Most - Often - Needed

1942

RADIO DIAGRAMS

and Servicing Information

PREPARED UNDER THE DIRECTION OF

M. N. BEITMAN

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SUPREME PUBLICATIONS

CHICAGO

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MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

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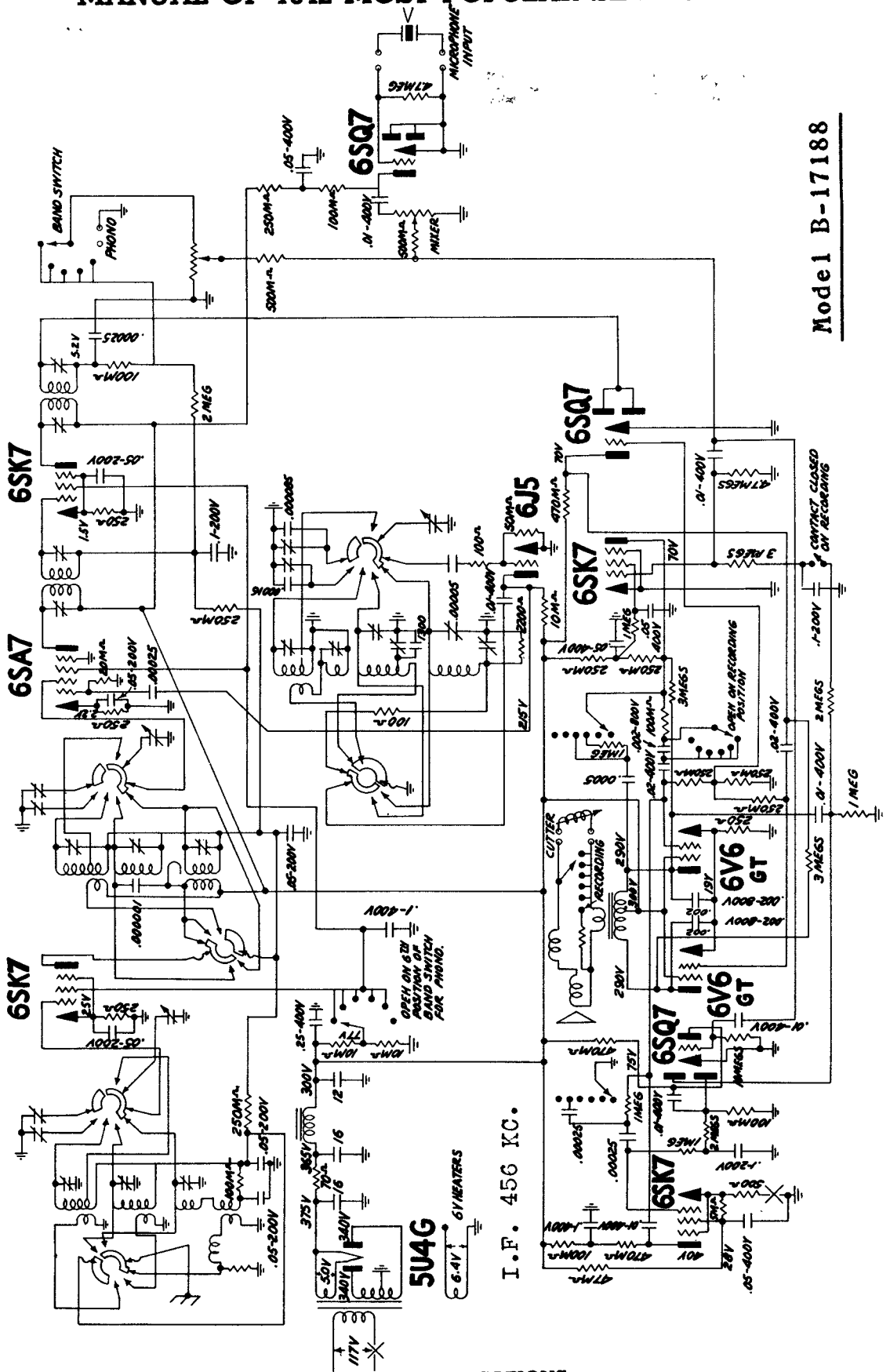
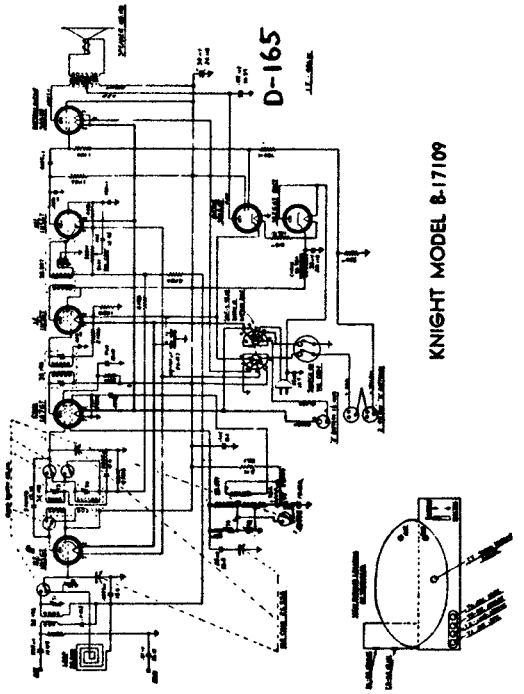
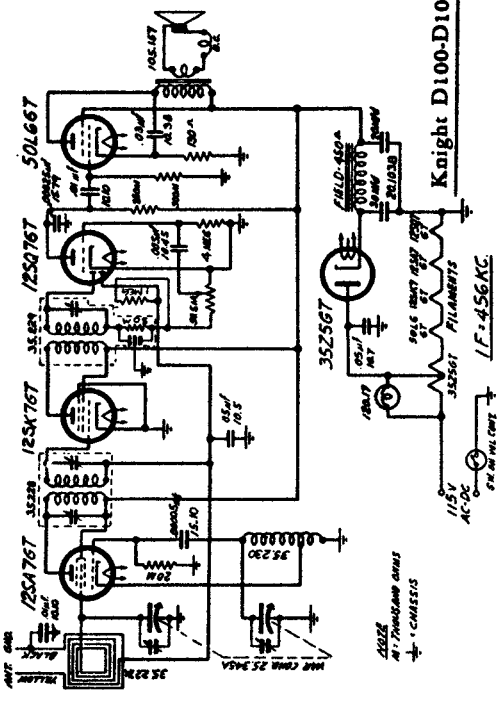
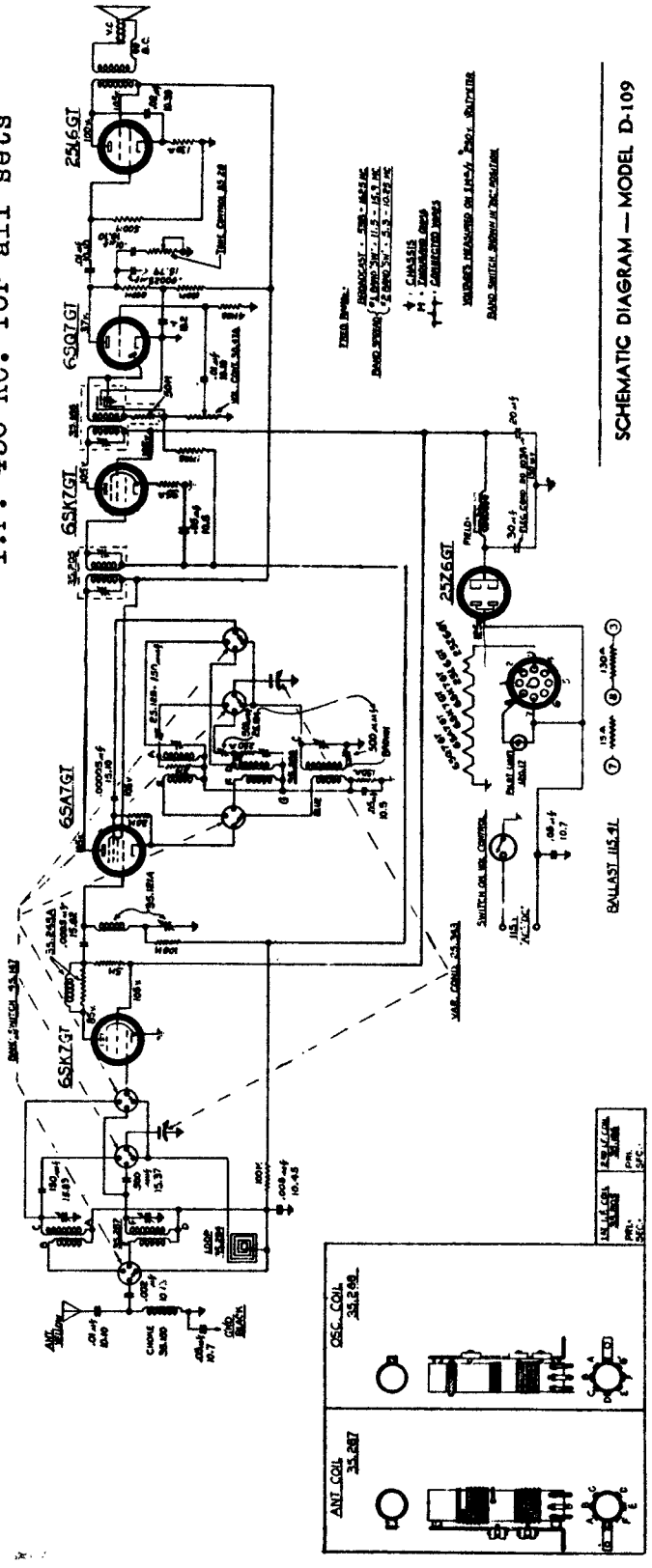

Model B-17188
ALLIED RADIO CORPORATION
I.F. 456 KC.
6SK7
6SA7
6SQ7
6J5
6V6 GT
5U4G
6V HEATERS
MICROPHONE INPUT
PHONO
BAND SWITCH
CONTACT CLOSED ON RECORDING
OPEN ON RECORDING POSITION
OPEN ON 6TH POSITION OF BAND SWITCH FOR PHONO.
CUTTER
RECORDING

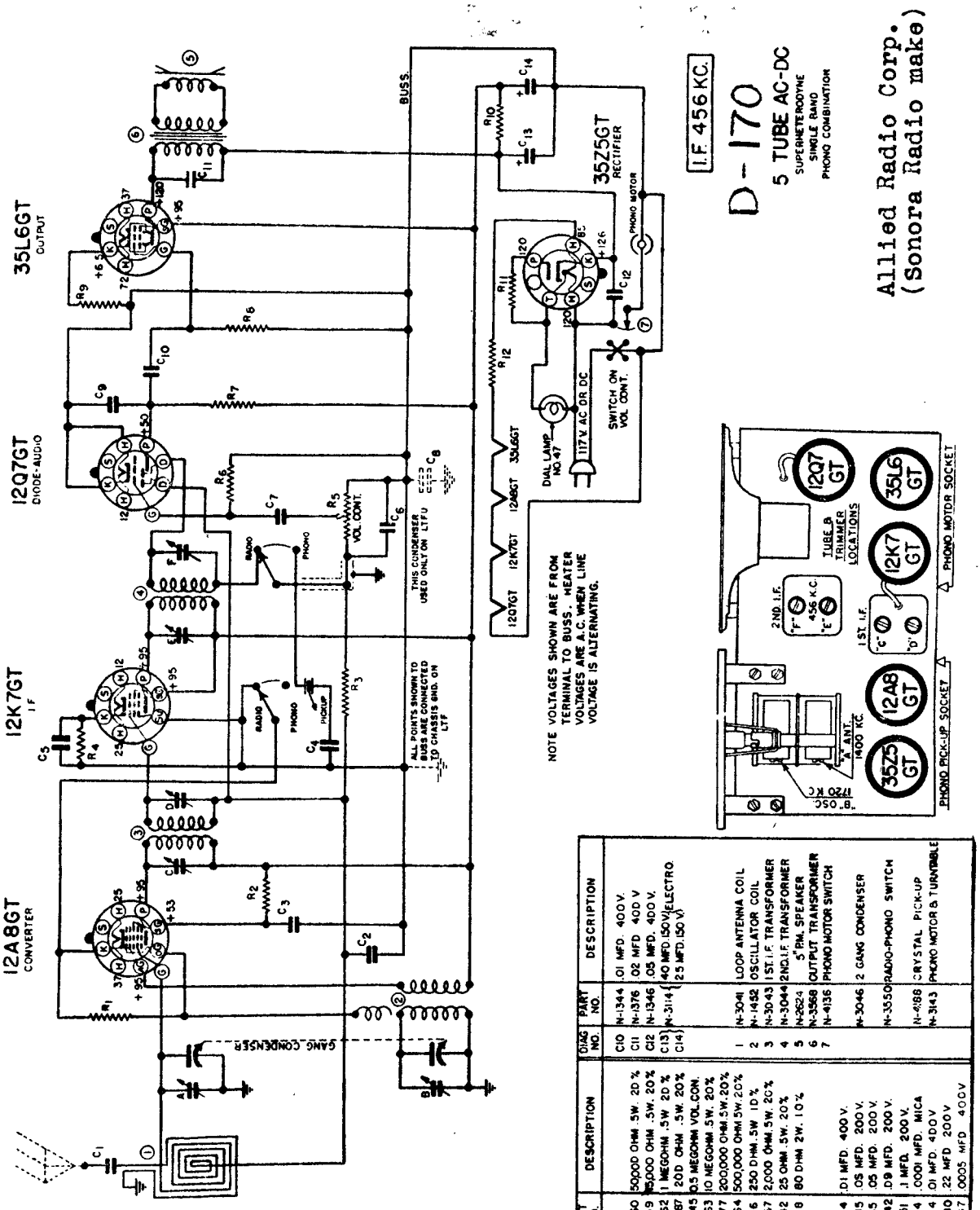




I.F. 456 KC. for all sets

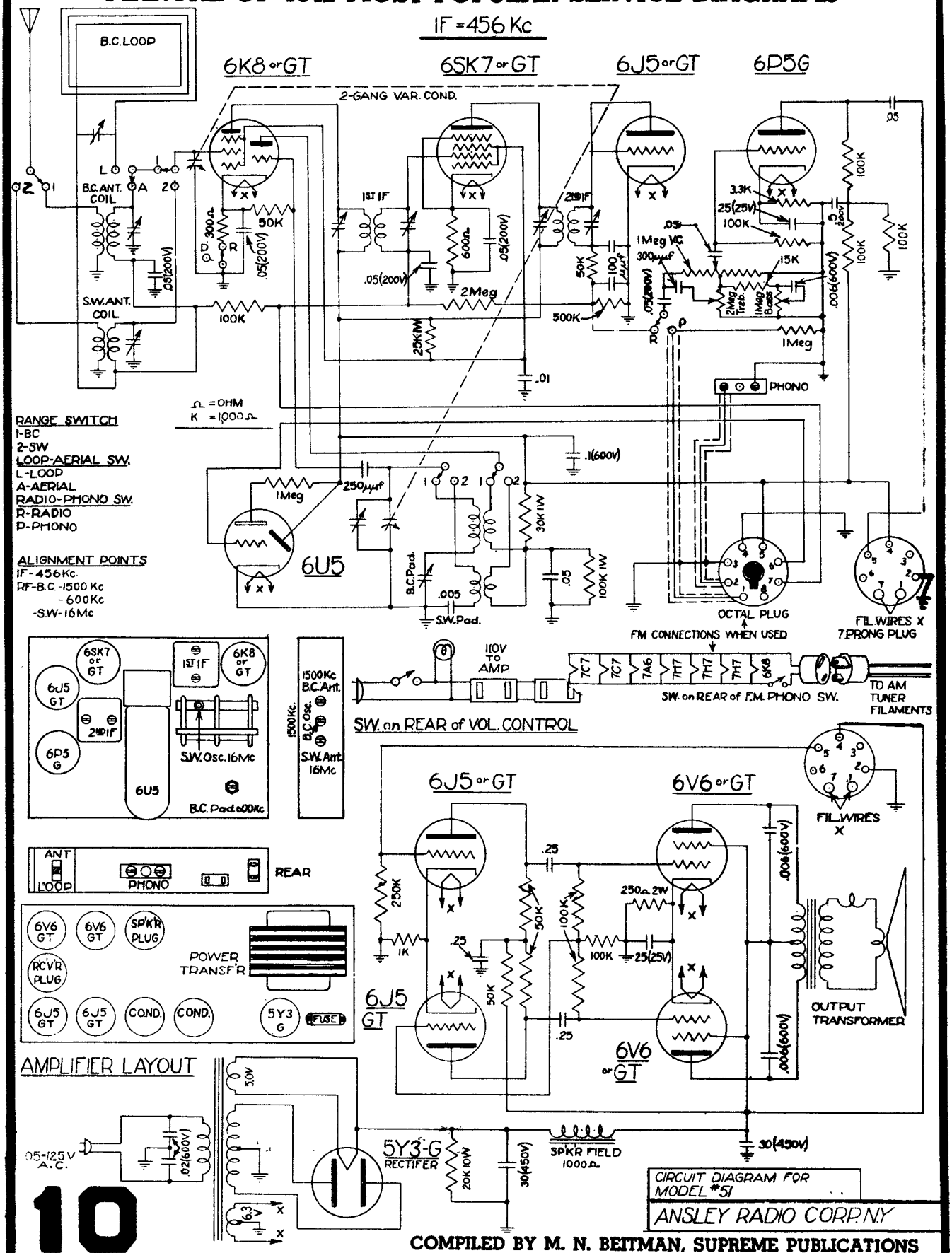
Allied Radio Corp.





DIAG NO.	PART NO.	DESCRIPTION
R1	N-1260	50000 OHM .5W. 20 %
R2	N-1259	25000 OHM .5W. 20%
R3	N-1262	1 MEGOHM .5W 20 %
R4	N-2487	200 OHM .5W. 20%
R5	N-3045	0.5 MEGOHM VOL.CON.
R6	N-1263	10 MEGOHM .5W. 20%
R7	N-1377	200,000 OHM .5W. 20%
R8	N-1264	500,000 OHM 5W. 20%
R9	N-1616	250 OHM .5W 10%
R10	N-1257	2,000 OHM .5W. 20%
R11	N-1742	25 OHM .5W. 20%
R12	N-1618	80 OHM 2W. 10%
C1	N-1344	.01 MFD. 400 V.
C2	N-1345	.05 MFD. 200 V.
C3	N-1345	.05 MFD. 200 V.
C4	N-2642	.09 MFD. 200 V.
C5	N-1351	.1 MFD. 200 V.
C6	N-1374	.0001 MFD. MICA
C7	N-1344	.01 MFD. 400 V
C8	N-3080	.22 MFD. 200 V
C9	N-1447	.0005 MFD. 400 V
C10	N-1344	.01 MFD. 400 V.
C11	N-1376	.02 MFD. 400 V
C12	N-1346	.05 MFD. 400 V.
C13	N-3114	40 MFD. 150 V. ELECTRO
C14		25 MFD. 150 V.
1	N-3041	LOOP ANTENNA COIL
2	N-1452	OSCILLATOR COIL
3	N-3043	1ST I.F. TRANSFORMER
4	N-3044	2ND I.F. TRANSFORMER
5	N-2624	5" PM. SPEAKER
6	N-3568	OUTPUT TRANSFORMER
7	N-4136	PHONO MOTOR SWITCH
	N-3046	2 GANG CONDENSER
	N-3550	RADIO-PHONO SWITCH
	N-4188	CRYSTAL PICK-UP
	N-3143	PHONO MOTOR & TURNTABLE

Allied Radio Corp.
Chicago, Ill.



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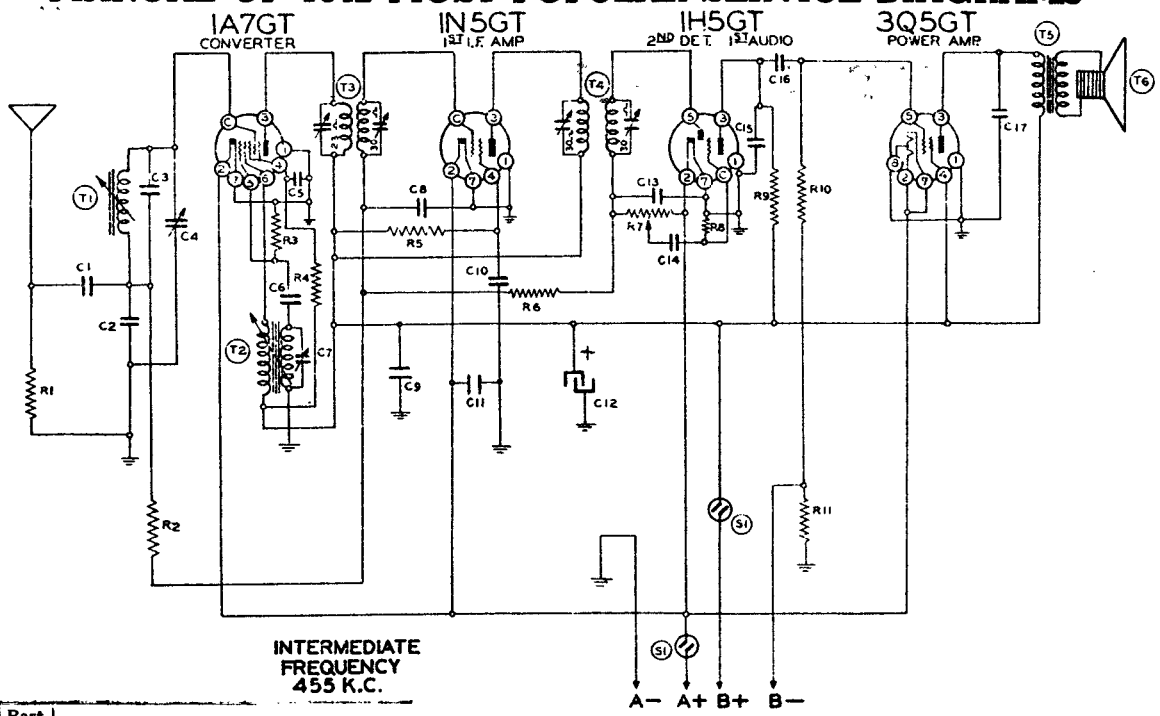
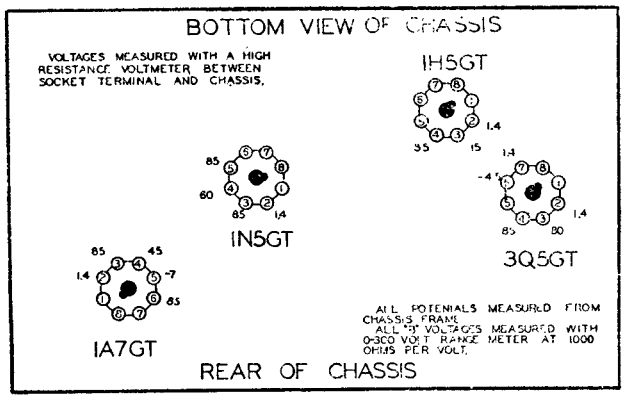
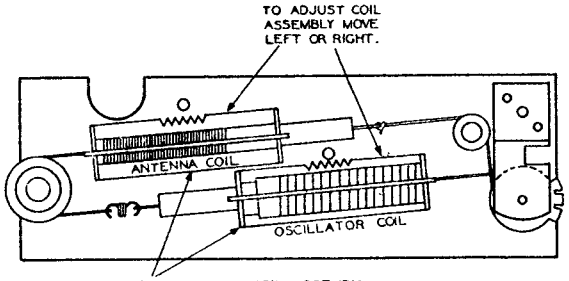


Belmont Radio Corp.

Model 4B16 Radio

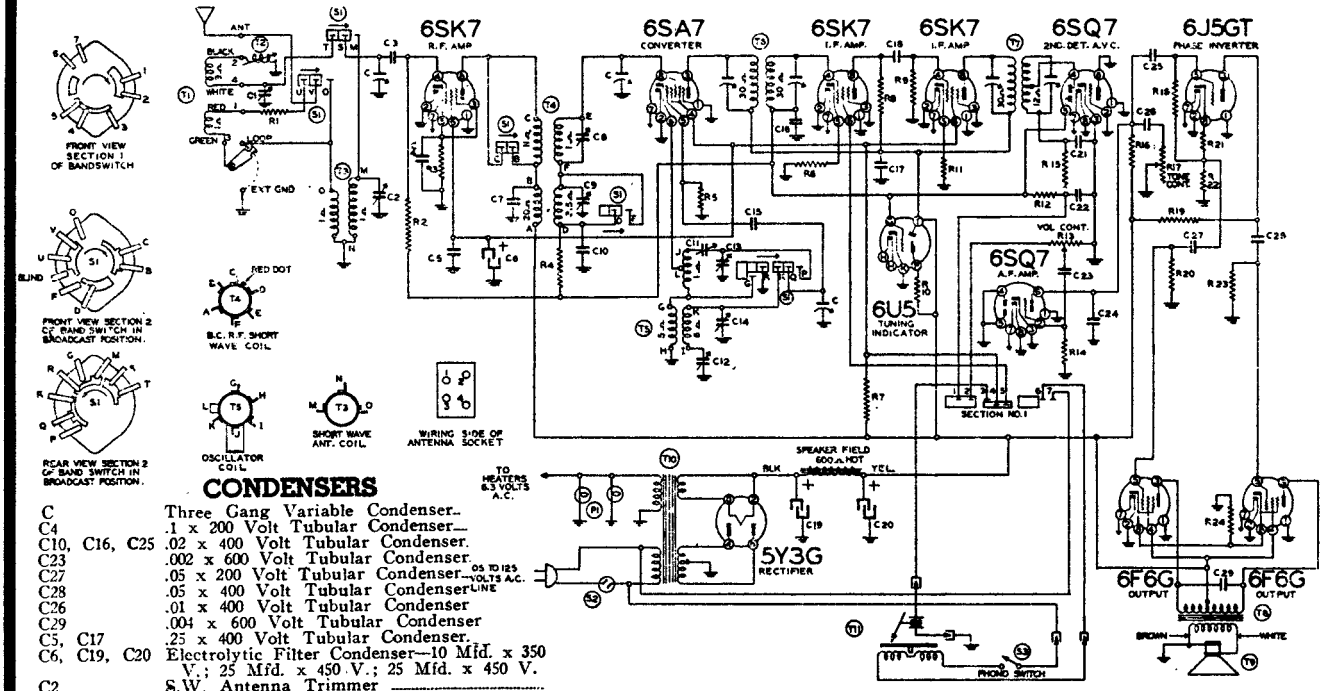
Code No.	Part No.	Description
		RESISTORS
R1	13017	10M ohm—½ w.
R2	1304	3 megohm—½ w.
R3	1309	200M ohm—½ w.
R4	130194	35M ohm—½ w.
R5	13094	50M ohm—½ w.
R6	1304	3 megohm—½ w.
R7	101250	1 megohm—Volume control and switch—½ w.
R8	130257	5 megohm—½ w.
R9	13019	1 megohm—½ w.
R10	130146	2 megohm—½ w.
R11	13079	400 ohm—½ w.
		CONDENSERS
C1	12936	.0003 mica
C2	100112	.001 x 200 v.
C3	129177	.000045—Ceramicon
C4	124165	Antenna trimmer
C5	1009	.05 x 200 v.—Condenser
C6	12912	.00025 mica
C7	124165	Oscillator trimmer
C8	1009	.05 x 200 v. Condenser
C9	1006	.25 x 200 v. Condenser
C10	10020	.1 x 200 v.
C11	10017	.5 x 120 v.
C12	119117B	10 mfd. x 150 v. Lytic
C13	1295	.0001 mica
C14	10012	.003 x 600 v. Condenser
C15	1295	.0001 mica
C16	10026	.02 x 400 v. Condenser
C17	1007	.005 x 600 v.
		C4 and C7 are in same unit.
		PARTS
T1	1364	Antenna Coil
T2	1364	Oscillator Coil
		Permeability tuning assem. Complete.
T3	108202	Input I. F. Coil 455 Kc.
T4	108153B	Output I. F. Coil 455 Kc.
T5	10591B	Output transformer
T6	114238	5" P.M. speaker
S1		Switch-on Volume Control





NOTE: THE ANTENNA COIL ASSEMBLY IS MADE SO THAT IT IS MOVABLE LEFT OR RIGHT. WHEN MAKING THE ADJUSTMENT AS GIVEN IN THE ALIGNMENT PROCEDURE MOVE COIL ASSEMBLY VERY SLOWLY

COIL ASSEMBLY VIEW



CONDENSERS

C	Three Gang Variable Condenser
C4	.1 x 200 Volt Tubular Condenser
C10, C16, C25	.02 x 400 Volt Tubular Condenser.
C23	.002 x 600 Volt Tubular Condenser.
C27	.05 x 200 Volt Tubular Condenser
C28	.05 x 400 Volt Tubular Condenser
C26	.01 x 400 Volt Tubular Condenser
C29	.004 x 600 Volt Tubular Condenser
C5, C17	.25 x 400 Volt Tubular Condenser.
C6, C19, C20	Electrolytic Filter Condenser—10 Mfd. x 350 V.; 25 Mfd. x 450 V.; 25 Mfd. x 450 V.
C2	S.W. Antenna Trimmer
C8, C9	S.W. and B.C. R.F. Trimmer—Dual
C13, C14	S.W. and B.C. Osc. Trimmer—Dual
C1	B.C. Antenna Trimmer
C12	.000525 Compression Cond.—B.C. Pad
C3, C18	.0005 Mica Type Condenser—20%
C7	.0004 Mica Type Condenser—20%
C15	.00005 Mica Type Condenser—20%
C21, C22	.0001 Mica Type Condenser—20%
C11	.0021 Compression Mica Condenser
C24	.00025 Mica Type Condenser—20%

Belmont Radio

RESISTORS

R13, S2	Volume Control and Switch (500M Ohms) Less Shaft
R17	Tone Control (1 Megohm) Less Shaft
	Shaft Only for Volume and Tone Controls
R2, R18	1 Megohm—⅓ Watt Resistor—20%
R4	300M Ohm—⅓ Watt Resistor—20%
R5	40M Ohm—⅓ Watt Resistor—20%
R6, R11	500 Ohm—⅓ Watt Resistor—20%
R8	12M Ohm—⅓ Watt Resistor—20%
R9, R19, R22	100M Ohm—⅓ Watt Resistor—20%
R7	12M Ohm—2 Watt Resistor—10%
R15	50M Ohm—⅓ Watt Resistor—20%
R12	3 Megohm—⅓ Watt Resistor—25%
R14	5 Megohm—⅓ Watt Resistor—30%
R21	2500 Ohm—⅓ Watt Resistor—20%
R20, R23	500M Ohm—⅓ Watt Resistor—20%
R16	250M Ohm—⅓ Watt Resistor—20%
R24	300 Ohm—1 Watt Resistor—20%
R3	300 Ohm—⅓ Watt Resistor—20%
R1	400 Ohm—⅓ Watt Resistor—20%
R10	1 Megohm—In Eye Socket

Model 11A25

Alignment Procedure

- Volume control—Maximum all adjustments.
- Connect dummy antenna value in series with generator output lead.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum (in Order Shown)
I. F.	455 Kc	.1 MFD.	Grid of 6SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top Output I. F.
	455 Kc	.1 MFD.	Grid of 6SA7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top Input I. F.
SHORT WAVE BAND	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	C13, S.W. Osc.
	17 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 17 Mc.	C8, S.W. R.F., C2 S. W. Antenna
	6 Mc.	400 Ohms	External Antenna and Ground	Short Wave	Set Dial at 6 Mc.	C11 S.W. Osc Series Pad See Note "A"
BROAD-CAST BAND	1580 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Rotor full open (Plates out of mesh)	C14 B.C. Osc.
	540 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Set Dial at 540 Kc. (Plates in Mesh)	C12 B.C. Osc. Series Pad
	1400 Kc.	200 mmf.	Grid of 6SK7 R. F. Tube	Broadcast	Set Dial at 1400 Kc.	C9 B.C R.F.
LOOP ALIGN-MENT	1400 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 1400 Kc.	C1 B.C. Ant.
	600 Kc.	200 mmf.	External Antenna and Ground	Broadcast	Set Dial at 600 Kc.	T2 Iron Core Tracking Coil.

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

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

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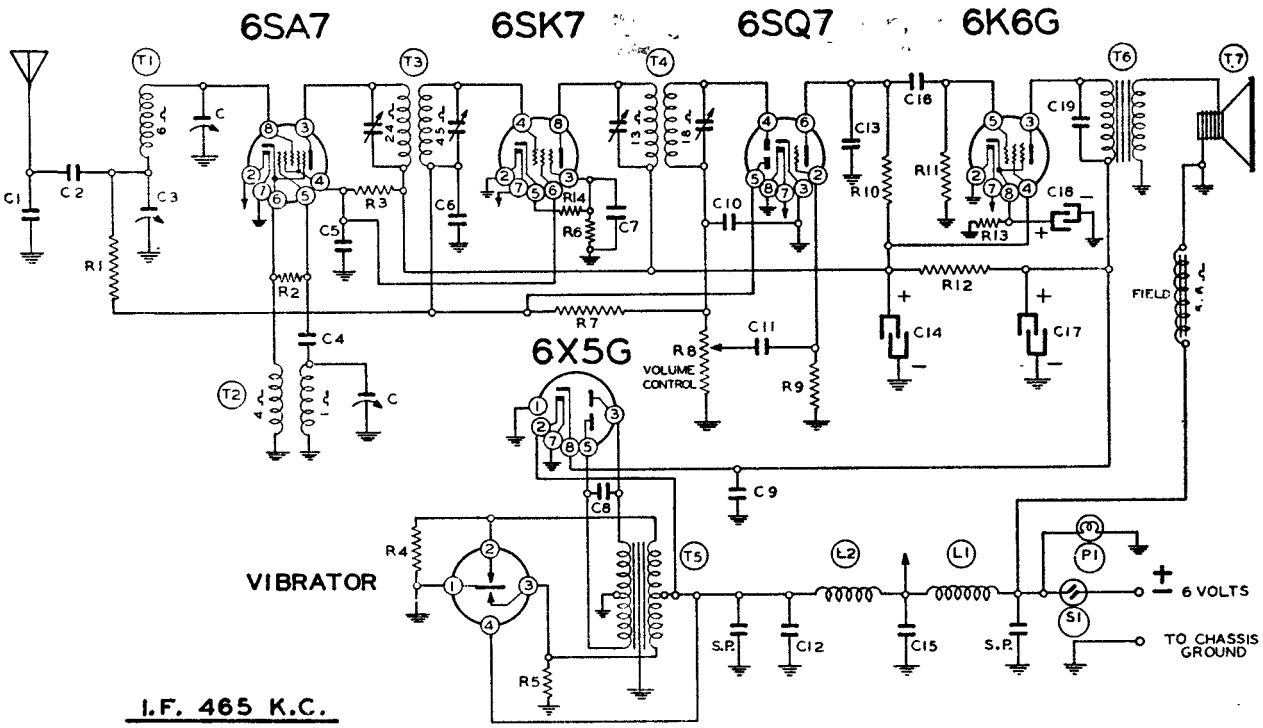
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

Belmont MODEL 579

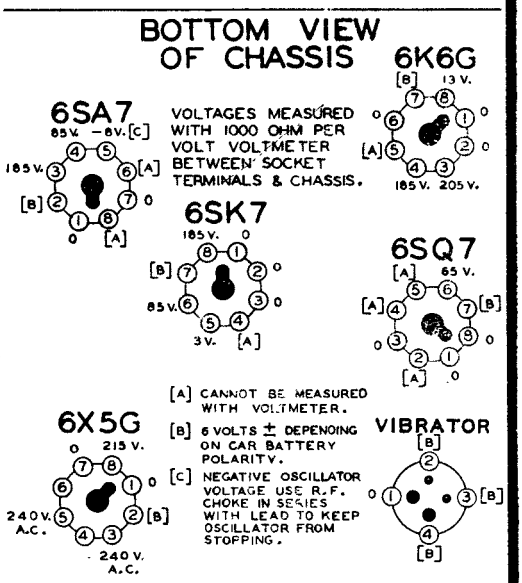


I.F. 465 K.C.

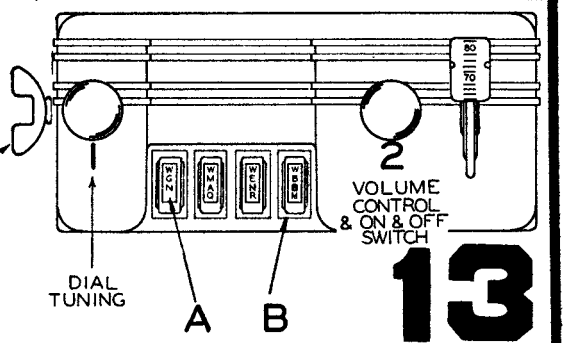
Circuit Diagram Ref. No.	Part No.	Description
		RESISTORS
R1	13011	250M ohm—½ w.
R2	130236	30M ohm—½ w.
R3	130307	15M ohm—1 watt
R4	13060	100 ohm—½ w.
R5	13060	100 ohm—½ w.
R6	13070	500 ohm—½ w.
R7	1304	3 megohm—½ w.
R8	101110	1 megohm volume control
R9	130257	5 megohm—½ w.
R10	13011	250M ohm—½ w.
R11	1303	500M ohm—½ w.
R12	130199	1500 ohm—1 watt
R13	130308	750 ohm—1 watt
R14	130174	50 ohm—½ w.
		CONDENSERS
C	10269	2 gang variable condenser
C1	1293	.00002 mica
C2	10055	.01 x 400 volts
C3	12434	Adj. Antenna Trimmer
C4	12921	.0002 mica
C5	100115	.05 x 400 v.
C6	1009	.05 x 200 v.
C7	10020	.1 x 200 v.
C8	10034	.005 x 1200 v.

Circuit Diagram Ref. No.	Part No.	Description
C9	12912	.00025 mica
C10	1295	.0001 mica
C11	10025	.002 x 600 v.
C12	10031	.5 x 120 v.
C13	1292	.0005 mica
C14	119105	15 ufd. lytic x 350 w. v.
C15	10031	.5 x 120 v.
C16	10078	.01 x 200 v.
C17	119105	15 ufd. lytic x 350 w. v.
C18	119105	20 ufd. lytic x 25 w. v.
C19	10087	.01 x 600 v.
		C14, C17 and C18 in same unit
		PARTS
T1	11195B	Antenna Coil
T2	110146	Oscillator Coil
T3	108139	Input I. F. Coil—465 kc.
T4	108121B	Output I. F. Coil—465 kc.
T5	104131	Power Transformer
T6	10567	Output Transformer
T7	114114-R	5" Dynamic Speaker (5.6 ohm
L1	10568	"A" Choke
L2	10566	"A" Choke
S1		Switch on volume control
P1	10297	Pilot light (T51) 6-8 volts
S.P.	11749	(2) Spark Plates

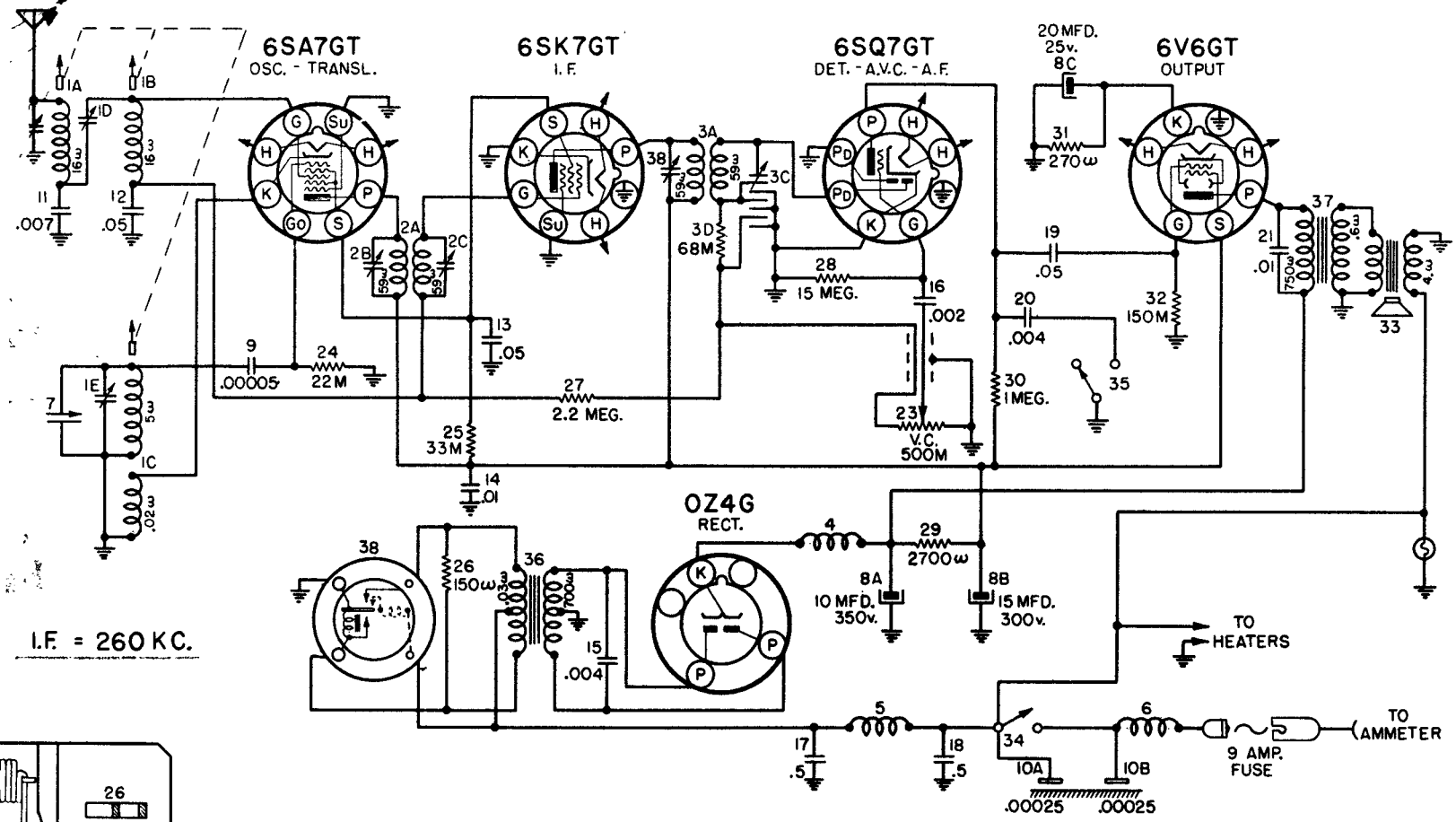
BOTTOM VIEW OF CHASSIS

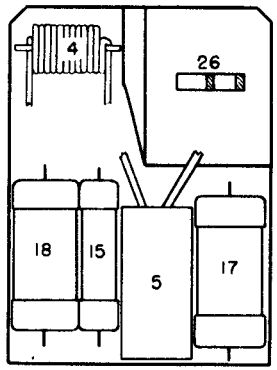


REAR OF CHASSIS



The ignition system of every automobile generates high frequency electrical disturbances which interfere to some extent with the operation of the radio receiver. This disturbance arises from the ignition coil, the distributor and associated wiring. It must either be suppressed at its origin or must be prevented from feeding into the input of the radio receiver through the common storage battery. By proper shielding and by-passing these disturbances are prevented from entering the receiver.





POWER PACK PARTS LAYOUT

The circuit used in this receiver is the superheterodyne type, employing the permeability method of tuning. An adjustable condenser is provided for matching the antenna circuit to the antenna. This adjustment is made near the high frequency end of the band (1400 kilocycles).

CHEVROLET

CIRCUIT DIAGRAM—RADIO 985792

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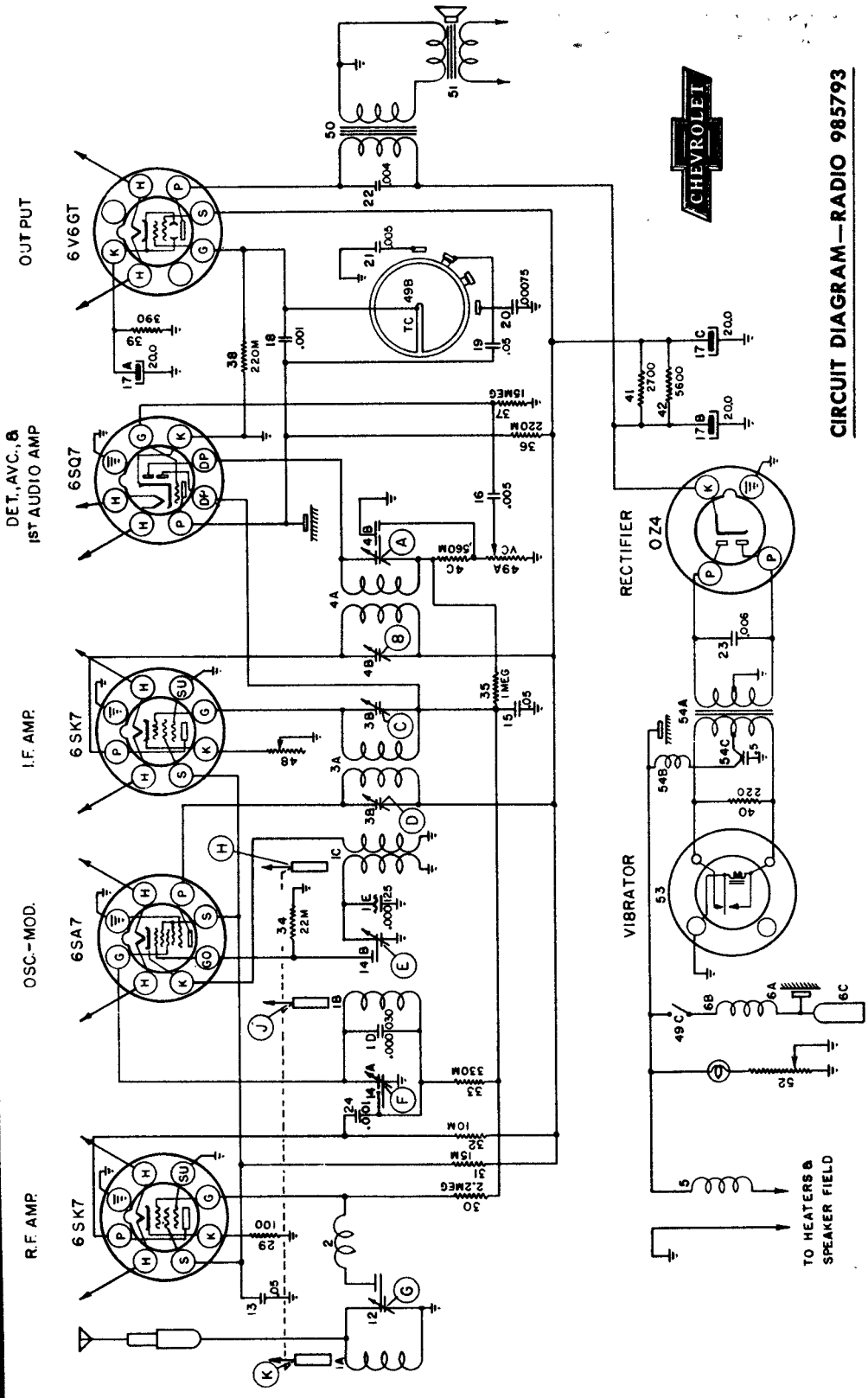
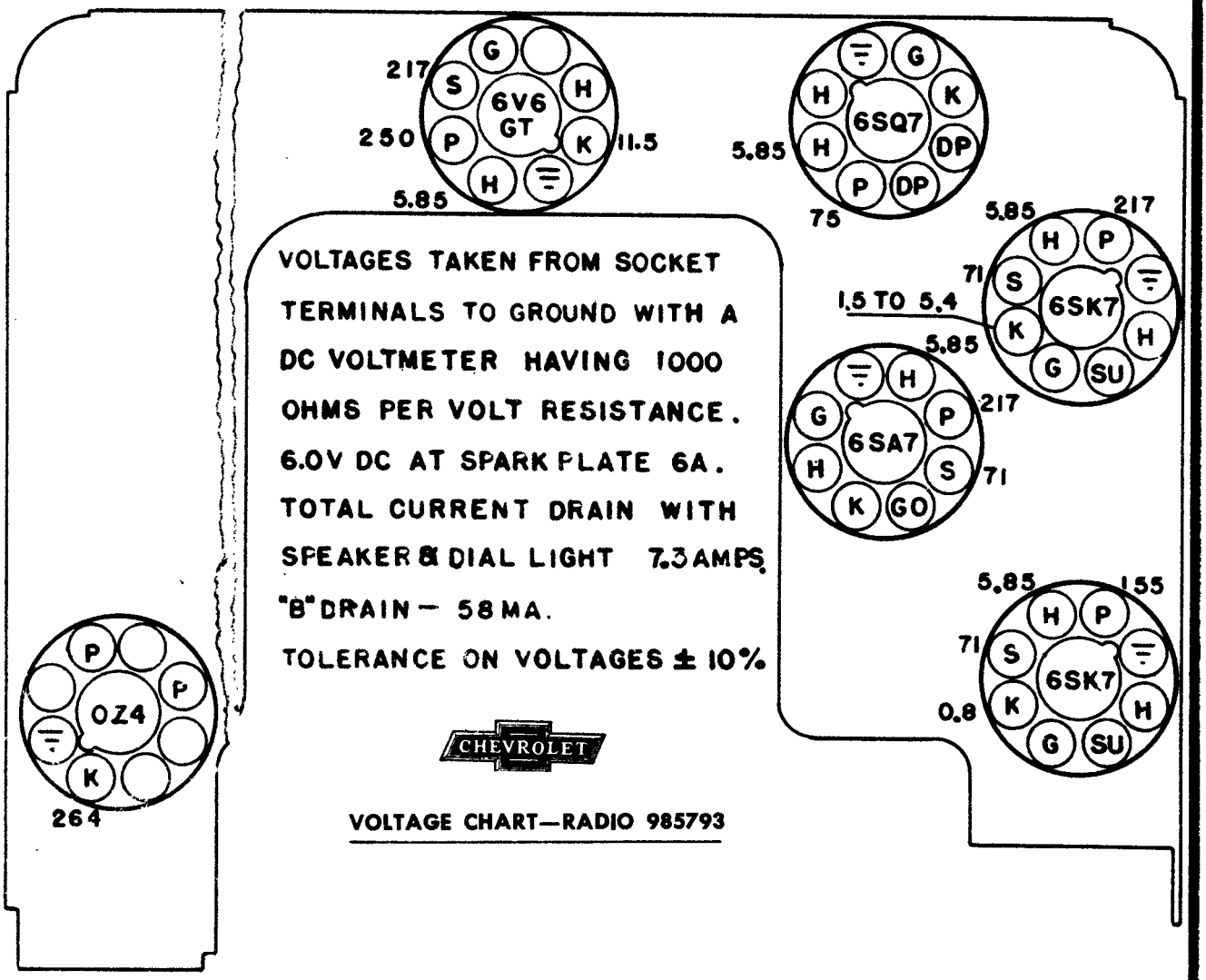


Antenna trimmer "G" must be adjusted to match the car antenna when receiver is installed. With the antenna fully extended tune in a weak station near 1400 on the dial and adjust the antenna trimmers for maximum volume.



I.F. Alignment at 262 Kilocycles

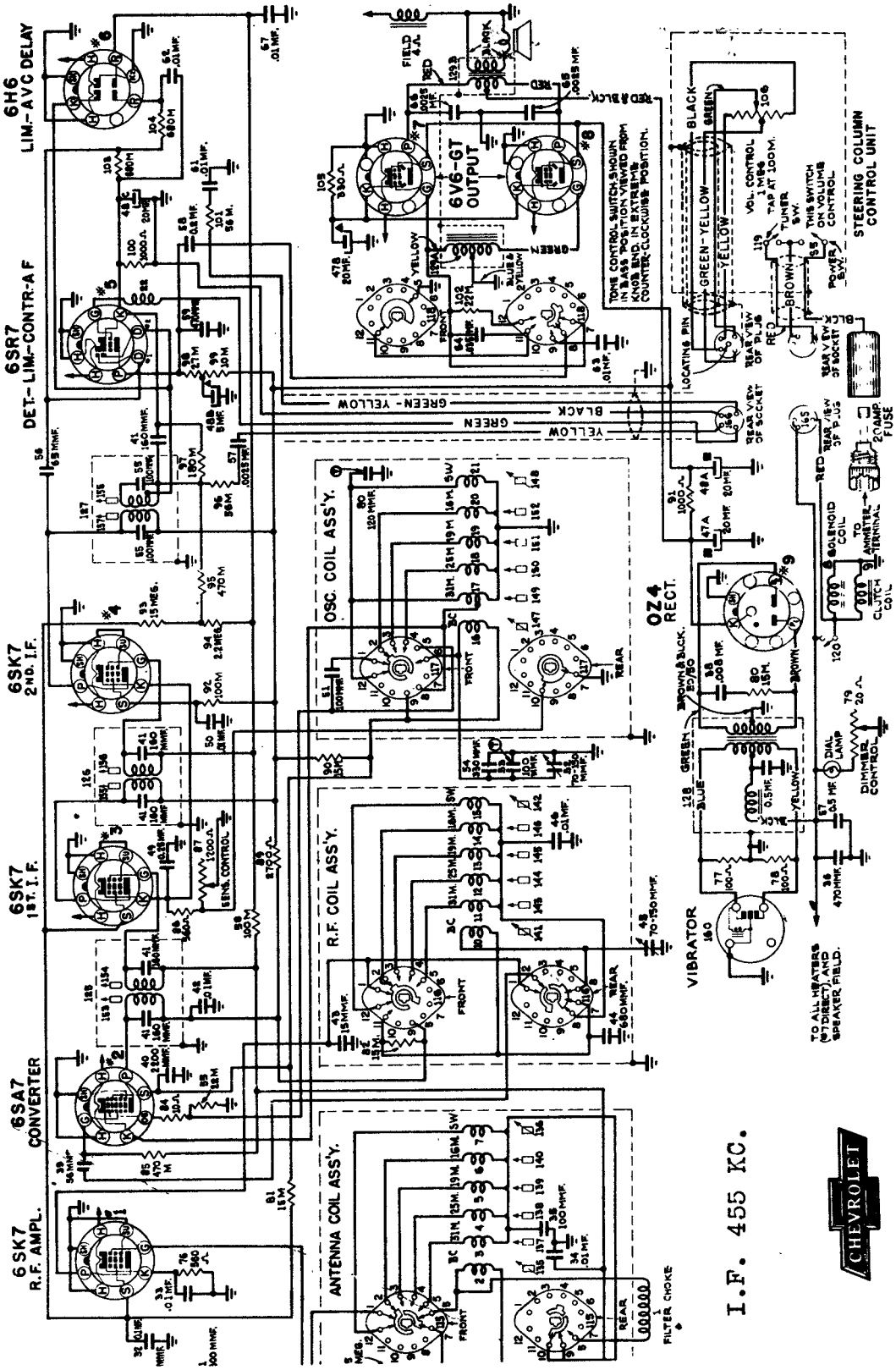
(a) Connect a 0.1 mfd. condenser between the plate prong of the 6V6GT output tube and one terminal of the output meter, to protect the meter from DC voltages. Connect the other terminal of the output meter to ground.

(b) Connect the ground lead of the signal generator to the chassis frame.

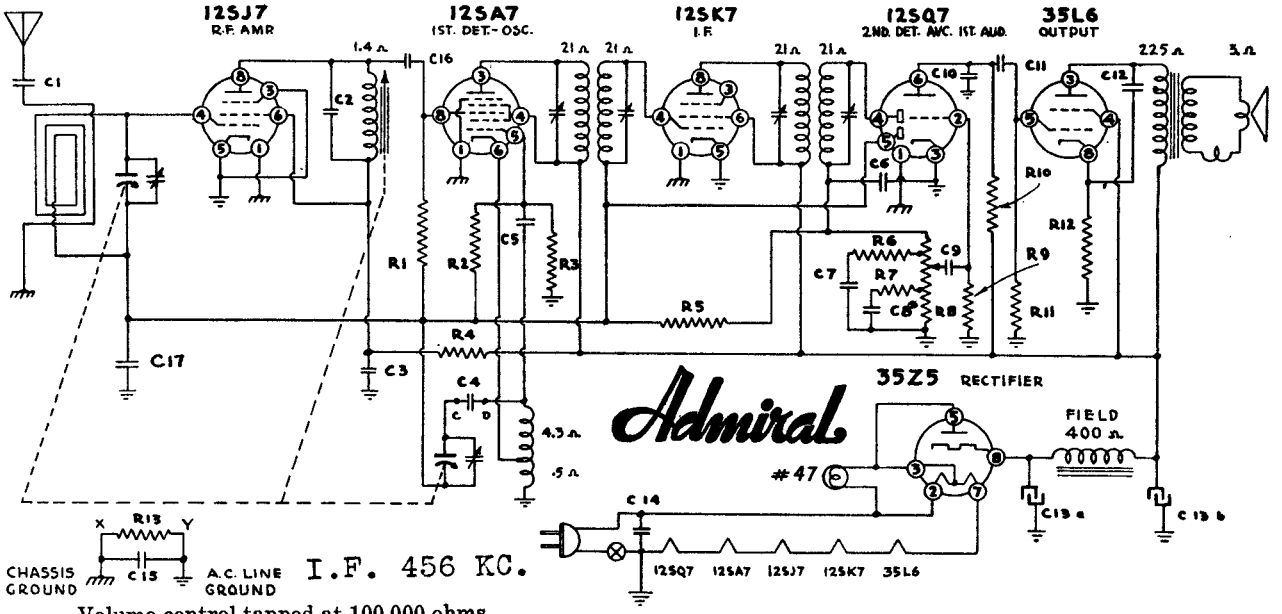
(c) Connect the signal lead of the signal generator to the grid (G) prong of the 6SA7 tube socket through a 0.1 mfd. condenser.

(d) Turn the set volume control on full and rotate the tone control knob to the center (Music) position. Adjust the signal generator to 262 kilocycles, and tune the receiver to a frequency where no squeals or beat notes may be heard and so that when the tuning control is moved through narrow limits no appreciable change in output is noticeable.

(e) Adjust the I.F. trimmers A, B, C, and D for maximum output.



CIRCUIT DIAGRAM—RADIO 985794



Volume control tapped at 100,000 ohms and 200,000 ohms from zero end.

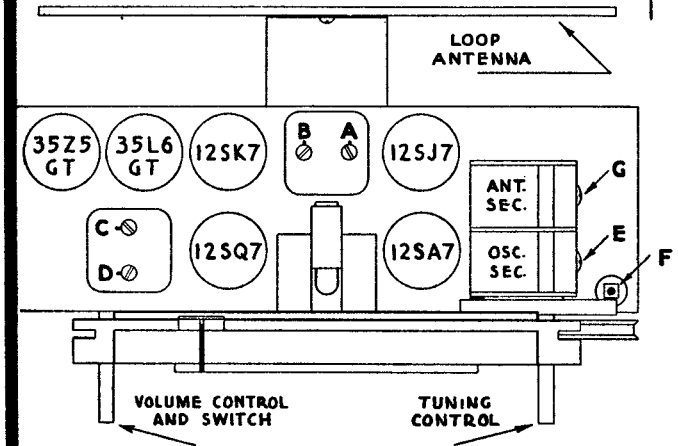
In model B6 only, X and Y are connected together. R13, C15, and C4 are not used. C is connected to D.

RESISTORS

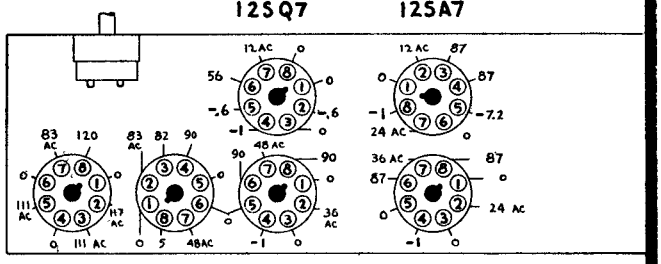
No.	Ohms
R1	10,000
R2	10,000,000
R3	25,000
R4	100
R5	1,000,000
R6	50,000
R7	30,000
R8 V. C.	500,000
R9	5,000,000
R10	250,000
R11	500,000
R12	150
R13	150,000

CONDENSERS

No.	Capacity (Mfd.)
C1	.005
C2	.000785
C3	.05
C4	.02
C5	.00005
C6	.00025
C7	.01
C8	.01
C9	.01
C10	.0005
C11	.01
C12	.02
C13a	30. Elect.
C13b	50. Elect.
C14	.05
C15	.2
C16	.00025
C17	.1



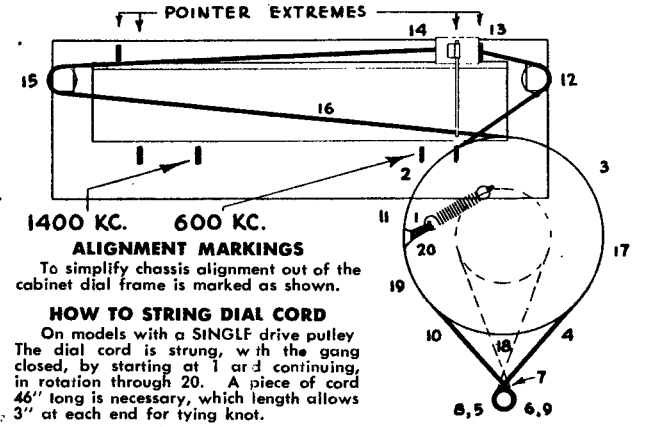
Top View—Tube and Trimmer Location



Bottom View—Voltage Chart

Voltages are positive D. C. unless noted. Measured from chassis with 20,000 ohm per volt meter. On XB6 Series use floating ground instead of chassis.

Line—117 volts, 60 cycle A.C. Volume control at maximum. No station tuned in.



ALIGNMENT MARKINGS

To simplify chassis alignment out of the cabinet dial frame is marked as shown.

HOW TO STRING DIAL CORD

On models with a SINGLE drive pulley The dial cord is strung, with the gang closed, by starting at 1 and continuing, in rotation through 20. A piece of cord 46" long is necessary, which length allows 3" at each end for tying knot.

On models with DOUBLE drive pulley the dial cord is in two pieces. The pointer cord is on the large pulley starting at 1 and continuing through 20 BUT in the following special order, 1, 2, 3, 4, 18, 19, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20. The drive cord is on the smaller dotted pulley, in the dotted position.

To clarify dial cord arrangement the dial frame is shown as transparent.

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

FOR CROSLEY MODEL 62-TA, 62-TC, 62-TD — CHASSIS No. 37

ALIGNMENT PROCEDURE

Preliminary
Output Meter Connections ..... To Voice Coil Terminals of Speaker or to Plate of 35L6GT and Cathode of 35Z5GT
Generator Ground Connections ..... In Series with .001 MFD. Condenser
Dummy Antenna ..... 400 Ohm Carbon Resistor in Series with Generator Output
Position of Volume Control ..... Fully On

ALIGNMENT CHART

Step	Signal Generator Frequency Setting	Input	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks	Location
1	456 Kc.	Antenna	S. B.	Fully open	2nd I-F (2)	Adjust for maximum output.	Tops of I. F. Trans.
1-A	456	Antenna	S. B.	Fully open	1st I-F (2) Wave trap	Adjust for minimum output.	Center Section of 3 Sec. Trimmer.
2	15.3 Mc.	Antenna	S. W.	Fully open	S. W. "OSC"	Adjust for maximum output.	Top of Tuning Condenser
3	15.0 Mc.	Antenna	S. W.	Approx. 15 on dial	S. W. "Ant."	Adjust for maximum output while rocking gang thru signal.	L. H. Section of 3 Sec. Trimmer.
4	1650 Kc.	Antenna	S. B.	Fully open	B. C. "OSC" (front trimmer right end of chassis)	Adjust for maximum output. Gang does not have to tune thru signal.	R. H. Section of 3 Sec. Trimmer.
5	1400 Kc.	Antenna	S. B.	Approx. 1400 on dial	B. C. "ANT"	Adjust for maximum output.	On Cabinet Back.

When aligning the short wave band "OSC" trimmer care must be exercised to see that the circuits are aligned on the correct frequency and not on the image which is approximately 910 kilocycles less as indicated on the dial. To check, increase generator output, tune-in the generator frequency and then tune-in the image frequency which should be weaker than the fundamental and come in approximately 910 kilocycles lower on the dial than the fundamental. If image cannot be tuned in, the "OSC" trimmer is adjusted to the wrong peak. (Correct peak is the second peak on trimmer from the closed position). Repeat original alignment procedure for more accurate adjustments. Always keep signal generator output low as possible to prevent action of A.S.C. circuit.

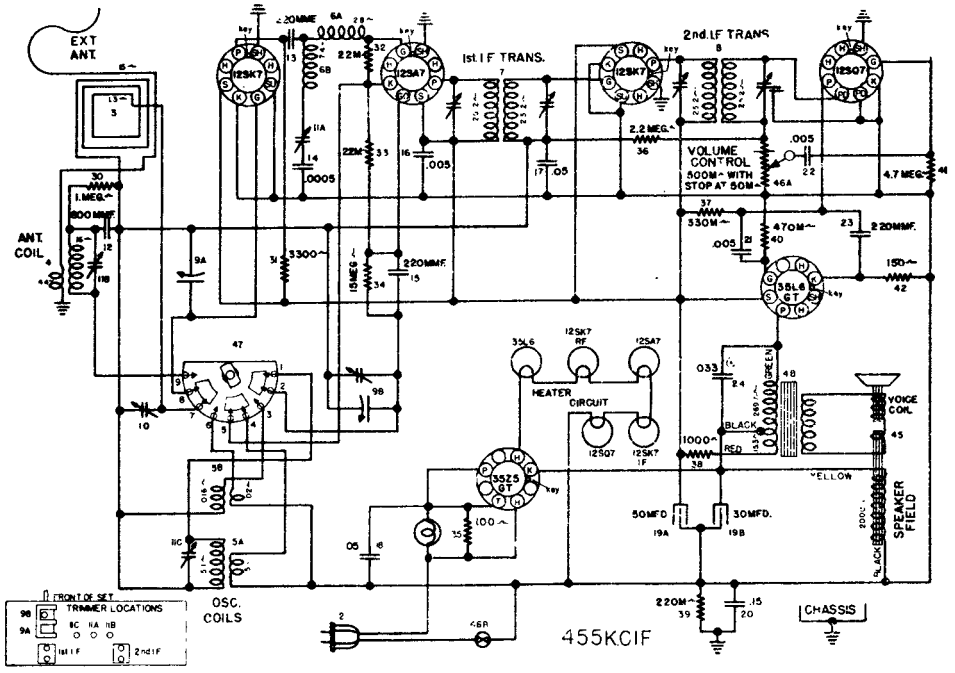
Socket Voltage is measured @ 117.5 V line

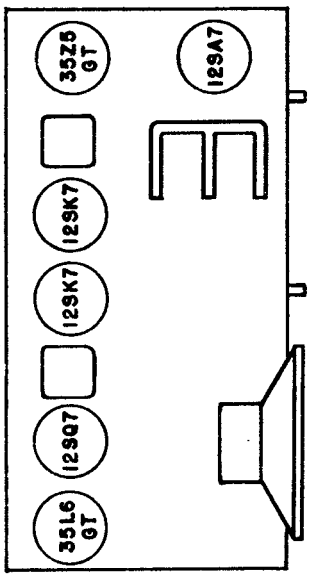
TUBE VOLTAGE CHART

(BETWEEN SOCKET PINS AND B—) WITH 1000 OHM PER VOLT—500 V. RANGE D. C. VOLTMETER

TUBE	FUNCTION	PIN NUMBER							
		1	2	3	4	5	6	7	8
12SK7	R. F. Amp.	....	.....	0	Neg.	0	76.	....	40
12SA7	Osc. Mod.	....	.....	76	76	Neg.	0	....	Neg.
12SK7	I. F. Amp.	....	.....	0	Neg.	0	76	....	76
12SQ7	Det., Etc.	....	0	0	0	Neg.	16*	....	0
35L6	B. P. O.	....	.....	92	76	0	.....	....	4
35Z5	Rect.	....	.....	.....	.....	113AC	.....	....	100

All voltages may vary 10% of values indicated. Neg. indicates Neg. reading on Voltmeter Scale but of too small a value to record accurately.
* Measured on 100 V. Scale. Power consumption at 117.5 V. line, 30 watts. Drop across Speaker Field—100 V. Current thru Speaker Field—52 M.A.





MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

For Model 52-PA — Chassis No. 67

The chassis as employed in this model portable receiver is a five tube (including rectifier), single band superheterodyne, designed to operate from an "A and B" Battery Pack, or 110 volts A.C. (50-60 cycle) or 110 volt D.C. electric circuits.

TUNING RANGE — 550-1600 Kilocycles — 546-187.5 Meters
TUBES USED — one 1A7GT, one—IN5GT, one—IH5GT, one—IT5GT and one—117Z6GT
BATTERIES REQUIRED — one No. CR67 Crosley "A and B" Battery Pack (6 Volt "A"—75 Volt "B") or equivalent.

Measured from "B" minus using 1000 Ω/V — Voltmeter, 100 V. Range, no signal input

Tube		@ 117.5-Volt Line				Battery Pack			
Type	Function	Filament Volt	Plate Volt	Screen Volt	Cathode Volt	Filament Volt	Plate Volt	Screen Volt	Cathode Volt
1A7GT	Osc. Modulator	1.3	80	34	.....	1.7	75	30	.....
1N5GT	I. F. Amplifier	3.8	80	80	.....	4.4	75	75	.....
1H5GT	Det.-A. S. C. 1st A. F.	2.6	7	.....	.....	3.0	6	.....	.....
1T5GT	Out Put	5.1	72	80	.....	6.0	68	75	.....
117Z6GT	Rectifier	117.5 A. C.	117.5 A. C.	.....	100	.....	.....	.....	.....

ALIGNMENT PROCEDURE — Volume Control on full Output meter connected to Plate and Screen of 1T5GT

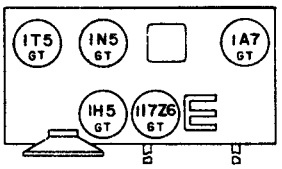
SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION TO RADIO	DUMMY ANTENNA	TUNING COND. SETTING	TRIMMERS TO ADJUST (See Fig. 1)	REMARKS
455 Kc	Ant. Lead	.0001 MF	Fully open	2nd 1-F(1) front chassis flange	Adjust for maximum signal.
455 Kc	Ant. Lead	.0001 MF	Fully open	1st 1-F (2)	Adjust for maximum signal. Located top of 1st 1-F ass'y.
1650	Ant. Lead	.0001 MF	Fully open	"OSC" Shunt on gang	Adjust for maximum output. Gang does not have to tune through signal.
1400	Ant. Lead	.0001 MF	140 on dial	"ANT" shunt on gang	Adjust for maximum output.
600	Ant. Lead	.0001 MF	60 on dial	Iron core in "OSC" coil	Adjust for maximum signal while rocking gang.

Repeat above procedures for more accurate adjustments
Maximum power output @ 75 V. "B" — approx. 200 M. W. undistorted

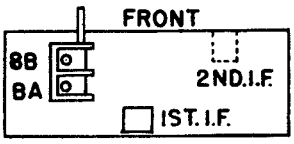
A Battery drain @ 6 volts, .05 Amp.; "B" Battery drain @ 75 V., 9 M. A.
Power consumption @ 117.5 volts line — 20 Watts

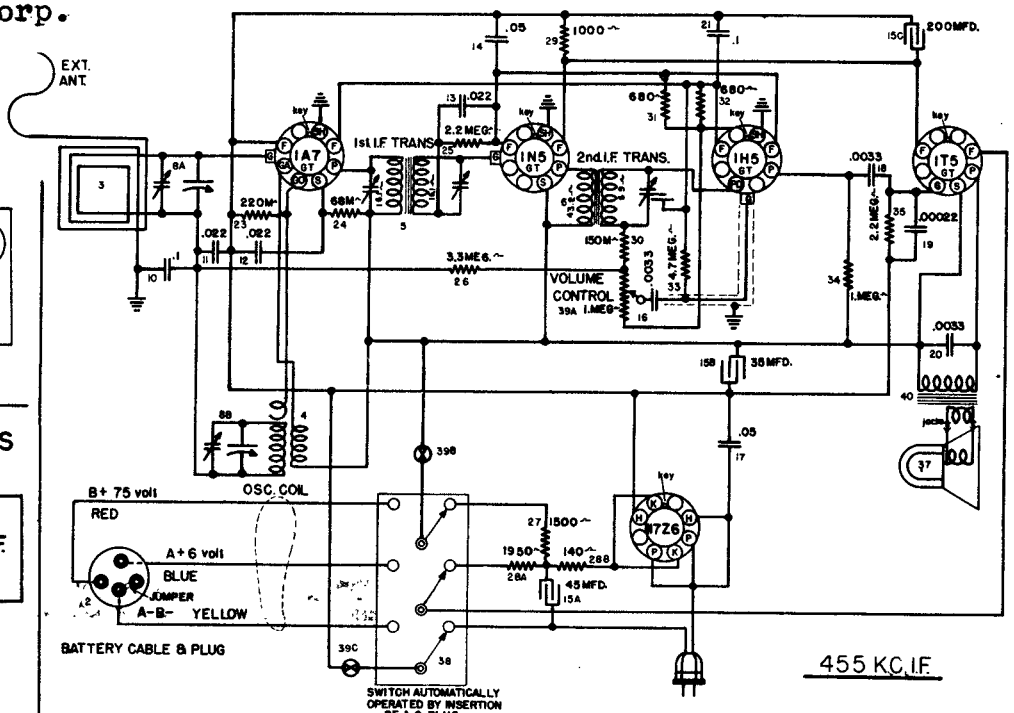
The Crosley Corp.

TUBE LAYOUT



TRIMMER LOCATIONS





455 KC I.F.

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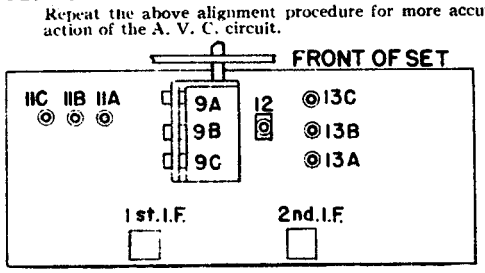
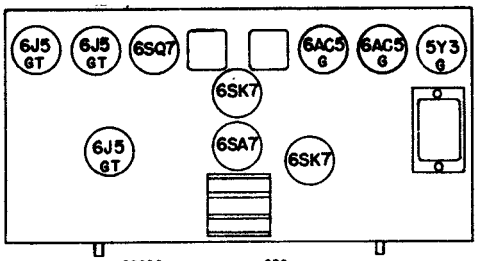
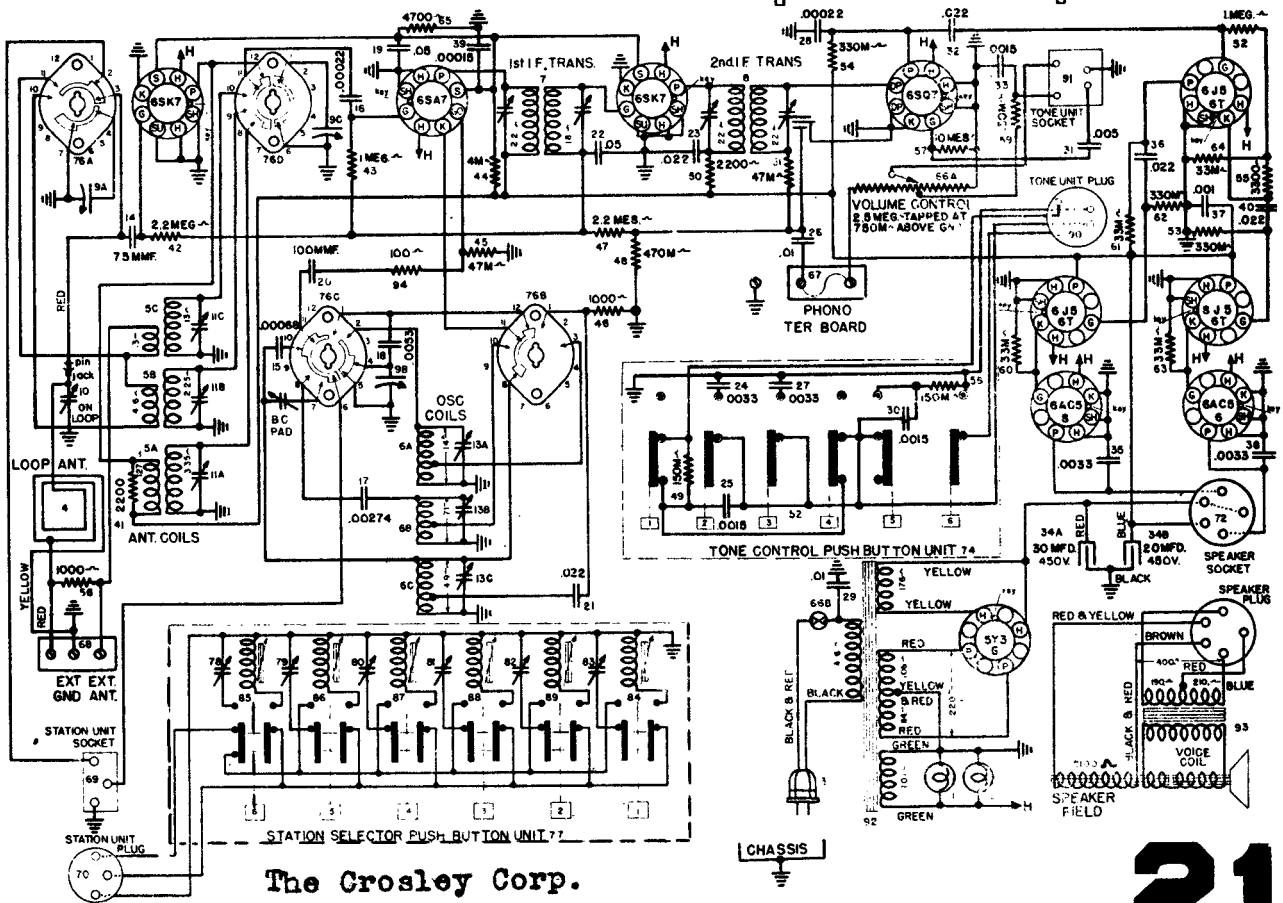
MODELS 02CA AND 02CB — CHASSIS MODEL No. 55

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.02 MF.	455 Kc.	Stator lug Rear section of Gang Cond.	B. C.	Fully open	2nd I-F (2) 1st I-F (2)	Adjust for Maximum. Adjust for Maximum.
2.	.0002 MF.	1630 Kc.	Ant. Terminal	B. C.	Fully open	B. C. "OSC" Trimmer	Adjust for peak; gang does not have to tune thru signal. Loop must be connected.
3.	.0002 MF.	600 Kc.	Ant. Terminal	B. C.	Approx. 60 on dial	B. C. "OSC" Series Trimmer	Adjust for maximum output while rocking gang thru signal.
4.	Repeat Step No. 2 to check possible shift due to series adjustment.						
5.	.0002 MF.	1400 Kc.	Ant. Terminal	B. C.	Approx. 140 on dial	B. C. "ANT" Trimmer B. C. "R-F" Trimmer	Adjust for maximum output do not touch B. C. Osc. Trimmer. Adjust for maximum output.
6.	400 ohm (carbon)	5.3 Mc.	Ant. Terminal	Police	Fully open	Pol "OSC"	Adjust for peak; gang does not have to tune thru signal.
7.	400 ohm (carbon)	5.0 Mc.	Ant. Terminal	Police	Approx. 5.0	Pol "ANT" Trimmer	Adjust for maximum output.
8.	400 ohm (carbon)	18.3 Mc.	Ant. Terminal	S. W.	Fully open	S. W. "OSC"	Adjust for peak. Gang does not have to tune thru signal.
9.	400 ohm (carbon)	18.0 Mc.	Ant. Terminal	S. W.	Approx. 18	S. W. "ANT" Trimmer	Adjust for maximum output while rocking gang thru signal.
10.	Repeat the above alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A. V. C. circuit.						







The Crosley Corp.

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

For Models 62-PA and 62-PB — Chassis No. 68

Portable Radios for Standard Broadcast Reception

Measured from "B" minus using 1000 Ω/V — Voltmeter, 100 V. Range, no signal input

Tube		@ 117.5-Volt Line				Battery Pack			
Type	Function	Filament Volt	Plate Volt	Screen Volt	Cathode Volt	Filament Volt	Plate Volt	Screen Volt	Cathode Volt
1N5GT	R. F. Amplifier	3.8	.....	.....	.....	4.6	75	75	.....
1A7GT	Osc. Modifier	2.6	80	31	.....	3.1	75	28	.....
1N5GT	I. F. Amplifier	5.0	80	80	.....	6.1	75	75	.....
1H5GT	Det.-A. V. C. 1st A. F.	1.3	7	.....	.....	1.6	4.5	.....	.....
1T5GT	Out Put	6.2	72	80	100	7.7	68	75	.....
117Z6GT	Rectifier	117.5 A. C.	117.5 A. C.	.....	.....				

ALIGNMENT PROCEDURE — Volume Control on full Output meter connected to Plate and Screen of 1T5GT

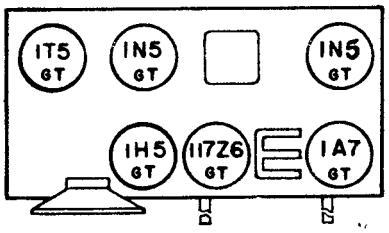
SIGNAL GENERATOR FREQUENCY SETTING	CONNECTION TO RADIO	DUMMY ANTENNA	TUNING COND. SETTING	TRIMMERS TO ADJUST (See Fig. 1)	REMARKS
455 Kc	Ant. Lead	.0001 MF	Fully open	2nd 1-F(1) front chassis flange	Adjust for maximum signal.
455 Kc	Ant. Lead	.0001 MF	Fully open	1st 1-F (2)	Adjust for maximum signal. Located top of 1st 1-F ass'y.
1650	Ant. Lead	.0001 MF	Fully open	"OSC" Shunt on gang	Adjust for maximum output. Gang does not have to tune through signal.
1400	Ant. Lead	.0001 MF	140 on dial	"ANT" shunt on gang	Adjust for maximum output.
1400	Ant. Lead	.0001 MF	140 on dial	"RF" shunt on gang	Adjust for maximum output.
600	Ant. Lead	.0001 MF	60 on dial	Iron core in "OSC" coil	Adjust for maximum output while rocking gang.

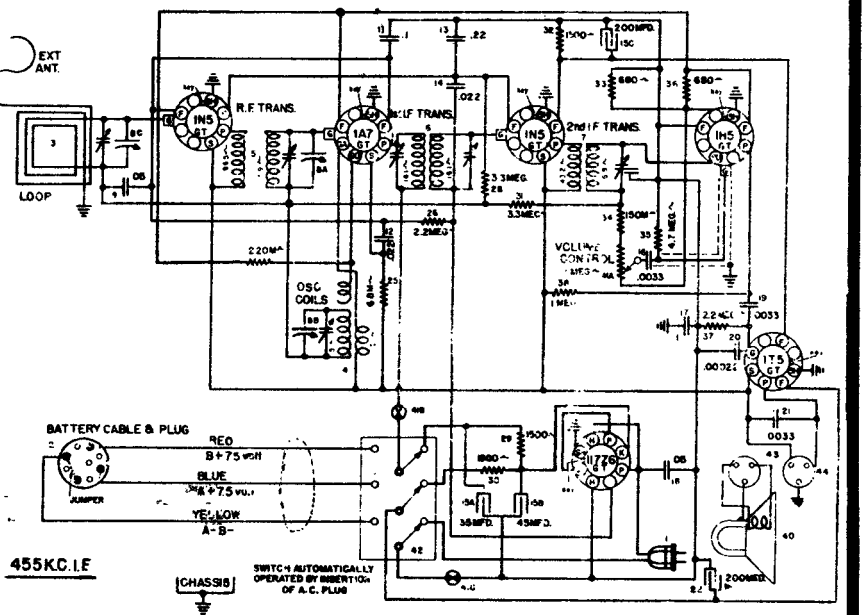
Repeat above for more accurate adjustments
Maximum power output @ 75 V. "B" — approx. 200 M. W.

A Battery drain @ 6 volts, .05 Amp.; "B" Battery drain @ 75 V., 9 M. A.; @
Power consumption @ 117.5 volts line — 25 Watts

Item No.	Part No.	Description
1	—49775	Power Cable and Plug
2	—132205-1	Battery Cable and Plug
3	GB—132196-1	Loop Antenna Assem.
4	G623—32002	Osc. Coil
5	G116—32001	R.F. Trans.
6	G268—32004	1st I.F. Trans.
7	Wd. Scr. (5)	2nd I.F. Trans.
8A	—132168-1	Var. Cond. R.F. Section
8B		Var. Cond. Osc. Section
8C		Var. Cond. Ant. Sect.
9	G65—39001	Cond. .05 Mf. 200 V.
10	None	
11	G67—39001	Cond. .1 Mf. 200 V.
12	G63—39001	Cond. .022 Mf. 200 V.
13	G69—39001	Cond. .22 Mf. 200 V.
14	G63—39001	Cond. .022 Mf. 200 V.
15A	—132144-1	Cond. 35 Mfd. Electro
15B		Cond. 45 Mfd. Electro
15C		Cond. 200 Mfd. Electro
16	G10—39001	Cond. .0033 Mf. 600 V.
17	G67—39001	Cond. .1 Mf. 200 V.
18	G65—39001	Cond. .05 Mf. 200 V.
19	G10—39001	Cond. .0033 Mf. 600 V.
20	G9—39004	Cond. .00022 Mf.
21	G10—39001	Cond. .0033 Mf. 600 V.

25	G18—39002	Res. 68 M Ohm ¼ W.
26	G27—39002	Res. 2.2 Meg. Ohm ¼ W.
27	G21—39002	Res. 220 M Ohm ¼ W.
28	G28—39002	Res. 3.3 Meg. Ohm ¼ W.
29	G8—39002	Res. 1500 Ohm ¼ W.
30	—132502-1	Res. 1900 Ohm Candohm
31	G26—39002	Res. 3.3 Meg. Ohm ¼ W.
32	G8—39002	Res. 1500 Ohm ¼ W.
33	G6—39002	Res. 680 Ohm ¼ W.
34	G20—39002	Res. 150 M Ohm ¼ W.
35	G29—39002	Res. 4.7 Meg. Ohm ¼ W.
36	G6—39002	Res. 680 Ohm ¼ W.
37	G27—39002	Res. 2.2 Meg. Ohm ¼ W.
38	G25—39002	Res. 1 Meg. Ohm ¼ W.





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MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

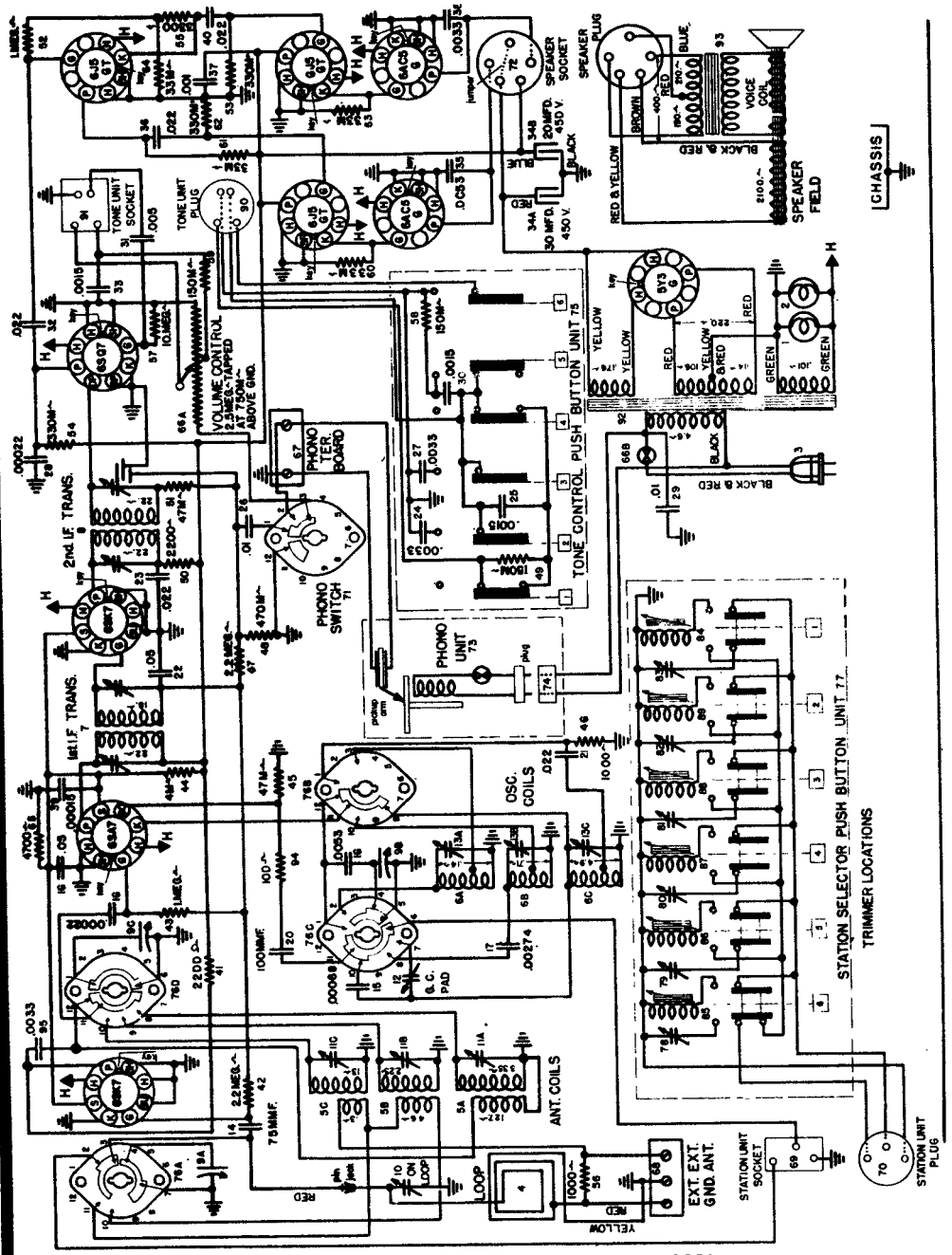
CROSLEY MODELS 02CP, 02CQ — CHASSIS MODEL No. 70

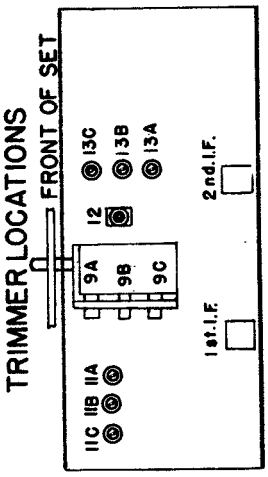
SOCKET VOLTAGES MEASURED AT 117.5 V. LINE (BETWEEN SOCKET PIN AND CHASSIS) WITH 1000 OHM PER VOLT, 500 V. RANGE VOLTMETER (D. C.)

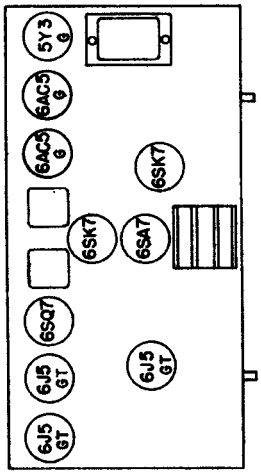
TUBE	FUNCTION	PIN NUMBER 1	2	3	4	5	6	7	8
6SK7	R. F. Amplifier	Gnd.	Gnd.	Gnd.	0	Gnd.	74	6.3 A. C.	180
6SA7	Converter	Gnd.	Gnd.	180	74	0	{0-S. W. / 4.0 B. C.}	6.3 A. C.	0
6SK7	I. F. Amplifier	Gnd.	Gnd.	Gnd.	0	Gnd.	74	6.3 A. C.	180
6SQ7	Det. A. S. C. 1st A. F.	Gnd.	0	Gnd.	0	0	75	6.3 A. C.	Gnd.
6J5GT	Phase Inverter	Gnd.	Gnd.	145	J. B.	0	J. B.	6.3 A. C.	40
6J5GT(2)	P. P. A. F. Drivers	Gnd.	Gnd.	180	0	0	J. B.	6.3 A. C.	6.5
6AC5GT(2)	P. P. Output	Gnd.	Gnd.	304	J. B.	6.5	J. B.	6.3 A. C.	Gnd.
5Y3G	Rectifier	N. C.	310	J. B.	308 A. C.	J. B.	308 A. C.	J. B.	310

MAX. POWER OUTPUT ..... 12.0 WATTS
POWER CONSUMPTION ..... 90 WATTS
DROP ACROSS SPEAKER FIELD ..... 120 VOLTS

J. B.—Junction Block
N. C.—No Connection







CROSLEY MODELS 02CP, 02CQ — CHASSIS MODEL No. 70

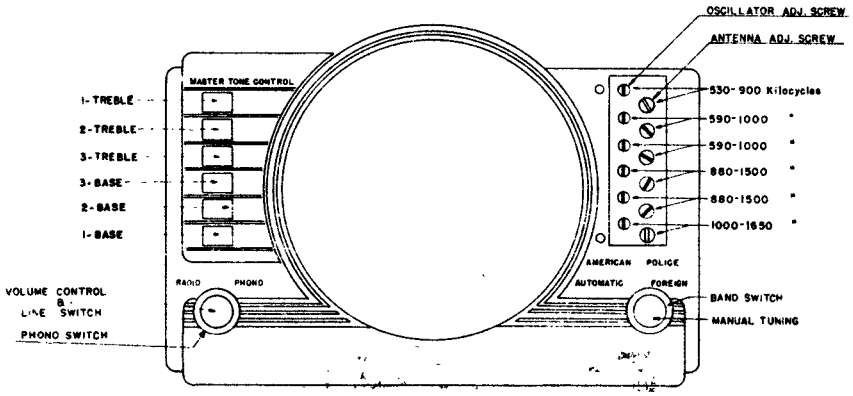
THE AUTOMATIC RECORD CHANGER

This record changer will automatically play a series of twelve 10" or ten 12" records of the standard 78 R. P. M. type. The records must be all one size when loading, and may consist of less records than listed above. Records with or without a starting groove will operate the changer satisfactorily and the inside stopping groove may be a spiral or an eccentric. This means that any type of record, regardless of make, will operate the automatic mechanism. Records of any size up to 12" may be played manually.

The records are supported for automatic operation in two points, in the center by the center post, and on the edge by the record holder post.

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.02 MF.	455 Kc.	Stator lug Rear section of Gang Cond.	B. C.	Fully open	2nd I-F (2) 1st I-F (2)	Adjust for Maximum. Adjust for Maximum.
2.	.0002 MF.	1630 Kc.	Ant. Terminal	B. C.	Fully open	B. C. "OSC" Trimmer	Adjust for peak; gang does not have to tune thru signal. Loop must be connected.
3.	.0002 MF.	600 Kc.	Ant. Terminal	B. C.	Approx. 60 on dial	B. C. "OSC" Series Trimmer	Adjust for maximum output while rocking gang thru signal.
4.	Repeat Step No. 2 to check possible shift due to series adjustment.						
5.	.0002 MF.	1400 Kc.	Ant. Terminal	B. C.	Approx. 140 on dial	B. C. "ANT" Trimmer B. C. "R-F" Trimmer	Adjust for maximum output do not touch B. C. Osc. Trimmer. Adjust for maximum output.
6.	400 ohm (carbon)	5.3 Mc.	Ant. Terminal	Police	Fully open	Pol "OSC"	Adjust for peak; gang does not have to tune thru signal.
7.	400 ohm (carbon)	5.0 Mc.	Ant. Terminal	Police	Approx. 5.0	Pol "ANT" Trimmer	Adjust for maximum output.
8.	400 ohm (carbon)	18.3 Mc.	Ant. Terminal	S. W.	Fully open	S. W. "OSC"	Adjust for peak. Gang does not have to tune thru signal.
9.	400 ohm (carbon)	18.0 Mc.	Ant. Terminal	S. W.	Approx. 18	S. W. "ANT" Trimmer	Adjust for maximum outpnt while rocking gang thru signal.
10.	Repeat the above alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A. V. C. circuit.						

When aligning the shortwave bands "OSC" trimmers care must be exercised to see that the circuits are aligned on the correct frequency and not on the image which is approximately 910 kilocycles less **as indicated on the Receiver dial.** To check, increase generator output, tune-in the generator frequency and then tune-in the image frequency which should be weaker than the fundamental and come in approximately 910 kilocycles **lower on the Receiver dial** than the fundamental. If image cannot be tuned-in, the"OSC" trimmer is adjusted to the wrong peak. (Correct peak is the second peak on trimmer from the closed position).



SETTING THE PUSH BUTTONS

The six station selector push buttons are set up by means of two adjusting screws per button. These adjusting screws are made accessible by removing the station selector push button escutcheon. Pry off carefully being careful not to scratch the main escutcheon.

Select the call letter tabs of your six favorite broadcast stations from the station call letter sheets supplied. Place the call letter tabs in the window above that push button which is to be adjusted for that station

CROSLEY RADIO MODEL 52-TP — CHASSIS No. 72

REPLACING TUBES—To gain access to the tubes, remove cabinet back, remove two screws holding loop antenna to rear of chassis and lay antenna down. Do not disconnect antenna from chassis.

If at any time it is necessary to replace one or more tubes, Figure 1 will show the correct position and function of each type of tube.

If your receiver fails to operate make sure all tubes are pressed down in their respective sockets and that power cord plug is tight in the house receptacle. Should a visual inspection fail to indicate the trouble, call a competent radio service man—preferably your nearest Crosley dealer.

Specially designed parts of the highest quality are used throughout in the construction of all Crosley products. In order that the original fine quality and excellent performance of this receiver may be maintained, it is recommended that only GENUNIE CROSLEY PARTS be used should service be required.

ALIGNMENT PROCEDURE

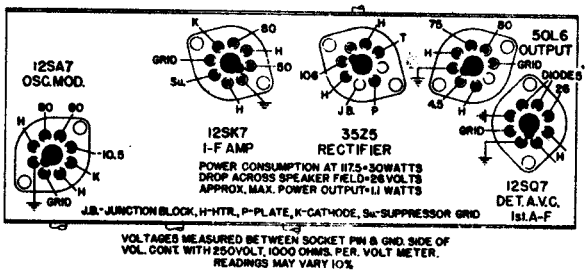
Preliminary

Output Meter Connections . . . . . Plate and screen of 50L6

Generator Ground Connections . . . Ground Lead and Chassis

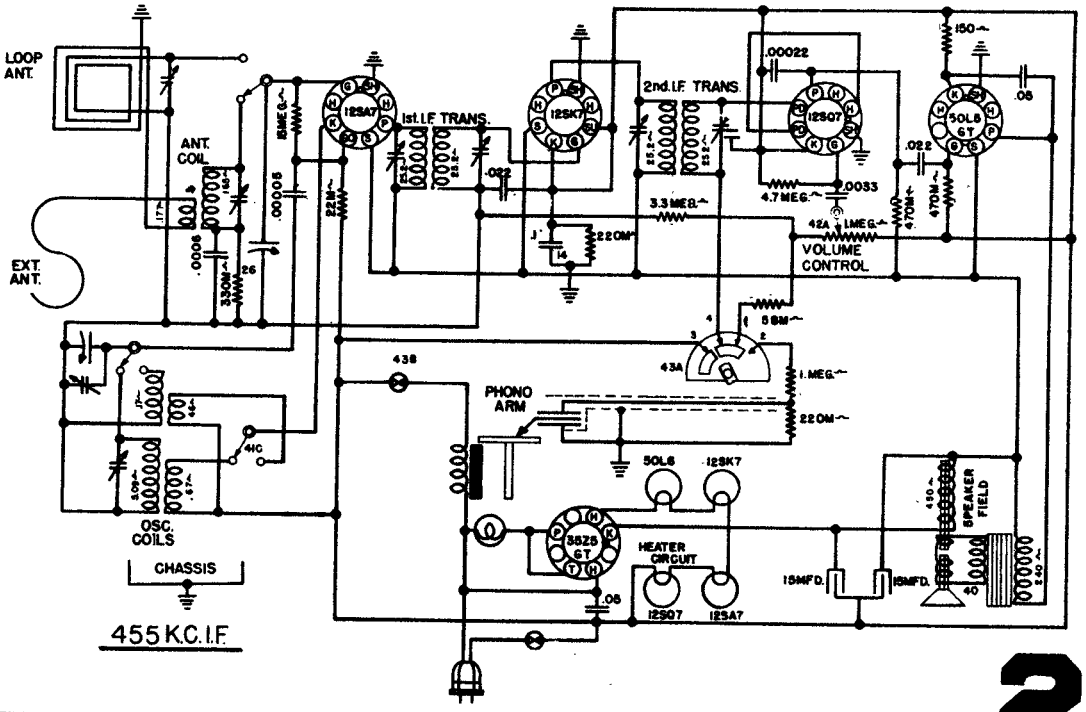
Dummy Antenna to be in series with generator output

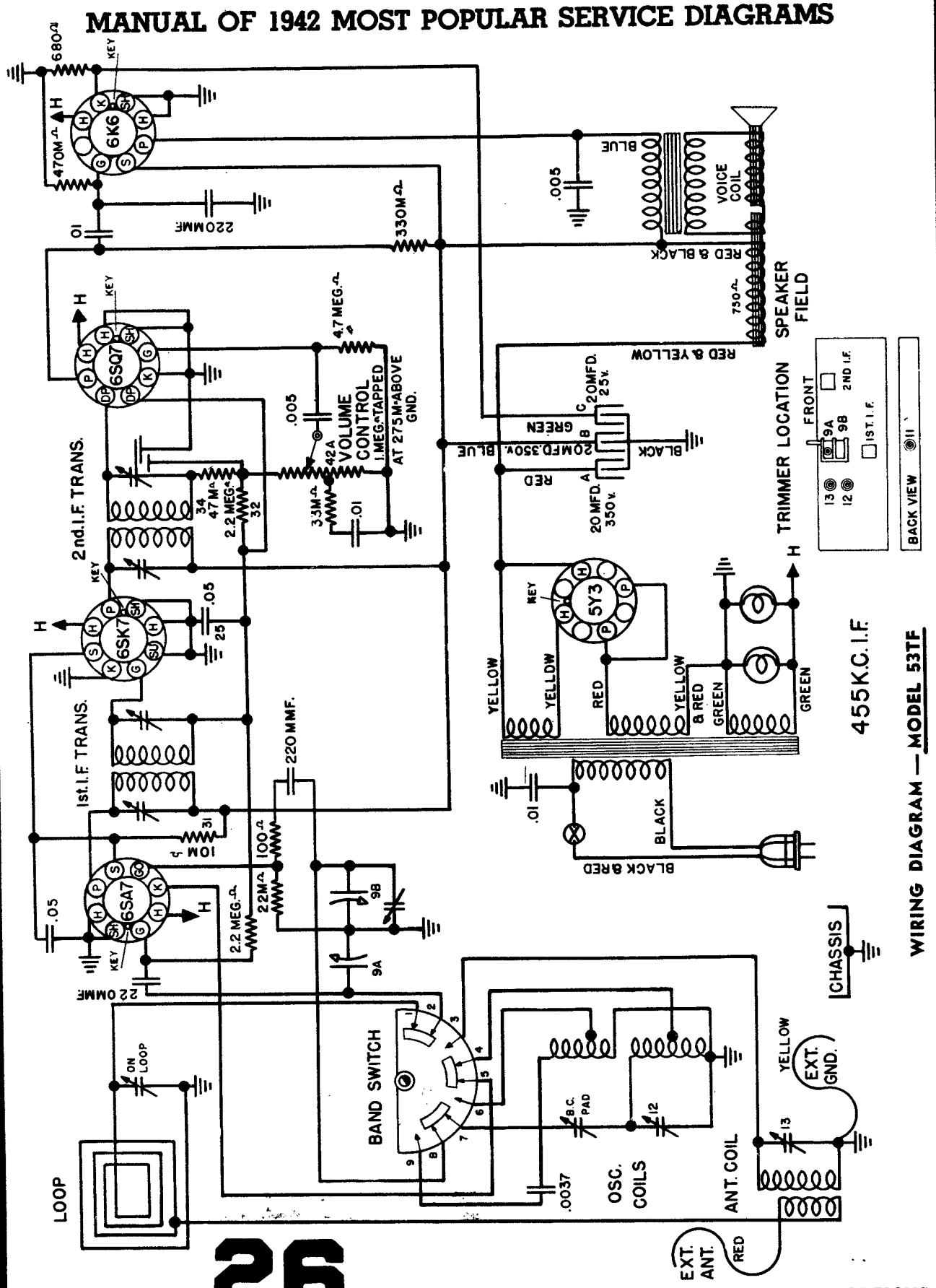
Position of Volume Control . . . . . Fully on



Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.0001 MF.	455 KC.	Antenna Lead	BC	Fully Open	1st I-F(2) 2nd I-F(2)	Adjust for maximum signal. Adjust for maximum signal.
2.	400 ohm Carbon Resistor	15.3 MC.	Antenna Lead (red)	S.W.	Fully Open	S.W. "Osc."	Adjust for maximum output.
3.	400 ohm Carbon	15.0 MC.	Antenna Lead (red)	S.W.	15 on Dial	S.W."Ant."	Adjust for maximum signal while rocking gang through it.
4.	.0001 MF.	1650 KC.	Antenna Lead (red)	BC	Fully Open	B.C."Osc."	Adjust for maximum output. Gang does not have to tune through signal
5.	.0001 MF.	1400 KC.	Antenna Lead (red)	BC	140 Dial	B.C."Ant."	Adjust for maximum output.

When aligning the shortwave band "OSC" trimmer, care must be exercised to see that the circuit is aligned on the correct frequency and not on the image which is approximately 910 kilocycles less as indicated on the dial. To check, increase generator output, tune in the generator frequency and then tune in the image frequency which should be weaker than the fundamental and come in approximately 910 kilocycles lower on the dial than the fundamental. If image cannot be tuned in, the "OSC" trimmer is adjusted to the wrong peak. (Correct peak is the second peak on trimmer from the closed position.) Repeat original alignment procedure for more accurate adjustments. Keep signal generator output low as possible to prevent action of A.S.C. circuit.





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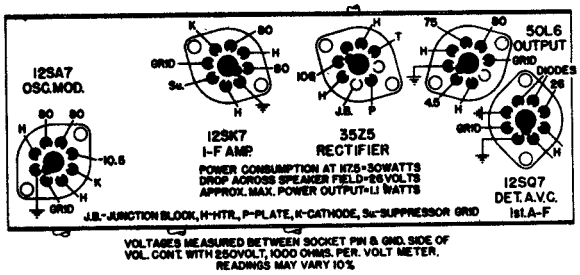
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

CROSLEY RADIO MODELS 52TG, 52TG-U,—CHASSIS No. 74-74U

Item No.	Part No.	Description
1	—48858	Bulb Dial Light 6.3V.
	L—132109	Dial Light Socket Assm.
	—132099-2	Dial Face.
	—132097-5	Dial Pointer.
	—132117-2	Celluloid Dial Lens.
	L—132131	Drive Cord Assm.
	—132119-4	Drive Shaft.
	—51071	Retaining Ring—Dr. Shaft.
2	—132300-1	Power Cord & Plug.
	—45738	Lock Plate Power Cord.
3	LB—132110	Loop Assm. Antenna.
	—132102	Spacer—Loop Mtg. (2)
	—23843	Screw—Loop Mtg. (2)
4	G261—32002	Coil B. C. Osc.
5	G266—32004	1st I. F. Trans.
6	G267—32004	2nd I. F. Trans.
7A	—49736-1	2 Gang Var. Cond. {Antenna Sec.
7B		{Oscillator Sec.
8	G63 —39001	Cond. .022 Mfd., 200V.
9	G65 —39001	Cond. .05 Mfd., 200V.
10	G67 —39001	Cond. .1 Mfd., 200V.
11	G9 —39004	Cond. 200 Mmf., Mica.
12A	—49664-B	{Cond. 15 Mfd., 140V., Elect.
12B		{Cond. 15 Mfd., 120V., Elect.
13	G10 —39001	Cond. .0033 Mfd., 160V.
14	G63 —39001	Cond. .022 Mfd., 200V.
15	G65 —39001	Cond. .05 Mfd., 200V

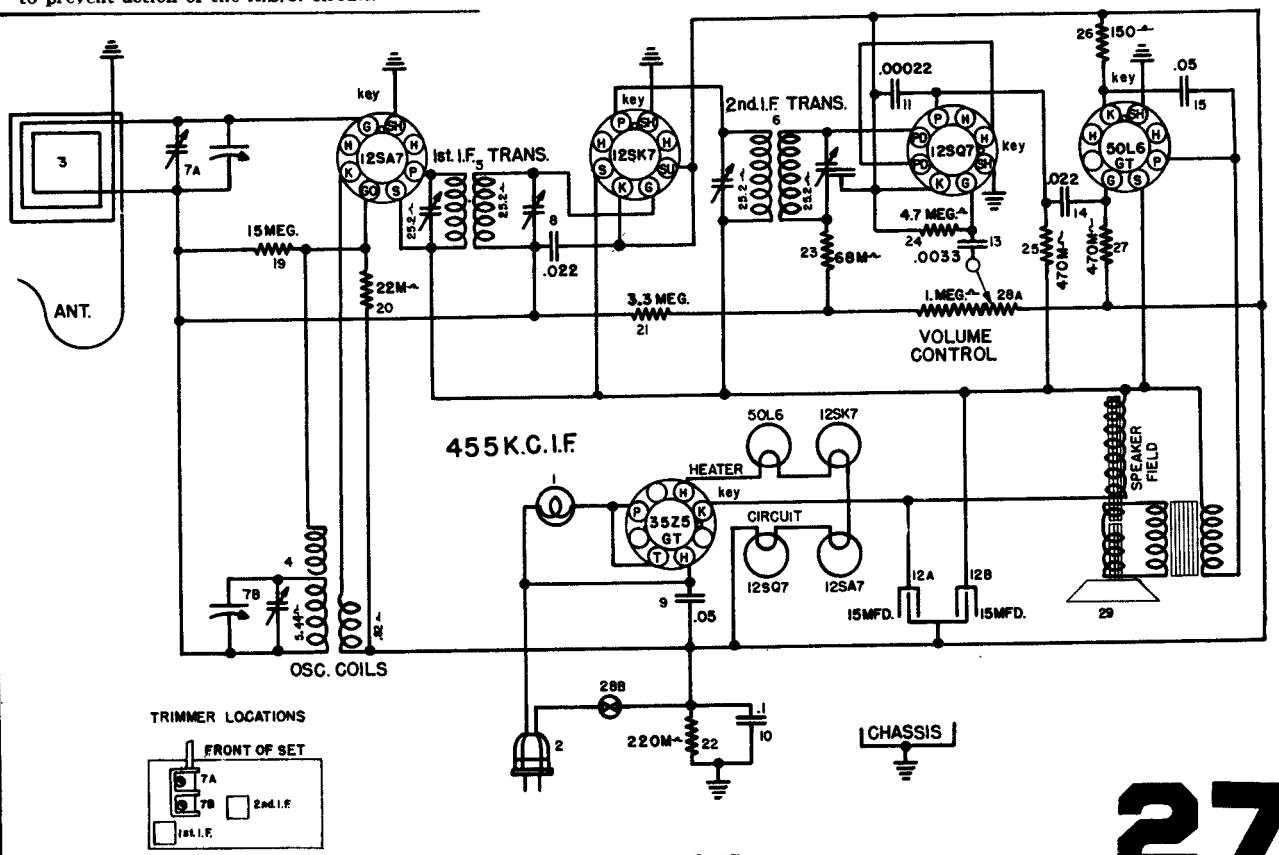
Item No.	Part No.	Description
16	NONE	
17	NONE	
18	NONE	
19	—50671	Res. 15 Megohm ¼ W.
20	G15 —39002	Res. 22,000 Ohms ¼ W.
21	G28 —39002	Res. 3.3 Megohm ¼ W.
22	G21 —39002	Res. 220,000 Ohms ¼ W.
23	G18 —39002	Res. 68,000 Ohm ¼ W.
24	G29 —39002	Res. 4.7 Megohm ¼ W.
25	G23 —39002	Res. 470,000 Ohm ¼ W.
26	G33 —39002	Res. 150 Ohm ½ W.
27	G23 —39002	Res. 470,000 Ohm ¼ W.
	—132138	Bracket—Speaker Mtg.
28A	—49774	{Vol. Control 1 Meg.
28B		{Power Switch.



ALIGNMENT PROCEDURE

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.0001 MF.	455 KC.	Antenna Lead	BC	Fully Open	1st I-F(2) 2nd I-F(2)	Adjust for maximum signal. Adjust for maximum signal.
2.	.0001 MF.	1650 KC.	Antenna Lead	BC	Fully Open	B.C."Osc."	Adjust for maximum output. Gang does not have to tune through signal
3.	.0001 MF.	1400 KC.	Antenna Lead	BC	140 Dial	B.C."Ant."	Adjust for maximum output.

Repeat the original alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A.S.C. circuit.



MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

FOR CROSLEY MODELS 82CP, 82CQ—CHASSIS MODEL NO. 75

STARTING THE CHANGER—Turn the control knob clockwise to the "ON" position; after the turntable has attained speed, turn the control knob all the way counter clockwise to the "REJ." position for a few seconds and release. The bottom record will fall on the turntable and the unit will automatically play the entire stack of records. If the changing cycle should fail to start, repeat the above operation.

REJECTING A RECORD—To reject a record, it is only necessary to turn the control knob counter clockwise to the "REJ." position for a few seconds and release. A record can be rejected anytime the needle is in contact with the record.

UNLOADING THE CHANGER—Turn the control knob to the "OFF" position and remove the center spindle by pulling straight up. The played records may now be easily removed after which the center post should be replaced. The center spindle must be turned when being replaced so that it drops into correct position.

TO PLAY RECORDS MANUALLY

MANUAL OPERATION—Manual operation is used for all home recordings and for single records is desired. CAUTION: For playing records of less than 10" diameter always set the record holding shelf in same position as is used for playing 12" records. Otherwise "Floating Jewel Tone System" may be damaged. 1. Remove the center spindle by pulling straight up. 2. Place record on turntable with desired selection upward. 3. Turn the control knob to the "ON" position. 4. Place pickup on record so the needle enters the outside groove of the record. 5. Adjust volume control to desired level.

50 CYCLE OPERATION—(Phonograph)—If operation is desired on 50 cycle current, a small spring, see parts list, must be added to the motor shaft.

SERVICE—If your receiver fails to operate satisfactorily, check the tubes to see that all are pushed well down into their respective sockets and that all grid clips are securely in place on the top caps of the tubes. Check the antenna (loop terminals), and power supply connections for good contact. If this visual inspection does not reveal the source of the trouble, disconnect the receiver from the power supply and call a competent service man, preferably your Crosley Dealer.

ALIGNMENT PROCEDURE

Preliminary
Output Meter Connections.....Plate to Plate of 6K6GT's
Generator Ground Connection.....To Chassis or Ground Lead
Dummy Antenna to be in series with generator output.....See Chart Below
Position of Volume Control.....Fully On
Position of Tone Control.....Treble or Speech

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.02 MF.	455 Kc.	Stator lug Rear section of Gang Cond.	B. C.	Fully open	2nd I-F (2) 1st I-F (2)	Adjust for Maximum. Adjust for Maximum.
2.	.0002 MF.	1650 Kc.	Ant. Terminal	B. C.	Fully open	B. C. "OSC" Trimmer	Adjust for peak; gang does not have to tune thru signal. Loop must be connected.
3.	.0002 MF.	600 Kc.	Ant. Terminal	B. C.	Approx. 60 on dial	B. C. "OSC" Series Trimmer	Adjust for maximum output while rocking gang thru signal.
4.	Repeat Step No. 2 to check possible shift due to series adjustment.						
5.	.0002 MF.	1400 Kc.	Ant. Terminal	B. C.	Approx. 140 on dial	B. C. "ANT" Trimmer B. C. "R-F" Trimmer	Adjust for maximum output do not touch B. C. Osc. Trimmer. Adjust for maximum output.
6.	400 ohm (carbon)	18.3 Mc.	Ant. Terminal	S. W.	Fully open	S. W. "OSC"	Adjust for peak. Gang does not have to tune thru signal.
7.	400 ohm (carbon)	18.0 Mc.	Ant. Terminal	S. W.	Approx. 18	S. W. "ANT" Trimmer	Adjust for maximum output while rocking gang thru signal.
8.	Repeat the above alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A. V. C. circuit.						

IMPORTANT ALIGNMENT NOTES—When aligning the shortwave bands "OSC" trimmers care must be exercised to see that the circuits are aligned on the correct frequency and not on the image which is approximately 910 kilocycles less **as indicated on the Receiver dial.** To check, increase generator output, tune-in the generator frequency and then tune-in the image frequency which should be weaker than the fundamental and come in approximately 910 kilocycles **lower on the Receiver dial** than the fundamental. If image cannot be tuned-in, the "OSC" trimmer is adjusted to the wrong peak. (Correct peak is the second peak on trimmer from the closed position).

TUBE VOLTAGE CHART

SOCKET VOLTAGES MEASURED AT 117.5 V. LINE (BETWEEN SOCKET PIN AND CHASSIS) WITH 1000 OHM PER VOLT, 500 V. RANGE VOLTMETER (D. C.)

TUBE	FUNCTION	PIN NUMBER 1	2	3	4	5	6	7	8
6SK7GT	R. F. Amplifier	0	0	0	0	0	82	6.3 A. C.	210
6SA7GT	OSC.—Mod.	0	0	210	82BC	0	0	6.3 A. C.	0
6SK7GT	I. F. Amplifier	0	0	0	0	-6.5BC - -0SW -	82	6.3 A. C.	210
6SQ7	Det. A. S. C. 1st A. F.	0	0	1.4	0	0	78	6.3 A. C.	0
6J5GT	Phase Inverter	0	0	125	N. C.	0	0	6.3 A. C.	5.2
6K6GT(2)	Output	0	0	200	210	0	0	6.3 A. C.	13
5Y3G	Rectifier	N. C.	300	N. C.	338	J. B.	338 A. C.	J. B.	300

MAX. POWER OUTPUT.....6.5 WATTS
POWER CONSUMPTION.....85 WATTS
DROP ACROSS SPEAKER FIELD.....90 VOLTS
N. C.—No Connection

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

WIRING DIAGRAM, MODELS B2CP AND B2CQ — CHASSIS MODEL No. 75

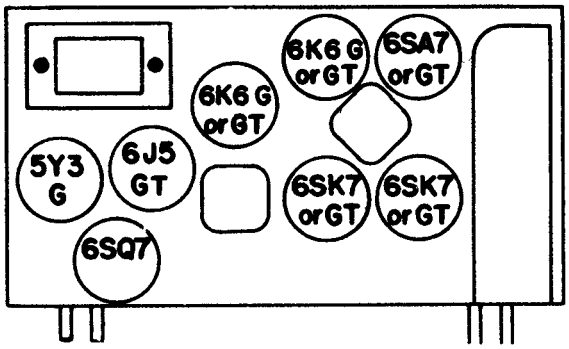
THE AUTOMATIC RECORD CHANGER—This record changer will automatically play a series of twelve 10" or ten 12" records of the standard 78 R. P. M. type. The records must be all one size when loading, and may consist of less records than listed above. Records of any size up to 12" may be played manually.

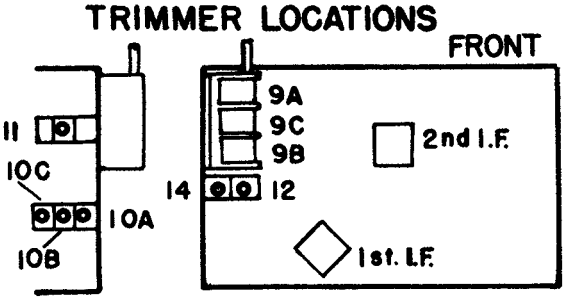
CAUTIONS—1. Never use force to start or stop the motor or any part of the record changing mechanism or pick-up arm. 2. The use of records which have become warped or damaged through improper care may cause the mechanism to jam and damage the instrument. 3. Do not leave records on the supports, as they may warp, particularly in warmer climates. 4. Never leave the pickup arm with the needle resting on a record or the turntable.

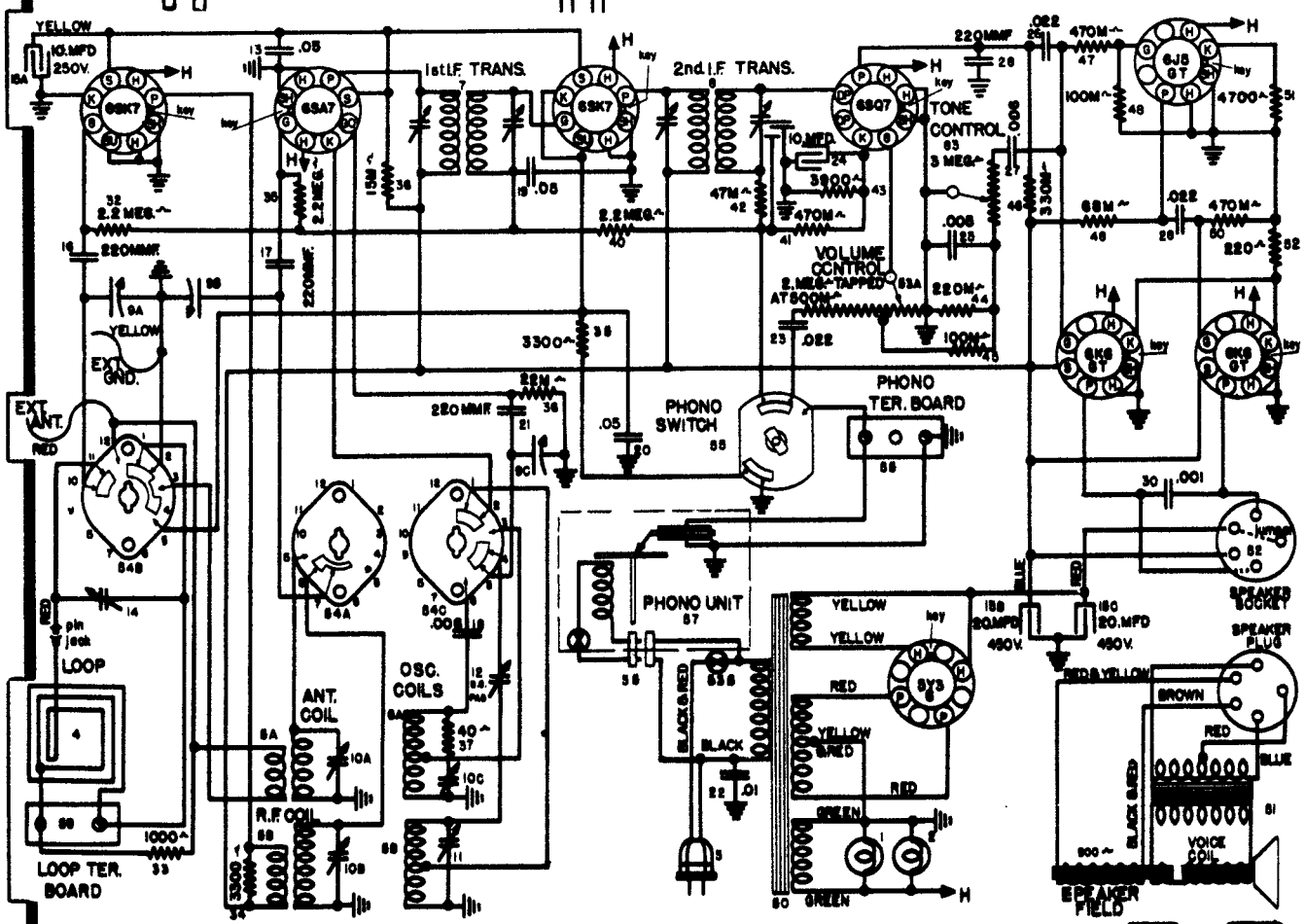
THE FLOATING JEWEL TONE SYSTEM—The "Floating Jewel Tone System" is a Crosley invention and an exclusive feature on your Crosley phono-combination. Its sapphire point literally floats across the surface of the record, reducing record wear and assuring maximum tonal fidelity. Needle noise is virtually eliminated. The "Floating Jewel Tone System" supplied with the phono-combination you have purchased is good for years of normal service.

CAUTION: Avoid dropping the tone arm on a record or the turntable. Use only the Crosley "Floating Jewel Tone System" with your set.

SETTING FOR SIZE OF RECORD—The shelf on the record holder post or the side support for the records may be turned and snaps into place in two points, one for the ten inch records, and the other for the twelve inch records. When the record holder clip (on top of the record holder post) is toward the center spindle, the number showing on the record holder clip is the size record the changer is set to automatically operate.





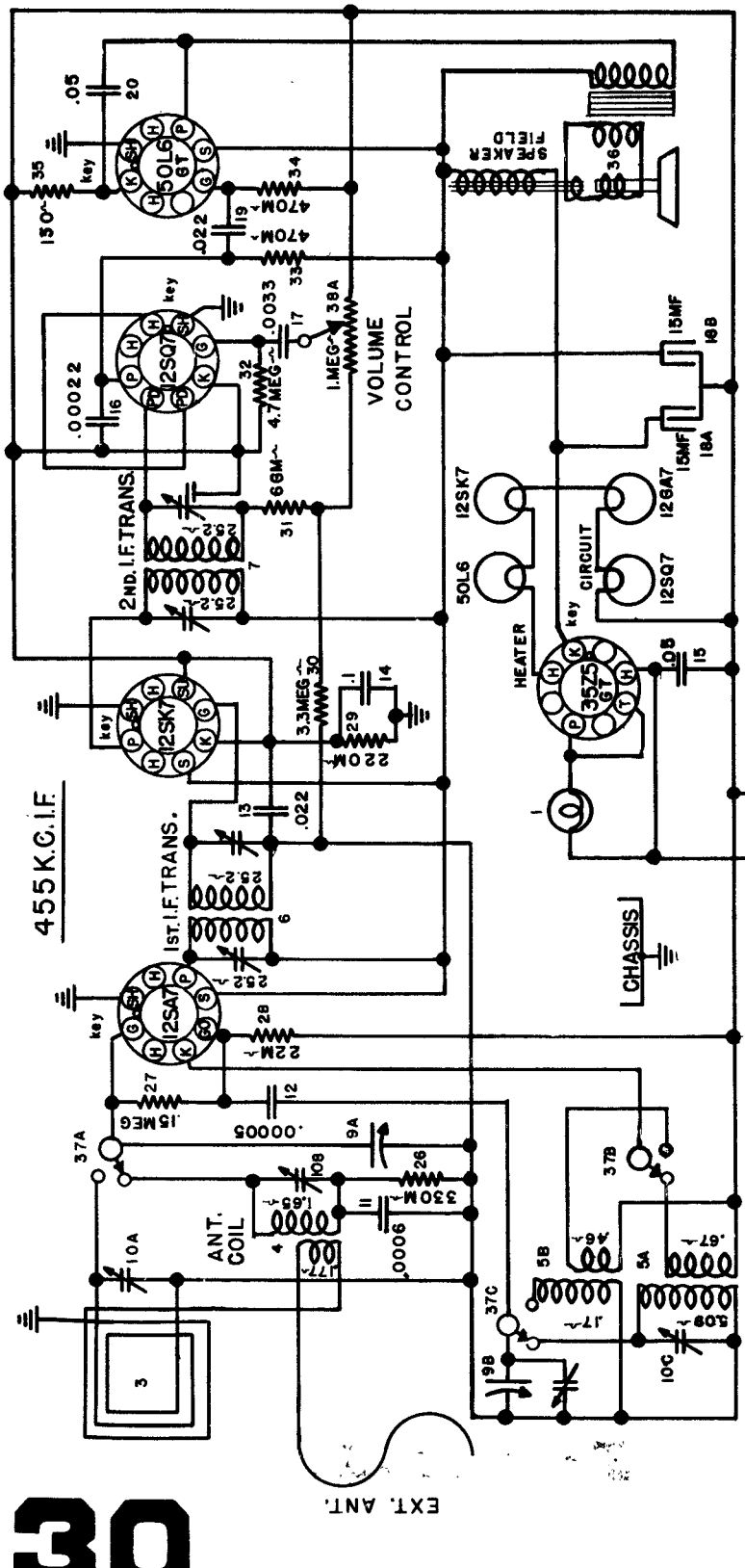


455K.C. I.F.

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

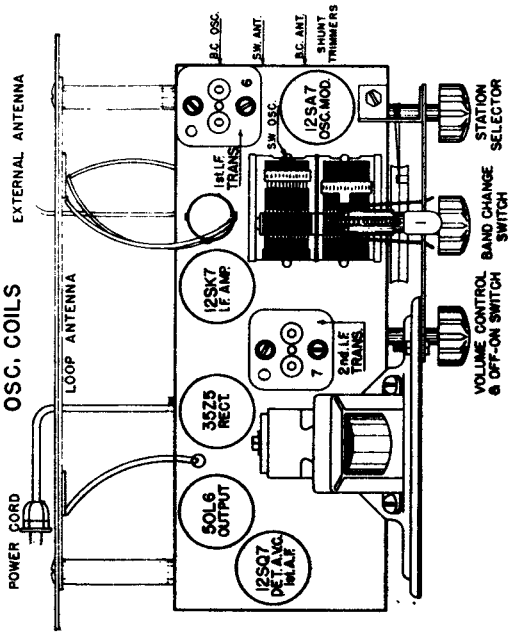
52TD, 52TD-U, 52TE, 52TE-U — CHASSIS No. 77

52TF, 52TF-U — CHASSIS No. 76



ALIGNMENT PROCEDURE

Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted
Generator .0001 MF.	455 KC.	Antenna Lead	BC	Fully Open	2nd I-F(2) 1st I-F(2)
400 ohm Carbon Resistor	15.3 MC.	Antenna Lead (red)	S.W.	Fully Open	S.W. "Osc."
400 ohm Carbon	15.0 MC.	Antenna Lead (red)	S.W.	15 on Dial	S.W. "Ant."
.0001 MF.	1650 KC.	Antenna Lead (red)	BC	Fully Open	B.C. "Osc."
.0001 MF.	1400 KC.	Antenna Lead (red)	BC	140 Dial	B.C. "Ant."



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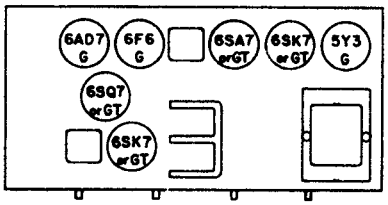
INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS
for Crosley Model 72CA — Chassis Model No. 80

Model 72CA is a seven tube, two band, superheterodyne receiver. It is designed to operate on Alternating Current (A.C.) electric circuits as specified on the Model and License label.



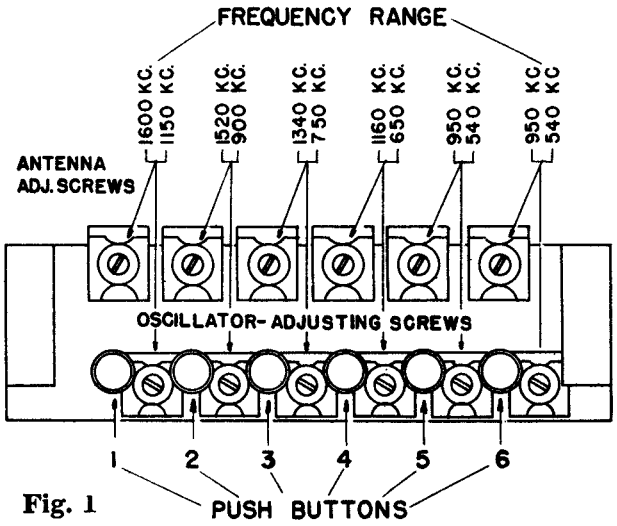


Fig. 1

SETTING THE PUSH BUTTONS

Note: When placing call tabs in the window be sure to arrange them according to their frequency (kilocycles) that is: the station whose frequency is well within the range covered by the No. 1 button, should be placed above that button and so on with the rest of the buttons to be set.

Remove station selector push button escutcheon. Turn the receiver on and let it operate for a sufficient length of time to permit the tubes to reach their normal operating conditions.

It is essential that the frequency (kilocycles) of the station selected be within the range of the push button to be set for that station. See Fig. 1.

1. Turn the band change switch to the "American" position. Using the station selector knob, carefully tune in the station to which the No. 1 push button is to be set. Note program.

2. Turn the band change switch to the "Automatic" position and using a small screw driver, carefully turn in a clockwise direction the Oscillator adjusting screw until the station previously tuned in manually is heard again. Adjust for maximum output in the speaker.

3. Adjust the Antenna adjusting screw for maximum volume in the speaker.

4. Turn band change switch from "Automatic" to "American" and back again to check if adjustment has been correctly made. There should be no change in tone quality when switched from one to the other.

5. Repeat above procedure for the remaining push buttons.

To tune the receiver with the push buttons, set the band change switch on "Automatic" and depress completely the button corresponding to the station you wish to hear.

TUBE VOLTAGE CHART

SOCKET VOLTAGES MEASURED AT 117.5 V. LINE (BETWEEN SOCKET PIN AND CHASSIS) WITH 1000 OHM PER VOLT, 500 V. RANGE VOLTMETER (D. C.)

TUBE	FUNCTION	PIN NUMBER 1	2	3	4	5	6	7	8
6SK7	R. F. Amplifier	0	0	0	0	0	80	6.3 A. C.	235
6SA7	OSC.—Mod.	0	0	260	80	0	0	6.3 A. C.	0
6SK7	I. F. Amplifier	0	0	0	0	0	80	6.3 A. C.	260
6SQ7	Det. A. S. C. 1st A. F.	0	0	0	0	0	85	6.3 A. C.	0
6AD7	Phase Inverter	0	0	255	260	0	180	6.3 A. C.	23
6F6	Output	0	0	255	260	0	235	6.3 A. C.	23
5Y3G	Rectifier	N. C.	330	J. B.	300A.C.	J. B.	300 A. C.	J B.	330

MAX. POWER OUTPUT..... 6.5 WATTS
POWER CONSUMPTION..... 85 WATTS
DROP ACROSS SPEAKER FIELD..... 70 VOLTS
J. B.—Junction Block. N. C.—No Connection

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

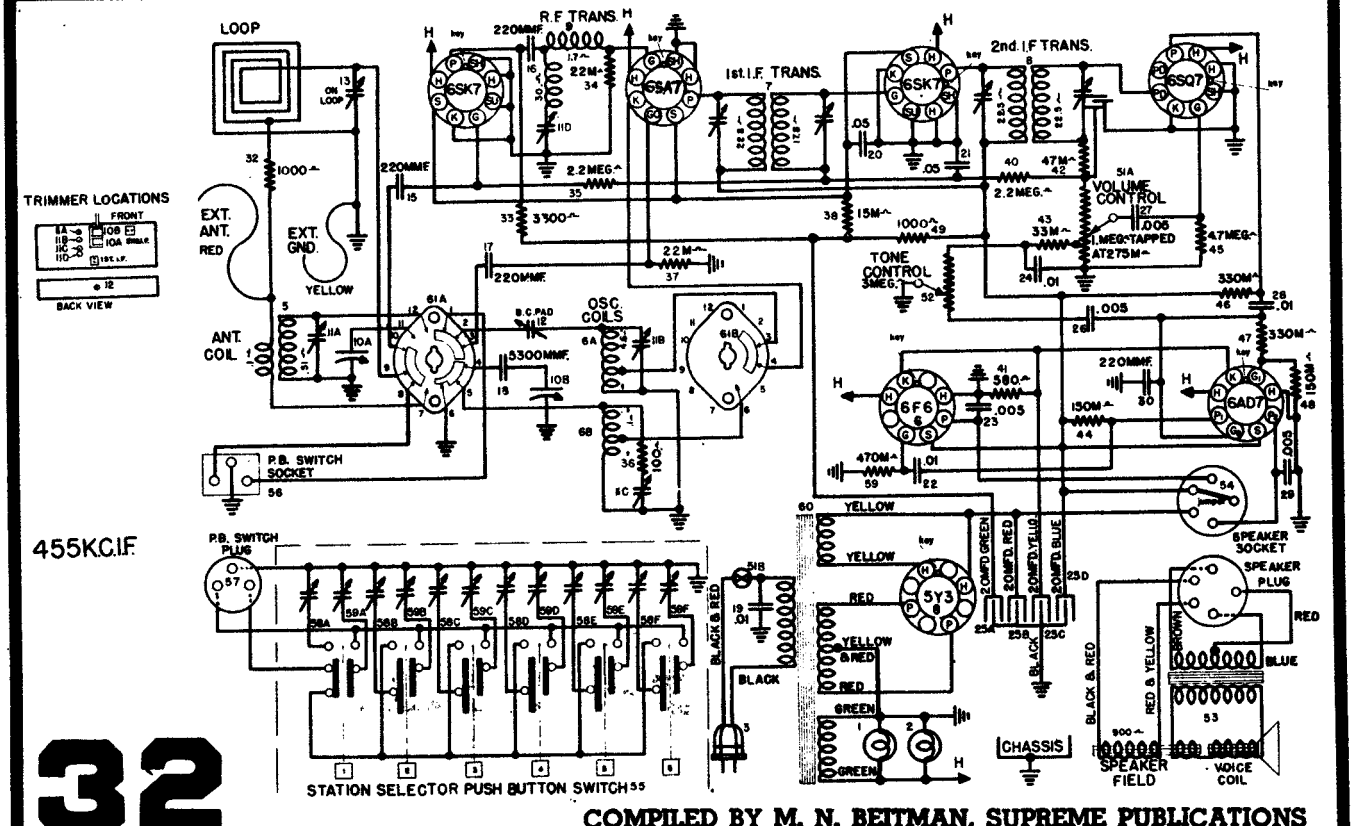
Crosley Model 72CA — Chassis Model No. 80

ALIGNMENT PROCEDURE

Output Meter Connections.....Plate of 6AD7 to Plate of 6F6
Generator Ground Connection.....To Chassis or Ground Lead
Dummy Antenna to be in series with generator output.....See Chart Below
Position of Volume Control.....Fully On
Position of Tone Control.....Treble or Speech

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Band Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.02 MF.	455 Kc.	Stator lug Rear section of Gang Cond.	B. C.	Fully open	2nd I-F (2) 1st I-F (2)	Adjust for Maximum. Adjust for Maximum.
2.	.02 MF.	455 Kc.	Stator lug Rear section of Gang Cond.	B. C.	Fully Open	Adj. Wave Trap Trimmer.	Adjust for Minimum.
3.	.0002 MF.	1650 Kc.	Ant. Terminal	B. C.	Fully open	B. C. "OSC" Trimmer	Adjust for peak; gang does not have to tune thru signal. Loop must be connected.
4.	.0002 MF.	600 Kc.	Ant. Terminal	B. C.	Approx. 60 on dial	B. C. "OSC" Series Trimmer	Adjust for maximum output while rocking gang thru signal.
5.	Repeat Step No. 3 to check possible shift due to series adjustment.						
6.	.0002 MF.	1400 Kc.	Ant. Terminal	B. C.	Approx. 140 on dial	B.C. LOOP "ANT" Trimmer	Adjust for maximum output do not touch B. C. Osc. Trimmer.
7.	400 ohm (carbon)	18.3 Mc.	Ant. Terminal	S. W.	Fully open	S. W. "OSC"	Adjust for peak. Gang does not have to tune thru signal.
8.	400 ohm (carbon)	18.0 Mc.	Ant. Terminal	S. W.	Approx. 18	S. W. "ANT" Trimmer	Adjust for maximum output while rocking gang thru signal. do not touch B. C. Osc. Trimmer.
9.	Repeat the above alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A. S. C. circuit.						

IMPORTANT ALIGNMENT NOTES—When aligning the shortwave band "OSC" trimmer care must be exercised to see that the circuit is aligned on the correct frequency and not on the image which is approximately 910 kilocycles less **as indicated on the Receiver dial.** To check, increase generator output, tune-in the generator frequency and then tune-in the image frequency which should be weaker than the fundamental and come in approximately 910 kilocycles **lower on the Receiver dial** than the fundamental. If image cannot be tuned-in, the "OSC" trimmer is adjusted to the wrong peak. (Correct peak is the second peak on trimmer from the closed position.)



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MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

INSTALLATION, OPERATION AND SERVICE INSTRUCTIONS FOR CROSLEY RADIO MODEL 52-TQ — CHASSIS No. 83

THE RADIO-PHONO SWITCH (center knob) when turned to the right is for radio broadcast reception and when turned to the left cuts off the radio signals and switches in changer. The Volume Control and Line Switch of the receiver must be turned on before the motor will operate. This volume control also controls the output level of the phonograph.

THE AUTOMATIC RECORD CHANGER—The record changer built in this combination will automatically play a series of twelve 10" or ten 12" records of the standard 78 R. P. M. type. The records must be all one size when loading, and may consist of less records than listed above.

ALIGNMENT PROCEDURE CHART

Alignment Sequence	Dummy Antenna	Frequency Setting	Input Connection to Receiver	Phono. Radio Switch	Tuning Cond. Setting	Trimmer Adjusted	Remarks
1.	.0001 MF.	455 KC.	Antenna Lead	Radio	Fully Open	1st I-F(2) 2nd I-F(2)	Adjust for maximum signal. Adjust for maximum signal.
2.	.0001 MF.	1650 KC.	Antenna Lead (red)	Radio	Fully Open	B.C."Osc."	Adjust for maximum output. Gang does not have to tune through signal.
3.	.0001 MF.	1400 KC.	Antenna Lead (red)	Radio	140 Dial	B.C."Ant."	Adjust for maximum output.

Repeat the original alignment procedure for more accurate adjustments. Always keep signal generator output as low as possible to prevent action of the A. S. C. circuit.

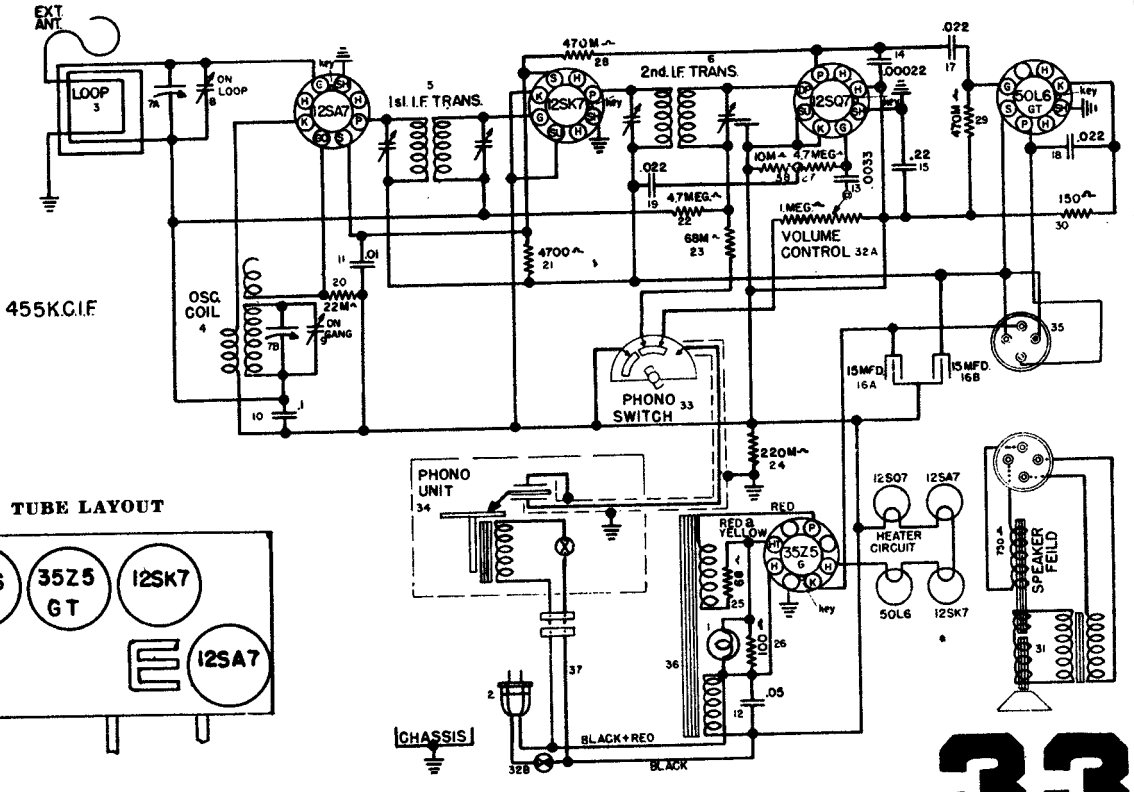
Socket Voltage is measured @ 117.5 V line

TUBE VOLTAGE CHART

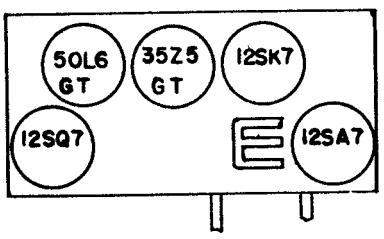
(BETWEEN SOCKET PINS AND B—) WITH 1000 OHM PER VOLT—500 V. RANGE D. C. VOLTMETER

TUBE	FUNCTION	PIN NUMBER							
		1	2	3	4	5	6	7	8
12SA7	Osc. Mod.	....	....	123	78	Neg.	0	....	Neg.
12SK7	I. F. Amp.	....	....	0	Neg.	0	78	....	123
12SQ7	Det., Etc.	....	0	0	0	Neg.	18.5*	....	0
50L6	B. P. O.	....	....	112	123	0	....	....	8.5
35Z5	Rect.	....	....	....	....	208AC	....	....	188

All voltages may vary 10% of values indicated. Neg. indicates Neg. reading on Voltmeter Scale but of too small a value to record accurately. *Measured on 100 V. Scale. Power consumption at 117.5 V. line, 60 watts. Phono Motor 20 watts additional. Drop across Speaker Field—65 V. Current thru Speaker Field—90 M. A.



TUBE LAYOUT



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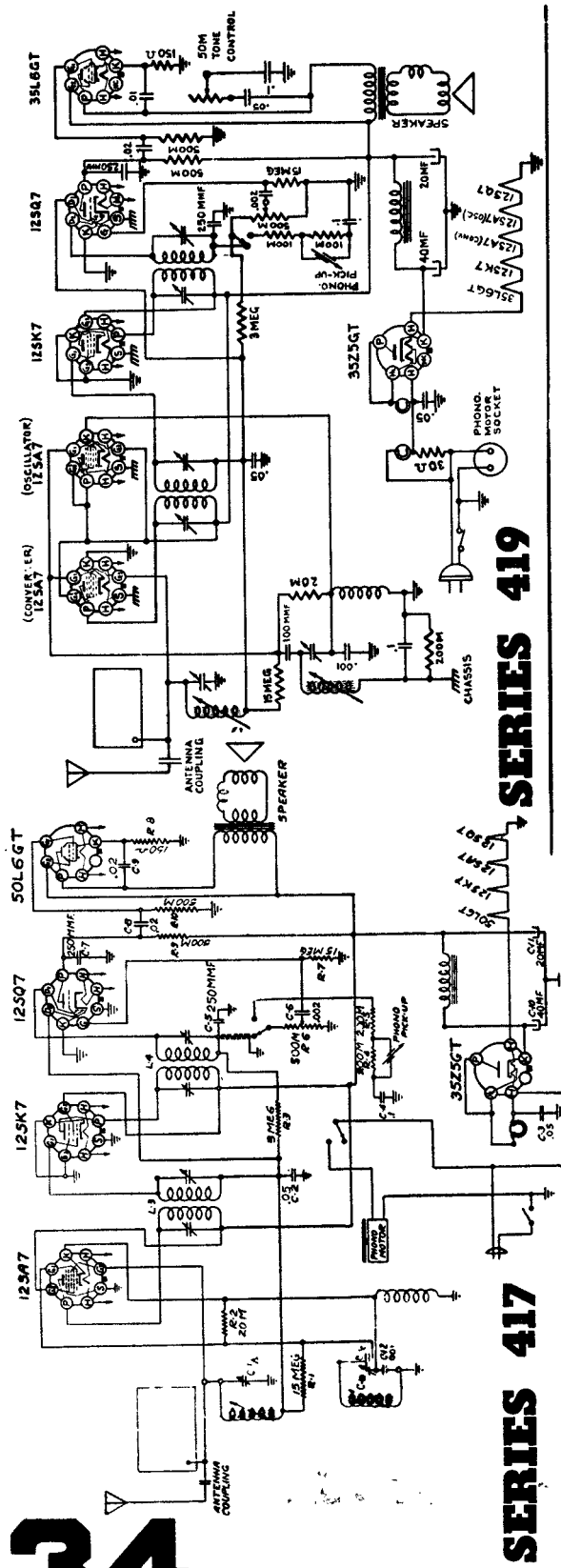
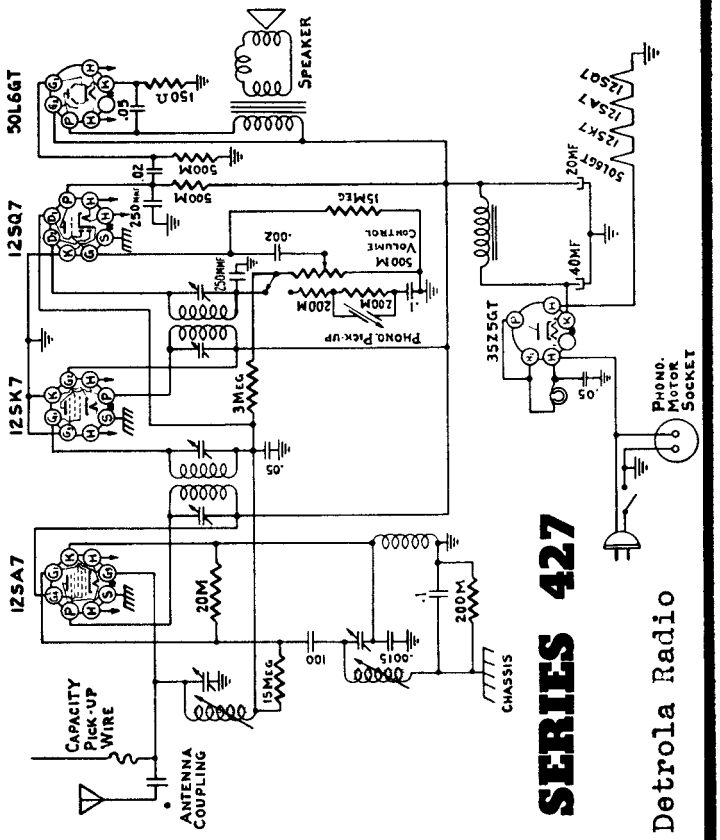
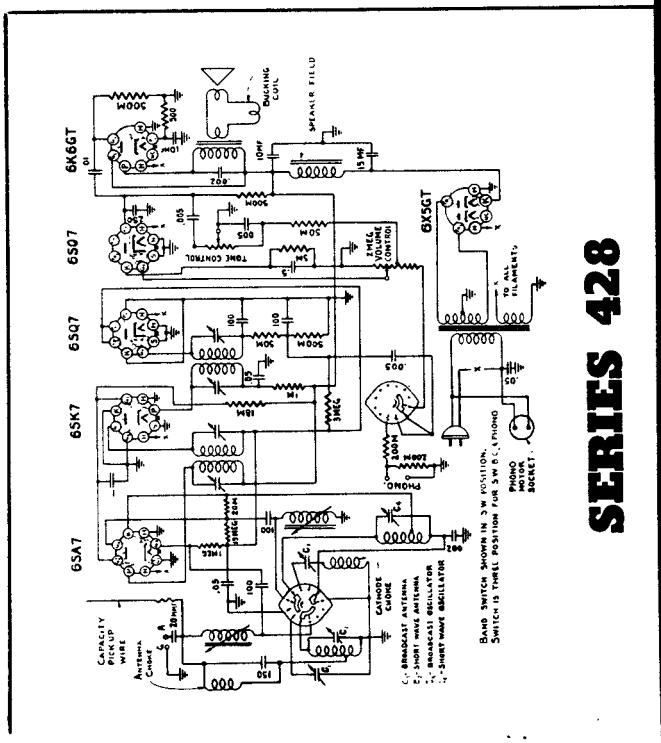
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

DETROLA CORPORATION







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DETROLA

Automatic Record Changer

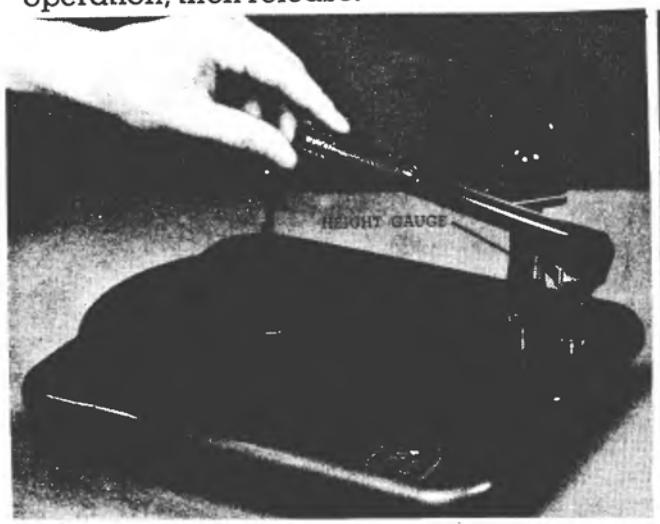
Model N-100 and N-200

Turn **automatic record support** for the size of record to be played—10-inch or 12-inch—and flip the **record alignment plate** away from the turntable.

Tonearm should be moved to engage notch marked "A" (automatic) on base of **tonearm** (See Fig. 3).

Place a series of up to twelve ten-inch records or a series of up to ten twelve-inch records on **center spindle** and **automatic record support.** Flip **record alignment plate** on to records.

Move **control lever** to "ON" position, hold for about ½ second to start automatic operation, then release.



THE AUTOMATIC REJECT OPERATION

If, while playing a record, you desire to skip the remainder of the recording and pass immediately to the next record of the series, move the **control lever** to "REJ" (reject) position, then release.

THE MANUAL REJECT OPERATION

If you desire to skip a number of records:

1. Lift the **tonearm** off the record and place in its normal or rest position, clear of the records.
2. Turn the **manual reject knob** clockwise, then release, dropping one record. Repeat until desired record is obtained, then carefully replace needle on edge of record.

TO REMOVE RECORDS

Always drop all the records from the **automatic record support** (see "manual-reject operation") before removing the records from the **spindle.**

1. Flip **record alignment plate** away from records.
2. Remove **tonearm** to its normal or rest position.
3. Lift records vertically.

To play a home recording disc, up to 10 inches in diameter, move **control lever** to "OFF" position, then:

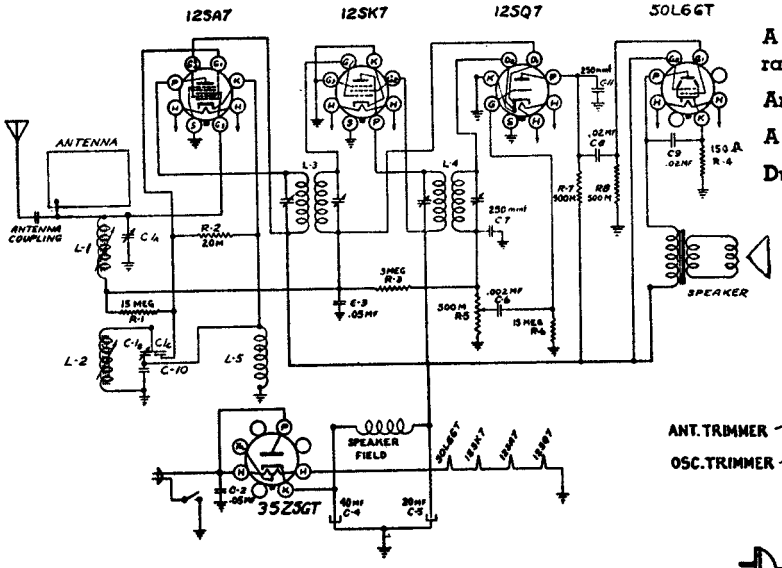
1. Turn **automatic record support** for a 12-inch record.
2. Tonearm should be moved to engage notch marked "H" (home recording) on base of tonearm (See Fig. 2).
3. Move **control lever** to "ON" position and allow **tonearm** to go through its record changing cycle If the home recording disc is 10" in diameter, the **tonearm** will fall correctly on the record; but for smaller records, the **tonearm** must be placed on the record by hand.
4. At the conclusion of the home recording selection, either return the **tonearm** to the rest position by hand or move the **control lever** to "REJ" position, then release.

SEMI-AUTOMATIC OPERATION

Old records that have neither a standard eccentric nor spiral finishing groove do not operate the automatic trip mechanism. They may be played either in a series or singly by moving the **control lever** to the "REJ" position at the conclusion of each selection.

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

DETROLA MODEL 441

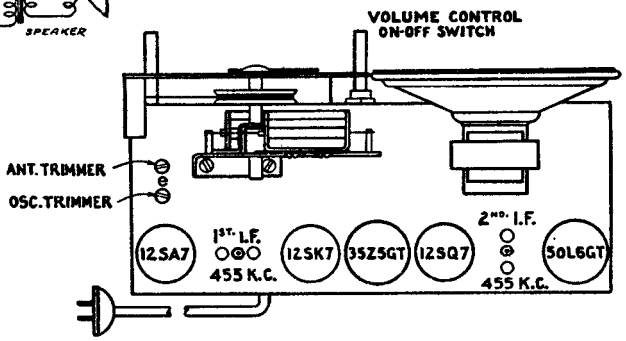


A signal generator which will provide an accurately calibrated signal at the frequencies listed.

An output meter.

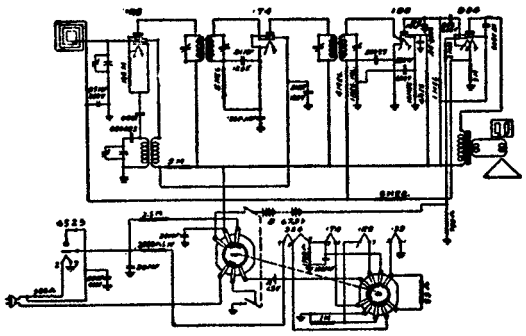
A non-metallic screw driver.

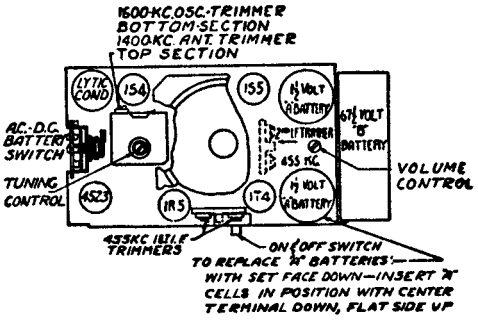
Dummy antennae—.1 mfd., 200 mmf.



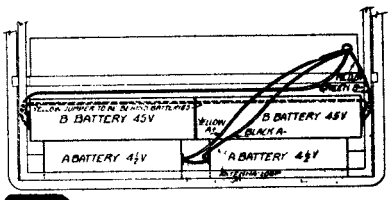
GENERATOR	CONNECTION AT RADIO	DUMMY ANTENNA	DIAL	TRIMMER TO TUNE	REMARKS
I.F. 455 kc.	12SA7 Grid	.1 mfd.	H. F. end	I.F. Transformers	Tune to Max.
1720 kc	Ext. Ant. Wire	200 mmf.	H. F. end	Oscillator Trimmer	Set Limit of band
1400 kc	Ext. Ant. Wire	200 mmf.	1400	Antenna Trimmer	Tune to Max.

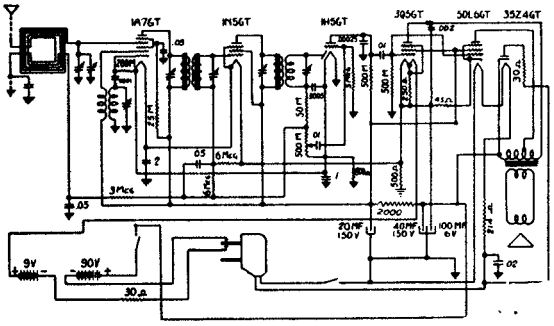
MODEL 3782 AC-DC AND BATTERY PERSONAL RADIO





MODELS 389 SERIES



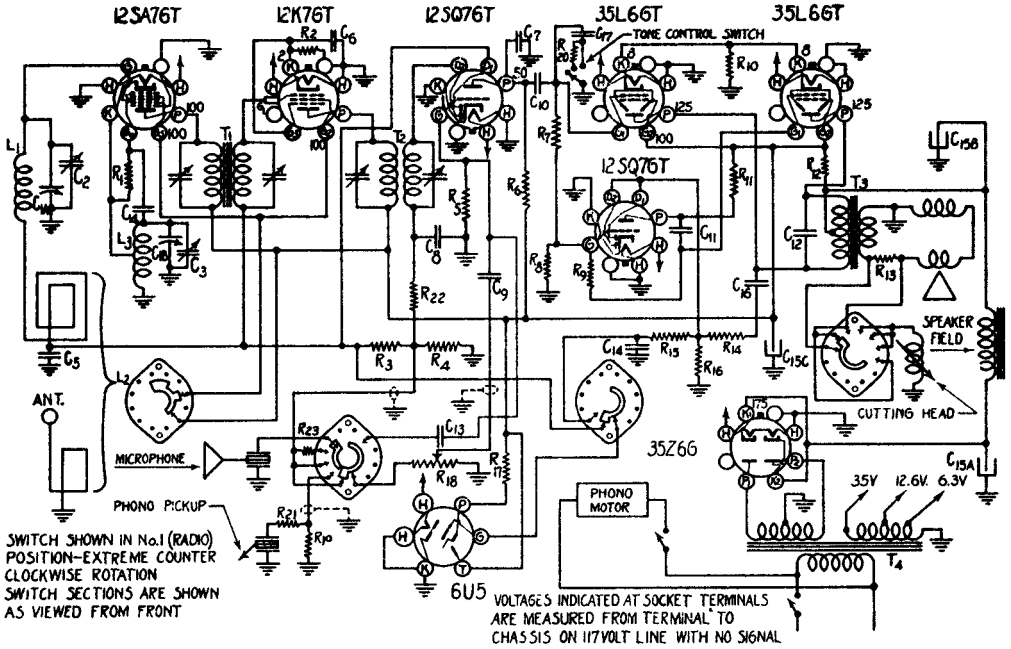


Detrola Radio
I.F. 455 KC.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

DETROLA CORPORATION

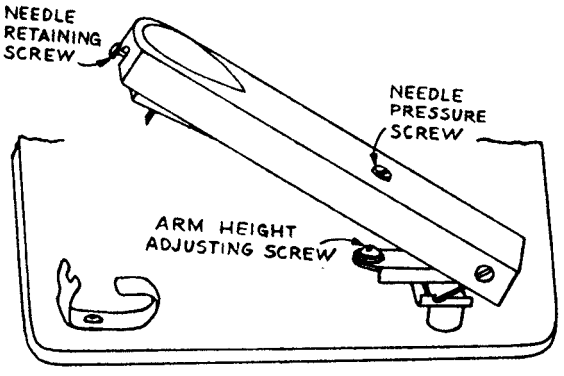
MODEL 390



Schematic Location	Part Number	Description
		CHASSIS PARTS
	4417	Button, Snap (Dial Mounting)
	8931	Cable, Tuning Tube
	2163	Cable, drive
	3227	Cap, Grid
R18	8910	Control, Volume and Switch
	1732	Cord, Line
	6424	Clamp, Linecord
	4314	Clamp, Tapped—For Tuning Tube
	4315	Clamp, Plain—For Tuning Tube
L3	8422	Coil, Oscillator
L1	8423	Coil, Tracking
C1a,b	B911	Condenser, Variable (with Pulley)
C2,3	8504	Condenser, Dual Trimmer
C15a,b,c	8425	Condenser, Electrolytic (20-250)—(20-150)—(20-150)
C4		Condenser, 100 Mmf. Mica
C5,14		Condenser, 1 Mfd. 200 v.
C6		Condenser, .05 Mfd. 200 v.
C7		Condenser, 250 Mmf. Mica
C8		Condenser, 100 Mmf. Mica
C9		Condenser, .002 Mfd. 600 v.
C10,16		Condenser, .01 Mfd. 400 v.
C11		Condenser, .05 Mfd. 400 v.
C12,13		Condenser, .001 Mfd. 600 v.
C17		Condenser, .005 Mfd. 600 v.
	7209	Grommet, Tuner Assembly Mtg.
	9121	Dial Chart
	8941	Microphone Socket Assembly
	6244	Pulley, Idler
	5026	Pointer
	6158	Pilot Lite
	1207	Retainer, "C" Washer (Holds Tuning Shaft)
R1		Resistor, 20M, 1/3 Watt
R2		Resistor, 200 Ohm, 1/3 Watt

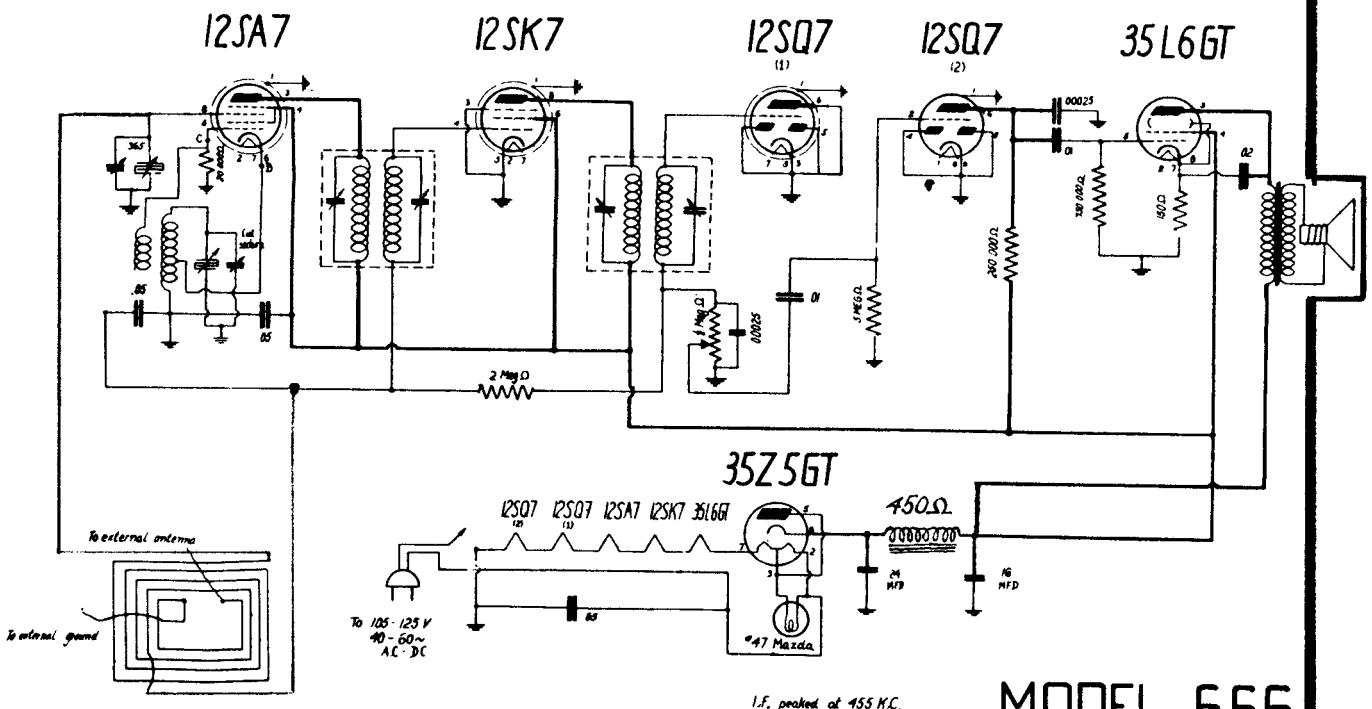
Schematic Location	Part Number	Description
R3,4,14,16		Resistor, 1 Meg. 1/3 Watt
R5		Resistor, 10 Meg. 1/3 Watt
R6,7,8,9,11		Resistor, 200M. 1/3 Watt
R10		Resistor, 120 Ohm, 1/2 Watt
R12		Resistor, 1000 Ohm, 1 Watt
R13		Resistor, 35 Ohm, 1/2 Watt
R15		Resistor, 2 Meg. 1/3 Watt
R17		Resistor, 1 Meg (in Tuning Tube Socket)
R19,20,21,22		Resistor, 50M, 1/3 Watt
R23		Resistor, 4 Meg. 1/3 Watt

RECORDING ARM ADJUSTMENTS

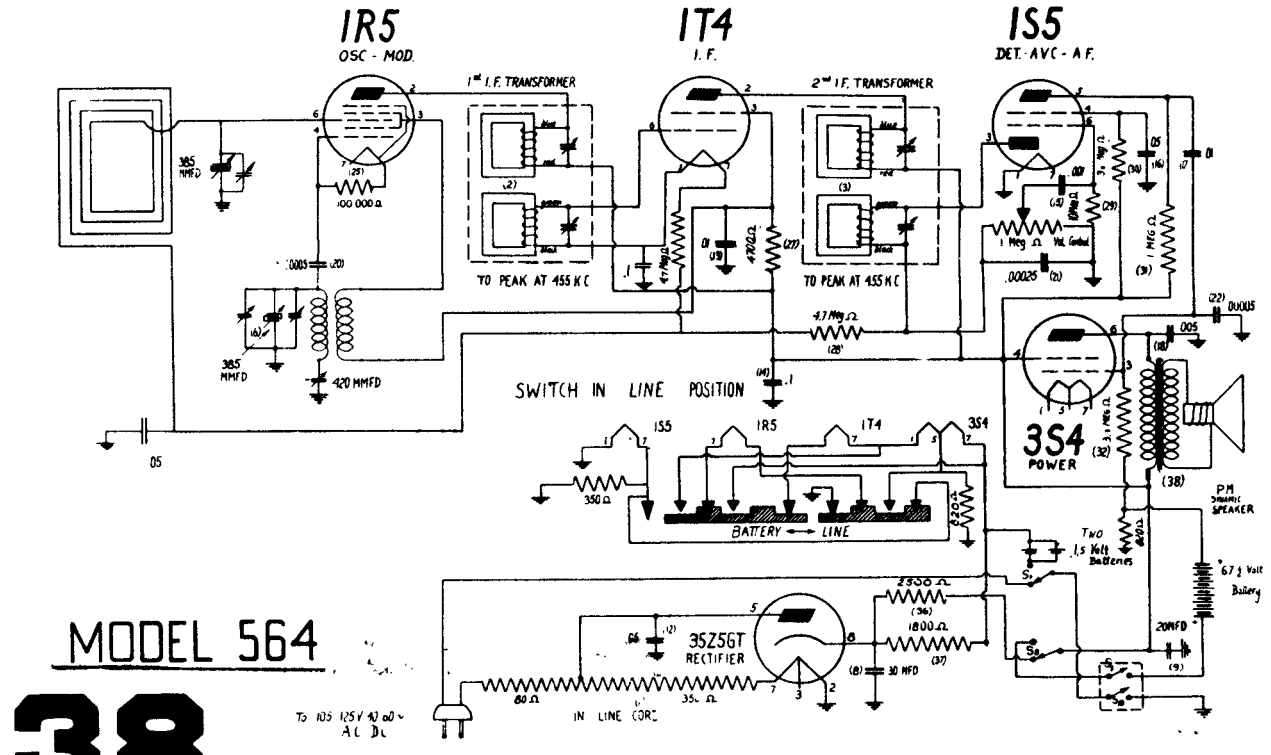


MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

De Wald Radio Mfg. Corp. New York



MODEL 666



MODEL 564

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

Emerson Radio

MODELS: EC-296, EC-301, EC-314, EC-315, EC-327, EC-336, EC-347, EC-353, EC-366, EC-242, EC-376 and EC-425

R1	20,000 ohm ¼ watt carbon resistor
R2, R6	15 megohm ¼ watt carbon resistor
R3	140 ohm ½ watt wire-wound resistor
R4	3 megohm ¼ watt carbon resistor
R5	Volume control .5 megohm
R7, R8	500,000 ohm ¼ watt carbon resistor
R11	200,000 ohm ¼ watt carbon resistor
C1, C2	Two-gang variable condenser
C3, C16	0.002 mf, 600 volt tnbular condenser
C4, C15	0.0002 mf, 600 volt tubular condenser
C5, C11	Trimmers, part of variable condenser
C6, C7, C8, C9	Trimmers, part of i-f transformers
C10	0.05 mf, 200 volt tubular condenser
C14	0.05 mf, 400 volt tubular condenser
C17, C18	0.02 mf, 400 volt tubular condenser
C26	0.2 mf, 200 volt tubular condenser.

VOLTAGE ANALYSIS

Tube	Plate	Screen	Cathode
12SA7	88	88	0
12SK7	88	88	0
12SQ7	30	—	0
50L6	82	88	5.6

Voltage at 35Z5 cathode—120 volts.
Voltage across speaker field—32 volts.
Voltage across pilot light—4.5 volts.

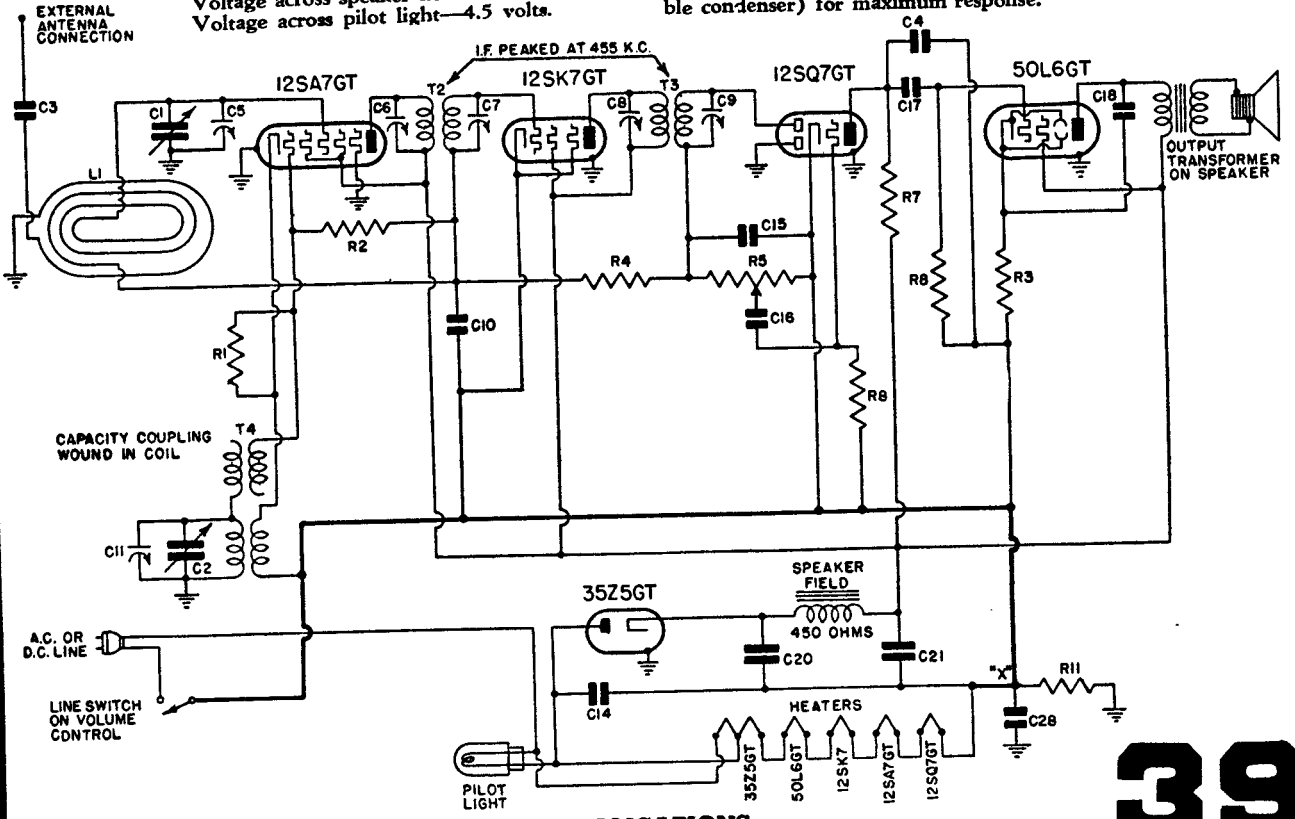
I-f Alignment

Swing the variable condenser to the minimum capacity position. Feed 455 kc to the grid of the 12SA7 tube through a .01 mf condenser and adjust the four i-f trimmers for maximum response.

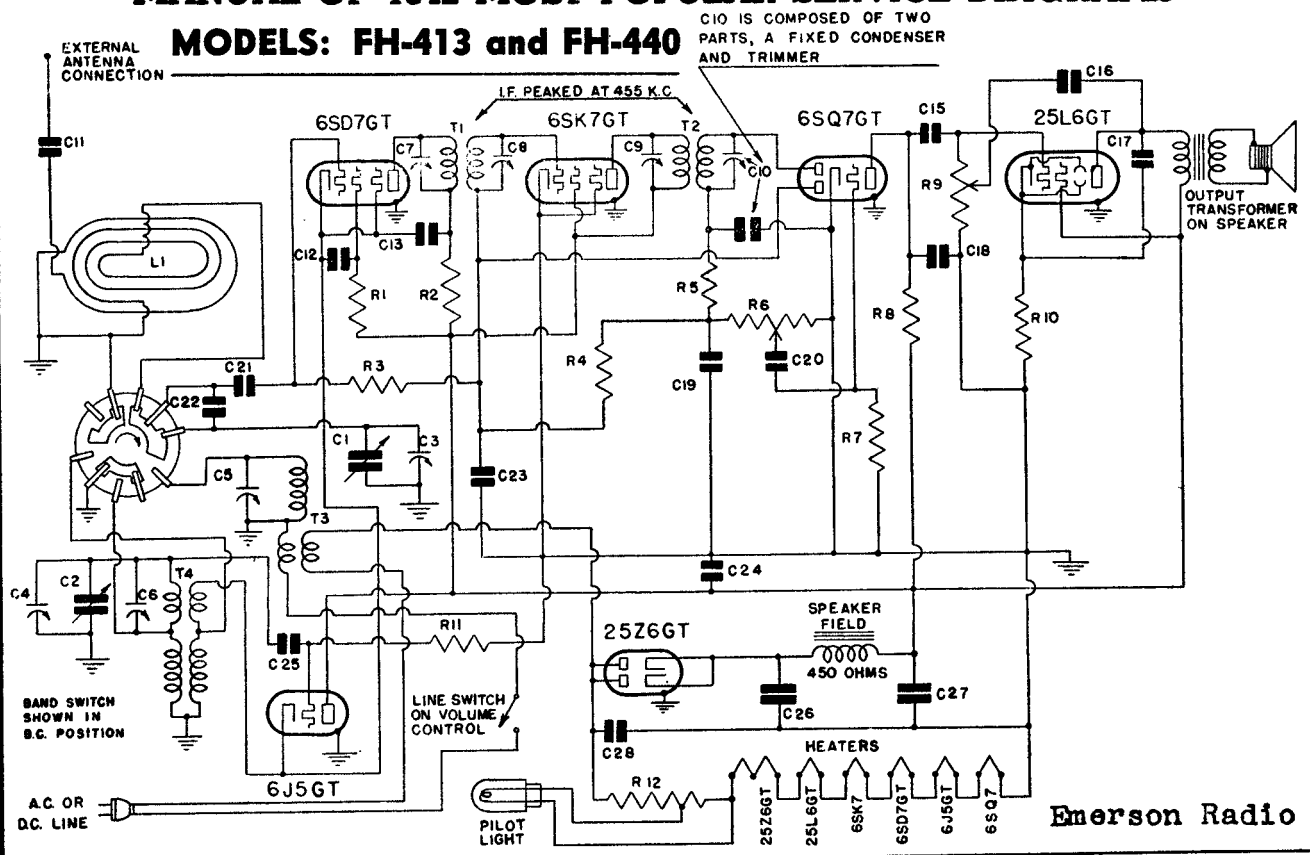
Note: The grid of the 12SA7 tube is connected to the stator lug of the rear variable condenser section. Connection may be made with a test clip.

R-f Alignment

Set the dial pointer at 140. Set the signal generator at 1400 kc and feed its output into a loop of wira about 12 inches in diameter. Hold this radiating loop about 12 inches from and parallel to the receiver loop antenna. Advance the output of the signal generator until deflection is obtained on the output meter. Adjust first the oscillator trimmer (on front section of variable condenser) then the antenna trimmer (on rear section of variable condenser) for maximum response.



MODELS: FH-413 and FH-440



Emerson Radio

Tube	Plate	Screen	Cath
6SG7, 6SD7 or 7H7	92	63	0
6J5	102	—	0
6SK7 or 7A7	102	102	0
6SQ7 or 7B6	30	—	—
25L6	92	102	6.5

Alignment

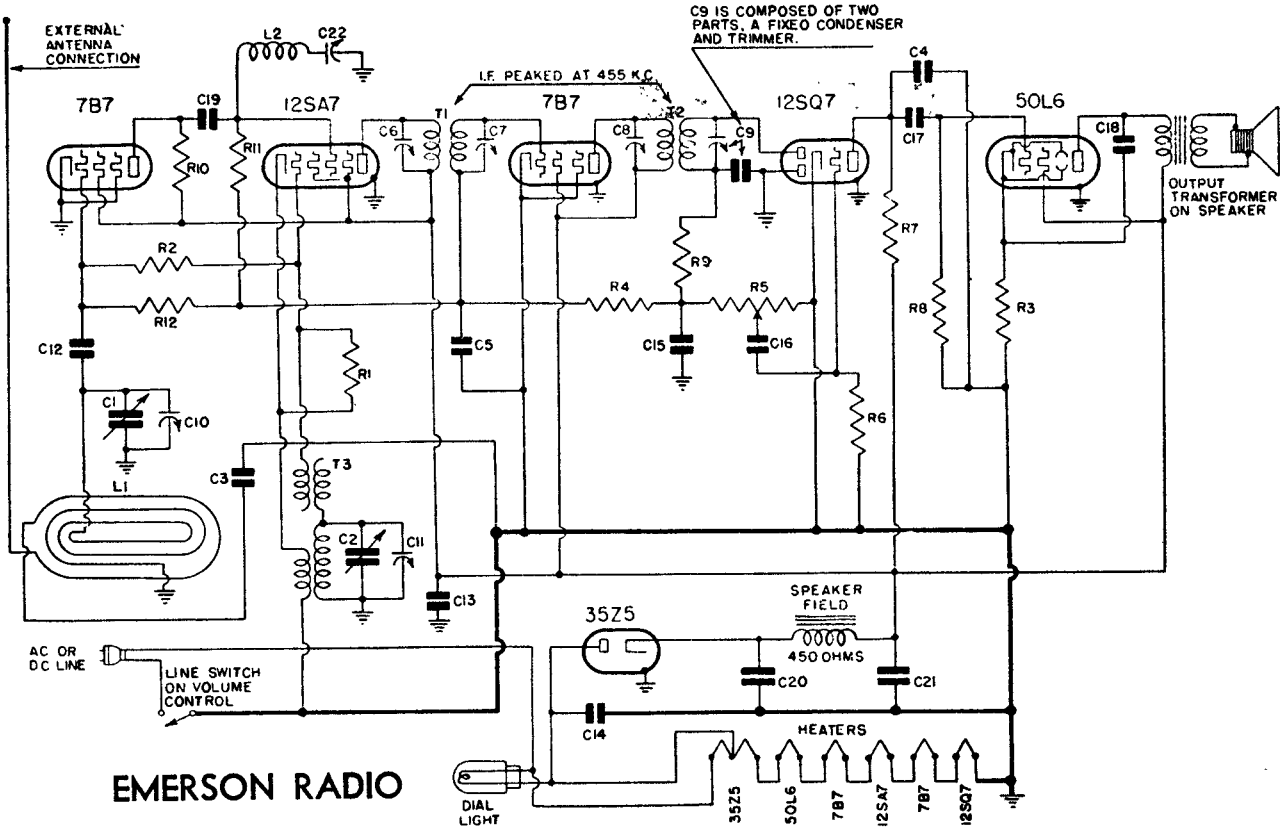
Swing the variable condenser to the minimum capacity position. Feed 455 kc to the grid of the 6SD7 tube through a .01 mf condenser and adjust the four i-f trimmers for maximum response.

Note: The grid of the 6SD7 tube is the No. 4 pin.

Rotate the wave-band switch counter-clockwise to the short-wave position. Set the dial pointer at 12 megacycles and using a 400 ohm carbon resistor as a dummy antenna feed 12 megacycles from the generator to the external antenna lead emerging from the rear of the chassis. Adjust first the short-wave oscillator trimmer and then the short-wave antenna trimmer for maximum response.

Rotate the wave-band switch clockwise to the broadcast position. Set the dial pointer at 160 and feed 1600 kc from the signal generator into a loop of wire about 12 inches in diameter. Hold this radiating loop about 12 inches from the loop antenna and advance the signal generator until a deflection is obtained on the output meter. Adjust first the oscillator trimmer (rear section of the variable condenser) and then the antenna trimmer (front section of the variable condenser) for maximum response.

R1, R11	50,000 ohm ¼ watt carbon resistor.
R2	5,000 ohm ¼ watt carbon resistor
R3, R4	3 megohm ¼ watt carbon resistor.
R5	50,000 ohm ¼ watt carbon resistor
R6	Volume control: .5 megohm
R7	10 megohm ¼ watt carbon resistor.
R8	500,000 ohm ¼ watt carbon resistor
R9	Tone control: 400,000 ohm
R10	140 ohm ½ watt wire-wound resistor
R12	Ballast resistor, 155 ohm
†C6	Trimmer, part of T4.
†C7, C8, C9	Trimmers, part of i-f transformers.
†C10	Trimmer and 0.0001 mf, mica condenser
C11, C20	0.002 mf, 600 volt tubular condenser
C12	0.02 mf, 200 volt tubular condenser
C13	0.05 mf, 200 volt tubular condenser.
C15, C17	0.02 mf, 400 volt tubular condenser
C16, C18, C21	0.00022 mf, mica condenser
C28	0.05 mf, 400 volt tubular condenser
C19, C25	0.00011 mf, mica condenser
C22	0.00046 mf, mica condenser
C23	0.1 mf, 200 volt tubular condenser
C24	0.01 mf, 400 volt tubular condenser
C26, C27	Dual 20 mf, 150 volt dry electrolytic



EMERSON RADIO

FL-414, FL-415, FL-416, FL-417, FL-418 and FL-419

R1	20,000 ohm ¼ watt carbon resistor.....
R2	10 megohm ¼ watt carbon resistor.....
R3	140 ohm ½ watt wire-wound resistor....
R4	3 megohm ¼ watt carbon resistor.....
R5	Volume control .5 megohm
R6	15 megohm ¼ watt carbon resistor.
R7, R8	500,000 ohm ¼ watt carbon resistor
R9	50,000 ohm ¼ watt carbon resistor
R10	10,000 ohm ¼ watt carbon resistor.....
R11	25,000 ohm ¼ watt carbon resistor.....
R12	1 megohm ¼ watt carbon resistor.....
C1, C2	Two-gang variable condenser.....
C3, C16	0.002 mf, 600 volt tubular condenser...
C4	0.0002 mf, 600 volt tubular condenser
C5, C13	0.05 mf, 200 volt tubular condenser.....
C6, C7, C8	Trimmers, part of i-f transformers.
C9	Trimmer and fixed condenser
C10, C11	Trimmers, part of variable condenser.
C12	0.00022 mica condenser.....
C14	0.05 mf, 400 volt tubular condenser....
C15, C19	0.00011 mica condenser.....
C17	0.02 mf, 400 volt tubular condenser....
C18	0.03 mf, 400 volt tubular condenser....
C20, C21	Dual 20 mf, 150 volt dry electrolytic

Location of Coils and Trimmer Adjustments

The first i-f transformer is mounted on top of the chassis deck to the left of the variable condenser. The trimmers are accessible through holes in the top of the can.

The second i-f transformer is mounted on top of the chassis between the 7B7 tube and the speaker. The trimmers are accessible through holes in the top of the can.

The 455 kc wave-trap is located below the chassis deck.

The trimmers for the antenna and oscillator coils are located on the variable condenser. The trimmer on the front section is for the oscillator coil.

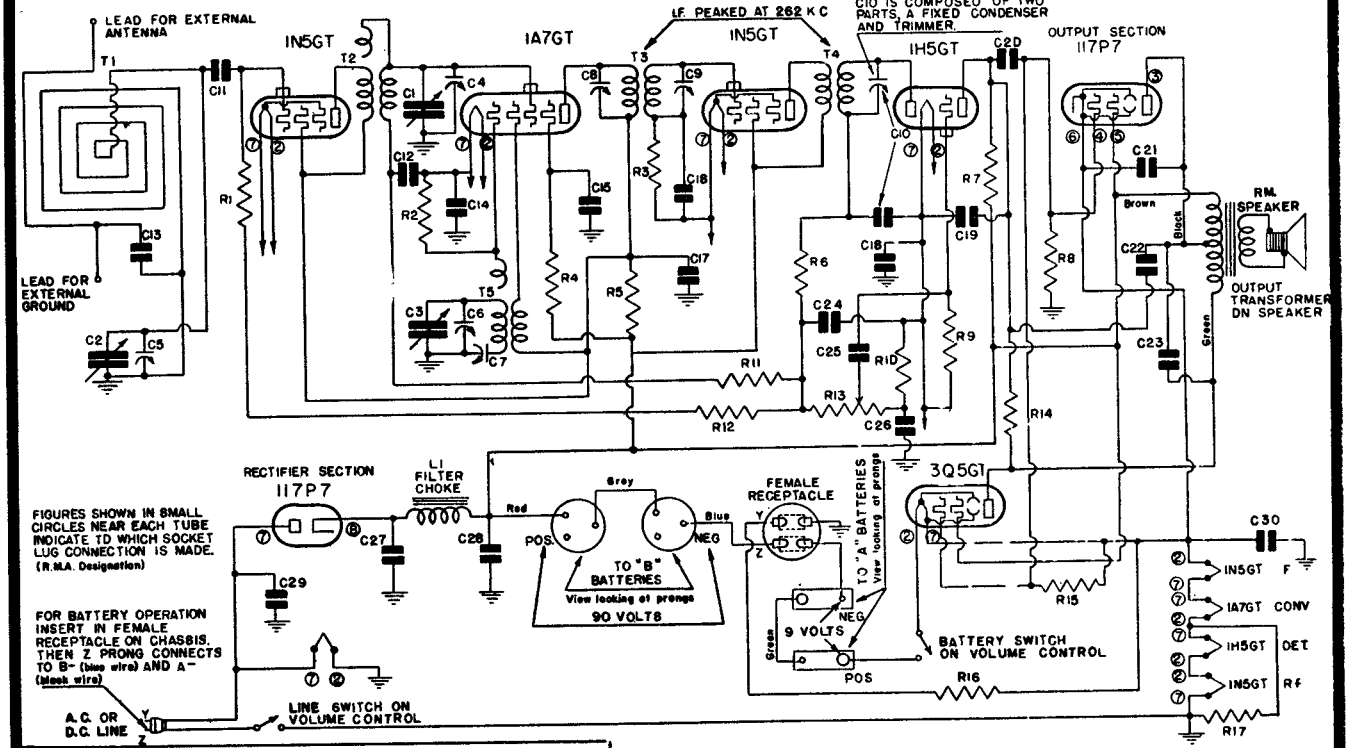
The oscillator coil is located underneath the chassis. The loop antenna acts as the antenna coil.

VOLTAGE ANALYSIS

Tube	Plate	Screen	Cathode
7B7 (r-f)	18	88	0
12SA7	88	88	0
7B7	88	85	0
12SQ7	30	—	0
50L6GT	82	88	5.6

Voltage at 35Z5GT cathode—120 volts.
Voltage across speaker field—32 volts.
Voltage across pilot light—4.5 volts.

EMERSON RADIO — MODELS: FU-424, FU-427 and FU-428



R1	2 megohm ¼ watt carbon resistor
R2	200,000 ohm ¼ watt carbon resistor
R3	5 megohm ¼ watt carbon resistor.....
R4	30,000 ohm ¼ watt carbon resistor
R5	1,000 ohm ¼ watt carbon resistor....
R6	47,000 ohm ¼ watt carbon resistor
R7, R8	500,000 ohm ¼ watt carbon resistor
R9	10 megohm ¼ watt carbon resistor
R10	4,000 ohm ¼ watt carbon resistor
R11, R12, R14, R15	3 megohm ¼ watt carbon resistor
R13	Volume control .5 megohm
R16	1,200 ohm ¼ watt carbon resistor
R17	860 ohm ½ watt wire-wound resistor
C1, C2, C3	Three-gang variable condenser.....
C4, C5, C6	Part of variable condenser.
C7	Padder condenser .....
C8, C9, C10	Trimmers, part of i-f transformers.
C11, C12, C16, C17	0.05 mf, 200 volt tubular condenser
C13, C23, C25	0.002 mf, 600 volt condenser.....
C14, C18, C26	0.25 mf, 100 volt tubular condenser
C15	0.02 mf, 200 volt tubular condenser
C16, C17	0.05 mf, 200 volt tubular condenser
C19	0.0004 mf, 600 volt tubular condenser
C20	0.02 mf, 400 volt tubular condenser
C21	0.01 mf, 400 volt tubular condenser
C22	0.00006 mf, mica condenser.....
C24	0.00011 mf, mica condenser.....
C26	0.25 mf, 100 volt tubular condenser
C27, C28	Dual 20 mf, 150 volt dry electrolytic
C29	0.05 mf, 400 volt tubular condenser.....
C30	40 mf, 25 volt dry electrolytic condenser

Location of Coils and Trimmer Adjustments

The oscillator coil is located beneath the chassis. The trimmer for the oscillator is on the middle section of the variable condenser.

The interstage coil is the shielded coil located beneath the chassis. Its trimmer is on the front section of the variable condenser.

The trimmer for the loop antenna is on the last section of the variable condenser (the section nearest the loop).

The i-f transformers are mounted on top of the chassis. The first i-f transformer is mounted next to the loop. The second i-f transformer is mounted next to the dial.

The series padder is located between the variable condenser and the shielded 1N5 tube.

Note: This receiver has an i-f of 262 kc.

Swing variable condenser to minimum capacity position.

Feed 262 kc to the grid of the 1A7 tube through a 0.01 mf condenser. Adjust the three i-f trimmers for maximum response.

Set the dial pointer at 140. Feed 1400 kc from the signal generator into a loop of wire about one foot in diameter. Hold this radiating loop approximately one foot away from and parallel to the receiver loop and advance the output of the signal generator until a suitable deflection is obtained on the output meter. Adjust first the oscillator trimmer (middle section) then the interstage and loop trimmers for maximum response. Move dial pointer to 60 and feed 600 kc into the radiating loop and adjust the series padding condenser (while rocking the variable condenser back and forth) for maximum response. Realign at 1400 kc.

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R1, R10	3 megohm ¼ watt carbon resistor.....
R2	100,000 ohm ¼ watt carbon resistor.
R3	15,000 ohm ¼ watt carbon resistor.....
R4, R6	15 megohm ¼ watt carbon resistor.....
R5	75 ohm ½ watt carbon resistor.....
R7, R9	1 megohm ¼ watt carbon resistor.....
R8	5 megohm ¼ watt carbon resistor.....
R11	2500 ohm 1 watt carbon resistor.....
R12	10 megohm ¼ watt carbon resistor.....
R13	Volume control 3. megohm.....
R14	500 ohm 1 watt carbon resistor.....
R15	980 ohm ½ watt wire-wound, moulded
R16	1500 ohm 5 watt wire-wound, ceramic
R17	950 ohm 5 watt wire-wound, ceramic
C5, C17	0.02 mf, 100 volt tubular condenser.....
C6, C7, C9	0.25 mf, 100 volt tubular condenser.....
C8	0.00005 mf, ceramic condenser.....
C10, C11	Trimmer, part of i-f transformer.
C12	0.01 mf, 100 volt tubular condenser.....
C13	Fixed condenser, part of i-f transformer.
C14, C19	0.0001 mf, ceramic condenser.....
C15	0.001 mf, 100 volt tubular condenser.....
C16, C21	0.002 mf, 150 volt tubular condenser.....
C18	40. mf, 40 volt dry electrolytic condenser
C20	0.001 mf, 100 volt flat wound condenser

Emerson Radio

MODEL: GC-448

CHASSIS MODEL: GC

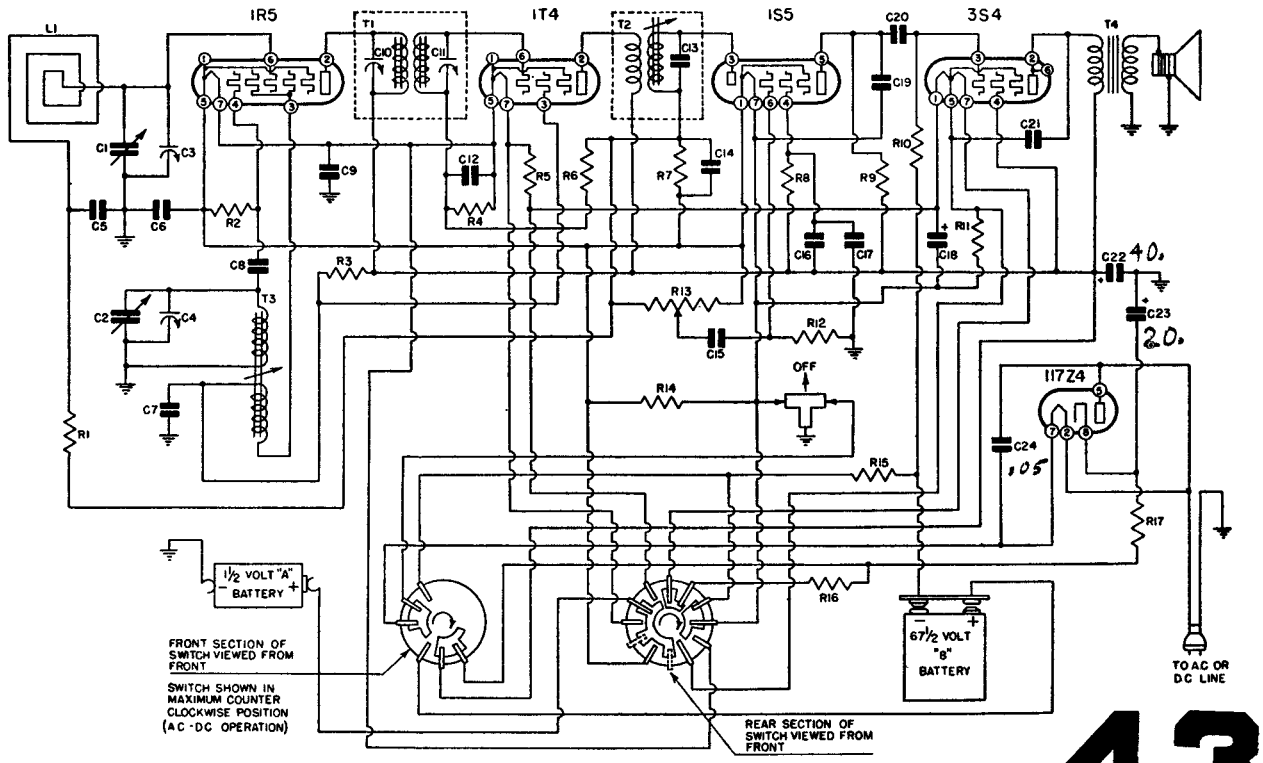
I-f Alignment

Rotate variable condenser to minimum capacity position.

Feed 455 kc to the grid of the 1R5 tube through a 0.01 mf condenser. Adjust the three i-f trimmer screws for maximum response. (Clip the i-f input to the stator lug of the larger variable condenser section.)

R-f Alignment

Set the dial pointer at 160. Set the signal generator at 1600 kc and feed its output into a loop of wire about one foot in diameter. Hold this radiating loop about one foot away from and parallel to the receiver loop antenna. Advance the output of the generator until deflection is obtained on the output meter. Adjust first the oscillator trimmer (smaller section of variable condenser) then the antenna trimmer (larger section of variable condenser) for maximum response. Set the dial pointer at 60. Feed 600 kc and rock the variable condenser while adjusting the oscillator core adjustment for maximum response. Return to 1600 and check alignment. If readjustment is necessary return to 600 and repeat entire procedure.



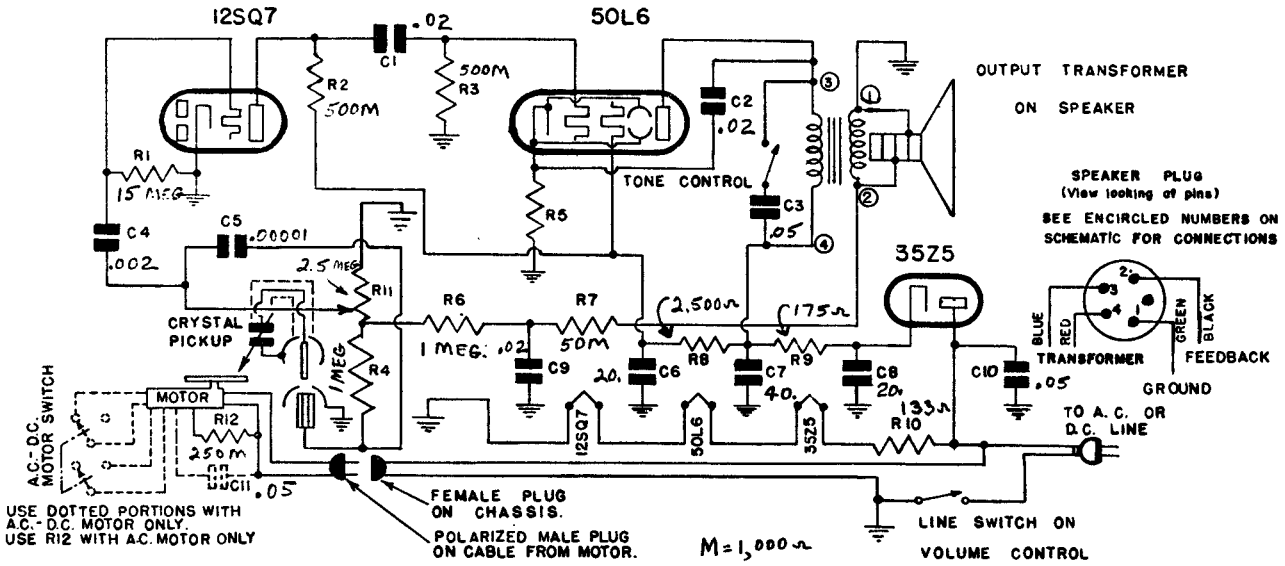
Emerson Radio

MODEL: FY-434

CHASSIS MODEL: FY

MODEL: FY2-434 A.C.-D.C.

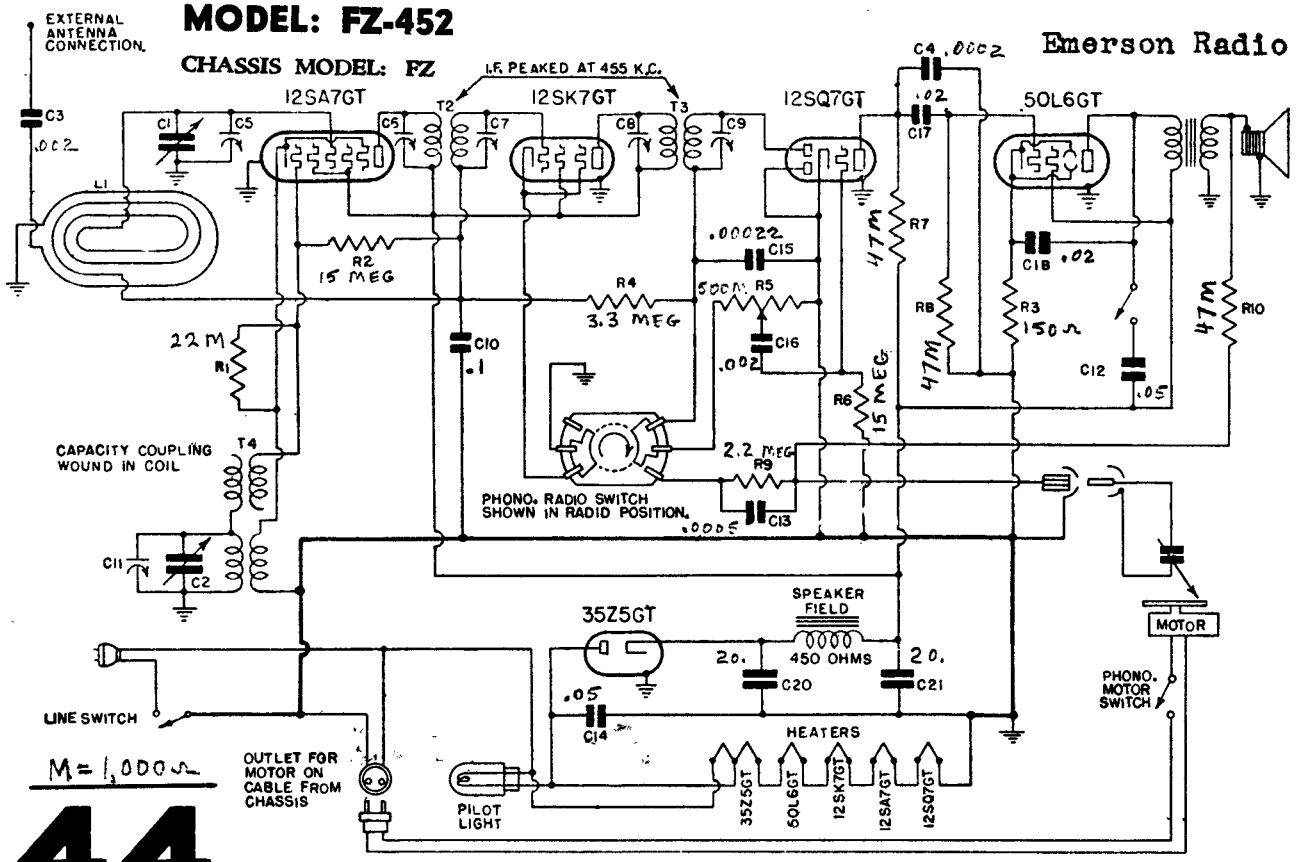
CHASSIS MODEL: FY2



MODEL: FZ-452

CHASSIS MODEL: FZ

Emerson Radio



COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

Emerson Radio

R1, R7, R18, R19	1 megohm ¼ watt carbon resistor
R2	20,000 ohm ¼ watt carbon resistor
R3	140 ohm ½ watt wire-wound resistor
R4	3 megohm ¼ watt carbon resistor
R5	Volume control 2.5 meg
R6	10 megohm ¼ watt carbon resistor
R8, R16, R17, R20	500,000 ohm ¼ watt carbon resistor
R9, R10, R24	50,000 ohm ¼ watt carbon resistor
R11	175 ohm 1 watt carbon resistor
R12	750 ohm 1 watt wire-wound resistor
R13	10,000 ohm ¼ watt carbon resistor
R14	25,000 ohm ¼ watt carbon resistor
R15, R23	100,000 ohm ¼ watt carbon resistor
R21, R22	100,000 ohm ¼ watt carbon resistor
R25	30,000 ohm ¼ watt carbon resistor
R26, R27, R28	Ballast resistor: R26—233 ohm, 6 watt; R27—190 ohm, 5 watt; R28—250 ohm, 3 watt
C1, C2	Two-gang variable condenser
C3, C16	0.002 mf, 600 volt tubular condenser
C4	0.0004 mf, 600 volt tubular condenser
C5	Trimmer, part of loop assembly.
C6, C7, C8, C9	Trimmers, part of variable condenser.
C11	Trimmer, part of variable condenser.
C10	0.1 mf, 200 volt tubular condenser
C12	0.0006 mf, 600 volt tubular condenser
C13	0.0015 mf, 600 volt tubular condenser
C14	0.05 mf, 400 volt tubular condenser
C15	0.0002 mf, 600 volt tubular condenser
C17	0.02 mf, 400 volt tubular condenser
C18	0.00011 mf, mica condenser
C19	0.005 mf, 400 volt tubular condenser
C20, C21, C22	Multiple dry electrolytic condenser: 150 volt; C20—20 mf; C21—80 mf; C22—40 mf
C23	0.00025 mf, mica condenser
C24, C27, C30 C31, C32	0.05 mf, 200 volt tubular condenser
C25	0.000026 mf, mica condenser
C26	0.001 mf, 600 volt tubular condenser
C28	0.00022 mf, mica condenser
C29	0.0003 mf, mica condenser

I-f and Wave-trap Alignment

Swing the variable condenser to the minimum capacity position. Feed 455 kc to the grid of the 12SA7 tube through a .01 mf condenser and adjust the four i-f trimmers for maximum response.

Feed 455 kc to the external antenna lead and adjust the wave-trap for minimum response.

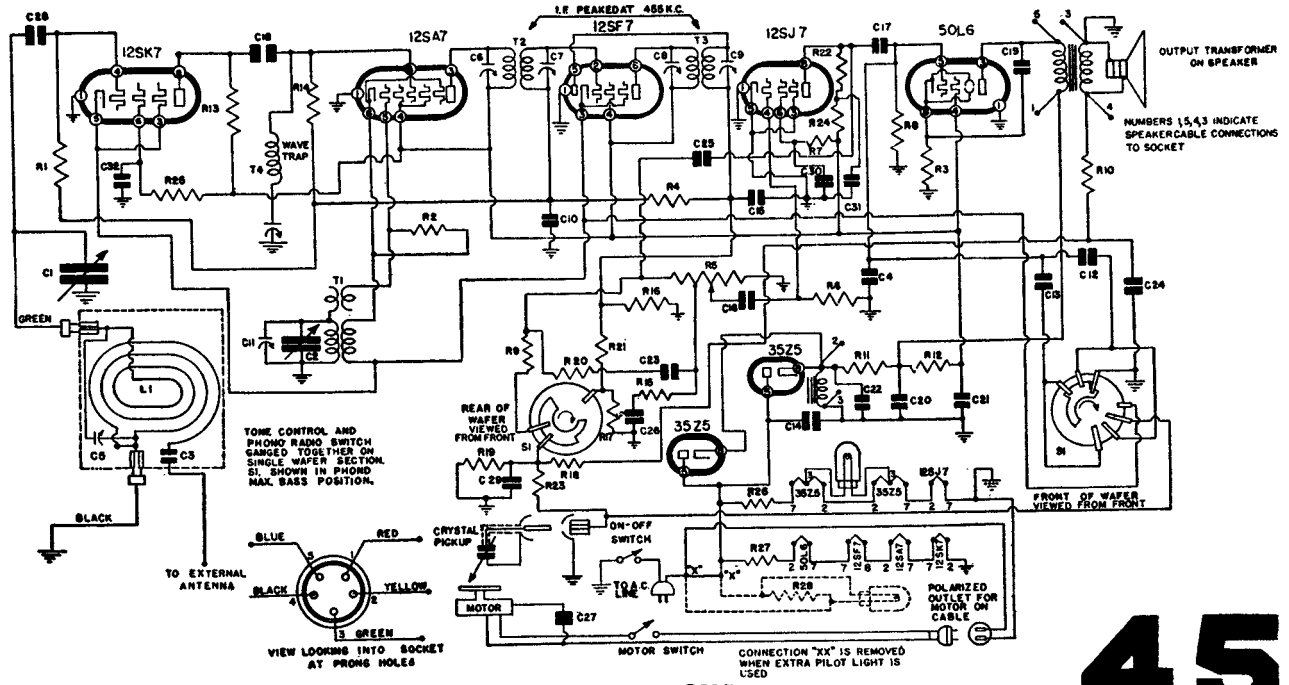
Note: The grid of the 12SA7 tube is the No. 8 pin.

VOLTAGE ANALYSIS

Tube	Plate	Screen	Cathode
12SA7	88	88	0
12SK7	48	46	0
12SF7	89	89	0
12SJ7	8	14	—
50L6GT	108	89	5.1

MODEL: GH-437, GH-447
CHASSIS MODEL: GH

MODEL: GH2-447
CHASSIS MODEL: GH2



Emerson Radio

MODELS: GA-439 and GA-441
CHASSIS MODEL: GA

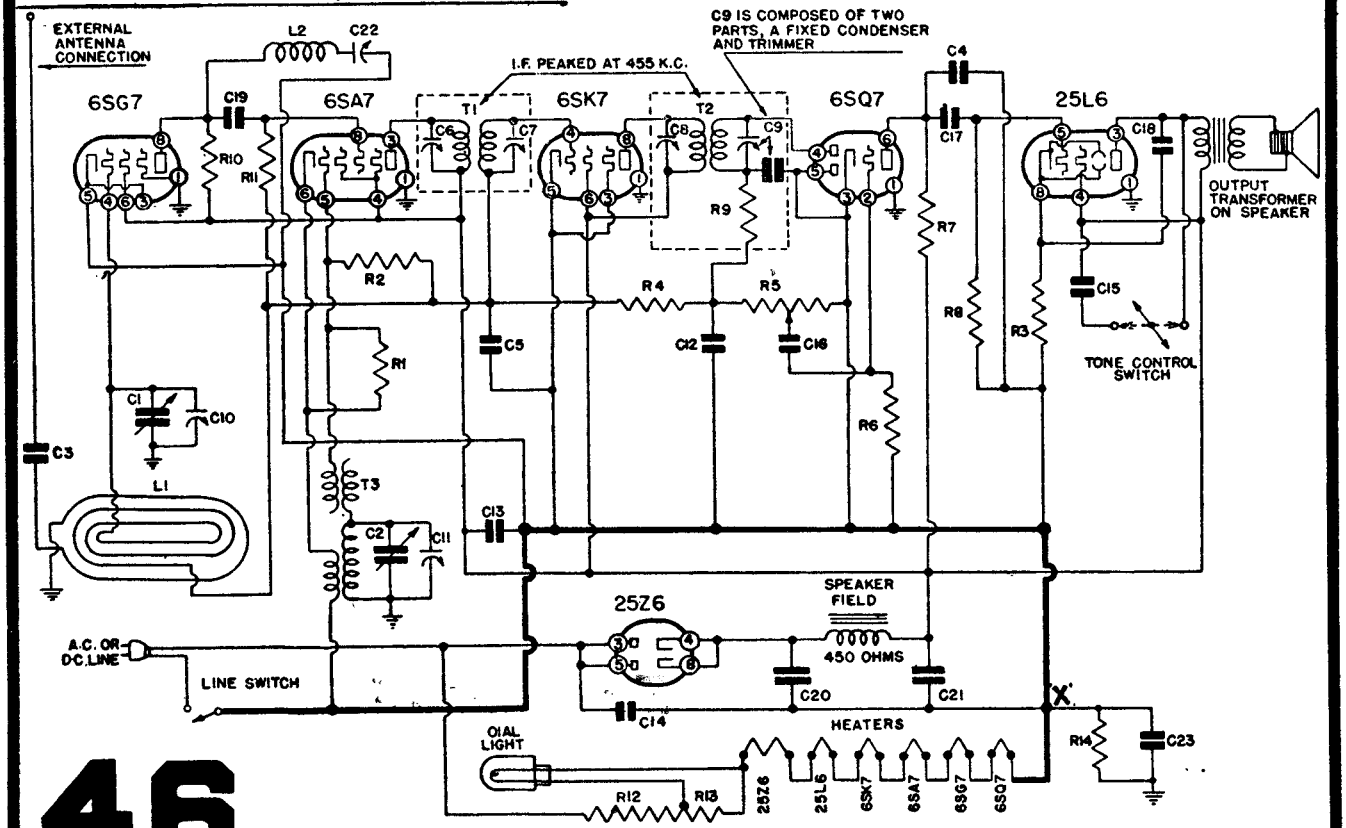
MODELS: GA1-439 and GA1-441
CHASSIS MODEL: GA1

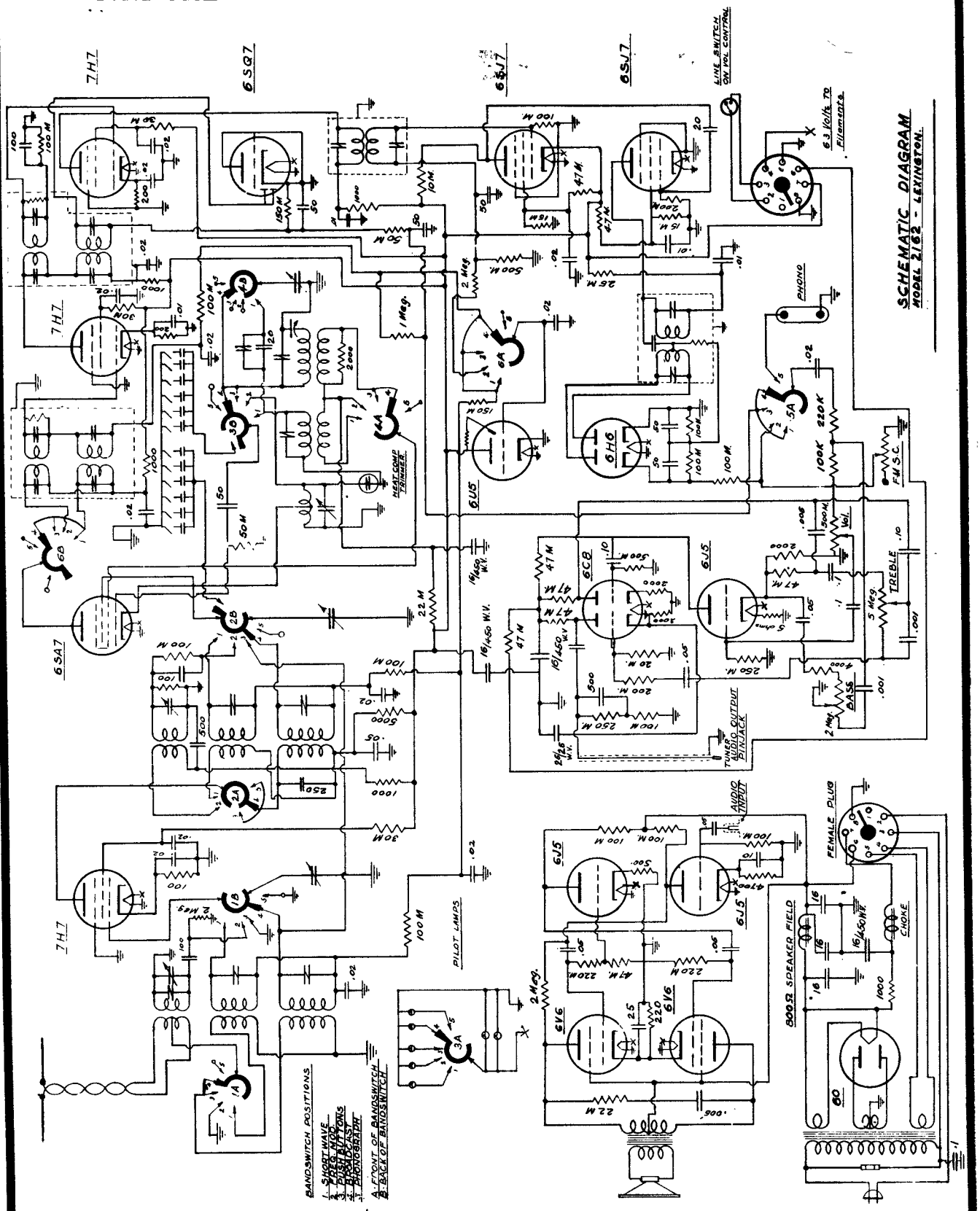
R1	20,000 ohm ¼ watt carbon resistor.....
R2, R6	15 megohm ¼ watt carbon resistor.....
R3	140 ohm ½ watt wire-wound resistor
R4	2 megohm ¼ watt carbon ressitor.....
R5	Volume control .5 meg. (Model 431)
R5	Volume control .5 meg. (Model 439)
R7, R8	500,000 ohm ¼ watt carbon resistor
R9	50,000 ohm ¼ watt carbon resistor
R10	10,000 ohm ¼ watt carbon resistor
R11	25,000 ohm ¼ watt carbon resistor
R12, R13	R12—130 ohm, 12.5 watt; R13—25 ohm
R14	220,000 ohm ¼ watt carbon resistor....
C1, C2	Two-gang variable condenser.....
C3, C16	0.002 mf, 600 volt tubular condenser.
C4	0.0002 mf, 600 volt tubular condenser
C5	0.05 mf, 200 volt tubular condenser
C12, C19	0.00022 mica condenser.....
C13	0.05 mf, 200 volt tubular condenser.
C14	0.05 mf, 400 volt tubular condenser.
C15	0.04 mf, 200 volt tubular condenser.
C17, C18	0.02 mf, 400 volt tubular condenser.
C19	0.00022 mica condenser.....
C20, C21	Dual 20 mf, 150 volt, dry electrolytic
C22	Trimmer, part of L2.
C23	0.2 mf, 200 volt tubular condenser

R-f Alignment

Set the dial pointer at 140. Feed 1400 kc from the signal generator into a loop of wire about one foot in diameter. Hold this radiating loop about 12 inches away from and parallel to the receiver loop antenna. Advance the input to the loop until a satisfactory deflection is obtained on the output meter. Adjust first the oscillator trimmer then the antenna trimmer for maximum response. If the loop antenna has been replaced it may be necessary to retrack the loop inductance. With the dial set at 60 feed 600 kc to the antenna lead. A portion of the outside may be swung to either side of the center to give maximum response. Repeat the trimmer alignment at 140.

Tube	Plate	Screen	Cathode
6SG7 or 7H7	87	39	0
6SA7	87	87	0
6SK7 or 7A7	87	87	0
6SQ7 or 7B6	32	—	0
25L6	79	87	6.0





Espey Mfg. Co., Inc.

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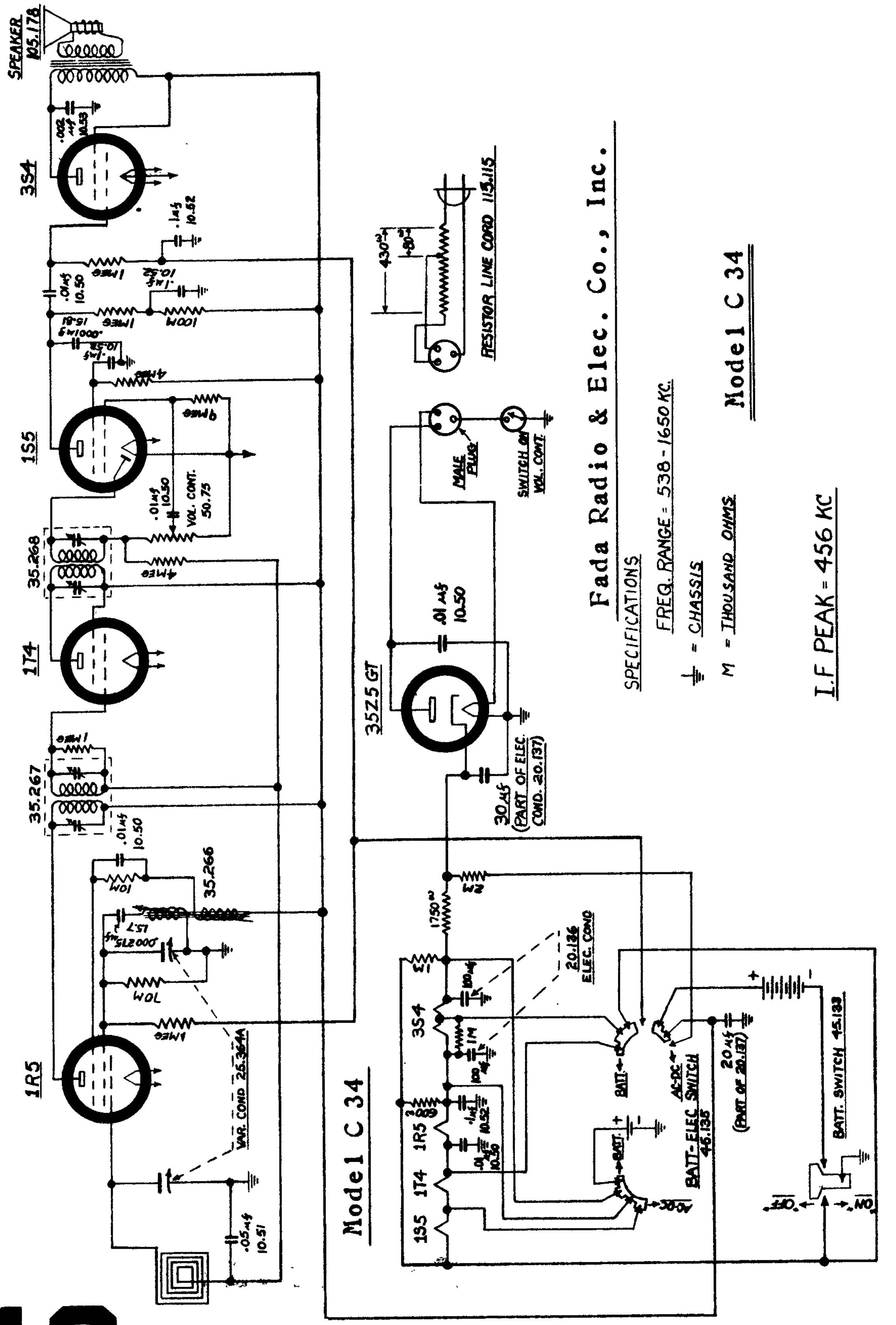
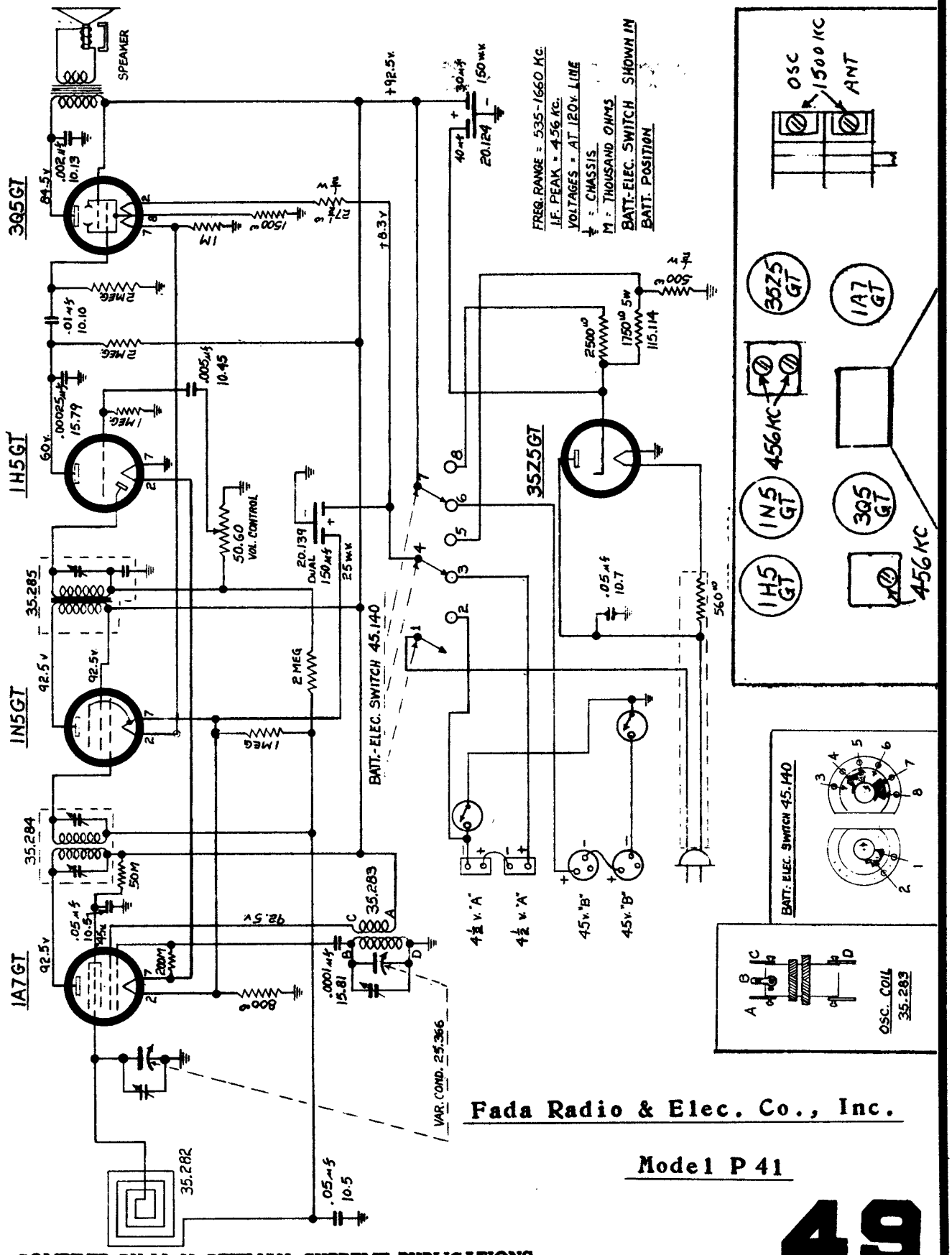

Fada Radio & Elec. Co., Inc.
Model C 34
SPECIFICATIONS
FREQ. RANGE = 538 - 1650 KC.
= CHASSIS
M = THOUSAND OHMS
I.F PEAK = 456 KC
SPEAKER 105.178
3S4
1S5
1T4
1R5
35Z5 GT
35.268
35.267
35.266
RESISTOR LINE CORD 115.115
MALE PLUG
SWITCH ON VOL. CONT.
VOL. CONT. 50.75
VAR. COND 25.364A
20.136 ELEC. COND
30 μf (PART OF ELEC. COND. 20.137)
20 μf (PART OF 20.137)
BATT-ELEC SWITCH 46.135
BATT. SWITCH 45.133
AC-DC
BATT.
Model C 34

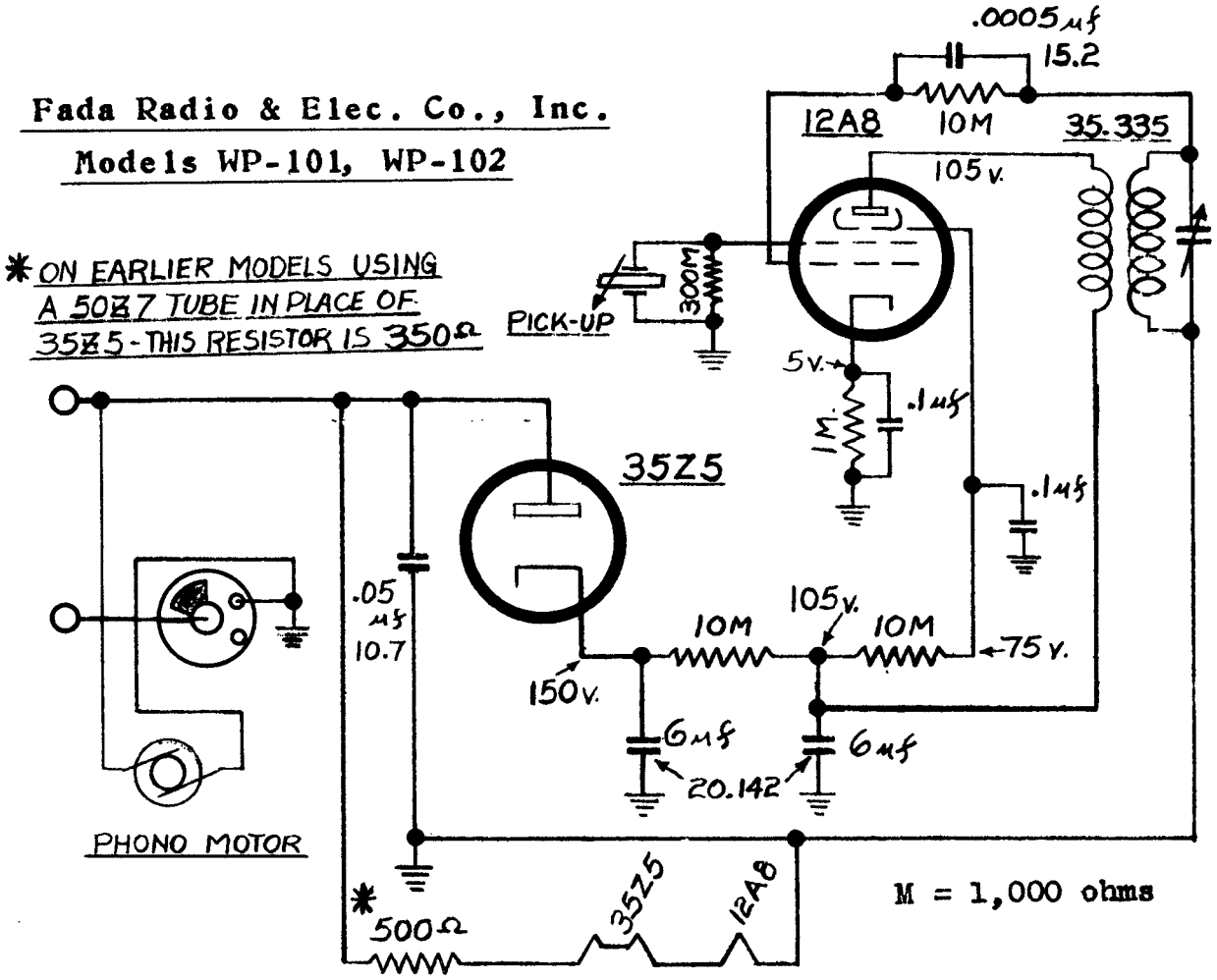


Fada Radio & Elec. Co., Inc.

Model P 41

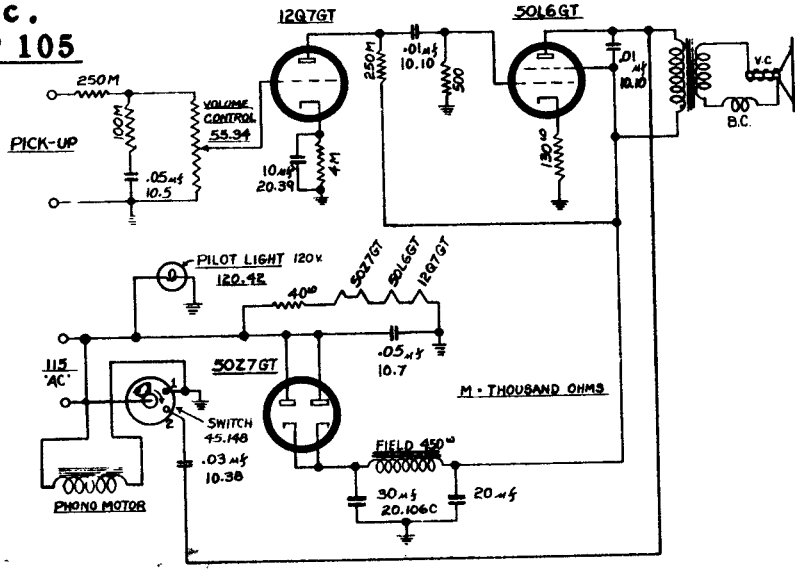
Fada Radio & Elec. Co., Inc.

Models WP-101, WP-102



*ON EARLIER MODELS USING A 50Z7 TUBE IN PLACE OF 35Z5 - THIS RESISTOR IS 350Ω

Fada Radio & Elec.
Models AP 104, AP 105



SWITCH 45.148 SHOWN IN "OFF" POSITION

CONTACT 1 = MOTOR & UNIT "ON" - TREBLE TONE

" 1 & 2 = " " " " - BASS "

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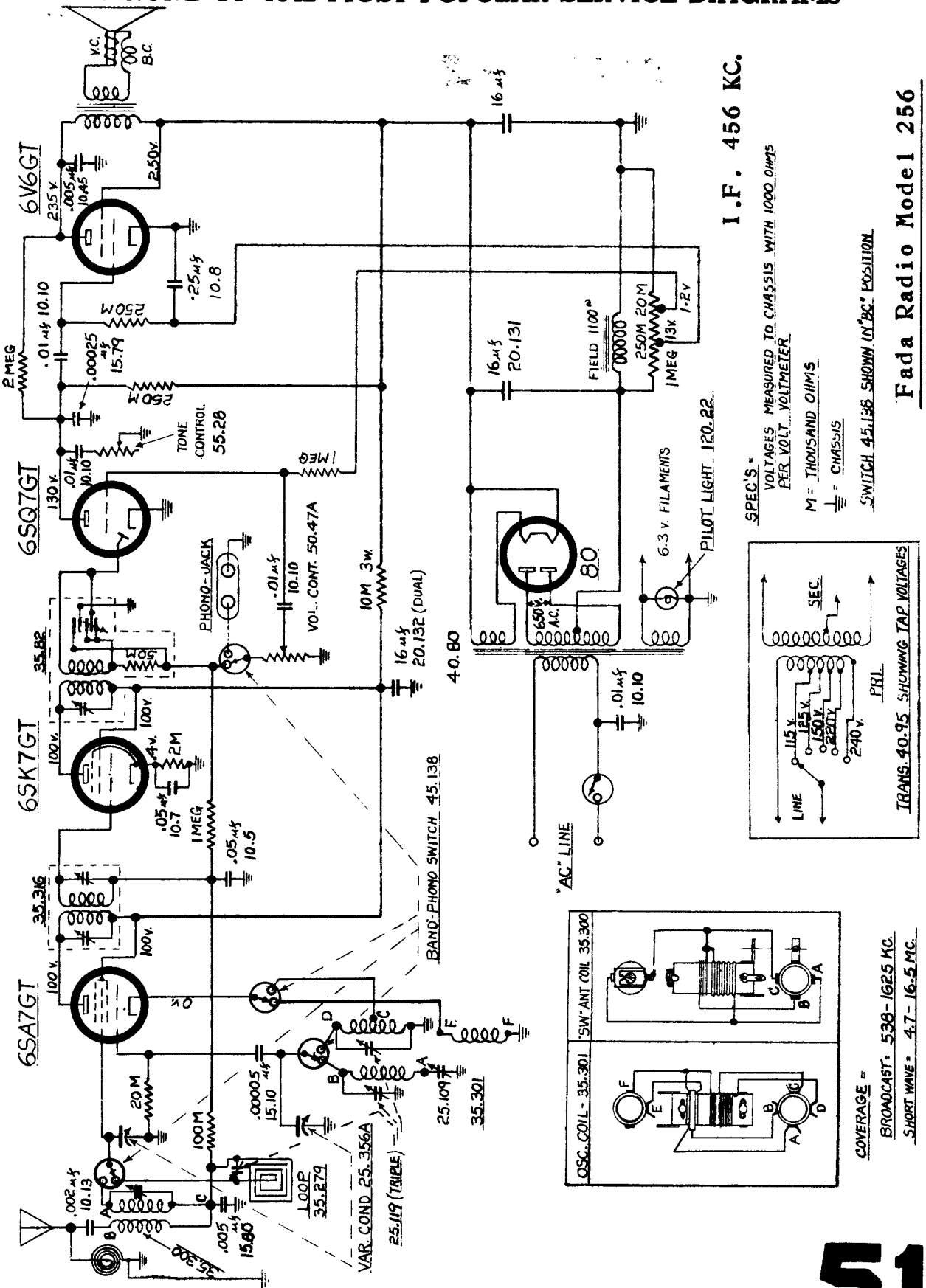
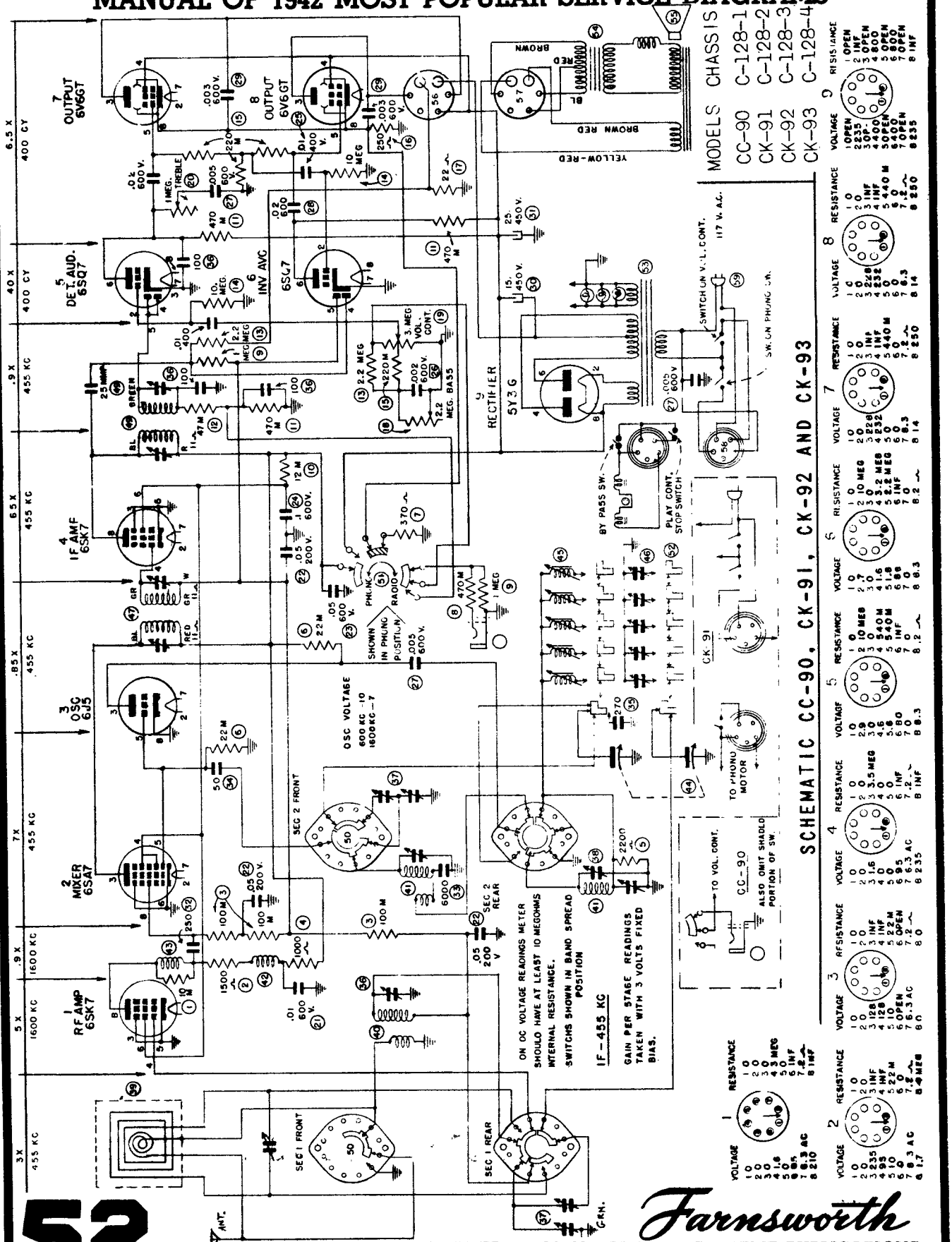

Fada Radio Model 256
I.F. 456 KC.
6V6GT
6SQ7GT
6SK7GT
6SA7GT
80
TONE CONTROL 55.28
PHONO-JACK
VOL. CONT. 50.47A
BAND-PHONO SWITCH 45.138
VAR. COND. 25.356A
25.119 (TRIPLE)
LOOP 35.279
OSC. COIL - 35.301
"SW" ANT COIL 35.300
35.301
FIELD 1100Ω
PILOT LIGHT 120.22
6.3 V. FILAMENTS
"AC" LINE
SPEC'S "
VOLTAGES MEASURED TO CHASSIS WITH 1000 OHMS PER VOLT VOLTMETER
M = THOUSAND OHMS
⏚ = CHASSIS
SWITCH 45.138 SHOWN IN "BC" POSITION
TRANS. 40.95 SHOWING TAP VOLTAGES
PRI.
SEC.
LINE
115 V.
125 V.
150 V.
220 V.
240 V.
COVERAGE =
BROADCAST - 538 - 1625 KC.
SHORT WAVE - 4.7 - 16.5 MC.



Farnsworth

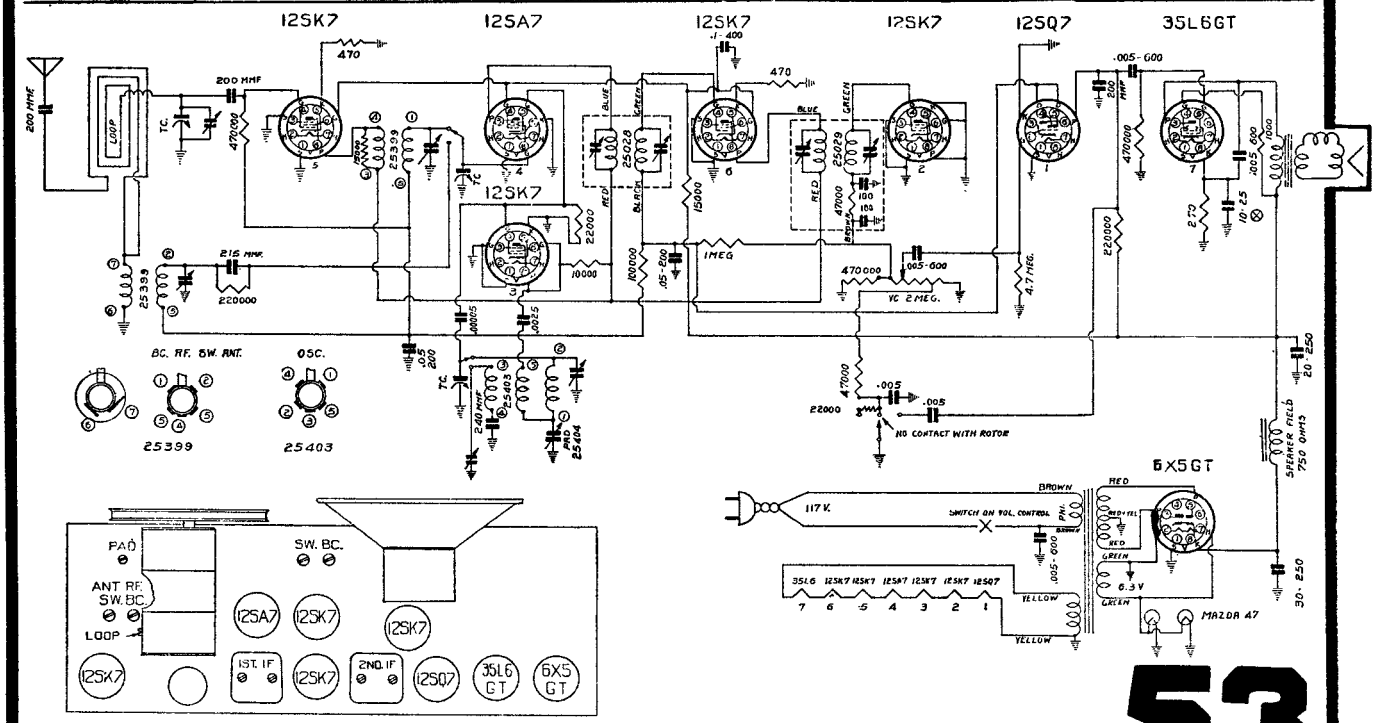
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

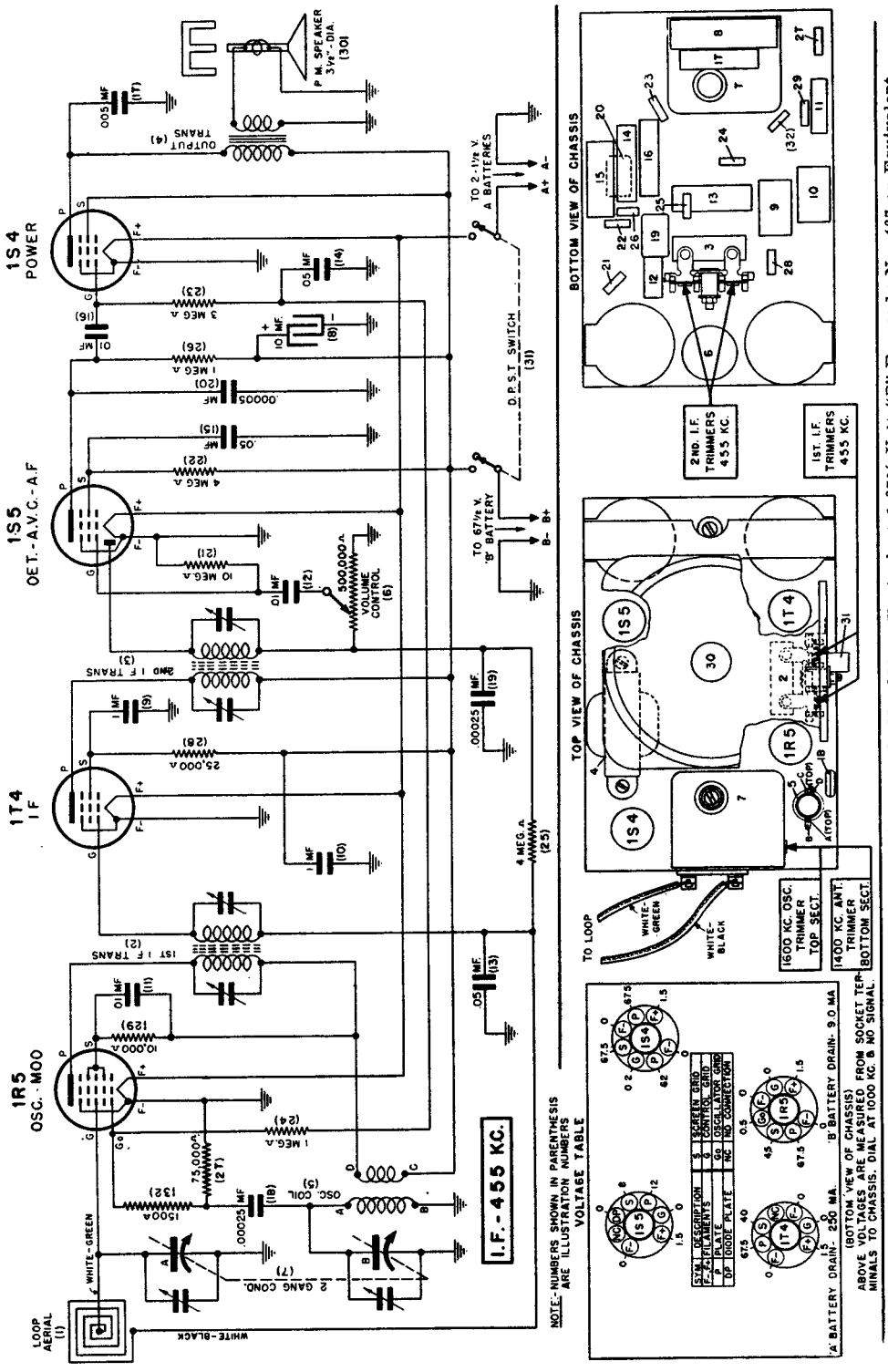
GAMBLE-SKOGMO INC.

MINNEAPOLIS, -:- MINNESOTA

Model 1682A

Generator Frequency	Connection at Radio	Dummy Antenna	Range Switch Setting	Dial Setting	Trimmers to Tune	Approx. Sensitivity .05 Watt O. P
I. F. 456 k.c.	Center Stator of Var. Cond.	.1 Mfd.	B. C.	H. F. End	I. F. Trans. Tune to Max.	65 to 75 Mv.
B. C. 1650 k.c.	Ant.	200 Mmf.	B. C.	H. F. Limit of Travel	B. C. Osc.	—
1400 k.c.	"	"	"	1400— See Note "A"	B. C. RF. " " Loop Tune to Max.	20 Mv.
600 k.c.	"	"	"	600— Rock Rotor	Padder	15 Mv.
11.6 m.c.	Ant.	400 Ohms	S. W.	11.6 m.c.	S. W. Osc	40 to 50 Mv.
9.6 m.c.	Ant.	400 Ohms	S. W.	Check Dial at 9.6 Mc.		





Battery Specification.....2-1½ Volt "A" Eveready No. 950 or Equivalent 1-67½ Volt "B" Eveready No. 467 or Equivalent
Intermediate Frequency.....455 K.C.
Tuning Frequency Range.....540-1600 K.C.
Maximum Power Output.....175 Milliwatts
Loud Speaker.....Cone Diameter—3 Inches
Voice Coil Impedance.....(400 Cycles) 3.5 Ohms
Tubes: Converter-Oscillator 1R5, I.F. 1T4, Detector A.V.C. 1S5, Power Output 1S4.

ALIGNMENT PROCEDURE

Alignment Frequencies I.F. .....455 K.C.
R.F. .....1600 & 1400 K.C.

I.F. Alignment Connect an output meter across the voice coil. Rotate the volume to maximum. Set test oscillator to 455 K.C. and apply signal to lug on stator of gang condenser to which loop is connected through a .05 Mfd. capacitor. Align the second I.F. transformer trimmers, next adjust the first I.F. transformer trimmers. Keep test oscillator output as low as a readable meter reading will permit.

R.F. Alignment Couple test oscillator output to loop in case cover. Adjust test oscillator and receiver dial to exactly 1600 K.C. Peak 1600 K.C. oscillator trimmer for maximum output. Change test oscillator signal and receiver dial to approximately 1400 K.C. Then while rocking gang condenser trim 1400 K.C. antenna trimmer for maximum output.

GENERAL ELECTRIC

BATTERY OPERATED PORTABLE

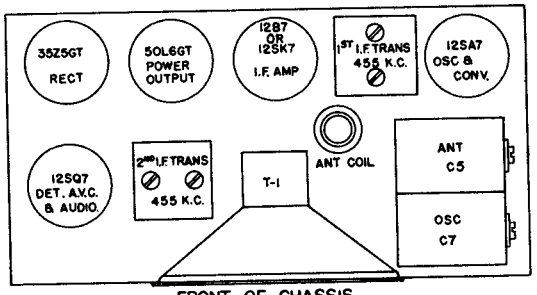
MODEL LB-412

54

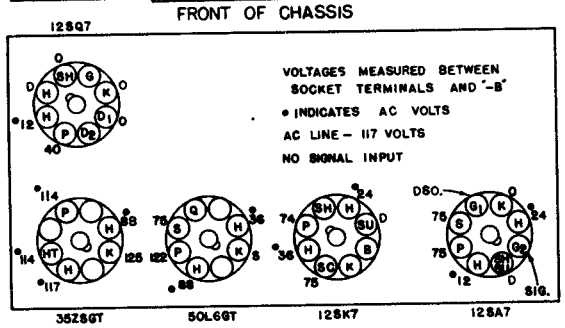
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

GENERAL ELECTRIC

MODELS L500, L510, L550, L560



FRONT OF CHASSIS



BOTTOM VIEW OF CHASSIS

C1	CAPACITOR—.05 mfd., 200 V. paper
C2	CAPACITOR—.20 mfd., 400 V. paper
C3	CAPACITOR—470 mmf., mica
C6a, 6b	CONDENSER—Tuning condenser
C8	CAPACITOR—.05 mfd., 200 V. paper
C14	CAPACITOR—330 mmf., mica
C15	CAPACITOR—.005 mfd., 600 V. paper
C16	CAPACITOR—330 mmf., mica
C17	CAPACITOR—.01 mfd., 600 V. paper
C18	CAPACITOR—.02 mfd., 600 V. paper
C19a	CAPACITOR—20 mfd., 150 V. electrolytic
C19b	CAPACITOR—30 mfd., 150 V. electrolytic
C21	CAPACITOR—.05 mfd., 600 V. paper
C22	CAPACITOR—100 mmf., mica
R1	RESISTOR—330,000 ohms, ½W. carbon
R2	RESISTOR—22,000 ohms, ½W. carbon
R3	RESISTOR—2.2 megohms, ½W. carbon
R4	VOL. CONTROL—0.5 megohm control
R5	RESISTOR—4.7 megohms, ½W. carbon
R6	RESISTOR—270,000 ohms, ½W. carbon
R7	RESISTOR—470,000 ohms, ½W. carbon
R8	RESISTOR—150 ohms, ½W. carbon
R9	RESISTOR—2,700 ohms, 1W. carbon
R11	RESISTOR—13 ohms, ½W. carbon. (12B7)

ALIGNMENT PROCEDURE

Alignment Frequencies

I.F. ..... 455 KC
R.F. ..... 1500 KC

The location of all trimmers is shown in Fig. 1.

I.F Alignment

Connect an output meter across the voice coil. Turn the volume control to maximum. Set test oscillator to 455 KC and keep the oscillator output as low as a readable meter reading will permit.

Apply signal to the converter grid through a .05 mfd. capacitor and align progressively the trimmers in the 2nd and 1st I.F. transformer cans.

R.F. Alignment

Close the gang condenser by rotating the tuning control. Slide the pointer along the cord until it lines up with the first dial marking on the left. Now rotate the tuning control until the pointer is over the 1500 KC dial mark. Apply a 1500 KC signal to the receiver antenna post through a standard I.R.E. dummy antenna. Align the oscillator trimmer (C-7) to bring in the signal and peak the signal by adjusting the antenna trimmer (C-5). (See Fig. 1 for trimmer locations.)

Precaution

If the signal generator is AC operated, use an isolating transformer between the power supply and the radio receiver power input. The use of an isolating capacitor is not recommended as AC current through the capacitor will introduce hum modulation and/or create the possibility of a burned-out signal generator attenuator.

Special Service Information

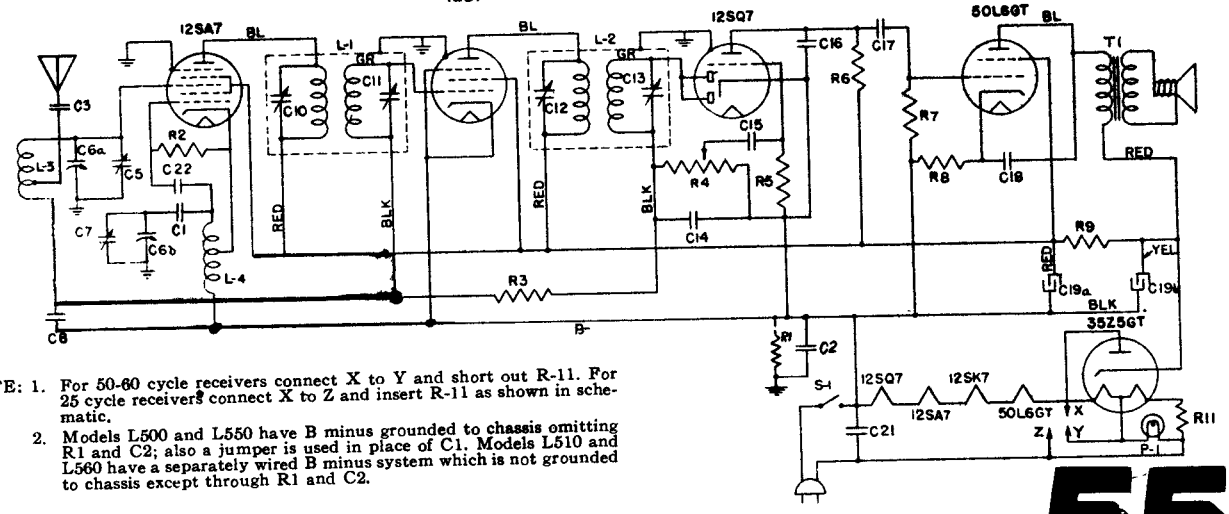
The following information will be very useful in servicing receivers if a vacuum tube voltmeter or similar voltage measuring instrument is available.

(1) Stage Gains*
Antenna Post to Converter Grid.....4.0 at 1000 KC
I.F. on Converter Grid to I.F. on I.F. Amplifier Grid.....50 at 455 KC
I.F. Amplifier Grid to Diode Plate...45 at 455 KC

(2) 0.20-volt, 400-cycle signal across the volume control will give ½-watt speaker output.* (Volume control turned to maximum.)

(3) Average DC voltage developed across oscillator grid leak.....6 volts

* Variations of ±20% permissible. All readings obtained with enough signal input to give ½-watt speaker output.



NOTE: 1. For 50-60 cycle receivers connect X to Y and short out R-11. For 25 cycle receivers connect X to Z and insert R-11 as shown in schematic.

2. Models L500 and L550 have B minus grounded to chassis omitting R1 and C2; also a jumper is used in place of C1. Models L510 and L560 have a separately wired B minus system which is not grounded to chassis except through R1 and C2.

GENERAL ELECTRIC

Six-tube Superheterodyne with Electric Tuning Keys

MODEL L-660

Alignment Frequencies

RF . . . . . 1500 KC
IF . . . . . 455 KC

The chassis must be removed from the cabinet as described above to make the following alignments. The locations of all trimmers is shown in Fig. 1.

IF Alignment

Connect an output meter across the voice coil. Turn the volume control to maximum. Set test oscillator to 455 KC and keep the oscillator output as low as a readable meter reading will permit.

Apply signal to the 12SA7 converter grid through a .05 mfd. capacitor and align progressively the trimmers in the 2nd and 1st IF transformers.

RF Alignment

When making the following alignment the loop antenna must be bolted to the chassis by the two mounting screws. Since the glass dial scale is fastened to the cabinet, it cannot be used for reference during the alignment of the chassis outside the cabinet. Use must be made therefore of the four calibration marks at the botton flange of the dial scale reflector plate (immediately below end of dial scale pointer). These marks referring from left to right are as follows: Reference point, 580 KC, 1000 KC, and 1500 KC.

The RF signal should be capacity coupled to the receiver loop by placing a two foot piece of wire for an antenna on the test oscillator output post (high side). Keeping this antenna two feet or more from the receiver loop will generally insure freedom from too much coupling.

With the gang condenser plates completely closed, the end of the pointer should line up with the first mark to the left of the dial reflector plate. If it doesn't the pointer can be moved on the dial cord until it does. Set the signal generator to 1500 KC. Set pointer to the 1500 KC mark (extreme right flange mark) and align (C2B) to the signal. Peak (C2A) for maximum output.

Part No.	Symbol	Description
RC-7052	C1A, 1B	CONDENSER—Tuning Condenser (with trimmers 2A, 2B mounted)
RC-355	C2	CAPACITOR—100 Mmf., mica
RC-374	C8	CAPACITOR—220 Mmf., mica
RC-342	C9	CAPACITOR—100 Mmf., mica
RC-699	C10	CAPACITOR—.01 Mfd., 600 V. paper
RC-672	C11	CAPACITOR—.05 Mfd., 200 V. paper
RC-1150	C12	CAPACITOR—0.2 Mfd., 400 V. paper
RC-316	C13	CAPACITOR—47 Mmf., mica
RC-699	C14, 15	CAPACITOR—.01 Mfd., 600 V. paper
RC-662	C16	CAPACITOR—.05 Mfd., 600 V. paper
RC-6187	C17A C17B	CAPACITOR—40 Mfd., 150 V. dry electrolytic CAPACITOR—30 Mfd., 150 V. dry electrolytic
RT-881	C18-C21	TRIMMER STRIP—Station key adjustments (R.F. section)
RT-882	C22-C25	TRIMMER STRIP—Station key adjustments (Osc. section)
RC-616	C26	CAPACITOR—.002 Mfd., 600 V. paper
RC-1219	R1	RESISTOR—22 ohm, ½ W. carbon
RC-1261	R2	RESISTOR—2200 ohm, ½ W. carbon
RC-1299	R3	RESISTOR—47,000 ohm, ½ W. carbon
RC-1295	R4	RESISTOR—33,000 ohm, ½ W. carbon
RC-1220	R5	RESISTOR—180 ohm, ½ W. carbon
RC-1230	R6	RESISTOR—2.2 megohms, ½ W. carbon
RV-125	R7, S1	VOLUME CONTROL—0.5 megohm control and power switch
RC-1249	R8	RESISTOR—5.6 megohm, ½ W. carbon
RC-1233	R9, 10, 11	RESISTOR—270,000 ohm, ½ W. carbon
RC-1229	R13	RESISTOR—100 ohm, ½ W. carbon
RC-661	R14	RESISTOR—1,000 ohm, 3 W. carbon
RS-3109	S2	SWITCH—Tone control switch
RS-3114	S3	SWITCH—Automatic tuning switch (less trimmers)
RL-866	L1	BEAM-A-SCOPE—Loop antenna and cabinet back assembly
RL-9083	T2	COIL—Oscillator coil and clip

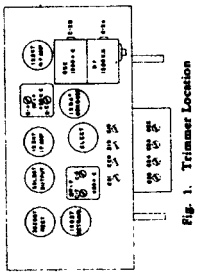
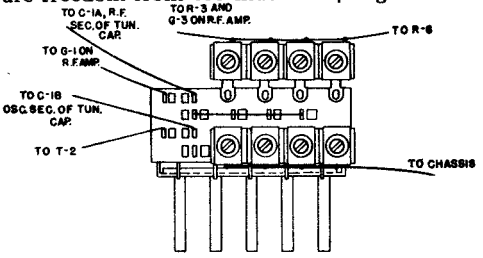
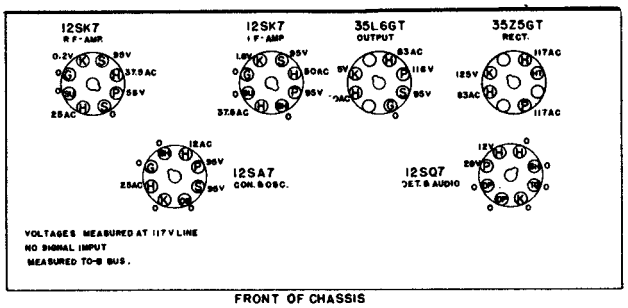


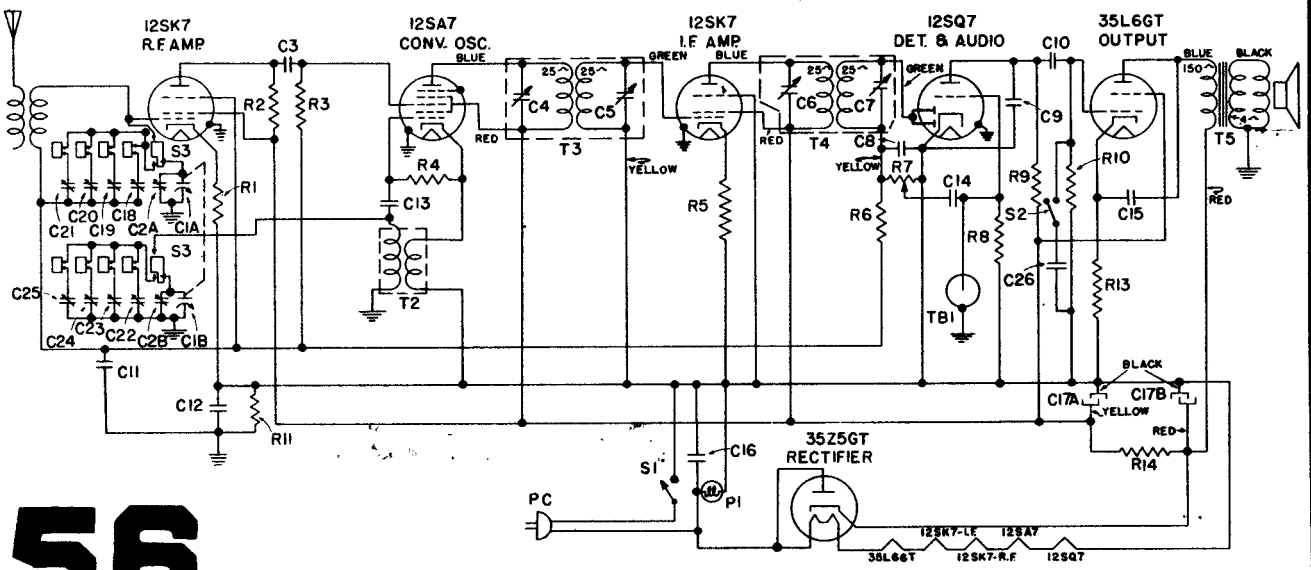
Fig. 1. Trimmer Location



Selector Switch Wiring



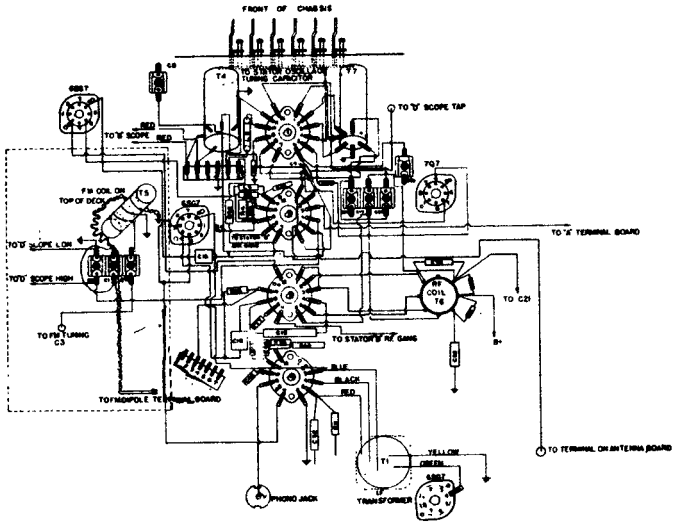
FRONT OF CHASSIS
BOTTOM VIEW OF CHASSIS

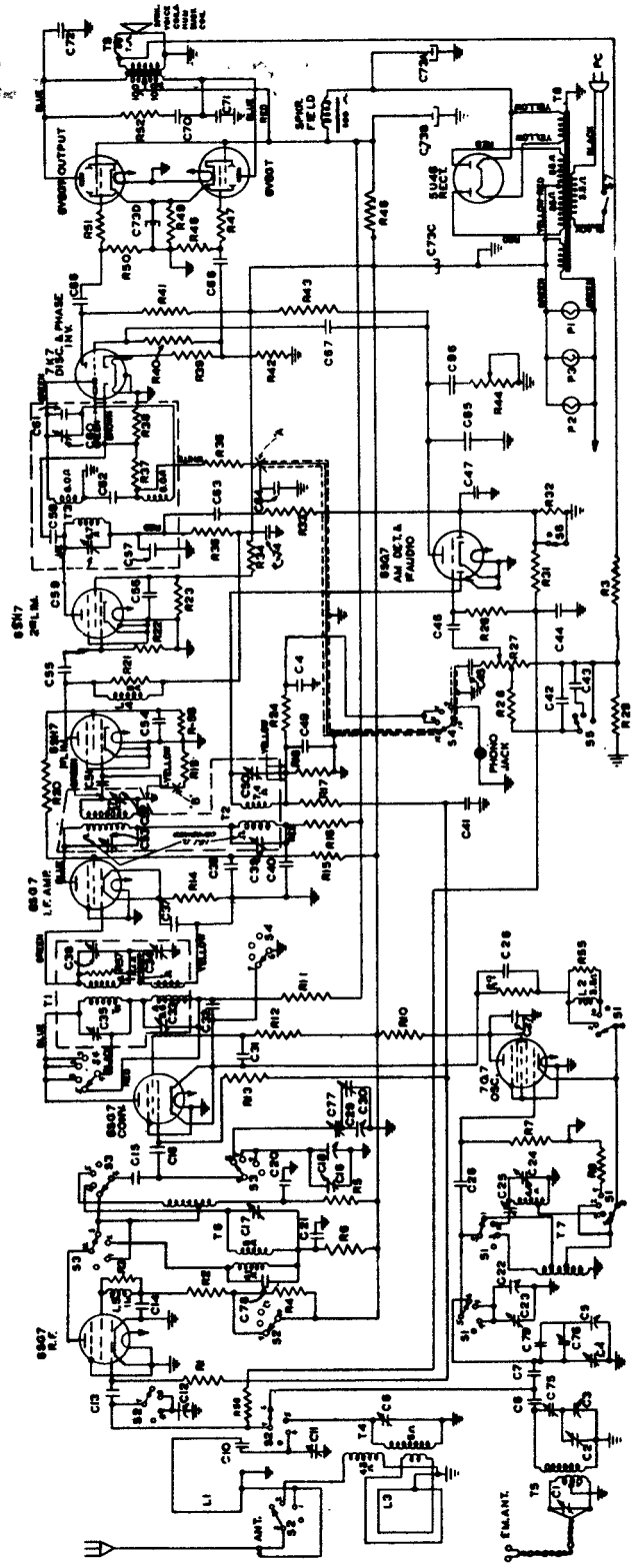


COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

PARTS LIST

Symbol	Description
C-1	"FM" antenna trimmer
C-2	"FM" RF trimmer
C-3	"FM" Tuning condenser—RF
C-4	"FM" oscillator trimmer
C-5	"FM" tuning condenser—oscillator
C-6	47 mmf., mica capacitor
C-7	10 mmf., compensating capacitor
C-8	"BC" band mmf., RF trimmer
C-10	3000 mmf., mica capacitor
C-11	"SW" band RF trimmer
C-12	"AM" tuning condenser—RF
C-13	220 mmf., mica capacitor
C-14	.02 mfd., paper capacitor
C-15	.05 mfd., paper capacitor
C-16	47 mmf., mica capacitor
C-17	"B" Band trimmer
C-18	"AM" Tuning condenser—converter
C-19	"D" Band trimmer
C-20	3600 mmf., mica capacitor
C-21	.05 mfd., paper capacitor
C-22	"AM" Tuning condenser—oscillator
C-23	"D" band trimmer
C-24	"B" band trimmer
C-25	560 mmf., padder
C-26	65 mmf., compensating capacitor
C-27	.05 mfd., paper capacitor
C-28	.006 mfd., paper capacitor
C-29	"FM" Tuning condenser—converter
C-30	"FM" converter trimmer
C-31, -32	.02 mfd., paper capacitor
C-37, -38	.05 mfd., paper capacitor
C-40	.02 mfd., paper capacitor
C-41	.05 mfd., paper capacitor
C-42	.004 mfd., paper capacitor
C-43, -44, -45	.01 mfd., paper capacitor
C-46	.005 mfd., paper capacitor
C-47, -48, -49	100 mmf., mica capacitor
C-51	33 mmf., mica capacitor
C-54	47 mmf., mica capacitor
C-55	22 mmf., mica capacitor
C-56	.02 mfd., paper capacitor
C-57, -59	47 mmf., mica capacitor
C-61	8 mmf., compensating capacitor
C-62	220 mmf., mica capacitor
C-63	.01 mfd., paper capacitor
C-64	220 mmf., mica capacitor
C-65	100 mmf., mica capacitor
C-66	.01 mfd., paper capacitor
C-67, -68, -69	.05 mfd., paper capacitor
C-70	.006 mfd., paper capacitor
C-71, -72	.002 mfd., paper capacitor
C-73a	35 mfd., dry electrolytic
C-73b	15 mfd., dry electrolytic
C-73c	10 mfd., dry electrolytic
C-73d	20 mfd., dry electrolytic
C-74	.05 mfd., paper capacitor
C-75	"FM" RF padder
C-76	"FM" Oscillator padder
C-77	"FM" Converter padder
C-78	270 mmf., mica capacitor
C-79	65 mmf., compensating capacitor
R-1	1.5 megohm, carbon resistor
R-2	3,900 ohm, carbon resistor
R-3	100,000 ohm, carbon resistor
R-4	33,000 ohm, carbon resistor
R-5, -6	2,200 ohm, carbon resistor
R-7	33,000 ohm, carbon resistor
R-8	330 ohm, carbon resistor
R-9	1,200 ohm, carbon resistor
R-10	10,000 ohm, carbon resistor
R-11	2,200 ohm, carbon resistor
R-12	22,000 ohm, carbon resistor
R-13	1.5 megohm, carbon resistor
R-14	330 ohm, carbon resistor
R-15	15,000 ohm, carbon resistor
R-16	2,200 ohm, carbon resistor
R-17	2.2 megohm, carbon resistor
R-18	150,000 ohm, carbon resistor
R-19	100,000 ohm, carbon resistor
R-20	220,000 ohm, carbon resistor
R-21	8,200 ohm, carbon resistor
R-22	180,000 ohm, carbon resistor
R-23, -24	47,000 ohm, carbon resistor
R-26	6.8 megohm, carbon resistor
R-27	.2 megohm, volume control
R-28	68,000 ohm, carbon resistor
R-29	22 ohm, carbon resistor
R-30	470 ohm, carbon resistor
R-31	2.2 megohm, carbon resistor
R-32	1.0 megohm, carbon resistor
R-33	10,000 ohm, carbon resistor
R-34	68,000 ohm, carbon resistor
R-35	22,000 ohm, carbon resistor
R-36	68,000 ohm, carbon resistor
R-37, -38	100,000 ohm, carbon resistor
R-39	3,900 ohm, carbon resistor
R-40	470,000 ohm, carbon resistor
R-41, -42	82,000 ohm, carbon resistor
R-43	220,000 ohm, carbon resistor
R-44	0.5 megohm treble-tone control
R-46	2,500 ohm, wire wound resistor
R-47	1,000 ohm, carbon resistor
R-48	220,000 ohm, carbon resistor
R-49	270 ohm, carbon resistor
R-50	220,000 ohm, carbon resistor
R-51	1,000 ohm, carbon resistor
R-52	8,200 ohm, carbon resistor
R-55	100,000 ohm, carbon resistor
R-56	47,000 ohm, carbon resistor
R-57	220,000 ohm, carbon resistor
R-58	820,000 ohm, carbon resistor





GENERAL ELECTRIC

A-FM COMBINATION RECEIVERS

Models LF-115 & LF-116

AND

A-FM PHONOGRAPH COMBINATION RECEIVERS

Models LFC-1118, LFC-1128 & LFC-1228

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

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IF ALIGNMENT WITH OSCILLOSCOPE—"FM" CHANNEL

Step	Input Signal Connected to	Input Frequency	Band and Pointer Setting	Trimmer Adjustment	Comments
1	6SG7 converter grid in series with 22 mmf.	4.3 MC & ±200 KC Sweep	"FM" Band 42 MC	C52 C53	Connect high side of oscilloscope in series with 470,000 ohm resistor to R19 at point "B." Connect low side to chassis ground. Peak trimmers for resultant curve shown
2	6SG7 converter grid in series with 22 mmf.	4.3 KC & ±200 KC Sweep	"FM" Band 42 MC	C35 C36	
3	Repeat Step 1				
4	Repeat Step 2				
5	6SG7 converter grid in series with 22 mmf.	4.3 MC & ±200 KC Sweep	"FM" Band 42 MC	C60 C58	Connect high side of oscilloscope in series with 470,000 ohm resistor to R36, point "A." Connect low side to chassis ground. Peak trimmers for resultant curve shown in Fig. 4. C60 is aligned when curve crosses midway in vertical plane. Proper alignment of C58 gives straightest sides to curve near crossover point.

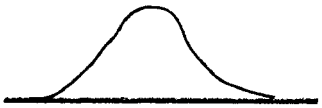


Table II IF ALIGNMENT WITH METER—"FM" CHANNEL

Step	Input Signal Connected to	Input Frequency	Band and Pointer Setting	Trimmer Adjustment	Comments
1	6SG7 converter grid in series with 22 mmf.	Unmodulated 4.3 MC signal	"FM" Band 42 MC	C52 C53 C35 C36	Connect the 10-volt scale of a 20,000 ohm per volt voltmeter in series with a 470,000 ohm resistor between point "B" and ground. Peak all trimmers for maximum output using just enough input signal to give a satisfactory output reading.
2	Repeat Step 1				
3	6SG7 converter grid in series with 22 mmf.	Unmodulated 4.3 MC signal	"FM" Band 42 MC	C60 C58	Connect the 10-volt scale of a 20,000 ohm per volt voltmeter in series with a 470,000-ohm resistor between points "A" and ground. *With C60 purposely detuned,* peak C58 for maximum meter reading. Align C60 for the 0 voltage point where the meter reading changes from a positive to negative value. Use as low a signal input as necessary to give a satisfactory meter reading.

Table III RF ALIGNMENT—"FM" CHANNEL

Step	Input Signal Connected to	Input Frequency	Band and Pointer Setting	Trimmer Adjustment	Comments
1	Direct to "FM" Antenna Post	Unmodulated 49 MC signal	"FM" Band 49 MC	C4 (Osc.)	Connect the 10-volt range of a 20,000 ohm per volt voltmeter in series with a 470,000-ohm resistor to point "B." The other side of the voltmeter lead connects to chassis ground. Peak trimmers for maximum meter reading using just enough signal input to give satisfactory meter reading.
2	Direct to "FM" Antenna Post	Unmodulated 49 MC Signal	"FM" Band 49 MC	C2 C30	
3	Direct to "FM" Antenna Post	Unmodulated 43 MC Signal	"FM" Band 43 MC	C76 (Osc.)	
4	Direct to "FM" Antenna Post	Unmodulated 43 MC Signal	"FM" Band 43 MC	C75 C77	
5	Direct to "FM" Antenna Post	Unmodulated 46 MC Signal	"FM" Band 46 MC	C1	
6	Repeat Step 1				
7	Repeat Step 2				

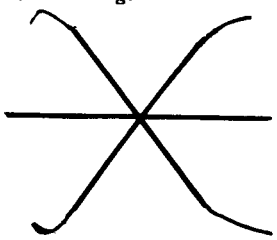
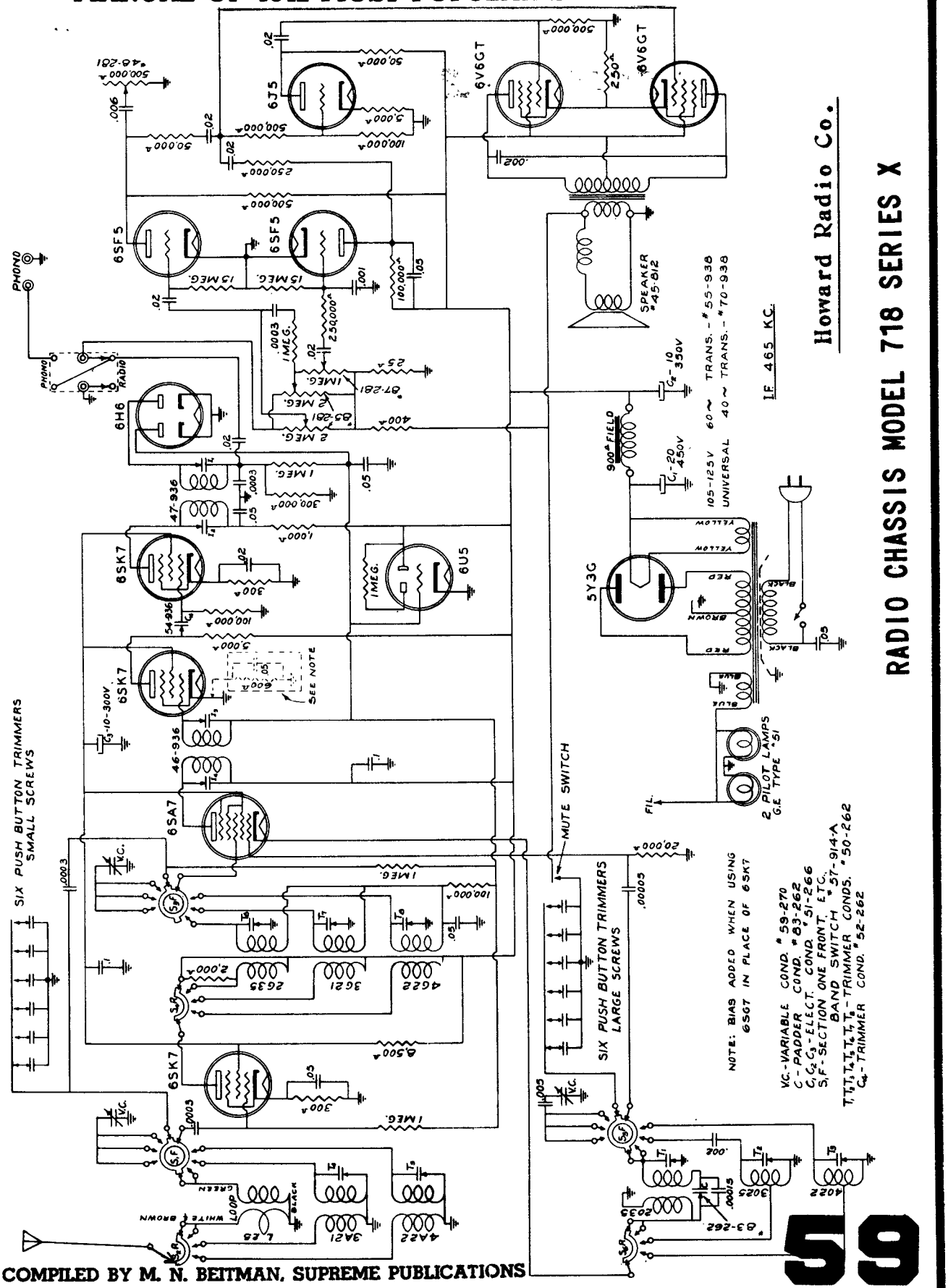
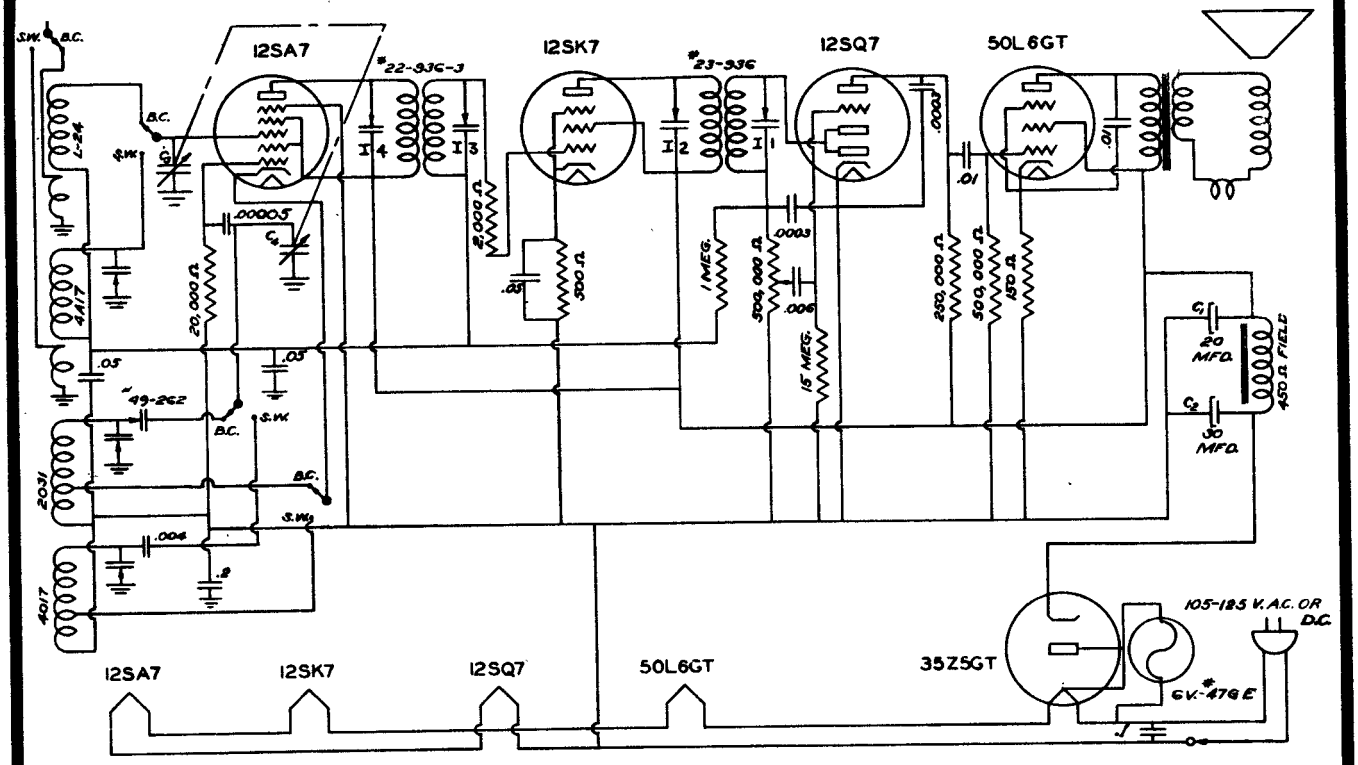


Fig. 4

Table IV IF, "BC," and "SW" ALIGNMENT—"AM" CHANNEL

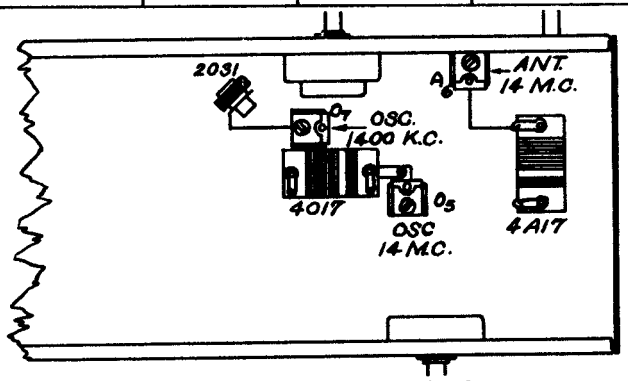
Step	Input Signal Connected to	Input Frequency	Band and Pointer Setting	Trimmer Adjustment	Comments
1	6SG7 converter grid in series with .05 mfd.	455 KC Modulated	"BC" Band 550 KC	C50 C39 C34 C33	Connect 5.0-volt AC voltmeter across the voice coil of the speaker. Peak all trimmers for maximum output. All RF alignments must be made with the chassis in the cabinet.
2	Capacity Coupled	17.8 MC Modulated	"SW" Band 17.8 MC	C23*	*When aligning the SW oscillator trimmer, use maximum capacity peak. The image frequency should appear at 18,710 KC.
3	Capacity Coupled	17.8 MC Modulated	"SW" Band 17.8 MC	C19** C11	**Rock gang condenser when making alignment.
4	Capacity Coupled	1500 KC Modulated	"BC" Band 1500 KC	C24	
5	Capacity Coupled	1500 KC Modulated	"BC" Band 1500 KC	C17 C8	
6	Capacity Coupled	580 KC Modulated	"BC" Band 580 KC	C25**	
7	Repeat Steps 4 and 5				


RADIO CHASSIS MODEL 718 SERIES X
Howard Radio Co.
I.F. 465 KC.
105-125V 60~ TRANS. - #55-938
UNIVERSAL 40~ TRANS. - #70-938
SPEAKER #45-812
6V6GT
6J5
6SF5
6H6
6SK7
6U5
5Y3G
6SA7
PHONO
RADIO
SEE NOTE
MUTE SWITCH
SIX PUSH BUTTON TRIMMERS SMALL SCREWS
SIX PUSH BUTTON TRIMMERS LARGE SCREWS
2 PILOT LAMPS G.E. TYPE #51
NOTE: BIAS ADDED WHEN USING 6SQ7 IN PLACE OF 6SK7
VC.-VARIABLE COND. #59-270
C-PADDER COND. #83-262
C1,C2,C3-ELECT. COND. #51-266
S,F-SECTION ONE FRONT, ETC.
BAND SWITCH #57-914-A
T1,T2,T3,T4,T5,T6-TRIMMER CONDS. #50-262
C4-TRIMMER COND. #52-262



ALIGNMENT PROCEDURE

Wave-Band Switch Position	Position of Dial Pointer	Signal Generator Frequency	Signal Generator Connection	See Note	Trimmers Adjusted (In order shown)	Trimmer Function	Check for Image at
KC	540	465	Grid of 12SA7	A	I_1, I_2, I_3, I_4	IF	
MC	14 MC	14 MC	Ant. (Brown)	B	O_5, A_6	Osc. Ant.	13 MC
KC	1400 KC	1400 KC	Ant. (Brown)		O_7	Osc.	



A- Each step of the alignment should be repeated in the original order for greater accuracy. Keep output from Signal Generator low. The I.F. trimmers are reached through the two holes on the top of each I.F. can.

B- When aligning the short wave bands, do not adjust to the IMAGE frequency. For example, if the adjustment is correctly made at 14 MC, then a weaker image will be heard at 13,070 KC, in other words 930 KC less on the dial.

The tubes are connected in series in the order as shown by the schematic diagram.

The dual section filter condenser has a common negative, but note that it does not return to ground as the can is insulated from the chassis.

SOCKET VOLTAGE READINGS

TUBE	FUNCTION	CATH.		SG.		PLATE	
12SA7	Mixer		*	92	4	92	3
12SK7	I.F.Amp	2.1	5	92	6	92	8
12SQ7	Det.					42	6
50L6GT	Output	6	8	92	4	82	3
35Z5GT	Rectifier	121	8				

* Socket Terminal Number.

Voltage taken from B- with line voltage at 117 V. A.C.
High voltage reading off rectifier = 115V.
Drop across speaker field = 29V.
Use at least a 1000 Ohm per volt meter.
High voltage reading off rectifier = 121V.

Howard Radio Co.
Model 802

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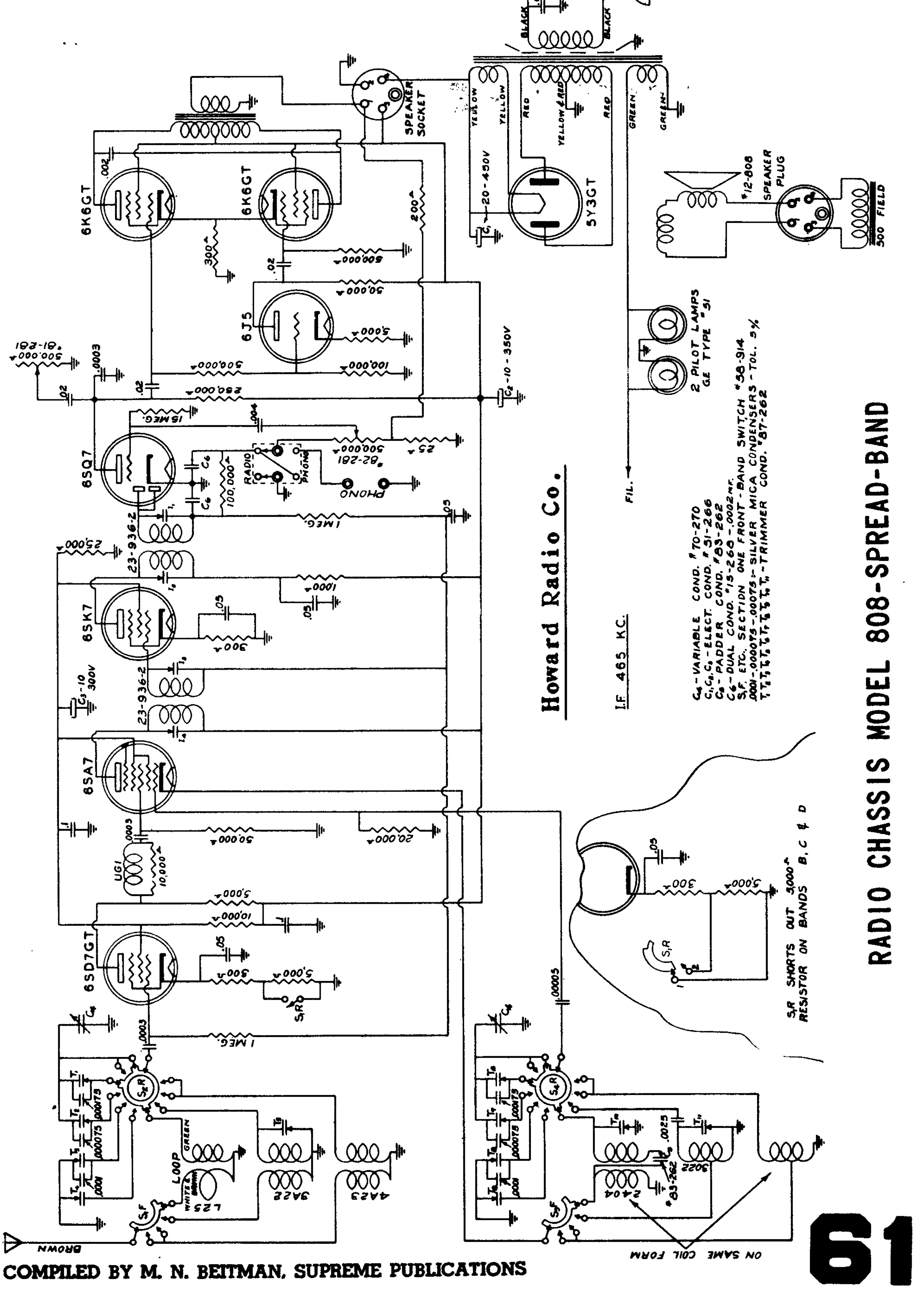

Howard Radio Co.
RADIO CHASSIS MODEL 808-SPREAD-BAND
I.F. 465 KC.
C4 - VARIABLE COND. #70-270
C1, C2, C3 - ELECT. COND. #51-266
C5 - PADDER COND. #83-262
C6 - DUAL COND. #15-260 - .0002 MF.
S.F. ETC. SECTION ONE FRONT - BAND SWITCH #58-914
.0001 - .00075 - .00075 - SILVER MICA CONDENSERS - TOL. 5%
T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11 - TRIMMER COND. #87-262
S.R SHORTS OUT 3,000Ω RESISTOR ON BANDS B, C & D
2 PILOT LAMPS G.E TYPE #51
ON SAME COIL FORM
6K6GT
6K6GT
6J5
6SQ7
6SK7
6SA7
6SD7GT
5Y3GT
SPEAKER SOCKET
SPEAKER PLUG
500 FIELD
PHONO
RADIO
LOOP
BROWN
FIL.

92

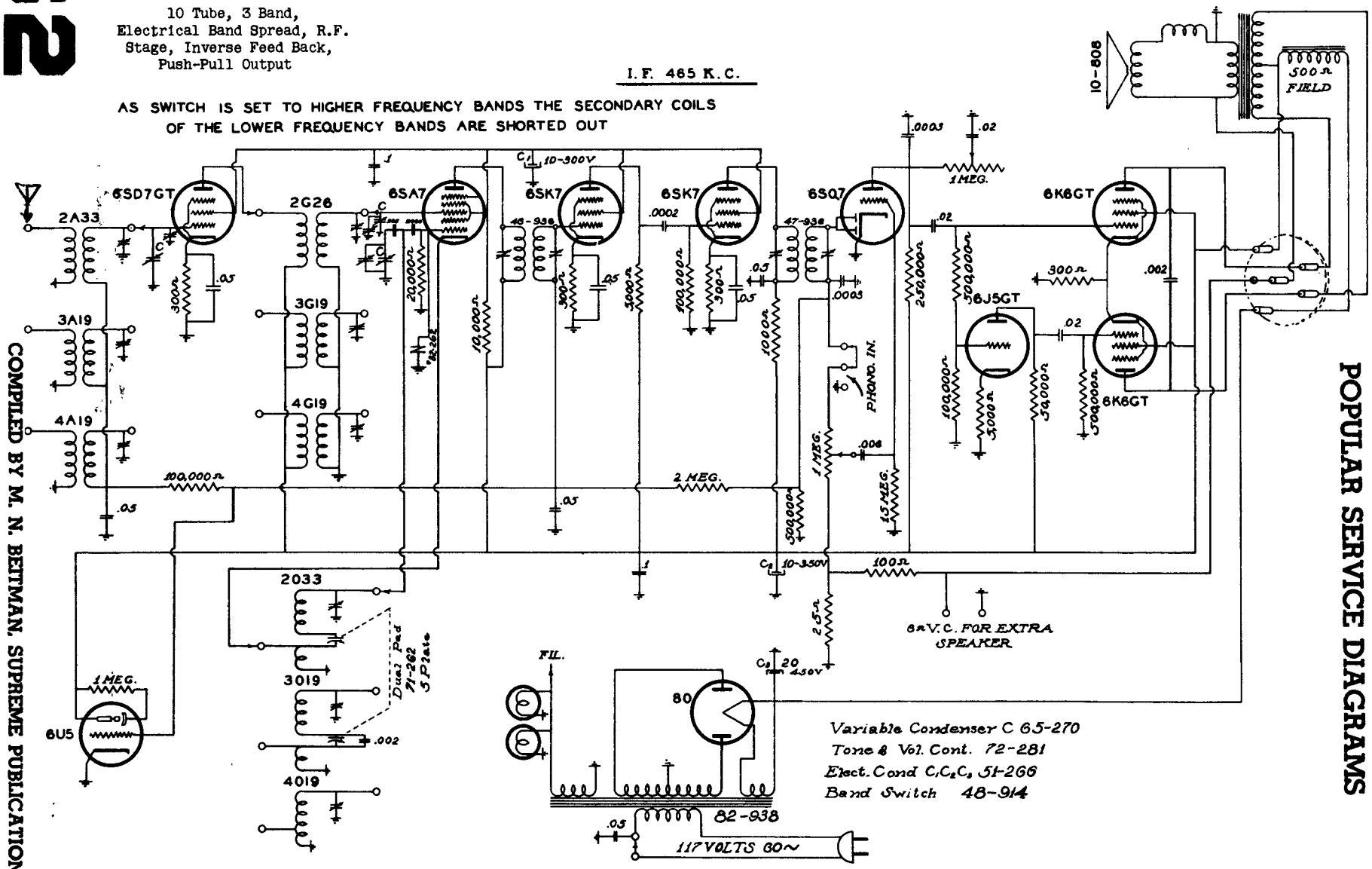
MODEL 868

10 Tube, 3 Band,
Electrical Band Spread, R.F.
Stage, Inverse Feed Back,
Push-Pull Output

Howard Radio Co.

I. F. 465 K. C.

AS SWITCH IS SET TO HIGHER FREQUENCY BANDS THE SECONDARY COILS OF THE LOWER FREQUENCY BANDS ARE SHORTED OUT



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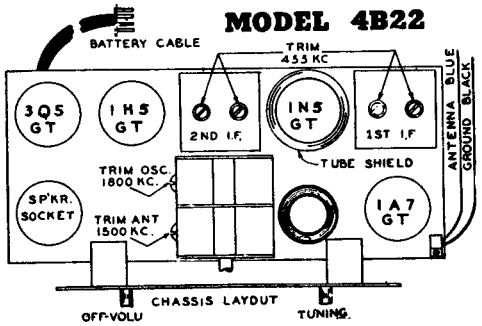
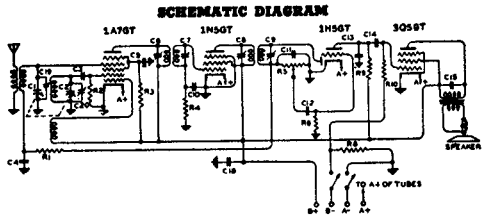
POPULAR SERVICE DIAGRAMS

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

MODEL 4B22

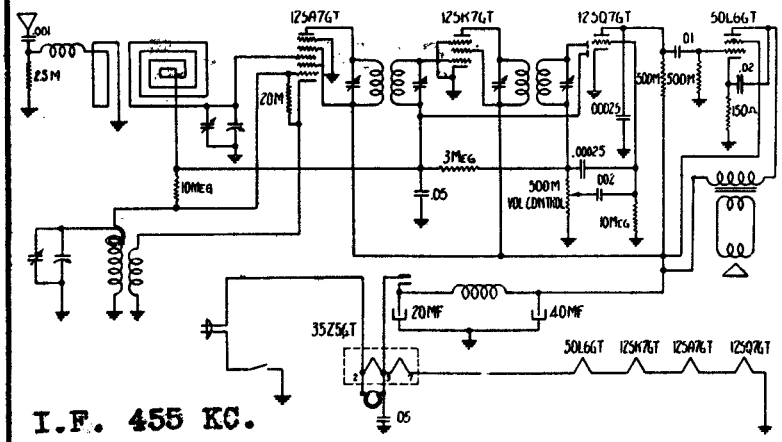


SCHEMATIC DIAGRAM



Schematic Location	Description	Schematic Location	Description
C1,C8	.05 mid. 200V	R9	500K ohm ½W Resistor
C10,C12	.01 mid. 200V	R10	1 Megohm ½W Resistor
C14	.006 mid. 400V	R11	400 ohm ½W Resistor
C15	.002 mid. 600V	R12	200K ohm ½W Resistor
C9,C11,C13	100 mmfd. Mica	R13	3 megohm ½W Resistor
C16	8 mid. 150V Electrolytic	R14	30K ohm ½W Resistor
		R1,R4	2 Megohm ½W Resistor

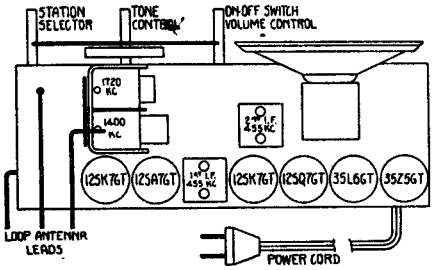
SCHEMATIC DIAGRAM MODEL 5TIO & 5TIOW



MODEL 6T23

Factory No. 4501X

TUBE LAYOUT



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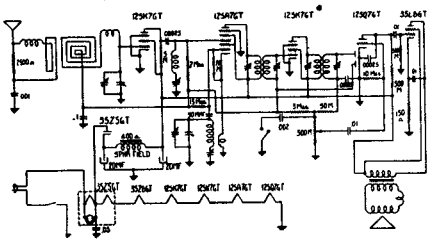
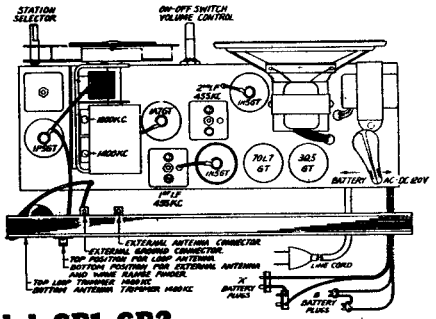
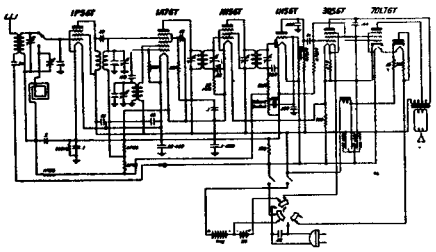


MAJESTIC RADIO AND TELEVISION CORP.
2600 WEST 50TH STREET CHICAGO, ILLINOIS

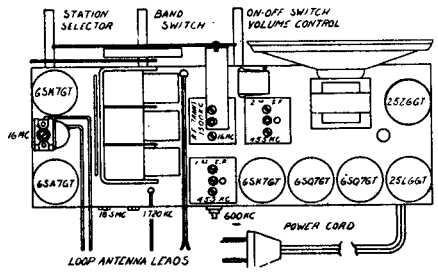


Model 6P1-6P2

SCHEMATIC DIAGRAM



MODEL 7T20



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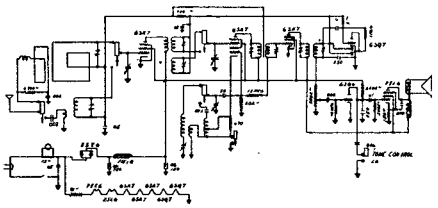
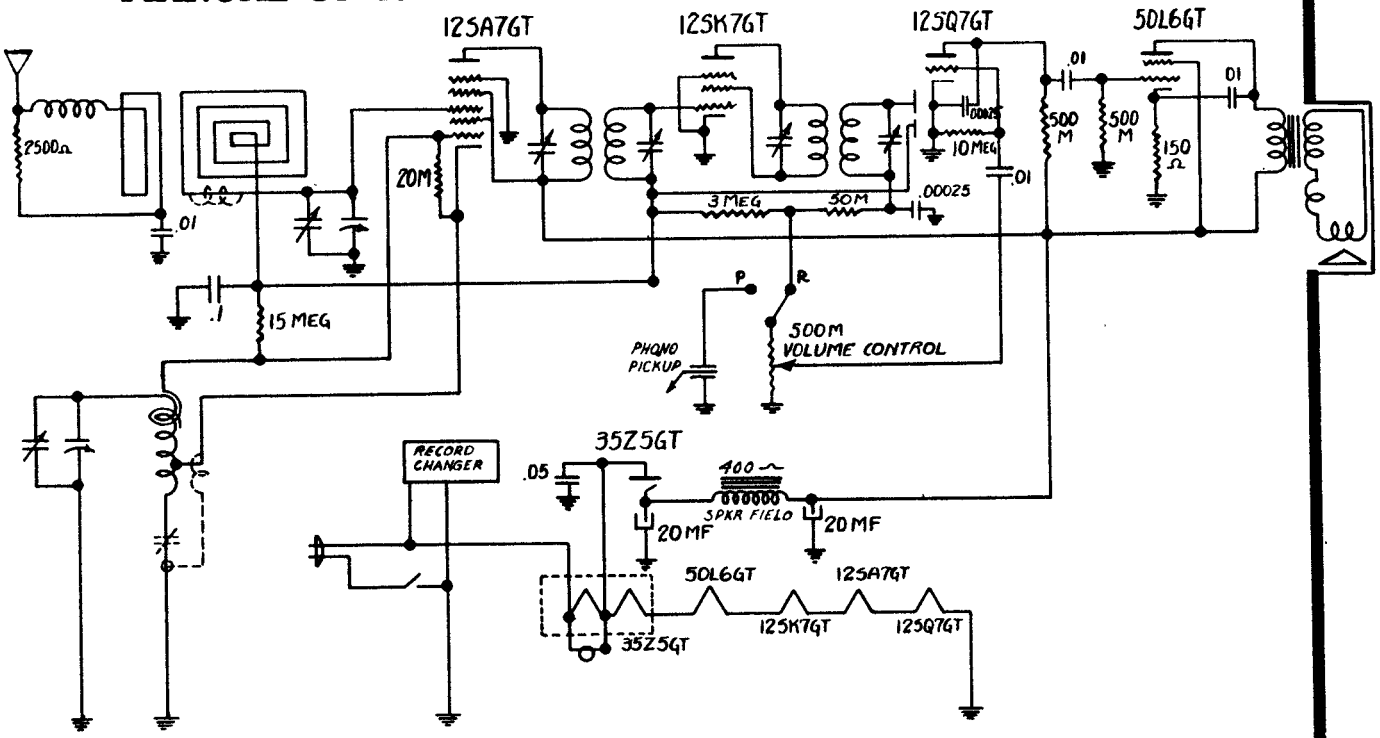


MAJESTIC RADIO AND TELEVISION CORP.



Majestic Radio & Television Corporation

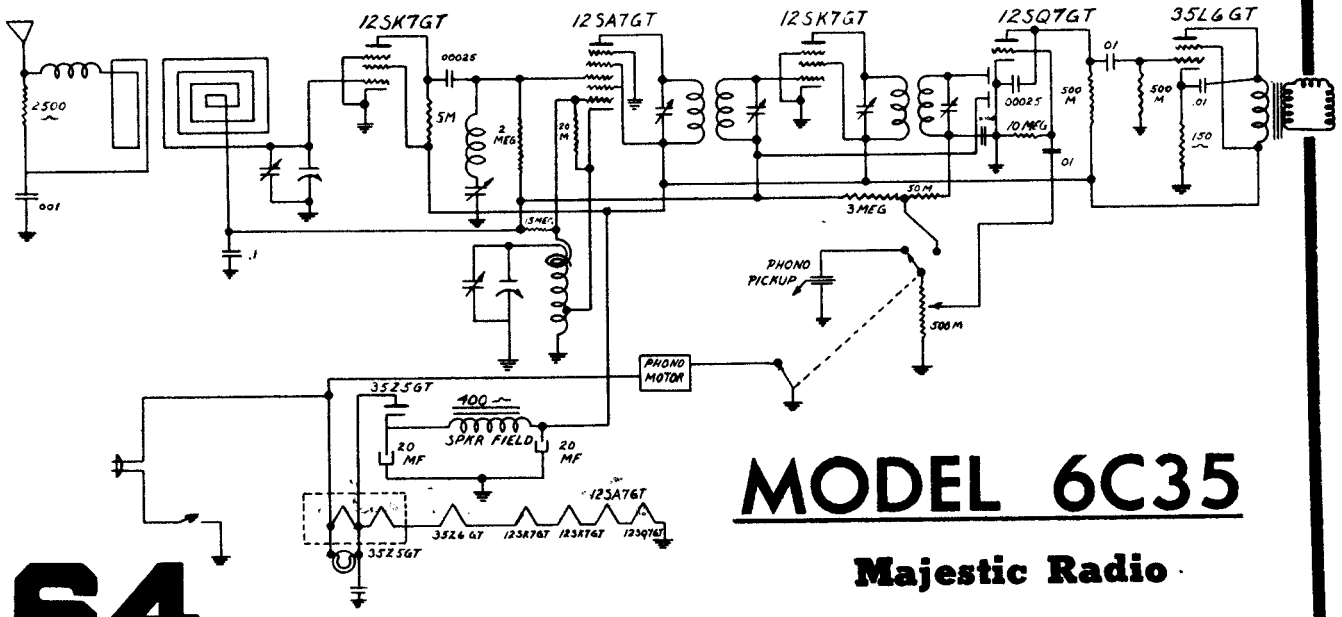
THE RECORD-CHANGER NEEDLE:

The needle supplied with this unit has a special durable point. No attempt should be made to use ordinary steel or fibre needles. They wear rapidly and will give poor reproduction. Only needles with a point durable enough to play 10 records or more without damaging them should be used.

MODEL 5C36

LOADING THE RECORDS FOR AUTOMATIC OPERATION:

This mechanism automatically plays in sequence up to twelve 10" records or ten 12" records at one set-up. ALL RECORDS MUST BE THE SAME SIZE FOR EACH SET-UP.



MODEL 6C35

Majestic Radio

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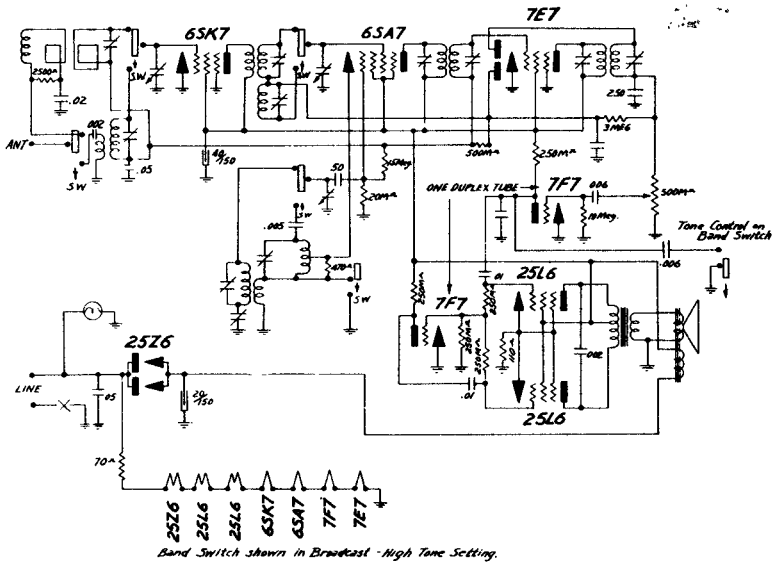
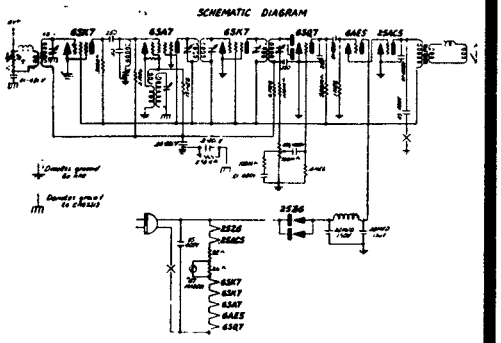
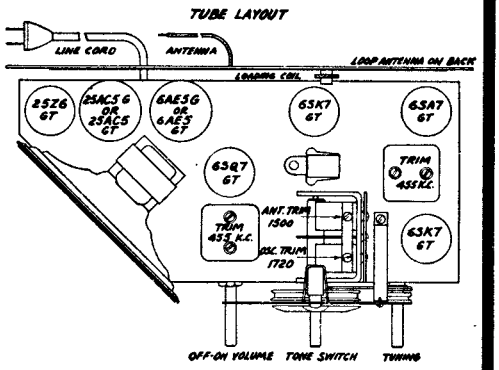
Majestic Radio & Television Corporation

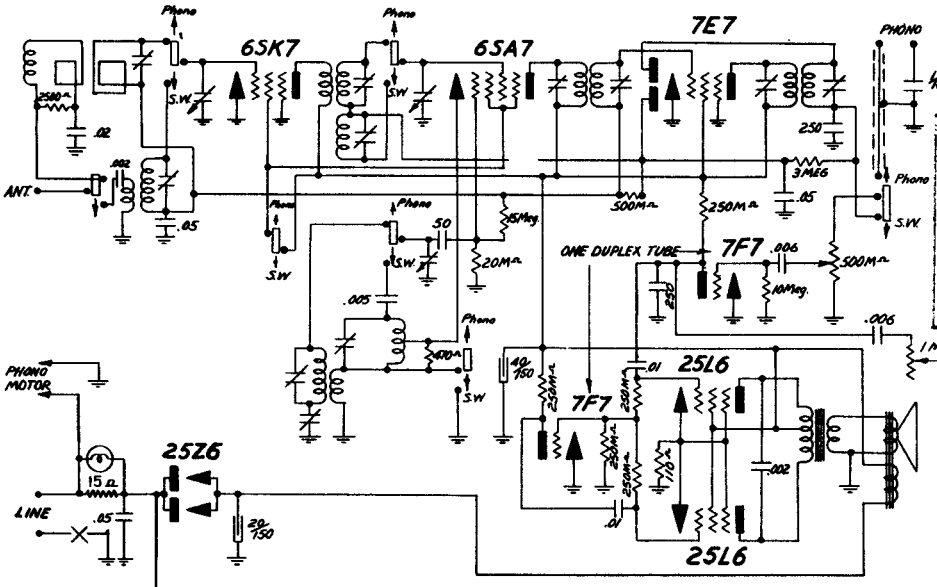


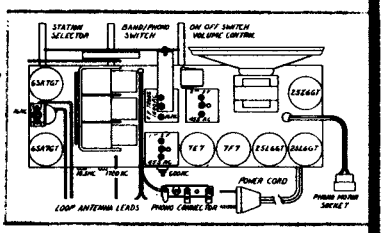
Band Switch shown in Broadcast - High Tone Setting.

MODEL 7K60









MODEL 7C40

Band switch sections shown in Broadcast setting.

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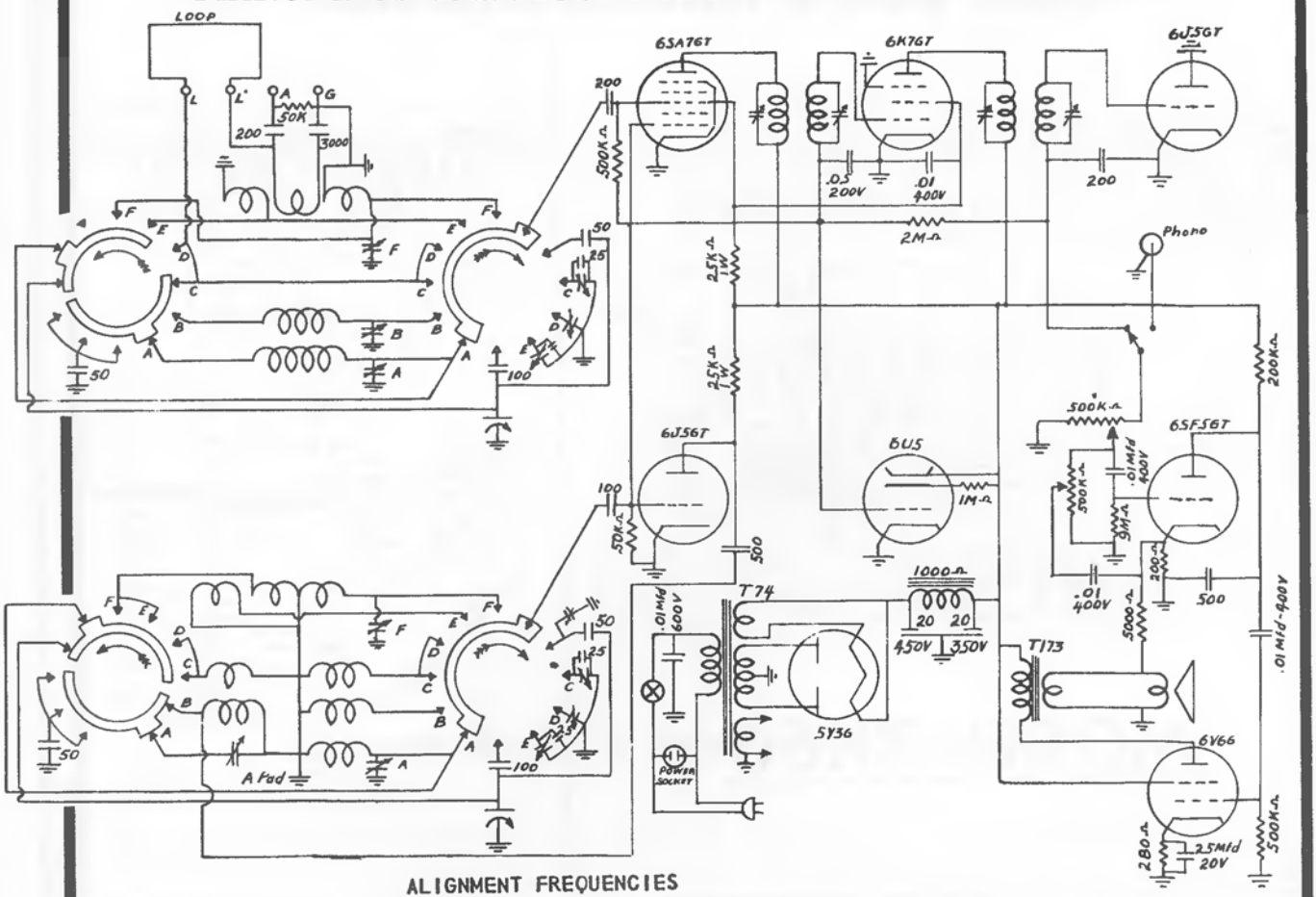


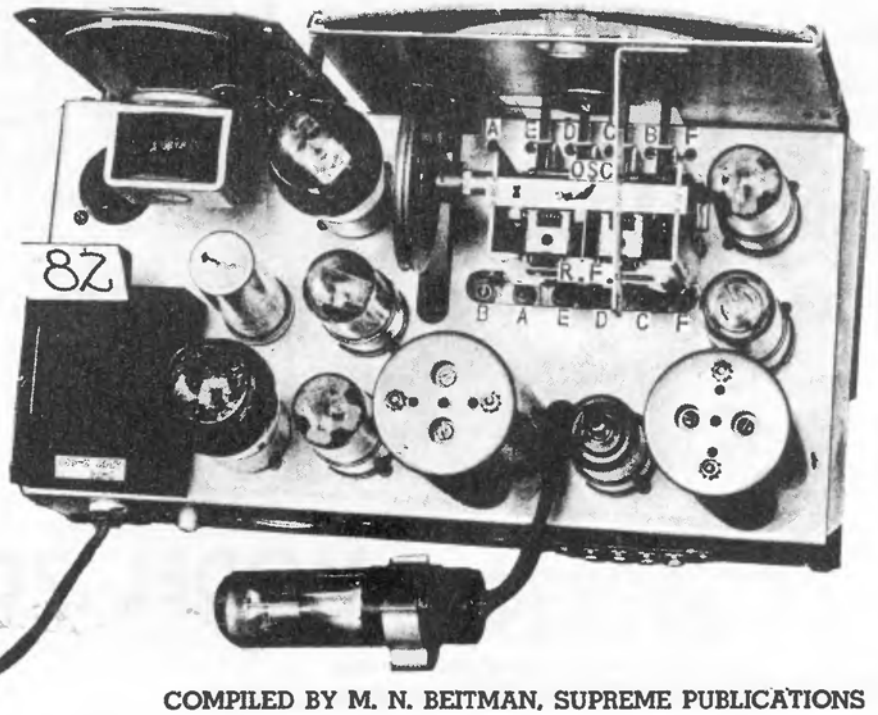
ALIGNMENT FREQUENCIES

IF - 456 KC

A - 1400 KC
B - 6.6 MC

C - 9.8 MC
D - 11.7 MC

E - 15.7 MC
F - 24 MC



MODEL 82 RECEIVER

MIDWEST RADIO CORPORATION
909 Broadway
Cincinnati, Ohio

66

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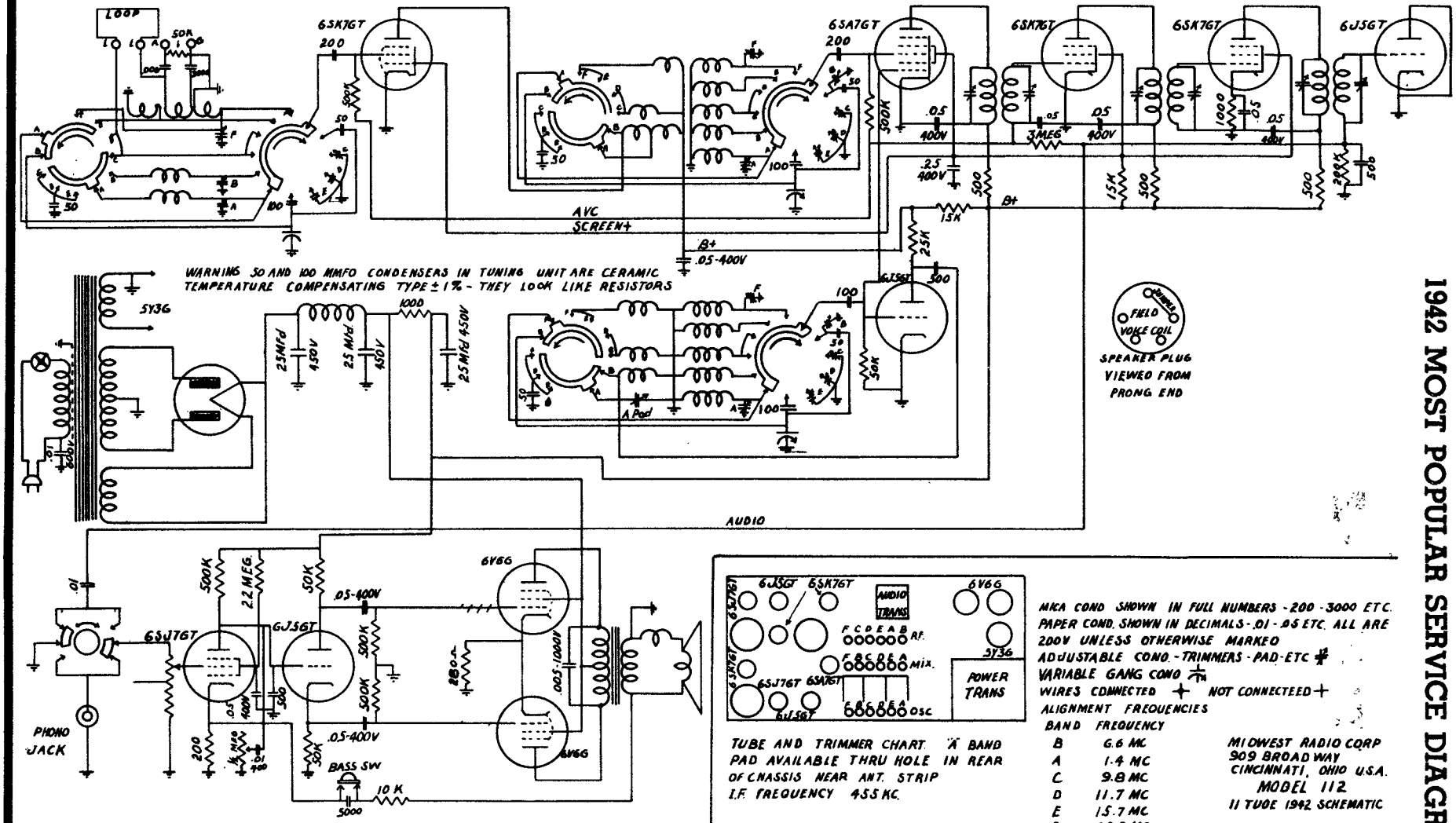


TUBE AND TRIMMER CHART. "A" BAND PAD AVAILABLE THRU HOLE IN REAR OF CHASSIS NEAR ANT. STRIP
I.F. FREQUENCY 455 KC.

MICA COND SHOWN IN FULL NUMBERS - 200 - 3000 ETC.
PAPER COND. SHOWN IN DECIMALS - .01 - .05 ETC. ALL ARE 200V UNLESS OTHERWISE MARKED
ADJUSTABLE COND. - TRIMMERS - PAD - ETC
VARIABLE GANG COND
WIRES CONNECTED + NOT CONNECTED +

ALIGNMENT FREQUENCIES

BAND	FREQUENCY
B	6.6 MC.
A	1.4 MC
C	9.8 MC
D	11.7 MC
E	15.7 MC
F	24.0 MC

ALIGN B BAND FIRST.

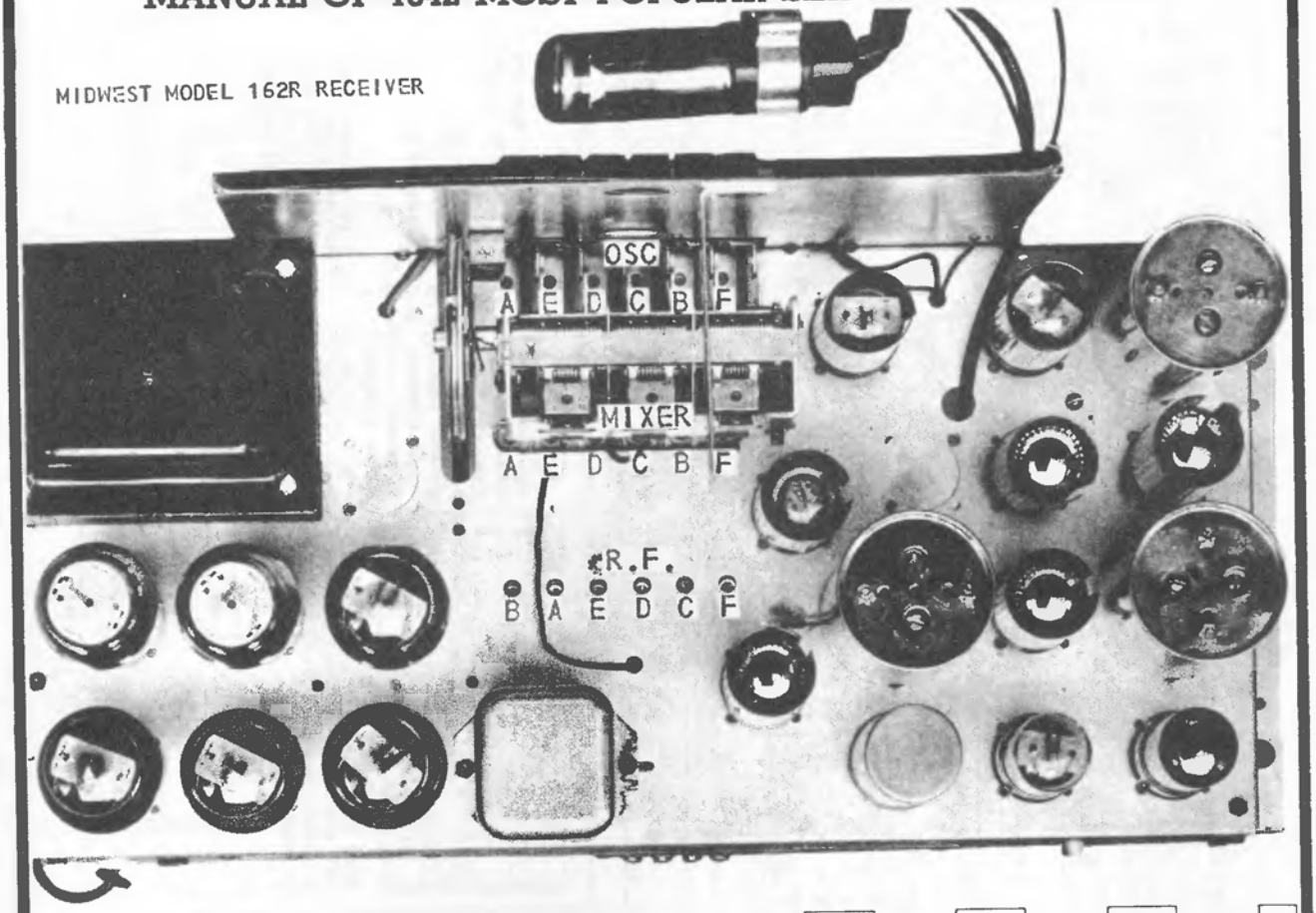
MIDWEST RADIO CORP
909 BROADWAY
CINCINNATI, OHIO U.S.A.
MODEL 112
11 TUBE 1942 SCHEMATIC

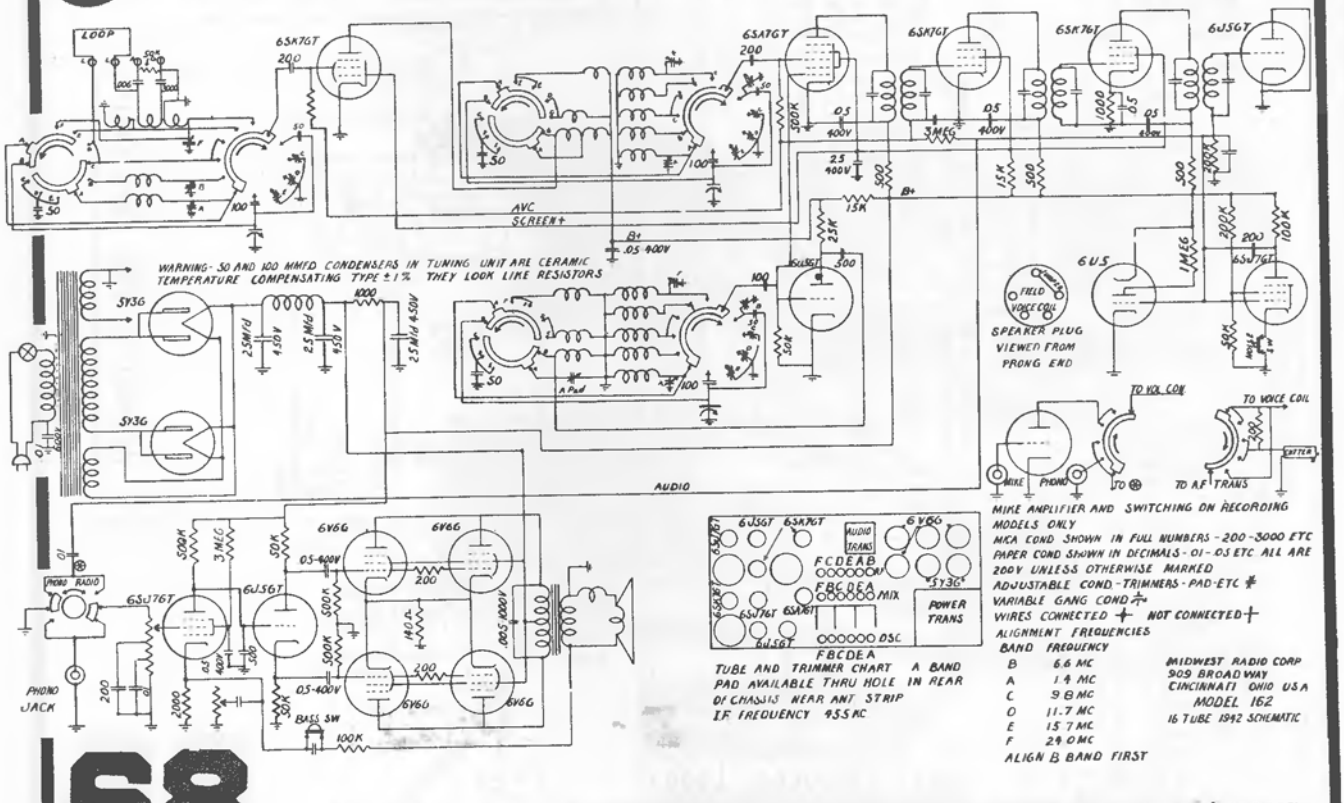
97

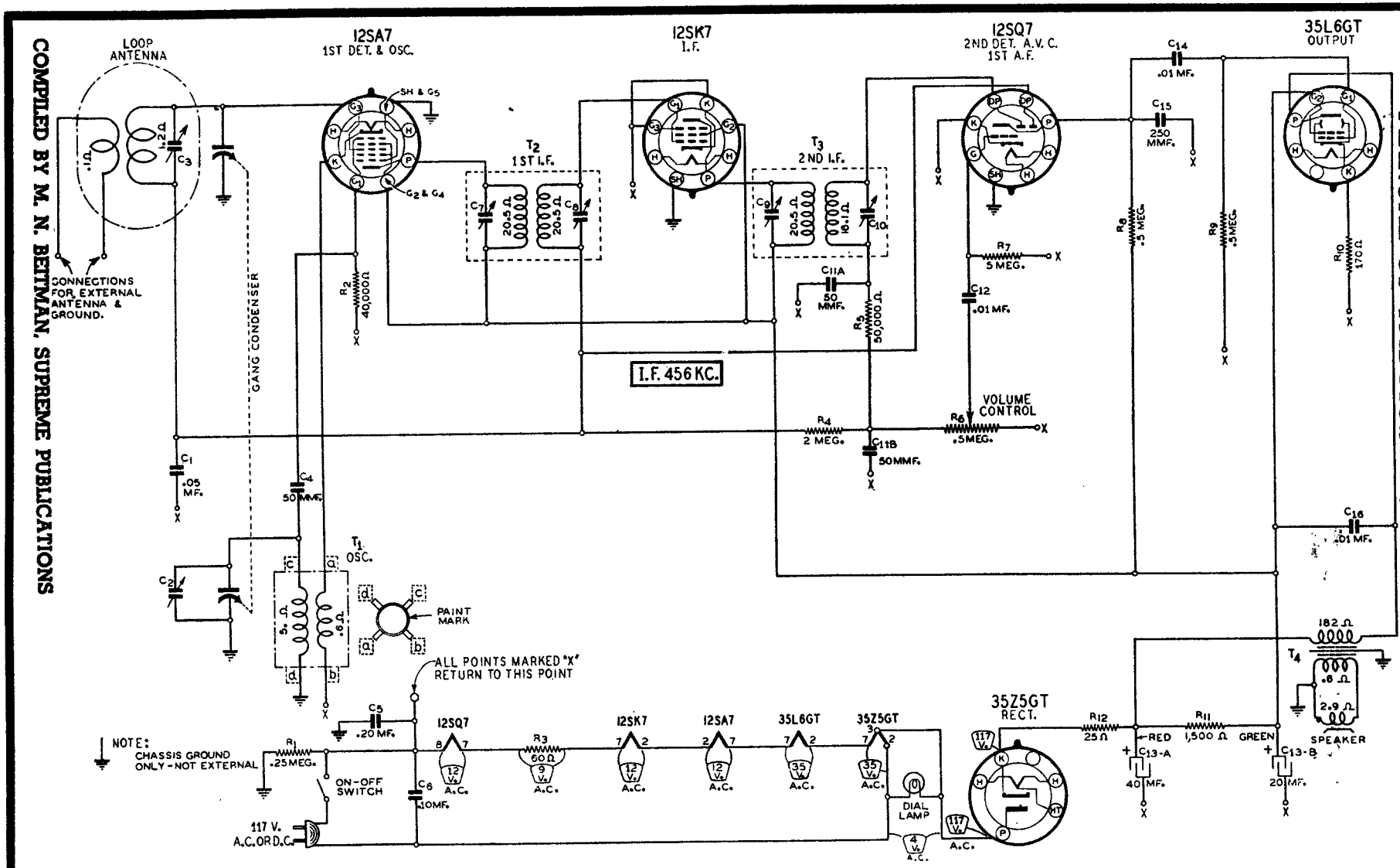
MIDWEST 11 TUBE 1942 RADIO

MODEL 112

MIDWEST MODEL 162R RECEIVER







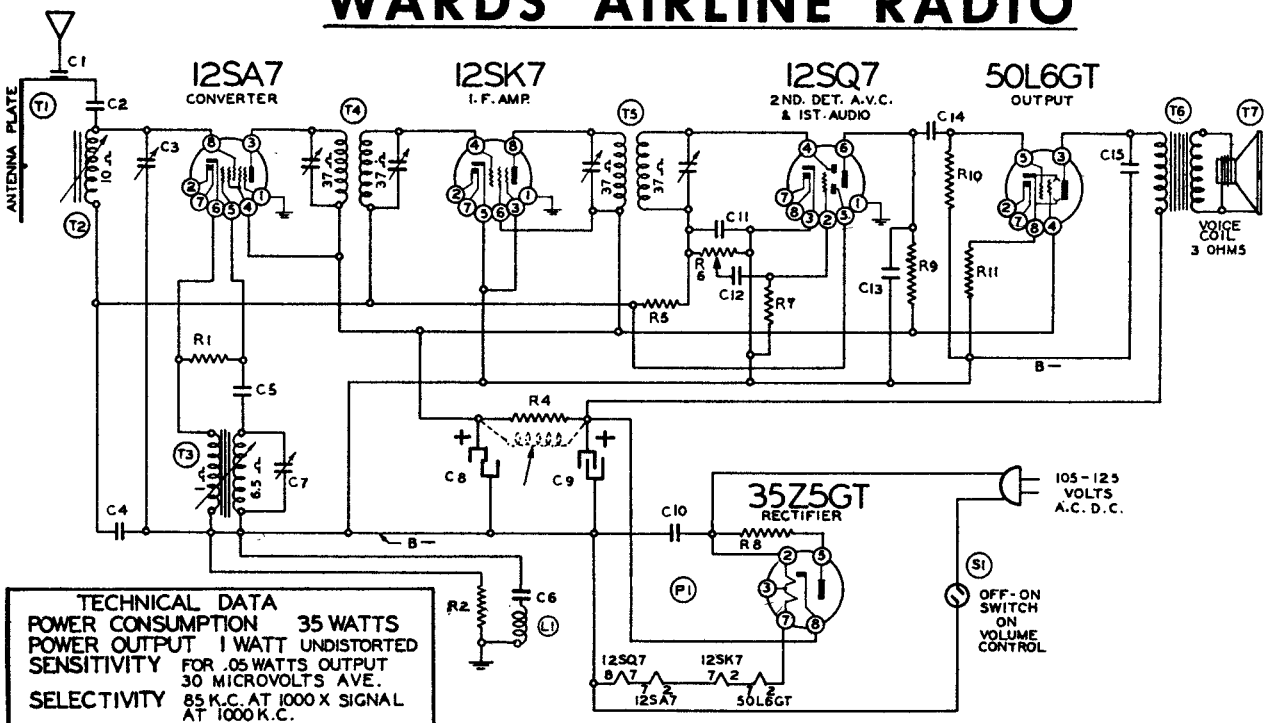
MONTGOMERY WARD CHICAGO

MODEL 14WG-518B
MODEL 14WG-519B

25 CYCLE MODELS

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

WARDS AIRLINE RADIO



TECHNICAL DATA

POWER CONSUMPTION	35 WATTS
POWER OUTPUT	1 WATT UNDISTORTED
SENSITIVITY	FOR .05 WATTS OUTPUT 30 MICROVOLTS AVE.
SELECTIVITY	85 K.C. AT 1000 X SIGNAL AT 1000 K.C.
TUNING RANGE	535 TO 1720 K.C.
INTERMEDIATE FREQUENCY	455 K.C.

RESISTORS

R1	BE130176	20M ohm—½ w.
R2	BE130100	150M ohm—½ w.
R4	BE130279	1M ohm—1 w.
R5	BE1304	3 megohm—½ w.
R6	BE101255	500M ohm—Volume control and switch
R7	BE130257	5 megohm—½ w.
R8	BE130240	30 ohm—½ w.
R9	BE130100	150M ohm—½ w.
R10	BE13011	250M ohm—½ w.
R11	BE130166	150 ohm—½ w.

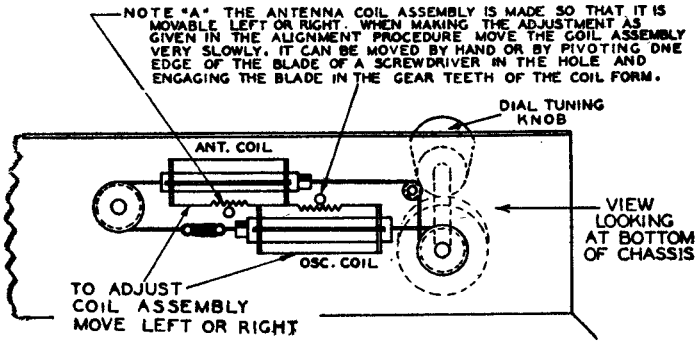
CONDENSERS

C1	BE131262	.00001 washer condenser (antenna clip on back plate)
C2	BE129114	.0003 mica
C3	BE124137	Trimmer on antenna coil
C4	BE1009	.05 x 200 v.
C5	BE12939	.00005 mica
C6	BE10091	.15 x 400 v.
C7	BE124137	Trimmer on oscillator coil
C8	BE11992	20 Mfd. lytic x 150 w.v.
C9	BE11992	40 mfd. lytic x 150 w. v.
C10	BE10013	.05 x 400 v.
C11	BE12912	.00025 mica
C12	BE10025	.002 x 600 v.
C13	BE1292	.0005 mica
C14	BE10011	.01 x 400 v.
C15	BE10026	.02 x 400 v.

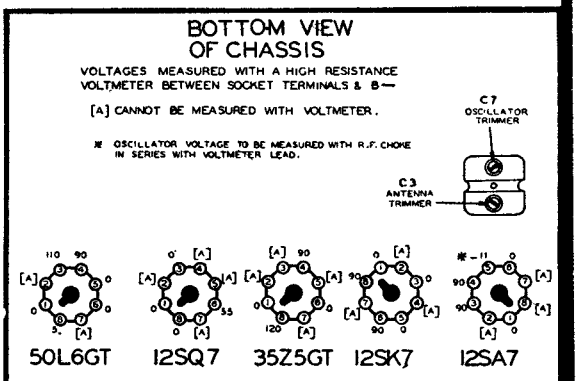
C3 and C7 are in same unit
C8 and C9 are in same unit

PARTS

T1	BE115597-18	Antenna plate (Walnut)
or	BE115597-9	Antenna plate (Ivory)
T2	BE111181	Antenna permeability coil
T3	BE110153	Oscillator permeability coil
T4	BE108157-H	Input I.F. coil—455 kc.
T5	BE108157-I	Output I.F. coil—455 kc.
T6	BE105128	Output transformer
T7	BE114199	4" PM speaker
or		
T7	BE114259	4" Electrodynamic speaker
S1		Switch on Volume control
L1	BE105138	R.F. choke



COIL ASSEMBLY VIEW



VOLTAGE CHART

MODEL 14BR-521A
MODEL 14BR-522A

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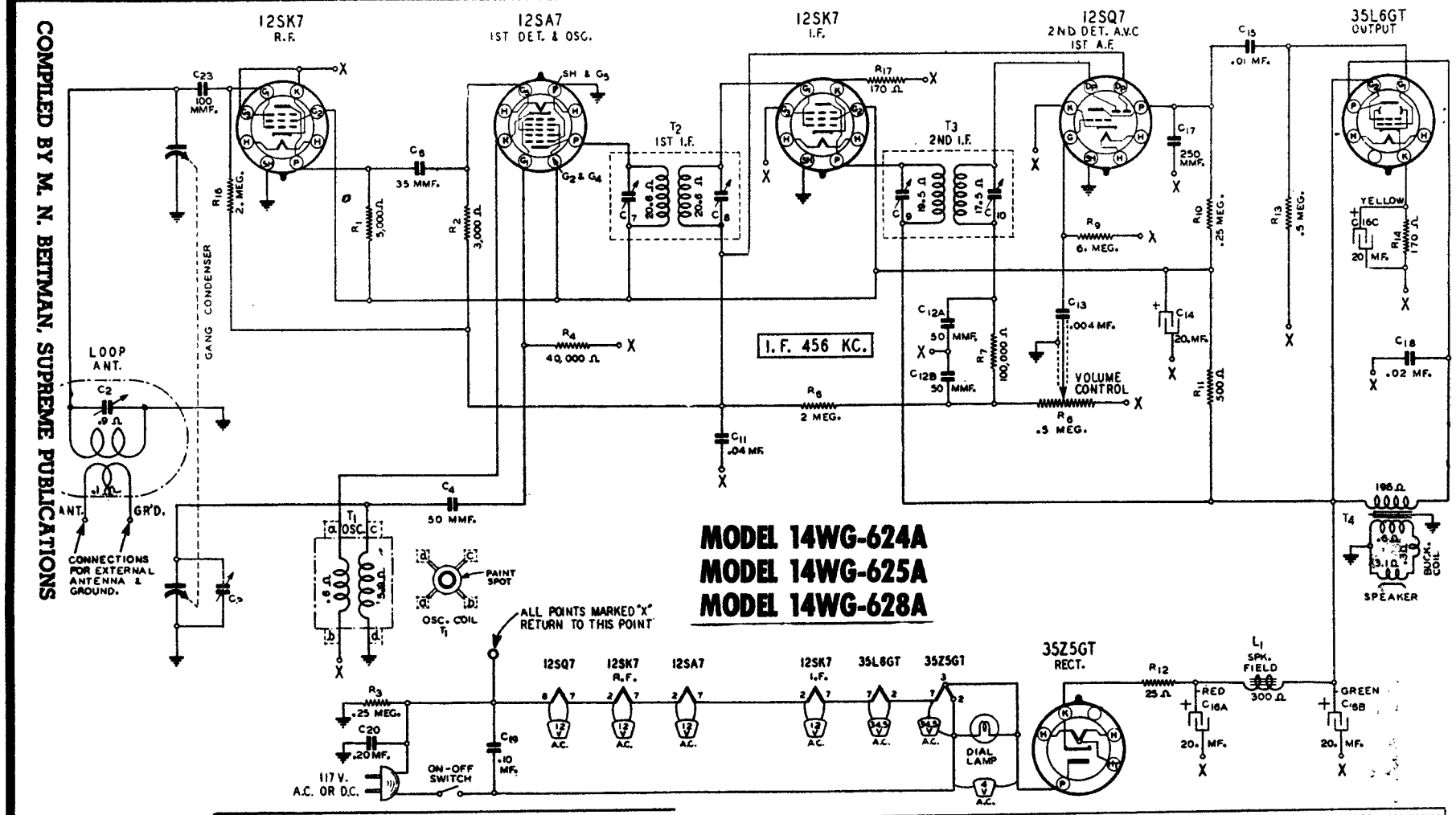
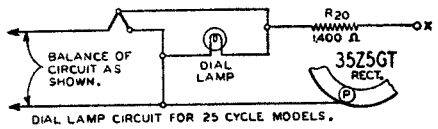
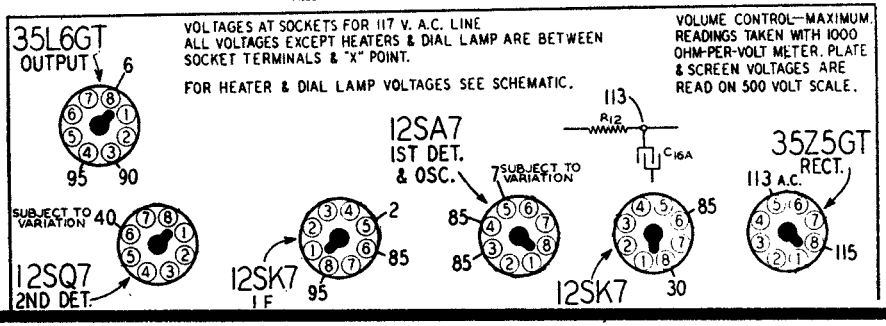


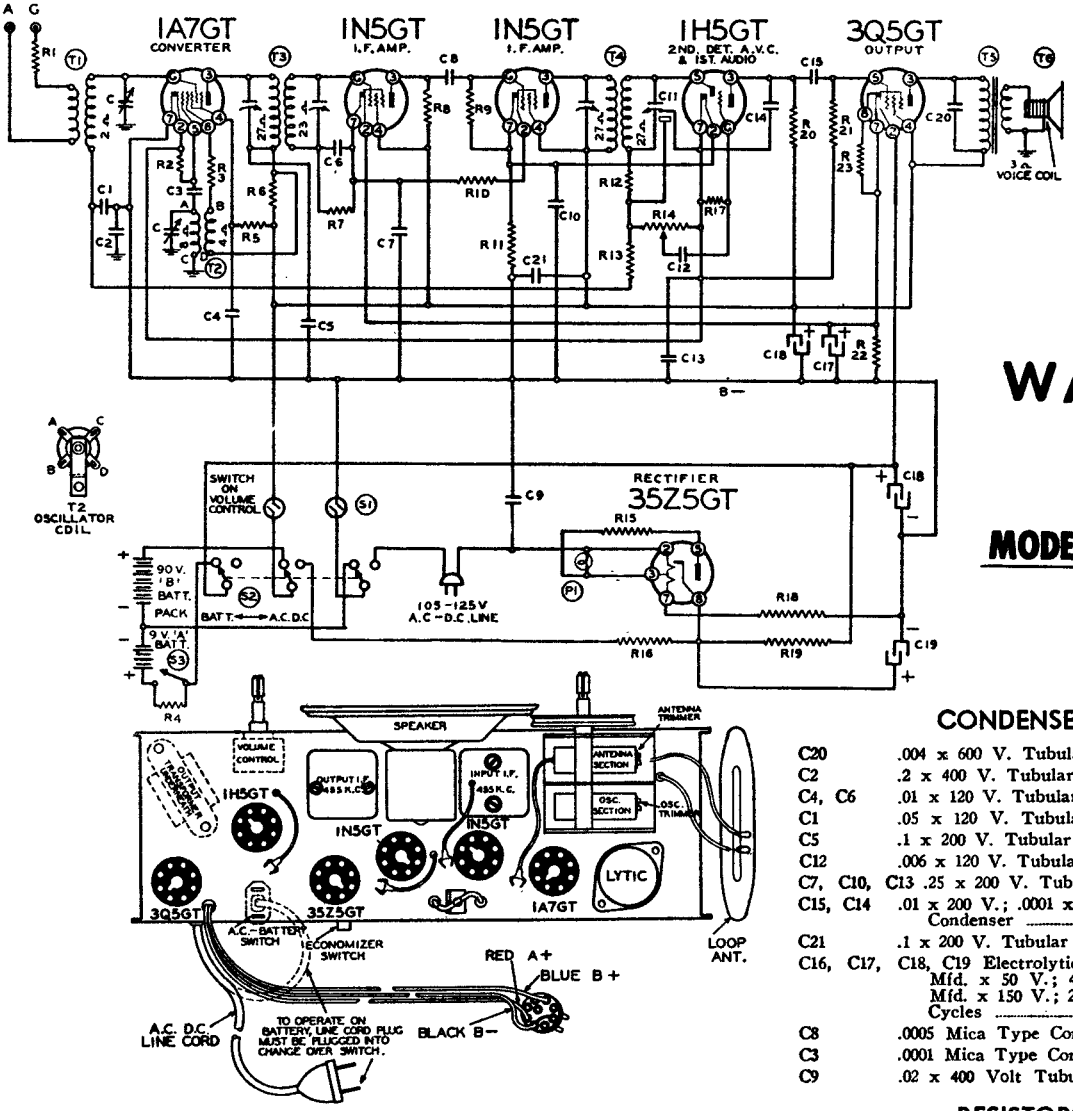


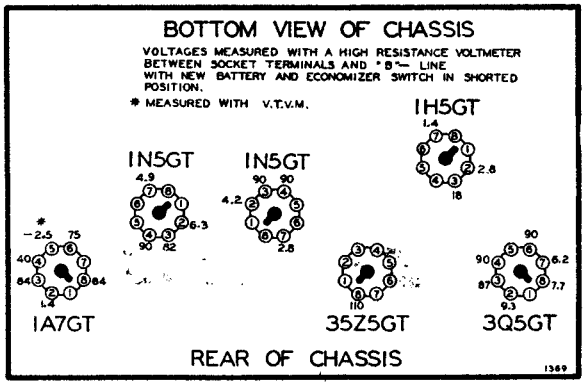
25 CYCLE MODELS

THE CAPACITY OF CONDENSERS C16A AND C16B IS DOUBLED BY ADDING AN ADDITIONAL CONDENSER UNIT OF THE SAME VALUE IN PARALLEL WITH PRESENT CONDENSER-



BAND	SIGNAL GENERATOR Frequency Setting	SIGNAL GENERATOR Dummy Antenna	Connection to Radio	Dial Setting	Trimmers Adjusted (in Order Shown)
455 Kc. I. F.	455 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Input and Output Trimmers on Top of I. F. cans
BROAD-CAST BAND	1600 Kc.	.1 MFD.	Connect to Grid of 1A7	Rotor full open (Plates out of mesh)	Osc. Trimmer on gang (See chassis view)
	1400 Kc.	200 MMF.	Connect to Antenna Clip	Set dial at 1400 Kc.	Ant. Trimmer on gang (See chassis view)





WARDS

MODEL 14BR-684A

CONDENSERS

C20	.004 x 600 V. Tubular Condenser
C2	.2 x 400 V. Tubular Condenser
C4, C6	.01 x 120 V. Tubular Condenser
C1	.05 x 120 V. Tubular Condenser
C5	.1 x 200 V. Tubular Condenser
C12	.006 x 120 V. Tubular Condenser
C7, C10, C13	.25 x 200 V. Tubular Condenser
C15, C14	.01 x 200 V.; .0001 x 200 V. Dual Tubular Condenser
C21	.1 x 200 V. Tubular Condenser
C16, C17, C18, C19	Electrolytic Filter Condenser 20 Mfd. x 50 V.; 40 Mfd. x 150 V.; 40 Mfd. x 150 V.; 200 Mfd. x 10 V. 50-60 Cycles
C8	.0005 Mica Type Condenser—20%
C3	.0001 Mica Type Condenser—20%
C9	.02 x 400 Volt Tubular Condenser

RESISTORS

R20	1 Megohm—½ Watt Resistor—20%
R13, R21	3 Megohm—½ Watt Resistor—20%
R7, R9, R17	5 Megohm—½ Watt Resistor—25%
R4, R15	20 Ohm—½ Watt Resistor—10%
R16	2500 Ohm—½ Watt Resistor—10%
R11	2M Ohm—½ Watt Resistor—10%
R10	15 Ohm—½ Watt Resistor—10%
R8	5M Ohm—½ Watt Resistor—20%
R3, R6	3M Ohm—½ Watt Resistor—20%
R22	700 Ohm—½ Watt Resistor—10%
R2	200M Ohm—½ Watt Resistor—20%
R5	65M Ohm—½ Watt Resistor—10%
R1	1M Ohm—½ Watt Resistor—20%
R12	47M Ohm—½ Watt Resistor—20%
R18	545 Ohm—14 Watt W.W. Resistor—5%
R19	1975 Ohm—6 Watt W.W. Resistor—5%
R23	350 Ohm—½ Watt Resistor—10%

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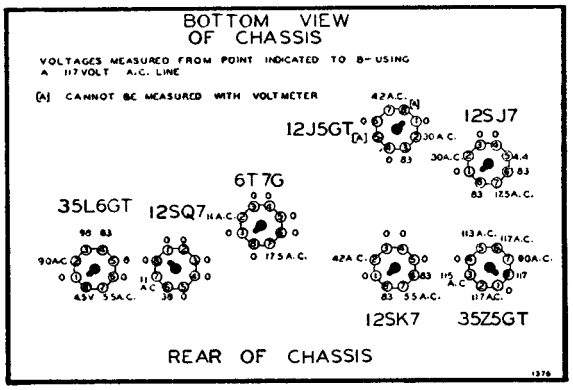
● Connect B—of radio chassis to ground post of signal generator through .1 Mfd. condenser.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Position of Band. Switch	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 I. F.	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SJ7 Mixer	Broadcast	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
SHORT WAVE BAND	12 Mc.	400 Ohms	External Antenna and B—	Short Wave	Set Dial at 12 Mc.	S.W. Osc. trimmer C10 S.W. Ant. trimmer C3
BROAD-CAST BAND	1600 Kc.	.1 mmf.	Grid of 12SJ7	Broadcast	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C12 on Gang
	1400 Kc.	200 mmf.	External Antenna and B—	Broadcast	Set Dial at 1400 K. C.	B.C. Ant. trimmer C6

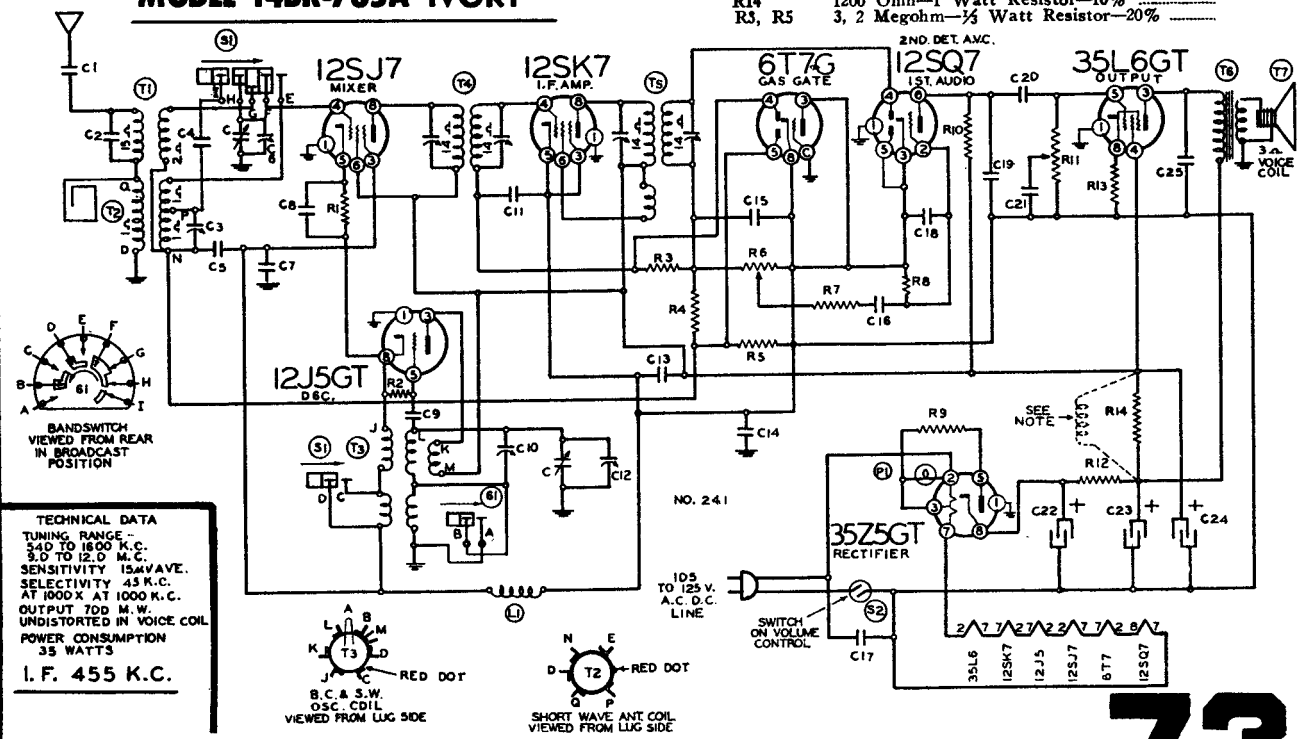
NOTE: The Oscillator Frequency is lower than the signal frequency and should be aligned accordingly.

The loop antenna should be connected to the radio when making all adjustments.

C11	.05 x 200 Volt Tubular Condenser
C16, C21	.006 x 600 Volt Tubular Condenser
C13	.1 x 200 Volt Tubular Condenser
C25, C20	.02 x 400 Volt Tubular Condenser
C1	.003 x 600 Volt Tubular Condenser
C7, C14	.1 x 400 Volt Tubular Condenser
C8	.01 x 120 Volt Tubular Condenser
C5	.05 x 120 Volt Tubular Condenser
C17	.03 x 400 Volt Tubular Condenser Electrolytic Filter Cond. added for 25 cycle only. 40 mfd. x 150 Volts across C22 and 20 Mfd. x 150 Volts across C23
C22, C23, C24	Electrolytic Filter Condenser—40 mfd.—20 mfd.—20 mfd. x 150 Volts
C3, C10	S. W. Antenna and Oscillator Trimmer Condenser
C9, C18	.0001 Mica Type Condenser—20%
C15	.0002 Mica Type Condenser—20%
C2	.00015 Mica Type Condenser—10%
C4	.000445 Mica Type Condenser—3%
C19	.00025 Mica Type Condenser
R10	200M ohm—½ Watt Resistor—20%
R2, R7	50M ohm—½ Watt Resistor—20%
R4	2 Megohm—½ Watt Resistor—20%
R12	200 Ohm—½ Watt Resistor—20%
R9	20 Ohm—½ Watt Resistor—20%
R13	150 Ohm—½ Watt Resistor—10%
R1	5M Ohm—½ Watt Resistor—10%
R8	5 Megohm—½ Watt Resistor—25%
R14	1200 Ohm—1 Watt Resistor—10%
R3, R5	3, 2 Megohm—½ Watt Resistor—20%



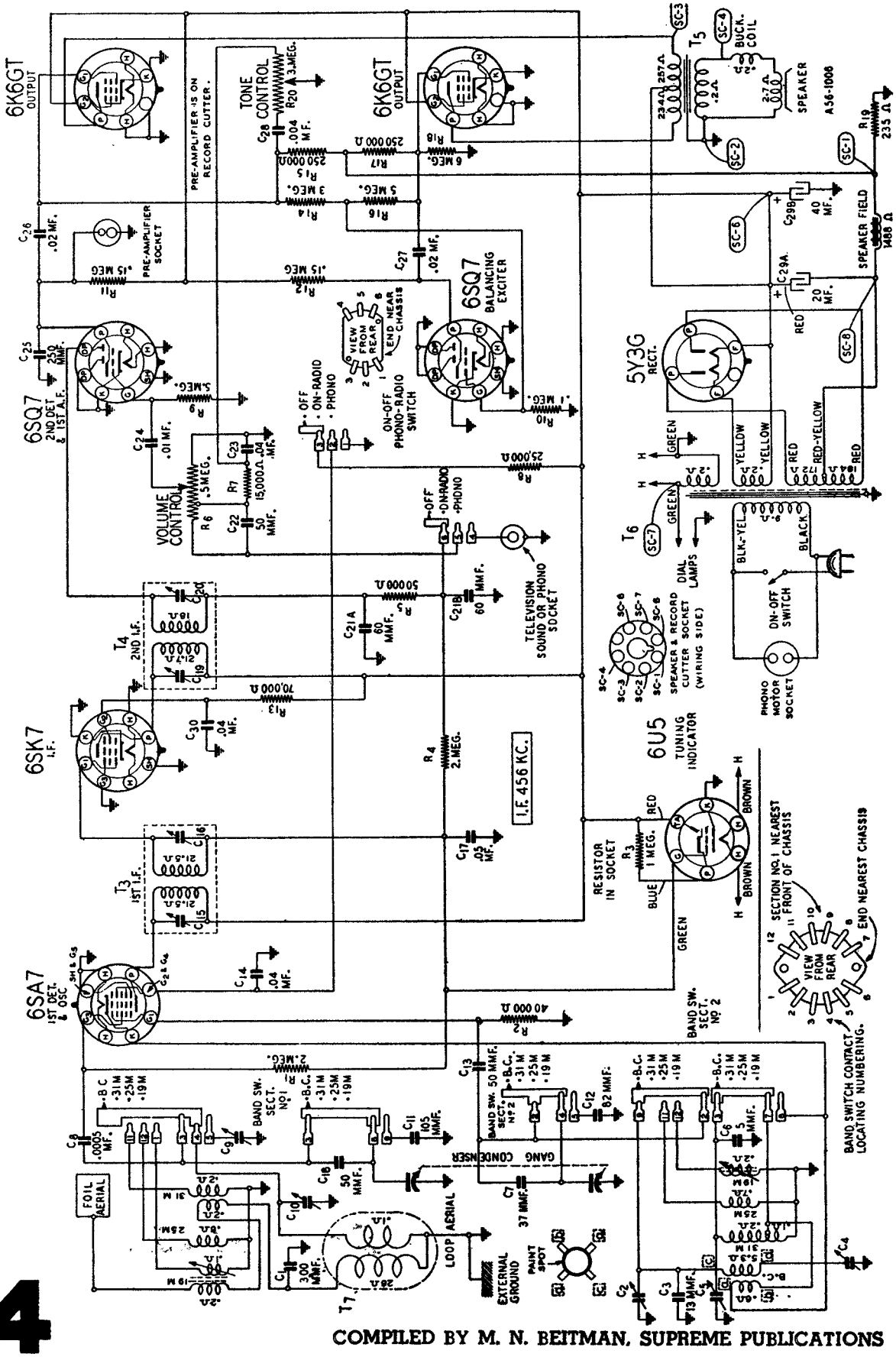
MODEL 14BR-734A BROWN
MODEL 14BR-735A IVORY



TECHNICAL DATA
TUNING RANGE — 540 TO 1600 K.C. 9.0 TO 12.0 M.C.
SENSITIVITY 15 MVAVE.
SELECTIVITY 45 K.C. AT 1000 X AT 1000 K.C.
OUTPUT 700 M.W. UNDISTORTED IN VOICE COIL
POWER CONSUMPTION 35 WATTS
I. F. 455 K.C.

MONTGOMERY WARD CHICAGO

MODEL 14WG-808W 14WG-808M



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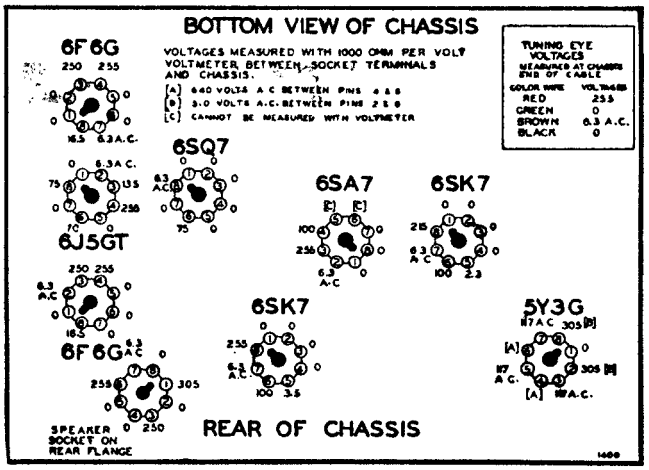
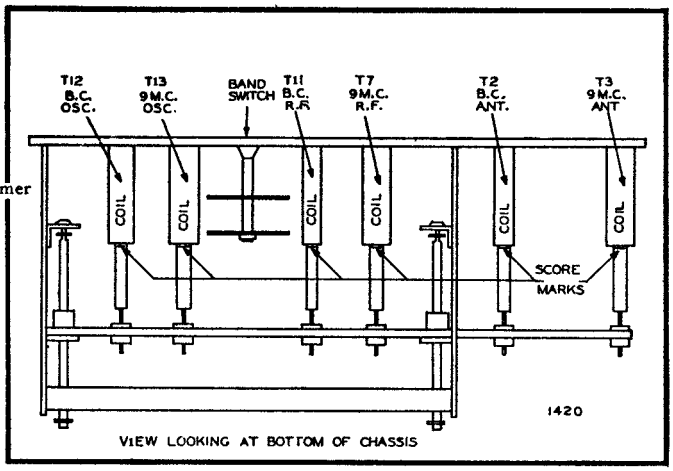
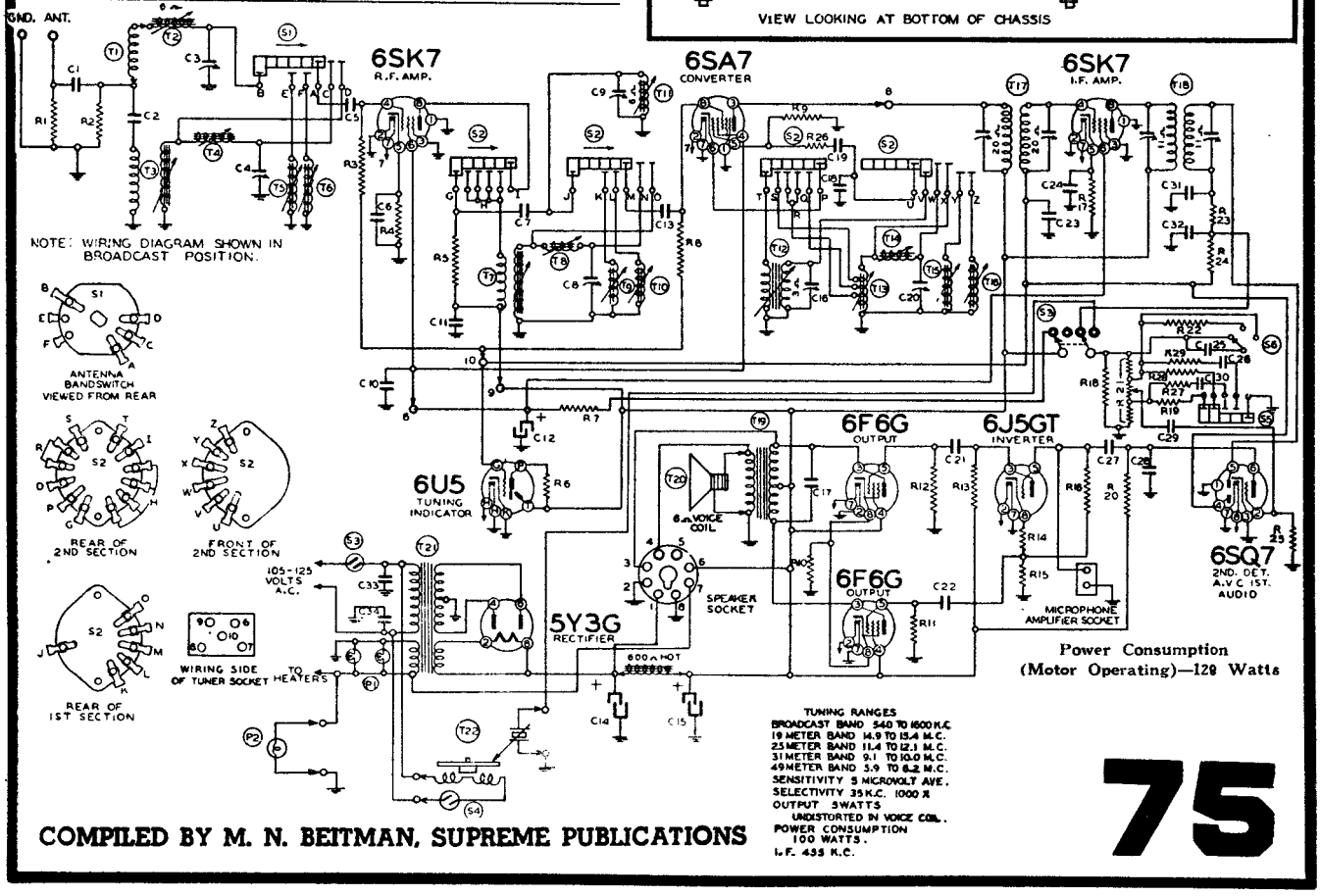
MONTGOMERY WARD

MODEL 14BR-912A

R1	25M ohm—⅓ w.	C6	.1 x 200 v. tubular condenser
R2	25M ohm—⅓ w.	C7	.00001 mica
R3	1 megohm—⅓ w.	C8	9 mc. R.F. trimmer
R4	250 ohm—⅓ w.	C9	B.C. R.F. trimmer
R5	5M ohm—⅓ w.	C10	.1 x 400 v
R6	1 megohm in tuning	C11	.1 x 400 v.
R7	12,500 ohm—3 w.	C12	10.0 mfd. x 350 w. v. lytic
R8	1 megohm—⅓ w.	C12	10.0 mfd. x 350 w. v. lytic
R9	25M ohm—⅓ w.	C13	.0005 mica
R10	300 ohm—1 w.	C14	15.0 mfd. x 450 w. v. lytic
R11	500M ohm—⅓ w.	C14	15.0 mfd. x 450 w. v. lytic
R12	500M ohm—⅓ w.	C15	15.0 mfd x 450 w. v. lytic
R13	100M ohm—⅓ w.	C15	15.0 mfd. x 450 w. v. lytic
R14	5M ohm—⅓ w.	C16	B.C. oscillator trimmer
R15	100M ohm—⅓ w.	C17	BE10071 .004 x 600 v.
R16	1 megohm—⅓ w.	C18	BE129167 .0002 silver mica
R17	500 ohm—⅓ w.	C19	BE129165 .00005 mica
R18	500M ohm—⅓ w.	C20	BE124145 9 mc. oscillator trimmer
R19	500M ohm—⅓ w.	C21	BE10013 .05 x 400 v.
R20	250M ohm—⅓ w.	C22	BE1009 .05 x 200 v.
R21	2.8 megohm—volume control	C23	BE10026 .02 x 400 v.
R22	1.5 megohm—⅓ w.	C24	BE10020 .1 x 200 v.
R23	50M ohm—⅓ w.	C25	BE12951 .000125 mica
R24	3 megohm—⅓ w.	C26	BE1002 .003 x 300 v.
R25	5 megohm—⅓ w.	C27	BE10026 .02 x 400 v.
R26	50 ohm—⅓ w.	C28	BE12921 .0002 mica
R27	40M ohm—⅓ w.	C29	BE10019 .006 x 600 v.
R28	150M ohm—⅓ w.	C30	BE100139 .0015 x 200 v.
R29	80M ohm—⅓ w.	C31	BE129165 .00005 mica
C1	.0005 mica	C32	BE129165 .00005 mica
C2	.002 x 600 v.	C33	BE10061 .02 x 600 v. Bakelite
C3	B.C. antenna trimmer	C34	BE10061 .02 x 600 v. Bakelite
C4	9 mc. antenna trimmer		
C5	.0005 mica		







Power Consumption (Motor Operating)—120 Watts

TUNING RANGES
BROADCAST BAND 540 TO 1600 K.C.
19 METER BAND 14.9 TO 15.4 M.C.
25 METER BAND 11.4 TO 12.1 M.C.
31 METER BAND 9.1 TO 10.0 M.C.
49 METER BAND 5.9 TO 6.2 M.C.
SENSITIVITY 5 MICROVOLT AVE.
SELECTIVITY 35 K.C. 1000 %
OUTPUT 5 WATTS UNDISTORTED IN VOICE COIL.
POWER CONSUMPTION 100 WATTS.
I.F. 455 K.C.

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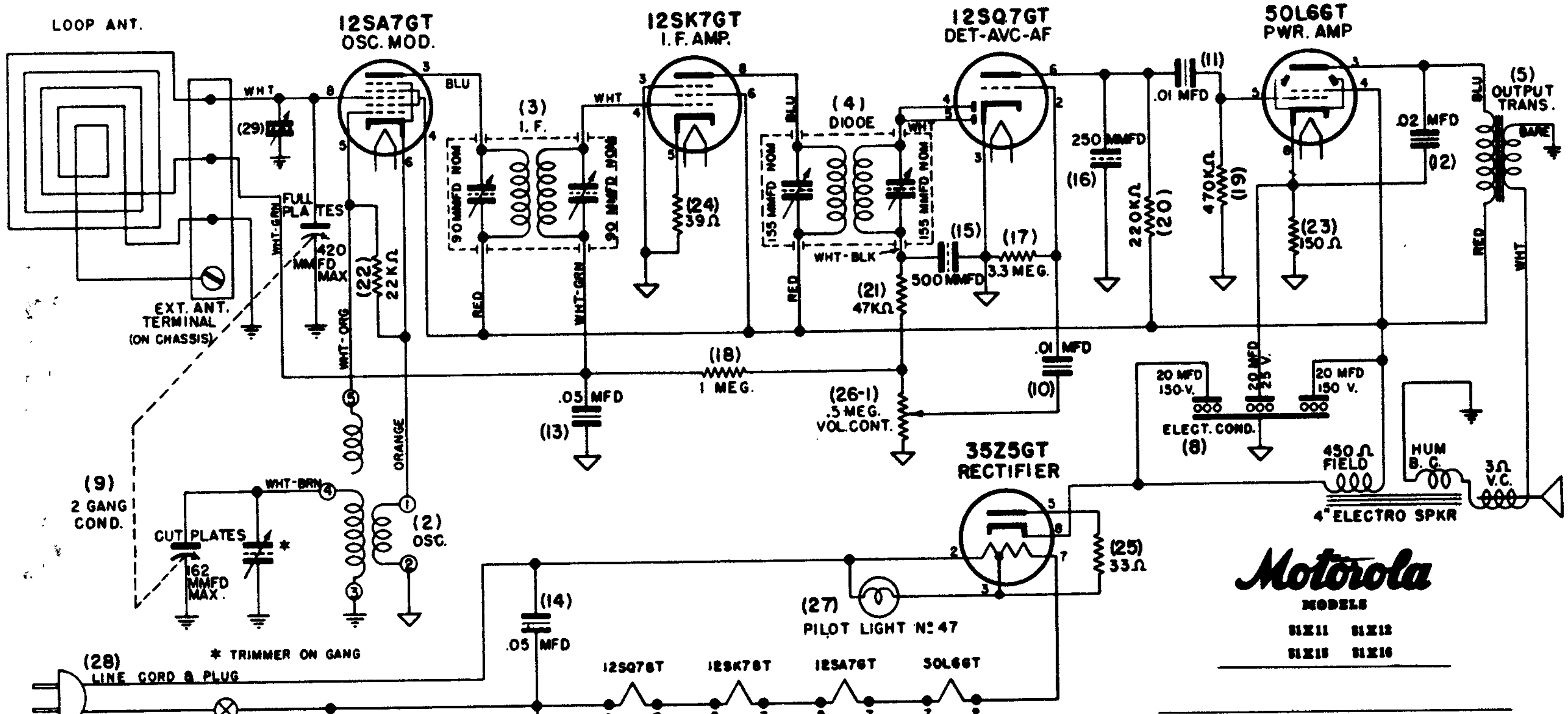
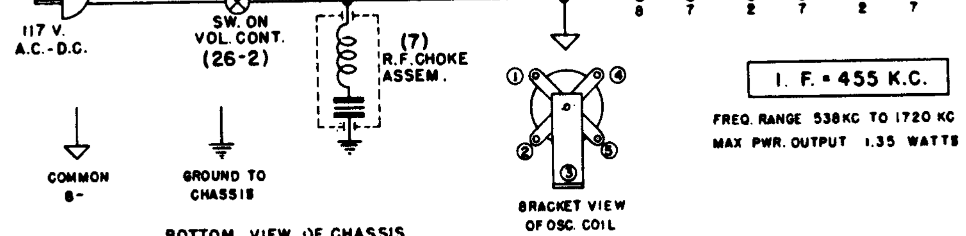
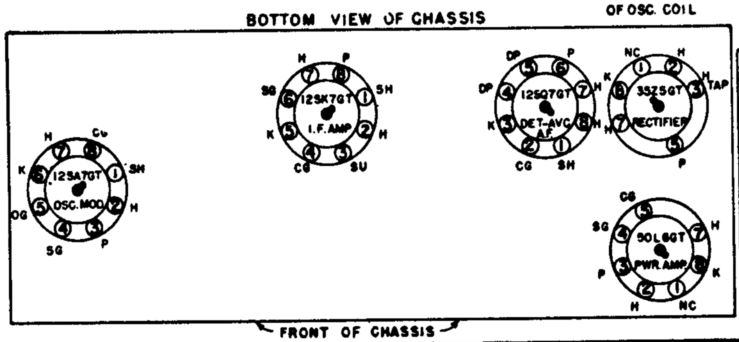




I. F. = 455 K.C.

FREQ. RANGE 538KC TO 1720 KC

MAX PWR. OUTPUT 1.35 WATTS



VOLTAGE CHART

TUBE		PLATE TO B-	SCREEN TO B-	CATH. TO B-
12SA7GT	OSC. MOD.	80 V.	80 V.	0
12SK7GT	I.F. AMP.	80 V.	80 V.	.5 V.
12SQ7GT	DET. AVC-AF	48 V.	—	0
50L6GT	PWR. AMP.	75 V.	80 V.	5.5 V.
35Z5GT	RECT.	A.C.	—	105 V.

NOTE: ALL VOLTAGES MEASURED ON A 1000 OHMS PER VOLT VOLTMETER INPUT: 117 V. A.C.

MODELS 51X11, 12, 15 & 16 SCHEMATIC DIAGRAM PARTS LIST

DIAG. NO.	PART NO.	DESCRIPTION
1	1X28210	BACK & LOOP ASSEMBLY (MODEL 51X11 ONLY)
	1X28211	BACK & LOOP ASSEMBLY (MODEL 51X12 ONLY)
	1X25957	BACK & LOOP ASSEMBLY (MODEL 51X15 ONLY)
	1X25976	BACK & LOOP ASSEMBLY (MODEL 51X16 ONLY)
2	1X25525	OSC. COIL & LEADS ASSEMBLY
3	1X25522	I.F. COIL & SHIELD ASSEMBLY
4	1X25519	DIODE COIL & SHIELD ASSEMBLY
5	25A20503	OUTPUT TRANSFORMER
6	50B20508	SPEAKER (4" ELECTRO)
7	1A25529	R.F. CHOKE ASSEMBLY
8	23A25508	ELECT. COND. & STRAP (20-20/150V & 20/25V)
9	1X25524	GANG & PULLEY ASSEMBLY (2 GANG)
10	859801	TUBULAR CONDENSER (.01-100V)
11	889825	TUBULAR CONDENSER (.01-200V)
12	889802	TUBULAR CONDENSER (.02-400V)
13	899805	TUBULAR CONDENSER (.05-100V)
14	899816	TUBULAR CONDENSER (.05-400V)
15	2186500	MOLDED MICA CONDENSER (500 MMFD) 20%
16	2186517	MOLDED MICA CONDENSER (250 MMFD) 20%
17	686201	CARBON RESISTOR (3.3 MEG-1/3-20) INS.
18	686159	CARBON RESISTOR (1 MEG-1/3-20) INS.
19	606160	CARBON RESISTOR (470,000-1/3-20) INS.
20	686204	CARBON RESISTOR (220,000-1/3-20) INS.
21	686321	CARBON RESISTOR (47,000-1/3-20) INS.
22	686212	CARBON RESISTOR (22,000-1/3-20) INS.
23	606247	CARBON RESISTOR (150-1/3-10) N.I.
24	686375	CARBON RESISTOR (39-1/3-10) INS.
25	686067	CARBON RESISTOR (33-1/2-20) N.I.
26	18A14629	VOL. CONTROL & SWITCH (.5 MEG)
27	65X11854	BULB (6.3V-.15AMP TUB. BAY) #47
28	30A151	LINE CORD & PLUG (6 FT.)
29	20A28194	TRIMMER CONDENSER (7 MMFD NOM.)

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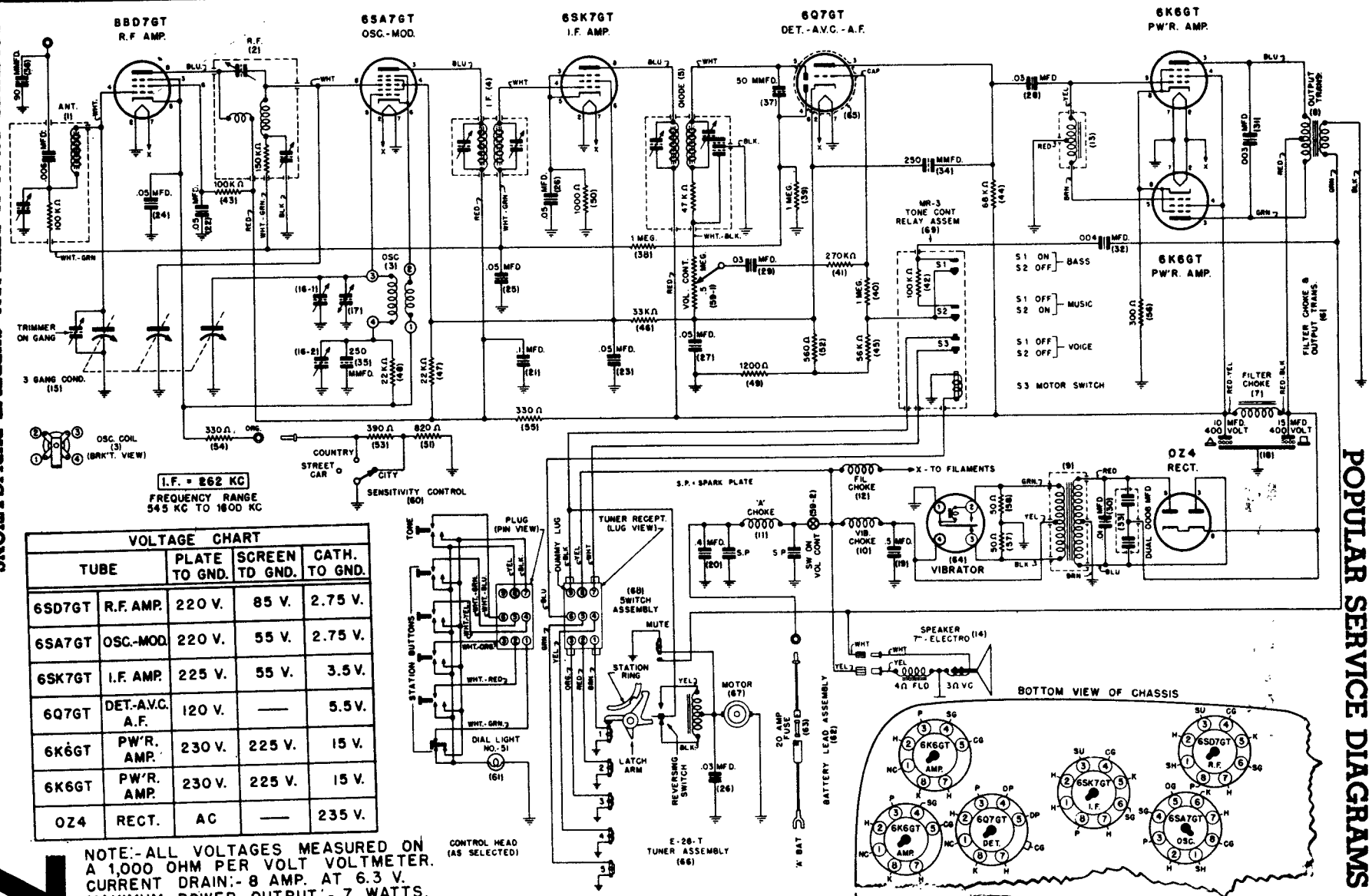


VOLTAGE CHART				
TUBE		PLATE TO GND.	SCREEN TO GND.	CATH. TO GND.
6SD7GT	R.F. AMP.	220 V.	85 V.	2.75 V.
6SA7GT	OSC.-MOD.	220 V.	55 V.	2.75 V.
6SK7GT	I.F. AMP.	225 V.	55 V.	3.5 V.
6Q7GT	DET.-A.V.C. A.F.	120 V.	—	5.5 V.
6K6GT	PW'R. AMP.	230 V.	225 V.	15 V.
6K6GT	PW'R. AMP.	230 V.	225 V.	15 V.
OZ4	RECT.	AC	—	235 V.

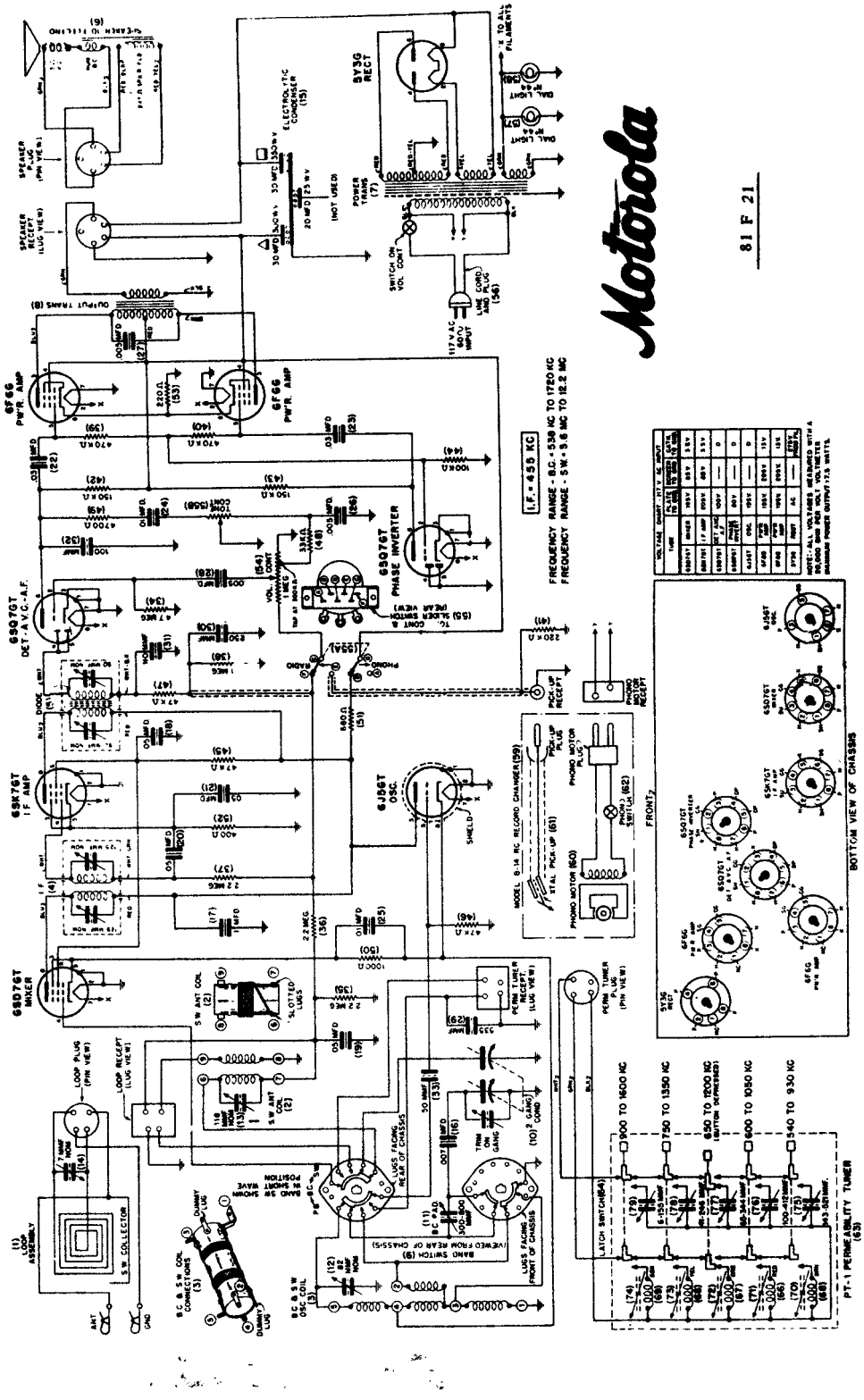
NOTE:- ALL VOLTAGES MEASURED ON A 1,000 OHM PER VOLT VOLTMETER.
CURRENT DRAIN:- 8 AMP. AT 6.3 V.
MAXIMUM POWER OUTPUT:- 7 WATTS.

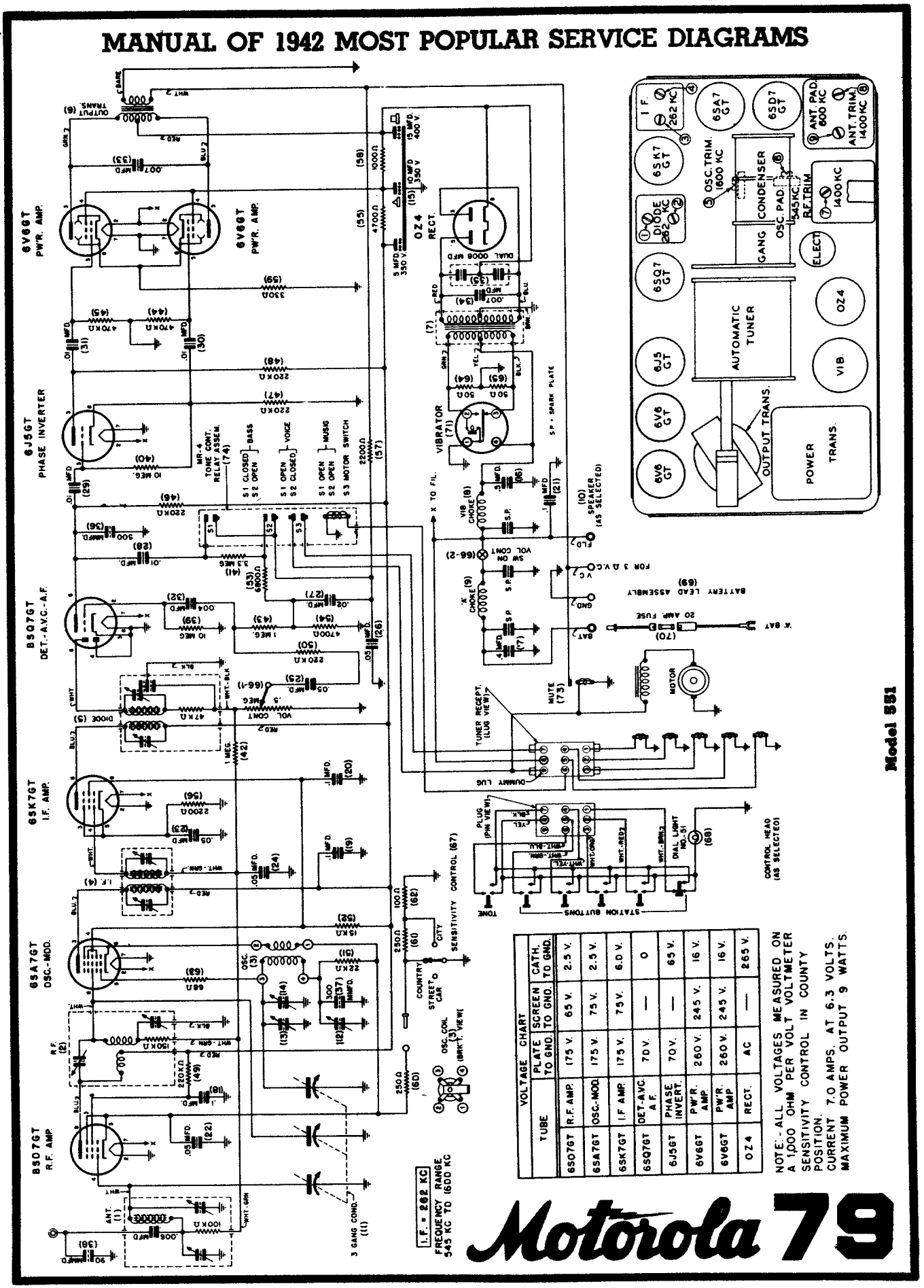
7

Model 501

Motorola

POPULAR SERVICE DIAGRAMS


Motorola
81 F 21
I.F. • 455 KC
FREQUENCY RANGE - B.C. • 538 KC TO 1720 KC
FREQUENCY RANGE - S.W. • 5.6 MC TO 12.2 MC
6F66 PWR. AMP
6F66 PWR. AMP
6SQ7GT DET.-A.V.C.-A.F.
6SK7GT I.F. AMP
6SQ7GT MIXER
6J5GT OSC.
6SQ7GT PHASE INVERTER
5Y3G RECT
BOTTOM VIEW OF CHASSIS
PT-1 PERMEABILITY TUNER (43)
900 TO 1600 KC
750 TO 1350 KC
650 TO 1200 KC
600 TO 1050 KC
540 TO 930 KC



VOLTAGE CHART				
TUBE		PLATE TO GND.	SCREEN TO GND.	CATH. TO GND.
6SQ7GT	R.F. AMP.	175 V.	65 V.	2.5 V.
6SA7GT	OSC.-MOD.	175 V.	75 V.	2.5 V.
6SK7GT	I.F. AMP.	175 V.	75 V.	6.0 V.
6SQ7GT	DET-A.V.C. A.F.	70 V.	—	0
6J5GT	PHASE INVERT.	70 V.	—	65 V.
6V6GT	PW'R. AMP.	260 V.	245 V.	16 V.
6V6GT	PW'R AMP	260 V.	245 V.	16 V.
OZ4	RECT.	AC	—	265 V.

NOTE:- ALL VOLTAGES MEASURED ON A 1,000 OHM PER VOLT VOLTMETER
SENSITIVITY CONTROL IN COUNTY POSITION.
CURRENT 7.0 AMPS. AT 6.3 VOLTS.
MAXIMUM POWER OUTPUT 9 WATTS.

Model 551

Motorola 79

12SA7 12SQ7 50L6GT

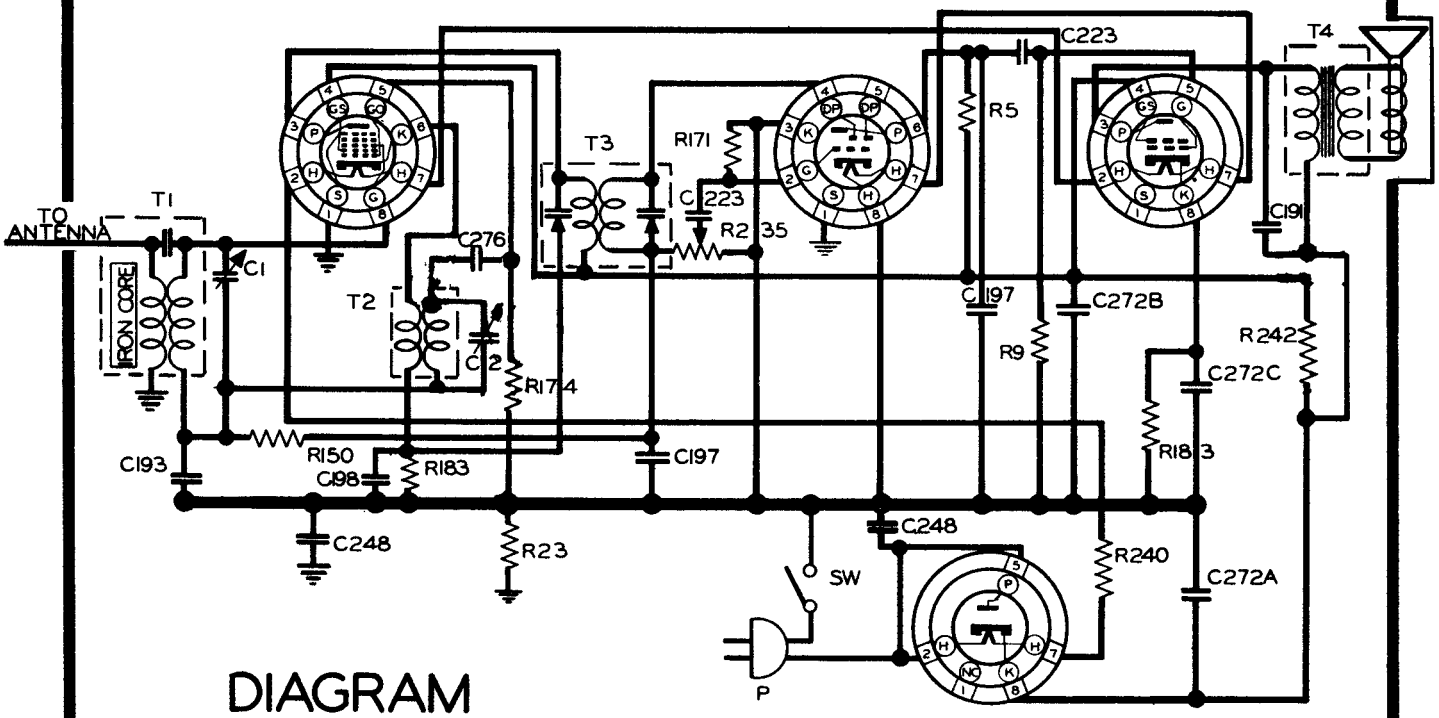
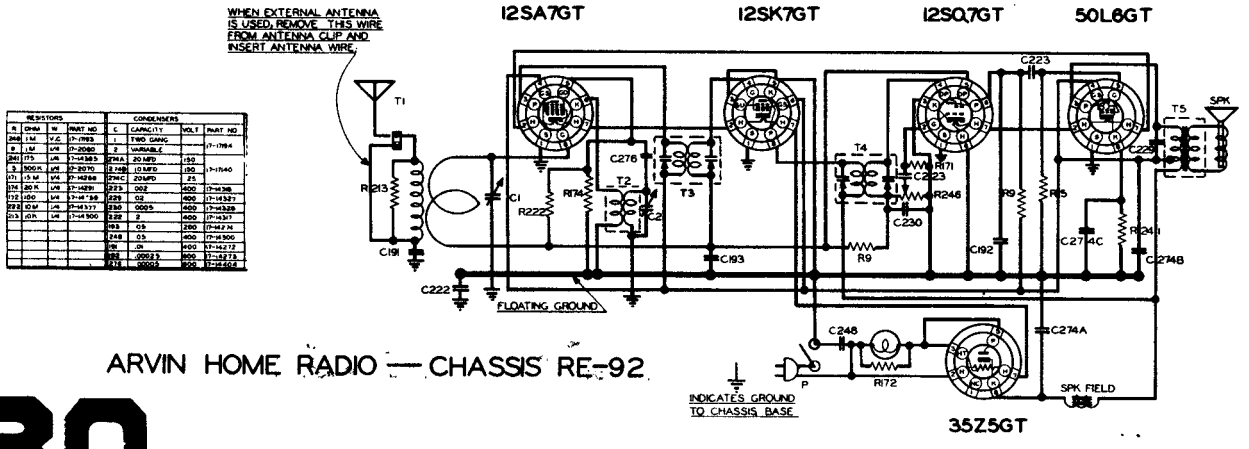


DIAGRAM CHASSIS RE-91

35Z4GT OR 35Z5GT

RESISTORS				CONDENSERS				MISCELLANEOUS UNITS		
R	OHM	W	PART NO.	C	CAPACITY	VOLT	PART NO.	SYMBOL	DESCRIPTION	PART NO.
174	20 K.	1/4	17-14291					T1	ANTENNA COIL	00-17130
9	1 M.	1/4	17-2080	193	.05	200	17-14274	T2	OSCILLATOR COIL	00-17223
171	15 M.	1/4	17-14288	248	.05	400	17-14366	T3	I.F. COIL	00-17210
5	500K.	1/4	17-2070	198	.005	400	17-14279	T4	OUTPUT TRANSFORMER	00-17131
183	150	1/4	17-14318	223	.002	400	17-14318	SPK.	SPEAKER	17-17209
235	2 M.	V.C.	17-17117	191	.01	400	17-14272			
23	250 K	1/4	17-3011	1	TWO GANG VARIABLE		17-17115	FREQUENCY RANGE 1750 TO 540 K.C. NOBLITT-SPARKS INDUSTRIES, INC. COLUMBUS, INDIANA		
240	47	1	17-14397	2						
150	5 M.	1/4	17-14242	272A	40 MFD.	150	17-14398			
242	2000	1	17-14399	272B	20 MFD.	150				
				272C	20 MFD.	25				
				197	.0001	600	17-14278			
				276	.00005	600	17-14404			



ARVIN HOME RADIO — CHASSIS RE-92

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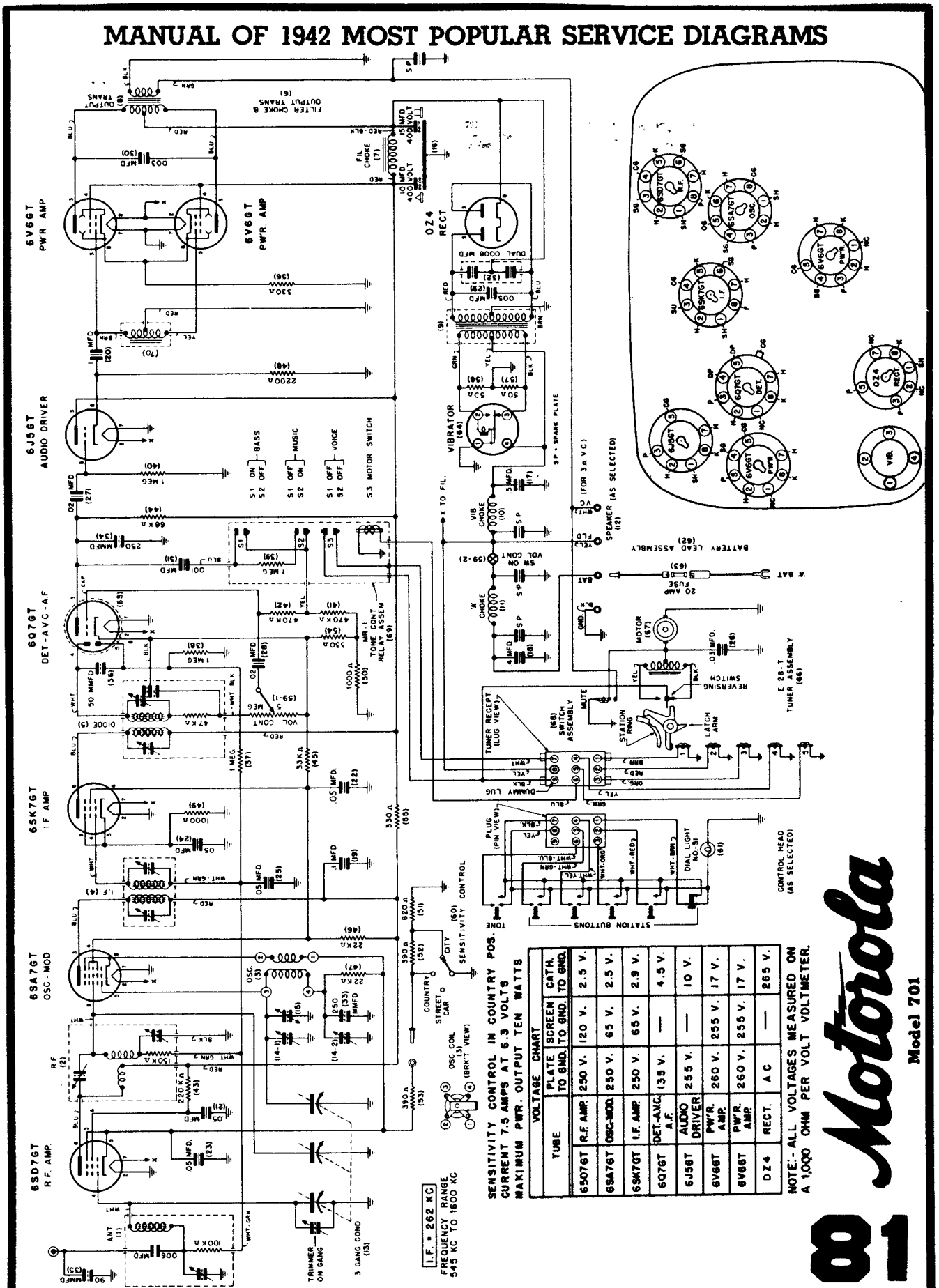


VOLTAGE CHART				
TUBE	PLATE TO GND.	SCREEN TO GND.	CATH. TO GND.	
6SD7GT	R.F. AMP.	250 V.	120 V.	2.5 V.
6SA7GT	OSC-MOD.	250 V.	65 V.	2.5 V.
6SK7GT	I.F. AMP.	250 V.	65 V.	2.9 V.
6Q7GT	DET.-A.V.C. A.F.	135 V.	—	4.5 V.
6J5GT	AUDIO DRIVER	255 V.	—	10 V.
6V6GT	PW'R. AMP.	260 V.	255 V.	17 V.
6V6GT	PW'R. AMP.	260 V.	255 V.	17 V.
DZ4	RECT.	A C	—	265 V.

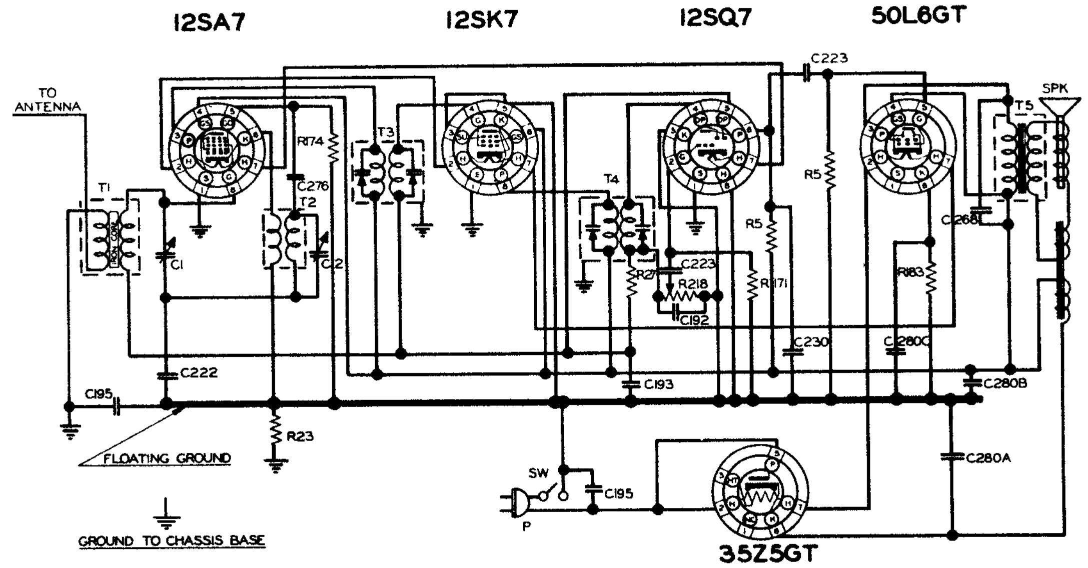
NOTE:- ALL VOLTAGES MEASURED ON A 1,000 OHM PER VOLT VOLTMETER.

81

Motorola

Model 701

ARVIN HOME RADIO CHASSIS RE-99



RESISTORS

R	OHM	W	PART NO.
218	1M	V C	17-16857
5	500K	1/4	17-2070
183	150	1/4	17-14318
174	20K	1/4	17-14291
171	15M	1/4	17-14288
23	250K	1/4	17-3011
27	2M	1/4	17 4788

CONDENSERS

C	CAPACITY	VOLT	PART NO.
1	TWO GANG		17-17279
2	VARIABLE		
280A	40 MFD.	150	17-14415
280B	20 MFD.	150	
280C	20 MFD	25	
195	.05	400	17-14276
222	.2	400	17-14317
192	.00025	600	17-14273
223	.002	400	17-14318
193	.05	200	17-14274
268	.03	400	17-14392
230	.0005	400	17-14326
276	.00005	600	17-14404

TRANSFORMERS

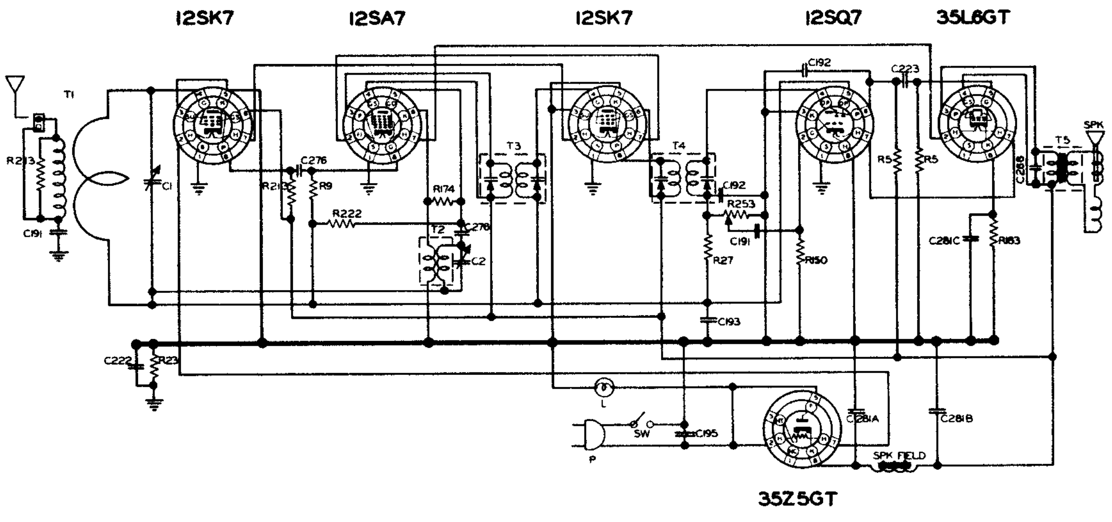
T	TYPE	PART NO.
1	ANTENNA COIL	00-17284
2	OSCILLATOR COIL	00-17285
3	FIRST IF COIL	29-16853
4	SECOND IF COIL	29-16854
5	OUTPUT TRANSF	00-16869

MISCELLANEOUS UNITS

SYMBOL	DESCRIPTION	PART NO
SW	LINE SWITCH	17-16857
P	LINE CORD & PLUG ASSEMBLY	17-15844
SPK	SPEAKER ASSEMBLY	17-16843

I.F. PEAK 455 K.C.
BALANCE 1400 K C - CHECK AT 600 K.C.
NOBLITT-SPARKS INDUSTRIES, INC.
COLUMBUS, INDIANA

ARVIN HOME RADIO - CHASSIS RE-98



RESISTORS

R	OHM	W	PART NO
9	1 MEG.	1/4	17-2080
222	10 MEG.	1/4	17-14377
174	20 K	1/4	17-14281
27	2 MEG.	1/4	17 4788
150	5 MEG.	1/4	17-14242
5	500 K	1/4	17-2070
183	150	1/4	17-14318
213	10 K	1/4	17-14368
23	250 K	1/4	17-3011
253	1 MEG.	V.C.	17-17291

CONDENSERS

C	CAPACITY	VOLT	PART NO
222	2	400	17-14317
192	.00025	600	17-14273
191	.01	400	17-14272
193	.05	200	17-14274
223	.002	400	17-14318
286	.03	400	17-14392
195	.05	400	17-14276
278	.00005	600	17-14404
1	TWO GANG		17246
2	VARIABLE		
281A	40 MFD	150	17-1441?
281B	20 MFD	150	
281C	20 MFD	25	

COILS & TRANSFORMERS

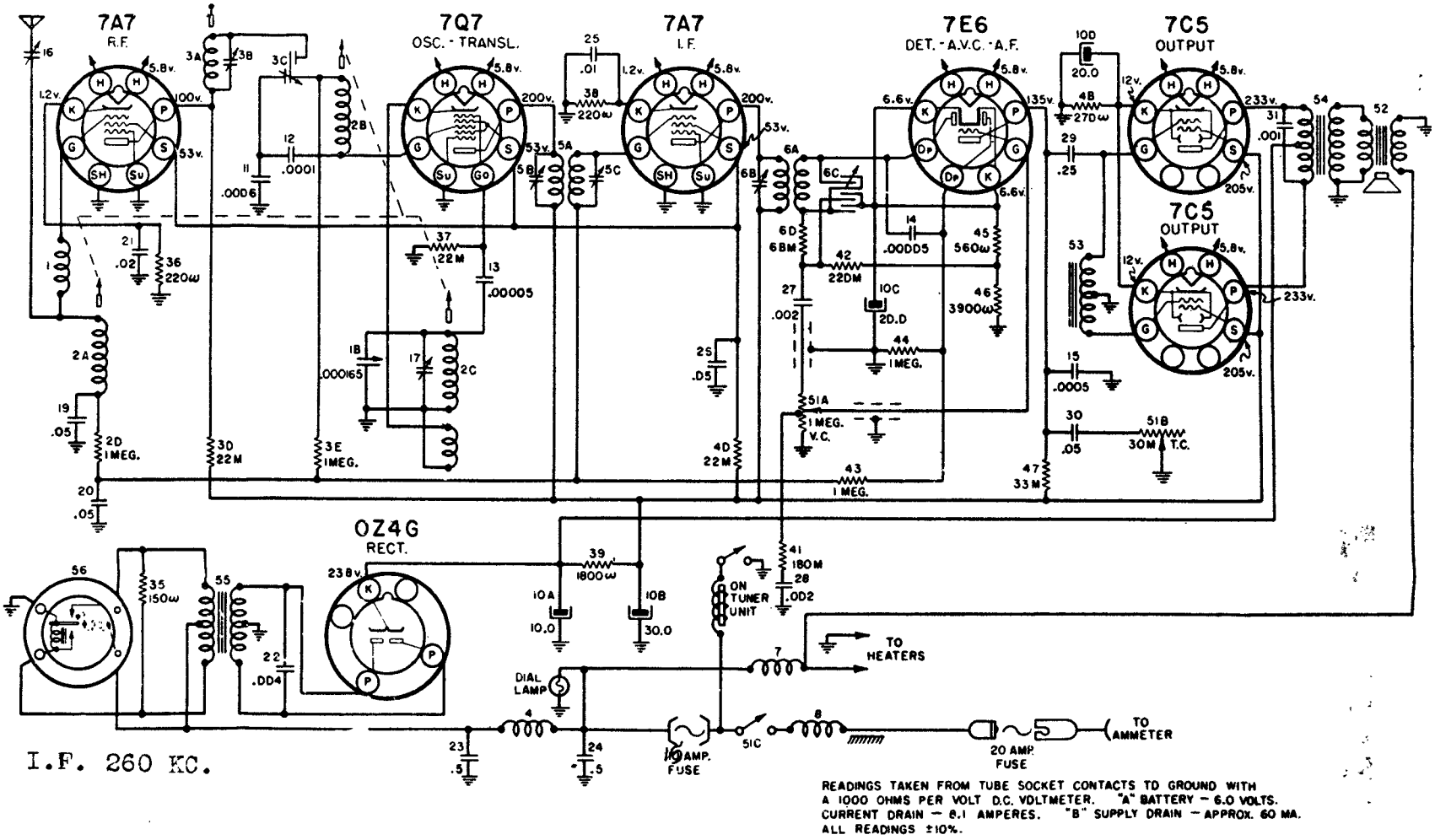
T	DESCRIPTION	PART NO
1	ANTENNA LOOP ASSY	00-17298
2	OSCILLATOR COIL	00-17299
3	FIRST IF COIL	00-17300
4	SECOND IF COIL	00-17301
5	OUTPUT TRANSF	00-17302

MISCELLANEOUS UNITS

SYMBOL	DESCRIPTION	PART NO
SPK	SPEAKER 5 INCH E.M	17-17251
P	LINE CORD & PLUG ASSY	17-17303
L	DIAL LIGHT - MAZDA C 7 7 WATTS	17-16701
SW	VOLUME CONTROL & SW	17-17291

I.F. PEAK 455 K.C.
BALANCE 1400 K.C. - CHECK AT 600 K.C.

NOBLITT-SPARKS INDUSTRIES, INC
COLUMBUS, INDIANA



Oldsmobile Models 982282 (similar to Model 982215)

All of the adjustable condensers in this receiver are very accurately adjusted at the factory and will need no further adjustment (excepting antenna condenser "F") unless tampered with or a defective coil has been replaced. If realignment is found to be necessary, the circuits can be properly adjusted only with the use of a calibrated test oscillator or signal generator and an output meter.

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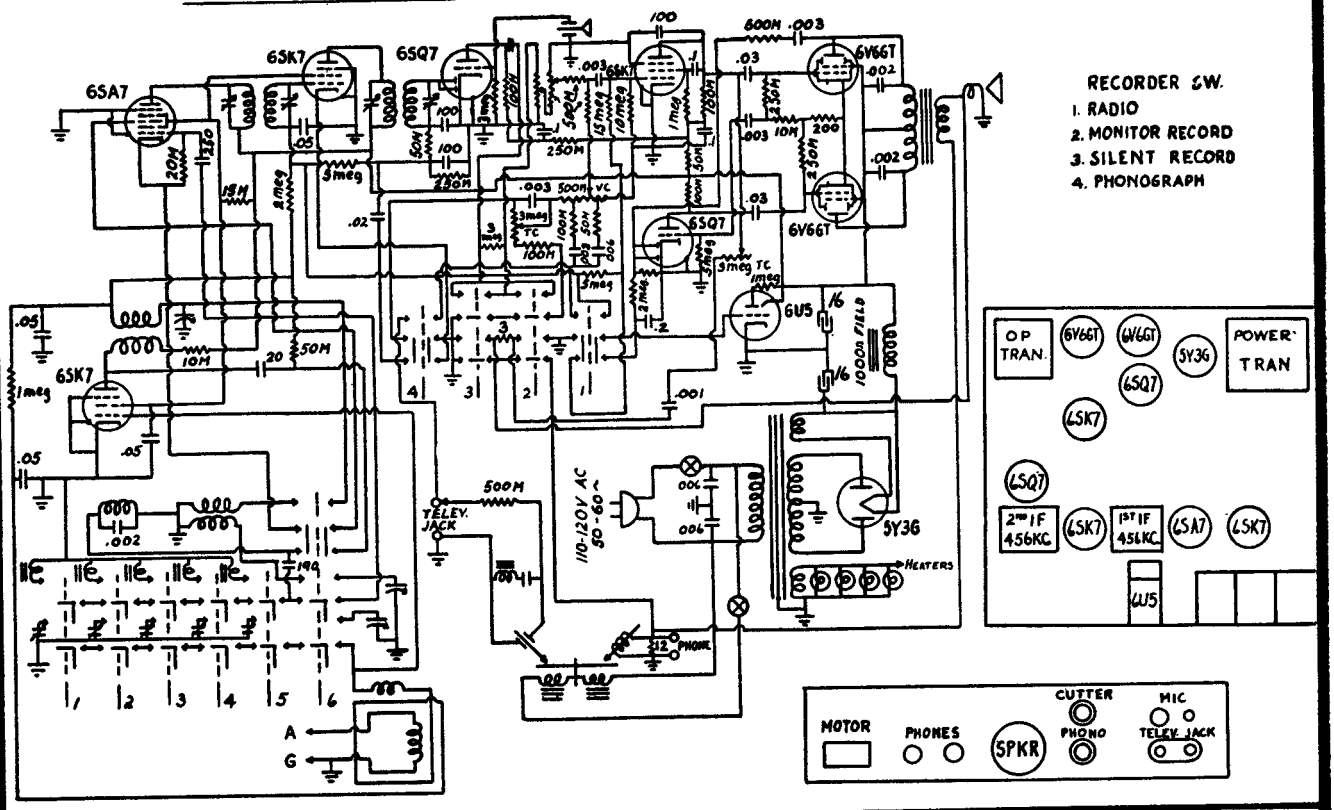
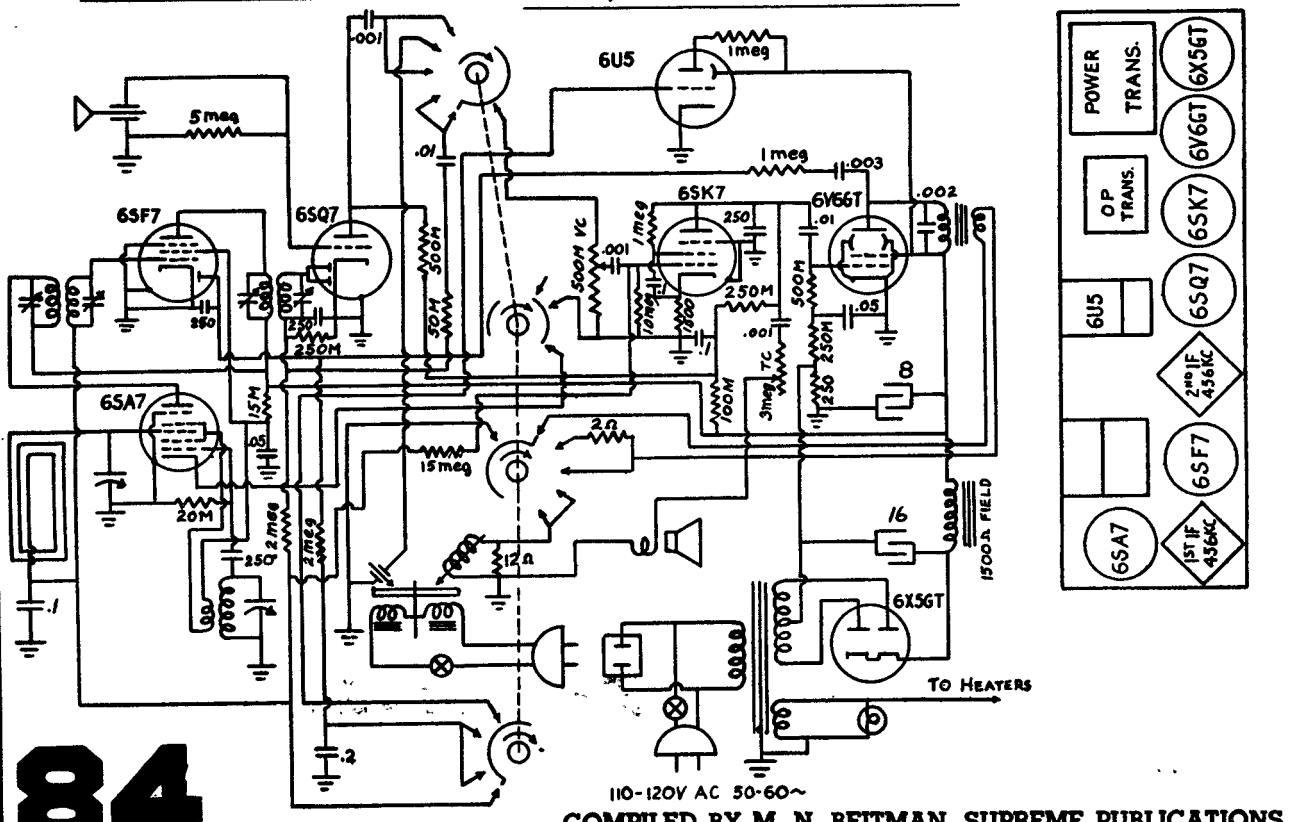
PACKARD BELL MODEL 51BPR



PACKARD BELL MODELS 67B, 67BR, 67BPR, 67BPR DL, 67BA, 67BK, 67BKA.



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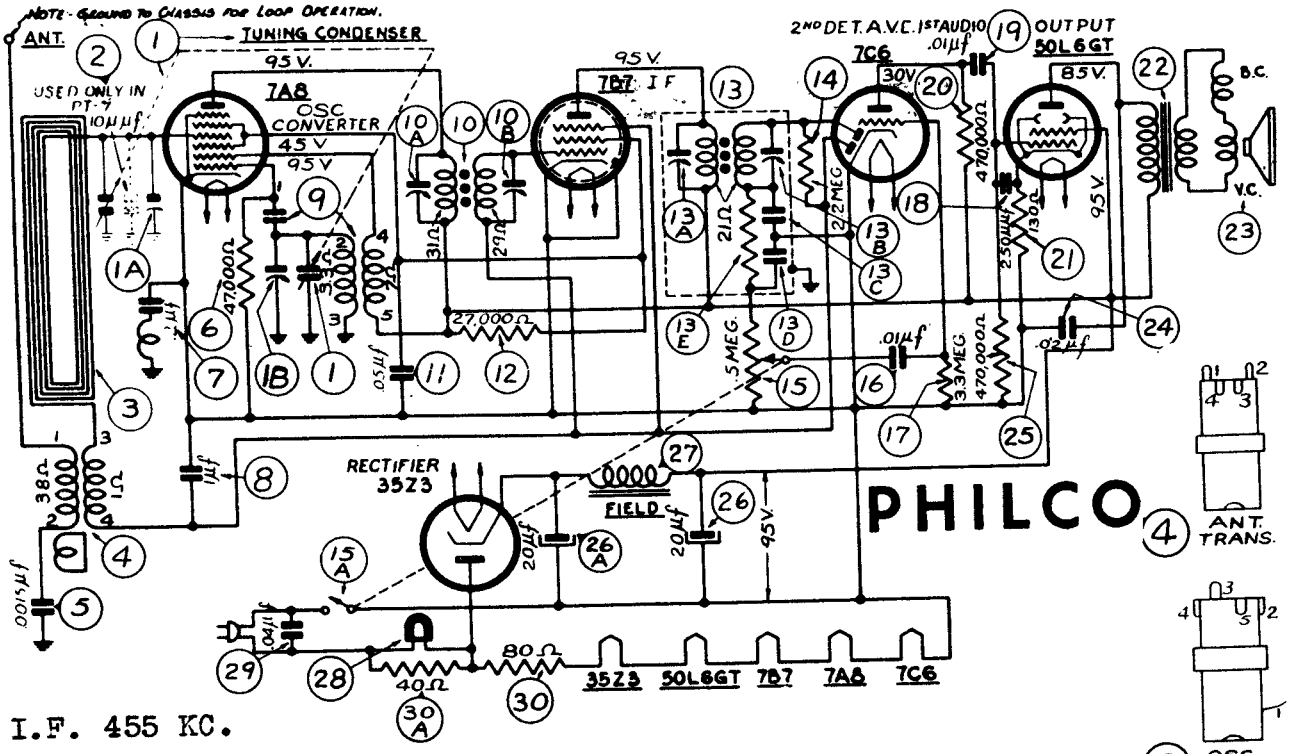
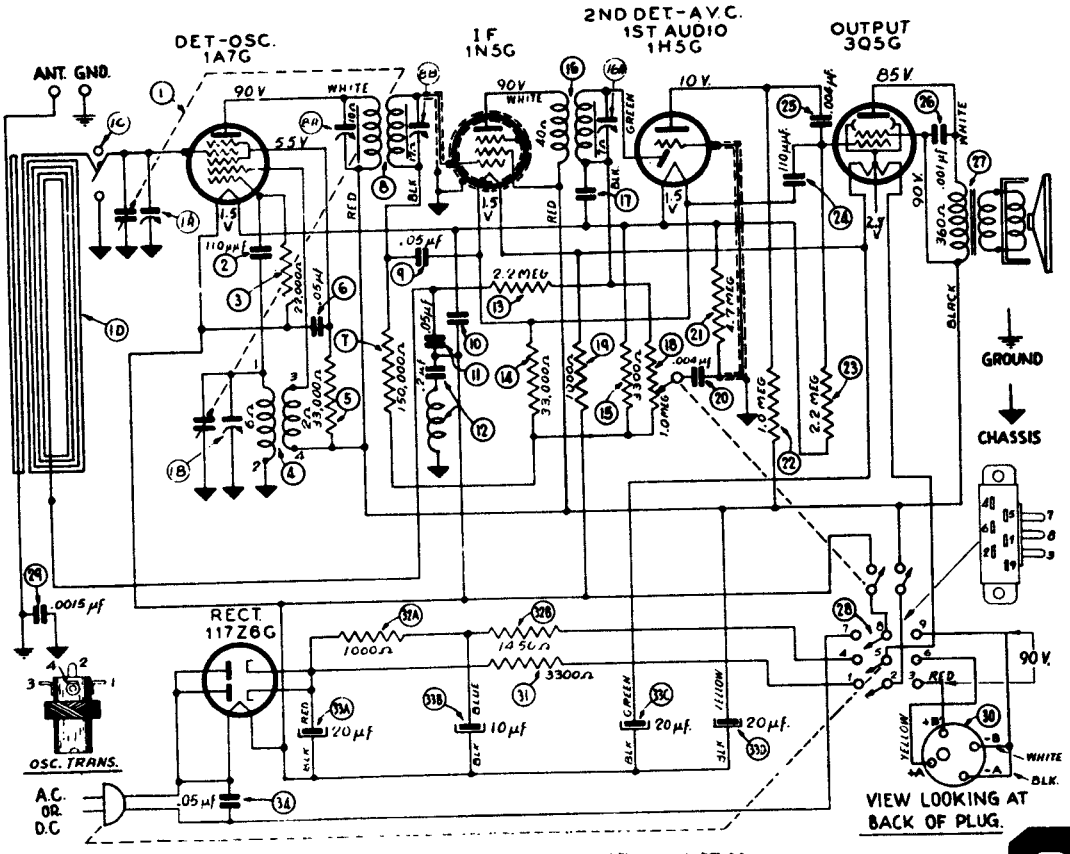


Models 42-PT-2, Code 121-122; 42-PT-4, Code 121-122; 42-PT-7, Code 121-122

D. C. Voltages indicated at the tube elements in the above diagram were measured with a 1000 ohms per voltmeter,



SCHEMATIC DIAGRAM—MODEL 42-PT-87, 42-PT-88

SOCKET VOLTAGES INDICATED ON THE DIAGRAM WERE MEASURED WITH A 1000 OHM PER VOLTMETER.

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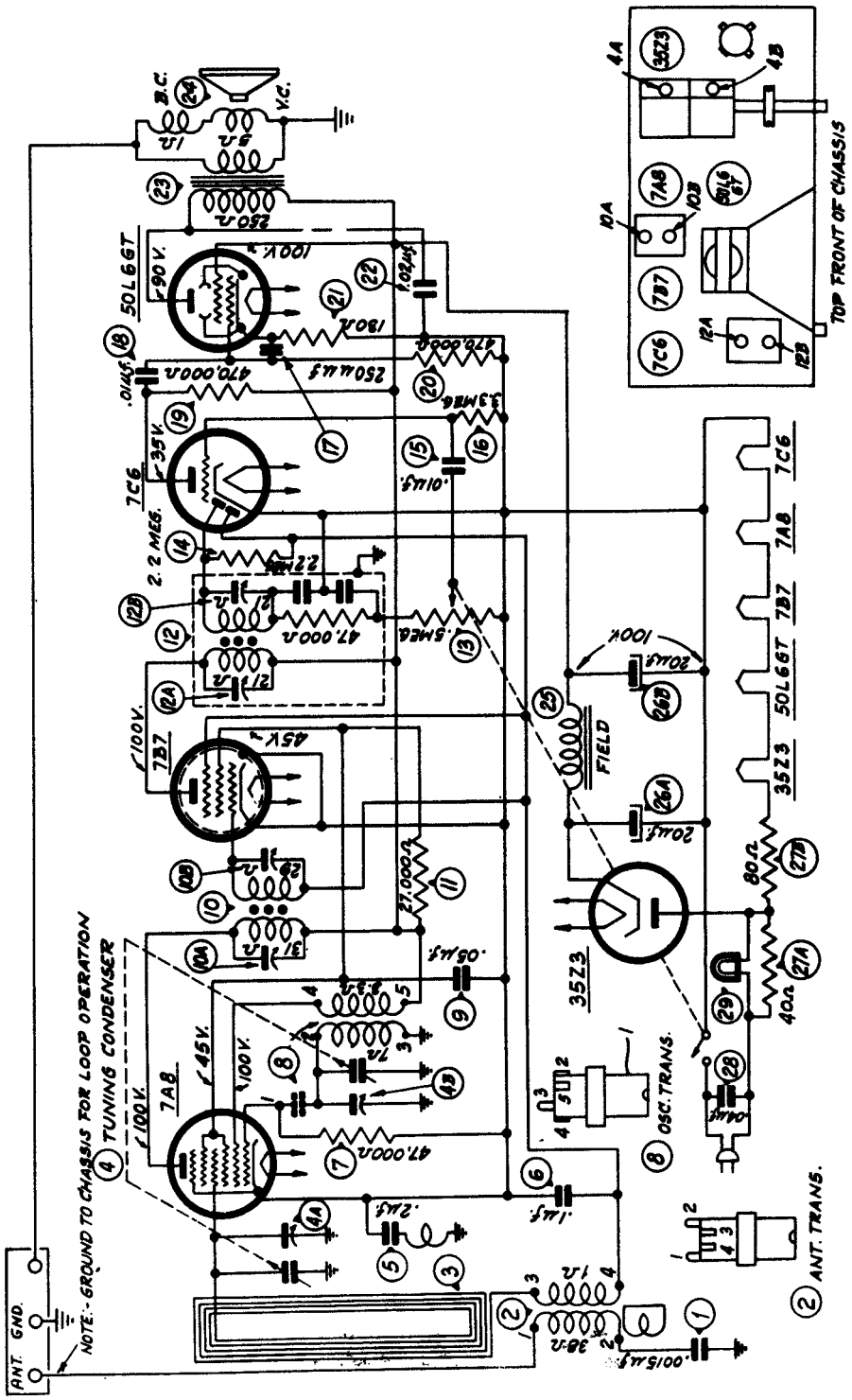
PHILCO Models PT-91, PT-92, PT-93, PT-94, PT-95



SCHEMATIC DIAGRAM — MODELS PT-91, PT-92, PT-93, PT-94, PT-95

The tube socket voltages indicated on the diagram were measured with a 1,000 ohms per voltmeter — PHILCO Model 027, line voltage 117 volts A.C.

Operations in Order	SIGNAL GENERATOR		RECEIVER		
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order
1.	Ant. Section of tuning	455 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max.	12A, 12B, 10A, 10B
2.	Loop see above instructions	1500 K.C.	1500 K.C.	Vol. Max.	4B
3.	Loop see above instructions	1500 K.C.	1500 K.C.	Vol. Max.	4A

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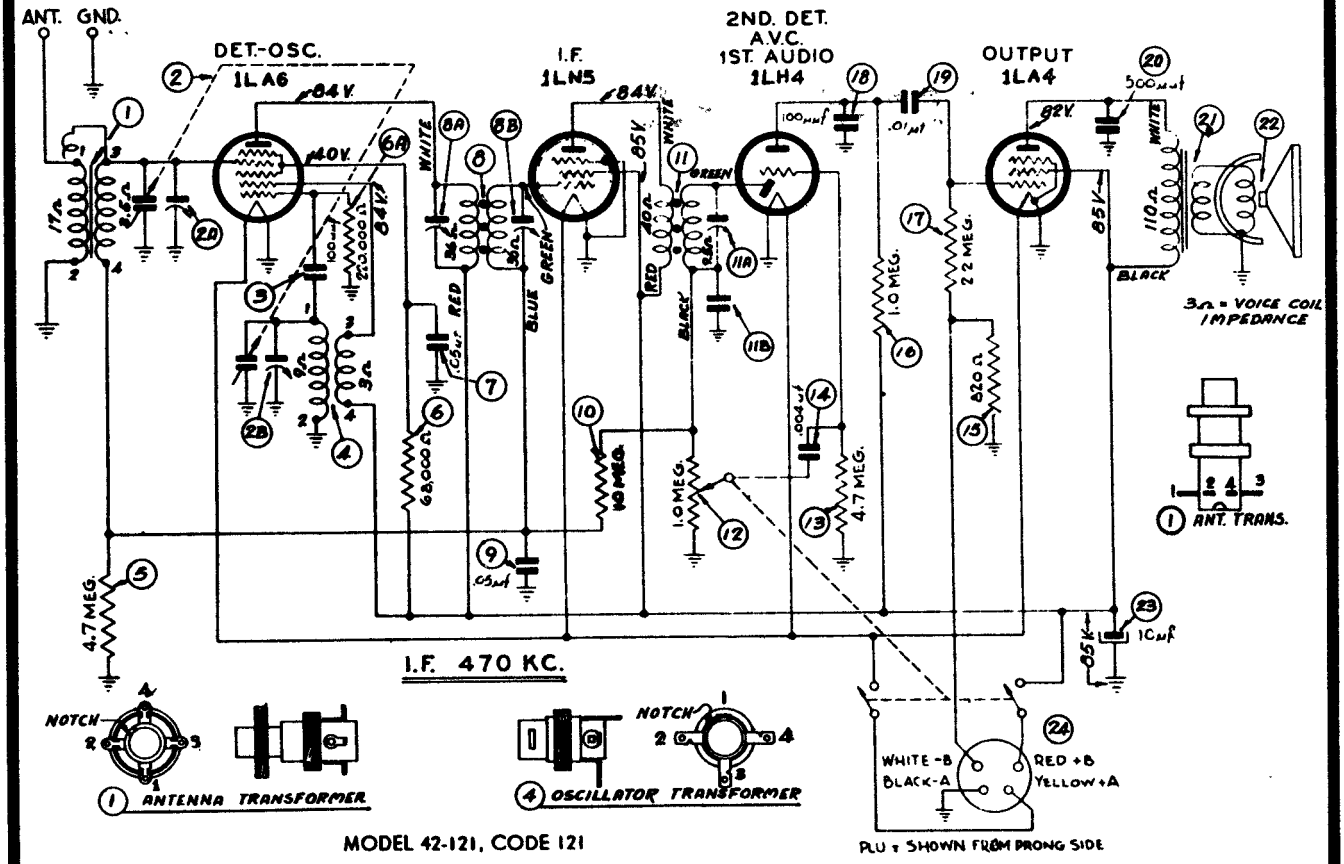
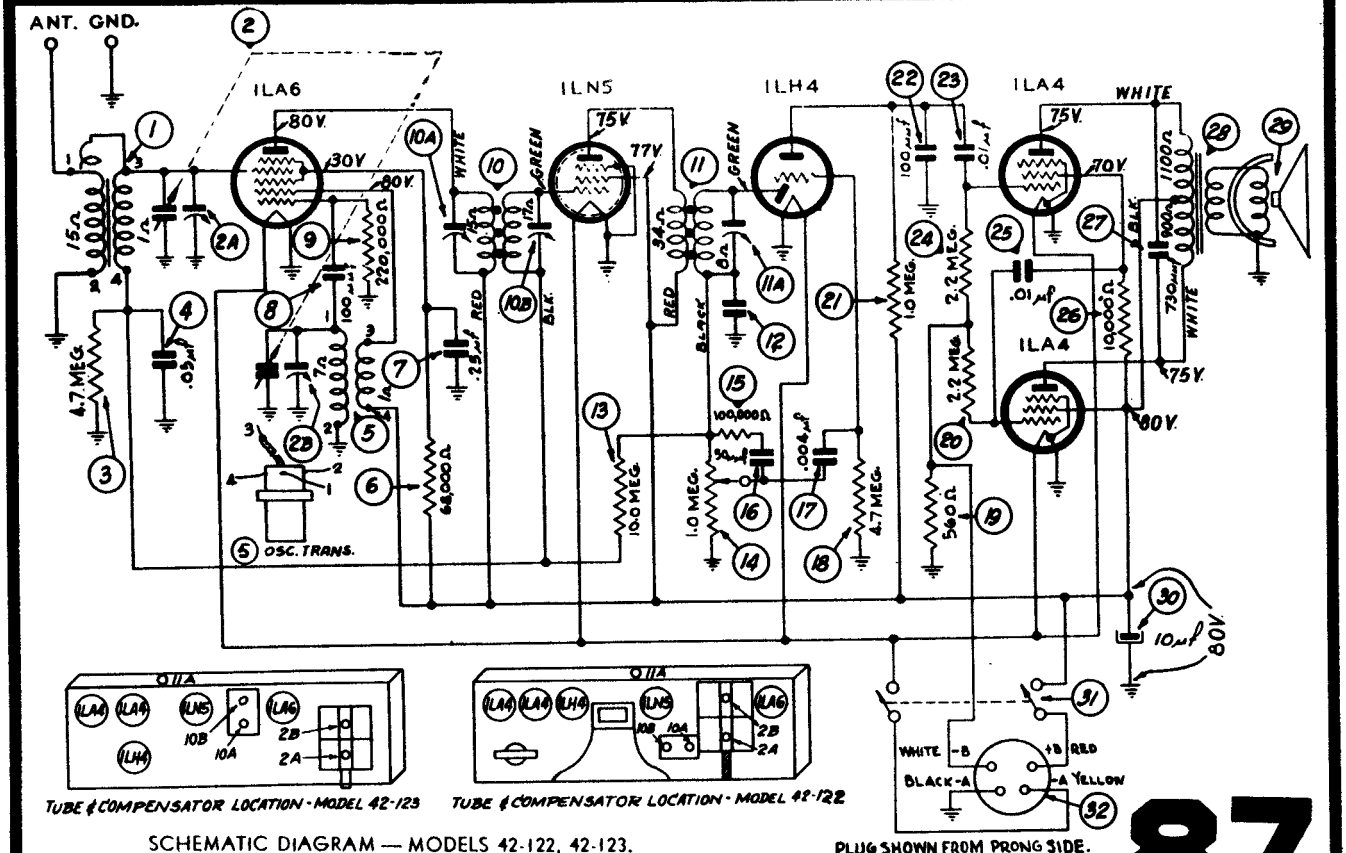


MODEL 42-121, CODE 121



SCHEMATIC DIAGRAM — MODELS 42-122, 42-123.

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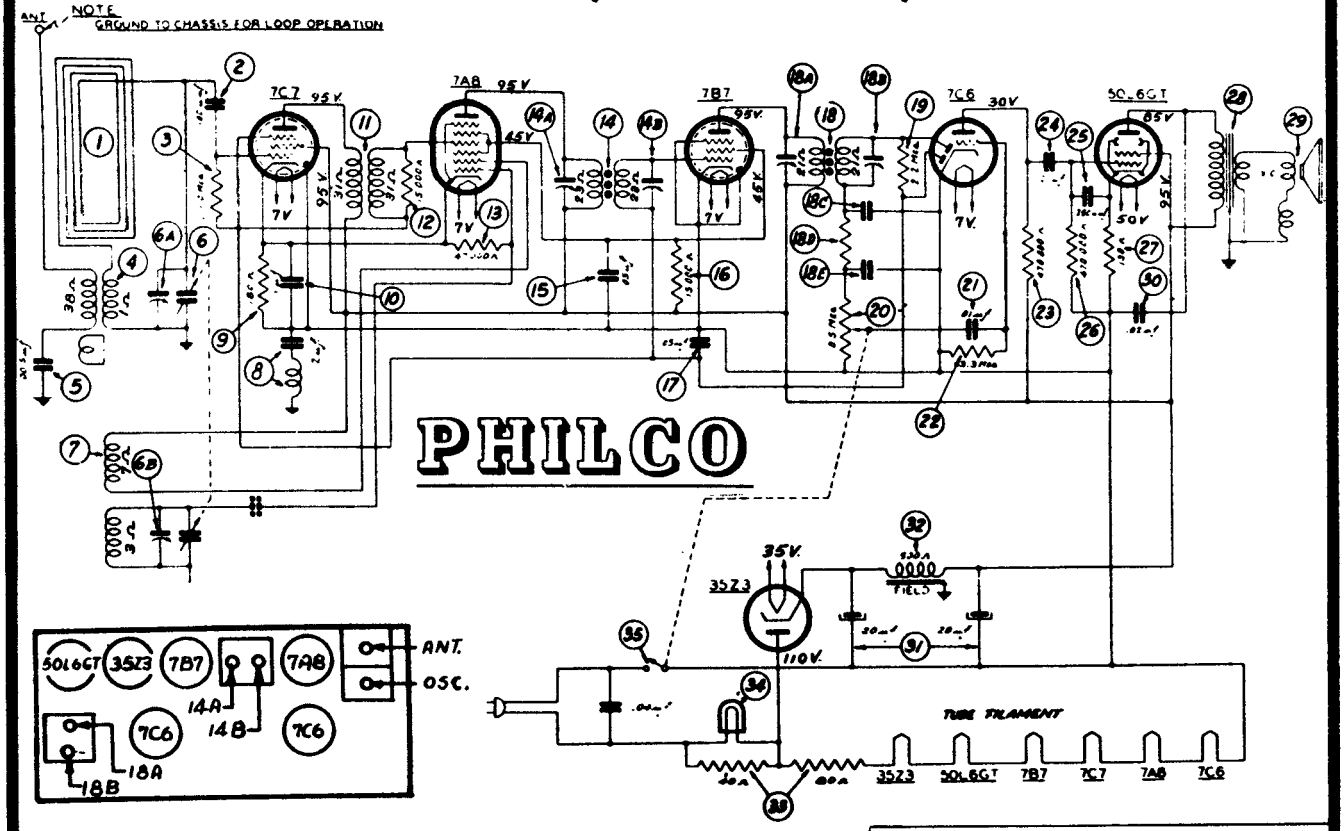
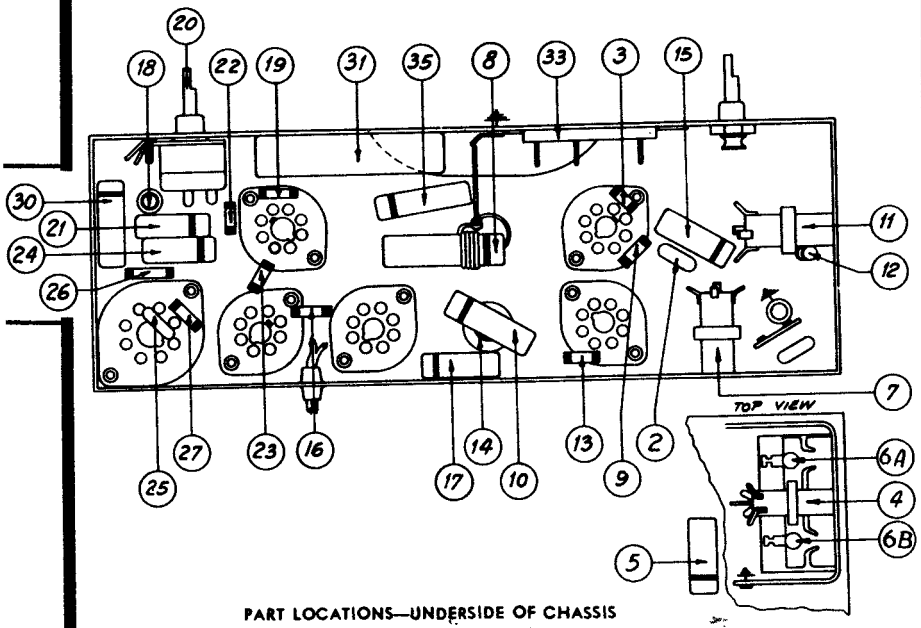
MODELS 42-321, 42-PT-10, CODE 121





PART LOCATIONS—UNDERSIDE OF CHASSIS

SCHE. No.	DESCRIPTION	PART No.
1	Loop Aerial (42-321T1)	76-1196
	Loop Aerial (PT-10) Part of Cabinet.	
2	Mica Condenser (100 mmfd.)	60-110157
3	Resistor (1.0 megohms)	33-510154
4	Aerial Transformer	32-3394
5	Condenser (.0015 mfd., 600 volts)	30-4621
6	Tuning Condenesr	31-2527
	Pointer	56-2076
	Spring (Drive Cord)	28-8954
	Shaft Assembly (42-321)	31-2591
	Shaft Assembly (PT-10)	31-2531
	Drive Cord	31-2529
7	Oscillator Transformer	32-3613
8	Condenser and Choke Assembly	76-1198
9	Resistor (180 ohms)	33-118336
10	Condenser (.11 mfd., 200 volts)	30-4586
11	R. F. Transformer	32-3595
12	Resistor (15,000 ohms)	33-315339
13	Resistor (47,000 ohms)	33-347339
14	1st I. F. Transformer	32-3614
15	Condenser (.05 mfd., 200 volts)	30-4519
16	Resistor (15,000 ohms)	33-315339
17	Condenser (.05 mfd., 200 volts)	30-4519
18	2nd I. F. Transformer	32-3604
19	Resistor (2.2 megohms)	33-522339
20	Volume Control	33-5469
21	Condenser (.01 mfd., 400 volts)	30-4572
22	Resistor (3.3 megohms)	33-533339
23	Resistor (470,000 ohms)	33-447339
24	Condenser (.01 mfd., 400 volts)	30-4572
25	Mica Condenser (250 mmfd.)	60-125157
26	Resistor (470,000 ohms)	33-447339
27	Resistor (130 ohms)	33-113336
28	Output Trans. (for Speaker 36-1533-9)	32-8164
29	Cone Assembly (for Speaker 36-1533-9)	36-4190
30	Condenser (.02 mfd., 400 volts)	30-4516
31	Electrolytic Condenser (20-20 mfd.)	30-2382
32	Field Coil (Replace Speaker 36-1533-9)	
33	Resistor (Wirewound, 40-80 ohms)	33-3408
34	Pilot Lamp	34-2068
35	Condenser (.04 mfd., 400 volts)	30-4119
	MISCELLANEOUS PARTS	
	Cabinet (42-321T)	10568A
	Cabinet (42-321T1)	10568B
	Cabinet (PT-10)	76-1195
	Cardboard Back (PT-10)	27-9817

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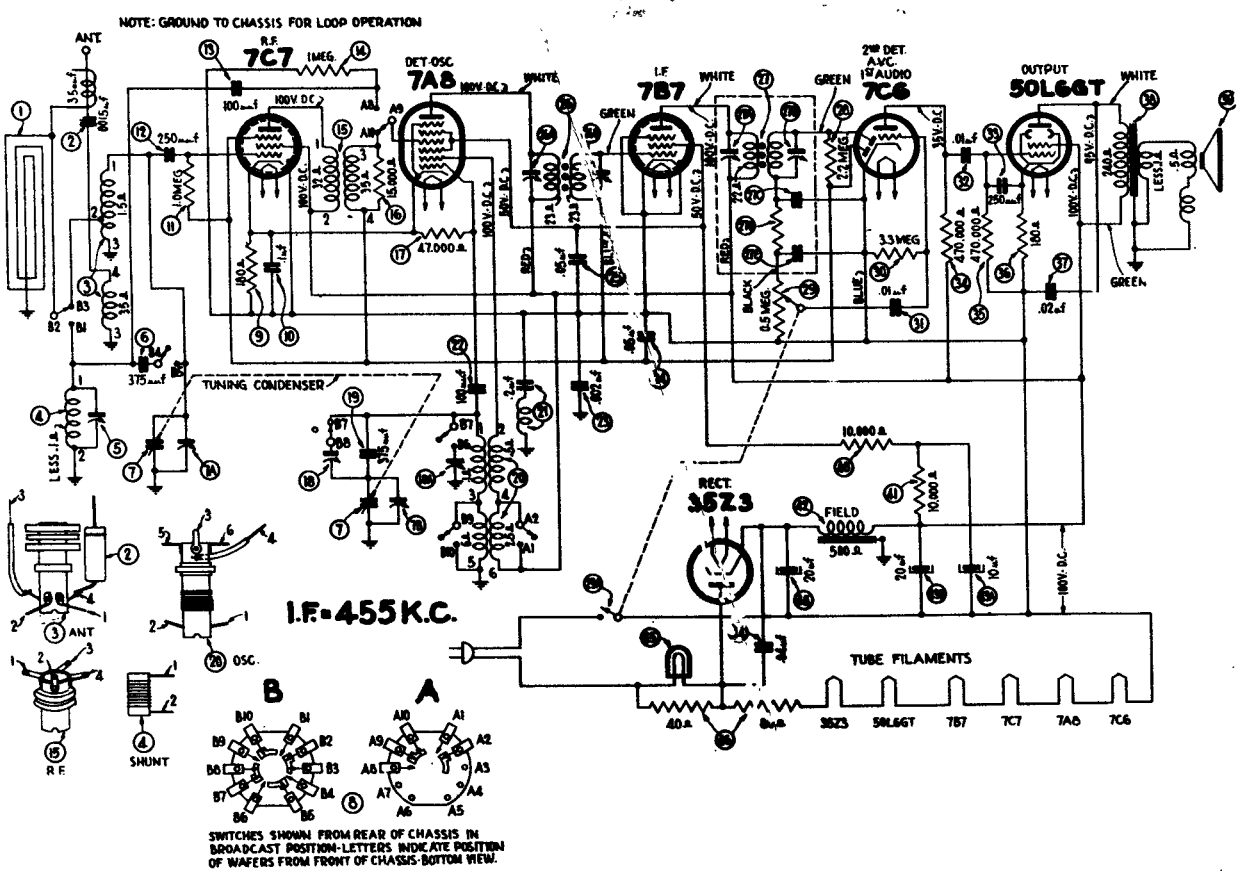
PHILCO MODEL 42-322, CODE 121



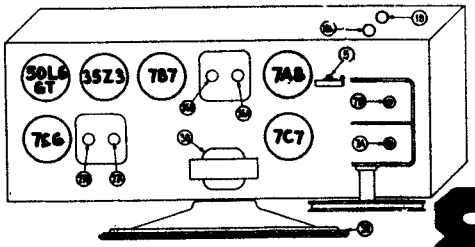
Operations In Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators In Order	
1	Lug on the Ant. Section of Tuning	455 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max. Range Switch Brdcst.	27A, 27B 26A, 26B	
2	Loop See Above Instructions	1500 K.C.	1500 K.C.	Vol. Max. Band Switch Brdcst.	7B, 7A	Nate A
3	Laap See Above Instructions	580 K.C.	580 K.C.	Vol. Max. Band Switch Brdcst.	(18)	Roll Tuning Condenser
4	Laap See Abave Instructians	Repeat Operatian 2				
5	Loop See Abave Instructians	15 M.C.	15 M.C.	Band Switch S.W.	(18A, 5) Nate B	Roll Tuning Condenser When Padding 5

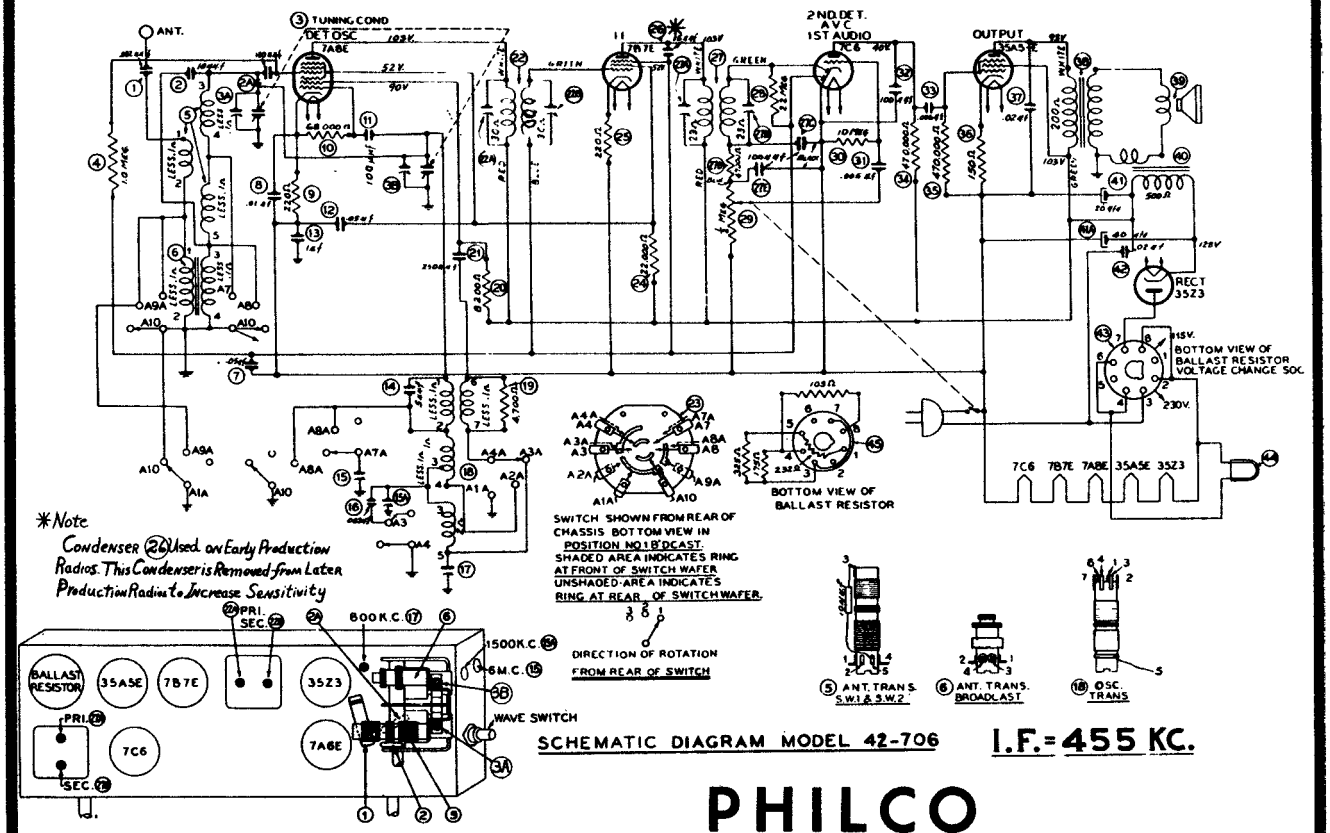
NOTE A—DIAL POINTER CALIBRATION: In order to adjust the receiver carrectly, the pointer must be adjusted to track properly with the tuning condenser. Ta do this, turn the tuning candenser ta the maximum capacity (plates fully meshed). With the condenser in this pasitian, set the tuning pointer an the first small line stamped in the scale plate an the left side.

NOTE B—Ta accurately adjust the high frequency oscillatar compensatar ta the fundamental instead af the image signal, turn the oscillatar campensatar (18A) ta the maximum capacity position (clackwise). From this positian slawly turn the campensatar caunter-clockwise until a second peak is abtained an the autput meter. Adjust the compensatar far maximum autput at this secand peak.

If the above procedure is carrectly performed, the image signal will be faund (much weaker) by turning the signal generatar dial 910 K.C. above the frequency being used an any high frequency range.

The aerial padder (5) must be adjusted ta maximum by rolling the tuning candenser. If twa signal peaks accur when turning the padder, adjust to maximum output on the first signal peak from the tight position (screw all the way dawn) of the padder.

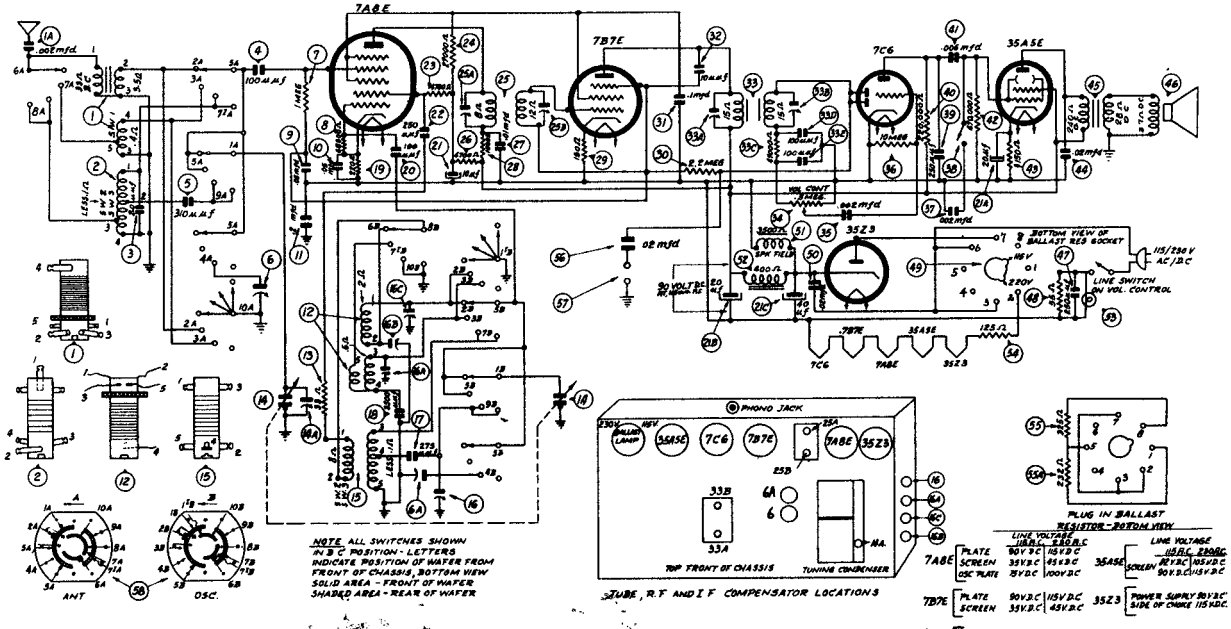




SCHEMATIC DIAGRAM MODEL 42-706 **I.F. = 455 KC.**

PHILCO

Philco Radio



SCHEMATIC DIAGRAM MODEL 42-717

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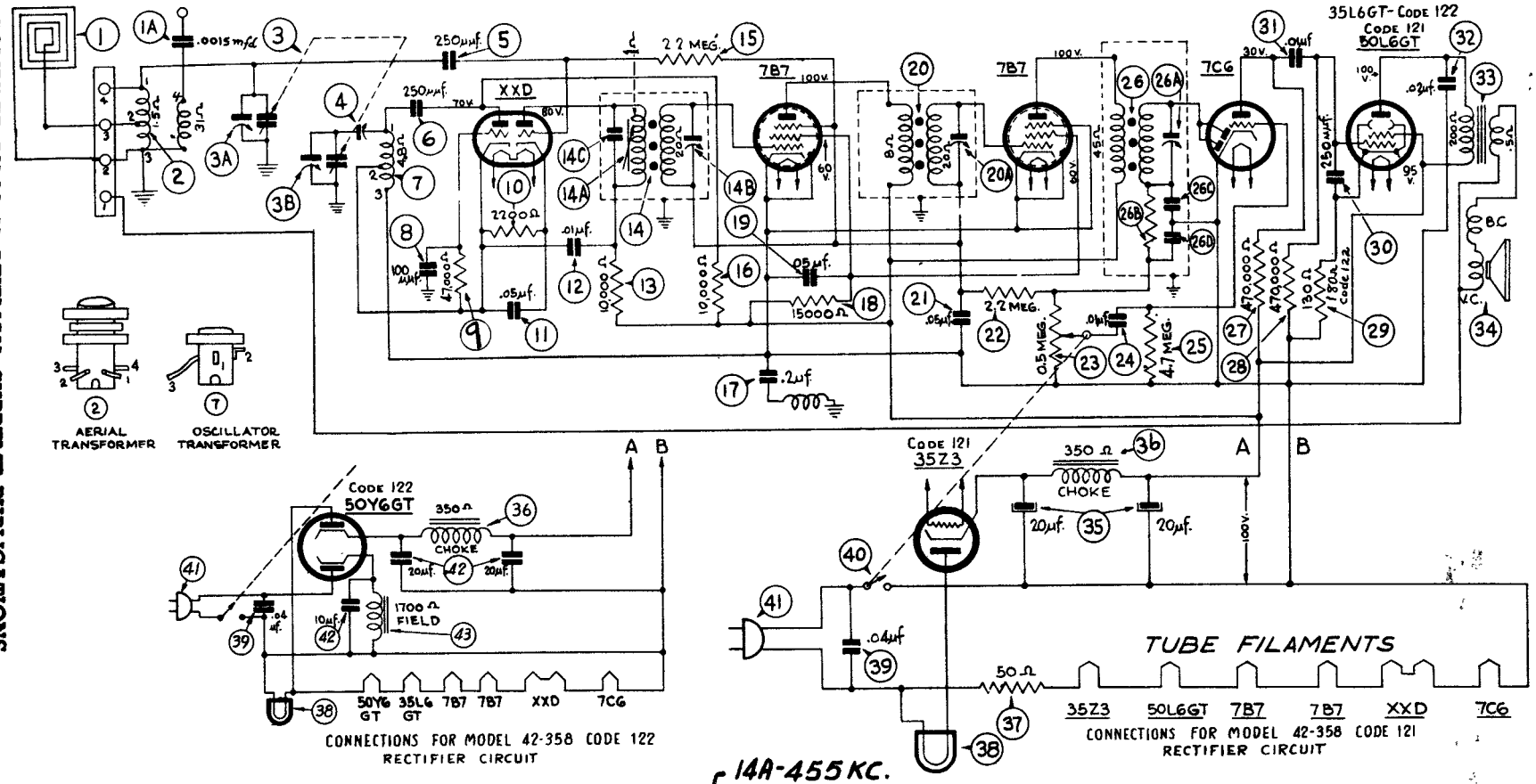

DIAGRAM—Model 42,358, Codes 121-122

PHILCO

Intermediate Frequency: 455 KC.
Tuning Bands: 540 to 1620 KC.
Power Supply: 115 volts, A. C.-D. C.
Power Consumption: 35 watts (Code 121); 50 watts (Code 122)
Audio Output: 1 watt.

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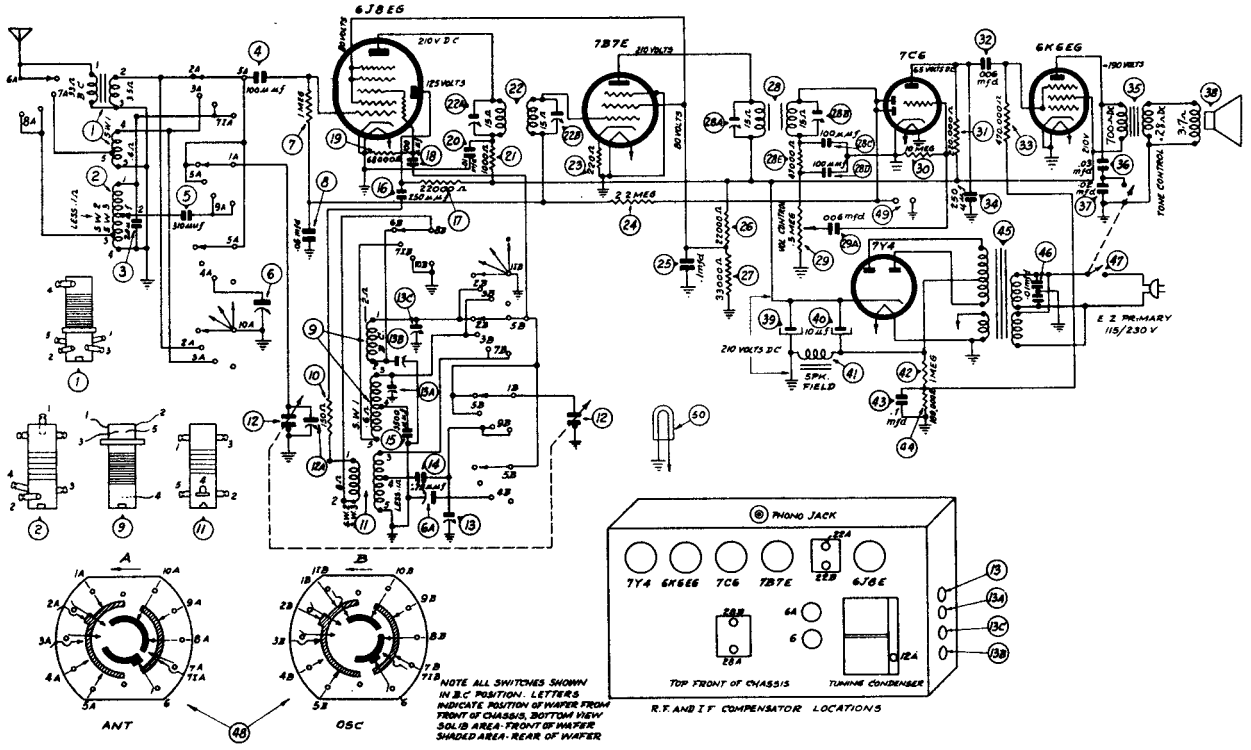
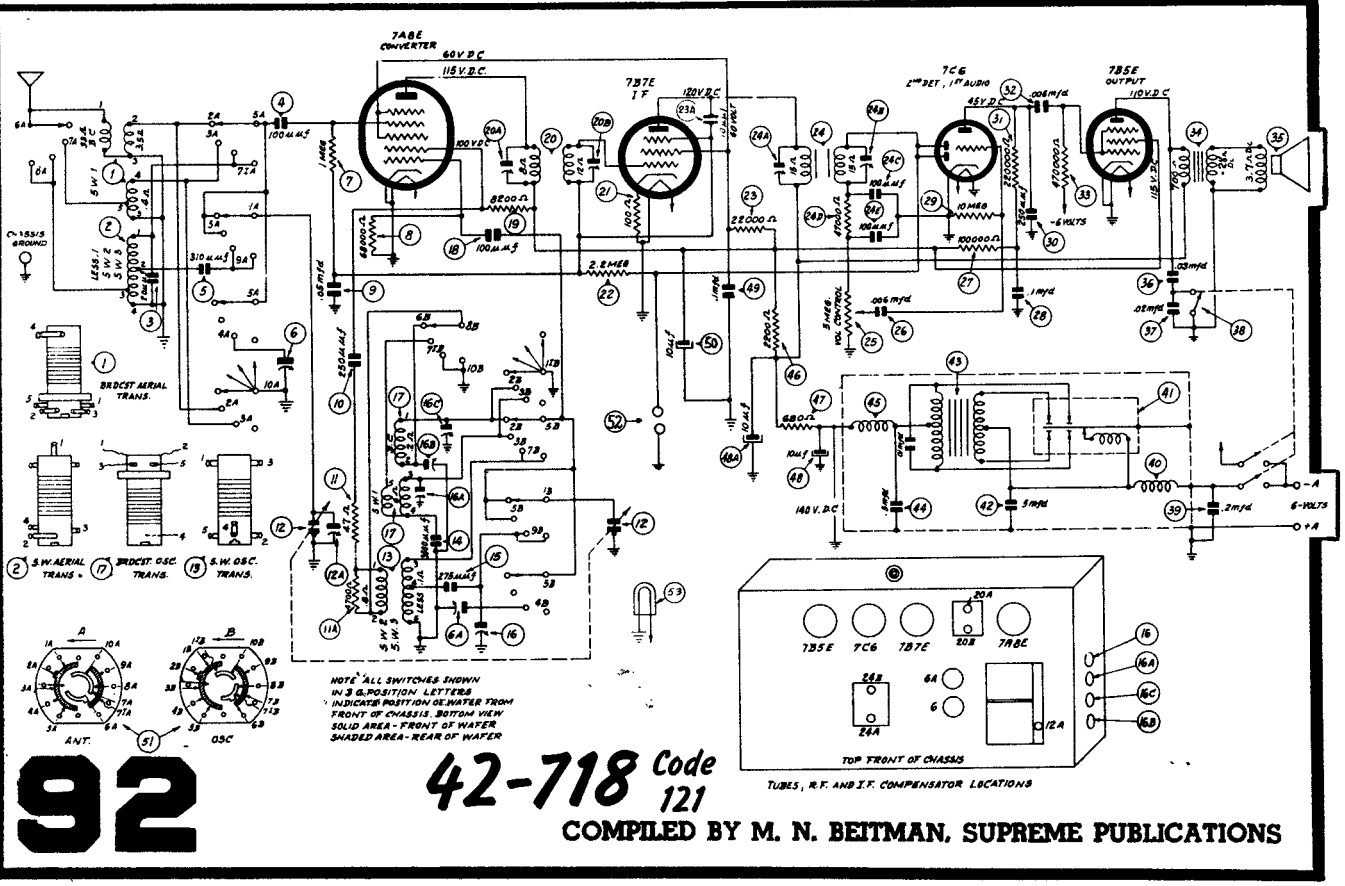
PHILCO Models 42-716





42-718 Code 121

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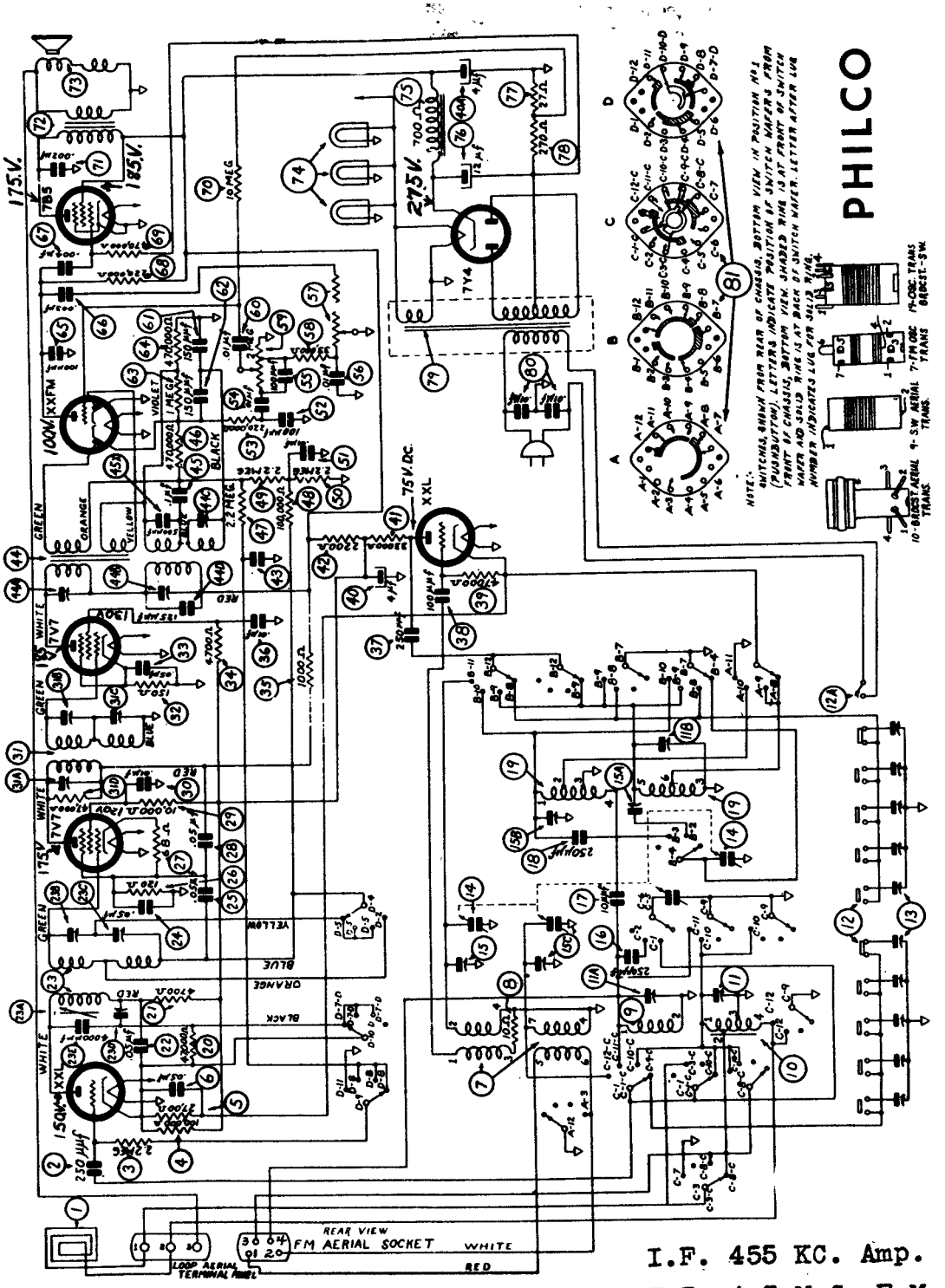
FREQUENCY MODULATION Model 42-350, Code 121

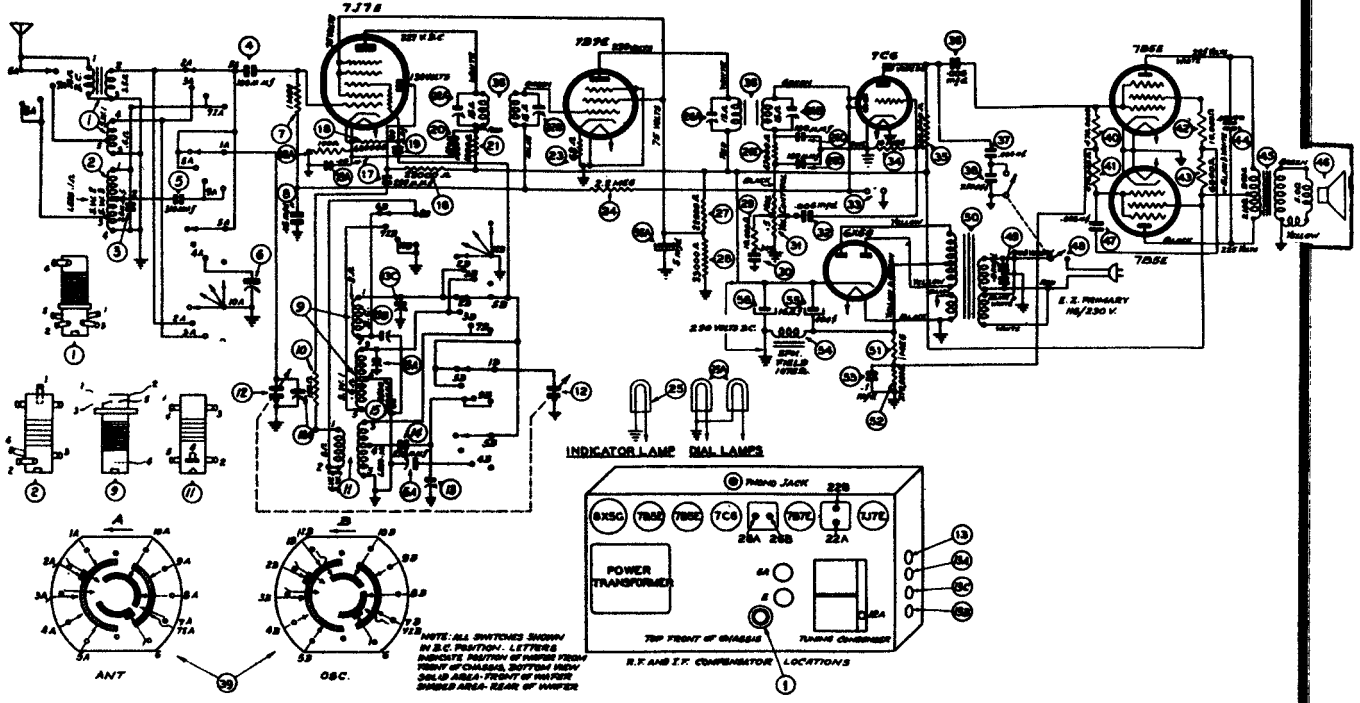


I.F. 455 KC. Amp.

I.F. 4.3 M.C. F.M.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

PHILCO Model 42-724, Code 121

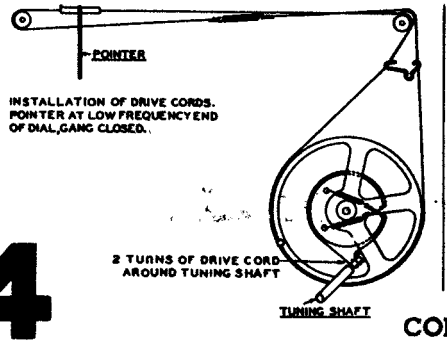


Operations In Order	SIGNAL GENERATOR			RECEIVER			SPECIAL
	Output Connections to Radio	Dummy Aerial Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
1	Lug of aerial tuning cond.	.1 mfd.	455 K.C.	580 K.C.	Band Switch "Brdcst" Volmax	26A, 26B, 22A, 22B	
2	Aerial	400 ohms	21 M.C.	21 M.C.	Band Switch S. W. 3	13, 12A	Note B Note C
3	Aerial	400 ohms	12 M.C.	12 M.C.	Band Switch S. W. 2	6A, 6	Note C
4	Aerial	400 ohms	6 M.C.	6 M.C.	Band Switch S. W. 1	13A,	
5	Aerial	200 mmfd.	1500 K.C.	1500 K.C.	Band Switch "Brdcst"	13C	
6	Aerial	200 mmfd.	580 K.C.	580 K.C.	Band Switch "Brdcst"	13B	Roll tuning condenser
7	Aerial	200 mmf.	1500 K.C.	1500 K.C.	Band Switch "Brdcst"	13C	

NOTE A—The "Dummy Aerial" consists of a condenser or resistor connected in series with the signal generator output lead (highside). Use the capacity or resistance as specified in each step of the above procedure.

NOTE B—Dial Calibration: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity) set the dial pointer on the first mark on the left edge (low frequency end) of the broadcast scale.

NOTE C—When adjusting the osc. compensators, be sure to tune in the fundamental signal (21 M.C.) (12 M.C.) instead of the image signal. If the compensator is correctly adjusted the image signal will be found by turning the signal generator dial 910 K.C. above the fundamental signal which will be 21.910 M.C. or 12.910 M.C.



SIGNAL GENERATOR: Such as Philco Model 070, A.C. operated or Model 177 battery operated. These signal generators cover all frequencies required in aligning these models.

INDICATING DEVICE: To obtain maximum signal strength and accurate adjustments of the padders, a vacuum tube voltmeter similar to Philco Models 027 and 028 are recommended. These instruments also contain an audio output meter which may be used as an aligning indicator. The method of connecting either of these instruments is listed below.

ALIGNING TOOLS: Fibre handle screw driver, Philco Part No. 45-2610. Service Alianina Scale. Part No. 45-2909.

NOTE: The dial scale in these models is mounted on the cabinet. For convenience, when aligning the chassis outside of the cabinet, a special service aligning scale, Part No. 45-2909, is available. This service dial scale is attached to the dial background plate. If the radio is aligned in the cabinet, the cabinet dial scale is used.

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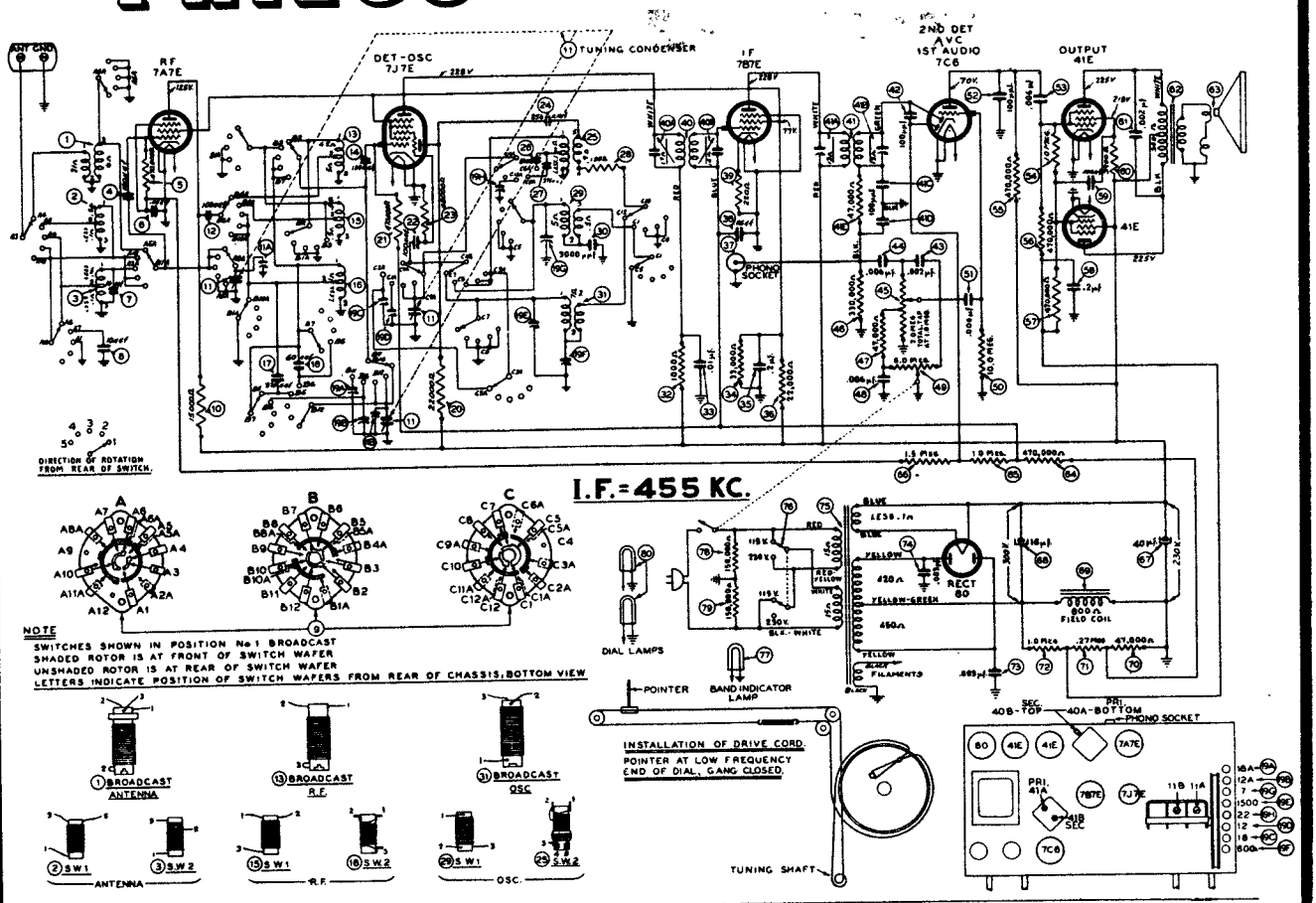
PHILCO MODEL 42-730, CODE 121



SIGNAL GENERATOR			RECEIVER			SPECIAL INSTRUCTIONS
Ouput Connections to Radio	Dummy Aerial Note A	Dial Setting	Dial Setting	Control Settings	Adjust Compensators	
Lug of aerial tuning cond.	.1 mfd.	455 KC.	580 KC.	Band Switch "Brdcst" Volmax	41A, 41B, 40A, 40B	
Aerial	400 ohms	22 MC.	22 MC.	Band Switch SW 2	19H, 11B, 11A	Note B Note C
Aerial	400 ohms	7 MC.	7 MC.	Band Switch SW 1	19G	Roll tuning cond. Note C
Aerial	200 mmfd.	1500 KC.	1500 KC.	Band Switch "Brdcst"	19E	Roll tuning cond.
Aerial	200 mmfd.	600 KC.	600 KC.	Band Switch "Brdcst"	19F	Roll tuning cond.
Aerial	200 mmf.	1500 KC.	1500 KC.	Band Switch "Brdcst"	19E	Roll tuning cond.
Aerial	400 ohms	18 MC.	18 MC.	Band Switch 16 & 19 M.	19C, 19A	Note C
Aerial	400 ohms	12 MC.	12 MC.	Band Switch 25 to 31 M.	19D, 19B	Note C

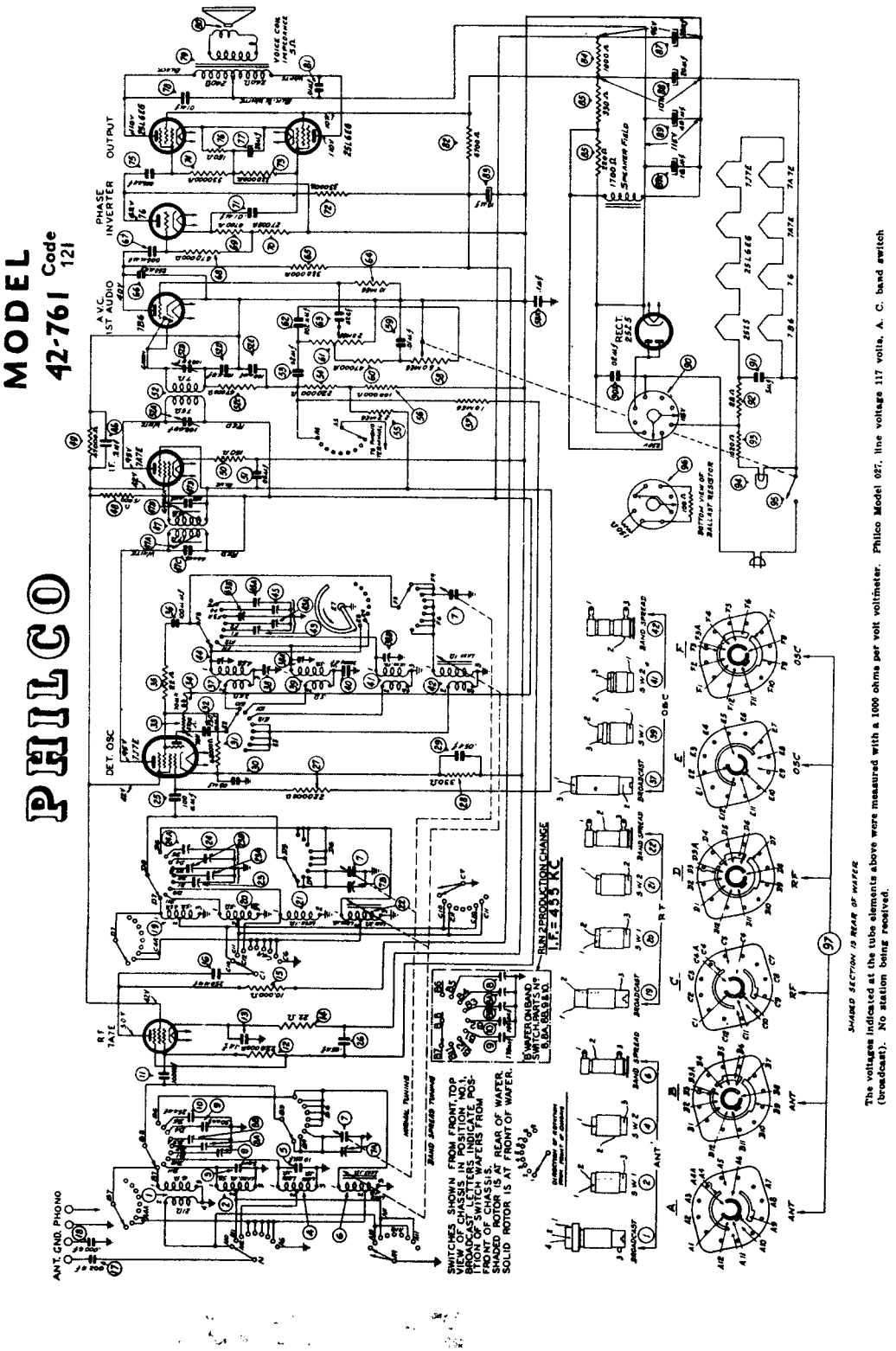
NOTE A—The "Dummy Aerial" consists of a condenser or resistor connected in series with the signal generator output lead (highside). Use the capacity or resistance as specified in each step of the above procedure.

NOTE B—Dial Calibration: In order to adjust the receiver correctly the dial must be aligned to track properly with the tuning condenser. To adjust the dial, proceed as follows: With the tuning condenser closed (maximum capacity) set the dial pointer on the first mark on the left edge (low frequency end) of the broadcast scale.

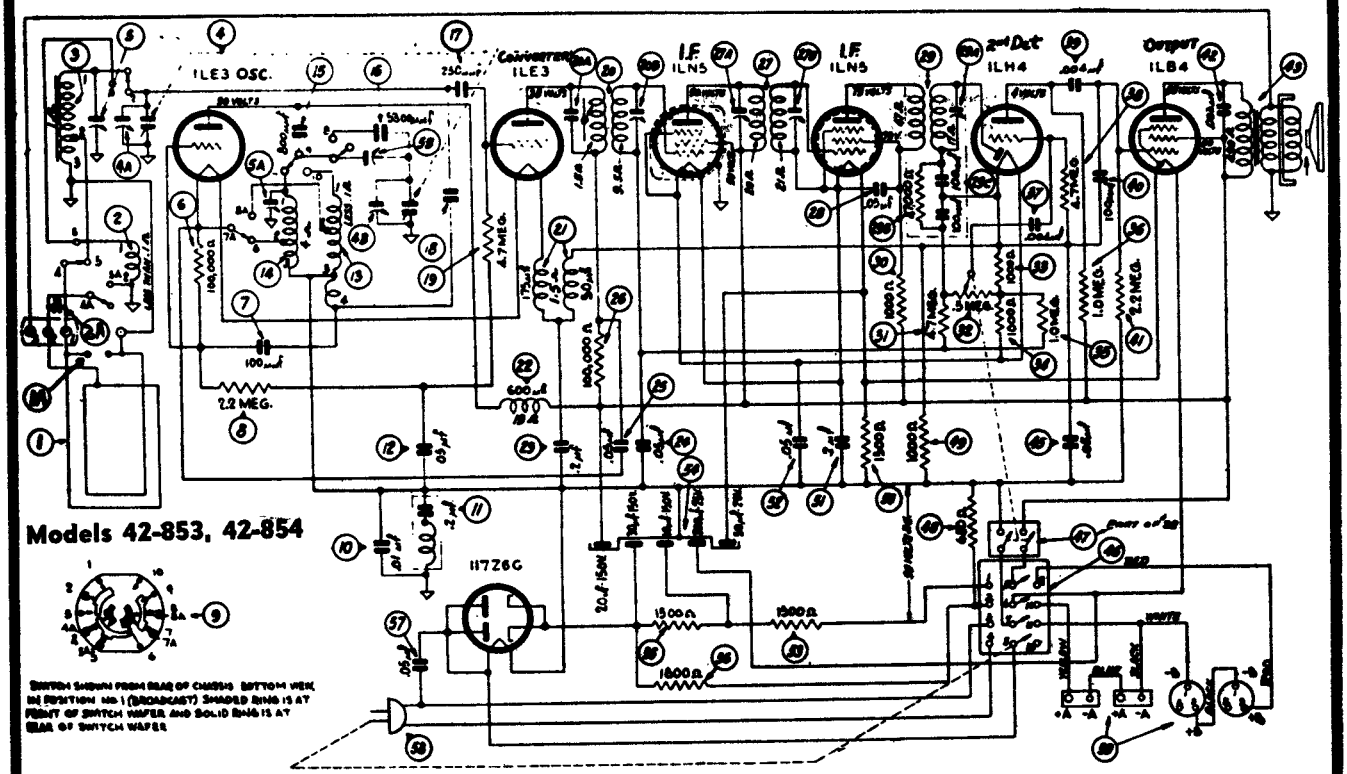
NOTE C—When adjusting the oscillator compensators, be sure to tune in the fundamental signal instead of the image signal. If the compensator is correctly adjusted the image signal will be found by turning the signal generator dial 910 KC. above the fundamental signal.

Tuning Band Frequencies:

Broadcast	540 to 1720 kc.
SW 1	2.3 to 7.5 mc.
SW 2	7.0 to 22 mc.
Spread Band 1	9.4 to 12 mc.
Spread Band 2	15.1 to 18 mc.

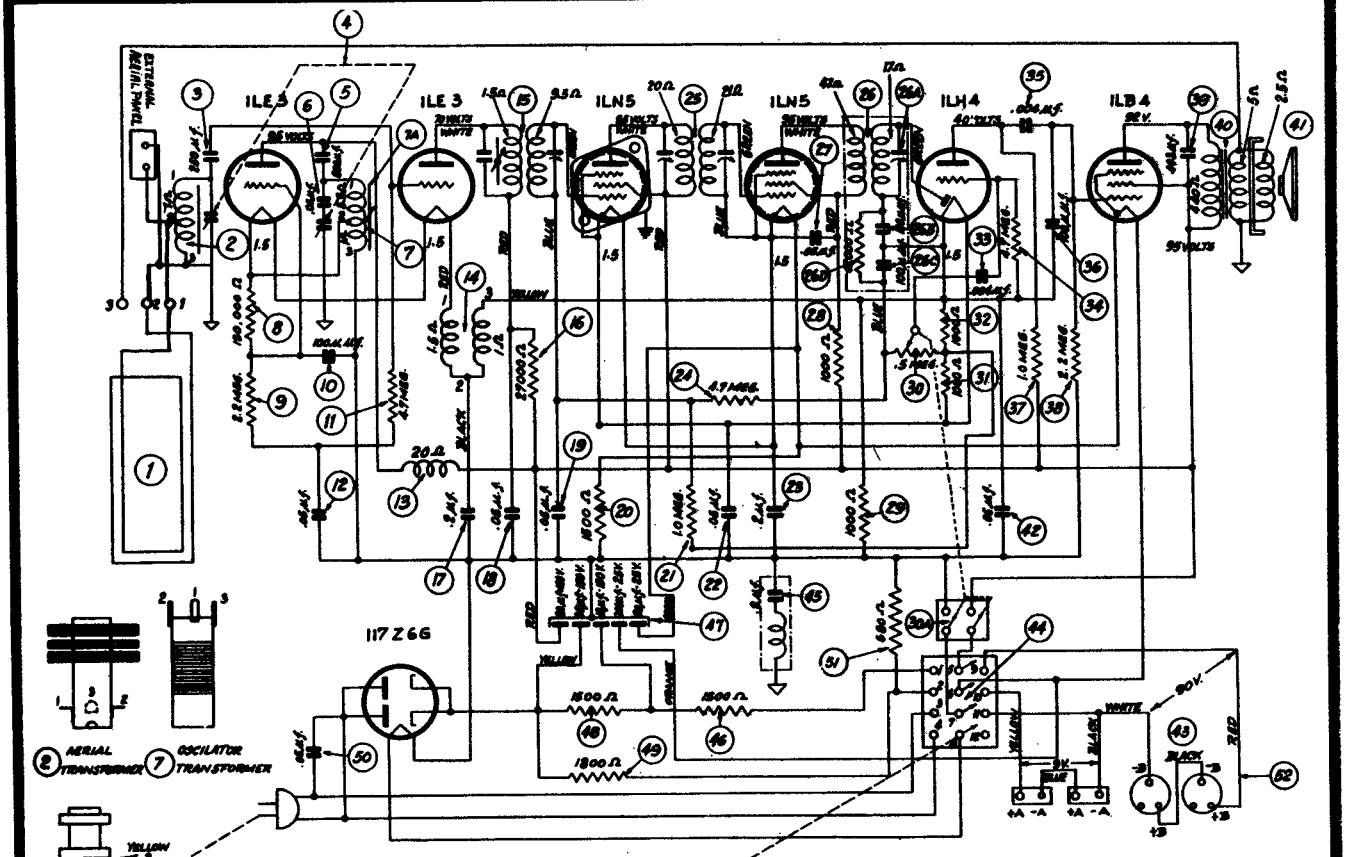

PHILCO
MODEL
42-761 Code 121
PHASE INVERTER
OUTPUT
A.V.C. 1ST AUDIO
DET. OSC
R.F. 1A7E
RECT. 25Z5
ANT. GND. PHONO
I.F. = 455 KC
SHADED SECTION IS REAR OF WAFER
The voltages indicated at the tube elements above were measured with a 1000 ohms per volt voltmeter. Philco Model 027, line voltage 117 volts, A. C. band switch (broadcast). No station being received.

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS



Models 42-853, 42-854

SWITCH SHOWN FROM REAR OF CHASSIS BOTTOM VIEW IN POSITION NO. 1 (BROADCAST) SHADED END IS AT FRONT OF SWITCH WAFER AND SOLID END IS AT REAR OF SWITCH WAFER



MODELS 42-842, 42-843, 42-844

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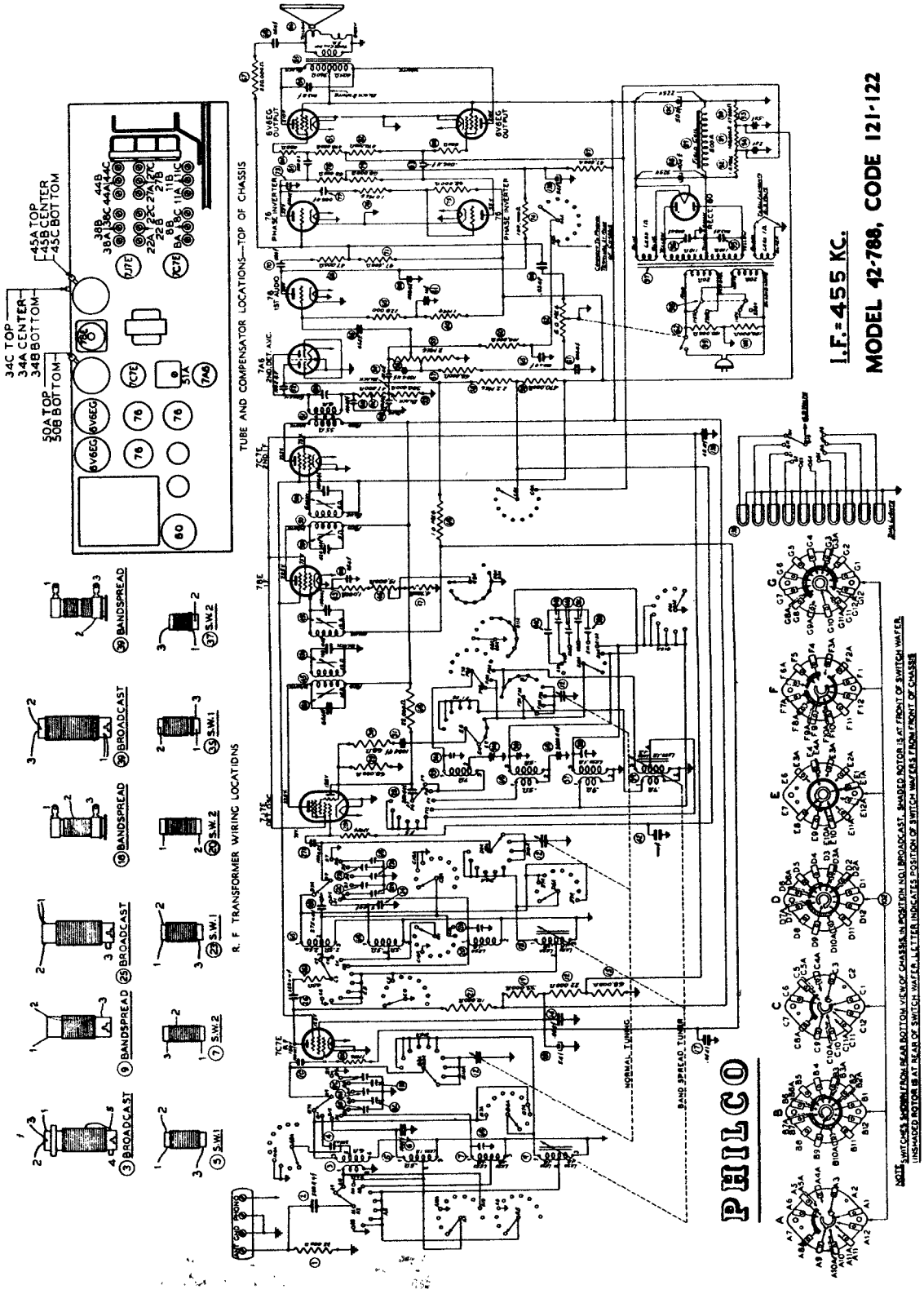
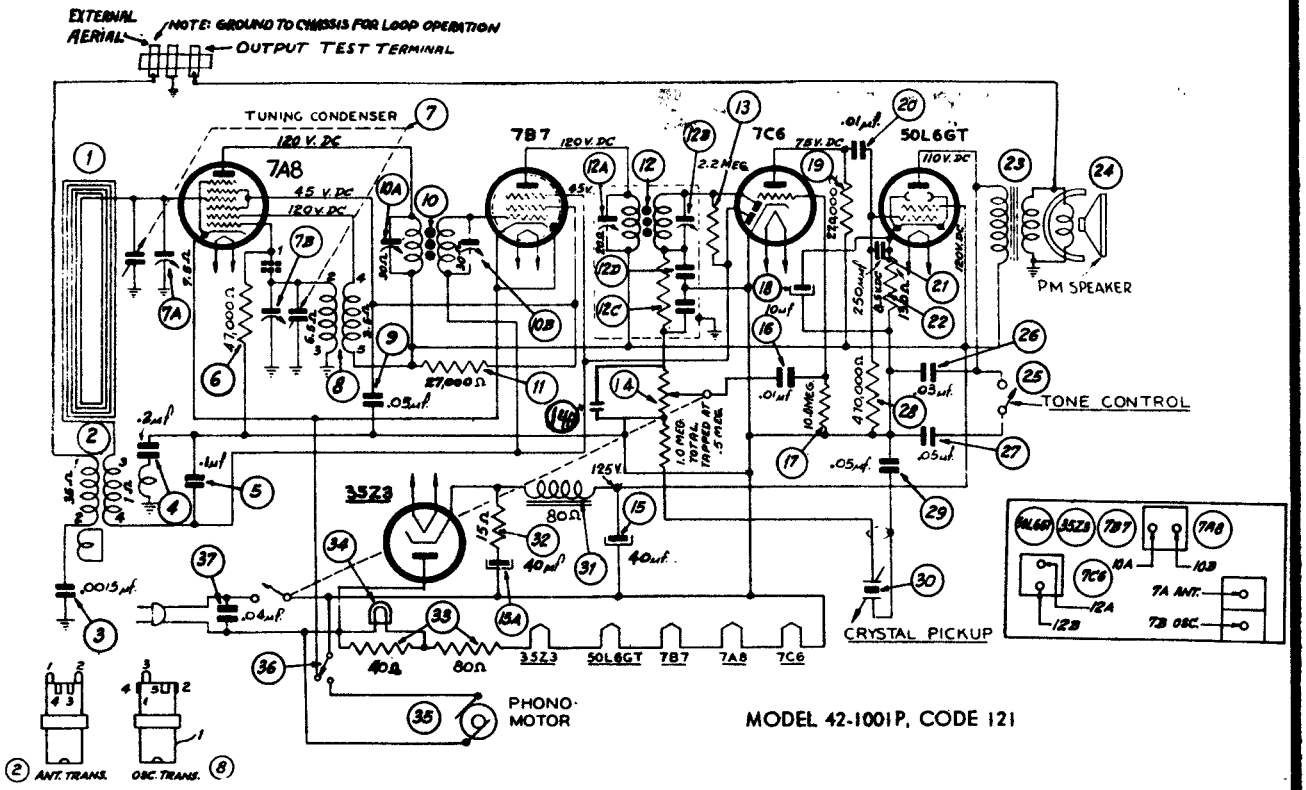
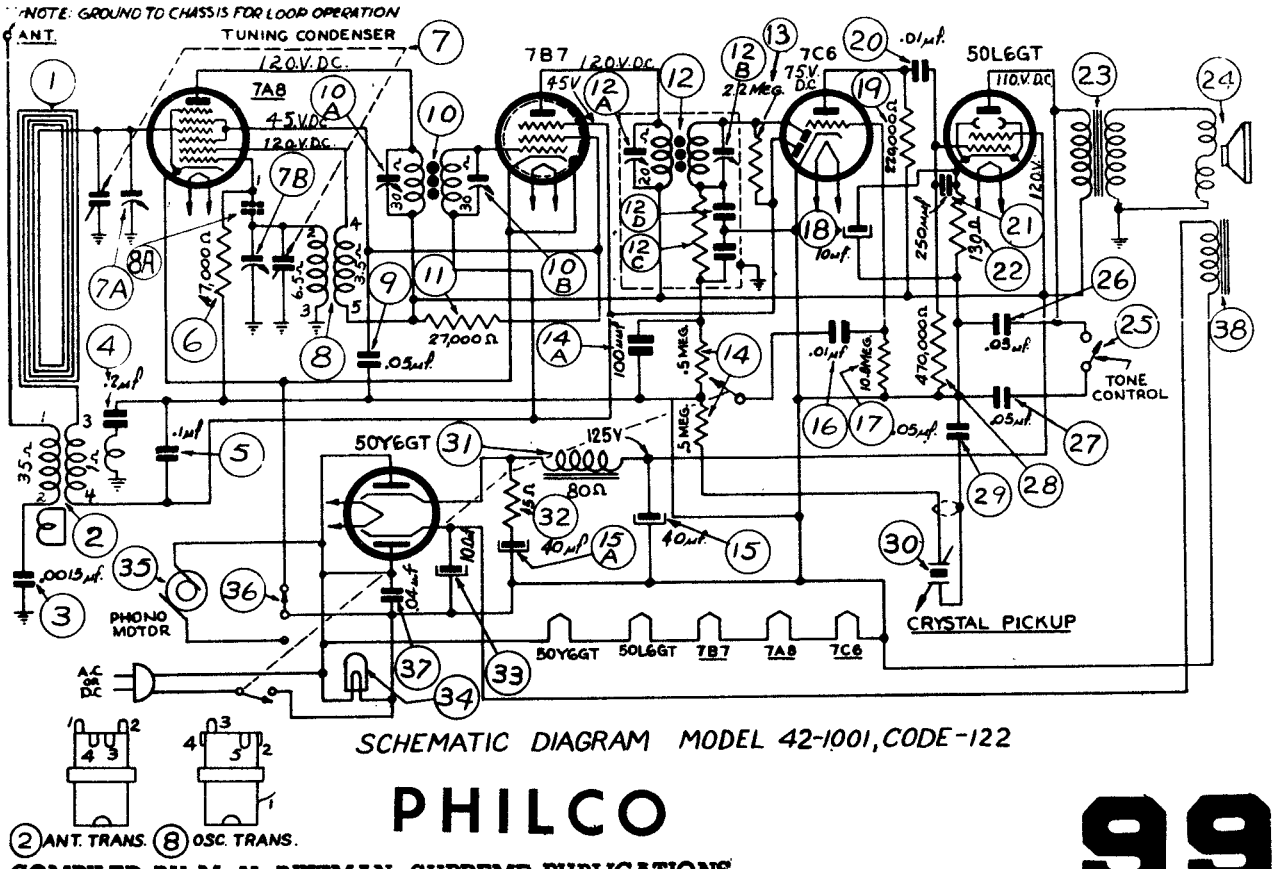

I.F.=455 KC.
MODEL 42-788, CODE 121-122
PHILCO
TUBE AND COMPENSATOR LOCATIONS—TOP OF CHASSIS
R. F TRANSFORMER WIRING LOCATIONS
NORMAL TUNING
BAND SPREAD TUNING
ANT GND POSTS
45A TOP
45B CENTER
45C BOTTOM
34C TOP
34A CENTER
34B BOTTOM
50A TOP
50B BOTTOM
BROADCAST
BANDSPREAD
S.W.1
S.W.2

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS



MODEL 42-1001P, CODE 121

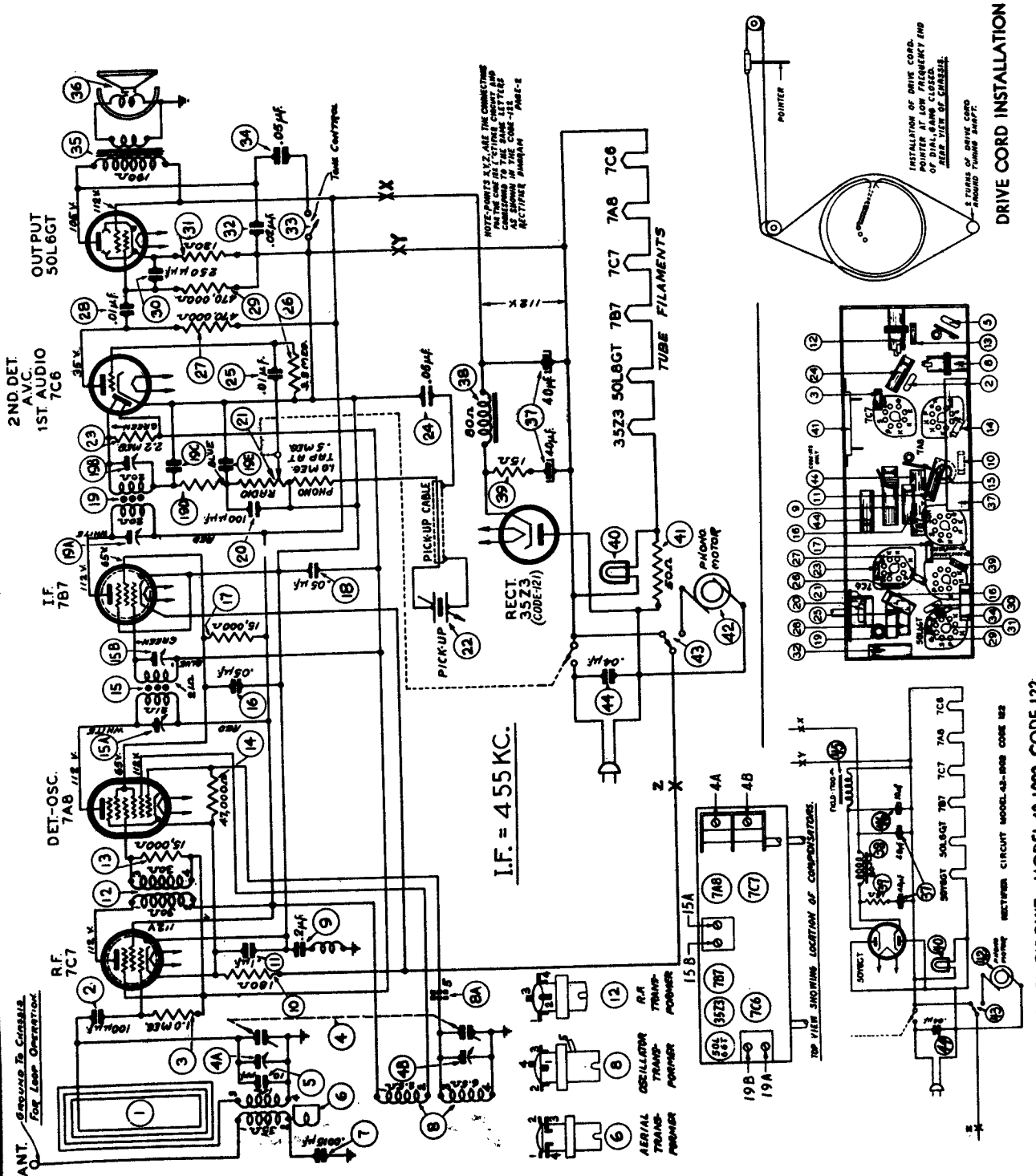


SCHEMATIC DIAGRAM MODEL 42-1001, CODE-122

PHILCO

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

Radio-Phonograph Model 42-1002, Codes 121-122; PHILCO



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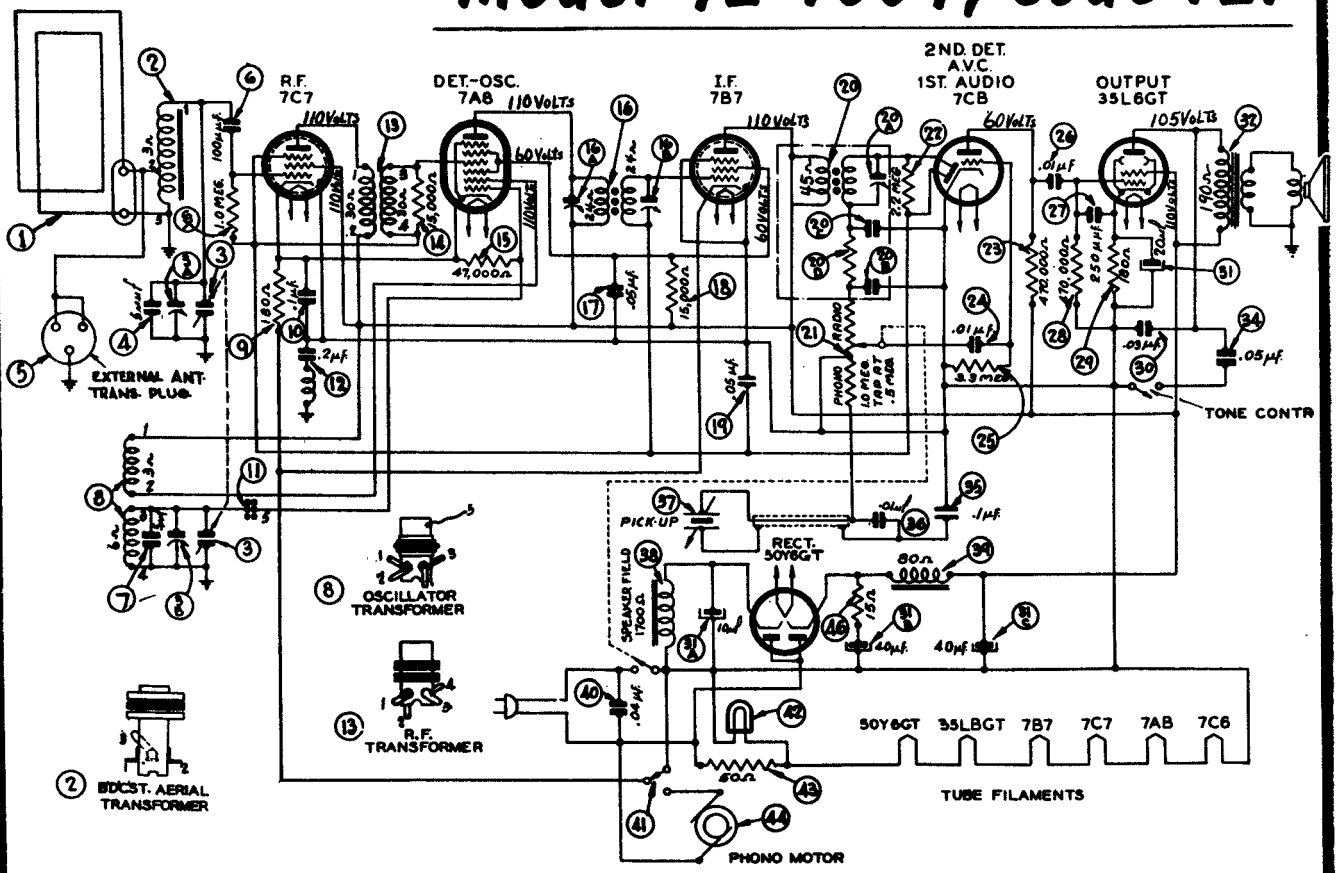
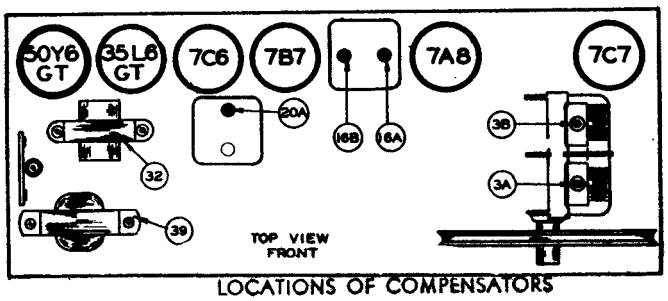
PHILCO

Radio-Phonograph Model 42-1004, Code 121

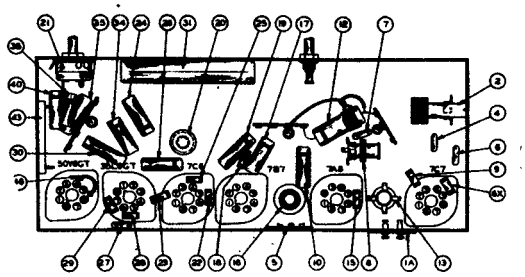


Operations in Order	SIGNAL GENERATOR		RECEIVER			SPECIAL INSTRUCTIONS
	Output Connections to Receiver	Dial Setting	Dial Setting	Control Setting	Adjust Compensators in Order	
1	Ant. Section of tuning	455 K.C.	540 K.C. Tuning Cond. Closed	Vol. Max.	20A, 16B, 16A	
2	Loop see above instructions	1600 K.C.	1600 K.C.	Vol. Max.	3B, 3A	Note A

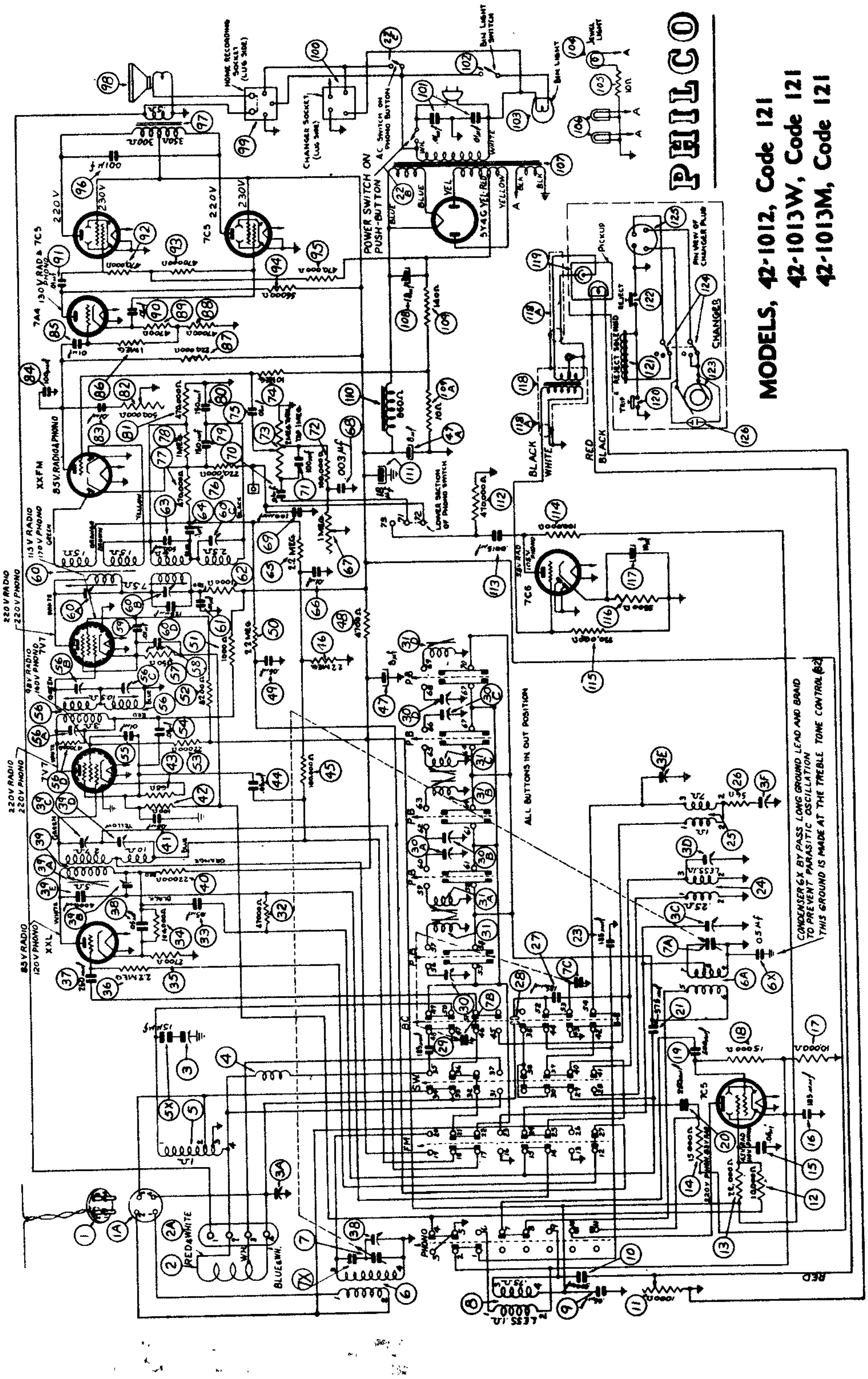
NOTE A:—DIAL CALIBRATION: In order to adjust the receiver correctly, the dial must be aligned to track properly with the tuning condenser. To do this, proceed as follows: Turn the tuning condenser to the maximum capacity position (plates fully meshed). With the condenser in this position, set the tuning pointer on the small dot below 540 K.C.



LOCATIONS OF COMPENSATORS



LOCATIONS OF PARTS — UNDER CHASSIS



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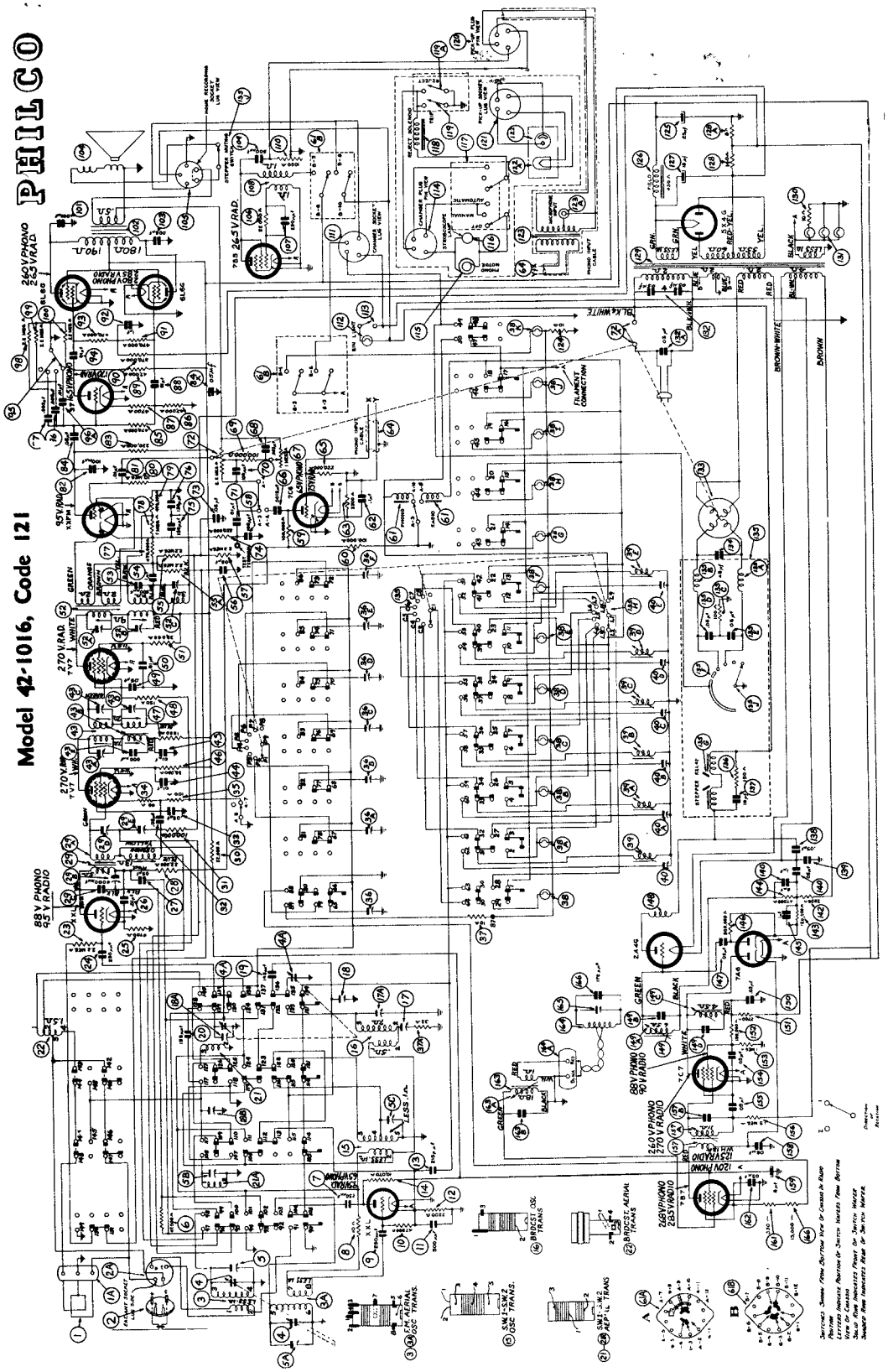
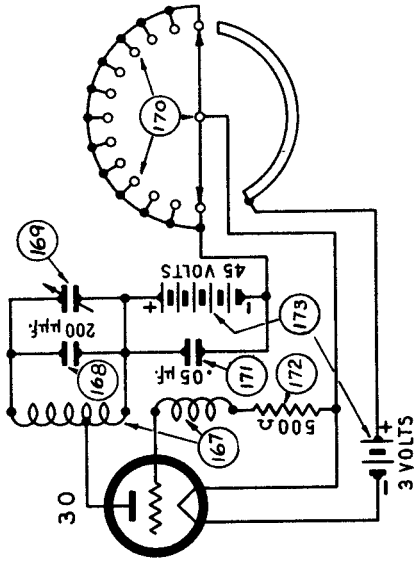
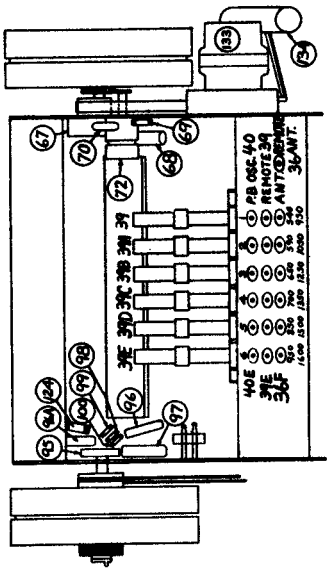
PHILCO

Model 42-1016, Code 121

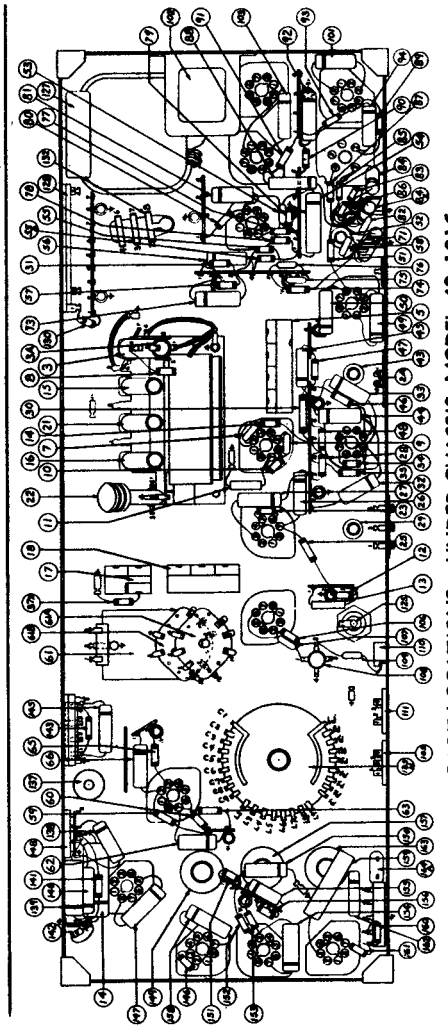




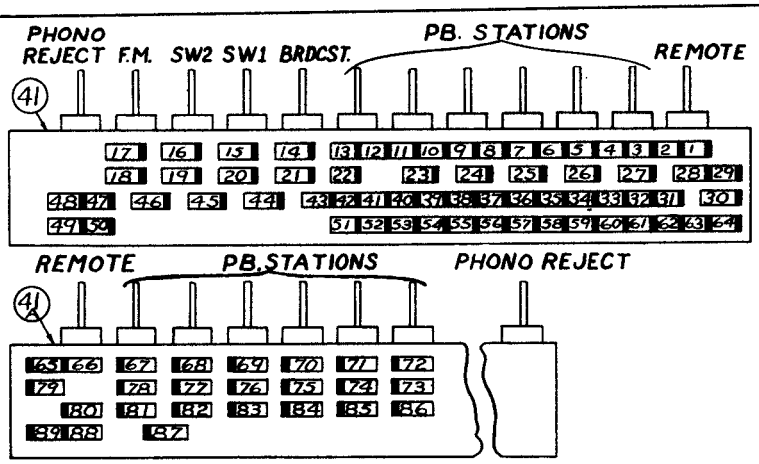
SCHEMATIC DIAGRAM OF WIRELESS REMOTE CONTROL UNIT



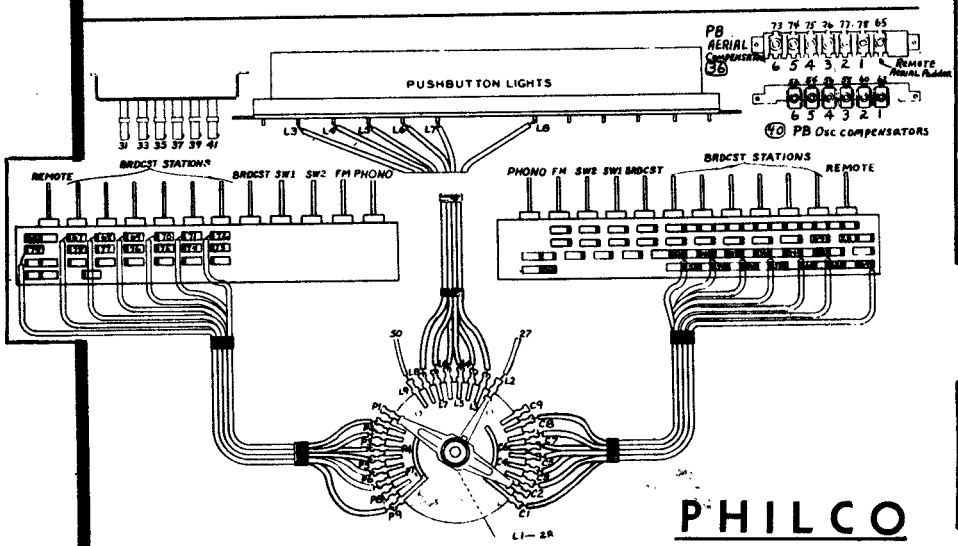
LOCATIONS OF PARTS, TUNING UNIT

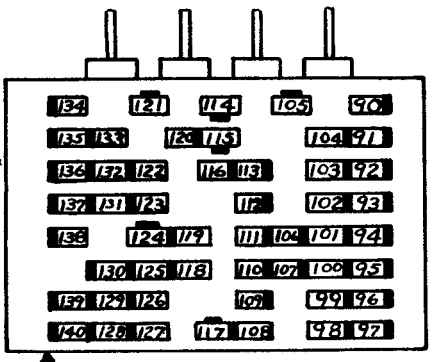


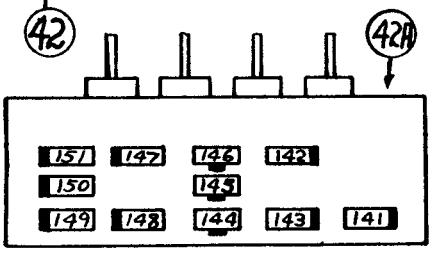
PART LOCATIONS—UNDER CHASSIS, MODEL 42-1016



CONTACT LOCATIONS OF STATIONS AND LIGHTS, P. B. SWITCH—TOP 41, BOTTOM 41A







CONTACT LOCATIONS OF TUNING BAND, P. B. SWITCH—42, BOTTOM; 42A, TOP SECTION

PHILCO

104

CABLE WIRING

Model 42-1016, Code 121

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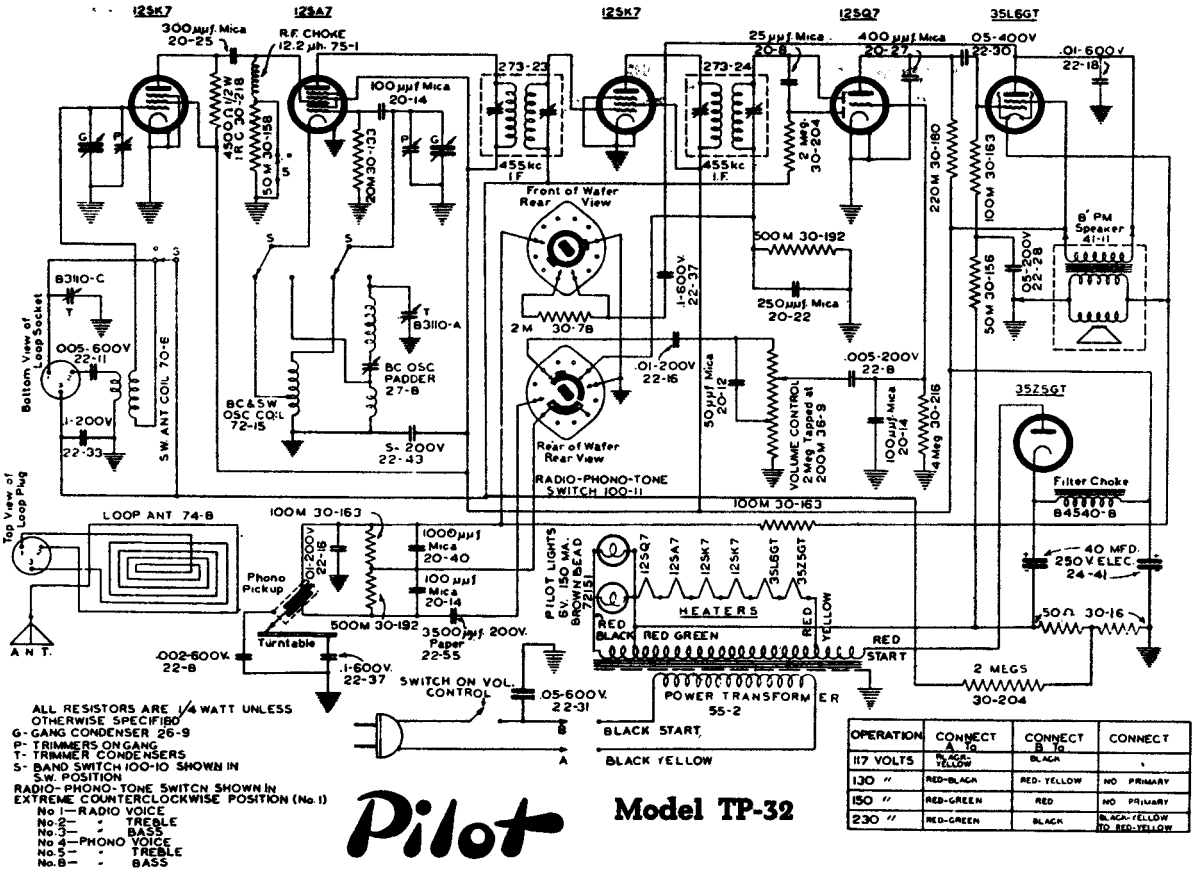
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

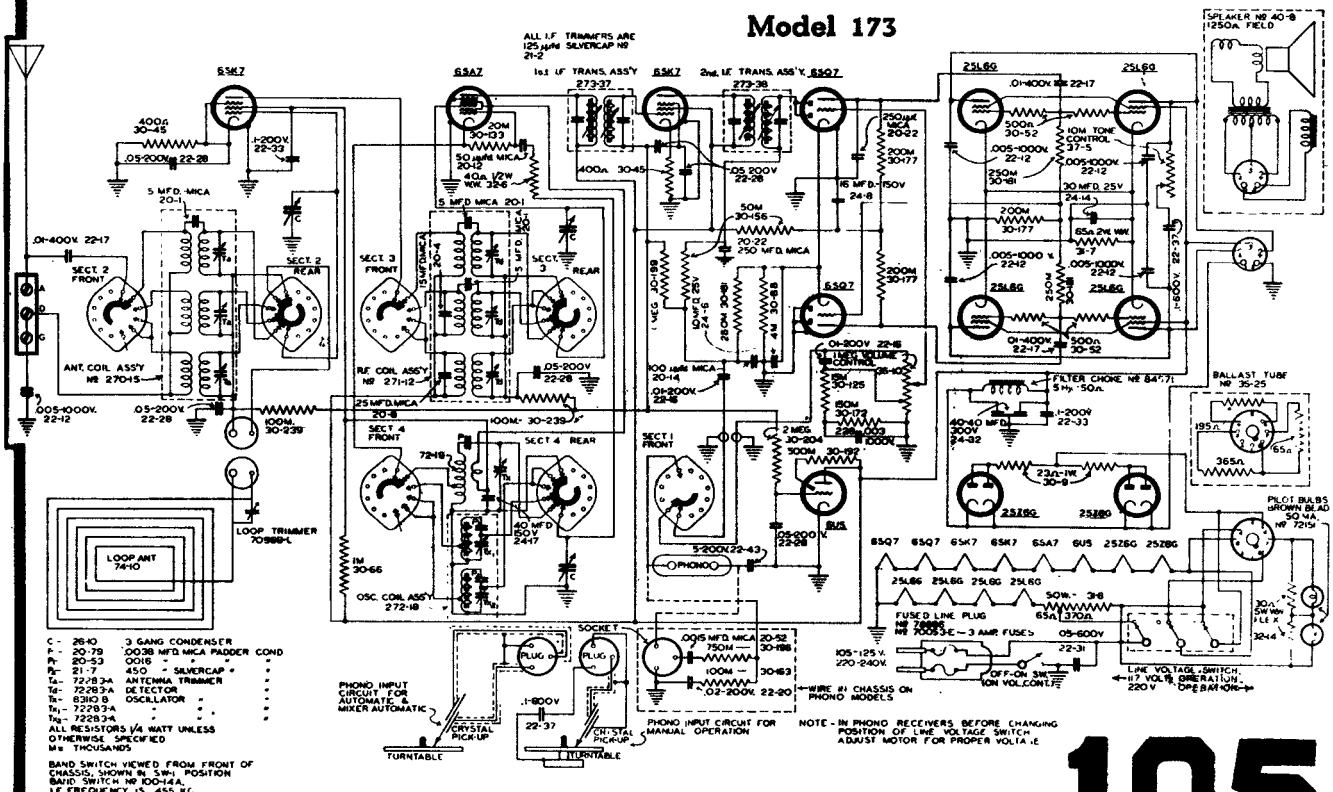


ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED
G- GANG CONDENSER 26-9
P- TRIMMERS ON GANG
T- TRIMMER CONDENSERS
S- BAND SWITCH 100-10 SHOWN IN S.W. POSITION
RADIO-PHONO-TONE SWITCH SHOWN IN EXTREME COUNTERCLOCKWISE POSITION (No. 1)
No 1—RADIO VOICE
No. 2— " TREBLE
No. 3— " BASS
No 4—PHONO VOICE
No. 5— " TREBLE
No. 6— " BASS

OPERATION	CONNECT A To	CONNECT B To	CONNECT
117 VOLTS	BLACK YELLOW	BLACK	
130 "	RED-BLACK	RED-YELLOW	NO PRIMARY
150 "	RED-GREEN	RED	NO PRIMARY
230 "	RED-GREEN	BLACK	BLACK-YELLOW TO RED-YELLOW

Pilot **Model TP-32**

Model 173



C- 26-10 3 GANG CONDENSER
P- 20-79 .00038 MFD MICA PADDER COND
P- 20-53 .0018 " "
P- 21-7 450 " SILVERCAP " "
T- 72283-A ANTENNA TRIMMER " "
T- 72283-A DETECTOR " "
T- 83110 B OSCILLATOR " "
T- 72283-A " " " "
T- 72283-A " " " "
ALL RESISTORS 1/4 WATT UNLESS OTHERWISE SPECIFIED
M= THOUSANDS

BAND SWITCH VIEWED FROM FRONT OF CHASSIS, SHOWN IN S.W. POSITION
BAND SWITCH NO 100-14A.
I.F. FREQUENCY IS 455 KC.

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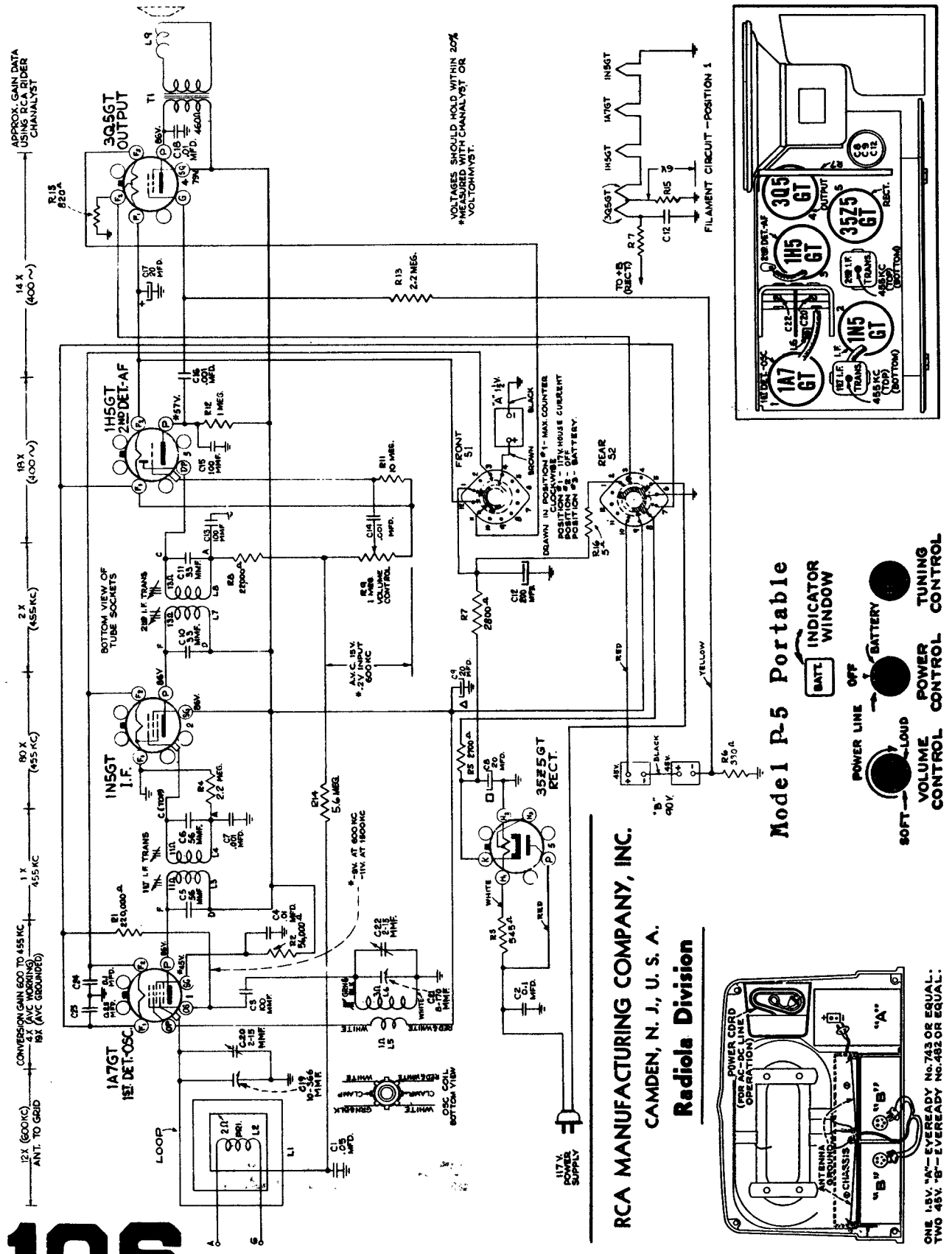
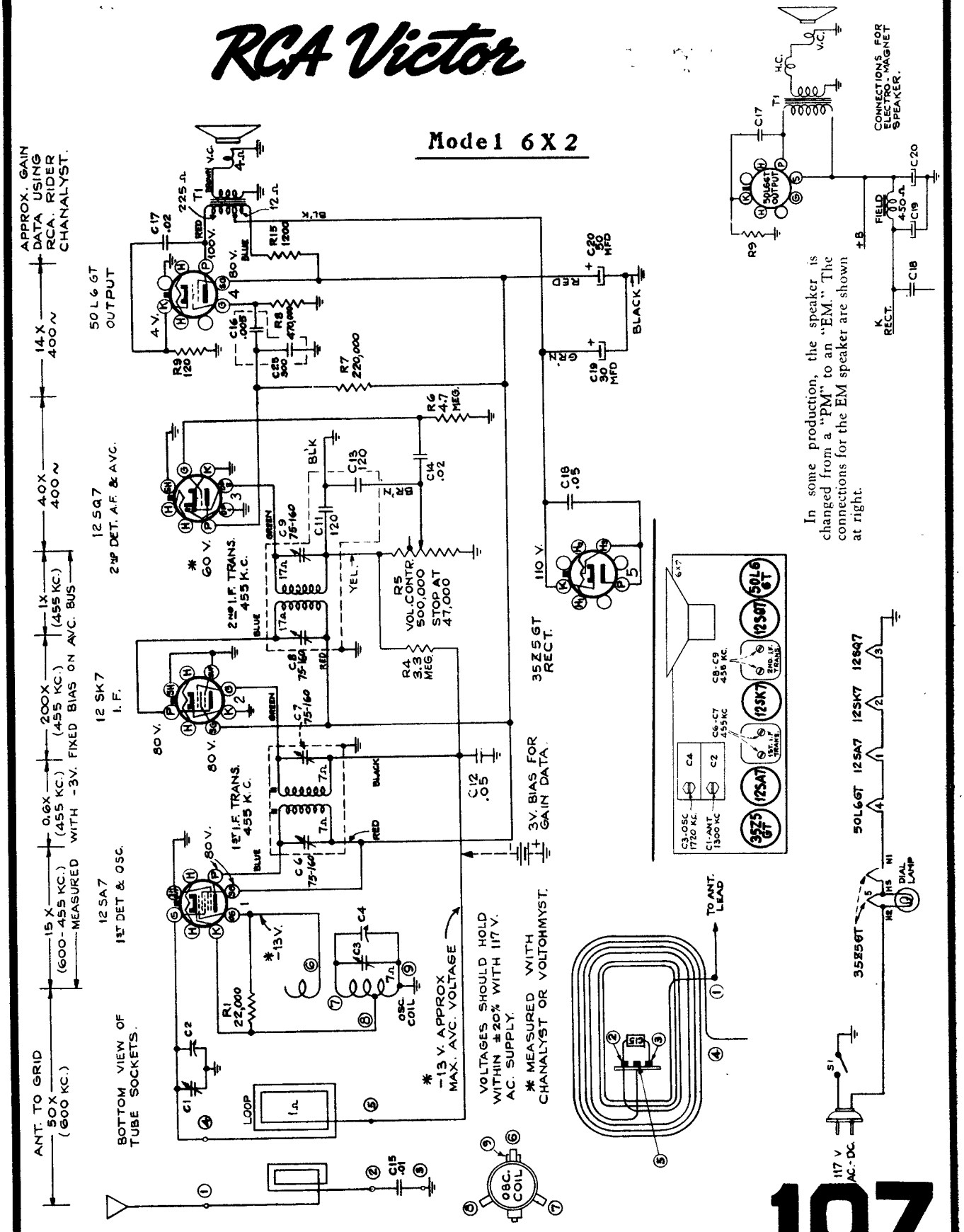
105


Model P-5 Portable
RCA MANUFACTURING COMPANY, INC.
CAMDEN, N. J., U. S. A.
Radiola Division
INDICATOR WINDOW
BATT.
POWER LINE
OFF
BATTERY
LOUD
SOFT
VOLUME CONTROL
POWER CONTROL
TUNING CONTROL
3Q5GT OUTPUT
1H5GT 2ND DET.-AF
1N5GT I.F.
1A7GT 1ST DET.-OSC.
35Z5GT RECT.
LOOP
OSC COIL BOTTOM VIEW
BOTTOM VIEW OF TUBE SOCKETS
FILAMENT CIRCUIT—POSITION 1
VOLTAGES SHOULD HOLD WITHIN 20% *MEASURED WITH CHANALYST OR VOLTOHMYST.
APPROX. GAIN DATA USING R.C.A. RIDER CHANALYST
CONVERSION GAIN 600 TO 455 KC. 4X (AVC WORKING) 18X (AVC GROUNDED)
POWER CORD (FOR AC-DC LINE OPERATION)
ANTENNA
CHASSIS
"A"
"B"
ONE 1.5V. "A"—EVEREADY No.743 OR EQUAL.
TWO 45V. "B"—EVEREADY No.482 OR EQUAL.

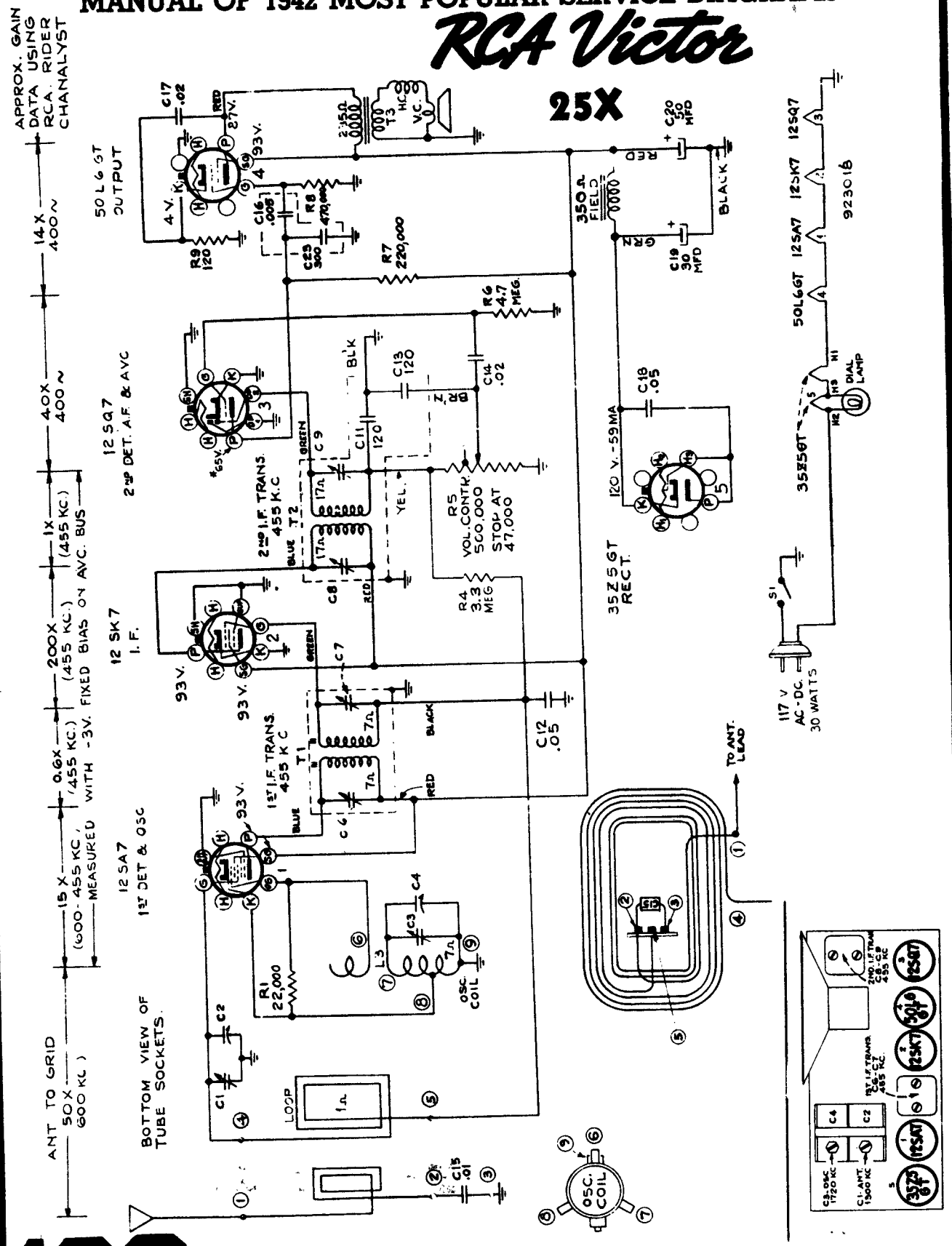
RCA Victor

Model 6X2



RCA Victor

25X



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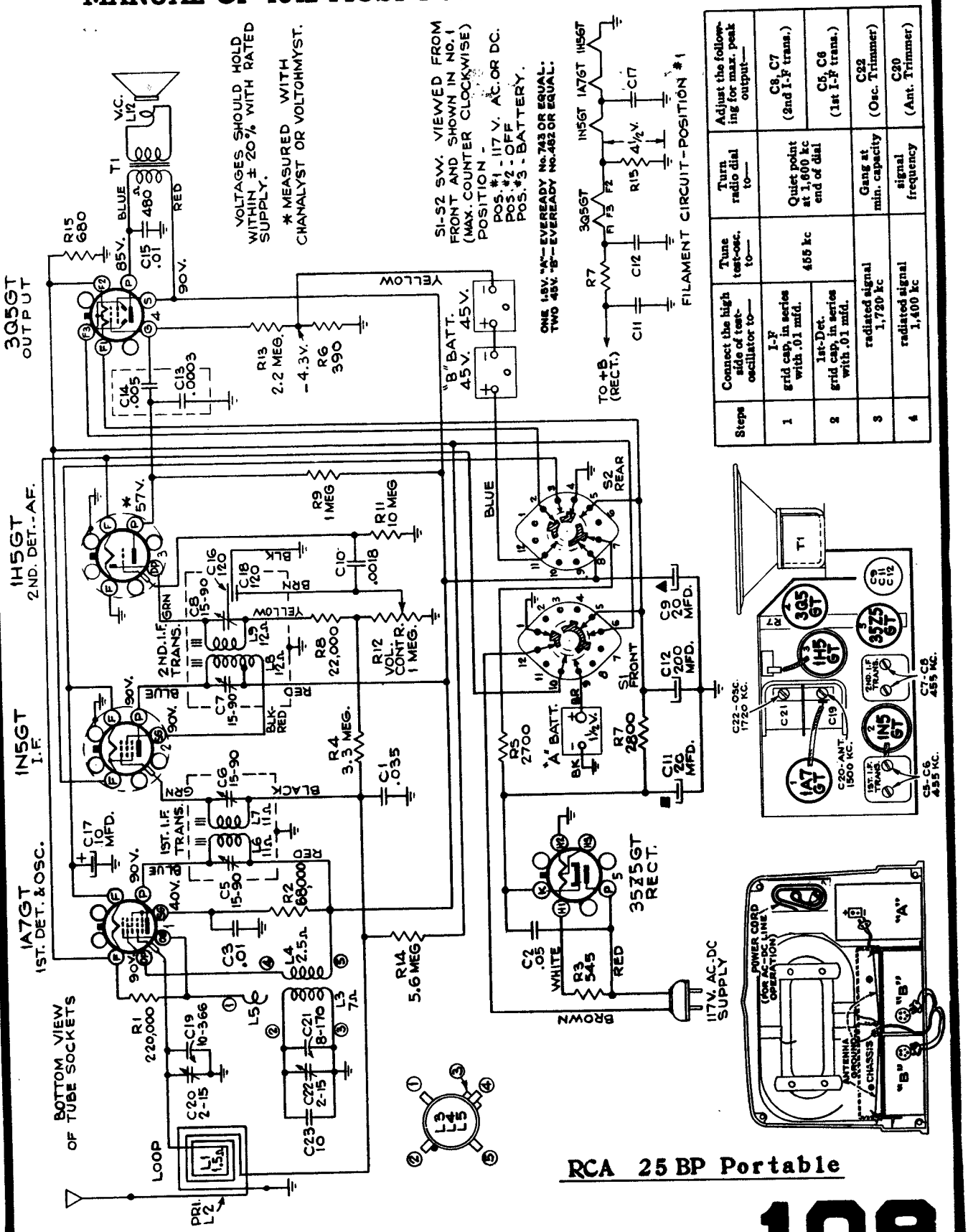

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C8, C7 (2nd I-F trans.)
2	1st-Det. grid cap, in series with .01 mfd.			C5, C6 (1st I-F trans.)
3	radiated signal 1,720 kc		Gang at min. capacity	C22 (Osc. Trimmer)
4	radiated signal 1,400 kc		signal frequency	C20 (Ant. Trimmer)

RCA 25 BP Portable

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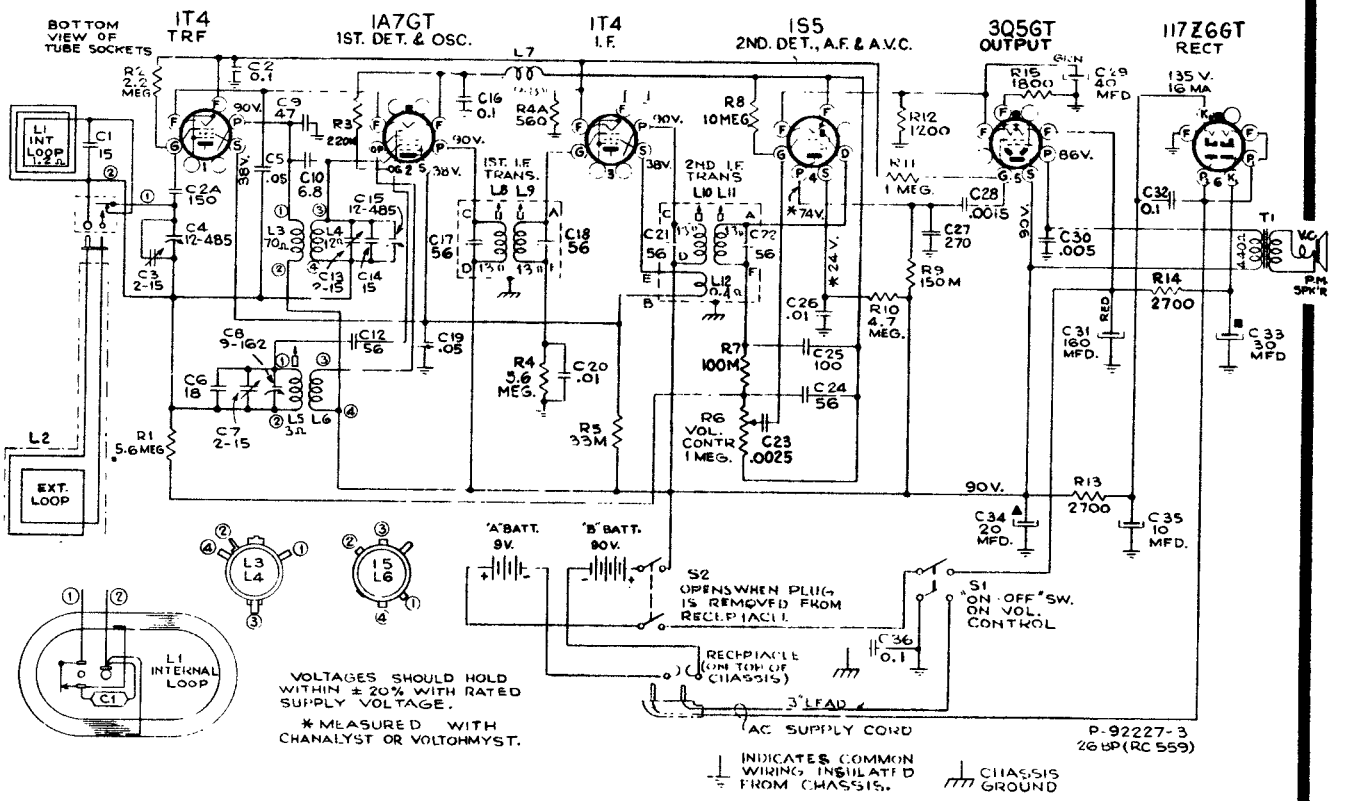
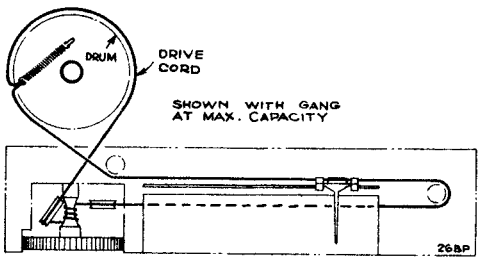


Alignment

With gang in full mesh, the pointer should be 1/16-inch to the left of the 550 kc dial mark.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	L10, L11 (2nd I-F trans.)
2	1st-Det. grid cap, in series with .01 mfd.			L8, L9 (1st I-F trans.)
3	radiated signal at 1,600 kc	1,600 kc	1,600 kc	C7 (osc.) C3 (ant.) C13 (det.)
4	radiated signal 600 kc	600 kc	600 kc	L5 (Rock in)
5	Repeat steps 3 and 4			



AC-DC Operation.—

This receiver will operate on 105 to 125 volts, AC 50 or 60 cycles, or DC.

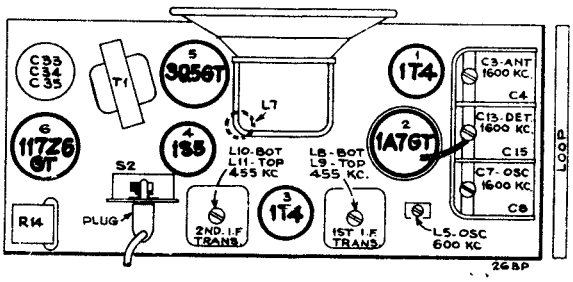
A power cord is housed in the bottom right hand corner looking inside the cabinet as shown in the illustration. Open the cabinet like a suit case, first pushing to one side the little pins under the handle ends to raise the clips. Then pull the power cord plug out of its socket in the top right hand corner as shown, and take out and unroll the power cord. A slot in the bottom allows the closing of the cabinet with the power cord passing through. Close the cabinet with the cord extending and insert the plug into a convenient electrical outlet.

When returning to battery operation, be sure to replace the power plug in its socket inside the case with the cord rolled up.

NOTE.—If reception is not obtained on DC, reverse plug in outlet receptacle. This may also reduce hum on AC operation.

Using External Loop.—

A loop antenna is housed inside the cabinet. Under normal conditions this will give satisfactory reception. If however the receiver is used in a location remote from broadcasting stations where signals are weak, or where interference is excessive, or in a shielded compartment such as an automobile, airplane or railroad train, an RCA Magic Wave Magnifier Antenna with suction cup fastener may be purchased from your dealer. This antenna has a strap connector cord ending in a two-prong plug for attachment to the loop antenna frame. Open the case, plug the antenna cord into the socket (it will only go in one way), bring the strap out at the slot in the case and attach the Antenna by means of the suction cup to any convenient vertical surface. The RCA Magic Wave Magnifier may be attached inside the back case, when not in use, by means of three snap fasteners.



RCA 26 BP Portable

RCA Models 26X-1, 26X-3

Test Oscillator.—For all alignment operations, keep the output as low as possible to avoid a.v.c. action.

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

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

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

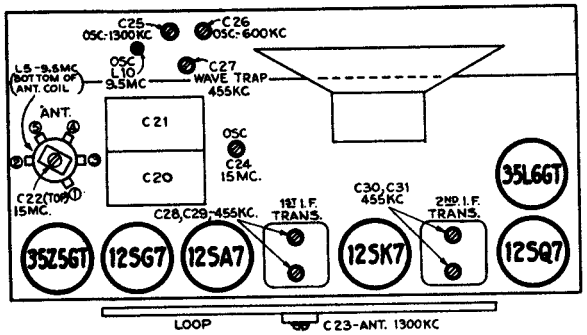
Precautionary Lead Dress

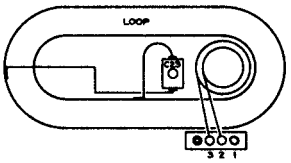
1. Dress output tube plate lead to speaker and output bypass condenser away from terminal board and yellow lead in cable.
2. Dress brown and yellow leads from 2nd I.F. transformer away from output plate and bypass condenser.
3. Dress .02 capacitor C12 away from output capacitor C16.
4. Dress all leads or parts as far as possible away from oscillator coil.
5. Dress lead from C13 to band switch down along front apron of chassis.
6. Dress lead from trimmer condenser on loop to S.W. Ant. coil around outside of rectifier tube. Other leads between rectifier and R.F. tube.

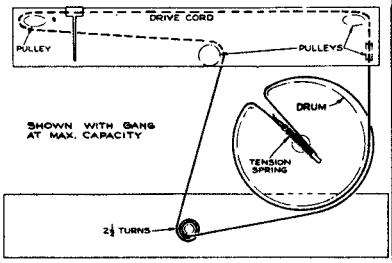
Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I.F. grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,700 kc end of dial	C30, C31 2nd I-F trans.
2	1st det. grid in series with 0.1 mfd.			C-28, C-29 1st I-F trans.
3	R.F. grid in series with 0.1 mfd.			C-27** Wave trap
4	Ant. terminal in series with 47 mmf. (link open)	15 mc	15 mc "C" Band	C-24 (osc.)* C-22 (ant.)
5		9.5 mc	9.5 mc "C" Band	L-10 (osc.) L-5 (ant.)
6		Repeat steps 4 and 5.		
7	Ant. terminal in series with 220 mmf. (link open)	1,300 kc	1,300 kc "A" Band	C-25 (osc.) C-23 (ant.)
8		600 kc	600 kc "A" Band	C-26 (osc.)
9		Repeat steps 7 and 8.		

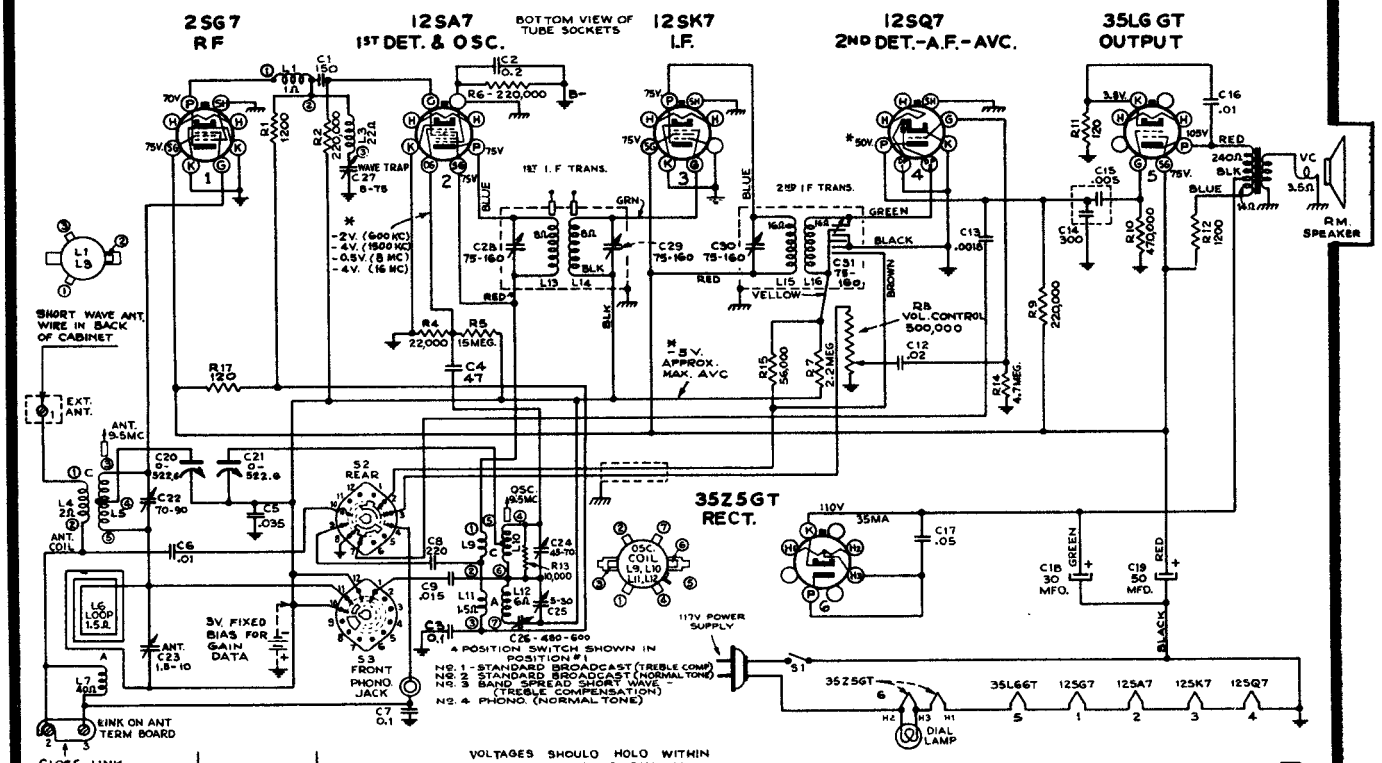
*Use minimum capacity peak if two peaks can be obtained.
**Adjust C-27 for minimum signal with 455 kc applied to R.F. grid.

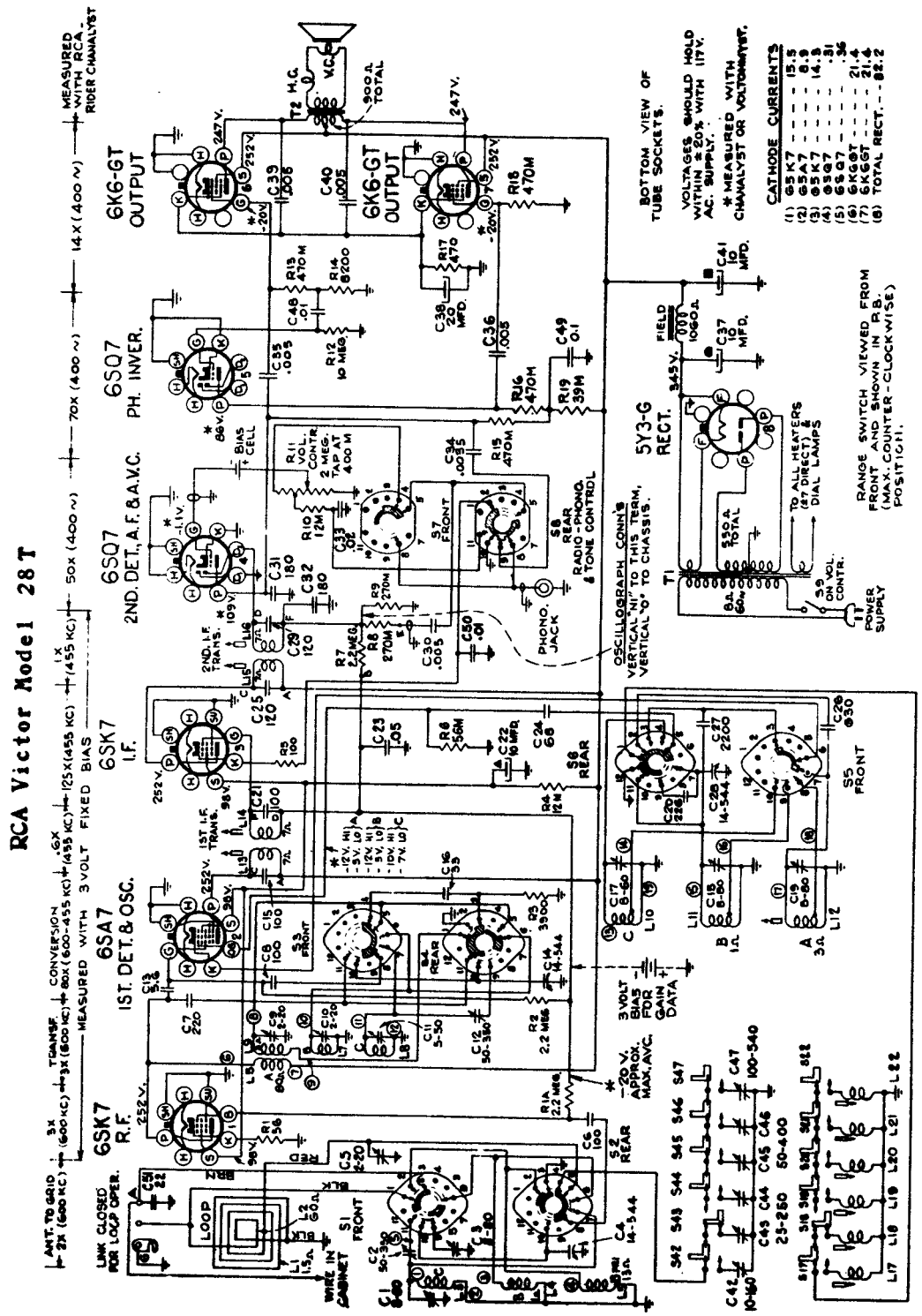
Note.—Oscillator tracks 455 kc above signal on all bands.

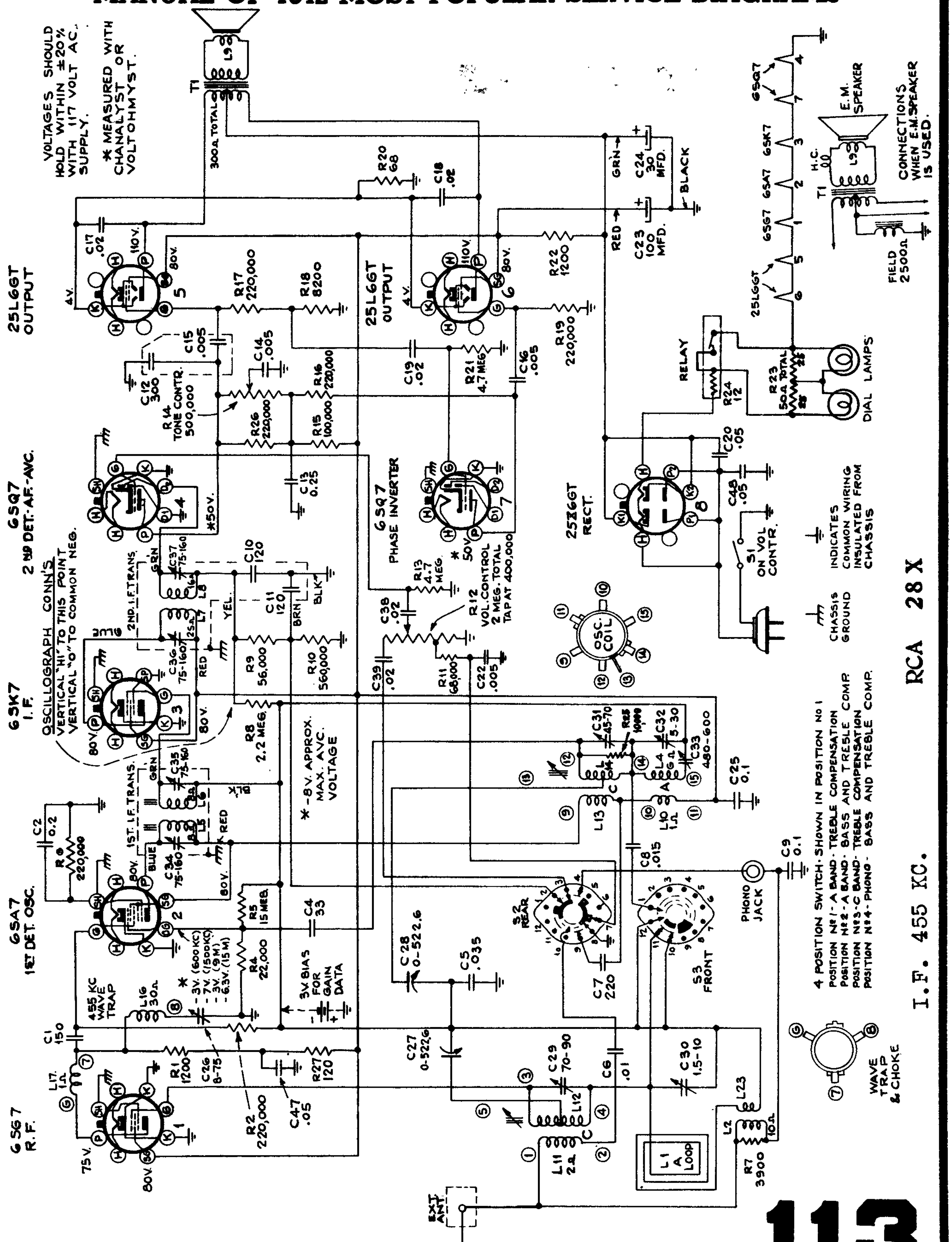


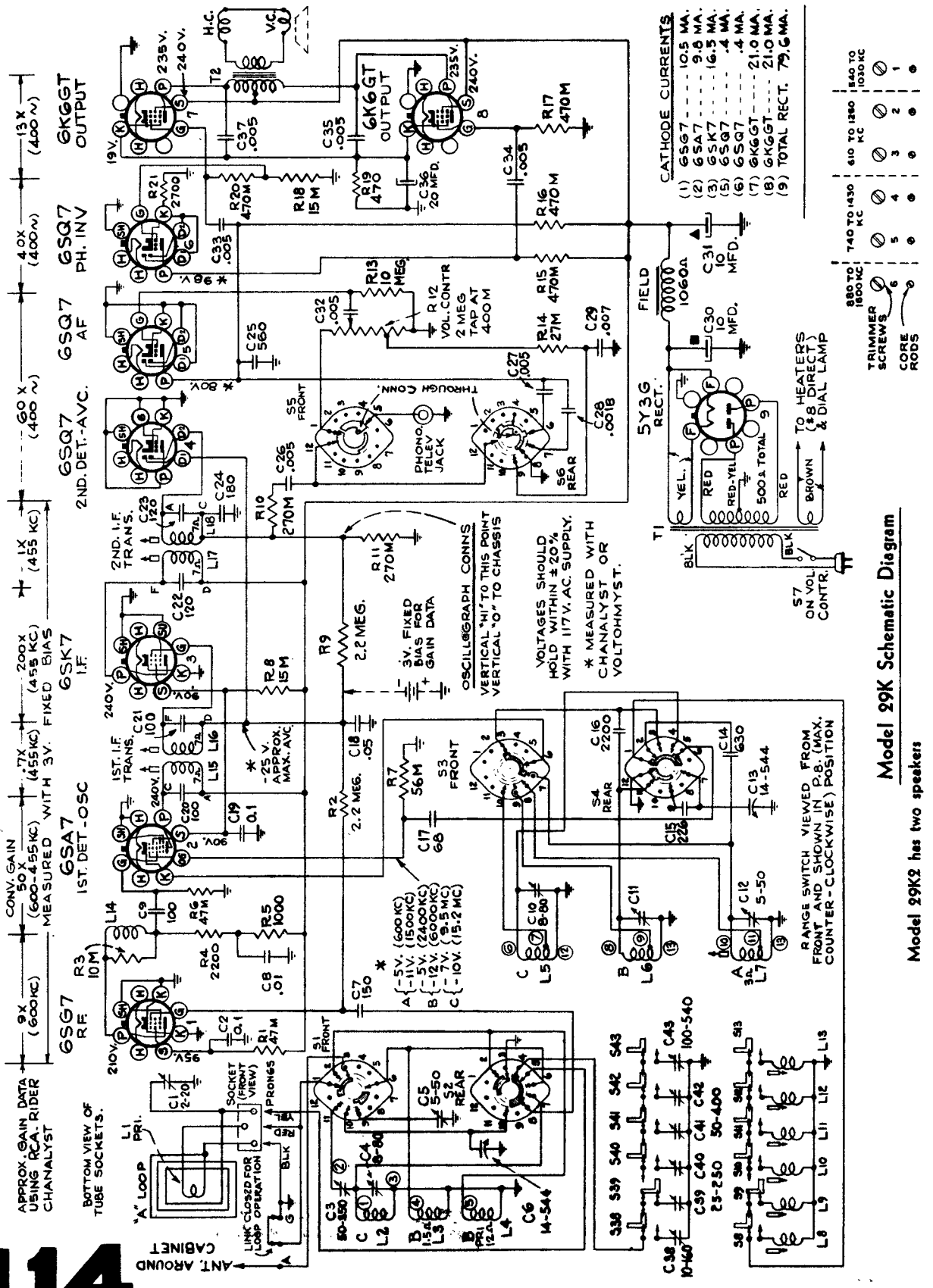


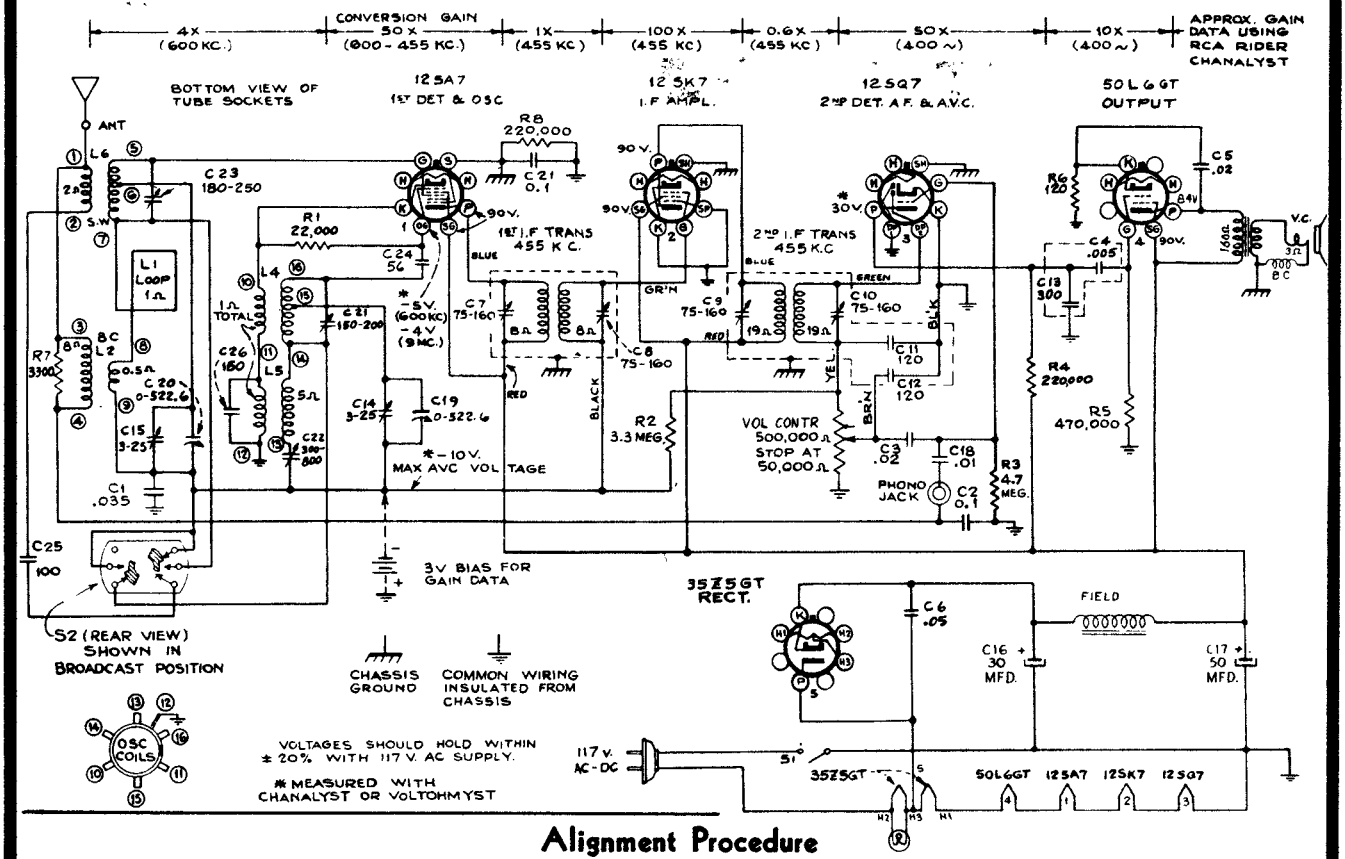





RCA Victor Model 28T
I.F. 455 KC.
6SK7 R.F.
6SA7 1ST. DET. & OSC.
6SK7 I.F.
6SQ7 2ND. DET., A.F. & A.V.C.
6SQ7 PH. INVER.
6K6-GT OUTPUT
6K6-GT OUTPUT
5Y3-G RECT.
MEASURED WITH RCA-RIDER CHANALYST
ANT. TO GRID
LINK CLOSED FOR LOOP OPER.
LOOP
WIRE IN CABINET
3 VOLT FIXED BIAS
MEASURED WITH CHANALYST
CONVERSION
1ST I.F. TRANS.
2ND I.F. TRANS.
BIAS CELL
VOL. CONTR. 2 MEG. TAPPED AT 400 M
PHONO. JACK
RADIO-PHONO & TONE CONTROL
OSCILLOGRAPH CONN'S VERTICAL "H" TO THIS TERM. VERTICAL "G" TO CHASSIS.
3 VOLT BIAS FOR GAIN DATA
-20 V. APPROX. MAX. AVC.
BOTTOM VIEW OF TUBE SOCKETS.
VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117V. AC. SUPPLY.
* MEASURED WITH CHANALYST OR VOLTOHMYST.
CATHODE CURRENTS
(1) 6SK7 ---- 15.5
(2) 6SA7 ---- 8.9
(3) 6SK7 ---- 14.1
(4) 6SQ7 ---- .31
(5) 6SQ7 ---- .36
(6) 6K6GT ---- 21.4
(7) 6K6GT ---- 21.4
(8) TOTAL RECT. -- 82.2
TO ALL HEATERS & DIRECTLY TO DIAL LAMPS
RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN R.B. (MAX. COUNTER-CLOCKWISE) POSITION.
POWER SUPPLY
VOL. CONTR.
ON-OFF


VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 VOLT AC. SUPPLY.
* MEASURED WITH CHANALYST OR VOLTOHMYST.
25L6GT OUTPUT
6SQ7 2ND DET. AF.-AVC.
6SK7 I.F.
6SA7 1ST DET. OSC.
6SG7 R.F.
25L6GT OUTPUT
6SQ7 PHASE INVERTER
25Z6GT RECT.
OSCILLOGRAPH CONN'S
VERTICAL "HI" TO THIS POINT
VERTICAL "O" TO COMMON NEG.
* -8V. APPROX. MAX. AVC. VOLTAGE
3V. BIAS FOR GAIN DATA
455 KC WAVE TRAP
R12 VOL. CONTROL 2 MEG. TOTAL TAP AT 400,000
R14 TONE CONTR. 500,000
S1 ON VOL CONTR.
RELAY
DIAL LAMPS
OSC. COIL
PHONO JACK
S2 REAR
S3 FRONT
L1 A LOOP
EXT ANT
WAVE TRAP & CHOKE
E.M. SPEAKER
FIELD 2500Ω
CONNECTIONS WHEN E.M. SPEAKER IS USED.
INDICATES COMMON WIRING INSULATED FROM CHASSIS
CHASSIS GROUND
4 POSITION SWITCH - SHOWN IN POSITION NO 1
POSITION NO 1 - A BAND - TREBLE COMPENSATION
POSITION NO 2 - A BAND - BASS AND TREBLE COMP.
POSITION NO 3 - C BAND - TREBLE COMPENSATION
POSITION NO 4 - PHONO - BASS AND TREBLE COMP.
RCA 28 X
I.F. 455 KC.


Model 29K Schematic Diagram
Model 29K2 has two speakers
6SG7 RF
6SA7 1ST. DET-OSC
6SK7 I.F.
6SQ7 2ND. DET.-AVC.
6SQ7 AF
6SQ7 PH. INV
6K6GT OUTPUT
6K6GT OUTPUT
5Y3G RECT.
CATHODE CURRENTS
(1) 6SG7 ---- 10.5 MA.
(2) 6SA7 ---- 9.6 MA.
(3) 6SK7 ---- 16.5 MA.
(5) 6SQ7 ---- .4 MA.
(6) 6SQ7 ---- .4 MA.
(7) 6K6GT ---- 21.0 MA.
(8) 6K6GT ---- 21.0 MA.
(9) TOTAL RECT. 79.6 MA.
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC. SUPPLY.
* MEASURED WITH CHANALYST OR VOLTOHMYST.
OSCILLOGRAPH CONNS
VERTICAL "HI" TO THIS POINT
VERTICAL "O" TO CHASSIS
3V. FIXED BIAS FOR GAIN DATA
APPROX. GAIN DATA USING RCA. RIDER CHANALYST
BOTTOM VIEW OF TUBE SOCKETS.
RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER-CLOCKWISE) POSITION
TRIMMER SCREWS
CORE RODS
TO HEATERS (#8 DIRECT) & DIAL LAMP
ANT. AROUND CABINET
"A" LOOP
LINK CLOSED FOR LOOP OPERATION
FIELD
1060Ω



Alignment Procedure

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

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a .01 mfd. capacitor. When the electronic voltmeter is used as an alignment indicator the output of the test oscillator should be adjusted to produce several volts of AVC. With the output meter alignment method the test oscillator output should be kept as low as possible.

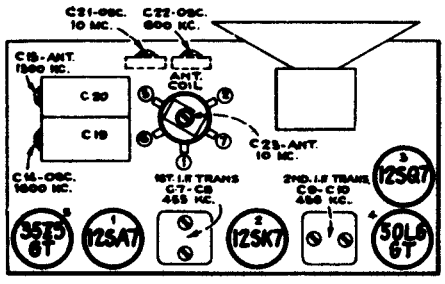
Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

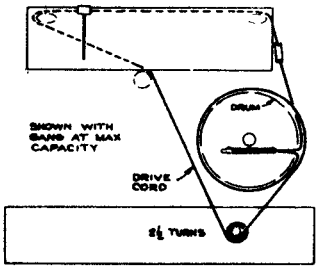
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C10, C9 2nd I-F Transformer
2	12SA7 grid in series with 0.1 mfd.			C8, C7 1st I-F Transformer
3	Antenna term. in series with 47 mmf.	10 mc*	10 mc	C21 (osc.)** C23 (ant.)
4	Antenna term. in series with 200 mmfd.	1,600 kc	1,600 kc	C14 (osc.)
5	Radiation Loop	1,300 kc	Resonance on Signal	C15 (ant.)
6	Radiation Loop	600 kc	600 kc	C22 Osc. Rock in

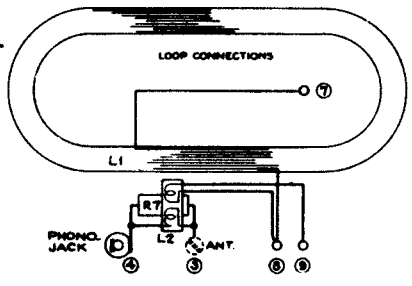
* It is recommended that this step be repeated using a received station of known frequency.

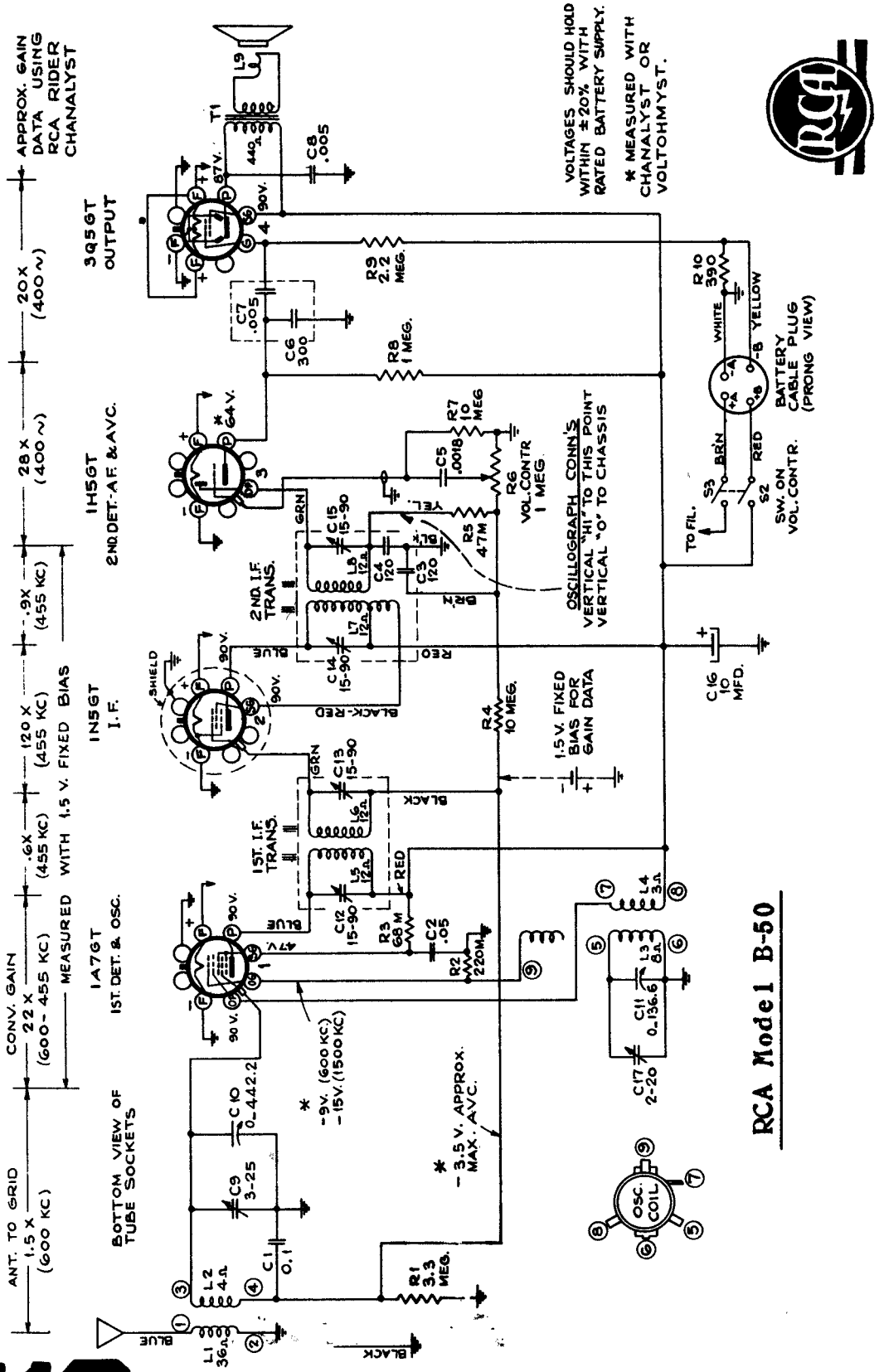
** Use minimum capacity if two peaks can be obtained.

RCA 34 X





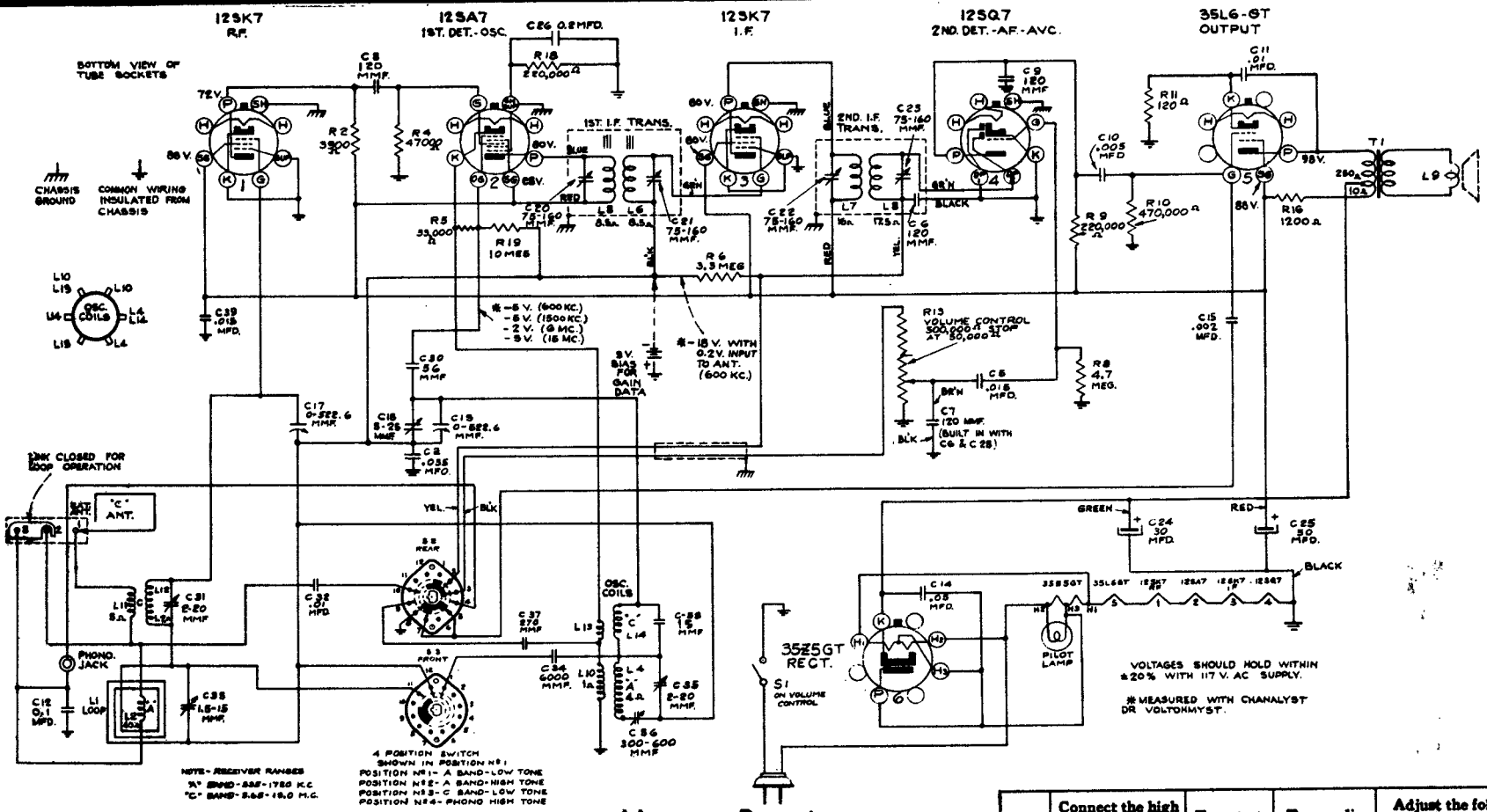




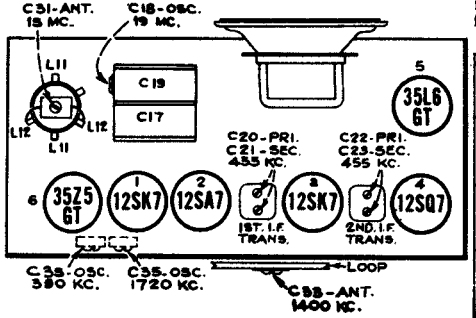
RCA Model B-50

Precautionary Lead Dress.—

1. The lead from the 3Q5 plate to output transformer should be dressed under clip and away from audio input leads.
2. Keep AVC lead connecting C1 away from the 1A7GT plate.
3. Keep blue plate leads coming from IF transformers short and close to the chassis.
4. All filament wires should be dressed close to chassis.



RCA 515



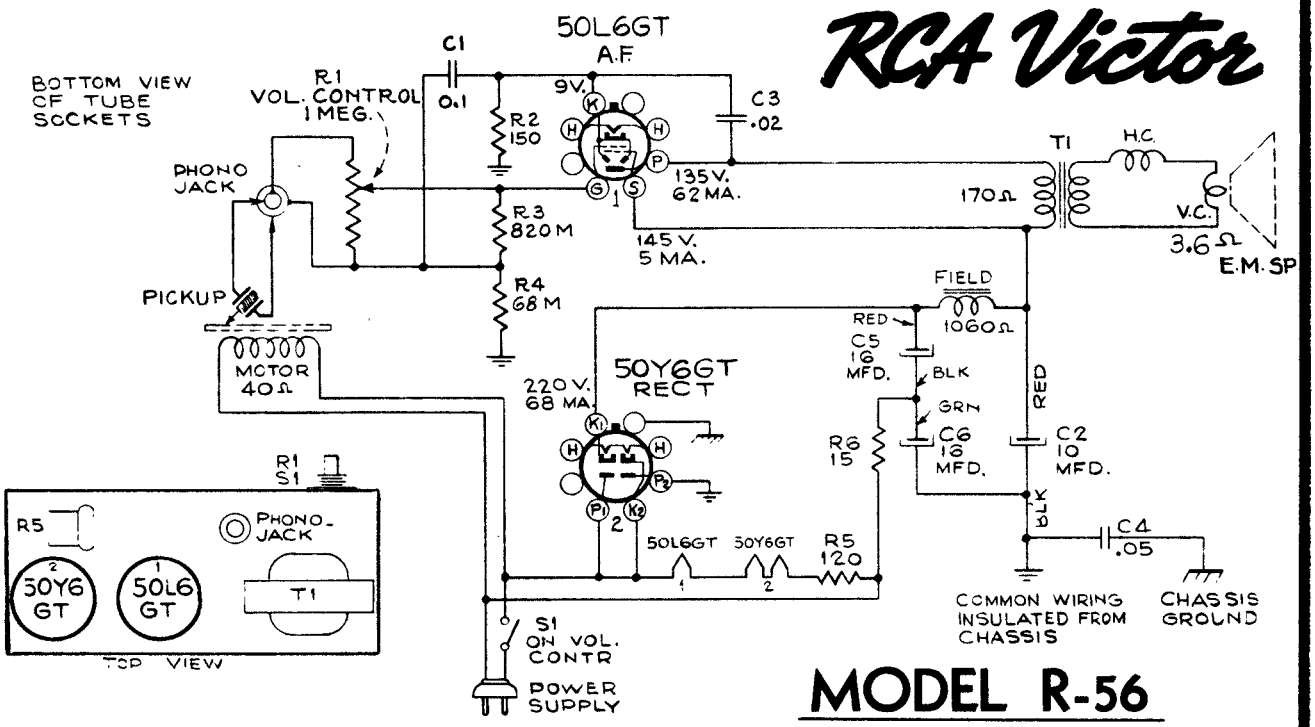
Alignment Procedure

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

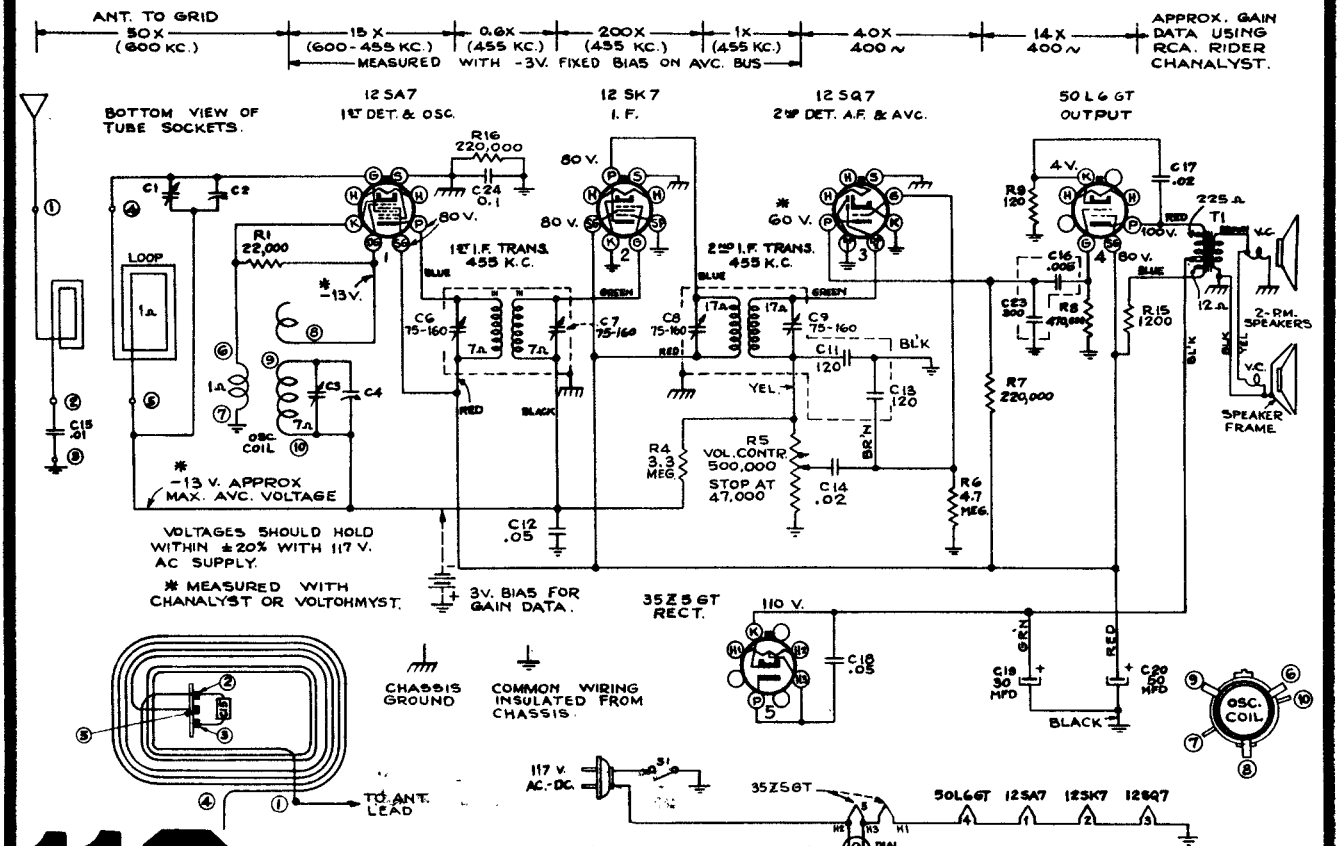
Steps	Connect the high side of test-osc. to—	Tune test osc. to	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid in series with 0.1 mfd.	455 kc	"A" Band Quiet Point 1,600 kc end of dial	C23, C22 2nd I-F Trans.
2	1st Det. grid in series with 0.1 mfd.			C21, C20 1st I-F Trans.
3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

* Adjust by dressing proximity of AVC lead to coil.

RCA Victor



MODEL R-56



RCA Model 55X

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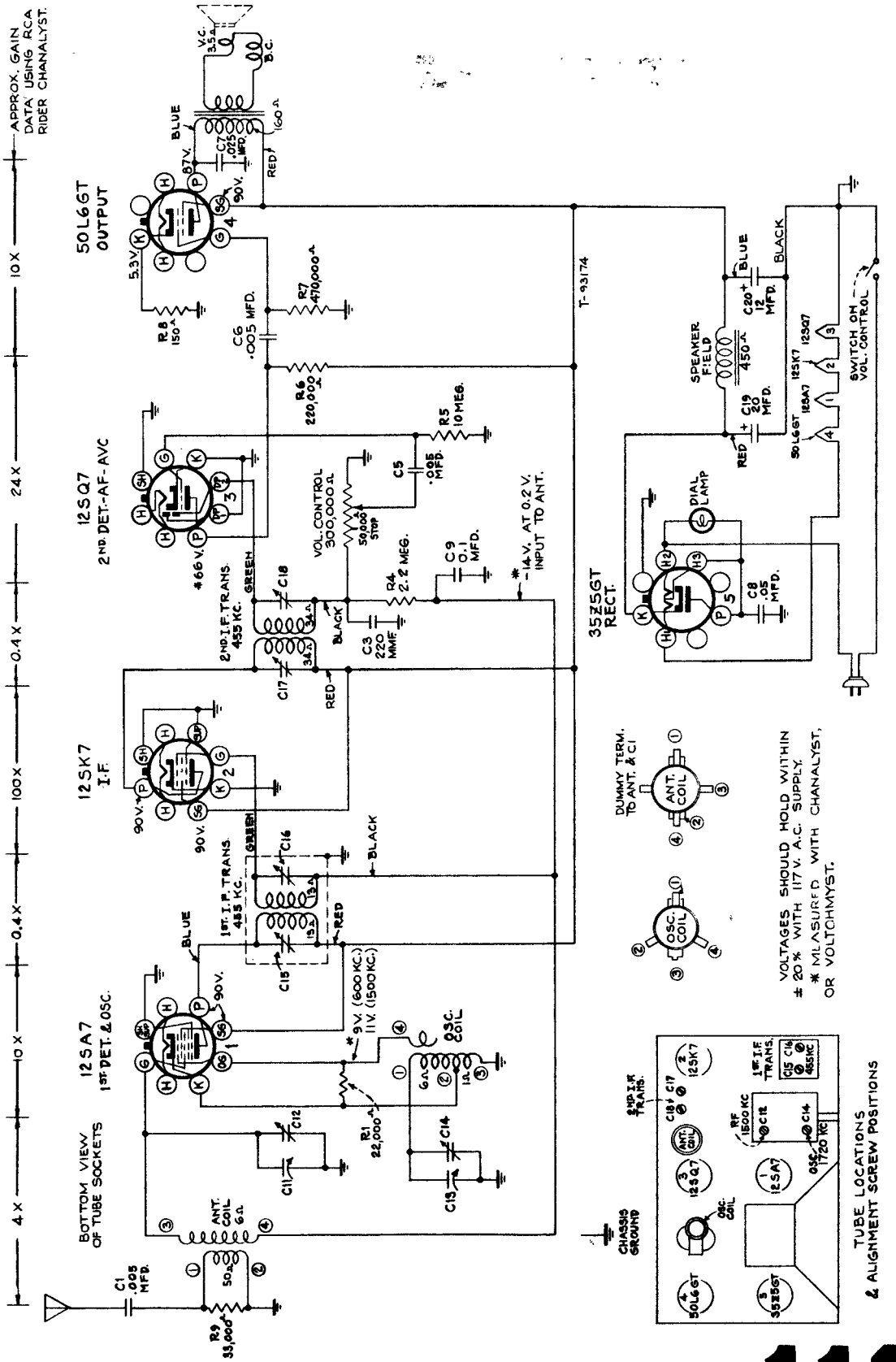
RCA Models 500, 501



Alignment Procedure

RCA Model V-105

Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

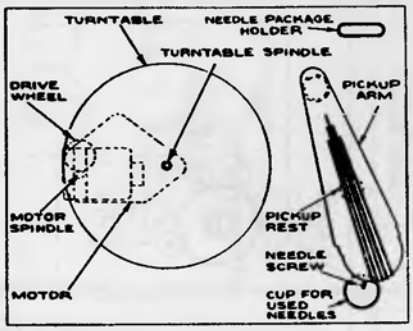
Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

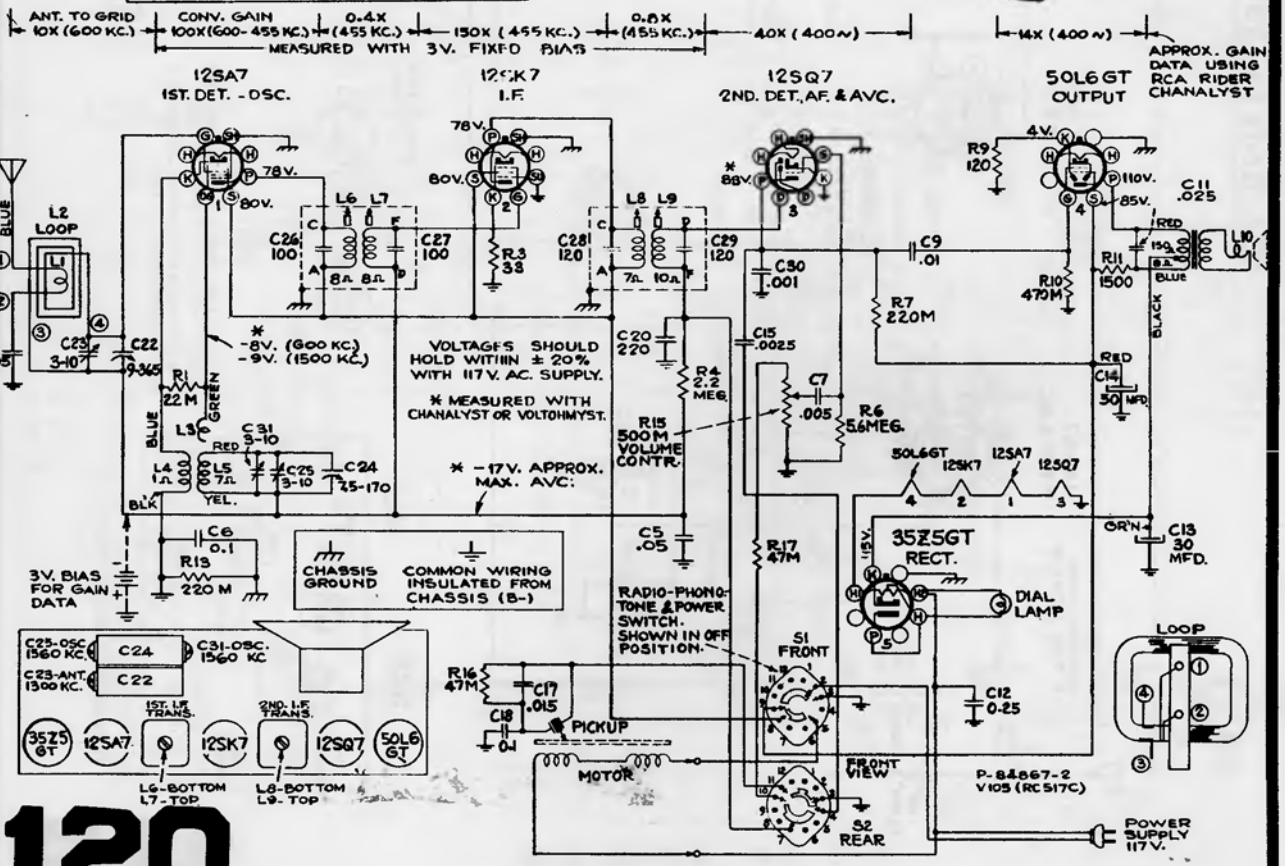
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,650 kc	Gang at minimum	C25 (osc.) C31 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C23 (ant.)
5	Repeat steps 3 and 4.			

Phonograph Motor Service Data:—

The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. Caution—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.





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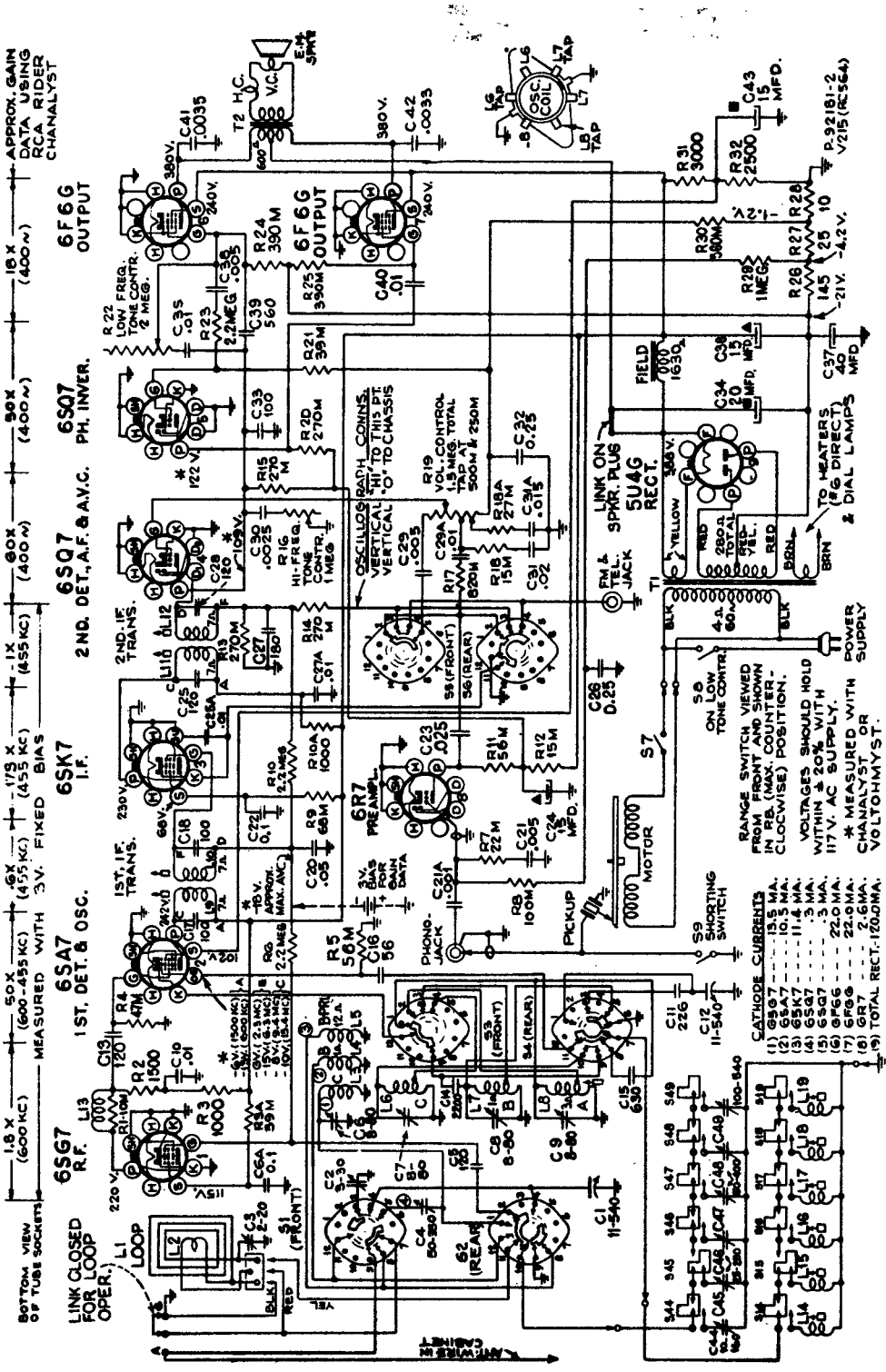
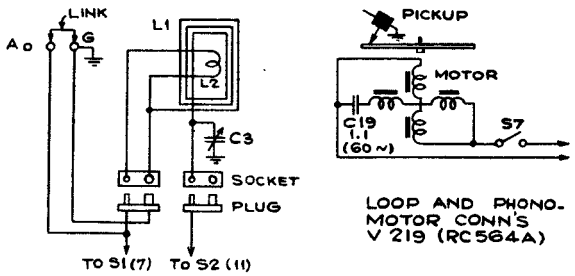
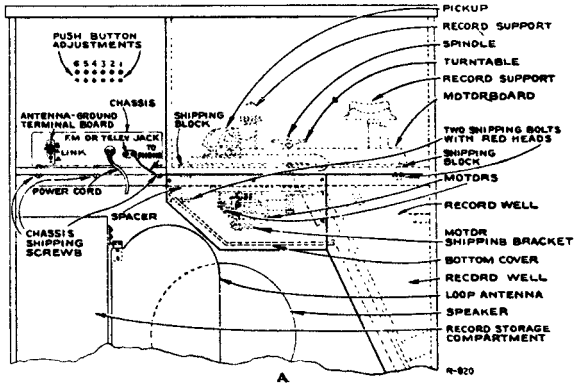
RCA Models V-215, V-219, V-221, V-225



In Model V-219, the loop and phono motor connections are different, as shown in separate diagram on a following page. In Model V-225, R-8 is 220,000 ohms, R-17 is 1.8 Meg., and C-21 is .0035 mfd.

RCA Models V-215, V-219, V-221, V-225





Model V-225

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

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

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

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the full size calibration scale printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

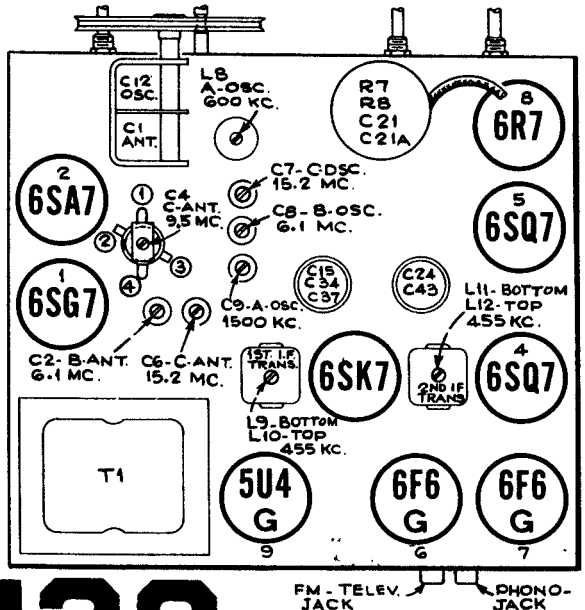
1. Remove the dial glass from the cabinet.
2. With gang at full mesh move the pointer to a point (1/16) inch to the left of the reference mark at the left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in place.

Using Dial Scale Printed In This Service Note.—

Follow the procedure above, substituting the dial scale printed in this service note for the glass dial in the cabinet.

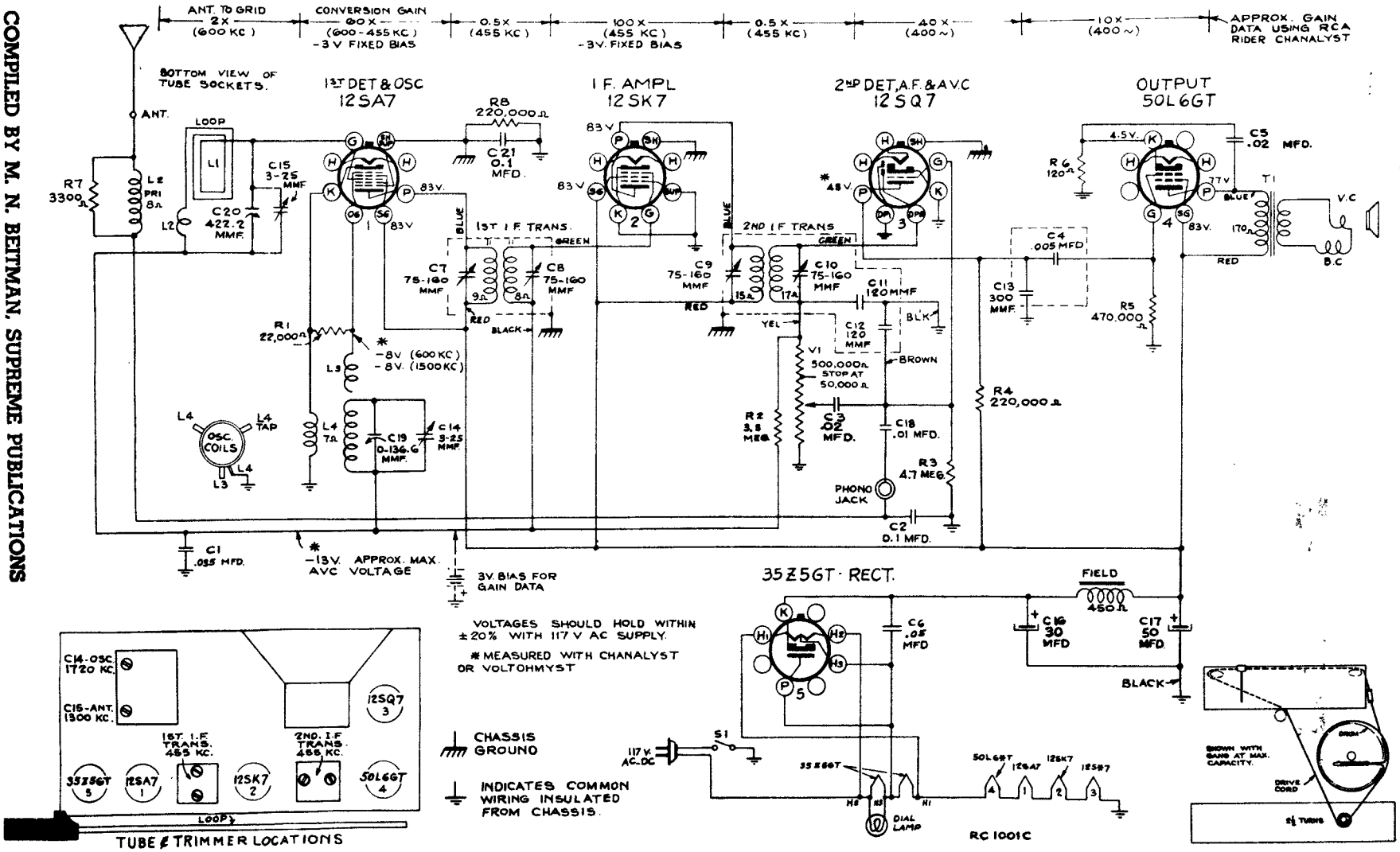
Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" Band 540 kc	L12, L11 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			L10, L9 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf. (link closed)	1,500 kc	"A" Band 1,500 kc	C9 (osc.)
4		600 kc	"A" Band 600 kc	L8 (osc.)
5		Repeat steps 3 and 4		
6	Ant. terminal in series with 47 mmf. (link closed)	6.1 mc	"B" Band 6.1 mc	C8 (osc.)* C2 (ant.)
7		15.2 mc	"C" Band 15.2 mc	C7 (osc.)* C6 (ant.)
8		9.5 mc	"C" Band 9.5 mc	C4 (ant.)
9		Repeat steps 7 and 8		
10	Install and connect chassis in cabinet, with link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band ant. trimmer C3 (on loop). Rock in L8 for peak output at 600 kc.			

* Use minimum capacity peak if two peaks can be obtained.
Oscillator tracks 455 kc above signal on all bands.



Critical Lead Dress

1. Push button, R.F. and oscillator leads should be separated as much as possible to reduce degeneration on push button reception.
2. R.F. choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer towards back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down towards green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmfd.) up and away from the screen and plate of 6SA7 socket.
14. A.C leads to "off-on" switch should be kept away from tone control cable to reduce hum.
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono.-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.



RCA Models 516, 517

Precautionary Lead Dress.—

1. Dress the power cable to switch on the volume control close to the chassis and away from all grid and diode leads and condensers.
2. Dress capacitors in the 12SQ7 grid circuit away from all wiring.
3. Green and black phono wires should be twisted and dressed away from other parts and leads.
4. 50L6-GT filament wires should be dressed to rear of chassis and away from the second I-F transformer leads.
5. Dress brown lead from second I-F transformer to 12SQ7 away from power cable.
6. Dress wire to No. 1 grid of the 12SA7 away from pilot lamp leads.
7. Dress wire from loop to variable condenser away from chassis.
8. Dress all capacitors, leads, etc. which come close to oscillator coil rigidly and as far as possible from it.

RCA Models 526, 527

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

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus.

Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a .01 mfd. capacitor. When the electronic voltmeter is used as an alignment indicator the output of the test oscillator should be adjusted to produce several volts of AVC. With the output meter alignment method the test oscillator output should be kept as low as possible.

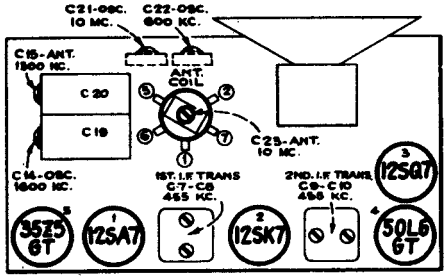
Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

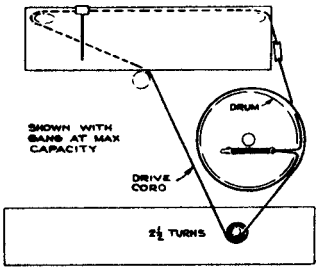
Power-Supply Polarity.—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

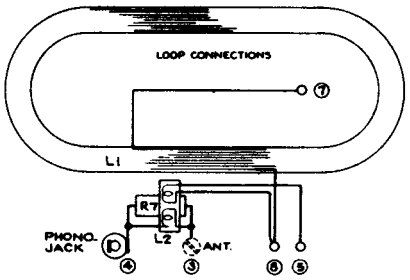
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	12SK7 grid in series with 0.1 mfd.	455 kc	Quiet Point at 1,600 kc end of dial	C10, C9 2nd I-F Transformer
2	12SA7 grid in series with 0.1 mfd.			C8, C7 1st I-F Transformer
3	Antenna term. in series with 47 mmf.	10 mc*	10 mc	C21 (osc.)** C23 (ant.)
4	Antenna term. in series with 200 mmfd.	1,600 kc	1,600 kc	C14 (osc.)
5	Radiation Loop	1,300 kc	Resonance on Signal	C15 (ant.)
6	Radiation Loop	600 kc	600 kc	C22 Osc. Rock in

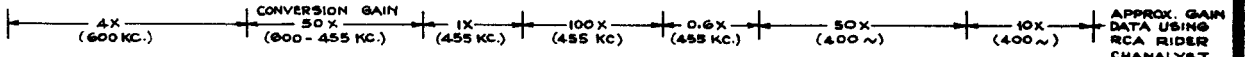
* It is recommended that this step be repeated using a received station of known frequency.

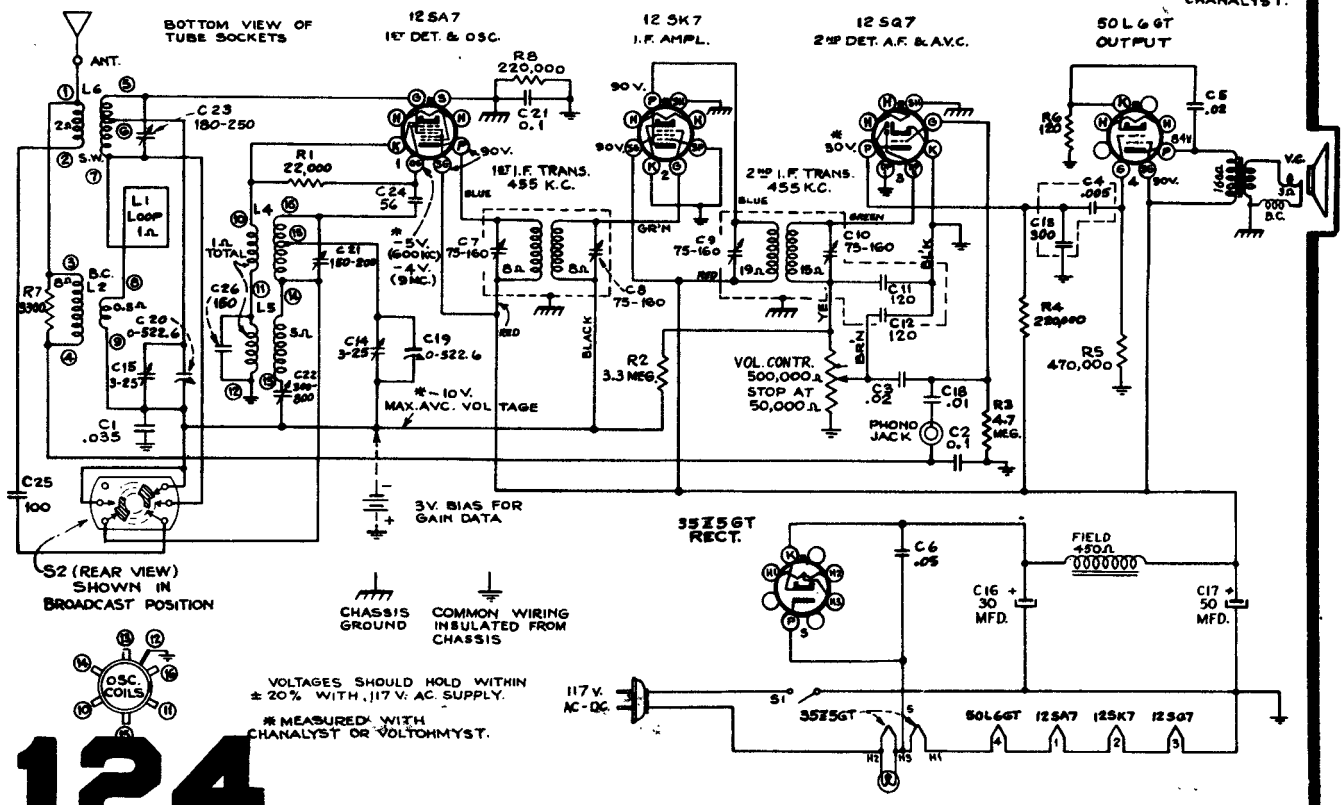
** Use minimum capacity if two peaks can be obtained.











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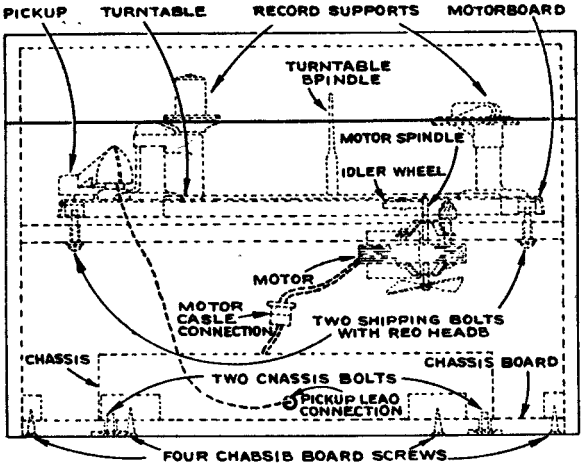
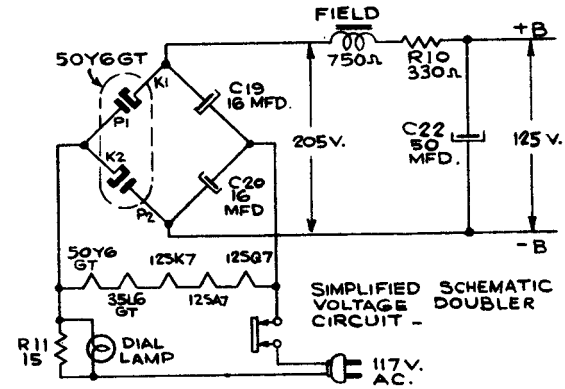


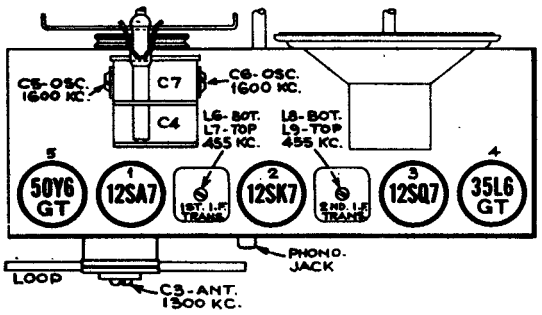
Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

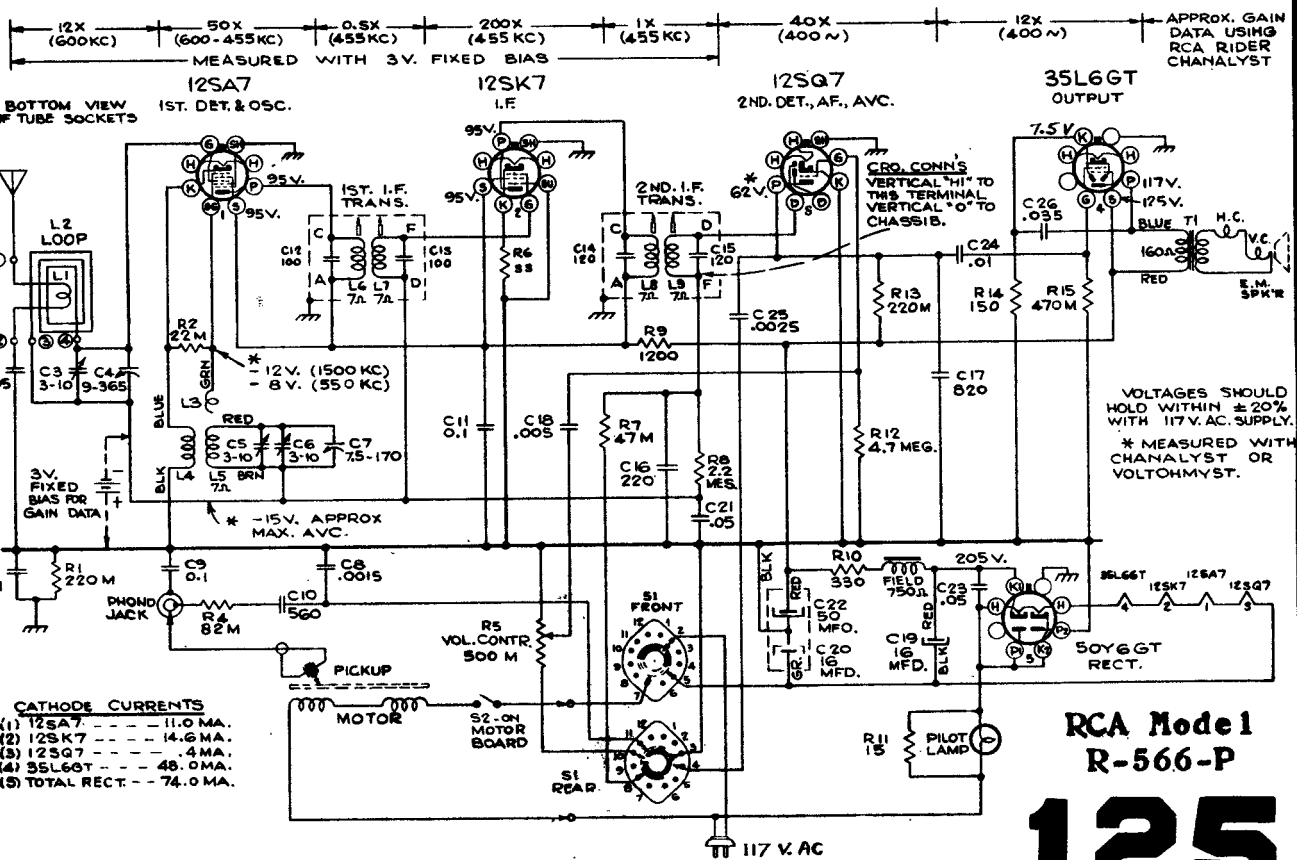
Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

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

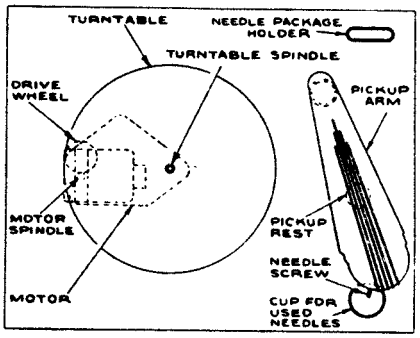
Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I-F transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,600 kc	Gang at minimum	C5 (osc.) C6 (osc.)
4	Radiated signal 1,300 kc		Signal Frequency	C3 (ant.)
5	Repeat steps 3 and 4.			



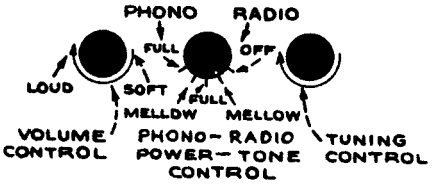




RCA Model R-566-P



RCA Model R-560-P



Output Meter Alignment.—Connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—Connect the low side of the test-oscillator to the receiver chassis, through a .01 mfd. capacitor, and keep the output as low as possible.

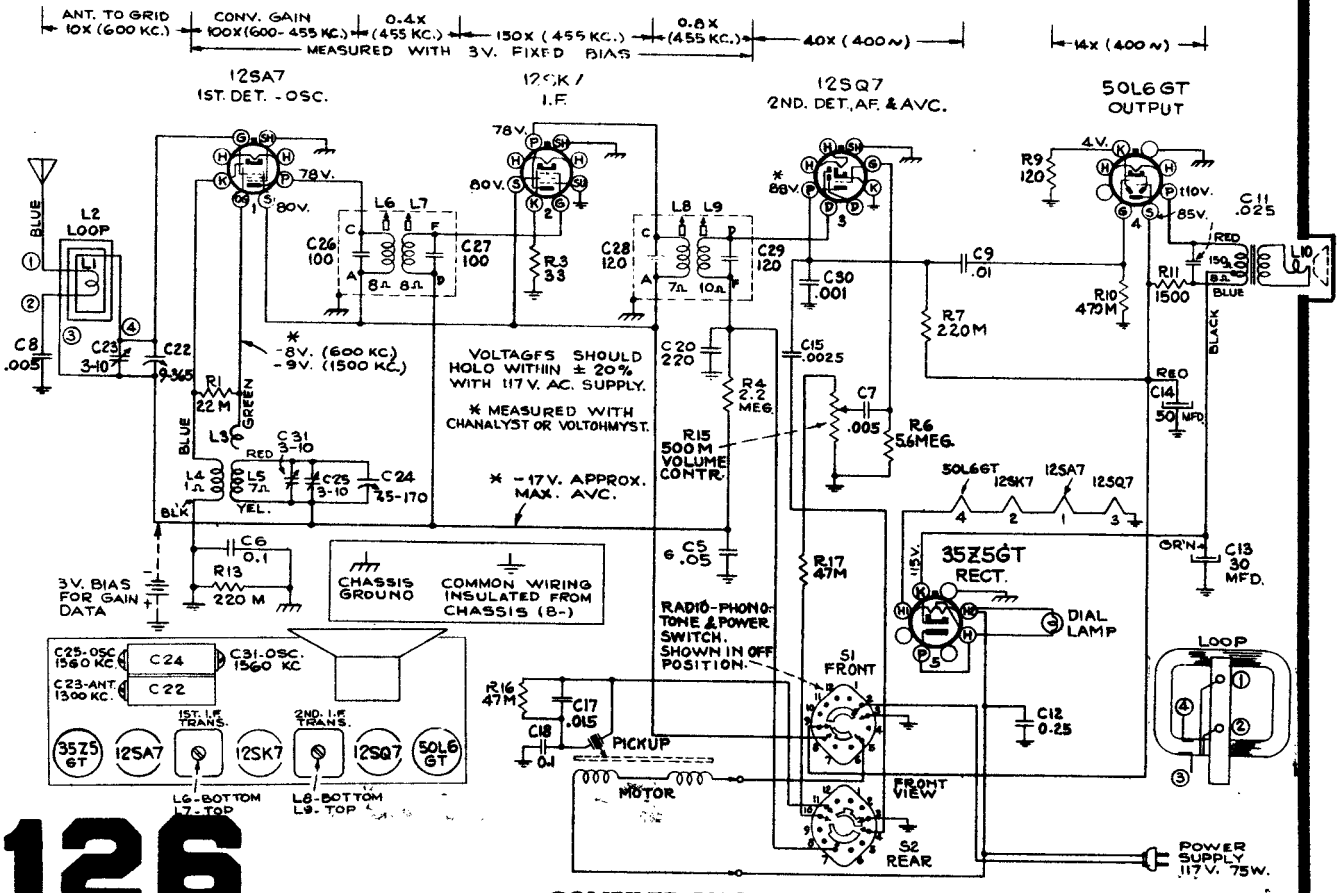
Phonograph Motor Service Data:—

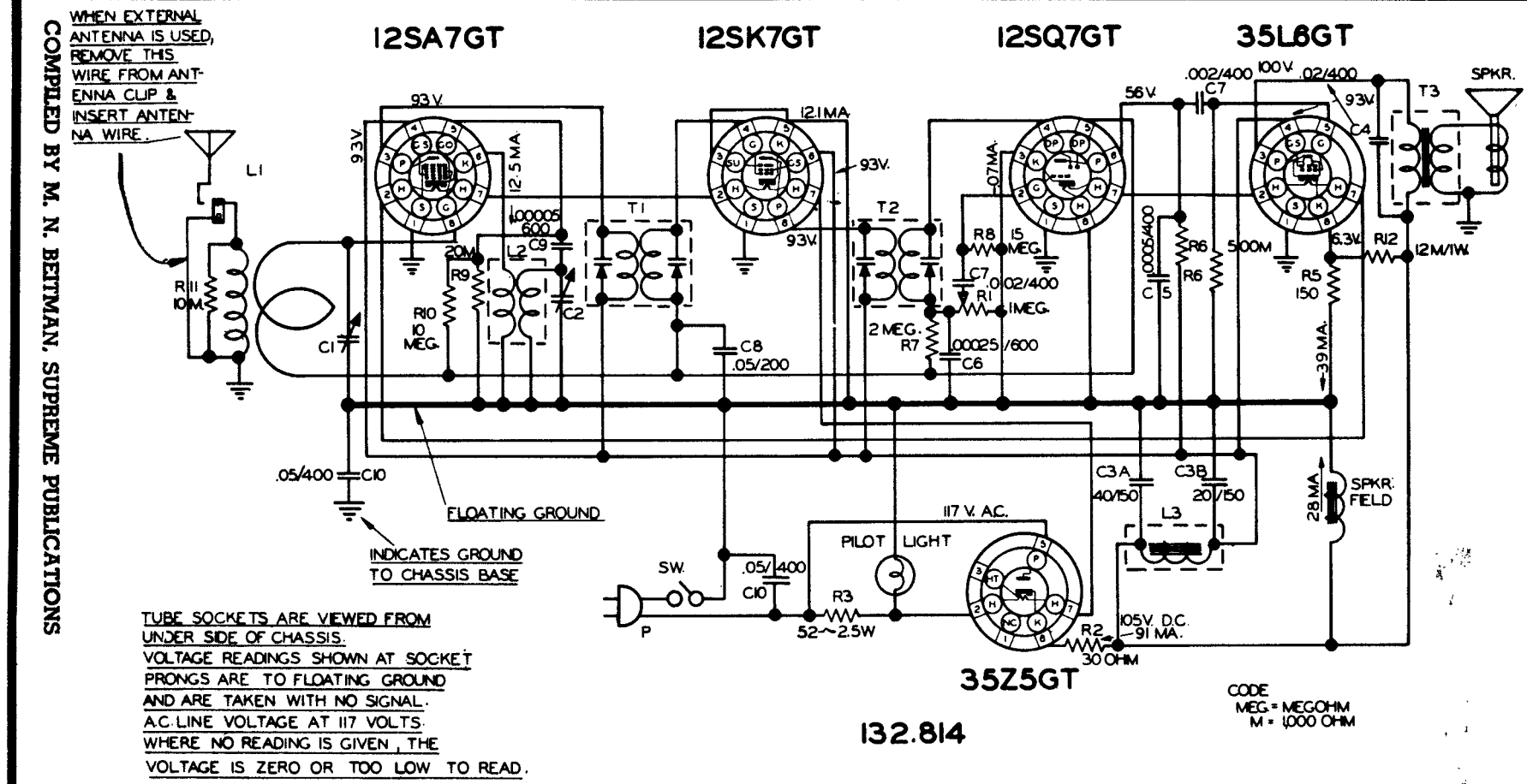
The phonograph motor is of the self starting synchronous type and operates the turntable through friction drive between the motor drive spindle and the rubber tired idler on the rim of the turntable.

The motor should be lubricated once or twice a year by placing a few drops of S. A. E. 20 (or equivalent) on the turntable spindle and saturating the oil retaining felt pads on the motor shaft with S. A. E. 10 oil. **Caution—The motor drive spindle and the rubber tire on the idler must be kept clean and entirely free from oil and grease at all times.**

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

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,800 kc end of dial	L8 and L9 2nd I-F transformer
2	1st Det. grid in aeries with .01 mfd.			L6 and L7 1st I-F transformer
3	Ant. terminal in series with 200 mmfd.	1,650 kc	Gang at minimum	C25 (osc.) C31 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C23 (ant.)
5	Repeat steps 3 and 4.			





132.814

SEARS, ROEBUCK AND CO.

Models 7020 and 7022

Factory No. 132.814

Sears, Roebuck and Co. Model 7057. Factory No. 141.418

Output meter connection . . . . . Across loudspeaker voice coil
Output meter reading to indicate 500 milliwatts . . . . . 1.25 volts
Generator ground lead connection . . . . . Receiver chassis
Dummy antenna value to be in series with generator output . . . . . See chart below
Connection of generator output lead . . . . . See chart below
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully clockwise
Position of Tone Control . . . . . HI
Position of Dial Pointer with variable fully closed . . . . . On first mark to left of 540 kc calibration mark.

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	ANT.COUPLED APPROXIMATE MICROVOLTS
Open	455 kc	.1 mfd.	7H7 Grid	T2,T1	IF	--
Fully open	1720 kc	.00005 mfd.	Ant. Lead	C2B*	Oscillator	--
1400 kc	1400 kc	.00005 mfd.	Ant. Lead	C2A*	Antenna	80**

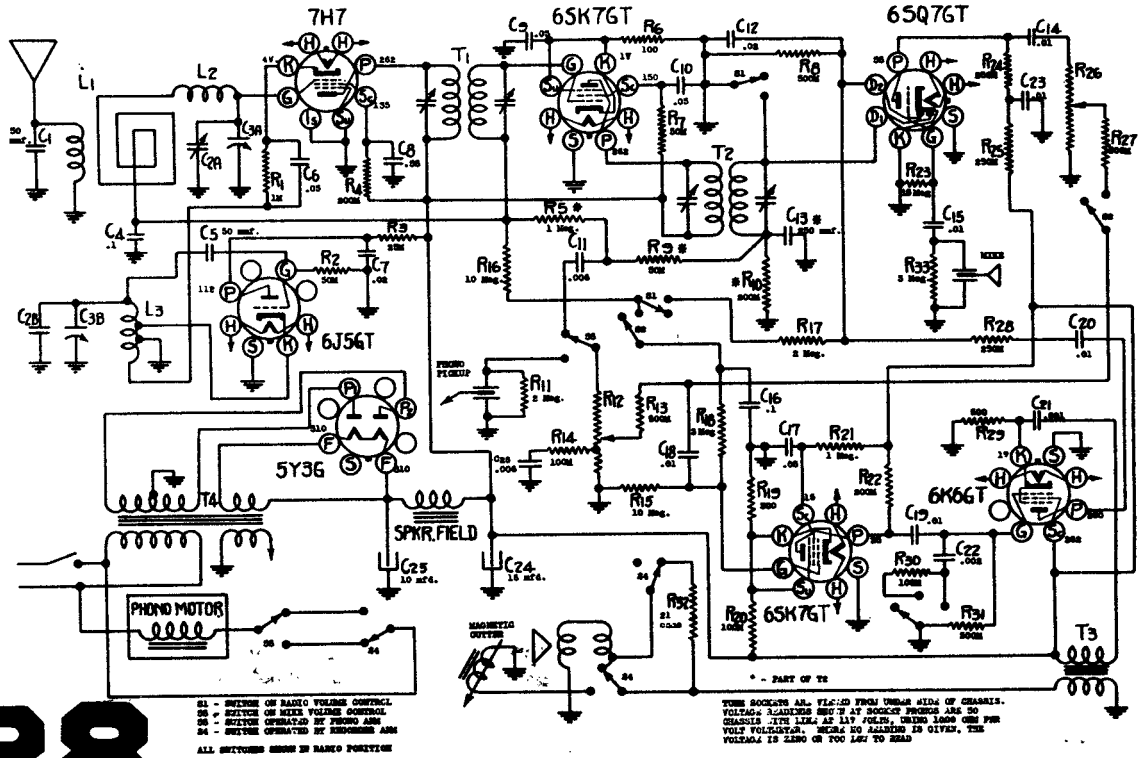
IMPORTANT ALIGNMENT NOTES

* C2 A and B are best adjusted when the receiver is in the cabinet, through holes provided in the back cover.

** 120 microvolts per meter using standard Hazeltine alignment loop 24 inches from receiver loop.

For operation of the chassis outside the cabinet with the phonograph plug disconnected, connect a jumper wire across the two top terminals of the phono socket,and between the two terminals marked "X" on the Recorder socket shown below.

The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.



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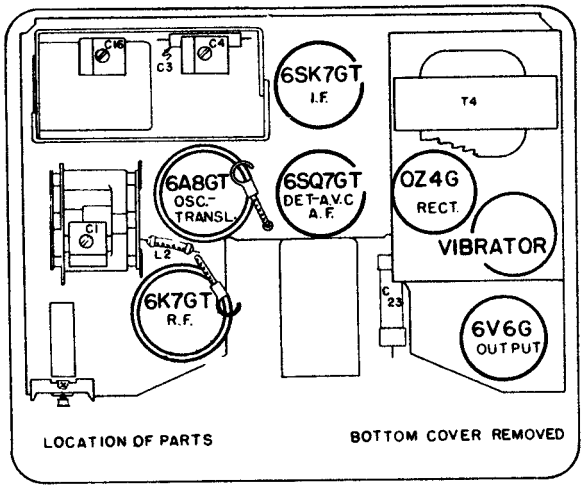
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

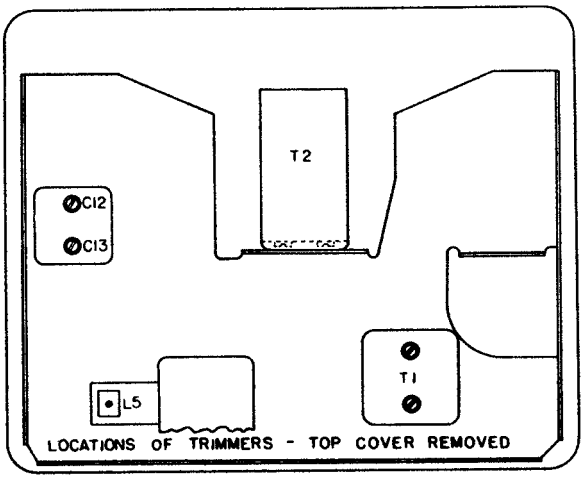
SEARS, ROEBUCK AND CO.

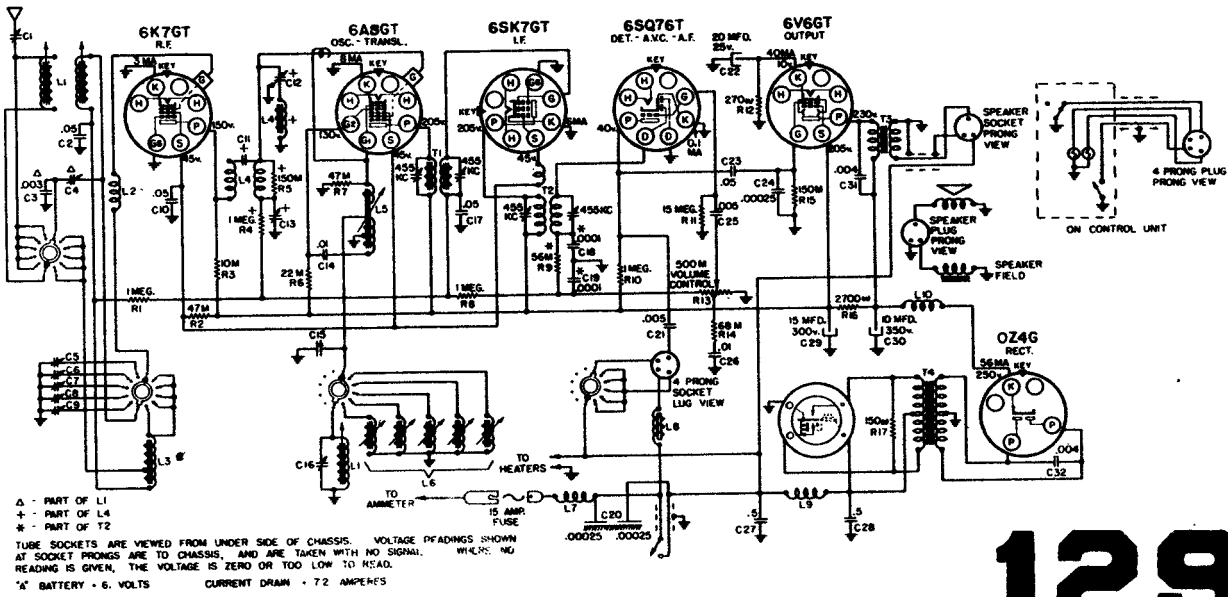
Model 7094. Factory No. 101.667

Output meter connections . . . . . Across loud speaker voice coil
Connection of signal generator ground lead . . . . . Receiver Chassis
Connection of signal generator output lead . . . . . See chart below
Dummy antenna value to be in series with generator output. . . . . See chart below
Position of Volume Control . . . . . Fully on
Position of Tone Control . . . . . Brilliant

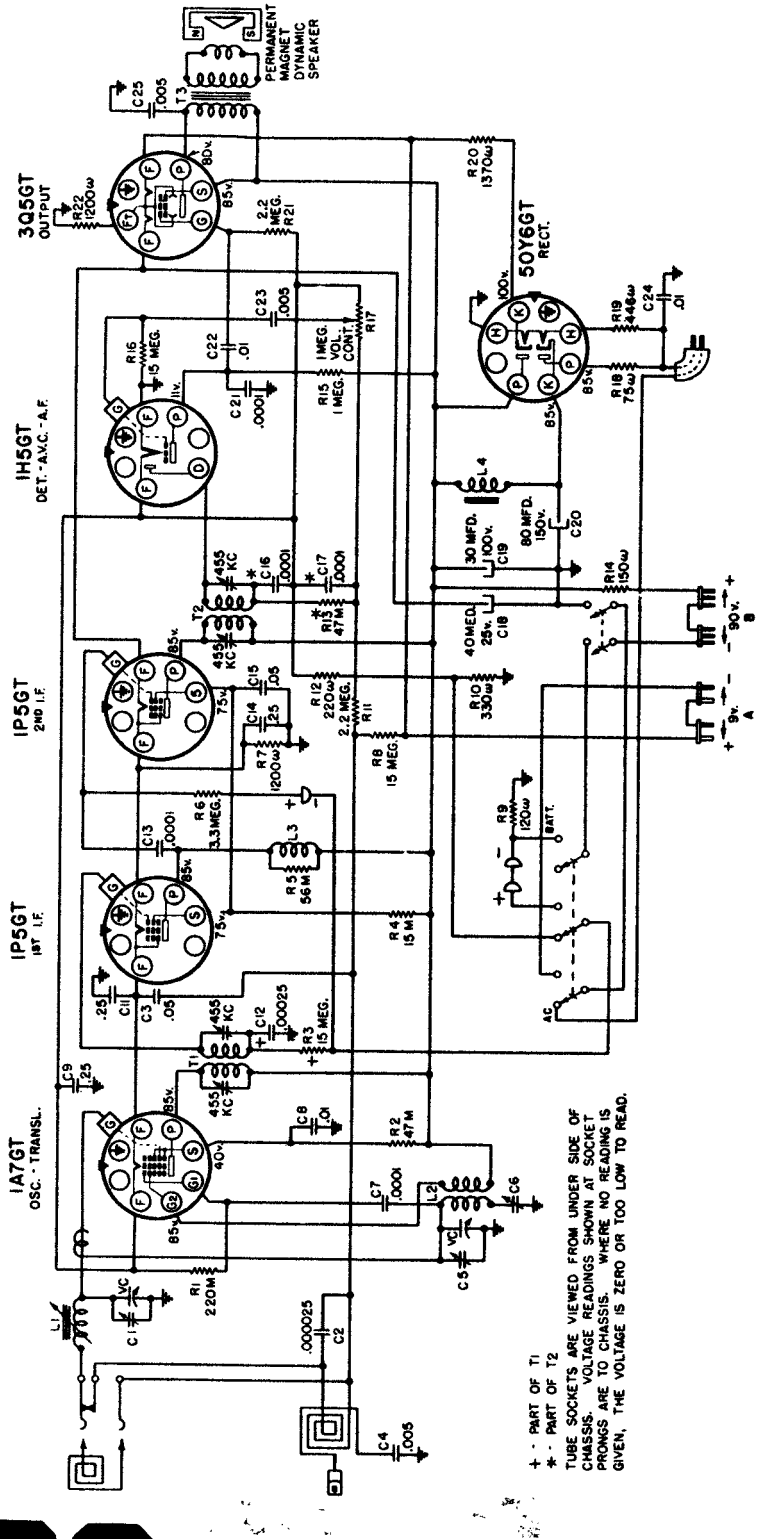
POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION
Low Freq.Limit	455 kc	.1 mfd.	Transl. Grid	T2, T1	IF
Low Freq.Limit	455 kc	.1 mfd.	Transl. Grid	C12*	IF Wave Trap
Hi Freq.Limit	1610 kc	.00005 mfd.	Ant. Conn.	C16	Oscillator
Hi Freq.Limit	2520 kc	.00005 mfd.	Ant. Conn.	C13*	Image Rejector
Hi Freq.Limit	1610 kc	.00005 mfd.	Ant. Conn.	C16	Oscillator
Hi Freq. Limit	1610 kc	.00005 mfd.	Ant. Conn.	C1	Antenna
Hi Freq. Limit	1610 kc	.00005 mfd.	Ant. Conn.	C4	R.F.
600 kc (rock)	600 kc	.00005 mfd.	Ant. Conn.	L5	Padder



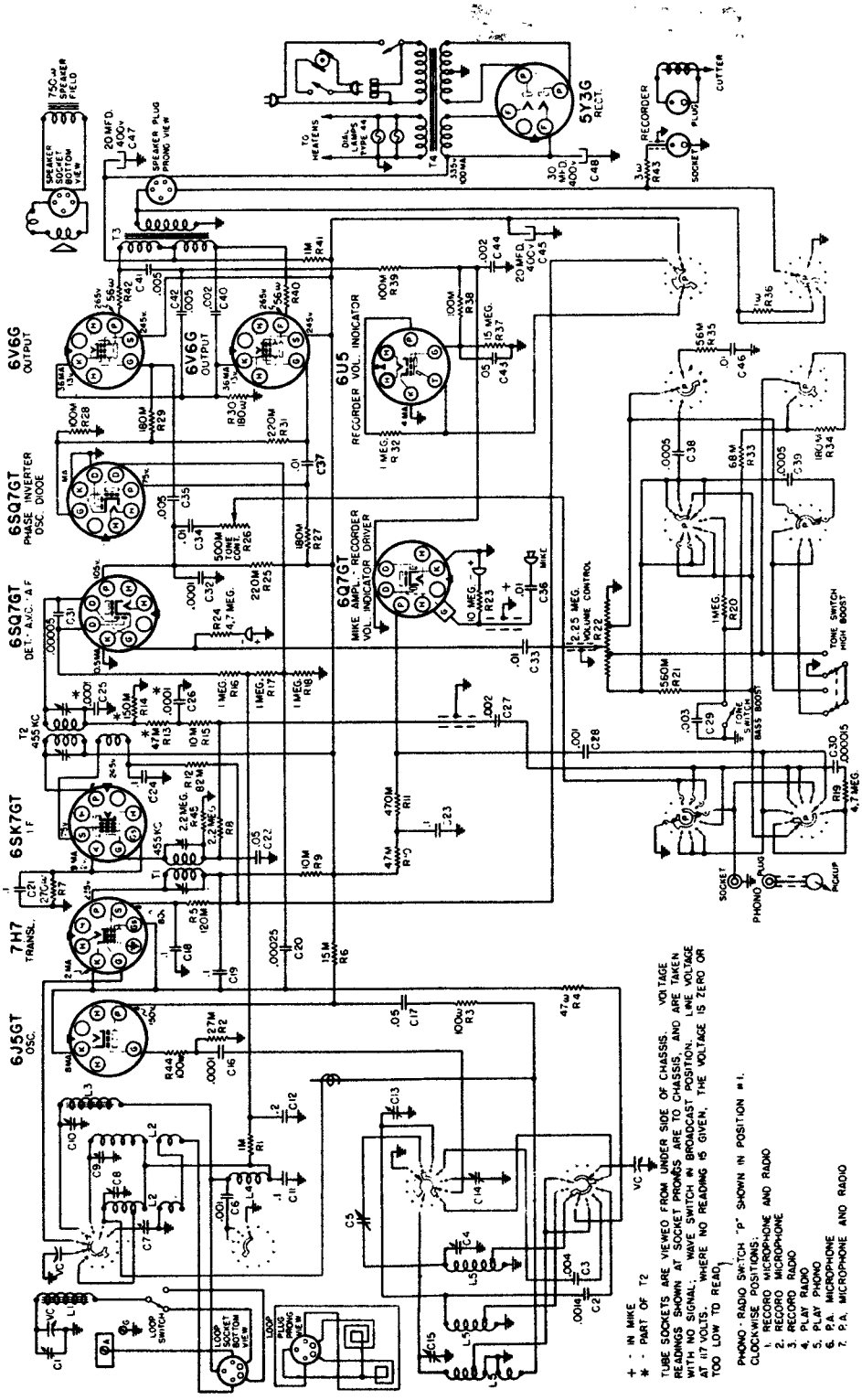




Sears, Roebuck and Co. Model 7083. Factory No. 101.686



POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENT (IN ORDER SHOWN)	TRIMMER FUNCTION
Closed	455 kc	.1 mfd.	1A7GT Translator Grid	T2, T1	IF
Open	1620 kc	-	Radiating Loop	C5	Oscillator
1400 kc.	1400 kc	-	Radiating Loop	C1	Translator
600 kc (rock)	600 kc	-	Radiating Loop	C6, L1	Padder

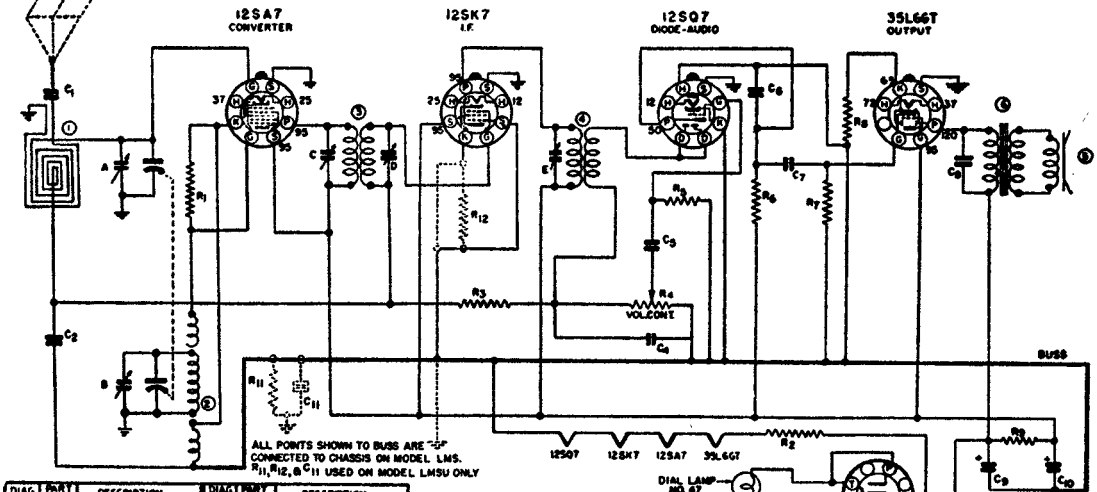


Sears, Roebuck and Co. Model 7070. Factory No. 101.682

Sonora

Clear as a Bell

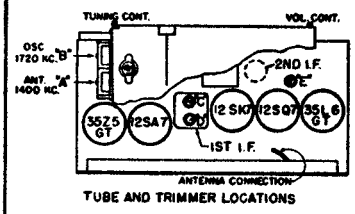
RADIO & TELEVISION CORP.



DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1627	20,000 OHM .5W. 20%
R2	N-1618	80 OHM .5W. 10%
R3	N-1262	1 MEGOHM .5W. 20%
R4	N-3877	.5 MEGOHM VOL.CONT.
R5	N-1418	6 MEGOHM .5W. 20%
R6	N-1261	250,000 OHM .5W. 20%
R7	N-1264	500,000 OHM .5W. 20%
R8	N-3758	200 OHM .5W. 10%
R9	N-3541	1,000 OHM .5W. 20%
R10	N-1412	25 OHM .5W. 20%
R11	N-1779	150,000 OHM .5W. 20%
R12	N-1482	250 OHM .5W. 20%
C1	N-1344	.01 MFD. 400V.
C2	N-1345	.05 MFD. 200V.
C3	N-1346	.05 MFD. 400V.
C4	N-1374	100 MMFD.
C5	N-2712	.004 MFD. 400V.
C6	N-1447	.0005 MFD. 400V.
C7	N-1344	.01 MFD. 400V.
C8	N-1376	.02 MFD. 400V.
C9	N-3302	35 MFD. 150V. ELECT.
C10		30 MFD. 150V.
C11	N-3086	.22 MFD. 200V.

DIAG. NO.	PART NO.	DESCRIPTION
1	N-4323	ANTENNA COIL LOOP
2	N-3298	OSCILLATOR COIL
3	N-3876	1ST I.F. TRANSFORMER
4	N-3754	2ND I.F. TRANSFORMER
5	N-4318	4" SPEAKER
6	N-3899	OUTPUT TRANSFORMER
	N-4310	2 GANG CONDENSER

NOTE VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS.....HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.



TUBE AND TRIMMER LOCATIONS

MODEL LMS-LMSU

5 TUBE AC-DC

Voltages shown on the circuit diagram are from socket terminals to ground buss. In measuring voltages use a voltmeter having a resistance of at least 1000 ohms per volt. Allowances should be made for variations in line voltage.

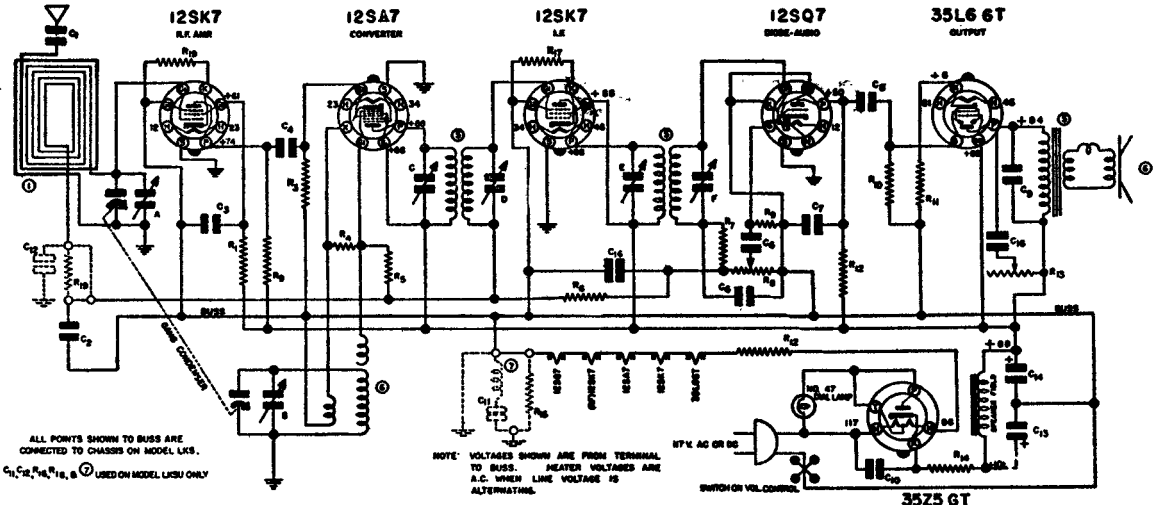
ALIGNMENT PROCEDURE

GENERAL DATA. The alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400 and 1720 KC and an output meter to be connected across the primary and 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.) stages should be aligned properly as the first step. After the I.F. transformers have been properly adjusted and peaked, the broadcast band should be adjusted.

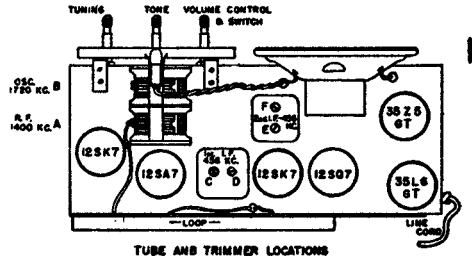
I. F. ALIGNMENT. Remove the chassis and loop antenna from the cabinet and set them up on the bench so that they occupy exactly the same respective positions on the bench as they did in the cabinet. Care should be taken to have no iron or other metal near the loop. Do not make this set-up on a metal bench. With 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 (12SA7) through a .05 or .1 mfd. condenser. The ground on the test oscillator should be connected to the ground buss, indicated on the circuit diagram. Align all three I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT. Connect the test oscillator to the antenna of the set through a 100 mmfd. (.0001) condenser. With the gang condenser set at minimum capacity, set the test oscillator at 1720 KC, and adjust the oscillator (or 1720 KC trimmer) on gang condenser. Next—set the test oscillator at 1400 KC, and tune in the signal on the gang condenser. Adjust the antenna trimmer (or 1400 KC trimmer) for maximum signal. Next set the test oscillator at 600 KC, and tune in signal on condenser to check alignment of coils.



DIAG NO	PART NO	DESCRIPTION
C1	N-1344	.01 MFD. 400 V. 20%
C2	N-1345	.05 MFD. 200 V. 20%
C3	N-1345	.05 MFD. 200 V. 20%
C4	N-2383	150 MMFD. MICA 20%
C5	N-1374	100 MMFD. MICA 20%
C6	N-2263	.003 MFD. 600 V. 20%
C7	N-1447	.0005 MFD 400V. 20%
C8	N-1344	.01 MFD. 400 V. 20%
C9	N-1376	.02 MFD. 400 V. 20%
C10	N-1345	.05 MFD. 400 V. 20%
C11	N-3060	.22 MFD. 200 V. 10%
C12	N-1345	.05 MFD. 200 V. 20%
C13, C14	N-4015	(35 MFD. 150 W.V. / 30 MFD. 150 W.V.) ELECTROLYTIC
C15	N-1346	.05 MFD. 400 V. 20%
C16	N-1374	100 MMFD. MICA 20%
R1	N-1259	15,000 OHM .5 W. 20%
R2	N-4065	2200 OHM .5 W. 10%
R3	N-4063	47,500 OHM .5 W. 20%
R4	N-4085	22,000 OHM .5 W. 20%
R5	N-1263	.10 MEGOHM .5 W. 20%
R6	N-4062	3.3 MEGOHM .5 W. 20%
R7	N-4063	47,000 OHM .5 W. 20%
R8	N-4071	0.25 MEGOHM VOLUME CONTROL
R9	N-4061	4.7 MEGOHM .5 W. 10%
R10	N-4027	470,000 OHM .5 W. 20%
R11	N-4067	180 OHM 5 W. 10%
R12	4088	220,000 OHM 5 W. 20%
R13	N 4033	25,000 OHM TONE CONTROL
R14	N-4068	33 OHM 1.0 W 20%
R15	N-4068	33 OHM 1.0 W 20%
R16	N-4086	220,000 OHM 5 W 20%
R17	N-1481	75 OHM 5 W 20%
R18	N-1252	MEGOHM 5W 20%
R19	N-1481	75 OHM 5 W 20%
1	N-4032	ANTENNA LOOP COIL
2	N-3298	OSCILLATOR COIL
3	N-4088	1ST I.F. TRANSFORMER
4	N-4070	2ND. I.F. TRANSFORMER
5	N-4086	OUTPUT TRANSFORMER
6	N-4478	6" DYNAMIC SPEAKER
7	——	CHOKE (WOUND ON C13)
	N-4031	2 GANG CONDENSER

I.F.—456 K.C.

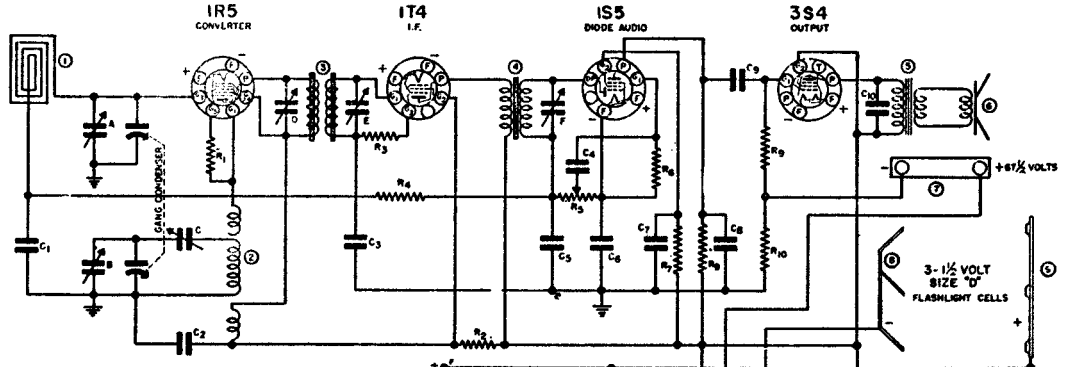


TUBE AND TRIMMER LOCATIONS

MODEL LKS

6 TUBE A.C.-D.C. SUPERHETERODYNE

Sonora Radio



DIAG NO	PART NO.	DESCRIPTION
R1	N-1778	100,000 OHM .5W 20%
R2	N-4278	4,700 OHM .5W 10%
R3	N-1263	10 MEGOHM .5W 20%
R4	N-4277	2.2 MEGOHM .5W 20%
R5	N-4213	1 MEGOHM VOLUME CONTROL
R6	N-4028	6.8 MEGOHM .5W 20%
R7	N-4062	3.3 MEGOHM .5W 20%
R8	N-1262	1 MEGOHM .5W 20%
R9	N-4277	2.2 MEGOHM .5W 20%
R10	N-4279	820 OHM .5W 10%
R11	N-4228	680 OHM .5W 10%
R12	N-4280	56 OHM .5W 10%
R13	N-4281	1800 OHM .5W 10%
R14	N-4065	2200 OHM .5W 10%
R15	N-4252	1870 OHM 4.8 W 5%
R16		82 OHM 1.3 W 10%
R17		1000 OHM 8.6W 10%
	N-4185	2 GANG CONDENSER
1	N-4296	LOOP ANTENNA (WOOD)
	N-4253	LOOP ANTENNA (PLASTIC)
2	N-4257	OSCILLATOR COIL
3	N-4170	1 ST I.F. TRANSFORMER
4	N-4259	2 ND I.F. TRANSFORMER
5	N-4256	OUTPUT TRANSFORMER
6	N-4255	3½" P.M. SPEAKER
7	N-4274	B BATTERY CONNECTOR
8	N-4220	A BATTERY SPRING CONTACT (NEGATIVE)
9	N-4222	A BATTERY CONTACT STRIP (POSITIVE)
	N-4215	CHANGEOVER SWITCH

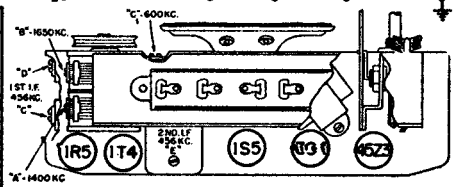
SWITCH SHOWN IN COUNTER-CLOCKWISE (AC-DC) POSITION.

(BOTH VIEWS AS SEEN FROM SHAFT END.)

FOR	CONTACTS MADE FRONT	CONTACTS MADE REAR
AC-DC	8-9, 11-12	2-3, 6-10
OFF	NONE	2-3-4, 8-10-11
BATTERY	2-3, 8-10	2-4-5-6, 8-9-10-12-1

I.F. 456 KC

DIAG NO.	PART NO.	DESCRIPTION
C1	N-1345	.05 MFD. 200 V.
C2	N-1345	.05 MFD. 200 V.
C3	N-1344	.01 MFD. 400 V.
C4	N-2712	.004 MFD. 400 V.
C5		.0001 MFD. (IN 2nd. I.F. CAN)
C6	N-1351	.1 MFD. 200 V.
C7	N-1344	.01 MFD. 400 V.
C8	N-1342	50 MMFD. MICA
C9	N-1344	.01 MFD. 400 V.
C10	N-2712	.004 MFD. 400 V.
C11		100 MFD. 12V.
C12	N-4206	30 MFD. 150V. ELECTROLYTIC
C13		30 MFD. 150 V.
C14	N-1346	.05 MFD. 400 V.



TUBE AND TRIMMER LOCATIONS

Model LP

5 TUBE-3 WAY PORTABLE

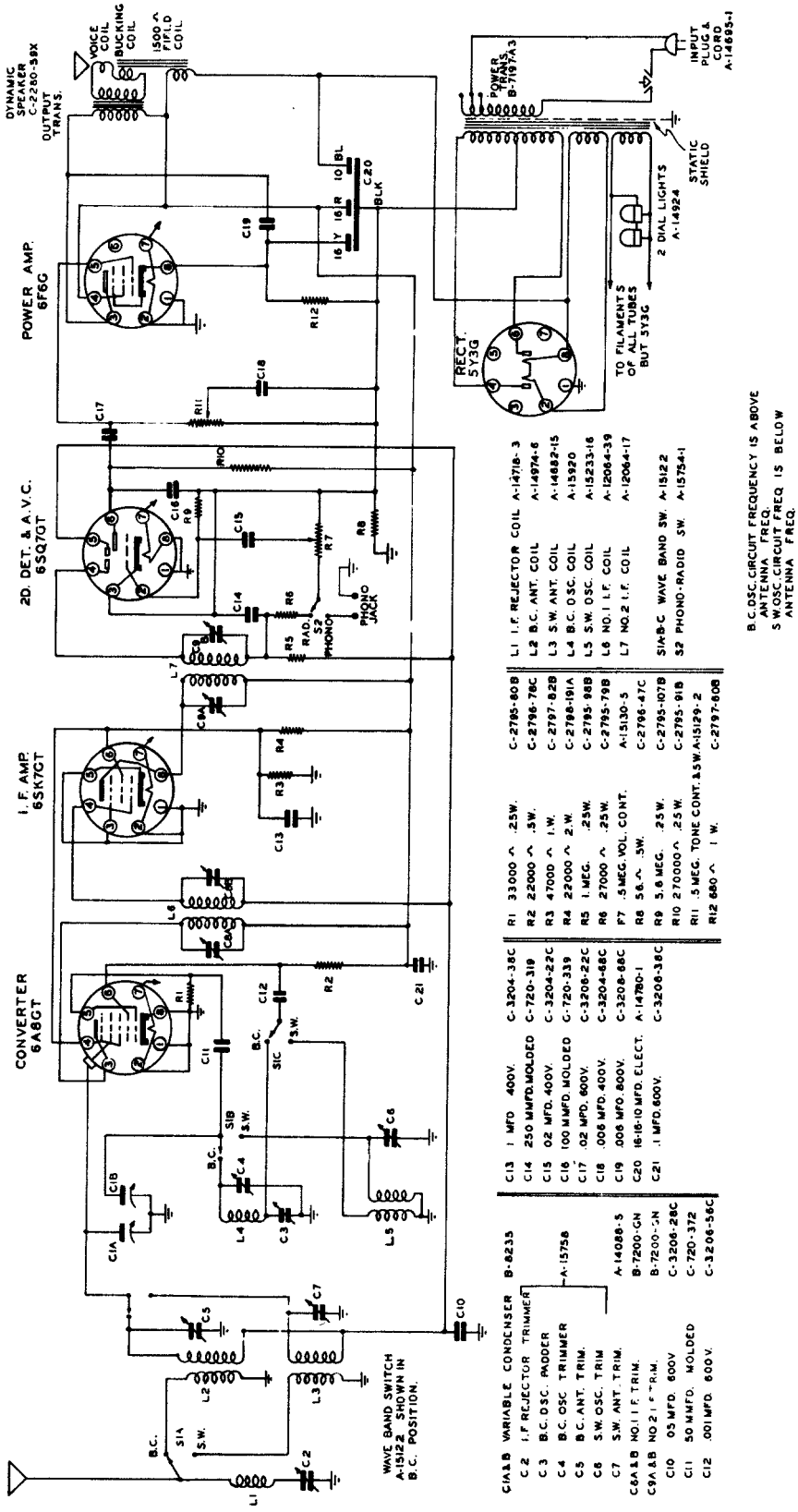
BATTERY, 110-120 VOLTS AC OR DC. SUPERHETERODYNE

SINGLE BAND

Sonora Radio

SPARTON SUPERHETERODYNE MODEL 531-X & 532-X
INTERMEDIATE FREQUENCY 456 K.C.

BOTTOM VIEW OF ALL SOCKET CONNECTIONS



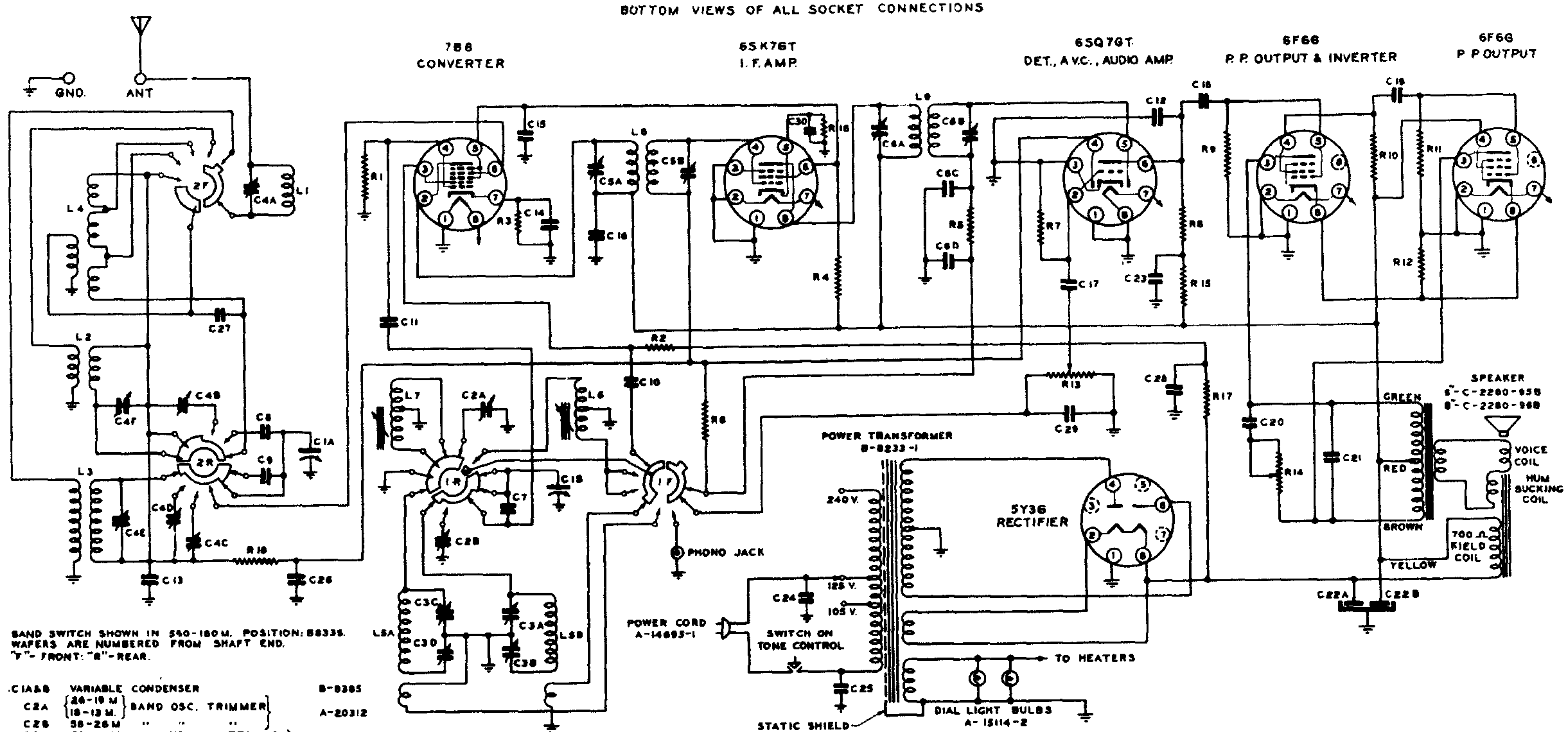
C1A&B	VARIABLE CONDENSER	B-8235
C2	I.F. REJECTOR TRIMMER	A-15156
C3	B.C. OSC. PADDER	
C4	B.C. OSC. TRIMMER	
C5	B.C. ANT. TRIM.	
C6	S.W. OSC. TRIM	
C7	S.W. ANT. TRIM.	A-14088-5
C8A&B	NO. 1 I.F. TRIM.	B-7200-GN
C9A&B	NO. 2 I.F. TRIM.	B-7200-GN
C10	.05 MFD. 600V	C-3206-28C
C11	50 MMFD. MOLDED	C-720-372
C12	.001 MFD. 600V.	C-3206-56C
C13	1 MFD. 400V.	C-3204-38C
C14	250 MMFD. MOLDED	C-720-318
C15	.02 MFD. 400V.	C-3204-22C
C16	100 MMFD. MOLDED	C-720-339
C17	.02 MFD. 600V.	C-3206-22C
C18	.006 MFD. 400V.	C-3204-66C
C19	.006 MFD. 600V.	C-3206-66C
C20	16-16-10 MFD. ELECT.	A-14780-1
C21	.1 MFD. 600V.	C-3206-38C

R1	33000 Ω .25W.	C-2795-80B
R2	22000 Ω .5W.	C-2796-78C
R3	47000 Ω 1W.	C-2797-82B
R4	22000 Ω 2W.	C-2798-19A
R5	1 MEG. .25W.	C-2795-98B
R6	27000 Ω .25W.	C-2795-79B
R7	.5 MEG. VOL. CONT.	A-15130-5
R8	56 Ω .5W.	C-2796-47C
R9	5.6 MEG. .25W.	C-2795-107B
R10	270000 Ω .25W.	C-2795-91B
R11	.5 MEG. TONE CONT. & S.W.	A-15129-2
R12	680 Ω 1W.	C-2797-60B

L1	I.F. REJECTOR COIL	A-14718-3
L2	B.C. ANT. COIL	A-14974-6
L3	S.W. ANT. COIL	A-14882-15
L4	B.C. OSC. COIL	A-15920
L5	S.W. OSC. COIL	A-15233-16
L6	NO. 1 I.F. COIL	A-12064-39
L7	NO. 2 I.F. COIL	A-12064-17
S1A&B-C	WAVE BAND SW.	A-15122
S2	PHONO-RADIO SW.	A-15754-1

SPARTON SUPERHETERODYNE MODELS 652-X & 652-XD
INTERMEDIATE FREQUENCY 456 K.C.

BOTTOM VIEWS OF ALL SOCKET CONNECTIONS



BAND SWITCH SHOWN IN 560-180 M. POSITION: B8335.
WAFERS ARE NUMBERED FROM SHAFT END.
"F"- FRONT: "R"-REAR.

C1A&B	VARIABLE CONDENSER	B-8385
C2A	{26-19 M / 18-13 M.} BAND OSC. TRIMMER	A-20312
C2B	56-26 M " " "	
C3A	560-180 M. BAND OSC. TRIMMER	A-20313
C3B	" " " " " PADDER	
C3C	2200-750 M. BAND OSC. TRIMMER	
C3D	" " " " " PADDER	
C4A	I.F. REJECTOR TRIMMER	A-20314
C4B	18-13 M. BAND ANT. TRIMMER	
C4C	26-19 M " " "	
C4D	56-26 M " " "	
C4E	560-180 M " " "	
C4F	2200-750 M. " " "	
C5A&B	NO. 1 I.F. TRIMMER	B-7200-GN
C6A&B	NO. 2 I.F. TRIMMER	A-20114
C8C&D	100-100 MMF TWEET FILTER	
C7	70 MMF. CERAMIC	A-20252-1
C8	75 MMF CERAMIC	A-20252-8
C9	2000 MMF MICA 56-26M ANT. PADDER	C-720-394
C10	500 MMF MICA	C-720-316
C11	50 MMF "	C-720-315
C12	250 MMF "	C-720-324
C13	.05 MFD. 600 V. TUBULAR COND.	C-3208-285

C14	.25	MFD 200 V	TUBULAR COND.	C-3202-415
C15	.1	MFD. 600 V.	" "	C-3206-385
C16	.1	MFD. 600 V.	" "	C-3206-385
C17	.02	MFD. 600 V.	" "	C-3208-225
C18	.03	MFD. 600 V.	" "	C-3208-1365
C19	.01	MFD. 600 V.	" "	C-3206-765
C20	.02	MFD. 600 V.	" "	C-3208-1343
C21	.002	MFD 600 V.	" "	C-3206-1165
C22A	15	MFD. 450 V.	ELECTROLYTIC	A-20316
C22B	30	MFD. 450 V.		
C23	.1	MFD. 600 V	TUBULAR COND.	C-3206-385
C24	.006	MFD. 600 V.	" "	C-3206-1245
C25	.006	MFD. 000 V	" "	C-3206-1245
C26	.05	MFD. 600 V.	" "	C-3208-285
C27	15	MMF MICA		C-720-390
C28	16	MFD. 400 V.	ELECTROLYTIC	A-14782-11
C29	100	MMF MICA		C-720-325
C30	.1	MFD 400 V.	TUBULAR COND	C-3204-385

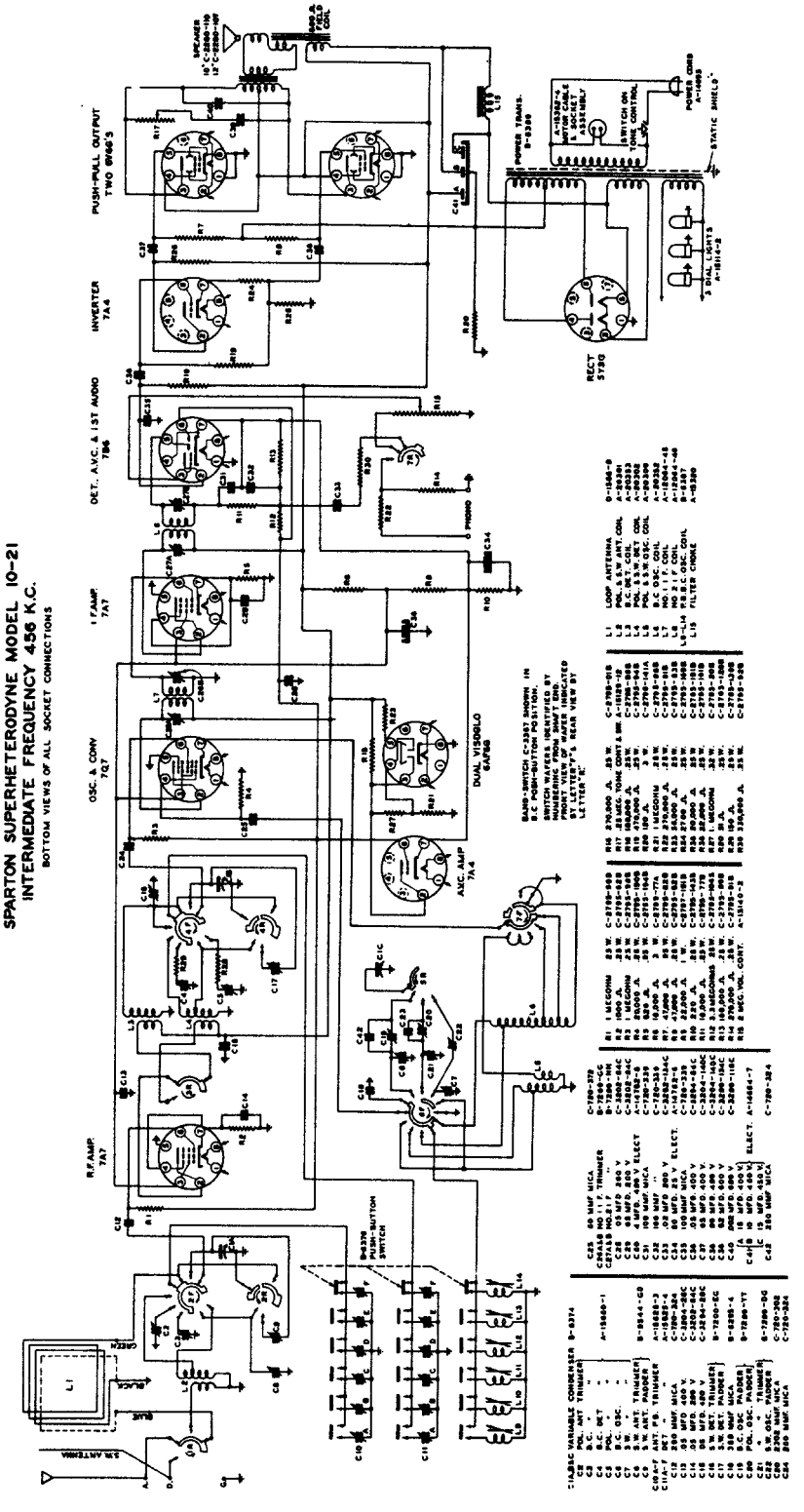
R1	58 KΩ	.25W.	C-2795-83B
R2	22 KΩ	.5 W.	C-2796-78C
R3	300 Ω	.25 W.	C-2795-146B
R4	33 KΩ	1 W.	C-2797-105B
R5	56 KΩ	.25 W.	C-2795-83B
R6	1 MEG.	.25 W.	C-2795-98B
R7	15 MEG.	.25 W.	A-15789
R8	220 KΩ	.5 W	C-2796-90C
R9	470 KΩ	.25 W.	C-2795-94B
R10	2700 Ω	5 W.	C-2798-169C
R11	470 KΩ	.25 W.	C-2795-94B
R12	330 Ω	1 W.	C-2797-147B
R13	500 KΩ	VOL. CONTROL	A-15130-6
R14	500 KΩ	TONE CONTROL	A-15131-2
R15	100 KΩ	.25 W.	C-2795-86B
R16	100 KΩ	.25 W.	C-2795-86B
R17	12 KΩ	1 W.	C-2797-185B
R18	300 Ω	.25 W	C-2795-146B

L1	I.F. REJECTOR	A-15772-2
L2	2200-750 M BAND ANT. COIL	A-15408-1
L3	560-180 M. " " "	A-14679-4
L4	{56-26 M. " " " / 26-19 M. " " " / 18-13 M. " " "}	A-20322
L5A	2200-750 M. BAND OSC. COIL	A-14213-15
L5B	560-180 M. " " "	
L6	{56-26 M. " " " / 26-19 M. " " "}	A-20320
L7	18-13 M " " "	A-20320-1
L8	NO. 1 I.F. COIL	A-12064-47
L9	NO. 2 I.F. COIL	A-12064-48

ON 2200-750 M. & 560-180 M. BANDS, OSC. FREQ. IS ABOVE SIGNAL FREQ.
ON 56-26M., 26-19M. & 18-13 M. " " " " BELOW " "

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

SPARTON SUPERHETERODYNE MODEL 10-21
INTERMEDIATE FREQUENCY 456 K.C.
BOTTOM VIEWS OF ALL SOCKET CONNECTIONS

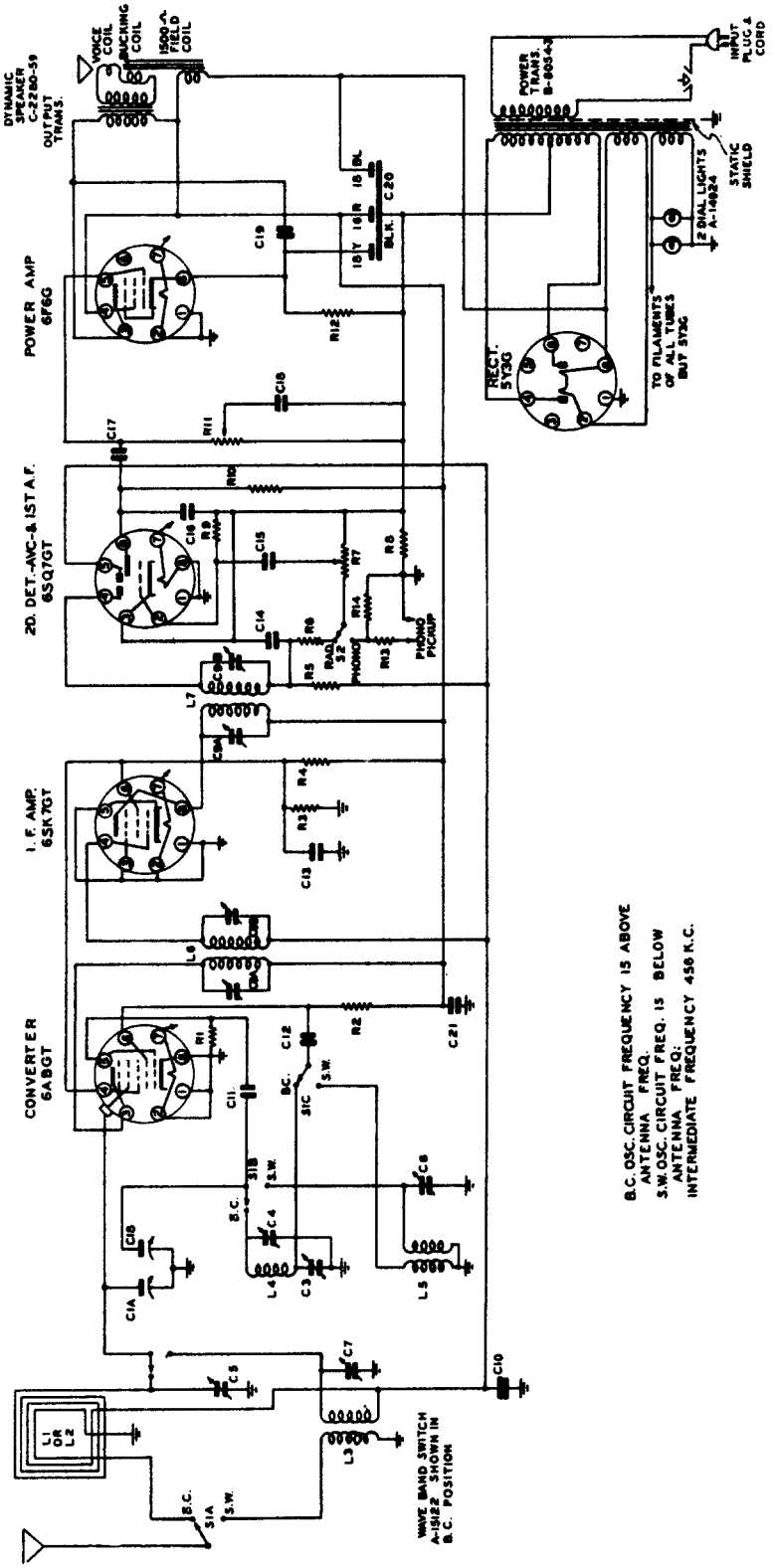


TUBE	FUNCTION	Voltage of Socket Prongs to Gnd. See Prong Nos. on Schematic Dia.								
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9
7A7	R-F Amplifier	0	260	75	3.8	0	0	3.8	6.2*	-
7Q7	Osc - Converter	0	260	75	-2.3	0	0	0	6.2*	-
7A7	I.F. Amplifier	0	260	75	3	0	0	3	6.2*	-
7B6	2nd Det - AVC - 1st Audio	0	140	0	1.1	0	.5	.6	6.2*	-
7A4	Inverter	0	223	50	0	0	17	60	6.2*	-
7A4	Viso-Glo Amplifier	0	40	160	0	275	0	1.2	6.2*	-
6V6G	Power Amplifier	0	2	260	265	-17	-17.5	6.3*	0	-
6V6G	Power Amplifier	0	0	260	265	-17	265	6.3*	0	-
5Y3G	Rectifier	0	390	0	355*	0	355*	0	390	-
6AF6G	Viso-Glo	0	0	40	17	260	0	6.2*	0	-

Notes: Voltage readings are for schematic diagram on back of sheet. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 20,000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages.
*AC volts.

SPARTON SUPERHETERODYNE MODELS 5321 & 5521

BOTTOM VIEW OF ALL SOCKET CONNECTIONS.

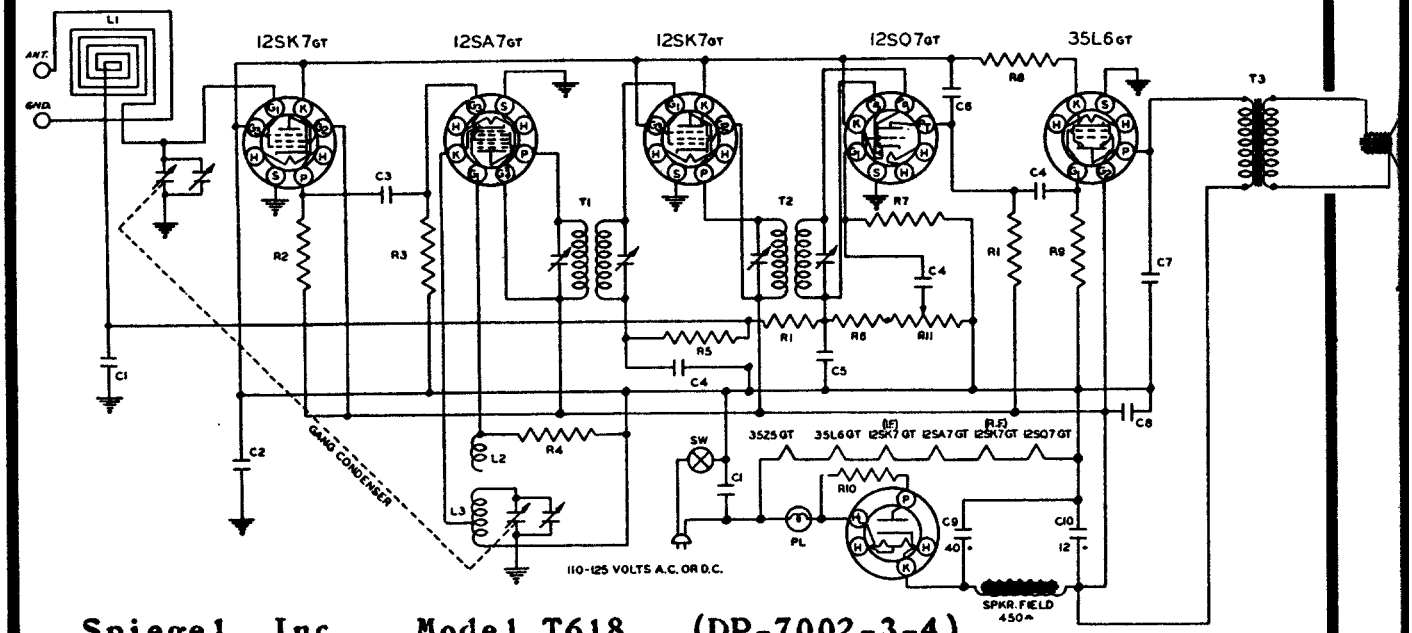


C1A&B	VARIABLE CONDENSER	B-8235
C-3	B.C OSC. PADDER	A-15758-1
C-4	B.C. OSC. TRIMMER	
C-5	B.C. ANT. TRIMMER	
C-6	S.W. OSC. TRIMMER	A-14088-5
C-7	S.W. ANT. TRIMMER	B-7200-GN
C8A&B	NO.1 I.F. TRIMMER	B-7200-NN
C9A&B	NO.2 I.F. TRIMMER	C-3206-28C
C10	.05 MFD. 600V.	C-720-372
C11	50 MMFD. MOLDED	C-3206-58C
C12	.001 MFD. 600 V.	

C13	.1 MFD. 400V.	C-3204-38C
C14	250 MMFD. MOLDED	C-720-319
C15	.02 MFD. 400 V.	C-3204-22C
C16	100 MMFD. MOLDED	C-720-339
C17	.02 MFD. 600 V.	C-3206-22C
C18	.006 MFD. 400 V.	C-3204-68C
C19	.006 MFD. 600 V.	C-3206-68C
C20	18-18-10 MFD. ELECT.	A-14780-1
C21	.1 MFD. 600 V.	C-3206-38C

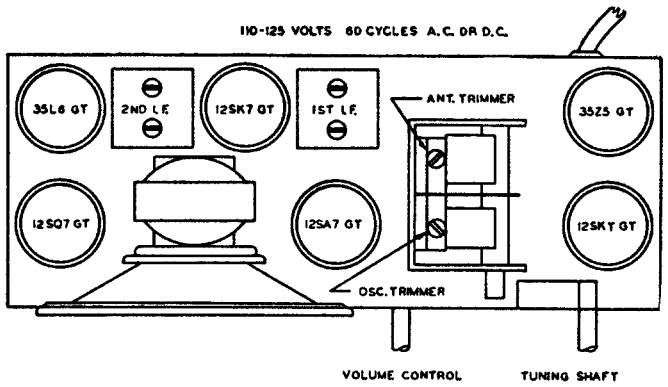
R1	33000 Ω .25 W.	C-2795-80B
R2	22000 Ω .5 W.	C-2796-78C
R3	47000 Ω 1W.	C-2797-82B
R4	22000 Ω 2W.	C-2798-98A
R5	3.3 MEG. .25 W.	C-2795-104B
R6	27000 Ω .25 W.	C-2795-79B
R7	.5 MEG Ω VOL. CONT.	A-15130-5
R8	56 Ω .5 W.	C-2798-47C
R9	5.6 MEG. .25 W.	C-2795-107B
R10	270,000 Ω .25 W.	C-2795-91B
R11	.5 MEG. TONE CONT.	A-15129-2
R12	680 Ω 1W.	C-2797-80B
R13	270,000 Ω .25 W.	5521 [C-2795-91B
R14	270,000 Ω .25 W.	ONLY [C-2795-91B

L1	B.C. ANT. COIL-5521-	C-3290-8
L2	B.C. ANT. COIL-5321-	C-3290-9
L3	S.W. ANT. COIL	A-14862-15
L4	B.C. OSC. COIL	A-15920-1
L5	S.W. OSC. COIL	A-15233-18
L6	NO. 1 I.F. COIL	A-12064-39
L7	NO. 2 I.F. COIL	A-12064-49
S1A-B-C	WAVE BAND SW.	A-15122
S2	PHONO-RADIO SW.	A-15754-1

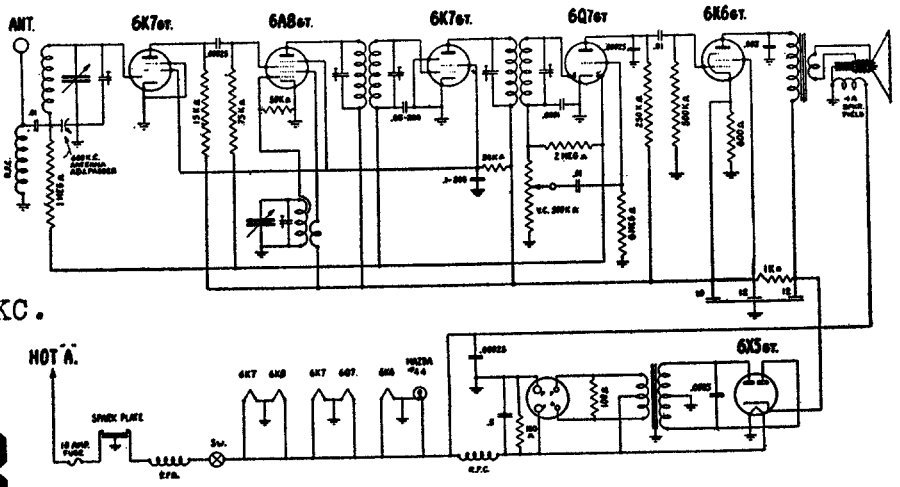


Spiegel, Inc. Model T618. (DP-7002-3-4)

PART NO.	SCHEMATIC LOCATION	DESCRIPTION
3-6	R1	1 MEG. Ω ½ WATT 20% RESISTOR
3-36	R2	1500 Ω " " "
3-17	R3	100000 Ω " " "
3-26	R4	30000 Ω " " "
3-141	R5	6 MEG. Ω " " "
3-4	R6	50000 Ω " " "
3-2	R7	2 MEG Ω " " "
3-34	R8	100 Ω " " "
3-1	R9	500000 Ω " " "
3-313	R10	50 Ω " " "
5-301	R11	1 MEGOHM VOLUME CONTROL
	SW	SWITCH
6-14	C1	.05 MFD. 400 VOLTS CONDENSER
6-30	C2	.25 " 200 " "
6-8	C3	.0001 " MICA "
6-3	C4	.01 " 400 VOLTS "
6-10	C5	.00025 " MICA "
6-305	C6	.0005 " 600 VOLTS "
6-306	C7	.005 " " " "
6-26	C8	.1 " 400 " "
7-301	C9	40 " 150 " } ELECTROLYTIC
	C10	12 " 150 " }

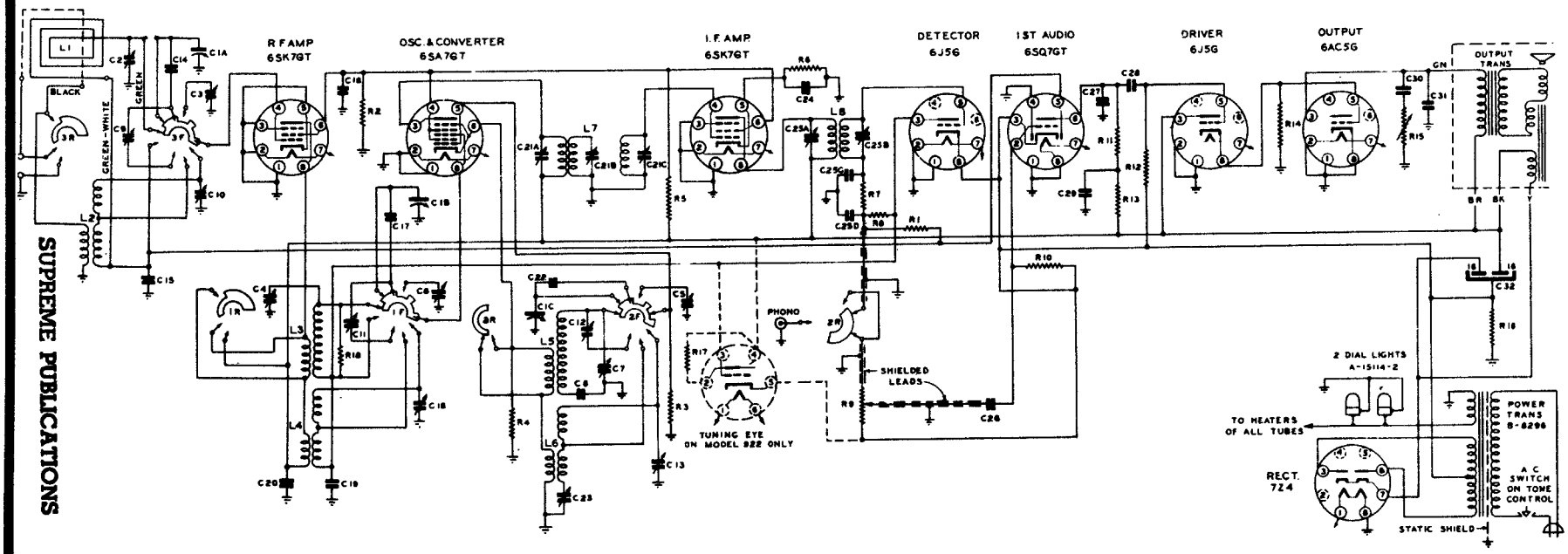


Spiegel, Inc. Model TA616. (DP-7450 and EP-2450)



I.F. 456 KC.

AIR CASTLE SUPERHETERODYNE MODELS 822 & 922
INTERMEDIATE FREQUENCY 456 K.C.
BOTTOM VIEWS OF ALL SOCKET CONNECTIONS



BAND-SWITCH B-8337 SHOWN IN B.C. POSITION.
WAFERS NUMBERED FROM SHAFT END
"F"-FRONT; "R"-REAR.

SUPREME PUBLICATIONS

Spiegel, Inc. Models 822 and 922. (DP-7014)

C1A,B&C	3-GANG VARIABLE CONDENSER	B-8398
C2	B.C. ANT. TRIMMER	A-14068-7
C3	5.7-7.6 & 7.4-10.0 MC ANT. TRIMMER	A-20343
C4	B.C. DET. TRIMMER	
C5	5.7-7.6 & 7.4-10.0 MC OSC. "	
C6	5.7-7.6 & 7.4-10.0 MC DET. "	
C7	B.C. OSC TRIMMER	
C8	" " PADDER	
C9	9.9-13.4 & 12.6-16.8 MC ANT PADDER	A-20343-1
C10	5.9-13.4 & 12.6-16.8 MC " TRIMMER	
C11	9.9-13.4 & 12.6-16.8 MC. DET PADDER	
C12	9.9-13.4 & 12.6-16.8 MC OSC "	
C13	9.9-13.4 & 12.6-16.8 MC. " TRIMMER	
C14	5.7-7.7 & 7.4-10.0 MC ANT. PAD., 195 MMF.	B-8285-5
C15	.1 MFD 400 V	C-3204-38C
C16	1 MFD. 400 V	C-3204-38C
C17	5.7-7.6 & 7.4-10.0 MC. DET. PAD., 195 MMF.	B-8285-5
C18	9.9-13.4 & 12.6-16.8 MC. DET. TRIMMER	A-14068-7
C19	.1 MFD. 400 V.	C-3204-38C
C20	1 MFD. 400 V	C-3204-38C
C21	NO.1 I.F. TRIMMER	A-14782-1
C22	5.7-7.6 & 7.4-10.0 MC OSC PAD., 195 MMF	B-8285-5
C23	5 W OSC. CIRCUIT PADDER	A-15451-10
C24	1 MFD. 200 V	C-3202-38C
C25	NO.2 I.F. TRIMMER	A-20114
C26	.02 MFD. 400 V.	C-3204-22C
C27	250 MMF MICA	C-720-324
C28	.05 MFD 400 V	C-3204-140C
C29	1 MFD. 400 V	C-3204-38C
C30	.03 MFD. 600 V	C-3208-80C
C31	.006 MFD. 600 V	C-3208-68C
C32	16-16 MFD. ELECTROLYTIC	A-20188

R1	2.2 MEG.	.25 W	C-2795-102B
R2	27,000 Ω	.1 W.	C-2797-103B
R3	15,000 Ω	.25 W	C-2795-187B
R4	470 Ω	.25 W	C-2795-151B
R5	9,100 Ω	3 W.	C-2799-102A
R6	300 Ω	.25 W	C-2795-146B
R7	56,000 Ω	.25 W.	C-2795-83B
R8	2.2 MEG.	.25	C-2795-102B
R9	VOL. CONTROL	.5 MEG.	A-15130-2
R10	4.7 MEG.	.25 W.	C-2795-106B
R11	270,000 Ω	.25 W.	C-2795-91B
R12	470,000 Ω	.25 W.	C-2795-94B
R13	100,000 Ω	.25 W.	C-2795-88B
R14	22,000 Ω	.25 W.	C-2795-76B
R15	TONE CONTROL	.25 MEG	A-15128-7
R16	47 Ω	.25 W.	C-2795-48B
R17	220,000 Ω (ON MODEL 922 ONLY.)	.25 W)	C-2795-90B
R18	22,000 Ω	.25 W	C-2795-76B

L1	LOOP ANTENNA	C-3290-7 / D-1586-10	TABLE MODEL / CONSOLE
L2	5.7-7.6, 7.4-10.0, 9.9-13.4 & 12.6-16.8 MC ANT COIL	A-14960-9	
L3	B.C DET COIL	A-15036-1	
L4	5.7-7.6, 7.4-10.0, 9.9-13.4 & 12.6-16.8 MC. DET COIL	A-15037-4	
L5	B.C. OSC COIL	A-15394-3	
L6	5.7-7.6, 7.4-10.0, 9.9-13.4 & 12.6-16.8 MC. OSC. COIL	A-15233-19	
L7	NO. 1 I F COIL	A-14794-3	
L8	NO 2 I F COIL	A-12064-42	

STEWART-WARNER 205A & 205B CHASSIS

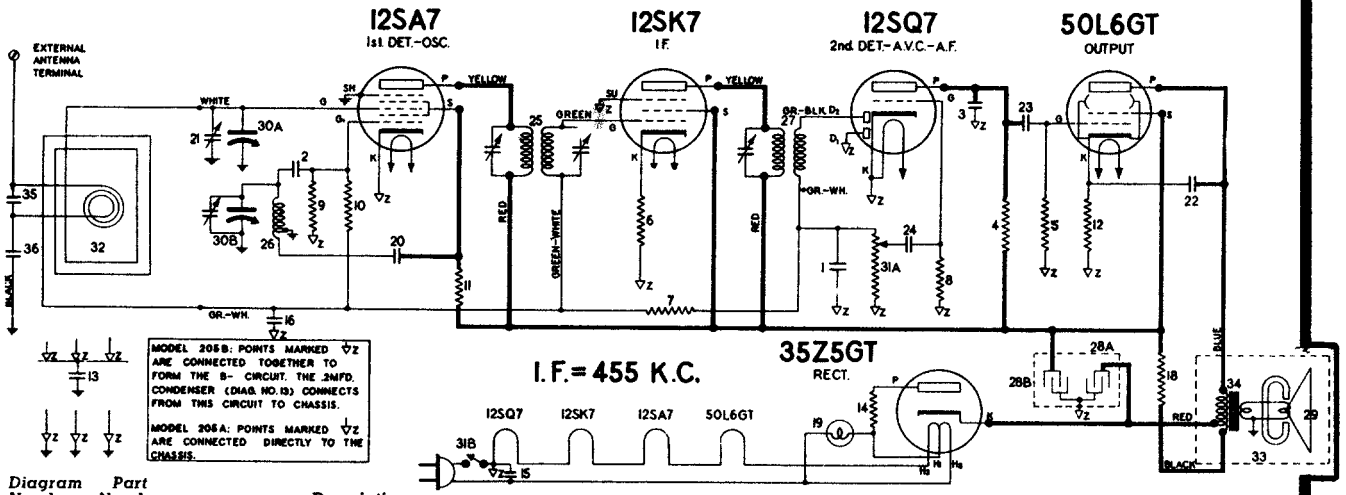
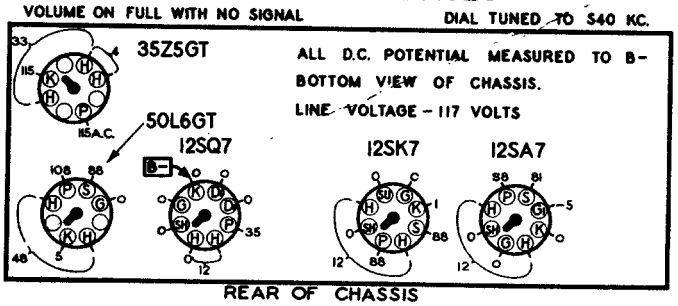


Diagram Number	Part Number	Description
1	83539	Condenser—mica, 260 mmfd.
2	83783	Condenser—mica, 110 mmfd.
3	85394	Condenser—mica, 510 mmfd.
4	110553	Resistor—carbon, 220,000 ohms ¼ watt
5	110559	Resistor—carbon, 470,000 ohms ¼ watt
6	110560	Resistor—carbon, 100 ohms ¼ watt
7	110570	Resistor—carbon, 2.2 meg. ¼ watt
8	110580	Resistor—carbon, 3.3 meg. ¼ watt
9	112958	Resistor—carbon, 18,000 ohms ¼ watt
10	112975	Resistor—carbon, 10 meg. ¼ watt
11	116068	Resistor—carbon, 680 ohms ¼ watt
12	116092	Resistor—140 ohms 1 watt W.W.
13	116706	Condenser—.2 mfd. 600 volt (205B only)
14	116752	Resistor—33 ohms 1 watt W.W.
15-16	116819	Condenser—.05 mfd. 600 volt
18	118824	Resistor—carbon, 1500 ohms ½ watt
19	118921	Lamp—Dial (Mazda No. 47)
20	119193	Condenser—.01 mfd. 600 volt
21	119345	Condenser—Trimmer
22	119414	Condenser—.02 mfd. 600 volt
23	119417	Condenser—.006 mfd. 600 volt
24	119817	Condenser—.004 mfd. 600 volt
25	500131	Transformer—1st I.F.

SOCKET VOLTAGES

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



Use a voltmeter of 1000 ohms per volt.

ALIGNMENT PROCEDURE

1. Connect output meter across the voice coil; or from 50L6GT plate to B— as shown on voltage chart.
2. Connect the ground lead of the signal generator to the chassis through a .25 mfd. condenser.
3. Set the volume control to the maximum volume position.
4. Set dial pointer to lowest frequency point on dial scale with gang in full mesh.
5. Connect the antenna lead of the signal generator to the lug on the top of the rear section of the gang, using a 200 mmfd. mica condenser in series.
6. Set the signal generator to 455 KC. Set receiver dial to a point where it does not affect signal. Adjust the trimmer screws on the top of each I.F. Transformer for maximum output.
7. Connect the output of the signal generator in series with a 200 mmfd. mica condenser to the antenna terminal on the cabinet back. Set the receiver dial to 1500 KC.
8. Set the signal generator to 1500 KC and adjust the trimmer on the front section of the gang condenser for maximum output of the oscillator signal.
9. Place the loop antenna in its correct position at the rear of the cabinet and adjust the trimmer screw on the back of the chassis for maximum output at 1500 KC.

Diagram Number	Part Number	Description
26	500232	Coil—Oscillator
27	500236	Transformer—2nd I.F.
28A-28B	500256	Condenser—Electrolytic A—40 mfd.—150 volt / B—20 mfd.—150 volt
29	C-500329	Cone and voice coil for C-500594 speaker
30A-30B	500443	Condenser—variable tuning, with drum
31A-31B	500480	Volume Control—1 meg. (with switch)
32	500566	Loop Antenna & Cabinet Back (205AA & 205BA)
	500567	Loop Antenna & Cabinet Back (205AB & 205BB)
	500576	Loop Antenna & Cabinet Back (205AC &205BC)
33	C-500594	Speaker—P.M. (4")
34	C-500615	Transformer—output for C-500594 speaker
35	83783	Condenser—mica, 110 mmfd.
36	119193	Condenser—.01 mfd. 600 volt (205A only)

MISCELLANEOUS PARTS

Part Number	Description
116467	Base for mounting electrolytic condenser
114955	Clamp for dial cord
112745	Clip—coil mounting
117057	Cord—drive supplied in 3' lengths
500562	Dial Scale
500422	Knob (for 205AA & 205AC) (205BA & 205BC)
500428	Knob (for 205AB & 205BB)
500527	Pointer
81145	Retaining ring for tuning shaft
116690	Socket—octal base
160392	Socket—octal (rectifier)
500499	Socket—pilot lamp (with leads)
161384	Spring—dial cord tension
500497	Stud—dial scale retaining
111456	Washer—spring washer for tuning shaft

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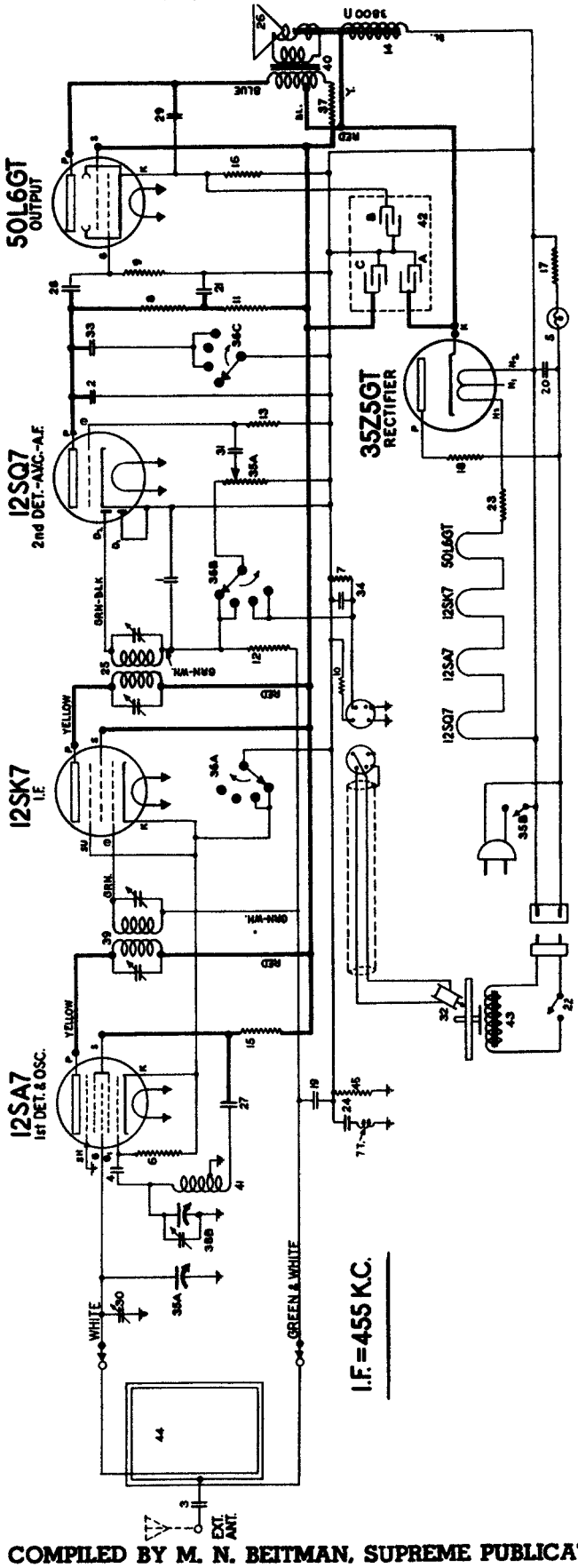
STEWART-WARNER 205F CHASSIS (RECEIVER MODEL 205FA)

Use a Voltmeter of 1000 ohms per volt.



SOCKET VOLTAGES

Volume on full with no signal. Dial tuned to 540 KC.

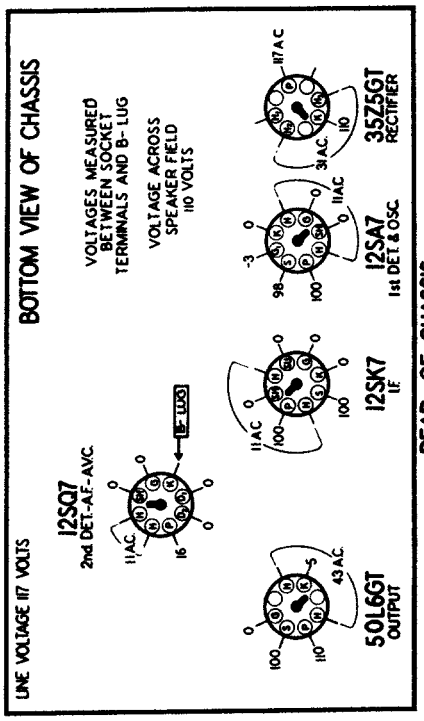


Diagram Number	*Description*
1-2	Condenser—mica 260 mmfd.
3	Condenser—mica 110 mmfd.
4	Condenser—mica 51 mmfd.
5	Lamp-dial (Mazda No. C7)
6	Resistor—carbon 47,000 ohms ¼ watt
7	Resistor—carbon 150,000 ohms ¼ watt
8-9	Resistor—carbon 470,000 ohms ¼ watt
10	Resistor—carbon 680,000 ohms ¼ watt
11	Resistor—carbon 100,000 ohms ¼ watt
12	Resistor—carbon 2.2 meg. ¼ watt
13	Resistor—carbon 10 meg. ¼ watt
14	Speaker—dynamic (5")
15	Resistor—680 ohms ¼ watt
16	Resistor—140 ohms 1 watt W.W.
17	Resistor—220 ohms 1 watt W. W.
18	Resistor—33 ohms 1 watt wire wound
19 to 21	Condenser—.05 mfd. 600 volt
22	Switch—"on-off" for phono motor
23	Resistor—20 ohms 1 watt
24	Condenser—.1 mfd. 600 volts
25	Transformer—2nd I.F.
26	Cone & Voice Coil for R-501204 speaker
27 to 29	Condenser—.01 mfd. 600 volt
30	Condenser—trimmer
31	Condenser—.002 mfd. 600 volt
32	Crystal cartridge
33-34	Condenser—.002 mfd. 600 volt
35A-35B	Volume control—1 meg. (with switch)
36A-36B-36C	Switch—tone & phonograph (See table for switch positions)
37	Resistor—2000 ohms 1 watt
36A-36B	Condenser—variable tuning
39	Transformer—1st I.F.
40	Transformer—output for R-501204 Speaker
41	Coil—oscillator
42A-42B-42C	Condenser—electrolytic, A—40 mfd.—200 volt; B—20 mfd.—25 volt; C—20 mfd.—200 volt
43	Phonograph motor—60 cycle (less turntable)
44	Loop antenna & back (complete)
45	Resistor—carbon 220,000 ohms ¼ watt

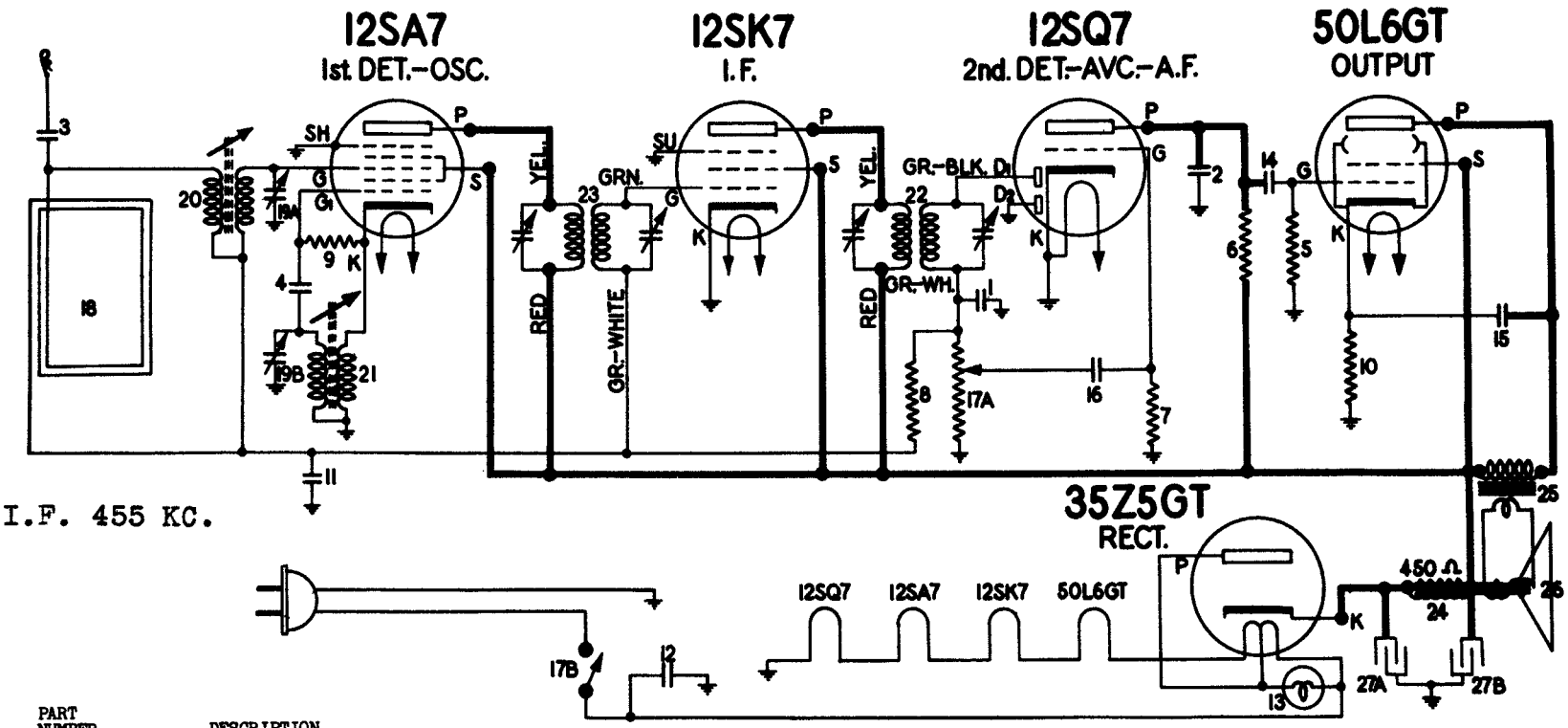


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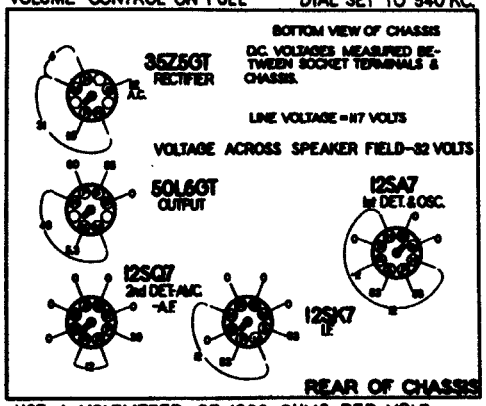
DIAGRAM NUMBER	PART NUMBER	DESCRIPTION
1-2	83539	Condenser - mica 260 mmfd.
3	85061	Condenser - mica 51 mmfd.
4	88686	Condenser - mica 200 mmfd.
5	112971	Resistor - insulated, 470,000 ohm ½ watt
6	112987	Resistor - insulated, 220,000 ohm ½ watt
7	116050	Resistor - insulated, 10 meg. ½ watt
8	116056	Resistor - 2.2 meg. ½ watt
9	116059	Resistor - insulated, 22,000 ohm ½ watt
10	116092	Resistor - 140 ohm, 1 watt-wire wound
11-12	116819	Condenser - .05 mfd. 600 volt
13	118921	Lamp-Dial (Mazda #47)
14-15	119193	Condenser - .01 mfd. 600 volt
16	119875	Condenser - .002 mfd. 600 volt
17A-17B	500223	Volume Control - 1 meg. (with switch)
18	501368	Loop Antenna
19A-19B	501223	Condenser - trimmer (2 sections) (A-35 mmfd.) (B-238 mmfd.)
20	501157	Coil - antenna (with slug)
21	501158	Coil - oscillator (with slug)
22	501166	Transformer - 2nd I.F.
23	501233	Transformer - 1st I.F.
24	R-500916	Speaker - dynamic (4")
25	R-501163	Transformer - output for R-500916 Spkr.
26	R-501164	Cone & Voice Coil for R-500916 Spkr.
27A-27B	501213	Electrolytic Condenser (A-40 mfd. - 150 volt) (B-20 mfd. - 150 volt)

STEWART-WARNER
205G CHASSIS
MODELS 205GA
TO 205GZ

SOCKET VOLTAGES

VOLUME CONTROL ON FULL — DIAL SET TO 540 KC.



USE A VOLTMETER OF 1000 OHMS PER VOLT

STEWART-WARNER 206B & 206C CHASSIS

Receiver Models 206BA to 206BZ & 206CA to 206 CZ

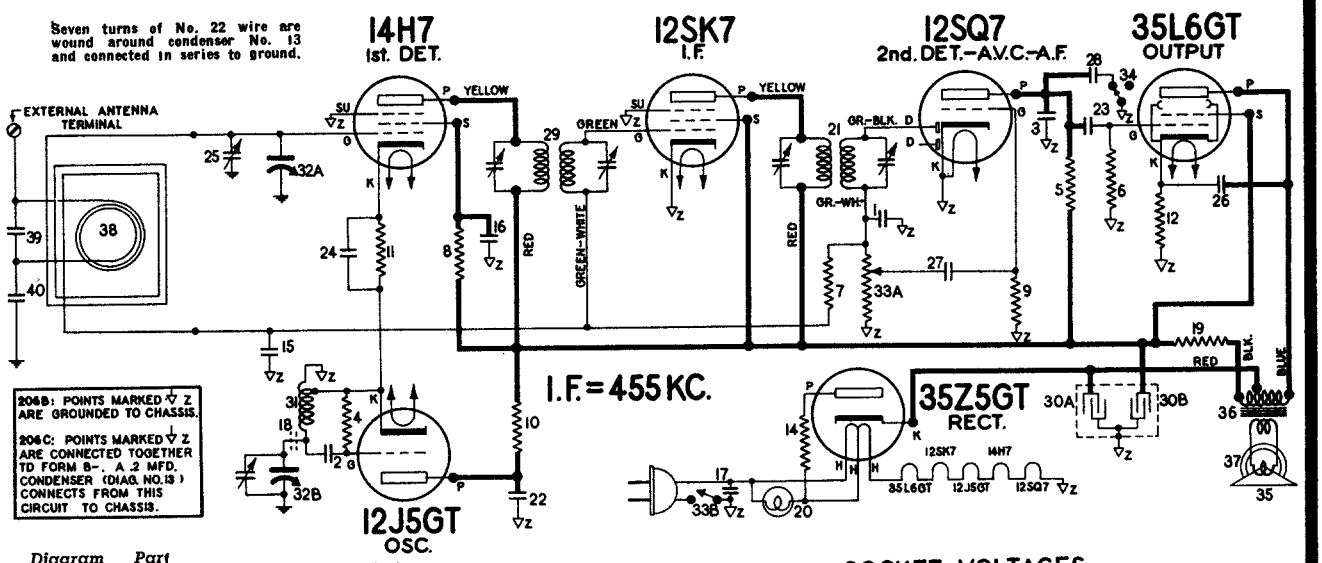
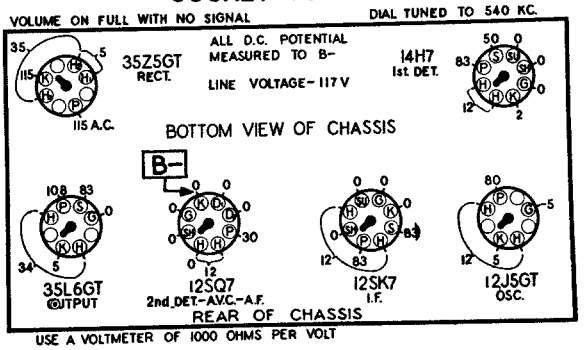


Diagram Number	Part Number	Description
1	83539	Condenser—mica, 260 mmfd.
2	83783	Condenser—mica, 110 mmfd.
3	85394	Condenser—mica, 510 mmfd.
4	110552	Resistor—carbon 47,000 ohms ¼ watt
5	110553	Resistor—carbon 220,000 ohms ¼ watt
6	110559	Resistor—carbon 470,000 ohms ¼ watt
7	110570	Resistor—carbon 2.2 meg. ¼ watt
8	110578	Resistor—carbon 68,000 ohms ¼ watt
9	110580	Resistor—carbon 3.3 meg. ¼ watt
10	116068	Resistor—carbon 680 ohms ¼ watt
11	116079	Resistor—carbon 1200 ohms, ¼ watt
12	116092	Resistor—140 ohms, 1 watt W.W.
13	116706	Condenser—.2 mfd. 600 volt (206C)
14	116752	Resistor—33 ohms 1 watt W.W.
15-17	116819	Condenser—.05 mfd. 600 volt
16	119193	Condenser—.01 mfd. 600 volt
18	116819	Condenser—.05 mfd. 600 volt (206C only)
19	118824	Resistor—carbon 1,500 ohms ½ watt
20	118921	Lamp—dial (Mazda No. 47)
21	119024	Transformer—2nd I.F.
22-23-24	119193	Condenser—.01 mfd. 600 volt
25	119345	Condenser—trimmer (loop)
26	119414	Condenser—.02 mfd. 600 volt
27	119817	Condenser—.004 mfd. 600 volt
28	119875	Condenser—.002 mfd. 600 volt
29	500131	Transformer—1st I.F.
30A-30B	500256	Condenser—Electrolytic (A-40 mfd. 150 volt) (B-20 mfd. 150 volt)
31	500408	Coil—oscillator
32A-32B	500443	Condenser—variable tuning with drum
33A-33B	500480	Volume Control—1 meg. (with switch)

SOCKET VOLTAGES



USE A VOLTMETER OF 1000 OHMS PER VOLT

Diagram Number	Part Number	Description
34	500509	Switch—tone (206B only)
	500546	Switch—tone (206C only)
35	R-500587	Cone & Voice Coil for R-500618 speaker
36	R-500617	Transformer—output for R-500618 speaker
37	R-500618	Speaker—P.M. dynamic (5")
38	500580	Loop Antenna & Cabinet Back (206BA & 206CA).
	500581	Loop Antenna & Cabinet Back (206BB & 206CB).
	500678	Loop Antenna & Cabinet Back (206BC & 206CC).
39	83783	Condenser—mica, 110 mmfd.
40	119193	Condenser—.01 mfd. 600 volt (206B only)

ALIGNMENT PROCEDURE

1. Connect the output meter across the voice coil or from the plate of the 35L6GT output tube to B— through a .25 mfd. condenser.
2. Connect the ground lead from signal generator to B— through a .25 mfd. condenser for all alignment steps.
3. Set volume control in maximum position.
4. Set dial pointer to last marking on dial with gang in full mesh.
5. Connect hot lead from signal generator to stator on rear section of gang using 200 mmfd. in series as dummy.
6. Set generator to 455 KC. and adjust trimmer screws on top of I.F. transformer cans for maximum output.
7. Connect hot lead to antenna terminal on loop through a 200 mmfd. condenser as a dummy. Set dial to 1500 KC. and adjust trimmer on front section of gang for maximum output on a 1500 KC. generator signal.
8. Place chassis in cabinet and using connections in "7," place loop in position and adjust loop trimmer at rear of chassis for maximum output while tuning dial to maximum signal.

MISCELLANEOUS PARTS

Part Number	Description
116467	Base for mounting Electrolytic Condenser (206C)
160026	Base for mounting Electrolytic Condenser (206B)
114955	Clamp—for dial cord
112745	Clip—coil mounting
117057	Cord—Drive, supplied in 3' lengths
500563	Dial Scale
500422	Knob—(walnut)
500428	Knob—(ivory)
500527	Pointer
81145	Retaining ring for tuning shaft
116690	Socket—octal base
160392	Socket—octal (rectifier)
160294	Socket—8 prong for 14H7
500499	Socket—pilot lamp (with leads)
161384	Spring—dial cord tension
500497	Stud—dial scale retaining
500289	Tuning Shaft

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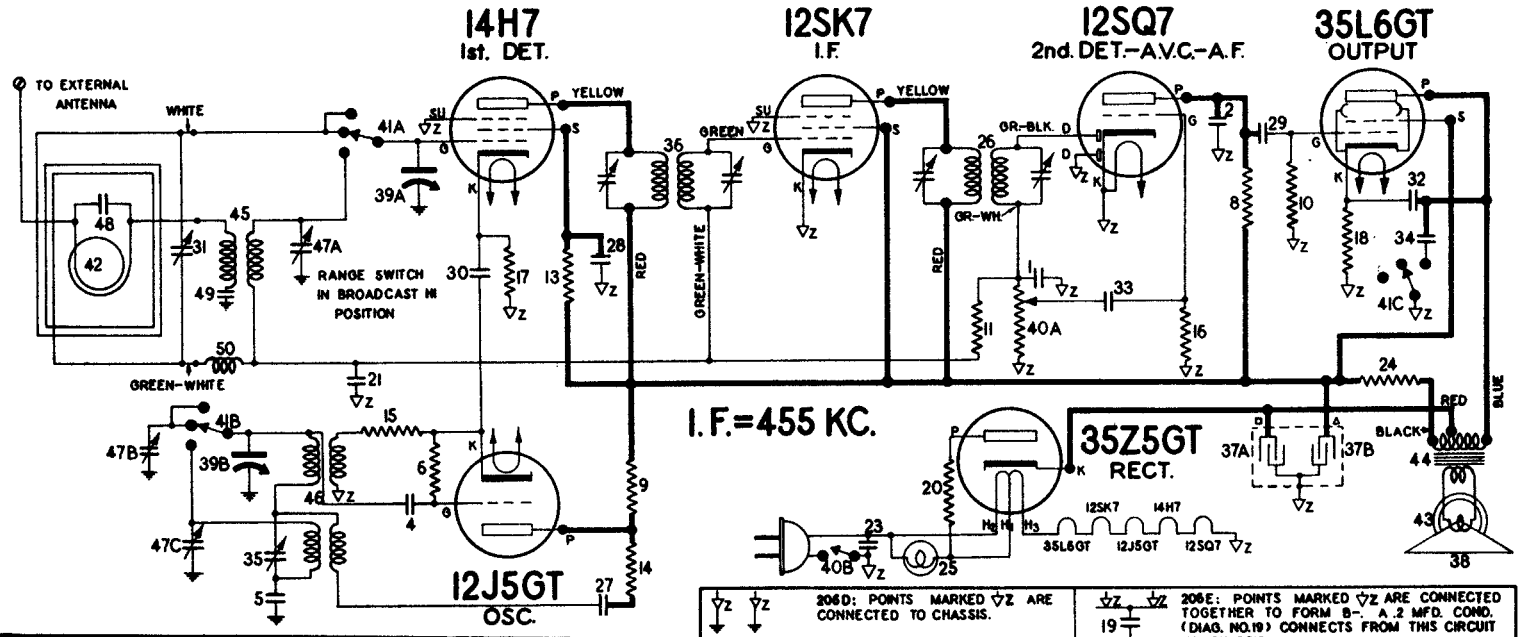
STEWART-WARNER 206D & 206E CHASSIS

RECEIVER MODELS 206DA to 206DZ and 206EA to 206EZ

THIS MANUAL APPLIES ONLY TO RECEIVERS WITH P.M. SPEAKERS

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



206D: POINTS MARKED ▽Z ARE CONNECTED TO CHASSIS.

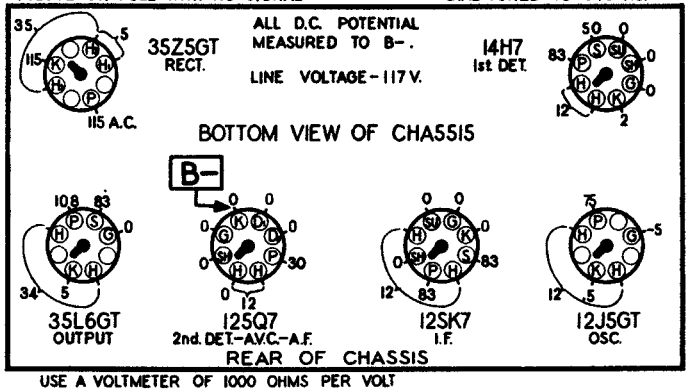
206E: POINTS MARKED ▽Z ARE CONNECTED TOGETHER TO FORM B-. A .2 MFD. COND. (DIAG. NO. 19) CONNECTS FROM THIS CIRCUIT TO CHASSIS.

SOCKET VOLTAGES

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

ALL D.C. POTENTIAL MEASURED TO B-.

LINE VOLTAGE - 117 V.



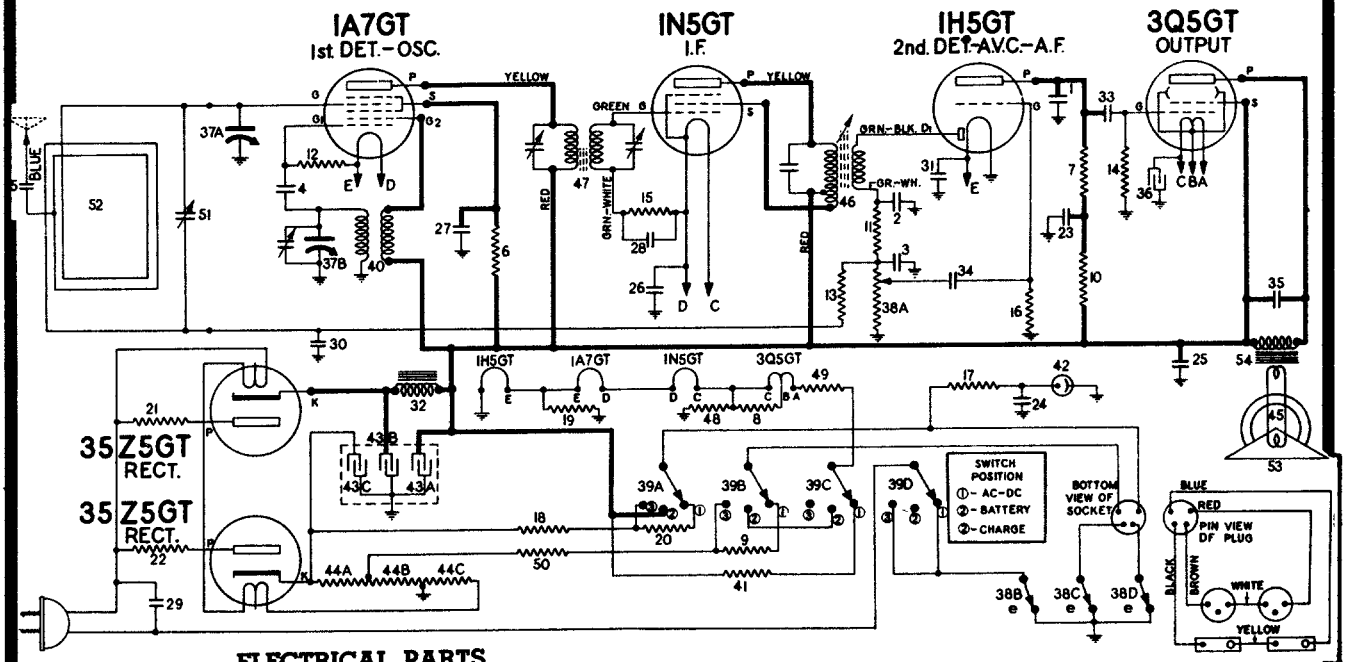
USE A VOLTMETER OF 1000 OHMS PER VOLT

Diagram No.	Part No.	Description
1-2	83539	Condenser, Mica 260 Mmfd.
4	83783	Condenser, Mica 110 Mmfd.
5	88587	Condenser, Mica .0042 Mfd.
6	110552	Resistor, Carbon—47,000 Ohms ¼ Watt
8	110553	Resistor, Carbon—220,000 Ohms ¼ Watt
9	110557	Resistor, Carbon—4,700 Ohms ¼ Watt
10	110559	Resistor, Carbon—470,000 Ohms ¼ Watt
11	110570	Resistor, Carbon—2.2 Meg. ¼ Watt
13	110578	Resistor, Carbon—68,000 Ohms ¼ Watt
14-15	110590	Resistor, Carbon—180 Ohms ¼ Watt
16	110580	Resistor, Carbon—3.3 Meg. ¼ Watt
17	116079	Resistor, Insulated 1200 Ohms ¼ Watt
18	116092	Resistor, 140 Ohms 1 Watt—W.W.
19	116706	Condenser, .2 Mfd. 600 Volt (206E only)
20	116752	Resistor, 33 Ohms, 1 Watt—W.W.
21 to 23	116819	Condenser, .05 Mfd. 600 Volt
24	118824	Resistor, Carbon—1,500 Ohms ½ Watt
25	118921	Lamp, Dial (Mazda No. 47)
26	119024	Transformer, 2nd I.F.
27 to 30	119193	Condenser, .01 Mfd. 600 Volt
31	119345	Condenser, Trimmer (Loop)
32	119414	Condenser, .02 Mfd. 600 Volt
33	119817	Condenser, .004 Mfd. 600 Volt
34		Condenser, .04 Mfd. 600 Volt
35		Condenser, Padder
36		Transformer, 1st I.F.
37A-37B		Condenser, Electrolytic A—40 Mfd. 150 Volt B—20 Mfd. 150 Volt

SWITCH POSITION	BAND	TONE
EXTREME COUNTER-CLOCKWISE	BROADCAST	LOW
MIDDLE POSITION Shown on Circuit Diagram)	BROADCAST	HIGH
EXTREME CLOCKWISE	FOREIGN	HIGH

STEWART-WARNER 206G CHASSIS

RECEIVER MODELS 206GA TO 206GZ



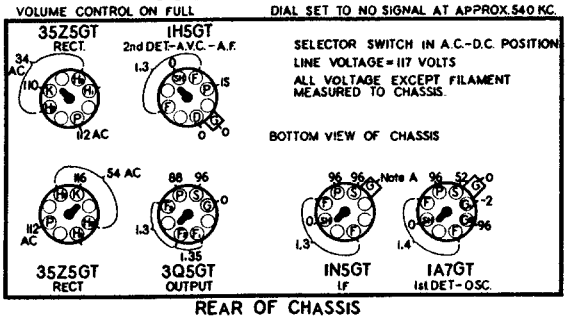
ELECTRICAL PARTS

Diagram Number	Part Number	Description
1	83783	Condenser, Mica. 110 Mmfd.
2-3-4	85061	Condenser, Mica. 51 Mmfd.
5	85563	Condenser, Mica. 26 Mmfd.
6	110552	Resistor, Carbon—47,000 Ohms ¼ Watt
7	110554	Resistor, Carbon—1 Megohm ¼ Watt
8-9	110556	Resistor, Carbon—330 Ohm ¼ Watt
10	110559	Resistor, Carbon—470,000 Ohms ¼ Watt
11	110564	Resistor, Carbon—100,000 Ohms ¼ Watt
12-13-14	110570	Resistor, Carbon—2.2 Meg. ¼ Watt
15-16-17	110580	Resistor, Carbon—3.3 Meg. ¼ Watt
18	110588	Resistor, Carbon—6800 Ohms ¼ Watt
19	112974	Resistor, Carbon—220 Ohm ¼ Watt
20	112995	Resistor, Carbon—15,000 Ohm ¼ Watt
21-22	116013	Resistor, 50 Ohm 1 Watt
23 to 26	116625	Condenser, .1 Mfd. 600 Volts
27 to 31	116819	Condenser, .05 Mfd. 600 Volts
32	117888	Filter Choke
33	119193	Condenser, .01 Mfd. 600 Volts
34	119917	Condenser, .004 Mfd. 600 Volts
35	119875	Condenser, .002 Mfd. 600 Volts
36	161273	Condenser, Electrolytic 50 Mfd. 25 Volt
37A-37B	500443	Condenser, Variable Tuning—with drum
38A to 38D	500481	Volume Control, 1 Meg. (with switch)
39A to 39D	500507	Switch, AC—DC & Battery
40	500689	Coil, Oscillator
41	500712	Resistor, 1830 Ohms 5 Watt, Wire Wound
42	500713	Neon Glow Lamp
43A to 43C	500714	Condenser, Electrolytic— A—20 Mfd. 200 Volt; B—20 Mfd. 200 Volt; C—20 Mfd. 150 Volt
44A to 44C	500715	Resistor, Load— A—1460 Ohms 10 Watt; B— 155 Ohms 1 Watt; C— 310 Ohms 10 Watt

This receiver is equipped with a neon lamp on the dial scale which indicates the condition of the batteries. The neon lamp is included in an oscillating (R-C) circuit which has been designed to oscillate at approximately 3 pulses per second when the batteries are in a fully charged condition. As the battery voltage decreases with use the number of pulses per second decreases.

When the battery voltage is low (approximately 72 volts) the light flickers more slowly (approximately 1 a second). The set should not be operated from battery power after this point is reached. The batteries should be charged for at least twice the time they were used—as soon as possible after they have been run down.

SOCKET VOLTAGES



REAR OF CHASSIS

NOTE A: Voltage on the grid of the 1N5GT intermediate amplifier tube cannot be measured with a standard voltmeter because of the high resistance of resistor No. 15.

Use A Voltmeter of 1000 Ohms Per Volt.

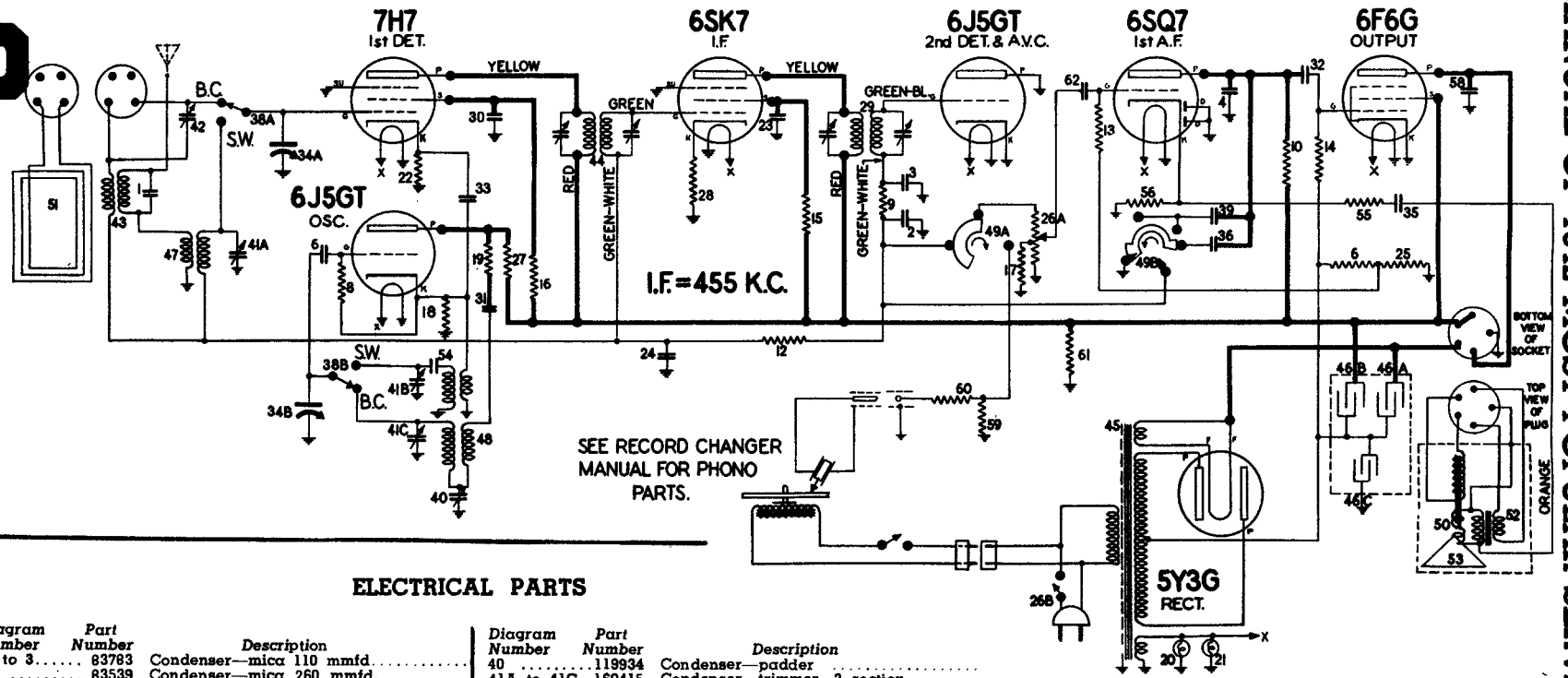
CHARGING BATTERIES

A separate charging system consisting of a 35Z5GT rectifier and a suitable resistor voltage dividing network and filter is incorporated in this receiver. The circuit is arranged to provide a very light charging current when the receiver is operated from either AC or DC. This is just enough to maintain the batteries but will not charge up used batteries. A separate charging position is provided for rapid recharging of the batteries. The resistance voltage divider is designed to give a charging rate of approximately one third the discharge rate, this having been found to give best results. It is recommended that the batteries be left on charge at least twice the time they were used. As the batteries age it is necessary to charge for a longer period.

STEWART-WARNER 207D CHASSIS

(RECEIVER MODEL 207DK)

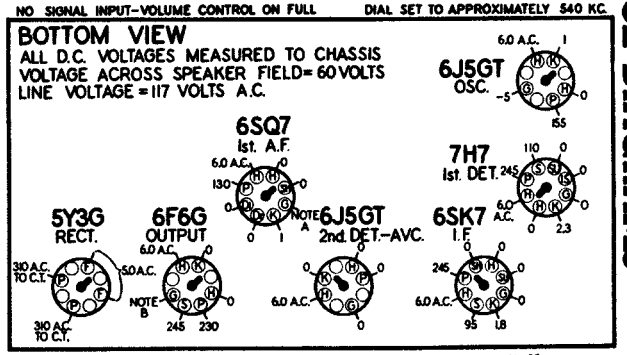
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



ELECTRICAL PARTS

Diagram Number	Part Number	Description
1 to 3	83783	Condenser—mica 110 mmfd.
4	83539	Condenser—mica 260 mmfd.
5	85061	Condenser—mica 51 mmfd.
6	89762	Resistor—220 ohms, wire wound, 1 watt
8-9	110552	Resistor—carbon 47,000 ohms ¼ watt
10-11	110553	Resistor—carbon 220,000 ohms ¼ watt.
12-13	110554	Resistor—carbon 1 megohm ¼ watt.
14	110559	Resistor—carbon 470,000 ohms ¼ watt.
15-16	110564	Resistor—carbon 100,000 ohms ¼ watt.
17	110569	Resistor—carbon 10,000 ohms ¼ watt.
18-19	110590	Resistor—carbon 180 ohms ¼ watt.
20-21	110629	Dial Light Bulb—6.3 volt (Mazda No. 44)
22	116078	Resistor—560 ohms ¼ watt.
23-24	116819	Condenser—.05 mfd. 600 volt.
25	117395	Resistor—20 ohm 1 watt.
26A-26B	116669	Volume Control—1 meg. (with switch).
27	118805	Resistor—carbon 10,000 ohm 1 watt.
28	118827	Resistor—carbon 270 ohm ¼ watt.
29	119024	Transformer, 2nd I.F.
30 to 33	119193	Condenser—.01 mfd. 600 volt.
34A-34B	119291	Condenser—variable tuning
35	116625	Condenser—.1 mfd. 600 volt.
36	118416	Condenser—.008 mfd. 600 volt.
37	160430	Condenser—.001 mfd. 600 volt.
38A-38B	119859	Switch—band
39	119875	Condenser—.002 mfd. 600 volt.
40	119934	Condenser—padder
41A to 41C	160415	Condenser—trimmer, 3 section.
42	160449	Condenser—trimmer (Loop)
43	500255	Coil—B.C. antenna loading.
44	500801	Transformer—1st I.F.
45	501044	Transformer—power, 60 cycle.
46A to 46C	501060	Condenser—Electrolytic— A—20 Mfd. 400 V. B—15 Mfd. 400 V. C—20 Mfd. 25 V.
47	501159	Coil—short wave antenna.
48	501160	Coil—oscillator (B.C. & S.W.).
49A-49B	501180	Switch—tone
50	M-501225	Speaker—Dynamic (12")
51	501226	Loop Antenna Complete.
52	M-501280	Transformer—output for M-501225 Spkr.
53	M-501281	Cone & Voice Coil for M-501225 Spkr.
54	88587	Condenser—mica .0042 mfd.
55	118816	Resistor—6800 ohms ¼ watt.
56	116078	Resistor—560 ohms ¼ watt.
58	119875	Condenser—.002 mfd. 600 volt.
59	110584	Resistor—330,000 ohms ¼ watt.
60	112962	Resistor—150,000 ohms—¼ watt.
61	116076	Resistor—33,000 ohms 2 watt.
62	119193	Condenser—.01 mfd. 600 volt.
	501366	Crystal Cartridge

NO SIGNAL INPUT—VOLUME CONTROL ON FULL — DIAL SET TO APPROXIMATELY 540 KC.



NOTE A: Voltage on the grid of the 6SQ7 1st. A.F. is −1 volt measured across resistor No. 25.

NOTE B: Voltage on the grid of the 6F6G Output Tube is −[illegible] volts measured across Resistors No 25 and 6

STEWART-WARNER 208B & 208C CHASSIS

(RECEIVER MODELS 208BK AND 208CK)

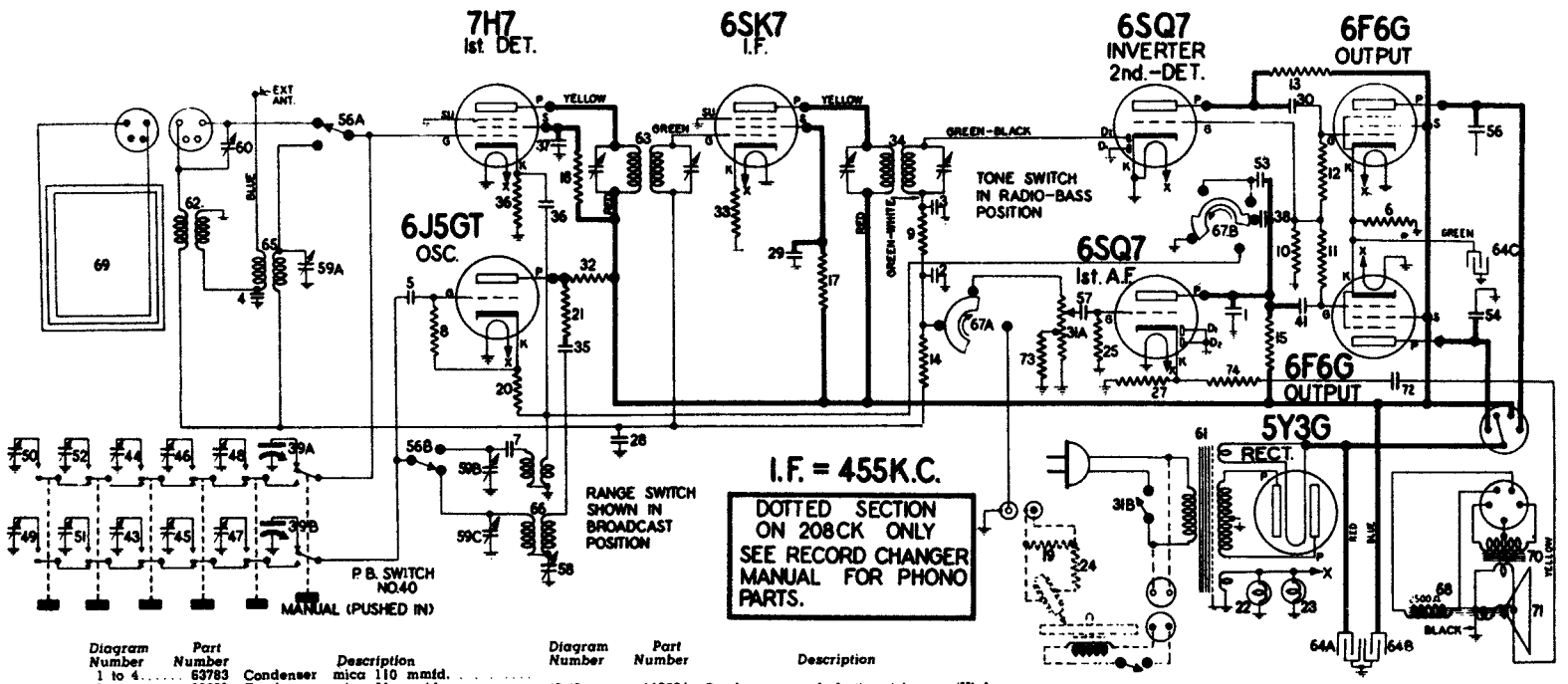
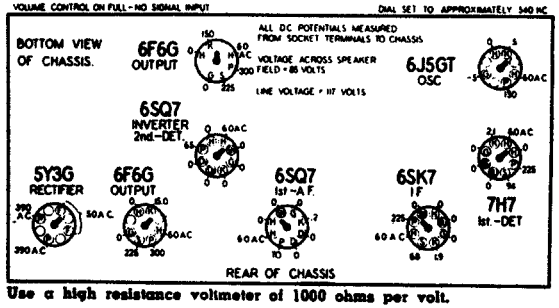


Diagram Number	Part Number	Description
1 to 4	63783	Condenser mica 110 mmfd.
5	85061	Condenser mica 51 mmfd.
6	88462	Resistor wire wound 270 ohms 1 watt
7	69587	Condenser mica .0042 mfd.
8-9	110552	Resistor carbon 47,000 ohms ¼ watt
10 to 13	110553	Resistor carbon 220,000 ohms ¼ watt.
14	110554	Resistor carbon 1 meg. ¼ watt
15	110559	Resistor carbon 470,000 ohms ¼ watt
17-19	110564	Resistor carbon 100,000 Ohms ¼ watt.
	110565	Resistor carbon 22,000 ohms ¼ watt.
19	110551	Resistor carbon 680,000 ohms ¼ watt.
20-21	110590	Resistor carbon 160 ohms ¼ watt.
22-23	110629	Dial Light Bulb 6.3 volt (Masda No. 44)
24	112692	Resistor carbon 150,000 ohms ¼ watt.
25	112575	Resistor carbon 10 meg. ¼ watt.
26-27	116078	Resistor 560 ohms ¼ watt.
	116625	Condenser .1 mfd. 600 volt
28 to 30	116919	Condenser .05 mfd. 600 volt
31A-31B	118669	Volume Control 1 meg. (with switch)
32	118905	Resistor carbon 10,000 ohm 1 watt
33	118827	Resistor carbon 270 ohms ¼ watt.
34	119024	Transformer 2nd I.F.
35 to 38	119193	Condenser .01 mfd. 600 volt
39A-39B	119291	Condenser variable tuning
40	119346	Switch- push button
41	116414	Condenser .02 mfd. 600 volt
43 to 46	119893	Condenser push button trimmer (Med. Freq.)
47-48	119664	Condenser push button trimmer (High Freq.)
49 to 52	119753	Condenser push button trimmer (Low Freq.)
53 to 55	119817	Condenser .004 mfd. 600 volt
56A-56B	119859	Switch band
57	119875	Condenser .002 mfd. 600 volt
59	119934	Condenser padder
59A to 59C	160415	Condenser trimmer 3 section
60	160449	Condenser trimmer for loop
61	500116	Transformer power (60 cycles)
62	500255	Coil B. C. antenna loading
63	500801	Transformer 1st I.F.
64A to 64C	501060	Condenser electrolytic A 20 mfd. 400 volt | B 15 mfd. 400 volt | C 20 mfd. 25 volt |
65	501159	Coil- short wave antenna
66	501160	Coil—oscillator (B.C. & S.W.)
67A-97B	501180	Switch—tone
68	M-501245	Speaker dynamic 12"
69	501293	Loop Antenna
70	M-501304	Transformer- output for M-501245 Spkr.
71	M-501305	Cone & Voice Coil for M-501245 Spkr.
72	118925	Condenser .1 mfd.
73	110585	Resistor carbon 22,000 ohms ¼ watt.
74	110589	Resistor carbon 10,000 ohms ¼ watt

SOCKET VOLTAGES



Use a high resistance voltmeter of 1000 ohms per volt.

SERVICE DATA for 208B & 208C CHASSIS

ALIGNMENT EQUIPMENT & PROCEDURE

1. Connect the output meter across the voice coil or from the plate of one 6F6G output tube to chassis through a .1 mfd. condenser.
2. Connect the ground lead of the signal generator to the receiver chassis.
3. Check the pointer to see that it is correctly set to the low freq. end of the dial scale with gang in full mesh.
4. Push in the "manual" button and keep it pushed in.
5. Turn the volume control to the maximum volume position, and the tone control to the "Radio-Speech" position.
6. FOLLOW THE ORDER OF ALIGNMENT INDICATED BELOW.

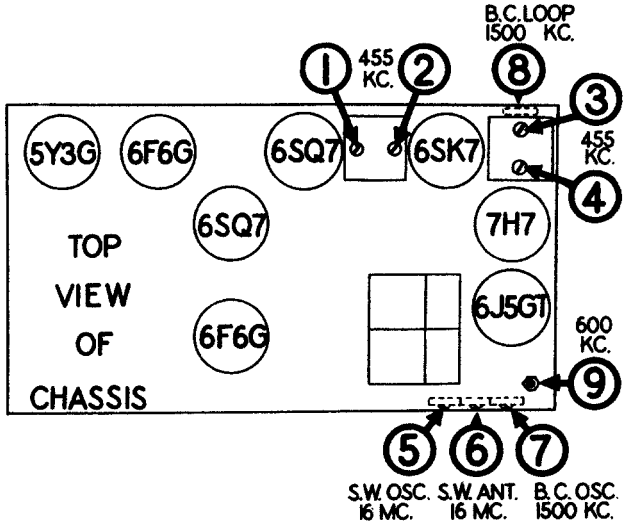
Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Band Switch Position	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD Condenser	Lug on Rear Section of Gang Cond.	455 KC	Broadcast	Any Point Where It Does Not Affect the Signal	1-2	2nd I.F.	Adjust for Maximum Output. Then repeat Adjustment.
					3-4	1st I.F.	
400 OHM Carbon Resistor	Blue Lead from Chassis	16 MC	Foreign	16 MC	5	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obained by Tuning in Image at Approx. 15.1 MC. If Image does not appear, Realign at 16 MC, with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	Blue Lead from Chassis	16 MC	Foreign	Tune to 16 MC Generator Signal	6	Foreign Antenna	Adjust for Maximum Output. Try to increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
No Connection	Place Lead from Signal Gen. Near Loop	1500 KC	Broadcast	1500 KC	7	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.

NOW PLACE THE CHASSIS AND LOOP ANTENNA INTO POSITION IN THE CABINET.

No Connection	Place Lead from Signal Gen. Near Loop	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	8	Broadcast Antenna	Adjust for Maximum Output.
No Connection	Place Lead from Signal Gen. Near Loop	600 KC	Broadcast	Tune to 600 KC Generator Signal	9	Broadcast Oscillator (Series)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

MISCELLANEOUS PARTS

Part Number	Description
501182	Cable—motor (with receptacle)
117493	Cable—pickup
114355	Clamp—for dial cord
112745	Clip—coil mounting
117057	Cord—drive (specify 6 ft. lengths)
501199	Dial Scale
113402	Drum—dial cord drive
160182	Escutcheon—dial with glass
160634	Escutcheon—push button (complete)
88348	Eyelet—for pointer cord
160219	Knob
12349	Nut—8-32 for mounting
116952	Pin for push buttons
119451	Pointer
160185	Push button
81145	Retaining ring for tuning shaft
113463	Rubber Bushing—chassis mounting
118606	Shaft—tuning
112874	Screw—No. 10 x 1⅛ chassis mounting
114314	Screw—special head for mounting escutcheon
85827	Set Screw—8-32 Sq. Hd. for drive drum
119791	Socket—octal
114378	Socket—octal, with special ground
114876	Socket—octal (rectifier)
160294	Socket for 7H7 8 prong
500051	Socket for loop antenna



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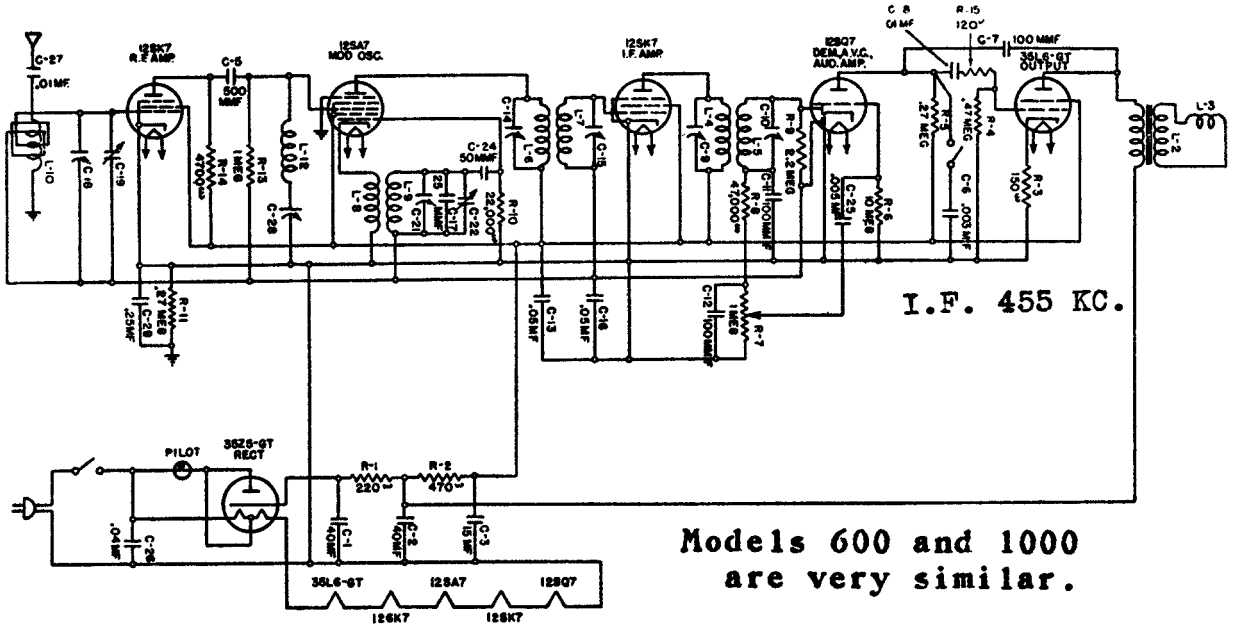
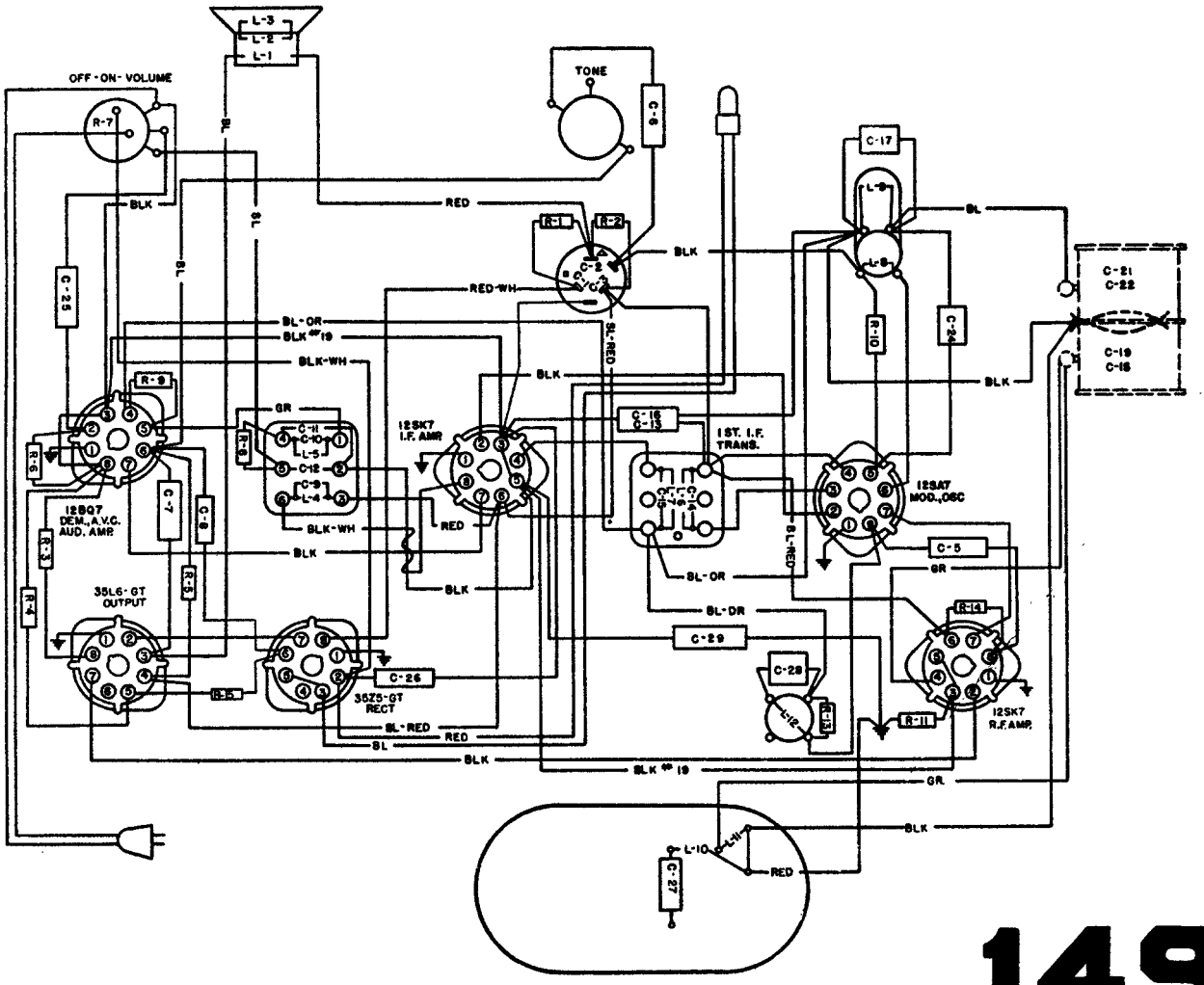


STROMBERG-CARLSON NO. 900 AC-DC RADIO RECEIVERS



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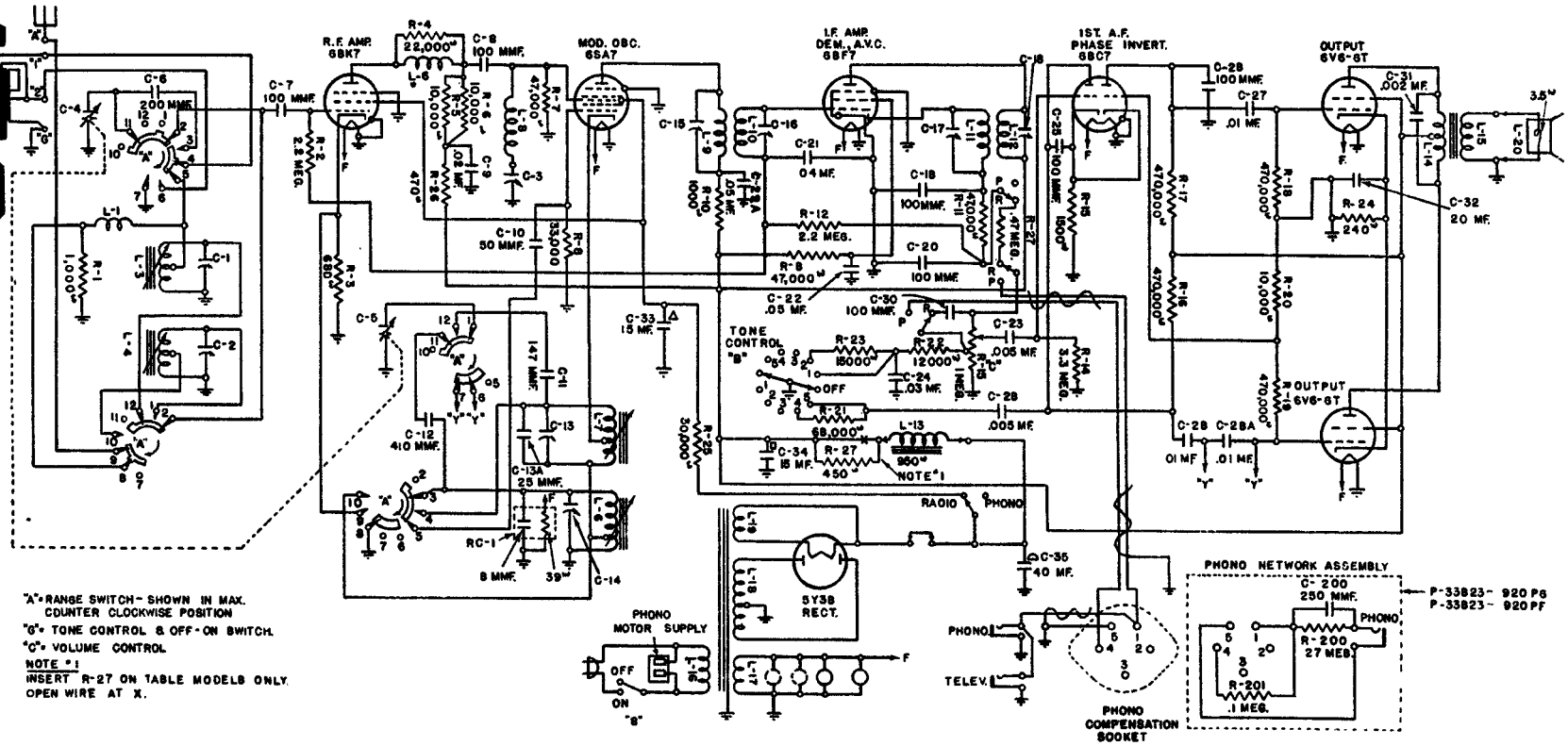


STROMBERG-CARLSON NO. 920 RADIO RECEIVERS

Also Model 1020

Model	Input Power Frequency
920-H	50-60 Cycles
920-HB	25-60 Cycles
920-L	50-60 Cycles
920-LB	25-60 Cycles
920-PF	60 Cycle
920-PFB	25 Cycle
920-PG	60 Cycle
920-PGB	25 Cycle

I.F. 455 KC.

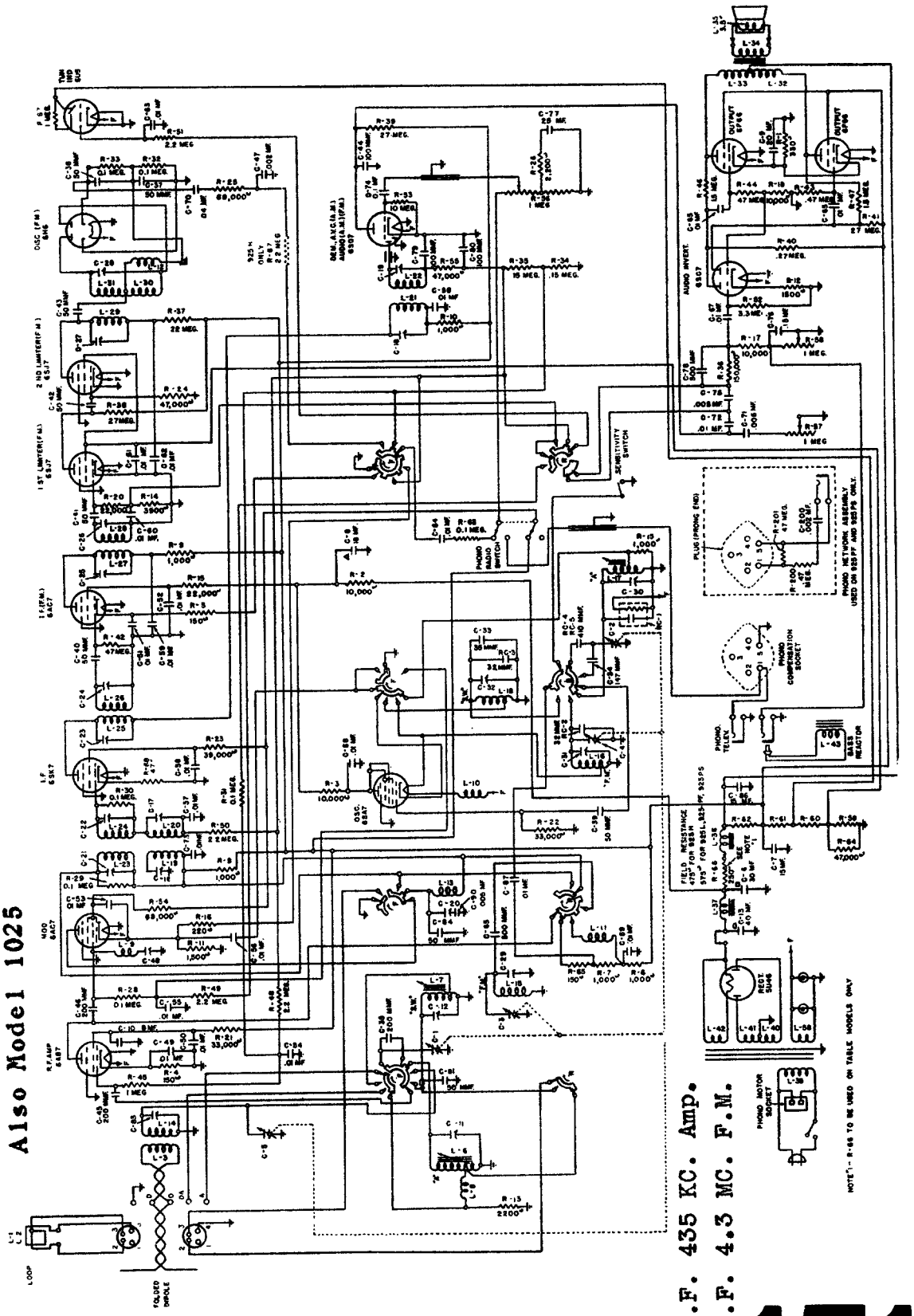
		TERMINALS OF SOCKETS							
Tube	*Circuit*	1	2	3	4	5	6	7	8
6SK7	R. F. Amp.	0	*6.3*	0	0	0	+85	0	+178
6SA7	Osc. and Mod.	0	0	+240	+85	0	0	*6.3*	0
6SF7	I. F. Amp. Demod. and A. V. C.	0	0	0	+95	0	+240	0	*6.3*
6SC7	Audio Amp. and Inverter	0	+65	0	0	+65	4*	0	*6.3*
6V6GT	Output	0	0	+235	+240	0	0	*6.3*	13*
6V6GT	Output	0	*6.3*	+235	+240	0	0	0	13*
5Y3G	Rectifier	0	+380	—	*380*	—	*380*	—	+380

*Read on lowest possible scale of voltmeter

STROMBERG-CARLSON NO. 925 RADIO RECEIVERS

STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY
ROCHESTER, NEW YORK

Also Model 1025



I.F. 435 KC. Amp.
I.F. 4.3 MC. F.M.

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Stromberg-Carlson Models 925 and 1025

CONTINUITY TEST

NOTE: These receivers use either a 6AC7 or 7V7 tube in the modulator stage. (See wiring diagram

Remove all tubes and disconnect all plugs from the chassis before checking continuity.

Use a good meter capable of measuring accurately up to several megohms.

The resistances given are often approximate, owing to electrolytic capacitors in the circuit. When this is the case, be sure to reverse the test leads and read the highest resistance.

Read from indicated terminals to chassis base unless otherwise specified.

		TERMINALS OF SOCKETS							
Tube	*Circuit*	1	2	3	4	5	6	7	8
6AB7	R. F. Amplifier	S	S	S	A	150¶	50000¶	S	21000¶
6AC7	Modulator	S	S	S	B	C	80000¶	S	18000¶
or 7V7		S	18000¶	80000¶	S	S	S	C	S
6SA7	Oscillator	S	S	35000¶	35000¶	30000¶	S	S	35000¶
6SK7	I. F. Amplifier	S	S	S	2M	S	70000¶	S	18000¶
6AC7	2nd I. F. Amplifier (F. M.)	S	S	S	450000¶	D	45000¶	S	18000¶
6SJ7	1st Limiter (F. M.)	S	S	S	22000¶	S	3500¶	S	280000
6SJ7	2nd Limiter (F. M.)	S	S	S	40000¶	S	4000¶	S	240000
6H6	Discriminator (F. M.)	S	S	100000	S	100000¶	100000¶	S	180000
6SQ7	Demod., A. V. C. (A. M.), Audio Amplifier	S	10M	S	E	S	250000	S	S
6SC7	Audio Amp. and Inverter	S	220000	9000¶	3M	200000¶	1200¶	S	S
6F6G	Output	S	S	17000¶	17000¶	400000¶	O	S	290¶
6F6G	Output	S	S	17000¶	170000¶	400000¶	O	S	290¶
5U4G	Rectifier	O	20000¶	O	50¶	O	60¶	O	20000¶
6U5	Tuning Indicator	S	1M	2M	14000¶	S	S	—	—

Symbols shown on chart are as follows: ¶—ohms; M—megohms; S—short; O—open.

NORMAL VOLTAGE READINGS

		TERMINALS OF SOCKETS							
Tube	*Circuit*	1	2	3	4	5	6	7	8
6AB7	R. F. Amplifier	0	0	0	0	+2.4	+182	*6.3*	+275
6AC7	Modulator	0	0	0	0	+6	+218	*6.3*	+300
or 7V7		0	+300	+218	0	0	0	+6	*6.3*
6SA7	Oscillator	0	0	+120	+120	—5	0	*6.3*	+120
6SK7	I. F. Amplifier	0	0	0	0	0	+110	*6.3*	+290
6AC7	2nd I. F. Amplifier (F. M.)	0	0	0	0	+8	+265	*6.3*	+300
6SJ7	1st Limiter (F. M.)	0	0	0	0	0	+54	*6.3*	+2
6SJ7	2nd Limiter (F. M.)	0	0	0	0	0	+54	*6.3*	+3
6H6	Discriminator (F. M.)	0	0	0	0	0	0	*6.3*	0
6SQ7	Demod., A. V. C. (A. M.), Audio Amplifier	0	0	0	0	0	+100*	0	*6.3*
6SC7	Audio Amp. and Inverter	0	+140*	0	0	+130*	+2	*6.3*	0
6F6G	Output	0	0	+340	+300	0	0	*6.3*	+22
6F6G	Output	0	0	+340	+300	0	0	*6.3*	+22
5U4G	Rectifier	0	+450	0	*415*	0	*415*	0	+450
6U5	Tuning Indicator	*6.3*	+80	0	+250	0	0	—	—

*Read on 1000 volt scale of voltmeter.

Between terminals 2 and 8 of rectifier socket—5 volts A. C.

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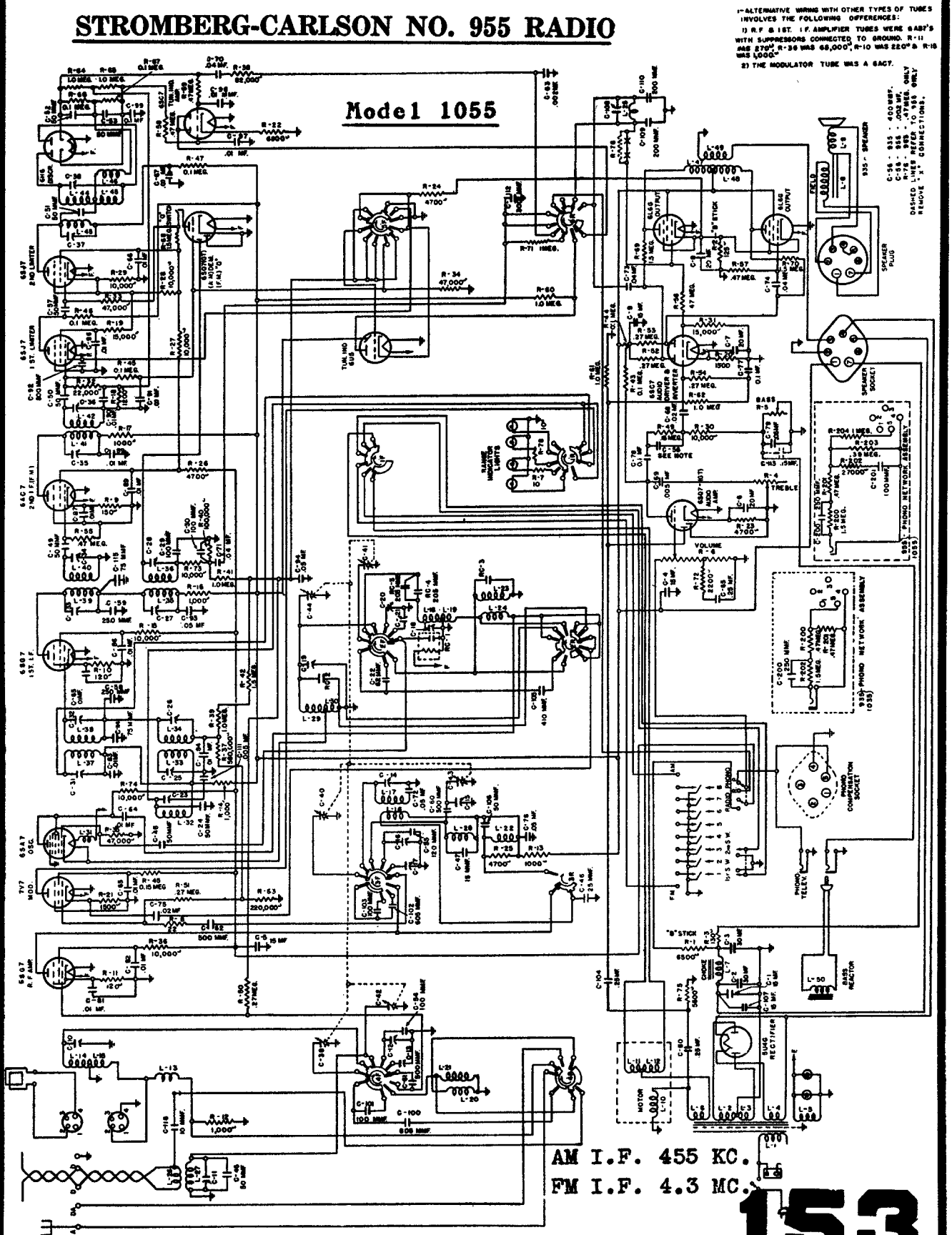
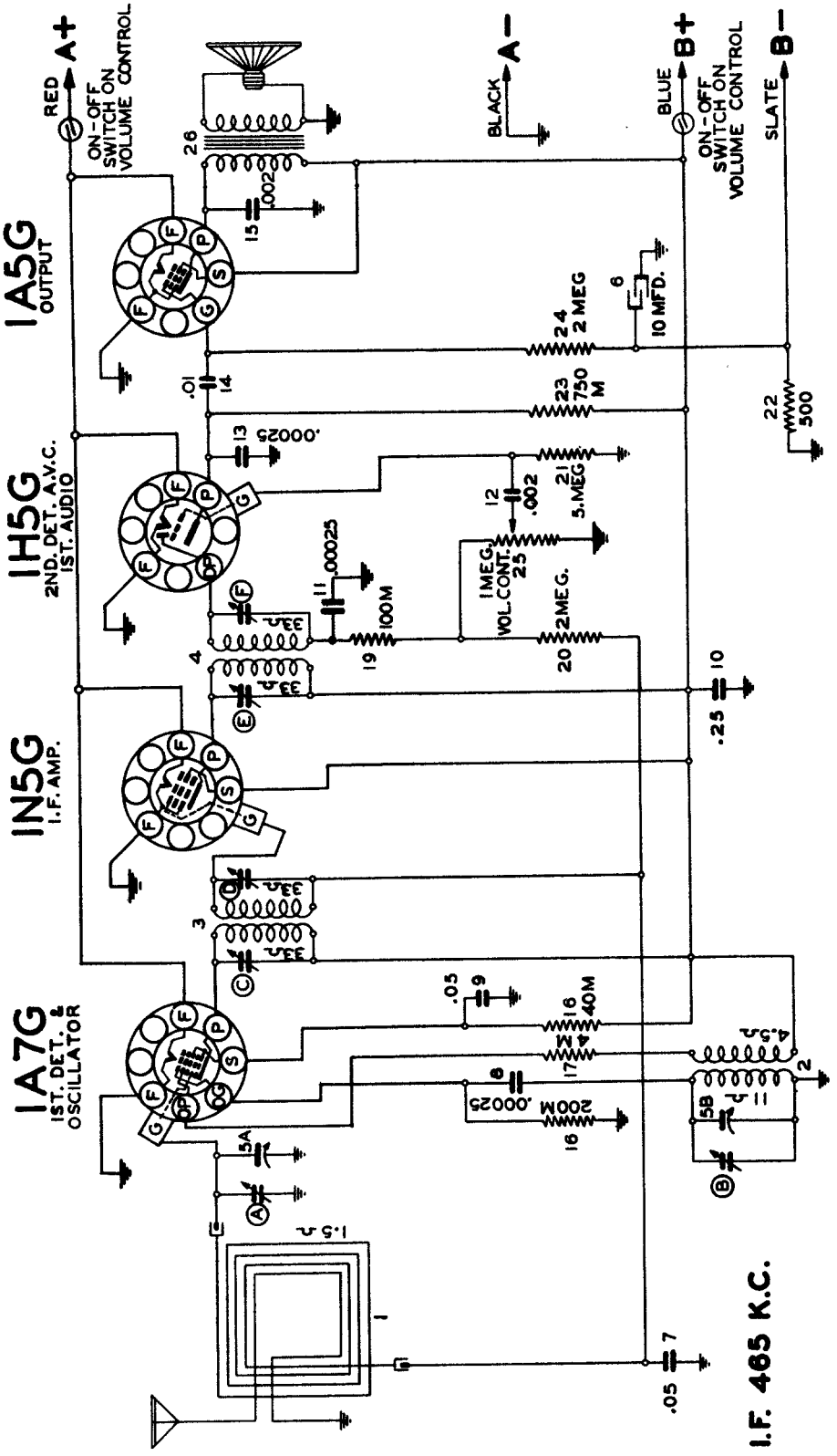
MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

STROMBERG-CARLSON NO. 955 RADIO

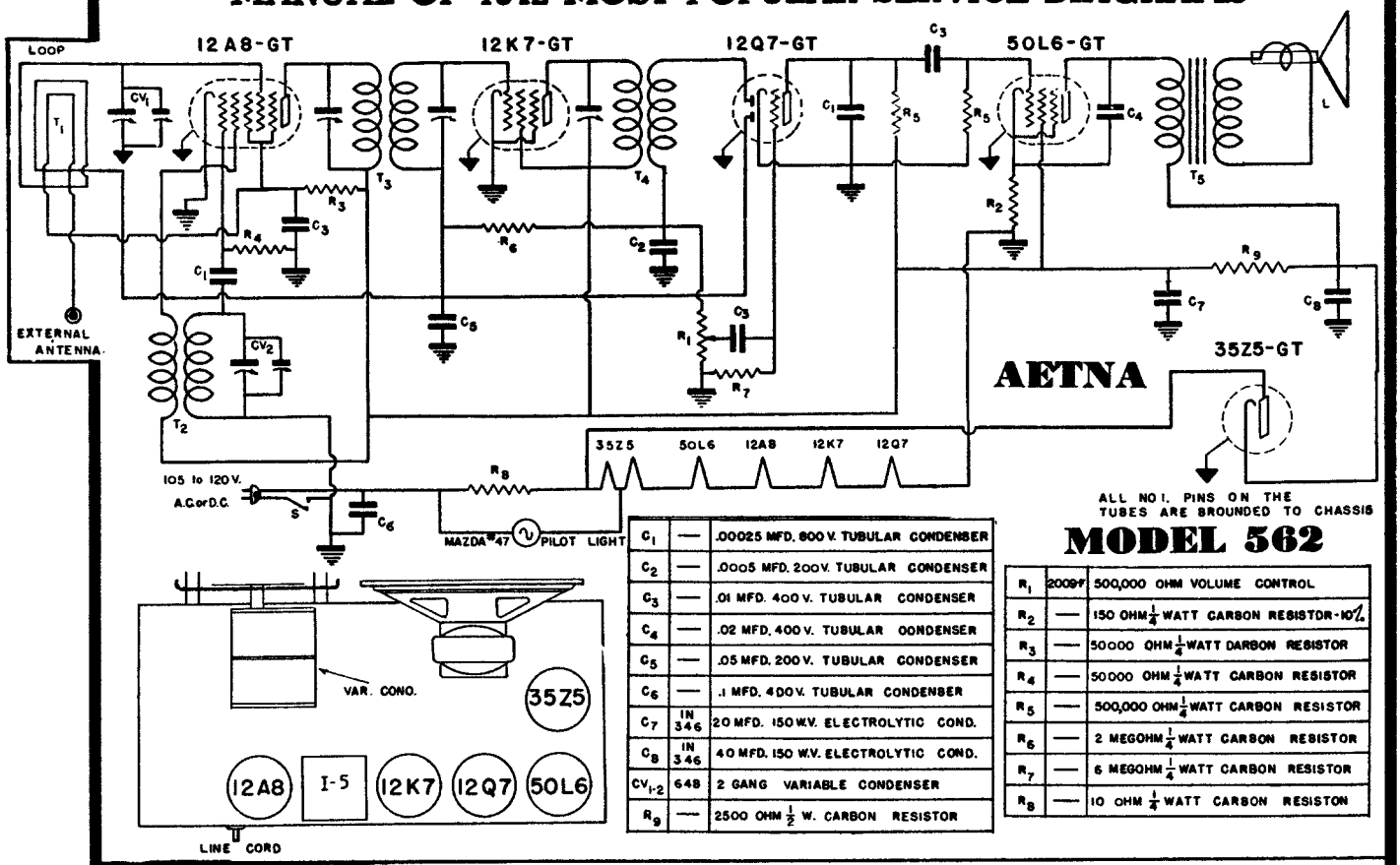




DELCO MODELS R-1401 AND R-1402 CIRCUIT DIAGRAM

I.F. 465 K.C.

UNITED MOTORS SERVICE
INCORPORATED

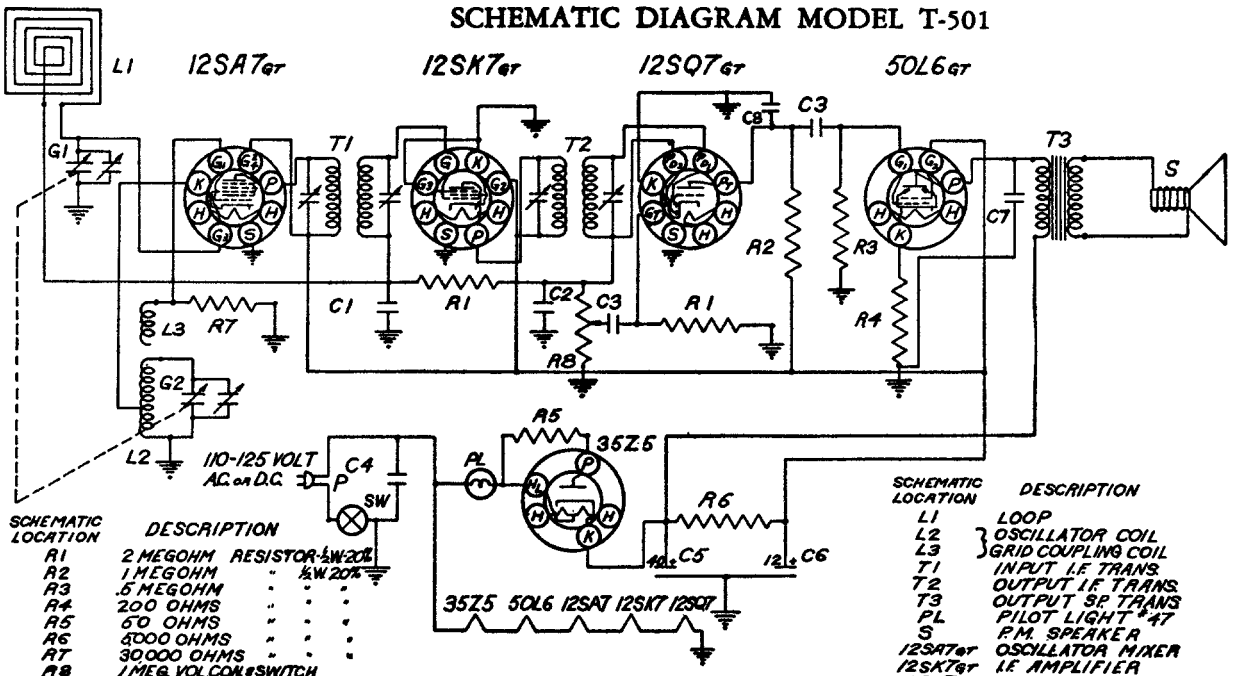


C_1	—	.00025 MFD. 600 V. TUBULAR CONDENSER
C_2	—	.0005 MFD. 200V. TUBULAR CONDENSER
C_3	—	.01 MFD. 400 V. TUBULAR CONDENSER
C_4	—	.02 MFD. 400 V. TUBULAR CONDENSER
C_5	—	.05 MFD. 200 V. TUBULAR CONDENSER
C_6	—	.1 MFD. 400 V. TUBULAR CONDENSER
C_7	IN 346	20 MFD. 150 W.V. ELECTROLYTIC COND.
C_8	IN 346	40 MFD. 150 W.V. ELECTROLYTIC COND.
CV_{1-2}	648	2 GANG VARIABLE CONDENSER
R_9	—	2500 OHM ½ W. CARBON RESISTOR

MODEL 562

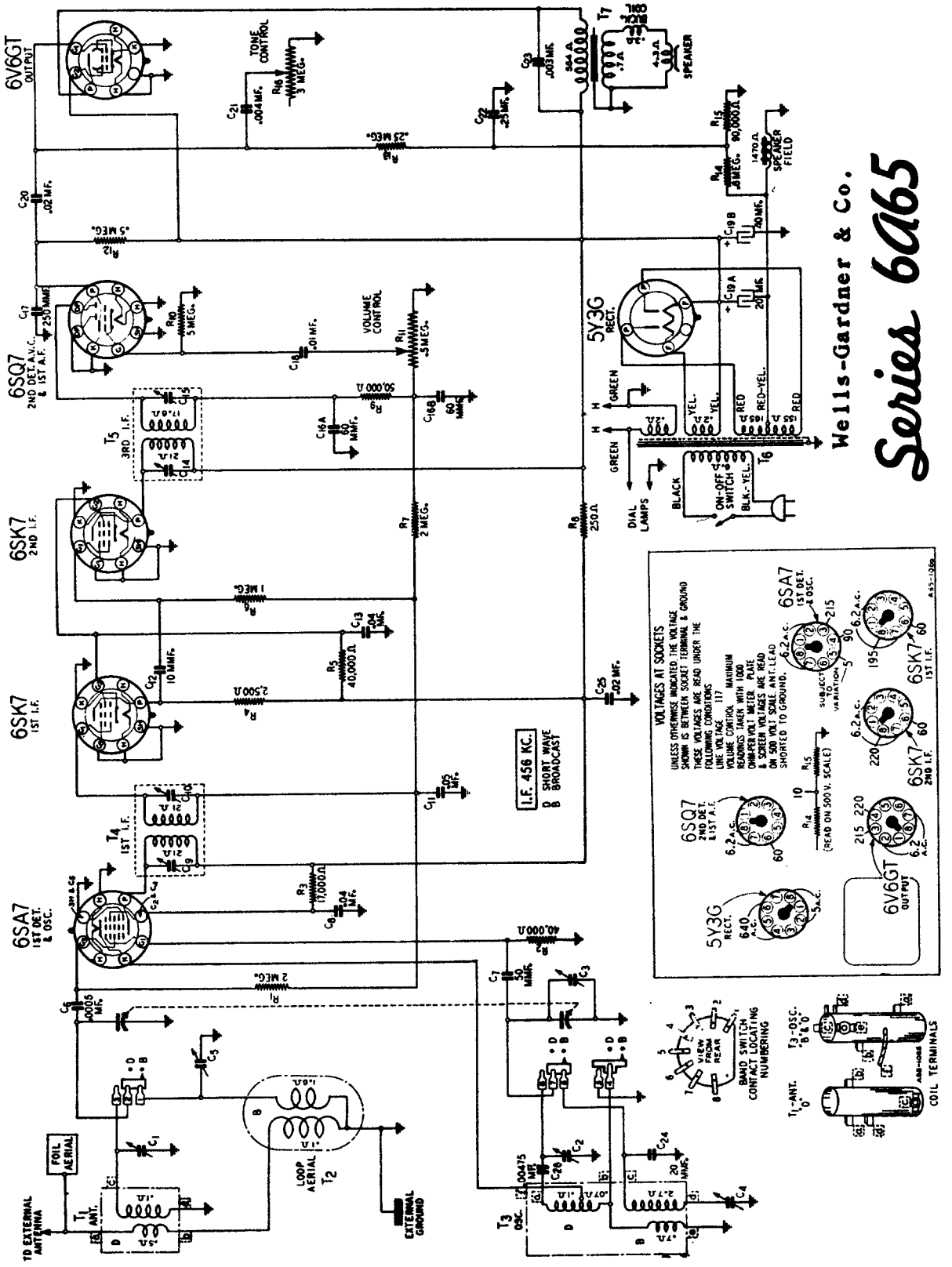
R_1	20097	500,000 OHM VOLUME CONTROL
R_2	—	150 OHM ¼ WATT CARBON RESISTOR-10%
R_3	—	50000 OHM ¼ WATT DARBON RESISTOR
R_4	—	50000 OHM ¼ WATT CARBON RESISTOR
R_5	—	500,000 OHM ¼ WATT CARBON RESISTOR
R_6	—	2 MEGOHM ¼ WATT CARBON RESISTOR
R_7	—	6 MEGOHM ¼ WATT CARBON RESISTOR
R_8	—	10 OHM ¼ WATT CARBON RESISTON

SCHEMATIC DIAGRAM MODEL T-501



SCHEMATIC LOCATION	DESCRIPTION
R1	2 MEGOHM RESISTOR-½W-20%
R2	1 MEGOHM " ½W 20%
R3	.5 MEGOHM " " "
R4	200 OHMS " " "
R5	50 OHMS " " "
R6	5000 OHMS " " "
R7	30,000 OHMS " " "
R8	1 MEG. VOL. CON. & SWITCH
G1, G2	GANG CONDENSER
C1	.05 MFD. 200V. COND.
C2	.0001 MFD. MICA "
C3	.01 MFD. 400V. "
C4	.05 MFD. 400V. "
C5	40 MFD. ELECTROLYTIC
C6	12 MFD. ELECTROLYTIC
C7	.005 MFD. 600V. COND.
C8	.0006 MFD. 400V. "

SCHEMATIC LOCATION	DESCRIPTION
L1	LOOP
L2, L3	OSCILLATOR COIL, GRID COUPLING COIL
T1	INPUT I.F. TRANS.
T2	OUTPUT I.F. TRANS.
T3	OUTPUT S.P. TRANS
PL	PILOT LIGHT #47
S	P.M. SPEAKER
12SA7GT	OSCILLATOR MIXER
12SK7GT	I.F. AMPLIFIER
12SQ7GT	DETECTOR-AUDIO
50L6GT	AUDIO AMPLIFIER
35Z6GT	RECTIFIER



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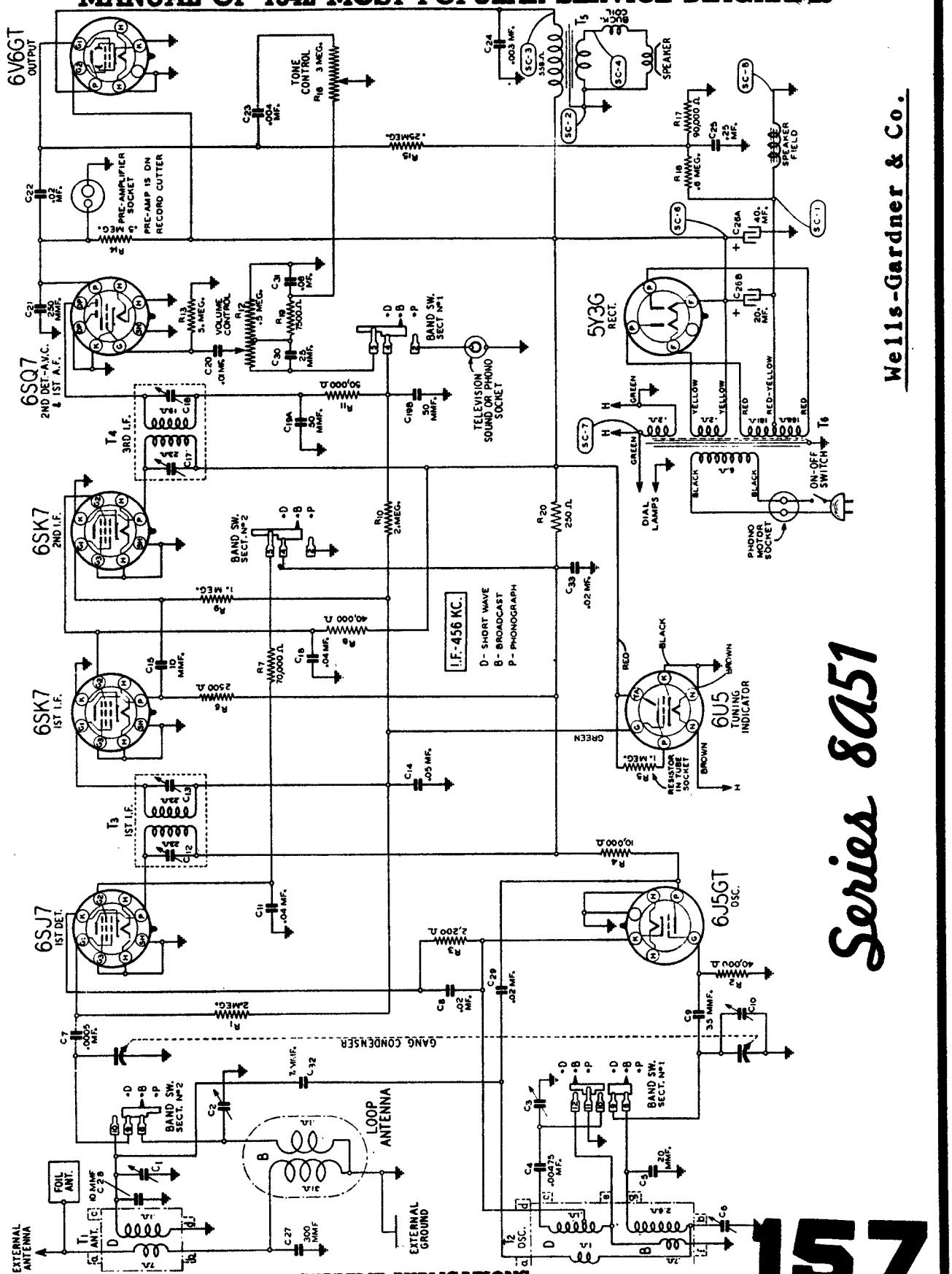
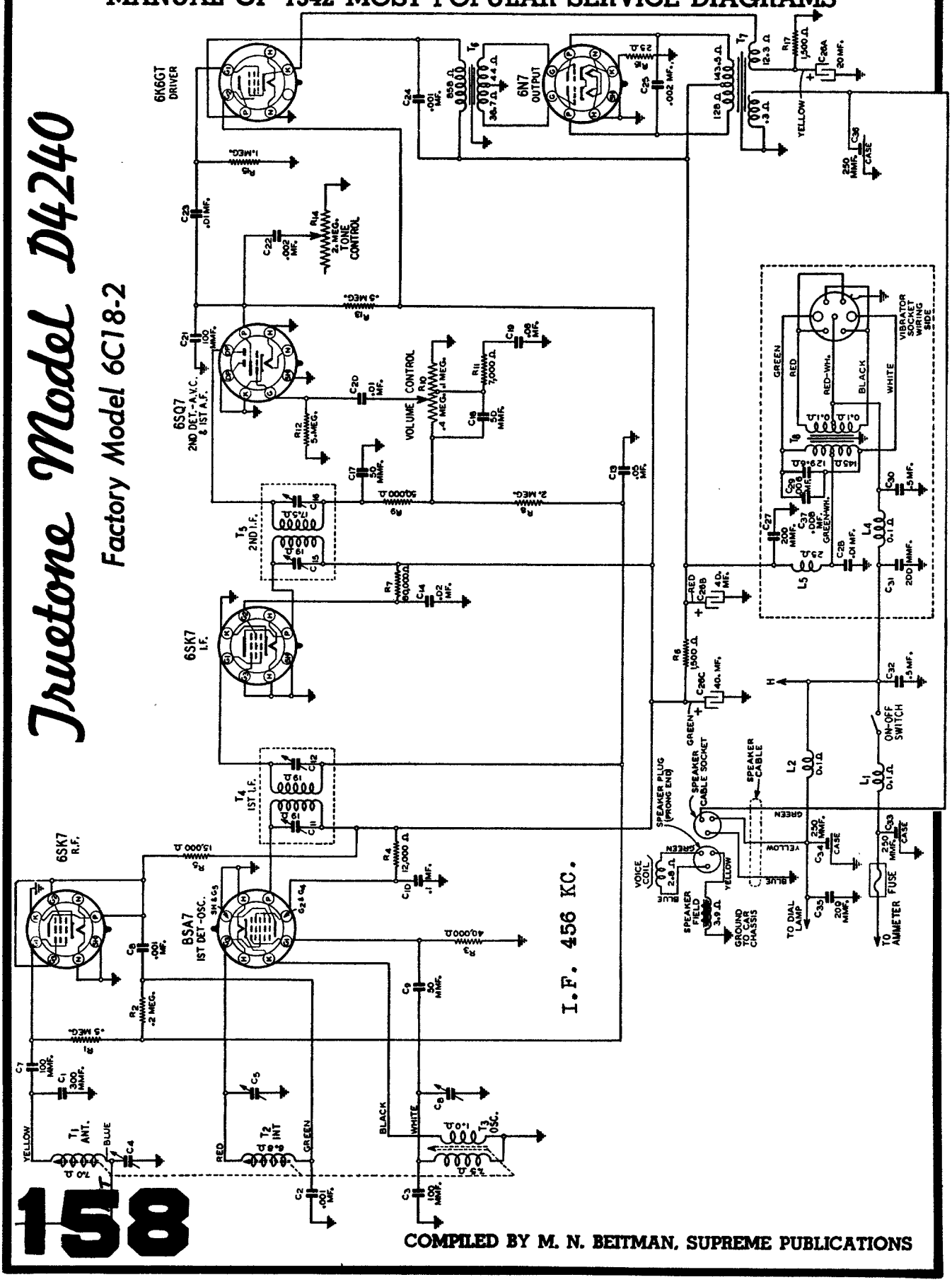


Wells-Gardner & Co.

Series 8A51

Truetone Model D4240

Factory Model 6C18-2



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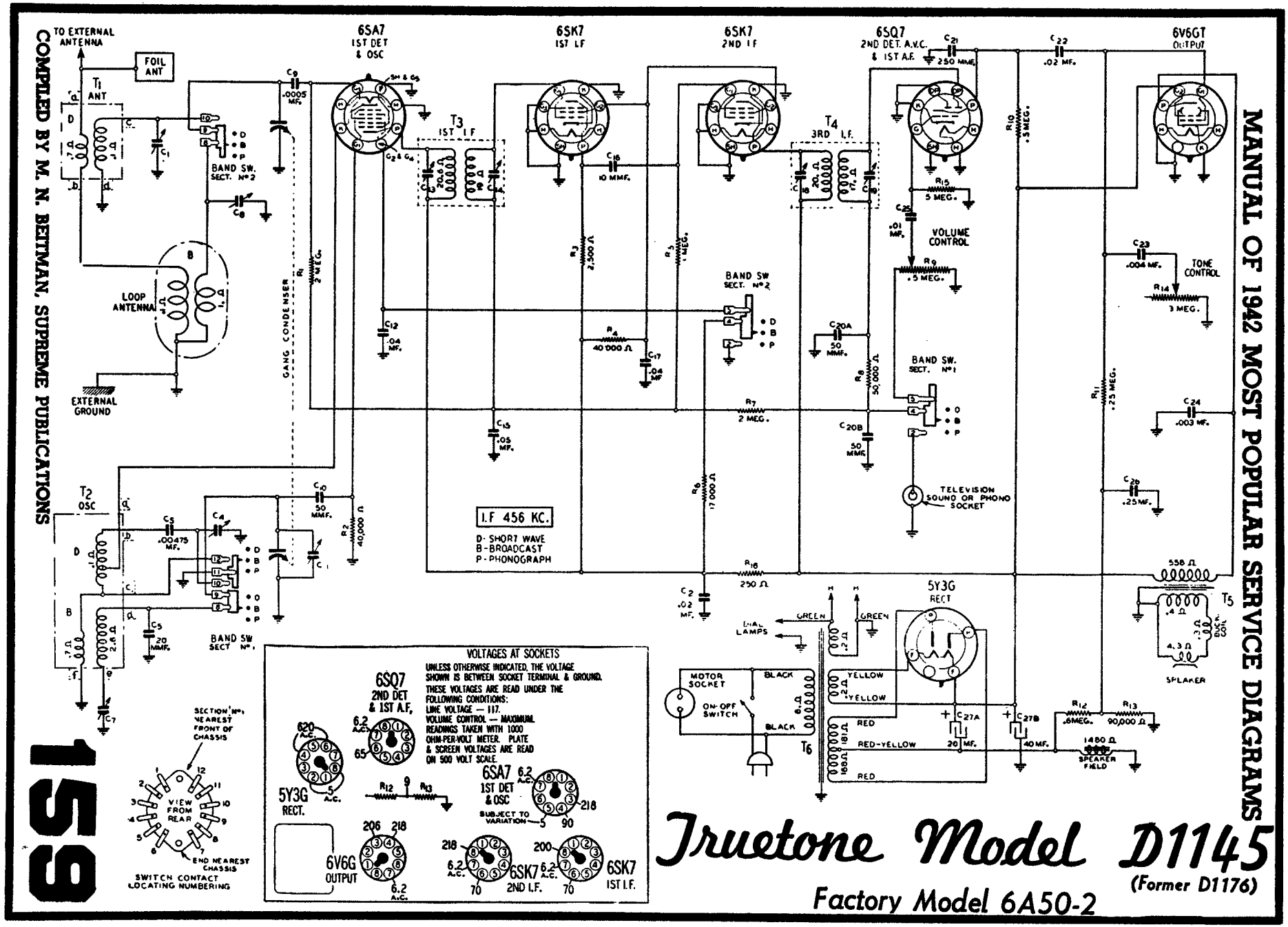
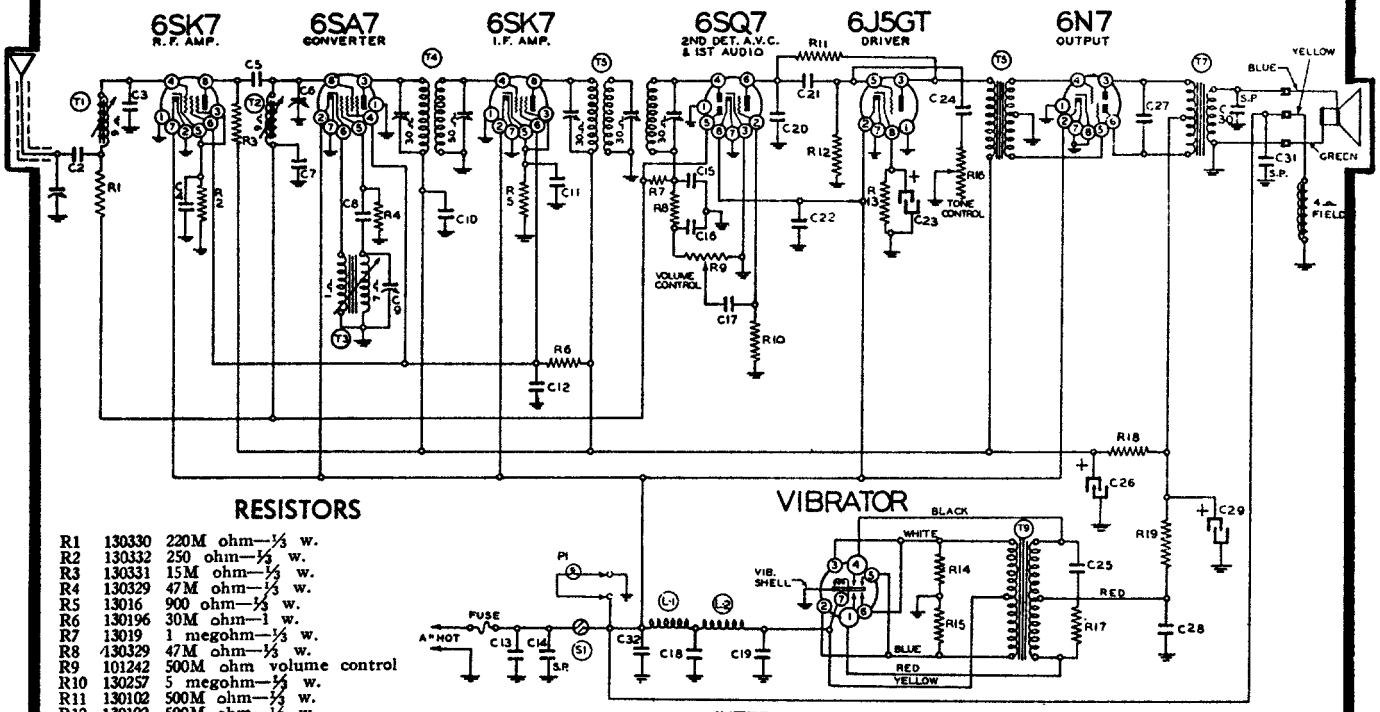


Truetone Model D1145

(Former D1176)

Factory Model 6A50-2



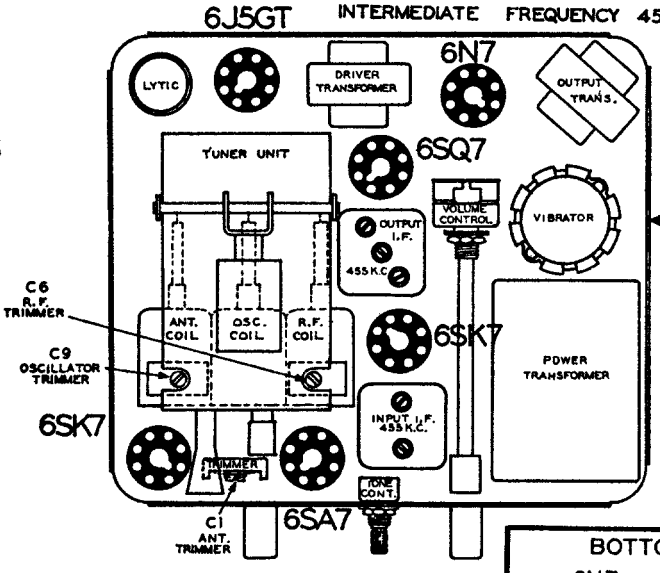
RESISTORS

R1	130330	220M ohm—½ w.
R2	130332	250 ohm—½ w.
R3	130331	15M ohm—½ w.
R4	130329	47M ohm—½ w.
R5	13016	900 ohm—½ w.
R6	130196	30M ohm—1 w.
R7	13019	1 megohm—½ w.
R8	130329	47M ohm—½ w.
R9	101242	500M ohm volume control
R10	130257	5 megohm—½ w.
R11	130102	500M ohm—½ w.
R12	130102	500M ohm—½ w.
R13	13092	1M ohm—½ w.
R14	130168	100 ohm—½ w.
R15	130168	100 ohm—½ w.
R16	101245	1 megohm tone control
R17	13092	1M ohm—½ w.
R18	130199	1500 ohm—1 w.
R19	130328	75 ohm—½ w.

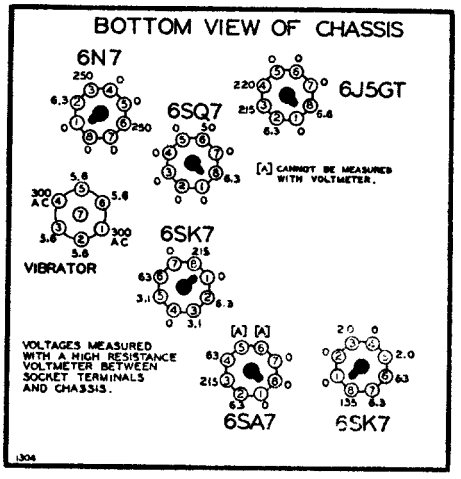
CONDENSERS

C1	124157	Antenna trimmer
C2	100127	.01 x 120 v.
C3	129172	.0001 ceramicon
C4	100128	.05 x 120 v.
C5	129145	.00001 ceramicon
C6	124159	R.F. trimmer
C7	100129	.02 x 120 v.
C8	129172	.0001 ceramicon
C9	124158	Oscillator trimmer
C10	1001	.1 x 400 v.
C11	100128	.05 x 120 v.
C12	10053	.25 x 400 v.
C13	10031	.5 x 120 v.
C14	115687	Spark plate
C15	129165B	.00005 mica
C16	129165B	.00005 mica
C17	100127	.01 x 120 v.
C18	10031	.5 x 120 v.
C19	10031	.5 x 120 v.
C20	12912	.00025 mica
C21	10026	.02 x 400 v.
C22	1292	.0005 mica
C23	119118	20.0 mfd. x 25 v. lytic
C24	10011	.01 x 400 v.
C25	10098	.005 x 1600 v.
C26	119118	20 mfd. x 400 v. lytic
C27	100126	.006 x 800 v.
C28	1001	.1 x 400 v.
C29	119118	20 mfd. x 400 v. lytic
C30	115710	Spark plate
C31	115710	Spark plate
C32	12912	.00025 mica

C15 and C16 are in same unit
C20 and C21 are in same unit
C23, C26 and C29 are in same unit



NOTE: CHECK VIBRATOR POLARITY THRU OPENING ON THIS SIDE OF CASE.



Western Auto

Truetone

MODEL D4255

(Former No. D1294)

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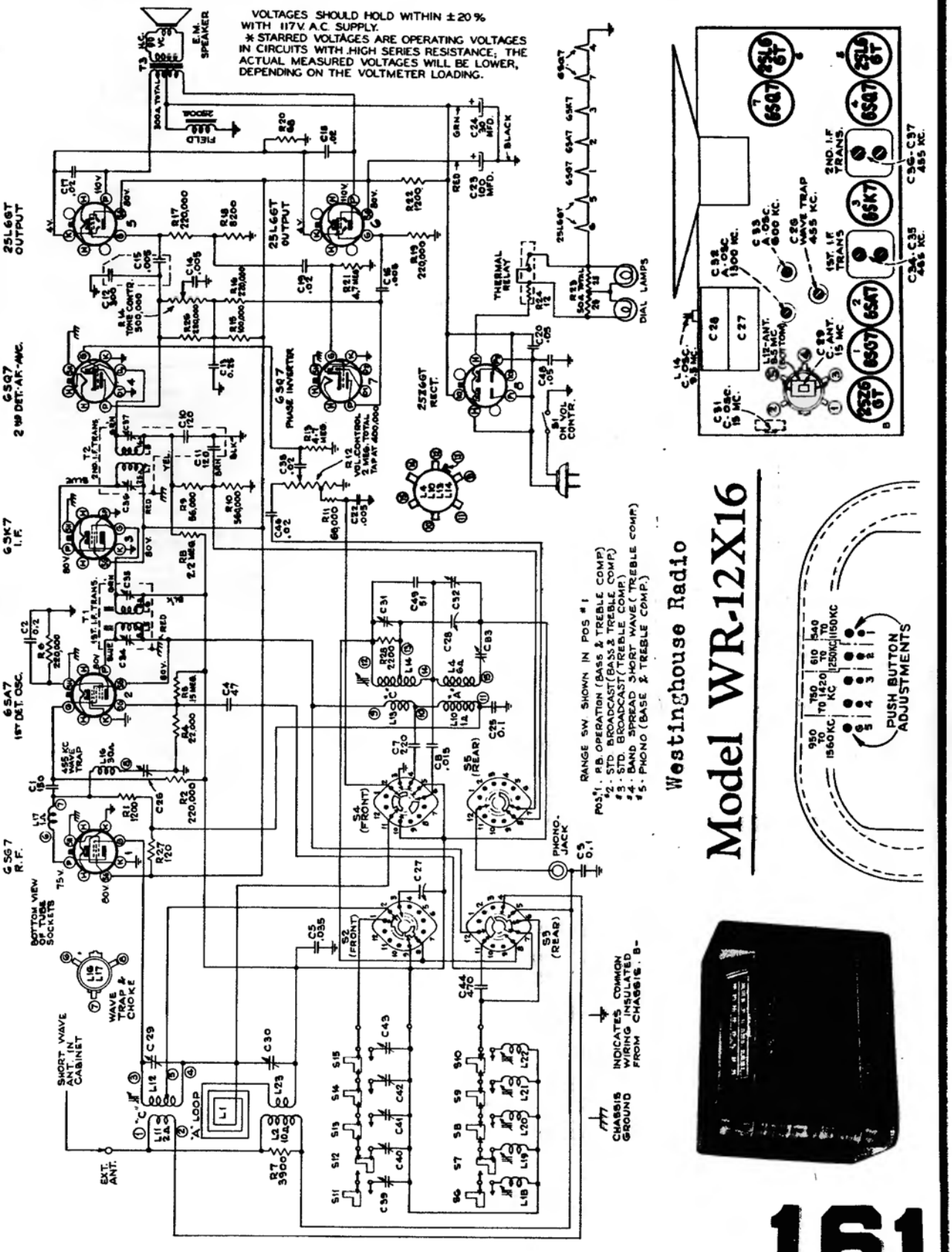


Model WR-12X16

Westinghouse Radio

Westinghouse Radio

Models WR-12X3, 12X5 & 12X6

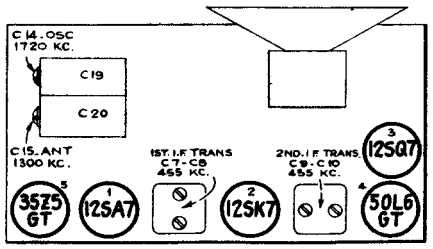
Five-Tube, Single-Band, AC-DC, Superheterodyne Receiver

Alignment Procedure

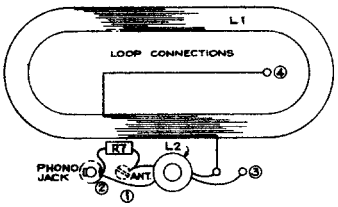
Output Meter Alignment.—If this method is used connect the meter across the voice coil and turn the receiver volume control to maximum.

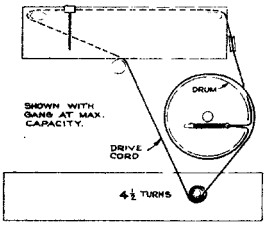
Test Oscillator.—Connect the low side of the test oscillator to the receiver chassis through a .01 mfd. capacitor. With the output meter alignment method the test oscillator output should be kept as low as possible.

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

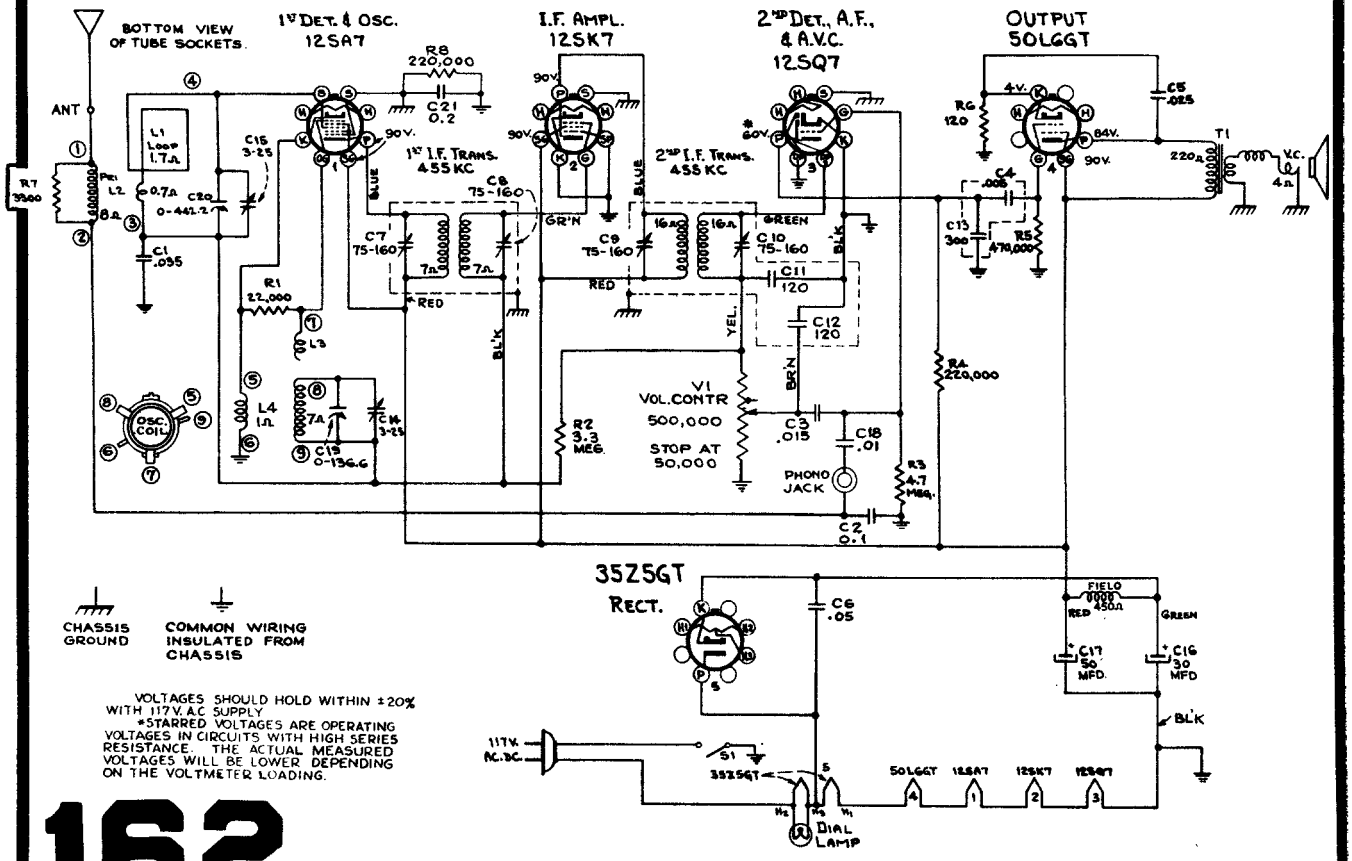


Tube and Trimmer Locations





Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	I-F grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	C10, C9 2nd I-F Transformer
2	1st Det. grid in series with .01 mfd.			C8, C7 1st I-F Transformer
3	Ant. terminal in series with 100 mmfd.	1,720 kc	Gang at minimum	C14 (osc.)
4	Radiated signal 1,300 kc		Signal frequency	C15 (ant.)
5	Repeat steps 3 and 4.			



CHASSIS GROUND

COMMON WIRING INSULATED FROM CHASSIS

VOLTAGES SHOULD HOLD WITHIN ±20% WITH 117 V. A.C. SUPPLY
*STARRED VOLTAGES ARE OPERATING VOLTAGES IN CIRCUITS WITH HIGH SERIES RESISTANCE. THE ACTUAL MEASURED VOLTAGES WILL BE LOWER DEPENDING ON THE VOLTMETER LOADING.

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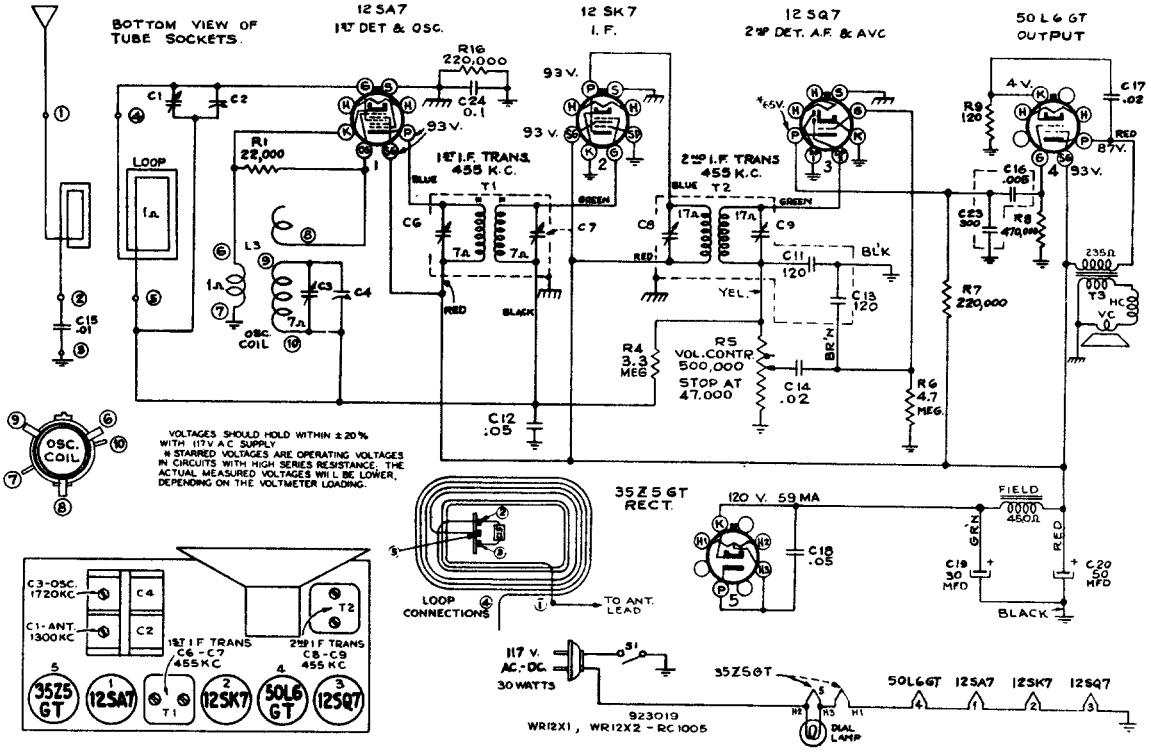
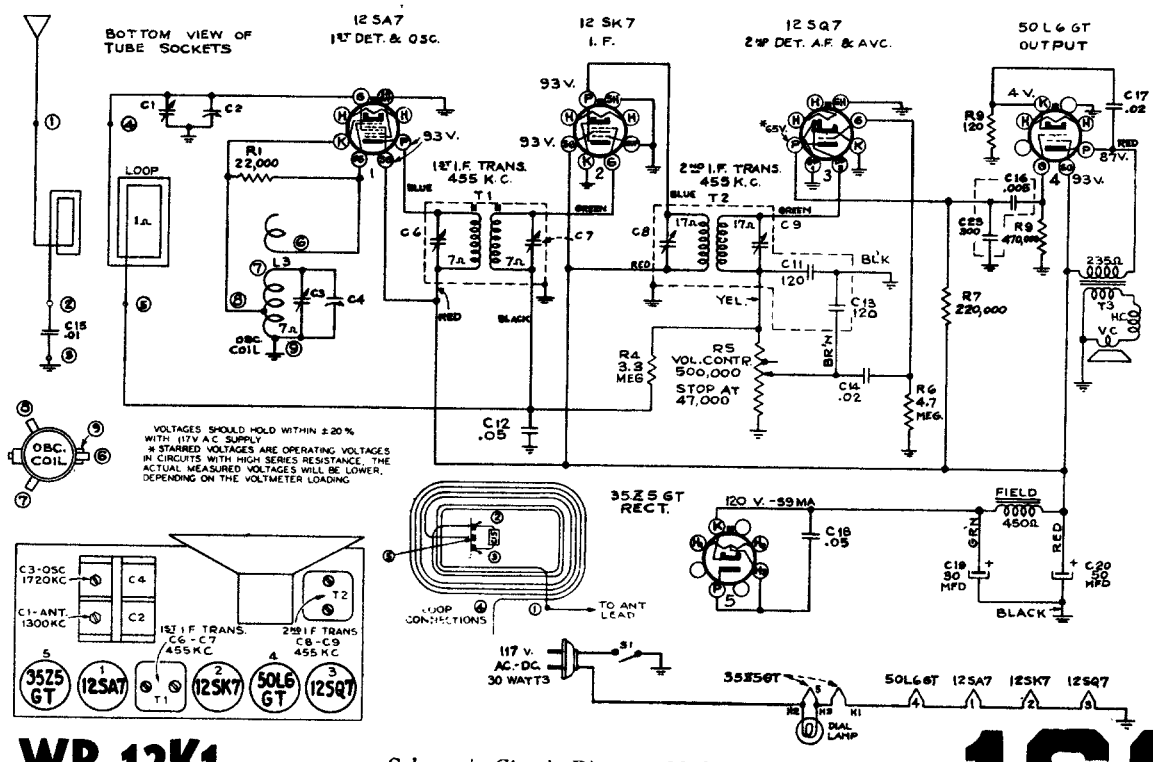


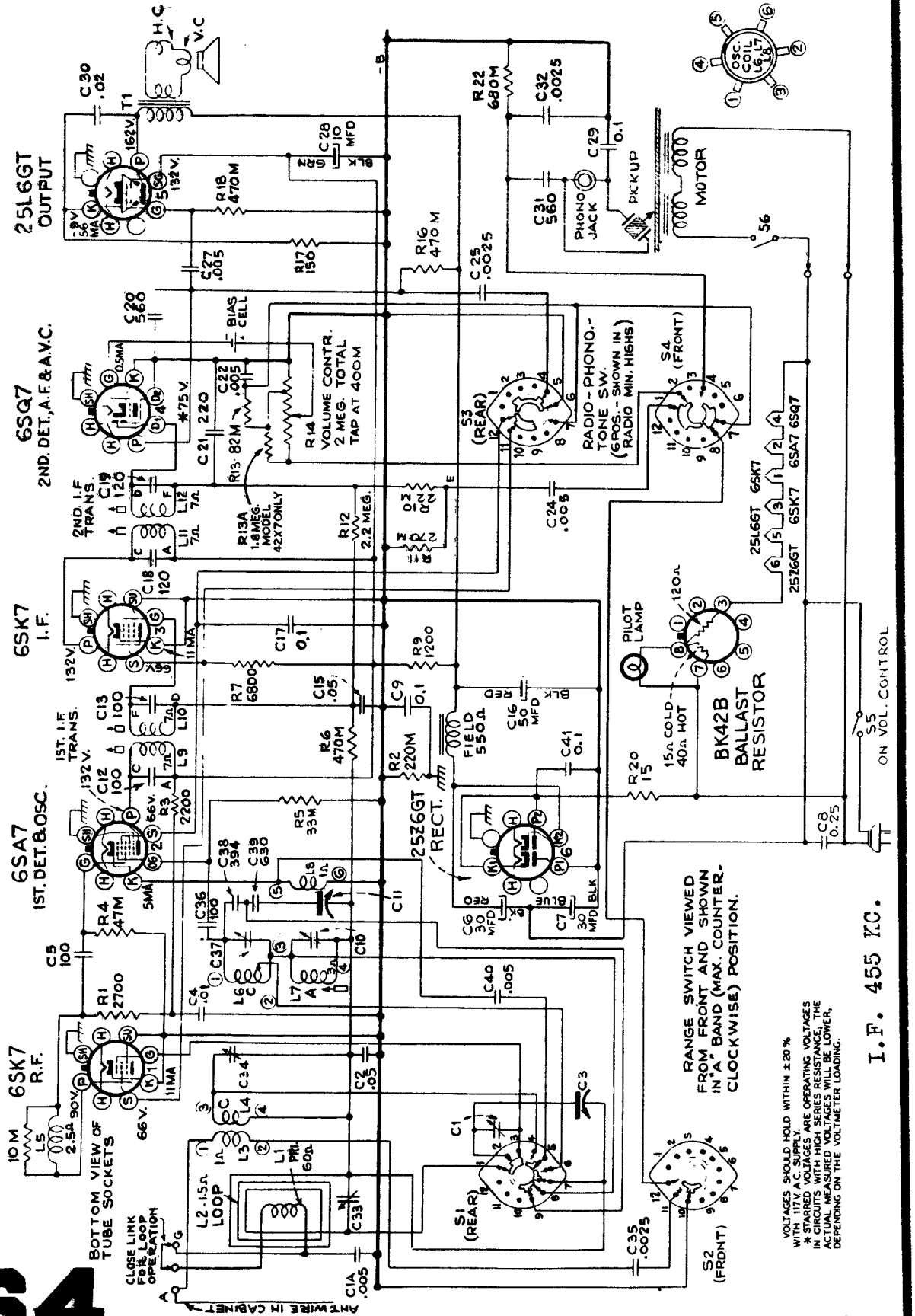
Schematic Circuit Diagram Model WR-12X1 & WR-12X2



WR-12K1

Schematic Circuit Diagram Model WR-12K1

Westinghouse Models WR-42X3 & WR-42X7



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Models WR-62K1 & WR-62K2

Alignment Procedure

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

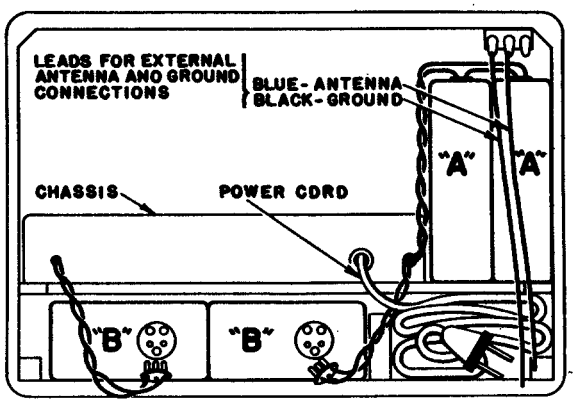
Test-Oscillator.—For all alignment operations, keep the output as low as possible to avoid a-v-c action.

Precautionary Lead Dress.—

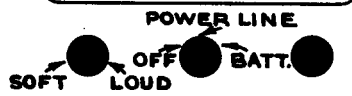
1. Keep green grid leads above chassis away from each other.
2. All filament wires should be dressed close to chassis.
3. Keep blue leads from I-F transformers close to chassis.

Steps	Connect the high side of test-osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	1N5GT I-F grid cap, in series with .01 mfd.	455 kc	Quiet point at 1,600 kc end of dial	C16, C17 (2nd I-F transformer)
2	1A7GT 1st Det. grid cap, in series with .01 mfd.			C14, C15 (1st I-F transformer)
3	Antenna terminal in series with 200 mmfd.			C4 Wave trap for *minimum* output
4		600 kc	600 kc	L9 (osc.) (Rock in)
5		1,600 kc	1,600 kc	C10 (osc.)
6		1,300 kc	1,300 kc	C1 (ant.)
7	Repeat steps 4, 5 and 6 until aligned			
8	With chassis in cabinet and batteries connected repeat step 6			

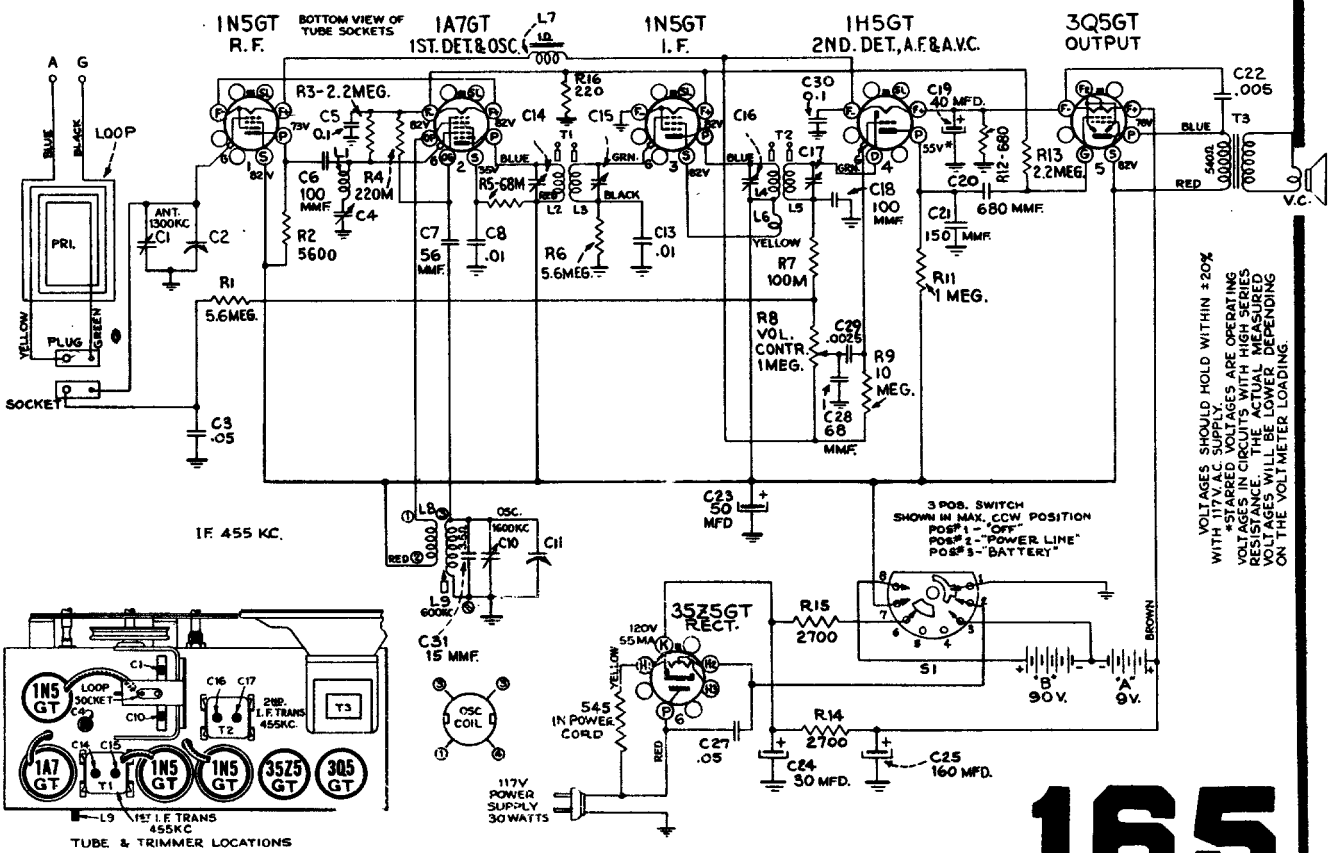
BATTERY INSTALLATION

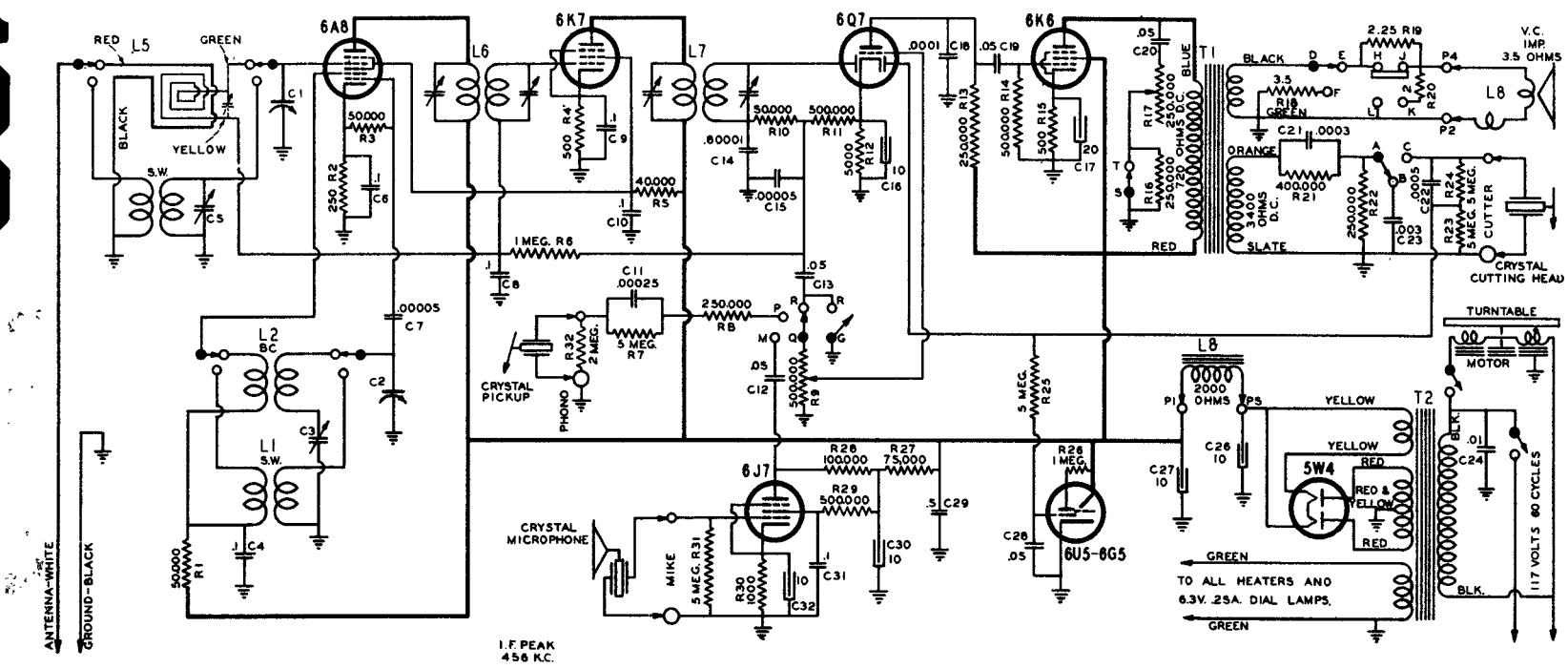


"A"—TWO 4.5-VOLT EVEREADY NO. 748, BURGESS NO. 6-3, RAY-O-VAC NO. P-83-A, OR EQUIVALENT.
"B"—TWO 45-VOLT EVEREADY NO. 482, BURGESS NO. M-30, RAY-O-VAO NO. P-7830, OR EQUIVALENT.



VOLUME CONTROL POWER CONTROL TUNING CONTROL





WILCOX-GAY CORPORATION
Charlotte, Michigan

Models

A-104 A-107

Line Voltage----------118
P5 or C26 to GND.-------350
P1 or C27 to GND.-------240
P5 to P1 (sp'kr field)--110
C30 to GND.------------150

Tube	Position	Plate	Screen	Cathode
6A8	1st. Det. Osc.	230	75	2.2
6K7	I.F.	230	75	3.0
6Q7	2nd. Det.	90*		1.5
6J7	Mike Amp.	45 to 65*	30*	.8
6K6	Output	215	235	13.5

NOTE: This is a typical voltage analysis made by use of standard 1000 ohm per volt voltmeter, using the 300 volt scale for plate and screen voltage readings.

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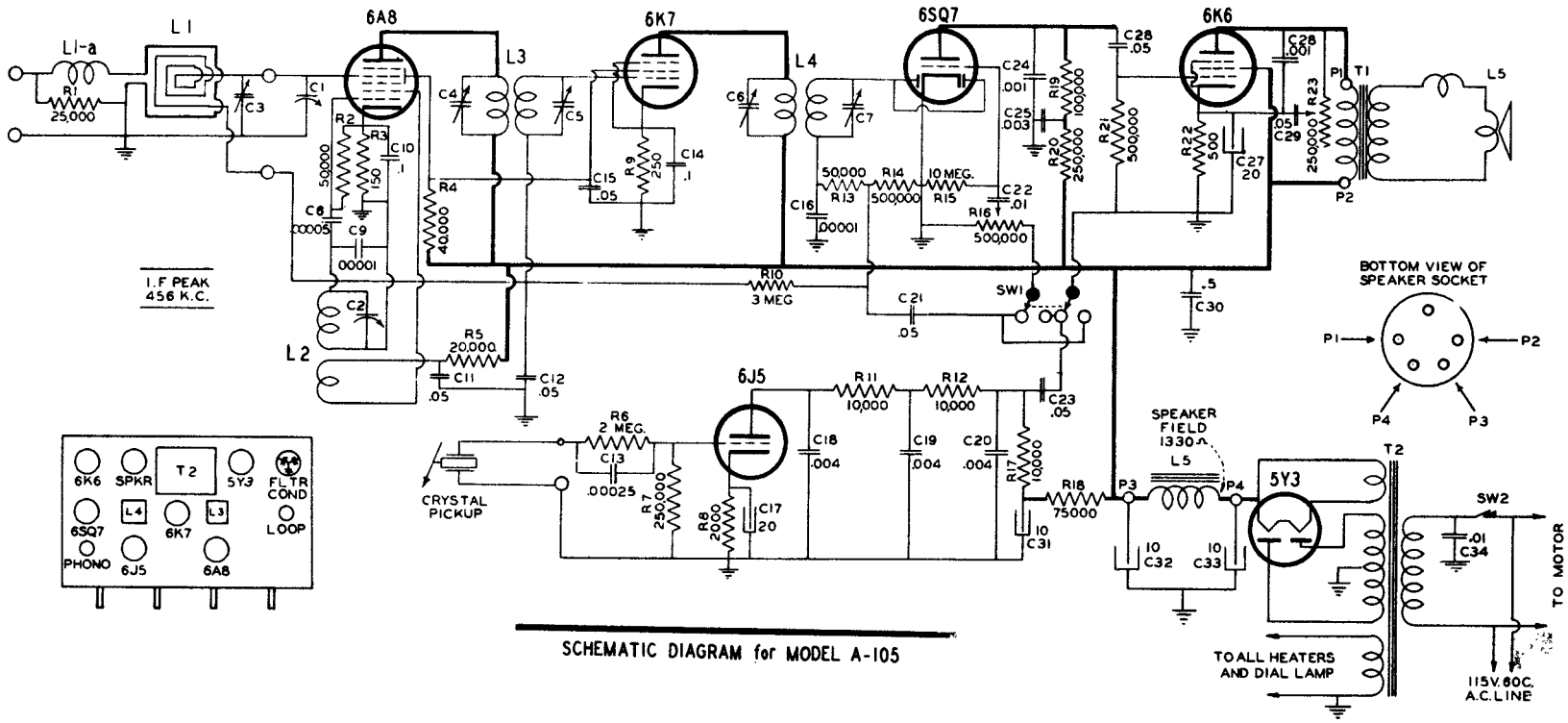


SCHEMATIC DIAGRAM for MODEL A-105

WILCOX-GAY CORPORATION
Charlotte, Michigan

Model A-105

(1) Connect signal generator to control grid of 6A8 tube.
(2) Peak all trimmers for maximum reading on meter.

SIGNAL GENERATOR FREQUENCY	DIAL POSITION	TRIMMER
456 K.C.	1700 K.C.	I.F. - C4*
" "	" "	I.F. - C5*
" "	" "	I.F. - C6*.
" "	" "	I.F. - C7*

Connect signal generator to ANT. and GND. terminals.

1400 K.C.	1400 K.C.	C2-Osc.
" "	" "	Trimmer on Loop - R.F.

THE RUDOLPH WURLITZER COMPANY

NORTH TONAWANDA, N. Y.

VOLTAGES & CURRENTS OF MODELS 501 & 502 AMPLIFIERS — ALL MEASUREMENTS MADE WITH LINE AT 117 VOLTS 25 OR 60 CYCLE
ALL VOLTAGES MEASURED WITH 1000 OHMS PER VOLT VOLTMETER (ALL VOLTAGES OVER 50 USE 500 VOLT SCALE)

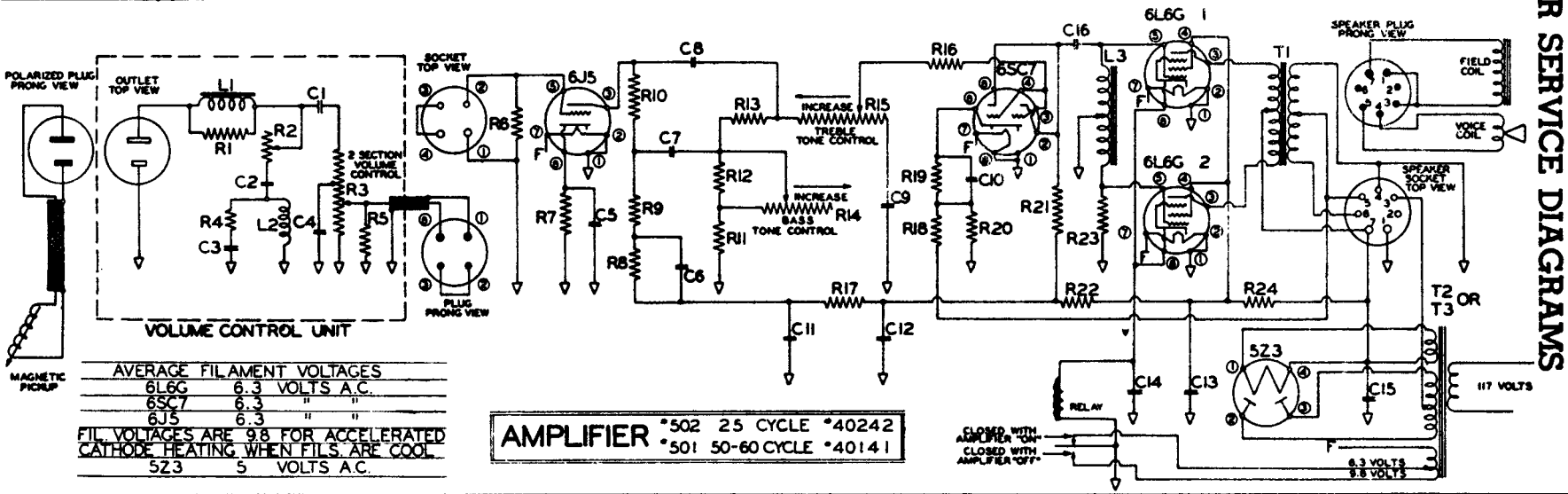
AVERAGE PLATE & SCREEN VOLTAGE MEASURED TO CHASSIS		AVERAGE PLATE CURRENT		AVERAGE VOLTAGE ACROSS CONDENSERS	
6L6G PLATE	310 VOLTS D.C.	6L6G	68. MA. D.C.	C 15	320 VOLTS D.C.
6L6G SCREEN	315 " "	6SC7	1.8 " "	C 14	20 " "
6SC7 PLATE	170 " "	6J5	.8 " "	C 13	315 " "
6J5 PLATE	70 " "			C 12	290 " "
				C 11	275 " "

SPEAKER FIELD RESISTANCE 5200 OHMS - VOICE COIL 8 OHMS
320 VOLTS D.C BETWEEN TERMINALS 1 & 7 OF SPEAKER SOCKET

ITEM	PART	VALUE	REMARKS
		RESISTORS	
R 1	40284	36000 OHMS	± 10 % ½ WATT
R 2	40281	5000 "	VOL CON. REAR
R 3		150000 "	" " PANEL
R 4	22529	2000 "	± 10 % ½ WATT
R 5	20855	150000 "	± 10 % ½ "
R 6	35924	560000 "	± 10 % ½ "
R 7	36324	3300 "	± 10 % ½ "
R 8	22528	220000 "	± 10 % ½ "
R 9	37370	8200 "	± 10 % ½ "
R10	36441	22000 "	± 10 % ½ "
R11	37446	39000 "	± 10 % ½ "
R12	28383	1000000 "	± 10 % ½ "
R13	40226	33000 "	± 10 % ½ "
R14	40607	1000000 "	TONE CON. BASS
R15	40227	250000 "	" " TREBLE
R16	37448	39000 OHMS	± 10 % ½ WATT
R17	21200	10000 "	± 10 % ½ "
R18	40229	5100 "	± 5 % ½ "
R19	40225	910 "	± 5 % ½ "
R20	40224	130 "	± 5 % ½ "
R21	36328	56000 "	± 10 % ½ "
R22	37370	8200 "	± 10 % ½ "
R23	35925	82000 "	± 10 % ½ "
R24	40223	100 "	± 10 % 1 "

ITEM	PART	VALUE	REMARKS
		CONDENSERS	
C 1	22545	.03 MFD	± 10 % 200 W.V.
C 2	28123	.3 "	± 10 % 120 "
C 3	28145	.006 "	± 10 % 600 "
C 4	40283	.0035 "	± 10 % 600 "
C 5	36432	20. "	25 "
C 6	22545	.03 "	± 10 % 200 "
C 7	28145	.006 "	± 10 % 600 "
C 8	36440	.00075 "	± 10 % 600 "
C 9	36440	.00075 "	± 10 % 600 "
C10	36432	20. "	25 "
C11	36469	8. "	350 "
C12		20. "	350 "
C13	40149	40. "	400 "
C14		20. "	25 "
C15	40150	50. "	400 "
C16		.25 MFD	± 10 % 400

ITEM	VALUE	REMARKS
	RELAY	
	130 OHMS	S.P.D.T.
	CHOKES	
L1	920 MH	COIL
L2	475 MH	COIL
L3		INPUT CHOKE
	TRANSFORMERS	
T1		OUTPUT
T2	50-60 CYCLE	POWER
T3	25 CYCLE	POWER



AVERAGE FILAMENT VOLTAGES		
6L6G	6.3	VOLTS A.C.
6SC7	6.3	" "
6J5	6.3	" "

FIL. VOLTAGES ARE 9.8 FOR ACCELERATED CATHODE HEATING WHEN FILS. ARE COOL.

5Z3	5	VOLTS A.C.

AMPLIFIER *502 25 CYCLE *40242
*501 50-60 CYCLE *40141

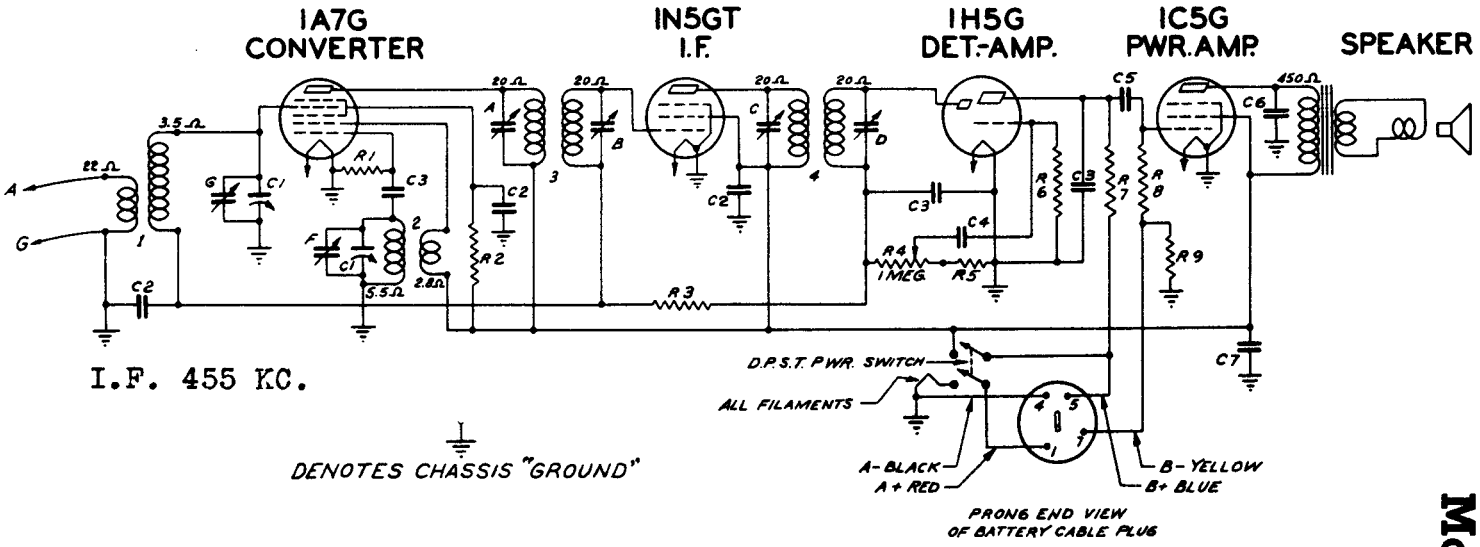
ZENITH RADIO CORPORATION

CHICAGO • ILLINOIS

Models 4K616—4K635—4K658

Chassis No. 4B02-4B03

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



CHASSIS	MODEL	SPEAKER
4B02	4K616	49-449 5"
4B03	4K635	49-450 6½"
4B03	4K658	49-461 8"

BATTERY PACK Nº Z-28

DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION
C1	22-1209	TWO GANG VARIABLE -4B03		R4	63-1235	VOLUME CONTROL-4B03
C1	22-1213	TWO GANG VARIABLE -4B02		R4	63-1240	VOLUME CONTROL-4B02
C2	22-829	.05 MFD.	200V.	R5	63-587	4700 OHM ½ W.
C3	22-162	.0001 MFD.	600V.	R6	63-976	15 MEGOHM ½ W.
C4	22-826	.01 MFD.	200V.	R7	63-271	1 MEGOHM ½ W.
C5	22-243	.01 MFD.	400V.	R8	63-600	2.2 MEGOHM ½ W.
C6	22-448	.004 MFD.	600V.	R9	63-634	820 OHM ½ W.
C7	22-684	8 MFD. ELECTROLYTIC	150V.			
R1	63-654	180 M OHM	½ W.	1	20-237	ANTENNA COIL
R2	63-594	68 M OHM	½ W.	2	59584	OSC. COIL ASSEMBLY
R3	63-669	3.9 MEGOHM	½ W.	3	95-814	1ST I.F. TRANSFORMER
				4	95-815	2ND I.F. "

DIAG. Nº	PART Nº	DESCRIPTION
A		1ST I.F. TRANS. PRI.
B		1ST I.F. " SEC.
C		2ND I.F. " PRI.
D		2ND I.F. " SEC.
F		BROADCAST OSC. (ON GANG)
G		BROADCAST ANT. (ON GANG)

All voltages measured with a 1000 ohm per volt meter from chassis to socket contact indicated.

All voltages are positive D.C. unless marked otherwise.

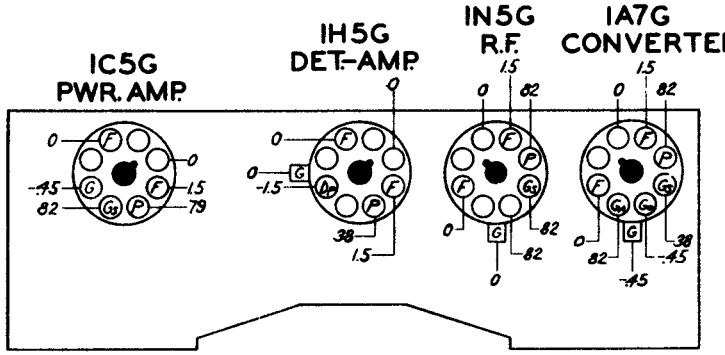
Volume control on full.

Battery Z28

Power consumption—1.3 watts.

Power output— .28 watts.

Tuning Range—540 Kc.—1740 Kc.



SOCKET VOLTAGES—BOTTOM VIEW

All voltages measured with a 1000 ohm per volt meter from chassis to socket contacts.

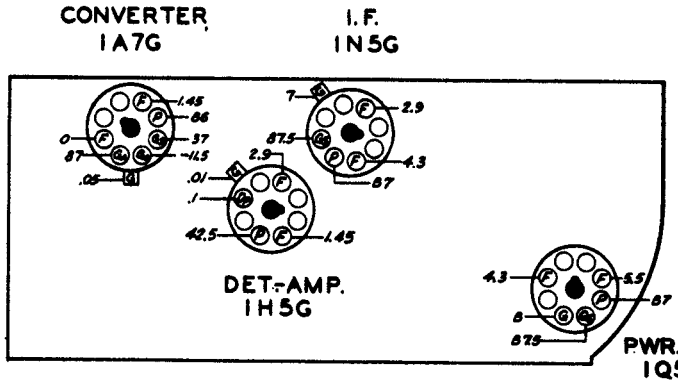
Voltage readings are all positive D.C. unless otherwise indicated.

Antenna disconnected volume control full on.

Battery voltage 6 volt.

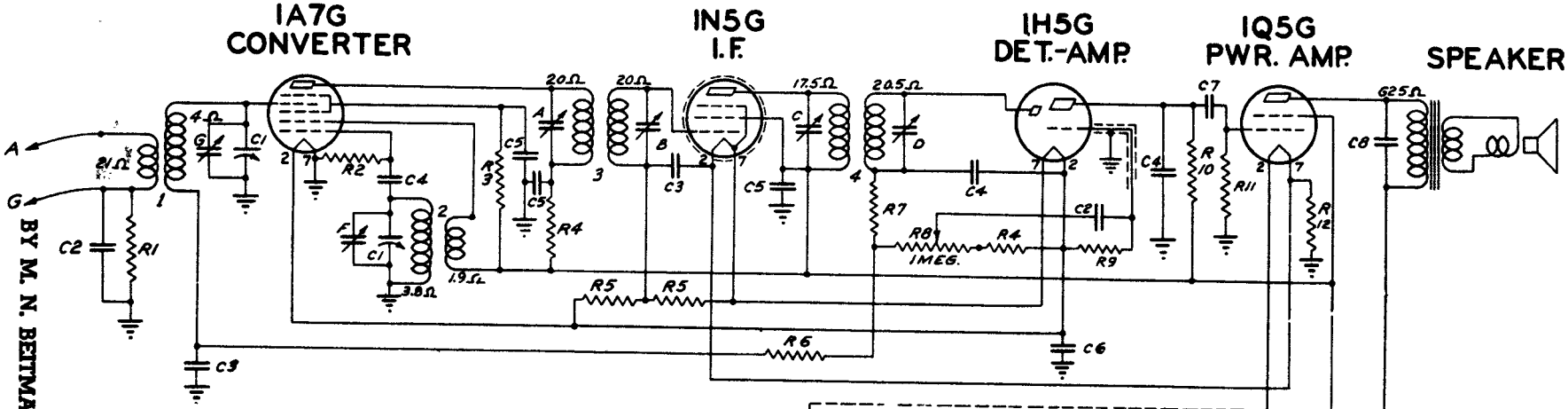
Battery consumption—.5 ampere.

Power Output—.37 watts.

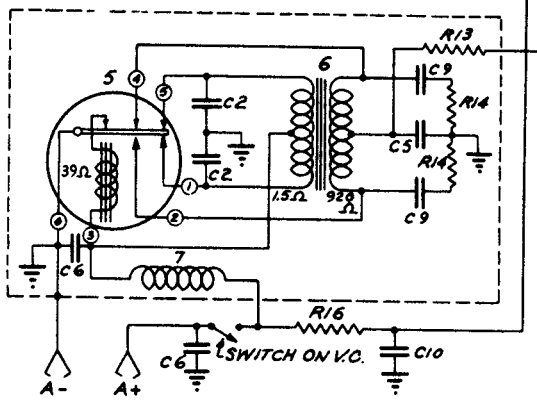


Zenith Radio

I.F. FREQUENCY 455 KC



DIAG. N°	PART N°	DESCRIPTION		DIAG. N°	PART N°	DESCRIPTION	
C1	22-695	TWO GANG VARIABLE		R2	63-595	108 M OHM	1/4 W.
C2	22-826	.01 MFD.	200V	R3	63-594	68M OHM	1/4 W.
C3	22-829	.05 MFD.	200V	R4	63-583	1000 OHM	1/4 W.
C4	22-162	.0001 MFD.	600V	R5	63-296	220M OHM	1/4 W.
C5	22-828	.05 MFD.	400V	R6	63-669	3.9 MEGOHM	1/4 W.
C6	22-199	.5 MFD.	200V	R7	63-593	47M OHM	1/4 W.
C7	22-243	.01 MFD.	400V	R8	63-1079	VOLUME CONTROL	
C8	22-448	.004 MFD.	600V	R9	63-976	15 MEGOHM	1/4 W.
C9	22-966	.04 MFD.	600V	R10	63-271	1 MEGOHM	1/4 W.
C10	22-961	500 MFD. ELECTROLYTIC	15V	R11	63-600	2.2 MEGOHM	1/4 W.
C11		15 MFD. "	250 V.	R12	63-1060	90 OHM WIREWOUND	1 W.
C12	22-742	15 MFD. "	250V	R13	63-577	100 OHM	1/4 W.
C13		18 MFD. "	250V	R14	63-697	100 OHM	1/4 W.
				R15	63-605	1000 OHM	1/2 W.
				R16	63-1061	7 OHM	1/2 W.
R1	63-597	470 M OHM	1/4 W.				

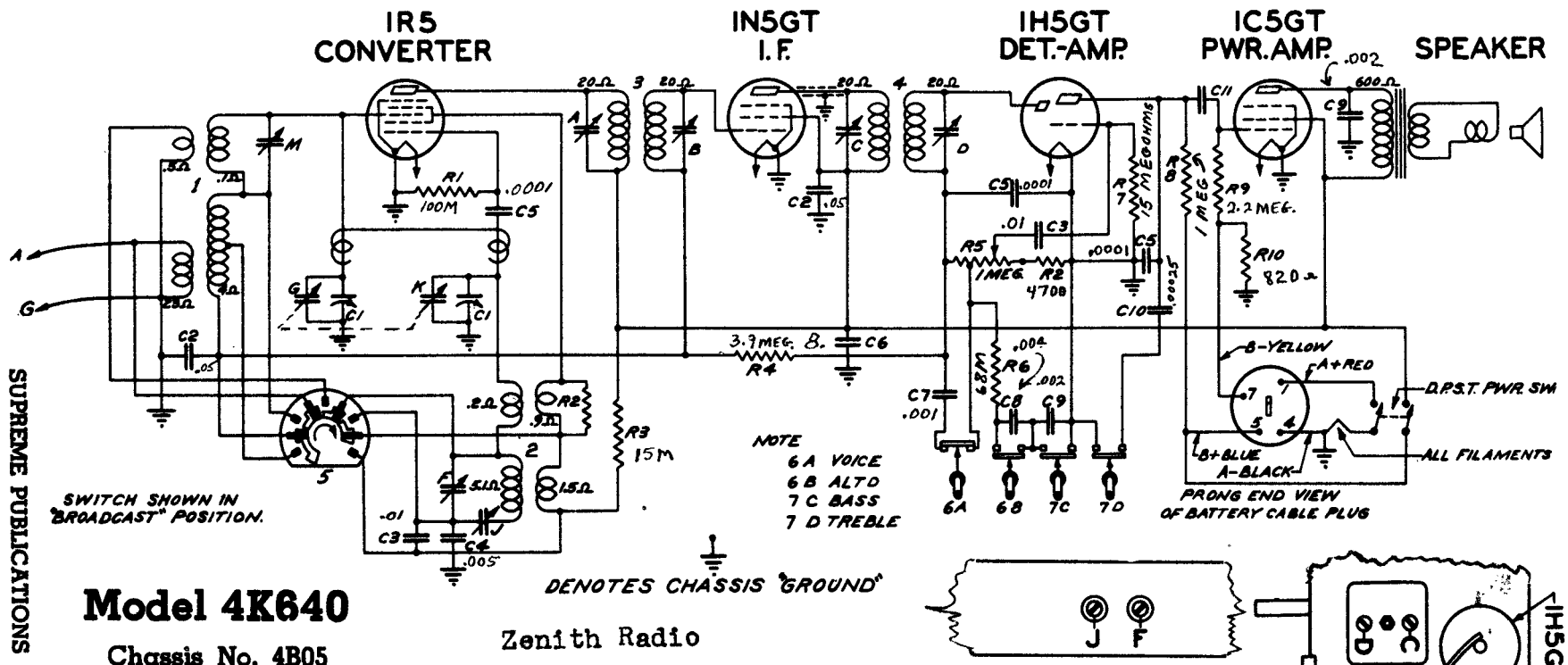


Model 4B639

Chassis No. 4B04

BY M. N. BEITMAN, SUPREME PUBLICATIONS

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS



Model 4K640

Chassis No. 4B05

Zenith Radio

ALIGNMENT PROCEDURE

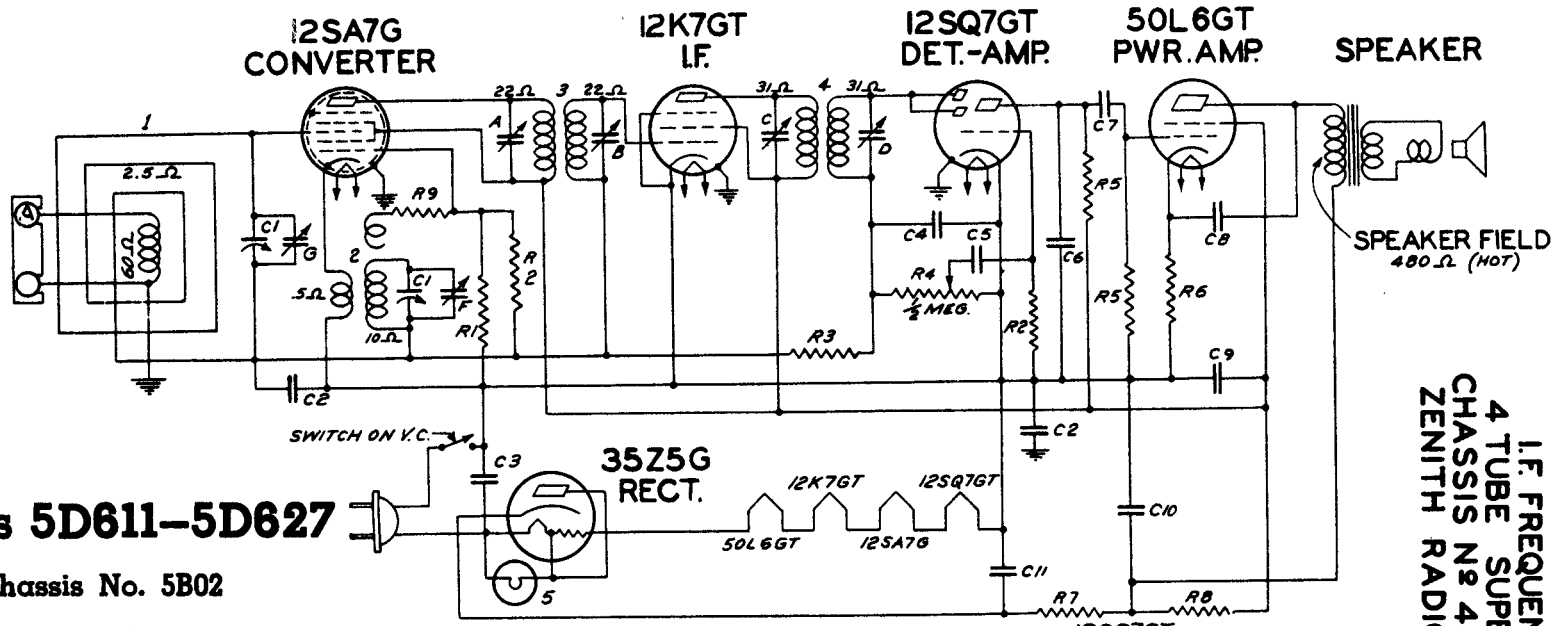
Operation	Conn. Test Osc. to	Dummy Ant.	Input Sig. Freq.	Band	Set Dial At	Trimmers	Purpose
1	Converter Grid	.5 Mfd.	455 Kc.	Broadcast	600 Kc.	A B C D	Align I. F.
2	Ant.—Gnd.	400 Ohms	18 Mc.	Short Wave	18 Mc.	K	Set. Osc. to Scale
3	Ant.—Gnd.	200 Mmf.	1600 Kc.	Broadcast	1600 Kc.	F	Set Osc. to Scale
4	Ant.—Gnd.	200 Mmf.	1400 Kc.	Broadcast	1400 Kc.	G	Align Ant.
5	Ant.—Gnd.	200 Mmf.	600 Kc.	Broadcast	600 Kc.	J	Rock Gang & Adj. to Max.
6	Ant.—Gnd.	400 Ohms	18 Mc.	Short Wave	18 Mc.	M	Rock Gang

Models 5D611–5D627

Chassis No. 5B02

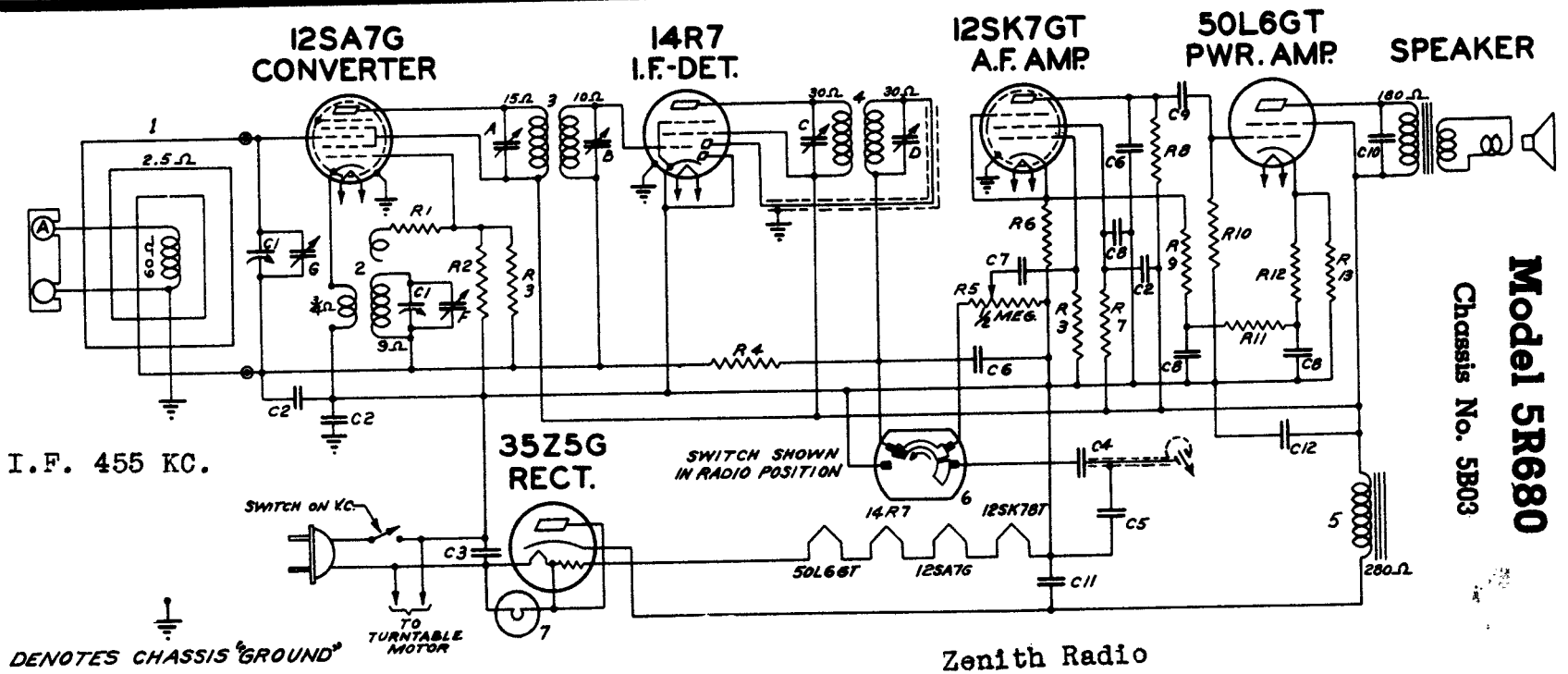
Zenith Radio

I.F. FREQUENCY 455 KC.
4 TUBE SUPERHETERODYNE
CHASSIS Nº 4B05-1½V.-2 BAND
ZENITH RADIO CORPORATION



DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION	
C1	22-1206	TWO-GANG VARIABLE		R1	63-589	10M OHM	⅛ W.
C2	22-829	.05 MFD.	200 V.	R2	63-976	15 MEGOHM	¼ W.
C3	22-1017	.05 MFD.	200 V.	R3	63-600	2.2 MEGOHM	¼ W.
C4	22-953	.0002 MFD.	600 V.	R4	63-1112	VOLUME CONTROL	
C5	22-492	.002 MFD.	600 V.	R5	63-597	470 M OHM	⅛ W.
C6	22-854	.0005 MFD.	600 V.	R6	63-1171	75 OHM WIREWOUND	½ W.
C7	22-243	.01 MFD.	400 V.	R7	63-1172	100 OHM WIREWOUND	½ W.
C8	22-1182	.01 MFD.	400 V.	R8	63-1173	1500 OHM	1 W.
C9	22-1186	20 MFD. ELECTROLYTIC	150 V.	R9	63-579	220 OHM	¼ W.
C10		20 MFD. "	150 V.				
C11		30 MFD. "	150 V.				
				1	S 9619	WAVEMAGNET ASSEMBLY	

Operation	Connect Test Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers	Purpose
1	Converter Grid	.1 mfd.	455 Kc.	—	600 Kc.	A, B, C, D	Align I. F.
2	Single Turn Loop coupled loosely to Wave Magnet	—	1500 Kc.	—	1500 Kc.	F	Set Oscillator to Scale
3		—	1500 Kc.	—	1500 Kc.	G	Adjust for Maximum

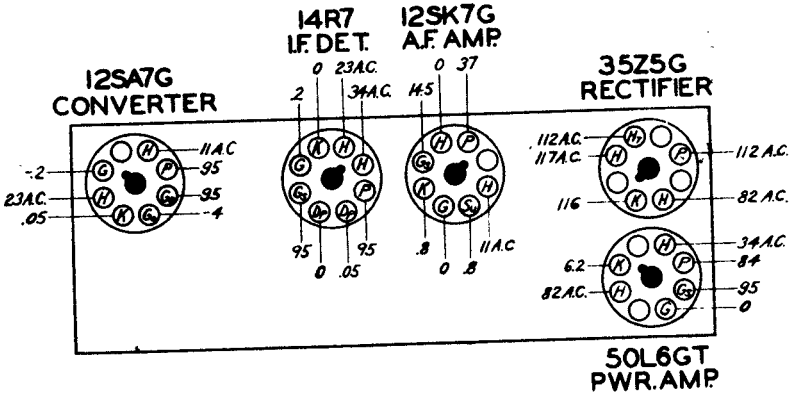


Zenith Radio

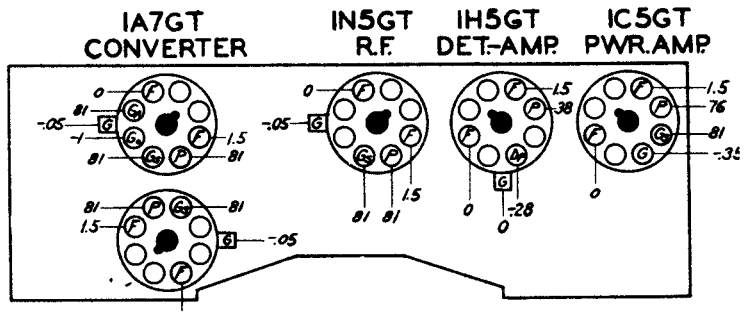
Model 5R680

Chassis No. 5B03

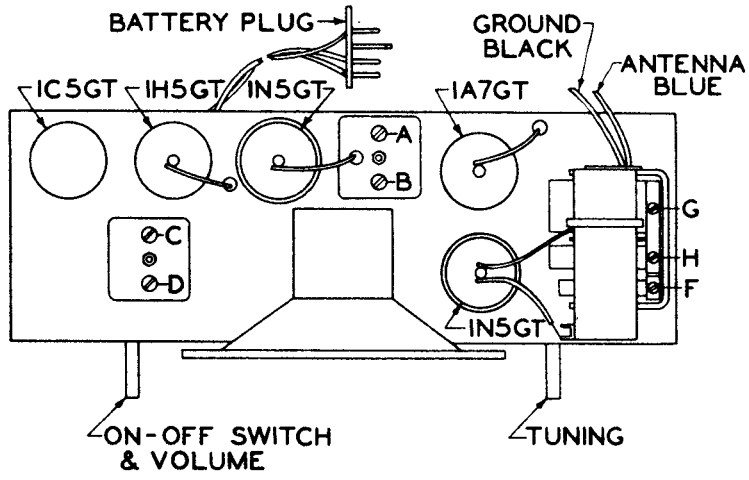
DIAG. No.	PART No.	DESCRIPTION		DIAG. No.	PART No.	DESCRIPTION	
C1	22-1206	TWO-GANG VARIABLE		R3	63-976	15 MEGOHM	1/2 W.
C2	22-829	.05 MFD.	200V.	R4	63-600	2.2 MEGOHM	1/2 W.
C3	22-1017	.05 MFD.	200V.	R5	63-1112	VOLUME CONTROL	
C4	22-887	.001 MFD.	600V.	R6	63-634	820 OHM	1/2 W.
C5	22-327	.02 MFD.	200V.	R7	63-778	470M OHM	1/2 W.
C6	22-953	.0002 MFD.	600V.	R8	63-445	100M OHM	1/2 W.
C7	22-492	.002 MFD.	600V.	R9	63-439	2700 OHM	1/2 W.
C8	22-227	.1 MFD.	200V.	R10	63-597	470 M OHM	1/2 W.
C9	22-188	.02 MFD.	400V.	R11	63-637	4700 OHM	1/2 W.
C10	22-1182	.01 MFD.	400V.	R12	63-639	6800 OHM	1/2 W.
C11	22-1026	20 MFD. ELECTROLYTIC	150V.	R13	63-1015	140 OHM WIREWOUND	1/2 W.
C12		40 MFD. "	150V.				
R1	63-579	220 OHM	1/2 W.	1	S9599	WAVEMAGNET	
R2	63-589	10M OHM	1/2 W.	2	S9450	OSCILLATOR COIL ASSEMBLY	



SOCKET VOLTAGES—BOTTOM VIEW



SOCKET VOLTAGES—BOTTOM VIEW

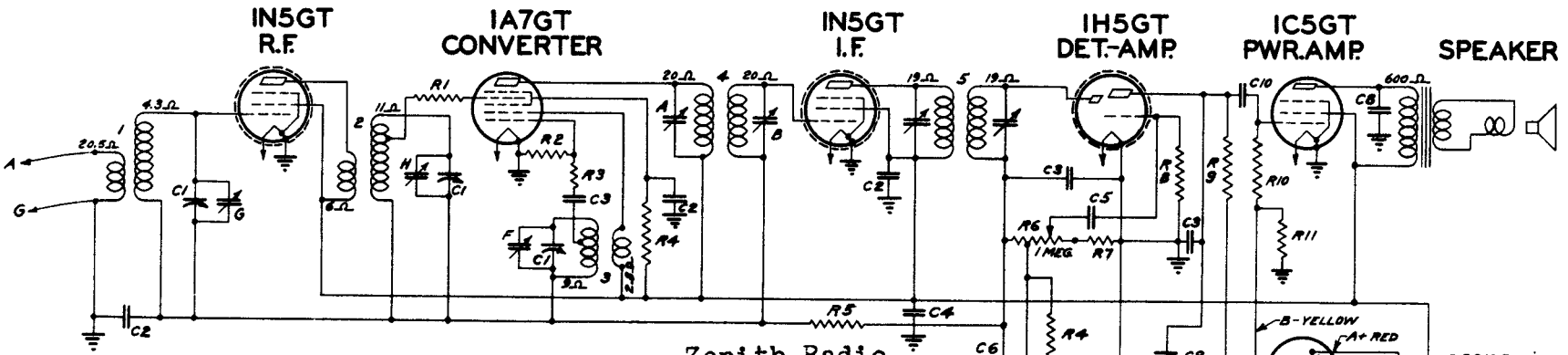


Model 5K637

Chassis No. 5B04

DIAG. No.	DESCRIPTION		DIAG. No.	DESCRIPTION	
C1	THREE GANG VARIABLE		R5	3.9 MEGOHM	½ W.
C2	.05 MFD.	200 V.	R6	VOLUME CONTROL	
C3	.0001 MFD.	600 V.	R7	4700 OHM	½ W.
C4	8 MFD. ELECTROLYTIC	150 V.	R8	15 MEGOHM	½ W.
C5	.01 MFD.	200 V.	R9	1 MEGOHM	½ W.
C6	.001 MFD.	600 V.	R10	2.2 MEGOHM	½ W.
C7	.004 MFD.	600 V.	R11	820 OHM	½ W.
C8	.002 MFD.	600 V.			
C9	.0002 5 MFD.	600 V.			
C10	.01 MFD.	400 V.			
			1	ANTENNA COIL	
			2	DETECTOR COIL ASSEM.	
			3	OSCILLATOR " "	
R1	5600 OHM	½ W.	4	1ST I.F. TRANSFORMER	
R2	150 M OHM	½ W.	5	2ND I.F. "	
R3	470 OHM	½ W.	6	T.C. SW. ASSEM. (LEFT)	
R4	68 M OHM	½ W.	7	T.C. SW. ASSEM. (RIGHT)	

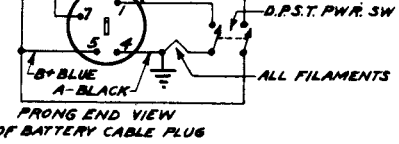
Operation	Connect Test Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Adjust Trimmers	Purpose
1	Converter Grid	½ Mfd.	455 Kc.	Broadcast	600 Kc.	A, B, C, D	I. F. Alignment
2	Ant.—Gnd.	200 Mmf.	1500 Kc.	Broadcast	1500 Kc.	F	Set Oscillator to Scale
3	"	200 Mmf.	1400 Kc.	Broadcast	1400 Kc.	H. G	Align R.F. & Ant.



Model 5K637

Chassis No. 5B04

NOTE
6A VOICE
6B ALTO
7C BASS
7D TREBLE



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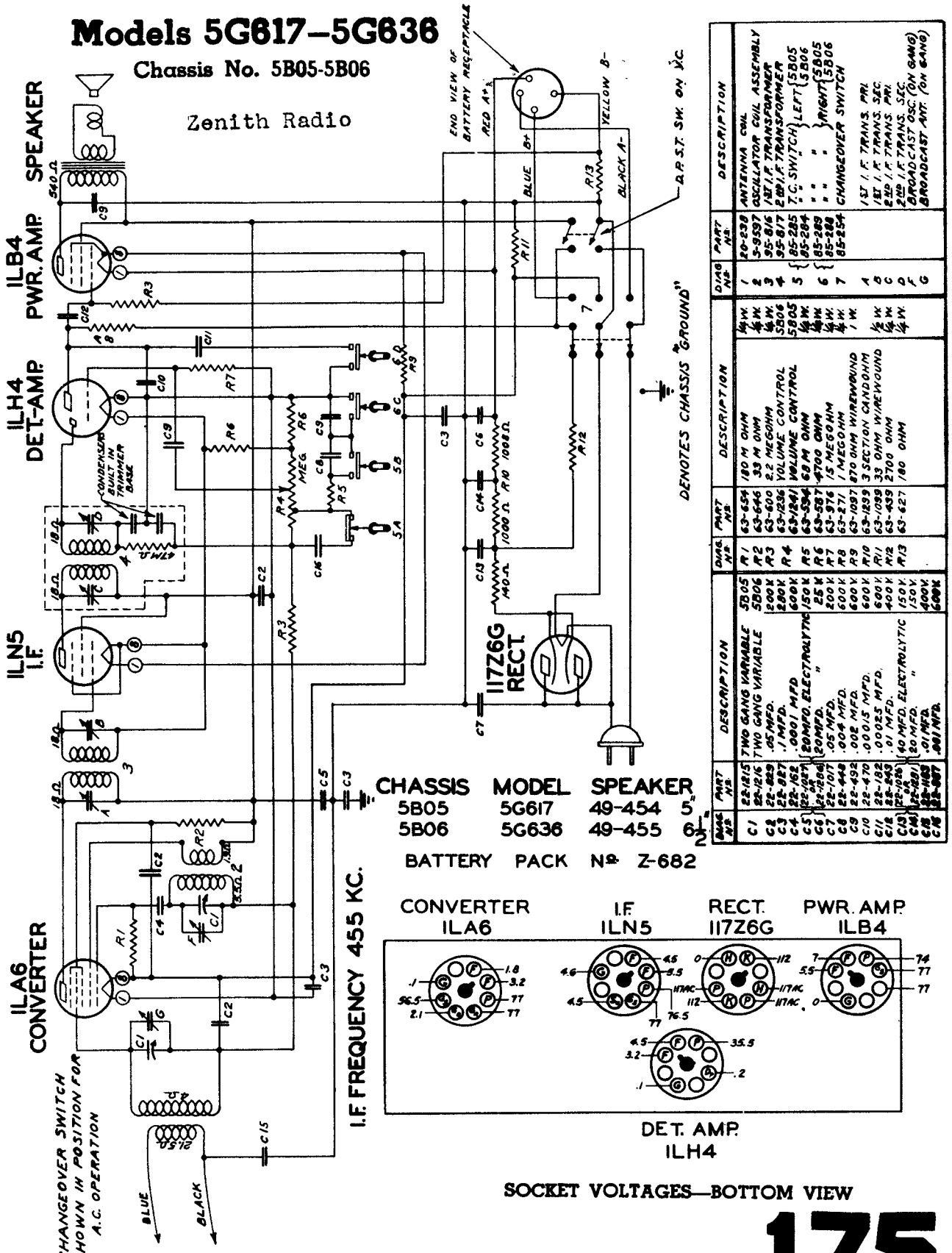
Models 5G617–5G636

Chassis No. 5B05-5B06

Zenith Radio



CHASSIS	MODEL	SPEAKER
5B05	5G617	49-454 5"
5B06	5G636	49-455 6½"

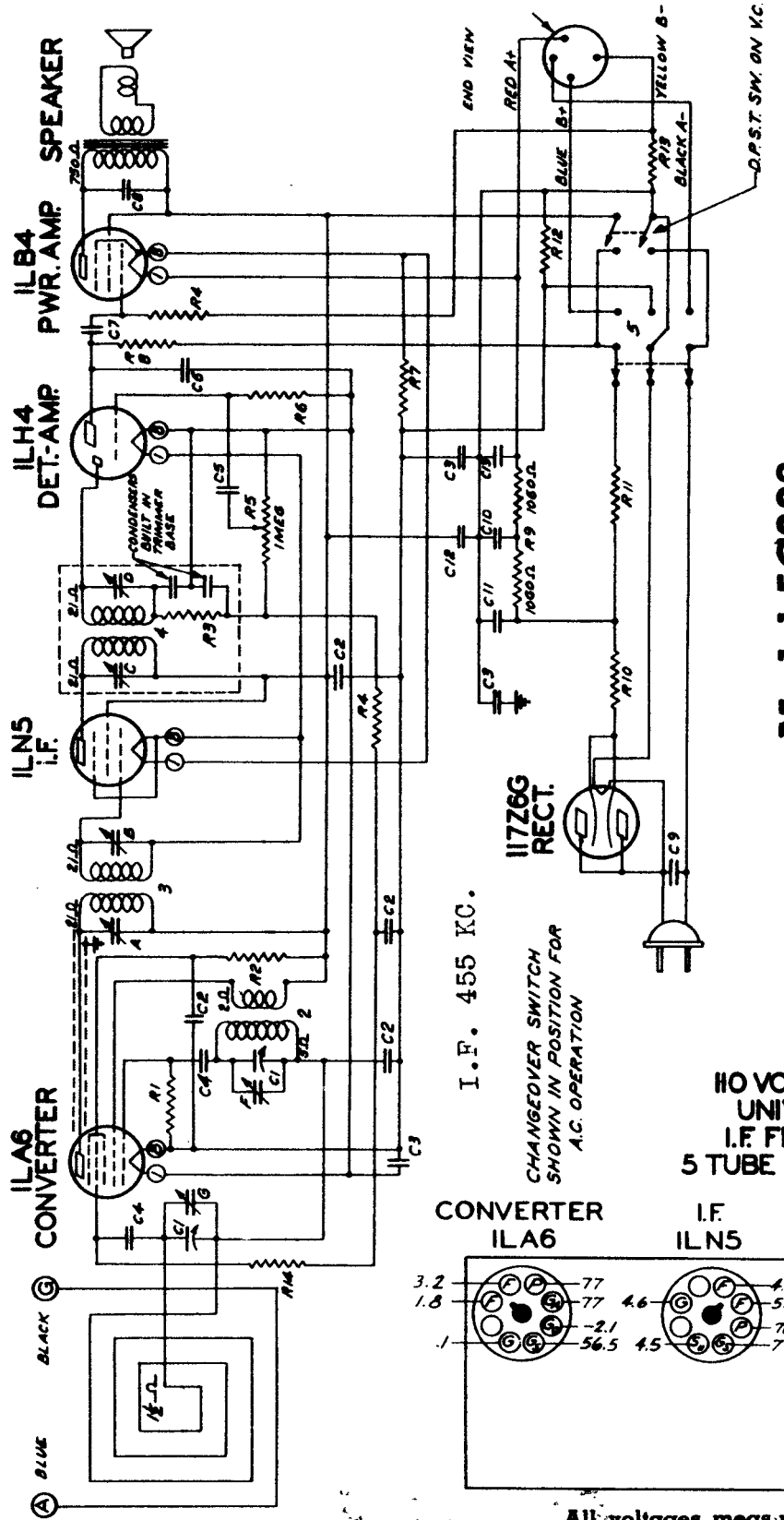
BATTERY PACK No. Z-682

DIAG. No.	PART No.	DESCRIPTION
C1	22-1215	TWO GANG VARIABLE
C2	22-1216	TWO GANG VARIABLE
C3	22-829	.05 MFD.
C4	22-827	.1 MFD.
C5	22-162	.0001 MFD.
C6	22-1027	20 MFD. ELECTROLYTIC
C7	22-1266	20 MFD. "
C8	22-1017	.05 MFD.
C9	22-448	.004 MFD.
C10	22-492	.002 MFD.
C11	22-470	.00015 MFD.
C12	22-182	.00025 MFD.
C13	22-843	.01 MFD.
C14	22-1026	40 MFD. ELECTROLYTIC
C15	22-1281	20 MFD. "
C16	22-1103	.01 MFD.
C17	22-1107	.001 MFD.

DIAG. No.	PART No.	DESCRIPTION
R1	63-454	180 M OHM
R2	63-646	33 M OHM
R3	63-600	2.2 MEGOHM
R4	63-1236	VOLUME CONTROL
R5	63-1241	VOLUME CONTROL
R6	63-594	68 M OHM
R7	63-587	4700 OHM
R8	63-976	1.5 MEGOHM
R9	63-271	1 MEGOHM
R10	63-1091	870 OHM WIREWOUND
R11	63-1239	3 SECTION CANDOHM
R12	63-1099	33 OHM W/REWOUND
R13	63-439	2700 OHM
	63-427	180 OHM

DIAG. No.	PART No.	DESCRIPTION
1	20-238	ANTENNA COIL
2	3-9397	OSCILLATOR COIL ASSEMBLY
3	35-816	1ST I.F. TRANSFORMER
4	35-817	2ND I.F. TRANSFORMER
5	85-285	T.C. SWITCH } LEFT (5805
	85-284	" " " } RIGHT (5806
6	85-289	" " " } LEFT (5805
	85-288	" " " } RIGHT (5806
7	85-254	CHANGEOVER SWITCH
A		1ST I.F. TRANS. PRI.
B		1ST I.F. TRANS. SEC.
C		2ND I.F. TRANS. PRI.
D		2ND I.F. TRANS. SEC.
E		BROADCAST OSC. (ON GANG)
F		BROADCAST ANT. (ON GANG)

SOCKET VOLTAGES—BOTTOM VIEW



Model 5G603

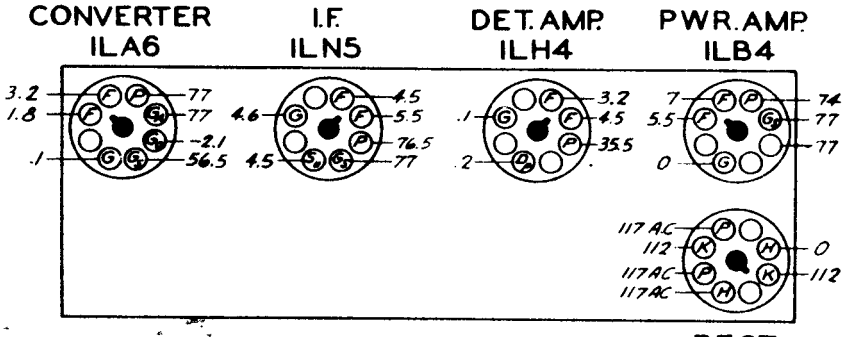
Chassis No. 5B07

Zenith Radio

DIAG. NO.	PART NO.	DESCRIPTION
		WAVEMAGNET ASSEMBLY
		OSC. COIL ASSEMBLY
		1ST I.F. TRANSFORMER
		2ND I.F. TRANSFORMER
		CHANGEOVER SWITCH
A		1ST I.F. TRANS. PRI.
B		1ST I.F. TRANS. SEC.
C		2ND I.F. TRANS PRI.
D		2ND I.F. TRANS SEC.
E		BROADCAST OSC. (ON GANG)
F		BROADCAST ANT. (ON GANG)

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION		
C1	22-1062	TWO GANG VARIABLE		R1	63-773	180 M OHM	½ W.
C2	22-829	.05 MFD.	200 V.	R2	63-646	33M OHM	½ W.
C3	22-827	.1 MFD.	200 V.	R3	63-713	47M OHM	½ W.
C4	22-162	.0001 MFD.	600 V.	R4	63-600	2.2 MEGOHM	½ W.
C5	22-492	.002 MFD.	600 V.	R5	63-1126	VOLUME CONTROL	½ W.
C6	22-470	.00015 MFD.	400 V.	R6	63-976	.5 MEGOHM	1 W.
C7	22-243	.01 MFD.	400 V.	R7	63-1097	870 OHM WIREWOUND	½ W.
C8	22-526	.003 MFD.	400 V.	R8	63-271	1 MEGOHM	
C9	22-869	.05 MFD.	400 V.	R9	63-197	2-SECTION CANOHM	2 W.
C10	22-1026	20 MFD ELECTROLYTIC	150 V.	R10	63-1096	140 OHM WIREWOUND	½ W.
C11		40 MFD ELECTROLYTIC	150 V.	R11	63-439	2700 OHM	½ W.
C12	22-1027	20 MFD ELECTROLYTIC	150 V.	R12	63-1099	33 OHM WIREWOUND	½ W.
C13		20 MFD ELECTROLYTIC	25 V.	R13	63-748	180 OHM	½ W.
				R14	63-296	220 M OHM	½ W.

110 VOLT A.C.-BATTERY PACK UNIVERSAL PORTABLE I.F. FREQUENCY 455 KC. 5 TUBE SUPERHETERODYNE



All voltages measured from point indicated to Neg. B. using 20000 ohm per volt meter.

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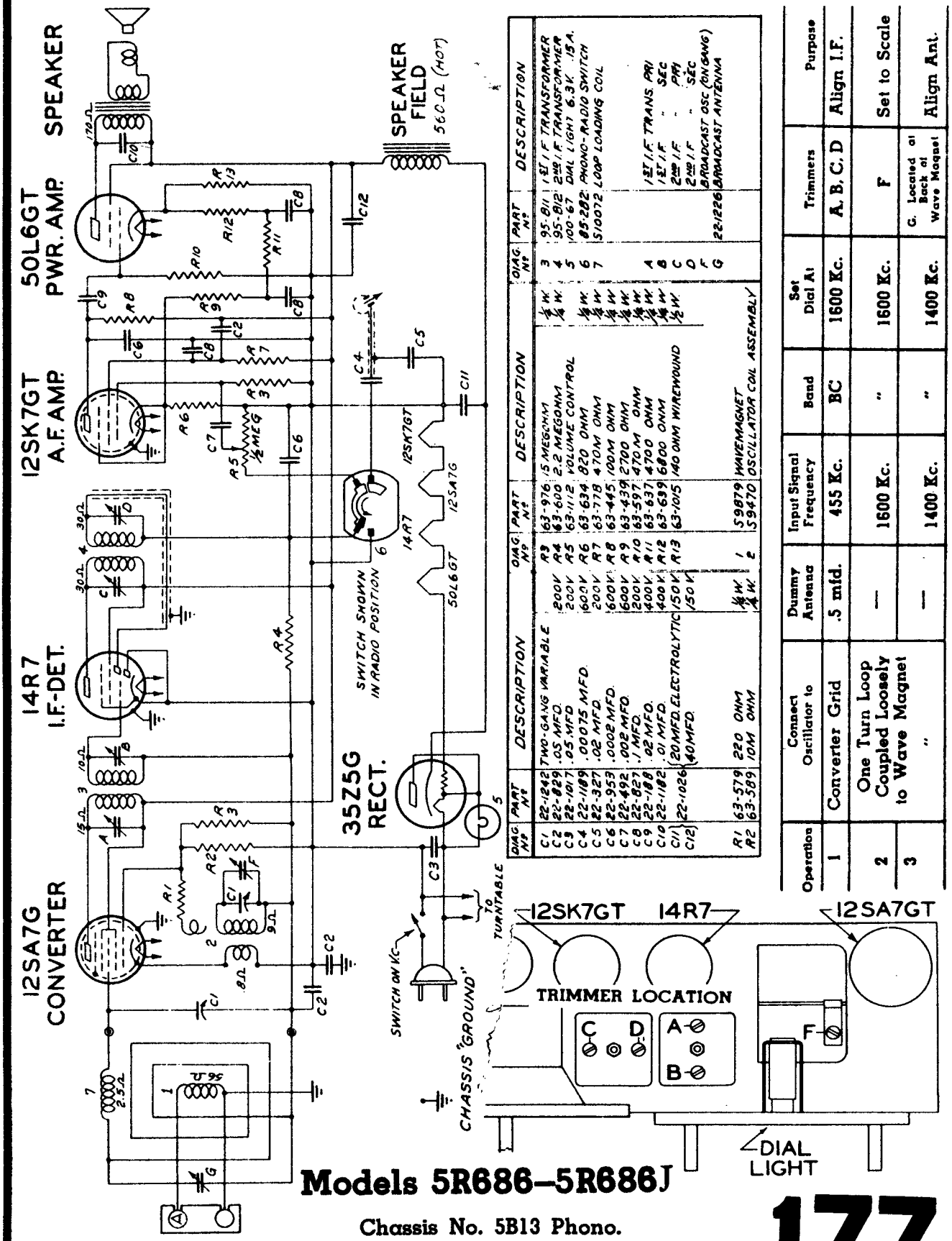

DIAG. No.	PART No.	DESCRIPTION	DIAG. No.	PART No.	DESCRIPTION
C1	22-1242	TWO-GANG VARIABLE	R3	63-976	.5 MEGOHM
C2	22-829	.05 MFD. 200V	R4	63-600	2.2 MEGOHM
C3	22-1017	.05 MFD. 200V	R5	63-1112	VOLUME CONTROL
C4	22-1189	.00075 MFD. 600V	R6	63-634	820 OHM
C5	22-327	.02 MFD. 200V	R7	63-778	470M OHM
C6	22-953	.0002 MFD. 600V	R8	63-445	100M OHM
C7	22-492	.002 MFD. 600V	R9	63-439	2700 OHM
C8	22-827	.1 MFD. 200V	R10	63-597	4700 OHM
C9	22-188	.02 MFD. 400V	R11	63-637	4700 OHM
C10	22-1182	.01 MFD. 400V	R12	63-639	6800 OHM
C11	22-1026	.20 MFD. ELECTROLYTIC 150V	R13	63-1015	140 OHM WIREWOUND
C12		40 MFD. 150V			
R1	63-579	220 OHM ½W	1	59879	WAVEMAGNET
R2	63-589	10M OHM ½W	2	59470	OSCILLATOR COIL ASSEMBLY

DIAG. No.	PART No.	DESCRIPTION
	95-811	1ST I.F. TRANSFORMER
	95-812	2ND I.F. TRANSFORMER
	100-67	DIAL LIGHT 6.3V .15A.
	83-282	PHONO-RADIO SWITCH
	510072	LOOP LOADING COIL
A		1ST I.F. TRANS. PRI
B		1ST I.F. " SEC
C		2ND I.F. " PRI
D		2ND I.F. " SEC
F		BROADCAST OSC (ON GANG)
G	22-1226	BROADCAST ANTENNA

Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers	Purpose
1	Converter Grid	.5 mfd.	455 Kc.	BC	1600 Kc.	A, B, C, D	Align I.F.
2	One Turn Loop Coupled Loosely to Wave Magnet	—	1600 Kc.	"	1600 Kc.	F	Set to Scale
3	"	—	1400 Kc.	"	1400 Kc.	G. Located at Back of Wave Magnet	Align Ant.

Models 5R686–5R686J

Chassis No. 5B13 Phono.

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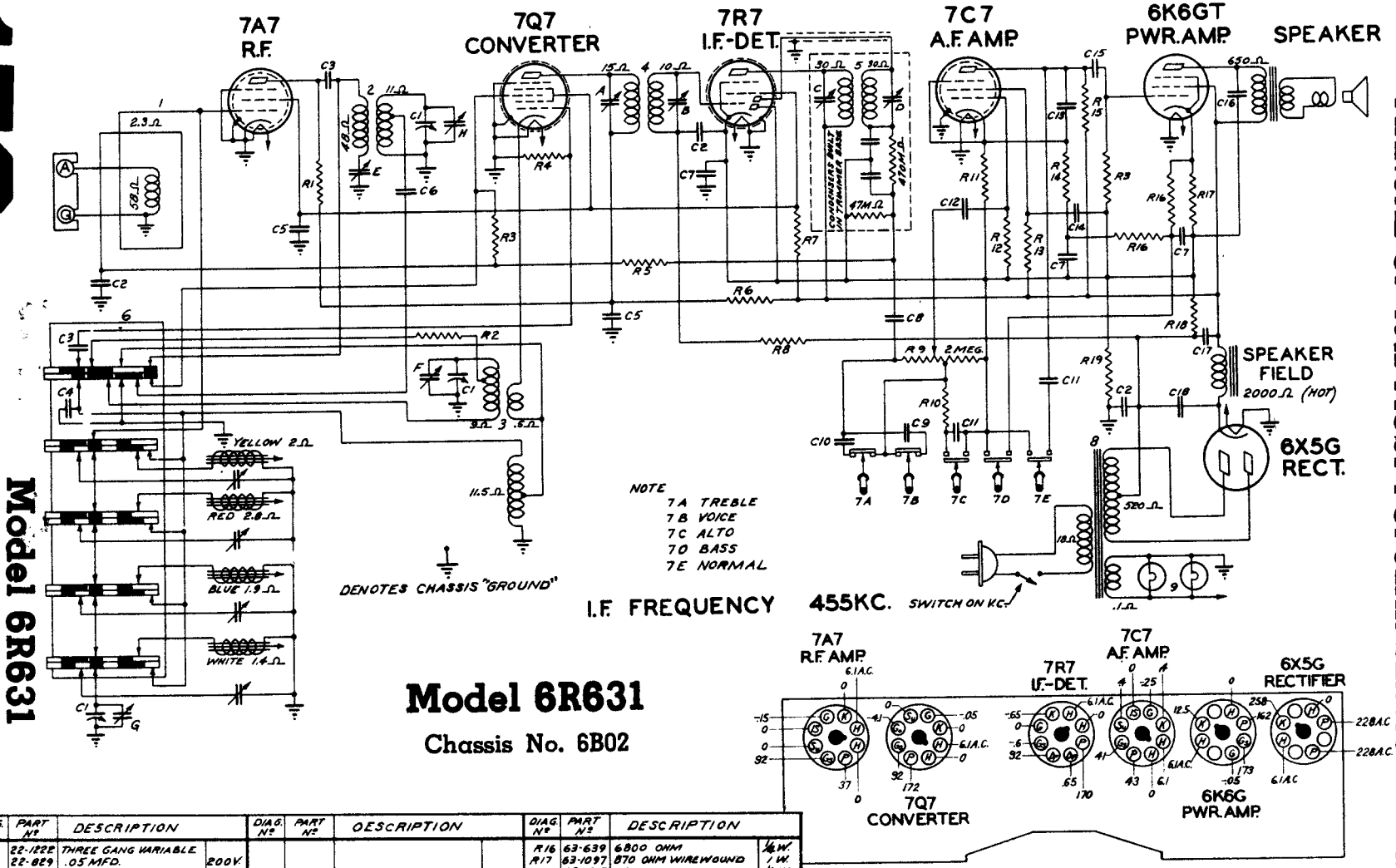


Model 6R631

Chassis No. 6B02

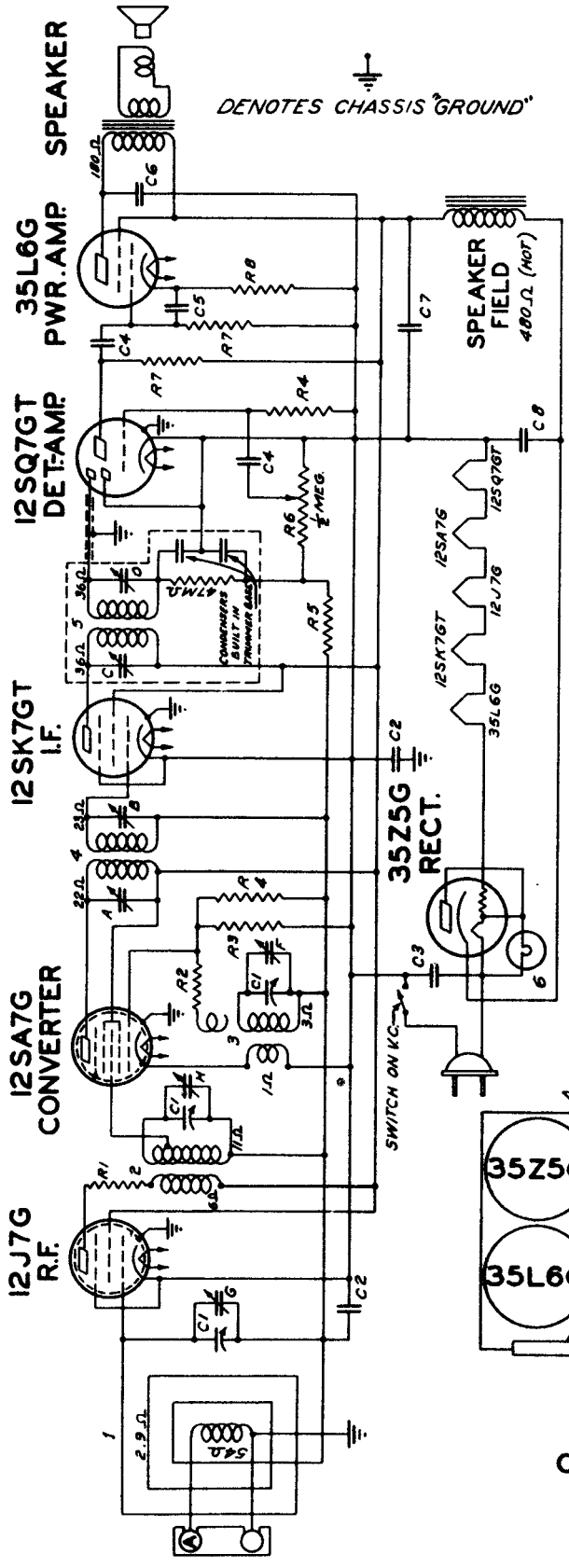
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION	
C1	22-1222	THREE GANG VARIABLE						R16	63-639	6800 OHM	½ W.
C2	22-829	.05 MFD.	200 V.					R17	63-1097	870 OHM WIREWOUND	1 W.
C3	22-162	.0001 MFD.	600 V.					R18	63-615	12 OHM	½ W.
C4	22-868	COMPENSATING COND.		R1	63-151	15M OHM	1 W.	R19	63-577	100 OHM	½ W.
C5	22-828	.05 MFD.	400 V.	R2	63-579	220 OHM	½ W.				
C6	22-492	.002 MFD.	600 V.	R3	63-597	470M OHM	½ W.				
C7	22-827	.1 MFD.	200 V.	R4	63-591	22 M OHM	½ W.				
C8	22-188	.02 MFD.	400 V.	R5	63-600	2.2 MEGOHM	½ W.	1	S9685	WAVEMAGNET ASSEMBLY	
C9	22-470	.00015 MFD.	600 V.	R6	63-605	1000 OHM	½ W.	2	S9660	DETECTOR COIL "	
C10	22-1189	.00075 MFD.	600 V.	R7	63-1193	5600 OHM	2 W.	3	S9661	OSCILLATOR COIL "	
C11	22-887	.001 MFD.	600 V.	R8	63-601	3.3 MEGOHM	½ W.	4	95-823	1ST I.F. TRANSFORMER	
C12	22-229	.005 MFD.	600 V.	R9	63-1245	VOLUME CONTROL		5	95-825	2ND I.F. "	
C13	22-716	.0005 MFD.	600 V.	R10	63-325	150M OHM	½ W.	6	85-280	AUTOMATIC TUNING SWITCH	
C14	22-825	.1 MFD.	400 V.	R11	63-632	560 OHM	½ W.	7	85-277	TONE CONTROL SWITCH	
C15	22-830	.02 MFD.	600 V.	R12	63-976	1.5 MEGOHM	½ W.	8	95-828	PWR. TRANS. 117 V. 50-60~	
C16	22-448	.004 MFD.	600 V.	R13	63-661	680 M OHM	½ W.	9	100-36	DIAL LIGHT 6.3 V. .25A.	
C17	22-122	20 MFD ELECTROLYTIC	250 V.	R14	63-439	2700 OHM	½ W.				
C18		15 MFD ELECTROLYTIC	350 V.	R15	63-260	100 M OHM	½ W.				

SOCKET VOLTAGES—BOTTOM VIEW

All voltages measured with a 20.000 ohm per volt meter from Neg. B to socket contact indicated.

All voltages are positive D.C. unless marked otherwise.



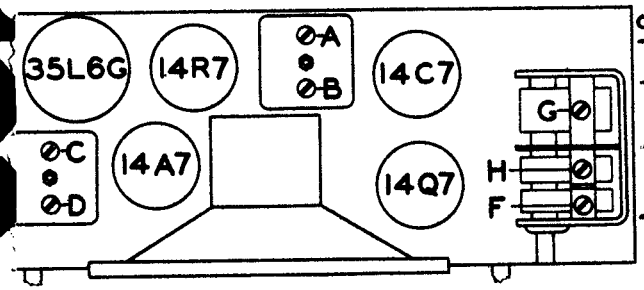
DIAG. No.	PART No.	DESCRIPTION	DIAG. No.	PART No.	DESCRIPTION
C1	22-1201	THREE-GANG VARIABLE	R3	63-585	10M OHM
C2	22-829	.05 MFD. 200 V.	R4	63-976	15 MEGOHM
C3	22-1017	.05 MFD. 200 V.	R5	63-600	2.2 MEGOHM
C4	22-243	.01 MFD. 400 V.	R6	63-1112	VOLUME CONTROL
C5	22-854	.0005 MFD. 600 V.	R7	63-597	470 Ω 10W OHM
C6	22-1049	.03 MFD 400 V.	R8	63-686	150 OHM WIREWOUND
C7	22-1014	20MFD ELECTROLYTIC 150 V.			
C8		20MFD ELECTROLYTIC 150 V.	1	39576	WAVEMAGNET ASSEMBLY
			2	39570	DETECTOR COIL ASSEMBLY
R1	63-590	15M OHM ½W.	3	59371	OSCILLATOR COIL ASSEMBLY
R2	63-579	220 OHM ½W.			

DIAG. No.	PART No.	DESCRIPTION
4	95-808	1ST I.F. TRANS.
5	98-809	2ND I.F. TRANS.
6	100-67	PILOT LIGHT 6.3 V. .15A.
A		1ST I.F. TRANS. PRI.
B		1ST I.F. TRANS. SEC.
C		2ND I.F. TRANS. PRI.
D		2ND I.F. TRANS. SEC.
F		BROADCAST OSC. (GW GANG)
G		BROADCAST ANT. (GW GANG)
H		BROADCAST DET. (GW GANG)

Models 6D612-6D612W-6D622-6D628

Zenith Radio Chassis No. 6B04

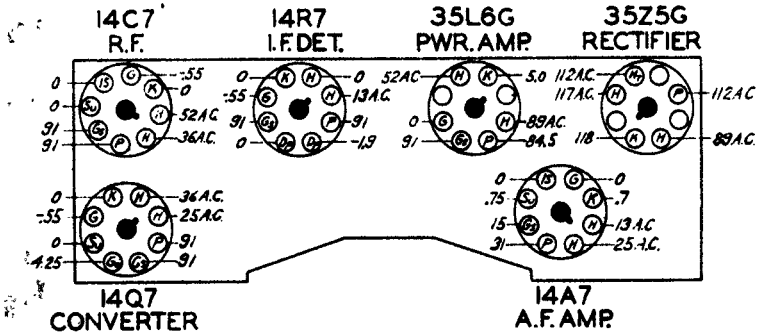
Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers
1	Converter Grid	.5 mfd.	455 Kc.	BC	1600 Kc.	A, B, C, D
2	Single Turn Loop Coupled Loosely to Wave Magnet	.5 mfd.	1600 Kc.	"	1600 Kc.	F
3		.5 mfd.	1400 Kc.	"	1400 Kc.	H, G



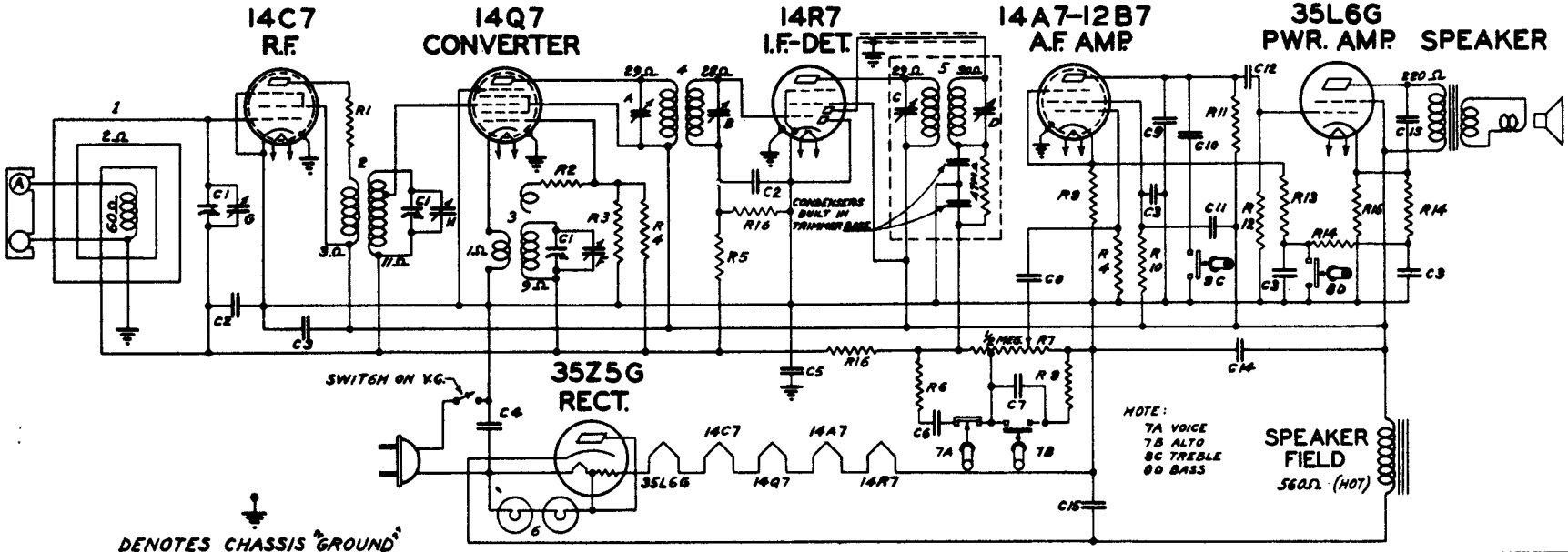
Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers
1	Converter Grid	.5 mfd.	455 Kc.	BC	600 Kc.	A, B, C, D
2	1 turn loop made from generator or Radex Loop	———	1600 Kc.	BC	1600 Kc.	F
3		———	1400 Kc.	BC	1400 Kc.	H, G

Models 6D615–6D615W– 6D623–6D630

Chassis No. 6B05



Diag. No.	Part No.	Description		Diag. No.	Part No.	Description	
C1	22-1201	THREE-GANG VARIABLE		R1	63-590	15M OHM	½ W.
C2	22-529	.05 MFD.	200 V.	R2	63-578	220 OHM	½ W.
C3	22-527	.1 MFD.	200 V.	R3	63-589	10M OHM	½ W.
C4	22-1017	.05 MFD.	200 V.	R4	63-1033	15 MEGOHM	½ W.
C5	22-1207	.07 MFD.	200 V.	R5	63-722	2.2 MEGOHM	½ W.
C6	22-526	.003 MFD.	400 V.	R6	63-525	150M OHM	½ W.
C7	22-527	.02 MFD.	200 V.	R7	63-1239	VOLUME CONTROL	
C8	22-243	.01 MFD.	400 V.	R8	63-591	22 M OHM	½ W.
C9	22-524	.0005 MFD.	600 V.	R9	63-634	820 OHM	½ W.
C10	22-667	.001 MFD.	600 V.	R10	63-659	470M OHM	½ W.
C11	22-1213	.04 MFD.	200 V.	R11	63-660	100 M OHM	½ W.
C12	22-100	.02 MFD.	400 V.	R12	63-537	470M OHM	½ W.
C13	22-1127	.02 MFD.	400 V.	R13	63-638	2700 OHM	½ W.
C14	22-1014	(20 MFD. ELECTROLYTIC	150 V.	R14	63-639	6800 OHM	½ W.
C15		(20 MFD. ELECTROLYTIC	150 V.	R15	63-1237	150 OHM WIREWOUND	2 W.
				R16	63-660	2.2 MEGOHM	½ W.



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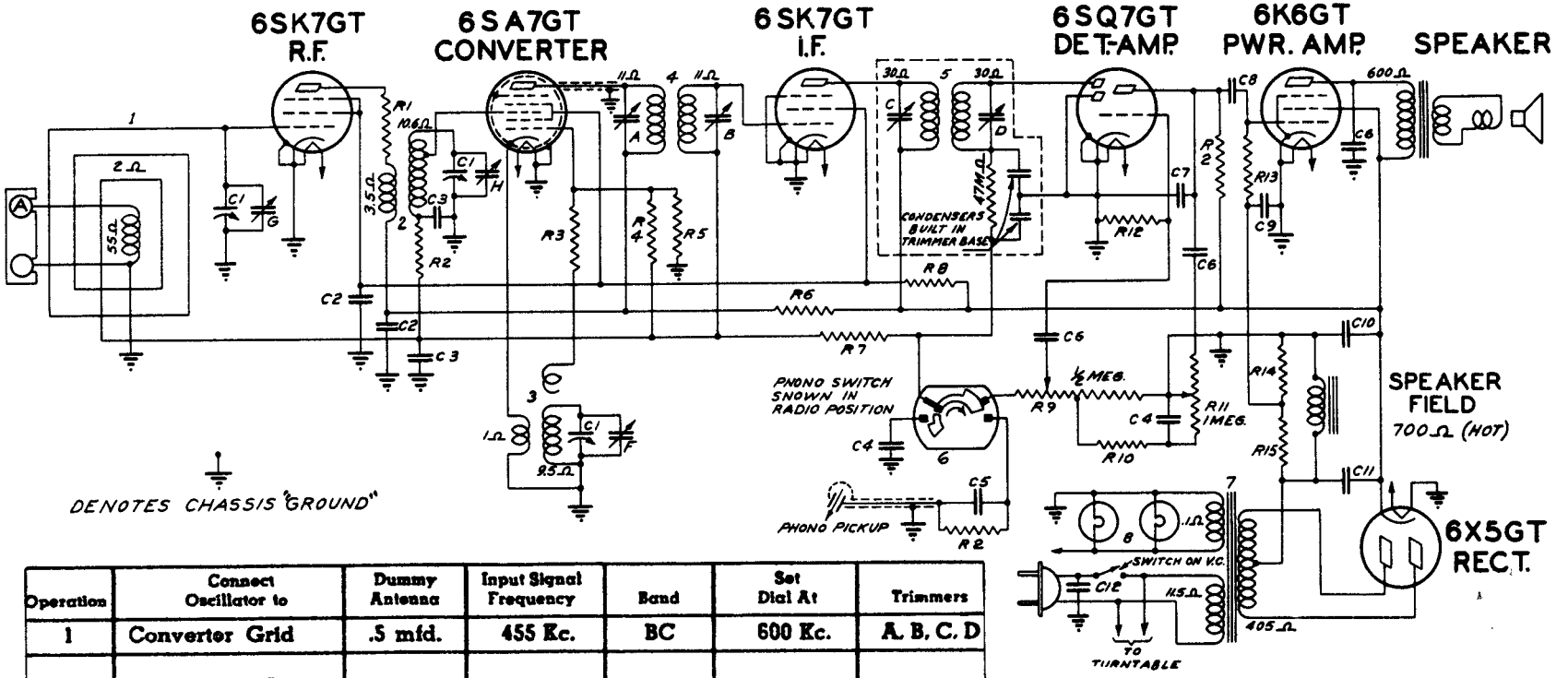


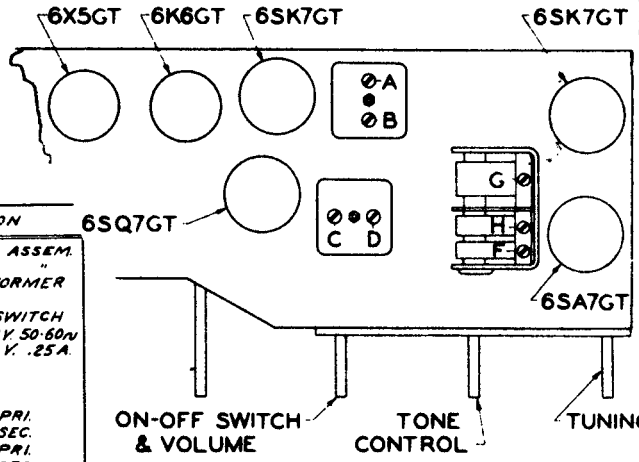
Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers
1	Converter Grid	.5 mfd.	455 Kc.	BC	600 Kc.	A. B. C. D
2	Single Turn Loop Coupled Loosely Wave Magnet	.5 mfd.	1600 Kc.	"	1600 Kc.	F
3		.5 mfd.	1400 Kc.	"	1400 Kc.	H. G

Models 6R683–6R684–6R687R*–6R688

Chassis No. 6B06 Phono.

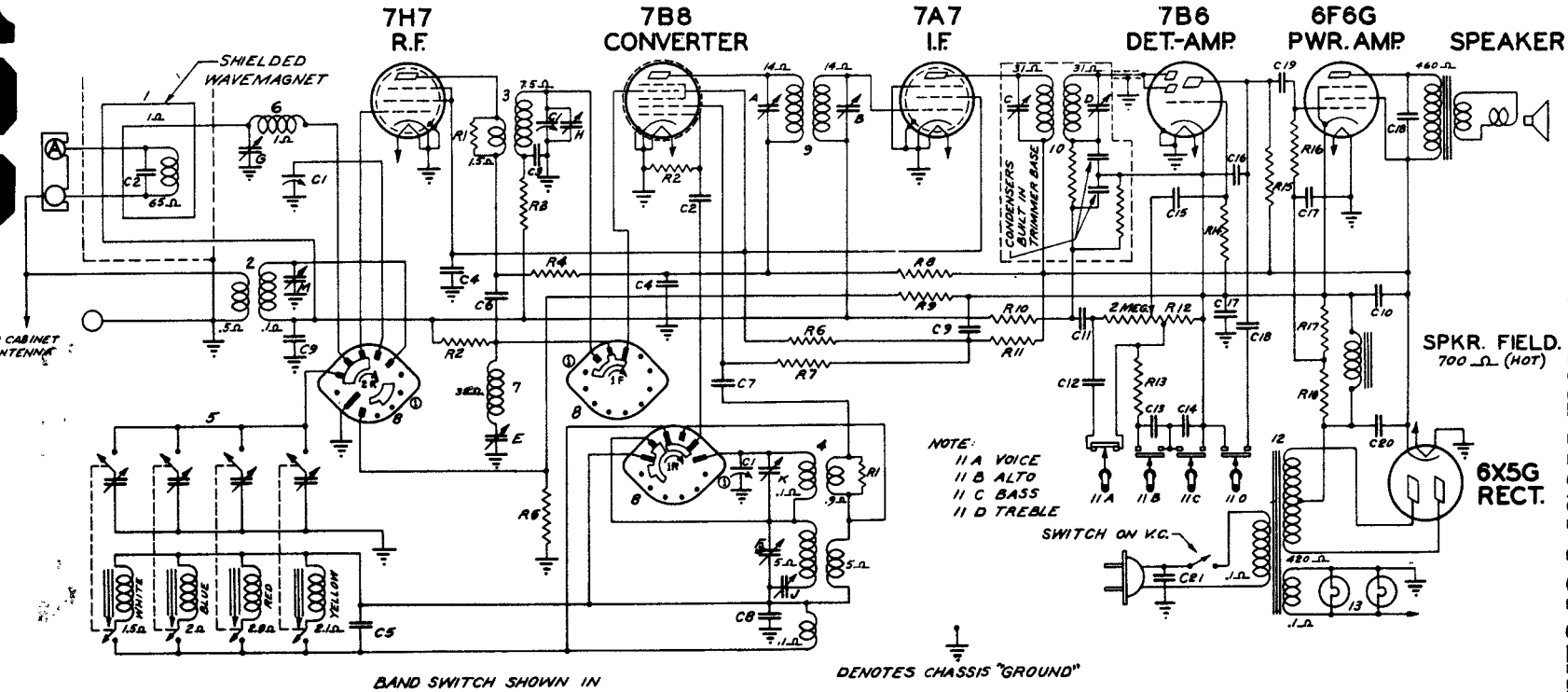
DIAG. No	PART No	DESCRIPTION	
C1	22-1241	THREE GANG VARIABLE	
C2	22-828	.05 MFD.	400V.
C3	22-829	.05 MFD.	200V.
C4	22-327	.02 MFD.	200V.
C5	22-887	.001 MFD.	600V.
C6	22-448	.004 MFD.	600V.
C7	22-854	.0005 MFD.	600V.
C8	22-830	.02 MFD.	600V.
C9	22-138	.2 MFD.	200V.
C10	22-719	16 MFD. ELECTROLYTIC	350V.
C11	22-1036	14 MFD. "	450V.
C12	22-1041	.005 MFD.	600V.
R1	63-1071	10M OHM	1 W.
R2	63-296	220M OHM	½ W.
R3	63-579	220 OHM	½ W.
R4	63-673	8.2 MEGONM	½ W.
R5	63-589	10M OHM	½ W.
R6	63-605	1000 OHM	½ W.
R7	63-600	2.2 MEGOHM	½ W.
R8	63-1058	22M OHM	2 W.
R9	63-1246	VOLUME CONTROL	
R10	63-591	22 M OHM	½ W.
R11	63-1247	TONE CONTROL	
R12	63-976	15 MEGOHM	½ W.
R13	63-597	470M OHM	½ W.
R14	63-655	220 M OHM	½ W.
R15	63-656	270M OHM	½ W.
		WAVEMAGNET	

DIAG. No	PART No	DESCRIPTION
2	59834	DETECTOR COIL ASSEM.
3	59835	OSCILLATOR " "
4	95-841	1ST I.F. TRANSFORMER
5	95-842	2ND I.F. "
6	85-297	PHONO-RADIO SWITCH
7	95-840	PWR. TRANS. 117 V. 50-60 N
8	100-36	DIAL LIGHT 6.3 V. .25 A.
A		1ST I.F. TRANS. PRI.
B		1ST I.F. " SEC.
C		2ND I.F. " PRI.
D		2ND I.F. " SEC.
F		BROADCAST OSC. (ON GANG)
G		BROADCAST ANT. (ON GANG)
H		BROADCAST DET. (ON GANG)



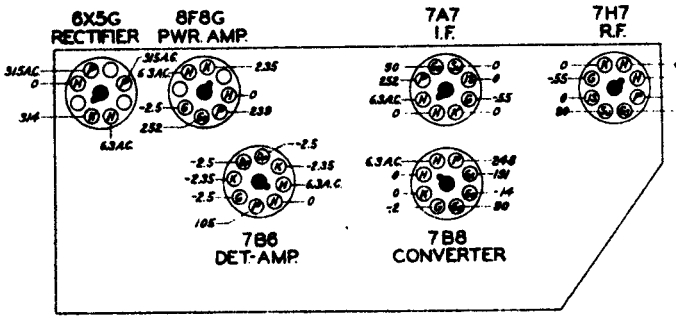
TRIMMER LOCATION

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



I.F. FREQUENCY 455KC.

DIAG. NO	PART NO	DESCRIPTION		DIAG. NO	PART NO	DESCRIPTION		DIAG. NO	PART NO	DESCRIPTION	
C1	22-1205	THREE GANG VARIABLE		C20	22-1036	16 MFD. ELECTROLYTIC	450 V.	R16	63-597	470 M OHM	½ W.
C2	22-889	50 MMFD.	600 V.	C21	22-1041	.005 MFD.	600 V.	R17	63-668	390 M OHM	½ W.
C3	22-829	.05 MFD.	200 V.					R18	63-660	560 M OHM	½ W.
C4	22-828	.05 MFD.	400 V.								
C5	22-868	COMPENSATING COND.		R1	63-590	15 M OHM	½ W.				
C6	22-162	.0001 MFD.	600 V.	R2	63-593	47 M OHM	½ W.				
C7	22-182	.00025 MFD.	600 V.	R3	63-595	100 M OHM	½ W.	1		WAVEMAGNET ASSEMBLY	
C8	22-1022	.005 MFD.	600 V.	R4	63-637	4700 OHM	½ W.	2	59587	ANTENNA COIL ASSEMBLY	
C9	22-1034	5 MFD. ELECTROLYTIC	450 V.	R5	63-624	68 OHM	½ W.	3	59585	DETECTOR " "	
C10		15 MFD. "	350 V.	R6	63-957	33 M OHM	1 W.	4	59586	OSCILLATOR "	
C11	22-188	.02 MFD.	400 V.	R7	63-150	10 M OHM	½ W.	5	59745	AUTOMATIC TUNING "	
C12	22-470	.00015 MFD.	600 V.	R8	63-583	1000 OHM	½ W.	6	59589	LOOP LOADING COIL	
C13	22-826	.01 MFD.	200 V.	R9	63-1098	42 OHM WIREWOUND	1 W.	7	58386	WAVETRAP COIL ASSEMBLY	
C14	22-229	.005 MFD.	600 V.	R10	63-599	1.5 MEGOHM	½ W.	8	85-278	BAND SELECTOR SWITCH	
C15	22-492	.002 MFD.	600 V.	R11	63-1191	8200 OHM	2 W.	9	95-708	1ST I.F. TRANSFORMER	
C16	22-854	.0005 MFD.	600 V.	R12	63-1123	VOLUME CONTROL		10	95-709	2ND I.F. "	
C17	22-827	.1 MFD.	200 V.	R13	63-592	33 M OHM	½ W.	11	59743	TONE CONTROL SW. ASSEM.	
C18	22-448	.004 MFD.	600 V.	R14	63-976	15 MEGOHM	½ W.	12	95-710	PWR. TRANS. 115 V. 50-60 ~	
C19	22-830	.02 MFD.	600 V.	R15	63-296	220 M OHM	¼ W.	13	100-36	DIAL LIGHT 6.3 V. .25 A.	



SOCKET VOLTAGES—BOTTOM VIEW

All voltages measured with a 20,000 ohm per volt meter from chassis to socket contact indicated.

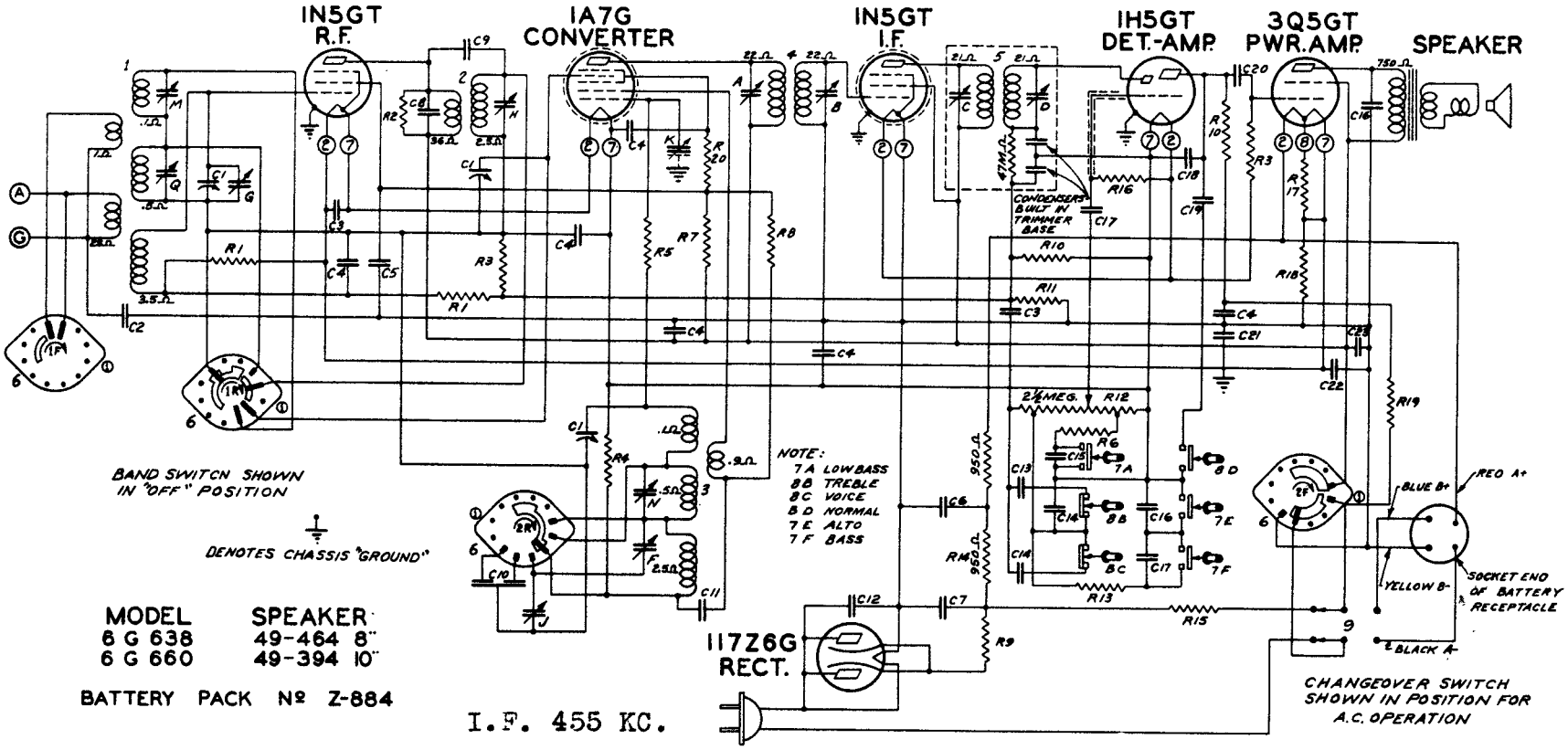
All voltages are positive D.C. unless marked otherwise.

Volume control full on.

Models 6S632–6S646–6S656

Chassis No. 6B08

Zenith Radio



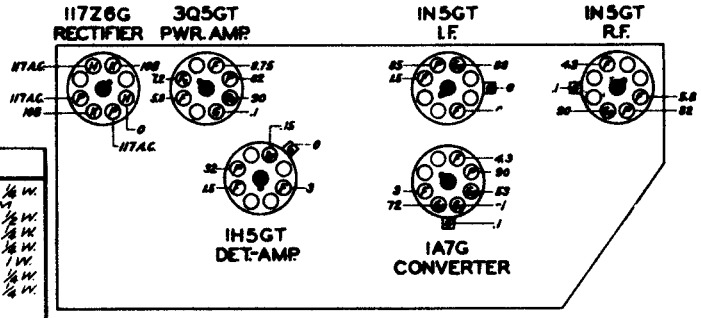
MODEL	SPEAKER
6 G 638	49-464 8"
6 G 660	49-394 10"

BATTERY PACK Nº Z-884

Models 6G638–6G660

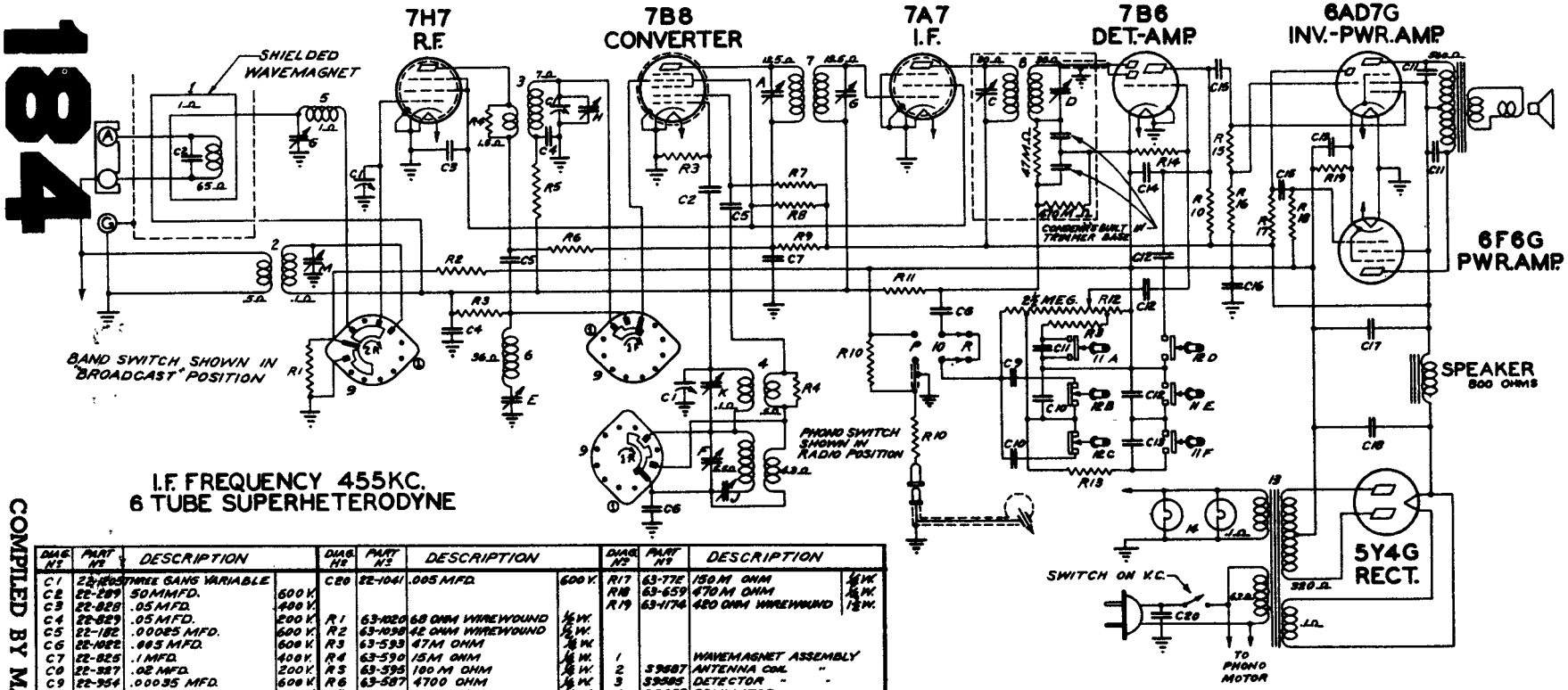
Zenith Radio Chassis No. 6B09

DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION	
C1	22-1217	THREE GANG VARIABLE		C20	22-243	.01 MFD.	400 V.	R13	63-594	68M OHM	1/4 W.
C2	22-1188	.01 MFD.	400 V.	C21	22-827	.1 MFD.	200 V.	R14	63-1259	TWO-SECTION CANDOHM	
C3	22-327	.02 MFD.	200 V.	C22	22-1234 OR 22-1296	200 MFD. ELECTROLYTIC	10 V.	R15	63-605	1000 OHM	1/4 W.
C4	22-829	.05 MFD.	200 V.	C23	22-1296	40 MFD. "	150 V.	R16	63-976	15 MEGOHM	1/4 W.
C5	22-1047	10 MFD. ELECTROLYTIC	150 V.					R17	63-580	330 OHM	1/4 W.
C6	OR 22-1288	20 MFD. "	150 V.					R18	63-1097	870 OHM WIREWOUND	1 W.
C7		30 MFD. "	150 V.					R19	63-597	470 M OHM	1/4 W.
C8	22-889	50 MMFD.	600 V.	P1	63-602	4.7 MEGOHM	1/4 W.	R20	63-591	22M OHM	1/4 W.
C9	22-303	5 MMFD.	600 V.	R2	63-589	10M OHM	1/4 W.				
C10	22-930	DUAL PADDER	600 V.	R3	63-600	2.2 MEGOHM	1/4 W.				
C11	22-358	.002 MFD.	600 V.	R4	63-654	180M OHM	1/4 W.	1	S9688	ANTENNA COIL ASSEMBLY	
C12	22-1017	.05 MFD.	200 V.	R5	63-577	100 OHM	1/4 W.	2	S9690	DETECTOR COIL "	
C13	22-956	.00035 MFD.	600 V.	R6	63-593	47M OHM	1/4 W.	3	B9689	OSCILLATOR COIL "	
C14	22-470	.00015 MFD.	600 V.	R7	63-635	3300 OHM	1/4 W.	4	95-821	1ST I.F. TRANSFORMER	
C15	22-829	.005 MFD.	600 V.	R8	63-640	6800 OHM	1/4 W.	5	95-822	2ND I.F. "	
C16	22-448	.004 MFD.	600 V.	R9	63-1260	140 OHM WIREWOUND	1/4 W.	6	85-292	BAND SELECTOR SWITCH	
C17	22-492	.002 MFD.	600 V.	R10	63-271	1 MEGOHM	1/4 W.	7	S9987	TONE CONTROL (LEFT)	
C18	22-162	.0001 MFD.	600 V.	R11	63-606	10 MEGOHM	1/4 W.	8	S9986	TONE CONTROL (RIGHT)	
C19	22-887	.001 MFD.	600 V.	R12	63-1244	VOLUME CONTROL		9	85-171	CHANGEOVER SWITCH	



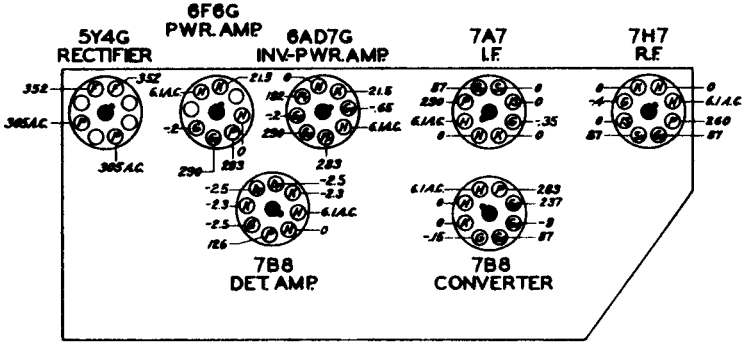
SOCKET VOLTAGES—BOTTOM VIEW

All voltages measured with a 20,000 ohm per volt meter from chassis to socket contact indicated.



I.F. FREQUENCY 455KC.
6 TUBE SUPERHETERODYNE

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
C1	22-1165	THREE GANG VARIABLE		C20	22-1041	.005 MFD.	600 V.	R17	63-776	150 M OHM	½ W.
C2	22-289	50 MMFD.	600 V.					R18	63-659	470 M OHM	½ W.
C3	22-828	.05 MFD.	400 V.					R19	63-1174	420 OHM WIREWOUND	1 W.
C4	22-829	.05 MFD.	200 V.	R1	63-1020	68 OHM WIREWOUND	½ W.				
C5	22-182	.00085 MFD.	600 V.	R2	63-1038	42 OHM WIREWOUND	½ W.				
C6	22-1052	.005 MFD.	600 V.	R3	63-593	47M OHM	½ W.				
C7	22-825	.1 MFD.	400 V.	R4	63-590	15M OHM	½ W.	1		WAVEMAGNET ASSEMBLY	
C8	22-287	.02 MFD.	200 V.	R5	63-595	100 M OHM	½ W.	2	39687	ANTENNA COIL "	
C9	22-954	.00035 MFD.	600 V.	R6	63-587	4700 OHM	½ W.	3	39585	DETECTOR " "	
C10	22-470	.0005 MFD.	600 V.	R7	63-609	22M OHM	½ W.	4	39659	OSCILLATOR " "	
C11	22-229	.005 MFD.	600 V.	R8	63-1194	47M OHM	1 W.	5	39589	LOOP LOADING COIL	
C12	22-443	.004 MFD.	600 V.	R9	63-605	1000 OHM	½ W.	6	58326	WAVE TRAP COIL ASSEMBLY	
C13	22-492	.002 MFD.	600 V.	R10	63-596	220M OHM	½ W.	7	95-708	1ST I.F. TRANSFORMER	
C14	22-854	.0005 MFD.	600 V.	R11	63-599	1.5 MEGOHM	½ W.	8	95-826	2ND I.F. "	
C15	22-196	.01 MFD.	600 V.	R12	63-1122	VOLUME CONTROL		9	85-291	BAND SELECTOR SWITCH	
C16	22-827	.1 MFD.	200 V.	R13	63-594	68M OHM	½ W.	10	85-171	PHONO-RADIO SWITCH	
C17		[20 MFD. ELECTROLYTIC	450 V.	R14	63-976	15 MEGOHM	½ W.	11	S 5803	T.C. SWITCH ASSEM. (LEFT)	
C18	22-1187	[20 MFD.	450 V.	R15	63-657	330 M OHM	½ W.	12	S 5802	T.C. SWITCH ASSEM. (RIGHT)	
C19		[40 MFD.	35 V.	R16	63-658	120 M OHM	½ W.	13	95-756	PWR. TRANS. 117 V. 50-60 ~	



Models 7S681–7S682–7S685

Chassis No. 7B02 Phono.

All voltages measured with a 20,000 ohm per volt meter from chassis to socket contact indicated.

All voltages are positive D.C. unless marked otherwise.

Volume control full on.
Line voltage 117 A.C.
Power consumption 80+30 watts.
Power output 8.4 watts.
Tuning Range
540 Kc. to 1620 Kc.
5400 Kc.—18300 Kc.

Stage Gains
Bc. and I.F.

Ant. to R.F. grid 7.1× at 1000 Kc.

R.F. grid to conv. grid 5.6× at 1000 Kc.

Conv. grid to I.F. grid 73× at 455 Kc.

Overall audio 1600× at 1 watt 400 cycles.

Zenith Radio

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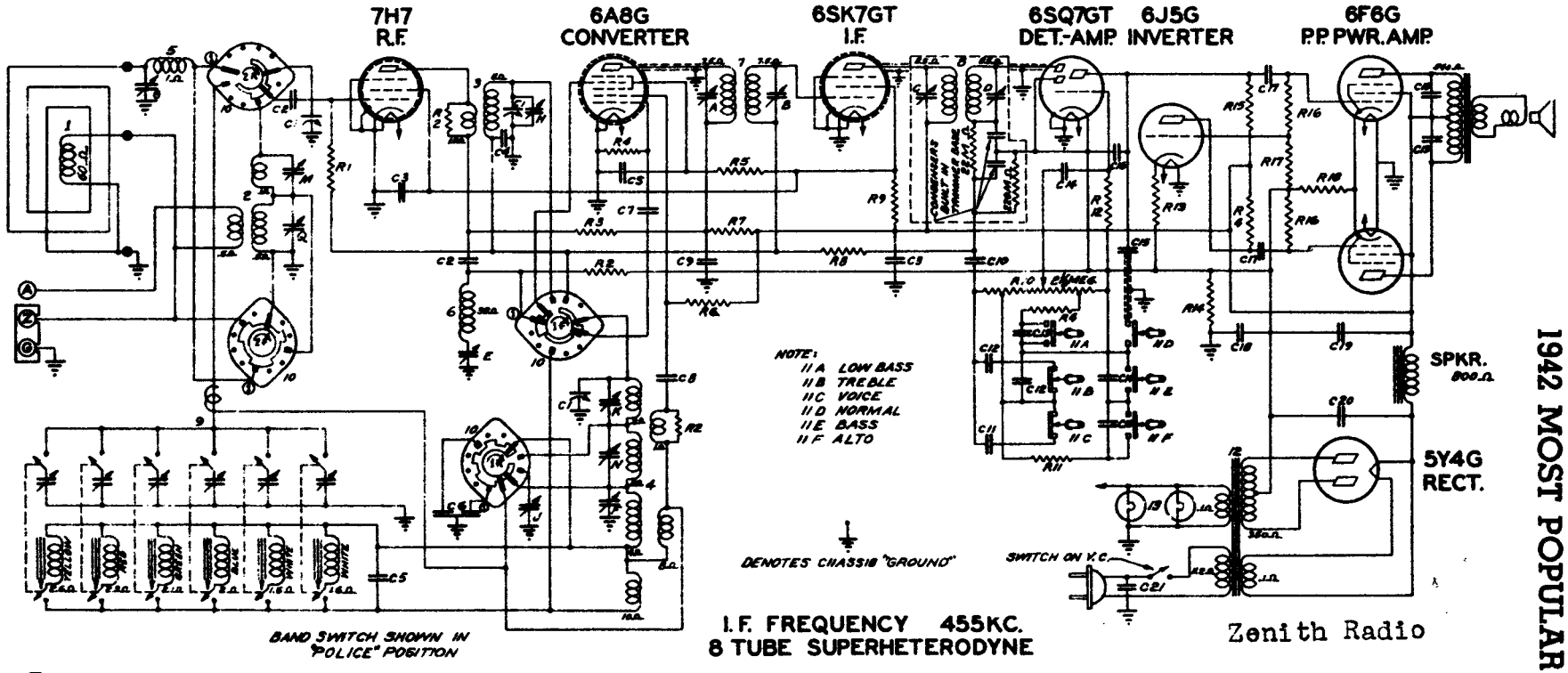
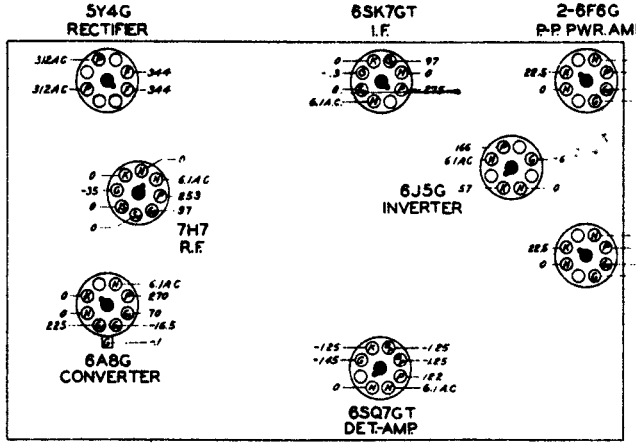


DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
C1	22-1218	THREE GANG VARIABLE		C21	22-1041	.005 MFD.	600V	R17	63-648	47M OHM	½ W.
C2	22-716	.0005 MFD.	600V					R18	63-1195	478 OHM WIREWOUND	½ W.
C3	22-888	.05 MFD.	400V								
C6	22-889	.05 MFD.	200V								
C5	22-868	COMPENSATING COND.		A1	63-600	2.2 MEGOHM	½ W.				
C6	22-930	DUAL PADDER		R2	63-590	15M OHM	½ W.	1		WAVEMAGNET ASSEMBLY	
C7	22-127	25 MMFD.	600V	R3	63-587	4700 OHM	½ W.	2	59695	ANTENNA COIL	
C8	22-182	.00025 MFD.	600V.	R4	63-593	47M OHM	½ W.	3	59698	DETECTOR COIL	
C9	22-825	.1 MFD.	400V.	R5	63-649	18M OHM	½ W.	4	59696	OSCILLATOR COIL	
C10	22-327	.02 MFD.	200V.	R6	63-609	22M OHM	½ W.	5	59589	LOOP LOADING COIL	
C11	22-289	58 MMFD.	600V.	R7	63-605	1000 OHM	½ W.	6	58926	WAVE TRAP COIL ASSEMBLY	
C12	22-470	.00015 MFD.	600V.	R8	63-671	1 MEGOHM	½ W.	7	95-826	1ST I.F. TRANSFORMER	
C13	22-229	.005 MFD.	600V.	R9	63-1189	39M OHM	1 W.	8	95-827	2ND I.F. "	
C14	22-492	.002 MFD.	600V.	R10	63-1075	VOLUME CONTROL		9	59926	AUTOMATIC TUNING ASSEM.	
C15	22-448	.004 MFD.	600V.	R11	63-714	68M OHM	½ W.	10	85-294	BAND SELECTOR SWITCH	
C16	22-854	.0005 MFD.	600V.	R12	63-976	15 MEGOHM	½ W.	11	59911	TONE CONTROL	
C17	22-171	.05 MFD.	600V.	R13	63-585	2200 OHM	½ W.	12	95-756	PWR. TRANS. 117V. 50-60 ~	
C18	22-827	.1 MFD.	200V.	R14	63-1100	52 OHM WIREWOUND	½ W.	13	100-36	DIAL LIGHT 6.3V. .25A.	
C19	22-1168	20 MFD. ELECTROLYTIC	450V.	R15	63-696	220M OHM	½ W.				
C20		20 MFD.	450V.	R16	63-657	330M OHM	½ W.				

Models 8S647–8S661

Chassis No. 8B01



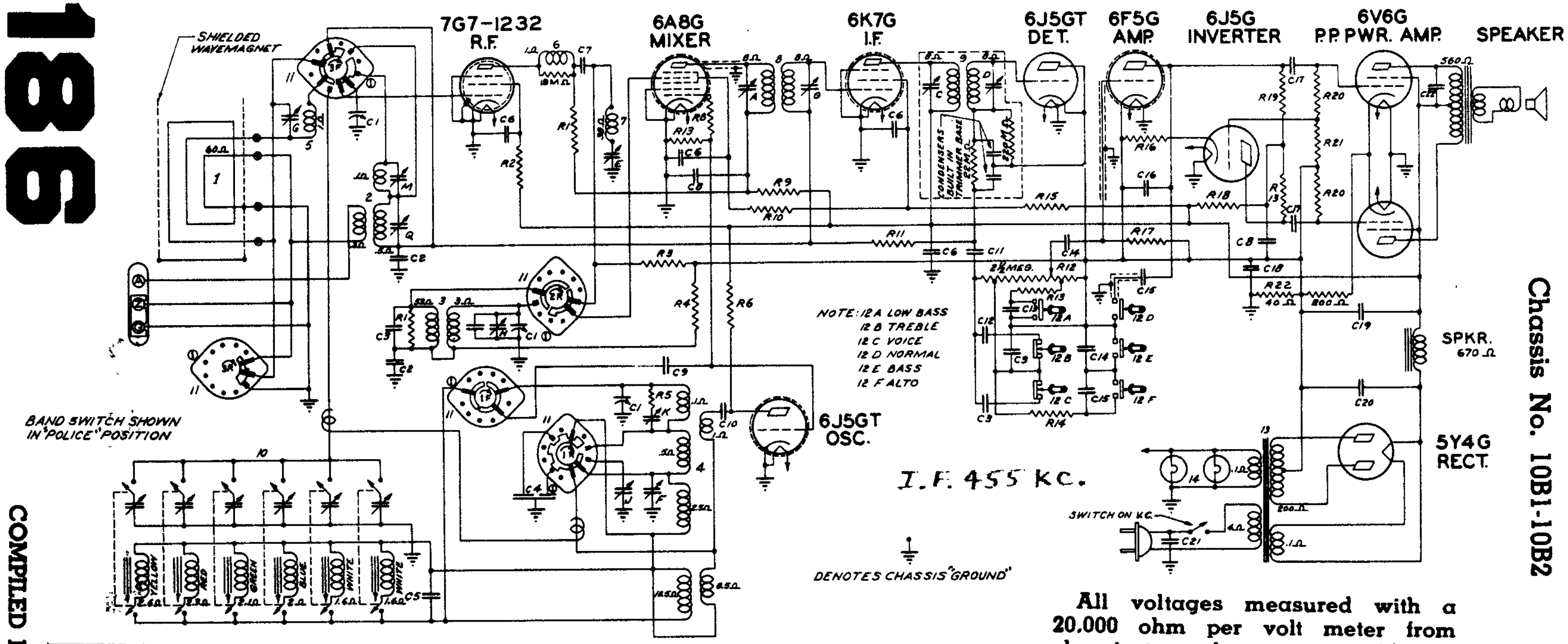
SOCKET VOLTAGES—BOTTOM VIEW

MANUAL OF 1942 MOST POPULAR SERVICE DIAGRAMS

Models 10S669–10S690

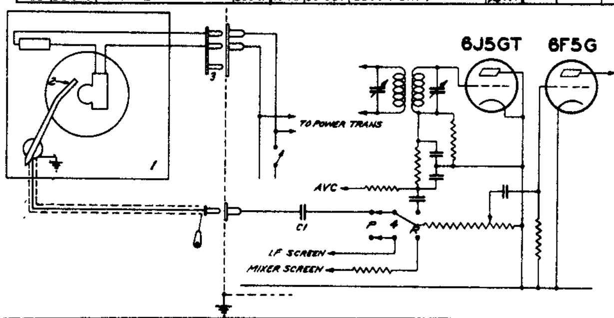
Chassis No. 10B1-10B2

Zenith Radio



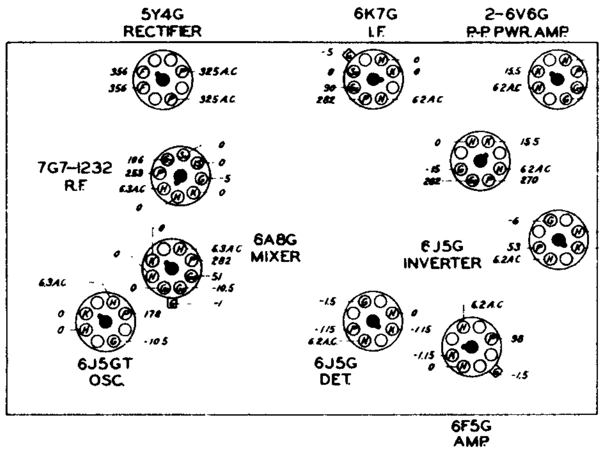
All voltages measured with a 20,000 ohm per volt meter from chassis to socket contact indicated.
All voltages are positive D.C. unless marked otherwise.
Volume control full on.

DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION	
C1	22-1232	THREE GANG VARIABLE						R21	63-648	47M OHM	¼W.
C2	22-829	.05 MFD.	200V.					R22	63-1048	TWO SECTION CANDOHM	
C3	22-470	.00015 MFD.	600V.	R1	63-587	4700 OHM	¼W.				
C4	22-1039	DUAL PADDER		R2	63-595	100M OHM	¼W.				
C5	22-868	COMPENSATING COND.		R3	63-590	15M OHM	¼W.	1		WAVEMAGNET ASSEMBLY	
C6	22-828	.05 MFD.	400V.	R4	63-589	10M OHM	¼W.	2	S9747	ANTENNA COIL "	
C7	22-147	.0005 MFD.	600V.	R5	63-576	68 OHM	¼W.	3	S8436	DETECTOR COIL "	
C8	22-825	.1 MFD.	400V.	R6	63-151	15M OHM	1W.	4	S9748	OSCILLATOR COIL "	
C9	22-127	25 MMFD.	600V.					5	S9589	LOOP LOADING COIL	
C10	22-182	.00025 MFD.	600V.	R5	63-581	470 OHM	¼W.	6	S9622	COIL & RES. ASSEMBLY	
C11	22-327	.02 MFD.	200V.	R9	63-605	1000 OHM	½W.	7	S8826	WAVETRAP "	
C12	22-954	.00085 MFD.	600V.	R10	63-643	18M OHM	¼W.	8	95-625	1ST I.F. TRANSFORMER	
C13	22-229	.005 MFD.	600V.	R11	63-271	1 MEGOHM	¼W.	9	95-844	2ND I.F. "	
C14	22-692	.002 MFD.	600V.	R12	63-1075	VOLUME CONTROL		10	S9926	AUTOMATIC TUNING ASSEM.	
C15	22-448	.004 MFD.	600V.	R13	63-593	47M OHM	¼W.	11	85-296	BAND SELECTOR SWITCH	
C16	22-854	.0005 MFD.	600V.	R14	63-714	68M OHM	¼W.	12	S9911	TONE CONTROL	
C17	22-171	.05 MFD.	600V.	R15	63-1159	39M OHM	1W.	13	95-833	PWR. TRANS. 117V 50-60~	
C18	22-827	.1 MFD.	200V.	R16	63-585	2200 OHM	½W.	14	100-36	DIAL LIGHT 6.3V. .25A.	
C19	22-1106	20 MFD. ELECTROLYTIC	450V.	R17	63-976	15 MEGOHM	½W.				
C20		20 MFD. "	450V.	R18	63-594	68M OHM	¼W.				
C21	22-1041	.008 MFD.	600V.	R19	63-296	220M OHM	¼W.				
C22	22-669	.01 MFD.	600V.	R20	63-657	330M OHM	¼W.				



C1	22-1189	.00075 MFD.	600V.
1	169-80 / 169-81	AUTOMATIC RECORD CHANGER	60~ / 50~
2	142-46	PICKUP CARTRIDGE	
3	58-65	A.C. PLUG	
4	85-303	PHONO-RADIO SW.	

PHONO CIRCUIT DATA
MODEL 10S690 — SPEAKER 49-442 14"
CHASSIS Nº 10B2



SOCKET VOLTAGES—BOTTOM VIEW

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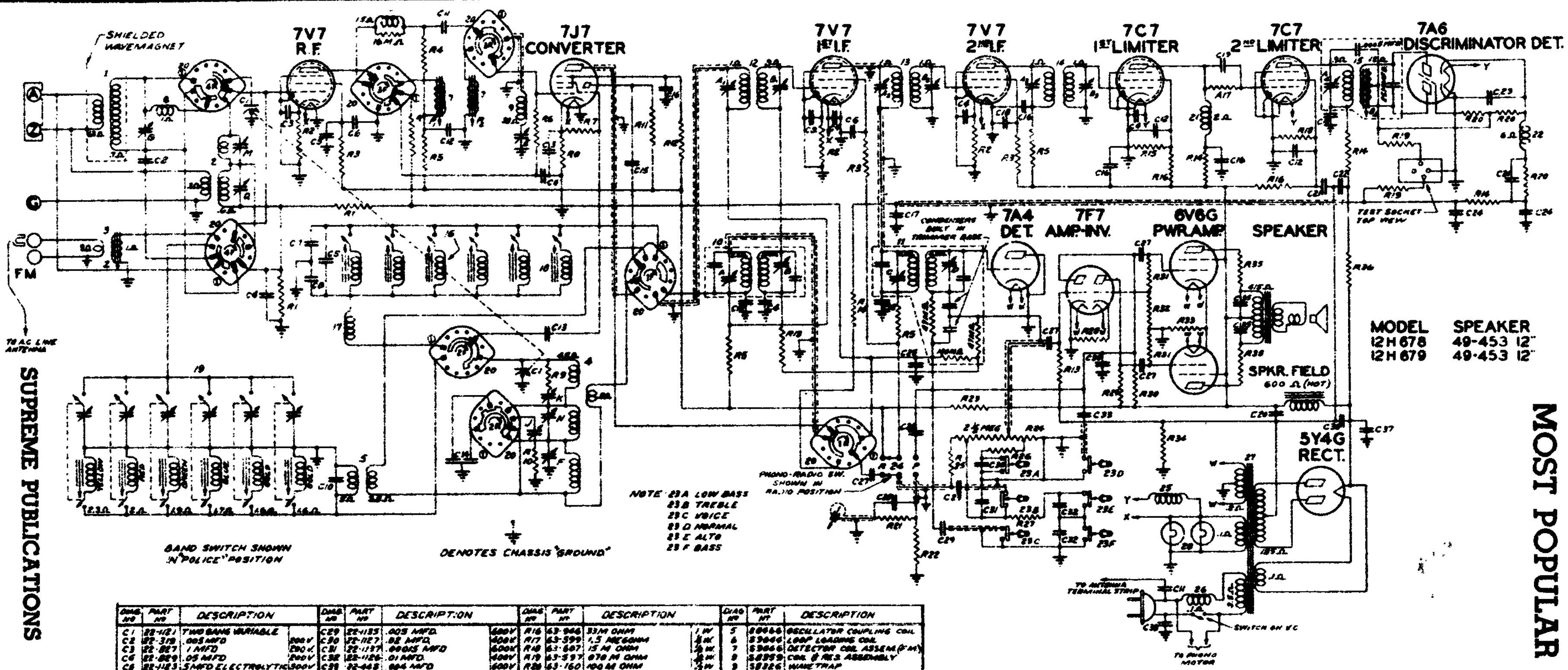


MODEL	SPEAKER
12H678	49-453 12"
12H679	49-453 12"

DIAG. No	PART No	DESCRIPTION	
C1	22-1121	TWO GANG VARIABLE	
C2	22-318	.005 MFD	200V
C3	22-827	1 MFD	200V
C4	22-829	.05 MFD	200V
C5	22-1123	5 MFD ELECTROLYTIC	300V
C6	22-843	.01 MFD	400V
C7	22-1146	30 MMFD. COMP	
C8	22-1139	50 MMFD. COMP	
C9	22-1193	15 MMFD. CERAMIC	
C10	22-868	COMPENSATING COND	
C11	22-162	.0001 MFD.	600V
C12	22-825	.1 MFD.	400V
C13	22-1140	50 MMFD	600V
C14	22-1039	DUAL PADDER	
C15	22-358	.002 MFD	600V
C16	22-828	.05 MFD	400V
C17	22-1182	.00025 MFD	600V
C18	22-692	.002 MFD	600V
C19	22-127	25 MMFD	600V
C20	22-1178	10 MFD ELECTROLYTIC	650V
C21		5 MFD	300V
C22		15 MFD	250V
C23	22-289	50 MMFD	600V
C24	22-1138	.0005 MFD	600V
C25	22-348	.001 MFD.	600V
C26	22-1203	.001 MFD.	600V
C27	22-830	.02 MFD	600V
C28	22-1026	.002 MFD.	600V

DIAG. No	PART No	DESCRIPTION	
C29	22-1135	.005 MFD.	600V
C30	22-1127	.02 MFD.	400V
C31	22-1137	.00015 MFD	600V
C32	22-1126	.01 MFD.	400V
C33	22-448	.004 MFD	600V
C34	22-953	.0002 MFD.	600V
C35	22-1134	.002 MFD.	1000V
C36	22-1124	30 MFD ELECTROLYTIC	450V
C37	22-196	.01 MFD	600V
C38	22-1041	.005 MFD.	600V
R1	63-600	2.2 MEGOHM	½ W.
R2	63-741	150 OHM	½ W
R3	63-1188	39M OHM	1 W.
R4	63-1071	10M OHM	1 W.
R5	63-605	1000 OHM	½ W
R6	63-715	100M OHM	½ W
R7	63-718	47M OHM	½ W
R8	63-1164	300 OHM	½ W.
R9	63-876	68 OHM	½ W
R10	63-572	15 OHM	½ W
R11	63-1165	15M OHM	1 W
R12	63-1160	56M OHM	1 W
R13	63-271	1 MEGOHM	½ W
R14	63-582	1000 OHM	½ W
R15	63-1180	15M OHM	½ W

DIAG. No	PART No	DESCRIPTION	
R16	63-946	33M OHM	1 W
R17	63-599	1.5 MEGOHM	½ W
R18	63-607	15 M OHM	½ W.
R19	63-597	470 M OHM	½ W
R20	63-160	100 M OHM	½ W
R21	63-596	330 M OHM	½ W
R22	63-598	680 M OHM	½ W
R23	63-1179	1000 OHM	1 W.
R24	63-1074	VOLUME CONTROL	
R25	63-781	470 OHM	½ W.
R26	63-595	47M OHM	½ W.
R27	63-594	68 M OHM	½ W
R28	63-238	1000 OHM	½ W
R29	63-465	100 M OHM	½ W
R30	63-[illegible]	220 M OHM	½ W
R31	63-657	330 M OHM	½ W
R32	63-511	15 M OHM	½ W.
R33	63-1187	200 OHM	½ W.
R34	63-1190	8.0 OHM	½ W
R35	63-1188	100 OHM	½ W
R36	63-679	82M OHM	1 W
1		WAVEMAGNET ASSEMBLY	
2	S9075	ANTENNA COIL	(S W)
3	S9065	ANTENNA COIL	(F M)
4	S9076	OSCILLATOR COIL	

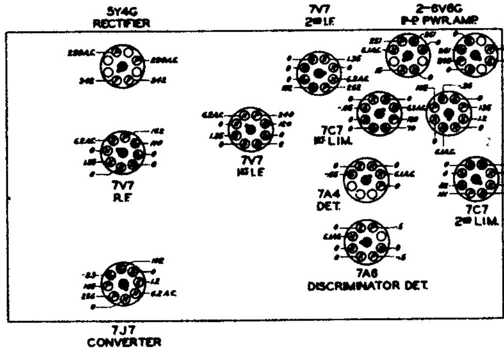
DIAG. No	PART No	DESCRIPTION
5	S9046	OSCILLATOR COUPLING COIL
6	S9044	LOOP LOADING COIL
7	S9066	DETECTOR COIL ASSEM. (F.M.)
8	S8359	COIL & RES. ASSEMBLY
9	S8326	WAVE TRAP
10	95-765	1st I.F. TRANSFORMER (A.M.)
11	95-766	2nd I.F. (A.M.)
12	95-785	1st I.F. (F.M.)
13	95-786	2nd I.F. (F.M.)
14	95-787	3rd I.F. (F.M.)
15	95-788	DISCRIMINATOR I.F. TRANS. (F.M.)
16	S9562	MANUAL F.M. OSC. COIL
17	S9694	GRID PEAKING COIL
18	S9531	AUTOMATIC TUNING UNIT (F.M.)
19	S8496	AUTOMATIC TUNING UNIT (B.C.)
20	85-294	BAND SELECTOR SWITCH
21	S9485	PLATE CHOKE
22	S9503	F.M. I.F. WAVETRAP
23	S8490	TONE CONTROL SW. ASSEM.
24	85-283	PHONO-RADIO SWITCH
25	20-220	FILAMENT CHOKE
26	S9504	LINE CHOKE
27	95-848 / 95-865	POWER TRANS {50 60~ / 25~}
28	100-36	PILOT LIGHT 6.3V .25A.
A		1st I.F. TRANS PRI. (A.M.)
B		1st I.F. " SEC. (A.M.)

Zenith Radio

Models 12H678–12H679

Chassis No. 12A6

AMP. MOD. I.F. FREQUENCY 455 KC.
FREQ. MOD. I.F. FREQUENCY 8.3 MC.
12 TUBE SUPERHETERODYNE
CHASSIS No 12A6 - A.C. - 4 BAND
ZENITH RADIO CORPORATION



SOCKET VOLTAGES—BOTTOM VIEW

All voltages measured with a 20,000 ohm per volt meter from chassis to socket contact indicated.

ALIGNMENT PROCEDURE

Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers	Purpose
1	Con. Grid	0.5 mfd.	455 Kc.	BC	600 Kc.	A, B, C, D	Align I.F..
2	R.F. Grid	0.5 mfd.	455 Kc.	BC	600 Kc.	E	Adjust for minimum 455 Kc. signal
3	Ant. Z and G	400 ohm	18 Mc.	SW	18 Mc.	K	Scale SW Osc. at 18 meg.
4	"	"	18 Mc.	SW	16 Mc.	M	Align SW antenna
5	"	"	5 Mc.	Med.	5.0 Mc.	N	Scale med. band osc. at 5. meg.
6	"	"	4.5 Mc.	Med.	4.5 Mc.	Q	Align med. band antenna
7	One turn loop made with generator lead or Radex loop	——	1600 Kc.	BC	1600 Kc.	F	Set BC Osc. to scale at 1600 Kc.
8		——	1400 Kc.	BC	1400 Kc.	G	Align broadcast loop
9		——	600 Kc.	BC	600 Kc.	J	Rock gang to track BC padder
10	7V7 2nd I.F. Grid	0.5 mfd.	8.3 Mc.	Man. F.M.	42.5 Mc.	A_4	Align for max. deflection across ½ discrim. load
11	"	"	"	"	"	B_4	Align for zero deflection across full discrim. load
12	"	"	"	"	"	A_3 - B_3	Align for max. deflection across ½ discrim. load
13	7V7 1st I.F. Grid	"	"	"	"	A_2 - B_2	"
14	Converter Grid	"	"	"	"	A_1 - B_1	"
15	F.M. Ant. Terminal	100 ohm	46 Mc.	"	46 Mc.	Adj. cam on gang to scale osc.	Align for zero deflection across full discrim. load
16	"	"	42.5 Mc.	"	42.5 Mc.	P_1	Align for max. deflection across ½ discrim. load
17	"	"	49 Mc.	"	49 Mc.	P_2	"
18	"	"	46 Mc.	"	46 Mc.	Z	"

Models 12H678–12H679

Chassis No. 12A6

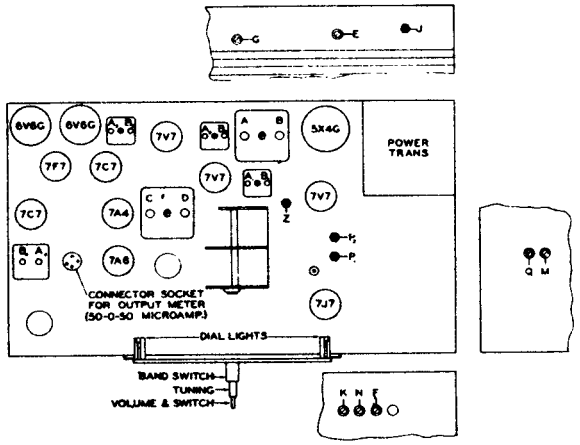
Stage Gains
Bc. and I.F.

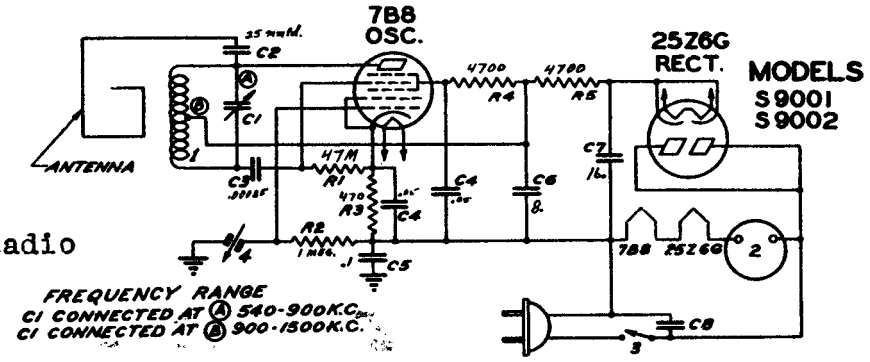
Ant. to R.F. grid 6.5× at 1000 Kc.

R.F. grid to conv. grid 28.1× at 1000 Kc.

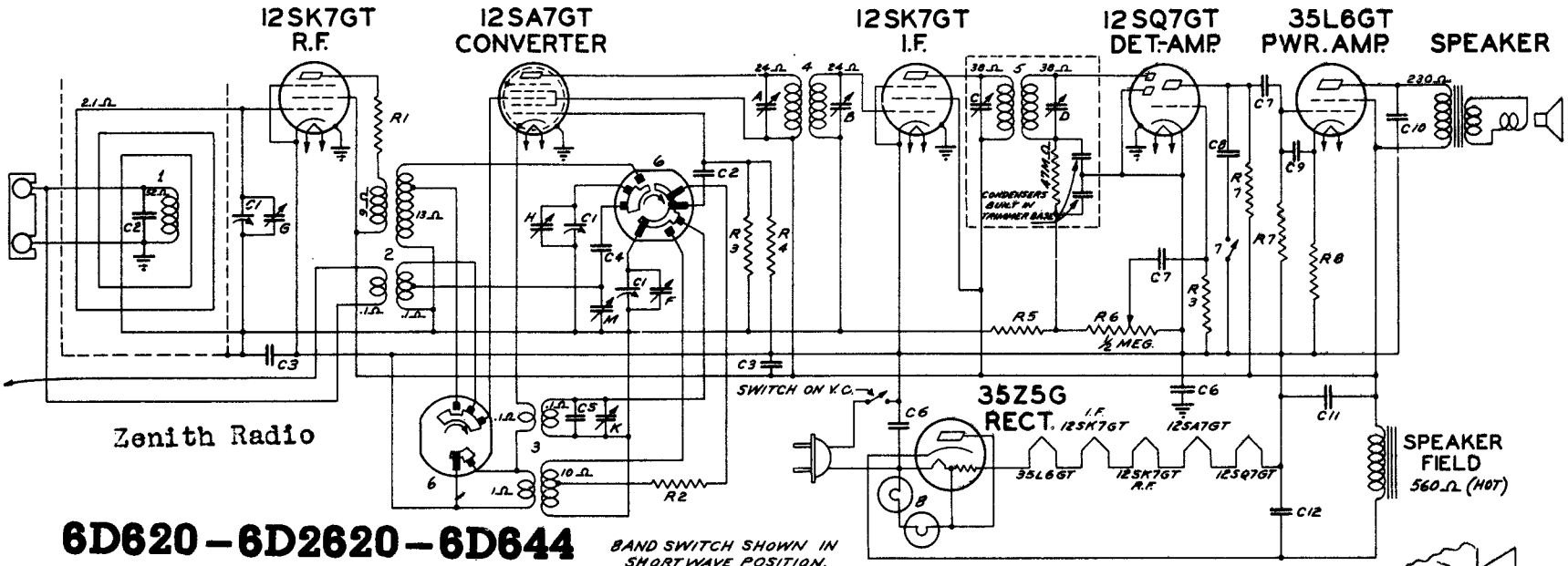
Conv. grid to I.F. grid 265× at 455 Kc.

Overall audio 807× at 1 watt. 400 cycles.





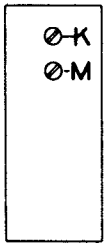
Zenith Radio

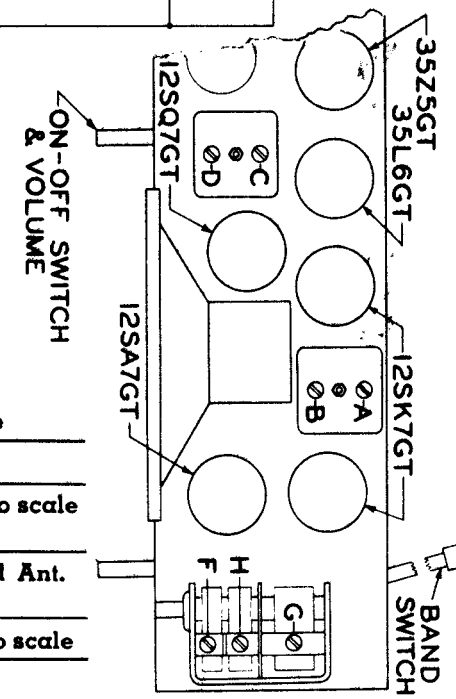


6D620 – 6D2620 – 6D644

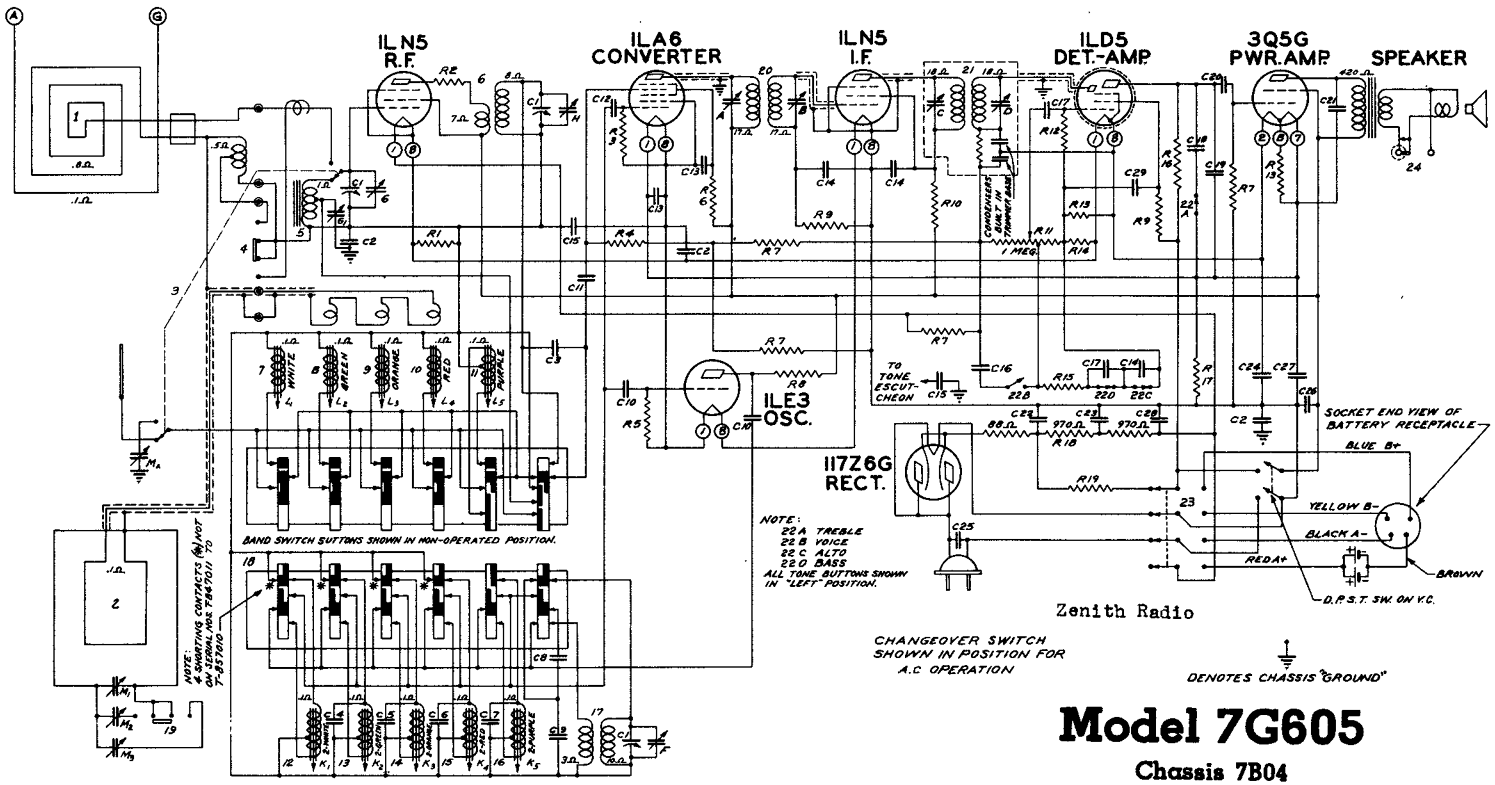
Chassis No. 6B14

DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION		DIAG. Nº	PART Nº	DESCRIPTION
C1	22-1268	THREE GANG VARIABLE		R2	63-579	220 OHM	½ W.	7	85-257	TONE CONTROL SWITCH
C2	22-289	.50 MMFD.	600 V.	R3	63-976	15 MEGOHM	½ W.	8	100-90	DIAL LAMP 3.2 V. .17A.
C3	22-829	.05 MFD.	200 V.	R4	63-589	10 M OHM	½ W.			
C4	22-1300	.00025 MFD.	600 V.	R5	63-600	2.2 MEGOHM	½ W.			
C5	22-1279	40 MMFD. COMP.		R6	63-1238	VOLUME CONTROL		A		1ST I.F. TRANS. PRI.
C6	22-1017	.05 MFD.	200 V.	R7	63-597	470 M OHM	½ W.	B		1ST I.F. " SEC.
C7	22-243	.01 MFD.	400 V.	R8	63-1237	150 OHM WIREWOUND	1 W.	C		2ND I.F. " PRI.
C8	22-492	.002 MFD.	600 V.					D		2ND I.F. " SEC.
C9	22-716	.0005 MFD.	600 V.					F		BROADCAST OSC. (ON GANG)
C10	22-1049	.03 MFD.	400 V.					G		BROADCAST ANT. (ON GANG)
C11	22-1280	20 MFD. ELECTROLYTIC	150 V.	1	S10134	WAVEMAGNET		H		BROADCAST DET. (ON GANG)
C12		20 MFD. "	150 V.	2	S10154	DETECTOR COIL ASSEMBLY		K		SHORTWAVE OSC. (SEE NOTE)
				3	S10155	OSCILLATOR " "		M		SHORTWAVE ANT. (SEE NOTE)
				4	95-869	1ST I.F. TRANSFORMER				NOTE:
				5	95-870	2ND I.F. "				TRIMMERS K & M ARE
R1	63-1208	8200 OHM	½ W.	6	85-307	BAND SWITCH				MOUNTED ON STRIP 22-1273





Operation	Connect Oscillator to	Dummy Antenna	Signal Frequency	Band	Set Dial at	Trimmers	Purpose
1	Conv. Grid	.5 mfd.	455 Kc.	B.C.	600 Kc.	A, B, C, D	Align I.F.
2	Single Turn Loop Loosely Coupled to Wavemagnet	—	1400 Kc.	B.C.	1400 Kc.	F	Set oscillator to scale
3		—	1400 Kc.	B.C.	1400 Kc.	H & G	Align R.F. and Ant.
4	Ant.-Gnd.	400 ohms	12 Mc.	S.W.	12 Mc.	K	Set oscillator to scale
5	Ant.-Gnd.	400 ohms	12 Mc.	S.W.	12 Mc.	M	Align Ant.



Zenith Radio

Model 7G605

Chassis 7B04

DIAG Nº	PART Nº	DESCRIPTION	
C1	22-1308	THREE GANG VARIABLE	
C2	22-827	.1 MFD.	200 V.
C3	22-1130	15 MMFD.	600 V.
C4	22-1312	100 MMFD. COMP.	
C5	22-1332	200 MMFD. COMP.	
C6	22-705	150 MMFD. COMP.	
C7	22-702	250 MMFD. COMP.	
C8	22-1311	75 MMFD. COMP.	
C9	22-1310	50 MMFD. COMP.	
C10	22-162	.0001 MFD.	600 V.
C11	22-327	.02 MFD.	200 V.
C12	22-289	50 MMFD.	600 V.
C13	22-829	.05 MFD.	200 V.
C14	22-826	.01 MFD.	200 V.
C15	22-1207	.07 MFD.	200 V.
C16	22-887	.001 MFD.	600 V.
C17	22-492	.002 MFD.	600 V.
C18	22-953	.0002 MFD.	600 V.
C19	22-470	.00015 MFD.	600 V.
C20	22-196	.01 MFD.	600 V.
C21	22-448	.004 MFD.	600 V.
C22	22-1307	40 MFD. ELECTROLYTIC	150 V.
C23	OR	20 MFD. "	150 V.
C24	22-1530	40 MFD. "	25 V.
C25	22-869	.05 MFD.	400 V.

DIAG Nº	PART Nº	DESCRIPTION	
C26	22-1282	40 MFD. ELECTROLYTIC	150 V.
C27	OR	40 MFD. "	25 V.
C28	22-1159	20 MFD. "	25 V.
C29	22-326	.003 MFD.	400 V.
R1	63-596	330M OHM	1/4 W.
R2	63-641	10M OHM	1/4 W.
R3	63-773	180M OHM	1/4 W.
R4	63-325	150M OHM	1/4 W.
R5	63-648	47M OHM	1/4 W.
R6	63-592	33M OHM	1/4 W.
R7	63-600	2.2 MEGOHM	1/4 W.
R8	63-761	10M OHM	1/4 W.
R9	63-602	4.7 MEGOHM	1/4 W.
R10	63-583	1000 OHM	1/4 W.
R11	63-1265	VOLUME CONTROL	
R12	63-976	15 MEGOHM	1/4 W.
R13	63-580	330 OHM	1/4 W.
R14	63-577	100 OHM	1/4 W.
R15	63-594	68M OHM	1/4 W.
R16	63-271	1 MEGOHM	1/4 W.
R17	63-941	390 OHM WIREWOUND	1 W.
R18	63-1264	THREE SECTION CANDOHM	
R19	63-1156	1800 OHM	1/2 W.

DIAG. Nº	PART Nº	DESCRIPTION
1	S10680	BROADCAST WAVEMAGNET
2	S10682	SHORTWAVE WAVEMAGNET
3	85-314	ANTENNA POLE SWITCH
4	85-225	WAVEMAGNET SWITCH
5	S10670	ANTENNA COIL ASSEM.
6	S10298	DETECTOR COIL ASSEM.
7	S10284	6MC. ANTENNA COIL ASSEM.
8	S10289	9MC. " " "
9	S10288	12 MC. " " "
10	S10296	15MC. " " "
11	S10297	18MC. " " "
12	S10281	6MC. OSCILLATOR COIL ASSEM.
13	S10290	9MC. " " "
14	S10285	12MC. " " "
15	S10293	15MC. " " "
16	S10294	18MC. " " "
17	S10295	BC. " " "
18	85-312	AUTOMATIC BAND SWITCH
19	85-322	SHORTWAVE LOOP SWITCH
20	95-862	1ST I.F. TRANSFORMER
21	95-863	2ND I.F. TRANSFORMER
22	85-313	TONE CONTROL SWITCH
23	85-311	POWER CHANGE-OVER SWITCH

DIAG. Nº	PART Nº	DESCRIPTION
24	44-17	HEADPHONE JACK
A		1ST I.F. TRANS. PRI.
B		1ST I.F. " SEC.
C		2ND I.F. TRANS. PRI.
D		2ND I.F. " SEC.
F		BROADCAST OSC. (ON GANG)
G		BROADCAST ANT. (ON GANG)
H		BROADCAST DET. (ON GANG)
K_1		SHORTWAVE OSC. 6 MC.
K_2		SHORTWAVE OSC. 9 MC.
K_3		SHORTWAVE OSC. 12 MC.
K_4		SHORTWAVE OSC. 15 MC.
K_5		SHORTWAVE OSC. 18 MC.
L_1		SHORTWAVE DET. 6 MC.
L_2		SHORTWAVE DET. 9 MC.
L_3		SHORTWAVE DET. 12 MC.
L_4		SHORTWAVE DET. 15 MC.
L_5		SHORTWAVE DET. 18 MC.
G_1		WAVEROD TRIMMER (SEE NOTE.)
M_A		WAVEROD COMPENSATOR (SEE NOTE)
M_1		SHORTWAVE ANT. 19 M.
M_2		SHORTWAVE ANT. 25 M.
M_3		SHORTWAVE ANT. 31 M.
NOTE:		TRIMMERS M_1 & M_2 ARE MOUNTED ON STRIP 22-1230

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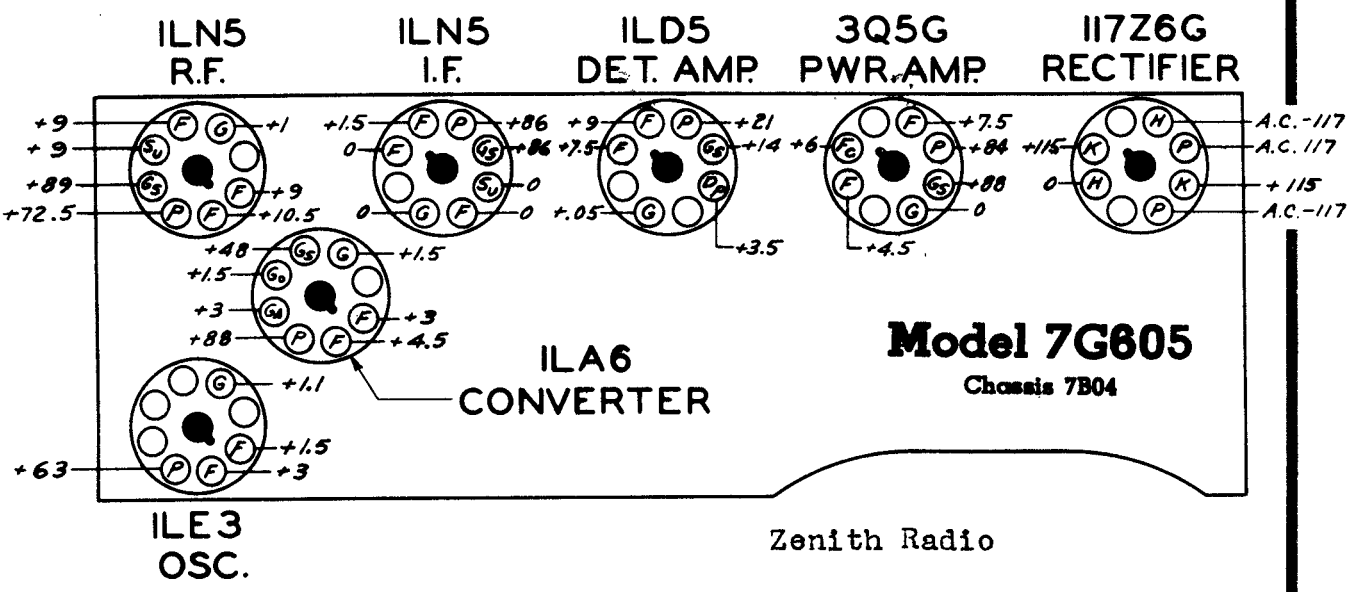


Model 7G605

Chassis 7B04

Zenith Radio

All voltages measured with a 20,000 ohm per volt meter from B minus to socket contact indicated.

All voltages are positive D.C. unless marked otherwise.

Volume control full on.

Line voltage 117 A.C. or D.C. 25 to 60 cycle or Battery Pack Z-985 and two flashlight cells.

Power consumption 85 watts.

Power output .35 watts.

Tuning ranges:

540 to 1620 Kc.

6.0 to 6.5 Mc.

9.4 to 9.8 Mc.

11.7 to 11.9 Mc.

15.1 to 15.3 Mc.

17.6 to 18.0 Mc.

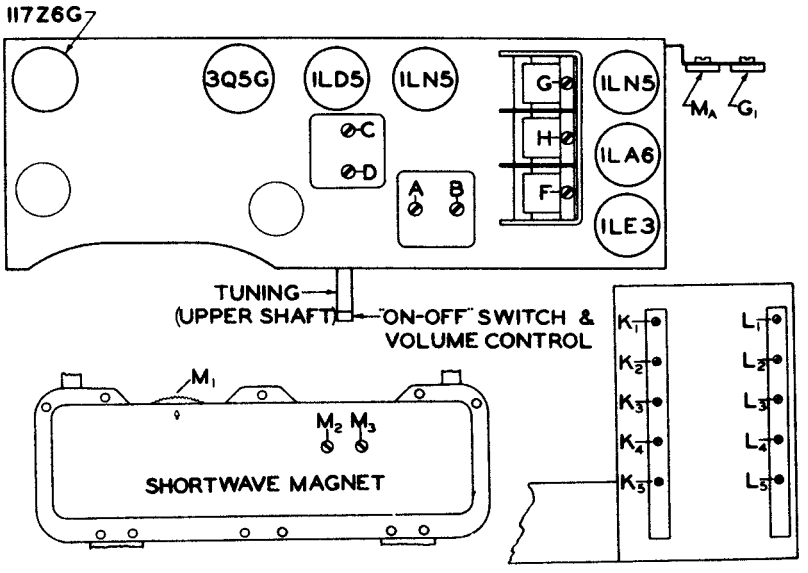
Stage Gains
Bc. and I.F.

Ant. to R.F. grid 5× at 1000 Kc.

R.F. grid to conv. grid 9× at 1000 Kc.

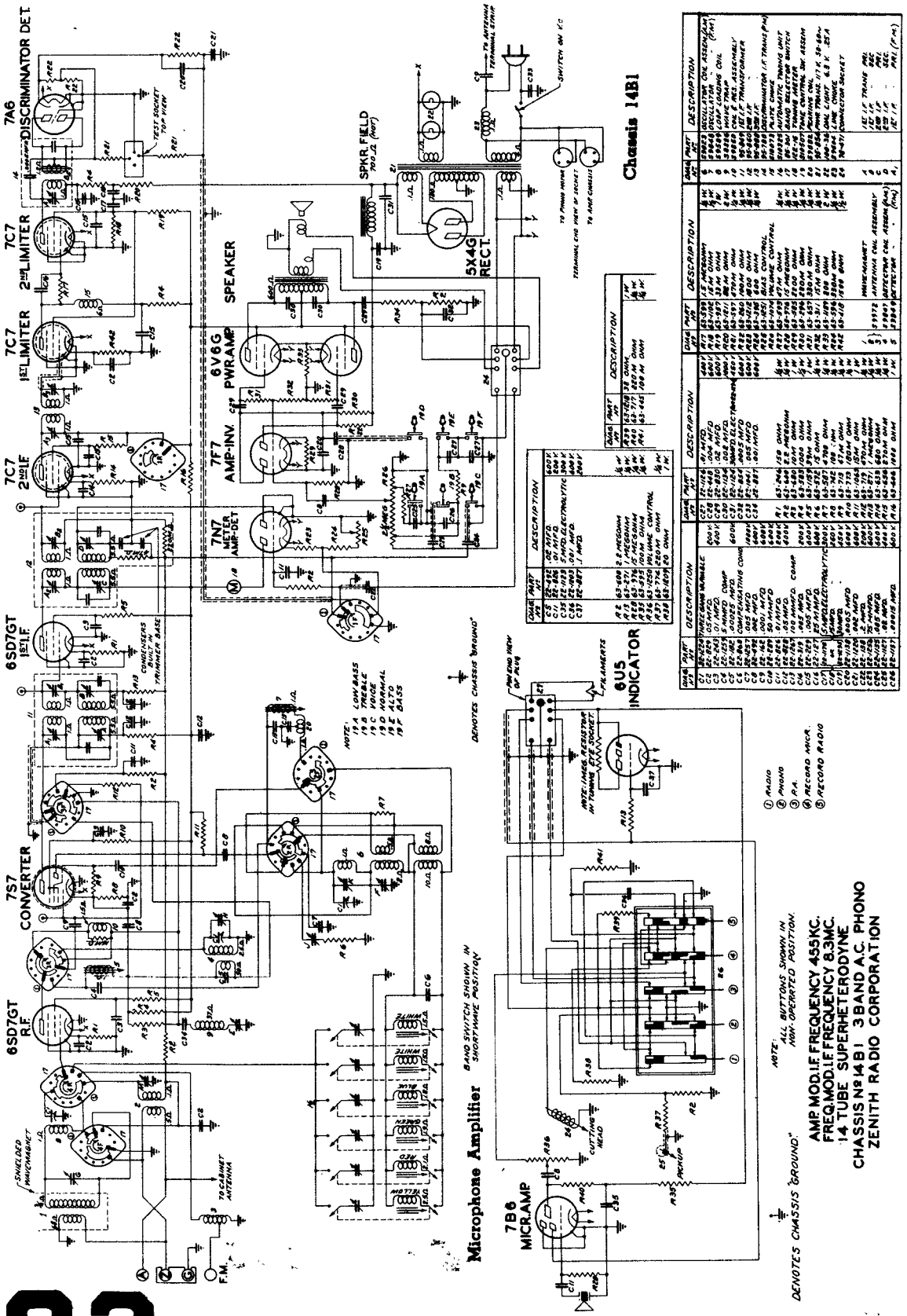
Conv. grid to I.F. grid 66× at 455 Kc.

Overall audio 900× at .05 watt, 400 cycles.



ALIGNMENT PROCEDURE

Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial At	Trimmers	Purpose
1	Conv. grid	.1 mfd.	455 Kc.	BC	600 Kc.	A, B, C, D	Align I.F.
2	One Turn Loop Coupled		1600 Kc.	BC	1600 Kc.	F	Set oscillator to scale
3	Loosely to Broadcast		1400 Kc.	BC	1400 Kc.	H	Alignment of detector section
4	Wavemagnet		1400 Kc.	BC	1400 Kc.	G	Alignment of B.C. Wavemagnet
5	3 Feet of Wire		1400 Kc.	BC	1400 Kc.	G_1	B.C. waverod alignment
6	Approximately		6.3 Mc.	49 Met.	6.2 Mc.	K_1-L_1	
7	1 Foot from		9.6 Mc.	31 Met.	9.6 Mc.	K_2-L_2	Alignment of S.W. Oscillators and Antenna Trimmers
8	Extended		11.8 Mc.	25 Met.	11.8 Mc.	K_3-L_3	
9	Waverod		15.2 Mc.	19 Met.	15.2 Mc.	K_4-L_4	
10			17.8 Mc.	16 Met.	17.8 Mc.	K_5-L_5	
11	One Turn Loop Coupled Loosely to Shortwave Magnet, Waverod Collapsed		15.3 Mc.	19 Met.	15.2 Mc.	M_1-M_4	
12			11.8 Mc.	35 Met.	11.8 Mc.	M_2	
13			9.6 Mc.	31 Met.	9.6 Mc.	M_3	



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