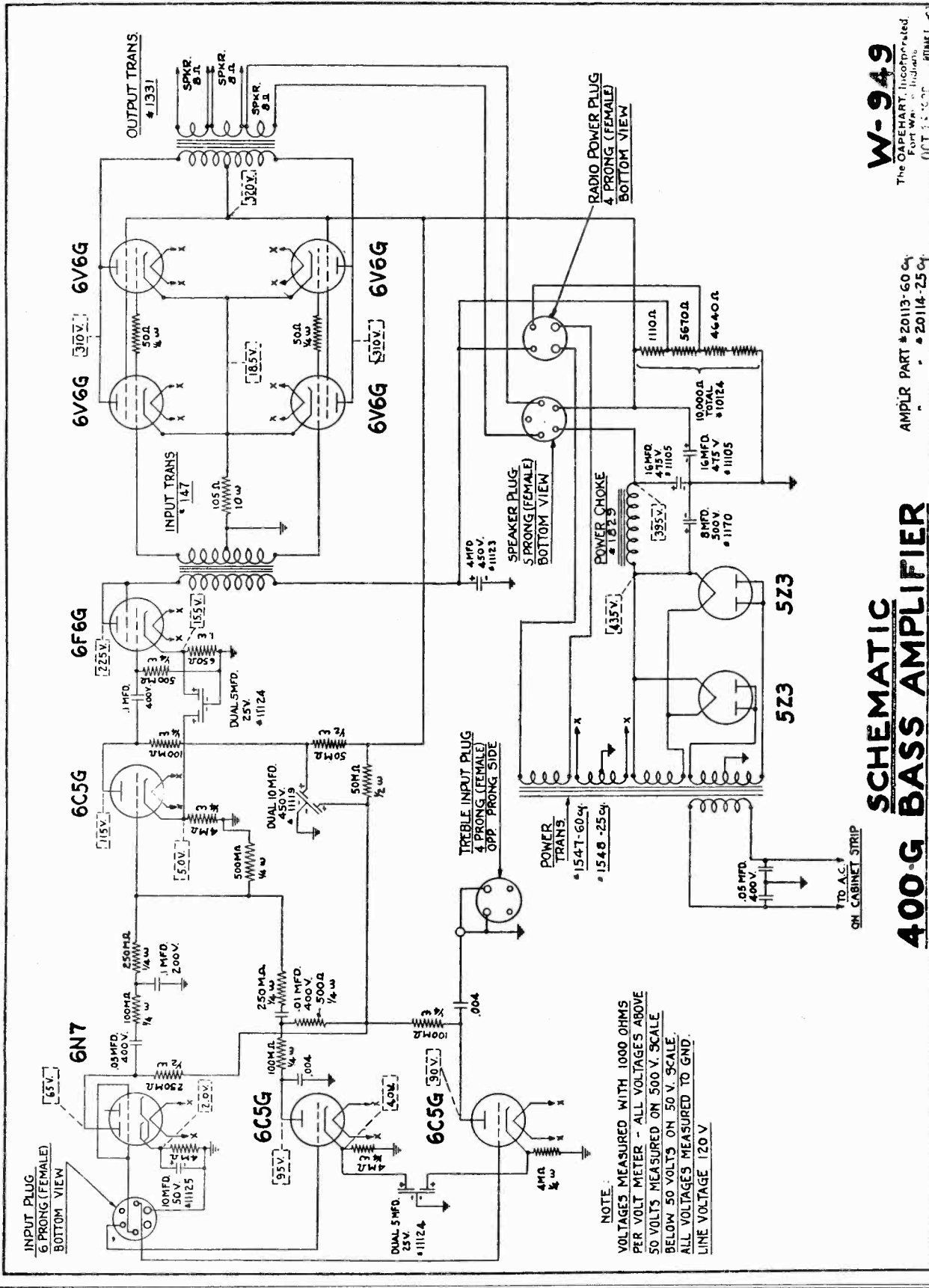
**W-947**  
The CAPEHART, Incorporated  
Fort Wayne, Indiana  
OCT 18 1938  
BIRMINGHAM



**SCHEMATIC-400-G-TUNER**  
**WIRING DIAGRAM**

IF PEAK 465 KC

MODEL 400-G  
 Bass Amplifier Schematic CAPEHART CORPORATION  
 Voltage



**W-949**

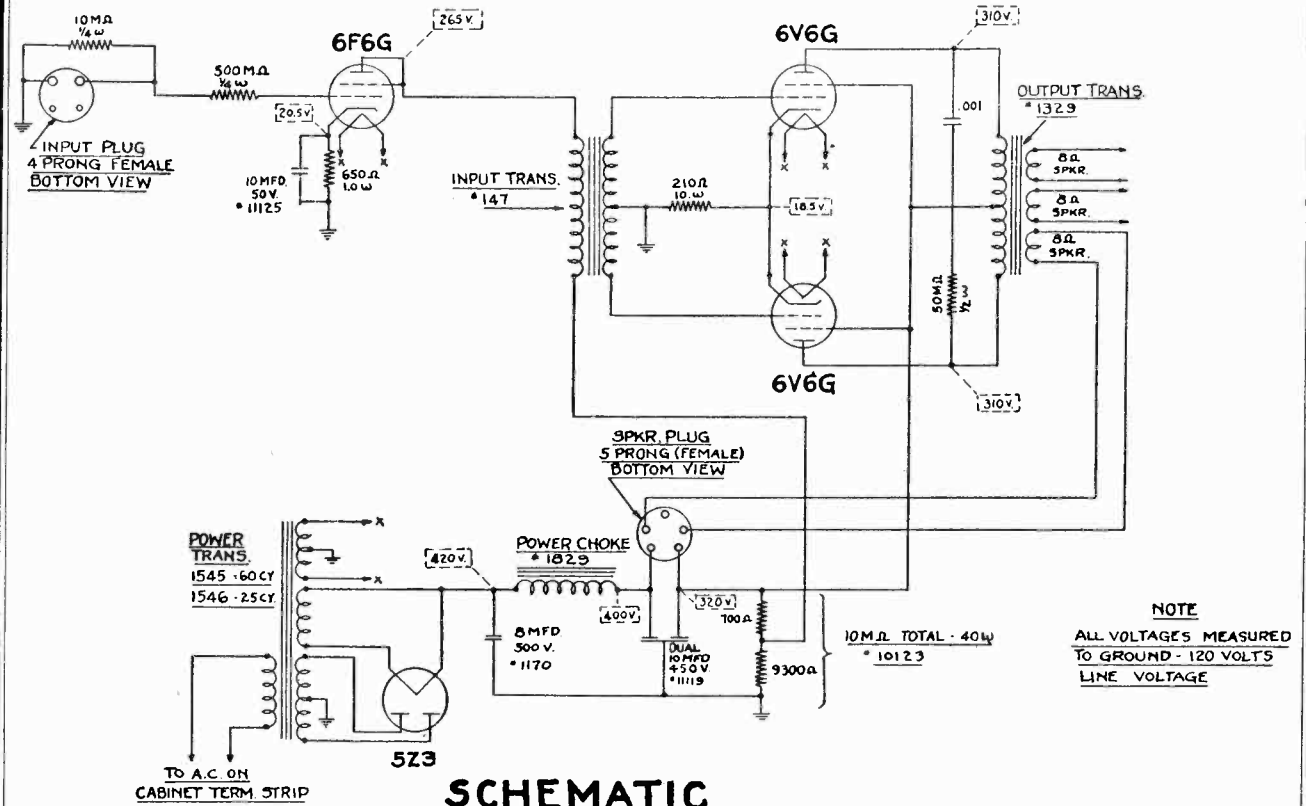
The CAPEHART, Incorporated,  
 Fort Wayne, Indiana  
 OCT 15 1949

AMPLR PART # 20113-60 Ch.  
 # 20114-25 Ch.

**SCHEMATIC**  
**400-G BASS AMPLIFIER**

CAPEHART CORPORATION

MODEL 400-G  
Treble Amplifier  
Schematic, Alignment



**SCHEMATIC**  
**400-G TREBLE AMPLIFIER**

**W-948**

AMPLR. PART No. 20111-604  
" " " 20112-254

CAPEHART, Incorporated  
1201 N. 1st St., St. Paul, Minn.

**Alignment: I-F**

The i-f stages are peaked at 465 kc. Remove the 6J5 oscillator tube. Set the test oscillator at 465 kc and connect the output to the grid of the 6L7 first detector. Adjust the trimmers for maximum reading of the output meter.

**AFC :**

The AFC circuit is aligned when aligning the i-f amplifier at 465 kc. The primary of the discriminator transformer, marked DIODE transformer in the layout, is aligned at 465 kc. The secondary is aligned with the AFC switch closed on a broadcast or oscillator signal, using either the electric eye or output meter for checking resonance. The AFC switch should then be opened and the secondary re-aligned. If alignment has been made correctly, turning the AFC switch off and on should make no difference in the cathode-ray tuning tube.

**R-F :**

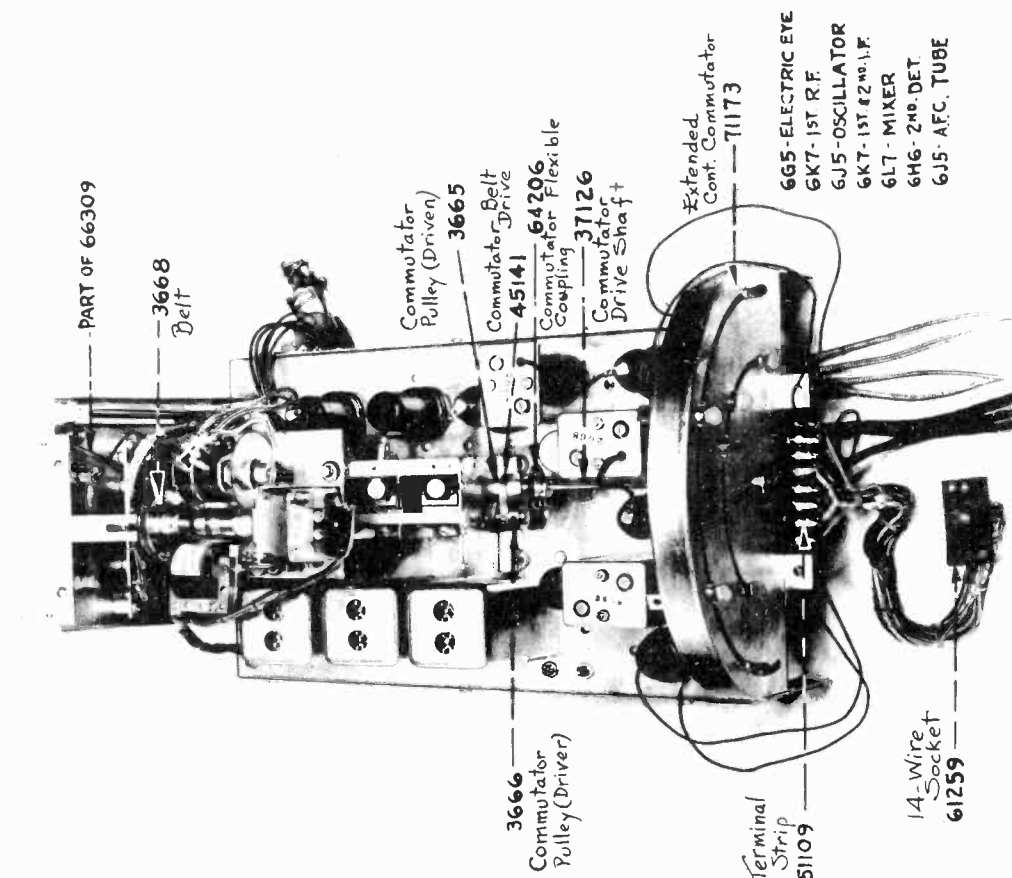
Replace the oscillator tube. Connect oscillator to antenna post. No matter what band is being aligned, start with the oscillator trimmer with the dial set to the high-frequency end of the band at the following frequencies:

- Broadcast Band ... 1400 kc
- First H-F Band ... 5.0 mc
- Second " " ... 17.0 mc

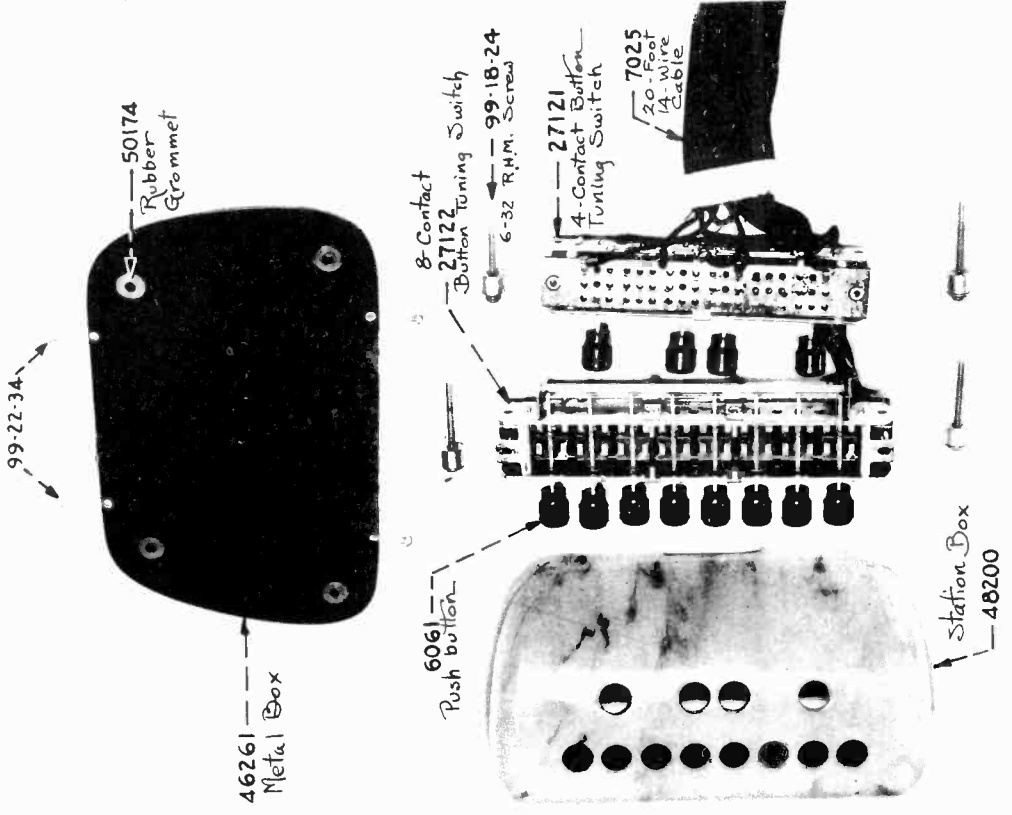
After the oscillator trimmer has been set for resonance, align the r-f trimmers. After these have been adjusted properly and checked, set the oscillator padding condensers of the bands at the following frequencies:

- Broadcast Band ... 550 kc
- First H-F Band ... 2.0 mc
- Second " " ... 6.0 mc

MODEL 400-G  
Tuning Meter Adjustments CAPEHART CORPORATION  
Chassis Assembly



1983-GEC 25~  
1982-GEC 60~

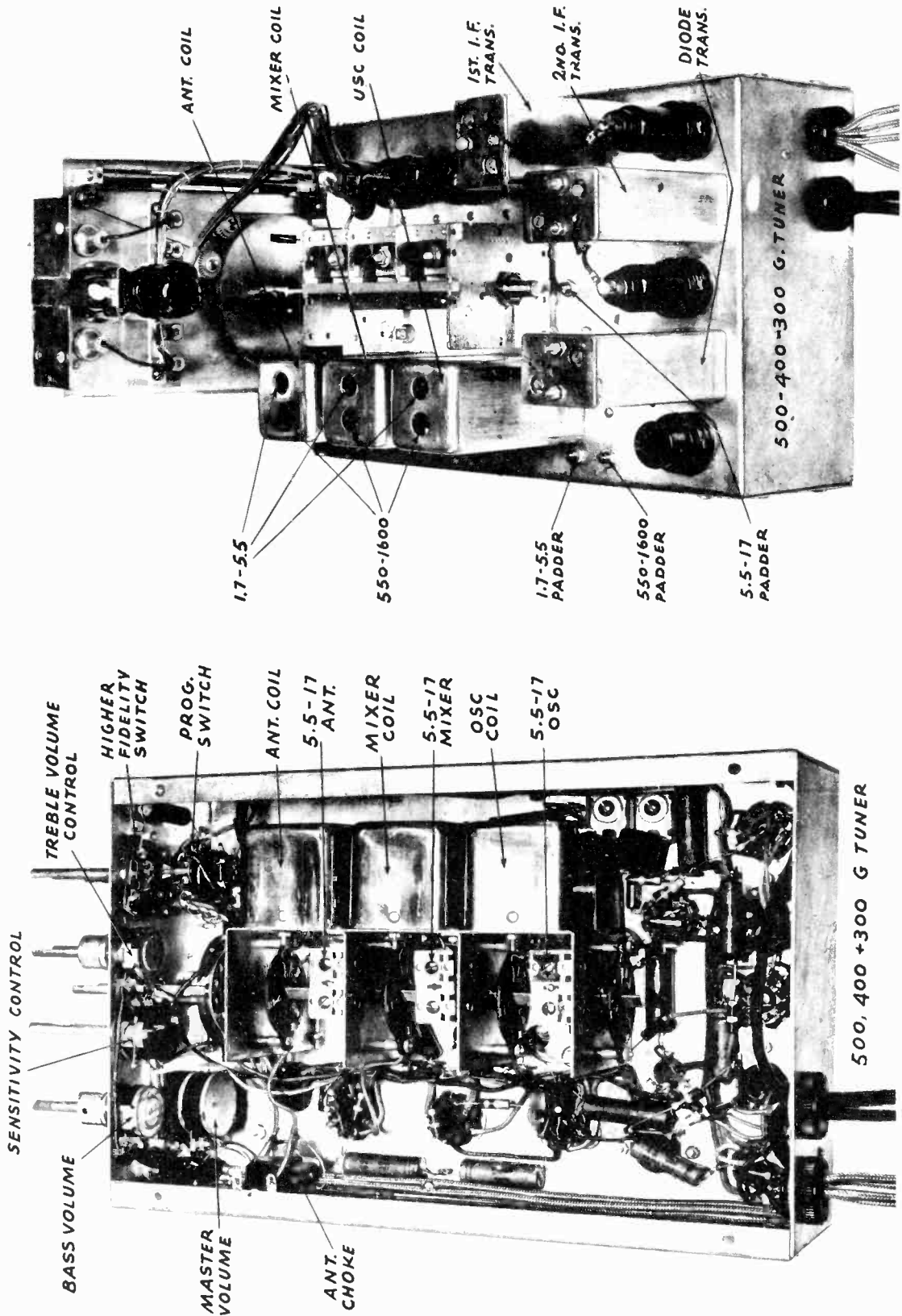


TO ADJUST THE TUNING METERS

IN ORDER THAT THE CALIBRATION OF THE TUNING METERS, IN THE REMOTE CONTROL STATIONS, TO ADJUST A REMOTE CONTROL STATION, TUNE THE SET BY HAND, TO 550 KILOCYCLES, THEN MAY BE MADE TO AGREE WITH THE TUNING DIAL, A REHROSTAT IS PROVIDED. THIS REHROSTAT AT EACH STATION BOX, SET THE METER TO THIS FREQUENCY BY THE ZERO ADJUSTING SCREW ON IS MOUNTED ON THE RADIO CHASSIS DIRECTLY ABOVE THE ANTENNA GROUND TERMINAL STRIP. THE FACE OF THE METER. THEN TUNE THE SET BY HAND TO 1600 KILOCYCLES, AND ADJUST THE THIS REHROSTAT IS USED TO COMPENSATE FOR THE VARIOUS LENGTHS OF CABLE REQUIRED REHROSTAT UNTIL THE METERS INDICATE THIS FREQUENCY. AGAIN CHECK THE LOW FREQUENCY SETTING, MAKING THE NECESSARY ADJUSTMENTS BY THE ADJUSTING SCREW IN EACH BOX. IN THE DIFFERENT INSTALLATIONS, AND TO COMPENSATE IN THE DROP IN BATTERY VOLTAGE.

TO ADJUST THE TUNING METERS, IN THE REMOTE CONTROL STATIONS, TUNE THE SET BY HAND, TO 550 KILOCYCLES, THEN AT EACH STATION BOX, SET THE METER TO THIS FREQUENCY BY THE ZERO ADJUSTING SCREW ON THE FACE OF THE METER. THEN TUNE THE SET BY HAND TO 1600 KILOCYCLES, AND ADJUST THE REHROSTAT UNTIL THE METERS INDICATE THIS FREQUENCY. AGAIN CHECK THE LOW FREQUENCY SETTING, MAKING THE NECESSARY ADJUSTMENTS BY THE ADJUSTING SCREW IN EACH BOX.

CAPEHART CORPORATION MODEL 400-G, 500-G Series Trimmers, Chassis





MODEL 400-G, 500-G Series  
Mixing Panel Chassis  
Notes

CAPEHART CORPORATION

- \* ON 400 ONLY
- \* ON 500 # 61214
- 68309 - 400 & 1600
- 68310 - 500 ONLY

Speaker Relay  
#400 & #600  
60~ 61241  
25~ 61255

200-Ω, 1/4 watt  
Resistor  
1012

Remote  
Control  
60~ 61243  
25~ 61244

50174  
Grommet

10-32 Wing Nut  
99-16-11

6.3-Volt Transformer  
60~ 1746  
25~ 1747

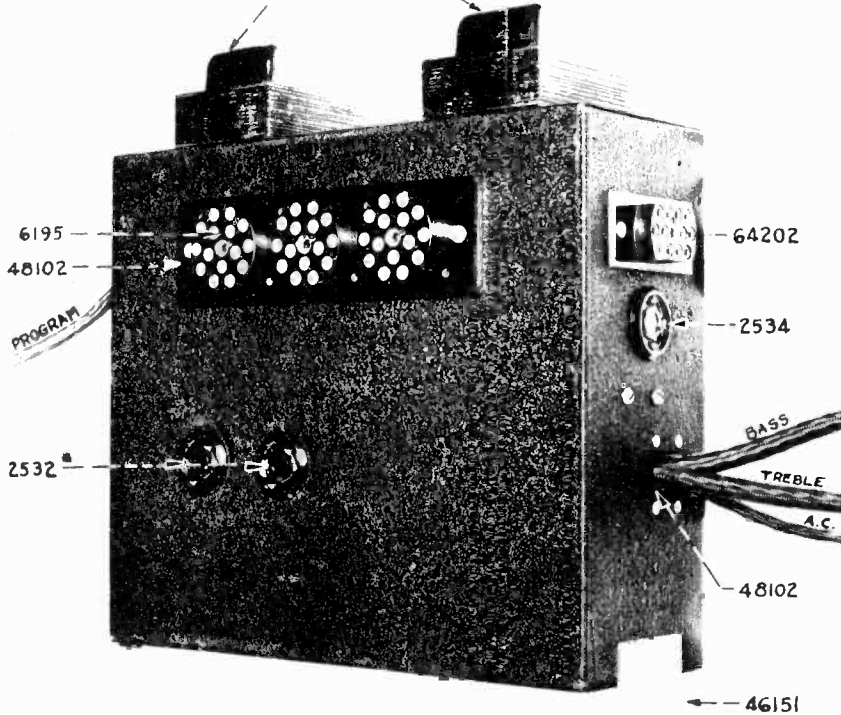
60~ 1744  
25~ 1745  
110-Volt  
Transformer

PROGRAM  
CABLE  
50189  
Insulator

Off-On Relay  
60s  
61246

61213  
Dry Cell

1744 - 60~  
1745 - 25~  
68309 - 400 & 1600  
68310 - 500 ONLY



THE #1744 TRANSFORMERS, #1745 IF 25 CYCLE, ARE FOR THE PURPOSE OF ENERGIZING THE VARIOUS RELAYS NEEDED TO PERFORM THE NECESSARY SWITCHING OPERATIONS WHEN CUTTING IN OR OUT A GROUP OF SPEAKERS, CHANGING FROM RADIO TO PHONOGRAPH, ETC. ONE OF THESE TRANSFORMERS IS ALWAYS ON THE LINE, EXCEPT WHEN THE PLAY CONTROL IS AT ZERO, TO PROVIDE VOLTAGE FOR THE OFF-ON RELAY.

TRANSFORMER #1746, #1747 IF 25 CYCLE, IS EMPLOYED FOR THE PILOT LIGHT IN THE REMOTE CONTROL STATIONS. IF TRANSFORMER #1746 OR #1747 FAILS TO WORK, THE RESULT WILL BE NO PILOT LIGHT IN THE REMOTE STATIONS, THE OUTPUT VOLTAGE OF THESE TRANSFORMERS IS 6.3 VOLTS.

THE DRY CELL, #61213, IS TO SUPPLY A STEADY SOURCE OF DIRECT CURRENT TO OPERATE THE TUNING OR KILOCYCLE METERS IN THE REMOTE STATIONS. IF IT BECOMES IMPOSSIBLE TO BRING THE METERS IN THE REMOTE STATIONS INTO SYNCHRONISM WITH THE TUNING DIAL, BY ADJUSTING THE RHEOSTAT ON THE RADIO CHASSIS, A NEW BATTERY IS INDICATED.

IF THE OFF-ON BUTTON DOES NOT TURN THE INSTRUMENT ON AND OFF, IT MAY BE THAT THE COIL IN RELAY #61246, #61257 IF 25 CYCLE, IS OPEN. HOWEVER, IF THE COIL IS NOT OPEN, THE CONTACTS MAY NEED CLEANING, OR THE SPRINGS ADJUSTED.

# CAPEHART CORPORATION

## MODEL 400-G, 500-G Series Mixing Panel Notes

Linoleum cement may be used to hold the new glass in place. This cement requires a minimum of 36 hours to dry, due to the impervious nature of the box and glass. After the cement has hardened, clean the glass carefully, on the inside before remounting the meter. Also check the Zero adjuster before setting the meter into the box, to see that the pin will enter its slot without striking and bending the correcting arm.

When replacing the pointer, #6062, turn the shaft to the position where the switch is open, then turn the shaft ONE notch or step toward one hundred, at this point, set the indicator on Zero and set up the set screw, checking to see that the pointer does not ride on the dial at any point.

### TO SET STATION STOPS ON EXTENDED TUNING CHASSIS

Starting at the high frequency (shortest wave length) end of the broadcast band, with the AFC off, pick the desired station, nearest the end of the dial. Slide station stop #1 on the commutator, meanwhile holding button #1 down, until the station desired comes in best, then lock the station stop, by the thumb screw. The odd numbered stops are in the outer row and the even numbered stops in the inner row, (by having two rows of stops, stations on adjacent channels may be tuned in). Next, adjust stop #2 for the next low frequency station, using button #2 and so on, until all eight stops are adjusted. Always have the AFC switch in circuit when using extended tuning, except during the time the stops are being set. Proper call letter strips should be inserted in the buttons with the celluloid covers over them. These call letter slips and covers are packed in a manila envelope with each extended control instrument.

On the chassis, is a relay #61235, #61245 if 25 cycles, which is used to shift the clutch so that the meter may drive either the gang condenser or the volume control, a set of contacts is mounted on this relay to mute the speakers when the meter is tuned from station to station. If a station button is depressed, this relay should close, muting the speakers and shifting the clutch so as to engage with the condenser drive pulley in the event of failure of the instrument to tune when a station button is depressed, failure may be traced to an open coil in this relay, if the meter operates properly.

Underneath the chassis is the program relay, #61240, #61258 if 25 cycle. Failure to change from radio to phonograph, or from phonograph to radio, may be due to an open coil or improper contact adjustment here.

In the bottom of the cabinet is the OFF-ON relay, #61246, #61257 if 25 cycle. Failure of the instrument to start or shut off when the corresponding buttons are pushed, may be due to failure of the relay coil or improper adjustment of the contacts.

In case a control button fails to operate from the control box, but the corresponding button on the instrument works, the trouble may be located in the cable.

### MIXING PANEL - G-SERIES

If any speaker button does not switch its associated speaker group on or off, the #61241 relay, #61255 if 25 cycle, #61242 60 cycle or #61256, 25 cycle if a Model-500 instrument, may be open, or the contacts in need of adjustment or cleaning. Low volume from one set of speakers, is probably due to lack of field current, due to defective field supply rectifier tube, or the 110-volt relay not making proper contact.

The 200-Ohm resistors, in series with the 0.1 Mfd. condensers, are across the points of some of the relays as thump filters to reduce the radio interference when the relays open or close.

If either the tuning or volume control knobs are ineffective, the trouble may be located in the #61243, #61244 if 25 cycle relay. In the "G" model remote control, the relays operate from 16-volts, instead of 110-volts, with a large reduction in radio interference.

The covers, for the unused 16-wire sockets of the face of the mixing panel, used to connect the remote cables to the instrument, should be left in place. These covers hold the jumpers in the sockets, which complete the tuning meter circuit. If any cover is removed, see that the tuning meter circuit is completed, as these meters operate in series and if a jumper is removed, all meters will fail to function.

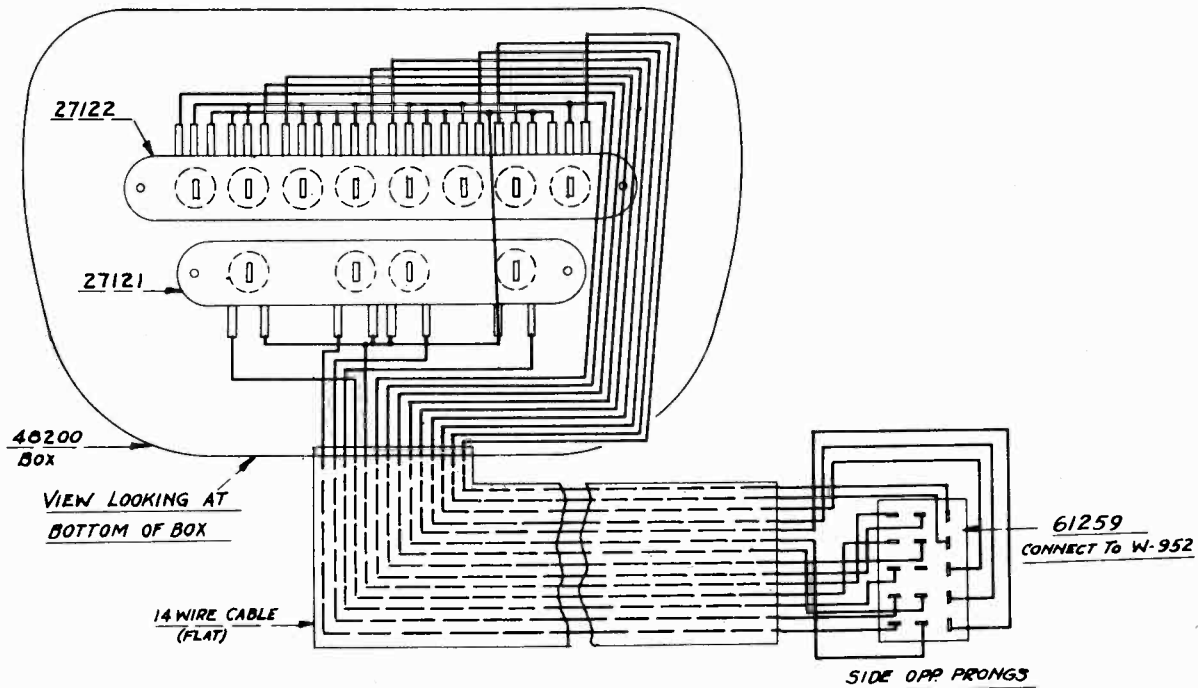
When installing a remote control system, all control stations are wired in parallel, except the tuning meters, these meters are in series. The leads for the meters are coded red for one lead, and green for the other. In the event that one, or more station tuning meters read backward, the remedy is, of course, to reverse the polarity of the leads going to the meter.

If extra outlets are provided, it is necessary that some method be provided to close the meter circuit in the unused outlets, otherwise the meters will not function.

### TO REPLACE KILOCYCLE METER OR GLASS

Remove the station box rear cover, by removing the six screws from the back, thus exposing the bakelite meter cover. This cover has three solder lugs at the bottom edge, all leads to these lugs should be unsoldered. Extreme care should be used in removing the two leads going into the meter case. After the leads are free, remove the three screws holding the meter cover in the box, lift the meter cover and the pilot light, out. Check the position of the Zero adjuster in the face of the box. This is a bakelite part and its pin, which adjusts the meter hand, should be turned to the large opening, in the slot of the Zero correcting arm. Now remove the two screws holding the meter mounting bracket to the case. Care should be exercised when handling the meter, not to bend the hand or get any foreign bodies, especially steel particles, in its moving parts. The glue used to hold the glass in place, is water soluble, and any broken pieces of glass, remaining in the case, may be removed by soaking.

MODEL 400-G, 500-G Series  
 Extended Control Wiring CAPEHART CORPORATION



**EXTENDED - CONTROL - BOX  
 WIRING - DIAGRAM**

**W-951**

The CAPEHART, Incorporated  
 Fort Wayne, Indiana

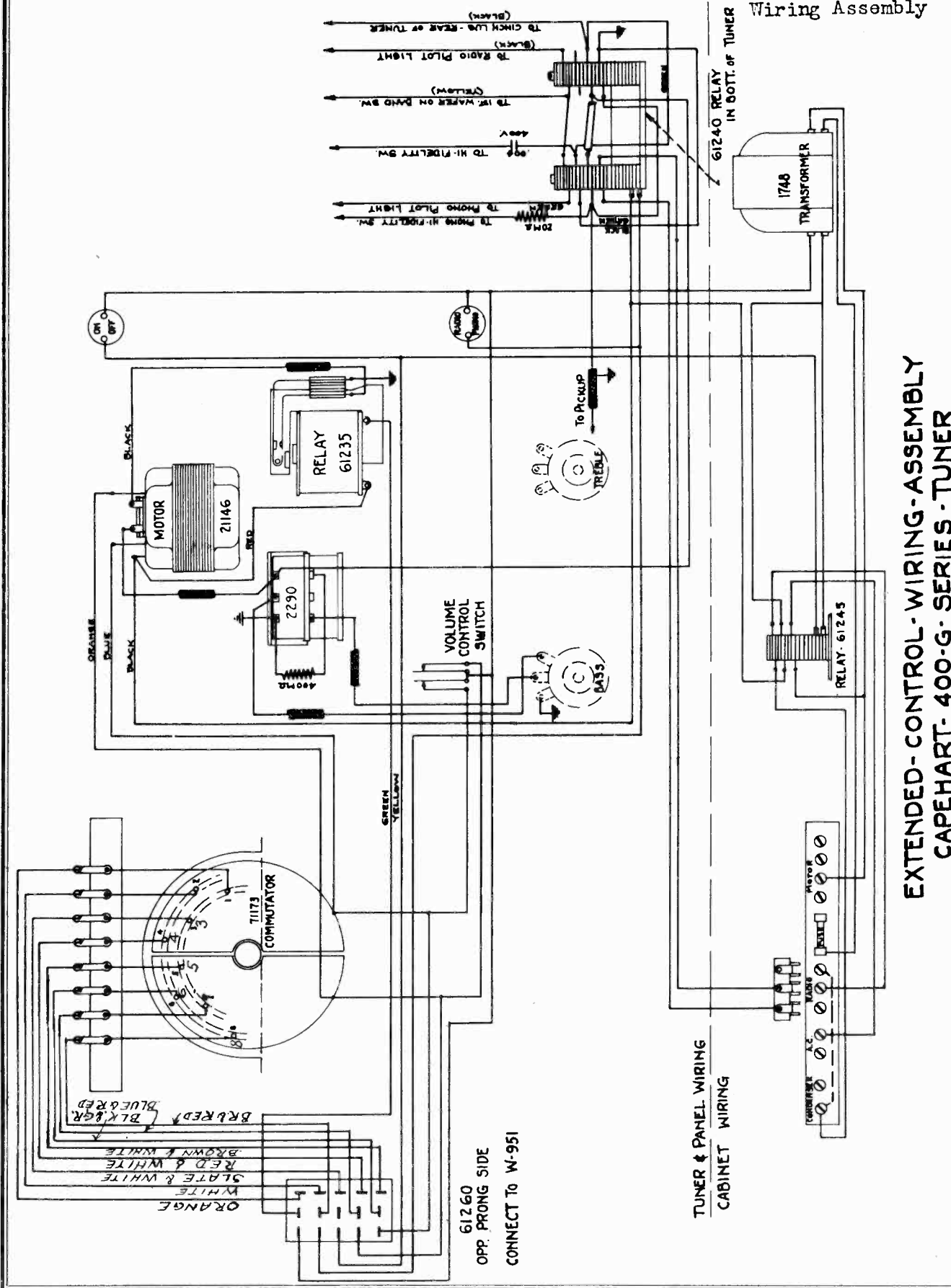
NOV 2 1938

ESTIMATED F. PRINTER

RATING	NAME	PART NO.	LOCATION	REGULAR #300-400 #500-#1600	EXTENDED CONTROL #300-#400-#500 #1600	REMOTE CONTROL #400-#1600	REMOTE CONTROL #500
110-Volt							
60 Cycle	Cabinet	61228	Cabinet	1	1	1	1
25 Cycle	Cabinet	61229	Cabinet	1	1	1	1
16-Volt							
60 Cycle	Off-On	61246	Cabinet	-	1	-	-
60 Cycle	Off-On	61246	Mixing Panel	-	-	1	1
25 Cycle	Off-On	61257	Cabinet	-	1	-	-
25 Cycle	Off-On	61257	Mixing Panel	-	-	1	1
60 Cycle	Program	61240	Chassis	-	1	1	1
25 Cycle	Program	61258	Chassis	-	1	1	1
60 Cycle	Motor	61235	Chassis	-	1	1	1
25 Cycle	Motor	61245	Chassis	-	1	1	1
60 Cycle	Speaker	61241	Mixing Panel	-	-	*	-
25 Cycle	Speaker	61255	Mixing Panel	-	-	*	-
60 Cycle	Speaker	61242	Mixing Panel	-	-	-	*
25 Cycle	Speaker	61253	Mixing Panel	-	-	-	*
60 Cycle	Remote	61243	Mixing Panel	-	-	3	3
25 Cycle	Remote	61244	Mixing Panel	-	-	3	3
60 Cycle	Off-On	61224	Speaker Cabinet	) These relays used			
25 Cycle	Off-On	61226	Speaker Cabinet	) at extension speakers only			

\*One speaker relay is required for each speaker installation, including the speakers in the instrument, in the case of the #400 and #500 Series.

# CAPEHART CORPORATION MODEL 400-G, 500-G Series Extended Control Wiring Assembly



EXTENDED-CONTROL-WIRING-ASSEMBLY  
CAPEHART-400-G-SERIES-TUNER

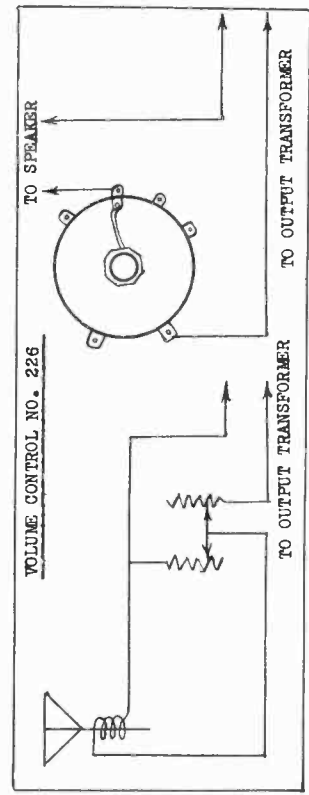
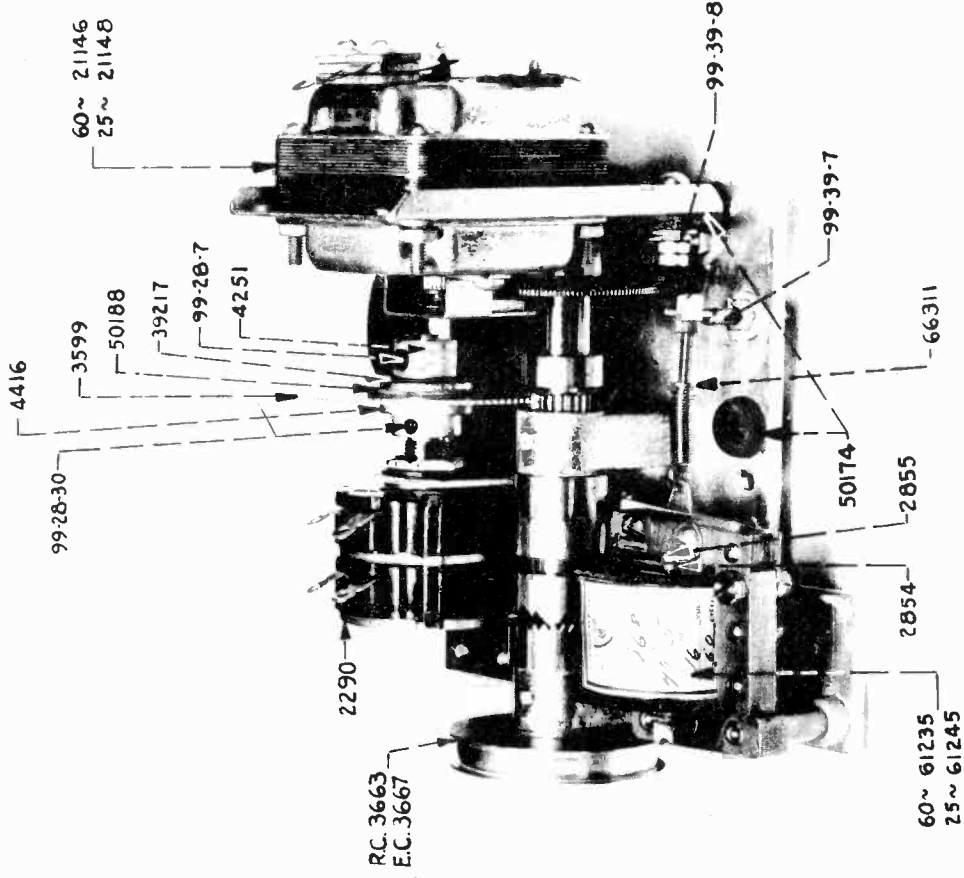
MODEL 400-G

Volume Control Schematic CAPEHART CORPORATION  
Data, Parts list

The motor which operates the tuning and volume control mechanism has a thermostat on it. This thermostat will allow the motor to operate continuously for ten minutes before shutting off the motor.

If the motor fails to operate when the proper controls are used, the thermostat has undoubtedly shut off the motor. Allowing the tuning and volume control to remain unused for three or four minutes, will close the thermostat and the instrument can be used in the regular manner. This thermostat is placed on this motor as a safety device and if the above occurs, it is a normal function of this motor.

Part No.	Description
2290	Master Volume Control
2854	Mating Switch Control Assembly
2855	" " " "
3599	Volume Control Gear
3662	Clutch (Driver)
3663	Drive Pulley for Remote Control only
3667	" " " Extended "
4251	Collar
4416	" " " "
21146	Motor, 60 cycles
21148	" " " "
39217	Spring Washer, Volume Control
50174	Grommet
50188	Friction disc, Volume Control
61235	Relay, 60 cycles
61245	" " " "
66311	Relay Spring Assembly
99-28-7	10-32 x 3/16" setscrew
99-28-30	6-32 x 1/4" " "
99-37-7	6-32 x 7/8" Spade bolt
99-39-8	6-32 x 5/4" " "



VOLUME CONTROL NO. 226 (CONSTANT IMPEDANCE)

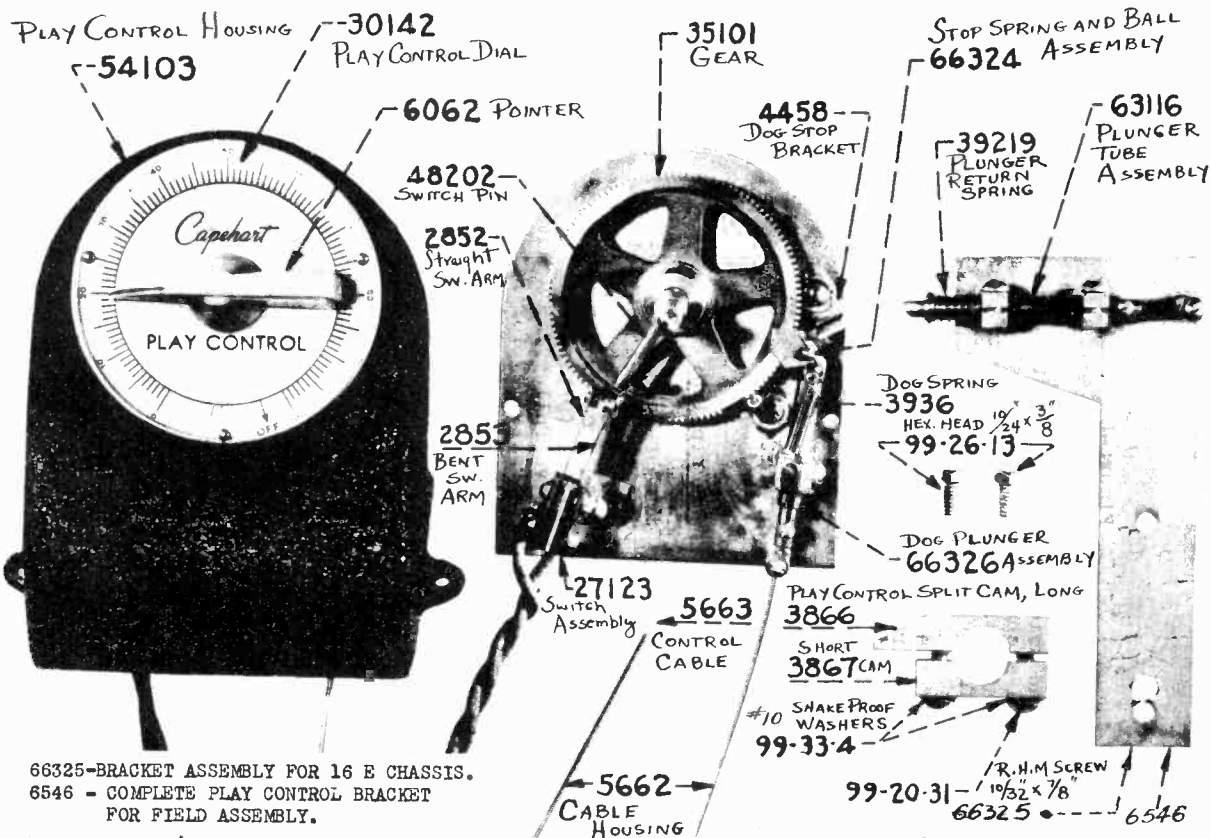
THIS DIAGRAM AND VOLUME CONTROL ARE TO BE USED WHEN IT IS NECESSARY TO HAVE VOLUME CONTROL FOR EACH INDIVIDUAL REMOTE SPEAKER. ONE VOLUME CONTROL IS NEEDED FOR EACH SPEAKER TO BE CONTROLLED, THAT IS, TWO FOR EACH 400-G REMOTE SPEAKER INSTALLATION, AND THREE FOR EACH 500-G REMOTE SPEAKER INSTALLATION. THIS VOLUME CONTROL NO. 226, MAY ONLY BE USED IN LOW IMPEDANCE CIRCUITS, FROM 6 TO 10 OHMS. IT IS NOT SUITABLE FOR USE WITH HIGH IMPEDANCE SPEAKERS OF THE MAGNETIC TYPE, OR ELECTRODYNAMIC SPEAKERS, HAVING HIGH IMPEDANCE TRANSFORMERS.

THE OUTPUT TRANSFORMERS OF THE CAPEHART AMPLIFIERS MATCH TO 8 OHMS, AT 400 CYCLES.



CAPEHART CORPORATION

MODEL 400-G  
Play Control  
Assembly, Adjustments



66325-BRACKET ASSEMBLY FOR 16 E CHASSIS.  
6546 - COMPLETE PLAY CONTROL BRACKET FOR FIELD ASSEMBLY.

THE CAPEHART PLAY CONTROL

The play control allows the operator to set the phonograph to play a predetermined number of selections and have the instrument automatically stop when that number of selections have been played.

When the play control is set at Zero, all remote control and extended control stations are rendered ineffective. An off position is provided on the play control, so an indefinite number of selections may be played without the control operating.

In disconnecting the play control from the record changer, the two set screws on the cable and the cable housing, should be loosened and the cable and cable housing carefully removed. When the cable is removed from the plunger, see that the wire is not broken, and the kink, due to the set screw, should be straightened out before reinstalling the cable.

TO ADJUST THE PLAY CONTROL

When setting up a play control, the counter should be reset at Zero just as the needle touches the record. That is, the play control cam, on the record changer main shaft, should be from 1/4" to 1/2" beyond the plunger after the main clutch has disengaged. The control cable is put in the hole in the plunger and the set screw tightened, then the cable housing should be held in place by the set screw - do not set the screw tight. Turn the pointer back and forth over the play control dial, if the pointer catches or binds, slip the cable housing away from the bracket slightly, until the pointer runs free, then run the changer through a cycle to see that the play control resets properly, then tighten the screw.

When adjusting the play control, which is in the record compartment, after removing the wood screws which mount the control to the shelf, remove the clips holding the 110-volt leads to the switch. Then remove the pointer and the two round head machine screws from the back. The stop spring of the stop spring and ball assembly, #66324, should be tangent to the gear and the ball should be in the space between the last and the next to the last tooth, before the blank space in the gear tooth. With the ball in this position, the set screw in the collar at the rear of the unit should be firmly against the stop pin. To make this adjustment, loosen the set screw, while holding the gear, move the collar, then tighten the set screw. In this position, the switch pin, #48202, should hold the switch open and permit the switch to close when the gear is advanced one tooth. The stop bracket #4450, for the resetting dog, should allow the dog to advance only one tooth at a time, if it picks up more than one tooth, move the step toward the dog until it advances only one tooth at a time.

The resetting dog #3839, should not ride on the gear tooth, as this will prevent turning the pointer toward one hundred. Shift the stud, #4354 until the dog clears the tooth, then check the alignment of the plunger tube and the cable housing stud, for if the cable is bent here, the play control may fail to function.

MODEL 400-G  
Remote Control  
Cable Notes

CAPEHART CORPORATION

Note the Model-1600GR does not include any speakers. All speakers used with this model must be of the AC type, Models G2 or AG2. All remote speakers on the #400-GR Series are AC speakers, Models G2 and AG2. All remote speakers on the #500-GR Series are G3.

Note the Model 1600-GR does not include any speakers; while the Series #400-GR and #500-GR models include one set of DC speakers in the instrument cabinet. No DC speakers are required with the Model-1600GR and all speakers for this model and all remote speakers for the Series #400-GR and #500-GR are of the AC type.

Instruments equipped for four speakers or less (including the speaker in the instrument) contain one set of amplifiers. For five and including eight speakers, two sets of amplifiers are used, and for nine and including twelve speakers, three sets of amplifiers are used. These additional sets of amplifiers are not installed in the instrument cabinet and may be located in a closed or other convenient place, apart from the instrument.

In all models where additional sets of amplifiers are used, all speakers operating from these amplifiers are of the AC type. When ordering equipment calling for additional sets of amplifiers, specify length of cable necessary to connect additional amplifiers to the instrument.

REMOTE CONTROL EQUIPMENT INCLUDES:

- Instrument equipped for remote control operation.
- One remote control station with 20-ft. flat cable.
- Provision for attaching number of additional remote control stations as ordered.
- Provision for attaching number of auxiliary speakers as ordered.

Speaker push buttons will be engraved with any lettering desired as specified, maximum limit two lines of six letters each, or one line of seven letters. Unless otherwise specified, speaker push buttons will be engraved "spkr. 1", "spkr. 2", etc.

Plug #61106 and outlet box cover #66132, are used where the 24-wire remote control station cable enters and leaves the wall.

Plug #6194 and outlet box cover #66132, are used where the 16-wire remote control station enters and leaves the wall.

24-wire flat cable is used between each remote control station and the instrument, or between remote station and wall receptacle on instrument, or between remote station and wall receptacle on instruments having more than four remote stations and speakers.

16-wire flat cable is used between each remote control station and the instrument, or between remote station and wall receptacle on instruments having four or less remote stations and speakers.

Round Cable is used whenever the cable is concealed.

Standard Gem "F" Outlet Box is used with #66197, #66264, #66132, #66131, #66104 and #66103 outlet box covers and is obtainable at any local electrical dealer.

Use standard house wire, approved by the Underwriters' Laboratories for connecting AC speaker fields.

REMOTE CONTROL CABLE BULLETIN

SERIES-G

TO SPEAKERS --

Speaker cable of size according to the charts below, must be run from the instrument to each individual speaker.

The 110-volt AC lead for the speaker fields may be run from any 110-volt AC line nearest, or most convenient to each individual speaker. The above is all the wiring necessary for remote speakers.

TO REMOTE STATIONS --

Remote station cable of size according to the chart below, may be run from the instrument to each individual remote station, or extended from one remote station to another in parallel. This one cable is all the wiring required for remote stations.

CABLE SIZES ON #500-GR (REMOTE CONTROL)

No. of Remote Control Stations and Speakers	Speaker Cable Sizes	Remote Control Cable Sizes
4 or less	8-Wire	16-Wire To All Stations
5 to 13	8-Wire	24-Wire To All Stations
<u>CABLE SIZES FOR #400-GR and #1600-GR (REMOTE CONTROL)</u>		
No. of Remote Control Stations and Speakers	Speaker Cable Sizes	Remote Control Cable Sizes
4 or less	6-Wire	16-Wire To All Stations
5 to 13	6-Wire	24-Wire To All Stations

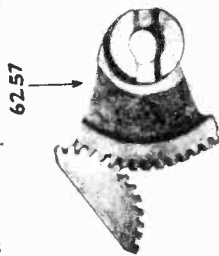
# CAPEHART CORPORATION

## MODEL 16-E DeLuxe Record Changer Adjustments, Part 1

### MECHANICAL INSTRUCTIONS No. 16-E De Luxe Record Changer

**1. TO LOCATE AND ADJUST THE RECORD TRAY (6687) (Fig. 6).**

In assembling the record tray to the record changer, the first tooth of the driver quadrant (3551) (Fig. 5) should mesh with the second tooth of the driven quadrant of the tray as shown.



With the two gears properly meshed, loosen the Allen set screws which hold pins No. 34133, Fig. 1, in place. This will allow you to move the record tray sidewise, adjust tray sidewise until the turntable spindle is exactly in the center of the 10" record level of the record tray. (The 10" record level is that part of the tray where the felts No. 4913 are indicated in Fig. 6.)

With the control lever in the "one side" position, run the record changer through its cycle until the large hole in the main cam is exactly half way past the upper edge of the record tray cam follower, as shown at No. 5, figure 1. At this position, the points of the ten-inch felts (4913) (Fig. 6) should be level with the top of the turntable felt. If this tray is too low or too high, it may be adjusted to the proper level by loosening of the eccentric screw (3257) (Fig. 1) No. 4 and turning this screw until the proper level is obtained. Be sure to tighten the lock nut after adjustment.

If the tray is too high, at this position, the ten-inch records will not be centered over the turntable spindle. If the record tray is too low, the ten-inch records will slide out over the ten-inch tray shoulder and not properly center.

**2. THE ADJUSTMENTS OF THE RECORD MAGAZINE.**

Before attempting to adjust the magazine, be sure that the center of the magazine pivot pins (34132) (Fig. 1) is  $8\frac{3}{8}$ " above the base plate. This height is very important and we recommend checking the height of the right hand pin, when looking at the magazine, before any adjustments are made.

The record magazine is positioned by moving it sideways on its bearing or pivot pins. The two set screws underneath the pivot pins lock the magazine in position. Loosen these set screws, then see that the left hand side of the record reverse assembly fork (part of 6228, Fig. 6) is between  $\frac{1}{16}$ " and  $\frac{1}{8}$ " inside the left hand side of the Reverse crank, when looking at the magazine. That is, the left hand edge of the record reverse fork is about  $\frac{3}{16}$ " or  $\frac{1}{4}$ " to the right of the left hand edge of the crank. After moving the magazine, lightly set up the set screws. Then with the selector arm in the "Repeat" position swing the record reverse arm around in front of the magazine, to see whether the record guide strikes either of the record support pins (34138) (Fig. 6) if the guide strikes either of the support pins it will be necessary to bend the pin away from the guide so they can not strike. If it is necessary to bend either pin, set the control lever in the "Repeat" position, then raise the record tray by hand, with a 10" record on it, observing the way the record strikes the support pins, the record should hit both pins about  $\frac{1}{16}$ " from the end of the pin; if it does not it will again be necessary to adjust the pin until the record hits both pins an equal distance from the ends. If it is necessary to bend the pins, check the clearance between the record guide arms and the pins and between the arm carrying the record guide and the right hand pin. Also if the magazine has been shifted, it is necessary to see that the two points, which extend downward from the magazine, have ample clearance in the channels, in the record tray, which are provided for their passage. If there is possibility of the points striking it probably means the magazine has been shifted too much.

If the magazine has been adjusted, it is also necessary to see that the record separator hook (6226) (Fig. 1) does not bind in the slot in the end of the record separator arm (6445) (Fig. 6). If it does the section covering these parts give the adjustment.

**3. MAGAZINE STOP SCREW.**

The magazine stop screw No. 2, Fig. 5, should be adjusted so that the crank pin (part of 6230, Fig. 1) is approximately  $\frac{1}{16}$ " from the edge of the record reverse arm fork (part of 6228, Fig. 6) which is furthest from the magazine, when the record reverse guide is in front of the magazine, that is, in the reversing position.

**4. MAGAZINE LINK ADJUSTING SCREWS (No. 2) (Fig. 1).**

The record magazine should always come back snugly against the magazine stop screw, No. 2, Fig. 5. If it does not, it is necessary to loosen the two set screws (No. 2, Fig. 1) to a sliding tension and run the record changer through a cycle of change. When the magazine has reached the horizontal position, as shown in Fig. 1, press down on the lower end of the magazine; this will lengthen the link assembly. Then when the magazine returns to its normal position, the magazine link will adjust itself so that the magazine is snugly against the stop screw. Then tighten the magazine link screws.

**5. RECORD REVERSE GUIDE (6444) (Fig. 6).**

With a 12" record in the reversing position, in front of the magazine. (Fig. 6) should be parallel with the record when in the reversing position, in front of the magazine.

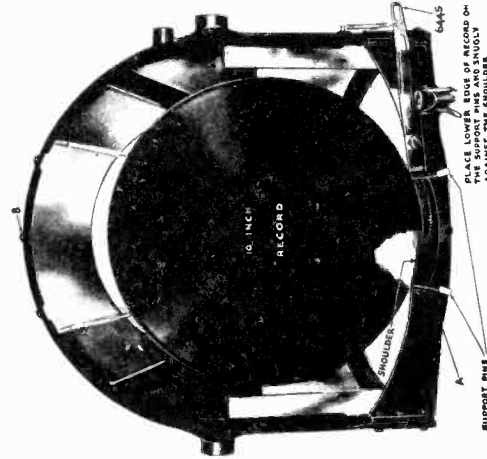
If the record reversing assembly is parallel with a 12" record as above, it should come around and lay against the reverse guide pin tubing (34134) (Fig. 6), if the eccentric cam (3825) (Fig. 8) is properly adjusted. This cam can be adjusted, by loosening the screw through the cam and turning it so that the record reversing assembly returns to the reverse guide pin tubing. Care should be taken when making this adjustment so that the crank pin (part of 6230, Fig. 1) does not hold the reverse guide away from the pin tubing. This cam should be turned so that the reverse guide assembly just touches the pin tubing; if the cam is turned too far it will allow the reverse guide assembly to hit the pin tubing, but in the reversing position the assembly will not be able to assume a position parallel with a 12" record.

**6. REVERSE ASSEMBLY LINK ROD.**

Loosen lock nut No. 9, Fig. 3, while the record changer is in the reversing position, that is, when the reversing assembly (6448) (Fig. 6) is in front of the magazine. Remove the screw (3241) (Fig. 8) holding the reverse segment link (34141) (Fig. 8) to the reverse segment (3550) (Fig. 8) and lengthen or shorten the link, by the link thread until the reversing crank (6230) (Fig. 1) stands with the crank pin just barely touching, but not binding, against the front side of the fork (6228) (Fig. 6). After the adjustment has been made, lock the link in place with the lock nut No. 9, Fig. 3.

**7. RECORD SEPARATOR ADJUSTMENT.**

The separator stop No. 3, Fig. 1, should be adjusted so that a small 10" record will positively clear the knite portion of the separator lever as shown in the following illustration. A standard to use is to make certain that there is approximately  $\frac{3}{16}$ " clearance between the edge of the small record and the point of the separator lever, as shown at "A" in illustration below. However, it may be necessary to vary one way or the other from this measurement, depending on whether or not the slotted end of the record separator lever goes over the hook (6226) (Fig. 1) without binding.



**8. RECORD SEPARATOR HOOK ADJUSTMENT.**

After adjusting the record separator it will be necessary to check the record separator hook (6226) (Fig. 1) to see that it enters the slot in the record separator without binding. This hook is threaded and by loosening

## MODEL 16-E

## Adjustments, Part 2

## CAPEHART CORPORATION

stud whose nut is shown in Fig. 1 as No. 43159. This set screw is at the bottom of this stud. Adjust the hook so that it will pass through the notch in the pickup arm lever (64197) (Fig. 1) without binding against the top or bottom of the notch, when in the playing position. With a 12" record on the turntable, the rubber roller (5044) (Fig. 1) against the edge of the record and the stop lever hook (5658) against the blade of the stop lever (64197) the needle should stop on the record exactly  $\frac{3}{8}$ " from the edge of the record.

With the record changer in exactly the same position as described above, and with a 10" record on the turntable and the hook (5658) (Fig. 1) against the blade, the stop lever should allow the needle to stop on the record  $\frac{3}{8}$ " from the edge of the 10" record. A 6-32 screw shown in Fig. 1 is provided for making this adjustment, simply by screwing it in or out. A check should be made for clearance between the roller and the tray, this roller should never bind on the record tray. This can be taken care of by slightly bending the tone arm stop lever (64197) (Fig. 1) up or down. If it is necessary to bend the stop lever it will be necessary to readjust for 12" records.

#### 16. TO ADJUST THE CLUTCH THROWOUT LEVER AND CAM.

The clutch throwout lever cam is shown at 15 in Fig. 2 and is adjusted by loosening the shoulder screw (3317) (Fig. 2) to a sliding tension after the record changer has been stopped in the playing position. The clutch throwout lever cam should just clear the point of the turntable throwout cam (6448) (Fig. 10) with the clutch disengaged. Unless clearance between the turntable throwout cam and the clutch lever throwout cam is maintained the record changer will jam. If too much clearance is allowed the turntable throwout cam will not disengage the clutch and the record changer will continue to change records without playing them.

#### 17. TO ADJUST SOLENOID WEDGE SPRING.

This phosphor bronze spring is located on top of the three spacers used to mount the solenoid plate bracket to the solenoid bracket. It is used to prevent clutch chatter or bounce when the clutch engages. The only adjustment is to bend the spring to a snug fit with a long screw driver so as to increase or decrease its pressure on the solenoid to clutch lever (6455) (Fig. 11).

#### 18. TO ADJUST THE REVERSE CAM SHIFT LEVER (5326) (Fig. 5).

This lever is moved by the record control shaft (3724) (Fig. 12) and is held in position by an Allen set screw. It should be positioned on its shaft so that the record reverse cam (6325) (Fig. 4) is firmly engaged with its pin (3114) (Fig. 8) in the "Both Sides" position. In the "One Side" and "Repeat" positions it should have good clearance with the pin. If any adjustment of this lever is made be sure to check the setting of the Reverse Cam Arm and Roller Assembly (6450) (Fig. 8) as instructed in Section 7 of the instructions on replacing a reverse cam.

#### 19. TO ADJUST THE RECORD REPEAT LOCK LEVER (5334) (Fig. 12).

The purpose of this lever is to prevent accidental shifting of the Selector Arm while the instrument is not in the playing position. In the "Repeat" position this lever is on the side of the Solenoid to Clutch Lever (6455) (Fig. 11) away from the main cam. In the "One Side" and "Both Sides" positions it is on the main cam side of the solenoid to clutch lever. With the tone arm in the playing position (Main Clutch Disengaged) this lock lever should clear the solenoid to clutch lever by approximately  $\frac{1}{16}$ " when moved under it.

#### 20. TO ADJUST THE REVERSE CAM LOCK LEVER (5339) (Fig. 12).

This lever should be on the main cam side of the solenoid to clutch lever when in the "Both Sides" position. And on the opposite side when in the "One Side" and "Repeat" positions. With the main clutch disengaged the lock lever should clear the solenoid to clutch lever by approximately  $\frac{1}{16}$ " when moving under it.

#### 21. TO ADJUST REVERSE CAM ARM AND ROLLER ASSEMBLY (6450) (Fig. 4).

See Section 7 under Instructions For Replacing a Reverse Cam.

#### 22. TO ADJUST RECORD REPEAT THROWOUT LEVER (4663) (Fig. 12).

No adjustment of this part is necessary.

#### 23. TO ADJUST RECORD REPEAT CLUTCH LEVER (5333) (Fig. 12).

The adjustment of this lever is made by loosening the Allen set screw to a sliding tension then moving the part along the shaft. The sliding clutch should engage in the "One Side" and "Both Sides" positions, but should be disengaged in the "Repeat" position. The fork of this lever should not bind the sliding clutch in either the "Repeat" or "Both Sides" position.

#### 24. LATERAL LOCATION OF THE MAIN CAM SHAFT.

Both end bearings of the main cam shaft are movable, and are used to locate the cam shaft in its proper lateral position, as well as adjust the amount of end play. The main cam shaft is located laterally so that the

ing the locknut the hook can be turned in either direction, to raise or lower it. After the correct adjustment is obtained, tighten the locknut.

It should never be necessary to change these adjustments on record changers unless they have been tampered with by an inexperienced person.

#### 9. SEPARATOR HOOK AND ARM (6256) (Fig. 12).

Be sure set screw No. 10 in Fig. 8 is screwed all the way in.

#### 10. RECORD MAGAZINE BUSHING (4020) (Fig. 1).

If a ringing noise is heard while the instrument is changing records, i. e., such a noise that might be made by a spring, it will be found that the Durex bushing (4020) (Fig. 1) is too tight, in which case it will be necessary to loosen the lock nut of the holding bolt, and back the bolt out, from a quarter to a half turn, then tighten the lock nut.

#### 11. TO ADJUST THE TONE ARM HEIGHT.

To adjust the tone arm height, first place a 12" record on the turntable, and adjust the tone arm stop lever (64197) (Fig. 1) so that the record hits the rubber roller (5044) (Fig. 1) in the center. Start the record changer through a cycle and stop; it when the tone arm lever hook (5658) (Fig. 1) just touches the stop lever assembly. In this position, adjust the tone arm height so that the top of the stop lever is the same height as the center of the hook. This adjustment is made by loosening the two Allen set screws at the rear of the tone arm. These Allen set screws are accessible by raising the tone arm by hand. After making the height adjustment it is necessary to make certain that there is a clearance of approximately  $\frac{3}{8}$ " between the pickup head and the record tray. This distance may be checked between the bottom of the record tray and the bottom of the pickup when the record tray is approximately parallel with the pickup.

#### 12. TO ADJUST THE PICKUP ELEVATION.

When the tone arm swings in towards the record, the pickup arm lever hook (5658) (Fig. 1) comes to rest against the pickup arm stop lever (64197) (Fig. 1) and when the tone arm lowers the pickup toward the record it pauses momentarily before the pickup arm lever hook goes through the stop lever. If the record changer is stopped during this pause, it will be found that the ball in the end of the pickup arm lift shaft (6457) (Fig. 9) is at the point marked "L" in Fig. 9 on the lift cam (6449) (Fig. 9). Now if the pickup, with a needle in the proper position, is moved beyond the edge of the record, the point of the needle will extend below the top surface of the record a distance equal to half the thickness of the record. The correct elevation of the pickup is made by the screw in the underside of the tone arm fork against which the pickup cover rests. Loosen the locknut, adjust the screw to bring the needle to the position mentioned above, then lock the locknut.

#### 13. PICKUP FEED IN ADJUSTMENT.

The collar of the pickup arm swing lever and collar assembly (6232) (Fig. 9) should ride on the leather facing of the friction cam (6691) (Fig. 10) until the pickup arm lever hook (5658) (Fig. 1) has engaged the stop lever (64197) (Fig. 7). Then a slight amount of friction should be maintained after the ball at the end of the pickup lift arm (6457) (Fig. 9) has engaged with the lift cam (6449) (Fig. 9). This friction should be maintained until the needle has touched the record, otherwise the pickup arm may move away from the stop lever and the needle miss the record. If the friction be maintained too long the needle may be forced beyond the first playing groove. To adjust this, the pin locking the friction cam to the main cam shaft should be driven out and the Allen set screw loosened to a sliding tension. The cam is rotated forward, in the direction of rotation of the main cam shaft, to maintain the friction a longer time and backward to maintain it for a shorter time.

#### 14. TO ADJUST THE PICKUP.

After removing the pickup cover, it should be noted whether the stylus (5610) (Fig. 10) is centrally located in respect to the pole pieces (569) (Fig. 10). To center the stylus loosen the lock nuts (99-11-1) (Fig. 10), then loosen the two headless set screws (99-28-3) (Fig. 10). These set screws hold the spool assembly (6711) (Fig. 10). The spool assembly should be shifted until the stylus is centralized with the pole pieces, then tighten the set screws carefully, so as not to crack the spool, then tighten the lock nuts.

If for any reason it is necessary to shift the pole pieces, which are held to the back by two screws, the two set screws holding the spool should be loosened before attempting to move the pole pieces. If any adjustment of pole pieces, is made carefully check the centering of the stylus before replacing the cover by means of its three screws.

#### 15. TO ADJUST THE STOP LEVER HOOK (5658) (Fig. 1).

Always adjust the tone arm position on a 12" record before adjusting for a 10" record. Adjust the tone arm stop lever hook (5658) (Fig. 1) by moving it in or out. This hook is locked in place by a set screw in the

## CAPEHART CORPORATION

MODEL 16-E

Adjustments, Part 3

(3081) (Fig. 6). This vertical bumper guide also guides the records when the elevating hook, on the rear of the record tray lifts the record. The vertical bumper should be set back just far enough to allow a 12" record to drop onto the record bumpers freely. The lower part of the vertical bumper, which extends into the record well, should extend toward the center of the well upper bumpers far enough to make sure that the upper edges of the records fall behind the points of the upper record support (5517) (Fig. 6). This adjustment is not critical. In most cases it will be found that the upper end of the vertical bumper will just clear the elevating hook on the rear of the tray. In cases where it is found that 10" records are chipping about the edges due to bouncing against the points of the upper record support (5517) (Fig. 6) it will be necessary to bend the vertical bumper (6693) (Fig. 6) back at the top to a point where it just barely clears the elevating hook at the rear of the tray. It should never be bent back far enough to raise the front of the tray.

### 31. CLUTCH CLEARANCE.

The clearance between the driven (6326) (Fig. 10) and driving (3630) (Fig. 10) members of the clutch should be approximately .020" (Twenty thousandths) and is adjusted by loosening screw No. 16 (Fig. 3) to a sliding tension and adjusting the clutch fork (5353) (Fig. 2) and the solenoid to clutch lever and pin assembly until the proper clearance is obtained. After adjustment is made lock the screw No. 16 (Fig. 3).

### 32. MOTOR CONNECTIONS (21131).

The 21131 motor is a synchronous motor and will run equally well in either direction, when properly connected. For this reason, all motors shipped from the factory are equipped with a terminal strip and cable. However, if it should ever be necessary to disconnect the leads from the terminal strip the leads should be replaced in the following order: With the cable extending to the right of the terminal strip and the inouting lugs pointing downward, and the soldering lugs towards you, the leads go on from left to right in the following order—small black, black with yellow tracer, blue and large black. In that order they are ground, one side of 110 volt line, one side of the condenser, and the remaining 110 volt and condenser leads. The motor terminal strip should be mounted to the cabinet terminal strip so that the cable extends to the right, with the soldering lugs towards you.

### 33. OILING INSTRUCTIONS.

Due to its careful design and precise workmanship, the Caphart 16-E record changer requires a minimum of oiling.

About once each year a light coat of vaseline or petroleum jelly should be applied to all moving surfaces which were coated with graphite at the factory.

A very light coat of vaseline should be applied to the surfaces of the magazine, indicated at "A" in Fig. ure 6. It is best to apply this coating every six months. The vaseline should be applied with, and removed by the fingers, on the magazine faces. **DO NOT USE EXCESSIVE AMOUNTS OF LUBRICANT ANYWHERE ON THE RECORD CHANGER.**

A good grade of machine oil, not too light, should be used on the sliding clutches, reverse cam shaft and all eccentric and shoulder screws.

### NEVER OIL THE "DUREX" BUSHINGS, AS THIS WILL CAUSE THEM TO DISINTEGRATE.

Once each year the motor oil cups should be oiled with a good grade of motor oil. At the same time the gear box should be inspected, and the grease replaced if it has become hard. A good mixture to use here is 75% vaseline and 25% SAE 40 motor oil.

### 34. INSTRUCTIONS FOR REPLACING THE RECORD REVERSE CAM AND ITS ADJUSTMENTS.

1. Set record changer in the playing position. Carefully mark the drive gear (3516) (Fig. 10) on the main shaft and the driven gear shown as part of 6223, Fig. 10, by prick punch marks or scriber, so that the same teeth can be engaged after reassembly, thus insuring proper timing.

2. Remove the two bolts, one (3238) (Fig. 4) securing the magazine slide and roller assembly to the magazine slide arm lever, and one (3237) (Fig. 1) securing the record slide arm and stud assembly to the record tray drive crank.

3. Looking in from the rear of the instrument, remove the Durex bushing from the end of the main cam shaft, nearest the motor drive shaft. This is accomplished by loosening the bolt to the right of the main shaft. Care should be taken when replacing this bushing so as not to tighten the bolt enough to crush the bushing; a snug fit only is required.

4. Remove lower half of bearing and Durex bushing from the other end of the main cam shaft and work the cam shaft out of the record changer. The same precaution against crushing this bushing should be taken with this one as with the one in the preceding section.

5. Remove taper pin from gear and loosen set screw in the collar, both shown as 6333 in Fig. 8, of the reverse cam shaft assembly, as well as the pin (34144) (Fig. 10) over which the reverse cam forks, when in

ball in the end of the tone arm lift rod (6457) (Fig. 9) travels in the exact center of the tone arm lift cam (6449) (Fig. 9). As shown at H in Fig. 9.

### 25. TO ADJUST THE STOP TRIP SWITCH (2792) (Fig. 7).

This switch is accessible by removing the turntable, which will expose the switch cover. To remove the switch cover it is necessary to remove the trip arm, which goes through the switch cover and the two flat head screws which hold the cover in place. The clearance between the contact points on the fixed and movable arms of the switch should be  $\frac{1}{32}$ ". After replacing the trip arm (6510) (Fig. 7) in the switch, after the switch cover has been removed, set the turntable on the spindle, push stop trip arm (4533) (Fig. 7) slowly about  $\frac{1}{4}$ " toward the magazine and then turn the turntable through one complete revolution. This will insure the fibre cam, on the turntable, resetting the trip switch, the clearance between the trip arm and the movable arm of the switch should be  $\frac{3}{32}$ ". The distance between the trip arm and the switch trip guard finger should also be  $\frac{3}{32}$ ".

To adjust the clearance between the trip arm hook (6510) (Fig. 7) and the moveable switch arm, loosen the screw in the bakelite switch base, at the end nearest the tone arm. Move the switch until  $\frac{1}{16}$ " clearance is secured between the trip arm hook and the moveable arm of the switch, then tighten the screw holding the switch. In making this adjustment be sure that the stationary arm of the switch is not bent when tightening this screw.

On some models a headless set screw, near the end of the coil spring, is used to lock the switch in position; loosen this screw, adjust the switch, then tighten the set screw.

### 26. TO ADJUST THE SOLENOID MOTOR SWITCH (2764) (Fig. 3).

After the switch cover has been removed the switch is exposed. The upper switch points should make good electrical contact, while the main clutch is disengaged, in this position the clearance between the bottom points should be approximately  $\frac{3}{32}$ ". While the clutch moves from the disengaged to the engaged position the upper switch points should remain closed until the lower set of points are closed. When the clutch is fully engaged the lower points should make good contact and the clearance between the upper points should be approximately  $\frac{3}{32}$ ".

To adjust the switch loosen the screw through the bakelite switch base at the rear of the switch assembly. After the position is found where proper clearance is secured with the clutch engaged and disengaged, the switch should be locked in position with the screw.

In some machines a headless set screw is used to lock the switch in position. This screw is near the point of the tapered bakelite insulating block. Loosen this screw and adjust switch to get proper clearance then lock the switch in position by the set screw.

The two upper contacts are in series with the auto trip switch and the two lower contacts are shunted across the motor switch. When the clutch is engaged the auto trip switch is out of circuit and the motor switch is shunted by the lower contacts thus insuring the completion of the change cycle even though the instrument is switched to radio or turned off.

### 27. TO ADJUST THE FRICTION JOINT OF AUTOMATIC TRIP SWITCH.

The amount of friction necessary in the friction joint between the auto stop trip lever—long (6510) (Fig. 7) and the auto stop trip lever—short (4533) (Fig. 7) should be just sufficient to close the automatic stop trip switch (2792) (Fig. 7). The friction is regulated by adjusting the screw which tightens the flat spring (3998) (Fig. 7). If the tension is too great the instrument may trip before finishing a record, if not enough tension is had the instrument will not change records when the needle hits the automatic change groove.

### 28. RECORD SIZE LIMIT.

The 16-E Series record changer will play any 10" or 12" record of standard size. The minimum size for 12" records is 11 $\frac{1}{8}$ ". The minimum size for 10" records is 9 $\frac{1}{8}$ ". Records smaller than these limits are very apt to miss centering over the turntable spindle and in most cases are broken.

These record changers will automatically trip on any record having an automatic stop change groove, either spiral or oscillating, where the blank space in the center of the record is not more than  $6\frac{1}{2}$ " in diameter.

### 29. RECORDS.

Always inspect the records to see that no rough edges are present. Occasionally you will find a record which has a rough outside edge. This rough edge will greatly interfere with the satisfactory performance of the record changer. A small piece of #000 sandpaper will assist you greatly in removing this rough edge.

### 30. TO ADJUST THE VERTICAL BUMPER GUIDE (6693) (Fig. 6).

This guide is located back of the magazine cross bar (6685) (Fig. 6). After the records are separated from the magazine they are guided in dropping off the separator so they hit the center of the record bumpers;



MODEL 16-E

Notes

CAPEHART CORPORATION

Remove the magazine link shoulder screw (3239) (Fig. 6). This will allow the magazine to be swung out of the way. As soon as the record reverse arm and fork assembly have cleared the reverse crank and pin (6230) (Fig. 1) it should be swung over the magazine and locked with the record reverse arm lock (4659) (Fig. 6), to keep it out of the way.

Lift the record changer up, until the tone arm just touches the top of the cabinet, carry it forward through the doors, tilting it to keep the main cam clear of the shelf.

All parts of the cabinet liable to damage should be protected by soft cloths while removing or installing the record changer.

It is not necessary that the above operations be carried out in the above sequence.

36. ALIGNMENT OF TRUE-TANGENT PICKUP.

When adjusting the TRUE-TANGENT pickup, the pickup head and tone arm should form a straight line when the needle is exactly one and one half inches from the point of the turn table drive shaft (4320) (Fig. 6). To adjust the pickup angle, loosen the nut at the rear of the steering arm assembly (6625-1) (Fig. 1), turn the steering arm either right or left until the correct position for the pickup is found, then set the lock nut up tight. Then see that there still is  $\frac{1}{8}$ " clearance between the pickup and the record tray per Section 11.

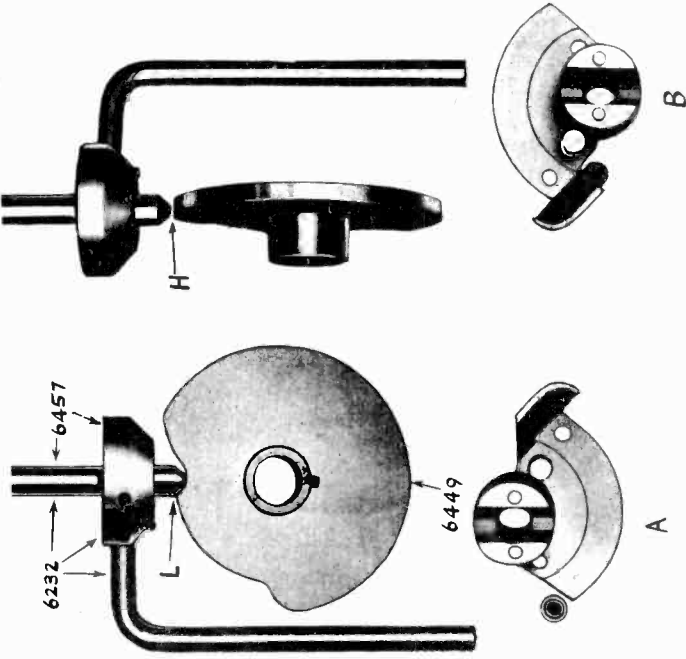


Fig. 9

6232 Pickup Swing Lever and Collar Assembly  
6449 Pickup Arm Lift Cam  
6457 Pickup Arm Lift Shaft

the reversing position. After removing the collar and sliding the gear to one side, file all burrs from the edges of the holes in the reverse cam shaft. Slide the shaft through its Durex bushing toward the rear of the instrument far enough to allow the removal and replacement of the reverse cam (6325) (Fig. 10).

6. Reassemble the reverse cam shaft assembly, making certain that the taper pin holes in the shaft and gear are correctly aligned to permit the taper pins being properly inserted. The set screw in the collar at the end of the shaft should be properly tightened.

7. Remove the reverse cam arm and roller assembly (6450) (Fig. 2) and make sure that the roller pin and arm are not bent, if either of these items are found bent we suggest that you replace the reverse arm and roller assembly.

8. In reassembling the reverse cam arm and roller assembly (6450) (Fig. 2) in its proper position for alignment with the reverse cam, be sure the roller is about  $\frac{3}{32}$ " inside the ridge on the reverse cam, when the cam is in the reversing position.

9. Remove the taper pin from the gear (3516) (Fig. 10) on the main shaft, which drives the gear on the reverse cam shaft assembly (6233) (Fig. 10) and remount the main shaft to the record changer chassis, pushing the above gear, from which the pin was removed, to one side so that it will not mesh with its driven gear.

10. Locate the main shaft so that the lower end of the pickup arm lift shaft travels in the center of the pickup arm lift cam, as shown at "H" in Fig. 9. With the main shaft in this position, adjust the main shaft Durex bushings so that there is no end play in the main cam shaft assembly.

11. Rotate the main cam shaft to the playing position so that the pickup arm is lowered over the turntable.

12. Set the reverse cam in its lowest position, with the control lever in the "Both Sides" position, so that the fork of the reverse cam is meshed with the driving pin.

13. Mesh the reverse cam assembly driver gear (3516) (Fig. 10) with the reverse cam assembly driven gear so that the identifying punch marks correspond to the original position. The taper pin for the driver gear should be inserted next. If the assembly has been properly made there should be approximately  $\frac{3}{32}$ " clearance between the roller or the reverse cam arm and the reverse cam. See "A", Fig. 9.

14. Throw the control lever to the "One Side" position and rotate the reverse cam with the fingers until it is in the reversing position. Again throw the control lever to the "Both Sides" position. Now there should be approximately  $\frac{3}{32}$ " clearance between the reverse cam and the roller. See "B", Fig. 9. If the clearance is not approximately  $\frac{3}{32}$ " for both positions of the reverse cam it indicates either the gears are not properly meshed or the reverse segment link rod may be bent. A careful check of the latter while the main shaft is out will save time and trouble later.

35. INSTRUCTIONS FOR REMOVING THE 16-E RECORD CHANGER.

There is a great possibility, when removing the chassis from the cabinet, to mar or scratch the cabinet. If you will place a piece of cardboard around the record changer it will eliminate, to a great extent, the possibility of marring the finish. A rubber auto mat, with a hole for the record changer, the same size as the one in the cabinet, makes an excellent pad. This pad can be split and is easily put in position and removed.

Remove the backs from the record changer, radio and amplifier compartments.

Remove the screws from the partition between the radio and record changer compartments, so it can be moved back out of the way.

Remove the wood screw, under the turntable, also the three bolts which hold the record changer down.

Remove the two wood screws that mount the play control.

Remove the female chassis plug, from the male chassis plug (6178) (Fig. 1), the pickup lead, which runs from the radio chassis to the terminal block, then dismount the terminal block by removing the wood screw in its center, the straps holding the shielded lead, which runs from the shorting switch, and the 110 volt leads to the Play Control.

Release the play control cable and cable housing from the bracket on the record changer chassis, by loosening the two set screws. Care should be taken to prevent breaking the control cable when removing it. The end which has been kinked by the set screw should be straightened before attempting to reinstall it.

Loosen the two Allen set screws in the flexible coupling and allow it to slide down the motor shaft, so as to clear the record changer shaft.

Move the play control as far into the radio compartment as possible.

Remove the screw marked "B" in the illustration on page 8. This is the middle one of the screws holding the upper record support.

CAPEHART CORPORATION

MODEL 16-E  
Complete Assembly

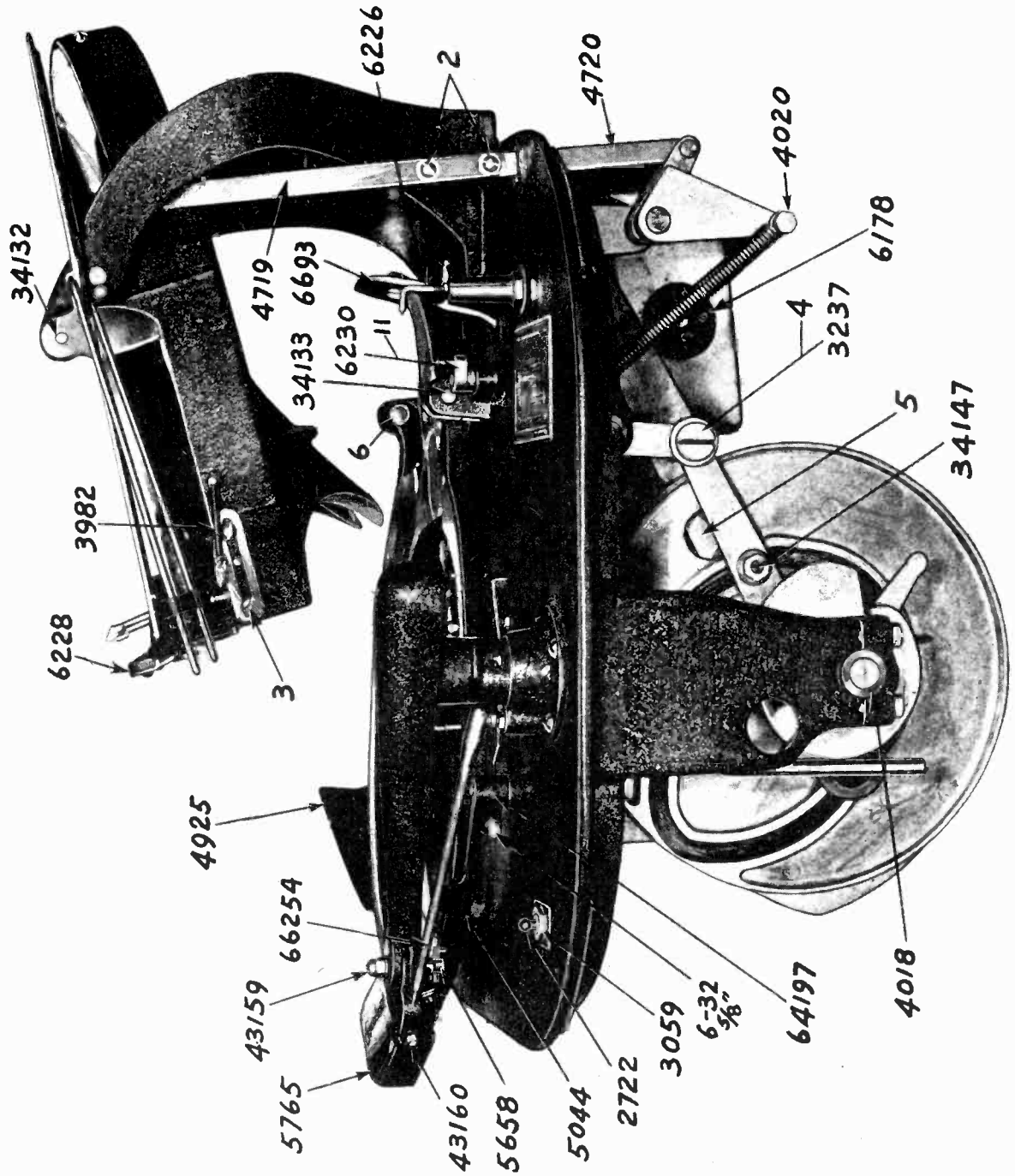


Fig. 1

- 2722 Switch AC Line
- 3059 Escutcheon Plate Off-On
- 3237 Shoulder Screw — Record Tray Slide
- 3982 Spring—Separator
- 4018 Main Shaft Bushing
- 4020 Record Magazine Bushing
- 4719 Magazine Link Upper
- 4720 Magazine Link Lower
- 4925 Record Tray Shield Felt—Outer
- 5044 Stop Lever Roller Tubing
- 5658 Pickup Arm Lever Hook
- 5765 Pickup Cover
- 6178 Chassis Plug
- 6226 Separator Hook and Arm Assembly
- 6228 Record Reverse Arm and Fork Assembly
- 6230 Reverse Pinion and Crank Assembly
- 6693 Record Bumper Guide and Felt Assembly
- 34132 Pin—Magazine Pivot
- 34133 Pin—Record Tray Pivot
- 34147 Pin—Record Tray Slide
- 43159 1/4" —28 Hex. Cap Nut
- 43160 Lock Nut for Pivot Screw
- 64197 Pickup Arm Stop Lever Assembly (Specify color).
- 66254 Steering Arm Ass'y.
- 6—32x5/8" Pickup Stop Lever Screw

NOTE: In ordering any part that is painted, please specify color wanted.

MODEL 16-E  
Chassis Views

CAPEHART CORPORATION

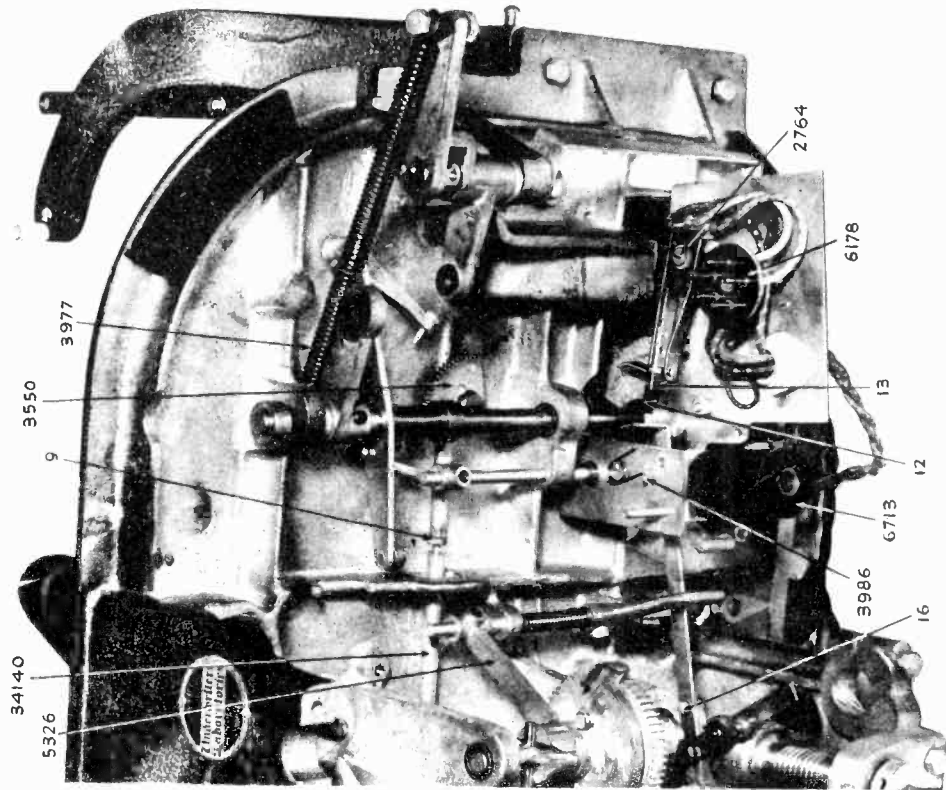


Fig. 3

- 1326 Record Reverse Cam Shaft Lever
- 6178 Chassis Plug 1 Prong
- 6713 Solenoid Assembly
- 34140 Pin—Long, Reverse Segment

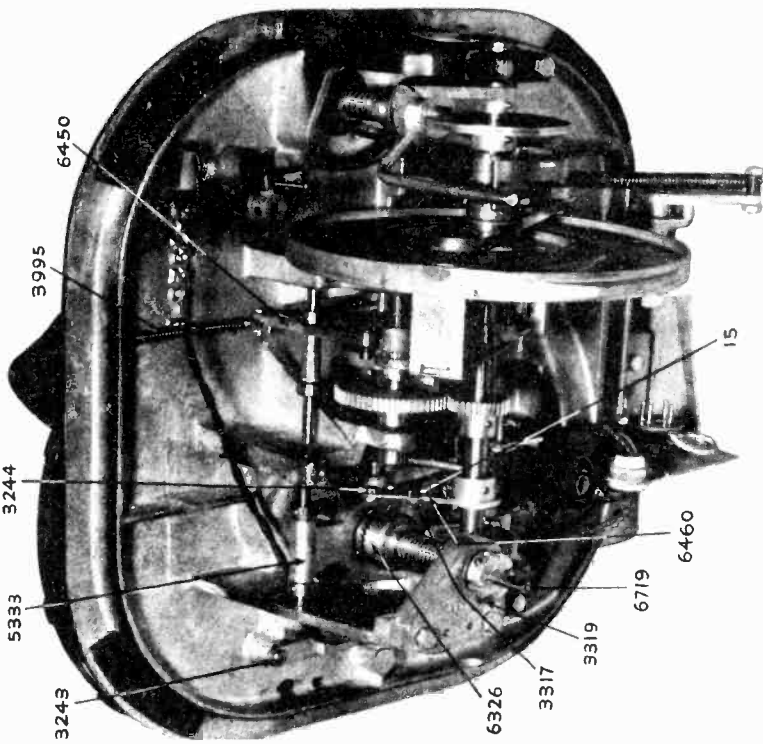


Fig. 2

- 3243 Shoulder Screw—Repeat Lever
- 3244 Shoulder Screw—Clutch Throwout Lever
- 3317 Screw—Clutch Throwout Cam
- 3319 Screw—Turntable Shaft Collar
- 3394 Spring—Reverse Arm
- 5333 Main Clutch Fork Lever
- 6326 Worm and Bushing Assembly
- 6450 Reverse Cam Arm and Roller Assembly
- 6460 Clutch Throwout Lever and Spring Assembly
- 6719 Turntable Drive Shaft Assembly

- 2764 Switch Assembly—Solenoid and Motor
- 1510 Record Reverse Pinion Segment
- 1977 Spring—Magazine Slide Arm
- 3986 Spring—Solenoid Lever Torison

CAPEHART CORPORATION

MODEL 16-E  
Chassis Views

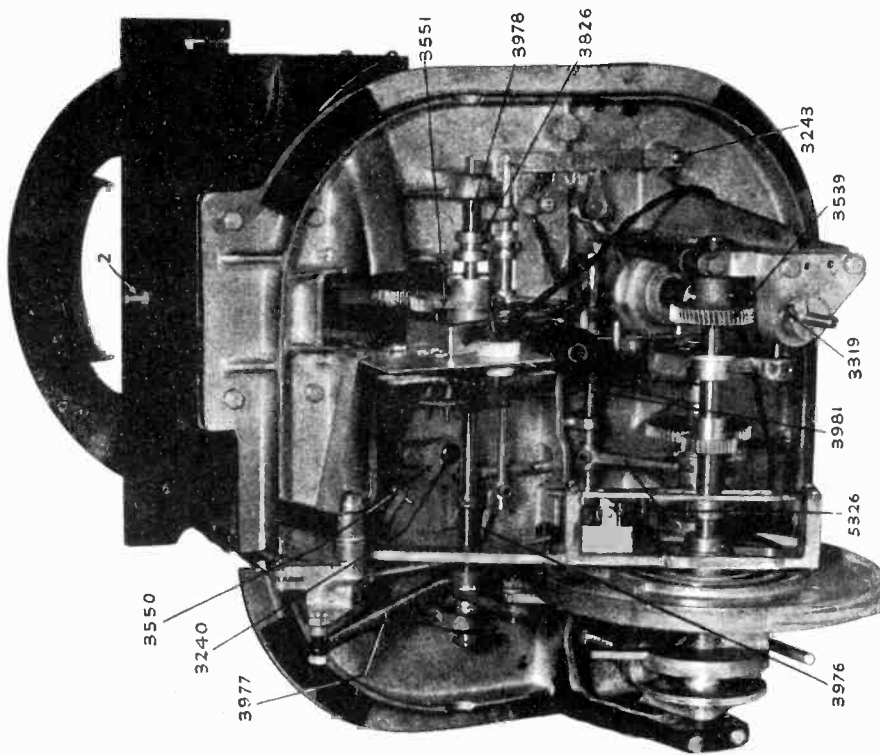


Fig. 5

- 3826 Record Repeat Sliding Clutch Cam
- 3976 Spring—Record Separator Hook Lever
- 3977 Spring—Magazine Slide Arm
- 3978 Spring—Record Repeat Clutch
- 3981 Spring—Record Reverse Cam Control
- 3526 Record Reverse Cam Shift Lever

- 3240 Shoulder Screw—Reverse Segment
- 3243 Shoulder Screw—Repeat Lever
- 3319 Worm Gear—Main Drive
- 3550 Record Reverse Pinion Segment
- 3551 Record Tray Gear—Driver

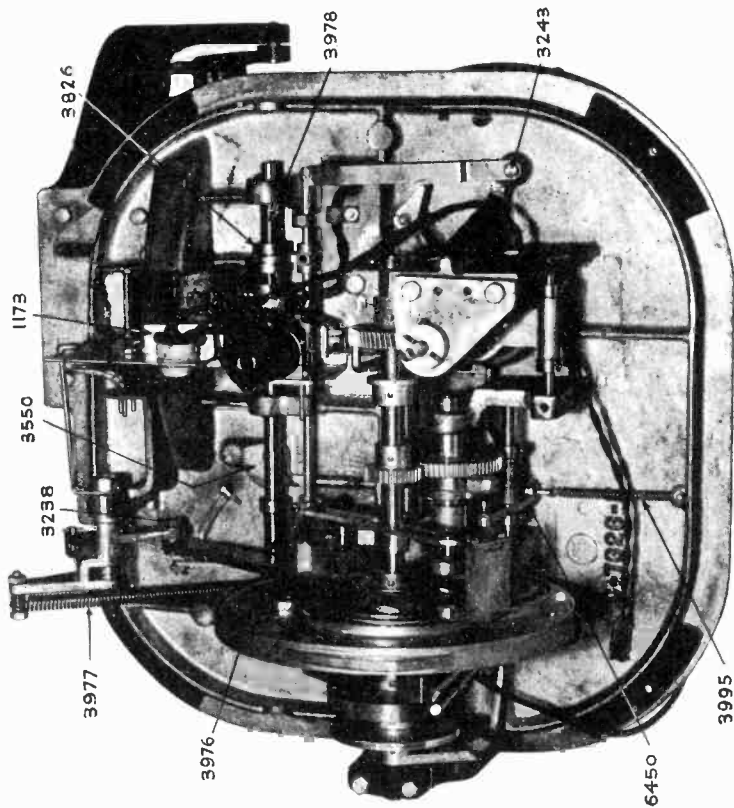


Fig. 4

- 1173 Condenser—0.1 Mfd. 400-Volt (in can)
- 3238 Shoulder Screw—Magazine Slide Arm
- 3243 Shoulder Screw—Repeat Lever
- 3550 Record Reverse Pinion Segment
- 3826 Record Repeat Sliding Clutch Cam
- 3976 Spring—Record Separator Hook Lever
- 3977 Spring—Magazine Slide Arm
- 3978 Spring—Record Repeat Clutch
- 3995 Spring—Reverse Arm
- 6450 Reverse Cam Arm and Roller Assembly

MODEL 16-E  
Chassis Views

CAPEHART CORPORATION

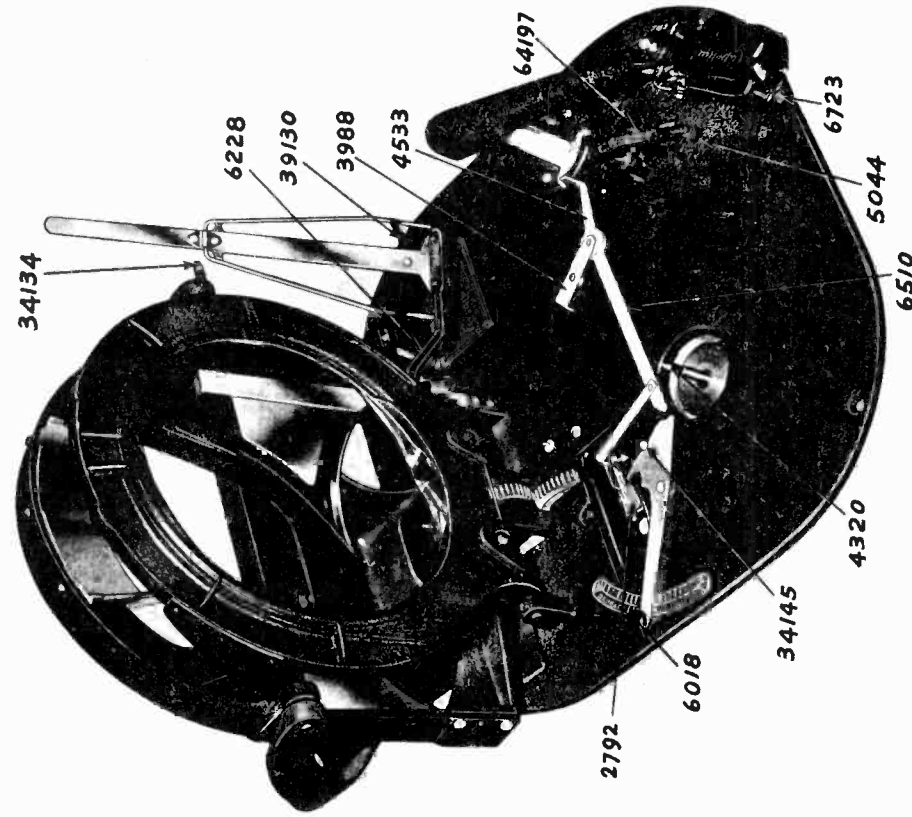


Fig. 7

- 34134 Pin—Reverse Guide Stop
- 1044 Stop Lever Roller Tubing
- 6018 Selector Knob
- 3988 Spring—Automatic Trip Lever Pin (specify color)
- 4320 Turnable Drive Shaft Cap
- 4153 Automatic Stop Trip Lever—Short
- 64197 Pickup Arm Stop Lever Assembly (specify color)
- 6228 Record Reverse Arm and Fork Assembly
- 6510 Automatic Stop Trip Lever Assembly
- 6723 Pickup Brush Assembly

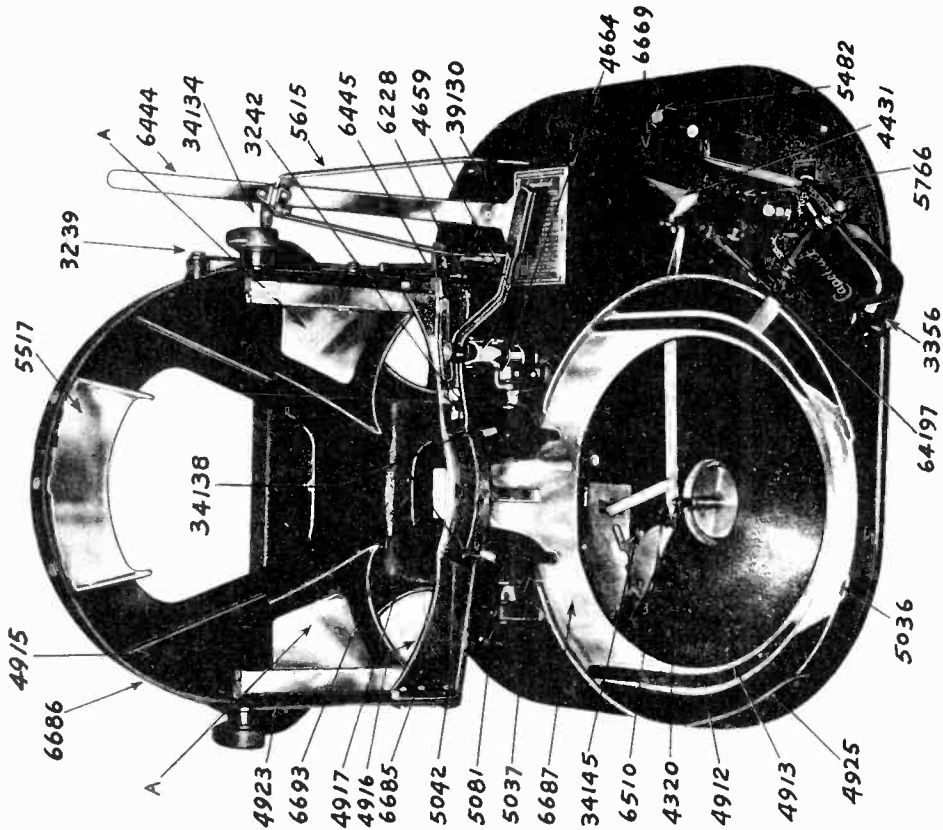


Fig. 6

- 4925 Record Way Shield Felt Outer
- 1036 Record Tray Bumper—Front
- 1037 Record Tray Bumper—Rear
- 1081 Record Bumper
- 3482 Pickup Arm Base
- 3517 Record Support—Upper
- 3615 Record Reverse Guide
- 34134 Pin—Reverse Guide Stop
- 34138 Pin—Record Control Rod
- 34145 Pin—Record Reverse Guide Spring (Specify color)
- 5482 Record Reverse Arm and Fork Assembly
- 6444 Record Reverse Guide Assembly
- 6445 Record Separator and Hub Assembly
- 6510 Automatic Stop Trip Lever Assembly
- 6669 Pickup Arm Assembly complete
- 6681 Lower Record Support Assembly
- 6687 Record Tray Bumper Assembly
- 6691 Record Bumper Guide and Felt Assem
- 64134 Pin—Reverse Guide Stop
- 34138 Pin—Record Control Rod
- 34145 Pin—Record Reverse Guide Spring (Specify color)
- 5482 Record Reverse Arm and Fork Assembly
- 6444 Record Reverse Guide Assembly
- 3239 Shoulder-Screw—Magazine Link
- 3316 Shoulder Screw—Separator
- 4410 Turnable Drive Shaft Cap
- 4418 Turnable Drive Shaft Cap Bracket
- 4659 Record Reversing Arm Lock
- 4664 Record Reverse Arm Lock Stop
- 4912 Record Tray Felt—Large
- 4913 Record Tray Felt—Small
- 4915 Record Magazine Felt
- 4917 Lower Record Support Felt
- 4923 Magazine Slide Felt





MODEL 16-E  
Chassis Views

CAPEHART CORPORATION

Fig. 11

- 161 Clutch Throwout Cam
- 3241 Reverse Segment Link Shoulder Screw
- 1626 Ball Bearing
- 3821 Reverse Segment Stop Cam
- 3977 Magazine Slide Arm Spring
- 3978 Record Repeat Clutch Spring
- 3986 Solenoid Lever Torsion Spring
- 4018 Main Shaft Hushing
- 4022 Record Tray Shaft Bushing
- 4331 Bearing Retainer Plug
- 4433 Solenoid Plate Bracket
- 1040 Pickup Arm Brake Facing
- 5323 Magazine Slide Arm Lever
- 5331 Record Repeat Throwout Hook Lever
- 6178 Chassis Plug
- 6257 Record Tray Gear and Sliding Cam Assembly
- 6450 Reverse Cam Arm and Roller Assembly
- 6455 Solenoid to Clutch Lever and Pin Assembly
- 6460 Clutch Throwout Lever and Spring Assembly
- 6713 Solenoid Assembly
- 34140 Reverse Segment Pin, Long
- 34141 Reverse Segment Pin, Short

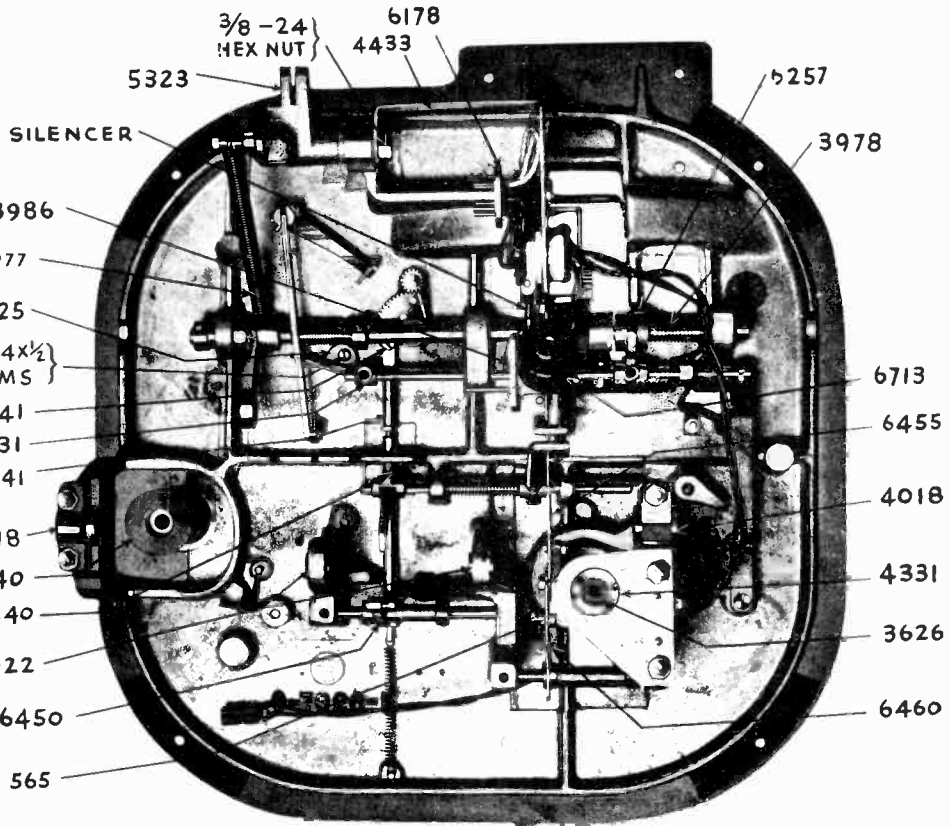
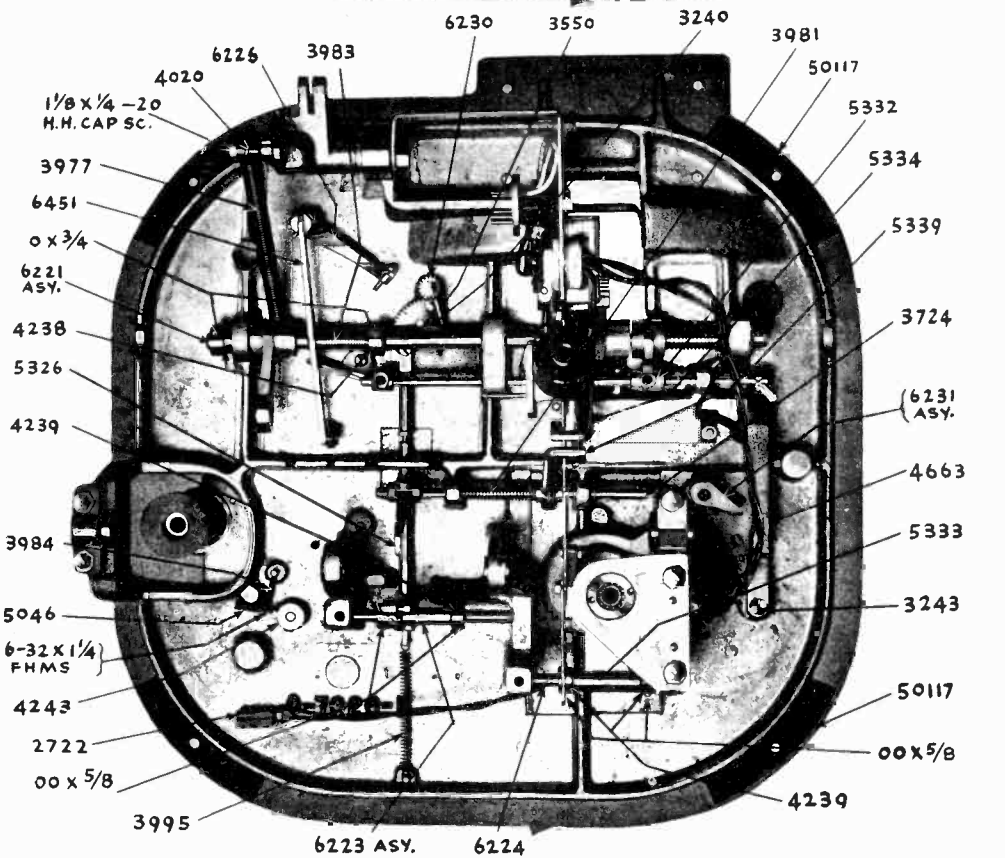


Fig. 12

- 2722 AC Line Toggle Switch
- 3240 Reverse Segment Shoulder Screw
- 1243 Repeat Lever Shoulder Screw
- 3510 Record Reverse Pinion Segment
- 3724 Record Control Shaft
- 3977 Magazine Slide Arm Spring
- 3981 Record Reverse Cam Control Spring
- 1983 Separator Hook Spring
- 3984 Tone Arm Stop Lever Spring
- 3995 Reverse Arm Spring
- 4020 Record Magazine Bushing
- 4238 "A" Collar
- 4239 "B" Collar
- 4243 Pickup Arm Stop Lever Collar
- 4663 Record Repeat Throwout Lever
- 1046 Stop Lever Collar Pin Tubing
- 1326 Record Reverse Cam Shaft Lever
- 1332 Record Repeat Clutch Fork Lever
- 1333 Main Clutch Fork Lever
- 1334 Record Repeat Lock Lever
- 1339 Reverse Cam Lock Lever
- 6221 Record Tray Drive Shaft Assembly
- 6223 Record Reverse Arm Shaft Assem.
- 6224 Solenoid Lever Shaft Assem.
- 6226 Separator Hook and Arm Assembly
- 6230 Reverse Pinion and Crank Assembly
- 6231 Record Control Lever and Stud Assembly
- 6451 Separator Hook Lever and Roller Assembly
- 10117 Main Frame Pad
- 00x3/8 Taper Pin
- 0x3/4 Taper Pin



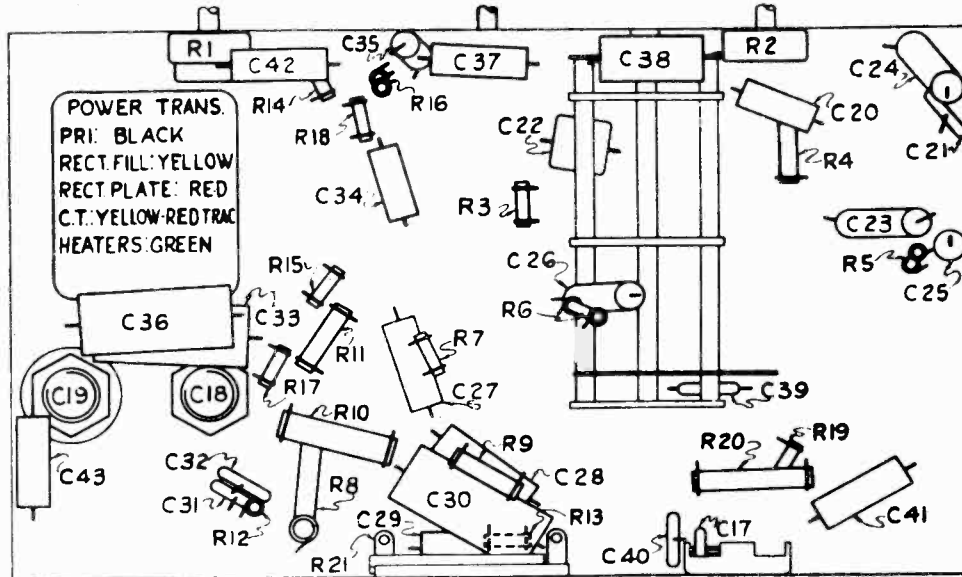
CASE ELECTRIC CORP.

MODELS 710,713,714  
715,716,718,719  
Chassis 17  
Voltage,Chassis,Parts

VOLTAGE CHART  
115 VOLT LINE

Measurements taken from elements to chassis--1000 Ohm per volt meter.  
\*Across Candohm (R-21)  
Total "B" Current drain 72 Ma.--speaker field drop--92 volts.

POSITION	TUBE	E <sub>f</sub>	E <sub>k</sub>	E <sub>g</sub> Screen	E <sub>g</sub> Suppressor	E <sub>p</sub> Triode	E <sub>p</sub> Pentode
RP Amplifier	6K7	6.0	3.0	110.0	3.0		250.0
Mixer	6L7	6.0	2.0	125.0	0.0		250.0
IF Amplifier	6D6	6.0	3.0	120.0	3.0		250.0
AVC Detector	6B7	6.0	0.0	20.0	0.0		18.0
Oscillator	76	6.0	0.0			125.0	
Audio Output	42	6.0	*20.0	250.0			240.0
Rectifier	80	6.0					

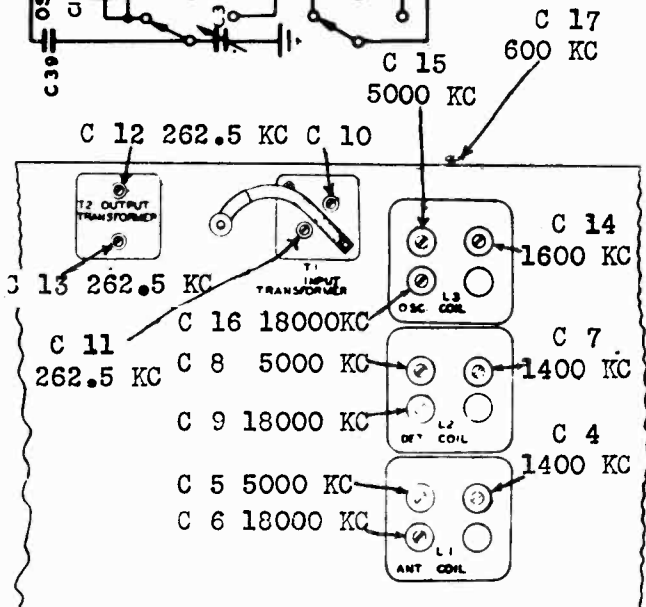
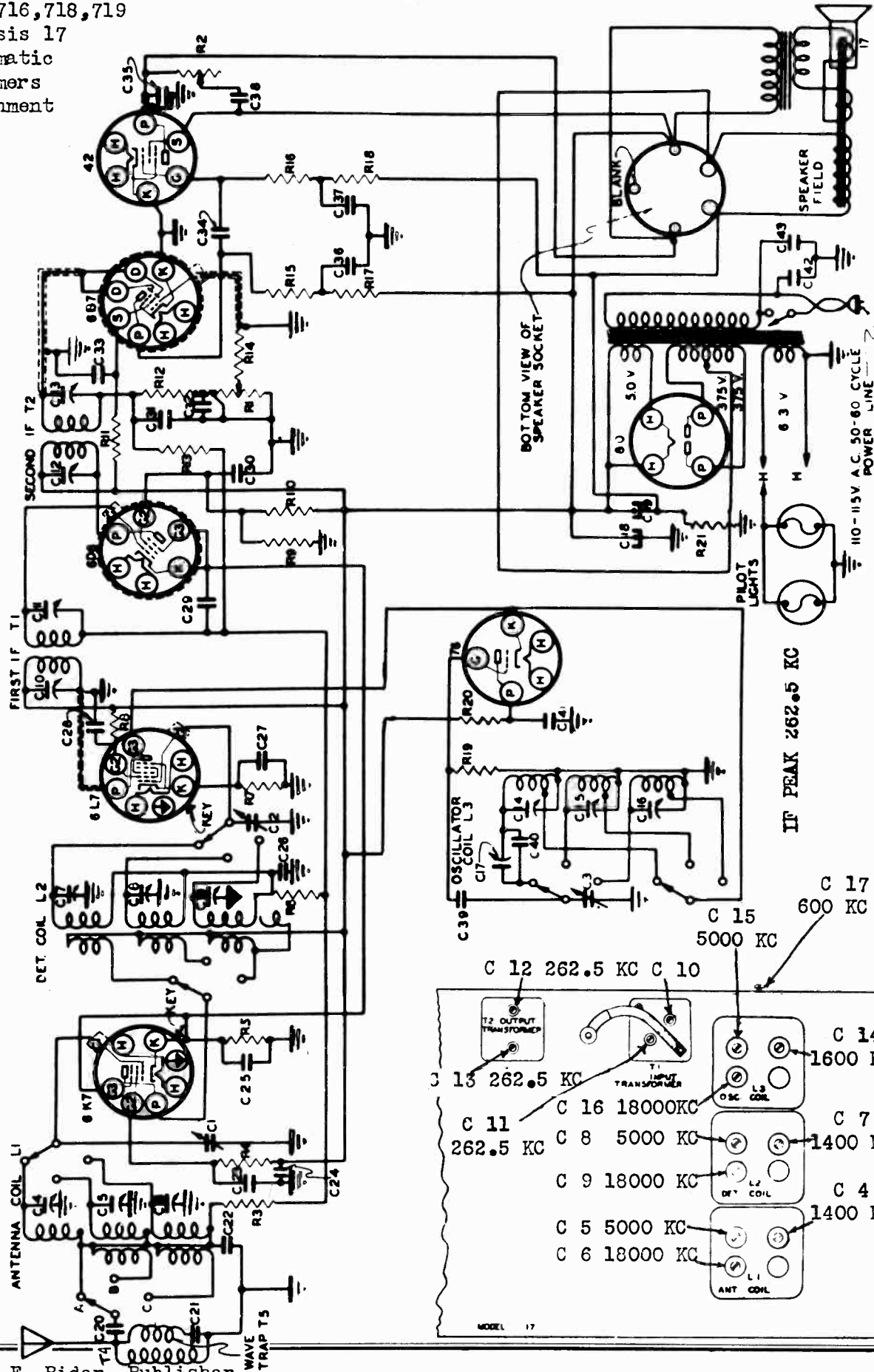


PARTS CHASSIS 17, PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

A15016	Belt Drive	.21	R10	15502	Resistor Carbon 16Ω Ohm 2W	.16
R15045	Bezel	.94	R18	15504	Resistor Carbon 150Ω Ohm .25W	.08
15226	Book Instruction	.27	R4	15506	Resistor Carbon 60Ω Ohm .5W	.10
15070	Clip Grid (Glass Tube)	.01	R11	15507	Resistor Carbon 300Ω Ohm .5W	.10
15071	Clip Grid (Metal Tube)	.01	R5	15508	Resistor Carbon 150Ω Ohm .25W	.10
15330	Clutch Assembly	.26	R15	15509	Resistor Carbon 60Ω Ohm .25W	.08
15127	Coil Antenna in Shield	Sold in	R17	15510	Resistor Carbon 20Ω Ohm .25W	.08
15129	Coil Detector in Shield	4.72	R12 R19	15511	Resistor Carbon 50Ω Ohm .25W	.08
15126	Coil Oscillator in Shield of 3	3.22	R3 R6	15512	Resistor Carbon 250Ω Ohm .25W	.08
A15069	Cord Attachment	.35	R9	15513	Resistor Carbon 20Ω Ohm .5W	.10
D15076	Cond. Variable	5.21	R14	15515	Resistor Carbon 100Ω Ohm .25W	.08
15078	Cond. Electrolytic 16 Mfd 475V	1.16	R16	15518	Resistor Carbon 180Ω Ohm .25W	.08
15079	Cond. Electrolytic 16 Mfd 300V	.92	R7	15527	Resistor Carbon 500Ω Ohm .25W	.10
C31 C32	Cond. Mica 50 Mmfd	.11		B15041	Retaining Spring for Bezel	.18
C21	Cond. Mica 2000 Mmfd	.26		B15043	Retaining Ring for Glass	.16
C32	Cond. Mica 4500 Mmfd	.37		A15020	Shaft Drive	.15
C39	Cond. Mica 35 Mmfd	.11		15096	Shield Goat (Long)	.12
C40	Cond. Mica 650 Mmfd	.19		15094	Shield Goat (Short)	.11
C33 C36 C30	Cond. Tubular .25 Mfd 400V	.19		15118	Shielded Grid Lead	.26
C27 C26	Cond. Tubular .05 Mfd 200V	.12		15195	Shielded Plate Lead	.24
C35	Cond. Tubular .002 Mfd 600V	.11		15198	Shielded Vol. Control Lead	.28
C20, C34	Cond. Tubular .01 Mfd 400V	.11		A15033	Socket Dial Lamp (Left Hand)	.11
C38	Cond. Tubular .06 Mfd 600V	.14		A15064	Socket Dial Lamp (Right Hand)	.11
C28 C23	Cond. Tubular .06 Mfd 400V	.12		15082	Socket Speaker	.10
C41 C24	Cond. Tubular .1 Mfd 400V	.14		B15063	Socket 80	.09
C42 C43 C29 C25	Cond. Tubular .1 Mfd 200V	.12		B15064	Socket 42	.11
C37	Cond. Tubular .03 Mfd 400V	.12		B15065	Socket 75	.10
R2	Control Tone	.70		B15067	Socket 657	.11
R1	Control Volume	.89		B15068	Socket 6P6	.11
	Dial & Paper Strip Assembly	1.96		B15087	Socket 6L7	.14
	B15044	Glass Convex	.25	B15066	Socket 6K7	.14
A15037	Knob Drive	.14		A15033	Spacer (For Chassis Rubbers)	.02
A15098	Knob Switch	.23		15172	Speaker 6"	5.34
A15098	Knob Volume & Tone	.15		C15172	Speaker 10"	6.94
15069	Lamp Dial 6.3 V. Bayonet Type	.19		A15017	Spring Tension	.02
15129	Lamp Dial Assembly	.68		C15256	Switch Range	2.14
A15082	Lug Ground Electrolytic	.01		15123	Switch Range Pulley & String	.65
A15032	Mounting Chassis Rubbers	.03		B15208-4	Transformer Input IF	1.42
B15168	Paper Dial Backing	.02		B15209-4	Transformer Output IF	1.63
A15023	Pointer (Minute)	.04		B15080	Transformer Power 60 cycles 110V	4.29
A15024	Pointer (Tuning)	.04		15242	Trap Wave	1.26
A15006	Pulley Idler Assembly	.10		1950	Washer Felt (Small Knob)	.01
A15072	Planetary Assembly	.46		1951	Washer Felt (Switch Knob)	.01
R21	Resistor Candohm 235 Ohm	.23		A2111	Washer Extruding Fibre	.02
R13	Resistor Carbon 2 Meg. .25W	.08		A2103	Washer Plain Fibre	.01
R20 R8	Resistor Carbon 25M Ohm 1W	.11		A2300	Washer Rubber RF Panel	.02
C7	A15189	Var. Padder Cond.	.34			

MODELS 710,713,714  
715,716,718,719  
Chassis 17  
Schematic  
Trimmers  
Alignment

CASE ELECTRIC CORP.

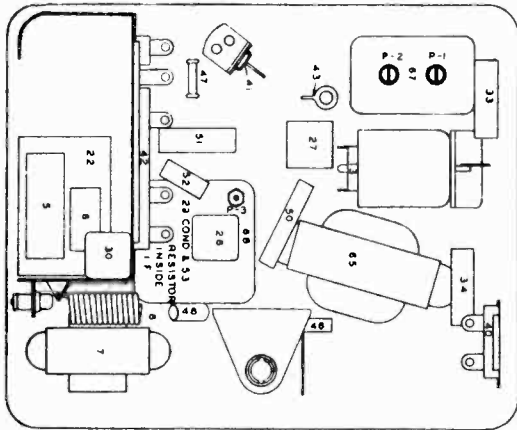




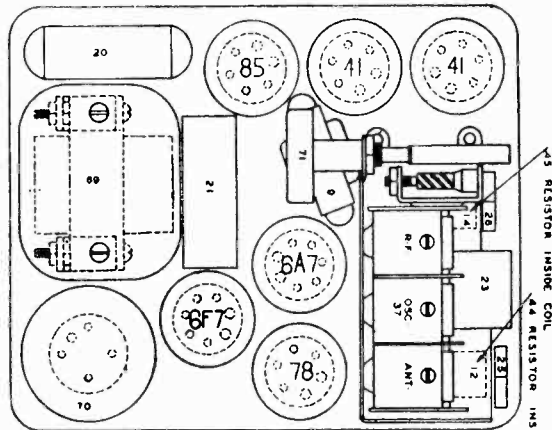


MODEL 601525  
 Socket, Trimmers  
 Chassis, Changes  
 Alignment

CHEVROLET DIV.—GEN. MOTORS



PARTS LAYOUT—Bottom View



PARTS LAYOUT—Top View

Peaking I. F. Stages at 262 K. C.

- (a) Connect the ground lead of the test oscillator to the chassis frame. Connect a 1 mfd. condenser in series with the other lead and connect this lead to the grid cap of the 6A7 tube leaving the tube's grid clip in place. The 1 mfd. condenser is necessary to prevent the oscillator circuit of the receiver from affecting the I. F. adjustments.
- (b) Set the test oscillator on 262 kilocycles.
- (c) Turn the volume control of the receiver on full.
- (d) Peak the I. F. trimmer P-3 located on the 2nd I. F. coil shown on Figure 2.
- (e) Then peak trimmers P-2 and P-1 located on the first I. F. Coil also shown on Figure 2.
- (f) In order to insure accurate settings of the I. F. trimmers the above adjustments should be repeated using the lowest oscillator output that will give a reasonable deflection of the output meter pointer. Make all adjustments for maximum output.

Part No. 601525  
 Date 11-1-35

CODE FOR SYMBOLS

Gt—Grid-triode	H—Heater
G—Control grid	Pp—Plate-pentode
G1—Osc. Grid	S—Screen
G2—Osc. plate	Tp—Triode-plate
	G3,5—Osc. Screen
	K—Cathode

**GENERAL:** This auto radio is a six tube, two unit (dash speaker) superheterodyne receiver. It is equipped with a remote control and a plug-in vibrator of the full wave self-rectifying type.

**Circuit Changes**

A number of the early receivers have 1/4 mfd. tubular condenser mounted above the candohm resistor, illustration #42 of Figure 2 and connected in parallel with the 85 tube cathode by-pass section 20D of the #1209144 electrolytic condenser block. The use of the tubular condenser was necessary in production to reduce the R. F. resistance of the 85 cathode by-pass. A change has been made in the design of the condenser block, making the use of the tubular condenser unnecessary. All of the service parts replacement stock of #1209144 electrolytics are of the new design and it is immaterial whether or not the tubular condenser is left in the receiver when replacing the electrolytic condenser block.

It may be noted on some of the earlier receivers that there is a small condenser in a metal case mounted below the candohm resistor, Illus. #42, Figure 2, with two terminals that are not connected. This condenser was originally placed in the set to filter vibrator interference, but it was found after production started that two small condensers mounted in the vibrator unit were more effective and the external condenser was simply disconnected.

**Peaking Instructions**

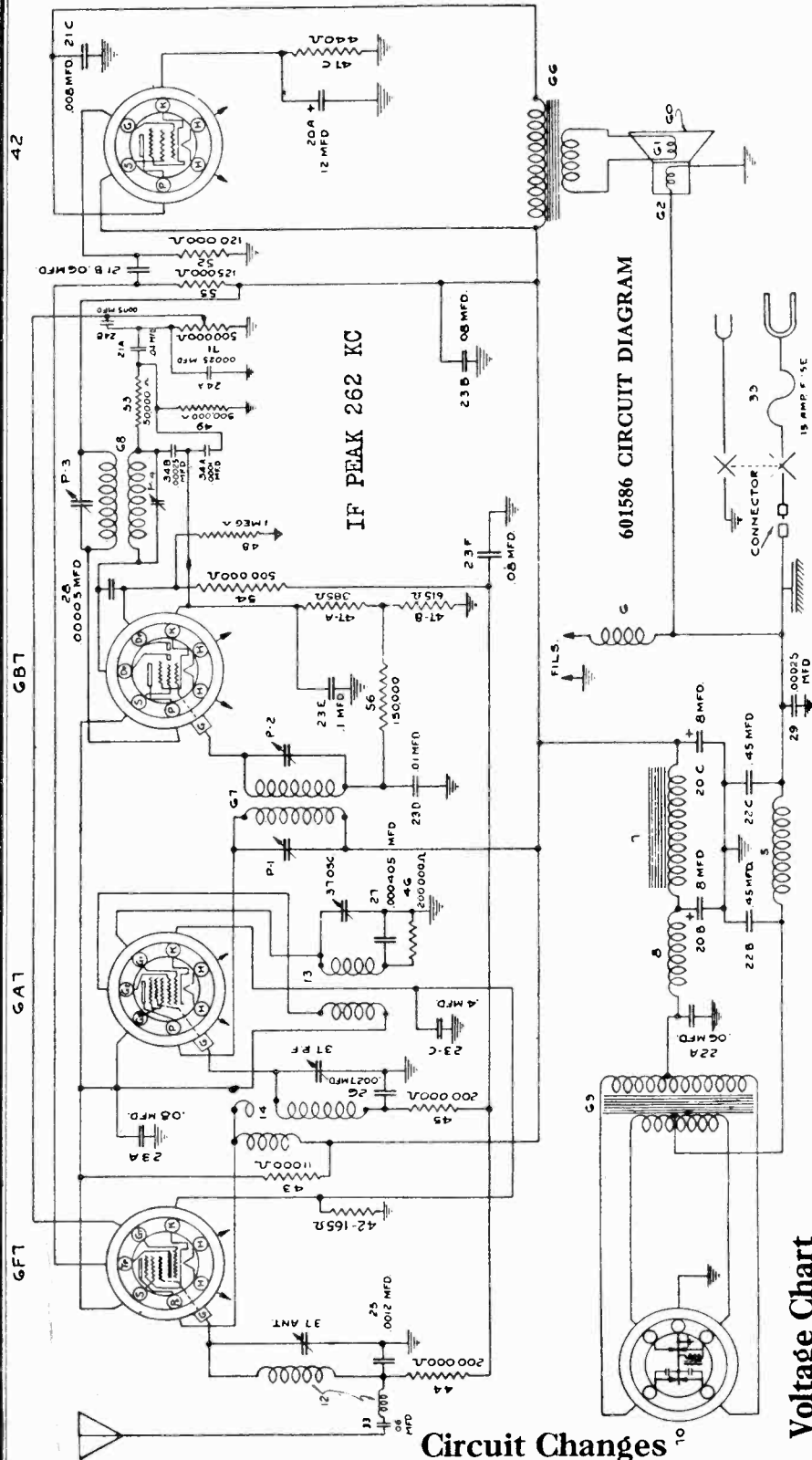
**Peaking Gang Condenser at 1530 and 1400 K. C.**

- (a) Connect the output of the test oscillator to the antenna connection of the receiver and to the chassis ground. Do not use the 1 mfd. condenser that was required in aligning the I. F. stages.
- (b) Turn the rotor plates of the gang condenser until they are COMPLETELY OUT OF MESH.
- (c) Set the test oscillator on 1530 kilocycles.
- (d) Adjust the trimmer condenser for the oscillator section (middle section) of the gang condenser CAREFULLY for maximum output. Then adjust the trimmers for the "R. F." and "ANT" sections of the gang condenser.
- (e) Set the test oscillator on 1400 kilocycles.
- (f) Turn the condenser rotor plates until the 1400 K. C. signal from the test oscillator is turned in with maximum output. (No calibration blocks should be used as the oscillator circuit is adjusted at 1530 K. C. on this set.)
- (g) Readjust the parallel trimmers for the "R. F." and "ANT" section of the gang condenser for maximum output. DO NOT disturb the oscillator trimmer (middle section) as this is adjusted at 1530 K. C. only and any further adjustments at this point will affect both the tuning range of the receiver and the tracking of its circuits.

**CAUTION:** Always use the lowest possible test oscillator output that will give a reasonable deflection of the output meter pointer in order to prevent the A. V. C. from leveling out the output as the adjustments are made.

CHEVROLET DIV.—GEN. MOTORS

MODEL 601586  
Schematic, Voltage  
Changes



**Voltage Chart**

The voltages shown below are average readings taken from the tube socket contacts to the chassis frame, and will vary 10% when the set is tested on a 6 volt battery due to differences in characteristics of vibrators and tubes. All readings were taken with a 1000 ohm per volt meter.

Type	Function	H	Pp	S	Tp	Gt	G	G1	G2	G3,5	K
6F7	R. F.	6	250	135	80	0	0	—	—	—	6.2
6A7	Det.-Osc.	6	250	—	—	0	0	0	120	135	6.2
6B7	2nd Det. AVC	6	250	135	—	—	0	—	—	—	8.5
42	Output	6	240	250	—	—	0	—	—	—	16.0

Part No. 601586  
Date 11-1-35

NOTE: Ampere drain of set at 6 volts is 6.2 amperes.  
Milliampere drain from "B" supply is approximately 55 M. A.

A number of .05 mfd. tubular condensers were used at the factory in place of the .06 mfd. condenser part #1209213 condenser shown on Fig. 2 as Illus. #33. For Service Replacement purposes of any defective .05 mfd. condensers—use part #1209213 condenser.

MODEL 601586

Socket, Trimmers  
Chassis, Alignment  
Parts

CHEVROLET DIV.—GEN. MOTORS

**GENERAL:** This auto radio is a four tube, single unit superheterodyne radio. It was designed for the 1935 Standard Model Chevrolets. A tuning control of the type that mounts on the bottom flange of the instrument is used.

**Peaking Instructions**

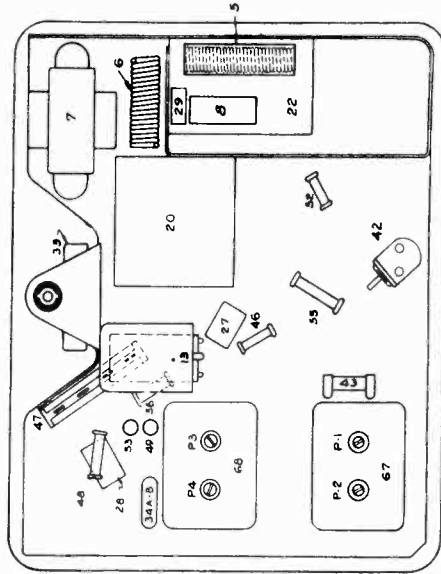
**Peaking I. F. Stages at 262 K. C.**

- (a) Connect the ground lead of the test oscillator to the chassis frame. Connect a .5 mfd. condenser in series with the other lead and connect this lead to the grid cap of the 6A7 tube, leaving the tube's grid clip in place. The .5 mfd. condenser is necessary to prevent the oscillator circuit of the receiver from affecting the I. F. adjustments.
- (b) Set the test oscillator on 262 kilocycles.
- (c) Turn the volume control of the receiver on full.
- (d) Peak the I. F. trimmer P-3 for the 2nd I. F. coil shown on Fig. 3.
- (e) Then peak trimmers P-2 and P-1 of the first I. F. coil also shown on Fig. 3.
- (f) In order to insure accurate settings of the I. F. trimmers the above adjustments should be repeated using the lowest oscillator output that will give a reasonable output meter scale deflection. Make all adjustments for maximum output.

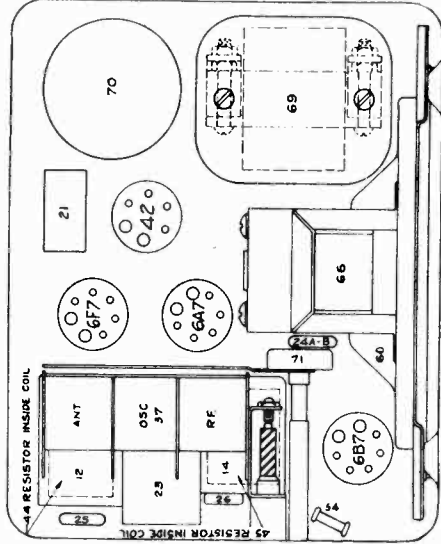
**Peaking Gang Condenser at 1530 and 1400 K. C.**

- (a) Connect the output of the test oscillator to the antenna connection of the receiver and to the chassis ground. Do not use the .5 mfd. condenser that was required in aligning the I. F. stages.
- (b) Turn the rotor plates of the gang condenser until they are COMPLETELY OUT OF MESH.
- (c) Set the test oscillator on 1530 kilocycles.
- (d) Adjust the oscillator section (middle section) of the gang condenser CAREFULLY for maximum output. Then adjust the trimmers for the "R. F." and "ANT" sections of the gang condenser.
- (e) Set the test oscillator on 1400 kilocycles.
- (f) Turn the condenser rotor plates until the 1400 K. C. signal from the test oscillator is tuned in with maximum output. (No calibration blocks should be used as the oscillator circuit is adjusted at 1530 K. C. on this set.)
- (g) Readjust the parallel trimmers for the "R. F." and "ANT" sections of the gang condenser (shown on Fig. 2) for maximum output. DO NOT disturb the oscillator trimmer (middle section) as this is adjusted at 1530 K. C. only, and any further adjustments at this point will affect both the tuning range of the receiver and the tracking of its circuits.
- (h) The capacity of the output circuit of the test oscillator may be slightly different than that of the under car antenna the receiver is to be used on. Therefore, it is advisable to readjust the "ANT" trimmer to the car antenna when reinstalling the receiver. This may be done by tuning the receiver to a broadcast station around 1400 K. C. and adjusting for maximum volume.

**CAUTION:** Always use the lowest possible test oscillator output that will give a reasonable deflection of the output meter pointer, in order to prevent the A. V. C. from leveling out the output as the adjustments are made.



PARTS LAYOUT—Bottom View



PARTS LAYOUT—Top View

Part No.	Part Name	Description	Illus. No.
1209079	Case	Chassis	
1207683	Clip	Tube grid connector	
1209039	Coil	Vibrator "A" choke	5
1209209	Condenser	By-pass block	23
	Sec. A	.08 Mfd., 400 v.	
	Sec. B	.08 Mfd., 400 v.	
	Sec. C	.4 Mfd., 100 v.	
	Sec. D	.01 Mfd., 100 v.	
	Sec. E	.1 Mfd., 100 v.	
	Sec. F	.08 Mfd., 100 v.	
1209051	Condenser	Molded .0012 Mfd.	25
1209052	Condenser	Molded .00027 Mfd.	26
1209053	Condenser	Molded .000405 Mfd.	27
1209878	Condenser	Molded .00005 Mfd.	28
1209055	Condenser	Molded .00025 Mfd.	29
*1209534	Condenser	Tubular .06 Mfd., 200 v.	33
1209950	Condenser	3 gang tuning—incl. coupling	35
1836869	**Connector Assembly	"A" power on chassis	
	Cap	Ferrule holder	1209074
1838476	Ferrule	Contact	1209367
	**Connector Assembly	Antenna on chassis	1209076
	Body	Antenna connector	5039661
1836878	Ferrule	Contact	1209368
1836876	Spring	Ferrule tension	1209130
1843713	Washer	Antenna connector	1208197
1209059	Coupling	Condenser drive	119496
1209083	Cover	Chassis top	1209098
1209084	Cover	Tube lid	361656
1209210	Resistor	Candohm 165 ohms	42
1209063	Resistor	Ohmite 11,000 ohms—1½ watt	43
1210119	Resistor	Insulated 200,000 ohms—½ watt	44, 45, 46
1209211	Resistor	Candohm strip	47
	Sec. A	385 ohms	
	Sec. B	615 ohms	
	Sec. C	440 ohms	

**PARTS**

Part No. 601586  
Date: 11-1-35

Part Name	Description	Illus. No.
Resistor	Insulated 500,000 ohms—½ watt	54
Resistor	Insulated 120,000 ohms—½ watt	55
Resistor	Insulated 150,000 ohms—½ watt	56
Shield	Tube (without grid shield)	
Sleeve	Volume control shaft	
Socket	6 prong tube (42)	
Socket	Vibrator	
Speaker Assembly	Complete (6-½")	60
Transformer	1st I. F. assembly	67
Transformer	2nd I. F. assembly	68
Transformer	Vibrator	69
Vibrator	Plug-in synchronous	70
Volume control	Res. 500,000 ohms	71
Bracket	Dial support	
Clip	Ammeter lead	
Dial	Chart	
Dial Light	6-8 volt	
Drive Head	Less flex. shaft assembly	
Fuse	15 ampere	
Gear	Pointer drive	
Knob	Tuning or volume	
Lead Assembly	Ammeter	
Resistor	Insulated 1 megohm—½ watt	48
Resistor	Insulated 500,000—½ watt	49
Resistor	Insulated 120,000 ohms—½ watt	52
Resistor	Insulated 50,000 ohms—½ watt	53

\*See "CIRCUIT CHANGES"

\*\*Complete assembly not available as a service part.



MODEL 985200

Socket, Trimmers  
Alignment, Chassis  
Parts

CHEVROLET DIV.—GEN. MOTORS

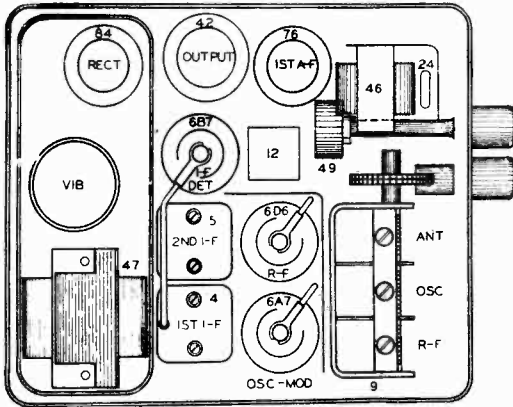


Fig. 3 PARTS LAYOUT—Top View

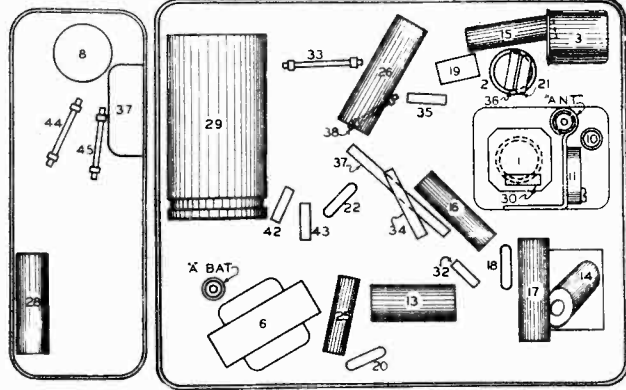


Fig. 2 PARTS LAYOUT—Bottom View

Part No. 985200  
Date 11-1-35

Part No.	Part Name	Description	Illus. No.
1210652	Coil	Antenna	1
1210653	Coil	R. F.	2
7231040	Coil	Oscillator	3
1210654	Coil Assembly	1st I. F.	4
1210655	Coil Assembly	2nd I. F.	5
1209803	Coil	"B" filter choke	6
1210656	Coil	"A" filter choke	7
1210656	Coil	"A" filter choke	8
1210657	Condenser	3 gang variable	9
1210658	Condenser	Ant. blocking 02 Mfd.	10
1210659	Condenser	Antenna trimmer	11
1210660	Condenser	By-pass block	12
	Sec. A	1 Mfd., 200 volt	
	Sec. B	1 Mfd., 200 volt	
	Sec. C	05 Mfd., 400 volt	
	Sec. D	05 Mfd., 400 volt	
7230952	Condenser	Tubular 05 Mfd.	13
1209625	Condenser	Tubular 03 Mfd.	14
1212099	Condenser	Tubular 02 Mfd.	15
1212099	Condenser	Tubular 02 Mfd.	16
1207908	Condenser	Tubular .1 Mfd.	17
1210275	Condenser	Molded 0001 Mfd.	18
1209055	Condenser	Molded 00025 Mfd.	19
1209055	Condenser	Molded 00025 Mfd.	20
1209055	Condenser	Molded 00025 Mfd.	21
1209055	Condenser	Molded 00025 Mfd.	22
1209055	Condenser	Molded 00025 Mfd.	23
1209055	Condenser	Molded 00025 Mfd.	24
7230593	Condenser	Tubular 006 Mfd.	25
7231594	Condenser	Tubular .25 Mfd.	26
1212100	Condenser	Tubular .5 Mfd.	27
1209805	Condenser	Oil type 01 Mfd.	28
1210662	Condenser	Electrolytic block	29
	Sec. A	4 Mfd., 350 volt	
	Sec. B	12 Mfd., 350 volt	
1209883	Resistor	Insulated 100,000 ohms—1/2 watt	30
1209883	Resistor	Insulated 100,000 ohms—1/2 watt	31
1209883	Resistor	Insulated 100,000 ohms—1/2 watt	32
1208140	Resistor	Flexible 165 ohm—1/2 watt	33
1211102	Resistor	Insulated 30,000 ohm—1 watt	34
1210881	Resistor	Insulated 60,000 ohm—1/2 watt	35
1210882	Resistor	Insulated 20,000 ohm—1/2 watt	36
1208800	Resistor	Flexible 750 ohm—1/2 watt	37
1208800	Resistor	Flexible 750 ohm—1/2 watt	38
1209885	Resistor	Insulated 1 Megohm—1/2 watt	39
1209885	Resistor	Insulated 1 Megohm—1/2 watt	40
1209884	Resistor	Insulated 300,000 ohm—1/2 watt	41
1208984	Resistor	Insulated 300,000 ohm—1/2 watt	42
1209884	Resistor	Insulated 300,000 ohm—1/2 watt	43
1209015	Resistor	Flexible 100 ohm—1/2 watt	44
1209015	Resistor	Flexible 100 ohm—1/2 watt	45
1209629	Transformer	Output	46
1210663	Transformer	Power	47
5040600	Vibrator	Plug-in type	48
1210664	Volume Control	1 megohm	49
1210665	Coil	Motor noise choke	50

Peaking Procedure

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 42 output tube.  
BE SURE the meter is protected from D. C. by connecting a condenser (.1 Mfd. or larger—not electrolytic) in series with one of the leads.

Peaking I. F. Stages at 262.5 K. C.

- Connect the ground lead of the signal generator to the chassis frame. Connect a .5 Mfd non-inductor in series with the other lead and connect this lead to the grid cap of the 6A7 tube, leaving the tube's grid clip in place.
- Set the signal generator to 262.5 kilocycles.
- Turn the volume control of the receiver on full and turn the tone control to the treble position.
- Rotate the station selector until the tuning condenser plates are completely in mesh.
- Adjust the trimmer condensers located on top of the 2nd I-F coil (Fig. 00) for maximum reading on the output meter.
- Adjust the trimmer condensers located on top of the 1st I-F coil for maximum output.

NOTE: In order to insure accurate settings of the I-F trimmer condensers the above adjustments should be repeated using the lowest signal generator output that will give a reasonable scale deflection on the output meter. Make all adjustments for maximum output.

Peaking R. F. Stages

- Remove the .5 Mfd. condenser from the output lead of the signal generator and connect a .00025 Mfd. condenser in its place. Then, connect this lead to the antenna connection of the receiver.
- Set the signal generator to 1400 kilocycles.
- Rotate the station selector until the pointer points to 140 on the dial.

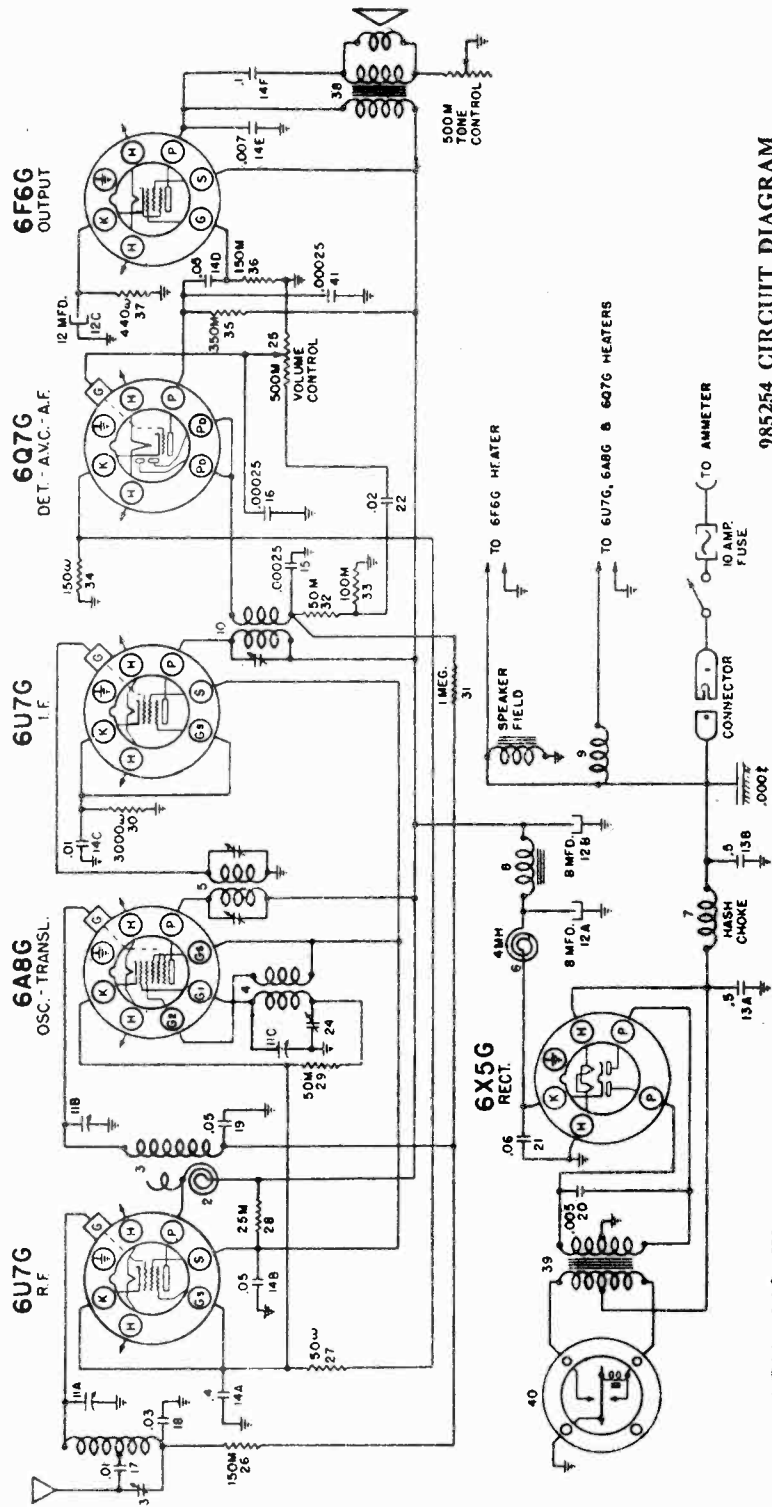
NOTE: Special care should be exercised in making the adjustments at this frequency as the correct logging of stations on the dial is dependent upon these adjustments.

- Adjust the "Osc." trimmer of the tuning condenser (Fig. 2) for maximum output.
- Adjust the "R.F." trimmer for maximum output.
- Adjust the "ANT" trimmer for maximum output.
- Repeat operations (e) and (f) using the lowest signal generator output that will give a reasonable scale deflection on the output meter.

NOTE: The "Osc.", "R.F." and "ANT" trimmers should not be adjusted at any frequency other than 1400 kilocycles.

- Set the signal generator to 600 kilocycles.
- Tune in the 600 kilocycles from the signal generator with the station selector for maximum output.
- Peak the antenna compensating condenser (Fig. 3) for maximum output.
- Repeat operation (i) and (k) alternately until no further improvement in output can be obtained.
- Set the signal generator to 1400 kilocycles again.
- Tune in the 1400 kilocycle with the station selector for maximum output.
- Readjust the "ANT" trimmer of the tuning condenser for maximum output.





985254 CIRCUIT DIAGRAM

**Tube Socket Voltage**

Model 985254

Type	Function	H	P	S	GL	G2	K
6U7G	R.F. Amplifier	5.75	230	60	2.5		2.5
6A8G	Translator	5.75	230		6.0	60	
6U7G	Oscillator	5.75	230	60	5.0		5.0
6Q7G	I.F. Amplifier	5.75	80				1.2
6F6G	Det-1st I.F.	5.8	220	230			14.0
6X5G	Output Rectifier	5.75	*				240

Part No. 985254  
Date 11-1-36

IF PEAK 262 KC

**ANTENNA CIRCUIT:** The antenna circuit is directly coupled to the antenna in contrast with the capacity coupled circuit used in some Chevrolet Models. A small adjustable condenser is provided for adjusting the antenna circuit to the antenna. This adjustment is made near the high frequency end of the dial (1400 K.C.) instead of at the low frequency end as with the capacity coupled sets.

**POWER SUPPLY:** The power supply in this receiver differs from previous Chevrolet Models in that a rectifier tube (type 6X5G) is used in conjunction with a full wave, plug-in vibrator. The vibrator circuit is permanently connected for operation on negative battery ground as is the case on all Chevrolets.

NOTE: Above readings taken from tube socket contacts to ground with a D.C. voltmeter having a resistance of 1000 ohms per volt; "A" Batt 6 volts.

MODEL 985254

Socket, Trimmers  
Chassis, Alignment  
Parts

CHEVROLET DIV.—GEN. MOTORS

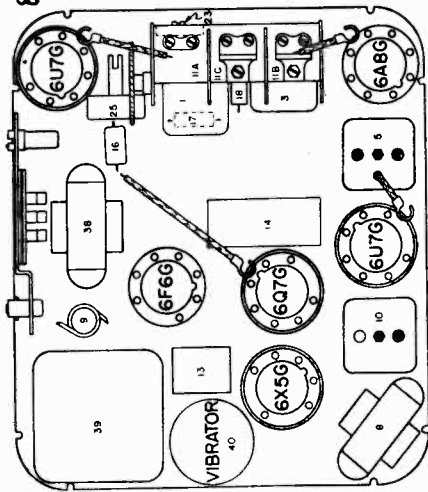


Fig. 2

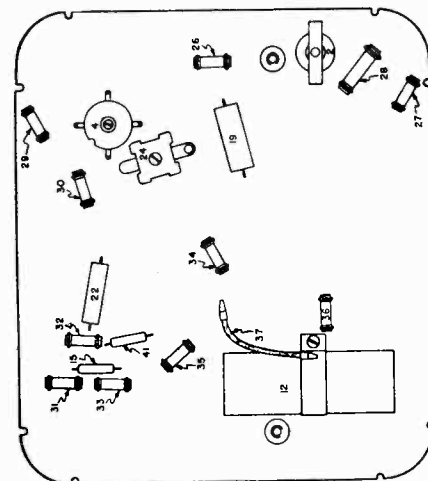


Fig. 1

Part No.	Illustration No.	Part Name	Function
1211585	1	Coil	Antenna Assy. (includes 17)
1210690	2	Coil	Choke (R. F. Primary)
1210501	3	Coil	R. F.
1211583	4	Coil	Oscillator
1211587	5	Coil	1st I. F. Assy.
1210547	8	Choke	Hum Filter
1211586	10	Coil	2nd I. F. Assy.
1211591	11	Condenser	Variable 3-gang tuning
1211580	12	Condenser	Electrolytic Sec. A "B" Voltage Filter Sec. B "B" Voltage Filter Sec. C 6F6G Bias Resistor By-Pass Filter Block
1211581	13	Condenser	Sec. A .5 mfd. 160 V. Hash Filter Sec. B .5 mfd. 160 V. Hash Filter
1211584	14	Condenser	By-pass Block Sec. A .4 mfd. 160 V-R. F. and translator bias resistor By-Pass Sec. B .05 mfd. 400 V-Screen By-Pass Sec. C .01 mfd. 160 V-1. F. Bias Resistor By-Pass Sec. D .05 mfd. 400 V. Audio Coupling Sec. E .007 mfd. 400 V. 6F6G Plate-By-Pass Sec. F .1 mfd. 400 V. Tone Control
1209055	15	Condenser (.00025 mfd.)	molded Diode Return
1209055	16	Condenser (.00025 mfd.)	molded R. F. By-Pass
1208600	17	Condenser .01 mfd.	Antenna Coupling
1209625	18	Condenser .03 mfd.	6U7G Grid Return (Tubular)
7230592	19	Condenser .05 mfd.	6A8G Grid Return (Tubular)
7230912	20	Condenser .005 mfd.	Buffer
1209534	21	Condenser .05 mfd.	Hash Filter (Tubular)
1212099	22	Condenser .02 mfd.	Audio Coupling (Tubular)
1210543	23	Condenser (Ant. Padder)	(7.5 mfd. to 75 mfd)
1211592	24	Condenser (Oscillator Padder)	
1210512	25	Control	500,000 ohms Volume
1210545	25	Control	500,000 ohms (tapped) Volume
1211163	26	Resistor 150,000 ohms	1/2 Watt Grid Filter
1211661	27	50 ohm Resistor	6U7G and 6A8G Bias Resistor
1211663	28	Resistor 25,000 ohms	2 Watt Screen Voltage
1210116	29	Resistor 50,000 ohm	1/2 watt Oscillator Grid Leak
1211225	30	Resistor 3,000 ohm	1/2 Watt 6U7G I. F. Grid Bias
1209885	31	Resistor 1 meg.	1/2 Watt Isolation AVC Filter
1210116	32	Resistor 50,000 ohms	1/2 Watt AVC
1209883	33	Resistor 100,000 ohms	1/2 Watt Diode Load
1211003	34	Resistor 150 ohm	1/2 watt 6Q7G Bias
1211627	35	Resistor 350,000 ohm	1/2 watt 6Q7G Plate Load
1211163	36	Resistor 150,000 ohm	1/2 watt 6F6G Grid
1211622	37	Resistor WW 440 ohms	1 watt 6F6G Bias Resistor Output
1211588	38	Transformer	Output
1211589	39	Transformer	Power Plug-In
5050673	40	Vibrator	Plug-In
1209055	41	Condenser (.00025 mfd molded)	R. F. By-Pass
1211220	42	Resistor 300 ohm	1/2 watt
1210116	43	Resistor 50,000 ohm	1/2 watt

Visual Alignment

If the visual method of alignment is preferred to the method outlined above, the vertical input terminals of the cathode ray oscillograph should be connected to the second detector output with the high side connected between the junction of the 50,000 ohm resistor (Illus. 32, Fig. 1) and the secondary of the second I.F. transformer (Illus. 10, Fig. 1).

Part No. 985254  
Date 11-1-36

Circuit Alignment

**IMPORTANT:** Do not make any adjustments to this receiver with the chassis case removed from the receiver chassis or without the proper equipment. If maximum sensitivity is to be obtained from this receiver after realignment, it is very important that the following procedure be closely observed:

1. Aligning I-F Stages at 262 Kilocycles

- (a) Connect the signal lead of the test oscillator to the grid cap of the 6A8G tube, through a .1 mfd. condenser, leaving the tube's grid clip in place.
- (b) Connect the ground lead of the test oscillator to the chassis frame.
- (c) Connect output meter in plate circuit of 6F6G output tube or across the voice coil of the speaker.
- (d) Set the test oscillator to exactly 262 K.C.

(e) Adjust the trimmers on the I-F coils (Illus. 5 and 10) carefully for maximum output. These adjustments should be repeated several times and during alignment the test oscillator output should be kept to as low a value as is consistent with obtaining readable indication on the output meter.

2. Aligning at 1530 Kilocycles

- (a) Leave the test oscillator leads connected the same as for aligning the I-F circuits.
- (b) Turn the rotor plates of the gang condenser all the way out and against the high frequency stop.
- (c) Set the test oscillator to 1530 kilocycles.

(d) Adjust the parallel trimmer for the oscillator section of the condenser gang (Illus. 11C, Fig. 2) for maximum output. It is very important that this frequency be set accurately as a slight missetting will cause the receiver to be out of track over the entire high frequency end of the dial.

3. Aligning at 540 Kilocycles

- (a) Leave the test oscillator leads connected the same as before.
- (b) Turn the rotor plates of the gang condenser all the way into mesh so that they rest against the low frequency stop.
- (c) Set the test oscillator to 540 K.C.

(d) Adjust the oscillator tracking condenser (Illus. 24, Fig. 3) located on the underside of the receiver sub-panel to maximum output. (This adjustment sets the low frequency tuning range of the receiver to 540 K.C.)

4. Aligning at 1400 Kilocycles

- (a) Remove the signal lead of the test oscillator from the grid of the 6A8G tube and connect to the antenna terminal of the receiver through a .002 mica condenser connected in place of the .1 mfd. condenser previously used.
- (b) Set the test oscillator to 1400 K.C.
- (c) Turn the condenser rotor plates until this frequency is tuned in with maximum output.

(d) Adjust the R-F parallel trimmer on the condenser gang (Illus. 11B, Fig. 2) located on the side of the receiver case for maximum output.

5. Aligning at 600 Kilocycles

The oscillator padding condenser was previously adjusted at 540 K.C.; however, it is necessary, in most cases, to repeat the oscillator tracking condenser at 600 K.C. in order to make the receiver track properly and to secure full sensitivity.

- (a) Set the test oscillator on 600 K.C.
- (b) Turn the condenser rotor plates until the signal from the test oscillator is tuned in with maximum output.
- (c) Maintain a low output signal from the test oscillator and readjust the oscillator tracking condenser (Illus. 24, Fig. 3) while rocking the variable condenser gang tuning shaft back and forth through the signal. This operation should be continued until no further increase in output can be obtained.

**NOTE:** If the entire alignment procedure has been accomplished correctly, the receiver should be very nearly uniformly sensitive over the entire frequency range.

MODEL 985283

Tuning Unit Notes

Part 1

## CHEVROLET DIV.—GEN. MOTORS

## SUBJECT: Service Hints On Tuning Unit For 985283 Radio

FOR OTHER DATA, SEE VOL. IX

## SUBJECT: Service Hints On Tuning Unit For 985283 Radio—Cont'd

**1. Motor does not run**

- Press button down and check motor terminals for voltage. The voltage on the motor must be measured across the terminals because a voltage reading will show at all times from any one of the four motor terminals to ground or chassis. The voltage across the motor terminal should read 5.5 volts with 6 volts on the radio set, and will only show a reading when a button is pressed down and the relay is operating.
- If no voltage reading is obtained at the motor terminals to ground, check high "A" wiring from spark plate to motor terminals for open circuit. This check is made with no buttons down.
- When there is a voltage reading on some of the motor terminals to ground with no buttons down and not on other terminals, check motor fields and armature for open circuit. This is done with the regular continuity test.
- Check all motor terminals for ground with high "A" disconnected from the motor.
- Check the brushes on motor to make sure that they are seating properly on the commutator.
- Polish commutator with very fine emery paper, then wipe with a clean rag. Be sure that no abrasive is left on the commutator.

**2. Motor stalls or does not pull condenser gang, but still motor checks okeh under No. 1**

- Rotate armature of motor with finger to see if motor bearings are not frozen up. If the armature has a slight drag, it may be caused by the following:
  - Tight motor bearings.
  - Improper adjustment of motor worm with respect to the motor worm gear.
- Rotate condenser gang coupling if chassis is out of case and make sure that all moving parts rotate freely. Check remote control and be sure that all moving parts rotate freely.
- Hold clutch armature from engaging clutch and run motor by pressing button. Motor should run at very high speed with no load on it. This will check the motor and motor worm gear for freeness.
- Check remote control for binding either in the control head or in drive cables. Make sure that there are no sharp bends in control cables when installed in the car.
- Check motor armature for proper end play.
- If any bearings or gears appear to be running tight, oil only with 3 in 1 oil or its equivalent. This is very important, and only a very light grade of oil should be used, otherwise motor unit will not operate properly under low temperature conditions.
 

**Caution:** Do not oil motor bearings excessively because the motor used on this unit has oil-less bearings and should require very little oil. If an excessive amount of oil is used on the bearings it may get on the commutator or windings and cause damage to the motor. Do not oil the commutator under any circumstances.

**3. If motor unit runs slow in both directions**

- The same checks as outlined in Nos. 1 and 2 will apply to a slow running motor.

**4. Motor unit runs slow in one direction**

- Check motor brushes for proper fit to commutator.
- Check motor worm for proper adjustment. Motor worm should be exactly on a center with motor worm gear, with about .002 inch of backlash to worm gear when motor armature is held rigid.
- Check remote control and gang condenser assembly for binding in one direction or both.

**5. Noisy motor unit mechanically**

- Check remote control for grinding or squeaking by spinning remote control knob.
- Check all gear adjustments for proper backlash and alignment.
- Check gears for proper lubrication. Use a light grade of vaseline on gears.
- Check gears and bearings for worn parts or poor bearing fits and lack of lubrication. Refer to No. 2 for oiling.
- Check motor brushes for noise.

**6. Set noisy when jarred. This deals only with troubles in the motor unit that may cause the above trouble**

- Relay armature bouncing on relay contacts. To remedy this condition adjust relay spring if weak and relay spring contacts for a wider gap.
- Push button cable plug not pushed in socket far enough.
- Weak push button springs in push button box. This will be noticeable only when the button box itself is jarred.

**7. Motor runs but condenser gang and dial pointer do not move**

- Check the set screw in rear of gang condenser worm gear that locks the drive shaft to the condenser worm. The drive shaft may be turning free and not driving the gang. The drive shaft is adjustable endwise for the clutch armature adjustment only, and not for the motor worm gear. If this set screw has come loose the drive shaft will be out of adjustment and the clutch and motor worm will have to be adjusted in the order named.
- Clutch armature not operating. Check voltage across the clutch coil and also check the clutch coil for continuity.
- If the clutch armature is operating, the clutch arm on the drive shaft may not be engaging the pin and roller on the motor worm gear. Adjustment can be made by moving the drive shaft endwise, but be sure to adjust motor after moving the drive shaft.

**8. Motor unit operates and gang condenser oscillates but remote control does not operate**

- This condition will be caused by the bakelite gang condenser coupling slipping in the gang condenser worm. This coupling is a friction drive and is pushed inside the gang condenser worm with spring pressure exerted outwards on the worm. Do not oil this friction drive. To tighten this friction drive, pull coupling out and spread the split shaft with a small screwdriver. A very small spread is all that is required. Be sure to clean off all grease on split shaft and inside of hole in gang condenser worm gear, then replace the coupling.
- Check remote control for any faults.

**9. Push buttons do not release when one button is pressed at a time**

- Buttons may be binding on control panel plate. Loosen the nuts holding push button box and adjust box so that buttons are free to move in and out.
- Buttons may be binding on top plate of button box. Adjust box plate so that buttons are free.
- Rubber bands around buttons may be causing the buttons to bind.
- Push button box may be defective. Try a new box. Do not repair push button box internally.
 

**Caution:** Remember, the push buttons will not release until the proper station is tuned in and the motor unit has ceased to run.

MODEL 985283

Tuning Unit Notes

Part 2

CHEVROLET DIV.—GEN. MOTORS

**SUBJECT: Service Hints On Tuning Unit For 985283 Radio—Cont'd**

10. Push buttons do not release when two or more buttons are pressed at the same time. This is a fault that should seldom be complained about because it is not the correct way to operate the tuning unit, but provision has been made in the design to eliminate continuous oscillation of the tuning unit when two or more buttons are pressed at the same time. Three or four oscillations are permissible before buttons release. If the buttons do not release, proceed as follows:

- Try a new push button box.
- Check adjustment of relay spring contacts for proper gap.
- Check relay control arm for free operation and also for proper spring tension. Make sure that relay control arm is returning to normal position after relay operates.
- Check instrument panel plate and button box as outlined in No. 9.

11. Dial pointer slides past the proper station or setting and then returns to station when the corresponding button is pressed the second time

- This is a fault of the clutch which is not releasing fast enough or is not releasing at all. If the clutch does not release, the momentum of the locating motor will carry the gang condenser past the required setting. Check the clutch armature for free operation.
- Check the clutch arm on drive shaft for free operation.
- Check the clutch arm spring on drive shaft for proper tension.
- Check the small roller on motor worm gear for free operation on its retaining pin.
- Check the motor worm gear for free rotation on drive shaft when clutch arm is disengaged from the clutch pin.
- Check the clutch magnet gap clip for proper tension.
- Check the clutch arm spring for proper tension.
- Check the clutch arm for proper alignment with control shaft.

12. Stations do not log properly when dial pointer comes towards the station from the high frequency end—in other words, rotating in a counter clockwise direction

- Bakelite control disc for that particular station has not been set accurately. Adjust as per instructions.
- This condition may also be caused by fault No. 11. Check as per instructions in No. 11.

13. Stations do not log properly when dial pointer comes towards station from the low frequency end of dial—in other words, rotating in a clockwise direction. Under this fault, it is assumed that fault No. 12 has been checked

- The contact spring on control switch corresponding to the particular button under question may not be adjusted properly. If dial is over-riding on station it means that the contact spring is too close to the contact arm. To correct this condition it is necessary to loosen the screw on the discriminator switch to give contact spring a wider gap. If dial is under-shooting the station, that is, not dialing entirely to the station, it means that the contact spring is too far from the contact arm. To correct this condition, it is necessary to tighten the adjusting screw on the discriminator switch. Be sure that none of the other adjusting screws are disturbed.

**SUBJECT: Service Hints On Tuning Unit For 985283 Radio—Cont'd**

- Check idler gear between control disc shaft and gang condenser worm gear for proper adjustment and also for being loose.

**Caution:** If the idler gear is moved from its original position for any reason or for any cause, it will be necessary to readjust all eight contact springs on control switch, and also to reset all eight bakelite control discs. Under no condition make any adjustment to any of the spring adjusting screws or to the idler gear unless all other remedies have been tried.

14. Set very noisy when motor unit is running. This would be electrical noise from the speaker

- Improper adjustment of the silencing contact on the relay. This silencing contact is the back contact, or the one nearest the condenser gang. The lead running from this contact is connected to the tab of the push-pull input choke and hence when the relay is operated to either side, the input choke tab is then grounded, silencing the audio of the set. Check wiring, soldered joints and contact resistance of silencing contact on relay. Polish relay contacts with very fine emery paper to remove dirt and grease. This will assure a good contact.

15. Set noisy immediately after motor unit has ceased to operate dial pointer

- This noise will only last for one or two seconds after the unit has stopped running and is caused by a voltage being generated in the motor and hence the "A" circuit by the rotation of the armature in a small residual field of the pole pieces. Check motor brushes and commutator for high resistance. Polish commutator as previously outlined.
- Check the .01 mfd. condenser across motor terminals for open.

16. Push buttons do not hold down when pressed

- Check the voltage between the black and yellow leads on push button cable socket.
- Make sure that push button cable plug is making good contact to the socket.
- Try a new push button box.

17. Calibrating light inside of case lights when calibrating switch is closed and push button is pressed. Motor will not run when this happens

- This condition is due to a faulty calibrating switch. Bend the switch arm down slightly so that a good contact is assured. This light is in series with relay coils and when light is not shorted out with calibrating switch the relay will not operate.

18. Calibrating light inside of case does not light when calibrating switch is open and push button is pressed

- Be sure calibrating light is not burned out.
- Check the voltage on relay coils.
- Check the relay coils for continuity.
- Check the calibrating switch contact for grounded connection.

19. Shift in station logging

- Check bakelite control discs for being loose on shaft. Discs are not supposed to slip when unit operates. This is a friction fit on the control shaft and should never be oiled.
- Check the oscillator circuit for shift.



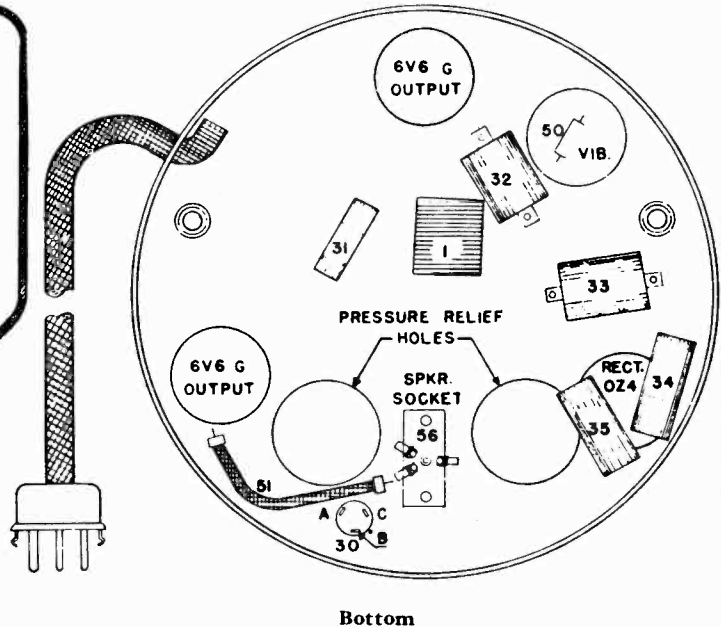
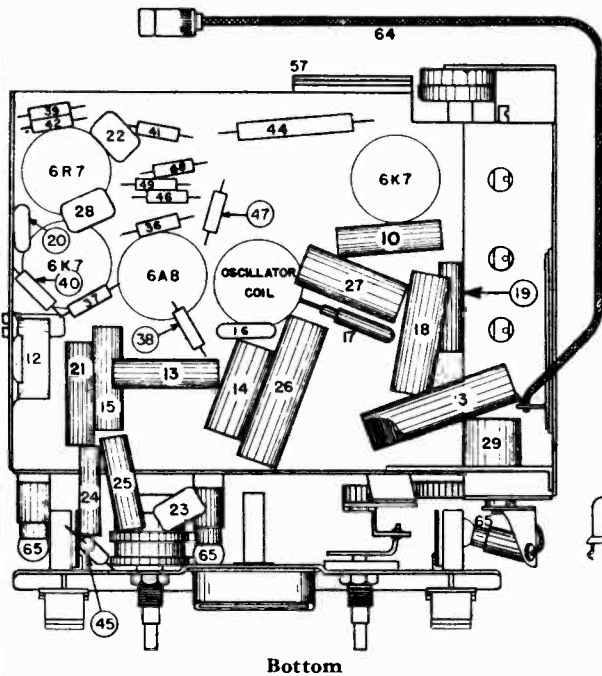
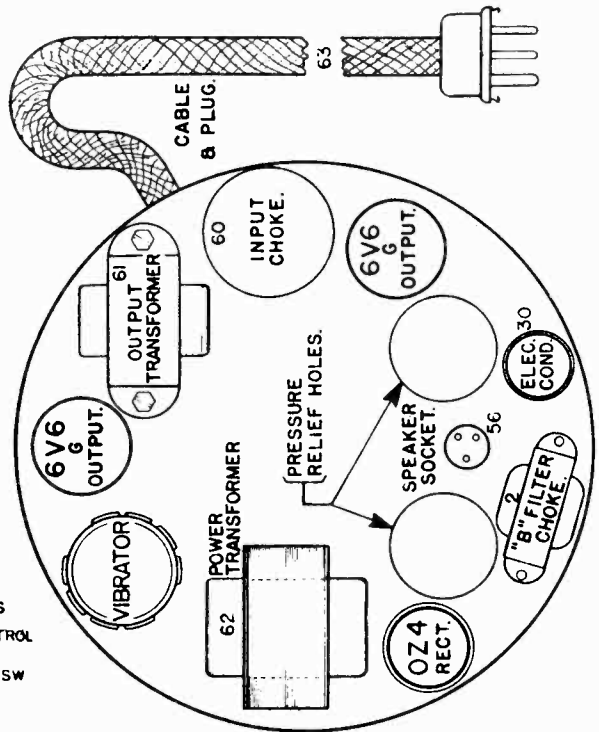
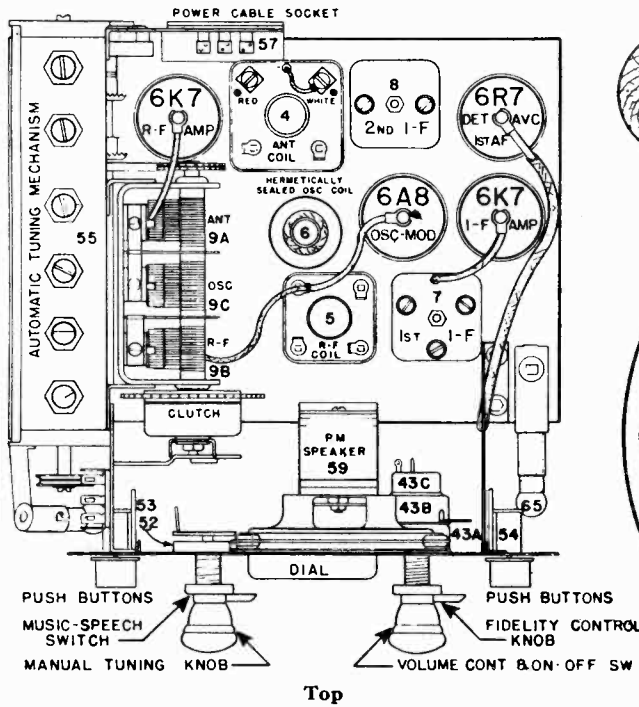


MODEL 985424  
 Socket, Trimmers  
 Chassis Views

CHEVROLET DIV.—GEN. MOTORS

Tube Complement

Type	Function	Type	Function
6K7	R. F. Amplifier	6R7	2nd Det.—A. V. C.—1st A. F. Amplifier
6A8	Oscillator-Modulator	6V6G	Output
6K7	I. F. Amplifier	0Z4	Rectifier



985424 PARTS LOCATING DIAGRAM

985424 PARTS LOCATING DIAGRAMS



MODEL 985424

## Alignment

## CHEVROLET DIV.—GEN. MOTORS

## Circuit Alignment

If alignment is found necessary the circuits can be adjusted only with the use of a calibrated test oscillator or signal generator and an output meter. The signal generator output should be adjusted to give a reasonable scale deflection on the output meter. Before turning the receiver on or making any adjustments, a speaker similar to the one used with the receiver or a universal test speaker, should be connected to the chassis. It is also possible to use an 8000 ohm load connected across the primary of the output transformer.

(h) Readjust the middle trimmer on the 1st I. F. transformer for maximum symmetry above the vertical resonance line in the center of the celluloid scale. The hump or shoulder appearing on each side of the wave form will be equal distance from the nose of the curve when maximum symmetry is reached.

## 3. Aligning the R. F. Amplifier

- Connect the output of the signal generator through a .00016 mfd. condenser and Chevrolet shielded antenna lead-in to the antenna connection of the receiver. Connect the ground lead to the frame of the receiver chassis.
  - Adjust the signal generator to 1400 kilocycles.
  - Adjust the station selector to 140 on the dial logging the dial from the low frequency end.
  - Adjust the trimmer on the oscillator section of the condenser gang for maximum reading on the output meter.
  - Adjust the trimmer on the R. F. trimmer gang for maximum reading on the output meter.
  - Adjust the trimmer on the antenna gang for maximum reading on the output meter.
  - Readjust the station selector for maximum reading on the output meter.
- Note: Do not readjust the oscillator trimmer.
- Repeat operations (e) and (f) for more accurate adjustments.

## 4. Adjusting Antenna Compensating Condenser

- Adjust the signal generator to 600 kilocycles.
- Tune in the 600 kilocycle signal with the station selector for maximum reading on the output meter.
- Adjust the antenna compensating condenser for maximum reading on the output meter.
- Repeat operations (b) and (c) alternately until no further improvement in output can be obtained.
- Readjust the signal generator to 1400 kilocycles.
- Tune-in the 1400 kilocycle signal with the station selector for maximum output.
- Readjust the trimmer on the antenna section of the condenser gang for maximum reading on the output meter.

## 5. Adjusting the Antenna Compensating Condenser When Set Is Installed on Car

- After installation is complete, tune-in a weak station between 55 and 65 on the dial that is just audible with volume control on full.
- Adjust the antenna compensating condenser for maximum volume in the speaker.

## 6. Setting the Push-Buttons

The order in which the stations are set-up on the push-buttons will in no way affect the operation of the tuning unit. To set the push-button switch is essential. There are two definite pressures and movements required to actuate the switch. First, a slight touch and a movement of less than one-eighth of an inch is all that is required to tune the receiver with a push-button after the button has been adjusted. Second, a heavier pressure and a movement of about one-quarter of an inch is required when the push-button is to be set to the station selected. To adjust the button, push the button all the way down (a slight snap will be felt when going past first stop position), and hold it in that position while you tune-in as accurately as possible with the manual tuning knob, the station selected. Release button, the station is set. Follow the same procedure in setting the remaining buttons.

Note: The accuracy of the push-buttons depends upon how accurate you tune-in the station while setting them.

## 1. Aligning I. F. Stages at 262.5 Kilocycles

The I. F. amplifier may best be aligned by first using a modulated signal generator and an output meter in the conventional manner, and then making the final adjustment with a radio frequency modulator signal generator and oscillograph. The accuracy of the push-button tuning system partially depends upon the symmetry of the I. F. wave form. In most cases the symmetry is only approximate without the aid of the oscillograph equipment.

- Connect one terminal of the output meter to the plate of one of the 6V6C output tubes and connect the other terminal through a .1 mfd. condenser (not electrolytic) to the plate of the other 6V6G output tube.
  - Connect the output of the signal generator through a .02 mfd. condenser to the grid of the 6K7 I. F. amplifier tube leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the frame of the receiver chassis.
  - Turn the volume control on full. Adjust station selector so that the rotor plates of the condenser gang are completely in mesh and turn the audio fidelity control to the treble position. The music-speech control should be in the "music" position.
  - Adjust the signal generator to 262.5 kilocycles.
  - Adjust both transformers located on the 2nd I. F. transformer to maximum reading on the output meter.
- Note: Always use the lowest signal generator output that will give a reasonable reading on the output meter.
- Connect the output of the signal generator to the grid of the 6A8 tube leaving the tube's grid clip in place.
  - Open the middle trimmer on the 1st I. F. transformer two or three turns of the adjustment screw. Care should be taken that the adjustment screw does not become dislodged from the nut.
  - Adjust the other two trimmers on the 1st I. F. transformer for maximum reading on the output meter.
  - Adjust the middle trimmer on the I. F. transformers for maximum reading on the output meter.
- Caution: Do not readjust the trimmers on the 2nd I. F. transformer.

## 2. Oscillograph Alignment

For more accurate adjustment of the I. F. amplifier a cathode ray oscillograph in conjunction with a radio frequency modulated signal generator may be used to obtain a visual alignment. It will allow adjusting for a more symmetrical wave form.

- Disconnect the conventional signal generator from the receiver.
- Connect the vertical plates of the oscillograph to the receiver connecting the (HI) terminal through a .02 mfd. condenser to the grid cap of the 6R7 tube leaving the tubes grid clip in place. (Condenser is built into most oscillographs.) Connect the ground terminal to the frame of the receiver chassis.
- Connect the output of the R. F. modulated signal generator also through a .02 mfd. condenser to the grid cap of the 6A8 tube leaving the tube's grid clip in place. Connect the ground lead to the frame of the receiver chassis.
- Adjust the signal generator to 262.5 kilocycles.
- With the modulator switch of the signal generator turned off, a horizontal line will appear on the window of the oscillograph by means of the amplitude control on the oscillograph. Adjust the length of this line so that it is equal to the width of the celluloid scale supplied with the oscillograph.
- Turn the frequency modulator switch of the signal generator on.
- Adjust the vertical control of the oscillograph so that the image is just within the top and bottom lines of the oscillograph scale.

Note: Use the lowest signal generator output that will give a stable image on the oscillograph window. If too much signal input is used; the humps desired on the wave form will not be visible even at perfect alignment.



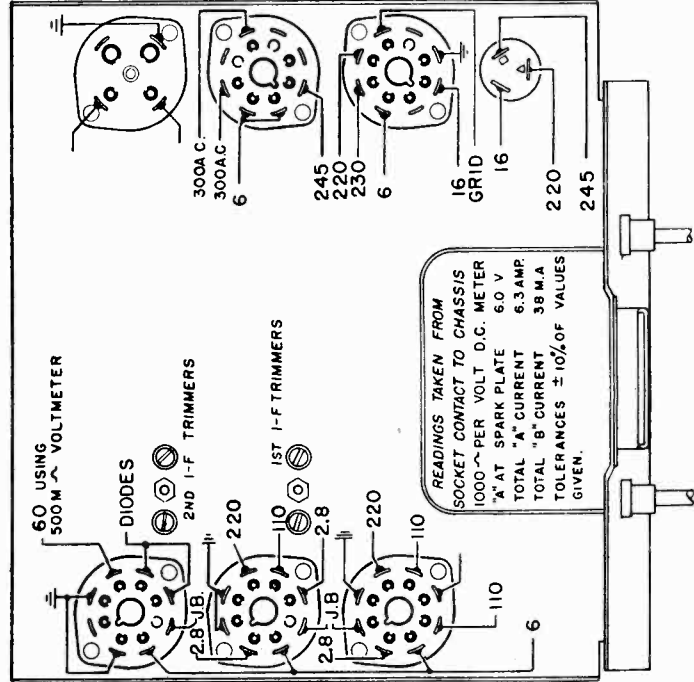
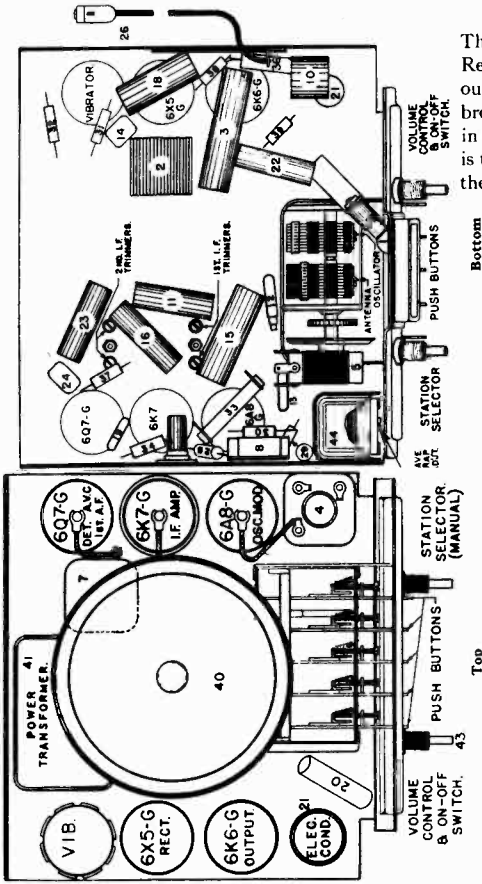
MODEL 985425

Socket, Trimmers  
Voltage, Chassis  
Alignment, Tuner

CHEVROLET DIV.—GEN. MOTORS

Setting the Push-Buttons

The push-button can be quickly and accurately set from the front of the receiver. Remove the push-button to be set (clasp between forefinger and thumb and pull straight out) and loosen the set screws that are concealed by the buttons. Determine the five broadcasting stations that are to be set up. By means of a manual tuning knob, tune in as accurately as possible, the station desired. Push the button on which that station is to be set up on and hold in that position, then securely tighten the set screw. Replace the button on that key and adjust the remaining buttons in the same manner.



985425 TUBE SOCKET LAYOUT and VOLTAGES

Circuit Alignment

1. Aligning the I. F. Stage at 455 Kilocycles

- Connect the output meter to the plate and screen of the 6K6G output tube. Be sure the meter is protected from D. C. by connecting a .1 mfd. condenser (not electrolytic) in series with one of the leads.
- Connect the output of the signal generator through a .02 mfd. condenser to the grid of the 6K7 I. F. tube leaving the tubes grid clip in place. Connect the ground lead from the signal generator to the receiver chassis frame.  
Note: Keep the generator leads as far as possible from the grid leads of the other screen grid tubes.
- Adjust the station selector so that the rotor plates of the tuning condenser are completely disengaged and turn the volume control to the maximum position.
- Adjust the signal generator to 455 kilocycles.
- Adjust both 2nd I. F. trimmer condensers for maximum output.
- Transfer generator lead to the grid of the 6A8G tube leaving the tube's grid clip in place.
- Adjust both trimmers located on the 1st I. F. transformer for maximum output.
- Repeat operations (e) and (g) for more accurate adjustments.  
Note: In order to prevent A. V. C. action always use the lowest signal generator output that will give a reasonable output meter reading.

2. Aligning the R. F. Amplifier

To obtain the greatest gain from the antenna system, the capacity of the dummy antenna should be accurate to the capacity of the antenna with which the receiver is to be used. The capacities of auto radio antennas range from 65 mmf. to 250 mmf., depending upon the size and type. If the receiver is adjusted for maximum efficiency when used with an antenna having a high capacity, it will not operate at its maximum efficiency on an antenna having a much lower capacity or vice versa.

- If the receiver is to be used with a turret-top antenna or a telescopic cowl antenna, the output lead from the signal generator should be connected through a .00005 mfd. condenser, and shielded lead, to the antenna connection of the receiver. If a large antenna such as the running board type is used, a .00016 mfd. condenser should be used and a long shielded lead in place of the .00005 mfd. condenser and short shielded lead.
- Adjust the signal generator to 1400 kilocycles.
- Adjust the station selector to 140 on the dial.
- Adjust the trimmer on the oscillator section of the tuning condenser for maximum output.
- Adjust the trimmer on the antenna section of the tuning condenser for maximum output.
- Readjust the station selector for maximum output.  
Note: Do not readjust the oscillator trimmer.
- Repeat operation (e) for more accurate adjustment.

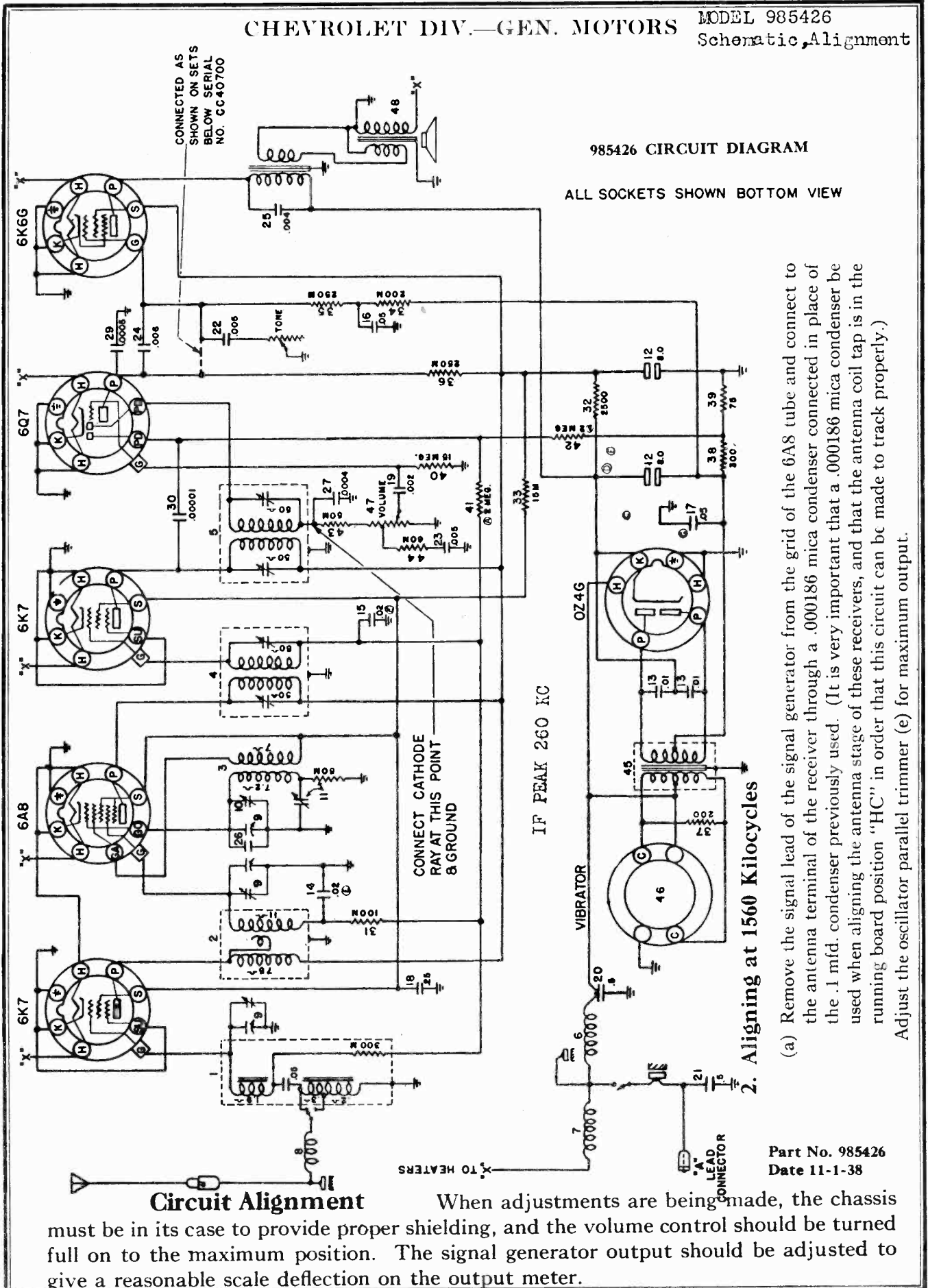
Adjusting Antenna Compensating Condenser

- Set the signal generator to 600 kilocycles.
- Tune-in the 600 kilocycle signal with the station selector for maximum output.
- Adjust the antenna compensating condenser for maximum output.
- Repeat operations (b) and (c) alternately until no further improvement can be obtained.
- Set the signal generator to 1400 kilocycles.
- Tune-in the 1400 kilocycle signal with the station selector for maximum output.
- Readjust the trimmer on the antenna section of the tuning condenser for maximum output.



CHEVROLET DIV.—GEN. MOTORS

MODEL 985426  
Schematic, Alignment



985426 CIRCUIT DIAGRAM

ALL SOCKETS SHOWN BOTTOM VIEW

**Circuit Alignment**

When adjustments are being made, the chassis must be in its case to provide proper shielding, and the volume control should be turned full on to the maximum position. The signal generator output should be adjusted to give a reasonable scale deflection on the output meter.

**2. Aligning at 1560 Kilocycles**

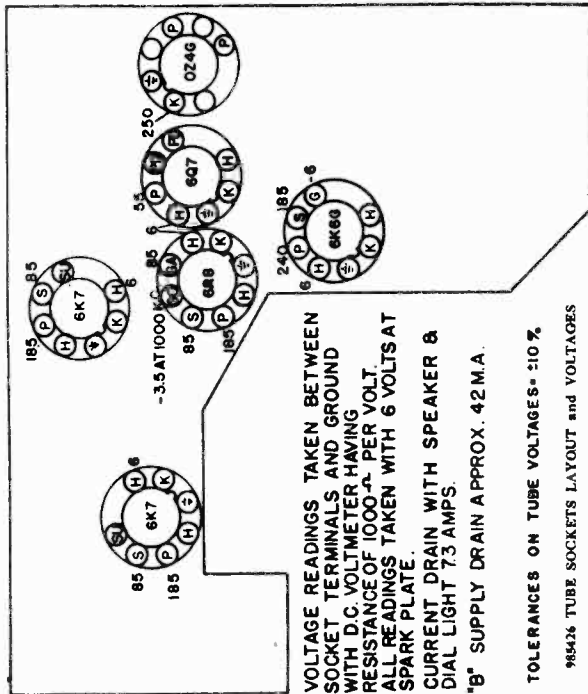
- (a) Remove the signal lead of the grid of the 6A8 tube and connect to the antenna terminal of the receiver through a .000186 mica condenser connected in place of the .1 mfd. condenser previously used. (It is very important that a .000186 mica condenser be used when aligning the antenna stage of these receivers, and that the antenna coil tap is in the running board position "HC" in order that this circuit can be made to track properly.) Adjust the oscillator parallel trimmer (e) for maximum output.

Part No. 985426  
Date 11-1-38

**MODEL 985426**

Voltage, Socket  
Trimmers, Alignment  
Chassis

**CHEVROLET DIV.—GEN. MOTORS**



FOR CONVENTIONAL ALIGNMENT PROCEDURE, SEE SPECIAL SECTION VOL.VIII.

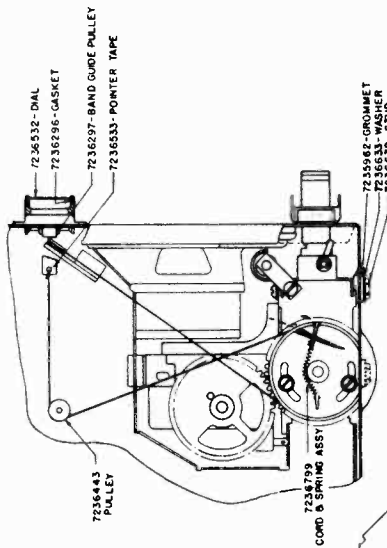
**ALIGNMENT:**

1. IF 280kc. Connect output meter through .25 mfd. condenser to screen grid prongs of 6K6 tube. Signal generator through .1 mfd condenser to grid cap of 6A8 tube. Generator ground lead to chassis. Variable out of mesh. Adjust trimmers A,B,C,D for maximum output. Check if band spread with oscillograph.
2. At 1560 kc, see "ALIGNING AT 1560 KILOCYCLES" with schematic.
3. With connections as in 2. Generator and variable tuned to 1400 kc maximum output.
4. At 800 kc. Tune variable to 600 kc Adjust oscillator padder (f) to maximum output while rocking variable.

**5. Adjustment of the Receiver to the Car Antenna**

When the receiver leaves the factory the antenna circuit is properly aligned to match the under running board type of antenna. Therefore when the receiver is installed in a car and connected to the standard Chevrolet running board antenna, only a slight adjustment of the antenna circuit is required. If the receiver is connected to a turret top antenna or a telescopic cowl antenna, proceed as follows to properly adjust the receiver:

- (a) Tune in a weak station about 1400 kilocycles, which is barely audible, with the volume control full on.
- (b) If the turret-top antenna or the telescopic cowl antenna is used, remove the bottom tube cover and change the position of the antenna plug from the hole marked "HC" to the hole marked "LC," and replace the cover.
- (c) Adjust the antenna trimmer condenser for maximum volume.

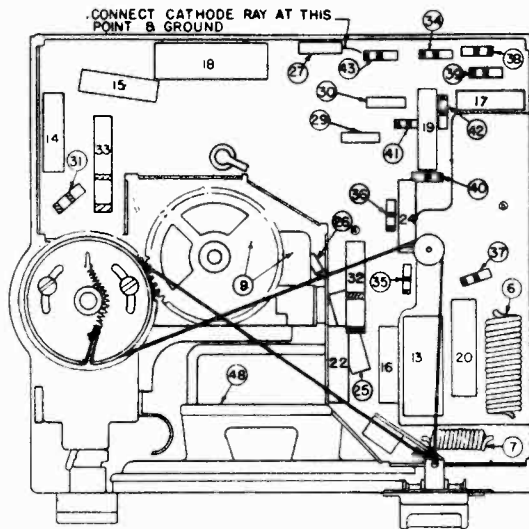
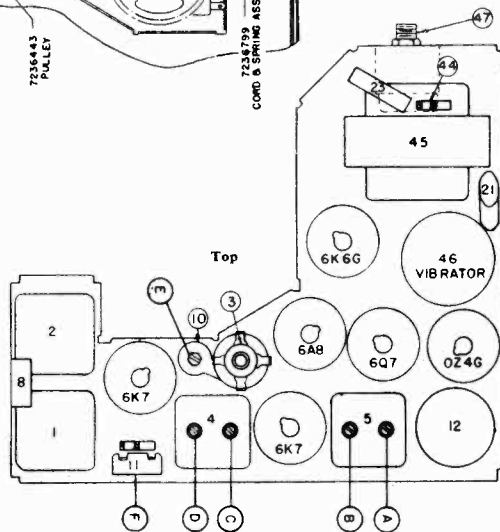
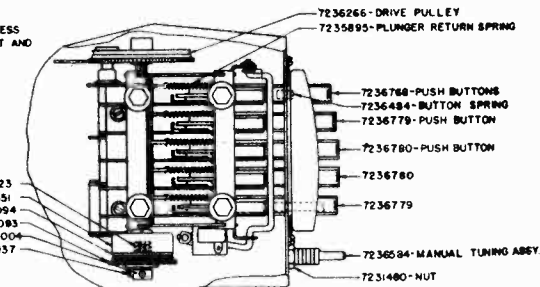


7236892-COMPLETE TUNER LESS VARIABLE CONDENSER, BRACKET AND PUSH BUTTONS

**985426 TUNER UNIT**

- SPRING - 7236123
- CLUTCH COIL ASSY - 7236551
- CLUTCH DISC - 7236094
- DRIVE GEAR ASSY - 7236093
- SPACER - 7236004
- SCREW - 7236137

Part No. 985426  
Date 11-1-38



Bottom

Part No. 985400  
Date 1-1-36

**Peaking I-F Stages at 262 K.C.**

- (a) Connect the ground lead of the test oscillator to the chassis frame. Connect the output of the test oscillator through an .02 mfd. condenser to the grid cap of the 6A7 tube (1st detector-oscillator) leaving the tube's grid clip in place. Keep the leads of the test oscillator as far as possible from the grid wires of the other screen grid tubes.
- (b) Set the test oscillator to 262 kilocycles.
- (c) Adjust the station selector so that the plates of the tuning condenser are completely in mesh.
- (d) Turn the volume control on full and turn the tone control to the treble position.
- (e) Adjust both trimmer condensers located on top of the second I. F. coil. Illustration No. 10—Fig. 1, for maximum output.
- (f) Adjust both trimmer condensers located on top of the first I. F. coil. Illustration No. 9—Fig. 1, for maximum output.
- (g) Repeat operations (c) and (f) for more accurate adjustments.

Always use the lowest signal generator output that will give a reasonable output meter reading.

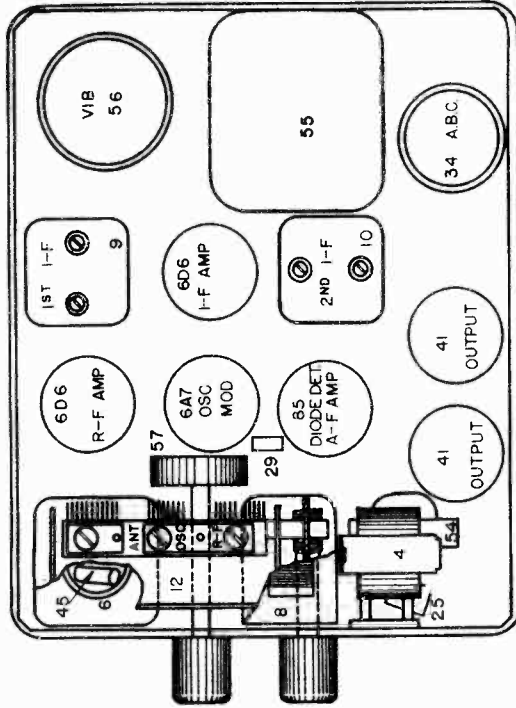
**Peaking R. F. Stages**

- (a) Remove the .02 mfd. condenser from the output lead of the test oscillator and connect a .00025 mfd. condenser in its place. Then, connect this lead to the antenna connection of the receiver.
- (b) Set the signal generator to 1400 kilocycles.
- (c) Adjust the station selector to 140 on the dial.
- (d) Adjust the trimmer on the "Osc" section of the tuning condenser for maximum output. (Fig. 1.)
- (e) Adjust the trimmer on the "R-F" section of the tuning condenser for maximum output. (Fig. 1.)
- (f) Adjust the trimmer on the "ant" section of the tuning condenser for maximum output. (Fig. 1.)
- (g) Readjust the station selector for maximum output. Do not readjust the "Osc" trimmer.
- (h) Repeat operations (e) and (f) for more accurate adjustments.

**Adjusting Antenna Compensating Condenser**

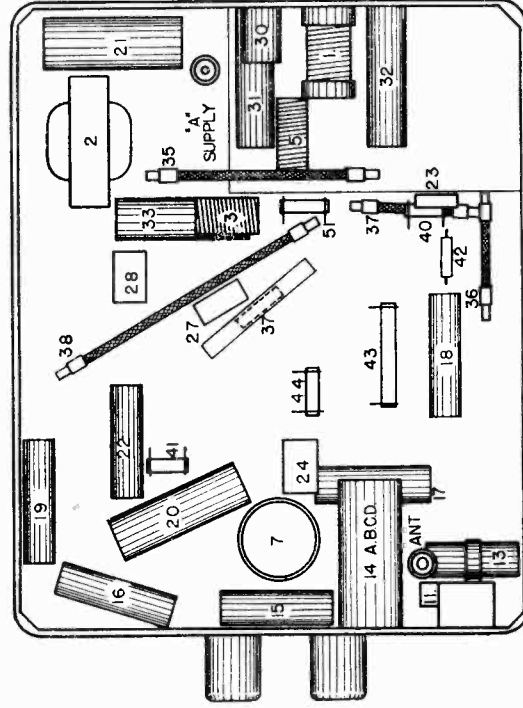
- (a) Set the signal generator to 600 kilocycles.
- (b) Tune in the 600 kilocycle signal with the station selector, for maximum output.
- (c) Adjust the antenna compensating condenser, Illustration No. 11, for maximum output.
- (d) Repeat operations (b) and (c) alternately until no further improvement in output can be obtained.
- (e) Set the signal generator to 1400 kilocycles again.
- (f) Tune in the 1400 kilocycle signal with the station selector for maximum output.
- (g) Readjust the trimmer on the "ant" section of the tuning condenser, for maximum output. It will be necessary to adjust the antenna compensating condenser to the car antenna after the receiver has been installed in the car.

- (a) After the installation is complete, tune in a weak station between 55 and 65 on the dial.
- (b) Adjust the antenna compensating condenser for maximum volume in the speaker.



PARTS LAYOUT—Top View (Fig. 1)  
FOR OTHER DATA, SEE VOL. VIII

**Chevrolet Model 985400**



PARTS LAYOUT—Bottom View (Fig. 2)

( )

.

( )

( )

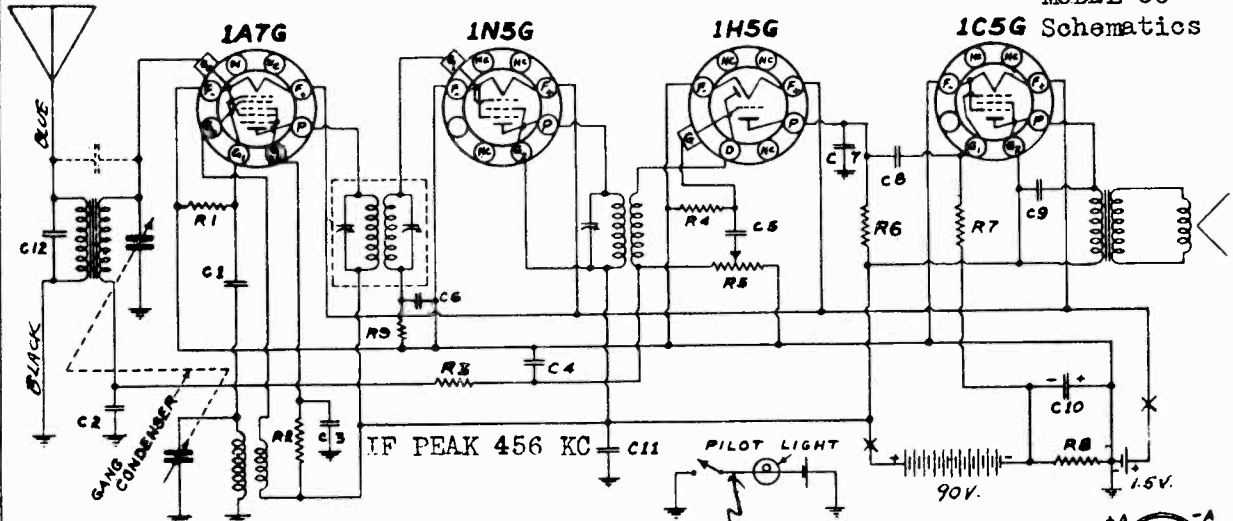
( )

CONTINENTAL RADIO & TELEV. CO.

MODELS 4A, 4B, Early, Late, 4C

MODEL 5J

1C5G Schematics



MODELS 4A, 4B (Early), 4A, 4B (Late) and 4C. ON MODEL 4C ONLY

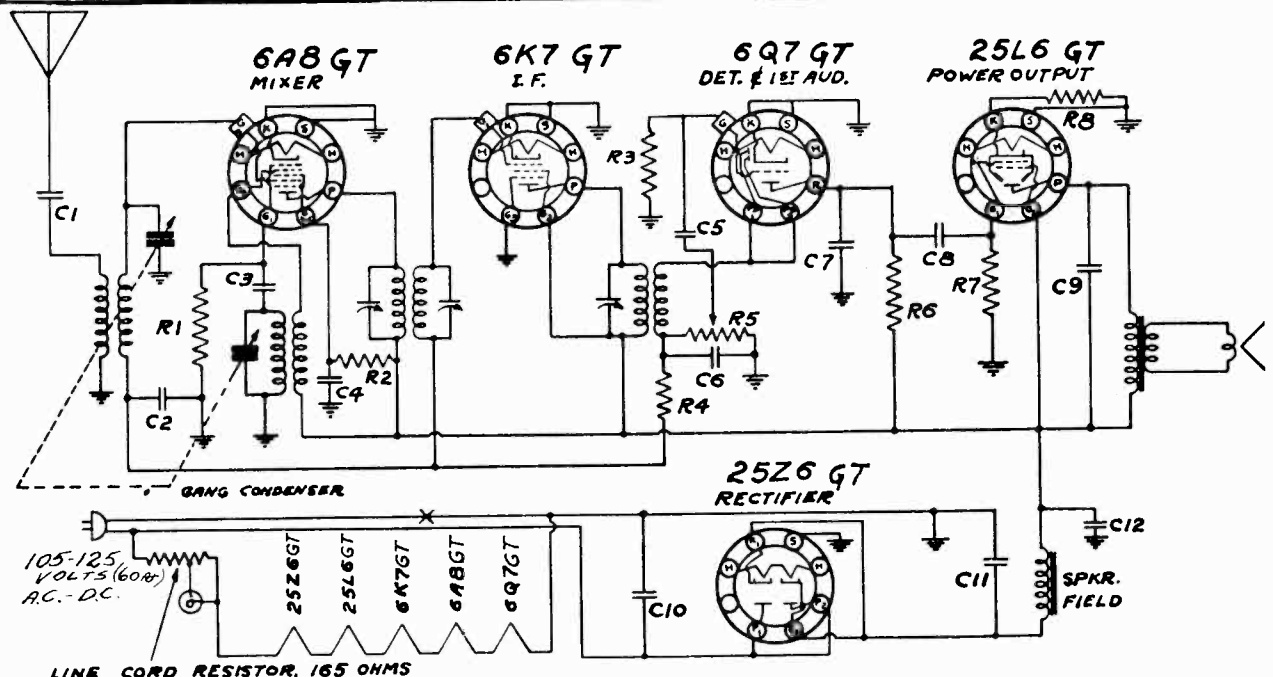
CAPACITORS					
NO.	CAP.-MFD.	TYPE	NO.	CAP.-MFD.	TYPE
C1	.00025	MICA	C7	.00025	MICA
C2	.05	200V.	C8	.01	400V.
C3	.1	200V.	C9	.005	400V.
C4	.00025	MICA	C10	20. (ELECT)	25V.
C5	.01	400V.	C11	.1	200V.
C6	.002	400V.	C12	.00025	MICA

RESISTORS					
NO.	OHMS	WATTS	NO.	OHMS	WATTS
R1	200,000	1/4	R6	250,000	1/4
R2	70,000	1/4	R7	500,000	1/4
R3	1 MEG.	1/4	R8	600	1/4
R4	2 MEG.	1/4	R9	2 MEG.	1/4
R5	500,000				



FOR ALIGNMENT AND LAYOUT SEE INDEX

**CHANGES:-** LATE MODELS 4A AND 4B DIFFER FROM THE ABOVE DIAGRAM AS FOLLOWS; 1Q5G REPLACES 1C5G OUTPUT TUBE; CONDENSER C1 IS .00005 MICA, INSTEAD OF .00025 MICA AND RESISTOR R8 IS 440 OHMS 1/4 WATT INSTEAD OF THE 600 OHM 1/4 WATT IN EARLY MODELS.



RESISTORS			
NO.	OHMS	WATTS	
R1	60,000	1/4	
R2	40,000	1/4	
R3	5 MEG	1/4	
R4	2 MEG	1/4	
R5	500,000		VOL. CONT.
R6	250,000	1/4	
R7	500,000	1/4	
R8	150	1/4	±10%

CONDENSERS					
NO.	MFD.	TYPE	NO.	MFD.	TYPE
C1	.00025	600V.	C10	.05	400V.
C2	.02	400V.	C11	25.	ELECT. 150V.
C3	.00005	MICA	C12	10.	ELECT. 150V.
C4	.01	400V.			
C5	.01	400V.			
C6	.002	MICA			
C7	.0025	MICA			
C8	.01	300V.			
C9	.005	600V.			

I.F. 456 K.C.  
FOR ALIGNMENT AND LAYOUT SEE INDEX  
MODEL 5J  
A.C.-D.C.

RANGE 535 - 1730 KILOCYCLES

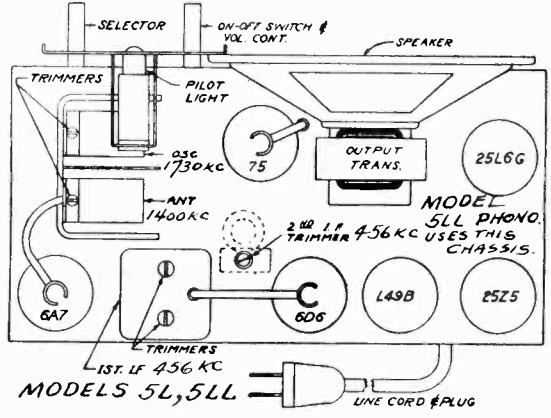
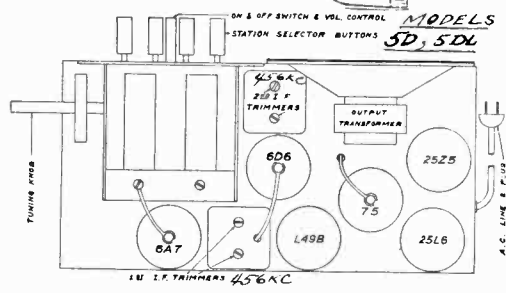
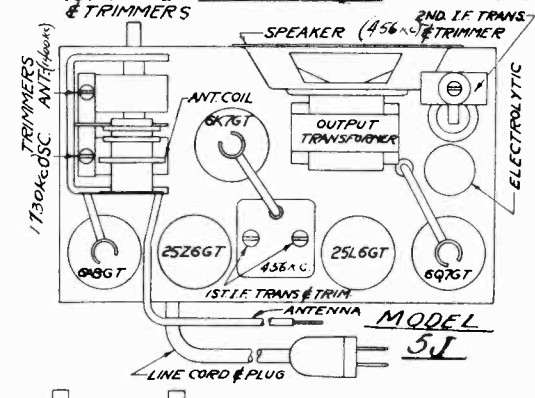
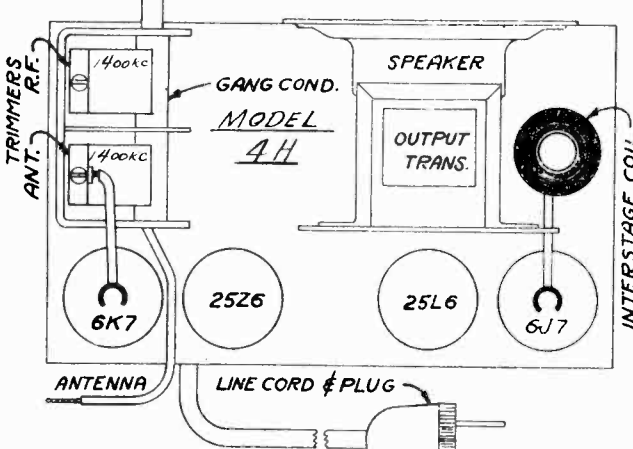
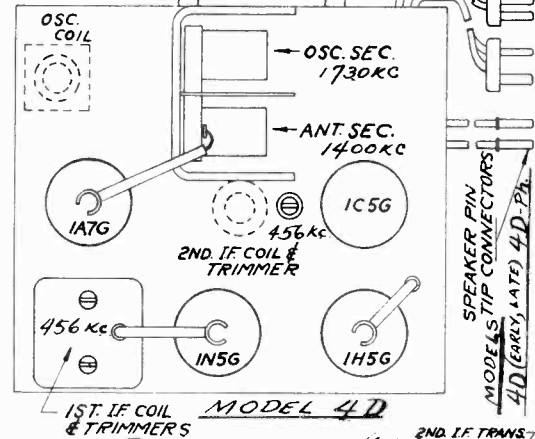
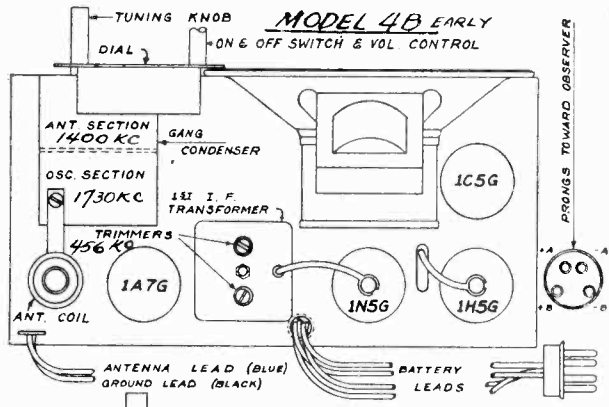
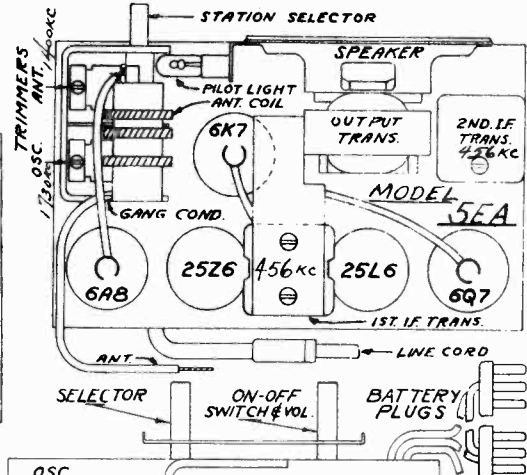
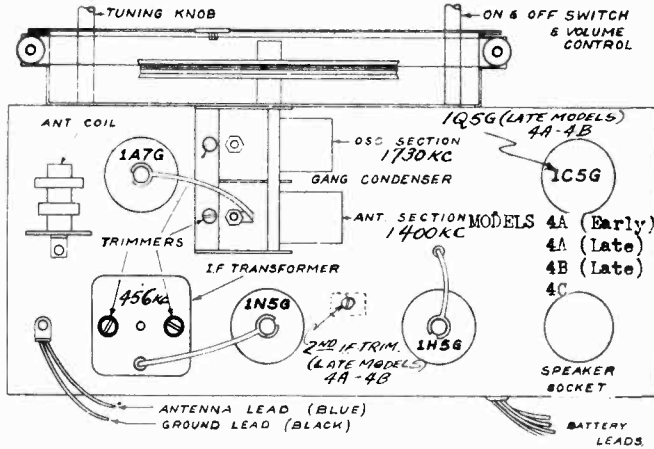
RANGE 535 - 1730 KILOCYCLES



MODELS 4A, 4B Early, Late CONTINENTAL RADIO & TELEV. CO.

- MODEL 4C
- MODEL 4D, Early, Late, 4D-PH
- MODEL 4H
- MODELS 5D, 5DL
- MODEL 5EA

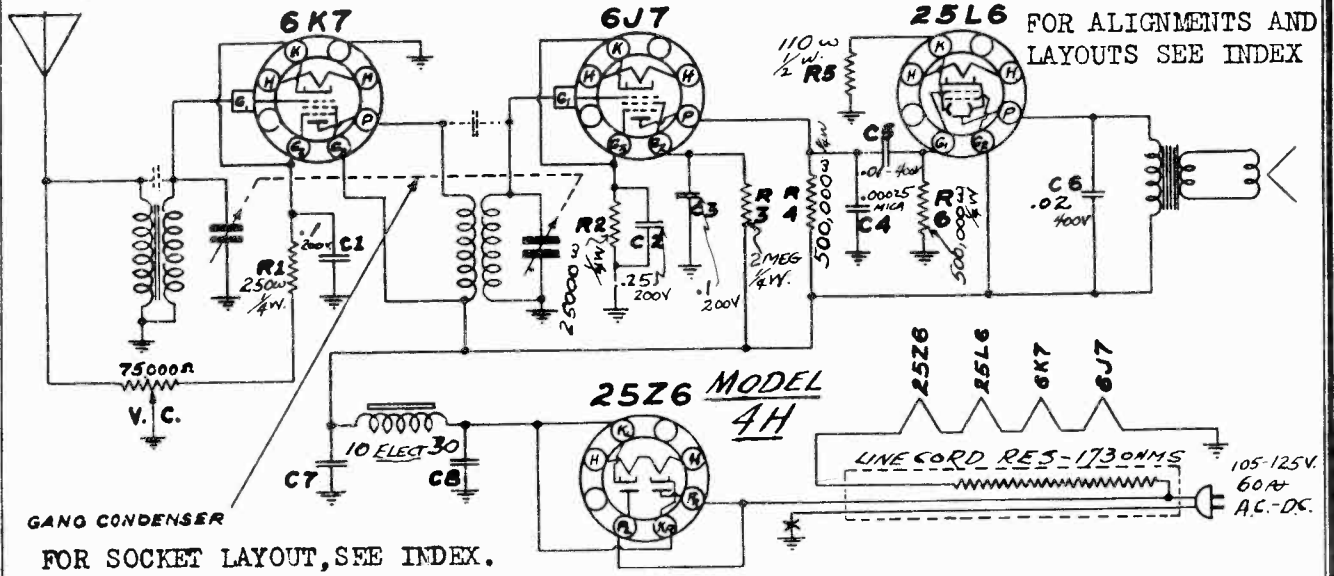
MODEL 5J  
MODELS 5L, 5LL  
Alignment, Socket  
Trimmers



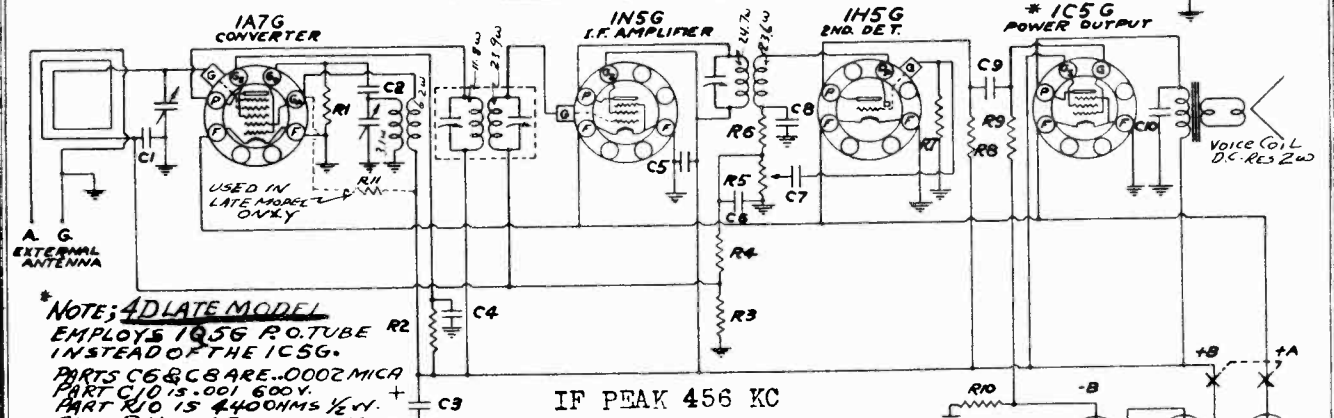
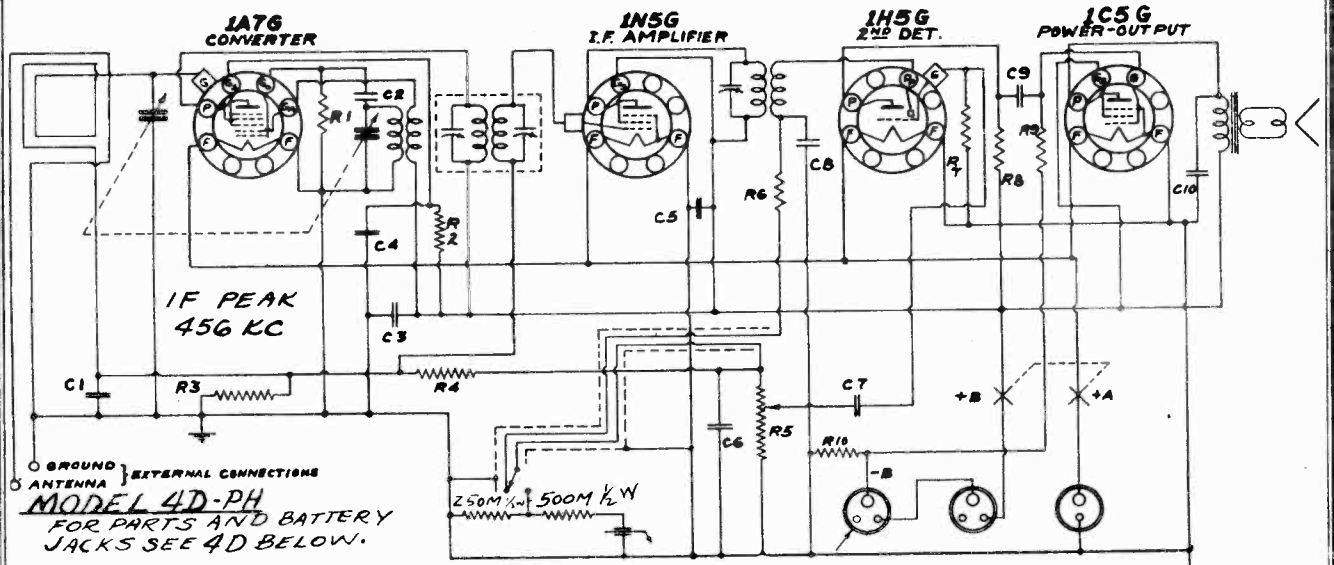
MODEL 4H  
Schematics

CONTINENTAL RADIO & TELEV CO

MODELS 4D, Early, Late  
MODEL 4D-PH



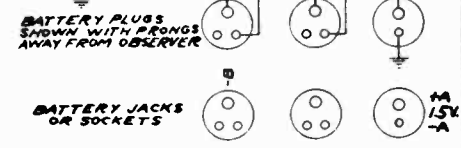
GANG CONDENSER  
FOR SOCKET LAYOUT, SEE INDEX.



\*NOTE: 4D LATE MODEL  
EMPLOYS 1Q5G P.O. TUBE R2  
INSTEAD OF THE IC5G.  
PARTS C6 & C8 ARE .0002 MICA  
PART C10 IS .001 600V.  
PART R10 IS 440 OHMS 1/2 W.  
PART R11 IS 15,000 OHMS 1/2 W.

SCHEMATIC DIAGRAM  
MODEL 4D EARLY  
" 4D LATE

CONDENSERS		RESISTORS	
NO	MFD. VOLTS	NO	OHMS WATTS
C1	.05 200	R1	200000 1/2
C2	.00005 MICA	R2	70000 1/2
C3	4.-150V ELEC.	R3	2000000 1/2
C4	.05 200	R4	2000000 1/2
C5	.05 200	R5	500000 1/2
*C6	.00025 MICA	R6	70000 1/2
C7	.01 200	R7	2000000 1/2
*C8	.00025 MICA	R8	500000 1/2
C9	.01 200	R9	1000000 1/2
*C10	.005 600	*R10	750 1/2

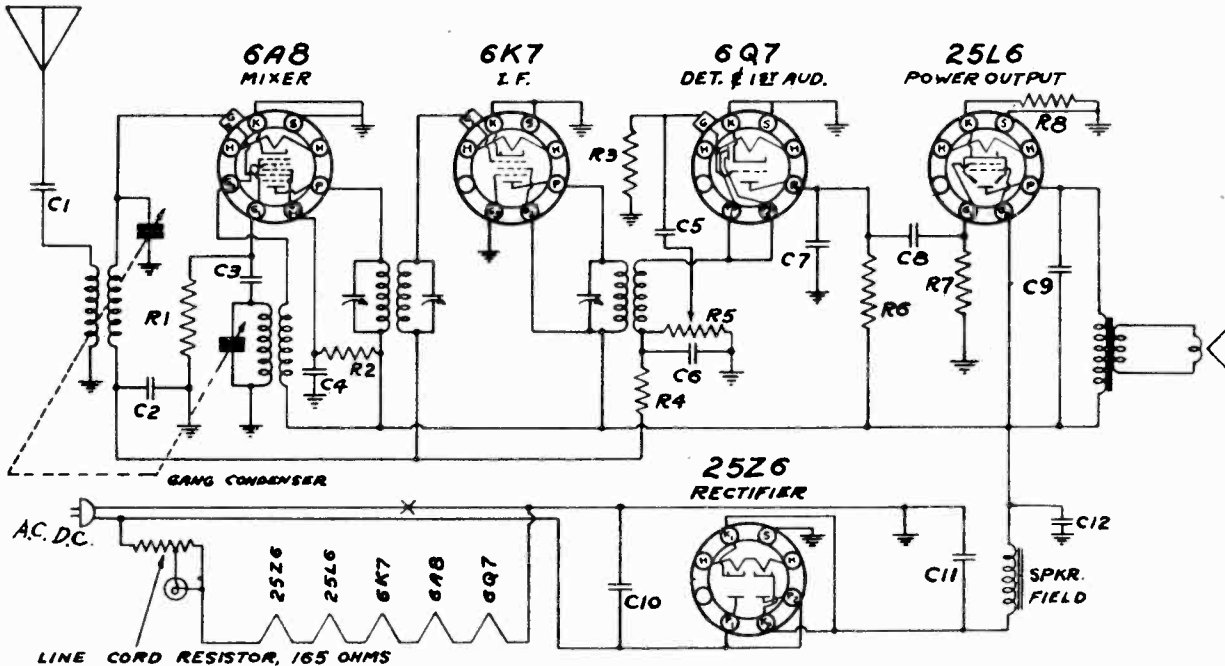


RANGE 535 - 1730 KC

MODELS 5D, 5DL  
MODEL 5EA,

CONTINENTAL RADIO & TELEV. CO.

Schematics



LINE CORD RESISTOR, 165 OHMS

**RESISTORS**

NR	OHMS	WATTS
R1	50,000	1/4
R2	40,000	1/4
R3	15 MEG	1/4
R4	2 MEG	1/4
R5	500,000	
R6	250,000	1/4
R7	500,000	1/4
R8	110	1/4 ±10%

VOL. CONT.

**CONDENSERS**

NR	MFD.	TYPE	NR	MFD.	TYPE
C1	.005	600V.	C10	.05	400V.
C2	.02	400V.	C11	25.	ELECT. 150V.
C3	.00025	MICA	C12	10.	ELECT. 150V.
C4	.01	400V.			
C5	.01	400V.			
C6	.00025	MICA			
C7	.00025	MICA			
C8	.01	400V.			
C9	.005	600V.			

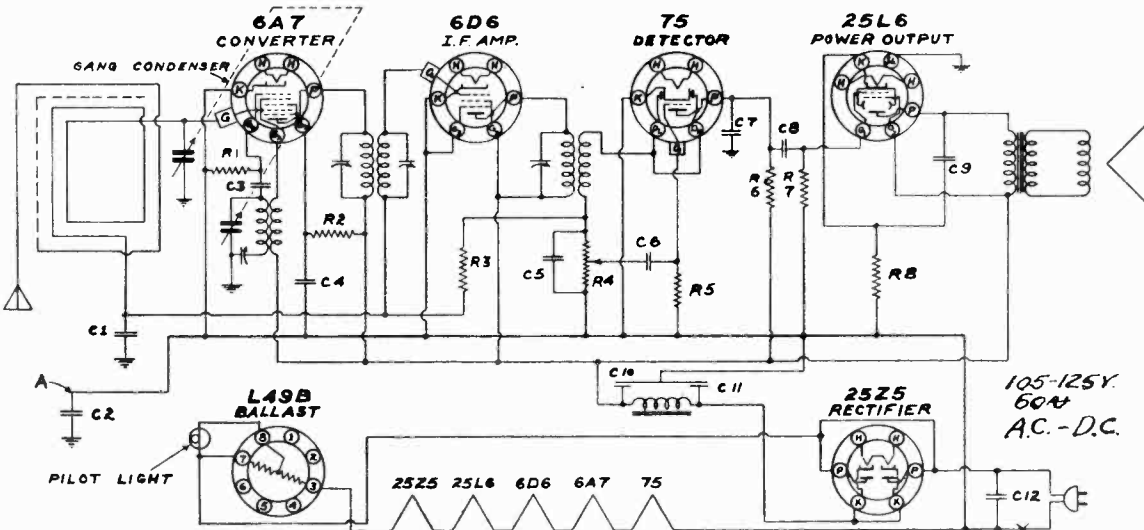
IF PEAK 456 KC

**MODEL 5EA**

FOR ALIGNMENT AND LAYOUTS SEE INDEX

**A.C.-D.C.**

**RANGE 535 - 1730 KILOCYCLES**



**RESISTORS**

NR	OHMS	WATTS
R1	50,000	1/2
R2	30,000	1/2
R3	2000,000	1/2
R4	500,000	
R5	5,000,000	1/2
R6	250,000	1/2
R7	500,000	1/2
R8	150 ±10%	1/2

VOL. CONT.

**CONDENSERS**

NR	MFD.	VOLTS	NR	MFD.	VOLTS
C1	.02	400	C10	20.	150
C2	.25	200	C11	20.	150
C3	.00005	MICA	C12	0.05	400
C4	.05	400			
C5	.00025	MICA			
C6	.01	400			
C7	.00025	MICA			
C8	.01	400			
C9	.005	600			

NOTE: C2 USED ON MODEL 5DL ONLY. ON MODEL 5D POINT "A" IS CONNECTED TO CHASSIS

IF PEAK 456 KC  
↓ INDICATES CHASSIS GROUND

FOR SOCKET LAYOUT SEE INDEX

**SCHEMATIC DIAGRAM  
MODEL 5DL  
MODEL 5D**

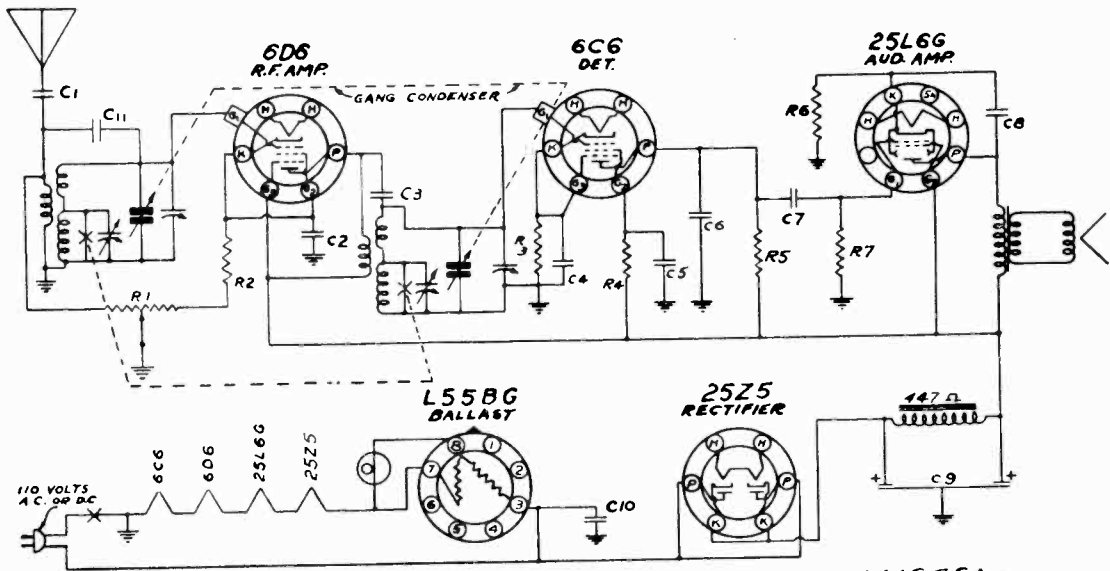
**RANGE 545 - 1630 KILOCYCLES**

**BROADCAST BAND**

**A.C.-D.C.**

CONTINENTAL RADIO & TELEV. CO.

MODEL 5B  
MODEL 5CU  
Schematics



**CONDENSERS**

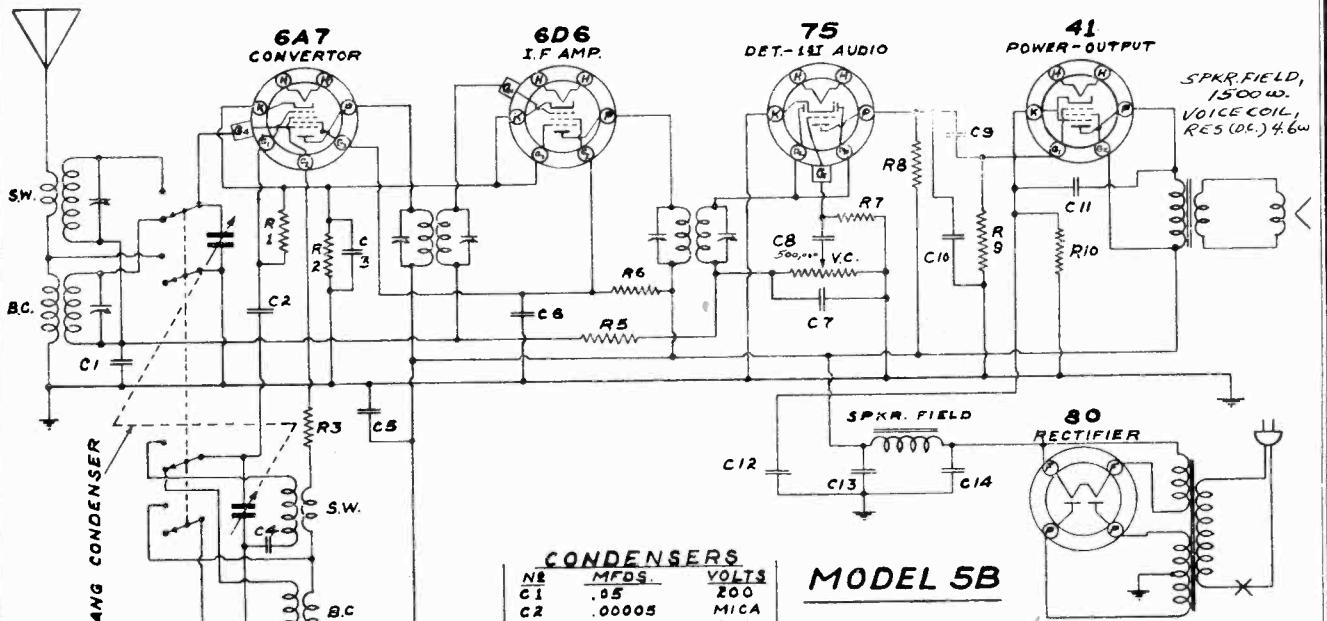
NO.	CAPACITY	TYPE
C1	.002 MFD.	400V.
C2	.1	200V.
C3	5. uuf.	GIMMIK
C4	.25 MFD.	200V.
C5	.1	200V.
C6	.0002 "	600V.
C7	.01	400V.
C8	.02	400V.
C9	18.0-18.0"	150V. ELECT.

**RESISTORS**

NO.	OHMS	WATTS	TYPE
R1	75,000		VOL. CONT.
R2	250	1/4	
R3	25,000	1/2	
R4	2,000,000	1/4	
R5	500,000	1/2	
R6	110	1/4	
R7	500,000	1/4	
C10	.1 MFD.	400V.	
C11	2.5	AMM. GIMMIK	

RANGES:-  
535-1730 KC  
350-135 KC

**SCHEMATIC DIAGRAM  
MODEL 5CU**



**RESISTORS**

NO.	OHMS	WATTS	NO.	OHMS	WATTS
R1	50,000	1/2	R6	30,000 ± 10%	1/2
R2	170 ± 10%	1/2	R7	5 MEG.	1/2
R3	30	1/2	R8	250,000	1/2
R4	1000	1/2	R9	500,000	1/2
R5	1 MEG.	1/2	R10	750 ± 10%	1/2

**CONDENSERS**

NO.	MFDS	VOLTS
C1	.85	200
C2	.00005	MICA
C3	.25	200
C4	.004 ± 5%	MICA
C5	.05	400
C6	.1	400
C7	.00025	MICA
C8	.01	400
C9	.01	400
C10	.0005	MICA
C11	.005	600
C12	20	25
C13	10	ELECT 350
C14	10	ELECT 350

**MODEL 5B**

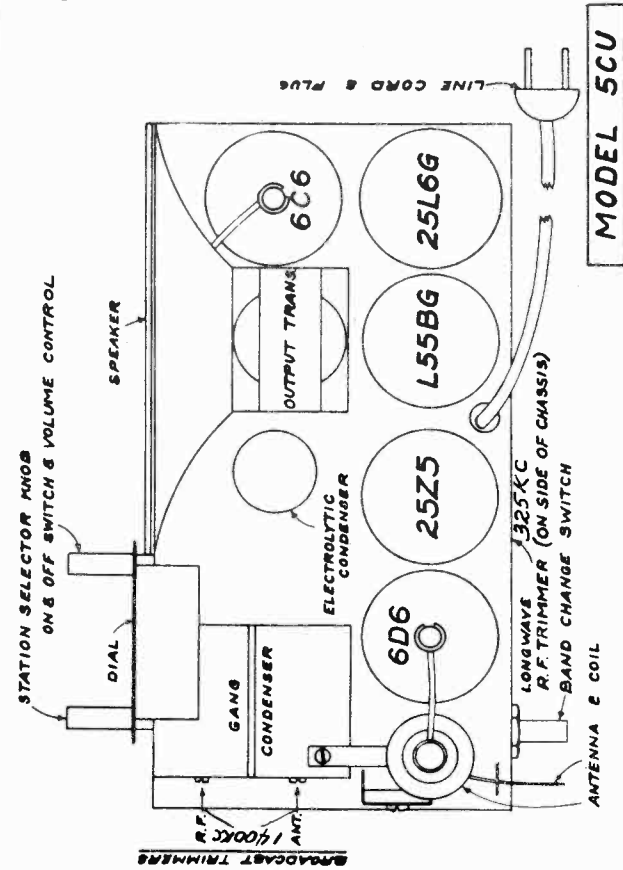
I.F. - 456 K.C.  
SWITCHES IN BROADCAST POSITION  
V.C. - VOLUME CONTROL

**535-1730 KILOCYCLES  
16.57-52.63 METERS**

**MODEL 5CU**  
Socket, Trimmers  
Alignment

**CONTINENTAL RADIO & TELEV. CO.**

**MODEL 5B**  
Socket, Trimmers  
Alignment, Tuner  
Voltage Phono

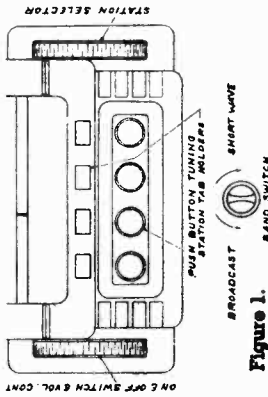
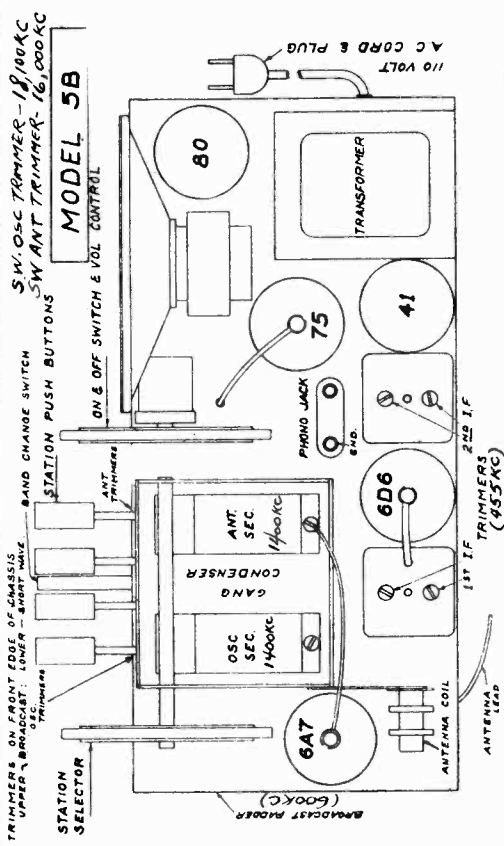


**PHONOGRAPH MODEL 5B** This receiver is provided with a phono jack (see chassis layout) and connection may be made from the phono graph to this jack by means of phone tips. It is necessary that the phono graph be equipped with a volume control and a switch to break connection between the phono graph and the set as the radio will not operate properly if a permanent connection is made. When the phono graph is in use the volume control of the obtained with the volume control of the set near maximum and no station tuned in.

**MODEL 5B VOLTAGE READINGS—LINE VOLTAGE 115**

Volume control minimum, antenna shorted to ground and band switch in broadcast position. Meter 1,000 ohms per volt.

Filament of 80 tube to ground	253 Volts
Screen of 41 tube to ground	196 Volts
Screens of 6A7 and 6D6 tubes to ground	87 Volts
Cathode of 41 tube to ground	13 Volts
Cathode of 6A7 tube to ground	2.75 Volts



**Figure 1.**

**PROCEDURE FOR**

**SETTING UP**

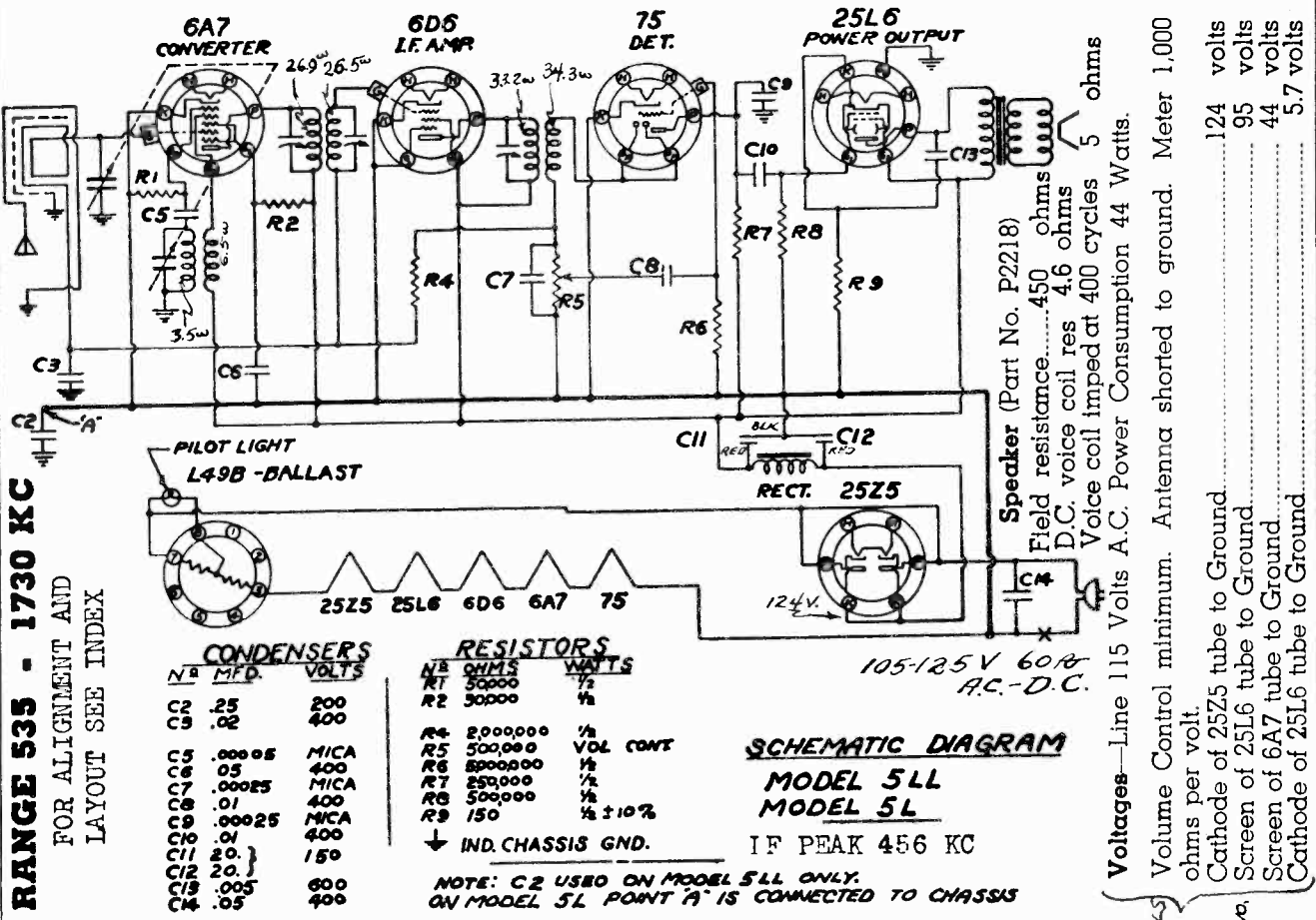
**PUSH BUTTONS**

**MODEL 5B**

There are four push buttons by means of which four stations may be selected (see Fig. 1). Make a list of four stations tuned in regularly. Loosen any of the push buttons by turning the push button proper, counter clockwise a few turns. Holding it in, tune in any one of your favorite stations by means of the station selector. Turn the selector very slowly back and forth until the signal is clearest. Now tighten the push button knob by turning clockwise. Release the push button and loosen another push button. Holding it in, tune in another favorite station using the station selector. Turn the selector wheel very slowly back and forth until the signal is clearest. Now tighten the push button by turning it clockwise. Repeat this operation for the remaining two buttons, tightening each button securely as it is set. If it is desired to change a station, simply loosen the push button and re-set. Punch the correct station call letter tabs from the set of sheets supplied and insert them into the windows above the push buttons. The dial is now set up for quick tuning.

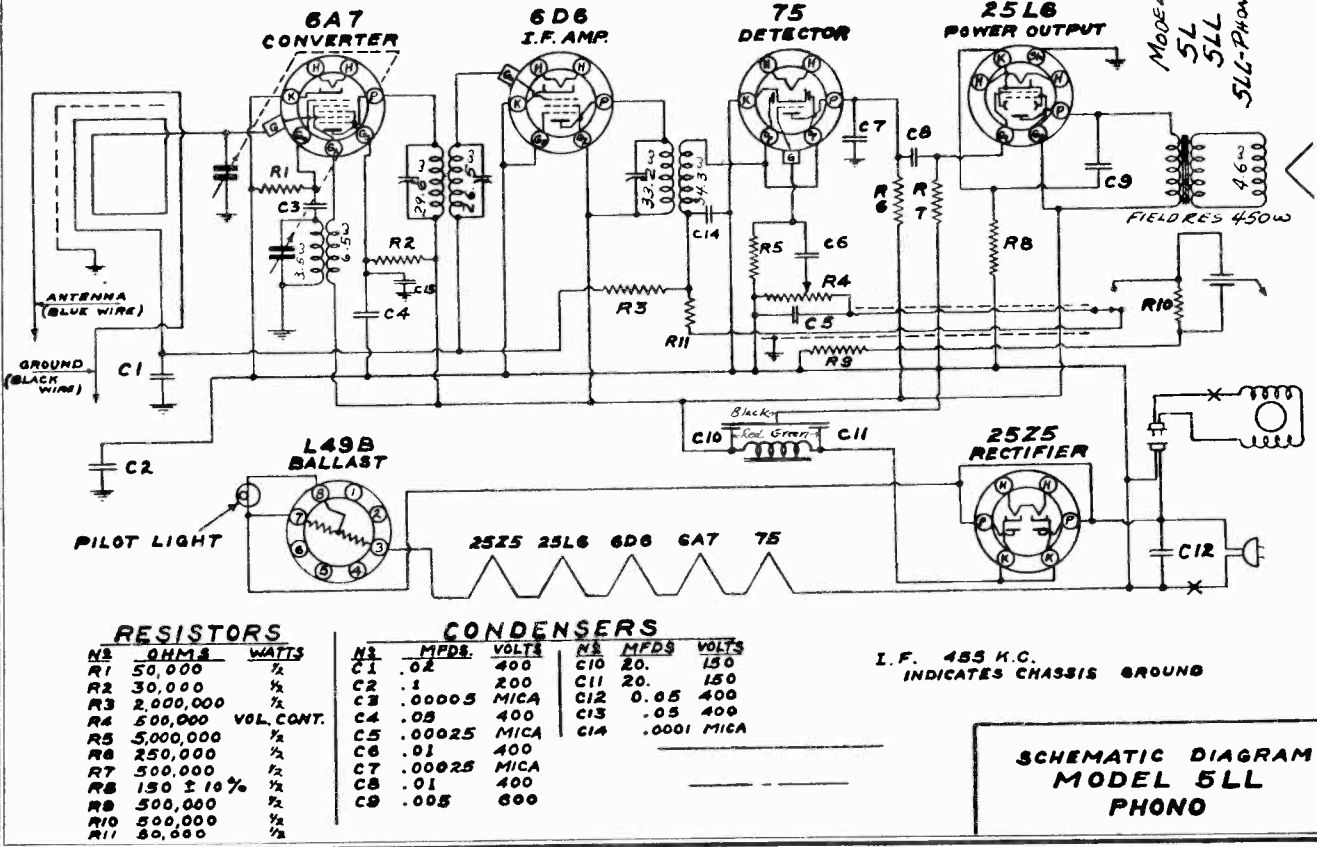
CONTINENTAL RADIO & TELEV. CO.

MODEL 5L, 5LL  
MODEL 5LL Phono.  
Schematics

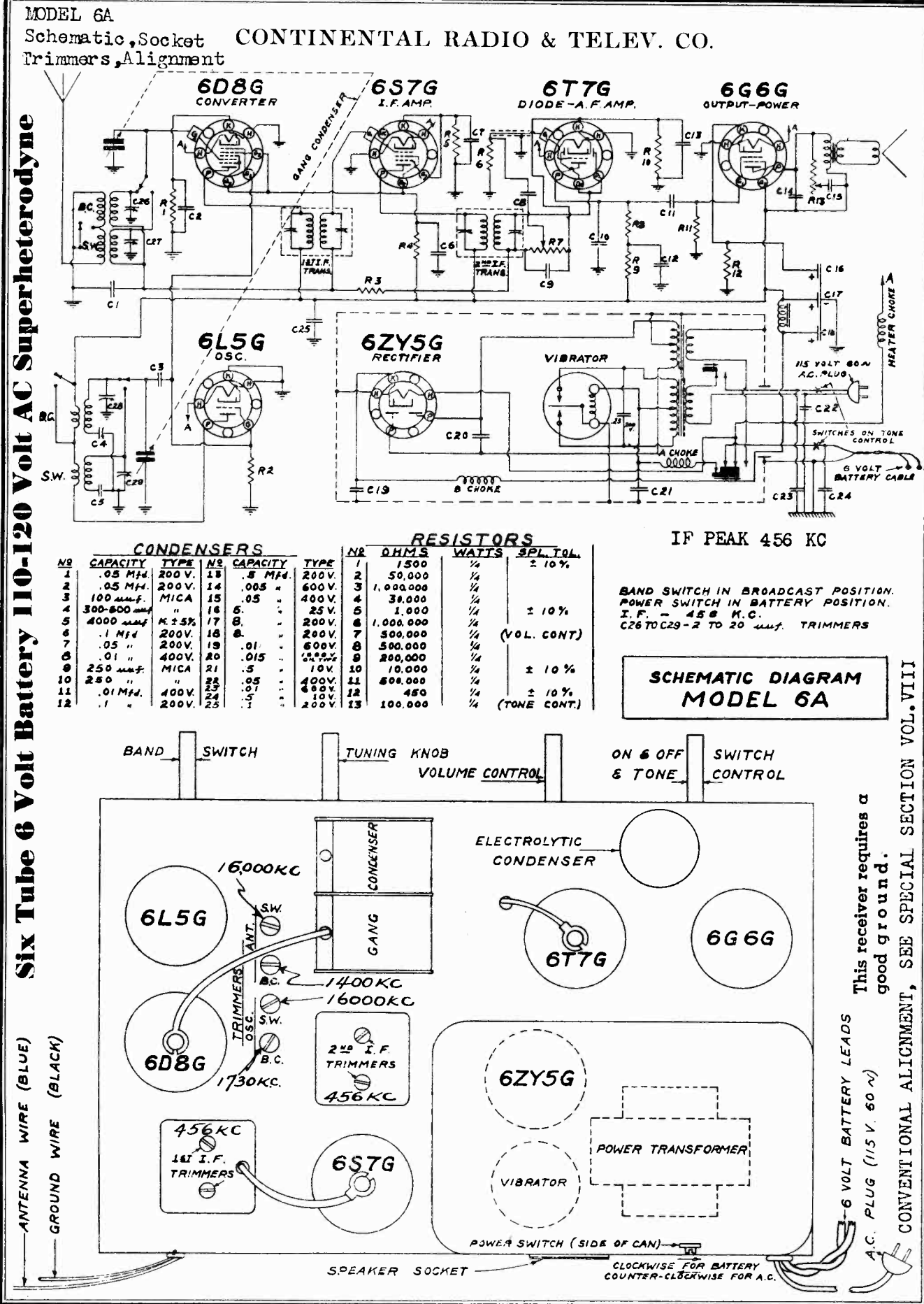


**RANGE 535 - 1730 KC**  
FOR ALIGNMENT AND LAYOUT SEE INDEX

**SCHMATIC DIAGRAM**  
**MODEL 5LL**  
**MODEL 5L**  
I F PEAK 456 KC

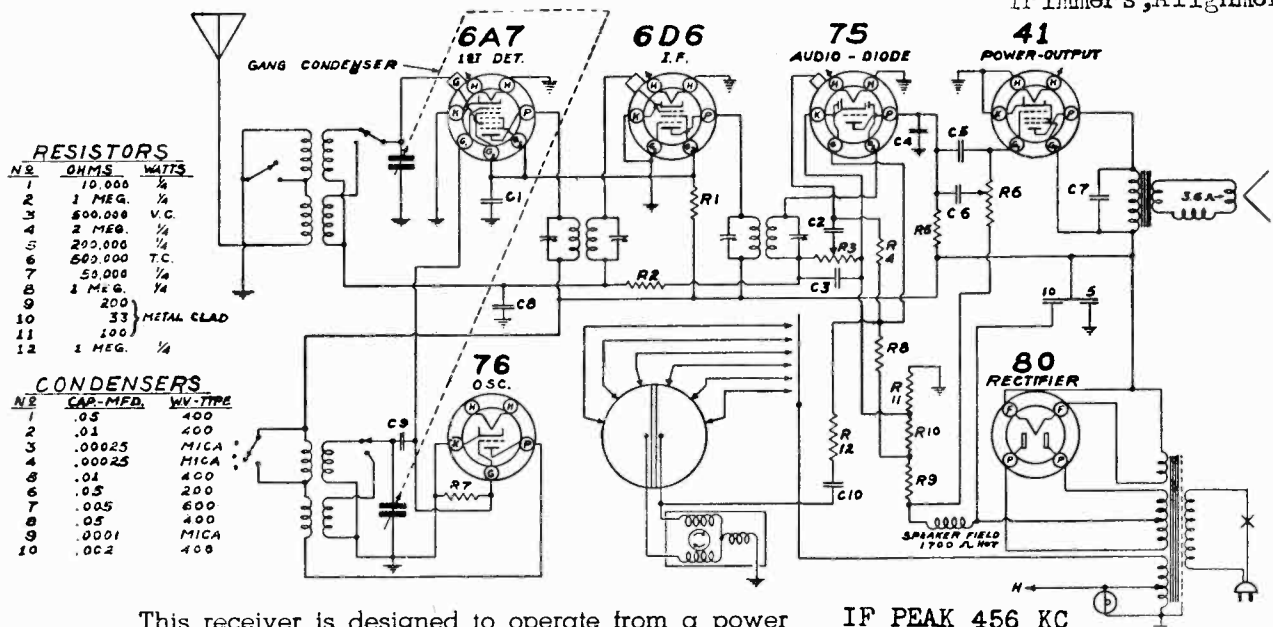






MODEL 6B

CONTINENTAL RADIO & TELEV. CO. Schematic, Socket Trimmers, Alignment



**RESISTORS**

NO.	OHMS	WATTS
1	10,000	1/4
2	1 MEG.	1/4
3	500,000	V.C.
4	2 MEG.	1/4
5	200,000	1/4
6	500,000	T.C.
7	50,000	1/4
8	1 MEG.	1/4
9	200	
10	33	METAL CLAD
11	100	
12	1 MEG.	1/4

**CONDENSERS**

NO.	CAP.-MFD.	VV.-TYPE
1	.05	400
2	.01	400
3	.00025	MICA
4	.00025	MICA
5	.01	400
6	.05	200
7	.005	500
8	.05	400
9	.0001	MICA
10	.002	400

This receiver is designed to operate from a power supply main of 110-120 volt, 60 cycle alternating current AC). **Never plug into a DC outlet.**

**GROUND** Where ever possible, a good ground should be employed. Water pipes and steam or hot water radiators make a very desirable ground connection. The ground wire should be connected to the "Black" lead.

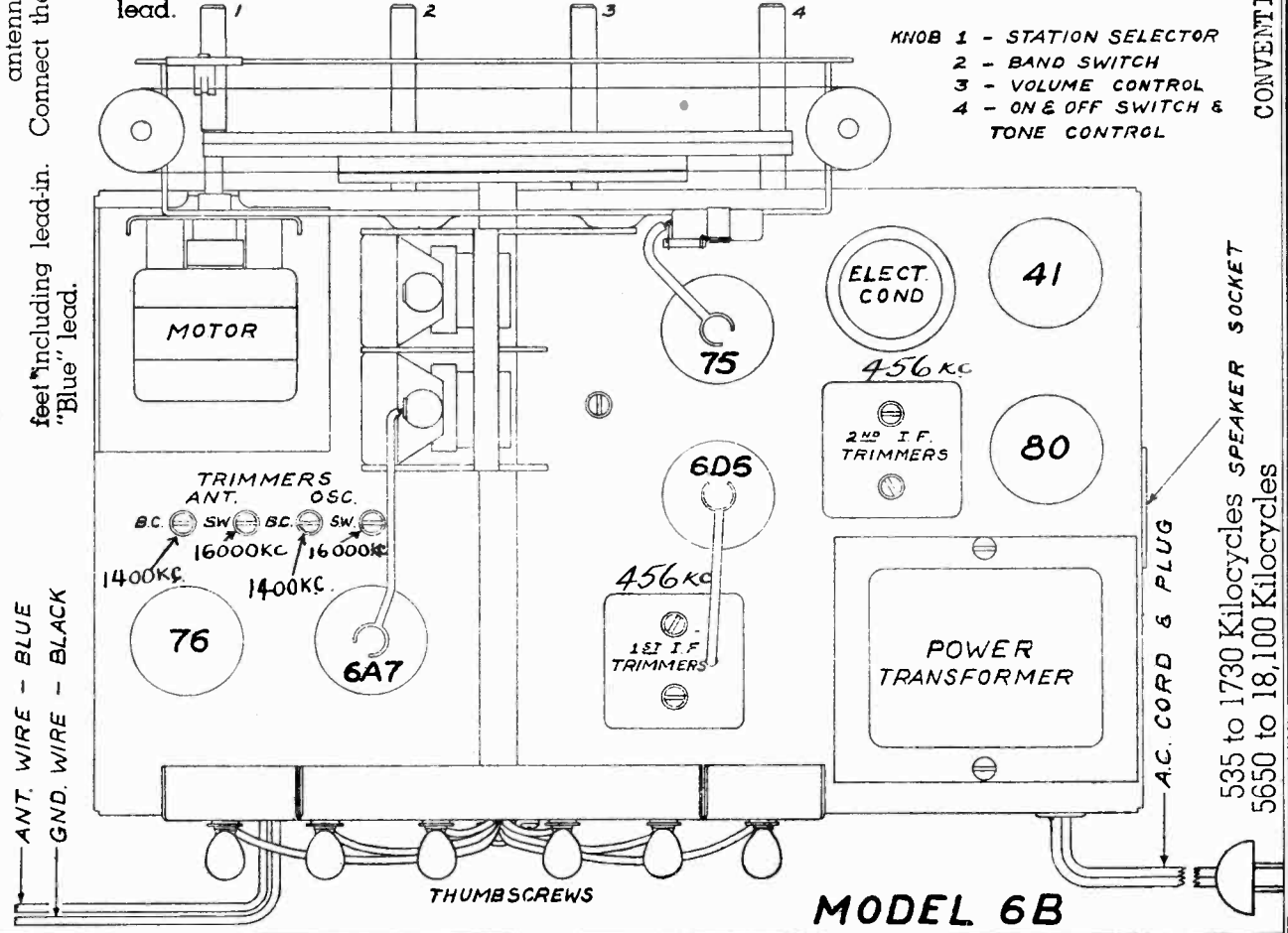
IF PEAK 456 KC  
 BAND SWITCH IN BROADCAST POSITION  
 I.F. - 456 KC.  
 V.C. - VOLUME CONTROL  
 T.C. - TONE CONTROL

**SCHEMATIC DIAGRAM MODEL 6B**

KNOB 1 - STATION SELECTOR  
 2 - BAND SWITCH  
 3 - VOLUME CONTROL  
 4 - ON & OFF SWITCH & TONE CONTROL

ANTENNA Use a standard outside antenna of at least 50 feet including lead-in. Connect the antenna to the "Blue" lead.

ANTENNA



535 to 1730 Kilocycles SPEAKER SOCKET  
 5650 to 18,100 Kilocycles

CONVENTIONAL ALIGNMENT, SEE SPECIAL SECTION VOL.VIII

MODEL 6B

MODEL 6B  
MODEL 6C  
MODEL 6G

CONTINENTAL RADIO & TELEV. CO.

Tuner Data MODEL 6B

**ELECTRIC MOTOR**

The power for this tuner is provided by a small, efficient electric motor, of the brushless variety. It is fitted with an automatic clutch and a silent gear train. The bearings and the oil retainer hold sufficient oil to lubricate the motor for a lifetime.

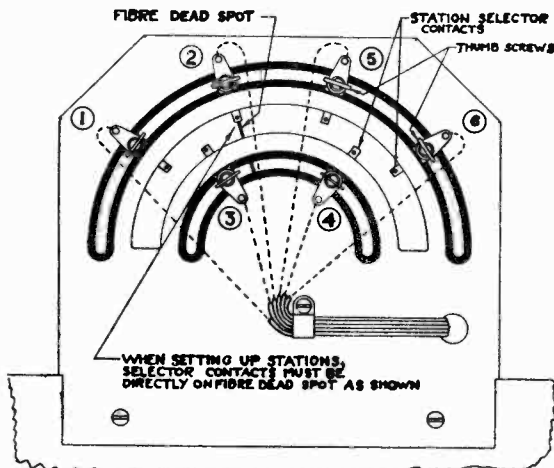
**SETTING UP SELECTOR MECHANISM**

List six (6) strong local stations which are free from excess fading. The station on your list that comes in nearest the left hand end of the dial should be called station No. 1 and should be set up on button No. 1. (See Figure 1.) Located on the back of the receiver is the thumb screw bracket and six (6) thumb screws whose positioning determines the points at which the pointer will stop when the buttons are being used. Figure 2 shows a detail of the thumb screws numbered for reference to the push buttons.

Located on the rotating selector plate is a fibre dead spot which locates the position at which station selector contacts should be set in order to have the selector plate stop for a certain station. Follow closely the steps listed below:

1. Using the manual selector knob, tune in station No. 1, the station near the left hand end of the dial—the 170 K.C. end. Make certain that the station is properly tuned in.
2. From the back of the receiver loosen thumb screw No. 1 (See Figure 2) just enough to allow it to slide freely in the groove.
3. Now adjust the thumb screw until the contact is resting directly on the fibre dead spot.
4. Tighten thumb screw securely, making sure that in tightening you do not move the contact off the fibre dead spot.
5. Check the above operation by pressing button No. 1 and note if there is any pointer movement. If there is no pointer movement, the contact is properly set. If the pointer moves, the contact was not set directly on fibre dead spot. In this case, the station should be re-tuned manually, and procedure No. 3 should be repeated.

Fig. 2



6. Using the same procedure, set up the remaining five stations, in each case using the station of the next highest frequency and the thumb screw having the same number as the corresponding button. Never skip buttons, always set up in numerical order from button 1 to 6 from left to right.

7. After all the stations have been set up, insert the proper station call tabs (found with the instructions) into the recesses of their respective buttons.

8. To receive any of the six stations set up as described above turn receiver "ON" by rotating the left hand knob to the right until the switch clicks. Allow the tubes to heat up, press the buttons designated by the call letter of the station desired and hold the button in until the pointer stops moving and the station comes in. Adjust tone and volume. **IMPORTANT:** Be sure the band switch is in the position for Standard Broadcast Reception.

**AUTOMATIC PUSH BUTTONS**

MODELS 6C and 6G

A glance at Fig. 1 will show that there are eight (8) push buttons, six (6) of which are for automatic use; the adjusting screws are located directly below these push buttons. Fig. 1 also shows the tuning range or frequencies covered by each button.

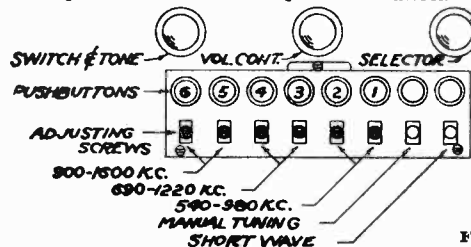
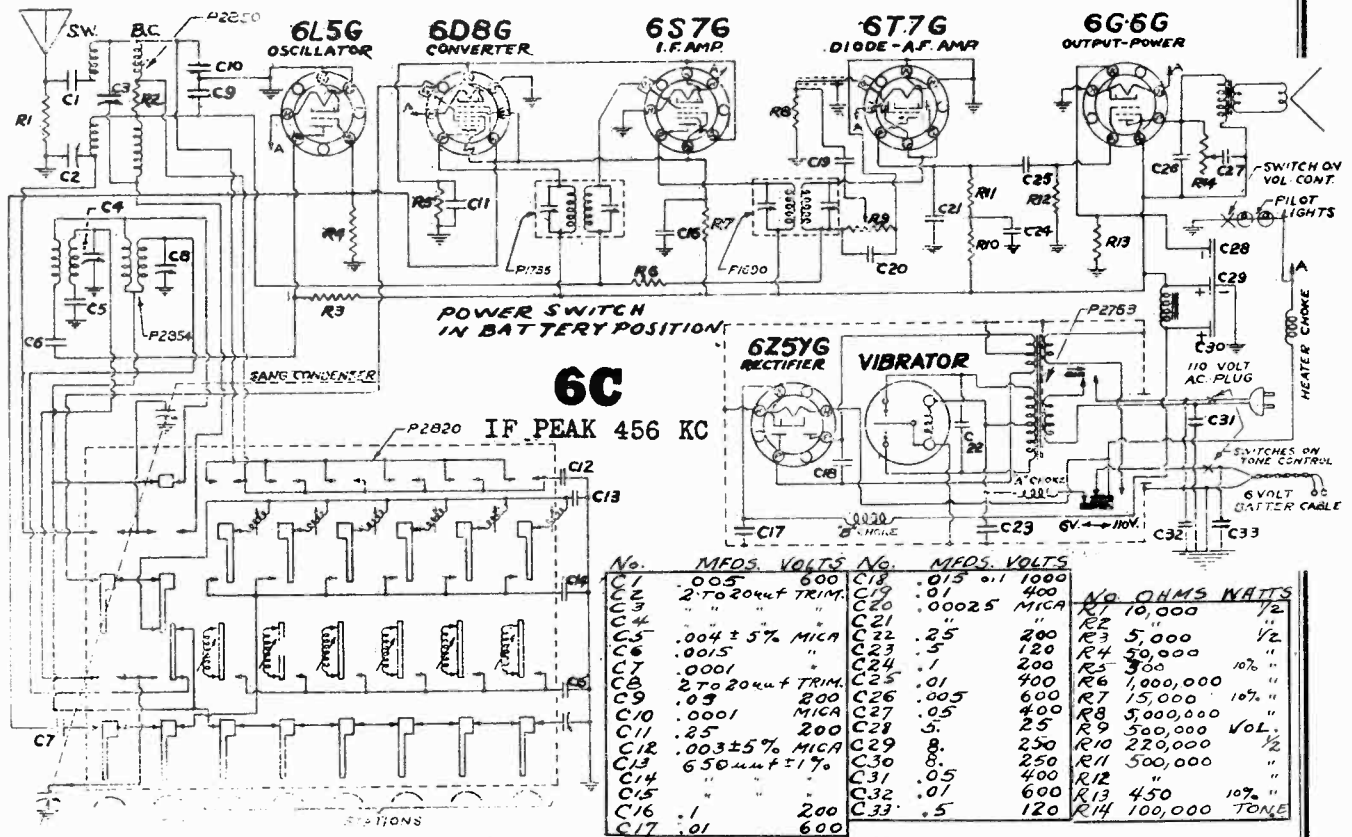


Fig. 1

The remaining two (2) push buttons located at the extreme right hand end of the push button plate are for short wave and manual tuning. See Fig. 1. Short wave, tuning is accomplished by pressing "short wave" button and tuning with the selector knob. By pressing "manual tuning" button, the automatic disconnects and the selector knob becomes active for the broadcast band.

1. Choose a station having a frequency within the range of button No. 1 (540 to 980 kc).
2. Press "Manual Tuning" button and tune this station conventionally by using the selector knob.
3. Now press button No. 1 and turn adjusting screw in either direction until the previously selected station is heard. Adjust the screw until the station is received with maximum volume.
4. Remove the call letters of the station from the call letter sheet furnished and insert in the window of the adjusting screw.
5. Repeat the above procedure for the remaining five (5) stations.

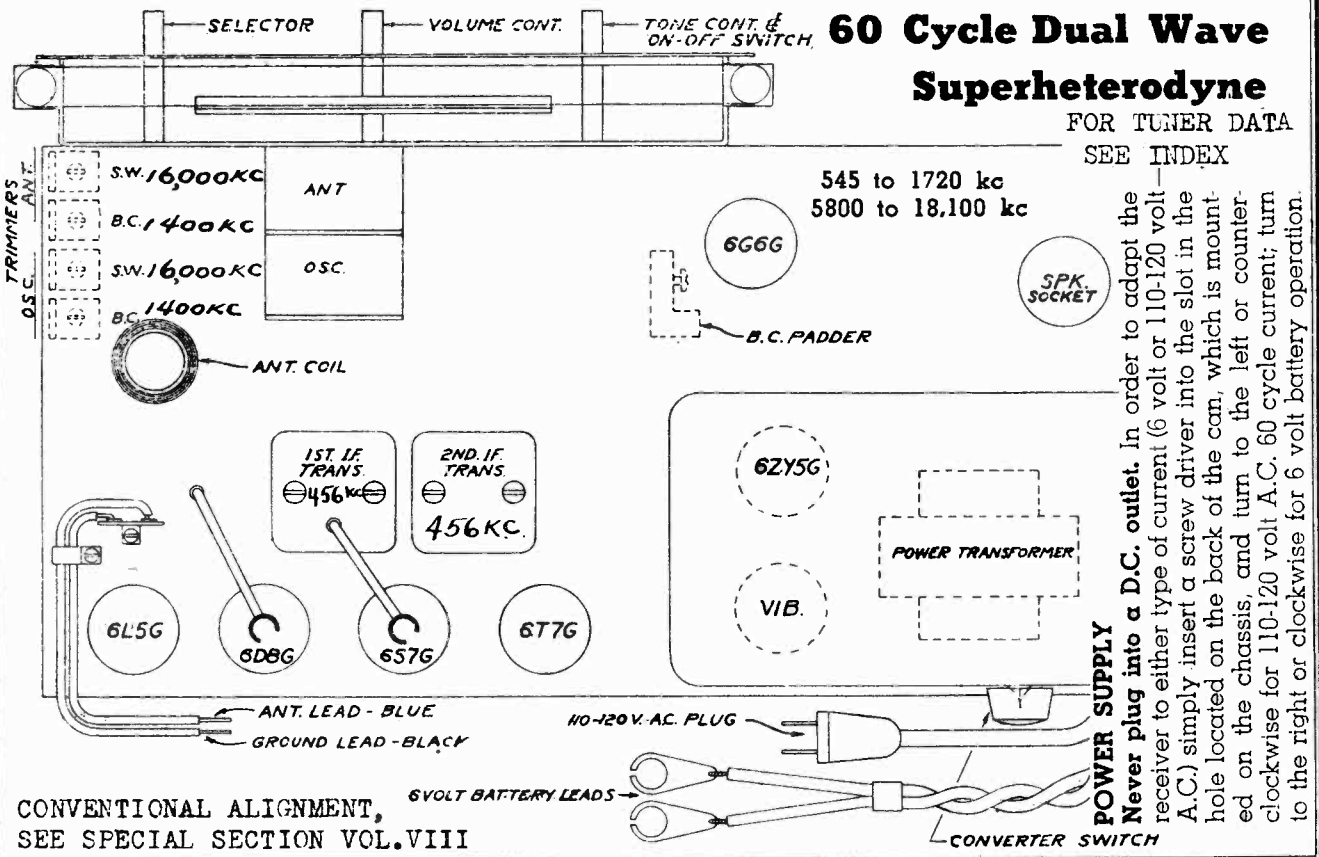
MODEL 6C  
 CONTINENTAL RADIO & TELEV. CO. Schematic, Socket  
 Trimmers, Alignment



**Six Tube Combination 6 Volt Battery, and 110-120 Volt AC**

**60 Cycle Dual Wave Superheterodyne**

FOR TUNER DATA  
 SEE INDEX



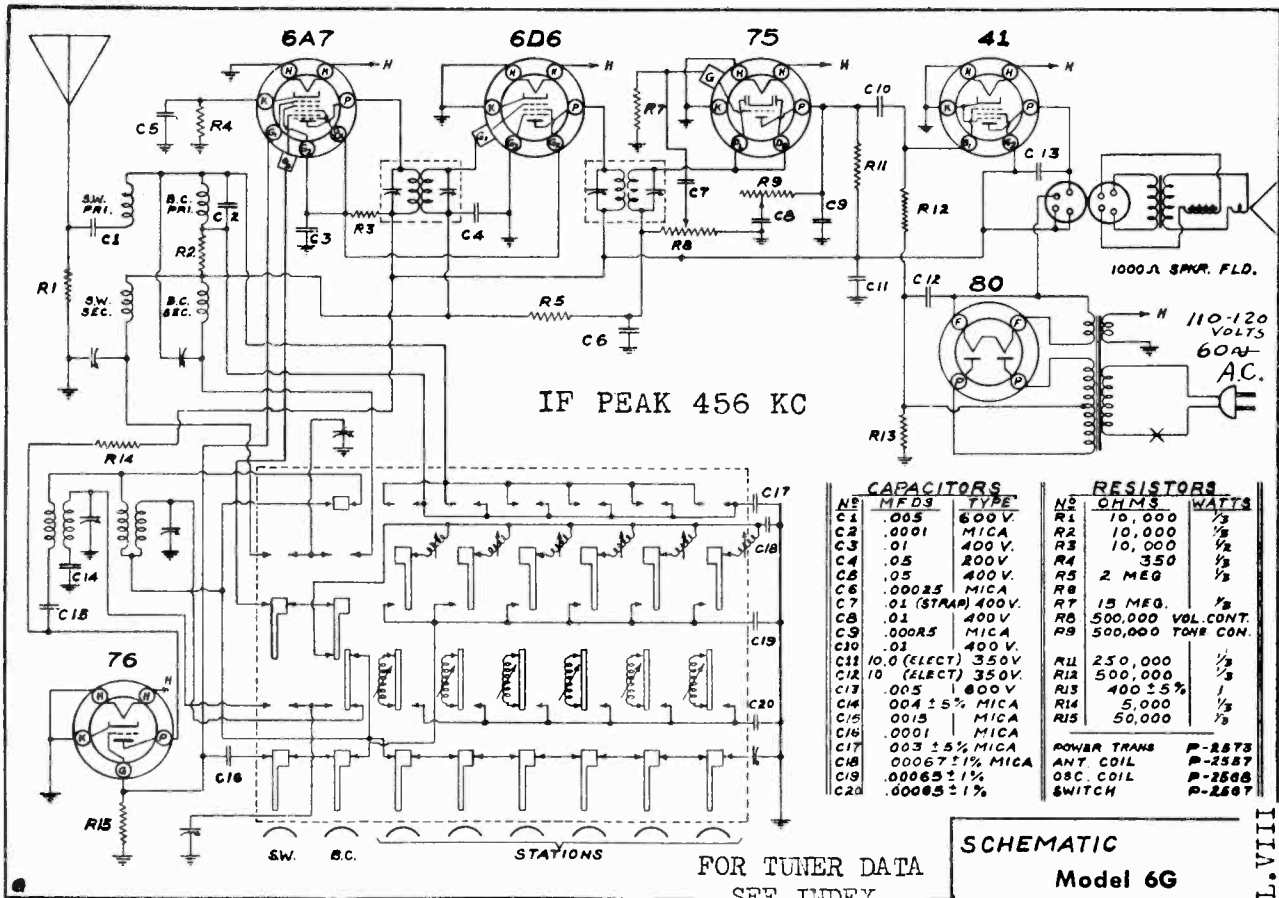
CONVENTIONAL ALIGNMENT,  
 SEE SPECIAL SECTION VOL. VIII

MODEL 6G

Schematic, Socket CONTINENTAL RADIO & TELEV. CO.

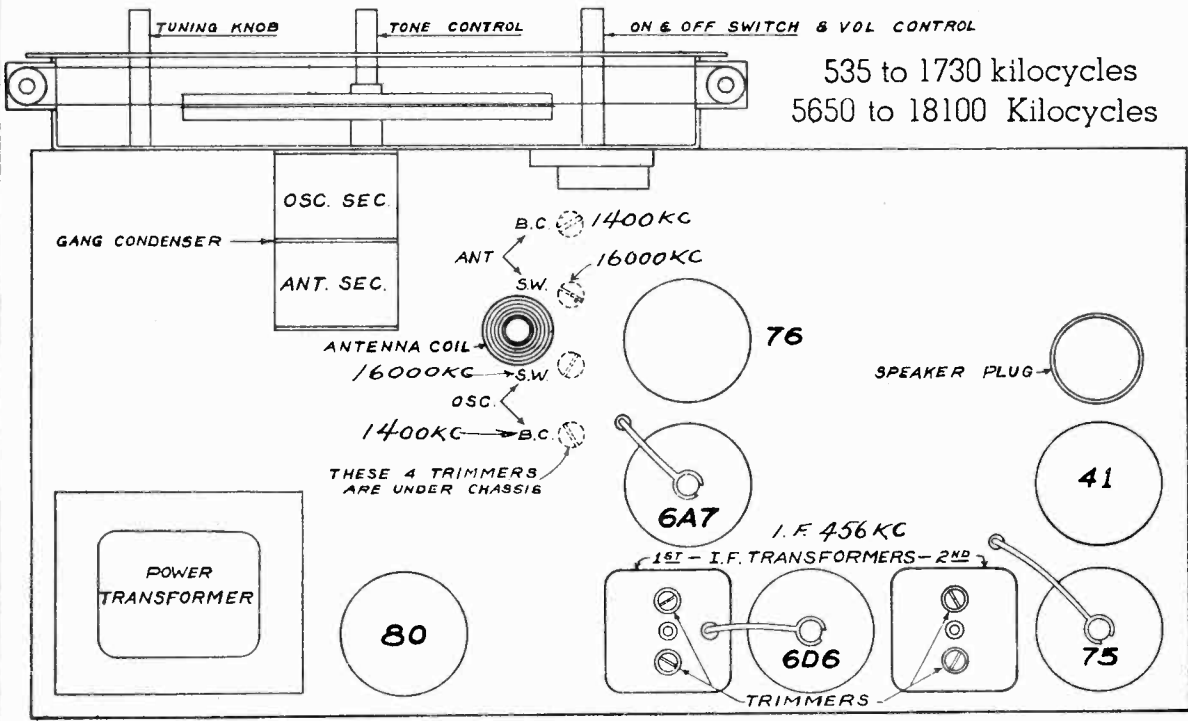
Trimmers, Alignment

This receiver is designed to operate over two tuning ranges; the broadcast range which extends from 545 to 1720 kc (174.4 to 550.4 meters) and the international short wave band which extends from 5800 to 18,100 kc (16.5 to 51.7 meters). This latter range is the one which includes the 5 internationally assigned bands—the 16, 19, 25, 31 and 49 meter bands.



SCHEMATIC  
Model 6G

FOR TUNER DATA  
SEE INDEX

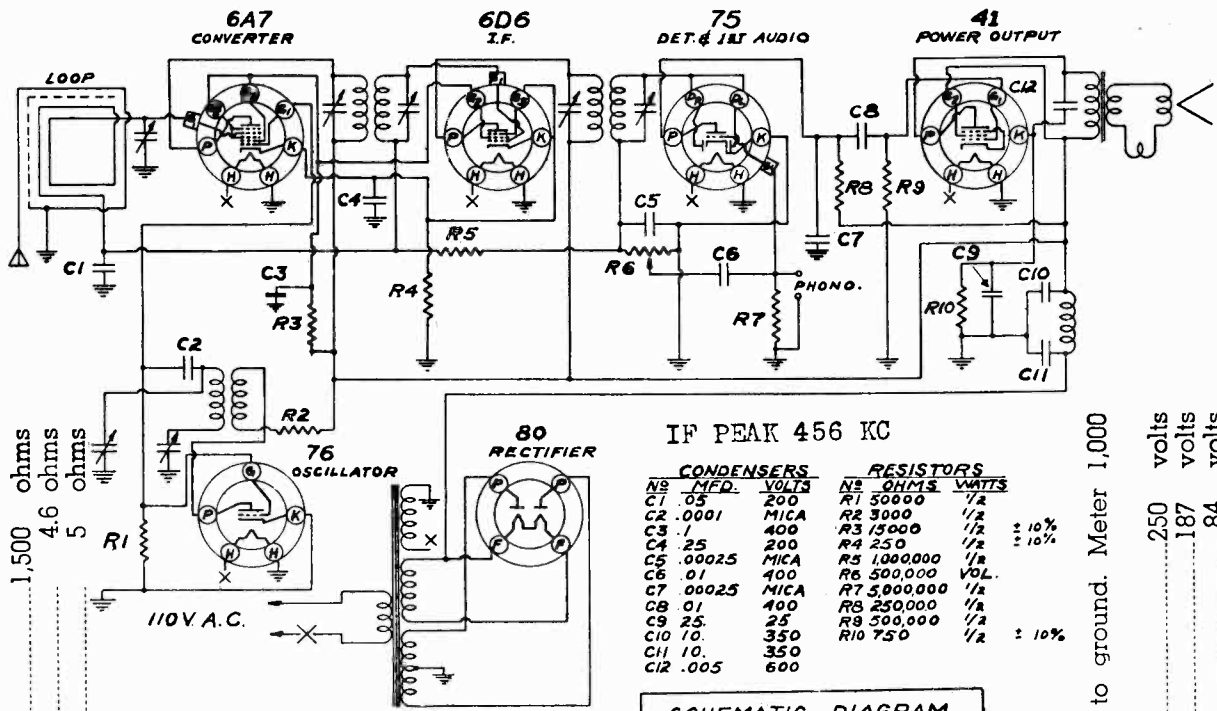


Six Tube AC Automatic Tuning  
CONVENTIONAL ALIGNMENT, SEE SPECIAL SECTION VOL.VIII

MODEL 6K

CONTINENTAL RADIO & TELEV. CO. Schematic, Socket Trimmers, Voltage Alignment

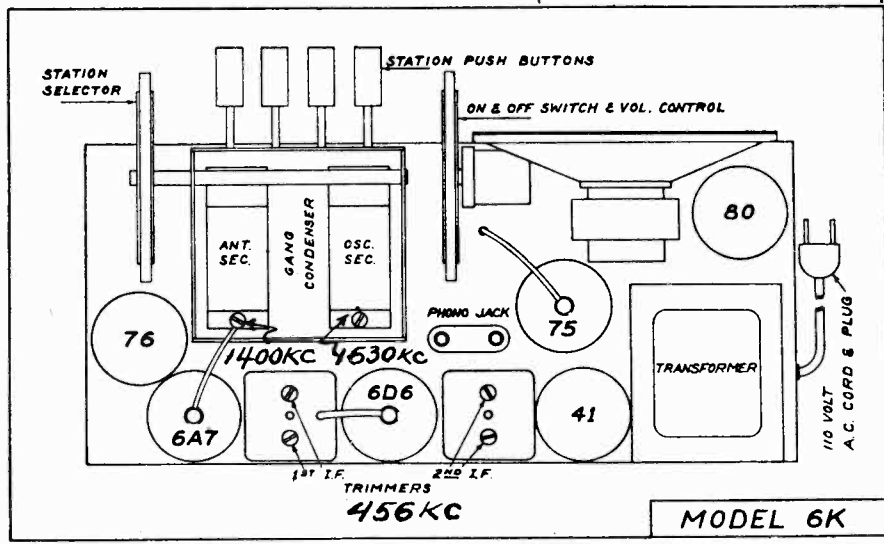
6 TUBE AC SUPERHETERODYNE BROADCAST BAND



IF PEAK 456 KC

CONDENSERS			RESISTORS		
NO.	MFD.	VOLTS	NO.	OHMS	WATTS
C1	.05	200	R1	50000	1/2
C2	.0001	MICA	R2	3000	1/2
C3	.1	400	R3	15000	1/2
C4	.25	200	R4	250	1/2
C5	.00025	MICA	R5	1,000,000	1/2
C6	.01	400	R6	500,000	VOL.
C7	.00025	MICA	R7	5,000,000	1/2
C8	.01	400	R8	250,000	1/2
C9	.25	25	R9	500,000	1/2
C10	.10	350	R10	750	1/2
C11	.10	350			
C12	.005	600			

SCHEMATIC DIAGRAM MODEL 6K



Speaker (Part No. P3087)

- Field resistance.....
- DC voice coil resistance.....
- Voice coil impedance at 400 cycles.....

6K PARTS LIST

- PAPER CONDENSERS**
  - P148 .05 mfd. 200 volt
  - P141 .25 mfd. 200 volt
  - P276 .10 mfd. 400 volt
  - P1322 .005 mfd. 600 volt
  - P164 .01 mfd. 400 volt
  - P1313 .01 mfd. 400 volt with strap
- RESISTORS**
  - P137A 500,000 ohm 1/2 watt
  - P2344 250,000 ohm 1/2 watt
  - P162A 1,000,000 ohm 1/2 watt
  - P1729 750 ohm 1/2 watt 10%
  - P2578 15,000 ohm 1/2 watt 10%
  - P1942 250 ohm 1/2 watt 10%
  - P1952 50,000 ohm 1/2 watt
  - P2735 5,000,000 ohm 1/2 watt
  - P481 3,000 ohm 1/2 watt
- MICA CONDENSERS**
  - P817 .00025 mfd.
  - P480 .0001 mfd.
- ELECTROLYTIC CONDENSERS**
  - P3086 { 10 mfd. 350 w. v.
  - { 20 mfd. 350 w. v.
  - { 20 mfd. 25 w. v.
- ADJUSTABLE CONDENSERS**
  - P3072 Gang Condenser and Tuner
  - P2560 Padding Condenser
- TRANSFORMERS AND COILS**
  - P3083 1st I.F. Transformer
  - P2606 2nd I.F. Transformer
  - P3084 Oscillator Coil
- MISCELLANEOUS**
  - P3082 Volume Control and Switch
  - P3074 4 Prong Socket
  - P3075 5 Prong Socket
  - P3076 6 Prong Socket
  - P3077 7 Prong Socket
  - P533 Tube Shield Base
  - P530 Tube Shield Cap
  - P531 Tube Shield Bulb
  - P1504 Pilot Light, Socket and Bracket
  - P3085 Pilot Light, Socket and Bracket
  - G5891 Antenna Loop Assembly
  - G5892 Static Shield Assembly
  - P929 Line Cord
  - P3087 6" Dynamic Speaker and Output Transformer
  - P3139 Pressed Paper Back
  - P3096 Call Letter Sheet
  - P2965 Pointer
  - P3066 Dial Scale—Order by Name and Model Number
  - P3073 Push Button
  - P2867 Bakelite Thumb Wheels

- 110V A.C. Meter 1,000 volts
- Volume control minimum. Antenna shorted to ground. 250 volts
- ohms per volt. .187 volts
- Filament of 80 tube to ground. 84 volts
- Screen of 41 tube to ground. 13.2 volts
- Screens of 6A7 and 6D6 tubes to ground. 3.1 volts
- Cathode of 41 tube to ground
- Cathode of 6A7 tube to ground



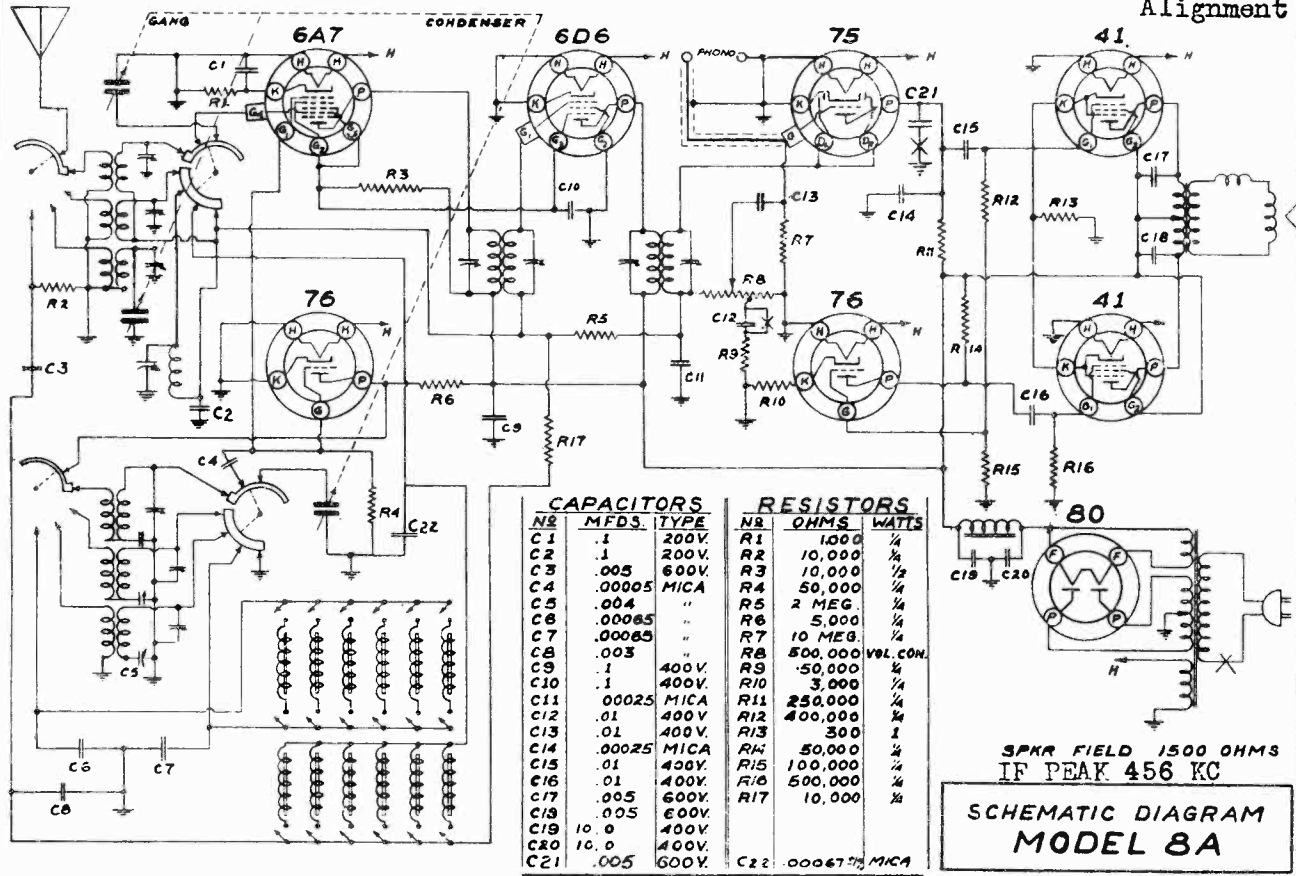
MODEL 8A

Schematic Alignment CONTINENTAL RADIO & TELEV. CO.

MODEL 8AU

MODEL 11A

Alignment



SPKR FIELD 1500 OHMS  
IF PEAK 456 KC  
SCHEMATIC DIAGRAM  
MODEL 8A

POWER SUPPLY

This receiver is designed to operate from

a power supply main of 110-120 volts, 60 cycles alternating current (AC). Never plug into a DC outlet.

ALIGNMENT DATA AND SERVICING

GENERAL DATA

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 1730, 1800, 4000, 5600, 6000, 16,000 and 18,100 KC and an output meter to be connected across the primary or secondary of the output transformers. If possible, all alignments should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

CORRECT ALIGNMENT PROCEDURE

The intermediate frequency (I.F.) stage should be aligned properly as the first step. After the I.F. transformers have been properly adjusted and peaked, the Broadcast Band should always be the next procedure, after which, either or both of the Short Wave Bands may be aligned.

I.F. ALIGNMENT

With the wave switch in the Broadcast Band and the gang condenser set at minimum, adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A7) through a .05 or .1 mfd. condenser. The ground on the test oscillator can be connected to the chassis ground if the test oscillator is not grounded to one side of the power line. In case one side is connected to ground, connect a large condenser from ground on the test oscillator to ground of the chassis. Align all four I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT

Connect the output of the signal generator to the antenna lead (blue) through a .0002 mfd. mica condenser. Set the gang condenser to minimum and the oscillator to 1730 KC and adjust the "oscillator trimmer" to receive this signal. Make no other adjustments at this frequency. Then set the generator to 1400 KC and tune in this signal by rotating the gang to 1400 on the dial. Adjust the "preselector" and "antenna" trimmer to maximum signal. Set the signal generator to 600 KC and tune in the signal on the receiver. Note: approximately the same

sensitivity should be noted at this point as was at 1400 KC. The signal strength may sometimes be improved by padding the circuits. This is done by slowly increasing or decreasing the oscillator padding condenser and, at the same time, continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment may seem a little complicated but is the easiest way to adjust the oscillator to the preselector of the R.F. section. Return to 1400 KC and again go over the adjustments of this frequency to be certain that they were not put slightly out of alignment when adjustment was made at 600 KC.

POLICE BAND ALIGNMENT

The police band is adjusted by first replacing the .0002 dummy with a 400 ohm resistor and setting the generator to 5600 KC. With the gang set at minimum, adjust the "police oscillator trimmer" to receive this signal, then set the signal generator to 4000 KC and adjust "police antenna trimmer" to give maximum output. Next, set the oscillator to 1800 KC and "pad" the circuit of this frequency as described in the instructions for padding the broadcast circuits.

SHORT WAVE BAND ALIGNMENT

The short wave band is adjusted by setting the generator to 18,100 KC and with the gang at minimum, adjust the "short wave oscillator trimmer" to receive the signal. Set the generator at 16,000 KC, tune in the signal and adjust the "short wave antenna" trimmer to give maximum output. As there is no variable low frequency padding condenser on this band, the sensitivity of the receiver should be checked at 6000 KC to determine whether the circuits are in line at this frequency. Should the receiver lack sensitivity at 6000 KC, the antenna and the oscillator coils, as well as the .004 mica padding condenser, should be tested for defects as sometimes these components become subject to mechanical or electrical injuries, despite their rugged construction and liberal ratings.

MODEL 8A  
MODEL 8AU  
Parts Socket  
Trimners, Tuner,  
8AU

8A

# CONTINENTAL RADIO & TELEV. CO. Eight Tube AC Automatic Tuning

This receiver is designed to operate over three tuning ranges; the broadcast range which extends from 535 to 1730 K.C. (173 to 560 meters), police and aviation band which extends from 1700 to 5600 K.C. (53 to 176 meters) and the international short wave band which extends from 5600 to 18,100 K.C. (16.5 to 53 meters). This latter range is the one which includes the five internationally assigned bands — the 16, 19, 25, 31, and 49 meter bands.

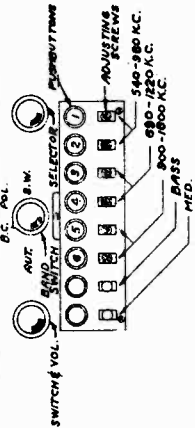
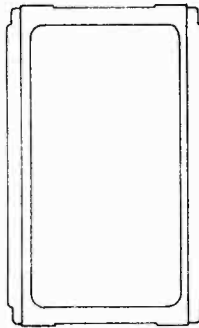


Fig. 1

## PROCEDURE FOR SETTING UP AUTOMATIC PUSH BUTTONS

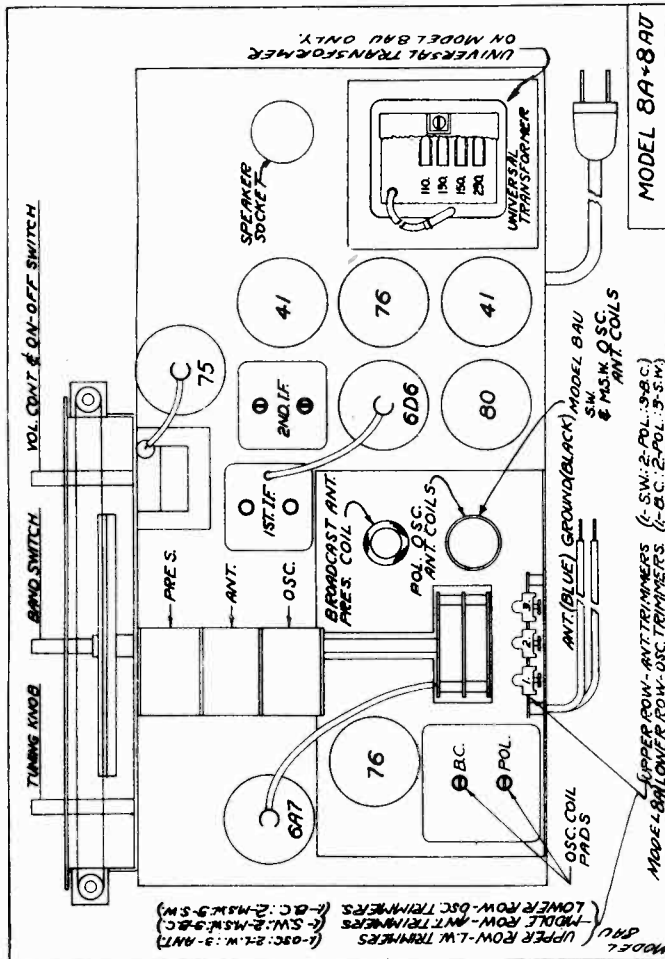
A glance at Fig. 1 will show that there are eight (8) push buttons, six (6) of which are for automatic user; the adjusting screws are located directly below these.

Fig. 1 also shows the tuning range or frequencies covered by each button.

The remaining two (2) push buttons, located at the extreme left hand end of the push button plate are for tone control.

1. Choose a station having a frequency within the range of button No. 1 (540 K.C. to 930 K.C.)
2. With the middle knob in the "broadcast" position, tune this station conventionally by using the selector knob.
3. Now turn the middle knob to the "automatic" position and press button No. 1 and turn the adjusting screw in either direction until the previously selected station is heard. Adjust the screw for maximum volume and sensitivity.
4. Remove the call letters of the station from the call letter sheet furnished and insert in the window of the adjusting screw. Insert "Med" and "Bass" tabs in windows as shown in Fig. 1.
5. Repeat the above procedure for the remaining five (5) stations.

**NOTE:** It is advisable to retain the call letter sheet in case of station change later on.

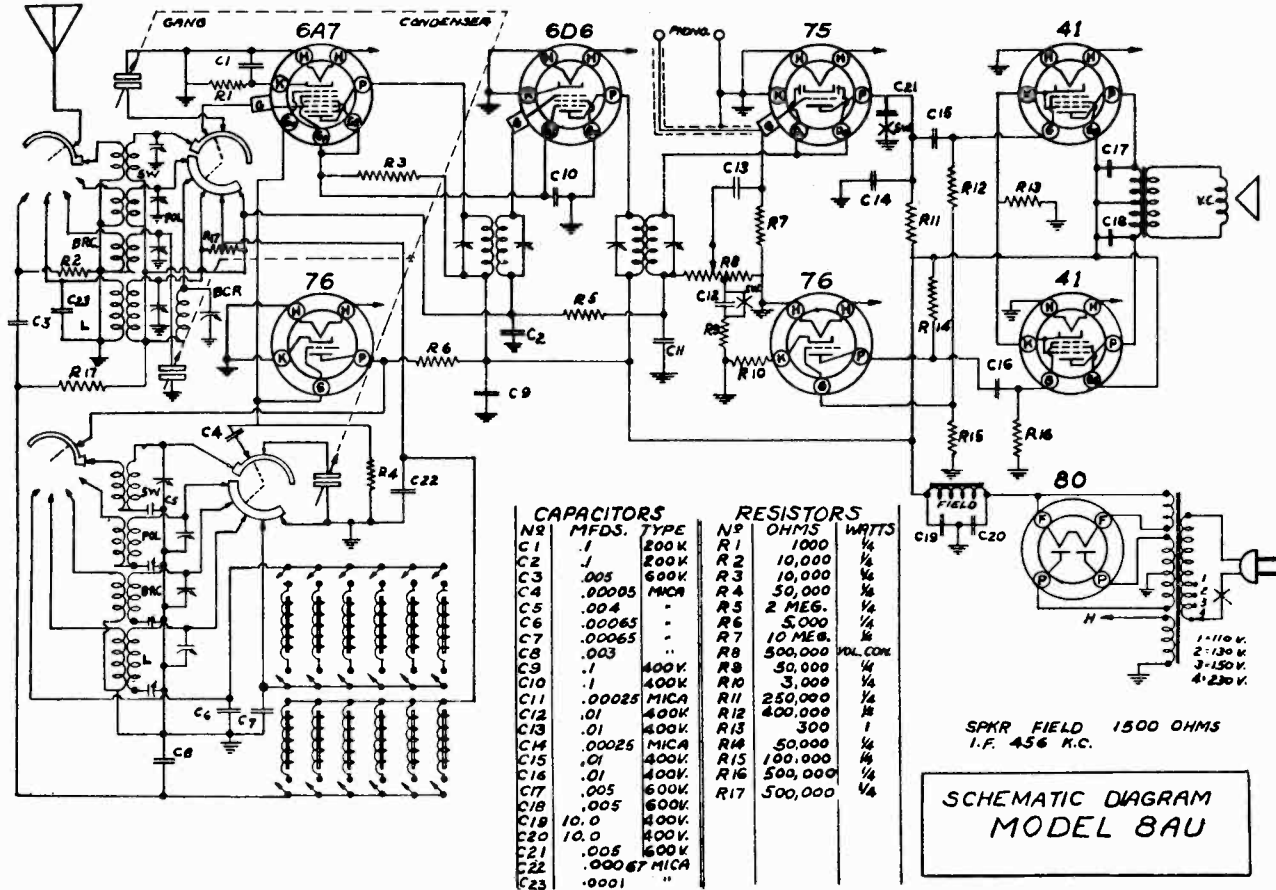


## REPLACEMENT PARTS LIST MODEL 8A

P480	.0001 Mid.	P537	76 Tube Socket
P336	.0005 Mid.	P538	6D6 Tube Socket
<b>ELECTROLYTIC CONDENSERS</b>			
P2631	Dual 10 Mid., 400 W.V.	P508	6A7 Tube Socket
<b>ADJUSTABLE CONDENSERS</b>			
P2623	Gang Condenser	P521	75 Tube Socket
P2656	Trimmer Strip	P945	Speaker Socket
P2657	Trimmer Strip	P2637	8" Dynamic Speaker (Main)
<b>TRANSFORMERS AND COILS</b>			
P2628	Power Transformer	P2638	18" Dynamic Speaker (Console and Phono)
P2630	230 Volt Power Transformer	P2659	Volume Control and Switch
P2633	1st I.F. Transformer Coil	P929	A.C. Line Cord and Plug
P1756	2nd I.F. Transformer Coil	P1455	Tube Shield
P1751	Broadcast Antenna Coil	P1503	Tube Shield Base
GS310	Police and Short Wave Antenna Coil	P1504	Pilot Light Socket
GS307	Oscillator Coil, Trimmer and Shield Assembly	P2636	Band Switch
<b>MISCELLANEOUS</b>			
P482	80 Tube Socket	P2632	Dial Socket (Specify Name)
P1277	41 Tube Socket	P2585	Walnut Push Buttons
<b>MICA CONDENSERS</b>			
P817	.00025 Mid.	P2586	Ivory Push Buttons
P1683	.004 Mid.	GS762	Permeability Tuner Assembly
P1392	.00605 Mid.	P2653	Automatic Record Changer
P268	.0005		

MODEL 8AU  
Schematic,  
Alignment

CONTINENTAL RADIO & TELEV. CO.



This receiver is designed to operate over four tuning ranges; **long wave** 150 to 350 K.C. (2000 to 857 meters); **broadcast** 535 to 1730 K.C. (173 to 561 meters); **medium short wave band** 2350 to 7100 K.C. (127.6 to 42 meters); **international short wave** 7000 to 22,000 K.C. (13.6 to 42.8 meters), which includes five—5 internationally assigned bands—16, 19, 25, 31 and 49 meter bands.

**PROCEDURE FOR SETTING UP AUTOMATIC PUSH BUTTONS** See Model 8A.  
**ALIGNMENT**

Align I F and Broadcast Bands using the procedure for Model 8A. Using this procedure align Med. S.W. and S.W. Band likewise, using the following frequencies; Med. S.W., 7000 KC Osc. Trimmer, 6000Kc Ant. Trimmer, 2500 Kc "pad". S.W., 22000 KC S.W. Osc Trimmer, 18000 KC S.W. Ant Trimmer, 8000 KC "pad". Align L.W. Band as below;

**LONG WAVE BAND ALIGNMENT**

The long wave band is adjusted by connecting the output of the signal generator through a .0002 Mfd. mica condenser to the blue antenna lead. Then set the gang to minimum and the generator to 360 KC and adjust the long wave oscillator trimmer to receive this signal. Then set the generator to 325 KC and adjust the long wave antenna trimmer to give maximum output. Next set generator to 160 KC and pad the circuits to maximum output. Owing to the nature of the long wave band, the trimmer and padding condensers react upon each other to quite a degree; consequently, several re-adjustments at the trimming and padding positions are required before the circuits are adjusted properly.

For parts not listed below see Parts List Model 8A.

P2727 6" Dynamic Speaker (Mantel)

**TRANSFORMERS AND COILS**

P2663 Universal Transformer

**MISCELLANEOUS**

- P2661 Band Switch
- P2660 Dial Scale
- G5775 Medium Short Wave and Short Wave Antenna Coil
- G5774 Oscillator Coil, Trimmer and Shield Assembly
- G5777 Long Wave Antenna Coil Assembly

**PARTS LIST  
MODEL 8AU**

**RESISTORS—CARBON**

- P1114 2,000,000 Ohm 1/4 Watt
- P2735 5,000,000 Ohm 1/4 Watt

**MICA CONDENSERS**

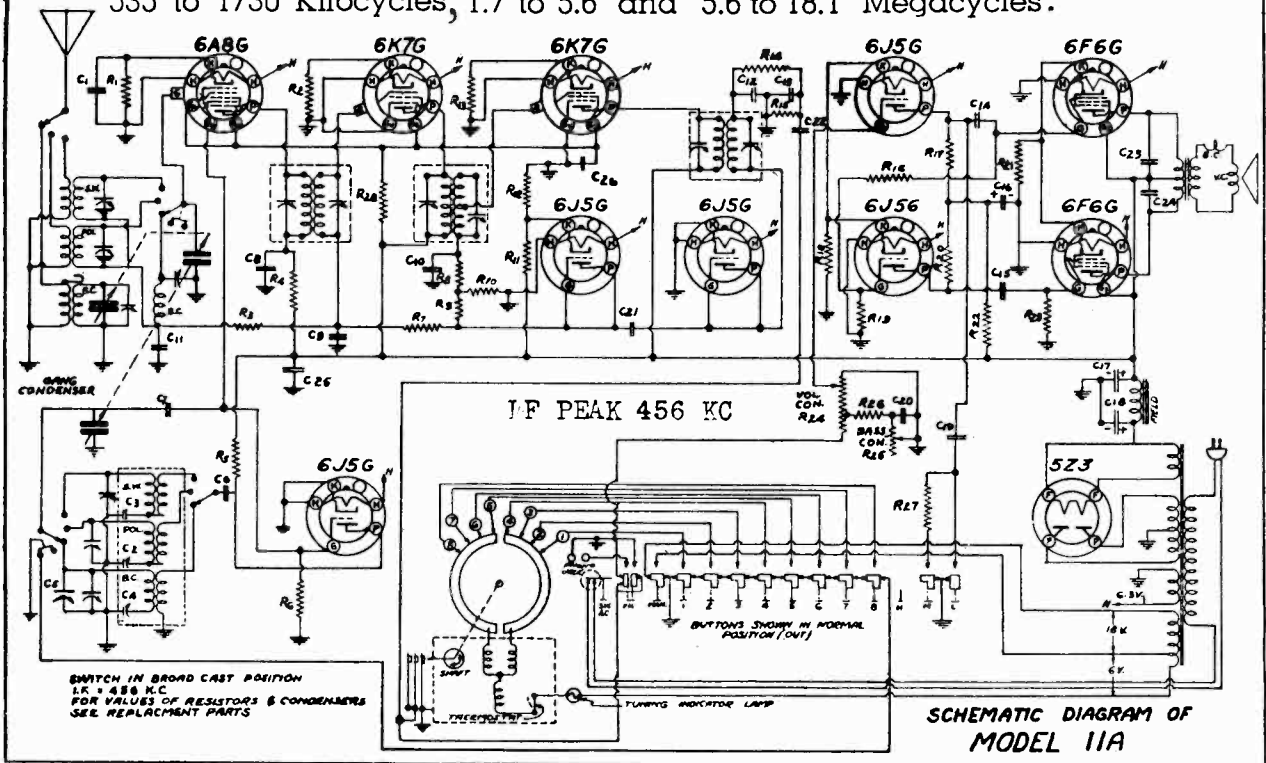
- 2701 .005 5%
- 2702 .0018 3%

CONTINENTAL RADIO & TELEV. CO.

MODEL 11A  
Schematic, Socket  
Trimmers  
Alignment

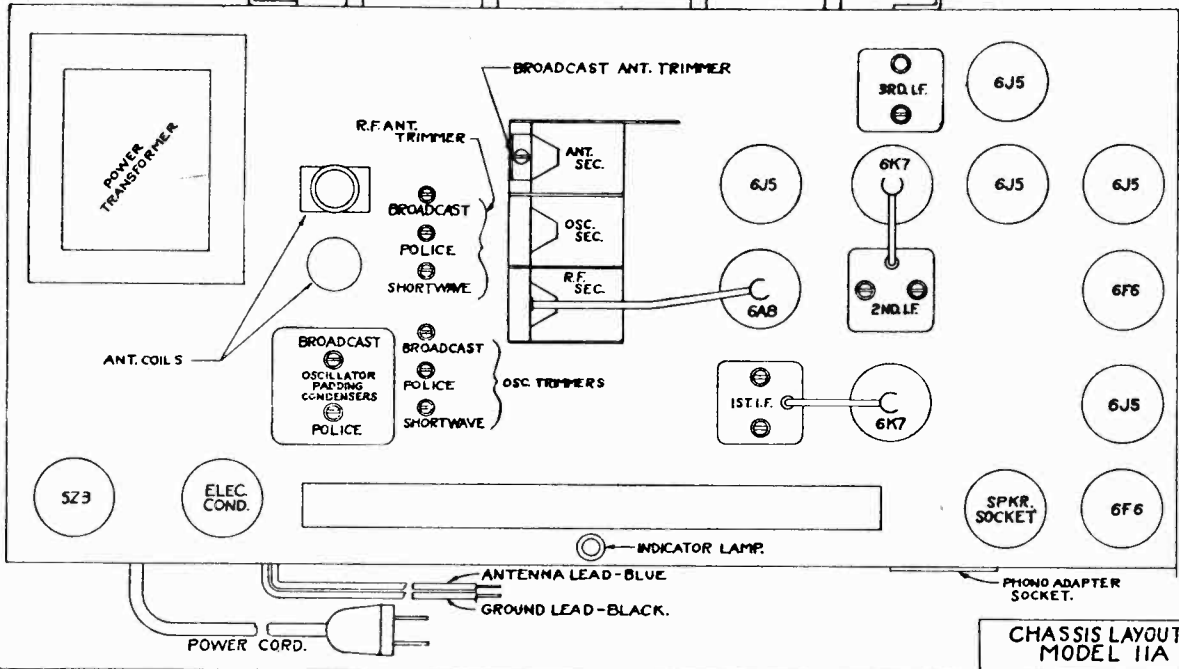
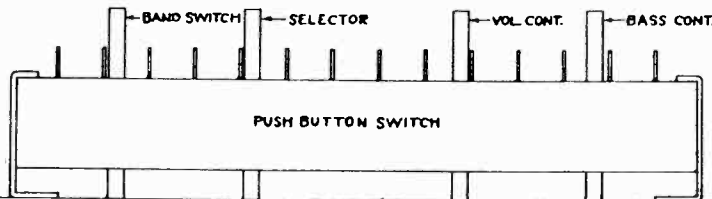
This receiver is designed to operate over three tuning ranges;

535 to 1730 Kilocycles, 1.7 to 5.6 and 5.6 to 18.1 Megacycles.



ALIGNMENT.

SEE MODEL 8A.  
Note: In align-  
ing IF, align  
all six Trimm-  
ers.



MODEL 11A  
MODEL 16S  
Tuner Data  
Parts

CONTINENTAL RADIO & TELEV. CO.

INSTRUCTIONS FOR ADJUSTMENT AND OPERATION  
OF THE ELECTRIC TUNER

It is very important to read the following instructions carefully before attempting to adjust the electric tuner. The electric tuner is made up of three integral units:

**PUSH BUTTON SWITCH:** The push button switch consists of eight (8) brown push buttons flanked on either side by three (3) white push buttons.

**SELECTOR MECHANISM:** The selector mechanism is made up of the selector plate, eight (8) thumb screws, and the adjustment light bulb.

**ELECTRIC MOTOR:** The power for this tuner is provided by a small, efficient electric motor, of the brushless variety. It is fitted with an automatic clutch. The bearings and the oil retainer hold sufficient oil to lubricate the motor for a lifetime.

SETTING UP STATIONS

The first step to take in adjusting the electric push button device incorporated into this receiver is to choose eight (8) of the most powerful local stations, stations which are free from excess fading. Turn on the receiver (broadcast band) and press in the dial tuning button; tune in the station of the lowest frequency, using the station selector knob. Now hold the dial tuning button in and press in button number one (1). (See Figure 1). Both buttons are now locked into place; a small pilot lamp located at the rear of the chassis will light up unless the thumb screw at the rear accidentally happens to be correctly set. Loosen thumb screw number one (See Figure 2 for order of thumb screws) enough to allow it to slide freely back and forth until the light goes out. Now tighten the thumb screw; the adjustment for the first station is now complete. Out of the station call letter sheet supplied remove the proper station call disc and insert into the recess of button number one. Push one of the clear celluloid discs into the recess also, over the station call disc. Now release button number one by pressing the dial tuning button in as far as it will go.

With the white button still in, tune in the station of the next highest frequency and holding the white button, press in button number two. Both buttons are now locked into place. Loosen thumb screw number two (see Figure 2) and slide back and forth until a point is reached at which the pilot lamp in the rear goes out; tighten the thumb screw. Insert the proper station call disc and celluloid disc into the window of button number two.

Follow this same procedure for the remaining stations, always choosing the station with the next highest frequency. After all eight (8) stations have been adjusted, check each adjustment by tuning in each station. Note: In the window above the white button, insert the word "OFF" found in the call letter sheet.

**NOTE:** In the recesses of the white push buttons insert the words found in the call letter sheet as shown in Figure 1.

HOW TO TUNE IN STATIONS USING THE ELECTRIC PUSH BUTTON TUNER

In order to operate the receiver satisfactorily—using the electric push button tuner, the dial tuning button must be in released position, that is, all the way out. To tune in a station, merely press the selector button which designates the station desired. Note: Should the station fail to come in clearly, check the adjustment by following the adjustment procedure described in the paragraph above.

To change from electric tuning to manual selecting, simply press in the dial tuning button. When the dial tuning button is in, the set may be tuned as a conventional receiver.

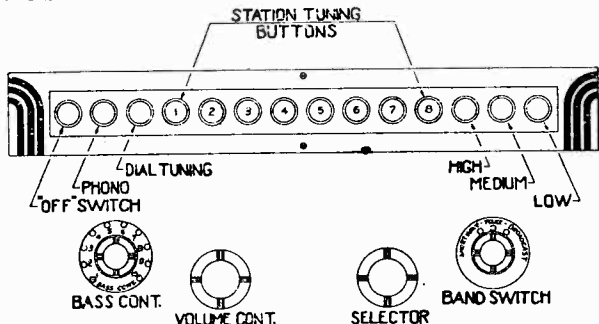


Fig. 1

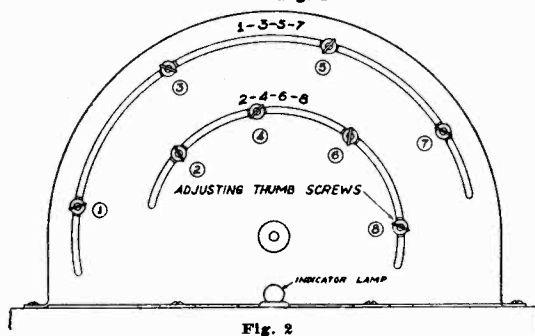


Fig. 2

RESISTORS		
R 1—P140	500 Ohm	¼ Watt
R 2—P1950	350 Ohm	¼ Watt 10%
R 3—P139	250,000 Ohm	¼ Watt
R 4—P481	3,000 Ohm	¼ Watt
R 5—P673	10,000 Ohm	½ Watt
R 6—P417	50,000 Ohm	¼ Watt
R 7—P137	500,000 Ohm	¼ Watt
R 9—P137	1,000,000 Ohm	¼ Watt
R11—P2731	25,000 Ohm	1 Watt
R12—P278	600 Ohm	¼ Watt
R13—P1950	350 Ohm	¼ Watt
R14—P417	50,000 Ohm	¼ Watt
R15—P139	250,000 Ohm	¼ Watt
R16—P1220	200,000 Ohm	¼ Watt
R17—P166	25,000 Ohm	¼ Watt
R18—P376	750 Ohm	¼ Watt
R19—P258	15,000 Ohm	¼ Watt
R20—P166	25,000 Ohm	¼ Watt
R21—P2732	220 Ohm	2 Watt
R22—P167	10,000 Ohm	¼ Watt
R23—P139	250,000 Ohm	¼ Watt
R24	Volume Control—	2,000,000 Ohms

TRANSFORMERS AND COILS

P2710	Power Transformer
P1930	1st I.F. Transformer
P2704	2nd I.F. Transformer
P2711	3rd I.F. Transformer
G5794	Oscillator Coil Assembly
G5310	Police and Short Wave Antenna Coil
G5347	Broadcast Antenna Coil

R25	Bass Control—	1,000,000 Ohms
R26—P1217	60,000 Ohm	¼ Watt
R27—P167	10,000 Ohm	¼ Watt
R28—P165	25,000 Ohm	¼ Watt
R29	Speaker Field—	600 Ohm

PAPER CONDENSERS

C 1—P148	.05 Mfd.	200 V.
C 2	Police Band Padder—	(.0008—.0016 Mfd.)
C 4	Broadcast Band Padder—	(.003—.0006 Mfd.)
C 6—P1322	.005 Mfd.	600 V.
C 8—P276	.1 Mfd.	400 V.
C 9—P148	.05 Mfd.	200 V.
C11—P142	.1 Mfd.	200 V.
C14—P334	.05 Mfd.	400 V.
C15—P334	.05 Mfd.	400 V.
C19—P334	.05 Mfd.	400 V.
C20—P1322	.005 Mfd.	600 V.
C22—P148	.05 Mfd.	200 V.

MISCELLANEOUS

P1928	Tube Socket
P1153	5Z3 Socket
P945	Speaker Socket
P2705	Volume Control
P2706	Bass Control
G5788	Band Switch and Lead Assembly
P929	A.C. Line Cord
P1455	Tube Shield
P1456	Tube Shield Base
P2716	12" Dynamic Speaker

C23—P1322	.005 Mfd.	600 V.
C24—P1322	.005 Mfd.	600 V.
C25—P276	.1 Mfd.	400 V.
C26—P276	.1 Mfd.	400 V.
C28—P148	.05 Mfd.	200 V.

MICA CONDENSERS

C 3—P1683	.004 Mfd.
C 7—P480	.0001 Mfd.
C12—P480	.0001 Mfd.
C13—P480	.0001 Mfd.
C21—P1382	.00025 Mfd.
C27—P480	.0001 Mfd.

ELECTROLYTIC CONDENSERS

C16 } P1939	Dual Electrolytic
C17 }	
C18—P1937	Electrolytic

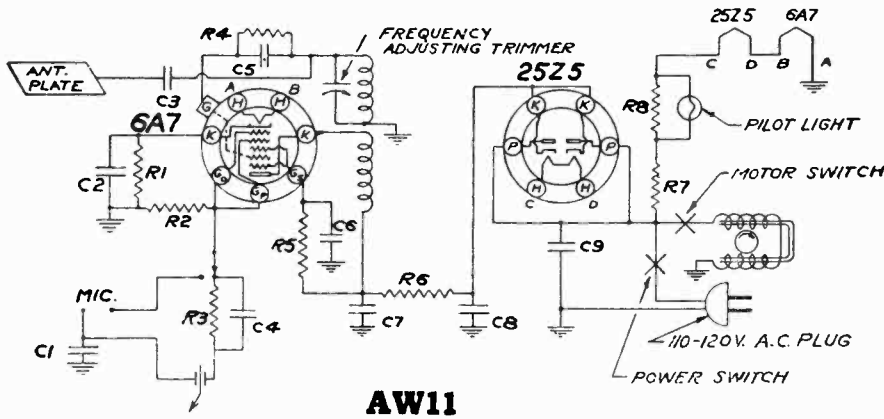
ADJUSTABLE CONDENSERS

P1918A	Variable Condenser
P2743	Gang Trimmer Strip
P1682	Oscillator Padder Condensers
P2694	Push Button Switch
P1503	Pilot Light Socket
P1504	Pilot Light Bulb
P2690	Electric Motor
P2689	Rubber Drive Belt
P2688	Dial Scale
P2644	Dial Pointer
G5462	Lower Segment Adjustment Bracket and Contact
G5463	Upper Segment Adjustment Bracket and Contact

Schematic, Layout Notes

CONTINENTAL RADIO & TELEV. CO.

MODEL AW11  
Wireless Record Player



AW11

RESISTORS

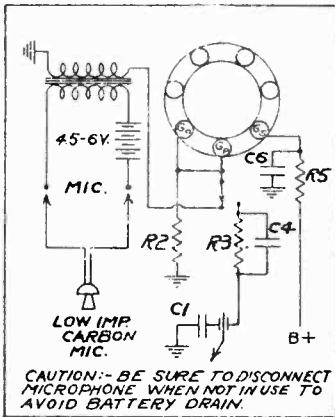
- P1952 50,000 Ohm 1/2 Watt Ins.
- P2344 250,000 Ohm 1/2 Watt Ins.
- P1381 1,000 Ohm 1/2 Watt Ins.
- P673 10,000 Ohm 1/2 Watt Ins.
- P1304 5,000 Ohm 1/2 Watt Ins.
- P2833 Candohm Resistor

CONDENSERS

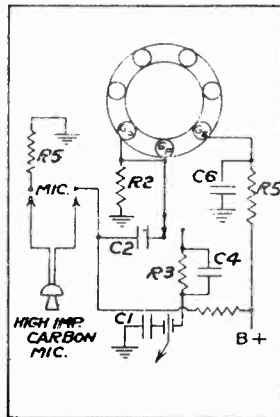
- P276 .10 Mfd. 400 V. Paper
- P148 .05 Mfd. 200 V. Paper
- P2821 Electrolytic Condenser
- P480 .0001 Moulded Mica
- P1382 .00005 Moulded Mica
- P336 .0005 Moulded Mica
- P2826 Trimmer Condenser

MISCELLANEOUS

- P506 6A7 Tube Socket
- P559 2525 Tube Socket
- P2827 Oscillator Coil
- P2798 Motor and Turntable
- P2828 Pickup Arm
- P2800 Automatic Stop Switch
- P2615 Needle Cup
- P897 Phono Jack
- P2829 Slide Switch
- P2825 Power Switch
- P2831 Power Switch Knob
- P2215 Line Cord
- P1923 Pilot Light Socket
- P1504 Pilot Light Bulb
- P2844 Pickup Rest



CAUTION:-- BE SURE TO DISCONNECT MICROPHONE WHEN NOT IN USE TO AVOID BATTERY DRAIN.



CONDENSERS

TYPE	MFD.	VOLTS
P276	.10	400
P148	.05	200
P2821	.00005	200
P480	.0001	200
P1382	.00005	200
P336	.0005	200
P2826	.00005	200

RESISTORS

TYPE	OHMS	WATTS
P1952	50,000	1/2
P2344	250,000	1/2
P1381	1,000	1/2
P673	10,000	1/2
P1304	5,000	1/2
P2833	Variable	Variable

MICROPHONE

It will be noticed that the unit is provided with a sliding switch to change from phono pickup to microphone. Before attempting to use the Mic the switch should be set in the proper position.

The wireless record player unit is shipped from the factory, connected for use with a **Brush** type SM-37 crystal microphone, and **Quam Permac** microphone. Insert pin tip connectors into microphone jacks. For use with other types of microphones, schematic diagrams are enclosed wherein the necessary wiring changes are shown.

The high impedance carbon microphone is the type usually recommended for home use and is connected in the plate circuit of the audio tube. Such microphones as the Philmore, I.R.C. and others fall into this group.

The low impedance microphones include the single and double button types and are as a rule the most satisfactory for use with the wireless unit. These are usually of a higher grade and are recommended for use when maximum output and tone quality is required. With such a microphone and a receiver having sufficient power output, a very simply installed and effective P.A. system may be had.

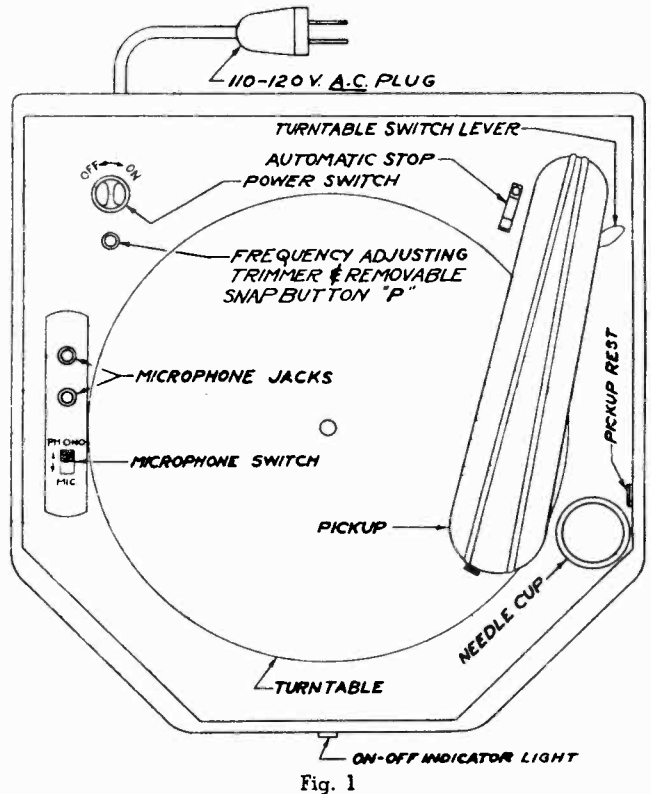


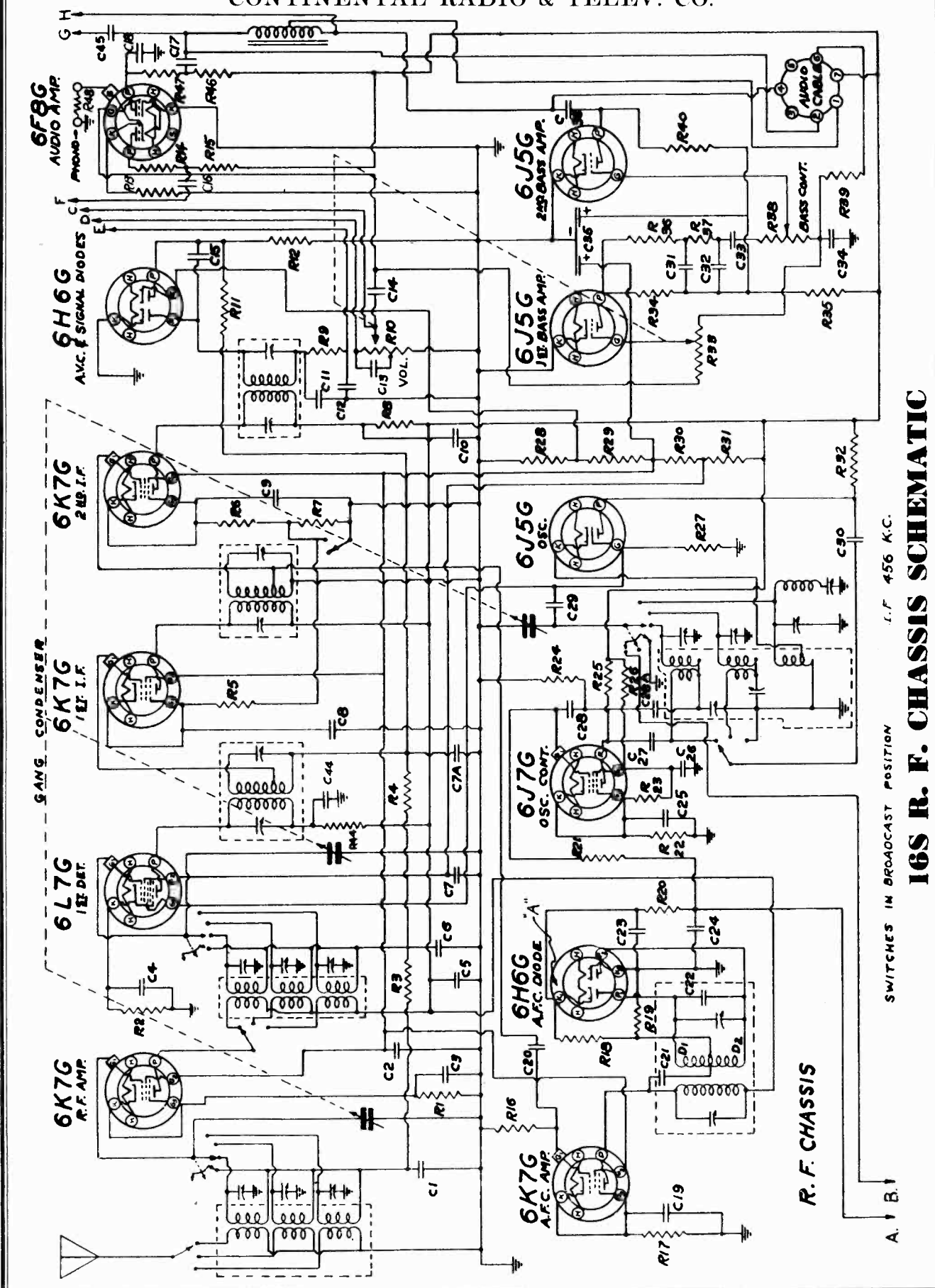
Fig. 1



MODEL 16S

CONTINENTAL RADIO & TELEV. CO.

R-F Schematic

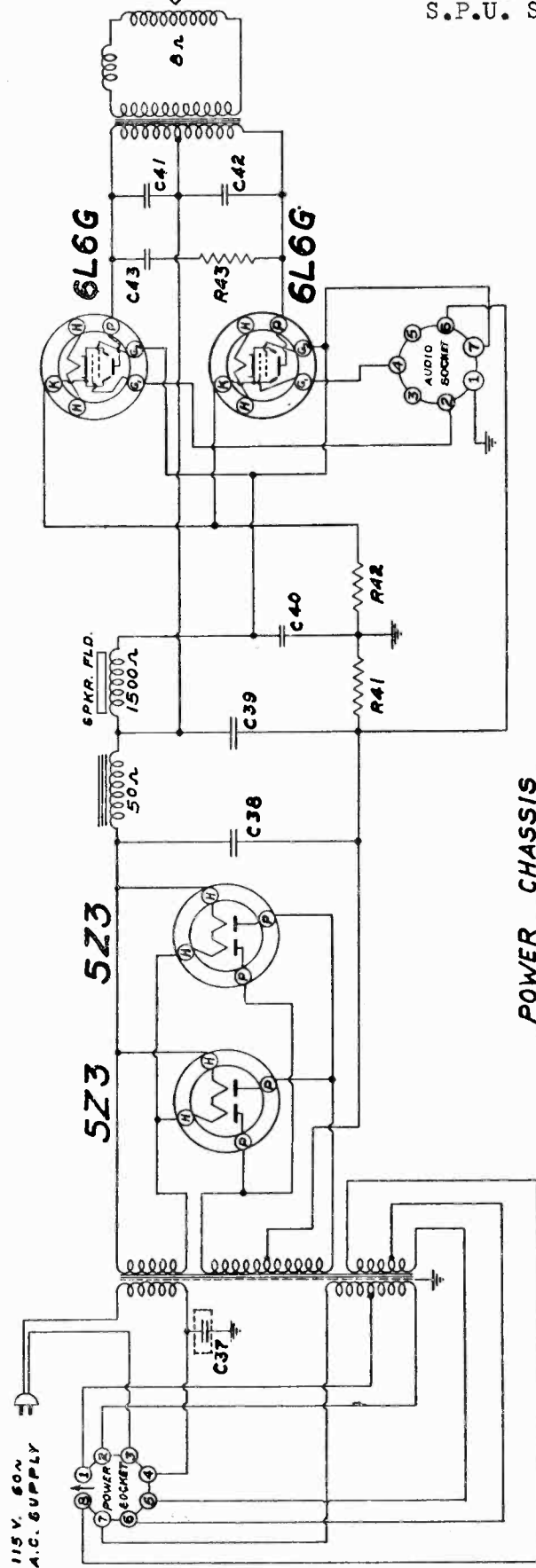
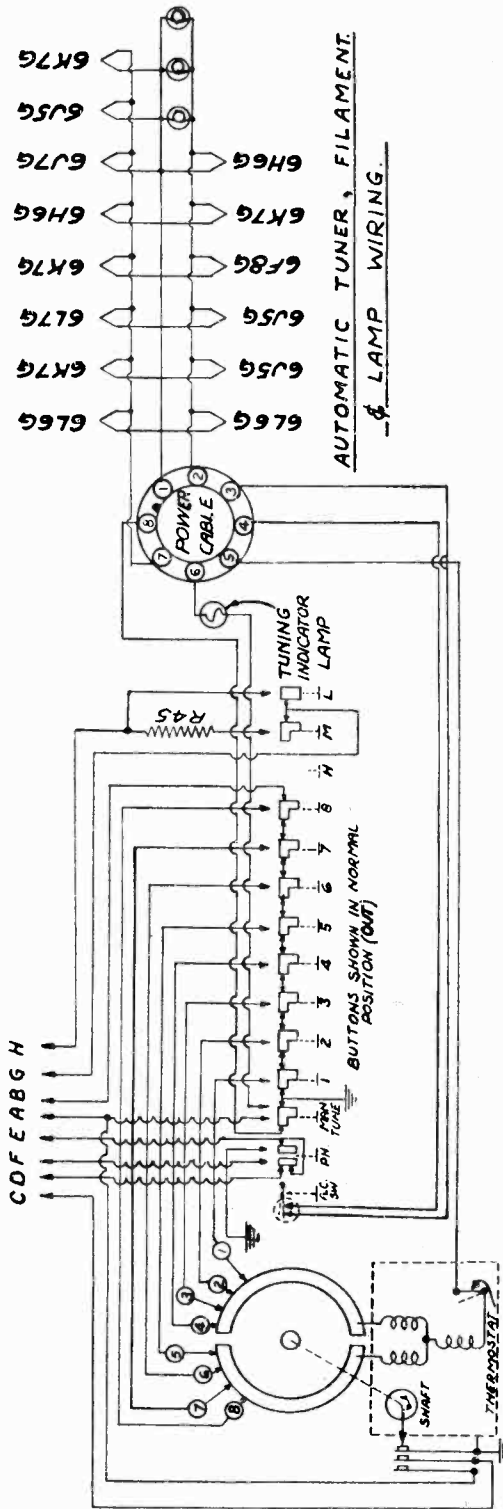


SWITCHES IN BROADCAST POSITION I.F. 456 K.C.

**16S R. F. CHASSIS SCHEMATIC**

CONTINENTAL RADIO & TELEV. CO.

MODEL 16S  
Tuner, A-F and  
S.P.U. Schematic



16S COMBINED TUNER and A. F. SCHEMATIC

MODEL 16S.

Socket, Trimmers  
Alignment, Notes  
Parts

CONTINENTAL RADIO & TELEV. CO.

This receiver is designed to operate over three tuning ranges with a Horizontal Pointer movement, the broadcast band which extends from 535 to 1730 Kilocycles (KC) (173 to 560 Meters), Police and Aviation Band which extends from 1.7 to 5.6 Megacycles (MC) (53 to 176 Meters) and the International Short Wave Band which extends from 5.6 to 18.1 Megacycles (MC) (16.5 to 53 Meters). This latter range is the one which includes the four internationally assigned bands—the 19, 25, 31 and 49 meter bands.

This receiver is designed to operate from a power supply main of 110-120 volts, 60 cycle alternating current (A.C.). Never plug into a DC outlet.

**FLOATING CHASSIS (IMPORTANT)** Loosen the four (4) mounting screws and two (2) hook bolts that secure the chassis to the cabinet and remove the two (2) wooden strips that are underneath the chassis. This allows the chassis to float and rest on the rubber pads used for this purpose. After the strips have been removed, adjust the chassis in the cabinet so that the dial will be in the center of the front escutcheon plate. Do not retighten the mounting screws. NOTE: Serve the mounting screws and wooden strips to use in case the set is reshipped or moved, otherwise damage may be done to the instrument.

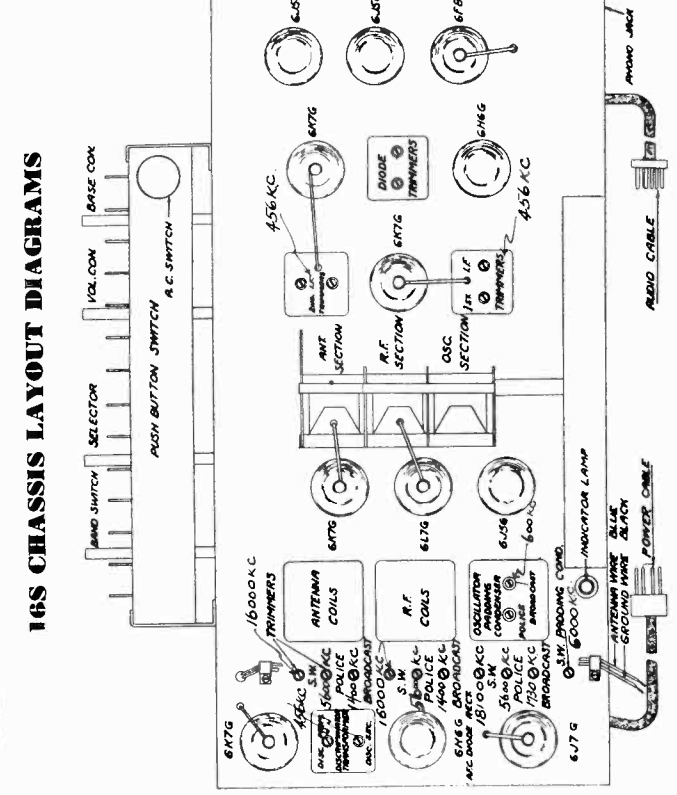
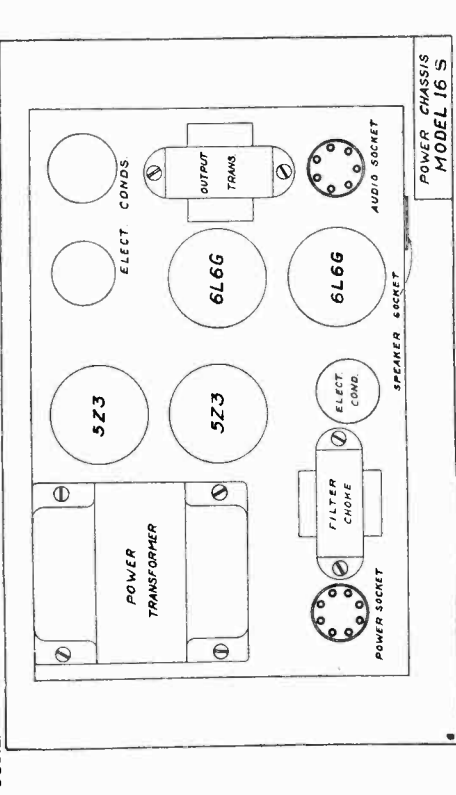
**GROUND** Whenever possible, a good ground should be employed. Water pipes and steam or hot water radiators make a very desirable ground connection. The ground wire should be connected to the ground lead (black).

Where the above mentioned ground facilities are not available, a good outside ground rod about six feet into moist earth. An excellent bed can be prepared by digging a hole and filling with charcoal, in which the ground rod is placed. The charcoal bed surrounding the ground rod will maintain a moist condition throughout the year.

REPLACEMENT PARTS LIST 16S

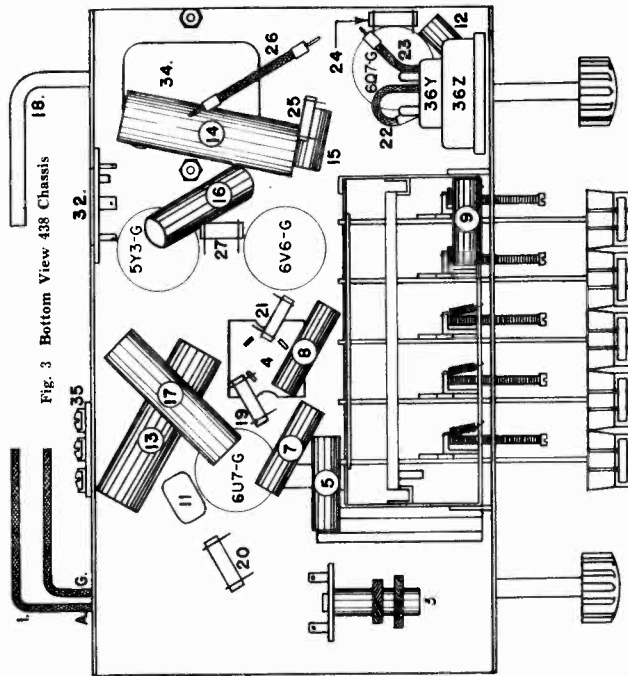
C 6-P334	.05	Mid. 400 V.
C 7-P142	.1	Mid. 200 V.
C 8-P142	.1	Mid. 200 V.
C 9-P142	.1	Mid. 200 V.
C10-P334	.05	Mid. 400 V.
C11-P334	.05	Mid. 400 V.
C12-P334	.05	Mid. 400 V.
C13-P334	.05	Mid. 400 V.
C14-P334	.05	Mid. 400 V.
C15-P334	.05	Mid. 400 V.
C16-P334	.05	Mid. 400 V.
C17-P334	.05	Mid. 400 V.
C18-P334	.05	Mid. 400 V.
C19-P334	.05	Mid. 400 V.
C20-P334	.05	Mid. 400 V.
C21-P334	.05	Mid. 400 V.
C22-P334	.05	Mid. 400 V.
C23-P334	.05	Mid. 400 V.
C24-P334	.05	Mid. 400 V.
C25-P334	.05	Mid. 400 V.
C26-P334	.05	Mid. 400 V.
C27-P334	.05	Mid. 400 V.
C28-P334	.05	Mid. 400 V.
C29-P334	.05	Mid. 400 V.
C30-P334	.05	Mid. 400 V.
C31-P334	.05	Mid. 400 V.
C32-P334	.05	Mid. 400 V.
C33-P334	.05	Mid. 400 V.
C34-P334	.05	Mid. 400 V.
C35-P334	.05	Mid. 400 V.
C36-P334	.05	Mid. 400 V.
C37-P334	.05	Mid. 400 V.
C38-P334	.05	Mid. 400 V.
C39-P334	.05	Mid. 400 V.
C40-P334	.05	Mid. 400 V.
C41-P334	.05	Mid. 400 V.
C42-P334	.05	Mid. 400 V.
C43-P334	.05	Mid. 400 V.
C44-P334	.05	Mid. 400 V.
C45-P334	.05	Mid. 400 V.
C46-P334	.05	Mid. 400 V.
C47-P334	.05	Mid. 400 V.
C48-P334	.05	Mid. 400 V.
C49-P334	.05	Mid. 400 V.
C50-P334	.05	Mid. 400 V.
C51-P334	.05	Mid. 400 V.
C52-P334	.05	Mid. 400 V.
C53-P334	.05	Mid. 400 V.
C54-P334	.05	Mid. 400 V.
C55-P334	.05	Mid. 400 V.
C56-P334	.05	Mid. 400 V.
C57-P334	.05	Mid. 400 V.
C58-P334	.05	Mid. 400 V.
C59-P334	.05	Mid. 400 V.
C60-P334	.05	Mid. 400 V.
C61-P334	.05	Mid. 400 V.
C62-P334	.05	Mid. 400 V.
C63-P334	.05	Mid. 400 V.
C64-P334	.05	Mid. 400 V.
C65-P334	.05	Mid. 400 V.
C66-P334	.05	Mid. 400 V.
C67-P334	.05	Mid. 400 V.
C68-P334	.05	Mid. 400 V.
C69-P334	.05	Mid. 400 V.
C70-P334	.05	Mid. 400 V.
C71-P334	.05	Mid. 400 V.
C72-P334	.05	Mid. 400 V.
C73-P334	.05	Mid. 400 V.
C74-P334	.05	Mid. 400 V.
C75-P334	.05	Mid. 400 V.
C76-P334	.05	Mid. 400 V.
C77-P334	.05	Mid. 400 V.
C78-P334	.05	Mid. 400 V.
C79-P334	.05	Mid. 400 V.
C80-P334	.05	Mid. 400 V.
C81-P334	.05	Mid. 400 V.
C82-P334	.05	Mid. 400 V.
C83-P334	.05	Mid. 400 V.
C84-P334	.05	Mid. 400 V.
C85-P334	.05	Mid. 400 V.
C86-P334	.05	Mid. 400 V.
C87-P334	.05	Mid. 400 V.
C88-P334	.05	Mid. 400 V.
C89-P334	.05	Mid. 400 V.
C90-P334	.05	Mid. 400 V.
C91-P334	.05	Mid. 400 V.
C92-P334	.05	Mid. 400 V.
C93-P334	.05	Mid. 400 V.
C94-P334	.05	Mid. 400 V.
C95-P334	.05	Mid. 400 V.
C96-P334	.05	Mid. 400 V.
C97-P334	.05	Mid. 400 V.
C98-P334	.05	Mid. 400 V.
C99-P334	.05	Mid. 400 V.
C100-P334	.05	Mid. 400 V.

FOR ADJUSTMENT AND OPERATION OF THE ELECTRIC TUNER AND HOW TO TUNE IN STATIONS USING THE ELECTRIC PUSH BUTTON TUNER SEE MODEL 11A.



CROSLLEY CORP.

MODEL 438, 438M, 486 Phono.  
Chassis, Voltage, Alignment  
Drive Data, Phono. Data, Tuner



Item No. 10 Deleted Was Capacity Coupling (Twisted Leads)

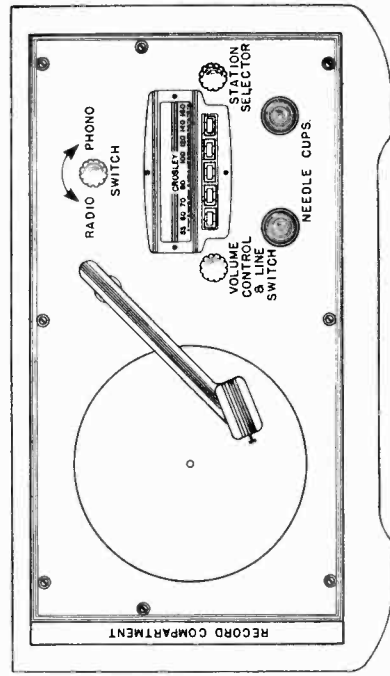


Fig. 4 Top View - Combination

Tube	Function	H	P	S	K	G	Su
6U7G	Amplifier	67	175	100	-	-3	---
6Q7G	Det., A. V. C.	67	78	176	-3	-1.5	---
6V6G	Output	67	172	176	-	-10	---
5Y3G	Rectifier	4.1	negative end of spk. field to No. 8 pin 225 volts				

Voltage drop across speaker field 40 volts.  
Maximum power output approximately 3.5 watts.  
Power consumption at 117.5 line approx. 36 watts. Phono—15 watts additional.

MODEL 438-M  
Chassis 438 — Phono Assy. 486

FOR SCHEMATIC  
SEE INDEX

OCTOBER, 1938

**SPECIFICATIONS**

This model combination consists of a four-tube T. R. F. radio receiver and Record Player in a console cabinet, designed for operation on electric circuits as specified on the Model and License Notice Label.

Incorporated in the receiver design is, a mechanical Push Button tuning system, an iron cored antenna coil with antenna to match, A.V.C., beam power output and dynamic speaker.

The frequency range of the receiver is from 1725 to 540 kilocycles. The tubes used and their function are as follows: one 6U7G as R-F amplifier, one 6Q7G as detector, A.V.C. and 1st audio amplifier, one 6V6G as beam power and one 5Y3G as rectifier.

The bias for the 6U7G is obtained from the voltage drop across a 60 ohm resistor (item 22) and is measured from the chassis to the Cathode of the 6Q7G. The bias for the 6Q7G is obtained from the drop across a 32 ohm resistor (item 23) and is measured from the cathode of the 6Q7G to the junction of items 23 (32 ohm)—24 (3 meg) and 26 (140 ohm). The 6V6G bias is obtained from the total drop across items 22 (60 ohm), 23 (32 ohm) and 26 (140 ohm) resistors which are in series with the speaker field that is in the negative leg of the power supply. The bias is measured from chassis to the junction of items 26, 27 and speaker field.

**CONNECTING OUTPUT METER**

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 6V6G output tube. Be sure the meter is protected from D.C. by connecting a condenser (1 mfd. or larger—not electrolytic) in series with one of the leads.

**ALIGNMENT PROCEDURE**

The signal generator high side should be connected to the antenna through a .0001 Mf. condenser, after the antenna has been completely uncoiled. The low side of the signal generator is connected to chassis.

- (a) First check to see that the pointer makes a complete trip both ways.
- (b) Set the signal generator to 1400 kilocycles.
- (c) Set the pointer of receiver to 140 on the dial.
- (d) Adjust trimmer condensers on the gang for maximum output.
- (e) Check to see that set will tune to 1725 kilocycles, it does not have to tune through a peak at this frequency.

Any large discrepancy in tracking may be compensated for by slight adjustments of the split end plates of the condenser gang.

Check Push Buttons to see if they need resetting.

**SETTING THE PUSH BUTTONS**

The push buttons may be quickly and accurately set

from the front of the receiver. Insert a small screw driver in the whole in the front of each push button to be set and loosen (DO NOT REMOVE) the set screw at the bottom of the hole.

Determine the favorite broadcasting stations whose call letters are to be placed in the push buttons. By means of the station selector knob, tune-in AS ACCURATELY AS POSSIBLE the station having the highest frequency (kilocycles), that is the one nearest the 150 marking on the knob. Completely depress and hold the right hand push button in that position, while you SECURELY TIGHTEN THE SET SCREW.

The push button system is now set for the first station. Follow through with this same procedure, setting the other stations in the order of their frequency (kilocycles.)

Put the call letters of the stations selected, from the list supplied with your receiver and press them into the openings in the front of the push buttons. Four pieces of clear celluloid are supplied in a small envelope and should be snapped into place over the call letters to protect and hold them in place.

**REPLACING DRIVE CORD**

- 1.—Remove the chassis from the cabinet.
- 2.—Remove the broken drive cord, first from the pointer then from the pulleys. Remove the cord tension spring.
- 3.—Remove the dial (glass and mask) and the manual tuning shaft bracket.
- 4.—Cut a piece of drive cord 44 inches in length (G2-41582).
- 5.—Tie the cord tension spring approximately 1 1/2 inches from the one end of the cord. Open gang condenser, this should place the eyelet in the pulley up. Insert the end of the cord through eyelet, from the inside of pulley. Hook end of the tension spring on the catch in pulley, opposite the eyelet.

- 6.—Bring the cord forward and down, then around lower idler pulley, (on gang bracket) on the underside, continue over to the left hand idler pulley. Bring around and over in a clockwise direction. Continue on over to top of right hand idler pulley, then straight down to and around pulley on drive shaft. Make two complete turns around drive shaft pulley in a clockwise direction. Then bring cord up and over top idler pulley on gang bracket, making 1/2 turn in a counter clockwise direction. Continue cord straight down then back and around large pulley on the gang, in a counter clockwise direction to eyelet. Insert end of cord through eyelet (top down). Pull cord until tension spring is stretched to about 3/4 inches in length. Loop cord in tension spring and tie in knot. Clamp cords together with cord clamp (W-46290) approximately 1/8 inch from inside rim of large pulley.
- 7.—Replace manual drive shaft bracket, dial mask and dial.
- 8.—Close condenser gang, place pointer at 540 on dial and then insert drive cord in pointer. Check pointer travel before centering the cord to pointer.

**PHONO**

The motor is mounted in such a manner that it will swing up and down a short distance. The reason for this is, that when the turntable is in operating position the weight of the motor is applied to the friction drive and against the inside surface of the turn-table rim. The amount of friction obtained is just right for proper operation. When placing the turn-table in position, first hook the rim over the friction drive on the motor shaft then carefully place the center hole in the turn-table on the record guide (spindle). During this operation you should be very careful to see that the friction drive is completely under the rim and that the turn-table is all the way down on the record guide (spindle).

The Radio-Phono Switch (Fig. 4) when turned to the left is for radio broadcast reception and when turned to the right cuts off the radio signals and starts the phonograph motor.

The Volume Control and Line Switch of the receiver must be turned on before the motor will operate. This volume control also controls the output level of the phonograph.

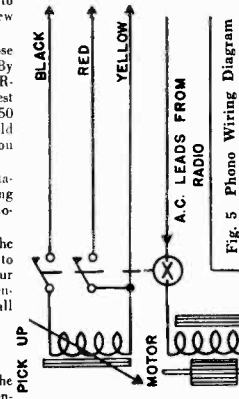


Fig. 5 Phono Wiring Diagram

**TUBES AND VOLTAGE LIMITS**

The following table gives the functions of the tubes used, together with the voltage readings between the tube-socket contacts and chassis. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with volume control full on and no signal input. The filament voltages should be measured with an accurate low range voltmeter. Voltage limits may vary, plus or minus 10% of values given.

MODEL 448 Combination  
Socket, Trimmers, Voltage  
Alignment, Phono Data, Tuner

CROSLLEY CORP.

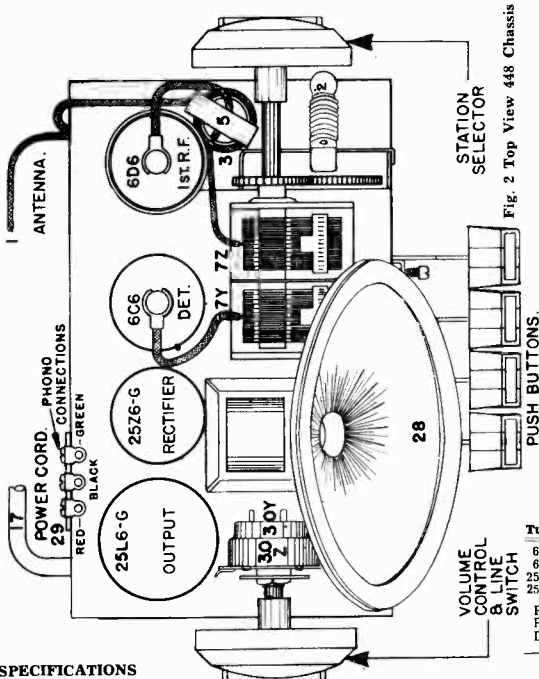


Fig. 2 Top View 448 Chassis

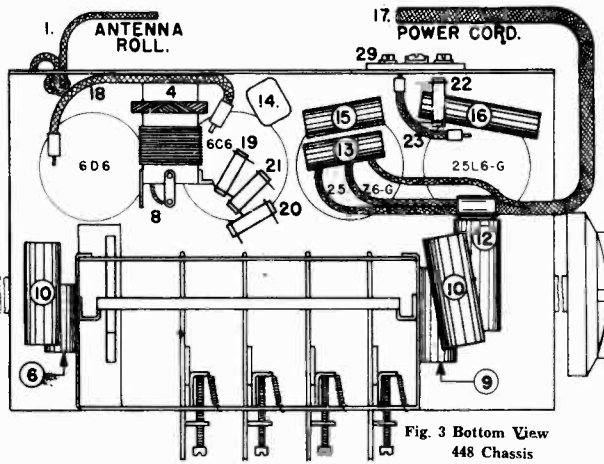


Fig. 3 Bottom View 448 Chassis

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	K	Su	G
6D6	R-F Amplifier	6.3	97	98	2.5-25	2.5-25	—
6C6	Detector	6.3	20	10	7	—	—
25L6-G	Output	25	85	98	6	—	—
25Z6-G	Rectifier	25	—	—	126	—	—

Power output approximately 2 watts.  
Power consumption at 117.5 volts line 45 watts. Phono Motor 15 watts additional.  
Drop across field 28 volts.

SPECIFICATIONS

The receiver is a four-tube Tuned Radio Frequency receiver designed for operation on A. C. circuits as specified on Model Sticker. Push Button tuning, Beam power output, Dynamic Speaker are a few of the features incorporated in this receiver. The frequency range is from 1725 to 540 Kc. The tubes used and their functions are as follows: one 6D6 as R-F amplifier, one 6C6 as biased detector, one 25L6G as beam power output and one 25Z6G as rectifier. The volume control varies the bias on the 6D6 and at the same time the amount of signal fed to the antenna coil primary. The bias for the 6C6 is obtained from the voltage drop across item 19 (25000 ohm resistor) and for the 25L6G from the drop across item 23 (110 ohm resistor).

This receiver incorporates a certain amount of fixed regeneration to improve selectivity and sensitivity. With a normal antenna the receiver is stable and the performance approaches that of a three gang T. R. F. receiver in spite of the fact that only a two gang condenser is used. However with no antenna or a very small antenna the receiver will oscillate but this oscillation can readily be controlled by the volume control.

TUBES AND VOLTAGE LIMITS

The following table gives the functions of the tubes used, together with the voltage readings between the tube socket contacts and chassis. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with volume control full on and no signal input. The filament voltages should be measured with an accurate low range voltmeter. Voltage limits may vary plus or minus 10% of values given.

NOTE: The RED and BLACK terminals on the phono terminal board supply the current for the phono motor, therefore HAVE 110 VOLTS ACROSS THEM WHEN THE RECEIVER IS IN OPERATING POSITION. BE CAREFUL NOT TO TOUCH OR SHORT CIRCUIT THEM WHILE WORKING ON THE CHASSIS.

CONNECTING OUTPUT METER

Connect the one terminal of the output meter to the plate and the other terminal to the screen of the 25L6G Output tube. Be sure the output meter is protected from D. C. by connecting a condenser (.1 mfd. or larger — NOT electrolytic) in series with one of the leads.

ALIGNMENT PROCEDURE

The chassis of this receiver is connected to one side of the power line, therefore when using an A. C. operated signal generator for alignment the following precaution should be taken.

- Connect the output lead of the signal generator through a .0001 Mf. condenser to the antenna lead on the receiver (after the antenna has been completely unrolled. The ground lead of the generator should be connected through a .001 Mf. condenser to the chassis.
- Open the gang condenser all the way.
- Set the generator to 1725 Kilocycles.
- Adjust the trimmer condensers on the gang until the 1725 Kc signal is heard. The gang does not have

- to tune through this signal.
- Set the generator to 1400 Kc.
- Tune the set to the 1400 Kc. signal, then alternately adjust the trimmers on the gang until no further improvement can be noticed on the output meter.

NOTE: Always use the lowest signal generator output that will give a reasonable indication on the output meter.

Keep the two grid leads as far as possible from each other.

If the receiver has been re-aligned it may be necessary to readjust the setting of the push buttons.

SETTING THE PUSH BUTTONS

The push buttons may be quickly and accurately set from the front of the receiver. Insert a small screw driver in the hole in the front of each push button to be set and loosen (DO NOT REMOVE) the set screw at the bottom of the hole.

Determine the favorite broadcasting stations whose call letters are to be placed in the push buttons. By means of the station selector knob, tune-in AS ACCURATELY AS POSSIBLE the station having the highest frequency (kilocycles), that is the one nearest the 150 marking on the knob. Completely depress and hold the right hand push button in that position, while you SECURELY TIGHTEN THE SET SCREW.

The push button system is now set for the first sta-

tion. Follow through with this same procedure, setting the other stations in the order of their frequency (kilocycles).

Cut the call letters of the stations selected, from the list supplied with your receiver and press them into the openings in the front of the push buttons. Four pieces of clear celluloid are supplied in a small envelope and should be snapped into place over the call letters to protect and hold them in place.

RECORD PLAYER ASSEMBLY

The record player assembly consists of a small self-starting motor, Phono-Radio switch, magnetic pickup and a separate volume control mounted on a metal base plate.

Connections—

A three lead cable is used for connecting the Phono Unit to the Radio receiver. The green lead is the high side of the magnetic pickup and is connected to the 6C6 cathode through a .25 Mf. 160 V. condenser. The red lead is the high side of the 110 volt circuit for the motor. The black lead is connected to the receiver chassis and is the low side of the pickup and motor.

Operation—

Place turn table in position by hooking the rim over the rubber friction drive on the motor shaft, then carefully placing center hole over record guide spindle. Be sure that the table is all the way down on the spindle and that the friction drive is riding full on the inside surface of the rim.

FOR SCHEMATIC  
SEE INDEX

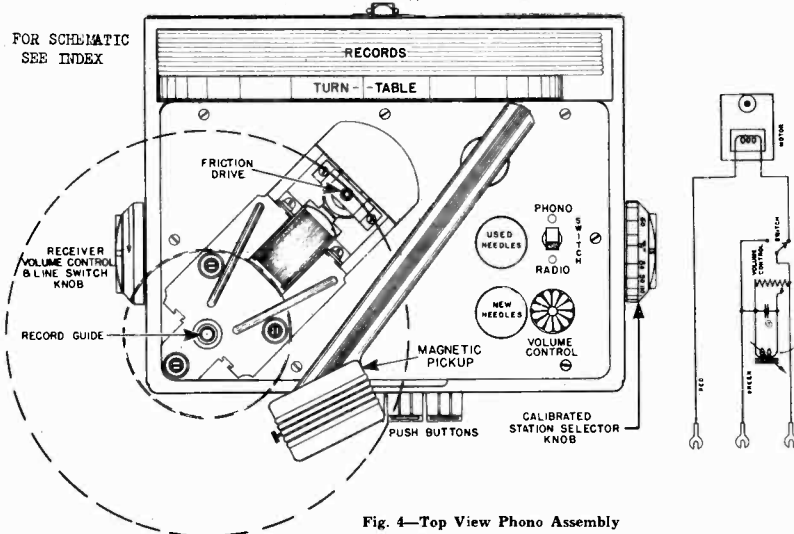


Fig. 4—Top View Phono Assembly

MODEL 448 COMBINATION

OCTOBER, 1938

Fig. 5—Phono Wiring Diagram

CROSLLEY CORP.

MODEL 458, Battery Vanity Schematic, Socket, Trimmers Voltage, Chassis

Tube	Function	H	P	S	G	Ga	Co
1A7-G	Oscillator-Modulator	1.5	82	43	0	82	-6
1N5-G	I-F Amplifier	1.5	82	82	0	-	-
1H5-G	Detector & 1st A-F Amp.	1.5	17	-	0	-	-
1C5-G	Output	1.5	78	82	8*	-	-

Power Output approximately .5 Watt.  
 "A" Battery Drain approximately .25 Ampere at 1.5 Volts.  
 "B" Battery Drain approximately 9 Milliampere at 90 Volts.  
 \*Measured at No. 8 Socket Lug and Chassis.

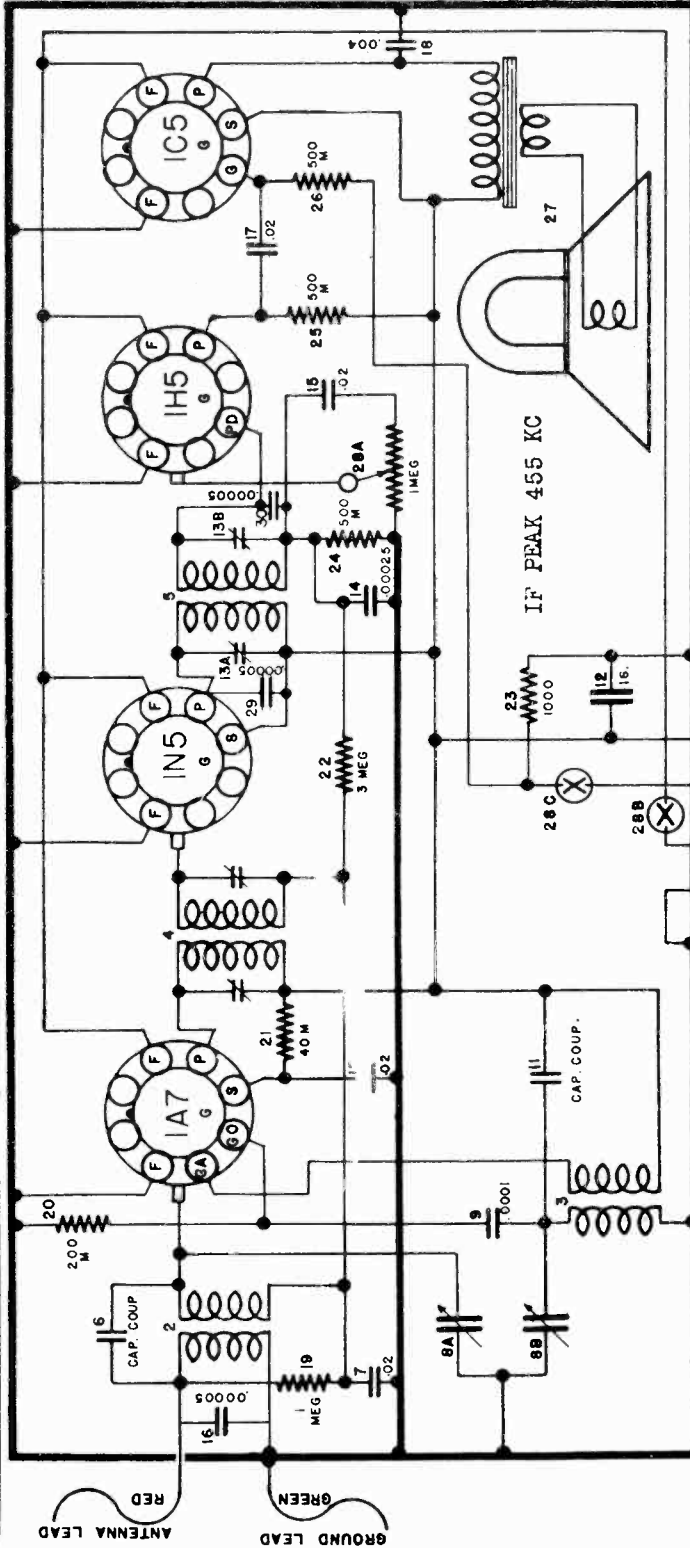


FIG. 1—WIRING DIAGRAM—MODEL 458

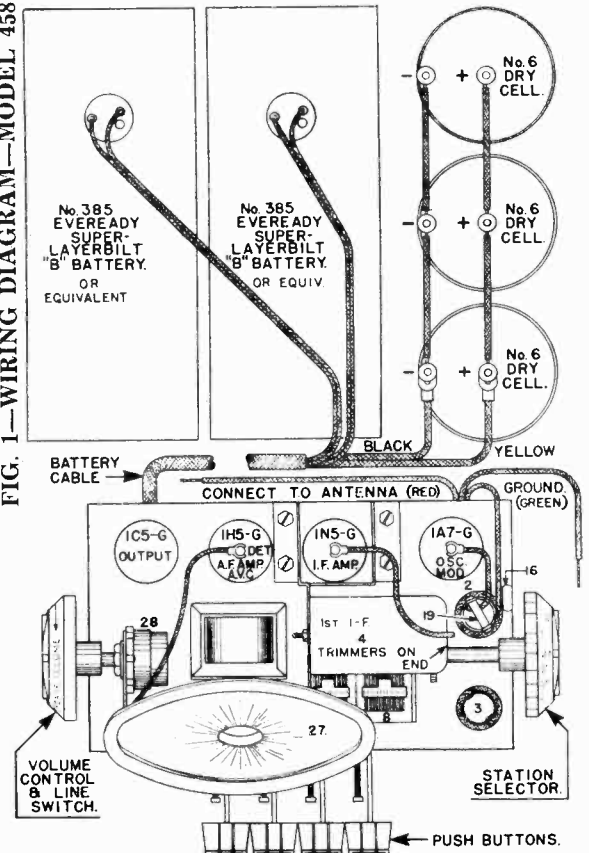


Fig. 2—Top View 458

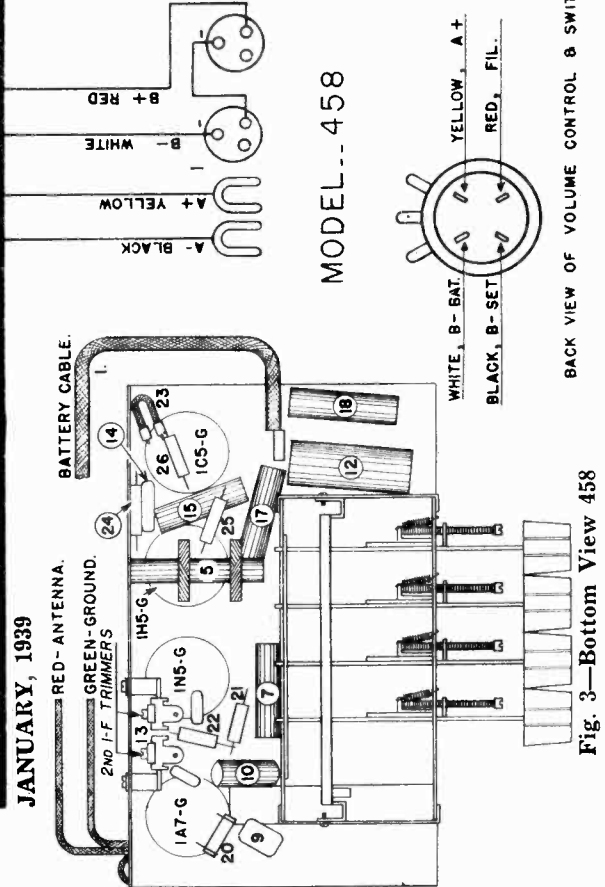


Fig. 3—Bottom View 458



**MODEL 458, Battery Vanity**  
**Alignment, Tuner, Notes**  
**Parts**

**CROSLLEY CORP.**

**MODEL 458 (Battery Vanity)**

**SPECIFICATIONS**

The Crosley Model 458 radio is a four-tube superheterodyne receiver designed for operation from batteries. The method of connecting the battery cable to the batteries is shown on the Wiring Diagram. The batteries required are: one 1.5 volt "A" (EVEREADY NO. 740 or equivalent) or 3 or 4 No. 6 DRY CELLS in parallel, and two plug-in type 45 volt "B" batteries.

**TUBES AND VOLTAGE LIMITS**

The table gives the function of the tubes used, together with the voltage readings between the tube socket contacts and the negative side of the "A" battery circuit. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with receiver in operating condition and the volume control full on and no signal input. The filament voltages should be measured with an accurate low range DC voltmeter (approximately 0 to 10 volts). Voltage limits may vary plus or minus 10% of values given.

**ALIGNMENT PROCEDURE**

All the circuits in this receiver are very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary, the circuits can best be properly aligned with the use of a modulated signal generator and an output meter.

**CONNECTING OUTPUT METER**

Connect the output meter across the "P" and "S" terminals of the 1C5G output tube. Be certain that the meter is protected from DC by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

**1. Tuning I-F Amplifier To 455 Kilocycles.**

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 1A7G tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver. **KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.**

Figures in first column refer to parts in Diagrams.

- (b) Set the station selector so that the tuning condenser plates are completely in mesh and turn the volume control knob to the right (ON).
- (c) Set the signal generator to 455 kilocycles.
- (d) Adjust both 2nd I-F trimmers (located through rear of chassis flange) for maximum reading on the output meter. (Fig. 3).
- (e) Adjust both trimmers located on the 1st I-F transformer (right end) for maximum output. (Fig. 2).
- (f) Check operations (d) and (e) for more accurate adjustments.

**ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.**

**2. Aligning R-F Amplifier.**

When aligning the R-F amplifier the output lead from the signal generator should be connected through a .0002 mfd. condenser to the "ANT" terminal of the receiver.

- (a) Set the signal generator to 1725 kilocycles.
- (b) Open the condenser gang all the way.
- (c) Adjust the "OSC" trimmer condenser on gang for maximum output.
- (d) Set the signal generator to 1400 kilocycles.
- (e) Tune the receiver to the generator signal for maximum output (approximately 140 on the dial).
- (f) Adjust the "ANT" trimmer condenser on gang for maximum output. **DO NOT READJUST THE "OSC" TRIMMER AT 1400 KILOCYCLES.**

(g) Repeat operations (e) and (f) alternately until no further improvement in output can be obtained.

If any of the circuits have been re-adjusted it may be necessary to reset the push buttons.

**SETTING THE PUSH BUTTONS**

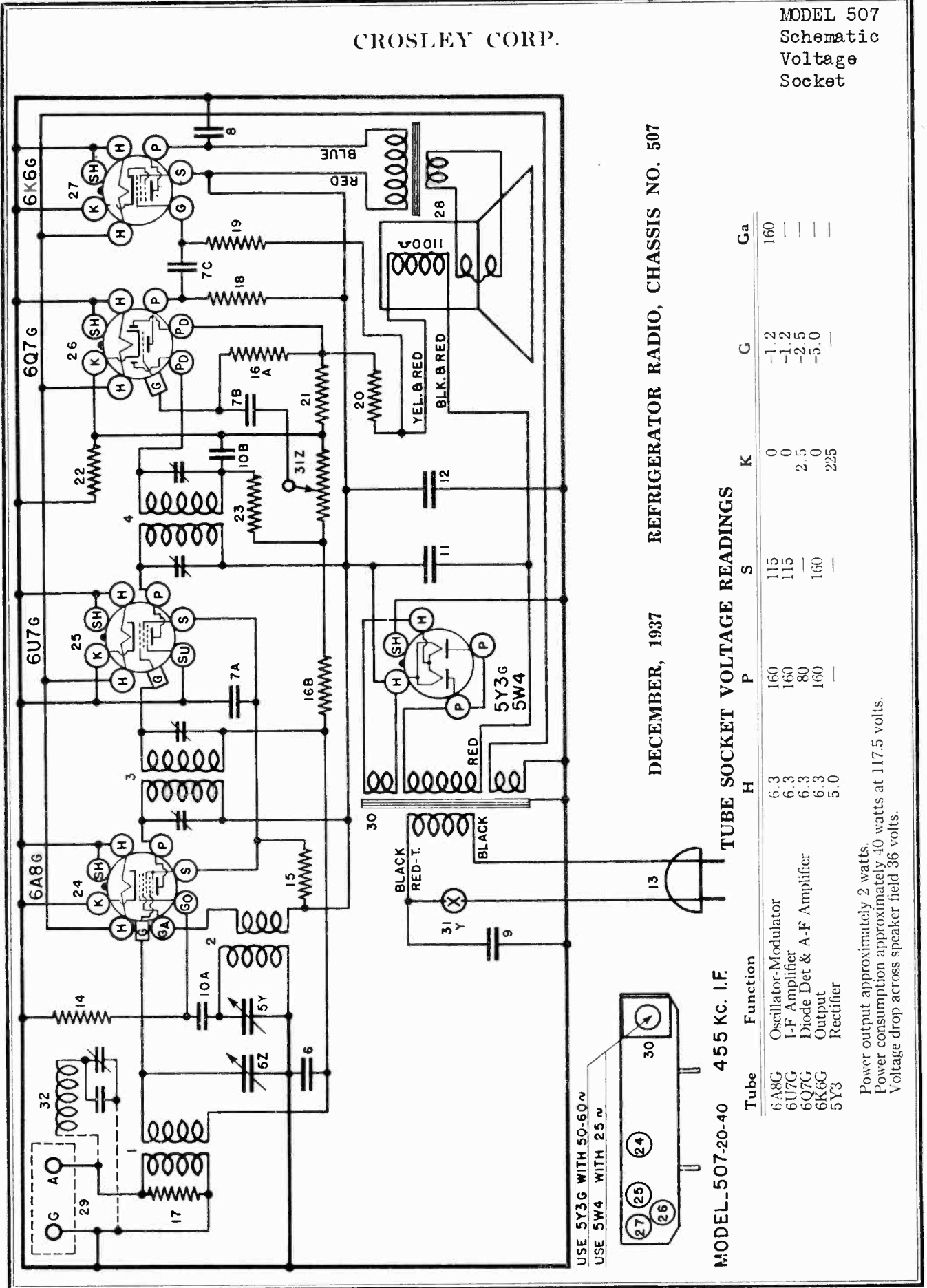
With a small screw driver or pen knife remove celluloid cover and the call letters. Insert screw driver in the hole in the front of the button and loosen the set screw a turn or two. With the manual tuning knob tune-in as **ACCURATELY AS POSSIBLE** the station for which the button is to be set. Then push the button all the way down and while you hold it in that position **SECURELY TIGHTEN** the set screw. Replace the call letter and call letter cover. Use same procedure in resetting or adjusting the rest of the push buttons.

Item No.	Part No.	Description
1	C -46433A	Battery Cable
2	G176-32000	Antenna Coil
3	G177-32002	Oscillator Coil
4	G194-32004	1st I.F. Transformer
5	G204-32004	2nd I.F. Transformer
6	G6 -50640	Condenser Capacity Coupling
7	W -28621	Condenser, .02 Mf. 200 V. Paper
8A		Var. Condenser, Antenna Section
8B	G65 -33001	Var. Condenser, Oscillator Section
9	G2 -34002	Condenser, .0001 Mf. Molded
10	W -28621	Condenser, .02 Mf. 200 V. Paper
11	G3 -50640	Capacity Condenser Coupling
12	W -45783	Condenser, 16 Mf. 125 V. Elect.
13A		Trimmer Condenser
13B	W -44882	Trimmer Condenser
14	G1 -34002	Condenser, .00025 Mf. Molded
15	W -28621	Condenser, .02 Mf. 200 V. Paper
16	G5 -34002	Condenser, .00005 Mf. Molded
17	W -28621	Condenser, .02 Mf. 200 V. Paper
18	W -28904	Condenser, .004 Mf. 200 V. Paper
19	-21154	Resistor, 1 Megohm 1/4 W. Carbon
20	-31018	Resistor, 200,000 Ohm 1/4 W. Carbon
21	36761	Resistor, 40,000 Ohm 1/2 W. Carbon
22	36688	Resistor, 3 Megohm 1/4 W. Carbon
23	W -55381	Resistor, 1,000 Ohm 1/4 W. Flexible
24	36322	Resistor, 500,000 Ohm 1/4 W. Carbon
25	36322	Resistor, 500,000 Ohm 1/4 W. Carbon

26	-36322	Resistor, 500,000 Ohm 1/4 W. Carbon
27	274-PL-5-"B"	Speaker, Spec. 55PWS1 (P. M.)
	-47083	Cone and V. C. Assy.
	-47084	Output Transformer
	-46685	Cardboard Ring
28A		Volume Control, 1 Megohm
28B	-46435	"A" Supply Switch
28C		"B" Supply Switch
	-46259	Cabinet 8BB
	-45825A	Knob, Volume Control
	-45822	Knob, Dial
	W -45931A	Rubber Foot and Screw
	-45553B	Push Button
	W -45852A	Baffle Board
	W -45852	Grille Cloth
	-50841	Call Letter Sheet
	W -50551A	Call Letter Cover
	W -45930C	Rubber Foot
	-46450	Instructions
	G26 -45683	Riveted Key Assy.
	G27 -45683	Rocker Plate Assy.
	W -50542C	Key Clip (Lock Clamo)
	W -50561	No. 6 x 40 x 1/8" Fil. Hd. Screw, Rocker Plate Bearing
	W -50547	Key Plate
	W -50607C	Push Button Spring
	-45717	No. 6 x 32 x 1 1/8" Fil. Hd. Screw, Clamp Adjusting
	-31388	No. 8 x 32 x 3/8" H. H. Mach. Screw, Key Plate Mounting Screw
	-2046	No. 8 Shakeproof Washer, Key Plate Screw

CROSLY CORP.

MODEL 507  
Schematic  
Voltage  
Socket

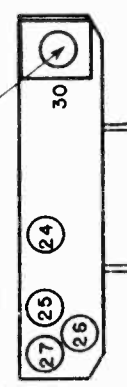


DECEMBER, 1937 REFRIGERATOR RADIO, CHASSIS NO. 507

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	K	G	Ga
6A8G	Oscillator-Modulator	6.3	160	115	0	-1.2	160
6U7G	I-F Amplifier	6.3	160	115	0	-1.2	—
6Q7G	Diode Det & A-F Amplifier	6.3	80	—	2.5	-2.5	—
6K6G	Output	6.3	160	160	0	-5.0	—
5Y3	Rectifier	5.0	—	—	225	—	—

USE 5Y3G WITH 50-60V  
USE 5W4 WITH 25V



MODEL-507-20-40 455 Kc. I.F.

Power output approximately 2 watts.  
Power consumption approximately 40 watts at 117.5 volts.  
Voltage drop across speaker field 36 volts.

MODEL 507  
 Trimmers, Chassis  
 Alignment, Parts

CROSLLEY CORP.

SPECIFICATIONS

This model Crosley radio chassis is especially designed for installation in Crosley Shelvador electric refrigerators. It should be operated only from an ALTERNATING CURRENT power supply as specified on the rear of the receiver.

The tuning range of the receiver is from 540 to 1725 kilocycles or 555 to 173 metres.

TUBES AND VOLTAGE LIMITS

The following table gives the functions of the tubes used, together with the voltage readings between tube socket contacts and chassis. Voltage readings taken with a 1000 ohm per volt, 500 volt voltmeter (except filaments) with receiver in operating condition and no signal input. The filament voltages should be measured with an accurate low range A. C. voltmeter (approximately 0-10 volts). Voltage limits may vary plus or minus 10% of values given.

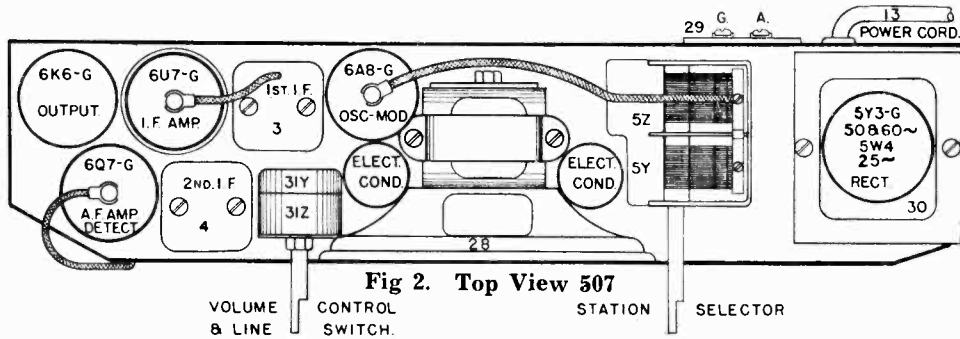


Fig 2. Top View 507

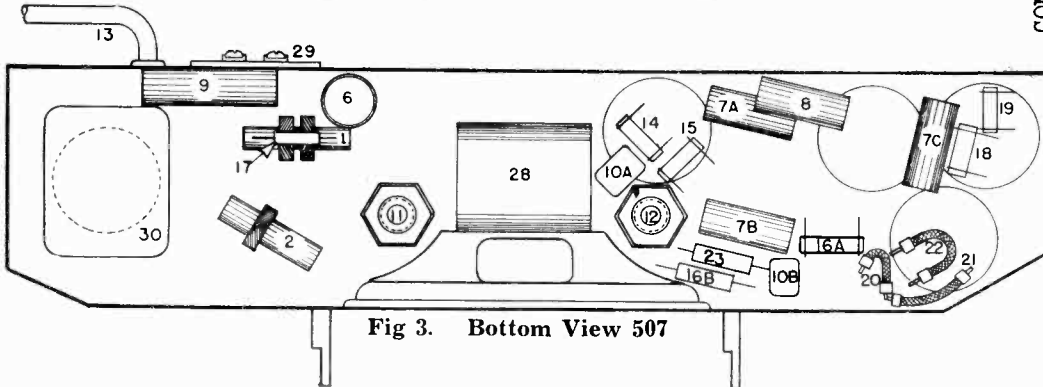


Fig 3. Bottom View 507

PARTS LIST—MODEL 507

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	G132-32000	Ant. Coil	20	W -25937	Resistor, 275 Ohm 1/2 W. Flex.
2	G132-32002	Osc. Coil	21	W -23012A	Resistor, 40 Ohm 3/4 W. Flex.
3	G177-32004	1st I-F.	22	W -24357	Resistor, 75 Ohm 3/4 W. Flex.
4	G178-32004	2nd I-F.	23	-36761	Resistor, 40,000 Ohm 1/4 W. Insu.
5	G48-33001	2 Section Gang Cond.	24	G156-36400	Socket, Type 6A8
	W -45368B	Pointer Shaft	25	G171-36400	Socket, Type 6U7
	W -45367	Pointer Shaft Bracket	26	G160-36400	Socket, Type 6Q7
	W -41582	Drive Cord (9-inch)	27	G172-36400	Socket, Type 6K6
	W -44635	Tension Spring		W -40911	Tube Shield (6U7-G)
	W -45155B	Pointer	28	275BL7"B"	Speaker
6	W -36541	Condenser, .02 Mf. 160 V.		-45467	V. C. and Cone Assy.
7A	W -28621	Condenser, .02 Mf. 200 V.	29	G1 -26719	Ant. and Gnd. Terminal Assy.
7B	W -28621	Condenser, .02 Mf. 200 V.	30	-45149	Power Trans., 50-60 Cy.—110 V.
7C	W -28621	Condenser, .02 Mf. 200 V.		-45148	Power Trans., 25 Cy.—110 V.
8	W -34647	Condenser, .02 Mf. 400 V.	31	-45162	Vol. Cont. (1 Meg.) and Line Switch
9	W -30805	Condenser, .01 Mf. 400 V.	32	G165-32004	Wave Trap
10A	G1 -34002	Condenser, .00025 Mf. Molded		W -45198A	Speaker Screen
10B	G1 -34002	Condenser, .00025 Mf. Molded		C -45173A	Escutcheon
11	W -44012	Condenser, 16 Mf. 200 V.		W -45380	Knob (2 Req.)
12	W -43450	Condenser, 16 Mf. 200 V.		W -45157	Chassis Mtg. Brkt.
13	B -44867	Power Cord and Plug		C -45158B	Chassis Bottom Cover
14	W -21237A	Resistor, 60,000 Ohm 1/2 W. Carb.		W -45401	Support Angle—to Brkt. on Spkr.
15	W -24990	Resistor, 25,000 Ohm 1/2 W. Carb.		W -45402B	Support Brkt.—to Spkr. Stud
16A	W -26577	Resistor, 3 Megohm 1/2 W. Carb.		W -23880	Thumb Screw—Sup. Angle Mtg.
16B	W -26577	Resistor, 3 Megohm 1/2 W. Carb.			
17	W -22196	Resistor, 20,000 Ohm 1/2 W. Carb.			
18	W -35601	Resistor, 300,000 Ohm 1/2 W. Insu.			
19	W -23785	Resistor, 500,000 Ohm 1/2 W. Carb.			

CONVENTIONAL ALIGNMENT  
 SEE SPECIAL SECTION VOL. VIII.  
 Connect output meter across P<sub>1</sub> and P<sub>2</sub> of 6K6 tube.  
 IF Generator 455 kc through .02 cond. to 6A8Ggrid oap. Gen.  
 Gnd. to receiver gnd. Variable out of mesh. Vol. control (ON).  
 Adjust 2nd and 1st IF trimmers to maximum output.  
 RF Gen. at 1725 kc through .0002 cond to Ant. terminal.  
 Variable out of mesh. Adjust osc trimmer (33Y) for max. out.  
 Gen. 1400 kc. Dial 1400 kc. Adjust ant trimmer(33Z) max. out.

CROSLEY CORP.

MODEL 568, Troupier  
Schematic, Voltage, Chassis  
Socket, Trimmers

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	K	Su	G
6K7GT	R-F Amplifier	6.3	97	98	2.5-25	2.5-25	—
6J7GT	Detector	6.3	20	10	7	—	—
25L6GT	Output	25	85	98	6	—	—
25Z6GT	Rectifier	25	—	—	126	—	—
W-46416	Ballast	55 Volts A. C.	—	—	—	—	—

Power output approximately 2 watts.

Drop across field 28 volts.

Power consumption at 117.5 volts line 45 watts (A.C.).

All readings except filaments will be approximately 10% lower on 117.5 D. C.

TUBES AND VOLTAGE LIMITS

The following table gives the functions of the tubes used, together with the voltage readings between the tube socket contacts and chassis. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with volume control full on and no signal input. The filament voltages should be measured with an accurate low range voltmeter. Voltage limits may vary plus or minus 10% of values given.

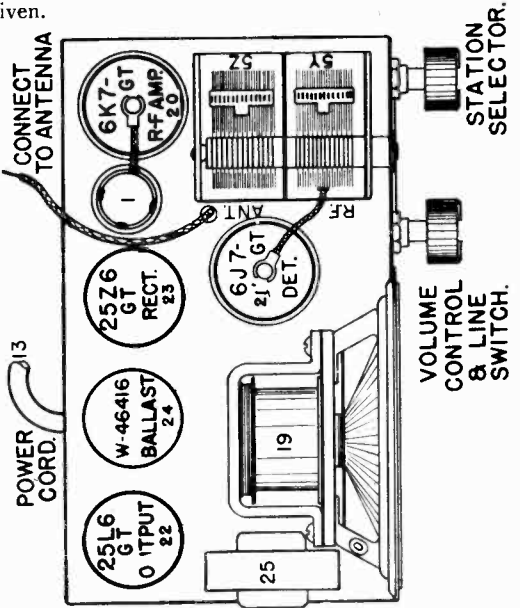
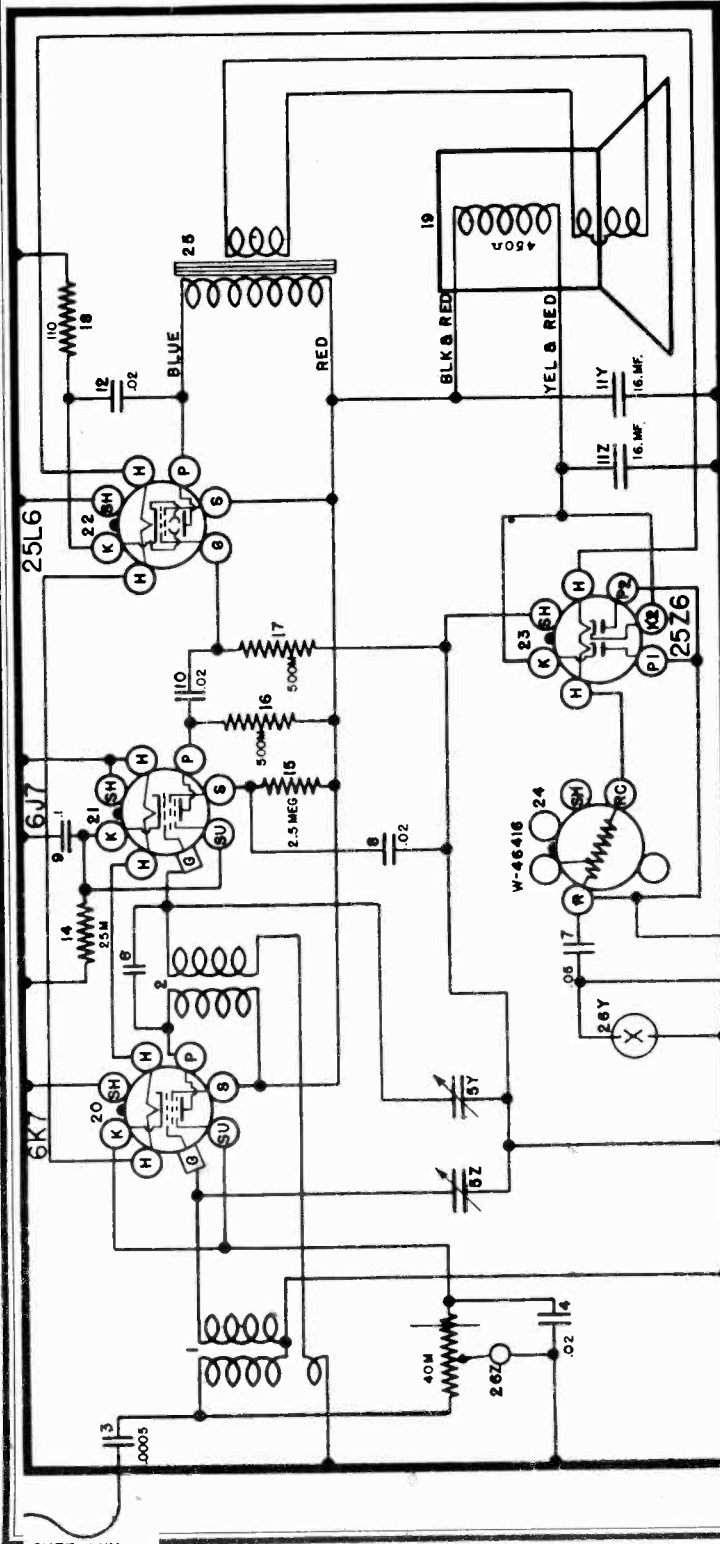


Fig. 2 Top View No. 568

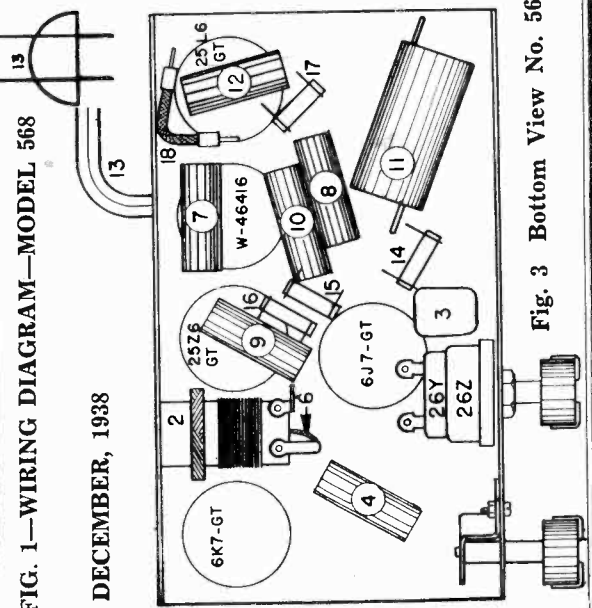


Fig. 3 Bottom View No. 568

FIG. 1—WIRING DIAGRAM—MODEL 568

DECEMBER, 1938

MODEL 568, Troupier  
Alignment, Notes  
Parts

CROSLLEY CORP.

CHASSIS NO. 568 (TROUPER)

SPECIFICATIONS

This model Crosley employs four tubes in a highly efficient T. R. F. circuit and on Ballast tube for dropping the line voltage instead of resistance in the power cord.

The frequency range is from 1725 to 540 kilocycles.

The tubes used are of the new Bantam type. Their functions are as follows, one 6K7-GT as R-F amplifier, one 6J7-GT as detector, one 25L6-GT as beam power output, one 25Z6-GT as rectifier. The all metal ballast tube has approximately 200 ohms resistance when cold.

The volume control varies the bias on the 6K7-GT and at the same time the amount of signal fed to the primary of the antenna coil. The bias for the 6J7-GT is obtained from the drop across item 14, a 25,000 ohm resistance and for the 25L6-GT, the drop across item 18, a 110 ohm resistance. The speaker field (450 ohms), is used for filtering in the high side of the "B" supply.

This receiver incorporates a certain amount of fixed regeneration to improve selectivity and sensitivity. With a normal antenna the receiver is stable and the performance approaches that of a three gang T. R. F. receiver in spite of the fact that only a two gang condenser is used. However with no antenna or a very small antenna the receiver will oscillate but this oscillation can readily be controlled by the volume control.

CONNECTING OUTPUT METER

Connect the one terminal of the output meter to the plate and the other terminal to the screen of the 25L6-G Output tube. Be sure the output meter is protected from D. C. by connecting a condenser (.1 mfd. or larger —NOT electrolytic) in series with one of the leads.

ALIGNMENT PROCEDURE

The chassis of this receiver is connected to one side of the power line, therefore when using an A. C. operated signal generator for alignment the following precaution should be taken.

(a) Connect the output lead of the signal generator through a .0001 Mf. condenser to the antenna lead on the receiver. The ground lead of the generator should be connected through a .001 Mf. condenser to the chassis.

(b) Open the gang condenser all the way.

(c) Set the generator to 1725 Kilocycles.

(d) Adjust the trimmer condensers on the gang until the 1725 Kc signal is heard. The gang does not have to tune through this signal.

(e) Set the generator to 1400 Kc.

(f) Tune the set to the 1400 Kc. signal, then alternately adjust the trimmers on the gang until no further improvement can be noticed on the output meter.

NOTE: Always use the lowest signal generator output that will give a reasonable indication on the output meter.

Keep the two grid leads as far as possible from each other.

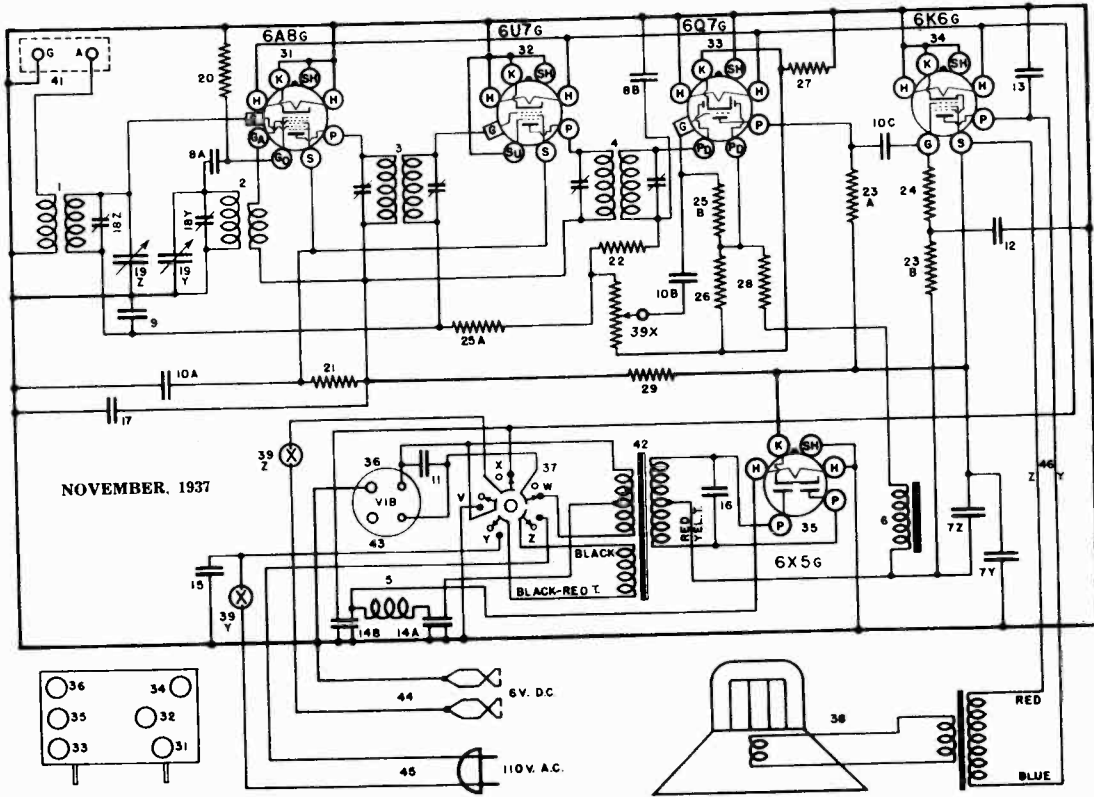
PARTS LIST — MODEL 568

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	G182-32000	Antenna Coil	19	284-BL-4"B"	Speaker—Spec. No. 40WA3
2	G102-32001	R-F. Coil		—46691	Field Coil—450 Ohm 60 M. A.
3	G3 —34002	Condenser, .0005 Mf. Molded		284-BL-4"H"	Speaker—Spec. No. S5330M4
4	W —45708B	Condenser, .02 Mf. 160 V.		—46901	Field Coil—450 Ohm 60 M. A.
5	G60 —33001	2 Section Gang Condenser	20 to 24	G178-36400	Socket—8 Prong Octal
	D —46418	Dial Face		W —46477	Tube Shield
	W —46425	Pointer	25	G25 —29535	Output Transformer
	—41587	Pointer Mtg. Screw	26Z		Volume Control—
	W —44809C	Drive Shaft	26Y	—46411	Line Switch—
	W —44808B	Bracket—Shaft Mtg.		W —46416	Ballast Tube
	W —43549	"C" Washer—Shaft Mtg.		B —46880	Power Cable for 220 V. (Resistor)
	G10 —41582	Drive Cord—8 1/4 Inches		8FC	Cabinet—Mottled Brown
	W —44989	Spring—Cord Tension		—45242	Knob—2 Req.
	W —46854A	Dial Support Brkt.		—45505A	Cabinet Back
6	G3 —50640	Twisted Lead—Cap. Coupling Assy.		8FD	Cabinet—Ivory
7	W —45782B	Condenser, .05 Mf. 120 V.	W	—45324	Knob—2 Req.
8	W —45780B	Condenser, .02 Mf. 160 V.		—45506A	Cabinet Back
9	W —50105	Condenser, .1 Mf. 160 V.	G3	—45281	Baffle and Grille Cloth Assy.
10	W —45708B	Condenser, .02 Mf. 160 V.	W	—46421	Celluloid Dial Lens
11Z	W —46398	Condenser, 16 Mf. 125 V.		—46437	Instruction Booklet
11Y	W —46398	Condenser, 16 Mf. 125 V.	W	—46454	Cabinet Assy.—8FC—Mottled Brown
12	W —45780B	Condenser, .02 Mf. 160 V.	W	—46866	Cabinet Assy.—8FD—Ivory
13	B —45784	Power Cord and Plug		—44763	Single Shipping Carton
14	—24990	Resistor, 25,000 Ohm 3/8W.			
15	—37583	Resistor, 2.5 Megohm 3/8W.			
16	—23785	Resistor, 500,000 Ohm 3/8W.			
17	—23785	Resistor, 500,000 Ohm 3/8W.			
18	W —45965	Resistor, 110 Ohm 1/2W.			

CROSLY CORP.

MODELS 587, 5587  
Schematic, Voltage  
Socket, Parts



MODELS 587, 5587  
455 Kc. I.F.

FIG. 1—WIRING DIAGRAM—MODELS 587 and 5587

Item No.	Part No.	Description	Item No.	Part No.	Description
1	G154-32000	Ant. Coil, 1725-570 Kc.	23A	35F01	Resistor, 300,000 Ohm 1/4 W. Ins.
2	G156-32002	Osc. Coil, 1725-540 Kc.	23B	35Z22	Resistor, 300,000 Ohm 1/4 W. Ins.
3	G173-32004	1st I-F, 455 Kc.	24A	36568	Resistor, 3 Megohm 1/4 W. Ins.
4	G174-32003	2nd I-F, 455 Kc.	25A	36688	Resistor, 3 Megohm 1/4 W. Ins.
5	G26-39067	"A" Filter Choke	26	26012A	Resistor, 40 Ohm 1/4 W. Flex.
6	G26-39067	"B" Filter Choke	27	25357	Resistor, 150 Ohm 1/4 W. Flex.
7	W-44768A	Condenser, Dual 6 Mf. 250 V. (587 only)	28	25357	Resistor, 150 Ohm 1/4 W. Flex.
8	W-41868A	Condenser, Dual 8 Mf. 250 V. (5587 only)	29	36400	Socket, 6A8 Type
9	G1-31002	Condenser, .00025 Mf. Molded	30	36400	Socket, 6U7 Type
10	W-29821	Condenser, .02 Mf. 150 V.	31	G172-36400	Socket, 6K6 Type
11	W-29821	Condenser, .02 Mf. 200 V.	32	G168-36400	Socket, 6X5 Type
12	W-29821	Condenser, .02 Mf. 200 V.	33	W-105-29011	Tube Shield
13	W-35536	Condenser, .05 Mf. 200 V.	34	W-15028	A. C. D. C. Switch (Change Over)
14	W-35738	Condenser, .08 Mf. 400 V.	35	44337	Speaker, Spec. 5-PA-4 (587 only)
15	W-30615	Condenser, 5 Mf. 120 V.	36	45336	Output Transformer (282)
16	W-30615	Condenser, 5 Mf. 120 V.	37	45337	Speaker Assembly (474-PJ-2" M")
17	W-30615	Condenser, .01 Mf. 400 V.	38	45337	Output Trans. (474-PJ-2" M")
18	W-37173	Condenser, .25 Mf. 300 V. Lond. Assy.	39	45337	Ring, Cone Mtg. (474-PJ-2" M")
19	G46-37986A	2 Section Var. Tuning Condenser (587 only)	40	45337	Volume Control Terminal Assy.
			41	45337	Power Transformer
			42	45337	Trans. Shield
			43	45337	Vibrator, 6 Volt
			44	45337	Battery Cable Assy.
			45	45337	Battery Clip (Rose)
			46	45337	Battery Cord and Plug (A. C.)
			47	45337	Red Speaker Lead (5587 only)
			48	45337	Blue Speaker Lead (5587 only)
			49	45337	Vib. Shield Assy.
			50	45337	Switch (5587 only)
			51	45337	Cabinet (587 only)
			52	45337	Knob (1)
			53	45337	Knob (2)
			54	45337	Ecutechcon (587 only)
			55	45337	Ecutechcon (587 only)
			56	45337	Rubber Mtg. Foot (587 only)
			57	45337	Rubber Mtg. Foot (5587 only)
			58	45337	Bottom Mtg. Plate (5587 only)

Tube	Function	H	P	S	Su	K	G	Ca
6A8G	Oscillator-Modulator	6.3	192	94	0	0	-1.0*	192
6U7G	I-F Amplifier	6.3	192	94	0	0	20.0*	192
6Q7G	Output	6.3	195	305	0	0	20.0*	192
6X5G	Rectifier	6.3	195	305	0	0	20.0*	192

Tube	Function	H	P	S	Su	K	G	Ca
6A8G	Oscillator-Modulator	6.0	131	62	0	0	-2.7*	131
6U7G	I-F Amplifier	6.0	131	62	0	0	19.0*	131
6Q7G	Output	6.0	132	136	0	0	12.0*	131
6X5G	Rectifier	6.0	132	136	0	0	12.0*	131

\* Measured across item 26.  
\*\* Measured from junction of items 6 and 23B to chassis.  
Power output approximately 2.5 watts on 117.5 volts A. C. and 1.1 watts on 6 volt storage battery.  
Power consumption approximately 28 watts on 117.5 volts A. C. and 2.9 amperes on 6 volt storage battery.



MODELS 587, 5587

Socket, Trimmers

Chassis, Alignment, Notes

CROSLLEY CORP.

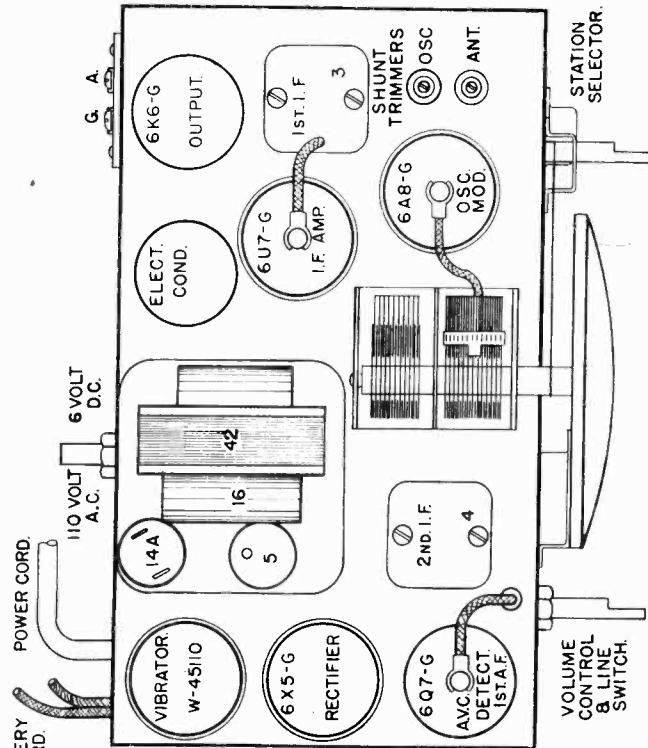


Fig. 2—Top View Models 587 and 5587

**SPECIFICATIONS**

These model Crosley radios are designed for operation on 110-volt, 60 cycle A. C. power lines or on a six-volt storage battery. No "B" or "C" batteries are required. The tuning range is from 535 to 1725 kilocycles (560 to 173 Metres) Model 5587 is identical with Model 587 except that it has a larger dial assembly, an 8" speaker, larger electrolytic condenser, and is mounted in a console cabinet.

**CIRCUIT DESCRIPTION**

Five octal base glass tubes are employed in a superheterodyne circuit which consists of an oscillator-modulator tube, 455 kilocycle I. F. amplifier, composite detector—AVC and A. F. amplifier tube, pentode output and power supply. An AC-DC switch is located on the rear of the chassis and must be set according to the power supply the receiver is to be used on. The 6Q7G tube supplies AVC voltage to the grids of the 6A8C and 6U7G tubes through items 22 and 25A. The initial bias for the 6A8C and 6U7G tubes is developed across a 75 ohm resistor, item 27. The bias for the 6Q7G tube is developed across a 40 ohm resistor, item 26. The bias for the output tube is obtained by the combined voltage drop across items 6 ("B" filter choke), 26 (40 ohms), 27 (75 ohms) and 28 (100 ohms). The speaker is a permanent magnet type dynamic.

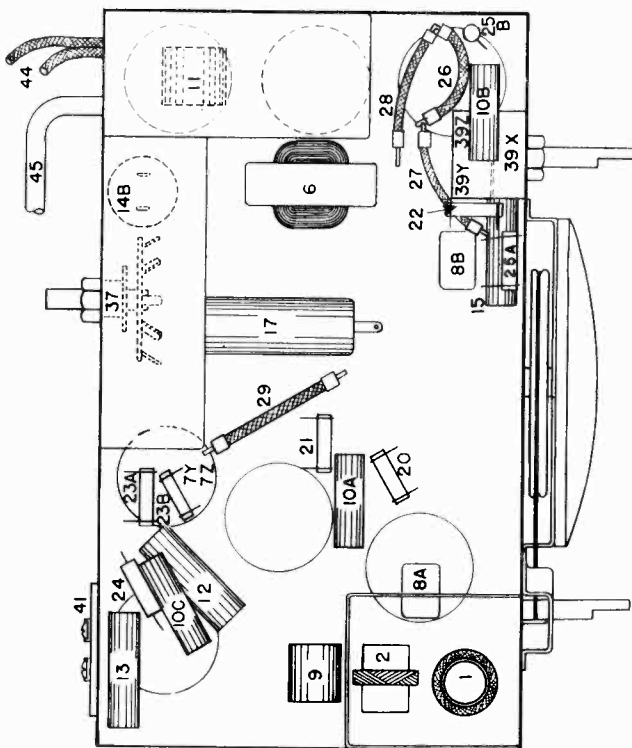


Fig. 3—Bottom View Models 587 and 5587

**ALIGNMENT PROCEDURE**

All the circuits in this receiver were very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary, the circuits may be properly aligned with the use of a modulated signal generator and an output meter.

**CONNECTING OUTPUT METER**

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 6K6G output tube. Be certain that the meter is protected from D. C. by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

**Tuning The I-F Amplifier To 455 Kilocycles.**

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8C tube, leaving the tube's grid clip in place. Connect the ground lead of the signal generator to the ground terminal of the receiver. (KEEP THE SIGNAL GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES).

(b) Set the station selector so that the plates of the condenser gang are completely out of mesh and turn the volume control to the right (ON).

(c) Set the signal generator to 455 kilocycles.

(d) Adjust the trimmer condensers located on the 2nd. I. F. transformer, item 1—fig. 2, for maximum reading on the output meter.

(e) Adjust the trimmer condensers located on the 1st I. F. transformer, item 3—fig. 2, for maximum output.

(f) Repeat operations (d) and (e) for more accurate adjustments.

**ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.**

**Aligning The R-F Amplifier.**

(a) Connect the output of the signal generator through a .00025 mfd. condenser to the antenna terminal of the receiver.

(b) Set the signal generator to 1725 kilocycles.

(c) With the condenser gang rotated to the minimum capacity position, adjust the "OSC" SHUNT TRIMMER so that the 1725 kilocycle signal is heard. It is not necessary that the receiver tune through this signal.

(d) Set the signal generator to 1400 kilocycles.

(e) Tune in the 1400 kilocycle signal, in the region of 140 on the dial, for maximum output.

(f) Adjust the "ANT" SHUNT TRIMMER for maximum output. NOTE: Do not readjust the "OSC" SHUNT TRIMMER.

(g) Repeat operations (e) and (f) for more accurate adjustments.

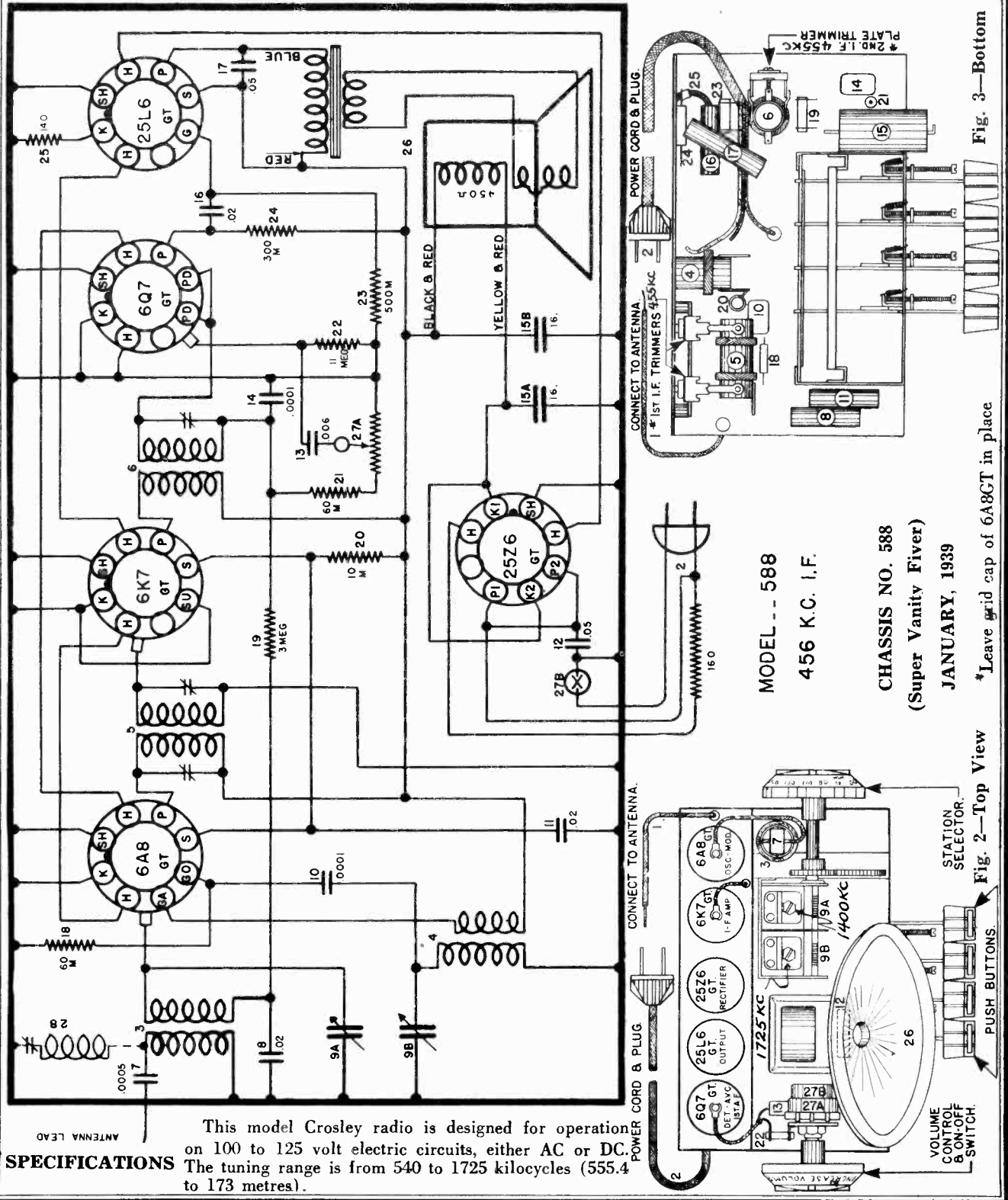
CROSLLEY CORP.

MODEL 588, Super Vanity Fiver  
 588BC, 588BD, 588BE  
 Schematic, Socket, Trimmers  
 Alignment, Voltage, Chassis

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	K	Go	Ga
6A8-GT	Oscillator-Modulator	6.3	105	65	—	—	—	105
6K7-GT	I-F Amplifier	6.3	105	65	—	—	—	—
6Q7-GT	Det, AVC, A-F Amplifier	6.3	42	—	—	—	—	—
25L6-GT	Output	25.1	95	105	—	—	—	—
25Z6-GT	Rectifier	25.1	117.5 A.C.	—	—	132	—	—

Power output approximately 2 watts. Power consumption approximately 47 watts. Voltage drop across speaker field 27 volts.  
 All voltages except filaments will be approximately 10% lower if measured on 117.5 volts DC power supply.



**SPECIFICATIONS**  
 This model Crosley radio is designed for operation on 100 to 125 volt electric circuits, either AC or DC. The tuning range is from 540 to 1725 kilocycles (555.4 to 173 metres).

MODEL -- 588  
 456 K.C. I.F.  
 CHASSIS NO. 588  
 (Super Vanity Fiver)  
 JANUARY, 1939  
 \*Leave grid cap of 6A8GT in place

Fig. 3—Bottom View

Fig. 2—Top View

MODEL 598, Vanity, 598BB, 598BD  
 Schematic, Socket, Trimmers  
 Alignment, Voltage, Chassis

CROSLLEY CORP.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	K	Su	G
6K7-GT	R-F Amplifier	6.3	110	110	2.5-25	2.5-25	—
6J7-GT	Detector	6.3	20	7	6	—	—
25L6-GT	Output	25.1	98	110	6	—	—
25Z6-GT	Rectifier	25.1	117 A.C.	—	135	—	—
W-46416	Ballast	Approx. 54.7 Drop A.C.		—	—	—	—

Power output approximately 2 watts. Drop across field 25 volts.  
 Power consumption at 117.5 volts line 47 watts (A.C.).  
 All readings except filaments will be approximately 15% lower on 117.5 D. C.

FIG. 1—WIRING DIAGRAM

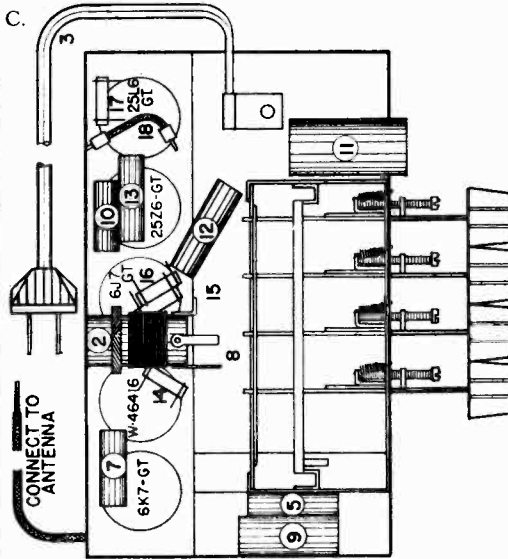
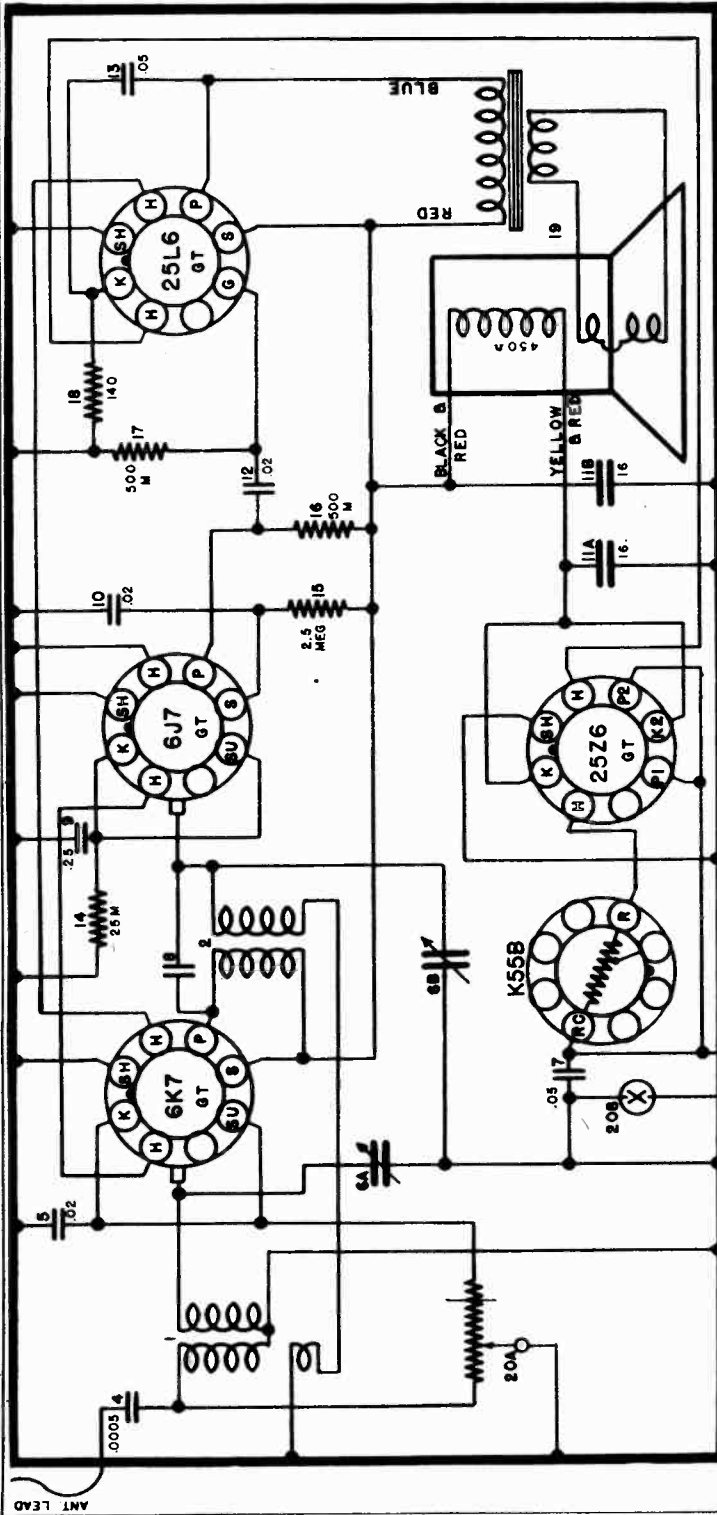


Fig. 3—Bottom View 598

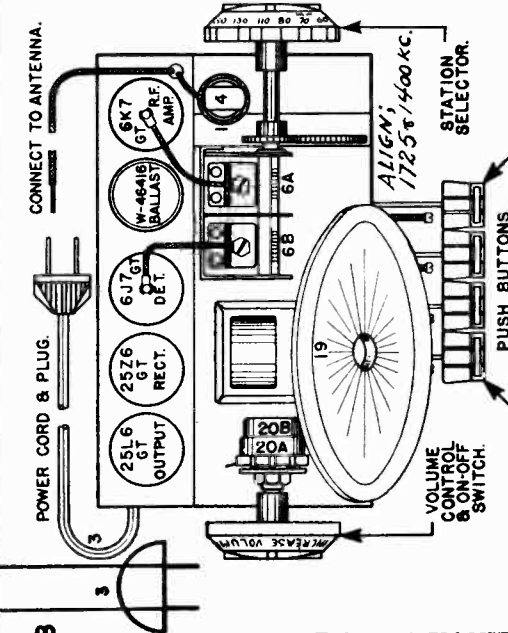


Fig. 2—Top View 598

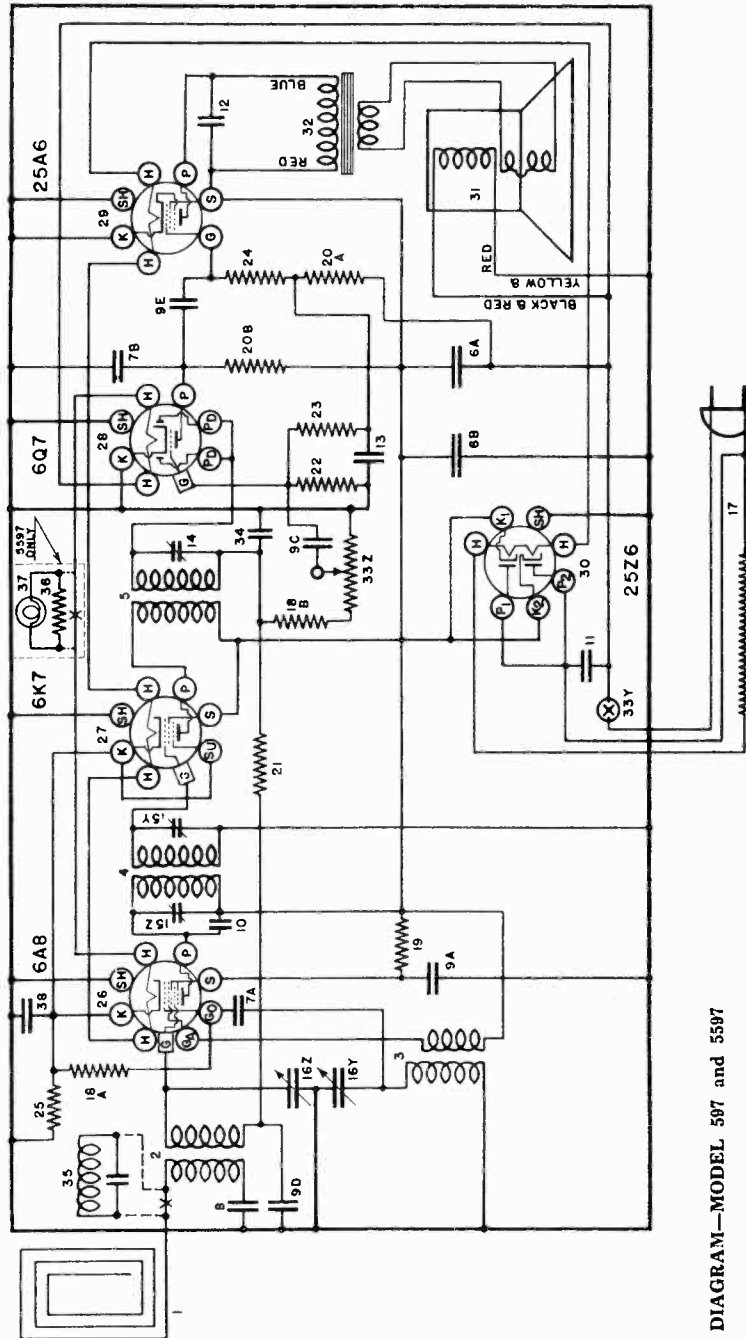
MODEL 598 VANITY  
 JANUARY, 1939

TUBES AND VOLTAGE LIMITS

The table gives the functions of the tubes used, together with the voltage readings between the tube socket contacts and chassis. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with volume control full on and no signal input. The filament voltages should be measured with an accurate low range voltmeter. Voltage limits may vary plus or minus 10% of values given.

CROSLLEY CORP.

MODELS 597, 5597  
Schematic, Parts



Figures in first column refer to parts in Diagrams.

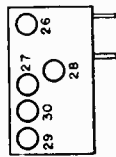
Item	Part No.	Description
1	W -31765C	Ant. Roll
2	G163-32000	Ant. Coil
3	G155-32002	Osc. Coil
4	G168-32004	1st I-F
5	G167-32004	2nd I-F
6A	W -44935	Condenser, 30 Mf. 125 V.
6B	W -44935	Condenser, 30 Mf. 125 V.
7A	G 2-34002	Condenser, .0001 Mf. Molded
7B	G 2-34002	Condenser, .0001 Mf. Molded
8	W -26571	Condenser, .0005 Mf. 200 V.
9A	W -28621	Condenser, .02 Mf. 200 V.
9C	W -28621	Condenser, .02 Mf. 200 V.
9D	W -28621	Condenser, .02 Mf. 200 V.
9E	W -28621	Condenser, .02 Mf. 200 V.
10	G 5-34002	Condenser, .00005 Mf. Molded
11	W -23615	Condenser, .05 Mf. 400 V.
12	W -28619	Condenser, .006 Mf. 200 V.
13	W -24049C	Condenser, .1 Mf. 200 V.
14	W -44142	Condenser, 2nd I-F Plate Trimmer.
15	W -44882	Condenser, 1st I-F Trimmer Assy.
16	G 45-33001	2 Sect. Var. Tuning Cond.
	B -44801A	Dial Face (Glass)
	W -50173A	Pointer
	W -2045	Washer (Pointer Lock)
	W -40486	Screw (Pointer Mtg.)
	W -44810C	Dial Support
	W -44811	Ring (Dial Glass Support) 597
	W -45342	Ring (Dial Glass Support) 5597
	W -44809C	Drive Shaft
	W -44808A	Bracket Drive Shaft
	W -41582	Drive Cord
	W -43561	Spring-Cord Tension
	W -43549	Ring-Drive Shaft Retaining
17	B -44917B	Power Cord & Plug (160 Ohm) 597 Only
	B -45491B	Power Cord & Plug (140 Ohm) 5597 Only
18A	-35928	Resistor, 60,000 Ohm 1/4 W. Ins.
18B	-35928	Resistor, 60,000 Ohm 1/4 W. Ins.
19	-22831	Resistor, 15,000 Ohm 1/3 W. Ins.

Item	Part No.	Description
20A	-21455	Resistor, 300,000 Ohm 1/3 W. Carb.
20B	-21455	See Item 39
21	-26577	Resistor, 3. Megohm 1/3 W. Carb.
22	-21454	Resistor, 1. Megohm 1/3 W. Carb.
23	-37584	Resistor, 11. Megohm 1/3 W. Carb.
24	-34020	Resistor, 250,000 Ohm 1/3 W. Carb.
25	W -25357	Resistor, 75 Ohm 3/4 W. Flex.
26	G156-36400	Socket Type 6A8
27	G151-36400	Socket Type 6K7
28	G160-36400	Socket Type 6Q7
29	G161-36400	Socket Type 25A6
30	G162-36400	Socket Type 25Z6
31	-270BL6"O"	Speaker Spec. No. 3-101
	-45174	Cone & V.C. Assy. (For Above)
	-45175	Ring (Cone Mtg.) (Speaker)
32	G 21-29535	Output Transformer
33	-44920A	Vol. Cont. (1 Meg.) & Line Switch
34	G 1-34002	Condenser 00025 Mf. Molded
35	G182-32004	Wave Trap
36	W -44396	Resistor 40 Ohm 3 1/2 W. Flex 5597
37	W -44337	Bulb 6-8 V. Dial Light 5597
	G 6-27134	Dial Light Socket Assy. 5597
	W -45313	D. L. Socket Mtg. Brkt. 5597
38	W -27216	Condenser .05 Mf. 200 V.
	-7F	Cabinet (Black) 597
	W -44934	Knob-Black 597
	G 1-45281	Grille & Baffle Assy. 597
	-7FB	Cabinet (Brown) 597
	W -45242	Knob-Brown 597
	G 1-45281	Grille & Baffle Assy. 597
	-7FA	Cabinet (Ivory) 5597
	W -45324	Knob 5597
	G 1-45281	Grille & Baffle Assy. 5597
	W -45282	Shield-Heat Reflector
	B -45505	Back-7FB Cab.
	B -44885A	Back-7F Cab.
	B -45506	Back-7FA Cab.
39	-23403	Resistor, 150,000 Ohm 1/3 W. Carb.

FIG. 1-WIRING DIAGRAM—MODEL 597 and 5597

NOVEMBER, 1937

MODEL--597-5597  
455 Kc. I.F.



MODELS 597, 5597  
Socket, Trimmers, Chassis  
Alignment, Voltage, Data

CROSLEY CORP.

CHASSIS NO. 597-5597

**SPECIFICATIONS**

These model Crosley radios are designed for operation on 100 to 125 volt electric circuits, either AC or DC. The tuning range is from 535 to 1725 kilocycles (550 to 173 metres). Model 5597 is identical with Model 597 except that it has an illuminated dial and a different cabinet.

**CIRCUIT DESCRIPTION**

Five metal tubes are employed in a superheterodyne circuit which consists of a combination oscillator-modulator tube, 455 kilocycle I-F amplifier, pentode output and power supply. The 6Q7 tube serves as the detector and 1st A-F amplifier and supplies AVC voltage to the grid of the 6A8 tube. The bias voltage for the 6A8 and 6K7 tubes is obtained across a 75 ohm resistor, item 25. The bias for the 6Q7 and 25A6 tubes is obtained across

the speaker field. A resistance type power supply cord is used to provide the proper heater voltage to the tubes. The filaments of the tubes are wired in series. A .05 mfd. condenser, item 11, is connected across the power supply leads to reduce electrical interference from that source.

**TUBES AND VOLTAGE LIMITS**

The following table gives the functions of the tubes used, together with the voltage readings between the tube socket contacts and chassis. Voltage readings should be taken with a 1000 ohm per volt, 250 volt voltmeter (except filaments) with the volume control full "ON" and no signal input. The filament voltage should be measured with an accurate low range voltmeter. When measured on a 117.5 volt AC line voltage limits may vary plus or minus 10% of the values given.

**TUBE SOCKET VOLTAGE READINGS**

Tube	Function	H	F	S	Go	Ga
6A8	Oscillator-Modulator	6.3	105	—	—	—
6K7	I-F Amplifier	6.3	105	0	—	106
6Q7	Det. AVC, A-F Amplifier	6.3	50	—	—	—
25A6	Output	25.1	100	—	—	—
25Z6	Rectifier	25.1	117.5	—	—	—

Power output approximately 1 watt.  
Power consumption approximately 55 watts.  
Voltage drop across speaker field 18 volts.  
All voltages except filaments will be approximately 10% lower if measured on 117.5 volts DC power supply.

**ALIGNMENT PROCEDURE**

The chassis of this receiver is connected to one side of the power supply and for this reason all test equipment should be thoroughly insulated in order that the power supply will not become short circuited while aligning the receiver.

**CONNECTING OUTPUT METER**

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 25A6 output tube. Be certain that the meter is protected from DC by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

**Tuning The I-F Amplifier To 455 Kilocycles.**

(a) Disconnect the antenna roll from the receiver and connect the output of the signal generator through a 50 mfd. condenser to the antenna connection on the receiver. Do not use a ground return from the signal generator unless it is found to be absolutely necessary. If it is found to be necessary, a small condenser (approximately .001 mfd.) should be connected in series with the ground terminal of the signal generator and with the ground chassis. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the plates of the condenser gang are completely out of mesh and turn the volume control to the right (ON).

(c) Set the signal generator to 455 kilocycles.  
(d) Adjust the 2nd I-F trimmer condenser, item 14, located beneath the edge of speaker field, for maximum

reading on the output meter.

(e) Adjust the 1st I-F trimmer condensers, located on back flange of the chassis for maximum output.

(f) Repeat operations (d) and (e) for more accurate adjustments.  
**ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.**

**Aligning The R-F Amplifier.**

(a) Set the signal generator to 1725 kilocycles.

(b) With the condenser gang turned to the minimum capacity position, adjust the trimmer condenser on the "OSC" section of the gang so that the 1725 kilocycle signal is heard. It is not necessary that the receiver tune through this signal.

(c) Set the signal generator to 1400 kilocycles.  
(d) Tune in the 1400 kilocycle signal in the region of 140 on the dial for maximum output.

(e) Adjust the trimmer condenser located on the "ANT" section of the gang for maximum output.

Note: Do not readjust the "OSC" trimmer.  
(f) Repeat operations (d) and (e) for more accurate adjustments.

**WAVE TRAP**

Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from code stations which operate on a frequency of approximately 455 kilocycles. This assembly is located on the underneath side of the chassis and consists of a coil and a fixed condenser as illustrated by dotted lines in the Wiring Diagram.

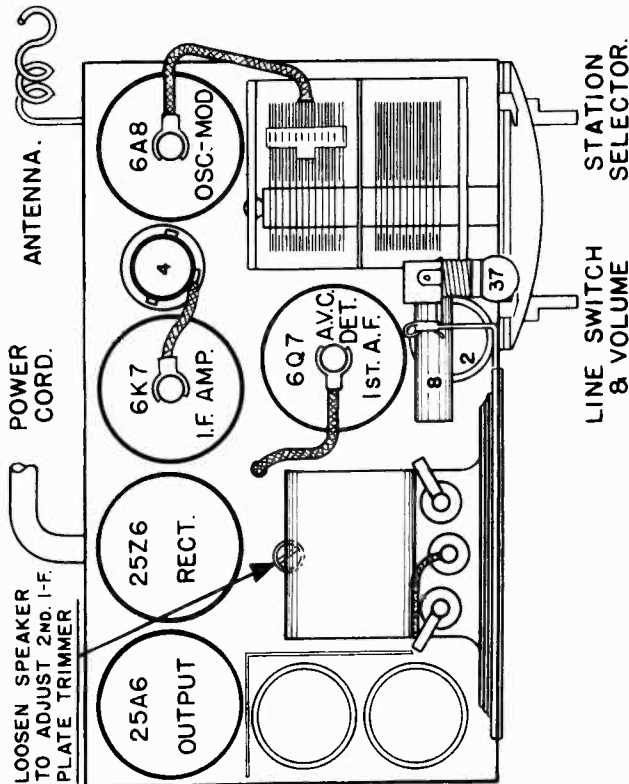


Fig. 2—Top View Model 597 and 5597

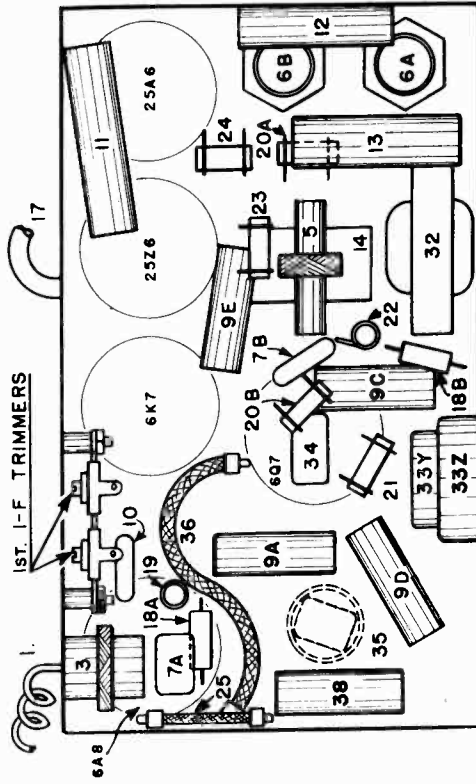


Fig. 3—Bottom View Model 597 and 5597





MODEL 648, Super Sixette  
Socket, Trimmers, Chassis  
Alignment, Notes, Parts

CROSLLEY CORP.

forefinger and thumb and pulling straight up. Loosen the set screws on the keys but do not remove them. Determine the favorite broadcasting stations whose call letters are to be placed in the buttons. By means of the manual tuning knob, tune-in AS ACCURATELY AS POSSIBLE the station having the highest frequency—that is the station that is tuned-in nearest the 1500 Kc. end of the dial. Then push the front key all the way down, and while you hold it in that position SECURELY TIGHTEN THE SET SCREW. Replace push button on key.

The push button tuning system is now correctly set for the 1st station. Follow through with this same procedure, setting the other stations in the order of their frequency (Kilocycles). Detach the call letters of the favorite stations from the list supplied with your receiver and press them into the openings in the front of the push buttons. Thin pieces of clear celluloid are supplied in a small envelope and should be snapped in place over the call letters to protect and hold them in place. Figures in first column refer to parts in Diagrams.

solutely necessary. If it is found to be necessary, a small condenser (approximately .001 mfd.) should be connected in series with the ground terminal of the signal generator and the receiver chassis. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the plates of the condenser gang are completely out of mesh and turn the volume control to the right (ON).

(c) Set the signal generator to 455 kilocycles.

(d) Adjust the 2nd I.F. trimmer condensers, Fig. 2, located between Push Button Assembly and speaker field, for maximum reading on the output meter.

(e) Adjust the 1st I.F. trimmer condensers for maximum output.

(f) Repeat operations (d) and (e) for more accurate adjustments.

**ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.**

**Aligning The R-F Amplifier.**

Connect output of signal generator through a .0001 condenser to the antenna lead of receiver.

(a) Set the signal generator to 1725 kilocycles.

(b) With the condenser gang turned to the minimum capacity position, adjust the trimmer condenser on the "OSC" section of the gang so that the 1725 kilocycle signal is heard. It is not necessary that the receiver tune through this signal.

(c) Set the generator to 1400 kilocycles.

(d) Tune-in the 1400 kilocycle signal in the region of 140 on the dial for maximum output.

(e) Adjust the trimmer condenser located on the "ANT" section of the gang for maximum output.

**NOTE:** Do not readjust the "OSC" trimmer.

(f) Repeat operations (d) and (e) for more accurate adjustments.

**WAVE TRAP**

Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from code stations which operate on a frequency of approximately 455 kilocycles. This assembly is located on the underneath side of the chassis and consists of a coil and a fixed condenser as illustrated by dotted lines in the Wiring Diagram.

If any of the circuits have been re-aligned, check push buttons to see if they need resetting.

**SETTING THE PUSH BUTTONS**

The push buttons are easily and accurately set from the top of the receiver. It is not necessary that all the buttons be set at the same time. Remove the push buttons to be set by grasping the button between the

**PARTS LIST — MODEL 648**

W	46688	3/8" Walnut
G178	39500	8 Prong Socket (No Marking)
G26	46689	Ballast
W	46911	Tailpiece
G184	32004	Wave Trap
G5	34002	Condenser, .00025 Mf., 200 V. Molded
	46894	8AK Cabinet (Brown)
	46895	8AG Cabinet (Ivory)
	46892A	8AG Cabinet (Black)
	46876A	8AH Cabinet Back
	46890A	8AG Cabinet Back
	128	Screws for Mounting Back (4 Req.)
B	46816	Rubber Bottom Mtg. Screw (4 Req.)

**ALIGNMENT PROCEDURE**

The chassis of this receiver is connected to one side of the power supply and for this reason all test equipment should be thoroughly insulated in order that the power supply will not become short circuited while aligning the receiver.

**CONNECTING OUTPUT METER**

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 25L6G output tube. Be certain that the meter is protected from DC by connecting a condenser (1 mfd. or larger—not electrolytic) in series with one of the leads.

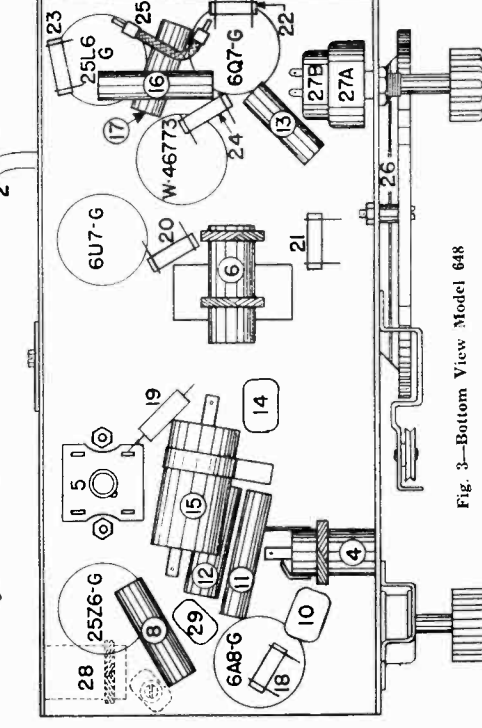
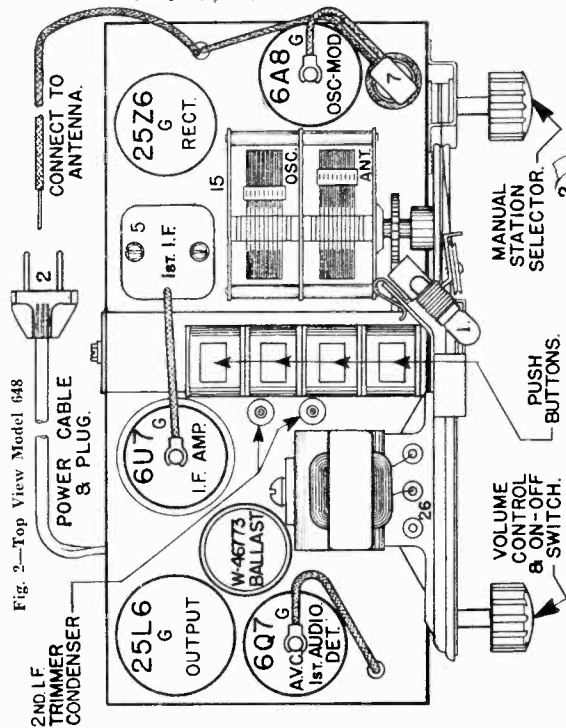
**Tuning The I-F Amplifier To 155 Kilocycles**

(a) Connect the output of the signal generator through a .02 mf. condenser to the grid cap of 6A8-G, leaving grid cap in place. Do not use a ground return from the signal generator unless it is found to be ab-

- |     |        |                           |
|-----|--------|---------------------------|
| G33 | 45683  | Push Button Unit Complete |
| G26 | 45683  | Key Assembly              |
| W   | 45683C | Key Clip (Lock Clamp)     |
| W   | 45646B | Adjusting Clip (3 Req.)   |
| W   | 45047  | Key Plate                 |
| W   | 45688B | Adjusting Clip (1 Req.)   |

- |     |        |   |
|-----|--------|---|
| W   | 30607C | Spring (Key Return)                             |
| W   | 50561  | No. 5 - 40 x 3/8" Bearing Screw (Rockers Plate) |
|     | 2046   | No. 8 Shakeproof Washer                         |
| G62 | 45683  | Rockers Plate Assembly                          |
|     | 46841A | Push Button (8AK) (Brown)                       |
|     | 46879A | Push Button (8AH and 8AG) (Black)               |

- |  |        |                                   |
|--|--------|-----------------------------------|
|  | 46887  | Call Letter Sheet (8AH and 8AG)   |
|  | 50811  | Call Letter Sheet (8AK)           |
|  | 6851   | Call Letter Cover (5 in Envelope) |
|  | 46840A | Instructions                      |
|  | 46953  | Knob (8AK) (Brown)                |
|  | 44552  | Knob (8AH and 8AG) (Black)        |



**Fig. 3—Bottom View Model 648**

and the other terminal to the screen of the 25L6G output tube. Be certain that the meter is protected from DC by connecting a condenser (1 mfd. or larger—not electrolytic) in series with one of the leads.

**Tuning The I-F Amplifier To 155 Kilocycles**

(a) Connect the output of the signal generator through a .02 mf. condenser to the grid cap of 6A8-G, leaving grid cap in place. Do not use a ground return from the signal generator unless it is found to be ab-











CROSLLEY CORP.

MODEL 718

Socket, Trimmers, Voltage Chassis, Data

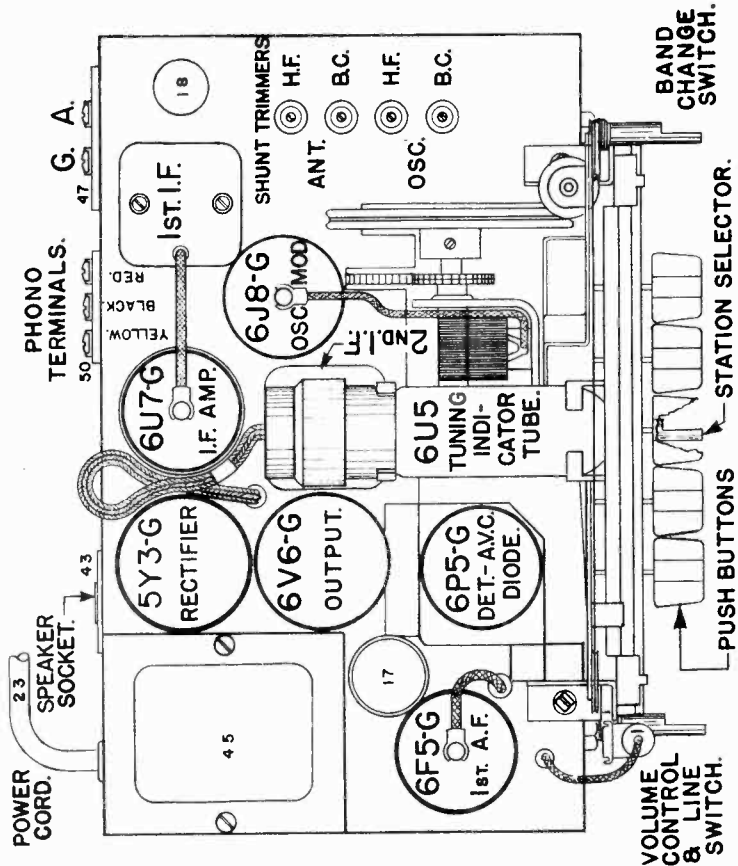


FIG. 2 Top View Model 718

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	G	Ga	K
6J8G	Oscillator-Modulator	6.3	172	88	-3	120	0
6U7G	I.F. Amplifier	6.3	172	88	-3	0	0
6F5G	Detector A.V.C. Diode	6.3	0	0	0	0	0
6U5	1st A.F. Amplifier	6.3	100	0	2	0	-3
6V6G	Output	6.3	160	172	-10	0	0
5Y3G	Rectifier	2.9	A.C.				217
6U5	Tuning Indicator	6.3	170				

Maximum power output approximately 5 watts.  
Voltage across speaker field 37 volts.  
Power consumption approximately 32 watts at 117.5 line.

OCTOBER, 1938 FOR SCHEMATIC CHASSIS MODEL 718 SEE INDEX

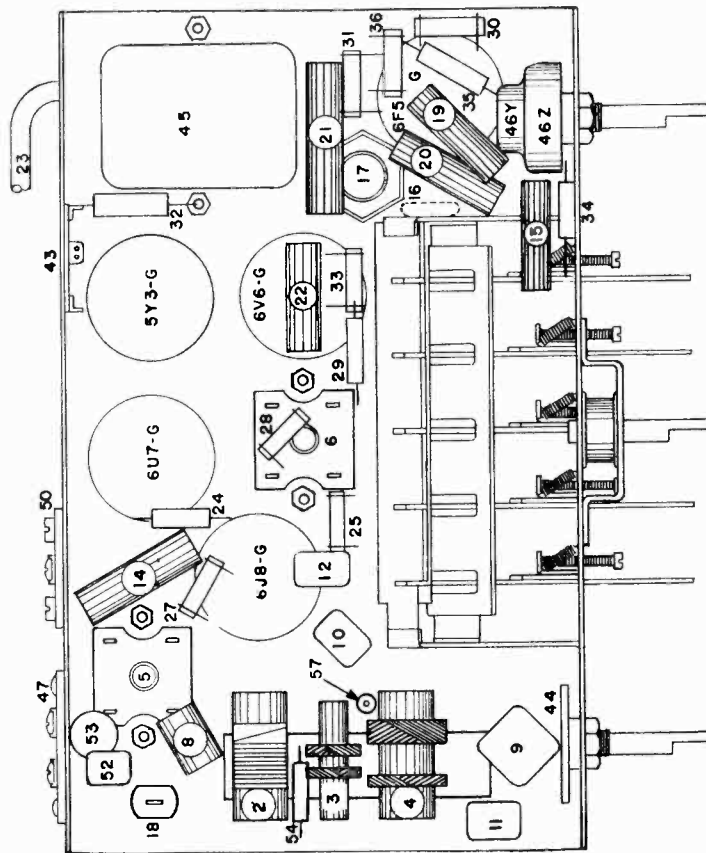


Fig. 3 Bottom View Model 718

SPECIFICATIONS

This model Crosley is a compact seven-tube super-heterodyne receiver designed for operation on ALTER-NATING CURRENT as specified on the Model and License sticker.

540-1725 Kilocycles or 555-173 Meters (American and some Police)  
5.7-18.3 Megacycles or 52.6-16.4 Meters (Foreign)

The tubes used and their functions are as follows: one 6J8G as Oscillator-Modulator, one 6U7G as I.F. amplifier, one 6F5G as Detector, A. V. C. diode, one 6U5 as first Audio amplifier, one 6V6G as Beam Power output, one 5Y3G as Rectifier and one 6U5 as eye Tuning Indicator.

The initial bias for the 6J8G and 6U7G (drop across item 34 a 60 ohm resistor) is measured from chassis to the low end of the volume control. For the 6F5G, (drop across item 35 a 32 ohm resistor) is measured from the low end of the 10 megohm resistor to the cathode of the 6F5G. The bias for the 6V6G is obtained from the drop across items 34, 35, 32, 60 ohms, 32 ohms, 100 ohms respectively, measured from the junction of

The features included in its design consist of a Mechanical Push Button Tuning System, Beam Power Output Tube, Radio-Log Dial, Tuning Indicator Tube, Bass Compensation and a moving coil dynamic speaker. The Tuning Range is divided into two bands as follows:

item 32 and speaker field to chassis. The speaker field is in the negative leg of the power supply. Item 51Y is a 1 megohm resistor assembled in the socket of the 6U5.

TUBES AND VOLTAGE LIMITS

The following table gives the functions of the tubes used, together with the voltage readings between tube socket contacts and chassis. Voltage readings taken with a 1,000 ohm per volt, 500 volt voltmeter (except filaments) with receiver in operating condition and no signal input. The filament voltages should be measured with an accurate low range A-C voltmeter (approximately 0 to 10 volts). Voltage limits may vary plus or minus 10% of values given.



## MODEL 718

## Alignment, Drive Data

## CROSLLEY CORP.

adjustments have been made. To adjust, feed a 455 Kc. signal through a .0002 Mf. condenser to the antenna terminal of the receiver. With the band selector turned to the broadcast band and the condenser gang closed and the volume control on full, adjust the trimmer condenser on the wave-trap for MINIMUM SIGNAL.

Should the interfering station be operating on a frequency of slightly more or less than 455 Kc., the exact frequency should be determined with the aid of a signal generator by the beat note method. Then instead of feeding a 455 Kc. signal through, the exact frequency of the interfering station should be used. If it is not possible to determine the exact frequency of the interfering signal, the antenna may be attached to the receiver tuned to the position where the interfering signal is most noticeable. Then adjust the wave-trap for minimum interference.

**REPLACING DIAL DRIVE CORD**

To replace a broken drive cord proceed as follows:

- 1—Remove broken cord from dial pointer and the cord tension spring from the large pulley on the condenser gang.
- 2—Remove complete dial assembly, fastened with two P. K. screws to top of chassis.
- 3—Remove screw and washer that fastens felt key mask to chassis and fold felt to one side.
- 4—Remove manual drive shaft bracket, fastened with two P. K. screws.
- 5—Place ends of replacement drive cord (C3-41582) together and tie a knot about 1 1/4 inches from the end. Slip tension spring through knot. Fasten the other end of spring on hook in large pulley on gang.
- 6—Close the gang then thread loop through the eyelet in pulley rim.
- 7—Bring one side of drive cord loop forward over pulley and around (1/4 turn) horizontal idler pulley. Then under and over the right hand idler pulley (counter-clockwise).
- 8—Loop the other side of drive cord over large pulley on gang in a clockwise direction, continue around and up and over the small idler pulley.
- 9—Then remove drive shaft from chassis, wrap two complete turns around pulley on the shaft, taking the cord coming over the small idler pulley and wrapping in a clockwise direction while holding shaft in right hand.
- 10—Replace drive shaft in position, taking care that the drive cord coming down to the pulley goes between the 4th and 5th keys and the cord going up from the pulley goes between the 1st and 2nd keys.
- 11—Hook drive cord over left hand idler pulley. Mount drive shaft bracket in position. Check to see that cord is running on all pulleys, and tension spring is stretched to approx. one inch in length.
- 12—Place drive cord clamp (W-46290) on drive cord approx. 1/4 inch from inside edge of large pulley rim.
- 13—Replace key felt, rubber bands and dial assembly.
- 14—Close gang, set the pointer at 540 Kc., place cord in pointer, check pointer travel from end to end before gluing cord to pointer.

.0002 Mf. condenser.

Align the "Foreign" band first.

- (a) Set Band selector to "Foreign" band, right.
- (b) Set signal generator to 18.3 Megacycles.
- (c) Open gang all the way. Minimum capacity.
- (d) Tune-in with H.F. Osc. shunt trimmer 18.3 signal. This signal will be heard at two settings of this trimmer always choose the setting furthest open.
- (e) Set signal generator to 18.0 Megacycles.
- (f) Tune-in 18.0 Mc. signal with station selector, then align the H.F. ANT. trimmer condenser for maximum output. DO NOT ADJUST OSC. TRIMMER AT THIS FREQUENCY.
- (g) Repeat operations (d), (e) and (f) until no further improvement can be obtained.
- (h) Set the band selector to the American Broadcast band.
- (i) Set the signal generator to 1725 Kilocycles.
- (j) Open the gang all the way. Minimum capacity.
- (k) Adjust B-C OSC. trimmer for maximum output.
- (l) Set signal generator to 1400 Kc.
- (m) Tune receiver for maximum general signal (approx. 140 on the dial).
- (n) Adjust B-C ANT. trimmer for maximum output. DO NOT RE-ADJUST OSC. TRIMMER AT 1400 Kc.

(o) REPEAT operations (m) and (n) alternately until no further improvement in output can be obtained.

NOTE: If at any time the H.F. coils in this receiver are replaced, it may be necessary to vary the inductance of the "OSC" coil by moving the cross-over turn of wire at the gap to make the set track at the 6 megacycle end.

Moving the turn toward the short end of the coil will decrease the inductance and moving it toward the long end will increase the inductance. If the signal is weak at 6 megacycles, a similar slight change in the inductance at the "ANT" coil should bring up the signal strength. THIS IS A CRITICAL OPERATION AND SHOULD NOT BE DONE ON ANY SET UNLESS CHANGING COILS MAKES IT NECESSARY.

NOTE: When aligning the high frequency band care should be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator approximately 10 times and try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 910 kilocycles below the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct dial setting.

**WAVE TRAP**

Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from code stations which operate on a frequency of approximately 455 Kc. This assembly is located on the underneath side of the chassis and consists of a coil and a trimmer condenser as indicated by item 48 in the wiring diagram.

The wave trap should not be adjusted until all other

**ALIGNMENT PROCEDURE**

All the circuits in this receiver are very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits can best be properly aligned with the use of a modulated signal generator and an output meter.

**SETTING THE PUSH BUTTONS**

Should it become necessary to realign the various circuits of this receiver, it may be necessary to reset the Push Button Tuning System.

The buttons are set by means of a set screw that is accessible through the front of the push button. Loosen set screw, tune-in with the manual tuning knob the station whose call letters are to be placed in that button.

**PUSH THAT BUTTON ALL THE WAY DOWN, AND WHILE YOU HOLD IT IN THAT POSITION, SECURELY TIGHTEN THE SET SCREW.**

The first button is now set, follow the same procedure with the rest of the push buttons.

The accuracy of the buttons depends on how accurately the station is tuned-in while setting them.

**CONNECTING OUTPUT METER**

Connect the output meter to P and S of the 6V6G Output Tube. Be sure the meter is protected from D.C. by connecting a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

**1. Tuning I-F Amplifier To 455 Kilocycles**

- (a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6J8G tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.
- (b) Set the station selector so that the tuning condenser plates are completely out of mesh and turn the volume control to the right (ON).
- (c) Turn the band selector switch to the left (American Broadcast Band).
- (d) Set the signal generator to 455 kilocycles.
- (e) Adjust both trimmers located on top of the 2nd I-F Transformer for maximum output. (Fig. 2).
- (f) Adjust both trimmers located on top of the 1st I-F Transformer for maximum output.
- (g) Check operations (e) and (f) for more accurate adjustments.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

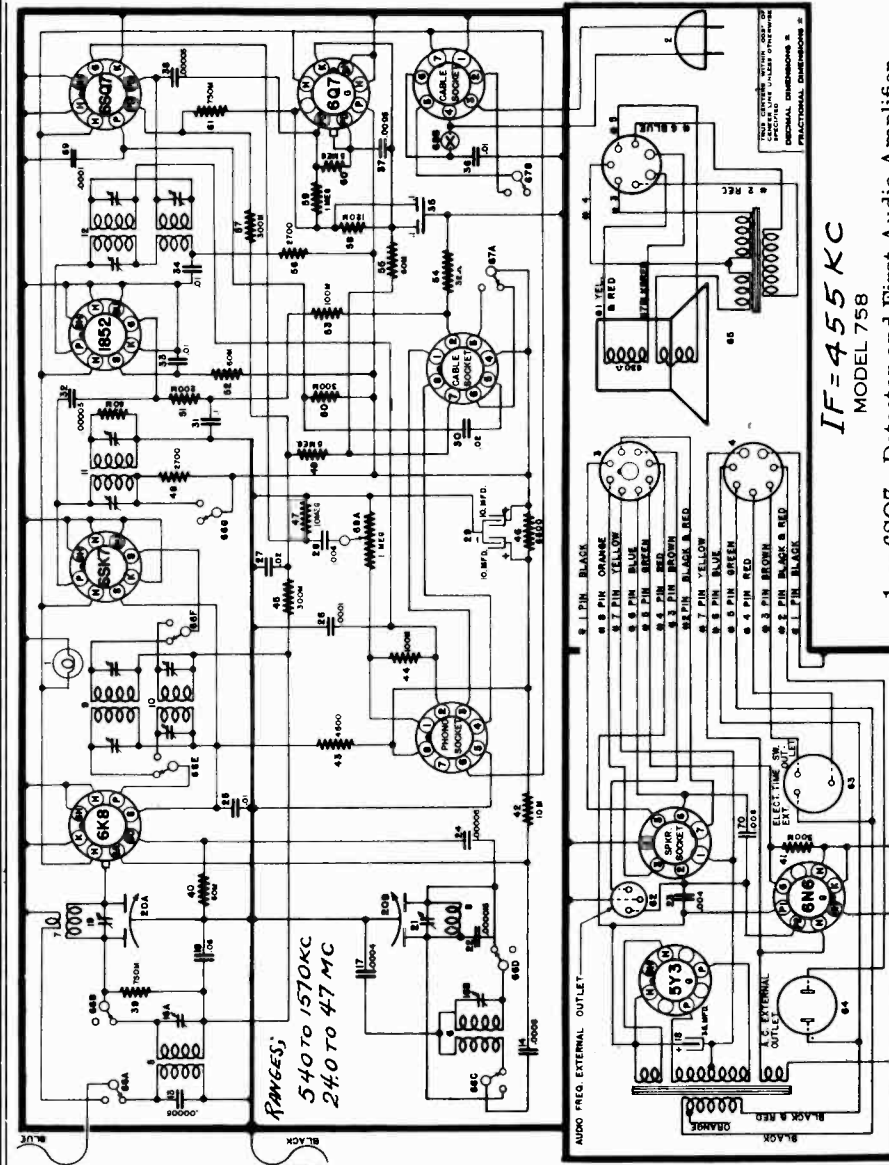
**2. Aligning R-F Amplifier**

When aligning the R-F amplifier the output of the modulated signal generator should be fed through a dummy antenna and connected to the "ANT" terminal of the receiver.

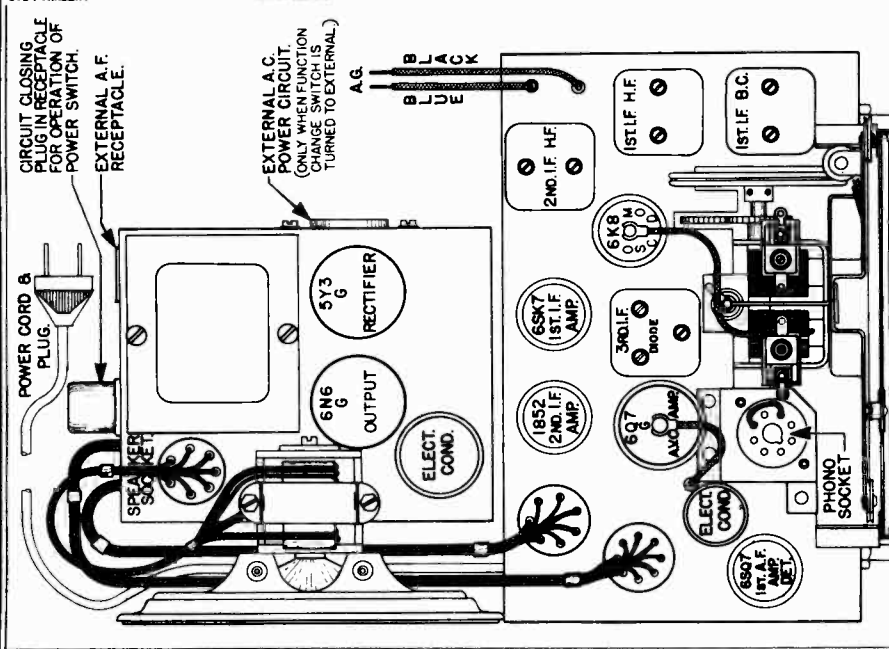
For the "Foreign" band use a 250 ohm carbon resistor for dummy and for the "American" band use a

CROSLY CORP.

MODEL 758  
Schematic, Socket, Trimmers  
Chassis



IF=455 KC  
MODEL 758



1	W-37922	Bulb, Dial Light 6-8V	1	6K8	Oscillator and Mixer or Modulator	49	47131	2nd Intermediate Frequency Amplifier	1	5Y3-G	Rectifier	668	Switch-Band Chg.
2	B-47769-A	Cable & Plug A.C.	31	6SK7	1st Intermediate Frequency Amplifier	50	35601	1st Intermediate Frequency Amplifier	1	6Q7	Detector and First Audio Amplifier	668	Switch-Band Chg.
3	B-47154	Cable & Plug 8-Lead	32	1852	2nd Intermediate Frequency Amplifier	51	35930	2nd Intermediate Frequency Amplifier	1	6N6-G	Automatic Volume Control Amplifier	668	Switch-Band Chg.
4	B-47153	Cable & Plug 7-Lead	33	6Q7	Detector and First Audio Amplifier	52	35928	1st Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
5	G192-32000	Coil B.C. Ant.	34	6Q7	Detector and First Audio Amplifier	53	35660	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
6	G190-32002	Coil B.C. Ant.	35	6Q7	Detector and First Audio Amplifier	54	45981	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
7	G191-32000	Coil Ultra H.F. Ant.	36	6Q7	Detector and First Audio Amplifier	55	35928	1st Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
8	G189-32002	Coil Ultra H.F. Osc.	37	6Q7	Detector and First Audio Amplifier	56	35928	1st Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
9	G214-32004	1st I.F. Trans. B.C.	38	6Q7	Detector and First Audio Amplifier	57	35601	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
10	G215-32004	1st I.F. Trans. H.F.	39	6Q7	Detector and First Audio Amplifier	58	35602	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
11	G215-32004	2nd I.F. Trans.	40	6Q7	Detector and First Audio Amplifier	59	47131	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
12	G212-32004	Dual I.F. Trans.	41	6Q7	Detector and First Audio Amplifier	60	35623	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
13	G5-34002	Cond. .02 MF 160V Paper	42	6Q7	Detector and First Audio Amplifier	61	35601	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
14	G5-34002	Cond. .02 MF 160V Paper	43	6Q7	Detector and First Audio Amplifier	62	35601	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
15	W-36055-B	Cond. .50 MF 400V Paper	44	6Q7	Detector and First Audio Amplifier	63	35601	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			45	6Q7	Detector and First Audio Amplifier	64	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			46	6Q7	Detector and First Audio Amplifier	65	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			47	6Q7	Detector and First Audio Amplifier	66	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			48	6Q7	Detector and First Audio Amplifier	67	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			49	6Q7	Detector and First Audio Amplifier	68	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			50	6Q7	Detector and First Audio Amplifier	69	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			51	6Q7	Detector and First Audio Amplifier	70	47101	2nd Intermediate Frequency Amplifier	1	6N6-G	Triple Twin Output	668	Switch-Band Chg.
			52	6Q7	Detector and First Audio Amplifier								
			53	6Q7	Detector and First Audio Amplifier								
			54	6Q7	Detector and First Audio Amplifier								
			55	6Q7	Detector and First Audio Amplifier								
			56	6Q7	Detector and First Audio Amplifier								
			57	6Q7	Detector and First Audio Amplifier								
			58	6Q7	Detector and First Audio Amplifier								
			59	6Q7	Detector and First Audio Amplifier								
			60	6Q7	Detector and First Audio Amplifier								
			61	6Q7	Detector and First Audio Amplifier								
			62	6Q7	Detector and First Audio Amplifier								
			63	6Q7	Detector and First Audio Amplifier								
			64	6Q7	Detector and First Audio Amplifier								
			65	6Q7	Detector and First Audio Amplifier								
			66	6Q7	Detector and First Audio Amplifier								
			67	6Q7	Detector and First Audio Amplifier								
			68	6Q7	Detector and First Audio Amplifier								
			69	6Q7	Detector and First Audio Amplifier								
			70	6Q7	Detector and First Audio Amplifier								

MODEL 818

Socket, Trimmers, Chassis  
Voltage, Phono.

CROSLLEY CORP.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	G	K	Go	Ga
6A8G	Modulator	6.3	240	85	Neg	0	Neg	85
6K6G	Oscillator	6.3	145	145	Neg	0	—	—
6U7G	1st I-F Amp	6.3	240	85	Neg	0	—	—
6U7G	2nd I-F Amp	6.3	210	85	Neg	0	—	—
6Q7G	Det., AVC & 1st A-F Amp	6.3	120	—	Neg	0	—	—
6K6G	Output	6.3	235	230	0	18.5	—	—
6K6G	Output	6.3	235	230	0	18.5	—	—
5Y3G	Rectifier	5.0	—	—	—	240	—	—

Power output approximately 5.5 watts.

Power consumption approximately 70 watts at 117.5 volts.  
Voltage drop across speaker field 80 volts.

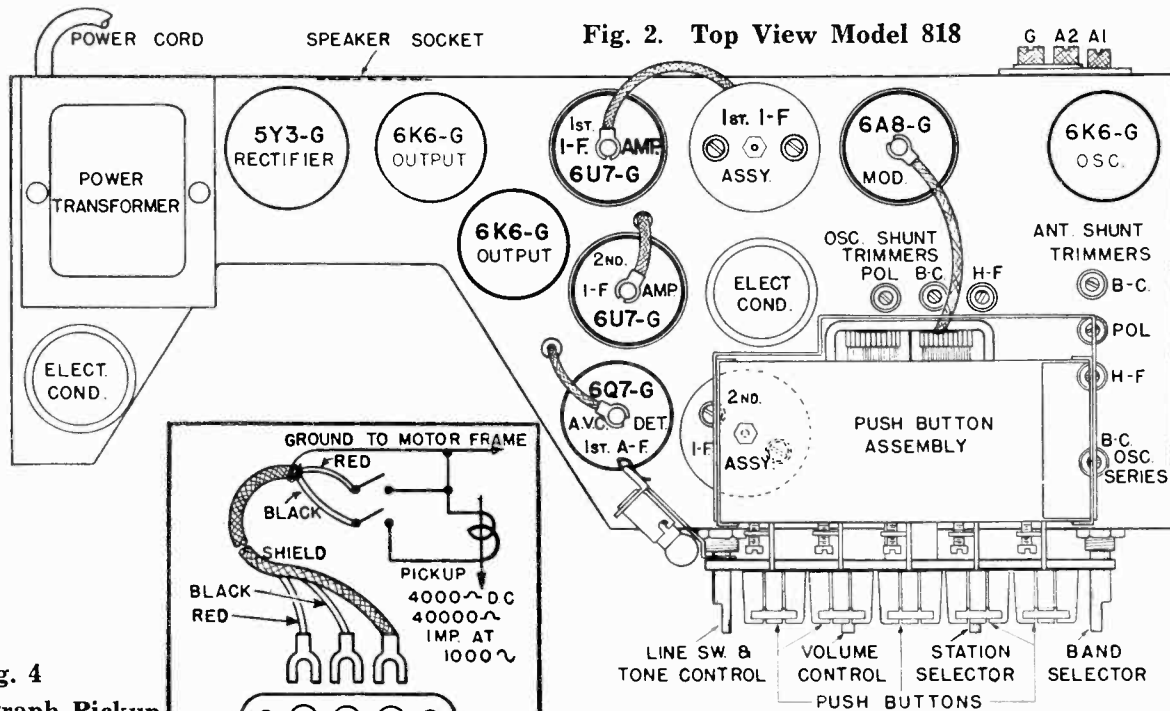


Fig. 2. Top View Model 818

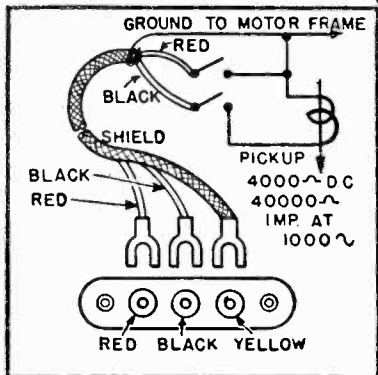


Fig. 4  
Phonograph Pickup

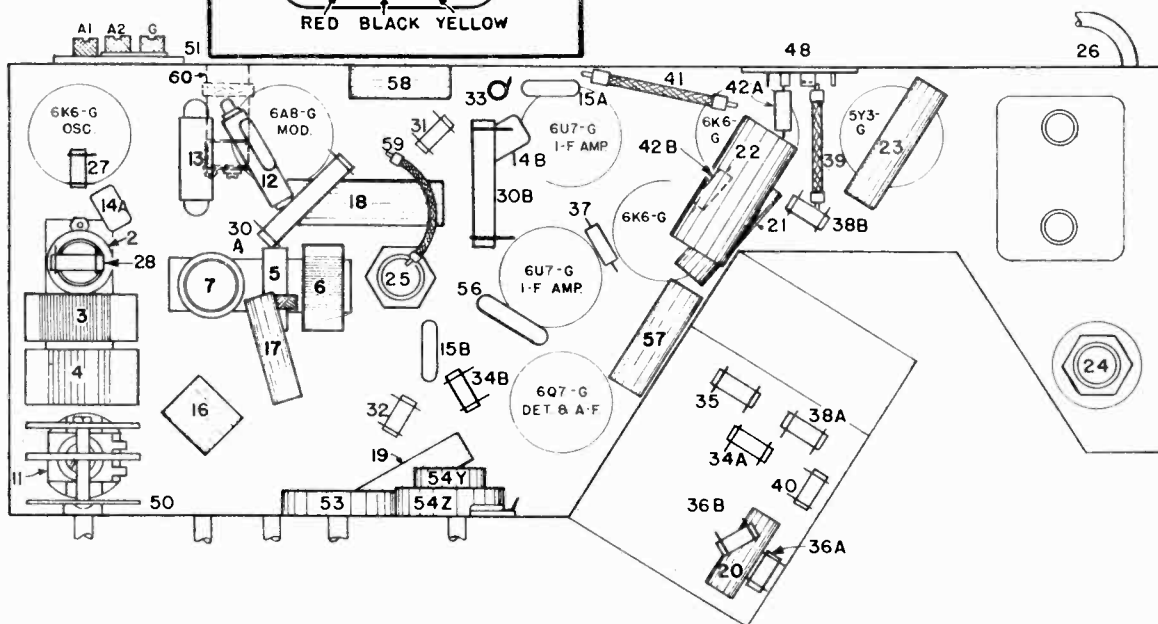


Fig. 3. Bottom View Model 818



MODEL 818

Alignment, Notes, Parts

CROSLEY CORP.

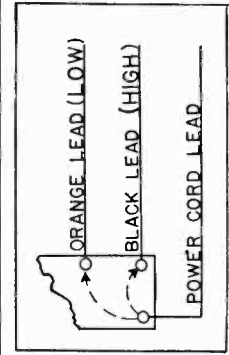
the pointer shaft pulley and back to the eyelet. Thread the lead through the eyelet and tie a knot in the ends of the cord so that it will be about 1/4" from the eyelet when the cord is drawn taught. Hook one end of the tension spring over the knot and hook the other end to the catch provided opposite the eyelet. Cut off the excess cord and if bees wax is available, apply a small amount to the knot as an added protection against slipping.

With the pointer shaft pulley set so that its cycle is in the "up" position, thread the cord through the eyelet. (6) Bring the end of the cord back and over the condenser gang pulley. Continue it down and over the lower idler pulley to the left-hand side of the rubber grommet and then over the top of the pointer shaft pulley. This lead should cross behind the down lead to the rubber grommet. Make one complete loop around

PARTS LIST—MODEL 818

Figures in first column refer to parts in Diagram.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	W-43567	Bulb, Dial Light, 6.8 V.	44AB	G171-35400	Socket, Type 6U7
2	G138-32000	Ant. Coil, 155-1850 Ppt.	45ABC	G172-36400	Socket, Type 6X5
3	G140-32000	Ant. Coil, 1900-6600 Kc.	47	G173-36400	Socket, Type 5Y3
4	G140-32000	Ant. Coil, 6.5-22 Mc.	48	G103-29807	Socket, Type Speaker
5	G171-32002	Osc. Coil, 1900-6600 Kc.	49	W-27881A	Tube Shield
6	G172-32002	Osc. Coil, 6.5-22 Mc.		W-27881A	Tube Shield
7	G153-32004	1st I.F. Assy.		44272	Speaker Spec., I.D.-1049 "M"
8	G153-32004	2nd I.F. Assy.		44272	V.C. and Cone Assy. for 465BP12 "M"
102V	G41-32001	2 Section Gang Cond.		44274	Field Coil for 465BP12 "M" Spkr
	W-44063	Glass Dial Face	50	43552	Spk. Plug Clamp
	W-44063	Dial, Glass	51	43552	Spk. Plug Clamp
	W-44063	Dial, Glass (Upper)	52	G27	A1-A2-G Terminal Assy.
	W-44063	Support Bkt., Dial Glass		44057	Power Trans., 100 V. 60 Cy.
	W-44063	Pulley and Hub Assy. (Pointer Shaft)		44058	Power Trans., 110 V. 50 Cy.
	W-44063	Pulley and Hub Assy. (Cont. Gang)		44058	Power Trans., 110 V. 50 Cy.
	W-44063	Drive Mfg. Bracket and Pulley Assy.		44061	Power Trans., 225 V. 25 Cy.
	W-44063	Pointer Shaft	53	44061	Power Trans., 225 V. 25 Cy.
	W-44063	Dial Pointer (Pointer Shaft)	54Z	44061	Power Trans., 225 V. 25 Cy.
	W-44063	Screw (Pointer Mfg.)	54V	44061	Power Trans., 225 V. 25 Cy.
	W-44063	Cord Tension Spring		44061	Power Trans., 225 V. 25 Cy.
	W-44063	Retaining Ring (Drive Shaft)	56	35951A	3 Sect. Ant. Shunt Trimmer Assy.
	W-44063	Drive Shaft Mfg. Bracket	57	32741	Condenser, .006 Mf. 400 V.
	W-44063	Grommet for Drive Shaft	57	34647	Condenser, .01 Mf. 400 V.
	W-44063	Condenser, 1500 Kmf.	59	35378	Condenser, .01 Mf. 400 V.
11	G23-34000	Condenser, .01 Mf. 200 V.		25013	Resistor, 2,000 Ohm 1/4 W. Flex.
12	G23-34000	Condenser, .01 Mf. 200 V.			
13	G23-34000	Condenser, .01 Mf. 200 V.			
14	G23-34000	Condenser, .01 Mf. 200 V.			
15AB	G23-34000	Condenser, .01 Mf. 200 V.			
16	G23-34000	Condenser, .01 Mf. 200 V.			
17	W-35936	Condenser, .05 Mf. 200 V.			
18	W-35936	Condenser, .05 Mf. 200 V.			
19	W-35936	Condenser, .05 Mf. 200 V.			
20	W-27652	Condenser, .02 Mf. 200 V.			
21	W-27652	Condenser, .02 Mf. 200 V.			
22	W-30488	Condenser, .02 Mf. 400 V.			
23	W-30488	Condenser, .02 Mf. 400 V.			
24	W-30488	Condenser, .02 Mf. 400 V.			
25	W-44054	Condenser, .30 Mf. 350 V.			
26	W-44054	Condenser, .30 Mf. 350 V.			
27	W-30488	Condenser, .02 Mf. 200 V.			
28	W-30488	Condenser, .02 Mf. 200 V.			
29	W-30488	Condenser, .02 Mf. 200 V.			
30A	W-22196	Resistor, 20,000 Ohm 1/4 W.			
30B	W-22196	Resistor, 20,000 Ohm 1/4 W.			
31	W-22196	Resistor, 20,000 Ohm 1/4 W.			
32	W-22196	Resistor, 20,000 Ohm 1/4 W.			
33	W-22196	Resistor, 20,000 Ohm 1/4 W.			
34AB	W-21454	Resistor, 100,000 Ohm 1/4 W.			
35	W-21454	Resistor, 100,000 Ohm 1/4 W.			
36	W-21454	Resistor, 100,000 Ohm 1/4 W.			
37AB	W-2577C	Resistor, 3 Megohm 1/4 W.			
38	W-2577C	Resistor, 3 Megohm 1/4 W.			
39	W-2577C	Resistor, 3 Megohm 1/4 W.			
40	W-2577C	Resistor, 3 Megohm 1/4 W.			
41	W-21863	Resistor, 500,000 Ohm 1/4 W.			
42	W-21863	Resistor, 500,000 Ohm 1/4 W.			
43	W-44009	Resistor, 3,000 Ohm 1/4 W.			
44	G156-36400	Socket, Type 6A8			



**50 CYCLE POWER TRANSFORMER**  
 Receivers equipped with a 50 cycle power transformer have a "high" angle tap on the under side of the "low" voltage lead (BLACK) and a terminal scrape near the transformer. The "low" voltage lead (ORANGE) is connected to the transformer is from 95 to 112 1/2 volts and of the "high" tap is from 112 1/2 to 130 volts. The range of the "low" tap is from 190 to 225 volts and of the "high" tap is from 225 to 260 volts. The accompanying illustration shows the connections

**Aligning the R-F Amplifier.**  
 When aligning the R-F amplifier, the output lead from the signal generator is connected to the "ANT" terminal of the receiver. For the Broadcast and Police bands a .00025 mfd. condenser should be connected in series with the output lead of the signal generator and for the High Frequency band a 400 ohm carbon resistor should be used in place of the condenser.  
 Each band should first be SHUNT ALIGNED and then SERIES ALIGNED where provision is made for series alignment (Broadcast Band). The band selector switch should be set for the band being aligned and the station selector and signal generator should be set to the frequency indicated for each adjustment, (C) below.

(a) Adjust the "OSC." and "ANT" shunt trimmers in the order given for maximum output. Readjust the station selector slightly so that the generator signal is adjusted for maximum output and then check the adjustment of the "ANT" trimmer. DO NOT READJUST THE "OSC." TRIMMER.  
 NOTE: When shunt aligning the Police and High Frequency Bands which are exercised so that the circuits will be aligned on the image frequency which is 910 kilocycles less than the fundamental. To check on this increase the output of the signal generator ten times, or more, to try to tune in the signal both at the generator frequency as indicated on the station selector dial and at approximately 910 kilocycles less than the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct frequency.

(b) To align the B. C. OSC. series trimmer (Fig. 2), set the signal generator to the frequency indicated below and then tune in this signal with the station selector for maximum output. To obtain the best adjustment for the series trimmer, it will be necessary to rotate the station selector back and forth slightly while adjusting the trimmer for maximum output.

**(C) SIGNAL INPUT FREQUENCIES**  
 American Alps 1700 Kilocycles  
 American Broadcast Band 6000 Kilocycles  
 Police & Amateur Band 6000 Kilocycles  
 Foreign Band 18 Megacycles

button and loosen (DO NOT REMOVE) the screw that is located in the button of each hole.  
 1) Determine the favorite tone of the stations whose call letters are to be used for the push buttons. By means of a conventional tuning knob tune in AS ACCURATELY AS POSSIBLE the station having the highest frequency—that is, the station nearest the 1500 kilocycle end of the dial. COMPLETELY DEPRESS AND HOLD No. 1 push button and SECURELY TIGHTEN THE SET SCREW. No. 1 push button is the one toward the high frequency end of the dial.  
 The push button system is now set for the first station. Follow through with this same procedure, setting the other stations in the order of their frequency (kilocycles).  
 If the receiver has been re-aligned it may be necessary to reset the push button system.

**REPLACING DIAL DRIVE CORD**  
 To replace the dial drive cord, the following procedure should be carefully followed.  
 (1) Remove the chassis from the cabinet.  
 (2) Remove the dial glass, pointer and dial mounting bracket.  
 (3) Remove the broken cord and the tension spring doubled end through the eyelet (from the outside) in the pulley on the end of the forming loop about 3/4" long.  
 (4) Cut the cord so that the eyelet in the pulley will be "down." Hook the looped cord over the catch provided in the pulley opposite the eyelet.  
 (5) Bring one end of the cord forward and over the top idler pulley. Continue the cord under and around

the pointer shaft pulley and back to the eyelet. Thread the lead through the eyelet and tie a knot in the ends of the cord so that it will be about 1/4" from the eyelet when the cord is drawn taught. Hook one end of the tension spring over the knot and hook the other end to the catch provided opposite the eyelet. Cut off the excess cord and if bees wax is available, apply a small amount to the knot as an added protection against slipping.

**ALIGNMENT PROCEDURE**  
**Tuning I.F. Amplifier To 455 Kilocycles.**  
 (a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8G for changing from high to low or high to high voltage. The condenser should be connected to the tag terminal at which one side of the power cord is attached. The other end of this jumper wire should be connected to the ORANGE or BLACK lead of the transformer primarily, according to the line voltage the receiver is to be used on.  
 NOTE: Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

(b) Turn the band selector switch to the High Frequency Band.  
 (c) Turn the band selector switch to the High Frequency Band.  
 (d) Set the signal generator to 455 kilocycles.  
 (e) Adjust both trimmers located on top of the 2nd I.F. section for maximum output. (Item 3, Fig. 2).  
 (f) Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(g) Turn the band selector switch to the High Frequency Band.  
 (h) Set the signal generator to 455 kilocycles.  
 (i) Adjust both trimmers located on top of the 2nd I.F. section for maximum output. (Item 3, Fig. 2).  
 (j) Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(k) Check operations (e) and (f) for more accurate adjustment.  
 ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

**WAVE TRAP**  
 Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from code stations which operate on a frequency of approximately 455 kilocycles. This assembly is located on the underneath side of the chassis and is located on a baseboard condenser and a variable condenser as illustrated in the Wiring Diagram (item 60).  
 The wave trap should not be adjusted until all other adjustments have been made. To make the adjustment, feed a 455 kilocycle signal from the signal generator through a .00025 mfd. condenser into the antenna terminal of the receiver. With the band selector switch turned to the Broadcast Band position, the gang condenser open and the volume control full on, adjust the trimmer condenser on the wave trap for MINIMUM output.

Should the interfering station be operating on a frequency of slightly more or less than 455 kilocycles, the exact frequency should be determined by the aid of the signal generator. The procedure of feeding the 455 kilocycle signal into the antenna terminal of the receiver is the same as that used to determine the exact frequency of the interfering signal. The antenna may be attached to the receiver and the receiver turned to the position where the interfering signal is most noticeable. Then adjust the wave trap for minimum interference.

**SETTING PUSH BUTTONS**  
 The push buttons may be quickly and accurately set from the front of the receiver. It is not necessary that all the push buttons be set at the same time. Insert a small screw driver in the hole in the front of each push



CROSLLEY CORP.

MODEL 828  
Schematic  
Phono.

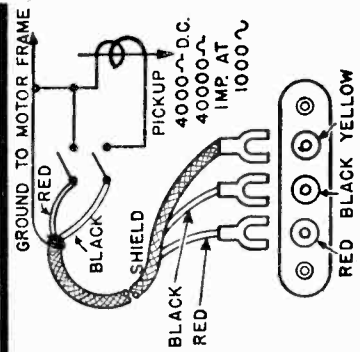
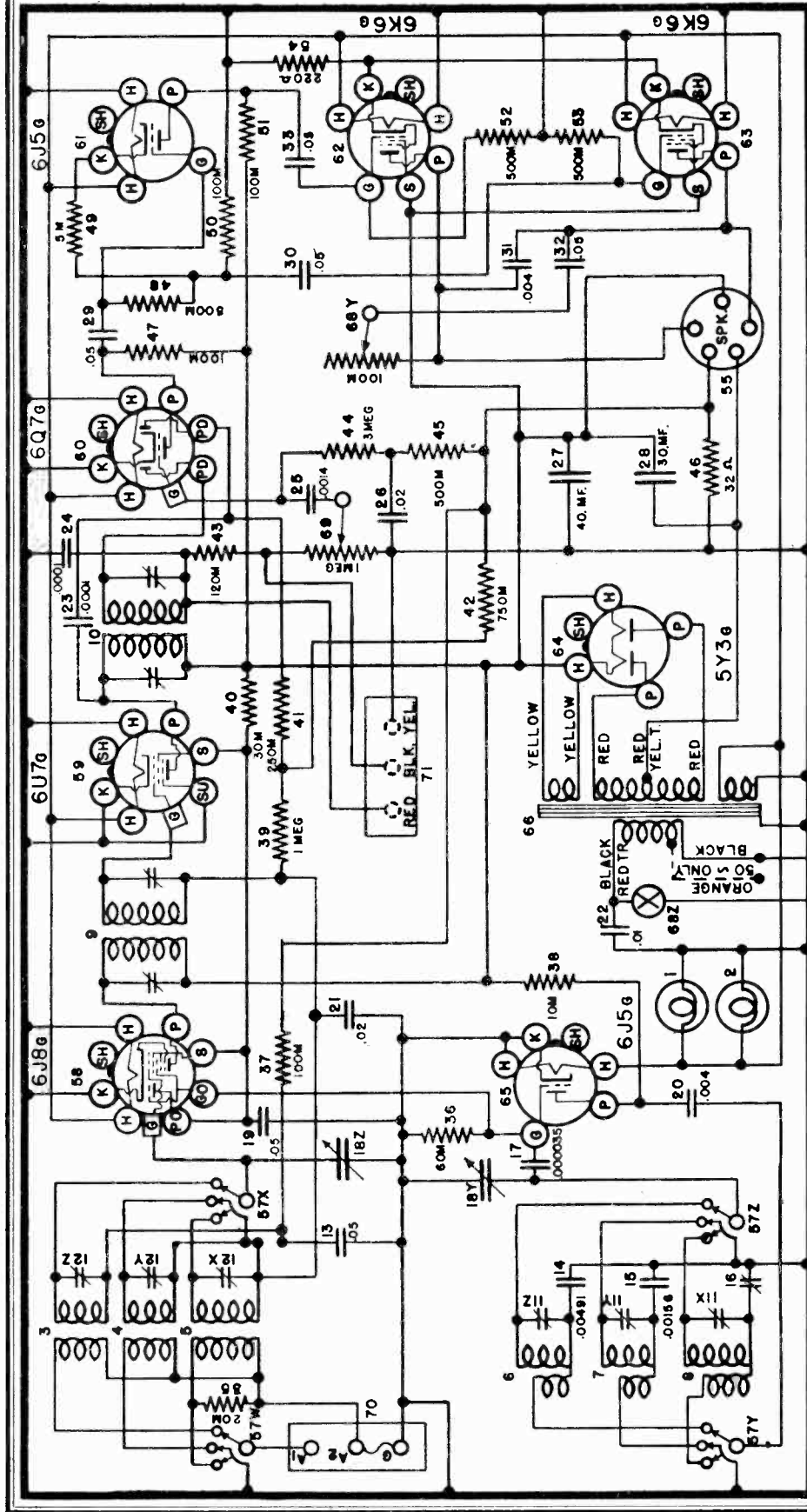


Fig. 4 Phonograph Pickup

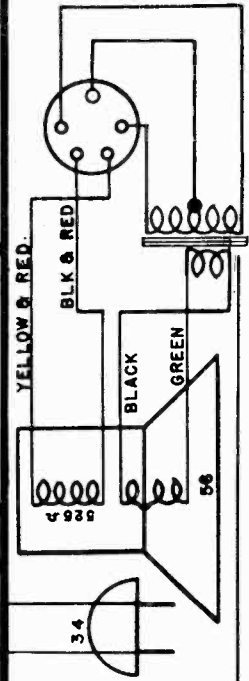
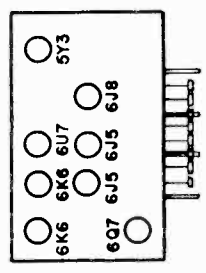


FIG. 1

MODEL -- 828

455 K C. I.F.

DECEMBER, 1938



This model Crosley is an eight-tube receiver designed for operation on A.C. circuits as specified on the model and license label. Features include; large sloping rectangular dial, three tuning ranges, continuous variable tone control, separate oscillator, bass compensation, push pull pentode output, phase inversion and the famous CROSLLEY mechanical push button tuning system. The tuning range is from 540 kilocycles to 20 megacycles and divided into three bands as follows:  
540-1725 Kilocycles or 555-173 Meters (American Broadcast Band)  
1.9- 6.4 Megacycles or 158-46.8 Meters (Police and Amateurs)  
6.2- 20 Megacycles or 48.4-15 Meters (Foreign or High Frequency Band)

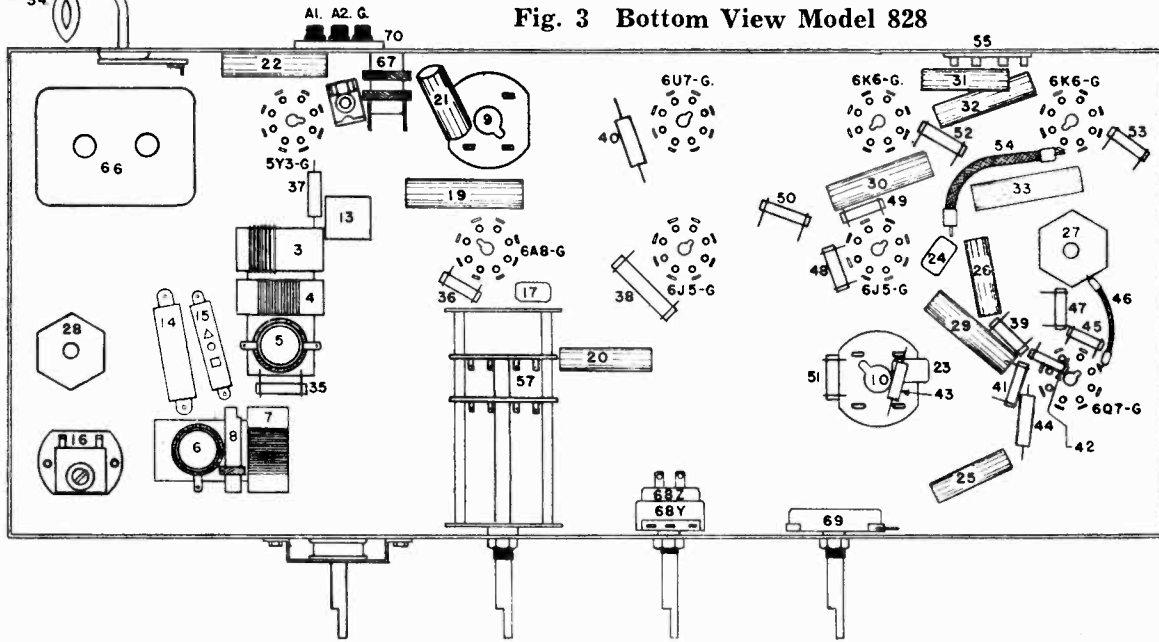


MODEL 828

Chassis Parts

CROSLLEY CORP.

Fig. 3 Bottom View Model 828



PARTS LIST — MODEL 828

Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description	Item No.	Part No.	Description
1	W —37922	Dial Light—6-8 Volt	48	—23785	Resistor, 500,000 Ohm 1/4 W.
2	W —37922	Dial Light—6-8 Volt	49	—27121	Resistor, 5,000 Ohm 1/4 W.
	G16 —45398	Socket and Brkt. Assy., Dial Light	50	—21875	Resistor, 100,000 Ohm 1/4 W.
3	G170 —32000	Antenna Coil—H.F.	51	—21875	Resistor, 100,000 Ohm 1/4 W.
4	G168 —32000	Antenna Coil—Pol.	52	—23785	Resistor, 500,000 Ohm 1/4 W.
5	G169 —32000	Antenna Coil—B.C.	53	—23785	Resistor, 500,000 Ohm 1/4 W.
6	G170 —32002	Oscillator Coil—H.F.	54	W —22873	Resistor, 220 Ohm 2 1/2 W.
7	G168 —32002	Oscillator Coil—Pol.	55	G103 —28807	Socket—(5 Prong Spkr.)
8	G169 —32002	Oscillator Coil—B.C.	56	W —43552	Spkr. Plug Clamp
9	G175 —32004	1st I-F. Assy., 455 Kc.		583-CP-18"K"	Speaker, Spec. No. V. C. and Cone Assy.
10	G176 —32004	2nd I-F. Assy., 455 Kc.		—46786	Field Coil—(525 Ohm)
11	W —45713	3 Section Trimmer (Osc. Shunt)		—46787	Field Coil (525 Ohm)
12	W —35951A	3 Section Trimmer (Ant. Shunt)		—46788	Output Transformer
13	W —35936	Condenser, .05 Mf. 200 V.		—46789	Cardboard Ring
14	G20 —34000	Condenser, .004910 Mf. Mica		583-CP-18"H"	Speaker, Spec. No. S-4893N3
15	G23 —34000	Condenser, .001560 Mf. Mica		—46786	V. C. and Cone Assy.
16	—40769	B-C. Osc. Series Trimmer		—46787	Field Coil (525 Ohm)
17	G13 —34002	Condenser, .000035 Mf. Molded		—46788	Output Transformer
18	G59 —33001	2 Section Gang Condenser		—46789	Cardboard Ring
	D —46317	Calibrated Dial Glass—Domestic		583-CP-18"Z"	Speaker, Spec. No. E10K326
	D —46749	Calibrated Dial Glass—International		—46758	V. C. and Cone Assy.
	C —46275B	Dial Support—Flocked Mask		—46759	Field Coil (525 Ohm)
	W —46941	Rubber Cushion—Dial Glass		—46760	Output Transformer
	W —46099	Dial Class Clip—(2 Req.) Mtg.		—46761	Cardboard Ring
	W —46096	Dial Class Clip—(R. H.) Mtg.	57	B —46276	Band Selector Switch
	W —46095	Dial Class Clip—(L. H.) Mtg.	58 to 65	G178 —36400	8 Prong Socket
	W —46203	Dial Pointer		—46318	Power Transformer, 60 Cy.—110 V.
	W —46097	Guide—Pointer		—46307	Power Transformer, 50 Cy.—110 V.
	G13 —43564	Pulley and Hub Assy. on Gang		—46308	Power Transformer, 50 Cy.—220 V.
	MG17 —46287	Small Brass Idler Pulley and Brkt. Assy.		—46309	Power Transformer, 25 Cy.—110 V.
	MG20 —46287	Idler Pulley Assy. (2 Pulleys)		—46310	Power Transformer, 25 Cy.—220 V.
	W —45877B	Drive Shaft and Pulley (Manual)		—46311	Power Transformer, 40-100 Cy.—95-267 V
	W —45878	Bracket—Drive Shaft Mounting	67	MG41 —46287	Wave Trap—455 Kc.
	W —46087	Tension Spring—Drive Cord		G188 —32000	Coil—Only—Wave Trap
	G9 —41582	Drive Cord (61 Inches)		—44024B	Tone Control
	W —46290	Clamp—Drive Cord	68Y		Line Switch
	W —23615	Condenser, .05 Mf. 400 V.	69	—44773	Volume Control
19	W —35139	Condenser, .004 Mf. 400 V.	70	G27 —26719	Ant. and Gnd. Terminal Assy.
20	W —28621	Condenser, .02 Mf. 200 V.	71	G41 —26719	Phono Terminal Assy.
21	W —30805	Condenser, .01 Mf. 400 V.		G10 —45683	Push Button Unit Assy.
22	G2 —34002	Condenser, .0001 Mf. Molded		G29 —45683	Key and Toggle Assy.
23	G2 —34002	Condenser, .001 Mf. Molded		W —45717	Screw—Key Adjusting
24	W —41461	Condenser, .0014 Mf. 200 V.		W —50607C	Spring—Key Return
25	W —28621	Condenser, .02 Mf. 200 V.		W —50542C	Clamp—Toggle Lock
26	W —36057B	Condenser, 40 Mf. 300 V.		W —50588B	Adjusting Clip—(Heart Shaped)
27	W —44054	Condenser, 30 Mf. 350 V.		W —45646B	Adjusting Clip—(Hooked)
28	W —23615	Condenser, .05 Mf. 400 V.		W —46278	Guide Plate—Key
29	W —23615	Condenser, .05 Mf. 400 V.		G18 —45683	Rocker Plate and Gear Sector Assy.
30	W —35139	Condenser, .004 Mf. 400 V.		W —50561	Screw—Rocker Plate Bearing
31	W —23615	Condenser, .05 Mf. 400 V.		W —45976	Bronze Spring—Bearing Thrust
32	W —23615	Condenser, .05 Mf. 400 V.		W —50273	Rubber Band—Used on Keys
33	W —23615	Condenser, .05 Mf. 400 V.		8R	Cabinet
34	B —33906A	Power Cord and Plug		—46360A	Knob—4 Req.
35	—22196	Resistor, 20,000 Ohm 1/4 W.		8T	Cabinet (Lowboy Style)
36	—21237A	Resistor, 60,000 Ohm 1/4 W.		—46360A	Knob—Tuning—Volume
37	—35600	Resistor, 100,000 Ohm 1/4 W.		—46784A	Knob—Tone Control—Band Sw.
38	—4921C	Resistor, 10,000 Ohm 1 W.		C —46228C	Escutcheon
39	—21454	Resistor, 1 Megohm 1/4 W.		—46417	Push Button
40	—36952	Resistor, 30,000 Ohm 1 W.		—50841	Station Call List
41	—34020	Resistor, 250,000 Ohm 1/4 W.		W —50551A	Celluloid Call Letter Cover
42	—37590	Resistor, 750,000 Ohm 1/4 W.		—46329	Instruction Booklet
43	—36320	Resistor, 120,000 Ohm 1/4 W.		—46306	Carton for 8K Cabinet
44	—36688	Resistor, 3 Megohm 1/4 W.		—46640	Carton for 8T Cabinet
45	—23785	Resistor, 500,000 Ohm 1/4 W.			
46	W —37631	Resistor, 32 Ohm 1/2 W.			
47	—21875	Resistor, 100,000 Ohm 1/4 W.			

CROSLLEY CORP.

MODEL 828  
Socket, Trimmers, Voltage  
Alignment, Drive Data

CHASSIS MODEL 828

Tube	Function	TUBE SOCKET VOLTAGE READINGS					
		H	P	S	G	K	Po
6J5G	Oscillator	6.3	145	—	—	0a	—
6A8G	Modulator	6.3	265	82	-3	0	82
6U7G	1-F Amplifier	6.3	265	82	-3	0	—
6Q7G	Detector A.V.C. 1st A-F	6.3	200	—	-4	0	—
6J5G	Phase Inverter	6.3	165	—	-4	78	—
6K6G(2)	Output	6.3	260	—	—	17	—
5Y3G	Rectifier	5.0	—	A. C.	—	—	—

Max. power output approx. 10 watts.  
Power consumption at 117.5 line 85 watts.  
Voltage across speaker field 62 volts.

(bracket mounted on the gang) then over to the left hand idler, around idler and over to lower right hand idler pulley, over pulley and down and around (counter clockwise) the large pulley on the gang. Insert end of cord through eyelet. Stretch tension on spring until it is approximately one inch in length, tie ends of cord securely. Place cable clamp (W-46250) on the cable approximately 1/2 inch from the inside of the pulley rim.  
6—Replace manual drive shaft bracket, dial mask and dial. Then insert drive cord in pointer. Check pointer travel before cementing cord to pointer.

**SOCKET VOLTAGES**  
The tube socket voltages are measured from the tube socket contacts to the chassis with a 1,000 ohm per volt, 500-volt D. C. voltmeter (except filaments) with receiver in operating condition and no signal input. The filament voltages should be measured with an accurate low range A. C. voltmeter (approximately 0-10 volts). Readings may vary plus or minus 10% of values given.

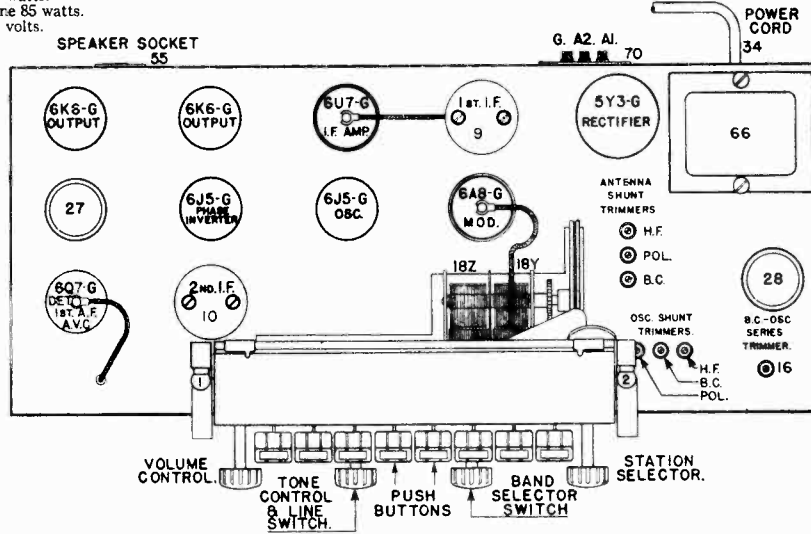


Fig. 2 Top View Model 828

**Aligning R-F Amplifier.**

When aligning the R-F amplifier, the output lead from the signal generator is connected to the "ANT." terminal of the receiver. For the Broadcast and Police Bands a .00025 mid. capacitor should be connected in series with the output lead of the generator. For the High Frequency band a 250 ohm carbon resistor should be used.  
Each band should first be shunt aligned and then series aligned where provision is made for series alignment (Broadcast Band). The band selector switch should be set for the band being aligned and the station selector and signal generator should be set to the frequency indicated for each adjustment, paragraph (c) below.

(a) Adjust the "OSC." and "ANT." shunt trimmers in the order given for maximum output. Readjust the station selector slightly so that the generator signal is tuned-in with maximum output and then check the adjustment of the "ANT." trimmer. **DO NOT READJUST THE "OSC." TRIMMER.**

**NOTE:** When shunt aligning the Police and High Frequency Bands care must be exercised so that the circuits will be aligned on the correct frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator ten times, or more, to try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 10 kilocycles less than the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but the signal will be stronger at the correct frequency. (b) Turn the B. C. OSC. trimmer at the correct frequency. The signal generator to the frequency indicated below and tune-in this signal with the station selector for maximum output. To obtain the best adjustment for the series trimmer, it will be necessary to rotate the station selector back and forth slightly while adjusting the trimmer for maximum output.

**(C) SIGNAL INPUT FREQUENCIES**

Shunt Alignment	Series Align.
American Broadcast Band 1400 Kilocycles	600 Kilocycles
Police and Amateur Band 6000	18 Megacycles

**WAVE TRAP**

Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from code stations which operate on a frequency of approximately 455 kilocycles. This assembly is located on the underneath side of the chassis and consists of a coil, a fixed condenser and a trimmer condenser as illustrated by dotted lines in the Wiring Diagram (item 60).

The wave trap should not be adjusted until all other adjustments have been made. To make the adjustment, feed a 455 kilocycle signal from the signal generator through a .00025 mid. condenser into the antenna terminals of the receiver. With the band selector turned to the Broadcast Band position, the gang door is open and the volume control full on, adjust the trimmer condenser on the wave trap for minimum output. Should the interfering station be operating on a frequency of slightly more or less than 455 kilocycles, the exact frequency should be determined with the aid of the signal generator. Then, instead of feeding a 455 kilocycle signal into the receiver, the exact frequency of the interfering signal should be used. If it is not possible to determine the exact frequency of the interfering signal, the antenna may be attached to the receiver and the receiver tuned to the position where the interfering signal is most noticeable. Then adjust the wave trap for minimum interference.

**REPLACING THE DIAL DRIVE CORD**

- 1—Remove the chassis from the cabinet.
- 2—Remove the broken drive cord, first from the pointer then from the pulleys. Remove the cord tension spring and cable clamp.
- 3—Remove the dial (glass and mask) and the manual tuning shaft bracket.
- 4—Cut a piece of dial cord 58 inches in length (G9-41582).
- 5—Tie the cord tension spring approximately 1 1/2 inches from one end of the cord; open the gang condenser; this should place the eyelet in the pulley top. Insert the cord through the eyelet, from the inside of the pulley. Hold the end of tension spring on the catch in the pulley opposite eyelet.
- 6—Bring the cord forward and down, over small brass idler pulley to the manual shaft pulley, wrap two turns around the manual shaft pulley in a counter clockwise direction. Continue cord up and over small brass idler pulley to the top idler pulley

**CIRCUIT DESCRIPTION**

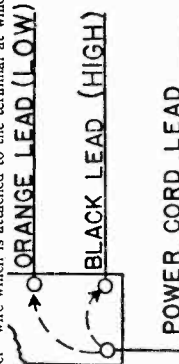
The tubes used and their functions are as follows; one 6J5 G as oscillator, one 6A8 G (early models have a 6I8 G) as modulator, one 6U7 G as I-F amplifier, one 6Q7 G as diode detector, A.V.C. and first A-F amplifier, one 6J5 G as phase inverter, two 6K6 G's as push pull pentode output and one 5Y3 G as rectifier. The fixed bias for the 6A8 G, 6U7 G and 6Q7 G is obtained from the drop across item No. 46 a 32 ohm resistor. The voltage is measured from the chassis to the low side of the speaker field. Bias for the 6J5 G phase inverter is measured across item No. 49 a 5,000 ohm resistor. The bias for the output tubes is measured across item No. 54 a 220 ohm resistor.

The speaker field (525 ohm) is in the negative leg of the power supply.

**50 CYCLE POWER TRANSFORMER ADJUSTMENT**

Receivers equipped with a 50 cycle power transformer have a "high" and "low" voltage tap on the under side of the chassis. The "high" voltage lead (BLACK) and the "low" voltage lead (ORANGE) are connected to a terminal strip near the transformer. The voltage range of the "low" tap of the 95-130 volt transformer is from 95 to 112 1/2 volts and of the "high" tap is from 112 1/2 to 130 volts. From 190 to 225 volts and of the "high" tap is from 225 to 260 volts.

The accompanying illustration shows the connections for changing from high to low or low to high line voltage. Note the "jumper" wire which is attached to the terminal at which one



side of the power cord is attached. The other end of this jumper wire should be connected to the ORANGE or BLACK lead of the transformer primary, according to the line voltage the receiver is to be used on.

**NOTE:** Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

**ALIGNMENT PROCEDURE**

All the circuits in this receiver are very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits may be properly aligned with the use of a modulated signal generator and an output meter.

**CONNECTING OUTPUT METER**

Connect the output meter to the plates of the two 6K6G Output tubes. Be certain that the meter is protected from D. C. by connecting a condenser (.1 mid. or larger—not electrolytic) in series with one of the leads.

**Tuning I-F Amplifier to 455 Kilocycles.**  
(a) Connected the output of the signal generator through a .02 mid. condenser to the top cap of the 6A8G tube, leaving the tube's grid lead in place. Connect the ground lead from the signal generator to the chassis.

**THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.**  
(b) Set the station selector so that the tuning condenser plates are completely out of mesh. Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(c) Turn the band selector switch to the Broadcast Band. Right.

(d) Set the signal generator to 455 kilocycles.

(e) Adjust both trimmers located on top of the 2nd I-F assem. for maximum output. (Item 10, Fig. 2)

(f) Adjust both trimmers located on top of the 1st I-F assem. for maximum output. (Item 9, Fig. 2)

(g) Check operations (e) and (f) for more accurate adjustment. **ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.**

MODEL 1018  
Voltage, Alignment  
Drive Data, Notes, Tuner

CROSLLEY CORP.

WAVE TRAP

Some chassis of this model are equipped with a wave trap for the purpose of eliminating interference from stations which operate on a frequency of approximately 455 kilocycles. This assembly is located on the underneath side of the chassis and consists of a coil, a fixed condenser and a trimmer condenser as illustrated by dotted lines in the Wiring Diagram, Item 63, Fig. 1. The wave trap should not be adjusted until all other adjustments have been made. To make the adjustment, lead a 455 kilocycle signal from the signal generator through a .00025 mfd. condenser into the antenna terminal of the receiver. With the band selector switch turned to the Broadcast Band position, the gang condenser open and the volume control full on, adjust the trimmer condenser on the wave trap for minimum output.

Should the interfering station be operating on a frequency of slightly more or less than 455 kilocycles, the exact frequency should be determined with the aid of the signal generator. Then, instead of feeding a 455 kilocycle signal into the receiver the exact frequency of the interfering signal should be used. If it is not possible to determine the exact frequency of the interfering signal the antenna may be attached to the receiver and the receiver tuned to the position where the interfering signal is most noticeable. Then adjust the wave trap for minimum interference.

REPLACING DIAL DRIVE CORD

To replace the dial drive cord the following procedure should be carefully followed:

- 1—Remove the chassis from the cabinet.
  - 2—Remove the dial glass, the pointer, then the dial mounting bracket.
  - 3—Remove the broken cord and the tension spring.
  - 4—Double a 48" length of drive cord. Tie a knot in the cord to form a loop about 3/4" long. Insert the two ends through the eyelet in the pulley on the gang from the inside. Hook the small loop over the catch in the pulley opposite the eyelet, then close the gang.
  - 5—Bring one end of the cord forward and down over the top of the lower idler pulley. Continue the cord on down to the left of the manual drive shaft, then under and around to the top of the pointer drive shaft, crossing in front of cord to manual drive shaft. Make one and one half turns around pulley in a counter-clockwise direction. Insert end of cord through eyelet in pulley rim, eyelet should be to the left and in line with the pointer shaft.
  - 6—Bring the other end of drive cord back and under pulley on the gang, then up and over the top idler pulley. Continue down and under pointer drive pulley for 1/2 turn, insert end through eyelet. Tie ends in a secure knot, then hook one end of tension spring through knot and hook the other end on catch in pulley. The tension spring should be stretched to approximately 3/4" length. Retie knot if necessary to give proper tension on drive cord.
- Cut off excess cord and if any bees wax is available apply a small amount to the knot as an added precaution against slipping.

MODEL 1018

Series Align.  
600 Kilocycles  
Short Align.  
700 Kilocycles  
6000  
18 Megacycles

(D) SIGNAL INPUT FREQUENCIES

American Broadcast Band  
1740 Kilocycles  
6400  
30 Megacycles  
Police & Amateur Band  
High Frequency Band

00025 mfd. condenser should be connected in series with the output lead of the signal generator and for the High Frequency and Police Bands a 400 ohm carbon resistor should be used in place of the condenser.

Each band should first be SHUNT ALIGNED and then SERIES ALIGNED where provision is made for series alignment (Broadcast Band). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated for each adjustment, f (d) below.

(a) With the station selector adjusted so that the tuning condenser plates are completely out of mesh, adjust the "OSC" shunt trimmer until the MINIMUM CAPACITY SIGNAL (d) is heard (it is not necessary that the receiver tune through this signal).

(b) Adjust the station selector so that the SHUNT ALIGNMENT SIGNAL (d) is tuned-in with maximum output. Then adjust the "ANT" shunt trimmer to maximum output. Readjust the station selector slightly so that the generator signal is tuned-in with maximum output and check the adjustment of the "ANT" trimmer. DO NOT READJUST THE OSCILLATOR TRIMMER.

NOTE: When shunt aligning the Police and High Frequency Bands care must be exercised so that the circuits will be aligned on the correct frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator ten times, or more, and try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 910 kilocycles less than the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct frequency.

(c) To align the series trimmer (See Fig. 2), set the signal generator to the frequency indicated below (d) and then tune-in this signal with the station selector for maximum output. To obtain the best adjustment for the series trimmer, it will be necessary to rotate the station selector back and forth slightly while adjusting the trimmer for maximum output. Minor tolerances variations in series alignment at 2500 kilocycles in the Police Band and a 6000 kilocycles in the High Frequency Band may be compensated for by slight repositioning of the grid lead of the antenna coil in the Band.

If the various circuits of this receiver have to be adjusted it may be necessary to reset the push button tuning system, after the adjustments have been made. The push buttons are set from the front of the receiver. To reset a push button remove the call letter and celluloid protector from the front of the button.

Loosen the set screw at the bottom of the hole. Tune-in with the manual tuning knob AS ACCURATELY AS POSSIBLE, the station whose call letters were in that button.

Push the button all the way down and while you hold it in that position securely tighten the set screw.

Repeat the above procedure for the rest of the push buttons that have to be set.

Remember—The accuracy of the push buttons depend entirely upon HOW ACCURATE YOU TUNE-IN THE STATION WHILE SETTING THEM.

SOCKET VOLTAGES

The tube socket voltages are measured from the tube socket contacts to the chassis with 1000 ohm per volt, 500 volt D. C. voltmeter (except filaments) with the receiver in operating condition and no signal input. The volume control should be turned full on, the tone control should be turned to the TREBLE position (counter-clockwise) and the tuning condenser should be turned to the minimum capacity position. The filament voltages should be measured with an accurate low range A. C. voltmeter (approximately 0.10 volts). Readings may vary plus or minus 10% of values given.

TUBE SOCKET VOLTAGE READINGS		S	G	K	Co	Ga
6K6C	147	-36	0	0	110	
6A8C	110		-36			
6U7C	110		0	0		
6U7C	110		0	0		
6C5G	—	—	—	—	—	—
6C5G	—	—	—	—	—	—
6C5G	—	—	—	—	—	—
6K6C	250	0	22	22		
6K6C	270	0	22	270		
5Y3C	—	—	—	270		

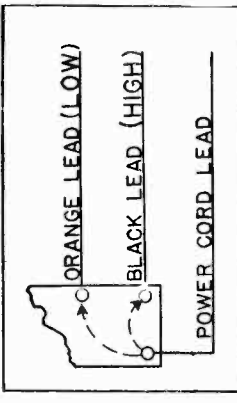
Power consumption approximately 85 watts at 117.5 volts. Filament drop across speaker field 50 volts. Voltage drop across speaker field 50 volts.

50 CYCLE POWER TRANSFORMER

Receivers equipped with a 50 cycle power transformer have a "high" and "low" voltage tap on the under side of the chassis. The "high" voltage lead (BLACK) and the "low" voltage lead (ORANGE) are connected to a terminal strip near the transformer.

The voltage range of the "low" tap of the 95-130 volt transformer is from 95 to 112 1/2 volts and of the "high" tap is from 112 1/2 to 130 volts. The range of the "low" tap of the 190-260 volt transformer is from 190 to 225 volts and of the "high" tap is from 225 to 260 volts.

The accompanying illustration shows the connections for changing from high to low or low to high line voltages. Note the "jumper" wire which is attached to the terminal at which one side of the power cord is attached. The other end of this jumper wire should be connected to the ORANGE or BLACK lead of the transformer



primary, according to the line voltage the receiver is to be used on.

NOTE: Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately

adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits may be properly aligned with the use of a modulated signal generator and an output meter.

CONNECTING OUTPUT METER

Connect the output meter to the plates of the two 6K6C output tubes. Be certain that the meter is protected from D. C. by a condenser (1 mfd. or larger—not electrolytic) in series with one of the leads.

Tuning I-F Amplifier To 455 Kilocycles

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8C tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the ground terminal of the receiver. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the tuning condenser plates are completely out of mesh. Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(c) Set the band selector switch on the Broadcast Band.

(d) Set the signal generator to 455 kilocycles.

(e) Adjust both trimmers located on top of the 2nd I-F transformer for maximum output.

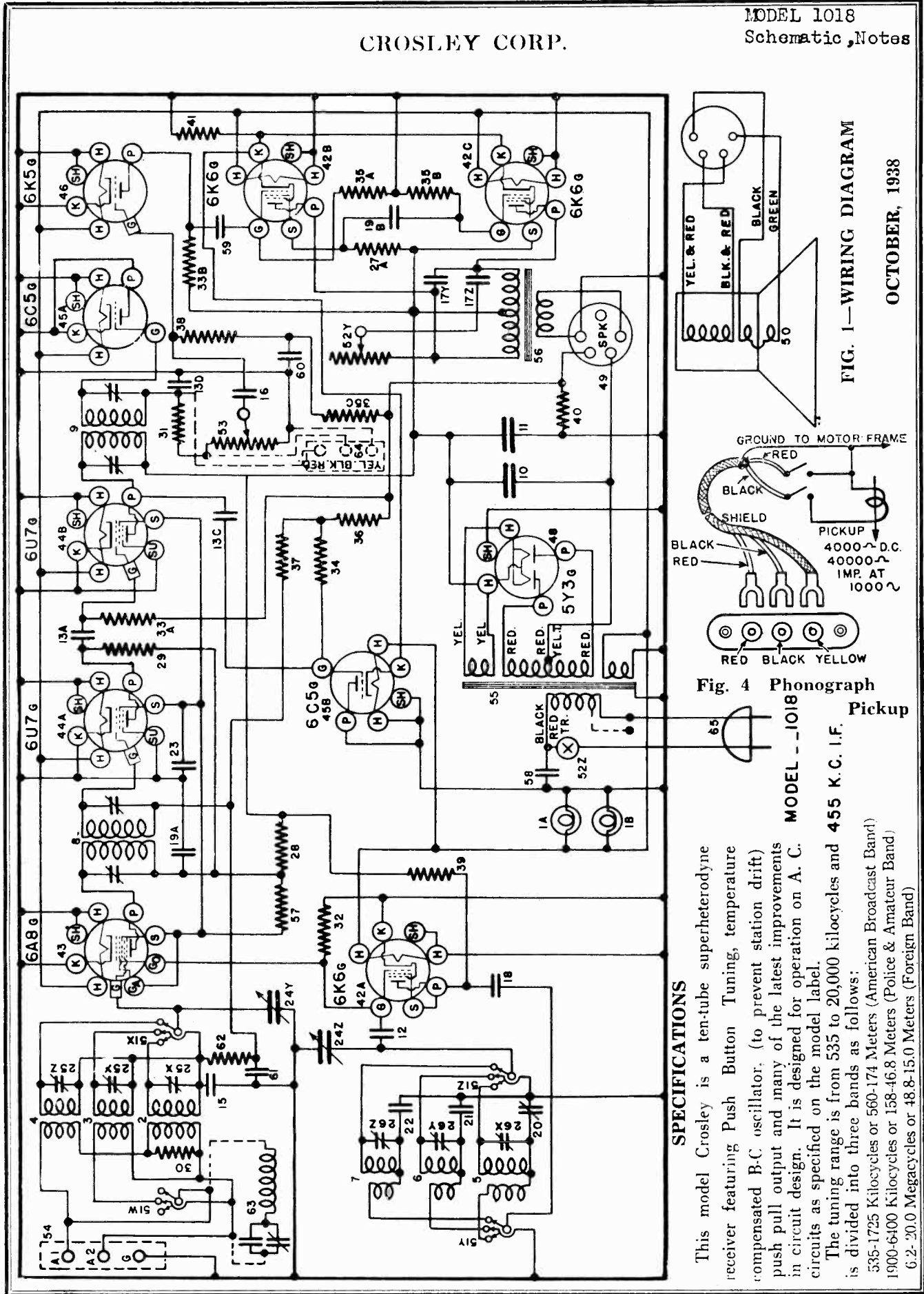
(f) Adjust both trimmers located on top of the 1st I-F transformer for maximum output.

(g) Check operations (e) and (f) for more accurate adjustment.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

Aligning R. F. Amplifier

When aligning the R-F amplifier the output lead from the signal generator is connected to the "ANT" terminal of the receiver. For the Broadcast Band a



**SPECIFICATIONS**

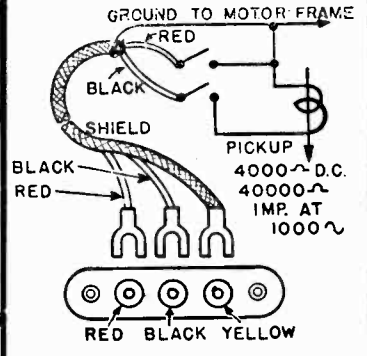
This model Crosley is a ten-tube superheterodyne receiver featuring Push Button Tuning, temperature compensated B-C oscillator, (to prevent station drift) push pull output and many of the latest improvements in circuit design. It is designed for operation on A. C. circuits as specified on the model label.

The tuning range is from 535 to 20,000 kilocycles and 455 K. C. I. F. is divided into three bands as follows:

- 535-1725 Kilocycles or 560-174 Meters (American Broadcast Band)
- 1900-6400 Kilocycles or 158-46.8 Meters (Police & Amateur Band)
- 6.2-20.0 Megacycles or 48.8-15.0 Meters (Foreign Band)

**FIG. 1—WIRING DIAGRAM**

OCTOBER, 1938



**Fig. 4 Phonograph Pickup**

MODEL 1018

Socket, Trimmers, Parts

CROSLLEY CORP.

566BP18 "M"	Speaker, Spec. No. 1-D-1052
-4276	V. C. and Cone Assy. for 566BP18 "M" Spkr.
-4049A	Field/Coil Assy. for 566BP18 "M" Spkr.
-4409A	Band Selector Switch
-44024B	Line Switch
-44081	Volume Control (100,000 Ohm)
G27	Tone Control—1 Meg.
-26719	Ant. and Gnd. Term. Assy.
-44101	Power Trans., 110 V. 60 Cy.
-44104	Power Trans., 220 V. 50 Cy.
-44105	Power Trans., 110 V. 25 Cy.
-44102	Power Trans., 220 V. 25 Cy.
G77	Output Transformer
-24628	Resistor, 10,000 Ohm 1 W.
-4921C	Resistor, .01 Mf. 400 V.
W	Condenser, .02 Mf. 400 V.
W	Condenser, .25 Mf. 200 V.
W	Condenser, .02 Mf. 200 V.
W	Resistor, 100,000 Ohm 1/4 W.
G164-32004	Wave Trap

50		
51	52Z	
52	52Y	
53	53	
54	54	
55	55	
56		
57		
58		
59		
60		
61		
62		
63		

Item No.	Part No.	Description
1AB	W-43567	Dial Light Bulb
2	W-45298	Dial Light Socket Assy.
3	G169-32000	Ant. Coil—535—1850 Kc.
4	G170-32000	Ant. Coil—1850—6600 Kc.
5	G169-32002	Ant. Coil—6.2—22 Mc.
6	G168-32002	Osc. Coil—535—1850 Kc.
7	G170-32002	Osc. Coil—1850—6600 Kc.
8	G162-32004	Osc. Coil—6.2—22 Mc.
9	W-44054	1st. I-F Assembly—455 Kc.
10	W-36057B	2nd. I-F Assembly—455 Kc.
11	W-36057A	Condenser, 30 Mf. 350 V.
12	G13	Condenser, 40 Mf. 300 V.
13ACD	G2	Condenser, .0001 Mf. Molded
14	W-35936	Condenser, .05 Mf. 200 V.
15	W-41461	Condenser, .014 Mf. 200 V.
16	W-41461	Condenser, .05 Mf. 400 V.
17Z	W-31052	Condenser, .004 Mf. 400 V.
18	W-35139	Condenser, .004 Mf. 400 V.
19AB	W-23615	Condenser, .05 Mf. 400 V.
20	W-40768	B-C Osc. Series Trimmer (650 Mmf.)
21	G23	Pol. Osc. Series Cond. (1500 Mmf.)
22	G20	H-F. Osc. Series Cond. (4910 Mmf.)
23	W-22688	Condenser, .1 Mf. 400 V.
24	G51	2 Sect. Gang Cond.
W	43593A	Dial Face (Glass)
W	43593	Ring-Dial Support (Cardboard)
W	41263	Arch-Dial (Metal)
W	45387A	Pointer (Dial Bracket)
C	44110C	Pointer (Dial Hand)
W	2045	Shaft-Pointer Mig.
W	40486	Screw-Pointer Mig.
W	45830	Shaft-Pointer
W	50325A	Retaining Ring (Pointer Shaft)
G10	W-43564	Pulley and Hub Assy. (Pointer Shaft)
G11	W-43564	Pulley, Gear and Hub Assy.

51	52Z	
52	52Y	
53	53	
54	54	
55	55	
56		
57		
58		
59		
60		
61		
62		
63		

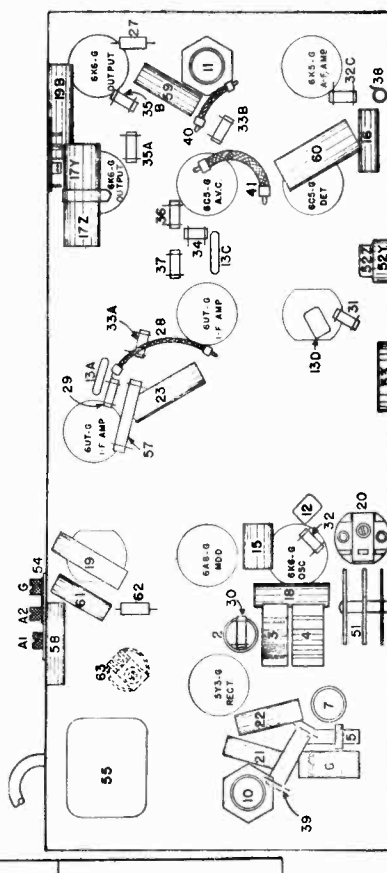


Fig. 2 Top View Model 1018

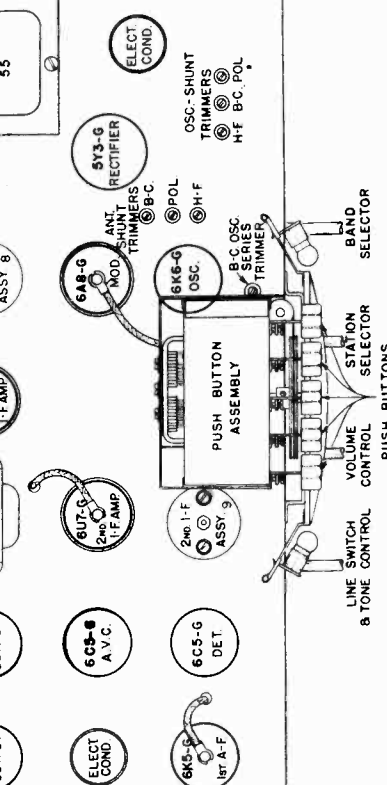


Fig. 3 Bottom View Model 1018

51	52Z	
52	52Y	
53	53	
54	54	
55	55	
56		
57		
58		
59		
60		
61		
62		
63		

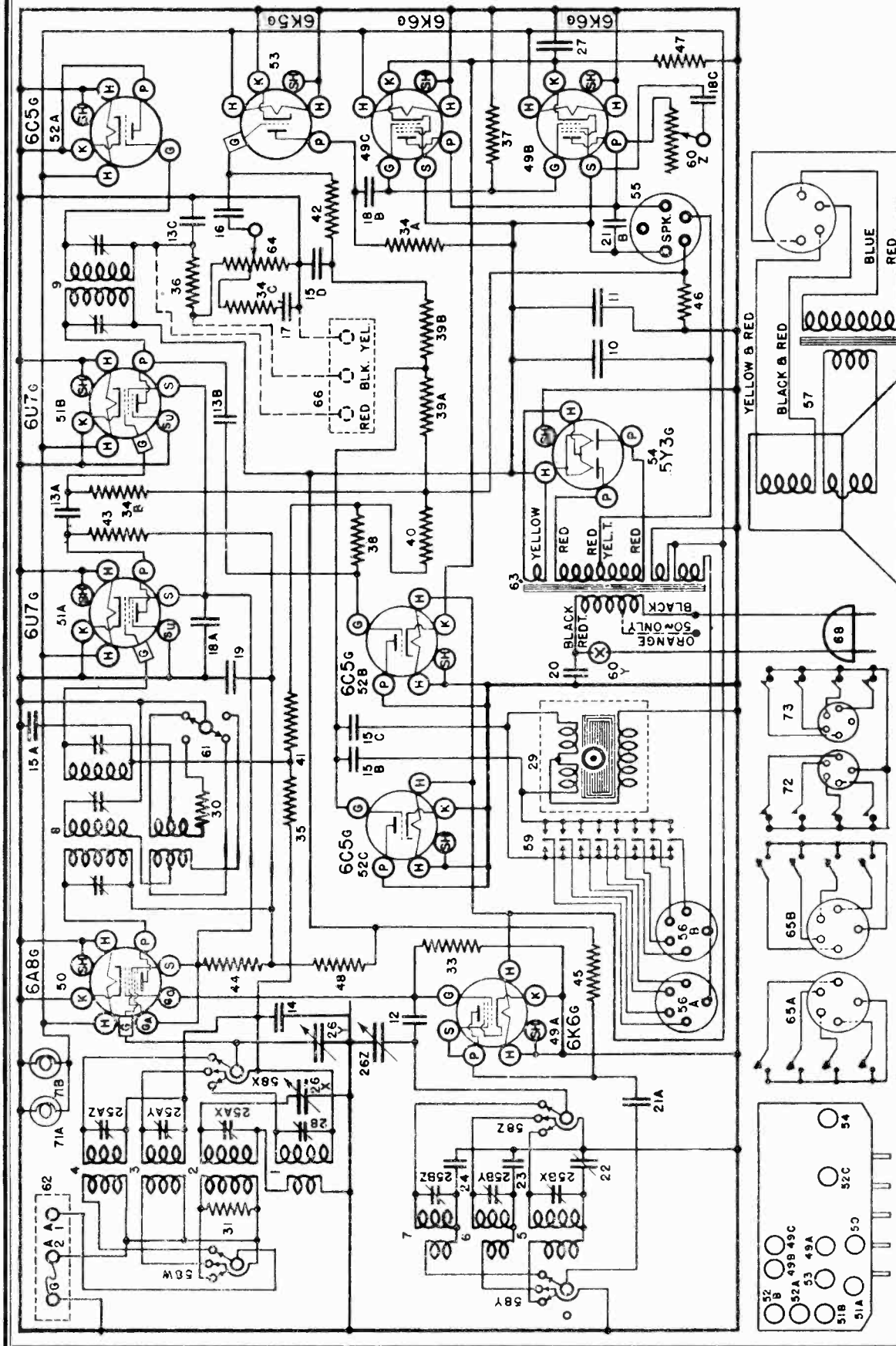
PARTS LIST — MODEL 1018

Figures in first column refer to parts in Diagrams.

55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63



CROSLLEY CORP.



CHASSIS MODEL  
1118 AND 1128

455 Kc. I.F. NOVEMBER, 1938

SPECIFICATIONS

ing, automatic volume control Local-Distance switch

This model Crosley radio is an 11-tube AC receiver and parallel pentode output. The tuning range is from 540-1850 Kilocycles or 555-162 Metres designed for American and Foreign broadcast reception. 540 kilocycles to 22 megacycles and is divided into 1.9- 6.6 Megacycles or 158-45.5 Metres It incorporates such features as push-button electric tun-three bands as follows: 6.4- 22 Megacycles or 47-13.5 Metres



MODELS 1118, 1128

Parts List

CROSLLEY CORP.

## PARTS LIST — MODEL 1118

Figures in first column refer to parts in Diagrams.

Item	Part No.	Description	Item	Part No.	Description
1	G97—32001	Pre-Selector Coil, B.C.	35	—35600	Resistor, 100,000 Ohm $\frac{1}{4}$ W. Carb.
2	G138—32000	Antenna Coil, B.C.	36	—36320	Resistor, 120,000 Ohm $\frac{1}{4}$ W. Carb.
3	G151—32000	Antenna Coil, Police	37	—34018	Resistor, 200,000 Ohm $\frac{1}{2}$ W. Carb.
4	G150—32000	Antenna Coil, H.F.	38	—34020	Resistor, 250,000 Ohm $\frac{1}{2}$ W. Carb.
5	G139—32002	Oscillator Coil, B.C.	39A	—23785	Resistor, 500,000 Ohm $\frac{1}{2}$ W. Carb.
6	G154—32002	Oscillator Coil, Police	39B	—23785	Resistor, 500,000 Ohm $\frac{1}{2}$ W. Carb.
7	G153—32002	Oscillator Coil, H.F.	40	—37590	Resistor, 750,000 Ohm $\frac{1}{2}$ W. Carb.
8	G161—32004	1st I-F., 455 Kc. Assy.	41	—21454	Resistor, 1 Megohm $\frac{1}{2}$ W. Carb.
9	G154—32004	2nd I-F., 455 Kc. Assy.	42	—26577	Resistor, 3 Megohm $\frac{1}{2}$ W. Carb.
10	W—44054	Condenser, 30 Mf. 350 V.	43	—44165	Resistor, 5,000 Ohm $\frac{1}{2}$ W. Carb.
11	W—36057B	Condenser, 40 Mf. 300 V.	44	—4921C	Resistor, 10,000 Ohm 1W. Carb.
12	G1—44886	Condenser, Bimetal Temp. Control	45	—44008	Resistor, 10,000 Ohm 2W. Carb.
13A	G2—34002	Condenser, .0001 Mf. Molded	46	W—37631	Resistor, 32 Ohm $\frac{1}{2}$ W. Flex.
13B	G2—34002	Condenser, .0001 Mf. Molded	47	W—45381	Resistor, 300 Ohm 2W. Flex.
13C	G2—34002	Condenser, .0001 Mf. Molded	48	W—23013	Resistor, 2,000 Ohm 1 $\frac{1}{4}$ W. Flex.
14	W—35936	Condenser, .05 Mf. 200 V.	49		
15A	W—28621	Condenser, .02 Mf. 200 V.	to	G178—36400	Socket, 8 Prong Octal.
15B	W—28621	Condenser, .02 Mf. 200 V.	54		
15C	W—28621	Condenser, .02 Mf. 200 V.	55	G103—28807	Socket, Speaker
15D	W—28621	Condenser, .02 Mf. 200 V.	56	G16—28807	Socket, Push Button Cable
16	W—41461	Condenser, .0014 Mf. 200 V.	W—41007	Cable Clamp, P. B. Cable	
17	W—28619	Condenser, .006 Mf. 200 V.	W—40911	Tube Shield	
18A	W—22688	Condenser, .1 Mf. 400 V.	57	671BP-18-"M"	Speaker, Spec. No. 1-D-1180
18B	W—22688	Condenser, .1 Mf. 400 V.		—45184	V. C. and Cone Assembly
18C	W—22688	Condenser, .1 Mf. 400 V.		—45185	Field Coil (515 Ohm)
19	W—23615	Condenser, .05 Mf. 400 V.		—44678	Output Transformer
20	W—30805	Condenser, .01 Mf. 400 V.		—43680	Cone Mounting Ring
21A	W—35139	Condenser, .004 Mf. 400 V.	W—24715	Elastic Mounting Nuts	
21B	W—35139	Condenser, .004 Mf. 400 V.	W—22985	Rubber Washer	
22	—40769	Condenser, B.C. Osc. Series Trimmer	W—46804	Spacer	
23	G23—34000	Condenser, .001560 Mf. Pol. Osc. Fixed Trimmer	W—24865	Steel Washer	
24	G20—34000	Condenser		—44049	Band Selector Switch
25	W—35951A	3 Section Shunt Trimmer Assy.	59	G1—44628	Switch, Discriminator, Assy. Complete
26	G60—33002	3 Section Var. Tuning Cond. (1118)	60	G2—44628	Flexible Coupling
26	G62—33002	3 Section Var. Tuning Cond. (1128)		—44024B	Tone Control (300,000 Ohm) and Line Switch
	—44891B	Dial Face (Glass) (1118)	61	—46086	Switch, Local Distance (1128)
	W—45587A	Mask (Polished Metal) (1118)	61	—44665A	Switch, Local Distance (1118)
	C—44110C	Support Bracket (Dial Glass) (1118)	62	G27—26719	Ant. and Gnd. Terminal Assy.
	W—44262	Ring (Glass Support) (1118)	63	—44910	Power Transformer, 110 V. 60 Cycle
	W—44263	Arc (Glass Support) (1118)		—44915	Power Transformer, 110 V. 50 Cycle
	W—44127	Pointer (1118)		—44916	Power Transformer, 220 V. 50 Cycle
	W—40486	Screw—Pointer Mtg. (1118)		—45527	Power Transformer, Universal
	G5—43564	Pulley and Hub Assy. (1118)	64	—44702	Volume Control, 1 Megohm Tapped
	—41582	Drive Cord (1118)	65A	G8—45228	Push Button—Cable and Plug Assy. (R.H.) (1118)
	W—45448	Drive Belt (1118)	65B	G9—45228	Push Button—Cable and Plug Assy. (L.H.) (1118)
	W—44907A	Idler Pulley (1118)		W—45478	Trip Bar and Connecting Link (P. B. Switch) (1118)
	W—44908	Idler Mtg. Stud (1118)	66	G37—26719	Phono Terminal Assy.
	D—46239	Dial Face (Glass) (1128)	68	B—33960A	Line Cord and Plug
	C—46094	Dial Glass Support (1128)	71	W—43567	Dial Light Bulb, 6-8 Volt (1118)
	W—46099	Dial Glass Clip (2) (1128)	71	W—37922	Dial Light Bulb, 6-8 Volt (1128)
	W—46096	Dial Glass Clip, R.H. (1128)		G9—44363	Dial Light Socket Assy.
	W—46095	Dial Glass Clip, L.H. (1128)	72	MG45—46081	Push Button—Cable and Plug Assy. (1128)
	W—46203	Dial Pointer (1128)	73		
	W—46097	Dial Pointer Guide (1128)		7P	Cabinet (1118)
	G—41582	Drive Cord (50-Inch) (1128)	B—45652A	—45667	Escutcheon (Dial) (1118)
	W—46941	Dial Glass Cushion (1128)		—45666	Escutcheon (Push Button) L.H. (1118)
	G13—43564	Pulley and Hub Assy. (1128)	W—44380B	—44426A	Escutcheon (Push Button) R.H. (1118)
	MG44—46080	Idler Pulley and Brkt. Assy. (1128)			Knob, Vol. Cont. and Tuning (2) (1118)
	W—44989	Cord Tension Spring (1128)	W—44871A	—44876A	Knob, T. C.—L. D. Sw. and B. C. Sw. (3) (1118)
	W—46477	Tubing—Drive Shaft (1128)		8Q	Push Button (Bakelite) (1118)
	W—45448	Drive Belt (1128)	B—44876A	—8Q	Switch (Push Button) Only (1118)
	W—44907B	Idler Pulley (Dual) (1128)		8QA	Cabinet (1128)
	W—44908	Idler Stud (1128)	C—46228C	—46360A	Cabinet (1128)
	D—46949	Dial Glass (Foreign Only) (1128)		—46362A	Escutcheon (1128)
	W—46290	Drive Cord Clamp (1128)	W—44871A	—44876A	Knob, Vol. Cont. and Tuning (2) (1128)
	W—41598	Condenser, 50 Mf. 25 V.			Knob, T. C.—L. D. Sw. and B. C. Sw. (3) (1128)
	—44516	Condenser, Pre-Select Shunt	W—45171	—46221	Push Button (Bakelite) (1128)
27			W—44876A	—44876A	Switch (Push Button) Only (1128)
28				—44902	Celluloid Cover (Button)
29	MG105—44879	Motor Assembly (50-60 Cycle)		—44902	Call Letter Sheet
	—45168	Motor	W—43553	—43552	Rubber Mounting Foot
	W—45165	Motor Foot	W—43552	—45604	Clamp (Speaker Plug)
	W—45164	Motor Mounting Bracket		—43093	Instructions (1118)
	W—20800	Shakeproof Washer			Instructions (1128)
	—6875	W. H. Machine Screw, $\frac{3}{16}$ " Long			
	—6876	W. H. Machine Screw, $\frac{1}{4}$ " Long			
	—44497	Headed Bushing—Brkt. Mtg.			
	W—36180	Rubber Sleeve—Brkt. Mtg.			
30	—42401A	Resistor, 99 Ohm $\frac{1}{4}$ W. Ins.			
31	—22196	Resistor, 20,000 Ohm $\frac{1}{2}$ W. Carb.			
33	—21237A	Resistor, 60,000 Ohm $\frac{1}{2}$ W. Carb.			
34A	—21875	Resistor, 100,000 Ohm $\frac{1}{2}$ W. Carb.			
34B	—21875	Resistor, 100,000 Ohm $\frac{1}{2}$ W. Carb.			
34C	—21875	Resistor, 100,000 Ohm $\frac{1}{2}$ W. Carb.			

## CROSLLEY CORP.

MODELS 1118, 1128  
Alignment, Tuner  
Notes

## MODEL 1118 AND 1128

## CIRCUIT DESCRIPTION

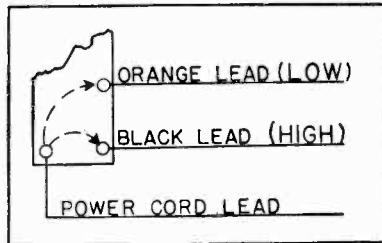
Eleven tubes are employed in a superheterodyne circuit which consists of separate oscillator and modulator tubes, 455 kilocycle I-F amplifier—one stage of which is resistance coupled, separate AVC and detector diodes, two stages of audio amplification and power supply. The 1st I-F transformer is a triple-tuned unit, which in conjunction with the Local-Distance switch, controls the selectivity of the receiver. Inter-station noise suppression is accomplished while tuning by means of the push buttons due to the action of the 6C5-G "squelch" tube. When a push button is depressed, this tube supplies sufficient voltage to the cathodes of the output tubes to bias them beyond "cut-off." It also supplies voltage to the AVC circuit through a 250,000 ohm resistor, item 38. The speaker field is located in the negative leg of the power supply. The bias for all tubes except the three type 6C5-G and the two output tubes is developed across a 32 ohm resistor, item 46, located between the speaker field and ground. The bias for the output tubes is developed across a 220 ohm resistor, item 47.

SPECIAL POWER TRANSFORMER  
ADJUSTMENT

In localities where the voltage variation on 50 or 60 cycle power supply lines is greater than customary commercial limits, special 50-60 cycle power transformers are available. These transformers have a "high" and "low" voltage tap on the under side of the chassis. The "high" voltage lead (BLACK) and the "low" voltage lead (ORANGE) are connected to a terminal strip near the transformer.

The voltage range of the "low" tap of the 95-130 volt transformer is from 95 to 112½ volts and of the "high" tap is from 112½ to 130 volts. The range of the "low" tap of the 190-260 volt transformer is from 190 to 225 volts and of the "high" tap is from 225 to 260 volts.

The accompanying illustration shows the connections for changing from high to low or low to high line voltage. Note the "jumper" wire which is attached to the



terminal at which one side of the power cord is attached. The other end of this jumper wire should be connected to the ORANGE or BLACK lead of the transformer primary, according to the line voltage the receiver is to be used on.

NOTE: Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

## ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits may be properly aligned with the use of a modulated signal generator and an output meter.

## Connecting Output Meter

Connect the output meter to the plate and screen of one of the 6K6G output tubes. Be certain that the meter is protected from D.C. by a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

## Tuning The I-F Amplifier To 455 Kilocycles

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6U7G 1st I-F Amp. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the ground terminal of the receiver. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the tuning condenser plates are completely out of mesh. Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(c) Set the band selector switch on the Broadcast Band.

((d) Turn the Local-Distance Switch to the "Dis-

tance" position.

(e) Set the signal generator to 455 kilocycles.

(f) Adjust both trimmer condensers located on top of the 2nd I-F transformer for maximum output. DO NOT ADJUST THE TRIMMER CONDENSERS LOCATED ON THE 2ND I-F TRANSFORMER WITH THE SIGNAL GENERATOR LEAD CONNECTED TO THE 6A8G TUBE.

(g) Transfer the signal generator lead to the top cap of the 6A8G tube, leaving the tube's grid clip in place.

(h) Close the middle trimmer of the 1st I-F transformer. (Do not force adjustment screw).

(i) Adjust the top and then the bottom trimmers of the 1st I-F transformer for maximum output.

(j) Adjust the middle trimmer of the 1st I-F transformer for maximum output.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

## Aligning The R-F Amplifier

When aligning the R-F amplifier the output lead from the signal generator is connected to the "ANT" terminal of the receiver. For the Broadcast Band a 200 mfd. condenser should be connected in series with the output lead of the signal generator and for the High Frequency and Police Bands a 400 ohm carbon resistor should be used in place of the condenser.

Each band should first be SHUNT ALIGNED and then SERIES ALIGNED where provision is made for series alignment (Broadcast Band). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated for each adjustment, ¶ (D) below.

(a) With the station selector adjusted so that the tuning condenser plates are completely out of mesh, adjust the "OSC" shunt trimmer until the MINIMUM CAPACITY SIGNAL (D) is heard (it is not necessary that the receiver tune through this signal).

(b) Adjust the station selector so that the SHUNT ALIGNMENT SIGNAL (D) is tuned-in with maximum output. Then adjust the "R-F" and "ANT" shunt trimmers for maximum output. Readjust the station selector slightly so that the generator signal is tuned-in with maximum output and check the adjustment of the "R-F" and "ANT" trimmers. DO NOT READJUST THE OSCILLATOR TRIMMER.

NOTE: When shunt aligning the Police and High Frequency Bands care must be exercised so that the circuits will be aligned on the correct frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator ten times, or more, and try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 910 kilocycles less than the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct frequency.

(c) To align the series trimmer (See Fig. 2), set the signal generator to the frequency indicated below (D) and then tune-in this signal with the station selector for maximum output. To obtain the best adjustment for the series trimmer, it will be necessary to rotate the station selector back and forth slightly while adjusting the trimmer for maximum output. Minor tolerance variations in series alignment at 2500 kilocycles in the Police Band and at 7000 kilocycles in the High Frequency Band may be compensated for by slight repositioning of the grid lead of the antenna coil in the Band affected.

## PUSH BUTTON TUNING SYSTEM

The push button electric tuning system employed in this receiver incorporates eight push buttons on the Model 1118 and nine on the Model 1128, a selector switch and a motor. The discriminator switch, item 59—also Figs. 5 and 6, incorporates eight metallic discs, each of which operates in conjunction with a different push button to tune-in some favorite station. That is, the 1st push button on the left as you face the front of the cabinet works with No. 1 disc, and the 2nd push button works with No. 2 disc, etc.

## SETTING PUSH BUTTONS

To set the electric tuning system, turn the receiver "ON" and depress No. 1 push button. When the dial pointer stops rotating, the key slot in No. 1 disc on the selector switch will be in the "UP" position. Remove the key from its mounting and place it (knob up) through No. 1 hole in the disc identification bracket. If it does not drop into the slot in the disc, push it in with the fingers.

Turn the Local-Distance switch to the "Distance" position. By means of the station selector knob, tune-in AS ACCURATELY AS POSSIBLE, the station whose call letters have been placed in No. 1 push button.

Then remove the key.

NOTE: On Model 1128 the push button on the extreme right (manual) serves as a release for all other push buttons and should be depressed before operating the manual tuning control.

NOTE: On Model 1118 the push button which will ordinarily be used for Police calls does not lock in the depressed position. It serves as a release for all other buttons and should be depressed before operating the manual tuning control.

By means of the manual tuning knob, turn the dial pointer to some other position. Then check the setting by pressing the button which has been set. If the pointer stops too soon or goes too far, a second setting will be necessary.

To make the second setting, observe how far the pointer stops from the correct position for that station. Replace the key in the disc and tune far enough to one side of the correct position to make allowance for the difference noted in the first setting.

The electric tuning system is now correctly set for the 1st station. Follow through with this same procedure until the proper adjustments have been made for all eight of the favorite stations. When tuning the receiver by means of the push buttons, the Local-Distance switch should be turned to the "Local" position.

## Selector Switch

Should the selector switch become inoperative in the field, it should not be dissembled for repair, but should be returned to the factory via an authorized Crosley Distributor.

## REPLACING DRIVE CORD ON THE 1128

To replace the dial drive cord, the following procedure should be carefully followed.

1.—Remove the knobs, plugs, and hold down screws from the chassis then remove the chassis from the cabinet.

2.—Remove the drive cord from the pointer, the dial light sockets from the dial bracket, then the complete dial assembly.

3.—Remove the broken cord and tension spring.

4.—Cut a piece of drive cord exactly 50 inches in length. Fold double then tie the tension spring approximately one inch from the end, this gives you a loop 24 inches long.

5.—Close the condenser gang, this should place the eyelet in the pulley on top.

6.—Insert the cord through the eyelet in the large pulley from the inside. Hook the loose end of tension spring on catch in pulley.

7.—Remove double brass pulley from front of chassis.

8.—Take one side of drive cord and make one half turn in a counter-clockwise direction around large pulley.

9.—Hold brass pulley in left hand and make two complete turns in a clockwise direction around small end. While keeping tension on cord mount pulley to chassis. Then continue cord up and over the right hand idler pulley in a counter clockwise direction (¼ turn). Continue across to left hand idler pulley and on around and down to bottom of large pulley. Stretch tension spring and snap cord over pulley rim. Place cord clamp (W-46290) on drive cord approximately ¼ inch from inside edge of pulley rim.

10.—Replace drive belt, dial assembly and dial lights.

11.—Place pointer at extreme left end of dial, close condenser gang. Hook drive cord in pointer, check pointer travel before cementing cord to pointer.

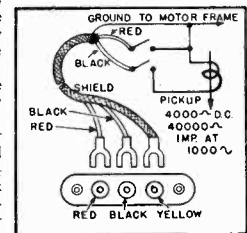


Fig. 4 Phonograph Pickup

## SOCKET VOLTAGES

The tube socket voltages are measured from the tube socket contacts to the chassis with a 1000 ohm per volt, 500 volt D. C. voltmeter (except filaments) with the receiver in operating condition and no signal input. The volume control should be turned full "ON," the tone control should be turned to the "TREBLE" position (counter-clockwise), the Local-Distance switch should be turned to the "Distance" position and the condenser gang should be rotated to the minimum capacity position. The filament voltages should be measured with an accurate low range A. C. voltmeter (approximately 0-10 volts). Readings may vary plus or minus 10% of values given.

1938

MODELS 1118, 1128  
Voltage, Socket, Trimmers  
Chassis, Drive Data

CROSLY CORP.

**(D) SIGNAL INPUT FREQUENCIES**  
 Min. Cap. Signal  
 1850 Kilocycles  
 6000 Kilocycles  
 22 Megacycles  
 Shunt Align.  
 1700 Kilocycles  
 6000 Kilocycles  
 18 Megacycles

American Broadcast Band  
 Police & Amateur Band  
 High Frequency Band

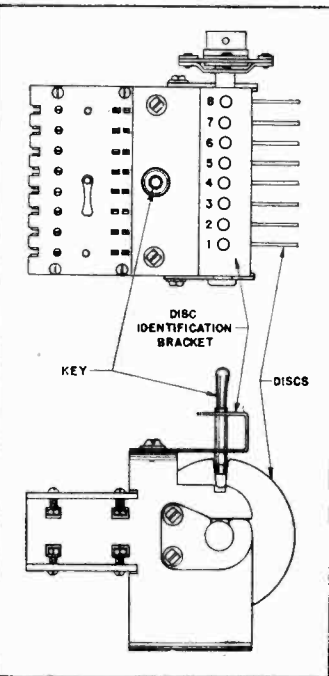


Fig. 6

Tube	Function	H	P	S	G	K	Go	Ga
6K6G	Oscillator	6.3	147	147	-36	0	-36	110
6A8G	Modulator	6.3	224	110		0		
6U7G	1st I-F Amplifier	6.3	174	110		0		
6U7G	2nd I-F Amplifier	6.3	270			0		
6CS5G	Diode Detector	6.3	0			0		
6CS5G	A.V.C. Diode	6.3	0			0		
6K5G	1st A.F. Amplifier	6.3	190			22		
6K6G	Output	6.3	263	270		22		
6K6G	Output	6.3	263	270		22		
6K6G	Output	6.3	0			270		
5Y3G	Rectifier	5.0	0			0		

Power consumption approximately 90 watts at 117.5 volts.  
 Power output approximately 10 watts.  
 Voltage drop across speaker field 60 volts.

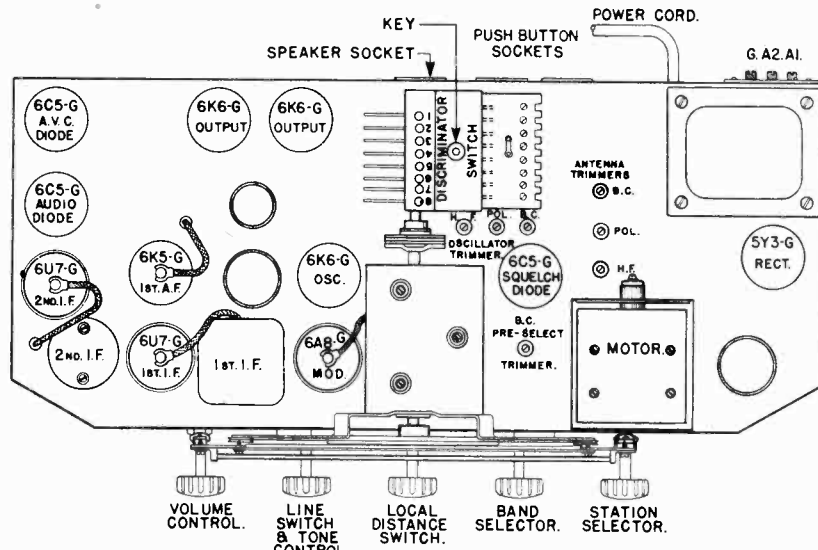


Fig. 2 Top View Model 1118 and 1128

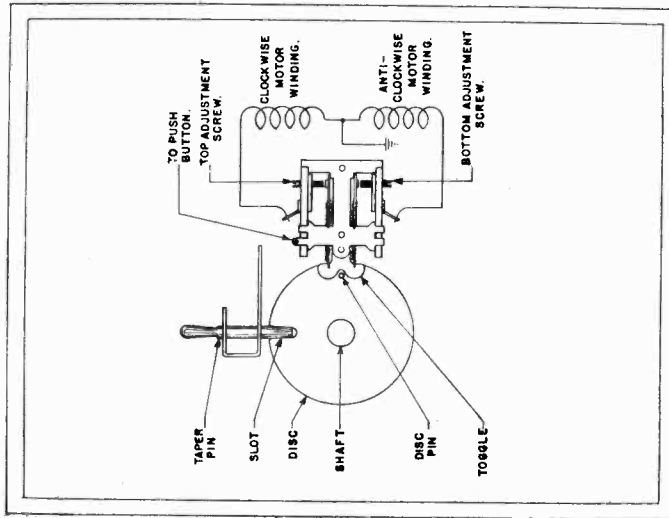


Fig. 5

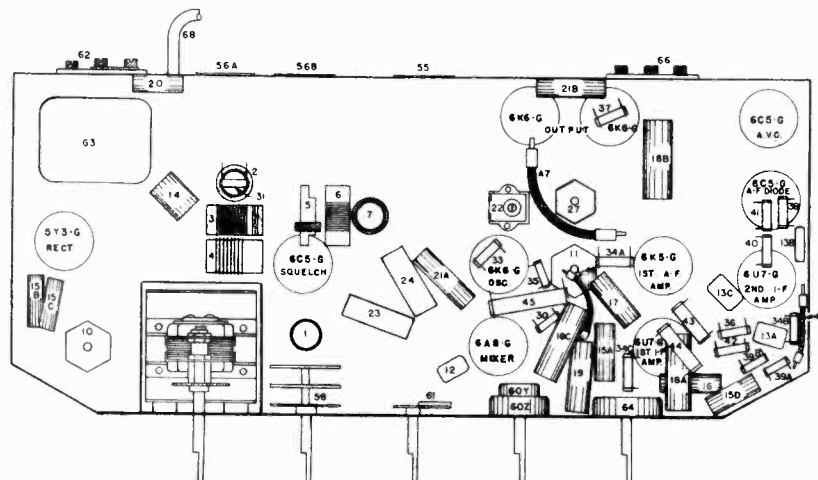
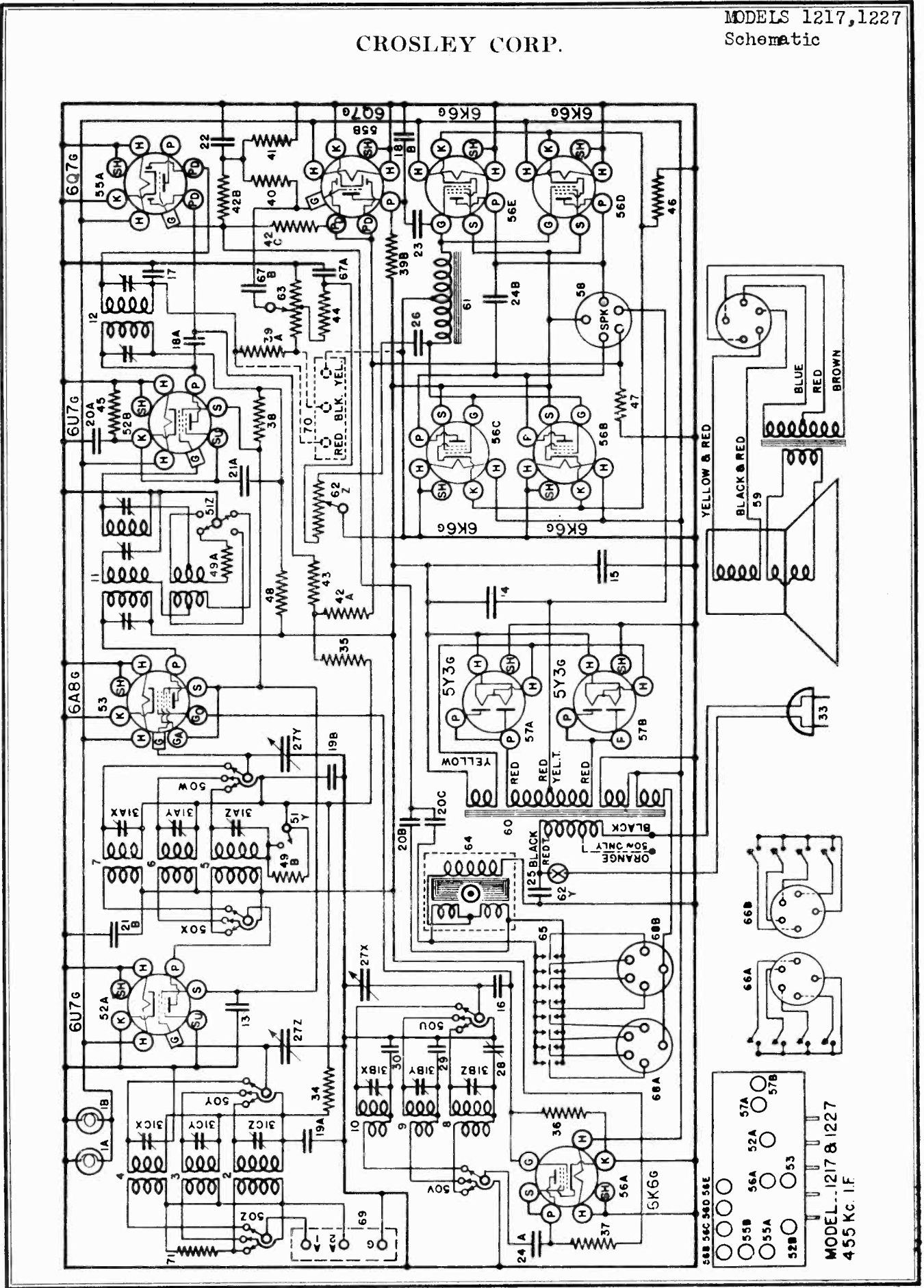


Fig. 3 Bottom View Model 1118 and 1128

CROSLY CORP.

MODELS 1217,1227  
Schematic



MODELS 1217,1227  
Tuner, Parts List

CROSLLEY CORP.

PARTS LIST—MODELS 1217 and 1227

Item No.	Part No.	Description	Part No.	Description
1AB	W	Dial Light Bulb	49A	Resistor, 94 Ohm 1/4 W. W. Ins.
2	G8	Ant. Coil, P.C.	49B	Resistor, 94 Ohm 1/4 W. W. Ins.
3	G145	Ant. Coil, P.C.	50	Resistor, 94 Ohm 1/4 W. W. Ins.
4	G146	Ant. Coil, P.C.	51	Resistor, 94 Ohm 1/4 W. W. Ins.
5	G147	Ant. Coil, P.C.	52AB	Resistor, 94 Ohm 1/4 W. W. Ins.
6	G148	Ant. Coil, P.C.	53	Resistor, 94 Ohm 1/4 W. W. Ins.
7	G149	Ant. Coil, P.C.	54	Resistor, 94 Ohm 1/4 W. W. Ins.
8	G150	Ant. Coil, P.C.	55AB	Resistor, 94 Ohm 1/4 W. W. Ins.
9	G151	Ant. Coil, P.C.	56	Resistor, 94 Ohm 1/4 W. W. Ins.
10	G152	Ant. Coil, P.C.	57AB	Resistor, 94 Ohm 1/4 W. W. Ins.
11	G153	Ant. Coil, P.C.	58	Resistor, 94 Ohm 1/4 W. W. Ins.
12	G154	Ant. Coil, P.C.	59	Resistor, 94 Ohm 1/4 W. W. Ins.
13	G155	Ant. Coil, P.C.	60	Resistor, 94 Ohm 1/4 W. W. Ins.
14	G156	Ant. Coil, P.C.	61	Resistor, 94 Ohm 1/4 W. W. Ins.
15	G157	Ant. Coil, P.C.	62	Resistor, 94 Ohm 1/4 W. W. Ins.
16	G158	Ant. Coil, P.C.	63	Resistor, 94 Ohm 1/4 W. W. Ins.
17	G159	Ant. Coil, P.C.	64	Resistor, 94 Ohm 1/4 W. W. Ins.
18A	G160	Ant. Coil, P.C.	65	Resistor, 94 Ohm 1/4 W. W. Ins.
18B	G161	Ant. Coil, P.C.	66AB	Resistor, 94 Ohm 1/4 W. W. Ins.
19A	G162	Ant. Coil, P.C.	67A	Resistor, 94 Ohm 1/4 W. W. Ins.
19B	G163	Ant. Coil, P.C.	67B	Resistor, 94 Ohm 1/4 W. W. Ins.
20A	G164	Ant. Coil, P.C.	68AB	Resistor, 94 Ohm 1/4 W. W. Ins.
20B	G165	Ant. Coil, P.C.	69	Resistor, 94 Ohm 1/4 W. W. Ins.
20C	G166	Ant. Coil, P.C.	70	Resistor, 94 Ohm 1/4 W. W. Ins.
21A	G167	Ant. Coil, P.C.	71	Resistor, 94 Ohm 1/4 W. W. Ins.
22	G168	Ant. Coil, P.C.	72	Resistor, 94 Ohm 1/4 W. W. Ins.
23	G169	Ant. Coil, P.C.	73	Resistor, 94 Ohm 1/4 W. W. Ins.
24A	G170	Ant. Coil, P.C.	74	Resistor, 94 Ohm 1/4 W. W. Ins.
24B	G171	Ant. Coil, P.C.	75	Resistor, 94 Ohm 1/4 W. W. Ins.
25	G172	Ant. Coil, P.C.	76	Resistor, 94 Ohm 1/4 W. W. Ins.
26	G173	Ant. Coil, P.C.	77	Resistor, 94 Ohm 1/4 W. W. Ins.
27	G174	Ant. Coil, P.C.	78	Resistor, 94 Ohm 1/4 W. W. Ins.
28	G175	Ant. Coil, P.C.	79	Resistor, 94 Ohm 1/4 W. W. Ins.
29	G176	Ant. Coil, P.C.	80	Resistor, 94 Ohm 1/4 W. W. Ins.
30	G177	Ant. Coil, P.C.	81	Resistor, 94 Ohm 1/4 W. W. Ins.
31	G178	Ant. Coil, P.C.	82	Resistor, 94 Ohm 1/4 W. W. Ins.
32	G179	Ant. Coil, P.C.	83	Resistor, 94 Ohm 1/4 W. W. Ins.
33	G180	Ant. Coil, P.C.	84	Resistor, 94 Ohm 1/4 W. W. Ins.
34	G181	Ant. Coil, P.C.	85	Resistor, 94 Ohm 1/4 W. W. Ins.
35	G182	Ant. Coil, P.C.	86	Resistor, 94 Ohm 1/4 W. W. Ins.
36	G183	Ant. Coil, P.C.	87	Resistor, 94 Ohm 1/4 W. W. Ins.
37	G184	Ant. Coil, P.C.	88	Resistor, 94 Ohm 1/4 W. W. Ins.
38	G185	Ant. Coil, P.C.	89	Resistor, 94 Ohm 1/4 W. W. Ins.
39A	G186	Ant. Coil, P.C.	90	Resistor, 94 Ohm 1/4 W. W. Ins.
39B	G187	Ant. Coil, P.C.	91	Resistor, 94 Ohm 1/4 W. W. Ins.
40	G188	Ant. Coil, P.C.	92	Resistor, 94 Ohm 1/4 W. W. Ins.
41A	G189	Ant. Coil, P.C.	93	Resistor, 94 Ohm 1/4 W. W. Ins.
42	G190	Ant. Coil, P.C.	94	Resistor, 94 Ohm 1/4 W. W. Ins.
43	G191	Ant. Coil, P.C.	95	Resistor, 94 Ohm 1/4 W. W. Ins.
44	G192	Ant. Coil, P.C.	96	Resistor, 94 Ohm 1/4 W. W. Ins.
45	G193	Ant. Coil, P.C.	97	Resistor, 94 Ohm 1/4 W. W. Ins.
46	G194	Ant. Coil, P.C.	98	Resistor, 94 Ohm 1/4 W. W. Ins.
47	G195	Ant. Coil, P.C.	99	Resistor, 94 Ohm 1/4 W. W. Ins.
48	G196	Ant. Coil, P.C.	100	Resistor, 94 Ohm 1/4 W. W. Ins.

**PUSH BUTTON TUNING SYSTEM**  
The push button electric tuning system employed in this receiver incorporates eight push buttons, a selector switch, item 65—also Fig. 5, incorporates eight metallic discs, each of which operates in conjunction with a different push button to tune-in some favorite station. That is, the 1st push button on the left as you face the front of the cabinet work with No. 1 disc, and the 2nd push button works with No. 2 disc, etc.

**SETTING PUSH BUTTONS**  
To set the electric tuning system, turn the receiver "ON" and depress No. 1 push button. When the dial pointer stops rotating, the key slot in No. 1 disc on the selector switch will be in the "UP" position. Remove the key from its mounting and place it (knob up) through No. 1 hole in the disc identification bracket. If it does not drop into the slot in the disc, push it in with the fingers.

Turn the Local-Distance switch to the "Distance" position. By means of the station selector knob, tune-in AS ACCURATELY AS POSSIBLE, the station whose call-letters have been placed in No. 1 push button. Then remove the key.

NOTE: The push button which will ordinarily be used for POLICE calls does not lock in the depressed position. It serves as a release for all other push buttons and should be depressed before operating the manual tuning control. (The first sets of this model were built with non-lock type push buttons.)

By means of the manual tuning knob, turn the dial pointer to some other position. Then check the setting by pressing the button which has been set. If the pointer stops too soon or goes too far, a second setting will be necessary.

To make the second setting, observe how far the pointer stops from the second position for that station. Replace the key in the disc and tune far enough to one side of the correct position to make allowance for the difference noted in the first setting.

The electric tuning system is now correctly set for the 1st station. Follow through with this same procedure until the proper adjustments have been made for all eight of the favorite stations. When tuning the receiver by means of the push buttons, the Local-Distance switch should be turned to the "Local" position.

**Tuning Motor**  
Should the clutch on the tuning motor fail to operate satisfactorily, either by not engaging or not releasing when it should, the two tension springs located on the back of the motor should be readjusted.

With the receiver sitting in its normal operating position, bend both tension springs until the clutch will not engage. Slowly decrease the tension on both springs until the clutch engages and releases satisfactorily. Check the operation of the motor several times to be certain that the tension is correct.

**Selector Switch**  
Should the selector switch become inoperative in the field, it should not be disassembled for repair, but should be returned to the factory via an authorized Crosley distributor.

INTERLOCKING PUSH BUTTONS

Part No.	Description
G4	R. H. Push Button Assy. (1) (1217)
B	Push Button Escutcheon R. H.
G5	L. H. Push Button Assy. (1) (1217)
W	Push Button Escutcheon L. H.
W	Trip Bar Connecting Link (1) (1217, 1227)
R	Screw—Trip Bar Mtg. (1217 and 1227)
W	P. B. Cable and Plug (1217 and 1227)

B	—45475	R. H. Push Button Switch only (1217, 1227)
B	—45476	L. H. Push Button Switch only (1217, 1227)
W	—45171A	Push Button only (8) (1217)
G6	—45228	R. H. Push Button Assy. (1) (1227)
G7	—45228	L. H. Push Button Assy. (1) (1227)
W	—44871A	Push Button only (8) (1227)
W	—44875	Celluloid Covers (8) (1217 and 1227)
W	—45483	Shock Pad—P. B. Sw. (8) (1217 and 1227)

NON-INTERLOCKING PUSH BUTTONS

Part No.	Description
G2	Push Button Assy. Complete (2) (1217)
B	Push Button Switch only (1217)
W	Push Button Cable and Plug only (1217)
W	Push Button only (1217)
G1	Push Button Assy. Complete (1227)
B	Push Button Switch only (1227)
W	Push Button Cable and Plug only (1227)
W	Push Button only (1227)
W	Push Button Escutcheon (2) (1217 and 1227)



CROSLY CORP.

MODELS 1217, 1227  
Socket, Trimmers, Chassis  
Drive Data, Phono.

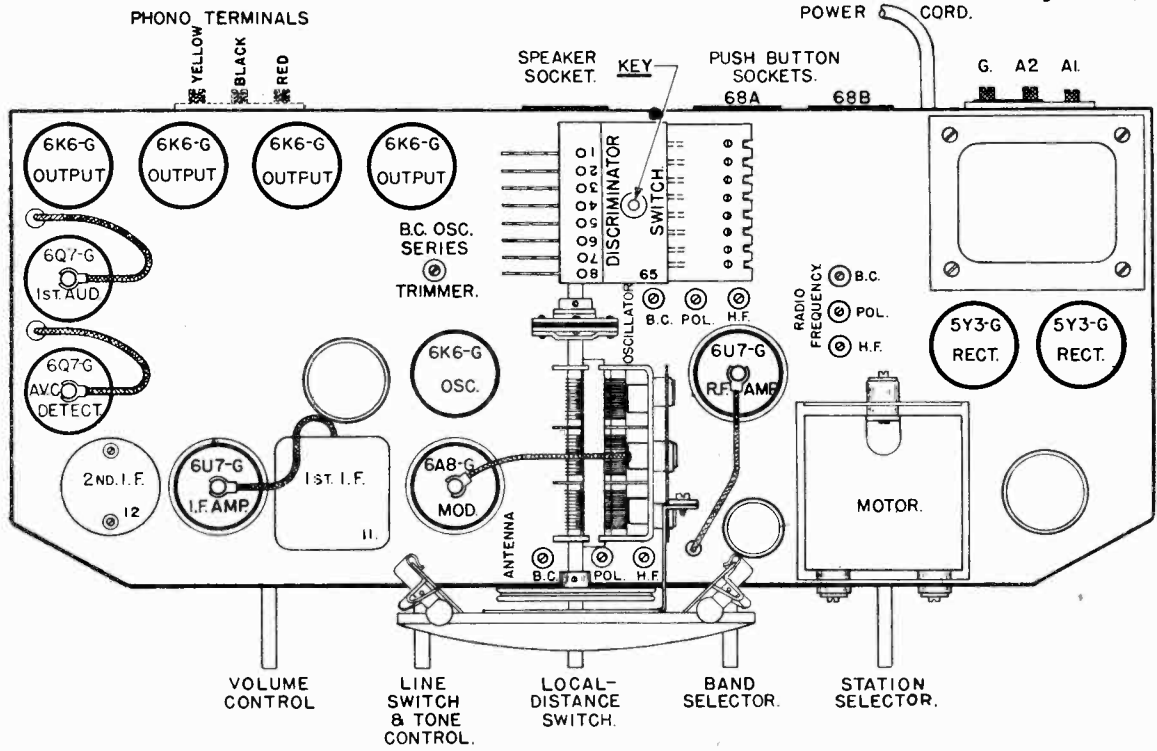


Fig. 2. Top View Models 1217 and 1227

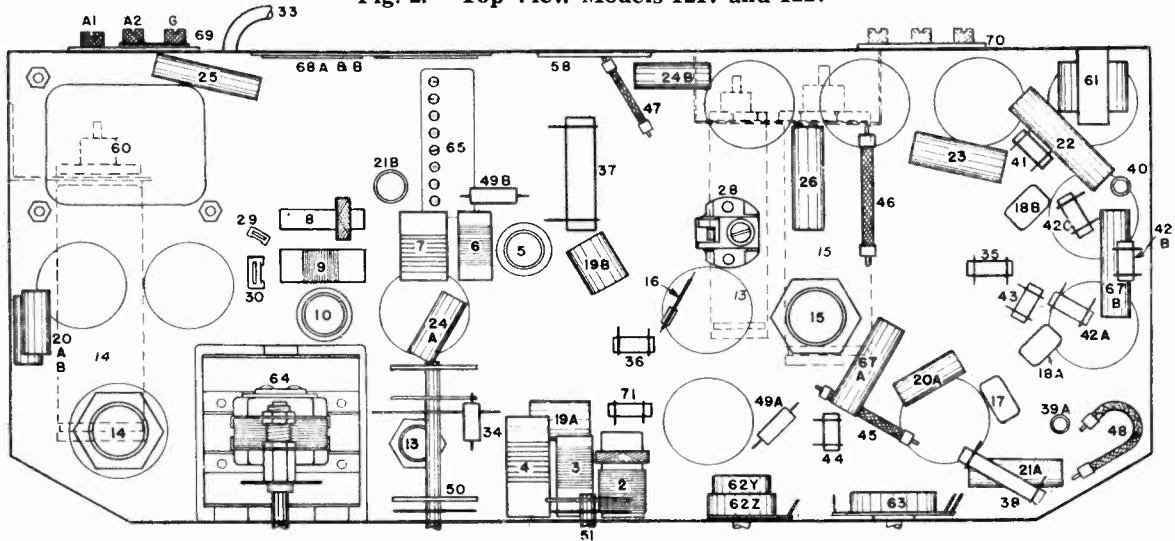


Fig. 3. Bottom View Models 1217 and 1227

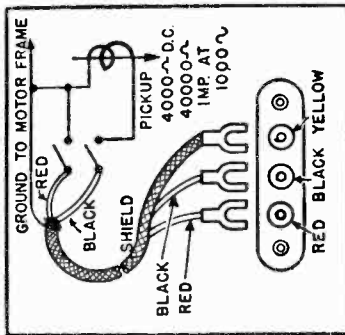


Fig. 4. Phonograph Pickup

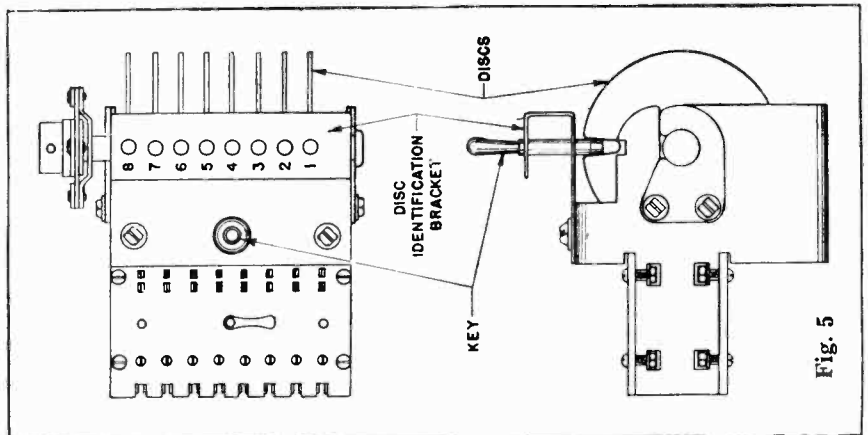


Fig. 5



MODELS 1217, 1227  
Voltage, Alignment  
Notes

CROSLEY CORP.

NOVEMBER, 1937 CHASSIS MODELS 1217 & 1227

These model Crosley radios are 12-tube AC receivers designed for Standard Broadcast and Short Wave reception. They incorporate such features as push button electric tuning, automatic volume control, Local-Distance switch and push pull parallel output. The tuning range is divided into three bands as follows:

- 535-1725 Kilocycles or 555-173 Metres (American Broadcast Band)
- 210-638 Megacycles or 130-44.5 Metres (Police & Amateur Band)
- 6.0-22 Megacycles or 483-18.3 Metres (High Frequency or Foreign Band)

CIRCUIT DESCRIPTION

Twelve tubes are employed in a superheterodyne circuit which consists of an R. F. amplifier, separate oscillator and modulator tubes, 455 kilocycle I. F. amplifier, a stage detector, AVC and quiet or "squelch" tube, two stage audio amplifier—the output of which uses four pentode tubes in push pull parallel and power supply.

The 1st I. F. transformer is a triple-tuned unit, which in conjunction with the Local-Distance switch, controls the selectivity of the receiver. Quiet tuning is accomplished while tuning by means of the push buttons due to the action of the 607G tube, item 55A, on the audio amplifier. When any push button is depressed, A. C. voltage is impressed upon the control grid of this tube through one or the other of condensers 20B or 20C. A portion of this voltage is rectified and passed on to the control grid of the 607C A. F. tube through resistors 42B and 40, the effect being to bias the tube beyond cutoff.

The diode plates of the 607C A. F. tube have no effect

TUBE SOCKET VOLTAGE READINGS

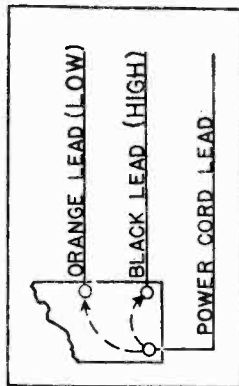
Tube	Function	H	P	S	Str	K	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>
607G	R. F. Amplifier	6.3	255	95	0	0	0	95	95
6A8G	Modulator	6.3	255	95	0	0	0	95	95
6E6G	Oscillator	6.3	125	125	3	0	0	—	—
607G	I. F. Amplifier	6.3	255	95	0	0	0	—	—
607G	Det. A. V. C. & Squelch	6.3	155	—	—	0	0	—	—
6E6G	(1) Output	6.3	245	255	—	22	—	—	—
5Y3G	(2) Rectifier	5.0	—	—	—	255	—	—	—

Power consumption approximately 120 watts at 117.5 volts. Power output approximately 12 watts. Voltage drop across speaker field 72 volts.

SPECIAL POWER TRANSFORMER ADJUSTMENT

In localities where the voltage variation on 50 or 60 cycle power supply lines is greater than customary commercial limits, special 50/60 cycle power transformers are available. These transformers have a "high" and "low" voltage tap on the under side of the chassis. The "high" voltage lead (BLACK) and the "low" voltage lead (ORANGE) are connected to a terminal strip near the transformer.

The voltage range of the "low" tap of the 95-130 volt transformer is from 95 to 112½ volts and of the "high" tap is from 112½ to 150 volts. The range of the "low" tap of the 190-260 volt transformer is from 190 to 225 volts and of the "high" tap is from 225 to 260 volts. The accompanying illustration shows the connections for changing from high to low or low to high line voltage. Note the "jumper" wire which is attached to the



terminal at which one side of the power cord is attached. The other end of this jumper wire should be connected to the ORANGE or BLACK lead of the transformer

primary, according to the line voltage the receiver is to be used on.

NOTE: Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

ALIGNMENT PROCEDURE

All the circuits in this receiver are very accurately adjusted at the factory and normally should need no further adjustment. However, if it is definitely known that an adjustment is necessary the circuits may be properly aligned with the use of a modulated signal generator and an output meter.

Connecting Output Meter.

Connect the output meter to the plates of the two 6K6G output tubes. Be certain that the meter is protected from D. C. by a condenser (.1 mfd. or larger—not electrolytic) in series with one of the leads.

Tuning The I-F Amplifier To 455 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 607G 1st I-F Amp. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the ground terminal of the receiver. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Set the station selector so that the tuning condenser plates are completely out of mesh. Turn the volume control knob to the right (ON) and turn the tone control knob to the left (TREBLE).

(c) Set the band selector switch on the Broadcast Band.

(d) Turn the Local-Distance Switch to the "Distance" position (Right).

(e) Set the signal generator to 455 kilocycles.

(f) Adjust both trimmer condensers located on top of the 2nd I-F transformer for maximum output.

(g) Transfer the signal generator lead to the top cap of the 6A8G tube, leaving the tube's grid clip in place.

(h) Close the middle trimmer of the 1st I-F transformer. (Do not force adjustment screw.)

(i) Adjust the top and then the bottom trimmers of the 1st I-F transformer for maximum output.

(j) Adjust the middle trimmer of the 1st I-F transformer for maximum output.

DO NOT ADJUST THE TRIMMER CONDENSERS LOCATED ON THE 2ND I-F TRANSFORMER WITH THE SIGNAL GENERATOR LEAD CONNECTED TO THE 6A8G TUBE.

ALWAYS USE THE LOWEST SIGNAL GENERATOR

TOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

Aligning The R-F Amplifier. When aligning the R-F amplifier the output lead from the signal generator is connected to the "ANT" terminal of the receiver. For the Broadcast Band a 200 mmf. condenser should be connected in series with the output lead of the signal generator and for the High Frequency and Police Bands a 400 ohm carbon resistor should be placed in place of the condenser.

Each band should first be SHUNT-ALIGNED and then SERIES-ALIGNED where provision is made for series alignment (Broadcast Band). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated for each adjustment, 1 (D) below.

(a) With the station selector adjusted so that the tuning condenser plates are completely out of mesh, adjust the "OSC" shunt trimmer until the MINIMUM CAPACITY SIGNAL (D) is heard (it is not necessary that the receiver tune through this signal).

(b) Adjust the station selector so that the SHUNT ALIGNMENT SIGNAL (D) is tuned-in with maximum output. Then adjust the "R.F." and "ANT" shunt trimmers for maximum output. Readjust the station selector slightly so that the generator signal is tuned-in with maximum output and check the adjustment of the "R.F." and "ANT" trimmers. DO NOT READJUST THE OSCILLATOR TRIMMER.

NOTE: When shunt aligning the Police and High Frequency Bands care must be exercised so that the circuits will be aligned on the correct frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator ten times, or more, and try to tune-in the signal both at the generator frequency as indicated on the station selector dial and at approximately 910 kilocycles less than the correct frequency. If the circuits have been properly aligned the signal can be tuned-in at both positions but much stronger at the correct frequency.

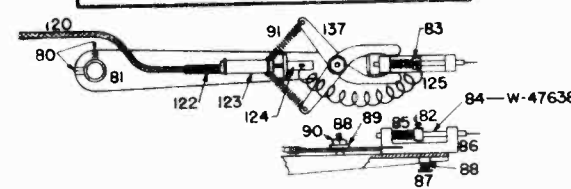
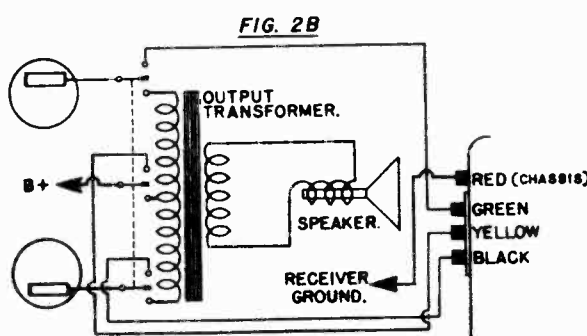
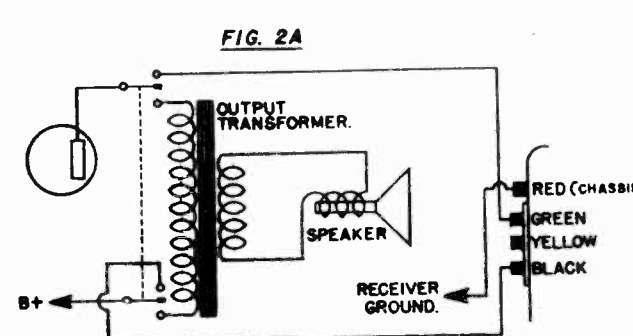
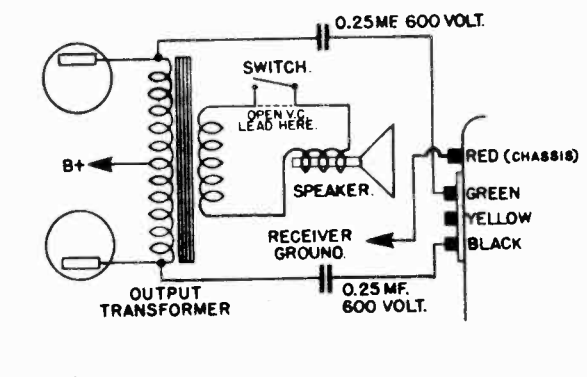
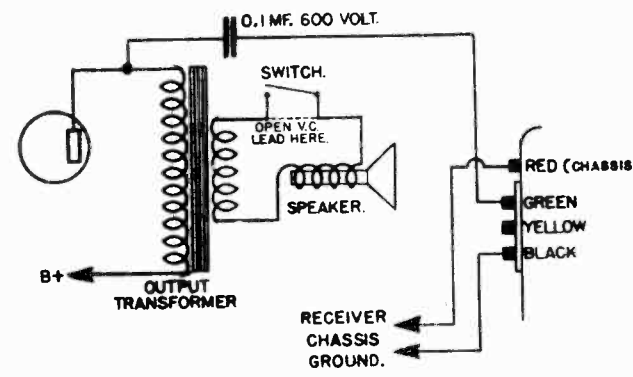
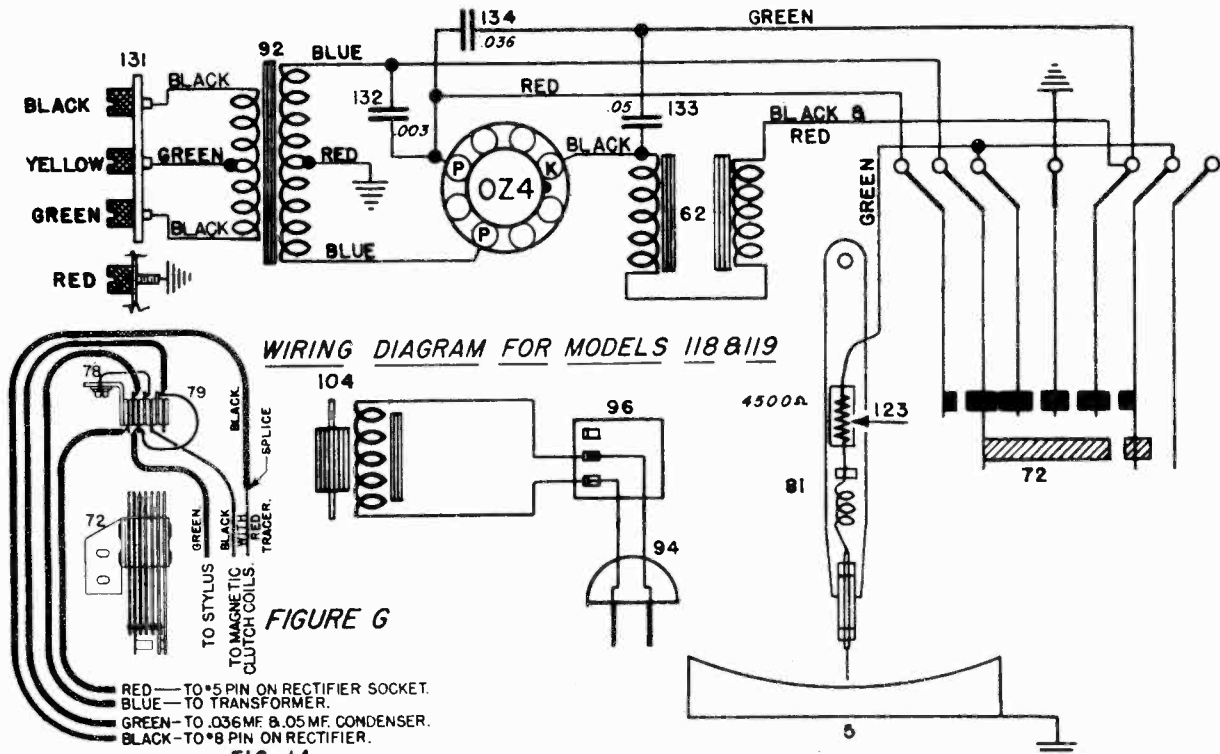
(c) To align the series trimmer (See Fig. 2), set the signal generator to the frequency indicated below (D) and then tune-in this signal with the station selector for maximum output. To obtain the best adjustment for the series trimmer, it will be necessary to rotate the station selector back and forth slightly while adjusting the trimmer for maximum output. Minor tolerance variations in series alignment at 2500 kilocycles in the Police Band and at 7000 kilocycles in the High Frequency Band may be compensated for by slight repositioning of the grid lead of the antenna coil in the Band affected.

(D) SIGNAL INPUT FREQUENCIES

American Broadcast Band	Min. Cap. Signal	Series Align.
Police & Amateur Band	1860 Kilocycles	600 Kilocycles
High Frequency Band	8600 Kilocycles	6000 Kilocycles
	22 Megacycles	18 Megacycles

CROSLEY CORP.

MODELS 118,119  
 Reado Printers  
 Schematic, Connections  
 Stylus Details



**MATCHING**  
 BLACK & YELLOW — APPROX. 5,000 OHMS.  
 GREEN & YELLOW — APPROX. 5,000 OHMS.  
 BLACK & GREEN — APPROX. 10,000 OHMS.  
 BLACK, YELLOW, GREEN — APPROX. 10,000 OHMS, PUSH-PULL.

MODELS 118,119  
 Reado Printers  
 Assembly, Chassis Views

CROSLLEY CORP.

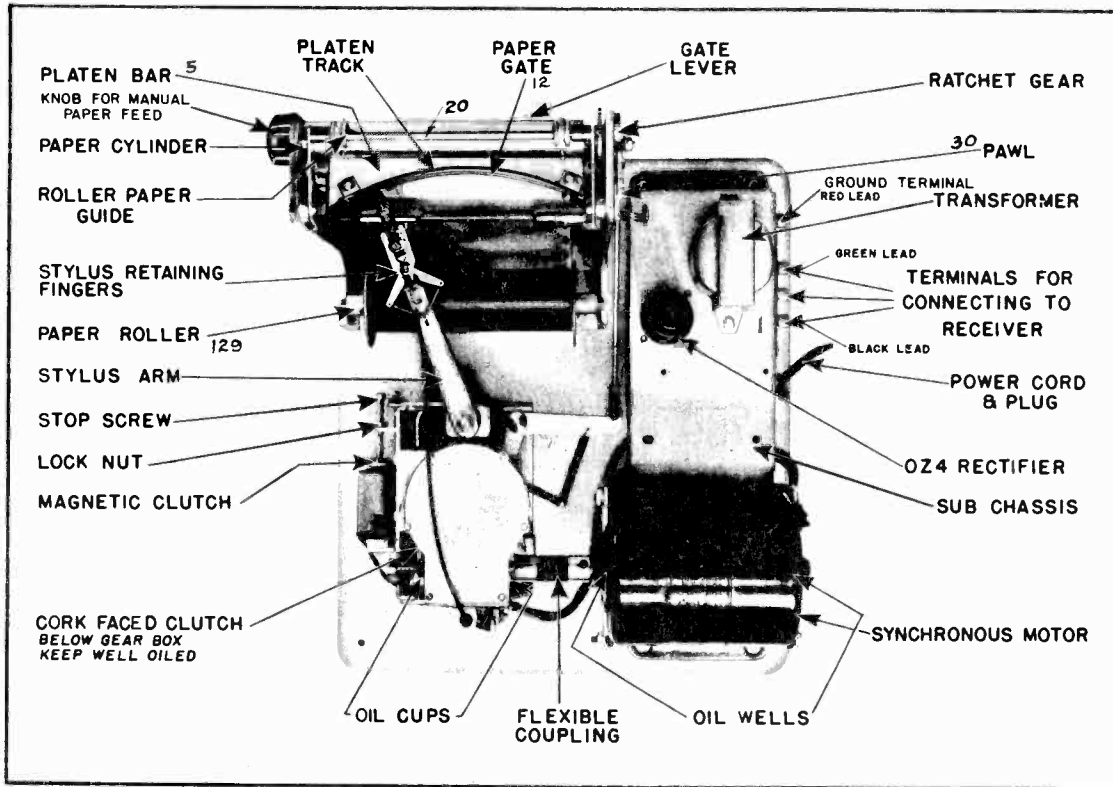


FIGURE J

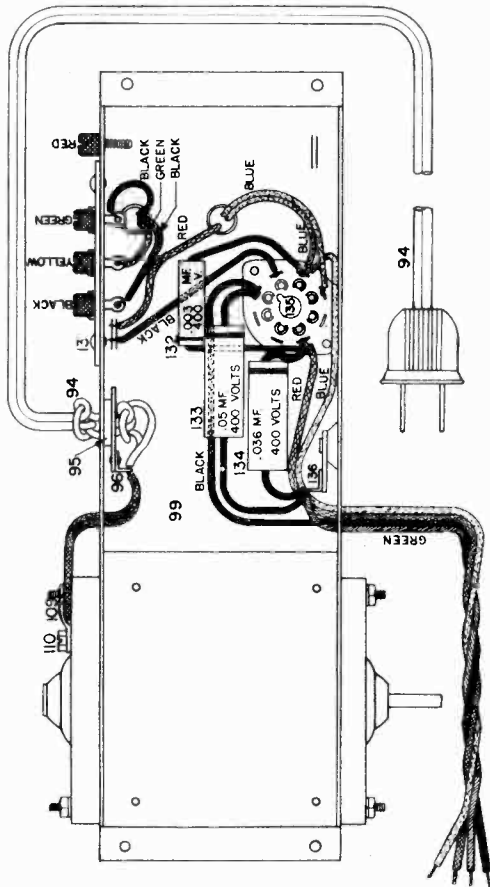
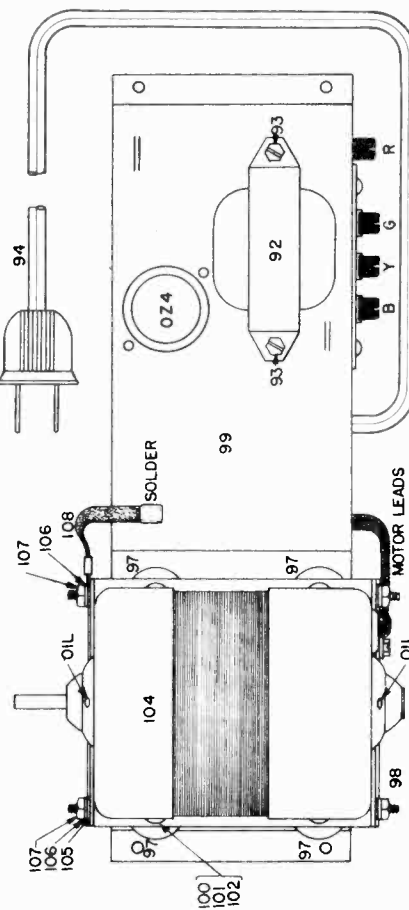


FIGURE K.



## CROSLLEY CORP.

MODELS 118, 119  
Reado Printers  
Operating and  
Service DataINSTRUCTIONS FOR ELECTRICALLY CHECKING  
MODELS 118 AND 119 CROSLLEY READO PRINTERS.

To electrically check the operation of the 118 and 119 printer, it should be connected to a receiver as shown in attached bulletin. Connect a signal generator modulated with any audio frequency less than 500 cycles to the antenna of the receiver and switching the output from the receiver to the printer. With the motor running, turn up the level control on the receiver slowly until sufficient voltage appears across the synchronizing coils on printer to actuate the clutch release. This will release the stylus arm at this same level setting and the modulation should mark lightly on the paper. Increasing the level setting should bring up the blackness of printing to the point just below where the paper begins to smoke which is the desirable printing level. As the level of the receiver is reduced the printing should become lighter and lighter and as the level is further reduced the clutch pawl will hold in and the arm should stop over at the left side of the paper.

Measuring across the relay solenoid with a 1000 ohm per volt D.C. meter synchronization should occur between 45 and 55 volts. In cases where this does not hold true the OZM rectifier should be checked as it will be noted from circuit diagram this tube is switched in the circuit only for synchronization, that is, to rectify the 500 cycle pulse for the relay coils. If the trouble is not found in the tube, the circuit should be checked for opens or shorts and the switch points inspected and cleaned. If circuit and voltages are found okay and printer still refuses to operate properly, the clutch arm should be adjusted according to instructions.

To measure the printing signal, connect a 1000 ohm per volt A.C. meter across the stylus to ground at the switch and advance the level control of the receiver until the stylus is sweeping back and forth across the paper. When printing at desired level on average paper, the voltage reading should pick up to between 200 and 250 volts. If the paper is in doubt, turn the stylus so that it does not touch the paper and connect 18000 ohms from stylus to ground, turn motor off and rotate shaft by hand until stylus arm is half way across on its way from left to right and measure the voltage across this resistor. The voltage should read between 200 and 250 volts as above.

Wherever possible it is advisable to check the operation with a phonograph and a record containing facsimile copy. Such a record may be obtained from The Crosley Corporation for operation on a 33-1/3 R.P.M. turntable.

1. INSERTING PAPERTO PREPARE FOR OPERATION

- (a) The roll of paper should be placed on the roller (129) so that if you were to pull on the end, it would unroll toward you.
- (b) Insert paper between the lower roller and the base (white surface).
- (c) Push lever, on back of platen bar (5), to the left. (Platen is the center bar that supports paper for the stylus.) This springs open the paper gate (12) Pull paper up between gate and platen.
- (d) Lift bar (20) with the roller paper guides.
- (e) Place paper over paper cylinder. Be sure the paper is lined up and fits over pins in cylinder.
- (f) Release catch holding lever on platen bar, then push roller guides down on the paper.
- (g) Place cleaning brush so that the bristles just bear lightly on the paper, with the bristles toward the stylus.

2. STYLUS

VERY CAREFULLY, spread metal fingers (137) and turn the stylus assembly (85) so that the point is toward the paper (BE SURE NOT TO BEND POINT) then release fingers (137). The metal fingers should hold the stylus assembly in line with the stylus arm.

- (a) Turn the motor over by hand. To do this, turn the rubber coupling away from you (clockwise direction) until stylus comes to rest at the left hand side of the paper.
- (b) While turning the motor by hand, depress the magnetic clutch. The stylus will move across the paper. Check the stylus pressure against paper by listening for a slight rub as stylus crosses paper. The correct pressure is indicated by a slight rub but not sufficient to leave a mark on the paper.

3. RATCHET AND PAWL

By turning the motor over by hand the operation of the ratchet and pawl (which moves the paper cylinder) can be checked.

- (a) While turning motor by hand and depressing the magnetic clutch as before; turn motor until the stylus arm is at the right hand side of the paper. While the arm is traveling back to the left side of paper, the ratchet moves up ONE tooth and is locked by the pawl (30). This movement of one tooth acts through the gear train and turns the paper cylinder, so that the paper moves up 1/100 of an inch.
- If everything checks normal up to this point, plug the power cord into a convenient receptacle (110 volts, 60 cycles).

With motor running, listen carefully for any excessive mechanical vibrations. If present they may be minimized by adjusting the four bolts that mount the motor bracket and the four bolts that mount the sub-chassis to the base.

CONNECTIONS TO RECEIVER

For best results from the READO, (Model 119), the receiver or source of A-F supply should be designed to give the required electrical characteristics that are necessary for the correct operation of the READO, namely:

1. At least 5 watts output (clean audio).
2. A very good A.V.C. circuit.
3. Good sensitivity and selectivity.
4. A well filtered power supply (NO HUM).

Figures 1 A & B and 2 A & B show how to connect 119 Printer to Receiver. The switching arrangement is up to the individual, likewise the connection may be varied as in Figure 1 or 2, use the connection that gives the best results.

CAUTION: NEVER WORK ON PRINTER CONNECTIONS WITH RECEIVER TURNED ON.

We recommend the Crosley Model 758 Receiver as an exceptional radio receiver, in that the circuit incorporates many new developments that are essential for producing the excellent job of printing of which this READO is capable.

OPERATION

If the preceding instructions have been carefully followed, the operation of the READO is practically automatic with the exception of turning ON and OFF

TUNING-IN FACSIMILE SIGNAL

The IMPORTANCE OF ACCURATE tuning of the radio receiver to the station broadcasting Facsimile signal cannot be emphasized enough. Good copy cannot be realized unless the station is tuned-in right on the nose, as the form of printing depends almost entirely on the READO being synchronized with the transmitting equipment.

The procedure for accurate tuning is as follows: Locate desired station on the dial, then tune to each side, then bring pointer back to the exact center of that portion of the dial that the station covers. It will be found much easier to tune-in accurately (Facsimile signals) by tuning to the station that is to broadcast Facsimile signals, WHILE THE STATION IS BROADCASTING A REGULAR RADIO PROGRAM.

ADJUSTING THE DENSITY OF PRINTING (Blackness)

First, the receiver must have sufficient output (5 watts or more). The blackness of the printing is regulated by increasing or decreasing the setting of the volume or level control.

MAINTENANCE

1. Care of the Stylus.  
The stylus may tend to bind in the bakelite block after considerable service due to small particles of carbon collecting on shaft. If this occurs, loosen collar and remove shaft and clean. Replace and adjust as stated in paragraph under "Stylus"
2. Care of the Platen Track.  
The platen track is a strip of spring steel that is back of paper gate and is between paper and the platen bar. Due to the method of printing this track collects deposits of carbon after quite a few hours of service and will cause the stylus to stick or the printing density to vary in shade for one sweep. To clean, carefully turn stylus assembly at right angles with the stylus arm. This is done so as to prevent possible damage to the stylus point when removing paper gate. Then push lever back on platen bar and carefully remove paper gate. With a VERY fine sand paper using a wiping motion from one side to the other, polish the platen track. Replace paper gate. Replace stylus to printing position.

MOTOR

The motor should be oiled (each bearing) about once in every three hundred hours of service with a high grade of light lubricating oil. Motor will not run properly on less than 105V.

CLUTCH

It is essential that the clutch plate be thoroughly lubricated at all times, check at least once a week. Use a high grade of machine oil for this purpose.

SERVICE HINTS

- Variations in density or blackness of printing may be due to:
- (a) Receiver may not have the A.V.C. circuit capable of keeping the output constant over wide variations of incoming signal strength.
  - (b) Receiver may not have sufficient output.
  - (c) Stylus may be stuck in bakelite bracket.
  - (d) Stylus may be worn.
  - (e) Platen track may have small deposits of carbon on it.

WOBBLY PRINTING --

- (a) Receiver not tuned properly (Printer not synchronized with transmitter).
- (b) Bent or loose stylus point.  
Definite vertical light streaks uniformly spaced across the printer matter is an indication of insufficient filtering in the receiver, permitting hum voltage to reach printer.

NOB PRINTING --

- (a) Power off.
- (b) Loose or open connection between receiver and printer.
- (c) Stylus stuck.

STYLUS ARM KEEPS MOVING --

The stylus arm should come to rest at the left hand side of paper when the volume or level control is reduced appreciably. If it keeps moving back and forth, the end of the magnetic clutch arm that engages the dog on the clutch plate may be blightly worn. If this is the case it may be compensated for by a slight adjustment of the magnetic clutch stop screw. (See illustration) Loosen the stop screw lock nut, then turn screw to the left (counter-clockwise) about a quarter turn or just enough to cause the magnetic clutch arm to engage dog on clutch plate.

MODELS 118,119  
 Reado Printers  
 Trouble Chart

CROSLLEY CORP.

MODEL 118 READO TROUBLE CHART

TROUBLE

A. Uneven density of print. Light streaks through copy particularly noticeable on solid black areas.

CAUSE

A1. Gate not holding paper against platen properly.

REMEDY

A1.(a) Check gate latch making sure gate is closed.  
 A1.(b) Check gate hold-down lugs on left and right side of platen holder which should prevent gate from crawling up as paper goes through machine.  
 A1.(c) Gate should not be kinked or twisted.

A2. Stylus pressure too light.

A2.Adjust collar on stylus holder.

A3. Platen carbonized.

A3. Clean with light emery paper. To prevent carbonizing do not print too black.

A4.Stylus does not move freely in holder.

A4. Burnish stylus lengthwise with fine emery paper.

A5.Paper

A5.Try new paper.

B. Fuzzy printing. Characters lined up straight and of correct height, but with staggered outlines.

B1. Carbonized stylus.

B1. Clean stylus; lighten pressure, adjust blackness.

B2. Platen carbonized.

B2. See A3.

B3.Not synchronizing cleanly.

B3.(a) Adjust clutch arm and air gap.  
 B3.(b) Check clutch arm point for squareness.

B4. See A4.

B4. See A4.

C. Height of characters varies from line to line.

C1.Paper not feeding through gate and platen properly.

C1.See A1(a) and A1(b)

C2.Ratchet not working properly.

C2.(a) Check ratchet assembly for binding.

C2.(b) Adjust ratchet push rod so that pawl has from 1 to 1 1/2 tooth movement each stroke.

D. Stylus sticks in holes in side of paper.

D1.Stylus arm not centered.

D1.Re-center stylus arm by adjusting arm on shaft by two set screws.

E.Light or no printing with horizontal lines or streaks usually accompanied by a black vertical line on one or both sides.

F.Wavy characters; some leaning to the right, others to the left.

G.Short dash lines of increasing and then decreasing length appear across paper accompanied by stylus arm not stopping when volume control is turned down.

H.Paper tears.

F1.Weak signal or interference from local sources or other stations.

F1. Poor synchronizing.

F2.Weak OZ4 tube.

G1.Clutch arm not stopping stylus.

H1.Paper not set up properly.

H2.Paper creased or torn at edges.

H3.Too much pressure on gate.

I.Printing too black due to volume being too high.

F1.Use better antenna remove local interference.

F1.Adjust clutch arm and air gap.Tighten clutch.

F2. Replace tube.

G1.Adjust clutch arm and air gap.

H1.Reset paper.

H2.Remove creased or torn portion.

H3.See that gate is free to reset lightly but firmly on paper.

I.Decrease volume control.

MODEL 494 RECORD PLAYER TROUBLE CHART

A.Prints light on records, but O.K. on air.

A1.Needle too soft.

A2.Record worn out.

A3.Paper

B.Prints uneven on record, but O.K. on air.

B1.Uneven velocity of turntable.

C.Motor will not start.

C.Motor mounted too rigidly.

TO ADJUST CLUTCH AND AIR GAP

Turn motor coupling by hand in direction of normal rotation while holding clutch arm against magnet pole pieces, until stop on lower clutch plate is just completely under clutch arm. Loosen mounting screws for magnet bracket and slide bracket and coils forward until the pole pieces come within the thickness of a piece of writing paper of touching the magnetic armature on clutch arm, tighten bracket screws.

Plug motor in and adjust armature adjustment screw until clutch arm just stops lower clutch plate. Repeat to make sure that clutch arm engages just enough to stop clutch, as more movement of armature than is necessary only requires more power to synchronize. Tighten lock nut, being careful not to change adjustment while so doing.