VOLUME VIII

PERPETUAL TROUBLE SHOOTER'S MANUAL

REG.U.S.PAT.OFF.

JOHN F. RIDER

PERPETUAL

TROUBLE SHOOTER'S MANUAL

Reg. U.S. Pat. Off.

VOLUME VIII

by

JOHN F. RIDER

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by

JOHN F. RIDER

CATHODE-RAY TUBE AT WORK

SERVICING SUPERHETERODYNES

SERVICING RECEIVERS BY MEANS OF RESISTACE MEASUREMENT

PERPETUAL TROUBLE SHOOTER'S MANUA

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

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AUTOMATIC FREQUENCY CONTROL SYSTEMS

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D-C. VOLTAGE DISTRIBUTION IN RADIO RECEIVERS

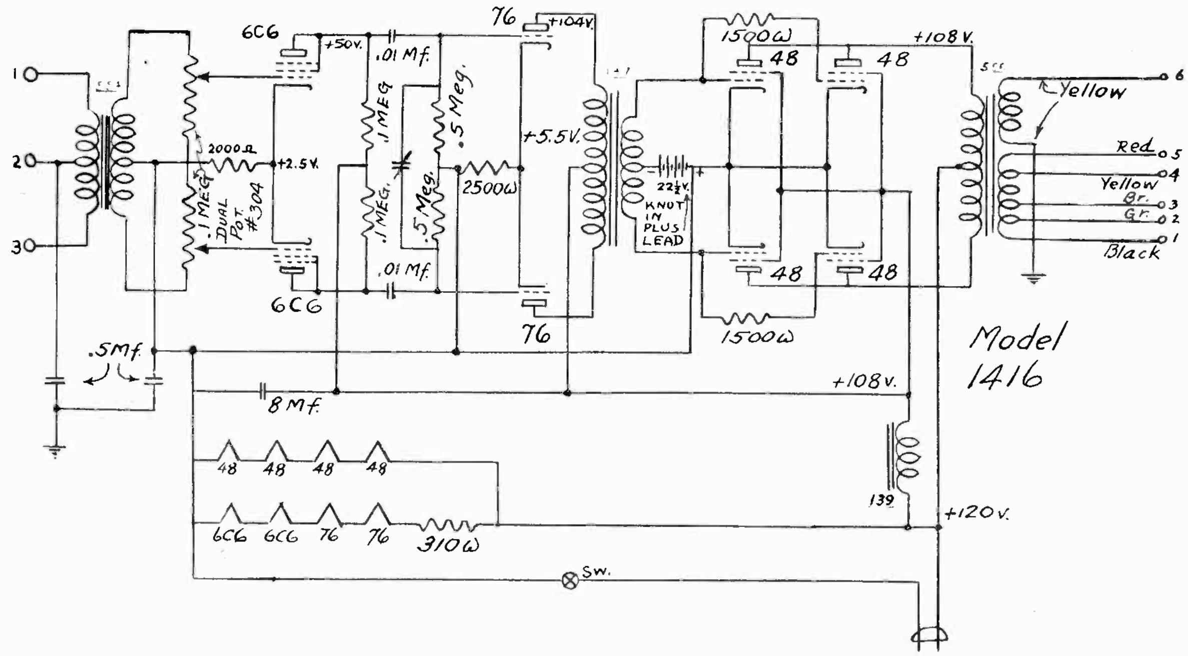
AUTOMATIC RECORD CHANGERS AND RECORDERS

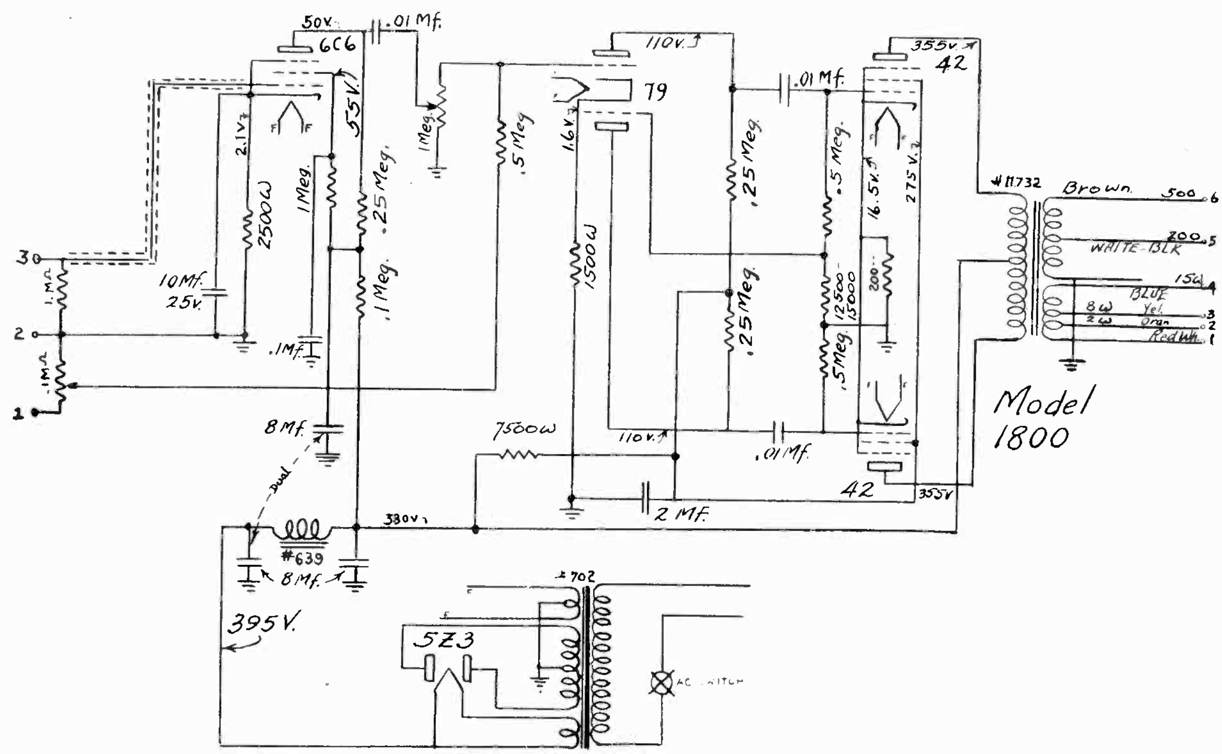
A-C. CALCULATION CHARTS BY R. LORENZEN

Printed in U. S. A.

ACRATEST PRODUCTS

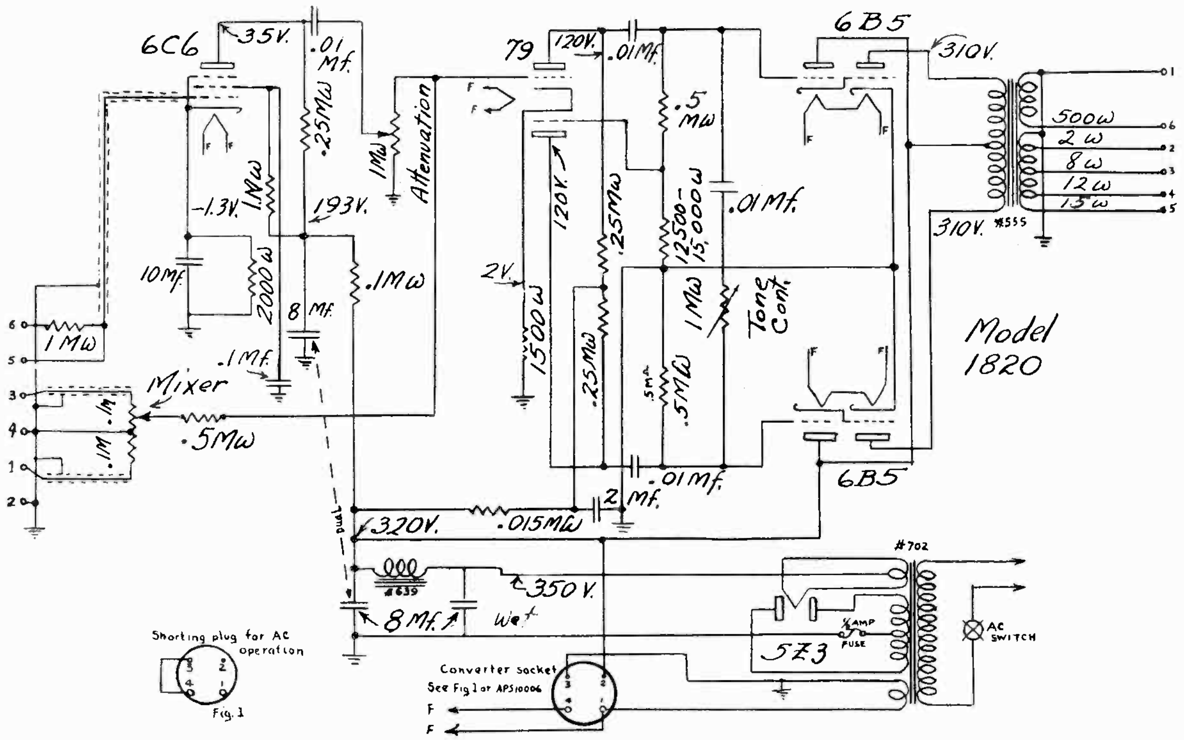
MODEL 1416
MODEL 1800
Schematics
Voltage

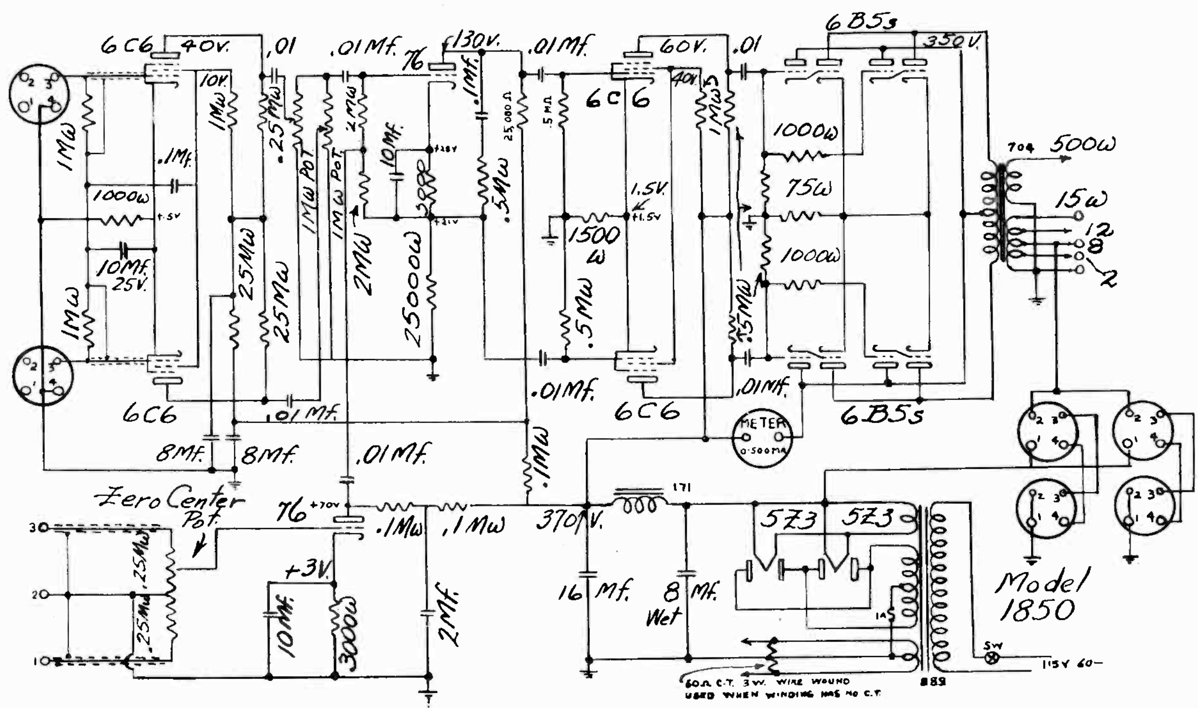




MODEL 1820
MODEL 1850
Schematics
Voltage

ACRATEST PRODUCTS



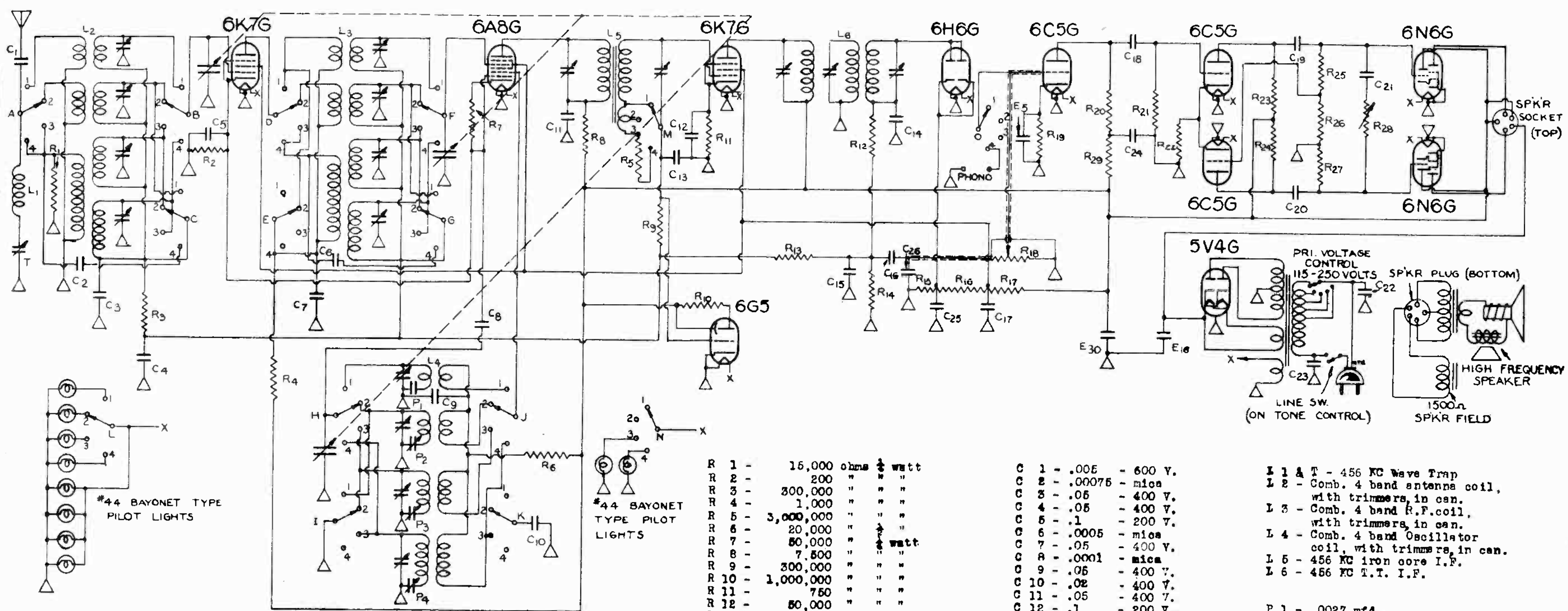


MODEL 11F
Schematic, Alignment

AIR KING PRODUCTS CORP.

MODEL 11F

4 BAND ALL-WAVE SUPERHETERODYNE



R 1 -	15,000	ohms	½	watt
R 2 -	200	"	"	"
R 3 -	300,000	"	"	"
R 4 -	1,000	"	"	"
R 5 -	3,000,000	"	"	"
R 6 -	20,000	"	"	"
R 7 -	50,000	"	1	watt
R 8 -	7,500	"	"	"
R 9 -	300,000	"	"	"
R 10 -	1,000,000	"	"	"
R 11 -	750	"	"	"
R 12 -	50,000	"	"	"
R 13 -	1,000,000	"	"	"
R 14 -	500,000	"	"	"
R 15 -	250	"	bleeder	
R 16 -	15,000	"	bleeder	
R 17 -	10,000	"	bleeder	
R 18 -	500,000	"	vol. control	
R 19 -	9,000	"	¼	watt
R 20 -	100,000	"	"	"
R 21 -	500,000	"	"	"
R 22 -	4,500	"	"	"
R 23 -	100,000	"	"	"
R 24 -	100,000	"	"	"
R 25 -	500,000	"	"	"
R 26 -	35,000	"	"	"
R 27 -	500,000	"	"	"
R 28 -	500,000	"	tone control	
R 29 -	50,000	"	¼	watt

C 1 -	.005	- 600 V.
C 2 -	.00075	- mica
C 3 -	.05	- 400 V.
C 4 -	.05	- 400 V.
C 5 -	.1	- 200 V.
C 6 -	.0005	- mica
C 7 -	.05	- 400 V.
C 8 -	.0001	- mica
C 9 -	.05	- 400 V.
C 10 -	.02	- 400 V.
C 11 -	.05	- 400 V.
C 12 -	.1	- 200 V.
C 13 -	.1	- 200 V.
C 14 -	.0001	- mica
C 15 -	.0001	- mica
C 16 -	.02	- 400 V.
C 17 -	.1	- 200 V.
C 18 -	.05	- 400 V.
C 19 -	.05	- 400 V.
C 20 -	.05	- 400 V.
C 21 -	.01	- 600 V.
C 22 -	.05	- 400 V.
C 23 -	.05	- 400 V.
C 24 -	.1	- 200 V.
C 25 -	.1	- 200 V.
C 26 -	.0001	- mica

E 16 - 16 mfd - 450 V.
E 30 - 30 mfd - 350 V.

L 1 & T - 456 KC Wave Trap
L 2 - Comb. 4 band antenna coil, with trimmers, in can.
L 3 - Comb. 4 band R.F. coil, with trimmers, in can.
L 4 - Comb. 4 band Oscillator coil, with trimmers, in can.
L 5 - 456 KC iron core I.F.
L 6 - 456 KC T.T. I.F.

P 1 - .0027 mfd.
P 2 - 1200 mmf. max.
P 3 - 500 mmf. max.
P 4 - 200 mmf. max.

Wave Band Switch - 4 deck
3 section each deck,
1 to 4 position each section.
(Switches A,B,C,D,E,F,G,H,I,J,K,L)

Selectivity Switch - 1 deck,
3 section, 1 to 4 position
each section.
(Switches M, N, O)

NOTE: - WAVE BAND SWITCH SHOWN IN BAND 2 POSITION, (POLICE, AIRCRAFT, AMATEUR)
SELECTIVITY SWITCH SHOWN IN FIRST (SELECTIVE) POSITION.

ALIGNMENT FREQUENCIES

I.F. - 456 KC (Selectivity Switch in "Selectivity Position")

Trimmers	Padder
BAND 1 - 16 MC or 19 M	2 MC or 150 M
BAND 2 - 5 MC or 60 M	600 KC or 500 M
BAND 3 - 1500 KC or 200 M	150 KC or 2000 M
BAND 4 - 300 KC or 1000 M	150 KC or 2000 M

WAVE BAND SWITCH POSITIONS

1. Foreign Short Wave
2. Police, Aircraft, Amateur
3. Medium Wave
4. Long Wave

SELECTIVITY SWITCH POSITIONS

1. Selective
2. Medium Fidelity
3. High Fidelity
4. Phonograph

MODELS 21,22,522
81 Series
Schematic,Layout
Data

AIR KING PRODUCTS CORP.

INSTRUCTIONS FOR INSTALLATION AND OPERATION
Model Nos. 21-22-522 and 81 Series

This receiver employes a chassis of latest design. The frequency range covered is 540-1750 kilocycles.

TUBES (Model 21 series)
6D6, 6C6, 38, 76
(Model 81 & 22 and 522 series)
6D6, 6C6, 38, 76, K90F

ANTENNA The antenna built into the set will perform to give best results in most localities. However, in communities located more than 100 miles away from a broadcasting station, an outside antenna of 50 to 75 feet may be necessary for better performance. This antenna should be attached to the end of the built in antenna hank.

VOLUME CONTROL AND ON/OFF SWITCH This control is located on the lower right side of the receiver. To place set in operation, turn this knob to the right. This automatically turns the receiver on. To decrease volume to desired level, turn this control to the left. To turn set off, rotate the control to the extreme left until click is heard.

SELECTOR KNOB The selector knob is located on the upper right hand side of the receiver. It is used to tune in desired stations. The scale is calibrated in kilocycles.

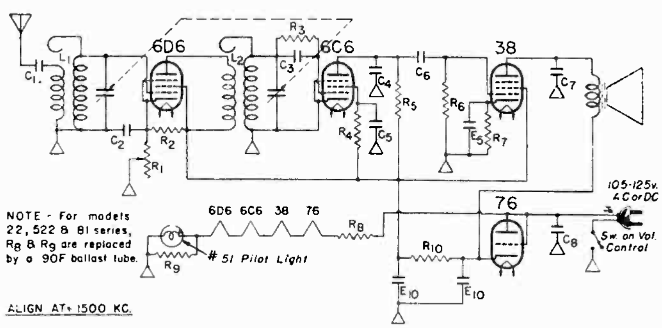
INSTALLATION a. Unhank the line cord and stretch it out to its full length before connecting to the 105-125 volts, 50-60 cycles AC or DC power lines. Under this condition, the cord will feel warm. THIS IS NORMAL. Operating with the cord hanked or rolled up may cause it to heat excessively and damage set. DO NOT CUT THIS CORD TO SHORTEN OR LENGTHEN IT.

b. When using DC current, allow the receiver to warm up for 60 seconds. IF AFTER THAT TIME RECEIVER DOES NOT FUNCTION, REVERSE THE PLUG IN THE ELECTRIC OUTLET.

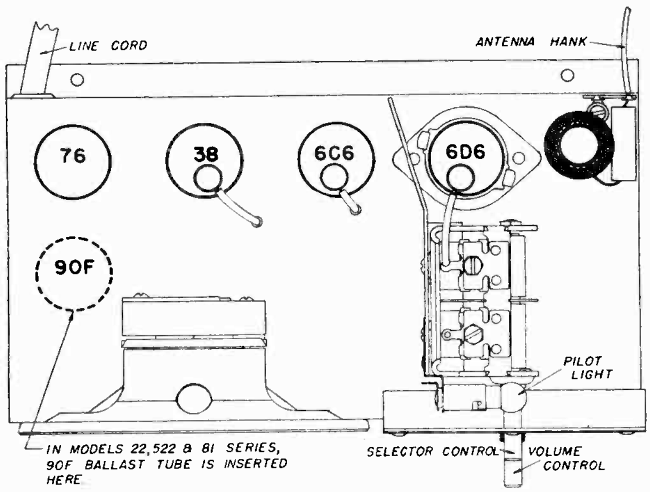
c. CAUTION — Do Not Connect Ground Wire to Chassis.

L1 - Antenna Coil
L2 - RF Coil

MODELS 21, 22, 522, & 81 SERIES



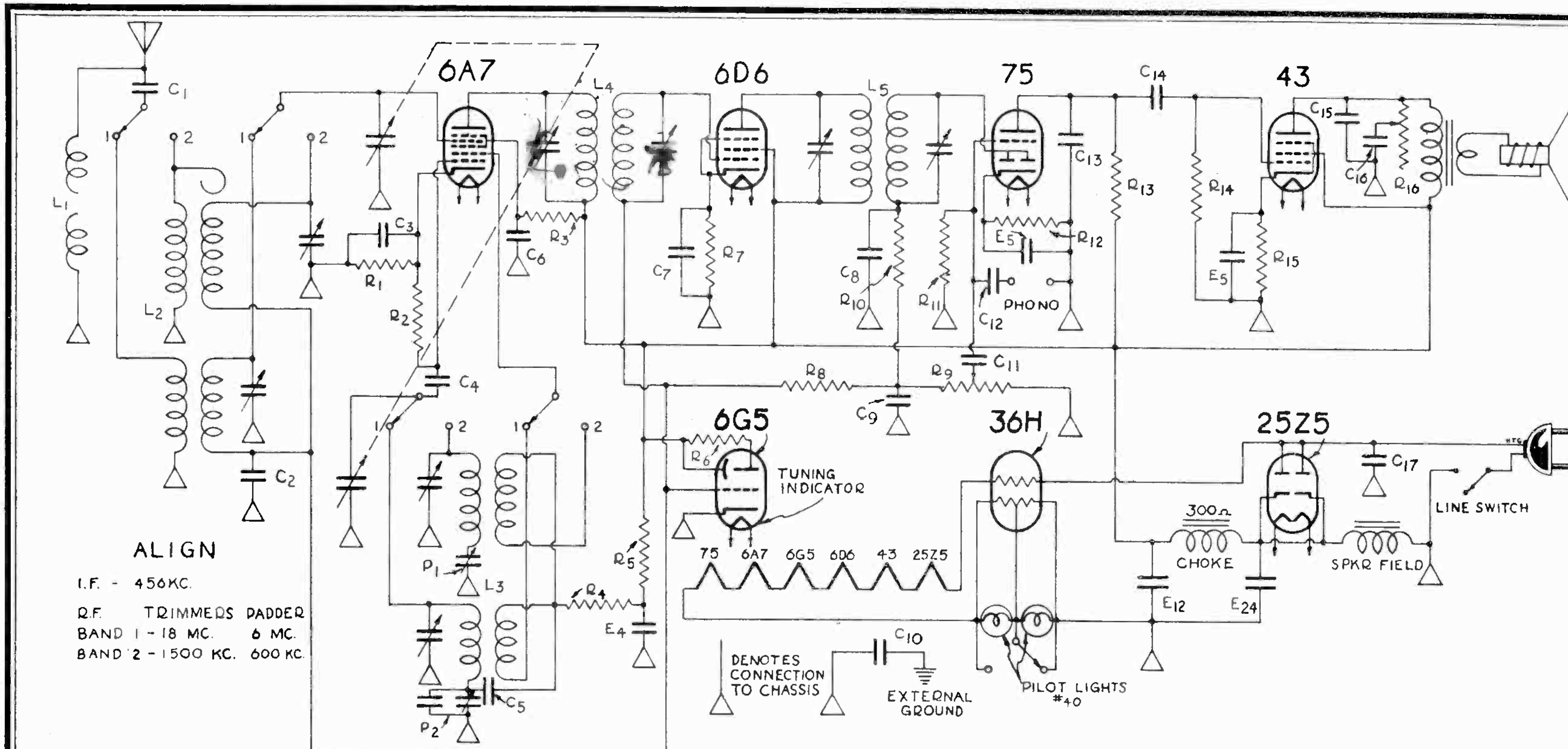
TUBE SOCKET LOCATIONS



E5	5	MF	25 VOLT
E10	10	MF	150 VOLT
C1	.005	MF	400 VOLT
C2	.02	MF	400 VOLT
C3	.005	MF	400 VOLT
C4	.0001	MF	mica
C5	.02	MF	400 VOLT
C6	.02	MF	400 VOLT
C7	.005	MF	400 VOLT
C8	.05	MF	400 VOLT
R1	25,000	ohm	VOL. CONTROL
R2	35,000	ohm	1/4 Watt
R3	3,000,000	ohm	1/4 Watt
R4	6,000,000	ohm	1/4 Watt
R5	1,000,000	ohm	1/4 Watt
R6	750,000	ohm	1/4 Watt
R7	1,000	ohm	1/4 Watt
R8	290	ohm	in line cord
R9	31	ohm	3 Watt
R10	2700	ohm	1/4 Watt

MODELS 72,73
Schematic, Alignment

AIR KING PRODUCTS CORP.



ALIGN

I.F. - 456KC.

R.F.	TRIMMERS	PADDER
BAND 1	18 MC.	6 MC.
BAND 2	1500 KC.	600 KC.

R 1 -	250 ohms	1/4 watt	
R 2 -	50,000 "	1/4 "	
R 3 -	35,000 "	1/4 "	
R 4 -	4,500 "	1/4 "	
R 5 -	4,500 "	1/4 "	
R 6 -	1,000,000 "	1/4 "	
R 7 -	500 "	1/4 "	
R 8 -	3,000,000 "	1/4 "	
R 9 -	500,000 "	vol. cont.	
R10 -	50,000 "	1/4 watt	
R11 -	750,000 "	1/4 "	
R12 -	4,500 "	1/4 "	
R13 -	500,000 "	1/4 "	
R14 -	750,000 "	1/4 "	
R15 -	650 "	1 "	
R16 -	500,000 "	tone cont.	

L 1 - 456 KC Wave Trap
L 2 - Comb. B'dcast and Short Wave Ant. Coil
L 3 - Comb. B'dcast and Short Wave Osc. Coil
L 4 - 456 KC I.F.
L 5 - 456 KC I.F.

P 1 - .0005 mfd.
P 2 - .0033 mfd.

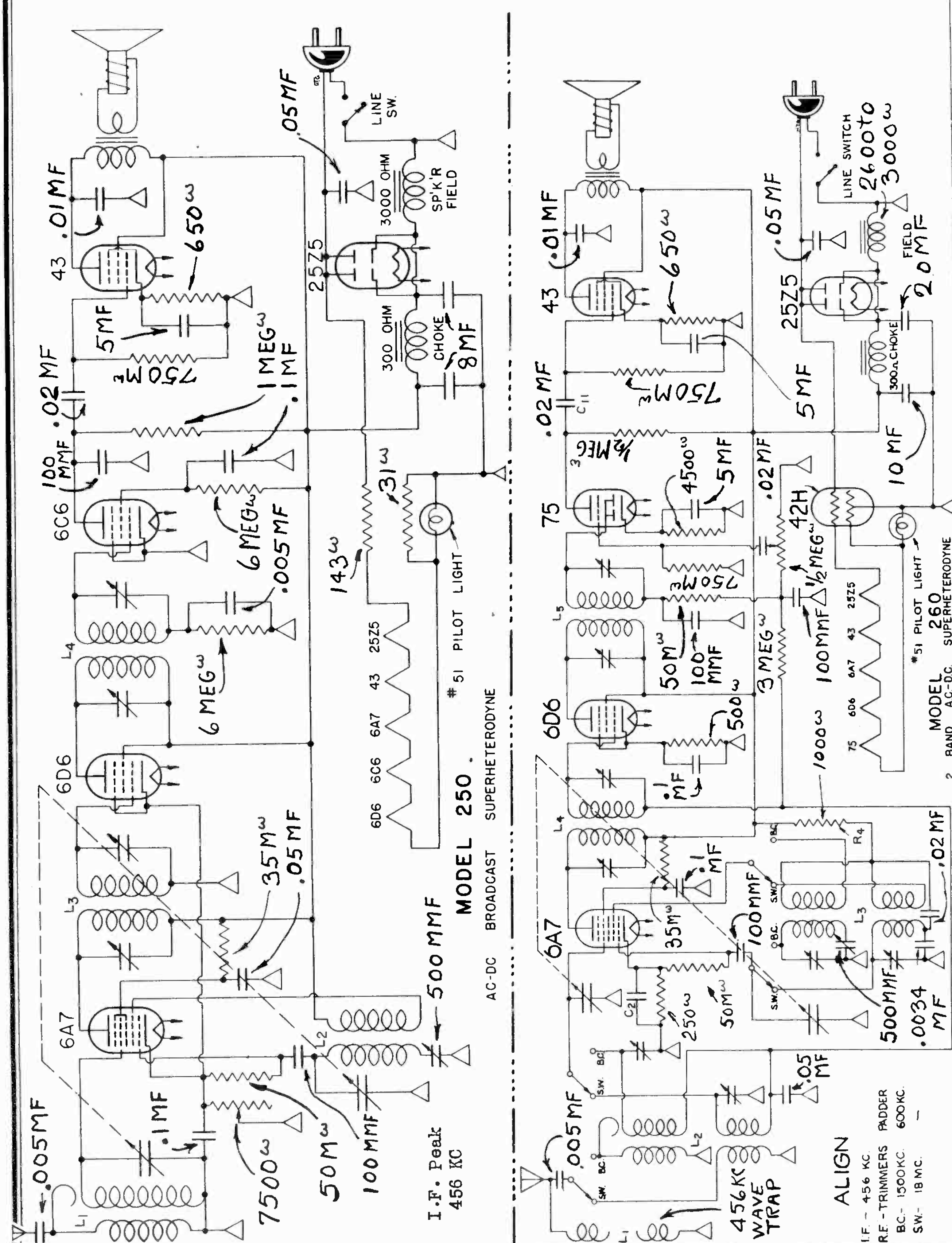
E 5 - 5 mfd. - 25 V.
E 5 - 5 mfd. - 25 V.
E 4 - 4 mfd. -150 V.
E12 - 12 mfd. -150 V.
E24 - 24 mfd. -150 V.

C 1 - .005 - 600 V.
C 2 - .05 - 400 V.
C 3 - .1 - 200 V.
C 4 - .0001 - Mica.
C 5 - .02 - 400 V.
C 6 - .05 - 400 V.
C 7 - .1 - 200 V.
C 8 - .0001 - Mica.
C 9 - .0001 - Mica.
C10 - .1 - 200 V.
C11 - .02 - 400 V.
C12 - .1 - 200 V.
C13 - .0001 - Mica.
C14 - .02 - 400 V.
C15 - .005 - 600 V.
C16 - .02 - 400 V.
C17 - .05 - 400 V.

MODELS 72,73 2 BAND AC-DC SUPERHETERODYNE WITH VISION TUNING

MODEL 250
MODEL 260
Schematics

AIR KING PRODUCTS CORP.

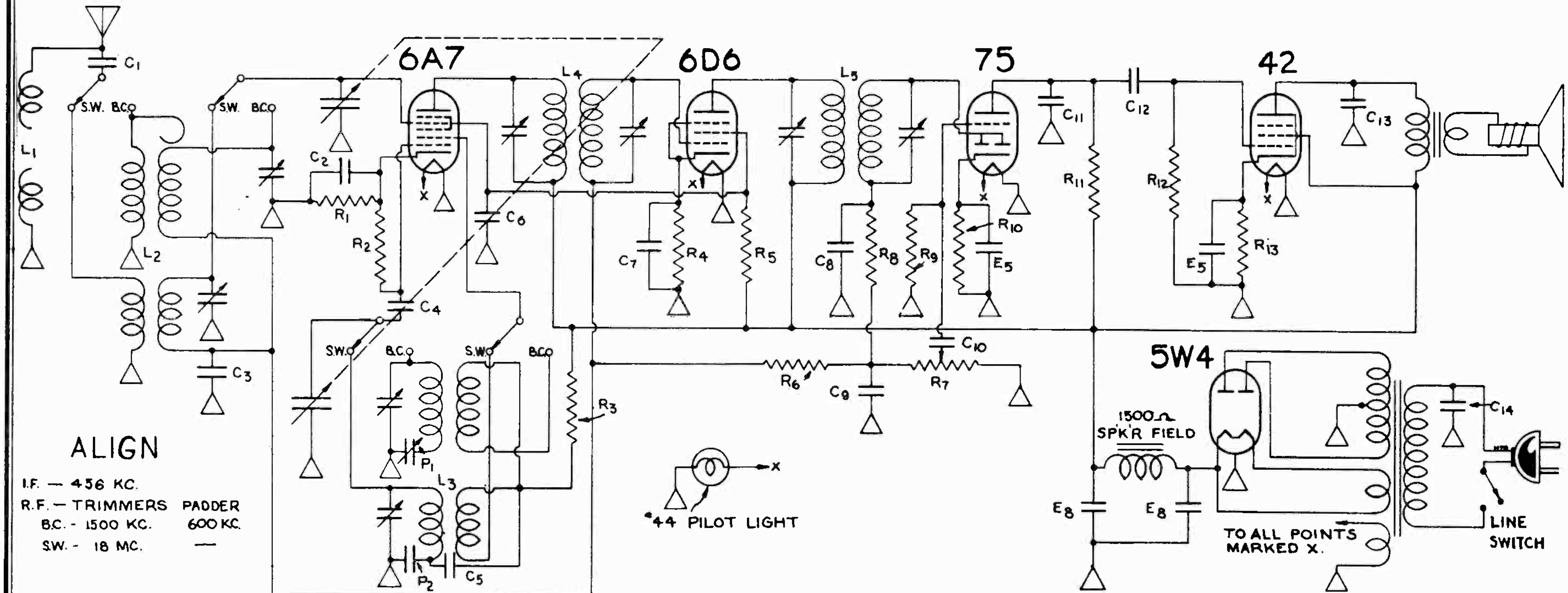


AIR KING PRODUCTS CORP.

MODEL 261
MODELS 730,731
Schematics, Alignment

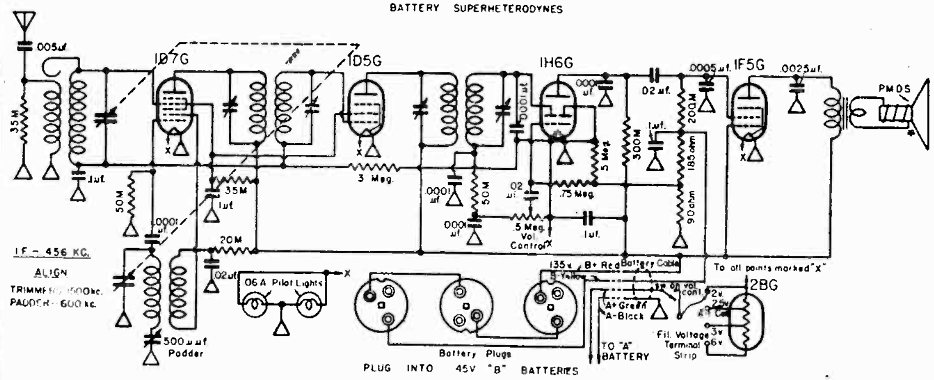
MODEL 261

2 BAND A.C. SUPERHETERODYNE



MODELS 730,731

BATTERY SUPERHETERODYNES



R 1 -	250 ohm	½ watt		
R 2 -	50,000	" ½ "		
R 3 -	20,000	" ½ "		
R 4 -	500	" ½ "		
R 5 -	20,000	" ½ "		
R 6 -	3,000,000	" ½ "		
R 7 -	500,000	" Vol.Cont.		
R 8 -	50,000	" ½ watt		
R 9 -	750,000	" ½ "		
R 10 -	2,000	" ½ "		
R 11 -	500,000	" ½ "		
R 12 -	750,000	" ½ "		
R 13 -	400	" ½ "		

L 1 -	456 KC wave trap
L 2 -	2 band Antenna coil
L 3 -	2 band Oscillator coil
L 4 -	456 KC Input I.F.
L 5 -	456 KC Output I.F.
P 1 -	500 Mmf.
P 2 -	.0034 mfd.
E 5 -	5 mfd. - 35 V.
E 5 -	5 mfd. - 35 V.
E 8 -	8 mfd. -250 V.
E 8 -	8 mfd. -250 V.

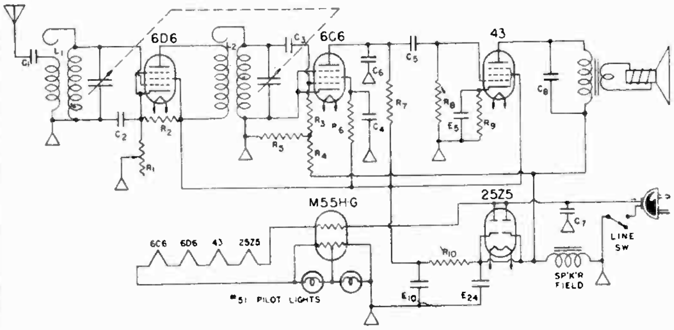
C 1 -	.005	- 600 V.
C 2 -	.1	- 200 V.
C 3 -	.05	- 400 V.
C 4 -	.0001	- mica
C 5 -	.02	- 400 V.
C 6 -	.1	- 200 V.
C 7 -	.1	- 200 V.
C 8 -	.0001	- mica
C 9 -	.0001	- mica
C 10 -	.02	- 400 V.
C 11 -	.0001	- mica
C 12 -	.02	- 400 V.
C 13 -	.005	- 600 V.
C 14 -	.05	- 200 V.

MODEL 700
MODEL 705

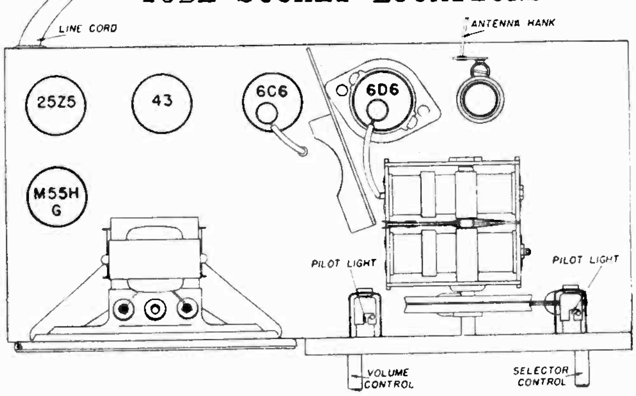
AIR KING PRODUCTS CORP.

Schematics
Socket

MODEL No. 700



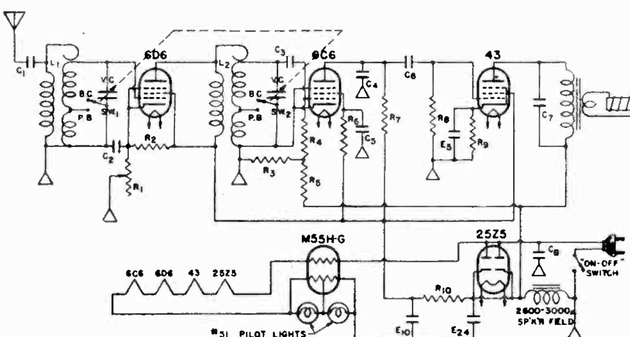
TUBE SOCKET LOCATIONS



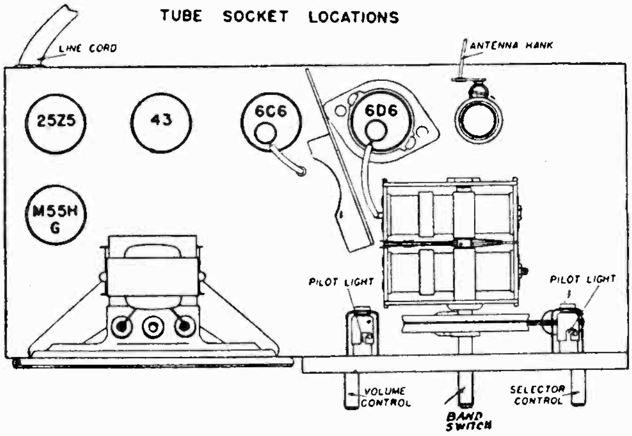
The frequency range covered is 540-1750 kilocycles.

R1 - 25,000 ohm Vol. Cont.
R2 - 35,000 " 1/4 Watt
R3 - 6,000,000 " " "
R4 - 1,000,000 " " "
R5 - 2,700 " " "
R6 - 6,000,000 " " "
R7 - 1,000,000 " " "
R8 - 500,000 " " "
R9 - 650 " 1/2 "
R10- 4,500 " " "
C1 - .005 MF, 400 Volt DC
C2 - .02 MF, 200 " "
C3 - .005 MF, 400 " "
C4 - .02 MF, 200 " "
C5 - .02 MF, 200 " "
C6 - .00025 MF, Mica
C7 - 1 MF, 400 Volt DC
C8 - .005 MF, 400 " "
E5 - 5 MF, 25 VOLT Elec.
E10- 10 MF, 150 VOLT ELEC.
E24- 24 MF, 150 VOLT ELEC.
L1 - Antenna Coil
L2 - R.F. COIL

MODEL No. 705



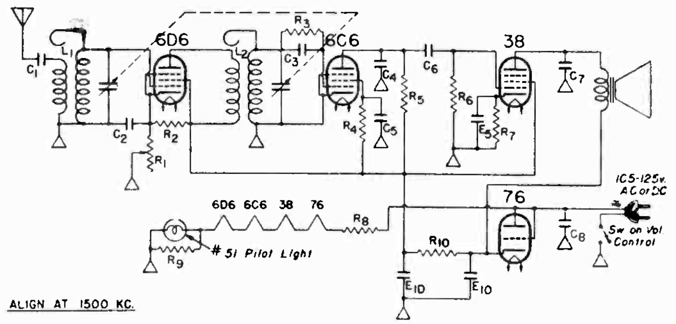
TUBE SOCKET LOCATIONS

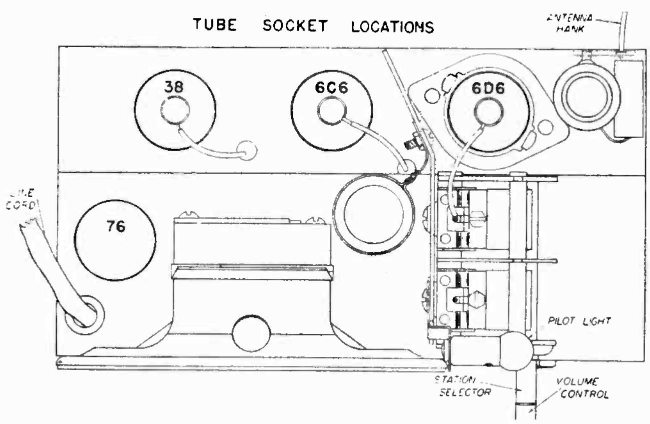


The frequency ranges covered are 540-1750, and 1725-4000 kilo-cycles.

R1 - 25,000 Ohm Vol. Cont.
R2 - 35,000 " 1/4 Watt
R3 - 27,000 " " "
R4 - 6,000,000 " " "
R5 - 1,000,000 " " "
R6 - 6,000,000 " " "
R7 - 1,000,000 " " "
R8 - 500,000 " " "
R9 - 650 " 1/2 "
R10- 4,500 " " "
C1 - .005 MF, 400 Volt DC
C2 - .02 MF, 200 " "
C3 - .005 MF, 400 Volt DC
C4 - .00025 MF - Mica
C5 - .02 MF, 200 Volt DC
C6 - .02 MF, 200 " "
C7 - .005 MF, 400 " "
C8 - .1 MF , 400 " "
E5 - 5 MF, 150 Volt Elec.
E10-10 MF, 150 " "
E24-24 MF, 150 " "
L1 - Combination Ant. Coil
L2 - Combination RF Coil
VC-410 MMF Max. Variable
SW1,SW2-2 Pole,2 position
common rotor band switch

AIR KING PRODUCTS CORP.

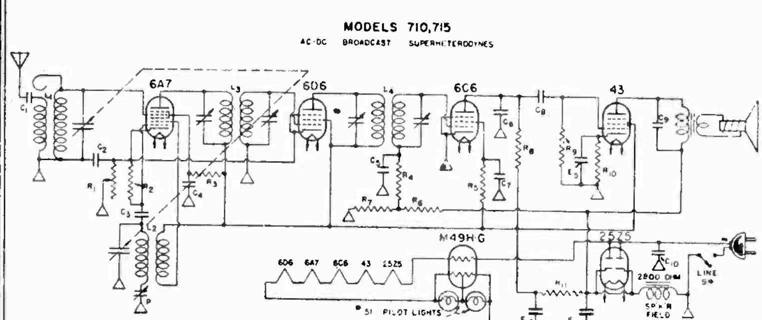




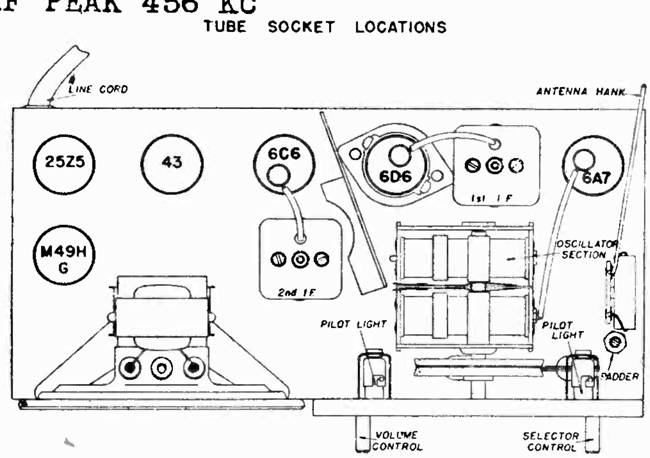
The frequency range is 540-1750 kilocycles.

MODELS 1000 and 2000

R1 - 25,000 Ohm Vol. Cont.
R2 - 35,000 " 1/4 Watt
R3 - 3,000,000 " " "
R4 - 6,000,000 " " "
R5 - 1,000,000 " " "
R6 - 750,000 " " "
R7 - 1,000 " " "
R8 - 290 Ohm in line cord
R9 - 31 Ohm 3 Watt
R10- 2,700 Ohm 1/4 Watt
C1 - .005 MF , 400 Volt DC
C2 - .02 " , 400 " "
C3 - .005 " , 400 " "
C4 - .0001 " , Mica
C5 - .02 " , 400 Volt DC
C6 - .02 " , 400 Volt DC
C7 - .005 " , " " "
C8 - .05 " , " " "
E5 - 5 Mf , 25 Volt Elec.
E10- 10 Mf ,150 " "
L1 - Antenna Coil
L2 - RF Coil



IF PEAK 456 KC



The frequency range covered is 540-1750 kilocycles.

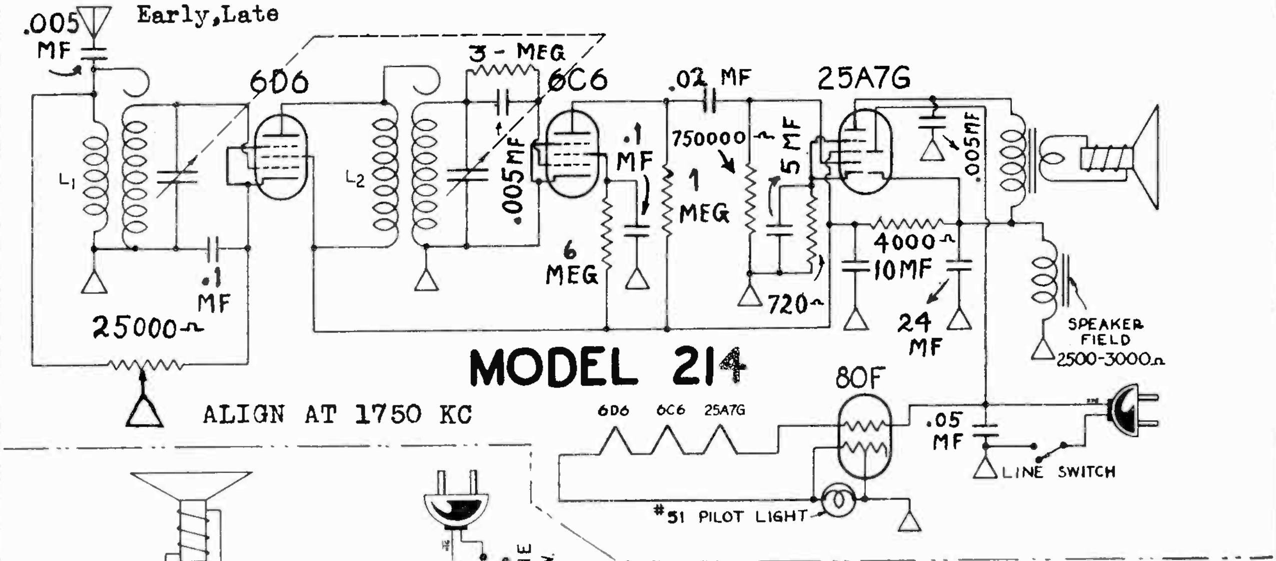
MODELS 710 and 715

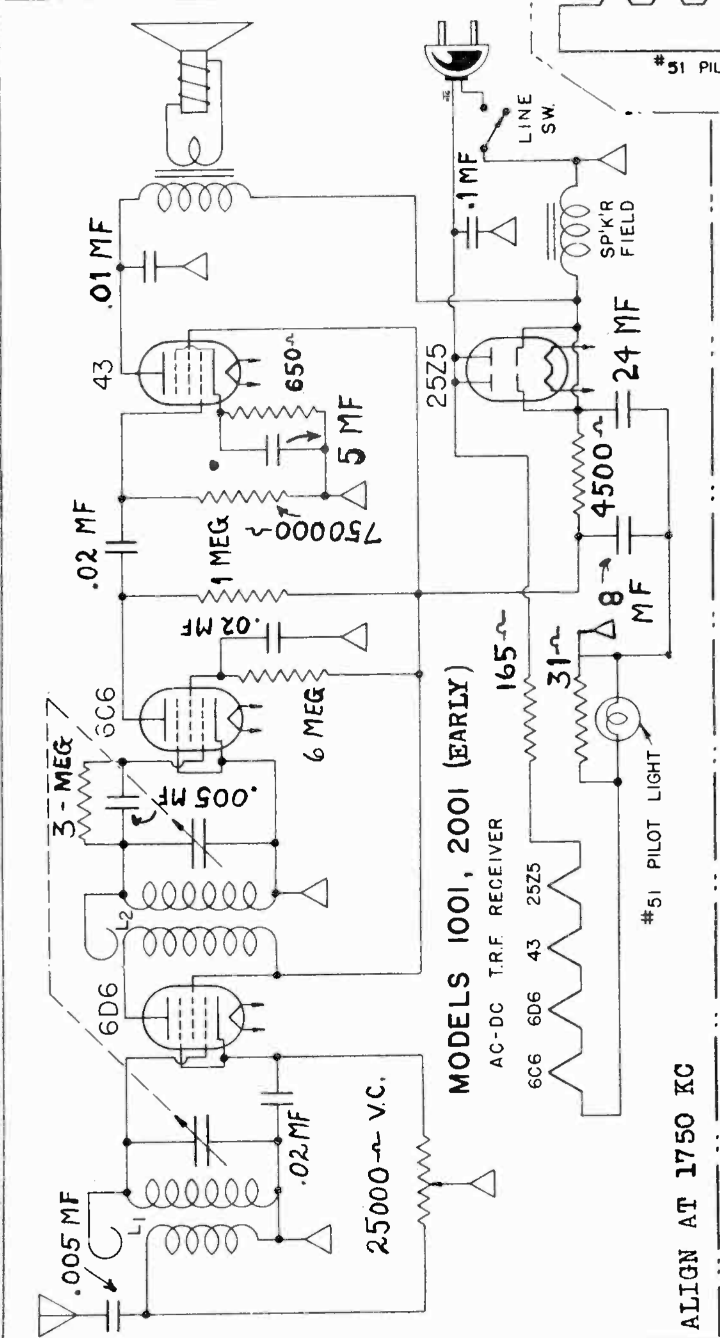
R1 - 7,500 Ohm Vol. Cont
R2 - 50,000 " 1/4 Watt
R3 - 35,000 " " "
R4 - 6,000,000 " " "
R5 - 6,000,000 " " "
R7 - 2,700 " " "
R8 - 1,000,000 " " "
R9 - 500,000 " " "
R10- 650 " 1/2 "
R11- 4,500 " " "
C1 - .005 MF , 400 Volt DC
C2 - .1 MF , 200 " "
C3 - .0001 " , MICA
C4 - .02 " , 400 Volt DC
C5 - .005 " , 400 " "
C6 - .00025 MF, Mica
C7 - .02 MF , 400 Volt DC
C8 - .02 " , 400 " "
C9 - .005 " , 400 " "
C10- .1 " , 200 " "
L1- Ant. Coil ; L2- Osc.Coil
L3- input IF ; L4-Output IF
E5- 5 MF, 25 Volt Electro.
E10-10 MF, 150 Volt "
E24-24 MF, 150 " "

MODEL 214
MODELS 1001,2001 Early,Late

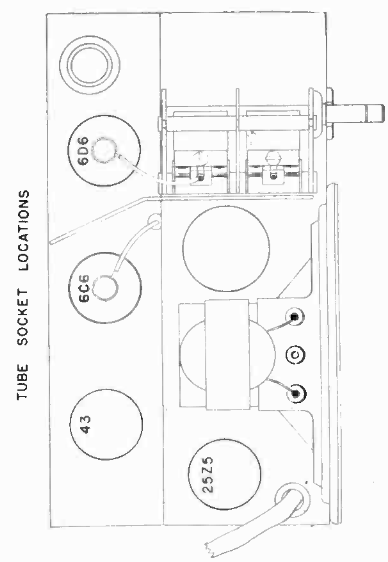
AIR KING PRODUCTS CORP.

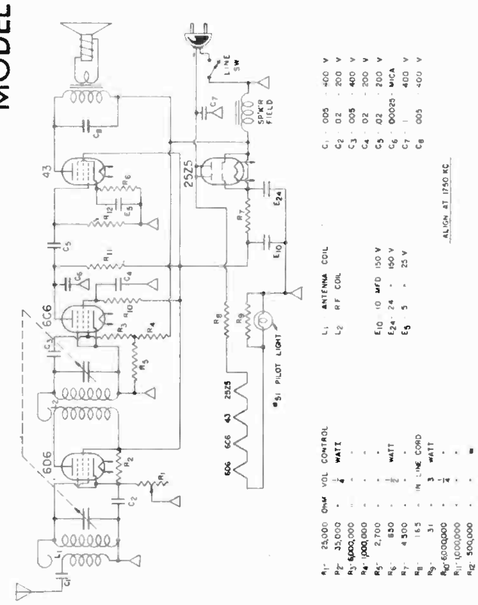
Schematics, Socket





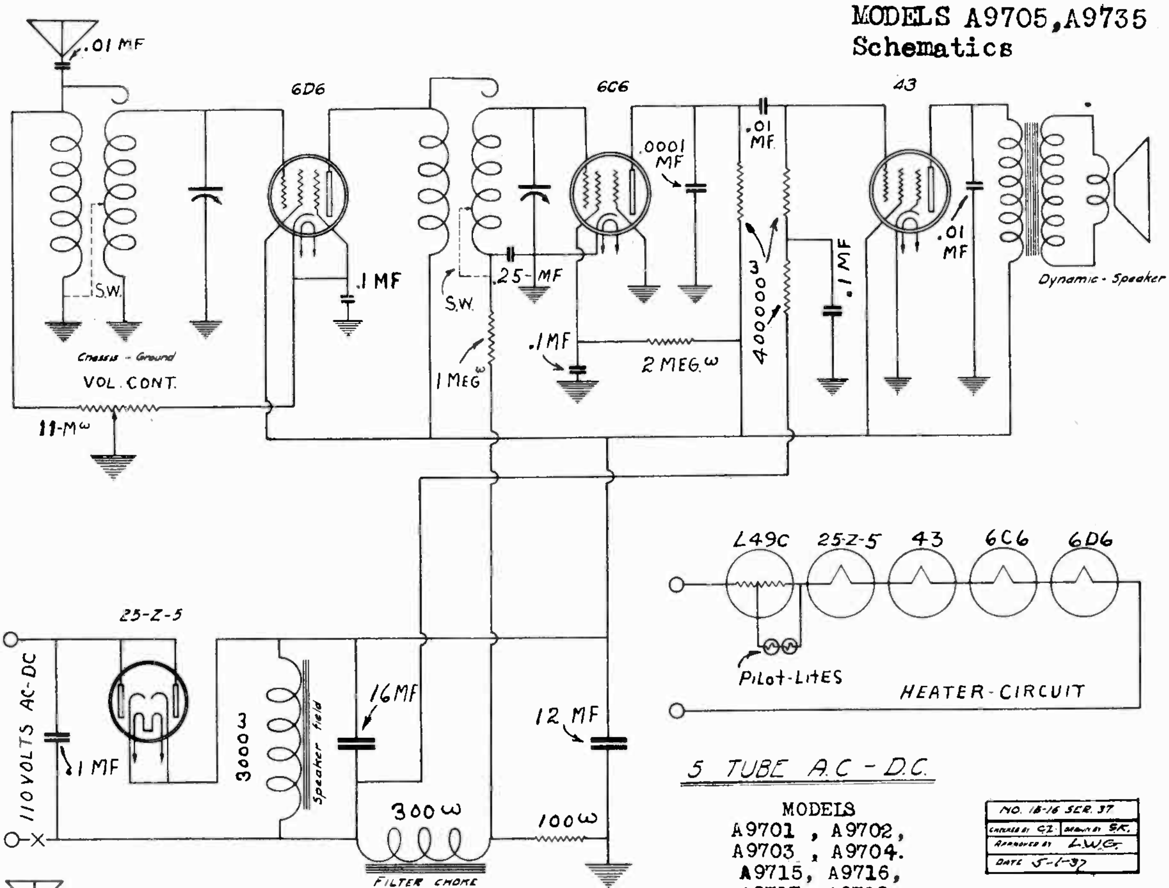
MODEL No. 1001, 2001 (REVISED)





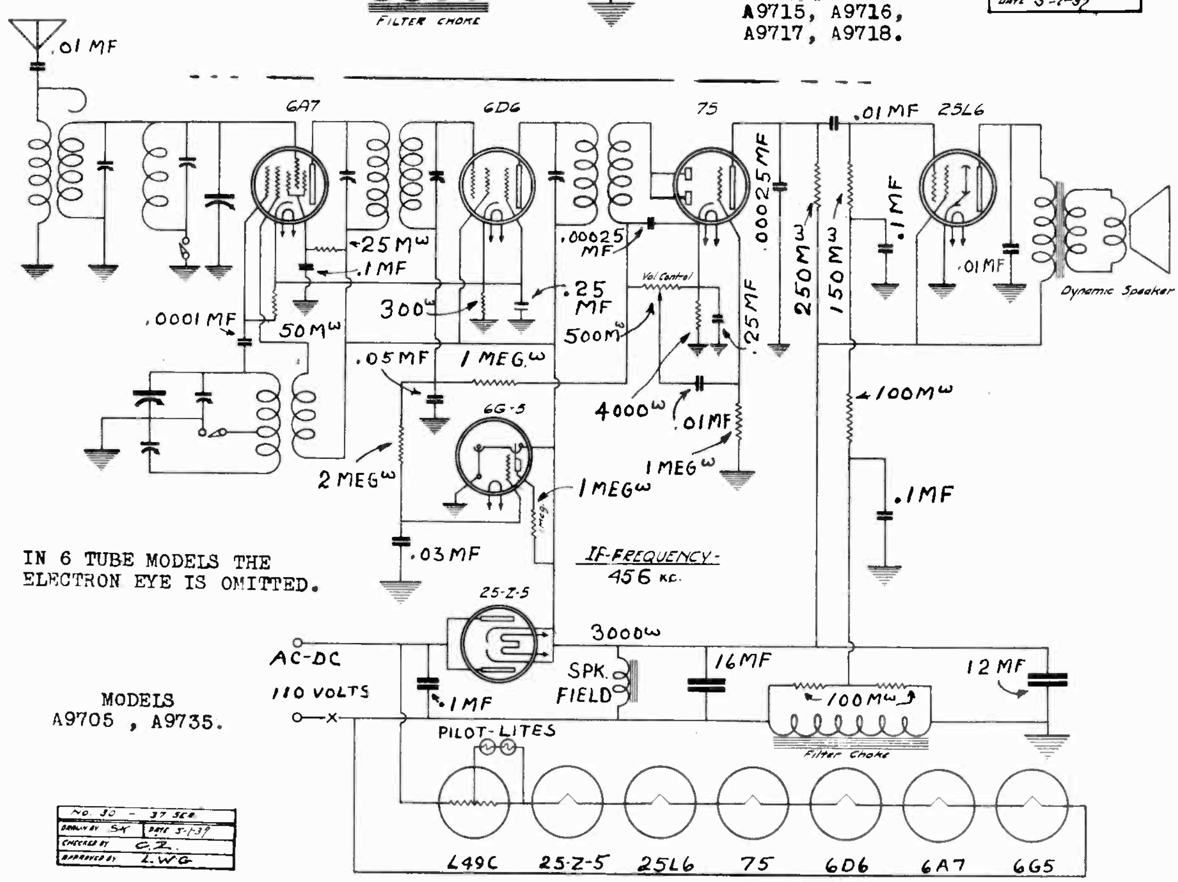
ALLIED RADIO CORP.

MODELS A9701, A9702, A9703, A9704, A9715, A9716, A9717, A9718
MODELS A9705, A9735
Schematics



5 TUBE A.C - D.C.

MODELS
A9701 , A9702,
A9703 , A9704.
A9715, A9716,
A9717, A9718.

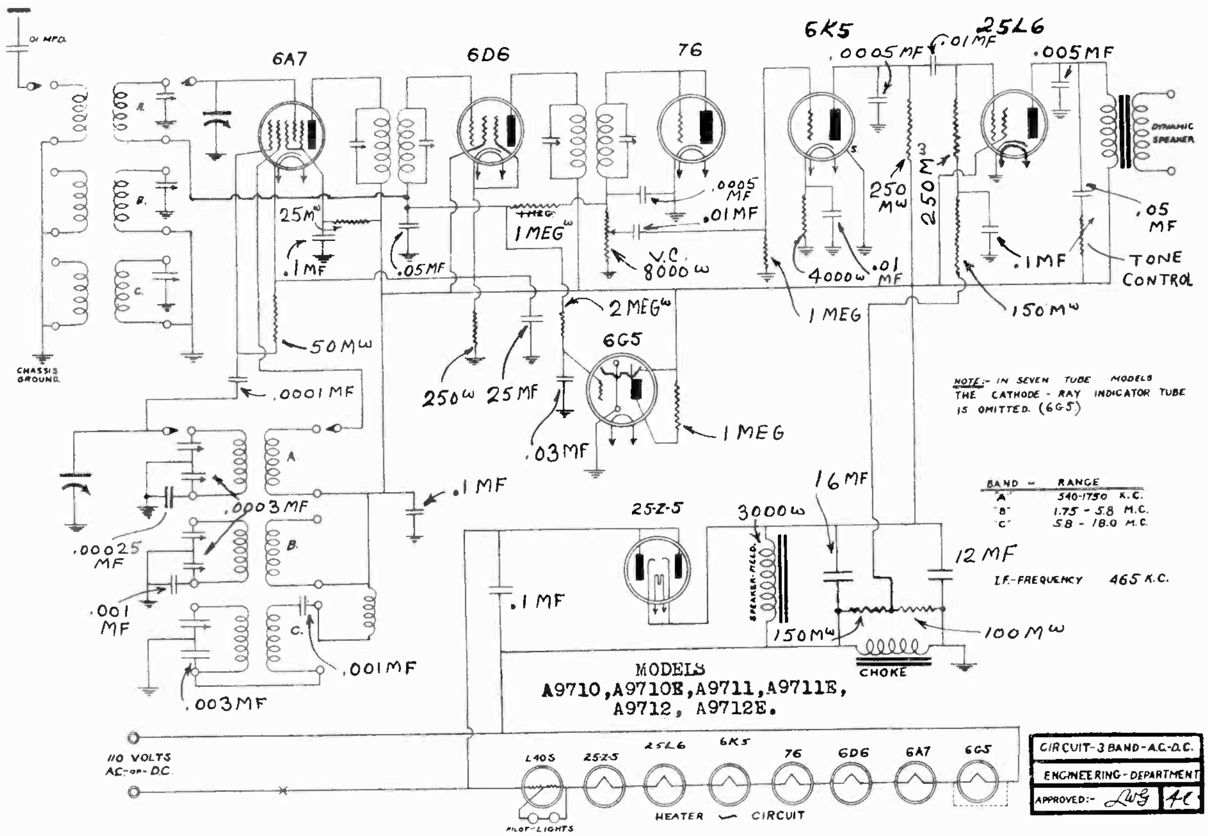


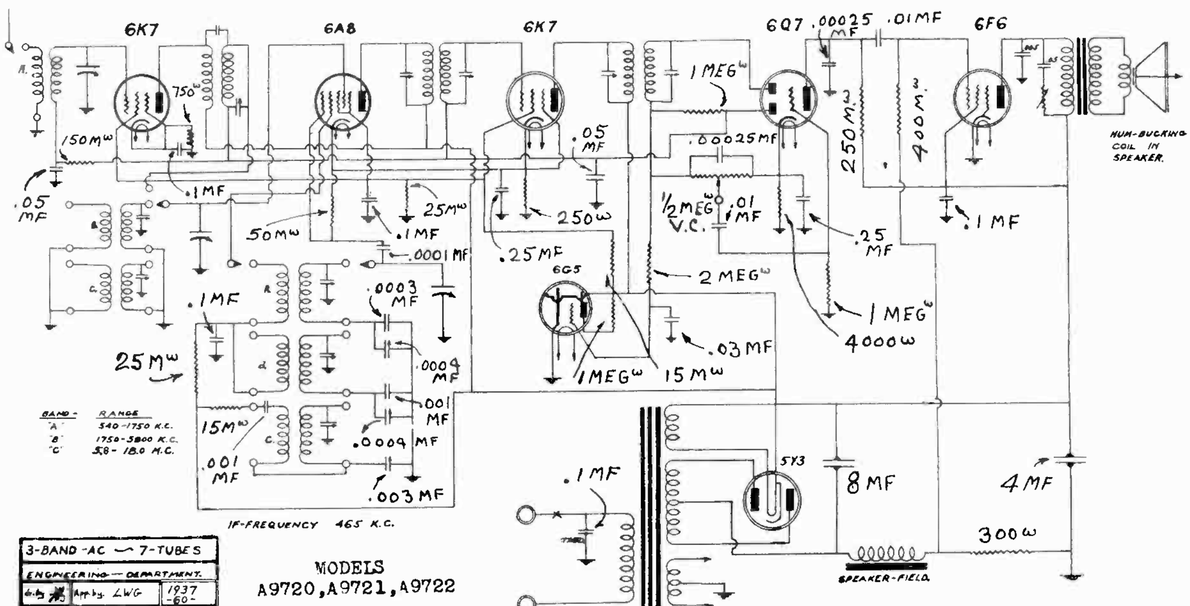
IN 6 TUBE MODELS THE ELECTRON EYE IS OMITTED.

MODELS
A9705 , A9735.

MODELS A9710,A9711,A9711E
A9712,A9712E
MODELS A9720,A9721,A9722
Schematics

ALLIED RADIO CORP.



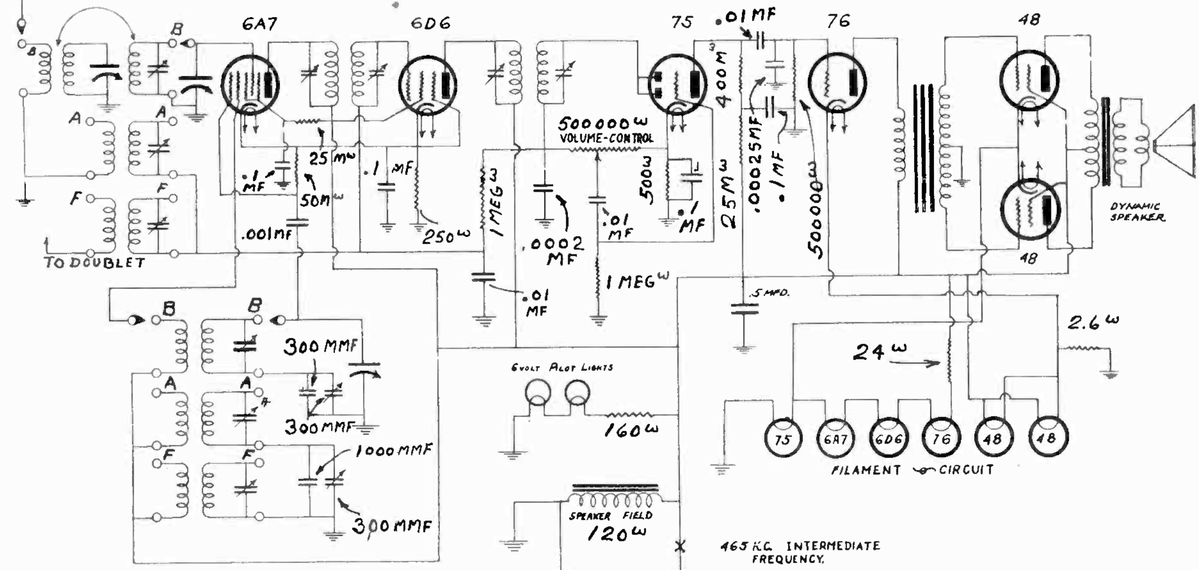


ALLIED RADIO CORP.

MODELS A9724, A9725, A9726, A9813
MODELS A9728, A9729, A9730
Schematics

ALL-WAVE THREE BAND

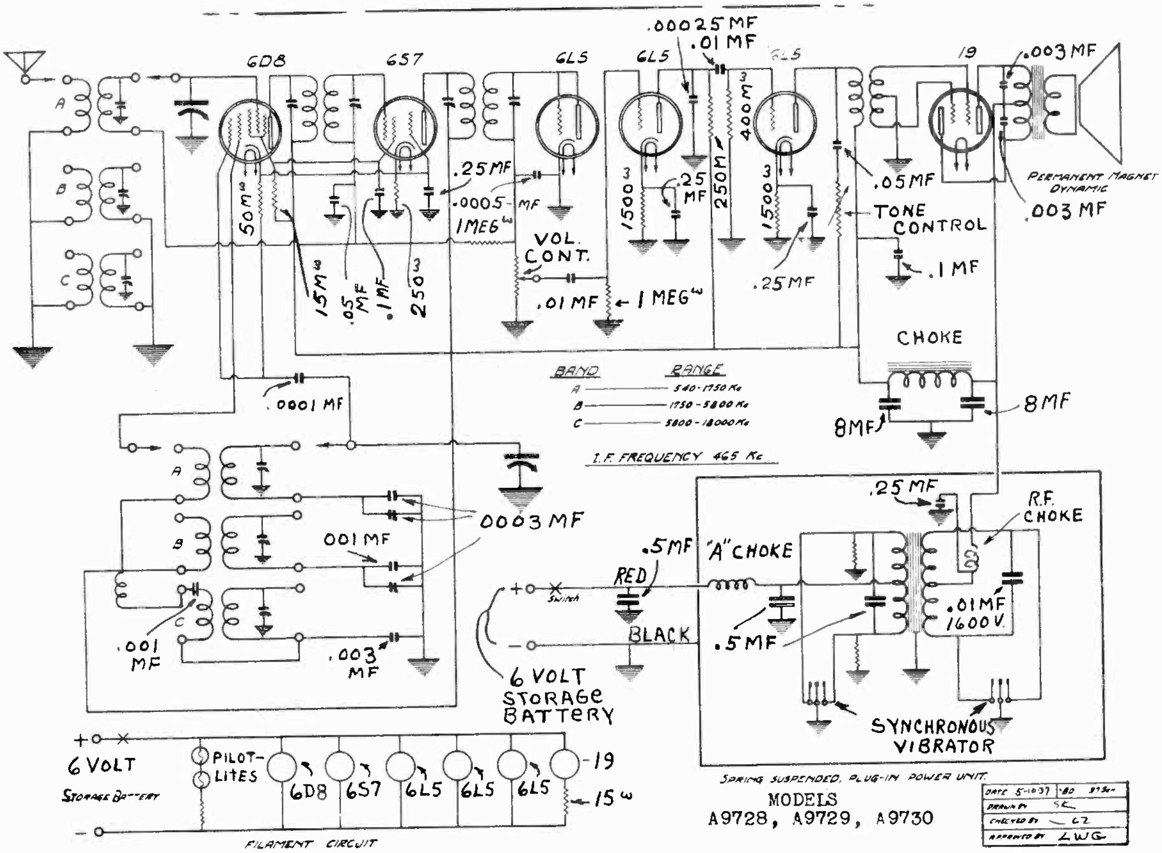
6 • TUBE • 32 • VOLT • SUPERHET



BAND	FREQUENCY RANGE
'B' BROADCAST	540 KC. – 1710 K.C.
'A' AMATEUR	1700 KC. – 5500 K.C.
'F' FOREIGN	5.5 MEG. – 16.5 MEGACYCLES

MODELS
A9724, A9725, A9726
MODEL A9813

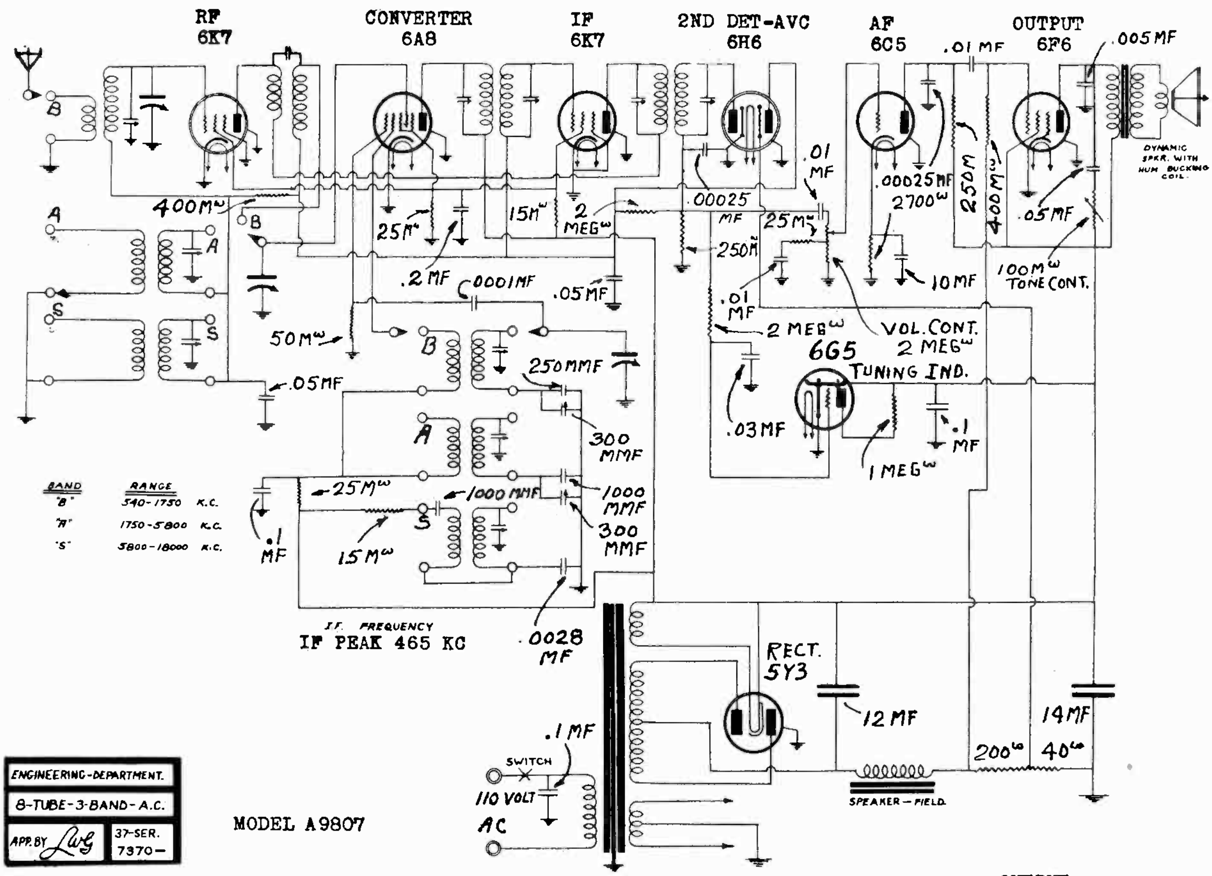
ENGINEERING DEPARTMENT



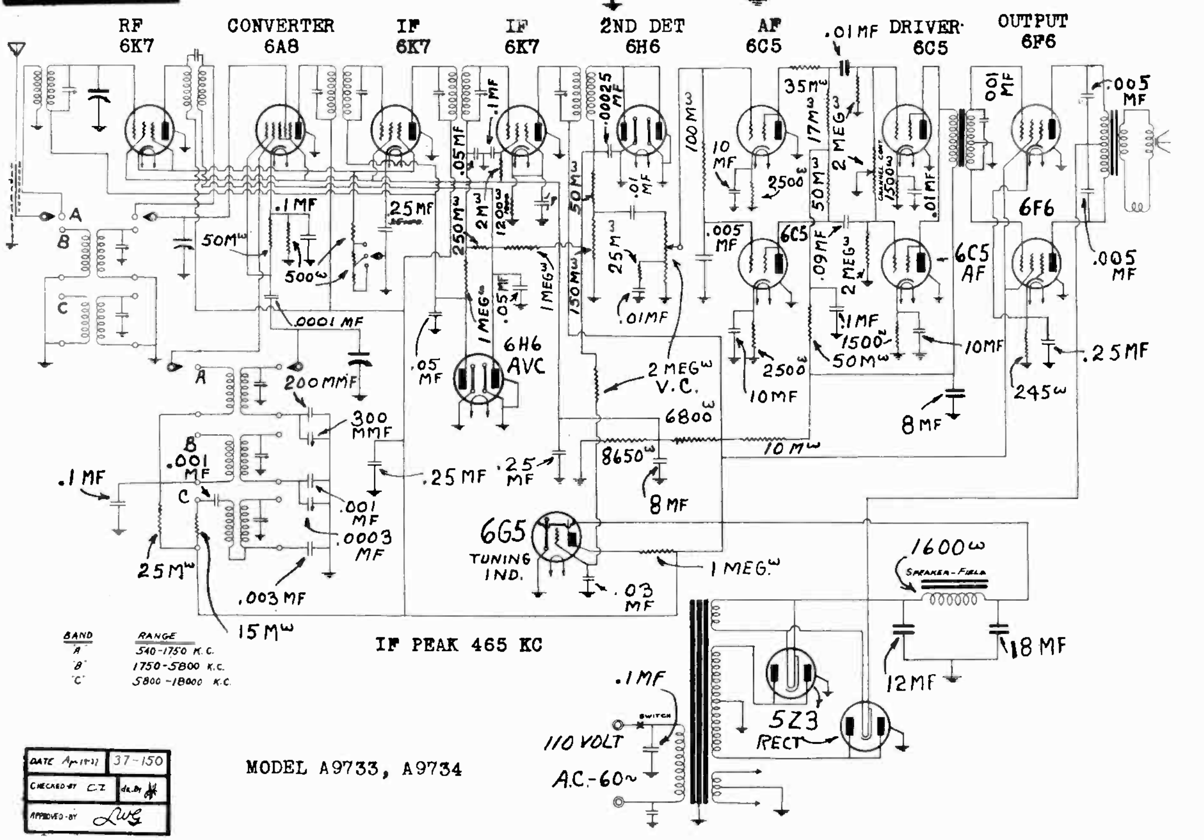
MODELS
A9728, A9729, A9730

MODELS A9733, A9734
MODEL A9807
Schematics

ALLIED RADIO CORP.



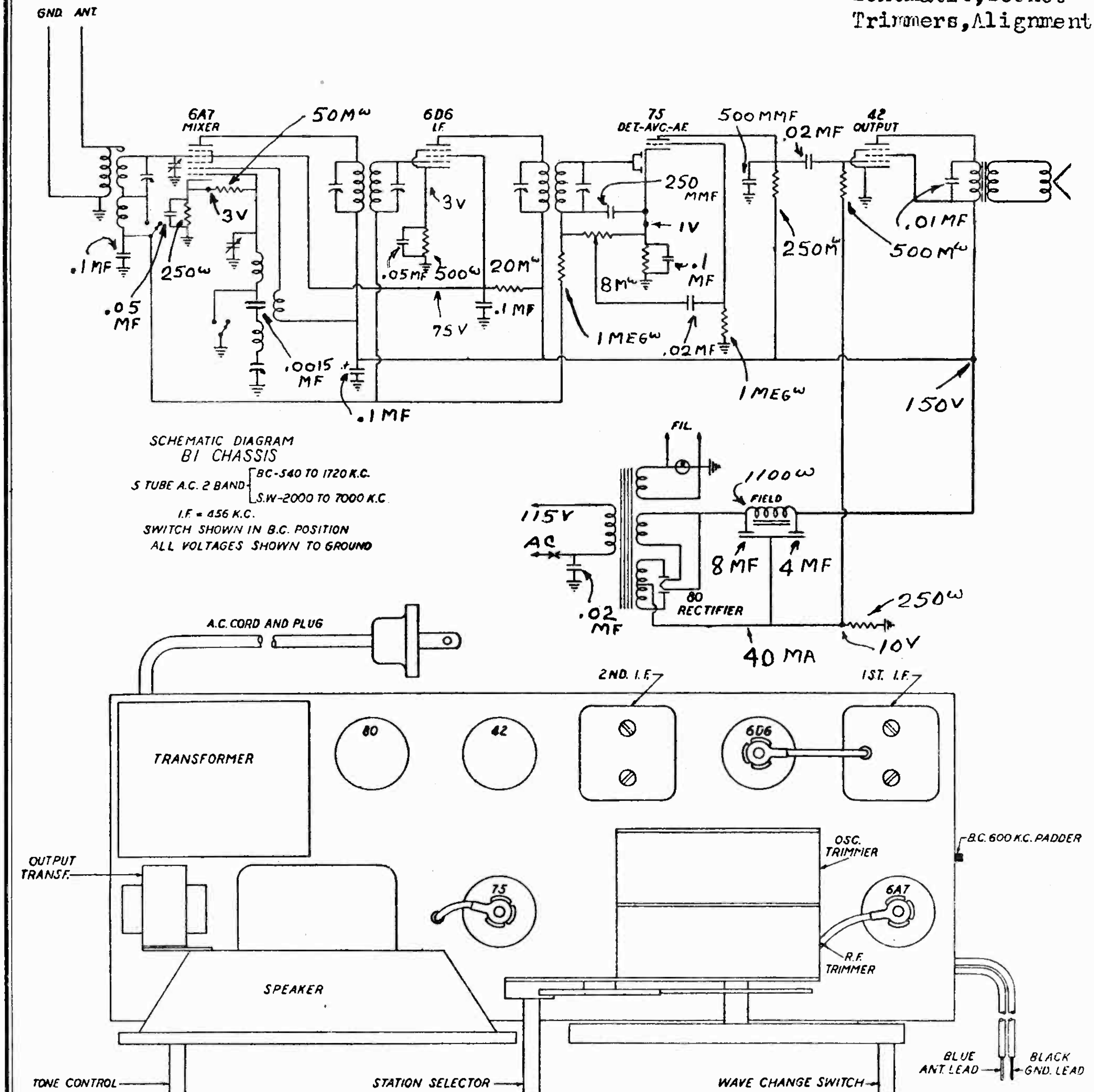
MODEL A9807



MODEL A9733, A9734

MODELS A9775,A9860
Chassis B1
Schematic,Socket
Trimmers,Alignment

ALLIED RADIO CORP.

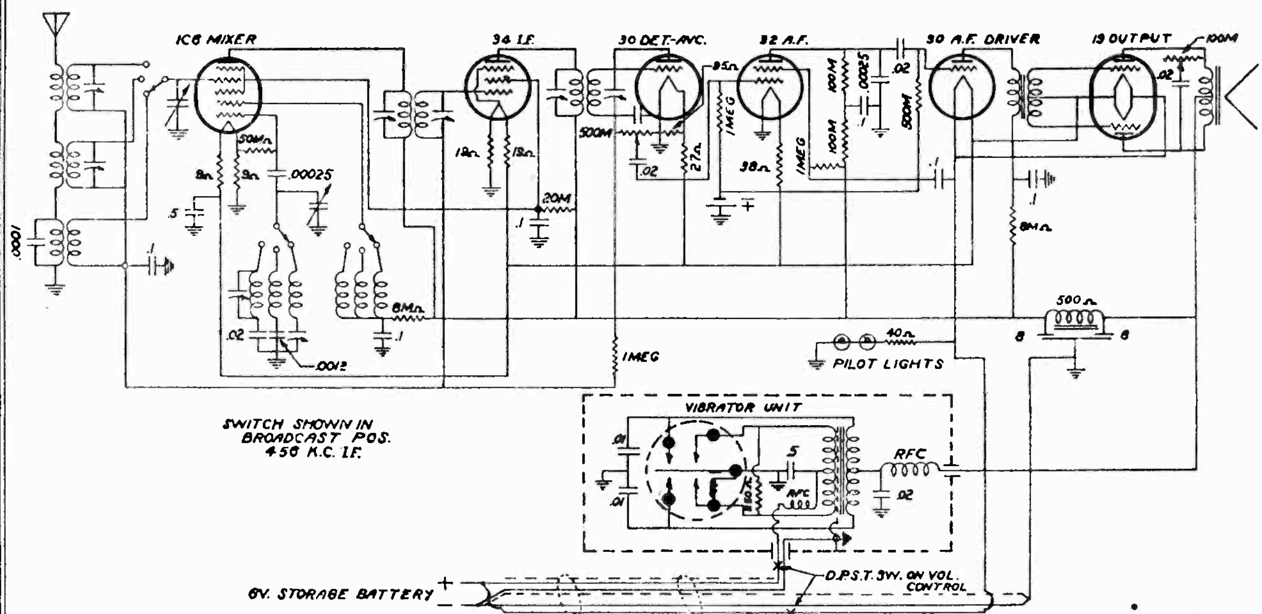


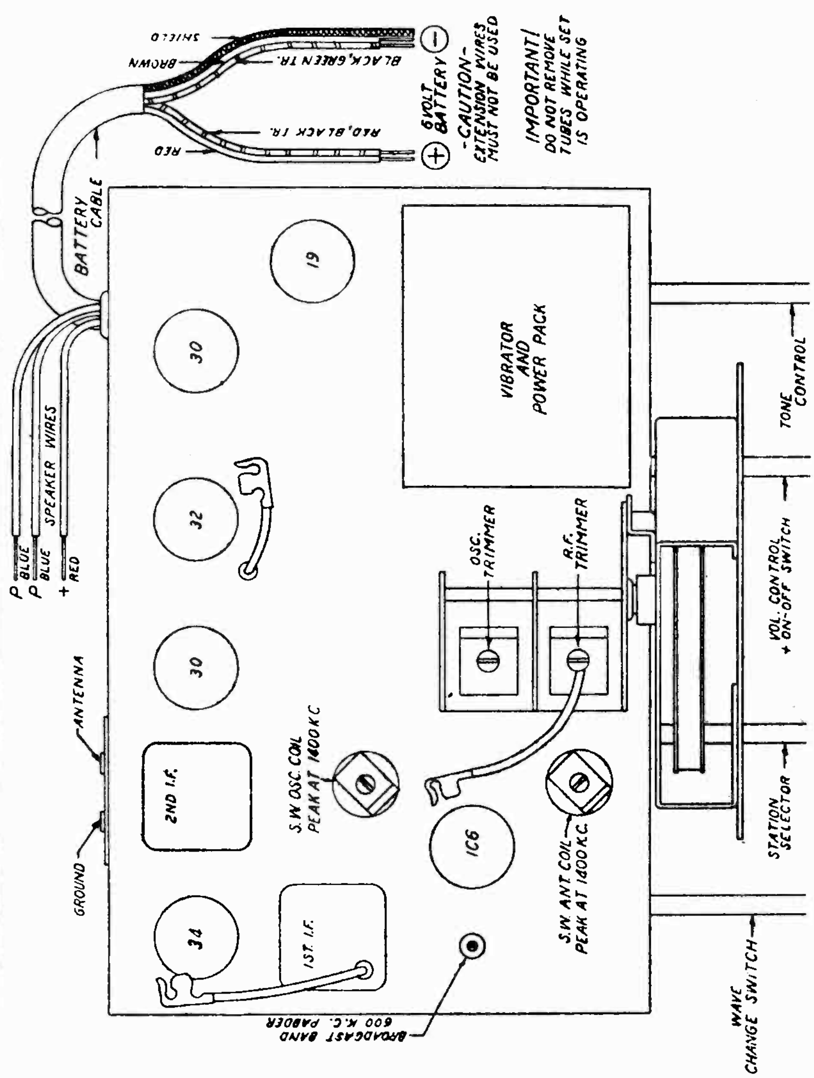
ALIGNMENT

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 Max. Peak.
BROADCAST BAND - Connect the Generator to the antenna of receiver through a 1000MMFD 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 gang condenser during the adjustment.
SHORT WAVE BAND - Set Receiver and Generator to 6000 KC. Range switch in SW position. Adjust SW antenna trimmer for maximum peak. No padding adjustment is required on this band.

MODELS A9776,A9777,A9778
Chassis Z5
Schematic,Socket,Trimmers
Alignment

ALLIED RADIO CORP.





ALIGNMENT

IF ALIGNMENT - Wave change switch on B.C. position. Gen. connected to grid of 1C6 thru .05 MFD condenser. Align four trimmer condensers.

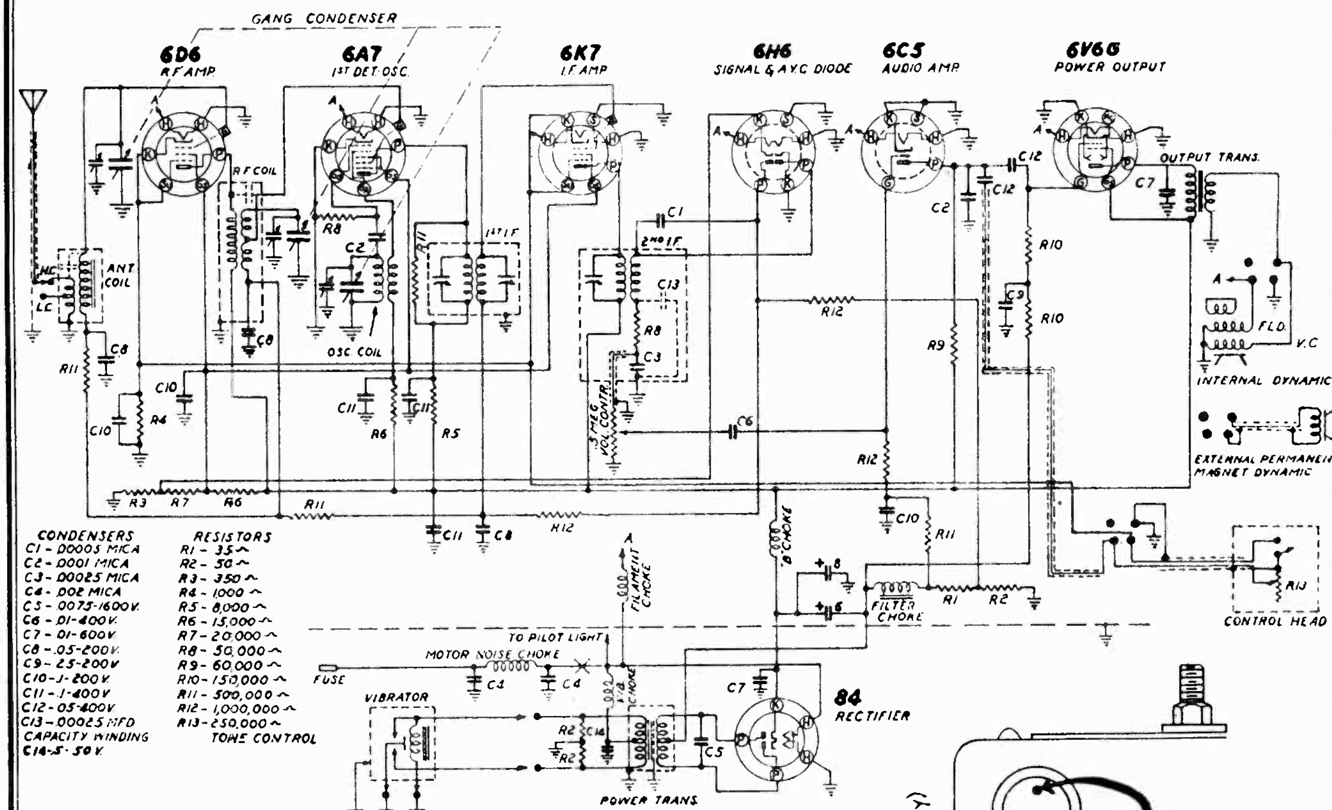
BROADCAST - Connect Gen. to Ant. lead thru 100 MMFD cond. Set Gen. and receiver dial to 1400 KC, adj. rear gang cond. trimmer to peak. Then adj. front trimmer to maximum peak. Generator and receiver set to 600 KC, rock variable condenser, and pad oscillator for maximum peak.

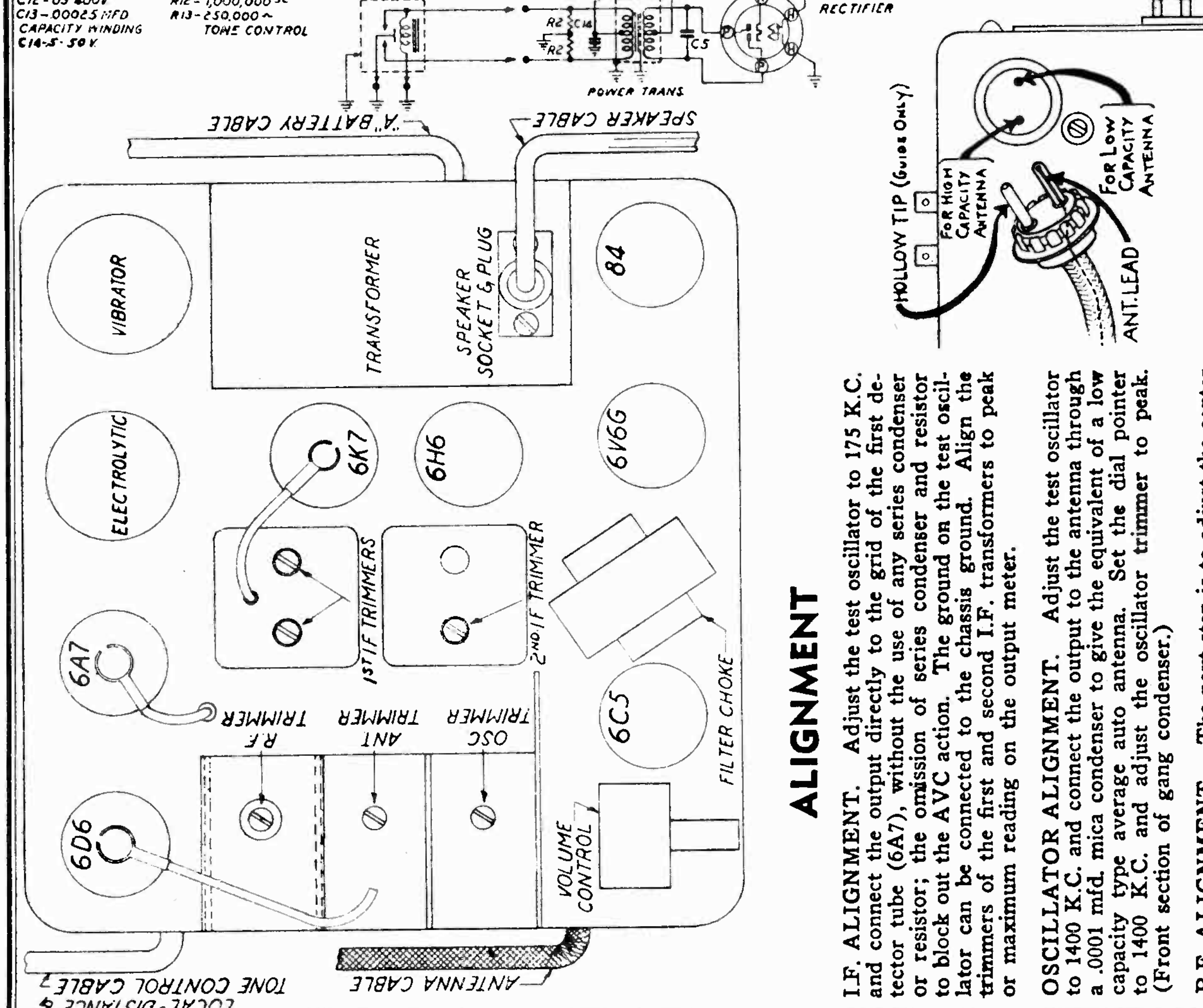
POLICE - Set dial to 4000 KC, also Gen., connect Gen. to Ant. of set thru 100 MMFD cond. and 400 ohms resistance in series. Adj. Police Ant. trimmer to maximum peak. No other adjustment provided on this band.

FOREIGN S.W. - Connect Gen. as in Police adjustment. Set Gen. and receiver to 14000 KC. Peak S.W. Oscillator and then S.W. RF trimmers to maximum signal. To make adjustments have Osc. trimmer loose (all way) and Ant. trimmer tight (all way in). Check- re-adjust dial to 13100 KC, for image, if properly aligned, image will be weaker.

MODELS A9782,A9783
Chassis B7
Schematic,Socket
Trimmers,Alignment

ALLIED RADIO CORP.





ALIGNMENT

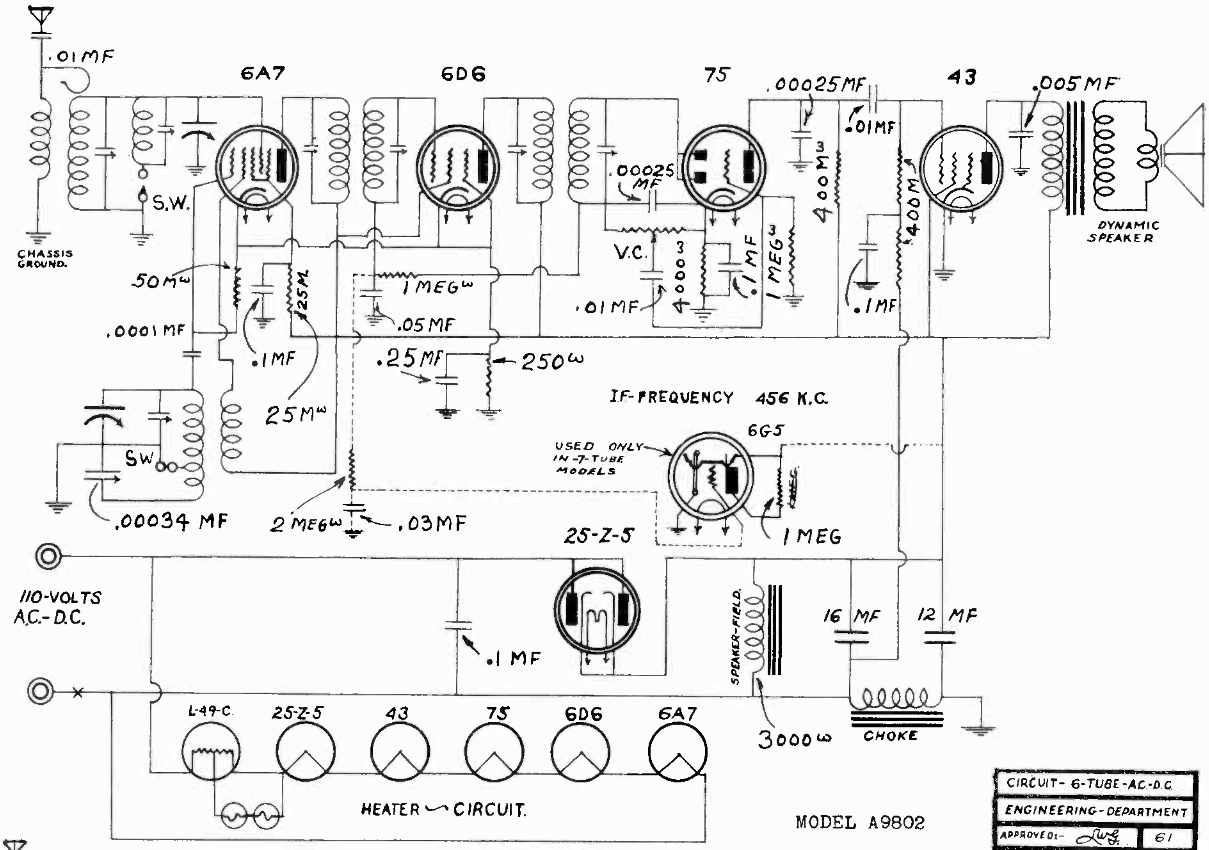
I.F. ALIGNMENT. Adjust the test oscillator to 175 K.C. and connect the output directly to the grid of the first detector tube (6A7), without the use of any series condenser or resistor; the omission of series condenser and resistor to block out the AVC action. The ground on the test oscillator can be 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 .0001 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.)

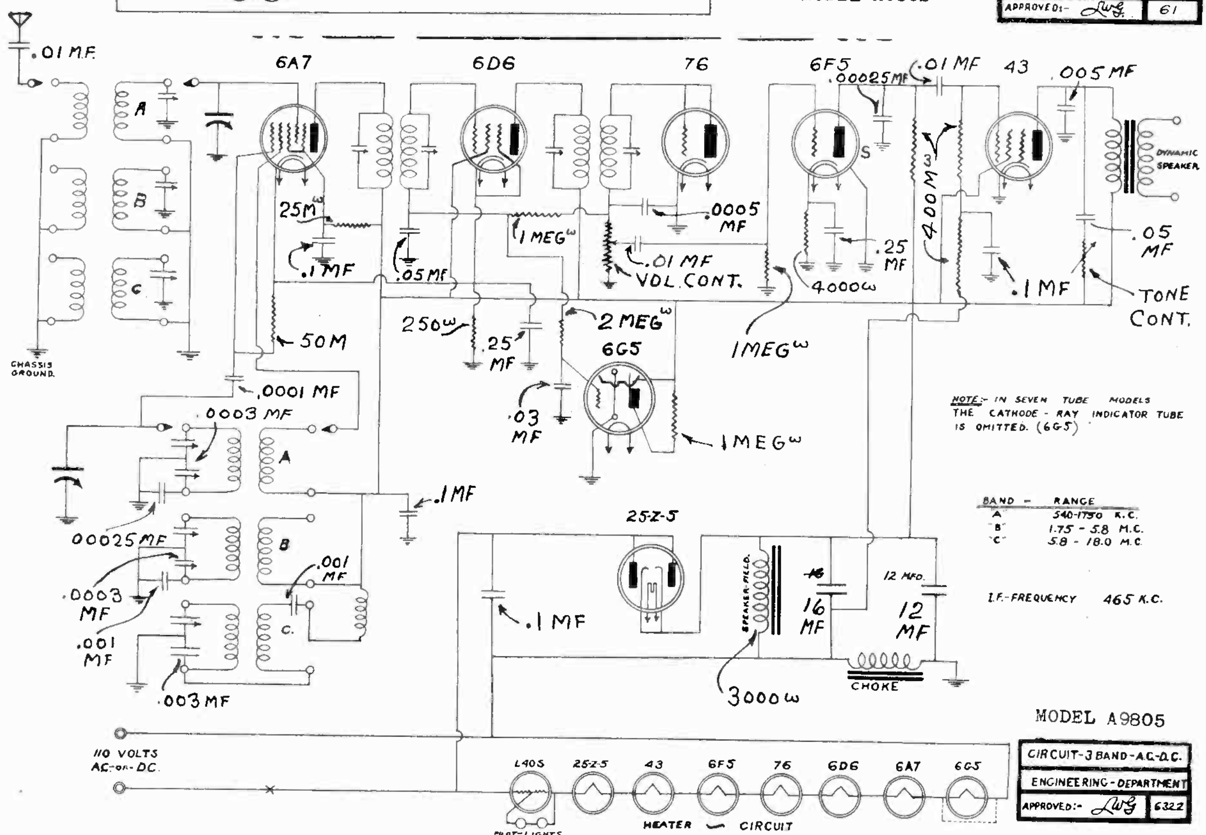
R.F. ALIGNMENT. The next step is to adjust the center and rear trimmers of the gang condenser to peak. The center section of the gang condenser tunes the antenna amplifier stage (6D6 tube), and the rear condenser section tunes the detector grid coil of the 6A7 tube.

MODEL A9802
MODEL A9805
Schematics

ALLIED RADIO CORP.



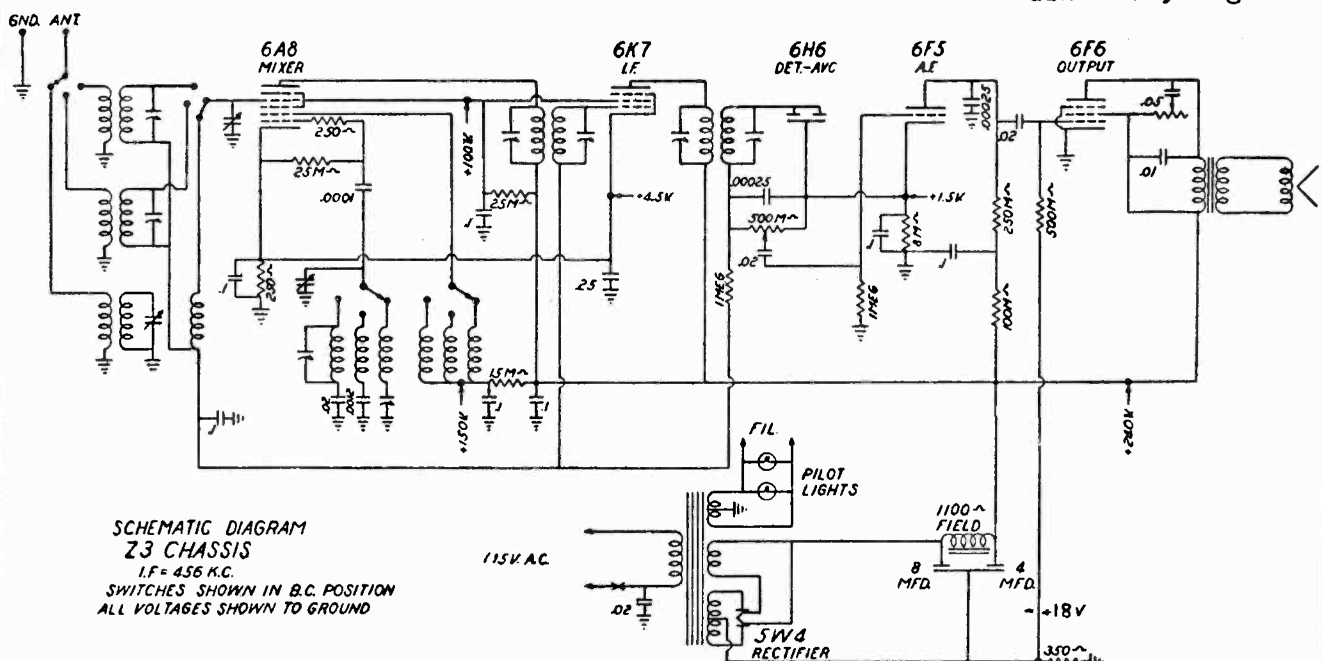
MODEL A9802

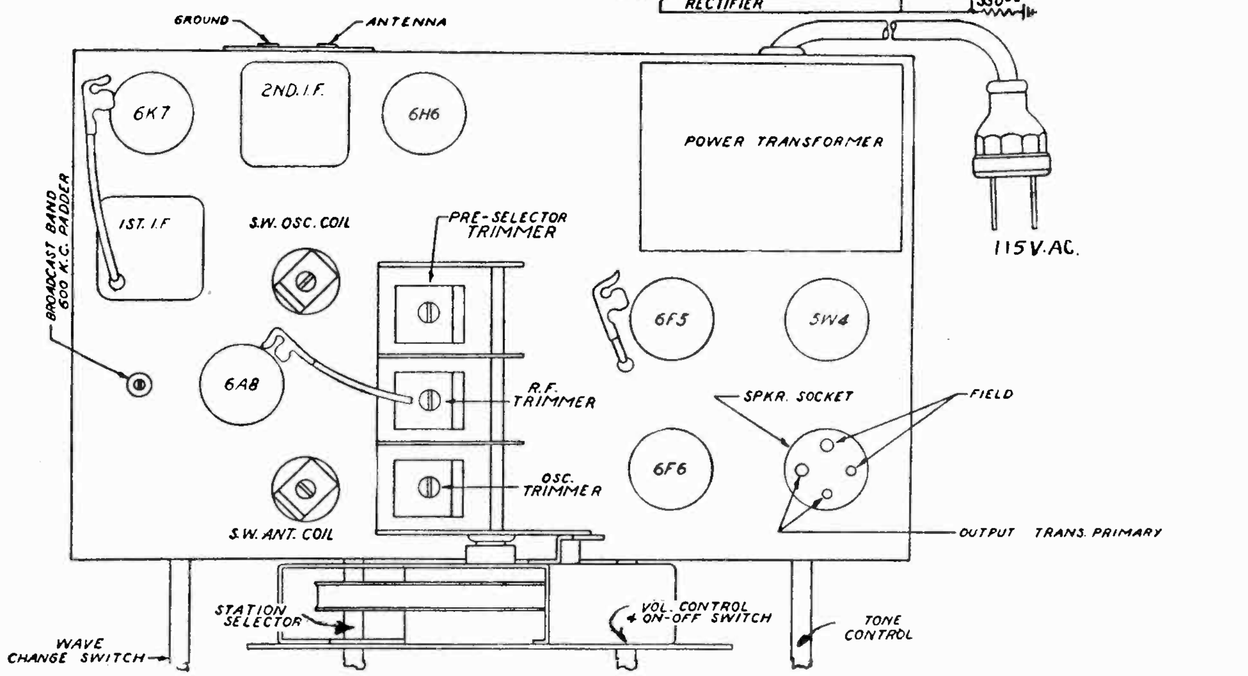


MODEL A9805

ALLIED RADIO CORP.

MODEL A9870
Chassis Z3
Schematic, Socket
Trimmers, Alignment





ALIGNMENT DATA

IF ALIGNMENT - Wave change switch in BC position. Generator connected to grid of 6A8 thru a .05 MFD condenser. trim IF trimmers to maximum peak.

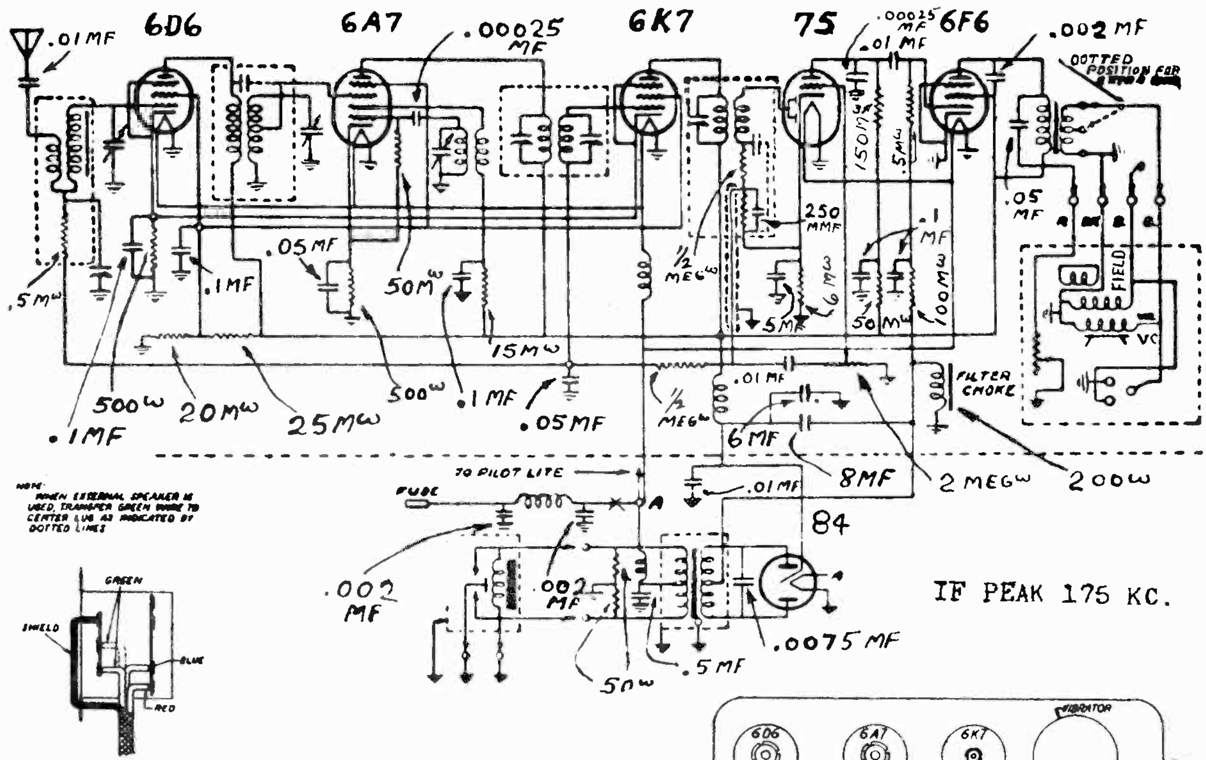
BROADCAST - Connect Generator to ANT lead thru 100 MMFD condenser. Receiver and Generator set to 1400 KC, adjust Oscillator trimmer to peak, then ANT trimmer. Pad the oscillator circuit at 600 KC while rocking variable condenser.

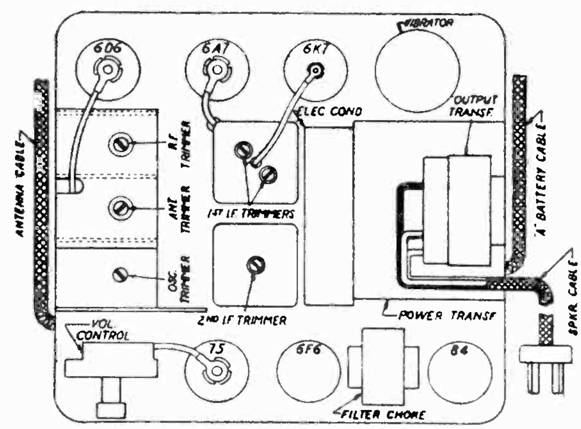
POLICE - Replace the 100 MMFD condenser with 100 MMFD condenser in series with a 400 ohm resistor and connect generator to ANT lead. Generator and receiver set at 4000 KC, adjust oscillator trimmer and then ANT trimmer (POLICE) to maximum peak. No padding adjustment provided in oscillator circuit.

FOREIGN - Set generator and receiver to 14000 KC, adjust oscillator trimmer and Foreign ANT trimmer to peak. Readjust receiver to 13100 KC, generator still at 14000 KC, and check the image frequency response which should be weaker. Adjustments should be started with the oscillator trimmer loose and the Antenna tight.

MODEL A9880
Chassis U6
Schematic, Socket
Trimmers, Alignment

ALLIED RADIO CORP.





ALIGNMENT DATA AND SERVICING

GENERAL DATA The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 175, 600 and 1400 K.C., and an output meter to be connected across the primary or secondary of the output transformer. If possible, all alignment 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.) transformers should be aligned properly as the first step.

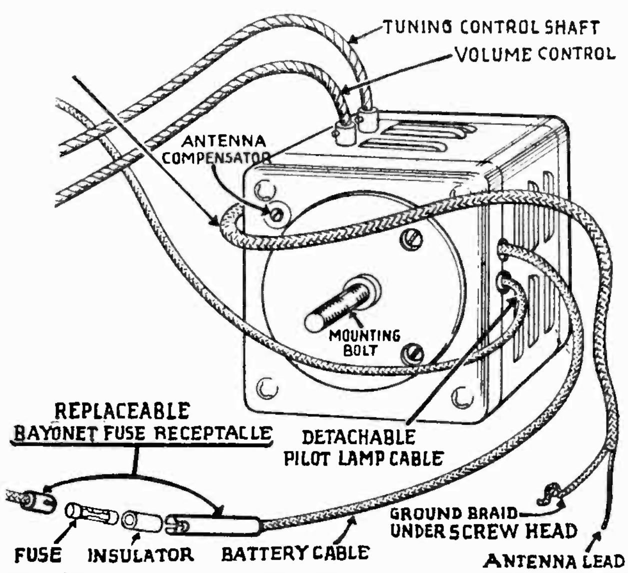
I.F. ALIGNMENT Adjust the test oscillator to 175 K.C. and connect the output directly to the grid of the first detector tube (6A7), without the use of any series condenser or resistor; the omission of series condenser and resistor to block out the AVC action. The ground on the test oscillator can be 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 .0001 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 R.F. antenna amplifier stage (6D6 tube), and the rear condenser section tunes the detector grid coil of the 6A7 tube.

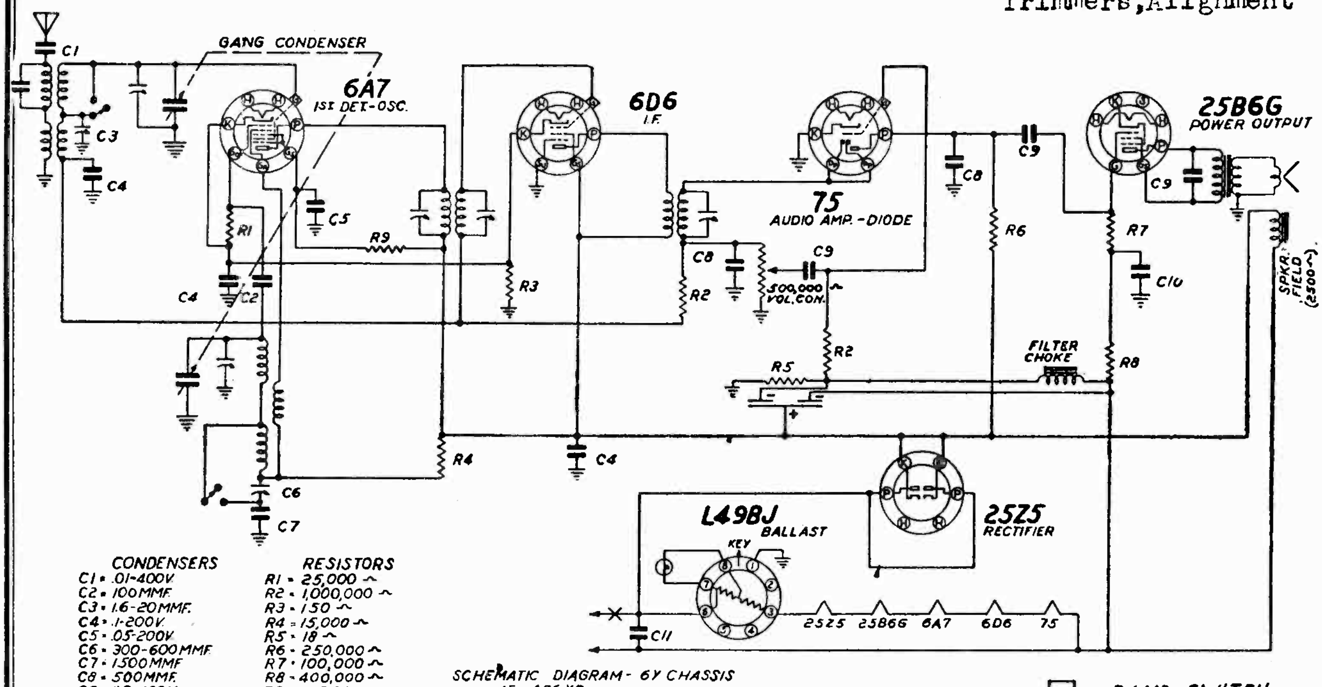
LOW FREQUENCY PADDING Next, reset the dial pointer on the control head and the test oscillator to 600 K.C., adjust the antenna compensator condenser to peak. This adjustment is best reached from the bottom of the chassis and the location of the condenser will be found near the volume control.

The adjustment of the antenna compensator should again be gone over after the auto set has been again installed in the car, to compensate for the difference that may exist in the capacity of the car antenna and the .0001 mfd. capacitor used with the test oscillator.



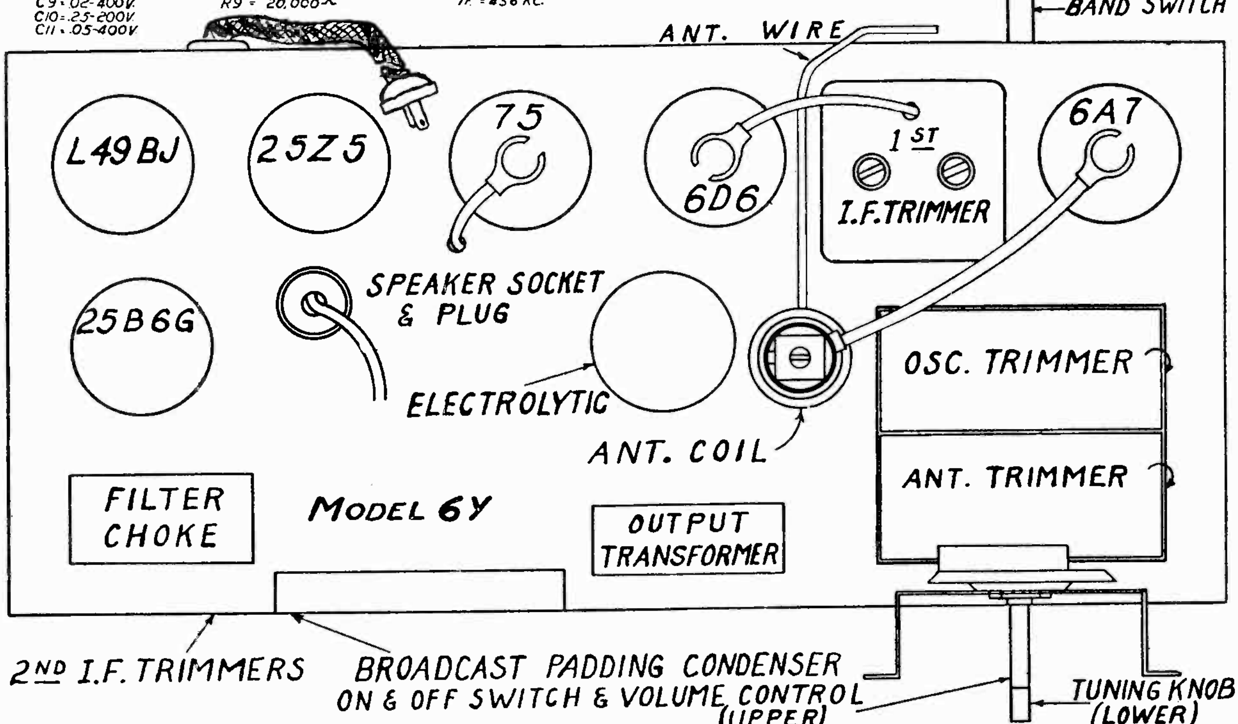
ALLIED RADIO CORP.

MODELS A10502,A10503
Chassis 6Y
Schematic,Socket
Trimmers,Alignment



SCHEMATIC DIAGRAM - 6Y CHASSIS
I.F. = 456 KC.

CONDENSERS	RESISTORS
C1 - .01-400V.	R1 - 25,000 ~
C2 - 100MMF.	R2 - 1,000,000 ~
C3 - 1.6-20MMF.	R3 - 150 ~
C4 - .1-200V.	R4 - 15,000 ~
C5 - .05-200V.	R5 - 18 ~
C6 - 300-600MMF.	R6 - 250,000 ~
C7 - 1500MMF.	R7 - 100,000 ~
C8 - 500MMF.	R8 - 400,000 ~
C9 - .02-400V.	R9 - 20,000 ~
C10 - 25-200V.	
C11 - .05-400V.	



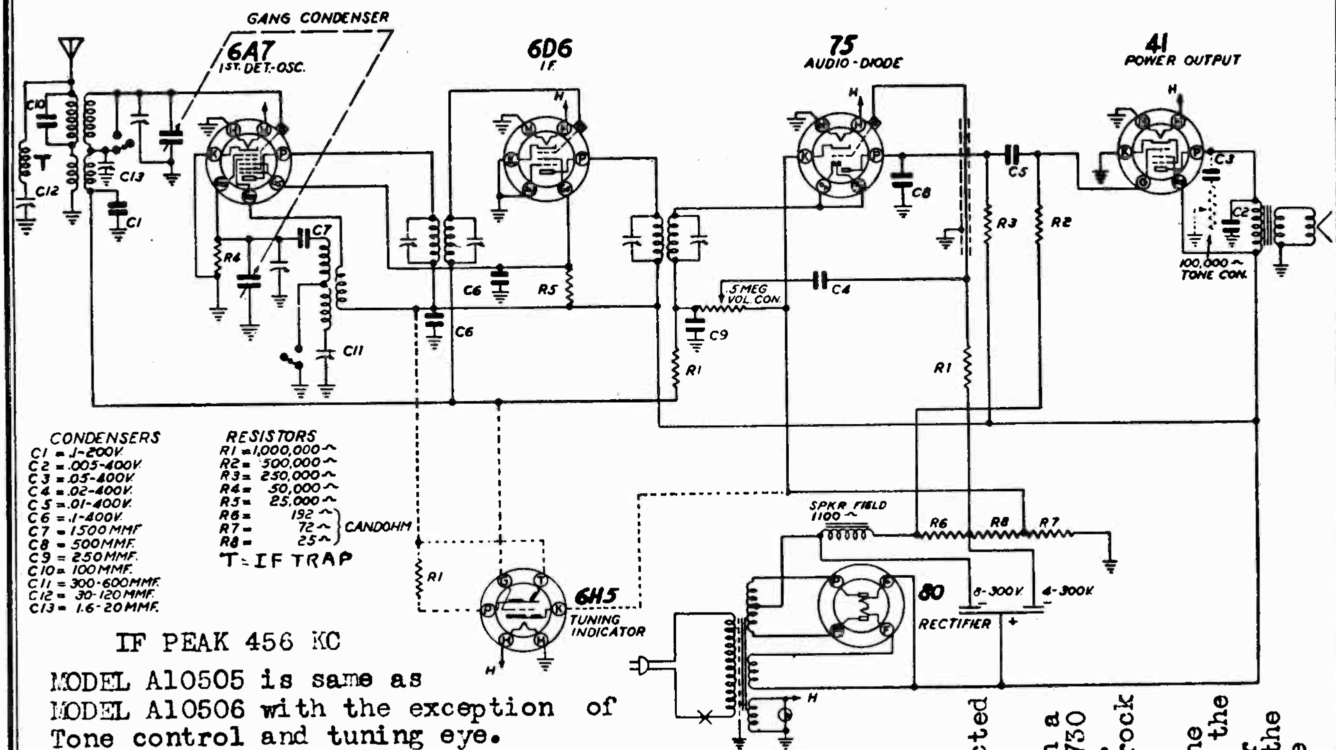
IF ALIGNMENT - Wave switch on B.C. position. Generator connected to grid of 6A7 through a .05 MFD condenser. Align four trimmers.

BROADCAST - Connect generator to antenna lead through a 100 MMFD condenser. Gang condenser at minimum. Generator set at 1730 KC and adjust oscillator trimmer to peak. Set generator at 1400 KC, adjust Antenna trimmer to peak. Generator and receiver set at 600 KC, rock gang condenser while padding oscillator to maximum peak.

SHORT WAVE - Generator set to 6000 KC, while rotating gang condenser from the high frequency end of dial until the generator signal is heard, adjust the S.W. antenna trimmer for maximum peak. Be sure to align this trimmer on the first signal heard while rotating gang condenser from high frequency end. Repeat adjustments for maximum performance of the receiver.

MODEL A10505, Chassis 5X
MODEL A10506, Chassis 6W
Schematic, Socket
Trimmers, Alignment

ALLIED RADIO CORP.



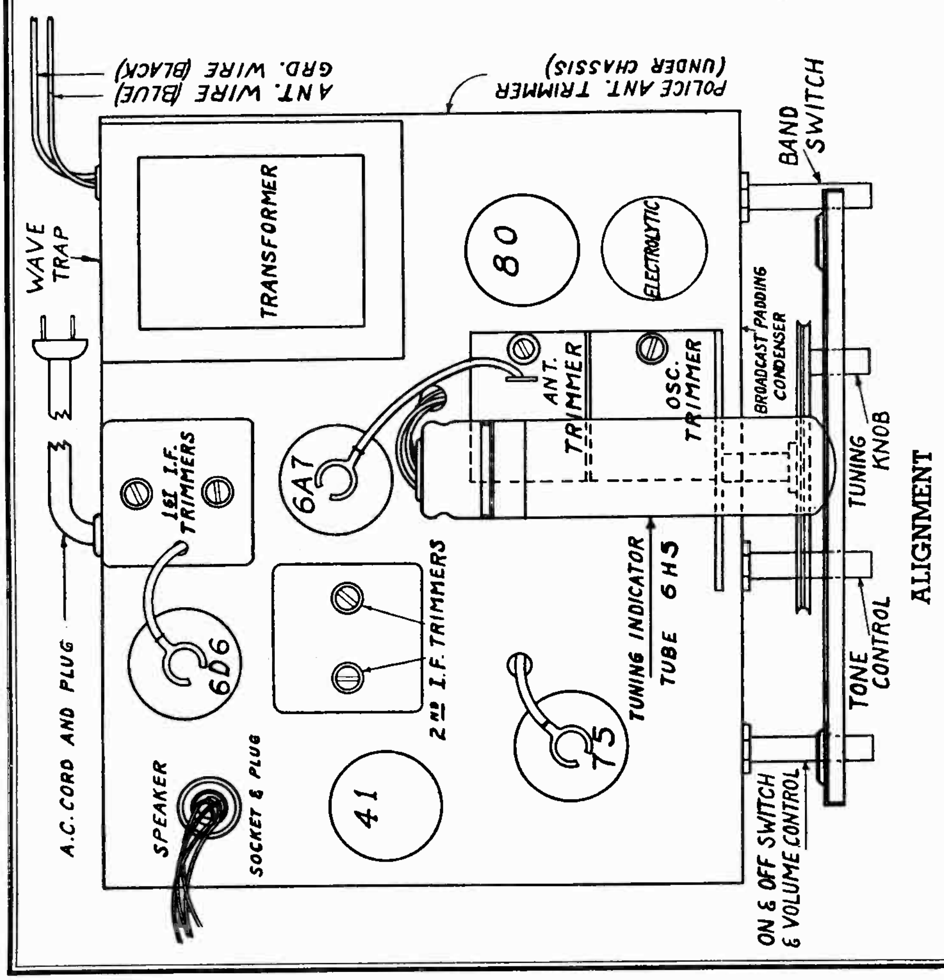
CONDENSERS
C1 = .1-200V.
C2 = .005-400V.
C3 = .05-400V.
C4 = .02-400V.
C5 = .01-400V.
C6 = .1-400V.
C7 = 1500 MMF.
C8 = 500 MMF.
C9 = 250 MMF.
C10 = 100 MMF.
C11 = 300-600 MMF.
C12 = 30-120 MMF.
C13 = 1.6-20 MMF.

RESISTORS
R1 = 1,000,000 ~
R2 = 500,000 ~
R3 = 250,000 ~
R4 = 50,000 ~
R5 = 25,000 ~
R6 = 192 ~
R7 = 72 ~
R8 = 25 ~
(R6, R7, R8) CANDOHM

T = IF TRAP

IF PEAK 456 KC

MODEL A10505 is same as MODEL A10506 with the exception of Tone control and tuning eye.



ALIGNMENT

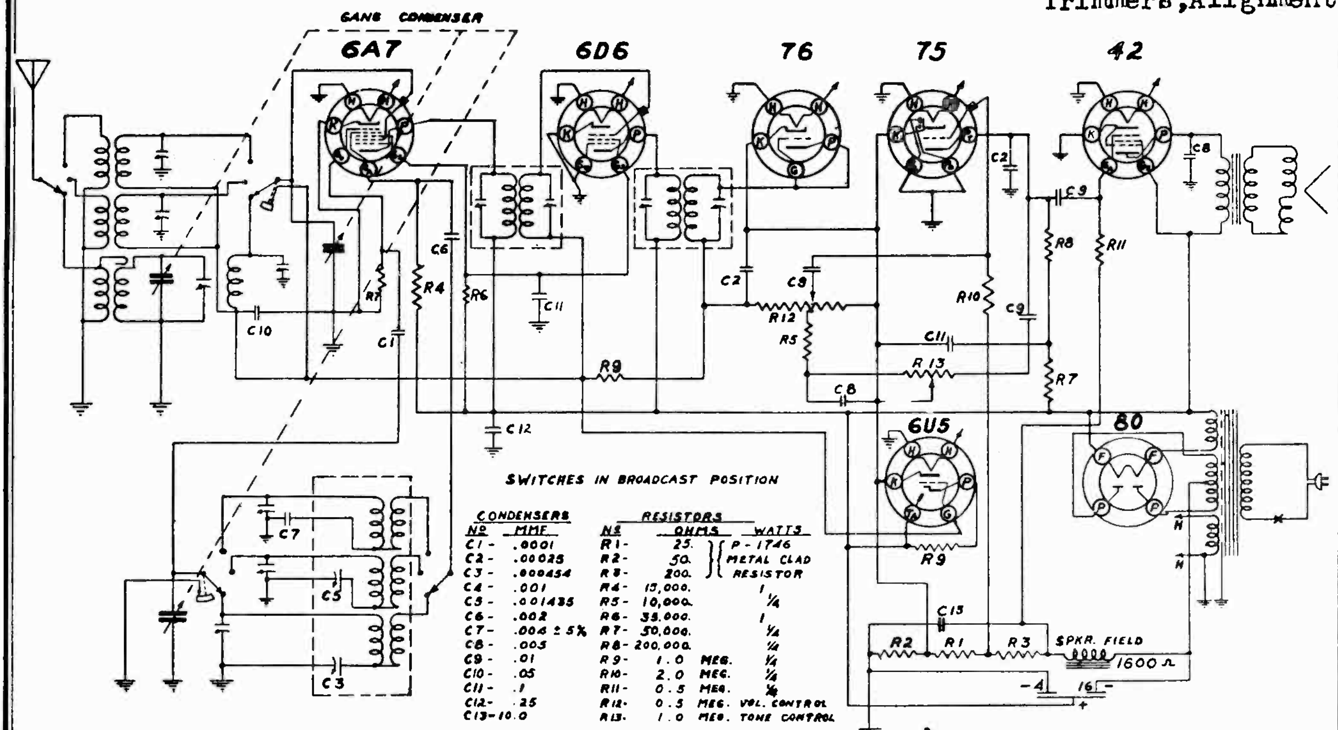
IF ALIGNMENT - Wave switch on B.C. position. Generator connected to grid of 6A7 through a .05 MFD Cond. Align four trimmers.

BROADCAST - Connect generator to the 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, adj. ANT. trimmer to peak. Generator and receiver set to 600 KC, rock gang condenser while padding Oscillator to maximum peak.

SHORT WAVE - Generator adjusted to 6000 KC, while rotating the gang condenser from the high frequency end of the dial until the generator signal is heard, adjust the S.W. ANT. trimmer (under chassis) for maximum peak. Be sure to align this trimmer on the first signal heard while rotating the gang condenser from the high frequency end of the dial. REPEAT ADJUSTMENTS.

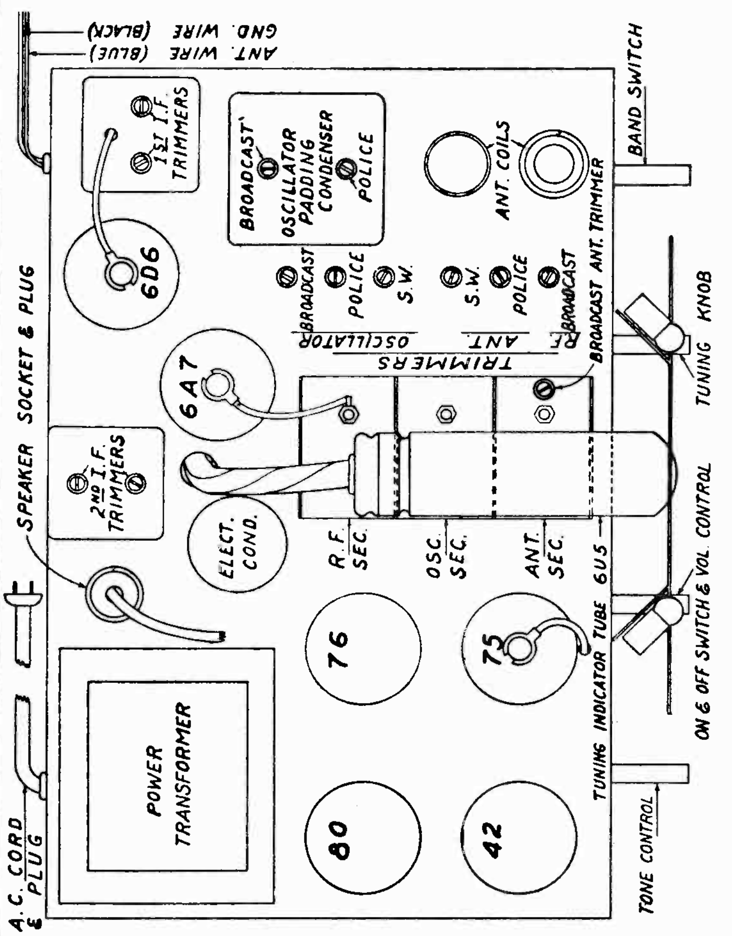
ALLIED RADIO CORP.

MODEL A10507
Chassis 7M
Schematic, Socket
Trimmers, Alignment



CONDENSERS No	MMF	RESISTORS No	OHMS	WATTS
C1-	.0001	R1-	25.	P-1746 METAL CLAD RESISTOR
C2-	.00025	R2-	50.	
C3-	.000454	R3-	200.	
C4-	.001	R4-	15,000.	1
C5-	.001435	R5-	10,000.	1/4
C6-	.002	R6-	35,000.	1
C7-	.004 ± 5%	R7-	50,000.	1/4
C8-	.005	R8-	200,000.	1/4
C9-	.01	R9-	1.0 MEG.	1/4
C10-	.05	R10-	2.0 MEG.	1/4
C11-	.1	R11-	0.5 MEG.	1/4
C12-	.25	R12-	0.5 MEG.	VOL. CONTROL
C13-	10.0	R13-	1.0 MEG.	TONE CONTROL

IF PEAK 456 KC



ALIGNMENT DATA

IF ALIGNMENT - Wave Switch on BC position. Generator connected to grid of 6A7 through .05 MFD Cond. Align 4 Trimmers to Peak.

BROADCAST - Connect Generator to Ant. lead (BLUE) through 100 MMFD condenser. Variable condenser to minimum, Generator at 1730 KC, adj. Osc. Trimmer to PEAK. Set Generator to 1400 KC, adj. ANT. Trimmer to PEAK. Generator and Receiver set to 600 KC, rock variable cond., PAD Osc. to maximum PEAK.

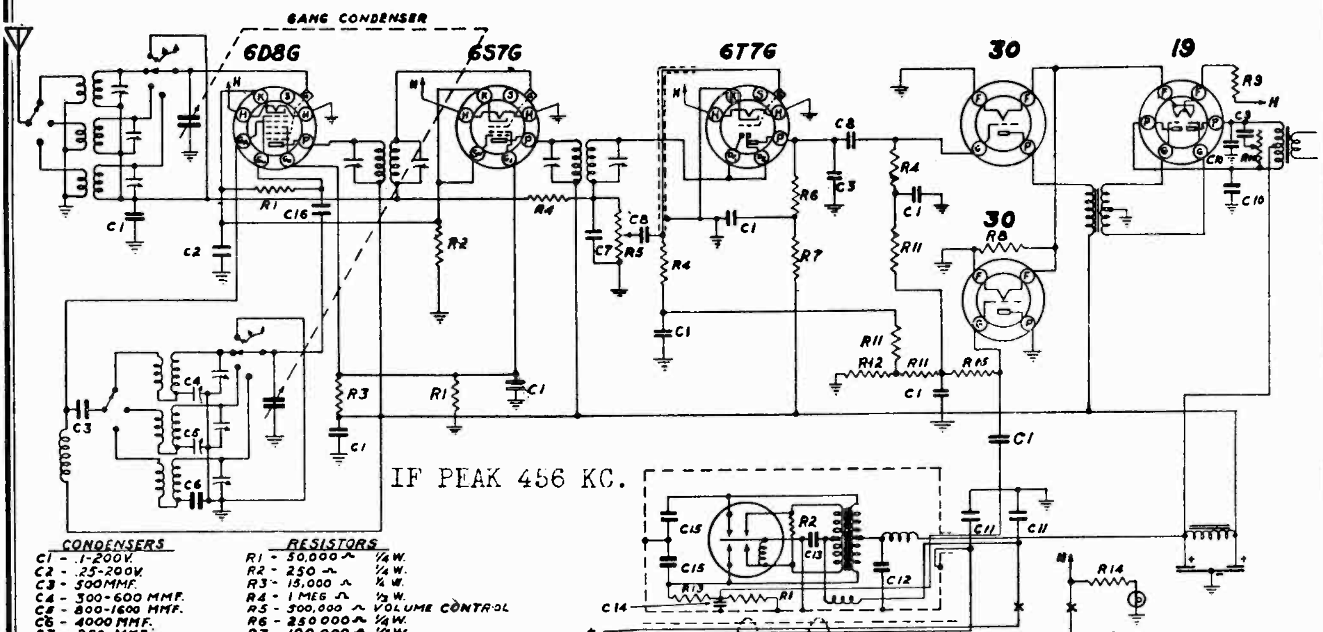
POLICE - Replace 200 MMFd Cond. with 400 ohm resistor, Variable Condenser at minimum, Generator at 5600 KC, adj. Police Osc. Trimmer to receive signal, then set Generator at 4000 KC, Adj. Police Trimmer to PEAK. Set Generator at 1800 KC, PAD Osc. with Police Padding Trimmer to peak. Rock Variable condenser.

SHORT WAVES - Variable condenser at minimum, Generator at 18100 KC, Adj. Osc. Short Wave Trimmer to PEAK. Generator to 16000 KC and adjust S.W. Ant. Trimmer to PEAK. No padding of Oscillator is provided in this range. Sensitivity should be checked at 6000 KC.

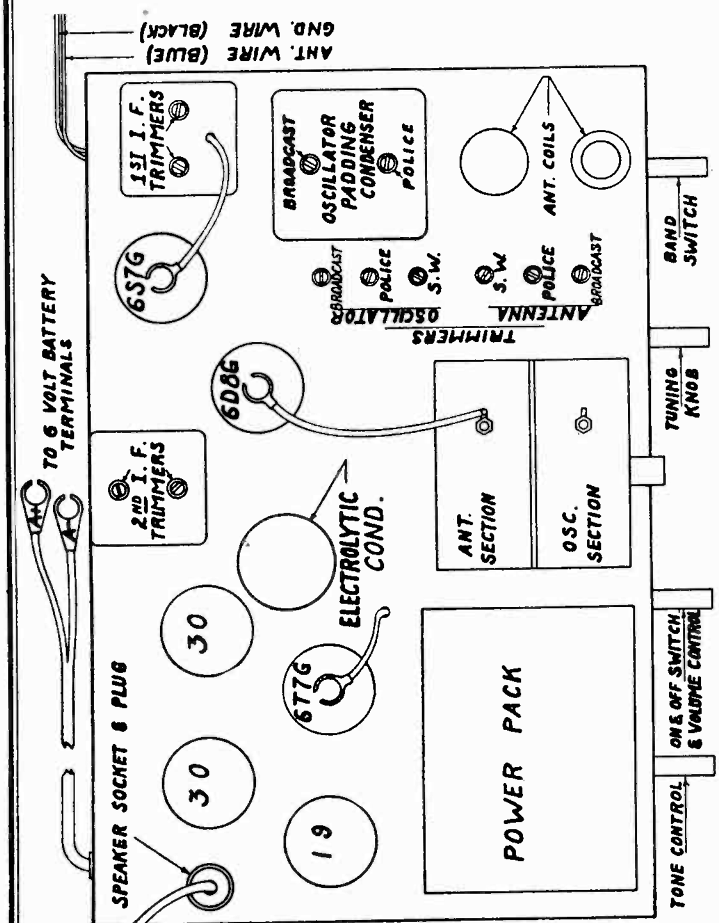
All adjustments should be repeated for maximum performance.

MODEL A10508
Chassis 6P
Schematic, Socket
Trimmers, Alignment

ALLIED RADIO CORP.



CONDENSERS	RESISTORS
C1 - .1-200V.	R1 - 50,000 Ω 1/4 W.
C2 - .25-200V.	R2 - 250 Ω 1/4 W.
C3 - 500MMF.	R3 - 15,000 Ω 1/4 W.
C4 - 300-600 MMF.	R4 - 1 MEG Ω 1/2 W.
C5 - 800-1600 MMF.	R5 - 500,000 Ω VOLUME CONTROL
C6 - 4000 MMF.	R6 - 250,000 Ω 1/4 W.
C7 - 250 MMF.	R7 - 100,000 Ω 1/4 W.
C8 - .02-400V.	R8 - 14.3 Ω ± 5%
C9 - .05-400V.	R9 - 8.1 Ω ± 5%
C10 - .002-400 V.	R10 - 100,000 Ω TONE CONTROL
C11 - .005-400 V.	R11 - 500,000 Ω 1/4 W.
C12 - .01-600 V.	R12 - 70,000 Ω 1/4 W.
C13 - .5-10 V.	R13 - 200,000 Ω 1/4 W.
C14 - .05-200 V.	R14 - 70 Ω ± 10%
C15 - .01-1000 V.	R15 - 600,000 Ω 1/4 W.
C16 - 100 MMF.	



ALIGNMENT DATA

IF ALIGNMENT - Wave switch on B.C. position. Generator connected to grid of 6D8G through .05 MFD Cond. Align 4 trimmers to peak.

BROADCAST - Connect Generator to Ant. lead (BLUE) through 200 MMFD condenser. Variable condenser to minimum, Generator set at 1730 KC , adj. Osc. trimmer to PEAK. Set Generator to 1400 KC,adj. ANT. trimmer to PEAK. Generator and receiver to 600 KC, rock the variable cond., PAD Oscillator to maximum PEAK.

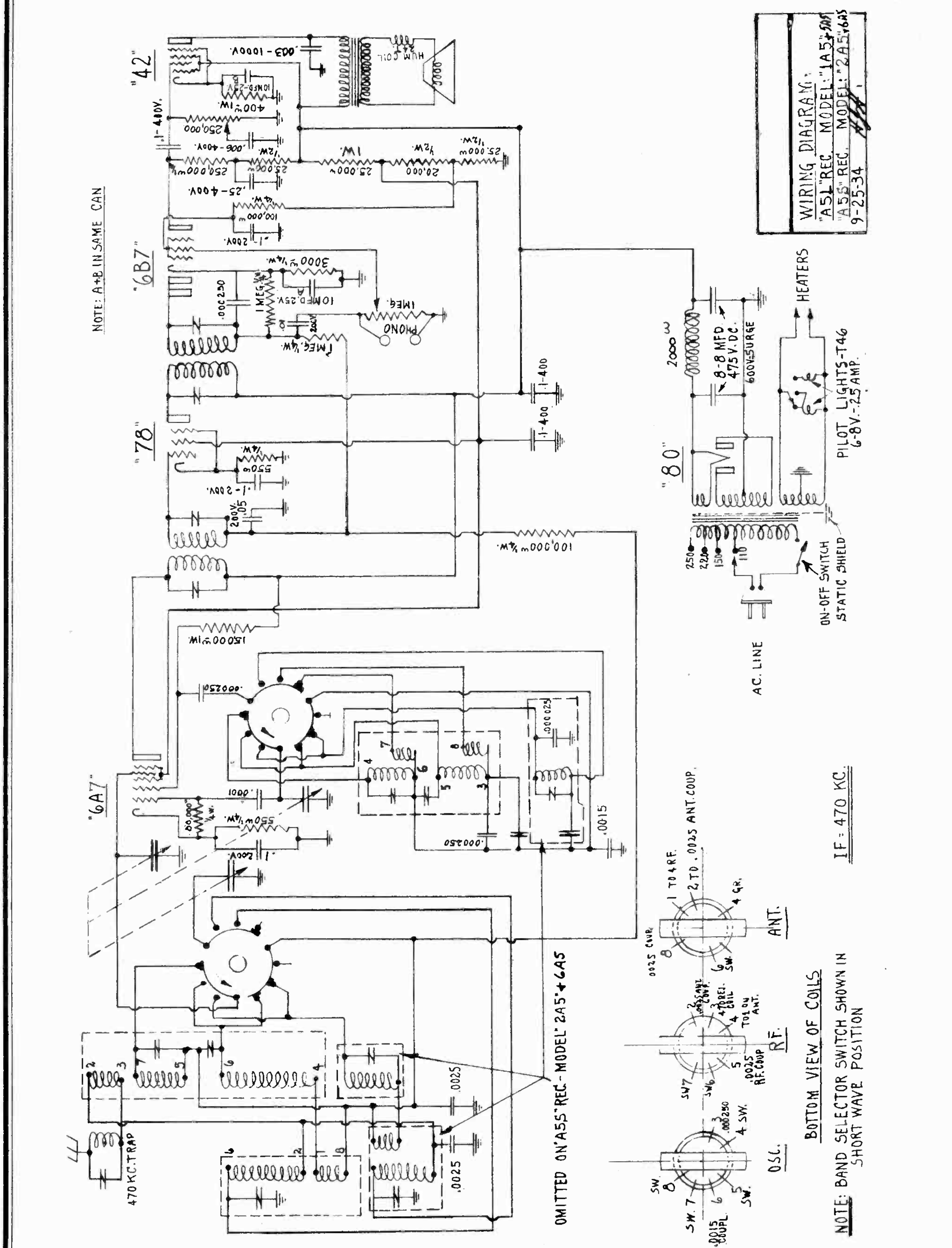
POLICE - Replace 200 MMFD cond. with 400 ohm resistor, variable condenser at minimum, Generator at 5600 KC, adj. Police Oscillator trimmer to receive signal. Then set Generator at 4000 KC, adj. Police Ant. trimmer to peak. Set Generator at 1800 KC, Pad Osc. with Police Padding trimmer to peak. Rock variable condenser.

SHORT WAVE - Variable condenser at minimum, Generator at 18100 KC, adj. Osc. Short Wave Trimmer to peak. Generator to 16000 KC and adjust ANT. Short Wave trimmer to peak. No padding of Oscillator is provided in this range. Sensitivity to be checked at 6000 KC.

All adjustments should be repeated to obtain maximum performance.

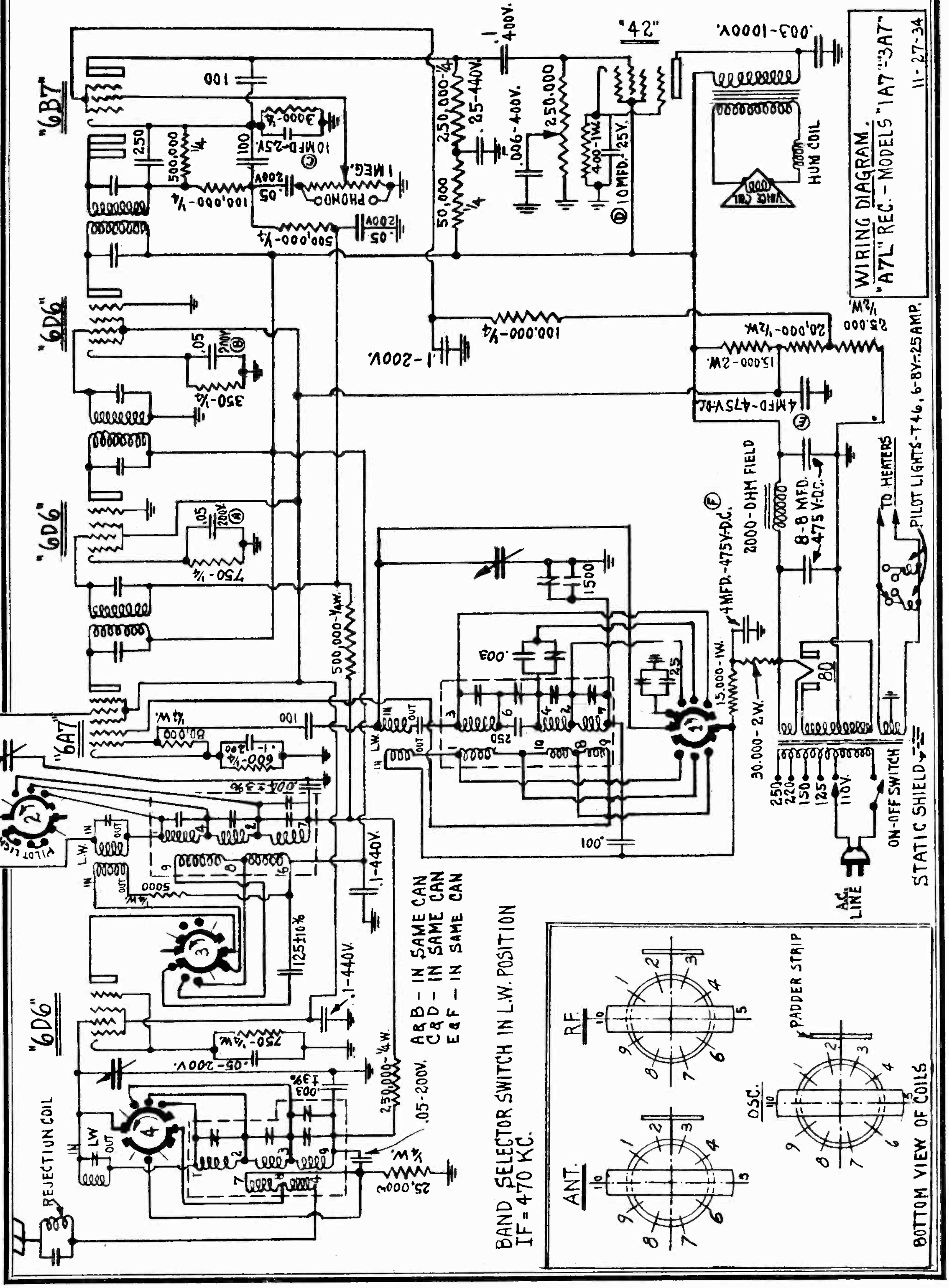
ANDREA RADIO CORP.

MODELS 1A5, 5A5
Chassis A5L
MODELS 2A5, 6A5
Chassis A5S
Schematic, Coils



MODELS 1A7,3A7
Chassis A7L
Schematic,Coils

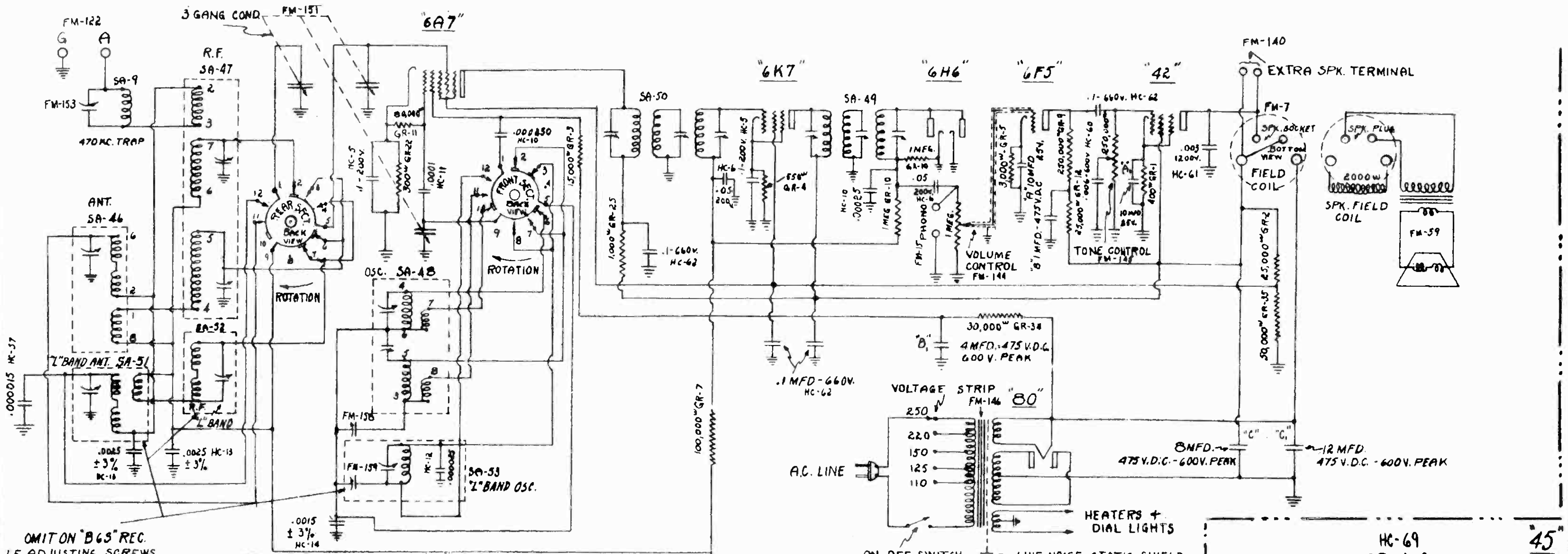
ANDREA RADIO CORP.



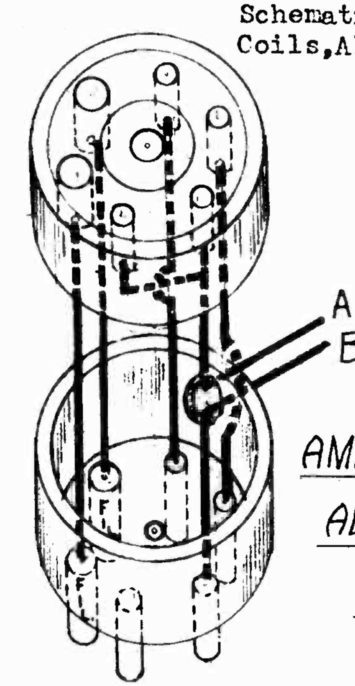
MODEL 55 Amplifier
Schematic

ANDREA RADIO CORP.

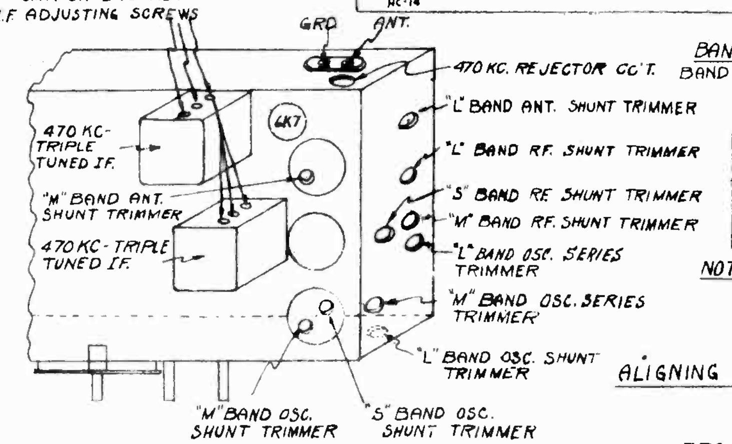
MODELS 1B6,3B6
Chassis B6L
MODELS 2B6,4B6
Chassis B6S
Schematic,Trimmers
Coils,Alignment



BAND SELECTOR SWITCH SHOWN IN SHORT WAVE POSITION
BAND SELECTOR SWITCH DRAWN EXACTLY MECHANICALLY AND ELECTRICALLY AS VIEWED FROM BOTTOM OF CHASSIS



AMPLIFIER ADAPTOR SOCKET
FM-194

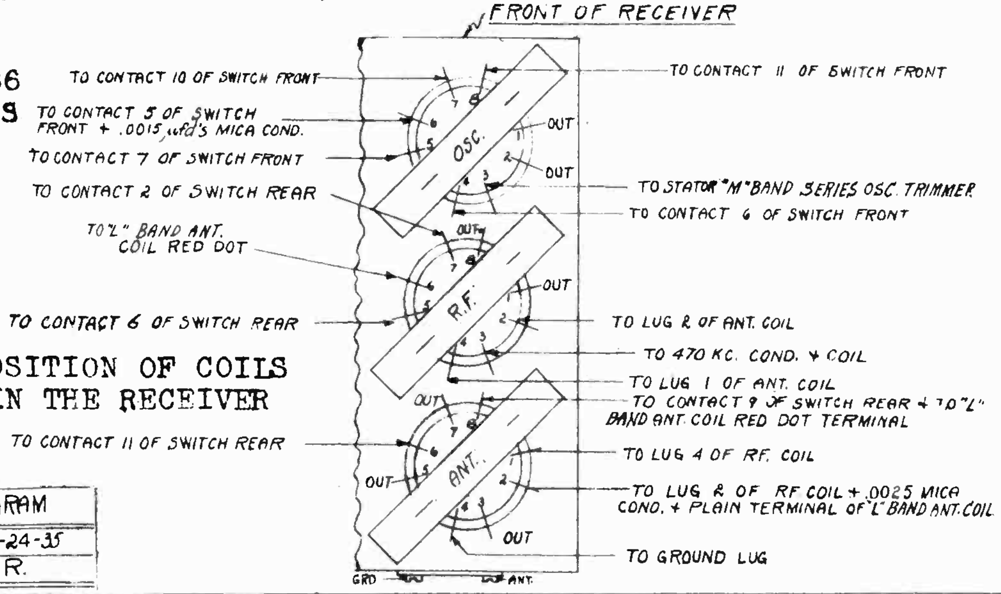


ALIGNING CONDENSER LOCATIONS

ALIGNING FREQ.
I.F. SYSTEM - 470 KC.
BAND "L" 335 + 150 KC
BAND "M" 1400 + 600 KC.
BAND "S" 17000 KC.

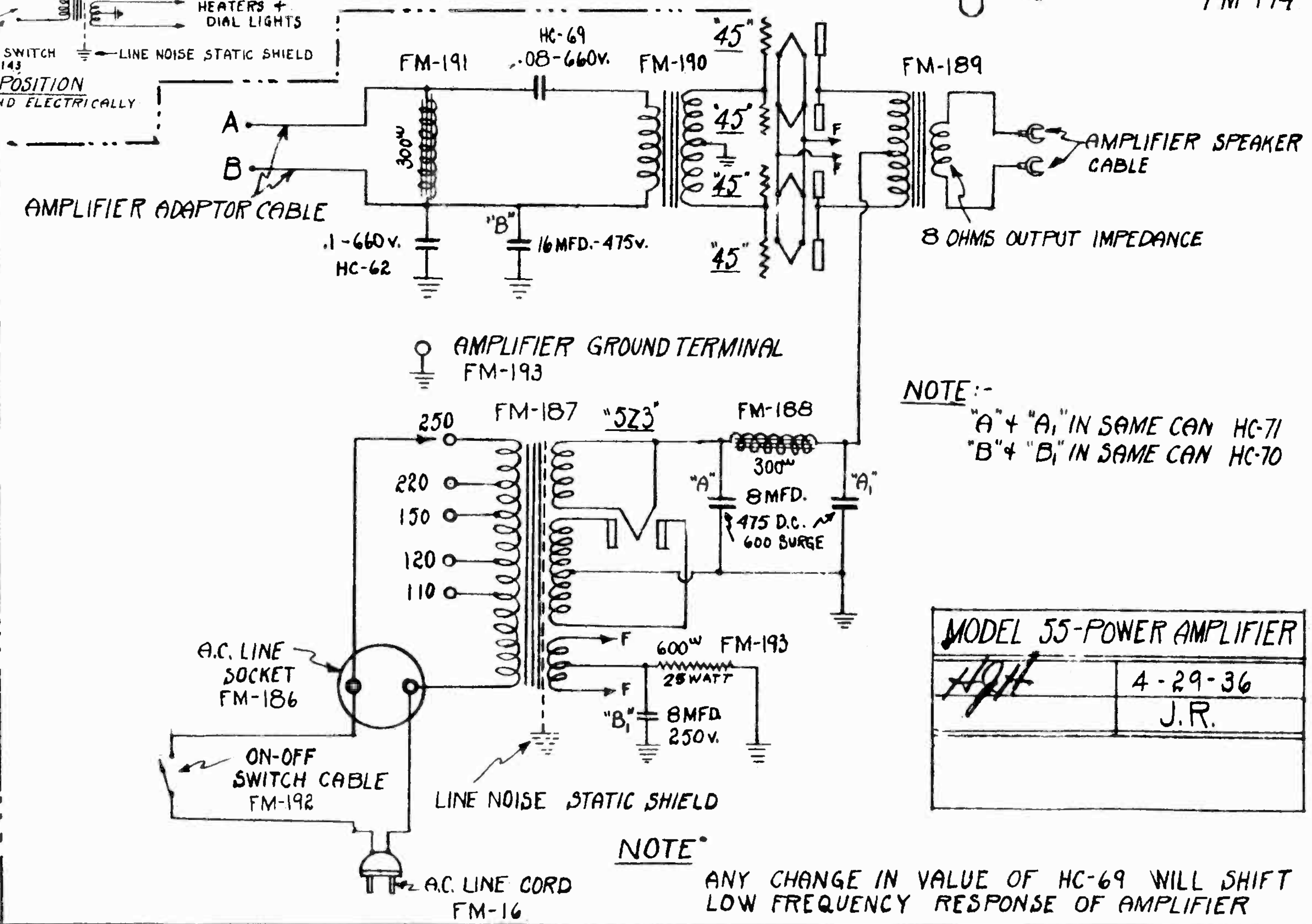
NOTE:
"A" + "A" IN SAME CAN HC-2
"B" + "B" IN SAME CAN HC-59
"C" + "C" IN SAME CAN HC-58

MODELS
1B6 and 2B6
RECEIVERS



POSITION OF COILS
IN THE RECEIVER

WIRING DIAGRAM	
"1B6" + "2B6" REC	12-24-35
HJH	J.R.



NOTE:-
"A" + "A1" IN SAME CAN HC-71
"B" + "B1" IN SAME CAN HC-70

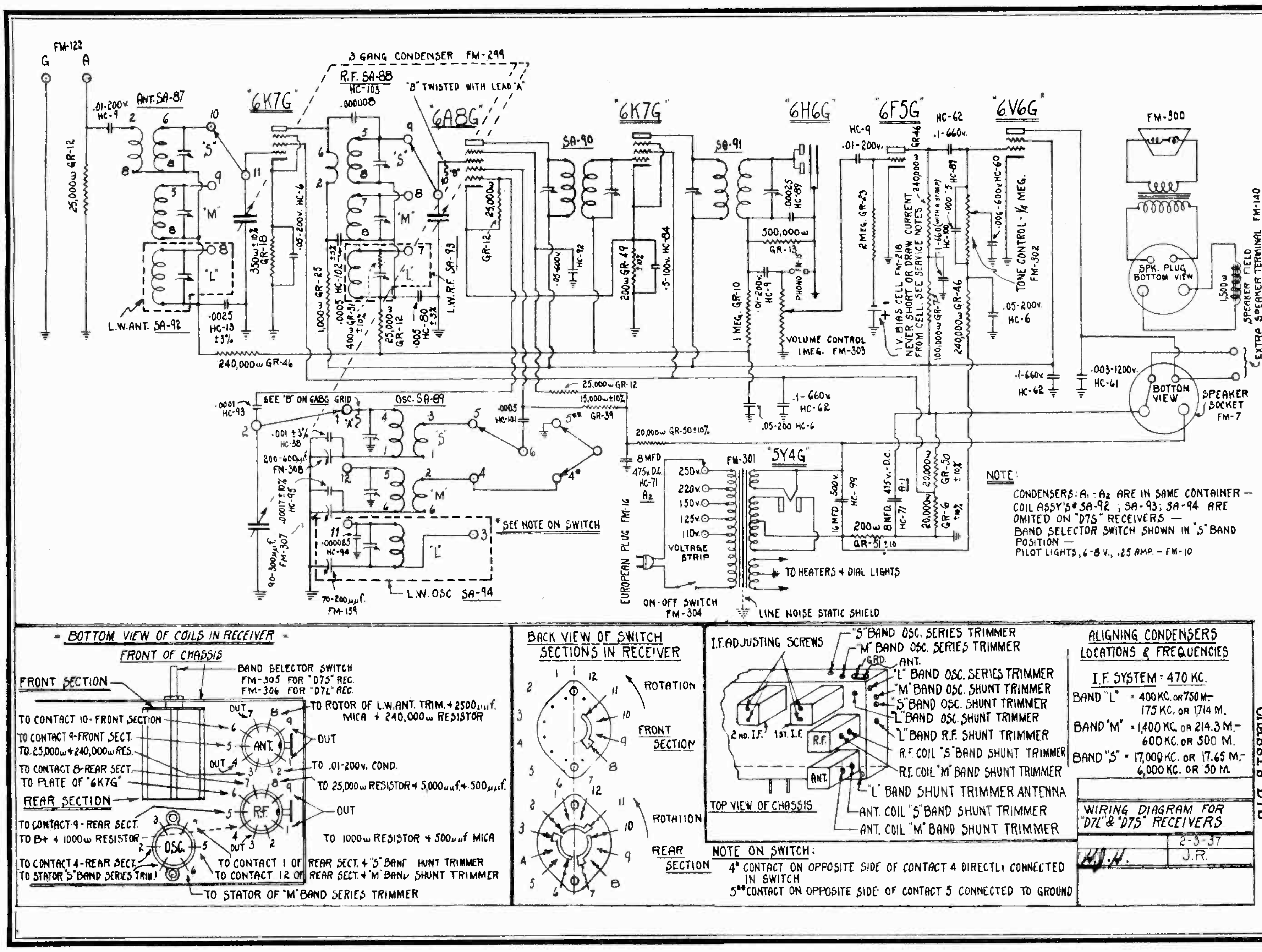
MODEL 55-POWER AMPLIFIER	
HJH	4-29-36
	J.R.

NOTE:
ANY CHANGE IN VALUE OF HC-69 WILL SHIFT LOW FREQUENCY RESPONSE OF AMPLIFIER

Schematic, Trimmers
Alignment, Coils

ANDREA RADIO CORP.

MODELS 1D7, 3D7, 5D7, 7D7
Chassis D7L
MODELS 2D7, 4D7, 6D7, 8D7
Chassis D7S



MODELS 1D7, 3D7, 5D7, 7D7
Chassis D7L
MODELS 2D7, 4D7, 6D7, 8D7
Chassis D7S
Alignment, Notes

ANDREA RADIO CORP.

When aligning the "S" band at 17,000 K.C., any adjustment of the antenna shunt and R.F. shunt trimmer will affect the oscillator tuning. This must be compensated for during the alignment, but rotating the gang condenser slowly back and forth about the signal for each shunt trimmer adjustment, until maximum deflection on the output meter is obtained. If the gang condenser is not rocked, false alignment and poor receiver sensitivity will result.

These receivers incorporate a 1.0 volt bias cell in the grid circuit of the 75 tube (see circuit diagram). THIS CELL MUST NEVER BE SHORTED OR TESTED BY MEANS OF A LOW RESISTANCE 2000 OHM PER VOLT VOLTMETER. THE ONLY ACCURATE WAY TO MEASURE ITS POTENTIAL IS BY MEANS OF A VACUUM TUBE VOLTMETER. These cells can be expected to render at least three years service without replacement. If further data is required, write the manufacturer.

FUNDAMENTAL & IMAGE FREQUENCY NOTES

A simple method of checking to determine if the receiver and generator are tuned for correct alignment is as follows:

Set the signal generator to 17,000 K.C. Tune the receiver from 15,000 slowly up to 18,000 K.C. Two signals should be heard 940 K.C. apart on the receiver, namely, one lower in frequency than 17,000 K.C., the other higher. The correct point for alignment is the higher frequency on the receiver dial, the lower is the image. As a check, the receiver should be left tuned to the higher frequency. Increase the generator frequency which was set for 17,000 K.C. slowly to approximately 18,000 K.C. A signal should be heard near 18000 K.C. if the first setting was correct for alignment. No signal would indicate that the original setting was on the image frequency. If this occurs, make certain that you start from the beginning to be sure of your results.

After the correct setting has been found, and the alignment has been carried out, it will be noted that the image or lower frequency response on the receiver dial will always sound weaker than the true signal if the tuned circuits have been correctly adjusted.

470 K.C. I.F. ADJUSTMENT

1. Connect high potential output lead from test generator in series with a .1 mfd. condenser to the grid of the 6A8G with selector switch in "M" band position and dial at 1000 K.C. NEVER REMOVE CONTROL GRID CAP FROM TUBE.
2. Connect output voltmeter (copper oxide rectifier type) accross voice coil of speaker.
3. Set generator to supply a modulated 470 K.C. signal. Adjust generator output attenuator until a small output reading is obtained on the output voltmeter.
4. Adjust both trimmers on top of the first and second I.F. transformers for maximum output.
5. Retrim slightly the first I.F. trimmer.

MEDIUM BAND "M" ALIGNMENT

Set test generator for 1400 K.C. Connect high potential lead of test generator in series with a .1 mfd. condenser to grid of 6A8G tube.

Tune receiver to 1400 K.C. (214.3 meters) on the tuning scale. If signal is not heard, leave scale pointer set to 1400 K.C., (214.3 meters), and adjust oscillator coil shunt trimmer slowly and carefully until signal is heard.

The oscillator coil of the receiver and dial are now set correctly, assuming the test generator calibration is correct.

Remove test generator hot lead from 6A8G grid. Replace .1 mfd. condenser with 250 mmf. (.00025 mfd.) and connect to antenna terminal of receiver "A", all other settings to remain the same.

Adjust "R.F." coil shunt trimmer and then "ANT" coil shunt trimmer for maximum output deflection.

Retune test generator to 600 K.C. (500 meters) and tune receiver to 600 K.C. (500 meters) until signal is heard.

Adjust oscillator coil series trimmer slowly while rotating the gang condenser slowly about the signal for each small adjustment of the series trimmer, until further adjustment of the series trimmer does not increase the output signal. During this adjustment, never touch the ANT., R.F. or OSC. shunt trimmers.

Reset test generator and receiver to 1400 K.C. Tune in signal on receiver. Adjust ANT. and R.F. shunt trimmers slightly for maximum output; never the OSC. shunt trimmer.

SHORT WAVE "S" BAND ALIGNMENT

1. Turn wave band selector switch to extreme right "S" band. Replace 250 mmf. (.00025 mfd.) condenser with 400 ohm resistor.
2. The following adjustment is necessary if the dial calibration is badly off, otherwise proceed with step 3 and 4.

Set the signal generator to 17,000 K.C. and the receiver dial pointer to 17 M.C. (17,000 K.C.). Adjust oscillator shunt trimmer slowly between maximum and minimum. A signal will be heard at two settings of this trimmer; one near the minimum capacity (plates open) of the trimmer, the other nearer to maximum capacity (plates closed). The trimmer should be left adjusted to the signal heard near its minimum (open plates). The adjustment nearer maximum is the image frequency setting, as can be determined from previous explanation on image frequency.

3. Align R.F. shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station selector knob back and forth slowly for each small R.F. shunt trimmer change.
4. Align antenna shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station selector knob back and forth slowly for each small antenna shunt trimmer change until maximum output is obtained. Retrim R.F. shunt trimmer for small change. Check to see that alignment has not been made on the image. (See notes).

Set test generator to 6000 K.C., retune receiver until signal is heard. Adjust oscillator series trimmer slowly while rotating the gang condenser around the signal for each small adjustment of the series trimmer until further adjustment of the series trimmer decreases the output signal.

Never touch the ANT., R.F. and OSC. shunt trimmer during this adjustment.

Reset test generator to 17,000 K.C.; tune receiver until correct signal is heard. Retune antenna and R.F. shunt trimmer for final critical setting. During this final adjustment, never touch the oscillator shunt trimmers.

Should the operator be inexperienced on "S" band alignment, the individual coilscan be checked very simply as follows:

Apply the test generator signal through a .1 mfd. coil to the 6A8G grid, and carry out the procedure outlined above. This will tell you if the oscillator shunt trimmer only is correctly adjusted or the right signal setting has been used on the test generator. In this case, ONLY, the image and fundamental will have the same intensity.

When you are sure the oscillator circuit is correct, place the signal on the grid of the 6K7G R.F. tube, and repeat the procedure on the R.F. coil. In this case when correctly aligned, the image will be lower in volume than the fundamental.

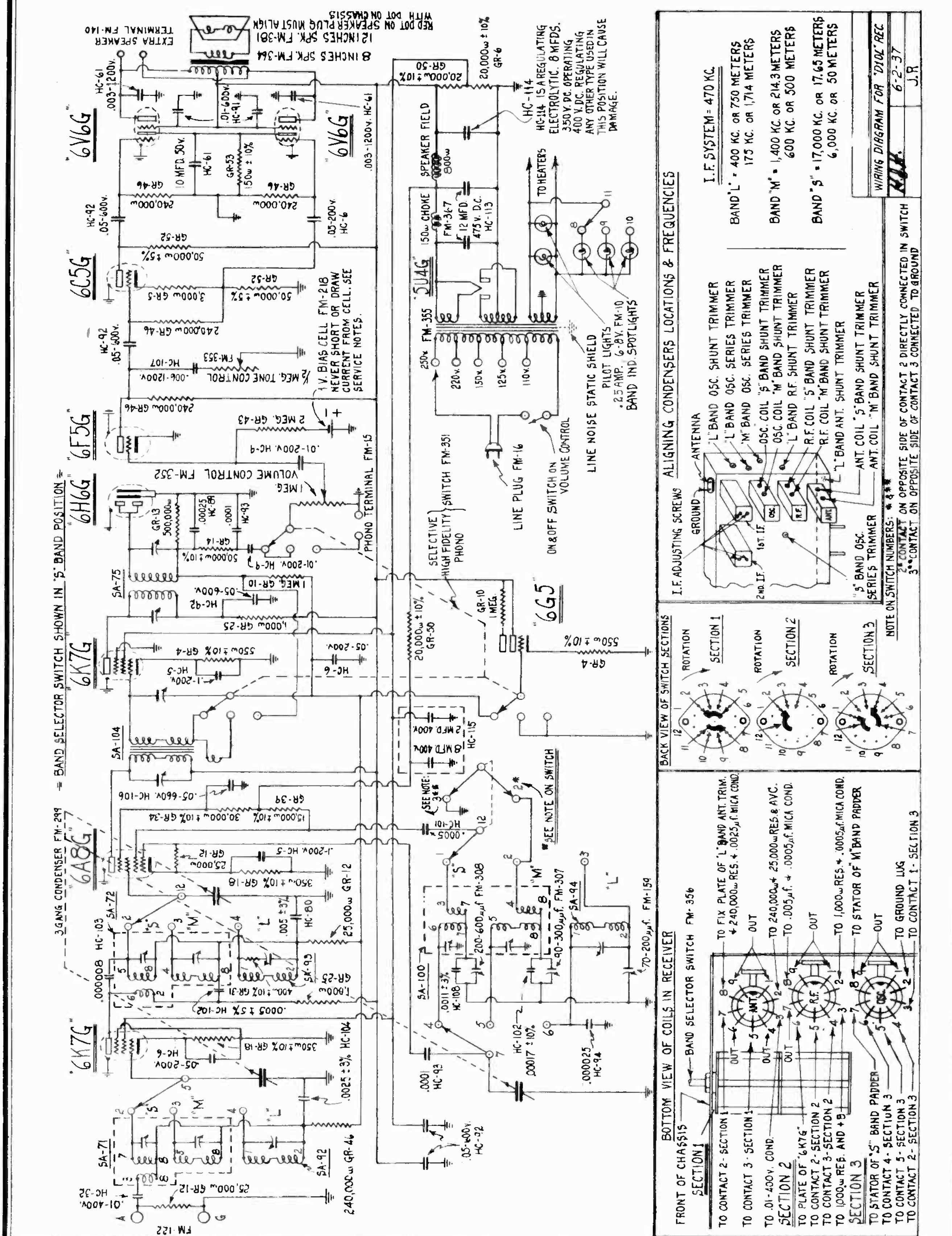
Replace the .1 mfd. condenser in the test generator lead with a 400 ohm resistor and repeat procedure on antenna.

This method now assures you of correct individual alignment on each coil. Then proceed to touch up each coil except the oscillator as outlined.

LONG WAVE BAND "L" ALIGNMENT (This band is included in the D7L chassis only.)

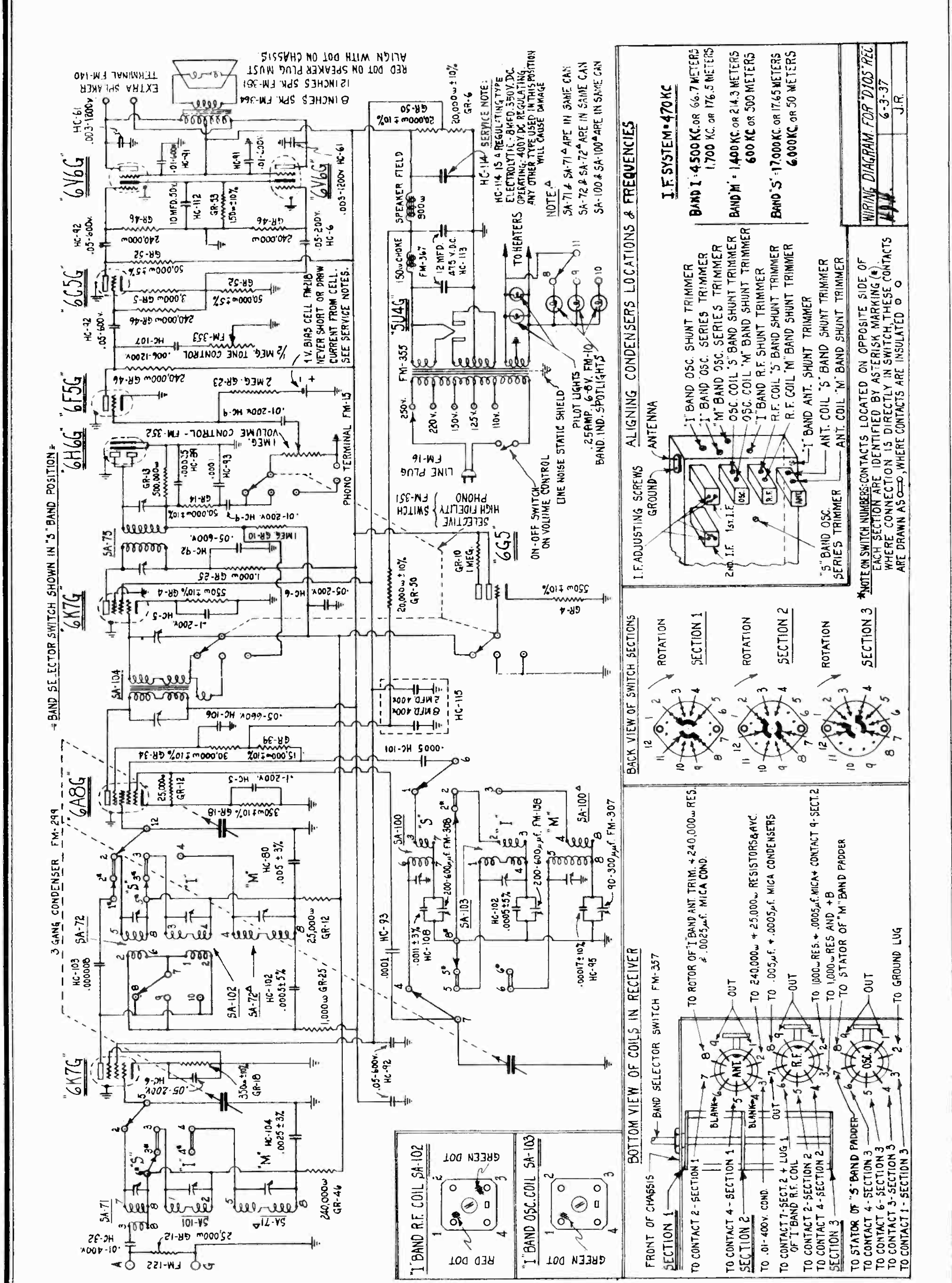
1. Set signal generator for 175 K.C. and connect generator high potential lead in series with .1 mfd. condenser to grid of 6A8G tube.
2. Set receiver dial to 175 K.C. (1714 meters).
3. Adjust L.W. series oscillator trimmer until the loudest signal is heard. This point is required because of the wide frequency range the L.W. series oscillator trimmer has on the oscillator frequency. Due to this wide change in frequency it is possible that several different adjustment points in the L.W. series oscillator trimmer will produce output signals, but only one of these is correct (the loudest).
4. Set the generator and receiver dial to 400 K.C. (750 meters) and adjust L.W. oscillator shunt trimmer until the signal is heard.
5. After readjusting the L.W. oscillator shunt trimmer it is very important that the generator and set dial be set for 175 K.C. (1714 meters) and the L.W. series oscillator trimmer readjusted as given in paragraph 3. Set the generator and receiver dials back to 400 K.C. (750 meters) and adjust L.W. oscillator shunt trimmer until the signal is heard.
6. Remove generator lead from grid of 6A8G. Replace .1 mfd. condenser with .00025 mfd. condenser and connect to antenna of receiver.
7. Set generator and receiver dial to 400 K.C. (750 meters).
8. Adjust antenna and R.F. shunt trimmer for maximum output deflection.
9. Change generator and dial to 175 K.C. (1714 meters). Adjust L.W. series oscillator trimmer for maximum deflection. (Be certain to rotate gang condenser for each adjustment of the series trimmer).
10. Repeat adjustments set forth in paragraph 8 or receiver will not be aligned correctly because of effect given in paragraph 3.
11. After carrying out 10 be sure to repeat 9.
12. Both 8 and 9 must be repeated until it is noticed that the trimmers no longer improve alignment. The receiver is then correctly aligned.

ANDREA RADIO CORP. MODELS 1D10,3D10,5D10,7D10,9D10
Chassis D10L
Schematic,Trimmers,Coils,Data



MODELS 2D10,4D10,6D10,8D10,10D10
Chassis D10S
Schematic,Trimmers,Coils,Data

ANDREA RADIO CORP.



MODELS 1D10, 3D10, 5D10, 7D10, 9D10
Chassis D10L

ANDREA RADIO CORP.

MODELS 2D10, 4D10, 6D10, 8D10, 10D10
Chassis D10S
Alignment

FUNDAMENTAL & IMAGE FREQUENCY NOTES

A simple method of checking to determine if the receiver and generator are tuned for correct alignment is as follows:

Set the signal generator to 17,000 K.C. Tune the receiver from 15,000 slowly up to 18,000 K.C. Two signals should be heard 940 K.C. apart on the receiver, namely, one lower in frequency than 17,000 K.C., the other higher. The correct point for alignment is the higher frequency on the receiver dial, the lower is the image. As a check, the receiver should be left tuned to the higher frequency. Increase the generator frequency which was set for 17,000 K.C. slowly to approximately 18,000 K.C. A signal should be heard near 18,000 K.C. if the first setting was correct for alignment. No signal would indicate that the original setting was on the image frequency. If this occurs, make certain that you start from the beginning to be sure of your results.

After the correct setting has been found, and the alignment has been carried out, it will be noted that the image or lower frequency response on the receiver dial will always sound weaker than the true signal if the tuned circuits have been correctly adjusted.

470 K.C. I.F. ADJUSTMENT

CAUTION: The I.F. system must always be aligned with the SELECTIVE-HI-FI-PHONO in the SELECTIVE POSITION or insensitivity or poor selectivity will result.

1. Connect high potential output lead from test generator in series with a .1 mfd. condenser to the grid of the 6A8G with selector switch in "M" band position and dial at 1000 K.C. NEVER REMOVE CONTROL GRID CAP FROM TUBE.
2. Connect output voltmeter (copper oxide rectifier type) across voice coil of speaker.
3. Set generator to supply a modulated 470 K.C. signal. Adjust generator output attenuator until a small output reading is obtained on the output voltmeter.
4. Adjust both trimmers on top of the first and second I.F. transformers for maximum output. (BE CERTAIN THE SWITCH IS ON THE SELECTIVE POSITION).
5. Retrim slightly the first I.F. trimmer.

MEDIUM BAND "M" ALIGNMENT

TURN THE WAVE BAND SELECTOR SWITCH TO THE "M" POSITION.

Set test generator for 1400 K.C. Connect high potential lead of test generator in series with a .1 mfd. condenser to grid of 6A8G tube. Tune receiver to 1400 K.C. (214.3 meters) on the tuning scale. If signal is not heard, leave scale pointer set to 1400 K.C. (214.3 meters), and adjust oscillator coil shunt trimmer slowly and carefully until signal is heard.

The oscillator coil of the receiver and dial are now set correctly, asuming the test generator calibration is correct.

Remove test generator hot lead from 6A8G grid. Replace .1 mfd. condenser with 250 mmf.(.00025 mfd.) and connect to antenna terminal of receiver "A", all other settings to remain the same.

Adjust R.F. coil shunt trimmer and then "ANT" coil shunt trimmer for maximum output deflection.

Retune test generator to 600 K.C. (500 meters) and tune receiver to 600 K.C. (500 meters) until signal is heard.

Adjust oscillator coil series trimmer slowly while rotating the gang condenser slowly about the signal for each small adjustment of the series trimmer, until further adjustment of the series trimmer does not increase the output signal. During this adjustment, never touch the ANT.,RF., or Osc. shunt trimmers.

Reset test generator and receiver to 1400 K.C. Tune in signal on receiver. Adjust ANT. and R.F. shunt trimmers slightly for maximum output. NEVER THE OSC. SHUNT TRIMMER.

SHORT WAVE "S" BAND ALIGNMENT

1. Turn wave band selector switch to extreme right "S" band. Replace 250 mmf. (.00025 mfd.) condenser with 400 ohm resistor.
2. The following adjustment is necessary only if the dial calibration is badly off otherwise proceed with step 3 and 4.

Set the signal generator to 17,000 K.C. and the receiver dial pointer to 17 M.C. (17,000 K.C.). Adjust oscillator shunt trimmer slowly between maximum and minimum. A signal will be heard at two settings of this trimmer; one near the minimum capacity (plates open) of the trimmer, the other nearer to maximum capacity (plates closed). The trimmer should be left adjusted to the signal heard near its minimum (open plates). The adjustment nearer maximum is the image frequency setting, as can be determined from previous explanation on image frequency.

3. Align R.F. shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station selector knob back and forth slowly for each small R.F. shunt trimmer change.
4. Align antenna shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station knob back and forth slowly for each small antenna shunt trimmer change until maximum output is obtained. Retrim R.F. shunt trimmer for any small change. Check to see that alignment has not been made on the image. (See notes).

Set test generator to 6000 K.C., retune receiver until signal is heard. Adjust oscillator series trimmer slowly while rotating the gang condenser around the signal for each small adjustment of the series trimmer until no further adjustment of the series trimmer increases the output signal.

NEVER TOUCH THE ANT.,R.F. AND OSC. SHUNT TRIMMER DURING THIS ADJUSTMENT.

Reset test generator to 17,000 K.C.; tune receiver until correct signal is heard. Retune antenna and R.F. shunt trimmer for final critical setting. During this final adjustment, never touch the oscillator shunt trimmers.

THE "S" BAND IS NOW ALIGNED.

Should the operator be inexperienced on "S" band alignment, the individual coils can be checked very simply as follows:

Apply the test generator signal through a .1 mfd. coil to the 6A8G grid, and carry out the procedure outlined above. This will tell you if the oscillator shunt trimmer only is correctly adjusted or the right signal setting has been used on the test generator. In this case, ONLY, the image and fundamental will have the same intensity.

When you are sure the oscillator circuit is correct, place the signal on the grid of the 6K7G R.F. tube, and repeat the procedure on the R.F. coil. In this case when correctly aligned, the image will be lower in volume than the fundamental.

Replace the .1 mfd. condenser in the test generator lead with a 400 ohm resistor and connect to antenna terminal "A", and repeat procedure on antenna.

This method now assures you of correct individual alignment on each coil. Then proceed to touch up each coil except the oscillator as outlined in 3 and 4.

LONG WAVE BAND "L" ALIGNMENT

THIS BAND IS INCLUDED IN THE D10L CHASSIS ONLY.
TURN THE WAVE BAND SELECTOR SWITCH TO THE "L" POSITION.

1. Set signal generator for 175 K.C. and connect generator high potential lead in series with .1 mfd. condenser to grid of 6A8G tube.
2. Set receiver dial to 175 K.C. (1714 meters).
3. Adjust L.W. series oscillator trimmer until the loudest signal is heard. This point is required because of the wide frequency range the L.W. series oscillator trimmer has on the oscillator frequency. Due to this wide change in frequency it is possible that several different adjustment points in the L.W. oscillator series trimmer will produce output signals, but only one of these is correct (the loudest).
4. Set the generator and receiver dial to 400 K.C. (750 meters) and adjust L.W. oscillator shunt trimmer until the signal is heard.
5. After readjusting the L.W. oscillator shunt trimmer it is very important that the generator and the set dial be set for 175 K.C. (1714 meters) and the L.W. series oscillator trimmer readjusted as given in paragraph 3. Set the generator and receiver dials back to 400 K.C. (750 meters) and adjust L.W. oscillator shunt trimmer until the signal is heard.
6. Remove generator lead from grid of 6A8G. Replace .1 mfd. condenser with .00025 mfd. condenser and connect to antenna of receiver.
7. Set generator and receiver dial to 400 K.C. (750 meters).
8. Adjust antenna and R.F. shunt trimmer for maximum output deflection.
9. Change generator and dial to 175 K.C. (1714 meters). Adjust L.W. series oscillator trimmer for maximum deflection. (BE CERTAIN TO ROTATE GANG CONDENSER FOR EACH ADJUSTMENT OF THE SERIES TRIMMER).
10. Repeat adjustments set forth in paragraph 8 or receiver will not be aligned correctly because of effect given in paragraph 3.
11. After carrying out 10 be sure to repeat 9.
12. Both 8 and 9 must be repeated until it is noticed that the trimmers no longer improve alignment.

INTERMEDIATE WAVE BAND "I" ALIGNMENT

THIS BAND IS INCLUDED IN THE D10S CHASSIS ONLY.
TURN THE WAVE BAND SELECTOR SWITCH TO THE "I" BAND POSITION.

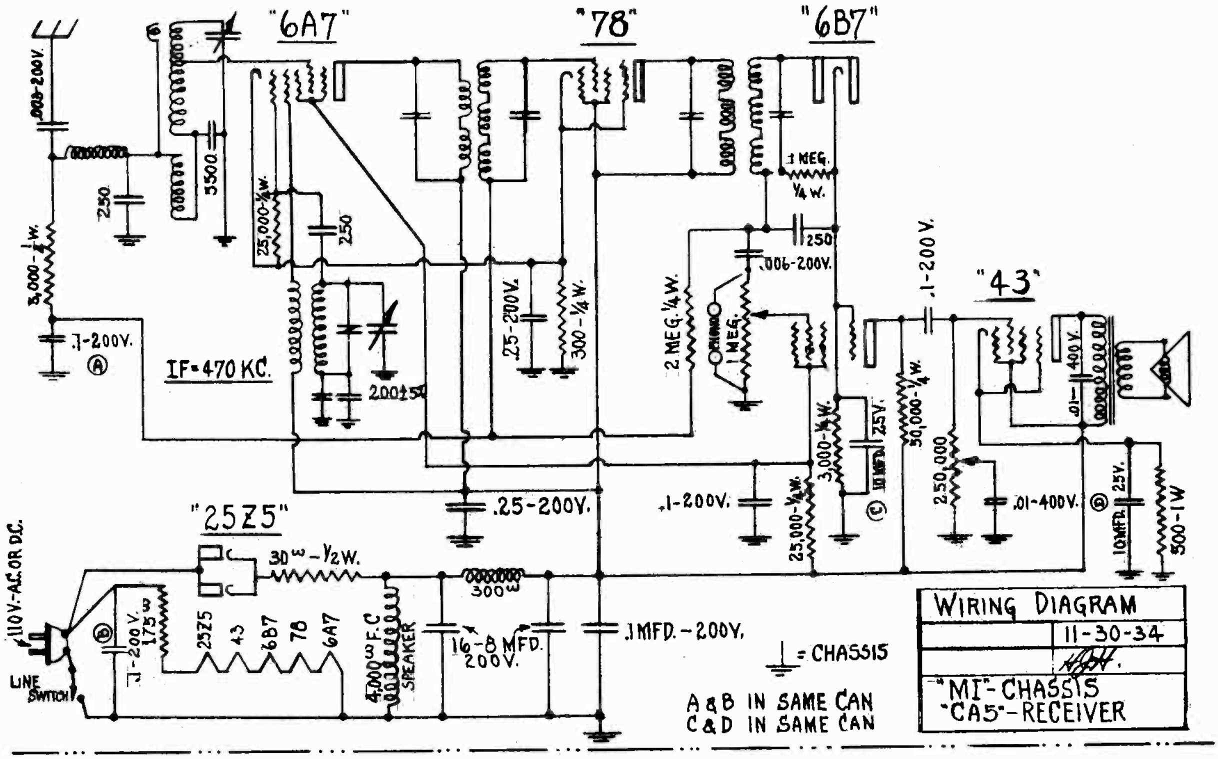
1. In series with the generator high potential output lead connect a .00025 mfd. (250 mmf.) condenser and connect to antenna "A" terminal of the chassis.
2. Tune generator and receiver to 4500 K.C. - 4.5 megacycles.
3. If signal is not heard leave scale pointer set to 4.5 megacycles and adjust oscillator "I" band shunt trimmer slowly and carefully until the signal is heard. The oscillator coil and dial are now correctly aligned and require no further adjustment.
4. Adjust R.F. coil shunt trimmer and then the ANT. for maximum output deflection.
5. Reset generator and receiver to 1700 K.C. (1.7 megacycles). Pick up signal by tuning receiver on either side of 1.7 megacycles.
6. Adjust "I" Band oscillator series trimmer only while turning the gang condenser tuning control slowly back and forth about the signal for each small adjustment of the series trimmer.

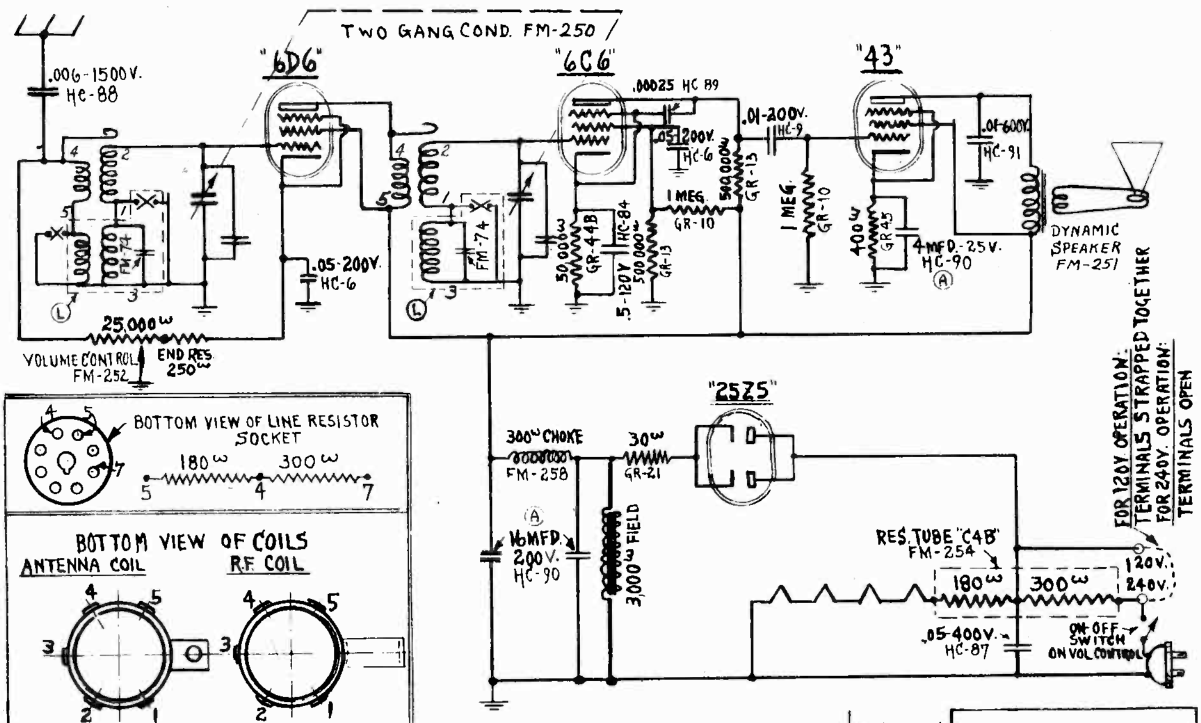
Continue this until no further adjustment of the series trimmer produces an increase in the output deflection.

Retune generator and receiver to 4500 K.C. (4.5 megacycles). Tune in signal on receiver. Readjust ANT. and R.F. shunt trimmers slightly for any small change.

MODEL CA5, Chassis MI
MODEL 410, Chassis UC4
MODEL 411, Chassis UC4L
Schematics

ANDREA RADIO CORP.





	ANT. COIL	RF. COIL
"UC4L" REC.	# SA-77	# SA-78
"UC4" REC.	# SA-79	# SA-80

ON MODEL 411. First Adjust Trimmers ON GANG COND. FOR B.C. range. THEN L.W. MUST BE ADJUSTED NEVER THE OPPOSITE

= CHASSIS

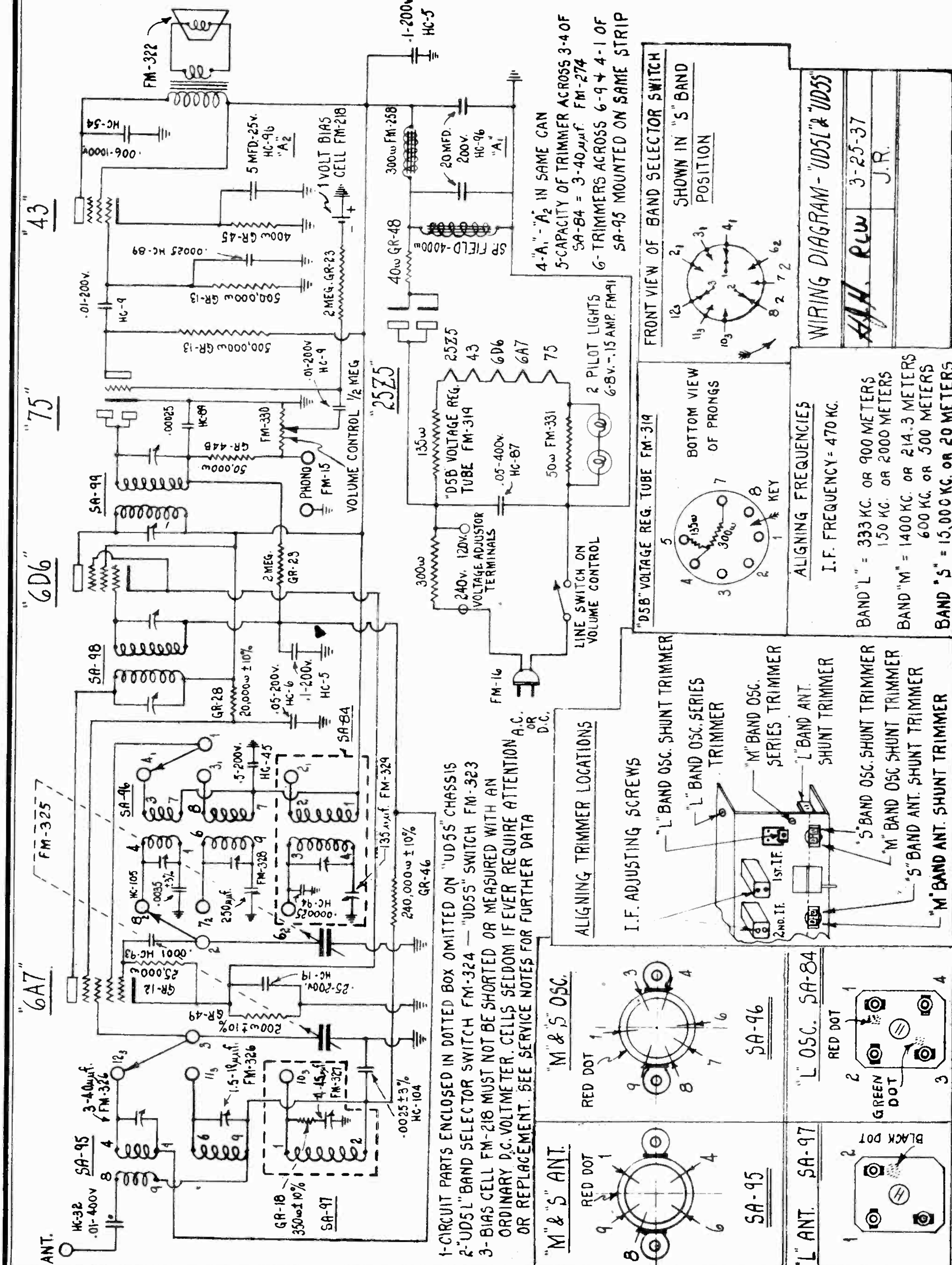
NOTE: Ⓛ ON "UC4L" CHASSIS ONLY
BAND SELECTOR SWITCH FM-253
Ⓐ IN SAME CONTAINER

WIRING DIAGRAM
MODEL 410 - CHASSIS UC4
MODEL 411 - CHASSIS UC4L
12-11-36

B.C. ALIGNMENT AT 1400 KC. - TRIMMERS ON GANG
*L.W. " AT 325 KC " ON COILS ONLY
*NOTE. ALIGNMENT ON L.W. BY ADJUSTING TRIMMER ON ANT Coil & RocKing GANG

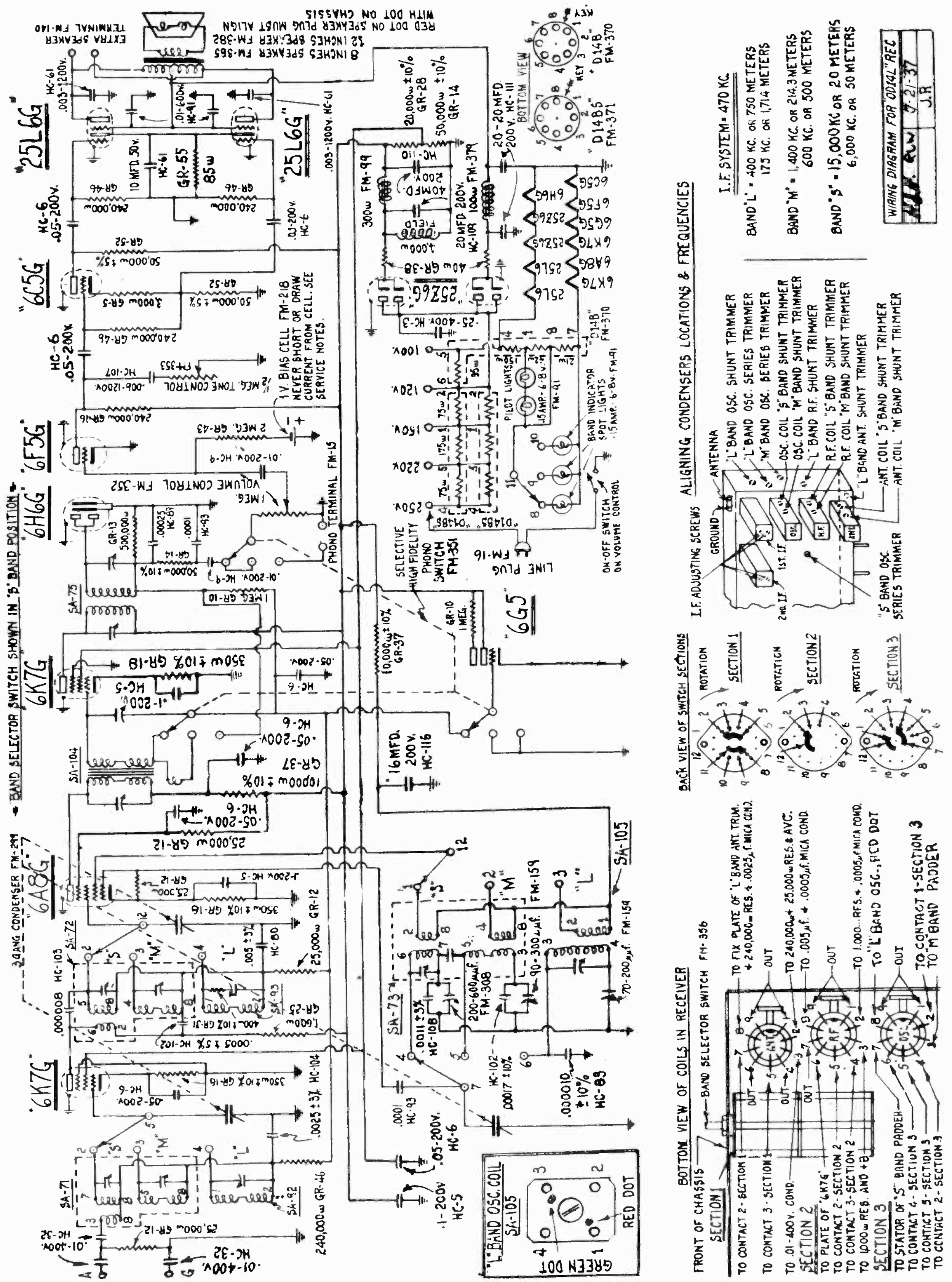
ANDREA RADIO CORP.

MODEL 520, Chassis UD5S
MODEL 521, Chassis UD5L
Schematic, Trimmers, Coils
Alignment



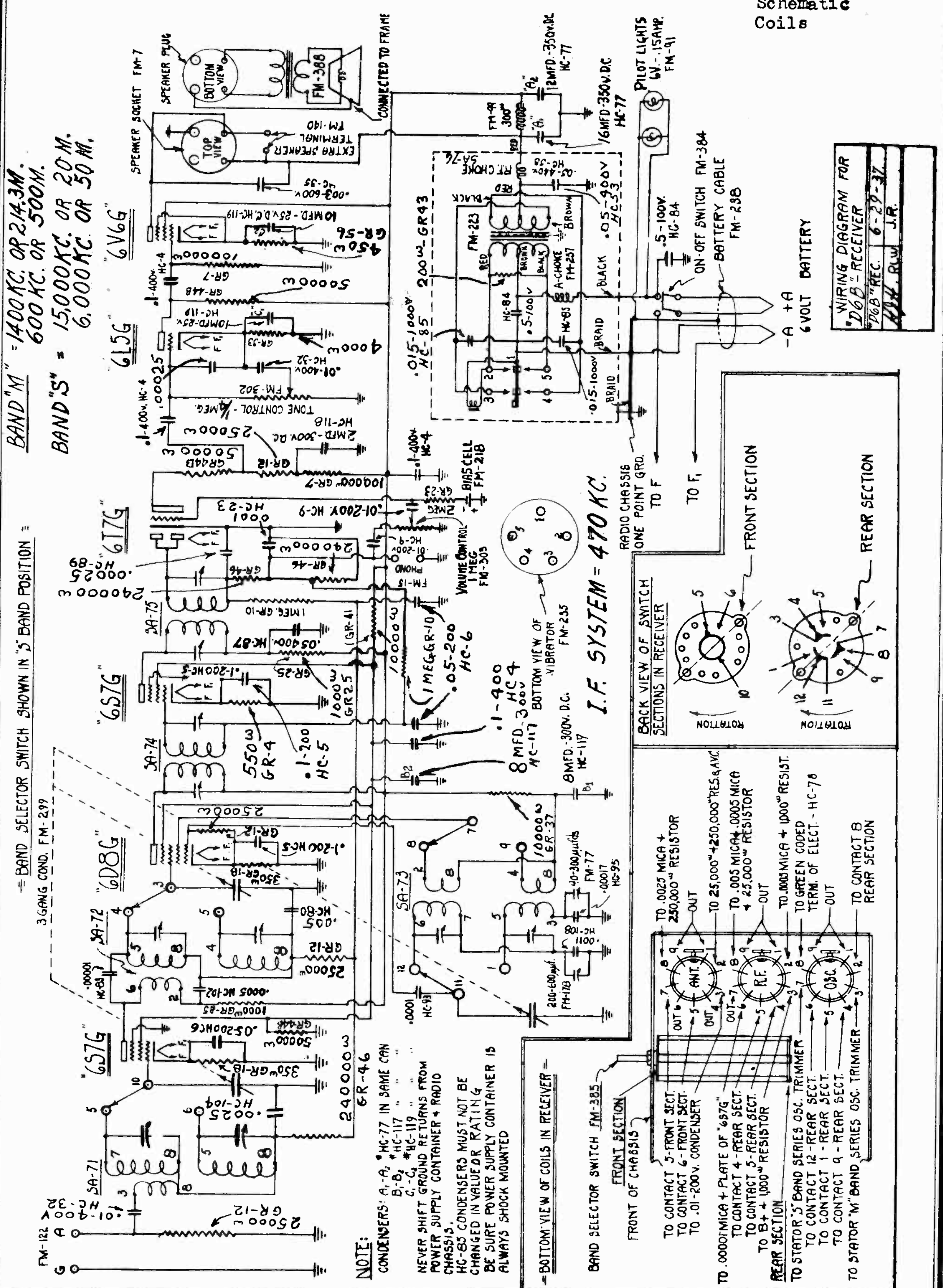
MODELS 1401,1403,1405,1407,1409
Chassis UD14L
Schematic,Trimmers,Coils
Alignment

ANDREA RADIO CORP.



ANDREA RADIO CORP.

MODELS 616,617,618
Chassis D6B
Schematic
Coils



MODELS 616,617,618
Chassis D6B
Alignment,Trimmers

ANDREA RADIO CORP.

FUNDAMENTAL & IMAGE FREQUENCY NOTES

A simple method of checking to determine if the receiver and generator are tuned for correct alignment is as follows:

Set the signal generator to 15000 K.C. Tune the receiver from 13000 slowly up to 16000 K.C. Two signals should be heard 940 K. C. apart on the receiver, namely, one lower in frequency than 15000 KC, the other higher. The correct point for alignment is the higher frequency on the receiver dial, the lower is the image. As a check, the receiver should be left tuned to the higher frequency. Increase the generator frequency which was set for 15000 KC slowly to approximately 16000 K.C. A signal should be heard near 16000 K.C. if the first setting on the generator was correct for alignment. No signal would indicate that the original setting was on the image frequency. If this occurs, make certain that you start from the beginning to be sure of your results.

After the correct setting has been found, and the alignment has been carried out, it will be noted that the image or lower frequency response on the receiver dial will always sound weaker than the true signal, if the tuned circuits have been correctly adjusted.

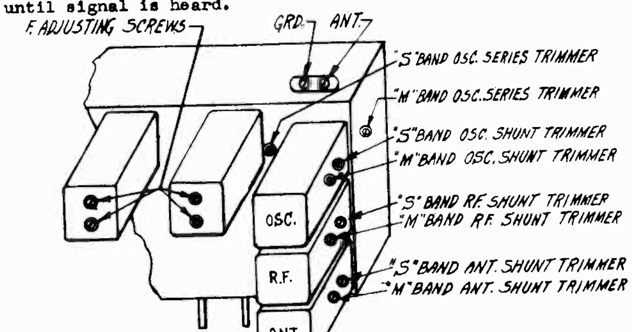
470 K.C. I.F. ADJUSTMENT.

1. Connect high potential output lead from test generator in series with a .1 mfd. condenser to the grid of the 6D8G tube.
2. Connect output voltmeter (copper oxide rectifier type) across voice coil of speaker.
3. Set generator to supply a modulated 470 K.C. signal. Adjust generator output attenuator until a small output reading is obtained on the output voltmeter.
4. Adjust both trimmers on top of the first and second I.F. transformers (see diagram) for maximum output.
5. Retrim slightly the first I.F. trimmer.

MEDIUM BAND "M" ALIGNMENT

TURN THE WAVE BAND SELECTOR SWITCH TO THE "M" POSITION.

Set test generator for 1400 K.C. Connect high potential lead of test generator in series with a .1 mfd. condenser to grid of 6D8G tube. Tune receiver to 1400 K.C. (214.3 meters) on the tuning scale. If signal is not heard, leave scale pointer set to 1400 K.C. (214.3 meters), and adjust oscillator coil shunt trimmer slowly and carefully until signal is heard.



TOP VIEW OF CHASSIS   ALIGNING COND.- LOCATIONS

The oscillator coil of the receiver and dial are now set correctly, assuming the test generator calibration is correct.

Remove test generator hot lead from 6D8G grid. Replace .1 mfd. condenser with 250 mmf. (.00025 mfd.) and connect to antenna terminal of receiver "A", all other settings to remain the same.

Adjust R.F. coil shunt trimmer and then "ANT." coil shunt trimmer for maximum deflection.

Retune test generator to 600 K.C. (500 meters), and tune receiver to 600 K.C. (500 meters) until signal is heard.

Adjust oscillator coil series trimmer slowly while rotating the gang condenser slowly about the signal for each small adjustment of the series trimmer, until further adjustment of the series trimmer does not increase the output signal. During this adjustment, never touch the ANT., R.F. or OSC. shunt trimmers.

Reset test generator and receiver to 1400 K.C. Tune in signal on receiver. Adjust Antenna and R.F. shunt trimmers slightly for maximum output - NEVER THE OSC. SHUNT TRIMMER.

SHORT WAVE "S" BAND ALIGNMENT

1. Turn wave band selector switch to extreme right "S" band. Replace 250 mmf. (.00025 mfd.) condenser with 400 ohm resistor.
2. The following adjustment is necessary only if the dial calibration is badly off, otherwise proceed with steps 3 and 4.

   Set the signal generator to 15,000 K.C. and the receiver dial pointer to 15 M.C. (15,000 K.C.). Adjust oscillator shunt trimmer slowly between maximum and minimum. A signal will be heard at two settings of this trimmer, one near the minimum capacity (plates open) of the trimmer, the other nearer to maximum capacity (plates closed). The trimmer should be left adjusted to the signal heard near its minimum (open plates). The adjustment nearer maximum is the image frequency setting, as can be determined from previous explanation on Image Frequency.

3. Align R.F. shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station selector knob back and forth slowly for each small R.F. shunt trimmer change.
4. Align antenna shunt trimmer for maximum output deflection. During this adjustment, be certain to rotate the station knob back and forth slowly for each small antenna shunt trimmer change until maximum output is obtained. Retrim R.F. shunt trimmer for any small change. Check to see that alignment has not been made on the image. (See notes)

Set test generator to 6000 K.C. Retune receiver until signal is heard. Adjust oscillator series trimmer slowly while rotating the gang condenser around the signal for each small adjustment of the series trimmer until no further adjustment of the series trimmer increases the output signal.

NEVER TOUCH THE ANT., R.F. OR OSC. SHUNT TRIMMERS DURING THIS ADJUSTMENT.

Reset test generator to 15,000 K.C. Tune receiver until correct signal is heard. Retune antenna and R.F. shunt trimmer for final critical setting. During this final adjustment, never touch the oscillator shunt trimmer.

THE "S" BAND IS NOW ALIGNED.

Should the operator be inexperienced on "S" band alignment, the individual coils can be checked very simply as follows:

Apply the test generator signal through a .1 mfd. coil to the 6D8G grid, and carry out the procedure outlined above. This will tell you if the oscillator shunt trimmer only is correctly adjusted, or the right signal setting has been used on the test generator. In this case ONLY the image and fundamental will have the same intensity.

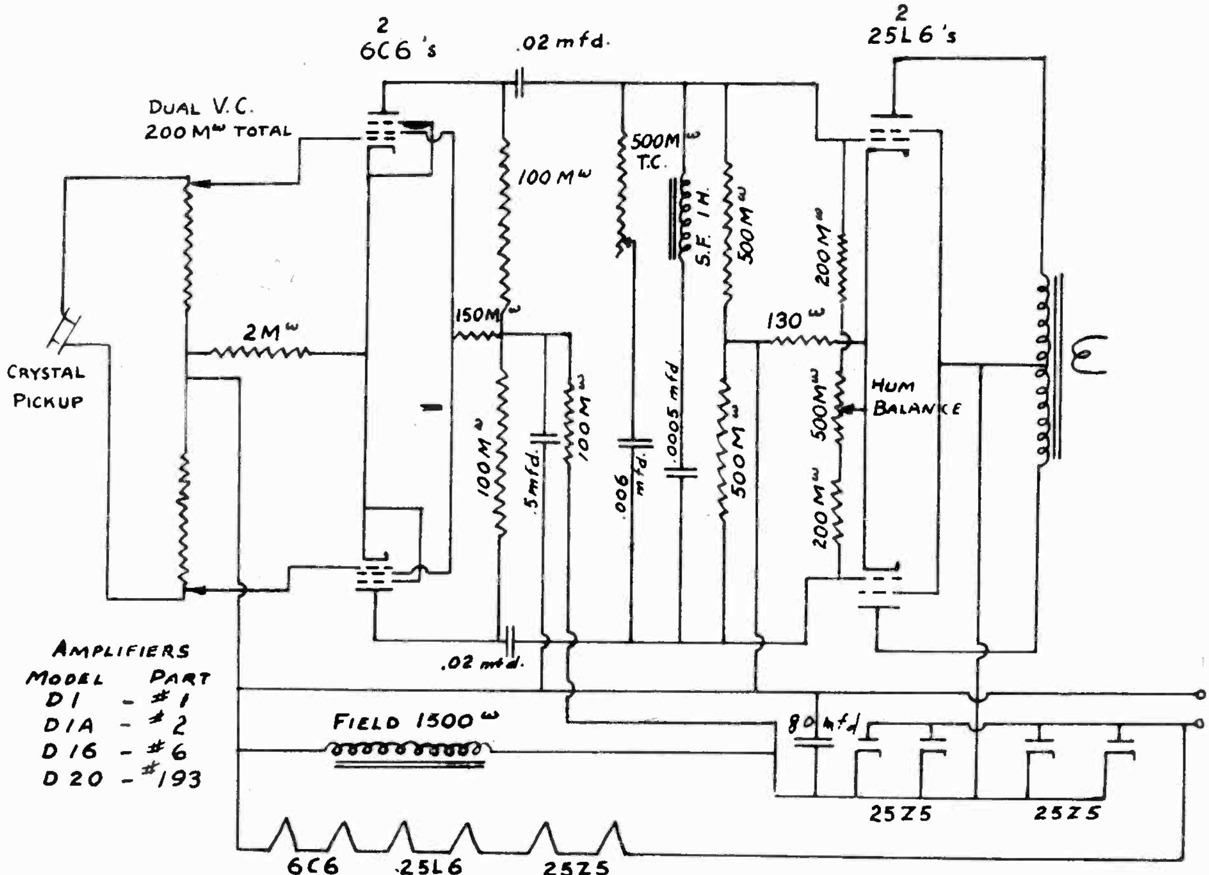
When you are sure the oscillator circuit is correct, place the signal on the grid of the 6S7G R.F. tube, and repeat the procedure on the R.F. coil. In this case when correct alignment has been made, the image will be lower in volume than the fundamental.

Replace the .1 mfd. condenser in the test generator lead with a 400 ohm resistor and connect to antenna terminal "A", and repeat procedure on antenna.

This method now assures you of correct individual alignment on each coil. Then proceed to touch up each coil except the oscillator, as outlined in 3 and 4.

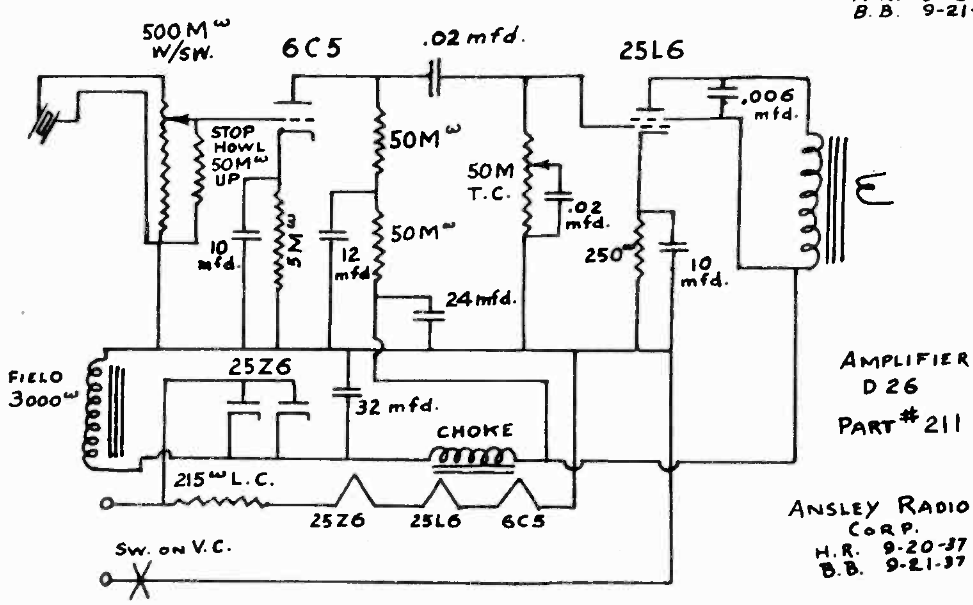
MODELS D1,D1A,
D16,D20,D26
Schematics

ANSLEY RADIO LABORATORIES



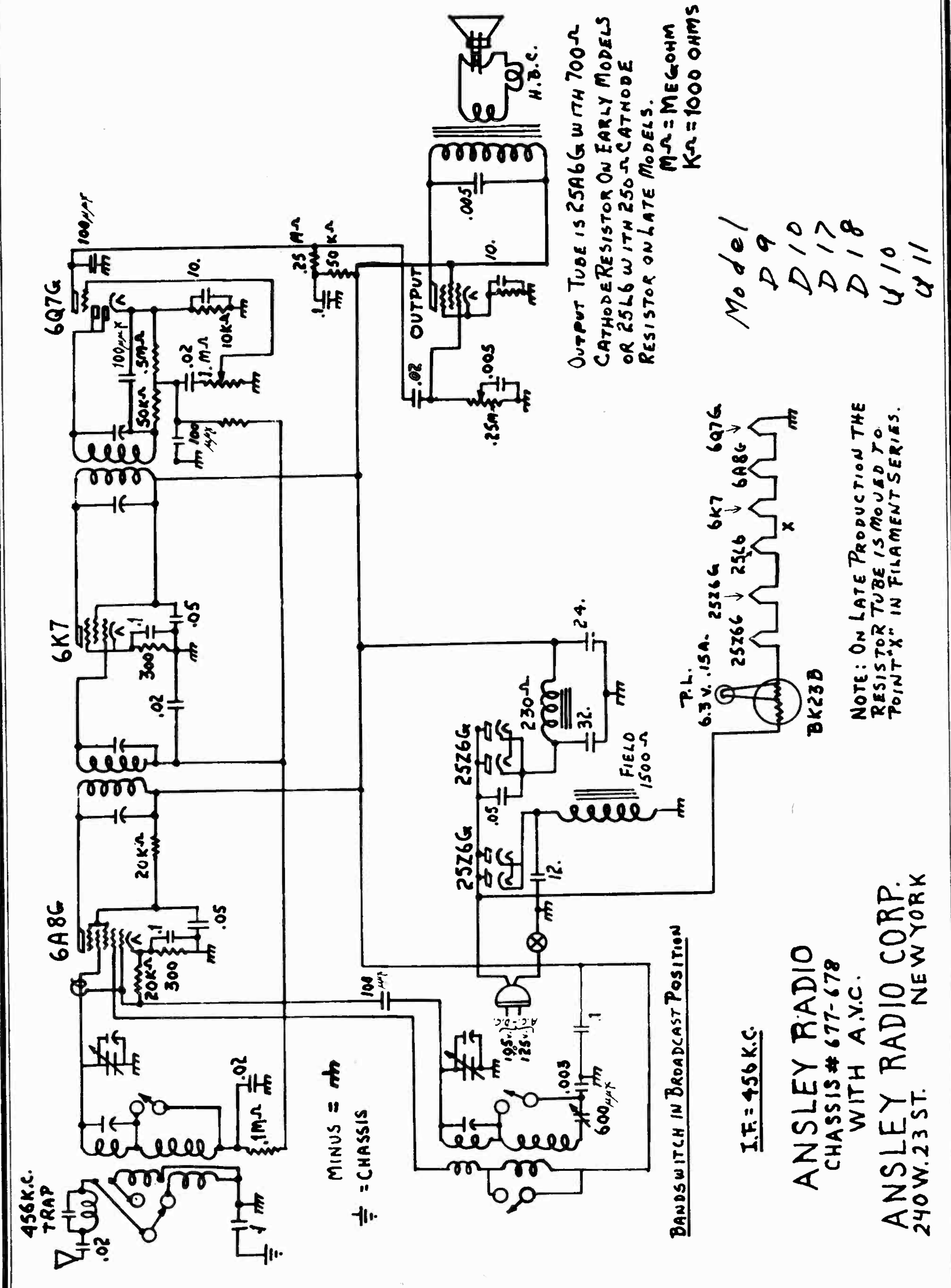
AMPLIFIERS

MODEL	PART
D1	- #1
D1A	- #2
D16	- #6
D20	- #193



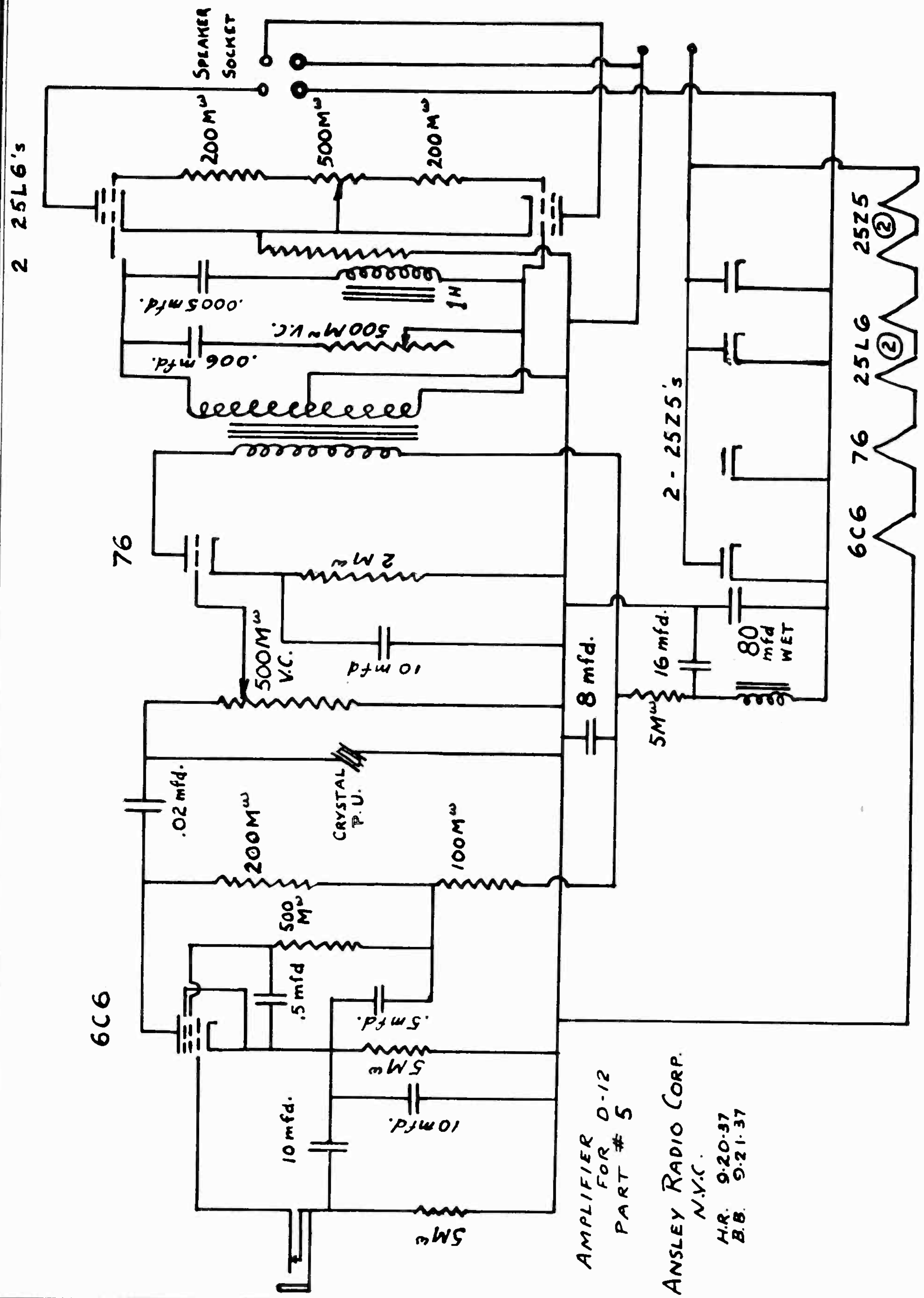
MODELS D9,D10,D17,D18
U10,U11
Schematic

ANSLEY RADIO LABORATORIES



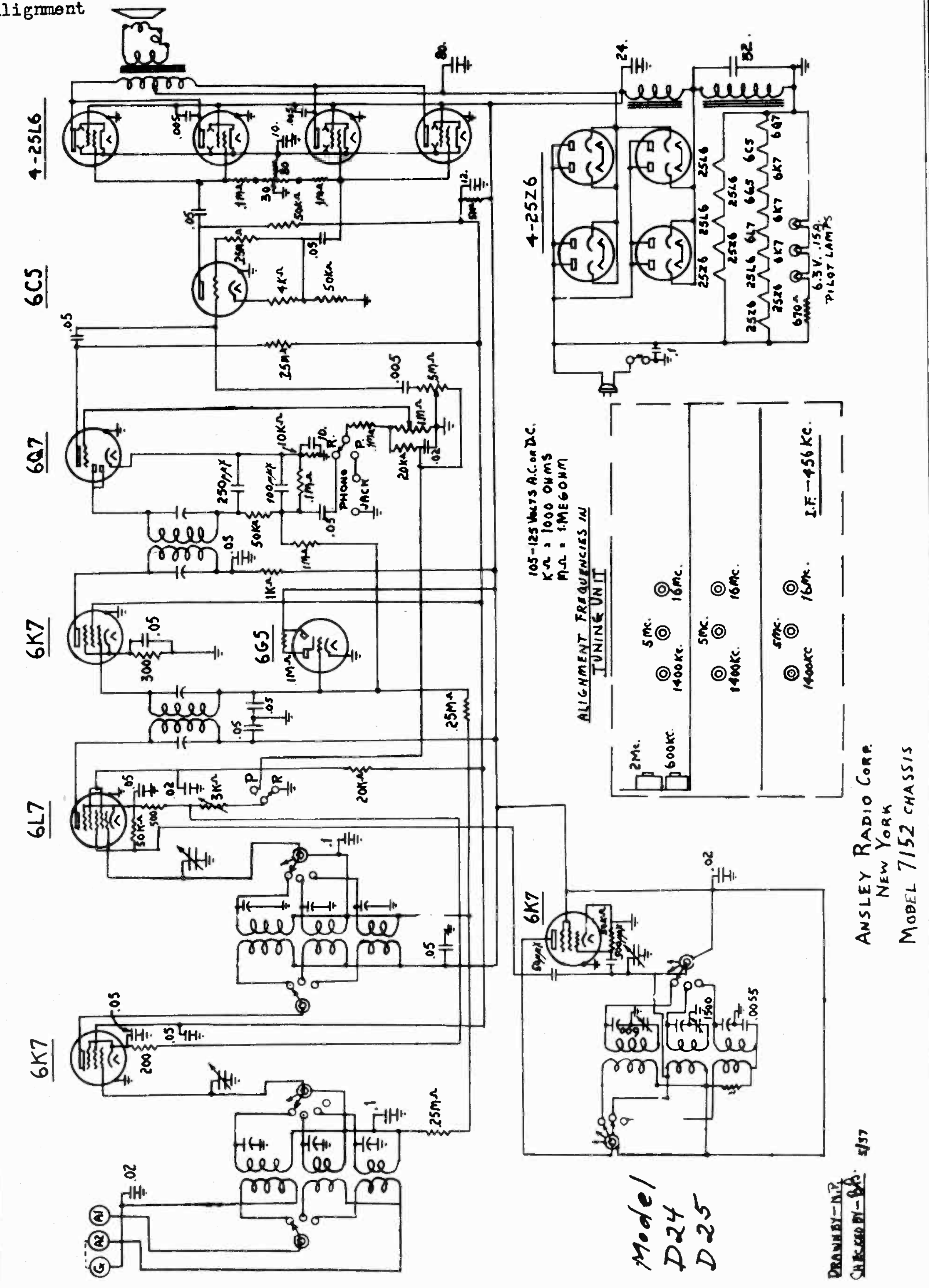
MODEL D12
Schematic

ANSLEY RADIO LABORATORIES



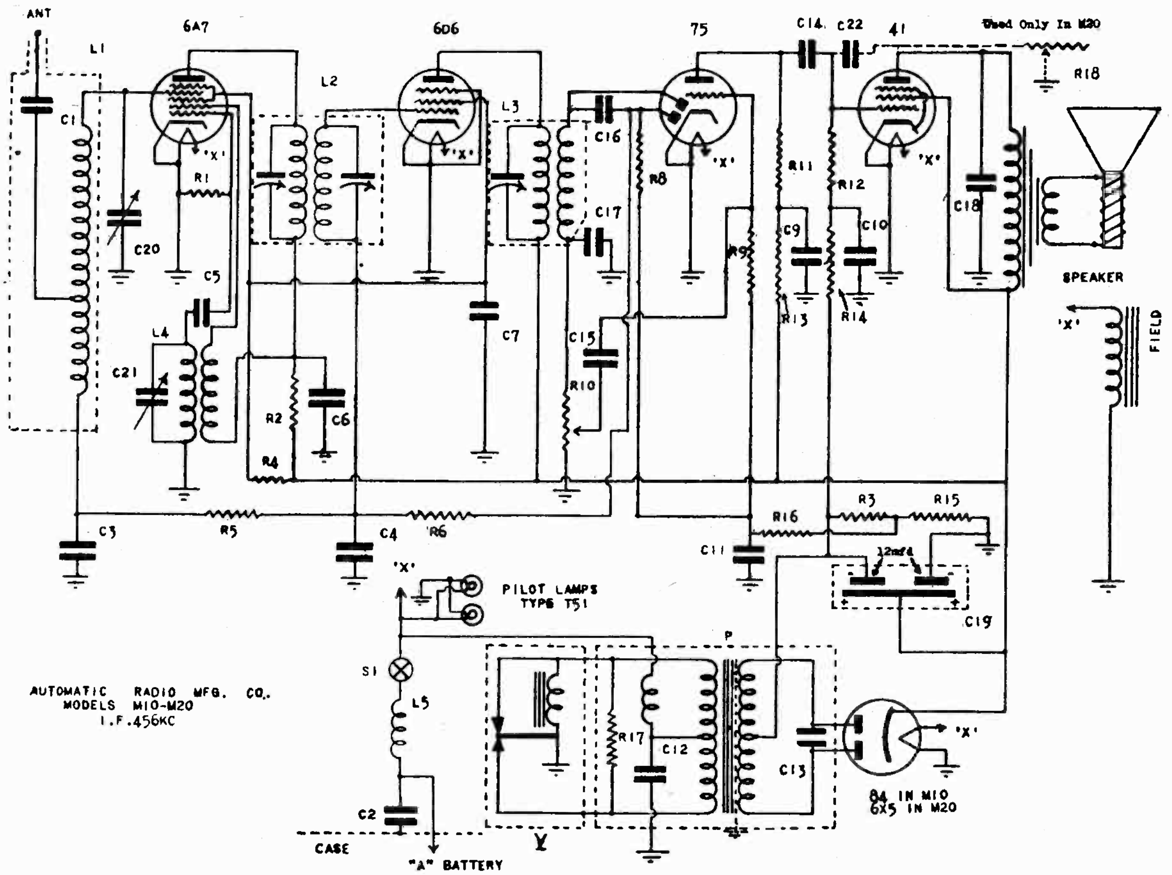
MODELS D24,D25
Chassis 7152
Schematic,Trimmers
Alignment

ANSLEY RADIO LABORATORIES



MODELS M10,M20
Schematic,Parts
Alignment

AUTOMATIC RADIO MFG. CO., INC.



AUTOMATIC RADIO MFG. CO.
MODELS M10-M20
I.F. 456KC

ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456 kc to the 6A7 grid. Connect an output meter across the secondary terminals of the speaker output transformer. With the weakest signal from the generator necessary to obtain .5 volt deflection on the output meter, peak the two trimmers on the first I. F. transformer and the single trimmer on the second I. F. transformer. This second I. F. transformer is located on the under side of the chassis.

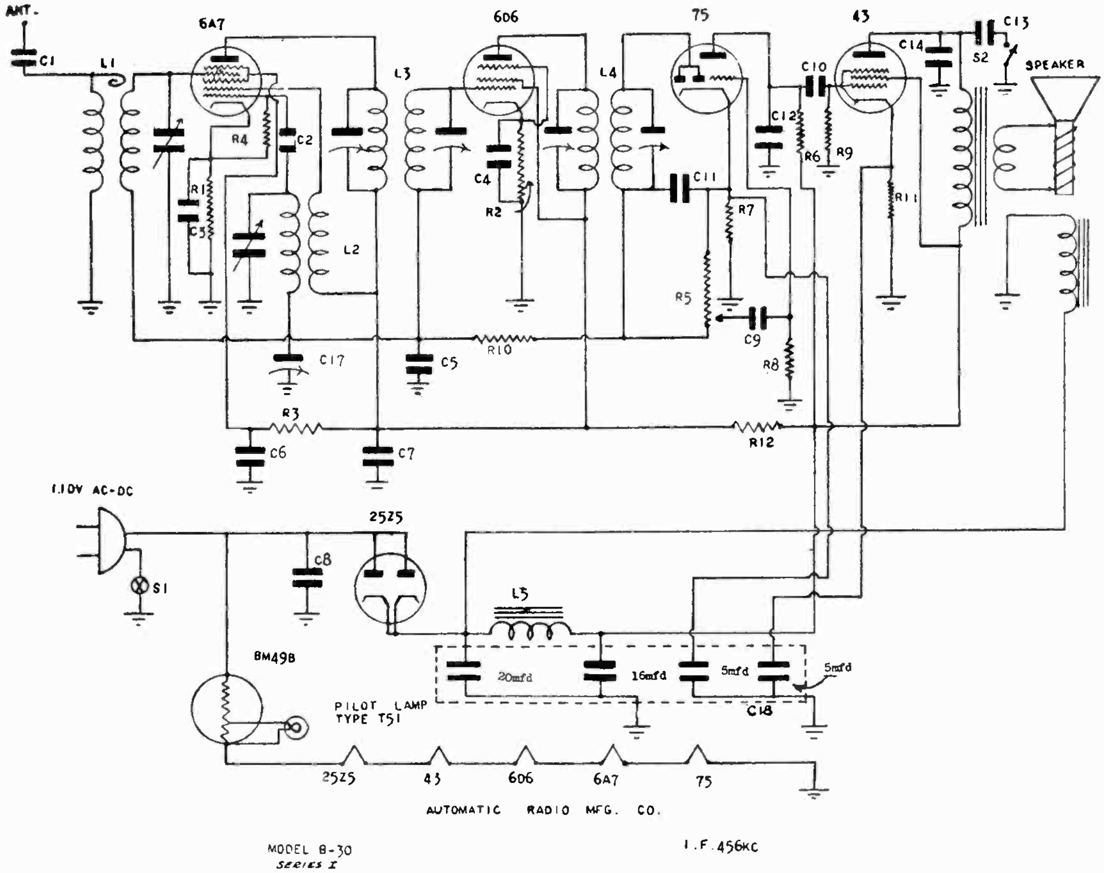
R. F. Alignment. Insert a 200mmfd condenser in series with the antenna lead of the receiver and the signal generator. Set the receiver dial to 1400kc and the signal generator to the same frequency. Again with the weakest signal necessary to obtain .5 volt deflection of the output meter, adjust the terminals on both sections of the variable condenser. It is the utmost importance in making these various adjustments that the signal level be attenuated as far as possible in order to overcome the AVC action which would otherwise introduce serious errors and prevent obtaining optimum results.

SCHEMATIC LOCATION	DESCRIPTION		
L1	Antenna Coil		
L2, L4	Composite I.F. Trans. and Osc.		
L3	2nd I.F. Transformer		
L5	"A" R.F. Choke		
——	Speaker		
P	Power Transformer		
V	Vibrator		
S1	Line Switch (On Vol. Control)		
C1, C2	Mica	Condenser	.0005mfd
C3, C4	Fixed	"	.05mfd—200v
C5, C16	Mica	"	100mmfd
C6, C7, C9, C10, C11	Fixed	"	.1mfd—200v
C12	Fixed	"	.5mfd—200v
C13	Fixed	"	.007mfd—1200v
C14, C15	Fixed	"	.01mfd—400v
C17	Mica	"	200mmfd
C18	Fixed	"	.005mfd—600v

SCHEMATIC LOCATION	DESCRIPTION	
C19	Electrolytic Condenser Block	
C20, C21	2 sect. Tuning Condenser	
C22	Fixed Condenser	.002mfd—600v
R1	Resistor	50,000 ohms—¼ Watt
R2	"	250 ohms—¼ Watt
R3	"	250 ohms—½ Watt
R4	"	25,000 ohms—¼ Watt
R5	"	250,000 ohms—¼ Watt
R6, R8, R9	"	1 megohm—¼ Watt
R10	Volume Control—½ megohm	
R11, R12	Resistor	½ megohm—¼ Watt
R13, R14	"	¼ megohm—¼ Watt
R15	"	30 ohms—¼ Watt
R16	"	100,000 ohms—¼ Watt
R17	"	150 ohms—¼ Watt
R18	Tone Control—½ megohm	

MODEL B30, Series I
Schematic, Parts
Alignment

AUTOMATIC RADIO MFG. CO., INC.



ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456kc to the 6A7 input and connect an output meter to the speaker output. Using a weak signal tune the two I. F. condensers on the first I. F. coil and the two I. F. condensers on the output I. F. coil for maximum response.

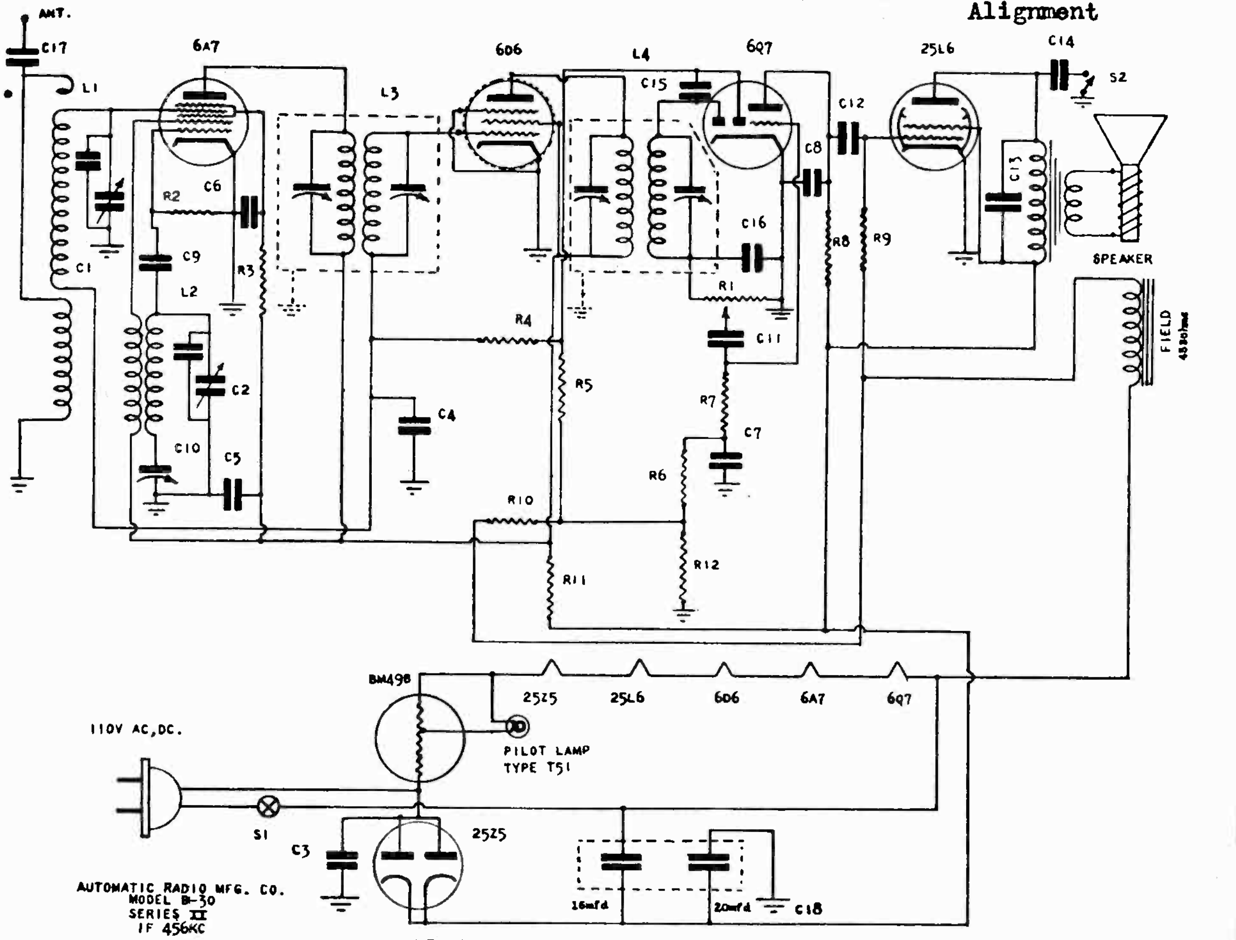
R. F. Alignment. Connect the signal generator set at 1400kc to the antenna lead using a dummy antenna of 200mmf. Tune the set by means of the dial to 1400kc position. Adjust oscillator trimmer for this frequency. Pad at 600kc. Recheck 1400 kc and trim antenna stage for maximum response. Repeating the alignment may result in improved sensitivity.

SCHEMATIC LOCATION	DESCRIPTION	PART NO.	LIST PRICE
L1	Antenna Coil	BA110	$ .50
L2	Oscillator Coil	BO110	.40
L3	1st IF Coil	LC110	.80
L4	2nd IF Coil	LC112	.80
L5	Filter Choke—300w	C1588	.80
——	Speaker	SD1	3.50
C1	Fixed Condensor — .002mfd—600v	——	.20
C2	Mica " — .0001mfd	——	.20
C3, C4, C5, C6, C7, C8	Fixed " — .1mfd—200v	——	.20
C9, C10	Fixed " — .01mfd—400v	——	.20
C11, C12	Mica " — .0002mfd	——	.20
C13	Fixed " — .02mfd—600v	——	.25
C14	Fixed " — .006mfd—600v	——	.20
C17	Variable Padder — 200-600mfd	——	.40
C18	Electrolytic Condensor Block	CE15	1.60
S1	Line Switch (On Volume Control)	——	——
S2	Tone Control Switch	S12	.40
R1, R2	Resistor — 250 ohms—¼ watt	——	.20
R3	Resistor — 25,000 ohms—¼ watt	——	.15
R4	Resistor — 50,000 ohms—¼ watt	——	.15
R5	Volume Control — 500,000 ohms	RV18	.80
R6	Resistor — 500,000 ohms—¼ watt	——	.15
R7	Resistor — 5,000 ohms—¼ watt	——	.15
R8, R9, R10	Resistor — 1 megohm—¼ watt	——	.15
R11	Resistor — 750 ohms—½ watt	——	.20
R12	Resistor — 30 ohms—¼ watt	——	.20

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

MODEL B30, Series II
Schematic, Parts
Alignment

AUTOMATIC RADIO MFG. CO., INC.



ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456kc to the 6A7 input and connect an output meter to the speaker output. Using a weak signal tune the two I. F. condensers on the first I. F. coil and the two I. F. condensers on the output I. F. coil for maximum response.

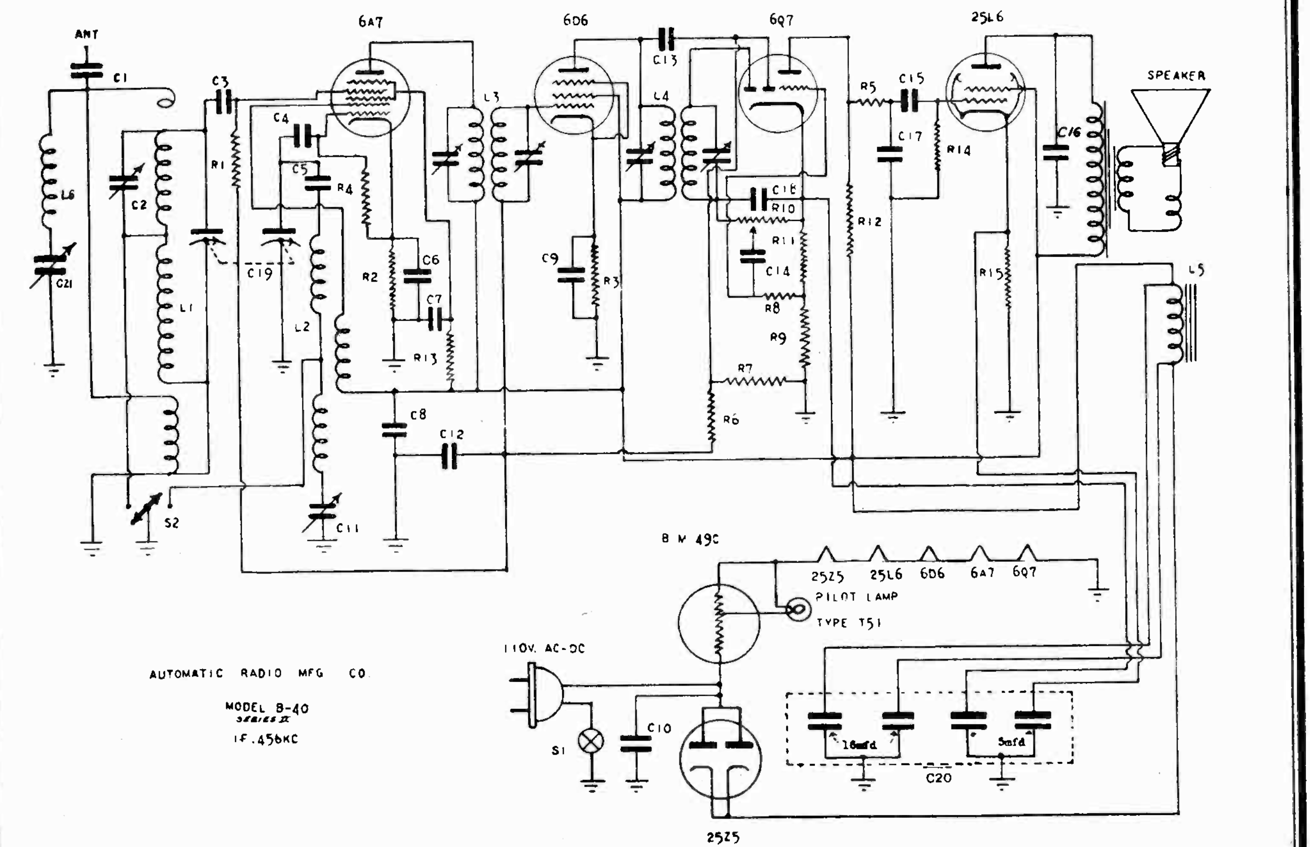
R. F. Alignment. Connect the signal generator set at 1400kc to the antenna lead using a dummy antenna of 200mmf. Tune the set by means of the dial to 1400kc position. Adjust oscillator trimmer for this frequency. Pad at 600kc. Recheck 1400kc and trim antenna stage for maximum response. Repeating the alignment may result in improved sensitivity.

SCHEMATIC LOCATION	DESCRIPTION		PART NO.	LIST PRICE
L1	Antenna Coil		BA110	$0.50
L2	Oscillator Coil		BO110	.40
L3	1st I.F. Coil		LC110	.80
L4	2nd I.F. Coil		LC112	.80
——	Speaker		SD23	3.50
C1, C2	Tuning Condenser		CV25	1.80
C3, C4, C5, C6, C7	Fixed "	.1mfd—200v	——	.20
C8, C9, C16	Mica "	200mmfd	——	.20
C15	Mica "	100mmfd	——	.20
C10	Variable Padder	550mmfd	——	.40
C11, C12, C13	Fixed Condenser	.01mfd—200v	——	.20
C14	Fixed "	.02mfd—600v	——	.20
C17	Fixed "	.002mfd—600v	——	.25
C18	Electrolytic Condenser Block		CE20	1.40
S1	Line Switch (On Vol. Control)		——	——
S2	Tone Control Switch		S12	.40
R1	Volume Control ¼ megohm		RV18	.80
R2	Resistors 50,000 ohms—¼ Watt		——	.15
R3	" 25,000 ohms—¼ Watt		——	.20
R4, R5	" 2 megohms—¼ Watt		——	.15
R6, R7	" 1 megohm—¼ Watt		——	.15
R8,	" ¼ megohm—¼ Watt		——	.15
R9	" ½ megohm—¼ Watt		——	.15
R10	" 100 ohms—½ Watt		——	.20
R11	" 30 ohms—¼ Watt		——	.20
R12	" 25 ohms—¼ Watt		——	.20

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

MODEL B40, Series II
Schematic, Parts
Alignment

AUTOMATIC RADIO MFG. CO., INC.



SCHEMATIC LOCATION	DESCRIPTION	LIST PRICE	SCHEMATIC LOCATION	DESCRIPTION	LIST PRICE
L1	Antenna Coil	$0.80	C17, C18	Mica " 200mmfd	.20
L2	Oscillator Coil	.75	C19	Tuning Condenser	1.80
L3	1st I. F. Transformer	.80	C20	Electrolytic Condenser Block	1.40
L4	2nd I.F. Transformer	.80	R1	Resistors 1 megohm—¼ Watt	.15
L5	Speaker Field—450 ohms	——	R2, R3	" 250 ohms—¼ Watt	.20
L6	Wave Trap	.50	R4, R5	" 50,000 ohms—¼ Watt	.15
S1	Line Switch (On Volume Control)	——	R6, R7, R8	" 2 megohms—¼ Watt	.20
S2	Band Switch	.40	R9	" 35,000 ohms—¼ Watt	.20
C1	Fixed Condenser .002mfd—600v	.20	R10	Volume Control 250,000 ohms	.80
C2, C13, C21	Trimmer Condensers 3-30mmfd	.20	R11	Resistors 7500 ohms—¼ Watt	.20
C3, C12	Fixed Condensers .005mfd—600v	.20	R12	" 250,000 ohms—¼ Watt	.15
C4	Mica " 100mmfd	.20	R13	" 25,000 ohms—¼ Watt	.20
C5 C10	Mica " 1900mmfd	.25	R14	" 500,000 ohms—¼ Watt	.15
C6, C7, C8, C9,	Fixed " .1mfd—200v	.20	R15	" 150 ohms—½ Watt	.25
C11	Variable Padder Condensers 550mmfd	.40	——	Speaker	3.75
C14, C15, C16	Fixed Condensers .01mfd—400v	.20			

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

ALIGNMENT PROCEDURE

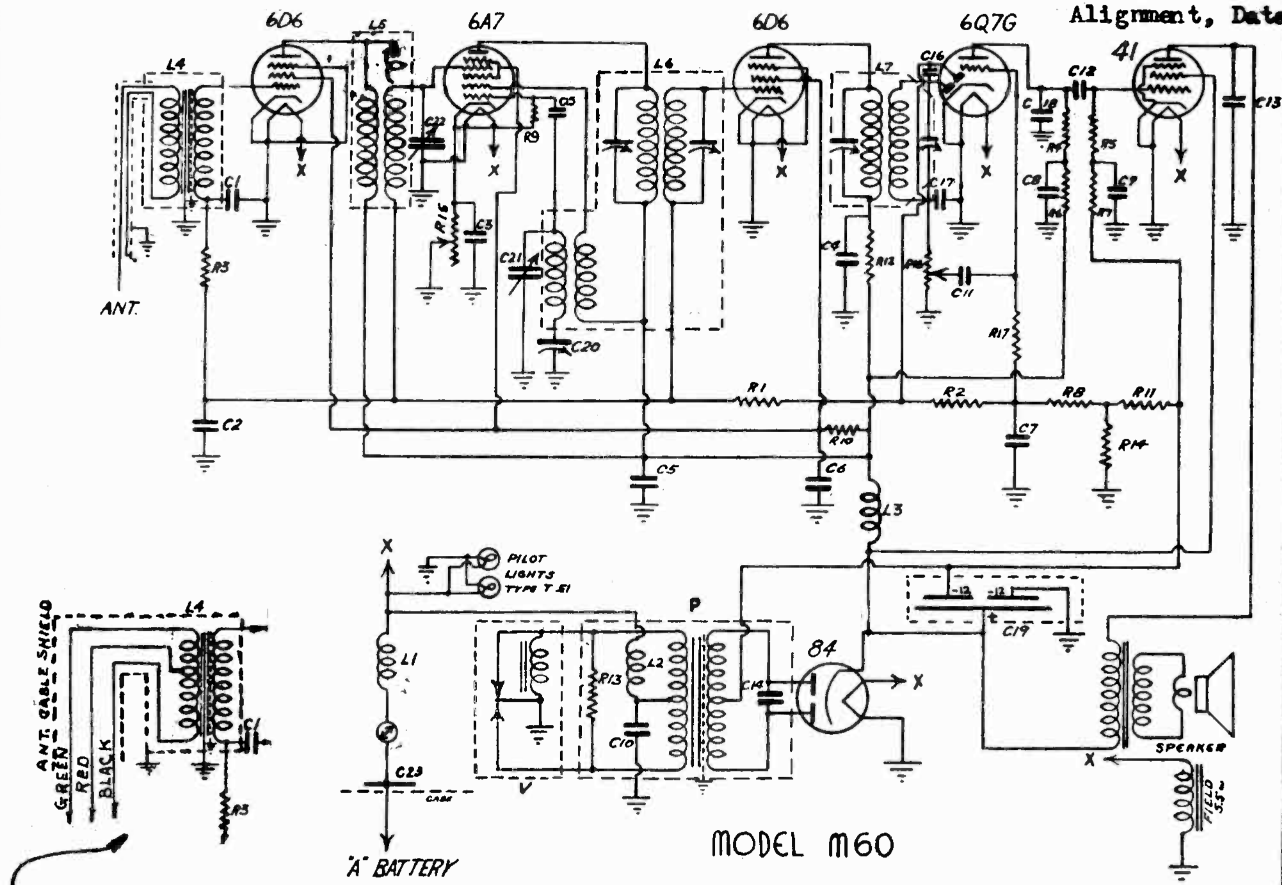
I. F. Alignment. Connect a signal generator set at 456kc to the 6A7 grid. Connect an output meter across the secondary terminals of the speaker output transformer. With the weakest signal from the generator necessary to obtain a .5 volt deflection on the output meter, peak the trimmers on both I. F. Transformers.

R. F. Alignment. Insert a 200mmfd condenser in series with the antenna lead of the receiver and the signal generator. Switch the receiver to the broadcast band and set the dial to 1400kc. Set the signal generator at the same frequency. With the weakest signal necessary to obtain .5 volt deflection on the output meter, adjust the trimmers on the variable condenser. Set the receiver to 600kc and with a signal of the same frequency adjust the oscillator padder condenser. Repeat the above procedure until certain that optimum adjustment has been secured. Now rotate the band switch to the short wave position. With the signal generator feeding a 6.0mc signal into the set, adjust the trimmer condenser on the antenna coil while "rocking" the variable condenser with the dial indicating a setting of approximately 6.0mc. It is imperative that all of the above adjustments be made with the signal level attenuated as far as possible in order to overcome the AVC action which would otherwise introduce serious errors and prevent obtaining best results.

Wave Trap Alignment. With a signal of a fairly high order and a frequency of 456kc being fed into the antenna input, adjust the trimmer on the trap coil to minimum response.

MODEL M60
Schematic, Parts Alignment, Data

AUTOMATIC RADIO MFG. CO., INC.



REVISED ANTENNA CIRCUIT FOR MODEL M-60

For high capacity antenna (above 300 MMF), such as built in roof antenna or large running board antenna GREEN lead should be connected to antenna, RED lead connected to antenna cable shielding, and BLACK lead taped (not used).

For medium capacity antennas (150 to 300 MMF), such as rear vertical rod or overhead strip, RED lead is connected to antenna, BLACK lead should be grounded to cable shield, and GREEN wire taped (not used).

For low capacity antenna (below 150 MMF) such as a hinge mounted vertical rod or a cowl rod, the GREEN lead should be connected to the antenna, the BLACK lead should be grounded to the cable shield and the RED lead should be taped, and pushed back into the cable.

Schematic Location	Description	Part No.	List Price
L1	"A" R.F. Choke	RF100	$0.20
L2	"A" R.F. Choke	RF101	.20
L3	"B" R.F. Choke	RF102	.40
L4	Antenna Coil	BA200	.80
L5	Interstage Coil	BR200	.75
L6	Composite I.F. Trans. an Osc.	LC200	.90
L7	2nd I.F. Transformer	L200	.80
P	Power Transformer	P300	1.80
V	Vibrator	V100	2.40
——	Speaker	SD16	3.50
C1, C2	Fixed Condenser .05 mfd—200 volt	——	.20
C3, C4, C5, C6, C7, C8, C9	" " .1 mfd—200 volt	——	.20
C10	" " .5 mfd—150 volt	——	.30
C11, C12	" " .01 mfd—400 volt	——	.20
C13	" " .006 mfd—600 volt	——	.20
C14	" " .007 mfd—1200 volt	——	.30
C15, C16	Mica Condenser 100 mmfd	——	.20
C17, C18	" " 200 mmfd	——	.20
C19	Electrolytic Condenser Block	CE12	1.20
C20	Variable Padder Condenser 500 mmfd	——	.40
C21, C22	2 Sect. Tuning Condenser	CV21	1.80
C23	Spark Plate 250 mmfd	——	.30
R1, R2, R17	Resistor 1 megohm ¼ watt	——	.15
R3, R4, R5	" ½ megohm ¼ watt	——	.15
R6, R7	" ¼ megohm ¼ watt	——	.15
R8	" 100,000 ohms ¼ watt	——	.15
R9	" 50,000 ohms ¼ watt	——	.15
R10	" 25,000 ohms ½ watt	——	.20
R11	" 250 ohms ½ watt	——	.20
R12	" 250 ohms ¼ watt	——	.20
R13	" 150 ohms ¼ watt	——	.20
R14	" 35 ohms ¼ watt	——	.20
R15	Sensitivity Control 3,000 ohms	RV20	.80
R16	Volume Control 500,000 ohms	RV19	.80

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

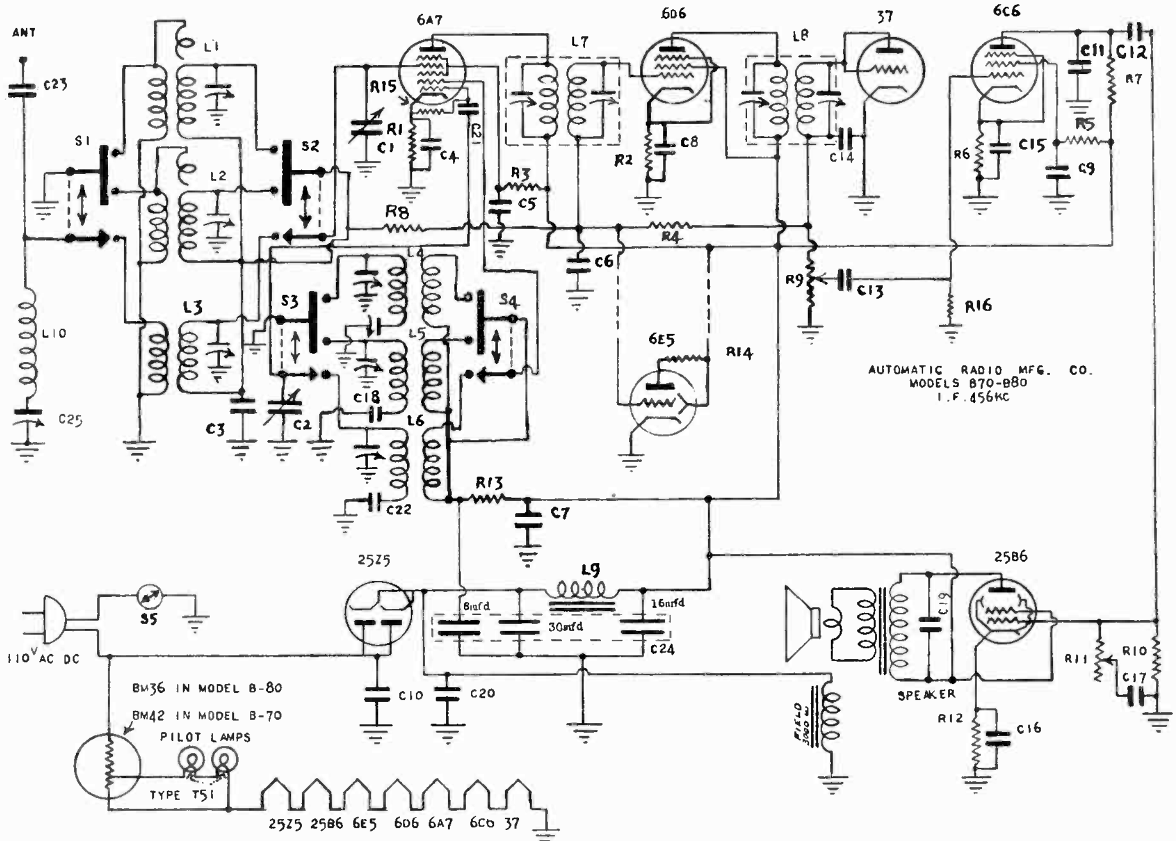
ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456kc to the 6A7 input and connect an output meter to the speaker output. Using a weak signal tune the two I. F. condensers on the composite coil and the two I. F. condensers on the output I. F. coil for maximum response.

Connect the signal generator set at 1400kc to the antenna lead using a dummy antenna of 200 mmf. Tune the set by means of the dial to 1400kc position. Adjust oscillator trimmer for this frequency. Pad at 600kc, Recheck 1400kc and trim antenna stage for maximum response. Repeating the alignment may result in improved sensitivity.

MODELS B70, B80
Schematic, Parts
Alignment

AUTOMATIC RADIO MFG. CO., INC.



ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456kc to the 6A7 input and connect an output meter to the speaker output. Using a weak signal tune the two I. F. condensers on the composite coil and the two I. F. condensers on the output I. F. coil for maximum response.

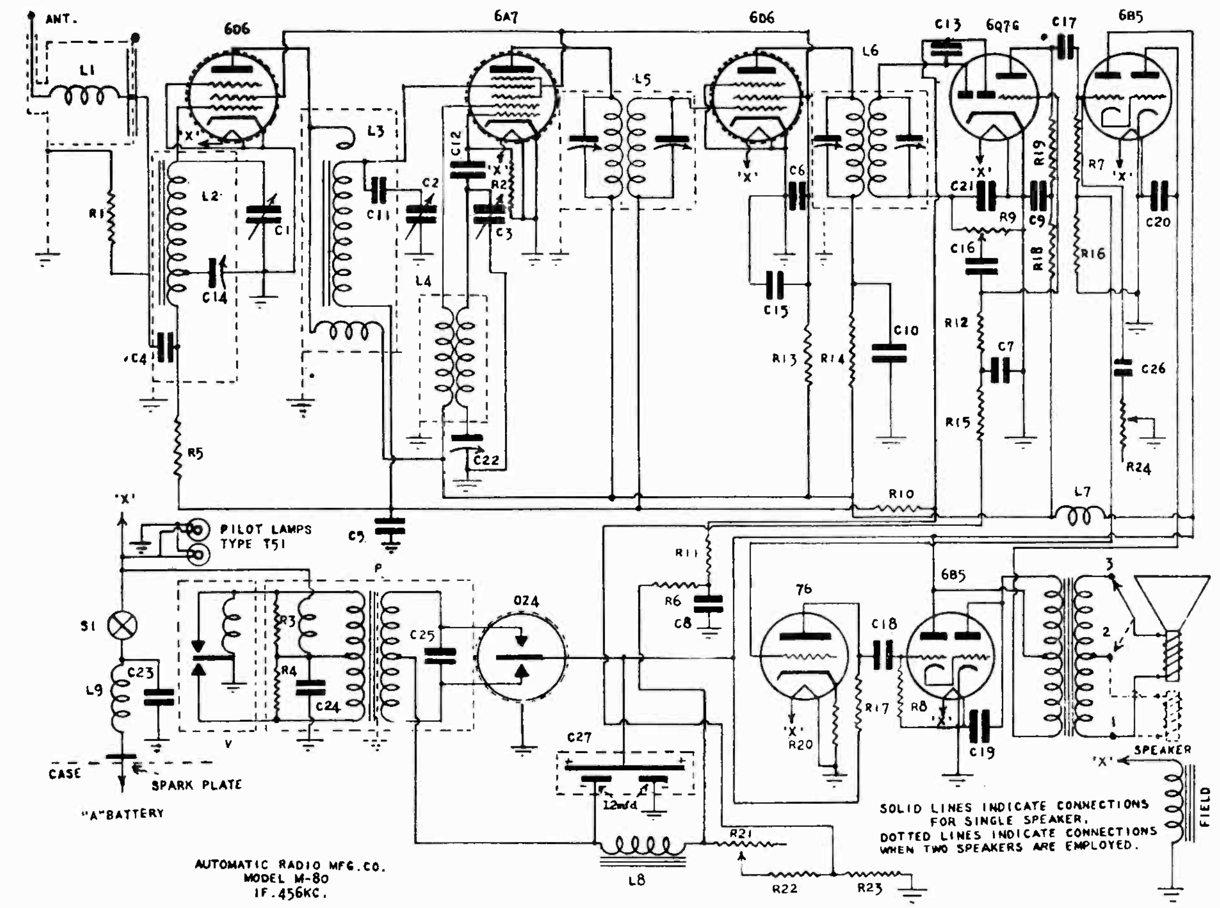
R. F. Alignment. Connect the signal generator set at 1400kc to the antenna lead using a dummy antenna of 200mmf. Tune the set by means of the dial to 1400kc position. Adjust oscillator trimmer for this frequency. Pad at 600kc. Recheck 1400kc and trim antenna stage for maximum response. Repeating the alignment may result in improved sensitivity. **Introduce a 456kc signal** into the antenna lead and adjust Trap Condenser (C25) for minimum response.

SCHEMATIC LOCATION	DESCRIPTION		
L1	Antenna Coil Band A		
L2	" " " B		
L3	" " " C		
L4	Oscillator Coil Band A		
L5	" " " B		
L6	" " " C		
L7	1st I.F. Coil		
L8	2nd I.F. Coil		
L9	Filter Choke		
L10	Antenna Wave Trap		
——	Speaker		
S1, S2, S3, S4	Band Switch		
S5	Line Switch (On Vol. Control)		
C1, C2	Tuning Condenser		
C3, C4, C5, C6, C7, C8, C9, C10	Fixed	"	.1mfd—200v
C11, C14	Mica	"	200mmfd
C12, C13	Fixed	"	.02mfd—600v
C15, C16	Fixed	"	5mfd—35v
C17	Fixed	"	.0015mfd—600v

SCHEMATIC LOCATION	DESCRIPTION		
C18	Mica	"	1400mmfd
C19, C20	Fixed	"	.006mfd—600v
C21	Mica	"	100mmfd
C22	Fixed	"	4500mmfd—200v
C23	Fixed	"	.002mfd—600v
C24	Electrolytic Condenser Block		
C25	Trimmer Condenser 3–30mmfd		
R1, R2	Resistors	250 ohms—1/4 Watt	
R3	"	25,000 ohms—1/4 Watt	
R4	"	2 megohms—1/4 Watt	
R5, R14	"	1 megohm—1/4 Watt	
R6	"	2,500 ohms—1/4 Watt	
R7, R8	"	250,000 ohms—1/4 Watt	
R9	Volume Control	250,000 ohms	
R10	Resistors	500,000 ohms—1/4 Watt	
R11	Tone Control	500,000 ohms	
R12	Resistors	300 ohms—1 Watt	
R13	"	7,500 ohms—1/4 Watt	
R15	"	50,000 ohms—1/4 Watt	
R16	"	2 megohms—1/4 Watt	

AUTOMATIC RADIO MFG. CO., INC.

MODEL M80
Schematic, Parts
Alignment



ALIGNMENT PROCEDURE

I. F. Alignment. Connect a signal generator set at 456 kc to the 6A7 grid. Connect an output meter across the secondary terminals of the speaker output transformer. With the weakest signal from the generator necessary to obtain .5 volt deflection on the output meter, peak the trimmers on both I. F. transformers.

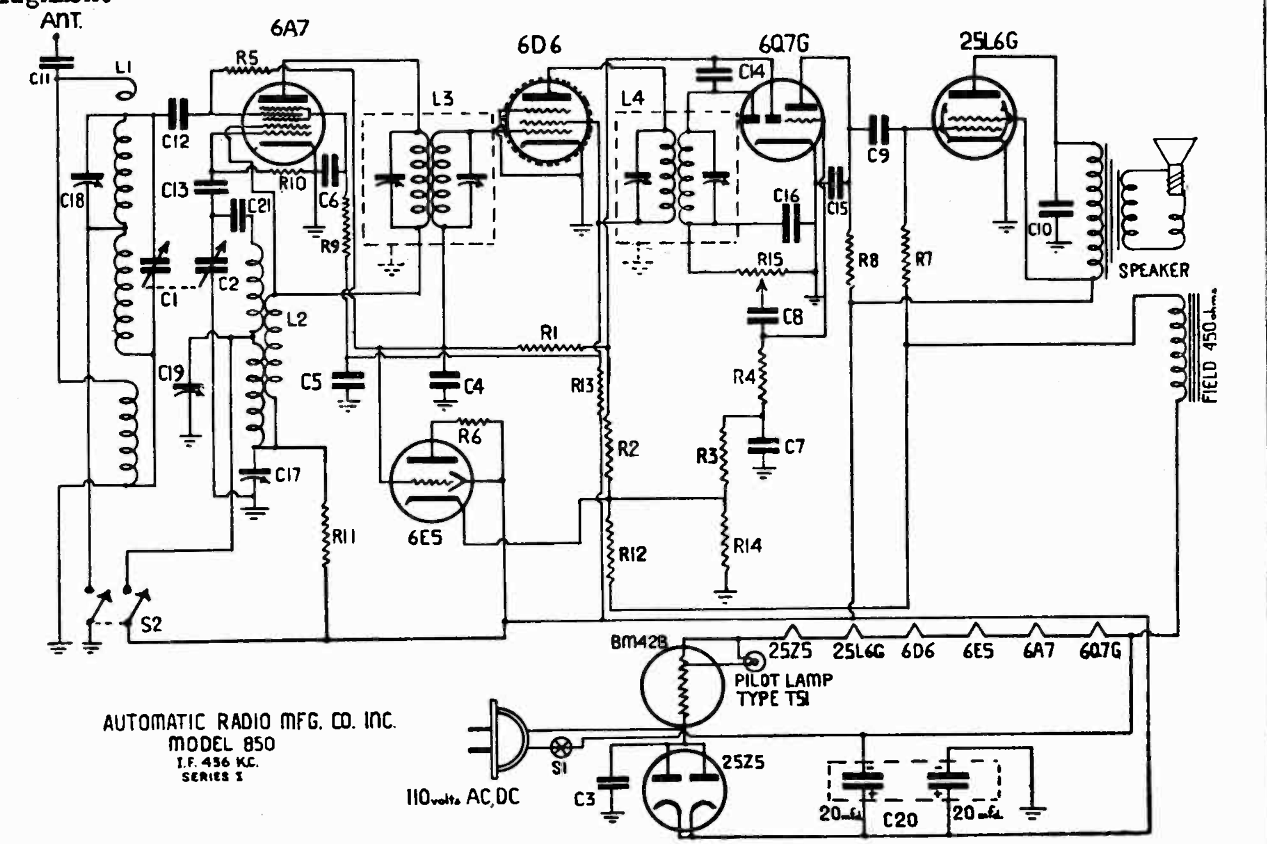
R. F. Alignment. Insert a 200mmfd condenser in series with the antenna lead of the receiver and the signal generator. Set the receiver dial to 1400kc and the signal generator to the same frequency. Again with the weakest signal necessary to obtain 1 volt deflection of the output meter, adjust the trimmers on the oscillator, antenna and interstage sections of the variable condenser. Tune the receiver to 600kc and set the signal generator to this frequency. Adjust the padder condenser for maximum signal response to minimum signal input. Repeat the high frequency alignment.

It is of the utmost importance in making these various adjustments that the signal level be attenuated as far as possible in order to overcome the AVC action which would otherwise introduce serious errors and prevent obtaining optimum results.

SCHEMATIC LOCATION	DESCRIPTION		
L1	Antenna Noise Filter		
L2	Antenna Coil		
L3	Interstage Coil		
L4	Oscillator Coil		
L5	1st I.F. Coil		
L6	2nd I.F. Coil		
L7	"B" R.F. Choke		
L8	Filter Choke—100 ohms		
L9	"A" R.F. Choke		
——	Speaker		
S1	Line Switch (On Vol. Control)		
P	Power Transformer		
V	Vibrator		
C1, C2, C3	Tuning Condenser		
C4	Fixed	"	.01mfd—200v
C5, C6, C7, C8, C9, C10	Fixed	"	.1mfd—200v
C11	Padder	"	1477mfd
C14	Padder	"	1300mfd
C22	Padder	"	300mfd
C12, C13	Mica	"	100mmfd
C21	Mica	"	200mmfd

SCHEMATIC LOCATION	DESCRIPTION		
C15	Electrolytic	"	8mfd—175v
C16, C17, C18, C26	Fixed	"	.02mfd—200v
C19, C20	Fixed	"	.006mfd—600v
C23, C24	Fixed	"	.5mfd—200v
C25	Fixed	"	.008mfd—1200v
C27	Electrolytic Condenser Block		
R1, R2	Resistors		50,000 ohms—1/3 Watt
R3, R4	"		50 ohms—1/3 Watt
R5, R6, R7, R8	"		½ megohm—1/3 Watt
R10, R11, R12	"		1 megohm—1/3 Watt
R13	"		10,000 ohms—½ Watt
R14	"		250 ohms—1/3 Watt
R15, R16, R17, R18	"		100,000 ohms—1/3 Watt
R19	"		¼ megohm—1/3 Watt
R20	"		5,000 ohms—1/3 Watt
R22	"		17 ohms—1 Watt
R23	"		13 ohms—1 Watt
R9	Volume Control—½ megohm		
R21	Sensitivity Control—115 ohms		
R24	Tone Control—50,000 ohms		

AUTOMATIC RADIO MFG. CO., INC.



ALIGNMENT PROCEDURE

I. F. Alignment. The intermediate frequency to which this set should be adjusted is 456 K.C. To align the intermediate frequency transformers properly, a signal generator emitting a signal of 456 K.C. should be coupled to the signal control grid of the 6A7 tube through a 200 mmfd condenser. An output meter should be connected across the voice coil of the speaker. The four trimmers mounted internally in the top of the two I. F. cans should be adjusted to resonance. The output of the signal generator should be attentuated so as to provide the weakest possible signal necessary to produce a .5 volt deflection on the output meter.

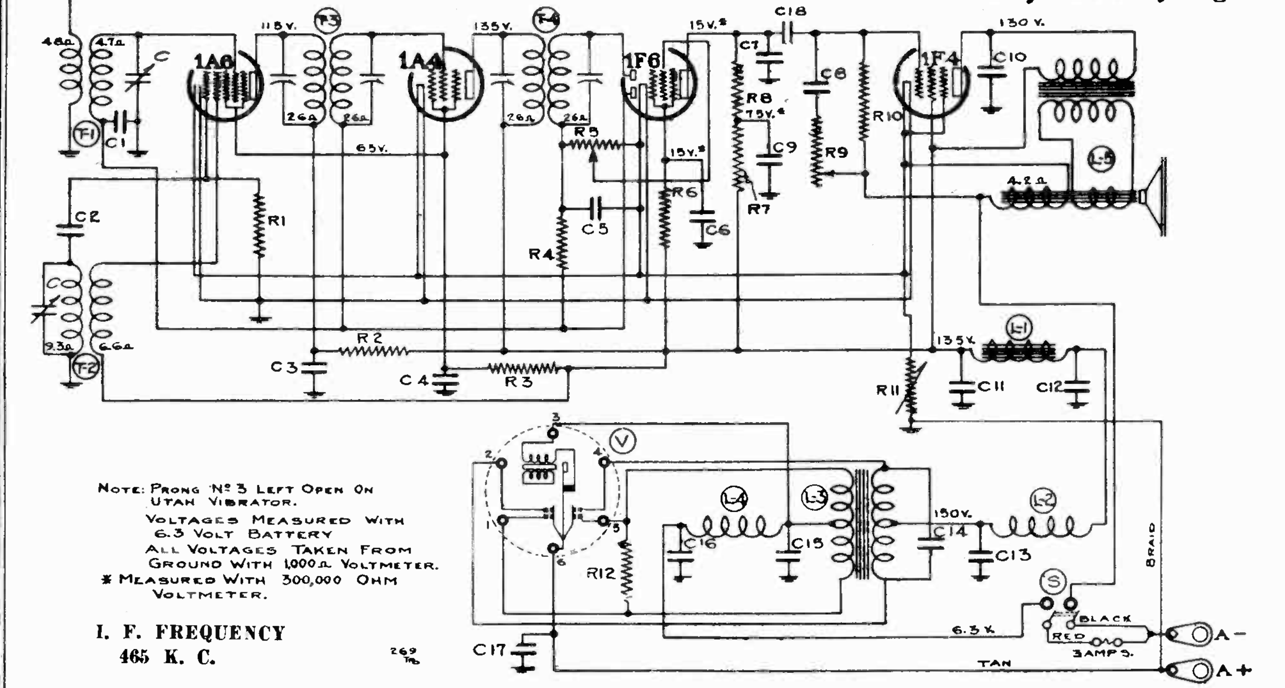
R. F. Alignment. Adjust the signal generator to 17.4 MC. Feed this signal into the antenna lead of the receiver through a 400 ohm resistor. Rotate the band switch on the receiver to the Short Wave position and set the tuning dial to 17.4 on the Short Wave Scale. Adjust the trimmer on the rear section for maximum signal output. Rotate the Band Switch to the broadcast position. Replace the 400 ohm resistor in the Oscillator lead with a 200 mmfd condenser. Set the signal generator to 1560 K.C. and tune the receiver to the same frequency. Adjust the small trimmer condenser which is located near the Oscillator coil underneath the Chassis, to maximum signal response. Attentuate the output of the signal generator to the extent necessary for maintaining a deflection of .5 volts on the output meter and adjust the trimmer mounted on the front section of the variable condenser to resonance. Set the signal generator and the receiver at 600 K.C. and adjust the padder condenser for optimum response. Repeat the last two adjustments to insure accuracy of alignment. Rotate the Band Switch to the Short Wave position and with the signal generator and receiver tuned to 15 MC, adjust the small trimmer condenser which is located near the Short Wave Antenna coil. This last operation should be made with the 400 ohm resistor in the antenna circuit.

It is imperative that all adjustments be made with the minimum signal necessary to obtain the designated deflection on the output meter. This will obviate any difficulty arising from the A.V.C. action of the receiver, and will permit adjustment to absolute resonance.

SCHEMATIC LOCATION	DESCRIPTION		
L1	Antenna Coil		
L2	Oscillator Coil		
L3	1st I F Transformer		
L4	2nd I F Transformer		
———	Speaker		
S1	Line Switch (On Vol. Control)		
S2	Band Selector Switch		
C1, C2	2 Sect. Variable Condenser		
C3, C4, C5, C6, C7	Fixed Condensers		.1mfd—200v
C8, C9, C10	Fixed	"	.01mfd—400v
C11	Fixed	"	.002mfd—600v
C12	Fixed	"	.006mfd—600v
C13, 14	Mica	"	100mmfd
C15, C16	Mica	"	200mmfd
C21	Mica	"	3660mmfd
C17	Padder	"	550mmfd
C18, C19	Trimmer	"	3–30mmfd
C20	Electrolytic Condenser		
R1, R2	Resistors		2 megohms—¼ Watt
R3, R4, R5, R6	"		1 megohm—¼ Watt
R7	"		½ megohm—¼ Watt
R8	"		¼ megohm—¼ Watt
R9	"		25,000 ohms—¼ Watt
R10	"		50,000 ohms—¼ Watt
R11	"		5,000 ohms—¼ Watt
R12	"		100 ohms—1 Watt
R13	"		30 ohms—¼ Watt
R14	"		25 ohms—¼ Watt
R15	Volume Control		¼ megohm

BELMONT RADIO CORP.

MODEL 415, Series A
Schematic, Voltage, Parts
Socket, Trimmers, Alignment



NOTE: PRONG No 3 LEFT OPEN ON UTAH VIBRATOR.
VOLTAGES MEASURED WITH 6.3 VOLT BATTERY
ALL VOLTAGES TAKEN FROM GROUND WITH 1,000 Ω VOLTMETER.
* MEASURED WITH 300,000 OHM VOLTMETER.

I. F. FREQUENCY
465 K. C.

No.	Part No.	Description
		CONDENSERS
C1	100-10	.05 x 200 Volts
C2	129-12	.00025 Mica
C3	100-33	.1 x 200 Volts
C4	100-33	.1 x 200 Volts
C5	129-12	.00025 Mica
C6	100-33	.1 x 200 Volts
C7	129-5	.0001 Mica
C8	100-25	.002 x 600 Volts
C9	100-9	.05 x 200 Volts
C10	100-7	.005 x 600 Volts
C11	119-28	5 mfd. x 200 Working Voltage
C12	119-28	5 mfd. x 200 Working Voltage
C13	100-33	.1 x 200 Volts
C14	100-34	.005 x 1200 Volts
C15	100-40	.5 mfd. x 200 Working Voltage
C16	100-40	.5 mfd. x 200 Working Voltage
C17	100-35	.5 x 200 Volts
C18	100-11	.01 x 400 Volts

NOTE: C11 & C12 in one unit—No. 119-28

No.	Part No.	Description
		RESISTORS
R1	130-94	50M Ohm—1/3 Watt
R2	130-17	10M Ohm—1/3 Watt
R3	130-123	15M Ohm—1/2 Watt
R4	130-121	3.2 megohm—1/3 Watt
R5	101-56	1 meg ohm—Volume Control
R6	130-19	1 meg ohm—1/3 Watt
R7	130-20	100M Ohm—1/3 Watt
R8	130-11	250M Ohm—1/3 Watt
R9	101-59	1 meg ohm—Tone Control
R10	130-37	750M Ohm—1/3 Watt
R11	101-44	4.75 Ohm—Filament Rheostat
R12	130-124	200 Ohm—1/2 Watt

No.	Part No.	Description
		MISCELLANEOUS PARTS
C	102-38	One Section of Two Gang
T1	111-66	Antenna Coil
T2	110-45	Oscillator Coil
T3	108-84	Input I.F.—465 Kc.
T4	108-85	Output I.F.—465 Kc.
L1	105-30	Filter Choke
L2	123-3	R.F. Choke Coil
L3	104-62	Power Transformer
L4	105-19	"A" Choke
L5	114-50	6" Spkr. (Field Res. 4.2 Ohms)
S	101-56	On Volume Control
V	126-4	Vibrator Unit

NOTE: R11, Part No. 101-44 Variable Filament Rheostat is adjusted at the factory to keep the filament voltage of the tubes at 2 volts.

TUBES:

The tube complement of this chassis consists of the following tubes:

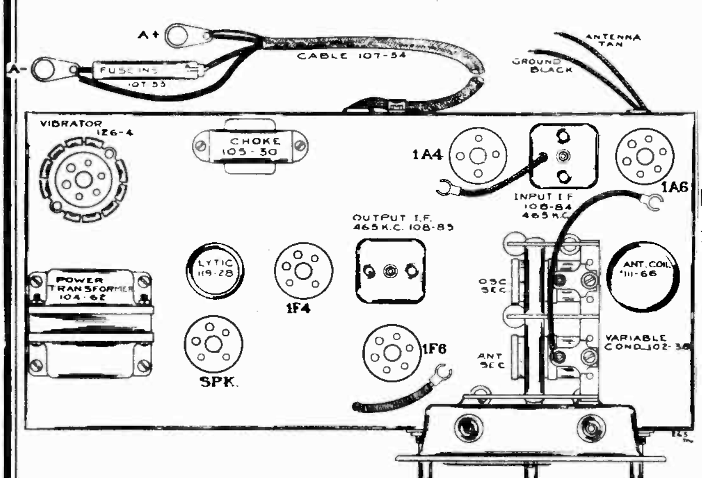
The type and function of each tube is as follows:

1—Type 1A6 Pentagrid Mixer, First Detector-oscillator.

1—Type 1A4 Super Control R. F. Tetrode I. F. Amplifier (465 K.C.)

1—Type 1F6 Duplex Diode Pentode, Second Detector, A.V.C. and First Audio.

1—Type 1F4 Pentode Output Amplifier.



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

Part No. 108-85 Output I.F. Transformer.
Part No. 108-84 Input I.F. Transformer.

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

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:

   (a) Connect external oscillator set at 465 kilocycles, in series with .1 mfd. condenser, to the control grid cap of the type 1A4 tube, and adjust the output I.F. transformer (No. 108-85) to resonance.

   (b) Move oscillator output clip from grid of 1A4 to grid cap of 1A6 and adjust input I.F. transformer (No. 108-84) to resonance.

   (c) With oscillator still connected to 1A6, readjust output I.F. transformer (108-85) if necessary.

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

1. With gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with a 200 mmf. condenser to tan antenna and black ground leads and make the following adjustments:

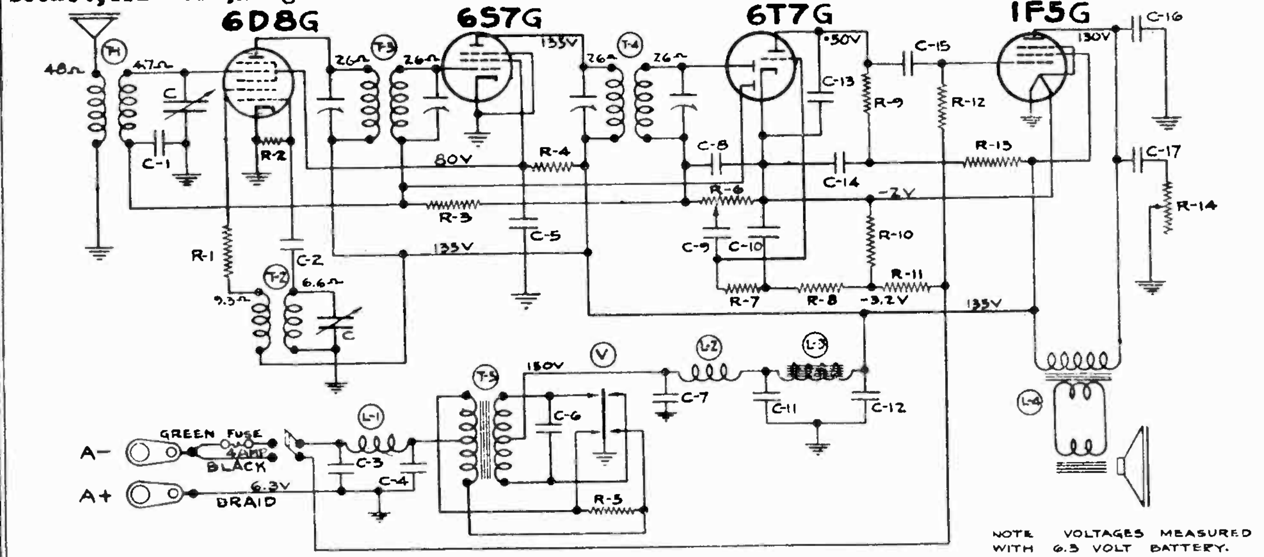
   (a) With external oscillator set at 1720 kilocycles, adjust oscillator trimmer (rear of gang condenser).

   (b) Re-set external oscillator to 1400 kilocycles, rotate condenser, pick up oscillator signal and adjust antenna trimmer to resonance (front section of gang condenser).

   (c) Check sensitivity at 600 and 1000 kilocycles.

MODEL 415, Series B
Schematic, Voltage
Socket, Trimmers, Alignment

BELMONT RADIO CORP.



NOTE. VOLTAGES MEASURED WITH 6.3 VOLT BATTERY. ALL VOLTAGES TAKEN FROM GROUND WITH 1000Ω PER VOLT METER. * MEASURED WITH 0-300V SCALE.

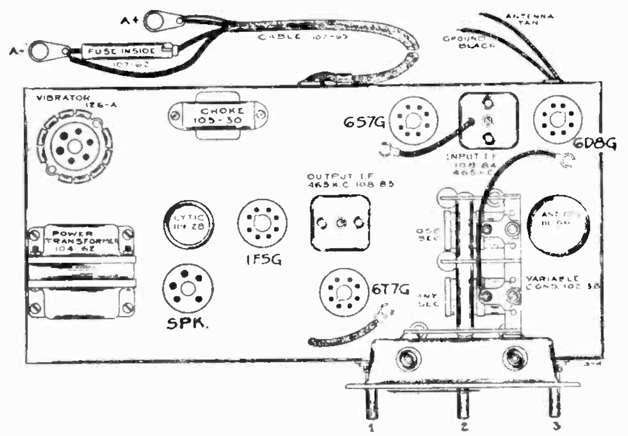
IF PEAK 465 KC

305

No.	Part No.	DESCRIPTION RESISTORS
R1	130-23	2M-1/3
R2	130-76	30M-1/3
R3	130-121	3.2 meg-1/3
R4	130-123	15M-1/2
R5	130-84	200-1/3
R6	101-56	1 meg-Volume Control
R7	130-19	1 meg-1/3
R8	130-19	1 meg-1/3
R9	130-100	150M-1/3
R10	106-36	10 Ohm Muter
R11	106-36	25 Ohm Muter
R12	130-19	1 meg-1/3
R13	130-20	100M-1/3
R14	101-72	300M-Tone control

		CONDENSERS
C1	100-9	.05-200 v.
C2	129-39	.00005-Mica
C3	100-40	.5-200 v.
C4	100-40	.5-200 v.
C5	100-33	.1-200 v.
C6	100-34	.005-1200 v.
C7	100-33	.1-200 v.
C8	129-5	.0001-Mica
C9	100-11	.01-400 v.
C10	100-11	.01-400 v.
C11	119-28	5. Electrolytic-200 wv.
C12	119-28	5. Electrolytic-200 wv.
C13	129-12	.00025-Mica
C14	100-33	.1-200 v.
C15	100-11	.01-400 v.
C16	100-37	.003-600 v.
C17	100-11	.01-400 v.

		PARTS
T1	111-66	Antenna Coil
T2	110-45	Oscillator Coil
T3	108-84	Input I. F. Coil
T4	108-85	Output I. F. Coil
T5	104-62	Power Transformer
L1	105-19	"A" Choke
L2	123-3	RF "B" Choke
L3	105-30	Filter Choke
L4	114-63	Speaker (P. M. Dynamic)
V	126-4	Vibrator
C	102-38	Variable Condenser



The type and function of each tube is as follows:

1—Type 6D8G Pentagrid Mixer, First Detector-oscillator.

1—Type 6S7G Remote Cut-off Pentode I. F. Amplifier (465 K.C.)

1—Type 6T7G Duplex Diode Triode, Second Detector, A.V.C. and First Audio.

1—Type 1F5G Pentode Output Amplifier.

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 1F5G 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. 108-85 Output I.F. Transformer.
Part No. 108-84 Input I.F. Transformer.

These I.F. Transformers have two adjustments, both of which are accessible from the top of chassis (see fig. 1, top view page 2).

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.

   (a) Connect external oscillator set at 465 kilocycles, in series with .1 mfd. condenser, to the control grid cap of the type 6S7G tube, and adjust the output I.F. transformer (No. 108-85) to resonance.

   (b) Move oscillator output clip from grid of 6S7G to grid cap of 6D8G and adjust input I.F. transformer (No. 108-84) to resonance.

   (c) With oscillator still connected to 6D8G readjust output I.F. transformer (108-85) if necessary.

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

1. With gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with a 200 mmf. condenser to tan antenna and black ground leads and make the following adjustments:

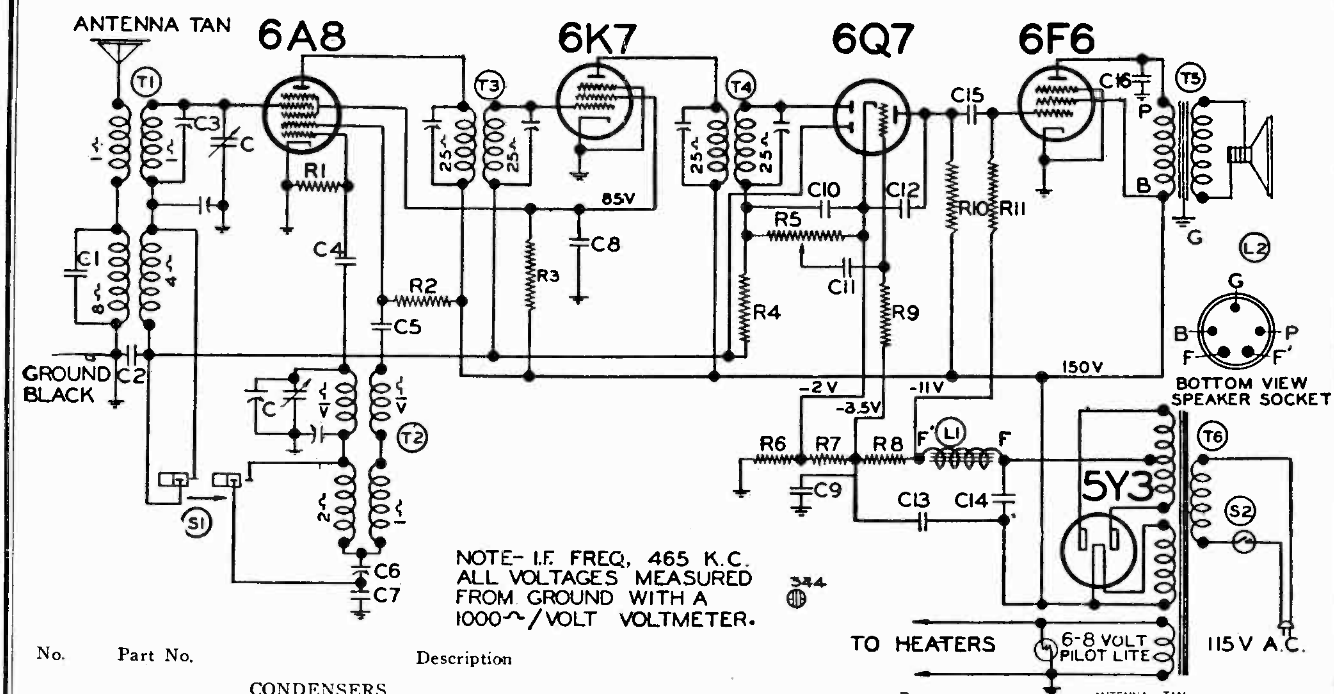
   (a) With external oscillator set at 1720 kilocycles, adjust oscillator trimmer (rear of gang condenser).

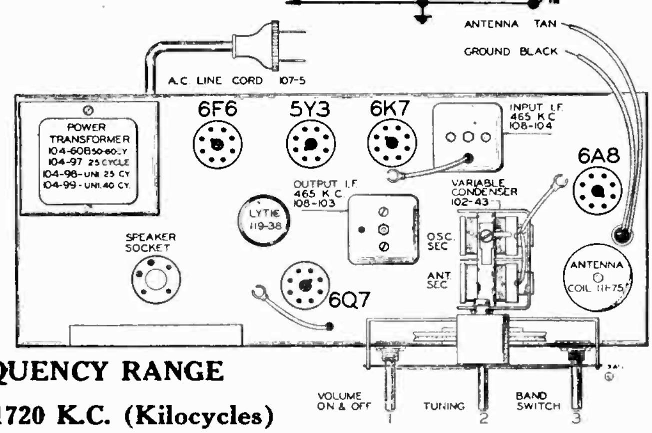
   (b) Re-set external oscillator to 1400 kilocycles, rotate condenser, pick-up oscillator signal and adjust antenna trimmer to resonance (front section of gang condenser).

   (c) Check sensitivity at 600 and 1000 kilocycles.

BELMONT RADIO CORP.

MODEL 588, Series A
Schematic, Voltage
Socket, Trimmers, Parts





FREQUENCY RANGE

535 to 1720 K.C. (Kilocycles)

2000 to 7000 K.C. (Kilocycles)

Vol. Control On-Off Switch — Tuning Control — Band Switch

No.	Part No.	Description
		CONDENSERS
C1	129-12	.00025 - Mica 20%
C2	100-22	.05 x 200 25%
C3	124-39	Adjustable Condenser 2-20 mmf.
C4	129-5	.0001 - Mica 20%
C5	100-37	.003 x 600 v. 10%
C6	124-38	Series Pad - 600 mmf.
C7	129-74	.0015 Mica 2½%
C8	100-1	.1 x 400 v. 50% - 10%
C9	100-20	.1 x 200 v. 25%
C10	129-5	.0001 Mica 20%
C11	100-11	.01 x 400 v. 25%
C12	129-2	.0005 Mica 20%
C13	119-38	5 mfd. 200 w. v. Black
C14	119-38	5 mfd. 250 w. v. Brown
C15	100-11	.01 x 400 v. 25%
C16	100-19	.006 x 600 v. 25%
		C13 and C14 - in one unit.
		RESISTORS
R1	130-12	50M ohm - 1/3 w. 20%
R2	130-17	10M ohm - 1/3 w. 20%
R3	130-149	15M ohm - 1/3 w. 20%
R4	130-4	3 megohm - 1/3 w. 20%
R5	101-71	1 megohm - Volume control
R6	106-35	65 ohm - Muter
R7	106-35	45 ohm - Muter
R8	106-35	220 ohm - Muter
R9	130-4	3 megohm - 1/3 w. 20%
R10	130-9	200M ohm - 1/3 w. 20%
R11	130-3	500M ohm - 1/3 w. 20%
		R6, R7 and R8 in one unit
		PARTS
T1	111-75	Antenna coil complete
T2	110-60	Oscillator coil complete
T3	108-104	Input I.F. Assembly complete
T4	108-103	Output I.F. Assembly complete
T5		Output Transformer
T6	104-60B	Power Transformer
L1		2000 ohm - speaker field
L2	114-61	Dynamic speaker
S1	125-27	Wave change switch
S2		Switch on Volume Control

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

1—Type 6A8G Pentagrid mixer, first detector-oscillator.
1—Type 6K7G Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7G duplex diode triode second detector, A.V.C. and audio.
1—Type 6F6G—pentode output amplifier.
1—Type 5Y3G or 5W4—high vacuum rectifier.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 108, 127, 150, 225, and 260 volts, (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

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 on the primary of the power transformer.

MODEL 588, Series A
Trimmers, Alignment

BELMONT RADIO CORP.

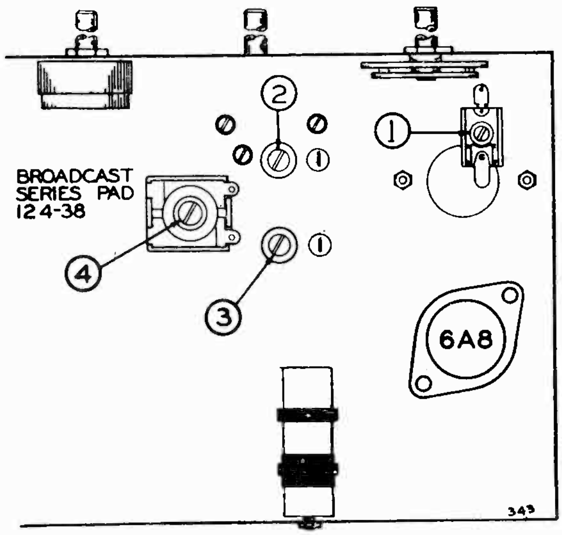


FIG. 3.—BOTTOM VIEW SHOWING TRIMMERS

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 6F6G 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-103 Output I.F. Transformer
Part No. 108-104 Input I.F. Transformer
These I.F. transformers have two adjustments, both of which are accessible from the top of chassis (see top view).

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser in its minimum capacity position, plates entirely out of mesh, make the following adjustments:

(a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7G tube, and adjust the output I.F. transformer (No. 108-103) to resonance.

(b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7G to grid cap of 6A8G and adjust input I.F. transformer (No. 108-104) to resonance.

SHORT WAVE BAND ALIGNMENT:

2000 to 7000 Kilocycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 6 megacycles and connected in series with "Dummy 3" to the antenna and ground leads, make the following adjustments:

(a) Move dial pointer to 6 megacycles and adjust short wave oscillator trimmer to resonance.
This adjustment is the trimmer mounted on the top of rear section of the variable gang condenser (see Fig. 1, top view).

(b) Adjust short wave antenna trimmer (Adjustment Number 1), to resonance (see Fig. 3, bottom view).

BROADCAST BAND ALIGNMENT:

535 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to antenna and ground leads make following adjustments:

(a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance. (Adjustment number 3, see bottom view of chassis, Fig. 3).

(b) Re-set external oscillator to 1400 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast antenna trimmer (adjustment number 2), to resonance.

(c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad (adjustment number 4), to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3).

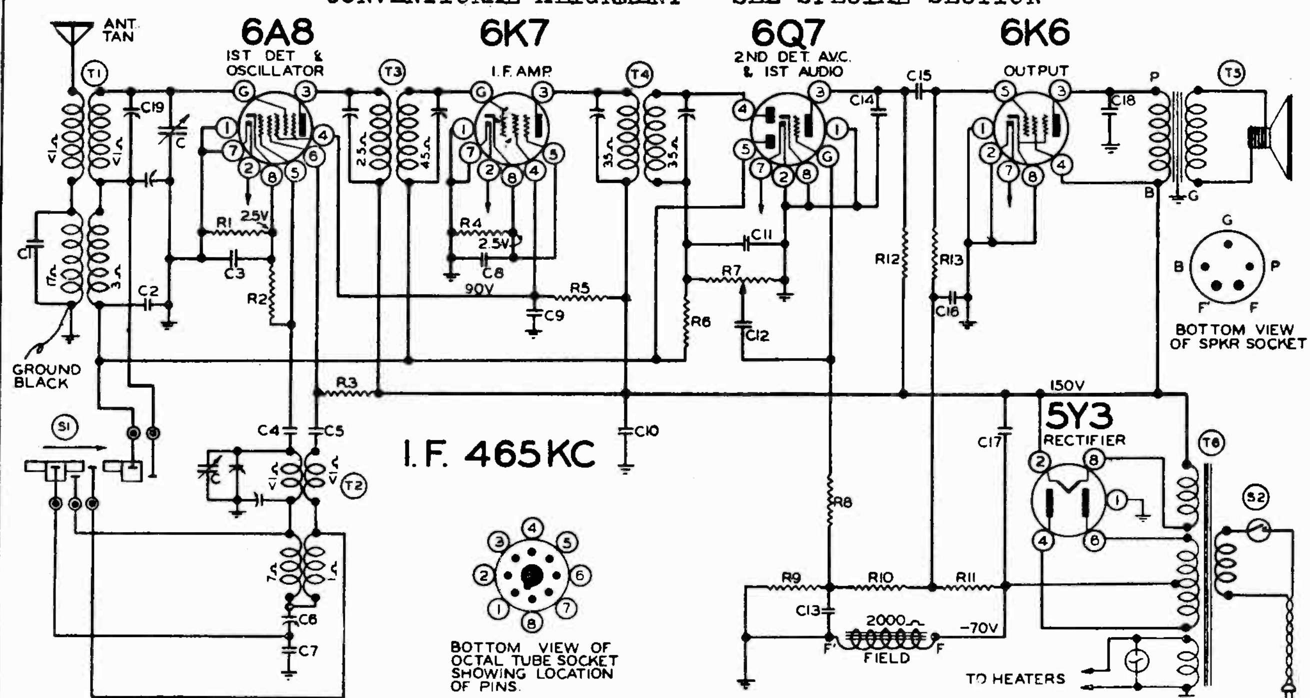
(d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

(e) Check for tracking and sensitivity at 1400, 1000, and 600 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

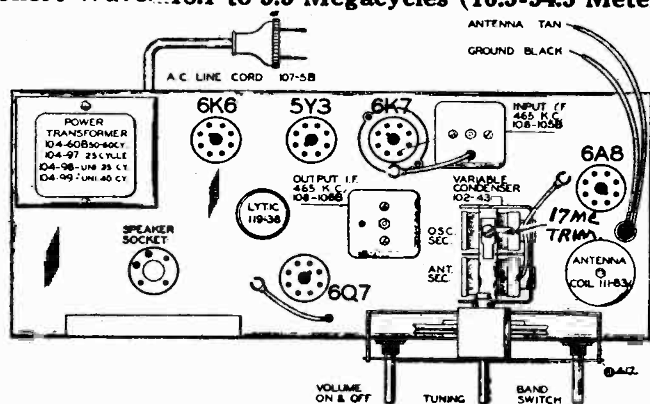
BELMONT RADIO CORP.

MODEL 589
Schematic, Socket
Trimmers, Alignment
Parts, Voltage

CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION



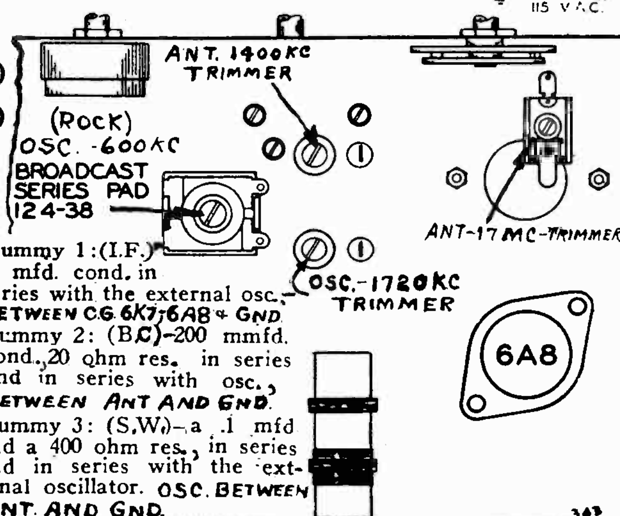
BAND	FREQUENCY RANGE
Broadcast	1720 to 535 Kilocycles (174-560 Meters)
Short Wave	18.1 to 5.5 Megacycles (16.5-54.5 Meters)



MODEL 589
SERIES "A"

Vol. Control On-Off Switch · Tuning Control · Band Switch

FIG. 1—TOP VIEW



Dummy 1: (I.F.) .1 mfd. cond. in series with the external osc. BETWEEN C.G. 6K7-6A8 & GND.
Dummy 2: (B.C.)-200 mmfd. cond., 20 ohm res. in series and in series with osc., BETWEEN ANT AND GND.
Dummy 3: (S.W.)-a .1 mfd and a 400 ohm res., in series and in series with the external oscillator. OSC. BETWEEN ANT. AND GND.

FIG. 3.—BOTTOM VIEW SHOWING TRIMMERS

RESISTORS

R1	130-83	300 ohm - 1/3 w. 10%
R2	130-12	50M ohm - 1/3 w. 20%
R3	130-17	10M ohm - 1/3 w. 20%
R4	130-93	450 ohm - 1/3 w. 10%
R5	130-49	15M ohm - 1/3 w. 20%
R6	130-4	3 megohm - 1/3 w. 20%
R7	101-71	1 megohm Volume control
R8	130-4	3 megohm - 1/3 w. 20%
R9	130-176	20M ohm - 1/3 w. 10%
R10	130-80	150M ohm - 1/3 w. 10%
R11	130-46	800M ohm - 1/3 w. 10%
R12	130-9	200M ohm - 1/3 w. 20%
R13	130-3	500M ohm - 1/3 w. 20%

CONDENSERS

C	102-43	2 gang variable Condenser
C1	129-5	.0001 Mica
C2	100-22	.05 x 200 v. - 25%
C3	100-20	.1 x 200 v. - 25%
C4	129-39	.00005 - 20% - Mica
C5	100-25	.002 x 600 v. - 20%
C6	124-38	600 mmf. Series Pad. Adj.
C7	129-54	.003 - 2½% Mica
C8	100-20	.1 x 200 v. - 25%
C9	100-1	.1 x 400 v. - 50 - 10%
C10	119-38	5.0 mfd. - 250 w. v. 'Lytic
C11	129-5	.0001 - 20% Mica
C12	100-11	.01 x 400 v. - 25%
C13	100-20	.1 x 200 v. - 25%
C14	129-2	.0005 - 20% Mica
C15	100-26	.02 x 400 v. - 25%
C16	100-20	.1 x 200 v. - 25%
C17	119-38	5.0 mfd. - 250 w.v. 'Lytic
C18	100-37	.003 x 600 v. - 10%
C19	124-39B	2 - 25 mmf. Adj. Cond.

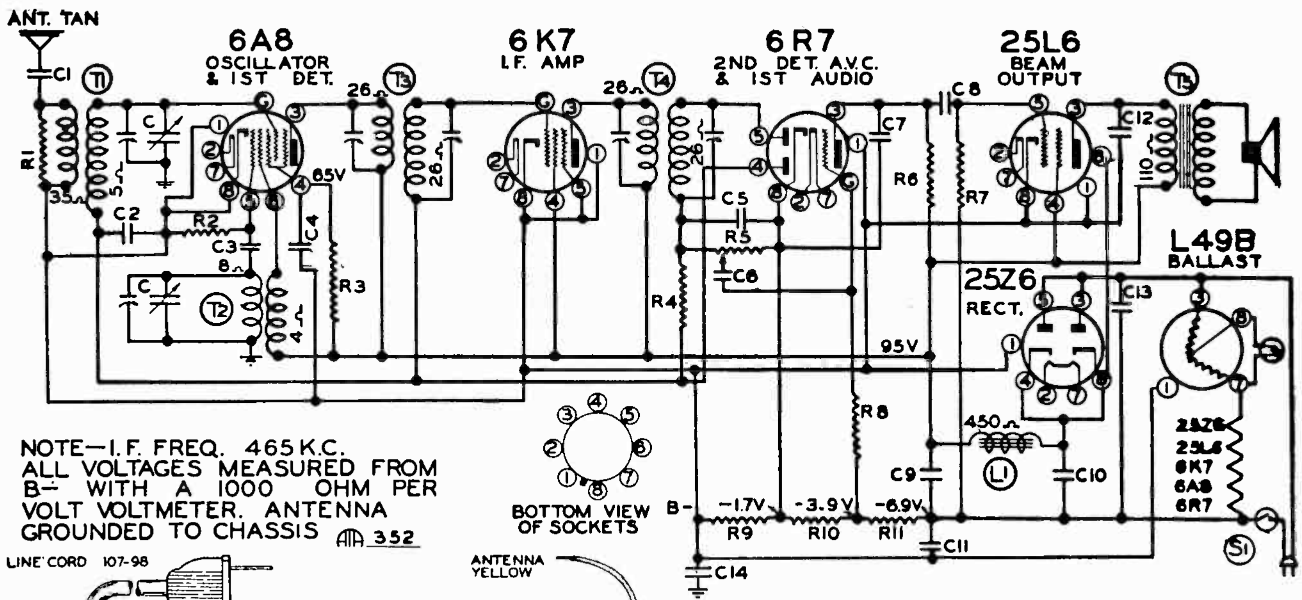
PARTS

T1	111-83	Ant. Coil
T2	110-66	Osc. Coil
T3	108-105B	Input I.F. - 465 kc.
T4	108-106B	Output I.F. - 465 kc.
T5	114-61	6" Dynamic speaker
T6	104-60B	Power Transformer
S1	125-37	Wave Band Switch
S2		On-off switch on volume control

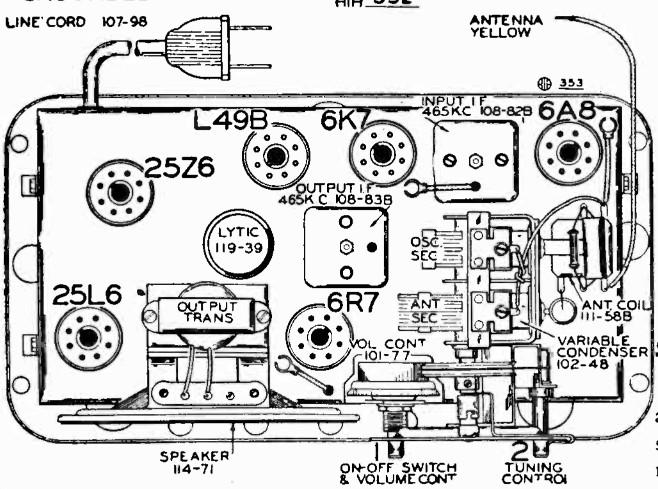
MODEL 602
Schematic, Socket

BELMONT RADIO CORP.

Voltage, Trimmers
Alignment, Parts



NOTE—I.F. FREQ. 465 K.C.
ALL VOLTAGES MEASURED FROM B– WITH A 1000 OHM PER VOLT VOLTMETER. ANTENNA GROUNDED TO CHASSIS
352



(a) 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).

(b) 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).

(c) Check sensitivity at 600 and 1000 kilocycles.

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 119 volt A.C. or D.C. line.

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

Part No. 108-83B Output I.F. Transformer
Part No. 108-82B 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:

   (a) Connect external oscillator set at 465 kilocycles, in series with .1 mfd. condenser, to the control grid cap of the type 6K7G tube, and adjust the output I.F. transformer (No. 108-83B) to resonance.

   (b) Move oscillator output clip from grid of 6K7G to grid of 6A8G and adjust input I.F. transformer (No. 108-82B) to resonance.

   (c) With oscillator still connected to 6A8G, readjust output I.F. transformer (108-83B) if necessary.

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

1. With gang condenser in its minimum capacity position, plates entirely out of mesh, connect an external oscillator in series with a 200 mmf. condenser to the antenna lead and chassis ground and make the following adjustments:

RESISTORS

No.	Part No.	Description	
R1	130-17	10M ohm - 1/3 w.	20%
R2	130-12	50M ohm - 1/3 w.	20%
R3	130-149	15M ohm - 1/3 w.	20%
R4	130-4	3 meg ohm - 1/3 w.	20%
R5	101-77	Volume Control (1 Meg)	
R6	130-12	50M ohm - 1/3 w.	20%
R7	130-20	100M ohm - 1/3 w.	20%
R8	130-19	1 megohm - 1/3 w.	20%
R9	106-38	30 ohm	
R10	106-38	40 ohm	
R11	106-38	55 ohm	

R9, R10, and R11 in one unit

CONDENSERS

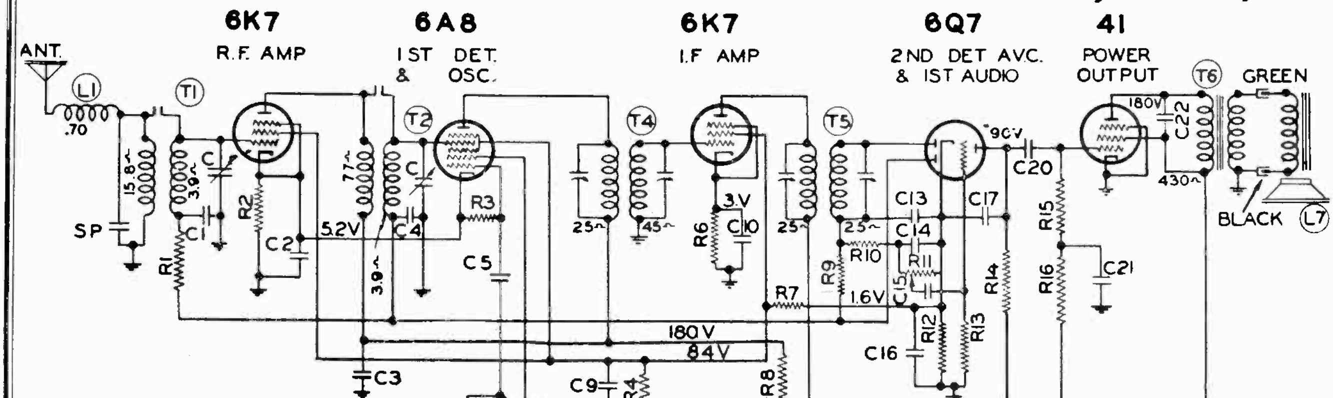
C	102-48	2 gang variable	
C1	100-25	.002 x 600	25%
C2	100-9	.05 x 200	25%
C3	129-12	.00025 Mica	20%
C4	100-22	.05 x 200	25%
C5	129-5	.0001 Mica	20%
C6	100-11	.01 x 400	25%
C7	129-2	.0005 Mica	20%
C8	100-22	.05 x 200	25%
C9	119-39	20 mfd. lytic - 100 w.v.	
C10	119-39	15 mfd. lytic - 100 w.v.	
C11	100-20	.1 x 200	25%
C12	100-13	.05 x 400	25%
C13	100-39	.1 x 400	20%
C14	100-53	.25x400	20%

PARTS

T1	111-58B	Antenna Coil Complete
T2	110-46	Oscillator Coil Complete
T3	108-82B	Input I. F. Complete
T4	108-83B	Output I. F. Complete
T5	114-71	Dynamic Speaker
L1		450 ohm speaker field
S1		Switch on Volume Control

MODEL 661
Schematic, Voltage
Socket, Trimmers, Parts

BELMONT RADIO CORP.



NOTE- I.F. FREQ 465 K.C.
ALL VOLTAGES MEASURED FROM GROUND WITH A 1000~ /VOLT VOLTMETER. *MEASURED WITH 300M~ VOLTMETER.

CONDENSERS

No.	Part No.	Description
C	102-26	3 Gang Variable Condenser
C1	100-63	.05 x 200v. 50 - 10%
C2	100-63	.1 x 200v. 50 - 10%
C3	100-13	.05 x 400v. 25%
C4	100-22	.05 x 200v. 25%
C5	129-12	.00025 Mica - 20%
C6	124-37	Series Pad
C7	100-20	.1 x 200 v. 25%
C8	100-31	.5 x 120 v. 10 50%
C9	100-62	.25 x 200 v. 50 - 10%
C10	100-20	.1 x 200 v. 25%
C11	119-37	8 mfd. lytic 300 wv.
C12	119-37	4 mfd. lytic 300 wv.
C13	129-5	.0001 Mica 20%
C14	129-5	.0001 Mica 20%
C15	100-11	.01 x 400 v. 25%
C16	100-11	.01 x 400 v. 25%
C17	129-5	.0001 Mica 20%
C18	100-58	.005 x 1200 v. 20 - 10%
C19	100-31	.5 x 120 v. - 10 50%
C20	100-11	.01 x 400 v. 25%
C21	100-62	.25 x 200 v. 50 - 10%
C22	100-54	.006 x 600 v. 25%
C23	100-31	.5 x 120 v. - 10 50%
SP		Spark Plate

RESISTORS

R1	130-20	100M - 1/3 w. - 20%
R2	130-54	500 ohm - 1/3 w. - 20%
R3	130-12A	50M ohm - 1/3 w. insulated 20%
R4	130-165	15M ohm - 1 w. - 20%
R5	130-131A	20M ohm - 1/2 w. - insulated - 10%
R6	130-24	400 ohm - 1/3 w. - 20%
R7	130-139A	40M ohm - 1/3 w. Insulated - 20%
R8	130-31A	1500 ohm - 1/3 w. insulated - 20%
R9	130-19	1 megohm - 1/3 w. - 20%
R10	130-52	50M ohm - 1/3 w. - 20%
R11	101-41	500M ohm - Volume Control
R12	130-153	700 ohm - 1/3 w. - 20%
R13	130-19	1 megohm - 1/3 w - 20%
R14	130-11A	250M - 1/3 w. Insulated - 20%
R15	130-5A	300M ohm - 1/3 w. insulated - 20%
R16	130-11A	250M ohm - 1/3 w. insulated - 20%
R17	130-84	200 ohm - 1/3 w. insulated - 20%

C1, C2 in same block
C11 and C12 in same block
C9 and C21 in same block

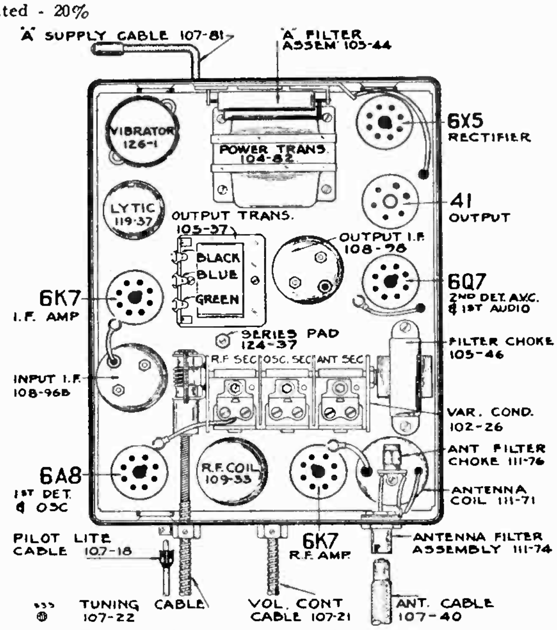
PARTS

T1	111-71	Antenna Coil Complete
T2	109-35	R.F. Coil Complete
T3	110-57	Oscillator Coil Complete
T4	108-96B	Input I.F. Complete
T5	108-98	Output I. F. Complete
T6	105-37	Output Transformer
T7	104-82	Power Transformer
L1	111-76	Antenna Filter Choke
L2	105-26	"A" Choke
L3	105-46	"B" Filter Choke, 335 ohm
L4		Speaker Field, 4 ohm
L5	105-24	"A" Choke
L6	105-19	"A" Choke
L7	114-59	Dynamic Speaker
S1		Switch on Volume Control
V1	126-1	Vibrator

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 148-3, 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.



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. 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.

DESCRIPTION

Model No. 661 is a six-tube superheterodyne receiver having a tuning range of 530 K.C. to 1550 K.C., operates from a 6.0 volt storage battery and uses the automotive type 6.3 volt tubes. The "B" supply is obtained from a vibrator with a tube rectifier.

The I.F. frequency used is 465 K.C., the R.F. end of the receiver consisting of a high gain iron core antenna coil which gives high signal to noise ratio and an R.F. stage especially designed to give high image rejection and high I.F. attenuation. The I.F. transformers are designed to give high gain and selectivity and yet to have a broad nose for ease of tuning and hi-fidelity response. They are of the air core type and wound with solid wire to give *minimum* drift and variation of gain due to climatic changes.

This receiver has been carefully designed to facilitate servicing, the top and bottom covers are both removable and are fastened in place by spring clips, self tapping screws and trimount buttons.

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 175 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 41 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.

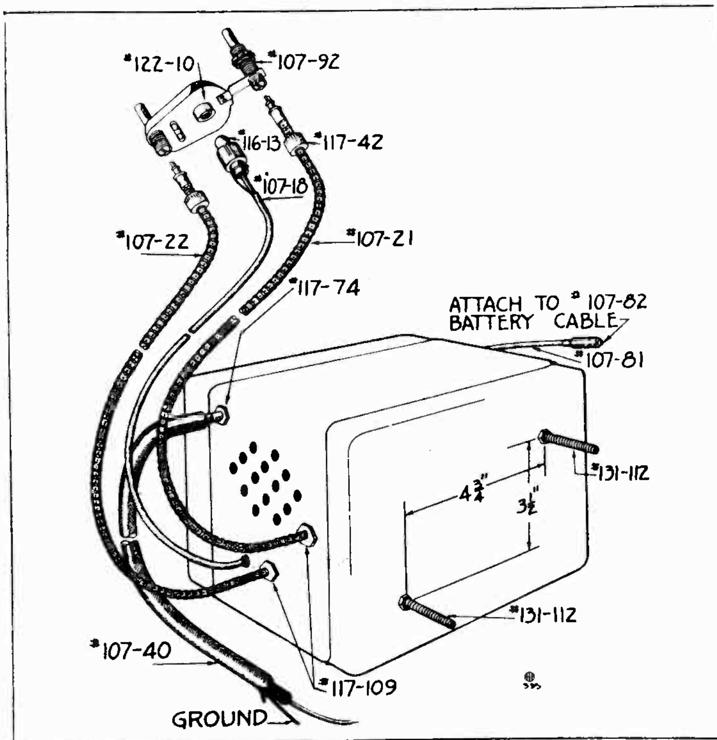
I.F. ALIGNMENT: (465 K.C.)

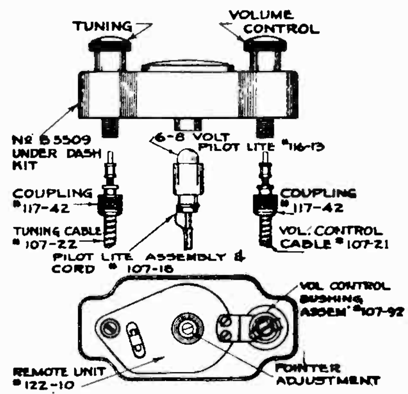
1. With variable condenser in its minimum capacity position (plates entirely out of mesh) and with volume control full on, connect test oscillator set at 465 K.C. in series with I.F. dummy antenna, to grid of 6K7 I.F. tube.
2. Adjust trimmer condensers of output I.F. transformer No. 108-98 to resonance with oscillator.
3. Move test oscillator connection to grid of 6A8 tube and adjust trimmer condensers of input I.F. transformer No. 108-96B to resonance with oscillator. See top view for location of these transformers. 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.

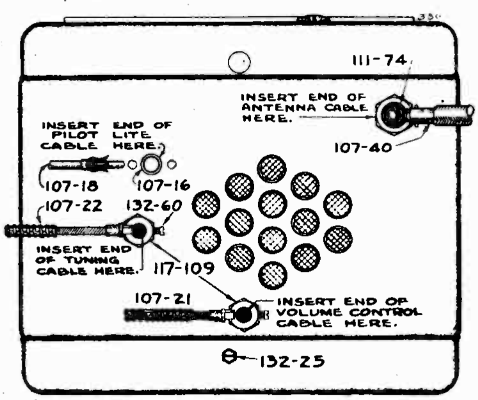
BROADCAST ALIGNMENT

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 on the middle section of the three-gang condenser—see top view, Fig. 2).
3. Shift test oscillator to 1400 K.C. and pick up signal by rotating condenser and adjust R.F. and antenna trimmers to resonance (see top view, Fig. 2).
4. Re-set test oscillator to 600 K.C. and rotate variable condenser to 600 K.C. Adjust series pad, rocking gang condenser to and fro, at the same time adjusting series pad for maximum gain. This adjustment is accessible from the top of chassis—see top view.
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.

WIRING CONNECTIONS AND ASSEMBLY

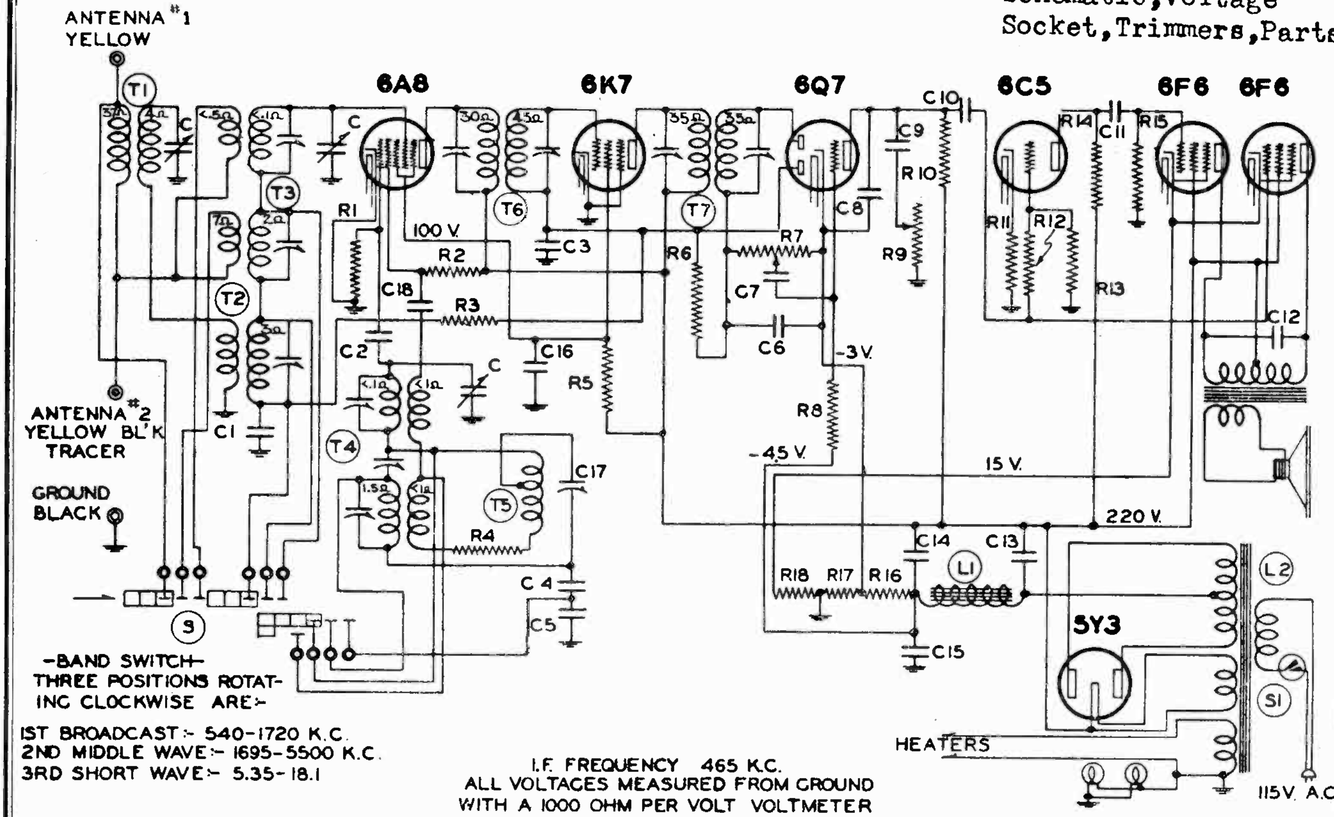






BELMONT RADIO CORP.

MODEL 740
Schematic, Voltage
Socket, Trimmers, Parts



PARTS

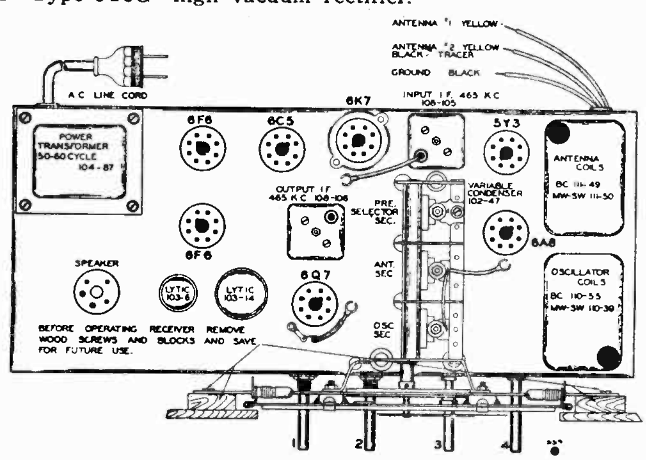
No.	Part No.	Description
		RESISTORS
R1	130-12	50M ohms - 1/3 w.
R2	130-48	15M ohms - 1/3 w.
R3	130-103	100M ohms - 1/3 w.
R4	130-27	50 ohms - 1/3 w.
R5	130-96	25M ohms - 1/2 w.
R6	130-4	3 megohm - 1/3 w.
R7	101-74	1 megohm - Volume Control
R8	130-4	3 megohm - 1/3 w.
R9	101-75	300M ohms - Tone Control
R10	130-100	150M ohms - 1/3 w.
R11	130-22	5M ohms - 1/3 w.
R12	130-163	400M ohms - 1/3 w.
R13	130-103	100M ohms - 1/3 w.
R14	130-12	50M ohms - 1/3 w.
R15	130-100	150M ohms - 1/3 w.
R16	106-37	20 ohms - Muter
R17	106-37	42 ohms - Muter
R18	106-37	250 ohms - Muter

NOTE: R16, R17 and R18 in one unit, No. 106-37

No.	Part No.	Description
		CONDENSERS
C1	100-22	.05 x 200 v.
C2	129-39	.00005 Mica
C3	100-22	.05 x 200 v.
C4	129-55	.0034 Mica
C5	129-54	.003 Mica
C6	129-5	.0001 Mica
C7	100-11	.01 x 400 v.
C8	129-2	.0005 Mica
C9	100-57	.006 x 600 v.
C10	100-26	.02 x 400 v.
C11	100-26	.02 x 400 v.
C12	100-12	.003 x 600 v.
C13	103-6	8 mfd. x 350 v.
C14	103-14	16 mfd. x 250 v.
C15	100-20	.1 x 200 v.
C16	100-39	.1 x 400 v.
C17	124-35	Adjustable Padder - Working Capacity 740 mmf.
C18	100-12	.003 x 600 v.

C	102-47	One section of three gang condenser
T1	111-51	B.C. Pre-Selector
T2	111-49	B.C. Antenna Coil Assembly
T3	111-50	MW - SW Antenna Coil Assembly
T4	110-39	MW - SW Oscillator Coil Assembly
T5	110-55	B.C. Oscillator Coil Assembly
T6	108-105	Input I.F. - 465 kc.
T7	108-106	Output I.F. - 465 kc.
L1	114-66	6" Speaker (Field Resistance 900 ohms)
L2	104-87	Power Transformer (60 cycle) 115 volts
S	125-17	Band Switch
S1	101-74	On-off Switch on volume control.

1—Type 6A8G—Pentagrid mixer, first detector and oscillator.
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7G duplex diode triode second detector, A.V.C. and audio.
1—Type 6C5 Inverter stage.
2—Type 6F6G—pentode push-pull output amplifier.
1—Type 5Y3G high vacuum rectifier.



Vol. Control On-Off Switch | Tone Control | Tuning Control | Band Switch

MODEL 740
Alignment, Trimmers

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. These voltages are clearly indicated on the circuit diagram.

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 measured with 115 volts on the primary of the power transformer.

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.

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 cathode terminals of the 5 prong speaker socket. 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-106 Output I.F. Transformer
Part No. 108-105 Input I.F Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-106) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap of 6A8G and adjust input I.F. transformer (No. 108-105) to resonance.

BROADCAST BAND ALIGNMENT:
540 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance (adjustment number 1; see bottom view of coil assembly. Fig. 3.)
   (b) Re-set external oscillator to 1550 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast antenna trimmer (Adjustment number 4) to resonance; also adjust preselector trimmer which is mounted on the top of the rear section of the three gang variable tuning condenser to resonance. (See top view of chassis, Fig. 1, for location of this adjustment.)
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1000 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

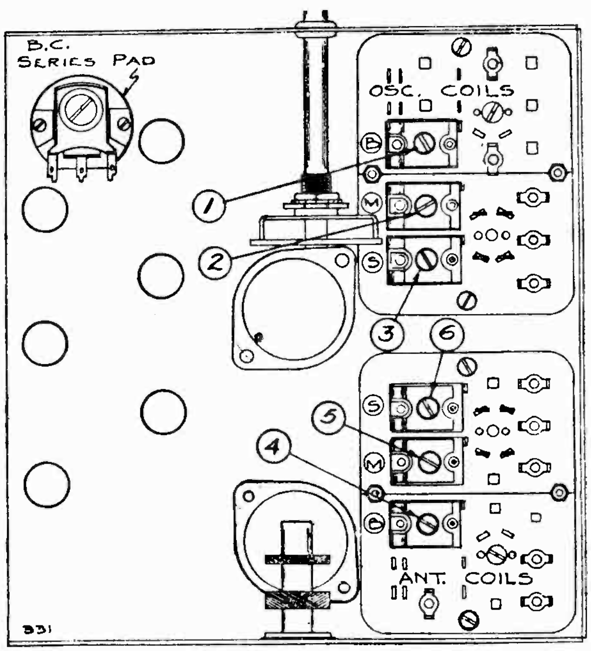
SHORT WAVE BAND ALIGNMENT:
5.35 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (Adjustment number 3) and short wave antenna (Adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 5.3 megacycles for band coverage.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental. An example of this is an image of a fundamental 18.3 megacycle signal appears near 17.4 megacycles.

MIDDLE WAVE BAND ALIGNMENT:
1690 to 5500 Kilocycles

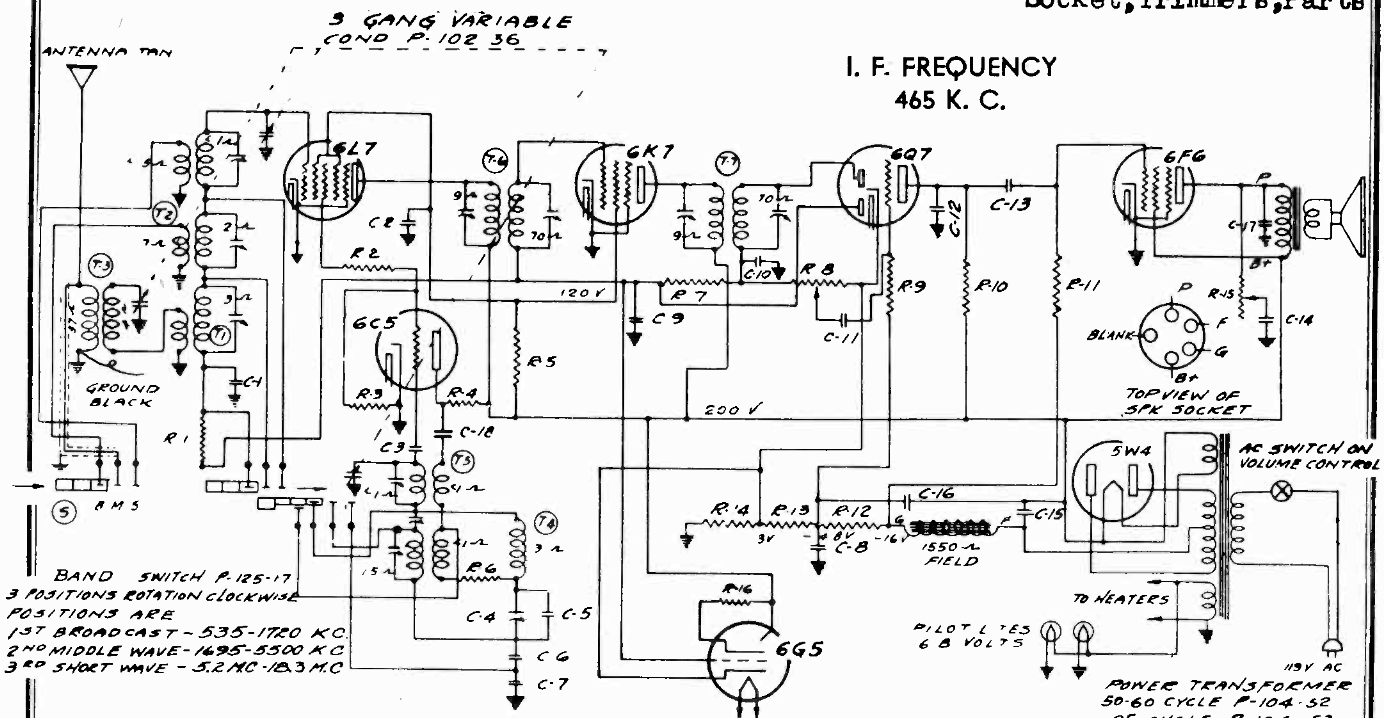
1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5000 kilocycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 5000 kilocycles and adjust middle wave oscillator (Adjustment number 2) and middle wave antenna (Adjustment number 5) to resonance.
   (b) Re-set external oscillator to 1800 kilocycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 5400 kilocycles and 1700 kilocycles for band coverage.
   (d) Recheck broadcast band alignment.



BOTTOM VIEW SHOWING TRIMMERS

BELMONT RADIO CORP.

MODEL 787, Series A
Schematic, Voltage Socket, Trimmers, Parts



RESISTORS

No.	Part No.	Description
R1	130-20	100M Ohm—⅓ Watt—20%— 50 Volt Carbon
R2	130-105	150 Ohm—⅓ Watt—20%— 10 Volt Carbon
R3	130-12	50M Ohm—⅓ Watt—20%— 10 Volt Carbon
R4	130-104	9M Ohm— 1 Watt—20%—100 Volt Carbon
R5	130-34	19M Ohm— 1 Watt—20%—100 Volt Carbon
R6	130-27	50 Ohm—⅓ Watt—20%— 3 Volt Carbon
R7	130-19	1 Meg Ohm—⅓ Watt—20%—100 Volt Carbon
R8	101-46	1 Meg Ohm—Volume Control
R9	130-4	3 Meg Ohm—⅓ Watt—20%—100 Volt Carbon
R10	130-103	100M Ohm—⅓ Watt—20%— 50 Volt Carbon
R11	130-102	500M Ohm—⅓ Watt—10%— 50 Volt Carbon
R12	106-26	220 Ohm
R13	106-26	32 Ohm
R14	106-26	52 Ohm
R15	101-53	50M Ohm—Tone Control
R16	130-110	1 Meg Ohm—1/10 Watt—10%—100 Volt Carbon

CONDENSERS

No.	Part No.	Description
C1	100-22	.05x200 Volt—25%
C2	100-1	.1x400 Volt— + 50%—10%
C3	129-39	.00005 Mica (MT-O)—20%
C4	124-28	Series Pad (80-225)
C5	129-65	.00055 Mica (MT-O)—5%
C6	129-55	.0034 Mica (MW-W)—2½%
C7	129-54	.003 Mica (MW-W)—2½%
C8	100-20	.1x200 Volt—25%
C9	100-22	.05x200 Volt—25%
C10	129-12	.00025 Mica (MT-0)—20%
C11	100-11	.01x400 Volt—25%
C12	129-2	.0005 Mica (MT-O)—20%
C13	100-11	.01x400 Volt —25%
C14	100-27	.025x600 Volt—25%
C15	103-6	8 Mfd. x 350 Volt Electrolytic
C16	103-7	8 Mfd. x 300 Volt Electrolytic
C17	100-25	.002x600 Volt—20%
C18	100-37	.003x600 Volt—10%

PARTS

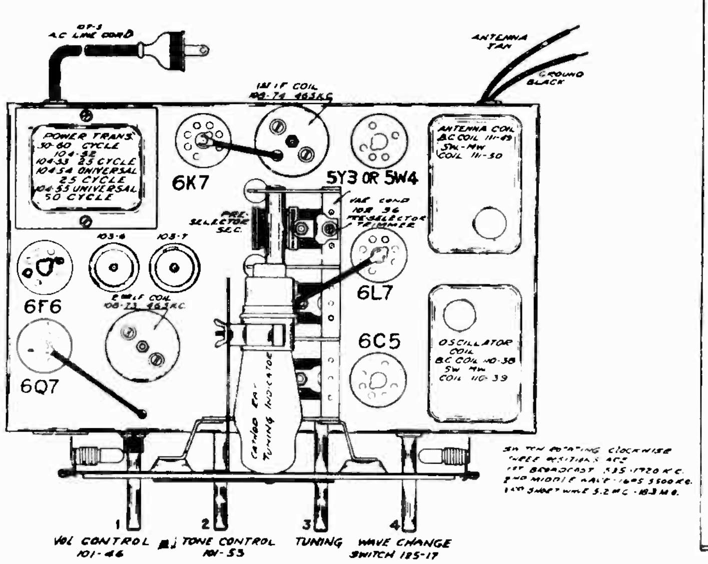
No.	Part No.	Description
T1	111-49	Broadcast Antenna Coil
T2	111-50	S.W.-M.W. Antenna Coil
T3	111-51	B.C.-Pre-Selector Coil Assem.
T4	110-38	B.C. Oscillator Coil
T5	110-39	S.W.-M.W. Oscillator Coil
T6	108-74	Input I.F. - 465 K.C.
T7	108-73	Output I.F. - 465 K.C.
S	125-17	Wave Change Switch

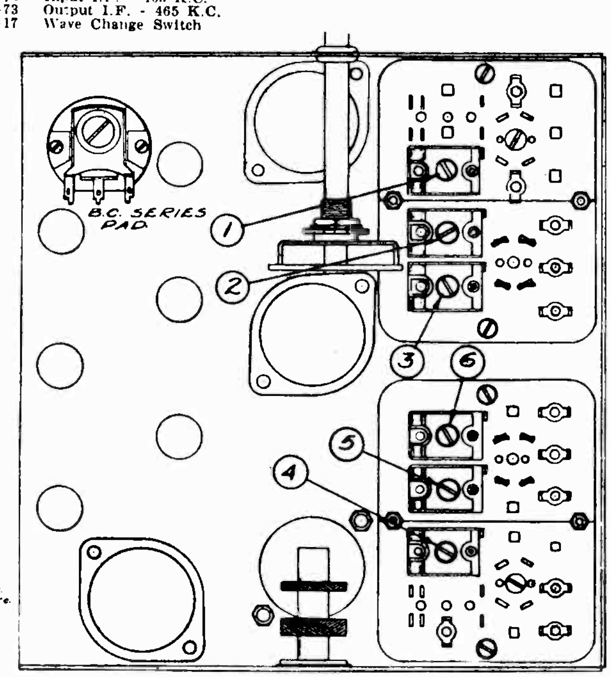
TUNING RANGE—

Standard Broadcast Band
535-1720 Kilocycles.

Middle Wave Band
1695-5500 Kilocycles.

Short Wave Band
5.2-18.3 Megacycles.





BOTTOM VIEW (Showing Trimmers)

MODEL 787, Series A
MODEL 879, Series A
Alignment

BELMONT RADIO CORP.

MODEL 787 - Series A

DESCRIPTION:

Model 787 is a seven tube A.C. all wave superheterodyne receiver. It has a tuning range of 535 K.C. to 18.3 megacycles in three bands, and is characterized by its exceptional stability, and by a sensitivity both high and uniform, with high signal to noise ratio on all bands. The I.F. frequency used is 465 K.C., which in conjunction with the pre-selector circuit, gives high image and I.F. attenuation (freedom from whistles and telegraphic interference).

A separate oscillator; effective automatic volume control; broad nose sharp skirt selectivity and new type oval airplane dial, are a few of the outstanding features of this model.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40, and 60 cycles and with primary taps for 108, 127, 150, 225 and 260 volts (see instructions), and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

TUBE COMPLEMENT:

The tube complement of the model 787 consists of the latest metal tubes. They are as follows:

1-Type 6L7 Pentagrid Mixer, First Detector.
1-Type 6C5 Oscillator.
1-Type 6K7 Remote Cut-off Pentode, I.F. Amplifier (465 K.C.).
1-Type 6Q7 Duplex Diode Triode Second Detector, A.V.C. and First Audio.
1-Type 6F6 Pentode Output Amplifier.
1-Type 5W4 High Vacuum Rectifier.
1-Type 6G5 Cathode-Ray Tuning Indicator. (Note: 6G5 available in all glass only.)

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 119 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1," "Dummy 2," and "Dummy 3."

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-73 Output I.F. Transformer.
Part No. 108-74 Input I.F. Transformer.

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

1. With volume control full on (the extreme right of its rotation), the band changing switch in the broadcast position (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1," to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-73) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6L7 and adjust input I.F. transformer (No. 108-74) to resonance.
   (c) With oscillator still connected to 6L7, readjust output I.F. transformer (108-73) if necessary.

BROADCAST BAND ALIGNMENT:
535 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance (adjustment number 1; see bottom view of coil assembly, Fig. 3).
   (b) Re-set external oscillator to 1550 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast antenna trimmer (Adjustment number 4) to resonance; also adjust preselector trimmer which is mounted on the top of the rear section of the three gang variable tuning condenser to resonance. (See top view of chassis, Fig. 1. for location of this adjustment.)
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1000 kilocycles. Under no circumstances bend plates of variable condenser sections to correct tracking.

SHORT WAVE BAND ALIGNMENT:
5.2 to 18.3 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (Adjustment number 3) and short wave antenna (Adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 5.3 megacycles for band coverage.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental. An example of this is an image of a fundamental 18.3 megacycle signal appears near 17.4 megacycles.

MIDDLE WAVE BAND ALIGNMENT:
1695 to 5500 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5000 kilocycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 5000 kilocycles and adjust middle wave oscillator (Adjustment number 2) and middle wave antenna (Adjustment number 5) to resonance.
   (b) Re-set external oscillator to 1800 kilocycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 5400 kilocycles and 1700 kilocycles for band coverage.

MODEL 879 - Series A

DESCRIPTION

The tube complement of this chassis is as follows:

1—Type 6K7 Remote cut-off pentode R.F. amplifier
1—Type 6J7—pentode first detector.
1—Type 6C5 Oscillator
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7 duplex diode pentode second detector, A.V.C. and audio.
1—Type 6F6—pentode output amplifier.
1—Type 5Y3 or 5W4—high vacuum rectifier.
1—Type 6G5 Cathode ray tuning indicator.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 108, 127, 150, 225, and 260 volts, (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

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 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 119 volts on the primary of the power transformer.

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.

ALIGNING INSTRUCTIONS
Dummy Antennas

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Intermediate and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external 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 6F6 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.

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 knobs, pull them off and to take the chassis out of the cabinet, remove the four bolts by which it is fastened.

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

Part No. 108-63 Output I.F. Transformer
Part No. 108-64 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer 108-63 to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   (c) With oscillator still connected to 6J7, re-adjust output I.F. transformer if necessary.

ALIGNMENT PROCEDURE

The following adjustments to be made after the I.F.'s have been aligned as explained above.

BROADCAST BAND ALIGNMENT:

1. With band changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 600 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:
   (a) Adjust broadcast series pad (adjustment number 3) to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the 108-63 output I.F. transformer. See top view, Fig. 3.
   (b) Re-set external oscillator to 1400 K.C., move dial pointer to 1400 K.C. and adjust oscillator (adjustment number 4), R.F. (adjustment number 6) and antenna (adjustment number 7) to resonance. See bottom view for location of these adjustments, Fig. 1.
   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL.

SHORT WAVE BAND ALIGNMENT:

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 1), short wave R.F. (adjustment number 8) and short wave antenna (adjustment number 9) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

MIDDLE WAVE BAND ALIGNMENT:

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 M.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:

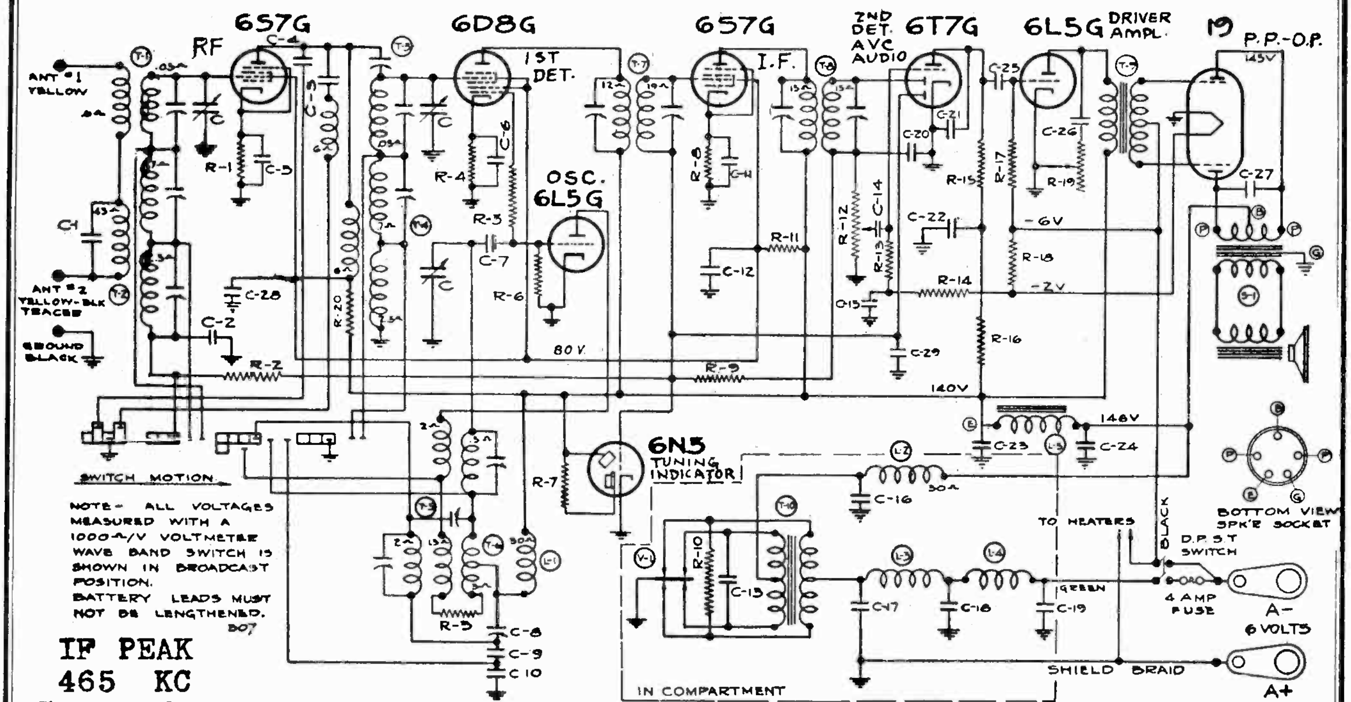
(a) Rotate condenser, pick signal and adjust middle wave R.F. (adjustment number 10), middle wave antenna (adjustment number 5) and middle wave oscillator (adjustment number 2) to resonance.

(b) Re-check broadcast alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17 M.C. short wave and 5 M.C. middle wave adjustments.

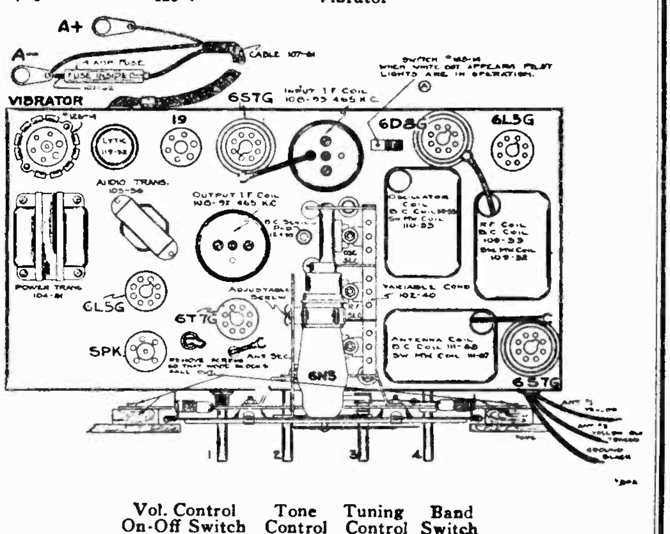
Voltage,Parts

BELMONT RADIO CORP.

MODEL 804
Schematic,Socket



No.	Part No.	Description	
		CONDENSERS	
C	102-40	Variable Condenser	
C1	129-5	.0001 Mica—MO—O—20%	
C2	100-9	.05 x 200 v.—25%	
C3	100-9	.05 x 200 v.—25%	
C4	129-72	.0004 Mica—MT—W—5%	
C5	129-38	.00005 Mica—MO—O—10%	
C6	100-9	.05 x 200 v.—25%	
C7	129-38	.00005 Mica—MO—O—10%	
C8	124-35	J.S. Series Pad	
C9	129-70	.004 Mica MW—J—2½%	
C10	129-71	.002—Mica MW—W—2½%	
C11	100-20	.1 x 200v.—25%	
C12	100-20	.1 x 200v.—25%	
C13	100-34	.005 x 1200 v.—10%	
C14	100-11	.01 x 400 v.—25%	
C15	100-11	.01 x 400 v.—25%	
C16	100-14	.1 x 200 v.—25%	
C17	100-56	.5 x 200 v.—50%—10%	
C18	100-56	.5 x 200 v.—50%—10%	
C19	100-25	.002 x 600 v.—25%	
C20	129-5	.0001 Mica MO—O—20%	
C21	129-2	.0005 Mica MT—O—20%	
C22	100-20	.1 x 200 v.—25%	
C23	119-32	4. mfd. 200 w. v. Lytic	
C24	119-32	8. mfd. 200 w. v. Lytic	
C25	100-11	.01 x 400 v.—25%	
C26	100-26	.02 x 400 v.—25%	
C27	100-25	.002 x 600 v.—25%	
C28	100-50	.25 x 200 v.—20%	
C29	100-22	.05 x 200 v.—25%	
		RESISTORS	
R1	130-140	1200 ohm	1/3 w.—20%
R2	130-20	100M	1/3 w.—20%
R3	130-27	50	1/3 w.—20%
R4	130-54	500 ohm	1/3 w.—20%
R5	130-27	50	1/3 w.—20%
R6	130-2	75 M	1/3 w.—20%
R7		½ meg	(in m. e. socket)
R8	130-140	1200 ohm	1/3 w.—20%
R9	130-38	2 meg	1/3 w.—20%
R10	130-84	200 ohm	1/3 w.—20%
R11	130-157	12M	½ w.—10%
R12	101-66	500M	Volume Control
R13	130-19	1 meg	1/3 w.—20%
R14	130-19	1 meg	1/3 w.—20%
R15	130-20	100M	1/3 w.—20%
R16	130-20	100M	1/3 w.—20%
R17	130-4	3 meg	1/3 w.—20%
R18	130-158	16 ohm	1 w.—Insulated
R19	101-67	100M	Tone Control
R20	130-85	3 M	1/3 w.—20%
		PARTS	
T1	111-67	S.W. M.W. Ant. Coil	
T2	111-68	B.C. Antenna Coil	
T3	109-32	S.W. M. W. R.F. Coil	
T4	109-33	B.C. R.F. Coil	
T5	110-53	S.W. M.W. Osc. Coil	
T6	110-55	B.C. Osc. Coil	
T7	108-93	Input I.F. Coil	
T8	108-92	Output I.F. Coil	
T9	105-36	Audio Input Transformer	
T10	104-81	Power Transformer	
S1	114	P.M. Dynamic Spkr. 8"	
L-1	123-3	Osc. "B" Choke	
L-2	123-3	R.F. "B" Choke	
L-3	105-19	"A" Choke	
L-4	105-19	"A" Choke	
L-5	105-30	"B" Filter Choke	
V-1	126-4	Vibrator	



MODEL 804
Alignment, Trimmers

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. 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 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.

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 two plate terminals of the type 19 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-92 Output I.F. Transformer
Part No. 108-93 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6S7G tube, and adjust the output I.F. transformer (No. 108-92) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6S7G to grid cap to 6D8G and adjust input I.F. transformer (No. 108-93) to resonance.

SHORT WAVE BAND ALIGNMENT:

5.35 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 18 megacycles and connected in series with "Dummy 3" to the antenna and ground posts, make the following adjustments:
   (a) Move dial pointer to 18 megacycles and adjust short wave oscillator trimmer (adjustment number 1) to resonance.
   (b) Re-set external oscillator to 17 megacycles and pick up signal by rotating variable condenser and adjust short wave R.F. trimmer (adjustment number 8), and short wave antenna trimmer (adjustment number 9), to resonance.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 6 megacycles for band coverage and sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental on the receiver dial. As an example of this a fundamental 18.3 megacycle signal can be tuned in not only at 18.3 on the dial but also at approximately 17.4 megacycles.

MIDDLE WAVE BAND ALIGNMENT:

1690 to 5500 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5.5 megacycles and connected in series with "Dummy 3" to the antenna and ground posts make the following adjustments:
   (a) Move dial pointer to 5.5 megacycles and adjust middle wave oscillator trimmer (adjustment number 2) to resonance.
   (b) Re-set external oscillator to 5 megacycles and pick up signal by rotating variable condenser and adjust middle wave R.F. trimmer (adjustment number 10), and middle wave antenna trimmer (adjustment number 5), to resonance.
   (c) Re-set external oscillator and check sensitivity at 1700 kilocycles.

BROADCAST BAND ALIGNMENT:

540 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to antenna and ground posts, make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance. (Adjustment number 4; see bottom view of coil assembly, Fig. 3)
   (b) Re-set external oscillator to 1400 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast R.F. trimmer (adjustment number 6) and broadcast antenna trimmer (adjustment number 7), to resonance.
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad (adjustment number 3), to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis. Fig. 3).
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1400, 1000, and 600 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

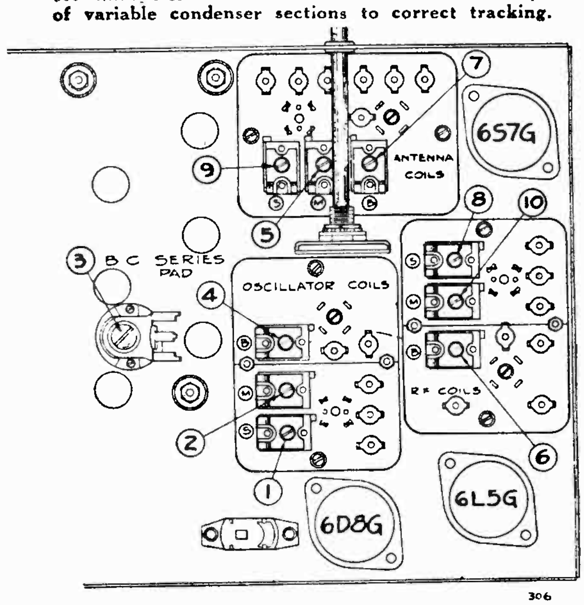
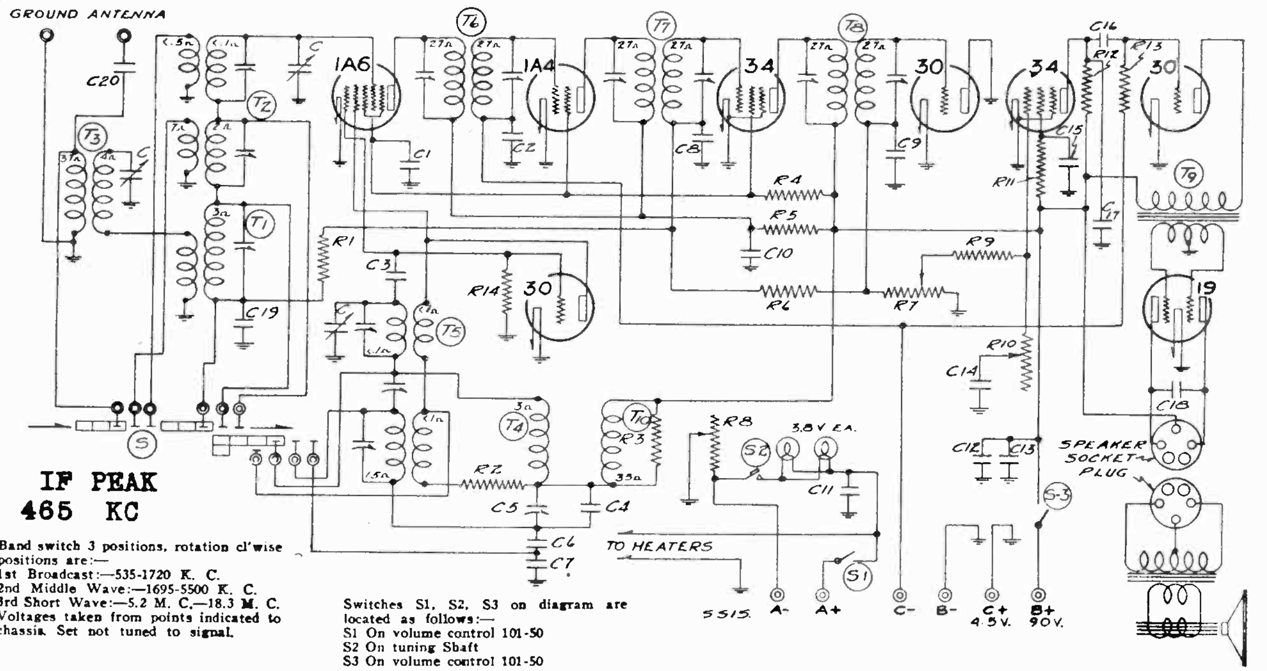


FIG. 3.—BOTTOM VIEW SHOWING TRIMMERS

MODEL 822
Schematic, Socket
Trimmers, Parts

BELMONT RADIO CORP.



IF PEAK
465 KC

Band switch 3 positions, rotation cl'wise positions are:—
1st Broadcast:—535-1720 K. C.
2nd Middle Wave:—1695-5500 K. C.
3rd Short Wave:—5.2 M. C.—18.3 M. C.
Voltages taken from points indicated to chassis. Set not tuned to signal.

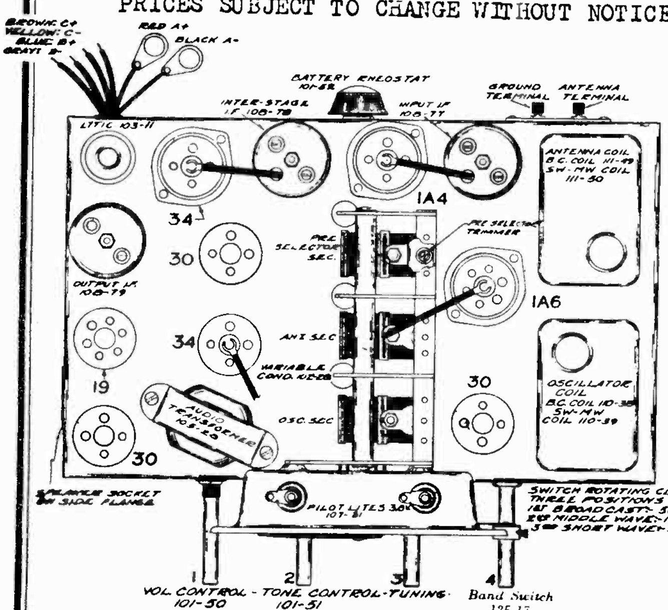
Switches S1, S2, S3 on diagram are located as follows:—
S1 On volume control 101-50
S2 On tuning Shaft
S3 On volume control 101-50

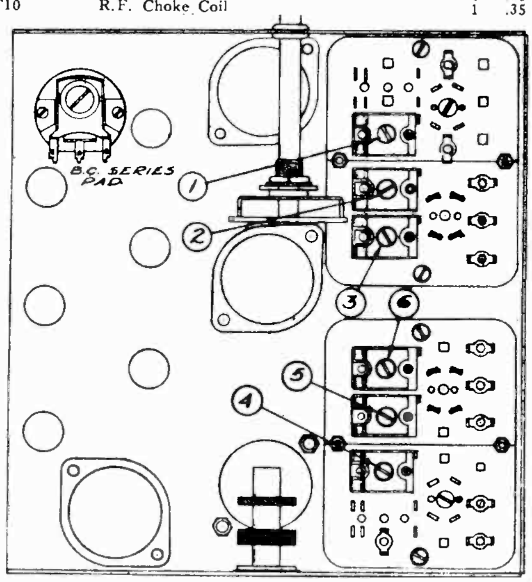
LIST OF REPAIR PARTS (Serial No. 6K 411500 and up)

Use Only Genuine Factory Replacement Parts

Part No.	Circuit Diagram Reference	Description	No. Used in Set	List Price Each
		CONDENSERS		
100-5B	C11	1.0 x 120 Volt Tubular with Bracket	1	.50
100-6	C1	.25 x 200 Volt Tubular less Bracket	1	.35
100-6B	C13	.25 x 200 Volt Tubular with Bracket	1	.35
100-11	C14, C16, C20	.01 x 400 Volt Tubular	3	.25
100-20	C10	.1 x 200 Volt Tubular	1	.25
100-22	C2, C8, C15, C19	.05 x 200 Volt Tubular	4	.25
100-25	C18	.002 x 600 Volt Tubular	1	.25
103-11	C12	8 Mfd. x 200 Volt Electrolytic	1	.75
129-5	C17	.0001 Mica—Type MT—20%	1	.25
129-12	C9	.00025 Mica—Type MT—20%	1	.25
129-50	C3	.00004 Mica—Type MT—30%	1	.25
129-54	C7	.003 Mica—Type MW—2½%	1	.35
129-55	C6	.0034 Mica—Type MW—2½%	1	.35
129-65	C4	.00055 Mica—Type MT—5%	1	.25
			1	6.00
		MISCELLANEOUS		
101-50	R7	Volume Control and Switch (250 M ohm)	1	1.25
101-51	R10	Tone Control (300 M ohm)	1	.70
101-52	R8	Filament Rheostat (2 ohm)	1	.50
102-28	C	Three Gang Variable Condenser	1	4.00
105-28	T9	Audio Input Transformer	1	1.75
125-17	S	Band Switch	1	.85
128-51		Wood Knob with Spring	3	.15
128-52		"Tuning" Knob with Set Screw—Wood	1	.15
131-12		Bakelite Knob with Arrow	1	.15
		RESISTORS		
130-11	R12	250M Ohm—⅓ Watt—20%—50 Volt Carbon	1	.20
130-12	R3, R9, R14	50M Ohm—⅓ Watt—20%—20 Volt Carbon	3	.20
130-19	R6, R11, R13	1 Meg Ohm—⅓ Watt—20%—100 Volt Car.	3	.20
130-20	R1	100M Ohm—⅓ Watt—20%—50 Volt Carbon	1	.20
130-27	R2	50 Ohm—⅓ Watt—20%—3 Volt Carbon	1	.20
130-31	R5	1500 Ohm—⅓ Watt—20%—10 Volt Carbon	1	.20
130-109	R4	7500 Ohm—⅓ Watt—20%—50 Volt Carbon	1	.20
		COILS		
108-77	T6	Input I.F. complete with Can	1	1.25
108-78	T7	Interstage I.F. complete with Can	1	1.25
108-79	T8	Output I.F. complete with Can	1	1.25
110-38	T4	Broadcast Oscillator Coil Complete	1	.50
110-39	T5	Mid-Wave & Short Wave Oscillator Coil Com.	1	1.50
111-49	T1	Broadcast Antenna Coil Assembly Complete	1	.75
111-50	T2	Mid-Wave & Short Wave Antenna Coil Assem. Complete	1	1.50
111-51	T3	Broadcast Preselector Coil	1	.75
123-3	T10	R.F. Choke Coil	1	.35

PRICES SUBJECT TO CHANGE WITHOUT NOTICE





BOTTOM VIEW SHOWING TRIMMERS

MODEL 822
Alignment

BELMONT RADIO CORP.

BATTERIES REQUIRED:

The following batteries are required:

2—45 Volt "B" Batteries.

1—4½ Volt "C" Battery.

1—3 Volt Dry "A" Battery or 2 Volt Storage Battery.

TUBES:

The tube complement of this chassis is as follows:

1—Type 1A6 Pentagrid Mixer, First Detector.
1—Type 1A4 Tetrode First I.F. Amplifier (465 K.C.)
1—Type 34 Remote Cut-Off Pentode, 2nd I.F. Amplifier (465 K.C.)
1—Type 30 Oscillator.
1—Type 30 Second Detector and A. V. C.
1—Type 34 A.F. Amplifier.
1—Type 30 Driver Amplifier.
1—Type 19 Class "B" Push-Pull Output Amplifier.

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 a new set of batteries.

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.

The approximate current consumption is as follows:
"A"—660 ma., "B"—18 to 24 ma.

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 two plate terminals of the type 19 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.

DUMMY ANTENNAS

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-79 Output I.F. Transformer
Part No. 108-78 Interstage I.F. Transformer
Part No. 108-77 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 34 tube, and adjust the output I.F. transformer (No. 108-79) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 34 to grid cap to 1A4 and adjust interstage I.F. transformer (No. 108-78) to resonance.
   (c) Move oscillator to grid cap of 1A6 and adjust input I.F. transformer (No. 108-77).

BROADCAST BAND ALIGNMENT:

535 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to antenna and ground posts, make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance. (Adjustment number 1; see bottom view of coil assembly, Fig. 3)
   (b) Re-set external oscillator to 1550 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast antenna trimmer (adjustment number 4) to resonance; also adjust preselector trimmer which is mounted on the top of the rear section of the three gang variable tuning condenser to resonance. (See top view of chassis, Fig. 1, for location of this adjustment).
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3).
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1000 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

SHORT WAVE BAND ALIGNMENT:

5.2 to 18.3 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the antenna and ground posts, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 3) and short wave antenna (adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 5.3 megacycles for band coverage.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental on the receiver dial. As an example of this a fundamental 18.3 megacycle signal can be tuned in not only at 18.3 on the dial but also at approximately 17.4 megacycles.

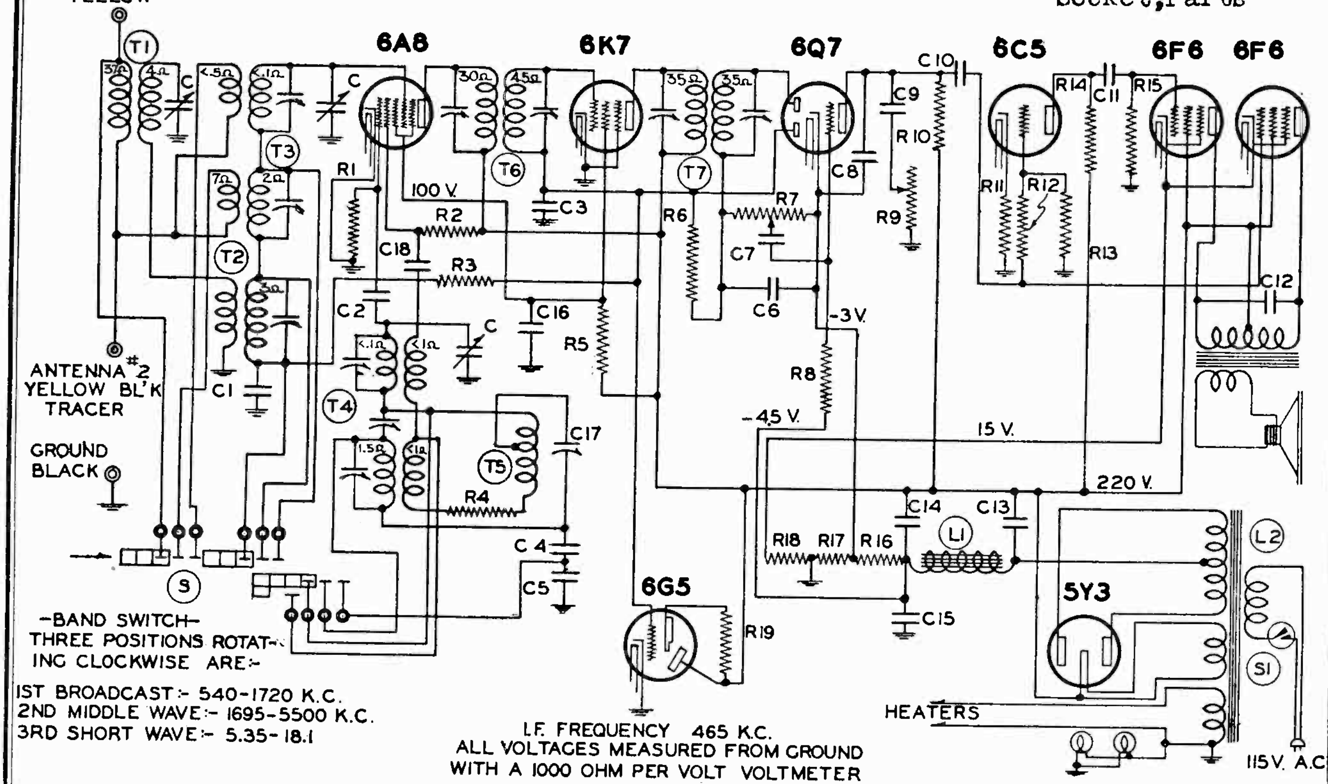
MIDDLE WAVE BAND ALIGNMENT:

1695 to 5500 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5000 kilocycles and connected in series with "Dummy 3" to the antenna and ground posts make the following adjustments:
   (a) Move dial pointer to 5000 kilocycles and adjust middle wave oscillator (adjustment number 2) and middle wave antenna (adjustment number 5) to resonance.
   (b) Re-set external oscillator to 1800 kilocycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 5400 kilocycles and 1700 kilocycles for band coverage.

BELMONT RADIO CORP.

MODEL 840
Schematic, Voltage
Socket, Parts



PARTS

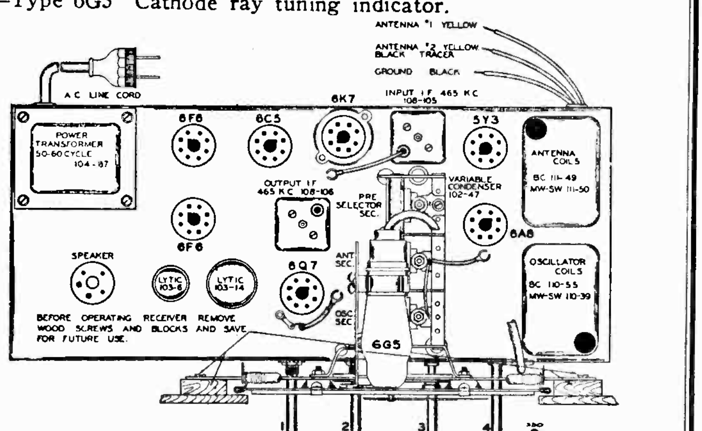
No.	Part No.	Description
		RESISTORS
R1	130-12	50M ohms - 1/3 w.
R2	130-48	15M ohms - 1/3 w.
R3	130-103	100M ohms - 1/3 w.
R4	130-27	50 ohms - 1/3 w.
R5	130-96	25M ohms - 1/2 w.
R6	130-4	3 megohm - 1/3 w.
R7	101-74	1 megohm - Volume Control
R8	130-4	3 megohm - 1/3 w.
R9	101-75	300M ohms - Tone Control
R10	130-100	150M ohms - 1/3 w.
R11	130-22	5M ohms - 1/3 w.
R12	130-163	400M ohms - 1/3 w.
R13	130-103	100M ohms - 1/3 w.
R14	130-12	50M ohms - 1/3 w.
R15	130-100	150M ohms - 1/3 w.
R16	106-37	20 ohms - Muter
R17	106-37	42 ohms - Muter
R18	106-37	250 ohms - Muter
R19	130-110	1 megohm - 1/10 w.

NOTE: R16, R17 and R18 in one unit, No. 106-37

		CONDENSERS
C1	100-22	.05 x 200 v.
C2	129-39	.00005 Mica
C3	100-22	.05 x 200 v.
C4	129-55	.0034 Mica
C5	129-54	.003 Mica
C6	129-5	.0001 Mica
C7	100-11	.01 x 400 v.
C8	129-2	.0005 Mica
C9	100-57	.006 x 600 v.
C10	100-26	.02 x 400 v.
C11	100-26	.02 x 400 v.
C12	100-12	.003 x 600 v.
C13	103-6	8 mfd. x 350 v.
C14	103-14	16 mfd. x 250 v.
C15	100-20	.1 x 200 v.
C16	100-39	.1 x 400 v.
C17	124-35	Adjustable Padder - Working Capacity 740 mmf.
C18	100-12	.003 x 600 v.

C	102-47	One section of three gang condenser
T1	111-51	B.C. Pre-Selector
T2	111-49	B.C. Antenna Coil Assembly
T3	111-50	MW - SW Antenna Coil Assembly
T4	110-39	MW - SW Oscillator Coil Assembly
T5	110-55	B.C. Oscillator Coil Assembly
T6	108-105	Input I.F. - 465 kc.
T7	108-106	Output I.F. - 465 kc.
L1	114-68	8" Speaker (Field Resistance 900 ohms)
L2	104-87	Power Transformer (60 cycle) 115 volts
S	125-17	Band Switch
S1	101-74	On-off Switch on volume control.

1—Type 6A8G—Pentagrid mixer, first detector and oscillator.
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7G duplex diode triode second detector, A.V.C. and audio.
1—Type 6C5 Inverter stage.
2—Type 6F6G—pentode push-pull output amplifier.
1—Type 5Y3G high vacuum rectifier.
1—Type 6G5 Cathode ray tuning indicator.



Vol. Control On-Off Switch | Tone Control | Tuning Control | Band Switch

MODEL 840
Alignment,Trimmers

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. These voltages are clearly indicated on the circuit diagram.

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 measured with 115 volts on the primary of the power transformer.

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.

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 cathode terminals of the 5 prong speaker socket. 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-106 Output I.F. Transformer
Part No. 108-105 Input I.F Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-106) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap of 6A8G and adjust input I.F. transformer (No. 108-105) to resonance.

BROADCAST BAND ALIGNMENT:

540 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance (adjustment number 1; see bottom view of coil assembly. Fig. 3.)
   (b) Re-set external oscillator to 1550 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast antenna trimmer (Adjustment number 4) to resonance; also adjust preselector trimmer which is mounted on the top of the rear section of the three gang variable tuning condenser to resonance. (See top view of chassis, Fig. 1, for location of this adjustment.)
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1000 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

SHORT WAVE BAND ALIGNMENT:

5.35 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (Adjustment number 3) and short wave antenna (Adjustment number 6) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 5.3 megacycles for band coverage.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental. An example of this is an image of a fundamental 18.3 megacycle signal appears near 17.4 megacycles.

MIDDLE WAVE BAND ALIGNMENT:

1690 to 5500 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5000 kilocycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 5000 kilocycles and adjust middle wave oscillator (Adjustment number 2) and middle wave antenna (Adjustment number 5) to resonance.
   (b) Re-set external oscillator to 1800 kilocycles and pick up signal by rotating variable condenser and check sensitivity.
   (c) Re-set external oscillator and check set at 5400 kilocycles and 1700 kilocycles for band coverage.
   (d) Recheck broadcast band alignment.

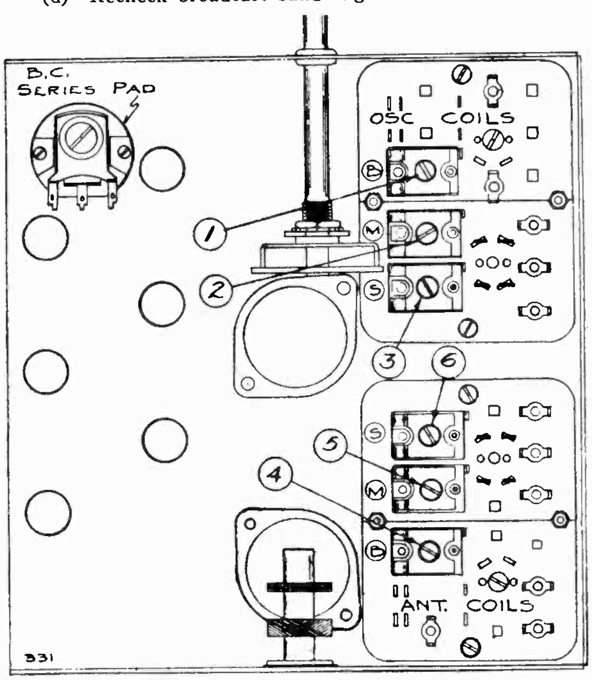
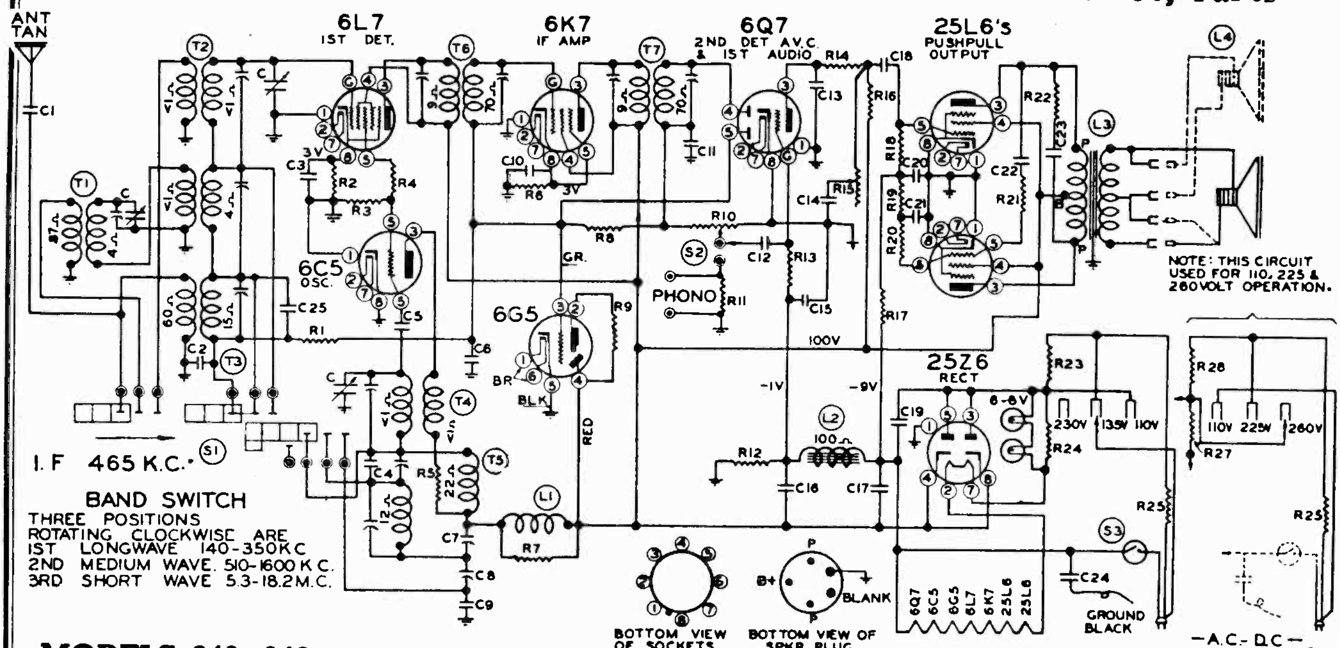


FIG. 3.—BOTTOM VIEW SHOWING TRIMMERS

BELMONT RADIO CORP.

MODELS 848,849
Schematic,Voltage
Socket, Parts



MODELS 848, 849

CONDENSERS

C	102-47	3 gang variable condenser	
C1	100-11	.01 x 400	25%
C2	100-22	.05 x 200	25%
C3	100-22	.05 x 200	25%
C4	129-67	.00004 Mica	10%
C5	129-39	.00005 Mica	20%
C6	100-26	.02 x 400	25%
C7	124-31	Adj. Cond.—300 mmf. W.C.	
C8	124-32	Adj. Cond.—565 mmf. W.C.	
C9	129-54	.003 Mica	2½%
C10	100-9	.05 x 200	25%
C11	129-21	.0002 Mica	20%
C12	100-9	.05 x 200	25%
C13	129-2	.0005 Mica	20%
C14	100-19	.006 x 600	25%
C15	100-6	.25 x 200	20%
C16	119-30	26 mfd.—100 w.v.	
C17	119-30	26 mfd.—100 w.v.	
C18	100-11	.01 x 400	25%
C19	100-39	.1 x 400	20%
C20	100-43	.25 x 200	25%
C21	100-20	.1 x 200	25%
C22	100-19	.006 x 600	25%
C23	100-19	.006 x 600	25%
C24	100-36	.01 x 1400	10%
C25	129-3	.00002 Mica	20%

C16 and C17 in same unit

RESISTORS

R1	130-20	100M ohm—1/3 w.	20%
R2	130-54	500 ohm—1/3 w.	20%
R3	130-12	50M ohm—1/3 w.	20%
R4	130-60	100 ohm—1/3 w.	20%
R5	130-27	50 ohm—1/3 w.	20%
R6	130-54	500 ohm—1/3 w.	20%
R7	130-12	50M ohm—1/3 w.	20%
R8	130-4	3 megohm—1/3 w.	20%
R9		250M—1/10 w. in Tuning indicator socket	
R10	101-46	Volume Control (1 meg. ohm)	
R11	130-20	100M ohm—1/3 w.	20%
R12	130-169	12 ohm—Wire wound	
R13	130-19	1 megohm—1/3 w.	20%
R14	130-66	75M ohm—1/3 w.	10%
R15	101-51	Tone Control (300M ohm)	
R16	130-100	150M—1/3 w.	20%
R17	130-102	500M ohm—1/3 w.	10%
R18	130-11	250M ohm—1/3 w.	20%
R19	130-11	250M ohm—1/3 w.	20%
R20	130-7	40M ohm—1/3 w.	10%
R21	130-102	500M ohm—1/3 w.	10%
R22	130-22	5M ohm—1/3 w.	20%
R23	106-41	65 ohm	
R24	106-41	40 ohm	
R25	107-48	250 ohm line cord	
R26	106-30	100 ohm	
R27	106-30	40 ohm	

R26 and R27 in one unit (110-225-260 volt operation)

R23 and R24 in one unit (110-135-230 volt operation)

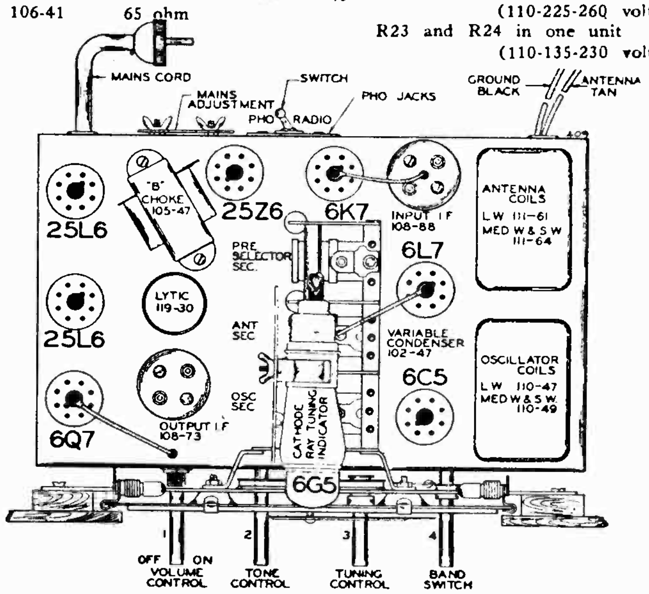


FIG. 1—TOP VIEW

T1	111-62	Pre-selector Coil Complete
T2	111-64	S.W. M.W. Antenna Coil Complete
T3	111-61	L.W. Antenna Coil Complete
T4	110-49	S.W. M.W. Oscillator Coil Complete
T5	110-47	L.W. Oscillator Coil Complete
T6	108-88	Input I.F. Coil Complete
T7	108-73	Output I.F. Coil Complete
L1	123-3	R.F. "B" Choke
L2	105-47	100 ohm Filter Choke
L3	114-83	8" P.M. Speaker
S1	125-17	Band Switch
S2	125-22	Phono Switch
S3		On-Off Switch on Volume Control
L4	114-84	Extension Speaker—6 ohm voice coil 8" P.M.

BAND	FREQUENCY RANGE	
Long Wave	350 to 140 K.C. (Kilocycles)	860-2150 Meters
Medium Wave	1600 to 510 K.C. (Kilocycles)	187-588 Meters
Short Wave	18.2 to 5.3 M.C. (Megacycles)	16.5-56.5 Meters

BELMONT RADIO CORP.

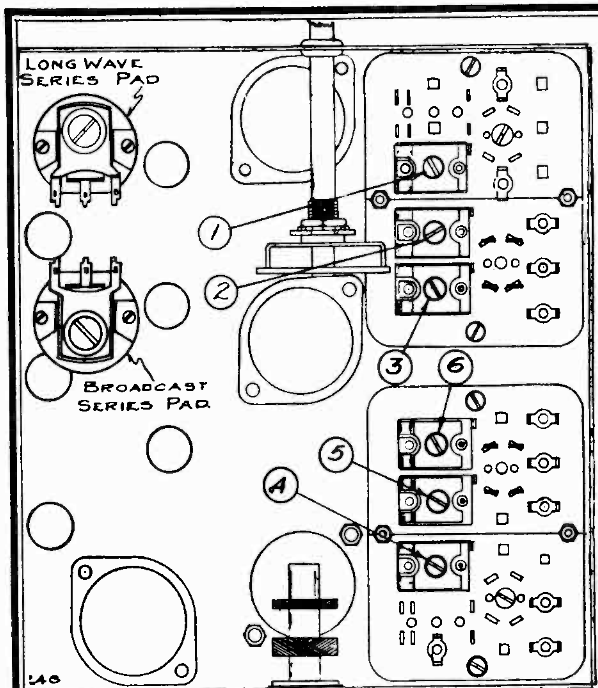


FIG. 3—BOTTOM VIEW (Showing Trimmers)

ALIGNING INSTRUCTIONS:

Dummy Antennas:

The following dummy antennas are used in aligning the receiver, and are referred to in the following alignment instructions as "Dummy 1," "Dummy 2," and "Dummy 3."

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Medium and long wave) — Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscil-

TEST FREQUENCIES USED:

	Kilocycles	Meters
I. F.	465	645.1
Long Wave	150	2000
	350	860
	325	925
Medium Wave	600	500
	1400	214
	1600	187
Short Wave	6000	50.0
	17000	17.6
	18200	16.5

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 cathode terminals of the 5 prong speaker socket. 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.

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 knobs, pull them off and to take the chassis out of the cabinet, remove the four bolts by which it is fastened.

ALIGNING I.F. TRANSFORMERS:

(465 K.C.) (645.1 Meters)

Part No. 108-73 Output I. F. Transformer.
Part No. 108-88 Input I.F. Transformer.

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

1. With volume control full on (the extreme right of its rotation), the band changing switch in the medium wave position, (center of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1," to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-73) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6L7 and adjust input I.F. transformer (No. 108-88) to resonance.
   (c) With oscillator still connected to 6L7, readjust output I.F. transformer (108-73) if necessary.

ALIGNMENT PROCEDURE:

The following adjustments to be made after the I.F.'s have been aligned as explained above.

SHORT WAVE BAND ALIGNMENT:

16.5 Meters (18.2 Mc.) to 56.5 Meters (5.3 Mc.)

1. With band changing switch in the short wave position, extreme right of its rotation, and with the gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Set external oscillator to 16.5 meters (18.2 Mc.) and adjust short wave oscillator trimmer (adjustment number 3, see Fig. 3) to resonance.
   (b) Re-set external oscillator to 17.6 meters (17.0 Mc.) and pick up signal by rotating gang condenser. Adjust short wave antenna trimmer (adjustment number 6) to resonance.
   (c) Re-set external oscillator to 50 meters (6.0 Mc.) and check for sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental. An example of this is an image of a fundamental 18.3 megacycle signal appears near 17.4 megacycles.

MEDIUM BAND ALIGNMENT:

588 Meters (510 K.C.) to 187 Meters (1600 K.C.)

1. With band changing switch in the medium wave position, center of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 187 meters (1600 K.C.) and adjust medium wave oscillator trimmer to resonance (adjustment number 2; see bottom view of coil assembly. Fig. 3.)
   (b) Re-set external oscillator to 214 meters (1400 K.C.), rotate variable gang condenser and pick up signal. Adjust medium wave antenna trimmer (Adjustment number 5) to resonance; also adjust preselector trimmer which is mounted on the top of the rear section of the three gang variable tuning condenser to resonance. (See top view of chassis, Fig. 1, for location of this adjustment.)
   (c) Re-set external oscillator to 500 meters (600 K.C.), and adjust medium wave series pad to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 300 meters (1000 K.C.) **Under no circumstances bend plates of variable condenser sections to correct tracking.**

IMPORTANT: This band must be completely rechecked after the long wave band has been adjusted.

LONG WAVE BAND ALIGNMENT:

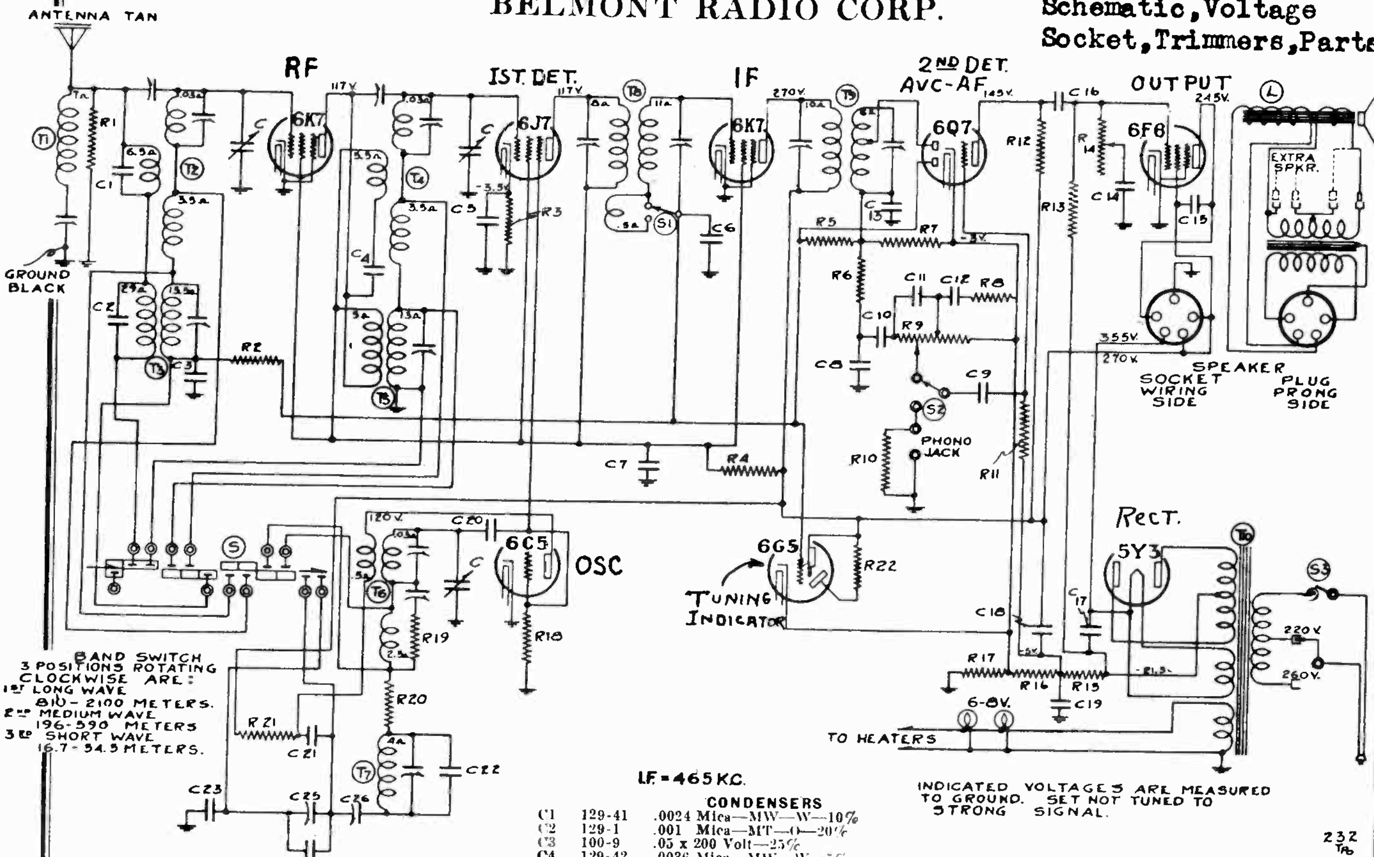
860 Meters (350 K.C.) to 2150 Meters (140 K.C.)

1. With band changing switch in the long wave position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 860 meters (350 K.C.), and adjust long wave oscillator trimmer to resonance (adjustment number 1; see bottom view of coil assembly. Fig. 3.)
   (b) Re-set external oscillator to 925 meters (325 K.C.), rotate variable gang condenser and pick up signal. Adjust long wave antenna trimmer (Adjustment number 4) to resonance.
   (c) Re-set external oscillator to 2000 meters (150 K.C.), and adjust long wave series pad to resonance by rotating condenser to approximately 2000 meters, rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

IMPORTANT: This band must be completely rechecked after the medium wave band has been rechecked.

BELMONT RADIO CORP.

MODEL 856, Series A
Schematic, Voltage
Socket, Trimmers, Parts



RESISTORS

No.	Part No.	Description
R1	130-36	10M Ohm 1/3 Watt—20%— 50 Volt Carbon
R2	130-20	100M Ohm 1/3 Watt—20%— 50 Volt Carbon
R3	130-43	2500 Ohm 1/3 Watt—20%— 20 Volt Carbon
R4	130-88	10M Ohm 2 Watt—20%—Wire Wound
R5	130-3	500M Ohm 1/3 Watt—20%—100 Volt Carbon
R6	130-20	100M Ohm 1/3 Watt—20%— 50 Volt Carbon
R7	130-11	250M Ohm 1/3 Watt—20%— 50 Volt Carbon
R8	130-22	5M Ohm 1/3 Watt—20%— 10 Volt Carbon
R9	101-47	1 Meg Ohm—Volume Control
R10	130-12	50M Ohm 1/3 Watt—20%— 20 Volt Carbon
R11	130-38	2 Meg Ohm 1/3 Watt—20%—100 Volt Carbon
R12	130-20	100M Ohm 1/3 Watt—20%— 50 Volt Carbon
R13	130-3	500M Ohm 1/3 Watt—20%—100 Volt Carbon
R14	101-38	100M Ohm—Tone Control
R15	106-27	220 Ohm—Muter Strip
R16	106-27	28 Ohm—Muter Strip
R17	106-27	38 Ohm—Muter Strip
R18	130-12	50M Ohm 1/3 Watt—20%— 20 Volt Carbon
R19	130-60	100 Ohm 1/3 Watt—20%— 10 Volt Carbon
R20	130-27	50 Ohm 1/3 Watt—20%— 3 Volt Carbon
R21	130-25	19M Ohm 1/2 Watt—20%—150 Volt Carbon
R22	130-110	1 Meg Ohm 1/10 Watt—10%—100 Volt Carbon

NOTE: R15, R16 and R17 are in one unit—No. 106-27

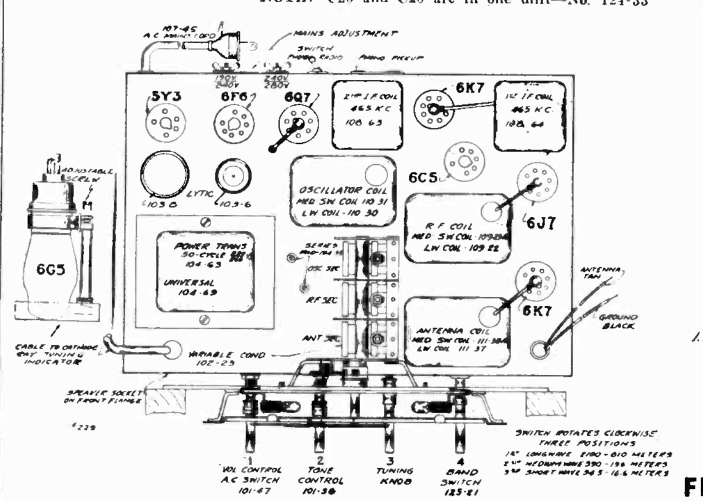
CONDENSERS

C1	129-41	.0024 Mica—MW—W—10%
C2	129-1	.001 Mica—MT—O—20%
C3	100-9	.05 x 200 Volt—25%
C4	129-42	.0036 Mica—MW—W—5%
C5	100-14	.1 x 200 Volt—20%
C6	100-9	.05 x 200 Volt—25%
C7	100-41	.25 x 400 Volt—20%
C8	129-60	.00015 Mica—MT—O—20%
C9	100-11	.01 x 400 Volt—25%
C10	100-9	.05 x 200 Volt—25%
C11	129-2	.0005 Mica—MT—O—20%
C12	100-9	.05 x 200 Volt—25%
C13	129-5	.0001 Mica—MT—O—20%
C14	100-26	.02 x 400 Volt—25%
C15	100-32	.0005 x 1000 Volt—20%
C16	100-11	.01 x 400 Volt—25%
C17	103-8	14 mfd. x 400 Volt Electrolytic
C18	103-6	8 mfd. x 350 Volt Electrolytic
C19	100-42	.25 x 200 Volt—20%
C20	129-68	.00003 Mica—MT—O—20%
C21	100-13	.05 x 400 Volt—25%
C22	129-40	.0001 Mica—MT—O—10%
C23	129-37	.0019 Mica—MW—W—2½%
C24	129-57	.0005 Mica—MT—O—5%
C25	124-33	Adjustable Condenser 200 mmf. Work. Cap.
C26	124-33	Adjustable Condenser 340 mmf. Work. Cap.

NOTE: C25 and C26 are in one unit—No. 124-33

MISCELLANEOUS PARTS

C	102-23	One Section of Three Gang Condenser
T1	108-50	Wave Trap Coil and Trimmer
T2	111-38A	M.W. and S.W. Antenna Coil
T3	111-37	L.W. Antenna Coil
T4	109-23A	M.W. and S.W. R.F. Coil
T5	109-22	L.W. R.F. Coil
T6	110-31	M.W. and S.W. Oscillator Coil
T7	110-30	L.W. Oscillator Coil
T8	108-64	Input I.F. 465 Kc.
T9	108-63	Output I.F. 465 Kc.
T10	104-63	Power Transformer 50 Cycle
L	114-46	8 In. Speaker (Field Resistance 1250 Ohms)
S	125-21	Band Switch
S1	101-38	High Fidelity Switch on Tone Control
S2	125-22	Phono-Radio Switch
S3	101-47	On and Off Switch on Volume Control



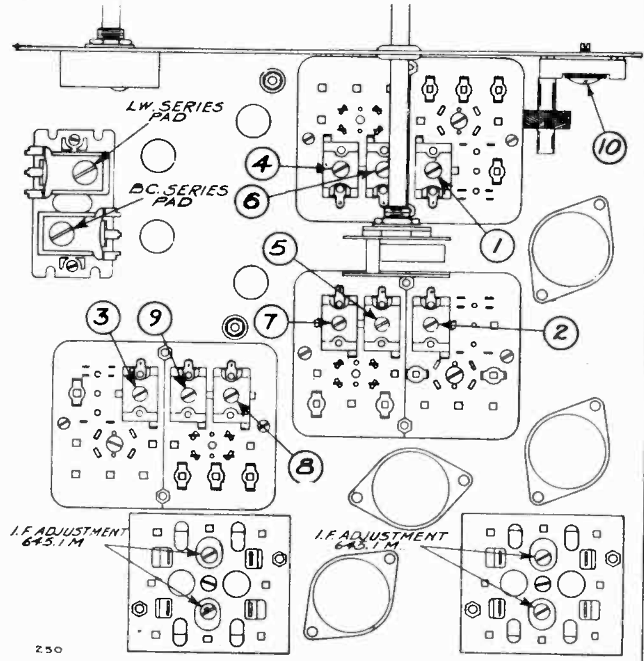


FIG. 2—BOTTOM VIEW (Showing Trimmers)

MODEL 856, Series A
Alignment

BELMONT RADIO CORP.

POWER SUPPLY:

This receiver is normally supplied with a transformer for operation on 50 cycles (may be higher in frequency, not lower) and with a primary designed for operation on 190-280 volts.

Mains transformer is provided with two taps, one for voltages 190-240 volts another for voltages 240-280 volts. These taps are accessible upon removing plate fastened with two wing nuts to back of chassis.

ALIGNING INSTRUCTIONS

Dummy Antennas

The following dummy antennas are used in aligning the receiver, and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast and long wave)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

TEST FREQUENCIES USED

	Kilocycles	Meters
I. F.	465	645.1
Long Wave	150	2000
	370	810
	350	857
Broadcast	550	545
	1300	230
	1530	196
Short Wave	6000	50.0
	17000	17.6
	18100	16.6

ALIGNING I.F. TRANSFORMERS
(465 K.C.) (645.1 Meters)

Part No. 108-63 Output I.F. Transformer.
Part No. 108-64 Input I.F. Transformer.

These I.F. transformers have two adjustments, both of which are accessible from the underside of chassis (see bottom view).

1. With volume control full on (the extreme right of its rotation), the band changing switch in the medium wave position (center of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 230 meters (1300 K.C.), make the following adjustments:
   (a) Connect external oscillator set at 645.1 meters (465 K.C.), in series with "Dummy 1," to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer (108-63) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   (c) With oscillator still connected to 6J7, readjust output I.F. transformer if necessary.

ALIGNMENT PROCEDURE

The following adjustments to be made after the I.F.'s have been aligned as explained above.

SHORT WAVE BAND ALIGNMENT:
16.6 Meters (18.1 Mc.) to 54.5 Meters (5.5 Mc.)

1. With band changing switch in the short wave position, extreme right of its rotation, and with the gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Set external oscillator to 16.6 meters (18.1 Mc.) and adjust short wave oscillator trimmer (adjustment number 8, see Fig. 2) to resonance.
   (b) Re-set external oscillator to 17.6 meters (17.0 Mc.) and pick up signal by rotating gang condenser. Adjust short wave R.F. trimmer (adjustment number 7) and short wave antenna trimmer (adjustment number 6) to resonance.
   (c) Re-set external oscillator to 50 meters (6.0 Mc.) and check for sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental. An example of this is an image of a fundamental 18.3 megacycle signal appears near 17.4 megacycles.

MEDIUM OR BROADCAST BAND ALIGNMENT:
590 Meters (508 K.C.) to 196 Meters (1530 K.C.)

1. With band changing switch in the medium wave position, center of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 196 meters (1530 K.C.) and adjust medium wave oscillator trimmer to resonance (adjustment number 9; see bottom view of coil assembly. Fig. 2.)
   (b) Re-set external oscillator to 230 meters (1300 K.C.), rotate variable gang condenser and pick up signal. Adjust medium wave R.F. trimmer (adjustment number 5) and medium wave antenna trimmer (adjustment number 4) to resonance.
   (c) Re-set external oscillator to 545 meters (550 K.C.). and adjust medium wave series pad to resonance by rotating condenser to approximately 550 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 2.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 300 meters (1000 K.C.) **Under no circumstances bend plates of variable condenser sections to correct tracking.**

IMPORTANT: This band must be completely rechecked after the long wave band has been adjusted.

LONG WAVE BAND ALIGNMENT:
810 Meters (370 K.C.) to 2100 Meters (143 K.C.)

1. With band changing switch in the long wave position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make following adjustments:
   (a) Set external oscillator to 810 meters (370 K.C.), and adjust long wave oscillator trimmer to resonance (adjustment number 3; see bottom view of coil assembly. Fig. 2.)
   (b) Re-set external oscillator to 857 meters (350 K.C.), rotate variable gang condenser and pick up signal. Adjust long wave R.F. trimmer (adjustment number 2) and long wave antenna trimmer (adjustment number 1) to resonance.
   (c) Re-set external oscillator to 2000 meters (150 K.C.), and adjust long wave series pad to resonance by rotating condenser to approximately 2000 meters, rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 2.)
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

IMPORTANT: This band must be completely rechecked after the medium wave band has been rechecked.

WAVE TRAP ADJUSTMENT:

The circuit diagram of this receiver shows a wave trap part number 108-50 (T1) in the antenna circuit.

The purpose of this part is to trap out interfering frequencies close to the intermediate frequency (645.1 meters, 465 K.C.) used for the I.F. stage.

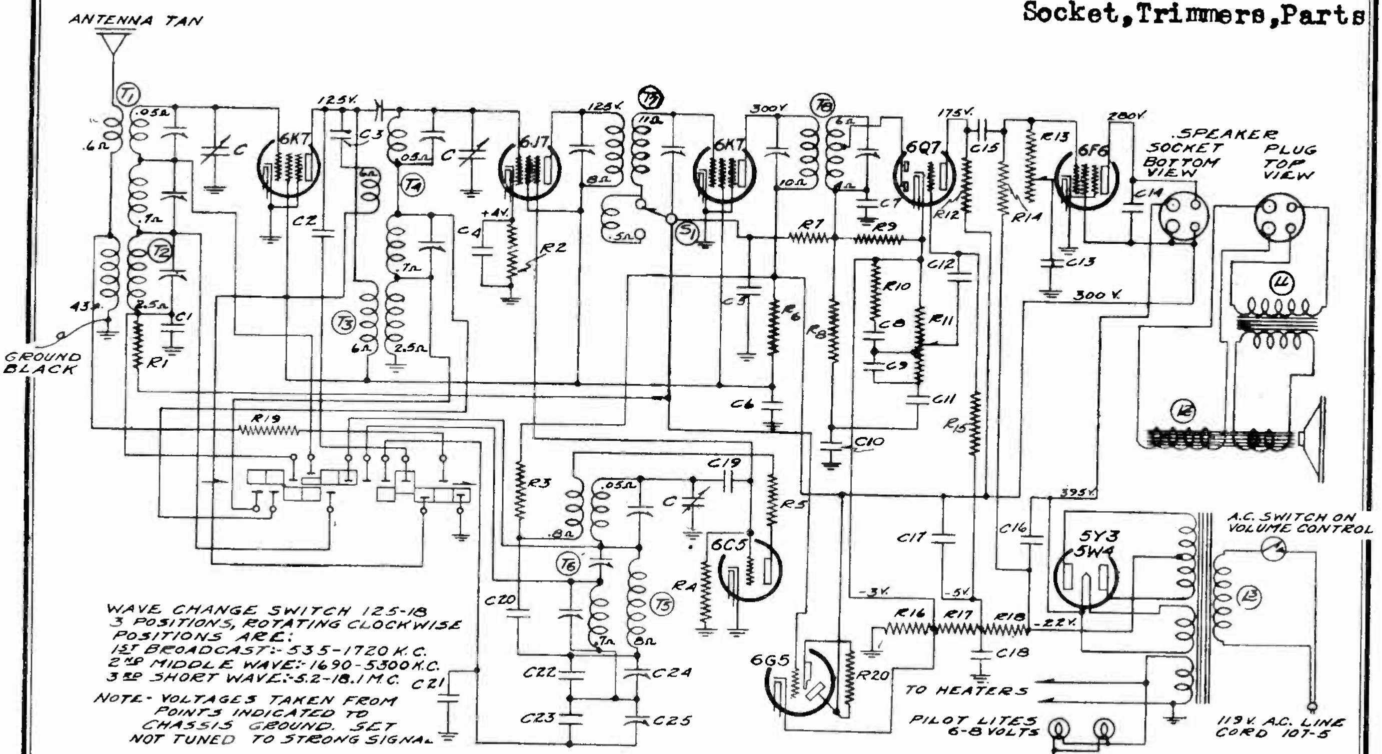
To properly adjust the trimmer for the wave trap (adjustment number 10, Fig. 2, page 2), proceed as follows:

1. With band changing switch in the medium wave position, center of its rotation and the dial pointer set at 545 meters, and with external oscillator connected in series with "Dummy 2" to tan antenna lead and black ground lead, make the following adjustment:

(a) Set external oscillator to 645.1 meters (465 K.C.) and adjust wave trap trimmer (adjustment number 10) for **minimum** response.

BELMONT RADIO CORP.

MODEL 878, Series A
Schematic, Voltage
Socket, Trimmers, Parts



The tube complement of this chassis is as follows:

1—Type 6K7 Remote cut-off pentode R.F. amplifier
1—Type 6J7—pentode first detector.
1—Type 6C5 Oscillator
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7 duplex diode pentode second detector, A.V.C. audio.
1—Type 6F6—pentode output amplifier.
1—Type 5Y3 or 5W4—high vacuum rectifier.
1—Type 6G5 Cathode Ray Tuning Indicator.

No.	Part No.	Description RESISTORS
R1	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R2	130-43	2500 Ohms—1/3 W.—20%—20 V.—Car.
R3	130-77	10M Ohms—1 W.—20%—100V.—Car.
R4	130-12	50M Ohms—1/3 W.—20%—20 V.—Car.
R5	130-60	100 Ohms—1/3 W.—20%—10 V.—Car.
R6	130-88	10M Ohms—2 W.—20%—Wire Wound
R7	130-3	500M Ohms—1/3 W.—20%—100 V.—Car.
R8	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R9	130-11	250M Ohms—1/3 W.—20%—50 V.—Car.
R10	130-22	5000 Ohms—1/3 W.—20%—10 V.—Car.
R11	101-47	1 meg Ohm—Vol. Con. with AC Switch
R12	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R13	101-38	100M Ohms—Tone Con with Fid. Switch.
R14	130-3	500M Ohms—1/3 W.—20%—100 V.—Car.
R15	130-38	2 meg Ohm—1/3W.—20%—100 V.—Car.
R16	106-27	38 Ohms—10% Muter Resistor
R17	106-27	28 Ohms—10% Muter Resistor
R18	106-27	220 Ohms—10% Muter Resistor
R19	130-27	50 Ohms—1/3 Watt—20% Car.
		Note: R16, R17, R18 in one unit—part No. 106-27
R20	130-110	1 Megohm—1/10 W.—10%—100V.—Car.

CONDENSERS

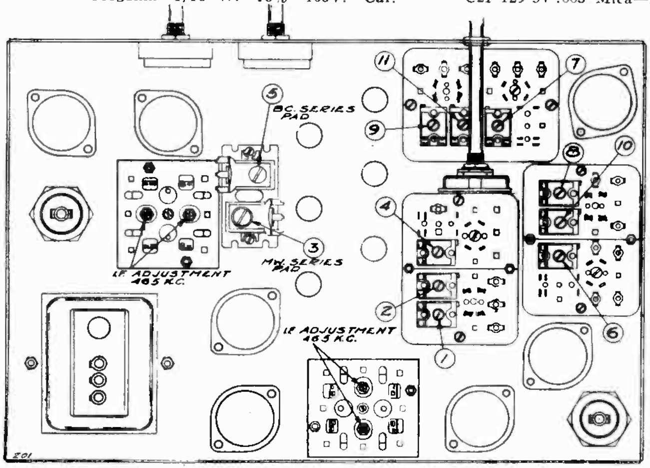
C	102-35	One sec. of 3 gang var. condenser
C1	100-9	.05—200 Volt—25%
C2	129-59	.0003 Mica—MT—0—5%
C3	129-39	.00005 Mica—MT—0—20%
C4	100-9	.05—200 Volt—25%
C5	100-9	.05—200 Volt—25%
C6	100-41	.25—400 Volt—20%
C7	129-5	.0001 Mica—MT—0—20%
C8	100-9	.05—200 Volt—25%
C9	129-2	.0005 Mica—MT—0—20%
C10	129-60	.00015 Mica—MT—0—20%
C11	100-9	.05—200 Volt—25%
C12	100-11	.01—400 Volt—25%
C13	100-26	.02—400 Volt—25%
C14	100-32	.0005—1000 Volt—20%
C15	100-11	.01—400 Volt—25%
C16	103-8	14 mfd.—400 Volt Electrolytic
C17	103-6	8 mfd.—350 Volt Electrolytic
C18	100-46	.25—200 Volt—20%
C19	129-31	.000025 Mica—MT—0—15%
C20	100-13	.05—400 Volt—25%
C21	129-54	.003 Mica—MW—W—2½%
C22	129-57	.0005 Mica—MT—0—5%
C23	129-66	.0021 Mica—MW—W—2½%
C24	124-18	Padder, 175 mmf. working capacity
C25	124-18	Padder, 300 mmf. working capacity

Note: C24, C25 in one unit—Part No. 124-18

I. F. FREQUENCY 465 K. C.

PARTS

T1	111-54	M.W. and S.W. Antenna Coil Assem.
T2	111-55	Broadcast Antenna Coil Assem.
T3	109-30	Broadcast R.F. Coil Assem.
T4	109-29	M.W. and S.W. R.F. Coil Assem.
T5	110-43	Broadcast Osc Coil Assem.
T6	110-42	M.W. and S.W. Osc. Coil Assem.
T7	108-64	Input I.F. Coil—465 Kc.
T8	108-63	Output I.F. Coil—465 Kc.
L1		Output Transformer (on speaker)
L2	114-36	8" Speaker (Field Resist. 1250 Ohms)
L3	104-27	Power Transformer (50-60 Cycle)
S	125-18	Band Switch
S1	101-38	Fidelity Switch on Tone Control



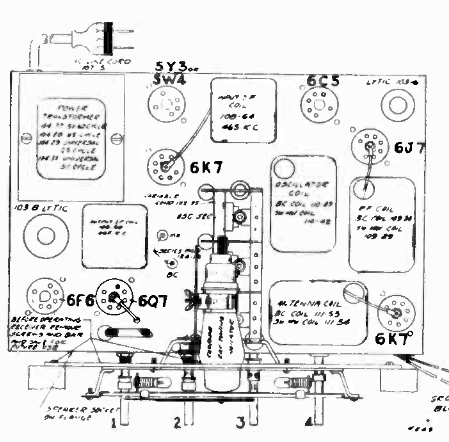
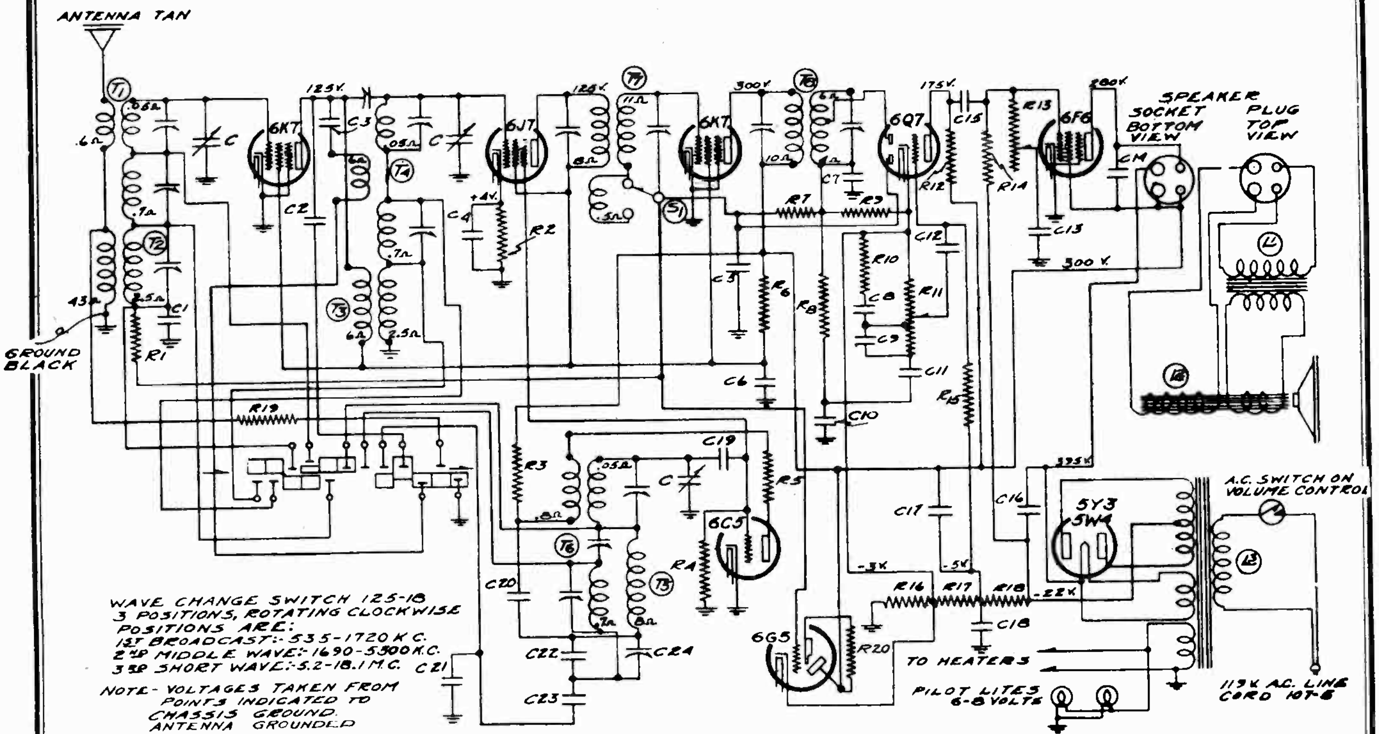


FIG. 1—BOTTOM VIEW SHOWING TRIMMERS

MODEL 878, Series B

BELMONT RADIO CORP.

Schematic, Voltage Socket, Trimmers, Parts



The tube complement of this chassis is as follows:

1—Type 6K7 Remote cut-off pentode R.F. amplifier
1—Type 6J7—pentode first detector.
1—Type 6C5 Oscillator
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7 duplex diode pentode second detector, A.V.C. audio.
1—Type 6F6—pentode output amplifier.
1—Type 5Y3 or 5W4—high vacuum rectifier.
1—Type 6G5 Cathode Ray Tuning Indicator.

RESISTORS

No.	Part No.	Description
R1	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R2	130-43	2500 Ohms—1/3 W.—20%—20 V.—Car.
R3	130-77	10M Ohms—1 W.—20%—100V.—Car.
R4	130-12	50M Ohms—1/3 W.—20%—20 V.—Car.
R5	130-60	100 Ohms—1/3 W.—20%—10 V.—Car.
R6	130-88	10M Ohms—2 W.—20%—Wire Wound
R7	130-38	2 meg Ohms—1/3 W.—20%—100 V.—Car.
R8	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R9	130-11	250M Ohms—1/3 W.—20%—50 V.—Car.
R10	130-22	5000 Ohms—1/3 W.—20%—10 V.—Car.
R11	101-47	1 meg Ohm—Vol. Con. with AC Switch
R12	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R13	101-38	100M Ohms—Tone Con with Fid. Switch.
R14	130-3	500M Ohms—1/3 W.—20%—100 V.—Car.
R15	130-38	2 meg Ohm—1/3W.—20%—100 V.—Car.
R16	106-27	38 Ohms—10% Muter Resistor
R17	106-27	28 Ohms—10% Muter Resistor
R18	106-27	220 Ohms—10% Muter Resistor
R19	130-27	50 Ohms—1/3 Watt—20% Car.
		Note: R16, R17, R18 in one unit—part No. 106-27
R20	130-110	1 Megohm—1/10 W.—10%—100V.—Car.

CONDENSERS

No.	Part No.	Description
C	102-35	One sec. of 3 gang var. condenser
C1	100-9	.05—200 Volt—25%
C2	129-59	.0003 Mica—MT—0—5%
C3	129-39	.00005 Mica—MT—0—20%
C4	100-9	.05—200 Volt—25%
C5	100-9	.05—200 Volt—25%
C6	100-41	.25—400 Volt—20%
C7	129-5	.0001 Mica—MT—0—20%
C8	100-9	.05—200 Volt—25%
C9	129-2	.0005 Mica—MT—0—20%
C10	129-60	.00015 Mica—MT—0—20%
C11	100-22	.05—200 Volt—25%
C12	100-11	.01—400 Volt—25%
C13	100-26	.02—400 Volt—25%
C14	100-32	.0005—1000 Volt—20%
C15	100-11	.01—400 Volt—25%
C16	103-8	14 mfd.—400 Volt Electrolytic
C17	103-6	8 mfd.—350 Volt Electrolytic
C18	100-46	.25—200 Volt—20%
C19	129-31	.000025 Mica—MT—0—15%
C20	100-13	.05—400 Volt—25%
C21	129-69	.0023 Mica—MW—W—2½%
C22	129-57	.0005 Mica—MT—0—5%
C23	129-55	.0034 Mica—MW—W—2½%
C24	124-34	Padder, working capacity, 200 mmf.

I. F. FREQUENCY 465 K. C.

PARTS

No.	Part No.	Description
T1	111-54	M.W. and S.W. Antenna Coil Assem.
T2	111-55	Broadcast Antenna Coil Assem.
T3	109-30	Broadcast R.F. Coil Assem.
T4	109-29	M.W. and S.W. R.F. Coil Assem.
T5	110-43	Broadcast Osc Coil Assem.
T6	110-42	M.W. and S.W. Osc. Coil Assem.
T7	108-64	Input I.F. Coil—465 Kc.
T8	108-63	Output I.F. Coil—465 Kc.
L1		Output Transformer (on speaker)
L2	114-36	8" Speaker (Field Resist. 1250 Ohms)
L3	104-27	Power Transformer (50-60 Cycle)
S	125-18	Band Switch
S1	101-38	Fidelity Switch on Tone Control

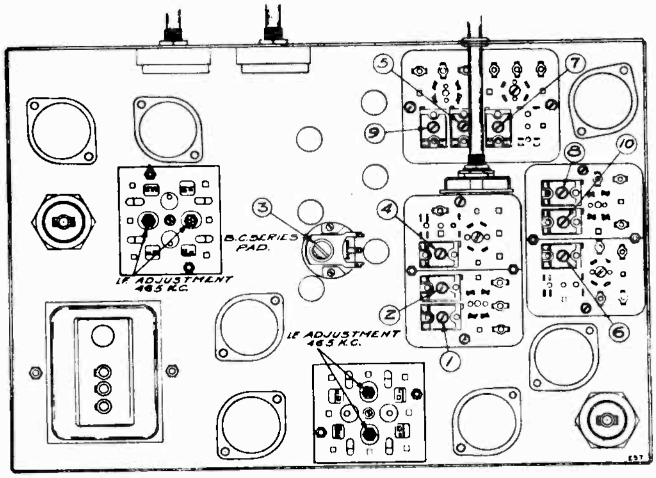
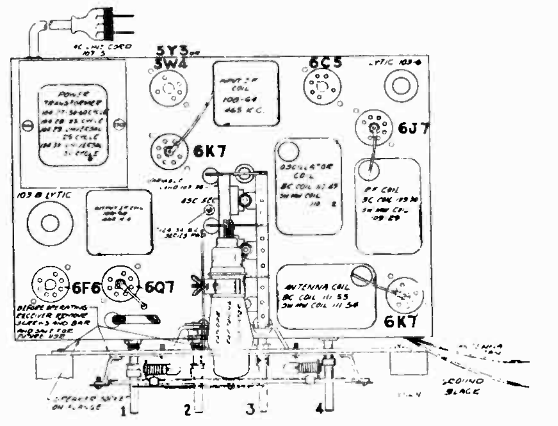


FIG. 1—BOTTOM VIEW SHOWING TRIMMERS



BELMONT RADIO CORP.

MODEL 878, Series A and B
Alignment

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 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 119 volts on the primary of the power transformer.

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.

ALIGNING INSTRUCTIONS

Dummy Antennas

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Intermediate and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external 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 6F6 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.

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 knobs, pull them off and to take the chassis out of the cabinet, remove the four bolts by which it is fastened.

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

Part No. 108-63 Output I.F. Transformer
Part No. 108-64 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the wave changing switch in the broadcast position, (extreme left of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer 108-63 to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   (c) With oscillator still connected to 6J7, re-adjust output I.F. transformer if necessary.

ALIGNMENT PROCEDURE

The following adjustments to be made after the I.F.'s have been aligned as explained above.

BROADCAST BAND ALIGNMENT:

1. With band changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 600 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:

FOR SERIES "A"

(a) Adjust broadcast series pad (adjustment number 5) to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the 108-63 output I.F. transformer. See top view, Fig. 3.

FOR SERIES "B"

(a) Adjust broadcast series pad (adjustment number 3) to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the 108-63 output I.F. transformer. See top view, Fig. 3.

(b) Re-set external oscillator to 1400 K.C., move dial pointer to 1400 K.C. and adjust oscillator (adjustment number 4), R.F. (adjustment number 6) and antenna (adjustment number 7) to resonance. See bottom view for location of these adjustments, Fig. 1.

(c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL.

SHORT WAVE BAND ALIGNMENT:

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 1), short wave R.F. (adjustment number 8) and short wave antenna (adjustment number 9) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

MIDDLE WAVE BAND ALIGNMENT:

FOR SERIES "A"

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 1800 K.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Rotate variable condenser to approximately 1800 K.C., tune in oscillator signal and adjust M.W. series pad (adjustment number 3) (see top view) to resonance. Slowly rock condenser to and fro while making this adjustment to be sure maximum output is obtained.
   (b) Set external oscillator at 5 M.C., rotate condenser, pick up signal and adjust intermediate wave R.F. (adjustment number 10), intermediate wave antenna (adjustment number 11) and intermediate wave oscillator (adjustment number 2) to resonance.

FOR SERIES "B"

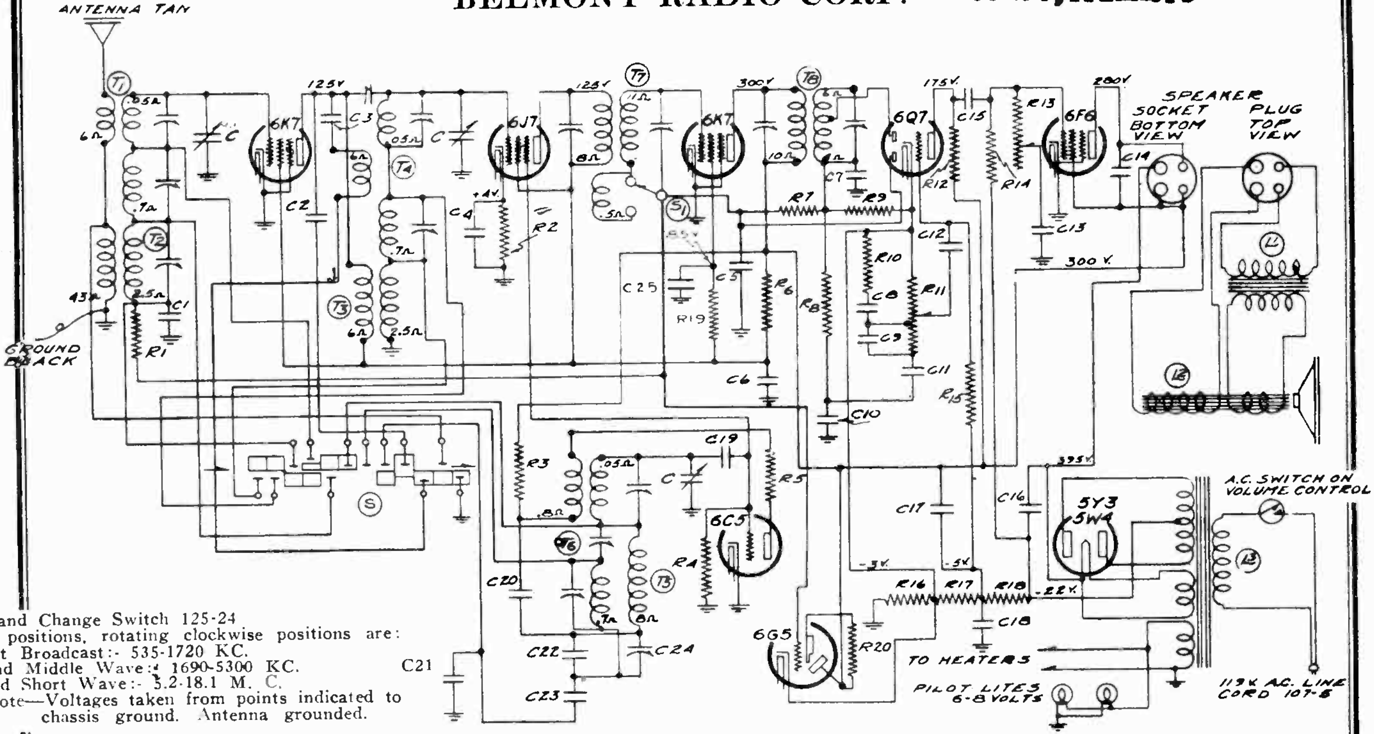
1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 M.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Rotate condenser, pick up signal and adjust middle wave R.F. (adjustment number 10), middle wave antenna (adjustment number 5) and middle wave oscillator (adjustment number 2) to resonance.

NOTE— Re-check broadcast alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17 M.C. short wave and 5 M.C. middle wave adjustments.

MODEL 879, Series A

BELMONT RADIO CORP.

Schematic, Voltage, Parts Socket, Trimmers



Band Change Switch 125-24
3 positions, rotating clockwise positions are:
1st Broadcast:- 535-1720 KC.
2nd Middle Wave:- 1690-5300 KC.
3rd Short Wave:- 5.2-18.1 M. C.
Note—Voltages taken from points indicated to chassis ground. Antenna grounded.

FOR ALIGNMENT, SEE INDEX

No.	Part No.	Description
		RESISTORS
R1	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R2	130-43	2500 Ohms—1/3 W.—20%—20 V.—Car.
R3	130-77	10M Ohms—1 W.—20%—100V.—Car.
R4	130-12	50M Ohms—1/3 W.—20%—20 V.—Car.
R5	130-60	100 Ohms—1/3 W.—20%—10 V.—Car.
R6	130-88	10M Ohms—2 W.—20%—Wire Wound
R7	130-38	2 meg Ohms—1/3 W.—20%—100 V.—Car.
R8	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R9	130-11	250M Ohms—1/3 W.—20%—50 V.—Car.
R10	130-22	5000 Ohms—1/3 W.—20%—10 V.—Car.
R11	101-60	1 meg Ohm—Vol. Con. with AC Switch
R12	130-20	100M Ohms—1/3 W.—20%—50 V.—Car.
R13	101-61	100M Ohms—Tone Con. with Fid. Switch
R14	130-3	500M Ohms—1/3 W.—20%—100 V.—Car.
R15	130-38	2 meg Ohm—1/3W.—20%—100 V.—Car.
R16	106-27	38 Ohms—10% Muter Resistor
R17	106-27	28 Ohms—10% Muter Resistor
R18	106-27	220 Ohms—10% Muter Resistor
R19	130-76	30M Ohms—⅓ W.—20%—10V.—Carbon
		Note: R16, R17, R18 in one unit—part No. 106-27
R20	130-110	1 Megohm—1/10 W.—10%—100V.—Car.

		CONDENSERS
C	102-37	One sec. of 3 gang var. condenser
C1	100-9	.05—200 Volt—25%
C2	129-59	.0003 Mica—MT—0—5%
C3	129-39	.00005 Mica—MT—0—20%
C4	100-9	.05—200 Volt—25%
C5	100-9	.05—200 Volt—25%
C6	100-41	.25—400 Volt—20%
C7	129-5	.0001 Mica—MT—0—20%
C8	100-9	.05—200 Volt—25%
C9	129-2	.0005 Mica—MT—0—20%
C10	129-60	.00015 Mica—MT—0—20%
C11	100-22	.05—200 Volt—25%
C12	100-11	.01—400 Volt—25%
C13	100-26	.02—400 Volt—25%
C14	100-32	.0005—1000 Volt—20%
C15	100-11	.01—400 Volt—25%
C16	103-8	14 mfd.—400 Volt Electrolytic
C17	103-6	8 mfd.—350 Volt Electrolytic
C18	100-46	.25—200 Volt—20%
C19	129-31	.000025 Mica—MT—0—15%
C20	100-13	.05—400 Volt—25%
C21	129-69	.0023 Mica—MW—W—2½%
C22	129-57	.0005 Mica—MT—0—5%
C23	129-55	.0034 Mica—MW—W—2½%
C24	124-34	Padder, working capacity, 200 mmf.
C25	100-11	.01 x 400 Volt—25%
		PARTS
T1	111-54	M.W. and S.W. Antenna Coil Assem.
T2	111-55	Broadcast Antenna Coil Assem.
T3	109-30	Broadcast R.F. Coil Assem.
T4	109-29	M.W. and S.W. R.F. Coil Assem.
T5	110-43	Broadcast Osc Coil Assem.
T6	110-42	M.W. and S.W. Osc. Coil Assem.
T7	108-64	Input I.F. Coil—465 Kc.
T8	108-63	Output I.F. Coil—465 Kc.
L1		Output Transformer (on speaker)
L2	114-36	8" Speaker (Field Resist. 1250 Ohms)
L3	104-27	Power Transformer (50-60 Cycle)
S	125-24	Band Switch
S1	101-61	Fidelity Switch on Tone Control

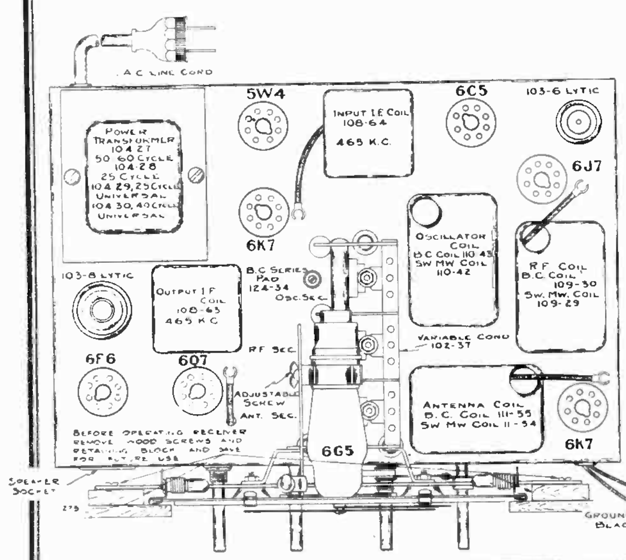
TUNING RANGE—

Standard Broadcast Band
535-1720 Kilocycles.

Middle Wave Band
1690-5300 Kilocycles

Short Wave Band
5.2-18.1 Megacycles.

I. F. FREQUENCY
465 K. C.



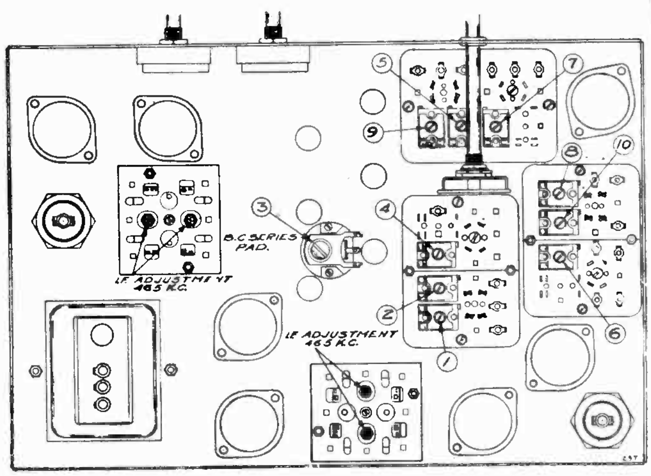
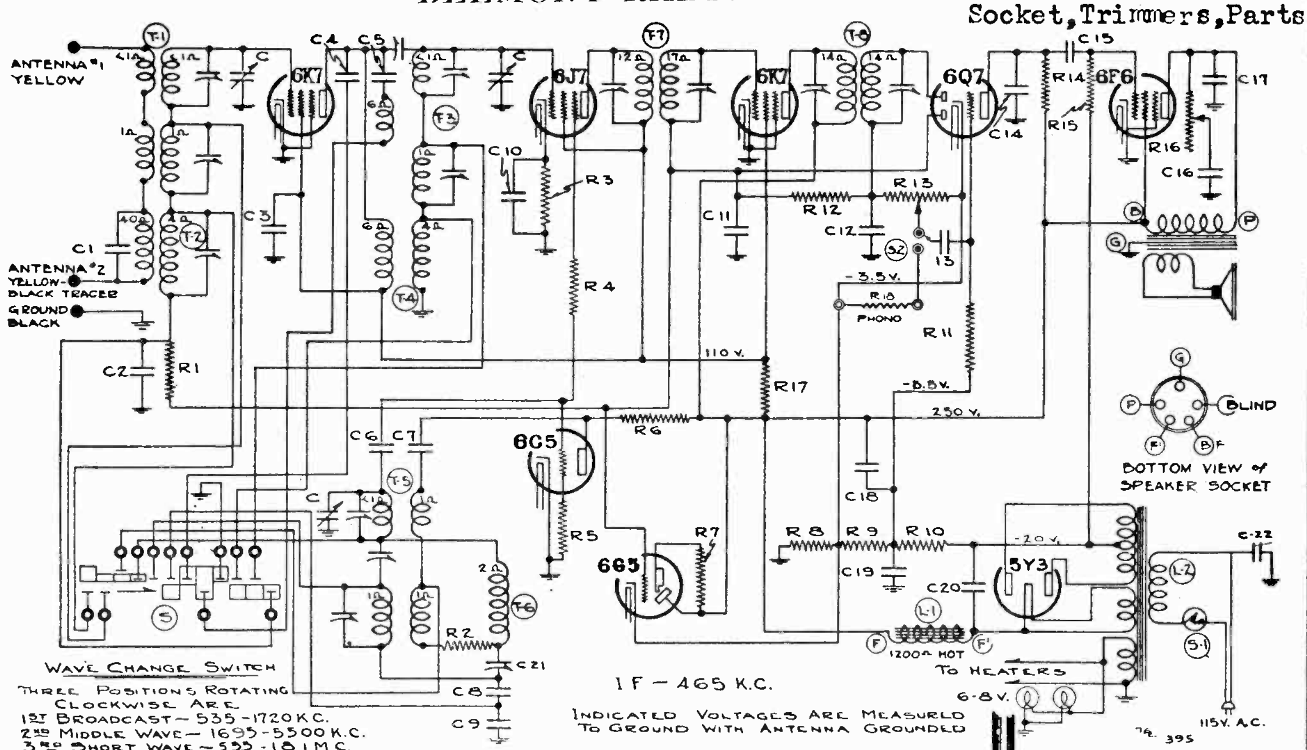


FIG. 1—BOTTOM VIEW SHOWING TRIMMERS

MODEL 890, Series A
Schematic, Voltage
Socket, Trimmers, Parts

BELMONT RADIO CORP.



BAND	FREQUENCY RANGE
Broadcast	535 to 1720 K.C. (Kilocycles)
Middle Wave	1695 to 5500 K.C. (Kilocycles)
Short Wave	5.35 to 18.1 M.C. (Megacycles)

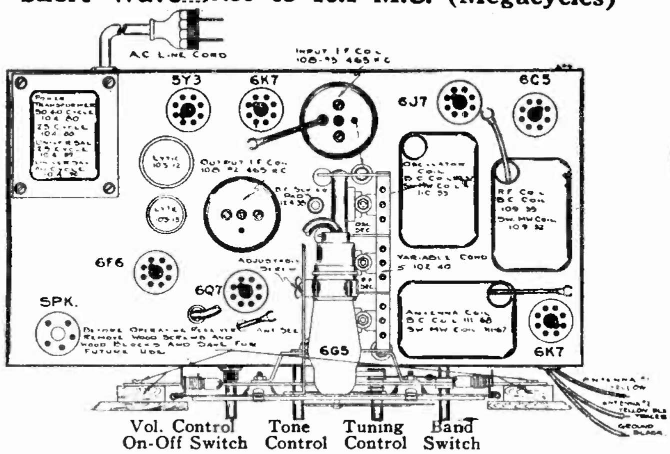


FIG. 1—TOP VIEW

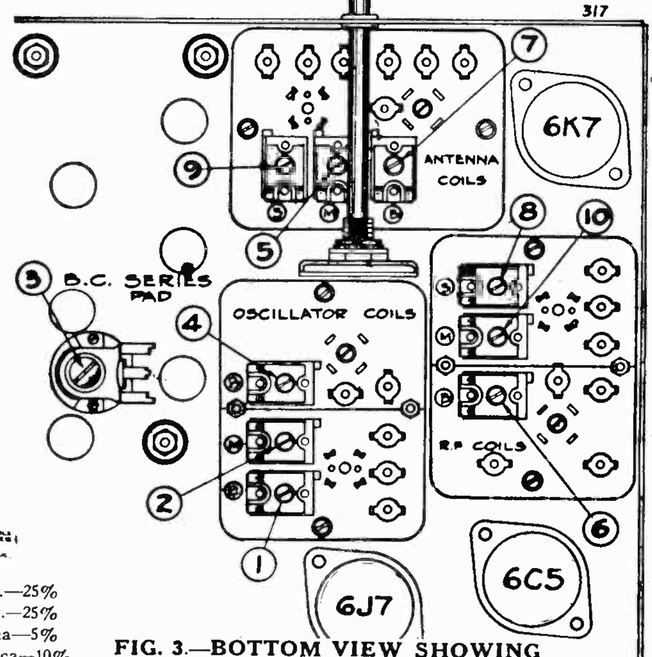


FIG. 3.—BOTTOM VIEW SHOWING TRIMMERS

RESISTORS		
R1	130-103	100M ohm—1/3 w.—10%
R2	130-105	150 ohm—1/3 w.—20%
R3	130-159	2500 ohm—1/3 w.—10%
R4	130-60	150 ohm — 1/3 w. 20%
R5	130-52	50M ohm—1/3 w.—20%
R6	130-77	10M ohm—1 w.—20%
R7	130-110	1 megohm—1/10 w.—10%
R8	106-33	55 ohm—Muter
R9	106-33	30 ohm—Muter (ONE UNIT)
R10	106-33	240 ohm—Muter
R11	130-4	3 megohm—1/3 w.—20%
R12	130-38	2 megohm—1/3 w.—20%
R13	101-65	500M ohm—Volume Control
R14	130-103	100M ohm—1/3 w.—10%
R15	130-102.	500M ohm—1/3 w.—10%
R16	101-53	50M ohm—Tone Control
R17	130-160	10M ohm—2 w.—Wire Wound
R18	130-103	100M ohm—1/3 w.—10%
C1	129-40	.0001 Mica—10%

C2	100-9	.05x200 v.—25%
C3	100-53	.25x400 v.—25%
C4	129-59	.0003 Mica—5%
C5	129-38	.00005 Mica—10%
C6	129-67	.00004 Mica—10%
C7	100-25	.002x600 v.—25%
C8	129-70	.004 Mica—2½%
C9	129-71	.002 Mica—2½%
C10	100-20	.1x200 v.—25%
C11	100-26	.02x400 v.—25%
C12	129-40	.0001 Mica—10%
C13	100-11	.01x400 v.—25%
C14	129-2	.0005 Mica—20%
C15	100-11	.01x400 v.—25%
C16	100-27	.025x600 v.—25%
C17	100-25	.002x600 v.—25%
C18	103-13	8.0x400 v.—Lytic
C19	100-20	.1x200 v.—25%
C20	103-12	8.0x275 v.—Lytic
C21	124-35	Series Pad Regulating
C22	100-61	.02x600 ±20%

C	102-40	Section of three gang condenser
T1	111-67	MW-SW Antenna Coil Assembly
T2	111-68	Broadcast Antenna Coil Assembly
T3	109-32	MW-SW R. F. Coil Assembly
T4	109-33	B. C.-R. F. Coil Assembly
T5	110-53	M. W.-S. W. Oscillator Coil Assembly.
T6	110-52	B. C. Osc. Coil Assembly
T7	108-93	Input I. F. Coil 465 kc.
T8	108-92	Output I. F. Coil 465 kc.
L1	114-57	Speaker 8"
L1	114-65	Speaker 10"—field Resistance—1200 ohm
L2	104-80	Power Transformer—50-60 cycles
S	125-25	Band Switch
S1	101-65	On-off switch on Volume Control
S2	125-22	Phono Switch

MODEL 890, Series A
Alignment

BELMONT RADIO CORP.

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 6F6 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.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-92 Output I.F. Transformer
Part No. 108-93 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, and adjust the output I.F. transformer (No. 108-92) to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap of 6J7 and adjust input I.F. transformer (No. 108-93) to resonance.

BROADCAST BAND ALIGNMENT:

535 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to antenna and ground leads make following adjustments:
   (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance. (Adjustment number 4; see bottom view of coil assembly, Fig. 3)
   (b) Re-set external oscillator to 1400 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast R.F. trimmer (adjustment number 6) and broadcast antenna trimmer (adjustment number 7), to resonance.
   (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad (adjustment number 3), to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3).
   (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (e) Check for tracking and sensitivity at 1400, 1000, and 600 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**

SHORT WAVE BAND ALIGNMENT:

5.35 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the antenna and ground leads, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator trimmer (adjustment number 1) to resonance.
   (b) Adjust short wave R.F. trimmer (adjustment number 8), and short wave antenna trimmer (adjustment number 9), to resonance.
   (c) Re-set external oscillator and check set at 18.1 megacycles and 6 megacycles for band coverage and sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental on the receiver dial. As an example of this a fundamental 17 megacycle signal can be tuned in not only at 17 on the dial but also at approximately 16.1 megacycles.

MIDDLE WAVE BAND ALIGNMENT:

1695 to 5500 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 megacycles and connected in series with "Dummy 3" to the antenna and ground leads make the following adjustments:
   (a) Move dial pointer to 5 megacycles and adjust middle wave oscillator trimmer (adjustment number 2) to resonance.
   (b) Adjust middle wave R.F. trimmer (adjustment number 10), and middle wave antenna trimmer (adjustment number 5), to resonance.
   (c) Re-set external oscillator and check sensitivity at 1800 kilocycles.
   (d) Recheck broadcast band alignment.

ANTENNA AND GROUND LEADS:

You will notice three wires coming out of the back of the chassis, — the **yellow** wire and the **yellow with black tracer** wire are used for doublet antenna connections. The **black** wire is the ground connection.

For conventional types of antennas connect the **yellow** wire to the antenna lead and the **yellow with black tracer** and the **black** wire together to the ground lead.

When a doublet antenna is used connect the **yellow** wire and **the yellow with black tracer** wire to the doublet antenna and the solid **black** wire to the ground lead. (See Fig. 1—Top View, page 2).

ANTENNA:

For the best results an outside antenna approximately 75-100 feet long including the lead-in should be used. It should be erected as high as possible and as far from surrounding objects as practical. Both the antenna and lead-in should be placed at right angles to street car lines and incoming power lines and as far from any electrical apparatus which may be in the vicinity (such as elevator motors) as practical.

An inside antenna is not recommended, although it occasionally may serve as a temporary installation especially near powerful broadcasting stations. This type of antenna, however, will not be satisfactory in buildings of steel construction.

Reception on the short wave band can be sometimes improved by means of an approved doublet antenna.

DESCRIPTION:

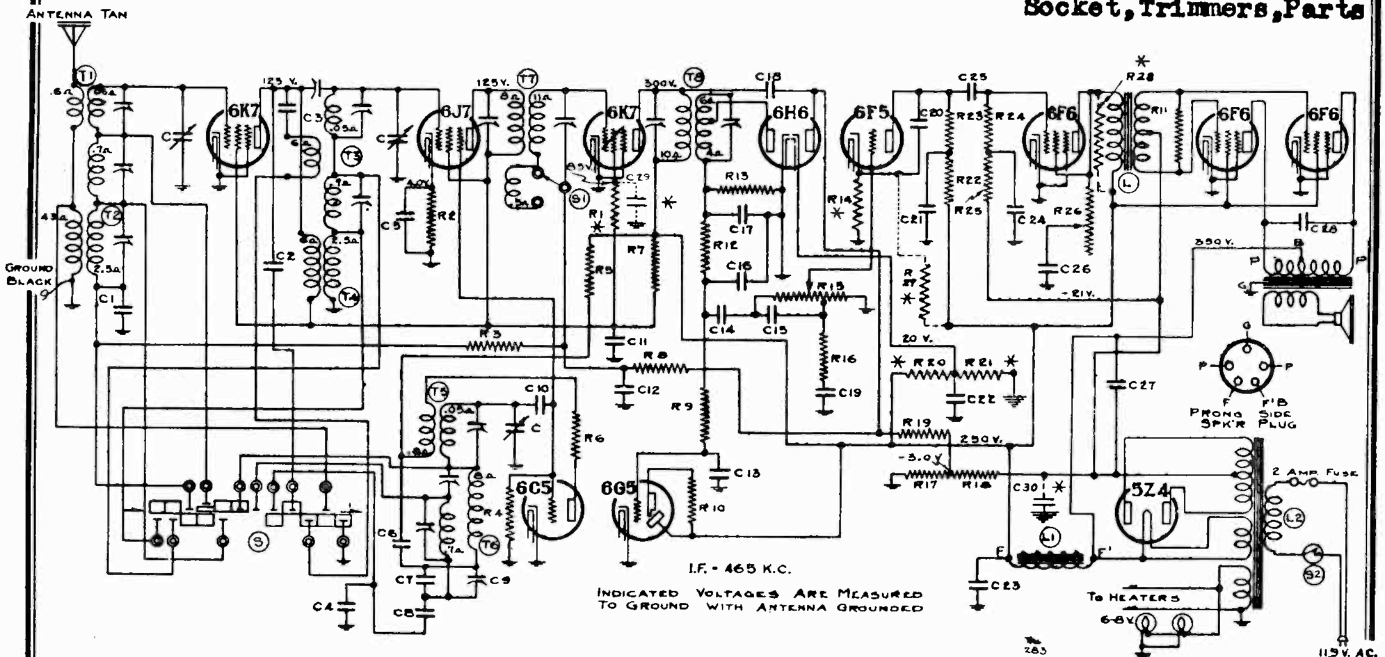
The tube complement of this chassis consists of the following metal and octal base glass tubes which are interchangeable with metal tubes:

1—Type 6K7 Remote cut-off pentode R.F. amplifier.
1—Type 6J7—pentode first detector.
1—Type 6C5 Oscillator.
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6Q7G duplex diode triode second detector, A.V.C. and audio.
1—Type 6F6G—pentode output amplifier.
1—Type 5Y3G or 5W4—high vacuum rectifier.
1—Type 6G5 Cathode ray tuning indicator.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 110, 130, and 230 volts.

MODELS 1170,1172
Schematic,Voltage
Socket,Trimmers,Parts

BELMONT RADIO CORP.



BAND CHANGE SWITCH
THREE POSITIONS, ROTATING
CLOCKWISE ARE:
1st BROADCAST: 535-1720 K.C.
2nd MIDDLE WAVE: 1690-5300 K.C.
3rd SHORT WAVE: 5.2-18.1 M.C.

TUNING RANGE—

Standard Broadcast Band
535-1720 Kilocycles.

Middle Wave Band
1690-5300 Kilocycles

Short Wave Band
5.2-18.1 Megacycles.

No.	Part No.	Description
		RESISTORS
*R1	130-76	30M Ohm—⅓ Watt—20%—Carbon
R2	130-129	2500 Ohm—⅓ Watt—10%—Carbon
R3	130-20	100M Ohm—⅓ Watt—20%—Carbon
R4	130-12	50M Ohm—⅓ Watt—20%—Carbon
R5	130-77	10M Ohm—1 Watt—20%—Carbon
R6	130-60	100 Ohm—⅓ Watt—20%—Carbon
R7	130-88	10M Ohm—2 Watt—20%—Wire Wound
R8	130-19	1 meg Ohm—⅓ Watt—20%—Carbon
R9	130-4	3 meg Ohm—⅓ Watt—20%—Carbon
R10	130-110	1 meg Ohm—1/10 Watt—10%—Carbon
R11	130-21	20M Ohm—⅓ Watt—20%—Carbon
R12	130-20	100M Ohm—⅓ Watt—20%—Carbon
R13	130-20	100M Ohm—⅓ Watt—20%—Carbon
*R14	130-70	500 Ohm—⅓ Watt—10%—Carbon
R15	101-47	1 meg Ohm—Volume Control
R16	130-22	5M Ohm—⅓ Watt—20%—Carbon
R17	106-31	30 Ohm—Muter
R18	106-31	175 Ohm—Muter
R19	130-3	500M Ohm—⅓ Watt—20%—Carbon
*R20	130-130	100M Ohm—½ Watt—10%—Carbon
*R21	130-82	10M Ohm—⅓ Watt—10%—Carbon
R22	130-20	100M Ohm—⅓ Watt—20%—Carbon
R23	130-20	100M Ohm—⅓ Watt—20%—Carbon
R24	130-45	250M Ohm—⅓ Watt—20%—Carbon
R25	130-45	250M Ohm—⅓ Watt—20%—Carbon
R26	101-40	5000 Ohm Tone Control
*R27	130-130	100M Ohm—½ Watt—10%—Carbon
*R28	130-131	20M Ohm—½ Watt—10%—Carbon

NOTE: R17 and R18 in one Unit—No. 106-31.

CONDENSERS

C1	100-9	.05 x 200 Volt—25%
C2	129-59	.0003 Mica—5%—MT—0
C3	129-39	.00005 Mica—20%—MT—0
C4	129-69	.0023 Mica—2½%—MT—0
C5	100-9	.05 x 200 Volt—25%
C6	100-13	.05 x 400 Volt—25%
C7	129-57	.0005 Mica—5%—MT—0
C8	129-55	.0034 Mica—2½%—MT—0
C9	124-34	200 mmf. Working cap. adjustable Pad
C10	129-31	.000025 Mica—15%—MT—0
C11	100-41	.25 x 400 Volt—20%
C12	100-9	.05 x 200 Volt—25%
C13	100-11	.01 x 400 Volt—25%
C14	100-22	.05 x 200 Volt—25%
C15	129-12	.00025 Mica—20%—MT—0
C16	129-60	.00015 Mica—20%—MT—0
C17	129-60	.00015 Mica—20%—MT—0
C18	129-3	.00002 Mica—20%—MT—0
C19	100-9	.05 x 200 Volt—25%
C20	129-5	.0001 Mica—20%—MT—0
C21	100-20	.1 x 200 Volt—25%
C22	100-19	.006 x 600 Volt—25%
C23	103-8	14 mfd.—400 Volt—Electrolytic
C24	100-20	.1 x 200 Volt—25%
C25	100-13	.05 x 400 Volt—25%
C26	100-45	.1 x 600 Volt—25%
C27	103-10	30 mfd. x 450 Volt—Electrolytic
C28	100-32	.0005 x 1000 Volts—20%
*C29	100-11	.01 x 400 Volts—25%
*C30	100-20	.1 x 200 Volt—25%

PARTS

C	102-35	One section of three gang condenser
T1	111-54	MW and SW Antenna Coil Assem.
T2	111-55	Broadcast Antenna Coil Assem.
T3	109-29	MW and SW R.F. Coil Assem.
T4	109-30	Broadcast R.F. Coil
T5	110-42	MW and SW Osc. Coil Assem.
T6	110-43	Broadcast Osc. Coil Assem.
T7	108-64	Input I.F. Coil—465 Kc.
T8	108-63	Output I.F. Coil—465 Kc.
L	105-33	Audio Transformer
L1	114-47C	Speaker (Field Resist. 1225 ohm) Hot
L2	104-72	Power Transformer (50-60 Cycle)
S	125-18	Band Switch
S1	101-40	Fidelity Switch on Tone Control
S2	101-47	On-Off Switch on Volume Control

NOTE: Resistors and Condensers which are prefixed with an asterisk (*) on the circuit diagram and parts list were added or the values changed during production to meet certain conditions.

Resistors R1, R27, R28, and Condensers C29, C30 were added to correct certain variances of tube characteristics. Resistors R14, R20, R21 the values were changed. In some chassis the values of these resistors are as follows:
R14—2500 Ohm—⅓ Watt
R20—200M Ohm—⅓ Watt
R21—20M Ohm—⅓ Watt
Present values of these resistors are:
R14—500 Ohm—⅓ Watt
R20—100M Ohm—½ Watt
R21—10M Ohm—⅓ Watt

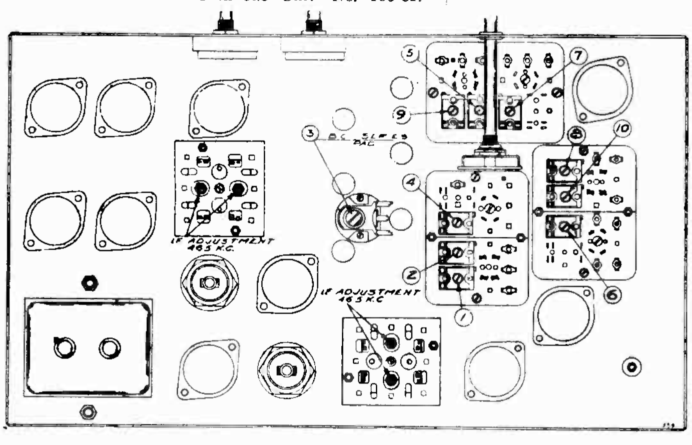
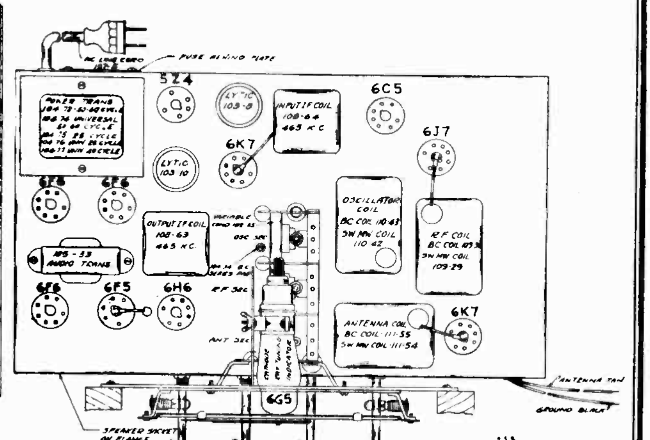


FIG. 1—BOTTOM VIEW SHOWING TRIMMERS



MODELS 1170,1172
Alignment

BELMONT RADIO CORP.

DESCRIPTION

The tube complement of this chassis is as follows:

1—Type 6K7 Remote cut-off pentode R.F. amplifier
1—Type 6J7 Pentode first detector
1—Type 6C5 Oscillator
1—Type 6K7 Remote cut-off pentode I.F. amplifier (465 K.C.)
1—Type 6H6 Duplex diode second detector and A.V.C.
1—Type 6F5 First audio amplifier
1—Type 6F6 Triode driver stage
2—Type 6F6 Class AB Output pentodes in push-pull
1—Type 5Z4 High vacuum rectifier
1—Type 6G5 Cathode Ray Tuning Indicator.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 108, 127, 150, 225, and 260 volts, (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

SERVICE NOTES

NOTE: DeLuxe Model 1172 differs only from the Model 1170 in that dual speakers and a de luxe console cabinet are used. Both chasses are identical and the circuit diagram, the alignment procedure and the parts list contained in this manual apply to both models.

Attention is called to the circuit diagram contained in this manual. Several minor changes were made during production of these models to correct certain conditions. These changes are shown on the circuit diagram in dotted lines and explained in detail. Some of the chassis were equipped with 5Z3 rectifier tubes in place of the 5Z4 and do not have a fuse assembly in the power line.

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 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 on the primary of the power transformer.

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.

This chassis is protected against damage from faulty tubes or abnormal line conditions by a fuse in the primary circuit.

If when set is turned on pilot lights do not light, look for a blown fuse.

This fuse is made accessible for replacement by removing fuse cover located on back flange of chassis, replace only with a 2 ampere fuse. If replacement fuse blows out, check tubes, (particularly 5Z4 rectifier) circuit, repair or replace defective tubes or parts.

NEVER ATTEMPT TO REPLACE FUSE WITHOUT FIRST DISCONNECTING POWER.

NEVER REPLACE WITH FUSE OTHER THAN 2 AMPERE RATING.

ALIGNING INSTRUCTIONS

Dummy Antennas

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1", "Dummy 2", and "Dummy 3".

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Intermediate and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external 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 cathode terminals of the 5 prong speaker socket. 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. 108-63 Output I.F. Transformer
Part No. 108-64 Input I.F. Transformer

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

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1", to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer 108-63 to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   (c) With oscillator still connected to 6J7, re-adjust output I.F. transformer if necessary.

ALIGNMENT PROCEDURE

The following adjustments to be made after the I.F.'s have been aligned as explained above.

BROADCAST BAND ALIGNMENT:

1. With band changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 600 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:
   (a) Adjust broadcast series pad (adjustment number 3) to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the 108-63 output I.F. transformer. See top view, Fig. 3.
   (b) Re-set external oscillator to 1400 K.C., move dial pointer to 1400 K.C. and adjust oscillator (adjustment number 4), R.F. (adjustment number 6) and antenna (adjustment number 7) to resonance. See bottom view for location of these adjustments, Fig. 1.
   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.

NOTE: IT IS EXTREMELY NECESSARY IN MAKING ALL OF THESE ADJUSTMENTS THAT THE FUNDAMENTAL OSCILLATOR SIGNAL BE TUNED IN AND NOT THE IMAGE FREQUENCY WHICH WILL FALL BELOW THE FUNDAMENTAL.

SHORT WAVE BAND ALIGNMENT:

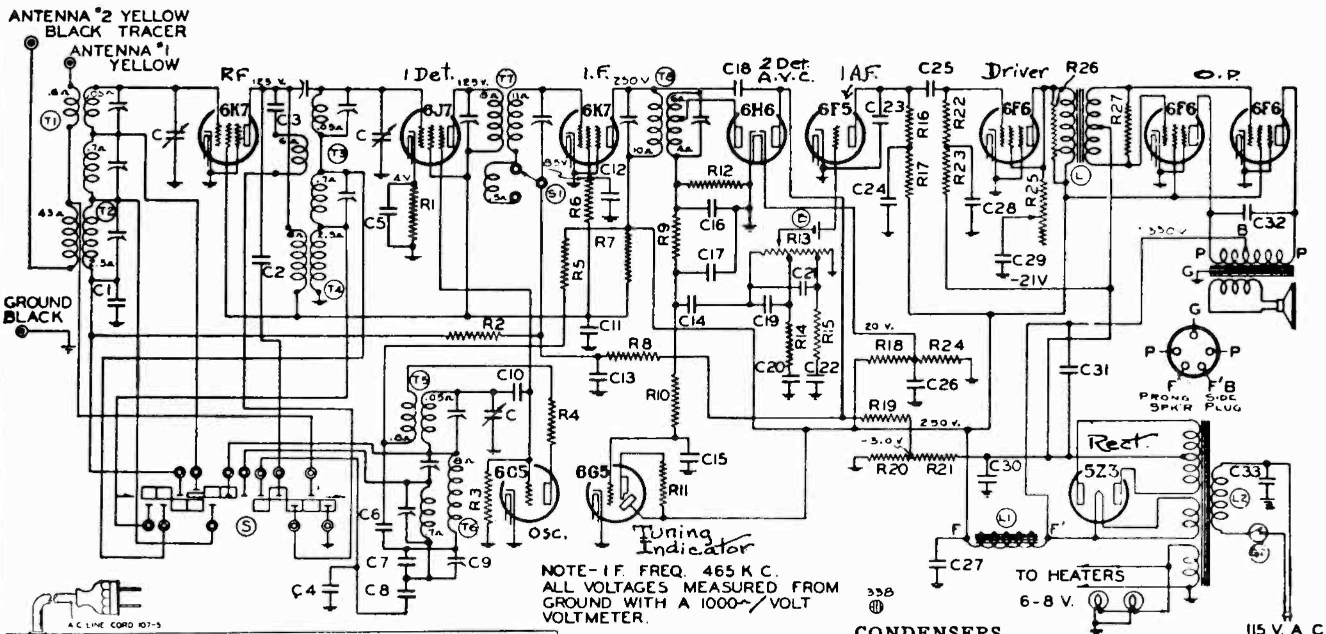
1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 1), short wave R.F. (adjustment number 8) and short wave antenna (adjustment number 9) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

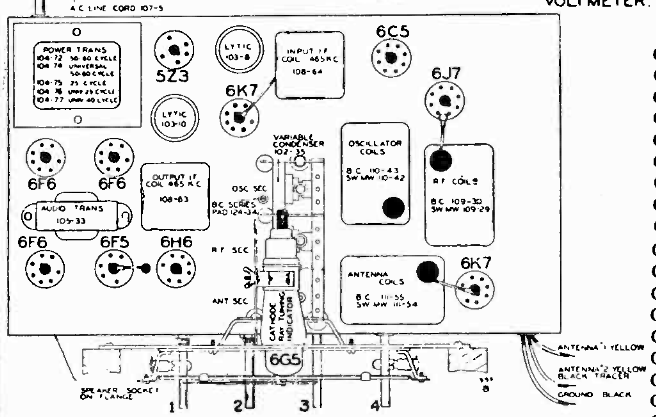
MIDDLE WAVE BAND ALIGNMENT:

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 M.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Rotate condenser, pick up signal and adjust middle wave R.F. (adjustment number 10), middle wave antenna (adjustment number 5) and middle wave oscillator (adjustment number 2) to resonance.
   (b) Re-check broadcast alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17 M.C. short wave and 5 M.C. middle wave adjustments.

BELMONT RADIO CORP.

MODEL 1170B
Schematic, Voltage
Socket, Trimmers, Parts





1	2	3	4
Vol. Control On-Off Switch	Tone Control and High Fidelity Sw.	Tuning Control	Band Switch

CONDENSERS

No.	Part No.	Description
C1	100-9	.05x200 Volt—25%
C2	129-59	.0003 Mica—5%—MT-O
C3	129-39	.00005 Mica—20%—MT-O
C4	129-69	.0023 Mica—2½%—MT-O
C5	100-9	.05x200 Volt—25%
C6	100-13	.05x400 Volt—25%
C7	129-57	.0005 Mica—5%—MT-O
C8	129-55	.0034 Mica—2½%—MT-O
C9	124-34	200 Mmf. Working Cap. Adjustable Pad.
C10	129-31	.000025 Mica—15%—MT-O
C11	100-41	.25x400 Volt—20%
C12	100-11	.01x400 Volt—25%
C13	100-9	.05x200 Volt—25%
C14	100-22	.05x200 Volt—25%
C15	100-11	.01x400 Volt—25%
C16	129-60	.00015 Mica—20%—MT-O
C17	129-60	.00015 Mica—20%—MT-O
C18	129-3	.00002 Mica—20%—MT-O
C19	129-2	.0005 Mica—20%—MT-O
C20	100-22	.05x200 Volt—25%
C21	129-60	.00015 Mica—20%—MT-O
C22	100-22	.05x200 Volt—25%
C23	129.5	.0001 Mica—20%—MT-O
C24	100-20	.1x200 Volt—25%
C25	100-13	.05x400 Volt—25%
C26	100-19	.006x600 Volt—25%
C27	103-8	14 Mfd.—400 Volt—Elecrolytic
C28	100-20	.1x200 Volt—25%
C29	100-45	.1x600 Volt—25%
C30	100-20	.1x200 Volt—25%
C31	103-10	30 Mfd. — 450 Volt — Electrolytic
C32	100-32	.0005x1000 Volt—20%
C33	100-61	.02x600 Volt—Bakelite Micamold

RESISTORS

No.	Part No.	Description
R1	130-129	2500 Ohm—1/3 Watt—10%—Carbon
R2	130-20	100M Ohm—1/3 Watt—20%—Carbon
R3	130-12	50M Ohm—1/3 Watt—20%—Carbon
R4	130-60	100 Ohm—1/3 Watt—20%—Carbon
R5	130-77	10M Ohm—1 Watt—20%—Carbon
R6	130-76	30M Ohm—1/3 Watt—20%—Carbon
R7	130-88	10M Ohm—2 Watt—20%—Wire Wound
R8	130-19	1 Megohm—1/3 Watt—20%—Carbon
R9	130-20	100M Ohm—1/3 Watt—20%—Carbon
R10	130-4	3 Megohm—1/3 Watt—20%—Carbon
R11	130-110	1 Megohm—1/10 Watt—10%—Carbon
R12	130-20	100M Ohm—1/3 Watt—20%—Carbon
R13	101-36	1 Megohm—Volume Control
R14	130-22	5M Ohm—1/3 Watt—20%—Carbon
R15	130-85	3M Ohm—1/3 Watt—20%—Carbon
R16	130-20	100M Ohm—1/3 Watt—20%—Carbon
R17	130-20	100M Ohm—1/3 Watt—20%—Carbon
R18	130-130	100M Ohm—½ Watt—10%—Carbon
R19	130-3	500M Ohm—1/3 Watt—20%—Carbon
R20	106-31	30 Ohm—Muter } One unit
R21	106-31	175 Ohm—Muter } One unit
R22	130-45	250M Ohm—1/3 Watt—20%—Carbon
R23	130-45	250M Ohm—1/3 Watt—20%—Carbon
R24	130-82	10M Ohm—1/3 Watt—10%—Carbon
R25	101-40	5000 Ohm—Tone Control
R26	130-131	20M Ohm—½ Watt—10%—Carbon
R27	130-21	20M Ohm—1/3 Watt—20%—Carbon

FREQUENCY RANGE

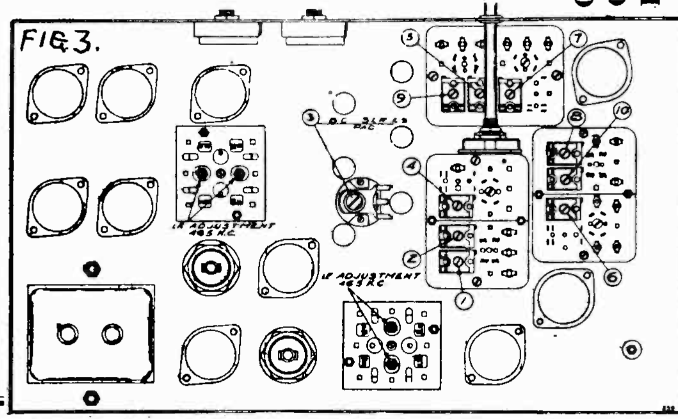
535 to 1720 K.C. (Kilocycles)
1690 to 5300 K.C. (Kilocycles)
5.3 to 18.1 M.C. (Megacycles)

DIAL SCALE

Outer Scale.........
Center Scale.........
Inner Scale.........

I.F. Frequency 465 K.C.

FIG. 3.



MODEL 1170E
Alignment

BELMONT RADIO CORP.

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 108, 127, 150, 225, and 260 volts, (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

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 voltmeter 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 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 on the primary of the power transformer.

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.

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 cathode terminals of the 5 prong speaker socket. 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 the multi-range meter should be used.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1," "Dummy 2," and "Dummy 3."

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd. condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-63 Output I.F. Transformer
Part No. 108-64 Input I. F. Transformer

These I.F. transformers have two adjustments, both of which are accessible from the underside of chassis (see bottom view Fig. 3).

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1," to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer 108-63 to resonance.
   (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   (c) With oscillator still connected to 6J7, re-adjust output I.F. transformer if necessary.

BROADCAST BAND ALIGNMENT:
535 to 1720 Kilocycles

1. With band changing switch in the broadcast position, extreme left of its rotation, and with external oscillator set at 600 kilocycles and connected in series with "Dummy 2" to the tan antenna and black ground lead, make the following adjustments:
   (a) Adjust broadcast series pad (adjustment number 3) to resonance with oscillator. Keep set in tune with oscillator by slowly rocking to and fro the variable condenser until maximum output is obtained. Note: This adjustment is accessible from the top of the chassis and is located between the variable condenser and the 108-63 output I.F. transformer. See top view, Fig. 1.
   (b) Re-set external oscillator to 1400 K.C., move dial pointer to 1400 K.C. and adjust oscillator (adjustment number 4), R.F. (adjustment number 6) and antenna (adjustment number 7) to resonance. See bottom view for location of these adjustments, Fig. 3.
   (c) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   (d) Check for tracking and sensitivity at 1000 kilocycles. **Under no circumstances bend plates of variable condenser to correct tracking.**

SHORT WAVE BAND ALIGNMENT:
5.3 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Move dial pointer to 17 megacycles and adjust short wave oscillator (adjustment number 1), short wave R.F. (adjustment number 8) and short wave antenna (adjustment number 9) to resonance.
   (b) Re-set external oscillator to 6 megacycles and pick up signal by rotating variable condenser and check for sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental on the receiver dial. As an example of this a fundamental 18.3 megacycle can be tuned in not only at 18.3 on the dial, but also at approximately 17.4 megacycles.

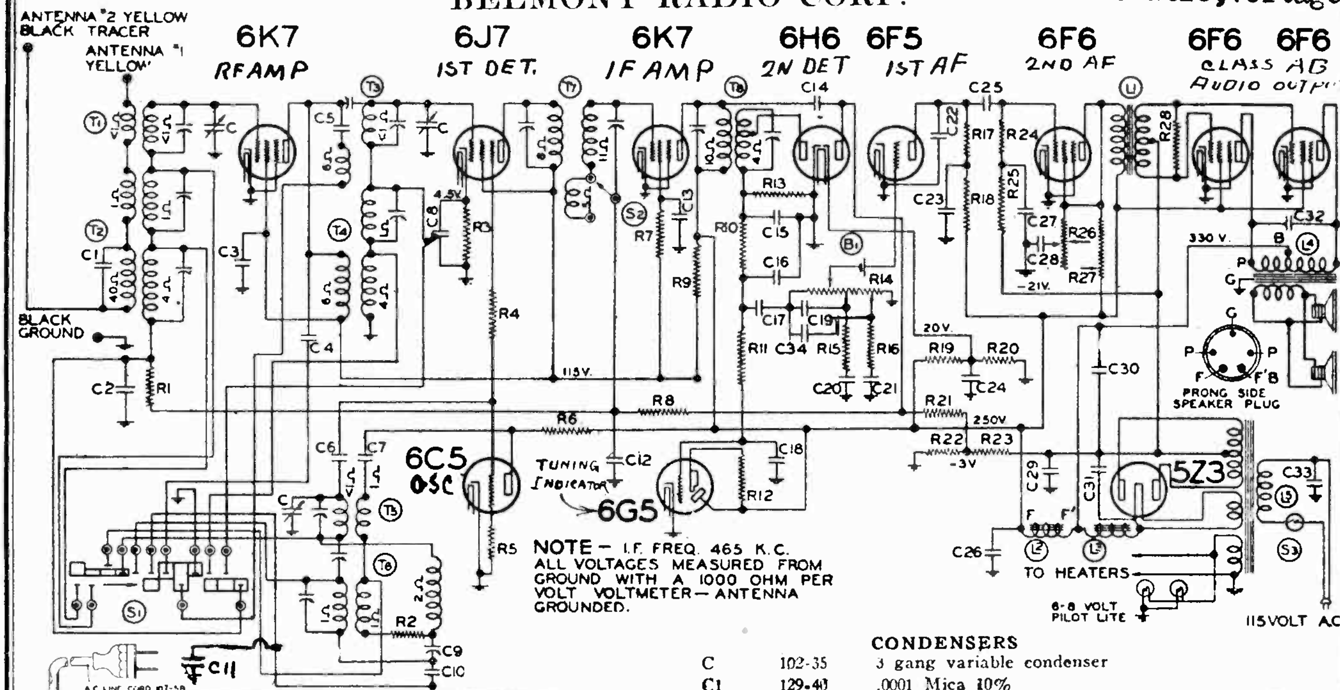
MIDDLE WAVE BAND ALIGNMENT:
1690 to 5300 Kilocycles

1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 M.C. and connected in series with "Dummy 3" to the tan antenna and black ground lead, make the following adjustments:
   (a) Rotate condenser, pick up signal and adjust middle wave R.F. (adjustment number 10), middle wave antenna (adjustment number 5) and middle wave oscillator (adjustment number 2) to resonance.
   (b) Re-check broadcast alignment and if it is found necessary to re-adjust either R.F. or antenna trimmers, repeat the 17 M.C. short wave and 5 M.C. middle wave adjustments.

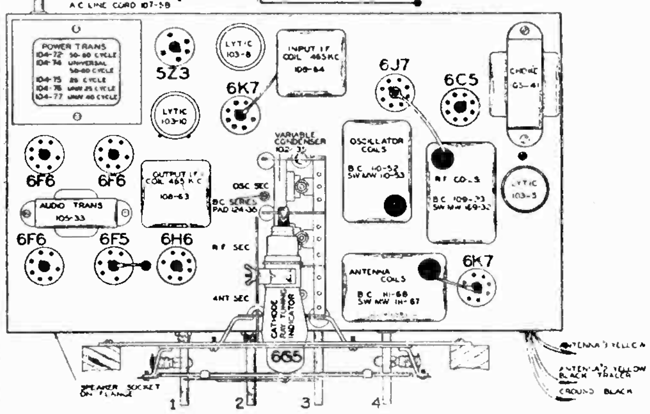
Socket, Trimmers, Parts

BELMONT RADIO CORP.

MODEL 1174
Schematic, Voltage



NOTE — I.F. FREQ. 465 K.C.
ALL VOLTAGES MEASURED FROM GROUND WITH A 1000 OHM PER VOLT VOLTMETER — ANTENNA GROUNDED.



Vol. Control On-Off Switch — Tone Control and High Fidelity Sw. — Tuning Control — Band Switch

CONDENSERS

C	102-35	3 gang variable condenser
C1	129-40	.0001 Mica 10%
C2	100-9	.05 x 200 v. 25%
C3	100-53	.25 x 400 v. 20%
C4	129-59	.0003 Mica 5%
C5	129-38	.00005 Mica 10%
C6	129-38	.00005 Mica 10%
C7	100-25	.002 x 600 v. 25%
C8	100-20	.1 x 200 v. 25%
C9	124-35	.00074 Series Pad.
C10	129-70	.004 Mica 2½%
C11	129-71	.002 Mica 2½%
C12	100-9	.05 x 200 25%
C13	100-11	.01 x 400 25%
C14	129-3	.00002 Mica 20%
C15	129-60	.00015 Mica 20%
C16	129-60	.00015 Mica 20%
C17	100-22	.05 x 200 25%
C18	100-11	.01 x 400 25%
C19	129-2	.0005 Mica 20%
C20	100-22	.05 x 200 25%
C21	100-22	.05 x 200 25%
C22	129-40	.0001 Mica 10%
C23	100-20	.1 x 200 25%
C24	100-19	.006 x 600 v. 25%
C25	100-13	.05 x 400 25%
C26	103-8	14. mfd. x 400 w. v. lytic
C27	100-20	.1 x 200 25%
C28	100-45	.1 x 600 v. 25%
C29	100-20	.1 x 200 v. 25%
C30	103-10	30 mfd. x 450 w. v. lytic
C31	103-5	8 mfd. lytic 475 w. v.
C32	100-32	.0005 x 1000 v. 20%
C33	100-61	.02 x 600 v. Bakelite 20%
C34	129-60	.00015 Mica 20%

FREQUENCY RANGE

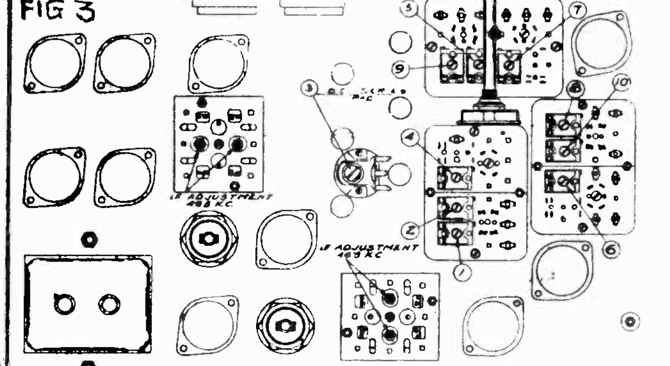
DIAL SCALE
Cream Colored........ 535 to 1720 K.C. (Kilocycles)
Buff Colored.......... 1695 to 5500 K.C. (Kilocycles)
Green Colored........ 5.35 to 18.1 M.C. (Megacycles)
I.F. Frequency 465 K.C.

RESISTORS

R1	130-20	100M - 1/3 w. - 20%
R2	130-166	150 ohm - 1/3 w. - 10%
R3	130-129	2500 ohm - 1/3 w. - 10%
R4	130-60	100 ohm - 1/3 w. - 20%
R5	130-12	50M ohm - 1/3 w. - 20%
R6	130-133	15 M ohm - 1/2 w. - 20%
R7	130-76	30M ohm - 1/3 w. - 20%
R8	130-19	1 megohm - 1/3 w. - 20%
R9	130-88	10M ohm - 2 w. - 20% - wire wound
R10	130-20	100 M ohm - 1/3 w. - 20%
R11	130-4	3 megohm 1/3 w. - 20%
R12	130-110	1 megohm - 1/10 w. - 20%
R13	130-20	100M ohm - 1/3 w. - 20%
R14	101-36	1 megohm - Volume Control
R15	130-22	5M ohm - 1/3 w. - 20%
R16	130-85	3M ohm - 1/3 w. - 20%
R17	130-20	100M ohm - 1/3 w. - 20%
R18	130-20	100M ohm - 1/3 w. - 20%
R19	130-130	100M ohm - 1/2 w. - 10%
R20	130-82	10M - 1/3 w. - 10%
R21	130-3	500M ohm - 1/3 w. - 20%
R22	106-31	27 ohms
R23	105-31	175 ohms
R24	130-45	250M ohm - 1/3 w. - 20%
R25	130-45	250M ohm - 1/3 w. - 20%
R26	101-40	Tone Control
R27	130-131	20M ohm - 1/2 w. - 10%
R28	130-21	20M ohm - 1/3 w. - 20%

R22 and R23 in one unit

FIG 3



MODEL 1174
Alignment

BELMONT RADIO CORP.

Service Data for Service Men

Transformers are available and chassis are sometimes equipped with universal transformers for operation on 25, 40 and 60 cycles and with primary taps for 108, 127, 150, 225, and 260 volts, (see instructions) and also sometimes equipped with 25 cycle transformers with 105-115 volt or 220 volt primaries, not universals.

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 voltmeter 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 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 on the primary of the power transformer.

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

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 knobs, pull them off and to take the chassis out of the cabinet, remove the four bolts by which it is fastened.

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 cathode terminals of the 5 prong speaker socket. 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 the multi-range meter should be used.

DUMMY ANTENNAS:

The following dummy antennas are used in aligning and are referred to in the following alignment instructions as "Dummy 1," "Dummy 2," and "Dummy 3."

Dummy 1: (I.F.)—Consists of a .1 mfd. condenser connected in series with the external oscillator.

Dummy 2: (Broadcast)—Consists of a 200 mmfd. condenser and a 20 ohm resistor connected in series with each other and in series with the external oscillator.

Dummy 3: (Middle and Short Wave)—Consists of a .1 mfd condenser and a 400 ohm resistor connected in series with each other and in series with the external oscillator.

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

Part No. 108-63 Output I.F. Transformer
Part No. 108-64 Input I. F. Transformer

These I.F. transformers have two adjustments, both of which are accessible from the underside of chassis (see bottom view Fig. 3).

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.

1. With volume control full on, (the extreme right of its rotation), the band changing switch in the broadcast position, (extreme left of its rotation), the tone control on "Hi" part of the sharp position (as much right rotation as possible without operating the Hi Fidelity switch), and with the variable condenser set to approximately 1400 kilocycles, make the following adjustments:
   - (a) Connect external oscillator set at 465 kilocycles, in series with "Dummy 1," to the control grid cap of the type 6K7 tube, located between the two I.F. transformers, and adjust the output I.F. transformer 108-63 to resonance.
   - (b) With "Dummy 1" still connected, move oscillator output clip from grid of 6K7 to grid cap to 6J7 and adjust input I.F. transformer (108-64) to resonance.
   - (c) With oscillator still connected to 6J7, re-adjust output I.F. transformer if necessary.

SHORT WAVE BAND ALIGNMENT:
5.35 to 18.1 Megacycles

1. With band changing switch in the short wave position, extreme right of its rotation, and with external oscillator set at 17 megacycles and connected in series with "Dummy 3" to the antenna and ground leads, make the following adjustments:
   - (a) Move dial pointer to 17 megacycles and adjust short wave oscillator trimmer (adjustment number 1) to resonance.
   - (b) Adjust short wave R.F. trimmer (adjustment number 8), and short wave antenna trimmer (adjustment number 9), to resonance.
   - (c) Re-set external oscillator and check set at 18.1 megacycles and 6 megacycles for band coverage and sensitivity.

NOTE: It is extremely necessary in making all of these adjustments that the fundamental oscillator signal be tuned in and not the image frequency which will fall below the fundamental on the receiver dial. As an example of this a fundamental 17 megacycle signal can be tuned in not only at 17 on the dial but also at approximately 16.1 megacycles.

MIDDLE WAVE BAND ALIGNMENT:
1695 to 5500 Kilocycles

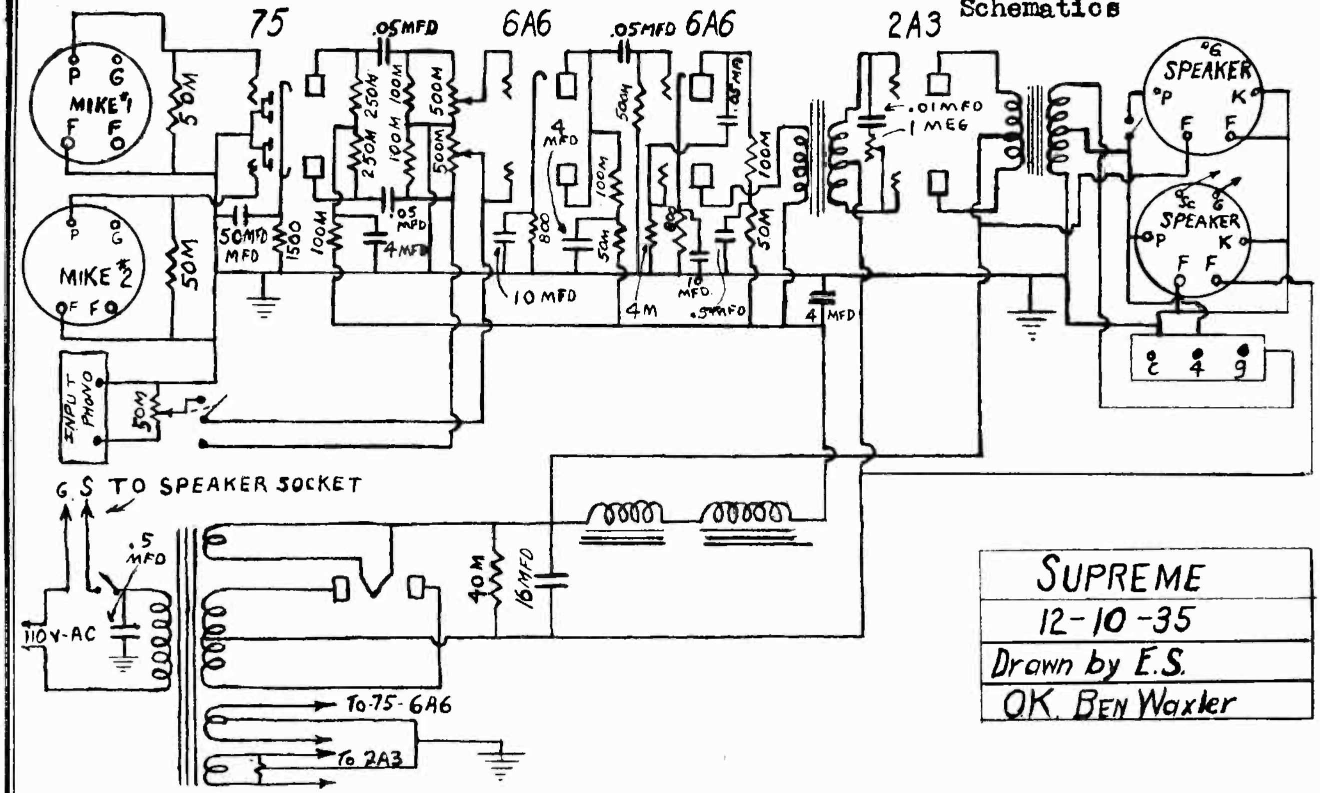
1. With band changing switch in the middle wave position, center of its rotation, and with external oscillator set at 5 megacycles and connected in series with "Dummy 3" to the antenna and ground leads make the following adjustments:
   - (a) Move dial pointer to 5 megacycles and adjust middle wave oscillator trimmer (adjustment number 2) to resonance.
   - (b) Adjust middle wave R.F. trimmer (adjustment number 10), and middle wave antenna trimmer (adjustment number 5), to resonance.
   - (c) Re-set external oscillator and check sensitivity at 1800 kilocycles.

BROADCAST BAND ALIGNMENT:
535 to 1720 Kilocycles

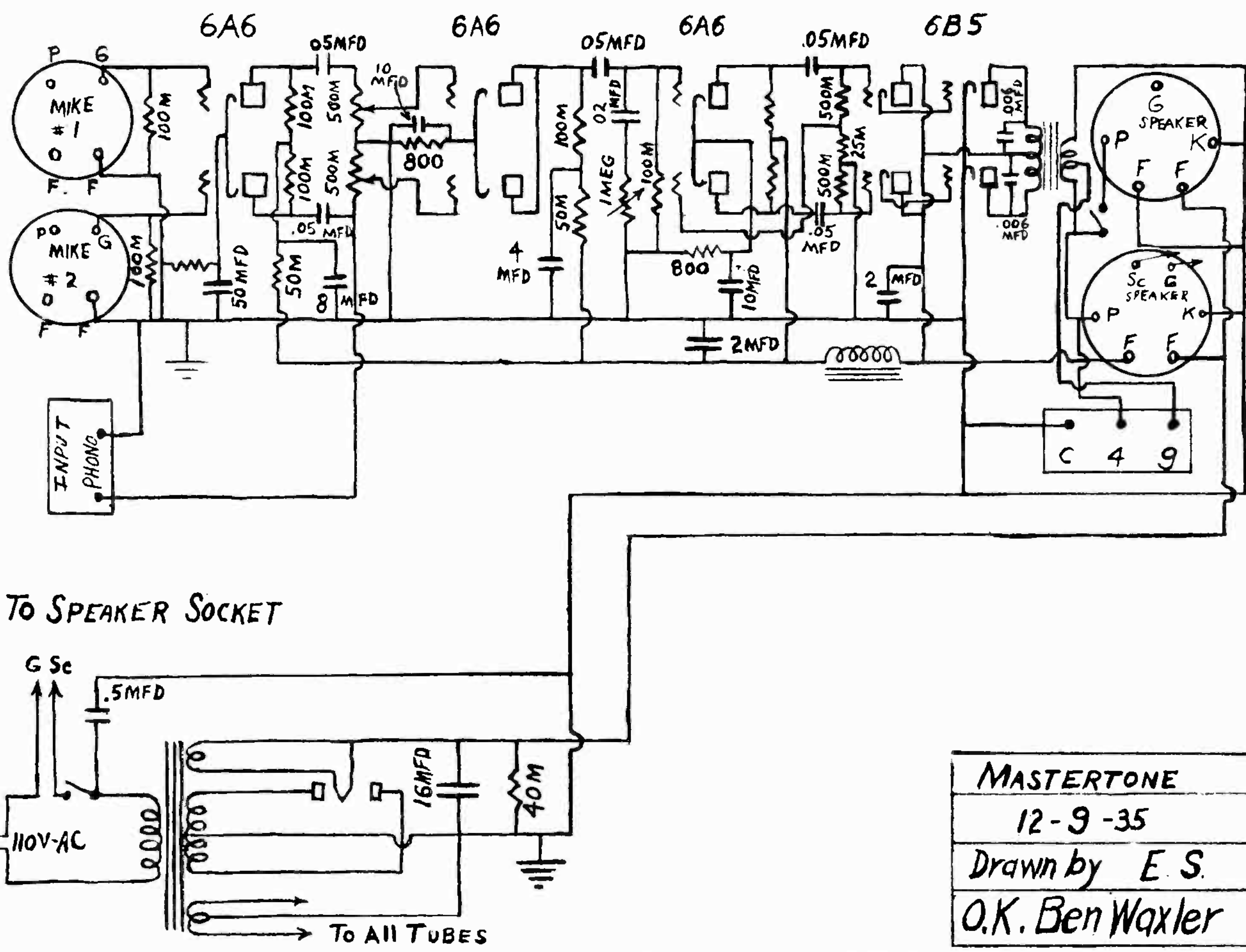
1. With band changing switch in the broadcast position, extreme left of its rotation, and with gang condenser in its minimum capacity position, plates entirely out of mesh, and with external oscillator connected in series with "Dummy 2" to antenna and ground leads make following adjustments:
   - (a) Set external oscillator to 1720 K.C. and adjust broadcast oscillator trimmer to resonance. (Adjustment number 4; see bottom view of coil assembly, Fig. 3)
   - (b) Re-set external oscillator to 1400 K.C., rotate variable gang condenser and pick up signal. Adjust broadcast R.F. trimmer (adjustment number 6) and broadcast antenna trimmer (adjustment number 7), to resonance
   - (c) Re-set external oscillator to 600 K.C., and adjust broadcast series pad (adjustment number 3) to resonance by rotating condenser to approximately 600 K.C., rocking it slowly to and fro until by adjusting series pad maximum output is attained. This adjustment is located on the bottom of the chassis directly under the variable gang condenser. (See bottom view of chassis, Fig. 3).
   - (d) Repeat adjustments "a" and "b" until sensitivity is at its maximum.
   - (e) Check for tracking and sensitivity at 1400, 1000, and 600 kilocycles. **Under no circumstances bend plates of variable condenser sections to correct tracking.**
   - (f) Recheck short wave and middle wave band alignment

DAVID BOGEN CO., INC.

MODEL Supreme Amplifier
MODEL Mastertone "
Schematics



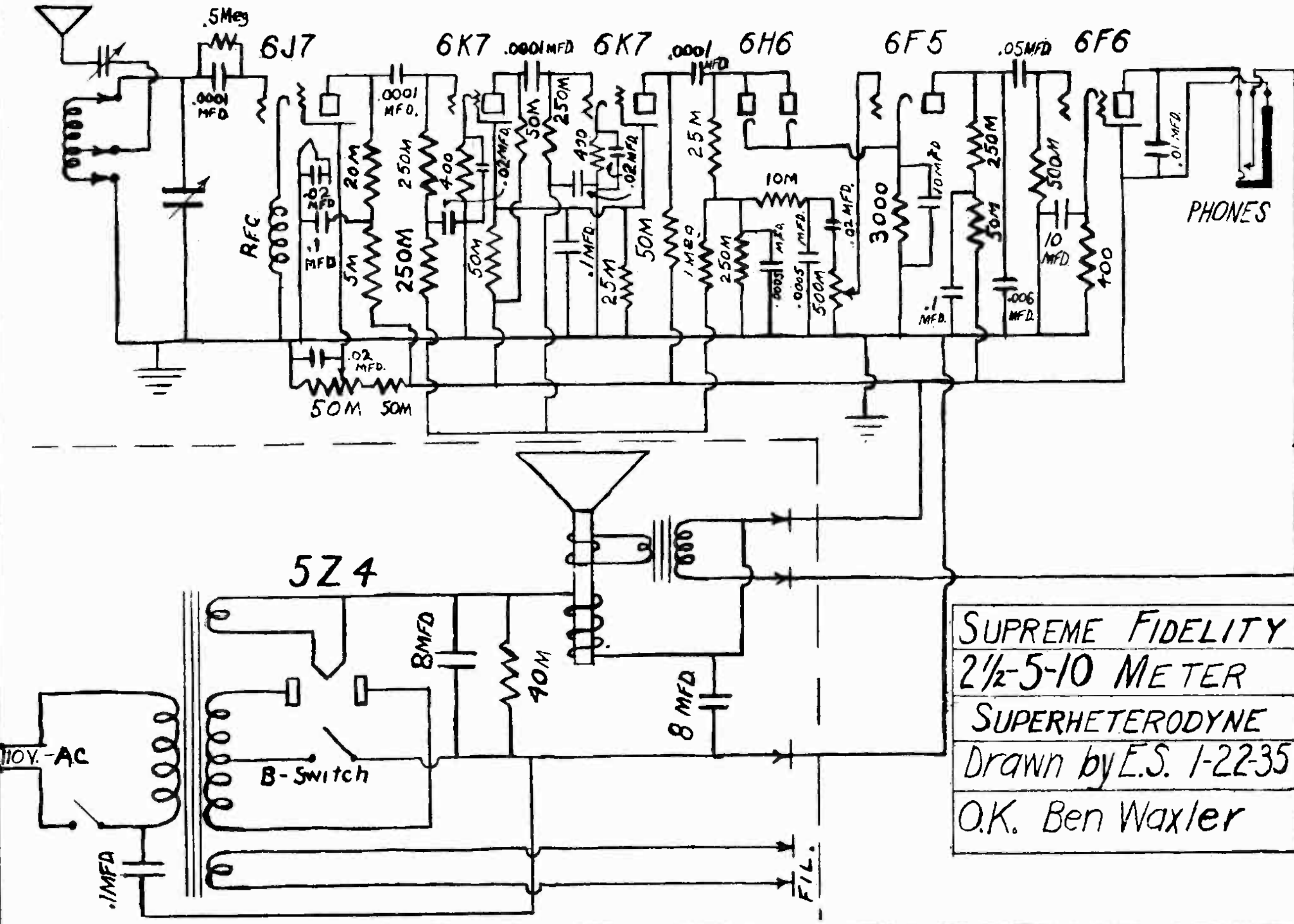
SUPREME
12-10-35
Drawn by E.S.
OK. Ben Waxler



MASTERTONE
12-9-35
Drawn by E S
O.K. Ben Waxler

MODEL 2.5-5-10 Meter Super.
Schematic, Data

DAVID BOGEN CO., INC.



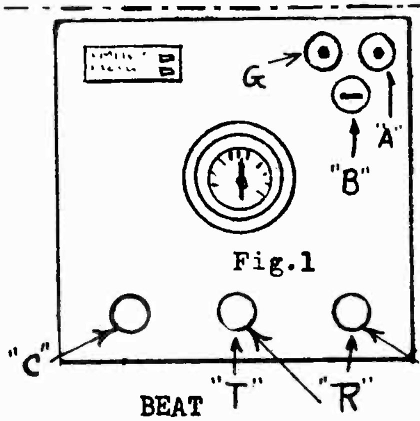


Fig.1

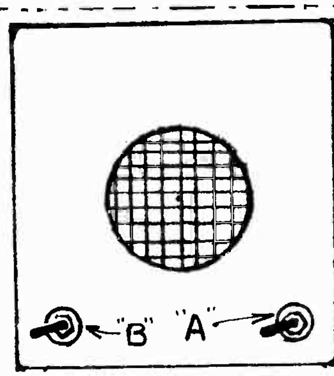


Fig.2

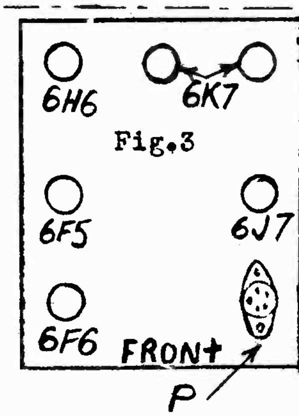
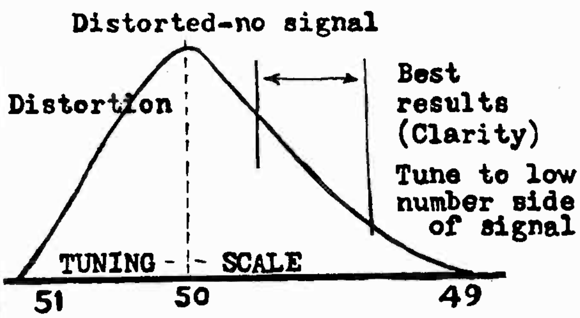


Fig.3

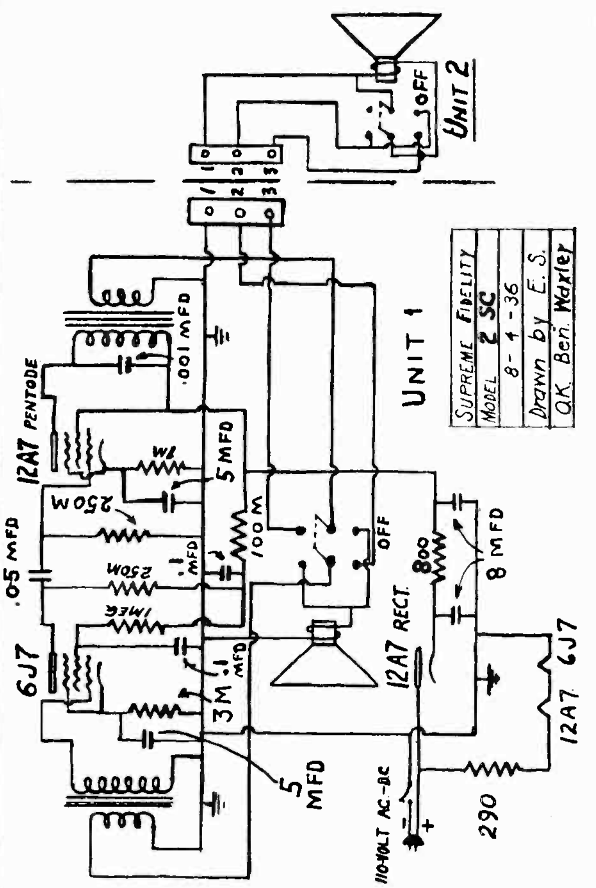


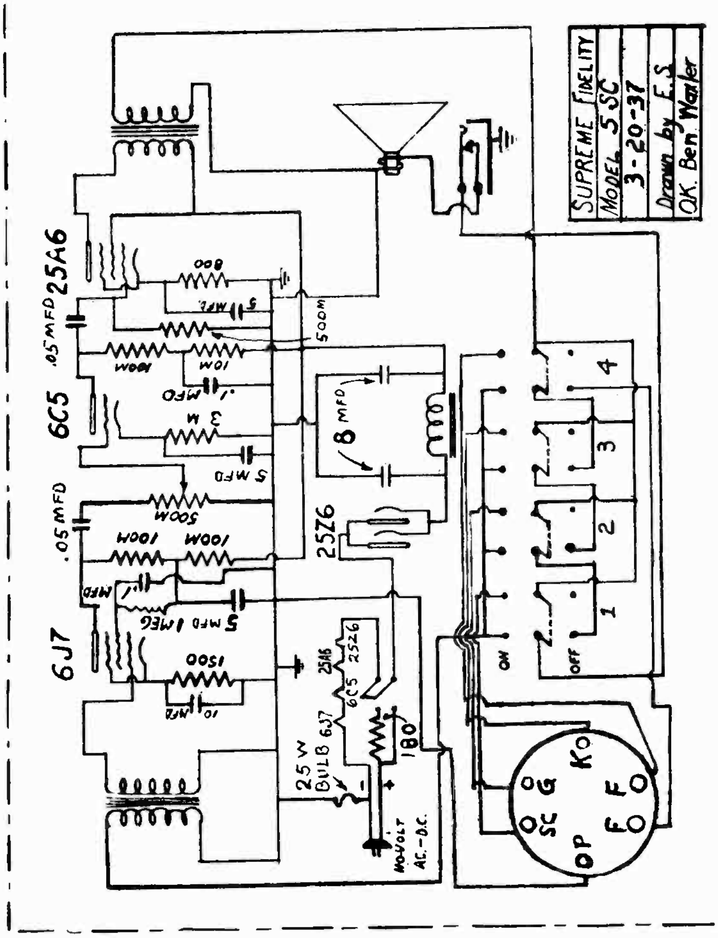
TUNING CURVE AS SHOWN ON CATHODE RAY OSCILLOGRAPH.
Fig. 4

SUPREME FIDELITY
2½-5-10 Meter
SUPERHETERODYNE
Drawn-by-E.S. 1-23-36
O.K. Ben. Waxler

DAVID BOGEN CO., INC.

MODEL 2SC Communicator Schematic, Data
MODEL 5SC Communo-Phone Schematic





INSTRUCTIONS FOR MODEL 2SC

The two station Supreme Communicator consists of two units. The master station is unit #1 and the extension station is unit #2. The master uses two tubes: 1-12A7 and 1-6J7. A three wire cable is used to inter-connect the units. The master unit is connected to the power line. The communicator works equally as well on A.C. or D.C., 110 volts.

CONNECTIONS:-

The three terminal strip located on the rear of each unit is used to inter-connect the units. The three wires are connected in numerical sequence, i.e. - 1 to 1, 2 to 2, 3 to 3. The line cord incorporates a self contained resistor, hence, must not be tampered with. The line plug is inserted in any source of 110 volts A.C. or D.C.. In D.C. operation, if the system fails to operate, reverse the polarity by removing the plug from the receptacle, giving it a half turn, and reinserting. On A.C., if a hum is noticed, reverse plug as explained above.

CONTROLS:-

Master Unit - The switch located on the front panel at the left, controls the power for both units, and is put on or off as denoted by the on-off plate. In the center of each unit there is a plate marked "RELEASE TO LISTEN" and "PRESS TO TALK". Conversation is started by pressing the switch down and is held down while talking. When through talking, release and the switch will automatically come back to "RELEASE TO LISTEN" position. Then, the second party will push the switch and talk. This operation is repeated.

REMARKS:-

This amplifier is licensed by agreement with Electrical Research Products, Inc., under patents owned or controlled by Western Electric Co., and American Telephone and Telegraph Co.

CAUTION:-

Do not use any ground or let any of the connecting wires touch any ground, such as water or gas pipes or metal ceilings, etc.

MODEL 5SC Communo-Phone
Instructions

DAVID BOGEN CO., INC.

INSTRUCTIONS FOR MODEL 5SC

The Supreme Communo-Phone is a self powered combination microphone loud speaker system. It operates on either A.C. or D.C. current, 105-125 volts. Each unit draws 35 watts and is designed for continuous service. The tubes used are:- 1-25Z6, 1-6J7, 1-6C5, 1-25A6, and 1-25 watt, 120 volt bulb.

The simplest inter-communication system consists of two of these units connecting one office to a second and permitting instantaneous communication. These units may be combined into a more elaborate inter-communication system by using any number of units up to five. The standard Supreme Communicator is equipped with all the switches and a socket so that a five way systmm may be connected with a minimum of time and difficulty and without the necessity of additional equipment other than the cable and connector box.

System units with a selection of more than five stations can be supplied in accordance with specified requirements.

CONNECTIONS:-

These units are connected together by means of the Supreme Communicator connector box. Cables are supplied in any length to meet requirements and come equipped with a six prong male plug on each end. The connector box is supplied with a five foot length of cable and a six prong male plug. The cable from the connector box is plugged into the socket marked "Pwr". ("A" Fig. #1) located on the rear of the first station. To connect the other stations insert one plug of the cable into the socket on the rear of the station, and insert the other plug into a socket on the connector box (see-Fig.#2). When less than five stations are used the cables should be plugged into consecutive sockets on the connector box.

Insert the plugs of the line cords into any source of 110 Volt A.C. or D.C. Snap the line switches on and observe the 25 watt lamp. If the lamp is brilliant, reverse the line plug which will give the correct operating polarity. With each unit at correct polarity, the system should be operating. As a check, the line cord should grow slightly warm in operation. Do not attempt to shorten this line cord since the operation of the set is dependent upon a self-contained resistor in it. If you desire to connect your own connector box and cables - refer to figure #3.

WHEN USING THESE UNITS ON D.C.:-

When all units are plugged in as outlined above, inter-communication may be started among the various stations, making sure that the volume control is turned up. If no sound is heard, the polarity of the units is incorrect and all the plugs must be reversed at the same time. This applied to D.C. only.

NOTE.- Do not under any circumstances connect a ground to the chassis.

CONTROLS:-

On the panel there are four momentary contact switches, two on each side of the power switch. Each switch is a selector calling another unit or station. All call switches are normally set in the up or listening position. To call another station, press the appropriate switch down and talk. To listen, release the switch. In setting up this system, it may be found that the volume of voice at the listening end is insufficient for efficient operation. To adjust the volume of the loudness use the screwdriver control adjustment on the rear ("B" Fig. #1).

A headset may be used if it is undesirable to have others, who may be standing near the station, hear the conversation. A magnetic headset should be used with an ordinary phone plug which can be inserted in the jack on the rear panel ("C" Fig.#1)

The names of the stations can be assigned to the respective switches by writing in the name. For new names remove the name plate, by taking off five nuts, and insert new paper.

The Supreme Communicator should be used at a distance of arm's length from the unit so as to prevent uncomfortable loud speech at the receiving end.

The person speaking should not raise his voice over that used in ordinary conversation since the Supreme communicator is designed to have enough sensitivity to pick space up low voices of moderate distances.

One of the useful features obtainable with the Supreme Communicator System is the possibility of instantaneous call to all stations by pressing all the switches down, whereupon, all other stations listen to the master station. Any unit can become a master to call any number of stations at once.

It is possible for any station to speak to the listening station, although the latter is listening to another station. The station breaking in cannot, however, eavesdrop on any conversation not being directed to him.

Another feature obtainable with the 5-Way Supreme Communicator System is that any two stations can talk to each other, while two other stations are talking without interfering with each other. In other words, each two units comprise a voice channel very much like a telephone switchboard.

NOTE: CAUTION - DO NOT UNDER ANY CIRCUMSTANCE CONNECT A GROUND TO THIS CHASSIS.

REMARKS:

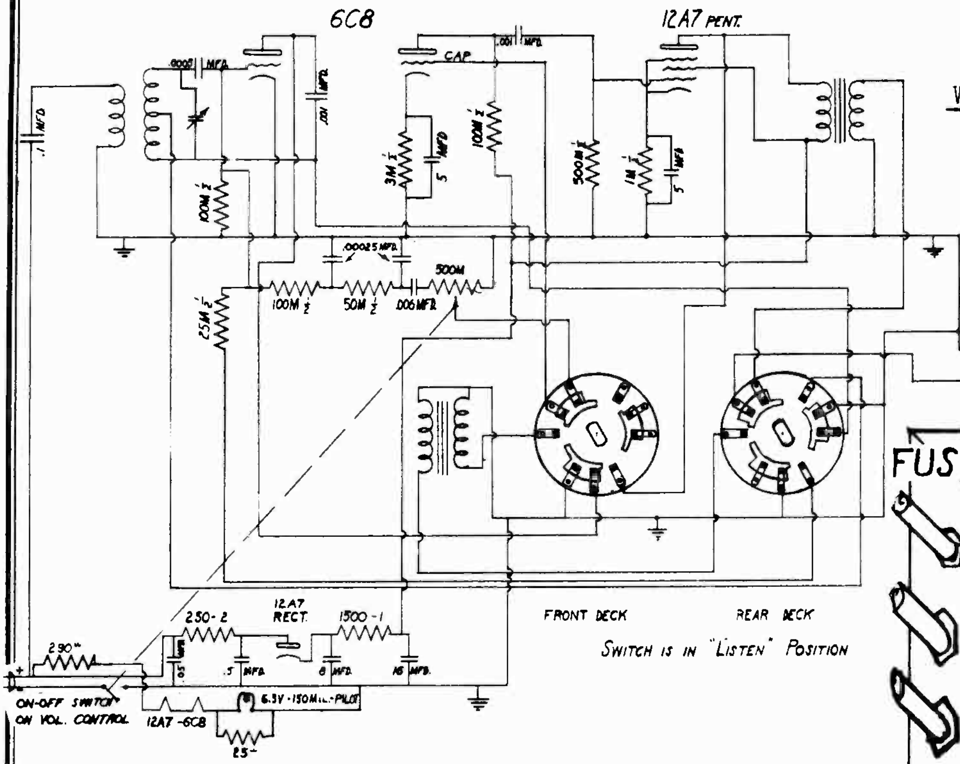
This amplifier is licensed by agreement with Electrical Research Products, Inc., under patents owned or controlled by Western Electric Co., and American Telephone and Telegraph Co.

DAVID BOGEN CO., INC.

MODEL 2W CommunoPhone
Schematic, Data

WIRELESS COMMUNO-PHONE

DAVID BOGEN CO., INC.	
Subject: SCHEMATIC MODEL 2 W	
Sheet No: 554	Scale: NONE
Drawn by: E. S.	Date: 5-8-37
O. K. By: Ben Waxler	
THIS PRINT SUPERSEDES ALL PRINTS MADE PRIOR TO	
ENGINEERING DEPT., NEW YORK CITY	



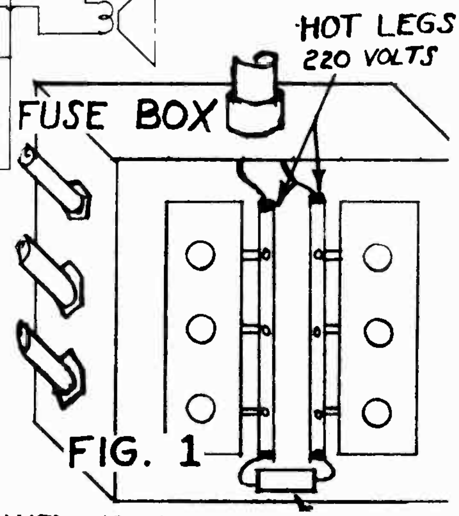


FIG. 1

Power Rating:

105 to 125 volts, either A.C. or D.C.
Consumption 32 watts per unit.

The model 2W Bogen Wireless Communo-Phone is an intercommunicating telephone system using the usual power lines both for power and to carry the voice currents. Two or more stations may be operated, but since this model is not selective, all stations will hear all conversations.

Talk-Listen: The knob in the center of the front panel controls the direction of conversation. It normally holds itself in the "Listen" position. To call the other station, depress the knob and speak. Release knob to hear the response from the answering station. The person at the remote or called station must depress his own "Talk" knob before speaking.

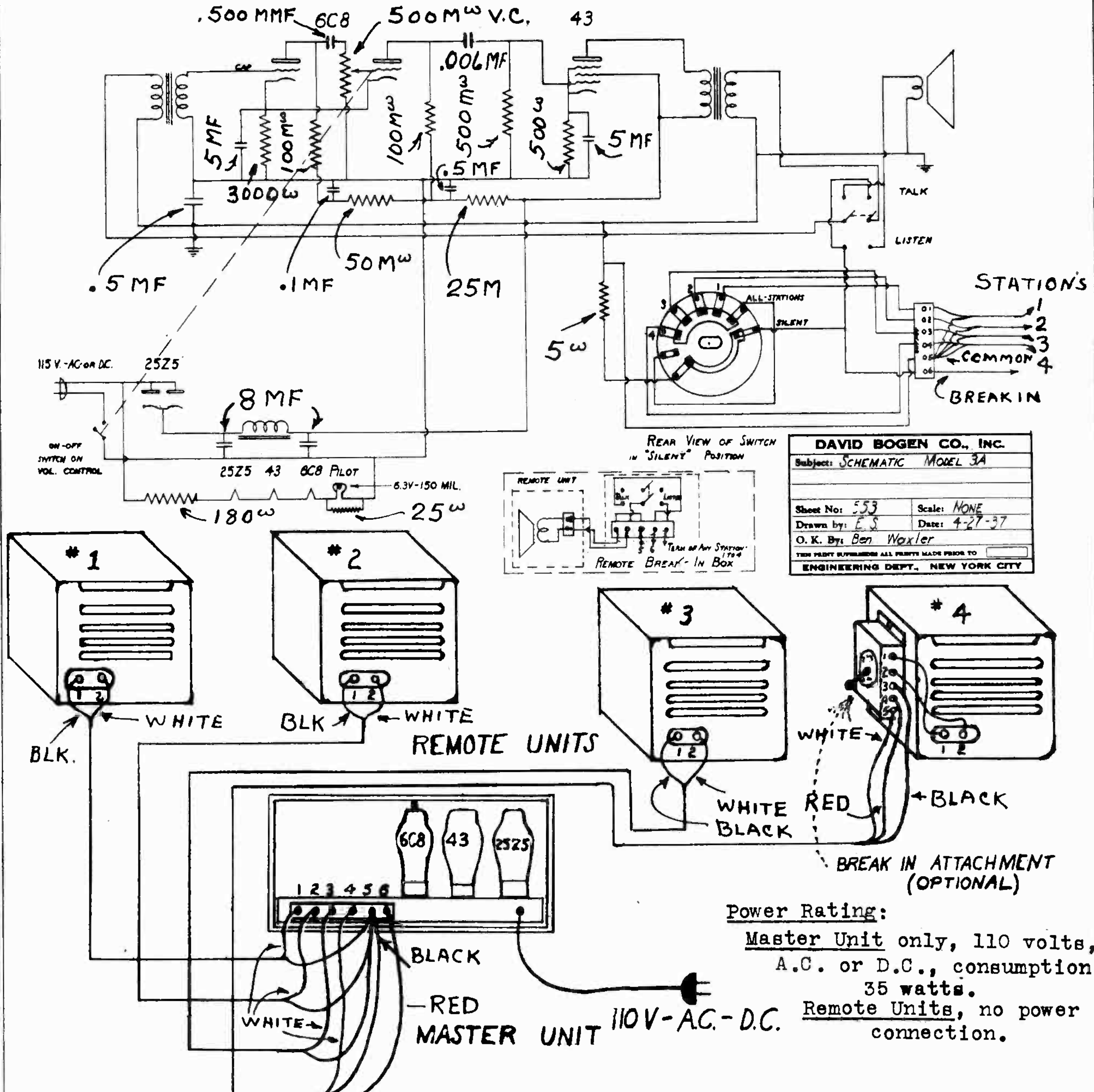
Connections: Insert the attachment cord plug from each unit into the nearest electrical outlet of proper voltage. There are no other connections to make unless the two electrical outlets used are wired on opposite sides of the common ground. In this case the two circuits should be bridged at the fuse box or meter with a paper condenser of a capacity of about 1 mfd. 400 volts. The two "hot" or ungrounded wires are joined thru the condenser as shown in figure 1.

Adjustments: These units are adjusted at the factory to match each other. However if there is reason to attempt to improve the match between the stations, the trimmer condenser screw located on the rear of the chassis may be adjusted. Turn the screw slightly left or right until the best results are observed as determined by the volume and quality of the received voice.

Noise: Some electrical devices such as small motors, flashing signs, oil burners, etc. radiate "man made static" which in some locations causes considerable annoyance to radio listeners and may cause a similar disturbance in the Wireless Communo-Phone. If the source of the noise can be determined, it can be reduced or entirely eliminated by the use of condensers or noise filters on the device creating the noise.

MODEL 3A CommunoPhone
Schematic, Data

DAVID BOGEN CO., INC.



Power Rating:
Master Unit only, 110 volts, A.C. or D.C., consumption 35 watts.
Remote Units, no power connection.

The model 3A Bogen Selective Communo-Phone provides selective communication between the Master Station and one to four Remote Stations.

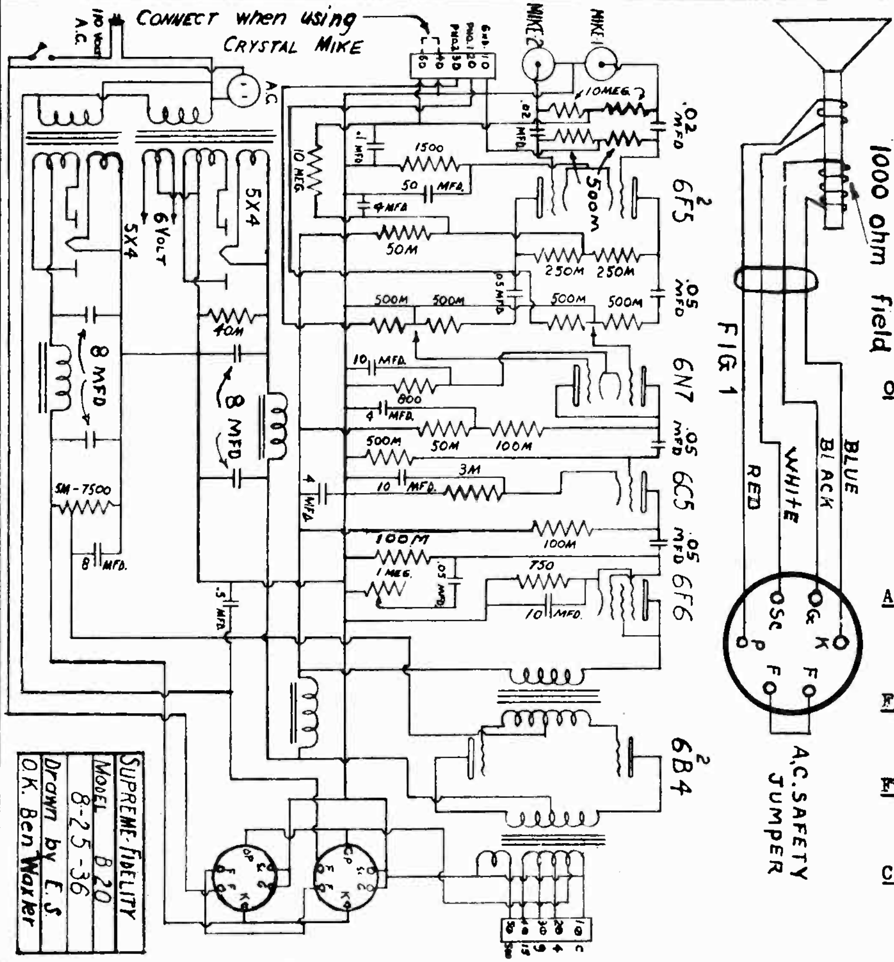
Connections: Using a two wire cable connect all the Remote Units so that their #1 terminals connect to #5 on the Master Unit. Then the remaining wire from each Remote Unit (Terminal #2) connects to its own selective terminal numbered 1, 2, 3 or 4 on the Master Unit. Plug line cord into the usual power outlet. If the device is silent when first connected to Direct Current the power line plug should be removed and rotated so that its prongs are reversed - this is done to correct the polarity.

Station Selector: The center knob is used to select the station called. It may be set to communicate with any single Remote Station or to call all at once. It is normally left in the "Silent" position. The Master Station can listen-in on any or all Remote Stations without warning.

Talk-Listen: The lower knob automatically remains in the "Listen" position. When it is desired to speak from the Master Station the knob is pressed down to the "Talk" position. It must be released to hear the reply from the station called. Because of the sensitivity of the Remote Units it is not necessary for the person called to approach the box closer than about 20 feet, thus saving steps and interruption of work. The Remote Stations can only "Talk" or "Listen" when the Master Switch is properly set.

MODEL B-20 Amplifier
Schematic, Notes

DAVID BOGEN CO., INC.



INSTRUCTIONS FOR MODEL B-20

The Supreme Fidelity Model B-20 is a nine tube amplifier operating on 110-125 volts, 50-60 cycles with a drain of 275 watts. The tubes used are: 2-6F5M, 1-6N7G, 1-6C5G, 1-6F6G, 2-6B4G, 2-5X4G.

INPUT CONNECTIONS:-
The five post input strip is used as follows: Terminals "1-2" are channel #2 for a phonograph or other low gain input. Terminal #1 is the ground sides; terminals "1-3" are channel #4, for another phonograph or low gain input. When using a Crystal microphone connect posts #4 and #5 by a wire. Do not jump these terminals when using a Velotron or Velocity microphone:

MICROPHONE CONNECTIONS:-
Above the five post strip are two screw cable connectors. These are the two channel inputs #1 and #3, for Velotron, Velocity or Crystal microphones. For each microphone, a single conductor shielded cable must be employed. The plug that is used on the microphone cable is supplied with each amplifier and is connected as follows:-

1. Skin outer rubber covering about 3/8" exposing the shield.
2. Remove all cotton sleeving which in some cable is present over the metal shield and insert over the shield the metal sleeve supplied with the connector.
3. Remove the exposed shielding up to the sleeve making sure to bend back over the sleeve all loose metal wires.
4. Skin second rubber covering about 1/8" from the sleeve exposing about 1/4" of the conductor.
5. Insert the cable thus prepared into one part of the connector, drop the spring washer in the recess, place bakelite washer over it allowing the conductor to pass through eyelet.
6. Clean and solder conductor to eyelet, cut excessive wire, and screw set screw over the sleeve.
7. Do not use soldering paste or acid on any connection on microphone or cable.

OUTPUT CONNECTIONS:-
Two, one thousand ohm speakers must be connected to the amplifier by means of sockets marked "SPK" located on the right side of the amplifier. As a safety measure, these sockets are so wired that the A.C. to the amplifier is cut off unless both speaker plugs are inserted. The speakers are wired as shown in Fig. 1. Additional speakers having their own source of field supply may be connected by using the taps on the strip marked "OUTPUT". The terminal connections are as follows: Terminal #1 is common; #2 is four ohms; #3 is nine ohms; #4 is fifteen ohms and #5 is five hundred ohms.

A.C. RECEPTACLE:-
An A.C. receptacle is located on the rear panel. This can be used to connect the A.C. for additional speaker exciters, phonographs, etc. The A.C. to this outlet is controlled by the master switch on the front panel.

FIELD SUPPLY:-
The built-in field supply will furnish 100 mils. at 125 volts to each of two 1000 ohm speakers. This field supply is not taken from the plate voltage supply but has its own source of power.

FUSE:-
If the amplifier fails to operate when turned on, examine the fuse clip. A five ampere fuse is used. If this fuse is burned out, examine the connections for a possible short circuit.

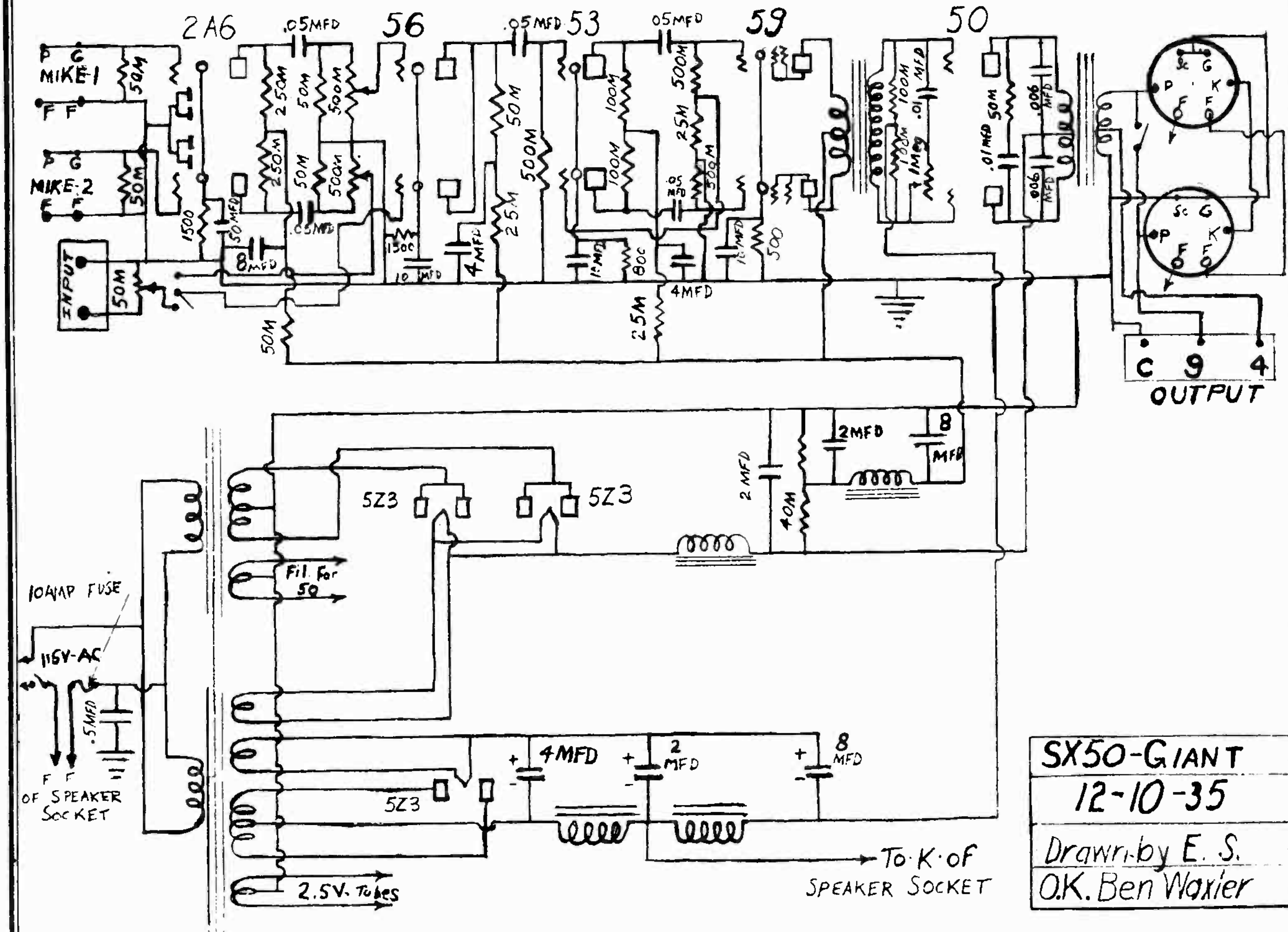
CONTROLS:-
Mixer Fader - The first control on the left governs the gain for either channel #1 or #2. With this control it is possible to fade from channel #1, a high gain input to channel #2, a low gain input. The second control from the left governs the gain for either channel #3 or #4 similiarly. By using both controls simultaneously it is possible to mix the inputs from channels #1 and #2 with those of channels #3 and #4.
Tone - The control marked "Tone" is used for tone correction effects.
Master Switch - The switch at the extreme right on the control panel controls all A.C. The pilot light indicates when the amplifier is operating.

REMARKS:-
If any hum is noticed, when using the microphone, reverse the line polarity, by pulling out the line plug, giving it a half turn and reinserting.

Hum can be caused by faulty tubes, particularly with a high gain amplifier of this design. Check all tubes carefully before looking elsewhere. In rare cases an external ground may be necessary.

MODEL SX-50 Amplifier
Schematic, Notes

DAVID BOGEN CO., INC.



CONNECTIONS

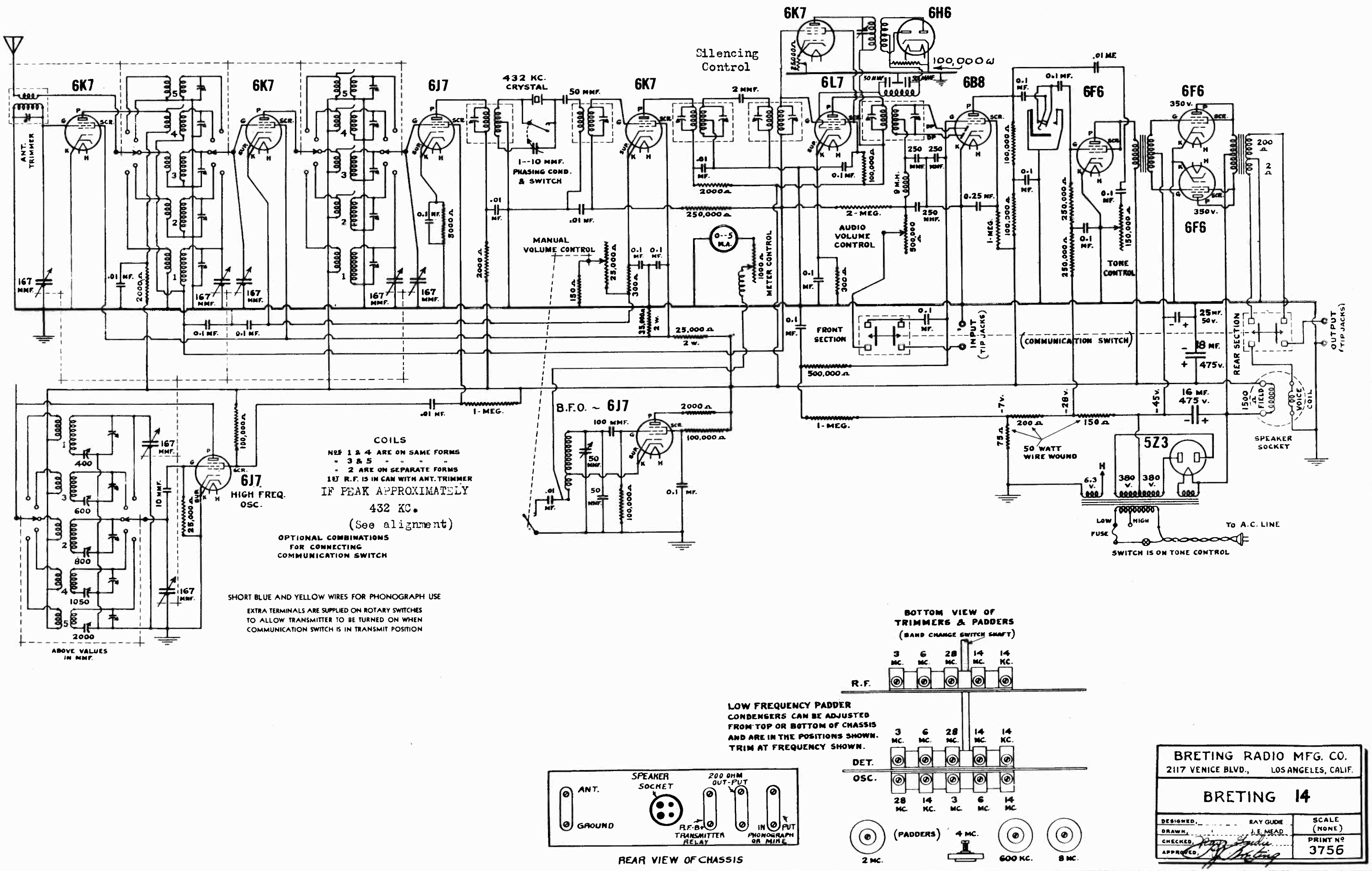
On the left side of the amplifier, there are two sockets marked "MIKE #1" and "MIKE # 2". One or two microphones can be connected to the amplifier by plugging into these sockets. For microphone connections see Fig.1. Shielded cable and plug must be used between the amplifier and the microphone. The metal cover of the plug must be grounded to the shield as shown in Fig.1.

On this same side there is a tip jack marked "PHONO". This jack is used to connect phonographs having tip connectors. Above this jack is a two terminal strip marked "INPUT". These terminals can be used for various input connections such as any low gain input, phonograph,or microphone (dynamic),or radio. The jack and input strip are controlled by the # 3 control.

On the right side of the amplifier there are two six prong sockets marked "SPEAKER". These sockets are used to connect the two speakers required by the amplifier. For the speaker plug connections see Fig.2. The built-in field supply will furnish 100 mils, at 125 volts to each speaker. This field supply is not taken from the plate voltage supply, but has its own poer supply. A three terminal output strip marked C-4-9, is located at the right of the speaker sockets. These terminals can be used to match the voice coils of any additional speakers. Additional speakers must have their on source of field supply, either built in or external.

MODEL 14
Schematic, Trimmers

BRETING RADIO MFG. CO



MODEL 14
Alignment, Notes

BRETING RADIO MFG. CO.

ANTENNA: To insure best results it is absolutely essential that a first-class antenna be used. We recommend a single solid wire, 50-75 feet in length, including lead-in. Height over any obstruction in the immediate vicinity is, of course, highly desirable, and should be obtained whenever possible. An ideal situation with respect to antenna would be the use of two or three antennas running in different directions and using a switch mounted near the radio. This procedure would enable the operator to select the antenna giving the best results in any particular location.

On the higher frequencies a short antenna will usually give better results, and on the 10 meter band a 16 ft. vertical generally proves most efficient.

The only advantage obtained in using a doublet antenna would be to locate the antenna pick-up portion out of a noisy field, such as is usually found in a location near a street car line or much traveled highway. In locations of this kind the antenna proper can be located as far away as possible from the disturbing factor, and the long lead-in can be brought to the receiver without a great amount of loss. Almost all commercially made doublets are furnished with the matching transformer equipped with electro-static shields to eliminate any capacity pick-up in the lead-in. There are many coupling transformers on the market that may be obtained by anyone who desires to construct their own doublet, but when this is done a matching transformer should be used that is equipped with electro-static shield.

NOISE SILENCER CONTROL: The noise silencer is equipped with a filament switch that turns the two noise silencer tubes off when in the extreme left position. To operate the silencer the control should be turned to the right, and after the tubes have had sufficient time to heat advancing the control will cause the set to block when a station is tuned in. The point of operation is very critical and just below the blocking point. The weaker the signal the more effective becomes the noise silencer. It is worthless on a strong signal and on certain types of noise. The silencer cannot be used on local or extremely strong signals. The silencer is not a cure-all for static generally speaking, but it is very efficient in eliminating certain types of interference.

COMMUNICATION SWITCH: The communication switch disconnects the audio amplifier from the radio and connects it to the tip jacks on the rear of the chassis. The middle terminals on rear of chassis are connected to the 200 ohm line, the bottom one of which is grounded to the chassis. The terminals nearest the speaker plug when opened break the B+ to the RF portion of the receiver. Needless to say, these terminals are hot with respect to the chassis. The audio amplifier will drive any type of final amplifier, and if used as a modulator, will modulate approximately 100 watts. When using the receiver as a modulator, a modulation transformer with a 200 ohm primary and a secondary with a correct load to match the transmitter must be used. Numerous speaker transformers when reversed will operate satisfactorily for this purpose and several manufacturers have special transformers expressly made for this service, such as Inca Models N18 and N17.

A large number of amateurs are modulating at speech frequencies, 100W transmitters. In case feed back difficulties are encountered, try reversing connections on the external transformers and shielding all connecting wires. Sometimes a separate switch on the B+ terminals will be necessary while transmitting. A microphone transformer and volume control will be necessary for high level carbon microphones, and a high gain preamplifier is necessary for low level microphones. A single high gain stage is generally sufficient for the diaphram type crystal microphone.

The filament and plate power for the preamplifier stage can be supplied by the receiver. On rotary type communication switch extra terminals are supplied to turn transmitter on with the communication switch.

CRYSTAL PHASING CONDENSER: To obtain results with the crystal circuit, a complete understanding of crystal selectivity must be had by the operator.

Let us consider the ordinary C. W. signal as received by a super with the crystal in the off position. The band width of the carrier is about 10,000 cycles and is heard as a series of dot and dash hissing sounds as the receiver is tuned thru the range of the 10,000 cycles. If the beat oscillator is turned on and adjusted when the dial is set to the center of the carrier, you will notice that the C. W. signal becomes a howl and the pitch varies as the beat oscillator adjustment is turned from one side to the other. It starts as an extremely high pitch howl down to a zero beat point and then up the other side until the pitch becomes so high it is lost to the ears.

Now set the beat oscillator until a 1,000 cycle note is heard. Next adjust the crystal trimmer until the background noise is at minimum and a ringing sound is heard in the speaker. The C. W. signal will probably have been lost during this operation and the main dial will have to be readjusted until you find the narrow peak of the signal.

Remember that the peak of the crystal is only 50 cycles wide compared to 10,000 cycles without crystal. You can understand by comparing the above figures why the average amateur never finds the C. W. peak on the crystal and is ready to condemn its performance. The signal strength should not change as the trimmer is turned from the left hand off position to the right hand position.

Greatest selectivity of the crystal will be found as the trimmer is turned about two-thirds of the way to the right. If the signal strength changes as the trimmer is adjusted, the signal is not tuned in on the peak or else the beat oscillator is not adjusted 1,000 cycles to one side of zero beat. Different degrees of selectivity can be obtained on C. W. by not bringing the crystal trimmer in exact phase. The broad positions are on either side of where minimum noise is heard.

For phone reception leave beat oscillator off and keep crystal in either position. At best the reception will be poor.

On C. W. turn the volume control three-quarters on and use the manual control to bring up the signal level. Do not advance it too far on the crystal as it will overload the first detector and motor boating will result.

BEAT FREQUENCY OSCILLATOR SWITCH: The beat oscillator control turns the R meter off and converts the vacuum tube volt meter tube into a beat oscillator. It also shorts out the AVC circuit requiring the manual volume control to be turned to the left to keep from blocking the receiver.

To locate weak stations, turn beat oscillator switch to the right. This should produce a hissing sound in the speaker, and as the tuning dial is rotated, all stations will be heard with a definite squeal. After locating station, retune to greatest volume.

Adjust beat oscillator by turning the condenser shaft extending through the bottom front, left corner until the desired pitch is obtained. To make the beat oscillator adjustable from the front panel solder a heavy wire or handle to the shaft and allow it to extend out under the base pan.

RF GAIN CONTROL OR MANUAL VOLUME CONTROL: The RF gain control is used for code reception and should be rotated to the left when silent tuning is desired.

R METER ADJUSTMENT: To adjust the R meter, disconnect the antenna, and after the receiver has been on a few minutes, turn the control marked "R" METER ADJUSTMENT until the pointer swings to the maximum left hand position. The meter is at ground potential and cannot be damaged except through rough handling in a mechanical way.

ANTENNA TRIMMER ADJUSTMENT: Adjust the antenna trimmer on any station around 14 megacycles. Turn adjusting screw carefully until greatest signal strength is shown on the R meter. DO NOT ADJUST ANY OTHER TRIMMERS. The trimmer is adjusted correctly at the factory and should not require over ½ turn in either direction.

ALIGNMENT PROCEDURE

Tune the Intermediate Frequency transformers to resonant point of Crystal. This point may be 200 to 1000 cycles different from the oscillating point of the crystal (if crystal was used as oscillator control). Adjust IF transformers in following sequence :-

(1) Align the 2nd Detector stage.
(2) Band-pass IF stage located in center of chassis.
(3) Crystal grid coil.
(4) 1st Detector plate coil (On rear of chassis)

Place crystal in the filter circuit, tune in a low frequency broadcast station of 600 KC, adjust sensitivity control until "R" meter reads R6. Then phase crystal and retune dial to minimum modulation and maximum R strength location. Turn crystal off, without disturbing dial, retune IF trimmers as before to greatest "R" strength. Next align crystal resonant point with the IF. Crystal oscillator not necessary if IF adjustments have not been disturbed.

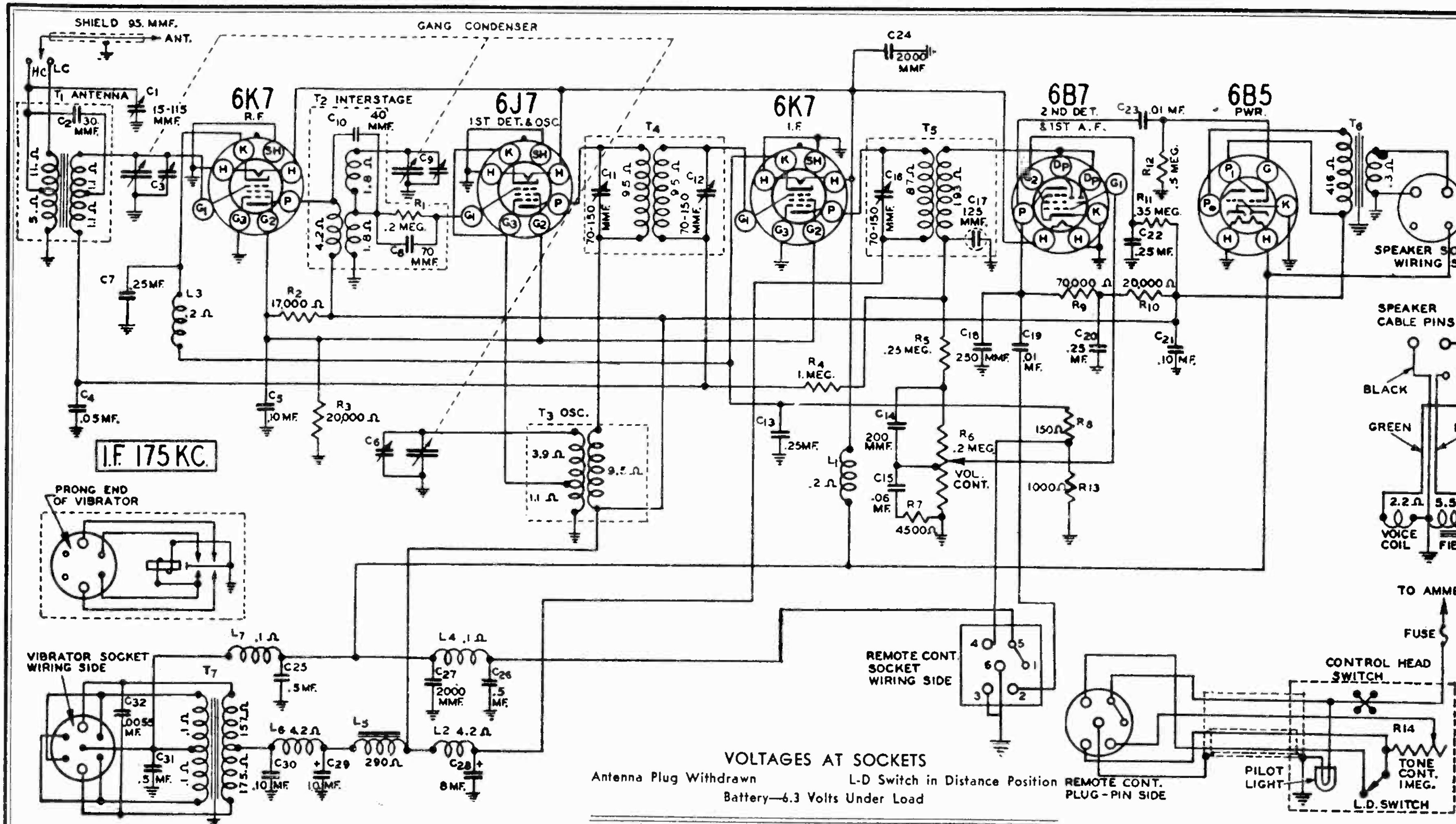
To adjust Low Frequency of each band. Trimmers are located on top of chassis, 75 meter trimmer located on the rear. High frequency trimmers are located on coil switch. At most trimmers should not require more than 1/8 turn for correction.

If variable condenser plates have become bent, realign rear unit of the three double sections of variable condenser, using 20 to 40 meter band as a standard. The broadcast portion of variable condenser is located in front unit of the 3 double sections of variable condenser, and plates can be bent slightly for maximum gain and correct alignment when set is used on different antennas.

The oscillator section is located in rear double gang. In case the gear has slipped on condenser shaft or the belt damaged, set pointer at 580 KC when the condenser plates are even with front of condenser frame. This can be checked by laying knife along frame, opening the variable until rotor plates touch the knife. The pointer should be within 2 KC of 580 KC. For greater variations loosen gear on the condenser and slide rotors.

MODEL 5X
Schematic, Voltage
Socket, Trimmers

CADILLAC MOTOR CAR CO.



CIRCUIT ELEMENTS ENCLOSED IN DOTTED CIRCLES DO NOT EXIST AS DISTINCT UNITS BUT OCCUR AS A RESULT OF THE MUTUAL POSITION OF OTHER CIRCUIT ELEMENTS OR THEIR PARTS.

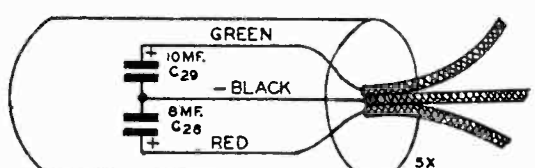


Fig. 5—Electrolytic Condenser Internal Connections

VOLTAGES AT SOCKETS

Antenna Plug Withdrawn — L-D Switch in Distance Position — Battery—6.3 Volts Under Load

Type of Tube	Function	Across Heater	Plate to Ground	Screen to Ground	Cathode to Ground
6K7	R.F.	6.1	240	105	2.0
6J7	1st Det. and Osc.	6.1	240	105	0
6K7	I.F.	6.1	240	105	2.0
6B7	2nd Det. and 1st A.F.	6.1	30(1)	40(1)	0
6B5	Power	6.2	230(2) 240(3)		0

(1) As read with 1000 ohms per volt meter—500 volt scale
(2) Measured at Output Plate (Po)
(3) Measured at Input Plate (Pi)

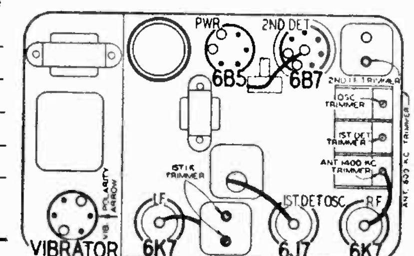


Fig. 2—Location of Tubes and Trimmers

MODEL 5X
MODEL 6KB
Alignment, Notes

CADILLAC MOTOR CAR CO.

I. F. Adjustment

Set the signal generator for a signal of 175 KC.

Connect the output of the signal generator through a .05 mf. condenser to the stator of the 1st det. section of the tuning condenser. (See Fig. 2. for location of this section.)

Connect the ground lead of the signal generator to the chassis. The chassis should be in the case.

Turn the Local-Distance switch to the "Distance" position and keep it in this position for all adjustments.

Set the volume control at the maximum position.

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

Then adjust the three I.F. trimmers until maximum output is obtained. The location of these trimmers is shown in Fig. 2.

1581 KC Adjustment

Set the signal generator for 1581 KC.

Turn the rotor of the tuning condenser to the full open position.

Insert the antenna plug for a high capacity antenna (mark on LC side). Connect the shielded antenna lead from the chassis through a 120 mmf. condenser to the antenna post of the signal generator.

For this and all subsequent adjustments keep the volume control at the maximum position and attenuate the signal from the signal generator to prevent AVC action.

Adjust the trimmer of the oscillator section of the three gang condenser until maximum output is obtained—See Fig. 2 for location of this trimmer.

1400 KC Adjustment

Set the signal generator for 1400 KC.

Turn the rotor of the tuning condenser carefully until maximum output is obtained.

Adjust the 1st det. and antenna 1400 KC trimmers for maximum output.

Do not change the setting of the oscillator trimmer.

600 KC Adjustment

Set the signal generator for 600 KC.

Turn the tuning condenser rotor until maximum output is obtained.

Adjust the antenna 600 KC trimmer to maximum. This trimmer is reached from the outside of the case See Fig. 3.

After the alignment procedure is completed, the antenna plug may be withdrawn and re-inserted for a low capacity antenna (mark on HC side) if a low capacity car antenna is used.

Adjusting Antenna 600 KC Trimmer

After the radio is installed and the car antenna is connected, it will be necessary to readjust the antenna 600 KC trimmer.

Tune in a weak signal at approximately 600 KC with the volume control about three-fourths on. Turn the adjusting screw of the antenna 600 KC trimmer up or down until maximum output is obtained. See Fig. 3 for location of this trimmer.

Calibrating the Radio

Tune in a signal of known frequency at about the center of the dial. Choose a station with a frequency which corresponds to one of the numbers on the dial drum. For example, WLW, with a frequency of 700 KC, corresponds to 70 on the dial.

Hold the tuning knob. Using a clean eraser on the end of a lead pencil, turn the dial drum until the frequency of the station tuned in is at the center of the dial opening.

Inserting Antenna Plug

IMPORTANT—The antenna plug can be inserted in two ways depending on whether the antenna is of high or low capacity.

Referring to Fig. 3, it will be noted that the letters HC and LC are stamped on the case. There is a spot of paint on the antenna plug. **When the plug is inserted with the spot of paint on the LC side, it is properly inserted for a high capacity antenna and when it is inserted with the spot of paint on the HC side, it is properly inserted for a low capacity antenna.**

If the total capacity of the antenna and shielded lead is approximately 200 mmf., which would be the case in a running board or ordinary roof antenna (not metal roof), insert the antenna plug for a high capacity antenna or with the mark on the LC side.

If the total capacity of the antenna and shielded lead is approximately 70 mmf., such as may be the case if a "fish pole" antenna is used, insert the antenna plug for a low capacity antenna or with the mark on the HC side.

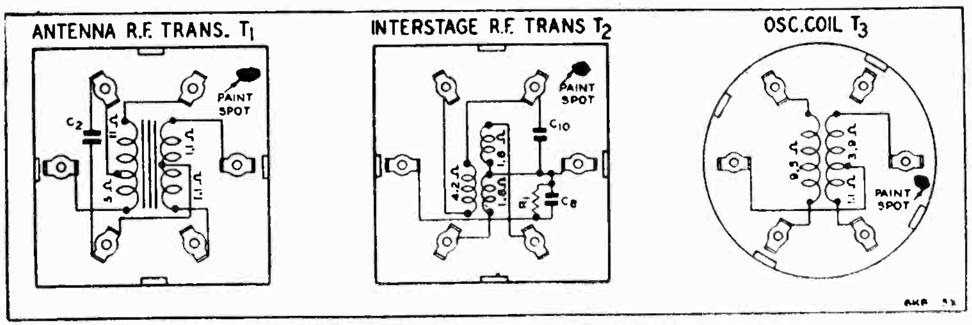


Fig. 4—R.F. and Oscillator Coil Base Terminal Arrangement and D. C. Resistance of Windings

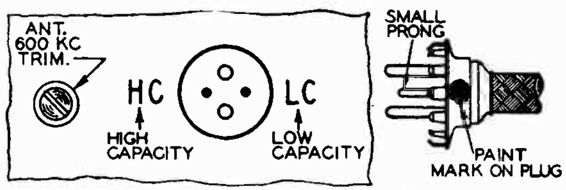
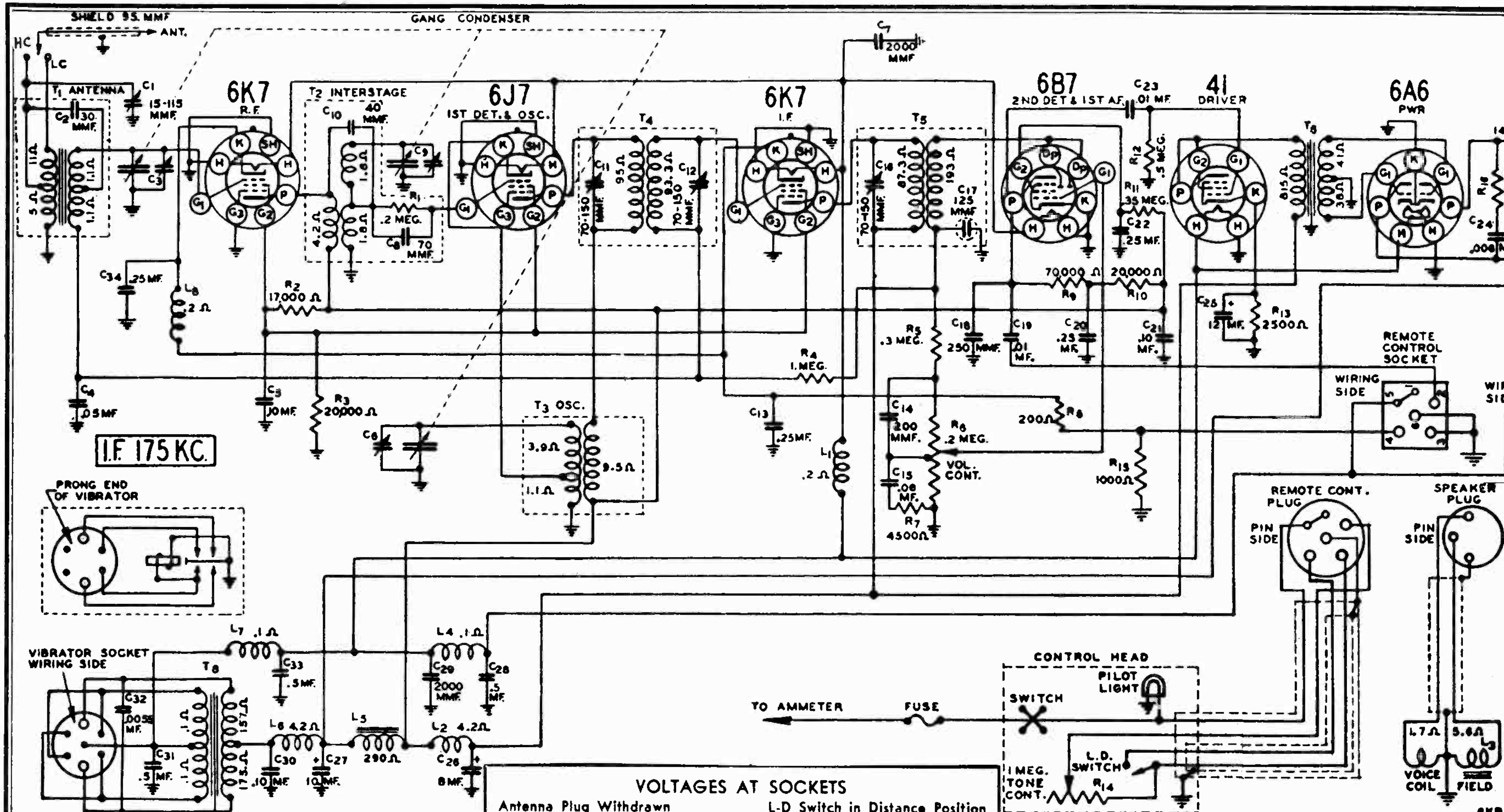


Fig. 3—Antenna Plug Insertion

CADILLAC MOTOR CAR CO.

MODEL 6KB
Schematic, Voltage
Socket, Trimmers



VOLTAGES AT SOCKETS

Antenna Plug Withdrawn — L-D Switch in Distance Position
Battery—6.3 Volts Under Load

Type of Tube	Function	Across Heater	Plate to Ground	Screen to Ground	Cathode to Ground
6K7	R.F.	5.8	270	120	2.0
6J7	1st Det. and Osc.	5.8	268	120	0
6K7	I.F.	5.8	270	120	2.0
6B7	2nd Det. and 1st A.F.	5.8	70(1)	50(1)	0
41	2nd A.F.	6.0	260	260	28
6A6	Power	6.0	275		0

(1) As read with 1000 ohm per volt meter—500 volt scale.

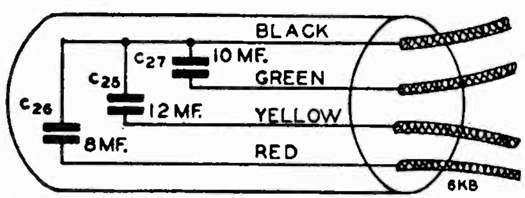
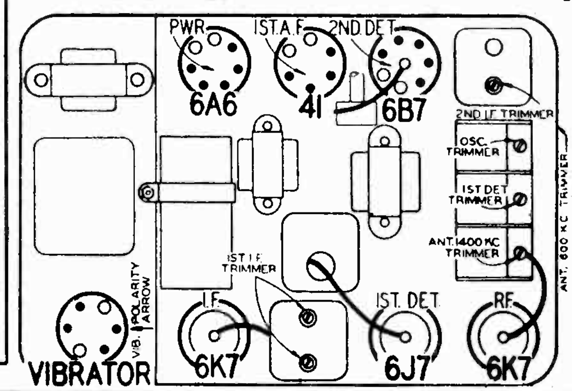
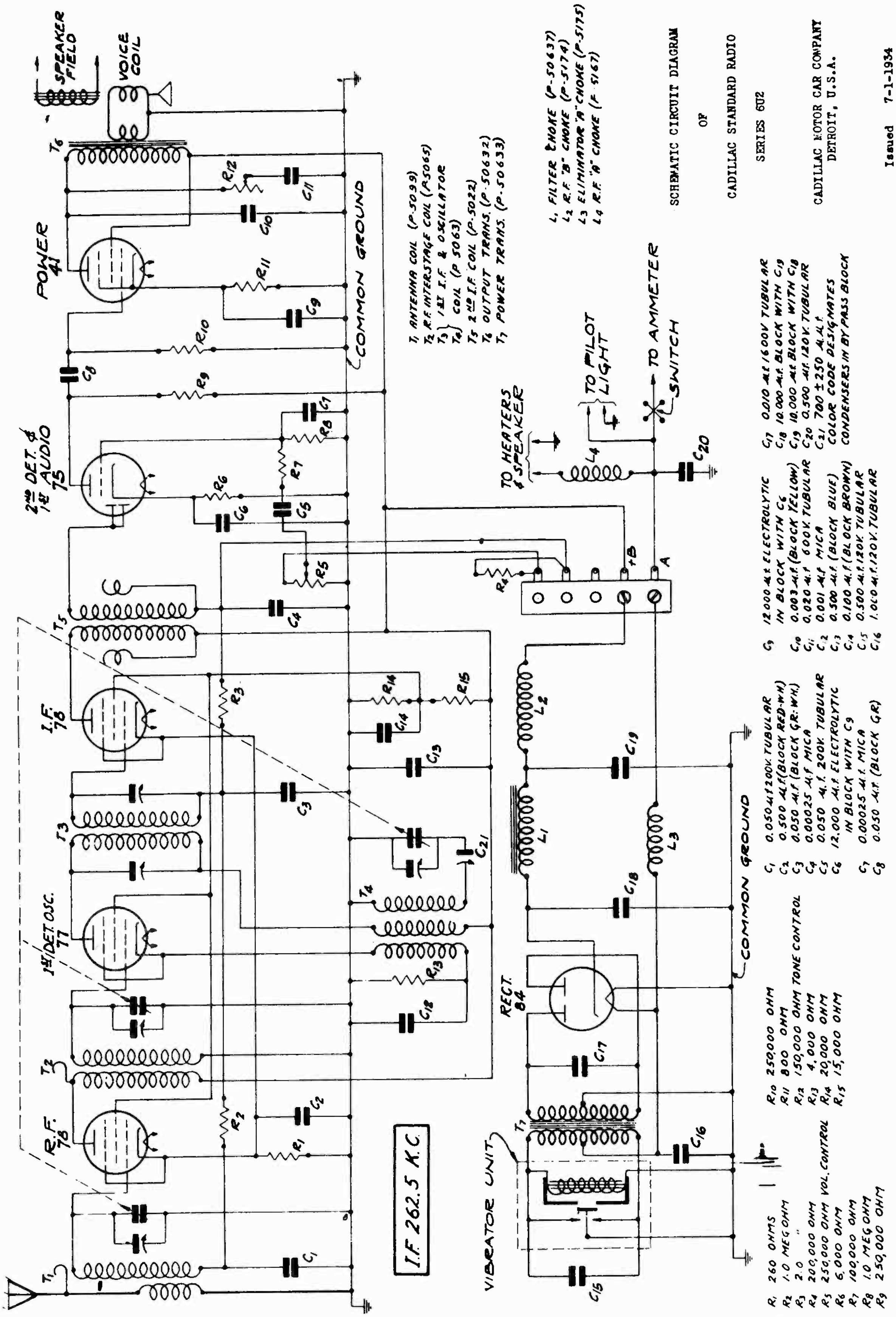


Fig. 5—Electrolytic Condenser Internal Connections



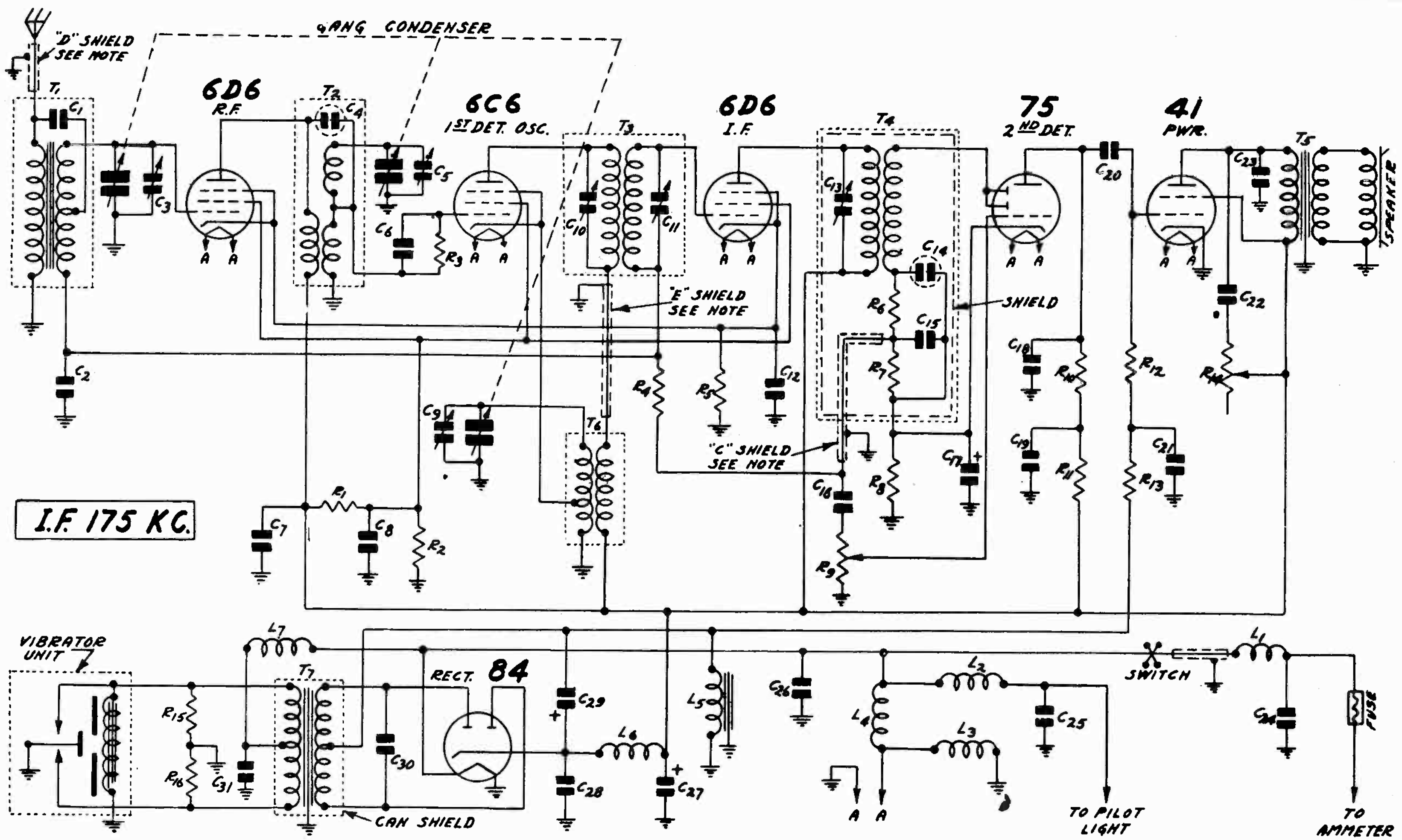
MODEL 6U2
Schematic

CADILLAC MOTOR CAR CO.



MODEL 6R
Schematic

CADILLAC MOTOR CAR CO.



GROUPS OF CIRCUIT ELEMENTS ENCLOSED IN DOTTED RECTANGLES COMPRISE DISTINCT MECHANICAL ASSEMBLIES.
CIRCUIT ELEMENTS ENCLOSED IN DOTTED CIRCLES DO NOT EXIST AS DISTINCT UNITS BUT OCCUR AS A RESULT OF THE MUTUAL POSITION OF OTHER CIRCUIT ELEMENTS OR THEIR PARTS.
THE CAPACITY OF "C" SHIELD IS 37 MMF, THE CAPACITY OF "D" SHIELD IS 85 MMF AND THE CAPACITY OF "E" SHIELD IS 15 MMF.

C 1 21 mmf.
C 2 .05 mf. 180 V.
C 3 Gang Trimmer
C 4 40 mmf.
C 5 Gang Trimmer
C 6 35 mmf.
C 7 .10 mf. 360 V.
C 8 .10 mf. 180 V.
C 9 Gang Trimmer
C10 70-150 mmf. } One
C11 70-150 mmf. } Unit
C12 .10 mf. 180 V.
C13 70-150 mmf.
C14 250 mmf.
C15 250 mmf.
C16 .01 mf. 360 V.
C18 250 mmf.
C19 .10 mf. 360 V.
C20 .01 mf. 360 V.
C21 .25 mf. 180 V.
C22 .02 mf. 600 V.
C23 .002 mf. 600 V.
C24 .50 mf. 180 V.
C25 2000 mmf.
C26 2000 mmf.
C28 .01 mf. 360 V.
C30 .0075 mf. 1600 V.
C31 .50 mf. 180 V.
C17 4.0 mf. 25 V. }
C27 5.0 mf. 350 V } Electrolytic Block
C29 8.0 mf. 350 V }

R 1 17000 ohm 1.0 W.
R 2 20000 ohm .5 W.
R 3 .50 Megohm .2 W
R 4 1.0 Megohm .2 W.
R 5 350 ohm .2 W.
R 6 50000 ohm .2 W.
R 7 500000 ohm .2 W.
R 8 6000 ohm .2 W.
R 9 2.0 Megohm Volume Control
R10 150000 ohm .2 W.
R11 50000 ohm .2 W.
R12 .50 Megohm .2 W.
R13 100000 ohm .2 W.
R14 150000 ohm Tone Control
R15 50 ohm .5 W.
R16 50 ohm .5 W.

T 1 Antenna Trans.
T 2 R. F. Interstage Trans.
T 3 1st I. F. Trans.
T 4 2nd I. F. Trans.
T 5 Output Trans.
T 6 Osc. Inductor
T 7 Power Trans.

L 1 Motor Noise Reactor
L 2 Pilot Light Reactor
L 3 Speaker Field 5.3
L 4 Filament Reactor
L 5 Filter Choke
L 6 "B" Reactor
L 7 Vibrator Reactor

MODEL 6R
Alignment, Voltage

CADILLAC MOTOR CAR CO.

Socket, Trimmers, Data

I. F. Adjustment

Set the signal generator for a signal of 175 KC.

Connect the antenna lead of the signal generator thru a .05 mf. condenser to the stator of the 1st detector section of the tuning condenser. (See Fig. 2 for location of this section.) This can be done by pushing a wire or conductor between the stator plates or by extending an insulated wire thru the hole in the shield over the stator and pushing the wire thru the hole in the lug which extends up from the insulated stator assembly.

Connect the ground lead of the signal generator to the chassis ground.

Short out the oscillator section of the tuning condenser.

Set the volume control at the maximum position.

Attenuate the signal from the signal generator to prevent the levelling-off action of the A.V.C.

Then adjust the three I.F. trimmers until maximum output is obtained. The location of these trimmers is shown in Fig. 2.

1650 KC. Adjustment

Set the signal generator for 1650 KC.

Turn the rotor of the tuning condenser to the full open position.

Connect the shielded antenna lead from the chassis through a 150 mmf. condenser to the antenna post of the signal generator.

For this and all subsequent adjustments keep the volume control at the maximum position and attenuate the signal from the signal generator to prevent A.V.C. action.

Adjust the trimmer of the oscillator section of the three gang condenser until maximum output is obtained—see Fig. 2 for location of this trimmer.

1400 KC. Adjustment

Set the signal generator for 1400 KC.

Turn the rotor of the tuning condenser carefully until maximum output is obtained.

Adjust the 1st detector and antenna trimmers for maximum output.

Do not change the setting of the oscillator trimmer.

Adjusting Antenna Trimmer

After the receiver is installed and the car antenna is connected it will be necessary to adjust the antenna trimmer. Tune in a weak signal between 1200 and 1400 KC. with the volume control about three-fourths on. Remove the cover of the chassis case. **The antenna trimmer is on the center tuning condenser section—see Fig. 2.** Turn the adjusting screw of this condenser up or down until maximum output is obtained. CAUTION—Do not turn any of the other trimmer adjusting screws for this adjustment.

VOLTAGES AT SOCKETS

Antenna Disconnected Battery 6 Volts Under Load

Type of Tube	Function	Across Heater	Plate to Ground	Screen to Ground	Cathode to Ground	Cathode Current M. A.
6D6	R. F. Amp.	5.8	220	90	4.5	6.3
6C6	1st Det. Osc.	5.8	220	90	0	2.4
6D6	I. F. Amp.	5.8	220	90	4.5	6.3
75	2nd Det.	5.8	130(1)		1.2	0.3
41	Power	5.8	210	220	16(2)	25.5
84	Rectifier	5.8				50.0

(1) With 250,000 Ohm Meter
(2) As read across filter choke.

Tuning Frequency Range . . . . . 530-1650 KC
Intermediate Frequency . . . . 175 KC
Speaker . . . . 6 Inch Dynamic
Power Consumption . . . 6.5 Amperes at 6.3 Volts
Power Output . . . . 3 Watts Undistorted
Sensitivity . . . . . 1.0 Microvolt Absolute
Selectivity . . 45 KC Broad at 1000 Times Signal

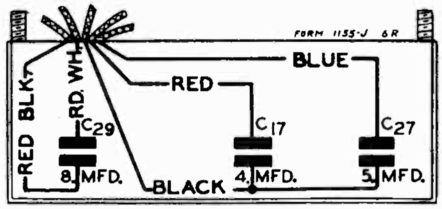


Fig. 4—Condenser Block—Internal Wiring

D. C. Resistance of Windings

Following are the D. C. resistances of the various windings in the chassis. The values given below will vary slightly in different sets.

Part No.	Winding	Code	D. C. Resistance in Ohms
P-9A443	Antenna Transformer	T1	
	Primary Winding		8.7
	Secondary Winding—Either Portion		1.0
P-9A439	Interstage Transformer	T2	
	Primary Winding		44.4
	Secondary Winding—Either Portion		1.4
P-9A441	1st I. F. Transformer	T3	
	Primary Winding		93.5
	Secondary Winding		97.6
P-9A442	2nd I. F. Transformer	T4	
	Primary Winding		44.1
	Secondary Winding		49.6
P-12A227	Dynamic Speaker		
	Output Transformer Primary	T5	416.6
	Output Transformer Secondary	T5	Small
	Speaker Field	L3	5.3
	Speaker Voice Coil		Small
P-9A440	Oscillator Coils	T6	
	Grid Coil		
	Long Portion		3.0
	Short Portion		0.9
	Plate Coil		5.8
P-53X108	Power Transformer	T7	
	Primary Winding		
	Center Tap to Inside		Small
	Center Tap to Outside		Small
	Secondary Winding		
	Center Tap to Inside		200.
	Center Tap to Outside		200.
P-9A444	Motor Noise Reactor	L1	Small
P-9A448	Pilot Light Line Reactor	L2	Small
P-9A446	Filament Reactor	L4	Small
P-52X42	Filter Choke	L5	312.5
P-9A447	R. F. "B" Plate Reactor	L6	4.1
P-9A445	Vibrator Filter Reactor	L7	Small

General Service Data

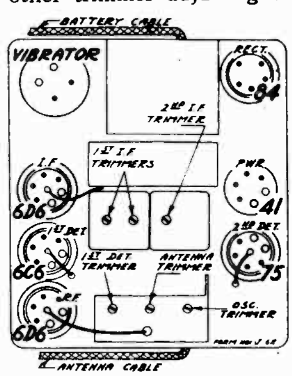


*Fig. 2—
Location of Tubes and Trimmers*

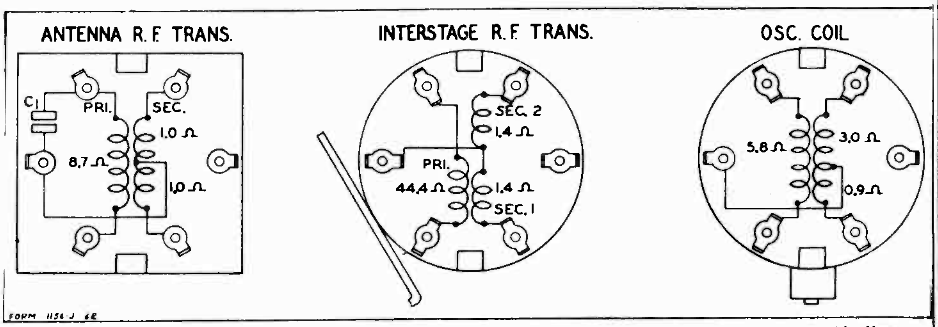
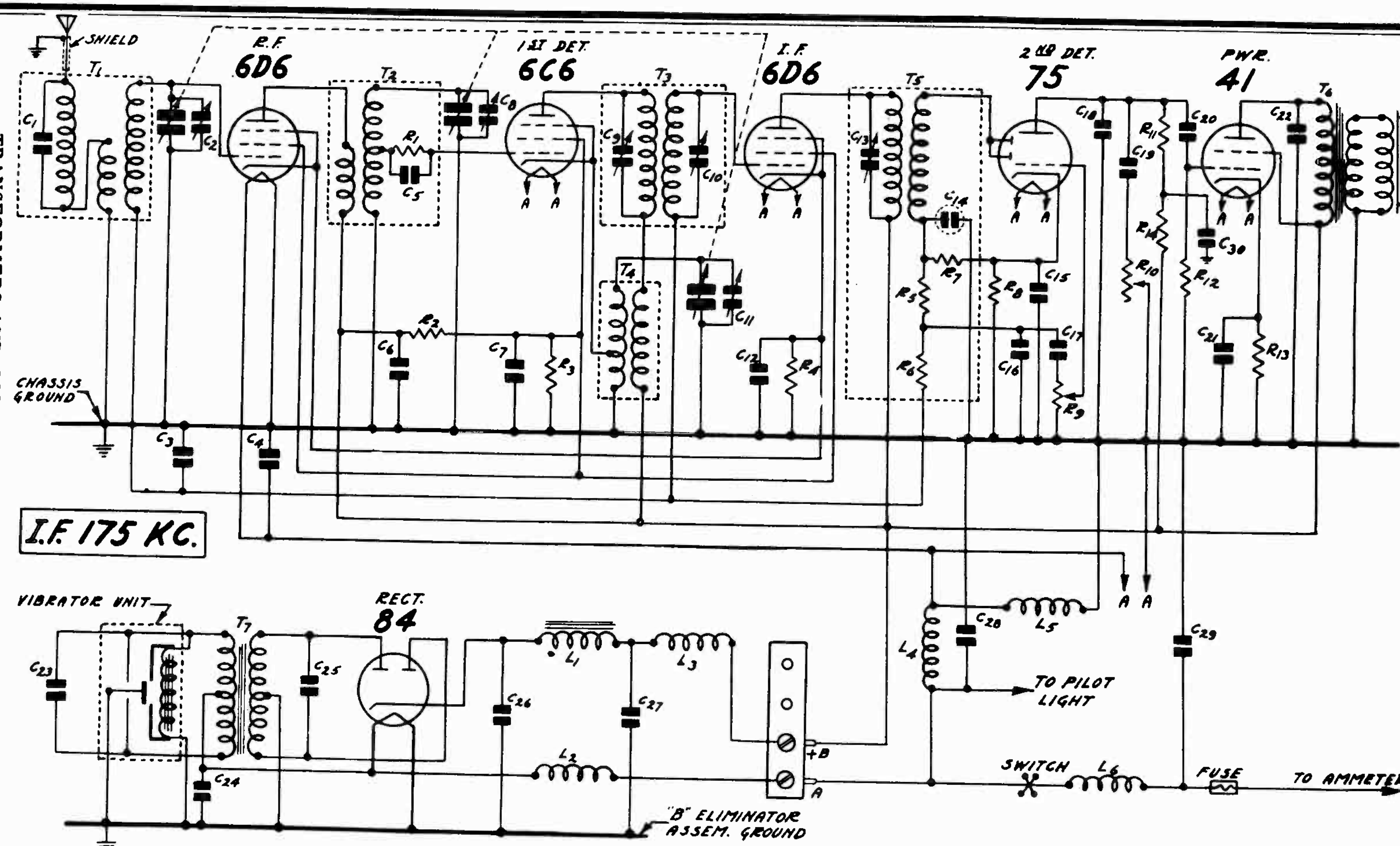


Fig. 3—R. F. and Oscillator Coil Base Terminal Arrangement and D. C. Resistance of Windings

MODEL 6S
Schematic, Parts

CADILLAC MOTOR CAR CO.



NOTE:
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PRICES SUBJECT TO CHANGE WITHOUT NOTICE

RESISTORS

New Part No.	Code	Resistance	Wattage	Type	List Price
A95504	R1	500,000 Ohm	0.2	Carbon	.10
B94153	R2	15,000 Ohm	0.5	Carbon	.15
B94203	R3	20,000 Ohm	0.5	Carbon	.15
43X41	R4	450 Ohm	0.2	Armored Wire Wound	.30
	R13	800 Ohm	0.5		
A95503	R5	50,000 Ohm	0.2	Carbon	.10
A95105	R6	1.0 Megohm	0.2	Carbon	.10
A94504	R7	500,000 Ohm	0.2	Carbon	.10
A95752	R8	7,500 Ohm	0.2	Carbon	.10
36X200	R9	2.0 Megohm		Volume Control & Switch	1.15
40X201	R10	300,000 Ohm		Tone Control	.75
*A95204	R11	200,000 Ohm	0.2	Carbon	.10
†A95154	R11	150,000 Ohm	0.2	Carbon	.10
A95504	R12	500,000 Ohm	0.2	Carbon	.10
†A95503	R14	50,000 Ohm	0.2	Carbon	.10

CONDENSERS

New Part No.	Old Part No.	Code	Capacity	Voltage	Type	List Price
47X54		C1	.0005 mf.		Moulded	.15
		C2	Antenna Trimmer-Part of Gang Condenser			
46X30		C3	.05 mf.	180	Tubular	.15
47X50		C4	.003 mf.		Moulded	.25
47X53		C5	.000035 mf.		Moulded	.10
46X81		C6	.10 mf.	400	Tubular	.25
46X83		C7	.10 mf.	180	Tubular	.25
		C8	1st Detector Trimmer-Part of Gang Condenser			
*17A32		C9	130-300 mmf.		1st I. F. Trimmer Condensers	.50
		C10	130-300 mmf.			
†17A33		C9	70-150 mmf.		1st I. F. Trimmer Condensers	.50
		C10	70-150 mmf.			
		C11	Oscillator Trimmer-Part of Gang Condenser			
46X82		C12	.10 mf.	180	Tubular	.25
17A18	1965	C13	70-140 mmf. 2nd I.F. Trimmer Condenser			.35
		C14	.00025 mf. Part of 2nd I.F. Coil Assembly			
45X203		C15	12.00 mf.	25	Dry Electrolytic Block	1.05
		C21	12.00 mf.	25		
47X52		C16	.00025 mf.		Moulded	.15
46X84		C17	.01 mf.	180	Tubular	.15
47X52		C18	.00025 mf.		Moulded	.15
46X92		C19	.006 mf.	600	Tubular	.20
46X86		C20	.01 mf.	400	Tubular	.20
46X85		C22	.002 mf.	600	Tubular	.20
46X93		C23	.50 mf.	180	Tubular	.35
46X89		C24	1.65 mf.	180	Tubular	.80
46X88		C25	.01 mf.	1800	Tubular	.30
45X204		C26	6.00 mf.	350	Dry Electrolytic Block	2.10
		C27	8.00 mf.	350		
46X93		C28	.50 mf.	180	Tubular	.35
46X94		C30	.25 mf.	300	Tubular	.30
47X50		C29	.005 mf.		Moulded	.23
14A39			3 Section Gang Condenser			4.20

TRANSFORMERS AND COILS

New Part No.	Old Part No.	Description	Code	List Price
51X17-6S	50632	Output Transformer	T6	1.65
9A368-6S		Antenna Coil Assembly (Less Can)	T1	.90
9A369-6S		R.F. Interstage Coil Assembly (Less Can)	T2	1.25
1A23-6S		Dual-Coil Can Assembly Only (for above two coils)		.30
9A371-6S		1st I.F. Coil & Can Assembly Complete	T3	1.70
9A370-6S		Oscillator Coil & Can Assembly Complete	T4	.60
9A372-6S		2nd I.F. Coil & Can Assembly Complete	T5	2.05
9A375-6S		Pilot Light Choke Assembly	L4	.15
9A373-6S		Motor Noise Choke	L6	.25
9A368-6S	5174	R.F. "B" Choke Coil Assembly	L3	.10
9A374-6S		Filament Reactor	L2	.50
53X72-6S	50633	Power Transformer	T7	3.20
52X27-6S	50637	Filter Choke	L1	.90
9A368	5174	R.F. "B" Choke Coil Assembly	L3	.10
9A374		Filament Reactor	L2	.50
53X72	50633	Power Transformer	T7	3.20
52X27	50637	Filter Choke	L1	1.00
19A14	2080	Vibrator—Mallory		4.00
19A16	2110	Vibrator—Radiart		4.00
3A127	2023	Vibrator Socket		.10

MODEL 68
Alignment, Voltage
Socket, Trimmers
Changes, Notes

CADILLAC MOTOR CAR CO.

Power Output - 3 Watts Maximum

Sensitivity - 1.5 Microvolts Absolute

Frequency Range - 530 to 1650 KC

Speaker - 6 Inch Dynamic

Power Consumption - 5.75 Amperes at 6 Volts

I. F. - 175 KC

I. F. Adjustment

Remove chassis from case.

Establish ground connection between chassis and power supply.

Reconnect A and B wires from power supply to chassis.

Set the signal generator for a signal of 175 KC.

Connect the antenna lead of the signal generator thru a .05 mf. condenser to the stator of the 1st detector (middle) section of the tuning condenser. This can be done by pushing a wire or conductor between the stator plates or by extending an insulated wire thru the hole in the shield over the stator and pushing the wire thru the hole in the lug which extends up from the insulated stator assembly.

Connect the ground lead of the signal generator to the chassis ground.

Short out the oscillator section of the tuning condenser.

Set the volume control at the maximum position.

Attenuate the signal from the signal generator to prevent the levelling off action of the A.V.C.

Then adjust the three I.F. trimmers until maximum output is obtained. The location of these trimmers are shown in Fig. 2.

1650 KC. Adjustment

Set the signal generator for 1650 KC.

Turn the rotor of the tuning condenser to the full open position.

Connect the shielded antenna lead from the chassis through a 250 mmf. condenser to the antenna post of the signal generator.

For this and all subsequent adjustments keep the volume control at the maximum position and attenuate the signal from the signal generator to prevent A. V. C. action.

Adjust the trimmer of the oscillator section of the three gang condenser until maximum output is obtained—see Fig. 2 for location of this trimmer.

1400 K C. Adjustment

Set the signal generator for 1400 KC.

Turn the rotor of the tuning condenser carefully until maximum output is obtained.

Adjust the 1st detector and antenna trimmers for maximum output.

Do not change the setting of the oscillator trimmer.

Adjusting Antenna Trimmer

After the receiver is installed and the car antenna is connected it will be necessary to adjust the antenna trimmer. Tune in a weak signal between 1200 and 1400 KC. with the volume control about three-fourths on. Remove the cover of the chassis case. The antenna trimmer is the trimmer condenser closest to the terminal strip—see Fig. 2. Turn the adjusting screw of this condenser up or down until maximum output is obtained. CAUTION—Do not turn any of the other trimmer adjusting screws for this adjustment.

Calibrating the Receiver

After installing the receiver in the car the control unit or flexible shaft will probably cause the setting of the dial pointer to change. The receiver may then be recalibrated as follows: Tune in a station of known frequency at about the center of the dial. Then loosen the set screw which secures the station selector knob to the shaft.

The station selector shaft is made up of two sections—an inner and an outer shaft. By loosening the set screw in the station selector knob one turn, the knob and the outer shaft are disengaged from the inner shaft. The inner shaft is directly connected to the tuning condenser in the chassis.

By turning the station selector knob it will be found that the dial scale can be adjusted without disturbing the tuning of the receiver. Turn the knob until the dial scale is exactly at the frequency of the station which has been tuned in.

Retighten the set screw in the station selector knob.

Circuit

The circuit consists of a 6D6 R.F. stage, a 6C6 1st detector-oscillator stage, a 6D6 I.F. stage, a 75 dual diode-triode tube, which functions as a diode 2nd-detector and a triode 1st audio stage, and a single 41 output stage. An 84 full wave rectifier is used in the power unit. The intermediate frequency is 175 KC. The diode current establishes a drop across a resistor which is used as additional bias voltage for the R.F. and I.F. tubes giving automatic volume control action. The manual volume control varies the audio voltage to the grid of the 75 tube.

Changes In Early Models

In the early models, resistor R14, and condenser C30, were not used. In these models resistor R11 was rated at 200,000 ohms.

The capacity range of the 1st I.F. Trimmer Condensers C9 and C10, was from 130 to 300 mmf. in the early models.

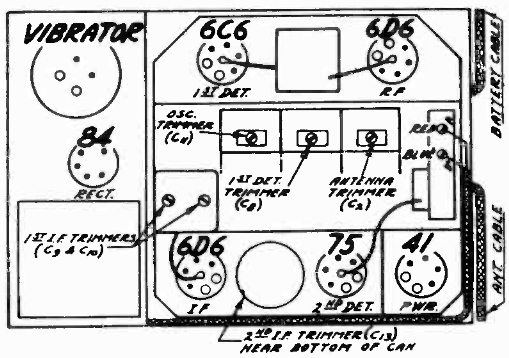


Fig. 2—Tube Arrangement and Trimmers

Voltages at Sockets
Antenna Disconnected - Voltage at Battery 6.1

Type of Tube	Function	Across Heater	Plate to Ground	Screen to Ground	Cath. to Ground	Normal Plate M.A.
6D6	R. F.	5.8	218	100	5.2	5.8
6C6	1st Det. and Osc.	5.8	218	100		2.0
6D6	I. F.	5.8	218	100	5.2	5.8
75	2nd Det. & 1st A. F.	5.8	160 (1)		1.4	2.8
41	Output	5.8	210	220	16.0	16.0
84	Rectifier	5.8				20.0 per plate

Speaker Field ..1.15 Amperes "B" Unit ......3.00 Amperes
Chassis ....1.50 Amperes Pilot Lamp ....0.1 Amperes

(1) Measured on 1000 V. Scale (1000 Ohms per volt)

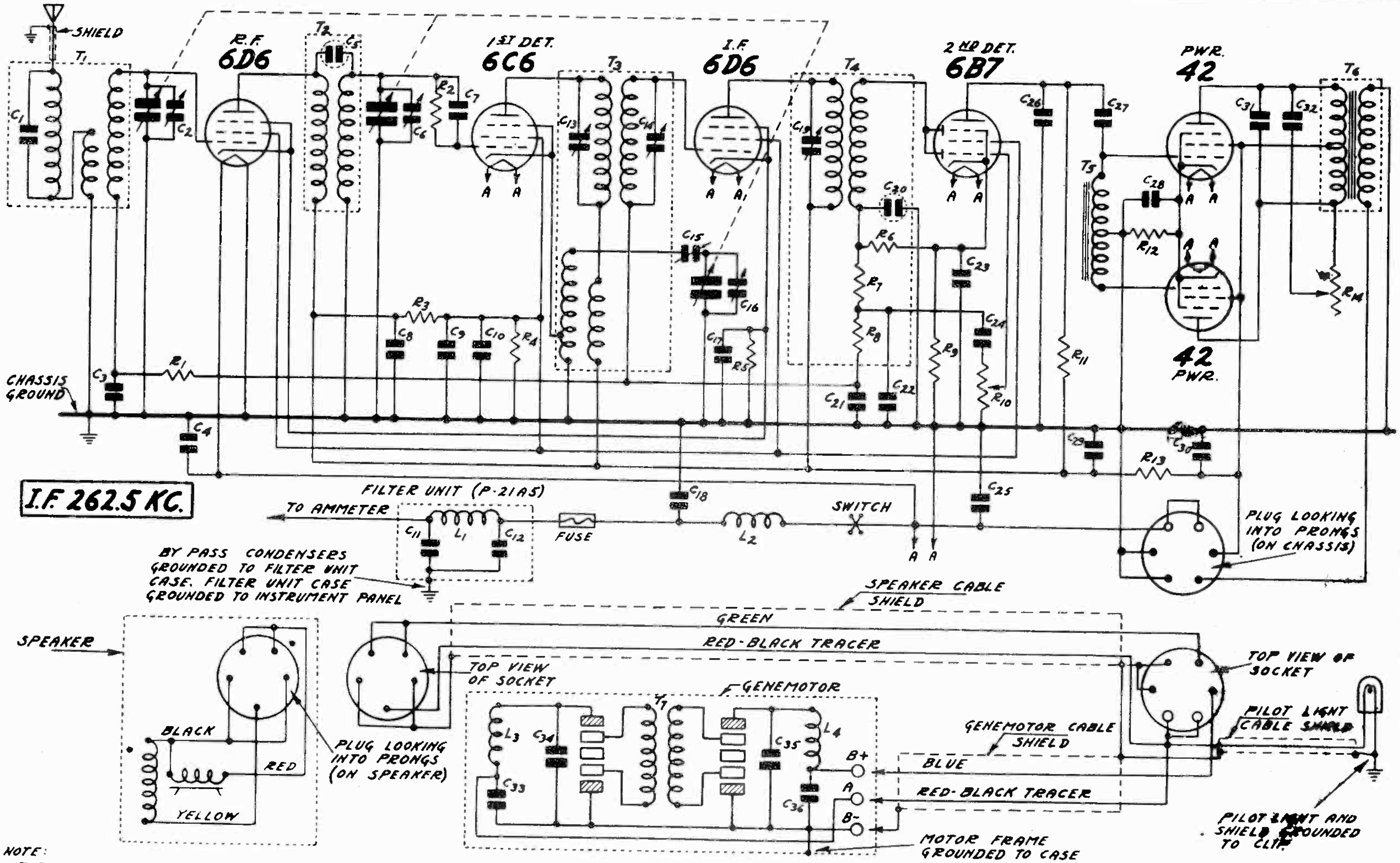
D. C. Resistance of Windings

Following are the D. C. resistances of the various windings in the chassis.

New Part No.	ITEM	Code	D. C. Resistance in Ohms
9A368-6S	Antenna Trans. Primaries in Series	T1	6.3
	Antenna Trans. Secondary	T1	2.5
9A369-6S	R.F. Interstage Trans. Pri.	T2	4.5
	R.F. Interstage Trans. Sec.	T2	
	(Center Tap to inside)		1.8
	(Center Tap to ground)		1.3
9A371-6S	1st I.F. Trans. Primary	T3	58.
	1st I.F. Trans. Secondary	T3	58.
9A370-6S	Oscillator Cathode Coil (Total)	T4	3.
	Oscillator Plate Coil	T4	6.
9A372-6S	2nd I.F. Trans. Primary	T5	46.
	2nd I.F. Trans. Secondary	T5	46.
51X17-6S	Output Trans. Primary	T6	440.
	Output Trans. Sec. and Voice coil in parallel	T6	.4
53X72-6S	Power Trans. Primary	T7	.3
	Power Trans. Secondary	T7	500.
52X27-6S	Filter Choke	L1	300.
9A374-6S	Filament Reactor	L2	Small
9A268-6S	R.F. "B" Choke	L3	3.5
9A375-6S	Pilot Light Choke Assembly	L4	Small
12A62A	Speaker Field	L5	5.
9A373-6S	Motor Noise Choke	L6	Small

MODEL 6T
Schematic, Notes

CADILLAC MOTOR CAR CO.



NOTE:
THE WIRE SHIELD, VOICE COIL AND FIELD RETURN SOLDERED TOGETHER. THE FRAME OF SPEAKER MUST BE ELECTRICALLY CONNECTED TO SHIELD.
GROUPS OF CIRCUIT ELEMENTS ENCLOSED IN DOTTED RECTANGLES COMPRISE DISTINCT MECHANICAL ASSEMBLIES.
CIRCUIT ELEMENTS ENCLOSED IN DOTTED CIRCLES DO NOT EXIST AS DISTINCT UNITS BUT OCCUR AS A RESULT OF THE MUTUAL POSITION OF OTHER CIRCUIT ELEMENTS OR THEIR PARTS.

Power Output - 8 Watts Maximum
Sensitivity - 1.5 Microvolts Absolute
Frequency Range - 530 to 1650 KC
Size of Speaker - 8″ and 10″
Field Resistance - 5.4 Ohms (hot)

Power Consumption - at 6 Volts	
Chassis	2.3 Amperes
Genemotor	3.5 Amperes
Speaker Field	1.1 Amperes
Pilot Light	0.1 Amperes
TOTAL	7.0 Amperes

Circuit

The circuit of this receiver consists of a 6D6 R. F. stage, a 6C6 1st detector-oscillator stage, a 6D6 I. F. stage, a 6B7 dual diode-pentode tube, which functions as a diode 2nd-detector and pentode 1st audio stage, and a 42 push pull output stage. A genemotor supplies the high voltage to the receiver. The intermediate frequency is 262.5 KC. The diode current establishes a drop across a resistor (R8) which is used as additional bias voltage for the R. F. and I. F. tubes giving automatic volume control action. The manual volume control varies the audio voltage applied to the grid of the 6B7 tube.

Current for the receiver is obtained from the car storage battery. In Fig. 3 is shown the condenser block internal wiring.

Genemotor Assembly

The genemotor assembly contains all of the parts shown within the dotted lines in Fig. 1. We do not recommend that the genemotor itself be serviced in the field. The filter unit associated with the genemotor may be checked and any defective parts repaired or replaced. However, if the genemotor itself is at fault, it should be sent back to the factory for repair.

MODEL 6T
Alignment, Voltage
Trimmers, Socket
Data

CADILLAC MOTOR CAR CO.

Condenser Alignment

Misalignment or mistracking of condensers generally manifests itself in broad tuning and lack of volume at portions or all of the broadcast band. The receivers are all properly aligned at the factory with precision instruments and realignment should not be attempted unless all other possible causes of the faulty operation have first been investigated and unless the service technician has the proper equipment. A signal generator that will provide accurately calibrated signals over the standard wave band and an accurately calibrated signal at 262.5 K. C., the intermediate frequency and an output indicating meter are necessary.

The chassis must be removed from the case.

I. F. Adjustment

Set the signal generator for a signal of 262.5 KC.

Connect the antenna lead of the signal generator thru a .05 mf. condenser to the coil end of the grid leak resistor R2. This connection can be made at either end of the lead between the stator of the 1st detector section of the gang condenser and the interstage R. F. coil.

Connect the ground lead of the signal generator to the chassis ground.

Short out the oscillator section of the tuning condenser.

Set the volume control at the maximum position.

Attenuate the signal from the signal generator to prevent the levelling off action of the A. V. C.

Then adjust the three I. F. trimmers until maximum output is obtained. The adjusting screws for these condensers are reached from the back of the chassis - see Fig. 1.

CAUTION:—Use an insulated screwdriver for adjusting these trimmers to prevent short circuiting to ground.

1650 KC. Adjustment

Set the signal generator for 1650 KC.

Turn the rotor of the tuning condenser to the full open position.

Connect the shielded antenna lead from the chassis through a 250 mmf. condenser to the antenna post of the signal generator.

For this and all subsequent adjustments keep the volume control at the maximum position and attenuate the signal from the signal generator to prevent A. V. C. action.

Adjust the trimmer of the oscillator section of the three gang condenser until maximum output is obtained—see Fig. 4 for location of this trimmer.

1400 KC. Adjustment

Set the signal generator for 1400 KC.

Turn the rotor of the tuning condenser until maximum output is obtained.

Adjust the antenna and 1st detector trimmers of the gang condenser for maximum output—see Fig. 4 for location of these trimmers. Do not change the setting of the oscillator section trimmer.

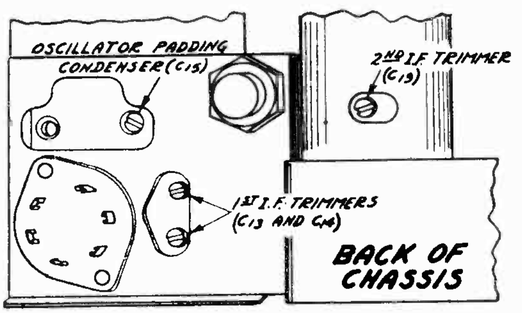


Fig. 1—Location of Trimmer Condensers

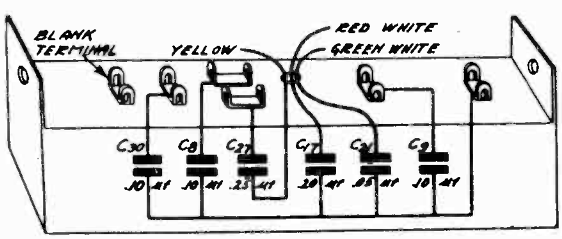


Fig. 3—Block Condenser

600 KC. Adjustment

Set the signal generator for 600 KC.

Turn the tuning condenser rotor until maximum output is obtained.

Use a non-metallic screwdriver for this adjustment.

Turn the rotor slowly back and forth at the same time adjusting the oscillator padding condenser until the peak of greatest intensity is obtained. See Fig. 1 for location of this trimmer.

1400 KC. Adjustment Check

Set the signal generator for 1400 KC.

Check the setting of the antenna and 1st detector trimmers of the gang condenser for maximum output. Do not change the setting of the oscillator trimmer section.

Adjusting Antenna Trimmer

After the receiver is installed and the car antenna is connected it will be necessary to adjust the antenna trimmer. Tune in a weak signal between 1200 and 1400 KC. with the volume control about three-fourths on. The location of the antenna trimmer is shown in Fig. 4. This trimmer may be reached by removing the small metal plate on the end of the chassis case. Turn the adjusting screw of this condenser up or down until maximum output is obtained. CAUTION—Do not turn any of the other trimmer adjusting screws for this adjustment.

Calibrating the Receiver

After reinstalling the receiver in the car the control unit or flexible shaft will probably cause the setting of the dial pointer to change. The receiver may then be recalibrated as follows: Tune in a station of known frequency at about the center of the dial. Then loosen the set screw which secures the station selector knob to the shaft.

The station selector shaft is made up of two sections—an inner and an outer shaft. By loosening the set screw in the station selector knob one turn, the knob and the outer shaft are disengaged from the inner shaft. The inner shaft is directly connected to the tuning condenser in the chassis. By turning the station selector knob it will be found that the dial scale can be adjusted without disturbing the tuning of the receiver. Turn the knob until the dial scale is exactly at the frequency of the station which has been tuned in.

Retighten the set screw in the station selector knob.

Voltages at Sockets

Antenna Disconnected - Battery 6 Volts Under Load

Type of Tube	Function	Across Fila. or Heater	Plate to Ground	Screen to Ground	Cath. to Ground	Normal Plate M. A.
6D6	R. F.	5.8	192	90	6.3	4.5
6C6	1st Det. & Osc.	5.8	192	90	—	4.0
6D6	I. F.	5.8	192	90	6.3	4.5
6B7	2nd Det.	5.8	90	90	3.5	2.7
42	Power	5.8	230	235	24.0	16.0

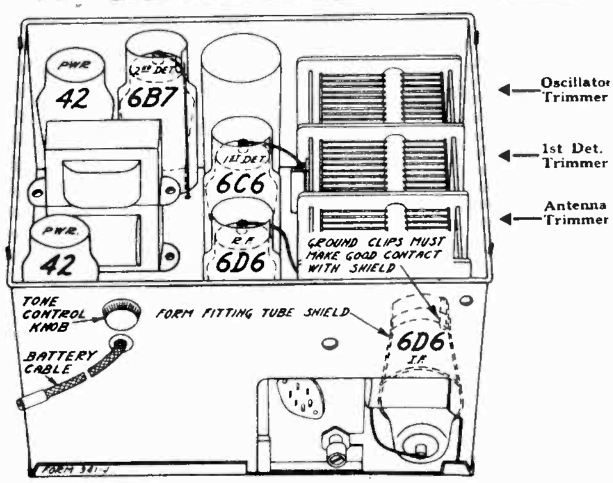
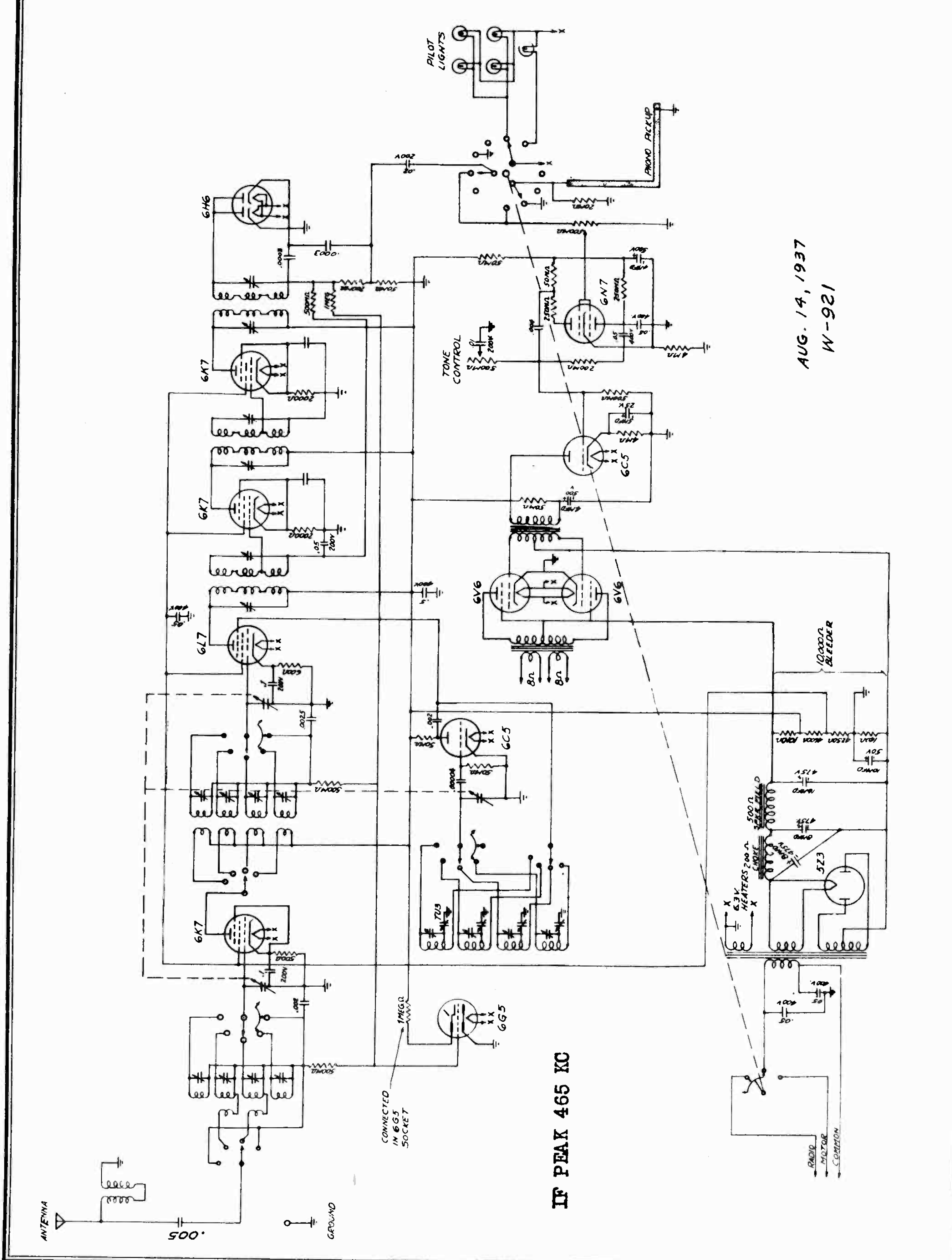


Fig. 4—Tube Arrangement

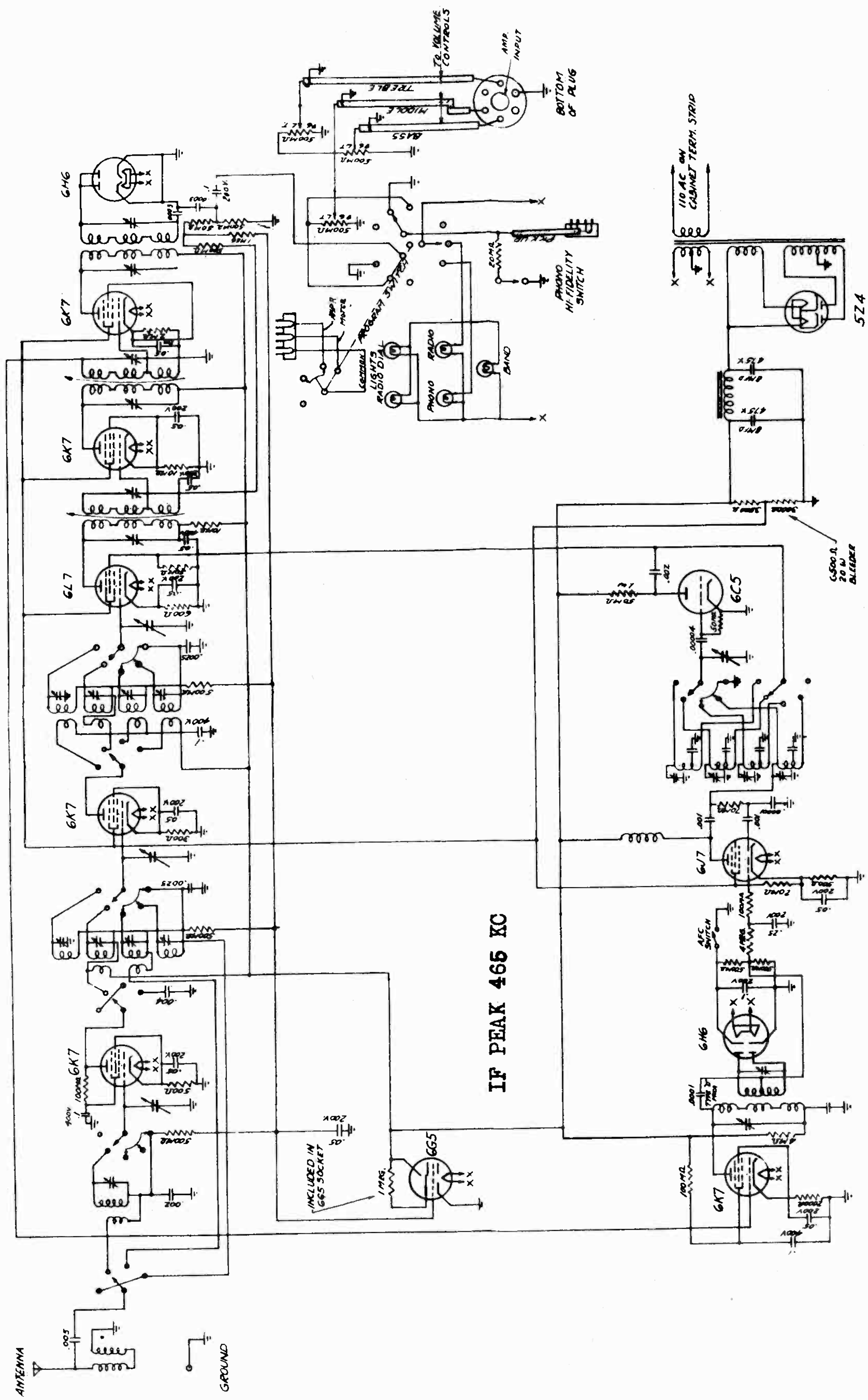
MODEL 200-F Tuner
Schematic

CAPEHART CORPORATION



MODEL 400-F Tuner
Schematic

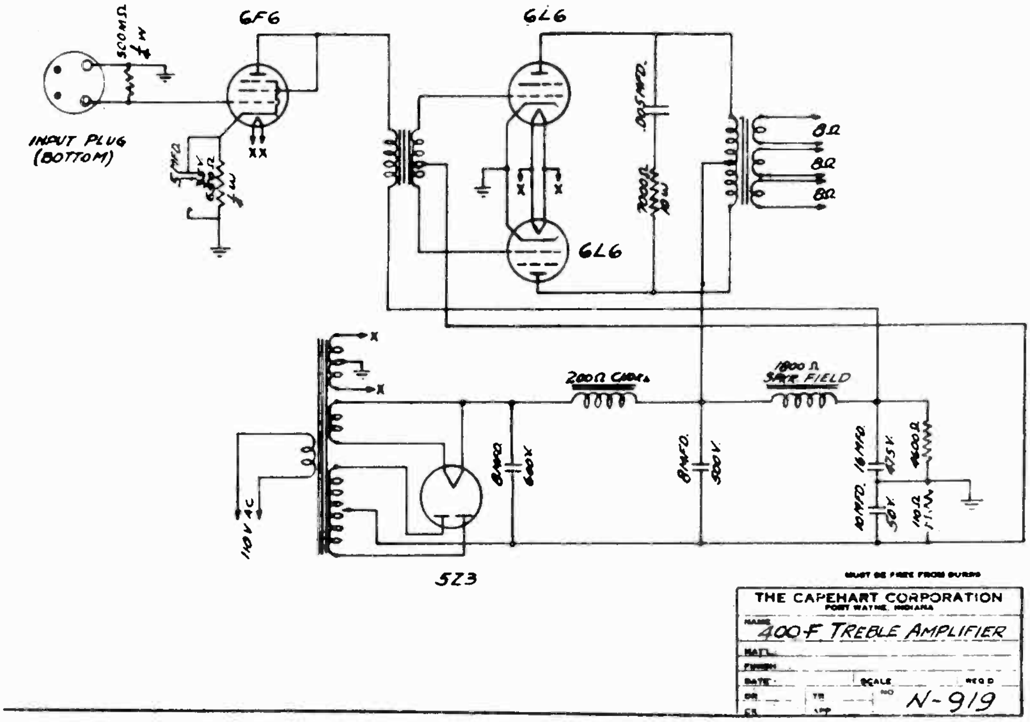
CAPEHART CORPORATION

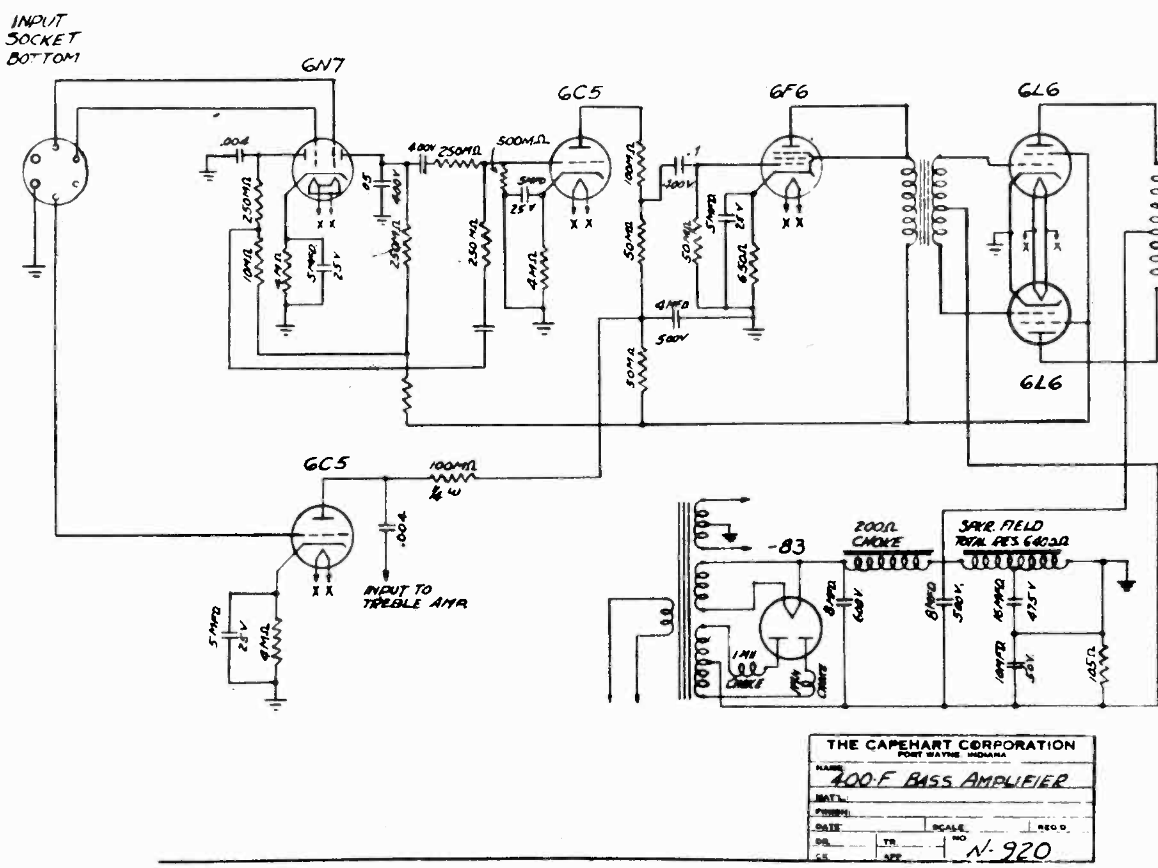


W-918
8/12/37

MODEL 400-F
Treble Amplifier
Bass Amplifier
Schematics

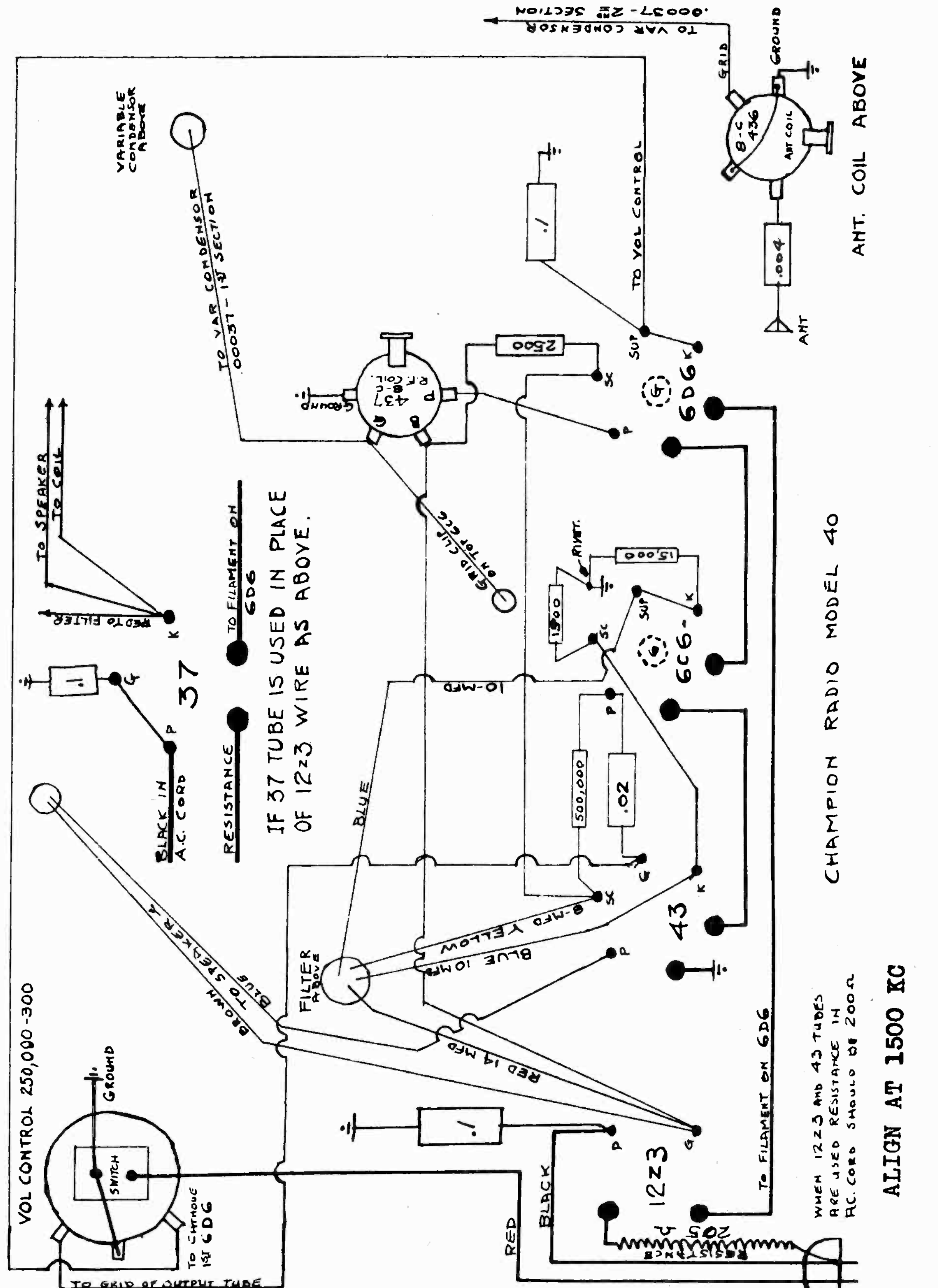
CAPEHART CORPORATION





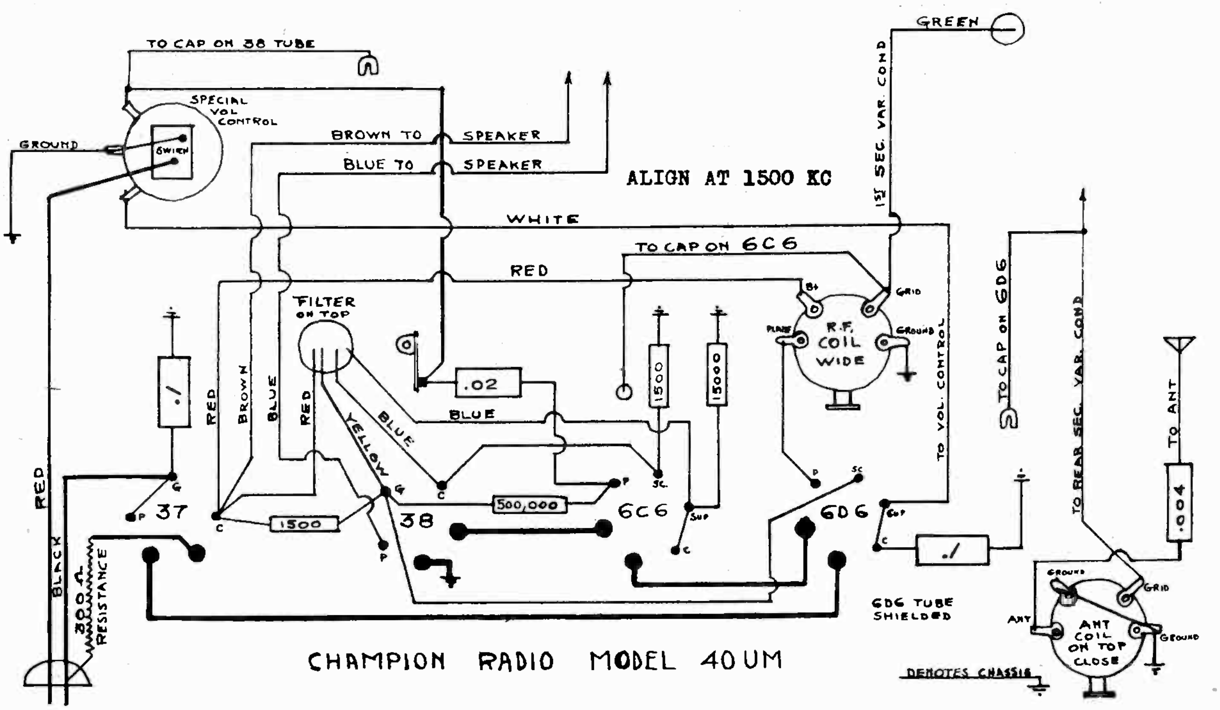
MODEL 40
Schematic

CHAMPION RADIO



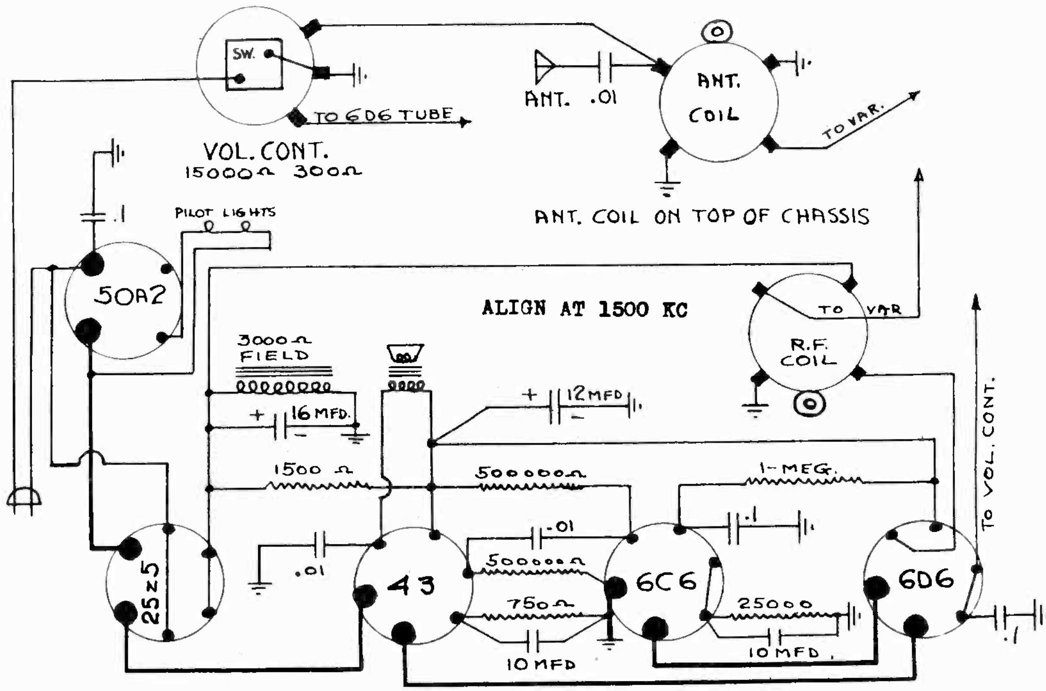
MODEL 40UM
MODEL 543 I.D.
Schematics

CHAMPION RADIO



CHAMPION RADIO MODEL 40UM

5 TUBE A.C.-D.C. MODEL 543 I.D.



CHAMPION RADIO

MODEL 50A2M
Schematic

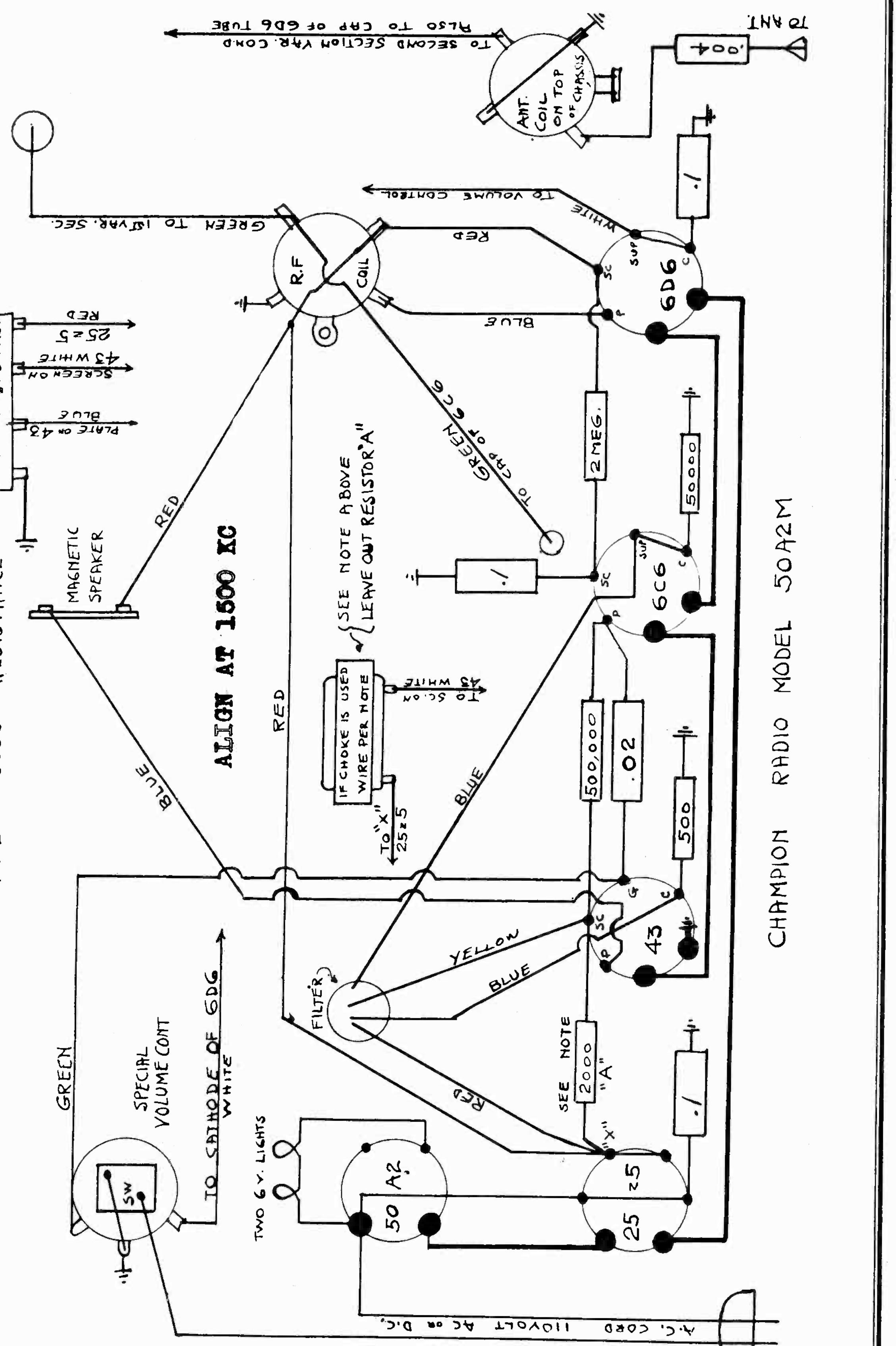
CHAMPION RADIO

NOTE: IF POLICE COILS ARE USED SEE PRINT OF MODEL 50 UP FOR HOOK UP OF COILS AND SWITCH.

IF DYNAMIC SPEAKER IS USED, CHOKE IS USED INSTEAD OF 2000Ω RESISTOR MARKED "A" AND REFER TO PRINT OF MODEL 50 UD FOR DYNAMIC HOOK UP

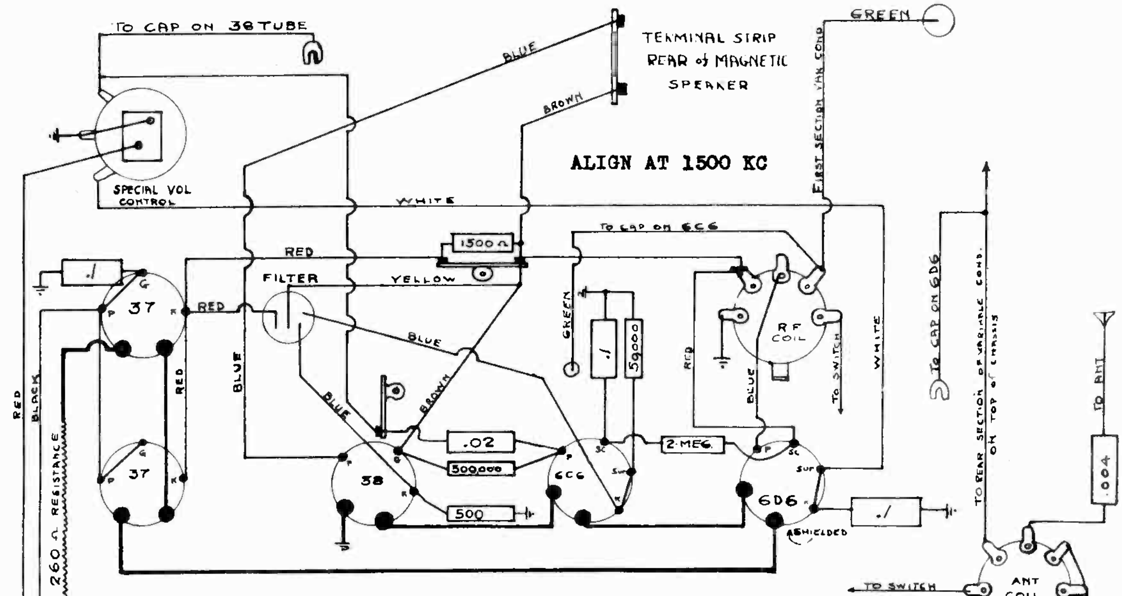
IF ABOVE CHANGES ARE MADE MODEL WILL BE 50-A-2-D

IF DYNAMIC SPEAKER IS USED FIELD IS 5000Ω RESISTANCE

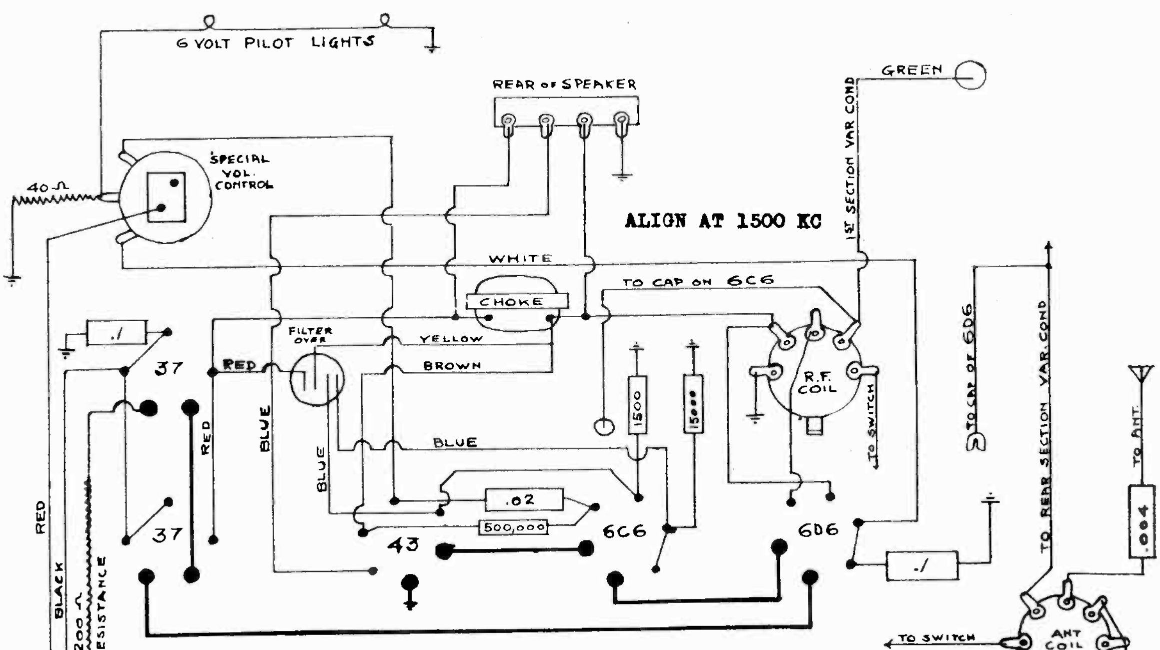


MODEL 50UD
MODEL 50UP
Schematics

CHAMPION RADIO



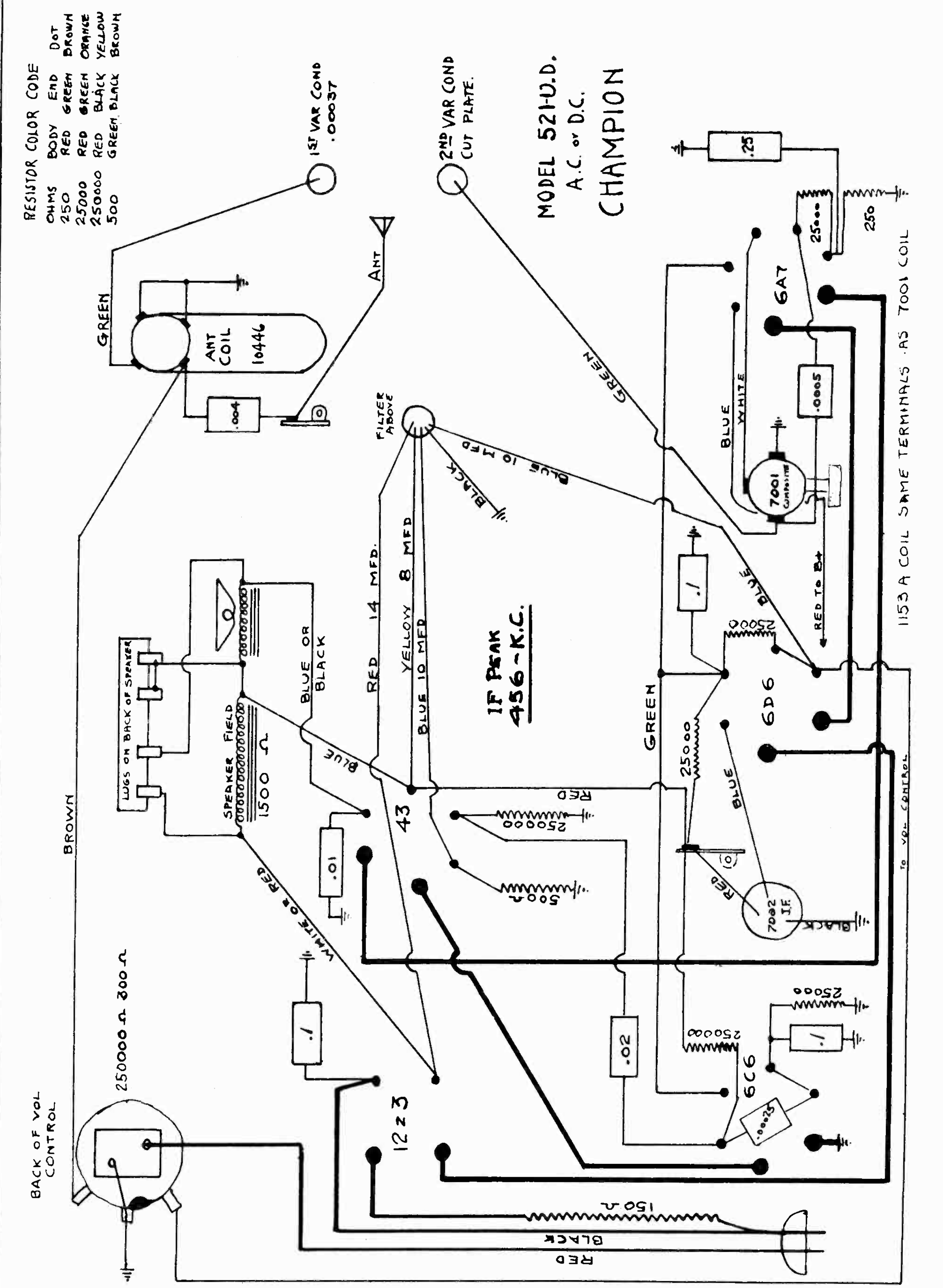
CHAMPION RADIO MODEL 50 U.P.



CHAMPION RADIO MODEL 50 UD

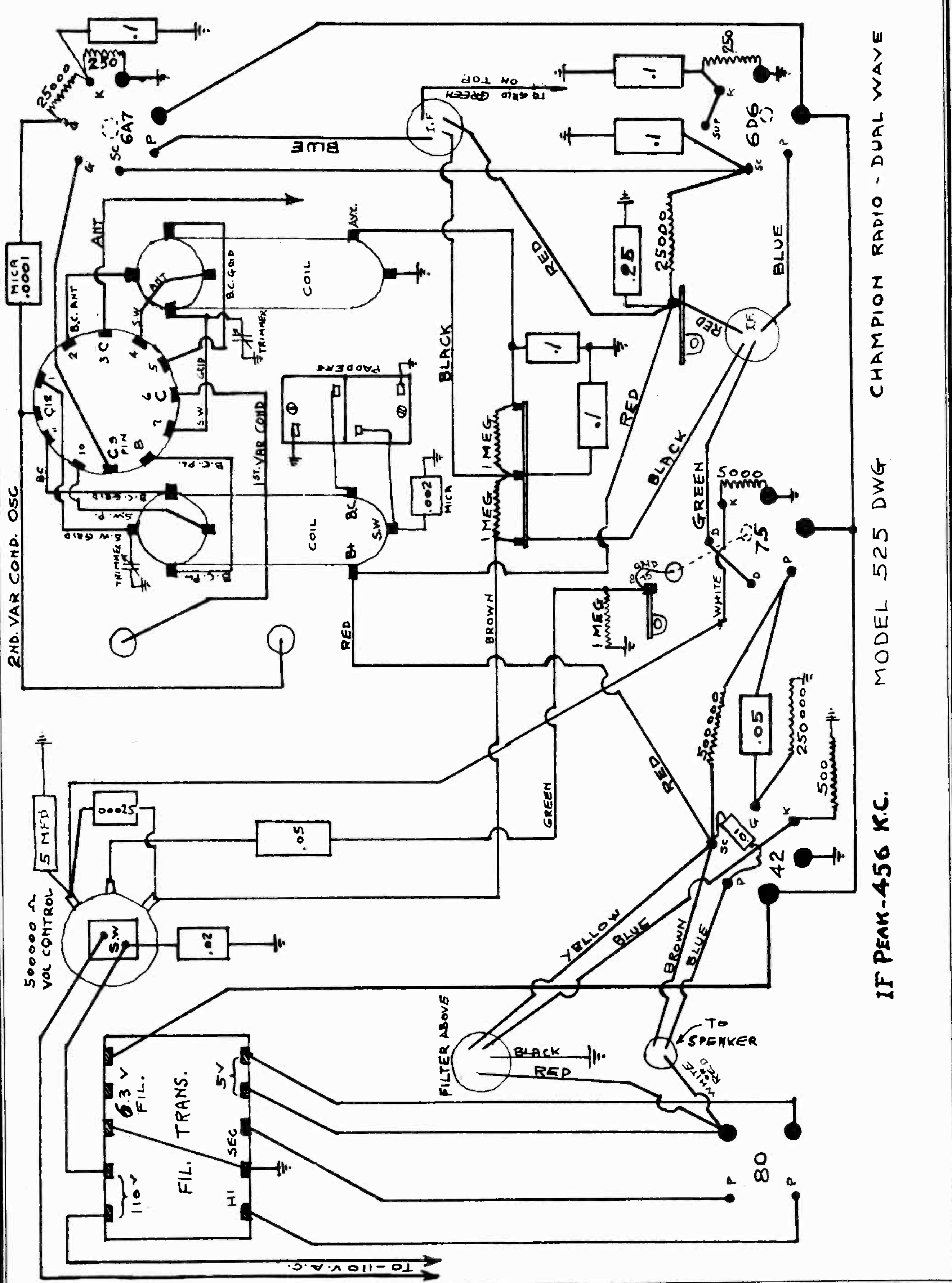
MODEL 521UD
Schematic

CHAMPION RADIO



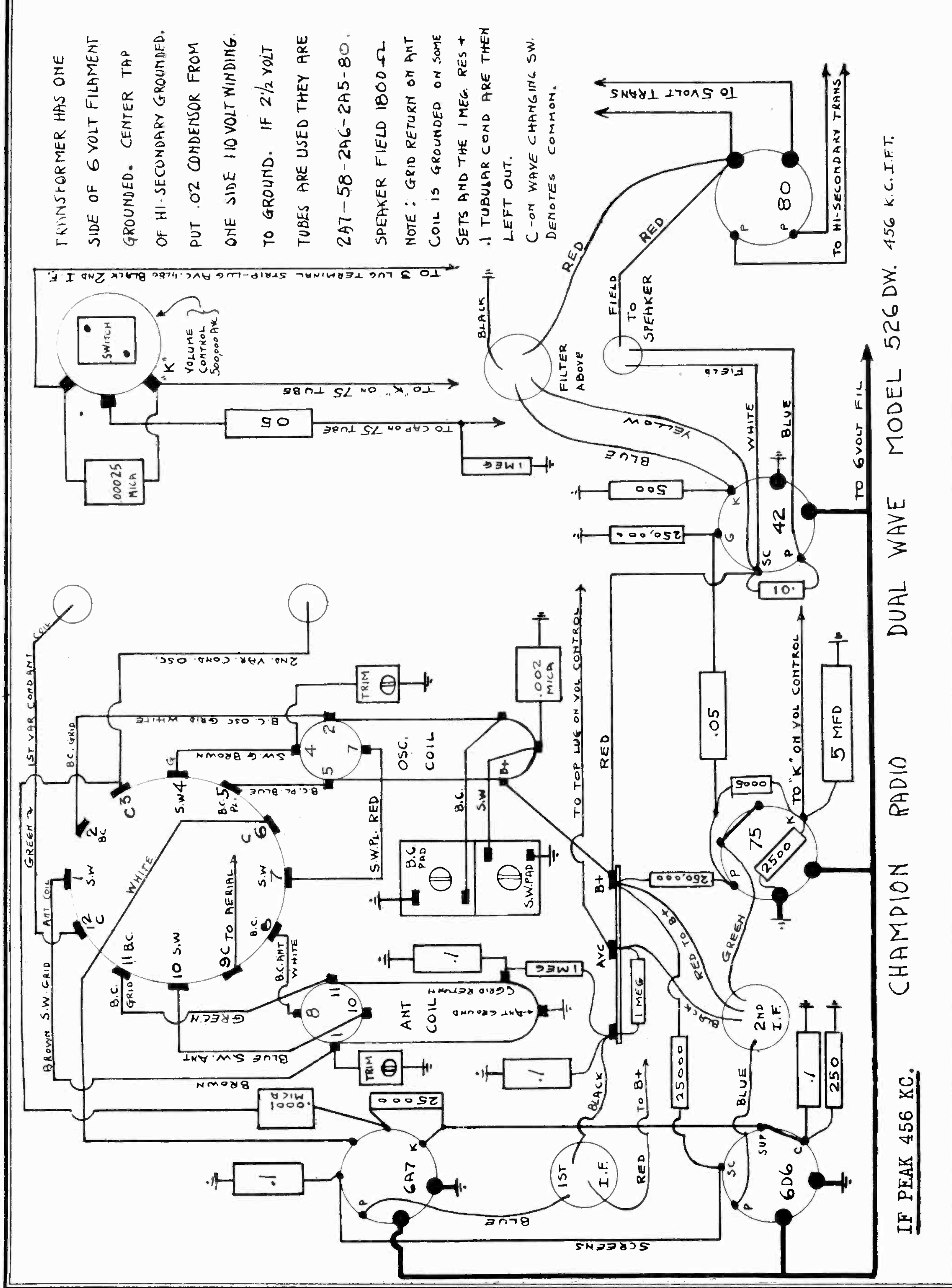
MODEL 525DWG
Schematic

CHAMPION RADIO



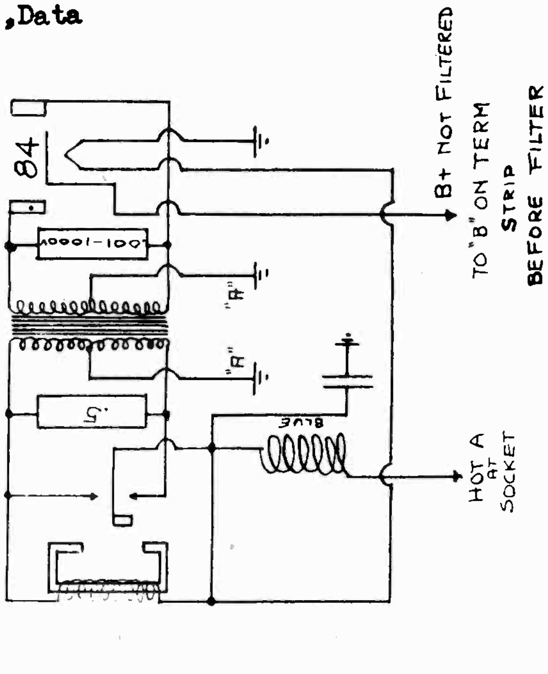
MODEL 526DW
Schematic

CHAMPION RADIO



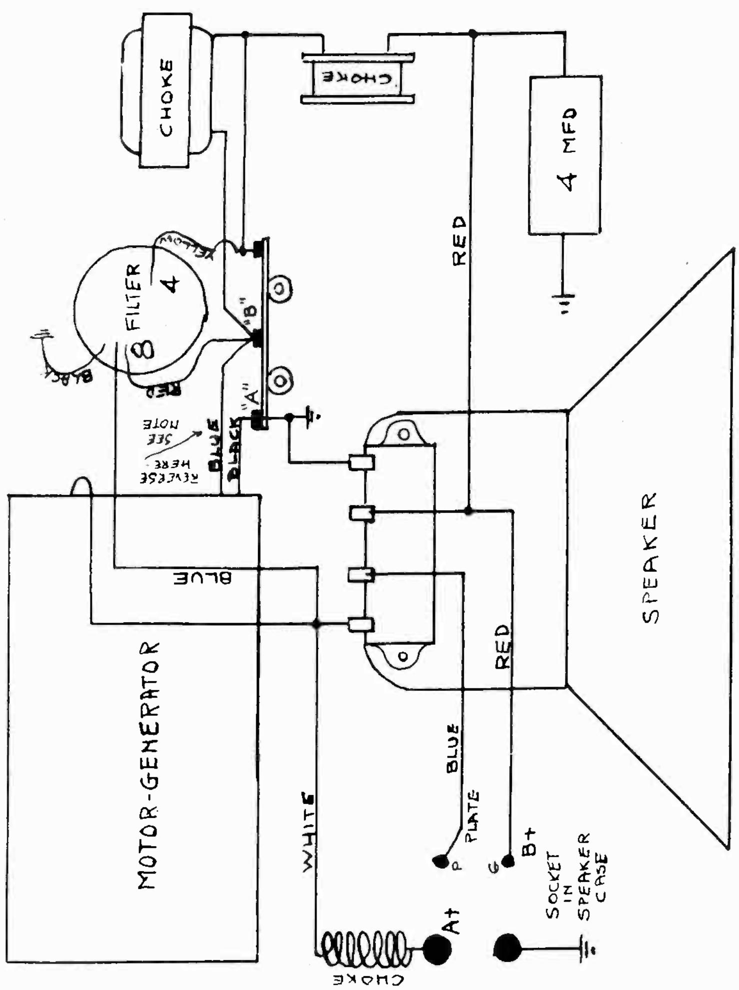
MODEL Auto Radio Power Supply
Schematic, Data

CHAMPION RADIO



IF VIBRATOR IS USED ABOVE DIAGRAM IS USED
THEN SPEAKER AND SUPPLY PLUG IS WIRED
SAME AS MOTOR GENERATOR DIAGRAM

CHAMPION RADIO
AUTO RADIO POWER SUPPLY
AND
SPEAKER DIAGRAM

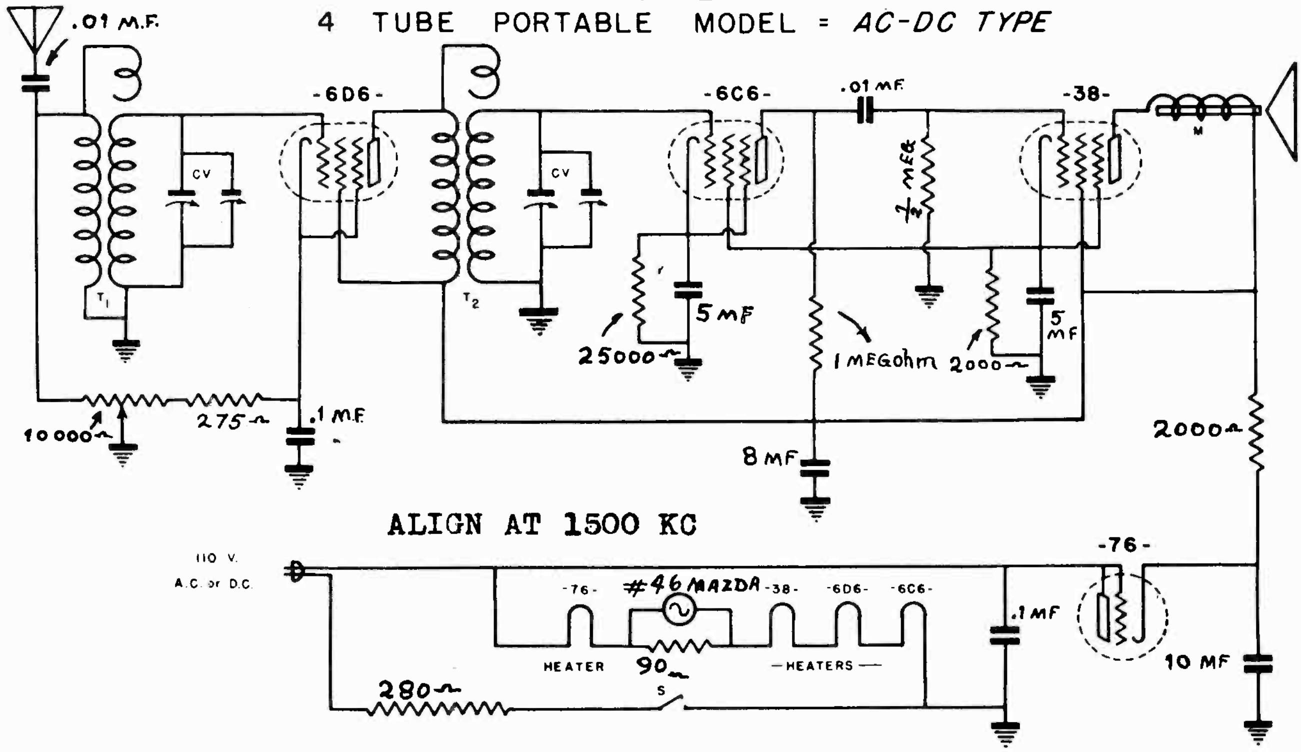


IF POSITIVE OF BATTERY IS GROUNDED BLUE "B" IS B POSITIVE
IF NEGATIVE OF BATTERY IS GROUNDED REVERSE WIRES AT "A" + "B"
IF CHANGE IS NECESSARY JUST REVERSE BLACK AND BLUE WIRES FROM MOTOR

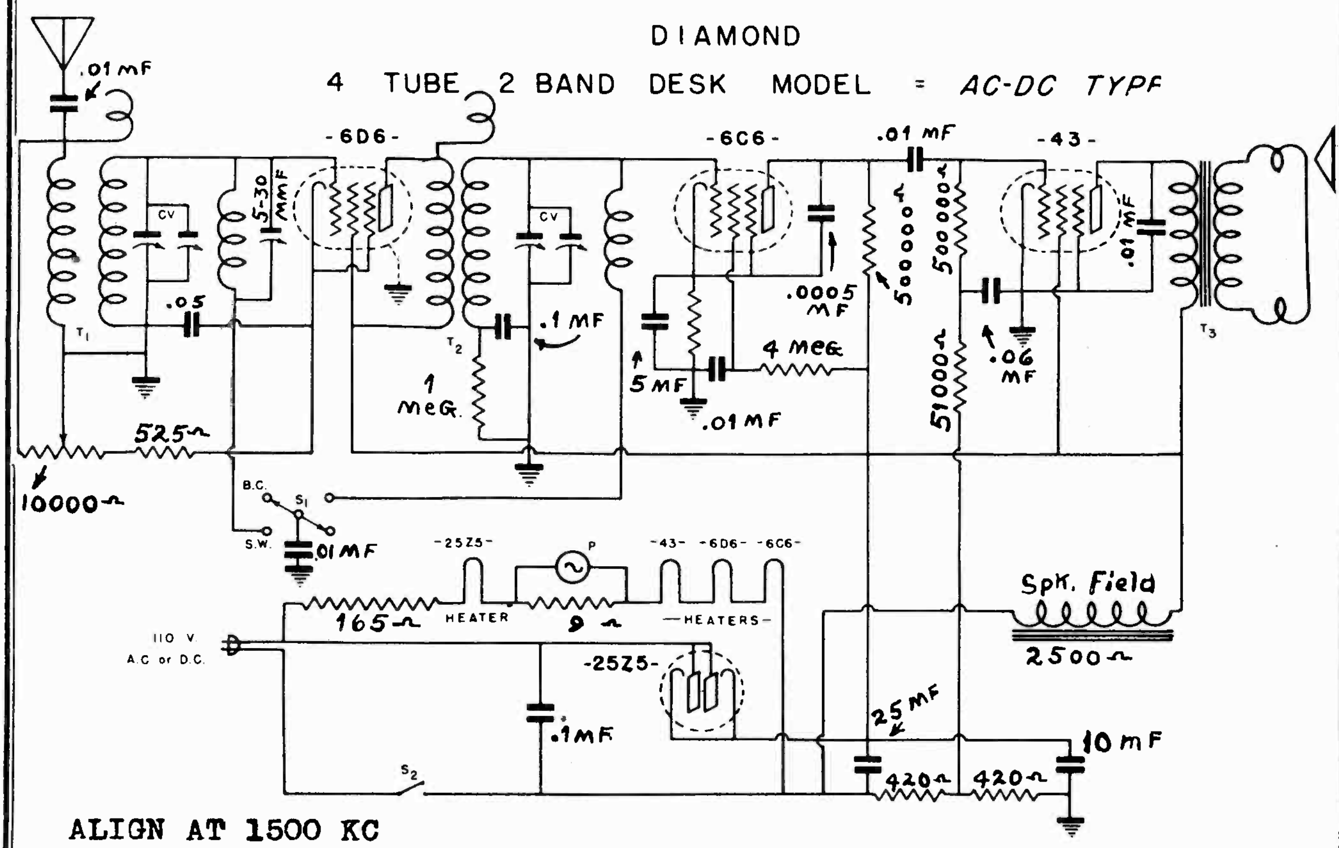
MODEL Opal
MODEL Diamond
Schematics

CLIMAX RADIO & TELEV. CO., INC.

OPAL
4 TUBE PORTABLE MODEL = *AC-DC TYPE*



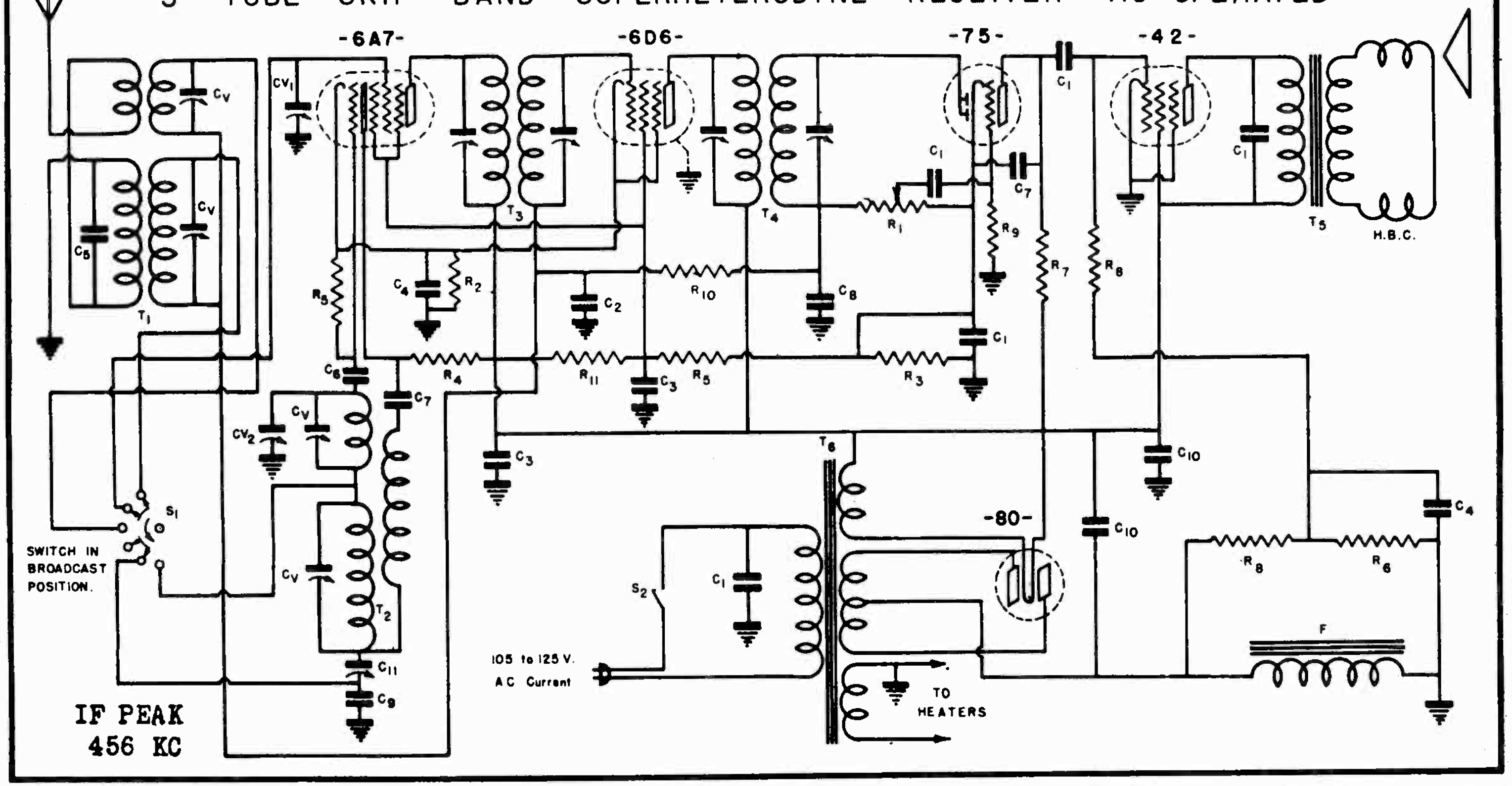
DIAMOND
4 TUBE 2 BAND DESK MODEL = *AC-DC TYPE*



ALIGN AT 1500 KC

MODEL AD
Schematic
Parts

CLIMAX RADIO & TELEV. CO., INC.



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD.-400 V. TUBULAR CONDENSER
C_2	203	.1 MFD.-200 V. TUBULAR CONDENSER
C_3	210	.1 MFD.-400V. TUBULAR CONDENSER
C_4	204	.25 MFD. 200V. TUBULAR CONDENSER
C_5	412	.00005 MFD. MICA CONDENSER
C_6	400	.0001 MFD. MICA CONDENSER
C_7	401	.00025 MFD. MICA CONDENSER
C_8	402	.0005 MFD. MICA CONDENSER
C_9	410	.0018 MFD. MICA CONDENSER
C_{10}	317	.8MFD. 450 W.V. WET ELECTROLYTIC COND.
C_{11}	507	5 PLATE PADDING CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
CV_{1-2}	612-A	2 GANG VARIABLE CONDENSER
C_V	500	5-30 MMFD. TRIMMER CONDENSER
T_1	1225	B.C. & SKIP BAND ANTENNA COIL
T_2	1412	B.C. & SKIP BAND OSCILLATOR COIL
T_3	1503	INPUT I.F. TRANSFORMER
T_4	1507	DIODE I.F. TRANSFORMER
T_5	8 IN 11	SPEAKER TRANSFORMER
T_6	1014	POWER TRANSFORMER
F	8 IN 11	SPEAKER FIELD (1600 OHMS)
S_1	1920	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL.

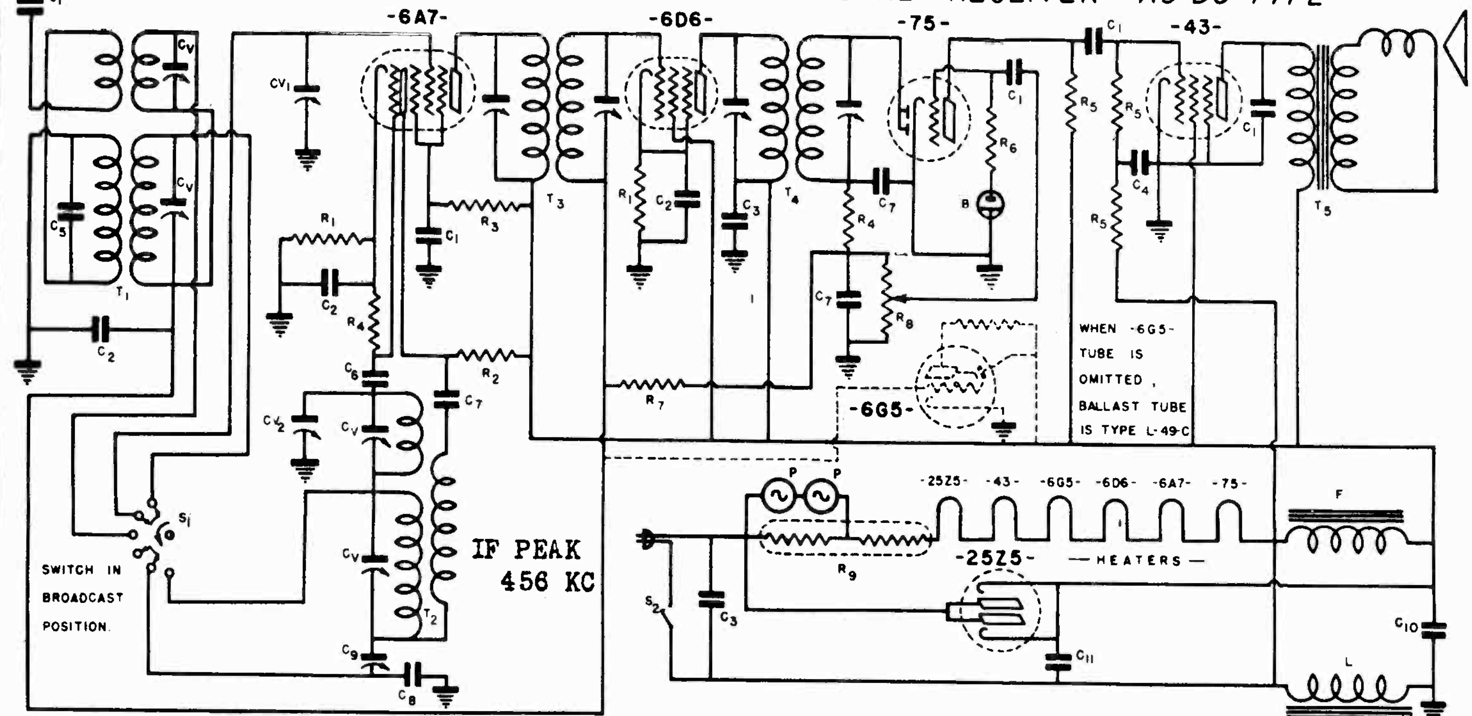
LEGEND	OUR PART NO.	DESCRIPTION
R_1	2009	500,000 OHM VOLUME CONTROL
R_2	103	250 OHM 1/2 WATT CARBON RESISTOR
R_3	139	400 OHM 1/2 WATT CARBON RESISTOR
R_4	109	10,000 OHM 1/2 WATT CARBON RESISTOR
R_5	113	50,000 OHM 1/2 WATT CARBON RESISTOR
R_6	115	100,000 OHM 1/2 WATT CARBON RESISTOR
R_7	116	250,000 OHM 1/2 WATT CARBON RESISTOR
R_8	145	400,000 OHM 1/4 WATT CARBON RESISTOR
R_9	117	500,000 OHM 1/4 WATT CARBON RESISTOR
R_{10}	119	1 MEGOHM 1/2 WATT CARBON RESISTOR
R_{11}	146	25,000 OHM 1 WATT CARBON RESIST.

W.F.S.

MODELS AH, AHE
Schematic
Parts

CLIMAX RADIO & TELEV. CO., INC.

MODEL AH (WITHOUT TUNING INDICATOR TUBE)
MODEL AHE (WITH TUNING INDICATOR TUBE)
6 (OR 7) TUBE SKIP BAND SUPERHETERODYNE RECEIVER = *AC-DC TYPE*



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	203	.1 MFD. 200V. TUBULAR CONDENSER
C_3	210	.1 MFD. 400V. TUBULAR CONDENSER
C_4	204	.25 MFD. 200 V. TUBULAR CONDENSER
C_5	412	.00005 MFD. MICA CONDENSER
C_6	400	.0001 MFD. MICA CONDENSER
C_7	401	.00025 MFD. MICA CONDENSER
C_8	410	.0018 MFD. MICA CONDENSER
C_9	507	5 PLATE PADDING CONDENSER
C_{10}	314	10 MFD. 150 W.V. WET ELECTROLYTIC COND.
C_{11}	311	20 MFD. 150 W.V. WET ELECTROLYTIC COND.

LEGEND	OUR PART NO	DESCRIPTION
CV_{1-2}	612-A	2 GANG VARIABLE CONDENSER
C_V	500	5-30 MMFD. TRIMMER CONDENSER
R_1	103	250 OHM ¼ WATT CARBON RESISTOR
R_2	108	5000 OHM ¼ WATT CARBON RESISTOR
R_3	111	25,000 OHM ¼ WATT CARBON RESISTOR
R_4	113	50,000 OHM ¼ WATT CARBON RESISTOR
R_5	116	250,000 OHM ¼ WATT CARBON RESISTOR
R_6	117	500,000 OHM ¼ WATT CARBON RESISTOR
R_7	119	1 MEGOHM ¼ WATT CARBON RESISTOR
R_8	2009	500,000 OHM VOLUME CONTROL
R_9	2906	L-42-C BALLAST TUBE (with 6G5 tube)
R_9	2905	L-49-C BALLAST TUBE (without 6G5 tube)

LEGEND	OUR PART NO	DESCRIPTION
T_1	1225	ANTENNA COIL
T_2	1412	OSCILLATOR COIL
T_3	1507	OUTPUT I.F. TRANSFORMER
T_4	1503	INPUT I.F. TRANSFORMER
T_5	800	SPEAKER TRANSFORMER
L	1100	FILTER CHOKE
S_1	1920	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
P	2902	MAZDA NO. 46 PILOT LIGHT
B	3000	BIAS CELL
F	800	SPEAKER FIELD

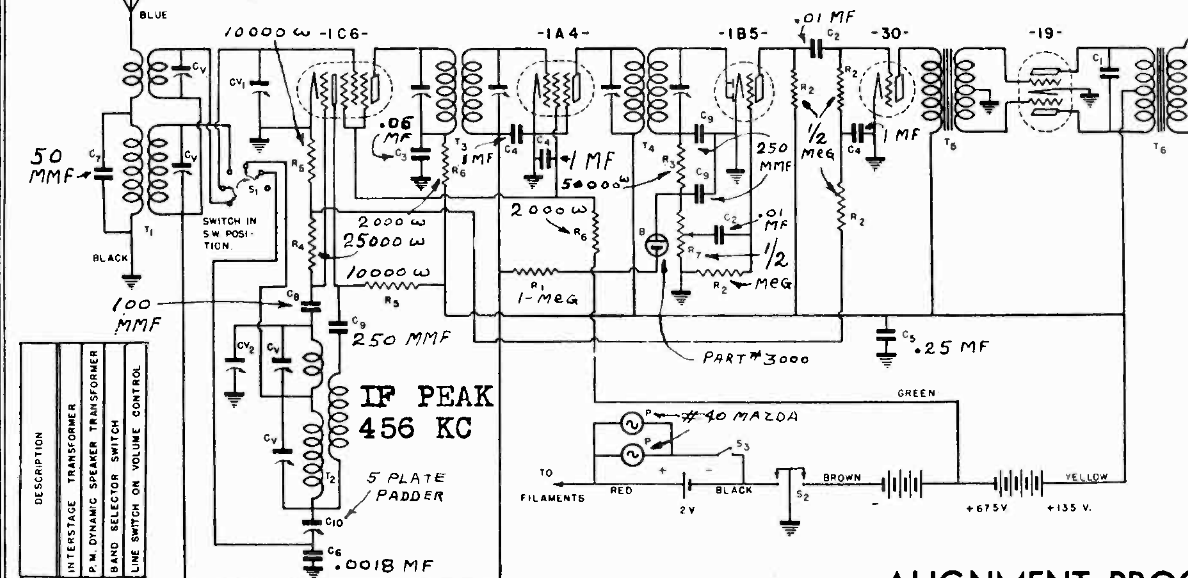
W.F.S.

MODEL AJ
Schematic, Socket
Trimmers, Alignment

CLIMAX RADIO & TELEV. CO., INC.

MODEL A. J.

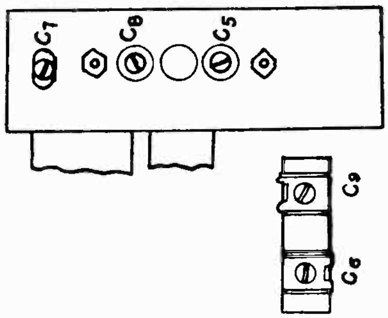
5 TUBE 2 VOLT BATTERY OPERATED SKIP-BAND RECEIVER



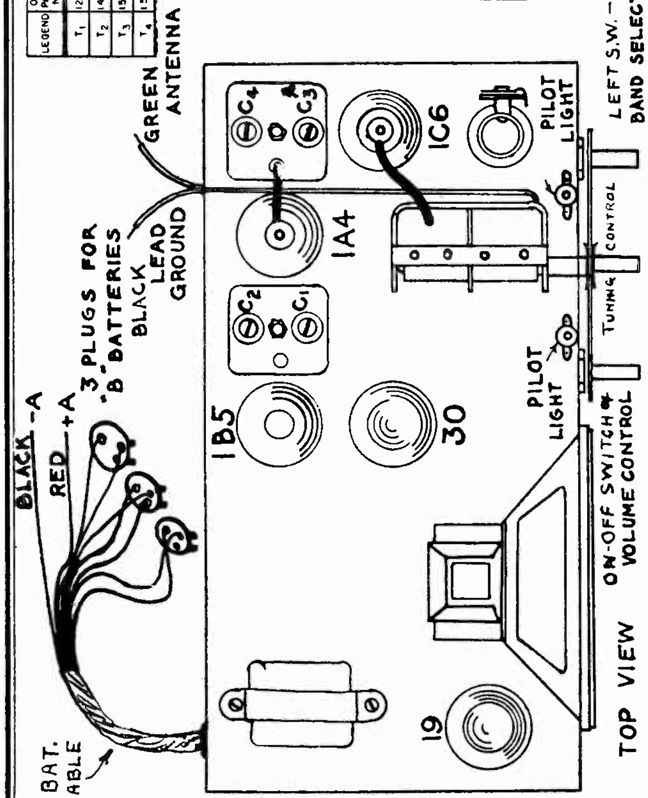
LEGEND	OUR PART NO	DESCRIPTION
CV_{1-2}	612	2 GANG VARIABLE CONDENSER
CV	500	5-30 MMFD TRIMMER CONDENSER

LEGEND	OUR PART NO	DESCRIPTION
T_5	1019	INTERSTAGE TRANSFORMER
T_6	IN 815	P.M. DYNAMIC SPEAKER TRANSFORMER
S_1	1920	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL

LEGEND	OUR PART NO	DESCRIPTION
T_1	1225	SKIP-BAND ANTENNA COIL
T_2	1412	SKIP-BAND OSCILLATOR COIL
T_3	1503	INPUT I F TRANSFORMER
T_4	1507	DIODE I F TRANSFORMER



SIDE VIEW



TOP VIEW

ALIGNMENT PROCEDURE

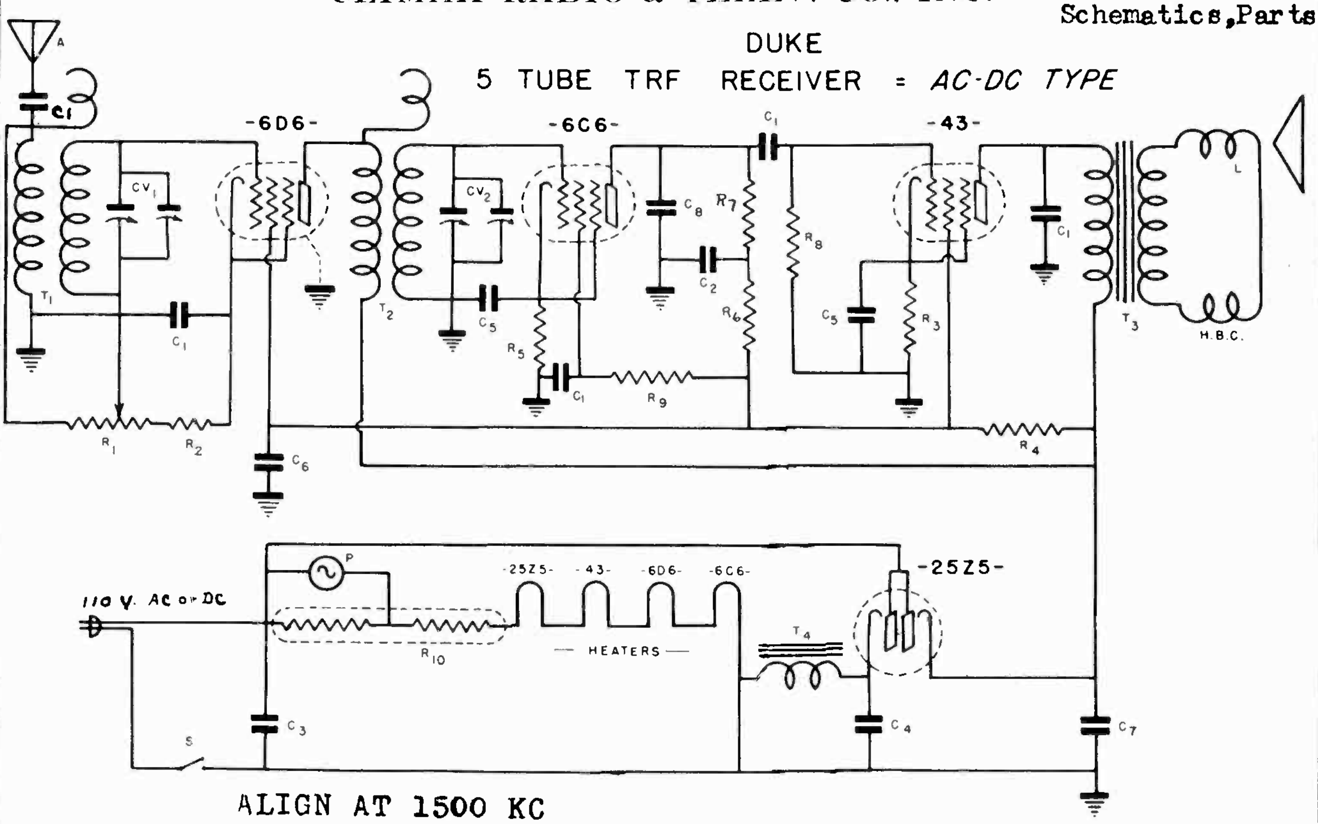
If at any tme it becomes necessary to realign this receiver, the following procedure should be employed: Set pointer so it is perfectly horizontal when the variable condenser is fully engaged. Connect the green antenna lead in series with a 200 mmfd. mica condenser to the output of the signal generator. Connect the black lead to the ground lead of the signal generator. Set the signal generator to 456 K.C. and turn the variable condenser on the receiver until the plates are completely intermeshed. Turn the selector switch to the Broadcast position and set the volume control knob to maximum. Connect an output meter between the plate and screen of the 42 output tube. Adjust trimmers C1, C2, C3 and C4 for maximum output as indicated by the meter. At all times keep the output control on the signal generator turned down as low as possible so as to obtain only a very small reading on the output meter. (At larger inputs the automatic volume control system may tend to obscure the correct adjustment.) Next set the signal generator to 1400 K.C., and turn the dial of the receiver to correspond to that frequency. Adjust trimmer C8 for maximum reading of the output meter and then adjust C6 to secure final adjustment. Next rotate the receiver dial to about 600 K.C. and set the signal generator at the same frequency. Adjust trimmer C7 while rocking the condenser back and forth until maximum output results. If it is necessary to turn that adjustment screw more than about one turn, it will be necessary to repeat the adjustment at 1400 K.C. again. This completes the alignment of the Broadcast band.

Next, substitute a 400 ohm carbon resistor for the series mica condenser between the receiver and the signal generator and set the switch to the short wave position. Rotate the receiver dial to 14M.C. and set the signal generator to the same frequency. Adjust trimmer C5 to resonance and then increase the generator frequency to 14.9M.C. and observe if the signal can be heard without changing the receiver dial setting. If it can be heard, then the image is properly placed and the signal generator should again be set to 14 M.C.. Adjust trimmer C9 for final adjustment.

MODEL Duke
MODEL AKE
Schematics, Parts

CLIMAX RADIO & TELEV. CO., INC.

DUKE
5 TUBE TRF RECEIVER = AC-DC TYPE



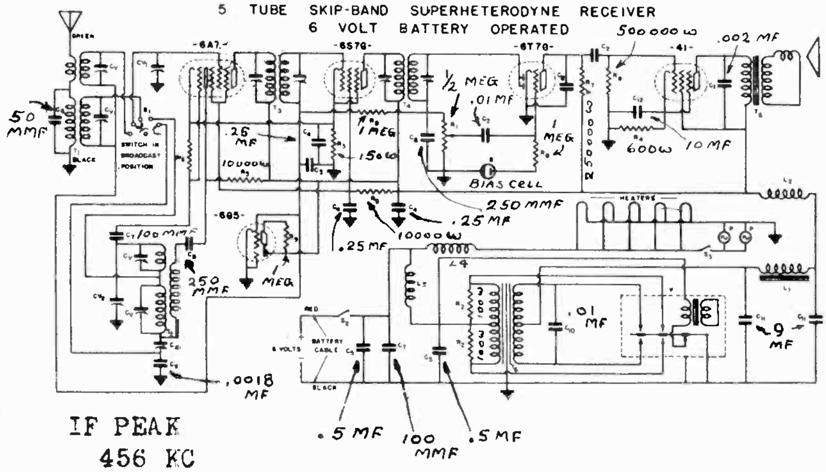
ALIGN AT 1500 KC

LEGEND	OUR PART NO	DESCRIPTION
C_1	211	.01 MFD 400 V. TUBULAR CONDENSER
C_2	216	.018 MFD 400V. TUBULAR CONDENSER
C_3	210	.1 MFD 400V. TUBULAR CONDENSER
C_4	IN 316	4 MFD 175 W.V. ELECTROLYTIC COND
C_5	IN 316	5 MFD 25 W.V ELECTROLYTIC COND
C_6	IN 316	8 MFD 150 W.V. ELECTROLYTIC COND.
C_7	IN 316	14 MFD 175 W.V. ELECTROLYTIC COND
C_8	401	.00025 MICA CONDENSER
CV_{1-2}	621	2 GANG VARIABLE CONDENSER

LEGEND	OUR PART NO	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minimum on Volume Control)
R_3	104	600 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	108	5,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	142	51,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	116	250,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_9	120	3 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR

LEGEND	OUR PART NO	DESCRIPTION
R_{10}	2903	L-55-B BALLAST TUBE
T_1	1213	ANTENNA COIL
T_2	1312	R F COIL
T_3	IN 809	SPEAKER OUTPUT TRANSFORMER
T_4	IN 809	SPEAKER FIELD (2500 ohms)
S	—	LINE SWITCH ON VOLUME CONTROL
P	2902	MAZDA #46 PILOT LIGHT
A	2400	INDOOR ANTENNA HANK
L	809	5" DYNAMIC SPEAKER

MODEL AKE
5 TUBE SKIP-BAND SUPERHETERODYNE RECEIVER
6 VOLT BATTERY OPERATED



IF PEAK
456 KC

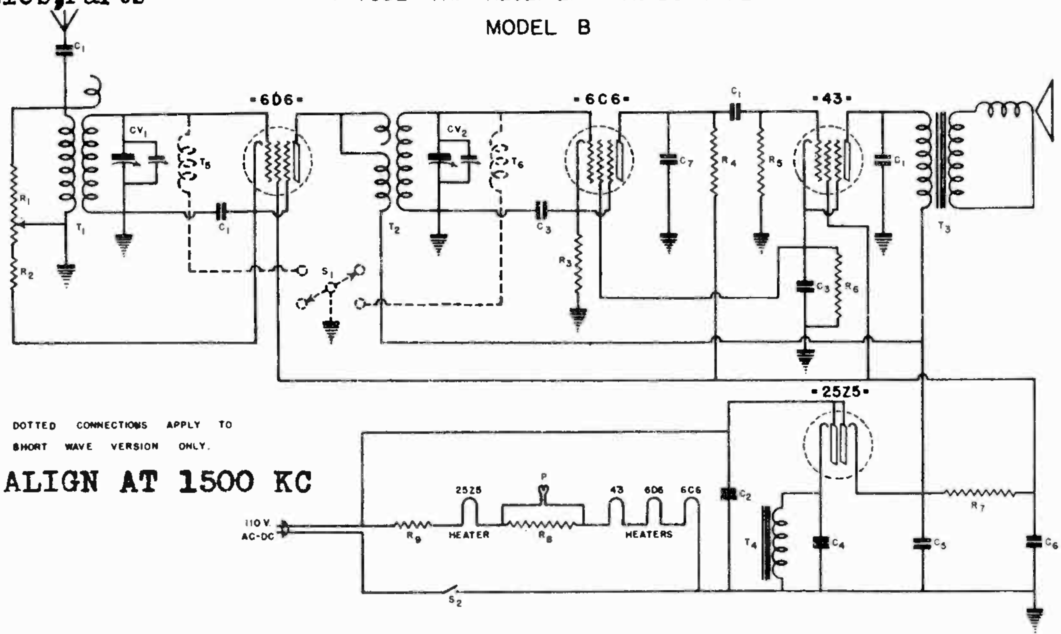
LEGEND	OUR PART NO	DESCRIPTION
C_1	218	.002 MFD 600 V TUBULAR CONDENSER
C_2	211	.01 MFD 400 V TUBULAR CONDENSER
C_3	203	.1 MFD 200 V TUBULAR CONDENSER
C_4	204	.25 MFD 200 V TUBULAR CONDENSER
C_5	217	.5 MFD 100 V TUBULAR CONDENSER
C_6	412	50 MMFD MICA CONDENSER
C_7	400	100 MMFD MICA CONDENSER
C_8	401	250 MMFD MICA CONDENSER
C_9	411	.0018 MFD MICA CONDENSER
C_{10}	219	.01 MFD 1000 W.V. OIL FILLED BUFFER COND
C_{11}	324	8 MFD 250 W.V. WET ELECTROLYTIC COND
C_{12}	304	10 MFD 35 W.V. WET ELECTROLYTIC COND
C_{13}	807	5 PLATE PADDING CONDENSER
CV_{1-2}	[illegible]-A	2 GANG VARIABLE CONDENSER
C_V	300	5-30 MMFD TRIMMER CONDENSER
T_1	1225	SKIP-BAND ANTENNA COIL
T_2	1412	SKIP-BAND OSCILLATOR COIL
T_3	1503	INPUT I.F. TRANSFORMER
T_4	1507	DIODE I.F. TRANSFORMER
T_5	IN 813	5" P.M. DYNAMIC SPEAKER TRANSFORMER
T_6	1018	VIBRATOR TRANSFORMER
S_1	1920	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
S_3	—	PILOT LIGHT SPRING SWITCH
P	2901	MAZDA #40 PILOT LIGHTS
V	2801	PLUG IN VIBRATOR
B	3000	BIAS CELL
R_1	[illegible]	500,000 OHM VOLUME CONTROL
R_2	148	100 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_3	101	150 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_4	104	600 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_5	108	10,000 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_6	113	30,000 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_7	116	250,000 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_8	117	500,000 OHM $\frac{1}{2}$ WATT CARBON RESISTOR
R_9	119	1 MEGOHM $\frac{1}{2}$ WATT CARBON RESISTOR
L_1	1100	FILTER CHOKE
L_2	1618	R F "B" CHOKE
L_3	1619	R F "A" CHOKE
L_4	1620	R F "A" CHOKE

MODEL B
MODEL C,D
Schematics,Parts

CLIMAX RADIO & TELEV. CO., INC.

4 TUBE TRF RECEIVER — *AC-DC TYPE* —

MODEL B



DOTTED CONNECTIONS APPLY TO SHORT WAVE VERSION ONLY.

ALIGN AT 1500 KC

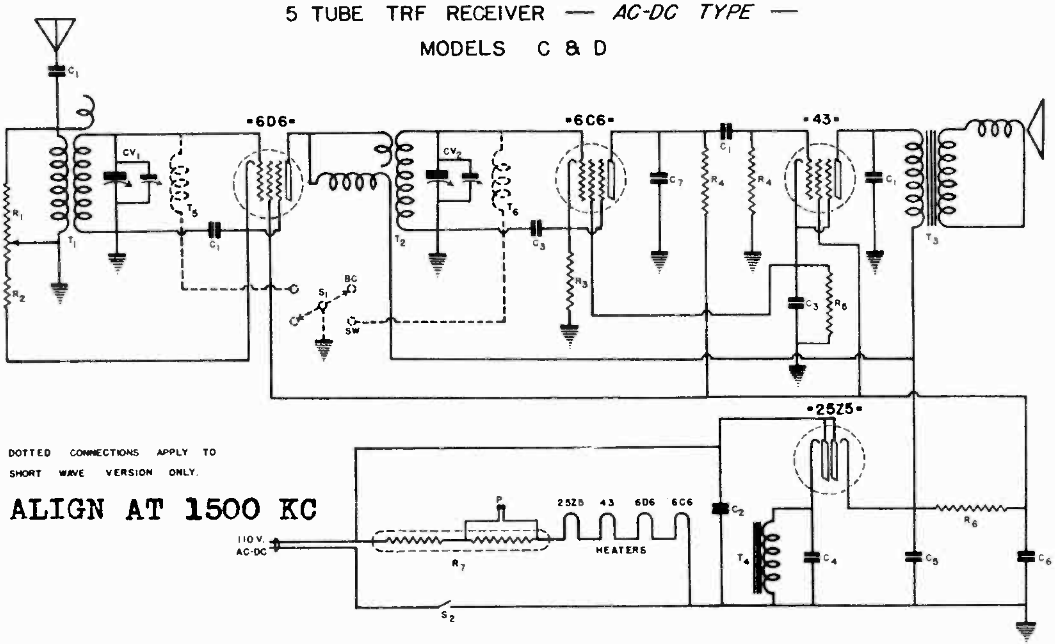
LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minim. on Volume Control)
R_3	111	25,000 OHM ½ WATT CARBON RESISTOR
R_4	117	500,000 OHM ¼ WATT CARBON RESISTOR
R_5	141	350,000 OHM ½ WATT CARBON RESISTOR
R_6	104	600 OHM ½ WATT CARBON RESISTOR
R_7	108	5,000 OHM ½ WATT CARBON RESISTOR
R_8	142	90 OHM 2 WATT WIRE WOUND RES.
R_9	1807	165 OHM RESISTOR CORD

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	610	2 GANG VARIABLE CONDENSER
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	210	.1 MFD. 400V. TUBULAR CONDENSER
C_3	IN 316	5 MFD. 25V. ELECTROLYTIC CONDENSER
C_4	IN 316	4 MFD. 150V. ELECTROLYTIC CONDENSER
C_5	IN 316	14 MFD. 150V. ELECTROLYTIC CONDENSER
C_6	IN 316	8 MFD. 150V. ELECTROLYTIC CONDENSER
C_7	401	.00025 MFD. MICA CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
T_1	1200	ANTENNA COIL
T_2	1300	R.F. COIL
T_3	IN 810	SPEAKER OUTPUT TRANSFORMER
T_4	IN 810	SPEAKER FIELD (2500 OHMS)
T_5	1612	SHORT WAVE ANTENNA SHUNT
T_6	1612	SHORT WAVE R.F. SHUNT
P	2902	MAZDA #46 PILOT LIGHT

5 TUBE TRF RECEIVER — *AC-DC TYPE* —

MODELS C & D



DOTTED CONNECTIONS APPLY TO SHORT WAVE VERSION ONLY.

ALIGN AT 1500 KC

LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minimum on Volume Control)
R_3	111	25,000 OHM ½ WATT CARBON RESISTOR
R_4	117	500,000 OHM ¼ WATT CARBON RESISTOR
R_5	104	600 OHM ½ WATT CARBON RESISTOR
R_6	108	5000 OHM ½ WATT CARBON RESISTOR
R_7	2903	L-55-B BALLAST TUBE
P	2902	MAZDA #46 PILOT LIGHT

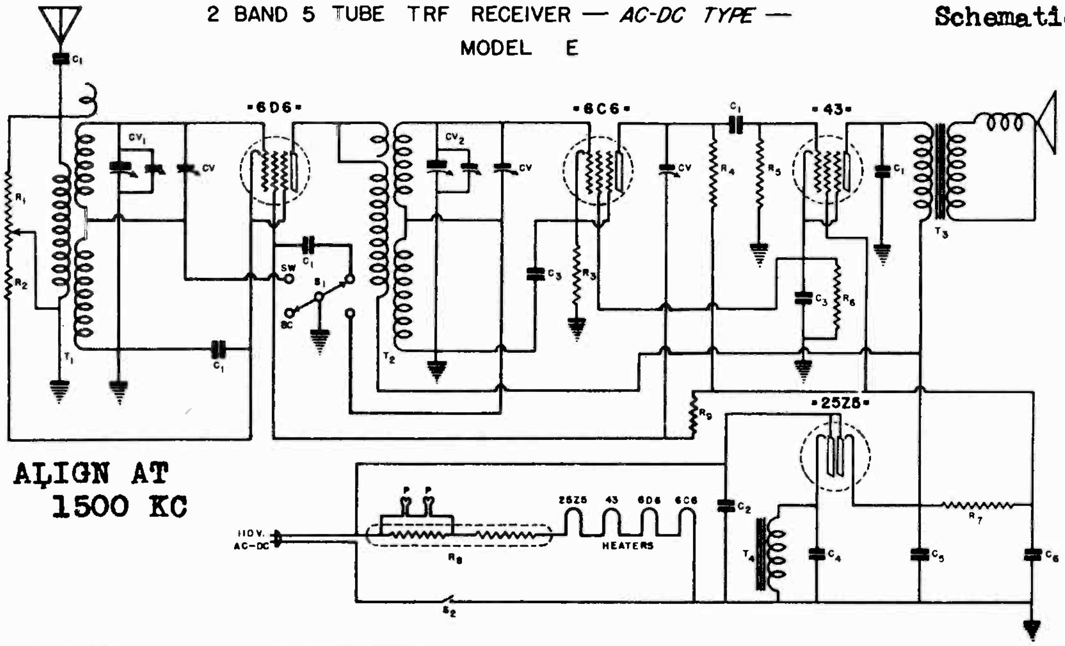
LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	607	2 GANG VARIABLE CONDENSER
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	210	.1 MFD. 400 V. TUBULAR CONDENSER
C_3	IN 318	5 MFD 25 W.V. ELECTROLYTIC CONDENSER
C_4	IN 318	4 MFD. 150 W.V. ELECTROLYTIC CONDENSER
C_5	IN 318	14 MFD. 150 W.V. ELECTROLYTIC CONDENSER
C_6	IN 318	8 MFD. 150 W.V. ELECTROLYTIC CONDENSER
C_7	401	.00025 MFD. MICA CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
T_1	1204	ANTENNA COIL
T_2	1304	RF COIL
T_3	IN 810	SPEAKER OUTPUT TRANSFORMER
T_4	IN 810	SPEAKER FIELD (2500 OHMS)
T_5	1206	SHORT WAVE ANTENNA SHUNT
T_6	1306	SHORT WAVE RF SHUNT

MODEL E
MODEL F
Schematics, Parts

CLIMAX RADIO & TELEV. CO., INC.

2 BAND 5 TUBE TRF RECEIVER — *AC-DC TYPE* —
MODEL E



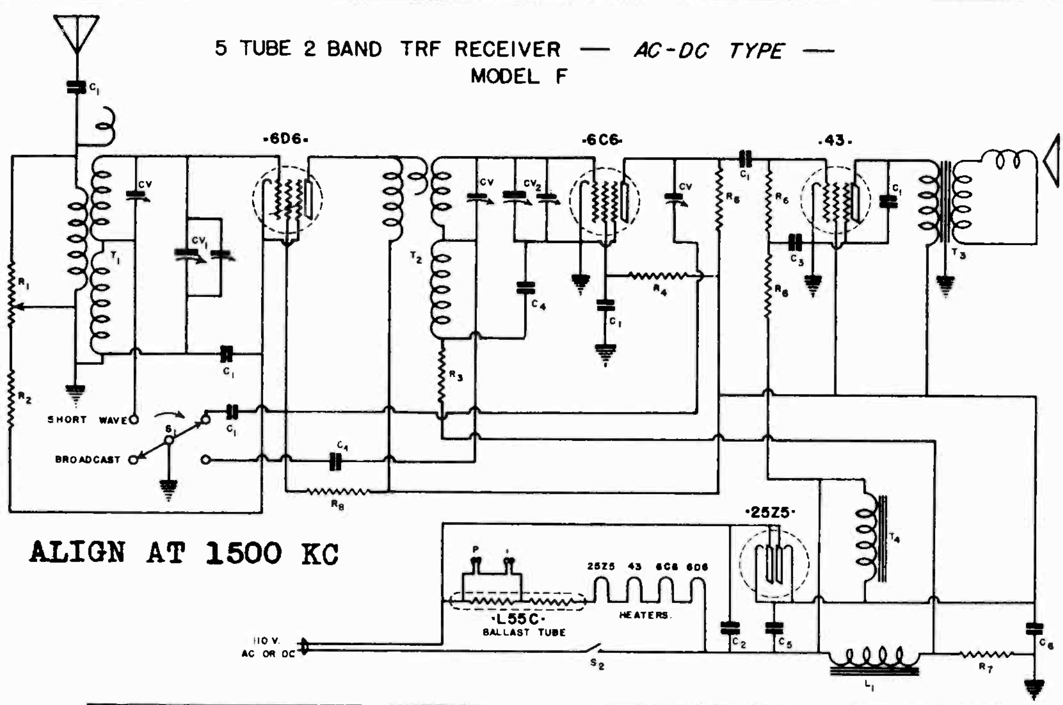
ALIGN AT 1500 KC

LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minimum on Volume Control)
R_3	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	141	350,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	104	600 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	108	5000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	2904	L-55-C BALLAST TUBE

LEGEND	OUR PART NO.	DESCRIPTION
R_9	110	15,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
CV_1 CV_2	615	2 GANG VARIABLE CONDENSER
CV	500	5-30MMFD. TRIMMER CONDENSER
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	210	.1 MFD. 400V. TUBULAR CONDENSER
C_3	IN 316	5 MFD. 25 W.V. ELECTROLYTIC CONDENSER
C_4	IN 316	4 MFD. 150 W.V. ELECTROLYTIC CONDENSER
C_5	IN 316	14 MFD. 150 W.V. ELECTROLYTIC CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
C_6	IN 316	8 MFD. 150 W.V. ELECTROLYTIC CONDENSER
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
T_1	1218	2 BAND ANTENNA COIL
T_2	1311	2 BAND R.F. COIL
T_3	IN 810	SPEAKER OUTPUT TRANSFORMER
T_4	IN 810	SPEAKER FIELD (2500 OHMS)
P	2902	MAZOA # 46 PILOT LIGHT

5 TUBE 2 BAND TRF RECEIVER — *AC-DC TYPE* —
MODEL F



ALIGN AT 1500 KC

LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minimum on Volume Control)
R_3	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	120	3 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	117	$\frac{1}{2}$ MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	116	$\frac{1}{4}$ MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	139	65 OHM $\frac{1}{2}$ WATT WIRE WOUND RESIS.
R_8	110	15,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR

LEGEND	OUR PART NO.	DESCRIPTION
CV	500	5-30MMFD. TRIMMER CONDENSER
CV_1 CV_2	615	TWO GANG VARIABLE CONDENSER
C_1	211	.01 MFD 400V. TUBULAR CONDENSER
C_2	210	.1 MFD 400V. TUBULAR CONDENSER
C_3	204	.25 MFD 200V. TUBULAR CONDENSER
C_4	203	.1 MFD 200V. TUBULAR CONDENSER
C_5	311	20 MFD 150V. ELECTROLYTIC COND.
C_6	314	10 MFD 150V. ELECTROLYTIC COND.

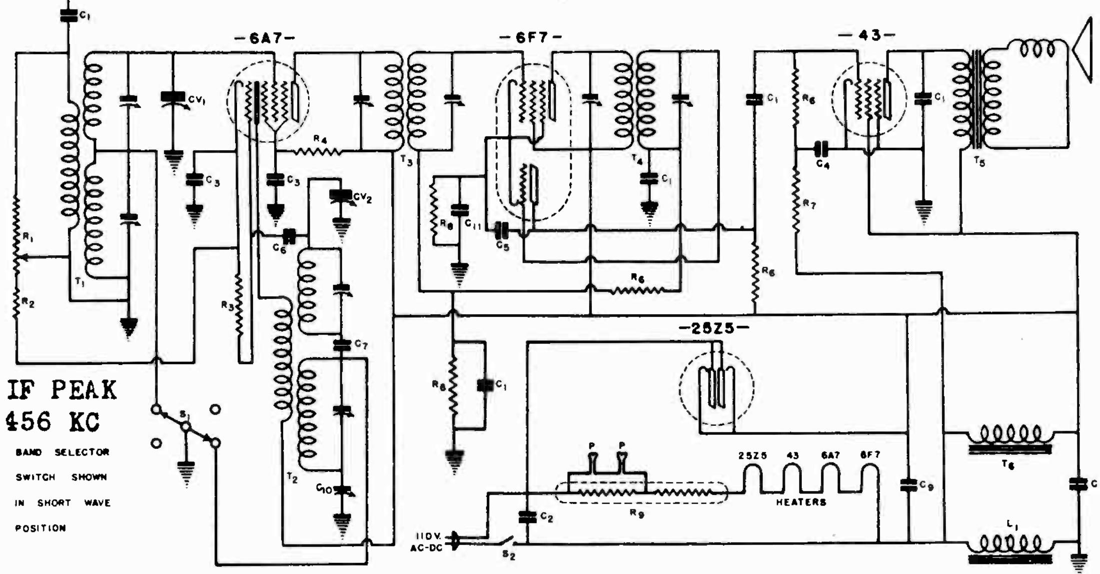
LEGEND	OUR PART NO.	DESCRIPTION
T_4	IN 800	SPEAKER FIELD (2500 OHM)
L_1	1100	IRON CORE FILTER CHOKE
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
T_1	1212	BC & SW ANTENNA COIL
T_2	1303	BC & SW RF COIL
T_3	IN 800	SPEAKER OUTPUT TRANSFORMER
P	2902	MAZDA # 46 PILOT LIGHT

MODEL G
MODEL R
Schematics,Parts

CLIMAX RADIO & TELEV. CO., INC.

5 TUBE EXTENDED SKIP-BAND SUPERHETERODYNE RECEIVER — *AC-DC TYPE* —

MODEL G



IF PEAK
456 KC

BAND SELECTOR SWITCH SHOWN IN SHORT WAVE POSITION

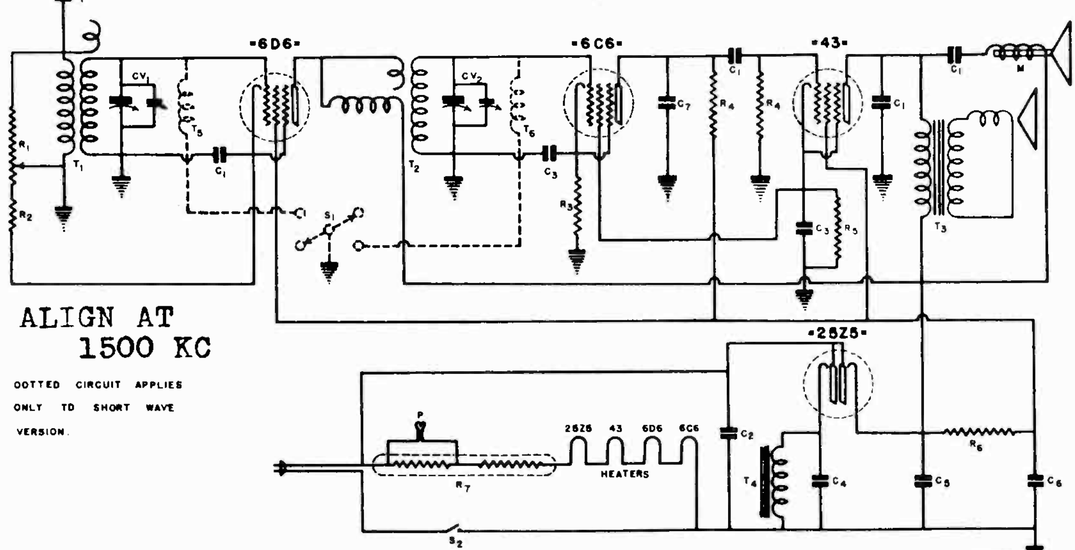
LEGEND	OUR PART NO.	DESCRIPTION
R_1	2013	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM Minimum on Volume Control
R_3	113	50,000 OHM 1/4 WATT CARBON RESISTOR
R_4	109	10,000 OHM 1/4 WATT CARBON RESISTOR
R_5	126	2 MEGOHM 1/4 WATT CARBON RESISTOR
R_6	117	.5 MEGOHM 1/4 WATT CARBON RESISTOR
R_7	116	.25 MEGOHM 1/4 WATT CARBON RESISTOR
R_8	136	400 OHM 1/4 WATT CARBON RESISTOR
R_9	2904	L-55-C BALLAST TUBE
CV_1 CV_2	612	2 GANG VARIABLE CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	210	.1 MFD. 400V. TUBULAR CONDENSER
C_3	203	.1 MFD. 200V. TUBULAR CONDENSER
C_4	204	.25 MFD. 200V. TUBULAR CONDENSER
C_5	401	.00025 MFD. MICA CONDENSER
C_6	400	.0001 MFD. MICA CONDENSER
C_7	411	.00125 MFD. MICA CONDENSER
C_8	314	10 MFD. 150V. ELECTROLYTIC CONDENSER
C_9	311	20 MFD. 150V. ELECTROLYTIC CONDENSER
C_{10}	502	5 PLATE PADDING CONDENSER
C_{11}	212	.05 MFD. 200V. TUBULAR CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
T_1	1217	ANTENNA COIL
T_2	1408	OSCILLATOR COIL
T_3	1503	456 KC I.F. TRANSFORMER
T_4	1506	456 KC DIODE COUPLING TRANSFORMER
T_5	IN 800	SPEAKER OUTPUT TRANSFORMER
T_6	IN 800	2600 OHM SPEAKER FIELD
L_1	1100	IRON CORE FILTER CHOKE
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
P	2902	MAZDA #46 PILOT LIGHT

5 TUBE TRF TWIN SPEAKER RECEIVER — *AC-DC TYPE* —

MODEL R



ALIGN AT
1500 KC

DOTTED CIRCUIT APPLIES ONLY TO SHORT WAVE VERSION.

LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minimum on Volume Control)
R_3	111	25,000 OHM 1/4 WATT CARBON RESISTOR
R_4	117	500,000 OHM 1/4 WATT CARBON RESISTOR
R_5	104	600 OHM 1/4 WATT CARBON RESISTOR
R_6	106	5000 OHM 1/4 WATT CARBON RESISTOR
R_7	2903	L-55-B BALLAST TUBE
P	2902	MAZDA #46 PILOT LIGHT

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	610	2 GANG VARIABLE CONDENSER
C_1	211	.01 MFD. 400V. TUBULAR CONDENSER
C_2	210	.1 MFD. 400V. TUBULAR CONDENSER
C_3	IN 316	5MFD. 25W.V. ELECTROLYTIC CONDENSER
C_4	IN 316	4MFD. 150W.V. ELECTROLYTIC CONDENSER
C_5	IN 316	14MFD. 150W.V. ELECTROLYTIC CONDENSER
C_6	IN 316	8MFD. 150W.V. ELECTROLYTIC CONDENSER
C_7	401	.00025 MFD. MICA CONDENSER
M	900	MAGNETIC SPEAKER

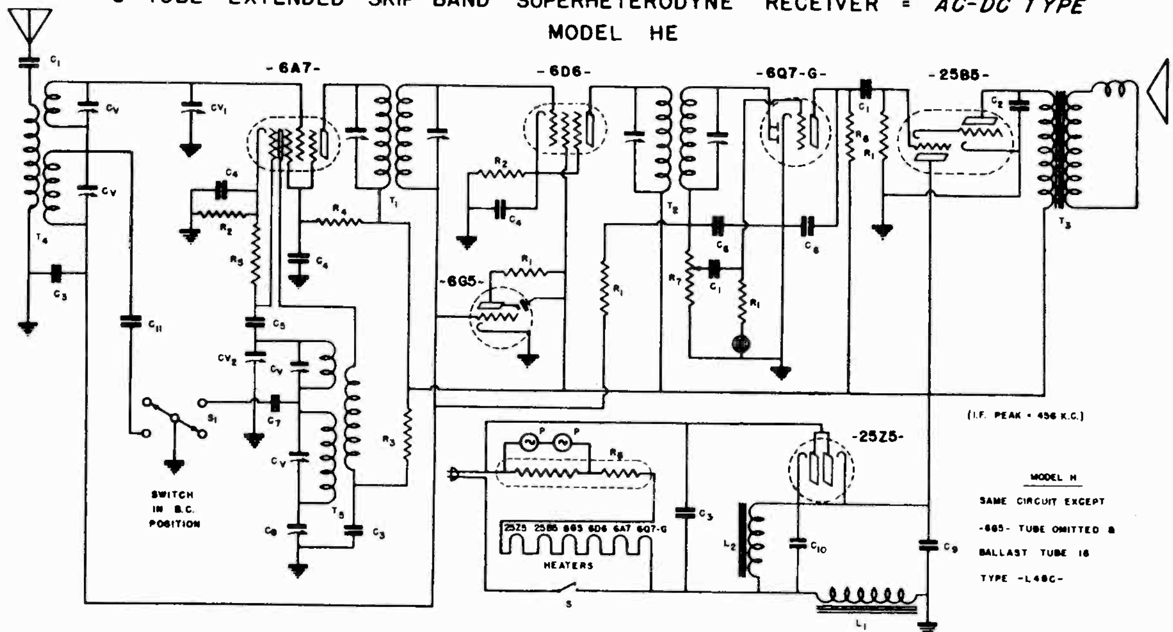
LEGEND	OUR PART NO.	DESCRIPTION
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
T_1	1200	ANTENNA COIL
T_2	1300	RF COIL
T_3	IN 810	SPEAKER OUTPUT TRANSFORMER
T_4	IN 810	2500 OHM SPEAKER FIELD
T_5	1612	SHORT WAVE ANTENNA SHUNT
T_6	1612	SHORT WAVE RF SHUNT

Schematics, Parts

CLIMAX RADIO & TELEV. CO., INC.

6 TUBE EXTENDED SKIP-BAND SUPERHETERODYNE RECEIVER = *AC-DC TYPE*

MODEL HE



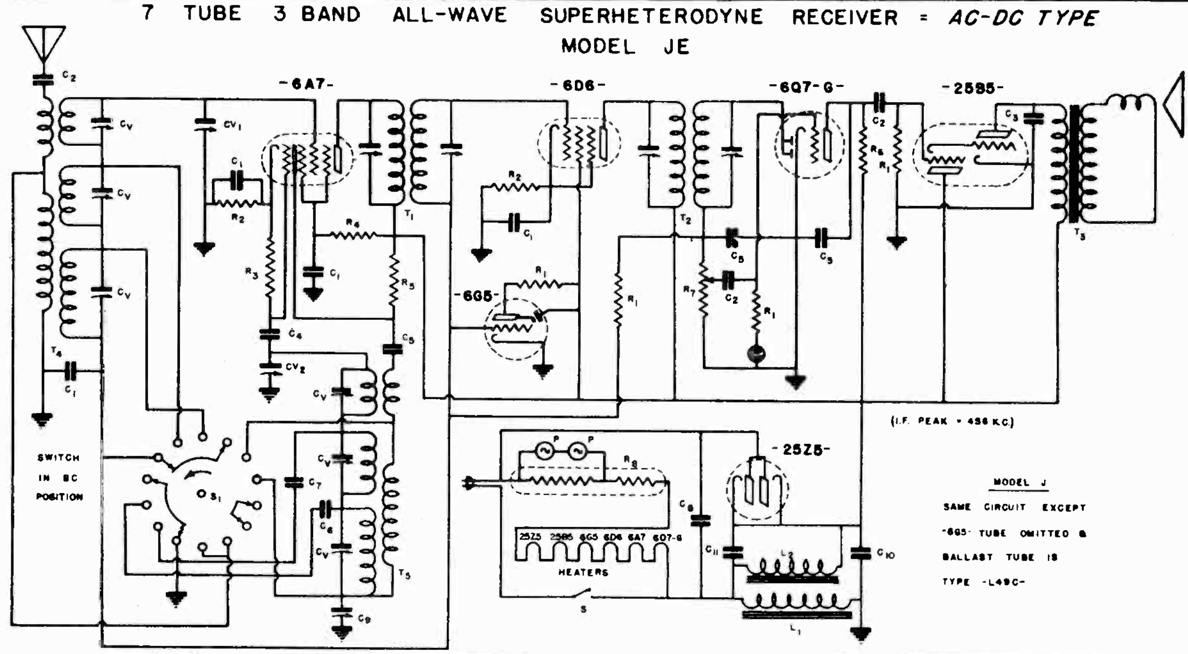
LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD-400V TUBULAR CONDENSER
C_2	206	.05 MFD-400V TUBULAR CONDENSER
C_3	210	.1 MFD-400V TUBULAR CONDENSER
C_4	203	.1 MFD-200V TUBULAR CONDENSER
C_5	-00	.0001 MICA CONDENSER
C_6	-01	.00025 MICA CONDENSER
C_7	-11	.00125 MICA CONDENSER
C_8	807	5 PLATE PADDING CONDENSER
C_9	314	10 MFD 150 W.V. ELECTROLYTIC COND.
C_{10}	311	20 MFD 150 W.V. ELECTROLYTIC COND

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	612	2 GANG VARIABLE CONDENSER
R_1	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	103	250 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	109	10,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	111	25,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	113	50,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	116	250,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	2009	50,000 OHMS VOLUME CONTROL & SWITCH
R_8	2905	L-49-C BALLAST TUBE (MODEL H)
R_8	2906	L-42-C BALLAST TUBE (MODEL HE)
C	212	.05 MFD - 200 V TUBULAR CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
T_1	1503	1st I.F. TRANSFORMER
T_2	1506	DIODE I.F. TRANSFORMER (2500 OHMS)
T_3	IN 805	SPEAKER OUTPUT TRANSFORMER
T_4	1210	ANTENNA COIL
T_5	1404	OSCILLATOR COIL
L_1	1101	CHOKE
L_2	IN 805	SPEAKER FIELD (2500 OHMS)
S_1	1914	BAND SELECTOR SWITCH
S	—	SWITCH ON TONE CONTROL
P	2902	MAZDA #48 PILOT LIGHT

7 TUBE 3 BAND ALL-WAVE SUPERHETERODYNE RECEIVER = *AC-DC TYPE*

MODEL JE



LEGEND	OUR PART NO.	DESCRIPTION
C_1	203	.1 MFD - 200V TUBULAR CONDENSER
C_2	211	.01 MFD-400V TUBULAR CONDENSER
C_3	206	.05 MFD-400V TUBULAR CONDENSER
C_4	400	.0001 MICA CONDENSER
C_5	401	.00025 MICA CONDENSER
C_6	410	.0018 MICA CONDENSER
C_7	413	.0046 MICA CONDENSER
C_8	210	.1 MFD 400V. TUBULAR CONDENSER
Cv	IN 801	3-30 MMFD TRIMMER CONDENSER
C_9	807	5 PLATE PADDING CONDENSER
T_4	1214	3 BAND ANTENNA COIL

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	612	2 GANG VARIABLE CONDENSER
C_{10}	314	10 MFD. 150 W.V. ELECTROLYTIC COND.
C_{11}	311	20 MFD 150 W.V. ELECTROLTTIC COND.
R_1	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	103	250 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	113	50,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	111	25,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	109	10,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	116	250,000 OHMS $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	2009	500,000 OHM VOLUME CONTROL & SWITCH

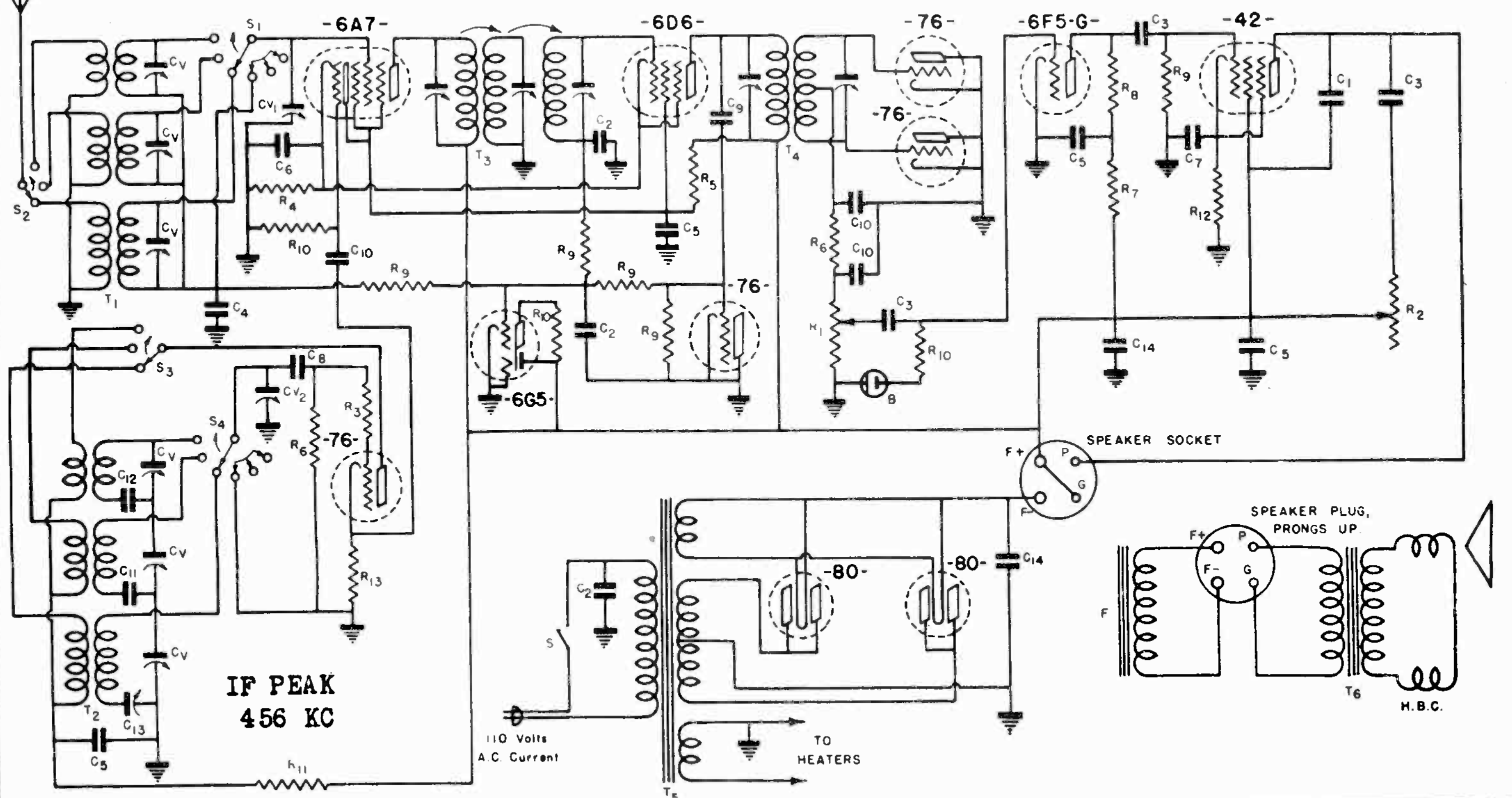
LEGEND	OUR PART NO.	DESCRIPTION
R_8	2905	L-49-C BALLAST TUBE (MODEL J)
R_8	2906	L-42-C BALLAST TUBE (MODEL JE)
T_1	1503	1st I.F. TRANSFORMER
T_2	1506	DIODE I.F. TRANSFORMER
T_3	IN 805	SPEAKER FIELD (2500 OHMS)
L_1	1101	CHOKE
L_2	IN 805	SPEAKER FIELD (2800 OHMS)
S_1	1915	3 BAND SELECTOR SWITCH
S	—	SWITCH ON TONE CONTROL
P	2902	MAZDA #48 PILOT LIGHT
T_5	1405	3 BAND OSCILLATOR COIL

MODEL JL
Schematic
Parts

CLIMAX RADIO & TELEV. CO., INC.

MODEL JL

3 BAND ALL-WAVE SUPERHETERODYNE RECEIVER = *AC OPERATED*



LEGEND	OUR PART NO.	DESCRIPTION
C1	213	.005 MFD.-600 V. TUBULAR CONDENSER
C2	211	.01 MFD.-400 V. TUBULAR CONDENSER
C3	212	.05 MFD.-400 V. TUBULAR CONDENSER
C4	203	.1 MFD. 200 V. TUBULAR CONDENSER
C5	210	.1 MFD.-400 V. TUBULAR CONDENSER
C6	205	.25 MFD. 200 V. TUBULAR CONDENSER
C7	304	10 MFD. 35 V. DRY ELECTROLYTIC TUB. COND.
C8	412	.00005 MFD. MICA CONDENSER
C9	400	.0001 MFD. MICA CONDENSER
C10	401	.00025 MFD. MICA CONDENSER
C11	410	.0018 MFD. MICA CONDENSER
C12	413	.0038 MFD. MICA CONDENSER
C13	1404	5 PLATE PADDING CONDENSER

LEGEND	OUR PART NO	DESCRIPTION
C14	317	8 MFD. 450 W.V. WET ELECTROLYTIC COND.
CV1-2	611	2 GANG VARIABLE CONDENSER
CV	500	5-30 MMFD TRIMMER CONDENSER
R1	2011	500,000 OHM VOLUME CONTROL
R2	2012	75,000 OHM TONE CONTROL & SWITCH
R3	101	150 OHM ¼ WATT CARBON RESISTOR
R4	103	250 OHM ¼ WATT CARBON RESISTOR
R5	111	25,000 OHM ¼ WATT CARBON RESISTOR
R6	113	50,000 OHM ¼ WATT CARBON RESISTOR
R7	115	100,000 OHM ¼ WATT CARBON RESISTOR
R8	116	250,000 OHM ¼ WATT CARBON RESISTOR
R9	117	500,000 OHM ¼ WATT CARBON RESISTOR
R13	105	1,000 OHM ¼ WATT CARBON RESISTOR

LEGEND	OUR PART NO	DESCRIPTION
R10	119	1 MEGOHM ¼ WATT CARBON RESISTOR
R11	146	25,000 OHM ¼ WATT CARBON RESISTOR
R12	135	420 OHM 1 WATT W.W. RESISTOR
T1	1215	SHIELDED 3 BAND ANTENNA COIL
T2	1404	SHIELDED 3 BAND OSCILLATOR COIL
T3	1508	TRIPLE TUNE I.F. TRANSFORMER
T4	1510	DIODE I.F. TRANSFORMER
T5	1015	POWER TRANSFORMER
T6	875	SPEAKER TRANSFORMER
S1-2-3-4	1913	2 GANG BAND SWITCH
S	—	LINE SWITCH ON TONE CONTROL
F	875	1600 OHM SPEAKER FIELD
B	3000	BIAS CELL

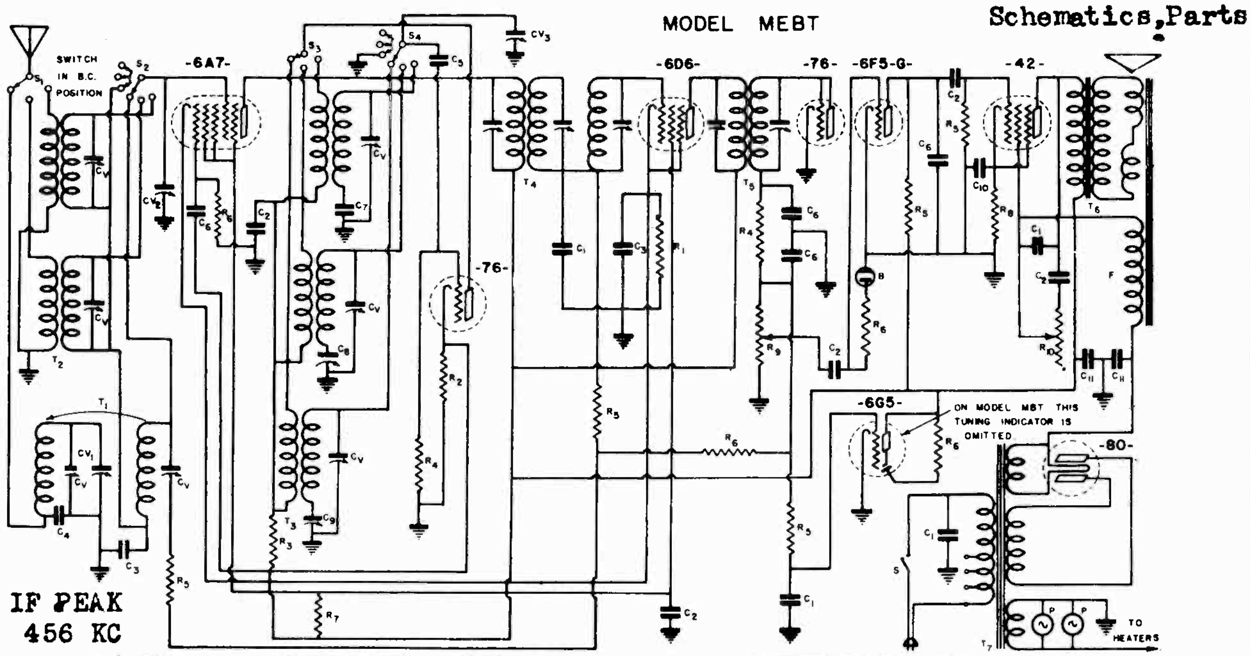
W.F.S.

CLIMAX RADIO & TELEV. CO., INC.

MODELS M,ME(Revised) MODEL MEBT Schematics,Parts

LONGWAVE 3 BAND SUPERHETERODYNE RECEIVER = AC OPERATED

MODEL MEBT



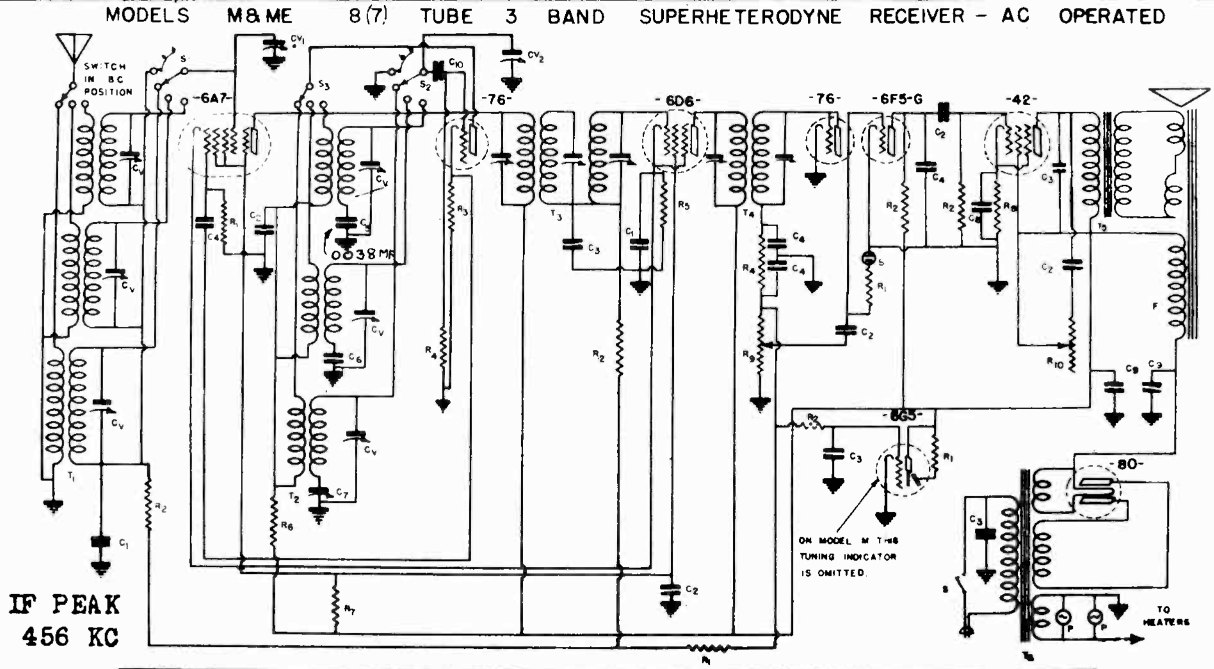
IF PEAK 456 KC

LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD-400V. TUBULAR CONDENSER
C_2	206	.05 MFD-400V. TUBULAR CONDENSER
C_3	203	.1 MFD-200V TUBULAR CONDENSER
C_4	214	.01 MFD-±5% TUBULAR CONDENSER
C_5	412	.00005 MICA CONDENSER
C_6	401	.00025 MICA CONDENSER
C_7	413	.0038 MICA CONDENSER
C_8	IN 1411	5 PLATE PADDING CONDENSER
C_9	506	3 PLATE PADDING CONDENSER
C_{10}	304	10 MFD 25 W.V. ELECTROLYTIC COND.
C_{11}	317	8 MFD 450 W.V. ELECTROLYTIC COND.
C_V	500	5-30 MFD TRIMMER CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
CV_{1-2-3}	613	3 GANG VARIABLE CONDENSER
R_1	103	250 OHM ½ WATT CARBON RESISTOR
R_2	105	1000 OHM ½ WATT CARBON RESISTOR
R_3	111	25,000 OHM ½ WATT CARBON RESISTOR
R_4	113	50,000 OHM ½ WATT CARBON RESISTOR
R_5	117	½ MEGOHM ½ WATT CARBON RESISTOR
R_6	119	1 MEGOHM ½ WATT CARBON RESISTOR
R_7	112	25,000 OHM ½ WATT CARBON RESISTOR
R_8	122	420 OHM 2 WATT WIRE WOUND RESIST.
R_9	2011	500,000 OHM VOLUME CONTROL
R_{10}	2012	75,000 OHM TONE CONTROL & SWITCH

LEGEND	OUR PART NO.	DESCRIPTION
T_1	1614	LONG-WAVE PRESELECTOR COIL
T_2	1221	B.C. & SKIP-BAND ANTENNA COIL
T_3	1411	LONG-WAVE 3 BAND OSCILLATOR COIL
T_4	1508	TRIPLE TUNE I.F. TRANSFORMER
T_5	1506	DIODE I.F. TRANSFORMER
T_6	IN 851	SPEAKER TRANSFORMER
T_7	1013	POWER TRANSFORMER
F	IN 851	1600 OHM SPEAKER FIELD
$S_{1-2-3-4}$	1913	2 GANG BAND SWITCH
B	3000	BIAS CELL
S	—	SWITCH ON VOLUME CONTROL
P	2902	MAZDA #46 PILOT LIGHT

MODELS M & ME 8(7) TUBE 3 BAND SUPERHETERODYNE RECEIVER - AC OPERATED



IF PEAK 456 KC

LEGEND	OUR PART NO.	DESCRIPTION
C_1	203	.1 MFD-200V TUBULAR CONDENSER
C_2	206	.05 MFD-400V TUBULAR CONDENSER
C_3	211	[illegible] MFD-400V TUBULAR CONDENSER
C_4	401	.00025 MICA CONDENSER
C_5	413	.0038 MICA CONDENSER
C_6	410	.0018 MICA CONDENSER
C_7	502	5 PLATE PADDING CONDENSER
C_V	500	5-30 MFD TRIMMER CONDENSERS
C_8	364	10 MFD 25 W.V. TUBULAR ELECTROLYTIC COND.
C_9	317	8 MFD 450 W.V. WET ELECTROLYTIC COND
C_{10}	412	.00005 MFD MICA CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	611	2 STAGE VARIABLE CONDENSER
R_1	119	1 MEGOHM ½ WATT CARBON RESISTOR
R_2	117	½ MEGOHM ½ WATT CARBON RESISTOR
R_3	105	1,000 OHMS ½ WATT CARBON RESISTOR
R_4	113	50,000 OHMS ½ WATT CARBON RESISTOR
R_5	103	250 OHMS ½ WATT CARBON RESISTOR
R_6	111	25,000 OHMS ½ WATT CARBON RESISTOR
R_7	112	25,000 OHMS ½ WATT CARBON RESISTOR
R_8	122	420 OHMS 2 WATT WIRE WOUND RESISTOR
R_9	2011	500,000 OHM VOLUME CONTROL
R_{10}	2012	75,000 OHM TONE CONTROL AND SWITCH

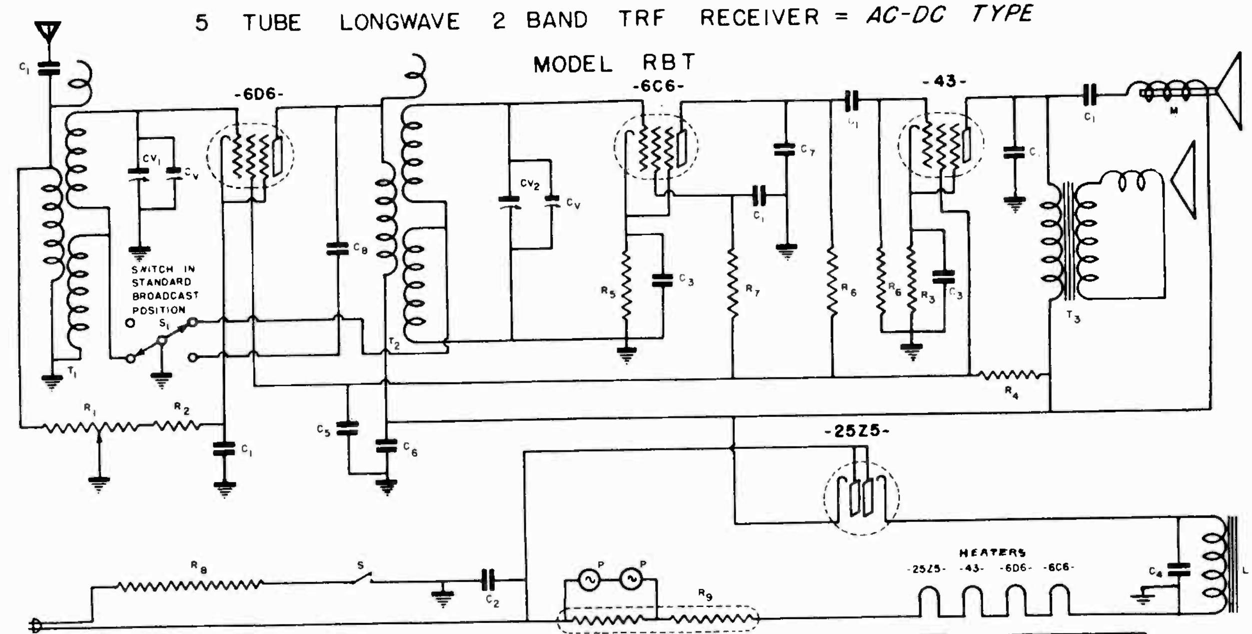
LEGEND	OUR PART NO.	DESCRIPTION
T_1	1215	SHIELDED 3 BAND ANTENNA COIL
T_2	1406	SHIELDED 3 BAND OSCILLATOR COIL
T_3	1508	TRIPLE TUNED I.F. TRANSFORMER
T_4	1506	DIODE I.F. TRANSFORMER
T_5	IN 851	SPEAKER TRANSFORMER
T_6	1012	POWER TRANSFORMER
$S_1 S_2 S_3$	1913	2 GANG BAND SWITCH
P	2902	MAZDA #46 PILOT LIGHT
S	—	SWITCH ON TONE CONTROL
F	IN 851	1600 OHM SPEAKER FIELD
B	3000	BIAS CELL

MODEL RBT
MODEL T
Schematics, Parts

CLIMAX RADIO & TELEV. CO., INC.

5 TUBE LONGWAVE 2 BAND TRF RECEIVER = *AC-DC TYPE*

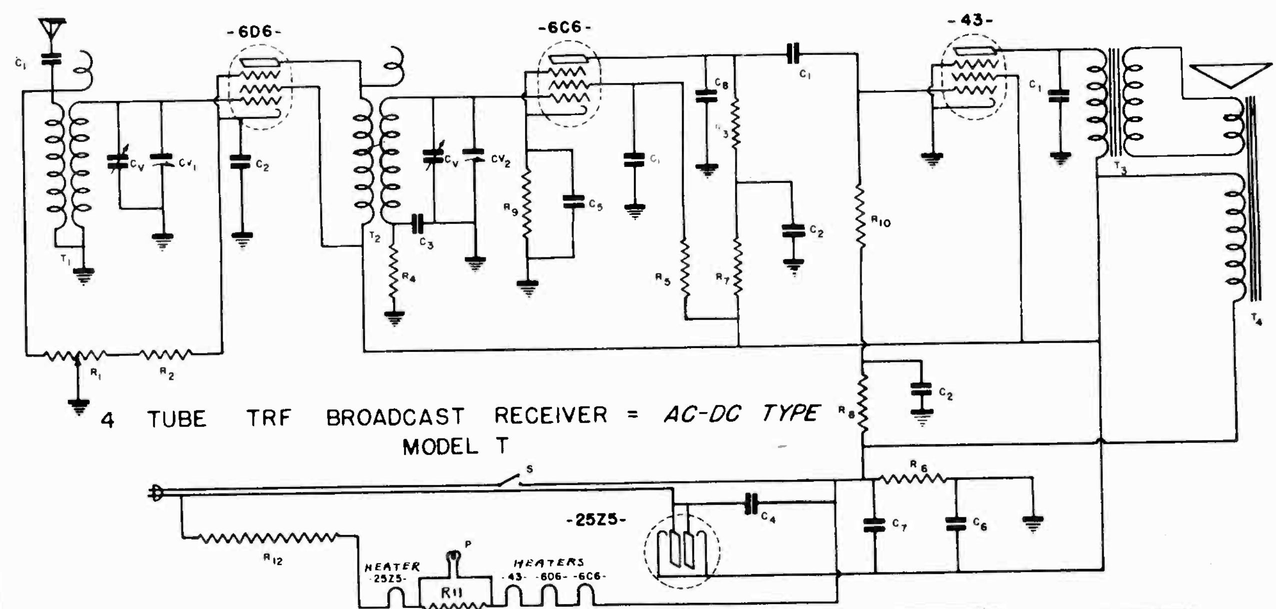
MODEL RBT



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD-400 V TUBULAR CONDENSER
C_2	210	.1 MFD-400 V TUBULAR CONDENSER
C_3	IN 316	5 MFD 25 W.V. ELECTROLYTIC COND.
C_4	IN 316	4 MFD 150 W.V. ELECTROLYTIC COND
C_5	IN 316	8 MFD 150 W.V. ELECTROLYTIC COND.
C_6	IN 316	14 MFD 150 W.V. ELECTROLYTIC COND.
C_7	401	.00025 MICA CONDENSER
C_8	405	.0004 MICA CONDENSER
C_V	ON 610	VARIABLE CONDENSER TRIMMER

LEGEND	OUR PART NO.	DESCRIPTION
CV_1, CV_2	610	2 GANG VARIABLE CONDENSER
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	250 OHM (Minimum on Volume Control)
R_3	104	600 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	108	5,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	..	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	120	3 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	1801	285 OHM RESISTOR CORD

LEGEND	OUR PART NO.	DESCRIPTION
R_9	2904	L-55-C BALLAST TUBE
T_1	1208	LONG WAVE ANTENNA COIL
T_2	1307	LONG WAVE R.F. COIL
T_3	IN 800	SPEAKER TRANSFORMER
L	IN 800	SPEAKER FIELD (2500 OHMS)
M	900	MAGNETIC SPEAKER
S_1	1914	BAND SELECTOR SWITCH
S	—	LINE SWITCH ON VOLUME CONTROL
P	2902	MAZDA #46 PILOT LIGHT



4 TUBE TRF BROADCAST RECEIVER = *AC-DC TYPE*

MODEL T

LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD.- 400 V TUBULAR CONDENSER
C_2	212	.05 MFD.- 200 V. TUBULAR CONDENSER
C_3	203	.1 MFD.- 200 V. TUBULAR CONDENSER
C_4	210	.1 MFD.- 400 V. TUBULAR CONDENSER
C_5	320	10 MFD - 25 W.V. ELECTROLYTIC CONDENSER
C_6	320	8 MFD - 150 W.V. ELECTROLYTIC CONDENSER
C_7	320	14 MFD - 150 W.V. ELECTROLYTIC CONDENSER
C_V	ON 617	VARIABLE CONDENSER TRIMMER
CV_1, CV_2	617	2 GANG VARIABLE CONDENSER
C_8	401	.00025 MICA CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
R_1	2006	10,000 OHM VOLUME CONTROL
R_2	—	275 OHM (Minim. on Volume Control)
R_3	117	5 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	120	3 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	135	420 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	115	100,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	138	150,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_9	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR

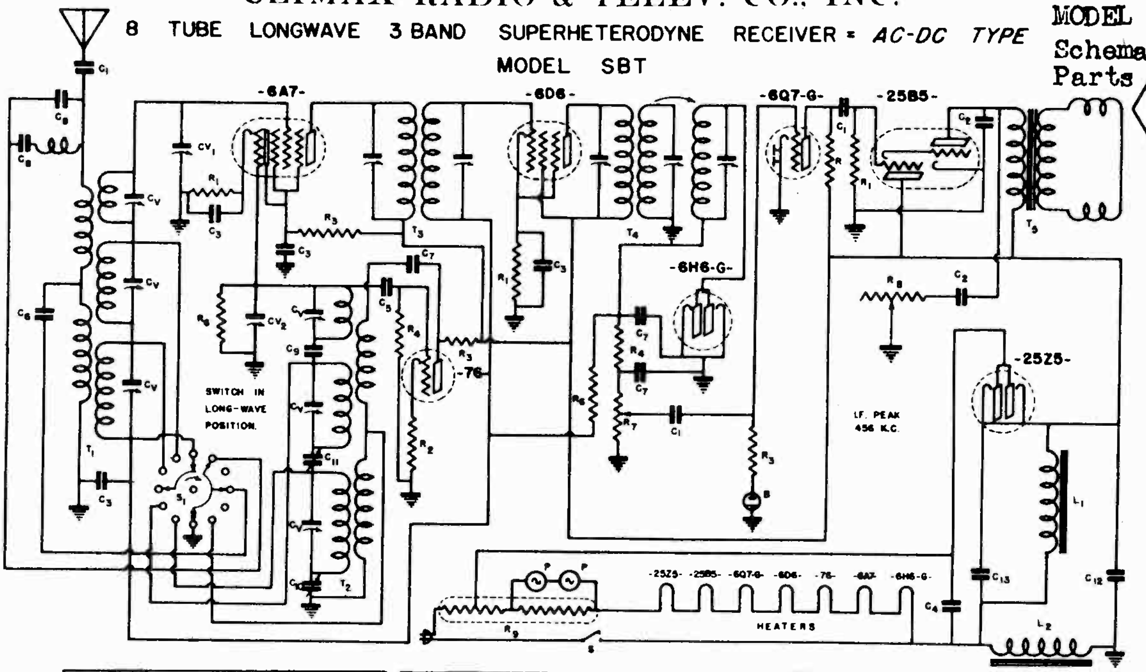
LEGEND	OUR PART NO.	DESCRIPTION
R_{10}	141	350,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_{11}	142	90 OHM 2 WATT WIRE WOUND RESISTOR
R_{12}	1807	165 OHM RESISTOR CORD
T_1	1200	HIGH IMPEDANCE PRIMARY ANTENNA COIL
T_2	1300	HIGH IMPEDANCE PRIMARY R.F. COIL
T_3	IN 803	SPEAKER OUTPUT TRANSFORMER
T_4	IN 803	SPEAKER FIELD (2500 OHMS)
S	—	SWITCH ON TONE CONTROL
P	2902	MAZDA #46 PILOT LIGHT

CLIMAX RADIO & TELEV. CO., INC.

MODEL JEBT
MODEL SBT
Schematics
Parts

8 TUBE LONGWAVE 3 BAND SUPERHETERODYNE RECEIVER = AC-DC TYPE

MODEL SBT



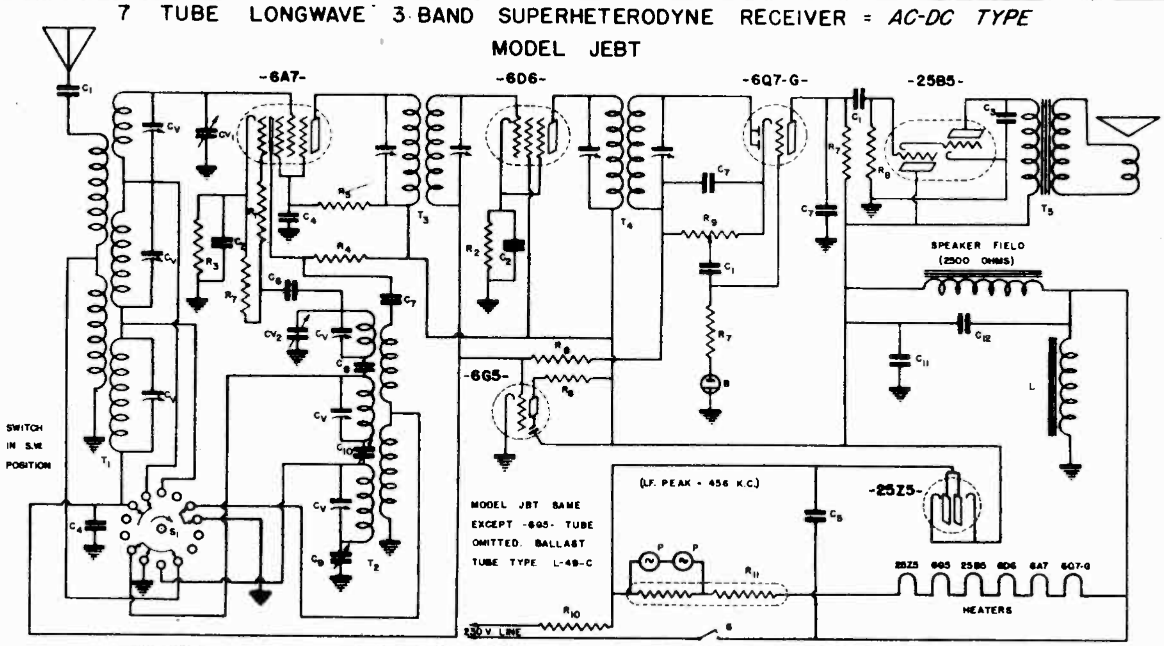
LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD-400 V. TUBULAR CONDENSER
C_2	206	.05 MFD-400 V. TUBULAR CONDENSER
C_3	203	.1 MFD-200V. TUBULAR CONDENSER
C_4	210	.1 MFD-400V. TUBULAR CONDENSER
C_5	412	.00005 MICA CONDENSER
C_6	400	.0001 MICA CONDENSER
C_7	401	.00025 MICA CONDENSER
C_8	406	.0005 MICA CONDENSER
C_9	407	.006 MICA CONDENSER
C_{10}	506	3 PLATE PADDING CONDENSER
C_{11}	507	5 PLATE PADDING CONDENSER
C_V	ON COIL	TRIMMER CONDENSER

LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	608	2 GANG VARIABLE CONDENSER
C_{12}	314	10 MFD 150 W.V. ELECTROLYTIC COND.
C_{13}	311	20 MFD 150 W.V. ELECTROLYTIC COND.
R_1	103	250 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	105	1000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	119	10,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	113	50,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	2007A	500,000 OHM VOLUME CONTROL
R_8	2008A	75,000 OHM TONE CONTROL

LEGEND	OUR PART NO.	DESCRIPTION
R_9	2911	230 V. BALLAST TUBE
T_1	1207	LONG WAVE ANTENNA COIL
T_2	1401	LONG WAVE OSCILLATOR COIL
T_3	1509	INPUT I.F. TRANSFORMER
T_4	1505	TRIPLE TUNED DIODE I.F. TRANSFORMER
T_5	IN 854	SPEAKER TRANSFORMER
L_1	IN 854	SPEAKER FIELD (2500 OHMS)
L_2	1101	FILTER CHOKE
S_1	1908	3 BAND SELECTOR SWITCH
P	2902	MAZDA #46 PILOT LIGHT
S	—	SWITCH ON VOLUME CONTROL
B	3000	BIAS CELL

7 TUBE LONGWAVE 3 BAND SUPERHETERODYNE RECEIVER = AC-DC TYPE

MODEL JEBT



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD-400 V TUBULAR CONDENSER
C_2	212	.05 MFD-200 V TUBULAR CONDENSER
C_3	206	.05 MFD-400 V TUBULAR CONDENSER
C_4	203	.1 MFD-200 V TUBULAR CONDENSER
C_5	210	.1 MFD-400 V TUBULAR CONDENSER
C_6	400	.0001 MICA CONDENSER
C_7	401	.00025 MICA CONDENSER
C_8	407	.006 MICA CONDENSER
C_9	506	3 PLATE PADDING CONDENSER
C_{10}	507	5 PLATE PADDING CONDENSER
C_{11}	314	10 MFD 150 W.V. ELECTROLYTIC COND.
C_{12}	311	20 MFD 150 W.V. ELECTROLYTIC COND.

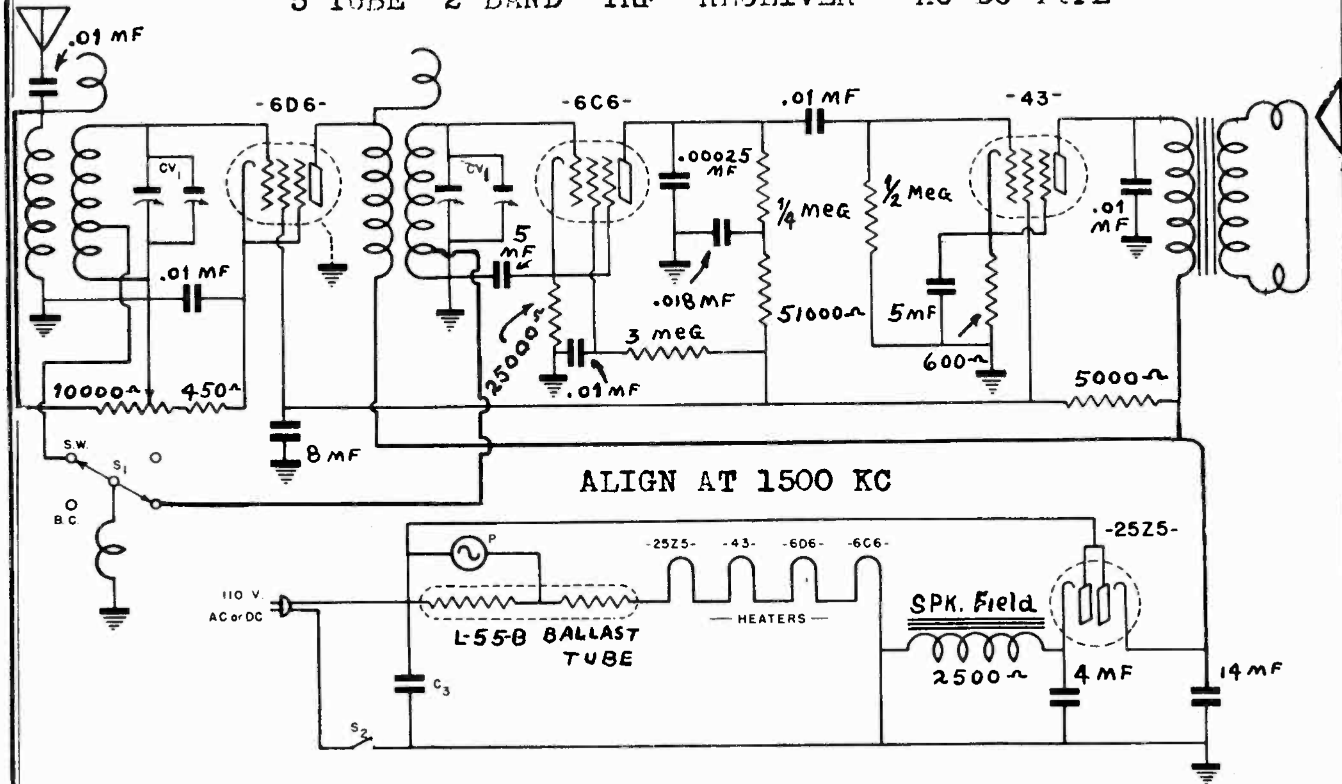
LEGEND	OUR PART NO.	DESCRIPTION
CV_1 CV_2	612	2 GANG VARIABLE CONDENSER
C_V	ON COIL	TRIMMER CONDENSER
R_1	101	150 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	103	250 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	136	400 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	108	5,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	113	50,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_9	2009	500,000 OHM VOLUME CONTROL & Switch
R_{10}	1801	285 OHM RESISTOR CORD

LEGEND	OUR PART NO.	DESCRIPTION
R_{11}	2905	L-49-C BALLAST TUBE (MODEL JBT)
R_{11}	2906	L-42-C BALLAST TUBE (MODEL JEBT)
T_1	1220	LONG WAVE ANTENNA COIL
T_2	1410	LONG WAVE OSCILLATOR COIL
T_3	1503	I.F. TRANSFORMER
T_4	IN 1506	DIODE I.F. TRANSFORMER
T_5	IN 805	SPEAKER TRANSFORMER
L	1101	FILTER CHOKE
S_1	1915	3 BAND SELECTOR SWITCH
P	2902	MAZDA 46 PILOT LIGHT
S	—	LINE SWITCH ON VOLUME CONTROL
B	3000	BIAS CELL

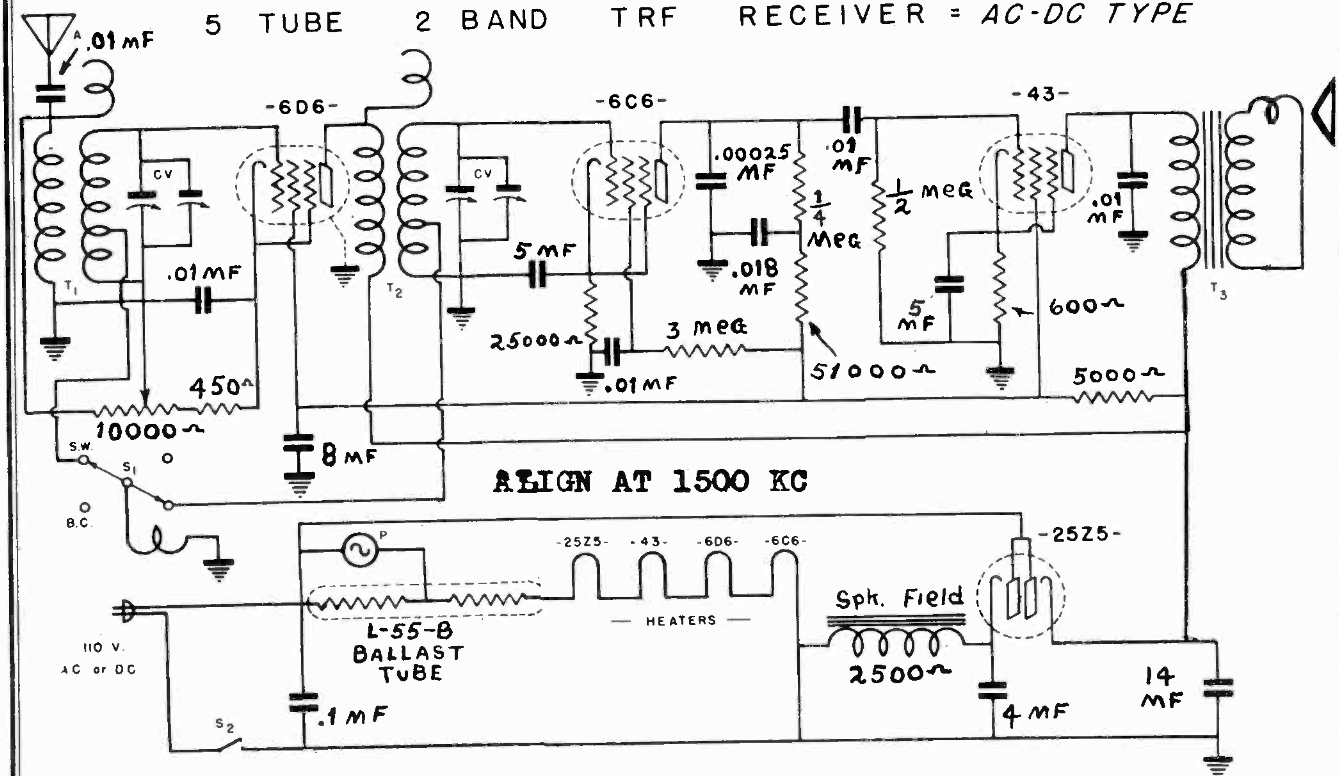
MODEL Q-69
MODEL Z-55
Schematics

CLIMAX RADIO & TELEV. CO., INC.

Z-55
5 TUBE 2 BAND TRF RECEIVER - AC-DC TYPE



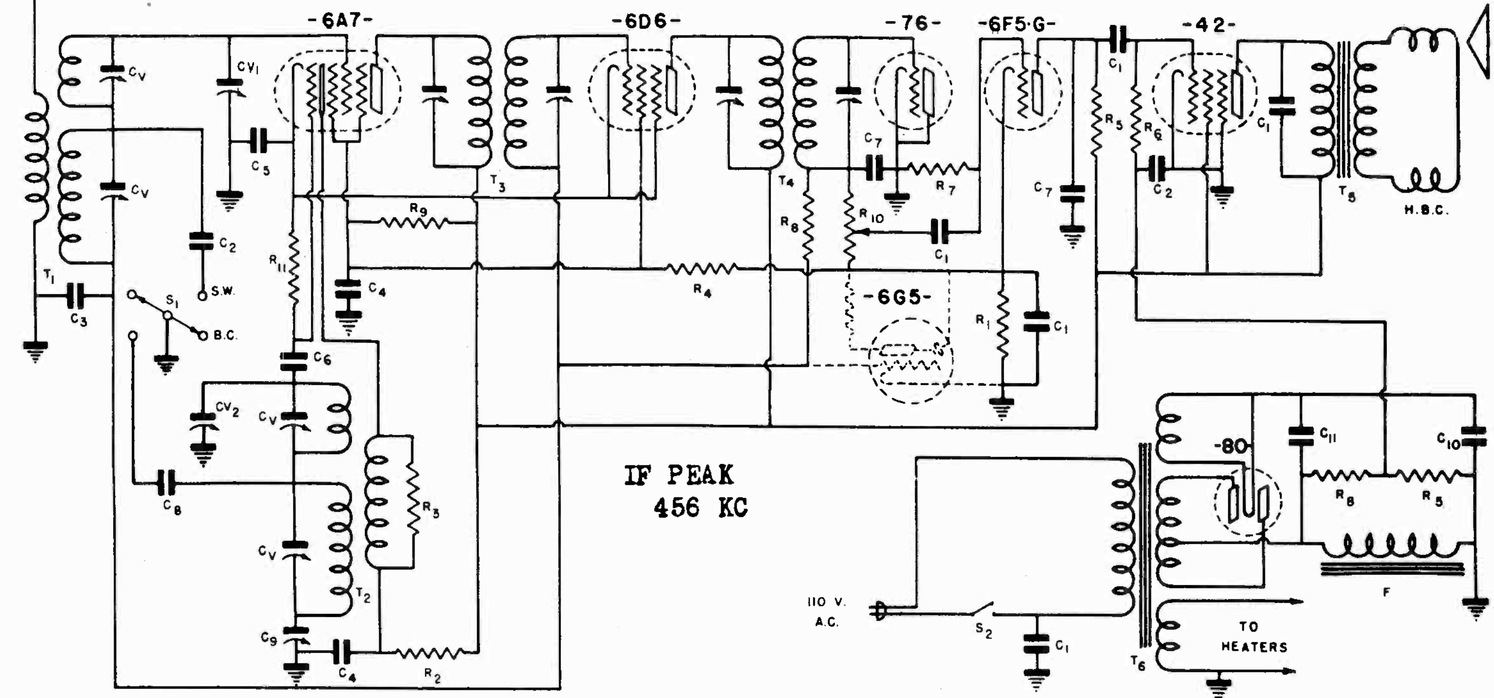
Q-69
5 TUBE 2 BAND TRF RECEIVER = AC-DC TYPE



MODELS AC60,AC64, AC64B,AC61,AC65
Schematic,Parts

CLIMAX RADIO & TELEV. CO., INC.

MODELS AC 60 - AC 64 - AC 64-B
MODELS AC 61 - AC 65 (WITHOUT 6G5 TUBE)
7 (OR 6) TUBE TWO BAND AC RECEIVER



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD 400 V. TUBULAR CONDENSER
C_2	212	.05 MFD 200 V. TUBULAR CONDENSER
C_3	203	.1 MFD 200V. TUBULAR CONDENSER
C_4	210	.1 MFD 400 V. TUBULAR CONDENSER
C_5	204	.25 MFD 200V. TUBULAR CONDENSER
C_6	400	.0001 MICA CONDENSER
C_7	401	.00025 MICA CONDENSER
C_8	411	.00128 MICA CONDENSER
C_9	507	5 PLATE PADDING CONDENSER
C_V	500	5-30 MFD TRIMMER CONDENSER

LEGEND	OUR PART NO	DESCRIPTION
CV_{1-2}	612-A	2 GANG VARIABLE CONDENSER
C_{10}	IN 323	4 MFD 600 P.V. ELECTROLYTIC COND.
C_{11}	IN 323	8 MFD 600 P.V. ELECTROLYTIC COND.
T_1	1210	ANTENNA COIL
T_2	1404	OSCILLATOR COIL
T_3	1507	OUTPUT I F TRANSFORMER
T_4	1503	INPUT I F TRANSFORMER
T_5	IN 811	SPEAKER TRANSFORMER
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
F	IN 811	1600 OHM SPEAKER FIELD

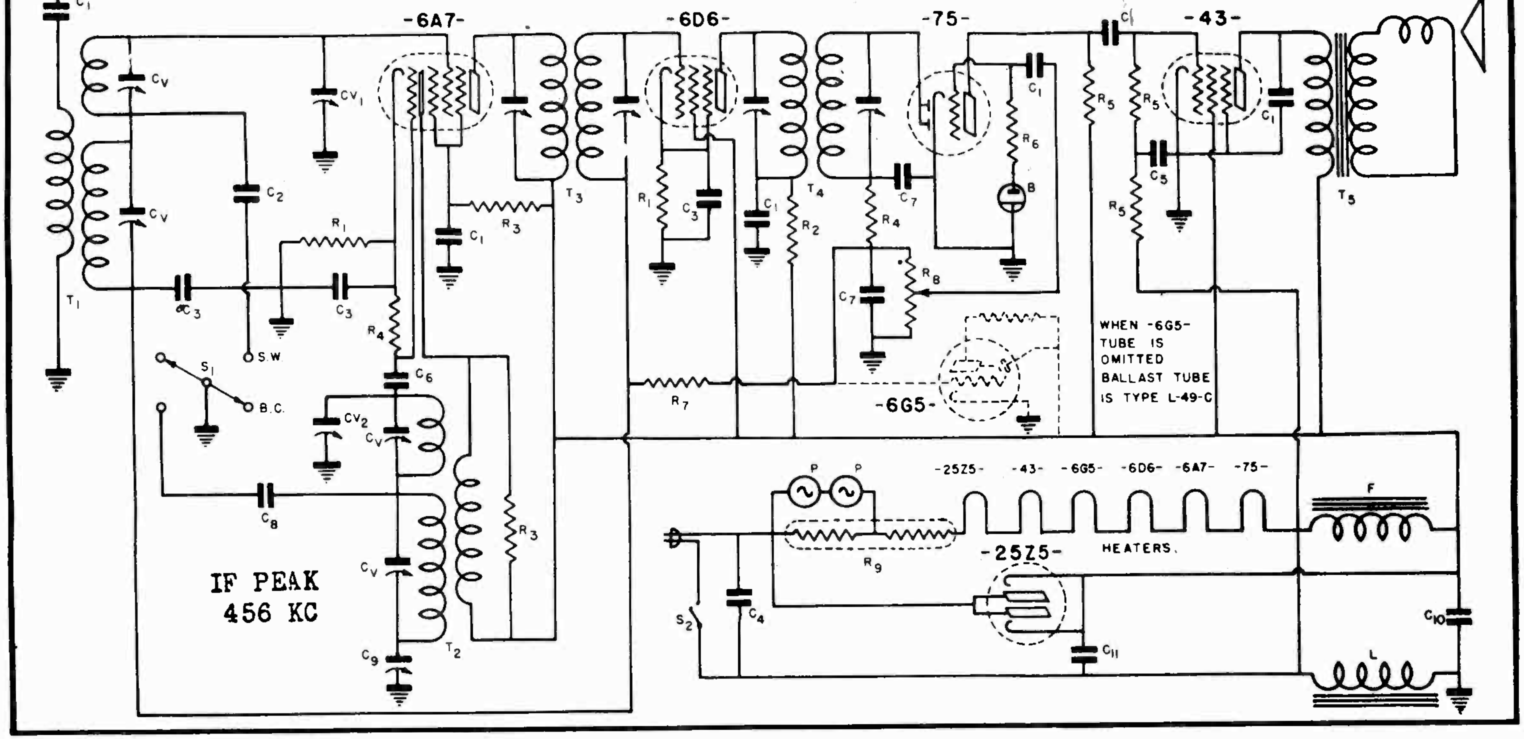
LEGEND	OUR PART NO.	DESCRIPTION
R_1	139	400 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	109	10,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	113	50,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	116	250,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	141	350,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_9	112	25,000 OHM 1 WATT CARBON RESISTOR
R_{10}	2009	500,000 OHM VOLUME CONTROL
R_{11}	103	250 OHM $\frac{1}{4}$ WATT CARBON RESISTOR

W.F.S.

MODELS U60,U61,U64
U64B,U65
Schematic,Parts

CLIMAX RADIO & TELEV. CO., INC.

MODELS U-60 U-64 U-64B
MODELS U-61 U-65 (WITHOUT 6G5 TUBE)
7 (OR 6) TUBE TWO BAND RECEIVER = *AC-DC TYPE*



LEGEND	OUR PART NO.	DESCRIPTION
C_1	211	.01 MFD 400 V. TUBULAR CONDENSER
C_2	206	.05 MFD 200 V. TUBULAR CONDENSER
C_3	203	.1 MFD 200 V. TUBULAR CONDENSER
C_4	210	.1 MFD 400 V. TUBULAR CONDENSER
C_5	204	.25 MFD 200 V. TUBULAR CONDENSER
C_6	400	.0001 MICA CONDENSER
C_7	401	.00025 MICA CONDENSER
C_8	411	.00128 MICA CONDENSER
C_9	507	5 PLATE PADDING CONDENSER
C_{10}	314	10 MFD 150 W.V. WET ELECTROLYTIC COND.
C_{11}	311	20 MFD 150 W.V. WET ELECTROLYTIC COND.

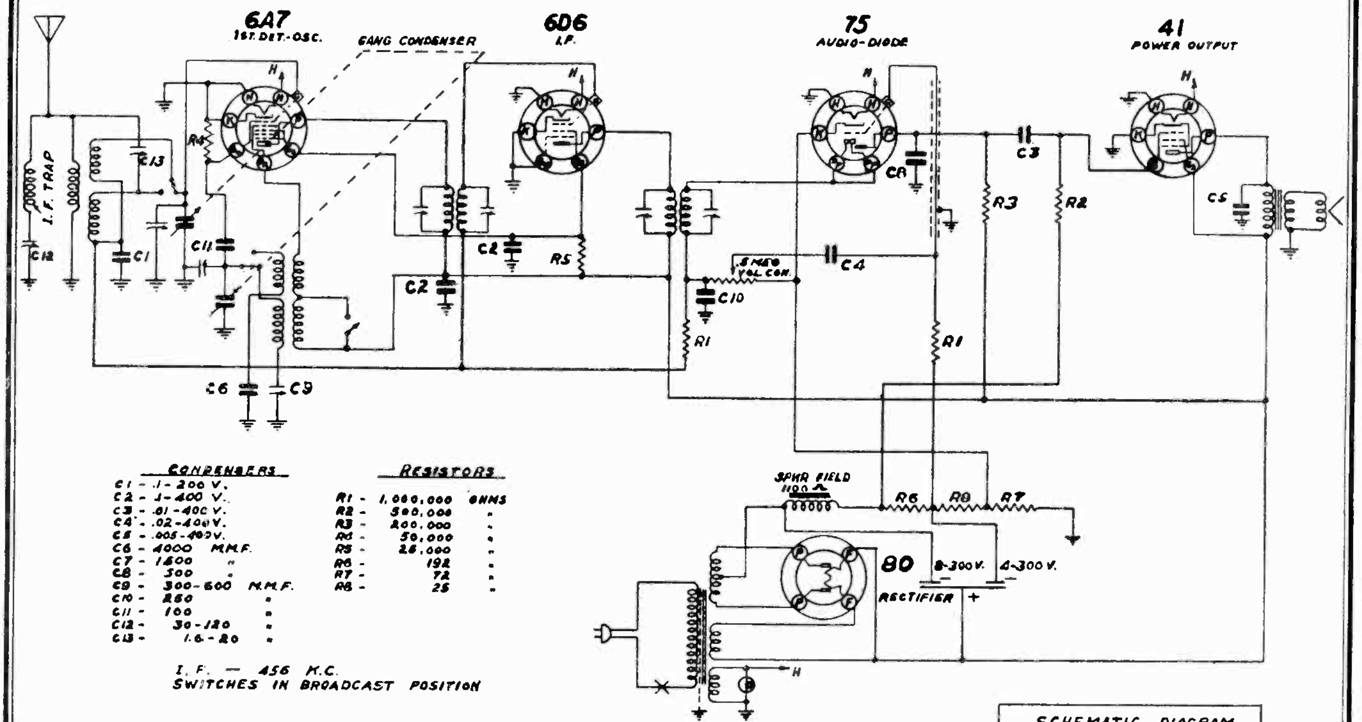
LEGEND	OUR PART NO.	DESCRIPTION
CV_{1-2}	612-A	2 GANG VARIABLE CONDENSER
C_V	500	5-30 MFD TRIMMER CONDENSER
R_1	103	250 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_2	116	2000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_3	111	25,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_4	113	50,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_5	116	250,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_6	117	500,000 OHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_7	119	1 MEGOHM $\frac{1}{4}$ WATT CARBON RESISTOR
R_8	2009	500,000 OHM VOLUME CONTROL
R_9	2906	L-42-C BALLAST TUBE (with 6G5 tube)
R_9	2905	L-49-C BALLAST TUBE (without 6G5 tube)

LEGEND	OUR PART NO.	DESCRIPTION
T_1	1210	ANTENNA COIL
T_2	1404	OSCILLATOR COIL
T_3	1507	OUTPUT IF TRANSFORMER
T_4	1503	INPUT IF TRANSFORMER
T_5	IN 800	SPEAKER TRANSFORMER
L	1100	FILTER CHOKE
S_1	1914	BAND SELECTOR SWITCH
S_2	—	LINE SWITCH ON VOLUME CONTROL
P	2902	MAZDA #46 PILOT LIGHT
B	3000	BIAS CELL
F	IN 800	SPEAKER FIELD (2500 OHMS)

W.F.S.

CONTINENTAL RADIO & TELEV. CORP.

MODEL 5M Chassis
Schematic, Socket
Trimmers,
Alignment



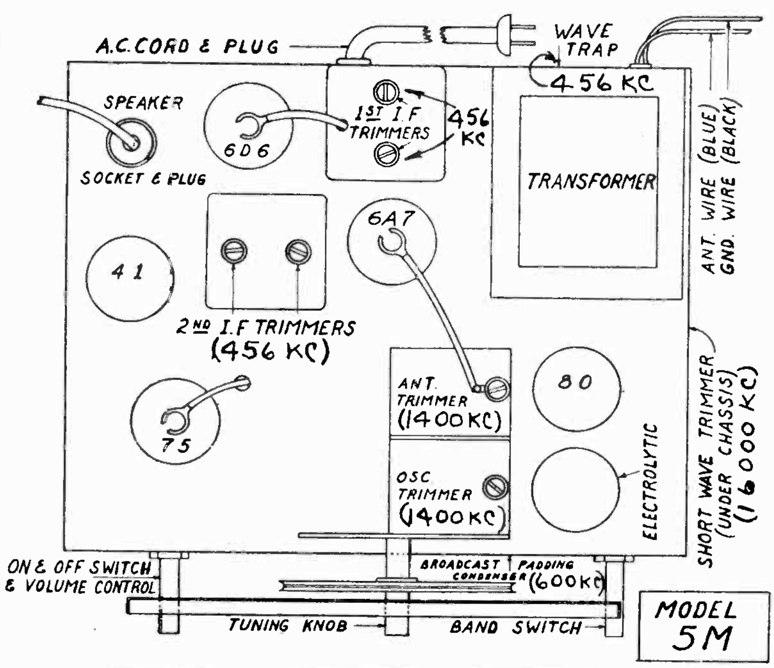
SCHEMATIC DIAGRAM
MODEL-5M

CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION

FREQUENCY RANGE -
535 to 1750 - KC
5600 to 18100 - KC

5 Tube AC Superheterodyne
5M Chassis

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.**



MODEL
5M

ANTENNA

Use a standard outside antenna of at least 50 feet including lead-in. Connect the antenna to the "Blue" lead.

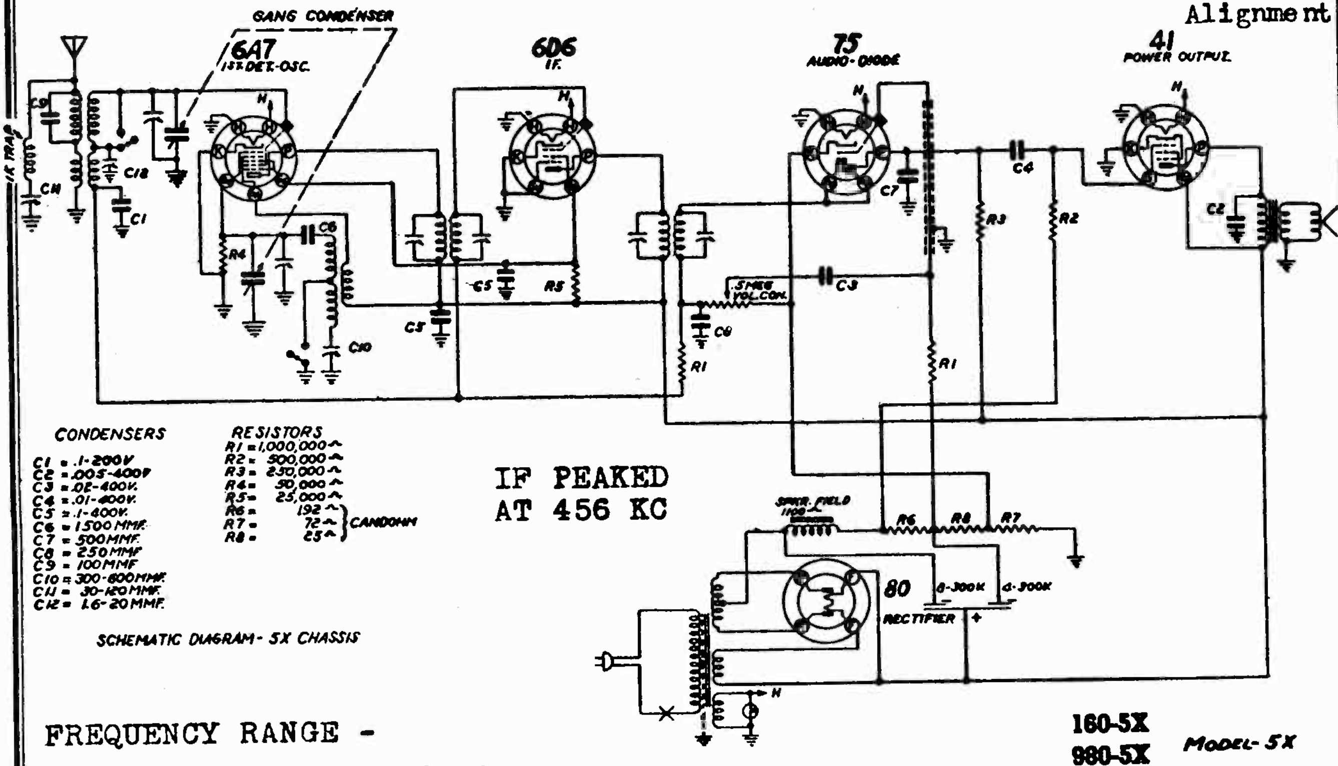
In remote locations that are far away from powerful broadcasting stations, a longer antenna may be used for increased receiving range. Antennas as long as 150 to 200 feet may be employed in "dead spots." (Longer antennas increase sensitivity and decrease selectivity slightly.)

The ground wire should be connected to the "Black" lead.

MODELS 160-5X, 980-5X
Chassis 5X

CONTINENTAL RADIO & TELEV. CORP.

Schematic
Trimmers
Socket
Alignment



CONDENSERS	
C1	= .1-200V
C2	= .005-400V
C3	= .02-400V.
C4	= .01-400V.
C5	= .1-400V.
C6	= 1500 MMF.
C7	= 500 MMF.
C8	= 250 MMF
C9	= 100 MMF
C10	= 300-600 MMF.
C11	= 30-120 MMF.
C12	= 1.6-20 MMF.

RESISTORS		
R1	= 1,000,000 Ω	
R2	= 500,000 Ω	
R3	= 250,000 Ω	
R4	= 50,000 Ω	
R5	= 25,000 Ω	
R6	= 192 Ω	CANDOHM
R7	= 72 Ω	CANDOHM
R8	= 25 Ω	CANDOHM

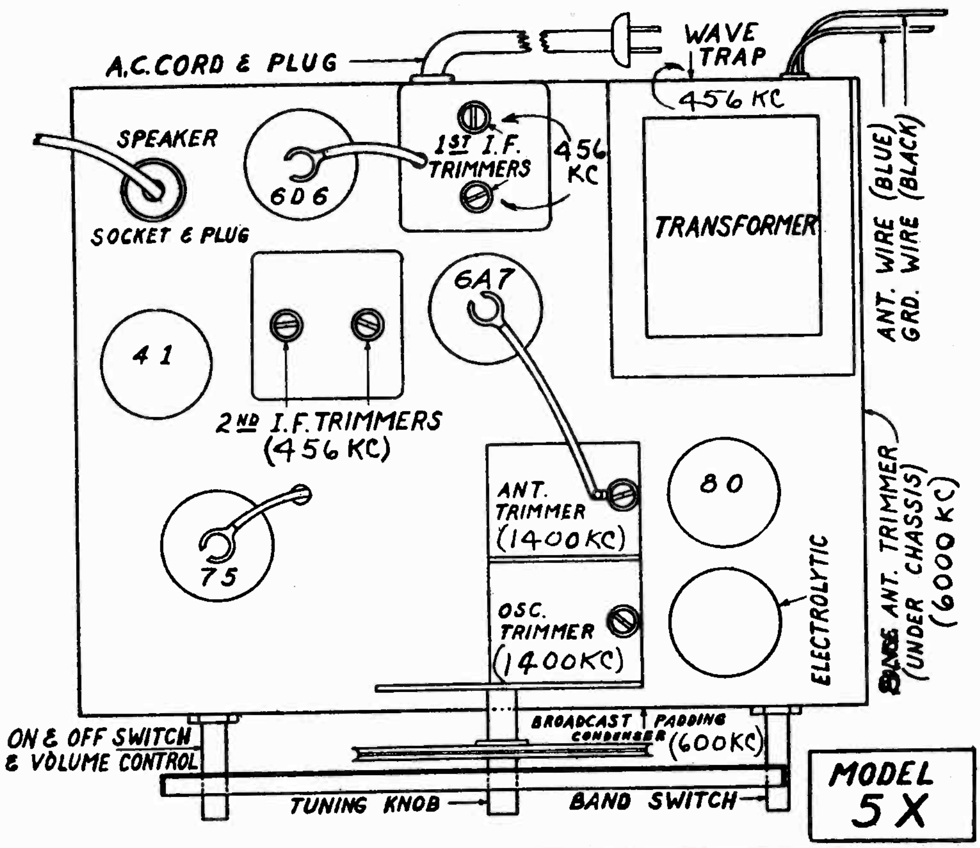
SCHEMATIC DIAGRAM - 5X CHASSIS

FREQUENCY RANGE -

535 to 1750 KC
5600 to 18100 KC

5 Tube AC Superheterodyne
5X Chassis

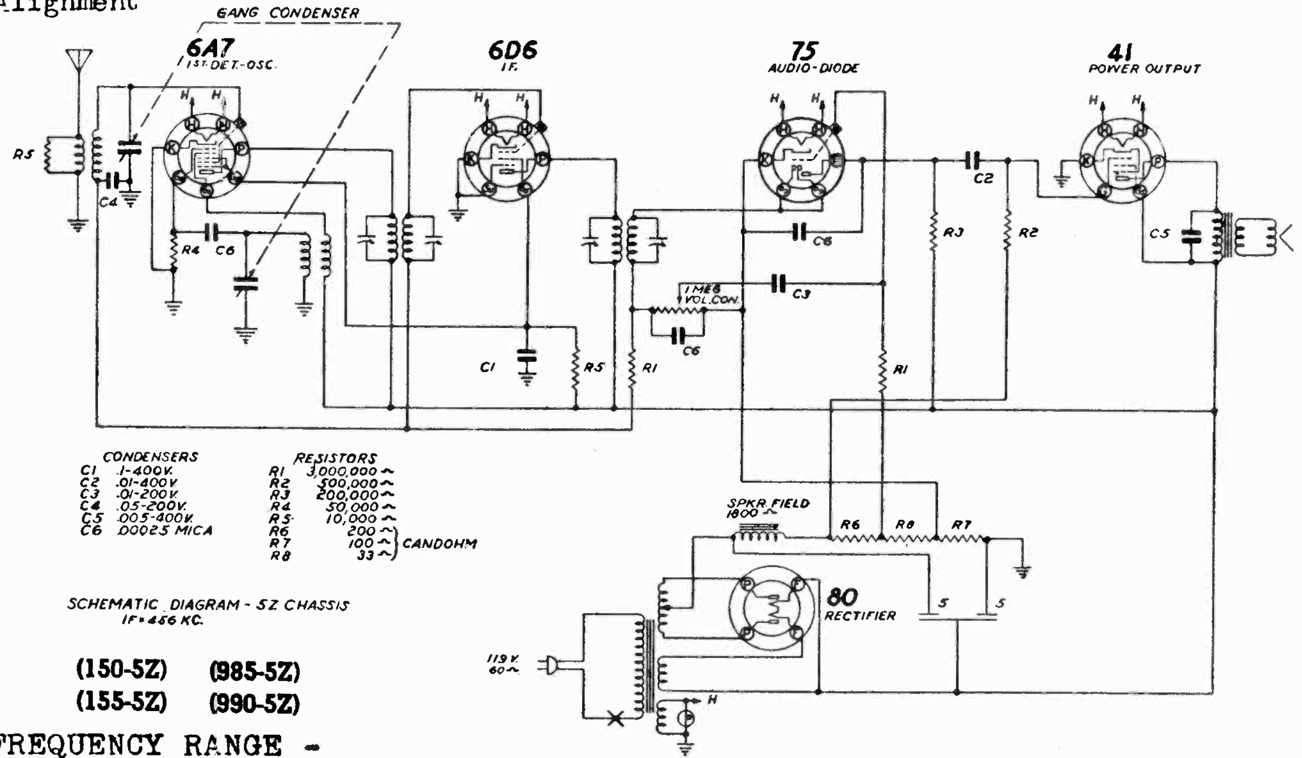
CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION



Schematic
Trimmers
Socket
Alignment

CONTINENTAL RADIO & TELEV CORP.

MODELS 150-5Z, 155-5Z, 985-5Z, 990-5Z
Chassis 5Z



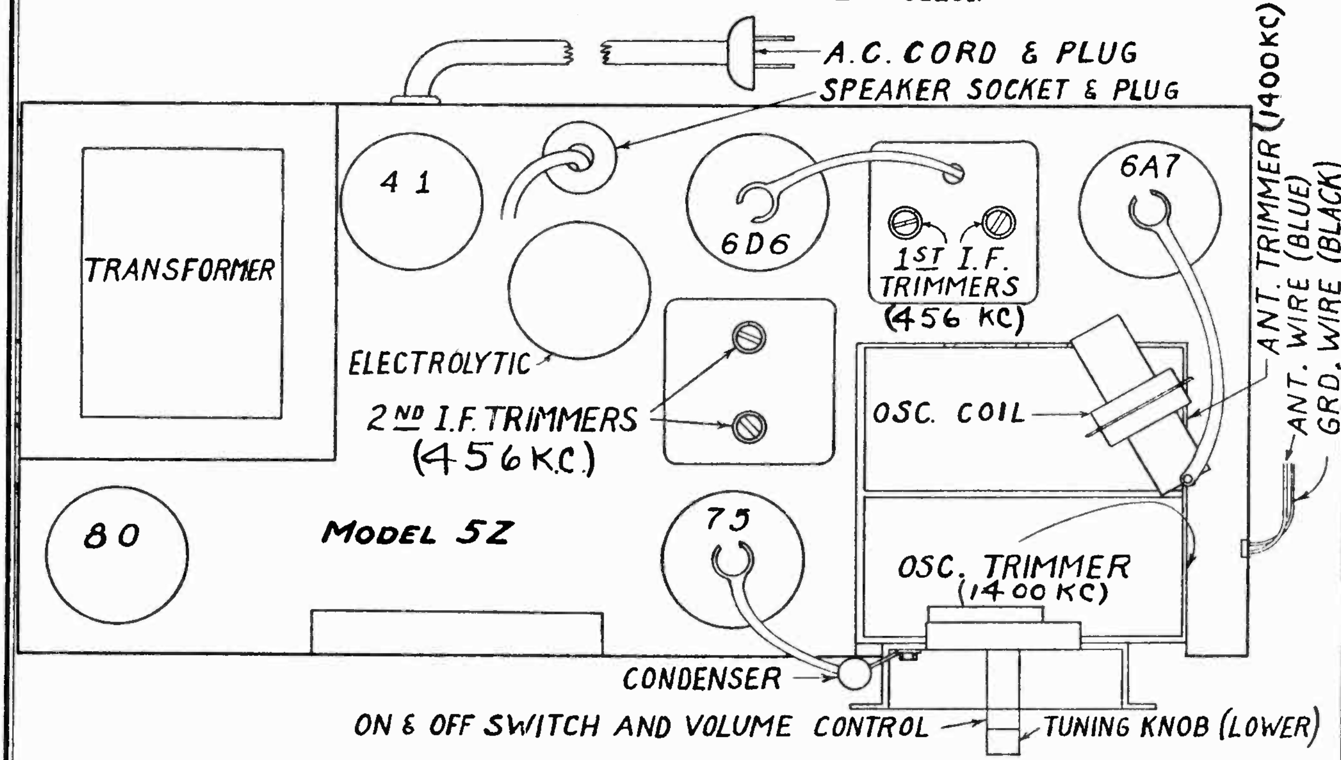
(150-5Z) **(985-5Z)**
(155-5Z) **(990-5Z)**

FREQUENCY RANGE -
535 to 1720 KC

MODEL-5Z

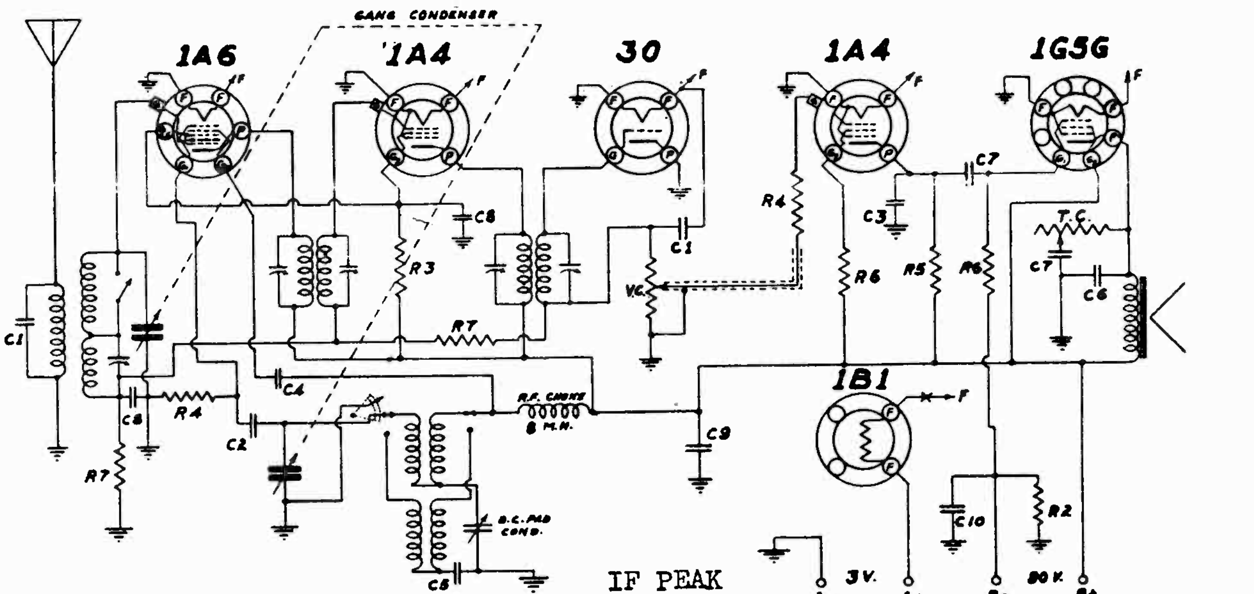
Five Tube A C Superheterodyne
5Z Chassis

CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION



MODEL 6Q Chassis
Schematic, Socket
Trimmers, Alignment
Battery Connections

CONTINENTAL RADIO & TELEV. CORP.



IF PEAK
456 KC

CONDENSERS

Nº	MFD.	
1	.0001	MICA
2	.00025	"
3	.0005	"
4	.001	"
5	.0015	"
6	.002	200 VOLTS
7	.01	200 "
8	.05	200 "
9	.25	
10	10.0	ELECT. 25 V.

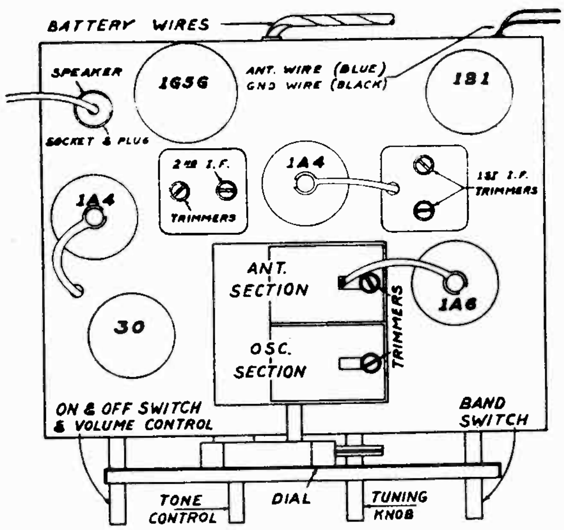
RESISTORS

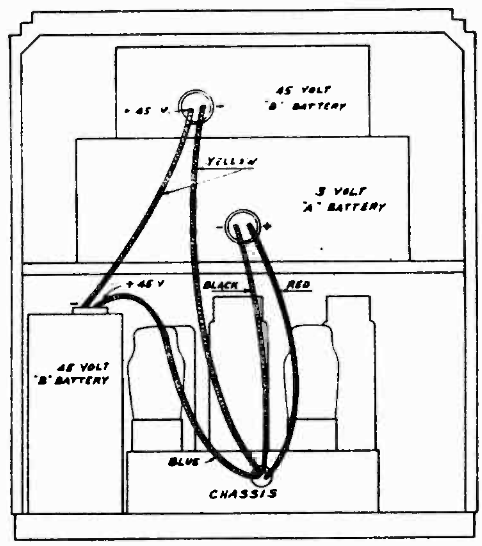
Nº	OHMS	WATTS
1	50.	¼
2	535. ± 5%	½
3	10,000.	⅓
4	50,000.	¼
5	200,000.	¼
6	1. MEG.	¼
7	2. MEG.	¼

V.C. - VOLUME CONTROL - 1 MEGOHM.
T.C. - TONE CONTROL - 100,000 OHMS.
SWITCHES IN BROADCAST POSITION.

FREQUENCY RANGE -
535 to 1730 KC
2.2 to 6.5 MC

SCHEMATIC DIAGRAM
MODEL 6Q





IF ALIGNMENT - Wave change Sw. in BC position. Gang condenser at minimum, generator at 456 KC, output to 1A6 CG thru .05 MFD condenser, Generator grounded to receiver, align four trimmers of IF transformers.

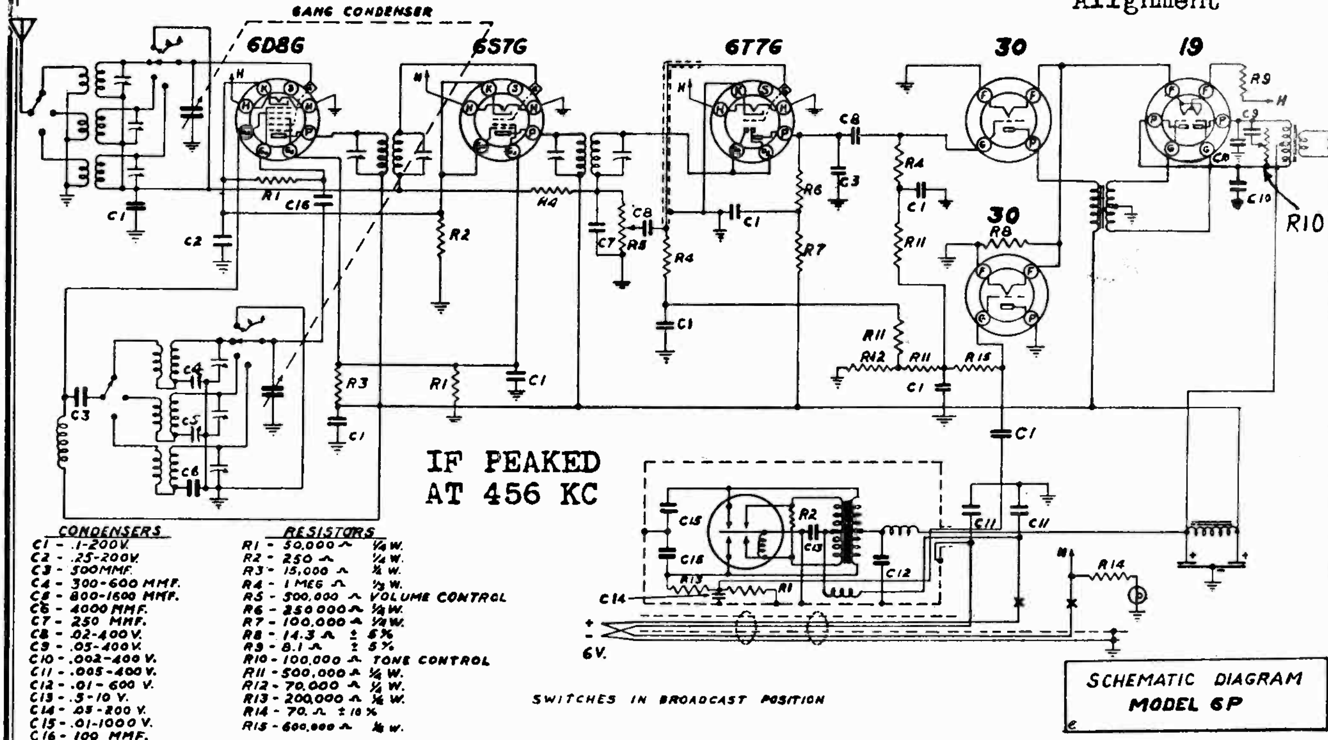
BROADCAST - Generator connected to antenna lead thru 200 MMFD condenser, and set at 1400 KC. Gang condenser at minimum. Trim oscillator then Antenna trimmers. Pad the oscillator circuit at 600 KC while rocking gang condenser.

SHORT WAVE - Generator at 6000 KC, start rotating gang condenser from HF end, when signal is heard, adjust antenna trimmer (SW) for maximum peak.

Repeat all adjustments for maximum performance.

MODEL 6P Chassis Schematic, Alignment

CONTINENTAL RADIO & TELEV. CORP.



FREQUENCY RANGE-
550 to 1700 KC
1700 to 5400 KC
5600 to 18100 KC

Six Tube 6 Volt Battery Superheterodyne
6P Chassis

ALIGNMENT DATA AND SERVICING

GENERAL DATA

The alignment of this receiver requires the use of a test oscillator which will cover the frequencies of 456, 600, 1400, 1730, 1800, 4000, 5600, 6000, and 18,000 KC and an output meter which is 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 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, 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 ocillator to 456 KC and connect the output to the grid of the first detector tube (6D8G) through a .05 or .1 mfd. condenser. The ground on the test oscillator can be connected to the chassis ground. 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 "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 antenna. 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 at 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 and adjust the "short wave antenna" 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 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.

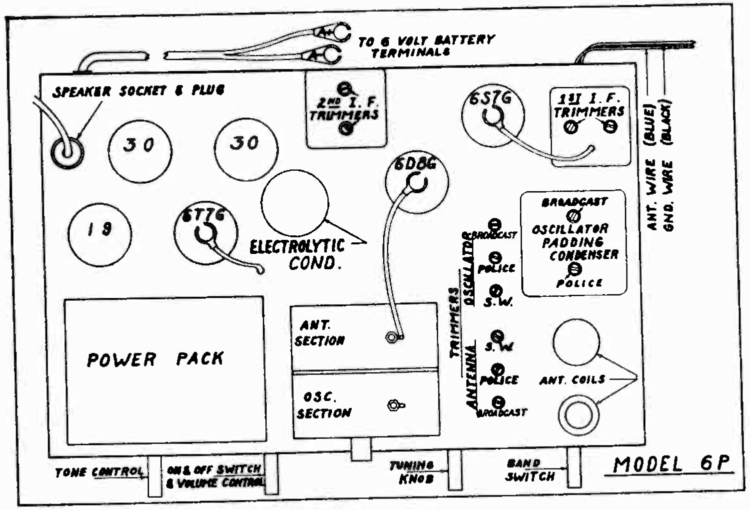
SERVICE DATA FOR ALL BANDS

If it is suspected that the oscillator has stopped but is doubtful due to the presence of the usual amount of noise level, it is suggested that the oscillator plate voltage be checked. To ascertain whether the tube is oscillating, ground the oscillator grid of the 6D8G (short stator and rotor plates of oscillator section on gang condenser). If oscillating properly, grounding the grid will cause an appreciable drop in oscillator voltage.

MODEL 6P Chassis
Socket, Trimmers
Notes, Parts

CONTINENTAL RADIO & TELEV. CORP.

This receiver is designed to operate over three tuning ranges; the broadcast range which extends from 550 to 1700 Kilocycles (KC) (176 to 545 meters), Police and Aviation Band which extends from 1700 to 5400 Kilocycles (KC) (56 to 176 Meters) and the International Short Wave Band which extends from 5600 to 18,100 Kilocycles (KC) 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.



NOTICE — MICROPHONIC NOISE CORRECTION
If this radio instrument appears to be microphonic during operation, loosen the four (4) mounting screws 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 four (4) 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.

"Should this radio set be moved any great distance, it is best to put the wooden strips back under the chassis and have the mounting screws securely tightened. If this is not done, damage may be done to the instrument, cabinet or tubes."

INSTALLATION

BATTERY CONNECTIONS At the rear of the receiver there will be found extending from the right end of the chassis, the battery connecting cable. Observation will show that 5 wires are brought out from the braided cable. The **red** and **red with black tracer wires** are joined together and should **both** be securely fastened to the positive (+) terminal of the 6 volt storage battery. The other 3 wires which are **brown, black with green tracer** and **Metallic shield lead** are also joined together and should be securely connected to the negative (—) post of the battery.

Note: It is extremely important that only the best possible means of obtaining a secure connection to the battery terminals be employed. If a battery with automobile terminal posts is used, the **large** post is the positive (+) post; the **smaller post** is the **negative** (—) terminal. It is suggested, when using a battery with auto type posts that large heavy lead covered battery clips be used in making connections. Make sure that **all wires** are firmly connected to clips (solder if possible). Also see that the jaw teeth of the clips are clean, and firmly bite into the post. It is very important that the battery posts and battery clip teeth be cleaned at frequent intervals to assure maintaining good connections. Corrosion may be readily removed by cleaning with a solution of 3 tablespoons of bicarbonate of soda (baking soda) and one cup of water. This solution neutralizes the acid coating that causes the corrosion and leaves a protective condition that retards further corrosion. **It is important that this solution does not in any way enter the interior of the battery.**

ANTENNA

REGULAR ANTENNA Use a standard outside antenna of at least 50 feet including lead-in. Connect the antenna to the "Blue" lead.

In remote locations that are far away from powerful broadcasting stations, a longer antenna may be used for increased receiving range. Antennas as long as 150 to 200 feet may be employed in "dead spots." (Longer antennas increase sensitivity and decrease selectivity slightly.)

GROUND **This receiver requires a good ground.** Water pipes make a very desirable ground connection. Where the wire makes contact, the pipe must be clean and free of paint or corrosion. The ground wire should be connected to the "Black" lead.

Where the above mentioned ground facilities are not available, a good outside ground may be had by sinking a metal pipe or 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 desirable moist condition throughout the year.

IMPORTANT NOTE: The battery must never be charged while set is in operation. If a windcharger is used, it should always be disconnected from the battery when the receiver is being used. An inexpensive single pole switch can be used for disconnecting the windcharged from the battery. This will increase the life of the tubes and give additional economy to the use of the receiver.

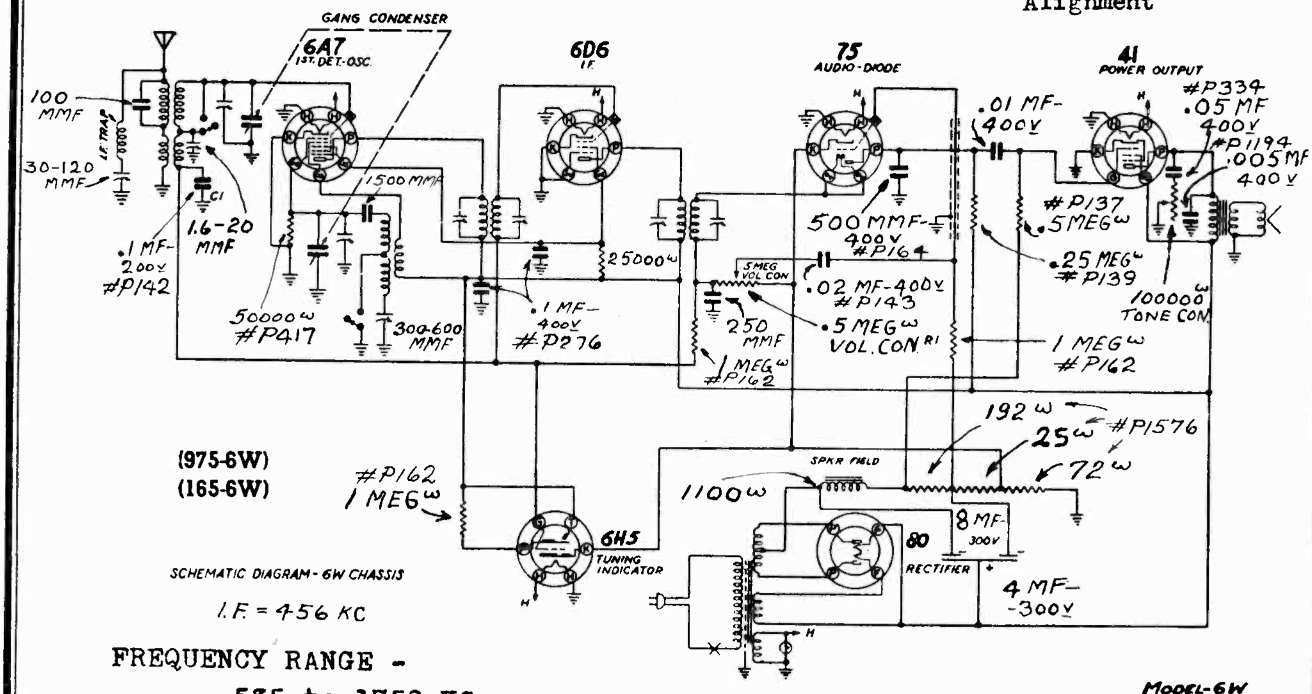
P1727	Antenna Coil
P392	Battery Cable
P402	Vibrator Unit
P406	Vibrator Socket
P411	Filter Choke
P551	Type 30 Socket
P687	Type 19 Socket
P1666	Type 6T7G7 Socket
P1667	Type 6D8G Socket
P1668	Type 6S7G Socket
P1368	Speaker Socket
P1735	1st I.F. Transformer
P954	Power Transformer
P958	Electrolytic Condenser
P1160	6 Gang Trimmer
P1455	Tube Shield
P1540	Escutcheon
P1605	Knob (Volume)
P1606	Knob (Selector
P1607	Knob (Band Switch)
P1608	Knob (Tone)
P1764	Tone Control
P1220	200,000 Ohm ¼ Watt 20% Resistor
P1500	200,000 Ohm 1/3 Watt 20% Resistor
P162B	1 Megohm 1/3 Watt Resistor
P1715	14.3 Ohm ½ Watt 5% Wire Wound Resistor
P1716	8.1 Ohm ½ Watt 5% Wire Wound Resistor
P141	.25 Mfd. 200 Volt Condenser
P142	.1 Mfd. 200 Volt Condenser
P143	.02 Mfd. 400 Volt Condenser

P1653	Rubber Mounting Pads
P1676	Gang Condenser
P1677	Volume Control and Switch
P1682	Trimmer Condenser
P1663	Pointer
P1685	Band Switch
P1686	Pilot Light Socket
P1687	Pilot Light Bulb
P1688	Dial Scale
P1690	2nd I.F. Transformer
P719	Input Audio Transformer
P1696	6" P. M. Speaker
P1697	8" P. M. Speaker for Console
P675	20,000 ¼ Watt 20% Resistor
P139	250 Ohm ¼ Watt 20% Resistor
P1732	70 Ohm ½ Watt 10% Wire Wound Resistor
P136	250 Ohm ¼ Watt 20% Resistor
P137	500 Ohm ¼ Watt 20% Resistor
P258	15,000 Ohm ¼ Watt 20% Resistor
P280	100,000 Ohm ¼ Watt 20% Resistor
P417	50,000 Ohm ¼ Watt 20% Resistor
P148	.05 Mfd. 200 Volt Condenser
P334	.05 Mfd. 400 Volt Condenser
P335	.01 Mfd. 600 Volt Condenser
P395	.5 Mfd. 10 Volt Condenser
P1079	.01 Mfd. 1000 Volt Condenser
P1193	.002 Mfd. 400 Volt Condenser
P1194	.005 Mfd. 400 Volt Condenser
P336	.0005 Mfd. Mica Condenser
P480	.0001 Mfd. Mica Condenser
P1683	.004 Mfd. Mica Condenser
P147	.00025 Mfd. Mica Condenser

Chassis 6W

CONTINENTAL RADIO & TELEV. CORP.

MODELS 165-6W, 975-6W
Schematic, Socket
Trimmers, Parts
Alignment



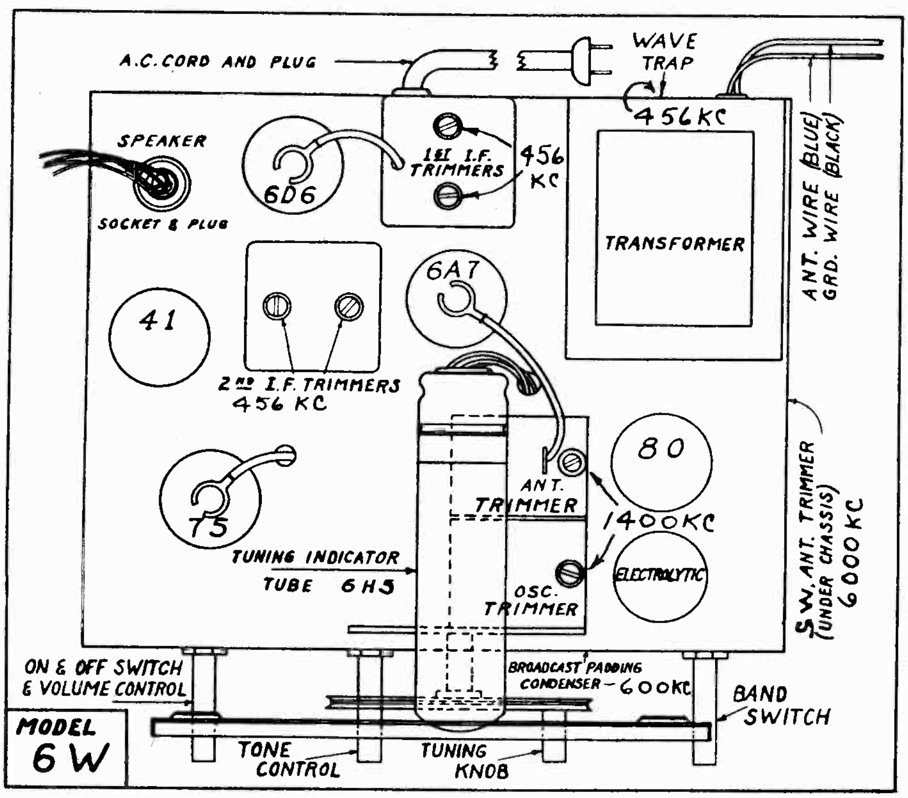
FREQUENCY RANGE -

535 to 1750 KC
5600 to 18100 KC

CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION

P1368	4 Prong Socket
P1277	Type 41 Socket
P521	Type 75 Socket
P492	Type 80 Socket
P506	Type 6A7 Socket
P536	Type 6D6 Socket
P617	Padding Condenser
P1576	Candohm Resistor
P1577	Trimmer Cond. with Bracket
P1578	Gang Condenser
P1663	Dial Pointer
P1641	Dial Scale
P1642	Tone Control
P334	.05 Mfd. 400V Condenser
P1643	Escutcheon
P1672	Selector Knob
P1673	Tone Knob
P1674	Volume Knob
P1675	Band Switch Knob
P166	25,000 Ohm ¼ Watt Resistor
P417	50,000 Ohm ¼ Watt Resistor
P162	1 Megohm ¼ Watt Resistor
P139	250,000 Ohm ¼ Watt Resistor
P137	500,000 Ohm ¼ Watt Resistor
P817	.00025 Mfd. Mica Condenser
P336	.005 Mfd. Mica Condenser
P1194	.005 Mfd. 400V Condenser
P142	.1 Mfd. 200V Condenser
P164	.01 Mfd. 400V Condenser
P276	.1 Mfd. 400V Condenser
P916	1st I.F. Transformer Coil
P1579	Volume Control and Switch
P143	.02 Mfd. 400V Condenser
P1580	Band Change Switch
P1581	Oscillator Coil
P1582	Antenna Coil
P1557	Riveted Mica Condenser
P1503	Pilot Light Socket
P1504	Pilot Light Bulb
P914n	Power Transformer
P929	AC Cord and Plug
P1591	Elec. Condenser
P917	2nd I.F. Transformer
P1455	Tube Shield
P1645	Magic Eye Socket & Cable Assembly
P1574	.0015 Mica Condenser

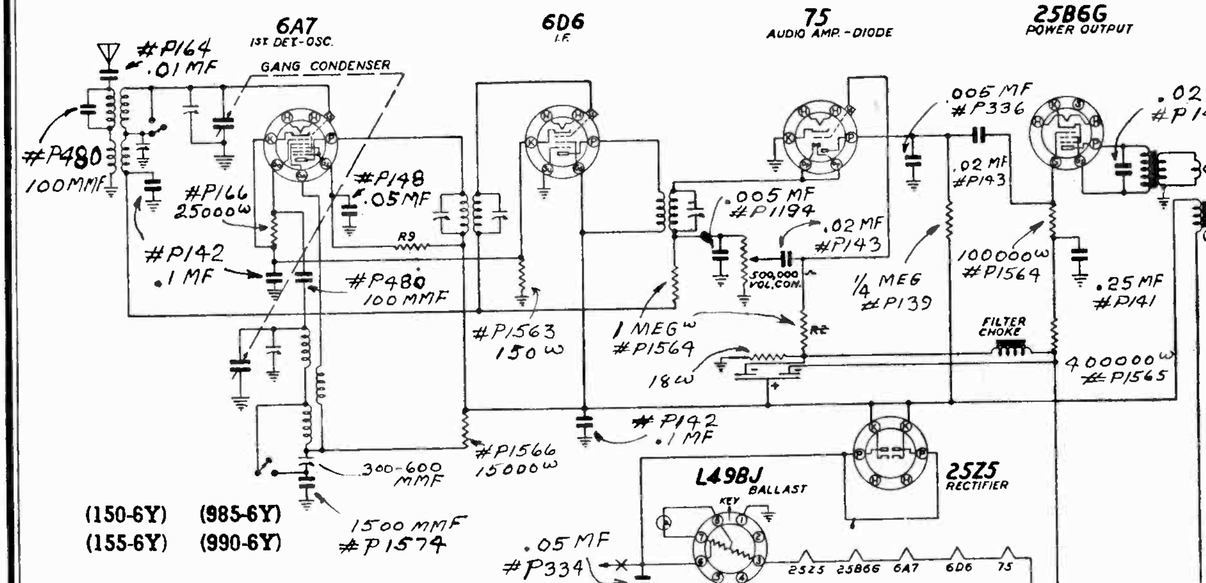
6 Tube AC Superheterodyne
6W Chassis



MODELS 150-6Y, 155-6Y
985-6Y, 990-6Y
Chassis 6Y

CONTINENTAL RADIO & TELEV. CORP.

Schematic, Socket
Trimmers, Alignment
Parts

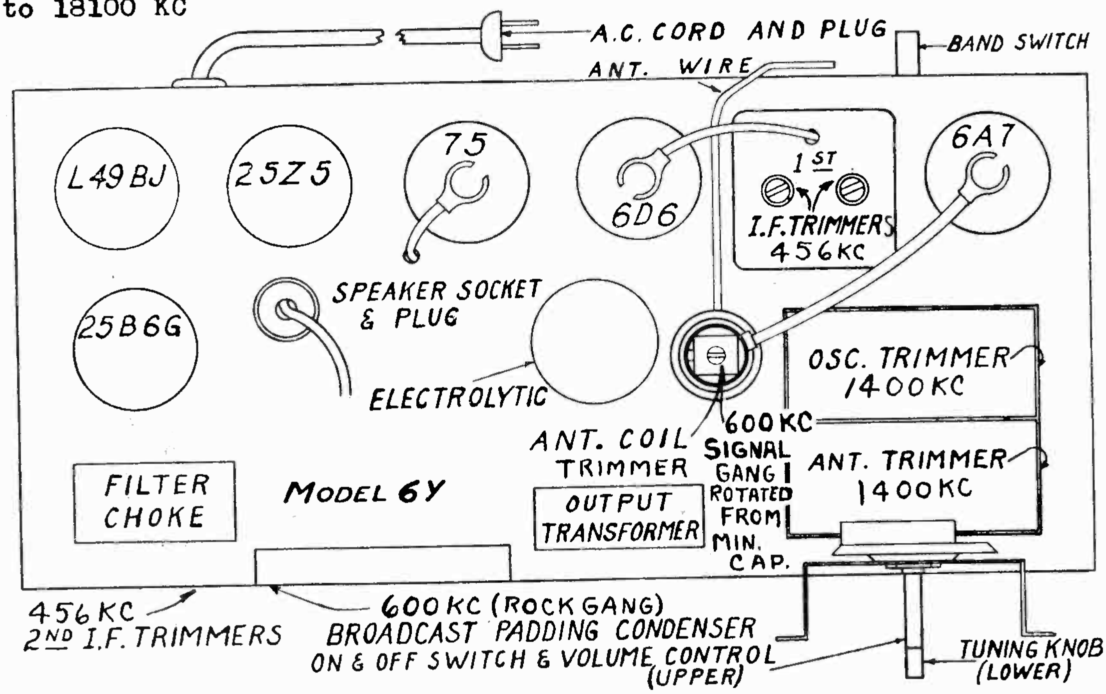


SCHEMATIC DIAGRAM - 6Y CHASSIS
IF = 456 KC.

FREQUENCY RANGE-
535 to 1750 KC
5600 to 18100 KC

Six Tube AC-DC Superheterodyne 6Y Chassis

MODEL 6Y



CONVENTIONAL ALIGNMENT - SEE SPECIAL SECTION

Part No.	Description
P506	Socket, Type 6A7
P521	Socket, Type 75
P536	Socket, Type 6D6
P559	Socket, Type 25Z5
P1549	Socket, Type L49BJ
P1550	Socket, Type 25B6G
P530	Tube Shield
P1647	Trimmer
P916	1st I.F. Transformer
P929	AC Cord & Plug
P1489	Pointer
P1491	Dial Glass
P1496	Rubberized Belt
P1497	Takeup Spring
P1498	Drive Bushing
P1503	Pilot Light Socket
P1504	Pilot Light Bulb
P1508	Baffle Board
P1542	Gang Condenser
P1543	Dial Scale
P1551	Iron Core Filter Choke
P1552	Output Transformer
P1555	Volume Control & Switch
P1556	Antenna Coil
P1558	2nd I.F. Transformer
P1559	Oscillator Coil
P1560	Speaker
P1561	Electrolytic Condenser
P1562	Band Change Switch
P1568	Knob, (Specify Color)
P1656	20 Antenna Cord

CONDENSERS

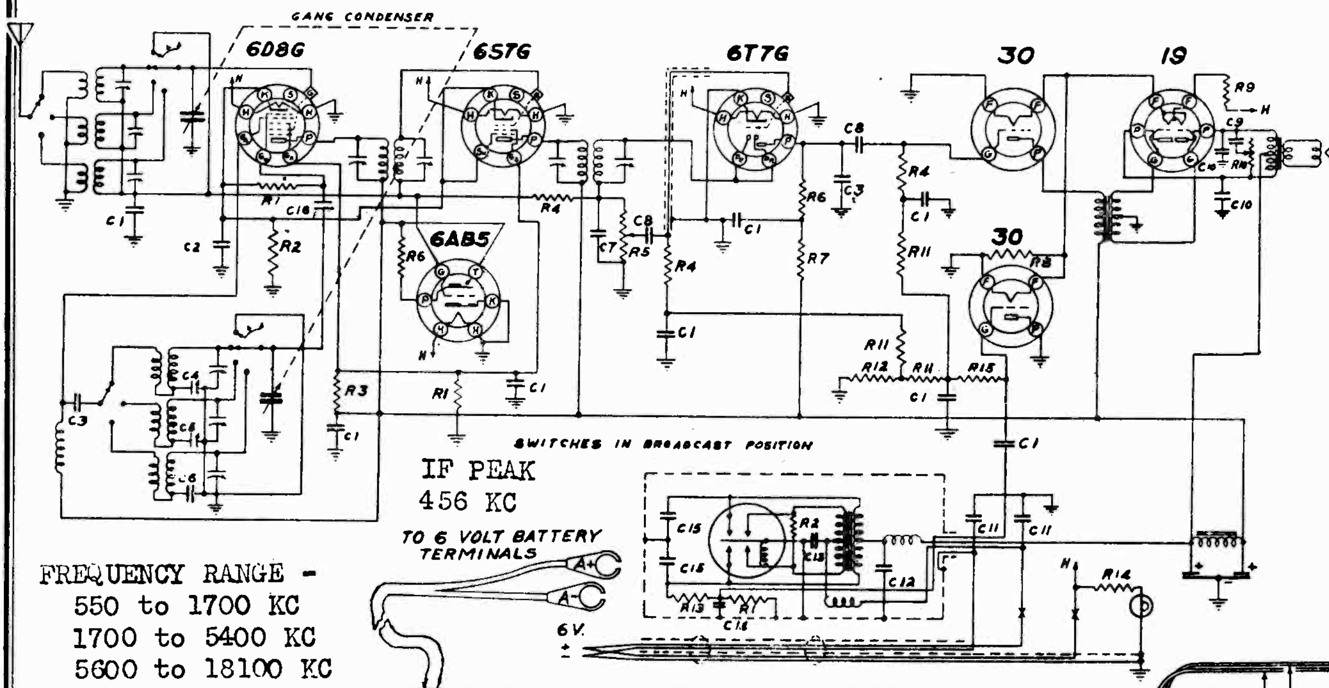
P141	.25 Mfd. 200 V
P142	.1 Mfd. 200 V
P143	.02 Mfd. 200 V
P148	.05 Mfd. 200 V
P164	.01 Mfd. 400 V
P334	.05 Mfd. 400 V
P336	.0005 Mica Condenser
P480	.0001 Mica Condenser
P1574	.0015 plus or 5% Mica
P1557	Riveted Mica Condenser

RESISTORS

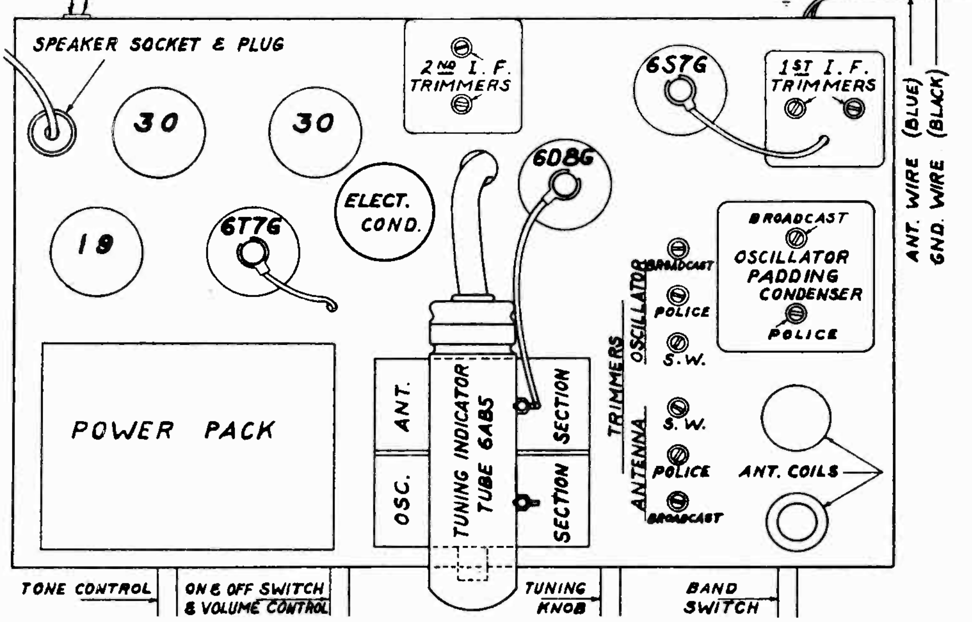
P1567	Candohm Resistor
P166	25,000 1/4 Watt
P419	20,000 1/4 Watt
P1563	150 1/3 Watt
P139	250,000 1/4 Watt
P162B	1 Megohm 1/3 Watt
P1564	100,000 Ohm 1/3 Watt
P1565	400,000 Ohm 1/3 Watt
P1566	15,000 Ohm 1/3 Watt

CONTINENTAL RADIO & TELEV. CORP.

MODEL 7J Chassis Schematic, Socket Trimmers, Alignment Parts



FREQUENCY RANGE -
550 to 1700 KC
1700 to 5400 KC
5600 to 18100 KC



MODEL 7J
6-17-37

PARTS

CONDENSERS

- C1 - .1-200V.
- C2 - .25-200 V.
- C3 - 500MMF.
- C4 - 300-600MMF.
- C5 - 800-1600 MMF.
- C6 - 4000MMF.
- C7 - 250 MMF.
- C8 - .02-400V.
- C9 - .05-400V.
- C10 - .002-400 V.
- C11 - .005-400 V.
- C12 - .01 - 600 V.
- C13 - .5 - 10 V.
- C14 - .05 - 200 V.
- C15 - .01-1000 V.
- C16 - 100 MMF.

RESISTORS

- R1 - 50,000 Ω 1/4 W.
- R2 - 250 Ω 1/4 W.
- R3 - 15,000 Ω 1/4 W.
- R4 - 1 MEG Ω 1/3 W.
- R5 - 500,000 Ω VOLUME CONTROL
- R6 - 250,000 Ω 1/4 W.
- R7 - 100,000 Ω 1/4 W.
- R8 - 14.3 Ω ± 5%.
- R9 - 8.1 Ω ± 5%.
- R10 - 100,000 Ω TONE CONTROL
- R11 - 500,000 Ω 1/4 W.
- R12 - 70,000 Ω 1/4 W
- R13 - 200,000 Ω 1/4 W.
- R14 - 70 Ω ± 10%
- R15 - 600,000 Ω 1/4 W.

IF ALIGNMENT - Wave change Sw. in BC position. Gang cond. set to minimum, test oscillator at 456 KC, to CG of 6D8G thru .05 MFD cond., GND to set, Align IF.

BROADCAST - Gen. connected to ANT lead thru 200 MMFD condenser, Gang at minimum. Osc. to 1730 KC, and adjust OSC. trimmer of set. Shift Gen. and dial to 1400 KC, and adjust ANT trimmer. Generator at 600 KC, pad oscillator to maximum peak.

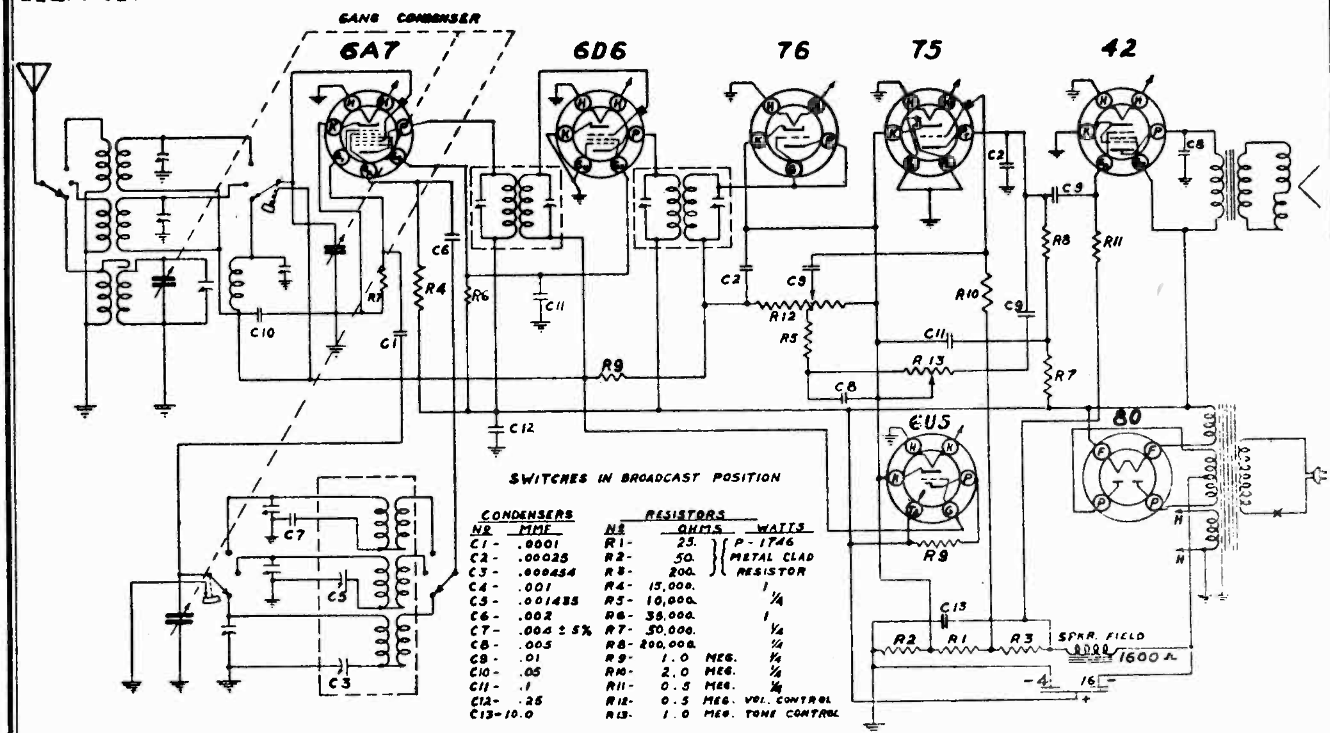
POLICE - Replace 200 MMFD cond. with 400 ohm resistor, Generator at 5600 KC, Gang condenser at minimum, trim Osc. circuit, Gen. at 4000 KC, trim ANT trimmer. Gen. at 1800 KC and pad Police Oscillator circuit to maximum peak.

SHORT WAVE - Generator at 18100 KC, gang condenser at minimum, adjust oscillator trimmer to peak, Generator at 16000 KC adjust SW ANT trimmer to peak. No padding required on this band but check 6000 KC for alignment & sensitivity.

For maximum performance, all above adjustments should be repeated. Rock Gang condenser for padding adjustments.

MODEL 7M Chassis
Schematic, Socket
Trimmers

CONTINENTAL RADIO & TELEV. CORP.



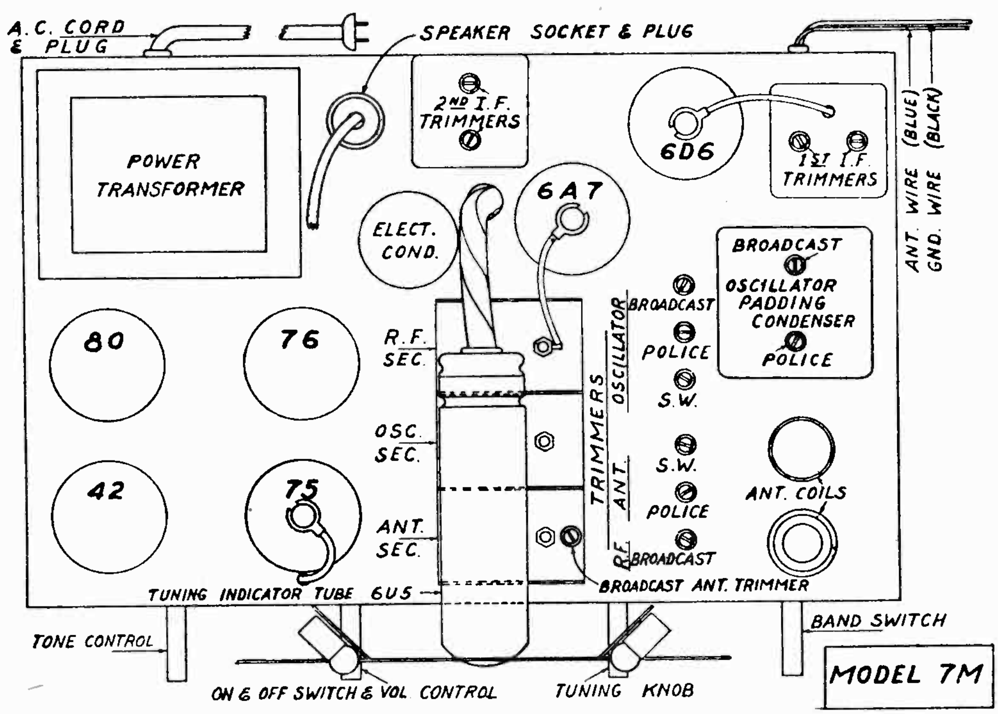
CONDENSERS NO.	MMF	RESISTORS NO.	OHMS	WATTS
C1-	.0001	R1-	25.	P-1746 METAL CLAD RESISTOR
C2-	.00025	R2-	50.	
C3-	.000454	R3-	200.	
C4-	.001	R4-	15,000.	1
C5-	.001435	R5-	10,000.	1/4
C6-	.002	R6-	35,000.	1
C7-	.004 ± 5%	R7-	50,000.	1/4
C8-	.005	R8-	200,000.	1/4
C9-	.01	R9-	1.0 MEG.	1/4
C10-	.05	R10-	2.0 MEG.	1/4
C11-	.1	R11-	0.5 MEG.	1/4
C12-	.25	R12-	0.5 MEG. VOL. CONTROL	
C13-	10.0	R13-	1.0 MEG. TONE CONTROL	

FREQUENCY RANGE -
550 to 1700 KC
1700 to 5400 KC
5600 to 18100 KC

IF PEAKED
AT 456 KC

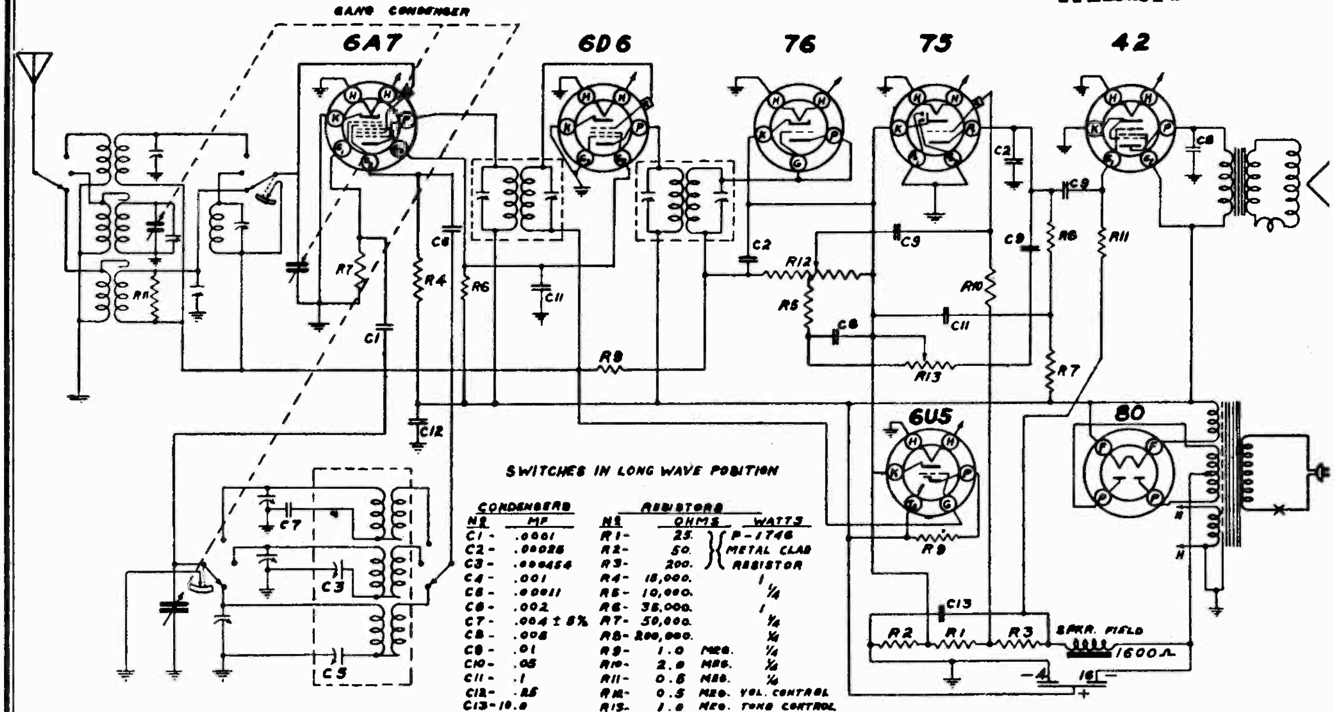
SCHEMATIC DIAGRAM
MODEL 7M

Seven Tube AC Superheterodyne
7M Chassis



MODEL 7MU Chassis Schematic, Socket Trimmers

CONTINENTAL RADIO & TELEV. CORP.



CONDENSERS Nº	MF	RESISTORS Nº	OHMS	WATTS
C1 -	.0001	R1 -	25.	P-1746 METAL CLAD RESISTOR
C2 -	.00025	R2 -	50.	
C3 -	.000454	R3 -	200.	
C4 -	.001	R4 -	15,000.	1
C5 -	.00011	R5 -	10,000.	1/4
C6 -	.002	R6 -	35,000.	1
C7 -	.004 ± 5%	R7 -	50,000.	1/4
C8 -	.005	R8 -	200,000.	1/4
C9 -	.01	R9 -	1.0 MEG.	1/4
C10 -	.05	R10 -	2.0 MEG.	1/4
C11 -	.1	R11 -	0.5 MEG.	1/4
C12 -	.25	R12 -	0.5 MEG.	VOL. CONTROL
C13 -	10.0	R13 -	1.0 MEG.	TONE CONTROL

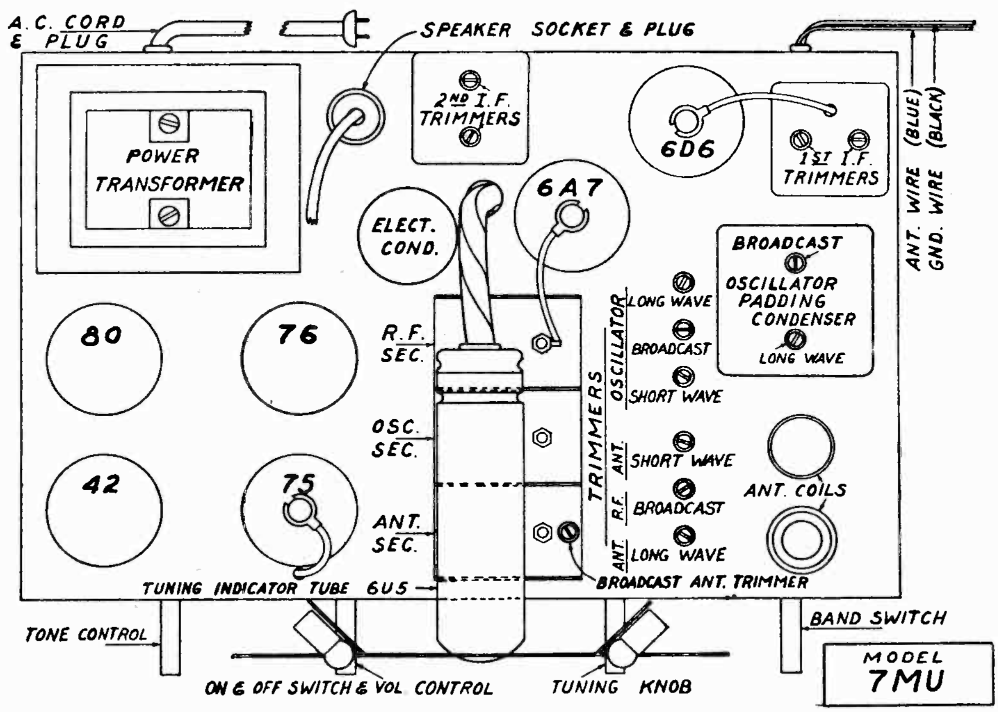
FREQUENCY RANGE

550 to 1700 KC
375 to 150 KC
5600 to 18100 KC

IF PEAKED AT 456 KC

SCHEMATIC DIAGRAM MODEL 7MU

Seven Tube AC Superheterodyne
7MU Chassis



MODEL 7M Chassis
MODEL 7MU Chassis
Alignment

CONTINENTAL RADIO & TELEV. CORP.

MODEL 7M CHASSIS

This receiver is designed to operate over three tuning ranges; the broadcast range which extends from 550 to 1700 Kilocycles (KC) (176 to 545 meters), Police and Aviation Band which extends from 1700 to 5400 Kilocycles (KC) (56 to 176 Meters) and International Short Wave Band which extends from 5600 to 18,100 Kilocycles (KC) 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.

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. 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 K.C.

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 K.C. 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 at this frequency as described in the instructions for padding the broadcast circuits.

SHORT WAVE BAND ALIGNMENT

The short wave band is adusted 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 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 7MU CHASSIS

This receiver is designed to operate over three tuning ranges; the broadcast range which extends from 550 to 1700 Kilocycles (KC) (173 to 562 meters), Longwave Band which extends from 375 to 150 Kilocycles (KC) (800 to 2000 Meters) and the International Short Wave Band which extends from 5600 to 18,100 Kilocycles (KC) (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.

ALIGNMENT DATA AND SERVICING

GENERAL DATA

The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 160, 325, 380, 456, 600, 1400, 1730, 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. 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 K.C.

SHORT WAVE BAND ALIGNMENT

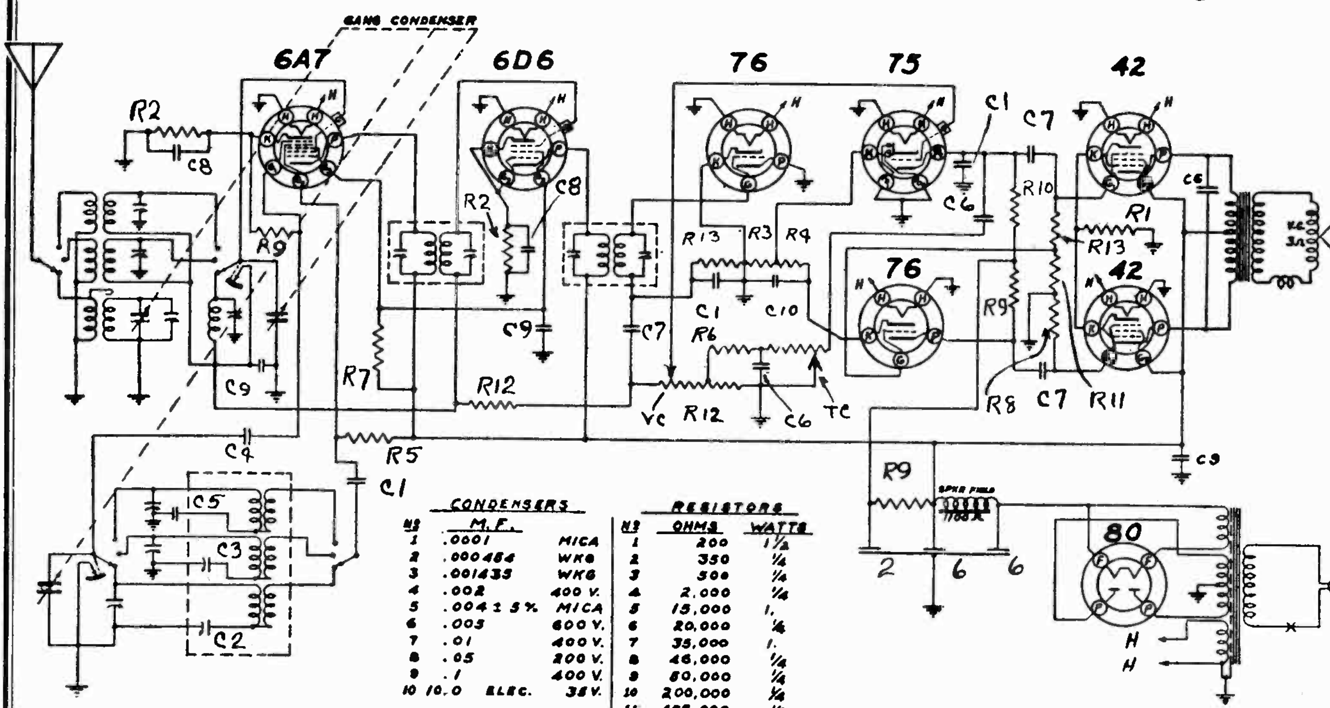
The short wave band is adusted by setting the generator to 18,100 KC and with the gang at minimum, adjust the "short wave oscillator trimmer" to receive the signal. Set the generator at 16,000 KC, tune in the signal and adjust the "short wave antenna" trimmer to give maximum output. As there is no variable 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 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.

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 380 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 generattor to 160 KC and pad the circuits to maximum output. Owing to the nature of tthe 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.

MODEL 8K Chassis
Schematic,
Alignment

CONTINENTAL RADIO & TELEV. CORP.



CONDENSERS No.	M.F.	
1	.0001	MICA
2	.000454	WKG
3	.001435	WKG
4	.002	400 V.
5	.004 ± 5%	MICA
6	.005	600 V.
7	.01	400 V.
8	.05	200 V.
9	.1	400 V.
10	10.0 ELEC.	35 V.

RESISTORS No.	OHMS	WATTS
1	200	1½
2	350	¼
3	500	¼
4	2,000	¼
5	15,000	1.
6	20,000	¼
7	35,000	1.
8	46,000	¼
9	50,000	¼
10	200,000	¼
11	455,000	½
12	1 MEG.	¼
13	3 MEG.	½

V.C. – VOLUME CONTROL.
T.C. – TONE CONTROL.
SWITCHES IN BROADCAST POSITION.

SCHEMATIC DIAGRAM MODEL 8K

IF PEAKED
AT 456 KC

FREQUENCY RANGE
535 to 1730- KC
1.7 to 5.6 - MC
5.6 to 18.1- MC

Eight Tube AC Superheterodyne

8K Chassis

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. 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 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 8K Chassis
Socket, Trimmers
Dial Adjustments

CONTINENTAL RADIO & TELEV CORP.

PROCEDURE FOR SETTING TELEPHONE DIAL STATIONS

CHOOSING THE STATIONS TO BE USED

The telephone dial has 10 buttons located in a ring within the dial scale. Make a list of 10 of your favorite stations, stations which are tuned in regularly. 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.

PROCEDURE FOR ADJUSTING THE TELEPHONE DIAL BUTTONS

(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.

(2) 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 755 KC. Usually the button nearest the tuning point or the bottom of the dial will be the proper button.

(3) Loosen the button by unscrewing it (not the dial) ½ 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.

(4) 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.

(5) If for any reason it is necessary to remove a station call letter disc, the use of a pen knife or any sharp pointed instrument will facilitate the removal.

HOW TO TUNE IN STATIONS ON THE TELEPHONE DIAL

Press in the button of the station desired tuned and rotate the dial slowly until a click is heard and the dial will not turn in either direction until the button is released. The station is now tuned in and can be adjusted to the volume desired by means of the volume control. 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 converge into the space at the bottom of the dial. See Fig. (1).

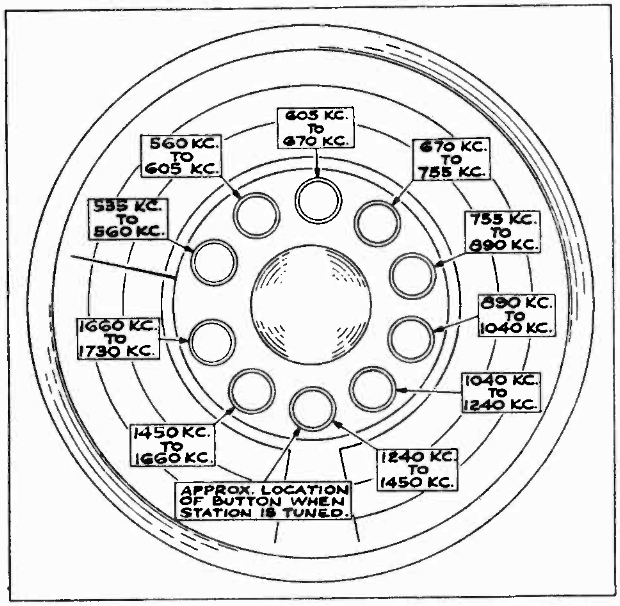
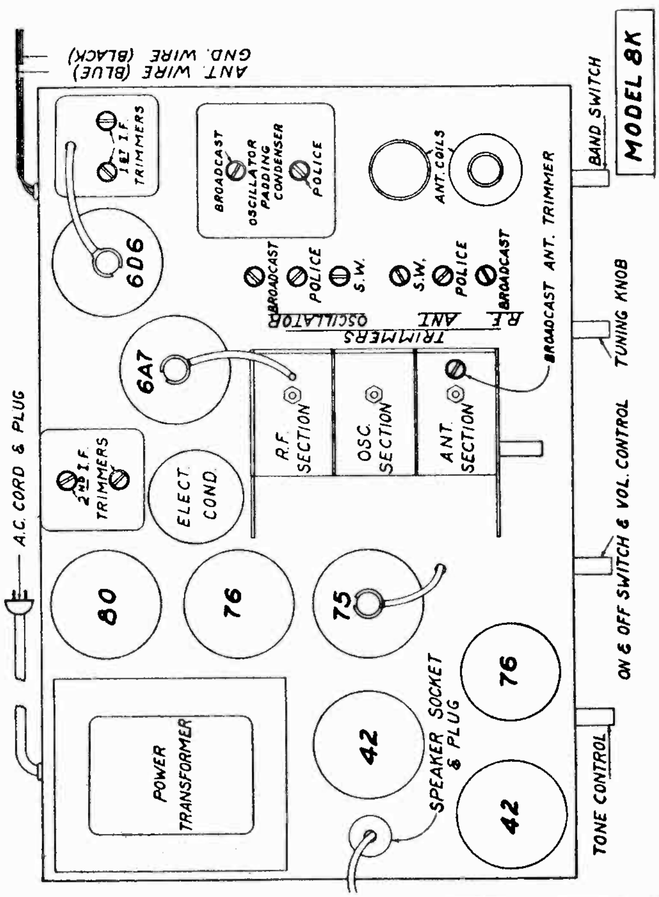


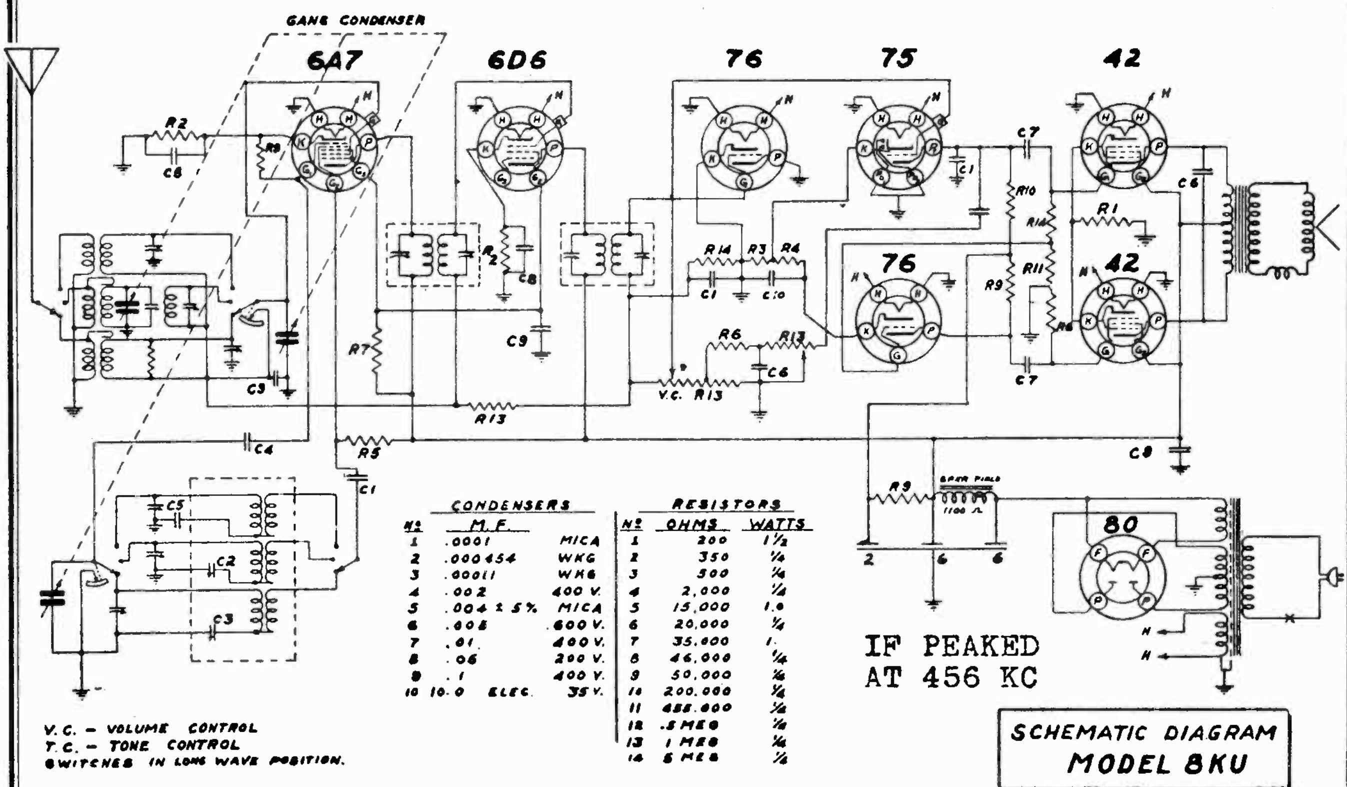
Figure 1



Reduce • 9⅞"

MODEL 8KU Chassis Schematic, Socket Trimmers

CONTINENTAL RADIO & TELEV. CORP.



CONDENSERS

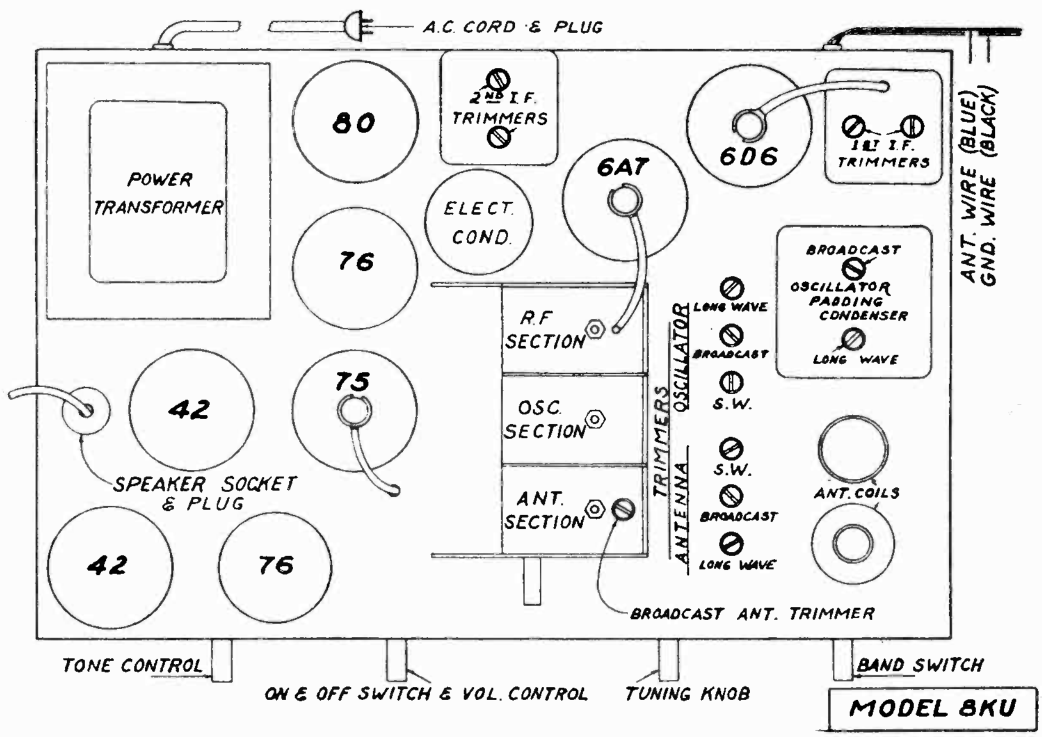
No	M.F.	
1	.0001	MICA
2	.000454	WKG
3	.00011	WKG
4	.002	400 V.
5	.004 ± 5%	MICA
6	.005	600 V.
7	.01	400 V.
8	.06	200 V.
9	.1	400 V.
10	10.0 ELEC.	35 V.

RESISTORS

No	OHMS	WATTS
1	200	1½
2	350	¼
3	500	¼
4	2,000	¼
5	15,000	1.0
6	20,000	¼
7	35,000	1.
8	46,000	¼
9	50,000	¼
10	200,000	¼
11	455.000	½
12	.5 MEG	½
13	1 MEG	¼
14	5 MEG	½

FREQUENCY RANGE -
550 to 1700 KC
375 to 1500 KC
5600 to 18100 KC

Eight Tube AC Superheterodyne 8KU Chassis



MODEL 8KU Chassis
Alignment
Dial Adjustments

CONTINENTAL RADIO & TELEV. CORP.

PROCEDURE FOR SETTING TELEPHONE DIAL STATIONS

CHOOSING THE STATIONS TO BE USED

The telephone dial has 10 buttons located in a ring within the dial scale. Make a list of 10 of your favorite stations, stations which are tuned in regularly. 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.

(3) Loosen the button by unscrewing it (not the dial) ½ 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.

(4) 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.

(5) If for any reason it is necessary to remove a station call letter disc, the use of a pen knife or any sharp pointed instrument will facilitate the removal.

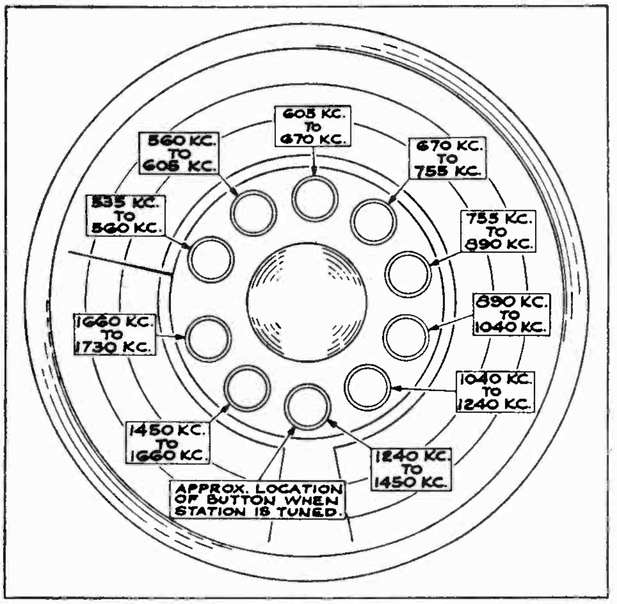


Figure 1

HOW TO TUNE IN STATIONS ON THE TELEPHONE DIAL

Press in the button of the station desired tuned and rotate the dial slowly until a click is heard and the dial will not turn in either direction until the button is released. The station is now tuned in and can be adjusted to the volume desired by means of the volume control. 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 converge into the space at the bottom of the dial. See Fig. (1).

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. 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 K.C.

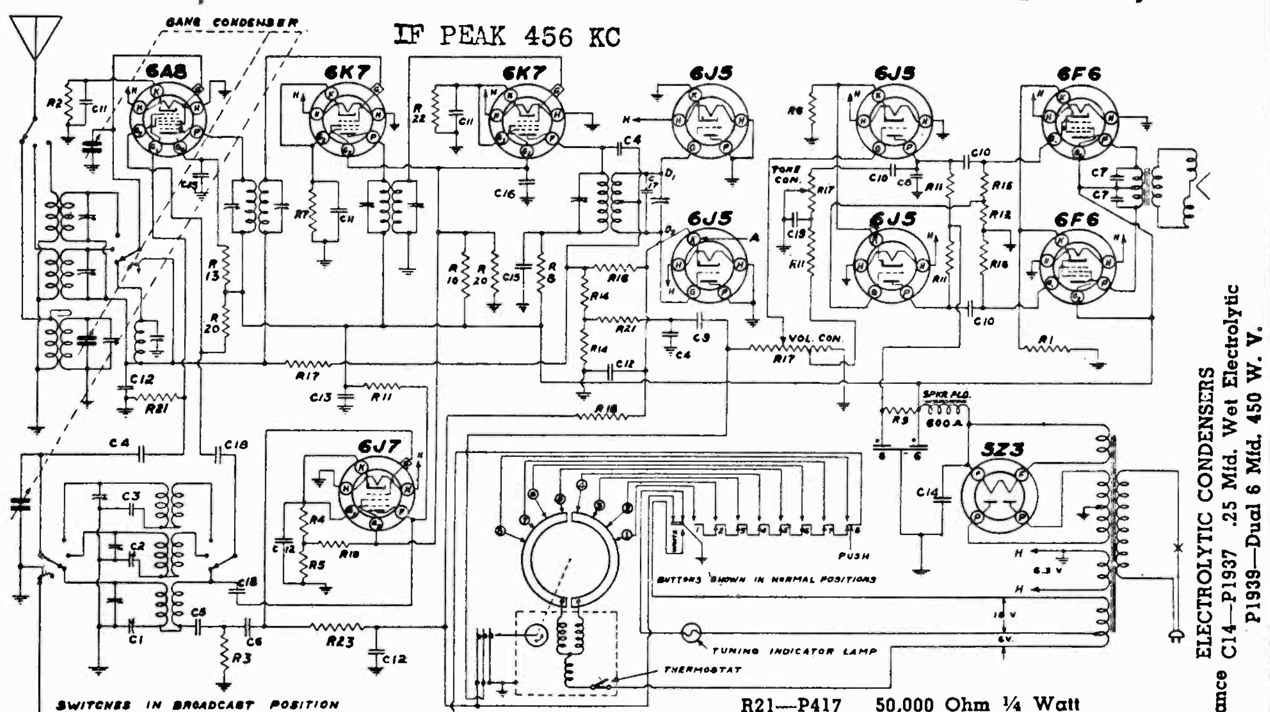
SHORT WAVE BAND ALIGNMENT The short wave band is adusted by setting the generator to 18,100 KC and with the gang at minimum, adjust the "short wave oscillator trimmer" to receive the signal. Set the generator at 16,000 KC, tune in the signal and adjust the "short wave antenna" trimmer to give maximum 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 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.

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 380 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 tthe 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.

CONTINENTAL RADIO & TELEV. CORP.

MODEL 11S
Schematic, Socket
Trimmers, Parts

IF PEAK 456 KC



RESISTORS

R1 —P1818 210 Candohm Resistor 10% Tolerance
R2 —P1942 250 Ohm ¼ Watt 10% Tolerance
R3 —P1950 350 Ohm ¼ Watt 10% Tolerance
R4 —P279 500 Ohm ¼ Watt
R5 —P1951 650 Ohm ¼ Watt 5% Tolerance
R6 —P1729 750 Ohm ¼ Watt
R7 —P1973 1,000 Ohm ¼ Watt 10% Tolerance
R8 —P1216 5,000 Ohm ¼ Watt
R9 —P673 10,000 Ohm ½ Watt
R10—P1944 15,000 Ohm 2 Watt
R11—P166 25,000 Ohm ¼ Watt
R12—P1943 35,000 Ohm ¼ Watt 10% Tolerance
R13—P1952 50,000 Ohm ½ Watt
R14—P139 250,000 Ohm ¼ Watt
R15—P1843 455,000 Ohm ¼ Watt 10% Tolerance
R16—P137 500,000 Ohm ¼ Watt
R17—P162 1,000,000 Ohm ¼ Watt
R18—P310 4,000,000 Ohm ¼ Watt
R19—P1949 15,000 Ohm ½ Watt
R20—P165 25,000 Ohm 1 Watt
R21—P417 50,000 Ohm ¼ Watt
R22—P1972 2,000 Ohm ¼ Watt 10% Tolerance
R23—P280 100,000 Ohm ¼ Watt

PAPER CONDENSERS

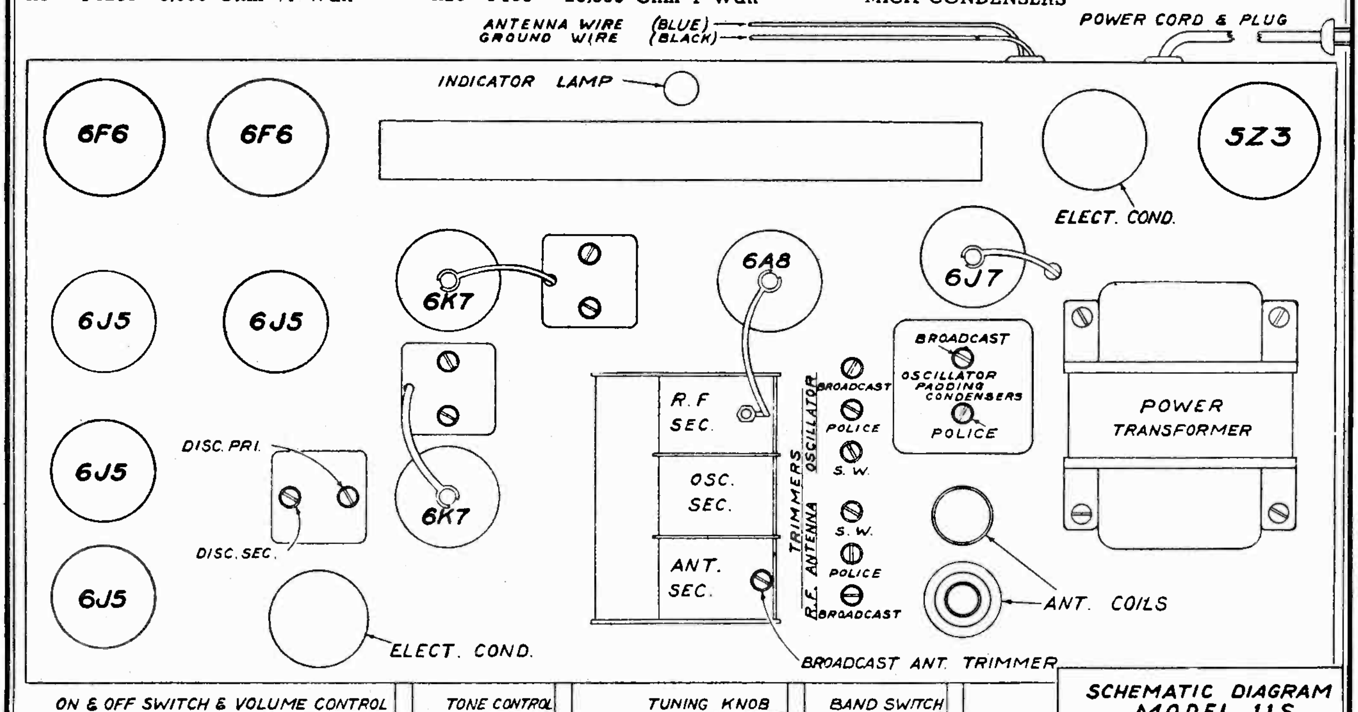
C3 —P1947 .004 Mfd. 400 V.
C7 —P904 .002 Mfd. 600 V.
C9 —P164 .01 Mfd. 400 V.
C10—P334 .05 Mfd. 400 V.
C11—P148 .05 Mfd. 200 V.
C12—P142 .10 Mfd. 200 V.
C13—P1789 .25 Mfd. 400 V.
C15—P276 .10 Mfd. 400 V.
C16—P141 .25 Mfd. 200 V.
C18—P1193 .002 Mfd. 400 V.

MICA CONDENSERS

C4 —P480 .0001 Mfd.
C5 —P1044 .0002 Mfd.
C6 —P672 .001 Mfd.
C8 —P336 .0005 Mfd.
C17—P1044. 0002 Mfd. 5% Tolerance
C19—P1683 .004 Mfd.

ELECTROLYTIC CONDENSERS

C14—P1937 .25 Mfd. Wet Electrolytic
P1939—Dual 6 Mfd. 450 W. V.



SCHEMATIC DIAGRAM
MODEL 11S

MODEL 11S
Alignment
Notes

CONTINENTAL RADIO & TELEV. CORP.

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 push in the white button until it locks. 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. Align the first four I.F. trimmers to peak or maximum reading on the output meter.

After the first two I.F. transformers have been tuned, the discriminator transformer should be aligned. This is a critical adjustment and must be performed with care.

First — connect a 0-200 micro ammeter between the ungrounded cathode of the 6J5G tube serving as a diode rectifier, and ground. This cathode is indicated as point "A" in the circuit diagram. Then place a .0001 mfd. mica condenser across the secondary of the discriminator transformer. These terminals are indicated as points "D1" and "D2" on the circuit diagram. This condenser is used to detune completely the secondary circuit during the following primary adjustment.

The primary is tuned by impressing an I.F. signal on the convertor (6A8-G) grid and adjusting the trimmer marked "DISC. PRI." on the chassis layout diagram, to give maximum audio output. Signal strength should be the same as in an ordinary aligning operation. For this particular receiver about 30-micro volts of I.F. signal is required for standard output. (50 milliwatts). At this point it would be well to go over the adjustments of the two other I.F. transformers and bring the entire system to maximum sensitivity. Now without further adjustments of either the frequency setting of the signal generator or the I.F. transformer trimmers the "DISC. SEC." trimmer should be tuned.

After removing the .0001 mfd. mica condenser from the 6J5G grids "D1 and D2" increase the I.F. signal input to the maximum that the signal generator will supply (at least 100,000 micro volts). Then, with the volume control turned down to limit the audio output, slowly turn the "DISC. SEC." trimmer until a sudden, sharp drop in current as indicated by the micro ammeter is seen. The meter will now probably read in reverse and off scale. The trimmer should be reversed and the meter reading brought to zero. If a metallic screw driver is used it will be necessary, continually, to lift the screw driver away from the trimmer screw after each slight adjustment to observe the meter reading.

It is sometimes convenient to use an offset of "remote zero" setting of the micro ammeter in making this adjustment so that the zero current setting is higher on the scale than the conventional zero point.

After the current has been brought to zero by the above described method the I.F. alignment and discriminator tuning is completed and the R.F. tracking may be done.

BROADCAST BAND ALIGNMENT Connect the output of the signal generator to the antenna lead (blue) through at .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 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.

CONTROLS AND OPERATION

RIGHT HAND KNOB **(Three Position Wave Band Selecting Switch)**—Turned to the right, it is set for Standard Broadcast Band; turned to the extreme left, it is set for Foreign and American Short Wave Reception; when in the center position, it is set for reception of Police, Aviation, Amateurs, and Ships at Sea.

SHORT WAVE TUNING

When tuning short wave stations, the selector knob must be turned more slowly and carefully, due to the sharp selectivity of the receiver in these bands. If you tune rapidly, many stations will be skipped entirely. When a response is heard, work the dial a little from left to right until you hit a point where the station comes in at maximum volume. This critical tuning is necessary if results are to be expected. It may require a little patient experimenting to become accustomed to short wave tuning. The use of a short wave "log" will be of great assistance in picking up short wave stations. Such logs are available from any of the leading radio magazines. They list the location, frequency and operating time schedules of short wave stations all over the world.

LEFT HAND KNOB **(Manual Volume Control and "On-Off" Switch**—Turn the left hand knob to the extreme right. The switch will click and the dial will become illuminated. Wait about one-half minute for the tubes to become heated.

LEFT CENTER KNOB **(Continuous Variable Tone Control**—The tone control permits tonal regulation to meet individual musical taste. When turned completely to the right the normal proportion of high to low notes is obtained. Upon turning the control from the extreme right position toward the center a gradually increasing emphasis of the low notes is noted. Further, increase in this direction serves to eliminate the more extreme "highs" which result in a greater apparent bass increase. A very useful application of this particular type of tone control is its ability to compensate for apparent lack of base at low volume levels. If when listening to a musical program at a low volume level the tone control is set at a position half way between its extreme settings a very pleasing effect is obtained.

CONTINENTAL RADIO & TELEV. CORP.

MODEL 11S
Electric Tuner Data

11S Chassis

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 one (1) white button (extreme left), and eight (8) brown buttons whose numerical sequence is reckoned from left to right. The white button is provided for converting the set from automatic electric push button tuning to manual knob tuning. The brown buttons are provided for automatic electric tuning.

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 and a silent gear train. The bearings and the oil retainer hold sufficient oil to lubricate the motor for a lifetime.

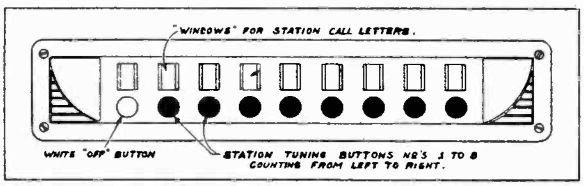


Fig. 1

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 white button; tune in the station of the **lowest frequency**, using the station selector knob. Now hold the white button in and press in button number one (1), next to the white button. (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 accidently 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 block and insert into the window directly above button number one. Now release button number one by pressing the white 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 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.

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 white 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. If by chance all of the buttons are pressed in, they may be released by pressing any one button all the way in.

To change from electric tuning to manual selecting, simply press in the white button. When the white button is in, the set may be tuned as a conventional receiver. **Note:** If it is desired to tune Short Wave or Police while the set is being operated with push buttons, it is not necessary to change over from push button tuning to manual tuning. Simply turn the band switch and proceed to tune with the selector knob. When the band switch is returned to broadcast the station last selected by button will automatically tune in by itself.

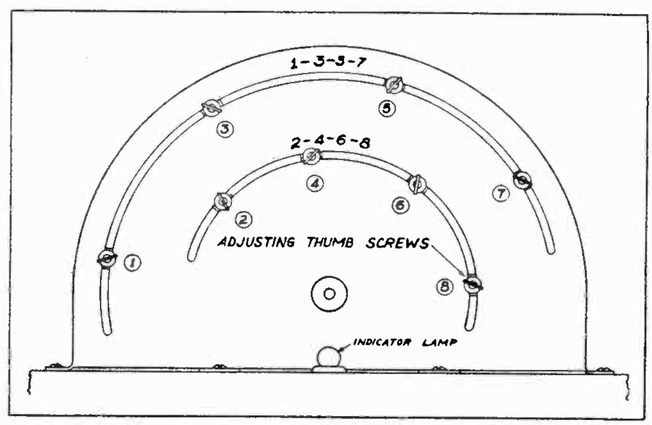


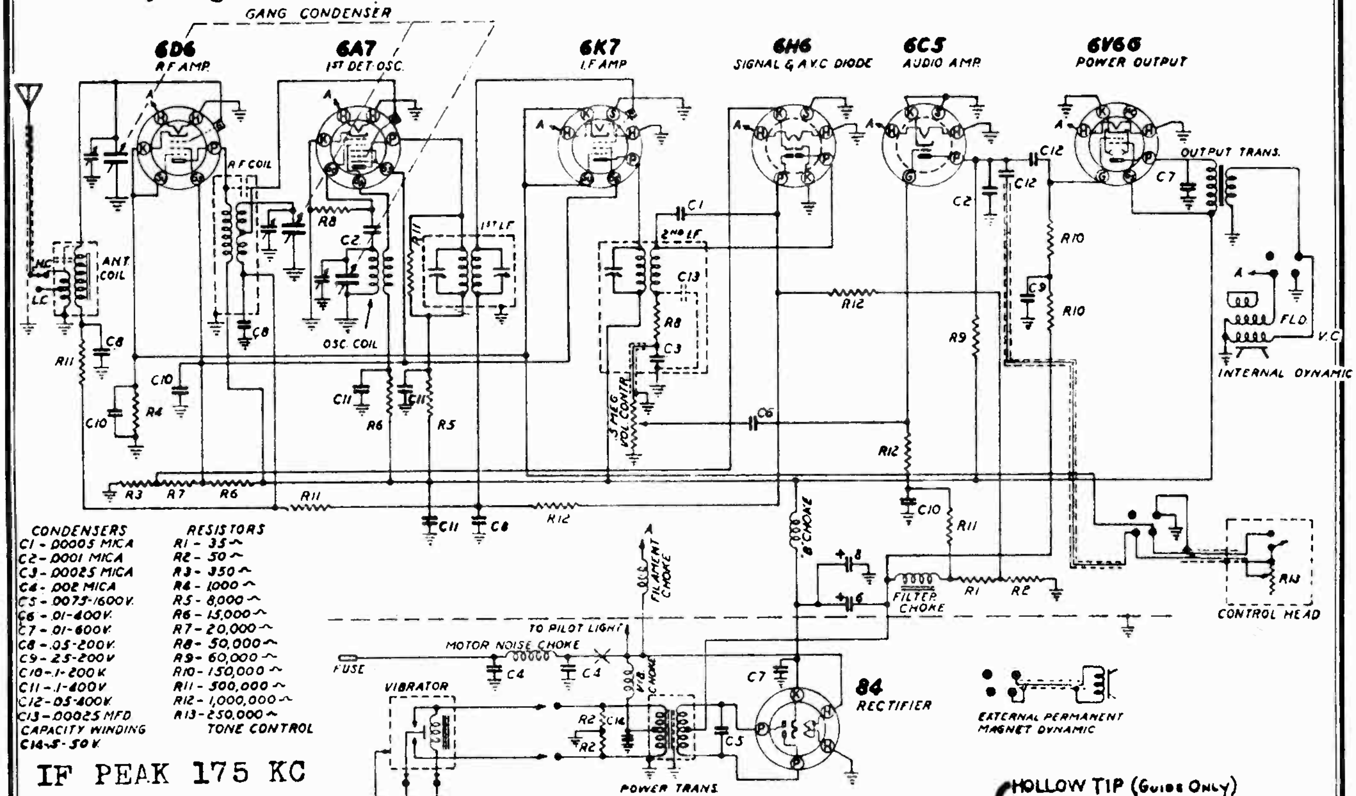
Fig. 2

NOTE: The white push button must be pressed in, in order to tune the set manually.

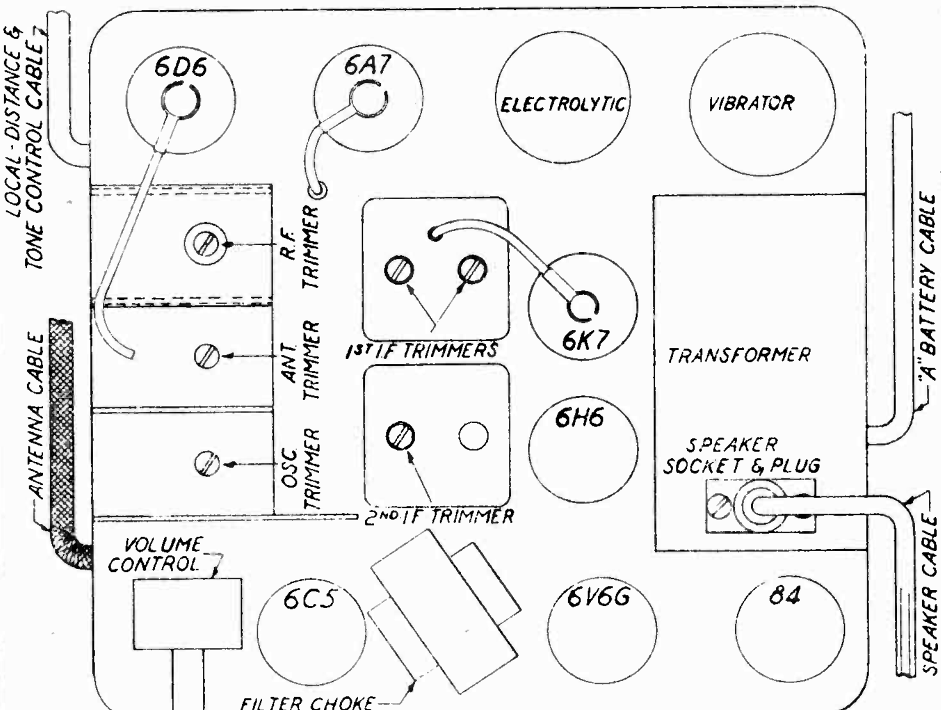
RIGHT CENTER KNOB **(Station Selector)**—Rotate the indicator needle slowly over a narrow range of the dial at a point where the desired station is located, until the station is received with maximum volume; then re-adjust the volume control to the proper level. **Never** use the station selector to adjust volume as this practice results in distorted tone quality and deficient bass response. The Volume Control **only** is to be used for this purpose. For maximum clarity the indicator needle should be adjusted to the center of the area covered by the station being tuned.

MODELS 77,770
Schematic, Socket
Trimmers, Alignment

CONTINENTAL RADIO & TELEV. CORP.



IF PEAK 175 KC



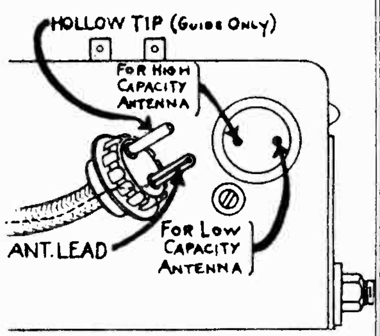
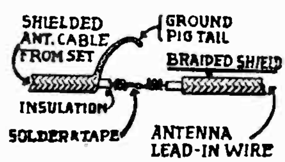


FIG. 17



7-Tube Auto Radio—
-Model 77 & 770 Chassis
& Schematic

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 .0001 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 Touch-O-Matic
Type T-21
Schematics
Assembly

CONTINENTAL RADIO & TELEV. CORP.

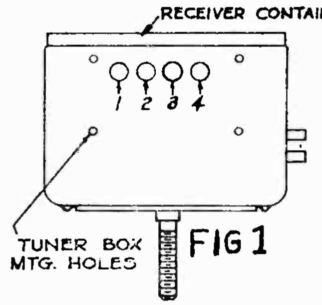


FIG 1

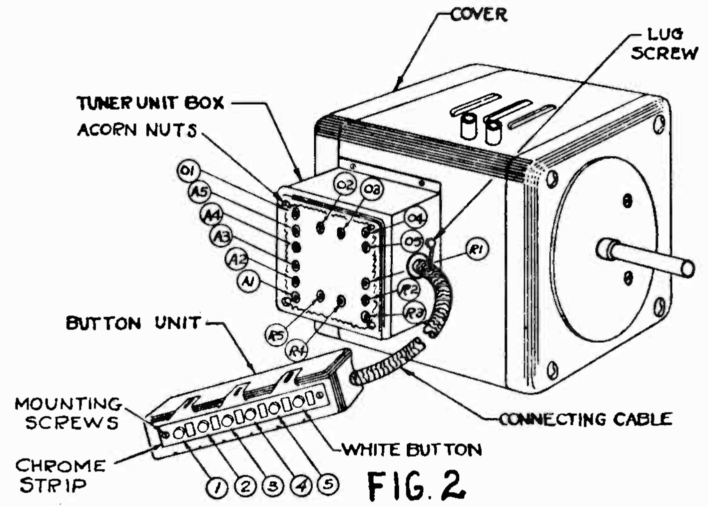
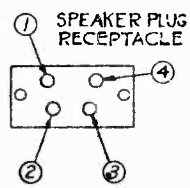
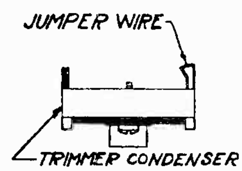


FIG. 2





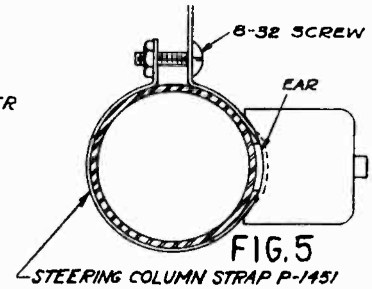


FIG. 5

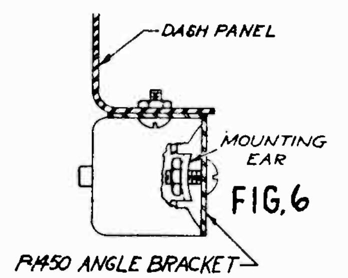
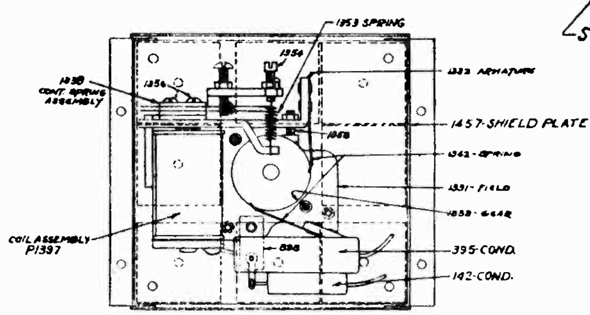


FIG. 6



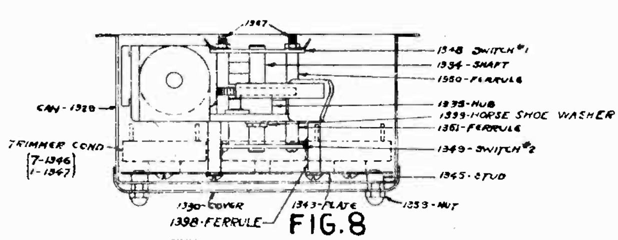


FIG. 8

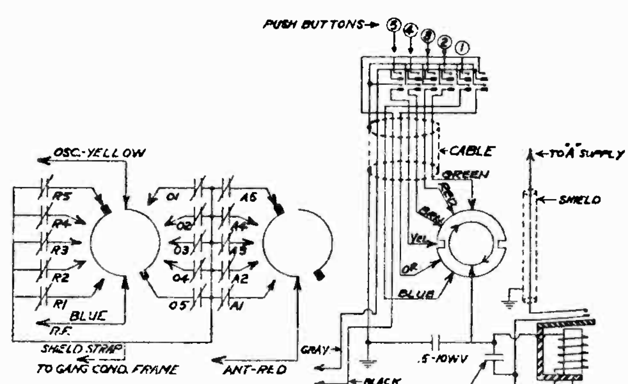
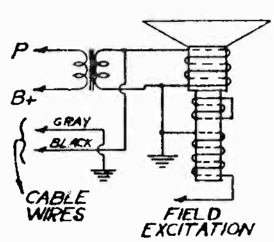
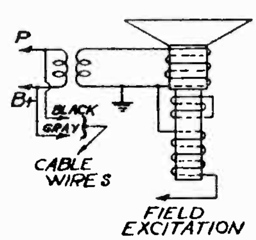


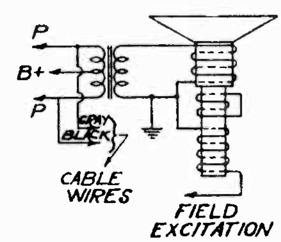
FIG. 7



TYPE 1.
FIG. 9



TYPE 2.
FIG. 9



TYPE 3.
FIG. 9

MODEL Touch-O-Matic
Type T-21

CONTINENTAL RADIO & TELEV. CORP.

Installation
Adjustments
Notes

GENERAL INFORMATION.

The ADMIRAL TOUCH-O-MATIC Tuner can be installed on any radio receiver which uses a six volt source of supply, where the mechanical layout of the set is of such nature that the tuner unit of the TOUCH-O-MATIC may be mounted near the tuning condenser. TOUCH-O-MATIC is not a booster unit and will not increase the volume or range of the set since it contains no tubes.

INSTALLATION OF ADMIRAL TOUCH-O-MATIC ON MODELS 66, 660; 77, 770; 78, 780; 88, 880.

Remove the cover of the radio and take the set out of the container. Now press out the four knock-out slugs located on the condenser side of the container (See Fig. 1) (For models 88-880 see Note 1 before replacing set in container). Replace and secure the set in the container. Scrape away the paint from around each one of the four mounting holes, shown in Fig. 1, to insure good electrical contact with the tuner box. Fig. 2 shows a complete assembly view.

The tuner box and the button unit are shipped from the factory, connected together by a heavy cable. The only connections to be made are projecting from the open end of the tuner box. These seven wires, are to be introduced into the four large holes in the side of the received container shown numbered in Fig. 1. Pull the **gray, black, and** shielded wire through hole No. 1. Through hole No. 2, pull the blue wire. Pull the red wire and the copper strap through hole No. 3, and the **yellow** wire through Hole No. 4. Now mount the tuner box in the position shown in Fig. 2. Use the four **self**-tapping screws supplied in bag of parts. After the tuner box has been securely fastened to the container, remove the single section shield located at the top of the R.F. section of the tuning condenser. This may be removed by loosening the two bolts at the rear plate of the tuning condenser. Now solder the **blue** wire to the lug left exposed by the removal of the shield, replace the shield and tighten bolts. Make the **red**, blue and **yellow** wires as short as possible without losing the floating properties of the tuning condenser. Solder the red wire to the stator lug of the middle section of the tuning condenser. Solder the copper strap to the frame of the tuning condenser; preferably one of the center partitions. Solder the yellow wire to the stator lug of the oscillator—front section of the tuning condenser. When the unit is being mounted on the models 66, 660; 77, 770; 78, 780: (For 88, 880 see Note 1 below) solder the gray wire to lug No. 2 of the speaker plug receptacle located in the set (See Fig. 3) Solder the wire of the shielded cable to lug No. 3 (Fig. 3). Solder the **black** wire to lug No. 1 (Fig. 3).

NOTE 1—When the unit is being mounted on the models 88, 880, solder the black wire to lug No. **4** (Fig. 3). Solder the shielded wire to the ungrounded side of the filament of any conveniently located tube, and the gray wire to lug No. 1 (Fig. 3). All the necessary connections are now made.

GENERAL INSTALLATION OF TOUCH-O-MATIC ON OTHER THAN ADMIRAL SETS

For receivers other than types listed above, proceed in the following manner, taking care to follow the instructions carefully. Determine the position for the location of the tuner unit of the TOUCH-O-MATIC, selecting a position for the unit so that the three Radio Frequency wires can be made as short as possible. These wires are the **red, yellow** and blue wires which connect directly to the switch segments of the TOUCH-O-MATIC (See Fig. 8). The **success of the installation is dependent largely upon the shortness of these wires.** Long leads may not allow the reception of the high frequency stations at the hig'. frequency end of the dial.

Drill four No. 33 holes for mounting tuner to side of the receiver container. Drill 3—3/8" holes close to the stator winding lugs of the tuning condenser. Locate these holes in such a manner as to provide the **most direct** path for the red, **yellow**, and blue leads. It is important that these wires do not cross each other and that they are not in close relation to one another. Should it be necessary for these wires to cross or come in close relation to one another, they should be provided with some form of low capacity shielding of the type found on the **blue** wire in the tuner **box, as** capacity between any of the wires on the gang or tuning condenser will cause excess oscillation and feed back. **The importance of keeping these wires as short and as well separated as possible, cannot be overstressed.** Any tendency for the tuner to cause oscillation may be directly attributed to capacity between these three wires. Proper shielding will stop the oscillation in all cases. If the installation will permit the choice of the **yellow** wire for the oscillator section, the red for the antenna section, and the **blue** wire for the Interstage or R.F. section, the group letters "O", "A", and "R" stamped into trimmer plate of the TOUCH-O-MATIC will have the following meaning: **Oscillator, Antenna,** and **R.F.**, respectively.

If this selection of wires cannot be made, it may be necessary to add a small shield around the **yellow** wire in the TOUCH-O-MATIC unit. This shield should be of the low capacity variety, similar to that found on the **blue** wire, and not of the tight fitting variety. Under every condition, the **red** wire should be selected for the antenna section of the tuning condenser. A fourth 3/8" hole is necessary to allow the admittance of the shielded wire and the **gray** and **black** wire into the receiver container. The location of this hole is purely arbitrary as long as it is in the confines of the tuner box.

Fasten the tuner to the sides of the receiver by means of the four self tapping screws provided in the bag of parts.

After cutting to the proper size, solder the **yellow, blue** and red wires to the stator-section lugs of the tuning condenser, according to previous selection. Connect the copper strap to the frame of the tuning condenser. Connect the shielded wire to a convenient "A" source. This may be either at the tube socket, the ungrounded side of a tube filament, the dial light receptacle, or the ungrounded side of the speaker field. Proper choice of the location of this connection will insure a minimum amount of "Hash" (vibrator disturbance) and motor noise. Solder the shield of the shielded wire to the chassis of the receiver.

The wiring of the **gray** and **black** wire is determined as follows:

1. **Determine whether or not the receiver in question has push-pull output.**
2. **Determine whether the output transformer is mounted in the set or on the speaker, (if an external speaker).**
3. **Determine whether or not the voice coil connections of the speaker are easily accessible.**

After the above data is obtained, connect the **grey** and black wires according to the most suitable method suggested by one of the three diagrams, (Fig. 9, type 1-2-3). For sets with external or internal speaker with output transformer in chassis, use circuit Type 1. For sets with push-pull output, internal or external speaker, output transformer mounted in set or on speaker, use circuit suggested in Type 3. For all other sets, use circuit suggested in Type 2.

Connect the receiver to battery and turn the set "on". Press **white button** and hold down until clicking stops. If no clicking is heard, press any red **button,** (if still no clicking is heard, check wiring carefully. Be sure that the shielded wire is connected to some source of "A" supply). Press **white button** again and hold down until the clicking stops. This places tuner in minimum capacity position in which no trimmer condensers are connected to the receiver. Align the set in the conventional **manner.** Adjust TOUCH-O-MATIC **adjustment screws according** to information **given** under the heading: ADJUSTING TOUCH-O-MATIC FOR STATIONS CHOSEN.

ADJUSTING TOUCH-O-MATIC FOR STATIONS CHOSEN.

Connect the **radio** to a battery and turn the set "on"; press the **white button** and hold down until clicking stops. (If clicking is not heard, press any **red button,** then press **white button.** If a clicking is not heard now, check all the above connections for errors.

Turn the tuning condenser all the way out and by using a signal generator or a test oscillator, adjust the oscillator trimmer condenser located on tuning condenser to 1550 K.C. Having once made this adjustment it is important that this trimmer condenser remains untouched while making further adjustments. Now set the signal generator to 1400 K.C. and rotate the tuning condenser until the signal is received. Adjust the R.F. and Antenna trimmer condensers to the loudest signal or for the greatest deflection of an output meter. No further adjustments of trimmer condensers located in the set are necessary. Rotate **the tuning condenser to the extreme high frequency end, that is, the position with the condenser plates all the way out. This is the position that the condenser plates must take when making adjustments** on TOUCH-O-MATIC.

Select the five most desirable stations in your vicinity. The best selection will lie in the most powerful local stations having a frequency of less than 1430 K.C. For convenience, arrange the selected stations in order, according to their frequency—from the lowest to the highest. Press button No. 1, shown in Fig. 2. Select the station of lowest frequency; set the generator to this frequency. Remove the tuner box cover by removing the four acorn nuts, located in the corners of the cover, (Fig. 2). Now adjust trimmer screws "O1", "R1", and "A1" (Fig. 2) in the order named, for the loudest signal or greatest deflection of an output meter. If the frequency of the station cannot be reached with the trimmer screw completely open, cut jumper wire. (See Note No. 2 below). It will be necessary to cut jumper wire for all stations having a frequency greater than 1000 K.C. When all three trimmer screws "O1", "R1" and "A1", have been adjusted for button No. 1, proceed with station No. 2.

Press button No. 2 and set the signal generator to the frequency of this station and adjust trimmers screws "O2", "R2", and "A2".

Repeat this operation for the three remaining stations, using "O3", "R3", and "A3" for button No. 3; "O4", "R4", and "A4" for button No. 4, and "O5", "R5", and "A5" for button No. 5.

NOTE 2: If the frequency of the station selected cannot be reached when the trimmer screw is completely open, tighten the trimmer screw. Remove the lug screw, located on the cable side of the tuning unit, the four self-tapping screws (See Fig. 2) and the four nuts. Now the tuner box can be lifted off, leaving the inner mechanism exposed. Now cut jumper wire (Fig. 4) of trimmer which does not reach frequency. If any other trimmer condenser does not reach frequency when screw is completely opened, cut its jumper wire. Now replace the tuner box, the four self-tapping screws, the four nuts, and the lug screw. Adjust trimmers. Fasten tuner box cover in place, with the four acorn nuts. Replace the radio set cover.

MOUNTING BUTTON UNIT.

Included in the bag of parts:

1—Instructions
2—Drive screws
1—Under Dash Mounting Bracket
2—Steering Post Mounting Straps
4—8/32 x ½ R.H.M. screws
4—No. 8 lock washers
4—8/32 hex nuts
1—Celluloid strip
1—Station call letter sheet

Included with the TOUCH-O-MATIC is a printed sheet of station call letters, varying upward from 1000 watts and between 550 and 1430 K.C. These call letters are arranged in alphabetical order across the sheet. Each call letter can be removed individually since the sheet is cross-perforated. Select the call letters to be used. Remove the chromium plated strip by unscrewing the two small bolts (Fig. 2). Now place the call letters in the proper recess left exposed by the removal of the chromium strip. Over them place the celluloid strip supplied in the bag of parts, replace the chromium strip and secure with the small bolts. After the set has been mounted in the car, fasten the button tuner, either on the steering column or under the dash. To mount on the steering column, use the two steering post mounting straps. Bend straps to fit column. Slide bent straps under mounting ears located on the rear dust cover of the push button unit (Fig. 5), and fasten straps with two 8/32 bolts, furnished in bag of parts. This will hold the unit securely to column (See Fig. 5).

For under dash mounting, a special angle bracket is supplied. This necessitates the drilling of two holes on the bottom edge of the dash. Bolts are supplied for fastening. (See Fig. 6). After the unit has been mounted in the position selected, the set is ready for operation.

OPERATION OF TOUCH-O-MATIC

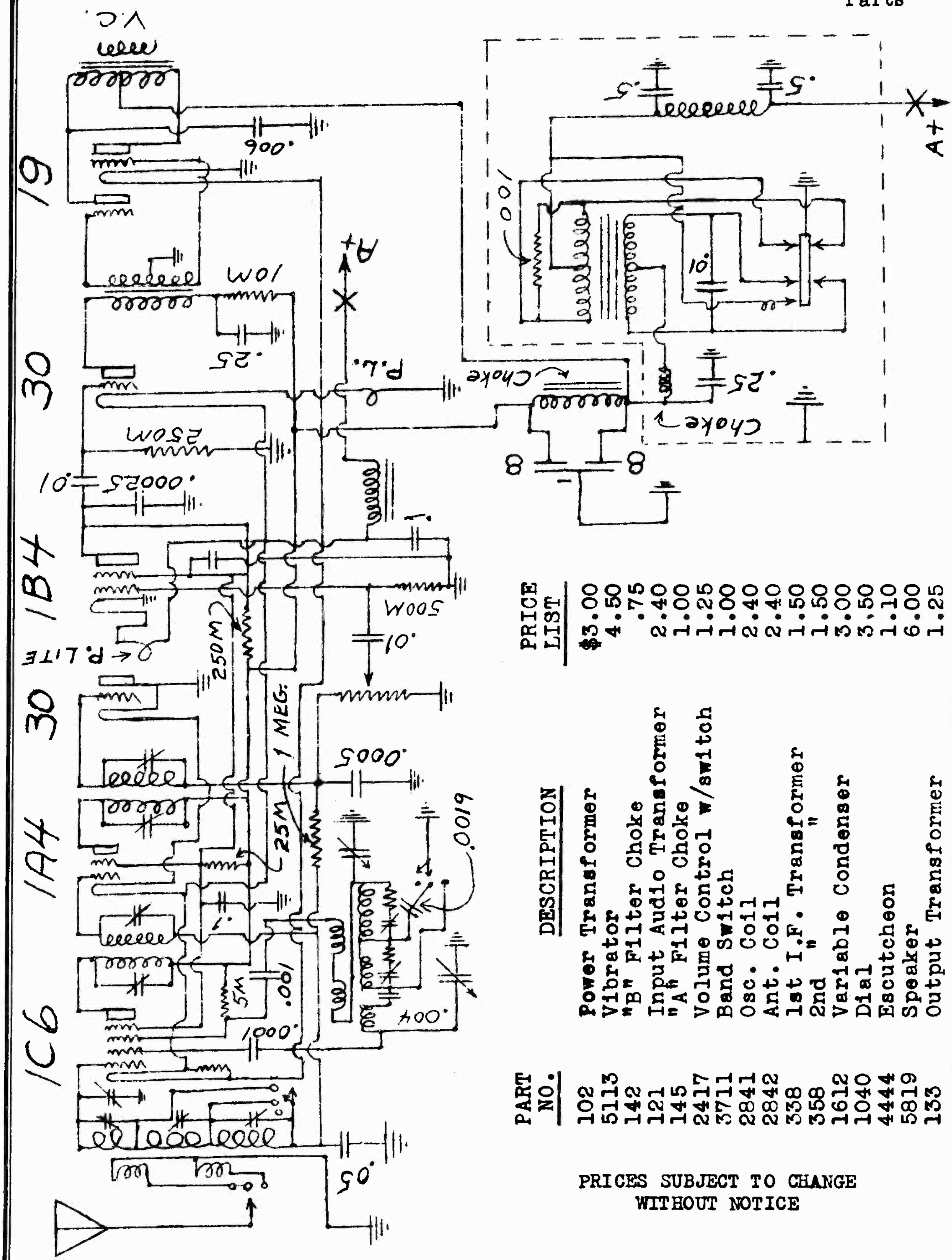
Switch on the radio. Turn the volume up about half-way and wait about 30 seconds for the tubes to heat, before attempting to operate the set. Now turn the dial pointer as far as it will go to the left—to the high frequency end of the dial. Press the button corresponding to the station wanted. If the above instructions have been followed, and the adjustments have been made accurately, your station will come in precisely tuned. For manual tuning, simply press the white button, and operate dial in conventional manner. For TOUCH-O-MATIC tuning, turn dial pointer to extreme high frequency end.

T-21 TOUCH-O-MATIC PARTS LIST

P1397	Magnet Coil	P1343	Trimmer Cond. plate
P838	Terminal Panel	P1346	Trimmer Cond.
P1320	Push Button control head	P1347	Trimmer Cond.
P1329	Automatic tuner can	P1348	Switch segment
P1330	Automatic tuner cover	P1349	Switch segment No 2
P1331	Field Piece	P1352	Control cable
P1332	Armature	P1353	Coil spring
P1333	Ratchet gear	P142	Condenser
P1334	Ratchet gear shaft	P395	Condenser
P1335	Gear shaft hub	P1399	Horseshoe washers
P1336	Electro-magnet core	P1450	Under dash mtg. bracket
P1337	Electro-magnet washer	P1451	Steering post mtg. bracket
P1338	Contact spring	P1462	Celluloid Shield
P1342	Springs	P1457	Shield Plate
		P1359	Acorn Nuts (cad.)

MODEL 212
Schematic
Parts

CORONA RADIO & TELEV. CORP.

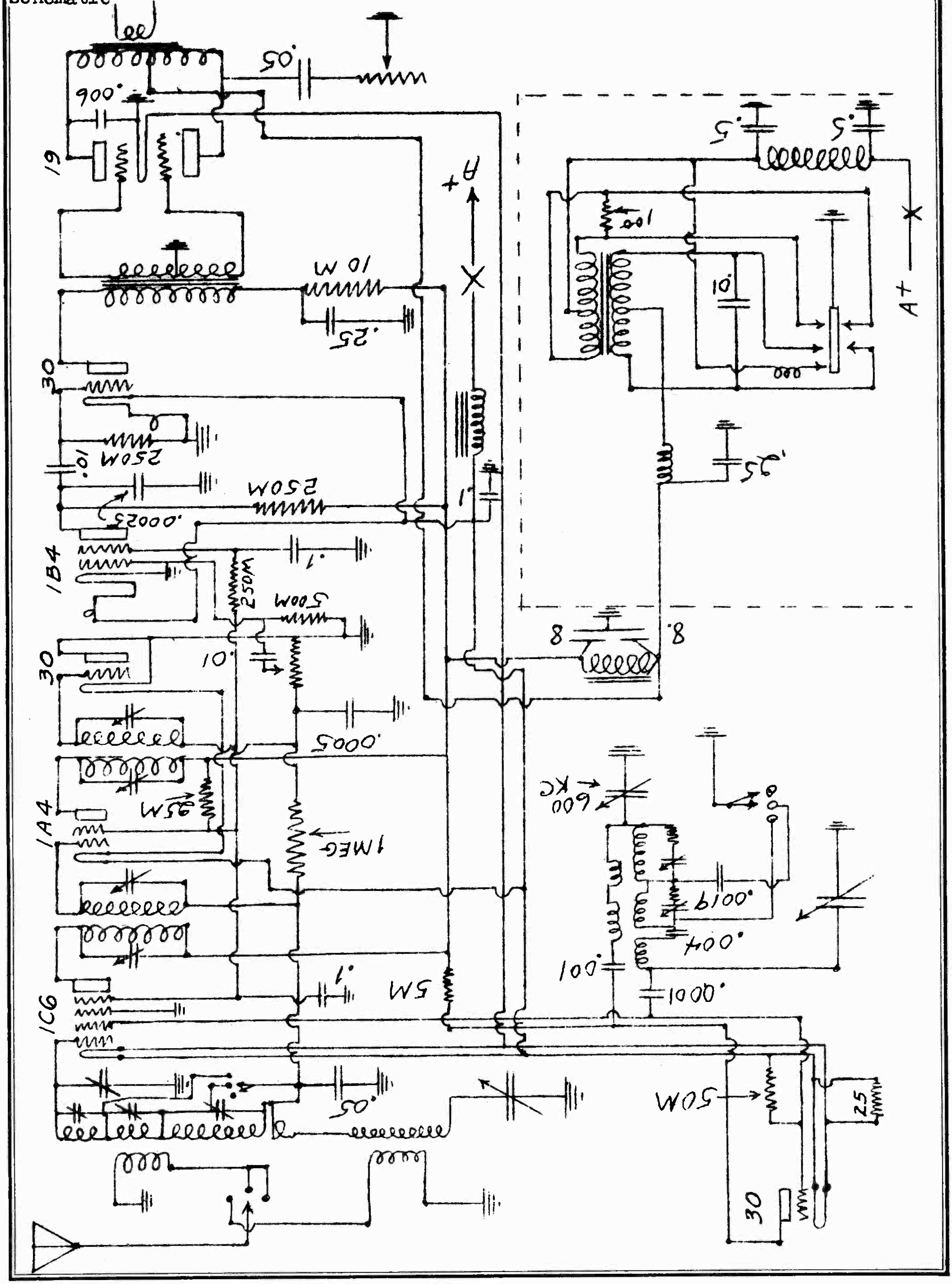


PART NO.	DESCRIPTION	PRICE LIST
102	Power Transformer	$3.00
5113	Vibrator	4.50
142	"B" Filter Choke	.75
121	Input Audio Transformer	2.40
145	"A" Filter Choke	1.00
2417	Volume Control w/switch	1.25
3711	Band Switch	1.00
2841	Osc. Coil	2.40
2842	Ant. Coil	2.40
338	1st I.F. Transformer	1.50
358	2nd " "	1.50
1612	Variable Condenser	3.00
1040	Dial	3.50
4444	Escutcheon	1.10
5819	Speaker	6.00
133	Output Transformer	1.25

PRICES SUBJECT TO CHANGE
WITHOUT NOTICE

MODEL 214
Schematic

CORONA RADIO & TELEV. CORP.



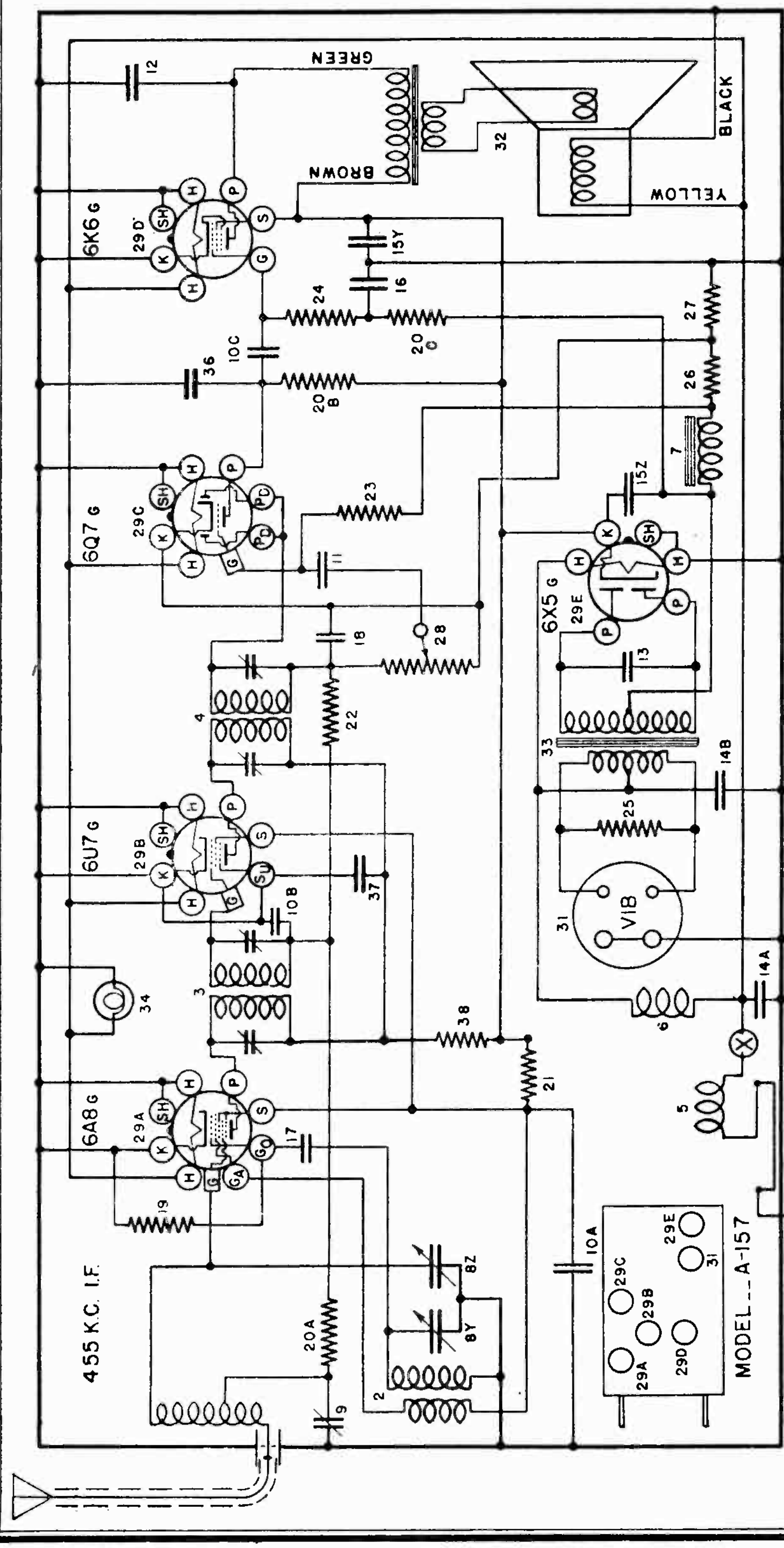
MODEL A-157, Fiver Roamio
Schematic, Voltage, Parts

CROSLEY RADIO CORP.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	K	Ga	Go
6A8-G	Oscillator-Modulator	6.0	220	90	—	0	90	0
6U7-G	I-F Amplifier	6.0	220	90	0	0	—	—
6Q7-G	Diode Detector & A-F Amp.	6.0	110	—	—	0	—	—
6K6-G	Output	6.0	200	220	—	0	—	—
6X5-G	Rectifier	6.0	—	—	—	220	—	—

Power Output approximately 4 Watts.
Battery Drain approximately 5.7 Amperes at 6 Volts.



April, 1937

MODEL A-157 (Fiver Roamio)

Item No.	Part No.	Description
1	G137—32000	Antenna Coil
2	G137—32002	Oscillator Coil
3	G149—32004	1st I-F Assembly, 455 Kc.
4	G148—32004	2nd I-F Assembly, 455 Kc.
5	G16 —32977	Motor Noise Choke
6	G21 —28067	"A" Filter Choke
7	G16 —29535	"B" Filter Choke
8	G36 —33001	Var. Tuning Cond., 2 Section
9	—38998A	Condenser Ant. Comp.
10ABC	W —32380	Condenser .05 Mf. 200 V.
11	W —37226	Condenser .02 Mf. 160 V.
12	W —23191A	Condenser .01 Mf. 400 V.I
13	W —50170	Condenser .01 Mf. 1000 V.
14AB	W —50161	Condenser .5 Mf. 120 V.
15ZY	W —50160	Condenser 4 Mf. 350 V.
16	W —50105	Condenser .1 Mf. 160 V.
17	G1 —34002	Condenser .00025 Mf. 200 V.
18	G3 —34002	Condenser .0005 Mf. 200 V.
19	—35928	Resistor 60,000 Ohm ¼W.
20ABC	—35601	Resistor 300,000 Ohm ¼W.
21	—37377	Resistor 20,000 Ohm 1W.
22	—35602	Resistor 1 Megohm ¼W.
23	—35927	Resistor 2 Megohm ¼W.
24	—36322	Resistor 500,000 Ohm ¼W.
25	W —35467	Resistor 220 Ohm ½W.
26	W —23012A	Resistor 40 Ohm ¾W.
27	W —24537	Resistor 60 Ohm ½W.
28	—50042	Vol. Cont. 1 Meg. & Switch
29	G178—36400	Socket, Octal
	W —50142	Tube Shield, Plain Half } 6U7-G
	W —50143	Tube Shield, Cut-out Half } 6U7-G
	W —31210	Tube Shield Ring } 6U7-G
30		NONE
31	G105—28807	Socket (Vibrator)
	W —50123	Gnd. Clip (Vibrator)
32	263—BL7 "U"	Speaker, Spec. 5-S-21
	—44062	V. C. & Cone Assembly } Above Speaker
	—44063	Output Trans. } Above Speaker
33	G15 —32769	Power Transformer
	W —50130	P. T. Shield
34	W —43567	Dial Light Bulb
35	W —43568	Bracket—Dial Light
	G25 —32750	"A" Lead Assembly
	W —32757	Fuse, 12 Amp.
	W —32777	Fuse Cap (Female)
	W —32776	Fuse Insulator
	W —31393	Fuse Cap (Male)
36	G6 —34002	Condenser .000025 Mfd. 200 V.
37	W —32750	Condenser .05 Mfd. 400 V.
38	W —22514	Resistor 750 Ohm ½W.
38	W —35581	Resistor 1000 Ohm ¾W.
	W —38038D	Distr. Suppressor
	W —29754	Gen. Condenser
	W —50167	Mtg. Bracket (Set)
	—25846	Mtg. Screw (Set)
	—6213	Mtg. Nut
	—35065	Mtg. Bolt
	—35147B	Ant. Connecting Lead (Extra)
	W —50164	Knob
	C —50137	Dial Face (Glass)
	W —50135	Support Ring (Dial)
	B —50136	Support Bracket (Dial)
	W —50133	Dial Mask
	G2 —43564	Pulley and Hub Assembly
	—41582	Drive Cord
	W —50134	Shaft (Drive)
	W —50128	Mtg. Bracket (Shaft)

MODEL A-157,Fiver Roamio
Socket,Trimmers,Chassis
Alignment

CROSLEY RADIO CORP.

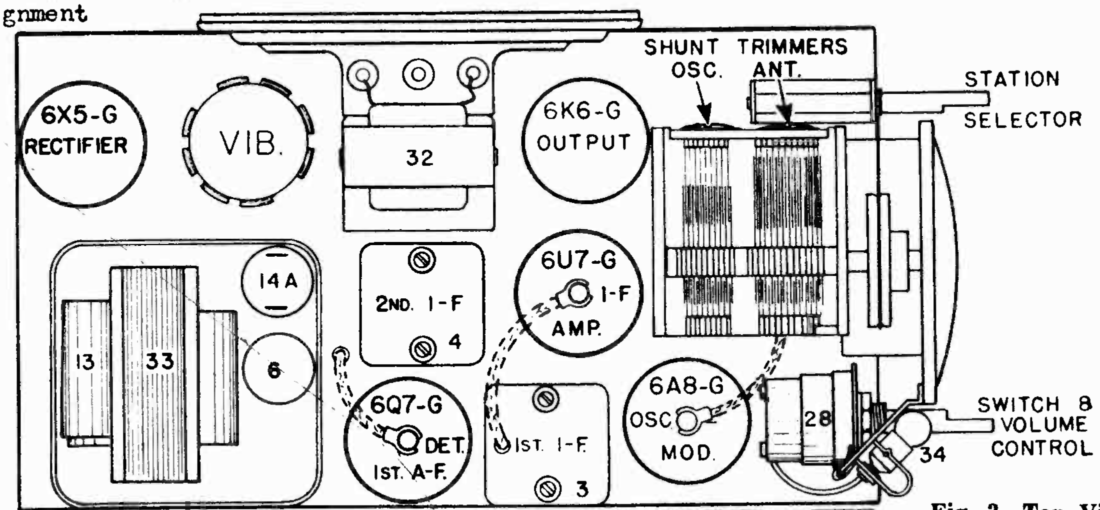


Fig. 2 Top View A-157

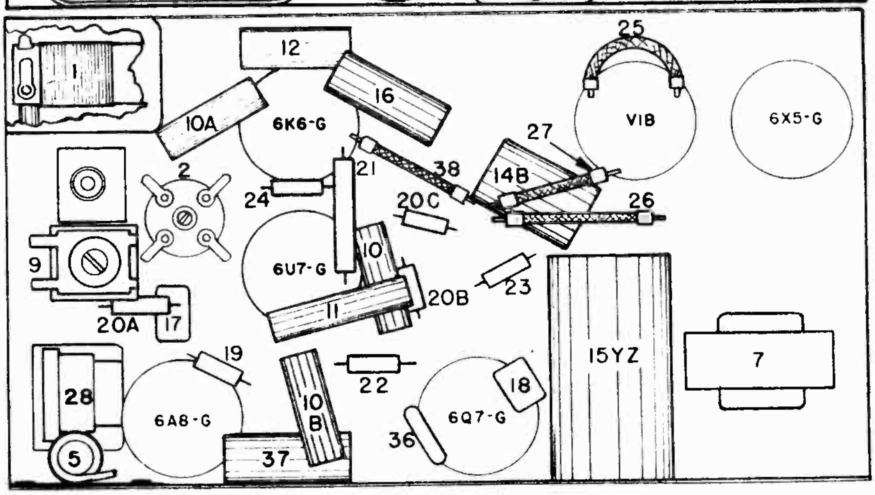


Fig. 3 Bottom View A-157

CONNECTING OUTPUT METER

Connect the output meter to P and S of the 6K6G 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., or larger, condenser to the top cap of the 6A8G Osc-Mod. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis frame. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Adjust the station selector so that the rotor plates of the tuning condenser are completely disengaged and turn Vol. Cont. to maximum position (RIGHT).

(c) Set the signal generator to 455 kilocycles.

(d) Adjust both trimmers located on the 2nd I-F transformer for maximum output. Fig. 2.

(e) Adjust both trimmers located on the 1st I-F transformer for maximum output.

(f) Repeat operations (d) and (e) for more accurate adjustments.

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 R-F Amplifier.

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" 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.

(e) Adjust the trimmer on the "ANT" section of the tuning condenser for maximum output.

(f) Readjust the station selector for maximum output. DO NOT READJUST THE OSC. TRIMMER.

(g) Repeat operation (e) for more accurate adjustment.

3. 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. 9, Fig. 3, for maximum output.

(d) Repeat operations (b) and (c) alternately until no further improvement 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.

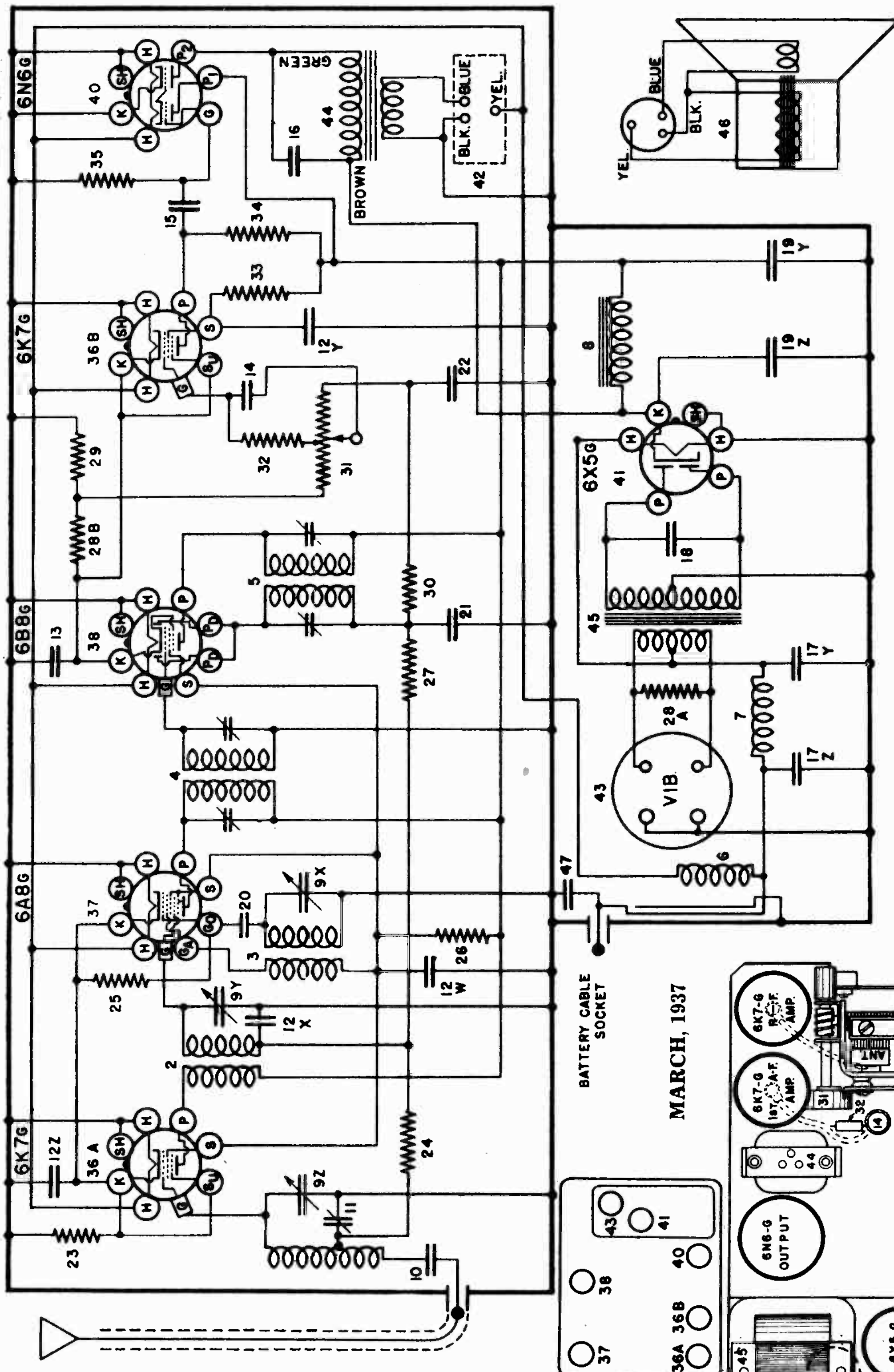
It will be necessary to adjust the antenna compensating condenser to the car antenna after the receiver has been installed in the car.

(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.

CROSLEY RADIO CORP.

MODEL A-167
Schematic, Voltage
Socket, Trimmers



MODEL--A-167 262 K.C. I.F.

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	P2	S	Su	K	Ga	Go
6K7G	R-F Amplifier	6.0	270	—	100	8.5	8.5	—	—
6A8G	Osc.-Modulator	6.0	270	—	100	—	8.5	100	0
6B8G	I-F Amplifier & Diode Detector	6.0	270	—	100	—	4.0	—	—
6K7G	A-F Amplifier	6.0	135	—	35	4.0	4.0	—	—
6N6G	Output	6.0	235	270	—	—	0	—	—
6X5G	Rectifier	6.0	—	—	—	—	285	—	—

Power output approximately 5 watts.
Battery drain approximately 8.0 amperes at 6.0 volts.

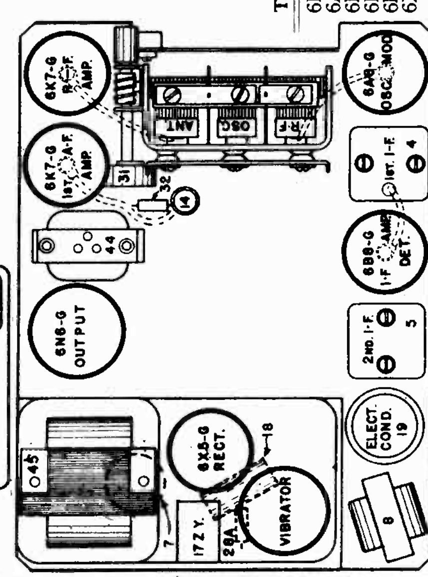


Fig. 2 Top View A-167

MODEL A-167
Chassis, Parts
Alignment

CROSLEY RADIO CORP.

CONNECTING OUTPUT METER

Connect the output meter to P1 and P2 of the 6N6G 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.

NOTE: The receiver chassis should be in i.s case and a speaker similar to one used with the receiver must be connected to the chassis before making adjustments. It is advisable to use a spare control unit for making adjustments of the volume control and tuning condenser. A standard control unit with short cables (6" to 8") makes a very convenient and useful tool. If it is desired to shorten a pair of long cables it will be absolutely necessary to heavily tin the cables before cutting them.

1. Tuning I-F Amplifier To 262 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd., or larger, condenser to the top cap of the 6A8G Osc-Mod. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis frame. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Adjust the station selector so that the rotor plates of the tuning condenser are completely in mesh.

(c) Set the signal generator to 262 kilocycles.

(d) Adjust both trimmers located on the 2nd I-F transformer for maximum output. (Fig. 2).

(e) Adjust both trimmers located on the 1st I-F transformer 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 OUTPUT METER READING.

2. Aligning R-F Amplifier

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" 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.

(e) Adjust the trimmer on the "R-F" section of the tuning condenser for maximum output.

(f) Adjust the trimmer on the "ANT" section of the tuning condenser for maximum output.

(g) Readjust the station selector for maximum output. DO NOT READJUST THE OSC. TRIMMER.

(h) Repeat operations (e) and (f) for more accurate adjustments.

3. 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, Fig. 3, for maximum output.

(d) Repeat operations (b) and (c) alternately until no further improvement 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.

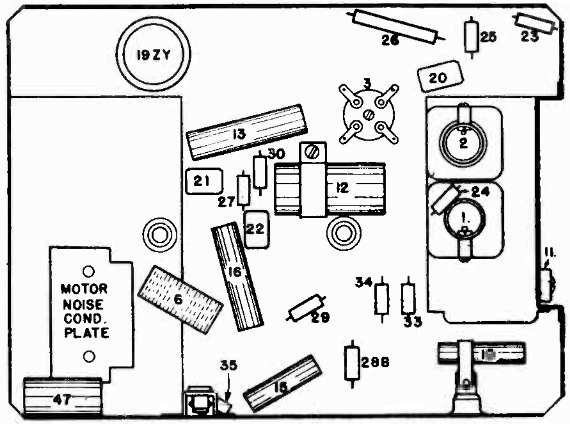


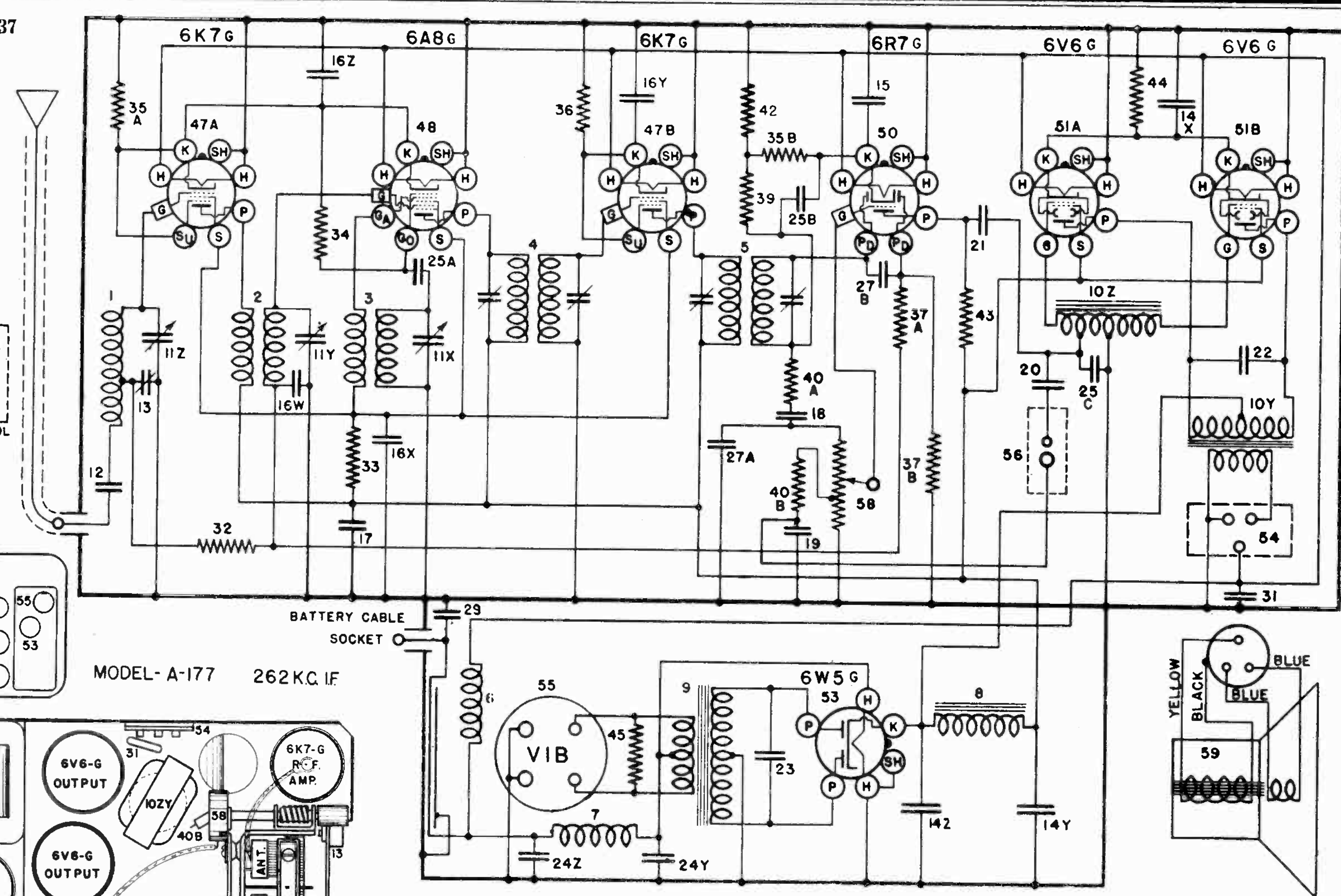
Fig. 3 Bottom View A-167

Item No.	Part No.	Description
1	G134—32000	Ant. Coil
2	G93 —32001	R-F Coil
	W —38995	Coil Shield only
	MG23 —50000	Ant. and R-F Shield Assy. (Cans and Brackets)
	MG24 —50000	Ant. and R-F Coils and Shield Assy. Complete
	W —32912	Wood Coil Spacer
3	G134—32002	Osc. Coil
4	G38 —32005	1st I-F Assembly
5	G37 —32005	2nd I-F Assembly
6	G15 —32977	Choke—Motor Noise
7	G20 —28067	Choke "A" Filter
8	G75 —24628	Choke "B" Filter
9	G57 —33002	3 Section Var. Tuning Cond.
	W —38899A	Var. Cond. Connection
10	W —50039	Condenser .003 Mf. 160 V.
11	W —50054	Condenser Ant. Series Trimmer
	W —40698	Plug Ant. Trimmer Hole
12Z	W —50044A	Condenser .1 Mf. 160 V.
12Y		Condenser .1 Mf. 160 V.
12X		Condenser .05 Mf. 160 V.
12W		Condenser .05 Mf. 400 V.
13	W —24049C	Condenser .1 Mf. 200 V.
14	W —37226	Condenser .02 Mf. 160 V.
15	W —32380	Condenser .05 Mf. 200 V.
16	W —50043	Condenser .006 Mf. 600 V.
17ZY	W —38990	Condenser .5 Mf. 160 V.
18	W —38904	Condenser .005 Mf. 1000 V.
19ZY	W —50045A	Condenser 6 Mf. 350 V.
20	G1 —34002	Condenser .00025 Mf.
21	G3 —34002	Condenser .0005 Mf.
22	G2 —34002	Condenser .0001 Mf.
23	W —50046	Resistor 1000 Ohm ½W.
24	—35601	Resistor 300,000 Ohm ¼W.
25	—35928	Resistor 60,000 Ohm ¼W.
26	—36952	Resistor 30,000 Ohm 1W.
27	—35602	Resistor 1 Megohm ¼W.
28AB	W —38977	Resistor 220 Ohm ½W.
29	W —38918	Resistor 600 Ohm ½W.
30	—36760	Resistor 20,000 Ohm ¼W.
31	W —38989	Volume Control 300,000 Tap 150,000 Ohm
32	—35927	Resistor 2 Megohm ¼W.
33	—38623	Resistor 750,000 Ohm ¼W.
34	—35600	Resistor 100,000 Ohm ¼W.
35	—38976	Resistor 250,000 Ohm ¼W.
36AB	G151—36400	Socket Type 6K7
37	G156—36400	Socket Type 6A8
38	G175—36400	Socket Type 6B8
39	NONE	
40	G165—36400	Socket Type 6N6
41	G168—36400	Socket Type 6Y5
42	W —38991A	Socket Speaker
43	G105—28807	Socket Vibrator
	W —38873	Vibrator Ground Clip
	W —50002	Syncronode Mtg. Stud
	W —50020	Base—Tube Shield
	W —50021	Tube Shield—Half } 6K7G, 6B8G
	W —50022	Tube Shield—Half } 6K7G, 6B8G
	W —50023	Tube Shield—Half (2), 6x5
	W —31210	Ring—Tube Shield
44	G74 —24628	Output Transformer
	W —38991A	Speaker Socket, part of G1—43619 Brkt. Assy.
45	G13 —32769	Power Transformer
	G6 —38000	Vibrator
46	356BP9 "M"	Speaker Spec. 1-D-895
	—43818	Cone Assembly
	—43819	Field Coil
	MG2 —50000	Top Cover Assembly
	B —50028A	Escutcheon
	B —50029A	Screen—Speaker
	B —50030A	Grille Cloth
	W —50070	Clamp—Speaker Cable
	W —38935	Ground Clip (16 used)
	W —50002	Stud—Sync. Mtg.

MODEL A-177
Schematic, Voltage
Socket, Trimmers

CROSLEY RADIO CORP.

MARCH, 1937



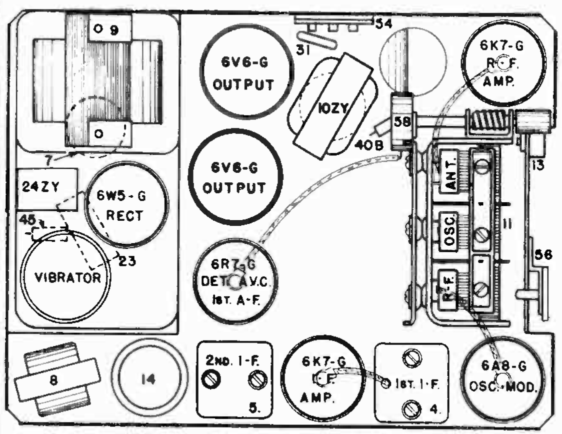


Fig. 2 Top View A-177

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	K	Ga	Go
6K7G	R-F Amplifier	6.0	225	90	4.0	4.0	—	—
6A8G	Osc.-Modulator	6.0	225	90	—	4.0	90	-18
6K7G	I-F Amplifier	6.0	225	90	3.2	3.2	—	—
6R7G	Diode Det. & 1st A-F Amplifier	6.0	170	—	—	7.0	—	—
6V6G	(2) Output	6.0	240	225	—	13.0	—	—
6W5G	Rectifier	6.0	—	—	—	250	—	—

Power output approximately 9 watts.
Battery drain approximately 10 amperes at 6.0 volts.

MODEL A-177
Chassis, Parts
Alignment

CROSLEY RADIO CORP.

Connect the output meter to the plate (P) terminals of the 6V6G output tubes. 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.

NOTE: The receiver chassis should be in its case and a speaker similar to one used with the receiver should be connected to the chassis before making any adjustments. It is also advisable to use a spare control unit for making adjustments of the volume control and tuning condenser. A standard control unit with short cables (6" to 8") makes a very convenient and useful tool. If it is desired to shorten a pair of long cables it will be absolutely necessary to heavily tin the cables before cutting them.

1. Tuning I-F Amplifier To 262 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd., or larger, condenser to the top cap of the 6A8G Osc-Mod. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis frame. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Adjust the station selector so that the rotor plates of the tuning condenser are completely in mesh.

(c) Turn the volume control full on.

(d) Leave the Fidelity Control cable disconnected from the chassis as this automatically sets the Fidelity Control in the TREBLE position and the Bass Compensation control in the OFF position.

(e) Set the signal generator to 262 kilocycles.

(f) Adjust both trimmers located on the 2nd I-F transformer for maximum output. (Fig. 2).

(g) Adjust both trimmers located on the 1st I-F transformer for maximum output.

(h) Repeat operations (f) and (g) for more accurate adjustments.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

2. Aligning R-F Amplifier

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" 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.

(e) Adjust the trimmer on the "R-F" section of the tuning condenser for maximum output.

(f) Adjust the trimmer on the "ANT" section of the tuning condenser for maximum output.

(g) Readjust the station selector for maximum output. DO NOT READJUST THE OSC. TRIMMER.

(h) Repeat operations (e) and (f) for more accurate adjustments.

3. 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. 13, Fig. 3, for maximum output.

(d) Repeat operations (b) and (c) alternately until no further improvement 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 beeen 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.

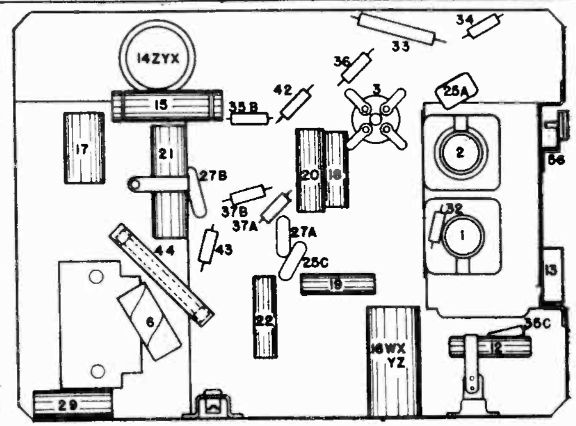


Fig. 3 Bottom View A-177

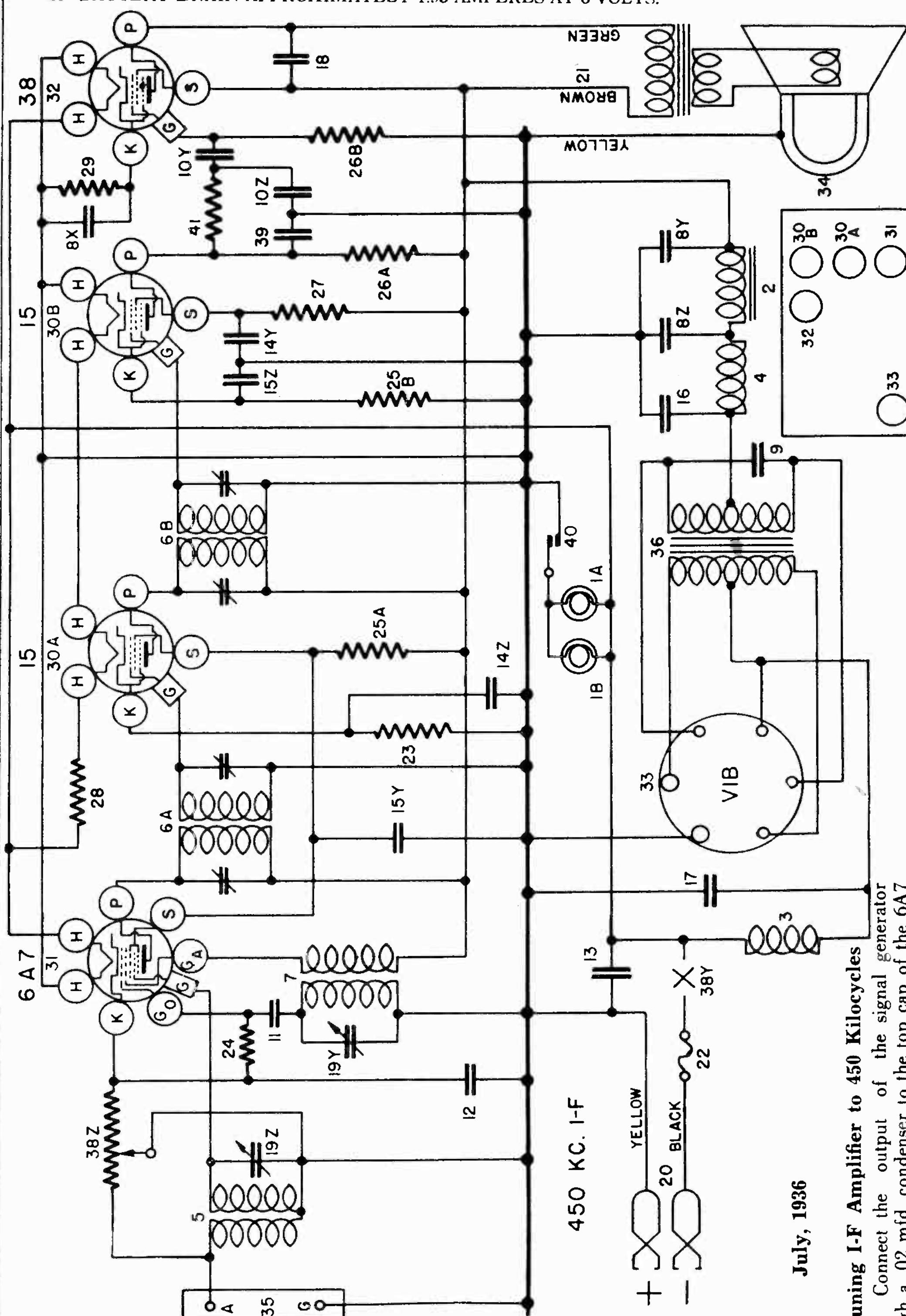
Item No.	Part No.	Description
1	G134—32000	Ant. Coil (only)
2	G93—32001	R-F Coil (only)
	W—38995	Coil Shield
	W—32912	Wood Spacer (Coil)
3	G134—32002	Osc. Coil
4	G38—32005	1st I-F Assembly
5	G39—32005	2nd I-F Assembly
6	G15—32977	Choke—Motor Noise
7	G20—28067	Choke—"A" Filter
8	G75—24628	Choke—"B" Filter
9	G14—32769	Power Transformer
10	G1—50063	Input and Output Unit Complete
10Z	G6—38557	Input Transformer Coil
10Y	G3—38884	Output Transformer Coil
	W—50062	Copper Shield Slug
11	G57—33002	3 Section Var. Tuning Cond.
	W—38899A	Var. Cond. Connection
12	W—50039	Condenser .003 Mf. 160 V.
13	W—50054A	Ant. Series Trimmer Cond.
14Z		Condenser 8 Mf. 350 V.—Red
14Y	W—50076A	Condenser 8 Mf. 350 V.—Blue
14X		Condenser 12 Mf. 25 V.—Yellow
15	W—38430	Condenser 4 Mf. 10 V.
16Z		Condenser .05 Mf. 160 V.—Green
16Y		Condenser .05 Mf. 160 V.—Green
16X	W—50075	Condenser .05 Mf. 160 V.—Green
16W		Condenser .05 Mf. 160 V.—Green
17	W—32780B	Condenser .05 Mf. 400 V.—
18	W—50064	Condenser .01 Mf. 160 V.
19	W—50084	Condenser .003 Mf. 160 V.
20	W—50065	Condenser .03 Mf. 160 V.
21	W—50066	Condenser .15 Mf. 400 V.
22	W—25435	Condenser .003 Mf. 400 V.
23	W—50068A	Condenser .006 Mf. 1000V.
24Z	W—38990	Condenser .5 Mf. 160 V.
24Y		Condenser .5 Mf. 160 V.
25	G1—34002	Condenser .00025 Mf. Molded
26	G1—34002	Condenser .00025 Mf. Molded
27	G2—34002	Condenser .0001 Mf. Molded
28	G1—34002	Condenser .00025 Mf. Molded
29	W—50105	Condenser .1 Mf. 160 V.
30	C2—34002	Condenser .0001 Mf. Molded
31	G3—34002	Condenser .0005 Mf. Molded
32	—35601	Resistor 300,000 Ohm ¼W.
33	—37377	Resistor 20,000 Ohm 1W.
34	—35928	Resistor 60,000 Ohm ¼W.
35	—38916	Resistor 350 Ohm ½W.
36	—38918	Resistor 600 Ohm ½W.
37	—35602	Resistor 1 Megohm ¼W.
38	—35602	Resistor 1 Megohm ¼W.
39	—35929	Resistor 150,000 Ohm ¼W.
40	—35600	Resistor 100,000 Ohm ¼W.
41	—38916	Resistor 350 Ohm ½W.
42	—36316	Resistor 2700 Ohm ¼W.
43	—36760	Resistor 20,000 Ohm ¼W.
44	W—22172A	Resistor 220 Ohm 1½W. Flex.
45	—38977	Resistor 220 Ohm ½W.
46	—35600	Resistor 100,000 Ohm ¼W.
47AB	G151—36400	Socket Type 6K7
48	G156—36400	Socket Type 6A8
49	NONE	
50	G164—36400	Socket Type 6R7
51AB	G176—36400	Socket Type 6V6
52	NONE	
53	G177—36400	Socket Type 6W5
54	W—38993	Socket 3 Prong Speaker
55	G105—28807	Socket Vibrator
56	W—50083	Socket 2 Prong—T. C. & B. Comp.
	G6—38000	Vibrator
57	See Remote	Control Head, etc.
58	—50056	Volume Control 2 Meg. Tap 1 Meg.
59	424G8 "M"	Speaker—Header Assembly

MODEL 416
Schematic, Voltage Socket, Alignment

CROSLEY RADIO CORP.

Tube	Where Used	S	G	S	G	K	Ga	Go
6A7	Osc.-Mod.	6.3	185	70	0	2.5	185	-10 to -20
15	I-F Amplifier	2.1	185	70	0	2.5	—	—
15	Detector	2.1	20	4	0	4.5	—	—
38	Output	6.3	170	185	0	11.0	—	—

POWER OUTPUT APPROXIMATELY 1 WATT.
"A" BATTERY DRAIN APPROXIMATELY 1.95 AMPERES AT 6 VOLTS.



July, 1936

1. Tuning I-F Amplifier to 450 Kilocycles

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A7 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) Adjust 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 450 kilocycles.

(d) Adjust both trimmers located on top of the 2nd I-F Transformer for maximum output. (Fig. 2).

(e) Adjust both trimmers located on top of the 1st. I-F Transformer for maximum output.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

2. Aligning R-F Amplifier.

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" terminal of the receiver.

(b) Set the signal generator to 1400 kilocycles.

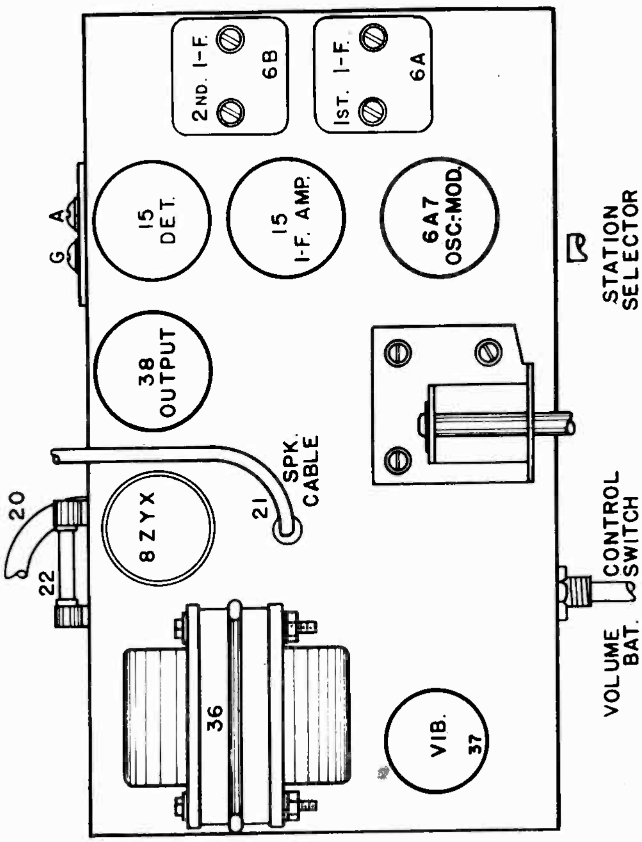
(c) Adjust the station selector to 140 on the dial.

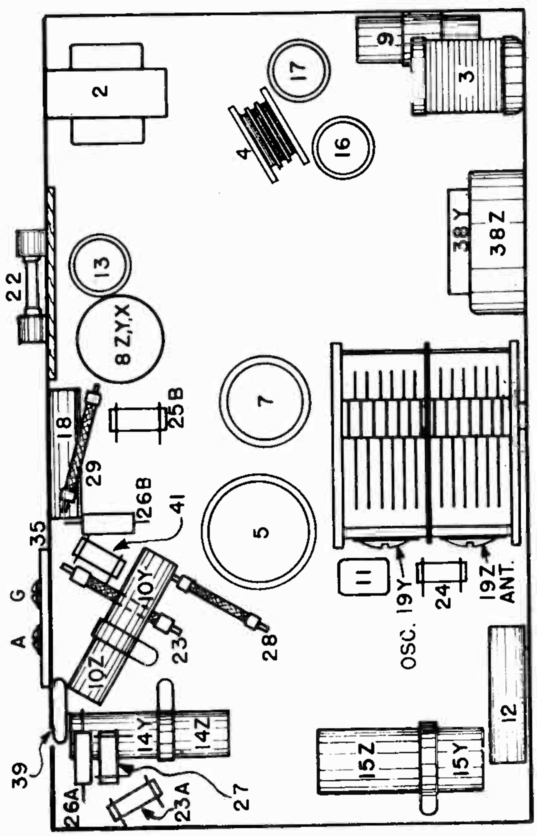
(d) Adjust the trimmer on the "OSC" section of the condenser gang for maximum output. (Fig. 3.)

(e) Adjust the trimmer on the "ANT" section of the condenser gang for maximum output.

MODEL 416
Chassis, Parts

CROSLEY RADIO CORP.





Item No.	Part No.	Description
1AB	W —37922	Bulb Dial Light
	G3 —37965	Socket Assembly Dial Light
2	G10 —29535	Choke 2.4H. Hum Filter
3	G13 —28067	Choke Vib. "A" Filter
4	G1 —24234	Choke R-F Filter
5	G55 —32000	Coil 540-1725 Kc. Antenna
6A	G119—32004	Coil 450 Kc. 1st I-F Assembly
6B	G119—32004	Coil 450 Kc. 2nd I-F Assembly
7	G9 —32002	Coil 540-1725 Kc. Oscillator
8Z		Cond. 12 MF. 250V. Filter Bypass
8Y	W —34896	Cond. 8 MF. 250V. Plate Bypass
8X		Cond. 8 MF. 25V. Output Bias Bypass
9	W —37214	Cond. .001 MF. 1000V. Synchronizing
10Z	W —30322A	Cond. .00017 MF. Det. Plate Bypass
10Y		Cond. .006 MF. A-F Coupling
11	G1 —34002	Cond. .00025 MF. Osc. Grid Coupling
12	W —28621	Cond. .02 MF. 200V. Osc.-Mod. Cathode Bypass
13	W —37190	Cond. .02 MF. 160V. Filament Bypass (Metal Clad H-F)
14Z	W —28623	Cond. .02MF. 200V. I-F Cathode Bypass
14Y		Cond. .02MF. 200V. Det. Screen Bypass
15Z	W —28622	Cond. .1MF. 200V. Det. Cath. Bypass
15Y		Cond. .1MF. 200V. Common Scr. Bypass
16	W —37173	Cond. .25 MF. 300V. V1B. "B" Bypass (Metal Clad H-F Type)
17	W —37174	Cond. .5MF. 160V. V1B. "A" Bypass (Metal Clad H-F Type)
18	W —34647	Cond. .006MF. 400V. Output Plate to Screen
19Z	G25 —33001	Cond. Var. Tuning Antenna Section
19Y		Osc. Section
	C —41755	Glass Dial—Calibrated
	W —41739	Dial Drive Unit
	W —41751	Dial Support Brkt. (R. H.)
	W —41752	Dial Support Brkt. (L. H.)
	W —41753	Dial Mtg. Brkt. (R. H.)
	W —40797	Dial Mtg. Brkt. (L. H.)
	W —40795B	Hand Shaft
	W —40907	Shaft Bearing Brkt.
	W —40909	Spring Washer (Shaft)
	W —41611	Shaft Retaining Ring
	B —40818C	Pointer Disc.
	W —40486	Disc. Mtg. Screw
	W —41578	Gear Spring
20	MG25—37103	Cable (Assembly) Battery Supply
21	G6 —35696	Cable 3 Lead Speaker
22	W — 7983A	Fuse 3 Amp. "A" Supply
	G2 —33339	Panel (Assembly) Fuse
23	W —22514	Resistor 750 Ohm. ½W. I-F Cathode
24	—21453	Resistor 40,000 Ohm. ¼W. Osc. Grid Leak
25A	—21237A	Resistor 60,000 Ohm. ¼W. Screen Series
25B	—21237A	Resistor 60,000 Ohm. Det. Cathode Bypass
26A	—35602	Resistor 1 Megohm ¼W. Det. Plate
26B	—35602	Resistor 1 Megohm ¼W. Output Grid
27	—33490	Resistor 10 Megohm ¼W. Det. Screen
28	W —41786	Resistor 9 Ohm. Filament Series
29	W —21452	Resistor 1100 Ohm. ¾W. Output Cathode
30A	G88 —28807	Type 15 I-F Amp.
30B	G88 —28807	Type 15 A-F Amp.
31	G47 —28807	Type 6A7 Osc.—Mod.
32	G15 —28807	Type 38 Output
33	G92 —28807	Type V1B Full Wave Vibrator
	W —35772	Tube Shield (Half) (6)
	W —35774	Tube Shield Base
	W —35773	Tube Shield Cap
34	—41316	Speaker Type 33PJ3, "A"
	—41434	Cone Assembly Used on 41316
	—41458	Mtg. Ring Used on 41316
	—41454	Output Trans. Used on 41316
35	G26 —26719	Terminal Board Assy. Ant. & Gnd.
36	G5 —31618	Transformer Power
37	W —37216	Vibrator
	W —37195	Vibrator Shield
	W —37217	Vibrator Side Packing
	W —37218	Vibrator Top Packing
	W —26973B	Shield Base
38Z	—41754	Volume Control 4800 Ohm.
38Y		Battery Switch
39	G2 —34002	Cond .0001 MF. Det. Plate Bypass
40	W —41068A	Switch Momentary Dial Light
41	—35600	Resistor 100,000 Ohm. ¼W. I-F Filte

Misc, Parts

Part No.	Description
B —37172A	Cover V1B. Compartment
B —41886	Escutcheon
D — 28	Escutcheon Mtg. Screw
W —40840A	Crosley Shield
W —41221	Knob (Upper) Volume Control
W —41222	Knob (Lower) Dial Light Switch
W —41605	Knob Station Selector

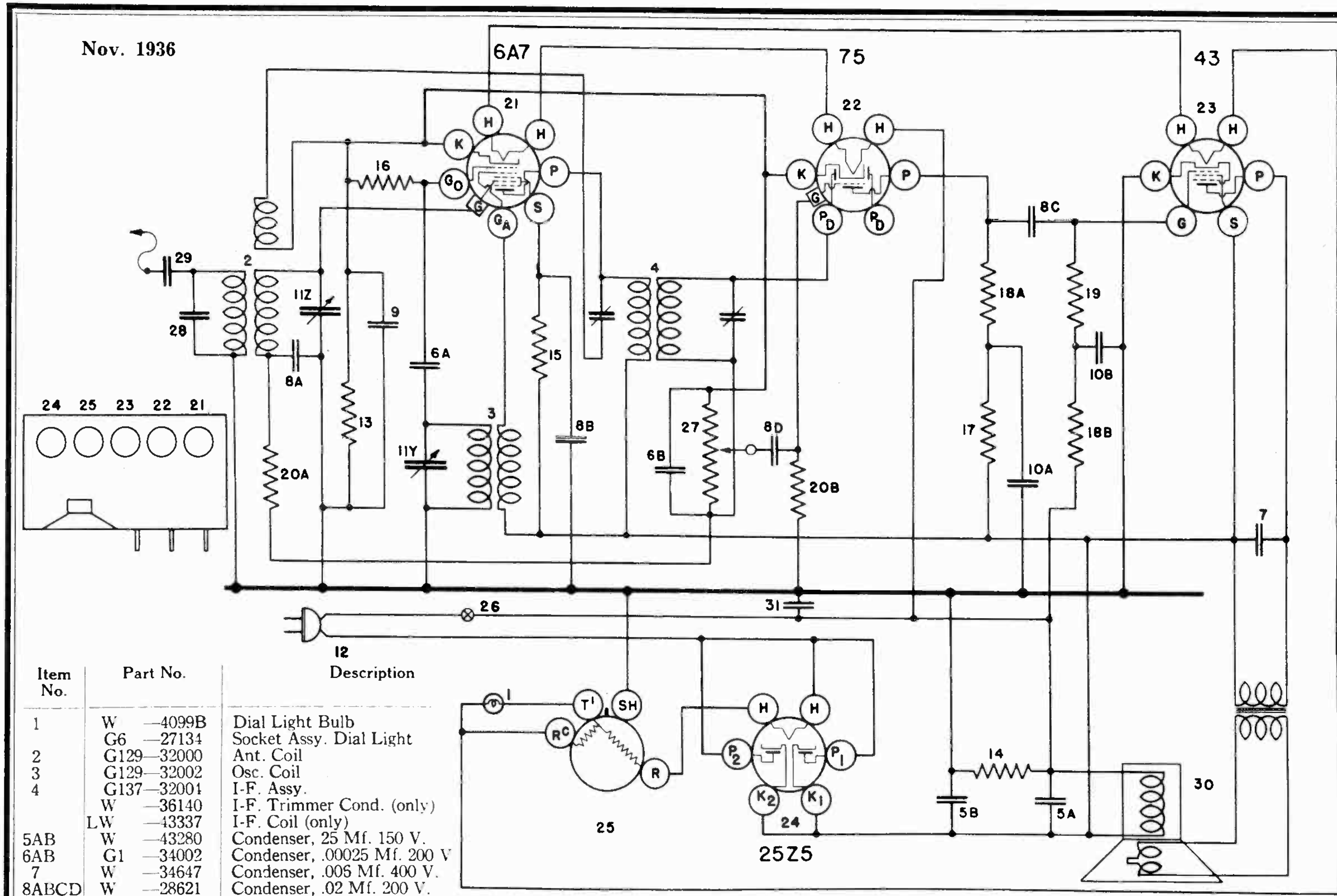
CROSLEY RADIO CORP.

MODEL 506
Below Serial 1308741
Schematic, Socket, Parts

SALES MODEL C-516

CHASSIS MODEL 506

Nov. 1936



Item No.	Part No.	Description
1	W —4099B	Dial Light Bulb
	G6 —27134	Socket Assy. Dial Light
2	G129—32000	Ant. Coil
3	G129—32002	Osc. Coil
4	G137—32001	I-F. Assy.
	W —36140	I-F. Trimmer Cond. (only)
	LW —43337	I-F. Coil (only)
5AB	W —43280	Condenser, 25 Mf. 150 V.
6AB	G1 —34002	Condenser, .00025 Mf. 200 V
7	W —34647	Condenser, .005 Mf. 400 V.
8ABCD	W —28621	Condenser, .02 Mf. 200 V.
9	W —37988	Condenser, .017 Mf. 200 V.
10AB	W —29910A	Condenser, .25 Mf. 200 V.
11	G28 —33001	2 Gang Var. Tuning Cond.
12	B —27885A	Power Cord and Plug
13	W —35167	Resistor, 275 Ohm ½W. Flex.
14	W —23907	Resistor, 750 Ohm 1½W. Flex.
15	—36761	Resistor, 40,000 Ohm ¼W.
16	—35928	Resistor, 60,000 Ohm ¼W.
17	—35600	Resistor, 100,000 Ohm ¼W.
18AB	—35601	Resistor, 300,000 Ohm ¼W.
19	—36322	Resistor, 500,000 Ohm ¼W.
20AB	—35927	Resistor, 2 Megohm ¼W.
21	G47 —28807	Socket Type 6A7
22	G41 —28807	Socket Type 75
23	G30 —28807	Socket Type 43
24	G51 —28807	Socket Type 25Z5
25	G170—34600	Socket Type W-43357
	W —28632	Tube Shield
26	—43339	Line Switch
27	—43340	Volume Control, 1 Meg.
28	G5 —34002	Condenser, .00005 Mf. 200 V.
29	W —30325A	Condenser, .003 Mf. 200 V.
30	255BL6Q	Speaker - Spec. 23393
	—43464	Cone Assy. (above Spk.)
	—43465	Output Trans. (above Spk.)
	—43466	Mtg. Ring, Cone (above Spk.)
	—6DD	Cabinet
	D —43302	Dial
	W —43321	Pointer Knob
	W —43320	Knob—V. C. & Sw.
31	W —23615	Condenser, .05 Mfd. 400 V.

MODEL 506
Below Serial 1308741
Trimmers, Chassis
Alignment, Voltage

CROSLEY RADIO CORP.

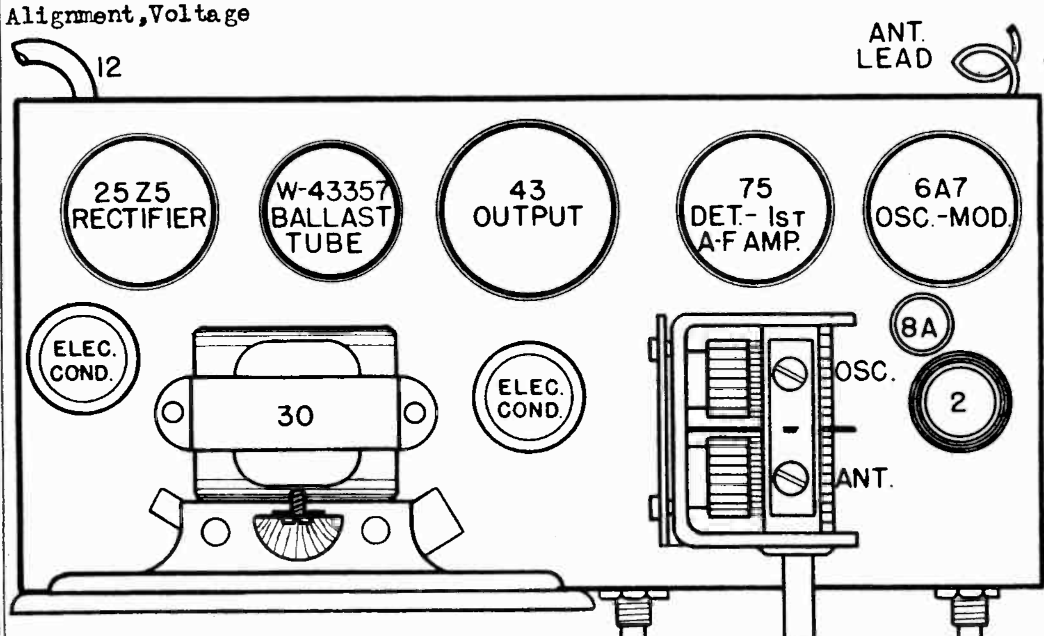


Fig. 2 Top View 506

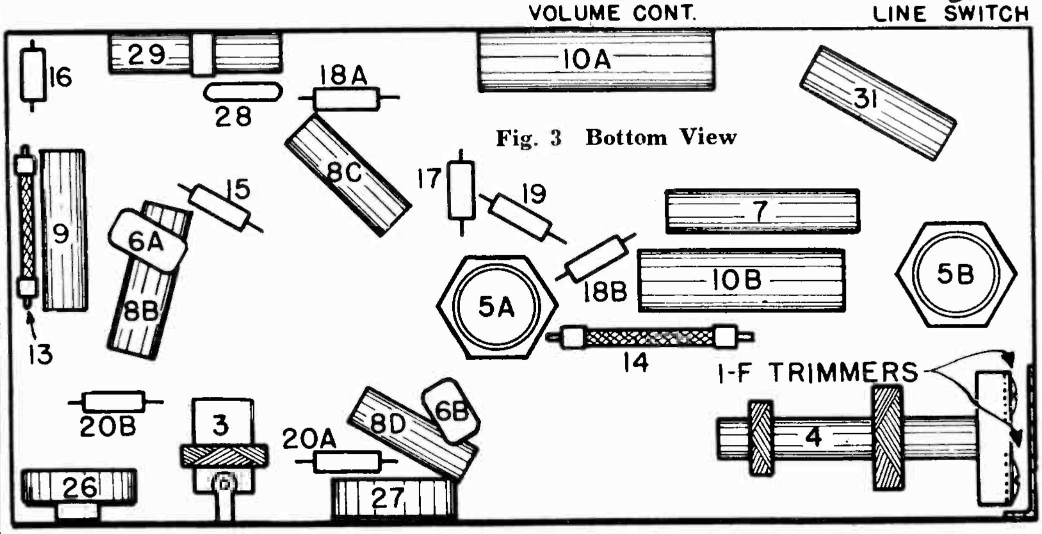


Fig. 3 Bottom View

Tube	Function	H	P	S	K	Ga	Go	G
6A7	Oscillator-Mod.	6.5	100	40	1	100	-20	—
75	Det. & A-F Amp.	6.5	11	—	1	—	—	—
43	Output	25.0	95	100	0	—	—	-20
25Z5	Rectifier	25.0	—	—	100	—	—	—
W—43357	Ballast Tube.							

Power output approximately 1 watt.
Power consumption approximately 50 watts.
Voltage drop across speaker field 120 volts.
All readings taken on 117.5 volt A. C. power supply.
All readings except filaments will be approximately 15% lower on 117.5 volts D. C.

ALIGNMENT PROCEDURE

The chassis of this receiver is connected through a resistor to one side of the power supply and for this reason all test equipment should be thoroughly isolated in order that the power supply will not be short circuited while attempting to align the receiver.

CONNECTING OUTPUT METER

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 93 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 condenser to the top cap of the 6A7 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator direct to the receiver chassis **but do not run a wire direct to ground.** 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 450 kilocycles.

(d) Adjust the I-F trimmer condensers for maximum reading on the output meter.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

2. Aligning R-F Amplifier.

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the antenna lead on the chassis.

(b) Set the signal generator to 1400 kilocycles.

(c) Adjust the station selector to 140 on the dial.

(d) Adjust the trimmer located on the "OSC" section of the condenser gang for maximum output.

(e) Adjust the trimmer located on the "ANT" section of the condenser gang for maximum output.

(f) Readjust the station selector slightly for maximum output.

(g) Repeat operation (e) for more accurate adjustment.

CROSLEY RADIO CORP.

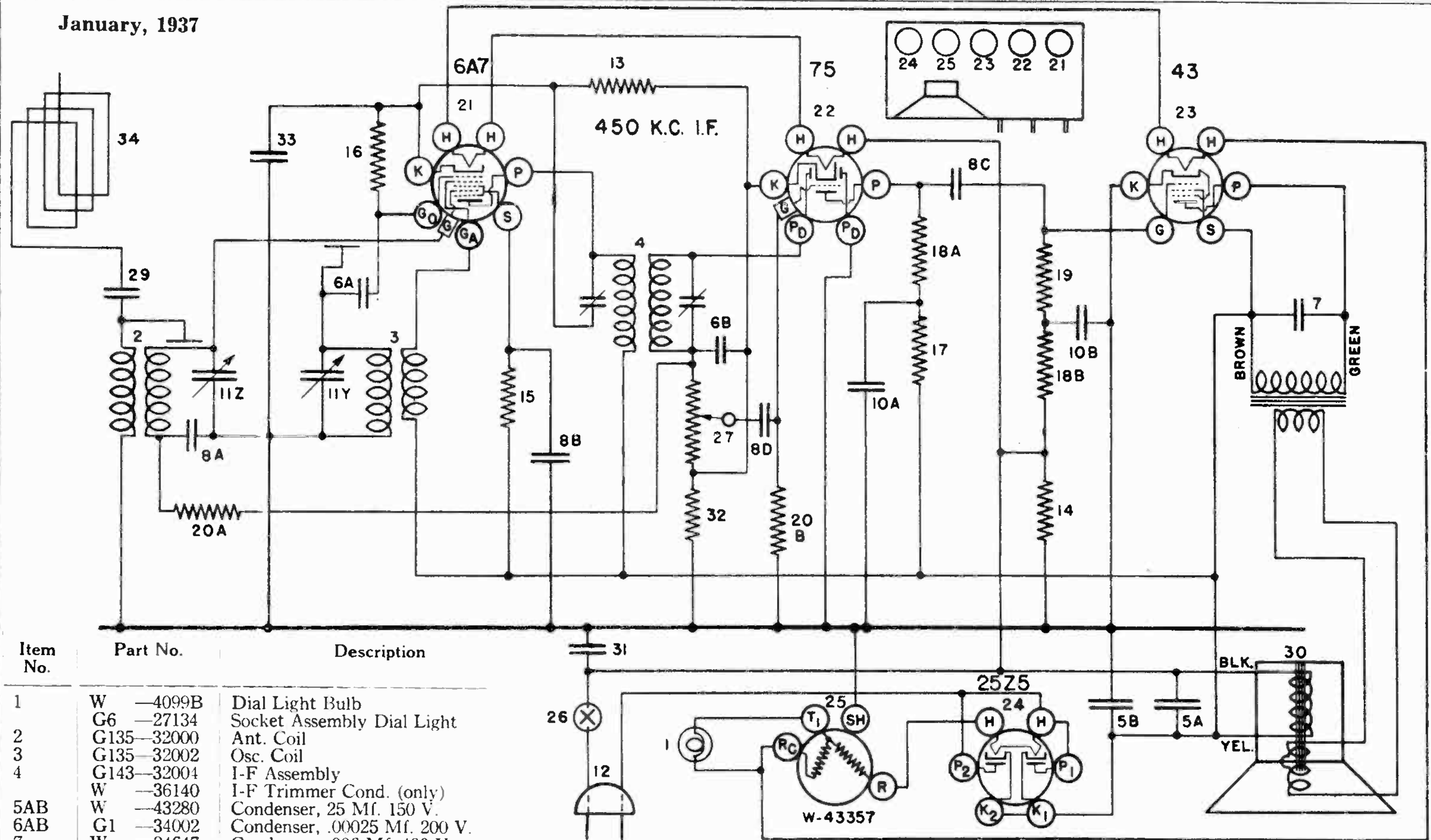
MODEL 506
Above Serial 1308741
Schematic, Voltage
Socket, Parts

Tube	Function	H	P	S	K	Ga	Go	G
6A7	Oscillator-Mod.	6.5	100	40	1	100	-20	—
75	Det. & A-F Amp.	6.5	11	—	1	—	—	—
43	Output	25.0	95	100	0	—	—	-20
25Z5	Rectifier	25.0	—	—	100	—	—	—

W—43357 Ballast Tube.

Power output approximately 1 watt.
Power consumption approximately 50 watts.
Voltage drop across speaker field 112 volts.
All readings taken on 117.5 volt A. C. power supply.
All readings except filaments will be approximately 15% lower on 117.5 volts D. C.

January, 1937



SALES MODEL C-516 CHASSIS MODEL 506

For Serial Numbers Above 1,308.741

Item No.	Part No.	Description
1	W —4099B	Dial Light Bulb
	G6 —27134	Socket Assembly Dial Light
2	G135—32000	Ant. Coil
3	G135—32002	Osc. Coil
4	G143—32004	I-F Assembly
	W —36140	I-F Trimmer Cond. (only)
5AB	W —43280	Condenser, 25 Mf. 150 V.
6AB	G1 —34002	Condenser, .00025 Mf. 200 V.
7	W —34647	Condenser, .006 Mf. 400 V.
8ABCD	W —28621	Condenser, .02 Mf. 200 V.
9		NONE
10AB	W —29910A	Condenser, 25 Mf. 200 V.
11	G32 —33001	2 Gang Var. Tuning Cond.
12	B —27885A	Power Cord and Plug
13	W —35467	Resistor, 275 Ohm ½W. Flex.
14	W —23907	Resistor, 750 Ohm 1½W. Flex.
15	—36761	Resistor, 40,000 Ohm ¼W.
16	—35928	Resistor, 60,000 Ohm ¼W.
17	—35600	Resistor, 100,000 Ohm ¼W.
18AB	—35601	Resistor, 300,000 Ohm ¼W.
19	—36322	Resistor, 500,000 Ohm ¼W.
20AB	—35927	Resistor, 2 Megohm ¼W.
21	G47 —28807	Socket Type 6A7
22	G41 —28807	Socket Type 75
23	G30 —28807	Socket Type 43
24	G51 —28807	Socket Type 25Z5
25	G170—34600	Socket Type W-43357
	W —28632	Tube Shield
26	—43339	Line Switch
27	—43340	Volume Control, 1 Meg.
28		NONE
29	W —30325A	Condenser, .003 Mf. 200 V.
30	255BL6Q	Speaker - Spec. 23393
	—43464	Cone Assembly (above Speaker)
	—43465	Output Trans. (above Speaker)
	—43466	Mtg. Ring, Cone (above Speaker)
	—6DD	Cabinet
	D —43302	Dial
	W —43321	Pointer Knob
	W —43320	Knob—V. C. and Sw.
31	W —23615	Condenser, .05 Mfd. 400 V.
32	W —21964	Resistor, 165 Ohm ½W. Flex.
33	W —43627	Condenser, .009 Mfd. 160 V.
34	W —31765	Antenna Wire Roll

MODEL 506
Above Serial 1308741
Trimmers, Chassis
Alignment

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

The chassis of this receiver is connected through a resistor to one side of the power supply and for this reason all test equipment should be thoroughly isolated in order that the power supply will not be short circuited while attempting to align the receiver.

CONNECTING OUTPUT METER

Connect one terminal of the output meter to the plate and the other terminal to the screen of the 43 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 condenser to the top cap of the 6A7 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator direct to the receiver chassis **but do not run a wire direct to ground.** 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 450 kilocycles.

(d) Adjust the I-F trimmer condensers for maximum reading on the output meter.

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE OUTPUT METER READING.

2. Aligning R-F Amplifier.

(a) Connect the output lead of the signal generator through a .00005 mf. condenser to the **junction of the antenna and antenna blocking condenser** (Items 34 and 29).

(b) Set the signal generator to 1725 kilocycles.

(c) Open gang all the way (minimum capacity).

(d) Adjust the trimmer located on the "Osc" section of the gang for maximum output.

(e) Set signal generator to 1400 Kc.

(f) Tune station selector to 1400 kc. signal.

(g) Adjust the trimmer located on the "Ant" section of the gang for maximum output.

(h) Repeat e, f, and g for more accurate adjustment.

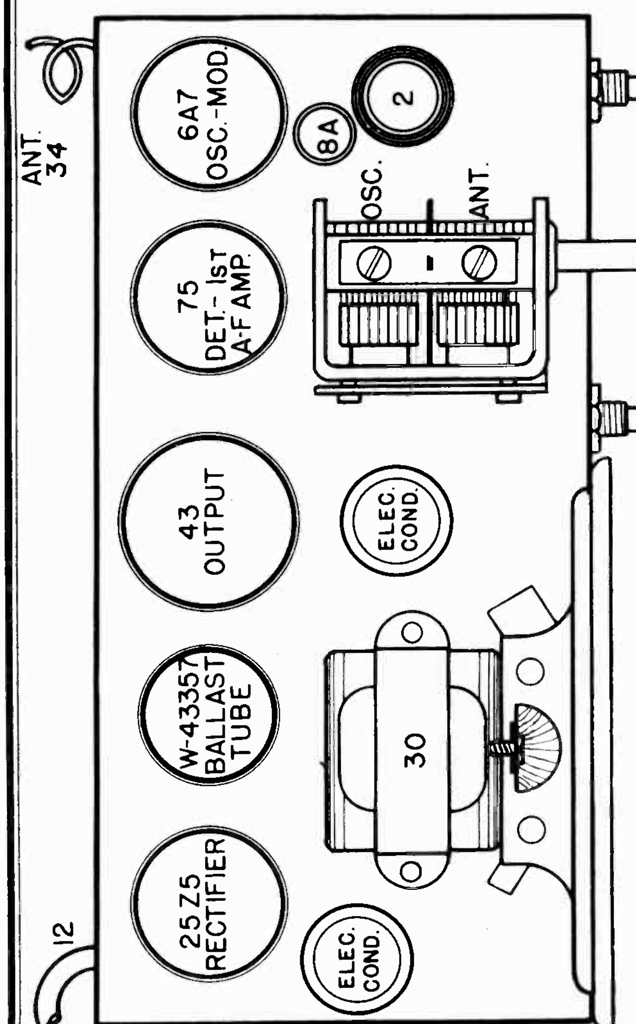


Fig. 2 Top View 506

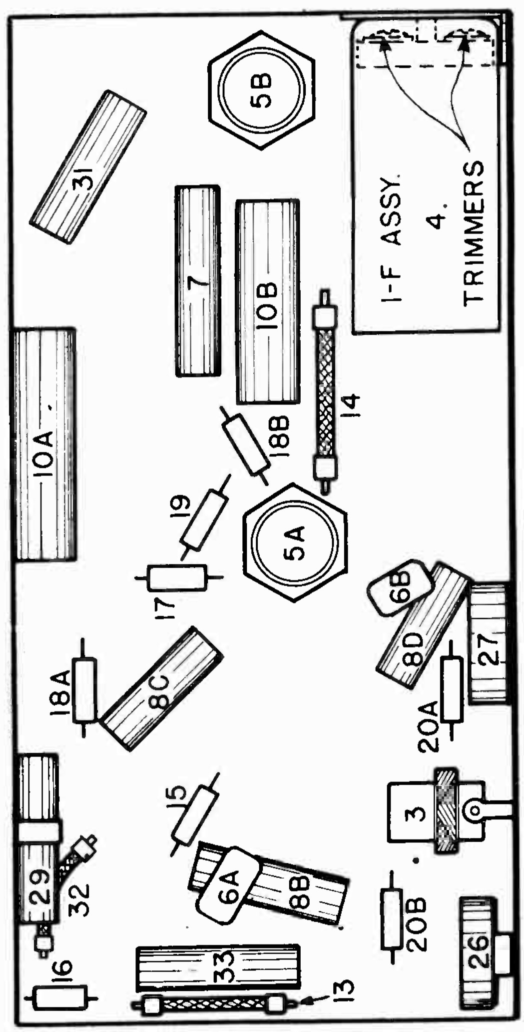


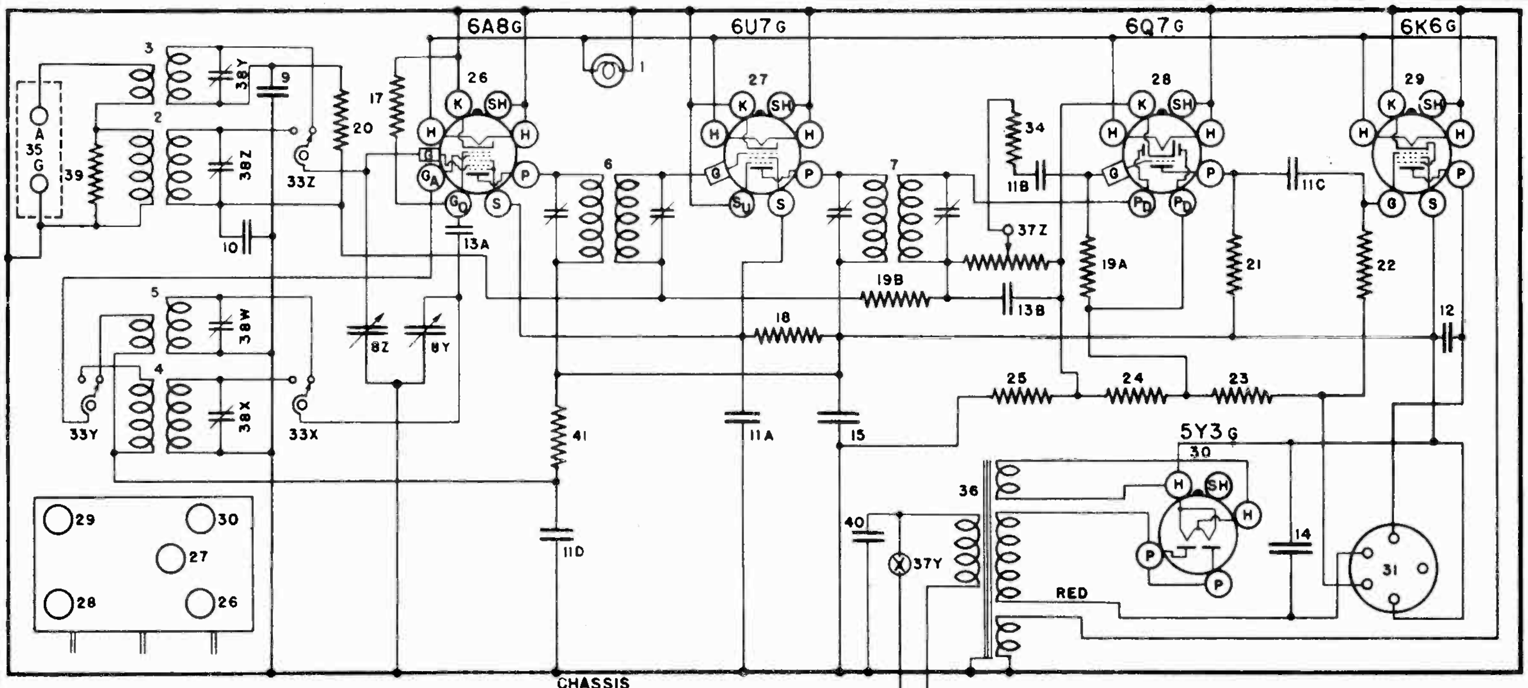
Fig. 3 Bottom View 506

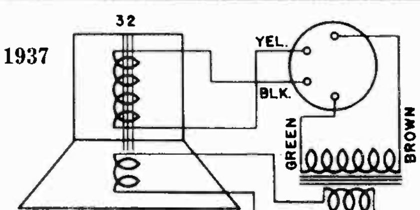
MODELS 517,547,Fiver Teletune Fiver Schematic,Socket,Parts

CROSLEY RADIO CORP.

SALES MODEL "FIVER" "TELETUNE FIVER" CHASSIS NO. 517 NO. 547

540—1725 kilocycles (American Broadcast Band)
6—15 megacycles (High Frequency Band)





MODELS. 517 & 547 455 K.C. I.F. MARCH, 1937

Item No.	Part No.	Description
1	W —43557	Bulb—Dial Light
	W —43568	Light Bracket
2	G132—32000	Ant. Coil, B. C.
3	G133—32000	Ant. Coil, H. F.
4	G132—32002	Osc. Coil, B. C.
5	G133—32002	Osc. Coil, H. F.
6	G136—32004	1st I-F Assembly
7	G137—32004	2nd I-F Assembly
8	G33 —33001	2 Sect. Var. Tuning Cond. (547 only)
8	G31 —33001	2 Sect. Var. Tuning Cond. (517 only)
9	G12 —34002	Condenser .0005 Mf. H.F. Osc. Ser.
10	—36541	Condenser .02 Mf. 160 V.
11ABCD	W —28621	Condenser .02 Mf. 200 V.
12	W —34647	Condenser .01 Mf. 400 V.
13AB	G1 —31002	Condenser .00025 Mf. Molded
14	W —41031	Condenser 16 Mf. 250 V.
15	W —43450	Condenser 16 Mf. 200 V.
16	B —33907A	Power Cord and Plug
17	—21237A	Resistor 60,000 Ohm ¼W.
18	—21814	Resistor 7,000 Ohm ¼W.
19AB	—36688	Resistor 3 Megohm ¼W.
20	—21455	Resistor 300,000 Ohm ¼W.
21	—35701	Resistor 300,000 Ohm ¼W.
22	—23785	Resistor 500,000 Ohm ¼W.
23	W —28589	Resistor 350 Ohm ½W. Flex.
24	W —33012A	Resistor 40 Ohm ½W. Flex.
25	W —24537	Resistor 60 Ohm ½W. Flex.
26	G155—36400	Socket Type 6A8
27	G171—36400	Socket Type 6U7
28	G160—36400	Socket Type 6Q7
29	G172—36400	Socket Type 6K6
30	G173—36400	Socket Type 5Y3
	W —40911	Tube Shield
31	G103—28807	Socket—Speaker
32	257BP11 "B"	Speaker, Spec. No. 51-A-5 (Cab. 6K & 7KA)
	—42927	Cone for 257BP11 "B" Speaker
	—41473	O. P. Trans. for 257BP11 "B" Spkr.
	—43539	Cardb'd Ring for 257BP11 "B" Spk.
	257BP18 "B"	Speaker, Spec. No. 51-A-8 (Cab. 7H & 7HA)
	—42927	Cone for 257BP18 "B" Speaker
	—43986	O. P. Trans. for 257BP18 "B" Spkr.
	—43539	Cardb'd Ring for 257BP18 "B" Spk.
	462CP11 "M"	Spkr., Spec. No. 1-D-971 (Cab.6FF)
	—40405	Cone for 462CP11 "M" Speaker
	—43989	O. P. Trans. for 462CP11 "M" Spkr.
	—43988	Field Coil for 462CP11 "M" Spkr.
	464BP15 "M"	Spkr., Spec. No. 1-D-1017 (Cab. 7M)
	—43993	Cone for 464BP15 "M" Speaker
	—43994	Field Coil for 464BP15 "M" Spkr.
	—43995	O. P. Trans. for 464BP15 "M" Spkr.
33	W —43448	Switch Band Selector
34	—36761	Resistor 40,000 Ohm ¼W.
35	G1 —26719	Ant. and Ground Terminal Board
36	—43479	Power Trans. 110 V. 60 Cy.
	—43480	Power Trans. 110 V. 25 Cy.
	—43481	Power Trans. 220 V. 25 Cy.
37Z, 37Y	—43449	Volume Control, 1 Megohm; Line Switch
38Z, 38Y, 38X, 38W	W —11247A	Trimmer Cond. B. C. Ant.; Trimmer Cond. H. F. Ant.; Trimmer Cond. B. C. Osc.; Trimmer Cond. H. F. Osc.
39	—22196	Resistor 20,000 Ohm ¼W.
40	W —30805	Condenser .01 Mf. 400 V.
41	—30137	Resistor 3,500 Ohm ¼W.
	G1 —43724	Tel. Tun. Escutcheon
	W —43769	Pointer—Cabinet (547 only)
	W —43551	Knob (1 required) Small
	W —43625	Knob (2 required) Large
	W —43553	Rubber Mtg. Foot
	W —43552	Clamp—Speaker Plug
	W —43726	Celluloid Disc (547 only)

MODELS 517, 547, Fiver Teletune Fiver Trimmers, Chassis Voltage, Alignment

CROSLEY RADIO CORP.

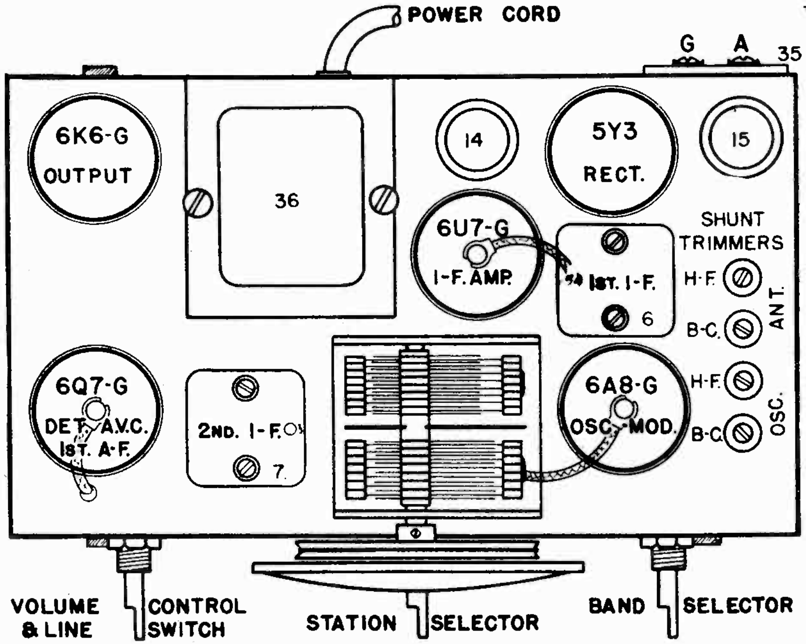


Fig. 2 Top View 517 and 547

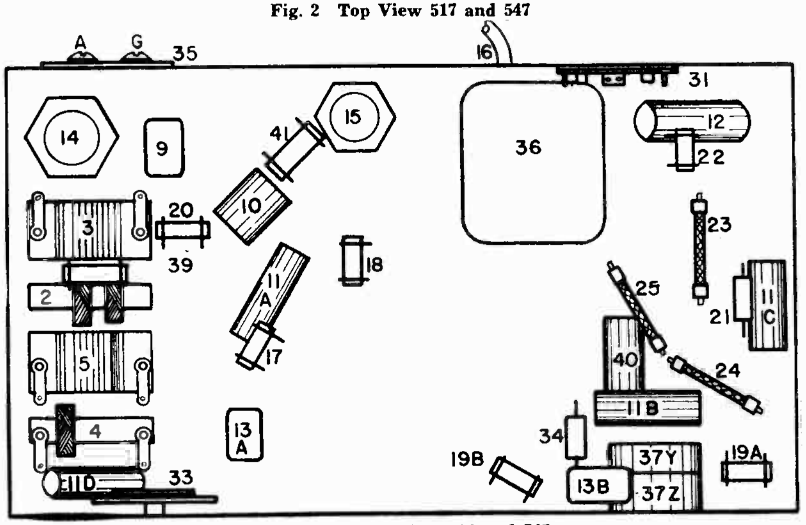


Fig. 3 Bottom View 517 and 547

Tube	Function	H	P	S	K	G	Gs
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	—	—

Power output approximately 2 watts.
Power consumption approximately 40 watts at 117.5 volts.
Voltage drop across speaker field 36 volts.

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 to P and S of the 6K6G 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 6A8G 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 knob to the right (ON).

(c) Turn the band selector switch to the right (High Frequency).

(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 lead from the signal generator should be connected through a dummy antenna to the "ANT" terminal of the receiver. For the broadcast band the dummy antenna should be a .00025 mfd. condenser and for the high frequency band this condenser should be replaced by a 400 ohm (Non Inductive) carbon resistor.

(a) Set the band selector switch to the Broadcast Band.

(b) Set the signal generator to 1725 kilocycles.

(c) Open the condenser gang all the way.

(d) Adjust the "OSC" trimmer condenser for the B-C Band (38X) for maximum output.

(e) Set the signal generator to 1400 kilocycles.

(f) Tune the receiver to the generator signal for maximum output (appx. 140 on the dial).

(g) Adjust the "ANT" trimmer condenser for the B-C Band (38Z) for maximum output. DO NOT READJUST THE "OSC" TRIMMER AT 1400 KILOCYCLES.

(h) Repeat operations (f) and (g) alternately until no further improvement in output can be obtained.

(i) Set the band selector switch to the H-F Band.

(j) Set the signal generator to 15,400 kilocycles.

(k) Open the condenser gang all the way.

(l) Adjust the "OSC" trimmer condenser for the H-F Band (38W) for maximum output.

(m) Set the signal generator to 15,000 kilocycles.

(n) Tune the receiver to the generator signal for maximum output (appx. 15 on the dial).

(o) Adjust the "ANT" trimmer condenser for the H-F Band (38Y) for maximum output. DO NOT READJUST THE "OSC" TRIMMER AT 15,000 KILOCYCLES.

(p) Repeat operations (n) and (o) 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 of 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.

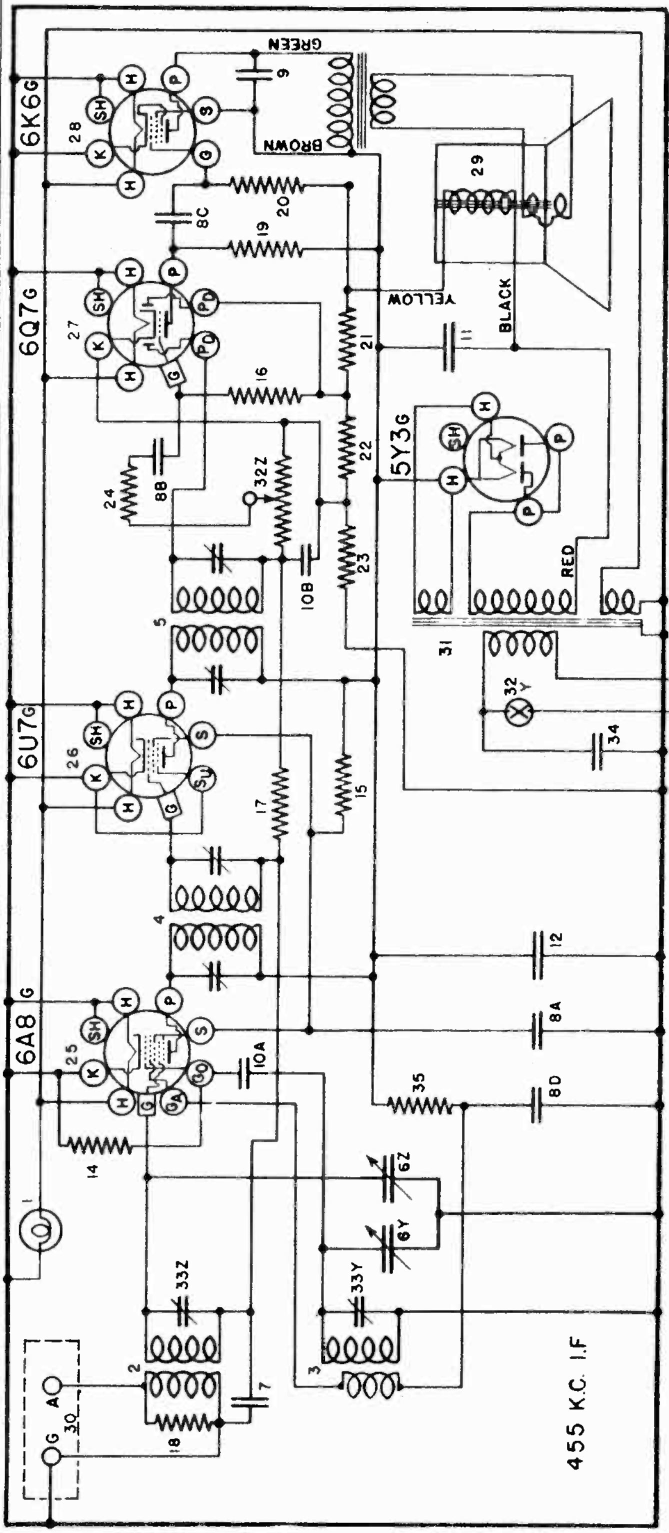
NOTE: When aligning the high frequency band care should be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 910 kilocycles less than the fundamental. To check on this, increase the output of the signal generator approximately 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.

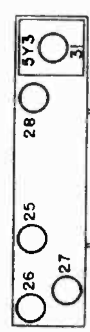
MODEL 537
Schematic, Voltage
Socket, Parts

CROSLEY RADIO CORP.

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	—	—

Power output approximately 2 watts.
Power consumption approximately 40 watts at 117.5 volts.
Voltage drop across speaker field 36 volts.





Item No.	Part No.	Description
1	W —43567	Bulb—Dial Light
	W —43568	Bracket—Dial Light
2	G132—32000	Ant. Coil
3	G132—32002	Osc. Coil
4	G144—32004	1st I-F Assembly
5	G145—32004	2nd I-F Assembly
6	G34 —33001	2 Section Var. Cond. Gang
	G2 —43554	Pulley Assembly
	C —43763	Dial Glass—Calibrated
	W —43779	Mask—Dial
	W —43739	Support—Dial
	—41582	Cable—Cond. Drive
	W —43561	Spring—Cable Tension
	W —43740	Shaft—Drive
	W —41611	Retaining Ring—Drive Shaft
	W —43770	Pointer
7	W —36541	Condenser .02 Mf. 160 V.
8A—D	W —28621	Condenser .02 Mf. 200 V.
9	W —34647	Condenser .006 Mf. 400 V.
10AB	G1 —34002	Condenser .00025 Mf. 200 V.
11	W —41081	Condenser 16 Mf. 250 V.
12	W —43450	Condenser 16 Mf. 200 V.
13	B —43742	Power Cord and Plug
14	—21237A	Resistor 60,000 Ohm ¼W. Carb.
15	—24814	Resistor 7,000 Ohm ¼W. Carb.
16	—26577	Resistor 3 Megohm ¼W. Carb.
17	—36688	Resistor 3 Megohm ¼W. Ins.
18	—22196	Resistor 20,000 Ohm ¼W. Carb.
19	—35601	Resistor 300,000 Ohm ¼W. Ins.

REFRIGERATOR RADIO,
CHASSIS NO. 537

MARCH, 1937

Item No.	Part No.	Description
20	—23785	Resistor 500,000 Ohm ¼W. Carb.
21	W —28589	Resistor 350 Ohm ½W. Flex.
22	W —23012A	Resistor 40 Ohm ½W. Flex.
23	W —24537	Resistor 60 Ohm ½W. Flex.
24	—36761	Resistor 40,000 Ohm ¼W. Ins.
25	G156—36400	Socket Type 6A8
26	G171—36400	Socket Type 6U7
27	G160—36400	Socket Type 6Q7
28	G172—36400	Socket Type 6K6
	W —40911	Tube Shield
	W —27981	Base—Tube Shield
29	260BL9 "B"	Speaker Spec. No. 50-A-4
	—41472	Cone for 260BL9 "B" Speaker
	—13943	O. P. Trans. for 260BL9 "B" Spkr.
	—43540	Cardb'd Ring for 260BL9 "B" Spkr.
30	G1 —26719	Ant. and Ground Term. Assembly
31	—43748	Power Trans. 50-60 Cy. 110 V.
	—43747	Power Trans. 25 Cy. 110 V.
32Z	—43733	Vol. Cont. 1 Meg.
32Y		Line Switch
33	W —37986A	2 Sect. Shunt Trimmer
34	W —30805	Condenser .01 Mf. 400 V.
35	—30137	Resistor 3,500 Ohm ¼W.
	G2 —43788	Grille Cloth Assy.—HC9-Cab.
	G3 —43788	Grille Cloth Assy.—HE9-Cab.
	W —43789	Escutcheon—Cab-Mod. HC 50 & 60
	W —43790	Escut.—Cab.-Mod. HE 43, 50 & 61
	C —43782	Escut.—Cab.-Mod. HE 71 & HC 71
	W —43764	Knob
	B —43713	Bottom Cover

MODEL 537
Trimmers, Chassis
Alignment

CROSLEY RADIO CORP.

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 Model Label which is fastened to the inside of the refrigerator top.

The tuning range of the receiver is from 540 to 1725 kilocycles or 555 to 173 metres.

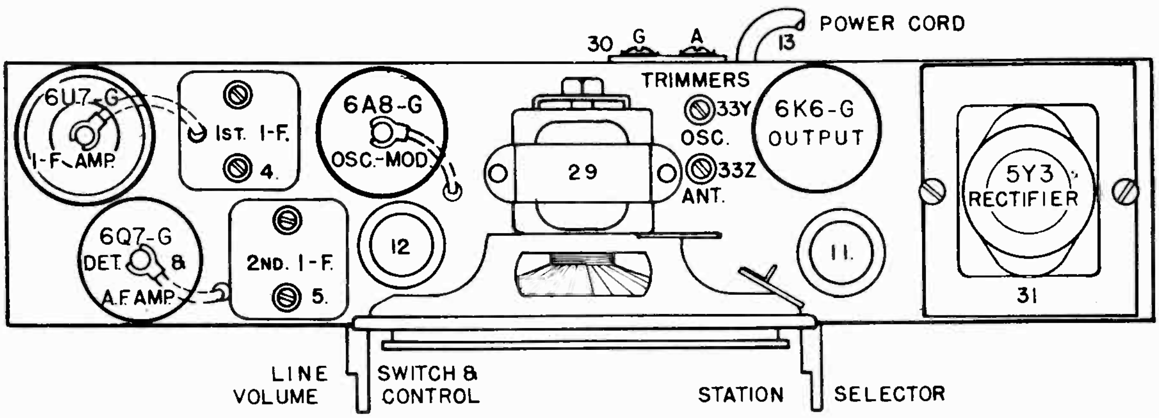


Fig. 2 Top View 537

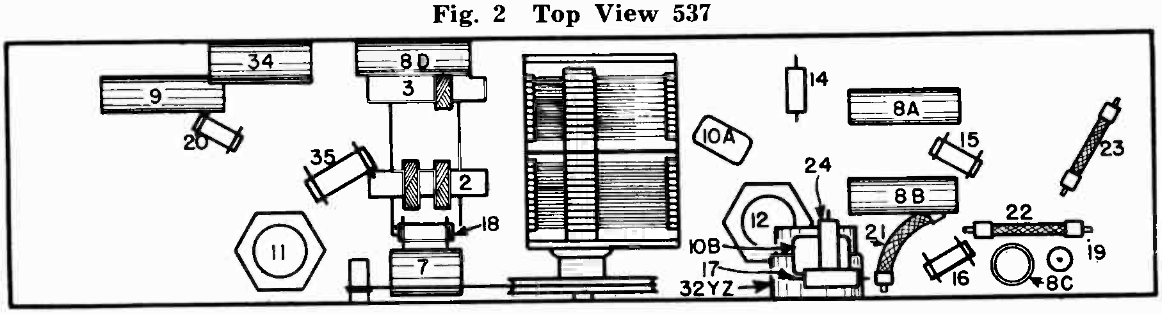


Fig. 3 Bottom View 537

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 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.

1. Tuning I-F Amplifier To 455 Kilocycles.

(a) Connect the output of the signal generator through .02 mfd. condenser to the top cap of the 6A8G 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 in mesh and turn the volume control knob to the right (ON).

(c) Set the signal generator to 455 kilocycles.

(d) Adjust both trimmers located on top of the 2nd I-F transformer for maximum reading on the output meter. (Fig. 2).

(e) Adjust both trimmers located on top of the 1st I-F transformer for maximum output.

(f) Check opeerations (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 .00025 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 (33Y) for maximum output.

(d) Set the signal generator to 1400 kilocycles.

(e) Tune the receiver to the generator signal for maximum output (appx. 140 on the dial).

(f) Adjust the "ANT" trimmer condenser (33Z) for maximum output. DO NOT READJUST THE "OSC" TRIMMER AT 1400 KILOCYCLES.

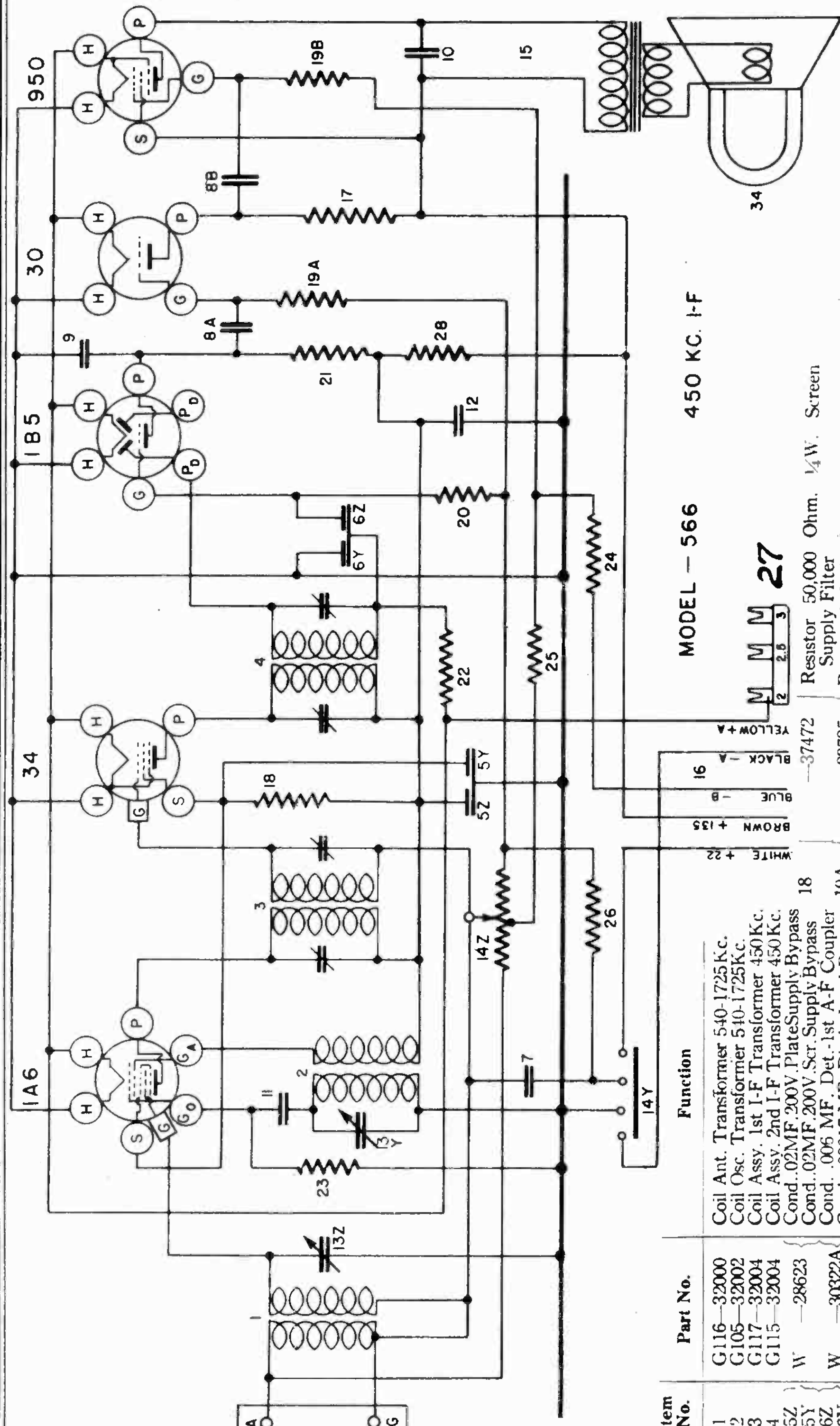
(g) Repeat operations (e) and (f) alternately until no further improvement in output can be obtained.

MODEL 566
Schematic
Parts
Voltage

CROSLEY RADIO CORP.

Tube	Where Used	H	P	S	G	Ga	Go
1C6	(*) Oscillator-Modulator	2.0	112	45	0	112	-5 to -20
34	I-F Amplifier	2.0	112	45	0	—	—
1B5	Detector & A-F Amplifier	2.0	60	—	0	—	
30	2nd. A-F Amplifier	2.0	45	—	0		
950	Output	2.0	110	112	-4 (□)		

Power output approximately .5 watt.
"A" Battery drain approximately .36 ampere at 2 volts.
"B" Battery drain approximately 16 milliamperes at 135 volts.
*This model radio previous to Serial No. 1,196,783 employed a type 1A6 tube as an Oscillator-Modulator. Socket voltage readings as given.
□Measured at grid through 500,000 ohm grid resistor.



Item No.	Part No.	Function
1	G116—32000	Coil Ant. Transformer 540-1725Kc.
2	G105—32002	Coil Osc. Transformer 540-1725Kc.
3	G117—32004	Coil Assy. 1st I-F Transformer 450Kc.
4	G115—32004	Coil Assy. 2nd I-F Transformer 450Kc.
5Z	W —28623	Cond. .02MF. 200V. PlateSupply Bypass
5Y		Cond. .02MF. 200V. Scr. Supply Bypass
6Z	W —30322A	Cond. .006 MF. Det.-1st A-F Coupler
6Y		Cond. .00017 MF. Diode Load Bypass
7	W —37226	Cond. .02 MF. 160V. R-F&I-F Bias Filter
8A	W —36541	Cond. .02 MF. 160 V. 1st&2nd A-F Coup.
8B	W —36541	Cond. .02 MF. 160V. 2nd & Output A-F Coupler
9	W —30270	Cond. .001 MF. 400V. 1st A-F Plate Bypass
10	W —28904	Cond. .004 MF. 200V. Output Plate Bypass
11	G2 —34002	Cond. .0001 MF. Molded Osc. Grid Coupler
12	W —41081	Cond. 16 MF. 250V. Plate supply Filter (Electrolytic)
13Z	G24 —33001	Cond. Var. Tuning Antenna Section
13Y		Osc. Section
14Z	—41792	Volume Control 3410 Ohm. Tapped
14Y		4 Contact Switch Battery A & B Supply
15	MG11—41760	Cable Speaker
16	B —41748	Cable 5 Lead Battery
17	—21237	Resistor 60,000 Ohm. ¼W. 2nd A-F Plate Load
18	—37472	Resistor 50,000 Ohm. ¼W. Screen Supply Filter
19A	—23785	Resistor 500,000 Ohm. ¼W. 2nd A-F Grid Return
19B	—23785	Resistor 500,000 Ohm. ¼W. Output Grid Return
20	—37583	Resistor 2.5 Megohm ¼W. 1st A-F Grid Return
21	—23403	Resistor 150,000 Ohm. ¼W. 1st A-F Plate Load
22	—35602	Resistor 1 Megohm Ins. ¼W. Diode Load
23	—21875	Resistor 100,000 Ohm. ¼W. Osc. Grid Return
24	W —29585	Resistor 600 Ohm. Flex. ½W. 1st Bias Divider
25	W —35467	Resistor 220 Ohm. Flex. ½W. 2nd Bias Divider
26	W —41759	Resistor 140 Ohm. Flex. ½W. Audio Bias Divider
27	W —41955A	Resistor on "A" Bat. Lead Used with 1C6 Tube
(27)	W —41955	Resistor on "A" Bat. Lead Used with 1A6 Tube
28	W —30960	Resistor 2600 Ohm. Flex. 1½W.
29	G89 —28807	Socket 1C6 Osc.-Mod.
(29)	G55 —28807	Socket 1A6
30	G31 —28807	Socket 34 I-F.
31	G91 —28807	Socket 1B5 Det. 1st A-F.
32	G9 —28807	Socket 30 2nd A-F
33	G94 —28807	Socket 950 Output
34	—41056	Speaker Type 31PJ3. "A"
	—41434	Cone Assy. for 41056 Speaker
	—41453	Output Trans. for 41056 speaker
	—41458	Mtg. Ring for 41434 Cone Assembly
35	G1 —26719	Terminal Strip Ant. & Grd.
	W —41790	Tube Shield (Plain Half)
	W —41789	Tube Shield (Half with Slot)
	W —41784	Tube Shield Ring
	W —41785	Tube Shield Base
	W —42247	Metal Pointer for Dial
	W —42258	Escutcheon Pins
	W —41822	Dial & Drive Assembly
	G1 —23472	Knob Control

MODEL 566
Trimmers, Socket
Chassis, Alignment

CROSLEY RADIO CORP.

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 one terminal of the output meter to the plate and the other terminal to the screen of the 950 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02, or larger, mfd. condenser to the top cap of the 1C6 Osc-Mod 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. Turn the volume control knob to the right (ON).

(c) Turn the band selector switch to the left (High Frequency).

(d) Set the signal generator to 450 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 Ist 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.

() Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" terminal 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 located on the "OSC" section of the condenser gang for maximum output. Fig. 3.

(e) Adjust the trimmer located on the "ANT" section of the condenser gang for maximum output.

(f) Tune the station selector to the generator signal for maximum output.

(g) Repeat operation (e) for more accurate adjustment.

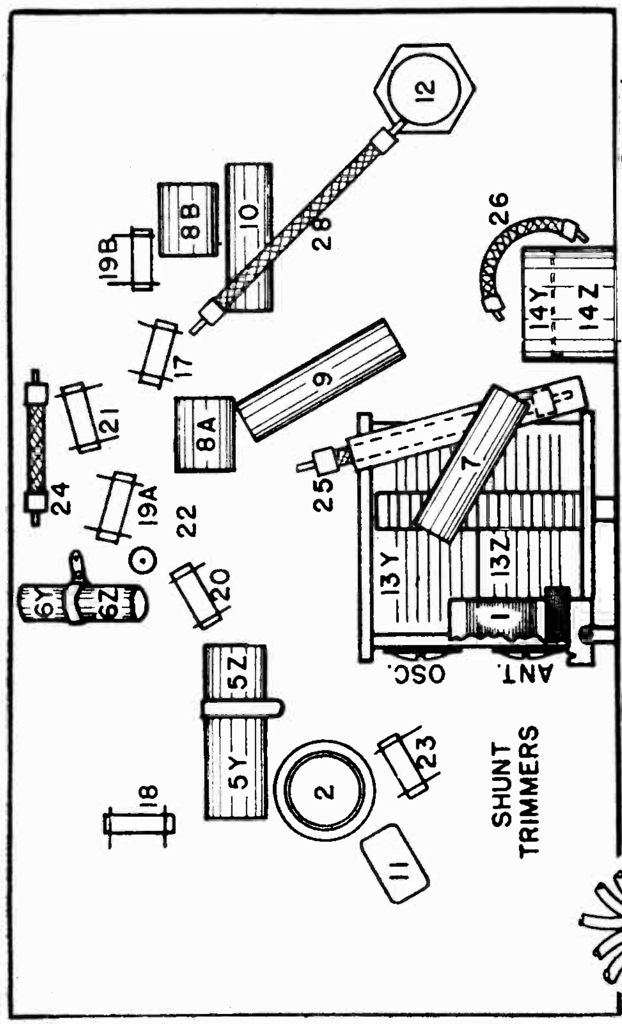


Fig. 3. Bottom View 566

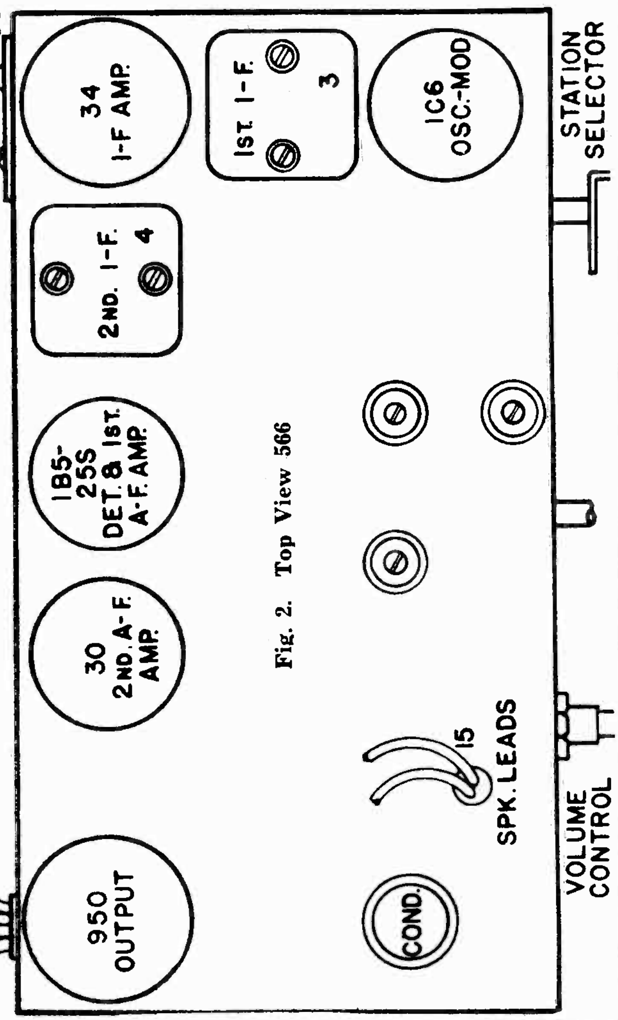
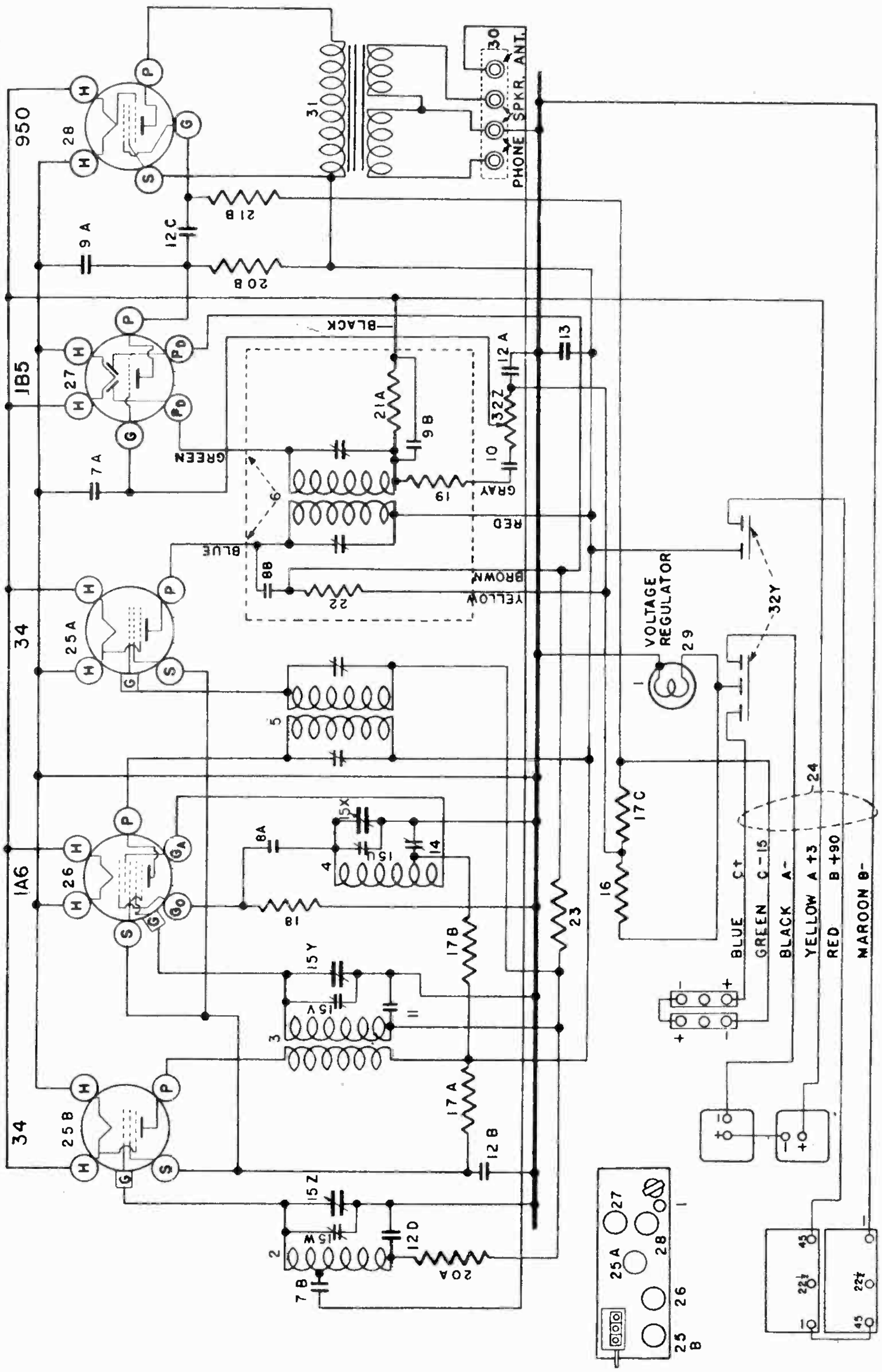


Fig. 2. Top View 566

MODEL 586, Carrior Schematic, Voltage Socket

CROSLEY RADIO CORP.

NOV. 1936 **SALES MODEL B-637** **(CARRIOR)** **CHASSIS MODEL 586**



262 KC. I-F

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	G	Ga	Go
34	R-F Amplifier	2.0	90	45	-1.5	—	—
1A6	Oscillator-Modulator	2.0	90	45	-1.5	55	-2 to -5
34	I-F Amplifier	2.0	90	45	-1.5	—	—
1B5/25S	Detector and A-F Amplifier	2.0	90	—	-1.5	—	—
950	Output	2.0	90	90	-13.5	—	—

Power output approximately .2 watt.
"A" battery drain approximately .360 ampere.
"B" battery drain approximately .010 ampere.

SPECIFICATIONS

This model Crosley radio is a six-tube battery receiver designed for portable use. A detachable antenna approximately 18" long is supplied as standard equipment. Provision is made for operating the receiver either with headphones or a permanent-magnet dynamic speaker.

The tuning range is approximately from 540 to 1710 kilocycles.

MODEL 586, Carrior Trimmers, Chassis Alignment, Parts

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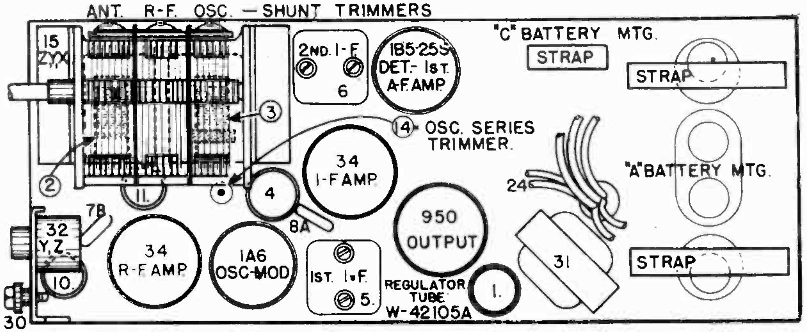


Fig. 2. Top View 586

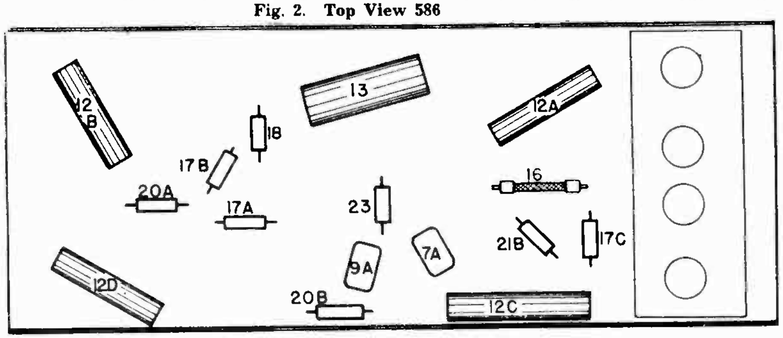


Fig. 3. Bottom View 586

Item No.	Part No.	Description
1	W —42105A	Voltage Regulator Tube
2	G117—32000	Ant. Coil
3	G85 —32001	R-F Coil
4	G106—32002	Osc. Coil
5	G35 —32005	1st I-F Assembly
6	G31 —32005	2nd I-F Assembly (contains Items 8B, 9B, 19, 21A, 22)
7AB	G5 —34002	Condenser .00005 Mf. 200 V.
8AB	G2 —34002	Condenser .0001 Mf. 200 V.
9AB	G1 —34002	Condenser .00025 Mf. 200 V.
10	W —36541	Condenser .02 Mf. 160 V.
11	W —35936	Condenser .05 Mf. 200 V.
12AB CD	W —27216	Condenser .05 Mf. 200 V.
13	W —29910A	Condenser .25 Mf. 200 V.
14	—40769	Condenser (Osc. Series Trimmer)
15	G55 —33002	3 Sect. Var. Tuning Cond. Gang
	W —42162	Dial (Calibrated Disc.)
	W —42122	Bearing Support Bracket
	W —42141	Sprocket Shaft Assembly
	B —41315A	Sprocket Hub Assembly
	W —42160	Drive Chain
	W —42120	Take Up Spring (Chain)
	W —40486	Dial Mtg. Screw
16	W —22514	Resistor 750 Ohm ½W.
17A BC	—36318	Resistor 15,000 Ohm ¼W.
18	—36761	Resistor 40,000 Ohm ¼W.
19	—35600	Resistor 100,000 Ohm ¼W.
20AB	—35601	Resistor 300,000 Ohm ¼W.
21AB	—36322	Resistor 500,000 Ohm ¼W.
22	—35602	Resistor 1 Megohm ¼W.
23	—35927	Resistor 2 Megohm ¼W.
24	MG36—42101	Battery Cable Assembly
25AB	G31 —28807	Socket Type 34
26	G55 —28807	Socket Type 1A6
27	G91 —28807	Socket Type 1B5
28	G94 —28807	Socket Type 950
29	W —42105	Socket Volt. Regulator
	W —40911	Tube Shield (Small)
	W —26974B	Tube Shield (Large)
31	G58 —24628	Out-Put Transformer
32Z 32Y	—41609	Vol. Cont. 1 Megohm Battery Switch
30	MG3 —42101	Spk., Phone and Ant. Term. Assembly
	W —42119	Battery Clamp ("A" Batt.)
	W —42123	Battery Clamp ("C" Batt.)
	MG8 —42101	Case Assembly less End Covers
	MG4 —42101	Rear Cover
	MG9 —42101	Front Cover Assembly
	W —42195	Carrying Handle
	W —42178	Handle Fastener
	W — 5558	Phone Tip Jack (only)
	W —42179	Knob (Vol. Cont.)
	W —35252A	Knob (Sta. Sel.)
	W —42217	Head-Phones
	MG2 —42102	Antenna Assembly
	243PS2	Speaker
	MG22—42102	Speaker Case only
	B —42507	Speaker Grille
	W — 1500G	Speaker Cord

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 aand 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 950 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 262 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd., or larger, condenser to the top cap of the 1A6 Osc-Mod. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the receiver chassis frame. KEEP THE GENERATOR LEADS AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Adjust the station selector so that the rotor plates of the tuning condenser are completely out of mesh.

(c) Turn the volume control of the receiver full on.

(d) Set the signal generator to 262 kilocycles.

(e) Adjust both trimmers located on the 2nd I-F transformer for maximum output. (Fig. 2).

(f) Adjust both trimmers located on the 1st I-F transformer for maximum output.

(g) Repeat 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.

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the "ANT" 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.

(e) Adjust the trimmer on the "R-F" section of the tuning condenser for maximum output.

(f) Adjust the trimmer on the "ANT" section of the tuning condenser for maximum output.

(g) Readjust the station selector for maximum output. DO NOT READJUST THE OSC. TRIMMER.

(h) Repeat operations (e) and (f) for more accurate adjustments.

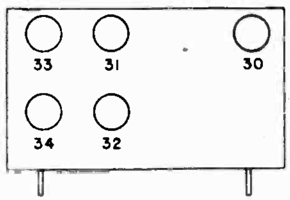
(i) Set the signal generator to 600 kilocycles.

(j) Tune-in this signal with the station selector for maximum reading on the output meter.

(k) Adjust the series trimmer, item 14, Fig. 2, while rocking the tuning condenser back and forth slightly until no further improvement in output can be obtained.

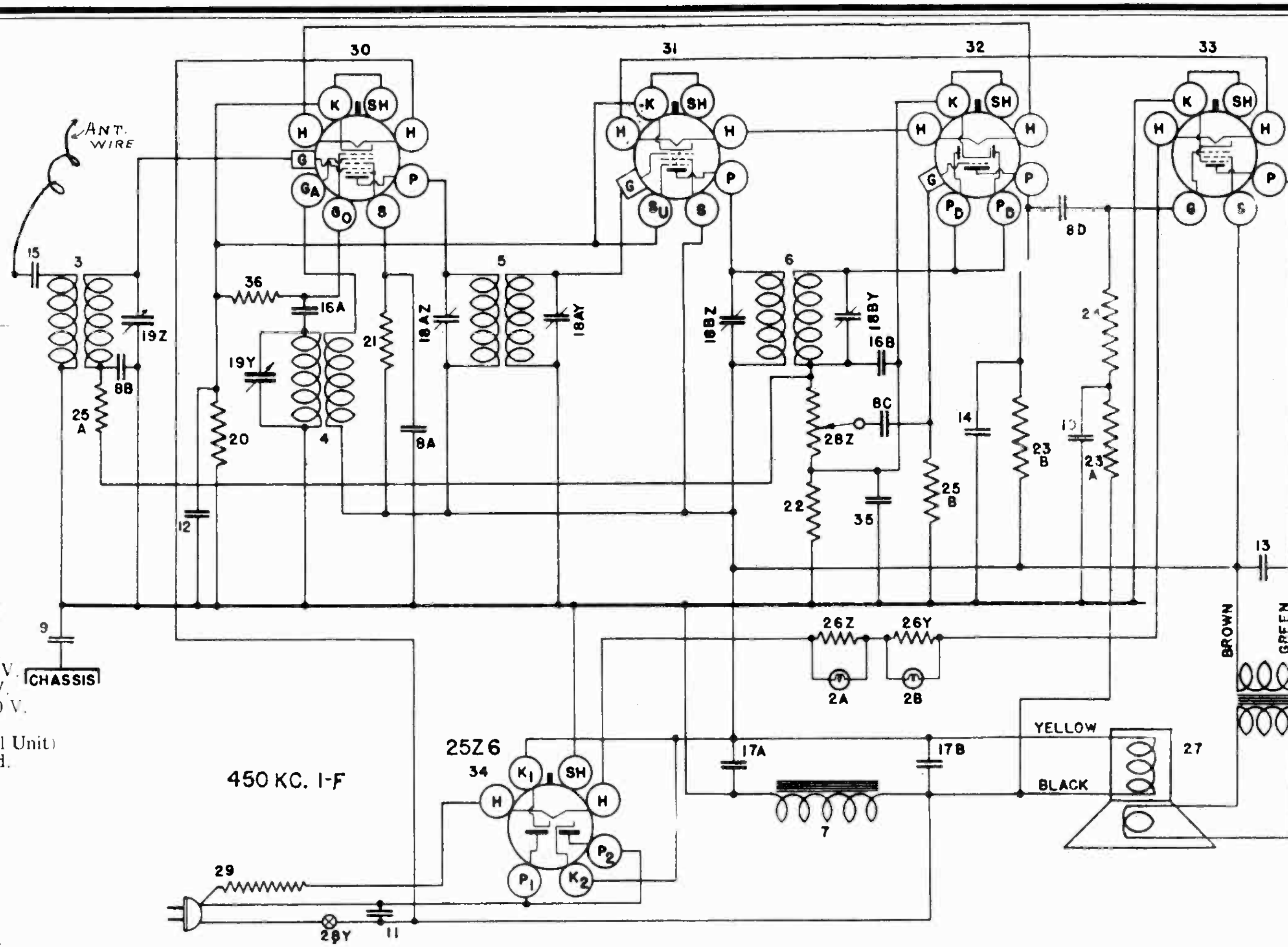
(l) Return the signal generator to 1400 kilocycles and repeat operations (g) and (h).

MODEL 596
Schematic, Socket
Parts



PARTS LIST—MODEL 596

Item No.	Part No.	Description
1	W —29784B	Flexible Antenna
2AB	W —4099B	Dial Light Bulb
	G6 —27134	Dial Light Socket
3	G116—32000	Ant. Coil
4	G116—32002	Osc. Coil
5	G101—32001	1st I-F Coil (only)
	W —21511C	Ring—Coil Retaining
	W —26891	Insulating Washer (Coil)
	W —25024 3	Shield—Coil
6		Same as Item No. 5
7	G4 —28859	Filter Choke
8AB CD	W —36541	Condenser .02 Mf. 160 V.
9	W —24049C	Condenser .1 Mf. 200 V.
10	W —29910A	Condenser .25 Mf. 200 V.
11	W —32780B	Condenser .05 Mf. 400 V.
12	W —35936	Condenser .05 Mf. 200 V.
13	W —23191A	Condenser .01 Mf. 200 V.
14	G3 —34002	Condenser .0005 Mf. 200 V.
15	W —28620	Condenser .003 Mf. 200 V.
16AB	G1 —34002	Condenser .00025 Mf. 200 V.
17AB	W —42439	Condenser 30 Mf. 150 V.
18AB	W —37075	I-F Trimmer Cond. (Dual Unit)
19	G22 —33001	2 Gang Var. Tuning Cond.
	W —40633B	Bearing Support Bracket
	W —41112B	Sprocket (Small) Driver
	B —41113	Sprocket (Large) Driver
	W —41227	Chain—Drive
	W —41610	Spring—Take Up
	W —42608	Dial (Calibrated) Glass
	W —40632C	Pointer Disc
	W —41014B	Brkt. Dial Mtg., R. H.
	W —41013B	Brkt. Dial Mtg., L. H.
	W —40486	Screw—Pointer Disc Mtg.
20	W —35467	Resistor 220 Ohm ½W. Flexible
21	—36760	Resistor 20,000 Ohm ¼W.
22	—36318	Resistor 15,000 Ohm ¼W.
23AB	—35601	Resistor 300,000 Ohm ¼W.
24	—36322	Resistor 500,000 Ohm ¼W.
25AB	—35602	Resistor 1 Megohm ¼W.
26	W —41000	Resistor 44 Ohm C. T. Candohm
27	247BL9 "B"	Speaker
	—42928	V. C. and Cone Assembly above Spk.
	—42929	Output Trans. above Spk.
28Z 28Y	—42446	Vol. Cont. 500,000 Ohm Line Switch
29	B —40999	Power Cord and Plug, 100 Ohm 12W.



Item No.	Part No.	Description
30	G156—36400	Socket—Type 6A8
31	G151—36400	Socket—Type 6K7
32	G160—36400	Socket—Type 6Q7
33	G161—36400	Socket—Type 25A6
34	G162—36400	Socket—Type 25Z6
	W —27981A	Tube Shield
35	W —41958	Condenser 50 Mf. 25 V.
36	—35928	Resistor 60,000 Ohm ¼W.
	B —40590B	Escutcheon
	—42376	Screws, Escutcheon Mtg.
	W —41019A	Knob
	W —35863	Grille Cloth
	—6AD	Cabinet

CHASSIS MODEL 596 SALES MODEL C-526

OCT. 1936

This model Crosley radio is a five-tube receiver designed for operation on a 110 to 120 volt power supply, either A. C. or D. C.

The tuning range of the receiver is approximately from 540 to 1710 kilocycles (555 to 175 meters).

MODEL 596
Trimmers, Chassis
Voltage, Alignment

CROSLEY RADIO CORP.

Fig. 3 Bottom View 596

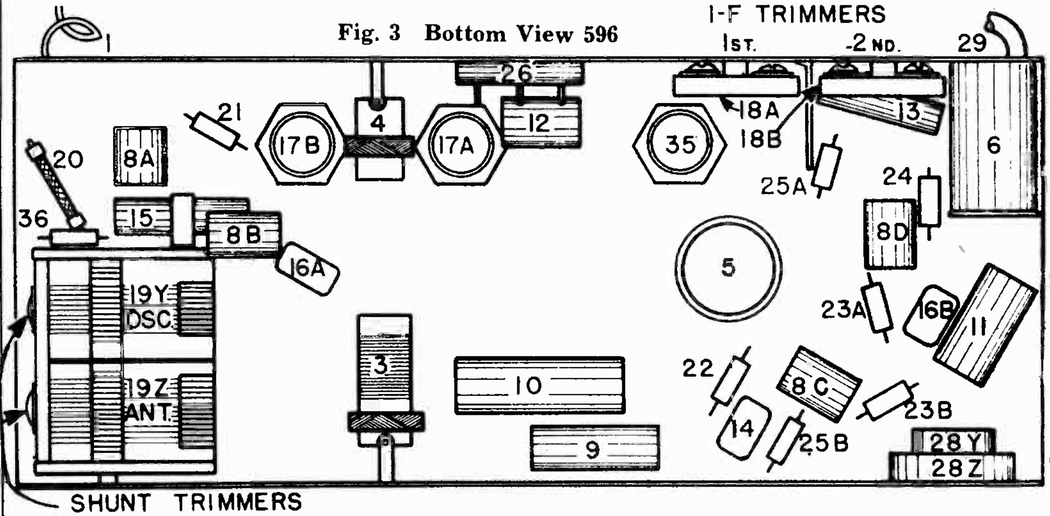
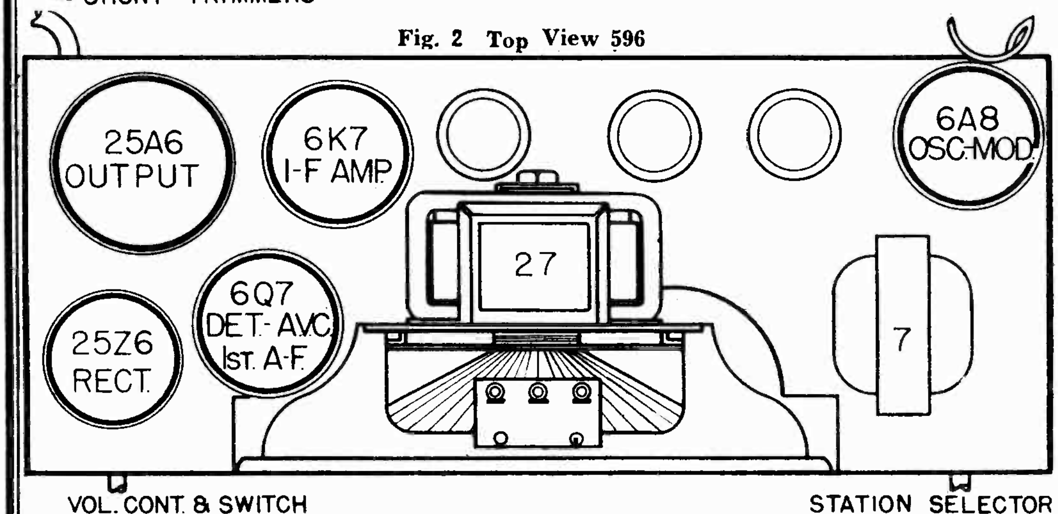


Fig. 2 Top View 596



TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	S	Su	K	Ga	Go
6A8G	Oscillator-Modulator	6.3	115	65	—	3.8	115	Neg.
6K7G	I-F Amplifier	6.3	115	115	3.8	3.8	—	—
6Q7G	Det and A-F Amplifier	6.3	25	—	—	1.2	—	—
25A6G	Output	25.0	115	115	—	0	—	—
25Z6G	Rectifier	25.0	—	—	—	115	—	—

Power output approximately 1.8 watts.
Power consumption approximately 50 watts.
Voltage drop across speaker field 125 volts.
All readings taken on 117.5 volt A. C. power supply.
All readings except filaments will be approximately 10% lower on 117.5 volts D. C.

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 one terminal of the output meter to the plate and the other terminal to the screen of the 25A6 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator through a .05 mfd., or larger, condenser to 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 450 kilocycles.

(d) Adjust the 2nd I-F trimmer condensers (18B, Fig. 3) located on the rear of the receiver chassis for maximum reading on the output meter.

(e) Adjust the 1st I-F trimmer condensers (18A, Fig. 3) located on the rear of the receiver chassis for maximum reading on the output meter.

(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.

(a) Connect the output lead from the signal generator through a .00025 mfd. condenser to the antenna condenser at the point where the antenna wire is connected.

(b) Set the signal generator to 1400 kilocycles.

(c) Adjust the station selector to 140 on the dial.

(d) Adjust the trimmer located on the "OSC" section of the condenser gang for maximum output.

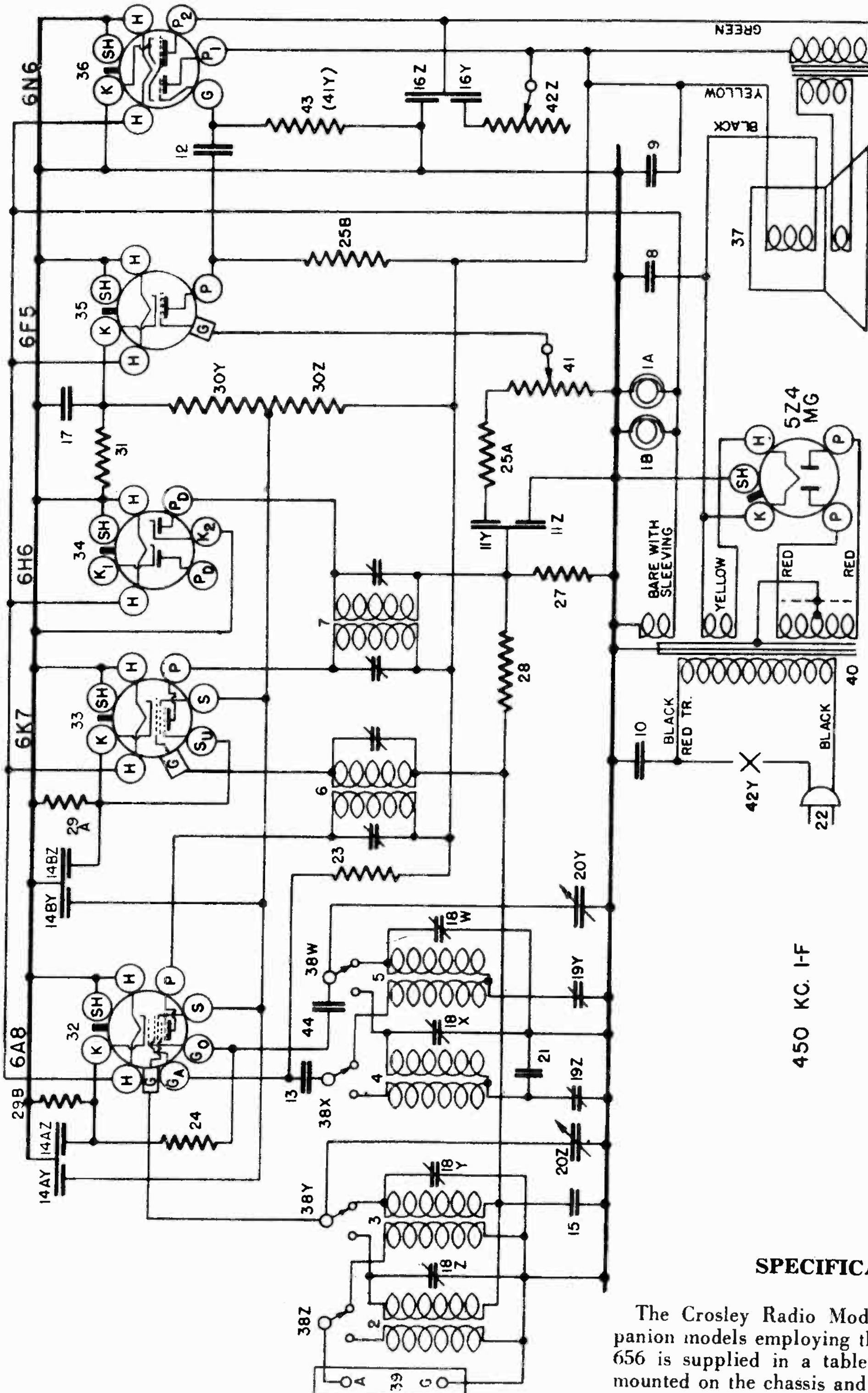
(e) Adjust the trimmer located on the "ANT" section of the condenser gang for maximum output.

(f) Readjust the station selector slightly for maximum output.

(g) Repeat operation (e) for more accurate adjustment.

CROSLEY RADIO CORP.

September, 1936 SALES MODELS 634 and 649 CHASSIS 656 and 5656



TUBE SOCKET VOLTAGE READINGS

Tube	Where Used	H	P	P2	S	Su	K	Ga	Go
6A8	Osc-Mod	6.3	275	—	120	—	5	170	—5 to —20
6K7	I. F. Amp.	6.3	275	—	120	4	4	—	—
6H6	Det. & AVC	6.3	0	—	—	—	0	—	—
6F5	A. F. Amp.	6.3	160	—	—	—	2	—	—
6N6	Output	6.3	275	260	—	—	0	—	—
5Z4MG	Rectifier	5.0	—	—	—	—	360	—	—

Power Output Approximately 4 Watts.
Power Consumption Approximately 85 Watts at 117.5 Volts.
Voltage Drop Across Speaker Field Approximately 78 Volts.

SPECIFICATIONS

The Crosley Radio Models 656 and 5656 are companion models employing the same circuit. The Model 656 is supplied in a table cabinet having the speaker mounted on the chassis and the Model 5656 is a console type having the speaker mounted in the cabinet.

The frequency ranges covered are from 540 to 1710 kilocycles in the broadcast band and from 6,000 to approximately 18,000 kilocycles in the high frequency band.

Signal Generator Frequencies.

	Shunt Alignment	Series Alignment
Broadcast Band	1400 Kc.	600 Kc.
High Frequency Band	18000 Kc.	6000 Kc.

MODELS 656,5656
Socket,Trimmers
Chassis,Alignment
Parts

CROSLEY RADIO CORP.

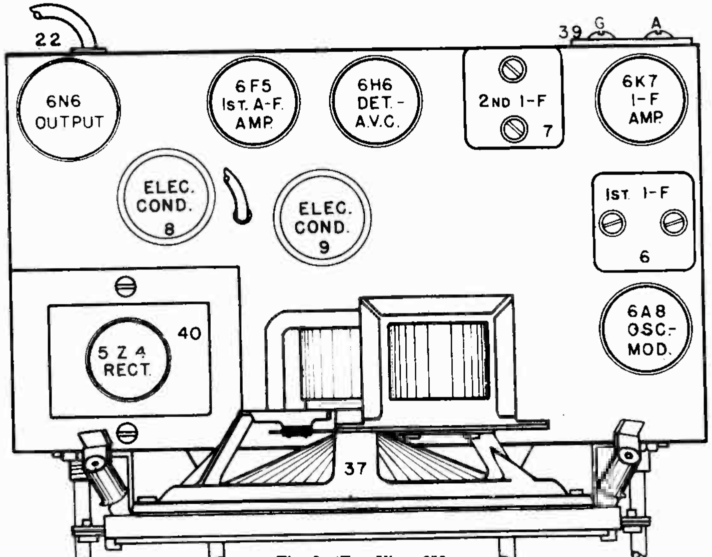


Fig. 2. Top View 656

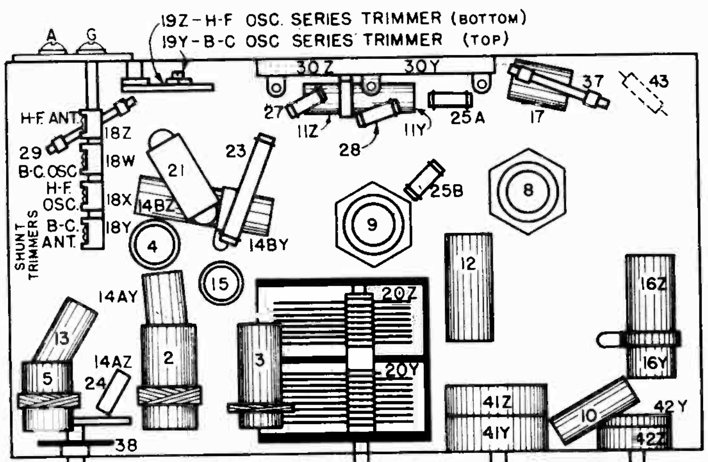


Fig. 3. Bottom View 656

ALIGNMENT PROCEDURE

All the circuit 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 to P. and P2 of the 6N6 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 450 Kilocycles.**

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8 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. 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 right (High Frequency).

(d) Set the signal generator to 450 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.**

(a) When aligning the R-F Amplifier the output lead from the signal generator should be connected through a dummy antenna to the "ANT" terminal of the receiver. For the broadcast band the dummy antenna should be a .00025 mfd. condenser and for the high frequency band this condenser should be replaced by a 400 ohm (Non Inductive) carbon resistor.

Each band should be shunt aligned, series aligned and then shunt aligned again in the order given. The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated below for each adjustment.

Adjust the "OSC" and "ANT" shunt trimmers (Shunt alignment. See Fig. 3) in the order given for maximum output. Tune the station selector to the generator signal for maximum output and then check the adjustment of the "ANT" trimmer. 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 900 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 900 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.

To adjust the "series" trimmers (Fig. 3) set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. Adjust the series trimmer while rocking the tuning condenser back and forth slightly, until no further improvement in output can be obtained.

Item No.	Part No.	Name
1-AB	W —37922	Bulb, Dial Light
	G3 —37965	Socket Assy., Dial Light
	W —40570	Shield, Dial Light
2	G118 —32000	Coil, Antenna (5800-18100 Kc.)
3	G81 —32000	Coil, Antenna (540-1725 Kc.)
4	G108 —32002	Coil, Osc. (5800-18100 Kc.)
5	G66 —32002	Coil, Osc. (540-1725 Kc.
6	G71 —32004	Coil Assy., 1st I-F (450 Kc.)
7	G72 —32004	Coil Assy., 2nd I-F. (450 Kc.)
8	W —36055	Cond., 35 Mf. 400V.
9	W —36057	Cond., 40 Mf. 300V.
10	W —30805	Cond., .01 Mf. 400V.
11Z	W —30322-A	Cond., .00017 Mf. 200V.
11Y		Cond., .006 Mf. 200V.
12	W —32780-B	Cond., .05 Mf. 400V.
13	W —32191-A	Cond., .01 Mf. 400V.
14AZ	W —28623	Cond., .02 Mf. 200V.
14AY		Cond., .02 Mf. 200V.
14BZ	W —28623	Cond., .02 Mf. 200V.
14BY		Cond., .02 Mf. 200V.
15	W —27216	Cond., .05 Mf. 200V.
15B	W —36541	Cond., .02 Mf. 160V.
16Y	W —31052	Cond., .05 Mf. 400V.
16Z		Cond., .004 Mf. 400V.
17	See 15B	
18	W —37241	Cond., 4 Section Trimmer
19	G31 —33006	Condenser, 2 Section
20	G17 —33001	Condenser, Var. Tuning
	Mg35—40765	Bracket Assy., Dial Support & Spk. Mtg. (656)
	W —40798	Bracket, L.H., Dial Sup.
	W —40799	Bracket, R.H., Dial Sup.
	W —40797	Bracket, (2 Req.), Dial Mtg.
	B —41979	Dial, Calibrated Glass
	W —41739	Drive Unit, Dial
	W —40795-B	Shaft, Hand
	W —40794	Bracket, Hand Shaft Bearing
	W —42629	Pointer (Hand), Dial
	W —40909	Washer (Spring), Hand Shaft
	W —41611	Ring, Shaft Retaining
	B —42374	Mask, Metal (Bronze)
	W —40486	Screw, Pointer Mtg.
21	G7 —34000	Condenser, 1750 Mmf.
22	B —33906-A	Cord and Plug, Power

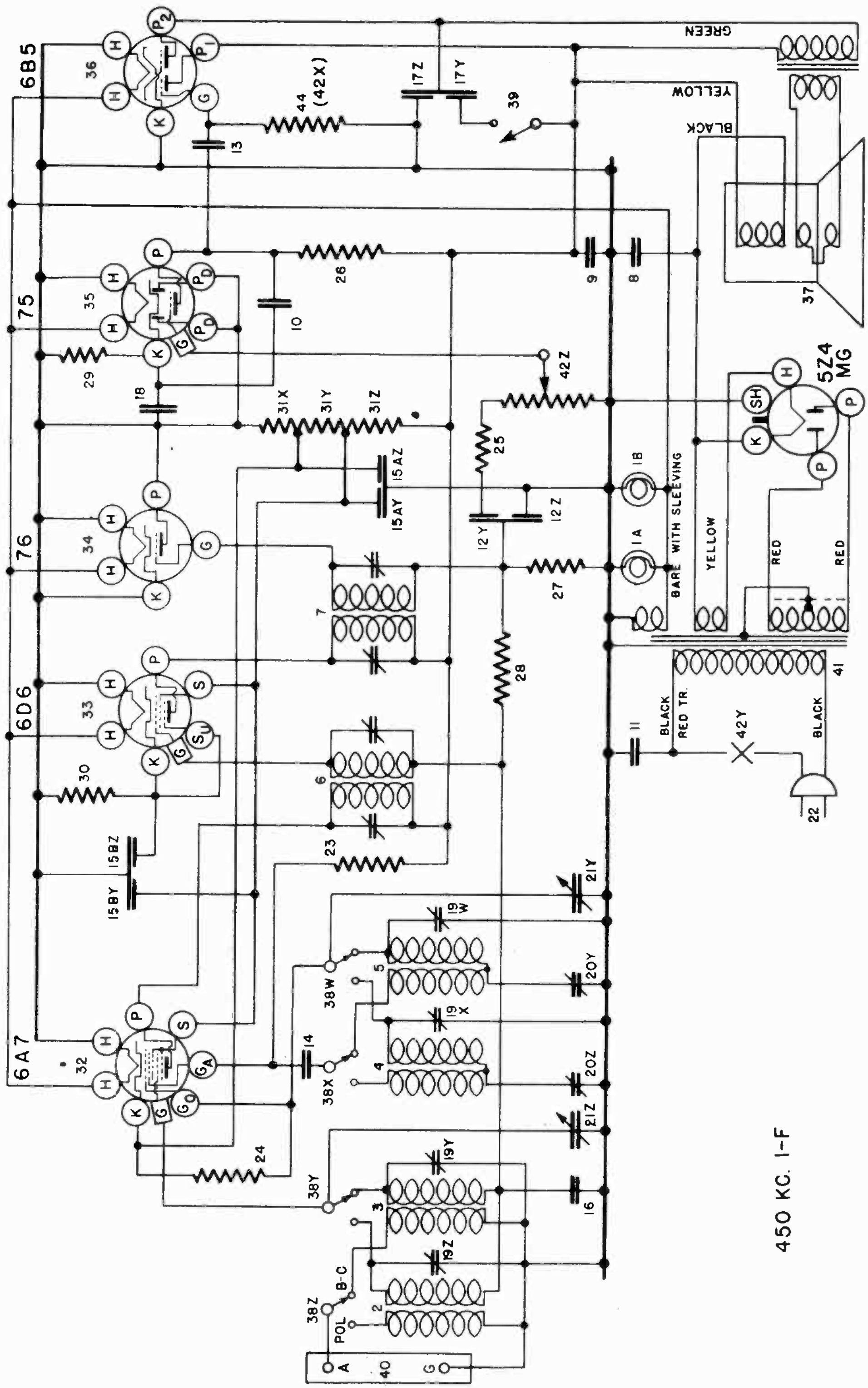
Item No.	Part No.	Name
23	— 5370-A	Resistor, 20,000 Ohm 1W.
24	—35928	Resistor, 60,000 Ohm ¼W.
25A	—23403	Resistor, 150,000Ohm ¼W.
25B	—35928	Resistor, 150,000Ohm ¼W.
27	—33344	Resistor, 400,000Ohm ¼W.
28	—37245	Resistor, 1.5Megohm ¼W.
29	W —28589	Resistor, 350 Ohm ½W. Flex.
30Z	W —32301	Resistor, 10,000Ohm Candohm
30Y		Resistor, 15,000Ohm Candohm
31		Resistor, 165 Ohm ½W. Flex.
32	G156 —36400	Socket, Type 6A 8
33	G151 —36400	Socket, Type 6K7
34	G155 —36400	Socket, Type 6H6
35	G158 —36400	Socket, Type 6F5
36	G165 —36400	Socket, Type 6N6
37	331BL9	Speaker ("M"-1-D 116) (Model 656 only)
	—37039	Cone Assy. — For above Speaker
	—40275	Field Coil — For above Speaker
	—40276	Output Transformer — For above Speaker
	632CJ3	Speaker ("M"-1-D-610) (Model 5656 only)
	—42879	Cone Assy. — For above Speaker
	—42880	Field Coil — For above Speaker
	—42881	Output Trans. — For above Speaker
	G3 —35696	Speaker Cable, (Model 5656 only)
38	—37247	Switch, Band Selector
39	G1 —26719	Terminal Board, Antenna & Grd.
40	—41978-A	Transformer, 110V. 60 Cy. Power
41Z	—41027	Volume Control, (3 Meg.) See Note
41Y		Volume Control, (1 Meg.) See Note
42Z	—41028-A	Tone Control, (80,000 Ohm)
42Y		Line Switch
	W —42345	Escutcheon
	D — 28	Escutcheon Screws
	W —37339	Knob, V.C.&S.S.
	W —37341	Knob, T.C.&B. Sw.
	—42006	Volume Control, (3 Meg.)*
43	—21455	Resistor, 300,000Ohm ¼W. *(See Note
	BE	Cabinet, (Model 656)
	MA	Cabinet, (Model 5656)

*May be used in place of Dual Volume Control.

MODELS 666,5666
Schematic,Voltage

CROSLEY RADIO CORP.

September, 1936 SALES MODELS 629 and 644 CHASSIS 666 and 5666



TUBE SOCKET VOLTAGE READINGS

Tube	Where Used	H	P	P2	S	Su	K	Ga	Go
6A7	Osc-Mod	6.3	235	—	128	—	6.2	154	—5 to —20
6D6	I. F. Amp.	6.3	235	—	128	5.2	5.2	—	—
76	Dector	6.3	0	—	—	—	0	—	—
75	A.F.Amp.&AVC	6.3	110	—	—	—	2	—	—
6B5	Output	6.3	235	222	—	—	0	—	—
5Y3	Rectifier	5.0	—	—	—	—	335	—	—

Power Output Approximately 4 Watts.
Power Consumption Approximately 68 Watts at 117.5 Volts.
Voltage Drop Across Speaker Field Approximately 95 Volts.

Signal Generator Frequencies.

	Shunt Alignment	Series Alignment
Broadcast Band	1400 Kc.	600 Kc.
High Frequency Band	6000 Kc.	1500 Kc.

MODELS 666,5666
Socket,Trimmers
Alignment,Parts

CROSLEY RADIO CORP.

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 to P. and P2 of the 6B5 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 450 Kilocycles.**

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A7 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. 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 right (High Frequency).

(d) Set the signal generator to 450 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.**

(a) When aligning the R-F Amplifier the output lead from the signal generator should be connected through a dummy antenna to the "ANT" terminal of the receiver. For the broadcast band the dummy antenna should be a .00025 mfd. condenser and for the high frequency band this condenser should be replaced by a 400 ohm (Non Inductive) carbon resistor.

Each band should be shunt aligned, series aligned and then shunt aligned again in the order given. The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated below for each adjustment.

Adjust the "OSC" and "ANT" shunt trimmers (Shunt alignment. See Fig. 3) in the order given for maximum output. Tune the station selector to the generator signal for maximum output and then check the adjustment of the "ANT" trimmer. 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 900 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 900 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.

To adjust the "series" trimmers (Fig. 3) set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. Adjust the series trimmer while rocking the tuning condenser back and forth slightly, until no further improvement in output can be obtained.

PARTS LIST—MODELS 666 and 5666

Item No.	Part No.	Name
1	W —37922	6-8 V. Bulb, Dial Light
	G3 —37965	Socket Assy., Dial Light
2	G82 —32000	Coil Antenna—2350—7000 Kc.
3	G81 —32000	Coil Antenna—540—1725 Kc.
4	G 65—32002	Coil—2350—7000 Kc., Osc.
5	G 66—32002	Coil— 540—1725 Kc., Osc.
6	G118—32004	Coil—Assy., 1st I-F.
7	G 72—32004	Coil—Assy., 2nd I-F.
8	W —36055	Cond. 35 Mf. 400 V.
9	W —36057	Cond. 40 Mf. 300V.
10	W —30270	Cond. .001 Mf. 400V.
11	W —30805	Cond. .01 Mf. 400V.
12Z	W —30322-A	Cond. .00017 Mf.
12Y		Cond. .006 Mf.
13	W —23615	Cond. .05 Mf. 400V.
14	W —23191-A	Cond. .01 Mf. 400V.
15 AZ	W —28623	Cond. .02 Mf. 400V.
15 AY		Cond. .02 Mf. 400V.
15 BZ	W —28623	Cond. .02 Mf. 400V.
15 BY		Cond. .02 Mf. 400V.
16	W —27216	Cond. .05 Mf. 200V.
17 Z	W —31052	Cond. .004 Mf. 400V.
17 Y		Cond. .05 Mf. 400V.
18	W —37732	Cond. .3 Mf. 160V.
19	W —37241	Cond. 4 Section Trimmer
20	G 31—33006	Cond. Series Trimmers
21	G 17—33001	Cond. Var. Tuning
	W —41736	Drive Unit,8Pt.Disc.Assy. (Model 666—Only)
	W —41897	Dial-Calibrated Glass (Model 666—Only)
	W —41737	Mtg. Brkt. Dial GlassR.H. (Model 666—Only)
	W —41738	Mtg.Brkt.,Dial Glass,L.H. (Model 666—Only)
	W —41739	Drive Unit (Model 5666 Only)
	B —42617	Dial (Calibrated) (Model 5666 Only)
	MG-14—41980	DialGlass.Mtg.Brkt.R.H. (Model 5666 Only)
	W —40798	DialGlass,Mtg.Brkt.,L.H. (Model 5666 Only)
	W —40797-A	DialGlass Retaining Brkt. (Model 5666 Only)
	W —42629	Pointer—Dial
	W —40795	Shaft—Pointer
	W —40909	Washer (Spring) Shaft
	W —41611	Ring-Shaft, Retaining
	B —42374-A	Mask (Metal) Dial
22	B —33906-A	Cord & Plug—Power
23	— 5370-A	Resistor, 20,000 Ohm 1W
24	—35928	Resistor. 60.000 Ohm ¼W
25	—21875	Resistor, 100.000 Ohm. ¼W
26	—35929-C	Resistor, 150,000 Ohm. ¼W
27	—33344	Resstor, 400.000 Ohm. ¼W
28	—37245-C	Resistor, 1.5 Megohm ¼W
29	—36316	Resistor, 2.700 Ohm. ¼W
30	W —28106	Resistor, 500 Ohm. ½W. Flex.
31Z	W —37246	Resistor,1,000 Ohm (Candohm)
31Y		Resistor,2.000 Ohm (Candohm)
31X		Resistor,185-185 Ohm (Candohm)
32	G47 —28807	Socket—Type 6A7
33	G75 —28807	Socket—Type 6D6
34	G80 —28807	Socket—Type 76
35	G41 —28807	Socket—Type 75
36	G90 —28807	Socket—Type 6B5
	W —27981	Base—Tube Shield
	W —40911	Shield—Tube
37	244—BL—9	Speaker, "B" Spec. 50A-2
	—42928	Cone Assy., For above Speaker
	—41473	Output Trans., For above Speaker
	632—CJ—3	Speaker, "M" Spec. 1-D-610
	—42879	Cone Assy., For above Speaker
	—42880	Field Coil, For above Speaker
	—42881	Output Trans., For above Speaker
38	—37247	Switch, Band Sel.
39	W—36184-A	Switch, Tone Con.
40	G1 —26719	Terminal Board, Ant. & Grid
41	—41978	Transformer, 110V.—60 Cy. Power
42Z	—37395	Volume Control (3 Meg.) 1st A-F Grid
42Y		Line Switch
42X		Volume Control (1 Meg.) Output Grid
43	NONE	
44	—35601	Resistor, 300,000 Ohm ¼ W. Output Grid to Grd.*
	B —40590	Escutcheon. (666)
	W —42345	Escutcheon. (5666)
	D —28	Escutcheon Mtg. Screws
	W —37339	Knob. (2) V.C.&S.S.
	W —37341	Knob. (2) T. C. & B. S. W.
	—36297	Volume Control, 3 Meg.*
	AG	Cabinet Model 666
	MA	Cabinet Model 5666

*May be used in place of Dual Volume Control.

SPECIFICATIONS

The Crosley Radio Models 666 and 5666 are companion models employing the same circuit. The Model 666 is supplied in a table cabinet having the speaker mounted on the chassis and the Model 5666 is a console type having the speaker mounted in the cabinet.

The frequency ranges covered are from 540 to 1710 kilocycles in the broadcast band and from 2350 to approximately 7500 kilocycles in the high frequency band.

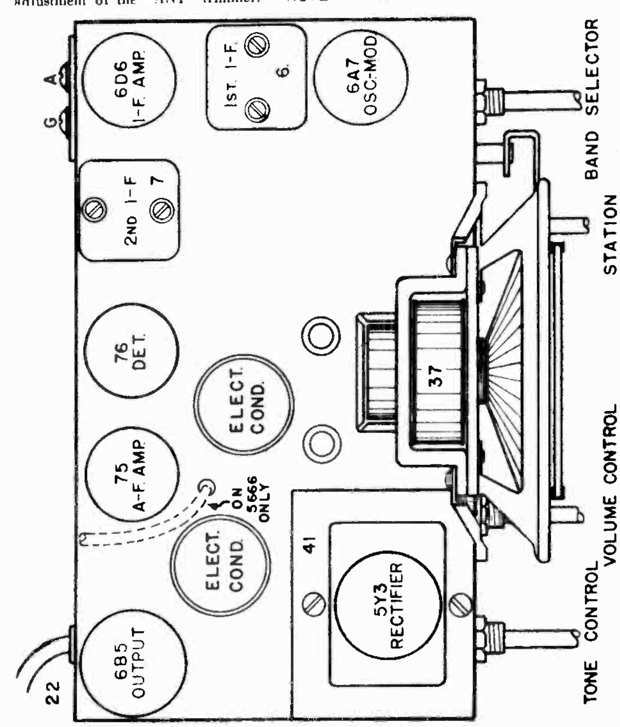


Fig. 2. Top View 666

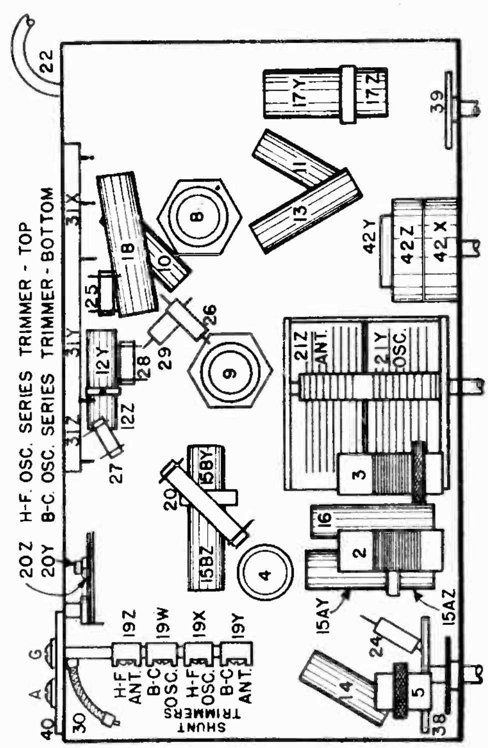
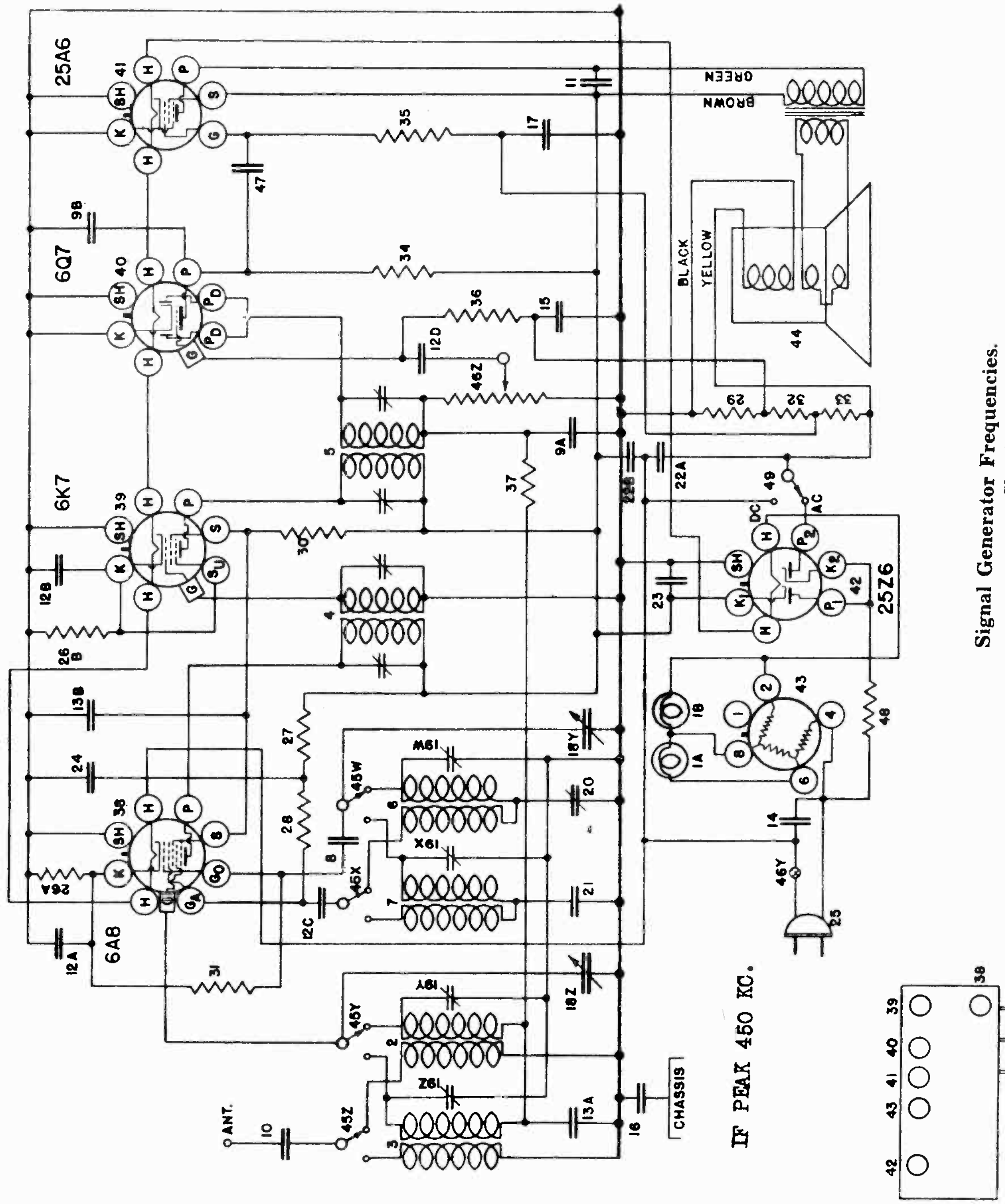


Fig. 3. Bottom View 666

CROSLEY RADIO CORP.

MODEL 676
Schematic, Socket Voltage



Signal Generator Frequencies.

	Series Alignment	Shunt Alignment
Broadcast Band	600 Kc.	1400 Kc.
High Frequency Band		6000 Kc.

TUBE SOCKET VOLTAGE READINGS

Tube		H	P	S	G	Su	K	Ga	Go
6A8G	Oscillator-Modulator	6.3	150	90	—	—	3.0	115	Neg.
6K7G	I-F Amplifier	6.3	150	90	—	3.0	3.0	—	
6Q7G	Det. & A-F Amp.	6.3	80	—	-3	—	0	—	—
25A6G	Output	25.0	125	150	-16	—	0	—	—
25Z6G	Rectifier	25.0							
W-42520	Ballast Tube		Variable						

Power output approximately 3 watts.
Power consumption approximately 75 watts.
Voltage drop across speaker field 80 volts.
All readings taken on 117.5 volt A.C. power supply.
All voltages except filaments will be approximately 40% lower if measured on 117.5 volt D.C. power supply.

MODEL 676
Socket, Trimmers
Alignment, Parts

CROSLEY RADIO CORP.

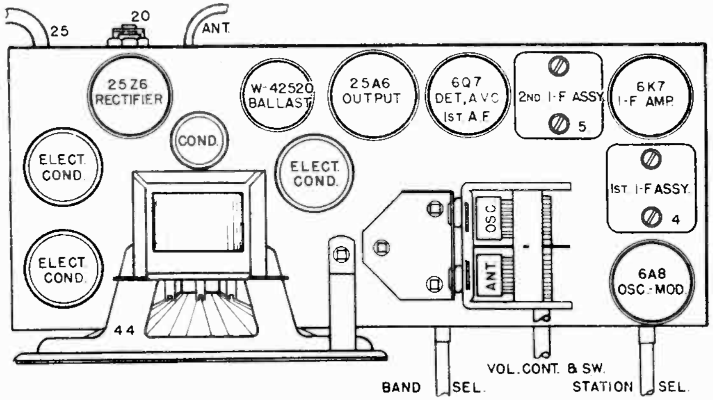


Fig. 2 Top View 676

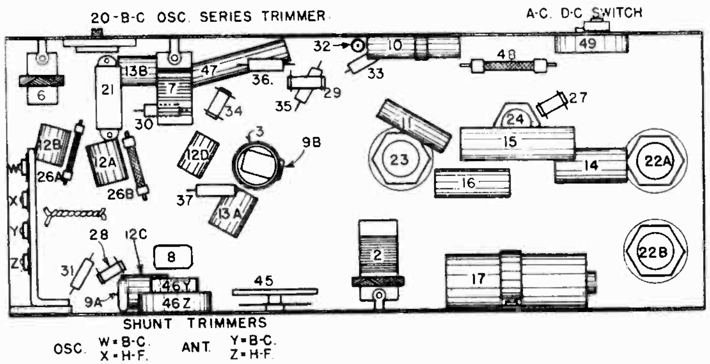


Fig. 3 Bottom View 676

A.C.-D.C. SWITCH

A switch is located on the rear of the receiver chassis for the purpose of adapting the receiver to either an A.C. or D.C. power supply. To change the position of the switch, remove the screw in the locking bracket and move the end of the bracket to the other position as marked on the chassis. Replace the screw so as to lock the switch in the new position.

The receiver will operate satisfactorily on either A.C. or D.C. with the switch in the D.C. position, but the performance of the receiver will be greatly improved with the switch in the A.C. position when being operated on A.C. DO NOT OPERATE THE RECEIVER ON A D.C. POWER SUPPLY WITH THE SWITCH IN THE A.C. POSITION AS IT WILL CAUSE DAMAGE TO THE RECEIVER PARTS.

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 one terminal of the output meter to the plate and the other terminal to the screen of the 25A6 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator through a .05 mfd., or larger, condenser to 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, turn the band selector switch to the right (High Frequency Position) and turn the volume control to the right (ON).

(c) Set the signal generator to 450 kilocycles.

(d) Adjust both trimmer condensers located on top of the 2nd I-F transformer for maximum reading on the output meter.

(e) Adjust both trimmers located on top of the 1st I-F transformer for maximum reading on the output meter.

(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.

(a) When aligning the R-F Amplifier the output lead from the signal generator should be connected through a dummy antenna to the "ANT" terminal of the receiver. For the broadcast band the dummy antenna should be a .00025 mfd. condenser and for the high frequency band this condenser should be replaced by a 400 ohm (Non Inductive) carbon resistor.

Each band should be shunt aligned, series aligned (Broadcast Band) and then shunt aligned again in the order given. The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated below for each adjustment.

Adjust the "OSC" and "ANT" shunt trimmers. (See Fig. 3) in the order given for maximum output. Tune the station selector to the generator signal for maximum output and then check the adjustment of the "ANT" trimmer. 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 900 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 900 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.

To adjust the "series" trimmer (Fig. 3) set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. Adjust the series trimmer while rocking the tuning condenser back and forth slightly, until no further improvement in output can be obtained.

PARTS LIST—MODEL 676

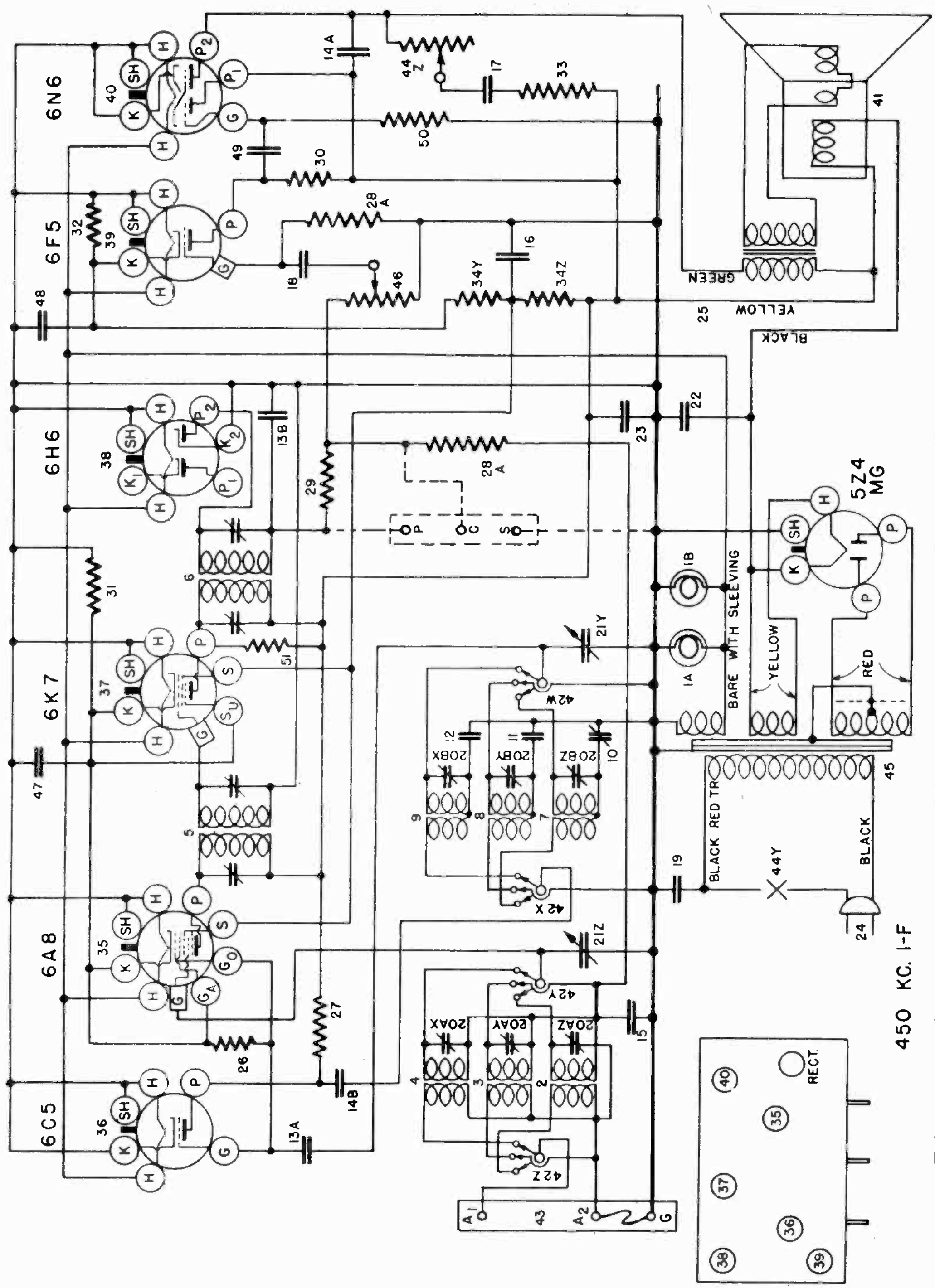
Figures in first column refer to parts in Diagrams.

Item No.	Part No.	Description
1AB	W —4099B	Dial Light Bulb
	G6 —27130	Socket—Dial Light
2	G124—32000	Ant. Coil B-C-B
3	G123—32000	Ant. Coil H-F-B
4	G128—32004	1st I-F Assembly
5	G129—32001	2nd I-F Assembly
6	G118—32002	Osc. Coil B-C-B
7	G117—32002	Osc. Coil H-F-B
8	G2 —34002	Condenser .0001 Mf.
9AB	G1 —34002	Condenser .00025 Mf.
10	W —30325	Condenser .003 Mf.
11	W —32378	Condenser .01 Mf. 400V.
12AB CD	W —36541	Condenser .02 Mf. 160 V.
13AB	W —35936	Condenser .05 Mf. 200 V.
14	W —32780B	Condenser .05 Mf. 400 V.
15	W —31712	Condenser .25 Mf. 160 V.
16	W —24049C	Condenser .1 Mf. 200 V.
17	W —30321	Condenser 1. Mf. 160 V.
18ZY	G26 —33001	2 Section Var. Tuning Cond. Gang
	MG15—42502	Dial Assembly (Complete)
	C —42553A	Drive Unit—Dial
	B —42481	Dial (Calibrated)
	W —42494	Dial Hand
	W —40186	Screw (Hand Mtg.)
	—42713A	Band Indic. Dial Assembly
	—43412	Dial Vern.-Indic. Assembly
	—43413	Drive Chain
	—43414	Take-Up Spring
19	W —37241B	4 Section Shunt Trimmer
20	—40769	B-C Osc. Series Trimmer
21	G21 —34000	H-F Osc. Series Cond.
22AB	W —40325	Condenser 50 Mf. 150 V.
23	W —36057	Condenser 40 Mf. 300 V.
24	W —41081	Condenser 16 Mf. 250 V.
25	B —33907A	Power Cord and Plug
26AB	W —28589	Resistor 350 Ohm ½W. Flexible
27	—31093	Resistor 2700 Ohm ¼W.
28	—24814	Resistor 7000 Ohm ¼W.
29	—27024	Resistor 8000 Ohm ¼W.
30	—36318	Resistor 15000 Ohm ¼W.
31	—35928	Resistor 60000 Ohm ¼W.
32	—35600	Resistor 100,000 Ohm ¼W.
33	—35930	Resistor 200,000 Ohm ¼W.
34	—34020	Resistor 250,000 Ohm ¼W.
35	—36321	Resistor 400,000 Ohm ¼W.
36	—35602	Resistor 1. Megohm ¼W.
37	—35927	Resistor 2 Megohm ¼W.
38	G156—36400	Socket Type 6A8
39	G151—36400	Socket Type 6K7
40	G160—36400	Socket Type 6Q7
41	G161—36400	Socket Type 25A6
42	G162—36400	Socket Type 25Z6
43	G169—36400	Socket Type Ballast
	W —35774	Tube Shield Base
	W —35772	Tube Shield (Half)
	W —35773	Tube Shield Cap
44	346BL9 "M"	Speaker Spec. 1-D-667
	—41638	Cone Assembly (For Above Speaker)
	—40275	Field Coil (For Above Speaker)
	—42878	Output Trans. (For Above Speaker)
45	—42519	Band Selector Switch
46Z 46Y	—42522	Volume Control, Line Switch — 500000 OHMS
47	W —27216	Condenser .05 Mf. 200 V.
48	W —42686	Resistor 50 Ohm 1½W. Flexible
49	W —42701	A. C.—D. C. Switch
	G111—34403	Ant. Lead Assembly
	B —42543	Escutcheon and Lens
	W —37341	Knob—3 Req.
	—6AA	Cabinet

MODEL 716
Schematic, Socket
Voltage

CROSLEY RADIO CORP.

September, 1936 SALES MODELS 744 and 745 CHASSIS 716



Tube	Where Used	H	P	P2	S	G	K	Go
6C5	Oscillator	6.3	165	—	—	0	0	—
6A8	Modulator	6.3	270	—	120	0	2.85	—5 to —30
6K7	I. F. Amp.	6.3	270	—	120	0	2.85	—
6H6	Diode Detector	6.3	0	—	—	—	—	—
6F5	A. F. Amp.	6.3	170	—	—	0	1.75	—
6N6	Output	6.3	270	255	—	0	0	—
5Z4MG	Rectifier	5.0	—	—	—	—	330	—

Power Consumption Approximately 80 Watts at 117.5 Volts.
Power Output Approximately 6 Watts.
Voltage Drop Across Speaker Field Approximately 60 Volts.

SPECIFICATIONS

The Crosley Radio Model 716 is a seven-tube superheterodyne receiver designed to operate on an ALTERNATING CURRENT power supply.

It is a three band receiver and the dial is divided into three sections as follows:

BLUE	540-1800 Kilocycles	(American Broadcast Band)
RED	1.8- 6.0 Megacycles	(Police and Amateurs)
GREEN	6.0- 18.0 Megacycles	(High Frequency Bands)

MODEL 716
Trimmers, Chassis Alignment, Parts

CROSLEY RADIO CORP.

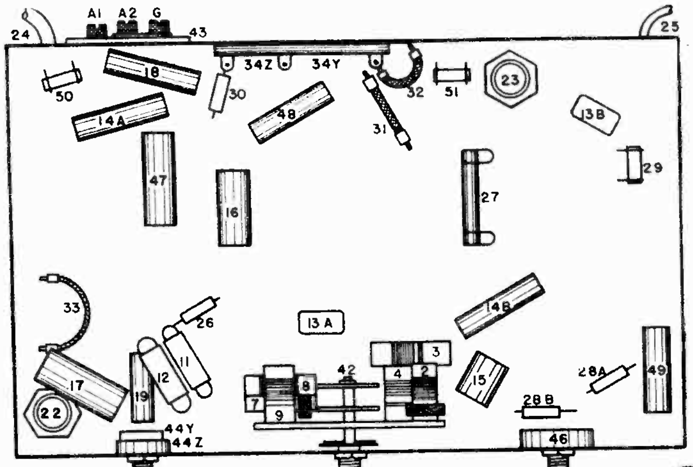


Fig. 3. Bottom View 716

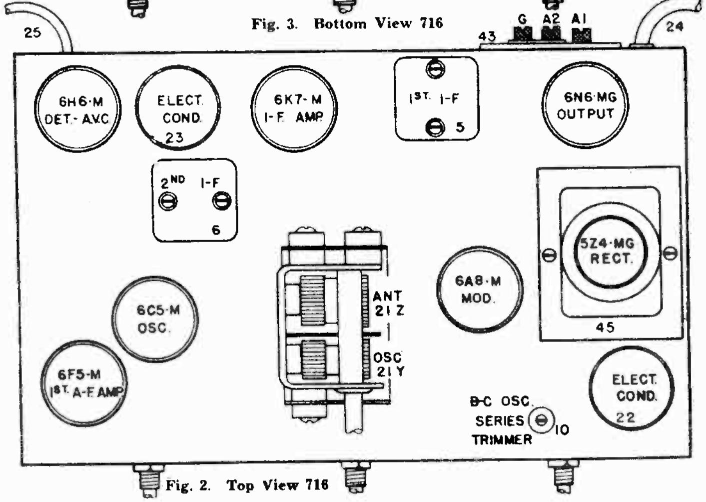


Fig. 2. Top View 716

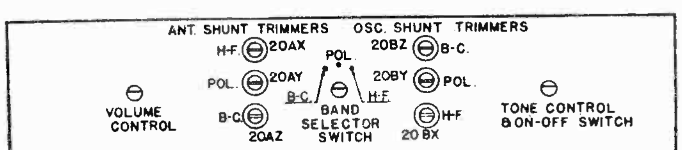


Fig. 4. Front View 716

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 to the two plates of the 6N6 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8 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. 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 High Frequency Band.

(d) Set the signal generator to 450 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 adjustments.

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 of the signal generator is connected to the "Ant" terminal of the receiver. For the BLUE and RED bands a .00025 mfd. condenser must 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 (BLUE 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 (c) for each adjustment.

(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 adjustments of the "ANT" trimmers. Do NOT READJUST the "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN 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 900 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 900 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 position.

(b) To align the series trimmer (Item 10, Fig. 2) set the signal generator to the frequency indicated (c) 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.

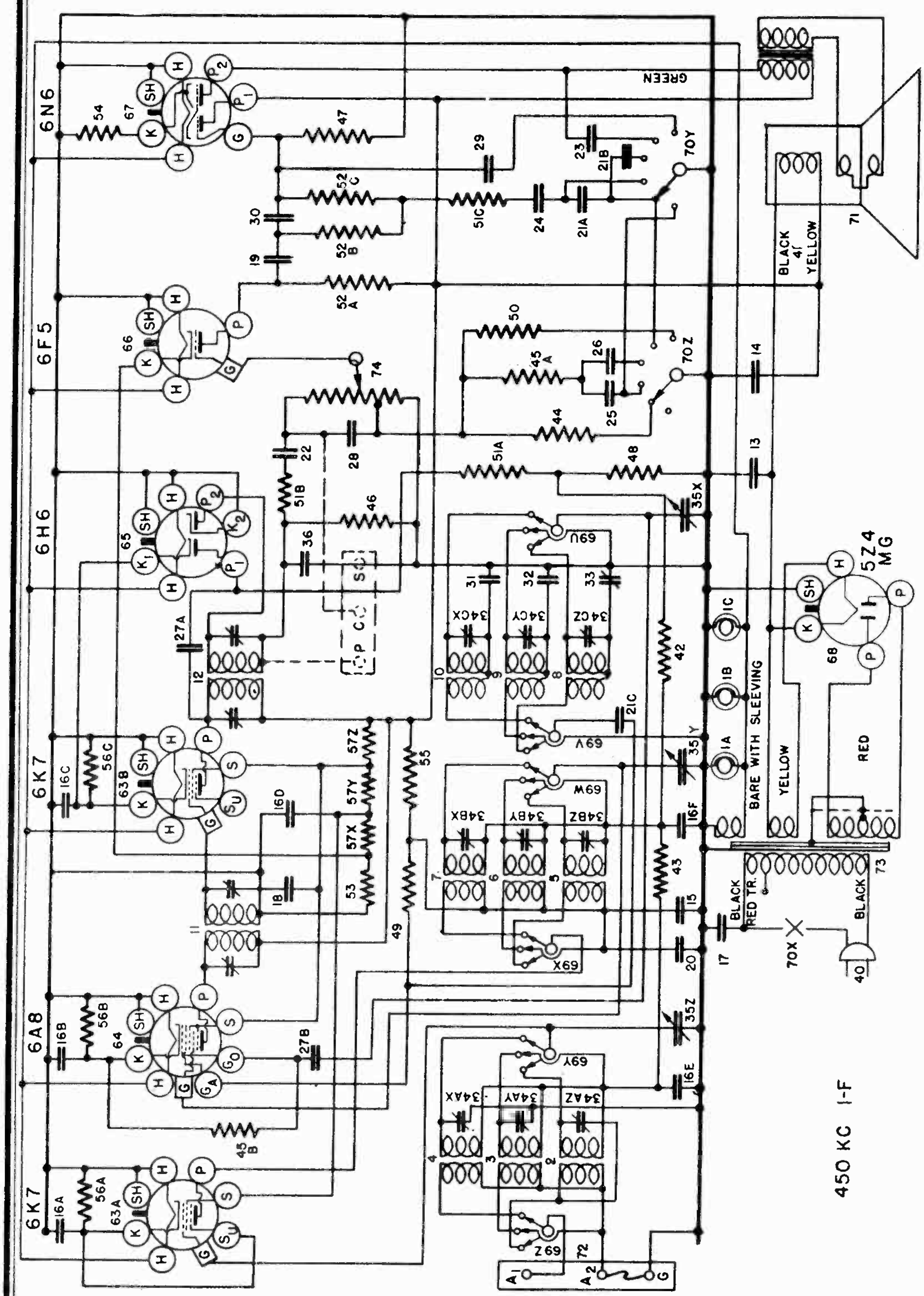
(c) Signal Input Frequencies:

	Shunt Alignment	Series Alignment
American Broadcast Band (BLUE)	1700 Kilocycles	600 Kilocycles
Police Band (RED)	6000 Kilocycles	....
High-Frequency Band (GREEN)	18000 Kilocycles	....

Item No.	Part No.	Name
1-AB	W —37922	Bulb 6-8V., Dial Light
	G3 —37965	Socket Assy., Dial Light
2	G120 —32000	Coil, Ant. (540-1800 Kc.)
3	G119 —32000	Coil, Ant. (1800-6000 Kc.)
4	G121 —32000	Coil, Ant. (5800-18000 Kc.)
5	G122 —32004	Coil Assy., 1st I-F (450Kc.)
6	G123 —32004	Coil Assy, 2nd I-F (450Kc.)
7	G112 —32002	Coil, Osc. (540-1800 Kc.)
8	G111 —32002	Coil, Osc. (1800-6000 Kc.)
9	G123 —32002	Coil, Osc. (5800-18000 Kc.)
10	—40769	Cond. 400-500 Mmf.
11	G7 —34007	Cond. 1750 Mmf.
12	G 8 —34007	Cond. 4350 Mmf.
13A	G 2 —34002	Cond., .0001Mf.(Molded)
13B	G 2 —34002	Cond., .0001 Mf.(Molded)
14A	W —35139	Cond., .004 Mf. 400V.(Tub.)
14B	W —35139	Cond., .004Mf.400V.(Tub.)
15	W —35936	Cond., .05Mf.200V.(Tub.)
16	W —24049-B	Cond., .1Mf.200V.(Tub.)
17	W —37873	Cond., .1Mf. 400V.(Tub.)
18	W —30488	Cond., .02Mf.400 V.Tub.)
19	W —30805	Cond., .01 Mf.400V.(Tub.)
20	W —35951	Cond.-3 Section Trimmer
21	G21 —33001	Cond.-2 Section Tuning
	B —42142-A	Dial-Calibrated Glass
	—42346	Drive Unit
	B —42338	Mask-Metal
	—41145	Pointer-Dial
	W —40486	Screw, Pointer Mtg.
	MG27—42151	Dial Drive Complete
	—41582	Cable, Drive
22	W —36055	Cond., 35Mf.400V.(Elect.)
23	W —36057	Cond., 40Mf.300V.(Elect.)
24	B —33906-A	Cord and Plug, Power
25	G4 —35696	Speaker Cable
26	—40757	Resistor, 50,000 Ohm ¼W. (Car.)
27	W —37987	Resistor, 15,000 Ohm 1W (Wire Wound)
28A	—36688	Resistor, 3 Megohm ¼W. (Car.)
28B	—36688	Resistor, 3 Megohm ¼W. (Car.)
29	—21456	Resistor, 300,000 Ohm ¼W. (Car.)
30	—35930	Resistor, 200,000 Ohm ¼W. (Car.)
31	W —21964	Resistor, 165 Ohm ¾W. (Flex.)
32	W —35457	Resistor, 210 Ohm ¾W. (Flex.)
33	W —27503	Resistor, 1400 Ohm ¾W. (Flex.)
34Z, 34Y	W —32301	Resistor, 10,000 Ohm; Resistor, 15,000 Ohm — Candohm
35	G156 —36400	Socket Type 6A8
36	G152 —36400	Socket Type 6C5
37	G151 —36400	Socket Type 6K7
38	G155 —36400	Socket Type 6H6
39	G158 —36400	Socket Type 6F5
40	G165 —36400	Socket Type 6N6
41	332—BJ3	Speaker "M" Spec. 1-D-390
	—41638	Cone Assy. for "M" 332BJ3
	—40275	Field Coil for "M" 332BJ3
	—41639	Output Trans. for "M" 332BJ3
42	—40770-A	Switch, Band Selector
43	G27 —26719	Terminal Board, Antenna & Grd.
44Z, 44Y	—37908	Tone Control, 100,000 Ohm; Switch, Line
45	—41978	Transformer, 110V. 60 Cy.
	—42149	Transformer, 110V. 25 Cy.
	—42150	Transformer, 220V. 25 Cy.
46	—37967	Volume Control 1Megohm
47	W —29910-A	Cond., .25Mf.200V.(Tub.)
48	W —28621	Cond., .02Mf.200V.(Tub.)
49	W —35758	Cond., .008, 400V. (Tub.)
50	—23785	Resistor, 500,000 Ohm ¼W. (Car.)
	W —42345	Escutcheon
	D —28	Screw Escutcheon Mtg.
	W —37339	Knob (3 Req.)
	W —40192-B	Knob (1 Req.)
	H	Cabinet, Model 744
	C	Cabinet, Model 745

MODEL 726
Schematic, Voltage

CROSLEY RADIO CORP.



Sept. 1936 **SALES MODEL 769** **CHASSIS MODEL 726**

SPECIFICATIONS

The Crosley Radio Model 726 is a seven tube superheterodyne receiver designed to operate on an ALTERNATING CURRENT power supply. It is available with either 110 V., 60 Cy., or 110 V., 25 Cy., Transformers.

It is a three band receiver and the dial is divided into three sections as follows:

BLUE 540-1800 Kilocycles (American Broadcast Band)
RED 1.8- 6.0 Megacycles (Police and Amateurs)
GREEN 6.0-18.0 Megacycles (High Frequency Band)

TUBE SOCKET VOLTAGE READINGS

Tube	Where Used	H	P	P_2	S	G	Su	K	Ga
6K7	R. F. Amplifier	6.3	235	—	73	0	3.0	3.0	—
6A8	Osc.-Mod.	6.3	270	—	96	0	—	3.5	145
6K7	I. F. Amplifier	6.3	270	—	96	0	2.7	2.7	—
6H6	Det. & AVC	6.3	0	—	—	—	—	0	—
6F5	A. F. Amplifier	6.3	135	—	—	0	—	2.5	—
6N6	Output	6.3	270	260	—	0	—	2.2	—
5Z4MG	Rectifier	5.0	—	—	—	—	—	350	—

Power Output Approximately 6 Watts.
Power Consumption Approximately 83 Watts at 117.5 Volts.
Voltage Drop Across Speaker Field 77 Volts

MODEL 726
Socket, Trimmers
Chassis, Alignment
Parts

CROSLEY RADIO CORP.

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 two plates of the 6N6 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8 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. Turn the volume control knob to the right (ON) and turn the fidelity control knob to the left (NORMAL).

(c) Turn the band selector switch to the High Frequency Band.

(d) Set the signal generator to 450 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 adjustments.

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 of the signal generator is connected to the "ANT" terminal of the receiver. For the BLUE and RED bands a .00025 mfd. condenser must 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 (BLUE 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 (c) for each adjustment.

(a) Adjust the "OSC.," "ANT" and "R-F" shunt trimmers in the order given for maximum output. Re-adjust the station selector slightly so that the generator signal is tuned-in with maximum output and then check the adjustments of the "ANT" and "R-F" trimmers. DO NOT READJUST the "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN 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 900 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 900 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 position.

(b) To align the series trimmer (Item 33, Fig. 2) set the signal generator to the frequency indicated (c) 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:

	Shunt Alignment	Series Alignment
American Broadcast Band (BLUE)	1700 Kilocycles	600 Kilocycles
Police Band (RED)	6000 Kilocycles	....
High-Frequency Band (GREEN)	18000 Kilocycles	....

PARTS LIST

Item No.	Part No.	Description
tABC	W —37922	Dial Light
	G3 —37965	Socket Assy. Dial Light
2	G110—32000	Coil Ant. 540–1800 Kc.
3	G111—32000	Coil Ant. 1800–6000 Kc.
4	G112—32000	Coil Ant. 6–18 Mc.
5	G76 —32001	Coil R. F. 540–1800 Kc.
6	G89 —32001	Coil R. F. 1800–6000 Kc.
7	G90 —32001	Coil R. F. 6.–18 Mc.
8	G115—32002	Coil Osc. 590–1800 Kc.
9	G121—32002	CoilOsc. 1800–6000 Kc.
10	G122—32002	Coil Osc. 6.–18 Mc.
11	G121—32004	1st. IF. Assy.
12	G120—32004	2nd. IF. Assy.
13	W —36055	Condenser, 35Mf. 400V.
14	W —36057	Condenser, 40Mf. 300V.
15	W —41081	Condenser 16Mf. 250V.
16A TO 16F	W —36541	Condenser, .02Mf. 160V.
	W —36541	Condenser, .02Mf. 160V.
17	W —30805	Condenser, .01Mf. 400V.
18	W —35936	Condenser, .05Mf. 200V.
19	W —32780B	Condenser, .05Mf. 400V.
20	W —32378	Condenser, .01Mf. 400V.
21A	W —35139	Condenser, .004Mf. 400V.
21B	W —35139	Condenser, .004Mf. 400V.
21C	W —35139	Condenser, .001Mf. 400V.
22	W —28621	Condenser, .02Mf. 200V.
23	W —23615	Condenser, .05Mf. 400V.
24	W —30323	Condenser, .01Mf. 200V.
25	W —28619	Condenser, .006Mf. 200V.
26	W —25435	Condenser, .003Mf. 400V.
27A	G2 —34002	Condenser, .0001Mf. (Mica)
27B	G2 —34002	Condenser, .0001Mf. (Mica)
28	G8 —34002	Condenser, .00001Mf. (Mica)
29	G3 —34002	Condenser, .0005Mf. (Mica)
30	G6 —34002	Condenser, .000025Mf. (Mica)
31	G20 —34000	Condenser, 4910Mmf. (Mica)
32	G7 —34000	Condenser, 1450Mmf. (Mica)
33	—40769	Condenser, B. C. Osc. Series Trim.
34	W —35951	Condenser, 3 Section Trimmer
35	G52 —33002	Condenser, 3 Gang Var. Tuning
	MG33 —42255	Dial Drive Assy.
	C —42491	Dial Glass (Calibrated)
	—42300	Drive Unit
	—42597	Dial Mask (Cardboard)
	W —42180	Dial Hand, Pointer
	—41144	Dial Hand, Time Log
	W —40486	Pointer Mtg. Screw
36	G1 —34002	Condenser, .00025 Mf. (Mica)
37	W —30270	Condenser, .001 Mf. 400V.
40	B —33906A	Power Cord & Plug
41	G3 —35696	Cable, Speaker
42	—37245	Resistor, Meg. Ohm. ¼ W.
43	—35600	Resistor, 100,000 Ohm. ¼ W.
44	—36319	Resistor, 75,000 Ohm. ¼ W.
45A	—35928	Resistor, 60,000 Ohm. ¼ W.
45B	—35928	Resistor, 60,000 Ohm. ¼ W.
46	—36321	Resistor, 400,000 Ohm. ¼ W.
47	—38623	Resistor 750,000 Ohm. ¼ W.
48	—36322	Resistor, 500,000 Ohm. ¼ W.
49	—37377	Resistor, 20,000 Ohm. 1 W.
50	—35929	Resistor, 150,000 Ohm. ¼ W.
51A	—35601	Resistor, 300,000 Ohm. ¼ W.
51B	—35601	Resistor, 300,000 Ohm. ¼ W.
51C	—35601	Resistor, 300,000 Ohm. ¼ W.
52A	—35930	Resistor, 200,000 Ohm. ¼ W.
52B	—35930	Resistor, 200,000 Ohm. ¼ W.
52C	—35930	Resistor, 200,000 Ohm. ¼ W.
53	W —30127	Resistor, 450 Ohm. ½ W. Flex.
54	W —23012A	Resistor, 40 Ohm ¾ W. Flex.
55	— 6705	Resistor, 3500 Ohm. 1 W.
56A	W —28589	Resistor, 350 Ohm. ½ W. Flex.
56B	W —28589	Resistor, 350 Ohm. ½ W. Flex.
56C	W —28589	Resistor, 350 Ohm. ½ W. Flex.
57Z	W —37781	Resistor, 16,500 Ohm. (Cand. Ohm.)
57Y		Resistor, 4,000 Ohm
57X		Resistor 18,500 Ohm.
63A	G151—36400	Socket Type 6K7
63B	G151—36400	Socket Type 6K7
64	G156—36400	Socket Type 6A8
65	G155—36400	Socket Type 6H6
66	G158—36400	Socket Type 6F5
67	G165—36400	Socket Type 6N6
68	G154—36400	Socket Type 5Z4
69	C —40910A	Band Selector Switch
70Z	B —42387C	Fidelity Switch
70Y		Fidelity Switch
70X		Line Switch
71	—645CJ3	Speaker "M" Spec. 1D640
	—42883	Cone Assy. (For Above Speaker)
	—40406	Field Coil
	—42885	Output Trans.
72	G27 —26719	Ant. & Gnd. Terminal Assy.
73	—42260	Power Trans. 60 Cy. 110 V.
	—42261	Power Trans. 25 Cy. 110 V.
74	—42501	Volume Control 3 Meg.
		Misc. Parts
	C —42045	Escutcheon
	B —42043	Escutcheon Rubber
	D — 30	Screws—Escutcheon Mtg.
	C —42044	Lens—Escutcheon
	W —40230B	Emblem
	W —32620	Nut—Emblem Mtg.
	W —36117	Rubber Mtg. Foot
	W —37339	Knob. (2 Req.)
	W —40192B	Knob, B. S. Sw. (1 Req.)
	W —42490	Knob, S. S. (1 Req.)
	6-NG	Cabinet

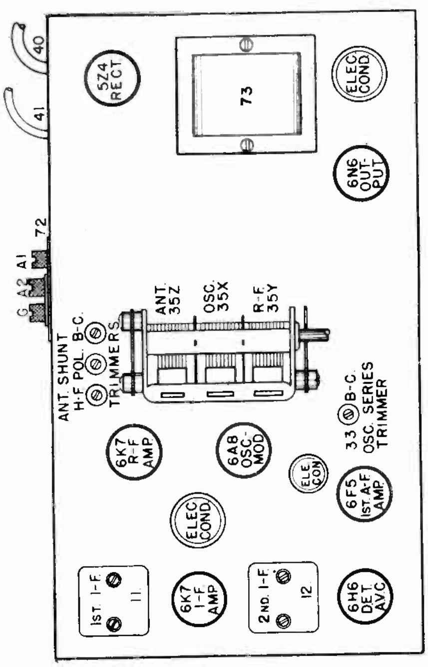


Fig. 2 Top View 726

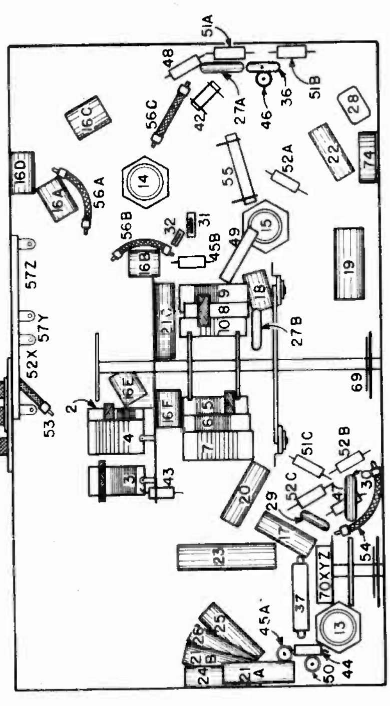


Fig. 3 Bottom View 726

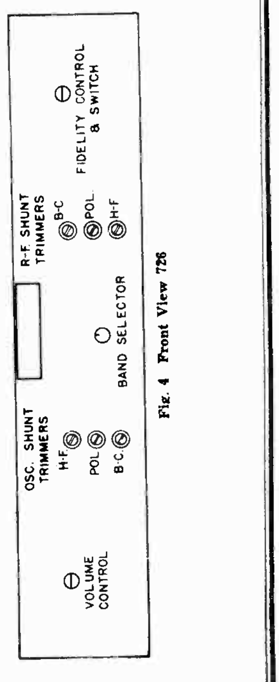
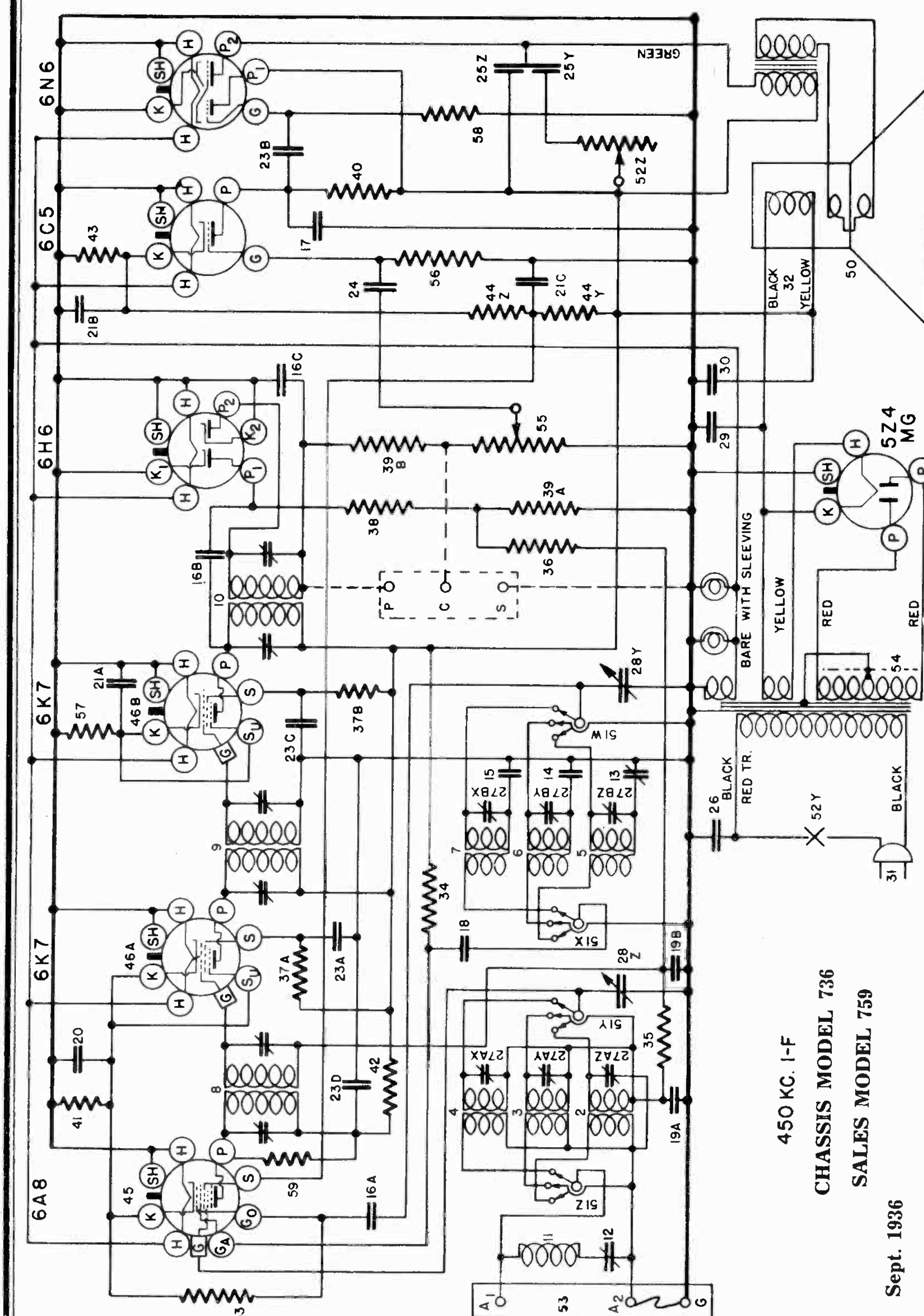


Fig. 4 Front View 726

MODEL 736
Schematic, Voltage

CROSLEY RADIO CORP.



450 KC. I-F

CHASSIS MODEL 736

SALES MODEL 759

Sept. 1936

SPECIFICATIONS

The Crosley Receiver Model 736 is a seven tube superheterodyne radio designed to operate on an ALTERNATING CURRENT power supply. It incorporates a WAVE-TRAP in its construction so that interfering signals between the frequencies of approximately 440 and 480 Kilocycles may be reduced so that they are not objectionable if not entirely eliminated from over riding station being received.

It is a three band receiver and the dial is divided into three sections as follows:

BLUE 540-1800 Kilocycles (American Broadcast Band)
RED 1.8- 6.0 Megacycles (Police and Amateurs)
GREEN 6.0-18.0 Megacycles (High Frequency Band)

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	K	S	Go	Ga
6A8	Osc.-Mod.	6.3	280	3.2	130	-5 to -30	160
6K7	1st. I. F. Amp.	6.3	280	3.2	110	—	—
6K7	2nd. I. F. Amp.	6.3	280	8.0	130	—	—
6H6	Det. & AVC	6.3		—	—	—	—
6C5	1st. A. F. Amp.	6.3	155	6.5	—	—	—
6N6	Output	6.3	220	—	P_2 280	—	—
5Z4	Rectifier	5.0	—	330	—	—	—

Power Output Approximately 6 Watts.
Power Consumption Approximately 80 Watts at 117.5 Volts
Voltage Drop Across Speaker Field Approximately 50 Volts.

MODEL 736
Socket, Trimmers
Alignment, Chassis
Parts

CROSLEY RADIO CORP.

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 to the two plates of the 6N6 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 450 Kilocycles.

(a) Connect the output of the signal generator through a .02 mfd. condenser to the top cap of the 6A8 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. 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 High Frequency Band.

(d) Set the signal generator to 450 kilocycles.

(e) Adjust both trimmers located on the top of the 3rd I-F Transformer for maximum output.

(f) Adjust both trimmers located on top of the 2nd I-F Transformer for maximum output.

(g) Adjust both trimmers located on top of the 1st I-F Transformer for maximum output.

(h) Check operations (e), (f) and (g) for more accurate adjustments.

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 of the signal generator is connected to the "ANT" terminal of the receiver. For the BLUE and RED bands a .0002 mfd. condenser must 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 (BLUE 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 (c) for each adjustment.

(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 adjustments of the "ANT" trimmers. DO NOT READJUST the "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN 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 900 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 900 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 position.

(b) To align the series trimmer (Item 13, Fig. 2) set the signal generator to the frequency indicated (c) 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:

	Shunt Alignment	Series Alignment
American Broadcast Band (BLUE)	1700 Kilocycles	600 Kilocycles
Police Band (RED)	6000 Kilocycles	....
High-Frequency Band (GREEN)	18000 Kilocycles	....

TO ADJUST WAVE TRAP

Connect the output of the signal generator through an .02 Mf. condenser to the ANT. terminal on the chassis and the other lead to GND. terminal.

(a) Adjust signal generator to frequency of interfering signal.

(b) Set station selector to approximately 650 Kilocycles with the band selector in the Broadcast position.

(c) Adjust Wave Trap trimmer (Item 12, Fig. 2) to minimum signal.

For simple adjustment tune-in station with maximum interference and adjust Wave Trap Trimmer for minimum interference.

PARTS LIST

Item No.	Part No	Name Value
1AB	W —37992	Bulb, Dial Light 6-8V.
	G3 —37965	Socket Assy. Dial Light
2	G120—32000	Coil, Ant. 540-1800 Kc.
3	G119—32000	Coil, Ant. 1800-6000 Kc.
4	G121—32000	Coil, Ant. 6000-18000 Kc.
5	G112—32002	Coil, Osc. 540-1800 Kc.
6	G111—32002	Coil, Osc. 1800-6000 Kc.
7	G113—32002	Coil, Osc. 6000-18000 Kc.
8	G125—32004	Coil, Assy. 1st. I. F. 450 Kc.
9	G124—32001	Coil, Assy. 2nd. I. F. 450 Kc.
10	G100—32001	Coil, Assy. 3rd. I. F. 450 Kc.
11	G1 —32006	Coil, Assy. Wave Trap
	LW —37235A	Coil, Only Wave Trap
12	W —37232	Condenser, Wave Trap Trimmer
	G5 —31927	Shield Assy. Wave Trap
13	—40769	Condenser, 400 to 500 Mmf., B. C. Osc. Series Trimmer
14	G7 —34007	Condenser, 1750 Mmf., Pol. Osc. Series, Fixed
15	G8 —34007	Condenser, 4350 Mmf., H. F. Osc. Series, Fixed
16A	G2 —34002	Condenser, .0001 Mf. Molded
16B	G2 —34002	Condenser, .0001 Mf. Molded
16C	G2 —34002	Condenser, .0001 Mf. Molded
17	G1 —34002	Condenser, .00025 Mf. Molded
18	W —35139	Condenser, .004 Mf. 400 V. Tub.
19A	W —35936	Condenser, .05 Mf. 200 V. Tub.
19B	W —35936	Condenser, .05 Mf. 200 V. Tub.
20	W —29910A	Condenser, .25 Mf. 200 V. Tub.
21A	W —28621	Condenser, .02 Mf. 200 V. Tub.
21B	W —28621	Condenser, .02 Mf. 200 V. Tub.
21C	W —28621	Condenser, .02 Mf. 200 V. Tub.
23A	W —30488	Condenser, .02 Mf. 400 V. Tub.
23B	W —30488	Condenser, .02 Mf. 400 V. Tub.
23C	W —30488	Condenser, .02 Mf. 400 V. Tub.
23D	W —30488	Condenser, .02 Mf. 400 V. Tub.
24	W —35758	Condenser, .008 Mf. 400 V. Tub.
25Z	W —31052	Condenser, .004 Mf. 400 V. Tub.
25Y		Condenser, .05 Mf. 400 V.
26	W —30805	Condenser, .01 Mf. 400 V. Tub.
27A	W —35951	Condenser, 3Sect. Trimmer, Ant. Shunt
27B	W —35951	Condenser, 3Sect. Trimmer, Osc. Shunt
28	G21 —33001	Condenser, 2 Sect. Gang.
	MG27—42390	Dial Drive Assy.
	C —42420	Dial Glass (Calibrated)
	—41844	Drive Unit
	W —42684	Dial Hand
	W —40486	Screw. Hand Mtg
	—41582	Cable, Drive
29	W —36055	Condenser, 35 Mf. 400 V. Elect.
30	W —36057	Condenser, 40 Mf. 300 V. Elect.
31	B —33906A	Cord & Plug, Power
32	G3 —35696	Cable, Speaker
33	—40757	Resistor, 50,000 Ohm, ¼ W.
34	—23616	Resistor 15,000 Ohm, 1 W.
35	—21454	Resistor, 1. Megohm ¼ W.
36	—37245	Resistor, 1.5 Megohm ¼ W.
37A	—21875	Resistor, 100,000 Ohm ¼ W.
37B	—21875	Resistor, 100,000 Ohm. ¼ W.
38	—35930	Resistor, 200,000 Ohm. ¼ W.
39A	—21455	Resistor, 300,000 Ohm. ¼ W.
39B	—21455	Resistor, 300,000 Ohm. ¼ W.
40	—37768	Resistor, 6500 Ohm. ½ W.
41	W —21964	Resistor, 165 Ohm. ½ W. Flex.
42	—23013	Resistor, 2000 Ohm. 1 W. Flex.
43	W —22514	Resistor, 750 Ohm. ½ W. Flex.
44Z	W —32301	Resistor, 10000 Ohm Candohm
44Y		Resistor, 15000 Ohm Candohm
45	G156—36400	Socket Type, 6A8
46A	G151—36400	Socket Type, 6K7
46B	G151—36400	Socket Type, 6K7
47	G155—36400	Socket Type, 6H6
48	G152—36400	Socket Type, 6C5
49	G165—36400	Socket Type, 6N6
50	—632CJ3	Speaker, "M", Spec. 1—D—610
	—42879	Cone Assy., For Above Spk.
	—42880	Field Coil, For Above Spk.
	—42881	Output Trans., For Above Spk.
51	—40770A	Switch, Band Selector
52Z	—37908	Tone Control 100,000 Ohm.
52Y		Line Switch
53	G27 —26719	Terminal Board, Ant. & Gnd.
54	—41978A	Transformer, Power 110 V. 60 Cy.
55	—37967	Volume Control 1 Megohm.
56	—36688	Resistor, 3 Megohm, ¼ W.
57	W —28106	Resistor, 500 Ohm. ½ W. Flex.
58	—36322	Resistor, 500,000 Ohm. ¼ W.
59	—35928	Resistor, 60,000 Ohm, ¼ W.
	W —42408	Escutheon Ring Assy.
	—41880	Dial Lens
	—41881	Lens Retaining Ring
	—7670	Screws, (2 Req.) Escutcheon Mtg.
	W —37339	Knob, (3 Req.)
	W —40192B	Knob, (1 Req.)
	W —36117	Foot. (4 Req.) Rubber Mtg.
	6-T	Cabinet

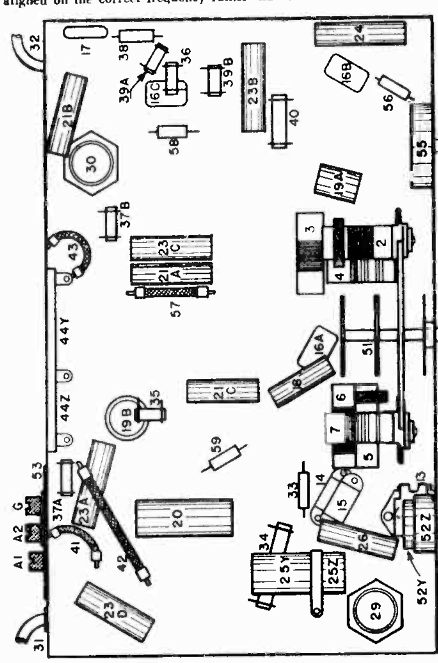


Fig. 3 Bottom View 736

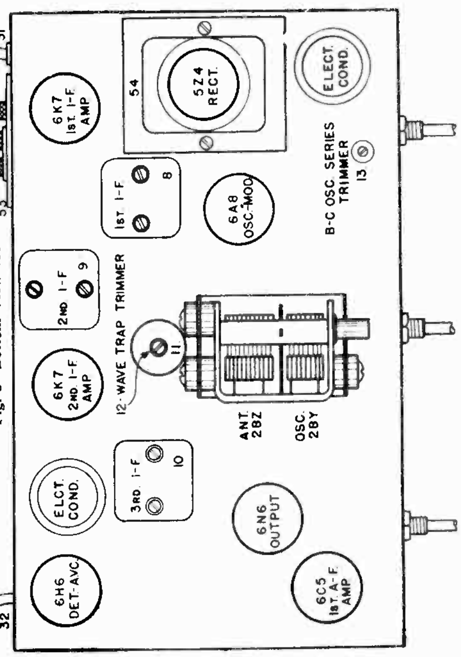


Fig. 2 Top View 736

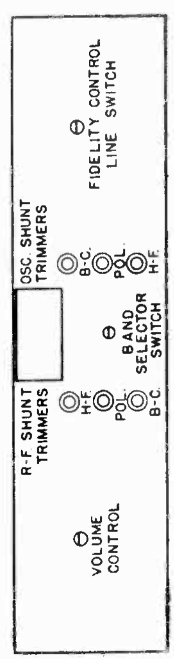
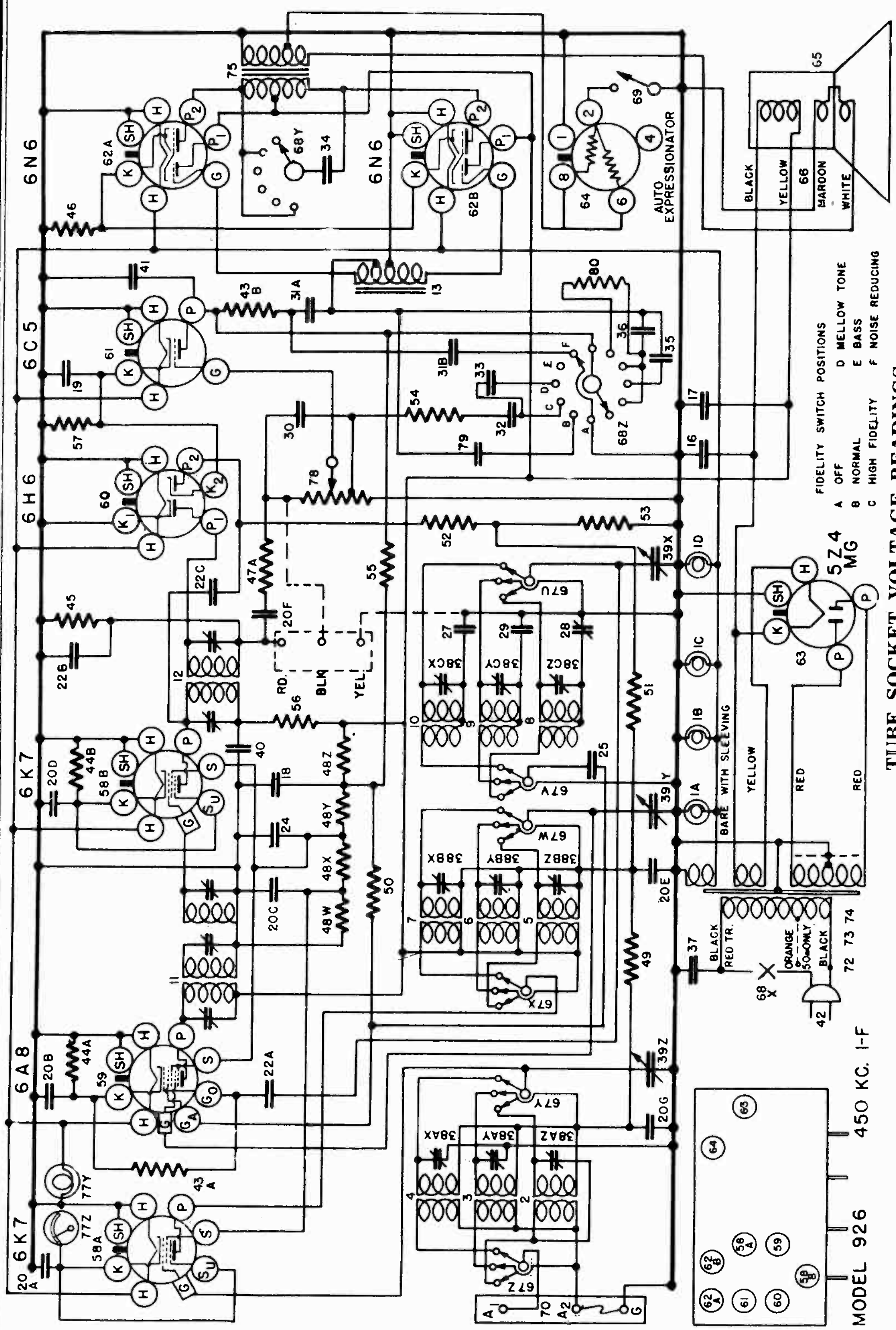


Fig. 4 Front View 736

MODEL 926
Schematic, Socket Voltage

CROSLEY RADIO CORP.



TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	P_2	S	Su	G	K	Ga	Go
6K7	R-F Amplifier	6.3	225	—	90	4.0	—	4.0	—	—
6A8	Osc.-Modulator	6.3	250	—	120	—	—	5.0	Var.	150
6K7	I-F Amplifier	6.3	235	—	120	4.0	—	4.0	—	—
6H6	Det. & A. V. C.	6.3	—	—	—	—	—	4.0	—	—
6C5	1st A-F Amp.	6.3	120	—	—	—	—	12.0	—	—
6N6	(2) Output	6.3	250	245	—	—	—	4.0	—	—
5Z4	Rectifier	5.0	—	—	—	—	—	350	—	—

W-41187 Expressionator—Variable.
Voltage drop across speaker field 100 Volts.
Power output approximately 8 watts.

Power consumption approximately 115 watts.
All readings taken on 117.5 line voltage.

CHASSIS MODEL 926

SALES MODEL 989

Sept. 1936

SPECIFICATIONS

The Crosley Model 926 radio is a nine-tube superheterodyne receiver and uses metal tubes, except the Auto Expressionator tube which is always glass and the 5Z4 rectifier which should always be the MG type. Chassis are available either with a standard 110 Volt—60 Cycle, or 110 Volt—25 Cycle Power Transformer.

The tuning range of the receiver is from 540 to 18100 Kilocycles and is divided into three bands as follows:

BLUE	540-1800 Kc. or 555-170 Meters	(Standard American Broadcast)
RED	1.8- 6.0 Mc. or 158- 50 Meters	(Police and Amateurs)
GREEN	6.0-18.0 Mc. or 50- 17 Meters	(High Frequency)

MODEL 926
Socket, Trimmers
Alignment, Parts

CROSLEY RADIO CORP.

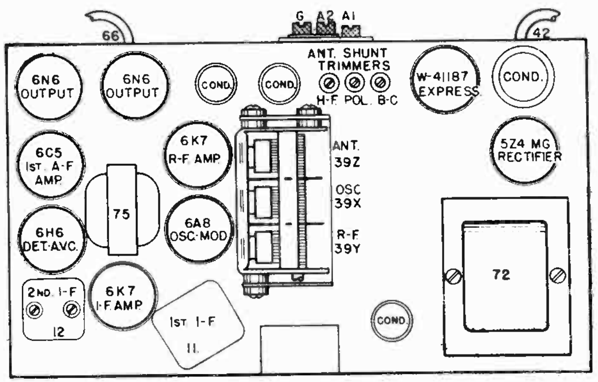


Fig. 2 Top View 926

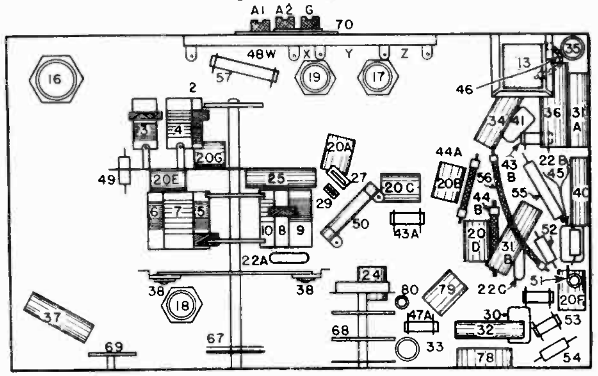
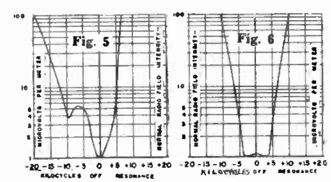


Fig. 3. Bottom View 926



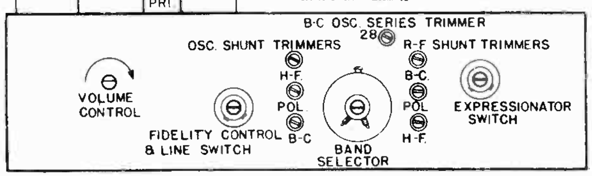


Fig. 4. Front View 926

ALIGNMENT PROCEDURE

This is a High Fidelity receiver and in order to secure maximum performance the alignment of its circuits should be done with precision instruments.

Tuning I-F Amplifier to 450 Kilocycles.

The I-F amplifier employes one triple-tuned and one double-tuned I-F transformers and under no condition should their trimmer condensers be readjusted just to determine if they are properly tuned. Fig. 5 shows the selectivity curve of a receiver whose I-F amplifier was slightly mis-tuned while Fig. 6 shows a curve made from actual measurements of a receiver which was properly aligned with the use of an oscilloscope. (See Note 3, next page).

1. Conventional Method—

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—Not Electrolytic—to P2 of the other Output Tube.

(b) Connect the output of the signal generator through a .02 mf. condenser, to the top cap of the 6K7 I-F Amp. tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the GND. terminal of the receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. Turn the volume control knob to the right (ON), turn the fidelity control knob to (NORMAL), and turn the Auto-Expressionator Control Switch to the left (NORMAL).

(d) Set the signal generator to 450 Kilocycles.

(e) Adjust the trimmer condensers on the top of the 2nd. I-F transformer for maximum output. Fig. 2 (Item 12).

ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(f) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 Osc.-Mod. tube, leaving the tube's grid clip in place.

(g) Close the middle trimmer condenser on the 1st. I-F transformer (Tert. Fig. 4) so that it is moderately tight. (DO NOT FORCE ADJUSTING SCREW).

(h) Adjust the top (Sec) and then the bottom (Pri) trimmers of the 1st I-F transformer for maximum output.

(i) Transfer the lead of the signal generator from the 6A8 tube to the "ANT" terminal of the receiver and increase the output of the signal generator if necessary.

(j) Check the adjustment of the bottom (Pri) trimmer of the 1st. I-F transformer. Then adjust the middle trimmer by opening until maximum output is obtained. DO NOT READJUST TOP OR BOTTOM TRIMMERS AFTER THE MIDDLE TRIMMER HAS BEEN ADJUSTED.

2. Oscilloscope Method—

(a) Connect the output of the signal generator through a .02 mf. condenser to the top cap 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 receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The binding post marked "GND" should be connected to the receiver chassis and the other binding post should be connected to the plate terminal of the 6C5 tube. (Fig. 1). (Be sure the oscilloscope is protected from D. C. by connecting a condenser, 0.1 to .05 mf., in series with the lead to the plate of the 6C5 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control to the right (ON), turn the fidelity control to the left (NORMAL) and turn the Auto-Expressionator switch to the left (NORMAL).

(d) Set the signal generator to 450 kilocycles. See Instructions supplied with signal generator and oscilloscope.

(e) Adjust the trimmer condensers located on top of the 2nd. I-F transformer for maximum amplitude and symmetry of the selectivity curve on the resonance line (R).

NOTE: Keep the signal generator output as low as possible in order to prevent AVC action in the receiver.

(f) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(g) Close the middle trimmer (TERT) of the 1st. I-F transformer so that it is moderately tight. (Do not force adjustment screw).

(h) Increase the output of the signal generator and adjust the top trimmer (Sec) of the 1st. I-F transformer for maximum symmetry and amplitude.

(i) Adjust the bottom trimmer (Pri) of the 1st. I-F transformer for maximum amplitude.

(j) Reduce the output of the signal generator and adjust the middle trimmer of the 1st. I-F transformer for maximum symmetry and amplitude.

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal of the receiver. For the BLUE and RED bands a .0002 mf. condenser must be 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 be shunt aligned and then series aligned, where provision is made for series alignment (BLUE band). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated (c) for each adjustment.

(a) Adjust the "Osc.," "R-F" (Fig. 4) and "Ant." (Fig. 2) 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 adjustments of the "R-F" and "Ant." trimmers in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 Kilocycles less than the fundamental frequency. 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 900 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 position.

(b) To align the B-C "OSC" series trimmer, Item 28, Fig. 4, set the signal generator to 600 Kilocycles and then tune-in this signal with the station selector for maximum output. While the series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output can be obtained.

(C) SIGNAL INPUT FREQUNCIES

		Shunt Aligned	Series Aligned
American Broadcast	(BLUE)	1700 Kc.	600 Kc.
Pol. & Amateur	(RED)	6000 Kc.	
High-Frequency	(GREEN)	18000 Kc.	

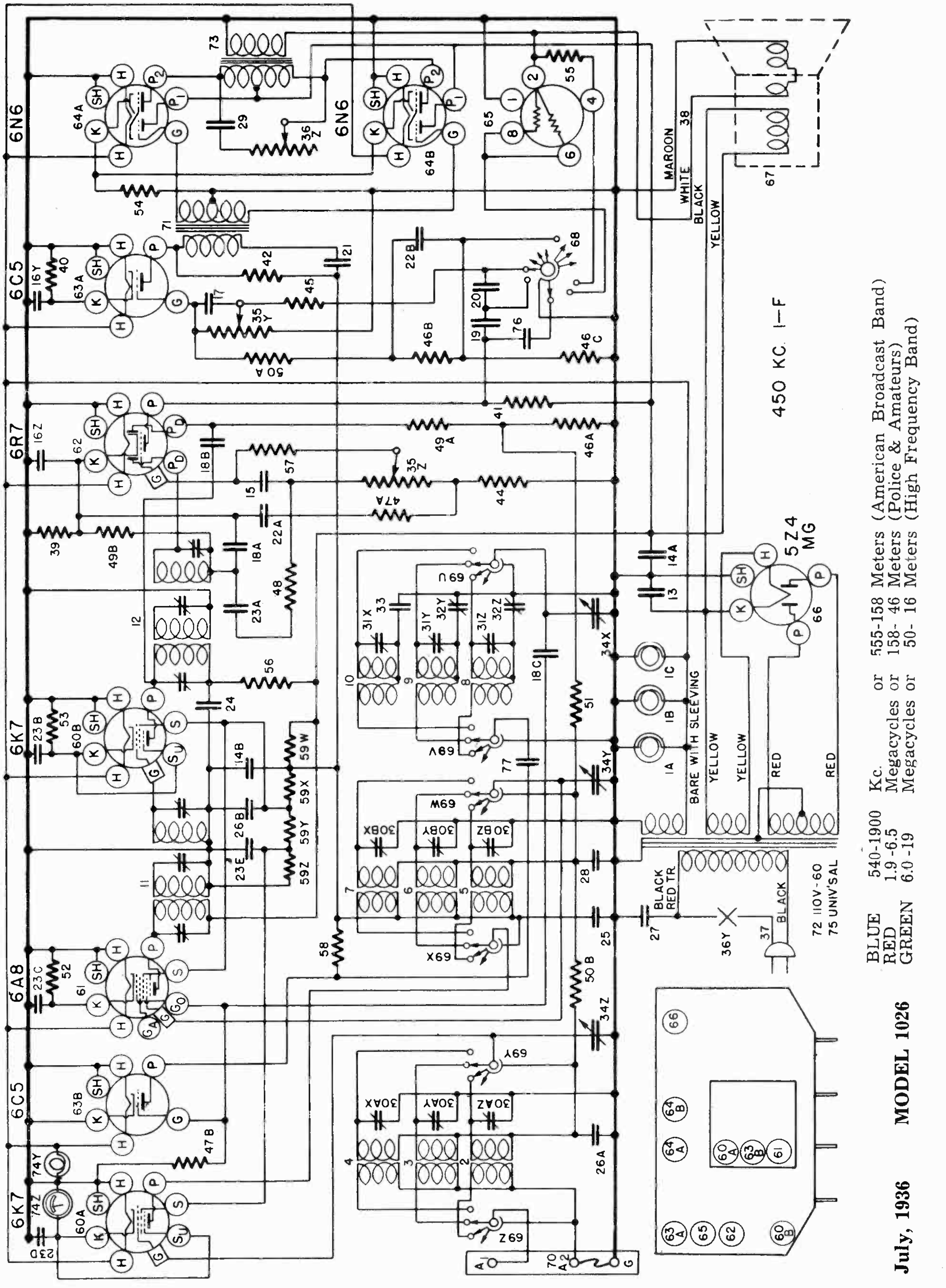
NOTE 3: The high frequency oscillator on this receiver is neutralized by the addition of some small capacity coupling between the oscillator grid and the R-F grid of the 6A8 tube. This is accomplished by loosely wrapping a piece of insulated hook-up wire around the R-F grid lug and connecting it to the oscillator grid lug on the band selector switch.

It is necessary on some sets to adjust or even remove his coupling, in which case the wire should be unwrapped and threaded through the extra hole in the grid end of the R-F coil.

Item No.	Part No.	Description
1ABCD	W —37922	Dial Light (bulb)
	G3 —37965	Light Socket Assembly
	W —40570	Dial Light Shield
2	G110—32000	Ant. Coil—B-C-B
3	G111—32000	Ant. Coil—Pol-B.
4	G112—32000	Ant. Coil—H-F-B.
5	G76 —32001	R-F. Coil—B-C-B.
6	G89 —32001	R-F. Coil—Pol-B.
7	G90 —32001	R-F. Coil—H-F-B.
8	G121—32002	Osc. Coil—B-C-B.
9	G115—32002	Osc. Coil—Pol-B.
10	G122—32002	Osc. Coil—H-F-B.
11	G112—32004	1st I-F Assembly
12	G114—32004	2nd I-F Assembly
13	G63 —24628	A-F Input Choke
14		None
15		None
16	W —36055	Condenser 35 Mfd. 400 V.
17	W —41080	Condenser 12 Mfd. 300 V.
18	W —41081	Condenser 16 Mfd. 250 V.
19	W —41598	Condenser 50 Mfd. 25 V.
20A	W —36541	Condenser, .02 Mfd. 160 V.
To 20G	W —36541	Condenser, .02 Mfd. 160 V.
21		None
22A	G2 —34002	Condenser, .0001 Mfd.
22B	G2 —34002	Condenser, .0001 Mfd.
22C	G2 —34002	Condenser, .0001 Mfd.
23		None
24	W —35936	Condenser, .05 Mfd. 200 V.
25	W —35139	Condenser, .004 Mfd. 400 V.
26		None
27	G20 —34000	Condenser, 4410 Mmfd.
28	—40769	Condenser, B-C. Osc. Series Trimmer
29	G7 —34000	Condenser, 1450 Mmfd.
30	G8 —34002	Condenser, .00001 Mfd.
31A	W —35758	Condenser, .008 Mfd. 400 V.
31B	W —35758	Condenser, .008 Mfd. 400 V.
32	W —37988	Condenser, .017 Mfd. 200 V.
33	W —28619	Condenser, .006 Mfd. 200 V.
34	W —23615	Condenser, .05 Mfd. 400 V.
35	W —32380	Condenser, .05 Mfd. 200 V.
36	W —29910A	Condenser, .25 Mfd. 200 V.
37	W —30805	Condenser, .01 Mfd. 400 V.
38	W —35951	Condenser, 3 Section Shunt Trim. Assy
39	G52 —33002	Condenser, 3 Section Var. Tuning
40	W —30488	Condenser, .02 Mfd. 400 V
41	G1 —34002	Condenser, .00025 Mfd.
42	B —33906	Power Cord & Plug
43A	—21237A	Resistor, 60,000 Ohm ¼W.
43B	—21237A	Resistor, 60,000 Ohm ¼W.
44A	W —28589	Resistor, 350 Ohm ½W. Flex.
44B	W —28589	Resistor, 350 Ohm ½W. Flex.
45	—36321	Resistor, 400,000 Ohm ¼W.
46	W —24537	Resistor, 60 Ohm ½W. Flex.
47A	—23403	Resistor, 150,000 Ohm ¼W.
47B		See Item 79
48Z	W —41484	Resistor, 1000 Ohms (Candohm)
48Y	W —41484	Resistor, 7000 Ohms (Candohm)
48X	W —41484	Resistor, 3,500 Ohms (Candohm)
48W	W —41484	Resistor, 15,000 Ohms (Candohm)
49	—35600	Resistor, 100,000 Ohm ¼W.
50	—37987	Resistor, 15,000 Ohm 1W.
51	—37245	Resistor, 1.5 Megohm ¼W.
52	—35930	Resistor, 200,000 Ohm ¼W.
53	—23785	Resistor, 500,000 Ohm ¼W.
54	—36319	Resistor, 75,000 Ohm ¼W.
55	—36952	Resistor, 30,000 Ohm 1W.
56	W —23013	Resistor, 2,000 Ohm 1¼W. Flex.
57	W — 6705	Resistor, 3,500 Ohm 1W.
58AB	G151—36400	Socket Type 6K7
59	G156—36400	Socket Type 6A8
60	G155—36400	Socket Type 6H6
61	G152—36400	Socket Type 6C5
62AB	G165—36400	Socket Type 6N6
63	G154—36400	Socket Type 5Z4
64	G167—36400	Socket Type Plain
65	636CJ4 "M"	Speaker "M" Spec. No. 1-D-641
	—42882	Cone Assy. (Spk. 636CJ4 "M")
	—40406	Field Coil (Spk. 636CJ4 "M")
66	G4 —37918	Speaker Cable
67	C —40910	Band Selector Switch
68	B —42295A	Fidelity & Line Switch
69	W —41486	Expressionator Switch
70	G27 —26719	Ant. & Gnd. Terminal Assembly
71		None
72	—41506	Power Transformer 110 V. 60 Cy.
	—41507	Power Transformer 110 V. 25 Cy.
75	G70 —24628	Output Transformer
77Y	W —41259	Tuning Meter Bulb
77Z	W —41464	Tuning Meter
78	—41301	Vol. Cont. 3 Megohm Tap at 1 Meg
79	W —41209	Condenser, .048 Mfd. 200 V.
80	—36317	Resistor, 10,000 Ohm ¼W.
	C —42045	Escutcheon
	—42013	Escutcheon Rubber
	C —42044	Dial Lens (Escutcheon Glass)
	D —30	Mtg. Screws (Escutcheon)
	W —40192B	Knob (Fidelity & Band Sel.) (2)
	W —37339	Knob (V. C. & Station Sel.)
	W —42490	Knob (Expressionator)

MODEL 1026
Schematic, Socket

CROSLEY RADIO CORP.



MODEL 1026
Parts

CROSLEY RADIO CORP.

SPECIFICATIONS

The Crosley Model 1026 radio is a ten-tube superheterodyne receiver and is available either with a standard 110 volt—60 cycle power transformer or with a universal power transformer.

The tubes used are 6K7 R-F Amplifier, 6A8 Modulator, 6C5 Oscillator, 6K7 I-F Amplifier, 6R7 Detector and 1st Audio Amplifier, 6C5 2nd Audio Amplifier, two 6N6 Output, 5Z4 Rectifier and the newly developed Auto-Expressionator or Volume Expander tube.

The tuning range of the receiver is from 540 to 19000 Kilocycles and is divided into threee bands

PARTS LIST—MODEL 1026

Item No.	Part No.	Description
1ABC	W —37922	Dial Light
	G3 —37965	Dial Light Socket
2	G94 —32000	Ant. Coil, B. C. B.
3	G95 —32000	Ant. Coil, Pol. B.
4	G113—32000	Ant. Coil, H. F. B.
5	G68 —32001	R. F. Coil, B. C. B.
6	G80 —32001	R. F. Coil, Pol. B.
7	G79 —32001	R. F. Coil, H. F. B.
8	G101—32002	Osc. Coil, B. C. B.
9	G102—32002	Osc. Coil, Pol. B.
10	G103—32002	Osc. Coil, H. F. B.
11	G90 —32004	1st I. F. Assembly
12	G91 —32004	2nd I. F. Assembly
13	W —36055	Condenser 35 Mfd. 400 V. Electrolytic
14A	W —36057	Condenser 40 Mfd. 300 V. Electrolytic
14B	W —36057	Condenser 40 Mfd. 300 V. Electrolytic
15	G8 —34002	Condenser, .00001 Mfd. (Molded)
16Z, 16Y	W —37778	Condenser, 12. Mfd. 25 V. Electrolytic
17	G6 —34002	Condenser, .000025 Mfd. (Molded)
18A	G2 —34002	Condenser, .0001 Mfd. (Molded)
18B	G2 —34002	Condenser, .0001 Mfd. (Molded)
18C	G2 —34002	Condenser, .0001 Mfd. (Molded)
19	W —32780B	Condenser, .05 Mfd. 400 V.
20	G3 —34002	Condenser, .0005 Mfd. (Molded)
21	W —37732	Condenser, .3 Mfd. 160 V.
22A	W —31219	Condenser, .023 Mfd. 200 V.
22B	W —31219	Condenser, .023 Mfd. 200 V.
23A	W —36541	Condenser, .02 Mfd. 160 V.
23A to 23E	W —36541	Condenser, .02 Mfd. 160 V.
24	W —30488	Condenser, .02 Mfd. 400 V.
25	W —32378	Condenser, .01 Mfd. 400 V.
26A	W —35936	Condenser, .05 Mfd. 200 V.
26B	W —35936	Condenser, .05 Mfd. 200 V.
27	W —30805	Condenser, .01 Mfd. 400 V.
28	W —32380	Condenser, .05 Mfd. 200 V.
29	W —23615	Condenser, .05 Mfd. 400 V.
30	W —37891	3 Section Shunt Trimmer Assembly
31	W —35951	3 Section Shunt Trimmer Assembly
32Z, 32Y	W —37874	B. C. Osc. Series Trimmer Cond. Pol. Osc. Series Trimmer Cond.
33	G18 —34000	H. F. Fixed Series Condenser
34	G47 —33002	3 Section Var. Tuning Cond.
	MG54—41214	Dial Drive Complete
	—41153	Drive Unit (only)
	C —41148	Dial—Calibrated Glass
	—41136	Dial Paper Mask
	—40485	Long Hand
	—41145	Short Hand
	W —40486	Hand Mtg. Screw
	—40537	Coupling Unit
	—41157	Belt (Drive)
	—40638	Indicator Cable
35Z, 35Y	—41417	Volume Control 1st A. F. 3 Meg. Volume Control 2nd A. F. 1 Meg.
36Z, 36Y	—37966	Tone Control — 80000 OHMS A. C. Switch
37	B —33906A	Power Cord & Plug

Item No.	Part No.	Description
38	G3 —37918	Speaker Cable
39	—31093	Resistor, 2,700 Ohm ¼ W.
40	W —21452	Resistor, 1,100 Ohm ½ W. Flex.
41	—37768	Resistor, 65,000 Ohm ½ W.
42	— 5370A	Resistor, 20,000 Ohm 1 W.
43	None	
44	—21454	Resistor, 1 Megohm ¼ W.
45	—21455	Resistor, 300,000 Ohm ¼ W.
46A	—23785	Resistor, 500,000 Ohm ¼ W.
46B	—23785	Resistor, 500,000 Ohm ¼ W.
46C	—23785	Resistor, 500,000 Ohm ¼ W.
47A	—21453	Resistor, 40,000 Ohm ¼ W.
47B	—21453	Resistor, 40,000 Ohm ¼ W.
48	—23403	Resistor, 150,000 Ohm ¼ W.
49A	—33344	Resistor, 400,000 Ohm ¼ W.
49B	—33344	Resistor, 400,000 Ohm ¼ W.
50A	—35600	Resistor, 100,000 Ohm ¼ W.
50B	—35600	Resistor, 100,000 Ohm ¼ W.
51	-37245	Resistor, 1.5 Megohm ¼ W.
52	W —28589	Resistor, 350 Ohm ½ W. Flex.
53	W —28106	Resistor, 500 Ohm ½ W. Flex.
54	W —23012A	Resistor, 40 Ohm ¾ W. Flex.
55	W —41193	Resistor, 1. Ohm 2½ W. Flex.
56	W —23013	Resistor, 2,000 Ohm 1¼ W. Flex.
57	—21273A	Resistor, 60,000 Ohm ¼ W.
58	W —37987	Resistor, 15,000 Ohm 1. W. Wire Wound
59	W —41225	4 Section Candohm
60A	G151—36400	Socket Type 6K7
60B	G151—36400	Socket Type 6K7
61	G156—36400	Socket Type 6A8
62	G164—36400	Socket Type 6R7
63A	G152—36400	Socket Type 6C5
63B	G152—36400	Socket Type 6C5
64A	G165—36400	Socket Type 6N6
64B	G165—36400	Socket Type 6N6
65	G167—36400	Socket Type 2C2
66	G154—36400	Socket Type 5Z4
67	—40193	Speaker, Type 633CJ4 "M"
	—40701	Cone Assembly for 40193
	—40702	Field Coil for 40193
68	W —41446	Switch Multivox Control
69	C —37958E	Switch Band Slector
70	G27 —26719	Ant. & Grd. Terminal Board Assembly
71	G1 —37995	Audio Input Transformer
72	G43 —25669	Power Supply Transformer (110V.60Cy.)
73	G48 —24628	Audio Output Transformer
74Z, 74Y	W —41259	Tuning Meter Tuning Meter Bulb
75	—37685A	Universal Power Tranxformer
76	W —41445	Condenser, .036 Mfd. 400 V.
77	W —34647	Condenser, .006 Mfd. 400 V.
	C —37894	Escutcheon
	B —37876A	Escutcheon Ret. Spring
	B —37898	Dial Lens (Escutcheon Glass)
	B —37897	Lens Retaining Spring
	W —40365	Escutcheon Felt
	W —37339	Knob (3 required)
	W —40192B	Knob (2 required)
	W —40230A	Emblem (Crosley Shield)

MODEL 1026
Socket, Trimmers
Voltage, Chassis
Resonance Curves
Phono Pickup

CROSLEY RADIO CORP.

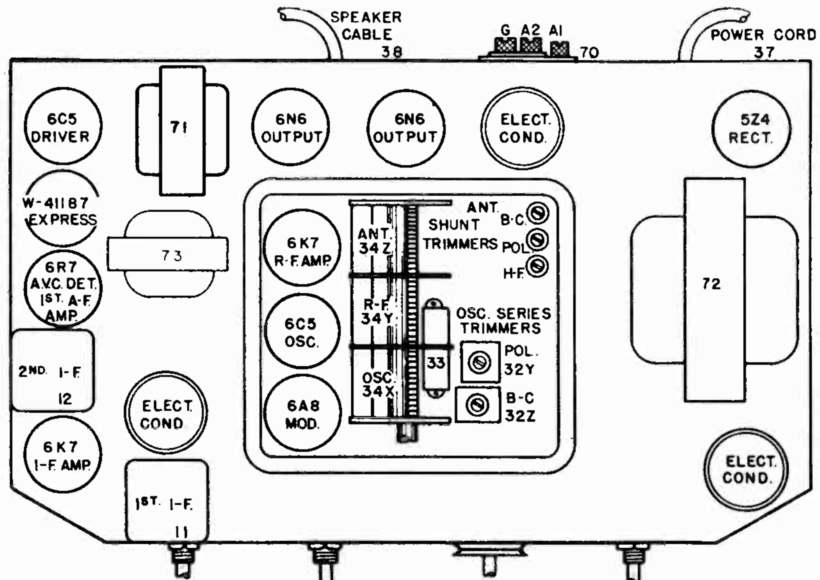


Fig. 2. Top View 1026

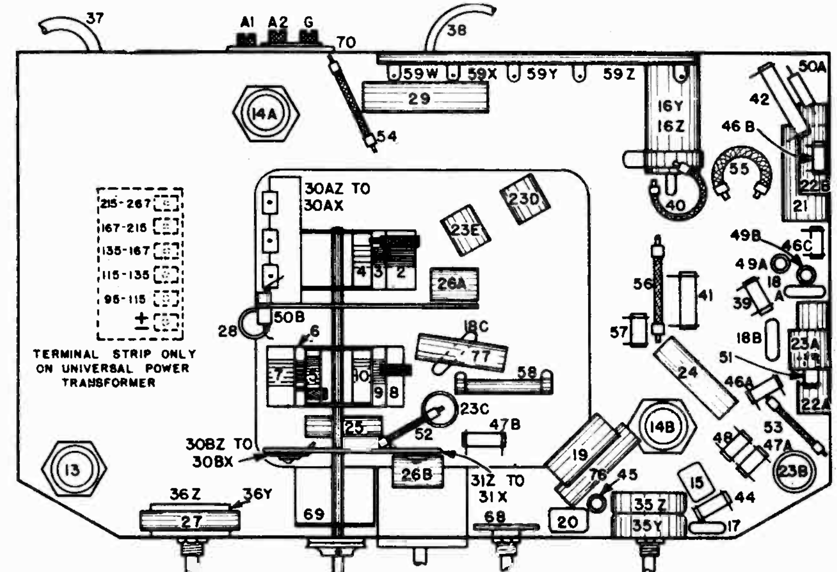


Fig. 3. Bottom View 1026

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P	P_2	S	Su	G	K	Ga
6K7	R-F Amplifier	6.3	221	—	98	4	0	4	—
6A8	Modulator	6.3	221	—	138	—	0	4.5	4.5
6C5	Oscillator	6.3	140	—	—	—	—	0	—
6K7	I-F Amplifier	6.3	260	—	138	5	0	5	—
6R7	Detector & 1st A-F Amplifier	6.3	130	—	—	—	0	6.5	—
6C5	2nd A-F Amplifier	6.3	150	—	—	—	0	6.5	—
6N6	(2) Output	6.3	278	285	—	—	0	3.2	—
5Z4	Rectifier	4.5	357	—	—	—	—	—	—
Auto-Expressionator Tube (W41187)				Varies with power output.					

Voltage drop across speaker field 72 Volts.
Power Output approximately 9 Watts.

Power Consumption approximately 117 Watts.
All readings taken on 117.5 volt power supply.

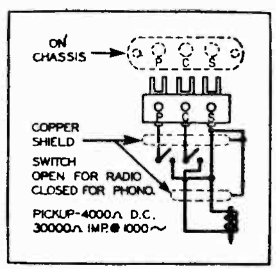


Fig. 7. Phonograph Pickup

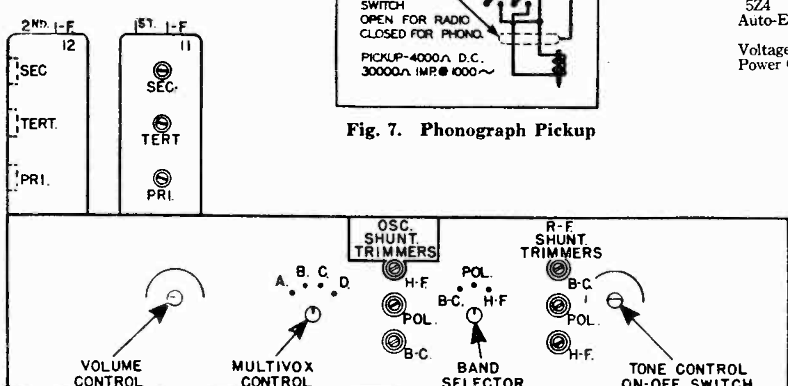


Fig. 4. Front View 1026

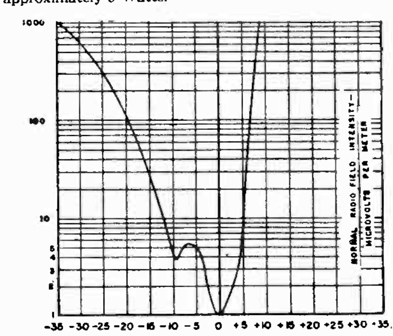


Fig. 5

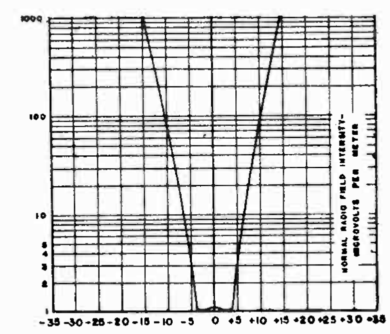


Fig. 6

MODEL 1026
Alignment
Notes

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

This is a High Fidelity receiver and in order to secure maximum performance the alignment of its circuits should be done with precision instruments.

Tuning I-F Amplifier to 450 Kilocycles

The I-F amplifier employs two triple-tuned I-F transformers and under no condition should their trimmer condensers be readjusted just to determine if they are properly tuned. Fig. 5 shows the selectivity curve of a receiver whose I-F amplifier was slightly mis-tuned while Fig. 6 shows a curve made from actual measurements of a receiver which was properly aligned with the use of an oscilloscope.

I. Conventional Method—

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—not electrolytic—to P2 of the other 6N6 Output tube.

(b) Connect the output of the signal generator through a .02 mf. condenser to the top cap 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 "GND" terminal of the receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. Turn the volume control knob to the right (ON), turn the tone control knob to the left (TREBLE) and turn the Multivox control knob to the Auditorium Position (Third position in the clockwise direction).

(d) Set the signal generator to 450 kilocycles.

(e) Close the middle trimmer condenser on the 2nd. I-F transformer (Tert. Fig. 4) so that it is moderately tight. (Do not force the adjustment screw).

(f) Adjust the top trimmer and then the bottom trimmer (Sec. & Pri) of the 2nd. I-F transformer for maximum output. ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 Modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns from the closed position. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Adjust the top trimmer and then the bottom trimmer of the 1st I-F transformer for maximum output.

(j) Transfer the output lead of the signal generator from the 6A8 tube to the "ANT" terminal of the receiver and increase the output of the signal generator, if necessary.

(k) Adjust the middle trimmer of the 2nd. I-F transformer by opening until maximum output is obtained. DO NOT READJUST THE TOP AND BOTTOM TRIMMERS.

(l) Adjust the middle trimmer of the 1st I-F transformer by closing until maximum output is obtained. DO NOT READJUST TOP AND BOTTOM TRIMMERS.

II. Oscilloscope Method.

(a) Connect the output of the signal generator through a .02 mf. condenser to the top cap 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 receiver chassis. KEEP THE GENERATOR OUTPUT LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The binding post marked "GND" should be connected to the receiver chassis and the other binding post should be connected to the terminal marked "P" of the 6R7 tube. (Be sure the oscilloscope is protected from D. C. by connecting a condenser, .1 to .05 mf., in series with the lead connected to the plate of the 6R7 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control knob to the right (ON), turn the tone control knob to the left (TREBLE) and turn the Multivox control knob to the Auditorium Position (Third position in the clockwise direction).

(d) Set the signal generator to 450 kilocycles. See Instructions supplied with signal generator and oscilloscope.

(e) Close the middle trimmer condenser on the 2nd. I-F transformer (Tert. Fig. 4) so that it is moderately tight. (Do not force adjustment screw).

(f) Adjust the top trimmer (Sec) of the 2nd. I-F transformer so that the nose of the selectivity curves is centered on the resonance axis (R) of the transparent scale supplied with the oscilloscope.

(g) Adjust the bottom trimmer (Pri) of the 2nd. I-F transformer for maximum amplitude of the selectivity curve on resonance line (R).

(h) Reduce the output of the signal generator and adjust the middle trimmer of the 2nd. I-F transformer for maximum amplitude and symmetry of the selectivity curve about the resonance line.

NOTE: Keep the base of the selectivity curve centered on the transparent scale from —15 to +15 and keep the signal generator output as low as possible in order to prevent AVC action in the receiver.

(i) Readjust the bottom trimmer of the 2nd. I-F transformer for maximum symmetry and amplitude.

(j) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 Modulator tube, leaving the tube's grid clip in place.

(k) Open the middle trimmer of the 1st. I-F transformer three or four turns from the closed position. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(l) Increase the output of the signal generator and adjust the top trimmer (Sec) of the 1st. I-F transformer for maximum symmetry and amplitude.

(m) Adjust the bottom trimmer of the 1st I-F transformer for maximum amplitude.

(n) Reduce the output of the signal generator and adjust the middle trimmer of the 1st. I-F transformer for maximum symmetry and amplitude.

(o) Carefully repeat operations (h), (i) and (n) for more accurate adjustments.

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal of the receiver. For the BLUE and RED bands a .00025 mfd. condenser must 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 (BLUE and RED bands). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated (c) for each adjustment.

(a) Adjust the "OSC", "R-F" 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 adjustments of the "R-F" and "ANT" trimmers in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 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 900 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 position.

(b) To align the series trimmers, 32Y and 32Z Fig. 2, set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. At the time that any series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output can be obtained.

(c) Signal Input Frequencies:

American Broadcast Band (BLUE)
Police Band (RED)
High-Frequency Band (GREEN)

	Shunt Aligned	Series Aligned
(BLUE)	1700 Kc.	600 Kc.
(RED)	6000 Kc.	2000 Kc.
(GREEN)	18000 Kc.	....

UNIVERSAL POWER TRANSFORMER

The Model 1026 chassis for use on other than 110 volts—60 cycles, is supplied with a universal power transformer designed to operate on a power supply of from 95 to 267 volts and any commercial frequency of 25 cycles or above. To adapt the set to a different line voltage it is necessary to remove the chassis from the cabinet, remove the bottom from the chassis, locate the terminal strip on the bottom of the power transformer and locate the wire leading from the power switch to the terminal strip. After careful measurement of the maximum values of line voltage, unsolder the wire described above, from the lug on the terminal strip and solder it to the correct lug. The correct lug will be the one marked so as to cover or nearly cover the maximum line voltage. THE MAXIMUM LINE VOLTAGE SHOULD NOT EXCEED THE HIGHEST VOLTAGE STAMPED ON THE TERMINAL STRIP BESIDE THE LUG TO BE USED BY MORE THAN 3%.

AUTO-EXPRESSIONATOR

The Auto-Expressionator tube, Illustration No. 65, is connected across the voice coil of the speaker. When it is operating its resistance varies so as to increase the volume of loud tones, thus giving a wider volume range to reproduced music which tends to compensate for the electrical limitations of broadcasting equipment.

PHONOGRAPH PICKUP

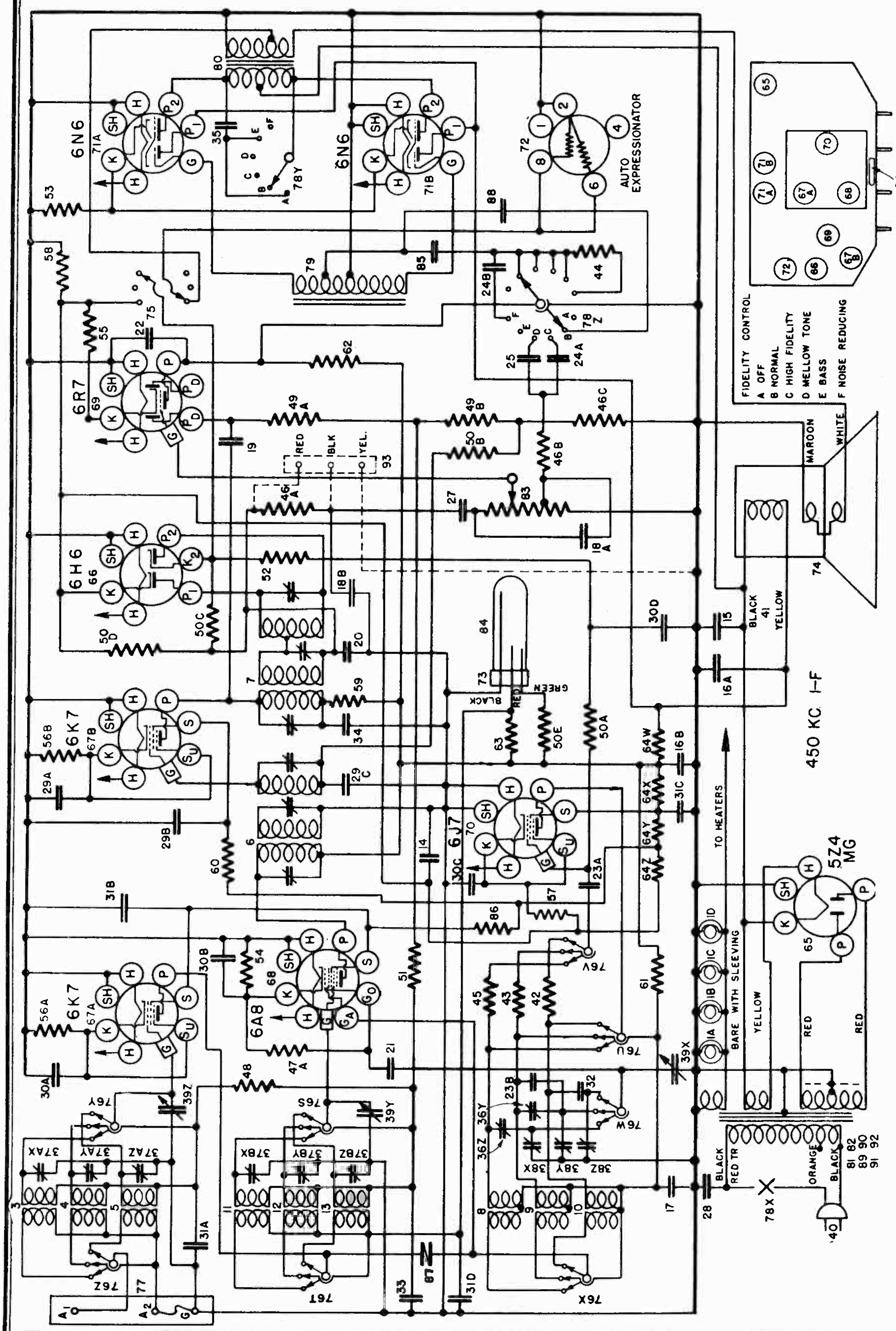
Chasses equipped with a universal power transformer also have three terminals on the back for connecting a phonograph pickup. These terminals are marked P C S and the pickup is connected through a double pole—single throw switch to these terminals as shown in Fig. 7.

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 filament voltages should be measured with an accurate low range A.-C. voltmeter. Readings may vary plus or minus 10% of values given.

MODEL 1126
Schematic
Socket, Notes

CROSLEY RADIO CORP.



CHASSIS MODEL 1126

Shunt Alignment	Series Alignment
1,400 Kilocycles	600 Kilocycles
5,000 Kilocycles	2000 Kilocycles
18,000 Kilocycles	

SALES MODEL 1199

Oct., 1936

(c) SIGNAL INPUT FREQUENCIES

BLUE 540-1725 Kc. or 555-173 Meters (Amer American Broadcast Band (BLUE)
RED 1.8- 5.5 Megacycles or 170-55 Meters Police and Amateur Band (RED)
GREEN 5.6- 18.1 Megacycles or 54-16.5 Meters High Frequency Band (GREEN)

MODEL 1126
Parts, Notes

CROSLEY RADIO CORP.

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 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.

Item No.	Part No.	Description
1ABCD	W —37922	Dial Light Bulb, 6.3V.
	G3 —37965	Socket, Dial Light
	W —40570	Shield, Dial Light
2	W —41187	Expressionator Tube
3	G94 —32000	Antenna Coil—B. C. B.
4	G108—32000	Antenna Coil—Pol. B.
5	G107—32000	Antenna Coil—H. F. B.
6	G90 —32004	1st I-F Assembly
7	G126—32004	2nd I-F Assembly
8	G97 —32002	Osc. Coil—B. C. B.
9	G96 —32002	Osc. Coil—Pol. B.
10	G95 —32002	Osc. Coil—H. F. B.
11	G68 —32001	R-F Coil—B. C. B.
12	G75 —32001	R-F Coil—Pol. B.
13	G74 —32001	R-F Coil—H. F. B.
14	W —41598	Condenser, 50 Mf. 25V. (Elect.)
15	W —36055	Condenser, 35 Mf. 400V. (Elect.)
16A	W —42386	Condenser, 20 Mf. 300V. (Elect.)
16B	W —42386	Condenser, 20 Mf. 300V. (Elect.)
17	G18 —34000	Condenser, 5600 Mmf. H-F Osc. Series
18A	G5 —34002	Condenser, .00005 Mf. Mica 200V.
18B	G5 —34002	Condenser, .00005 Mf. Mica 200V.
19	G10 —34002	Condenser, .00005 Mf. Mica 300V.
20	G2 —34002	Condenser, .0001 Mf. Mica 200V.
21	G6 —34002	Condenser, .000025 Mf. Mica 200V.
22	G1 —34005	Condenser, .00025 Mf. Mica 300V.
23A	G3 —34002	Condenser, .0005 Mf. Mica 200V.
23B	G3 —34002	Condenser, .0005 Mf. Mica 200V.
24A	W —35758	Condenser, .008 Mf. 400V.
24B	W —35758	Condenser, .008 Mf. 400V.
25	W —41461	Condenser, .0014 Mf. 200V.
26		None
27	W —28621	Condenser, .02 Mf. 200V.
28	W —30805	Condenser, .01 Mf. 400V.
29A	W —27216	Condenser, .05 Mf. 200V.
29B	W —27216	Condenser, .05 Mf. 200V.
29C	W —27216	Condenser, .05 Mf. 200V.
30A to 30D	W —36541	Condenser, .02 Mf. 160V.
	W —36541	Condenser, .02 Mf. 160V.
31A to 31D	W —35936	Condenser, .05 Mf. 200V.
	W —35936	Condenser, .05 Mf. 200V.
32	W —41209	Condenser, .048 Mf. 200V.
33	W —32380	Condenser, .05 Mf. 200V.
34	W —32780B	Condenser, .05 Mf. 400V.
35	W —22688	Condenser, .1 Mf. 400V.
36	W —41218	Trimmer Cond. B.C. & Pol. Osc.Ser.
37A	W —37891	Trimmer Cond. 3 Sect. Shunt.
37B	W —37891	Trimmer Cond. 3 Sect. Shunt
38	W —35951	Trimmer Cond. 3 Sect. Shunt
39	G47 —33002	Cond. Gang—3 Sect. Var. Tuning
	MG12 —42411	Dial Drive Assembly
	C —42421	Dial Glass (Calibrated)
	—42598A	Dial Mask (Paper Backing)
	—42325B	Dial Drive Unit (only)
	W —41144	Dial Hand—Long
	W —42180	Dial Hand—Short
	W —40486	Screw—Hand Mtg.
	E —13647	Mystic Hand, etc., Flipper (L. H.)
	E —13648	Fidelity, etc., Flipper (R. H.)
	W —42308	Flipper Pulley (2)
	W —37909A	Band Indi. Pulley
	—43081	L. H. Flipper Control Cable
	—43080	R. H. Flipper Control Cable
	—40638	Band Indicator Control Cable
	—41157	Drive Belt
	—40537	Drive Flexible Coupling
40	B —33906A	Power Cord & Plug
41	G2 —37918	Speaker Cable
42	—36760	Resistor, 20,000 Ohm. ¼W.
43	—33390	Resistor, 30,000 Ohm. ¼W.
44	—21453	Resistor, 40,000 Ohm. ¼W.

Item No.	Part No.	Description
45	—34019	Resistor, 75,000 Ohm. ¼W.
46ABC	—35600	Resistor, 100,000 Ohm. ¼W.
47A	—35930	Resistor, 200,000 Ohm. ¼W.
48	—35601	Resistor, 300,000 Ohm. ¼W.
49AB	—36321	Resistor, 400,000 Ohm. ¼W.
50A to 50E	—36322	Resistor, 500,000 Ohm. ¼W.
	—36322	Resistor, 500,000 Ohm. ¼W.
51	—21454	Resistor, 1 Megohm. ¼W.
52	—36688	Resistor, 3 Megohm. ¼W.
53	W —32961	Resistor, 100 Ohm. 3W. Flex.
54	W —25937	Resistor, 275 Ohm. ½W. Flex.
55	W —34900	Resistor, 68 Ohm. ¾W. Flex.
56AB	W —28589	Resistor, 350 Ohm. ½W. Flex.
57	—24814	Resistor, 7,000 Ohm. ¼W. Carbon
58	W —42518	Resistor, 150 Ohm. ½W. Flex.
59	W —21452	Resistor, 1,100 Ohm. ¾W. Flex.
60	W —27503	Resistor, 1,400 Ohm. ¾W. Flex.
61	— 4921	Resistor, 10,000 Ohm. 1W. Carbon
62	—36952	Resistor, 30,000 Ohm. 1W. Carbon
63	W —42516	Resistor, 20,000 Ohm. 1W. W. W.
64Z	W —41966	4,000 Ohm. Candohm
64Y		1,000 Ohm.
64X		3,000 Ohm.
64W		200 Ohm.
65	G154—36400	Socket Type 5Z4
66	G155—36400	Socket Type 6H6
67AB	G151—36400	Socket Type 6K7
68	G156—36400	Socket Type 6A8
69	G164—36400	Socket Type 6R7
70	G157—36400	Socket Type 6J7
71AB	G165—36400	Socket Type 6N6
72	G167—36400	Socket Type Expressionator
73	G2 —42584	Socket Neon Tube
74	649CJ4 "M"	Speaker Spec. 1-D-668
	—40701	Cone Assy. for above Speaker
	—40699	Field Coil for above Speaker
	634CJ4 "M"	Speaker Spec. 1-D-244
	—40268	Cone Assy. for above Speaker
	—40272	Field Coil for above Speaker
75	W —41029B	Phantom Control Switch
76	C —41235A	Band Sel. Switch
77	G27 —26719	Ant. & Gnd. Terminal Assy.
78	B —42295A	Fidelity & Line Switch
79	G64 —24628	Choke, Audio Input
80	G60 —24628	Output Transformer
81	—42557	Power Trans. 60 Cy. 110V.
	—43088	Power Trans. 50 Cy. 110V.
	—43089	Power Trans. 50 Cy. 220V.
	—43008	Power Trans. 25 Cy. 110V.
	—43170	Power Trans. 25 Cy. 220V.
82		None
83	—41301	Vol. Cont. 3 Meg. Tap 1 Meg.
84	W —42419A	Neon Tube
	W —42589	Tube Cover
	—42592	Cover Gasket
85	W —42554	Condenser .12 Mf. 160V.
86	— 6705	Resistor, 3,500 Ohm. 1W.
87	G101—34403	R-F Neutralizer Assembly
88	W —43091	Condenser .07 Mf. 160V.
	G37 —26719	Phono Terminal Assembly
	C —43134	Escutcheon
	—42043	Escutcheon Rubber Strip
	C —42044	Escutcheon Lens
	D — 30	Mtg. Screws, Escutcheon
	W —37339	Knob, V. C. & Sta. Sel.
	W —40192	Knob, Bd. Sel. & Phantom Cont.
	W —42490	Knob, Fidelity Cont.
	W —36117	Rubber Mtg. Foot
	W —40230B	Emblem
	W —32620	Nut, Emblem Mtg.
	—6-W	Cabinet

MODEL 1126
Socket, Trimmers
Voltage, Data
Resonance Curves
Phono Pickup

CROSLEY RADIO CORP.

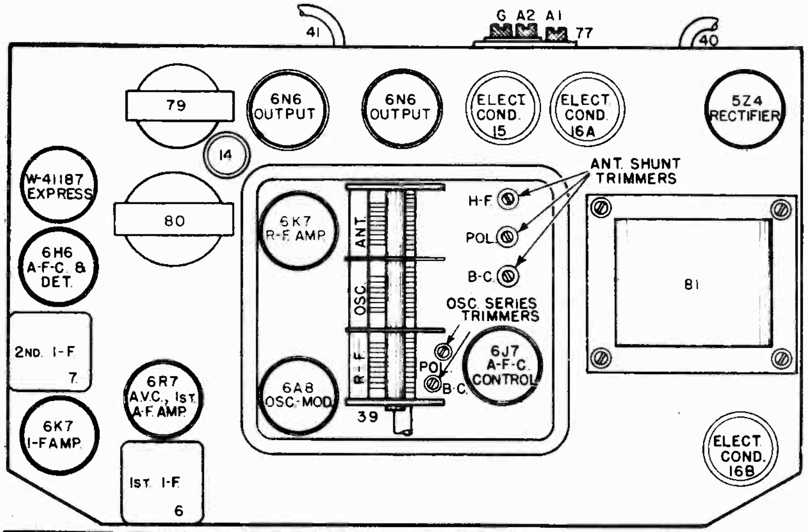


Fig. 2 Top View—1126

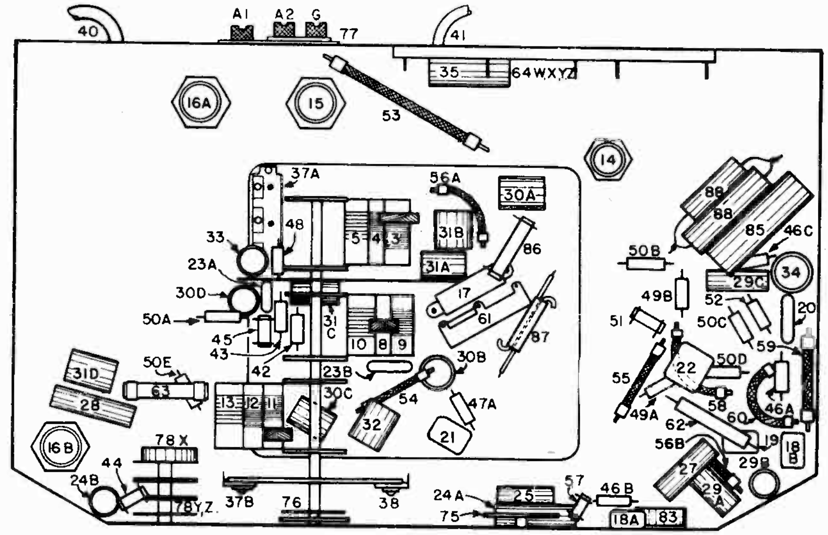


Fig. 3 Bottom View—1126

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P1	P2	S	Su	K	Ga	Go
6K7	R-F Amplifier	6.3	80	—	105	3.5	3.5	—	—
6A8	Oscillator-Modulator	6.3	235	—	105	—	3	150	−4 to −12
6J7	AFC Control	6.3	150	—	137	10.7	10.7	—	—
6K7	I-F Amplifier	6.3	228	—	104	3.4	3.4	—	—
6H6	AFC Diode	6.3	—	—	—	—	4.2	—	—
6R7	A-F Amplifier	6.3	150	—	—	—	6.0	—	—
6N6	(2) Output	6.3	235	345	—	—	5.2	—	—
5Z4	Rectifier	5.0	—	—	—	—	345	—	—
W42419A	Neon Tuning Tube	—	155	80	—	—	—	—	—
W41187	Auto-Expressionator Tube			Varies with power output					

Voltage drop across speaker field 110 volts.
Power output approximately 15 watts.

Power consumption approximately 123 watts.
All readings taken on 117.5 volt power supply.

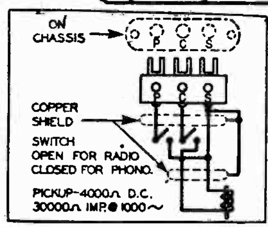
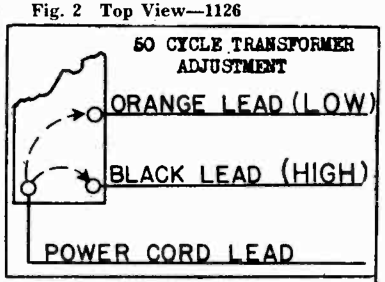


Fig. 7. Phonograph Pickup



AUTO-EXPRESIONATOR

The Auto-Expressionator tube, item No. 72, Fig. 1, is connected across the voice coil of the speaker. When it is operating its resistence varies so as to increase the volume of loud tones, thus giving a wider volume range to reproduced music, which tends to compensate for the electrical limitations of broadcasting equipment.

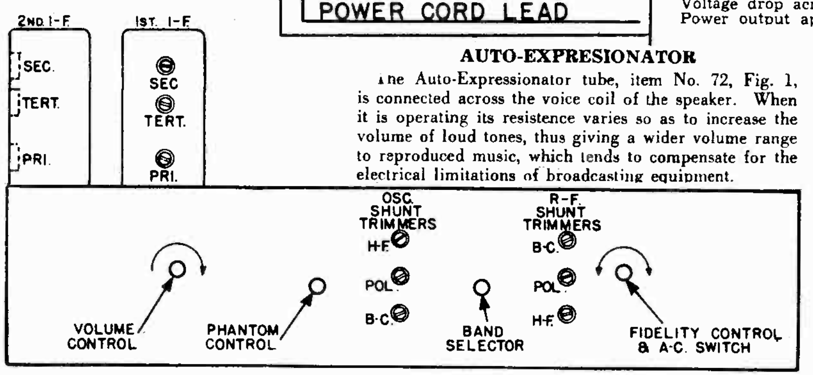


Fig. 4 Front View—1126

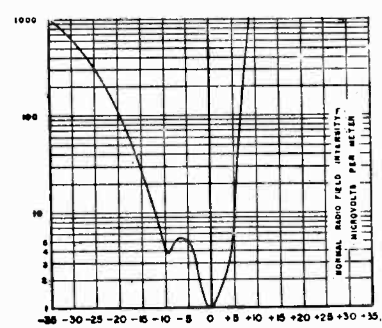


Fig. 5

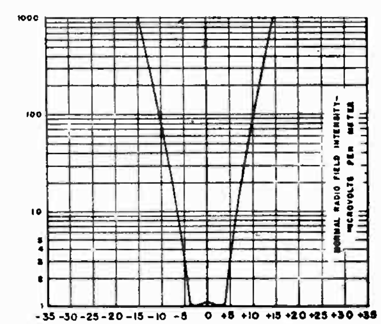


Fig. 6

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

This model receiver should be turned on and allowed to "warm-up" for about 15 minutes before aligning its circuits.

It is a High Fidelity receiver and in order to secure maximum performance the alignment should be done with precision instruments. The alignment condensers should not be readjusted just to determine if they are properly tuned. Fig. 5, shows the selectivity curve of a receiver whose I-F amplifier was slightly mistuned while Fig. 6, shows a curve made from actual measurements of a receiver employing a triple-tuned I-F amplifier which was properly aligned with the use of a FREQUENCY MODULATED R-F signal generator and an oscilloscope.

The alignment of the AFC circuit may be checked by means of a modulated signal generator and output meter as follows:

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—not electrolytic—to P2 of the other 6N6 Output tube.

(b) Connect the output of the signal generator through a .00025 mf. condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver chassis.

(c) Rotate the Phantom Control to the left-hand position (NORMAL).

(d) Adjust the frequency of the signal generator in the region of 450 kilocycles for maximum reading on the output meter.

(e) Without altering the connections or adjustments of the signal generator or output meter connect an antenna to the antenna terminal "A1" and tune-in a local broadcasting station. Turn off modulation of signal generator. Adjust station selector slightly for zero beat.

(f) Rotate the Phantom Control to the Mystic Hand position and listen to the beat note. If the note is less than 200 cycles, or the equivalent of some tone below middle C on the piano, the AFC alignment is satisfactory.

(g) If the beat note is higher than middle C realignment is necessary.

(h) In cases where the beat note is not more than about two octaves above middle C or from 1000 to 1500 cycles the AFC circuit may be aligned for zero beat by making a slight adjustment of the top trimmer condenser on the 2nd I-F transformer. This circuit is very critical and a slight adjustment will produce a great change in the beat note.

(i) Where the AFC is considerably out of alignment as evidenced by a beat note of higher than 1500 cycles the standard alignment procedure outlined below should be followed.

TUNING I-F AMPLIFIER

I. Conventional Method.

(a) Connect the output meter as outlined above in (a)

(b) Check the 6J7 cathode bias which should be approximately 6.5 volts with no signal applied.

(c) Connect the output of the signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. Connect the ground lead of the signal generator to the "GND" terminal of the receiver chassis.

(d) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control all the way to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(e) Set the signal generator to 450 kilocycles.

(f) Adjust the middle trimmer and then the bottom trimmer of the 2nd I-F transformer for maximum reading on the output meter. Caution: do not attempt to adjust the top trimmer at this time. ALWAYS USE THE LOWEST GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Adjust the top trimmer and then the bottom trimmer of the 1st I-F transformer for maximum reading on the output meter.

(j) Adjust the middle trimmer of the 1st I-F transformer by closing until maximum reading is obtained on the output meter.

(k) Transfer the output lead of the signal generator from the 6A8 tube to the antenna terminal "A1" of the receiver and recheck the adjustment of the bottom trimmer of the 1st IF transformer.

(l) To adjust the AFC system it will be necessary to transfer the output lead of the signal generator back to the top cap of the 6K7 I-F amplifier tube. The .02 mf. condenser should still be connected in series with this lead.

(m) Insert a 0-5 milliammeter in series with the cathode circuit of the 6J7 tube and with a strong 450 kilocycle signal from the signal generator, the reading of the cathode current should be recorded.

(n) Turn the Phantom Control to the MYSTIC HAND position and without changing the output of the signal generator, adjust the top trimmer condenser of the 2nd I-F transformer so that the reading of the 0-5 milliammeter is the same as was recorded with the Phantom Control in the NORMAL position. This value of current will be obtained with the trimmer closed, with the trimmer open and at some intermediate position. A very slight adjustment while in the intermediate position will cause the meter to read from 0 to 1.5 milliamperes. This is the setting that should be used. An insulated screw driver should be used in adjusting the AFC trimmer condenser.

(o) As a final check on the AFC adjustment, disconnect the test equipment and tune-in a fairly weak broadcast station in the region of 1500 kilocycles. Turn the AFC "ON" and "OFF." If reception is the same in both positions and will automaticaly tune-in strong stations within approximately plus or minus 10 kilocycles of the station selector setting with AFC "ON," the AFC is properly aligned. If distortion is noted and the receiver will not automatically tune-in stations as described, the AFC alignment should be rechecked.

II. Oscilloscope Method.

(a) Connect the output of a FREQUENCY MODULATED R-F signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. KEEP THE GENERATOR LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The "High" side should be connected to the plate of the 6R7 tube and the "low" side should be connected to the receiver chassis. (Be sure the oscilloscope is protected from D.C. by connecting a condenser, .1 mf. to .05 mf., in series with the lead of the 6R7 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(d) Set the signal generator to 450 kilocycles. See instructions supplied with signal generator and oscilloscope.

(e) Adjust the middle trimmer of the 2nd I-F transformer so that the nose of the selectivity curve is centered on the resonance axis (R) of the transparent scale supplied with the oscilloscope.

(f) Adjust the bottom trimmer of the 2nd I-F transformer for maximum amplitude of the selectivity curve on resonance axis (R).

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Increase the output of the signal generator and adjust the top trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(j) Adjust the bottom trimmer of the 1st I-F transformer for maximum amplitude.

(k) Reduce the output of the signal generator and adjust the middle trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(l) Carefully repeat operations (f) and (k) for more accurate adjustments.

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal "A1" of the receiver. For the BLUE and RED bands a .00025 mf. condenser must 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 (BLUE and RED bands). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated in "C" below for each adjustment.

(a) Adjust the "OSC", "R-F" 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 in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 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 900 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 position.

(b) To align the series trimmers, 39Z and 39Y—Fig. 2, set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. At the time that any series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output is obtained.

PHANTOM CONTROL

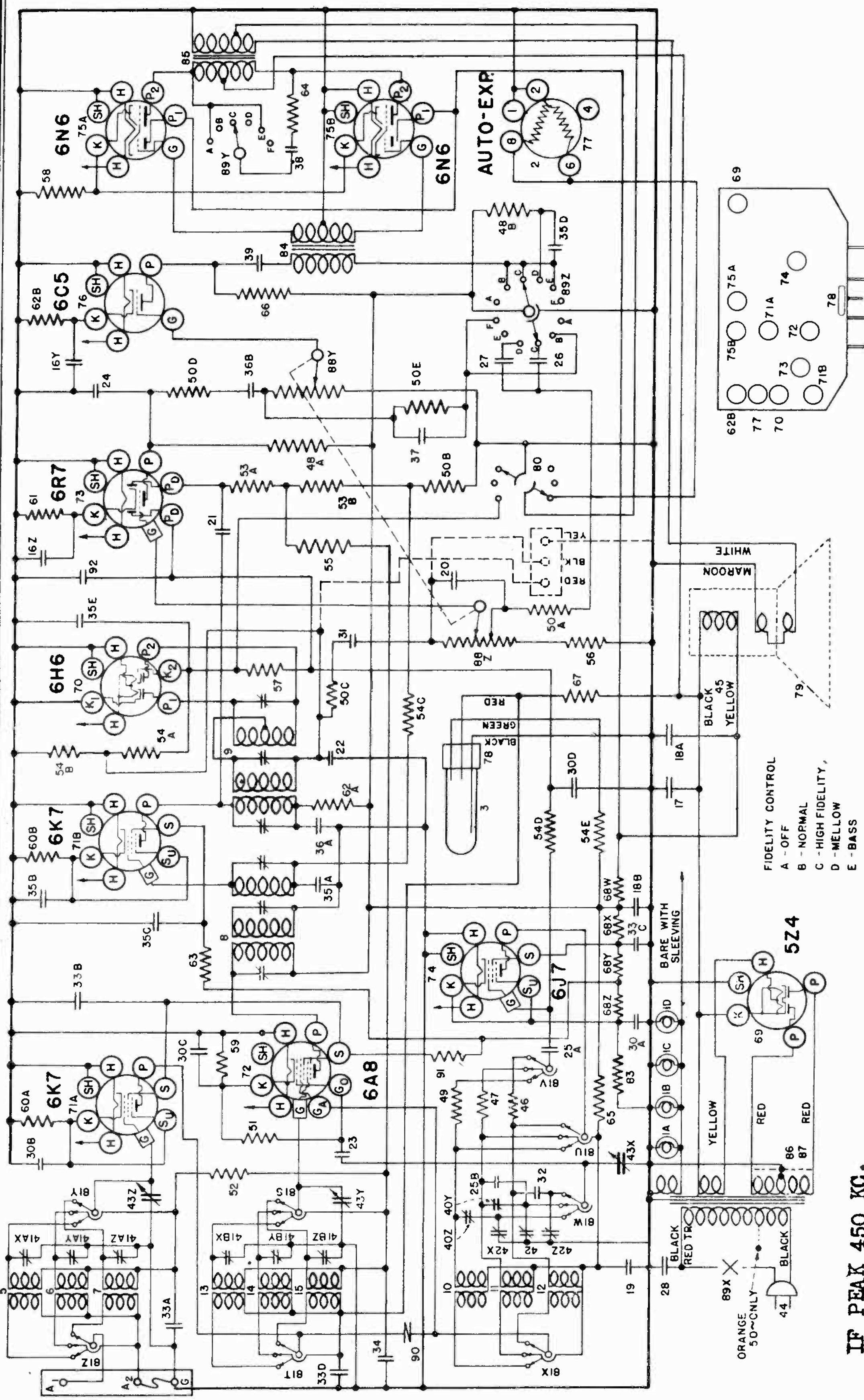
The Phantom Control permits the listener to use the Mystic Hand (Automatic Frequency Control) and the Auto-Expressionator as desired. The various positions of the control are shown on an illuminated indicator on the dial.

The receiver may be operated with normal power output and fidelity, such as would ordinarily be desired in the average home, with the control in the NORMAL position.

The Mystic Hand automatically tunes the receiver accurately to the strongest signal within a frequency range of approximately 10 kilocycles of the station selector setting.

MODEL 1216
Schematic, Socket

CROSLEY RADIO CORP.



IF PEAK 450 KC.

Oct., 1936

SALES MODEL 1211

CHASSIS MODEL 1216

(c) SIGNAL INPUT FREQUENCIES

		Shunt Alignment	Series Alignment
BLUE	540-1725 Kc. or 555-173 Meters (American Broadcast Band)	1,400 Kilocycles	600 Kilocycles
RED	1.8- 5.5 Megacycles or 170-55 Meters (Police and Amateurs)	5,000 Kilocycles	2000 Kilocycles
GREEN	5.6- 18.1 Megacycles or 54-16.5 Meters (High Frequency Band)	18,000 Kilocycles	

MODEL 1216
Parts

CROSLEY RADIO CORP.

SPECIFICATIONS

The Crosley Model 1216 radio is a Twelve-tube receiver featuring High Fidelity, Volume Expansion which is accomplished by the Auto-Expressionator tube and Automatic Frequency Control which is known as the Mystic Hand.

The tubes used are 6K7 R-F Amplifier, 6A8 Oscillator-Modulator, 6J7 AFC Control, 6K7 I-F Amplifier, 6H6 AFC Detector, 6R7 AVC Diode and A-F Amplifier 6C5 A-F Driver, two 6N6 Output, 5Z4 Rectifier, W41187 Auto-Expressionator and W42419A Neon Tuning Tube.

Item No.	Part No.	Description
1ABCD	W —37922	Dial Light Bulb
	G 3—37965	D. L. Socket
	W — 4057	D. L. Shield
2	W —41187	Auto Express. Tube
3	W —42419A	Neon Tuning Indi. Tube
	G 2—42584	Neon Socket Assembly
	W —42589	Neon Tube Cover
	—42592	Cover Gasket, (N. T.)
4		None
5	G 94—32000	Antenna Coil. B. C. B.
6	G108—32000	Antenna Coil, Pol. B.
7	G107—32000	Antenna Coil, H. F. B.
8	G 90—32004	1st I-F Assembly
9	G126—32004	2nd I-F Assembly
10	G 97—32002	Osc. Coil, B. C. B.
11	G 96—32002	Osc. Coil, Pol. B
12	G 95—32002	Osc. Coil, H. F. B.
13	G 68—32001	R-F. Coil, B. C. B.
14	G 75—32001	R-F. Coil, Pol. B.
15	G 74—32001	R-F. Coil, H. F. B.
16Z	W —37778	Condenser, 12 Mf. 25V.
16Y		Condenser, 12 Mf. 25V.
17	W —36055	Condenser, 35 Mf. 400V.
18AB	W —42386	Condenser, 20 Mf. 300V.
19	G 18—34000	Condenser, 5600 Mmf.
20	G 5—34002	Condenser, .00005 Mf. 200V.
	G 10—34002	Condenser, .00005 Mf. 300V.
22	G 2—34002	Condenser, .0001 Mf. 200V.
23	G 6—34002	Condenser, .000025Mf. 200V.
24	G 1—34005	Condenser, .00025 Mf. 300V.
25AB	G 3—34002	Condenser, .0005 Mf. 200V.
26	W —35758	Condenser, .008 Mf. 400V.
27	W —41461	Condenser, .0014 Mf. 200V.
28	W —30805	Condenser, .01 Mf. 400V.
29		NONE
30AB CD	W —36541	Condenser, .02 Mf. 160V.
31	W —28621	Condenser, .02 Mf. 200V.
32	W —41209	Condenser, .048 Mf. 200V.
33AB CD	W —35936	Condenser, .05 Mf. 200V.
34	W —32380	Condenser, .05 Mf. 200V.
35AB CDE	W —27216	Condenser, .05 Mf. 200V.
36AB	W —32780B	Condenser, .05 Mf. 400V.
37	W —43094	Condenser, .011 Mf. 160V.
38	W —22688	Condenser, .1 Mf. 200V.
39	W —42554	Condenser, .12 Mf. 160V.
40Z	—41218	B. C. Osc. Series Trimmer
40Y		Pol. Osc. Series Trimmer
41	W —37891	3 Section Trimmer (Shunt)
42	W —35951	3 Section Trimmer (Shunt)
43	G 47—33002	3 Section Var. Tuning Cond. Gang
	MG12 —42411	Dial Drive Assembly
	C —42421	Dial Glass (Calibrated)
	—42325A	Drive Unit
	W —41144	Dial Hand (Long)
	W —42180	Dial Hand (Short)
	W —40486	Hand Mtg. Screw
	E —13648	R. H. Indic. Flipper
	E —13647	L. H. Indic. Flipper
	W —42308	Flipper Pulley
	—43081	L. H. Flipper Cont. Cable
	—43080	R. H. Flipper Cont. Cable
	—40638	Indi. Cont. Cable
	—41157	Drive Belt
	W —23877	Flex. Coupling
	W —37909A	Band Sel. Pulley
44	B —33906A	Power Cord and Plug

Item No.	Part No.	Description
45	G 2—37918	Speaker Cable
46	—35760	Resistor, 20,000 Ohm ¼W.
47	—33390	Resistor, 30,000 Ohm ¼W.
48AB	—35928	Resistor, 60,000 Ohm ¼W.
49	—34019	Resistor, 75,000 Ohm ¼W.
50ABC	—35600	Resistor, 100,000 Ohm ¼W.
51	—35930	Resistor, 200,000 Ohm ¼W.
52	—35601	Resistor, 300,000 Ohm ¼W.
53AB	—36321	Resistor, 400,000 Ohm ¼W.
54AB CDE	—36322	Resistor, 500,000 Ohm ¼W.
55	—36176	Resistor, 1.3 Megohm ¼W.
56	—21454	Resistor, 1. Megohm ¼W.
57	—36688	Resistor, 3. Megohm ¼W.
58	W —32961	Resistor, 100 Ohm 3W. Flex.
59	W —25937	Resistor, 275 Ohm ½W. Flex.
60AB	W —28589	Resistor, 350 Ohm ½W. Flex.
61	W —22514	Resistor, 750 Ohm ½W. Flex.
62AB	W —21452	Resistor, 1100 Ohm ¾W. Flex.
63	W —23013	Resistor, 2000 Ohm 1½W. Flex.
64	W —23907	Resistor, 750 Ohm 1½W. Flex.
65	— 4921C	Resistor, 10,000 Ohm 1W.
66	—36952	Resistor, 30,000 Ohm 1W.
67	W —42516	Resistor, 20,000 Ohm 1W.
68Z	W —41966	Resistor, 4,000 Ohm — Candohm
68Y		Resistor, 1,000 Ohm
68X		Resistor, 3,000 Ohm
68W		Resistor, 200 Ohm
69	G154—36400	Socket Type, 5Z4
70	G155—36400	Socket Type, 6H6
71AB	G151—36400	Socket Type, 6K7
72	G156—36400	Socket Type, 6A8
73	G164—36400	Socket Type, 6R7
74	G157—36400	Socket Type, 6J7
75AB	G165—36400	Socket Type, 6N6
76AB	G152—36400	Socket Type, 6C5
77	G167—36400	Socket Type, Auto Expressionator
78		See Item 3
79	649CJ4 "M"	Speaker, Spec. 1-D-668
	—40701	Cone Assembly for above Spk.
	—40699	Field Coil for above Spk.
80	W —41029A	Phantom Control Switch
81	C —41235A	Band Selector Switch
82	G 27—26719	Ant. and Gnd. Terminal Assembly
83	W —42679	Resistor, 245 Ohm ½W. Flex.
84	G 1—37995	A-F Driver Transformer
85	G 60—24628	Out-Put Transformer
86	—42557	Pwr. Trans., 60 Cy. 110V.
	—43088	Pwr. Trans., 50 Cy. 110V.
	—43089	Pwr. Trans., 50 Cy. 220V.
	—43008	Pwr. Trans., 25 Cy. 110V.
	—43170	Pwr. Trans., 25 Cy. 220V.
87		See Item 86
88Z	—41375	Vol. Cont., 3 Meg.
88Y		Vol. Cont., 1 Meg.
89	B —42295A	Fidelity Cont. and Line Switch
90	G101—34403	Neutralizing Cond. Assembly
91	W — 6705	Resistor, 3500 Ohm 1W.
92	W —24049A	Condenser, .1 Mf. 200V.
	C —43134	Escutcheon
	—42043	Escutcheon Gasket
	C —42044	Escutcheon Lens
	D — 30	Screws Escut. Mtg.
	W —37339	Knob, V. C. and Station Selector
	W —40192B	Knob, Bd. Sel. and Phantom Cont.
	W —42490	Knob, Fid. Cont.
	W —36117	Rubber Mtg. Feet
	— 6-P	Cabinet

CROSLEY RADIO CORP.

MODEL 1216
Socket, Trimmers
Voltage, Notes
Resonance Curves
Pickup Data

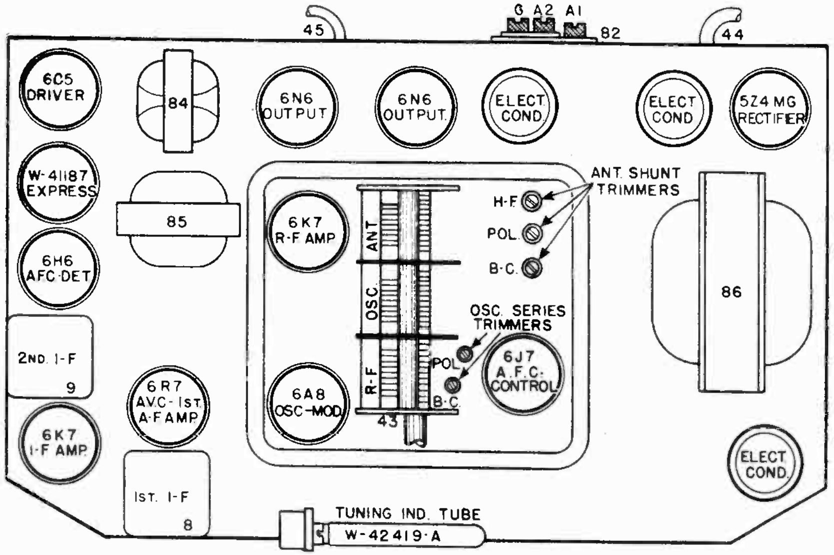


Fig. 2 Top View—1216

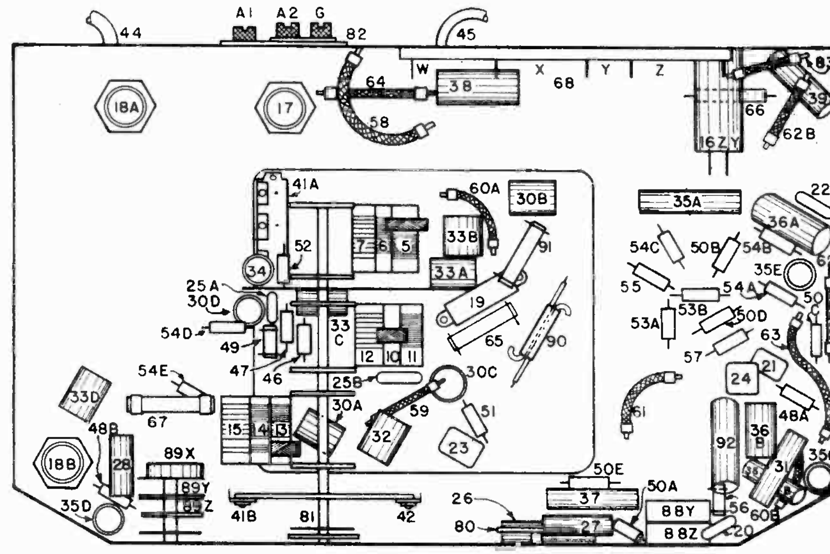


Fig. 3 Bottom View—1216

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P_1	P_2	S	Su	K	Ga	Go
6K7	R-F Amplifier	6.3	100	—	110	3.3	3.3	—	—
6A8	Oscillator-Modulator	6.3	250	—	110	—	3.8	175	-4 to -12
6J7	AFC Control	6.3	160	—	140	6.3	6.3	—	—
6K7	I-F Amplifier	6.3	240	—	108	3.0	3.0	—	—
6H6	AFC Detector	6.3	—	—	—	—	—	—	—
6R7	Diode and 1st A-F Amplifier	6.3	75	—	—	—	2.3	—	—
6C5	A-F Driver	6.3	170	—	—	—	5.2	—	—
6N6	(2) Output	6.3	250	370	—	—	6.0	—	—
5Z4	Rectifier	5.0	—	—	—	—	370	—	—
W42419A	Tuning Tube	—	100-170	170	—	—	—	—	—
W41187	Auto-Expressionator Tube	Varies with power output.							

Voltage drop across speaker field 120 volts.
Power output approximately 20 watts.

Power consumption approximately 123 watts.
All readings taken on 117.5 volt power supply.

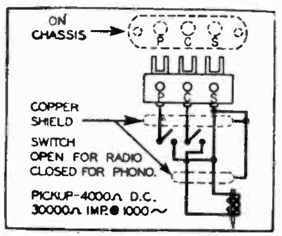
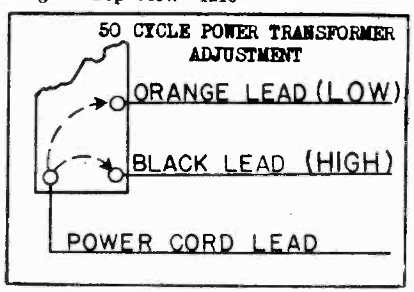
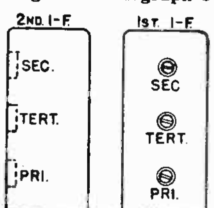


Fig. 7 Phonograph Pickup





AUTO-EXPRESSIONATOR

The Auto-Expressionator tube, item No. 77, Fig. 1, is connected across the voice coil of the speaker. When it is operating its resistance varies so as to increase the volume of loud tones, thus giving a wider volume range to reproduced music, which tends to compensate for the electrical limitations of broadcasting equipment.

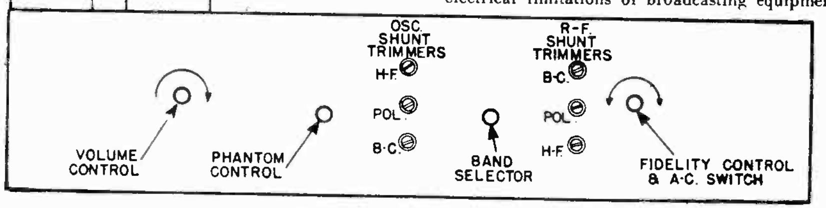


Fig. 4 Front View—1216

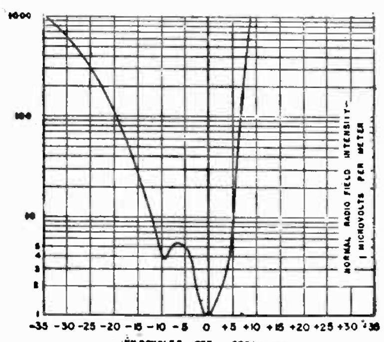


Fig. 5

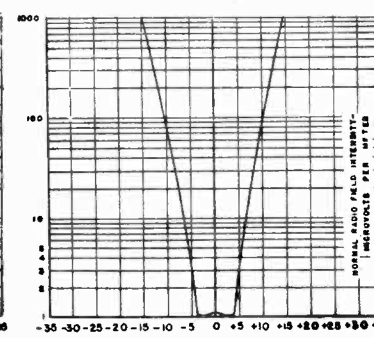


Fig. 6

MODEL 1216
Alignment
Notes

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

This model receiver should be turned-on and allowed to "warm-up" for about 15 minutes before aligning its circuits.

It is a High Fidelity receiver and in order to secure maximum performance the alignment should be done with precision instruments. The alignment condensers should not be readjusted just to determine if they are properly tuned. Fig. 5, shows the selectivity curve of a receiver whose I-F amplifier was slightly mistuned while Fig. 6, shows a curve made from actual measurements of a receiver employing a triple-tuned I-F amplifier which was properly aligned with the use of a FREQUENCY MODULATED R-F signal generator and an oscilloscope.

The alignment of the AFC circuit may be checked by means of a modulated signal generator and output meter as follows:

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—not electrolytic to P2 of the other 6N6 Output tube.

(b) Connect the output of the signal generator through a .00025 mf. condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver chassis.

(c) Rotate the Phantom Control to the left-hand position (NORMAL).

(d) Adjust the frequency of the signal generator in the region of 450 kilocycles for maximum reading on the output meter.

(e) Without altering the connections or adjustments of the signal generator or output meter connect an antenna to the antenna terminal "A1" and tune-in a local broadcasting station. Turn off modulation of signal generator. Adjust station selector slightly for zero beat.

(f) Rotate the Phantom Control to the Mystic Hand position and listen to the beat note. If the note is less than 200 cycles, or the equivalent of some tone below middle C on the piano, the AFC alignment is satisfactory.

(g) If the beat note is higher than middle C realignment is necessary.

(h) In cases where the beat note is not more than about two octaves above middle C or from 1000 to 1500 cycles the AFC circuit may be aligned for zero beat by making a slight adjustment of the top trimmer condenser on the 2nd I-F transformer. This circuit is very critical and a slight adjustment will produce a great change in the beat note.

(i) Where the AFC is considerably out of alignment as evidenced by a beat note of higher than 1500 cycles the standard alignment procedure outlined below should be followed.

TUNING I-F AMPLIFIER

I. Conventional Method.

(a) Connect the output meter as outlined above in (a).

(b) Check the 6J7 cathode bias which should be approximately 6.5 volts with no signal applied.

(c) Connect the output of the signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. Connect the ground lead of the signal generator to the "G" terminal of the receiver chassis.

(d) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control all the way to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(e) Set the signal generator to 450 kilocycles.

(f) Adjust the middle trimmer and then the bottom trimmer of the 2nd I-F transformer for maximum reading on the output meter. Caution: do not attempt to adjust the top trimmer at this time. ALWAYS USE THE LOWEST GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Adjust the top trimmer and then the bottom trimmer of the 1st I-F transformer for maximum reading on the output meter.

(j) Adjust the middle trimmer of the 1st I-F transformer by closing until maximum reading is obtained on the output meter.

(k) Transfer the output lead of the signal generator from the 6A8 tube to the antenna terminal "A1" of the receiver and recheck the adjustment of the bottom trimmer of the 1st I-F transformer.

(l) To adjust the AFC system it will be necessary to transfer the output lead of the signal generator back to the top cap of the 6K7 I-F amplifier tube. The .02 mf. condenser should still be connected in series with this lead.

(m) Insert a 0-5 milliammeter in series with the cathode circuit of the 6J7 tube and with a strong 450 kilocycle signal from the signal generator, the reading of the cathode current should be recorded.

(n) Turn the Phantom Control to the MYSTIC HAND position and without changing the output of the signal generator, adjust the top trimmer condenser of the 2nd I-F transformer so that the reading of the 0-5 milliammeter is the same as was recorded with the Phantom Control in the NORMAL position. This value of current will be obtained with the trimmer closed, with the trimmer open and at some intermediate position. A very slight adjustment while in the intermediate position will cause the meter to read from 0 to 1.5 milliamperes. This is the setting that should be used. An insulated screw driver should be used in adjusting the AFC trimmer condenser.

(o) As a final check on the AFC adjustment, disconnect the test equipment and tune-in a fairly weak broadcast station in the region of 1500 kilocycles. Turn the AFC "ON" and "OFF". If reception is the same in both positions and will automatically tune-in strong stations within approximately plus or minus 10 kilocycles of the station selector setting with AFC "ON", the AFC is properly aligned. If distortion is noted and the receiver will not automatically tune-in stations as described, the AFC alignment should be rechecked.

II. Oscilloscope Method.

(a) Connect the output of a FREQUENCY MODULATED R-F signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. KEEP THE GENERATOR LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The "High" side should be connected to the plate of the 6R7 tube and the "Low" side should be connected to the receiver chassis. (B sure the oscilloscope is protected from D.C. by connecting a condenser, .1 mf. to .05 mf., in series with the lead of the 6R7 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(d) Set the signal generator to 450 kilocycles. See instructions supplied with signal generator and oscilloscope.

(e) Adjust the middle trimmer of the 2nd I-F transformer so that the nose of the selectivity curve is centered on the resonance axis (R) of the transparent scale supplied with the oscilloscope.

(f) Adjust the bottom trimmer of the 2nd I-F transformer for maximum amplitude of the selectivity curve on resonance axis (R).

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Increase the output of the signal generator and adjust the top trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(j) Adjust the bottom trimmer of the 1st I-F transformer for maximum amplitude.

(k) Reduce the output of the signal generator and adjust the middle trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(l) Carefully repeat operations (f) and (k) for more accurate adjustments.

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal "A1" of the receiver. For the BLUE and RED bands a .00025 mf. condenser must 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 (BLUE and RED bands). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated in "C" below for each adjustment.

(a) Adjust the "OSC", "R-F" 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 in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 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 900 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 position.

(b) To align the series trimmers, "Osc. Series"—Fig. 2, set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. At the time that any series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output is obtained.

PHANTOM CONTROL

The Phantom Control permits the listener to use the Mystic Hand (Automatic Frequency Control) and the Auto-Expressionator as desired. The various positions of the control are shown on an illuminated indicator on the dial.

The receiver may be operated with normal power output and fidelity, such as would ordinarily be desired in the average home, with the control in the NORMAL position.

The Mystic Hand automatically tunes the receiver accurately to the strongest signal within a frequency range of approximately 10 kilocycles of the station selector setting.

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 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.

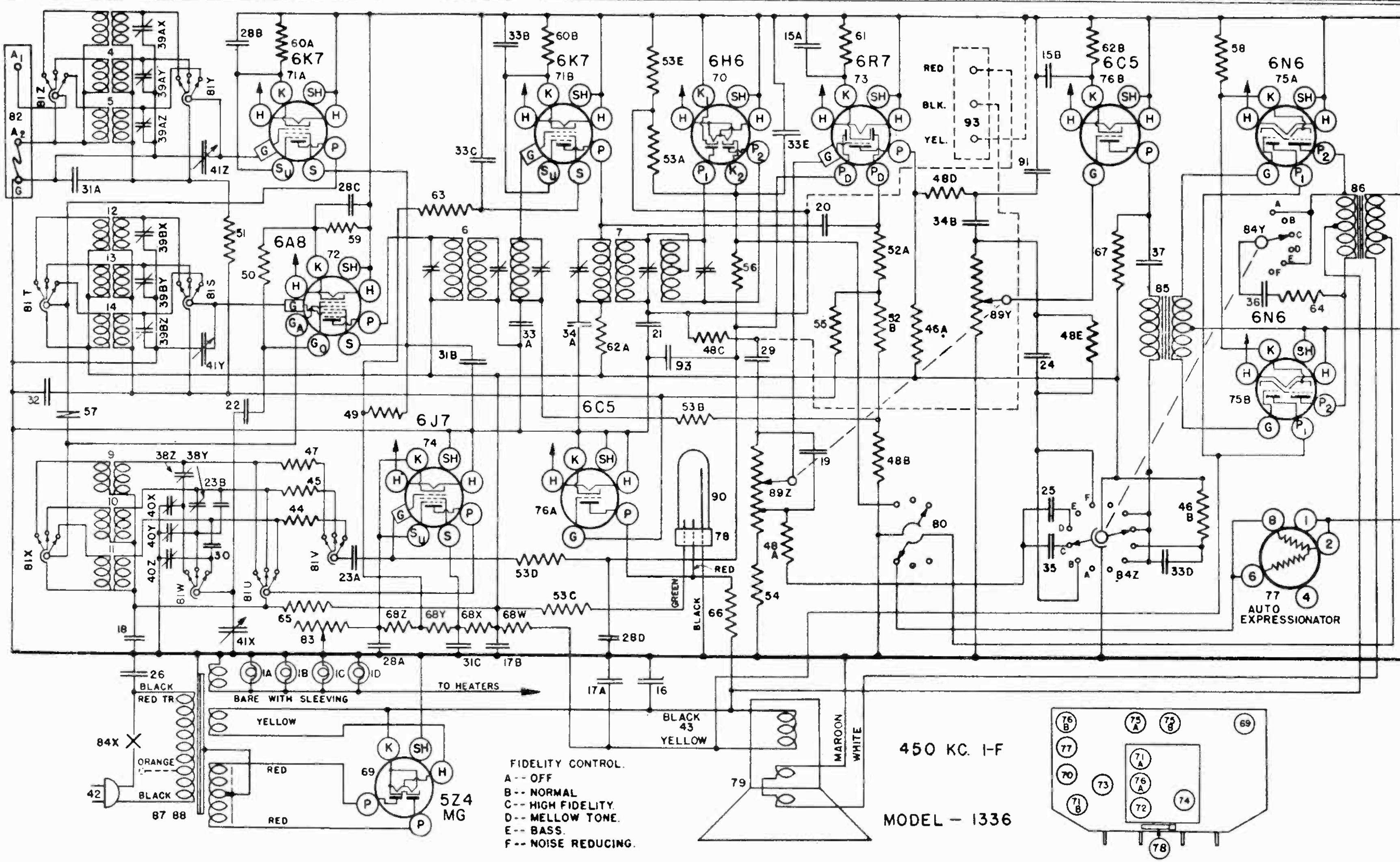
NOTE: Any change made in the power supply circuit of the receiver should be plainly stamped or otherwise permanently recorded on the rear of the chassis.

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. meter (except filaments) with the receiver in operating condition and no signal input. The filament voltages should be measured with an accurate low range A.C. voltmeter. Readings may vary plus or minus 10% of values given.

MODEL 1336
Schematic
Socket

CROSLEY RADIO CORP.



Oct., 1936 SALES MODEL 1313 CHASSIS MODEL 1336

(c) SIGNAL INPUT FREQUENCIES

		Shunt Alignment	Series Alignment
BLUE	540-1725 Kc. or 555-173 Meters (American Broadcast Band)	1.400 Kilocycles	600 Kilocycles
RED	1.8- 5.5 Megacycles or 170-55 Meters (Police and Amateurs)	5.000 Kilocycles	2000 Kilocycles
GREEN	5.6-18.1 Megacycles or 54-16.5 Meters (High Frequency Band)	18.000 Kilocycles	

MODEL 1336
Parts

CROSLEY RADIO CORP.

SPECIFICATIONS

The Crosley Model 1336 radio is a Thirteen-tube receiver featuring High Fidelity, Volume Expansion which is accomplished by the Auto-Expressionator tube and Automatic Frequency Control which is known as the Mystic Hand.

The tubes used are 6K7 R-F Amplifier, 6A8 Oscillator-Modulator, 6J7 AFC Control, 6K7 I-F Amplifier, 6H6 AFC Detector, 6R7 AVC Diode and A-F Amplifier 6C5 A-F Driver, two 6N6 Output, 6C5 Tuning Indicator, Amplifier, 5Z4 Rectifier, W41187 Auto-Expressionator, and W42419A Neon Tuning Indicator Tube.

Item No.	Part No.	Description
1ABCD	W —37922	Dial Light Bulb
	G 3—37965	Dial Light Socket
	W —40570	Dial Light Shield
2	W —41187	Auto Expressionator Tube
3	G 94—32000	Antenna Coil, B. C. B.
4	G108—32000	Antenna Coil, Pol. B.
5	G107—32000	Antenna Coil, H. F. B.
6	G 90—32004	1st I-F Assembly
7	G126—32004	2nd I-F Assembly
9	G 97—32002	Osc. Coil, B. C. B.
10	G 96—32002	Osc. Coil, Pol. B.
11	G 95—32002	Osc. Coil, H. F. B.
12	G 68—32001	R. F. Coil, B.C.B.
13	G 75—32001	R. F. Coil, Pol. B.
14	G 74—32001	R. F. Coil, H. F. B.
15AB	W —41598	Condenser, 50 Mf. 25V.
16	W —36055	Condenser, 35 Mf. 400V.
17AB	W —36057	Condenser, 40 Mf. 300V.
18	G 18—34000	Condenser, 5600 Mmf. 300V.
19	G 5—34002	Condenser, .000050 Mf. 200V.
20	G 10—34002	Condenser, .000050 Mf. 300V.
21	G 2—34002	Condenser, .0001 Mf. 200V.
22	G 6—34002	Condenser, .000025 Mf. 200V.
23AB	G 3—34002	Condenser, .0005 Mf. 200V.
24	W —34713	Condenser, .005 Mf. 160V.
25	W —41461	Condenser, .0014 Mf. 200V.
26	W —30805	Condenser, .01 Mf. 400V.
27		NONE
28AB CD	W —36541	Condenser, .02 Mf. 160V.
29	W —28621	Condenser, .02 Mf. 200V.
30	W —41209	Condenser, .048 Mf. 200V.
31ABC	W —35936	Condenser, .05 Mf. 200V.
32	W —32380	Condenser, .05 Mf. 200V.
33AB CDE	W —27216	Condenser, .05 Mf. 200V.
34AB	W —32780B	Condenser, .05 Mf. 400V.
35	W —35758	Condenser, .008 Mf. 400V.
36	W —22688	Condenser, .1 Mf. 400V.
37	W —42554	Condenser, .12 Mf. 160V.
38	—41218	B. C. and Pol. Osc. Series Trimmer
39AB	W —37891A	3 Section Shunt Trimmer
40	W —35951A	3 Section Shunt Trimmer
41	G 47—33002	3 Gang Var. Tuning Cond.
	MG12—42411	Dial Drive Assembly, Complete
	C —42421	Dial Glass (Calibrated)
	—42325	Dial Drive Unit only
	W —41144	Dial Hand (Long)
	W —42180	Dial Hand (Short)
	W —40486	Screw, Hand Mtg.
	E —13648	R.H. Indicator Flipper(Phan. Cont.)
	E —13647	L.H. Indicator Flipper (Fidelity Cont.)
	W —42308	Indicator Control Pulley (2)
	—43080	R.H. Indicator Cont. Cable Assy.
	—43081	L.H. Indicator Cont. Cable Assy.
	—40638	Band Indic. Cont. Cable
	—41157	Drive Belt
	—40537	Flexible Coupling
42	B —33906A	Power Cord and Plug
43	G 2—37918	Speaker Cable
44	—36760	Resistor, 20,000 Ohm 1/4W.
45	—33390	Resistor, 30,000 Ohm 1/4W.
46AB	—35928	Resistor, 60,000 Ohm 1/4W.
47	—34019	Resistor, 75,000 Ohm 1/4W.
48AB CDE	—35600	Resistor, 100,000 Ohm 1/4W.
49	— 6705	Resistor, 3,500 Ohm 1W.
50	—35930	Resistor, 200,000 Ohm 1/4W.
51	—35601	Resistor, 300,000 Ohm 1/4W.

Item No.	Part No.	Description
52AB	—36321	Resistor, 400,000 Ohm 1/4W.
53AB CDE	—36322	Resistor, 500,000 Ohm 1/4W.
54	—21454	Resistor, 1 Megohm 1/4W.
55	—36176	Resistor, 1.3 Megohm 1/4W.
56	—36688	Resistor, 3. Megohm 1/4W.
57	G101—34403	R. F. Neutralizing Condenser
58	W —32926	Resistor, 100 Ohm 3W. Flex.
59	W —25937	Resistor, 275 Ohm 1/2W. Flex.
60AB	W —28589	Resistor, 350 Ohm 1/2W. Flex.
61	W —22514	Resistor, 750 Ohm 1/2W. Flex.
62AB	W —21452	Resistor, 1100 Ohm 3/4W. Flex.
63	W —23013	Resistor, 2000 Ohm 1 1/4W. Flex.
64	W —23907	Resistor, 750 Ohm 1 1/2W. Flex.
65	— 4921C	Resistor, 10,000 Ohm 1W.
66	W —42418A	Resistor, 30,000 Ohm 4W.
67	—36952	Resistor, 30,000 Ohm 1W.
68Z	W —11966	Resistor, 4,000 Ohm (Candohm)
68Y		Resistor, 1,000 Ohm (Candohm)
68X		Resistor, 3,000 Ohm (Candohm)
68W		Resistor, 200 Ohm (Candohm)
69	G154—36400	Socket Type, 5Z4
70	G155—36400	Socket Type, 6H6
71AB	G151—36400	Socket Type, 6K7
72	G156—36400	Socket Type, 6A8
73	G164—36400	Socket Type, 6R7
74	G157—36400	Socket Type, 6J7
75AB	G165—36400	Socket Type, 6N6
76AB	G152—36400	Socket Type, 6C5
77	G167—36400	Auto Expressionator
78	G 1—42584	Neon Tube Socket Assembly
	W —42589	Neon Tube Cover
	—42592	Cover Rubber Gasket
79	734CJ4 "M"	Speaker Spec. 1-D-437
	—41603	Cone Assembly (For above Spk.)
	—41601	Field Coil (For above Spk.)
80	W —41029	Phantom Cont. Switch
81	C —41235	Band Select. Switch
82	G 27—26719	Ant. and Gnd. Terminal Assembly
83	W —11287	300 Ohm 1/2W. A-F-C Bias Resistor
84	B —42295A	Fidelity and Line Switch
85	G 2—37995	A-F Transformer
86	G 60—24628	Out-Put Transformer
87	—42557	Power Trans. 60 Cy. 110V.
	—43008	Power Trans. 25 Cy. 110V.
	—43088	Power Trans. 50 Cy. 110V.
	—43089	Power Trans. 50 Cy. 220V.
89Z	—41375B	Vol. Cont. 3 Meg. Tap 1 Meg.
89Y		Vol. Cont. 1 Meg.
90	W —42419A	Neon Tuning Indic. Tube
91	G 5—34005	Condenser, .00005 Mf. 300V.
92	G 37—26719	Phono Terminal
93	W —24049	Condenser, .1 Mf. 200V.
Type A	C —41219	Escutcheon
	B —41232	Escutcheon Lens
	B —41233	Escutcheon Retaining Spring
	B —41234	Lens Retaining Spring
Type B	—43134A	Escutcheon
	C —42044	Escutcheon Lens
	C —12043	Escutcheon Rubber Ring
	— 7570	Escutcheon Mtg. Screw
	W —37339	Knob, V. C. and Station Sel.
	W —40192B	Knob, Band Sel. and Phantom Cont.
	W —42490	Knob, Fidelity Control
	W —36117	Rubber Mtg. Foot
	W —40230B	Emblem
	W —32620	Nut, Emblem Mtg.
	— 6-Q	Cabinet

CROSLEY RADIO CORP.

MODEL 1336
Socket, Trimmers
Chassis, Voltage
Resonance Curves
Phono Pickup, Note

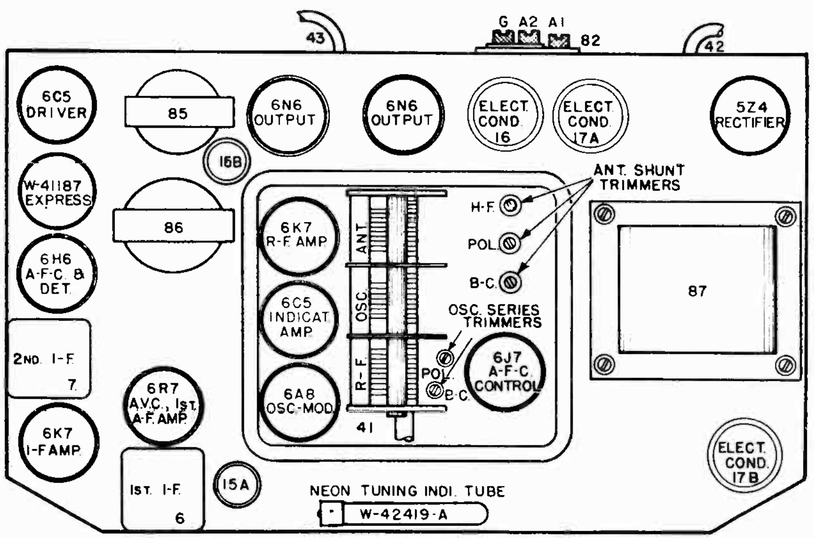


Fig. 2. Top View—1336

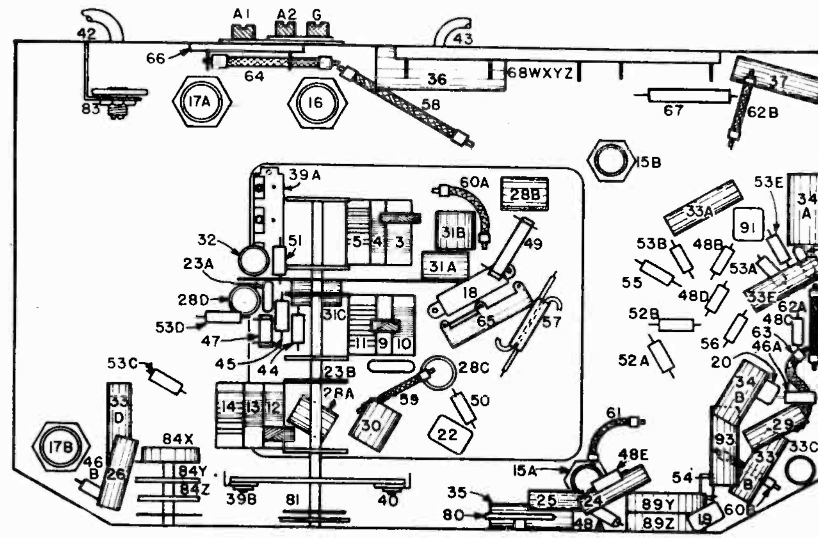


Fig. 3 Bottom View—1336

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P_1	P_2	S	Su	K	Ga	Go
6K7	R-F Amplifier	6.3	235	—	106	2.2	2.2	—	—
6A8	Oscillator-Modulator	6.3	235	—	106	—	3.1	140	-6 to -12
6J7	AFC Control	6.3	140	—	137	6.5	6.5	—	—
6K7	I-F Amplifier	6.3	225	—	100	2.7	2.7	—	—
6H6	AFC Detector	6.3	0	—	—	—	0	—	—
6R7	Diode and 1st A-F Amplifier	6.3	85	—	—	—	2.1	—	—
6C5	A-F Driver	6.3	150	—	—	—	5.0	—	—
6N6	(2) Output	6.3	235	340	—	—	5.2	—	—
6C5	Tuning Indicator Amplifier	6.3	100-200	—	—	—	0	—	—
5Z4	Rectifier	5.0	—	—	—	—	350	—	—
W42419A	Tuning Indicator Tube	—	100-200	150	—	—	0	—	—
W41187	Expander Tube	Varies with power output.							

Voltage drop across speaker field 105 volts.
Power output approximately 25 watts.

Power consumption approximately 135 watts.
All readings taken on 117.5 volt power supply.

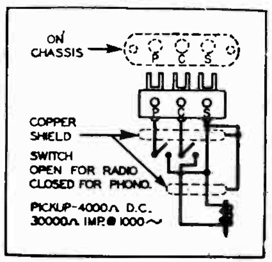
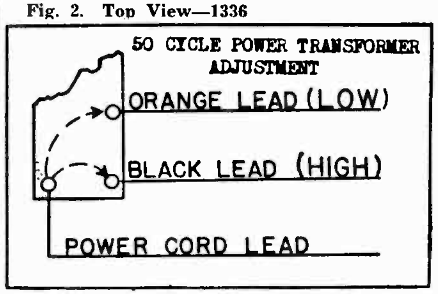


Fig. 7 Phonograph Pickup



AUTO-EXPRESSIONATOR

The Auto-Expressionator tube, item No. 77, Fig. 1, is connected across the voice coil of the speaker. When it is operating its resistance varies so as to increase the volume of loud tones, thus giving a wider volume range to reproduced music, which tends to compensate for the electrical limitations of broadcasting equipment.

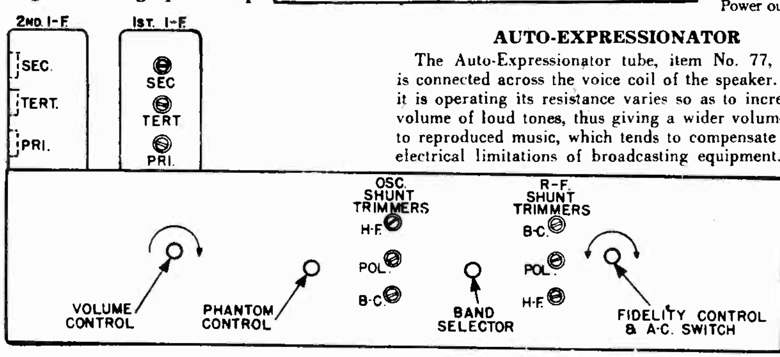


Fig. 4 Front View—1336

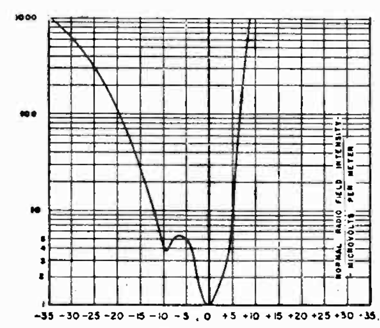


Fig. 5

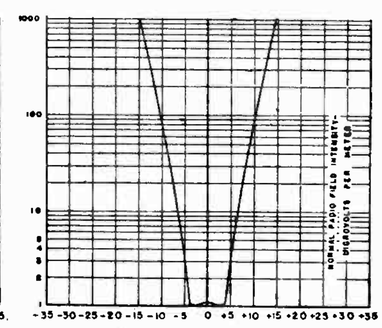


Fig. 6

MODEL 1336
Alignment, Notes

CROSLEY RADIO CORP.

TUNING I-F AMPLIFIER

This model receiver should be turned-on and allowed to "warm-up" for about 15 minutes before aligning its circuits.

It is a High Fidelity receiver and in order to secure maximum performance the alignment should be done with precision instruments. The alignment condensers should not be readjusted just to determine if they are properly tuned. Fig. 5, shows the selectivity curve of a receiver whose I-F amplifier was slightly mistuned while Fig. 6, shows a curve made from actual measurements of a receiver employing a triple-tuned I-F amplifier which was properly aligned with the use of a FREQUENCY MODULATED R-F signal generator and an oscilloscope.

The alignment of the AFC circuit may be checked by means of a modulated signal generator and output meter as follows:

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—not electrolytic to P2 of the other 6N6 Output tube.

(b) Connect the output of the signal generator through a .00025 mf. condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver chassis.

(c) Rotate the Phantom Control to the left-hand position (NORMAL).

(d) Adjust the frequency of the signal generator in the region of 450 kilocycles for maximum reading on the output meter.

(e) Without altering the connections or adjustments of the signal generator or output meter connect an antenna to the antenna terminal "A1" and tune-in a local broadcasting station. Turn off modulation of signal generator. Adjust station selector slightly for zerc beat.

(f) Rotate the Phantom Control to the Mystic Hand position and listen to the beat note. If the note is less than 200 cycles, or the equivalent of some tone below middle C on the piano, the AFC alignment is satisfactory.

(g) If the beat note is higher than middle C re-alignment is necessary.

(h) In cases where the beat note is not more than about two octaves above middle C or from 1000 to 1500 cycles the AFC circuit may be aligned for zero beat by making a slight adjustment of the top trimmer condenser on the 2nd I-F transformer. This circuit is very critical and a slight adjustment will produce a great change in the beat note.

(i) Where the AFC is considerably out of alignment as evidenced by a beat note of higher than 1500 cycles the standard alignment procedure outlined below should be followed.

TUNING I-F AMPLIFIER

I. Conventional Method.

(a) Connect the output meter as outlined above in (a).

(b) Adjust the 6J7 cathode bias to 6.5 volts with no signal applied, by means of the variable control item, No. 83, Fig. 3.

(c) Connect the output of the signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. Connect the ground lead of the signal generator to the "G" terminal of the receiver chassis.

(d) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control all the way to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(e) Set the signal generator to 450 kilocycles.

(f) Adjust the middle trimmer and then the bottom trimmer of the 2nd I-F transformer for maximum reading on the output meter. Caution: do not attempt to adjust the top trimmer at this time. ALWAYS USE THE LOWEST GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Adjust the top trimmer and then the bottom trimmer of the 1st I-F transformer for maximum reading on the output meter.

(j) Adjust the middle trimmer of the 1st I-F transformer by closing until maximum reading is obtained on the output meter.

(k) Transfer the output lead of the signal generator from the 6A8 tube to the antenna terminal "A1" of the receiver and recheck the adjustment of the bottom trimmer of the 1st I-F transformer.

(l) To adjust the AFC system it will be necessary to transfer the output lead of the signal generator back to the top cap of the 6K7 I-F amplifier tube. The .02 mf. condenser should still be connected in series with this lead.

(m) Insert a 0-5 milliammeter in series with the cathode circuit of the 6J7 tube and with a strong 450 kilocycle signal from the signal generator, the reading of the cathode current should be recorded.

(n) Turn the Phantom Control to the MYSTIC HAND position and without changing the output of the signal generator, adjust the top trimmer condenser of the 2nd I-F transformer so that the reading of the 0-5 milliammeter is the same as was recorded with the Phantom Control in the NORMAL position. This value of current will be obtained with the trimmer closed, with the trimmer open and at some intermediate position. A very slight adjustment while in the intermediate position will cause the meter to read from 0 to 1.5 milliamperes. This is the setting that should be used. An insulated screw driver should be used in adjusting the AFC trimmer condenser.

(o) As a final check on the AFC adjustment, disconnect the test equipment and tune-in a fairly weak broadcast station in the region of 1500 kilocycles. Turn the AFC "ON" and "OFF". If reception is the same in both positions and will automatically tune-in strong stations within approximately plus or minus 10 kilocycles of the station selector setting with AFC "ON", the AFC is properly aligned. If distortion is noted and the receiver will not automatically tune-in stations as described, the AFC alignment should be rechecked.

II. Oscilloscope Method.

(a) Connect the output of a FREQUENCY MODULATED R-F signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. KEEP THE GENERATOR LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The "High" side should be connected to the plate of the 6R7 tube and the "Low" side should be connected to the receiver chassis. (B sure the oscilloscope is protected from D.C. by connecting a condenser, .1 mf. to .05 mf., in series with the lead of the 6R7 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control to the right (clockwise), turn the fidelity control to HIGH FIDELITY and the Phantom Control to NORMAL.

(d) Set the signal generator to 450 kilocycles. See instructions supplied with signal generator and oscilloscope.

(e) Adjust the middle trimmer of the 2nd I-F transformer so that the nose of the selectivity curve is centered on the resonance axis (R) of the transparent scale supplied with the oscilloscope.

(f) Adjust the bottom trimmer of the 2nd I-F transformer for maximum amplitude of the selectivity curve on resonance axis (R).

(g) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(h) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(i) Increase the output of the signal generator and adjust the top trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(j) Adjust the bottom trimmer of the 1st I-F transformer for maximum amplitude.

(k) Reduce the output of the signal generator and adjust the middle trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(l) Carefully repeat operations (f) and (k) for more accurate adjustments.

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal "A1" of the receiver. For the BLUE and RED bands a .00025 mf. condenser must 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 (BLUE and RED bands). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated in "C" below for each adjustment.

(a) Adjust the "OSC", "R-F" 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 in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 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 900 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 position.

(b) To align the series trimmers, "osc. series" Fig. 2, set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. At the time that any series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output is obtained.

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 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.

PHANTOM CONTROL

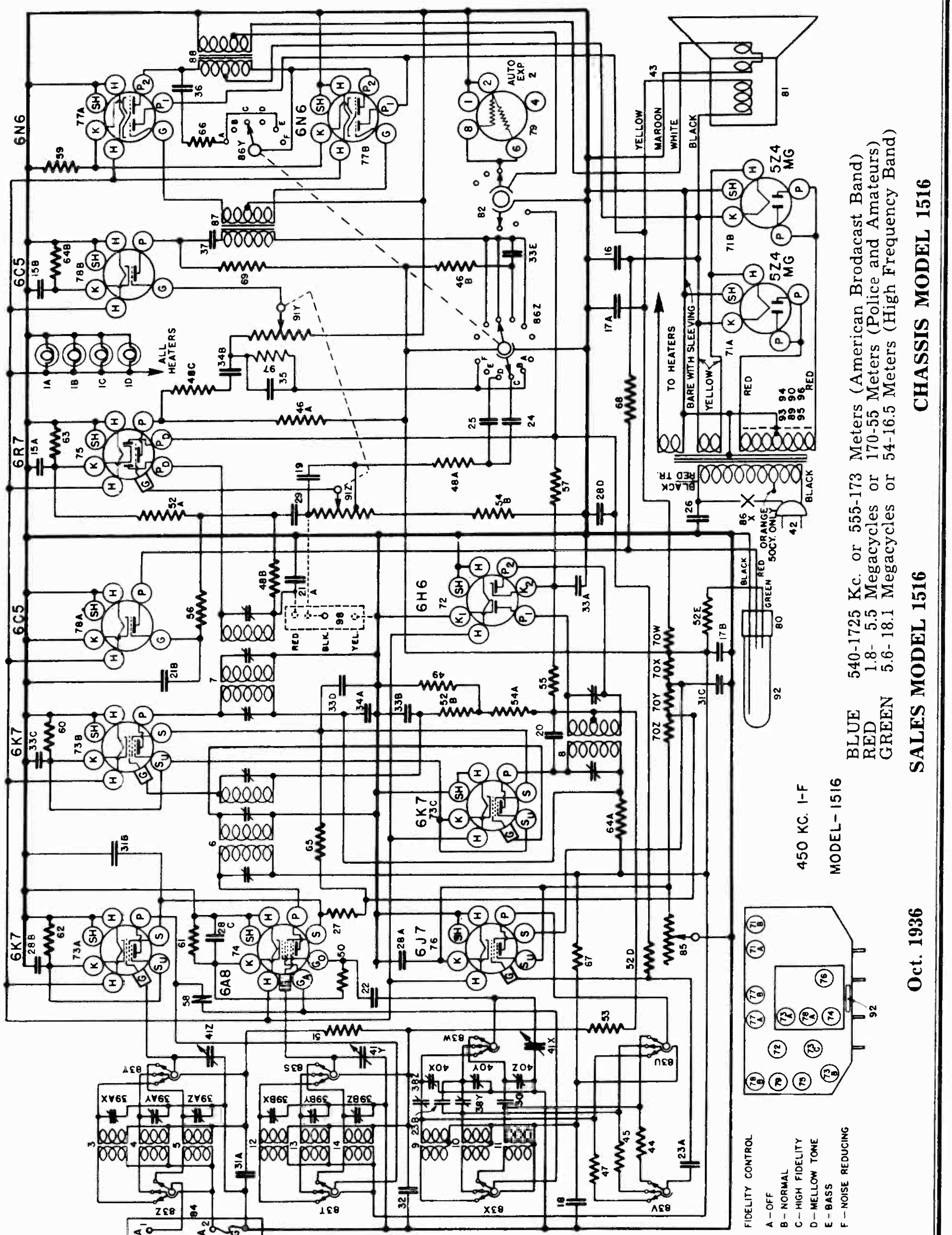
The Phantom Control permits the listener to use the Mystic Hand (Automatic Frequency Control) and the Auto-Expressionator as desired. The various positions of the control are shown on an illuminated indicator on the dial.

The receiver may be operated with normal power output and fidelity, such as would ordinarily be desired in the average home, with the control in the NORMAL position.

The Mystic Hand automatically tunes the receiver accurately to the strongest signal within a frequency range of approximately 10 kilocycles of the station selector setting.

CROSLEY RADIO CORP.

MODEL 1516
Schematic, Socket



MODEL 1516
Parts, Notes

CROSLEY RADIO CORP.

SPECIFICATIONS

The Crosley Model 1516 radio is a fifteen-tube receiver featuring High Fidelity, Volume Expansion which is accomplished by the Auto-Expressionator tube and Automatic Frequency Control which is known as the Mystic Hand.

The tubes used are 6K7 R-F Amplifier, 6A8 Oscillator-Modulator, 6J7 AFC Control, 6K7 Signal I-F Amplifier, 6K7 AFC Diode and I-F Amplifier, 6H6 AFC Detector, 6R7 Diode and 1st A-F Amplifier, 6C5 A-F Driver, (2) 6N6 Output, (2) 5Z4 Rectifiers, 6C5 Tuning Indicator Amplifier, W42419A Neon Tuning Indicator Tube and W-41187 Auto-Expressionator Tube.

AUTO-EXPRESSIONATOR

The Auto-Expressionator tube, item No. 79, Fig. 1, is connected across the voice coil of the speaker. When it is operating its resistance varies so as to increase the volume of loud tones, thus giving a wider volume range to reproduced music, which tends to compensate for the electrical limitations of broadcasting equipment.

PART LIST—MODEL 1516

Item No.	Part No.	Description
1ABCD	W —37922	Dial Light Bulb
	W —40570	Dial Light Shield
2	W —41187	Auto-Expressionator Tube
3	G 94—32000	Antenna Coil B. C. B.
4	G108—32000	Antenna Coil Pol. B.
5	G107—32000	Antenna Coil H. F. B.
6	G107—32004	1st I-F Assembly
7	G 91—32004	2nd I-F Assembly
8	G108—32004	A-F-C I-F Assembly
9	G 97—32002	Oscillator Coil B. C. B.
10	G 96—32002	Oscillator Coil Pol. B.
11	G 95—32002	Oscillator Coil H. F. B.
12	G 68—32001	R-F Coil B. C. B.
13	G 75—32001	R-F Coil Pol. B.
14	G 74—32001	R-F Coil H. F. B.
15AB	W —41598	Condenser, 50 Mf. 25V.
16	W —36055	Condenser, 35 Mf. 400V.
17AB	W —36057	Condenser, 40 Mf. 300V.
18	G 18—34000	Condenser, 5600 Mmf.
19	G 5—34002	Condenser, .00005 Mf. 200V.
20		NONE
21AB	G2 —34002	Condenser, .0001 Mf. 200V.
22	G6 —34002	Condenser, .000025 Mf. 200V.
23AB	G3 —34002	Condenser, .0005 Mf. 200V.
24	W —35758	Condenser, .008 Mf. 400V.
25	W —41461	Condenser, .0014 Mf. 200V.
26	W —30805	Condenser, .01 Mf. 400V.
27	— 6705	Resistor, 3500 Ohm. 1W.
28AB CD	W —36541	Condenser, .02 Mf. 160V.
29	W —28621	Condenser, .02 Mf. 200V.
30	W —41209	Condenser, .018 Mf. 200V.
31ABC	W —35936	Condenser, .05 Mf. 200V.
32	W —32380	Condenser, .05 Mf. 200V.
33AB CDE	W —27216	Condenser, .05 Mf. 200V.
34AB	W —32780B	Condenser, .05 Mf. 400V.
35	W —28904	Condenser, .004 Mf. 200V.
36	W —22688	Condenser, .1 Mf. 400V.
37	W —42554	Condenser, .12 Mf. 160V.
38Z	—41218	B. C. Osc. Series Trimmer
38Y		Pol. Osc. Series Trimmer
38AB	W —37891	3 Section Shunt Trimmer
40	W —35951	3 Section Shunt Trimmer
41	G47 —33002	3 Gang Var. Tuning Cond.
	MG12 —42425	Dial Drive Assembly
	—42421	Dial Glass (Calibrated)
	—42325B	Drive Unit only
	—42598A	Dial Mask (Paper Backing)
	—41144	Hand—Long Dial
	—42180	Hand—Short Dial
	W —40486	Screw—Hand Mounting
	E —13648	R. H. (Mystic Hand) Flipper
	E —13647	L. H. (Fidelity) Flipper
	W —43080	Flipper Control Cable
	W —42308A	Flipper Cont. Cable Pulley
	—40638	Band Indic. Cont. Cable
	—40537	Flexible Coupling Unit
	—41157	Drive Belt
42	B —33906A	Power Cord and Plug
43	G2 —37918	Speaker Cable
44	—36760	Resistor, 20,000 Ohm. ¼W.
45	—33390	Resistor, 30,000 Ohm. ¼W.
46AB	—36761	Resistor, 40,000 Ohm. ¼W.
47	—34019	Resistor, 75,000 Ohm. ¼W.
48ABC	—35600	Resistor, 100,000 Ohm. ¼W
49	—35929	Resistor, 150,000 Ohm. ¼W.

Item No.	Part No.	Description
50	—35930	Resistor, 200,000 Ohm. ¼W.
51	—35601	Resistor, 300,000 Ohm. ¼W.
52AB CDE	—36322	Resistor, 500,000 Ohm. ¼W.
53	—38623	Resistor, 750,000 Ohm. ¼W.
54AB	—35602	Resistor, 1 Megohm. ¼W.
55	—36176	Resistor, 1.3 Megohm. ¼W.
56		NONE
57	—36688	Resistor, 3 Megohm. ¼W.
58	G101—34403	R-F Neutralizing Cond.
59	W —23012A	Resistor, 40 Ohm. ¾W. Flex.
60	W —35467	Resistor, 220 Ohm. ½W. Flex.
61	W —25937	Resistor, 275 Ohm. ½ W. Flex.
62	W —28589	Resistor, 350 Ohm. ½W. Flex.
63	W —28106	Resistor, 500 Ohm. ½W. Flex.
64AB	W —21452	Resistor, 1100 Ohm. ¾W. Flex.
65	W —23013	Resistor, 2000 Ohm. 1¼W. Flex.
66	W —23907	Resistor, 750 Ohm. 1½W. Flex.
67	— 4921C	Resistor, 10000 Ohm. 1W.
68	W —42418	Resistor, 30000 Ohm. 4W.
69	—36952	Resistor, 30000 Ohm. 1W.
70Z	W — 41966	Resistor, 4000 Ohm. Candohm
70Y		Resistor, 1000 Ohm.
70X		Resistor, 3000 Ohm.
70W		Resistor, 200 Ohm.
71AB	G154—36400	Socket Type 5Z4
72	G155—36400	Socket Type 6H6
73ABC	G151—36400	Socket Type 6K7
74	G156—36400	Socket Type 6A8
75	G164—36400	Socket Type 6R7
76	G157—36400	Socket Type 6J7
77AB	G165—36400	Socket Type 6N6
78AB	G152—36400	Socket Type 6C5
79	G167—36400	Auto-Expressionator Socket
80	G2 —42584	Tuning Indic. Socket
81	734CJ4 "M"	Speaker Spec. 1-D-437
	—41603	Cone Assembly for above Speaker
	—41601	Field Coil for above Speaker
82	W —41029B	Phantom Control Switch
83	—41235A	Band Selector Switch
84	G27 —26719	Ant. and Gnd. Terminal Assembly
85	W —41287	A-F-C Bias Control, 300 Ohm. ½W
86	B —42295A	Fidelity and Line Switch
87	G2 —37995	A-F Driver Transformer
88	G62 —24628	Out-Put Transformer
89	G1 —37900	Power Transformer, 60 Cy. 110V.
(93)	G5 —37900	Power Transformer, 25 Cy. 110V.
(94)	G6 —37900	Power Transformer, 50 Cy. 220V.
(95)	G7 —37900	Power Transformer, 50 Cy. 110V.
(96)	G8 —37900	Power Transformer, 25 Cy. 220V.
90	G2 —37900	Power Transformer, Universal
91Z	—41375	Vol. Control, 3 Meg., Tap. .3 Meg.
91Y		Vol. Control, 1 Meg.
92	W —42419	Neon Tuning Indic. Tube
97	—21237A	Resistor, 60,000 Ohm. ¼W.
98	G37 —26719	Phono. Terminal Assembly
	C —43134A	Escutcheon
	C —42044	Lens, Escutcheon
	—42043	Escutcheon Rubber Mounting
	W —36117	Rubber Mounting Foot
	W —42490	Knob (Fidelity)
	W —37339	Knob (Station and Volume)
	W —40192	Knob (Band Sel. and A-F-C)
	W —40230B	Emblem
	W —32620	Nut, Emblem Mounting
	W —35922	Grille Clothe
	— 6-R	Cabinet

CROSLEY RADIO CORP.

MODEL 1516
Socket, Trimmers Chassis, Voltage Resonance Curves Phono Pickup

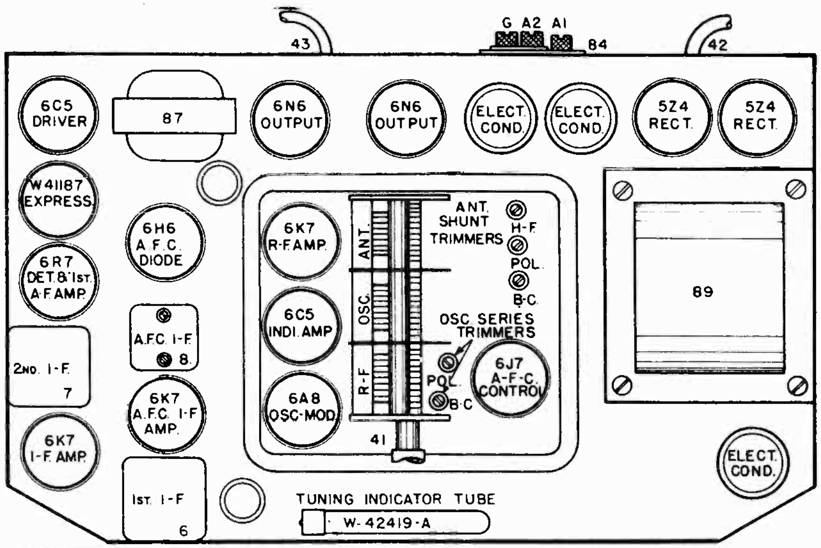


Fig. 2. Top View—1516

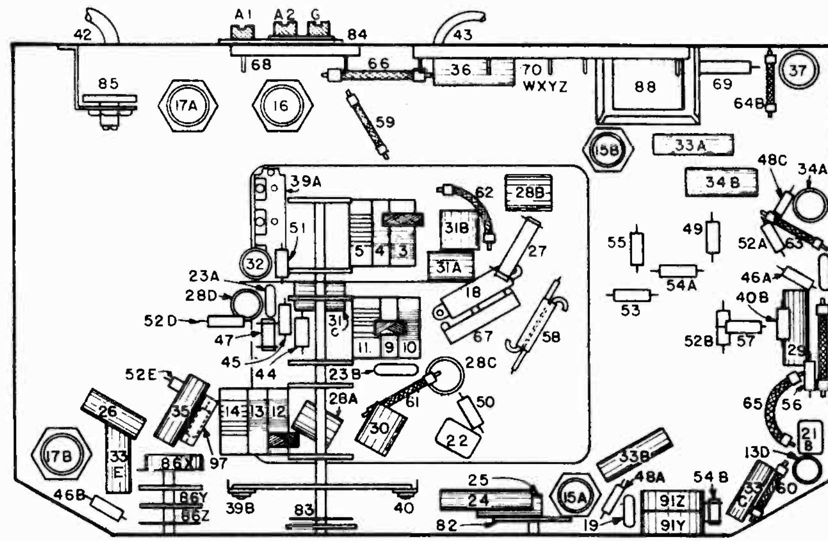


Fig. 3. Bottom View—1516

TUBE SOCKET VOLTAGE READINGS

Tube	Function	H	P_1	P_2	S	Su	K	Ga	Go
6K7	R-F Amplifier	6.3	238	—	105	2.5	2.5	—	—
6A8	Oscillator-Modulator	6.3	238	—	105	—	2.5	170	-5 to -12
6J7	AFC Control	6.3	170	—	130	—	5.8	—	—
6K7	I-F Amplifier	6.3	220	—	105	3.0	3.0	—	—
6K7	AFC Diode and I-F Amplifier	6.3	220	—	100	3.0	3.0	—	—
6H6	AFC Detector	6.3	—	—	—	—	—	—	—
6R7	Diode and 1st A-F Amplifier	6.3	80	—	—	—	2.0	—	—
6C5	A-F Driver	6.3	220	—	—	—	6.8	—	—
6N6	(2) Output	6.3	238	350	—	—	2.6	—	—
5Z4	(2) Rectifiers	5.0	—	—	—	—	350	—	—
6C5	Tuning Indicator Amplifier	6.3	150	—	—	—	0	—	—
W—42419A	Neon Tuning Tube	—	150	—	—	—	0	—	—

W—41187 Auto-Expressionator Tube. Varies with power output.

Voltage drop across speaker field 112 volts.
Power output approximately 25 watts.

Power consumption approximately 142 watts.
All readings taken on 117.5 volt power supply

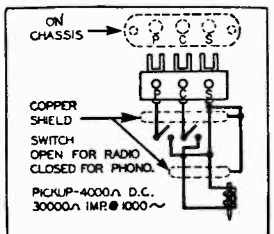
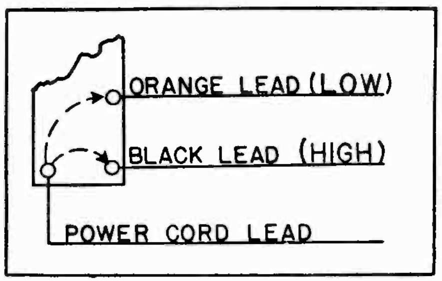


Fig. 7 Phonograph Pickup



50 CYCLE POWER TRANSFORMER ADJUSTMENT

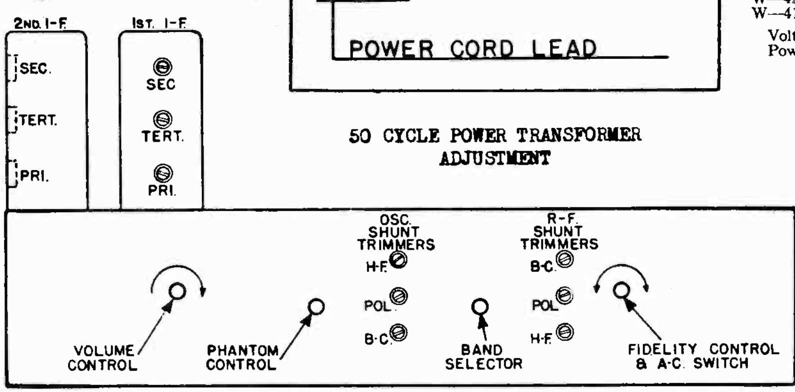


Fig. 4 Front View—1516

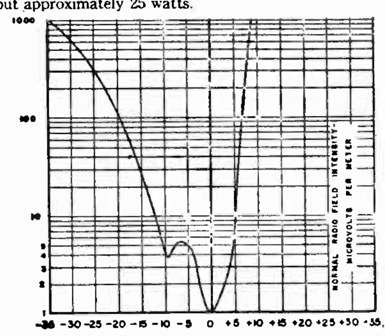


Fig. 5

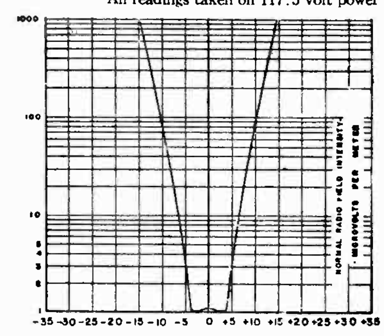


Fig. 6

MODEL 1516
Alignment
Notes

CROSLEY RADIO CORP.

ALIGNMENT PROCEDURE

This model receiver should be turned on and allowed to "warm-up" for about 15 minutes before aligning its circuits.

It is a High Fidelity receiver and in order to secure maximum performance the alignment should be done with precision instruments. The alignment condensers should not be readjusted just to determine if they are properly tuned. Fig. 5, shows the selectivity curve of a receiver whose I-F amplifier was slightly mistuned while Fig. 6, shows a curve made from actual measurements of a receiver employing a triple-tuned I-F amplifier which was properly aligned with the use of a FREQUENCY MODULATED R-F signal generator and an oscilloscope.

The alignment of the AFC circuit may be checked by means of a modulated signal generator and output meter as follows:

(a) Connect one terminal of the output meter to P2 of one of the 6N6 Output tubes and the other terminal through a .1 mf., or larger, condenser—not electrolytic to P2 of the other 6N6 Output tube.

(b) Connect the output of the signal generator through a .00025 mf. condenser to the top cap of the 6A8 Oscillator-Modulator tube, leaving the tube's grid clip in place. Connect the ground lead from the signal generator to the "GND" terminal of the receiver chassis.

(c) Rotate the Phantom Control to the left-hand position (NORMAL).

(d) Adjust the frequency of the signal generator in the region of 450 kilocycles for maximum reading on the output meter.

(e) Without altering the connections or adjustments of the signal generator or output meter connect an antenna to the antenna terminal "A1" and tune-in a local broadcasting station. Turn off modulation of signal generator. Adjust station selector slightly for zero beat.

(f) Rotate the Phantom Control to the Mystic Hand position and listen to the beat note. If the note is less than 200 cycles, or the equivalent of some tone below middle C on the piano, the AFC alignment is satisfactory.

(g) If the beat note is higher than middle C re-alignment is necessary.

(h) In cases where the beat note is not more than about two octaves above middle C or from 1000 to 1500 cycles the AFC circuit may be aligned for zero beat by making a slight adjustment of the rear trimmer condenser on the AFC I-F transformer (Fig. 2, item No. 8). This circuit is very critical and a slight adjustment will produce a great change in the beat note.

(i) Where the AFC is considerably out of alignment as evidenced by a beat note of higher than 1500 cycles the standard alignment procedure outlined below should be followed.

TUNING I-F AMPLIFIER

The I-F amplifier employs two triple-tuned signal I-F transformers and one double-tuned AFC I-F transformer.

I. Conventional Method.

(a) Connect the output meter and signal generator as outlined above in (a) and (b) except that the signal generator should be connected through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place.

(b) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. Turn the volume control knob to the right (ON), turn the fidelity control to its middle position and turn the phantom control to the left (NORMAL).

(c) Set the signal generator to 450 kilocycles.

(d) Open the middle trimmer condenser of the 2nd I-F transformer (Fig. 4) three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(e) Adjust the top trimmer and then the bottom trimmer (Sec. & Pri.) of the 2nd I-F transformer for maximum output. Do not readjust the middle trimmer. ALWAYS USE THE LOWEST SIGNAL GENERATOR OUTPUT THAT WILL GIVE A REASONABLE READING ON THE OUTPUT METER.

(f) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 Osc.-Mod. tube, leaving the tube's grid clip in place.

(g) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw, from the closed position. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(h) Adjust the top trimmer and then the bottom trimmer of the 1st I-F transformer for maximum output.

(i) Transfer the output lead of the signal generator from the 6A8 tube to the antenna terminal "A1" of the receiver and increase the output of the signal generator if necessary.

(j) Adjust the middle trimmer of the 2nd I-F transformer, by closing, until maximum output is obtained. DO NOT READJUST THE TOP AND BOTTOM TRIMMERS.

(k) Adjust the middle trimmer of the 1st I-F transformer, by closing, until maximum output is obtained. DO NOT READJUST THE TOP AND BOTTOM TRIMMERS.

(l) To adjust the AFC system it will be necessary to remove the signal generator lead from the receiver and adjust the 6J7 cathode bias to 6.5 volts by means of the variable control (Illustration No. 85—Fig. 3) in this cathode circuit. The cathode voltage is measured between the cathode terminal and chassis.

(m) Turn the phantom control to the left (NORMAL) and connect the signal output lead through a .02 mf. condenser to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(n) Adjust the signal generator to 450 kilocycles.

(o) Adjust the front trimmer (plate winding) of the AFC I-F transformer for minimum reading on the output meter. It will be necessary to retard the volume control of the receiver in order to prevent AVC action. A fairly strong I-F signal will be required. (An insulated screw driver should be used for aligning the AFC I-F amplifier system).

(p) Insert an 0-5 milliammeter in series with the lead to the cathode terminal of the 6J7 socket and note the current reading.

(q) Turn the phantom control to its middle position and increase the output of the signal generator to approximately 100,000 microvolts.

(r) Transfer the output lead of the signal generator from the 6A8 tube to the top cap of the 6K7 AFC I-F amplifier tube, leaving the tube's grid clip in place.

(s) Adjust the rear trimmer of the AFC I-F transformer for the same value of cathode current as obtained in (p) above. This value of current will be obtained with the trimmer closed, with it open and at some intermediate position. A very slight adjustment while in the intermediate position will cause the meter to read from 0 to 1.5 milliamperes. This is the setting that should be used.

(t) To check on the AFC adjustment, disconnect the equipment and tune-in a fairly weak broadcast station in the region of 1500 kilocycles. Turn the AFC ON and OFF. If reception is the same in both positions and will automatically tune-in strong stations within approximately plus or minus 15 kilocycles of the station selector setting with the AFC ON, the AFC is properly aligned. If distortion is noted and the set will not automatically tune-in stations as described, the AFC alignment should be rechecked.

II. Oscilloscope Method.

(a) Connect the output of a FREQUENCY MODULATED R-F signal generator through a .02 mf. condenser to the top cap of the 6K7 I-F amplifier tube, leaving the tube's grid clip in place. Connect the ground lead of the signal generator to the receiver chassis. KEEP THE GENERATOR LEAD AS FAR AS POSSIBLE FROM THE GRID LEADS OF THE OTHER SCREEN GRID TUBES.

(b) Connect the vertical plates of the cathode ray oscilloscope to the receiver as follows: The binding post marked "GND" should be connected to the receiver chassis and the other binding post should be connected to the plate of the 6R7 tube. (Be sure the oscilloscope is protected from D.C. by connecting a condenser, .1 mf. to .05 mf., in series with the lead connected to the plate of the 6R7 tube).

(c) Set the band selector switch to the Broadcast Band and rotate the station selector to approximately 60 on the dial. The exact setting should be at a position where no broadcast signal will be received. Turn the volume control knob to the right (ON), turn the fidelity control to NORMAL and turn the phantom control to NORMAL.

(d) Set the signal generator to 450 kilocycles. See instructions supplied with signal generator and oscilloscope.

(e) Open the middle trimmer condenser on the 2nd I-F transformer three or four turns of the adjustment screw. (Care should be taken that the adjustment screw does not become dislodged from the nut).

(f) Adjust the top trimmer of the 2nd I-F transformer so that the nose of the selectivity curve is centered on the resonance axis (R) of the transparent scale supplied with the oscilloscope.

(g) Adjust the bottom trimmer of the 2nd I-F transformer for maximum amplitude of the selectivity curve on resonance line (R).

(h) Reduce the output of the signal generator and adjust the middle trimmer of the 2nd I-F transformer for maximum amplitude and symmetry of the selectivity curve about the resonance line.

NOTE: Keep the base of the selectivity curve centered on the transparent scale from —15 to +15 and keep the signal generator output as low as possible in order to prevent AVC action in the receiver.

(i) Readjust the bottom trimmer of the 2nd I-F transformer for maximum symmetry and amplitude.

(j) Transfer the output lead of the signal generator from the 6K7 tube to the top cap of the 6A8 oscillator-modulator tube, leaving the tube's grid clip in place.

(k) Open the middle trimmer of the 1st I-F transformer three or four turns of the adjustment screw from the closed position. (Care should be taken that the adjustment screw does not become dislodged from the nut)

(l) Increase the output of the signal generator and adjust the top trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(m) Adjust the bottom trimmer of the 1st I-F transformer for maximum amplitude

(n) Reduce the output of the signal generator and adjust the middle trimmer of the 1st I-F transformer for maximum symmetry and amplitude.

(o) Carefully repeat operations (h), (i) and (n) for more accurate adjustments. (See Fig. 6).

Aligning R-F Amplifier.

The R-F amplifier can best be aligned in the conventional manner, using a modulated signal generator and output meter.

When aligning the R-F amplifier the output lead of the signal generator is connected to the antenna terminal "A1" of the receiver. For the BLUE and RED bands a .00025 mf. condenser must 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 (BLUE and RED bands). The band selector switch should be set for the band being aligned and the signal generator should be set to the frequency indicated in "C" below for each adjustment.

(a) Adjust the "OSC", "R-F" 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 in the order given. DO NOT READJUST THE "OSC" TRIMMER.

NOTE: When shunt aligning the RED and GREEN bands care must be exercised so that the circuits will be aligned on the fundamental frequency rather than on the image frequency which is approximately 900 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 900 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 position.

(b) To align the series trimmers, "osc. series" Fig. 2, set the signal generator to the frequency indicated below and then tune-in this signal with the station selector for maximum output. At the time that any series trimmer is being adjusted rotate the station selector back and forth slightly until no further improvement in output is obtained.

(c) SIGNAL INPUT FREQUENCIES

	Shunt Alignment	Series Alignment
American Broadcast Band (BLUE)	1,400 Kilocycles	600 Kilocycles
Police and Amateur Band (RED)	5,000 Kilocycles	2000 Kilocycles
High Frequency Band (GREEN)	18,000 Kilocycles	——

PHANTOM CONTROL

The Phantom Control permits the listener to use the Mystic Hand (Automatic Frequency Control) and the Auto-Expressionator as desired. The various positions of the control are shown on an illuminated indicator on the dial.

The receiver may be operated with normal power output and fidelity, such as would ordinarily be desired in the average home, with the control in the NORMAL position.

The Mystic Hand automatically tunes the receiver accurately to the strongest signal within a frequency range of approximately 15 kilocycles of the station selector setting.

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 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.