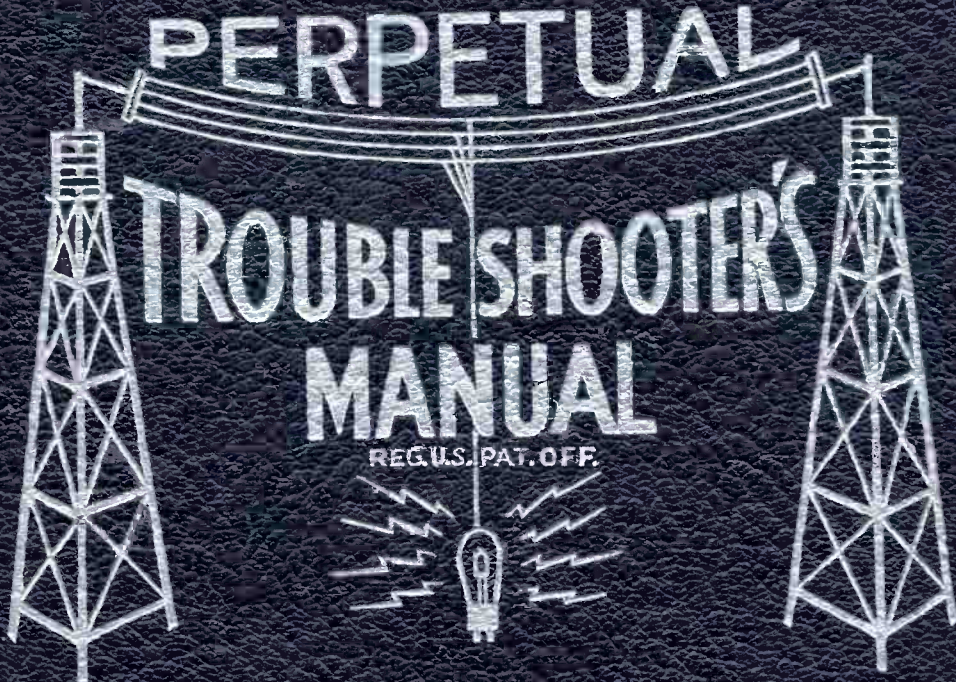


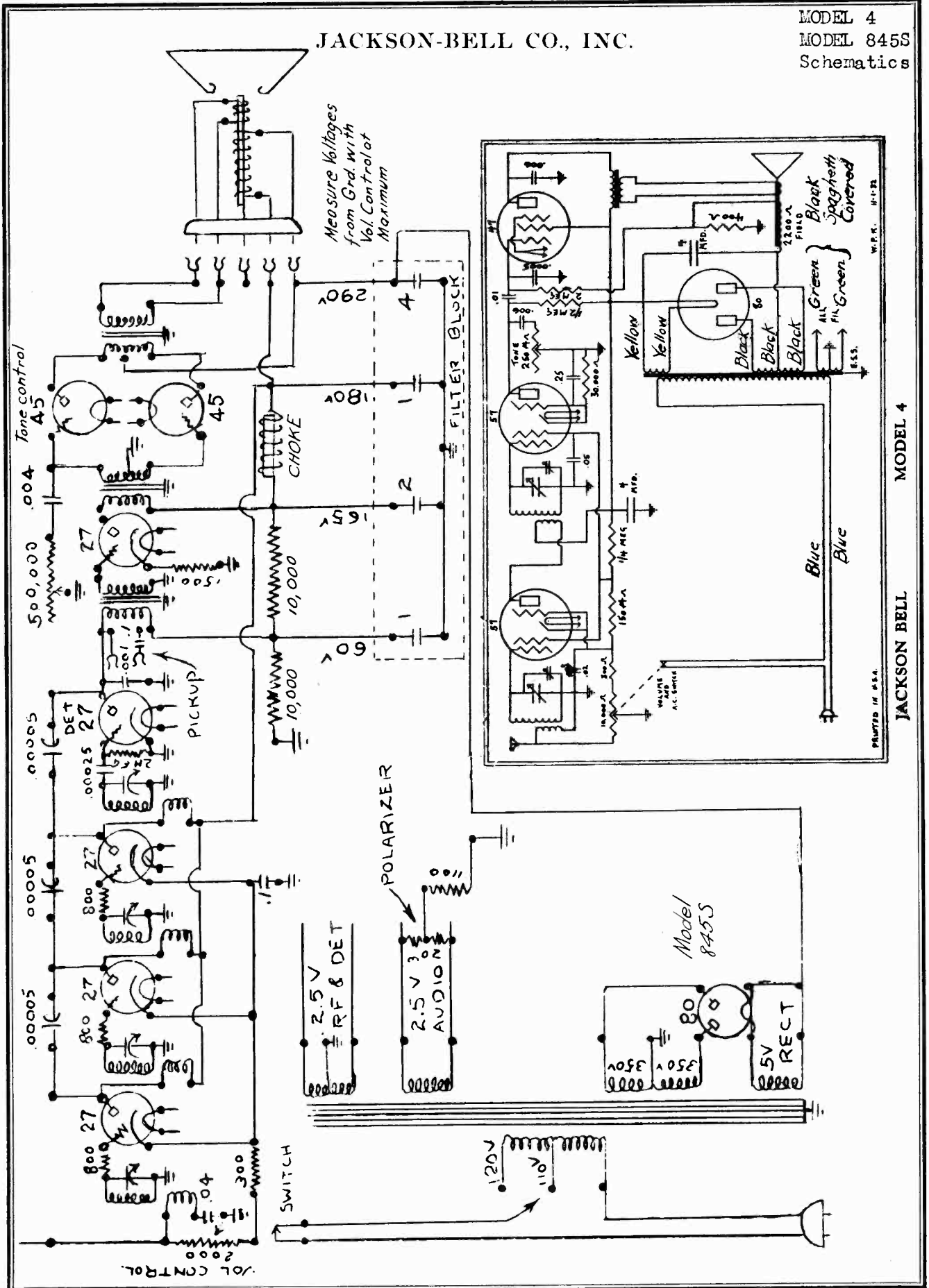
**VOLUME VII**



**JOHN F. RIDER**

JACKSON-BELL CO., INC.

MODEL 4  
MODEL 845S  
Schematics



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W.P.R. 11-1-32

JACKSON BELL MODEL 4

MODEL Junior 50

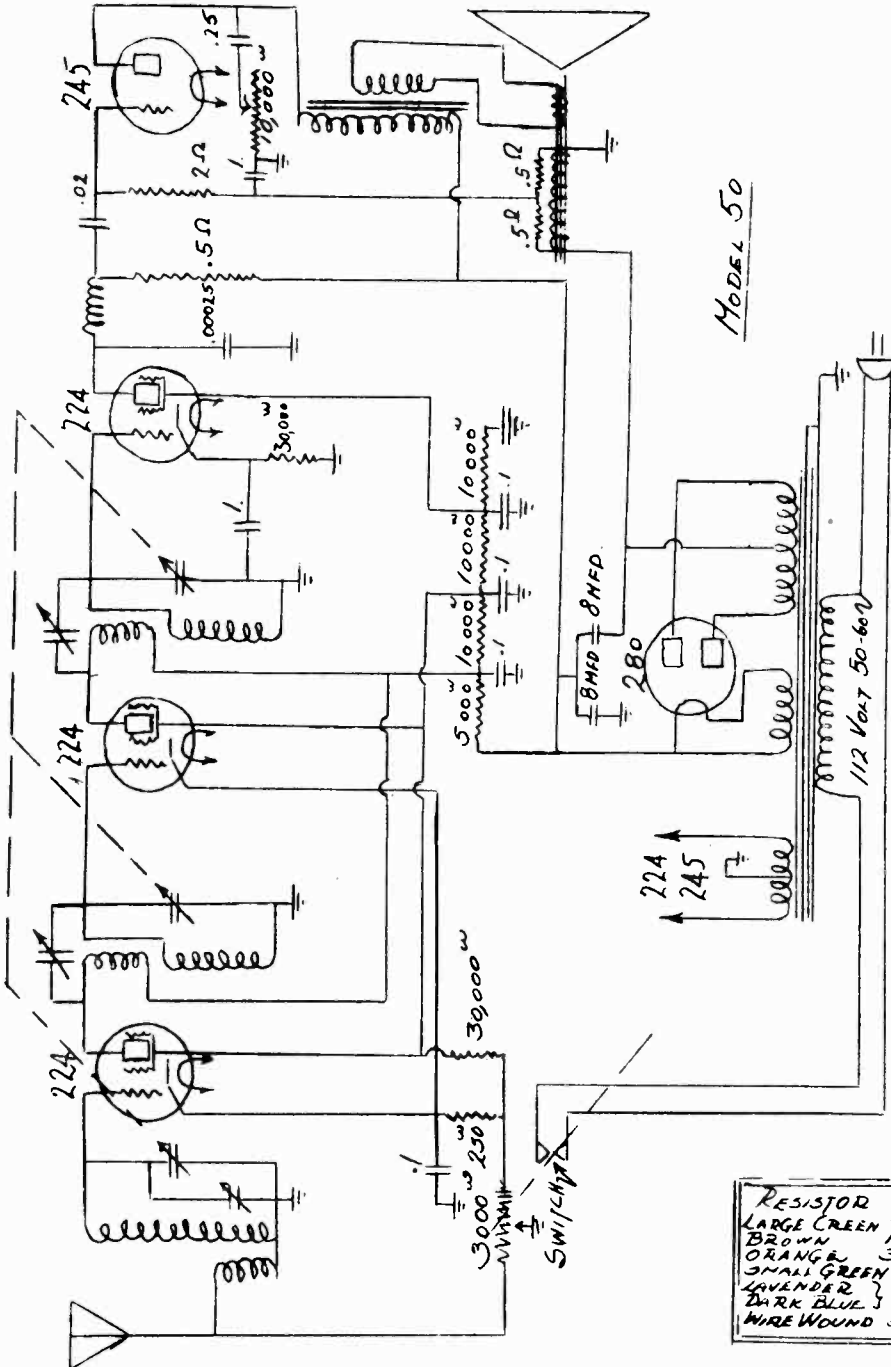
Schematic  
Voltage

JACKSON-BELL CO., INC.

Voltage readings were made with a 1000 ohm per volt meter, 250 volt range.

\*The reading here on a set analyzer will show about 2 volts due to the fact that the 2 meg. ohm resistor is in series with the meter. To check grid voltage, drop across speaker divided by 2 will be the approximate voltage applied to grid. If plate current is about 25 mils and voltage about 220, it is safe to assume that the grid bias is O.K.

R. F. Plate Voltage, . . . . .	160	'45s Plate Voltage, . . . . .	225	V
R. F. Screen Grid Voltage, . . . . .	75	'45s Bias, . . . . .	50	V
R. F. Grid Bias, . . . . .	2.5	'45s Plate Current, . . . . .	30	M
R. F. Plate Current, . . . . .	2.5	Detector Screen Grid Voltage . . . . .	50	V
First A. F. Plate Current, . . . . .	3 1/2	Detector Bias, . . . . .	5	V
First A. F. Plate Voltage, . . . . .	115	Detector Plate Current, . . . . .	2	M
First A. F. Bias, . . . . .	5	# no signal in receiver		
		Detector Plate Voltage, . . . . .	100	*



\*\*Detector bias reading is taken at the overload point of an incoming signal where it generally reaches a maximum of 5 volts. With zero volume control, the reading here is approximately 4 volts. This, of course, is not the true reading, because resistance of volt meter becomes a parallel circuit, cutting down the resistance, and of course, dropping the voltage. Reading taken in this case was with 10,000 ohm meter (1000 per volt, 10 volt scale).

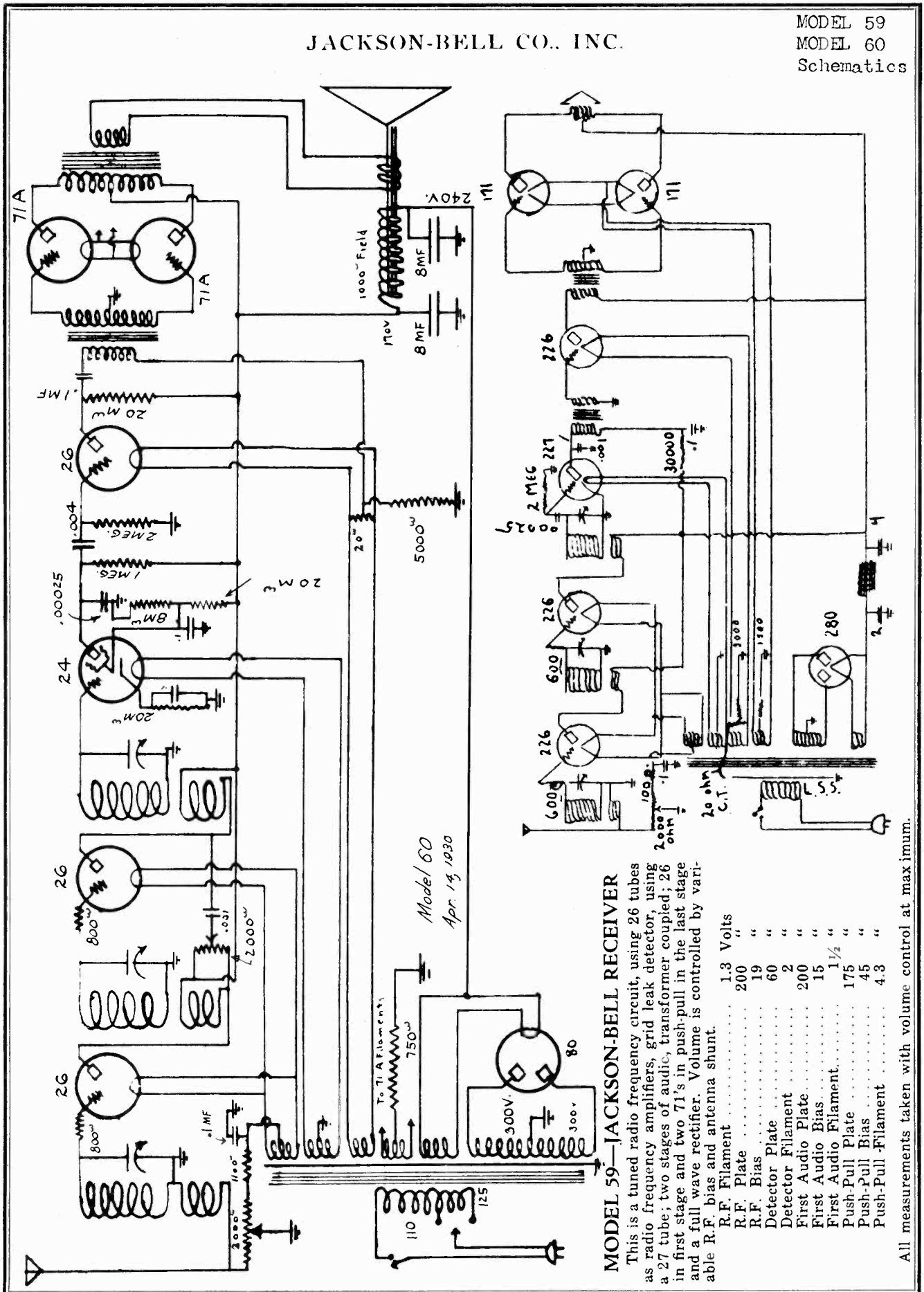
\*\*\*This reading is subject to considerable variation with meters of various resistances, as the voltage at this point is measured through a 500,000 ohm resistor. The voltage at the opposite end of the resistor should be 220 volts.

Speaker field resistance 1500 ohm, 110 volts.

RESISTOR CODE	
LARGE GREEN	5,000 OHM
BROWN	10,000
ORANGE	30,000
SMALL GREEN	.5 MEG
LAVENDER	2 MEG
DARK BLUE	
WIRE WOUND	250 OHMS

JACKSON-BELL CO., INC.

MODEL 59  
MODEL 60  
Schematics



**MODEL 59—JACKSON-BELL RECEIVER**

This is a tuned radio frequency circuit, using 26 tubes as radio frequency amplifiers, grid leak detector, using a 27 tube; two stages of audio, transformer coupled; 26 in first stage and two 71's in push-pull in the last stage and a full wave rectifier. Volume is controlled by variable R.F. bias and antenna shunt.

R.F. Filament	1.3	Volts
R.F. Plate	200	"
R.F. Bias	19	"
Detector Plate	60	"
Detector Filament	2	"
First Audio Plate	200	"
First Audio Bias	15	"
First Audio Filament	1 1/2	"
Push-Pull Plate	175	"
Push-Pull Bias	45	"
Push-Pull Filament	4.3	"

All measurements taken with volume control at maximum.



JACKSON-BELL CO., INC.

MODEL 60  
 MODEL 62  
 2nd & 3rd Series  
 MODEL 68  
 Alignment, Voltage

VOLTAGE AND CURRENT VALUES - MODEL 60 RECEIVERS

The following values are correct with 1000 ohm speaker field and 110 volts A.C. on the line, or 125 volts on the line when power transformer is thus connected. With volume control at half way position the following voltages should be indicated from ground:

- To 280 filaments, . . . . . 240 volts
- To low side of choke, . . . . . 180 "
- To detector screen grid, . . . . . 28 to 32 volts
- To 171 filaments, . . . . . 30 volts
- To R.F. Filaments, . . . . . 10 to 15 volts

As volume control is rotated from maximum to minimum the following values of plate current should be read within 20%:

- R.F. .00025 to .005 amperes as volume control is rotated from minimum to maximum.
- Detector 80 to 100 micro amperes.
- First audio .002 amperes.
- Second audio .017 to .020 amperes.

CONTINUITY TESTS:

The following resistance values should be observed when making continuity tests without removing the chassis from the cabinet:

- R.F. Grid to ground, . . . . . 800 ohms.
  - R.F. Plate to ground, . . . . . 23000 "
  - R.F. Filament to ground, . . . . . 1100 to 3200 ohms
- as volume control is shifted from maximum to minimum
- Detector grid to ground, . . . . . 1 ohm
  - Detector screen grid to ground, . . . . . 3000 "
  - Detector cathode to ground, . . . . . 20000 "
  - Detector filament to ground, . . . . . 0
  - First audio grid to ground, . . . . . 2 meg
  - First audio filament to ground, . . . . . 5000 ohms
  - First audio plate to ground, . . . . . 43000 "
  - Second audio grid to ground, . . . . . 1500 "
  - Second audio filament to ground, . . . . . 750 "
  - Second audio plate to ground, . . . . . 23000 "

COILS:

Effective immediately, specifications of the radio frequency transformers used in the Model 60 receiver are changed to the following:-

- Primaries, . . . . . 16 turns
- Secondaries, . . . . . 81 "

Circuit inductance, . . . . . 240 microhenries

The overall gain throughout the radio frequency amplifier with the new coils is approximately 300% greater than with the old ones. The substantial increase of sensitivity should, therefore, be observed.

When orders for replacement coils are filled they will always be in complete sets of three and of new type.

GRID SUPPRESSORS

Service notes and circuit print of this receiver show 2 - 800 ohm grid suppressors. The grid suppressor of the first radio frequency stage has been reduced to 300 ohms. The second one remains 800.

FILTER SYSTEM

Specifications of this receiver call for 2 - 8 microfarad electrolytic condensers in the filter. At times when the factory has been unable to obtain these electrolytic condensers it has been necessary to substitute paper condensers and an additional filter choke. The value of the units in the paper condenser block is as follows:

When the block is fastened in the chassis and the center terminal is viewed in an inverted position, the bottom terminal is five microfarads, the center terminal one microfarad and the top terminal two microfarads. Only a limited number of these have been installed and regular production will continue to contain the electrolytic condensers.

MODEL 62  
 2nd & 3rd Series

SERVICE NOTES  
 FOR SERIAL NO. 120,000 AND UP

If it should become necessary to resonate the radio frequency circuit, proceed as follows:-

Set the dial at about 20 degrees and set all coupling condensers at approximately one full turn to the left of the maximum capacity adjustment. With a grid dip oscillator, check all circuits for resonance, making connection to the caps on top of the screen grid tubes. The tubes should be cold when this is done. If it is necessary to move any of the coupling condensers more than one-half turn in order to obtain resonance, adjustment of capacity in that particular stage should be made by bonding the split rotor plate of the variable condenser. This does not apply to the antenna stage where the condenser on the coil does not affect coupling. When resonance has been obtained at this point, the dial should be shifted to 90, and all stages again checked with a grid dip meter. Here all capacity adjustments must be made by bending plates, being careful not to disturb the position of that portion of the split plate which was active when the first adjustment was made.

VOLTAGE AND CURRENT VALUES:

With the volume control at maximum, the following readings should be obtained, with an allowable variation of 10%:-

- R.F. Plate voltage, . . . . . 160
- R.F. Screen Grid Voltage, . . . . . 75
- R.F. Grid Bias, . . . . . 2.5
- R.F. Plate current, . . . . . 2.5M
- 245 Plate Voltage, . . . . . 225
- 245 Plate current, . . . . . 30
- 245 Bias, . . . . . 50 V.
- Detector Screen Grid Voltage, . . . . . 50 "
- Detector Bias, . . . . . 5 "
- Detector Plate Current, . . . . . .2 M (No signal in Receiver)
- Detector Plate Voltage, . . . . . 100\*

\*This reading will be obtained with a 300,000 ohm volt-meter as found in a Jewell 199 test set. This reading is subject to considerable variation with meters of various resistances, as the voltage at this point is measured through a 500,000 ohm resistor. The voltage at the opposite end of the resistor should be 250.

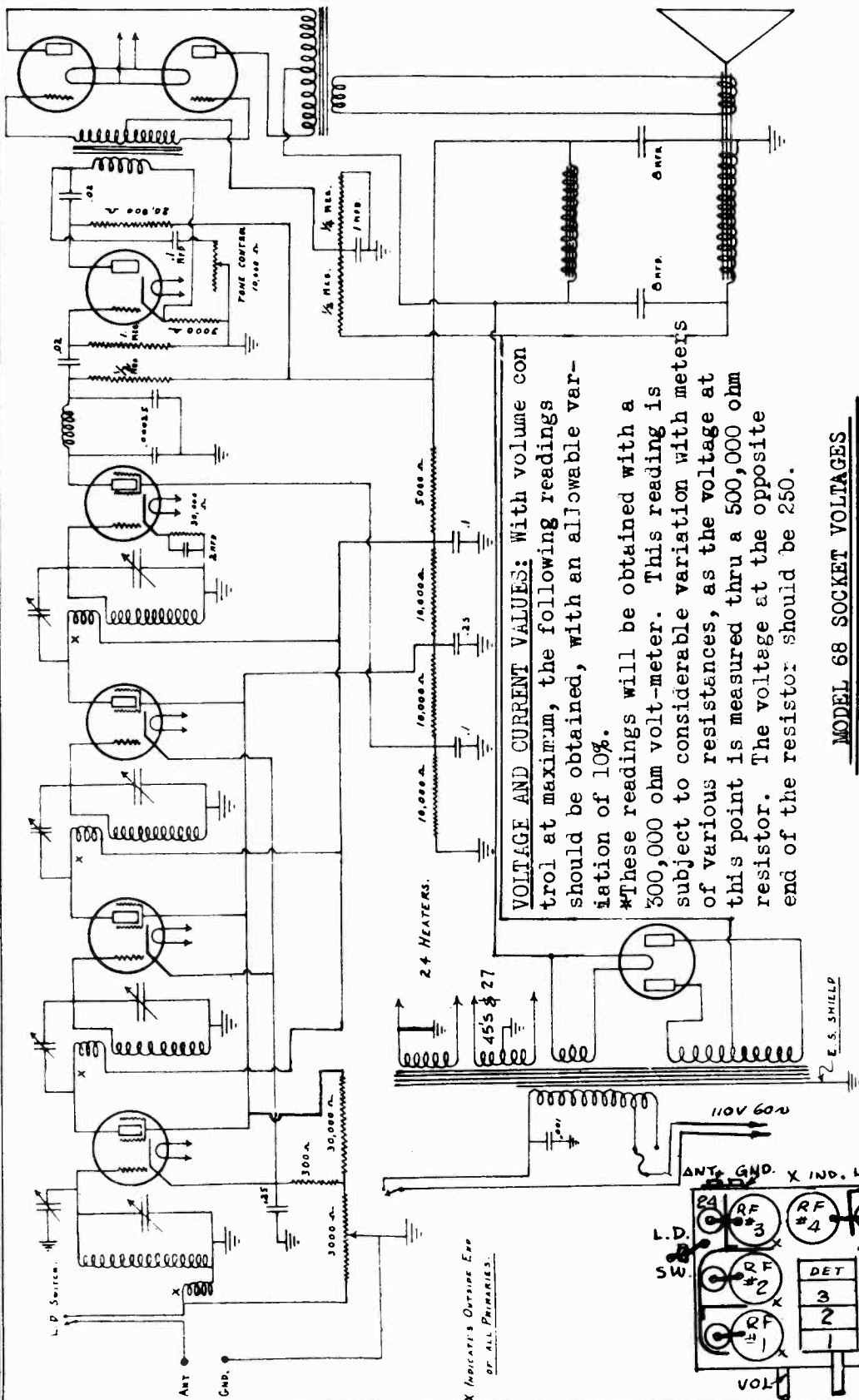
MODEL 68

If it should become necessary to resonate the radio frequency circuit, proceed as follows:

Set the dial at about 20 degrees and set all coupling condensers at approximately one full turn to the left of the maximum capacity adjustment. With the grid dip oscillator, check all circuits for resonance, making connection to the caps on top of the screen grid tubes. The tubes should be cold when this is done. If it is necessary to move any of the coupling condensers more than one-half turn in order to obtain resonance, adjustment of capacity in that particular stage should be made by bending the split rotor plate of the variable condenser. This does not apply to the antenna stage where the variable condenser on the coil does not affect coupling. When resonance has been obtained at this point, the dial should be shifted to 90 and all stages again checked with the grid dip meter. Here all capacity adjustments must be made by bending plates, being careful not to disturb the position of that portion of the split plate which was active when the first adjustment was made.

MODEL 68  
Schematic, Voltage  
Socket, Trimmers

JACKSON-BELL CO., INC.



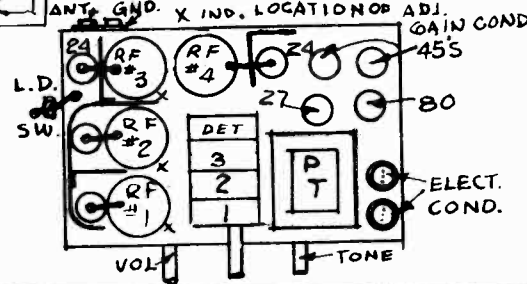
**VOLTAGE AND CURRENT VALUES:** With volume control at maximum, the following readings should be obtained, with an allowable variation of 10%.

\*These readings will be obtained with a 300,000 ohm volt-meter. This reading is subject to considerable variation with meters of various resistances, as the voltage at this point is measured thru a 500,000 ohm resistor. The voltage at the opposite end of the resistor should be 250.

MODEL 68 SOCKET VOLTAGES

R.F. Plate Voltage	160	245 Plate Current	23mils approx.
R.F. Screen Grid Voltage	75	245 Bias Voltage	50*
R.F. Grid Bias	2	Detector Screen Grid Voltage	40
R.F. Plate Current	2.2 mls approx.	Detector Bias Voltage	5**
R.F. Screen Current	.3 "	Detector Plate Current	.1 mils*a
245 Plate Voltage	210	Detector Plate Voltage	100****

No signal in receiver.

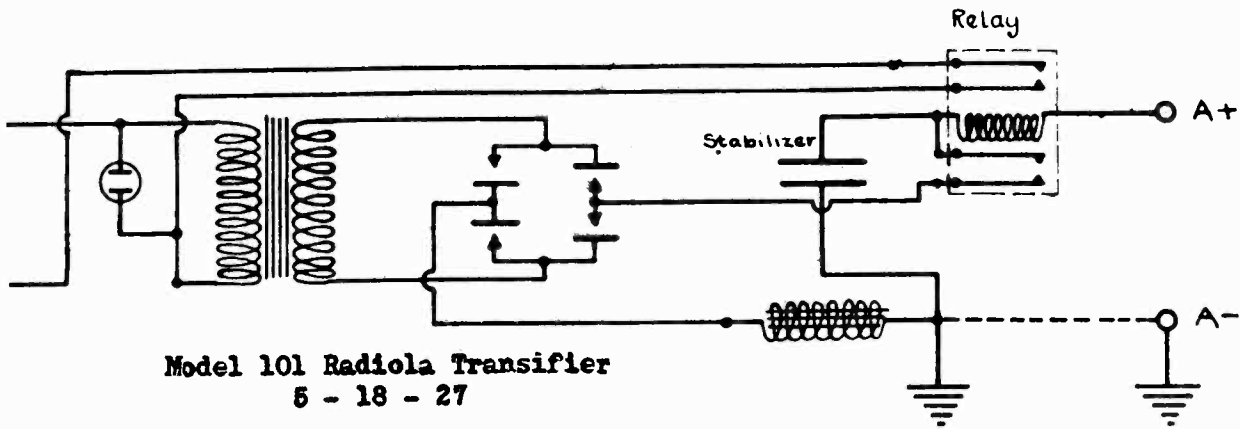




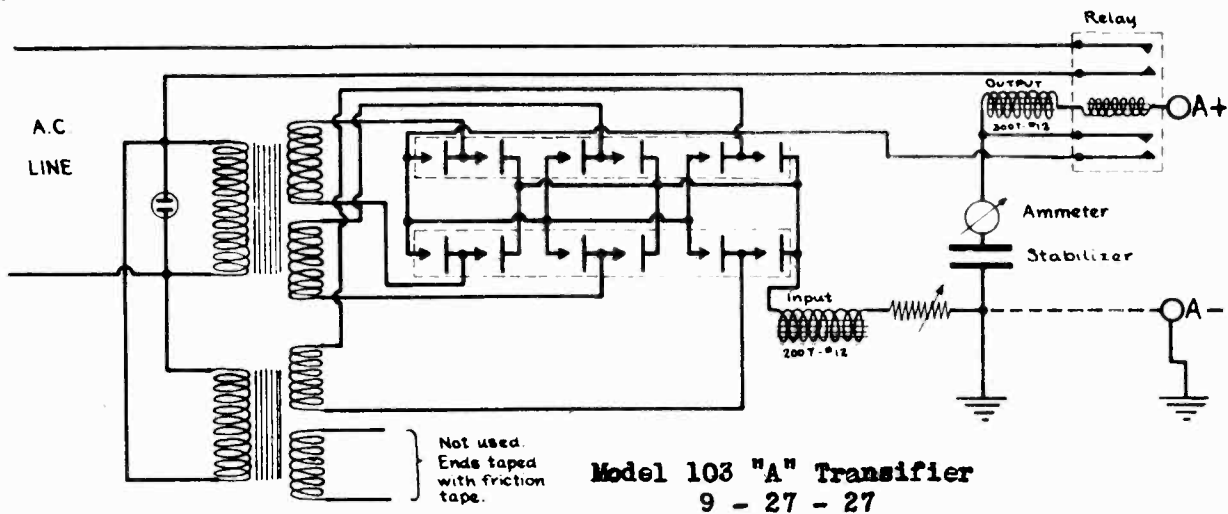


MODEL 101, Radiola Transifier  
 MODEL 103, A Transifier  
 MODEL 106, A & B Transifier  
 Schematics

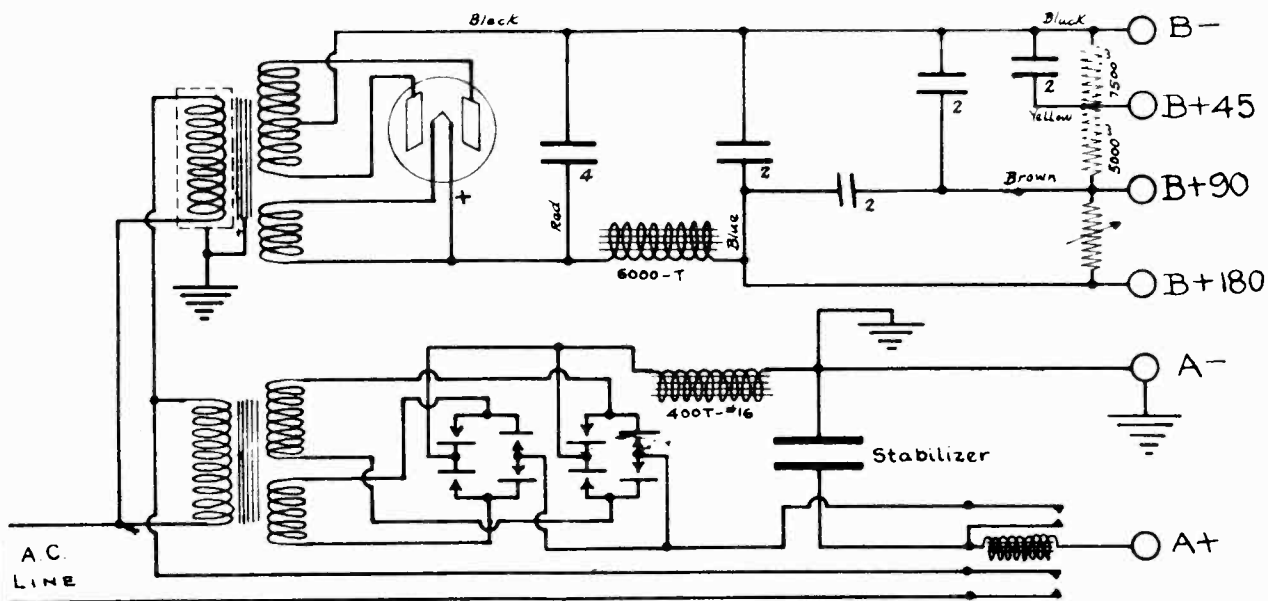
KODEL RADIO CORP.



Model 101 Radiola Transifier  
 5 - 18 - 27



Model 103 "A" Transifier  
 9 - 27 - 27



Model 106 Combination "A" and "B" Transifier  
 8 - 29 - 27







MODEL E-20, E-204  
Alignment, Voltage  
Socket, Parts

LAFAYETTE RADIO MFG. CO.

SERVICE NOTES FOR THE MODELS E-20 & E-204  
TUN TUBE ALL-WAVE SUPERHETERODYNE RECEIVERS

ALIGNMENT PROCEDURE

Realignment of this receiver should not be attempted unless all other possible causes of possible faulty operation have been thoroughly investigated. An accurately calibrated signal generator which will cover the necessary wave-bands and an output meter for indicating the effect of adjustments are required.

**I. F. ADJUSTMENT** - The signal generator is tuned to 115 kc. and is connected to the grid cap of the first detector (58) tube. The grid clip from the receiver is disconnected. The ground side of the generator is connected to the gnd. post of the receiver. The trimmers are adjusted by turning the screws up and down until maximum response is obtained in the output meter. Both the primary and secondary trimmers of the first i.f. transformer should be adjusted in this manner. The second i.f. transformer is an impedance coupled device and has no trimmers to adjust. The third i.f. transformer is aligned in the same manner as the first, except that the latter has only one trimmer. The first transformer is mounted in back of the short wave coil assembly. The third i.f. transformer is located between the 55 a.v.c. & n.s.c. tube and the 58 second detector. All i.f. trimmers are accessible from the top of the i.f. transformer shield cans.

**1400 KC. ADJUSTMENT** - The high side of the signal generator is connected to the antenna post of the receiver and the low side to the ground post. The receiver and the signal generator are both tuned to a frequency of 1400 kc. The oscillator trimmer condenser is adjusted for maximum receiver output, with the volume control on full and the signal generator adjusted for minimum input. The antenna preselector and first detector variable condenser trimmers are then adjusted in the order named. The variable condenser sections are, reading from front of the receiver to the rear, the antenna preselector, first detector, and oscillator.

**600 KC. ADJUSTMENT** - The receiver and signal generator are both tuned to 600 kc. and the 600 kc. padding condenser is adjusted for maximum output. This condenser is located on the left hand side of the chassis closest to the rear. The one toward the front of the chassis immediately adjacent to the 600 kc. padding condenser, is the 9.5 megacycle padding condenser. It may be necessary to rock the variable condenser slightly to the right and left in making this adjustment.

**9.5 MEGACYCLE ADJUSTMENT** - The band selector switch is adjusted for operation on band no. 1 and the receiver tuned to a point midway between 10 megacycles and the end of the dial. (approximately 9.5 meg.). The signal generator is set for a signal of 9.5 megacycles. The 9.5 megacycle trimmer, located alongside of the 600 kc. padding condenser, is now adjusted to bring in the signal at this dial setting. FAILURE TO HAVE THE CORRECT SIGNAL FREQUENCY OR AN IMPROPER SETTING OF THE RECEIVER DIAL WILL RESULT IN THE CALIBRATION OF THE DIAL BEING INACCURATE. After the 9.5 megacycle padding condenser has been correctly adjusted, the band selector switch should be changed for operation on band no. 2, and the 9.5 megacycle signal should come in at approximately 9.5 megacycles on the dial's calibrated section. If the signal is received too far from the correct dial position it will be necessary to recheck the 9.5 megacycle padding condenser. (NOTE: - The cause may be due to improper adjustment of the signal generator frequency.)

**140 KC. ADJUSTMENT** - This adjustment can only be made on the Model E-204 when it is necessary to align the no. 5 band (140 to 370 kc.). The signal generator is tuned to a frequency of 140 kc. With the band selector switch adjusted for operation on band no. 5, and the receiver dial set at 140 kc., the 140 kc. padding condenser is adjusted for maximum response on the output meter. This padding condenser is located on the front of the chassis pan below the tuning dial and is accessible through the small hole in the chassis pan. The signal generator is then set at 350 kc. and the receiver dial set at this same frequency. The chassis is turned on end and the signal tuned in by adjusting the trimmer condenser, which is mounted on the back section of the selector switch after peaking with this trimmer condenser, a further fine adjustment may be had by adjusting the oblong shaped trimmer mounted between the first and second sections of the wave selector switch. After these two trimmers have been correctly adjusted, the 140 kc. adjustment should be rechecked as the alignment of the latter is affected slightly by the adjustment of the former.

VOLTAGE TABLE

TUBE	FUNCTION	H.T.'R	PLATE	SCREEN	SUPPR.	CATH.	GR.#2	GR.#3
58	1st det.	2.4	220	20	1.2			
57	oscill.	2.4	66	65	2.2			
58	1st. i.f.	2.4	120	95	4.4			
58	2nd i.f.	2.4	220	95	4.4			
55	2nd det.							
	a.v.c.&n.s.c.	2.4	50		16			
57	1st aud.	2.4	175		50			
59	2nd aud.	2.4	200		18	200	200	
59	output	2.4	340				340	
59	output	2.4	340				340	
80	rectifier	5.0						

Line Voltage - 115 volts a.c.  
Volume Control - Full On  
N. S. C. - Minimum Suppression  
Wave Band - Broadcast

PARTS LIST

NOTE: - On Model E-20 the following parts are omitted: - R1, R6, O1, O3, O4, O6, and L1, 2, 3, 4, 5.

R1	25,000 Ohms	1/3 Watt res.	8907	.19
R2, 9, 16, 19	500,000 Ohms	1/3 Watt res.	6984	.19
R3, 10, 11	5000 Ohms	1/3 Watt res.	6880	.19
R4,	15,000 Ohms	1/3 Watt res.	9385	.19

PARTS LIST

R5	50,000 Ohms		6879	.19
R6	100,000 Ohms	1/3 watt res.	8000	.19
R7, 13	10,000 Ohms	1 watt res.	6979	.22
R8,	2,000 Ohms	1/3 watt res.	7997	.19
R12	250 Ohms	1/3 watt res.	6875	.19
R14	500 Ohms		9089	
R15, 29	25,000 Ohms	1.2 watt res.	9346	.22
R17	Vol. contr. (with sw.)		9296	1.43
R18	250,000 Ohms	1/3 watt res.	8906	.19
R20, 25	1 megohm	1/3 watt res.	7998	.19
R24	N.S.C. tube contr.		9297	.92
R26	Tone control		9295	.88
R27	1,000 Ohms	1 watt res.	6127	
R30, 31, 32, 33, 34, 35	Res. strip		9199	.94
O1	Aligning cond. (3 to 12 mmfd.)		9805	.17
O2	0.01 mfd. 400 v.		7860	.17
O3, 8, 18, 21	0.1 mfd. 200 v.		9386	.19
O4, 5	Padding condenser 550-1000 mmfd.		8927	.50
O6	Aligning condenser 15-40 mmfd.		9383	.28
O7	.0005 mfd. mica condenser		8830	.14
O10, 11, 12	3 Ohm tuning cond.		9276	4.13
O15, 16	.005 mfd. mica cond.		9302	.14
O17	.001 mfd. 300-600 mmfd.		9922	
O19, 37	.001 mfd. 400 v.		7861	.17
O22, 23, 24	.25-1.0-.25 mfd.		7843	1.27
O25, 33, 35, 38	.01 mfd.		7860	.17
O26	25.0 mfd. electrol. 25 v. d.c.		9196	.94
O27	8 mfd. electrol. 100 v.		9197	1.10
O28, 29, 30	4-8-8 mfd. electrol.		9193	3.52
O31, 32	.1-.1 mfd. 400 v. d.o.		9195	.66
O34	.0005 mica condenser		8830	.14
O39	.004 mfd. 400 v.		7852	.17
O40	4 mfd. electrol. 50 v. d.c.		8876	.17
T1	osc. & i.f. coil assembly		9277	5.45
T2	i.f. & imped. coupled unit		9258	1.29
T3	i.f. transf. assembly		9267	1.62
T4	audio transf.		9192	1.98
T5	power transf. (115 v. 50-60 cycles)		9270	6.33
	or universal power tr. (115-230 v. 25-50 cycles)		9266	
L1, 2, 3, 4, 5	140-370 kc. coil assembly.		9301	9.63
L6, 7, 8	540-1500 kc. coil assembly		9269	2.64
L9, 10	540-1500 kc. coil assembly		9269	1.35
L11, 13, 14, 15	1.5 24.5 mc. coil assembly		9261	4.70
L12	image bucking coil			
L16	filter choke		9179	1.76
	wave sw. for model E-204		9298	4.12
	wave sw. for model E-20		9279	3.85
	tuning dial compl.		9275	4.46
	pilot light bracket		9304	.08

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

PHONOGRAPH OPERATION

On the back of the chassis adjacent to the ant-gnd posts, are located the phonograph jacks into which the two tips of the phonograph pickup are to be inserted. It is necessary that the pickup be equipped with a volume control of its own. The toggle switch located just below the tip jacks, must be snapped in the position marked "P" for phonograph operation and to the position marked "R" for radio operation.

SHORT WAVE TRIMMER

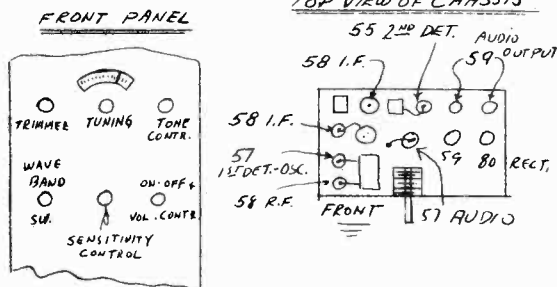
The short wave trimmer is used for a fine tuning adjustment when short wave reception between 1.5 and 24 mc. is desired. It is inoperative when the receiver is operating on the broadcast band.

FREQUENCY BANDS

The model E-204 is designed for the following five frequency bands:

Band #1	24 to 9.8 mc.
Band #2	9.8 to 3.8 mc.
Band #3	3.8 to 1.5 mc.
Band #4	1500 to 550 kc.
Band #5	350 to 150 kc.

Model E-20 is designed for the first four bands listed above only. Band #1 may be selected by placing the wave selector switch in the maximum left hand position. The other bands follow in rotation, as the knob is turned to the right.



LAFAYETTE RADIO MFG. CO.

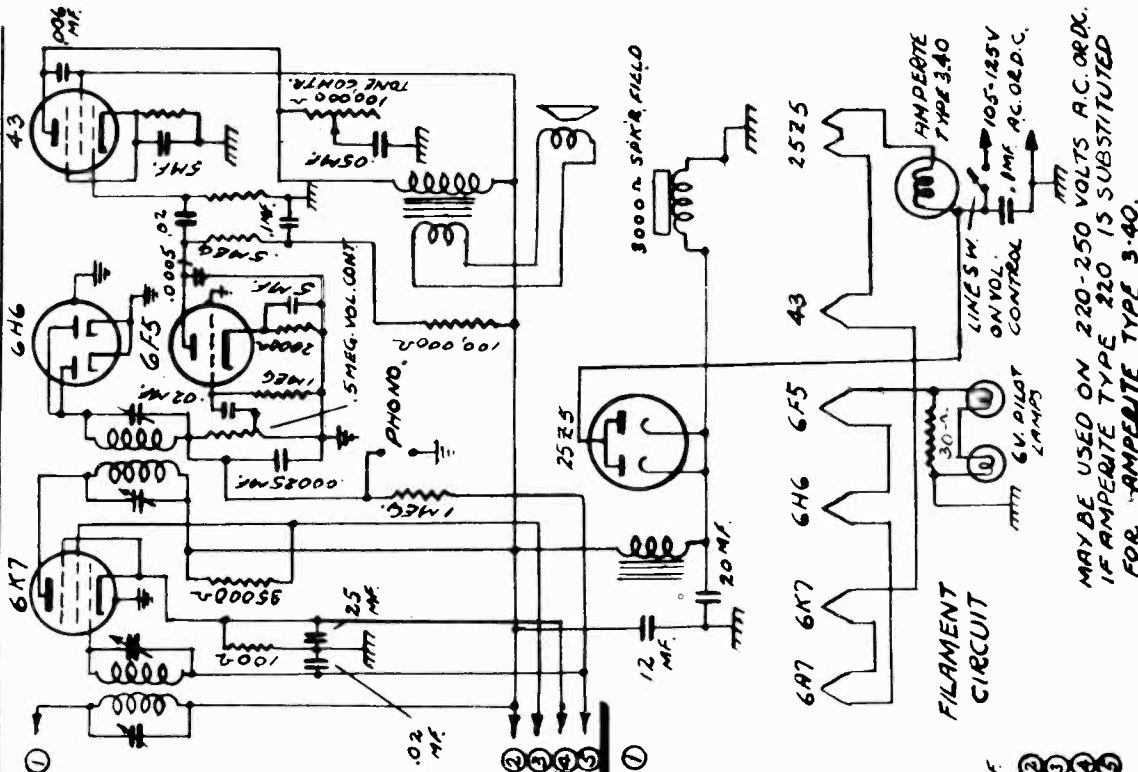
MODELS C-79, C-80  
Schematic

LAFAYETTE RADIO MFG. CO.  
100 SIXTH AVE., NEW YORK, N.Y.

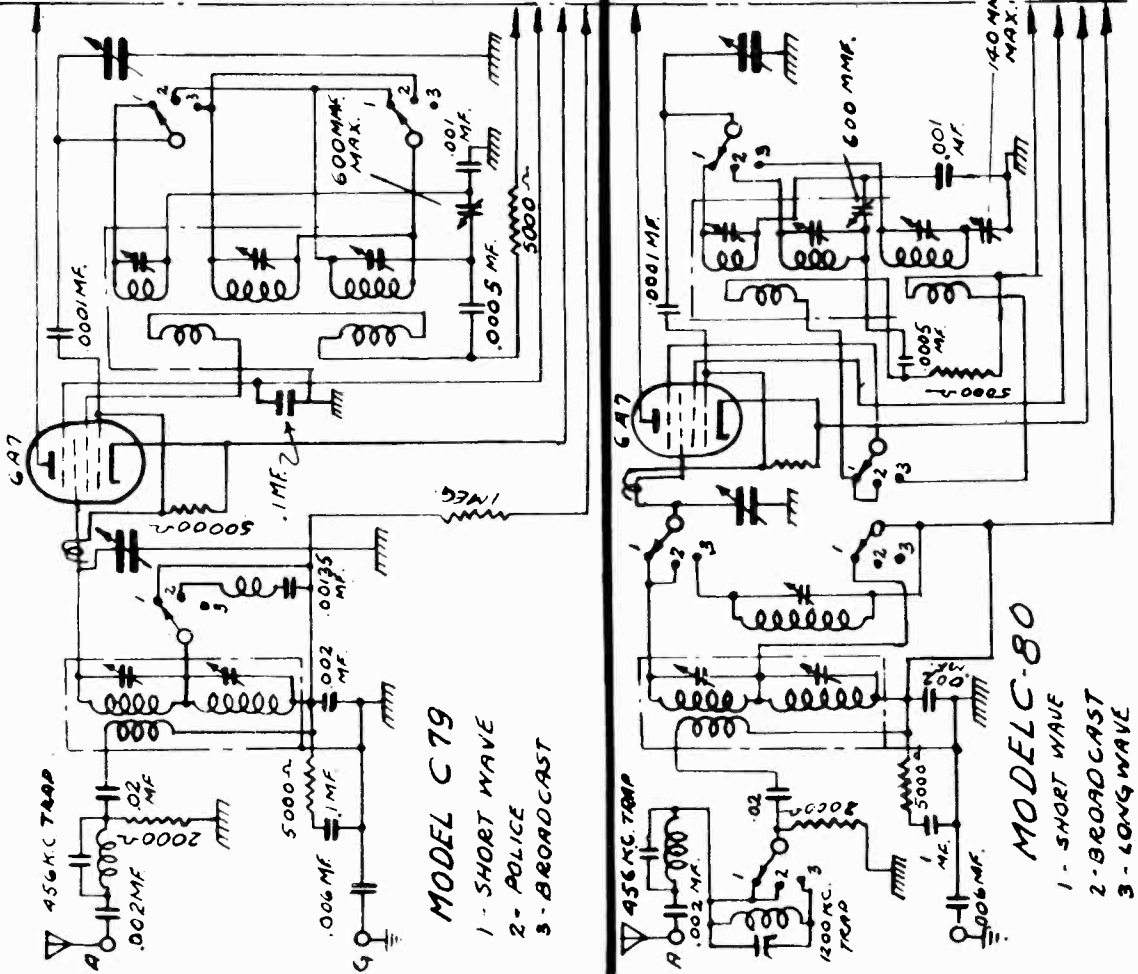
DATE- DECEMBER 4, 1935

ALL PARTS AND CONNECTIONS INDICATED  
TO RIGHT OF THIS DOTTED LINE  
ARE IDENTICAL ON MODELS  
C-79 AND C-80

1. F = 456 KC.



MAYBE USED ON 220-250 VOLTS A.C. OR D.C.  
IF AMPERITE TYPE 220 IS SUBSTITUTED  
FOR AMPERITE TYPE 3-40.



MODEL C79

- 1 - SHORT WAVE
- 2 - POLICE
- 3 - BROADCAST

MODEL C-80

- 1 - SHORT WAVE
- 2 - BROADCAST
- 3 - LONG WAVE

MODELS C-79, C-80  
Alignment, Voltage  
Socket

LAFAYETTE RADIO MFG. CO.

is set at position no. 1 and the receiver dial set at 16 mc. The oscillator trimmer is adjusted for maximum gain at this setting. This trimmer is found on the side of the oscillator coil shield can which is located directly in front of the i.f. transformers. The upper trimmer is the one for this wave-band. After the oscillator is adjusted, the antenna trimmer is adjusted. This is found on the front of the antenna coil can which is directly in front of the 6A7 tube. The lower trimmer is the one for this band.

**6 MEGACYCLE PADDER ADJUSTMENT** - With all connections as above, the signal generator is set at 5 mc. and the signal tuned in on the dial. The padder for this frequency is found on the front sub-panel of the receiver, in the lower left hand corner. This padder should be adjusted for maximum response of the receiver, while the tuning condenser is rocked slightly back and forth. The 16 mc. adjustment should then be rechecked.

**1400 KILOCYCLE ADJUSTMENT** - With the receiver and signal generator both set at 1400 kc. the procedure outlined above is repeated. The trimmers are adjusted for maximum gain of the receiver. These trimmers are located on the coil shield cans; the oscillator trimmer for this band is the bottom one on the oscillator can; the detector trimmer, is the upper one on the detector or antenna coil can. The 600 kc. padder is on the front sub-panel, directly under the selector switch.

**LONG WAVE ADJUSTMENT** - With the receiver and signal generator both set at 325 kc. the procedure outlined above is repeated. The trimmers are located on the left side panel of the chassis; the one towards the rear is the oscillator trimmer, and the one near the front is the antenna trimmer. There is no series padder for this band.

MODEL C-79

The alignment procedure for the Model C-79 is exactly the same as for the model C-80 except for the location of the trimmers, and the designation of the bands. These are as follows:

**Short wave band** - Oscillator trimmer is the lower one on the osc. coil can.  
Antenna trimmer is the upper one on the antenna coil can.  
No series padder.

**Broadcast band** - Oscillator trimmer is the upper one on the antenna coil can.  
Antenna trimmer is the lower one on the antenna coil can.

**Police band** - 600 kc. series padder is on the lower left hand corner of the front sub-panel.

Trimmers are on the left side panel of the chassis. The one towards the rear is the oscillator shunt trimmer; the one towards the front is the antenna shunt trimmer.

TUBE	FUNCTION	H.T.R	PLATE	SO. GR	CATH.	OSC. PL.
6A7	det.-osc.	4.5	100.2	47.0	---	90.0
6X7	i.f. ampl.	4.3	100.2	47.0	---	---
6H6	diode det.	4.5	---	---	---	---
6F5	1st audio	4.4	40.0	---	---	---
4Z5	audio outp.	20.2	94.0	100.0	12.3	---
25Z5	rectifier	21.0	114.0	---	---	---

VOLTAGE TABLE

OPERATING INSTRUCTIONS FOR THE MODEL C-80  
7 TUBE 3 BAND A.C.-D.C. SUPERHETERODYNE RECEIVER

POWER SUPPLY

This receiver is designed to operate on either direct or alternating current of any frequency on voltages between 105 and 130. If voltages in excess of this value are to be applied, a special voltage reducing resistor must be used. For operation on 220-250 volts, a type 220 amperite is substituted for the type 3-40 amperite.

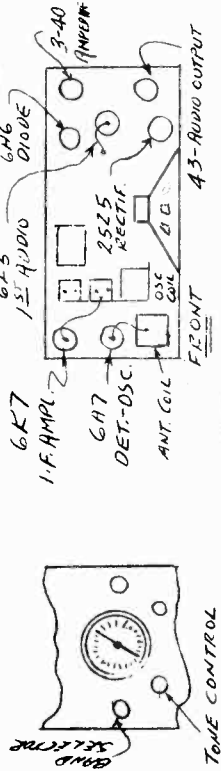
When operating from direct current, the tubes should be allowed about three-quarters of a minute to heat up; if, at the end of this time, no reception is heard, the line plug should be reversed in the socket. Power consumption - 50 watts.

FREQUENCY BAND

The receiver operates on three frequency bands; either band may be selected by means of the selector switch which is located at the extreme right, on the front panel. This switch has three positions which are marked to correspond to the three frequency bands designated below. The dial is also calibrated with three separate scales for these three bands:

- Band #1 short wave 5 to 16 mc. 60. to 18.75 meters
- Band #2 broadcast 540 to 1540 kc. 555.5 to 194.8 meters
- Band #3 long wave 140 to 326 kc. 2145 to 920.2 meters

CHASSIS LAYOUT (TOP VIEW)



ALIGNMENT PROCEDURE

Realignment of this receiver should not be attempted unless all other possible causes of faulty operation have first been thoroughly investigated. An accurately calibrated signal generator which will cover the various wave-bands, and an output meter for indicating the effects of adjustments, are required.

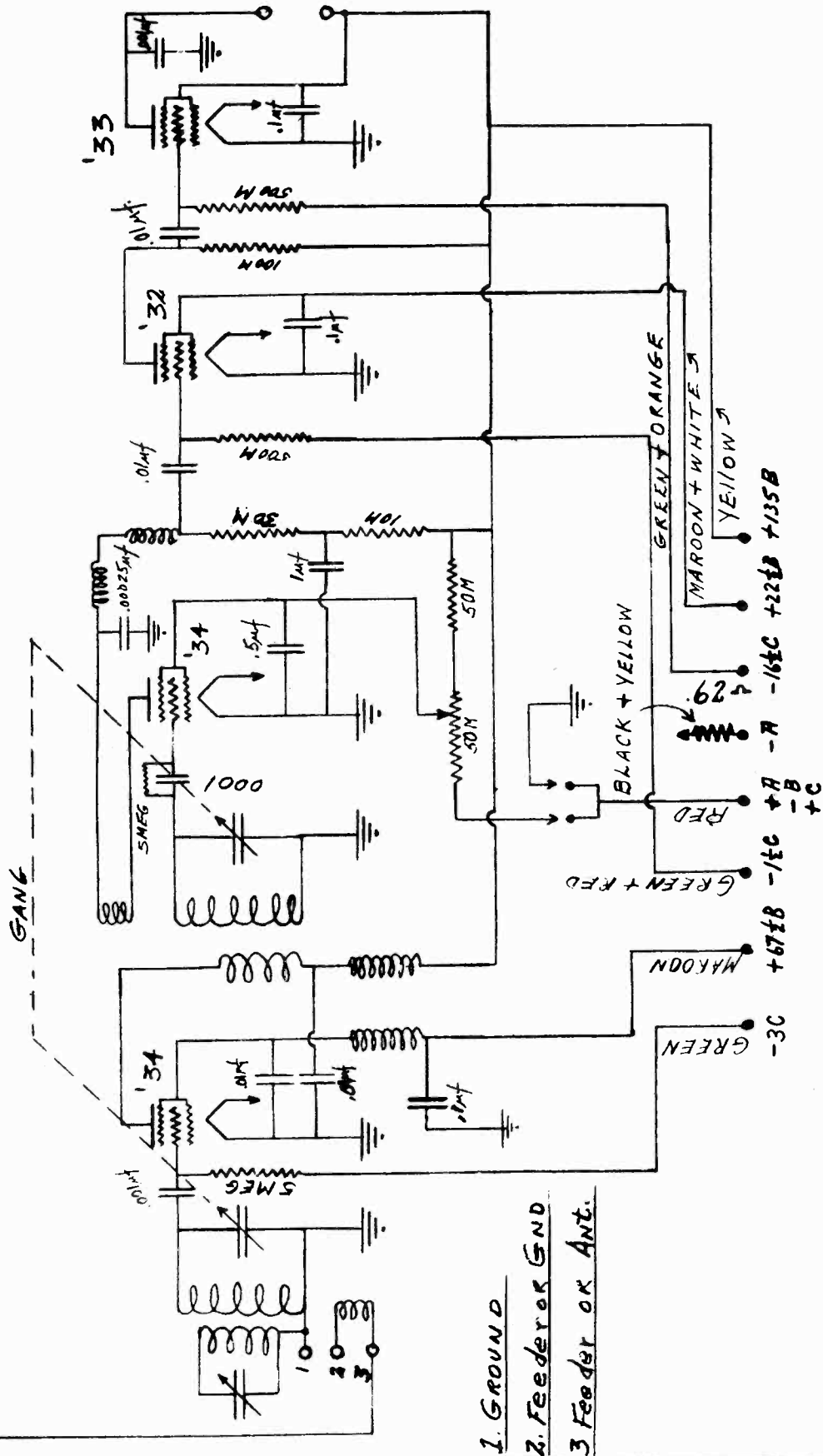
MODEL C-80

**I.F. ADJUSTMENT** - The signal generator is set at 456 kc. The "hot" lead from the signal generator is connected to the grid cap on the 1st detector (6A7) tube, the clip having first been removed from the tube cap. The ground lead is connected to the receiver gnd. post. The oscillator section (front) of the gang tuning condenser is short-circuited and the volume control turned on full. The i.f. trimmers are then adjusted for maximum gain in the receiver. These trimmers are located on top of the i.f. transformer shield cans, which are situated in the rear of the chassis, to the left. The one nearest the front is the 1st i.f. transformer and the rear one is the 2nd i.f. transformer.

**16 MEGACYCLE ADJUSTMENT** - The short-circuit is removed from the oscillator condenser and the grid clip replaced in its normal position on the cap of the 6A7 tube. The "hot" lead from the signal generator is connected to the antenna post of the receiver and the ground lead to the ground post of the receiver. With the volume control set at maximum and a minimum input signal from the signal generator, the band switch

LAFAYETTE RADIO MFG. CO.

BATTERY SHORT WAVE RECEIVER MODEL M-15



CHECKED BY ~ LESTER  
DATE ~ AUG-12-33

DRAWN BY ~ KOENIG

- 1. GROUND
- 2. Feeder or GND
- 3. Feeder or Ant.

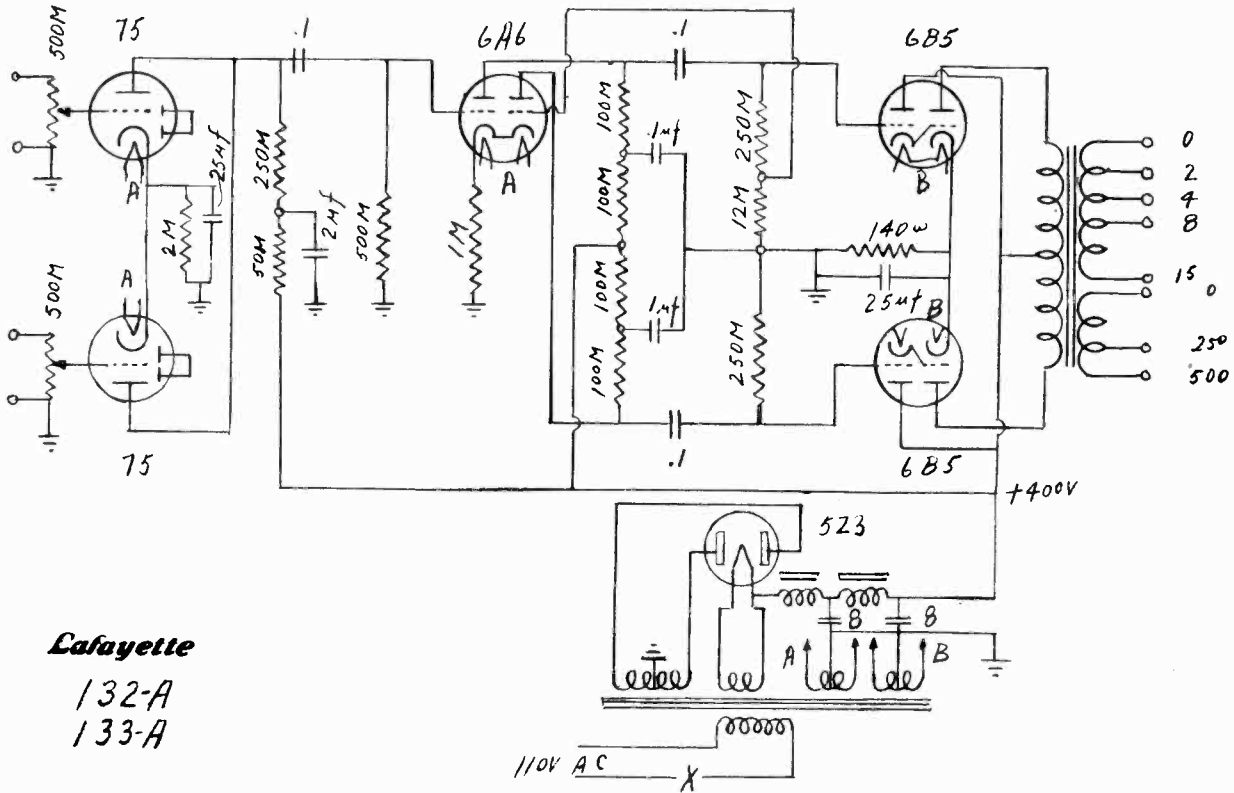


MODELS 132-A, 133-A

MODEL 135-A

Schematics

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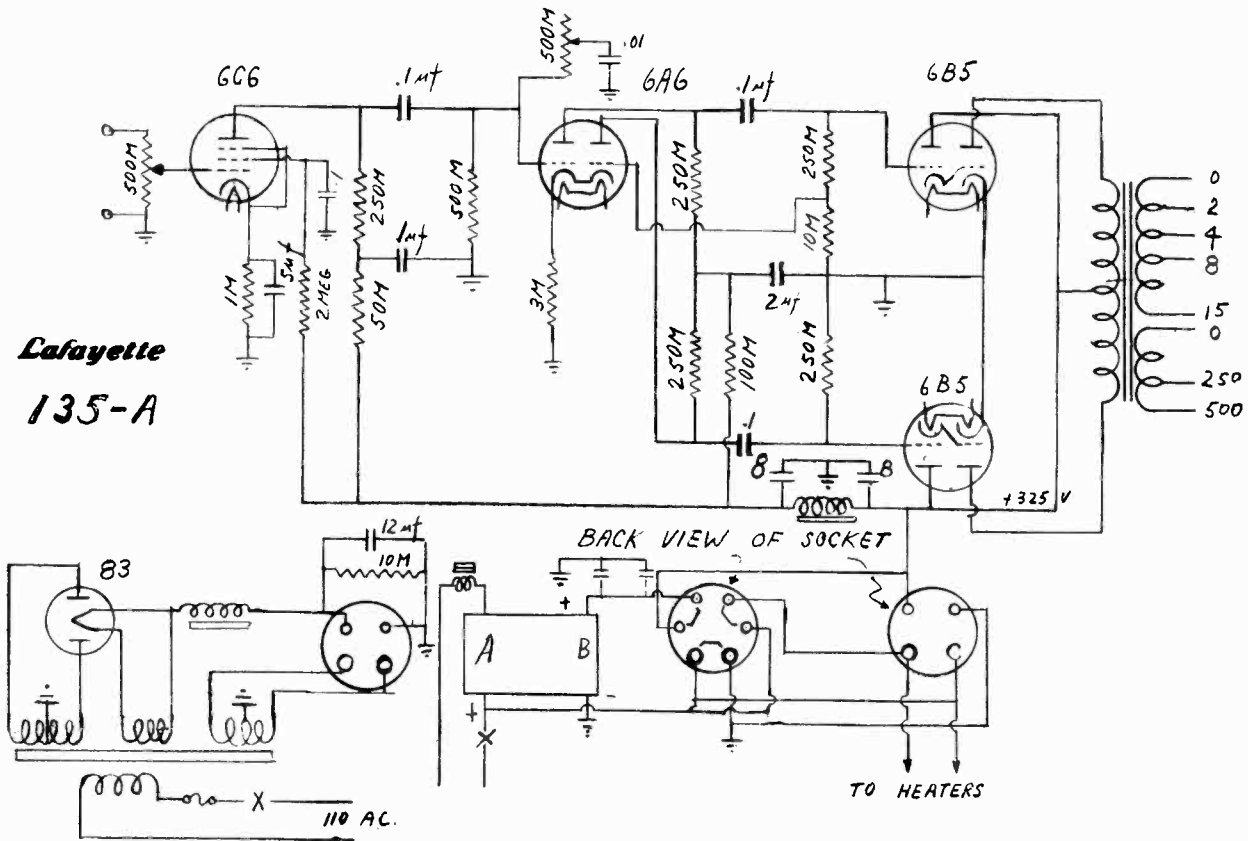
**Lafayette**

132-A

133-A

**Lafayette**

135-A





MODELS 137-X, 150-X  
171-X

LAFAYETTE RADIO MFG. CO.

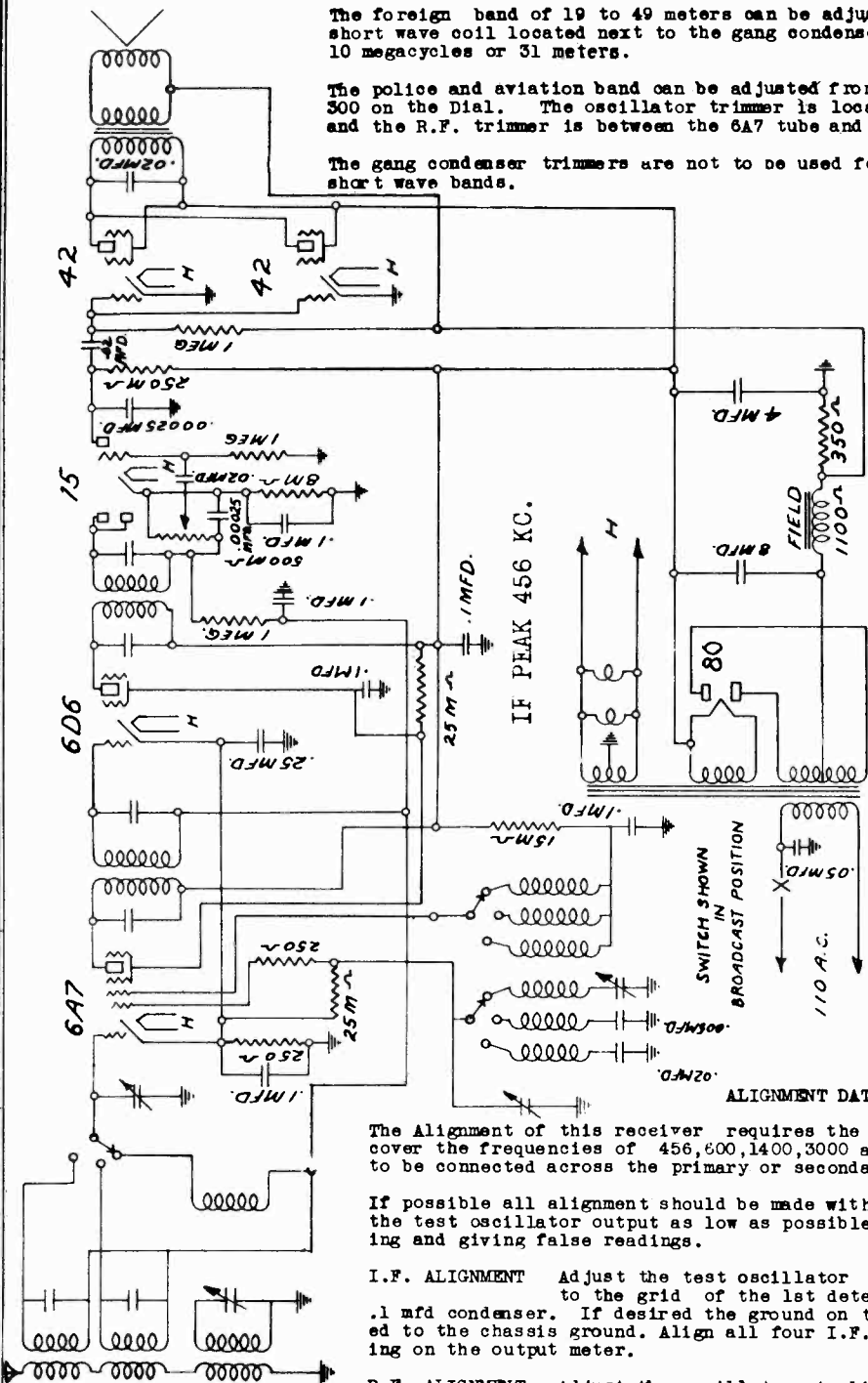
Schematic, Alignment  
Notes

SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the Dial. The oscillator trimmer is located underneath the chassis set and the R.F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.



SERVICE HINTS

- LOW VOLUME** This may be caused by weak or defective tubes (Replace with set of tubes known to be in good condition), antenna disconnected from the receiver, open antenna coil, open or shorted by-pass condensers, or defective wave change switch.
- LOW VOLTAGE** Low voltage may be caused by a defective 80 rectifier, low line voltage, a defective power transformer or shorted by-pass condensers.
- HUM** Excessive hum may be caused by a defective 80 tube, open filter condenser, or open audio grid lead.
- DISTORTED REPRODUCTIONS** This may be caused by a defective 75 or 42 tube or a ground or open in the automatic volume control circuits. Check all circuits with an ohmmeter or continuity tester.
- OSCILLATION** Most trouble from oscillation is due to open by-pass or defective filter condenser. The grid lead on the 75 tube may also cause a howl if it runs too close to the 42 tube.

ALIGNMENT DATA

The Alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456,600,1400,3000 and 10,000 K.C. and an output meter to be connected across the primary or secondary of the output transformers.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

**I.F. ALIGNMENT** Adjust the test oscillator to 456 K.C. and connect the output to the grid of the 1st detector tube (6A7) through an .05 or .1 mfd condenser. If desired the ground on the test oscillator can be connected to the chassis ground. Align all four I.F. trimmers to peak or maximum reading on the output meter.

**R.F. ALIGNMENT** Adjust the oscillator to 1400 K.C. and connect the output to the antenna post through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak.

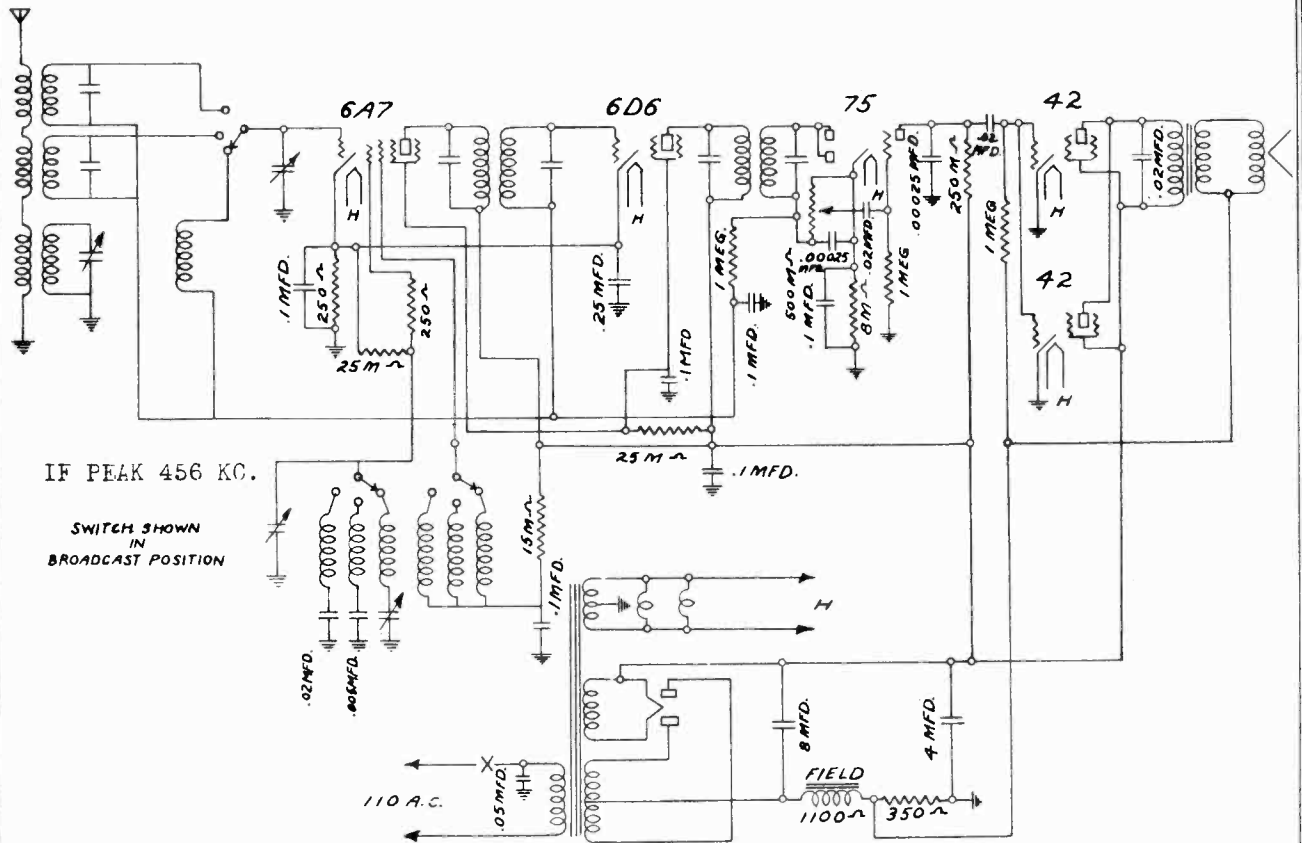
Next rest the dial pointer on the receiver and the test oscillator to 600 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the preselector or R.F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustments at that frequency to be sure they have not been thrown out of adjustment.

**SCHEMATIC DIAGRAM**  
OF  
**MODEL -**  
137X-150X-171X

## LAFAYETTE RADIO MFG. CO.

MODELS 143, 144, 149  
Schematic, Alignment  
Notes



## ALIGNMENT DATA

The Alignment of this receiver requires the use of a test oscillator that will cover the frequencies of 456, 600, 1400, 3000 and 10,000 K.C. and an output meter to be connected across the primary or secondary of the output transformers.

If possible all alignment should be made with the volume control on maximum and the test oscillator output as low as possible, to prevent the AVC from operating and giving false readings.

**I. F. ALIGNMENT** Adjust the test oscillator to 456 K.C. and connect the output to the grid of the let detector tube (6A7) through an .05 or .1 mfd condenser. If desired the ground on the test oscillator can be connected to the chassis ground. Align all four I. F. trimmers to peak or maximum reading on the output meter.

**R. F. ALIGNMENT** Adjust the oscillator to 1400 K.C. and connect the output to the antenna post through a .0001 mfd. mica condenser to give the equivalent of an antenna about 60 feet. Set the receiver pointer to 1400 K.C. and adjust the rear gang condenser trimmer to peak.

Next rest the dial pointer on the receiver and the test oscillator to 800 K.C. Slowly increase or decrease the oscillator padding condenser, and at the same time continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment seems a little complicated but is the easiest way to adjust the oscillator to the preselector or R. F. section. The padding condenser is located on the left hand end of the chassis.

Return to 1400 K.C. and again go over the adjustments at that frequency to be sure they have not been thrown out of adjustment.

## SHORT WAVE BANDS

The foreign band of 19 to 49 meters can be adjusted by the two trimmers on the short wave coil located next to the gang condenser. Set the test oscillator to 10 megacycles or 31 meters.

The police and aviation band can be adjusted from a signal set at 3,000 K.C. or 300 on the Dial. The oscillator trimmer is located underneath the chassis set and the R. F. trimmer is between the 6A7 tube and the wave change switch.

The gang condenser trimmers are not to be used for alignment of either of the short wave bands.

## SERVICE HINTS

**LOW VOLUME** This may be caused by weak or defective tubes (Replace with set of tubes known to be in good condition), antenna disconnected from the receiver, open antenna coil, open or shorted by-pass condensers, or defective wave change switch.

**LOW VOLTAGE** Low voltage may be caused by a defective 80 rectifier, low line voltage, a defective power transformer or shorted by-pass condensers.

**HUM** Excessive hum may be caused by a defective 60 tube, open filter condenser, or open audio Grid lead.

**DISTORTED REPRODUCTIONS** This may be caused by a defective 75 or 42 tube or a ground or open in the automatic volume control circuits. Check all circuits with an ohmmeter or continuity tester.

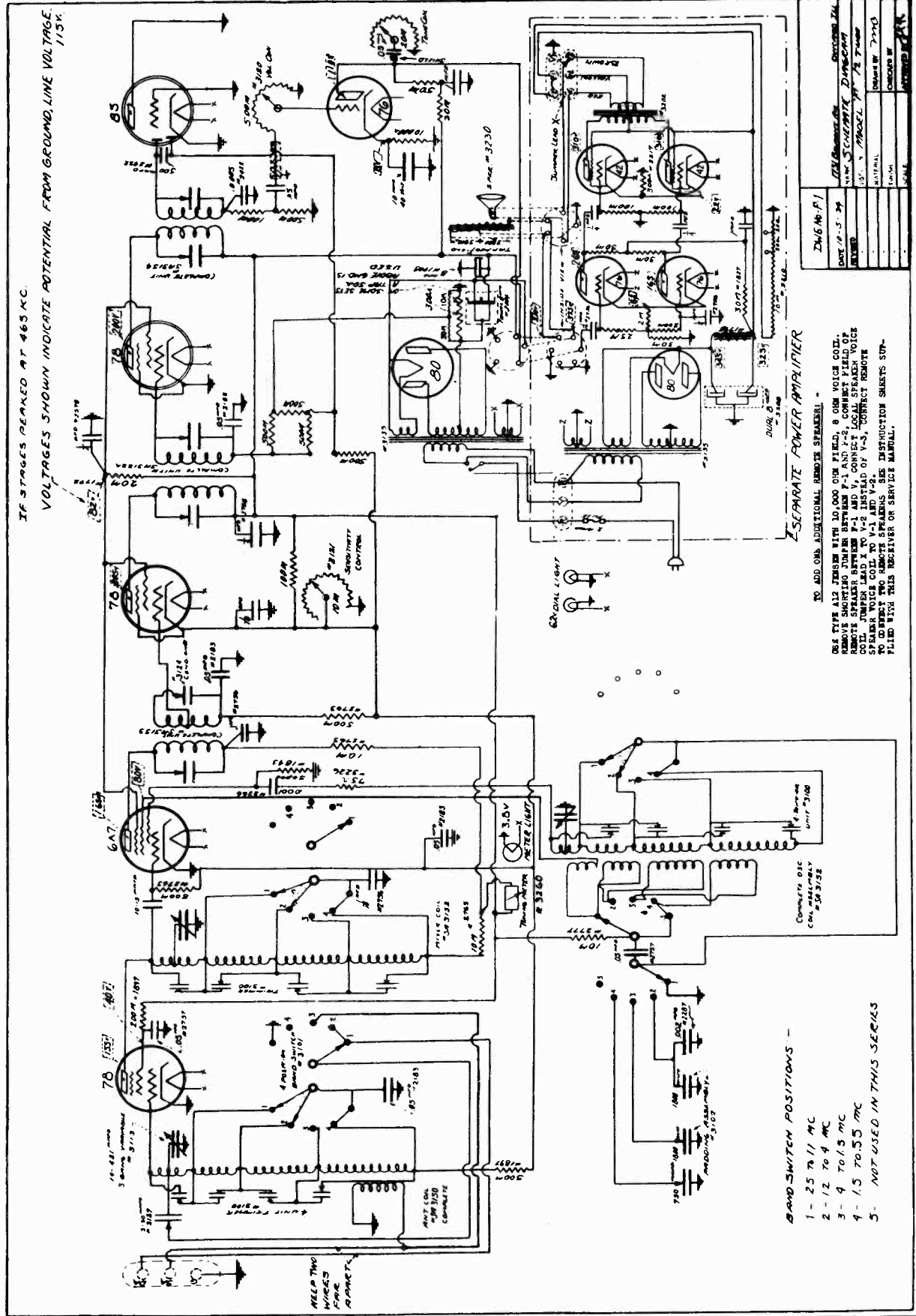
**OSCILLATION** Most trouble from oscillation is due to open by-pass or defective filter condenser. The grid lead on the 75 tube may also cause a howl if it runs too close to the 42 tube.



LAFAYETTE RADIO MFG. CO.

MODELS 151, 154, 186, 188

Schematic, Voltage



MODELS 151,154  
186,188

## LAFAYETTE RADIO MFG. CO.

## Alignment

## THE PROCEDURE TO ALIGN THE I.F. STAGES

The IF's are aligned in the usual system of feeding the intermediate frequency of 485 KC into the grid of the 6A7 1st Detector tube.

Make certain that the sensitivity adjustment (which is the knurled shaft extending from the back of the chassis) is turned all the way to the right when gaining the IF, RF or Oscillator circuits.

The two trimmers in each of the three IF Coil Cans should be very carefully tuned to resonance as they are very critical and will greatly affect the performance of the receiver.

The sensitivity of the IF stages should be between 10 and 20 Microvolts.

On some of the models the trimmer screws extend through the bottom of the chassis as per pictorial view. On other styles the trimmers are reached through the top of each IF shield can.

## 5. NOTES ON ALIGNING THE R.F. AND OSCILLATOR CIRCUITS

(a) After the IF's are aligned, the various circuits may be aligned in the order given below.

(b) Keep the sensitivity adjustment all the way on to the right as before.

(c) It is not necessary that the oscillator be taken out of its socket when aligning any of the RF circuits.

(d) Always adjust the oscillator stage before the RF in any particular band.

(e) Before adjusting any band, make certain that the pointer of the station indicator is set on the last line when the dial is turned all the way to the right, on above 560 - at this point the variable condenser should be all the way in to maximum capacity. See pictorial.

(f) The plates on the variable condenser should be bent to make the KC readings on the dial line up ONLY on the Broadcast Band.

(g) Always seal the trimmers with wax or collidon after their adjustment.

(h) After the high frequency adjustments have been made on short wave bands, the test oscillator or generator should be advanced to 930 KC higher in frequency - the output voltage of generator advanced considerably and notice of the image signal of receiver oscillator falls at this point. In case this signal is not heard, the adjustment of the receiver oscillator has been incorrectly made. As an example:-

After the third short wave band has been adjusted at 20 M.C. it should be possible to move the test oscillator to  $20\frac{1}{2}$  930 KC and hear the signal.

(i) Before starting with the alignment adjust antenna series condenser A - without the use of the signal generator - by turning the screw all the way down to maximum capacity, and then loosen the screw about one half turn.

(j) Start with the third (highest frequency). Short wave band as follows:-

## 4. THIRD SHORT WAVE BAND

Refer to the pictorial views of the chassis.

Rotate band switch all the way to left to 25-11 Megacyclic setting.

Set dial hand to 24 Megacycles.

Peak trimmer B to 24 Megacycles from the signal generator fed into the antenna.

If the set is far out of alignment, it may be necessary to use a heavy input from the generator and also vary the Antenna Coil and Mixer Coil Trimmers C and D until the heavy signal is not necessary. Make the final adjustment on C and D after the oscillator B trimmer is set.

Next, set the dial hand to 12 Megacycles on the same band and with a 12 Megacyclic signal, resonance may be checked and corrected by shifting the ground lead at "V" (see pictorial) by sliding it in either direction as necessary along the bare ground wire for the greatest gain.

As mentioned above in paragraph three - the image signal may be checked to determine if the adjustments have been made on the correct signal.

## 5. SECOND SHORT WAVE BAND

Rotate band switch to 12-4 Megacycles.

Set dial hand to 12 Megacycles.

Peak trimmer Z at 12 Megacycles.

Peak Trimmers F and G in the RF circuits on the same frequency.

Set dial hand to  $4\frac{1}{2}$  Megacycles on the same band.

Adjust padding condenser H to the  $4\frac{1}{2}$  Megacyclic signal.

## 6. FIRST SHORT WAVE BAND

Rotate band switch to 4-1.5 Megacycles.

Set dial hand to 4 Megacycles.

Peak Trimmer I to 4 Megacycles.

Peak Trimmers J and K in the R.F. circuits to the same frequency.

Set dial hand to 1.5 Megacycles.

Adjust Padding Condenser L to resonance with 1.5 Megacycles.

## 7. BROADCAST BAND

Rotate band switch to "B" position.

Set dial hand to 1500 Kilocycles.

Peak Trimmer M to 1500 Kilocycles.

Peak Trimmers N and O to 1500 Kilocycles.

Set dial to 550 Kilocycles.

Adjust Padding Condenser P to resonance with 550 Kilocycles.

Recheck dial at 1500 Kilocycles.

Check the middle of the dial at 950 Kilocycles for example and bend the plates of the variable condenser if necessary to line up with the calibration.

## 8. THE LONG WAVE

This adjustment applies to sets that have the extra band from 150 Kilocycles to 350 Kilocycles attached.

The alignment trimmers are shown in dotted lines on the Pictorial Diagram.

Rotate band switch to its fifth position - all the way to the right.

Set dial hand to 350 Kilocycles.

Peak Trimmer Q to 350 Kilocycles from the signal generator.

Peak Trimmers R and S in the RF circuits to the same frequency.

Set dial hand to 150 Kilocycles.

Adjust Padding Condenser T at 150 Kilocycles.

## 9. NOTES

(a) On some series the two resistors - 800 and 2000 ohm, have been added.

(b) Refer to schematic #1903 showing changes, if any, that have been made since sets were in production.



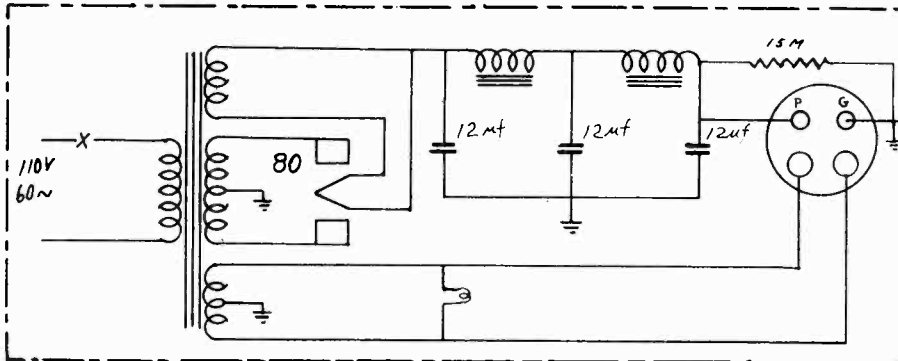
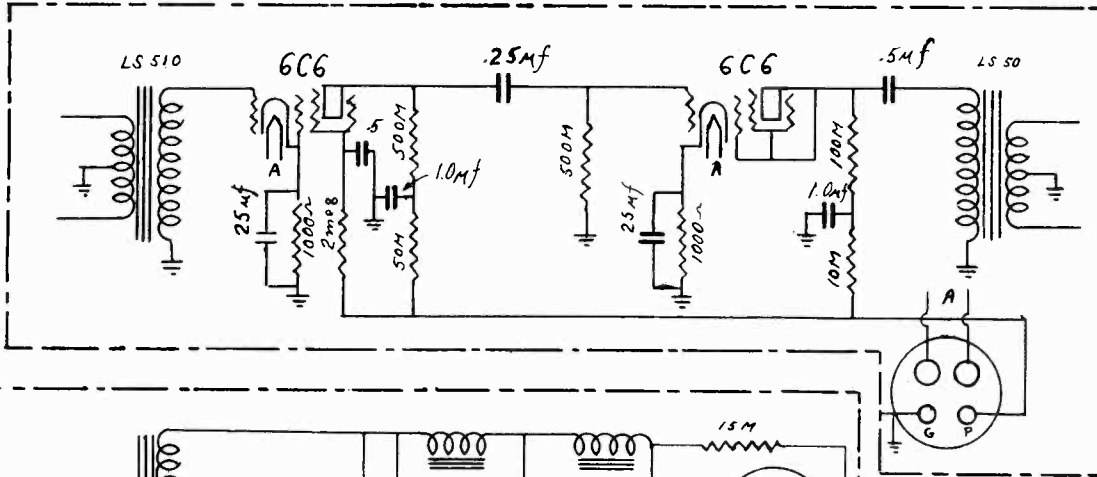


MODEL XP-15949

MODEL P-15754

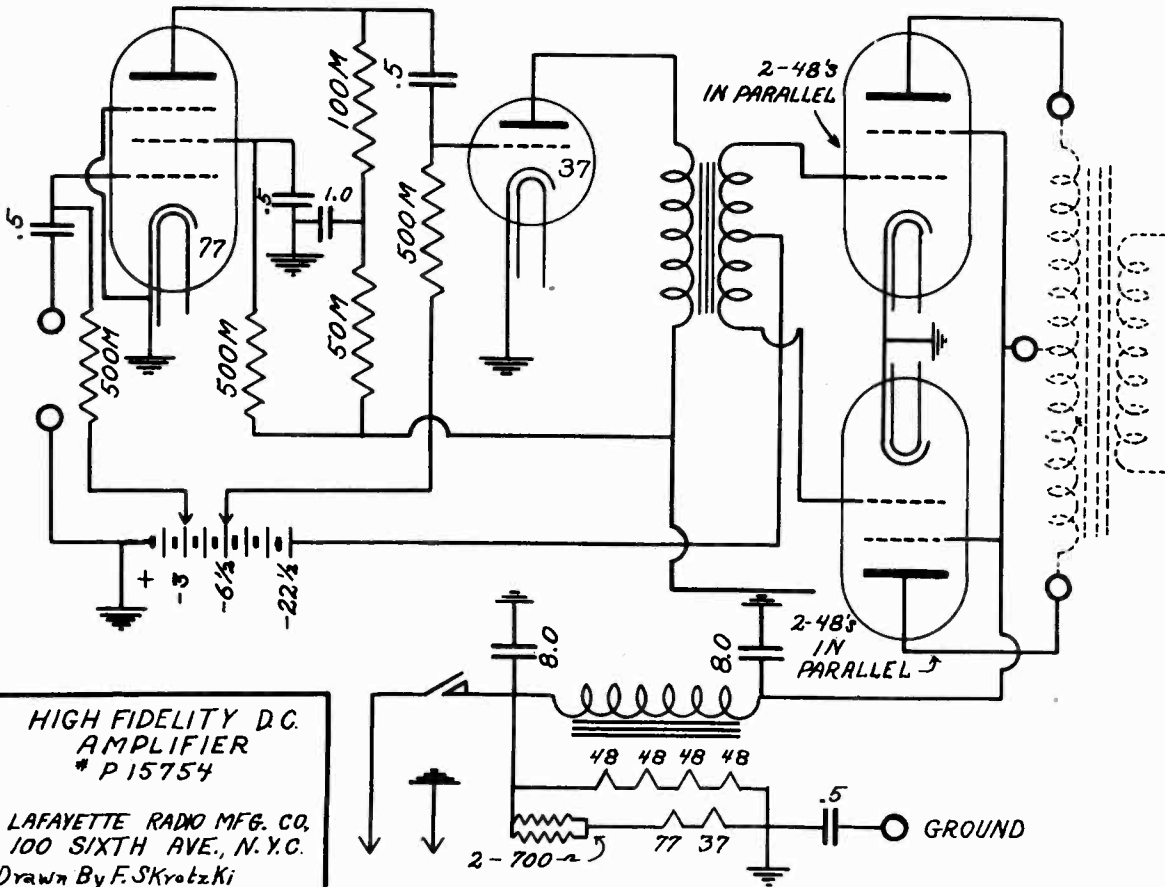
Schematics

LAFAYETTE RADIO MFG. CO.



A-C. PRE-AMPLIFIER

XP - 15949



HIGH FIDELITY D.C.  
AMPLIFIER  
# P 15754

LAFAYETTE RADIO MFG. CO.  
100 SIXTH AVE., N.Y.C.  
Drawn By F. Skrotzki  
Checked By H. Sharbb