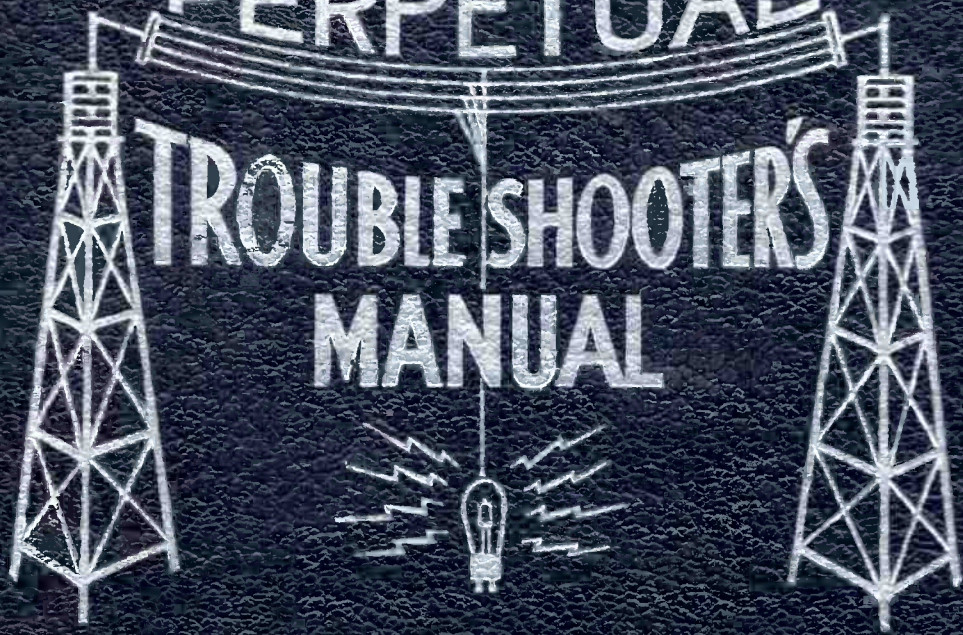


VOLUME III

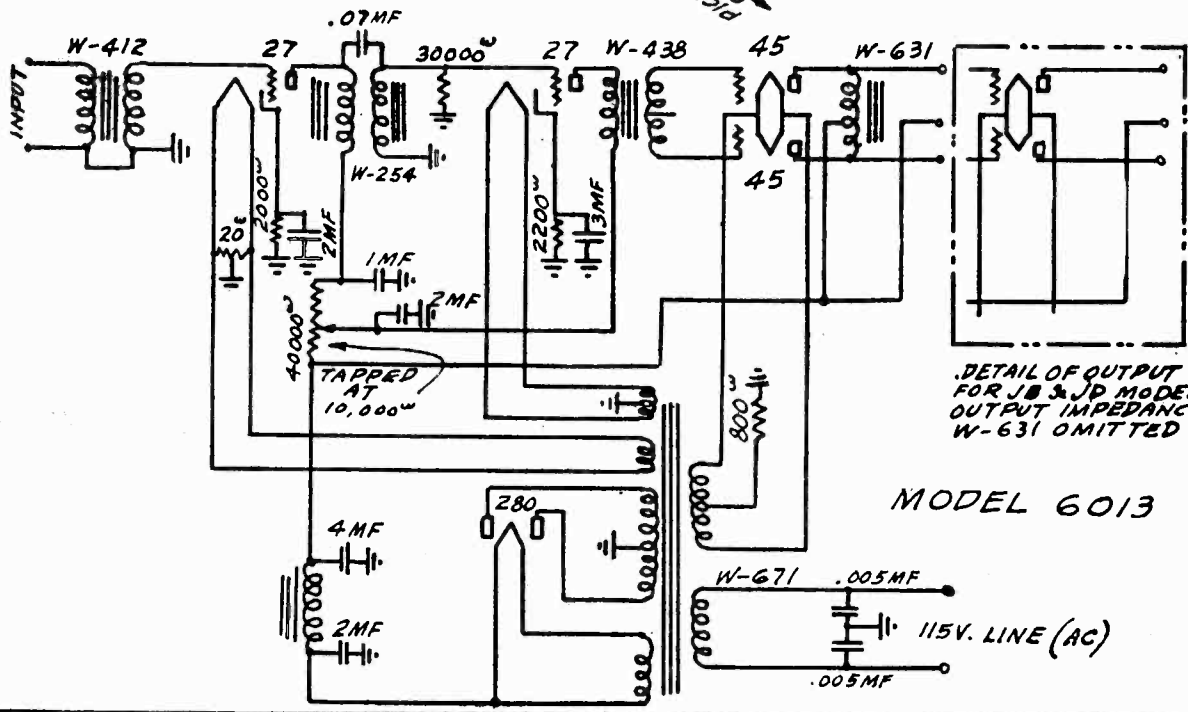
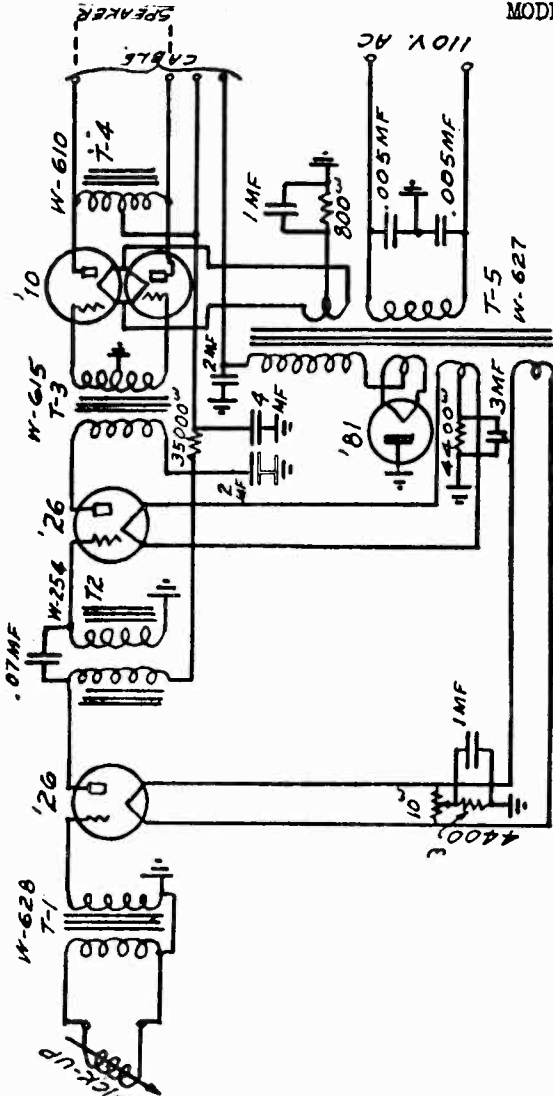
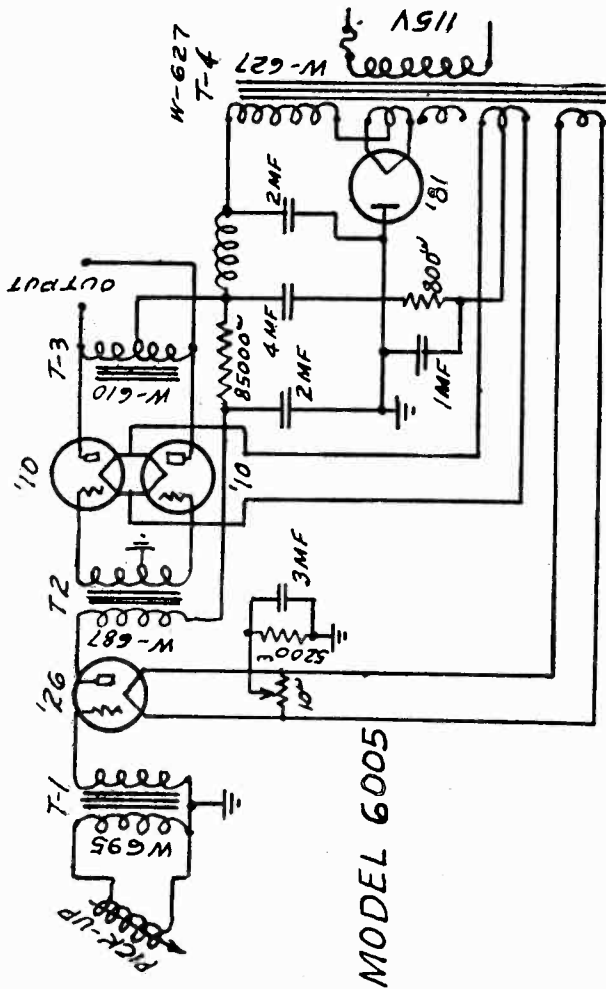
PERPETUAL



JOHN F. RIDER

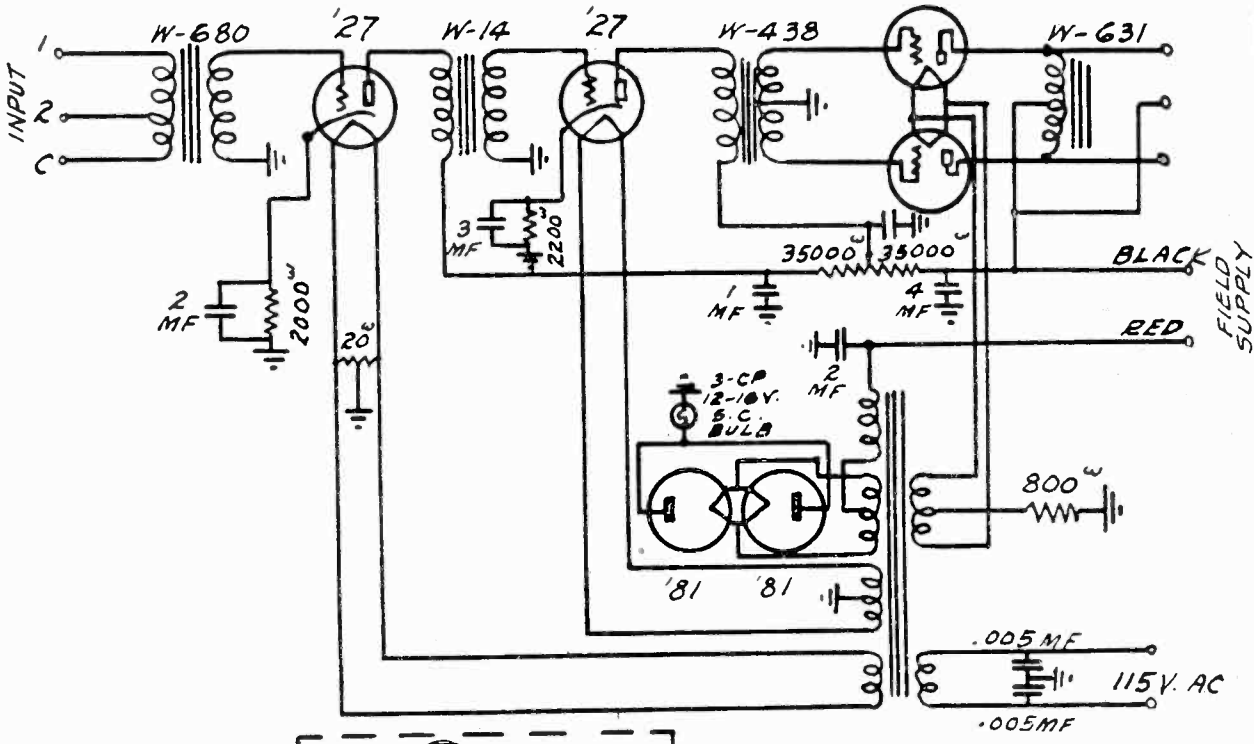
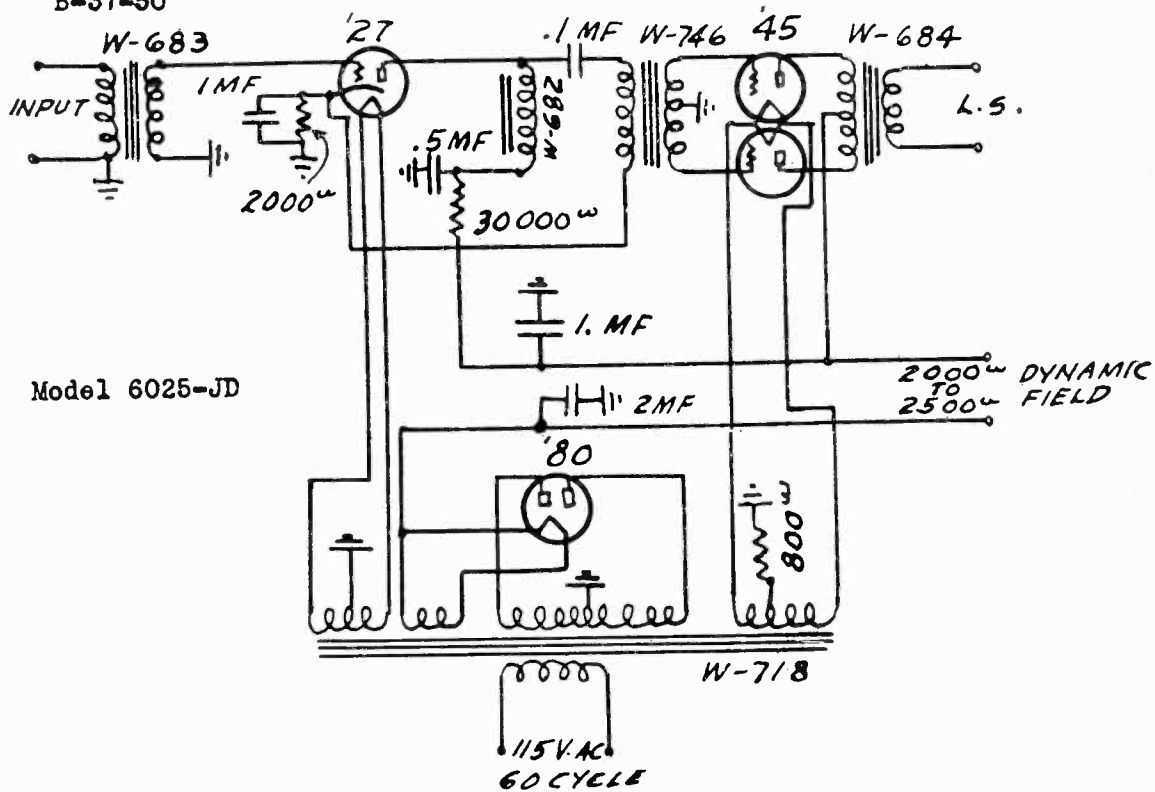
WEBSTER ELECTRICAL CORP.

MODEL 6005
MODEL 6009
MODEL 6013



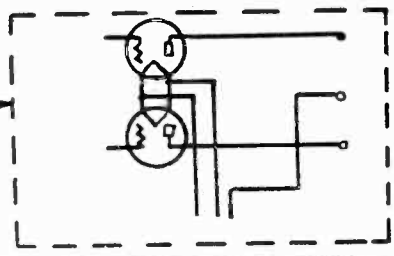
MODEL 6025-JD
 MODEL 6030-JE
 B-37-50

WEBSTER ELECTRICAL CORP.



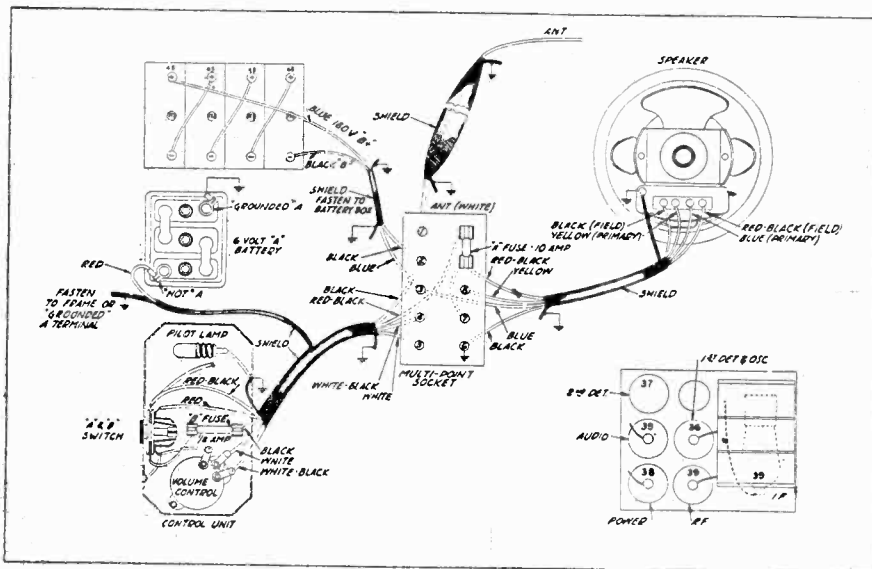
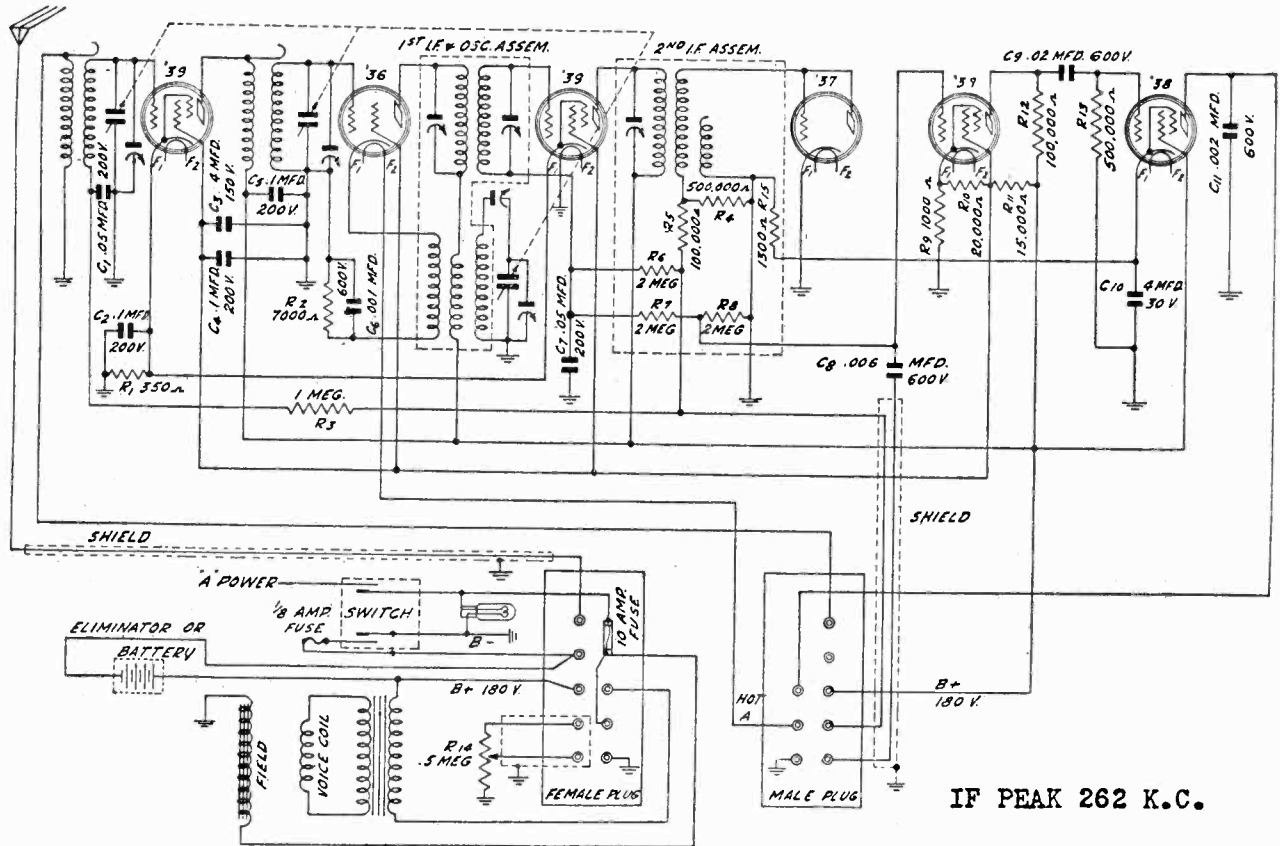
Model 6030-JE & B-37-50

DETAIL OF OUTPUT FOR
 JB & JD MODELS. OUTPUT
 IMPEDANCE OMITTED
 (W-631)



MODEL 062 Auto Radio
Schematic

WELLS - GARDNER & CO.



VOLTAGE DATA

Tube	Plate	Screen	Grid	Plate MA.
R-F.	177	80	3	3.6
1st Det.	173	76	7*	.9*
1-F.	177	80	3	3.6
2nd Det.	0	0	0	0
1st A-F.	54	77	6	1.2
Output	159	165	15.5	10.0

* Will vary with dial setting.

MODEL 092 Series

WELLS - GARDNER & CO.

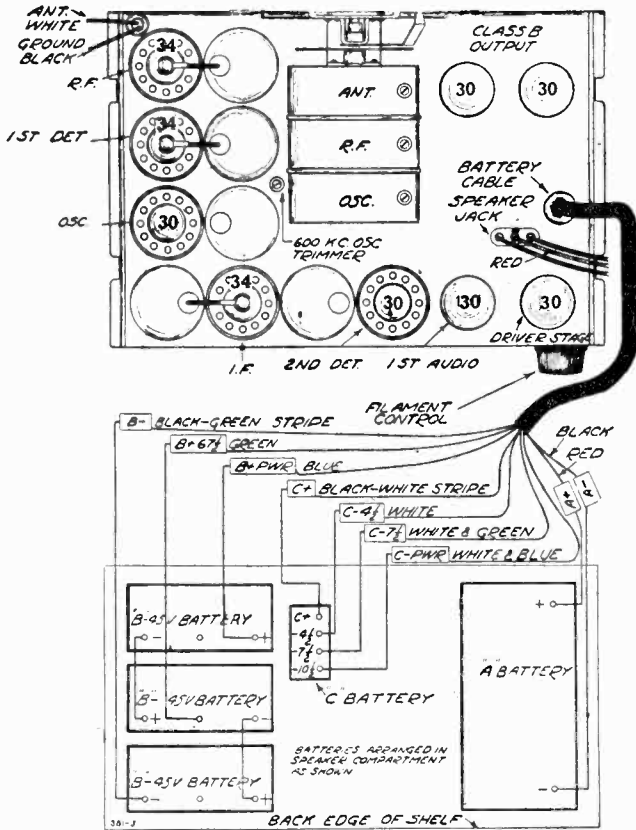


Fig. 2—Tube Arrangement and Battery Connections

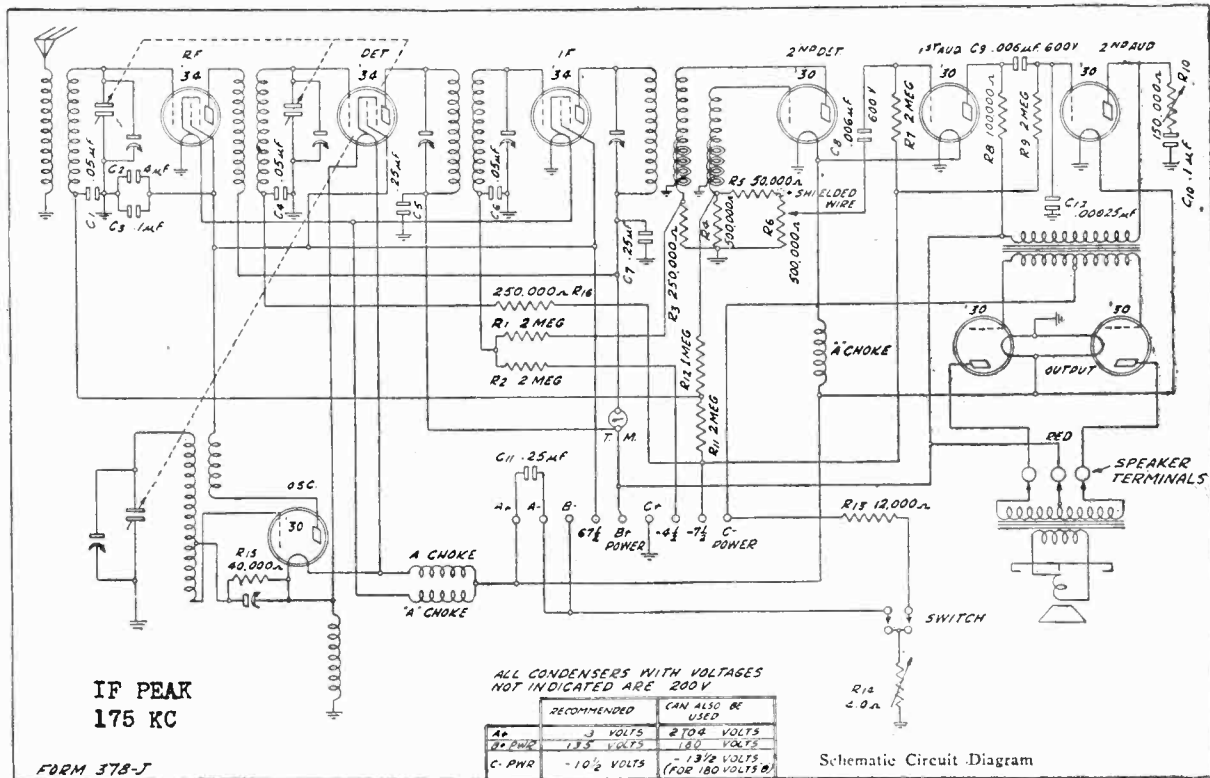
Voltages at Sockets

"B" AND "C" BATTERIES UP TO RATED VOLTAGE—FILAMENT CONTROL KNOB SET SO THAT FILAMENT VOLTAGE IS 2—ANTENNA LEAD SHORTENED TO GROUND—VOLTAGES READ FROM NEGATIVE FILAMENT LEG

Type of Tube	Function	Across Filament	Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate MA
'34	R.F.	2.0	125	65	2.88 ⁽¹⁾	2.3
'34	1st Det.	2.0	130	65	7.5 ⁽¹⁾	1.4
'30	Osc.	2.0	67		4-15 ⁽²⁾	1.6-4 ⁽²⁾
'34	I.F.	2.0	120	65	2.38 ⁽¹⁾	2.4
'30	2nd Det.	2.0	0		0	0
'30	1st Audio	2.0	85		7.5 ⁽¹⁾	.5
'30	Driver	2.0	125		7.5 ⁽¹⁾	4.0
'30	Output	2.0	130		10.	1.1

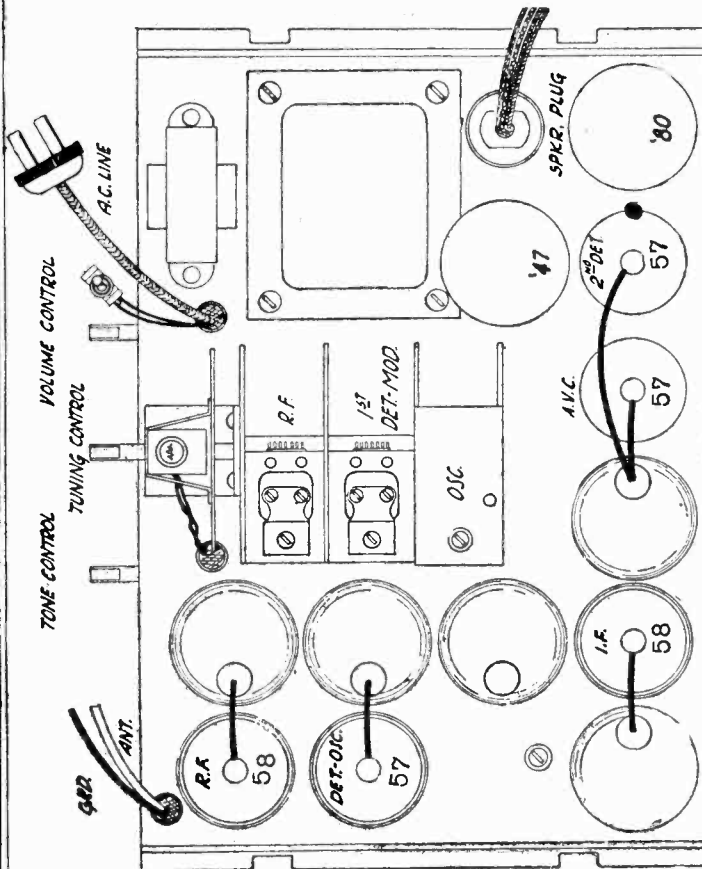
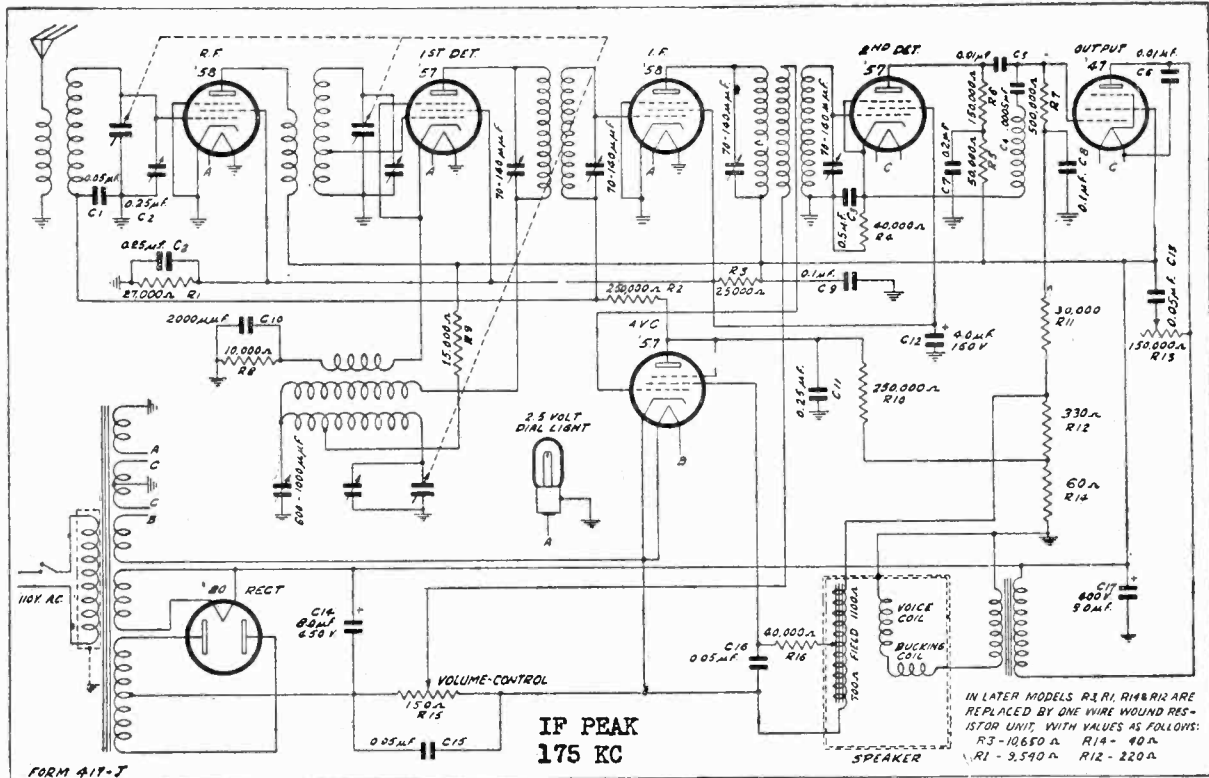
(1) Computed figure—cannot be read with ordinary voltmeter because of high resistance in this circuit. See article "Voltages" for further information.

(2) Subject to variation with dial setting.



WELLS - GARDNER & CO.

MODEL 572
Schematic
Changes
Socket



Change in Later Models

In the first models of this chassis, resistors R-1 and R-3 were carbon resistors of the values as shown in Fig 1. Resistors R-12 and R-14, were in one vitreous enamel unit. The voltages for the sets with these resistors are shown in the voltage chart on Page 4 at the left.

In later models the four above mentioned resistors were replaced by one armored wire wound resistor unit. New values are used as follows

Code	Resistance
R-12	220 ohms
R-14	40 ohms
R-1	9,540 ohms
R-3	10,650 ohms

The voltages for the sets with the four-section wire wound resistor are shown in the second voltage chart on Page 4 at the right.

Twenty-five Cycle Receivers

The twenty-five cycle receiver differs from the sixty cycle receiver only in the fact that a different power transformer and an additional filter condenser are used. Also, a slight change is made in the power unit wiring. In the twenty-five cycle set, condenser C-17 the dry electrolytic unit is put in parallel with condenser C-14. An 8.0 mfd wet electrolytic condenser is put in place of condenser C-17.

The twenty five cycle chassis can be operated satisfactorily from a sixty cycle power supply. However, the reverse is not true that is the sixty cycle chassis cannot be operated from a twenty-five cycle power supply.

A 110-220 volt 40-60 cycle power transformer is also available for this model.

MODEL 572
Parts List
Voltage
Alignment

WELLS - GARDNER & CO.

REPAIR PARTS LIST FOR 7 TUBE
SUPERHETERODYNE RECEIVER

When ordering parts, the part number and the serial number of chassis must be given. If there is a spot of paint on the chassis be sure to give this color. If this information is not available return the old part to insure getting the correct part.

Part No.	Name	List Price
P-1677	No. 57 Tube Socket	\$.15
P-1678	No. 58 Tube Socket	.15
P-1468	No. 47 Tube Socket	.15
P-1474	No. 80 Tube Socket	.15
P-1479	Speaker Socket	.15
P-40426	Aluminum Tube Shield	.20
P-40425	Tube Shield Base	.10
P-40411	Aluminum Coil Shield—R.F. Coils	.20
P-1476	Three-Lug Insulated Terminal Strip	.10
P-1513	Eleven-Lug Insulated Terminal Strip	.15
P-1054	"On-Off" Switch	.80
P-20529	Drive Shaft	.10
P-10224	Rubber Drive Pinion	.10
P-30374	Brass Bushing for Rubber Pinion	.10
P-10191	Rubber Cushions for Channel Brackets	.10
P-1273	Pilot Lamp 2.5 Volt	.25
P-5062	Antenna R.F. Transformer Assembly	.80
P-5057	Interstage R.F. Transformer Assembly	.80
P-5058	Oscillator Coil Assembly	.95
P-5059	1st I.F. Transformer Assembly, complete with can	2.25
P-5060	2nd I.F. Transformer Assembly, complete with can	2.50
P-50541	Output Transformer Assembly	1.75
P-50542	Power Transformer, 60 cycle, 110 volt	5.25
P-50543	Power Transformer, 25 cycle, 110 volt	8.50
P-50545	Power Transformer, 40-60 cycle, 110 volt	8.00
P-1497	Pilot Light Bracket and Drive Gear Assembly	.45
P-1383-C	Drive Bracket and Bearing	.30
P-1684	Celluloid Dial Strip	.20

CONDENSERS

Part No.	Code	Capacity	Voltage	Type	List Price
P-80862-C	C-1	.05 mfd.	200 V.	Tubular	\$.30
P-80888-A	C-2	.25 mfd.	200 V.	Tubular	.40

P-80886-C	C-3	.5 mfd.	200 V.	Block	1.60
	C-7	.2 mfd.	400 V.		
	C-11	.25 mfd.	200 V.		
P-80867	C-4	.0005 mfd.	600 V.	Molded	.25
P-80872-B	C-5	.01 mfd.	600 V.	Tubular	.25
P-80872-B	C-6	.01 mfd.	600 V.	Tubular	.25
P-80864-D	C-8	.1 mfd.	200 V.	Tubular	.25
P-80887-B	C-9	.1 mfd.	400 V.	Tubular	.40
P-80914	C-10	.002 mfd.	600 V.	Tubular	.20
P-80891-B	C-12	4.0 mfd.	150 V.	Electrolytic	.85
P-80890-B	C-13	.05 mfd.	400 V.	Tubular	.20
	C-14	8.0 mfd.	450 V.	Electrolytic Block	2.85
P-80894-B	C-17	8.0 mfd.	450 V.		
P-80862-C	C-15	.05 mfd.	200 V.	Tubular	.30
P-80862-C	C-16	.05 mfd.	200 V.	Tubular	.30
P-80849		8.0 mfd.	450 V.	Wet Electrolytic (25 Cycle only)	2.20
P-1385-B		600 K.C.	Trimmer Condenser		.75
P-80882			Three-Gang Condenser		5.70

RESISTORS

Part No.	Code	Resistance	Wattage	Type	List Price
*P-91003	R-1	27,000 ohms	.5 Watts	Carbon	\$.25
P-90954	R-2	250,000 ohms	.2 Watts	Carbon	.25
*P-91002	R-3	25,000 ohms	1.0 Watts	Carbon	.25
P-90916	R-4	40,000 ohms	.2 Watts	Carbon	.25
P-90941	R-5	50,000 ohms	.2 Watts	Carbon	.25
P-90963	R-6	150,000 ohms	.2 Watts	Carbon	.25
P-90929	R-7	500,000 ohms	.2 Watts	Carbon	.25
P-90930	R-8	10,000 ohms	.2 Watts	Carbon	.20
P-90905	R-9	15,000 ohms	.2 Watts	Carbon	.25
P-90954	R-10	250,000 ohms	.2 Watts	Carbon	.25
P-90956	R-11	30,000 ohms	.2 Watts	Carbon	.25
*P-91040	{ R-12	330 ohms }		Vitreous Enamel	.50
	{ R-14	60 ohms }			
P-90993	R-13	150,000 ohms		Tone Control	.90
P-91041	R-15	150 ohms		Volume Control	.80
P-90916	R-16	40,000 ohms	.2 Watts	Carbon	.25
†P-91048	{ R12	220 ohm	1.0 Watts }	Armored Wire-wound Resistor	1.05
	{ R14	40 ohm	.2 Watts }		
	{ R1	9540 ohm	1.0 Watts }		
	{ R3	10650 ohm	2.5 Watts }		

* Used in early models—in later models these resistors are replaced by resistor P-91048.
† See above.

Voltages at Sockets

LINE VOLTAGE 115—ANTENNA LEAD SHORTED TO GROUND—VOLUME CONTROL AT MAXIMUM

Type of Tube	Function	Across Filament or Heater	For early Models with 2-section vitreous enamel resistor.				For later Models with 4-section armoured wire-wound resistor.			
			Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate M. A.	Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate M. A.
'58	R.F.	2.4	282	107	4 ⁽¹⁾	8.5	258	106	2.8 ⁽¹⁾	8.0
'57	1st Det.	2.4	270	100	5	.4	250	103	5	.4
'58	I.F. ⁽²⁾	2.4	282	107	4 ⁽¹⁾	8.	258	106	2.8 ⁽¹⁾	8.0
'57	A.V.C.	2.4	90	40	9.5	0	103	45	10	0
'57	2nd Det.	2.4	207	98	6	.15	190	101	6	.15
'47	Audio	2.4	262	260	24 ⁽³⁾	31	242	260	17 ⁽³⁾	30
'80	Rect.	4.8				30 per plate				34 per plate

(1) Read Across R-14.

(2) If I.F. readings are made with a cord and plug, ground the control grid through a condenser to prevent oscillation.

(3) Read Across R12 and R14.

Condenser Alignment

Misalignment or mistracking of condensers generally manifests itself in broad tuning and lack of volume at portions or all of the broadcast band. The receivers are all properly aligned at the factory with precision instruments and realignment should not be attempted unless all other possible causes of the faulty operation have first been investigated and unless the service technician has the proper equipment. A signal generator that will provide an accurately calibrated signal of 175 K.C. and accurately calibrated signals over the broadcast band, and an output indicating meter are necessary. The procedure is as follows:

Set the signal generator for 175 K.C. Connect the signal lead from the signal generator to the grid of the 1st detector tube through a .05 mfd. condenser. Turn the tuning condenser rotor until the plates are completely out. The ground lead from the signal generator goes to the ground lead of the receiver. Then adjust the four intermediate frequency condensers for maximum output. The adjusting

screws for these condensers are reached from the bottom of the chassis.

Next set the signal generator for a signal of exactly 1400 K.C. The antenna lead from the signal generator is, in this instance, connected to the antenna lead of the receiver. Set the dial pointer on the 1400 K.C. mark on the dial scale and adjust the three trimmer condensers on the gang tuning condenser for maximum output, adjusting the oscillator trimmer first.

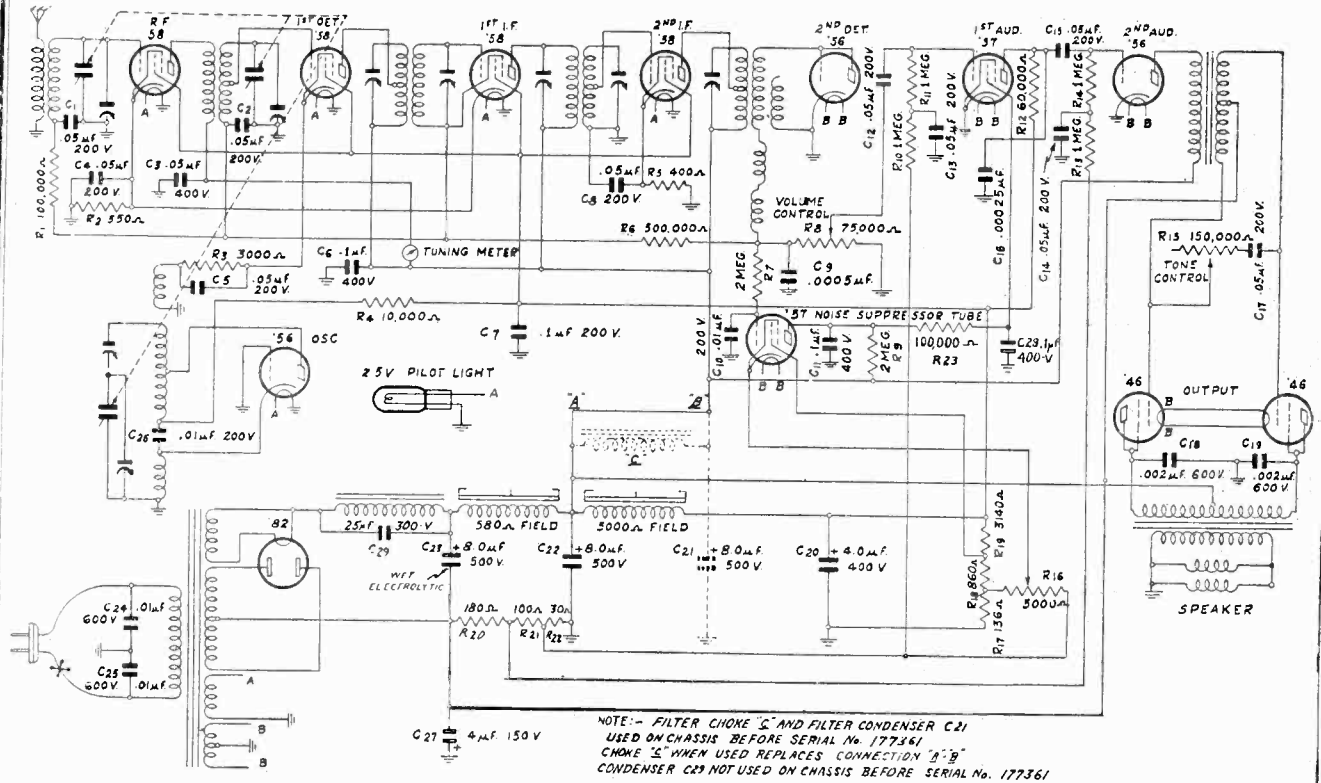
Next set the signal generator for a signal of 600 K.C. and adjust the oscillator 600 K.C. trimmer. The adjusting screw for this condenser is reached from the top of the chassis and is between the I.F. and oscillator coil cans.

A non-metallic screwdriver is necessary for this adjustment. Turn the tuning condenser rotor until maximum output is obtained. Then turn the rotor slowly back and forth over this setting, at the same time adjusting the 600 K.C. trimmer screw until the highest output is obtained.

Then set the signal generator again for a signal of 1400 K.C. and check the adjustment of the tuning condenser trimmers at this frequency for maximum output.

WHOLESALE RADIO SERVICE CO., INC.

MODEL L-1
Schematic
Chassis Layout
Voltage

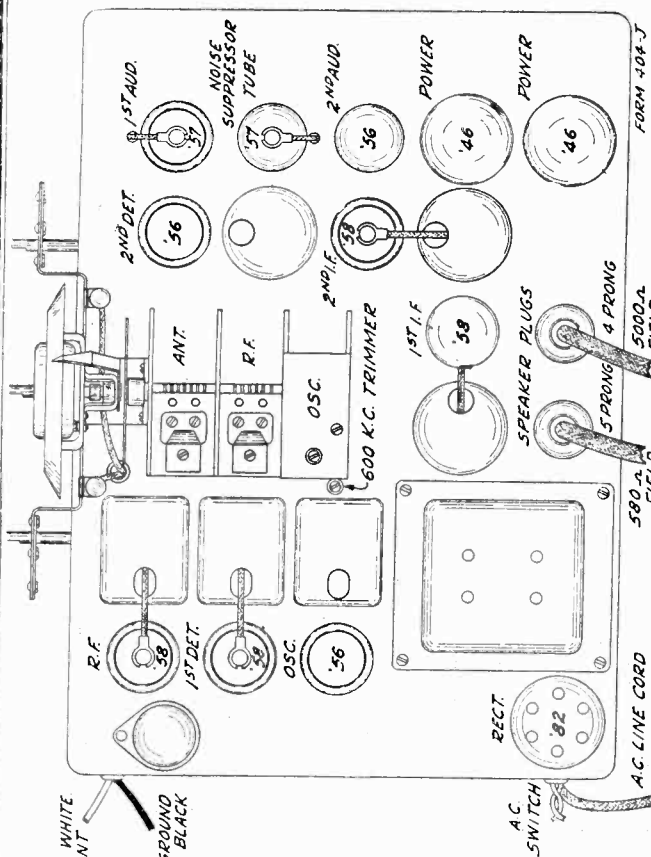


I. F. Peak 175 KC

Voltages at Sockets
LINE VOLTAGE 115—ANTENNA SHORTED TO GROUND—NOISE SUPPRESSOR AT MAXIMUM
CLOCKWISE POSITION

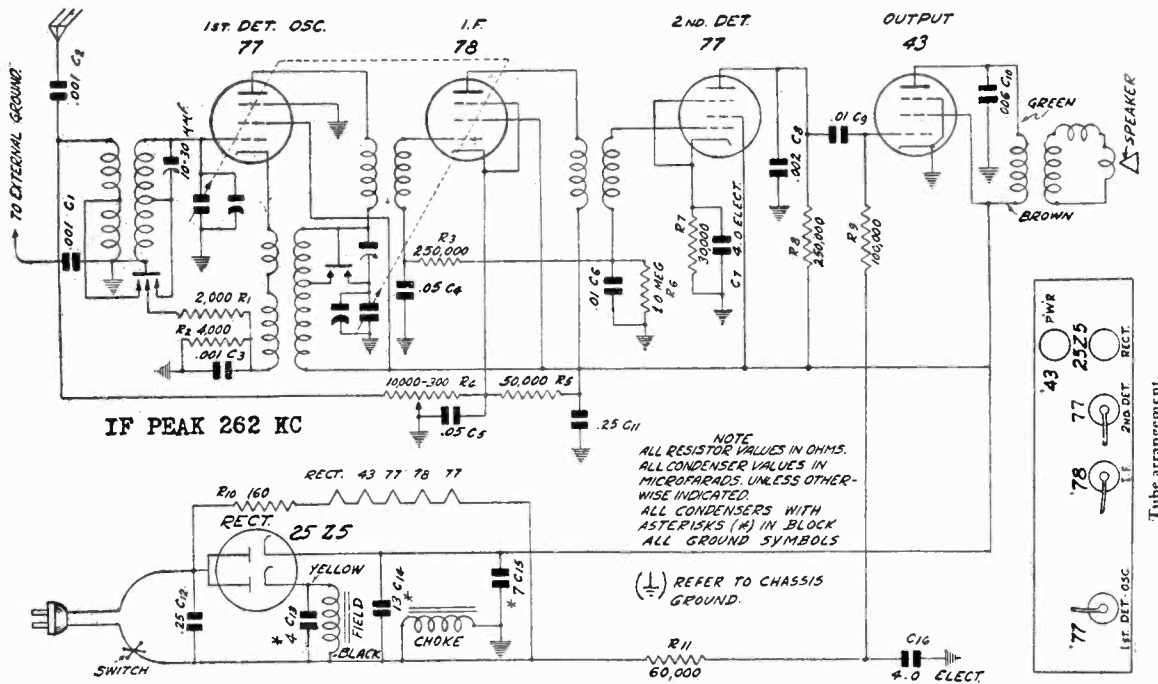
Type of Tube	Function	Across Filament or Heater	Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate M. A.	
58	R.F.	2.4	242	90	4 ⁽¹⁾	4	
58	1st Det.	2.4	250	86	7 ⁽¹⁾	2	
56	Osc.	2.4	24	0	0	8	
58	1st I.F. ⁽²⁾	2.4	252	90	4 ⁽¹⁾	4	
58	2nd I.F. ⁽²⁾	2.4	254	91	3	5.7	
56	2nd Det.	2.4	0	0	0	0	
57	1st Audio	2.4	65	55	4 ⁽³⁾	.4	
57	Noise Sup.	2.4	55	20	3 ⁽¹⁾	0	
56	2nd Audio	2.4	255		14 ⁽⁴⁾	3.3	
46	Power	2.4	260	260	34	23	
82	Rectifier	2.4	880 volts plate to plate			53	per plate

- (1) Read from cathode to ground.
- (2) If I.F. readings are made with a cord and plug, ground the control grid through a condenser to prevent oscillation and minor heating.
- (3) Read across 30 ohm section of voltage divider.
- (4) Read across 30 ohm and 100 ohm section of voltage divider.



MODEL L-20
05A Series

WHOLESALE RADIO SERVICE CO., INC.



Voltages at Sockets

Antenna lead connected to ground lead (not external ground).—Volume Control at Maximum.
CAUTION—Do not put chassis on any grounded surface or let chassis touch any ground.

A.C. Line Voltage—115 Use High Resistance A.C. Meter, Rectifier Type, for Heater Voltage Measurements							D.C. Line Voltage—110 Use High Resistance D.C. Meter for Heater Voltage Measurements				
Type of Tube	Function	Across Heater	Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate M. A.	Across Heater	Plate to Cathode	Screen to Cathode	Grid to Cathode	Normal Plate M. A.
77	1st Det. Osc.	5.8	106	106	5.2	.8	5.6	87	87	4.3	.6
78	I.F.	5.8	108	108	3.0 ⁽¹⁾	7.4	5.6	88	88	2.4 ⁽¹⁾	6.0
77	2nd Det.	5.8	65 ⁽²⁾	104	6.0 ⁽³⁾	.14	5.6	58 ⁽²⁾	82	5.0 ⁽³⁾	.11
43	Output	24.	95	110	18.0 ⁽⁴⁾	22.0	23.0	80	90	15.0 ⁽⁴⁾	17.0
25Z5	Rect.	24.	110 ⁽⁵⁾			84.0	23.0	5.0 ⁽⁵⁾			74.0
			155			Total		6.0			Total

- (1) Cathode to Ground.
- (2) With 1,000,000 ohm meter—reading will be lower with lower resistance meter.
- (3) Cathode to ground—read with 100,000 ohm meter.
- (4) Read across filter choke.
- (5) Readings from plate to two cathodes with 250,000 ohm meter

A signal generator that will provide accurately calibrated signals over the broadcast band and an output indicating meter are advisable. The procedure is as follows:

As the I.F. stages are self-tuned, no I.F. aligning at the intermediate frequency of 262 K.C. is required.

First set the signal generator for a signal of exactly

1400 K.C. Connect the antenna lead from the signal generator to the antenna lead of the receiver and the ground lead of the signal generator to the ground of the receiver. Then turn the tuning condenser roter until the marker is at 1400 K.C. on the dial scale. In order to do this, it will be necessary to put the chassis back in the cabinet. Adjust the two trimmers on the tuning condenser for maximum

CONDENSERS

Part No.	Code	Capacity	Voltage	Type	List Price
P-80821-B	C-1	.001 mfd.	600 V.	Moulded	\$.025
P-80821-B	C-2	.001 "	600 V.	Moulded	.25
P-80905-A	C-3	.001 "	400 V.	Tubular	.15
P-80862-C	C-4	.05 "	200 V.	Tubular	.30
P-80862-C	C-5	.05 "	200 V.	Tubular	.30
P-80872-B	C-6	.01 "	600 V.	Tubular	.25
P-80936-C	C-7	4.0 "	30 V.	Electrolytic	.65
P-80914	C-8	.002 "	600 V.	Tubular	.20
P-80872-B	C-9	.01 "	600 V.	Tubular	.25
P-80898	C-10	.006 "	600 V.	Tubular	.15
P-80888-A	C-11	.25 "	200 V.	Tubular	.35
P-80888-A	C-12	.25 "	200 V.	Tubular	.35
	C-13	4.0 "	150 "	Elec. Block	2.15
P-80944	C-14	13.0 "	150 "		
	C-15	7.0 "	150 "		
P-80878-C	C-16	4.0 "	150 V.	Electrolytic	.80
P-1539		600 K.C.		Trimmer Cond.	.45
P-80961		Short-wave		antenna Trimmer	.25
P-80943		2-gang		Condenser—Direct Drive (Used on early Sets)	2.25
P-80954		2-gang		Condenser—Gear Drive	2.25

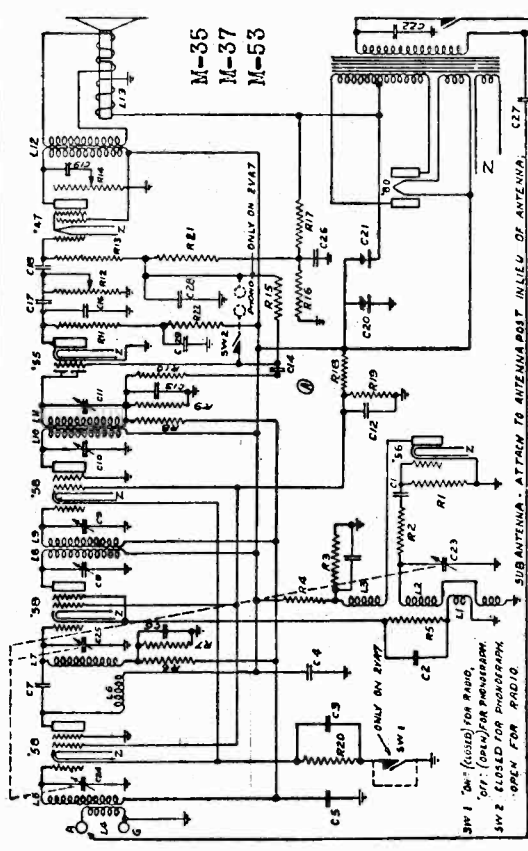
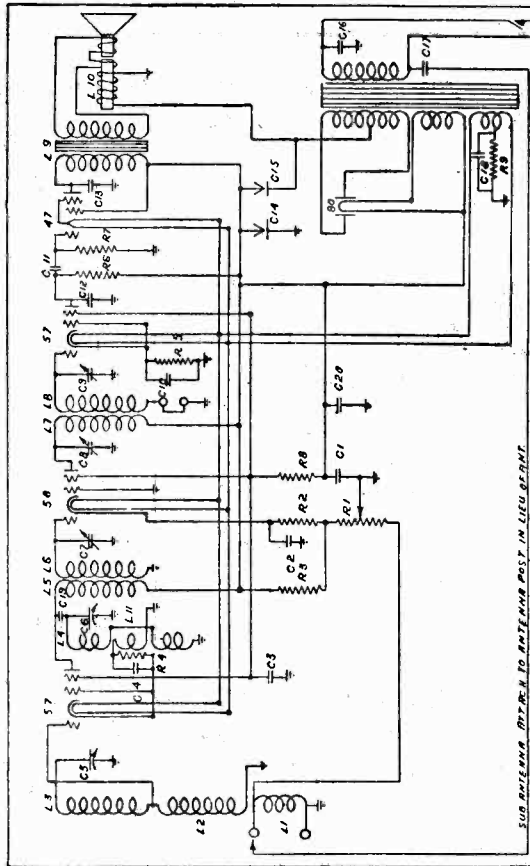
RESISTORS

Part No.	Code	Resistance	Type	List Price
P-A-90906	R-1	2,000 ohm	Carbon	\$.020
P-A-90947	R-2	4,000 ohm	Carbon	.20
P-A-90954	R-3	250,000 ohm	Carbon	.20
P-91019C	R-4	300-10,000 ohm	Vol. Contr. & Switch	1.40
P-A-90941	R-5	50,000 ohm	Carbon	.20
P-A-90948	R-6	1 Megohm	Carbon	.25
P-A-90956	R-7	30,000 ohm	Carbon	.20
P-A-90954	R-8	250,000 ohm	Carbon	.20
P-A-90912	R-9	100,000 ohm	Carbon	.25
P-91084	R-10	160 ohm	Armored Wire Wound	.60
P-A-91036	R-11	60,000 ohm	Carbon	.20

WHOLESALE RADIO SERVICE CO., INC.

MODEL M-35, 37, 53
MODEL M-31

Model M-31



Part No.	Description	Part No.	Description
200 R1	100,000 Ohm Oscillator Grid Resistor	347 C7	.0001 MFD. First R.F. Feed Condenser
475 R2	1,000 Ohm Oscillator Grid Resistor	C8	75-150 MMFD. I.F. Tuning Condenser
192 R3	40,000 Ohm Oscillator Plate Bleeder Resistor	C9	75-150 MMFD. I.F. Tuning Condenser
278 R4	20,000 Ohm Oscillator Plate Resistor	C10	75-150 MMFD. I.F. Tuning Condenser
282 R5	2,000 Ohm First Detector Cathode Resistor	C11	.1 MFD. Screen Grid By-pass Condenser
198 R6	1 Megohm First Detector Grid Feed Resistor	C12	.1 MFD. Screen Grid By-pass Condenser
91 R7	250,000 Ohm First Detector Grid Resistor	307 C13	.0005 MFD. Diode Condenser
201 R8	500,000 Ohm Diode Resistor	C14	.01 MFD. R.F. By-pass Condenser
201 R9	500,000 Ohm Diode Resistor	339 C15	.0001 MFD. Audio Feed Condenser
200 R10	100,000 Ohm Diode Resistor	544 C16	.001 MFD. Plate Filter Condenser
200 R11	100,000 Ohm Second Detector Resistor	269 C17	.01 MFD. D.C. Mica Condenser
535 R12	500,000 Ohm Volume Control Resistor	269 C18	.01 MFD. Audio Feed Condenser
201 R13	500,000 Ohm 47 Grid Bias Resistor	552 C19	.1 MFD. Tone Control Condenser (300 V.)
534 R14	1/4 Meg. Tone Control Resistor	533 C20	4 MFD. Electrolytic Condenser 500 Volt
201 R15	500,000 Ohm Second Detector Grid Resistor	533 C21	4 MFD. Electrolytic Condenser 500 Volt
200 R16	100,000 Ohm 47 Grid Bias Resistor	269 C22	.01 MFD. 110 Primary By-pass Condenser
198 R17	1 Meg. 47 Grid Bias Resistor	547 C23	350 Oscillator Variable Condenser
337 R18	20,000 Ohm Screen Grid Resistor	547 C24	365 Presetor Variable Condenser
192 R19	40,000 Ohm Screen Grid Bleeder Resistor	287 C25	365 First Detector Variable Condenser
539 R20	150 Ohm First R.F. & First I.F. Cathode Resistor	307 C26	.5 MFD. 247 Grid Bias By-pass (200 V.)
201 R21	500,000 Ohm Grid Bias Resistor	272 C27	.0005 MFD. Subantenna Condenser
200 R22	100,000 Ohm Second Detector Resistor	272 C28	.1 MFD. 200 Volt Grid Bias By-pass Condenser
339 C1	.0001 MFD. Oscillator Grid Feed Condenser	272 C29	.1 MFD. 200 Volt Second Detector Plate By-pass Condenser
269 C2	.01 MFD. First Detector Cathode Condenser	549 L1	30 Turns #36 Oscillator Coupling Winding
272 C3	.1 MFD. First R.F. and First I.F. Cathode Condenser 200 Volt D.C.	549 L2	83 Turns #32 Oscillator Secondary
266 C4	1 MFD. B+ Supply Condenser 300 Volt D.C. Paper	549 L3	20 Turns #36 Oscillator Plate Winding
272 C5	.1 MFD. R.F. and I.F. Grid Isolation Condenser 200 V. D.C. Paper	582 L4	10 Turns #36 Ant. Coil Pri.
272 C6	.1 MFD. First Detector Grid Isolation Condenser	5F2 L5	11.5 Turns #32 Ant. Coil Sec.
		179 L6	5.5 M.H. Choke Coil
		588 L7	115 Turns First Detector Coil Secondary
		260 L8	6,000 M.H. First I.F. Primary
		270 L9	6,000 M.H. First I.F. Secondary
		260 L10	6,000 M.H. Second I.F. Primary
		260 L11	6,000 M.H. Second I.F. Secondary
		260 L12	2.5 Ohm Transformer
		260 L13	2.5 Ohm Speaker Field

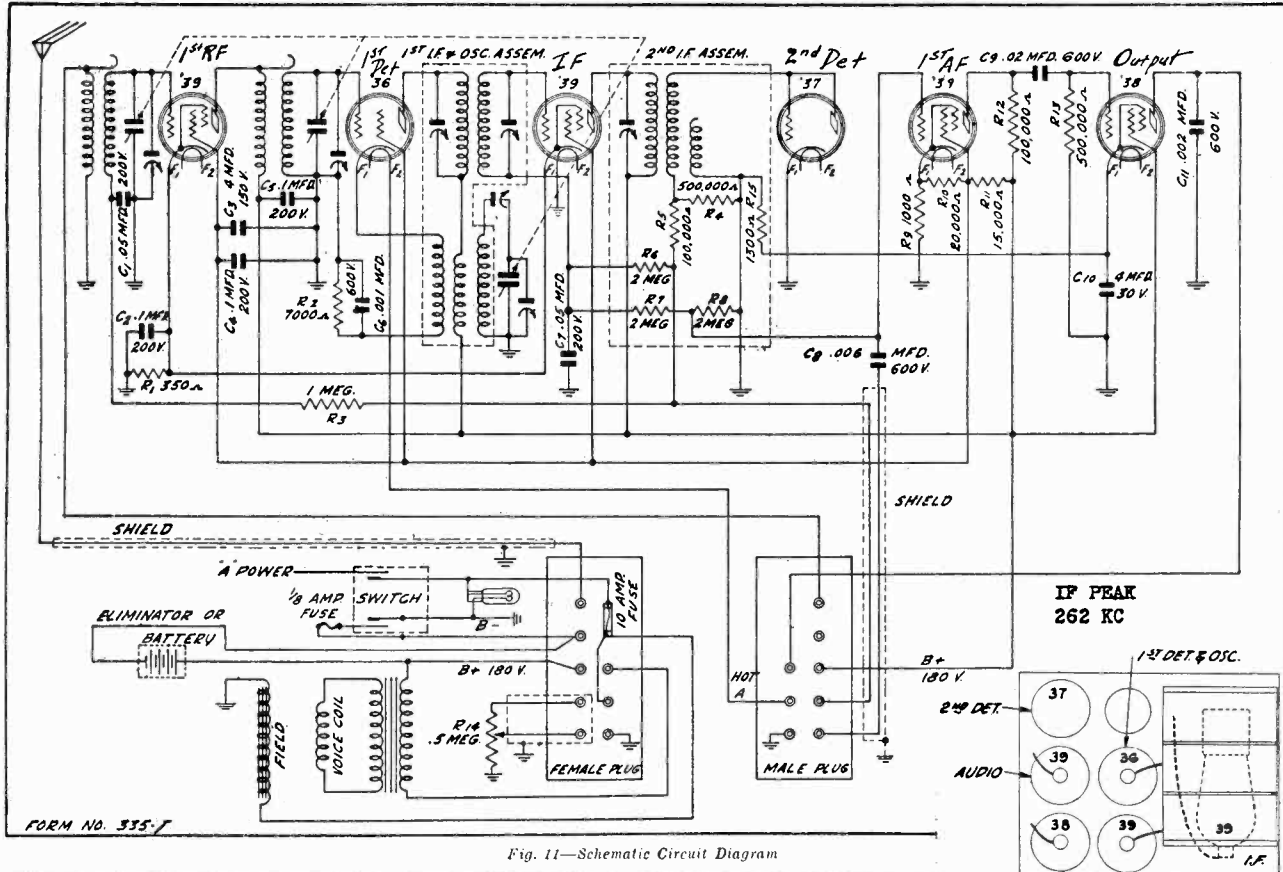
Part No.	Description	Part No.	Description
265 C12	.001 Second Detector Plate By-pass Condenser	574 L1	First Presetor Coil Primary 30 Turns No. 36 Enamel Wire
544 C13	.001 Mfd. 247 Plate By-pass Condenser	574 L2	First Presetor. Coil Secondary 53 Turns No. 32 Enamel Wire
271 C14	4 Mfd. Filter Dry Electrolytic Condenser 450 Volt	574 L3	Second Presetor. Coil Secondary 32 Turns No. 32 Enamel Wire
271 C15	4 Mfd. Filter Dry Electrolytic Condenser 450 Volt	576 L4	Oscillator Coil Secondary 87 Turns Tapped at 30 Turns Speed at 1/2 6
269 C16	.01 Primary of Power Pack By-pass Condenser	259 L5	First I.F. Transformer Primary 6 M.H.
307 C17	.0005 Subantenna Feed Condenser	259 L6	First I.F. Transformer Secondary 6 M.H.
502 C18	.5 Mfd. 247 Grid Bias Condenser	260 L7	Second I.F. Transformer Primary 6 M.H.
339 C19	.0001 R.F. Feed Condenser	260 L8	Second I.F. Transformer Secondary 6 M.H.
569 C20	.5 Mfd. B Supply By-pass Condenser (300 V.)	L9	Output Transformer
		L10	Speaker Field 1,000 Ohm
		L11	Oscillator Coil Primary 10 Turns No. 36 Enamel Wire

Part No.	Description	Part No.	Description
279 R1	10,000 Ohm Potentiometer Control	279 R9	500 Ohm Screen Grid Resistor
279 R2	500 Ohm First I.F. Cathode Resistor	345 C1	.5 Mfd. B Supply By-pass (300 V.) Condenser
494 R3	75,000 Ohm Screen Bleeder Resistor	272 C2	.1 Mfd. First I.F. Cathode Condenser
280 R4	5,000 Ohm Cathode First Detector Cathode Resistor	272 C3	.1 Mfd. Screen Grid By-pass Condenser
192 R5	40,000 Ohm Second Detector Cathode Resistor	265 C4	.001 First Detector Cathode By-pass Condenser
199 R6	100,000 Ohm Second Detector Resistor	313 C5	365 Mfd. Presetor Coil Variable Condenser
201 R7	500,000 Ohm 247 Grid Resistor	313 C6	350 Mfd. Oscillator Coil Variable Condenser
91 R8	250,000 Ohm Screen Grid Resistor	C7	75-150 Mfd. Adjustable I.F. Condenser
345 C1	.5 Mfd. B Supply By-pass (300 V.) Condenser	C8	75-150 Mfd. Adjustable I.F. Condenser
272 C2	.1 Mfd. First I.F. Cathode Condenser	C9	75-150 Mfd. Adjustable I.F. Condenser
272 C3	.1 Mfd. Screen Grid By-pass Condenser	183 C10	.2 Mfd. Second Detector By-pass Condenser (200 V.)
265 C4	.001 First Detector Cathode By-pass Condenser	269 C11	.01 Audio Feed Condenser
313 C5	365 Mfd. Presetor Coil Variable Condenser		
313 C6	350 Mfd. Oscillator Coil Variable Condenser		
C7	75-150 Mfd. Adjustable I.F. Condenser		
C8	75-150 Mfd. Adjustable I.F. Condenser		
C9	75-150 Mfd. Adjustable I.F. Condenser		
183 C10	.2 Mfd. Second Detector By-pass Condenser (200 V.)		
269 C11	.01 Audio Feed Condenser		

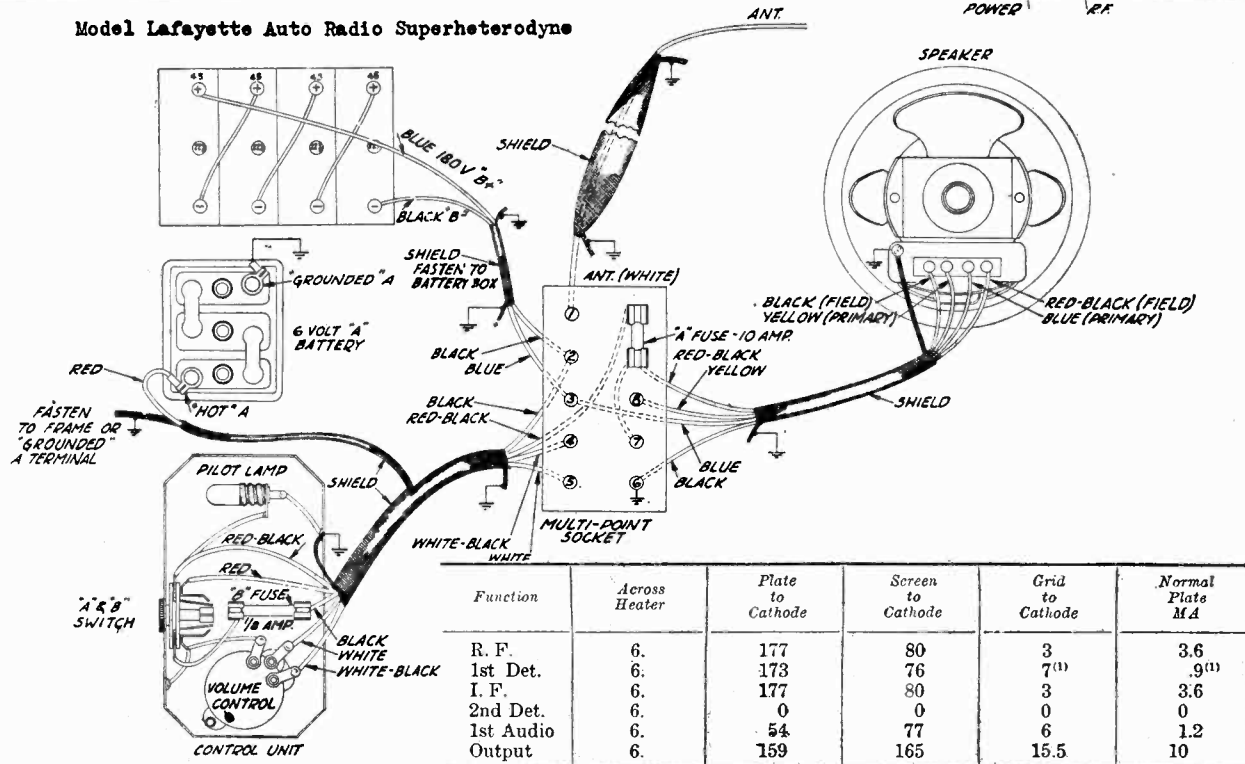
INDUCTANCE

Part No.	Description
574 L1	First Presetor Coil Primary 30 Turns No. 36 Enamel Wire
574 L2	First Presetor. Coil Secondary 53 Turns No. 32 Enamel Wire
574 L3	Second Presetor. Coil Secondary 32 Turns No. 32 Enamel Wire
576 L4	Oscillator Coil Secondary 87 Turns Tapped at 30 Turns Speed at 1/2 6
259 L5	First I.F. Transformer Primary 6 M.H.
259 L6	First I.F. Transformer Secondary 6 M.H.
260 L7	Second I.F. Transformer Primary 6 M.H.
260 L8	Second I.F. Transformer Secondary 6 M.H.
L9	Output Transformer
L10	Speaker Field 1,000 Ohm
L11	Oscillator Coil Primary 10 Turns No. 36 Enamel Wire

MODEL Auto Radio
Superheterodyne WHOLESALE RADIO SERVICE CO., INC.



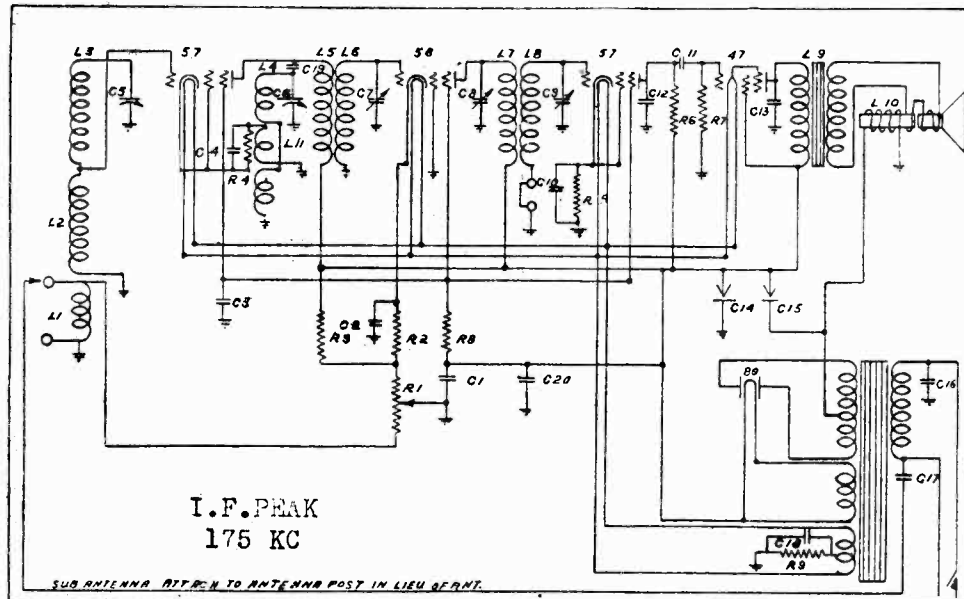
Model Lafayette Auto Radio Superheterodyne



⁽¹⁾ Will vary with dial setting.

NOTE: All bias voltages must be read from cathode to ground.

WILCOX-GAY CORP.



I.F. PEAK
175 KC

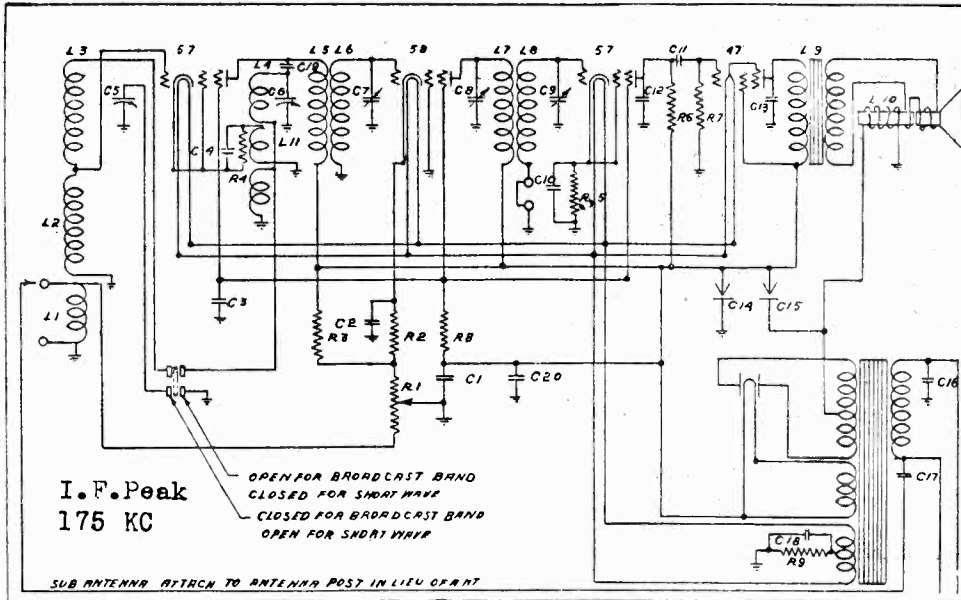
RESISTORS			
534	R1 10,000 Ohm Potentiometer Volume Control	265	C12 .001 Second Detector Plate By-pass Condenser
279	R2 500 Ohm First I.F. Cathode Resistor	544	C13 .001 Mfd. 247 Plate By-pass Condenser
494	R3 75,000 Ohm Screen Bleeder Resistor	271	C14 4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
280	R4 5,000 Ohm Cathode First Detector Cathode Resistor	271	C15 4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
192	R5 40,000 Ohm Second Detector Cathode Resistor	269	C16 .01 Primary of Power Pack By-pass Condenser
199	R6 100,000 Ohm Second Detector Plate Resistor	307	C17 .0005 Subantenna Feed Condenser
201	R7 500,000 Ohm 247 Grid Resistor	502	C18 .5 Mfd. 247 Grid Bias Condenser (200 V.)
91	R8 250,000 Ohm Screen Grid Resistor	339	C19 .0001 R.F. Feed Condenser
279	R9 500 Ohm 247 Grid Bias Resistor	569	C20 .5 Mfd. B Supply By-pass Condenser (300 V.)
CONDENSERS		INDUCTANCE	
345	C1 .5 Mfd. B. Supply By-pass (300 V.)	574	L1 First Preselector Coil Primary 30 Turns No. 36 Enamel Wire
272	C2 .1 Mfd. First I.F. Cathode Condenser	574	L2 First Preselector Coil Secondary 53 Turns No. 32 Enamel Wire
272	C3 .1 Mfd. Screen Grid By-pass Condenser	574	L3 Second Preselector Coil Secondary 52 Turns No. 32 Enamel Wire
265	C4 .001 First Detector Cathode By-pass Condenser	576	L4 Oscillator Coil Secondary 87 Turns tapped at 30 Turns Spaced at 1/4"
313	C5 365 Mfd. Preselector Coil Variable Condenser	259	L5 First I.F. Transformer Primary 6 M.H.
313	C6 350 Mfd. Oscillator Coil Variable Condenser	259	L6 First I.F. Transformer Secondary 6 M.H.
C7	75 - 150 Mfd. Adjustable I.F. Condenser	260	L7 Second I.F. Transformer Primary 6 M.H.
C8	75 - 150 Mfd. Adjustable I.F. Condenser	260	L8 Second I.F. Transformer Secondary 6 M.H.
C9	75 - 150 Mfd. Adjustable I.F. Condenser	L9	Output Transformer
183	C10 .2 Mfd. Second Detector By-pass Condenser (200 V.)	L10	Speaker Field 1,000 Ohm
269	C11 .01 Audio Feed Condenser	L11	Oscillator Coil Primary 10 Turns No. 36 Enamel Wire

Connection to the speaker assembly is made through the means of four wires extending from the chassis to the speaker. These wires are color-coded and are attached to the speaker terminal panel as follows:

- Black - - - Field and ground terminal
- Red - - - Input Transformer Primary (B+)
- White - - - Input Transformer Primary (Pentode Plate)
- Yellow - - - Field

MODEL 2-T-5

WILCOX-GAY CORP.



RESISTORS			
Part No.		265	C12 .001 Second Detector Plate By-pass Condenser
534	R1 10,000 Ohm Potentiometer Volume Control	544	C13 .001 Mfd. 247 Plate By-pass Condenser
279	R2 500 Ohm First I.F. Cathode Resistor	271	C14 4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
494	R3 75,000 Ohm Screen Bleeder Resistor	271	C15 4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
280	R4 5,000 Ohm Cathode First Detector Cathode Resistor	269	C16 .01 Primary of Power Pack By-pass Condenser
192	R5 40,000 Ohm Second Detector Cathode Resistor	307	C17 .0005 Subantenna Feed Condenser
199	R6 100,000 Ohm Second Detector Plate Resistor	502	C18 .5 Mfd. 247 Grid Bias Condenser (200 V.)
201	R7 500,000 Ohm 247 Grid Resistor	339	C19 .0001 R.F. Feed Condenser
91	R8 250,000 Ohm Screen Grid Resistor	569	C20 .5 Mfd. B Supply By-pass Condenser (300 V.)
279	R9 500 Ohm 247 Grid Bias Resistor		
	CONDENSERS		INDUCTANCE
345	C1 .5 Mfd. B. Supply By-pass (300 V.) Condenser	574	L1 First Preselector Coil Primary 30 Turns No. 36 Enamel Wire
272	C2 .1 Mfd. First I.F. Cathode Condenser	574	L2 First Preselector Coil Secondary 53 Turns No. 32 Enamel Wire
272	C3 .1 Mfd. Screen Grid By-pass Condenser	574	L3 Second Preselector Coil Secondary 52 Turns No. 32 Enamel Wire
265	C4 .001 First Detector Cathode By-pass Condenser	576	L4 Oscillator Coil Secondary 87 Turns tapped at 30 Turns Spaced at 1/4"
313	C5 365 Mfd. Preselector Coil Variable Condenser	259	L5 First I.F. Transformer Primary 6 M.H.
313	C6 350 Mfd. Oscillator Coil Variable Condenser	259	L6 First I.F. Transformer Secondary 6 M.H.
	C7 75 - 150 Mfd. Adjustable I.F. Condenser	260	L7 Second I.F. Transformer Primary 6 M.H.
	C8 75 - 150 Mfd. Adjustable I.F. Condenser	260	L8 Second I.F. Transformer Secondary 6 M.H.
	C9 75 - 150 Mfd. Adjustable I.F. Condenser		L9 Output Transformer
183	C10 .2 Mfd. Second Detector By-pass Condenser (200 V.)		L10 Speaker Field 1,000 Ohm
269	C11 .01 Audio Feed Condenser		L11 Oscillator Coil Primary 10 Turns No. 36 Enamel Wire

Connection to the speaker assembly is made through the means of four wires extending from the chassis to the speaker. These wires are color-coded and are attached to the speaker terminal panel as follows:

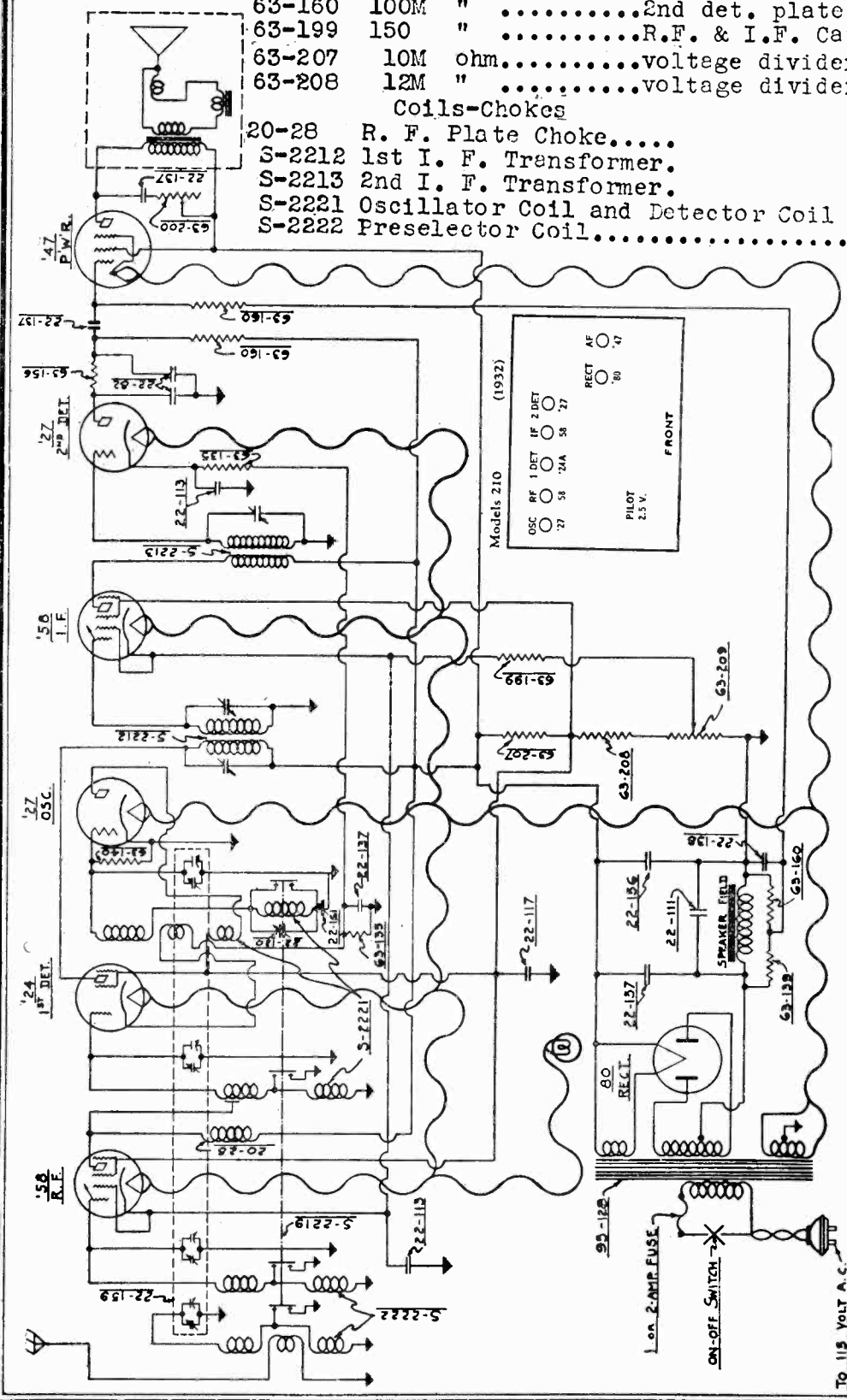
- Black - - - Field and ground terminal
- Red - - - Input Transformer Primary (B+)
- White - - - Input Transformer Primary (Pentode Plate)
- Yellow - - - Field

ZENITH RADIO CORP.

MODELS 210-5, 211-5, 270-5
Schematic

- Resistors
- 63-135 25M ohm.....1st & 2nd Det. Cathode...
 - 63-139 500M "power grid.....
 - 63-140 1 megoscillator grid.....
 - 63-156 10M ohm.....2nd det. plate.....
 - 63-160 100M "2nd det. plate power grid
 - 63-199 150 "R.F. & I.F. Cathode.....
 - 63-207 10M ohm.....voltage divider
 - 63-208 12M "voltage divider

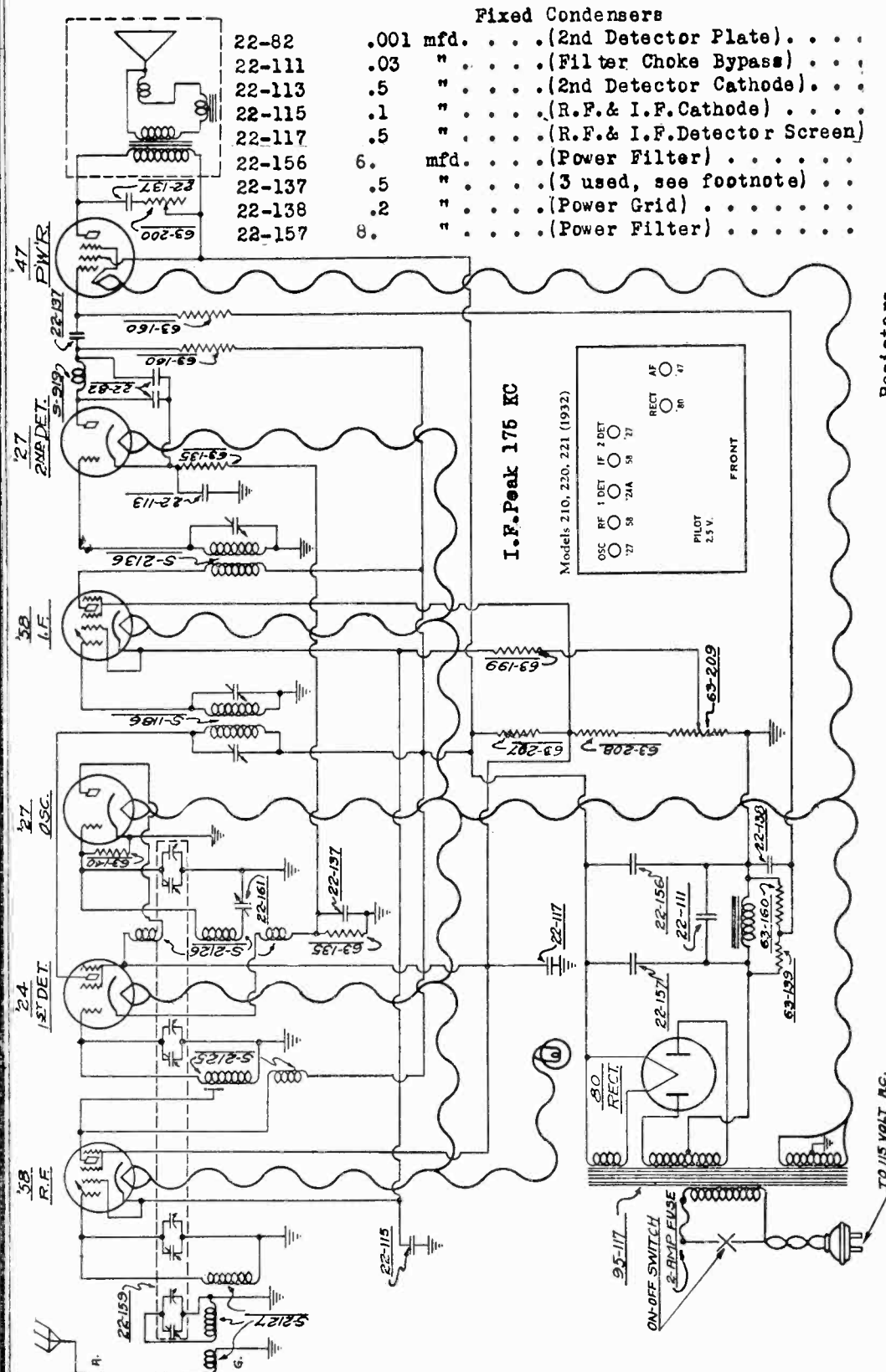
- Coils-Chokes
- 20-28 R. F. Plate Choke.....
 - S-2212 1st I. F. Transformer.
 - S-2213 2nd I. F. Transformer.
 - S-2221 Oscillator Coil and Detector Coil {below chassis}
 - S-2222 Preselector Coil.....{above chassis}



- Condensers
- 22-82 .001 mfd. 500 volt.....two used, 2nd det. plate
 - 22-111 .03 " 600 "speaker field.
 - 22-113 .5 " 200 "two used.
 - 22-117 .5 " 300 "1st Det. Screen & R.F..
 - 22-137 .5 mfd. 400 volt.....three used.
 - 22-138 .2 " 200 "power grid.
 - 22-156 6. " 450 "filter.....
 - 22-157 8. " 450 "filter.....
 - 22-159 Four Gang Variable.....
- PEAK FREQUENCY 125 K.C.
- 200 - 2100 METERS
- STANDARD AND LONG WAVE
- MODELS 210-5 211-5 270-5

MODELS 210,220
Schematic

ZENITH RADIO CORP.

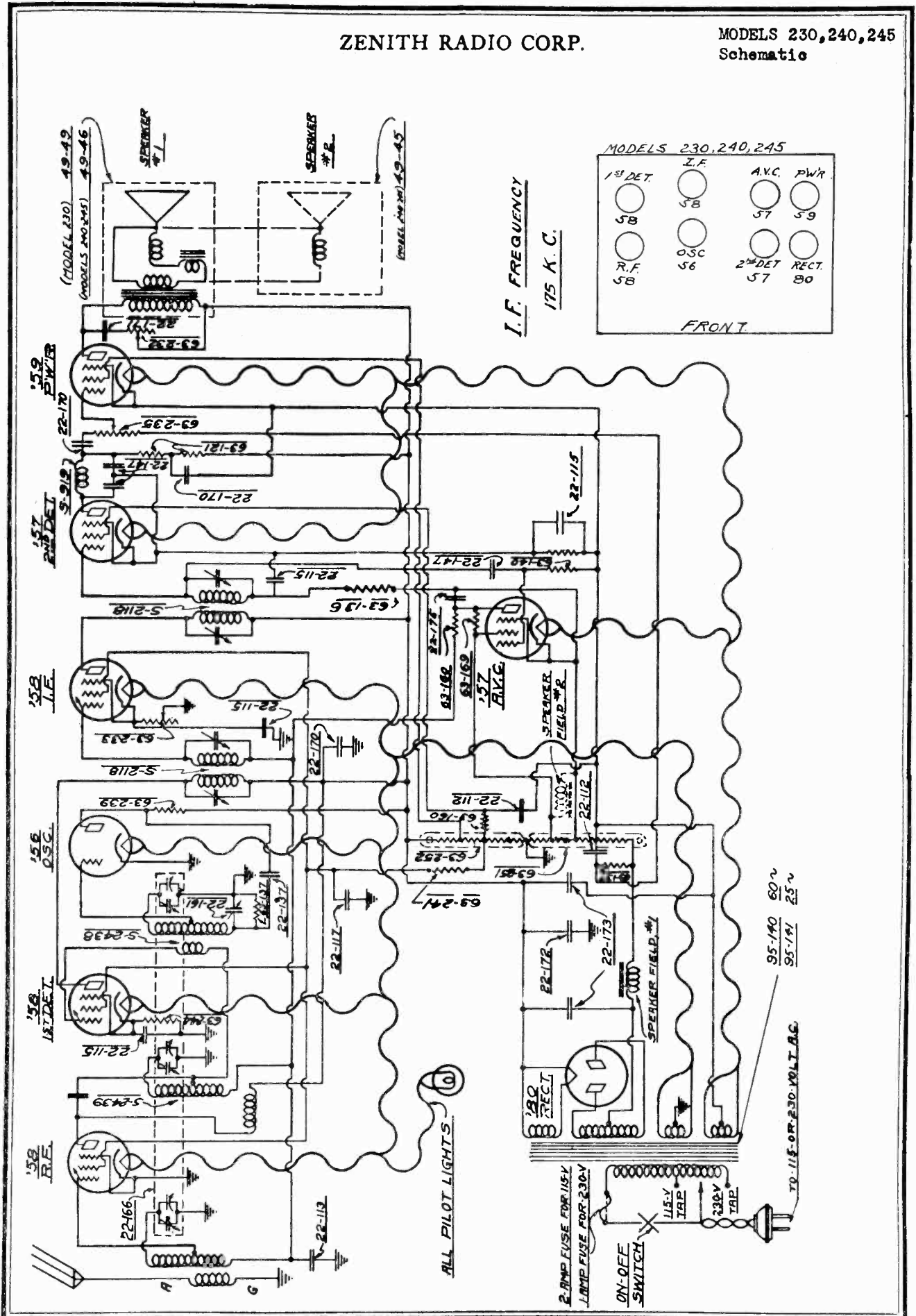


Fixed Condensers		
22-82	.001 mfd.	(2nd Detector Plate)
22-111	.03 "	(Filter Choke Bypass)
22-113	.5 "	(2nd Detector Cathode)
22-115	.1 "	(R.F. & I.F. Cathode)
22-117	.5 "	(R.F. & I.F. Detector Screen)
22-156	6 mfd.	(Power Filter)
22-137	.5 "	(3 used, see footnote)
22-138	.2 "	(Power Grid)
22-157	8 "	(Power Filter)

Coils		Resistors	
S-919	2nd Detector choke	63-135	25M ohm
S-2127	R.F. Pre-selector	63-139	500M "
S-2126	Oscillator coil	63-140	1meg "
S-2125	Detector coil	63-160	100M "
S-1186	1st I.F. transformer	63-199	150 ohm
5-2136	2nd I.F.	63-207	10M ohm
		63-208	12M "

ZENITH RADIO CORP.

MODELS 230, 240, 245
Schematic



I.F. FREQUENCY
175 K. C.

MODELS 230, 240, 245

1 ST DET.	I.F.	AVC.	P.W.R.
58	58	57	59
R.F.	O.S.C.	2 ND DET.	RECT.
58	56	57	59

FRONT

95-140 60~
95-141 25~

TO 115-OR-230-VOLT A.C.

MODELS 230,240,245

Voltage
Parts List

ZENITH RADIO CORP.

Socket Voltages

Models: 230-240-245

Tube Type	Position	Fil. Volt.	Plate Volt.	Cath. Volt.	Screen Volt.	Supp. Volt.	Plate Current
Z-58	R.F.	2.4	190	0	95	0	7.
Z-58	1st Det.	2.4	190	2.3	95	2.3	4.
Z-56	Osc.	2.4	100	0	-	-	4.
Z-58	I.F.	2.4	190	0	90	0	2.
Z-57	2nd Det.	2.4	90	-60	70	-60	.2
Z-57	A.V.C.	2.4	-10	-65	-2	-65	0
Z-59	Power	2.4	175	-70	165	-70	25
Z-80	Rect.	5.	*350	-	-	-	*36

Line 115 Volts

All Controls Maximum

(All readings, with exception of heaters, taken from socket connections to ground. Use 1,000 ohm per volt D. C. meter.)

BALANCE I.F. frequency at 175 K.C. Condenser gang at 1500 K.C. and oscillator pad-der at 600 K.C.

Resistors

63-121	100M ohm	1 Watt	.....(2nd Detector Plate).....	.25
63-135	25M "	$\frac{1}{2}$ "	.....(2nd Detector Cathode).....	.25
63-136	50M "	$\frac{1}{2}$ "	.....(2nd Detector Grid Return).....	.25
63-137	250M "	$\frac{1}{2}$ "	.....(Oscillator & Power Grid).....	.25
63-140	1 meg "	$\frac{1}{2}$ "	.....(A.V.C. Screen).....	.25
63-160	100M "	$\frac{1}{2}$ "	.....(A.V.C. Plate, 2nd Detector Screen)..	.25
63-169	400M "	$\frac{1}{2}$ "	.....(A.V.C. Grid).....	.25
63-239	24M ohm	1 Watt	.....(Oscillator Plate).....	.25
63-241	5M "	1 "	.....(R.F., 1st Detector., I.F. Screen)...	.25
63-244	500 "	$\frac{1}{4}$ "	.....(1st Detector Cathode).....	.25
63-251	Voltage Divider.....(six tap).....			.65
63-252	Voltage Divider.....(five tap).....			.60

Condensers

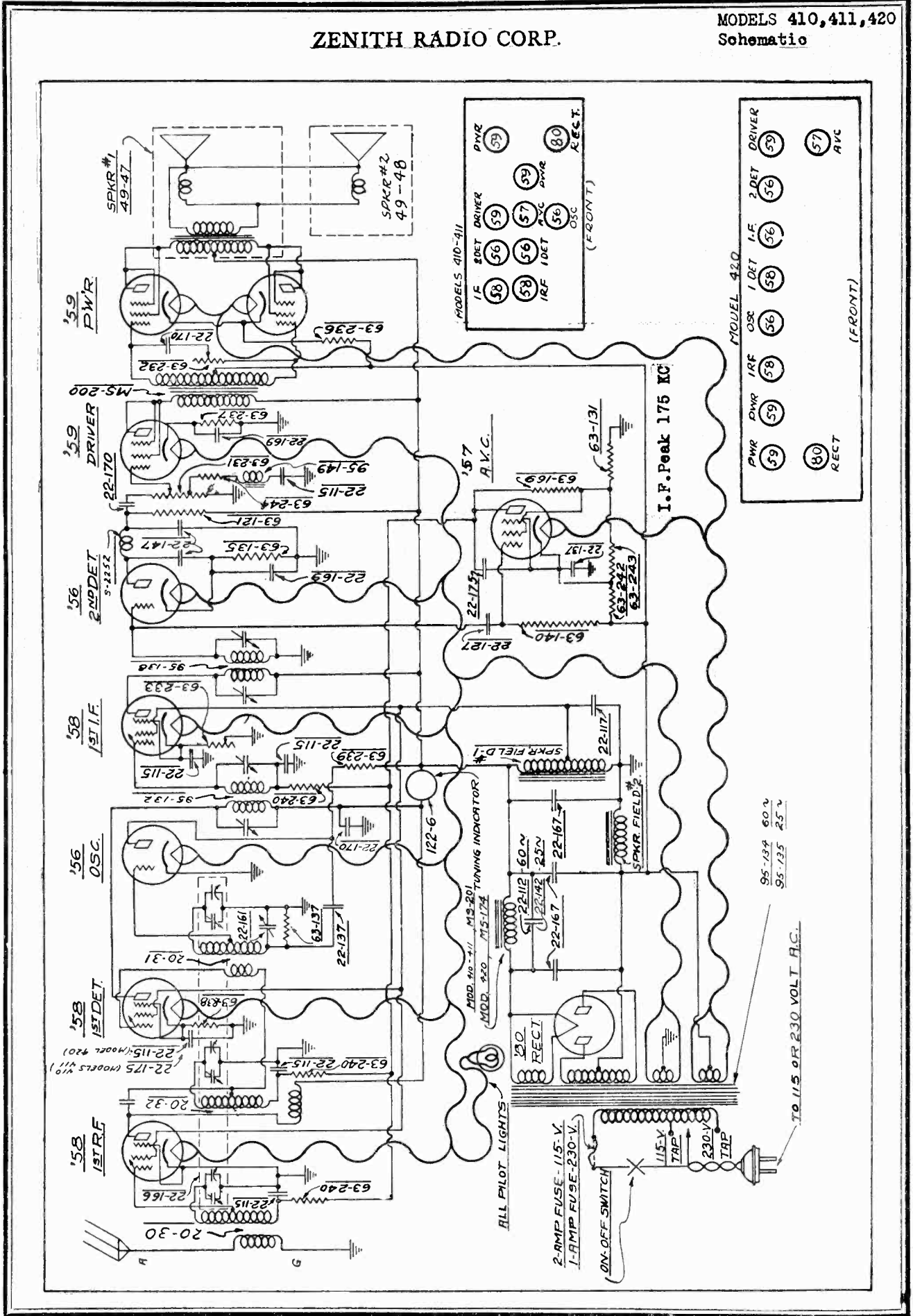
22-112	.1 mfd	300 V.	(2nd Detector Screen & Power Grid).....	.25
22-113	.5 "		.....(R.F.1st Detector & I.F.Grid Return).....	.35
*22-115	.1 "	200 V.	(Four used, see below).....	.35
22-117	.5 "		.....(R.F.1st Detector, & I.F. Screen).....	.50
22-137	.05 "	400V.	(Oscillator Plate).....	.25
22-147	.0005"	600 V.	(2nd Detector Plate & AVC Screen).....	.25
22-166	Three Gang Variable.....			3.50
22-170	.1 mfd	400 V.	(R.F. & 1st Detector Plate, 2nd Det. Plate)..	.35
22-171	.05 "	600 V.	(Tone Control).....	.25
22-172	2. "	450 V.	(Filter).....	.60
22-173	8. "	500 V.	(Filter).....	1.25
22-175	.002 "	600 V.	(A.V.C. Plate).....	.25

Chokes and Coils

S-2118	I.F. Coil Assembly.....	1.75
S-2437	Antenna Coil Assembly.....	.75
S-2438	Oscillator Coil Assembly.....	.85
S-2439	Detector Coil Assembly.....	.30
S-2252	Plate Choke and Bracket Assembly.....	.50
S-919	2nd Detector Choke Assembly.....	.60

ZENITH RADIO CORP.

MODELS 410, 411, 420
Schematic



MODELS 410-411

IF	58
2ND DET	56
DRIVER	59
P.W.R.	59
OSC	56
RECT.	80

(FRONT)

MODEL 420

P.W.R.	59
DRIVER	59
2ND DET	56
I.F.	58
1ST DET	58
OSC	56
RECT.	80
A.V.C.	57

(FRONT)

95-134 60V
95-135 25V

To 115 or 230 VOLT A.C.

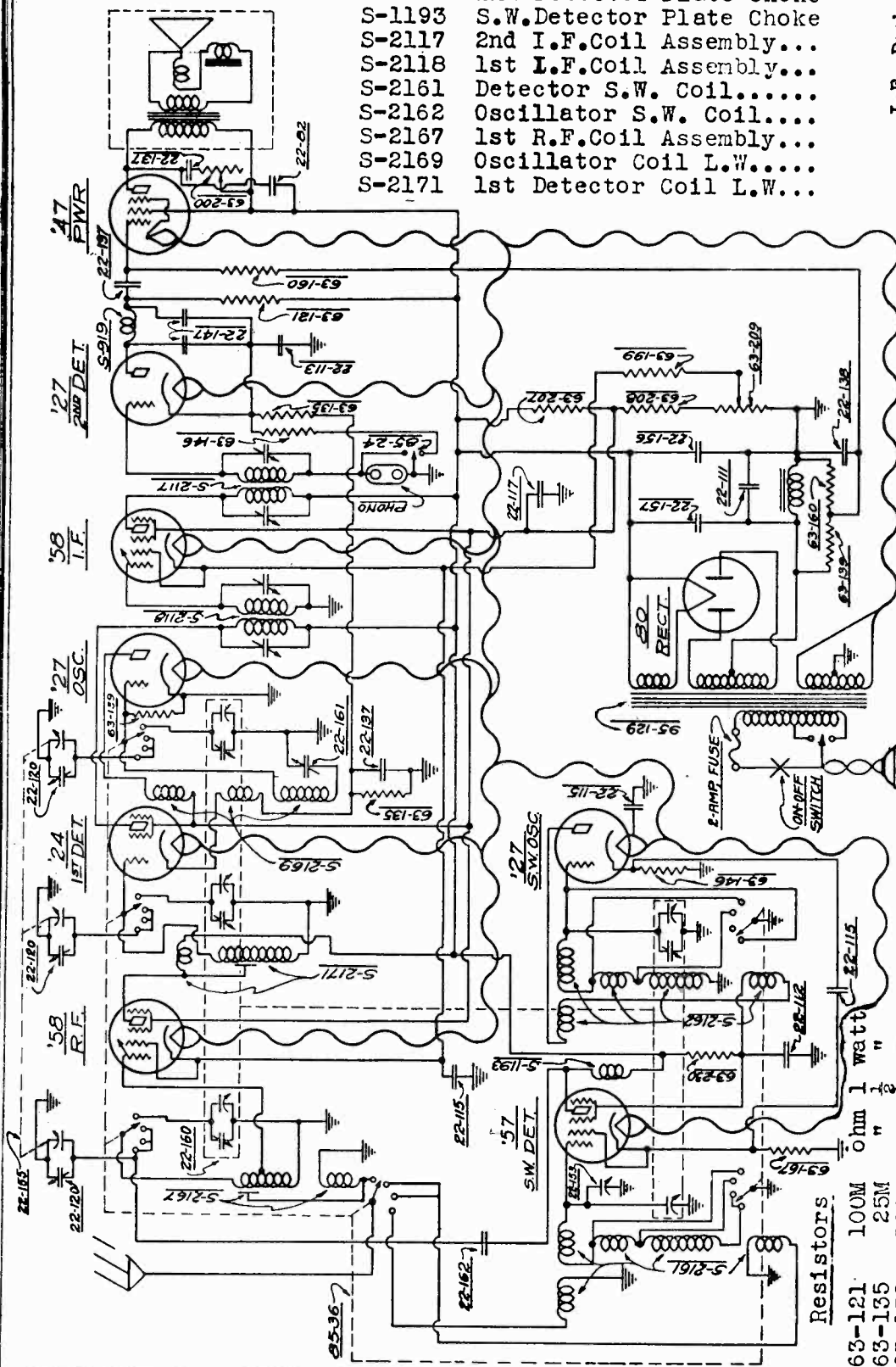
MODELS 250,260,272
Standard & Short-Wave
Schematic

ZENITH RADIO CORP.

Coils - Chokes

- S-919 2nd Detector Plate Choke
- S-1193 S.W. Detector Plate Choke
- S-2117 2nd I.F. Coil Assembly...
- S-2118 1st I.F. Coil Assembly...
- S-2161 Detector S.W. Coil.....
- S-2162 Oscillator S.W. Coil....
- S-2167 1st R.F. Coil Assembly...
- S-2169 Oscillator Coil L.W.....
- S-2171 1st Detector Coil L.W...

I.F. Peak 175. K C
S.W. 1000 K C



Resistors:

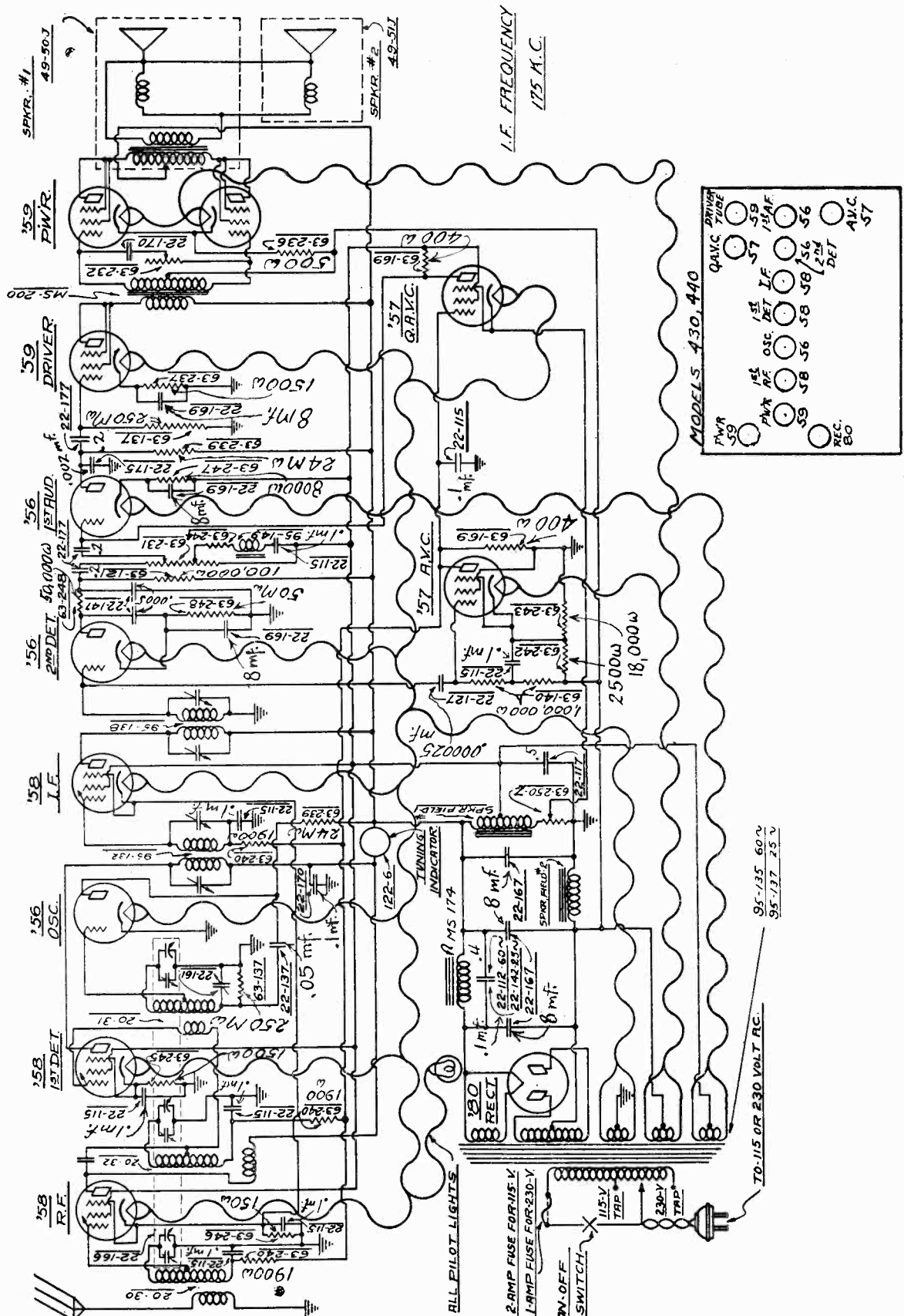
63-121	100M	ohm	1 watt
63-135	25M	"	"
63-139	500M	"	"
63-146	2M	"	"
63-160	100M	"	"
63-167	8M	"	"
63-199	150	ohm	1/2 watt
63-207	10M	"	"
63-208	12M	"	"
63-230	15M	ohm	"

Condensers

22-82	.001 mfd.	500 volt	22-137	.05	"	400 "
22-111	.03	600 "	22-138	.2	"	200 "
22-112	.1	300 "	22-147	.0005	600 "	600 "
22-113	.5	200 "	22-156	6.	mfd. Electrolytic.	
22-115	.1	200 "	22-157	8.	" Electrolytic.	
22-117	.5	300 "	22-162	.0001 mfd.	600 volt.	

ZENITH RADIO CORP.

MODELS 430,440
Schematic



MODELS 410, 411, 420

Chasses 2030-2043

Voltage, Data

ZENITH RADIO CORP.

Condensers

22-112 .1 mfd 300 volt (Filter).....
 22-115 .1 " 200 " (Six used, see footnote).....
 22-117 .5 " 200 " (Filter).....
 22-127 .000025 600 " (A. V. C. Grid).....
 22-137 .05mfd 400 " (Oscillator Plate).....
 22-142 .4 " 300 " (Filter 25 Cycle Only).....
 22-147 .0005 600 " (2nd Detector Plate).....

22-167 8. mfd 500 volt (Filter).....
 22-169 8. " 50 " (2nd Det. and Driver Cathodes).....
 22-170 .1 " 400 " (1st Det. plate, Audio Coup., Tone Control)
 22-175 .002" 600 " (1st Det. cathode - Models 410-411 only)...

Resistors

63-121 100M ohm 1 watt (2nd Detector Plate).....
 63-135 50M " 1 " (2nd Detector Cathode).....
 63-137 250M " $\frac{1}{2}$ " (Oscillator Grid).....
 63-140 1 meg" $\frac{1}{2}$ " (A. V. C. Grid).....
 63-169 400 " $\frac{1}{2}$ " (A. V. C. Plate).....

63-236 500 ohm.....(Power Bias) (Wide Metal).....
 63-237 1500 "(Driver Bias) (Narrow Metal).....
 63-238 1M " $\frac{1}{4}$ watt (1st Detector Cathode).....
 63-239 24M " 1 " (Oscillator Plate).....
 63-240 1900 " $\frac{1}{4}$ " (R.F., 1st Detector and I.F. Grids)
 63-242 2500 " $\frac{1}{2}$ " (A. V. C. Cathode).....
 63-243 18M " 1 " (A. V. C. Cathode).....
 63-244 500 " $\frac{1}{4}$ " (Acoustic Filter).....

Socket Voltages

Models 410-411-420

Tube Type	Position	Fil. Volt.	Plate Volt.	Cath. Volt.	Screen Volt.	Supp. Volt.	Plate Current
Z-58	R.F.	2.5	220	0	100	0	5.2
Z-58	1st Det.	2.5	220	+2	100	+2	3.
Z-56	Osc.	2.5	120	0	0	*	4.
Z-58	I.F.	2.5	220	0	100	0	6.
Z-56	2nd Det.	2.5	120	20	0	*	.75
Z-57	A.V.C.	2.5	-40	-75	-2	-75	0
Z-59	Driver	2.5	220	+25	220	+220	8.2
Z-59	Power	2.5	230	-65	230	+230	25.
Z-59	Power	2.5	230	-65	230	+230	25.
Z-80	Rect.	5.0	400*				62.5*

Line 115 Volts

All Controls Maximum

(All readings, with exception of heaters, taken from socket connections to ground. Use 1,000 ohm per volt D. C. meter).

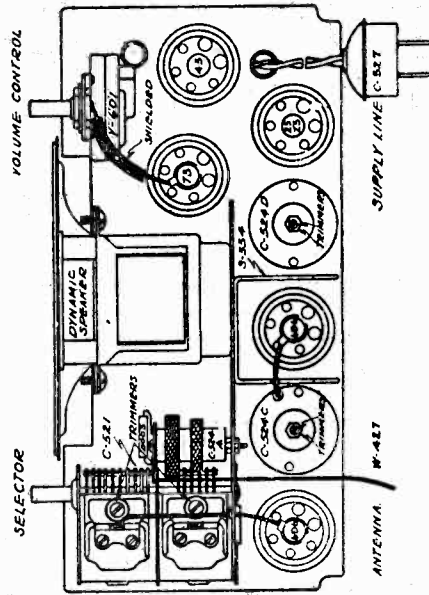
BALANCE I.F. frequency at 175 K.C. Condenser gang at 1500 K.C. and oscillator padder at 600 K.C.

ZENITH RADIO CORP.

MODEL 701 AC-DC
Schematic, Chassis
Parts List, Notes

PARTS LIST

Part No.	Description	List Price
A 103	Same	
C 145	.1-300 Volt Capacitor	\$9.25 ea.
C 155	.0005 Mica Capacitor	.20 ea.
C 521	Two Gang Capacitor	2.50 ea.
C 522	.01-400 Volt Capacitor	.25 ea.
C 523	600 Ohm Choke Coil	1.25 ea.
C 524A	Antenna Coil	.80 ea.
C 524B	Oscillator Coil	.70 ea.
C 524C	I. F. Transformer	1.25 ea.
C 524D	I. F. Transformer	1.25 ea.
C 525	5-25-10 Electrolytic Capacitor	2.00 ea.
C 526	By-Pass Capacitor Block	1.50 ea.
C 527	Special Card and Plug	1.25 ea.
K 214	Knobs	.40 ea.
R 268	2480 Ohm Resistor	.50 ea.
R 270	250 Ohm-Wire Wound Resistor	.25 ea.
V 601	Volume Control	1.35 ea.
W 427	Antenna Wire	.30 ea.
	All carbon resistors	.20 ea.
	All sockets	.20 ea.
	Dynamic speakers	5.00 ea.
	Cabinets	2.50 ea.
	Carrying cases	2.00 ea.
	Adapters for 220 volt operation	2.25 ea.

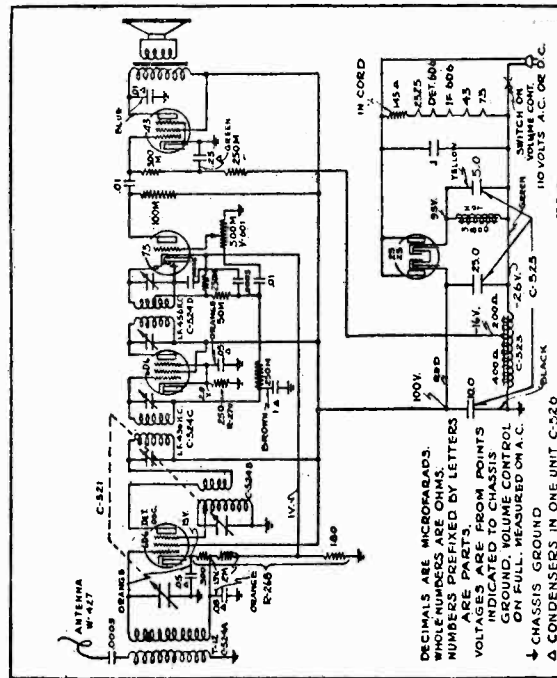


OPERATING INSTRUCTIONS

1. Carefully remove antenna wire from its compartment and stretch out full length. A properly erected well insulated outdoor antenna about 75 feet in length, including lead-in is recommended for permanent installation. A GROUND IS NOT REQUIRED.
2. Rotate main antenna selector switch (right) to volts, insert plug in receptacle.
3. Rotate VOLUME control knob (right) to maximum deflection. Turn selector switch on, continued rotation increases volume. IF SET DOES NOT OPERATE IN ONE MINUTE ON DIRECT CURRENT REVERSE PLUG IN RECEPTACLE.
4. Advance volume control three-quarter turn, then select the desired station. Tune this station to the loudest point on the scale, then raise or lower volume with VOLUME control. Never regulate volume by detuning station selector, always adjust VOLUME control.

SERVICE SUGGESTIONS

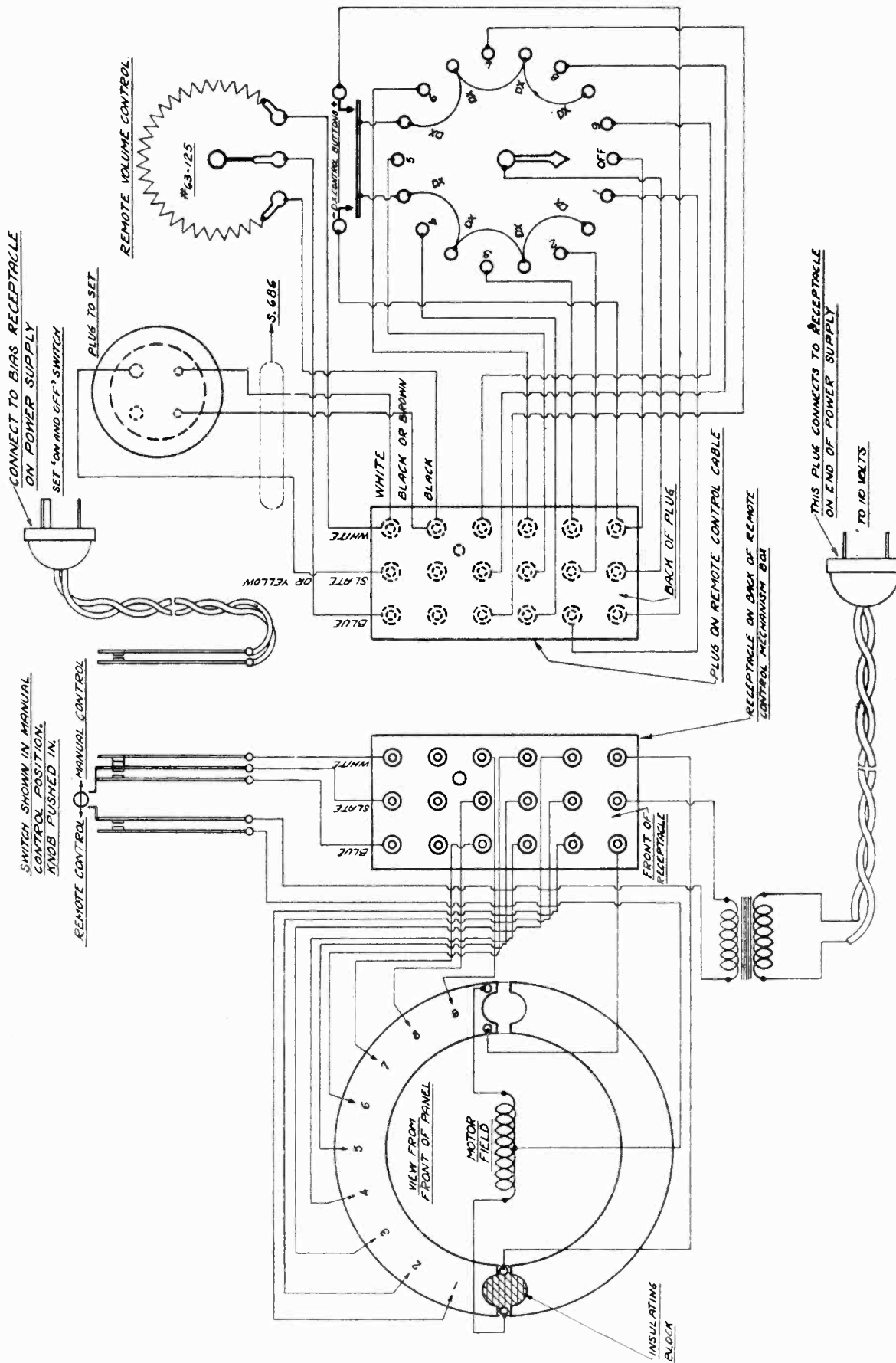
NOTE—CONNECTING CORD OF SET GETS WARM IN NORMAL OPERATION. DO NOT BECOME ALARMED. Make clips are pushed firmly in their proper sockets and that the clips are securely fastened to the caps on the tops of the tubes.
That the aerial is stretched out and that the connections to an outdoor antenna (if used) are good.
If necessary to change tubes or service chassis, UNDER NO CIRCUMSTANCES REMOVE BACK OR CHASSIS WITHOUT FIRST REMOVING PLUG FROM LIGHT SOCKET.
To remove chassis from cabinet, pull off knobs from front, remove back (held with screws to case). Remove four mounting screws, then chassis can be slipped out of case.



Schematic circuit diagram Model 701 AC-DC Superheterodyne, with automatic volume control should be necessary, at any time, to rebalance this set the procedure is as follows: Attach a 456 kilocycle oscillator to the grid of the 608 tube in back of the variable condenser and adjust the trimming condensers of the I. F. transformers to maximum deflection on an output meter connected across the primary of the speaker input transformer. While adjusting these trimmers, the variable condenser should be at the maximum capacity position—at the extreme right of its rotation. Next disconnect the antenna wire and connect an oscillator in series with a 75 mmf. condenser to the antenna coil. Rotate the condenser plates to the minimum capacity position—extreme left turn, and adjust the trimmer condenser of the rear section of the variable condenser to resonance with an oscillator set at 1725 kilocycles, then adjust the condenser of the front section of the variable condenser to resonance. Align at 1400—1200—1000—800—600—550 kilocycles, bend slotted plates of variable condenser if necessary.

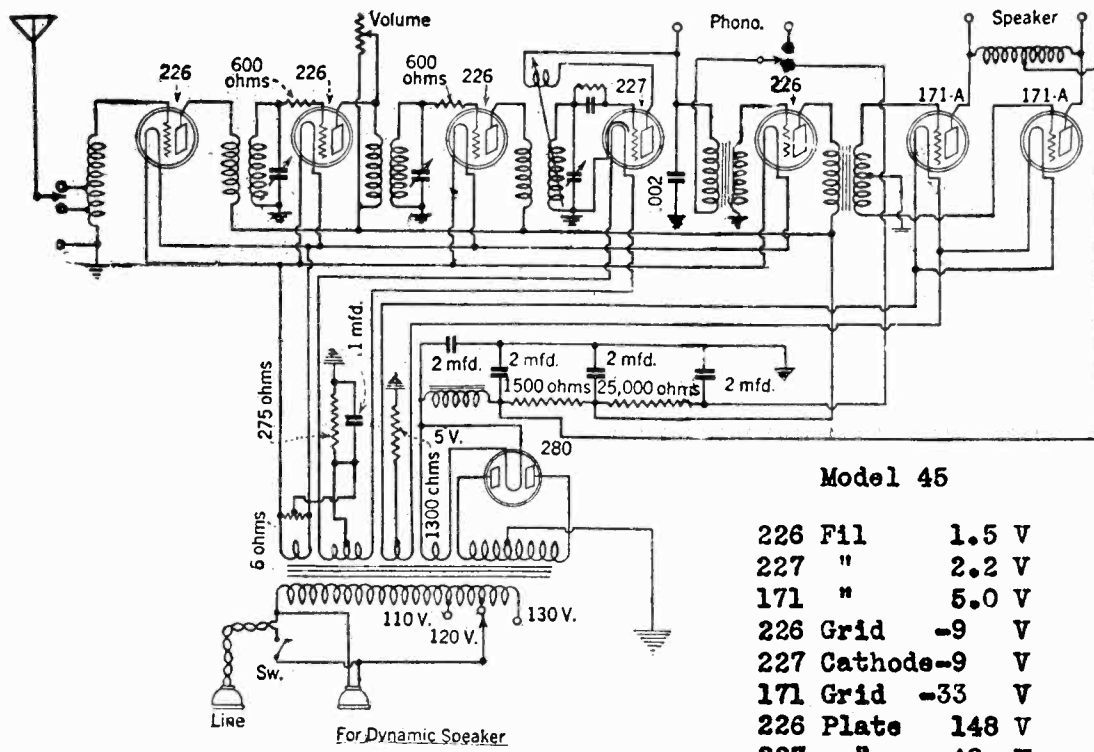
Zenith Remote Control Schematic

ZENITH RADIO CORP.



ARBORPHONE

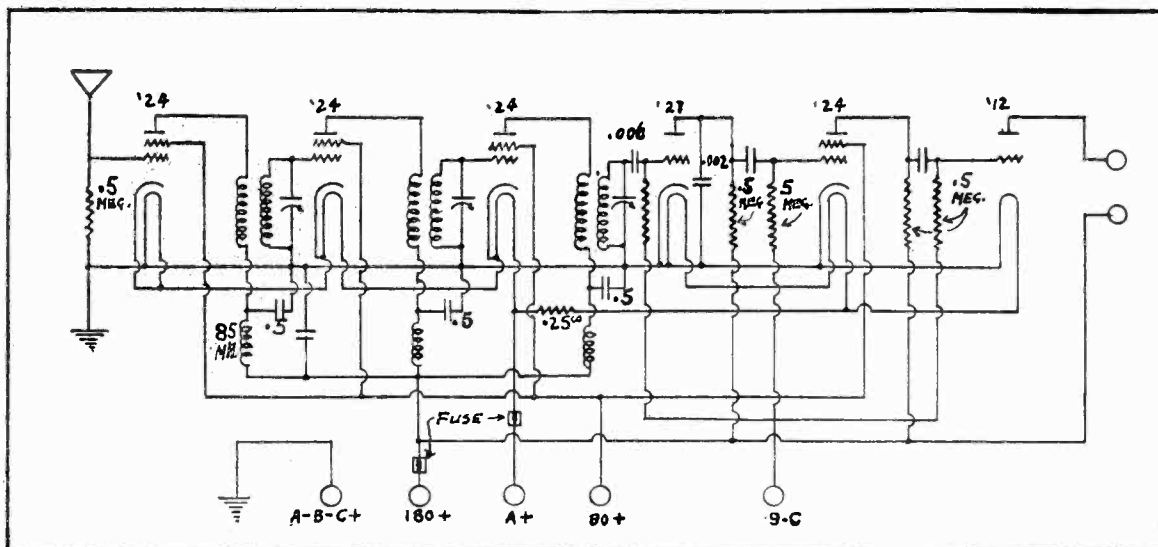
CONTINENTAL WIRELESS SUPPLY CORP.



Model 45

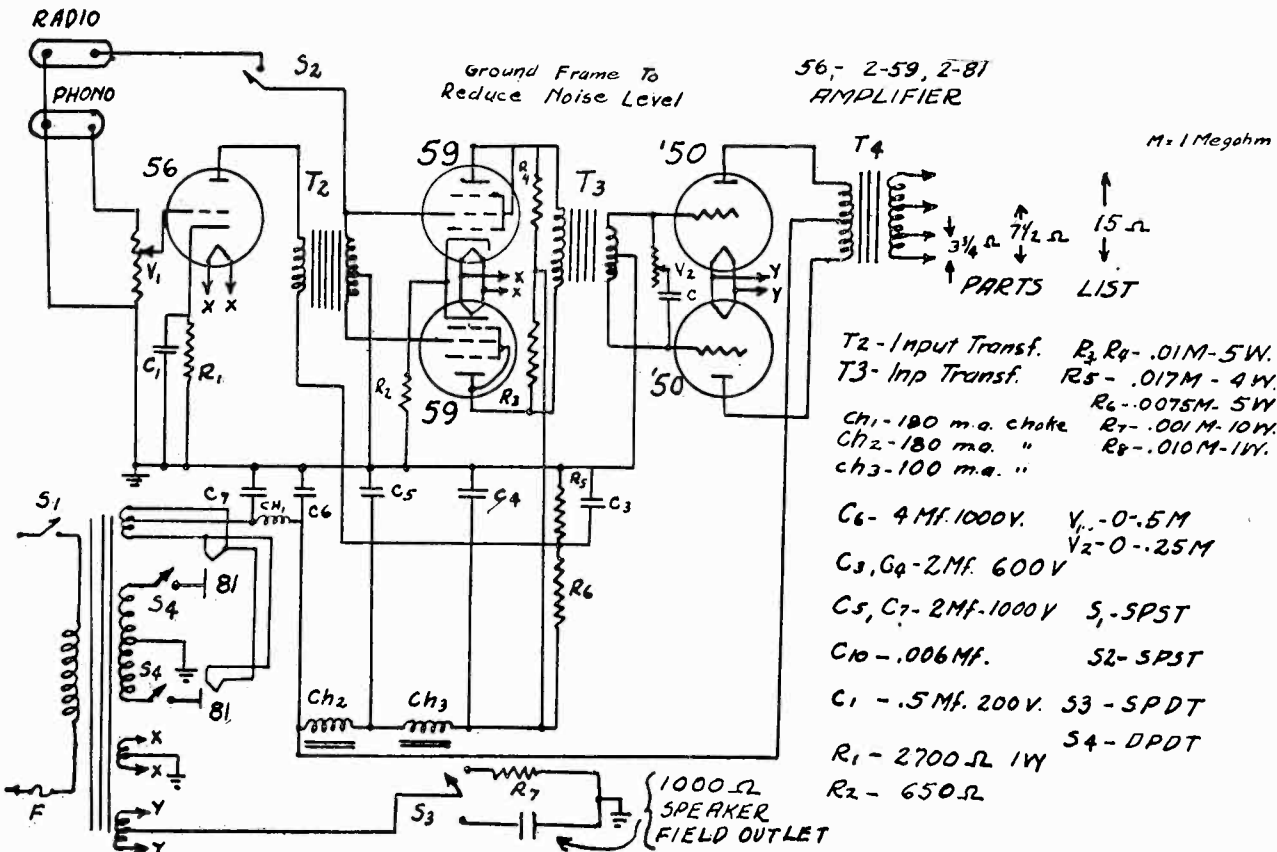
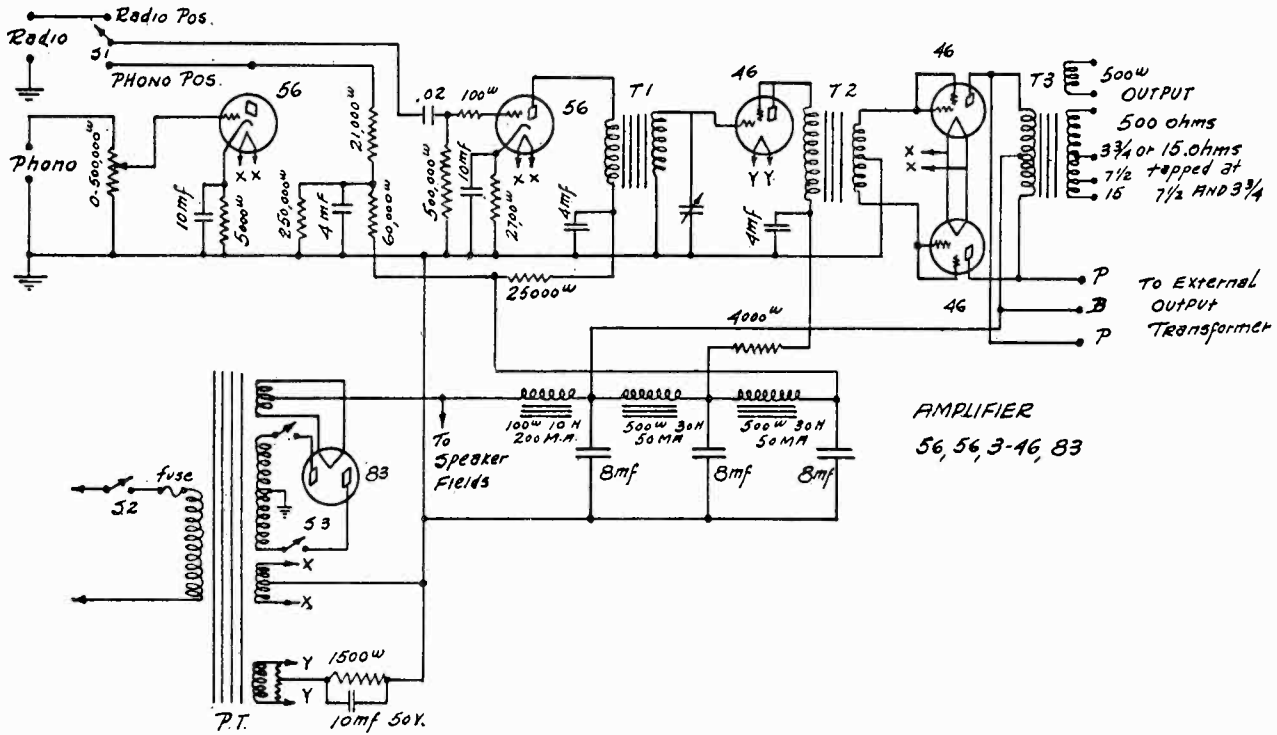
226	Fil	1.5 V
227	"	2.2 V
171	"	5.0 V
226	Grid	-9 V
227	Cathode	-9 V
171	Grid	-33 V
226	Plate	148 V
227	"	48 V
171	"	160 V

Model Arborphone 45

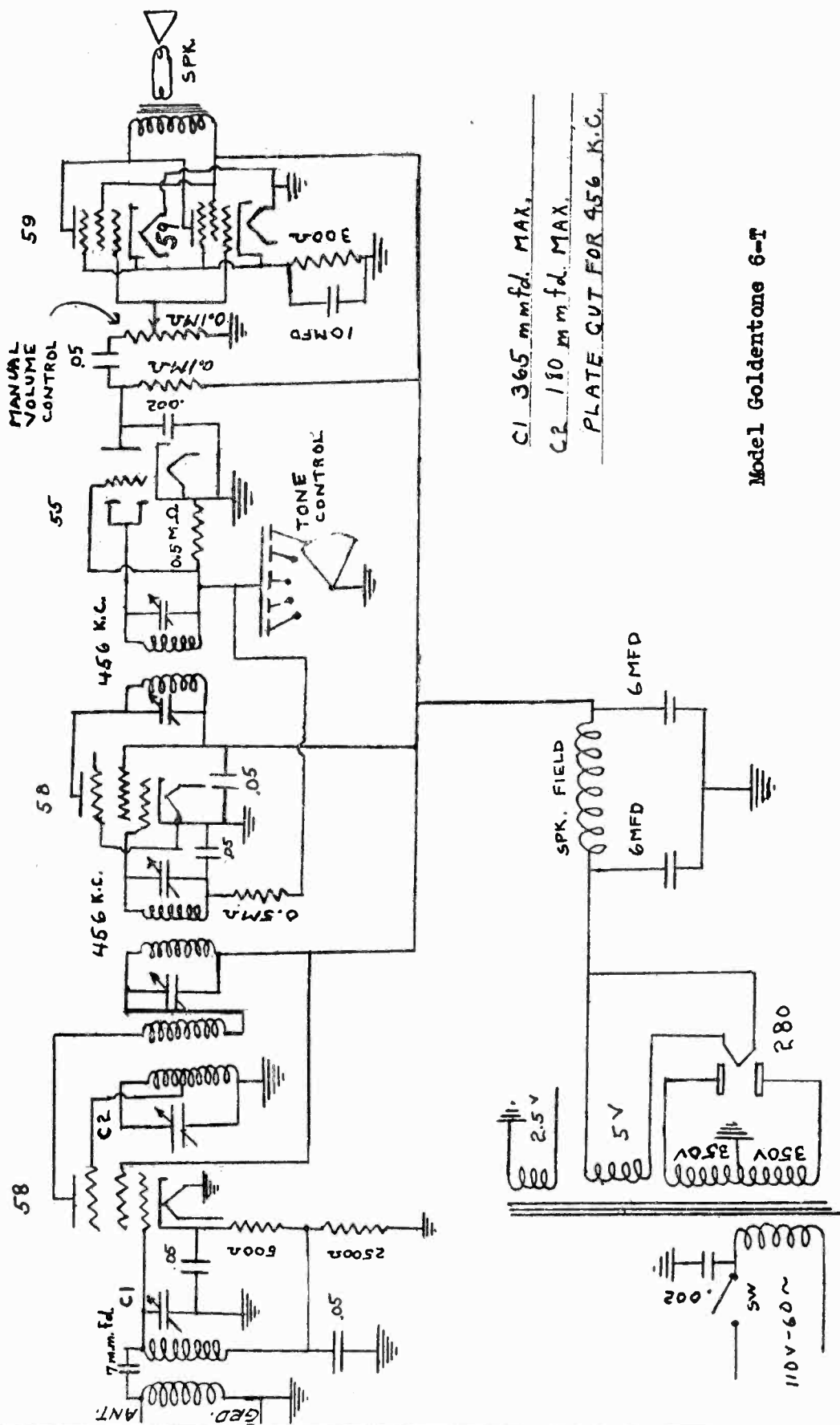


Model "Voice of the Road"

COAST TO COAST



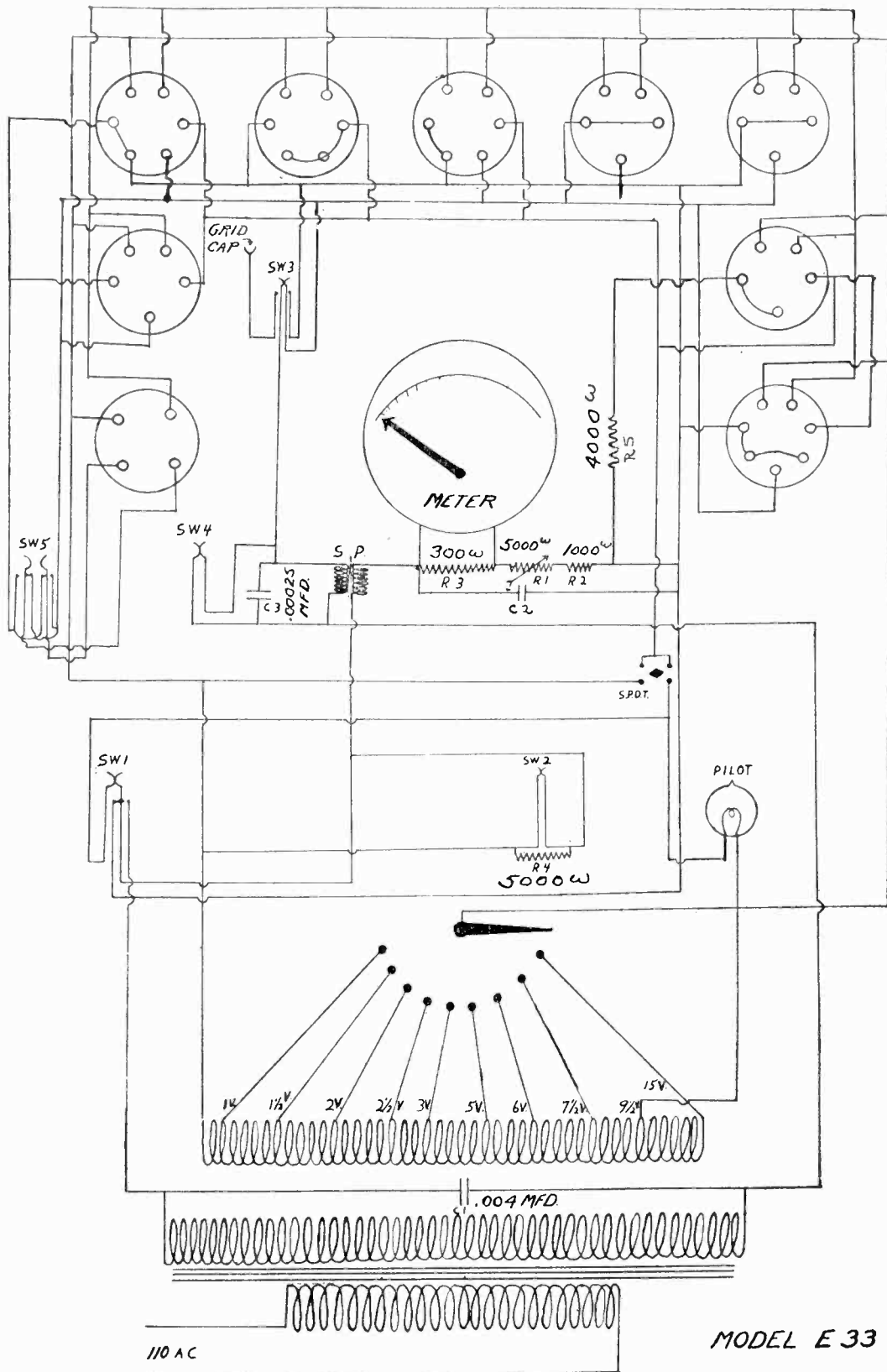
FORDSON RADIO MFG. CO.



C1 365 mmfd. MAX.
 C2 180 mmfd. MAX.
 PLATE CUT FOR 456 K.C.

Model Goldentone 6-T

L & L ELECTRIC COMPANY



MODEL E 33

REPUBLIC INDUSTRIES

Model MS & Jr.

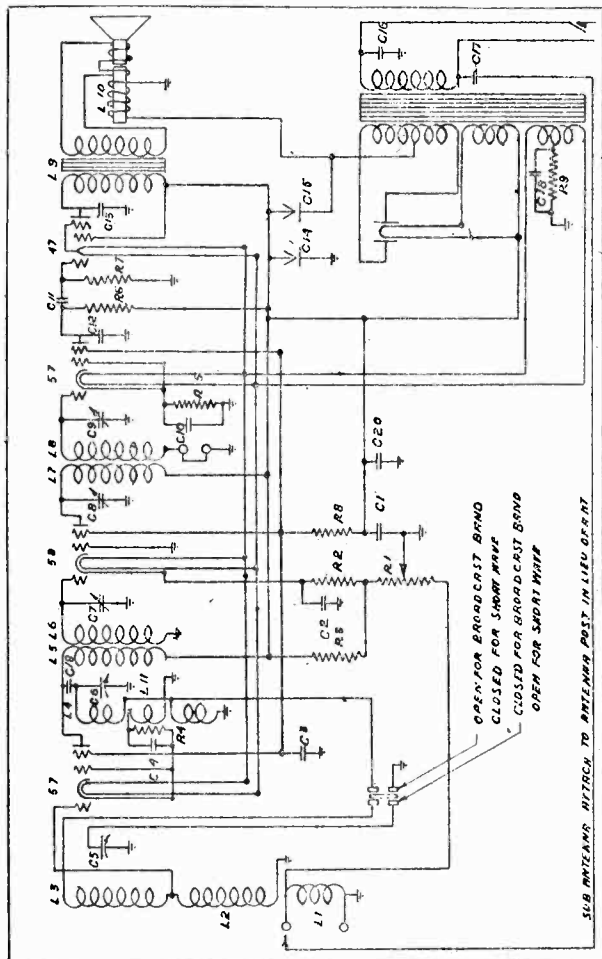
In spite of the use of full size standard parts throughout, a very compact chassis is made possible by mounting the filter system as a part of the speaker. The speaker itself is a standard dynamic type with an 800 ohm field and a neutralizing coil for the reduction of hum. The impedance of the input transformer is matched to that of the single pentode output tube used in this set. Connection to the speaker assembly is made through the means of four wires extending from the chassis to the speaker. These wires are color-coded and are attached to the speaker terminal panel as follows:

- Black - - - Field and ground terminal
- Red - - - Input Transformer Primary (B+)
- White - - - Input Transformer Primary (Pentode Plate)
- Yellow - - - Field

Adjustments

There are five adjustable condensers on this radio set. Two of these are variable condenser trimmers located at the top of the condenser. The other three tune the intermediate transformer windings and the adjusting screws are reached through openings in the transformer shields from the back of the chassis.

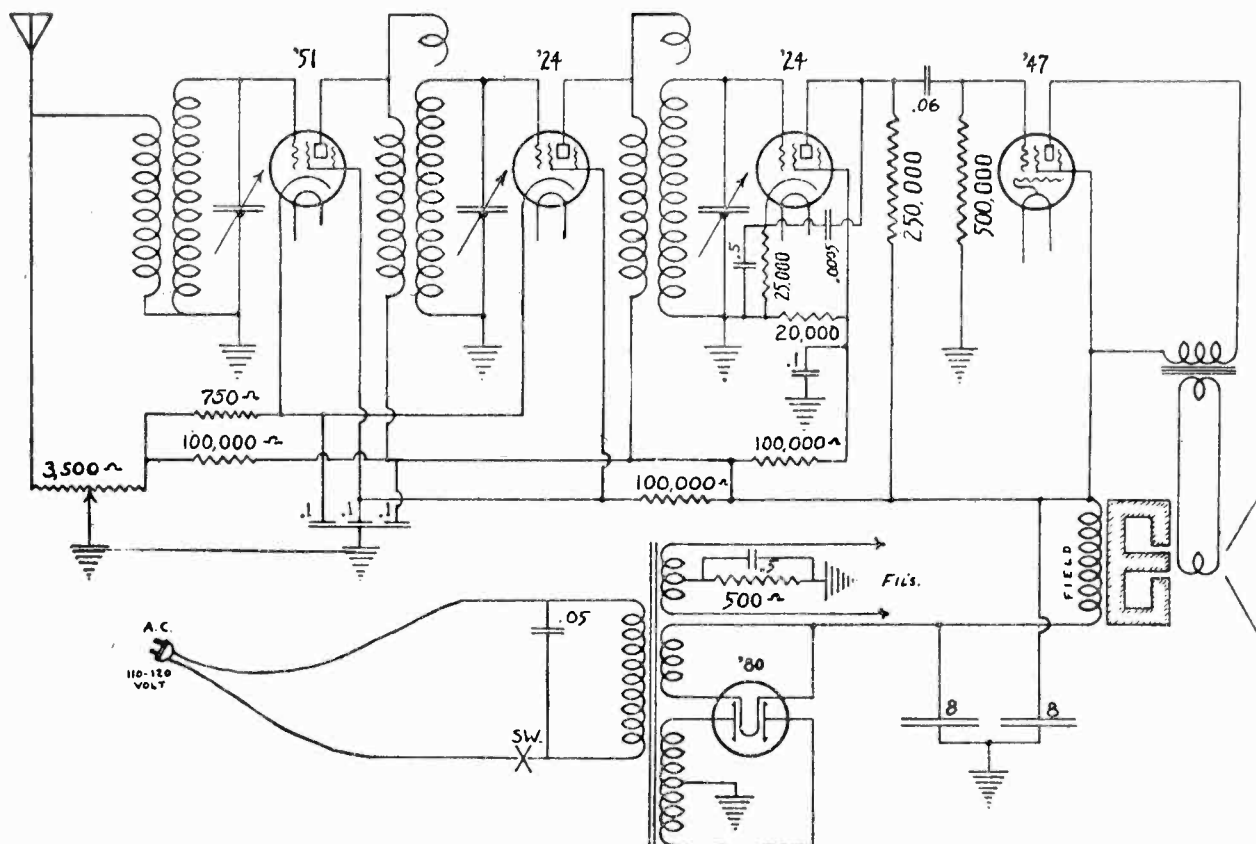
These condensers are carefully set at the factory and ordinarily will need no further adjustment throughout the life of the set. In any case the owner should allow no one except a highly skilled service man equipped with the necessary apparatus to make an adjustment of any of these condensers.



RESISTORS	
Part No.	Description
534 R1	10,000 Ohm Potentiometer Volume Control
279 R2	500 Ohm First I.F. Cathode Resistor
494 R3	75,000 Ohm Screen Bleeder Resistor
250 R4	5,000 Ohm Cathode First Detector Cathode Resistor
192 R5	40,000 Ohm Second Detector Cathode Resistor
199 R6	100,000 Ohm Second Detector Plate Resistor
201 R7	500,000 Ohm 247 Grid Resistor
91 RR	250,000 Ohm Screen Grid Resistor
279 R9	500 Ohm 247 Grid Bias Resistor
CONDENSERS	
345 C1	.5 Mfd. B. Supply By-pass (350 V.)
272 C2	.1 Mfd. First I.F. Cathode Condenser
272 C3	.1 Mfd. Screen Grid By-pass Condenser
265 C4	.001 First Detector Cathode By-pass Condenser
-313 C5	365 Mfd. Presetor Coil Variable Condenser
313 C6	350 Mfd. Oscillator Coil Variable Condenser
C7	75 - 150 Mfd. Adjustable I.F. Condenser
C8	75 - 150 Mfd. Adjustable I.F. Condenser
C9	75 - 150 Mfd. Adjustable I.F. Condenser
183 C10	.2 Mfd. Second Detector By-pass Condenser (200 V.)
269 C11	.01 Audio Feed Condenser
265 C12	.001 Second Detector Plate By-pass Condenser
544 C13	.001 Mfd. 247 Plate By-pass Condenser
271 C14	4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
271 C15	4 Mfd. Filter Dry Electrolytic Condenser 450 Volt
269 C16	.01 Primary of Power Pack By-pass Condenser
307 C17	.0005 Subantenna Feed Condenser
502 C18	.5 Mfd. 247 Grid Bias Condenser (250 V.)
339 C19	.0001 R.F. Feed Condenser
569 C20	.5 Mfd. B. Supply By-pass Condenser (300 V.)
INDUCTANCE	
574 L1	First Presetor Coil Primary 30 Turns No. 36 Enamel Wire
574 L2	First Presetor Coil Secondary 53 Turns No. 32 Enamel Wire
574 L3	Second Presetor Coil Secondary 52 Turns No. 32 Enamel Wire
576 L4	Oscillator Coil Secondary 87 Turns tapped at 30 Turns Spaced at 1/4 M.H.
259 L5	First I.F. Transformer Primary 6 M.H.
259 L6	First I.F. Transformer Secondary 6 M.H.
260 L7	Second I.F. Transformer Primary 6 M.H.
260 L8	Second I.F. Transformer Secondary 6 M.H.
L9	Output Transformer
L10	Speaker Field 1,000 Ohm
L11	Oscillator Coil Primary 10 Turns No. 36 Enamel Wire

STUDEBAKER LABORATORIES

Model 31



No	Name	No	Name
P100	Coils (Set 3 matched).....	P112	Resistor (20,000 & 500,000)...
P101	Condenser (3 gang, tuning).....	P113	" (100,000 & 250,000)...
P102	" (By Pass bank).....	P114	" (25,000 & 500)...
P103	" (.06 Coupling).....	P115	" (100,000)...
P104	" (.0005 By Pass).....	P116	" (750)...
P105	" (.05 Line).....	P117	Socket (551).....
P106	" (8 Mfd. Filter).....	P118	" (224).....
P107	Dial Plate.....	P119	" (247 Pent).....
P108	Knobs.....	P120	" (280).....
P109	Pilot Lamp.....	P121	Speaker.....
P110	Posts (Ant. and Grd.).....	P122	Transformer (Power).....
P111	Resistor (100,000 & 50,000).....	P123	Volume Control and Switch....

Tube	Fil.	Plate	Screen	Bias	
				"On"	"Or"
1st. R. F.....	2.5	185	88	5	16
2nd R. F.....	2.5	176	89	5	16
Det.	2.5	120*	32	4*	4
Pentode	2.5	192	208	16	16
Rect.	5.0	.....	.....	.....	.....

