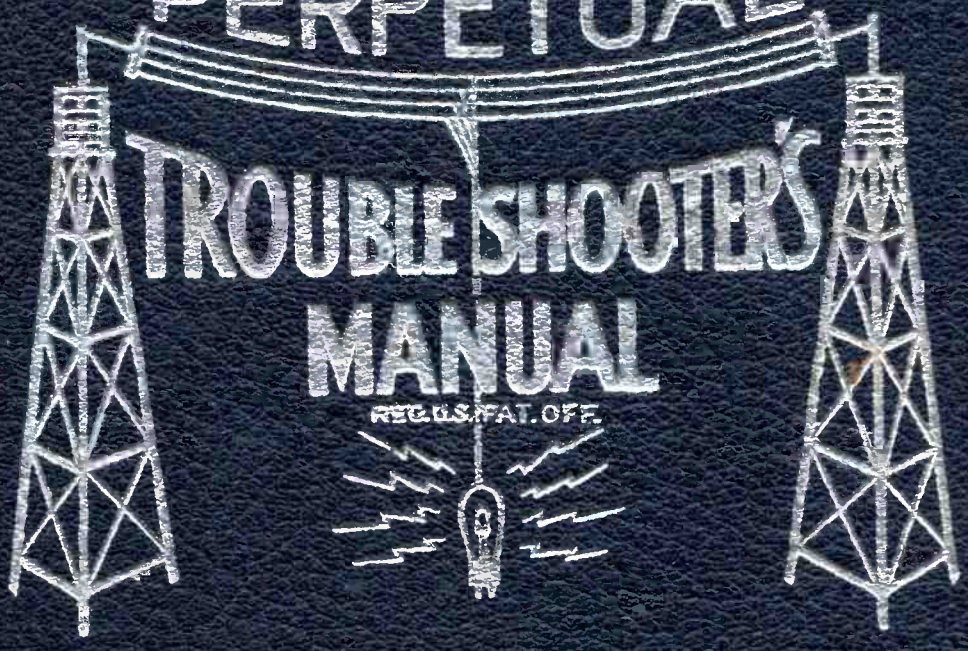
VOLUME XI

PERPETUAL TROUBLESHOOTER'S MANUAL

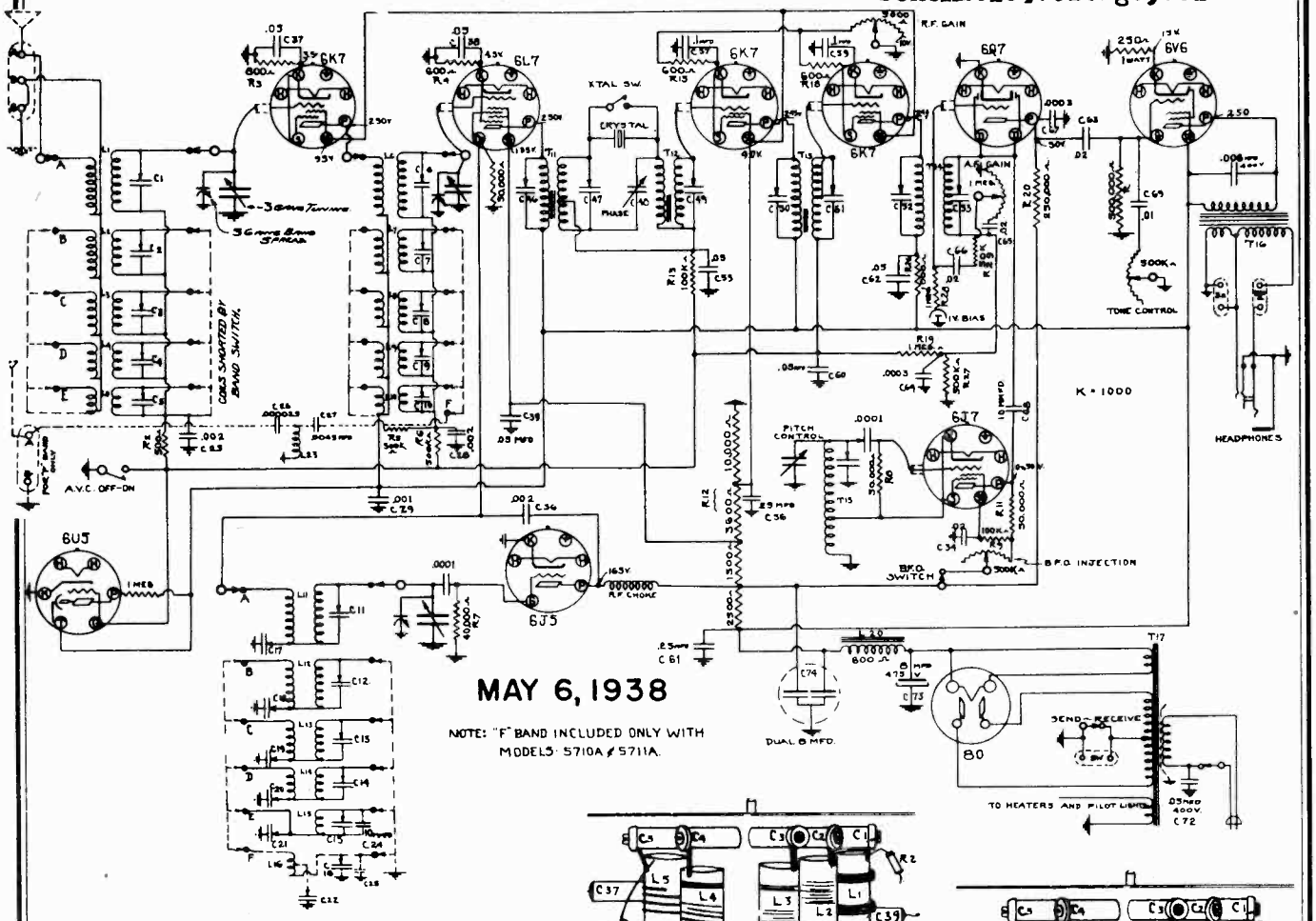
REG. U.S. PAT. OFF.



JOHN F. RIDER

MODELS 5710, 5711, Ch. 107.450
5710A, 5711A, Ch. 107.450-2

SEARS, ROEBUCK & CO. Schematic, Voltage, Coils



MAY 6, 1938

NOTE: "F" BAND INCLUDED ONLY WITH MODELS 5710A & 5711A.

MODELS	5710-11	5710A-11A	See Note 1
DATE	9-9-37	Lic. #	1731
REVISED		Dwg No	829-715

TUBE SOCKETS ARE VIEWED FROM UNDER-SIDE OF CHASSIS.

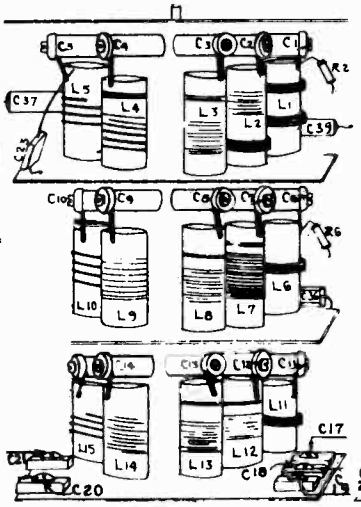
VOLTAGE READINGS AT INDICATED SOCKET PROBES ARE TO CHASSIS WITH A.C. LINE OF 115 VOLTS, AND WITH R.F. GAIN CONTROL FULL ON, NO SIGNAL IN ANTENNA.

I.F. = 465 KC.

POWER SUPPLY:
105 - 120 Volts, 60 Cycle A.C. - 95 Watts
105 - 135 Volts, 25 Cycle A.C. - 95 Watts

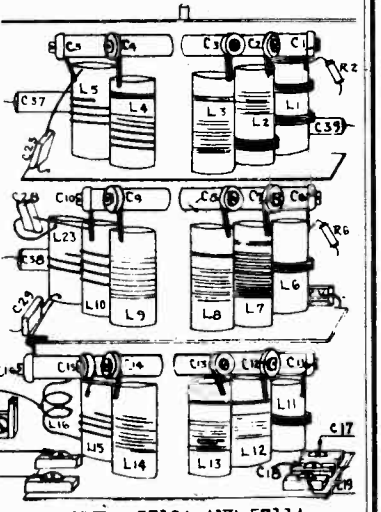
LOUD SPEAKER:
Type . . . . . Permanent Magnet Dynamic
Size . . . Within Separate Case - 8 Inch

POWER OUTPUT:
Type . . . . . Single Output
Undistorted . . . . . 4 Watts
Maximum . . . . . 5 Watts



MODELS 5710 AND 5711

FIG 2.



MODELS 5710A AND 5711A

FIG. 3.

TUBES AND FUNCTIONS:

6K7	1st RF	6Q7G	Second Detector, 1st AF
6L7	Translator	6V6G	Single Output
6J5G	Oscillator	80	Rectifier
6K7	IF Amplifier	6J7G	Beat Frequency Oscillator
6K7	IF Amplifier	6U5	Tuning Eye

Recommended Antenna Equipment:

Cat. #5567 The Doublet System.
Cat. #5510 Conventional System.
Cat. #5575 Conventional System.
Cat. #5512 Conventional System.

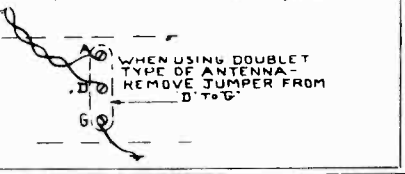
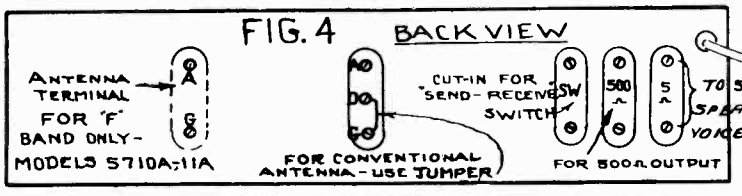


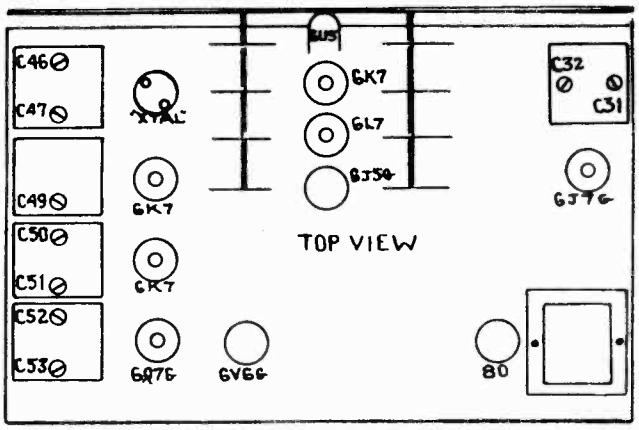
FIG. 4 BACK VIEW

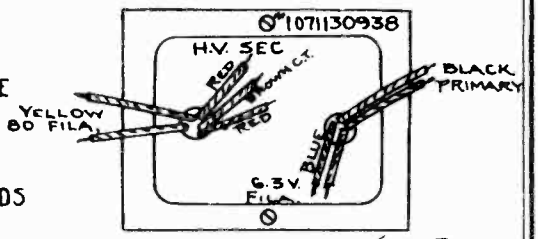


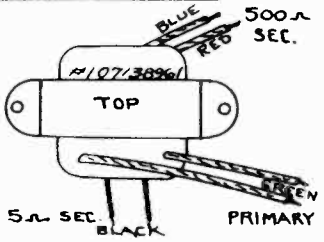
MODEL 5710,5711,5710A
5711A

SEARS, ROEBUCK & CO.

Alignment, Trimmers
Socket







PRELIMINARY: FIG. 1

Output meter connection.....4,000 ohm or more copper oxide meter across 5 ohm terminals. Shunt with speaker

Output meter reading to indicate .5 watt.....1.575 V.

Average sensitivity in microvolts for .5 watt output.....See chart below

Generator ground lead connection. ..Direct to chassis Generator modulation....30%, 400 cycles Position of volume control A.F. gain...Full on R.F. gain....Full on A.V.C. Switch...On Band spread dial set at 100...Min. Capacity

NOTE 1; When aligning the I.F. channel a condenser of .05 MFD. may be used in series with the generator lead.

NOTE 2; When aligning the broadcast band, a 250 MMFD. condenser may be used in series with the signal generator.

NOTE 3; When aligning the short wave bands a 400 ohm resistor may be used in series with the signal generator.

POSITION OF VARIABLE AND BAND SW.	GENERATOR FREQ.	GENERATOR CONNECTION	TRIMMER LOCATION	TRIMMER ADJUSTMENTS IN ORDER	TRIMMER FUNCTION	APPROX. MICROVOLTS
Closed "A" Band	465 KC	6L7 Grid	SEE FIG.1	C53,52,51 50,49,47,46	I.F.	15
60 MC "F"	60 MC	A-G Ant. Term.	MODELS 5710A-11A SEE FIG.3	C16	Osc.	Approx. 10
40 MC "F"	40 MC	A-G Ant. Term.		C22	Padder	Approx. 10
36 MC "E"	36 MC	A-D-G Ant. Term.	SEE FIG.2or3	C15,10,5	Osc. Trans. Ant.	Approx. 3
16 MC "E"	16	A-D-G Ant. Term.		C21	Padder	Approx. 3
15 MC "D"	15 MC	A-D-G Ant. Term.	SEE FIG.2or3	C14, 9,4	Osc. Trans. Ant.	Approx. 1
7 MC "D"	7 MC	A-D-G Ant. Term.		C20	Padder	Approx. 1
6 MC "C"	6 MC	A-D-G Ant. Term.	SEE FIG.2or3	C13, 8,3	Osc. Trans. Ant.	Approx. 1
3 MC "C"	3 MC	A-D-G Ant. Term.		C19	Padder	Approx. 1
2.6MC "B"	2.6	A-D-G Ant. Term.	SEE FIG.2or3	C12, 7,2	Osc. Trans. Ant.	Approx. 1
1.3MC "B"	1.3	A-D-G Ant. Term.		C18	Padder	Approx. 1
1.2MC "A"	1200 KC	A-D-G Ant. Term.	SEE FIG.2or3	C11, 6,1	Osc. Trans. Ant.	Approx. 1
.6 MC "A"	600 KC	A-D-G Ant. Term.		C17	Padder	Approx. 1

NOTE: 4 When using a CRYSTAL, set PHASING CONTROL to almost minimum capacity. See special alignment instructions below for Crystal.

ALIGNMENT INSTRUCTIONS - FOR RECEIVERS EQUIPPED WITH CRYSTALS

(1) REMOVE CRYSTAL, set crystal phasing condenser to almost minimum capacity and throw "XTAL" switch to "in" position.

(2) With the 465 KC signal, re-adjust the I.F. Trimmer C-46 - the one nearest the front panel of the receiver - by turning the screw counter-clockwise. The signal now may be slightly weaker than before and sound "off-side". This, however, is a normal condition.

(3) REPLACE THE CRYSTAL - A very noticeable drop in signal strength may be noted, due to the filtering action of the crystal, and the frequency control of the signal generator must be "rocked" slowly back and forth, until the increase in signal strength indicates the exact frequency of the crystal being used. Now re-align the entire I.F. system to this frequency.

(4) Adjust "XTAL" phasing condenser for the lowest pitched note possible and re-adjust signal generator frequency. Repeat and continue to repeat this alignment procedure until no further improvement in the alignment can be accomplished.

NOTE: If the "XTAL" switch should now be thrown to another position, an apparent rise in gain will be noticed, which is caused by the addition of higher frequencies and background noise, so it does not mean that the sensitivity of this set is impaired in any way by use of the crystal.

NOTE: 5 THE BEAT FREQUENCY OSCILLATOR is adjusted for the A, B, C, D, Bands with Trimmer C31 and C32. Set pitch control to half capacity. Recheck C31.

MODELS 5727,5728,Ch.107.A450

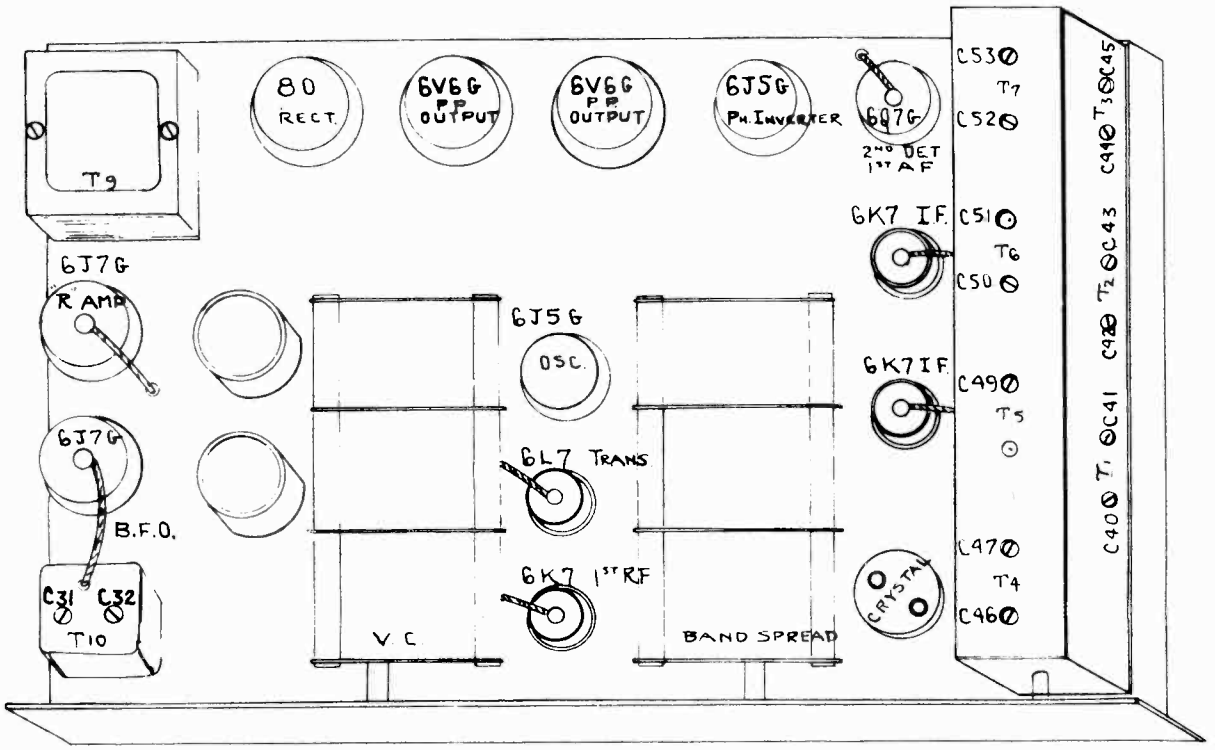
SEARS, ROEBUCK & CO 5750,Chassis 107.A450-S4

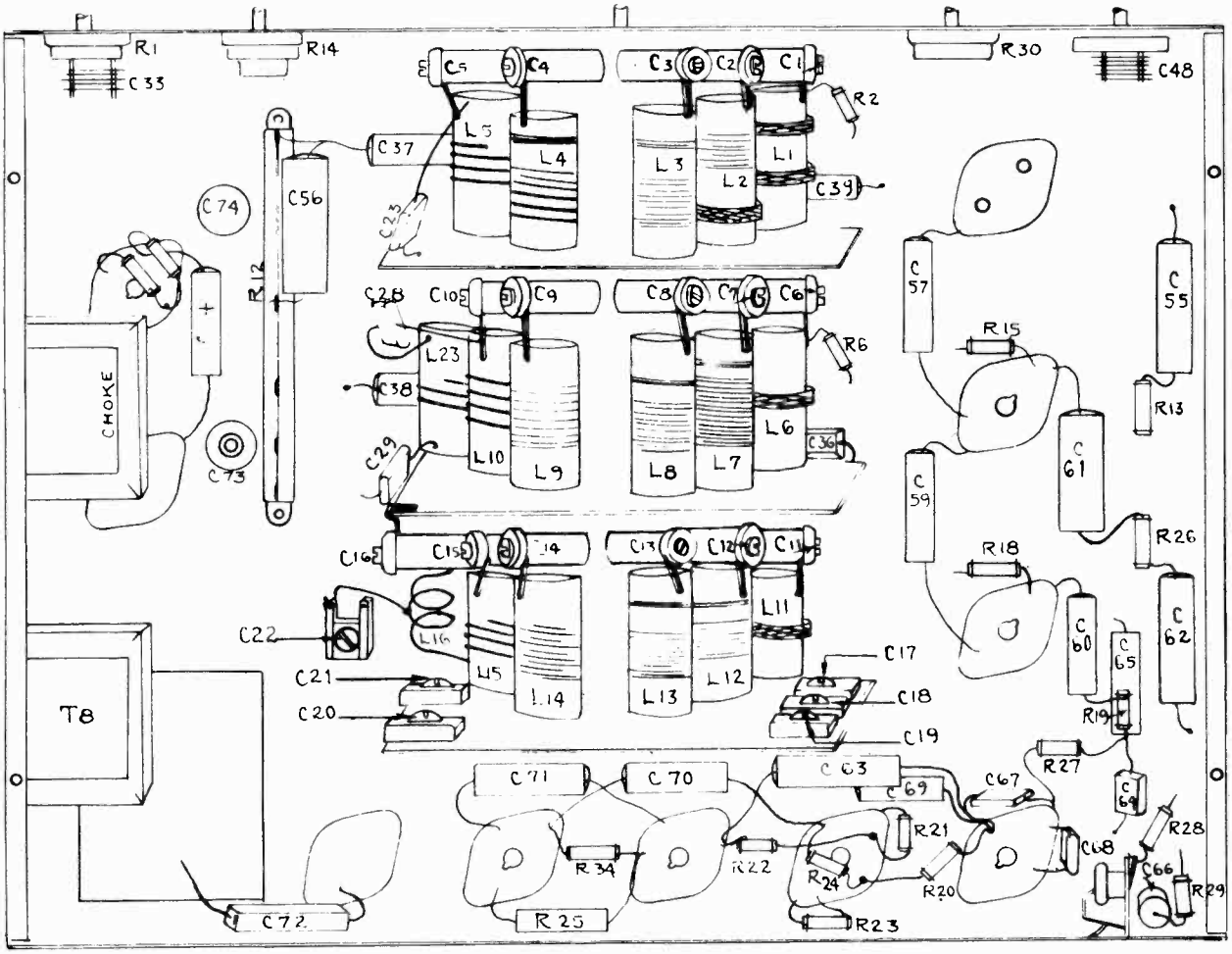
Schematic,Voltage

NOV. 14, 1938

MODELS 5727,5728,5750
Socket,Trimmers
Chassis Wiring

SEARS, ROEBUCK & CO.





SEARS, ROEBUCK & CO.

MODELS 5727, 5728, 5750
Changes, Transformers
Specifications

SUBJECT: MECHANICAL CHANGES WITH DIAL MECHANISM ON MODELS 5727, 5728 TO ACCOMPLISH A HORIZONTAL TYPE DIAL MOUNTED IN A NEW CABINET, FINISHED GREY. THIS IS KNOWN AS MODEL 5750, FACTORY IDENTIFICATION NUMBER 107.A450-84.

TUBES AND FUNCTIONS:

6K7	1st RF
6L7	Translator
6J5G	Oscillator
6K7	IF Amplifier
6Q7G	Second Detector, 1st AF
6K7	IF Amplifier
6J5G	Phase inverter
6V6G	P. P. Output
6V6G	P. P. Output
80	Rectifier
6J7G	"R" Meter Voltage Amplifier
6J7G	Beat Frequency Oscillator

POWER SUPPLY:

105 - 120 Volts, 60 Cycle A.C. - 125 Watts
105 - 135 Volts, 25 Cycle A.C. - 125 Watts

FREQUENCY RANGE - 6 BANDS:

Band A	.55 to 1.2 MC
Band B	1.2 to 2.8 MC
Band C	2.8 to 6.5 MC
Band D	6.5 to 16 MC
Band E	16 to 40 MC
Band F	32 to 65 MC

INTERMEDIATE FREQUENCY = BANDS A, B, C, & D - 465 KC

POWER OUTPUT:

Type	Push Pull Output
Undistorted	9 Watts
Maximum	15 Watts

LOUD SPEAKER:

Type	Permanent Magnet Dynamic
Size	Within Separate Case 10 Inch

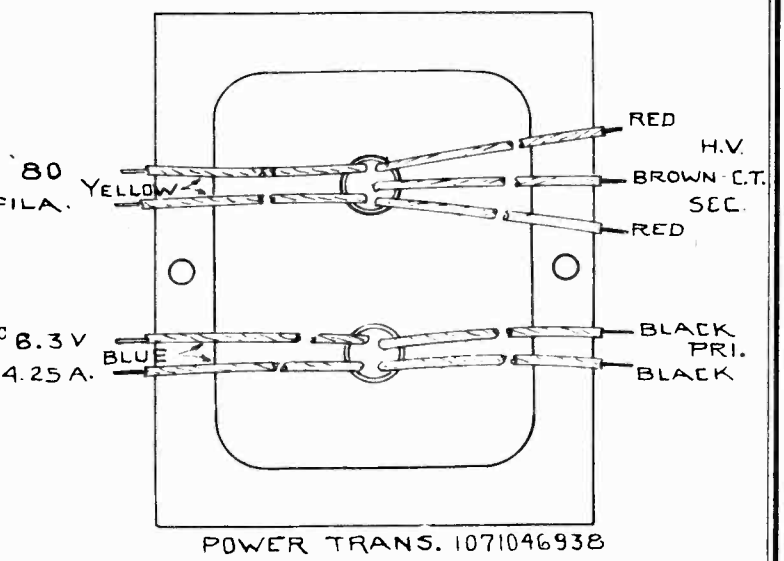
CHASSIS FEATURES:

SEND-RECEIVE terminals in rear of chassis for break-in connection.
RF Stages — One
VARIABLE CONDENSER — Three Gang
ANTENNAE — TWO REQUIRED
HEADPHONE JACK — ON FRONT PANEL
Crystal Phaser.
Beat Frequency Oscillator, Pitch Control.
B.F.O. OFF-ON Switch with Injection Control.

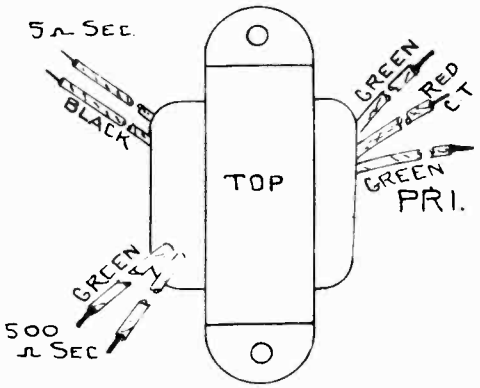
OPERATING FEATURES:

A.V.C. with ON-OFF Switch
Three Gang Electrical Band Spread
A.F. Gain or Audio Level
R.F. Gain or Sensitivity
Tone Control
"R" Meter Showing Signal Strength
"R" Meter Zero Adjustment
Four-position IF Setting: 1560 KC
Iron Core Broad 465 KC
Iron Core Sharp 465 KC
Crystal Filter-In Position

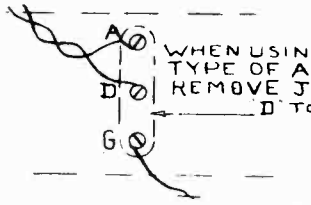
COLOR CODE AND LEAD POSITION



POWER TRANS. 1071046938

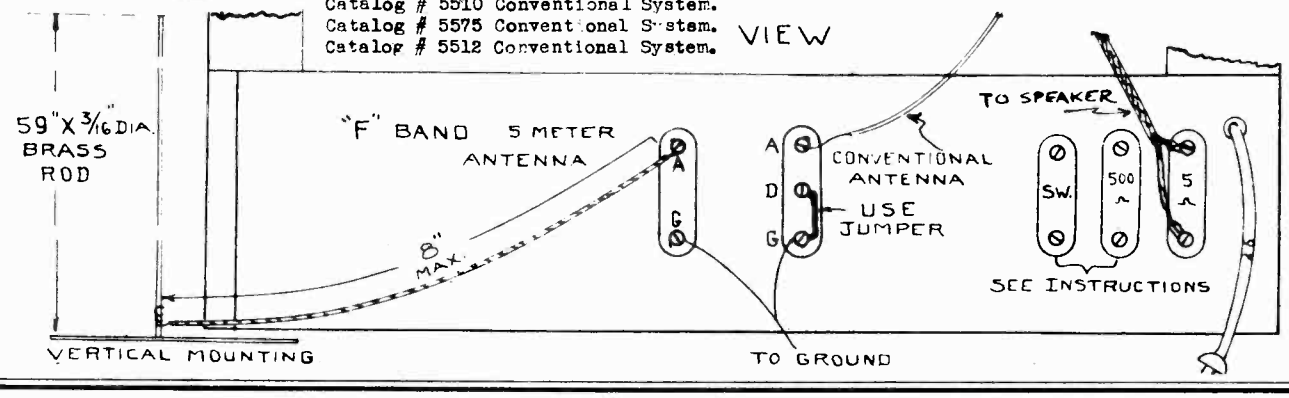


OUTPUT TRANS. 107139961



Recommended Antenna Equipment:

Catalog # 5567 the Doublet System.
Catalog # 5510 Conventional System.
Catalog # 5575 Conventional System.
Catalog # 5512 Conventional System.



MODELS 5727,5728,5750
Alignment

SEARS, ROEBUCK & CO.

This receiver is a 12 tube 6 Band set designed especially for use on the short wave bands. The set was not designed for ordinary broadcast reception although it will cover this band.

This Amateur receiver employs many features as outlined above. Attention must be noted to the Dual I.F. system, the use of the 1560 KC I.F. for use on the "E" and "F" Bands to obtain a higher image response and prevent "garbling" of frequency modulated signals on 5 meters. The 1560 KC I.F. assemblies are designed to give a broad band pass flat top response characteristic.

Note that two antenna systems must be used, one for the "E & F" Bands and one for the "A" "B" "C" & "D" Bands.

PRELIMINARY:

Output meter connection.....4,000 ohm or more copper oxide meter across 5 ohm terminals. Shunt with speaker

Output meter reading to indicate .5 watt.....1.575 V.

Average sensitivity in microvolts for .5 watt output.....See chart below

Generator ground lead connection.....Direct to chassis

Generator modulation.....30%, 400 cycles

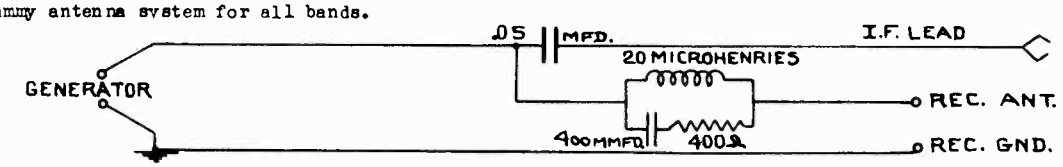
Position of volume control A.F. gain.....Full on

Position of volume control R.F. gain.....Full on

A.V.C. Switch.....On

Band spread dial set at 100.....Min. Capacity

NOTE 1 When aligning the two I.F. channels a condenser of .05 Mfd. may be used in series with the generator lead. For the other bands the following circuit is shown with the values that make a universal dummy antenna system for all bands.



POSITION OF VARIABLE AND BAND SW.	GENERATOR FREQ.	GENERATOR CONNECTION	POSITION OF I.F. BAND SWITCH	TRIMMER ADJUSTMENTS IN ORDER	TRIMMER FUNCTION	APPROX. MICROVOLTS
Closed "A" Band	465 KC	6L7 Grid	"XTAL" See Note 2	C53,52,51 50,49,47,46	I.F.	15
Closed "A" Band	1560 KC	6L7 Grid	"E" & "F"	C45,44,43 42,41,40	I.F.	15
60 MC "F"	60 MC	A-G Ant. Term.	"E" & "F"	C16	Osc.	Approx. 10
40 MC "F"	40 MC	A-G Ant. Term.	"E" & "F"	C22	Padder	Approx. 10
36 MC "E"	36 MC	A-D-G Ant. Term.	"E" & "F"	C15,10,5	Osc. Trans. Ant.	Approx. 3
16 MC "E"	16	A-D-G Ant. Term.	"E" & "F"	C21	Padder	Approx. 3
15 MC "D"	15 MC	A-D-G Ant. Term.	XTAL or "Sharp"	C14, 9,4	Osc. Trans. Ant.	Approx. 1
7 MC "D"	7 MC	A-D-G Ant. Term.	XTAL or "Sharp"	C20	Padder	Approx. 1
6 MC "C"	6 MC	A-D-G Ant. Term.	XTAL or "Sharp"	C13, 8,3	Osc. Trans. Ant.	Approx. 1
3 MC "C"	3 MC	A-D-G Ant. Term.	XTAL or "Sharp"	C19	Padder	Approx. 1
2.6MC "B"	2.6	A-D-G Ant. Term.	XTAL or "Sharp"	C12, 7,2	Osc. Trans. Ant.	Approx. 1
1.3MC "B"	1.3	A-D-G Ant. Term.	XTAL or "Sharp"	C18	Padder	Approx. 1
1.2MC "A"	1200 KC	A-D-G Ant. Term.	XTAL or "Sharp"	C11, 6,1	Osc. Trans. Ant.	Approx. 1
.6 MC "A"	600 KC	A-D-G Ant. Term.	XTAL or "Sharp"	C17	Padder	Approx. 1

NOTE 2: When using a CRYSTAL, set PHASING CONTROL to almost minimum capacity. See special alignment instructions below for Crystal. Align set in "sharp" position if set is without crystal.

ALIGNMENT INSTRUCTIONS - FOR RECEIVERS EQUIPPED WITH CRYSTALS

(A) REMOVE CRYSTAL, set crystal phasing condenser to almost minimum capacity and throw IF switch to "XTAL" position.

(B) With the 465 KC signal, re-adjust the I.P. Trimmer C-46 - the one nearest the front panel of the receiver - by turning the screw counter-clockwise. The signal now may be slightly weaker than before and sound "off-side". This, however, is a normal condition.

(C) REPLACE THE CRYSTAL - A very noticeable drop in signal strength may be noted, due to the filtering action of the crystal,and the frequency control of the signal generator must be "rocked" slowly back and forth, until the increase in signal strength indicates the exact frequency of the crystal being used. Now re-align the entire I.F. system to this frequency.

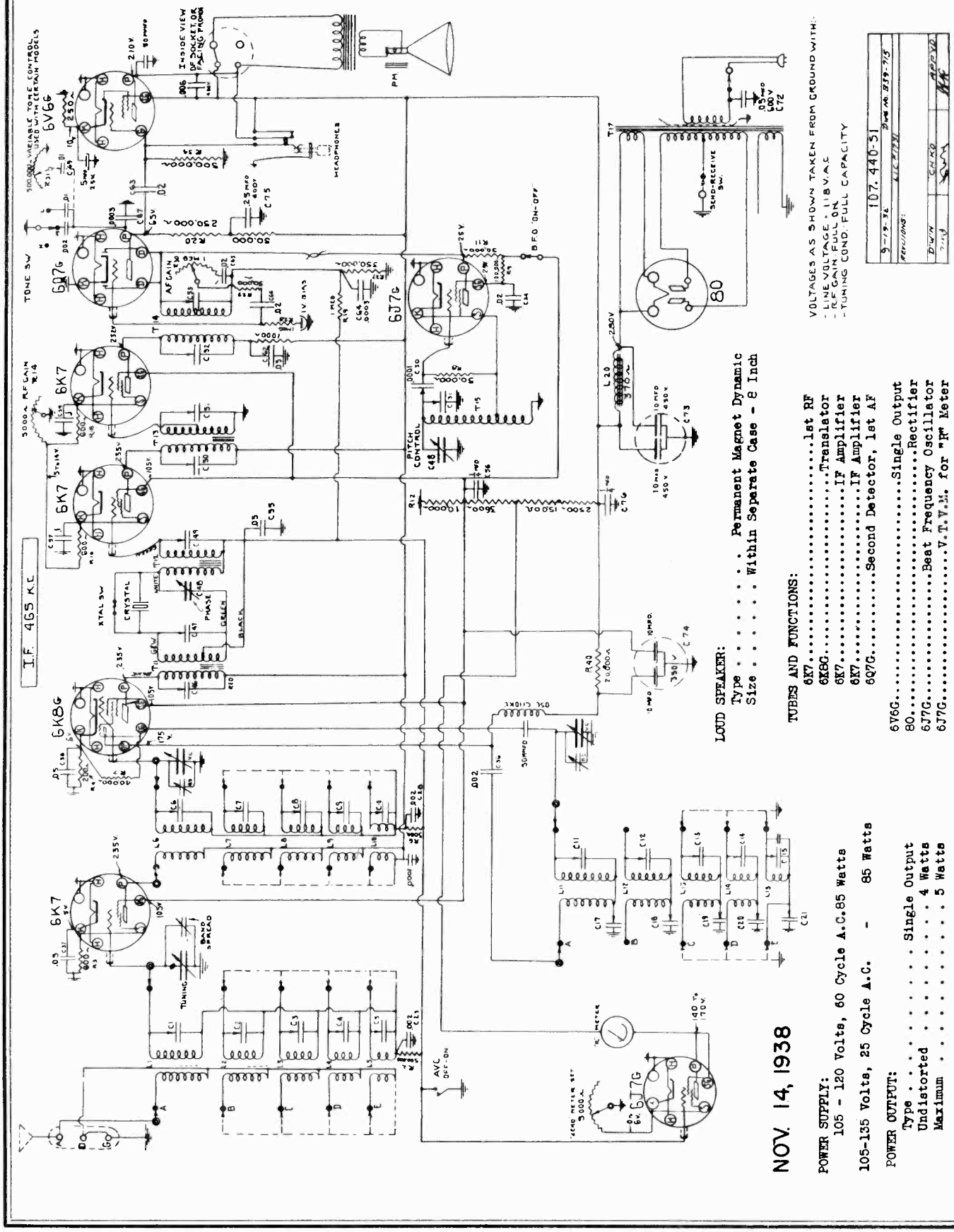
(D) Adjust "XTAL" phasing condenser for the lowest pitched note possible and re-adjust signal generator frequency. Repeat and continue to repeat this alignment procedure until no further improvement in the alignment can be accomplished.

NOTE: If the IF switch should now be thrown to another position, an apparent rise in gain will be noticed, which is caused by the addition of higher frequencies and background noise, so it does not mean that the sensitivity of this set is impaired in any way by use of the crystal.

NOTE 3: THE BEAT FREQUENCY OSCILLATOR is adjusted for the A, B, C, D, Bands with Trimmer C31. With models having an "E" & "F" Band B.F.O.—Adjust C32 with dial at 1560 on Band D to 1560 KC. Recheck C31. Set pitch control to half capacity.

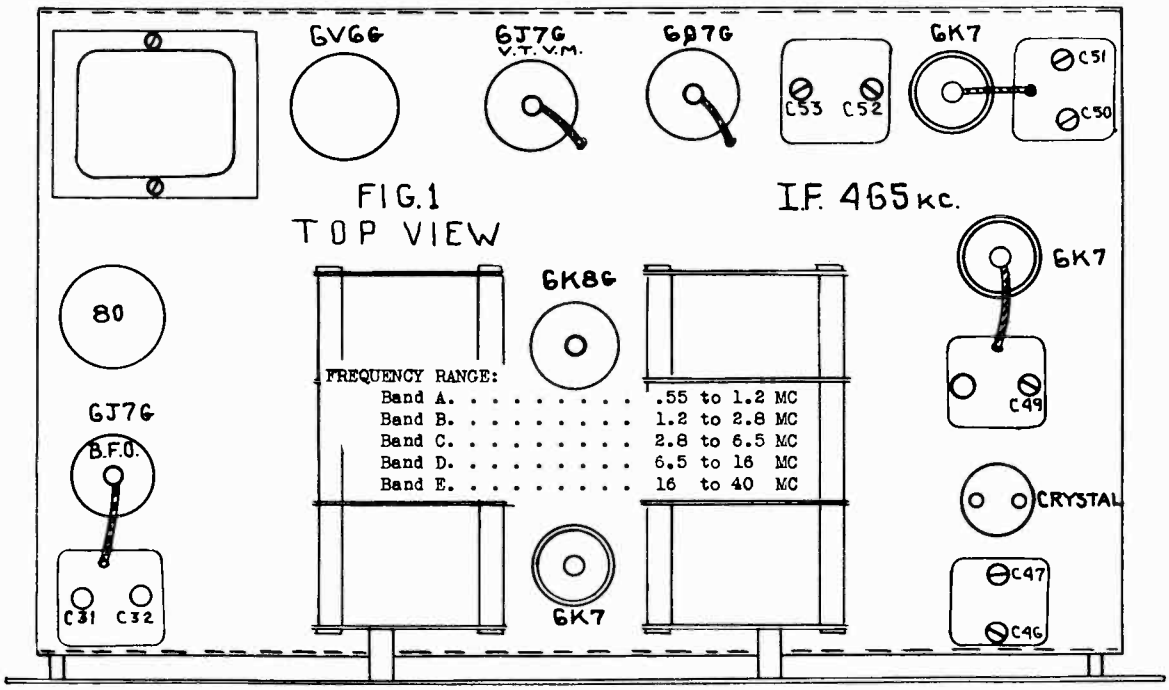
SEARS, ROEBUCK & CO.

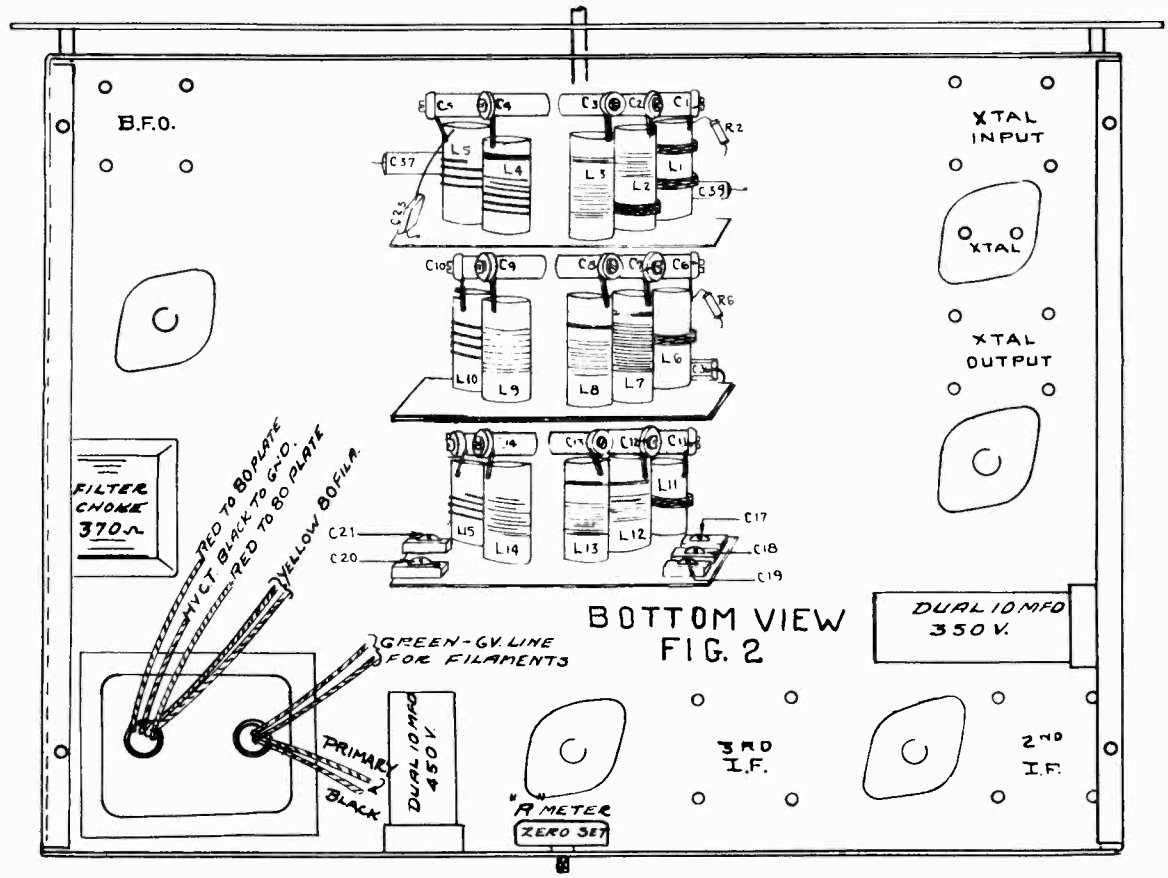
MODELS 5752, 5753
Chassis 107.440-S1
Schematic, Voltage



MODELS 5752, 5753
Socket, Trimmers
Chassis

SEARS. ROEBUCK & CO.





THE THREE TERMINALS - A, D, and G in the middle back of the chassis are for the ANTENNA AND GROUND connections. When using the conventional flat-top and lead-in type of antenna, CONNECT THE LEAD-IN TO THE TERMINAL MARKED "A", being sure that a wire jumper connects from D to G terminals. The G terminal is for the ground connection.

For any DOUBLET TYPE of antenna, remove the shorting jumper from D to G and connect the two leads of the doublet system to A and D.

The "G" terminal is for the ground connection.

OPERATING FEATURES:

A.V.C. with ON-OFF Switch
Three-Gang Electrical Band Spread
AF Gain or Audio Level Control
RF Gain or Sensitivity Control
Tone Control
Beat Frequency Osc. Pitch Control
B.F.O. Switch with Injection Control
Crystal Phaser
Send-Receive terminals in rear of Chassis for break-in connection
IRON CORE IF Stages
Headphone Jack on Front Panel

ALIGNMENT FREQUENCIES

Band A	600 and 1200 KC
Band B	1.3 and 2.6 MC
Band C	3.0 and 6.0 MC
Band D	7.0 and 15 MC
Band E	16 and 36 MC

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection..

...4,000 ohm or more copper oxide meter across 5 ohm terminals. Shunt with speaker

Output meter reading to indicate .5 watt.....1.575 V.

Average sensitivity in microvolts for .5 watt output...See chart

Generator ground lead connection..... Direct to chassis

Dummy antenna value in series with generator output. See Note 1

Connection of generator output lead.....See Chart

Generator modulation.....30%, 400 cycles

Position of volume control A.F. gain.....Full on

Position of volume control R.F. gain.....Full on

A.V.C. Switch.....On

Band spread dial set at 100.....Min. Capacity

NOTE 1; When aligning the I.F. channel a condenser of .05 MFD. may be used in series with the generator lead.
NOTE 2; When aligning the broadcast band, a 250 MMFD. condenser may be used in series with the signal generator.
NOTE 3; When aligning the short wave bands a 400 ohm resistor may be used in series with the signal generator.

POSITION OF VARIABLE AND BAND SW.	GENERATOR FREQ.	GENERATOR CONNECTION	TRIMMER LOCATION	TRIMMER ADJUSTMENTS IN ORDER	TRIMMER FUNCTION	APPROX. MICROVOLTS
Closed "A" Band	465 KC	6L7 Grid	SEE FIG.1	C53,52,51 50,49,47,43	I.F.	15
36 MC "E"	36 MC	A-D-G Ant. Term.	SEE FIG.2	C15,10,5	Osc. Trans. Ant.	Approx. 3
16 MC "E"	16	A-D-G Ant. Term.		C21	Padder	Approx. 3
15 MC "D"	15 MC	A-D-G Ant. Term.	SEE FIG.2	C14, 9,4	Osc. Trans. Ant.	Approx. 1
7 MC "D"	7 MC	A-D-G Ant. Term.		C20	Padder	Approx. 1
6 MC "C"	6 MC	A-D-G Ant. Term.	SEE FIG.2	C13, 8,3	Osc. Trans. Ant.	Approx. 1
3 MC "C"	3 MC	A-D-G Ant. Term.		C19	Padder	Approx. 1
2.6MC "B"	2.6	A-D-G Ant. Term.	SEE FIG.2	C12, 7,2	Osc. Trans. Ant.	Approx. 1
1.3MC "B"	1.3	A-D-G Ant. Term.		C18	Padder	Approx. 1
1.2MC "A"	1200 KC	A-D-G Ant. Term.	SEE FIG.2	C11, 6,1	Osc. Trans. Ant.	Approx. 1
.6 MC "A"	600 KC	A-D-G Ant. Term.		C17	Padder	Approx. 1

NOTE: 4 When using a CRYSTAL, set PHASING CONTROL to almost minimum capacity. See special alignment instructions below for Crystal.

ALIGNMENT INSTRUCTIONS FOR RECEIVERS USING CRYSTALS

THE I.F. STAGES:

FIRST - With the XTAL switch in the "OUT" position, align the I.F. stages to 465 KC, feeding signal into the grid of the 6L7.

SECOND - FOR RECEIVERS EQUIPPED WITH CRYSTALS:

(A) REMOVE CRYSTAL, set crystal phasing condenser to almost minimum capacity and throw XTAL switch to "IN" position.

(B) With the 465 KC signal re-adjust the I.F. Trimmer - the one nearest the front panel of the receiver - by turning the screw counter-clockwise. The signal now may be slightly weaker than before, and sound "off-side". This, however, is a normal condition.

(C) REPLACE THE CRYSTAL - A very noticeable drop in signal strength may be noted, due to the filtering action of the crystal and the frequency control of the signal generator must be "rocked" slowly back and forth, until the increase in signal strength indicates the exact frequency of the crystal being used. Now re-align the entire I.F. system to this frequency.

(D) Adjust XTAL phasing condenser for the lowest pitched note possible and re-adjust signal generator frequency. Repeat and continue to repeat this alignment procedure until no further improvement in the alignment can be accomplished.

NOTE: - If the XTAL switch should now be thrown to the "OUT" position, an apparent rise in gain will be noticed which is caused by the addition of higher frequencies and background noise, so it does not mean that the sensitivity of this set is impaired in any way by use of the crystal.

NOTE: 5 THE BEAT FREQUENCY OSCILLATOR is adjusted with trimmers C31 and C32. Set pitch control to half capacity. Recheck C31.

Models 6056,6057
THE BIAS CELLS: CHASSIS 101.548

Do not attempt to test the bias cells with a voltmeter. Ordinarily these cells have an indefinitely long life and should not be the cause of any trouble. The cells must be in their holders in the proper direction so that the polarity of the bias applied to the tubes will be correct. The zinc shell of the cells is the negative terminal and must connect to the tube grids. If the cells are removed from their holders, be sure that they are replaced so that the polarity will be correct. The Location of Parts diagram shows the correct positions of the cells.

Models 6119,6120,6126,6127,6200,6250
THE FILAMENT CIRCUIT: CHASSIS 101.546,101.546-1

All of the tube heaters are connected in series. Accordingly, if any one tube burns out, the others will not light. The full line voltage will appear across the heater terminals of the burnt out tube.

Under certain conditions the chassis may be above ground potential by an amount equal to the line voltage. Accordingly, appropriate precaution should be taken when working on the chassis, by insulating the chassis completely from ground, etc.

Models 6025,6128,6201,6231,6251;6119,6120,6126,6127,6200,6250
CHASSIS 101.547,-A,-1,-1B CHASSIS 101.546,101.546-1

PUSH BUTTON TUNING

SETTING UP:

Each of the push buttons should be set up in the following manner:

1. Make a list of the local stations desired to be set up on the push buttons.
2. Punch out of the call letter sheets the corresponding call letters.
3. Pull the push button knob off of its lever (the push buttons slip off the shaft).
4. Unscrew (turn counter-clockwise) the slotted shaft then exposed two or three turns (use a token or small screw driver).
5. Push the slotted shaft all the way in.
6. Tune in the desired station or station to be set up, making sure to hold the slotted shaft as far in as possible.
7. While holding both the tuning knob and the slotted push button shaft all the way in, securely tighten (turning counter-clockwise) the slotted screw.
8. Check for accuracy by detuning the station and retuning with that push button. If the setting is not accurate, follow the procedure as outlined in points No. 3 to No. 8.
9. Place the proper call letter in the recess in front of the push button, and cover the call letter with one of the clear celluloid discs supplied.
10. Push the push button back into place on the push button lever.
11. Follow the procedure as outlined in points No. 3 to No. 10, inclusive, for each of the remaining buttons.

OPERATION:

"Push button stations" will be tuned accurately by pushing the push button all the way to its stop.

NOTE: Push buttons on Model 101.547 chassis are locked and unlocked by turning the button.

FOR CHASSIS 101.546,-1; 101.548; 101.574,A,-1; 101.535.

ELIMINATING WHISTLE AT 910 KC:

A whistle, due to a beat between the second harmonic (910 kc) of the 455 kc IF, and a 910 kc signal may be experienced. In localities where the 910 kc station is one that is frequently listened to, it will be desirable to shift the whistle to some other point where it will not be objectionable. This can be done by shifting the IF frequency of the receiver.

Determine at what point between 880 kc and 940 kc the whistle will be least objectionable. Dividing this frequency by two will give the new IF frequency to which the receiver should be aligned. For example, if it is determined that a whistle at 890 kc would not be objectionable, the IF should be realigned at 890/2 or 445 kc. Try to select the new IF frequency as close to 455 kc as possible.

Align the IF at the new frequency and then realign the rest of the receiver as described under, "ALIGNMENT PROCEDURE".

ALIGNMENT PROCEDURE

For Models 6025,6128,6201,6231,6251 Chassis 101.547,-A,-1,-1B; 6208,6209 Chassis 101.544; 6214,6270 Chassis 101.552,101.552A; 6056,6057 Chassis 101.548 6133,6141,6139,6137,6202,6203,6253,6252,6199 Chassis 101.535.

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 500 milliwatts . . . . . (B)(0.89 volts) . . . . . 0.37 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

Models 6025,6128,6201,6231,6251 Chassis 101.547,-A,-1.-1B ; 6208,6209 Chassis101.544 ; 6214,6270 Chassis 101.552,101.552A.

Position of Dial Pointer with variable fully closed . . . . . Horizontal (To fall on first heavy block below 550 kc.)

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN) (C) (A)	TRIMMER FUNCTION
"AM"	Closed	455 kc	.1 mfd.	6J8G Grid (A) 1D7G " (C) 1C7G "	T2, T1 T2, T1	IF Output IF Input
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C1* C4*	C1* Wave Trap
"AM"	Open	1750 kc	.0002 mfd.	Ant. Term.	C6 C6	C8 Oscillator
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C2 C2	C2 Translator
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C7 C7	C9 Padder
"FOR"	(A) 15-15 mc(rock)	(A) 15-15 mc	400 ohms	Ant. Term.	C4 C1	C3 Translator

(A) For Models 6208,6209 Chassis 101.544. (C) For Models 6214,6270 Chassis 101.552,101.552A.
MODELS 6056,6057 Chassis 101.548; 6133,6141,6139,6137,6202,6203,6253,6252,6199 Chassis 101.535.

Position of Dial Pointer with variable fully closed . . . . Horizontal (To fall along second ornamental horizontal line)

(B) For Chassis 101.535 { Center of first mark to left of 550 kc calibration mark.

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN) (B)	TRIMMER FUNCTION
"AM"	Closed	455 kc	.1 mfd.	1C7G Grid (B) 6J8G "	T3, T1 T3, T1	IF Output IF Input
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C1* C1*	C1* Wave Trap
"AM"	(B) FULLY OPEN 1750 kc	(B) 1730 kc 1750 kc	.0002 mfd.	Ant. Term.	C5 C7	C7 Oscillator
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C2 C2	C2 Translator
"AM"	600 kc (rock)	600 kc	.0002 mfd.	Ant. Term.	C6 C6	C8 Padder
"FOR" SW.	(B) 15-16 mc (rock)	(B) 15-16 mc	400 ohms	Ant. Term.	C4 C3	C3 Translator

(B) For Model 6133,6141, 6139,6137,6202,6203,6253,6252,6199 Chassis 101.535.

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

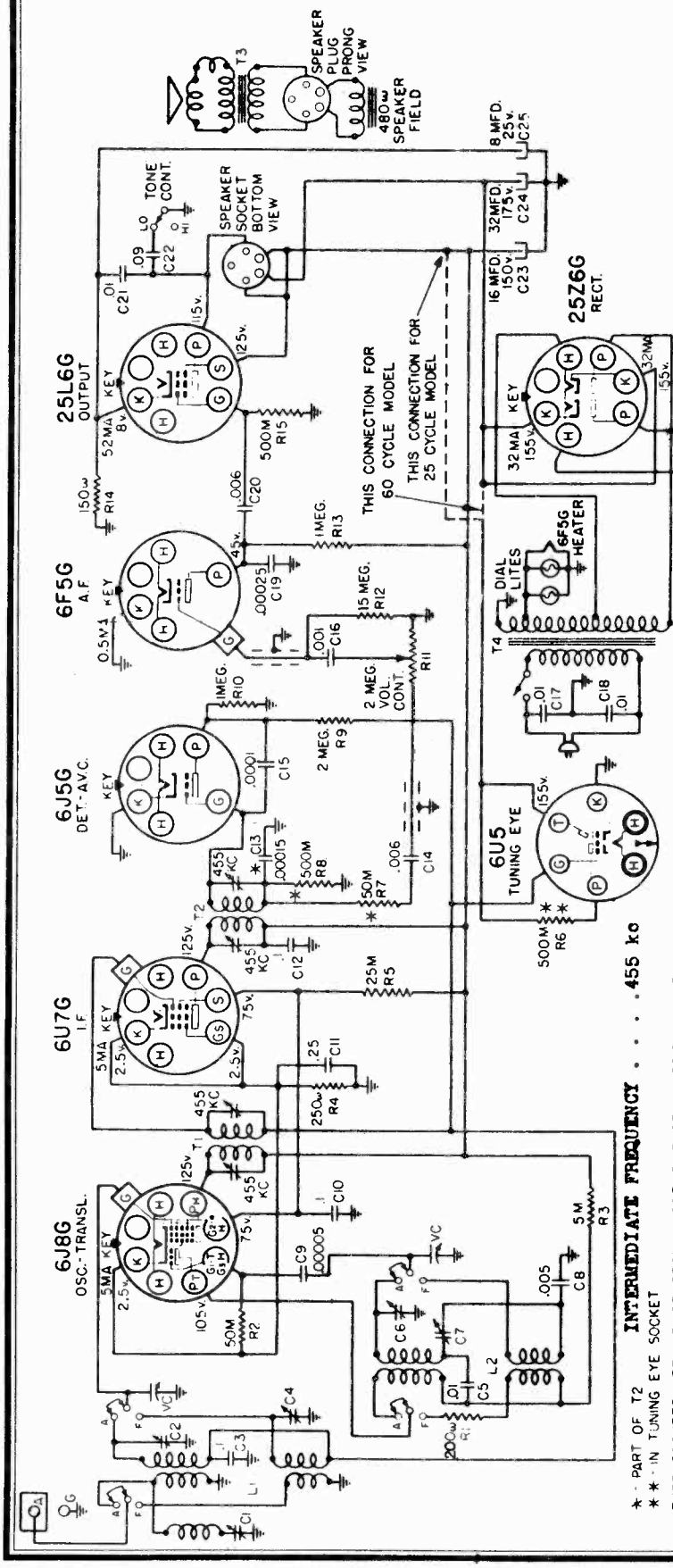
Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

SEARS, ROEBUCK & CO.

MODELS 6025,6201,Ch.101.547 6128,6251,Ch.101.547-1 and Ch.101.547-A;6231,Chassis 101.547-1B Schematic,Voltage,Changes

MARCH 16, 1939



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . .455 kc

POWER SUPPLY:
All models available . . . . . .105-125 volts, 25-60 cycle, 50 watts

FREQUENCY RANGES:

Band "AM"	.540-1730 kc
Band "SW"	.5.9-18.2 mc

ALIGNMENT FREQUENCIES:

	Oscil.	Ant-Transl. Trimmer	Padder
Band "AM"	1730 kc	1400 kc	600 kc
Band "SW"	None	15 mc	--

POWER OUTPUT:

Type	Beam tube
Undistorted	1.75 watts
Maximum	.5 watts

OPERATING FEATURES:

Tone Control	Two Position
Automatic Volume Control	
Push Button Tuning (5 button)	
Tuning Eye	

LOUD SPEAKER:

Type	Dynamic
Size	6 inch
Field coil resistance	480 Ohms

CHASSIS FEATURES:

Number IF stages	One
Number condensers in gang	Two
Antenna	Conventional
Built-in IF Wave Trap	

CHASSIS IDENTIFIED BY 101.547A:

Chassis identified by the number 101.547A on the metal plate at the rear of the chassis are the same as 101.547-1 chassis except for a change in the design and part number of the dial escutcheon.

ADDITION OF SUFFIX "-1B" TO 101.547 CHASSIS:

Chassis identified by 101.547-1B are the same as 101.547-1A except for a change in the design and part number of the push buttons, push button escutcheon, call letter sheets and covers. Also a new 10" speaker has been used.

FOR ALIGNMENT
SEE INDEX

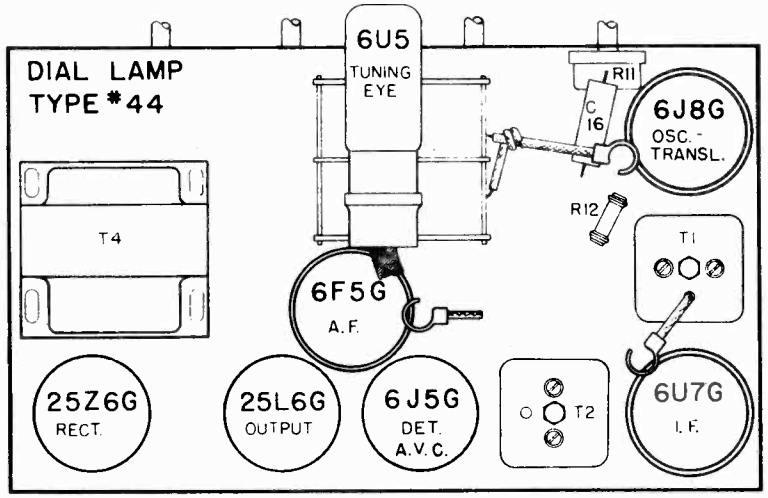
CHASSIS 101.547,-1,-A,-1B
CHASSIS 101.546,-1,-1A
Socket,Trimmers,Chassis

SEARS, ROEBUCK & CO.

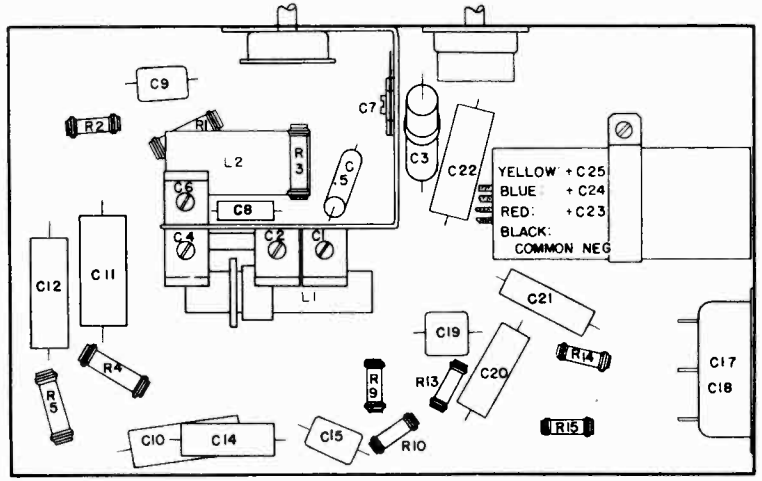
MODELS 6035, 6138, 6201, 6251 MODEL 6231

RECOMMENDED ANTENNA EQUIPMENT

Catalog #5586 Doublet Antenna Kit
" #5587 " " "
" #5588 Conventional Ant. Kit
" #5575 " " "



LOCATIONS OF PARTS ON TOP OF CHASSIS.



LOCATIONS OF PARTS UNDER CHASSIS

MODELS 6200, 6130, 6136, 6127, 6119, 6350 CHASSIS— 101.546, -1, -1A

OPERATING FEATURES:

Tone Control . . . . . Two Position
Automatic Volume Control
Push Button Tuning (5 button)
Tuning Eye

CHASSIS FEATURES:

Number IF stages . . . . . One
Number condensers in gang . . . . . Two
Antenna . . . . . Conventional
Built-in IF Wave Trap

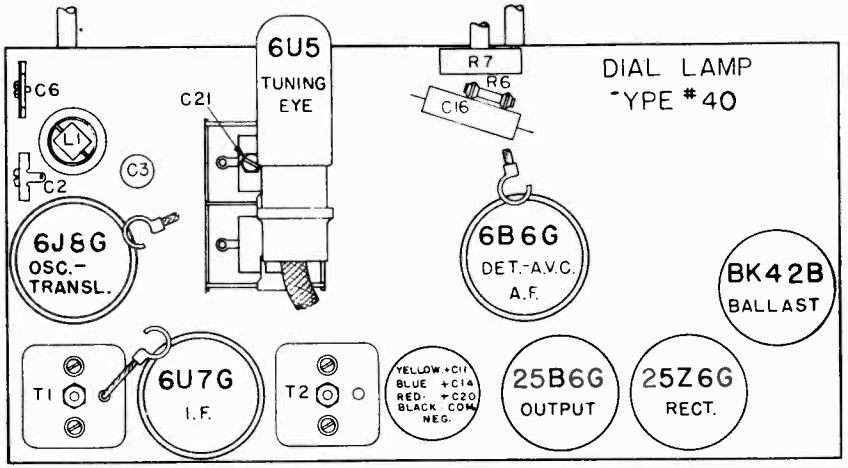
MECHANICAL SPECIFICATIONS

OPERATING CONTROLS:

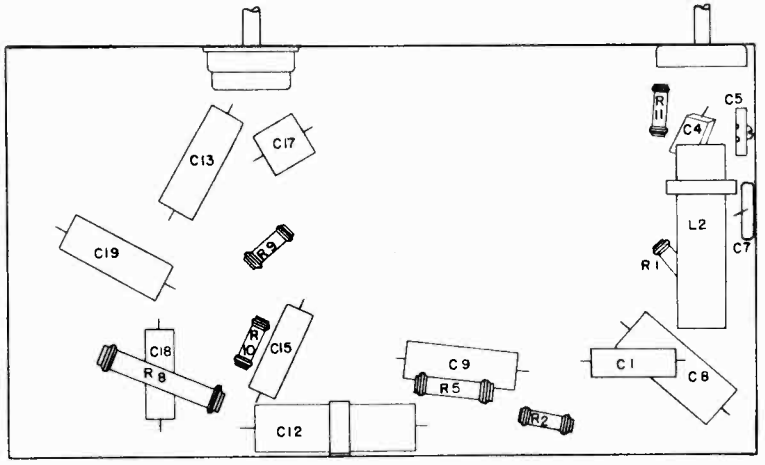
1. Upper left knob . . . . . Volume
2. Lower left knob. . . On-off switch & Tone
3. Lower right knob. . Wave band switch
4. Upper right knob. . Station Selector

CONTROL OPERATION:

Turning right: . . . . Volume increase
Turning right: . . . . "ON", "HI", "LO"
Turning right: . . . . . "AM", "SW"
Tuning ratio: 4:1



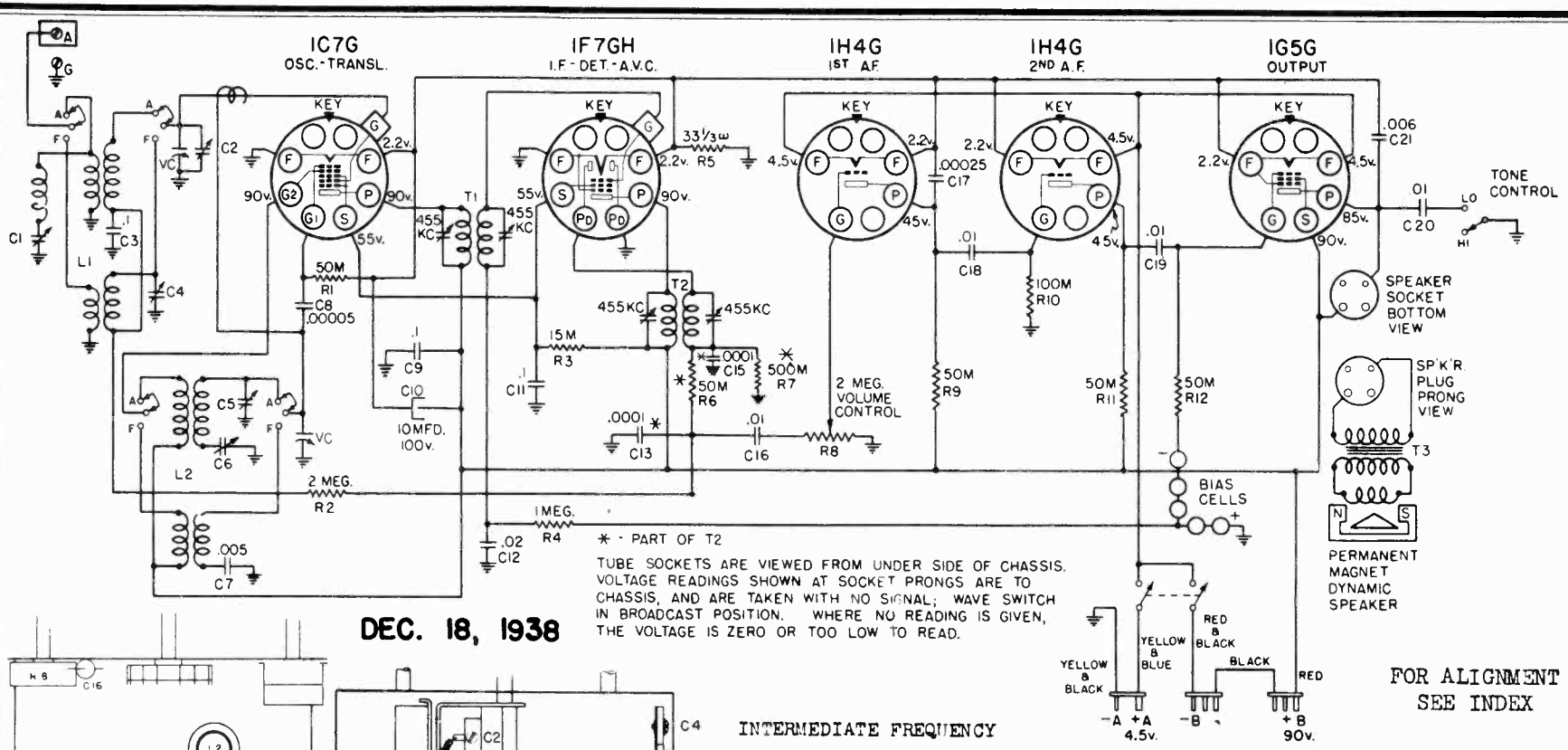
LOCATION OF PARTS ON TOP OF CHASSIS



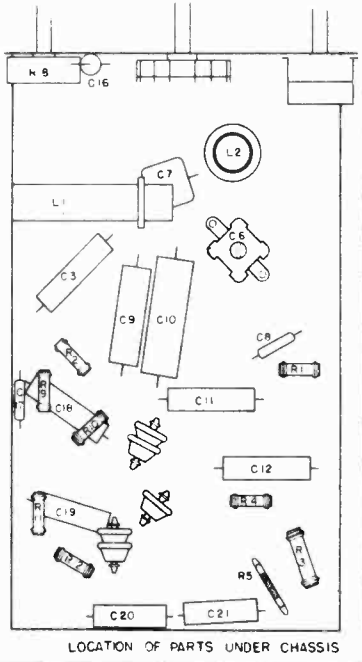
LOCATION OF PARTS UNDER CHASSIS

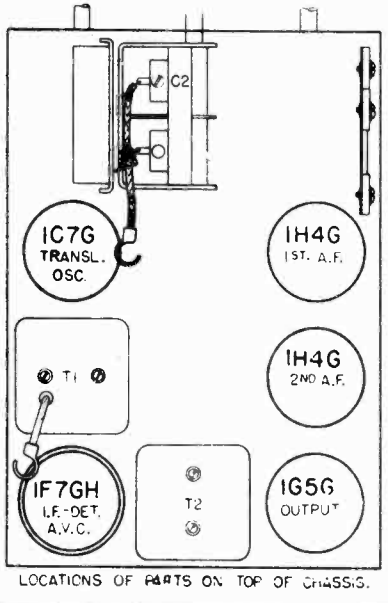
SEARS, ROEBUCK & CO.

MODELS 6056, 6057
Chassis 101.548
Schematic, Voltage
Socket, Trimmers
Chassis



DEC. 18, 1938


LOCATION OF PARTS UNDER CHASSIS

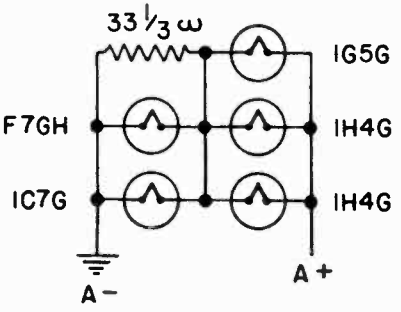


LOCATIONS OF PARTS ON TOP OF CHASSIS.

INTERMEDIATE FREQUENCY

455 kc

FILAMENT CIRCUIT:



FOR ALIGNMENT SEE INDEX

POWER SUPPLY:
- "A" Battery (4½ volt dry). . . 1-#5031
- "A" Battery (4 volt storage). .1-#5049
- "B" Batteries . . . . . .2-#5131
- "A" Drain . . . . . 0.24 amperes
- "B" Drain . . . . . .12 ma

LOUD SPEAKER:
- Type . . . . . PM Dynamic
- Size . . . . . 6 inch

POWER OUTPUT:
- Type . . . . . Pentode
- Undistorted . . . . . 0.20 watts
- Maximum . . . . . 0.40 watts

FREQUENCY RANGES:
- Broadcast . . . . . 540-1750 kc
- Short Wave . . . . . 5.9-18 mc

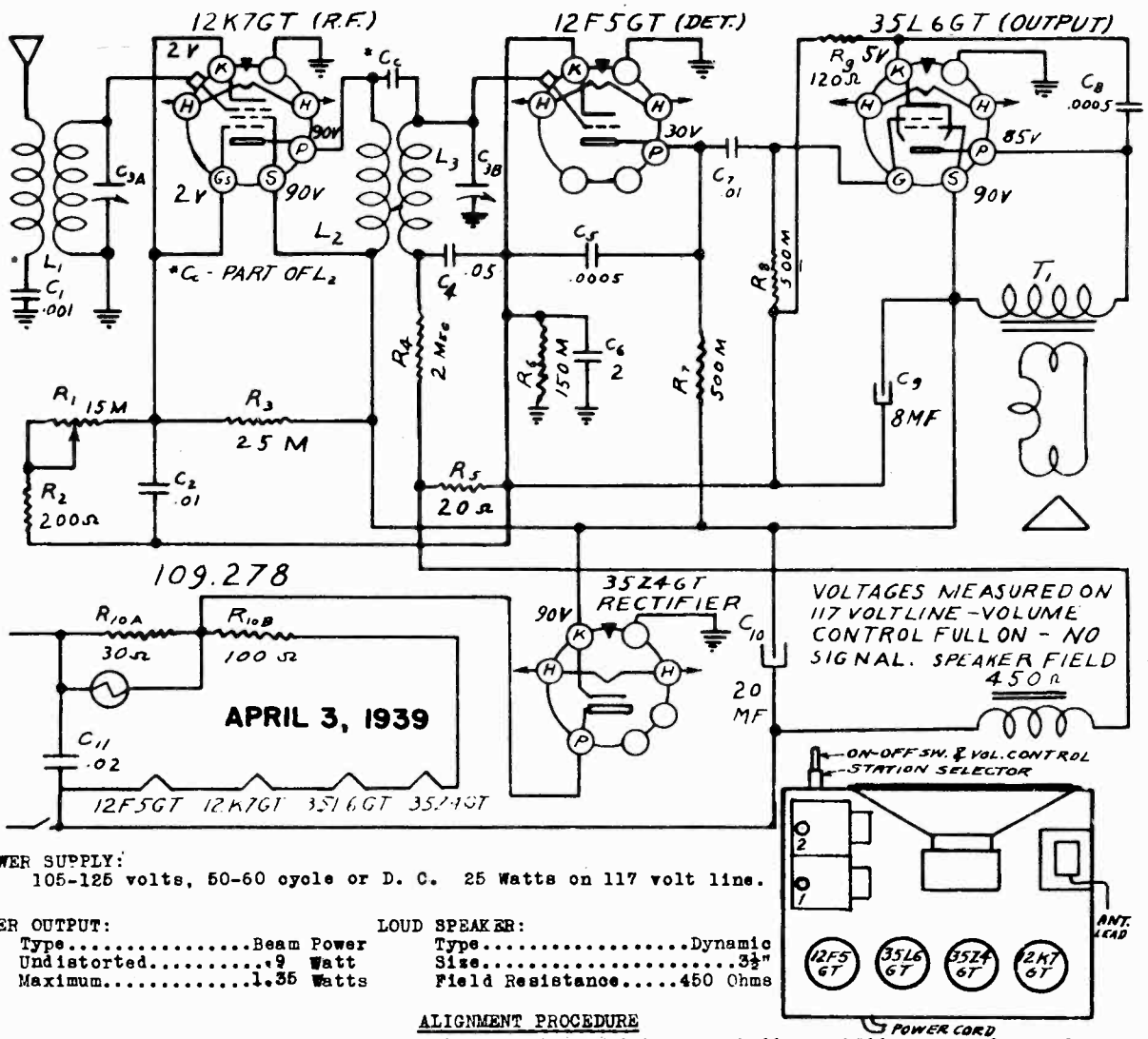
ALIGNMENT FREQUENCIES:

Oscillator Trimmer	Antenna-Transl. Trimmer	Padder
1750 kc	1400 kc	600 kc
None	16 mc	Fixed

MODELS 6106,6107,6108,6116
Chassis 109.278

SEARS, ROEBUCK & CO.

Schematic, Voltage, Socket Alignment, Trimmers



POWER SUPPLY:
105-125 volts, 50-60 cycle or D. C. 25 Watts on 117 volt line.

POWER OUTPUT:
Type.....Beam Power
Undistorted.....9 Watt
Maximum.....1.35 Watts

LOUD SPEAKER:
Type.....Dynamic
Size.....3½"
Field Resistance.....450 Ohms

ALIGNMENT PROCEDURE

Either a signal generator or a broadcast signal between 1400 and 1500 kc. may be used.

The antenna of the receiver should be extended as for normal use. Tune in a station between 1400 and 1500 kc. and adjust the trimmers on top of the tuning condenser for maximum signal

If a signal generator is used, extend the antenna as described above, run a wire from the generator parallel to, but insulated from the antenna. Set the generator to 1720 kc. Turn the tuning condenser all the way to the right (Minimum capacity). Tune in the signal from the generator with the trimmer on the rear section of the tuning condenser. Set the generator at about 1400 kc. Tune in the signal and adjust the trimmer on the front section of the tuning condenser for maximum response.

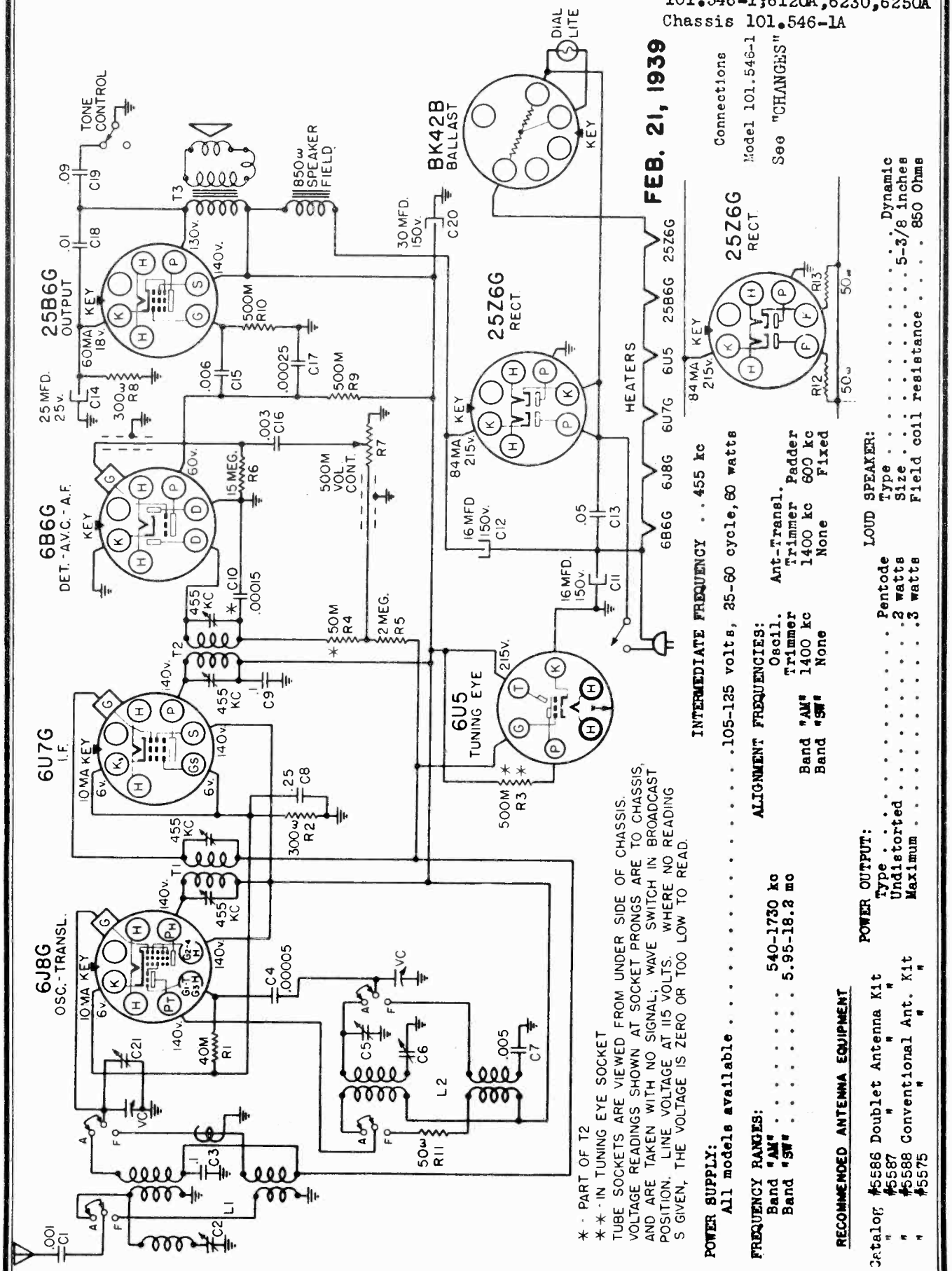
DEFECT	GENERALLY CAUSED BY	REMEDY
Dead Receiver	No current at outlet	Check outlet for current and be sure power cord plug is making good contact
	Open or short circuit in set	Repair or replace
Poor Sensitivity and Volume	Insufficient antenna pickup	Connect to outdoor antenna
	Defective tube	Replace
	Receiver out of alignment	Follow alignment procedure
Station interference	Receiver located near powerful stations	Do not uncoil all of antenna
Poor tone	Overloading	Reduce volume control setting
	Speaker out of adjustment	Repair or replace
Oscillation	Antenna lead coiled around or near set	Run antenna wire away from set

Schematic, Voltage

SEARS, ROEBUCK & CO.

MODELS 6119,6120,6126,6127
6200,6250,Chassis 101.546,
101.546-1;6120A,6230,6250A
Chassis 101.546-1A

FEB. 21, 1939



POWER SUPPLY:
All models available . . . . . .105-125 volts, 25-60 cycle, 60 watts

INTERMEDIATE FREQUENCY . . 455 kc

FREQUENCY RANGES:
Band "AM" . . . . . 540-1730 kc
Band "SW" . . . . . 5.95-18.2 mc

ALIGNMENT FREQUENCIES:

	Oscil.	Ant-Transl. Trimmer	Padder
Band "AM"	1400 kc	1400 kc	600 kc
Band "SW"	None	None	Fixed

POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . . . . .2 watts
Maximum . . . . . .3 watts

LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 5-3/8 inches
Field coil resistance . . . . 850 Ohms

RECOMMENDED ANTENNA EQUIPMENT

Catalog #5586 Doublet Antenna Kit
" #5587 " " "
" #5588 Conventional Ant. Kit
" #5575 " " "

MODELS 6119,6120,6126,6127
6200,6250,6120A,6230,6250A
Alignment,Changes

SEARS, ROEBUCK & CO.

CHANGES

ADDITION OF TWO 50 OHM 2 WATT RESISTORS TO ELIMINATE FAILURE OF 25Z6G RECTIFIER TUBES AND IN SOME CASES SUBSEQUENT SHORTING OF THE FIRST SECTION OF THE ELECTROLYTIC FILTER CONDENSER.

NOTE: The resistors have been added at the factory when the identification number reads 101.546-1.

Remove the wire connecting pins #4 and #5 of the rectifier tube to pin #7 of the ballast tube. One 50 ohm 2 watt resistor is connected from pin #4 of the rectifier to pin #7 of the ballast tube. The other 50 ohm 2 watt resistor is connected from pin #5 of the rectifier to pin #7 of the ballast tube.

The 50 ohm 2 watt resistors, part number 1012314418, can be obtained from source 101.

Connections are shown on schematic diagram, Model 101.546-1.

CHECKING CONDITION OF FILTER ELECTROLYTICS AFTER 25Z6G RECTIFIER TUBE HAS FAILED.

Check the resistance, with the power disconnected from the set, of each filter electrolytic with a DC ohmmeter, reversing the terminals of the ohmmeter on each condenser. A shorted condenser will show very low resistance in both tests.

If, after the resistors are added and a new rectifier tube installed, the set has excessive hum, the voltage across each of the filter electrolytics should be checked. If the voltage across any one of them is more than 20% below the value shown on the schematic, the replacement of this electrolytic should correct the hum. The condenser used to replace the defective section of the electrolytic should be 1012019917. These condensers can be obtained direct from source 101.

Chassis identified by 101.546-1A are the same as 101.546-1 except for a change in the design and part number of the push buttons and call letter sheets.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil

Output meter reading to indicate 500 milliwatts . . . . . .1.2 volts

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 . . . . . Horizontal

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION
"AM"	Closed	455 kc	.1 mfd.	6J8G Grid	T2, T1	IF Output IF Input
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Lead	C2*	Wave Trap
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Lead	C5,C21	Oscillator Translator
"AM"	600 kc (rock)	600 kc	.0002 mfd.	Ant. Lead	C6	Padder

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

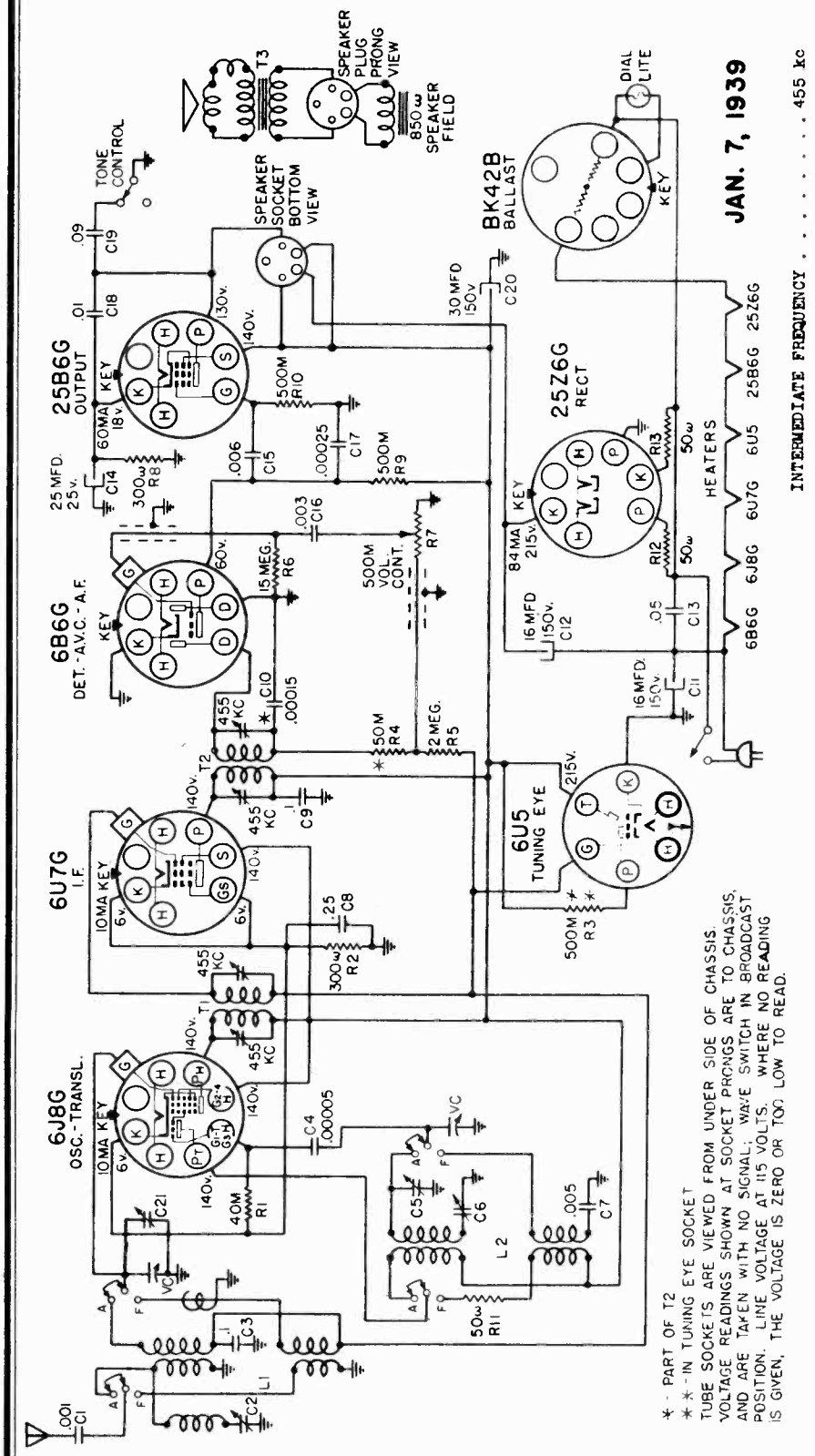
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.

There are no trimmer adjustments for the short wave band.

SEARS, ROEBUCK & CO.

MODEL 6130
Chassis 101.577
101.577-1
Schematic, Voltage Changes

JAN. 7, 1939



* - PART OF T2
** - IN TUNING EYE SOCKET
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS.
VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . . . 455 kc

POWER SUPPLY:
All models available .
105-125 volts, 50-60 cycle, 60 watts

FREQUENCY RANGES:
Band "AM" . . . . . 540-1730 kc
Band "FOR" . . . . . 5.95 mc-18.2 mc

ALIGNMENT FREQUENCIES:

	Oscil. Trimmer	Ant-Transl. Trimmer	Padder
Band "AM"	1400 kc	1400 kc	600 kc
Band "FOR"	None	None	None

LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 6"
Field coil resistance . . . . . 850 ohms
App. field coil voltage drop. . . 75 V.

POWER OUTPUT:
Type . . . . . Beam tube
Undistorted . . . . . 2 watts
Maximum . . . . . 3 watts

DIFFERENCES BETWEEN 101.557 AND 101.557-1:

R13 and R13, 50 ohms each, have been added to the 2526G plate and cathode circuits of 101.557-1 chassis. (See schematic.) These resistors are to prevent failure of the 2526G tube and should be added to 101.557 chassis as described in Bulletins XY6784 and XY6795, dated December 28th 1938. Either filter condenser, C11 or C12, may be damaged by a defective 2526G tube and should be checked with an ohmmeter before replacing the tube. A normal condenser will show high resistance when the polarity of the ohmmeter terminals agrees with the polarity of the condenser and will show considerably lower resistance when the ohmmeter terminals are reversed. (Be sure power is off when checking.) If C11 is found damaged, it is not necessary to replace the entire 3-section block. Instead, C11 should be replaced by a new single unit 15 mfd. condenser, part #1012019913. Remove the yellow lead of the original electrolytic and in its place connect the yellow lead of the new condenser. Connect the black lead of the new electrolytic to the same place in the circuit as the black lead of the original electrolytic. If the set has excessive hum, the capacity of C11 and C12 should be checked by shunting a #1012019913 condenser across each of them, observing correct polarity.

THE PUSH BUTTON TUNING MECHANISM:

Push buttons are locked and unlocked by tightening or loosening the slotted screw, made accessible when the push button knob is pulled off of its plunger. Stations are set up by holding the plunger all the way in and tuning in the desired station. The setting then is locked by securely tightening the slotted screw.

MODEL 6130
Alignment, Trimmers
Socket, Chassis

SEARS, ROEBUCK & CO.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 500 milliwatts. . . . . 1.2 volts
Average sensitivity in microvolts for 500 milliwatts output . . . . . See chart below
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 . . . . . Horizontal

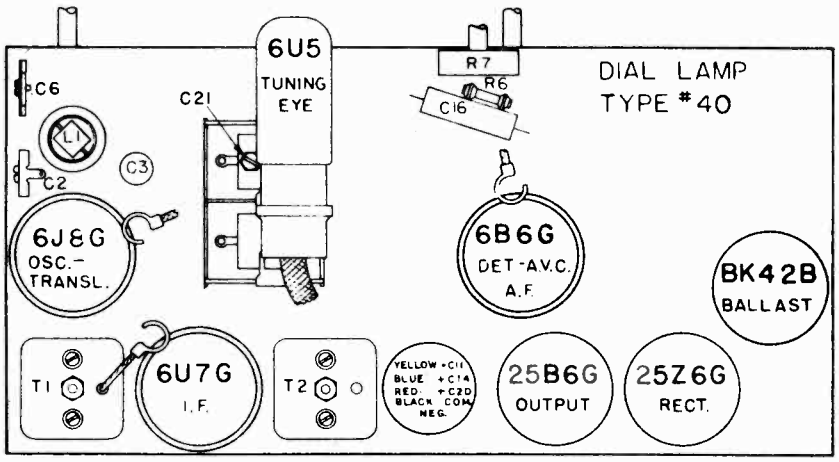
WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	6J8G Grid	T2, T1	IF Output IF Input	70
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Lead	C2*	Wave Trap	--
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Lead	C5, C21	Oscillator Translator	50
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Lead	C6	Padder	55

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

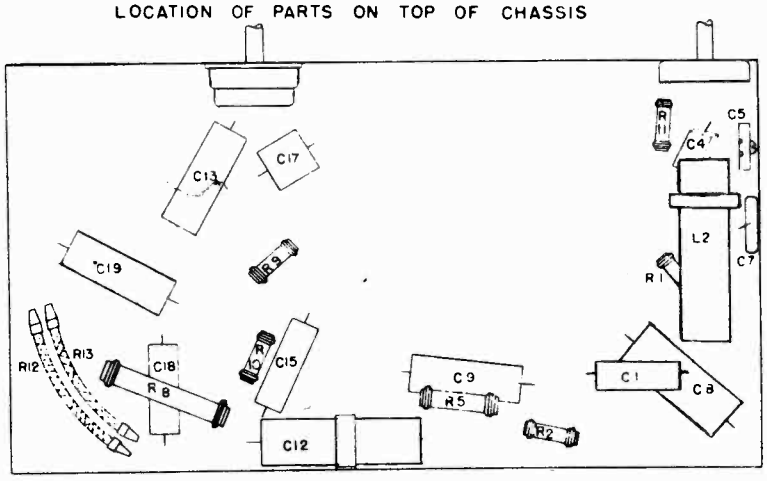
Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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

There are no trimmer adjustments for the short wave band.



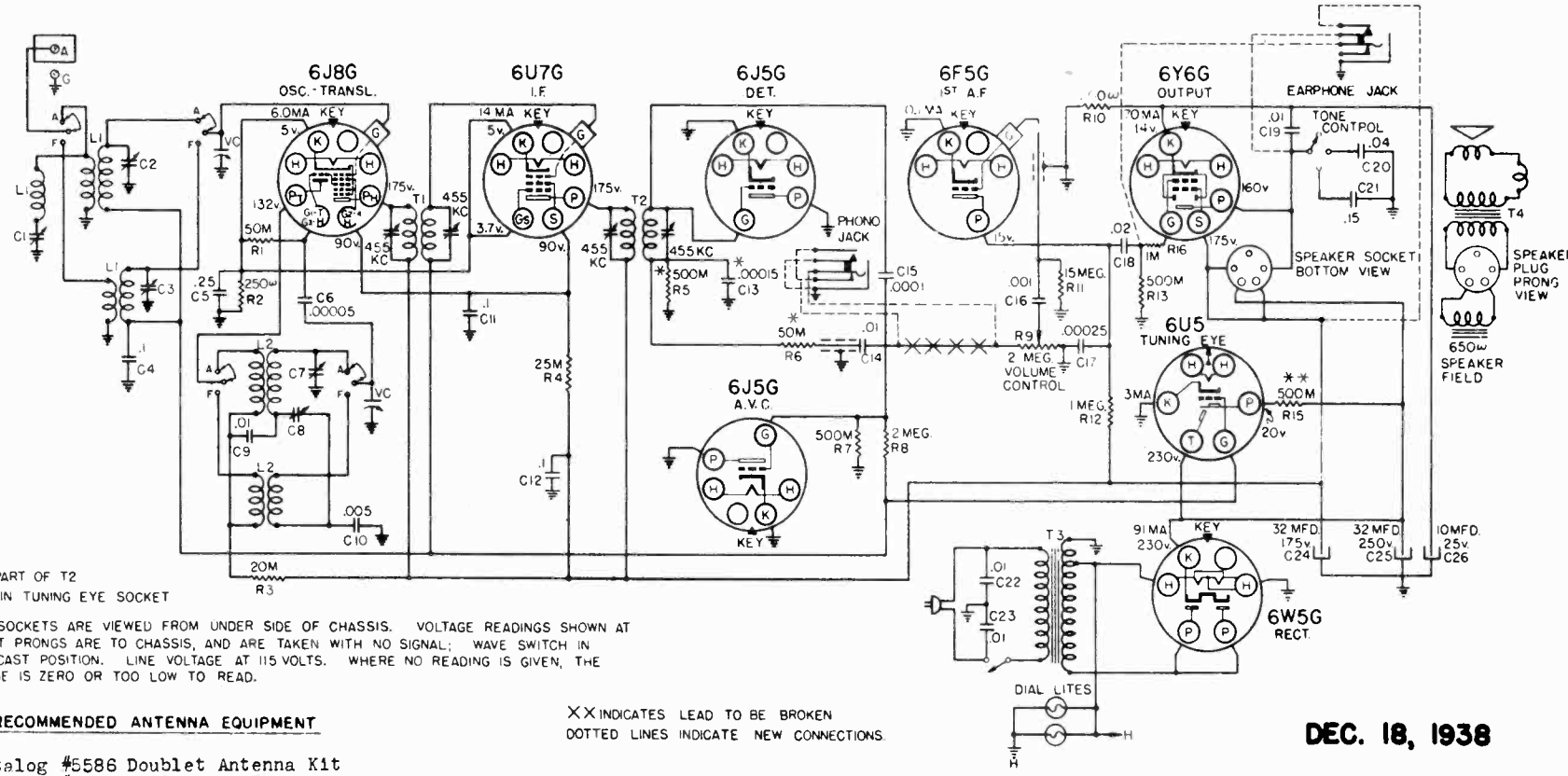
LOCATION OF PARTS ON TOP OF CHASSIS



LOCATION OF PARTS UNDER CHASSIS

SEARS, ROEBUCK & CO.

MODELS 6133,6141,6139,6137
6202,6203,6253,6252,6199
Chassis 101.535
Schematic, Voltage



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

XX INDICATES LEAD TO BE BROKEN
DOTTED LINES INDICATE NEW CONNECTIONS.

DEC. 18, 1938

RECOMMENDED ANTENNA EQUIPMENT

Catalog #5586 Doublet Antenna Kit
" #5587 " " "
" #5588 Conventional Ant. Kit
" #5575 " " "

ALIGNMENT FREQUENCIES:

	Oscil. Trimmer	Ant-Transl. Trimmer	Padder
Band "AM"	1400 kc	1400 kc	600 kc
Band "SW"	None	15 mc	Fixed

FREQUENCY RANGES:

Band "AM" . . . . . 540-1730 kc
Band "SW" . . . . . 5.9-18.5 mc

POWER OUTPUT:

Type . . . . . .Tetrode
Undistorted . . . . . 3-1/2 watts
Maximum . . . . . 5 watts

LOUD SPEAKER:

Type . . . . . .Dynamic
Size . . . . . .8 and 10 inch
Field coil resistance . . . . 650 Ohms
App.field coil voltage drop..55 Volts

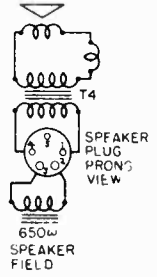
INTERMEDIATE FREQUENCY . . . . . .455 kc

POWER SUPPLY:

All models available . . . . . 105-125 volts, 50-60 cycle, 75 watts
All models available . . . . . .105-125 volts, 25 cycle, 90 watts

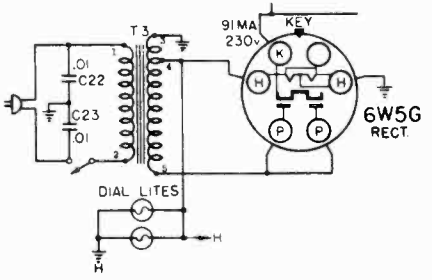
SPEAKER PLUG COLOR CODE

1. Green
2. Yellow
3. Black
4. Brown
5. Blank



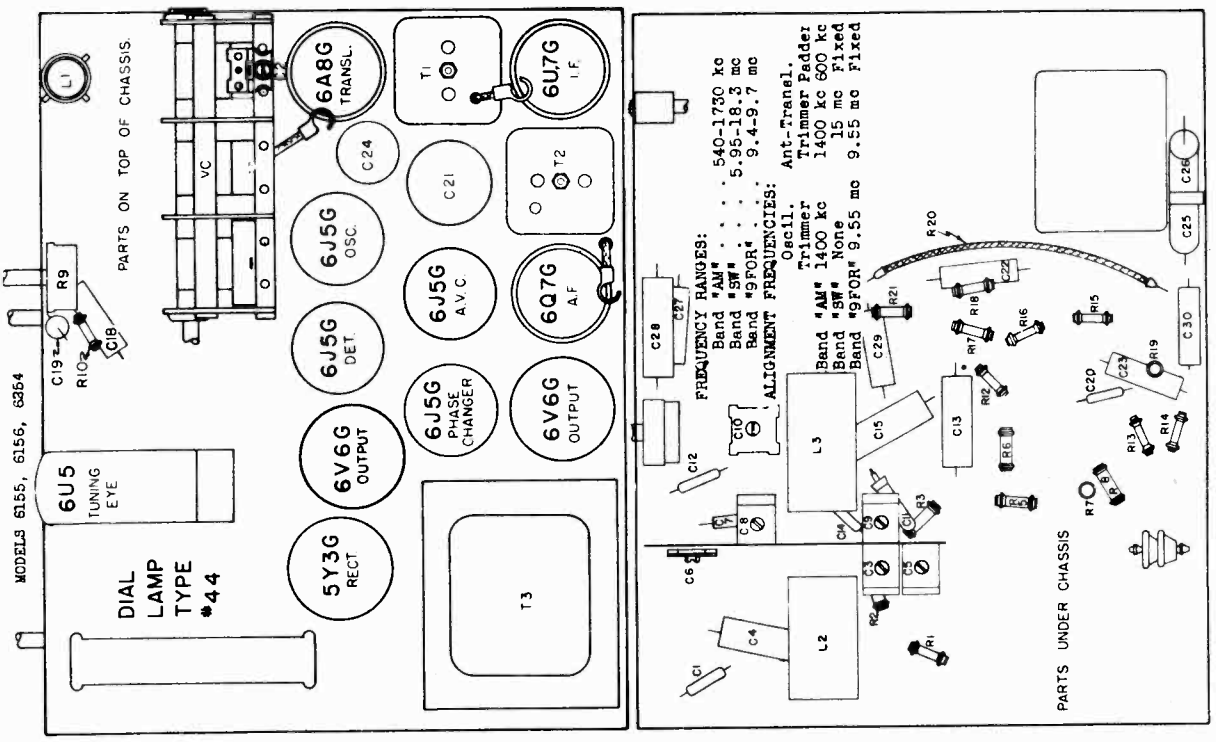
PWR. TRANSF. COLOR CODE

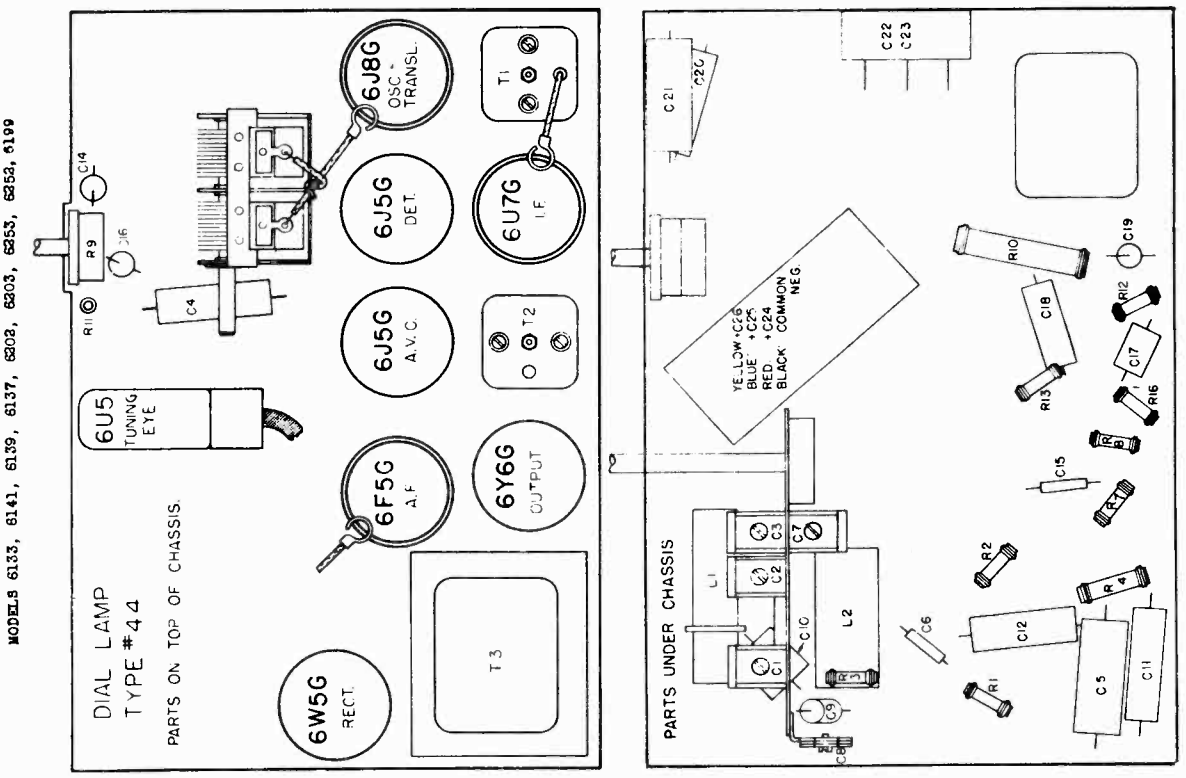
1. Black
2. Green
3. Slate
4. Yellow
5. Red

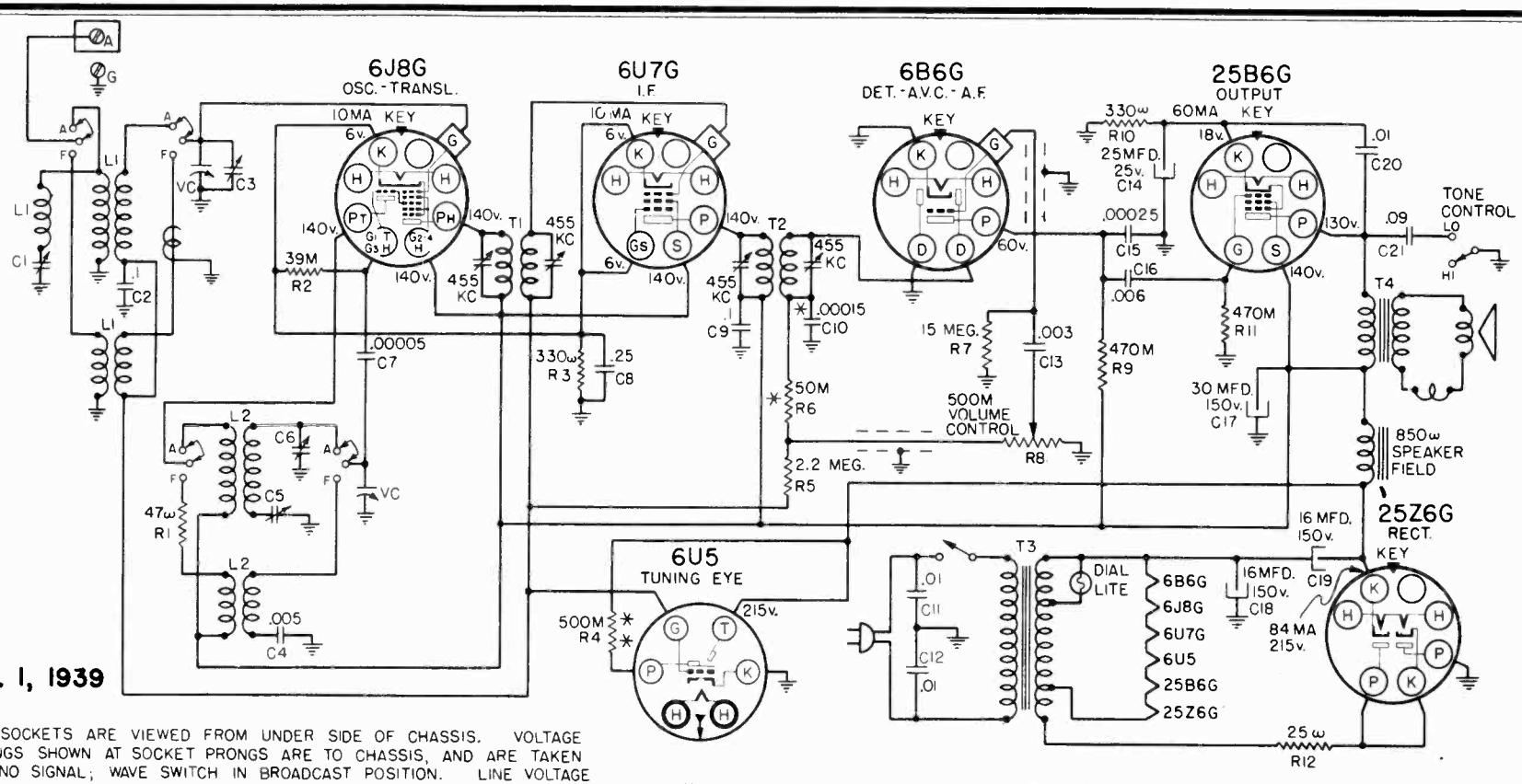


MODELS 6133,6137,6139,6141
6199,6202,6203,6252,6253
MODELS 6155,6156,6254
Socket,Trimmers,Chassis

SEARS, ROEBUCK & CO.







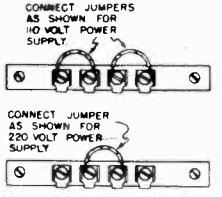
FEB. 1, 1939

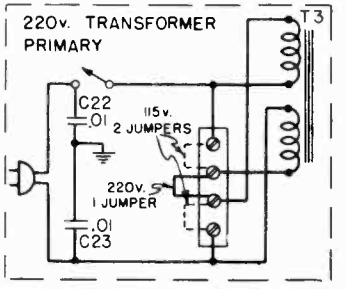
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 115 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

✳ - PART OF T2
✳✳ - IN TUNING EYE SOCKET

INTERMEDIATE FREQUENCY

455 kc





DIFFERENCES BETWEEN 101.556 AND 101.556-1:

101.556 is supplied with a 105-125 volt, 50-60 cycle power transformer. This model is intended for domestic use.

101.556-1 is intended for export use and is equipped with a tapped power transformer for 105-125 volt or 210-250 volt, 40-60 cycle power. The illustrations below show the proper jumper connections, found under the chassis, to match the supply voltage (101.556-1 only).

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5586 Doublet; reduces noise on Broadcast and Short Waves.
Catalog #5587 Doublet; reduces noise on Short Waves.
Catalog #5588, #5575; Conventional Antennas.

POWER SUPPLY:
101.556 . . . . . 105-125 volts, 50-60 cycle, 45 watts
101.556-1 . . . . . 105-125 volts: 210-250 volts, 40 cycle, 45 watts

POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . . . . 3 watts
Maximum . . . . . 3 watts

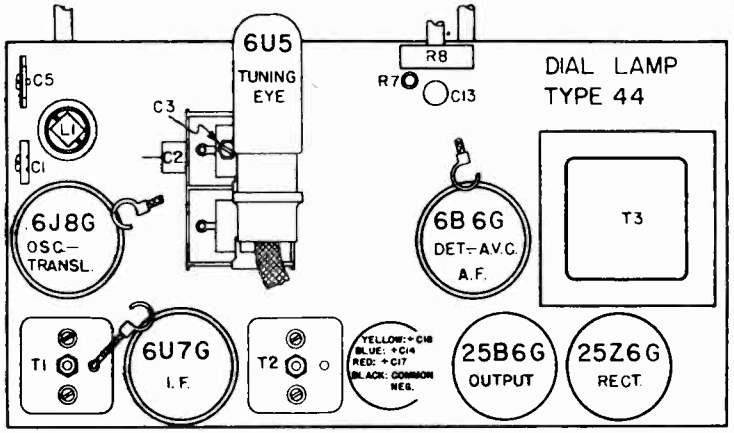
LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 5-3/8"
App. field coil resistance. . 850 ohms

CHASSIS 101.556 AND 101.556-1

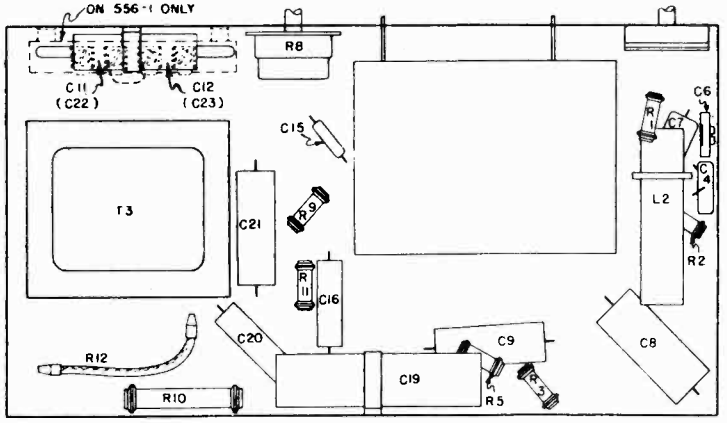
ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts .0.36 volts
Average sensitivity in microvolts for 50 milliwatts output
. . . . . 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
. . . . . To fall on block immediately above and between the letters "mc" and "kc".

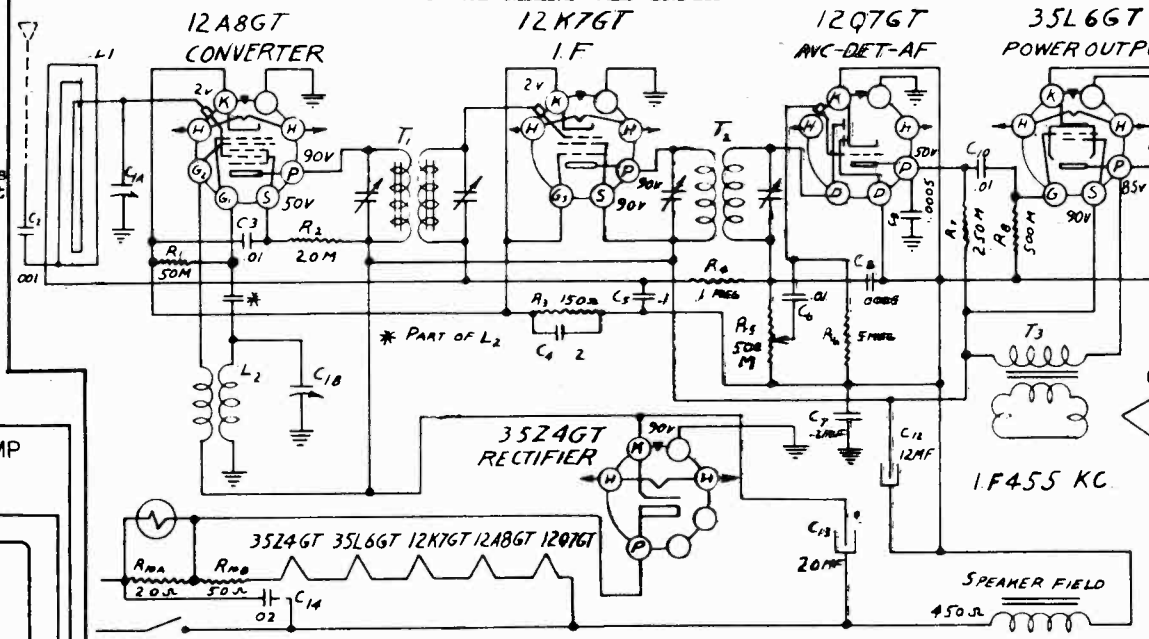


LOCATION OF PARTS ON TOP OF CHASSIS



LOCATIONS OF PARTS UNDER CHASSIS

FOR ALIGNMENT SEE INDEX



SWITCH ON VOLUME CONTROL

VOLTAGES INDICATED AT SOCKET TERMINALS ARE MEASURED WITH 1000 OHM PER VOLT METER, ON 117V LINE, WITH NO SIGNAL

APRIL 3, 1939

MODELS 6177A, 6178A, 6179A, 6185A (109.279-1) MODEL 6185A (109.279-2)

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	6J8G Grid	T2,T1	IF output IF Input	60
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C1*	Wave Trap	--
"AM"	Fully open	1750 kc	.0002 mfd.	Ant. Term.	C6	Oscillator	100
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C3	Translator	50
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C5	Padder	35

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

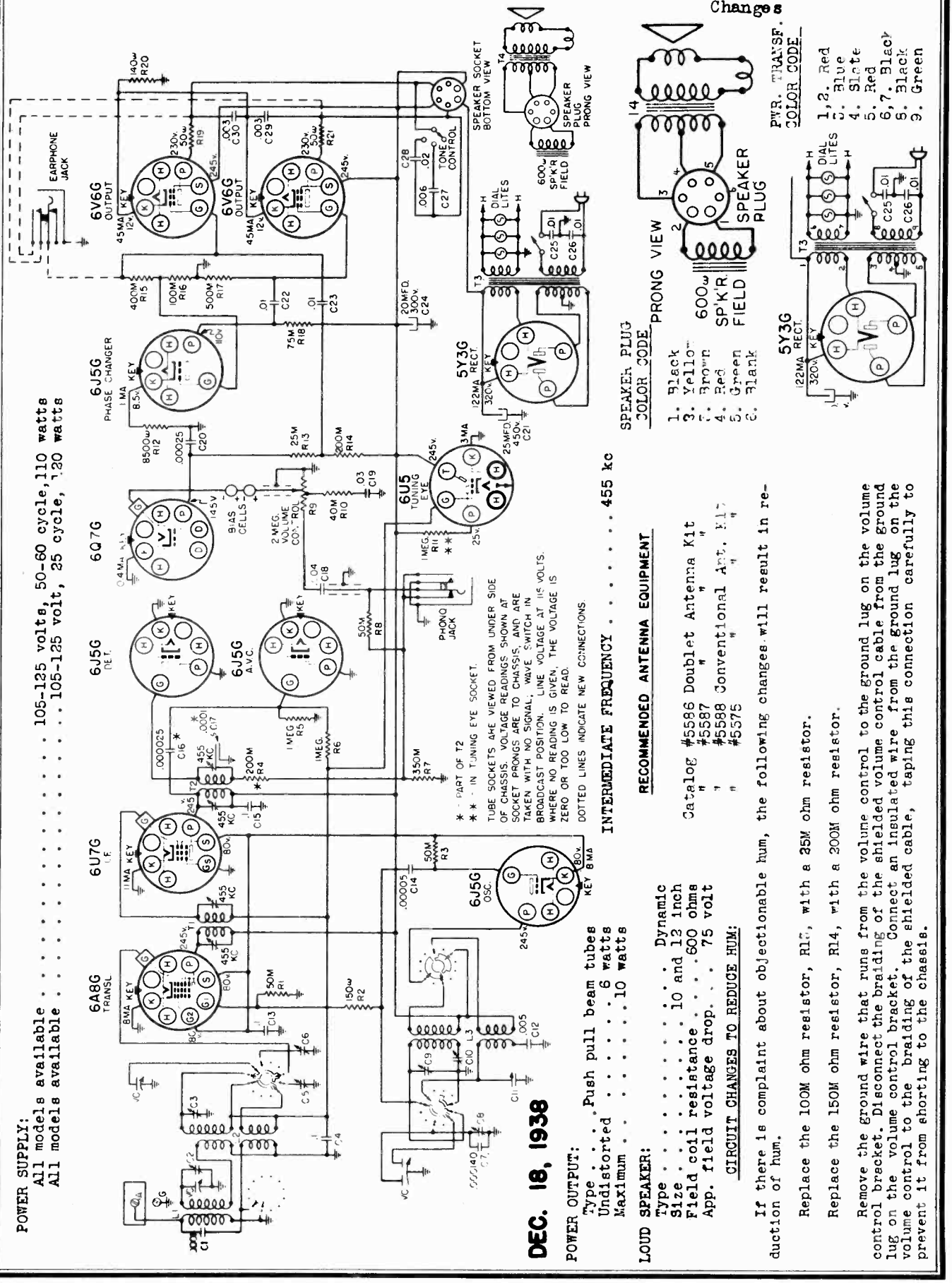
Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

There are no trimmer adjustments for the short wave band.

SEARS. ROEBUCK & CO.

MODELS 6155,6156,6254
Chassis 101.549
Schematic, Voltage Changes



DEC. 18, 1938

POWER SUPPLY:
All models available . . . . . 105-125 volts, 50-60 cycle, 110 watts
All models available . . . . . 105-125 volt, 25 cycle, 120 watts

POWER OUTPUT:
Type . . . . . Push pull beam tubes
Undistorted . . . . . 6 watts
Maximum . . . . . 10 watts

LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 10 and 12 inch
Field coil resistance . . . . 600 ohms
App. field voltage drop. . . . 75 volt

INTERMEDIATE FREQUENCY . . . . . 455 kc

RECOMMENDED ANTENNA EQUIPMENT

Catalog #5586 Doublet Antenna Kit
" #5587 " " "
" #5588 Conventional Ant. Kit
" #5575 " " "

CIRCUIT CHANGES TO REDUCE HUM:

If there is complaint about objectionable hum, the following changes will result in reduction of hum.

Replace the 100M ohm resistor, R17, with a 25M ohm resistor.

Replace the 150M ohm resistor, R14, with a 200M ohm resistor.

Remove the ground wire that runs from the volume control to the ground lug on the volume control bracket. Disconnect the braiding of the shielded volume control cable from the ground lug on the volume control bracket. Connect an insulated wire from the ground lug on the volume control to the braiding of the shielded cable, taping this connection carefully to prevent it from shorting to the chassis.

ALIGNMENT PROCEDURE

PRELIMINARY: For all Models and Chassis listed in tables below.

Output meter connection . . . . . Across loud speaker voice coil

Output meter reading to indicate 50 milliwatts . . . . . 0.96 volt

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 . . . . . Center of block to left of 550 kc calibration mark.

MODELS 6155,6156,6254 CHASSIS 101.549

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION
"AM"	Closed	455 kc	.1 mfd.	6A8G Grid	T3, T1	IF Output IF Input
"SW"	15 mc (rock)	15 mc	400 ohms	Ant. Term.	C5	Translator
"9FOR"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C8* C6	Oscillator Translator
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C9,C3,C2	Osc.,Trans.,Ant.
"AM"	600 kc (rock)	600 kc	.0002 mfd.	Ant. Term.	C10	Padder

MODELS 6158,6159,6192 CHASSIS 101.555,101.555-1

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	6A8G Grid	T2,T1	IF Output IF Input	810
"SW"	15 mc(rock)	15 mc	400 ohms.	Ant. Term.	C13	Translator	40
"9"	9.55 mc	9.55 mc	400 ohms.	Ant. Term.	C9* C16	Oscillator Translator	80
"11"	11.71 mc	11.71 mc	400 ohms.	Ant. Term.	C7* C15	Oscillator Translator	40
"15"	14.9 mc	14.9 mc	400 ohms.	Ant. Term.	C5* C14	Oscillator Translator	40
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C17,C12, C1	Osc.,Transl., RF	30
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C18	Padder	40

IMPORTANT ALIGNMENT NOTES

The alignment must be done in the order given.

*Two peaks can be had, one with the trimmer screwed further out than the other. The correct adjustment is with the trimmer screwed further out. The other peak is the image.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

ALIGNMENT PROCEDURE

PRELIMINARY: For all Models and Chassis listed in tables below.

Output meter connection . . . . . Across loud speaker voice coil

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

MODELS 6264, 6265 CHASSIS 101.551

Output meter reading to indicate 50 milliwatts . . . . . 0.34 volts
Average sensitivity in microvolts for 50 milliwatts output . . . . . See chart below
Position of Tone Control . . . . . HI
Position of Dial Pointer with variable fully closed . . . . . To fall in center of block to left of 550 kc mark.

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	1A7G Grid	T3,T2,T1	IF Output IF Interstage IF Input	300
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C1*	Wave Trap	--
"SW"	16 mc (rock)	16 mc	400 ohms	Ant. Term.	C8	Translator	15
"9FOR"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C2,C11	Osc.,Trans.	18
"AM"	Fully open	1730 kc	.0002 mfd.	Ant. Term.	C9	Oscillator	20
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C7	Translator	10
"AM"	600 kc (rock)	600 kc	.0002 mfd.	Ant. Term.	C10	Padder	10

MODELS 6336, 6436 CHASSIS 101.574

Approximate microvolts input for 500 milliwatts output . . . . . See chart below
Position of Tone Control . . . . . Both buttons out
Position of Dial Pointer with variable fully closed . . . . . On first mark to left of 550 kc calibration mark.

Output meter reading to indicate 500 milliwatts . . . . . 1.8 volts

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C1*	Wave Trap	--
"A"	Fully open	1730 kc	.0002 mfd.	Ant. Term.	C14	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C10	Translator	50
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C15	Padder	50
"B"	2.3 mc(rock)	2.3 mc	400 ohms	Ant. Term.	C17	Osc. Pad.	110
"B"	2.5 mc	2.5 mc	400 ohms	Ant. Term.	C13†	Translator	110
"B"	2.4 mc	2.4 mc	400 ohms	Ant. Term.	C11†	Transl.Pad.	110
"C"	18 mc	18 mc	400 ohms	Ant. Term.	C5**	Oscillator	--
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C3	Translator	30
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C20**	Oscillator	--
"D"	9.55 mc(rock)	9.55 mc	400 ohms	Ant. Term.	C9	Translator	85
"E"	11.71 mc	11.71 mc	400 ohms	Ant. Term.	C18**	Oscillator	--
"E"	11.71 mc(rock)	11.71 mc	400 ohms	Ant. Term.	C8	Translator	80

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

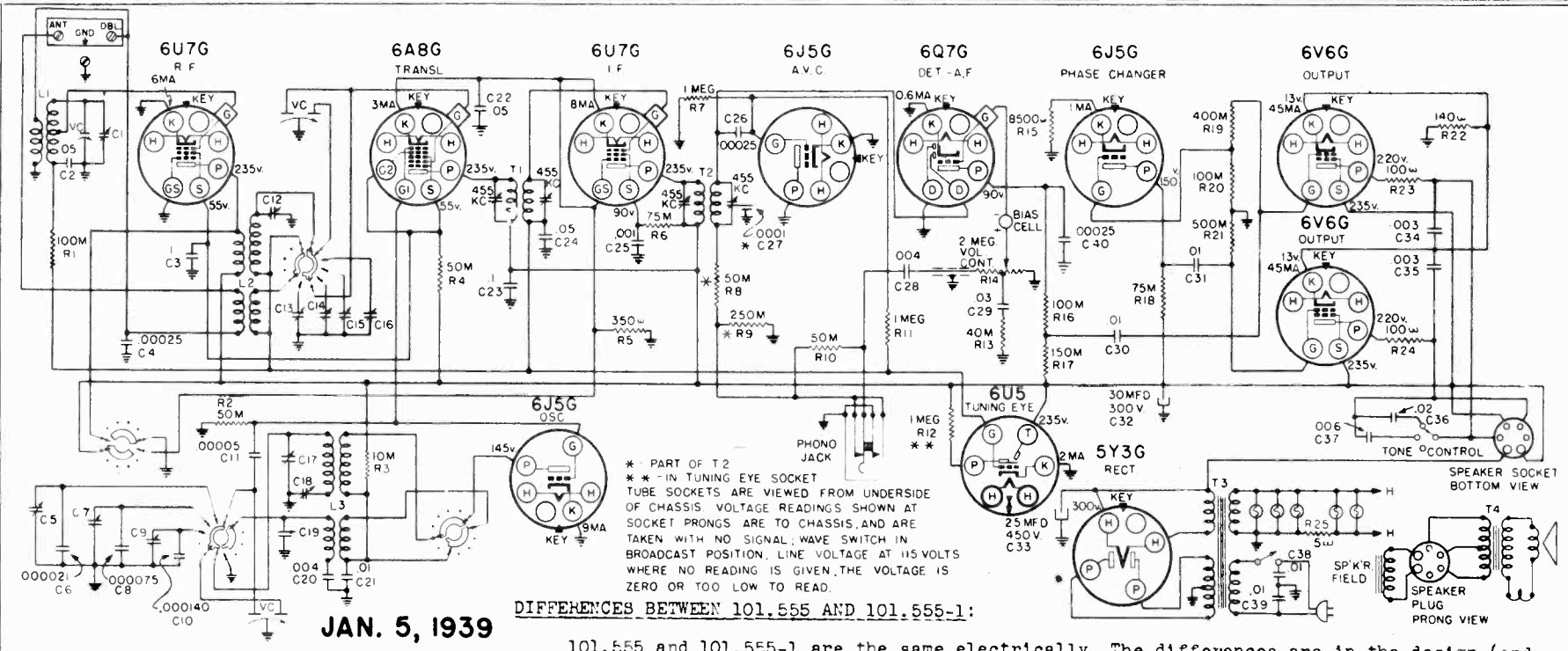
† Repeat the C11 and C12 adjustments until perfect alignment is obtained. This will require going back and forth in these adjustments several times.

** If two peaks can be had, the correct one is with the trimmer screw further out; the other peak is the image.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

SEARS, ROEBUCK & CO.



JAN. 5, 1939

INTERMEDIATE FREQUENCY

455 kc

FOR ALIGNMENT
SEE INDEX

FREQUENCY RANGES:

Band "AM"	540-1750 kc
Band "SW"	5.95-18.3 mc
Band "9"	9.4-9.7 mc
Band "11"	11.55-12.1 mc
Band "15"	14.4-15.4 mc

POWER OUTPUT:

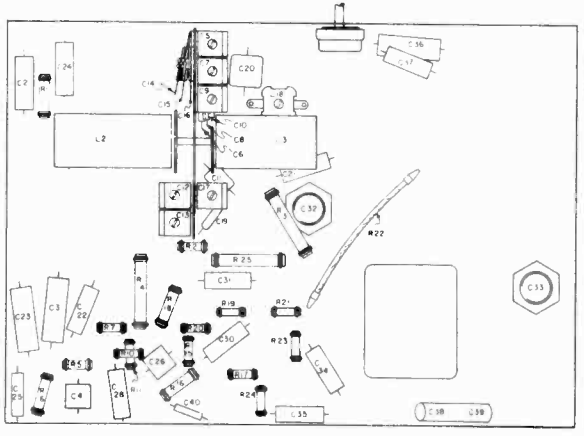
Type	Push pull beam tubes
Undistorted	6 watts
Maximum	10 watts

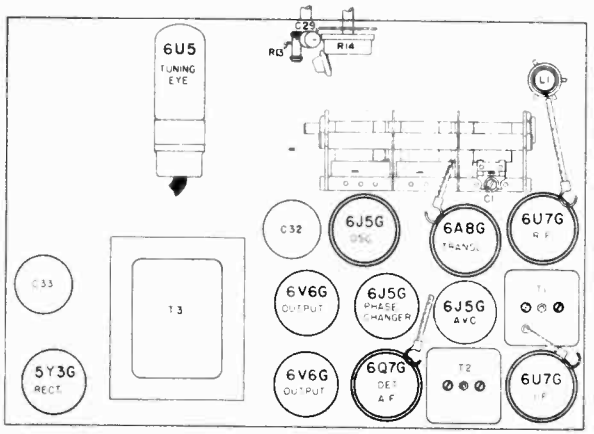
LOUD SPEAKER:

Type	Dynamic
Size	12 and 15 inch
Field coil resistance	600 ohms
App. field coil voltage drop	65 V.

DIFFERENCES BETWEEN 101.555 AND 101.555-1:

101.555 and 101.555-1 are the same electrically. The differences are in the design (and part numbers) of the escutcheons and knobs, as shown in the parts list. The push button escutcheon for Model 101.555 is removed by taking out the snap-in buttons, made accessible when the volume and tuning knobs are pulled off their shafts. The 101.555-1 push button escutcheon is removed by taking out the screws that hold it and the dial escutcheon.





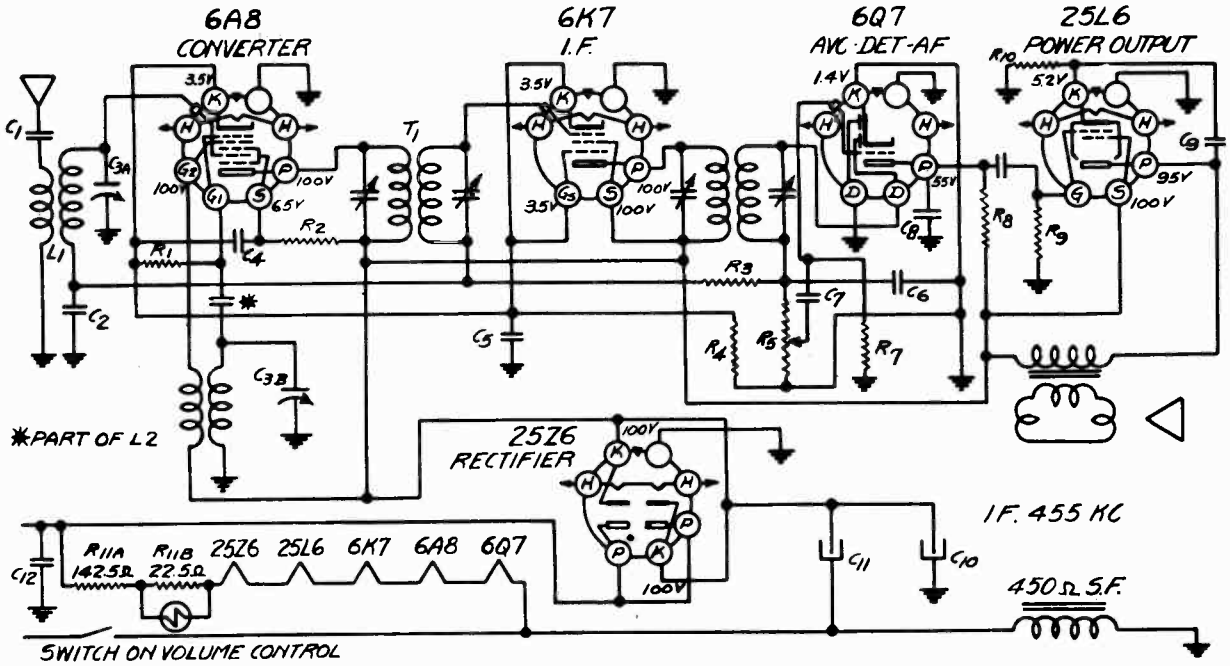
POWER SUPPLY:

All models available	105-125 volts, 50-60 cycle, 105 watts
All models available	105-125 volts, 25 cycle, 115 watts

MODELS 6160,6161,6163
6175.Ch.109.199-1

SEARS, ROEBUCK & CO.

Schematic, Voltage
Socket, Trimmers
Alignment

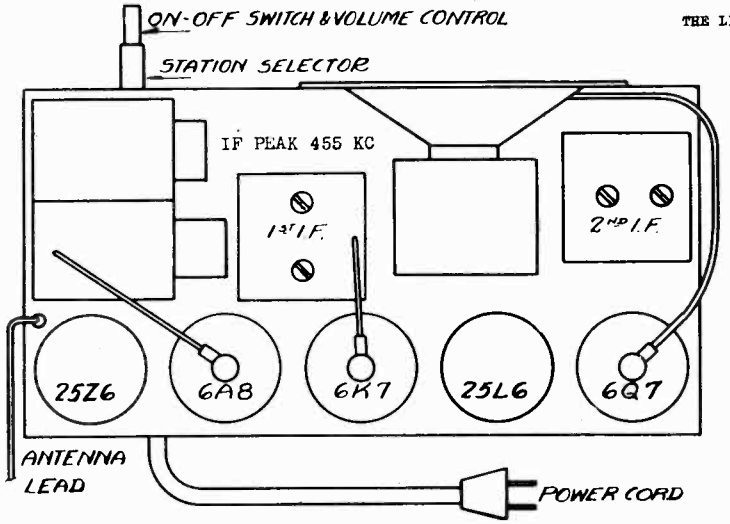


VOLTAGES INDICATED AT SOCKET TERMINALS ARE MEASURED WITH 1000 OHM PER VOLT METER, ON 117V LINE, WITH NO SIGNAL

JAN. 12, 1939

POWER SUPPLY

105-125 Volts 50-60 Cycle or D.C. ..... 43 watts on 117 volt line.



THE LINE CORD MUST NOT BE SHORTENED OR ALTERED IN ANY WAY.

FREQUENCY RANGE

Broadcast and other services 540 to 1720 KC.

ALIGNMENT FREQUENCIES

455 KC., 1720 KC., 1400 KC.

LOUD SPEAKER

Type.....Dynamic
Size..... 3½ inch
Field Resistance..... 450 ohms

POWER OUTPUT

Type..... Beam Power
Undistorted..... 1.2 watt
Maximum ..... 2 watts

ALIGNMENT PROCEDURE

See Tube Layout Diagram for location of trimmers.

Connect the Signal Generator ground to the receiver chassis thru a .1 mfd. condenser. Using a .05 mfd. condenser (SEE NOTE BELOW) in series with the high side of the generator, apply a 455 KC. signal to the grid of the 6K7 IF amplifier tube and align the 2nd IF transformer. Repeat for the 1st IF transformer, applying the signal to the grid of the 6A8 tube. Using an 85 to 100 mmf. condenser as a "dummy" antenna, turn the tuning condenser to minimum capacity, apply a 1720 KC signal to the antenna and tune in the signal with the oscillator trimmer. Set the generator to 1400 KC., tune in the signal and adjust the antenna trimmer. (The antenna and oscillator trimmers are located on top of the tuning condenser. see the Tube Layout Diagram).

NOTES

If considerable hum appears when the generator is connected to the 6K7 or 6A8 tubes, use a smaller condenser in series with the high side of the generator.

The "dummy antenna" used for aligning the oscillator and antenna should be connected to the receiver end of the antenna.

Use a weak signal from the generator. Strong signals tend to cause improper adjustments.

MECHANICAL SPECIFICATIONS

CONTROLS

Upper Knob.....Tuning
Lower Knob.. On-Off & Volume

CONTROL OPERATION

Direct Drive
Turn right to turn power on and to increase volume.

MODELS 6133,6141,6139,6137,6202,6203,6253,6252,6199 CHASSIS 101.535

CONNECTION OF EARPHONE AND PHONOGRAPH PICKUP JACKS:

Part number 1016119531 jack, for connection of earphones or phonograph pick-up, can be ordered directly from source 101. Retail selling price is 79¢.

The schematic diagram on Page 8 shows the connections.

If a crystal pick-up is used, a filter composed of a .01 mfd. condenser and a 100M ohm resistor connected in series, should be connected across the pick-up to prevent excessive bass response. This filter will also act as a partial scratch filter.

PUSH BUTTON TUNING

SETTING UP:

Leave the radio turned on for about 15 minutes before adjusting the push buttons. This "warming up" period will insure permanent and accurate settings.

1. Make a list of the stations that you want to set up for push button tuning. It is advisable, but not necessary, to arrange the stations in the order of their frequency (kilocycles); that is, the station of lowest frequency will be #1, the station of next higher frequency #2, etc. The top left push button can be used for station #1, the lower left one for station #2, the next upper one for station #3, etc. If you wish, short wave stations that can be tuned in on the SPREAD BAND scale can be set up for push button tuning. The stations selected must give strong and reliable reception.

2. Remove the four screws that hold the plate through which the push buttons protrude, and remove the plate. (This plate is called the "escutcheon".) If your radio is a table model (not a console), remove the snap-in button at the right side of the cabinet. See Fig.1.

3. Push the tuning knob in and turn it so that the dial pointer comes to the right end of the dial. If your radio is a table model, a key, illustrated in Fig. 2, will be found in the Instruction Leaflet envelope. Insert this key in the hole in the side of the cabinet from which the snap-in button was removed and engage the key with the slot at the end of the push button locking mechanism. Unscrew (turn counter-clockwise) the key a few turns, unlocking the mechanism. (A screw driver can be used for unlocking the mechanism instead of the key supplied.)

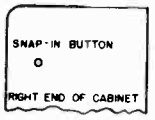
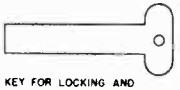


FIG. 1


KEY FOR LOCKING AND UNLOCKING PUSH-BUTTON MECHANISM.
FIG. 2

If yours is a console model, the mechanism can be unlocked by reaching in from the back of the cabinet and unscrewing (turning counter-clockwise) the wing nut, at the end of the mechanism, a few turns. (This can be done by hand.)

4. Push the button that you wish to use for your #1 station, all the way in and hold it in firmly. Push the tuning knob in and turn it until your #1 station is tuned in exactly. Then let go of the push button, making sure not to turn the tuning knob until you have let go of the button. (Turning the knob while the button is pushed in would spoil the accuracy of the adjustment.) Be as exact as possible in tuning your station since this will determine how accurately your station will be tuned whenever you use the push button.

5. Push in your #2 button. Hold it in firmly and tune in your #2 station accurately. Then let go of the push button and then the tuning knob. Proceed in the same manner for the other stations on your list.

6. When all of the stations have been set up, push the tuning knob in and turn it so that the dial pointer comes to the left end of the dial. Then lock the mechanism by tightening (turning clockwise) the wing nut for console models or by using the key for table models If yours is a table model, replace the snap-in button in the side of the cabinet.

7. Punch out the call letters of your desired stations from the call letter sheets supplied. Insert the call letters in the celluloid holders at the back of the escutcheon. Be sure to insert the call letters so that they are opposite their respective push buttons. Then replace the escutcheon.

8. You may change your choice of stations at any time by unlocking the mechanism as described in Step 3 and adjusting the button to the new station, as described in Step 4. Then relock the mechanism as described in Step 6. The call letters of the new station should be inserted in the call letter holder in their proper position.

OPERATION:

Push the button, indicated for your desired station, all the way in. Your station then will be tuned in. If you have selected short wave stations for approximate push button tuning, be sure the band switch is turned to the proper band.

MODEL 6155,6156,6254 CHASSIS 101.549

PUSH BUTTON TUNING

SETTING UP:

Leave the radio turned on for about 15 minutes before adjusting the push buttons. This "warming up" period will insure permanent and accurate settings.

1. Make a list of the stations that you want to set up for push button tuning. It is helpful to arrange the stations in the order of their frequency (kilocycles); that is, the station of lowest frequency will be #1, the station of next higher frequency #2, etc. The top left push button can be used for station #1, the lower left one for station #2, the next upper one for station #3, etc. If you wish, short wave stations that can be tuned in on a SPREAD BAND scale can be set up for push button tuning. The stations selected must give strong and reliable reception.

2. Remove the four screws that hold the plate through which the push buttons protrude, and remove the plate. (This plate is called the "escutcheon".)

3. Push the tuning knob in and turn it so that the dial pointer comes to the left end of the dial. Engage the small screw driver, supplied, with the slotted shaft that is between the tuning knob and the push buttons. Unlock the mechanism by pushing the shaft in and unscrewing it (turn counter-clockwise) about four turns. Then remove the screw driver. Use the small screw driver, supplied. Do not use a large handled one because too much force might damage the mechanism.

4. Push the button that you wish to use for your #1 station, all the way in and hold it in firmly. Push the tuning knob in and turn it until your #1 station is tuned in exactly, as indicated by the tuning eye. Be as exact as possible in tuning your station since this will determine how accurately your station will be tuned whenever you use the push button. Then let go of the push button before turning the tuning knob again. If properly done, the tuning eye indication will not change when you let go of the push button.

5. Push in your #2 button. Hold it in firmly and tune in your #2 station accurately. Then let go of the push button; then the tuning knob. Proceed in the same manner for the other stations on your list.

6. After the last station has been set up, lock the mechanism by pushing the slotted shaft in and securely tightening it (turn clockwise), using the small screw driver, supplied. (Pushing the slotted shaft in will release the last push button. The dial pointer will move to the right end of the dial as the slotted shaft is turned.) Then remove the screw driver. If the slotted shaft remains pushed in when the screw driver is removed, turning it back and forth very slightly will release it.

After locking the mechanism, test the setting of each button by pushing it in. Then see if the station can be tuned still more accurately by using the tuning knob. Increased accuracy of tuning with the knob will be indicated by a narrower shadow of the tuning eye. If you find any stations that have not been correctly set up, unlock the mechanism, as described in Step 3, and readjust the setting. Be sure to lock the mechanism again before tuning any stations.

7. Punch out the call letters of your desired stations from the call letter sheets supplied. Insert the call letters in the recesses in the front of the push buttons. Cover the call letters with the clear celluloid tabs supplied. Replace the escutcheon.

8. You may change your choice of stations at any time by unlocking the mechanism as described in Step 3 and adjusting the button to the new station, as described in Step 4. Then relock the mechanism as described in Step 6. The call letters of the new station should be inserted in the proper push button.

OPERATION:

Push the button, indicated for your desired station, all the way in. Your station then will be tuned in. If you have selected short wave stations for push button tuning, be sure the band switch is turned to the proper band. The button will remain part way in, indicating what station is tuned in, until you push another button or until you push the tuning knob

MODELS 6158,6159,6192 CHASSIS 101.555,101.555-1; 6368 CHASSIS 101.582,6382 CHASSIS 101.594; 6497 CHASSIS101.595

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, tuning in the station, pushing in the plunger (being careful not to detune the station), releasing the plunger, then securely locking the adjustment by holding the screw driver lightly in the screw head allowing the spring tension to hold the plunger against the screw driver.

MODELS 6177,6178,6179
6185,Ch. 109.279
Schematic,Voltage
Alignment,Trimmers

SEARS, ROEBUCK & CO.

Socket,Notes
CHASSIS 109.279-1,-2
Alignment,Trimmers
Socket,Notes

APRIL 3, 1939

POWER SUPPLY
105-125 Volts 50-60 Cycle or D.C...
...26 watts on 117 volt line.

LOUD SPEAKER
Type.....Dynamic
Size.....3½ inch
Field Resistance.....450 ohms

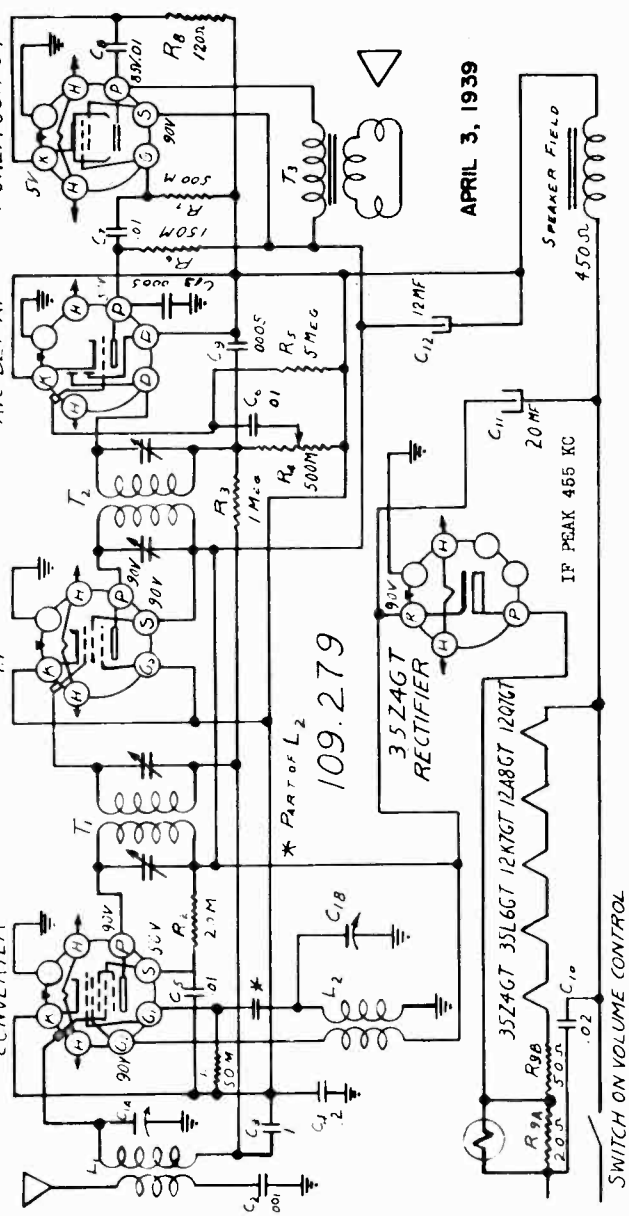
POWER OUTPUT
Type.....Beam Power
Undistorted.....1.0 watt
Maximum.....1.25 watts

FREQUENCY RANGE
Broadcast and other services 540 to 1720 KC.

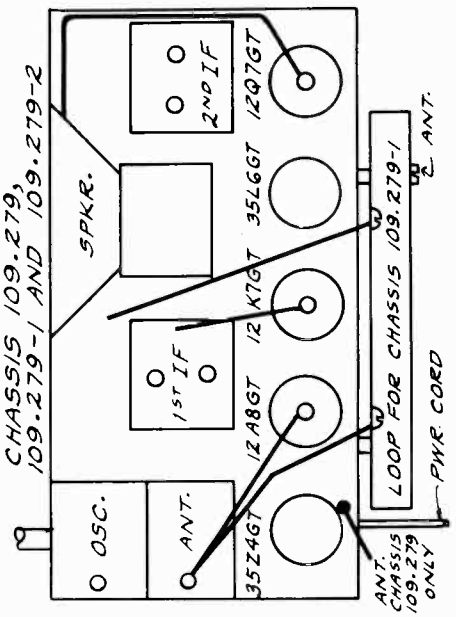
ALIGNMENT FREQUENCIES
455 KC., 1720 KC., 1400 KC.

CONTROLS
Upper Knob.....Tuning
Lower Knob.....On-Off & Volume

CONTROL OPERATION
Direct Drive
Turn right to turn power on and to increase volume.



VOLTAGES INDICATED AT SOCKET TERMINALS ARE MEASURED WITH 1000 OHM PER VOLT METER, ON 117V LINE, WITH NO SIGNAL



ALIGNMENT FOR CHASSIS 109.279, 109.279-1.

SEE TUBE LAYOUT DIAGRAM FOR LOCATION OF TRIMMERS.

Connect the signal generator ground to the receiver chassis thru a .1 mfd. condenser. Using a .05 mfd. condenser in series with the high side of the generator, apply a 465 kc signal to the grid of the 12K7GT IF amplifier tube and adjust the 2nd IF transformer. Repeat for the 1st IF transformer, applying the signal to the grid of the 12A8GT tube.

CHASSIS 109.279 ONLY

Using an 85 to 100 mmf. condenser as a dummy antenna, turn the tuning condenser to minimum capacity, apply a 1720 kc signal to the antenna and tune in the signal with the oscillator trimmer. Set the generator to 1400 kc., tune in the signal and adjust the antenna trimmer. (The antenna and oscillator trimmers are located on top of the tuning condenser.)

CHASSIS 109.279-1 and 109.279-2 ONLY

Turn the tuning condenser all the way to the right (minimum capacity), apply a 1720 kc signal to the grid of the 12A8GT tube and adjust the Oscillator trimmer. The antenna trimmer may be adjusted by tuning in a station near 1400 kc and adjusting the antenna trimmer for maximum signal.

To align the antenna with a signal generator, connect a single turn loop (about a foot square) to the generator in series with a 400 ohm resistor or a 100 mmf. condenser. Place the loop about one foot in back of the receiver, set the generator at 1400 kc. tune in the signal from the generator and adjust the antenna trimmer.

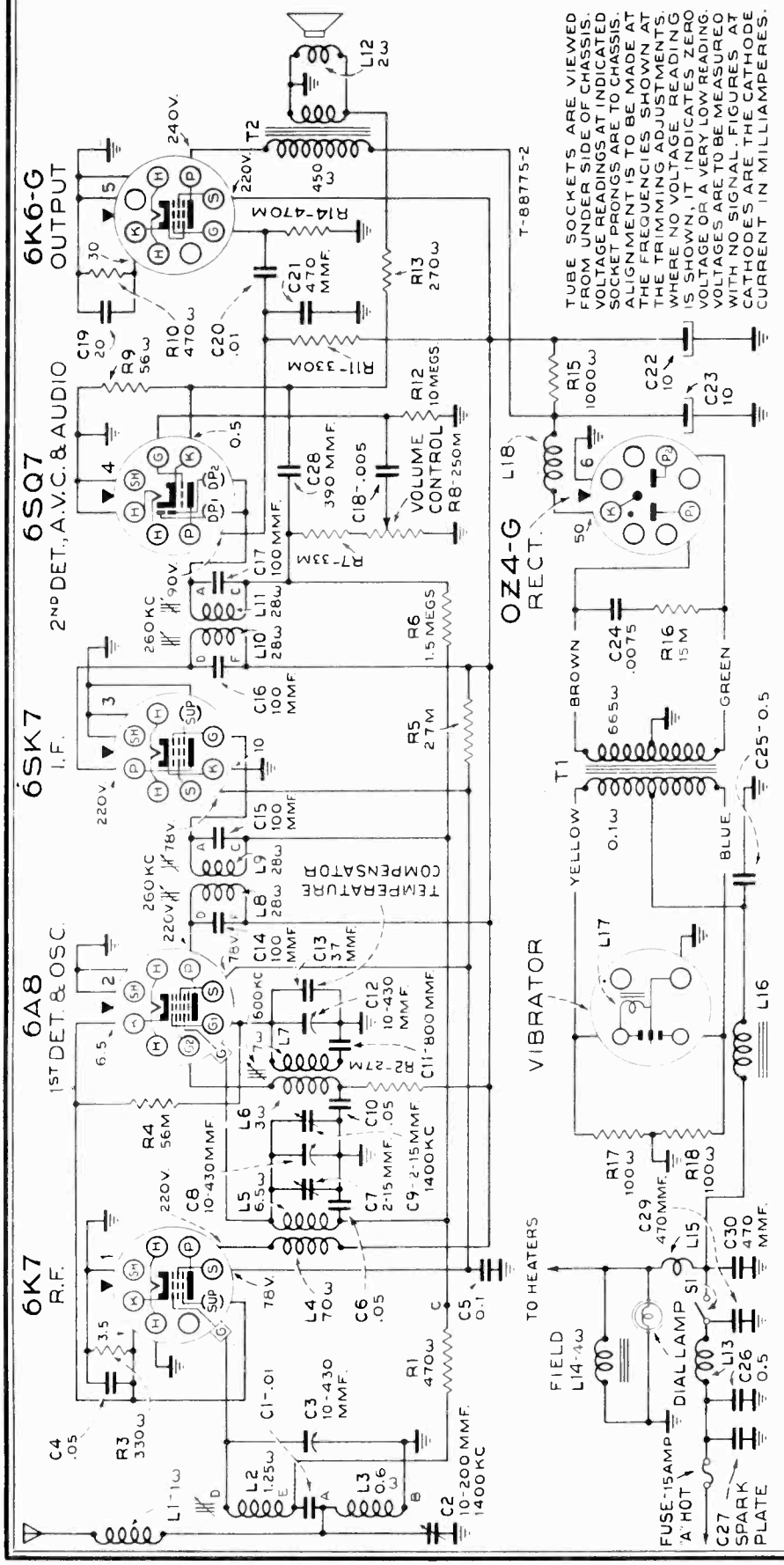
NOTE: ALL MODELS

If considerable hum appears when the signal generator is connected to the receiver, use a smaller condenser in series with the generator. In some cases it will be necessary to connect the generator ground to B- (cathode terminal of the 12Q7GT socket) instead of to the chassis.

Use a weak signal from the generator, strong signals tend to cause improper adjustments.

SEARS, ROEBUCK & CO.

MODEL 6190, Ch. 126.209
Schematic, Voltage
Drive Cord Data



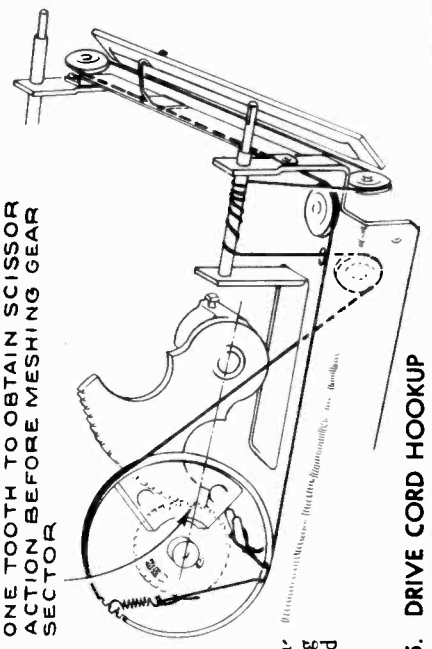


FIG. 5. DRIVE CORD HOOKUP

LOUDSPEAKER:

Type	Electrodynamic
Size	5 inches
V.C. Impedance	2.2 ohms at 400 cycles
Field Coil Resistance	4 ohms

FREQUENCY RANGE..... 550-1,550 kc

POWER OUTPUT:

Type	Pentode
Undistorted	1.8 watts
Maximum	3.7 watts

POWER SUPPLY:

"A"	6.3 volt Auto Storage Battery
"B"	Non-Synchronous Vibrator
Current Drain	6.7 amps.
Fuse Protection	15 amperes

ALIGNMENT FREQUENCIES:

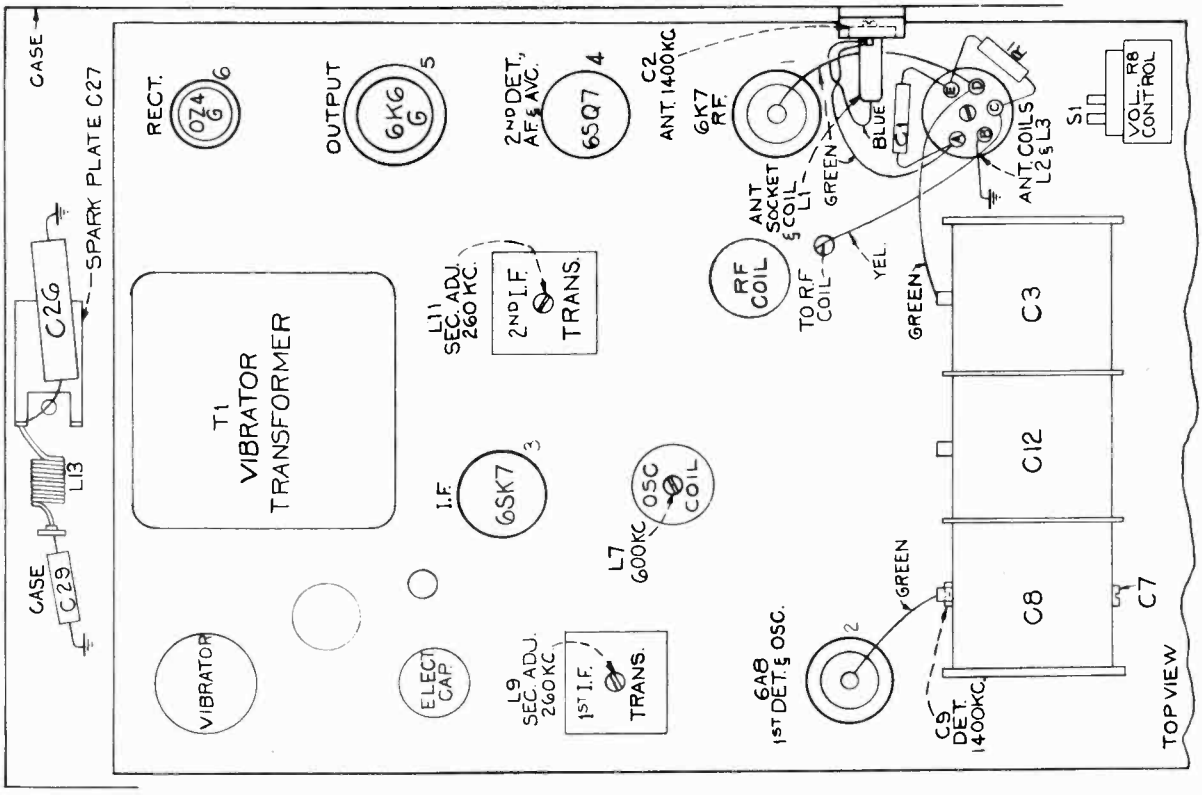
The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.

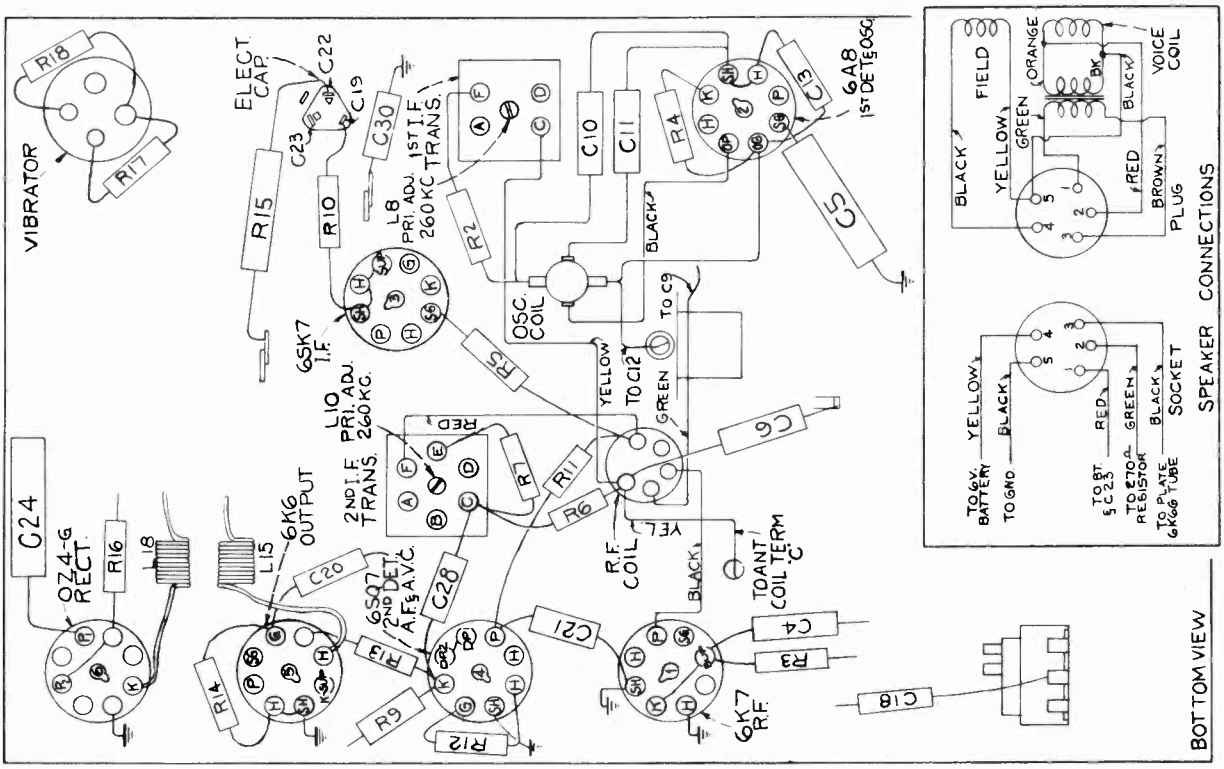
I.F.	260 kc
Ant.	1,400 kc
Osc.	600 kc
Det.	1,400 kc

JUNE 2, 1939

MODEL 6190
Chassis Wiring
Socket, Trimmers

SEARS, ROEBUCK & CO.





MODEL 6301
Alignment

SEARS, ROEBUCK & CO.

MODEL 6190
Alignment, Tuner Assembly

Antenna Filter:

A filter is included in the antenna circuit. Being completely shielded, it prevents radiating ignition interference within the set. It also reduces the possibility of picking up vibrator interference. As shown in Figure 4, the filter unit is mounted inside a steel shell which in turn is welded to the chassis. The shielded antenna lead-in makes contact with the filter unit within the steel shell and is held in place by a bayonet type connector.

Noise Elimination:

The presence of noise is generally due to the high intensity of electrical disturbances from the car ignition system in relation to strength of desired station. The reduction of such noise should be carried out methodically by: (1) Increasing effectiveness of the antenna and providing for protection against stray pickup; (2) subduing the interference at its source; and (3) installation of filter devices to prevent transmission of interference into the receiver circuits.

Antenna—Should be located well away from engine compartment to avoid ignition disturbance, and as far as possible from front wheels to eliminate "wheel static." Lead-in should be completely shielded and shield grounded to frame of car at as many points as possible. It is very essential that the antenna be electrically "matched" to the receiver input—this is accomplished by adjustment of the antenna trimmer and the operations explained under "Antenna Circuit."

Ignition—Radio frequency interference is created in the secondary and primary ignition circuits, usually at each point where a repeating contact, or spark, is made. The most prominent sources on the average car are: (a) Distributor—add the suppressor-resistor in the center or common high-voltage lead; also have points cleaned and adjusted, if necessary; (b) Generator—connect an 0.5 mfd. shielded capacitor directly across generator output; also see that commutator is smooth and brushes properly seated for minimum sparking; (c) Gasoline Gauge—on gauges having an electrical contact, an 0.5 mfd. shielded capacitor may be required between the terminal and car frame; (d) Temperature Gauge—where a contacting device is used, interference can be eliminated with an 0.5 mfd. capacitor connected between the circuit and car frame; (e) Spark Plugs—suppressors in leads to spark plugs may possibly be required in extreme cases of interference, on older cars, and in localities where signals are very weak; see that spark plugs are properly adjusted and are not leaky; (f) Ammeter—the supply for the receiver is usually taken from this point; a 0.5 mfd. capacitor from the "hot" lead will prevent passage of interference into the set over this circuit; (g) Dome Light—wiring to the dome light should be shielded; and an 0.5 mfd. capacitor attached between the circuit and car frame, preferably at the point where lead enters the corner post; (h) Wiring—primary and secondary ignition wiring should be physically separated; possible points of poor insulation should be checked, and all connections must be secure.

Car Chassis Bonds—Intermittent electrical connection between members of the car chassis, caused by vibration, will cause noise interference. Flexible bonding connections to the frame will correct this condition. The most sources are: (a) transmission case; (b) muffler; (c) steering column; (d) cylinder head; (e) dash controls; (f) rear springs; (g) brake cables; (h) hood cover. (i) receiver case.

Wheel Static—Interference from this source generally originates in the front wheels, and is related to road surface composition, and atmospheric conditions. Spring devices are available for attachment to the wheels for making a permanent connection between the hub and axle; these should be installed where required. The wheel bearings should be checked for proper adjustment. Patches in tires will frequently cause wheel static; exchange front and rear wheels. Be sure antenna is well separated from wheels of car.

Push Button Adjustment:.

The push buttons should be adjusted for five favorite stations after the receiver is installed and operating.

Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high. Proceed as follows:

1. Loosen the push buttons one-half turn.
2. Using the tuning control, accurately tune in the first station.
3. With station accurately tuned in, press the first push button fully in and then gently release so as not to jar mechanism.
4. Tighten the push button securely with fingers. Do not force with pliers.
5. Proceed in same manner to adjust the other four push buttons.

Adjustment of Push Button Mechanism:

The mechanism should be adjusted so that when using either manual or push button tuning, it operates positively and without backlash or bind. The following hints will be found helpful in adjusting the mechanism properly.

1. With the gang condenser in full mesh, the sector gear should have the two end teeth fully meshed in the scissor gear, as shown in the illustration.
2. The position of the sector gear on the rocker-plate shaft should be adjusted so that there is clearance between the rocker-plates and the frame of the push button mechanism at both extremities of gang rotation. Thus correct adjustment prevents the rotation of the gang being limited by the rocker plates touching the frame.
3. The drive cord should have 6½ turns around the tuning shaft as shown in the illustration. Three degrees of adjustment of the tension on the drive cord may be obtained by use of the three positions for connecting the drive-cord-tension spring to the drive-cord drum on the condenser shaft as shown.
4. The push-arms, rocker-plate shaft, and pulleys should be lubricated with light grease (sparingly). Care should be taken to keep the lubricant off of the drive cord.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections	Across speaker voice coil
Output meter readings to indicate 1 watt	1.8. 1.5 volts
Generator ground lead connections	To 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

Chassis must be in its case when aligning R-F circuit.

Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connections	Adjustment Symbol	Circuit Adjusted	Approx. Microvolts
No Signal 550-750 kc	260	.01 mfd.	6SK7 Grid (No. 4 pin)	L-10, L-11	2nd I.F. Trans.	3500●; 15,000
No Signal 550-750 kc	260	.01 mfd.	6A8 Grid	L-8, L-9	1st I.F. Trans.	500●; 600
600 kc	600 kc	100 mmfd.*	Antenna Connector	L-7 †	Osc.	1.3
1,400 kc Signal	1,400 kc	100 mmfd.*	Antenna Connector	C-9 † C-7● C-2 † C-1●	Det. Ant.	1
600 kc (rock)	600 kc	100 mmfd.*	Antenna Connector	L-7 †	Osc.	1.3
1,400 kc Signal	1,400 kc	100 mmfd.*	Antenna Connector	C-9 † C-7● C-2 † C-1●	Det. Ant.**	1

IMPORTANT ALIGNMENT NOTES

* Make the generator connection through a 100 mmfd. (.0001) capacity inserted at the antenna connector of the receiver. The lead from the signal generator to the 100 mmfd. capacitor may be shielded if desired, but no shielding should be used between capacitor and antenna connector.

† These adjustments should be made with unit enclosed in its shielded case, through holes provided for adjustment purposes.

** Final adjustment of C-2 must be made after the receiver has been installed and the antenna connected. See "Antenna Circuit" in "Service Hints."

Each step of the alignment should be repeated in it original order for greater accuracy. Always keep the output from the generator at its lowest possible value, to prevent the A.V.C. action of the receiver from interfering with accurate alignment.

Alignment adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular frequency should be used. Grid cap leads should remain in place during alignment.

Values shown under "Microvolts" are only approximate.

*FOR MODEL 6301 CHASSIS 126.211.

Antenna Circuit:

It is very important that these instructions be followed when installing the receiver.

The antenna circuit is designed to work with an antenna having a total capacity including the shielded lead-in not to exceed 150 mmf. If an antenna having a larger capacity is to be used, it will be necessary to add a capacitor in series with the lead from the antenna filter L-1 to the antenna coil terminal ("A"). Where a "Double Under-the Running Board" type of antenna is to be used having a capacity of approximately 200 mmf., the capacitor added should be approximately 300 mmf. The insulated running board type having an approximate capacity of 550 mmf. will require a capacitor of approximately 150 mmf. Cars using an insulated steel top of approximately 3,500 mmf. will require a series capacitor of 120 mmf.

After installation and with antenna connected, tune in a weak station near 1,400 kc and adjust compensator trimmer C-2 for maximum signal output. This trimmer is accessible by removing plug button near antenna jack on side of receiver. If a maximum (peak) signal output cannot be obtained in the range of the antenna trimmer, the effective capacity should be checked and compensated for by varying series capacity as described above.

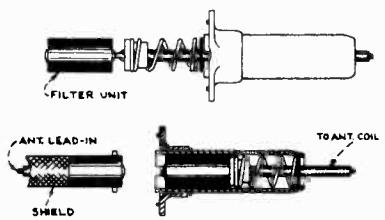
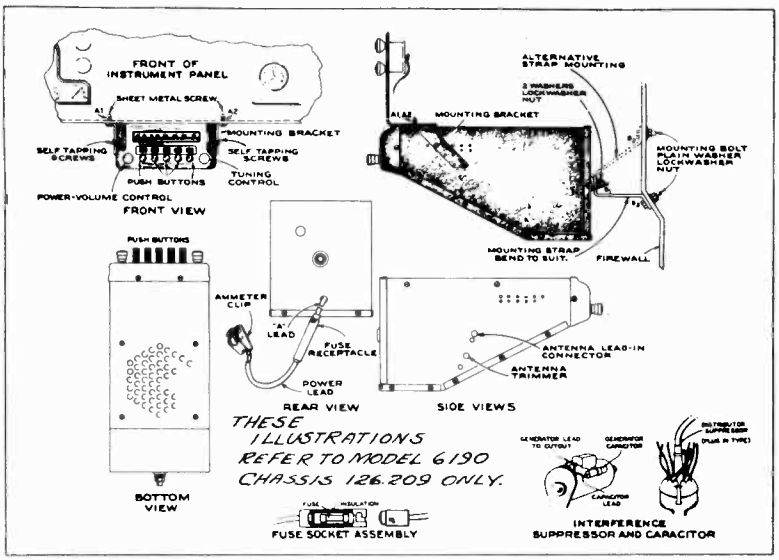


FIG. 4. ANTENNA FILTER

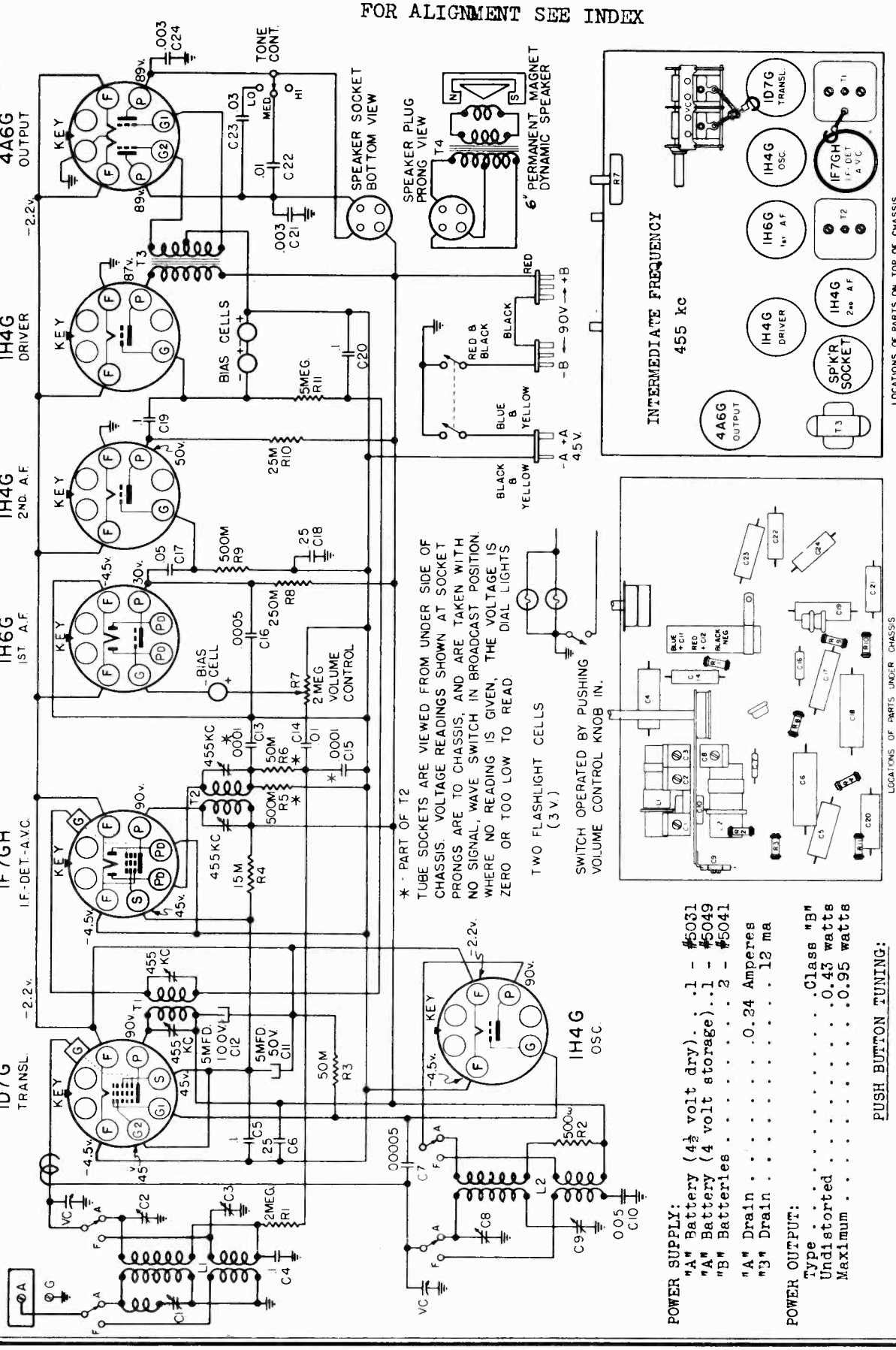


MODELS 6208,6209
Chassis 101.554
Schematic,Voltage

SEARS, ROEBUCK & CO.

Chassis,Socket
Trimmers,Tuner

FOR ALIGNMENT SEE INDEX



POWER SUPPLY:
"A" Battery (4½ volt dry). . .1 - #5031
"A" Battery (4 volt storage)..1 - #5049
"B" Batteries . . . . . 2 - #5041

"A" Drain . . . . . .0.24 Amperes
"B" Drain . . . . . 12 ma

POWER OUTPUT:
Type . . . . . .Class "B"
Undistorted . . . . . .0.43 watts
Maximum . . . . . .0.95 watts

PUSH BUTTON TUNING:

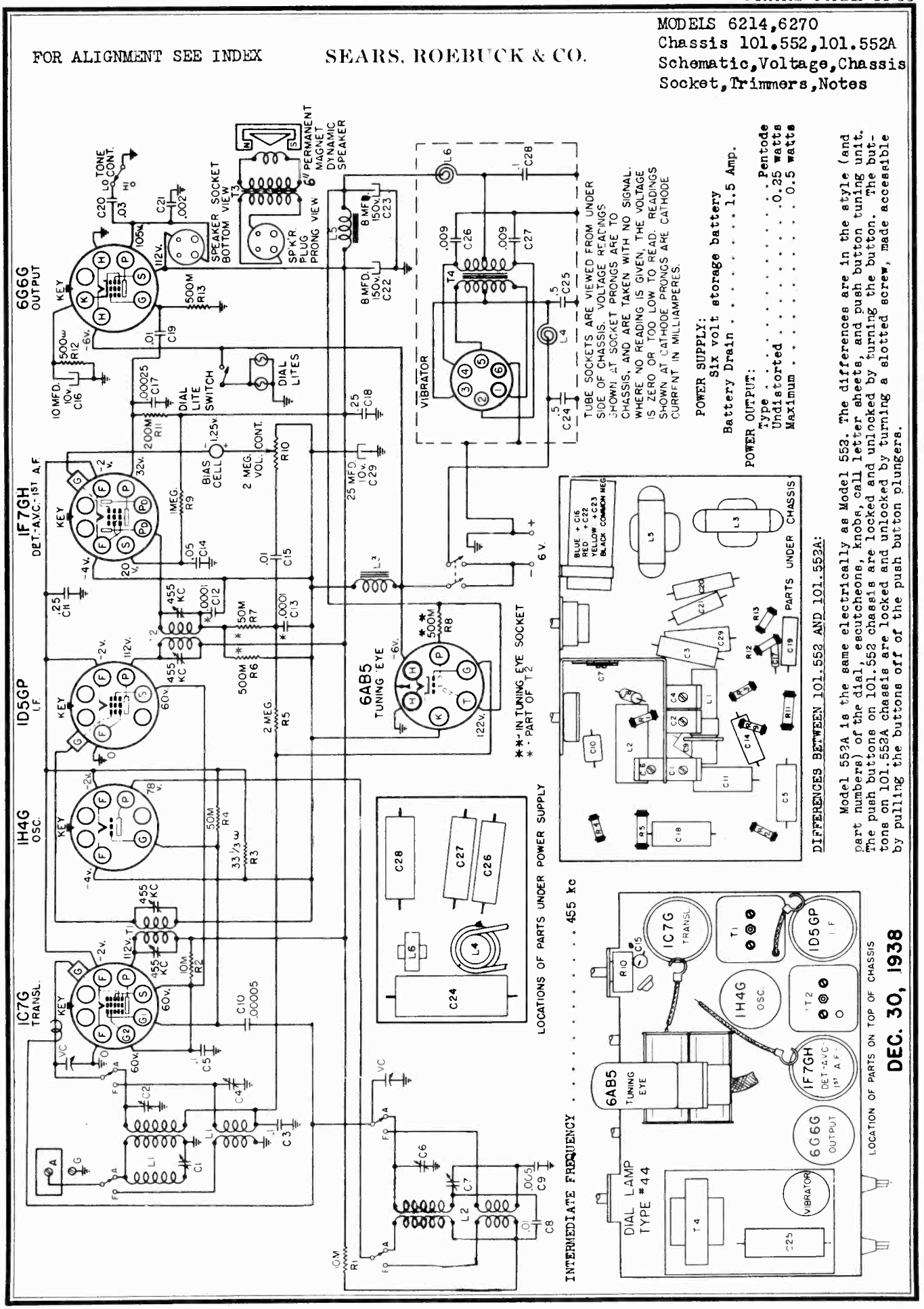
The push button mechanism is locked and unlocked by tightening or loosening the wing nut at the end of the mechanism. (A separate key is supplied in the case of table models instead of the wing nut.) Stations are set up by holding the button all the way in and accurately tuning to the station. Then release the button. After all of the buttons have been set up, lock the mechanism securely to prevent slipping.

JAN. 3, 1939

FOR ALIGNMENT SEE INDEX

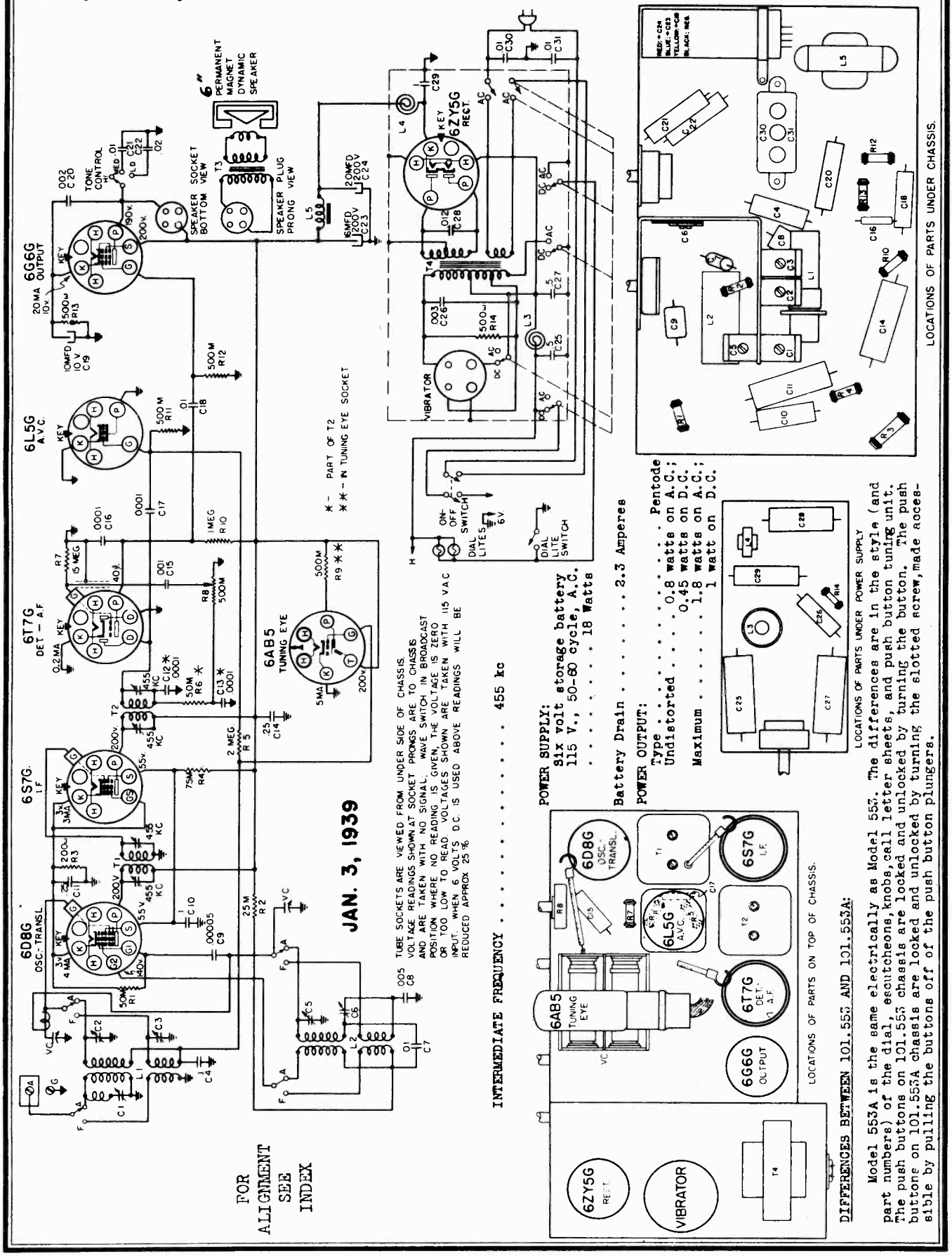
SEARS, ROEBUCK & CO.

MODELS 6214,6270
Chassis 101.552,101.552A
Schematic,Voltage,Chassis
Socket,Trimmers,Notes



MODELS 6218,6271,6272
Chassis 101.553,101.553A
Schematic,Voltage,Chassis
Socket,Trimmers,Notes

SEARS, ROEBUCK & CO.

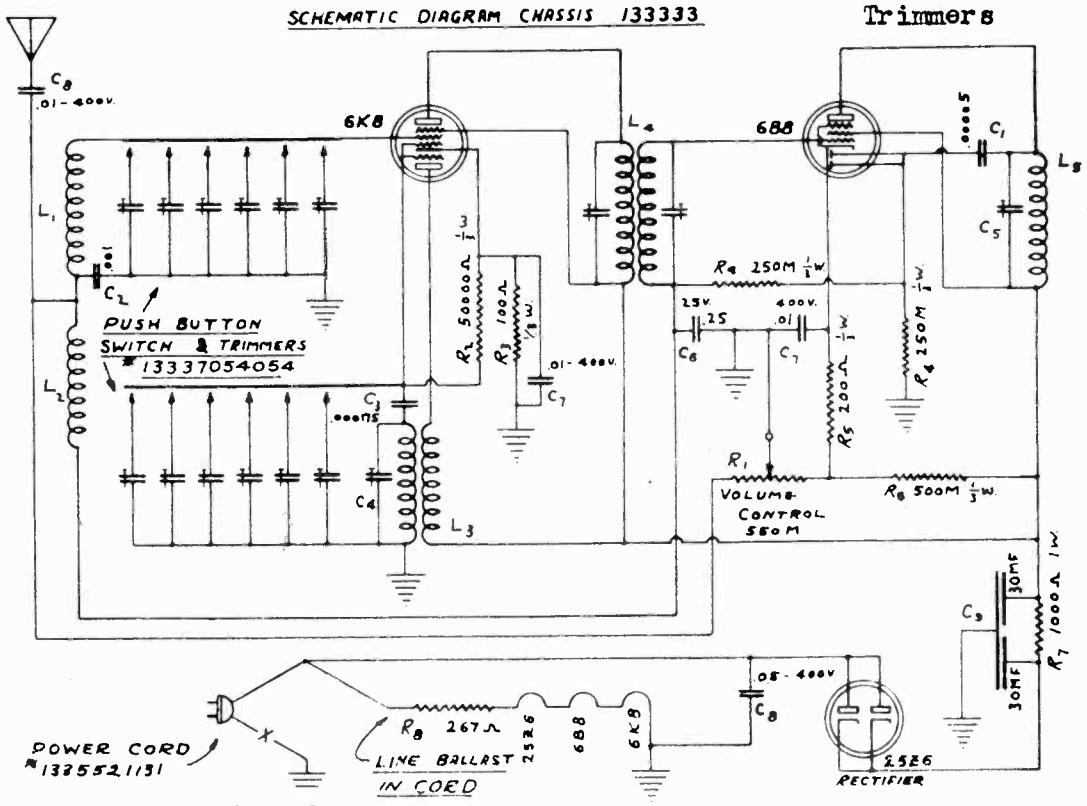


DIFFERENCES BETWEEN 101.553 AND 101.553A:

Model 553A is the same electrically as Model 553. The differences are in the style (and part numbers) of the dial, escutcheons, knobs, call letter sheets, and push button tuning unit. The push buttons on 101.553 chassis are locked and unlocked by turning the button. The push buttons on 101.553A chassis are locked and unlocked by turning the slotted screw, made accessible by pulling the buttons off of the push button plungers.

SEARS-ROEBUCK & CO.

MODEL 6225,Ch.133.333
Schematic,Chassis
Control Data
Trimmers



WIRELESS REMOTE CONTROL

MODEL 6225

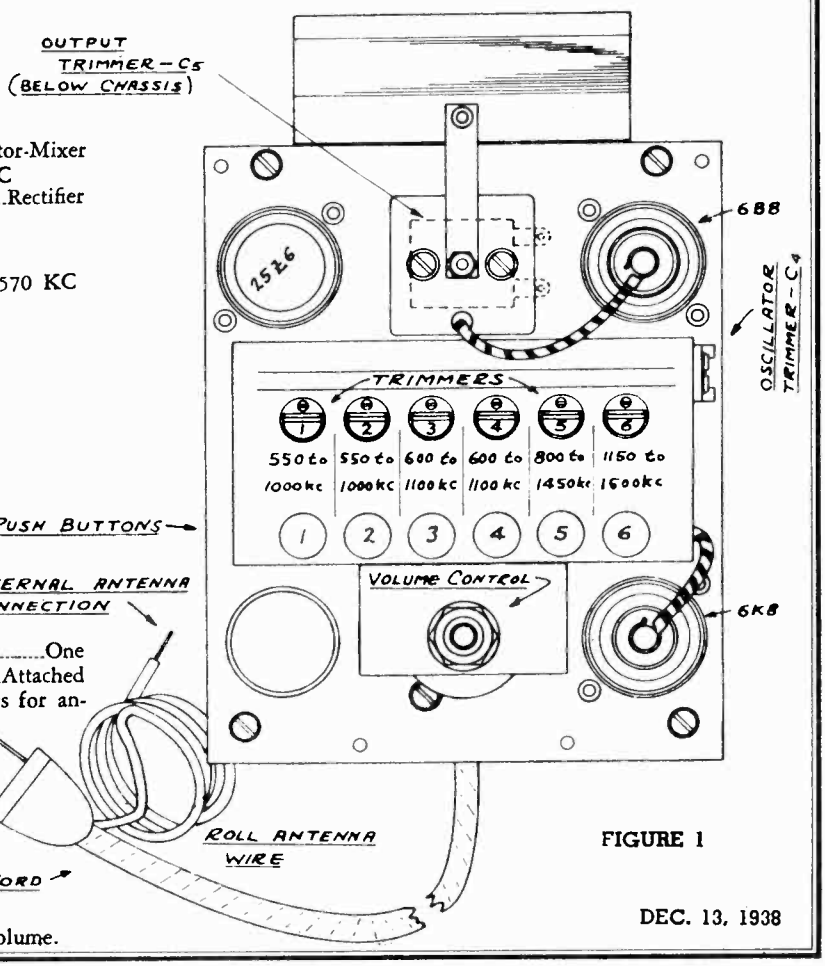


FIGURE 1

ELECTRICAL SPECIFICATIONS

TUBES AND FUNCTIONS:

6K8	Oscillator-Mixer
6B8	IF-AVC
25Z6	Rectifier

ALIGNMENT FREQUENCY:
Each button is aligned to desired station.

INTERMEDIATE FREQUENCY: 1570 KC

OPERATING FEATURES:
Push Button Tuning Only (6 buttons)
Automatic Volume Control

POWER SUPPLY:
105-125 volts, AC or DC, 25-60 cycle, 40 watts.

FREQUENCY RANGE:

Trimmer No. 1	550 — 1000 KC
Trimmer No. 2	550 — 1000 KC
Trimmer No. 3	600 — 1100 KC
Trimmer No. 4	600 — 1100 KC
Trimmer No. 5	800 — 1450 KC
Trimmer No. 6	1150 — 1500 KC

CHASSIS FEATURES:

Number IF Stages	One
Antenna	Attached

Special Push Button Switch with ganged trimmers for antenna and oscillator tuning.

MECHANICAL SPECIFICATIONS

OPERATING CONTROLS:
1. 6 Push Buttons
2. 1 Small Knob

CONTROL OPERATION:
1. Push to select station
2. Turn clockwise to turn on and to increase volume.

DEC. 13, 1938

MODEL 6225, Wireless Remote Control Alignment, Notes, Parts

SEARS, ROEBUCK & CO.

GENERAL INFORMATION AND SERVICE HINTS

The Remote Control consists simply of the mixer and IF stages only of a conventional radio. The mixer stage is conventional. The antenna and oscillator circuits are tuned by ganged trimmers which are selected and connected across the coils by means of a push button switch. There is no variable condenser. This mixer stage feeds into an IF transformer tuned to 1570 KC. The signal is further amplified by the pentode section of the 6B8 tube. The plate load of this tube is a large radiating coil, also tuned to 1570 KC. Signal voltage is taken off through a small condenser to feed the diodes and develop AVC voltage for both stages. Thus when the radio with which the Control is used is tuned to 1570 KC it picks up the radiation from the plate coil of the 6B8 and reproduces the program in a normal manner. The volume control is in the cathode circuit of the 6B8 tube, thus controlling the gain of this tube and the RF in the radiating coil. A little current is bled through the volume control so that the tube will be completely cut off at the minimum setting.

Obviously the degree of performance depends not only on the signal fed into the Control but on getting the radio tuned to the exact output frequency of the Control and the amount of coupling between the Control output coil and the radio antenna circuit at a maximum. While under ordinary conditions practically any set-up will be satisfactory, in places where signals are weak or a great deal of noise interference exists, the Control will be much more satisfactory if a lead is brought from the antenna connection of the receiver close to the Control, thus increasing the coupling many times. Under noisy conditions any long outside antennas should be removed from the receiver as they will feed noise into the set on top of the Control signal. An indoor antenna can be arranged in the home which will lie close to the control thus giving good operation and also be very satisfactory for normal use with the radio.

In extremely noisy localities the above method at times will not bring about normal noise-free reception. It then will be necessary to loop the wire that leads from the antenna binding post of the receiver, over the transmitting radiator or coil of the remote tuner. One turn is all that is necessary. After this turn is added, go through the alignment procedure on Page 3.

In some localities it is possible that some station or signal will come in on 1570 KC. This will be received simultaneously with the Control signal and a heterodyne or whistle will result. In such cases the IF system of the Remote Control should be realigned to the nearest frequency to 1570 KC where no trouble is experienced. (See paragraph on alignment.) These IF's can be aligned to any frequency from 1460 to 1700 KC. Also in cases where the radio will not tune as high as 1570 KC the Remote Control can be realigned to a lower frequency.

For best operation the Remote Control should be operated with the volume control near the full on position to insure a good signal strength.

ALIGNMENT PROCEDURE

For alignment the Control should be removed from the cabinet. First remove the four rubber feet which hold the fiber bottom cover in place. Remove the volume control knob but not the push buttons. Finally remove the four wood screws which hold the chassis to the cabinet blocks.

INTERMEDIATES:

Use a standard signal generator with a modulated signal. Set the signal generator to 1570 KC (or the special IF frequency for extraordinary conditions as described above in "Special Helps"). The Control must be aligned in conjunction with a radio receiver as the Control has no audio. An output meter should be connected into this receiver to indicate resonance peaks. A short length of wire should be connected to the antenna post of the receiver. First feed the generator output direct to the radio receiver antenna and carefully tune the radio to this frequency. (*Do not change* the signal generator setting after the receiver has been tuned to it.) Connect the generator to the antenna of the Control at the end of the power cord and lay the short length of wire next to the large output coil on the Control. Turn the volume control on the Control on full. The volume control on the receiver should be adjusted as necessary to keep the output meter on scale. Keep the signal generator output level low to make the AVC ineffective. Now adjust the IF transformer trimmers to resonance. Finally adjust the output coil trimmer on the bottom of the chassis.

BROADCAST:

Now turn the signal generator to 540 KC. Depress button number one. Turn large trimmer number one in as far as is practical without getting it down so tight that it cannot be tuned accurately. Be careful not to force this screw as the coupling between trimmers can be sheared. With the trimmer in this position back the oscillator coil trimmer to the 540 KC signal. No further broadcast alignment is required as this is done when the buttons are set to their stations.

Schematic Location	Part Number	Description	List Selling Price
L1	1332820851	Antenna coil	.75
L2	1333020853	Antenna choke	.30
L3	1332820852	Oscillator coil	.55
L4	13333203541	I.F. transformer with shield	.75
L5	13335203551	Output coil	.50
C1		.00005 mfd. mica condenser	.15
C2		.001 mfd. mica condenser	.15
C3		.000175 mfd. mica condenser	.15
C4	1331701549	Condenser-mica trimmer-working cap.=40 mmf.	.20
C5	1331701546	Condenser-mica trimmer-working cap.=75 mmf.	.25
C6		Condenser–.25mfd.–25 volt	.17
C7		Condenser–.01 mfd.–400 volt	.13
C8		Condenser–.05 mfd.–400 volt	.13
C9	1332001482	Condenser–electrolytic–30–30 mfd.	.75
R1	13324181003	Volume control and switch–550M	.60
R2		Resistor – 50M – 1/3 watt	.15
R3		Resistor – 100 ohm 1/3 watt	.15
R4		Resistor – 250M – 1/3 watt	.15
R5		Resistor – 200 ohm 1/3 watt	.15
R6		Resistor – 500M – 1/3 watt	.15
R7		Resistor – 1000 ohm – 1 watt	.15
R8		Line ballast – 267 ohm (part of power cord)	

CHASSIS—IDENTIFICATION NUMBER 133.333

HOW TO ORDER PARTS

1. Use Purchase Order Form 5284.
2. On the Purchase Order always give the following information:
   (1) PART NUMBER and DESCRIPTION for each part ordered
   (2) The IDENTIFICATION NUMBER, which is 133.333.
   This number is found on the top of the chassis.

PARTS LIST-SOURCE NO. 133

1335521131	Power cord with resistance	.65
13355231226	Roll antenna wire	.10
13337054054	Push button switch and trimmers	4.00
13360363026	Cabinet	3.00
13360363027	Cabinet bottom	.15
1333905194	Push button knobs	.20
1333905191	Volume control knobs	.10
13344053004	Escutcheon plate	.20
1335925184	Call letter sheets	.20
1335925445	Instruction sheet	.03

SEARS-ROEBUCK & CO.

MODEL 6225
Push-Button Data Notes

SETTING UP THE BUTTONS:

As the Control has no audio system it is necessary to use it in conjunction with a radio when setting push-buttons at any other alignment operations.

Before setting the push buttons it is necessary to tune the radio which is being used exactly to the resonant frequency of the IF channel in the Control. This can be accomplished by the following steps:

(A) Place the Remote Control on or beside the radio with which it is to be used. Disconnect any aerials on the radio and connect a short length of wire which will reach the Remote Control and should be laid very close to the high end of the Remote Control Cabinet. Stretch out the antenna hank on the end of the power cord on the Remote Control.

(B) Plug in the Remote Control and turn the volume control on fully clockwise and leave in this position throughout the entire procedure. Turn on the receiver and turn up the volume until the noise between stations is audible. Allow the radio and the Remote Control to run for at least one quarter hour in order that they may become fully heated. *All* the buttons on the Remote Control should be released. Do this by slightly depressing any released button.

(C) Tune the receiver to approximately 1570 KC on the broadcast band. Tune back and forth at this point and listen for a point of greatly increased noise level. This spot should be tuned in in the same manner you would tune in a station. You are actually tuning in the *sensitivity noise* of the Remote Control.

In case the Control is also being realigned, a short cut is made possible by tuning the receiver to the signal generator output, without changing the setting at which the Control IF's are aligned.

HOW TO SET UP PUSH BUTTONS:

1. Make a list of station call letters of six nearby powerful broadcast stations that it is desired to set up on the buttons. Arrange the stations in the list in the order of their frequency. That is, the station of lowest frequency will be first; the next higher second, etc. After marking down the frequencies on the chart along side of the station call letters and arranging them in their proper order, number 1, 2, 3, 4, 5 and 6 respectively. Check each ffequency with figure 1. A typical list appears below.

Station Call Letters	Frequency	Button No.
WMAQ	670 KC	1
WLW	700 KC	2
WGN	720 KC	3
WENR-WLS	870 KC	4
WHO	1000 KC	5
WCKY	1490 KC	6

Remember that buttons No. 1 and No. 2 will tune only stations with frequencies from 550 to 1000 KC. Similarly buttons No. 3 and No. 4 will only tune stations with frequencies from 600 to 1100 KC. Button No. 5 from 800 to 1450 KC and No. 6 from 1150 to 1500 KC.

2. The Remote Control is shipped with the holes in the escutcheon open, exposing the trimmer adjusting screws. After completing the adjusting procedure, as outlined below, tear out the tabs bearing the proper call letters of the stations set up on each trimmer and button, from the sheet of tabs supplied. These tabs will slip into the recess around the trimmer holes and close them, giving the hole a neat appearance. The trimmers are more easily accessible if the two screws and escutcheon are removed.

3. With the manual dial knob on the receiver find station No. 1 on the list, noting its program.

4. Return the pointer to the control frequency setting near 1570 KC as outlined above.

5. Depress button No. 1 (see figure 1).

6. With a small screw driver turn large trimmer screw No. 1 in or out until the program previously heard is heard again. Tune this station accurately. This can be determined by ear. Rotate the trimmer screw back and forth across the station to find a setting where the tone is deepest and the noise level lowest.

7. Now adjust small screw No. 1, turning it to the right or left until the program is received with maximum volume. If the radio has a tuning eye, the correct setting for this screw is indicated when the sides of the shadow are closest together.

(FOR RECEIVERS WITH PUSH BUTTON TUNING ONLY)

When setting up the control in a home with a receiver with push buttons.

After determining the proper setting of the receiver dial, for Remote Control operation, set up this frequency on the proper push button as outlined in the operating instructions for the receiver. This will simplify the set up procedure for the remaining buttons of the Remote Control. Additionally it will simplify the location of the proper dial setting for Remote Control operation whenever the Remote Control is to be used.

8. Locate the second station on your list on the radio dial, noting its program.

9. Push button No. 1 and tune the radio to the preset frequency of about 1570 KC as outlined in paragraph (C), only this time use the station set on button No. 1 for the 1570 KC reference point, instead of noise.

10. Without changing radio dial press button No. 2 and use procedure outlined in points 6 and 7, only using trimmer screws No. 2.

11. Set up remaining buttons as outlined in points 8, 9, and 10, substituting in point 10 the number of the button and the trimmer screws to be adjusted.

It is best to set the buttons on the stations themselves rather than trying to duplicate their frequencies on a signal generator.

THE ANTENNA:

The antenna wire is supplied with the Control. It is connected through an extra wire in the power cord. It should be uncoiled and extended as far as possible from the Control. In locations remote from broadcasting stations additional pickup can be had by connecting the end of the antenna to a conventional outdoor antenna.

THE FILAMENT CIRCUIT AND POWER SUPPLY:

All of the tubes are conected in series. Accordingly, if any one tube burns out the others will not light. It is necessary to replace only the burned out tube; the others will then light. A resistor is built into the line cord to reduce the voltage for the tube filaments.

The line cord must not be shortened or altered in any way.

CAUTION:

Under no condition should a ground be attached to this Control, also no grounded object should be allowed to come in contact with the chassis.

MODEL 6229 Ch.126.210
MODEL 6233 Ch.126.222
Wireless Record Players
Operation,Notes

SEARS, ROEBUCK & CO.

General Information and Service Hints

This Wireless Record Player is designed to operate in conjunction with any radio receiver having a frequency range which includes 530 to 625 kc.

The output of the crystal pickup, shunted by a 250,000 ohm volume control, a 560,000 ohm resistor and a 0.1 mfd. condenser, is connected to grid No. 1 of the 12A8GT modulator-oscillator tube. The 12A8GT tube acts as a modulated-oscillator producing a signal whose frequency may be adjusted from 530 to 625 kc by means of the screwdriver adjustment at the rear of the cabinet.

The antenna or output wire is connected thru a coupling condenser to the grid circuit of the oscillator, and run parallel with the power cord. The output is sufficient to permit operation within approximately 20 feet of the radio receiver.

OPERATING PROCEDURE

1. After inserting plug in proper power supply outlet, turn the power-switch-volume control knob on top of cabinet to full clockwise position. Place either 10 or 12 inch record on the turntable, starting the synchronous motor by a clockwise twirl with the hand.

2. Tune the radio receiver to a quiet point between 530-625 kc.

3. Tune the oscillator in the record player to the tuned frequency of the receiver by adjusting the button on the rear of the record player cabinet to obtain peak output on the receiver. Rotating the button to the right decreases the frequency; to the left increases the frequency.

4. Adjust volume control on radio receiver to the highest volume that may be required, and then use the record player volume control for further adjustment.

5. In noisy locations, it may be desirable to leave the record player volume control turned full on, and regulate the radio receiver volume control for the desired level.

6. If there is insufficient volume, or excessive noise, the record player may be coupled to the receiver, by running a piece of insulated wire between the two units; wrap three or four turns of the coupling wire around the antenna lead-in on the radio receiver and connect the other end in the same way to the short wire that projects from the plug on the power cord of the record player.

Phonograph Motor Service Data

The synchronous motor used in this instrument is designed to be simple and foolproof. Among its many features are constancy of speed, low power consumption, single moving part, ease of starting, rubber damper, ease of repair, and long life. The parts that may require attention are plainly shown on "Motor Details." The motor is started by turning "on" the power switch and giving the turntable a clockwise spin with the hand. Smooth starting and running will be insured by keeping the bearings well cleaned and oiled.

Rotor Adjustment

Use three shims (22 mil for 60 cycle and 16 mil for 25 cycle motors), spaced equally around the gap between rotor and stator. When rotor is suitably adjusted, securely tighten the three screws which hold the rotor to the turntable. The centering operation is very similar to that done with a dynamic speaker.

*If top of rotor lamination assembly is not flush with top of stator laminations, additional steel washers should be inserted beneath the stator until it is raised to the desired level.

*Model 6229 only.

Lubrication

Both the rotor and stator have bearing surfaces about the center vertical axis. These bearings and the ball bearing at the bottom of the turntable's shaft should be oiled whenever player is serviced. The leather washer beneath the stator is to be pliable and soaked in light oil.

Removing the Rotor from the Stator

The rotor and turntable assembly simply rests on the ball bearing at the bottom of the vertical bearing, and may be removed by lifting out. Don't turn player upside down without holding turntable.

Hum and Vibration

A small amount of hum when starting, decreasing to a negligible amount while running, is normal. If excessive vibration occurs either at starting or running, it may be due to one of the following:

(1) Insufficient lubrication in outer bearing or any other failure that will cause the stator to bind.

(2) Metal and leather washers in improper position, see "Motor Details."

(3) Leather washer not oiled. When replacing the leather washer, make sure that it is thoroughly soaked in oil.

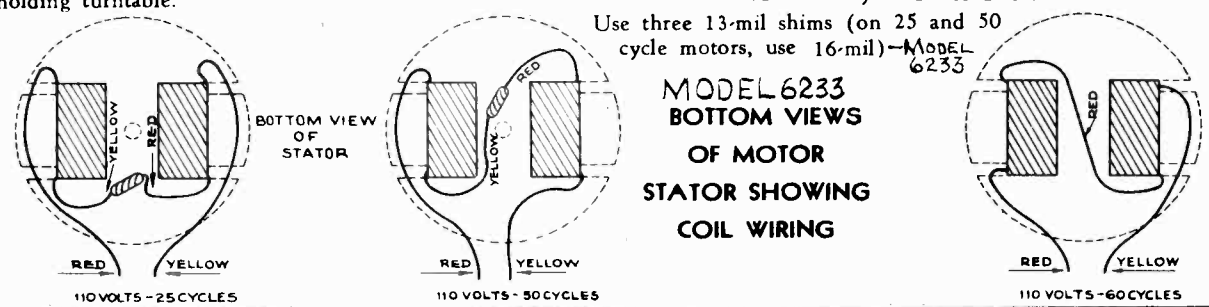
(4) Motor not properly supported from motor board. Unless the motor is properly supported from the motor board, vibration will be excessive.

(5) Burrs on poles of rotor or stator. They should be removed with fine emery cloth.

(6) Loose laminations of the stator.

(7) Improper horizontal alignment of the rotor and stator. Correct horizontal alignment is as shown in the motor assembly drawing.

The damper spring must fit without binding or chattering, in the slot in the stator. The stator must be free to deflect in either direction between the limits of the damper spring. Any binding in the washers or stator bearing which prevents the movement of the stator may cause speed variations in the motor. The damper spring must exert equal force in restoring the stator to its mid-position when the stator is deflected manually in either direction.

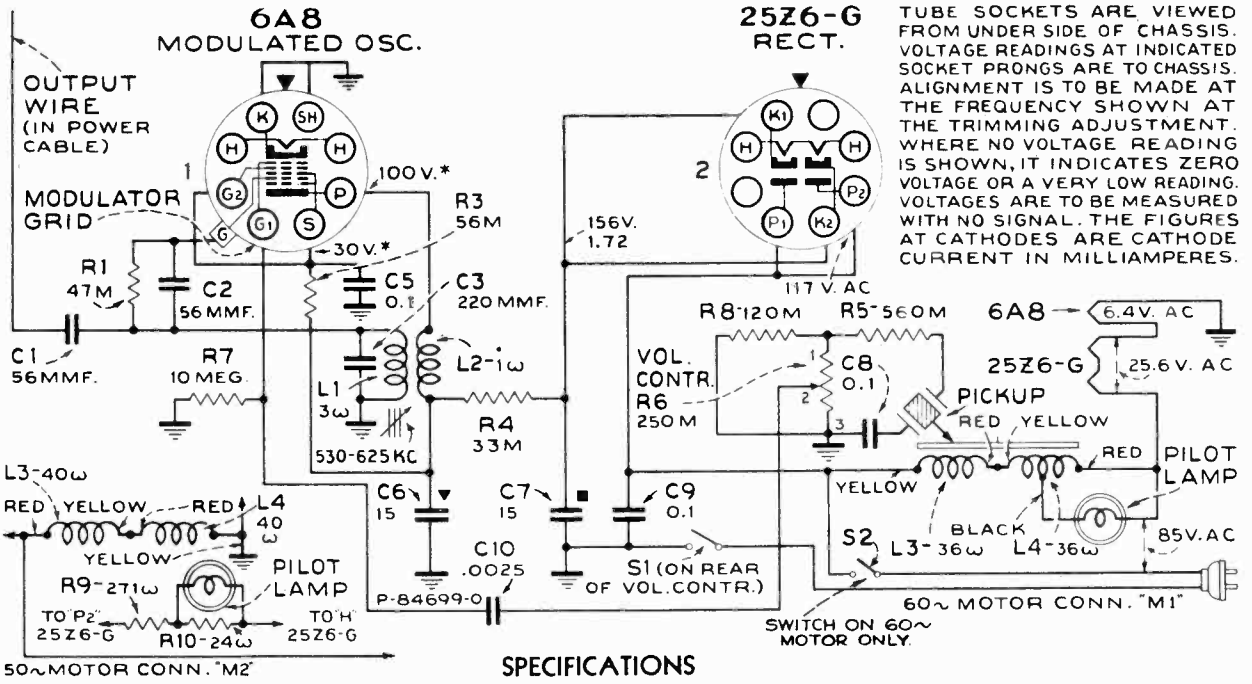


Use three 13-mil shims (on 25 and 50 cycle motors, use 16-mil)—Model 6233

MODEL 6233
BOTTOM VIEWS OF MOTOR STATOR SHOWING COIL WIRING

SEARS, ROEBUCK & CO.

MODEL 6229
Schematic, Voltage
Chassis Wiring



SPECIFICATIONS

TUBES AND FUNCTIONS:
6A8 ..... Modulator—Oscillator
25Z6-G ..... Half-Wave Rectifier

DIAL LAMP ..... Mazda 47, 6-8 volts, .15 amp.

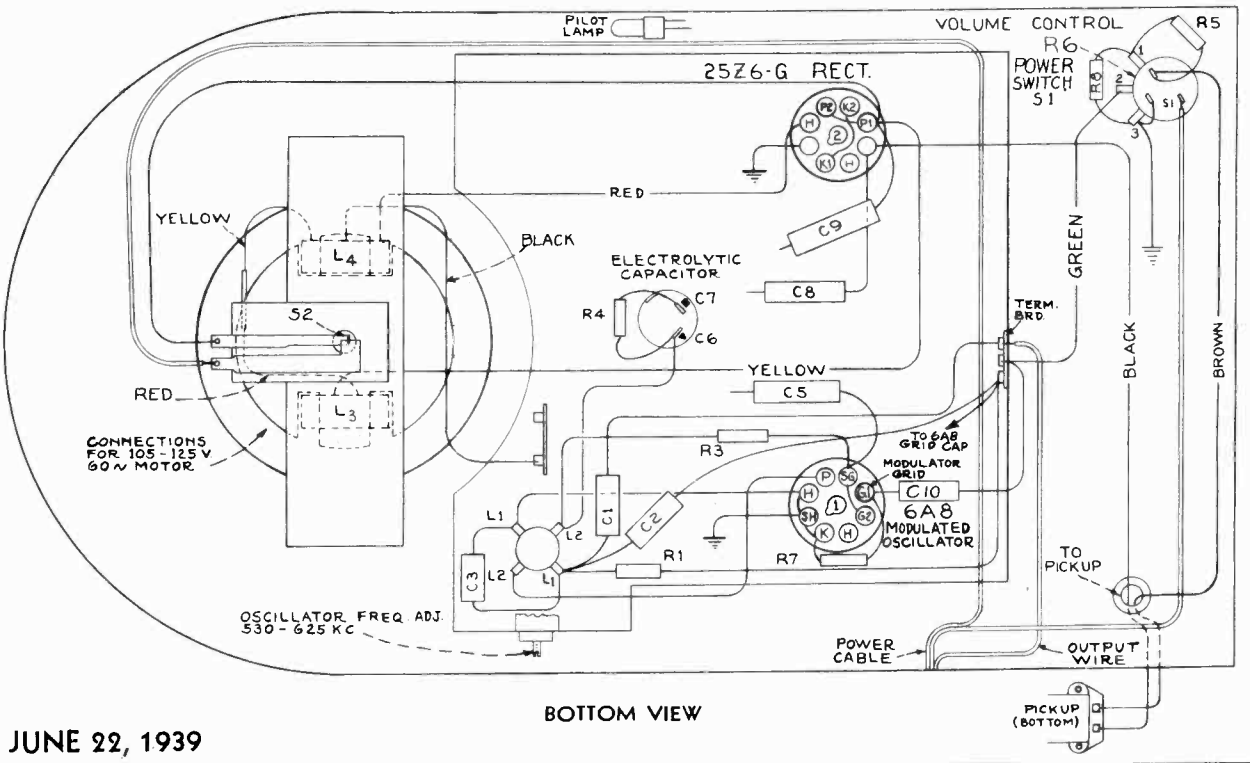
FREQUENCY RANGE ..... 530-625 kc

VOLUME CONTROL ..... 250,000 ohms-Power Switch-Volume

CRYSTAL PICKUP
Impedance ..... 100,000 ohms at 1,000 cycles
Average Output Volts .... 1½ volts at 1,000 cycles with 250,000 ohm load

POWER SUPPLY
A-6 ..... 105-126 volts, 60 cycles, 50 watts
A-5 ..... 105-126 volts, 50 cycles, 50 watts

MOTOR ..... 78 r.p.m. Synchronous (manual starting)



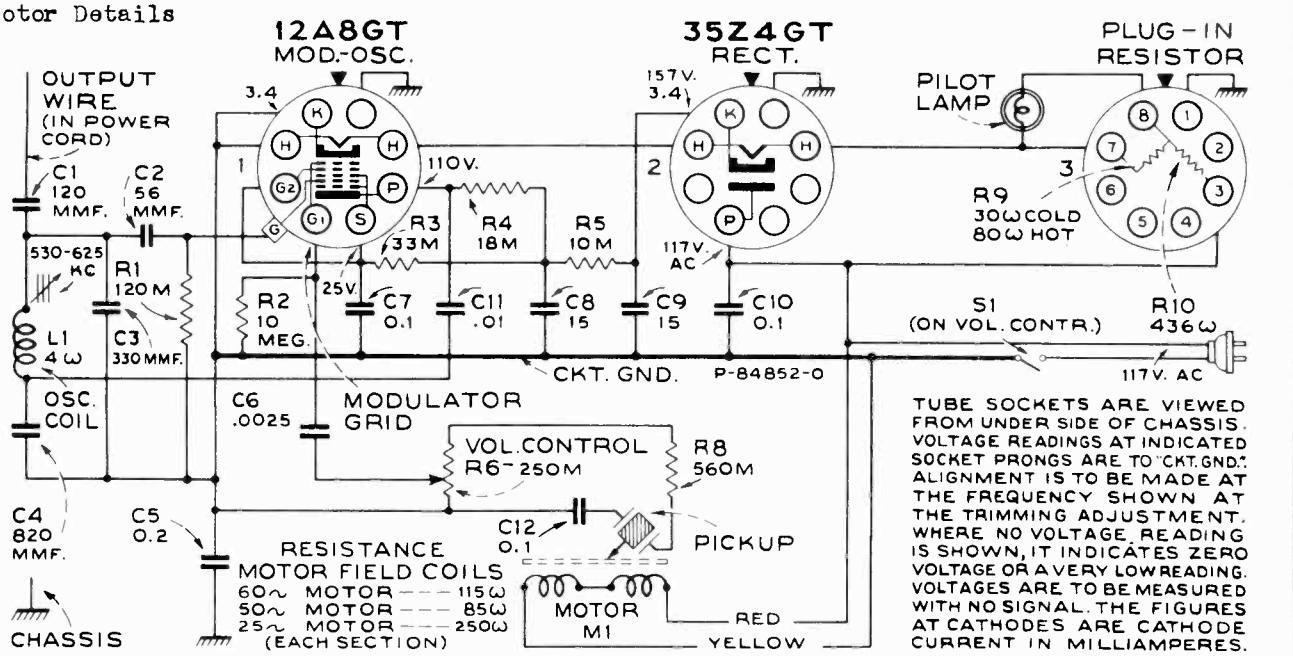
BOTTOM VIEW

JUNE 22, 1939

MODEL 6233
Schematic, Voltage
Chassis Wiring
Motor Details

SEARS, ROEBUCK & CO.

MODEL 6229
Motor Details



TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CKT. GND.: ALIGNMENT IS TO BE MADE AT THE FREQUENCY SHOWN AT THE TRIMMING ADJUSTMENT. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING. VOLTAGES ARE TO BE MEASURED WITH NO SIGNAL. THE FIGURES AT CATHODES ARE CATHODE CURRENT IN MILLIAMPERES.

DIAL LAMP ..... Mazda 44, 6.3 volts., 0.25 amp.

FREQUENCY RANGE ..... 530-625 kc

VOLUME CONTROL ..... 250,000 ohms-Power Switch-Volume

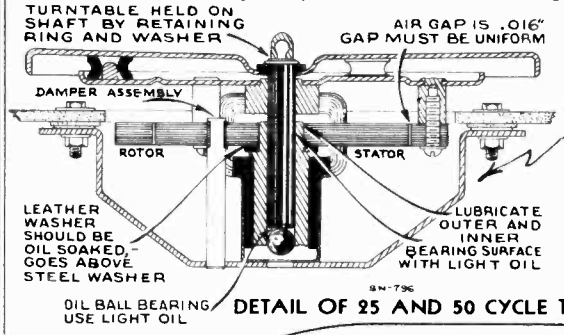
MOTOR ..... 78 r.p.m. Synchronous (manual starting)

CRYSTAL PICKUP

Impedance ..... 100,000 ohms at 1,000 cycles
Average Output Volts ..... 1½ volts at 1,000 cycles with 250,000 ohm load

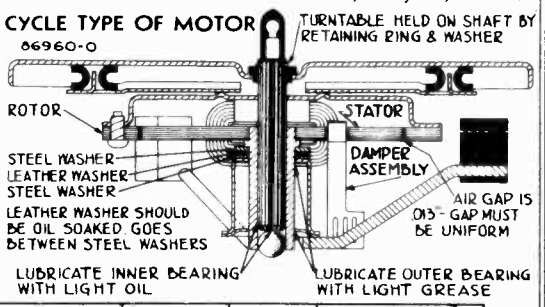
POWER SUPPLY

A-6 ..... 105-125 volts, 60 cycles, 30 watts
A-5 ..... 105-125 volts, 50 cycles, 30 watts
B ..... 105-125 volts, 25 cycles, 30 watts



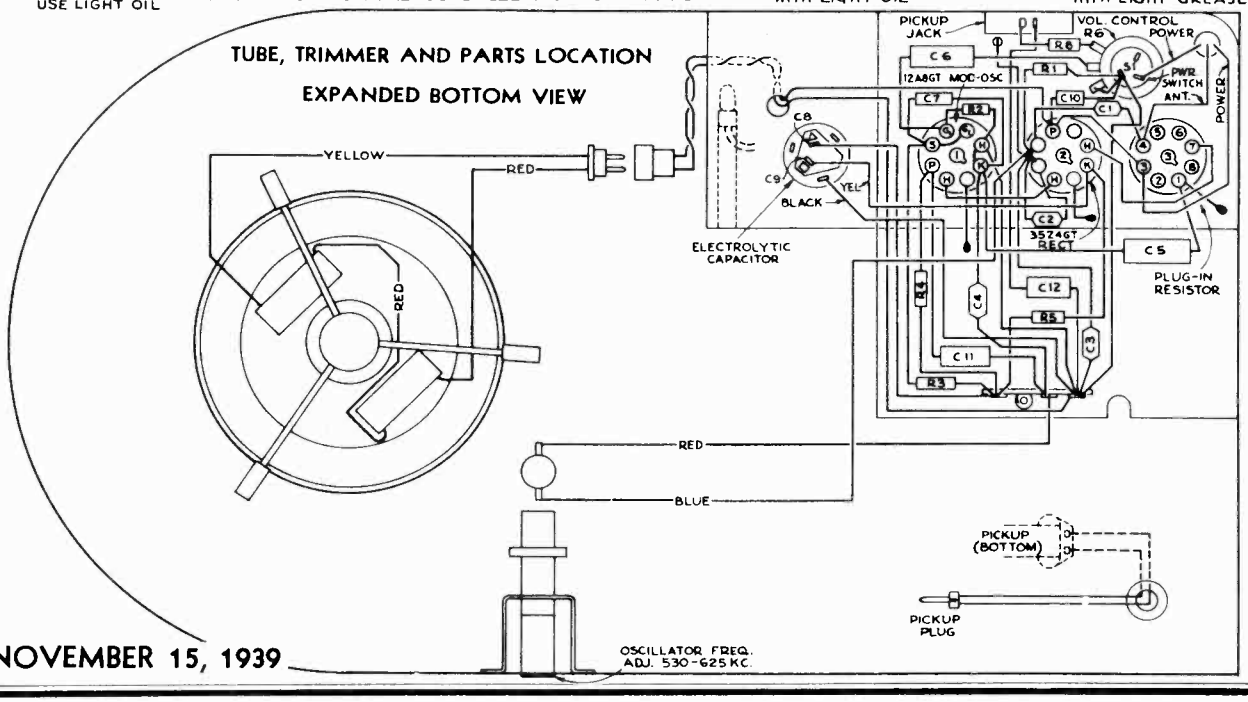
DETAIL OF 25 AND 50 CYCLE TYPE OF MOTOR

DETAIL OF 60 CYCLE TYPE OF MOTOR



TUBE, TRIMMER AND PARTS LOCATION

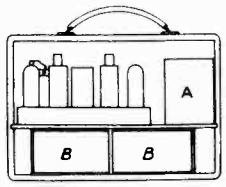
EXPANDED BOTTOM VIEW

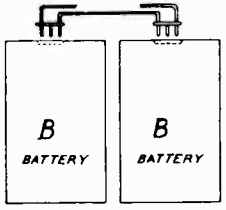


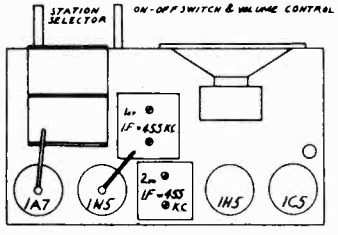
NOVEMBER 15, 1939

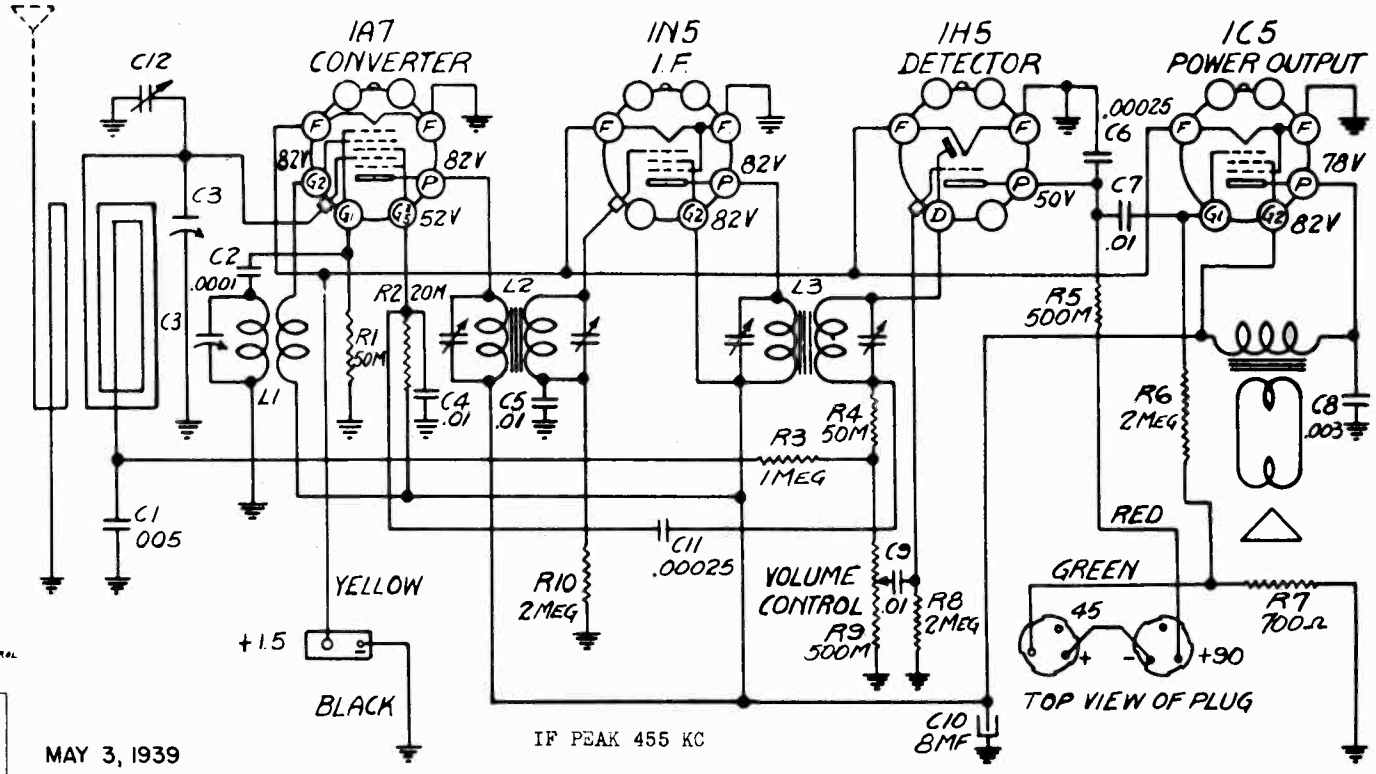
SEARS, ROEBUCK & CO.

MODEL 6256, Ch. 109.290
Schematic, Voltage
Socket, Trimmers
Alignment









MAY 3, 1939

IF PEAK 455 KC

VOLTAGES MEASURED TO CHASSIS WITH 90VB AND 1.5VA. VOLUME CONTROL OPEN-NO SIGNAL

ALIGNMENT FREQUENCIES, 455-1580-1400 KC.

LOUD SPEAKER
Type.....P.M. Dynamic
Size..... 5 inch

POWER SUPPLY.....Batteries

FREQUENCY RANGE.....540 to 1580 KC.

POWER OUTPUT
Type.....Pentode
Undistorted..... .150 watt
Maximum ..... .3 watt

IF ALIGNMENT

Connect the ground side of the signal generator to the chassis. Connect the high side of the generator to the grid of the 1A7 tube thru a .1 mfd. condenser. Connect an output meter or other resonance indicator to either the speaker voice coil or the plate of the output tube.
Using a 455 kc. signal and with the volume control full on so that only a very weak signal is necessary, adjust first the 2nd and then the 1st IF transformer for maximum resonance indication.

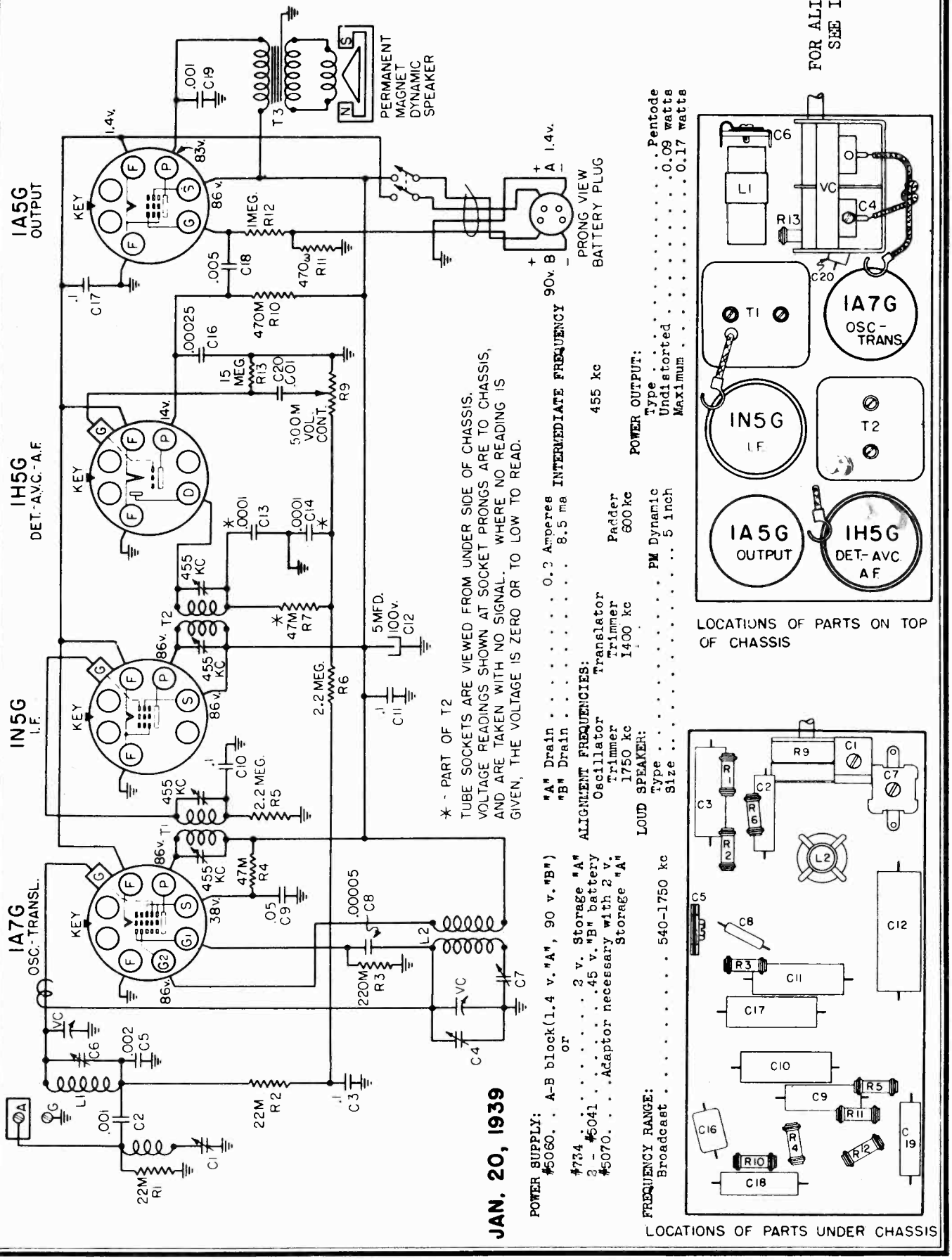
RF ALIGNMENT

Using the same signal generator connections as for IF alignment, turn the tuning condenser to minimum capacity and adjust the oscillator to 1580 kc. (The oscillator trimmer is on the variable condenser).
Slide the shelf and chassis back in the cabinet and place the batteries in their proper position. Connect the signal generator leads to a single loop of wire about eight inches in diameter. Place this loop about one foot from the cabinet in the same plane as the front of the cabinet. Set the signal generator at 1400 Kc., tune the receiver until this signal is heard and adjust the trimmer on the back of the variable condenser.
The tuning condenser is of the cut plate oscillator type and no adjustment is necessary at 600 Kc.

ALWAYS USE A WEAK SIGNAL FROM THE GENERATOR. Strong signals tend to cause improper adjustments.

MODEL 6260,Ch.101.558
Schematic,Voltage
Chassis,Socket,Trimmers

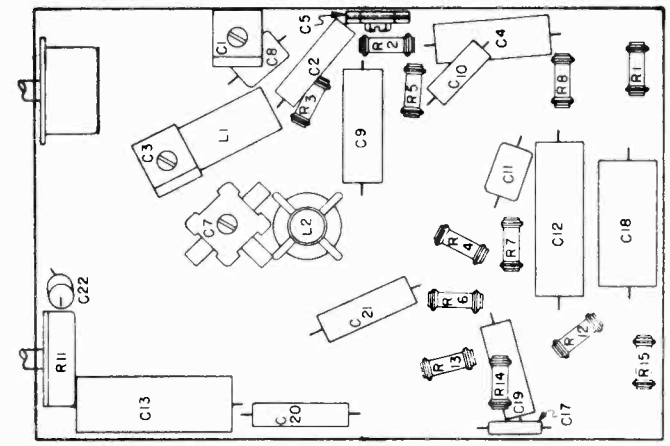
SEARS, ROEBUCK & CO.

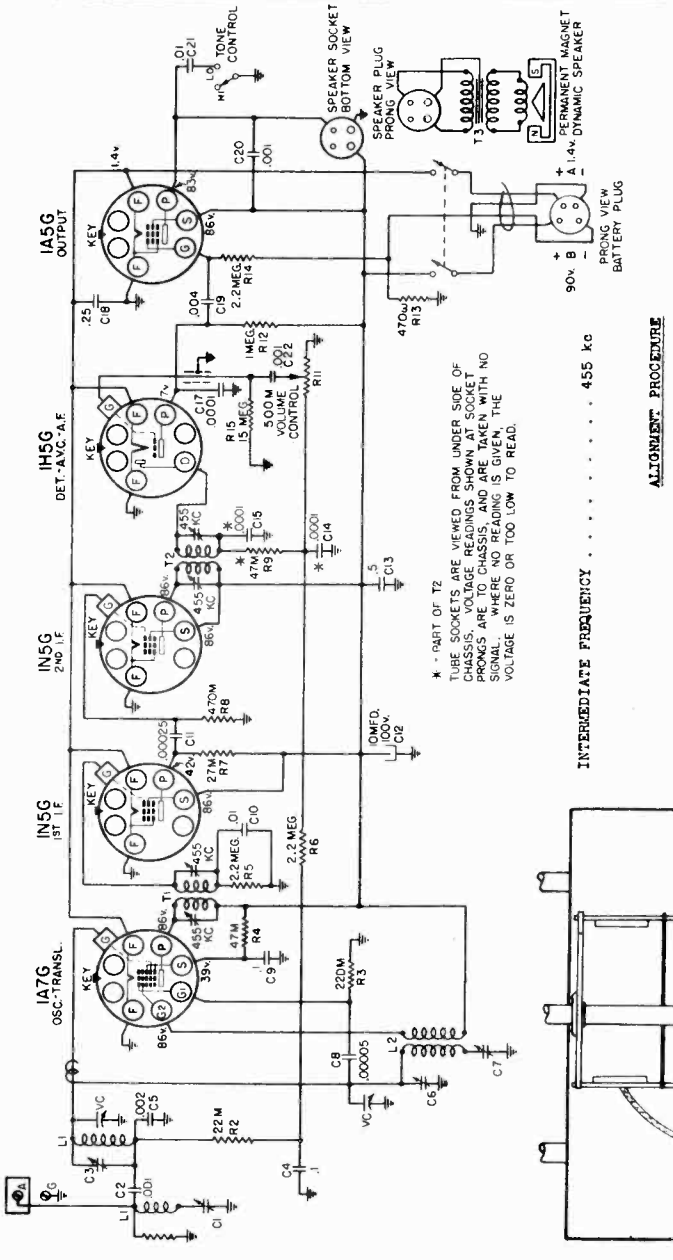


Socket, Trimmers
Tuner

SEARS, ROEBUCK & CO.

MODEL 6261, Ch. 101.561
Schematic, Voltage
Chassis, Alignment





INTERMEDIATE FREQUENCY . . . . . 455 kc

ALIGNMENT PROCEDURE

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
Closed	455 kc	.1 mfd.	1A7G Translator Grid	T2, T1	IF	50
600 kc	455 kc	.0002 mfd.	Ant. Term.	C1*	IF Wave Trap	--
Fully open	1750 kc	.0002 mfd.	Ant. Term.	C6	Oscillator	50
1400 kc**	1400 kc	.0003 mfd.	Ant. Term.	C5	Translator	20
600 kc (rock)	600 kc	.0003 mfd.	Ant. Term.	C7	Padder	20

* The generator should be adjusted to give high output. The trimmer should be adjusted for minimum output meter reading instead of the customary maximum reading. If the frequency of an interfering station near 455 kc is known, the generator and trimmer should be adjusted for the frequency of the interfering station rather than 455 kc.

** Using the dial as a template make a dummy dial of cardboard with only the 1400 kc calibration on it. Slip this dummy dial over the shaft, hold it horizontal so that the 1400 mark will come at the same position as the 1400 mark on the actual dial and turn the pointer to the 1400 kc mark. (The dial pointer should be horizontal when the condenser is fully open or fully meshed.)

The variable should be rocked back and forth a degree or two while making the 600 kc adjustment.

The alignment procedure should be repeated in the original order, step by step, to insure greater accuracy.

Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

POWER SUPPLY:
#6080. . A-B block (1.4v. "A", 90v."B")
or
#734 . . . . . 3v. Storage "A"
2 - #6041 . . . . . 45v. "B" battery
#5071 . . . . . Adaptor necessary with 2v. Storage "A"
"A" Drain . . . . . 0.35 amperes
"B" Drain . . . . . 10 ma

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 5"

POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . . . . 0.08 watts
Maximum . . . . . 0.17 watts

FREQUENCY RANGE:
Broadcast. . . . . .540-1750 kc

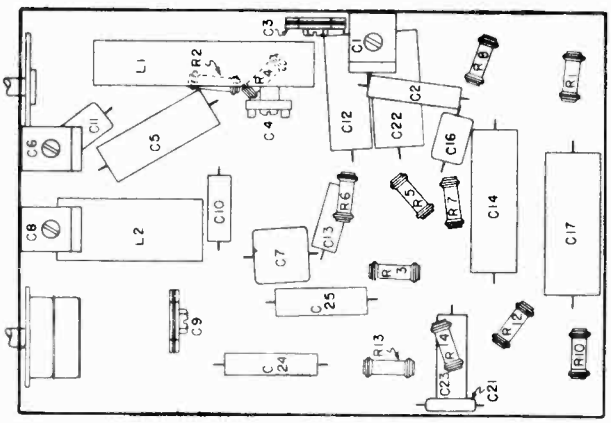
ALIGNMENT FREQUENCIES:

Oscillator	Antenna-Transl.
Trimmer	Padder
1750 kc	600 kc
1400 kc	

JAN. 17, 1939

MODEL 6262,Ch.101.550
Schematic,Voltage
Chassis,Alignment
Socket,Trimmers,Tuner

SEARS, ROEBUCK & CO.



LOCATIONS OF PARTS UNDER CHASSIS

POWER SUPPLY:
#6060. . .A-B block (1.4v. "A", 90v."B")
or
#734 . . . . . 2v. Storage "A"
2 - #6041 . . . . . 45v. "B" battery
#6071. . .Adaptor necessary with 2 volt
Storage "A"
"A" Drain . . . . . 0.25 amperes
"B" Drain . . . . . 10.25 ma

FREQUENCY RANGES:
Broadcast . . . . . 540-1750 kc
Short Wave . . . . . 5.95-18.3 mc

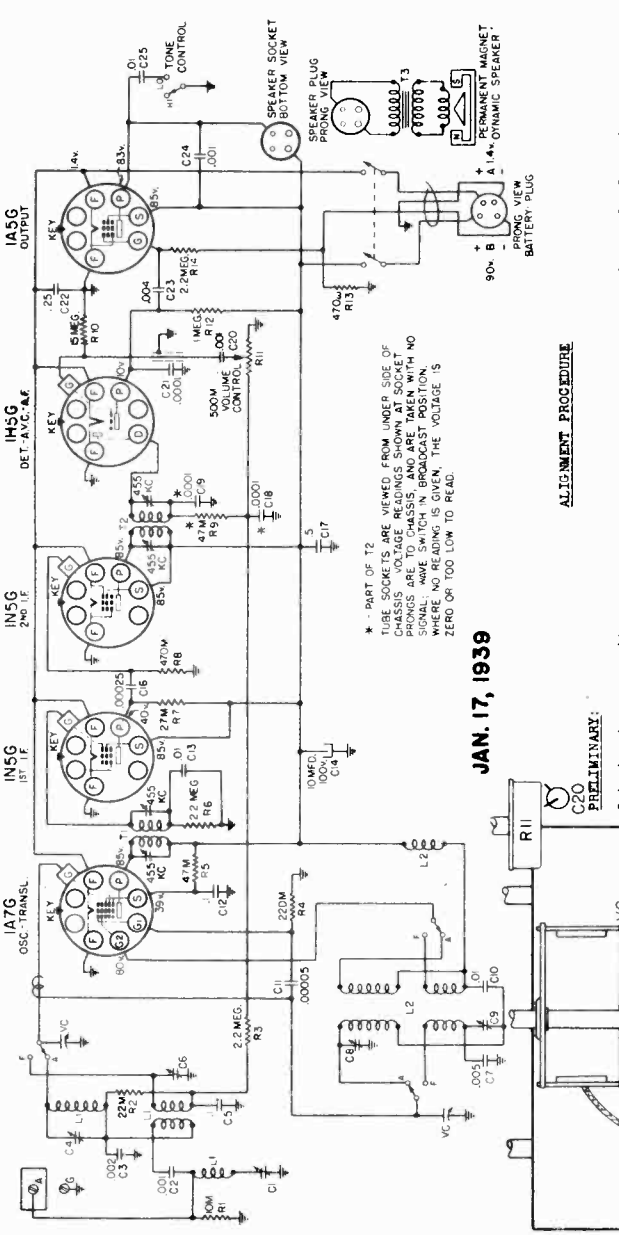
ALIGNMENT FREQUENCIES:

Oscillator	Antenna-Transl.	
Trimmer	1400 kc	Padder
1750 kc	600 kc	Fixed
None	15 mc	

INTERMEDIATE FREQUENCY . . . . . 455 kc

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 6 inch

POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . . . . 0.089 watts
Maximum . . . . . 0.18 watts



CHASSIS 101.553, -A
Alignment

SEARS, ROEBUCK & CO.

MODEL 6263, Ch. 101.562
Schematic, Voltage
Chassis, Alignment
Socket, Trimmers, Tuner

POWER SUPPLY:
#6061. A-B block (1.4 v. "A", 90 v. "B")
or
#734 & #6043. 2 v. Storage "A"
2 - #6043. 45 v. "B" Battery
#6073. Adaptor necessary with 2 v. Storage "A"
"A" Drain. . . . . 0.35 Amperes
"B" Drain. . . . . 13 ma

LOUD SPEAKER:
Type. . . . . PM Dynamic
Size. . . . . 6 inch

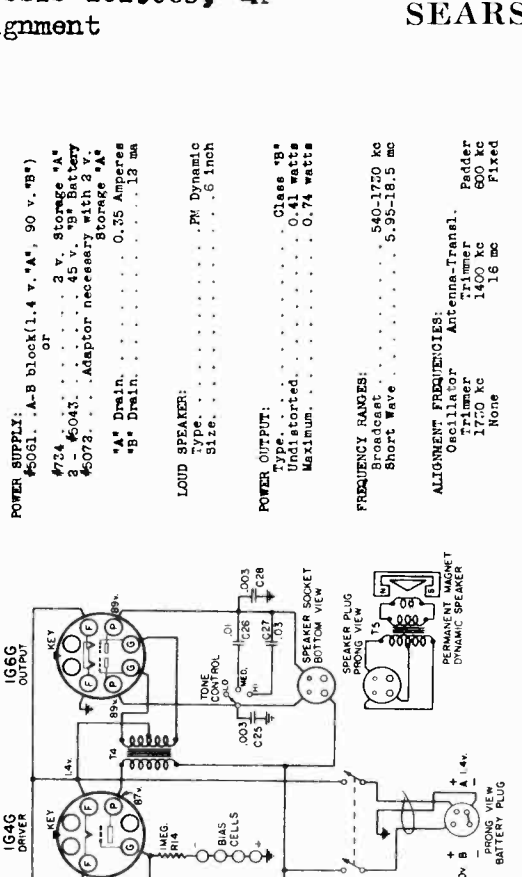
POWER OUTPUT:
Type. . . . . Class "B"
Undistorted. . . . . 0.41 watts
Maximum. . . . . 0.74 watts

FREQUENCY RANGES:
Broadcast. . . . . 540-1750 kc
Short Wave. . . . . 5.95-18.5 mc

ALIGNMENT FREQUENCIES:

Oscillator	Antenna-Transl.
Trimmer	Trimmer
1770 kc	1400 kc
None	16 mc

Padder
600 kc
Fixed



* - PART OF T3

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS AND ARE TAKEN WITH NO SIGNAL. WAVE SWITCH IN BROADCAST POSITION. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . 455 kc

CHASSIS FEATURES:
Number IF stages. . . . . Two
Number condensers in gang. . . . . Two
Antenna. . . . . Marconi
Built-in IF Wave Trap

OPERATING FEATURES:
Tone Control. . . . . Three position
Automatic Volume Control
"On-Off" Indicator
Dial FLASH-O-LITE
Push Button Tuning (6 button)

OPERATING CONTROLS:
1. Upper left knob . . . . . Volume and dial light
2. Lower left knob. . . . . Wave Switch
3. Upper right knob. . . . . Tuning
4. Lower right knob . . . "On-Off" Switch and Tone

CONTROL OPERATION:
Turning right: . . . . . Volume increase
Turning right: Pushing in. Dial lights . . . . . "AM", "FOR"
Tuning ratio: 10:1
Turning right: . . . . . "ON", "HI", "MED", "LO"

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 3.74 volts
Approximate average sensitivity in microvolts for 50 milliwatt output. . . . . See chart below
Generator ground lead connection . . . . . Receiver chassis
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully clockwise
Position of Tone Control . . . . . HI
Position of Dial Pointer with variable fully closed . . . . To fall in center of heavy block to left of 550 kc mark.

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	1A7G Grid	T3, T2, T1	IF Output	30
				6D6G "		IF Interstage	
						IF Input	
"AM"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C14, C13	Wave Trap	25
"AM"	Fully open	1730 kc	.0002 mfd.	Ant. Term.	C8	Oscillator	10
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C5, C3	Translator	10
"AM"	600 kc (rock)	600 kc	.0002 mfd.	Ant. Term.	C9, C6	Padder	10
"FOR"	15-16 mc (rock)	16 mc	400 ohms	Ant. Term.	C6, C3	Translator	8

For Models 6218, 6271, 6272. Chassis 101.533, 101.533A

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

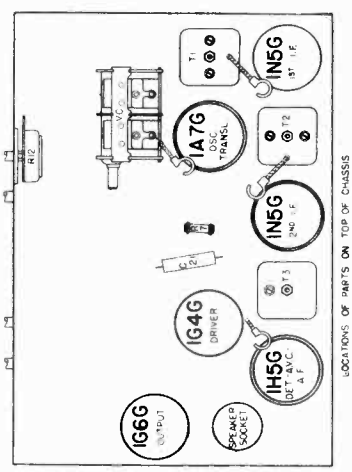
Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

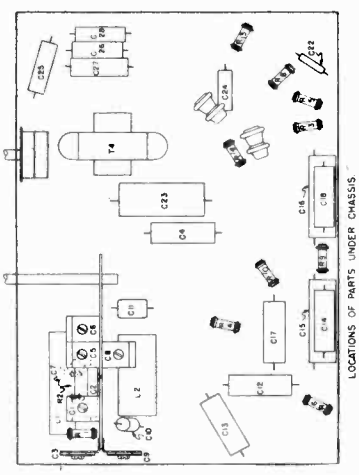
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.

PUSH BUTTON TUNING:

The push button mechanism is locked and unlocked by tightening or loosening the wing nut at the end of the mechanism. (A separate key is supplied in the case of table models instead of the wing nut.) Stations are set up by holding the button all the way in and accurately tuning to the station. Then release the button. After all of the buttons have been set up, lock the mechanism securely to prevent slipping.

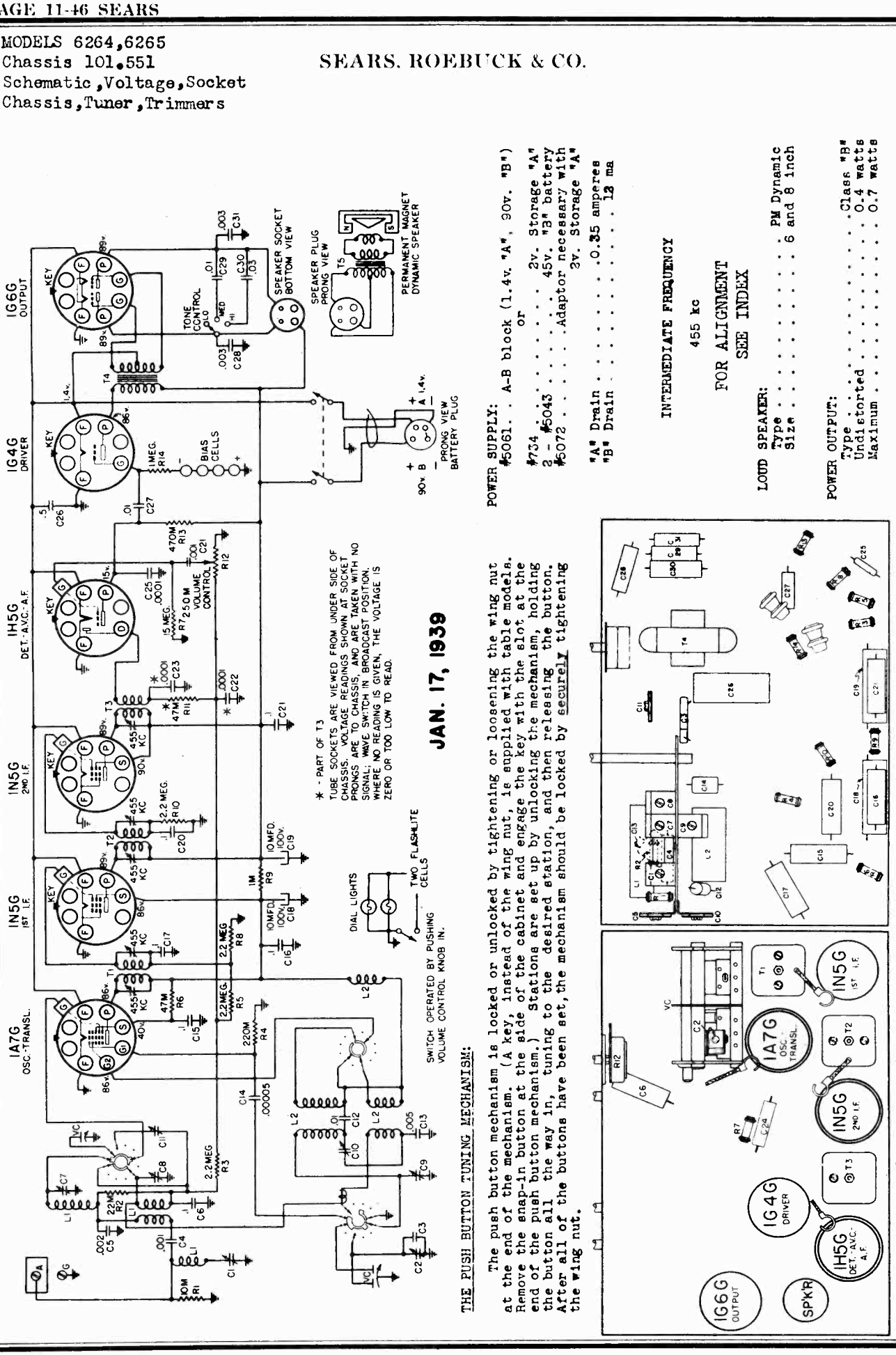
JAN. 20, 1939





MODELS 6264,6265
Chassis 101,551
Schematic,Voltage,Socket
Chassis,Tuner,Trimmers

SEARS, ROEBUCK & CO.



JAN. 17, 1939

POWER SUPPLY:
#5061. . A-B block (1.4v. "A", 90v. "B")
or
#734 . . . . . 2v. Storage "A"
2 - #5043 . . . . . 45v. "B" battery
#5072 . . . . . Adaptor necessary with 3v. Storage "A"

"A" Drain . . . . . .0.35 amperes
"B" Drain . . . . . 13 ma

INTERMEDIATE FREQUENCY
455 kc
FOR ALIGNMENT
SEE INDEX

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 6 and 8 inch

POWER OUTPUT:
Type . . . . . Class "B"
Undistorted . . . . . 0.4 watts
Maximum . . . . . 0.7 watts

THE PUSH BUTTON TUNING MECHANISM:

The push button mechanism is locked or unlocked by tightening or loosening the wing nut at the end of the mechanism. (A key, instead of the wing nut, is supplied with table models. Remove the snap-in button at the side of the cabinet and engage the key with the slot at the end of the push button mechanism.) Stations are set up by unlocking the mechanism, holding the button all the way in, tuning to the desired station, and then releasing the button. After all of the buttons have been set, the mechanism should be locked by securely tightening the wing nut.

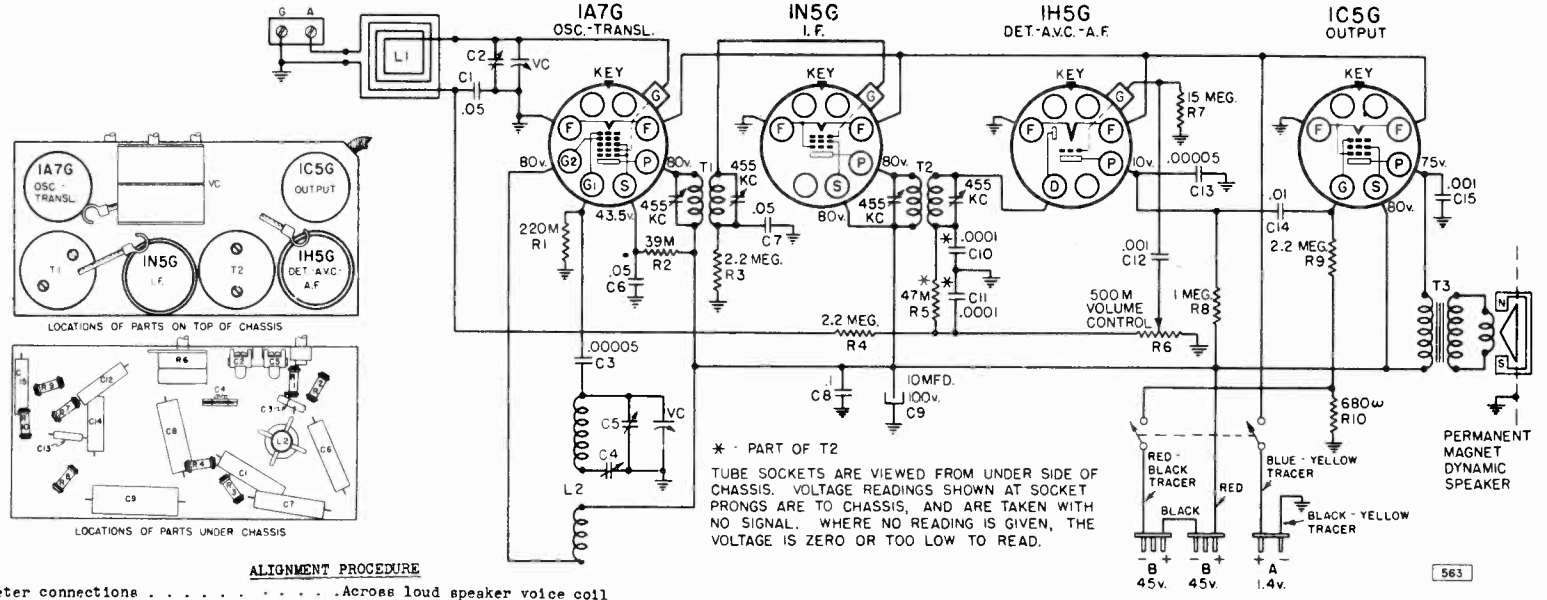
SEARS, ROEBUCK & CO.

MODEL 6266

Ch.101.563,101.563-1A

Schematic, Voltage, Chassis

Socket, Trimmers, Alignment



LOCATIONS OF PARTS ON TOP OF CHASSIS

LOCATIONS OF PARTS UNDER CHASSIS

* - PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

ALIGNMENT PROCEDURE

Output meter connections . . . . . Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 0.38 volts
Generator ground lead connection . . . . . To ground
Connection of generator output lead . . . . . See chart below
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully on
Position of Dial Pointer with variable fully closed To fall on bar just below 550 kc calibration mark.

POSITION OF VARIABLE	GENERATOR FREQUENCY	GENERATOR CONNECTION	ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION
Closed	455 kc	1A7G Transl. Grid with .1 mfd. in series	T2, T1	IF
Fully open	1610 kc	* See note below	C5	Oscillator
1400 kc	1400 kc	* See note below	C3	Translator
600 kc (rock)	600 kc	* See note below	C4	Padder

The chassis is removed from the case in order to align the IF but the loop antenna must be left connected.

* Run a wire from the output terminal of the signal generator, having it come near the receiver. However, no metallic connection is made between the signal generator and the receiver.

The back cover containing the loop antenna must be in place when making the translator, oscillator, and padder adjustments. Also, the batteries must be in place (instead of making connection to external batteries). The trimmers are accessible from the front of the receiver when the escutcheon is removed, as shown in the illustration.

The variable should be rocked back and forth a degree or two while making the 600 kc adjustment.

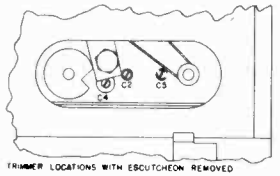
Alignment should be done with no connection made to the external antenna and ground terminals, even though an external antenna is normally used with the set.

The alignment procedure should be repeated in the original order, step by step, to insure greater accuracy.

Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

INTERMEDIATE FREQUENCY

455 kc



TRIMMER LOCATIONS WITH ESCUTCHEON REMOVED

FEB. 13, 1939

Chassis identified by 101.563-1A use a loop antenna that is wound directly on the back cover of the carrying case. The knob design and part number also have been changed.

Should the loop be disconnected from the receiver for any reason, be sure that the colored leads are re-connected to the same terminals as originally, indicated by the paint spot on one of the terminals.

POWER SUPPLY:
"A" Battery (1½ volt) . . . . . 1 - #5063
Service rating - 150 Hours
"B" Batteries . . . . . 2 - #5039
Service rating - 200 Hours

POWER OUTPUT:
Type . . . . . Single Pentode
Undistorted . . . . . 0.15 watts
Maximum . . . . . 0.375 watts

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 5 inch

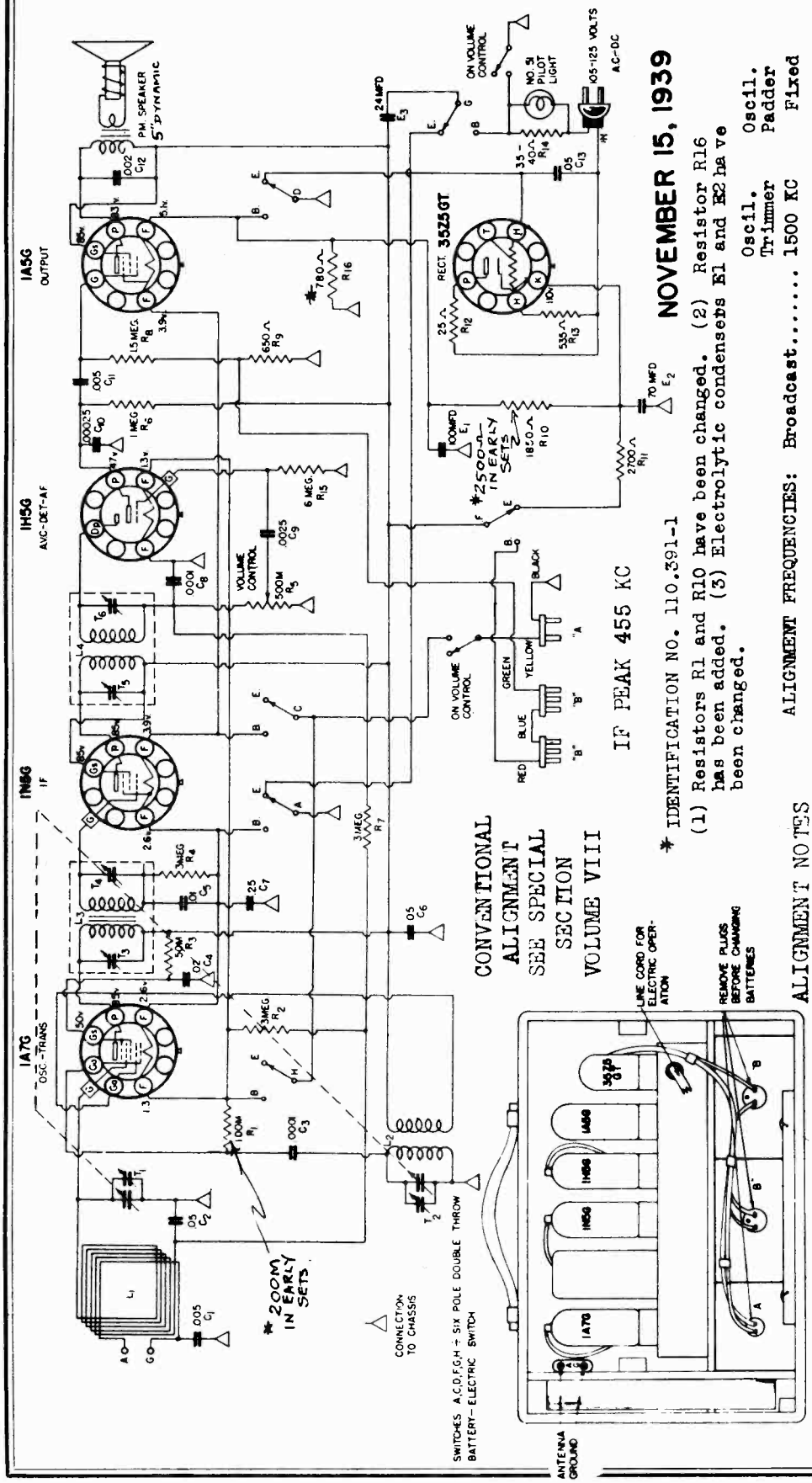
ALIGNMENT FREQUENCIES:

Oscillator Trimmer	Antenna-Transl. Trimmer	Padder
1610 kc	1400 kc	600 kc

FREQUENCY RANGE:
Broadcast . . . . . 540-1610 kc

MODEL 6274
Ch.110.391,110.391-1
Schematic,Voltage
Aligmment,Batt.Conn.

SEARS, ROEBUCK & CO.



CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION VOLUME VIII

IF PEAK 455 KC

* IDENTIFICATION NO. 110.391-1

(1) Resistors R1 and R10 have been changed. (2) Resistor R16 has been added. (3) Electrolytic condensers E1 and E2 have been changed.

NOVEMBER 15, 1939

Oscil. Oscil.
Trimmer Padder
ALIGNMENT FREQUENCIES: Broadcast..... 1500 KC Fixed

ALIGNMENT NOTES

The complete assembly of loop mounting and chassis shelf should be removed as a unit in order to align the receiver.

The batteries should be in the proper position when aligning the receiver.

1500 KC Run a wire from the output terminal of the generator, having it come near the receiver However, no electrical connection is made between the signal generator and the receiver.

Alignment should be done with no connection made to the external antenna and ground ter-

Always keep the output power from the generator at its lowest possible value to prevent- the ave of the receiver from interfering with accurate alignment.

***CHASSIS, IDENTIFIED BY No. 110.391-1, HAVE UNDERGONE A CIRCUIT CHANGE IN ORDER TO PROTECT THE ELECTROLYTIC CONDENSER FROM EXCESSIVE VOLTAGE SURGES AND TO IMPROVE TUBE OPERATION STABILITY.**

FREQUENCY RANGE:

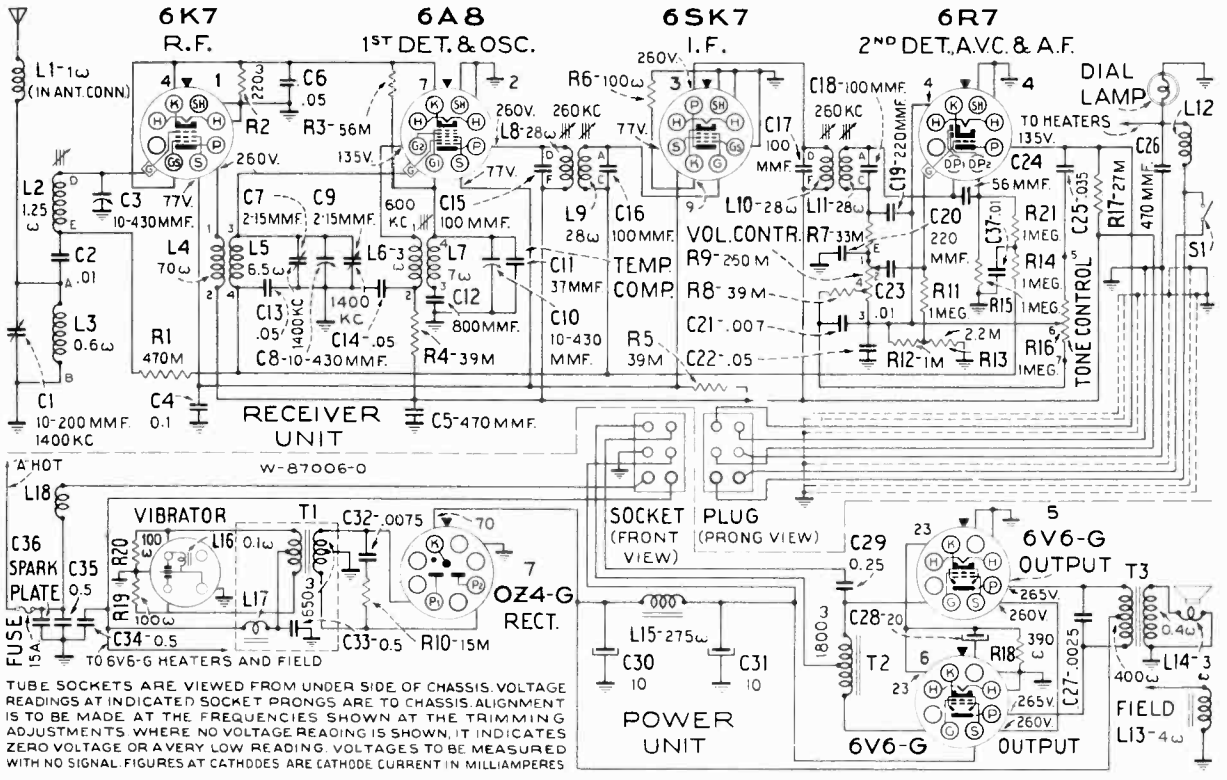
Broadcast ..... 540-1730 KC minds.

POWER OUTPUT:

Type ..... Pentode
Undistorted ..... 100 MW
Maximum ..... 260 MW

SEARS, ROEBUCK & CO.

MODEL 6301, Ch. 126.211
Schematic, Voltage, Dial Assembly



TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS. ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIMMING ADJUSTMENTS. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING. VOLTAGES TO BE MEASURED WITH NO SIGNAL. FIGURES AT CATHODES ARE CATHODE CURRENT IN MILLIAMPERES.

FREQUENCY RANGE ..... 550-1,550 kc

ALIGNMENT FREQUENCIES:

I-F	260 kc
Ant.	1,400 kc
Oscl.	600 kc
Det.	1,400 kc

POWER OUTPUT:

Type	Push-Pull Beam
Undistorted	6 watts
Maximum	8 watts

POWER SUPPLY:

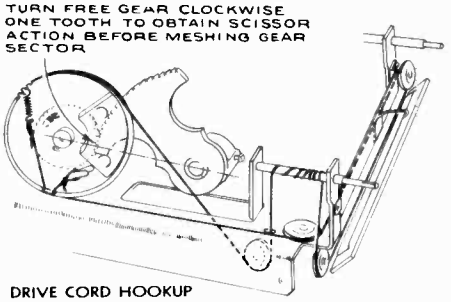
"A"	6.3 volt Auto Storage Battery
"B"	Non-Synchronous Vibrator
Current Drain	8.7 amps.
Fuse Protection	15 amperes

LOUDSPEAKER:

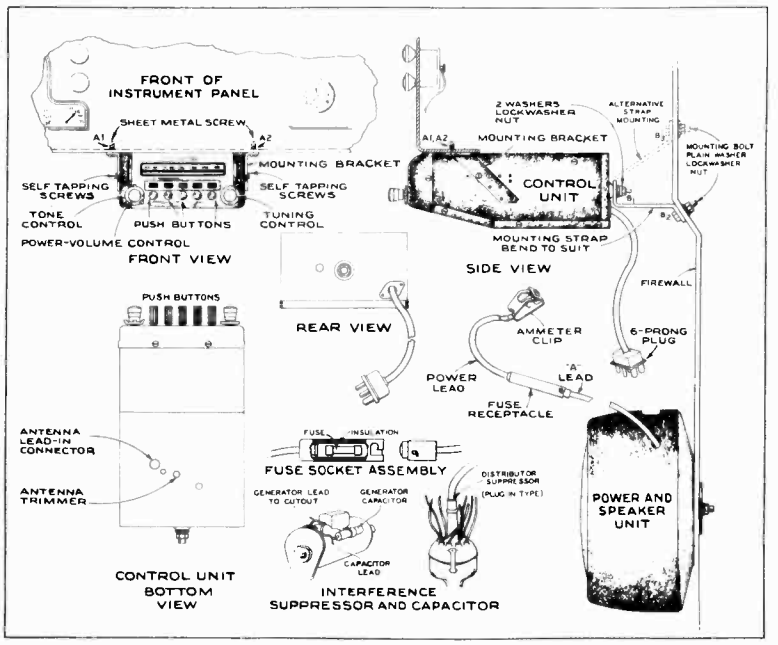
Type	Electrodynamic
Size	8 inches
V.C. Impedance	3 ohms at 400 cycles
Field Coil Resistance	4 ohms

Manual Tuning Dial:

A manual tuning knob is provided so that additional stations may be tuned in as desired. The manual tuning shaft is connected through a cord drive to a drum on the condenser shaft. This same cord drives the dial indicator by passing over a pulley on the chassis. Figure shows the complete cord drive assembly and the correct number of turns which the cord should be wrapped around the drive shaft and condenser drum.



DRIVE CORD HOOKUP



Loudspeaker:

The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.

FOR OTHER DATA SEE INDEX

MAY 3, 1939

MODEL 6301
Chassis Wiring, Socket Trimmers

SEARS, ROEBUCK & CO.

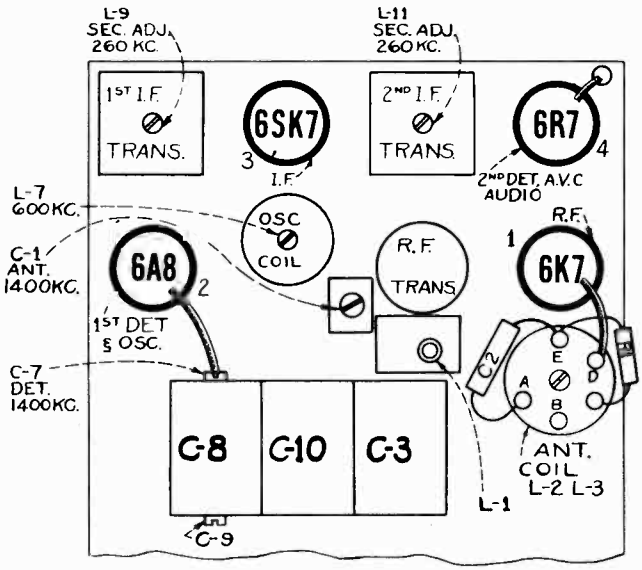


FIG. 1 CONTROL UNIT
TUBE, TRIMMER AND PARTS LOCATION
BOTTOM VIEW

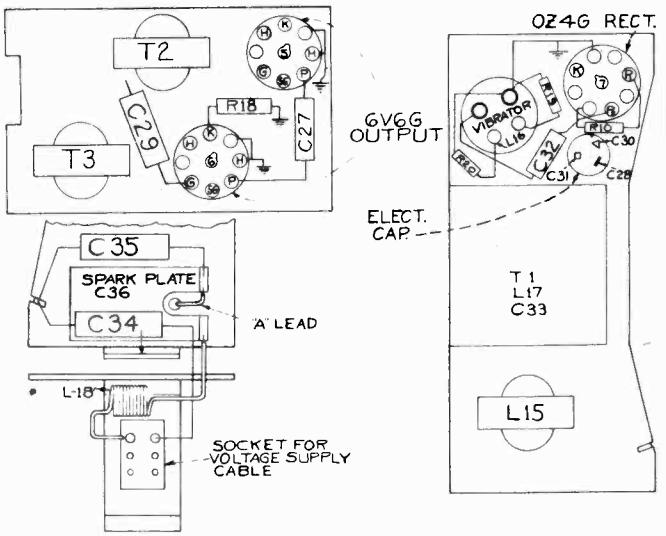


FIG. 2. POWER AND SPEAKER UNIT
TUBE AND PARTS LOCATION
EXPANDED VIEW

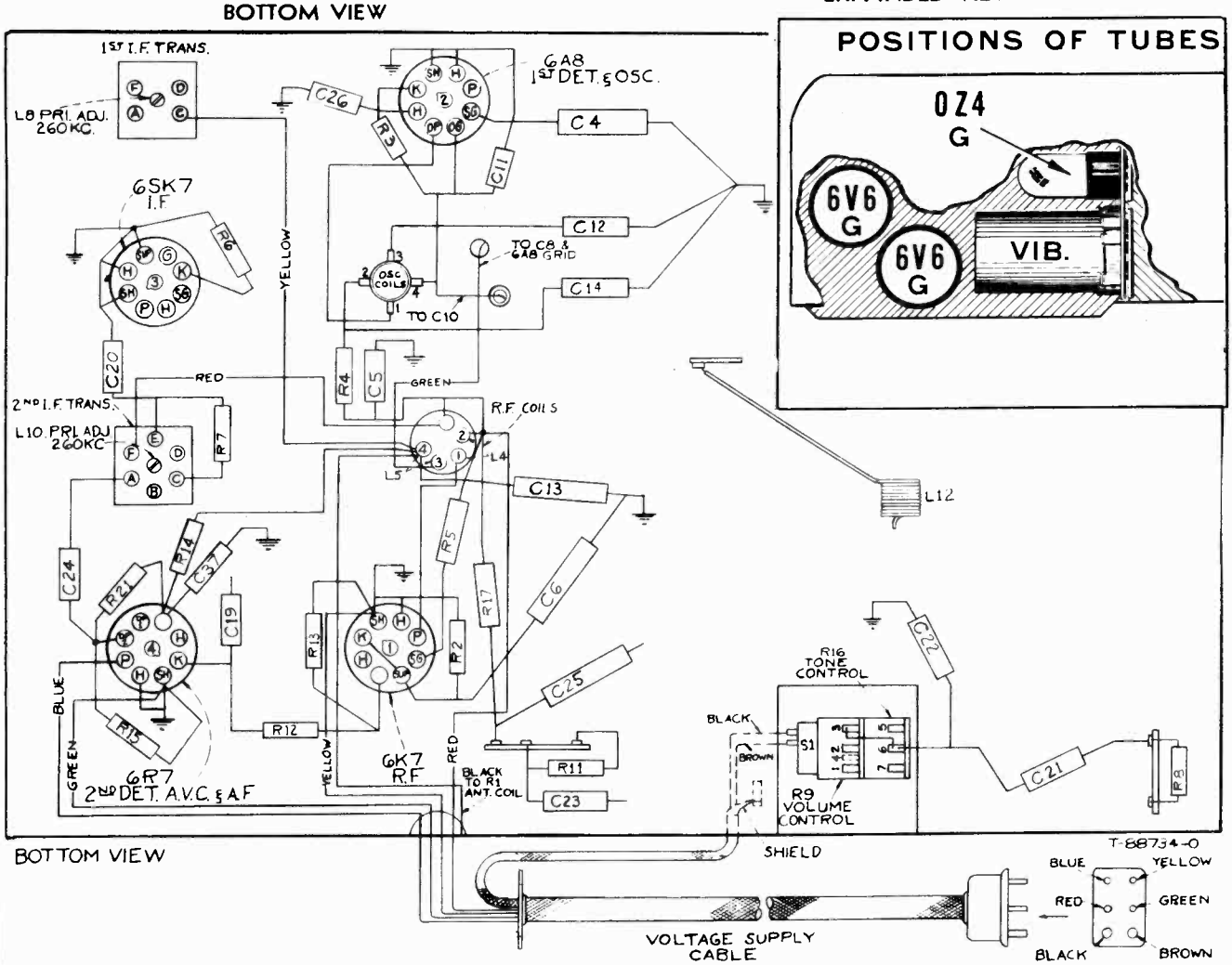
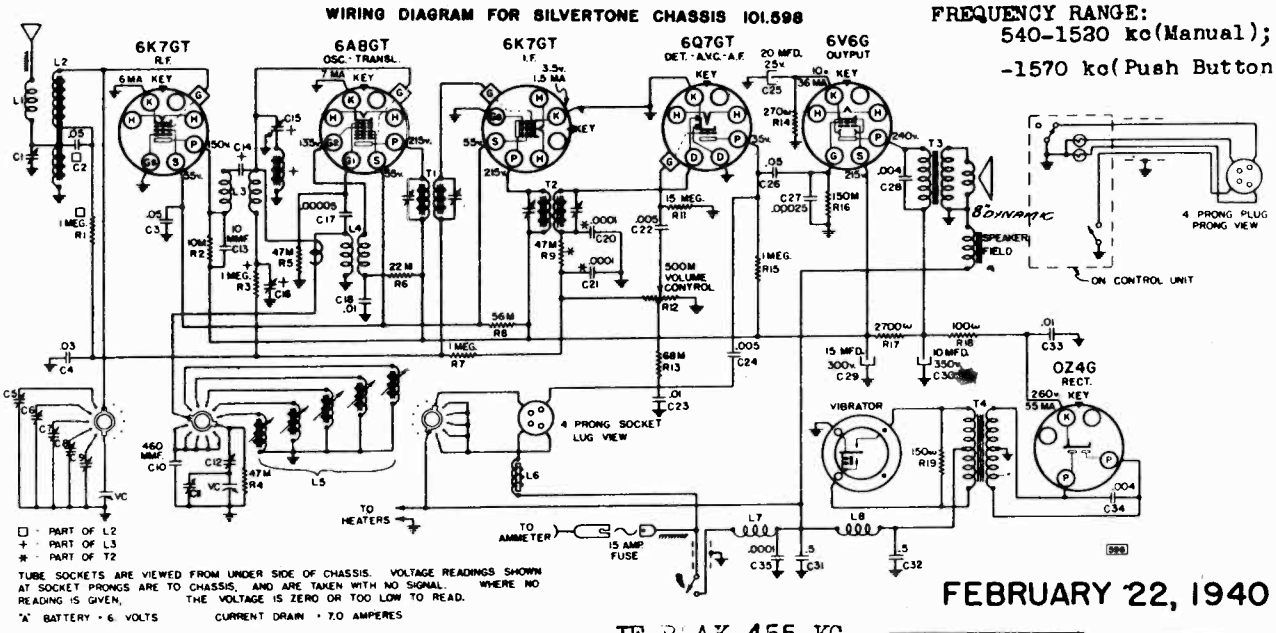


FIG. 3. CONTROL UNIT
TUBE, TRIMMER AND PARTS LOCATION — TOP VIEW

SEARS, ROEBUCK & CO.

MODEL 6302, Ch. 101.598
Schematic, Voltage, Chassis
Socket, Trimmers, Alignment

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.598



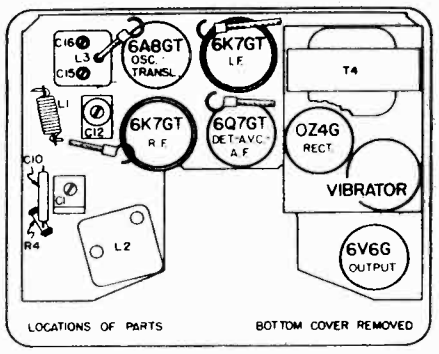
FREQUENCY RANGE:
540-1530 kc(Manual);
-1570 kc(Push Button)

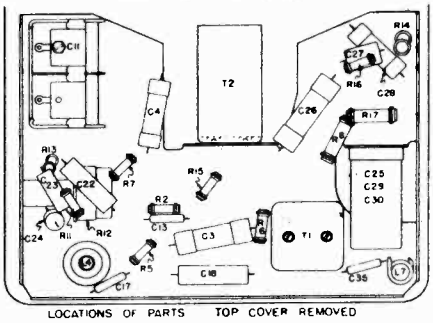
FEBRUARY 22, 1940

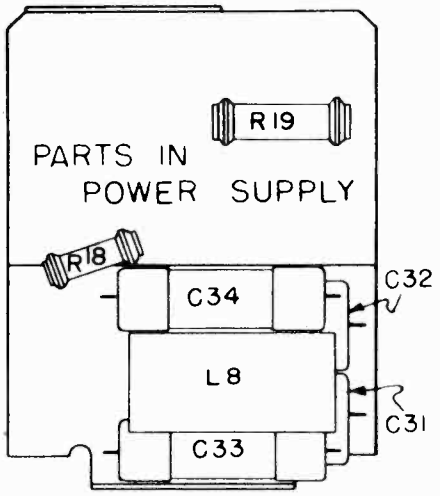
IF PEAK 455 KC

INTERMEDIATE FREQUENCY
455 kc

POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . 3.3 watts
Maximum . . . . . 6 watts







PRELIMINARY:

Output meter connections across loud speaker voice coil
Output meter reading to indicate 1 watt . . 0.79 volts
Position of Volume Control . Fully on
Position of Tone Control . . Brilliant

ALIGNMENT PROCEDURE

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS FOR 1 W. OUTPUT
Closed	455 kc	.1 mfd.	RF Grid	T2, T1	IF	--
Closed	455 kc	.1 mfd.	RF Grid	C16*	IF Wave Trap	--
Open	1530 kc	**	Ant. Conn.	C11	Oscillator	--
Open	3430 kc	**	Ant. Conn.	C15*	Image Rejector	--
Closed	540 kc	**	Ant. Conn.	C12	Padder	10
Open	1520 kc	**	Ant. Conn.	C11	Oscillator	10
1400 kc	1400 kc	**	Ant. Conn.	C1	Antenna	10
600 kc(rock)	600 kc	**	Ant. Conn.	C12	Padder	10

The receiver must be in its case during alignment (but the covers will be removed).

* The signal generator should be adjusted for high output and the trimmer should be adjusted for minimum response.

** The dummy antenna will consist of a 40 mmfd. condenser connected in series between the generator and the receiver and another 40 mmfd. condenser connected from the receiver antenna connection to the chassis.

The alignment procedure should be repeated in the original order, step by step, to insure greater accuracy.

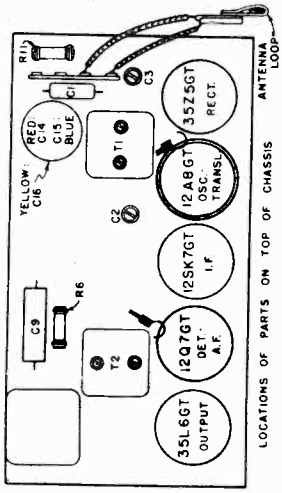
Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment, except as noted by (*) above.

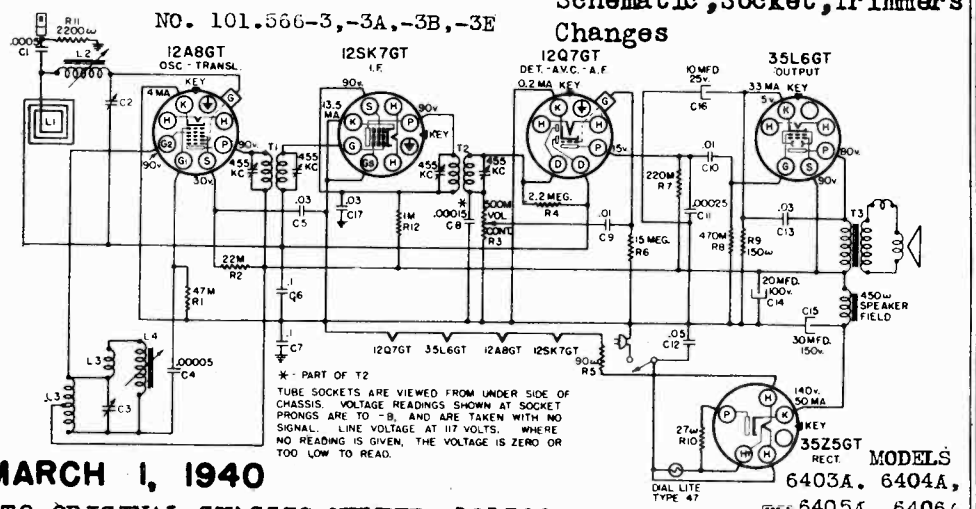
MODEL 6302, Ch. 101.598
Tuner Data

SEARS, ROEBUCK & CO.

NO. 101.566-3,-3A,-3B,-3E

MODELS 6403A to 6406A
Ch. 101.566-3,-3A,-3B,-3E
Schematic, Socket, Trimmers
Changes





MARCH 1, 1940

MODELS 6403A, 6404A, 6405A, 6406A

FOR OTHER DATA REFER TO ORIGINAL CHASSIS, NUMBER 101566.

SUBJECT: ADDITION OF SUFFIX NUMBER -3 TO CHASSIS IDENTIFICATION NUMBER 101.566:

Chassis identified by the addition of suffix number -3 use a 12SK7GT tube instead of the 12K7GT. The revised schematic and top of chassis illustration are shown in this supplement. Changes in the parts :-

1012842407 oscillator padder and trimmer coil L3, retail price 34¢, replaces 1012820933.

1013042405 20 mfd., 100 volt; 30 mfd., 150 volt; 10 mfd., 25 volt electrolytic condenser, C14, C15, C16, retail price 59¢, replaces 1012030935.

A .03 mfd., 200 volt condenser, C17, retail price 7¢, is added.

A 1M ohm, 1/10 watt resistor, R12, retail price 15¢, is added.

FOR ALIGNMENT SEE INDEX

1013342406 IF input transformer, retail price 60¢, replaces 10133209091.

1013542435 IF output transformer, retail price 60¢, replaces 1013530910.

1012842409 loop, retail price 55¢, is used for all the bakelite cabinet models.

1012842465 loop, retail price 69¢, is used for all the wood cabinet models except 101.566E.

10138411432 loop and cover assembly, retail price 76¢, is used for 101.566E assembly only.

MATCHING THE ANTENNA: *MODEL 6302 Ch. 101.598.*

Before proceeding with this adjustment the receiver should be left on for about 15 minutes to warm up.

An adjusting screw, accessible to a screw driver through a hole in the bottom cover of the case, is provided to match the receiver to the car antenna. With the receiver adjusted for "DIAL" tuning, use the Station Selector knob to tune in a very weak station at about 1400 kilocycles, with the volume control fully on. Then turn the adjusting screw to the point affording maximum volume.

THE PUSH BUTTON TUNING MECHANISM:

Preselection of push button tuned stations is accomplished by settings of the iron cores in the oscillator coils and settings of the trimmer condensers across the antenna coil. The proper coils are selected by a switch which is rotated one step at a time by means of a solenoid, controlled by the tuning push button. Pushing the button also mechanically rotates the station call letter drum.

Each button can be set only to a station within a certain frequency range as follows:

#1 540 to 920 kc #2 630 to 1070 kc #3 690 to 1170 kc #4 850 to 1450 kc #5 930 to 1570 kc

To set up the mechanism, insert the call letter tabs in their proper frequency order in the call letter drum. The drum is accessible by removing the snap-in button at the top of the push button unit before mounting the unit. One of the positions is for manual tuning. When this position is reached, the manual tuning dial will become illuminated and the receiver can be tuned manually.

Stations are set up by removing the front grille of the receiver, exposing the station tuning screws. The adjusting screws are labeled. The OSC. screw must be adjusted first; then the ANT. screw. Then repeat the two adjustments.

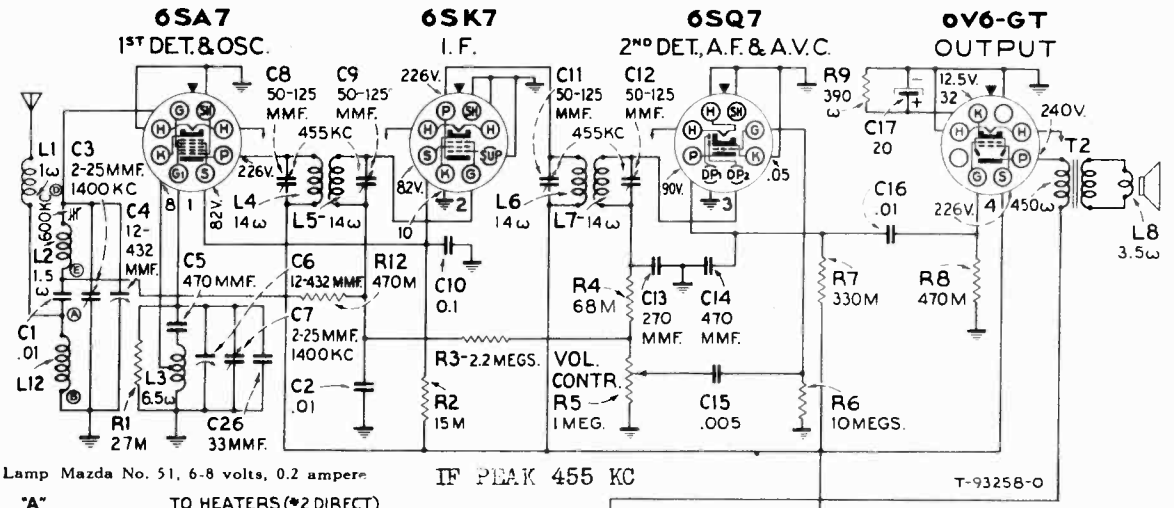
TO SYNCHRONIZE THE MECHANISM, PUSH THE TUNING BUTTON UNTIL THE MANUAL TUNING DIAL BECOMES ILLUMINATED. REMOVE THE PUSH BUTTON CABLE FROM ITS SOCKET IN THE SIDE OF THE RECEIVER CASE AND THEN PUSH THE BUTTON UNTIL THE "DIAL" TAB COMES INTO VIEW. THEN REINSERT THE CABLE PLUG.

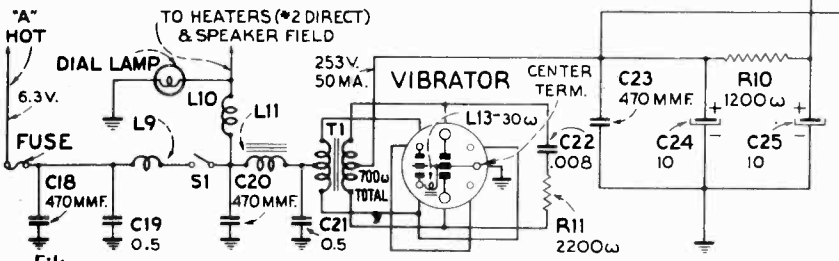
Under certain conditions the mechanism may fall out of synchronism if the button is not pushed all the way in and completely released when operating it. The user should be instructed accordingly.

Chassis Wiring, Socket Trimmers, Notes

SEARS, ROEBUCK & CO.

MODEL 6303, Ch. 126.223
Schematic, Voltage, Dial





TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS. ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIMMING ADJUSTMENTS. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING. VOLTAGES TO BE MEASURED WITH NO SIGNAL. THE FIGURES AT CATHODES ARE CATHODE CURRENT IN MILLIAMPERES.

FEBRUARY 20, 1940

Power Supply

"A"	6.3 volt Auto Storage Battery
"B"	Synchronous Vibrator
Current Drain	5.8 amps.
Fuse Protection	15 amperes

Power Output

Type	Beam Power
Undistorted	2.0 watts
Maximum	4.0 watts

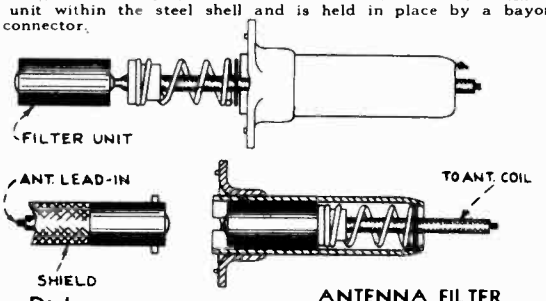
Loudspeaker

Type	Electrodynamic
Size	4-inch
V.C. Impedance	4 ohms at 400 cycles
Field Coil Resistance	4 ohms

Antenna Filter:

Frequency Range 550-1,550 kc

A filter is included in the antenna circuit. Being completely shielded, it prevents radiating ignition interference within the set. It also reduces the possibility of picking up vibrator interference. As illustrated, the filter unit is mounted inside a steel shell which in turn is welded to the chassis. The shielded antenna lead-in makes contact with the filter unit within the steel shell and is held in place by a bayonet type connector.



ANTENNA FILTER

Tuning Dial:

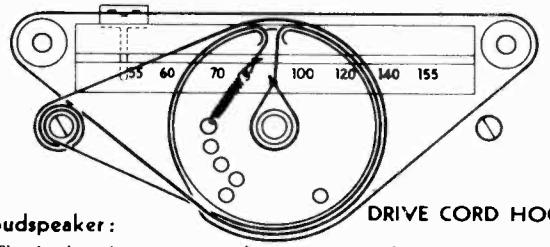
The tuning shaft is connected through a cord drive to a drum on the condenser shaft. This same cord drives the dial indicator by passing over pulleys on the chassis. The complete cord drive assembly and the correct number of turns which the cord should be wrapped around the drive shaft and condenser drum is shown in the "Drive Cord Hookup" illustration.

Antenna Circuit:

It is very important that these instructions be followed when installing the receiver.

The antenna circuit is designed to work with an antenna having a total capacity including the shielded lead-in not to exceed 100 mmf. If an antenna having a larger capacity is to be used, it will be necessary to add a capacitor in series with the lead from the antenna filter L-1 to the antenna coil terminal ("A").

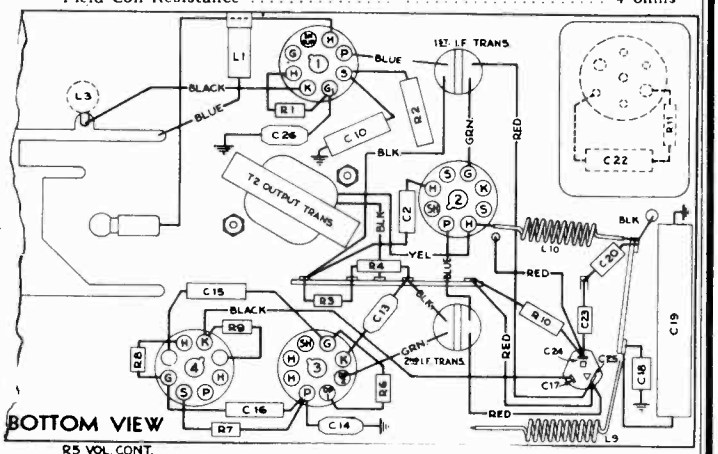
After installation and with antenna connected, tune in a weak station near 1,400 kc and adjust compensator trimmer C-3 for maximum signal output. This trimmer is accessible by removing plug button (see illustration) on side of receiver. If a maximum (peak) signal output cannot be obtained in the range of the antenna trimmer, the effective capacity should be checked and compensated for by varying series capacity as described above.

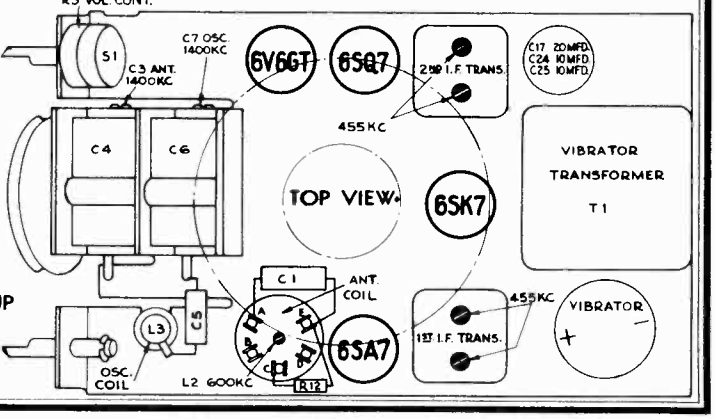


DRIVE CORD HOOKUP

Loudspeaker:

The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.





MODEL 6303,Ch.126.223
Alignment,Noise Notes

SEARS, ROEBUCK & CO.

ALIGNMENT PROCEDURE

PRELIMINARY:

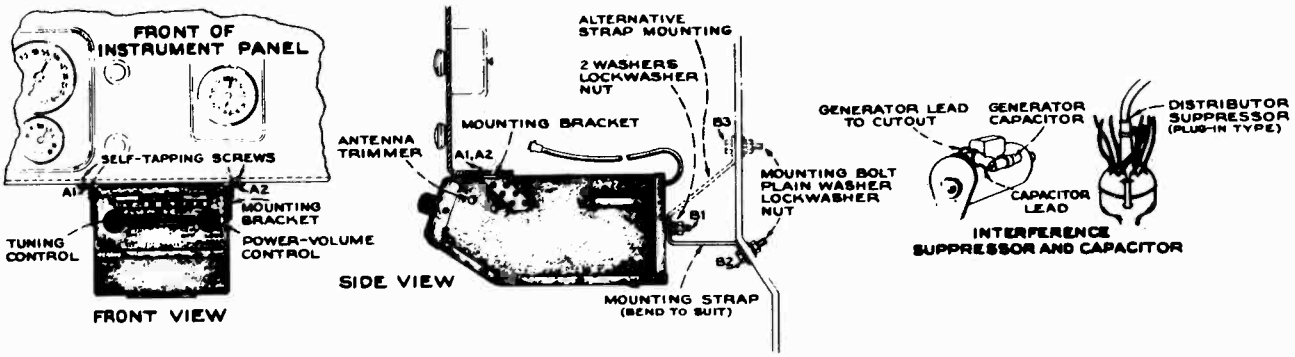
Output meter connections	Across speaker voice coil
Output meter readings to indicate 1 watt	2 volts
Generator ground lead connections	To chassis
Dummy antenna value to be in series with generator output	See chart below
Connection of generator output lead	See chart below
Generator modulation	30%, 400 cycles
Position of Volume Control	Fully clockwise

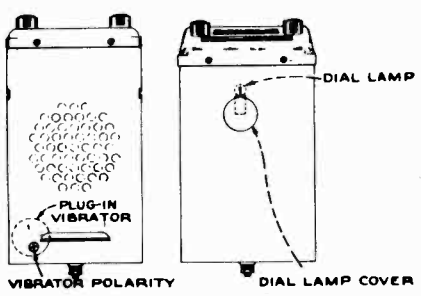
Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connections	Adjustment Symbol	Circuit Adjusted	Approx. Microvolts
No Signal 550-750 kc	455	.01 mfd.	6SK7 Grid (No. 4 pin)	C11, C12	2nd I.F Trans.	2,400
No Signal 550-750 kc	455	.01 mfd.	6SA7 Grid (No. 8 pin)	C8, C9	1st I.F. Trans.	55
600 kc Signal	600 kc	100 mmfd.*	Antenna Connector	L2	Ant.	7
1,400 kc	1,400 kc	100 mmfd.*	Antenna Connector	C7 C3	Osc. Ant.	2
600 kc Signal	600 kc	100 mmfd.*	Antenna Connector	L2	Ant.	7
1,400 kc Signal	1,400 kc	100 mmfd.*	Antenna Connector	C3	Ant.**	2

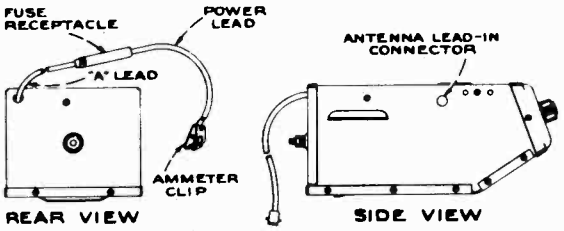
* Make the generator connection through a 100 mmfd. (.0001) capacity inserted at the antenna connector of the receiver. The lead from the signal generator to the 100 mmfd. capacitor may be shielded if desired, but no shielding should be used between capacitor and antenna connector.

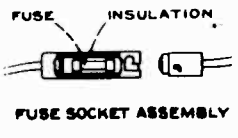
** Final adjustment of C3 must be made after the receiver has been installed and the antenna connected. See "Antenna Circuit".

Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value, to prevent the A.V.C. action of the receiver from interfering with accurate alignment.
Alignment adjustment locations are shown on the top and bottom parts location views of chassis.
Only the dummy antenna indicated in the chart for any particular frequency should be used.
Values shown under "Microvolts" are only approximate.









Noise Elimination:

The presence of noise is generally due to the high intensity of electrical disturbances from the car ignition system in relation to strength of desired station. The reduction of such noise should be carried out methodically by: (1) Increasing effectiveness of the antenna and providing for protection against stray pickup; (2) subduing the interference at its source; and (3) installation of filter devices to prevent transmission of interference into the receiver circuits.

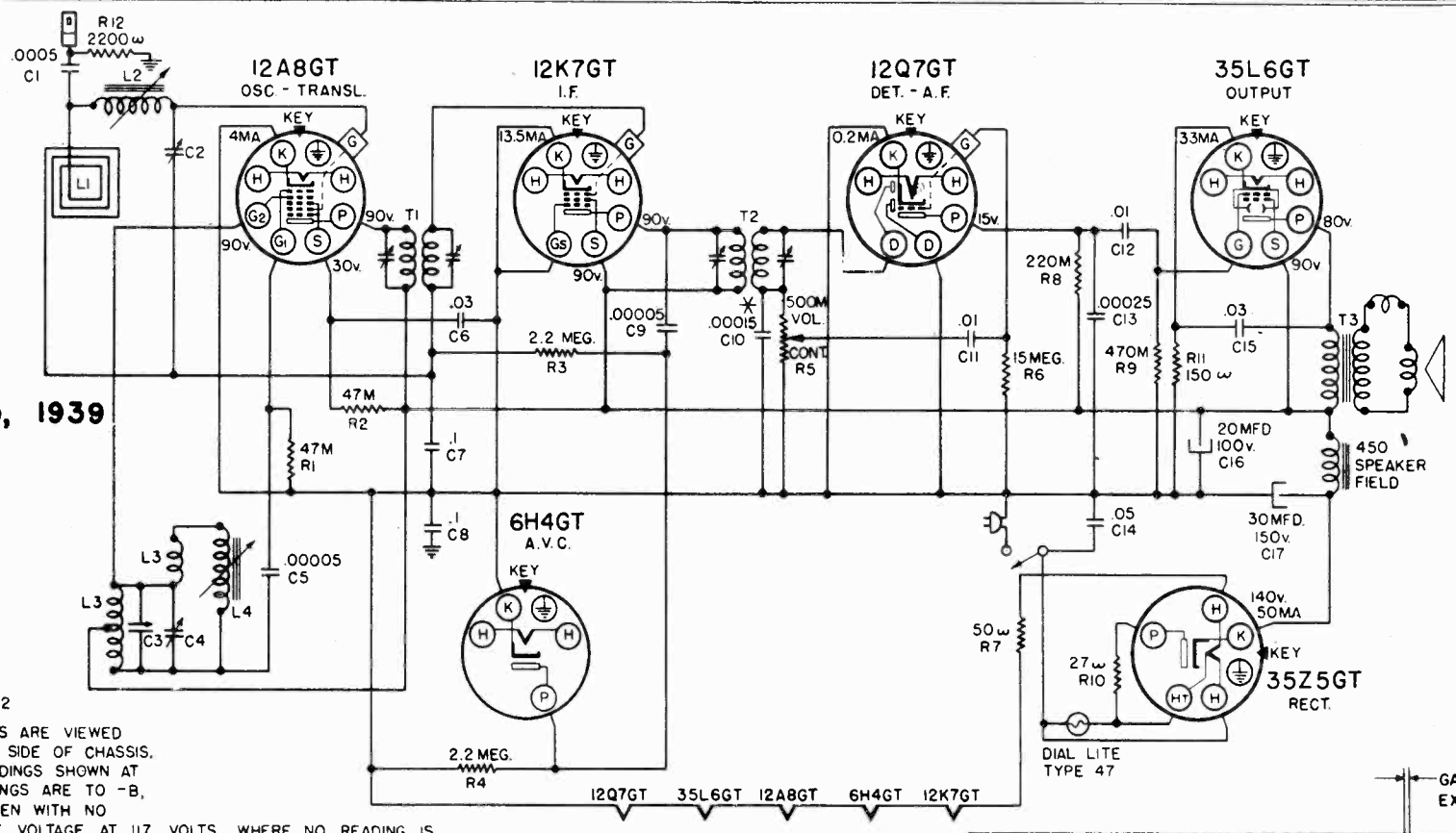
Antenna—Should be located well away from engine compartment to avoid ignition disturbance, and as far as possible from front wheels to eliminate "wheel static." Lead-in should be completely shielded and shield grounded to frame of car at as many points as possible. It is very essential that the antenna be electrically "matched" to the receiver input—this is accomplished by adjustment of the antenna trimmer and the operations explained under "Antenna Circuit."

Ignition—Radio frequency interference is created in the secondary and primary ignition circuits, usually at each point where a repeating contact, or spark, is made. The most prominent sources on the average car are: (a) Distributor—add the suppressor-resistor in the center or common high-voltage lead; also have points cleaned and adjusted, if necessary; (b) Generator—connect an 0.5 mfd. shielded capacitor directly across generator output; also see that commutator is smooth and brushes properly seated for minimum sparking; (c) Gasoline Gauge—on gauges having an electrical contact, an 0.5 mfd. shielded capacitor may be required between the terminal and car frame; (d) Temperature Gauge—where a contacting device is used, interference can be eliminated with an 0.5 mfd. capacitor connected between the circuit and car frame; (e) Spark Plugs—suppressors in leads to spark plugs may possibly be required in extreme cases of interference, on older cars, and in localities where signals are very weak; see that spark plugs are properly adjusted and are not leaky; (f) Ammeter—the supply for the receiver is usually taken from this point; a 0.5 mfd. capacitor from the "hot" lead will prevent passage of interference into the set over this circuit; (g) Dome Light—wiring to the dome light should be shielded; and an 0.5 mfd. capacitor attached between the circuit and car frame, preferably at the point where lead enters the corner post; (h) Wiring—primary and secondary ignition wiring should be physically separated; possible points of poor insulation should be checked, and all connections must be secure.

Car Chassis Bonds—Intermittent electrical connection between members of the car chassis, caused by vibration, will cause noise interference. Flexible bonding connections to the frame will correct this condition. The most sources are: (a) transmission case; (b) muffler; (c) steering column; (d) cylinder head; (e) dash controls; (f) rear springs; (g) brake cables; (h) hood cover; (i) receiver case.

Wheel Static—Interference from this source generally originates in the front wheels, and is related to road surface composition, and atmospheric conditions. Spring devices are available for attachment to the wheels for making a permanent connection between the hub and axle; these should be installed where required. The wheel bearings should be checked for proper adjustment. Patches in tires will frequently cause wheel static; exchange front and rear wheels. Be sure antenna is well separated from wheels of car.

AUG. 23, 1939



✳ PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO -B, AND ARE TAKEN WITH NO SIGNAL. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

POWER SUPPLY:
All models available . . . . . 105-125 volts, AC-DC, 70 watts

FREQUENCY RANGE . . . . . .540-1630 kc **ALIGNMENT FREQUENCIES:** . . .Osc. - 540 kc; Transl. - 900 kc

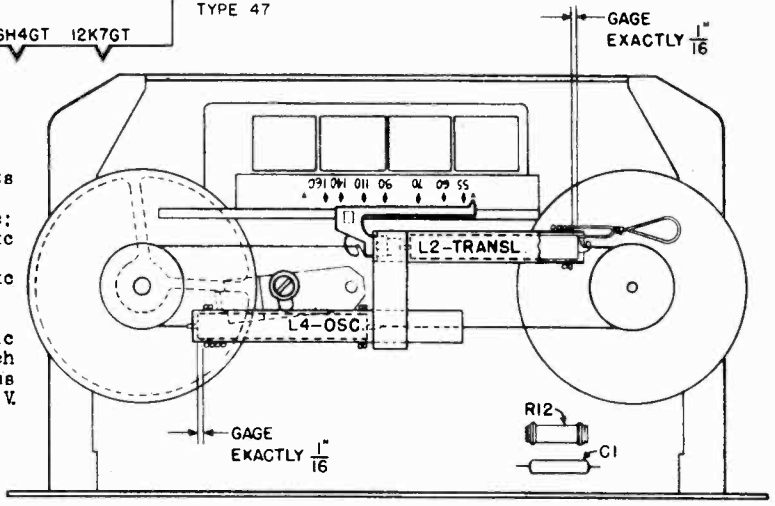
INTERMEDIATE FREQUENCY . . . . . 455 kc

POWER OUTPUT:
Type . . . . . .Beam Tube
Undistorted . . . . . 0.8 watts
Maximum . . . . . 1.25 watts

LOUD SPEAKER:
Type . . . . . .Dynamic
Size . . . . . 5 inch
Field coil resistance . . . . 450 ohms
Approx. field coil voltage drop. . 50 V.

OPERATING FEATURES:
Automatic Volume Control
AC-DC
Push Button Tuning (4 button)

CHASSIS FEATURES:
Number IF stages . . . . . One
Permeability tuned
Built-in loop with provision for external antenna



CORE DRIVE ASSEMBLY

MODEL 6320
Chassis, Socket, Trimmers
Notes, Tuner, Alignment

SEARS, ROEBUCK & CO.

REMOVING THE CHASSIS FROM THE CABINET:

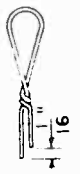
In addition to the two screws that hold the back of the chassis there is also a screw that holds the speaker frame to the cabinet.

DIAL LIGHT REPLACEMENT:

The dial light socket is attached to a bracket at the rear of the chassis, held with a single screw.

COIL REPLACEMENT:

No regard need be paid to the colors of paint spots on coils or cores. Coils may be replaced individually; however, cores must be replaced in pairs to secure proper matching and are furnished in pairs for service. To replace a coil, cut away the cement from the old coil and remove the coil. Insert the new coil in the bracket and position it so that, when the tuning knob is turned to its low frequency limit, the core will extend exactly 1/16" beyond the end of the coil winding. A gauge, easily made of a piece of wire as illustrated, should be used for determining this dimension. Similarly, when replacing cores, the coil positions must be checked to see that there is exactly 1/16" overlap of the core beyond the end of the coil winding with the tuning knob at the low frequency limit. This is true for both oscillator and translator cores and coils. New coils can be cemented to the bracket with Major's, Du Pont, or equivalent cement.



ELIMINATING HUM MODULATION WHEN USING AN EXTERNAL ANTENNA:

As shown by the Schematic and by the Location of Parts diagram, there is a 2200 ohms resistor, connected from the external antenna clip to chassis. This resistor prevents hum modulation when using an external antenna. If such hum is experienced, examine the chassis to see if this resistor has been incorporated. (The resistor is mounted alongside of the loop antenna connection board as shown in the Location of Parts diagram. It was not incorporated in early production.) If necessary, addition of the resistor will eliminate the complaint.

PUSH BUTTON TUNING:

Each button is set up by loosening the screw (under the call letter tab), tuning in the station, depressing the button and then tightening the screw.

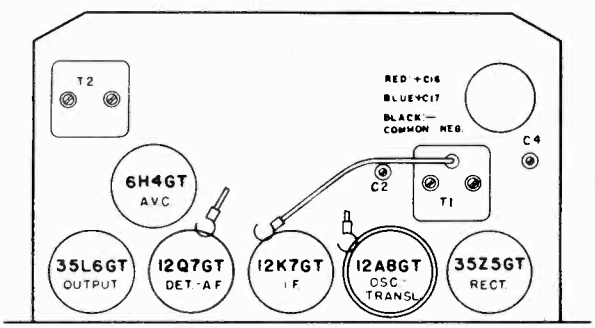
ALIGNMENT PROCEDURE

PRELIMINARY:

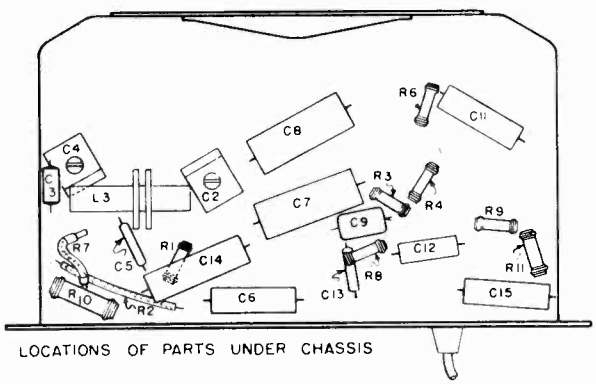
Output meter connection . . . . . Across loud speaker voice coil
Output meter to indicate 50 milliwatts . . . . . 0.36 volt
Dummy antenna value to be in series with generator output . . . . . See chart below
Connection of generator ground lead . . . . . To external ground
Position of Volume Control . . . . . Fully on

POSITION OF DIAL POINTER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION
550 kc	455 kc	.1 mfd.	12A8GT Grid	T2, T1	IF
540 kc	540 kc	.0002 mfd.	Ant. Clip	C4	Oscillator
900 kc	900 kc	.0002 mfd.	Ant. Clip	C2	Translator

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.



LOCATIONS OF PARTS ON TOP OF CHASSIS



LOCATIONS OF PARTS UNDER CHASSIS

SEARS, ROEBUCK & CO.

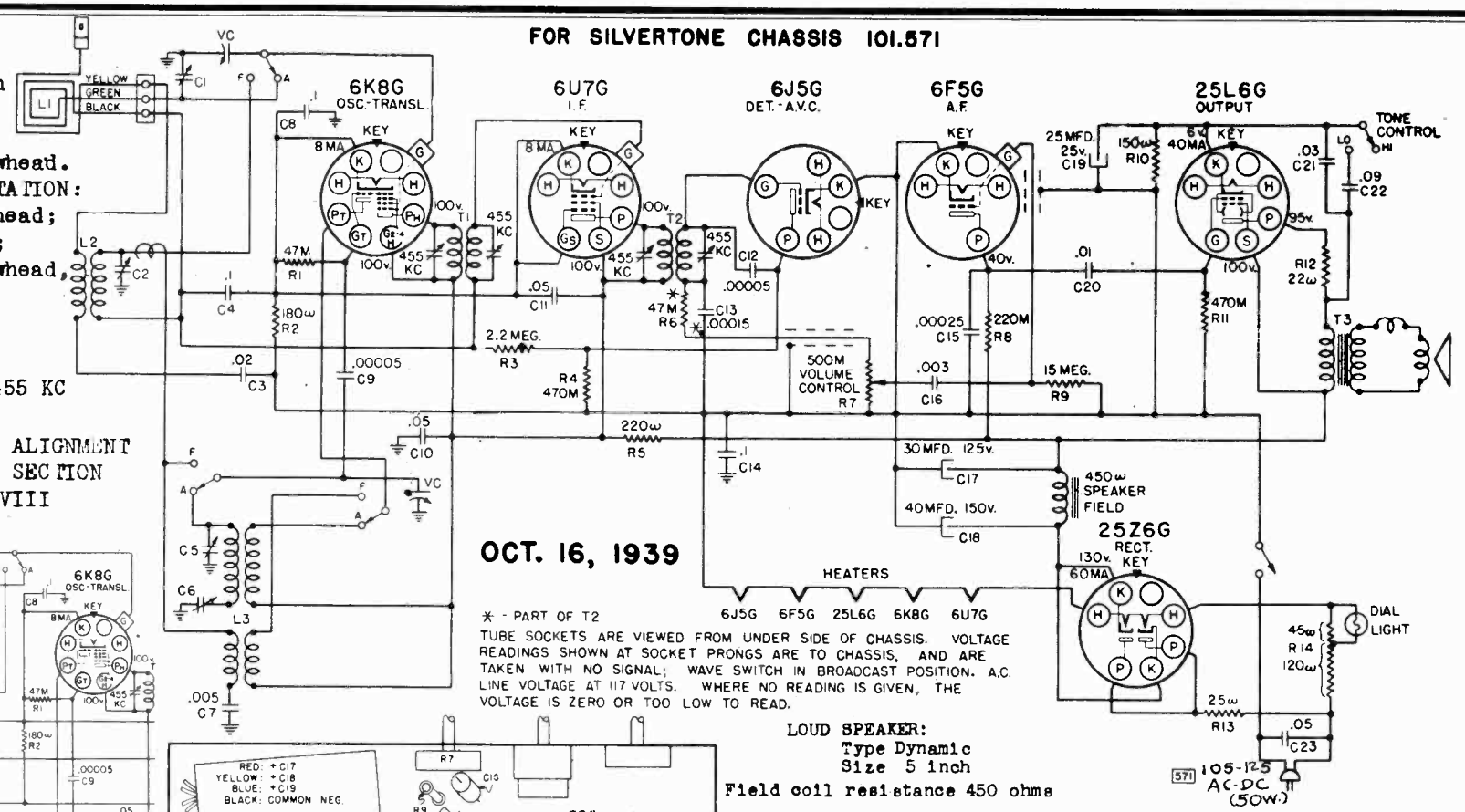
MODELS 6321,6322,6323,6421
Ch.101.571,101.571-1,-1A,-1B
Schematic,Voltage,Chassis
Socket,Trimmers,Changes

FOR SILVERTONE CHASSIS 101.571

PUSH-BUTTON ADJUSTMENT: Pull off push button knob to locate slotted screwhead. SETTING UP STATION: Loosen screwhead; tune station; tighten screwhead, thus locking mechanism.

IF PEAK 455 KC

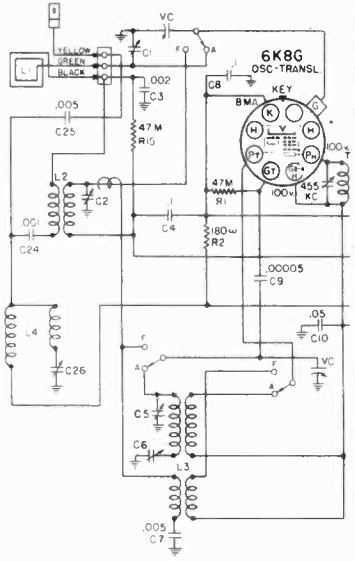
CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII

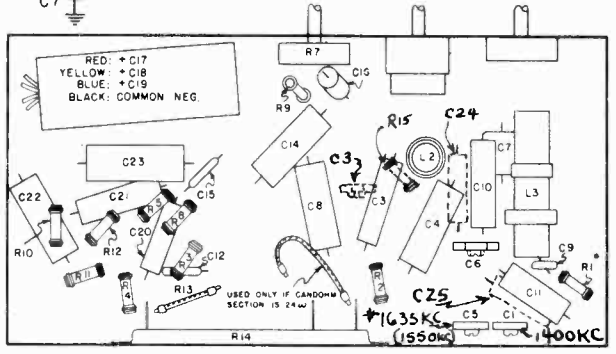


OCT. 16, 1939

* - PART OF T2

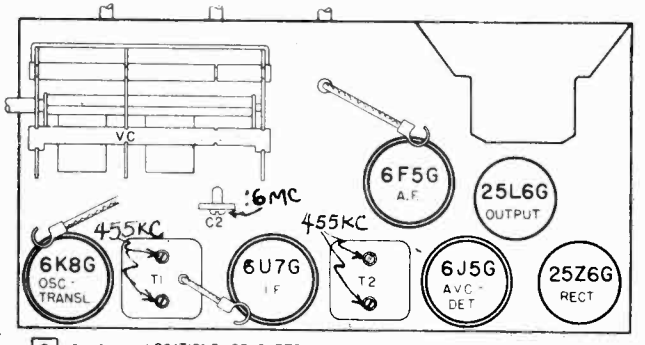
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. A.C. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.





LOCATIONS OF PARTS UNDER CHASSIS.

LOUD SPEAKER:
Type Dynamic
Size 5 inch
Field coil resistance 450 ohms



YELLOW GREEN BLACK LOCATIONS OF PARTS ON TOP OF CHASSIS

FOR SILVERTONE CHASSIS 101.571-1 PARTS DOTTED USED IN CHASSIS 101.571-1, 101.571-1A, -1B.

ADDITION OF SUFFIX NUMBER -1 TO 101.571 AND 101.571-A, -B CHASSIS:

As shown by the schematic diagram, certain changes have been incorporated in the antenna circuit of this model, including the addition of an I.F. wave trap. Chassis incorporating the changes are identified by the addition of suffix number -1.

* The top frequency for adjusting the broadcast oscillator trimmer with the variable fully open becomes 1550 kc instead of the original 1635 kc.

POWER OUTPUT:
Type . . . . . .Beam tube
Undistorted . . . . . .1 watt
Maximum . . . . . .1.8 watt

MODELS 6324,6424,Ch.101.570
6324,6424,6493,Ch.101.570-1A, 101.570-1B

SEARS, ROEBUCK & CO.

Schematic, Voltage, Chassis Socket, Trimmers, Changes

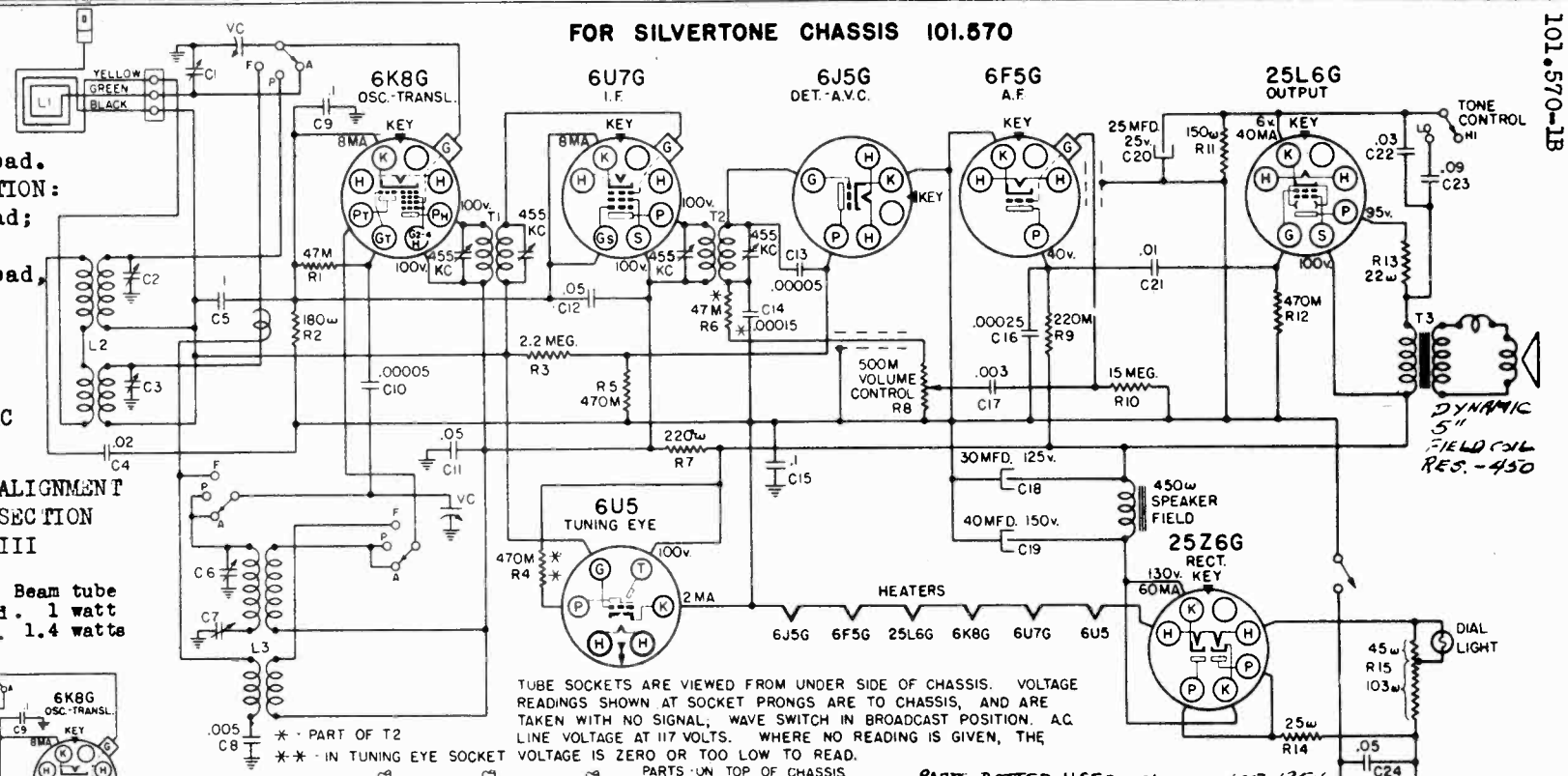
FOR SILVERTONE CHASSIS 101.570

PUSH-BUTTON ADJUSTMENT: Pull off push button knob to locate slotted screwhead. SETTING UP STATION: Loosen screwhead; tune station; tighten screwhead, thus locking mechanism.

IF PEAK 455 KC

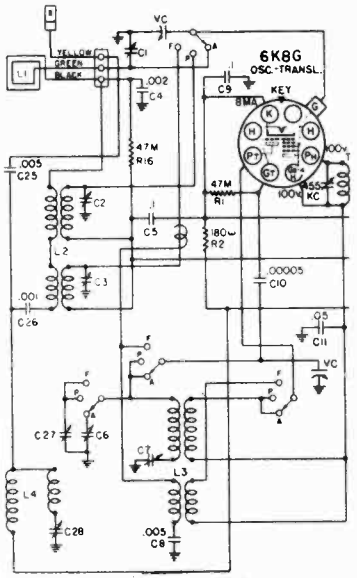
CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

POWER OUTPUT:
Type . . . Beam tube
Undistorted . 1 watt
Maximum . . 1.4 watts

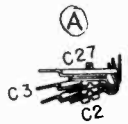


TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. A.C. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

* - PART OF T2
** - IN TUNING EYE SOCKET

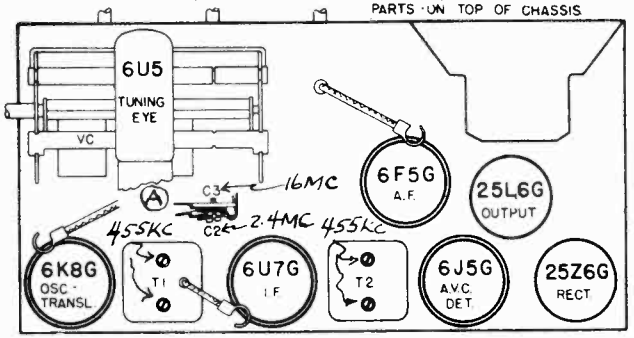


FOR SILVERTONE CHASSIS 101.570-1



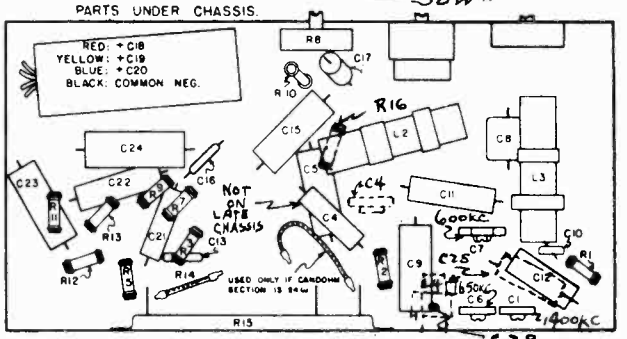
TRIMMERS ON LATE CHASSIS. TRIM C27 AT 2550 KC. SEE NOTE MARKED *

PARTS ON TOP OF CHASSIS



PARTS DOTTED USED ON 101.570-1, -1A CHASSIS

PARTS UNDER CHASSIS.



ADDITION OF SUFFIX NUMBER -1 TO 101.570 AND 101.570-A CHASSIS:

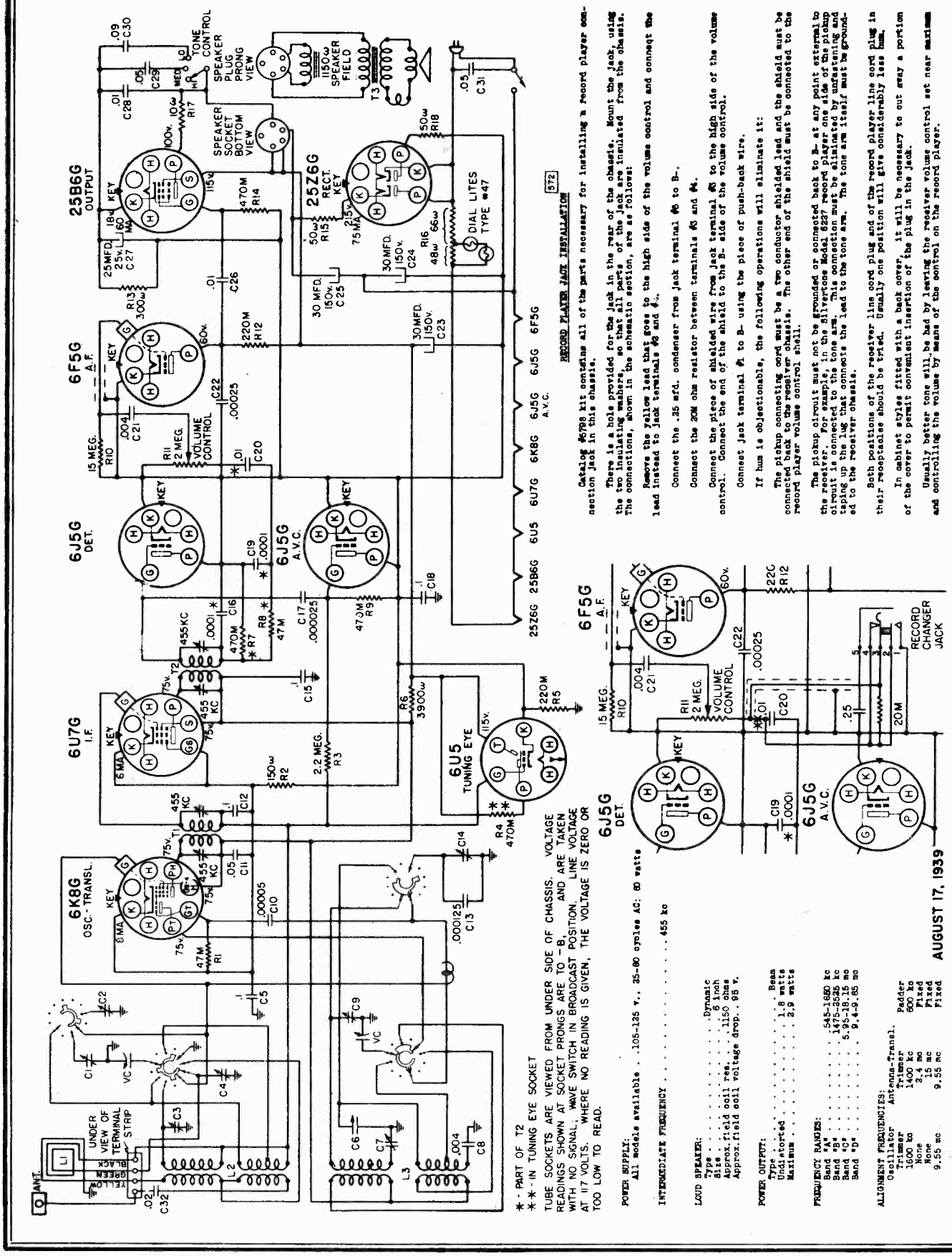
As shown by the schematic diagram, certain changes have been incorporated in the antenna circuit of this model, including the addition of an I.F. wave trap. Chassis incorporating the changes are identified by the addition of suffix number -1.

* The top frequency for adjusting the broadcast oscillator trimmer with the variable fully open becomes 1550 kc instead of the original 1650 kc. An additional police band oscillator trimmer, C27, is incorporated and is to be adjusted at 3550 kc with the variable fully open.

OCT. 16, 1939

SEARS. ROEBUCK & CO.

MODELS 6325,6425
Ch. 101.572
Schematic, Voltage
Jack Installation



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO - B, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

POWER SUPPLY:
All models available . .105-125 v., 25-60 cycles AC: 60 watts

INTERMEDIATE FREQUENCY . . . . . 455 kc

LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 6 inch
Approx. field coil res. . . . 1150 ohms
Approx. field coil voltage drop. . 95 v.

POWER OUTPUT:
Type . . . . . Beam
Undistorted . . . . . 1.8 watts
Maximum . . . . . 2.9 watts

FREQUENCY RANGES:

Band "A"	.545-1680 kc
Band "B"	1475-3525 kc
Band "C"	5.95-18.15 mc
Band "D"	9.4-9.85 mc

ALIGNMENT FREQUENCIES:

Oscillator	Antenna-Transl.	
Trimmer	Trimmer	Padder
1600 kc	1400 kc	600 kc
None	2.4 mc	Fixed
None	15 mc	Fixed
9.55 mc	9.55 mc	Fixed

AUGUST 17, 1939

RECORD PLAYER JACK INSTALLATION 372

Catalog #6798 kit contains all of the parts necessary for installing a record player connection jack in this chassis.

There is a hole provided for the jack in the rear of the chassis. Mount the jack, using the two insulating washers, so that all parts of the jack are insulated from the chassis. The connections, shown in the schematic section, are as follows:

Remove the yellow lead that goes to the high side of the volume control and connect the lead instead to jack terminals #3 and #5.

Connect the .25 mfd. condenser from jack terminal #6 to B-.

Connect the 20M ohm resistor between terminals #6 and #4.

Connect the piece of shielded wire from jack terminal #6 to the high side of the volume control. Connect the end of the shield to the B- side of the volume control.

Connect jack terminal #1 to B- using the piece of push-back wire.

If hum is objectionable, the following operations will eliminate it:

The pickup connecting cord must be a two conductor shielded lead and the shield must be connected back to the receiver chassis. The other end of the shield must be connected to the record player volume control shell.

The pickup circuit must not be grounded or connected back to B- at any point external to the receiver. For example, in the Silvertone Model 6327 record player one side of the pickup circuit is connected to the tone arm. This connection must be eliminated by unfastening and taping up the lug that connects the lead to the tone arm. The tone arm itself must be grounded to the receiver chassis.

Both positions of the receiver line cord plug in their receptacles should be tried. Usually one position will give considerably less hum.

In cabinet styles fitted with a back cover, it will be necessary to cut away a portion of the cover to permit convenient insertion of the plug in the jack.

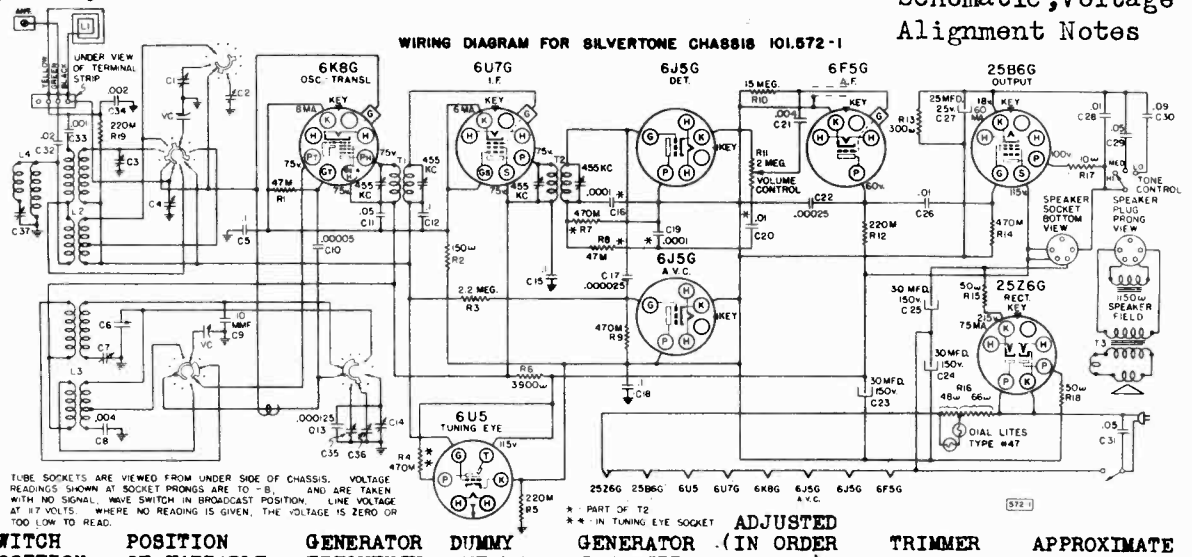
Usually better tone will be had by leaving the receiver volume control set near maximum and controlling the volume by means of the control on the record player.

MODELS 6325,6425
Ch.101.572
Alignment,Chassis

SEARS, ROEBUCK & CO.

Socket,Trimmers,Tuner
Chassis 101.572-1
Schematic,Voltage
Alignment Notes

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.572-1



SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	1600 kc	1600 kc	.0002 mfd.	Ant. Term.	C9	Oscillator	300
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C4	Translator	35
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C7	Padder	130
"B"	2.4 mc(rock)	2.4 mc	400 ohms	Ant. Term.	C3	Translator	320
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C1	Translator	85
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C14*,C3	Osc.,Transl.	160

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

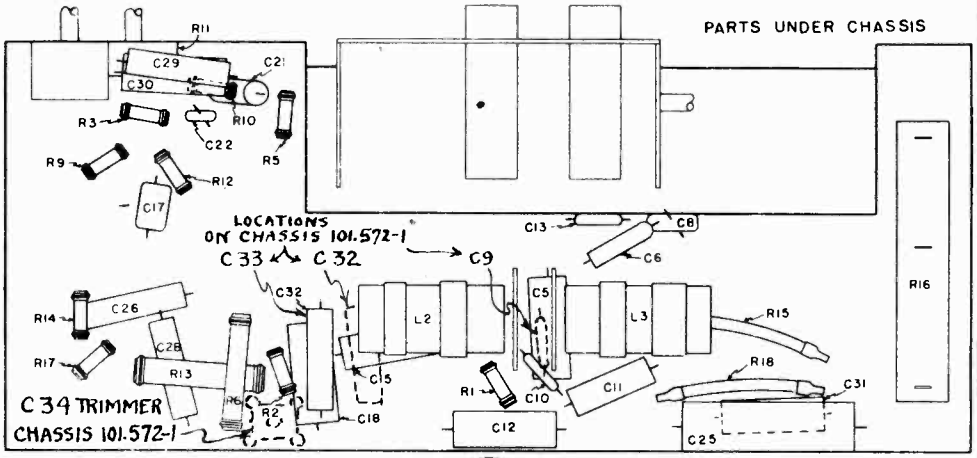
* If two peaks can be had, the correct adjustment is with the trimmer screw further out. The other peak is the image.

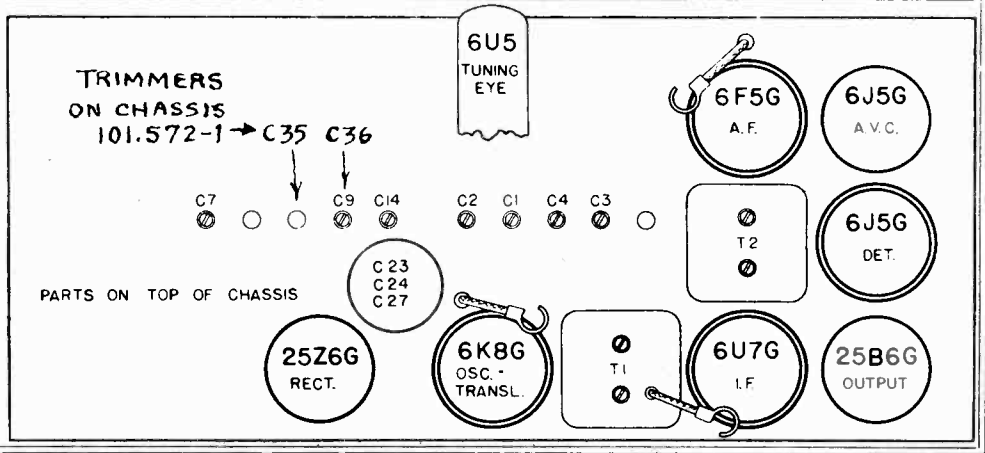
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.

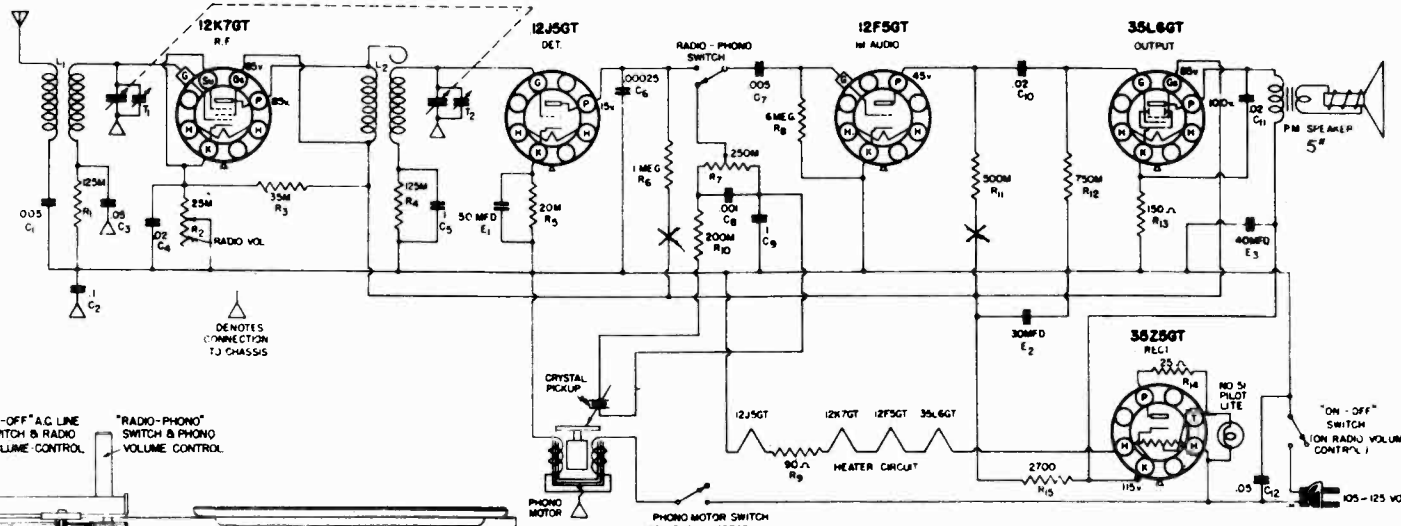
PUSH-BUTTON ADJUSTMENT:
Pull off push-button knob to locate slotted screwhead.
SETTING UP STATION:
Loosen screwhead; tune station; tighten screwhead, thus locking mechanism.

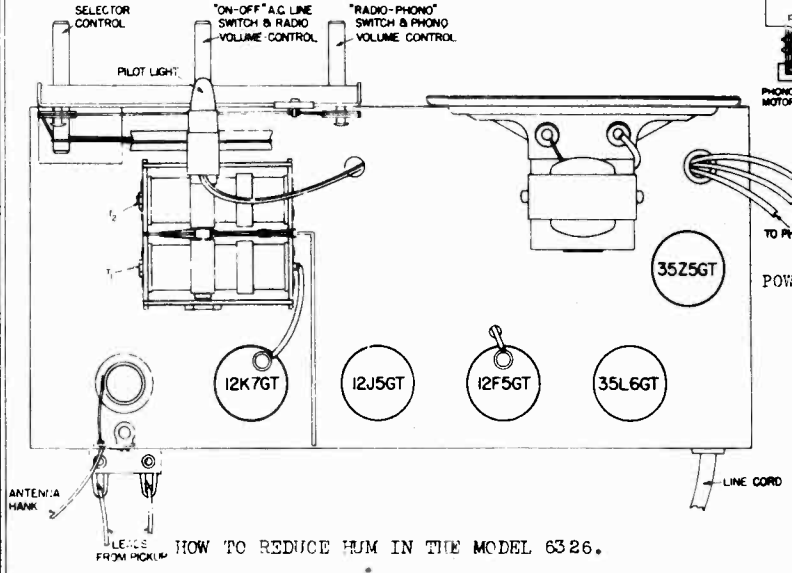
CHASSIS 101.572-1
Top frequency, variable completely open, is 1530 kc. Has wave-trap adjustment C37, to be made with variable at 600 kc and signal at 455 kc. Make this adjustment for min. output reading.

OCT. 2, 1939









HOW TO REDUCE HUM IN THE MODEL 6326.

In cases where excessive hum is encountered, it may be reduced by either one of the following methods.

1. In many cases, heater to cathode leakage in the 12J5GT or 12F5GT tubes may be causing excessive hum. If replacing the faulty tubes does not materially reduce the hum, it will be necessary to proceed as follows.

2. Disconnect the plate resistors (R6 and R11) of the 12J5GT and the 12F5GT tubes from the plate supply at the points marked "x" in the circuit diagram and connect them to the filter network as shown in the filter network diagram. The filter network consists of a .1 mfd 400 volt paper condenser and a 100,000 ohm 1/4 watt resistor.

A number of these sets were sent to the field without a shield on the 12F5GT tube. One should be on this tube in order to reduce the hum level. Currently produced models have this shield installed at the factory.

POWER SUPPLY:

All models available. 105-125 volts, 60 cycle A.C. . . . .50 watts

POWER OUTPUT:

Type . . . . . .Beam Power
Undistorted . . . . . 1. watt
Maximum . . . . . 1.5 watts

FREQUENCY RANGE:

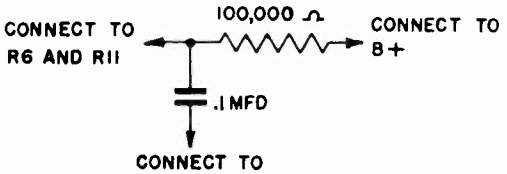
Broadcast . . . . . 530-1730 KC

ALIGNMENT PROCEDURE

Either a broadcast signal of about 1500 kc or a test oscillator signal may be used. If a broadcast signal is used, the antenna of the receiver should be extended as in a normal installation. If a test oscillator signal is used, a wire should be connected to the test oscillator output and run parallel to but insulated from the receiver's antenna wire. The generator ground connection should be connected to ground.

Tune in the 1500 kc signal and adjust the trimmers for maximum loud speaker response. This can be done accurately if the volume control setting is reduced to give a low volume level. The location of this trimmer is shown in the tube socket location diagram.

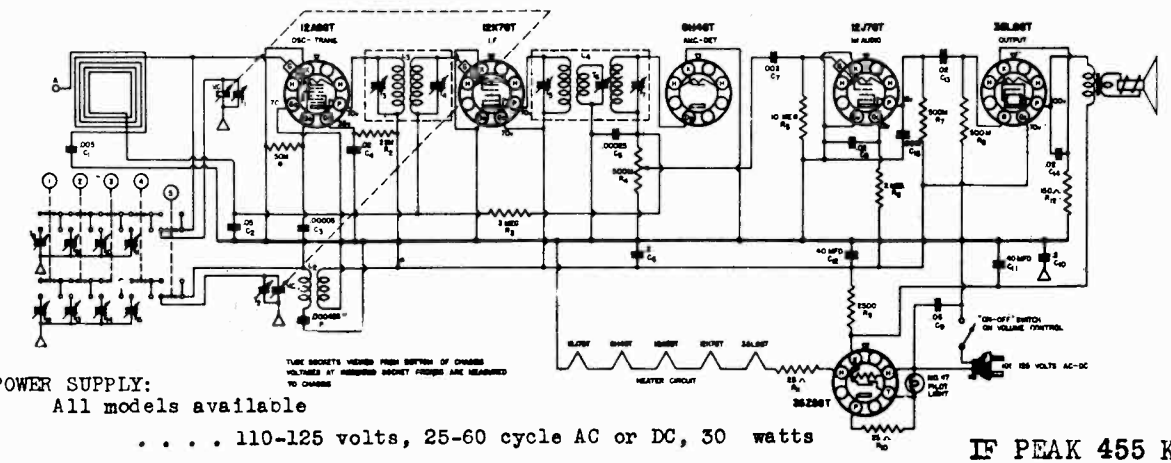
FILTER NETWORK

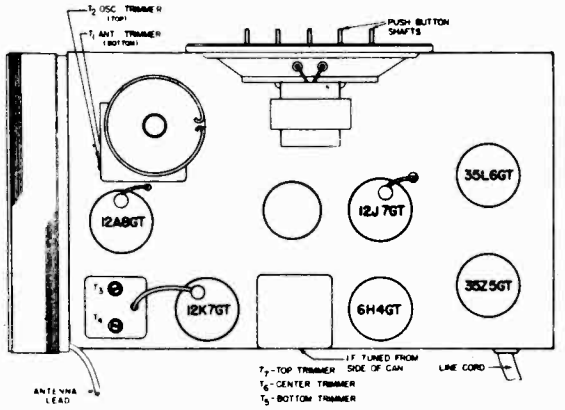


DECEMBER 21, 1939

MODEL 6327, Ch. 110.990
Schematic, Voltage, Socket
Trimmers, Alignment

SEARS, ROEBUCK & CO.





POWER SUPPLY:
All models available

. . . . 110-125 volts, 25-60 cycle AC or DC, 30 watts

IF PEAK 455 KC

ALIGNMENT PROCEDURE

Output meter connections. . . . . Across primary output transformer

Output meter reading to indicate 0.050 watt
for Weston type 571 output meter on 15 volt scale . . . . . 10.5 volts

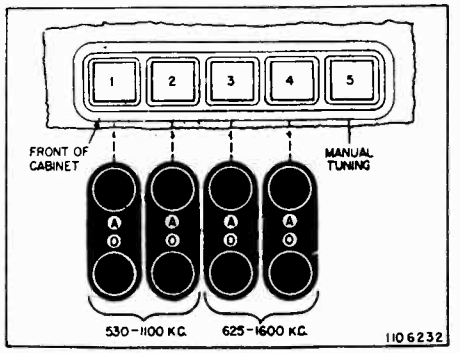
Dummy antenna value in series with generator output. . . . . 100 mmfds.

Connection of generator ground. . . . . .B- Bus

Generator modulation. . . . . .App. 30% @ 400 cycles

Position of volume control . . . . . .Fully clockwise

PUSH BUTTON SWITCH POSITION	POSITION OF DIAL POINTER	GENERATOR FREQUENCY	GENERATOR CONNECTION	TRIMMERS ADJUSTED	TRIMMER FUNCTION
Manual "IN"	**	455 kc	12K7GT, Grid	T6*, T5, T7	I.F.
"	**	455 kc	12A8GT, Grid	T6, T5, T7 T3, T4	I.F.
"	1500 kc	1500 kc	***	T2, T1	Osc., R.F.



TRIMMER ADJUSTMENT CARD

FREQUENCY RANGE:

Broadcast. . .535-1700 KC

POWER OUTPUT
Type.....Beam Power
Undistorted.....1.0
Maximum.....1.5

LOUD SPEAKER:
Type.....Dynamic
Size.....5"
Field.....P.M.

IMPORTANT ALIGNMENT NOTES

FOR TUNER SEE INDEX

It is advisable to repeat the entire alignment procedure in the original order to insure greater accuracy.

Always keep the output from the test oscillator at its lowest possible value. As the sensitivity is increased by alignment, the generator output should be reduced correspondingly.

*First time T 5 is misaligned by loosening center screw one turn.

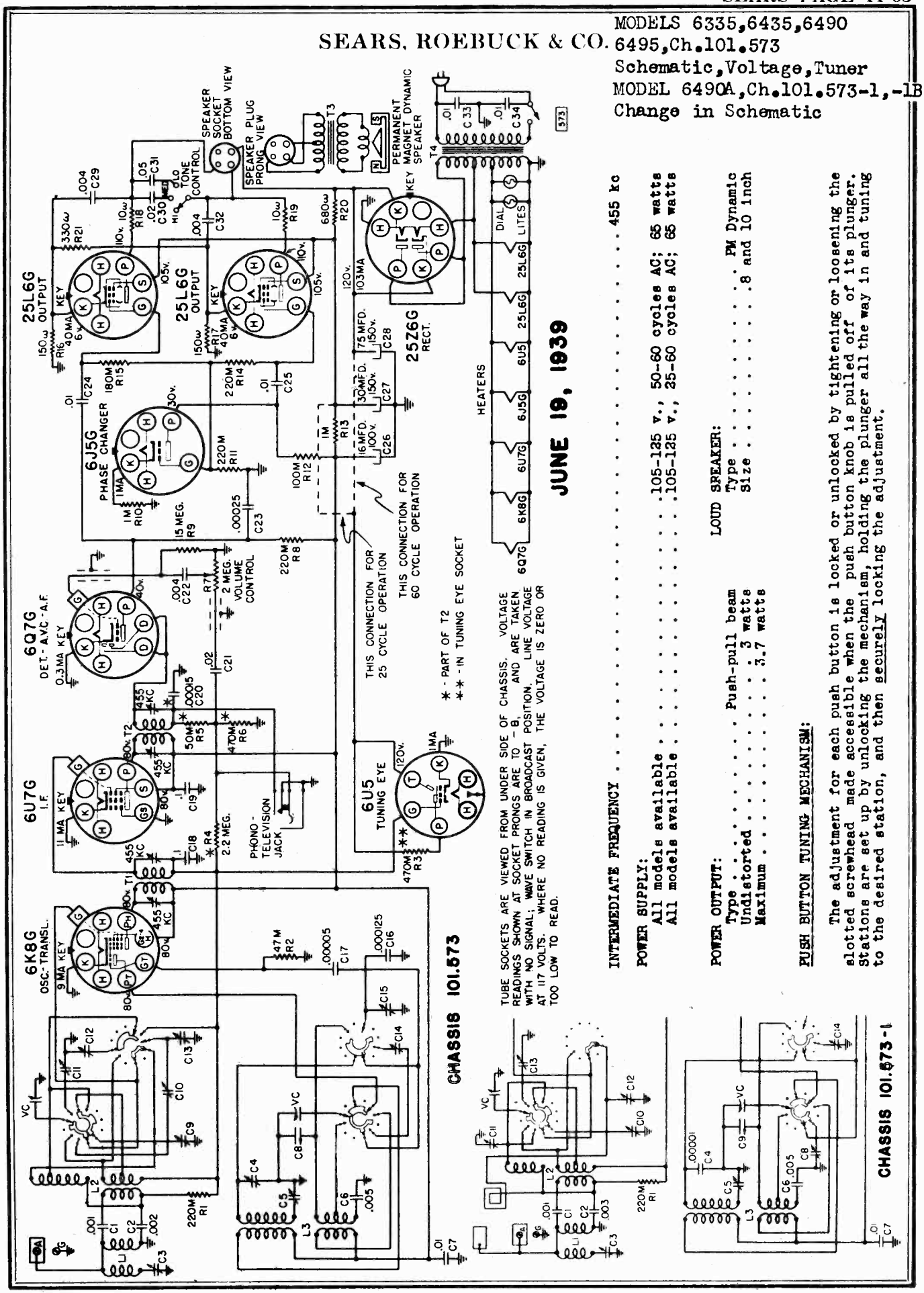
**Short oscillator section of variable condenser. Second I.F. alignment must be done twice to secure flat top tuning.

***Connect generator output to a separate radiating loop and pickup 1500 KC signal on receiver.

FEBRUARY 28, 1940

SEARS, ROEBUCK & CO.

MODELS 6335,6435,6490
6495,Ch.101.573
Schematic,Voltage,Tuner
MODEL 6490A,Ch.101.573-1,-1B
Change in Schematic



INTERMEDIATE FREQUENCY . . . . . 455 kc

POWER SUPPLY:
All models available . . . . . .105-125 v., 50-60 cycles AC; 65 watts
All models available . . . . . .105-125 v., 25-60 cycles AC; 65 watts

POWER OUTPUT:
Type . . . . . Push-pull beam
Undistorted . . . . . .3 watts
Maximum . . . . . 3.7 watts

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . .8 and 10 inch

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

MODELS 6335,6435,6490
6495,Ch.101.573;6490A
Ch.101.573-1, -1B
Alignment,Chassis

SEARS, ROEBUCK & CO.

Trimmers,Socket
Dial Data
MODELS See Below
Dial Drive Data

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 500 milliwatts . . . . . 1.38 volts
Approximate microvolts input for 500 milliwatts output . . . . . See chart below
Generator ground lead connection . . . . . To external ground
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully clockwise
Position of Tone Control . . . . . HI
Position of Dial Pointer with variable fully closed . . . . . At block to left of 550 kc calibration mark.

FOR CHASSIS 101.573-1

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	600 kc	455 kc*	0003 mfd.	Ant. Term.	C3*	Wave Trap	--
"B"	2.6 mc	2.6 mc	400 ohms	Ant. Term.	C14	Oscillator	100
"B"	2.4 mc	2.4 mc	400 ohms	Ant. Term.	C11	Translator	100
"A"	Fully open	1600 kc	.0002 mfd.	Ant. Term.	C8	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C12	Translator	40
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C5	Padder	40
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C13	Translator	15
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C15,C10	Osc.,Transl.	60

FOR CHASSIS 101.573

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	600 kc	455 kc*	.0002 mfd.	Ant.Term.	C3*	Wave Trap	--
"A"	Fully open	1750 kc	.0002 mfd.	Ant.Term.	C4	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C12	Translator	40
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant.Term.	C5	Padder	40
"B"	2.3 mc	2.3 mc	400 ohms	Ant.Term.	C14,C10	Osc. Pad., Transl.Pad.	100
"B"	3.5 mc	3.5 mc	400 ohms	Ant.Term.	C13	Translator	100
"C"	15 mc(rock)	15 mc	400 ohms	Ant.Term.	C11	Translator	15
"D"	9.55 mc	9.55 mc	400 ohms	Ant.Term.	C15,C9	Osc.,Transl.	60

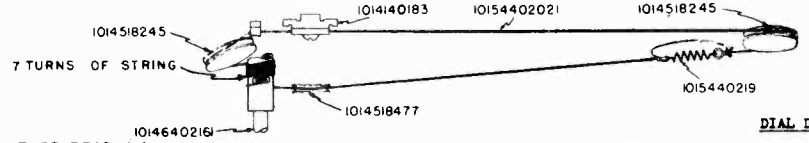
Repeat the C14, C10 and C13 adjustments until perfect alignment is obtained. This will require going back and forth over these adjustments several times.

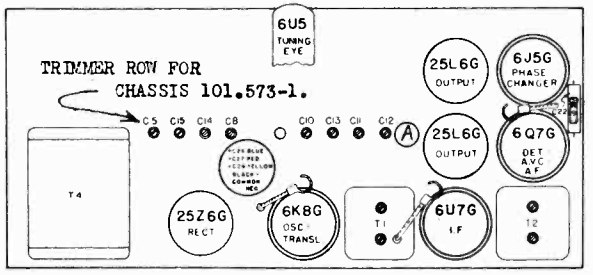
IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc. C3 is mounted under chassis.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

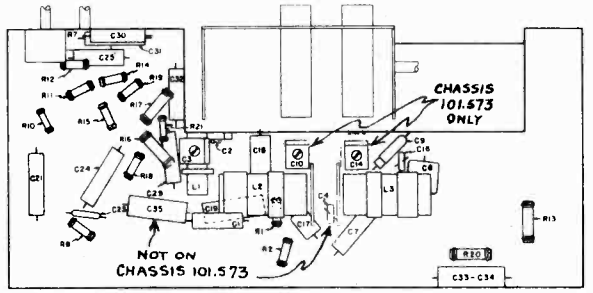
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.



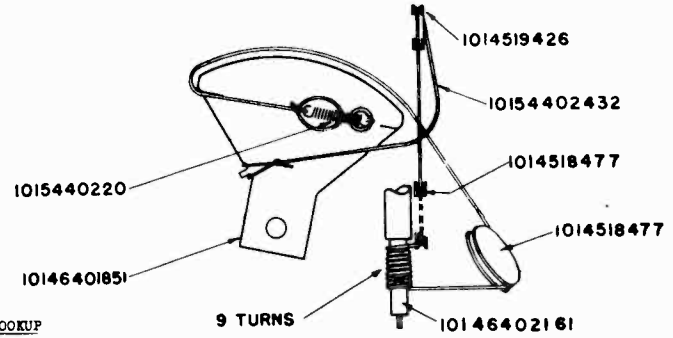


LOCATIONS OF PARTS ON TOP OF CHASSIS

TRIMMER ROW AT (A) ABOVE FOR CHASSIS 101.573



LOCATIONS OF PARTS UNDER CHASSIS



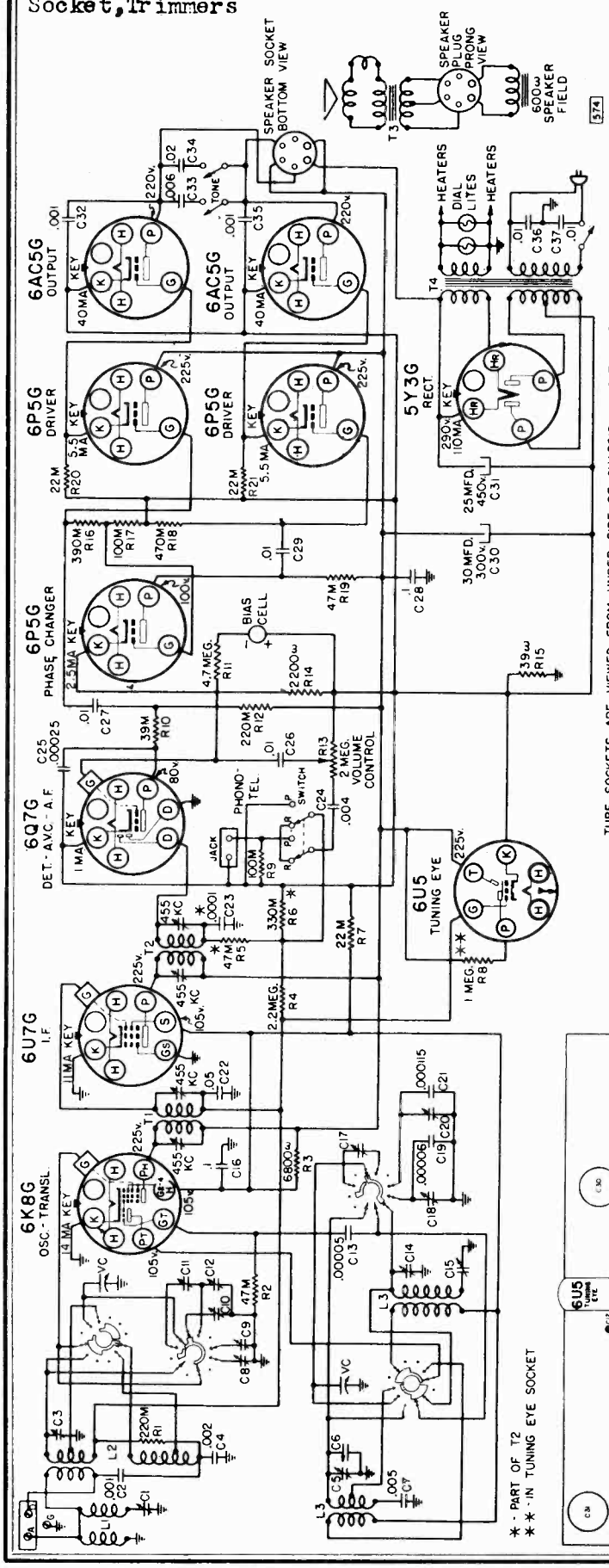
DIAL DRIVE HOOKUP

THIS DIAL AND DRIVE HOOKUP APPLIES DIRECTLY TO MODELS 6335,6435,6490,6495,CHASSIS 101.573; 6490A CHASSIS 101.573-1,-1B; 6359,6360,6361,6379, 6380,6381 CHASSIS 101,579; 6368 CHASSIS 101.582;6382 CHASSIS 101.594;Also to MODELS 6362,6363,6364 CHASSIS 101.581 EXCEPT THAT PART NO. 1014141219 REPLACES PART 101414183 SHOWN ABOVE. THE ABOVE ALSO APPLIES TO MODEL 6441 CHASSIS 101.599 EXCEPT THAT PART NO. 1015440240 REPLACES NO. 1015440220 AND 1014542196 REPLACES PART NO. 1014519426 SHOWN ABOVE.

Schematic, Voltage
Chassis, Tuner
Socket, Trimmers

SEARS, ROEBUCK & CO.

MODELS 6336, 6436
Ch. 101. 574



TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION; LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . . . .455 kc

POWER SUPPLY:
All models available . . . . . .105-125 volt AC; 25 and 50-60 cycle; 105 watts

LOUD SPEAKER:

POWER OUTPUT:

Type	Dynamic	Type . . . . . .Push-pull direct coupling
Size	10 inch	Undistorted . . . . . .4 watts
Approx. field coil res.	600 ohms	Maximum . . . . . .7 watts
Approx. field coil voltage drop	65 v.	

GENERAL INFORMATION & SERVICE HINTS

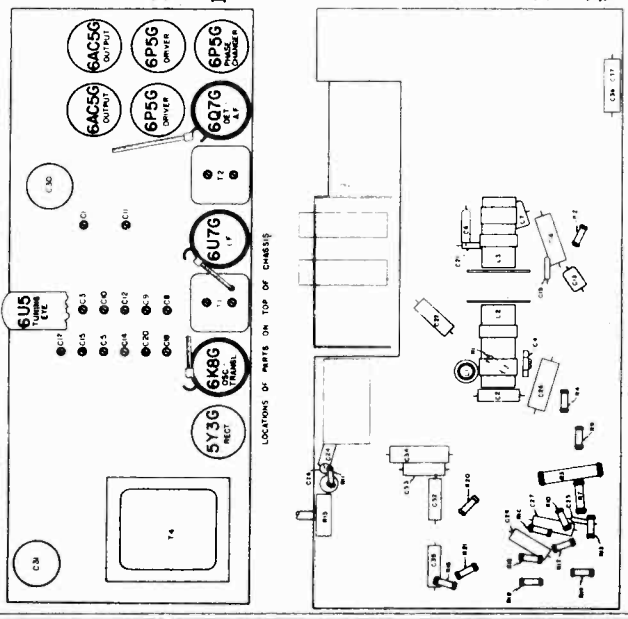
FOR ALIGNMENT
SEE INDEX

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5523: Greatest pickup and noise reduction.
Catalog #5528: Less effective pickup and noise reduction than Catalog #5523.
Catalog #5575: Conventional antenna.



JUNE 19, 1939

MODELS 6336,6436
Ch.1Q1.574

SEARS, ROEBUCK & CO.

Circuit Change,Notes

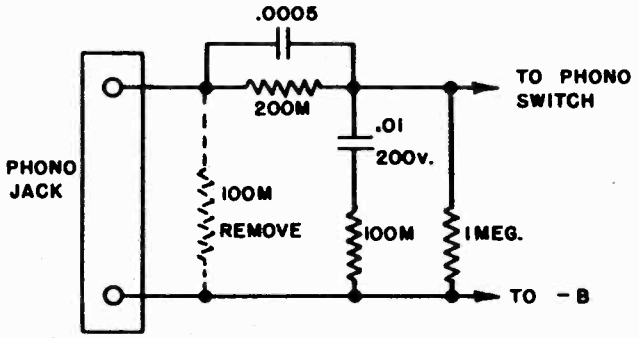
CIRCUIT CHANGE TO IMPROVE TONE WHEN USING CATALOG #6327 RECORD PLAYER.

REDUCING MICROPHONICS.

Bass response can be increased and record reproduction tone improved when this receiver is used in conjunction with a Catalog #6327 record player, by inserting the network shown schematically below.

The 100M ohm resistor at present across the phono jack terminals is to be removed. As shown below, the lead going to the high side of the phono jack is to be broken and a 200M ohm resistor shunted by a .0005 mfd. mica condenser is to be inserted in series with it. The 100M ohm and the 1 megohm resistors and the .01 mfd. condenser are to be connected as shown.

Because of the increased bass response, there may be a greater tendency toward microphonics. For this reason, the record player should not be put directly on top of the receiver cabinet.



REDUCING MICROPHONICS:

1. Be sure that the two shipping bolts and the wood spacer strips have been removed.

2. See that knobs, control shafts, and dial lights or dial mechanism do not touch the cabinet.

3. See that the rubber bumpers at the rear of the chassis do not press on it more than enough to prevent shifting.

Although the foregoing three points are simple, and commonly known, very often insufficient attention is paid to them. It is very important that the points mentioned be very thoroughly checked.

4. Any means of reducing the signal input will help, such as using a shorter antenna or connecting a small mica condenser (.0001 to .0002 mfd.) in series with the antenna lead.

5. All but initial production cabinets have two bracing strips added under the chassis mounting shelf at its ends. A kit, part number 1016041718, can be obtained from source 101 and contains the necessary material and instructions for adding these reinforcing bracing strips.

6. If the predominant microphonic tone is of low frequency, improvement can be had by reducing the capacity of the coupling condensers in the audio amplifier. These are C27 and C29, which should be reduced from .01 mfd. to .006 mfd., 600 v. Both condensers must be changed to avoid unbalancing the push pull circuit. This change will reduce the low frequency response and is not recommended except for extreme cases.

INSTRUCTIONS FOR ADDING BRACING STRIPS, MENTIONED IN PARAGRAPH #5, PRECEDING:

Turn the cabinet upside down. (Be careful to protect the cabinet finish.)

Clamp one of the cleats along the under side-edge of the chassis shelf. The end of the cleat should be against the cabinet back rail.

Using the cleat as a template, drill three 9/32" holes in the chassis mounting shelf. Be careful that none of the dirt from drilling gets into the speaker or chassis.

In the same manner, drill three holes at the other end of the chassis mounting shelf.

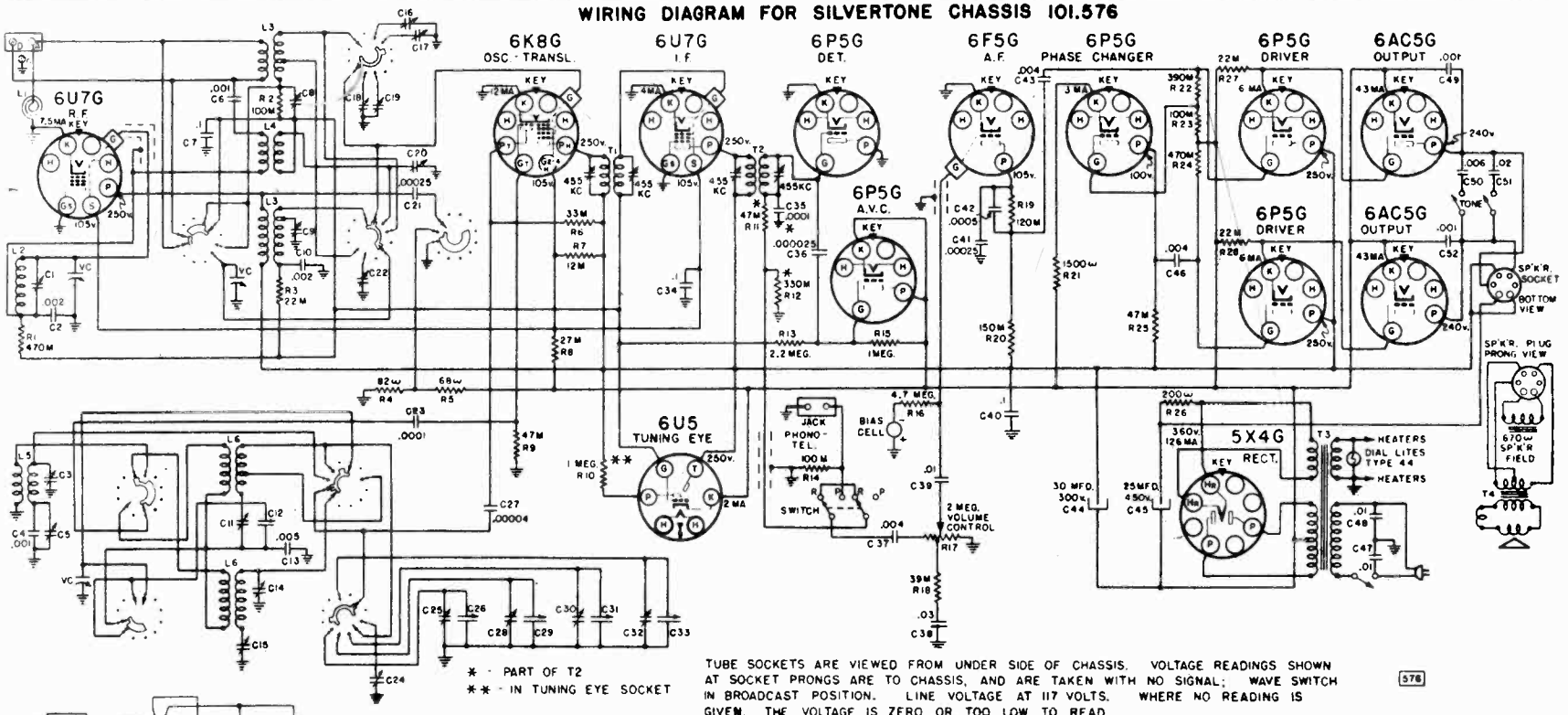
Clean off any splinters and bolt the cleats tightly to the underside of the chassis mounting shelf, with the bolt heads on the top side of the shelf. The flat washers go under the nuts.

DIAL AND DRIVE HOOKUP: This is similar to that of Model 6335 . In ordering parts use 1014140301 instead of 1014140183; 10154402051 instead of 10154402021 and 1014540331 instead of 1014516245.

SEARS, ROEBUCK & CO.

MODELS 6337, 6437
Chassis 101.576
6437A, Ch. 101.576-1
Schematic, Voltage
Tuner, Changes

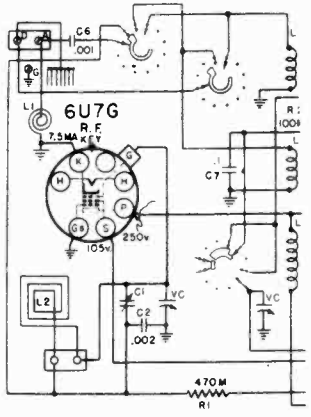
WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.576



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

576



FOR SILVERTONE CHASSIS 101.576-1

AUGUST 18, 1939

THE DIAL AND DRIVE HOOKUP IS IDENTICAL TO THAT OF MODEL 6336.

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, tuning in the station, pushing in the plunger (being careful not to detune the station) and then securely locking the adjustment.

INTERMEDIATE FREQUENCY . . . . . .455 kc

POWER SUPPLY:

All models available . . . . . 105-125 volt; 50-60 cycles AC; 135 watts
All models available . . . . . 105-125 volt; 25-60 cycles AC; 140 watts

POWER OUTPUT:

Type . . . . .Push pull direct coupling
Undistorted . . . . . 6 watts
Maximum . . . . . .10 watts

LOUD SPEAKER:

Type . . . . . .Dynamic
Size . . . . . .15 inch
Approx. field coil res. . . . .670 ohms
Approx. field coil voltage drop..85 v.

DIFFERENCES BETWEEN 101.576 & 101.576-1:

The 101.576-1 contains a built-in loop antenna and short wave antenna plate ("RADIONET" Antenna System).

RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5533: Greatest pickup and noise reduction.
Catalog #5532: Less effective pickup and noise reduction than Catalog #5533.
Catalog #5575: Conventional antenna.

MODELS 6337,6437
Ch.101.576;6437A,
Ch,101.576-1

SEARS, ROEBUCK & CO.

Alignment,Trimmers
Chassis,Socket

The alignment must be done in the order given.

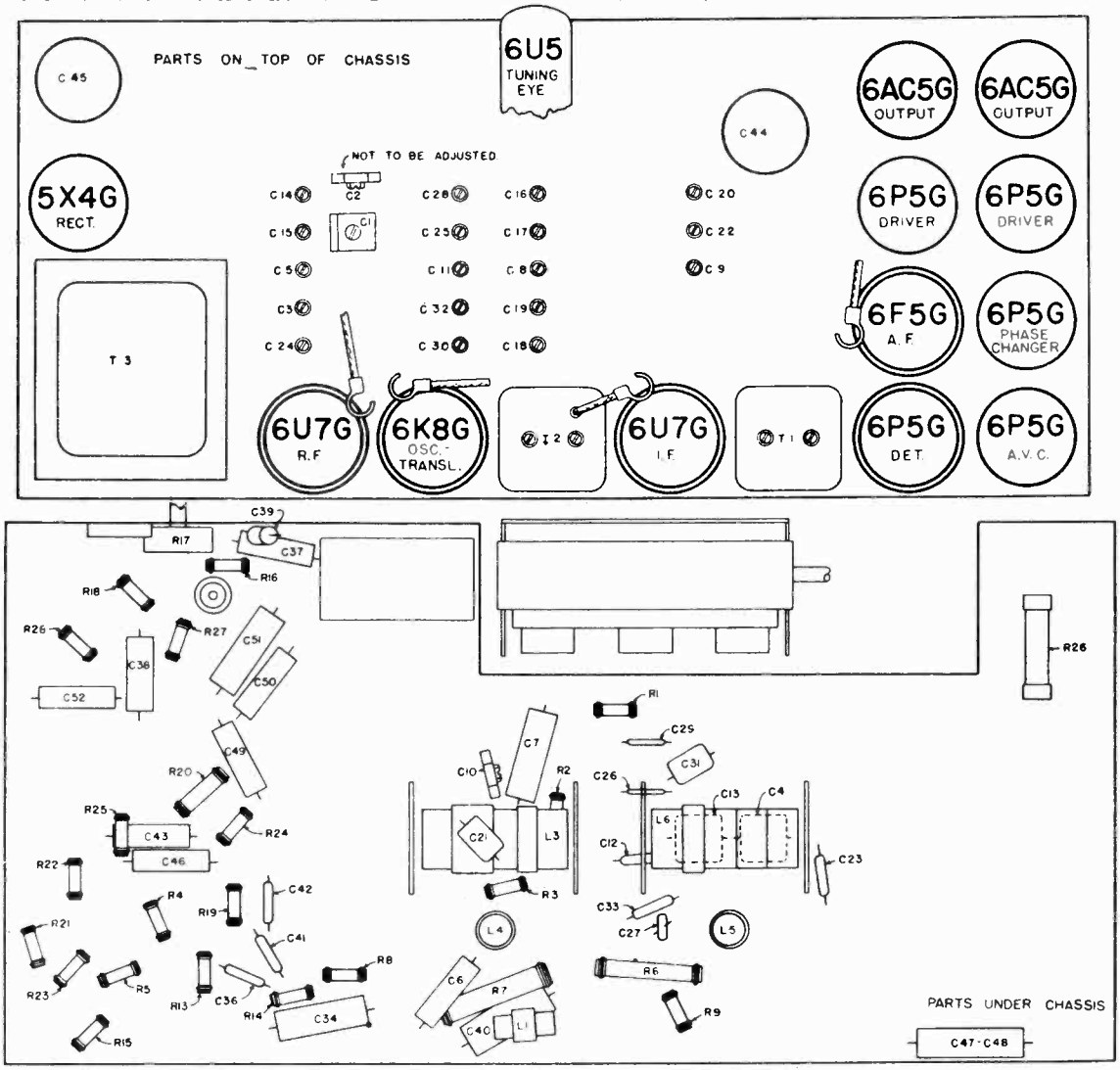
WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	Fully open	1720 kc	.0002 mfd.	Ant. Term.	C14	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C1,C9	RF,Transl.	25
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C15	Padder	35
"B"	5 mc	5 mc	400 ohms	Ant. Term.	C3*	Oscillator	--
"B"	4 mc	4 mc	400 ohms	Ant. Term.	C30	Translator	180
"B"	1.8 mc(rock)	1.8 mc	400 ohms	Ant. Term.	C5	Padder	360
"C"	15 mc	15 mc	400 ohms	Ant. Term.	C24*,C32	Osc.,Transl.	60
"D"	6 mc	6 mc	400 ohms	Ant. Term.	C32*	Oscillator	--
"D"	6.2 mc(rock)	6.2 mc	400 ohms	Ant. Term.	C19	Translator	130
"F"	11.7 mc	11.7 mc	400 ohms	Ant. Term.	C28	Oscillator	100
"F"	12.1 mc	12.1 mc	400 ohms	Ant. Term.	C11	Padder	--
"E"	9.6 mc	9.6 mc	400 ohms	Ant. Term.	C30*	Oscillator	--
"E"	9.4 mc(rock)	9.4 mc	400 ohms	Ant. Term.	C18	Translator	145
"E"	9.9 mc	9.9 mc	400 ohms	Ant. Term.	C8	Padder	--
"F"	11.9 mc	11.9 mc	400 ohms	Ant. Term.	C16	Translator	--
"G"	15.1 mc	15.1 mc	400 ohms	Ant. Term.	C25*,C17	Osc.,Transl.	100

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

*If two peaks can be had, the correct adjustment is with the trimmer screw further out. The other peak is the image.

The C30, C18, C8 adjustments will affect each other so that they must be repeated several times to secure proper alignment and calibration, ALSO C28 and C19 adjustments.

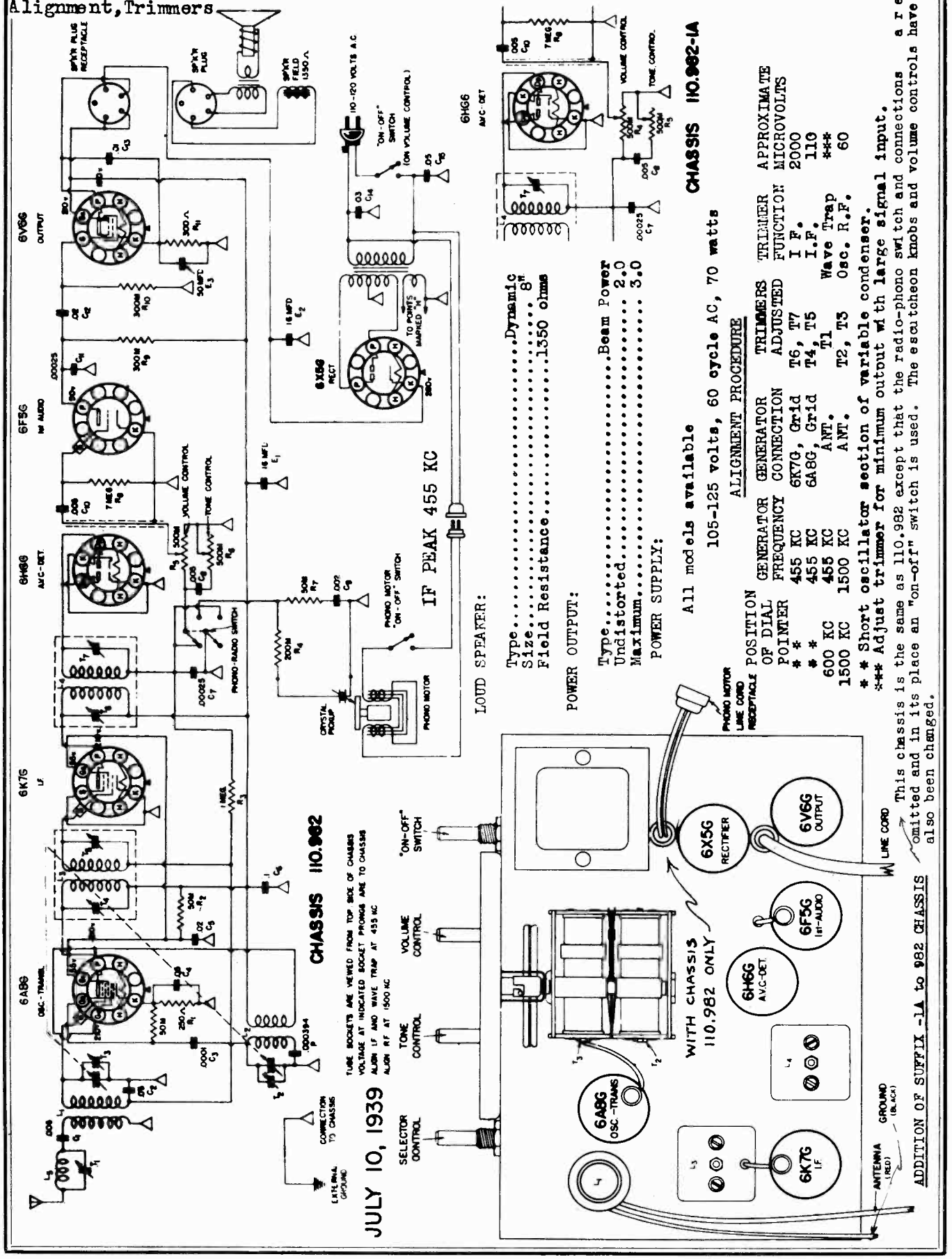
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.



Alignment,Trimmers
MODELS 6345,Ch.110.982-2
6345A,Ch.110.982-3
Alignment,Trimmers

SEARS, ROEBUCK & CO.

MODELS 6345,Ch.110.982,
6491,6494,Ch.110.982-1A
Schematic,Voltage,Socket



MODELS 6345,Ch.110.982-2,
6345A,Ch.110.982-3
Schematics,Voltage

SEARS, ROEBUCK & CO.

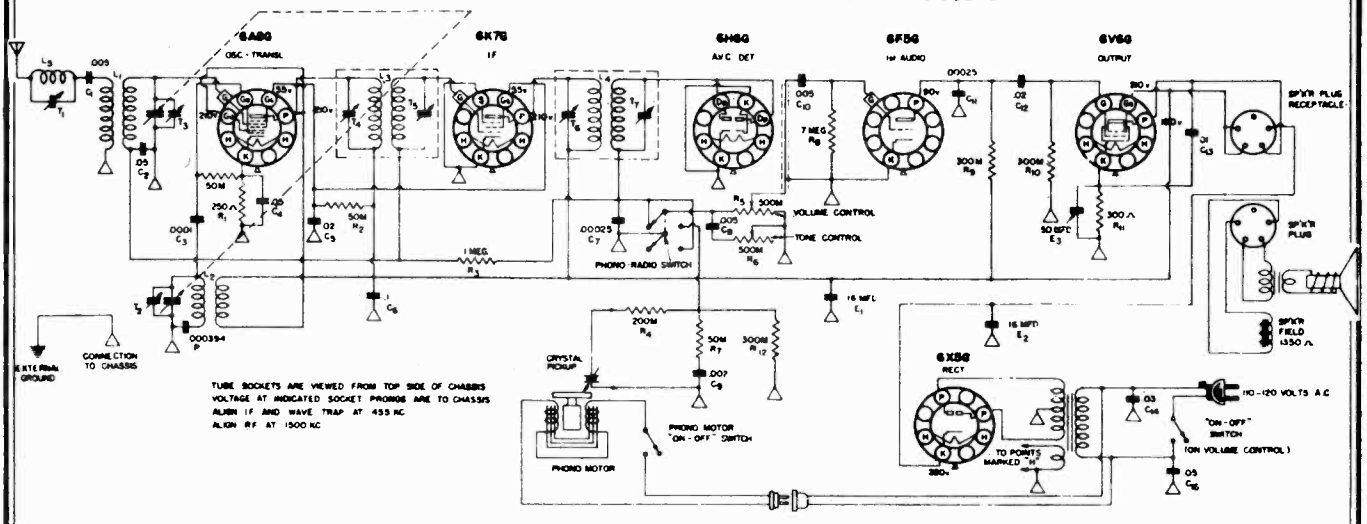
FOR ALIGNMENT SEE INDEX

CHASSIS IDENTIFIED BY 110.982-2 HAVE HAD A CIRCUIT CHANGE MADE TO DECREASE THE TENDENCY OF THE SET TO BECOME MICROPHONIC AT HIGH LEVELS OF PHONOGRAPH REPRODUCTION.

THE RESISTOR R12 HAS BEEN ADDED.

FOR ELECTRICAL AND MECHANICAL SPECIFICATIONS, GENERAL INFORMATION. ALIGNMENT PROCEDURE ETC.,
See Model 6345, Chassis 110.982.

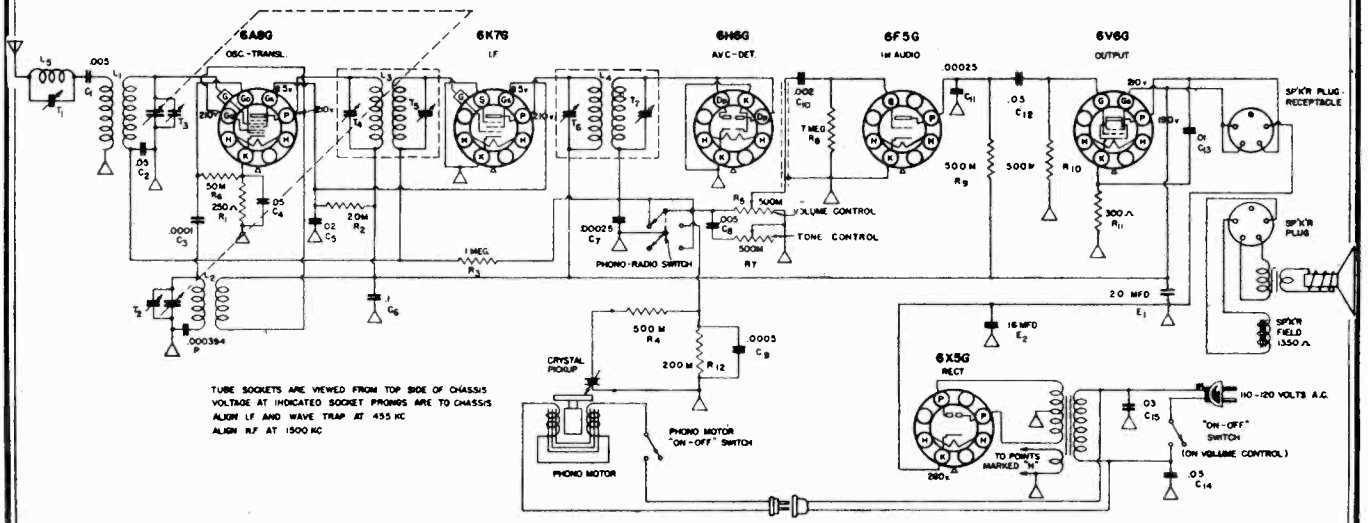
WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.982-2



CHASSIS IDENTIFIED BY 110.982-3 HAVE HAD CIRCUIT CHANGES MADE TO INCREASE THE SENSITIVITY IN THE R.F. PORTION OF THE CIRCUIT AS WELL AS TO INCREASE THE AUDIO GAIN AND INCREASE THE UNDISTORTED OUTPUT. THE ELECTROLYTIC CONDENSER E3 HAS BEEN ELIMINATED AND THE PART NUMBERS OF RESISTORS R1, R2, R4, R6, R7, R9, R10 and R12 AS WELL AS CONDENSERS C9, C10, C12, C14, C15 AND OUTPUT I.F. L4 HAVE BEEN CHANGED.

FOR ELECTRICAL AND MECHANICAL SPECIFICATIONS, GENERAL INFORMATION, ALIGNMENT PROCEDURE, ETC.
See Model 6345, Chassis 110.982.

WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.982-3

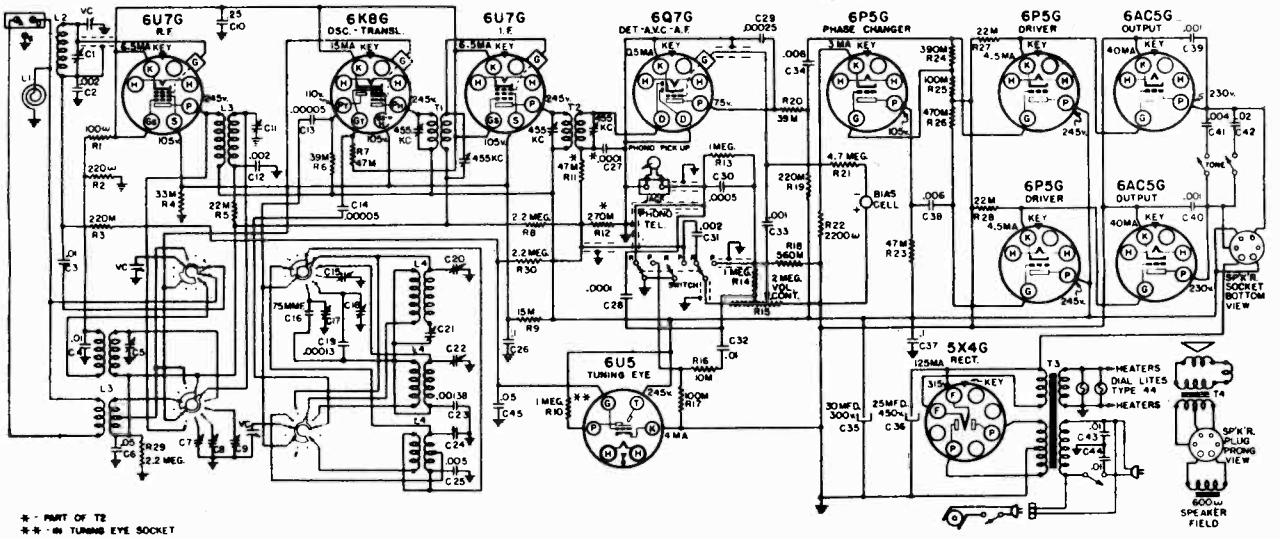


OCTOBER 6, 1939

SEARS. ROEBUCK & CO.

MODELS 6346,6346A,6446,6446A
Ch.101.584,-1,-2,-3,-4,-5
Schematics, Voltages, Changes

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.584,-3



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

ADDITION OF SUFFIX NUMBERS:

Chassis 101.584-1 (Catalog #6346A) is the same as chassis 101.584 except that it has a built-in loop antenna (in the cabinet) for broadcast reception and a short wave antenna plate for short wave reception (RADIONET Antenna System). Because of the antenna system change, the broadcast band frequency range extends to 1635 kc instead of 1730 kc.

Chassis 101.584-2 is the same as 101.584-1 except that it uses a different tone arm and pickup cartridge, not interchangeable with the ones used in 101.584 and 101.584-1. Accordingly, when ordering either a tone arm or a pickup cartridge, be sure the proper part number is used and the correct chassis number indicated in the order.

POWER SUPPLY:

All models available . . . . . 105-125 volts, 60 cycle; 120 watts
All models available . . . . . 105-125 volts, 50 cycle; 130 watts
All models available . . . . . 105-125 volts, 25 cycle; 130 watts

INTERMEDIATE FREQUENCY . . . . . 455 kc

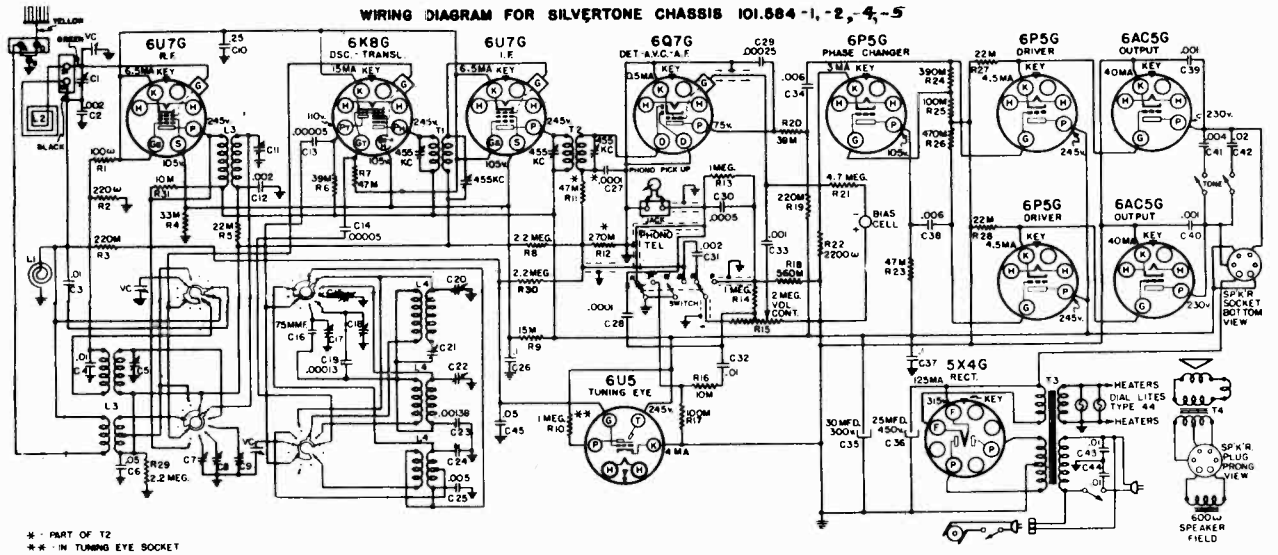
POWER OUTPUT:

Type . . . . . Push pull direct coupling
Undistorted . . . . . 6 watts
Maximum . . . . . 10 watts

LOUD SPEAKER:

Type . . . . . Dynamic
Size . . . . . 12 inch
Approx. field coil res. . . . . 600 ohms
Approx. field coil voltage drop. .70 v.

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.584-1,-2,-4,-5



* - PART OF T2
** - IN TUNING EYE SOCKET

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

SEPTEMBER 27, 1939

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection	Across loud speaker voice coil
Output meter reading to indicate 500 milliwatts	1.6 volt
Average sensitivity in microvolts for 500 milliwatts output	See chart below
Connection of generator output lead	See chart below
Connection of generator ground lead	To chassis
Dummy antenna value to be in series with generator output	See chart below
Generator modulation	30%, 400 cycles
Position of Volume Control	Fully clockwise
Position of Tone Control	Both buttons out
Position of Dial Pointer with variable fully closed	On mark to left of 550 kc calibration

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	Open	1730 kc	.0002 mfd.	Ant. Term.	C20	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C1,C11	RF,Transl.	20
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C21	Padder	20
"B"	5 mc	5 mc	400 ohms	Ant. Term.	C22,C5	Osc.,Transl.	150
"C"	18.3 mc	18.3 mc	400 ohms	Ant. Term.	C15*	Oscillator	--
"C"	16 mc(rock)	16 mc	400 ohms	Ant. Term.	C9	Translator	75
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C18*,C8	Osc.,Transl.	100
"E"	11.71 mc	11.71 mc	400 ohms	Ant. Term.	C17*,C7	Osc.,Transl.	100

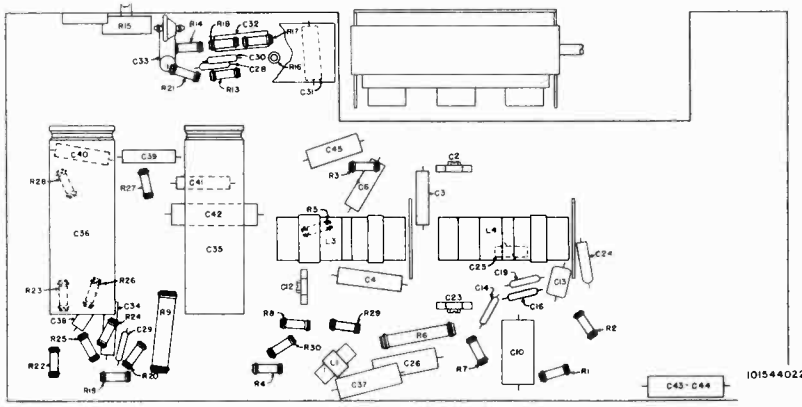
IMPORTANT ALIGNMENT NOTES

The alignment procedure for 101.584-1,-2 is the same as above except that the C20 adjustment is made with the generator at 1635 kc. After the alignment has been completed, the C1 and C11 adjustments should be repeated, using a 1400 kc broadcast signal.

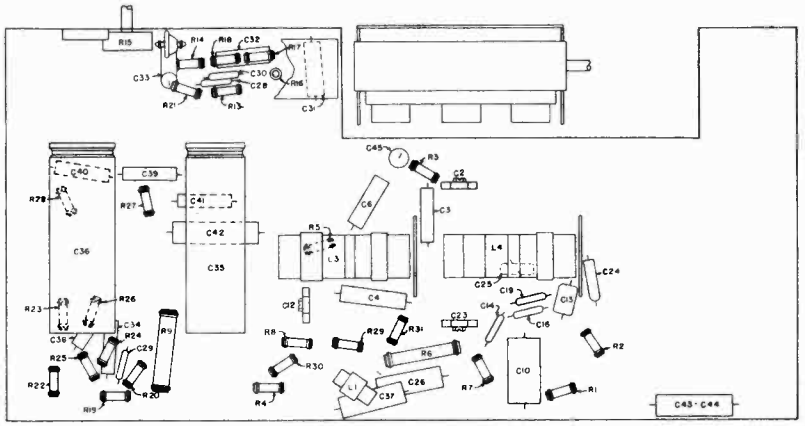
Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

*If two peaks can be had, the correct adjustment is with the trimmer screw further out. The other peak is the image.

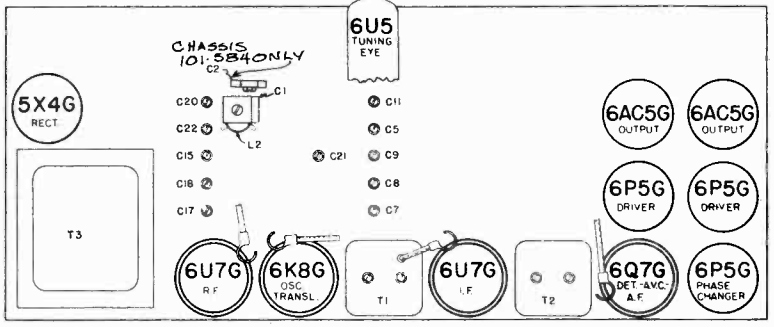
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.



LOCATIONS OF PARTS UNDER CHASSIS 101.584-3.

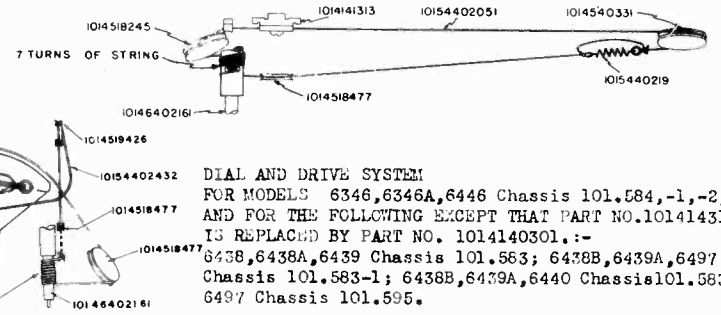


LOCATIONS OF PARTS UNDER CHASSIS 101.584-1,-2,-4,-5.



LOCATIONS OF PARTS ON TOP OF CHASSIS 101.584

Before ordering parts for Dial Drive System, check these drawings:



DIAL AND DRIVE SYSTEM
FOR MODELS 6346,6346A,6446 Chassis 101.584,-1,-2,-3. AND FOR THE FOLLOWING EXCEPT THAT PART NO.1014141313 IS REPLACED BY PART NO. 1014140301.:-
6438,6438A,6439 Chassis 101.583; 6438B,6439A,6497 Chassis 101.583-1; 6438B,6439A,6440 Chassis101.583-2; 6497 Chassis 101.595.

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, tuning in the station, pushing in the plunger (being careful not to detune the station), releasing the plunger, then securely locking the adjustment by holding the screwdriver lightly in the screw head allowing the spring tension to hold the plunger against the screwdriver.

RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5523: Greatest pickup and noise reduction.
Catalog #5522: Less effective pickup and noise reduction than Catalog #5523.
Catalog #5575: Conventional antenna.

SEARS, ROEBUCK & CO. MODELS 6346,6346A,6446,6446A
Automatic Record Changer MODEL 6447, Ch. 101.590-1 to -5
Assembly, Adjustments, Notes

AUTOMATIC RECORD CHANGER

SUMMARY OF OPERATING INSTRUCTIONS:

The Changer plays twelve 10" or ten 12" records. To reload, revolve the two posts slightly, grasping them underneath the Shelf Plates. Turn them back after the played records are removed; they will fall and lock when in proper position. Then place the new records on the Shelf Plates, and push "R" button to put Changer in operation. To play the other size records, turn the knob at top of each post until proper figure is opposite pointer, and press the "10" or "12" button, to agree with pointer setting. To reject a record(or to start a change cycle as for testing purposes) simply press the "R" (Release or Reject) button, at any time while needle is upon a record. To play manually, turn plates out of the way as for reloading, and press "M" button.

OILING:

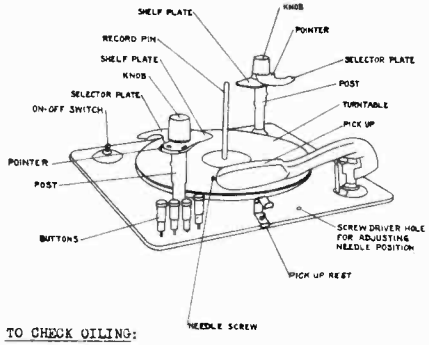
The Changer should be lubricated once a year with about a dozen drops of Kenmore #9724 stainless oil at each of the following 6 points. All points can be reached from above, through holes in the mounting plate, as follows:

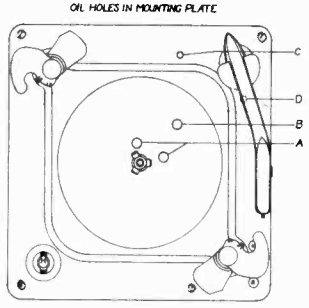
No. 1) Three oil holes on motor gear housing. Reach all three through
No. 2) two holes marked "A" on drawing.
No. 3)

No. 4 Through hole marked "B", drop the oil upon flat surface of cam. It will distribute itself to proper points.

No. 5 Through holes marked "C", see felt wick, and drop the oil directly upon it.

No. 6 Through hole marked "D", see felt wick, and drop the oil directly upon it.





TO CHECK OILING:

If squeaks are heard compare the squeak with and without a load of records; stacked records themselves sometimes squeak against a center pin. See that all five wicks are in position, including three 1/4" wicks in frame of Motor. See that each wick is thoroughly saturated (as it may not be if insufficient oil or too heavy oil has been used). Lift out all three motor wicks, with tweezers; see if old oil has become gummy (commonly due to use of low-grade oil). If necessary, clean gummed-up wicks with kerosene. See that each is saturated with good oil; then, before replacing them, drop a little good oil into the holes.

ADJUSTMENTS:

There are three adjustments that can be made. All are correctly made at the factory, and ordinarily need never be altered. Should it become necessary to remake any of these adjustments, due to accident or tampering, proceed as follows:

A. ADJUSTING LANDING POSITION OF NEEDLE ON THE RECORD. (See Top View. This adjustment is made with a screw driver from above--does not require removing Changer from cabinet.) If needle comes down too far from edge of record, playing of records will not start at their beginning. Turn Needle - Landing Adjusting Screw very slightly counter-clockwise. If needle comes down too close to edge of record, needle may slip off edge of record. Turn the adjusting screw clockwise.

Also see Paragraph 13, following.

B. ADJUSTING DISTANCE FROM RECORD PIN AT WHICH TRIGGER WILL TRIP AND CHANGE CYCLE WILL BEGIN. Turn Trip Adjusting Screw 18, toward the trigger for earlier tripping, or away from it for later tripping. This Changer does not depend, for automatic tripping, on the records being provided with any special grooves at end; it trips whenever needle comes within a certain distance of Record Pin. The factory adjustment is for 1-7/8" from center of Record Pin. This is the most generally satisfactory distance; no modern record will then be cut off before playing is finished, and none will fail to trip at end. For certain records of early manufacture, it may not be possible to find an adjustment that will always trip and never cut off.

C. ADJUSTING HEIGHT TO WHICH PICKUP ARM RISES. The arm should rise, during the change cycle, high enough so that it clears by only 1/8" the stack of records resting above it.* (Be careful, before deciding that adjustment is necessary, to see that the record at bottom of stack is not a warped one.) To make this adjustment, loosen the locknut on Pickup Sleeve 22 (see photographs) and turn the Sleeve to lengthen or shorten Pickup Plunger 31. When correct adjustment is found, tighten locknut again.

*This dimension may be made 1/4". If the pickup is made to rise too close to the bottom record, the stud may never clear the groove in the cam gear and the arm will keep moving back and forth continuously.

REPLACING MOTOR: When mounting replacement Motor, it is most important to see that Record Pin is centered between the two Posts of the Changer, that it stands perpendicular to Main Plate 53, and that it has not become bent so as to wobble. Even though the Posts are stout and not easy to bend, it is well to check them also, with a 12" combination square laid clear across the concave upper surface of Main Plate. When the new Motor has been attached, with three screws through Grommet Sleeves 51 (spacers) into its frame, and Record Pin is seen to revolve without appreciable wobble (a wobble would indicate that it has been bent in transit from factory) the correct position of Pin midway between the Posts can be accurately checked in this way: Place a single 12" record on the Shelf Plates, press "R" button, and turn turntable forward by hand. Immediately after the Shelf Plates open and let it fall, turn Turntable slightly backward, and with other hand support the record between the Shelf Plates: it can then be readily seen whether Record Pin is off center. If it is, remove the record and Turntable, and loosen slightly the screw or screws nearest the Shelf Plate to which record appeared closest. This should improve evenness of operation. However, unless the unevenness was very slight, it will be necessary for a permanent repair to insert a shim or two on one or more of the three screws (or change shims from one screw to another). The shims used are shaped like an ordinary washer, cut out at one side (see cut-away view at 53 on photo, showing a shim in place upon one of the Grommet Sleeves). Shims can readily be cut out with sheare and punch from thin metal or cardboard. They should be inserted, around proper screws (when screws have been sufficiently loosened) between Motor Frame and the metal Grommet Sleeve. Do not insert shims next to rubber grommet.

TROUBLE SHOOTING:

Cases of failure to operate satisfactorily will generally be found due either to neglect of proper lubrication, or to tampering with the mechanism after it leaves the factory, or to injuries accidentally sustained as by external vibration or by impact of some heavy object. In addition there is always the possibility that any kind of spring may "go dead" (cease to operate without any visible breakage) even though the utmost factory precautions are taken against it---or that setscrews may work loose due to some external vibration. Damage from tampering is likely to take the form of bent parts; never bend any part during examination. Be careful, especially, never to push upward from below on Cam Connecting Rod Lift 37 while mechanism is operating; bending may result, and even slight bending here might interfere with correct timing of the cycle operations.

Among the principal trouble symptoms to which such causes may give rise, are the following:

1. MECHANISM IS SLOW IN STARTING, OR STALLS DURING A CHANGE CYCLE, BUT A SLIGHT FORWARD PUSH WITH THE HAND STARTS IT AGAIN. May be caused by

a. Failure to lubricate properly. Oil thoroughly, per instructions above.
b. Loose setscrews.

c. Weakness of drive: line voltage may be abnormally low, or motor windings damaged. If windings are found damaged, remove motor and return it to factory for repair or replacement. See above: "Replacing Motor".

2. MOTOR FAILS TO RUN, EVEN WHEN IT IS ENTIRELY DISCONNECTED FROM OTHER WIRING AND PROPER VOLTAGE IS APPLIED DIRECTLY TO THE TWO ENDS OF ITS WINDINGS. This indicates trouble in Motor windings. Unless the damage is easily seen and repaired, replace Motor, as above described.

3. MOTOR IS SLOW IN STARTING.

a. Check oiling, as directed above. It may not have been properly done; old oil may have become gummy.

b. Changer may have been in a very cold place, and may not yet have reached room temperature. Give it a fair chance to get warmed up, before concluding that Motor is defective, and proceeding as in Paragraph 2.

4. SQUEAKS OR OTHER NOISES, DURING PLAYING OF RECORDS.

a. Check oiling, as directed previously. (If squeaks are heard, they will usually be found to come from the records--not from the mechanism).

b. See that all setscrews are tight.

c. Examine Motor windings; especially the shading coils (not visible in photos) which encircle a portion of each laminated pole and make the Motor self-starting. If coils have been jarred loose at any point, they may be tightened accordingly.

5. CHANGER IS NOISY WHEN IN CYCLE. Check oiling.

MODELS 6346,6346A,6446,6446A
MODEL 6447
SEARS, ROEBUCK & CO.
Record Changer Notes,Assembly

6. MOTION OF PICKUP TOWARD RECORD PIN WILL NOT TRIP CHANGER MECHANISM.

a. It may be found that, instead of trigger being actuated, there is stretching of Swivel Spring 95 (joining the lugs at ends of Swivel Spreaders 90 and 91), allowing the spreaders to open. Increase tension of Spring 95, by bending slightly the lug on either Spreader. If this increased tension causes needle to jump across the record, needle may be a little out of vertical, radially--it may "lean" toward center of record. To remedy this, grasp Pickup arm and twist it, very slightly, in a clockwise direction, so that it stands vertical, or even leans a little in outward direction.

b. If trigger is being properly actuated, probably Cam Lever 39 is binding against Sub-Plate 41. Look for dirt or obstructions; see that rivets are working freely. If the Lever engages Cam Lever Pawl 34, so that Lift 37 forces its roller up into the groove on Cam Gear 82, and if setscrews are tight, the change cycle must operate, as Cam Gear turns.

7. PRESSING "R" BUTTON DOESN'T TRIP CHANGER MECHANISM.

a. Check Key Control Unit 75: see whether there is an obstruction or a bent part which prevents "R" button from going clear down to the end of its travel.

b. Examine Reject Rod 78. If it does not trip, even when properly revolved by complete depressing of "R" button, the rod has probably been bent, and must be restored in same way. Grasp the two ends and twist it slightly.

c. If Trigger 16 is being properly actuated but without starting a change cycle, see directions above, Paragraph 6-b.

8. PRESSING "M" BUTTON FAILS TO PUT CHANGER MECHANISM OUT OF ACTION SO AS TO ENABLE MANUAL OPERATION. Check Key Control Unit as in preceding paragraph. First see that button goes clear down; then follow its action through Manual Rod 77.

9. MOTOR STOPS IMMEDIATELY WHEN CHANGER SWITCH IS TURNED OFF DURING A CHANGE CYCLE (instead of continuing to run, as it should, until needle is again upon a record, and then stopping). Or--

10. TURNING CHANGER SWITCH OFF FAILS TO STOP CHANGER AT ALL. Either of these two conditions would indicate failure of Cycling Switch 85. Cycling Switch operates normally to short-circuit the manual Changer Switch (which may be located in position shown at 54, or elsewhere) during change cycle only. Such damage to Cycling Switch (not likely to occur) would necessitate returning the entire Changer to source 101.

11. CHANGER FAILS TO REPEAT LAST RECORD. See Paragraph 6, above.

12. NEEDLE LANDS PROPERLY ON RECORD BUT FAILS TO MOVE OVER INTO RECORD GROOVE. Pickup arm is normally impelled toward center of records by Lead Spring 97. Should a slight increase in its tension be found necessary, this can be easily obtained by bending the lug, to which it is attached, down against Main Plate. If tendency then appears for needle to jump across record, check angle of needle (see Paragraph 6-a above).

13. RECORDS FALL UNEVENLY UPON TURNTABLE. Seldom objectionable, this is due to Record Pin not being correctly centered between Posts. If necessary, it can be corrected as described above; see "Replacing Motor".

14. LAST RECORD DROPS ON ONE SIDE ONLY. This suggests a Post bent out of perpendicular to Main Plate. Test with square as directed(see "Replacing Motor"). If Post must be straightened, be careful not to bend other parts.

15. CHANGER CONTINUES CYCLING. Due to failure of Lift 37 to fall back out of engagement with Cam Gear. Check the various rivets at which motion occurs, to find the point where friction or binding is interfering with freedom of motion.

16. RECORD IS DRIVEN, BUT NOT HEARD, OR NOT HEARD WITH PROPER VOLUME. See that Pickup cord is plugged in. Check amplifier and speaker and connections to them, thoroughly. If then trouble is still suspected in pickup, test its output with a vacuum-tube voltmeter. Playing an average record, output should test 1 to 2.5 volts. If pickup cartridge is found not to deliver proper output, remove it and install another.

17. SELECTOR PLATE FAILS TO SEPARATE BOTTOM RECORD FROM STACK. This is due either to a badly warped condition of the record, or to its being of a thickness very considerably different from those now in standard use. The design of both Selector and Shelf Plates is such as to accommodate a maximum variation in thickness and flatness of records, but certain records may be found which are so far out as to be impracticable for use in automatic changers.

Improper spacing between blades could also result in jamming or failure of the blade to separate the bottom record from the stack. The proper spacing of the blades in the 10" position is .050"-.055"; in the 12" position it is .070"-.075". A special long gauge is necessary to measure this dimension since the blades are not directly over each other. However, it is extremely unlikely that the blades could become bent out of their proper adjustment since they are very rigid. Adjustment is secured by bending of the blades.

IF NECESSARY TO DISASSEMBLE THE CHANGER:

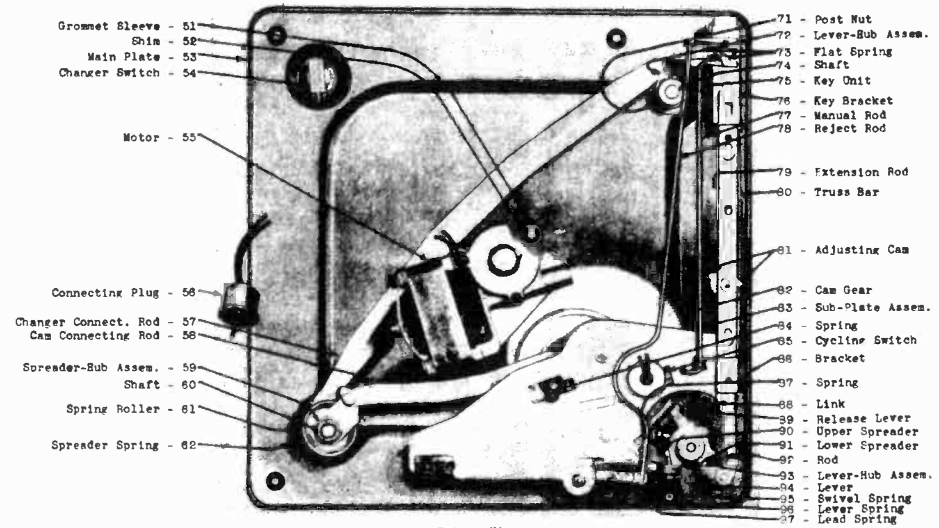
Before attempting to remove Sub-Plate Assembly 83, detach Key Control Unit 75 from Main Plate. To do this, start with Control Unit Truss Bar 80. Then take out the screw which holds left end of Adjusting Rod Lever 94. Next remove Adjusting Rod 92 and Adjusting Rod Extension 79. Take out the screw holding Spring 73; then the screws holding Key Control Unit 75 to Main Plate. Rods 77 and 78 can then, with due care, be extracted without bending. Free the Cam Connecting Rod 58 by loosening setscrew holding Spreader and Hub Assembly 59. Sub-Plate Assembly can then be detached without bending parts. In reassembling, reverse the procedure.

FAILURE TO PLAY THROUGH THE ENTIRE RECORD WHEN ONLY ONE OR TWO RECORDS ARE ON THE TURNTABLE:

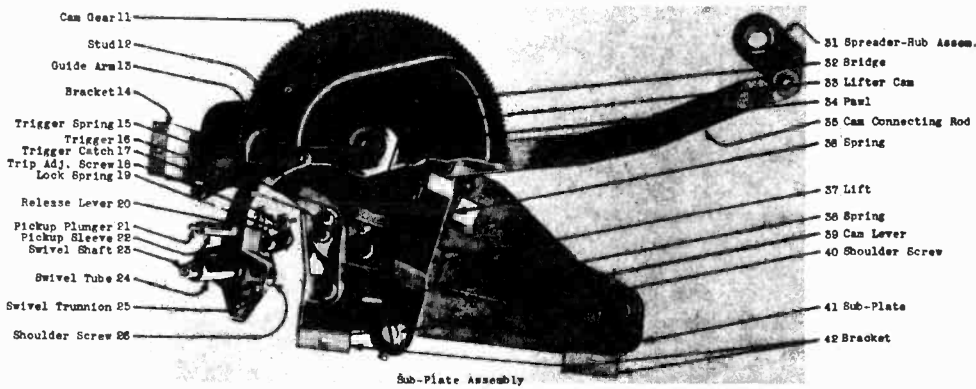
If the mechanism fails to play more than just a small portion of the record when only one or two records are on the turntable, in all likelihood it is due to the use of a needle shorter than the ones furnished and to which the mechanism has been adjusted. The needles used must not be less than 11/16" in length, although they may be of greater length.

ELIMINATING RUMBLE:

The record changer plate must be completely free in its mounting to avoid excessive rumble. The split nuts on the mounting screws, under the changer plate, should be loosened for three or four turns. The mounting screws themselves should be unscrewed for three or four turns since they may form a thread in the rubber bushings and thereby compress the bushings excessively.



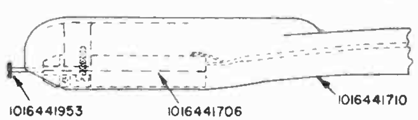
Bottom View



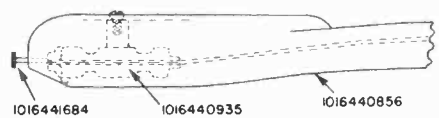
Sub-Plate Assembly

ADDITION OF SUFFIX NUMBER -3 TO 101,584 CHASSIS:

Assemblies identified as 101.584-3 are the same as 101.584 except that they use a different tone arm and pickup cartridge, not interchangeable with the ones used in 101.584. The drawings below illustrate the tone arms and cartridges used in 101.584,-1,-2,-3. Be sure to give the proper part number and also mention the complete identification number including the dash number when ordering these parts.



CARTRIDGE & ARM USED IN 101.584-2, -3



CARTRIDGE & ARM USED IN 101.584, -1

Notes, Assembly Views

SEARS, ROEBUCK & CO

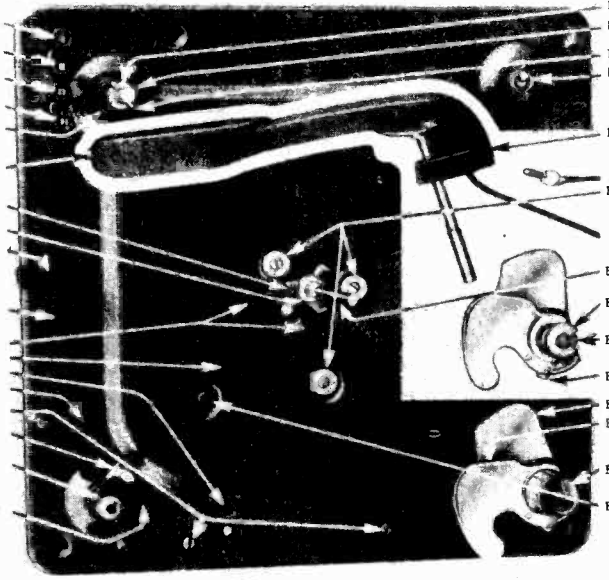
MODELS 6346, 6346A, 6446, 6446A
MODEL 6447

ADDITION OF SUFFIX NUMBERS -4 AND -5 TO CHASSIS IDENTIFICATION NUMBER 101.590, 101.584:

Chassis identified by the suffix number -4 are the same as those identified by the suffix number -1 except that the record changer unit has certain changes incorporated, as explained below. *same as 101.590-2 in the case of the chassis 101.590).

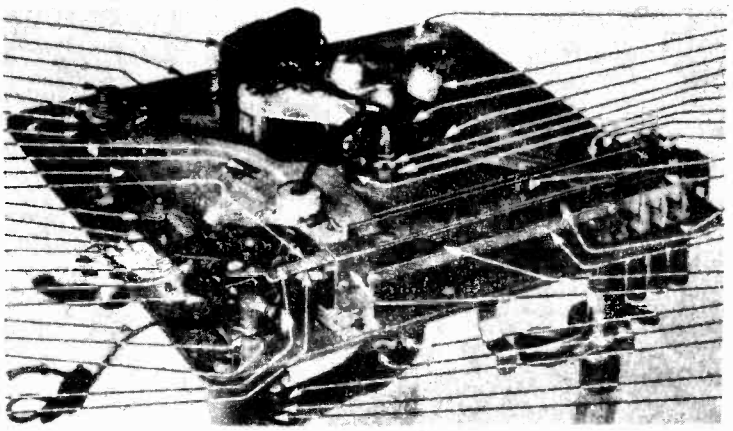
Chassis identified by the suffix number -5 are the same as those identified by -2 except that the record changer unit has certain changes incorporated; *(-3 for chassis 101.590).

The record changer design has been changed so that the adjustment, controlling the distance from the record pin at which the trigger will trip and the change cycle will begin, can be made through a hole in the top plate, marked "AR" in the photograph. Turn the screw head clockwise for earlier tripping; counter-clockwise for later tripping. (The effect is to alter the position of the Cam CJ which strikes the Trigger CP. It may be found that the cam has been revolved through a half turn; in this case, the above directions would apply only after the cam has been returned to the correct position by revolving the screw head half a turn.)



Push Button Assembly "R" . . . . AA
Push Button Assembly "M" . . . . AB
Push Button Assembly "12" . . . AC
Push Button Assembly "10" . . . AD
Changer Post . . . . . AE
Needle Setscrew AF
Neoprene Tubing . . . . . AG
Drive Pinion Assembly . . . . . AH
Pickup Support Bracket Assembly AI
Needle Landing Adjustment Hole AJ
Motor Oiling Holes . . . . . AK
Oiling Hole . . . . . AL
Oiling Hole . . . . . AM
Oiling Hole . . . . . AN
(3) Sub-Plate Attachment Screws AO
Lifter Rod Nut (CE) . . . . . AP
Swivel Post . . . . . AQ
Trip Adjustment Hole . . . . . AR

BA Changer Post Washer . . . . . .
BB Changer Shaft--Front . . . . . .
Changer Shaft--Rear (Not shown)
BC Changer Shaft Pin . . . . . .
BD On-Off Switch
BE Pickup . . .
BF Grommet (3 required) . . . . .
Washer (3 required) . . . . .
BG Record Pin . . . . . .
BH Changer Plate Washer . . . . . .
BI Changer Plate Spring . . . . . .
BJ Pointer
BK Shelf Plate } Changer Plate
BL Selector Plate } Assembly (2 reqd
BM Changer Cup or Knob (2 reqd.) .
BN Cam Gear Screw

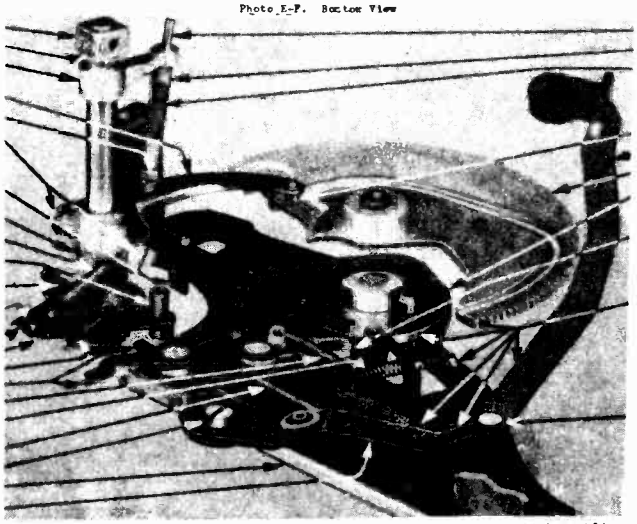


Changer Motor KA
Main Mounting Plate Assm. KB
Cam Connecting Rod . . . KC
Changer Shaft Collar . . . . . KD
Spreader Hub Assembly . . . . . KE
Spring Roller . . . . . KF
Changer Spreader Spring . . . . . KG
Cycling Switch . . . . . KH
Cam Lever Spring . . . . . KI
Sub-Plate and Gear Assem. (DI) . . KJ
Adjusting Rod Assembly . . . . . KK
Cam Connecting Rod Lift (CV). . . KL
Cam Connecting Rod Lift Spring . KM
Changer Model Number . . . . . KN
Changer Serial Number . . . . . KO
Rejection Rod Support . . . . . KP
Adjusting Rod Lever Spring . . . KQ
Pickup Leader Spring (CO) . . . . KR
Pickup Cord . . . KS
Post Nut . . . . . KT
Shakeproof Washer . . . . . KU
Male Plug (on end of cord) . . . KV
Lug on Lever-Hub Assem. . . . . KW
Adjusting Rod . . . . . KX

FA On-Off Switch
FB Male Plug with #7002 Shell . .
FC Cord Clamp . . . . . .
FD Changer Connecting Rod Assem..
FE Shim . . . . . (Assortment)
FF Grommet Sleeve (3 reqd.) . . .
FG Idler Gear
FH Manual Key Rod . . . . . .
FI Rejection Rod . . . . . .
FJ Manual and Rejection Rod Spring
FK Extension Rod
FL Key Control Bracket . . . . .
FM Key Control Unit . . . . . .
FN Adjusting Rod Spring . . . . .
FO Control Unit Truss Bar . . . .
FP Needle Landing Adjusting Cam
FQ Adjusting Rod Bracket . . . .
FR Pickup Cartridge
FS Cartridge Clamp . . . . . .
FT Tone Arm Lift Plate . . . . .
FU Hinge Pin Spring . . . . . .
FV Tone Arm Hinge Pin . . . . .

Photo E-F. Bottom View

Swivel Shaft and Head Assem. . . CA
Fibre Washer (2 required) . . . CB
Lifter Guide CC
Swivel Guide Arm Assembly . . . CD
Lifter Rod Nut (AP) . . . . . CE
Trunnion Shoulder Screw (2 reqd.) CF
Link . . . . . CG
Swivel Tube and Trunnion Assem. CH
Swivel Guide Arm Spring CI
Trip Adjusting Cam . . . . . CJ
Swivel Spreader Spring . . . . . CK
Stop Lever and Trigger Adj. Assem. CL
Upper Swivel Spreader . . . . . CM
Lower Swivel Spreader . . . . . CN
Pickup Leader Spring (ER) . . . CO
Trigger. . . . . CP
Pawl Spring . . . . . CQ
Cam Lever Spring . . . . . CR
Cam Lever . . . . . CS
Shoulder Screw . . . . . CT
Sub-Plate . . . . . CU
Cam Connecting Rod Lift CV



DA Pickup Plunger . . . . . .
DB Pickup Plunger Sleeve . . .
DC Pickup Plunger Spring . . .
DD Stud
DE Cam Connecting Rod
DF Cam Gear
DG Lifter Cam
DH Pawl
DI Sub-Plate and Gear Assembly
DJ Roller

Photo C-D. View of Sub-Plate Assembly, Together with Certain Other Assemblies

FEB. 28, 1940

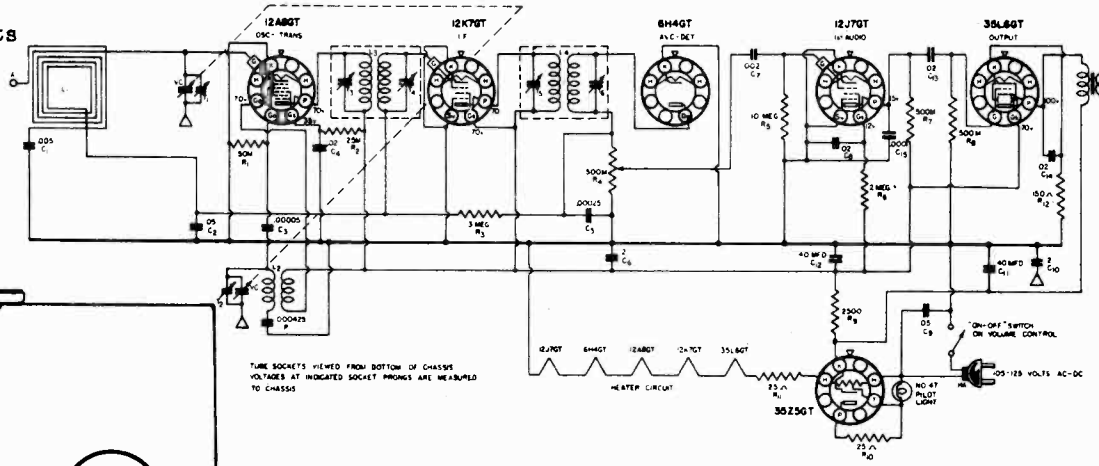
POWER SUPPLY:
All models available. . . . .

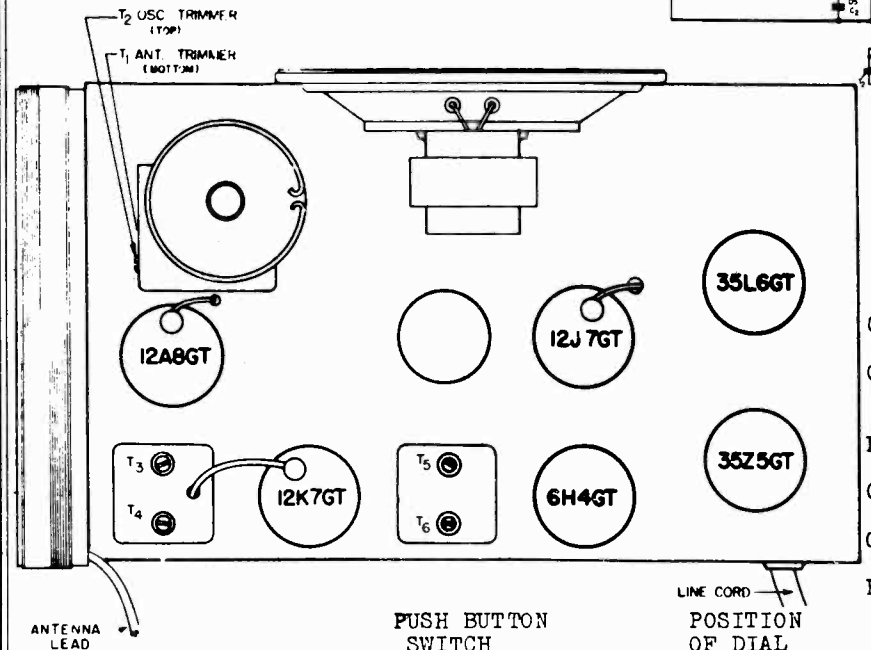
110-125 volts, 25-60 cycle AC or DC, 30 watts

FREQUENCY RANGE:

Broadcast. . . . . .535-1700 KC

WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.989





LOUD SPEAKER:
Type...Dynamic
Size.....5"
Field.....P. M.

POWER OUTPUT
Type.....Beam Power
Undistorted.....1.0
Maximum.....1.5

MARCH 20, 1940

ALIGNMENT PROCEDURE

IF PEAK 455 KC

Output meter connections . . . . Across primary output transformer

Output meter reading to indicate 0.050 watt
for Weston type 571 output meter on 15 volt scale 13.0 Volts

Dummy antenna value in series with generator output . . 100 mmfds..

Connection of generator ground. . . . . B- Bus

Generator modulation. . . . . App. 30% @ 400 cycles

Position of volume control. . . . . Fully clockwise

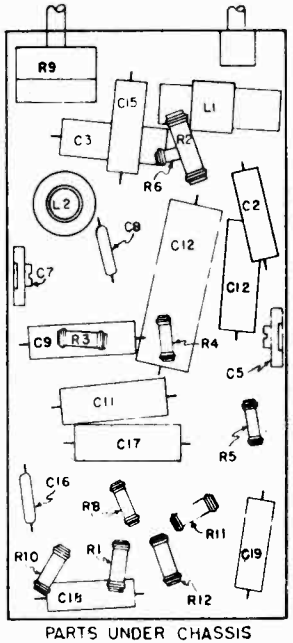
PUSH BUTTON SWITCH POSITION	POSITION OF DIAL POINTER	GENERATOR FREQUENCY	GENERATOR CONNECTION	TRIMMERS ADJUSTED	TRIMMER FUNCTION
Mannual "IN"	**	455 kc	12K7GT,Grid	T5,T6	I.F.
"	**	455 kc	12A8GT,Grid	T3,T4	I.F.
	1500 kc	1500 kc	***	T2,T1	Osc.,R.F.

It is advisable to repeat the entire alignment procedure in the original order to insure greater accuracy.

Always keep the output from the test oscillator at its lowest possible value. As the sensitivity is increased by alignment, the generator output should be reduced correspondingly.

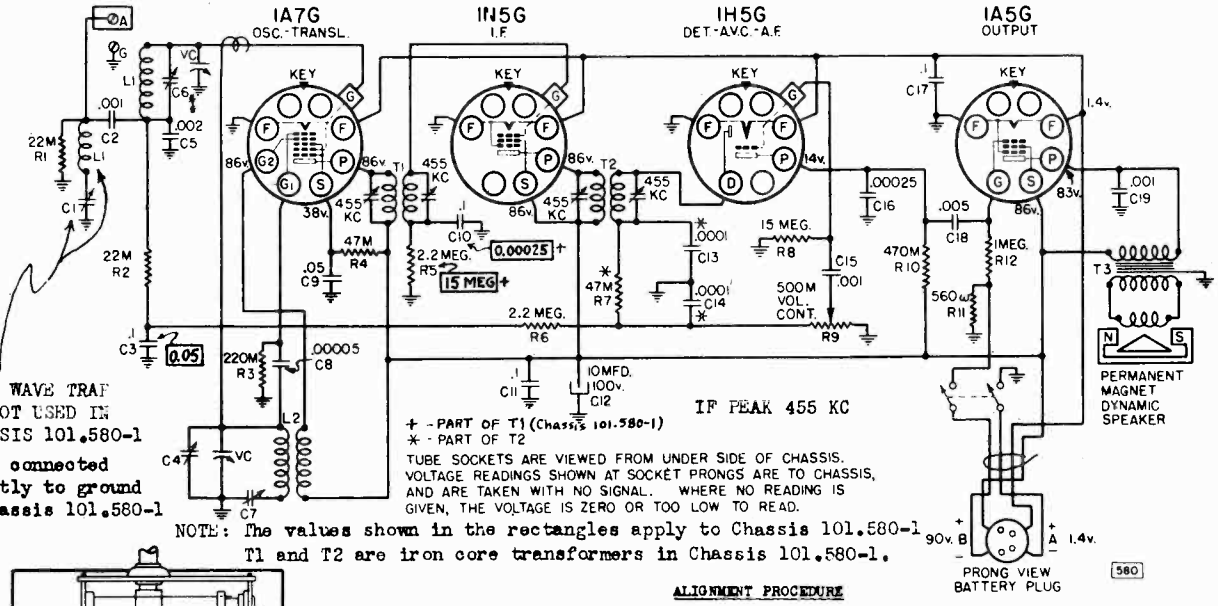
** Short oscillator section of variable condenser.

***Connect generator output to a separate radiating loop and pickup 1500 KC signal on receiver.



PARTS UNDER CHASSIS

In Chassis 101.580-1, a new variable condenser is used; trimmers C4 and C6 are mounted on this condenser.



+ - PART OF T1 (Chassis 101.580-1)
* - PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

NOTE: The values shown in the rectangles apply to Chassis 101.580-1. T1 and T2 are iron core transformers in Chassis 101.580-1.

IF PEAK 455 KC

POWER SUPPLY:

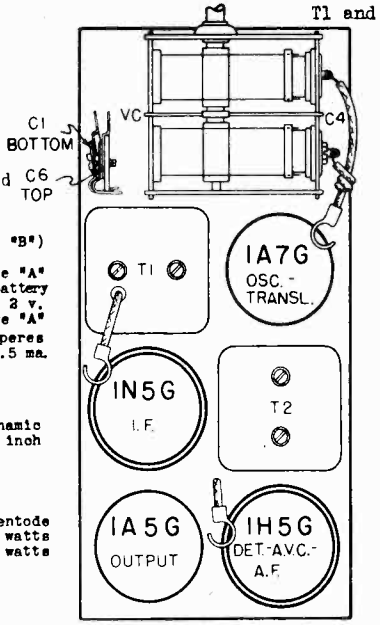
#5060. . A-B block(1.4v. "A", 90v. "B")
or
#734 . . . . . 2v. Storage "A"
2 - #5041 . . . . . 45v. "B" battery
#5070 . . . Adaptor necessary with 2 v. Storage "A"
"A" Drain . . . . . .0.2 Amperes
"B" Drain . . . . . 8.5 ma.

LOUD SPEAKER:

Type . . . . . .PM Dynamic
Size . . . . . .5 inch

POWER OUTPUT:

Type . . . . . .Pentode
Undistorted . . . . . .0.09 watts
Maximum . . . . . .0.17 watts



LOCATIONS OF PARTS ON TOP OF CHASSIS.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections . . . . . .Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 0.3 volts
Approximate average sensitivity in microvolts for 50 milliwatts output . . . See chart below
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 on
Position of pointer with variable fully closed . . . . . .Horizontal (To fall on block below 550 kc calibration mark.)

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
Closed	455 kc	.1 mfd.	1A7G Translator Grid	T2, T1	IF	110
600 kc	455 kc	.0002 mfd.	Ant. Term.	C1*	IF Wave Trap	--
1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C6, #4	Translator Oscillator	90
600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C7	Padder	90

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted to give high output. The trimmer should be adjusted for minimum output meter reading instead of the customary maximum reading. If the frequency of an interfering station near 455 kc is known, the generator and trimmer should be adjusted for the frequency of the interfering station rather than 455 kc.

The variable should be rocked back and forth a degree or two while making the 600 kc adjustment.

The alignment procedure should be repeated in the original order, step by step, to insure greater accuracy.

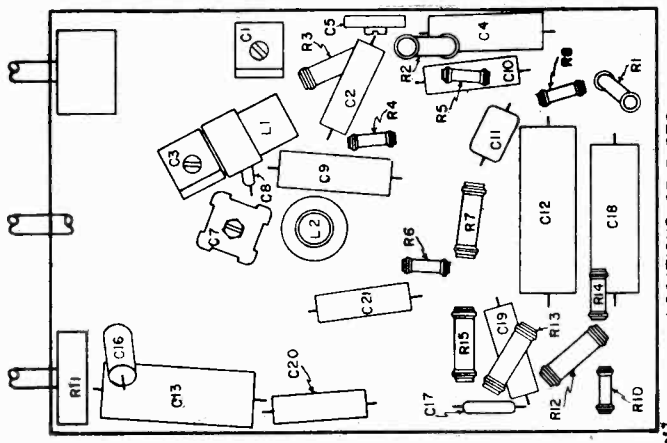
Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

FEB. 14, 1940

MODELS 6353,6354,6355
Ch. 101.577
Schematic, Voltage
Chassis, Alignment
Socket, Trimmers

SEARS, ROEBUCK & CO.

MODEL 6260, Ch. 101.558
Alignment



LOCATIONS OF PARTS UNDER CHASSIS

FREQUENCY RANGE:
Broadcast . . . . . 545-1750 kc

ALIGNMENT FREQUENCIES:

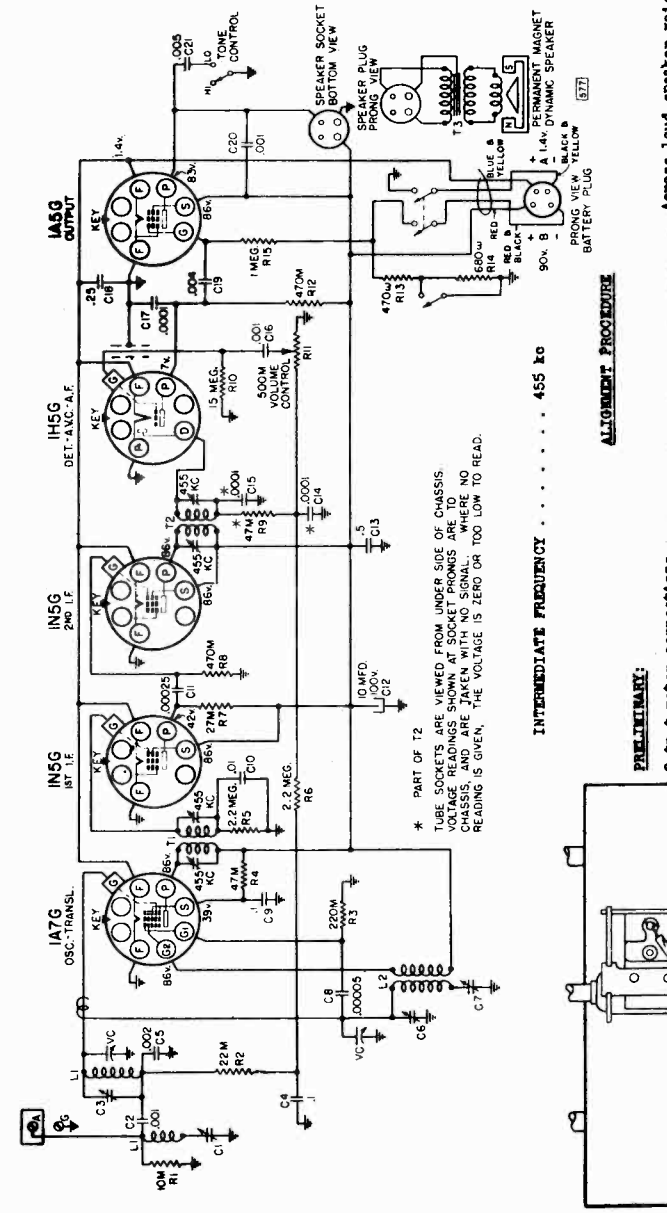
	Oscillator	Antenna-Transl.	
	Trimmer	Trimmer	Padder
1750 kc	1750 kc	1400 kc	600 kc

POWER OUTPUT:
Type . . . . . .Pentode
Undistorted . . . . . .0.09 watts
Maximum . . . . . .0.17 watts

LOUD SPEAKER:
Type . . . . . .PM Dynamic
Size . . . . . 5 inch

POWER SUPPLY:
#6080. - A-B block (1.4v. "A", 90v. "B")
or
#734 . . . . . 2v. Storage "A"
2 - #6041 . . . . . 45v. "B" battery
#6071 . . . . . .Adapter necessary with 2v. Storage "A"
"A" Drain. . . . . .0.25 amperes
"B" Drain. . . . . .10.35 ma

MAY 11, 1939



ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections . . . . . Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 0.3 volts
Approximate microvolts input to indicate 50 milliwatts output . . . . . See chart below
Generator ground lead connection . . . . . Receiver chassis
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully on
Position of Tone Control . . . . . Horizontal (to fall on block
Position of pointer with variable fully closed . . . . . below 550 kc calibration mark)
(For Model 6260 dial pointer should be horizontal when fully open or fully meshed).

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS Ⓐ
Closed	455 kc	.1 mfd.	1A7G Translator Grid	T2, T1	IF	85
600 kc	455 kc	.0008 mfd.	Ant. Term.	C1*	IF Wave Trap	45
Fully open	1750 kc	.0003 mfd.	Ant. Term.	C4	Oscillator	45
1400 kc	1400 kc	.0008 mfd.	Ant. Term.	C3	Translator	30
600 kc(rock)	600 kc	.0008 mfd.	Ant. Term.	C7	Padder	35

Ⓐ For 6260, Chassis 101.558

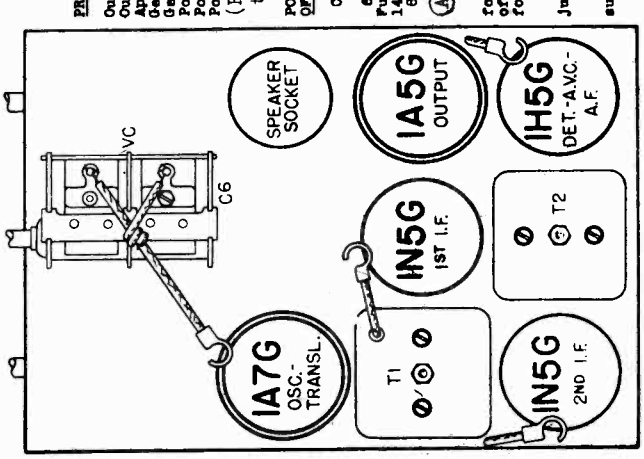
IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted to give high output. The trimmer should be adjusted for minimum output meter reading. Instead of the customary maximum reading. If the frequency of an interfering station near 455 kc is known, the generator and trimmer should be adjusted for the frequency of the interfering station rather than 455 kc.

The variable should be rocked back and forth a degree or two while making the 600 kc adjustment.

The alignment procedure should be repeated in the original order, step by step, to insure greater accuracy.

Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

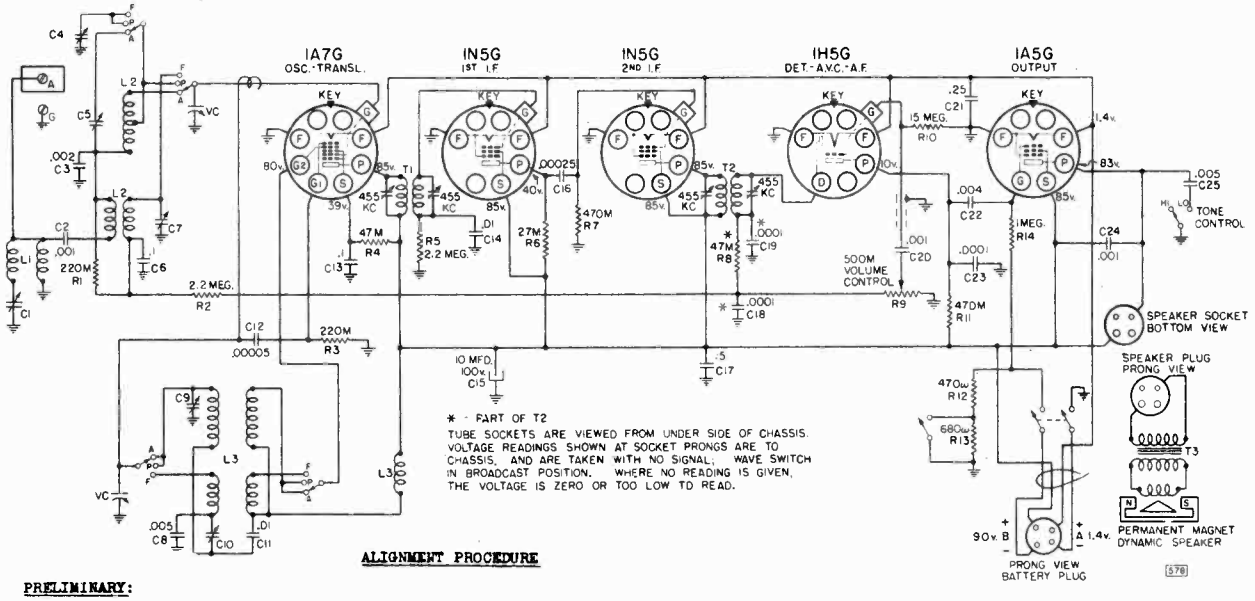


LOCATIONS OF PARTS ON TOP OF CHASSIS

Schematic, Voltage
Chassis, Alignment
Socket, Trimmers

SEARS. ROEBUCK & CO.

MODELS 6356, 6357, 6358
Ch. 101.578



ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 0.3 volts
Approximate microvolts input for 50 milliwatts output . . . . . See chart below
Generator ground lead connection . . . . . Receiver chassis
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully clockwise
Position of Tone Control . . . . . HI
Position of Dial Pointer with variable fully closed . . . . . Horizontal

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	1A7G Grid	T2, T1	IF Output IF Input	65
"AM"	600 kc	455 kc*	.0003 mfd.	Ant. Term.	C1*	Wave Trap	--
"AM"	Fully open	1750 kc	.0003 mfd.	Ant. Term.	C9	Oscillator	45
"AM"	1400 kc	1400 kc	.0003 mfd.	Ant. Term.	C5	Translator	33
"AM"	600 kc(rock)	600 kc	.0003 mfd.	Ant. Term.	C10	Padder	35
"POL"	3.4 mc	3.4 mc	400 ohms	Ant. Term.	C4	Translator	80
"FOR"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C7	Translator	20

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

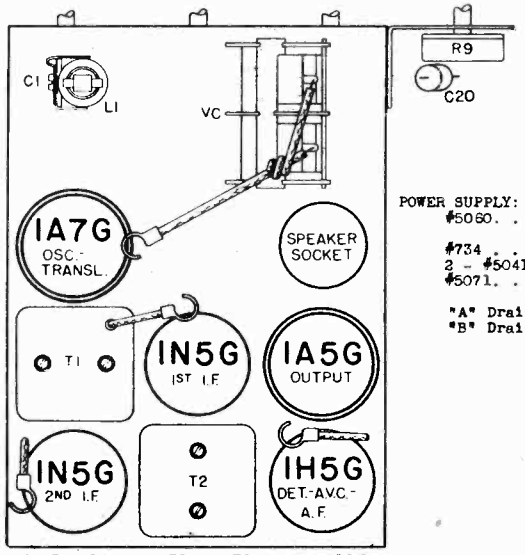
FREQUENCY RANGES:
Broadcast . . . 545-1750 kc
Police . . . . 1455-2650 kc
Short Wave . . . 5.95-18.2 mc

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 6 inch

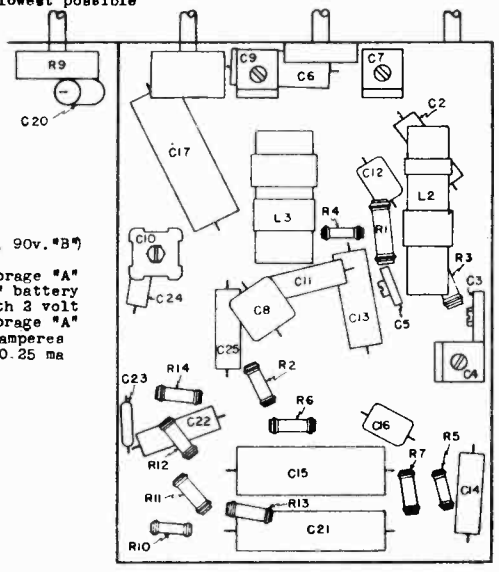
POWER OUTPUT:
Type . . . . . Pentode
Undistorted . . . 0.09 watts
Maximum . . . . . 0.18 watts

RECOMMENDED ANTENNA EQUIPMENT:
Catalog #5523, #5523, #5575.

POWER SUPPLY:
#5060. . .A-B block (1.4v. "A", 90v. "B")
or
#734 . . . . . 2v. Storage "A"
2 - #5041. . . . . 45v. "B" battery
#5071. . .Adaptor necessary with 2 volt Storage "A"
"A" Drain. . . . . 0.35 amperes
"B" Drain. . . . . 10.25 ma



LOCATIONS OF PARTS ON TOP OF CHASSIS

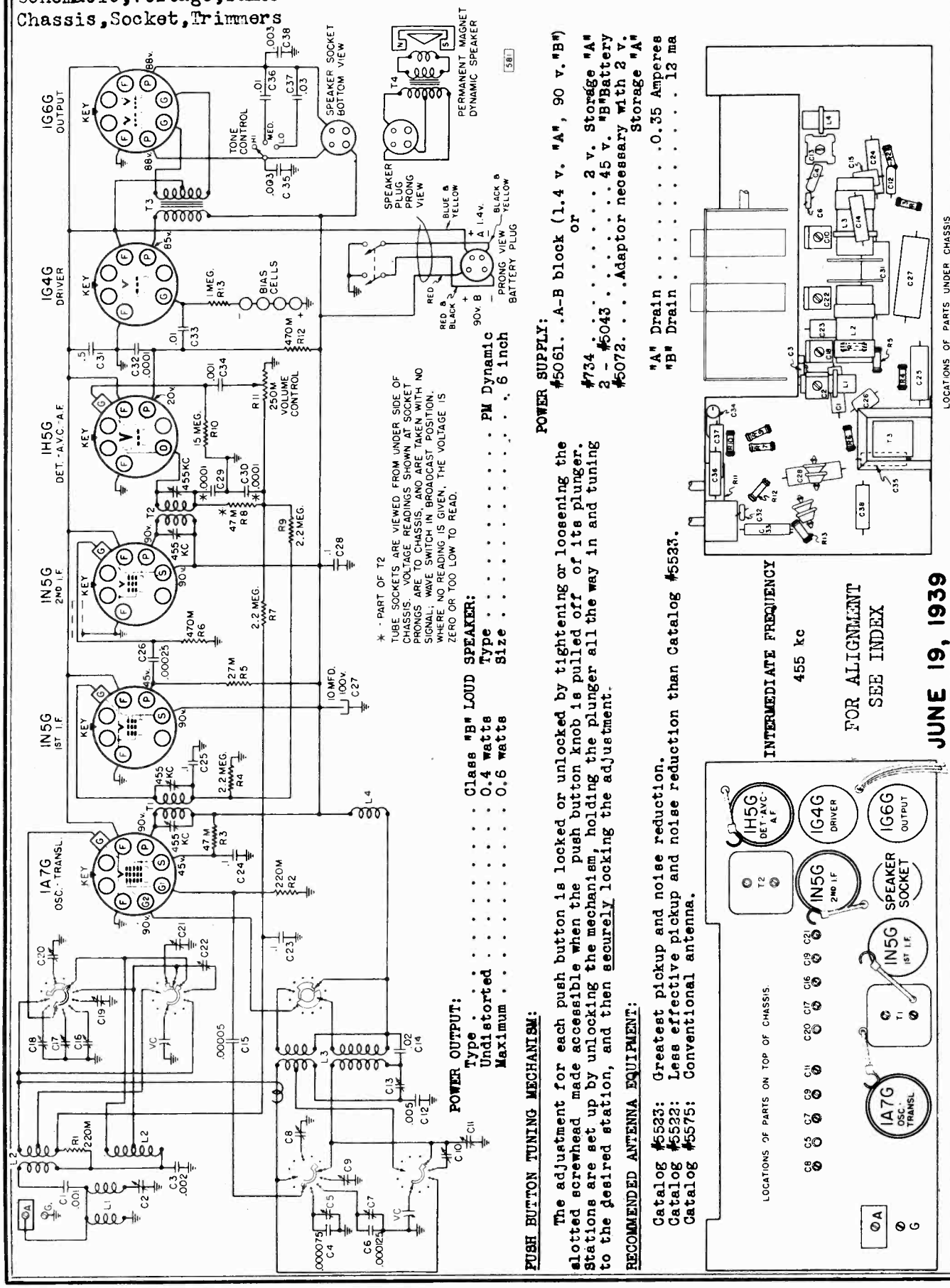


LOCATIONS OF PARTS UNDER CHASSIS

MAY 12, 1939

MODELS 6362,6363,6364
Ch.101.581
Schematic,Voltage,Tuner
Chassis,Socket,Trimmers

SEARS, ROEBUCK & CO.



* - PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. WAVE SWITCH IN BROADCAST POSITION. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

POWER OUTPUT:
Type . . . . . Class "B"
Undistorted . . . . . 0.4 watts
Maximum . . . . . 0.6 watts

LOUD SPEAKER:
Type . . . . . PM Dynamic
Size . . . . . 6 inch

POWER SUPPLY:
#5061. A-B block (1.4 v. "A", 90 v. "B")
or
#734 . . . . . 2 v. Storage "A"
2 - #6043 . . . . . 45 v. "B" Battery
#5072. . . .Adaptor necessary with 2 v. Storage "A"
"A" Drain . . . . . .0.35 Amperes
"B" Drain . . . . . 12 ma

INTERMEDIATE FREQUENCY
455 kc

FOR ALIGNMENT SEE INDEX

JUNE 19, 1939

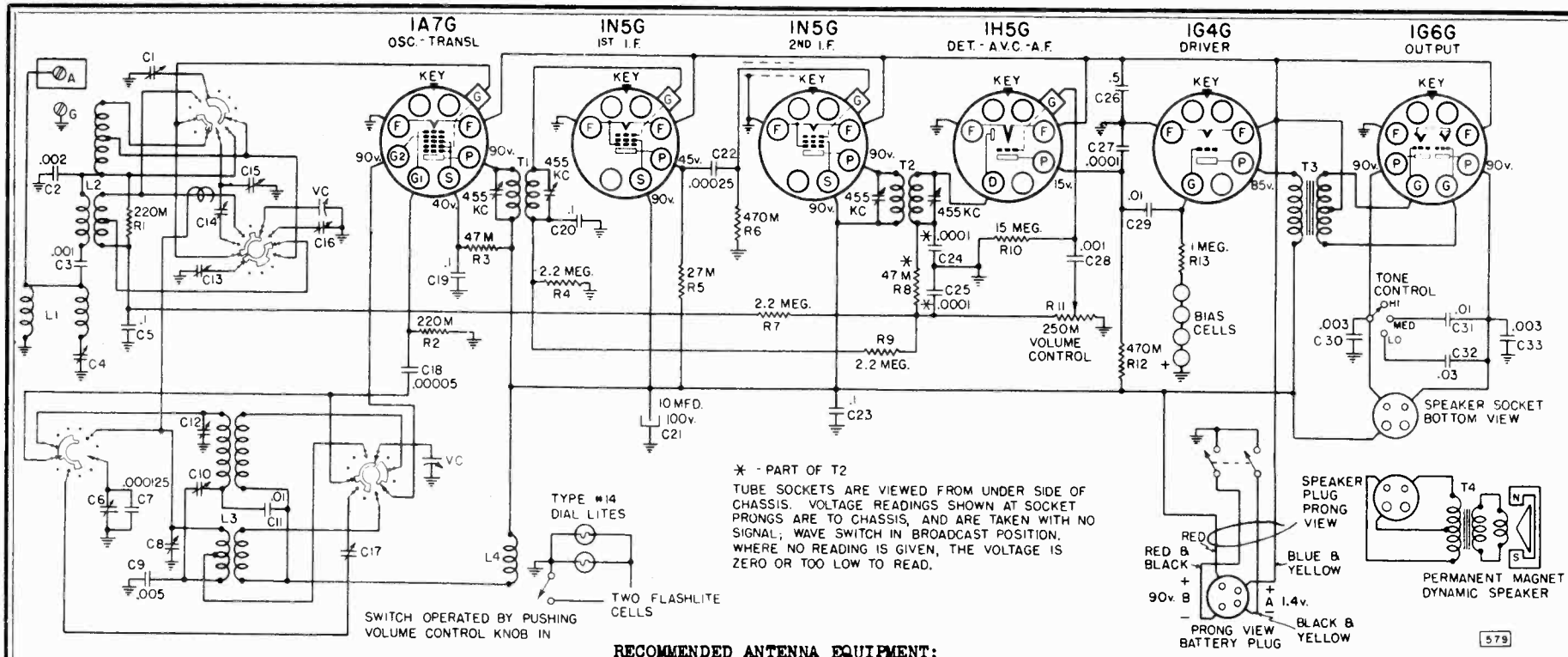
PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5523: Greatest pickup and noise reduction.
Catalog #5532: Less effective pickup and noise reduction than Catalog #5533.
Catalog #5575: Conventional antenna.

SEARS, ROEBUCK & CO. 6359, 6360, 6361, 6379
MODELS 6380, 6381. Ch. 101.579
Schematic, Voltage, Chassis Socket, Trimmers, Tuner



INTERMEDIATE FREQUENCY . . . . . 455 kc

RECOMMENDED ANTENNA EQUIPMENT:

Cat. #5523: Greatest pickup and noise reduction.
Cat. #5522: Less effective pickup and noise reduction than Catalog #5523.
Cat. #5575: Conventional antenna.

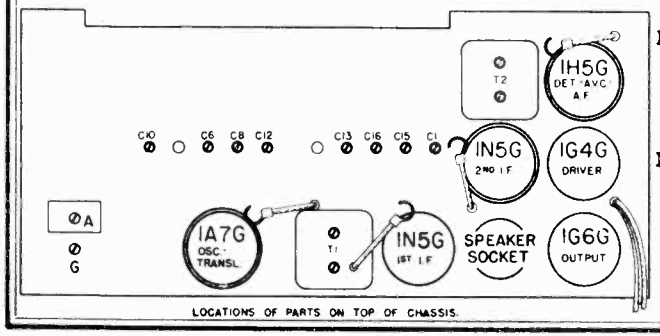
POWER SUPPLY:

#5061. .A-B block (1.4 v. "A", 90 v. "B")
or
#734 . . . . . 2 v. Storage "A"
2 - #5043 . . . . . 45 v. "B" Battery
#5072. . . .Adaptor necessary with 2 v. Storage "A"

"A" Drain . . . . . .0.35 amperes
"B" Drain . . . . . 12 ma

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.



LOCATIONS OF PARTS ON TOP OF CHASSIS.

POWER OUTPUT:

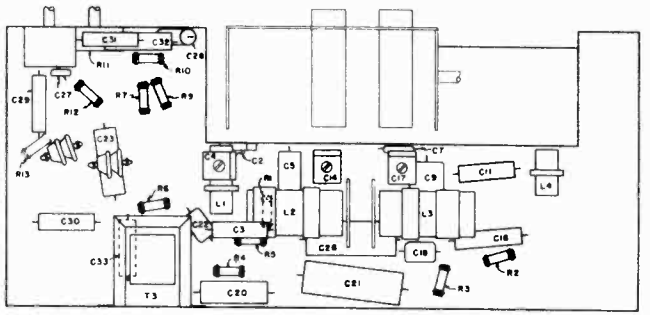
Type . . . . . .Class "B"
Undistorted . . . . . 0.4 watts
Maximum . . . . . 0.6 watts

LOUD SPEAKER:

Type . . . . . PM Dynamic
Size . . . . . 6 and 8 inch

FOR ALIGNMENT SEE INDEX

JUNE 19, 1939


LOCATIONS OF PARTS UNDER CHASSIS

ALIGNMENT PROCEDURE

PRELIMINARY: For all Models and Chassis listed in the tables below.

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 50 milliwatts . . . . . 0.3 volt
Approximate microvolts input for 50 milliwatts output . . . . . See chart below
Generator ground lead connection . . . . . To 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 . . . . . At block to left of 550 kc calibration mark.

MODELS 6359,6360,6361,6379,6380,6381 CHASSIS 101.579

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	1A7G Grid	T2,T1	IF	--
"A"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C4*	Wave Trap	--
"A"	Fully open	1750 kc	.0002 mfd.	Ant. Term.	C12	Oscillator	--
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C1	Translator	35
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C10	Padder	30
"B"	2.3 mc	2.3 mc	400 ohms	Ant. Term.	C17	Osc. Pad	--
"B"	2.3 mc	2.3 mc	400 ohms	Ant. Term.	C14†	Transl.Pad.	45
"B"	2.5 mc	2.5 mc	400 ohms	Ant. Term.	C15†	Translator	45
"C"	18.3 mc	18.3 mc	400 ohms	Ant. Term.	C8	Oscillator	--
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C16	Translator	40
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C6**,C13	Osc,Transl.	40

MODELS 6362,6363,6364 CHASSIS 101.581

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	1A7G Grid	T2,T1	IF	
"A"	600 kc	455 kc*	.0003 mfd.	Ant. Term.	C2*	Wave Trap	
"A"	1400 kc	1400 kc	.0003 mfd.	Ant. Term.	C11,C21	Osc,Transl.	
"A"	600 kc(rock)	600 kc	.0003 mfd.	Ant. Term.	C13	Padder	
"B"	2.3 mc	2.3 mc	400 ohms	Ant. Term.	C10,C22	Osc. Pad, Transl.Pad	
"B"	2.5 mc	2.5 mc	400 ohms	Ant. Term.	C18	Translator	
"C"	18 mc	18 mc	400 ohms	Ant. Term.	C9	Oscillator	
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Term.	C19	Translator	
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C7**,C16	Osc,Transl.	
"E"	11.71 mc	11.71 mc	400 ohms	Ant. Term.	C5**,C17	Osc,Transl.	
"F"	14.9 mc	14.9 mc	400 ohms	Ant. Term.	C8**,C20	Osc,Transl.	

MODEL 6368 CHASSIS 101582, MODEL 6382 CHASSIS 101.594

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6D8G Grid	T2,T1	IF	--
"A"	600 kc	455 kc*	.0002 mfd.	Ant. Term.	C6*	Wave Trap	--
"B"	Fully open	5.85 mc	400 ohms	Ant. Term.	C9	Oscillator	--
"B"	5 mc	5 mc	400 ohms	Ant. Term.	C4	Translator	75
"B"	2 mc(rock)	2 mc	400 ohms	Ant. Term.	C11	Padder	110
"C"	18 mc	18 mc	400 ohms	Ant. Term.	C3**	Oscillator	--
"C"	16 mc(rock)	16 mc	400 ohms	Ant. Term.	C5	Translator	50
"A"	Fully open	1730 kc	.0002 mfd.	Ant. Term.	C7	Oscillator	100
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Term.	C3	Translator	55
"A"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Term.	C10	Padder	50

IMPORTANT ALIGNMENT NOTES

* The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

† Repeat the C14 and C15 adjustments until perfect alignment is obtained. This will require going back and forth in these adjustments several times.

** If two peaks can be had, the correct one is with the trimmer screw further out; the other peak is the image.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

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.

ALIGNMENT PROCEDURE

PRELIMINARY: For all Models and Chassis listed in the tables below.

Output meter connection . . . . . Across loud speaker voice coil
Approximate microvolts input for 500 milliwatts output . . . . . See chart below
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 . . . . . At block to left of 550 kc calibration mark.

MODEL 6441 CHASSIS 101.599

Output meter reading to indicate 500 milliwatts . . . . . 1.38 volts
Generator ground lead connection . . . . . To external ground

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"A"	Fully open	1650 kc	.0002 mfd.	Ant. Clip	C14	Oscillator	100
"A"	1400 kc	1400 kc	.0002 mfd.	Ant. Clip	C1,C8	Ant.,Transl.	35
"A"	600 kc(rock)	600 kc	.0003 mfd.	Ant. Clip	C11	Padder	10
"B"	2.4 mc	2.4 mc	400 ohms	Ant. Clip	C7	Translator	100
"C"	15 mc(rock)	15 mc	400 ohms	Ant. Clip	C15*	Translator	15
"D"	9.55 mc(rock)	9.55 mc	400 ohms	Ant. Clip	C18,C16	Osc.,Transl.	60

MODELS 6438,6438A,6439 CHASSIS 101.583; 6438B,6439A,6497 CHASSIS 101.583-1
6497 CHASSIS 101595

Output meter reading to indicate 500 milliwatts . . . . . 1.6 volts
Connection of generator ground lead . . . . . To chassis

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS	Ⓐ
"A"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--	--
"A"	Open (1500 kc Ⓐ)	1635 kc	.0002 mfd.	Ant. Term.	C19	Oscillator	--	--
"A"	1400 kc	1400 kc	.0003 mfd.	Ant. Term.	C1,C10†	RF,Transl.	20	10
"A"	600 kc(rock)	600 kc	.0003 mfd.	Ant. Term.	C20	Padder	20	15
"B"	5 mc	5 mc	400 ohms	Ant. Term.	C21,C5	Osc.,Transl.	150	130
"C"	18.3 mc	18.3 mc	400 ohms	Ant. Term.	C14*	Oscillator	--	--
"C"	16 mc(rock)	16 mc	400 ohms	Ant. Term.	C9	Translator	75	70
"D"	9.55 mc	9.55 mc	400 ohms	Ant. Term.	C18*,C8	Osc.,Transl.	100	--
"E"	11.71 mc	11.71 mc	400 ohms	Ant. Term.	C16*,C7	Osc.,Transl.	100	--

Ⓐ For Models 6438,6438A,6439 Chassis 101.583

IMPORTANT ALIGNMENT NOTES

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

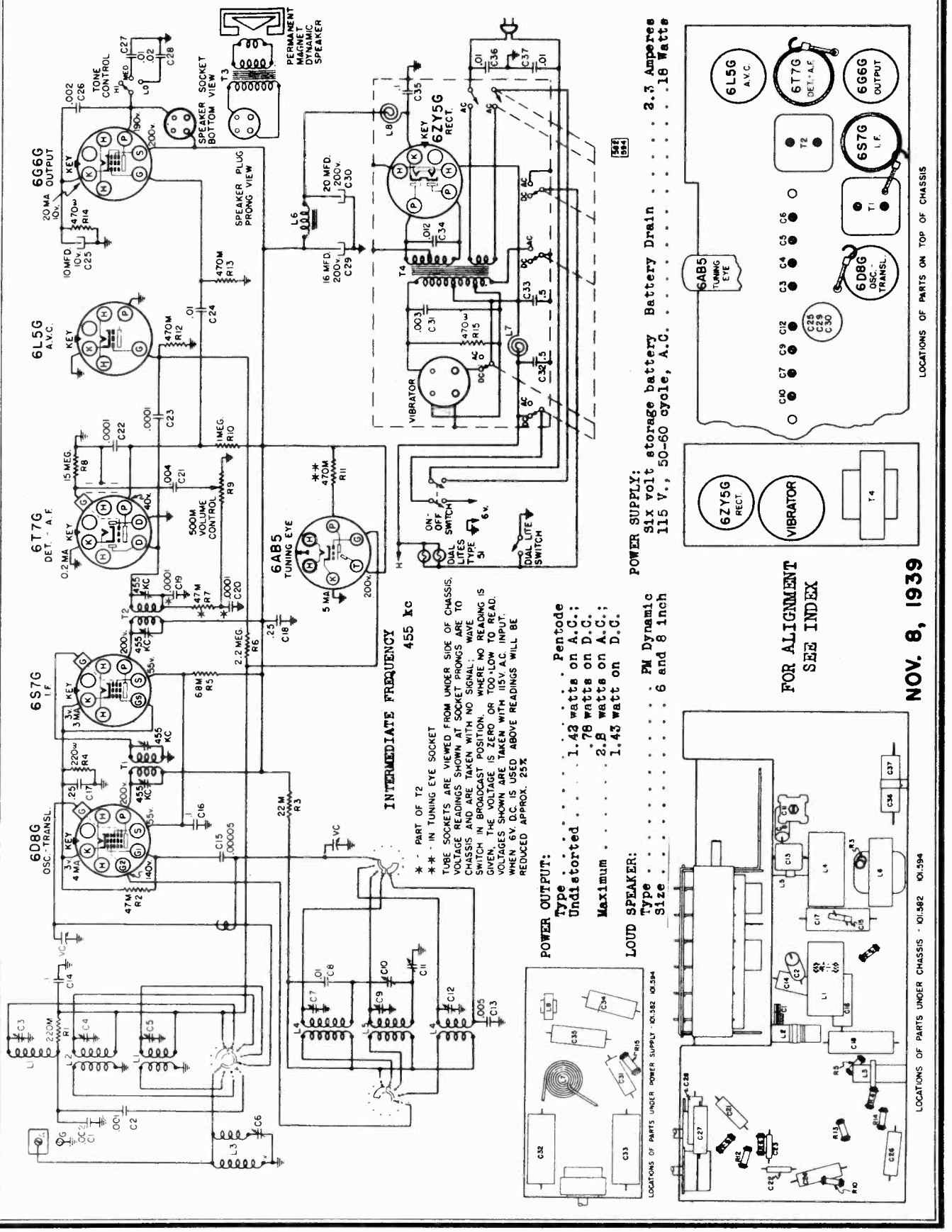
* If two peaks can be had, the correct adjustment is with the trimmer screw further out. The other peak is the image.

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.

† After the alignment has been completed, the C1 and C10 adjustments should be repeated, using a 1400 kc broadcast signal.

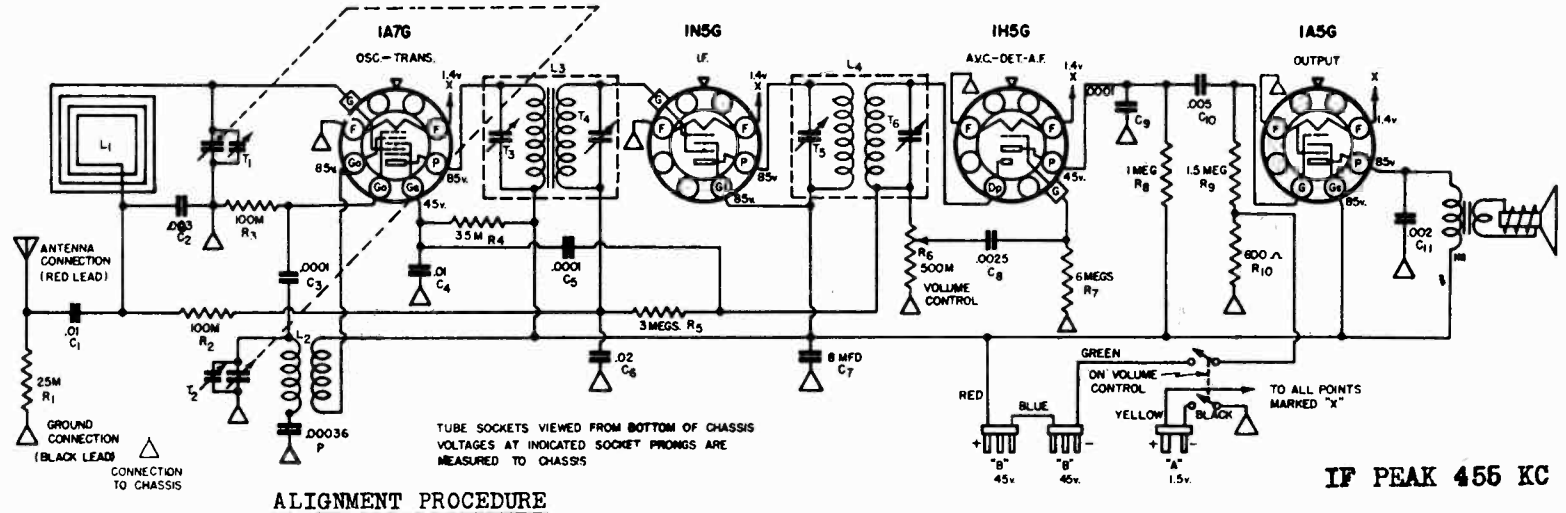
SEARS, ROEBUCK & CO.

MODELS 6368,Ch.101.582,
6382,Ch.101.594
Schematic,Voltage,Chassis
Socket,Trimmers



MODELS 6372,6373
Chassis 110.991
Schematic,Voltage
Socket,Trimmers
Alignment

SEARS. ROEBUCK & CO.



IF PEAK 455 KC

ALIGNMENT PROCEDURE

Output meter connections.....Across primary of output transformer

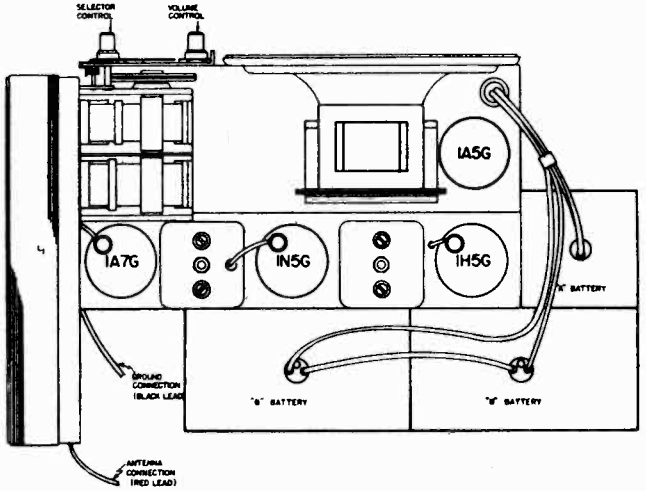
Generator Ground lead.....To ground

Connection of generator output lead.....See Chart below

Generator modulation.....30%, 400 cycles

Position of Volume Control.....Fully on

POSITION OF VARIABLE	GENERATOR FREQUENCY	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS	TRIMMER FUNCTION
Closed	455 KC	1A7G Grid	T3, T4 T5, T6	I.F.
1500 KC	1500 KC	*	T1, T2	R.F. osc.



The batteries should be in the proper position when aligning the receiver.

* Run a wire from the output terminal of the generator, having it come near the receiver However, no electrical connection is made between the signal generator and the receiver.

Alignment should be done with no connection made to the external antenna and ground terminals.

Always keep the output power from the generator at its lowest possible value to prevent the avc of the receiver from interfering with accurate alignment.

LOUDSPEAKER:

Type.....Dynamic
Size..... 5"
Field..... P.M.

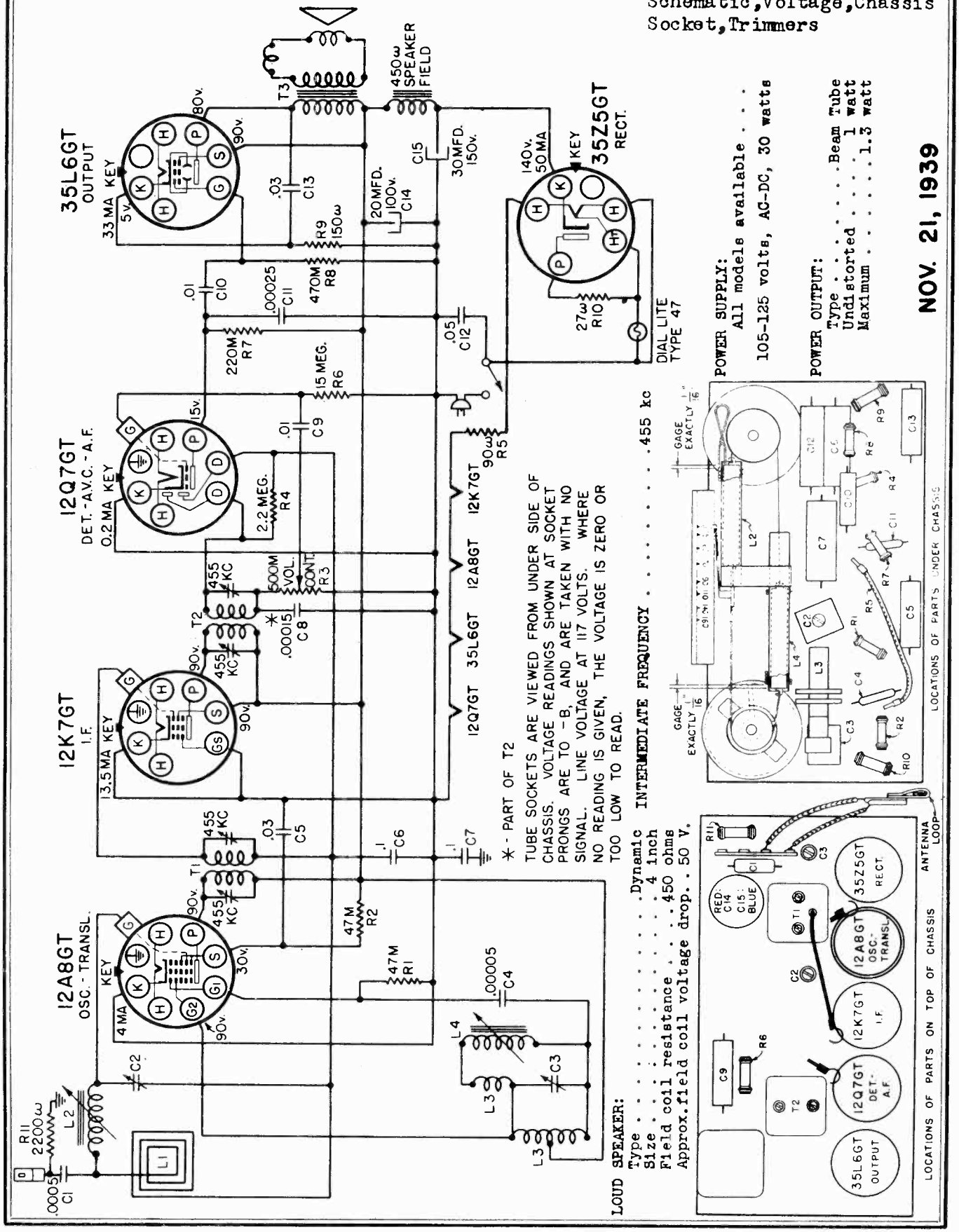
POWER OUTPUT:

Type.....pentode
Undistorted..... 100 MW
Maximum..... 260 MW

SEARS, ROEBUCK & CO

MODELS 6403,6404,6405,6406
6492,6496.Ch.101.566A to E
Ch.101.566-1A to -1E incl.
Ch.101.566-2A to -2E incl.
Schematic,Voltage,Chassis
Socket,Trimmers

FOR ALIGNMENT SEE INDEX



MODELS See Below
Alignment,Notes
MODEL 7230
Notes

SEARS. ROEBUCK & CO.

GENERAL INFORMATION & SERVICE HINTS

MODELS 6403,6404,6405,6406,6492,6496 CHASSIS 101.566 (A,B,C,D,E);101.566-1, -1A,-1B,-1C,-1D,-1E; 101.566-2,-2A,-2B,-2C,-2D,-2E. --ONLY--.

ADDITION OF SUFFIX LETTERS(-A,-B,-C,-D,-E)

Suffix letters have been added to the chassis identification number when the chassis has been used in the various different cabinets.

ADDITION OF SUFFIX NUMBERS -1 AND -2 TO CHASSIS IDENTIFICATION NUMBER:

In order to broaden the selectivity somewhat,, chassis identified with the addition of suffix number, -1, have had the connections of the 1st I.F. Transformer reversed so that the blue wire goes to B+ and the red wire to the 12A8GT plate. Some of these sets also have a 33M ohm resistor in place of the 47M ohm resistor, R3.

Chassis identified by the addition of suffix number, -2, have a different 1st I.F. Transformer, part number 10133421701, and a different 2nd I.F. Transformer, part number 1013343185, giving a still greater decrease in selectivity. The value of R2 in these chassis is 22M ohms.

DIAL LIGHT REPLACEMENT:

The dial light can be replaced without removing the chassis from the cabinet by removing the center tube making it possible to pull the dial light socket off of its bracket.

MODELS 6407,6408,6409 CHASSIS 101.567 (-A,-B), 101.567-1,(-1A,-1B), 101.567-2 (-2A,-2B) --ONLY--.

ADDITION OF SUFFIX LETTERS:

Chassis identified by 101.567 are used in Catalog number 6407, black cabinet. Suffix letter "-A" has been added when the chassis is used in Catalog number 6408, ivory cabinet. Suffix letter "-B" is added when the chassis is used in Catalog number 6409, walnut cabinet.

DIAL LIGHT REPLACEMENT:

The dial light socket is attached to a bracket at the rear of the chassis, held with a single screw.

PUSH BUTTON TUNING:

Each button is set up by loosening the screw (under the call letter tab), tuning in the station, depressing the button and then tightening the screw.

NOTE:- THE FOLLOWING INFORMATION APPLIES TO ALL CHASSIS AND MODELS LISTED ABOVE UNDER MODELS 6403,etc. AND MODELS 6407, etc.

THE LOOP ANTENNA:

The loop antenna is directional so that reception may be improved or interference lessened by turning the set to a particular position. In locations where the signal strength is too low to give satisfactory reception from the loop antenna, an outside antenna may be connected to the Fahnstock clip at the end of the lead at the rear of the receiver. No attempt should be made to use a ground connection.

REMOVING THE CHASSIS FROM THE CABINET:

In addition to the two screws that hold the back of the chassis there is also a screw that holds the speaker frame to the cabinet.

THE HEATER CIRCUIT:

The heaters of all of the tubes are connected in series. Accordingly, if any one tube burns out, the others will not light. It is necessary to replace only the burnt out tube; the others then will light. The burnt out tube can be located through the fact that the full line voltage will appear across its heater prongs.

POSITION OF POWER CORD PLUG:

On AC, the power cord plug should be tried in both its possible positions in the receptacle and left in the position that gives least hum. On DC, the receiver will work at only one position of the plug in its receptacle.

COIL REPLACEMENT:

No regard need be paid to the colors of paint spots on coils or cores. Coils may be replaced individually; however, cores must be replaced in pairs to secure proper matching and are furnished in pairs for servic. To replace a coil, cut away the cement from the old coil and remove the coil. Insert the new coil in the bracket and position it so that, when the tuning knob is turned to its low frequency limit, the core will extend exactly 1/16" beyond the end of the coil winding. A gauge, easily made of a piece of wire as illustrated, should be used for determining this dimension. Similarly, when replacing cores, the coil positions must be checked to see that there is exactly 1/16" overlap of the core beyond the end of the coil winding with the tuning knob at the low frequency limit. This is true for both oscillator and translator cores and coils. New coils can be cemented to the bracket with Major's, Du Pont, or equivalent cement.

ELIMINATING HUM MODULATION WHEN USING AN EXTERNAL ANTENNA:

As shown by the Schematic and by the Location of Parts diagram, there is a 2200 ohms resistor, connected from the external antenna clip to chassis. This resistor prevents hum modulation when using an external antenna. If such hum is experienced, examine the chassis to see if this resistor has been incorporated. (The resistor is mounted alongside of the loop antenna connection board as shown in the Location of Parts diagram. It was not incorporated in early production.) If necessary, addition of the resistor will eliminate the complaint.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter to indicate 50 milliwatts . . . . . 0.36 volt
Dummy antenna value to be in series with generator output . . . . . See chart below
Connection of generator ground lead . . . . . To external ground
Position of Volume Control . . . . . Fully on

POSITION OF DIAL POINTER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED. (IN ORDER SHOWN)	TRIMMER FUNCTION
550 kc	455 kc	.1 mfd.	12A8GT-Grid	T2,T1	IF
540 kc	540 kc	.0003 mfd.	Ant. Clip	C3*	Oscillator
700 kc	See note A 700 kc	.0003 mfd.	Ant. Clip	C2*	Translator
900 kc	See note B 900 kc	.0003 mfd.	Ant. Clip	C2*	Translator

IMPORTANT ALIGNMENT NOTES

NOTE A:- Applies only to MODELS 6403,etc as listed above.
NOTE B:- Applies only to MODELS 6407, etc as listed above.

* Adjustment accessible through holes in bottom of cabinet with chassis in cabinet.

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.

General Information and Service Hints

MODEL 7230 CHASSIS 126.208

Eliminating Whistle at 910 KC:

A whistle due to a beat between the second harmonic (910 kc) of the 455 kc I-F, and a 910 kc signal may be experienced. In localities where the 910 kc station is one that is frequently listened to, it will be desirable to shift the whistle to some other point where it will not be objectionable. This can be done by shifting the I-F frequency of the receiver.

Determine at what point between 880 and 940 kc the whistle will be least objectionable. Dividing this frequency by two will give the new I-F frequency to which the receiver should be aligned. For example, if it is determined that a whistle at 930 kc would not be objectionable, the I-F should be re-aligned at 930/2 or 465 kc. Try to select the new I-F frequency as close as possible to 455 kc.

An interfering whistle may also be caused by two stations having a frequency difference equal to the I-F frequency (455 kc) of the receiver. This will be evidenced by a whistle appearing when the receiver is tuned to either of the stations. It may be further localized by tuning the receiver to each of these stations and then stopping the oscillator, in each case, by grounding the oscillator stator section of the variable tuning condenser C32 (rear section) to chassis. If the whistle, in each case, still persists, it is being caused by the beat between these two stations and may be corrected by shifting the I-F frequency of the receiver to a frequency other than the difference frequency of the two local or strong signals (stations).

The I-F amplifier should not be shifted to a frequency higher than 470 kc, nor lower than 440 kc, but should be as close to 455 kc as possible.

Align the I-F at the new frequency and then re-align the rest of the receiver as described under "ALIGNMENT PROCEDURE."

Loudspeaker:

Centering of the loudspeaker voice-coil is done in the usual manner with three, narrow-paper or celluloid feelers, after first removing the front dust-cover by gently cutting it away. A dust-cover should be cemented back in place upon completion of the adjustment.

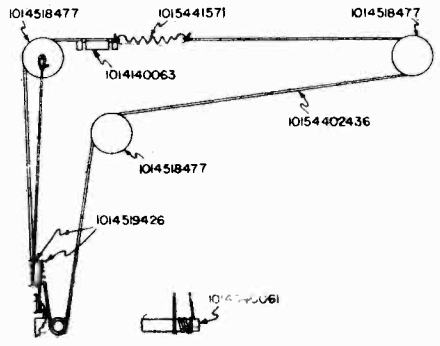
Unpacking and Assembly:

Remove the tape which holds the pickup on the pickup rest during shipment. The knobs and turntable parts will be found in a separate package. Assemble the washer, rubber spindle cap, and turntable on the spindle as shown in the diagram. The projections on the washer should fit over the pin in the spindle, and the rubber cap should be pushed down against the washer.

Motor Lubrication:

The phonograph motor should be oiled occasionally by lifting off the turntable and applying a few drops of light machine oil to the spindle.

Before ordering parts for Dial Drive System, check these drawings:

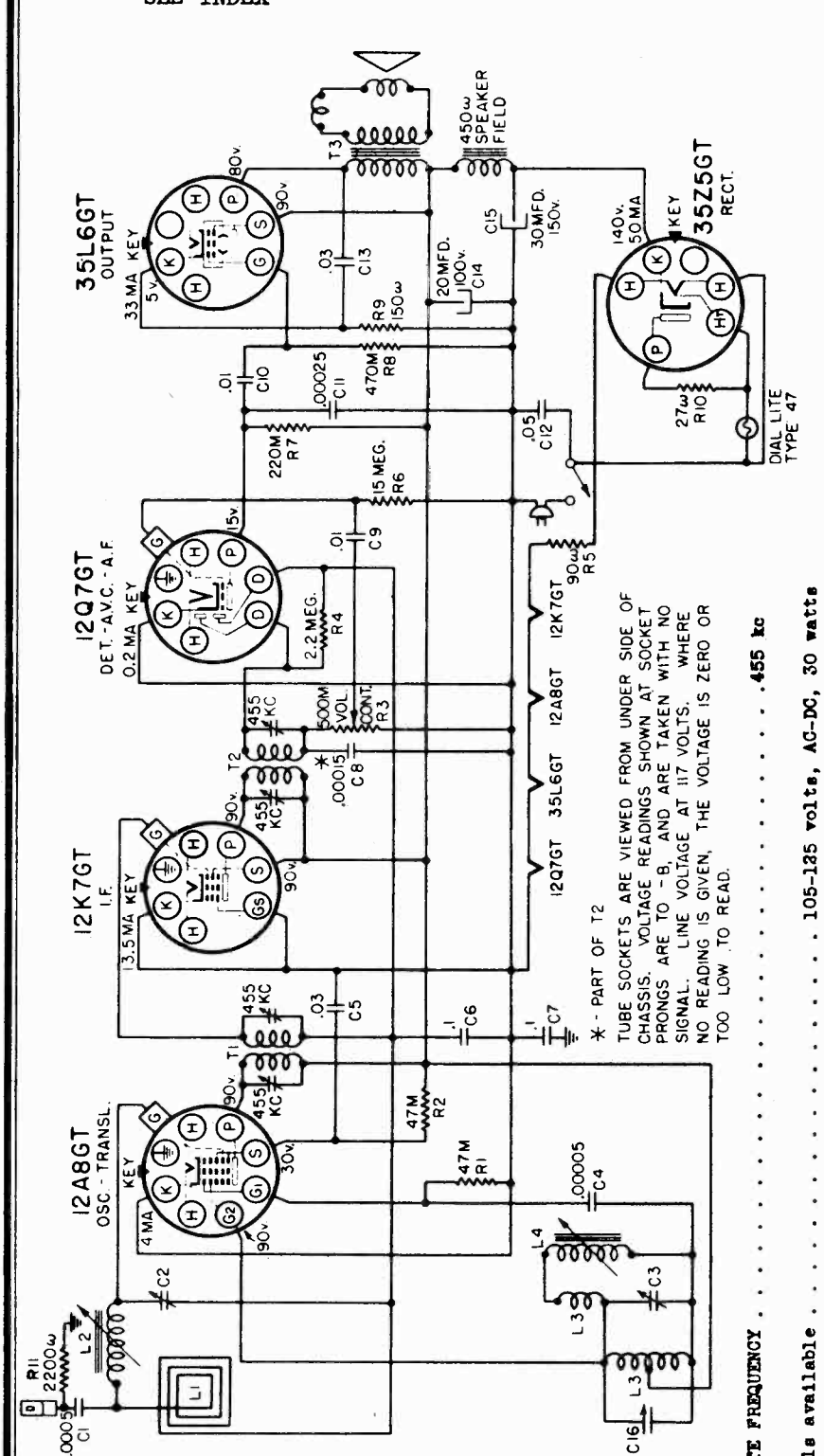


MODEL 6447 CHASSIS 101.590,-1,-2,-3.

SEARS, ROEBUCK & CO.

MODELS 6407,6408,6409
Ch.101.567,101.567-A,-B
101.567-1,-1A,-1B
101.567-2,-2A,-2B
Schematic,Voltage,Chassis
Socket,Trimmers,Drive Cord

FOR ALIGNMENT
SEE INDEX



* - PART OF T2

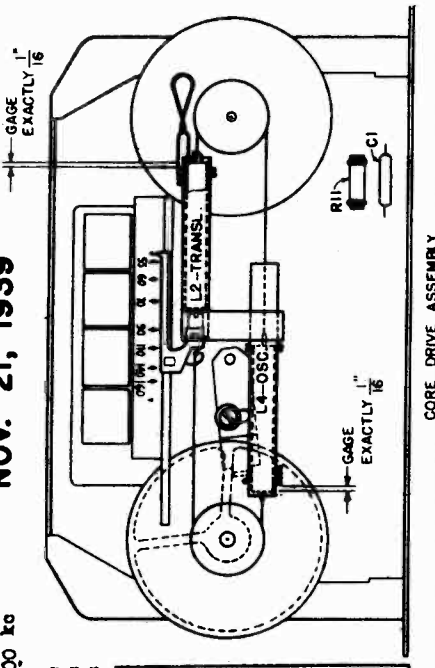
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO -B, AND ARE TAKEN WITH NO SIGNAL. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . . . .455 kc

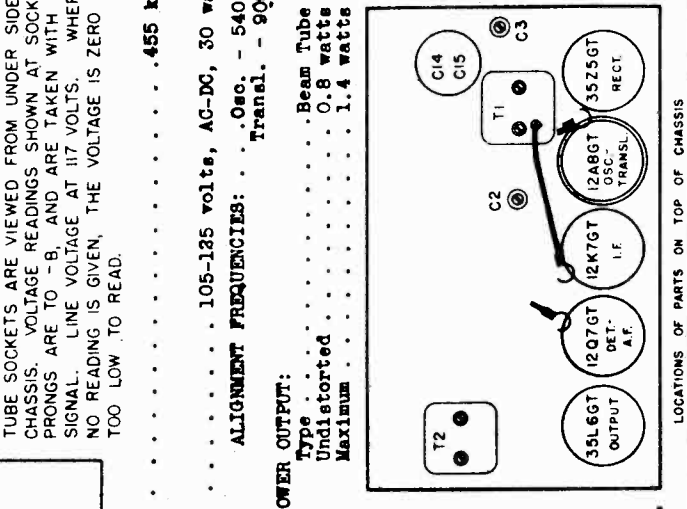
POWER SUPPLY:
All models available . . . . . 105-125 volts, AC-DC, 30 watts

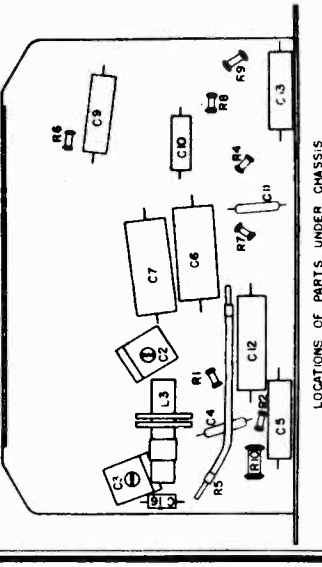
FREQUENCY RANGE . . . . . .540-1620 kc **ALIGNMENT FREQUENCIES:** . . .Osc. - 540 kc; Transl. - 900 kc

LOUD SPEAKER:
Type . . . . . Dynamic. **POWER OUTPUT:**
Size . . . . . 4 inch Type . . . . . Beam Tube
Field coil resistance . . 450 ohms Undistorted . . . . . 0.8 watts
Approx.field coil voltage drop. 50 V. Maximum . . . . . 1.4 watts



NOV. 21, 1939





MODELS 6407,6408,6409
Changes to Chassis
MODELS 6407A,6408A,6409A
Ch.101.567-3,-3A,-3B
Schematic,Voltage

SEARS, ROEBUCK & CO.

ADDITION OF SUFFIX NUMBERS -1 AND -2 TO CHASSIS IDENTIFICATION NUMBER:

In order to broaden the selectivity somewhat, chassis identified with the addition of suffix number, -1, have had the connections of the 1st I.F. Transformer reversed so that the blue wire goes to B+ and the red wire to the 12A8GT plate. This decrease in selectivity improves the repeat accuracy of the push button setting. Some of these sets also have a 33M ohm resistor in place of the 47M ohm resistor, R3.

Chassis identified by the addition of suffix number, -3, have a different 1st I.F. Transformer, part number 10133421701, and a different 2nd I.F. Transformer, part number 1013342171, giving a still greater decrease in selectivity and a still further improvement in repeat accuracy of the push button settings. The value of R3 in these chassis is 33M ohms.

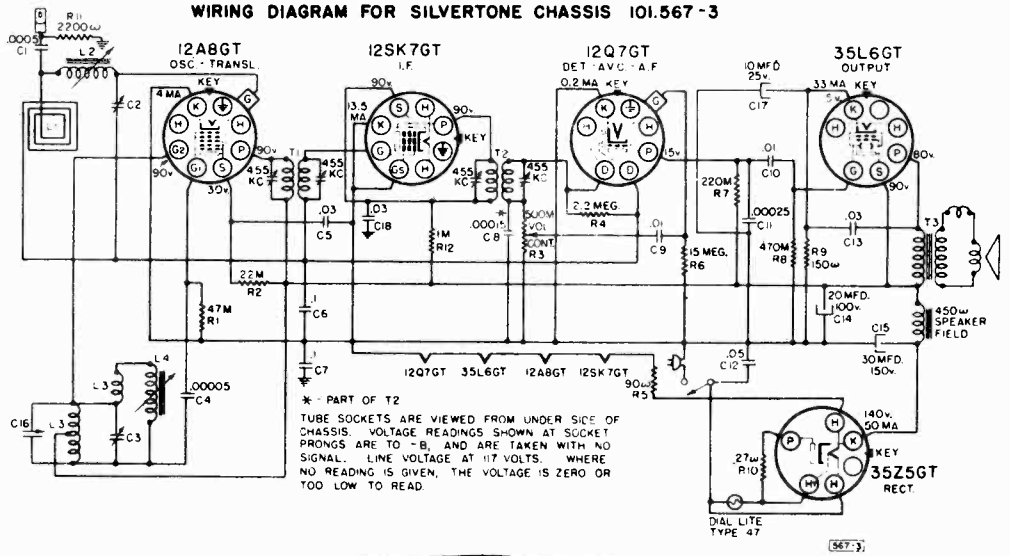
SUBJECT: ADDITION OF SUFFIX NUMBER -3 TO CHASSIS IDENTIFICATION NUMBER:

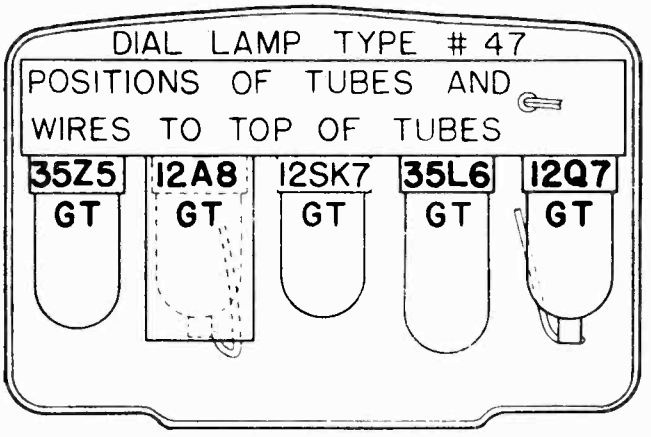
Chassis identified by the addition of suffix number 3 (plus any suffix letter) to the identification number use a 12SK7GT IF tube instead of a 12K7GT. In addition, the positions of the 12Q7GT Detector and 35L6GT Output tubes have been interchanged. The revised Wiring Diagram and Tube Layout are shown in this supplement.

Changes in the parts are as follows:

Loop antenna changed to 1012842410; retail price 48¢.
Electrolytic condenser changed to 1013042405; retail price 59¢.
IF Input Transformer changed to 1013342406; retail price 60¢.
IF Output Transformer changed to 1013542476; retail price 60¢
1M ohm 1/3 watt Resistor, R13, added; retail price 15¢.
.03 mfd., 300 volt Condenser, C18, added; retail price 7¢.

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.567-3





FOR ALIGNMENT
SEE INDEX

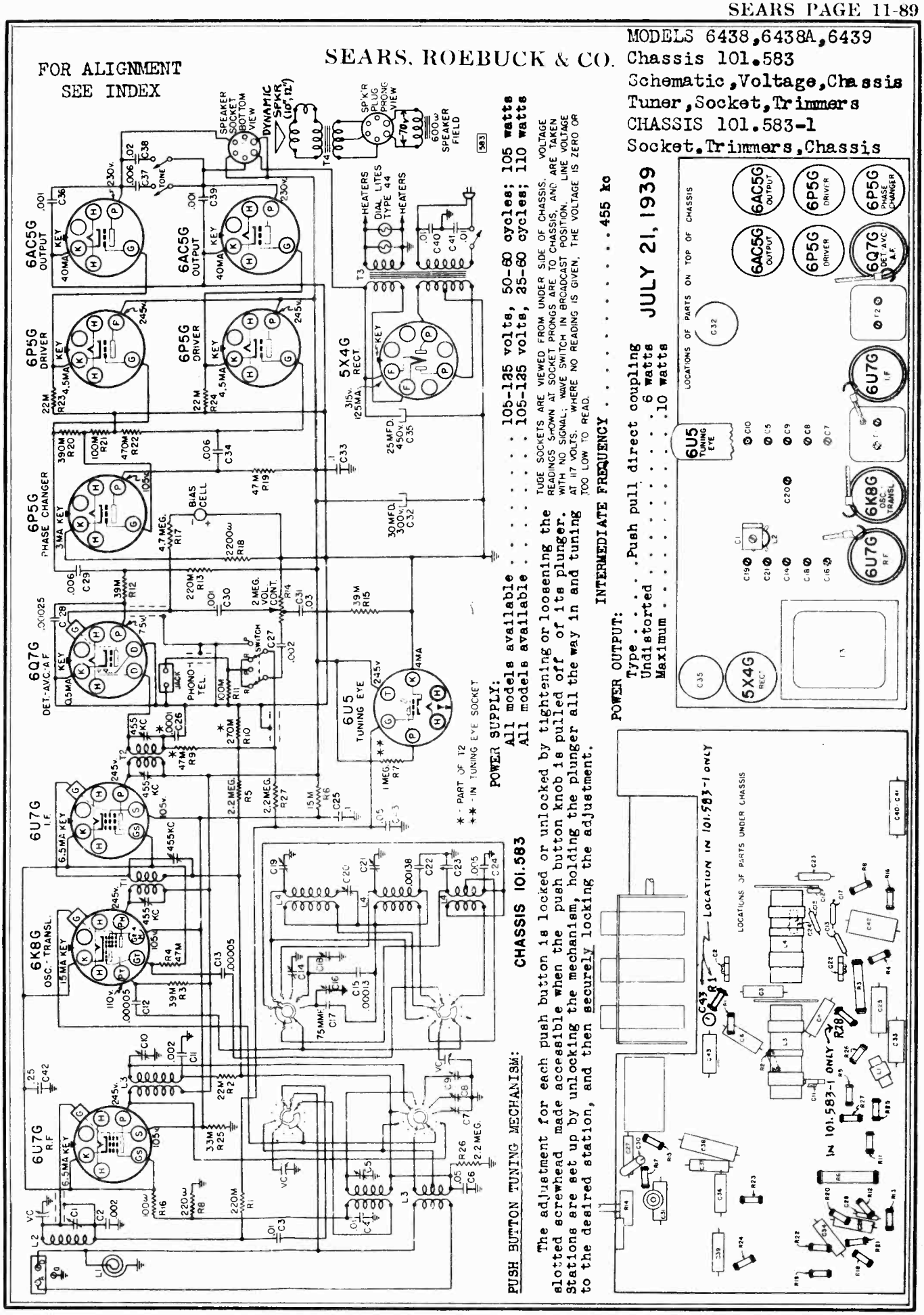
FEB. 13, 1940

SEARS, ROEBUCK & CO.

MODELS 6438,6438A,6439
Chassis 101.583
Schematic,Voltage,Chassis
Tuner,Socket,Trimmers
CHASSIS 101.583-1
Socket.Trimmers,Chassis

JULY 21, 1939

FOR ALIGNMENT
SEE INDEX



POWER SUPPLY:
All models available . . . . . 105-135 volts, 50-60 cycles; 105 watts
All models available . . . . . 105-135 volts, 25-60 cycles; 110 watts

TUGE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

INTERMEDIATE FREQUENCY . . . . . 455 kc

POWER OUTPUT:
Type . . . . . Push pull direct coupling
Undistorted . . . . . 6 watts
Maximum . . . . . 10 watts

CHASSIS 101.583

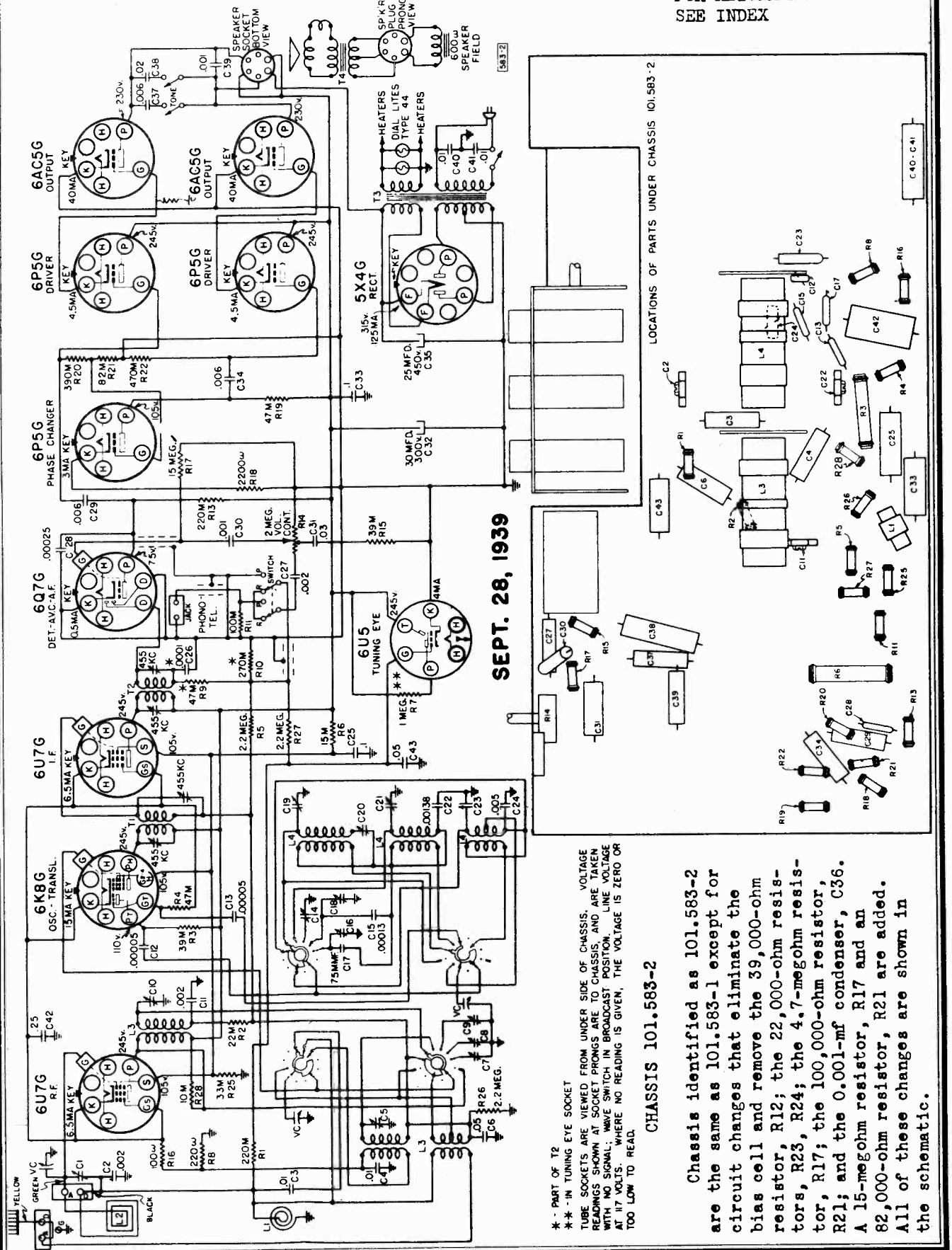
PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, holding the plunger all the way in and tuning to the desired station, and then securely locking the adjustment.

MODELS 6438B,6439A,6440
Chassis 101.583-2
Schematic,Voltage,Chassis
Notes

SEARS, ROEBUCK & CO.

FOR ALIGNMENT
SEE INDEX



* - PART OF T2
** - IN TUNING EYE SOCKET
TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL; WAVE SWITCH IN BROADCAST POSITION. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

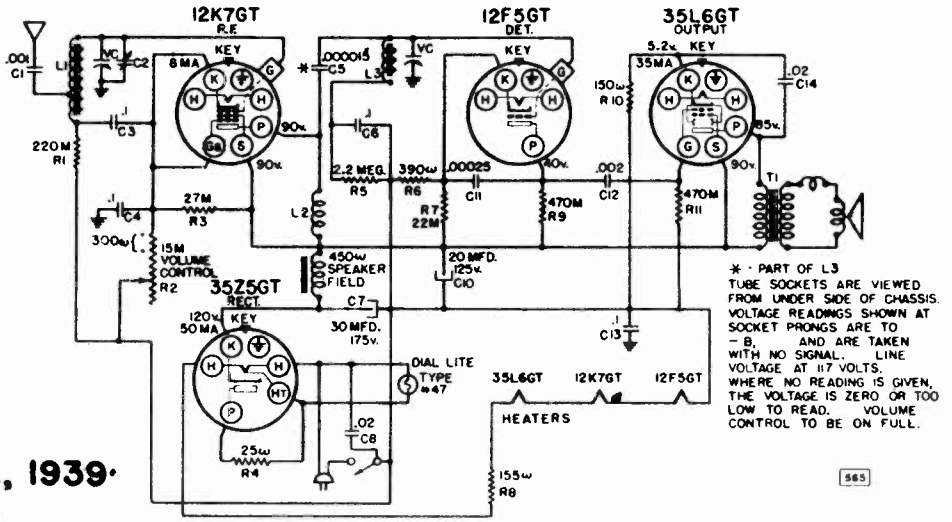
CHASSIS 101.583-2

Chassis identified as 101.583-2 are the same as 101.583-1 except for circuit changes that eliminate the bias cell and remove the 39,000-ohm resistor, R12; the 22,000-ohm resistors, R23, R24; the 4.7-megohm resistor, R17; the 100,000-ohm resistor, R21; and the 0.001-mf condenser, C36. A 15-megohm resistor, R17 and an 82,000-ohm resistor, R21 are added. All of these changes are shown in the schematic.

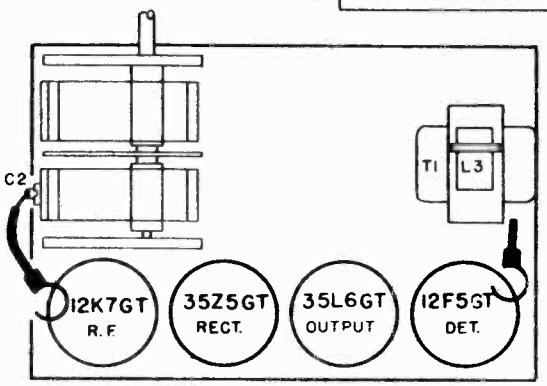
Schematic, Voltage, Chassis Socket, Trimmers, Alignment Notes

SEARS, ROEBUCK & CO.

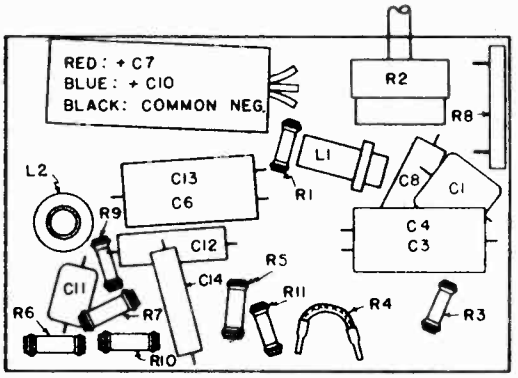
MODELS 6400, 6401, 6402
Ch. 101.565, 101.565-A, -B
MODELS 6400A, 6401A, 6402A
Ch. 101.593, 101.593-A, -B



SEPT. 22, 1939.



LOCATIONS OF PARTS ON TOP OF CHASSIS



LOCATIONS OF PARTS UNDER CHASSIS

POWER SUPPLY:
All models available . . . . . 105-135 volts; AC-DC, 30 Watts

POWER OUTPUT:
Type . . . . . Beam Tube
Undistorted . . . . . 0.65 watts
Maximum . . . . . 0.85 watts

LOUD SPEAKER:
Type . . . . . Dynamic
Size . . . . . 3-1/2 inch
Field coil resistance . . . 450 ohms
Field coil voltage drop. . . 30 volts

ALIGNMENT PROCEDURE

Either a broadcast signal of about 1400 kc or a test oscillator signal may be used. If a broadcast signal is used, the antenna of the receiver should be extended as in a normal installation. If a test oscillator signal is used, a wire should be connected to the test oscillator output and run parallel to but insulated from the receiver's antenna wire.

Tune in the 1400 kc signal and adjust the trimmer of the variable for maximum loud speaker response. This can be done most accurately if the volume control setting is reduced to give low volume level. The variable should be rocked a degree or two during the adjustment.

SUFFIX LETTERS "A" & "B"

101.565 chassis is used in the black cabinet, Catalog #6400. Suffix letter "A" is added to the chassis identification, making it 101.565-A, for the ivory cabinet, Catalog #6401. Suffix letter "B" is added, making the chassis identification 101.565-B, for the walnut cabinet, Catalog #6402.

Chassis 101.593,-A,-B is exactly the same as 101.565,-A,-B described in RL 207, except that it uses a speaker having a higher inductance field to give more satisfactory operation on 25 cycle AC. The field coil resistance is 550 ohms instead of 450 ohms as in the 101.565 speaker.

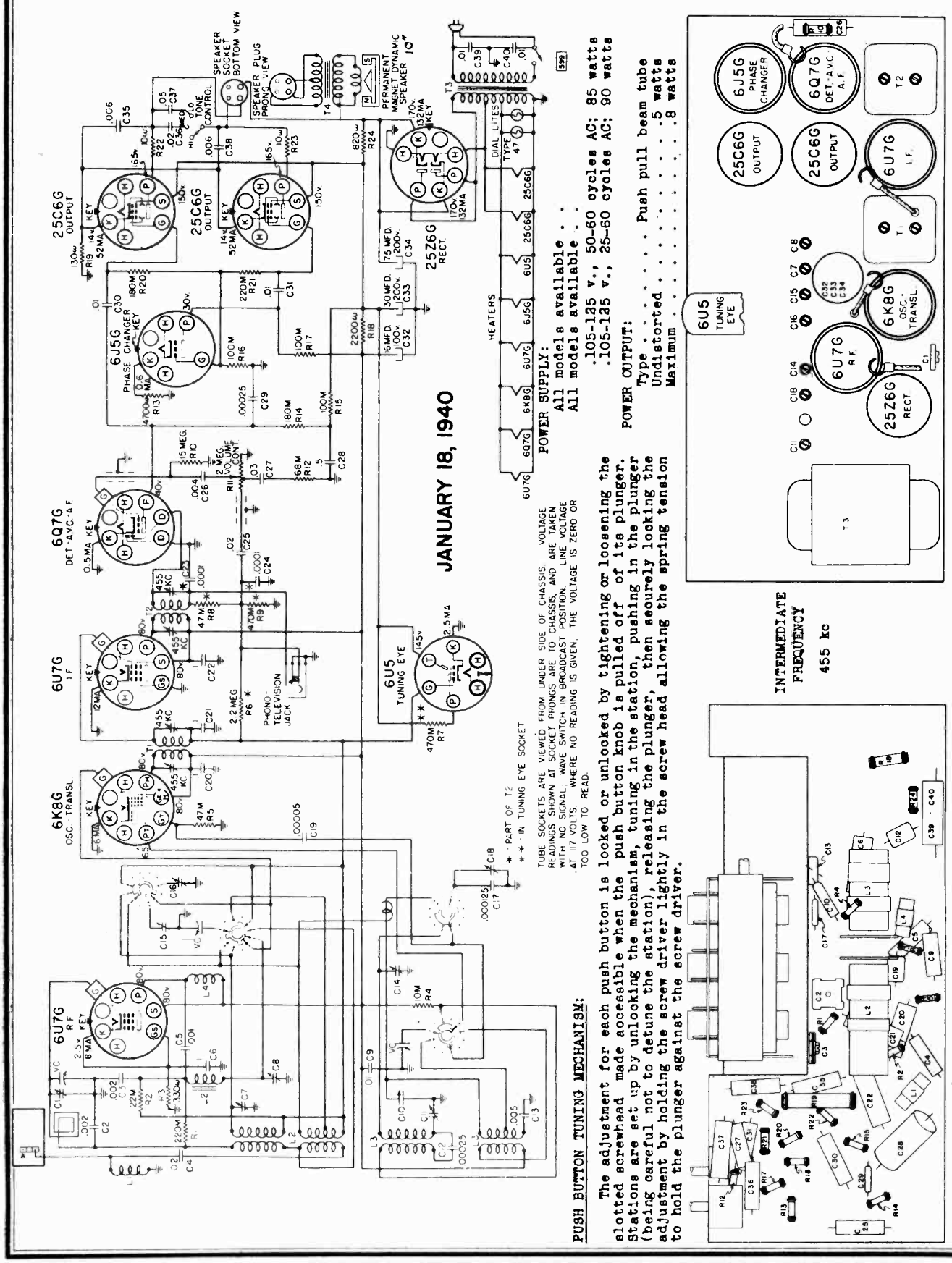
REDUCING 25 CYCLE DIAL LIGHT FLICKER:

Objectionable 25 cycle flicker of the dial light can be eliminated, at some sacrifice in illumination, by changing the connection of the 25 ohm resistor, R4, to the other side of the dial light socket lead; i.e., change the R4 connection from prong #3 of the 35Z5GT tube to prong #3.

MODEL 6441,Ch. 101.599
Schematic,Voltage,Chassis
Socket,Trimmers,Tuner

SEARS, ROEBUCK & CO.

FOR ALIGNMENT SEE INDEX



POWER SUPPLY:
All models available . . . . . .105-135 v., 50-60 cycles AC; 85 watts
All models available . . . . . .105-135 v., 25-60 cycles AC; 90 watts

POWER OUTPUT:
Type . . . . . Push pull beam tube
Undistorted . . . . . .5 watts
Maximum . . . . . .8 watts

INTERMEDIATE FREQUENCY
455 kc

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlooking the mechanism, tuning in the station, pushing in the plunger (being careful not to detune the station), releasing the plunger, then securely looking the adjustment by holding the screw driver lightly in the screw head allowing the spring tension to hold the plunger against the screw driver.

SEARS, ROEBUCK & CO.

MODEL 6447, Ch. 101.590, 101.590-1 to 101.590-5
Schematics, Voltage, Notes

ADDITION OF SUFFIX NUMBERS:

Chassis 101.590-1 is the same as 101.590 except that it uses a different tone arm and pickup cartridge, not interchangeable with the ones used in 101.590. Accordingly, when ordering either a tone arm or a pickup cartridge, be sure the proper part number is used and the correct chassis number indicated in the order. 101.590,-1 use a two position tone control.

101.590-2 is the same as 101.590 except for changes in the antenna circuit, including the addition of an I.F. wave trap. A continuously variable tone control is used.

101.590-3 is the same as 101.590-2 except that it uses the same tone arm and pickup that are used in 101.590-1.

POWER SUPPLY:

All models available	105-125 volts, 60 cycle, AC; 75 watts
All models available	105-125 volts, 50 cycle, AC; 80 watts
All models available	105-125 volts, 25 cycle, AC; 90 watts

INTERMEDIATE FREQUENCY . . . . . 455 kc

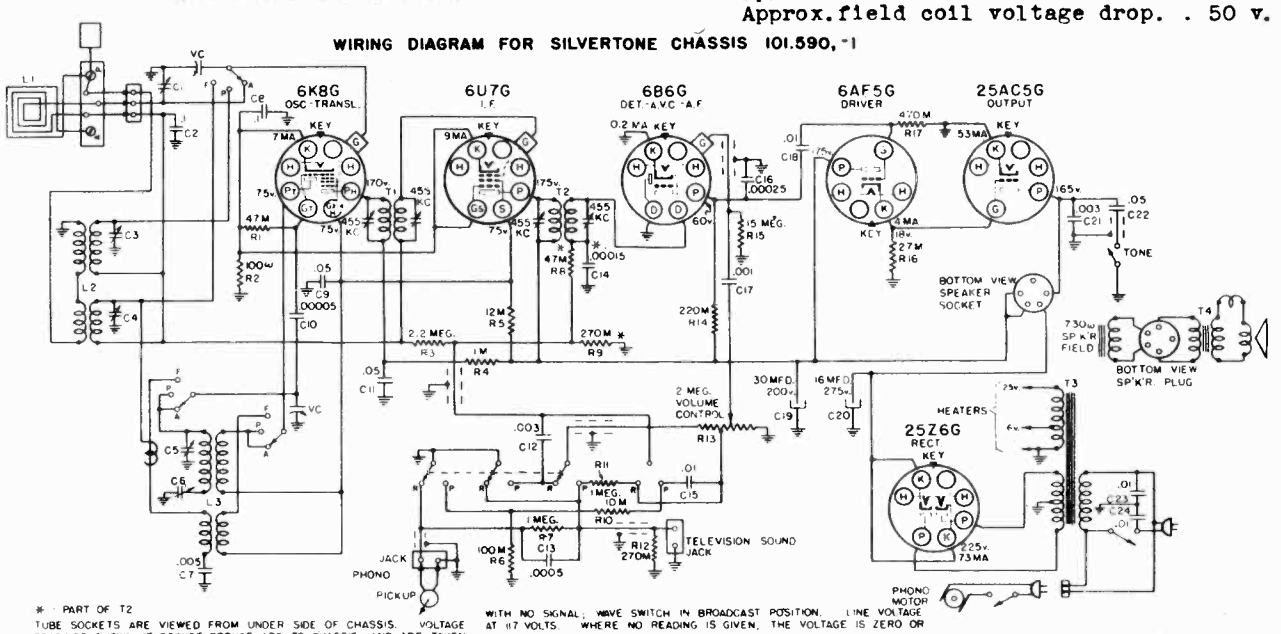
POWER OUTPUT:

Type	Direct coupled
Undistorted	2-1/2 watts
Maximum	4 watts

LOUD SPEAKER:

Type	Dynamic
Size	10 inch
Approx. field coil resistance	730 Ohms
Approx. field coil voltage drop	50 v.

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.590, -1



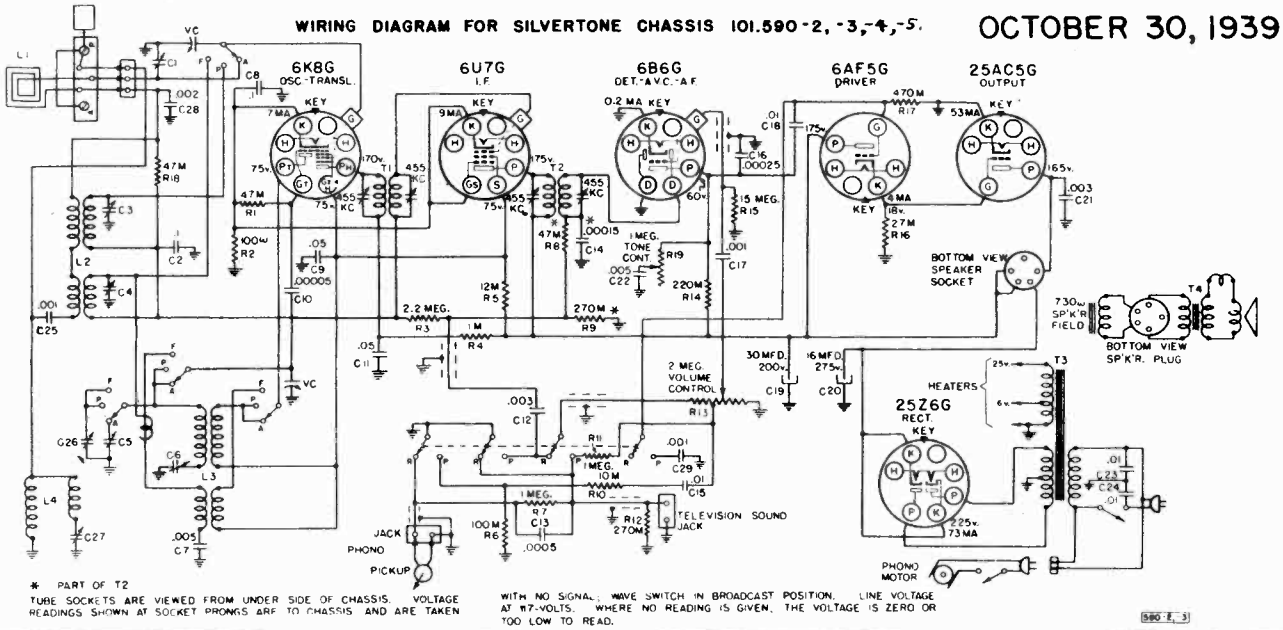
* PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL, WAVE SWITCH IN BROADCAST POSITION, LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

590-1

WIRING DIAGRAM FOR SILVERTONE CHASSIS 101.590-2, -3, -4, -5.

OCTOBER 30, 1939



* PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS AND ARE TAKEN WITH NO SIGNAL, WAVE SWITCH IN BROADCAST POSITION, LINE VOLTAGE AT 117-VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

590-2, 3

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil
Output meter reading to indicate 500 milliwatts . . . . . 0.8 volts
Approximate microvolte input to indicate 500 milliwatts output . . . . . See chart below
Connection of generator ground lead . . . . . Receiver chassis
Generator modulation . . . . . 30%, 400 cycles
Position of Volume Control . . . . . Fully clockwise
Position of Tone Control . . . . . Treble (HI)
Position of Dial Pointer with variable fully closed . . . . . On mark below 550 kc calibration mark.

WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	455 kc	.1 mfd.	6K8G Grid	T2,T1	IF	--
"AM"	600 kc	455 kc	.0002 mfd.	Ant. Clip	C27*	Wave Trap	--
"AM"	Fully open	1650 kc**	.0002 mfd.	Ant. Clip	C5	Oscillator	335
"AM"	Fully open	1550 kc***	.0002 mfd.	Ant. Clip	C5	Oscillator	235
"AM"	1400 kc	1400 kc	.0002 mfd.	Ant. Clip	C1	Translator	35
"AM"	600 kc(rock)	600 kc	.0002 mfd.	Ant. Clip	C6	Padder	100
"POL"	Fully open	3.55 mc***	400 ohms	Ant. Clip	C26***	Oscillator	--
"POL"	2.4 mc	2.4 mc	400 ohms	Ant. Clip	C3	Translator	135
"FOR"	16 mc(rock)	16 mc	400 ohms	Ant. Clip	C4	Translator	45

IMPORTANT ALIGNMENT NOTES

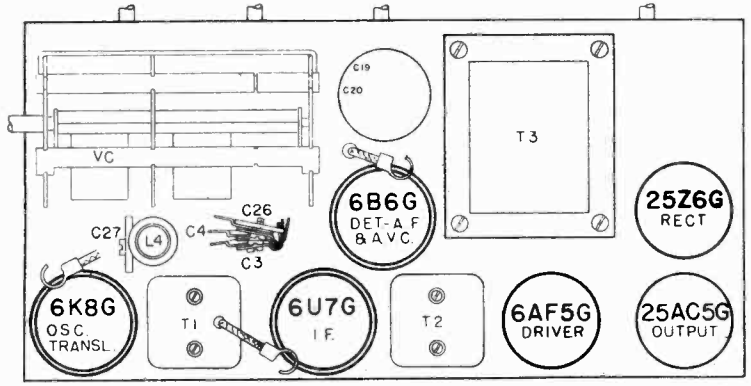
* In 101.590-3,-3 only. The generator should be adjusted for high output. The trimmer should be adjusted for minimum output meter reading instead of the usual maximum reading. If the frequency of an interfering station around 455 kc is known, the generator should be adjusted to the frequency of that station instead of to 455 kc.

** 101.590,-1 only. *** 101.590-3,-3 only.

Where indicated by the word, "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.

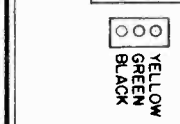
The alignment procedure should be repeated stage by stage, in the original order, for greatest accuracy. Always keep the output from the test oscillator at its lowest possible value to make the AVC action of the receiver ineffective.

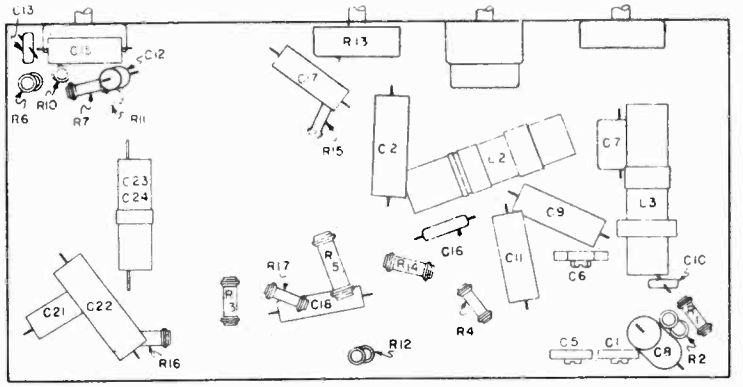
After the alignment has been completed, the C1 adjustment should be repeated on a broadcast signal of about 1400 kc with no external antenna connected to the antenna terminal.



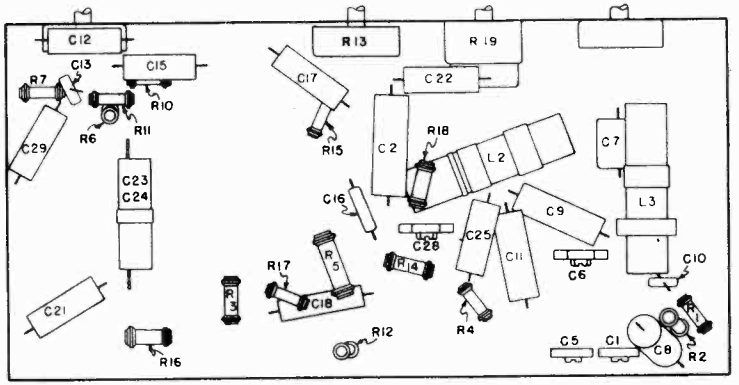
LOCATIONS OF PARTS ON TOP OF CHASSIS 101.590-2,-3,-1*

NOTE: L4, C26 and C27 shown above, are not used on Chassis 101.590-1





LOCATIONS OF PARTS UNDER CHASSIS 101.590, -1



LOCATIONS OF PARTS UNDER CHASSIS 101.590-2,-3,-4,-5.

PUSH BUTTON TUNING MECHANISM:

The adjustment for each push button is locked or unlocked by tightening or loosening the slotted screwhead made accessible when the push button knob is pulled off of its plunger. Stations are set up by unlocking the mechanism, tuning in the station, pushing in the plunger (being careful not to detune the station), releasing the plunger, then securely locking the adjustment by holding the screwdriver lightly in the screw head allowing the spring tension to hold the plunger against the screwdriver.

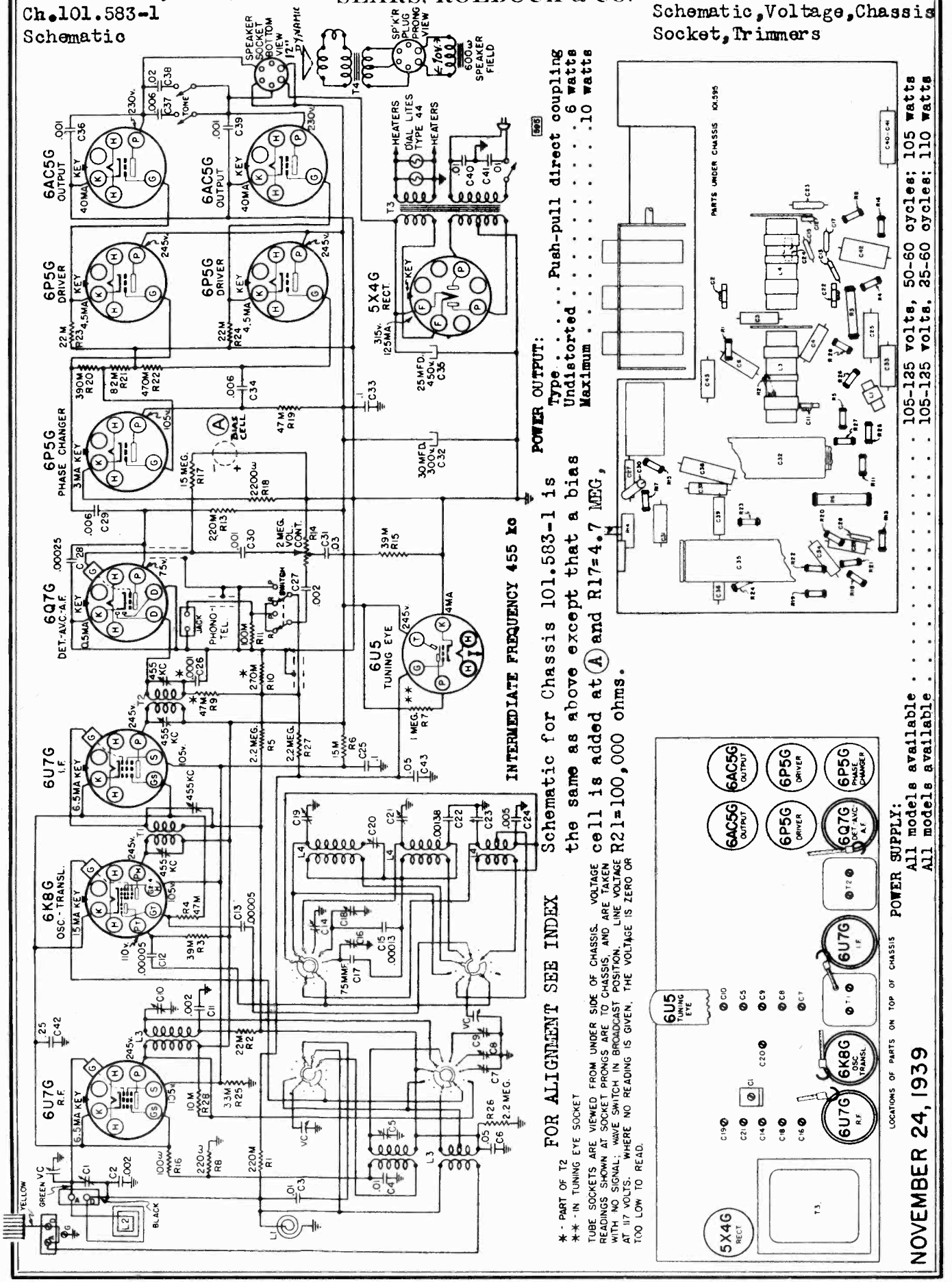
RECOMMENDED ANTENNA EQUIPMENT:

Catalog #5523: Greatest pickup and noise reduction.
Catalog #5522: Less effective pickup and noise reduction than Catalog #5523.
Catalog #5575: Conventional antenna.

MODELS 6438B,6439A,6497
Ch.101.583-1
Schematic

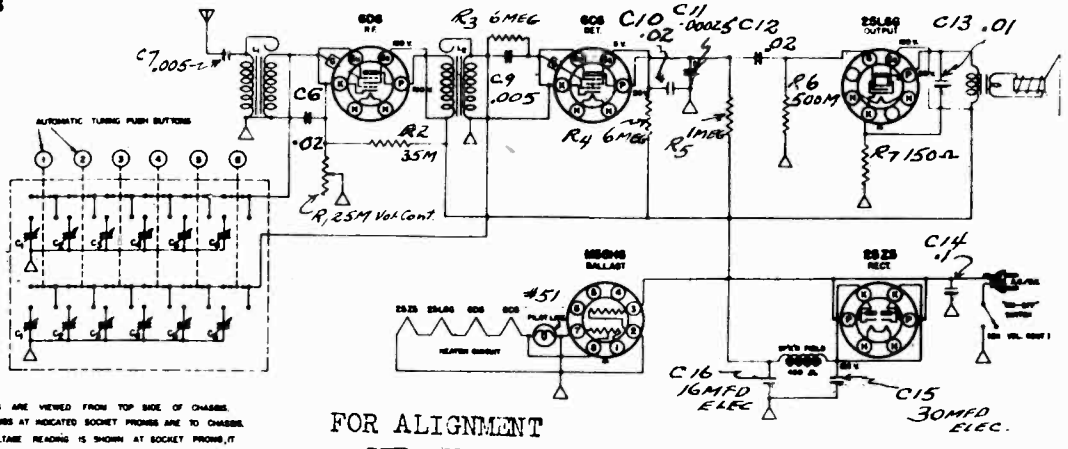
SEARS, ROEBUCK & CO.

MODEL 6497,Ch.101.595
Schematic,Voltage,Chassis
Socket,Trimmers



MODEL 7219,Ch.110.7219
Schematic,Socket,Tuner Trimmers

SEARS, ROEBUCK & CO.



TUBE SOCKETS ARE VIEWED FROM TOP SIDE OF CHASSIS.
VOLTAGE READINGS AT INDICATED SOCKET PRONGS ARE TO CHASSIS.
WHERE NO VOLTAGE READING IS SHOWN AT SOCKET PRONG, IT INDICATES A VERY LOW READING.
VOLTAGE MEASUREMENTS TAKEN WITH 1000 OHMS PER VOLT METER AND VOLUME CONTROL ON FULL.

FOR ALIGNMENT
SEE INDEX

TUNING RANGE	CAPACITY RANGE
BUTTON NO.1 - 540-800KC.	C_7 - 80-480 MMF
BUTTON NO.2 - 800-1000KC.	C_8 - 100-300 MMF
BUTTON NO.3 - 800-1000KC.	C_9 - 100-300 MMF
BUTTON NO.4 - 700-1050KC.	C_{10} - 60-300 MMF
BUTTON NO.5 - 700-1050KC.	C_{11} - 60-300 MMF
BUTTON NO.6 - 950-1600KC.	C_{12} - 20-140 MMF

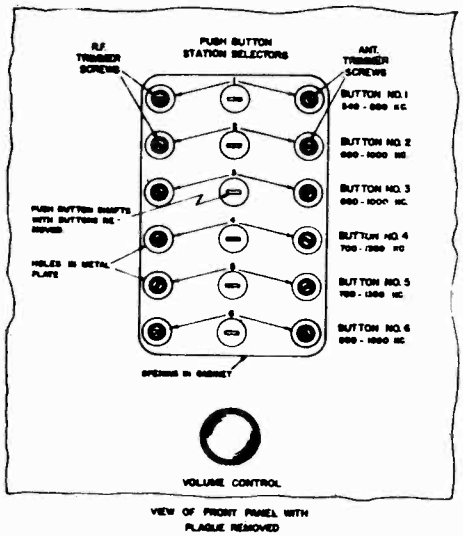
LOUD SPEAKER:
Type.....Dynamic
Size..... 5"
Field Resistance..... 450 Ohms

POWER OUTPUT:
Type.....Beam Power
Undistorted.....1.25 watts
Maximum.....1.75 watts

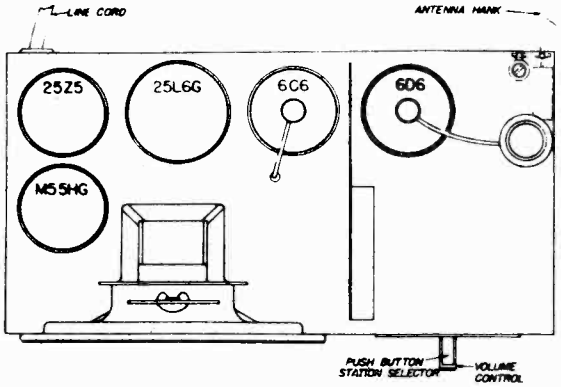
APRIL 26, 1939

POWER SUPPLY
All models available. . . . . .D.C.
or 105-125 volts, 50-60 cycle A.C. 40 watts

FREQUENCY RANGE:
Broadcast . . . . . .540-1600 KC



VIEW OF FRONT PANEL WITH PLAQUE REMOVED



INSTRUCTIONS FOR AUTOMATIC TUNING

Unscrew the wooden plaque through which the push buttons emerge, by removing the screws located at the top and bottom of the plaque.

From the figure shown, determine which pair of trimmer screws have a range including that frequency. For example: The station you might wish to receive may have a transmitting frequency of 590 kc. Since the range of the button No. 1 is 540-800 kc., 590 kc. would be included in this range.

Push that button "IN"

If the frequency of the desired station is higher than that of the station to which it has already been tuned at the factory, turn the Antenna and R.F. trimmer screws to the LEFT slowly until the desired station is heard. If the frequency of the desired station is lower than that of the station to which the trimmers have been adjusted at the factory, turn the trimmer screws to the RIGHT until the station is heard.

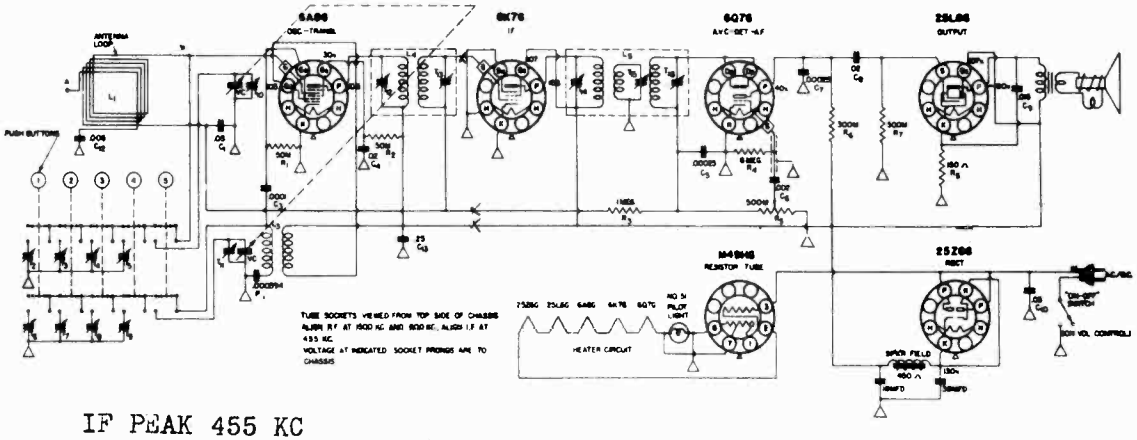
Alternately adjust the R.F. and Antenna trimmers, each time giving screws about 1/8 turn, until maximum volume is obtained. This completes the adjustments for one station.

Note: In some cases, it may be desirable to readjust the trimmers slightly for maximum volume after the set has been unpacked. Rough handling in transportation may have disturbed the trimmer settings.

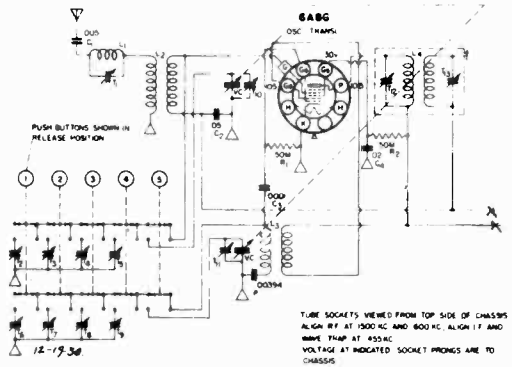
SEARS, ROEBUCK & CO. MODELS 7227, 7243, Ch. 110.258-1

Schematic, Socket, Trimmers Voltage

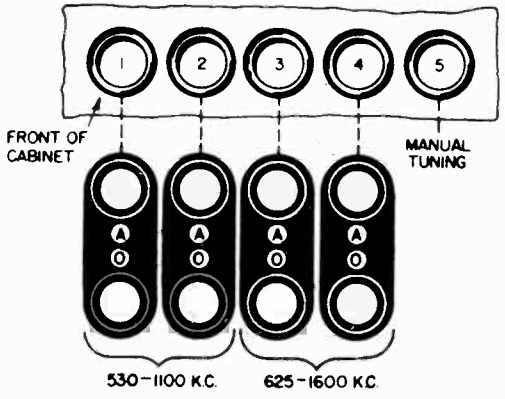
WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.258-1



IF PEAK 455 KC

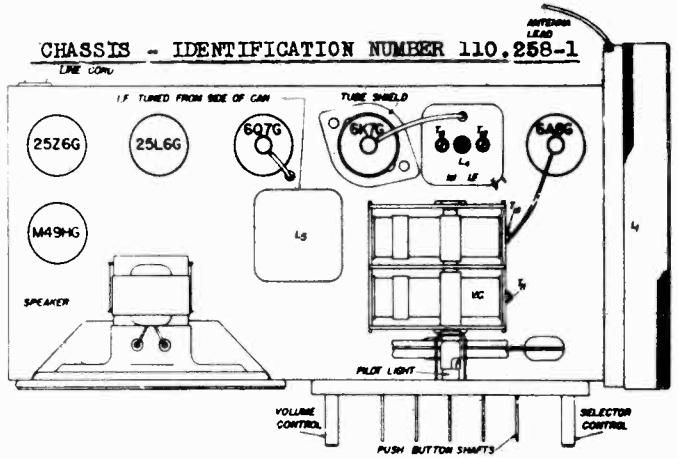


FOR SILVERTONE CHASSIS 110.258

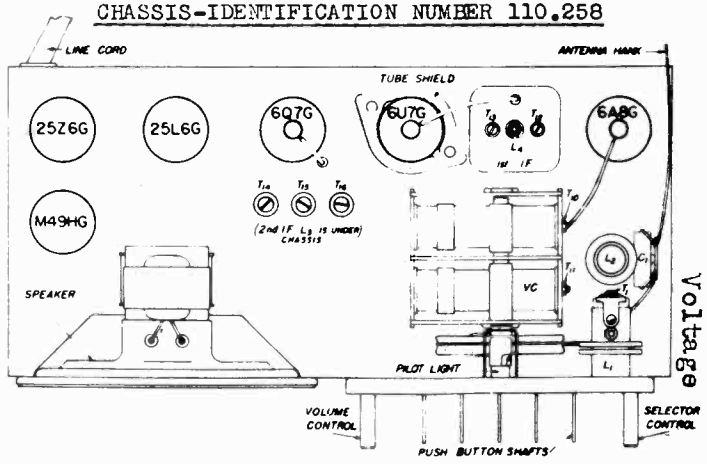


AUTOMATIC TUNING ADJUSTMENTS

CHASSIS - IDENTIFICATION NUMBER 110.258-1



CHASSIS-IDENTIFICATION NUMBER 110.258



POWER SUPPLY:
All models available . . . . . 105-125 volts, 50-60 cycle or DC, 45 watts

POWER OUTPUT:

Type	Beam Power
Undistorted	1.0
Maximum	2.4

LOUD SPEAKER:

Type	Dynamic
Size	5"
Field Resistance	450 ohms

APRIL 26, 1939

MODELS 7250 CHASSIS 110.258-1; 7251 CHASSIS 110.988; 7227,7243 CHASSIS 110.258 6327 CHASSIS 110.990.

AUTOMATIC TUNING CONTROL ADJUSTMENT

Leave the radio turned on for about 15 minutes before adjusting the push buttons. This "warming up" period will insure permanent and accurate settings.

Read the entire procedure through very carefully before attempting to set the push buttons.

1. Make a list of the stations and their frequencies (kilocycles) that you want to set up for push button tuning. It is advisable, but not necessary, to arrange the stations in the order of their frequency (kilocycles); that is, the station of the lowest frequency will be controlled by button No. 1, the station of the next higher frequency by button No. 2, etc.

2. Refer to the diagram underneath the cabinet and see which set of adjustment screws will have a tuning range that includes the frequency of the first station you wish to adjust. The frequency ranges of the adjustment screws are divided into two groups, one group covering from 530 to 1100 kc, the other covering from 625 to 1600 kc.

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

4. Push this button "IN".

5. Turn the volume control knob on full (to extreme right) and adjust screw marked "0" until the desired station is heard. If when making this adjustment, a number of stations can be brought in as the screw is turned and it is doubtful which station is the correct one, press button No. 5 (Manual Tuning) "IN" and turn the station selector knob to the number on the dial that corresponds to the frequency of the station. Listening to the program being broadcast will identify the station when adjusting screw "0".

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

7. Cut out the station name from the list supplied and glue into face of button.

8. Insert celluloid disc.

9. Proceed in the same manner to adjust the tuning screws for the other stations on your list.

MODELS 7250 CHASSIS 110.258-1; 7251 CHASSIS 110.988; 7227,7243 CHASSIS 110.258

ALIGNMENT PROCEDURE

Output meter connections . . . . . Across primary output transformer

Output meter reading to indicate 0.050 watt for Weston type 571 output meter on 15 volt scale . . . . . 9 volts

Average sensitivity in mv. for 0.050 watt . . . . . See chart below

Dummy antenna valve in series with generator output . . . . . 100 mmfds.

Connection of generator ground . . . . . To chassis

MODEL 7807 CHASSIS 113.414

AUTOMATIC TUNING CONTROL ADJUSTMENT

Tune the receiver dial to any desired station, choose the push button which you wish to control this station. Unscrew the push button one full turn, then depress the button as far as it will go, release the button and turn until tight. The chosen station may always be received by depressing this button.

Remove call letter disc of station from list supplied and insert in button.

Insert celluloid disc.

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

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection . . . . . Across loud speaker voice coil

Output meter reading to indicate 500 milliwatts . . . . . 1.2 volts

Generator ground lead connection. . . . . Receiver chassis

Dummy antenna value 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. . . . . Clockwise

Position of Dial Pointer with variable fully closed . . . . Over first heavy line below 550 kc

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED (IN ORDER SHOWN)	TRIMMER FUNCTION	APPROX. MICROVOLTS
Open	465 kc.	.1 Mfd.	6SA7 Grid	T2, T1	I.F.Output I.F.Input	100
Open	1750 kc.	.0002 Mfd.	External Aerial Terminal	C20	Oscillator	75
1400 kc.	1400 kc.	.0002 Mfd.	External Aerial Terminal	C19	Translator	50
600 kc. (Rock)	600 kc.	.0002 Mfd.	External Aerial Terminal	C3	Padder	50
Where indicated by the word "Rock", the variable should be rocked back and forth a degree or two while making the adjustment.						

Generator modulation . . . . . App. 30% @ 400 cycles

Position of volume control . . . . . Fully clockwise

NOTE:- In the following table Ⓐ refers to Model 7250 Chassis 110.258-1; Ⓑ refers to Model 7251 Chassis 110.988 and Ⓒ refers to Models 7227,7243 Chassis 110.258

PUSH BUTTON SWITCH POSITION	POSITION OF DIAL POINTER	GENERATOR FREQUENCY	Ⓐ GENERATOR CONNECTION	Ⓑ GENERATOR CONNECTION	Ⓒ GENERATOR CONNECTION	Ⓐ TRIMMERS ADJUSTED	Ⓑ TRIMMERS ADJUSTED	Ⓒ TRIMMERS ADJUSTED	TRIMMER FUNCTION	Ⓐ APPROXIMATE MICROVOLTS	Ⓑ APPROXIMATE MICROVOLTS	Ⓒ APPROXIMATE MICROVOLTS
Manual "IN"	* *	455 kc	6K7G, Grid	12K7GT, Grid	6U7G, Grid	T15*,T14,T16, T15,T 14,T16,	T14*,T13,T15, T14,T13,T15,	T15*,T14,T16 T15,T14,T16	I.F.	5000	5000	4000
"	* *	455 kc	6A8G, Grid	12A8GT, Grid	6A8G, Grid	T 12,T 13	T12.T11	T12,T13	I.F.	90	75	58
"Ⓒ ONLY	550 kc	455 kc			Ant.			T1	wave trap			***
"	1500 kc	1500 kc	***	***	Ant.	T11,T10	T10,T9	T11,T10	Osc., R.F.			23

IMPORTANT ALIGNMENT NOTES

It is advisable to repeat the entire alignment procedure in the original order to insure greater accuracy.

Always keep the output from the test oscillator at its lowest possible value. As the sensitivity is increased by alignment, the generator output should be reduced correspondingly.

* First time is misaligned by loosening center screw one turn.

** Short oscillator section of variable condenser. Second I.F. alignment must be done twice to secure flat top tuning.

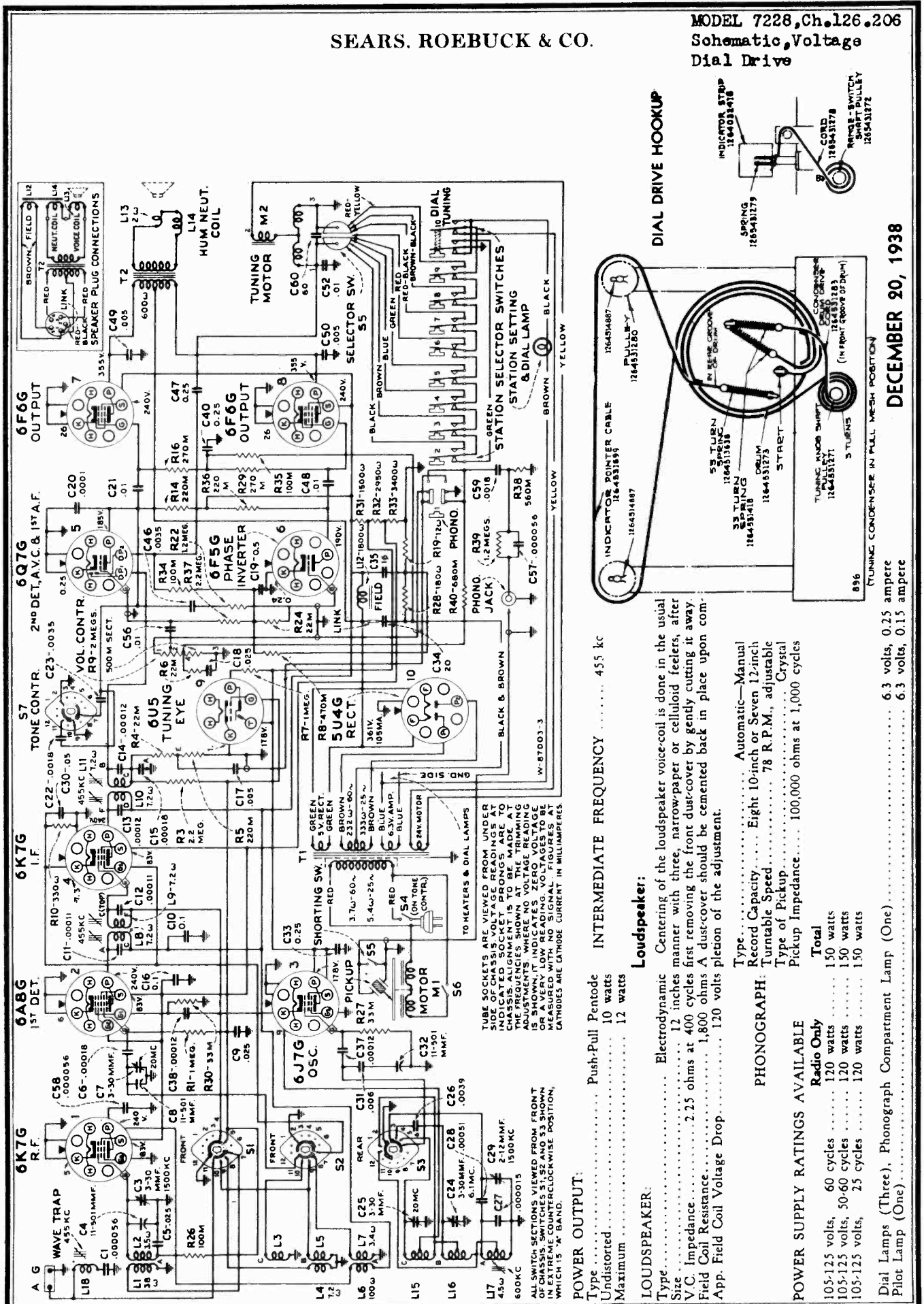
***Connect generator output to a separate radiating loop and pickup 1500 KC signal on receiver

**** Adjust trimmer for minimum output with large signal input.

Values shown under "Microvolts" are only approximate.

SEARS, ROEBUCK & CO.

MODEL 7228, Ch. 126.206
Schematic, Voltage
Dial Drive



DECEMBER 20, 1938

POWER OUTPUT:
Type ..... Push-Pull Pentode
Undistorted ..... 10 watts
Maximum ..... 12 watts

INTERMEDIATE FREQUENCY ..... 455 kc

Loudspeaker:

LOUDSPEAKER:
Type ..... Electrodynamic
Size ..... 12 inches
V.C. Impedance ..... 2.25 ohms at 400 cycles
Field Coil Resistance ..... 1,800 ohms
App. Field Coil Voltage Drop ..... 120 volts

Centering of the loudspeaker voice-coil is done in the usual manner with three, narrow paper or celluloid feelers, after first removing the front dust-cover by gently cutting it away. A dust-cover should be cemented back in place upon completion of the adjustment.

PHONOGRAPH:
Type ..... Automatic—Manual
Record Capacity ..... Eight 10-inch or Seven 12-inch
Turntable Speed ..... 78 R.P.M., adjustable
Type of Pickup ..... Crystal
Pickup Impedance ..... 100,000 ohms at 1,000 cycles

POWER SUPPLY RATINGS AVAILABLE

	Radio Only	Total
105-125 volts, 60 cycles	120 watts	150 watts
105-125 volts, 50-60 cycles	120 watts	150 watts
105-125 volts, 25 cycles	120 watts	150 watts

Dial Lamps (Three), Phonograph Compartment Lamp (One) ..... 6.3 volts, 0.25 ampere
Pilot Lamp (One) ..... 6.3 volts, 0.15 ampere

MODEL 7228
Record Changer

SEARS, ROEBUCK & CO.
Automatic Record Changer

Adjustments, Notes

GENERAL INFORMATION

Before servicing the automatic record changer, inspect the assembly to see that all levers, parts, gears, springs, etc. are in good order and are correctly assembled.

A bind or jam in the mechanism can usually be relieved by rotating the turntable in the reverse direction.

The changer can be conveniently rotated through its change cycle by pushing the index lever to "Reject" and revolving the turntable by hand. Six turntable revolutions are required for one change cycle.

The turntable, spindle, and pinion gear are assembled by means of a 3/32 inch straight pin. This pin may be removed by gently driving with a standard pin punch.

If the record changer or cabinet is not perfectly level, normal operation is likely to be affected.

The 10 and 12 inch records must be absolutely flat for smooth operation when using a mixture of the two sizes.

A shorting switch, located in the pickup head, operates due to pressure when the pickup is placed on the pickup rest.

ADJUSTMENTS

A. Main Lever.—This lever is basically important in that it interlinks the various individual mechanisms which control needle landing, tripping, record separation, etc. One adjustment is provided for the main lever. Rotate the turntable until the changer is out-of-cycle; and adjust rubber bumper bracket (A) so that the roller clears the nose of the cam plate by 1/16 inch.

B. Friction Clutch.—The motion of the tone arm toward the center of the record is transmitted to the trip pawl "22" by the trip lever "7" through a friction clutch "5." If the motion of the pickup is abruptly accelerated or becomes irregular due to swinging in the eccentric groove, the trip finger "7" moves the trip pawl "22" into engagement with the pawl on the main gear, and the change cycle is started. Proper adjustment of the friction clutch "5" occurs when movement of the tone arm causes positive movement of the trip pawl "22" without tendency of the clutch to slip. The friction should be just enough to prevent slippage, and is adjustable by means of screw "B." If adjustment is too tight, the needle will repeat grooves; if too loose, tripping will not occur at the end of the record.

C. Pickup Lift Cable Screw.—During the record change cycle, lever "16" is actuated by the main lever "15" so as to raise the tone arm clear of the record by means of the pickup lift cable. To adjust pickup for proper elevation, stop the changer "in-cycle" at the point where pickup is raised to the maximum height above turntable plate, and has not moved outward; at this point adjust locknuts "C" to obtain 1 inch spacing between needle point and turntable top surface.

D. & E. Needle Landing on Record. — The relation of coupling between the tone arm vertical shaft and lever "20" determines the landing position of the needle on a 10 inch record. Position of eccentric stud "E" governs the landing of the needle on a 12 inch record; this, however, is dependent on the proper 10 inch adjustment.

To adjust for needle landing, place 10 inch record on turntable; push index lever to reject position and return to the 10 inch position; see that pickup locating lever "17" is tilted fully toward turntable; rotate mechanism through cycle until needle is just ready to land on the record; then see that pin "V" on lever "14" is in contact with "Step T" on lever "17." The correct point of landing is 4-11/16 inches from the nearest side of the turntable spindle; loosen the two screws "D" and adjust horizontal position of tone arm to proper dimension, being careful not to disturb levers "14" and "17". Leave approximately 1/32 inch end play between hub of lever "20" and pickup base bearing, and tighten the blunt nose screw "D"; run mechanism through several cycles as a check, then tighten cone pointed screw "D".

After adjusting for needle landing on a 10 inch record, place 12 inch record on turntable; push index lever to reject and return to 12 inch position; rotate mechanism through cycle until needle is just ready to land on the record; the correct point of landing is 5-11/16 inches from nearest side of spindle. If the landing is incorrect, turn stud "E" until the eccentric end adjusts lever "14" to give correct needle landing. The eccentric end of the stud must always be toward the rear of the motor board, otherwise incorrect landing may occur with 10 inch records.

F. & G. Record Separating Knife. — The upper plate (knife) "25" on each of the record posts serves to separate the lower record from the stack and to support the remaining records during the change cycle. It is essential that the spacing between the knife and the rotating record shelf "27" be accurately maintained. The spacing for the 10 inch record is nominally .058 inch, and for the 12 inch record is .075 inch.

To adjust, rotate the knife to the point of minimum vertical separation from the record shelf and turn screw and locknut "F" to give .055—.061 inch separation. Screw "G" must not be depressed during this adjustment. After setting screw "F" adjust screw "G" so that when its tip is depressed flush with top of record shelf, the vertical spacing between the knife, in its lowest rotational position, and the shelf, is .072—.078 inch.

H. Record Support Shelf.—The record shelf revolves during the change cycle to allow the lower record to drop onto the turntable. Both posts are rotated simultaneously by a gear and rack coupled to the main lever "15," and it is necessary that adjustments be such that the record is released from both shelves at the same instant. To adjust, place a 12 inch record on the turntable, rotate mechanism into cycle to the point where tone arm is at maximum distance outward from turntable; lift record upward until it is in contact with both separating knives, then loosen screws "H" and shift record shelves so that the curved inner edges of the shelves are uniformly spaced at least 1/16 inch from record edge. Tighten the blunt nose screw "H," run mechanism through cycle several times to check action, then tighten cone pointed screw "H".

If record shelves or knives are bent, or not perfectly horizontal, improper operation and jamming of mechanism will occur.

J. Tone Arm Rest Support (not shown).—When the changer is out-of-cycle, the front lower edge of the pickup head should be 5/16 inch above surface of motor board. This may be adjusted by bending the tone arm support bracket, which is associated with the tone arm mounting base, in the required direction.

K. Trip Pawl Stop Pin.—The position of the trip pawl stop pin "K" in relation to the main lever "15" governs the point at which the roller enters the cam. By bending the pin support either toward or away from trip pawl bearing stud, the roller can be made to enter the cam later or earlier, respectively. This adjustment should be made so that the roller definitely clears the cam outer guide as well as the nose of the cam plate.

Lubrication.—Petrolatum or petroleum jelly should be applied to cam, main gear, spindle pinion gear, and gears of record posts.

Light machine oil should be used in the tone arm vertical bearing, record post bearings, and all other bearings of various levers on underside of motor board.

The felt washer between the turntable and spindle bearing should be soaked in light engine oil whenever the turntable is removed, or as required for proper operation.

Do not allow oil or grease to come in contact with, rubber mounting of tone arm base, rubber bumper, or flexible coupling of drive motor.

MISCELLANEOUS SERVICE HINTS

Incorrect adjustment of a particular mechanism of the changer is generally exhibited in a specific mode of improper operation. The following relations between effects on operation and the usual mis-adjustments will enable ready adjustment in most cases.

1. For any irregularity of operation, the adjustment of the main lever "15" should be checked first as in "A".
2. Needle does not land properly on both 10 and 12 inch records—Make complete adjustments "D" and "E".
3. Needle does not land properly on 12 inch record but correct on 10 inch—Effect adjustment "E".
4. Failure to trip at end of record—Increase clutch "5" friction by means of screw "B". Also, see that levers "7" and "12" are free to move without touching each other.
5. Pickup strikes lower record of stack or drags across top record on turntable—Adjust lift cable per adjustment "C".
6. Needle does not track after landing—Friction clutch "5" adjustment "B" may be too tight; bind in tone arm vertical bearing; levers "7" and "12" fouled; or pickup output cable twisted.
7. Cycle commences before record is complete—Record is defective, or adjustment "B" of friction clutch "5" is too tight.
8. Wow in record reproduction—Record is defective; flexible coupling between motor and changer mechanism not correctly assembled; or instrument is not being operated at normal room temperature (65° F).
9. Record knives strike edge of records—Records warped; record edges are rough; or knife adjustments "F" and "G" are incorrect.
10. Record not released properly—Adjust record shelf assemblies in respect to shaft by means of adjustment "H".
11. Needle lands in 10 inch position on 12 inch record or misses record when playing both types mixed—Increase tension of pickup locating lever spring "34"

MODEL 7228
Alignment, Trimmers
Socket

SEARS, ROEBUCK & CO.

ALIGNMENT PROCEDURE

PRELIMINARY:

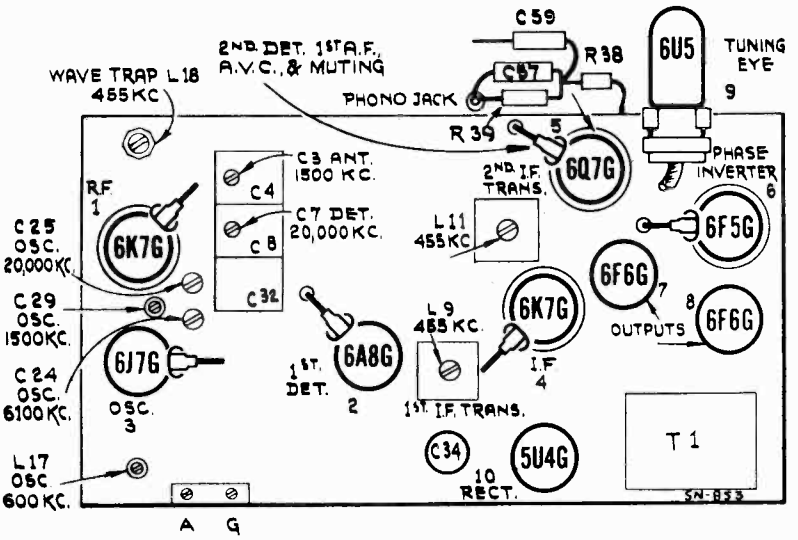
Output meter connections	Across speaker voice coil
Output meter reading to indicate 1.0 watt output	1.5 volts
Approximate average sensitivity in microvolts for 1.0 watt output	See chart below
Dummy antenna value to be inserted in series with generator output	See chart below
Connection of generator output lead	See chart below
Connection of generator ground lead	To chassis
Generator modulation	30%, 400 cycles
Position of Volume Control	Fully clockwise
Position of Tone Control	Fully clockwise

Calibration Scale on Variable Condenser Drive Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment when chassis is out of cabinet; therefore, a calibration scale is attached to the rear of the drum which is mounted on the front shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 0° mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft when the plates are fully meshed. The surface of the drum must be flush with the end of the gang-condenser shaft. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully closed.

Dial - Indicator Adjustment. — After fastening the chassis in the cabinet, attach the dial pointer to the drive cable with variable condenser fully closed and pointer on last calibration mark at 540 kc end of Broadcast "A" band.



LOCATION OF PARTS AND ALIGNMENT ADJUSTMENTS ON TOP OF CHASSIS

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function	Approximate Microvolts
"A"	Low End	455 kc	.001 mfd.	6K7-G I-F Grid	L10, L11	2nd I-F Trans.	7,600
"A"	Low End	455 kc	.001 mfd.	6A8-G Grid	L8, L9	1st I-F Trans.	130
"A"	Low End	455 kc	.0002 mfd.	Ant.	L18	Wave Trap †	——
"C"	20 mc (146°)	20 mc	300 ohms	Ant.	C25	Osc. *	——
"C"	20 mc (146°) (rock)	20 mc	300 ohms	Ant.	C7	Det. **	50
"B"	6.1 mc (139°)	6.1 mc	300 ohms	Ant.	C24	Osc. *	30
"A"	1,500 kc (150.5°)	1,500 kc	.0002 mfd.	Ant.	C29, C3	Osc., Ant.	—
"A"	600 kc (31°) (rock)	600 kc	.0002 mfd.	Ant.	L17	Osc.	3
"A"	1,500 kc (150.5°)	1,500 kc	.0002 mfd.	Ant.	C29, C3	Osc., Ant.	5

IMPORTANT ALIGNMENT NOTES

† Adjust wave-trap for minimum output.

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

** Use maximum capacity peak if two peaks can be obtained.

Where indicated by the word "Rock," the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.

Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value to prevent the a-v-c action of the set from interfering with accurate alignment.

Adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other band. Grid cap leads should remain in place during alignment.

Values shown under, "Microvolts," are only approximate.

MODEL 7228
Chassis Wiring,
Tuner Notes

SEARS, ROEBUCK & CO.

Electric Tuning Mechanism

The circuit of the electric tuning mechanism is shown in the schematic diagram, and the mechanical details are illustrated.

The action can be understood by following a cycle of operation:

When a station button is pushed in, it completes the 24-volt circuit through the corresponding station-setting contact (push-button adjuster pin), and one-half of the brass selector disc, which is connected to one side of the motor field coil. This energizes the motor, and the rotor is pulled forward, engaging with the gear train that drives the tuning condenser and selector disc. The condenser and disc rotate until the insulation line comes under the particular station-setting contact, and the motor circuit is broken.

Adjustment of Selector Disc:

The brass selector disc is fastened to the rear shaft of the tuning condenser by means of two set-screws. When the condenser is at maximum (plates fully meshed) the insulation line should be horizontal, with the beveled operating-end at the left (viewed from rear).

The selector disc should be set so that the contact-tip plungers in the station-setting contacts project not more than 1/16-inch from the body of the contacts.

Muting Circuit:

When the electric tuning mechanism is in action, the motor-supply voltage is fed into a diode rectifier circuit which applies a high bias to the first-audio amplifier. This prevents audio amplification and makes the set quiet or "mute" while the mechanism is operating.

Lubrication:

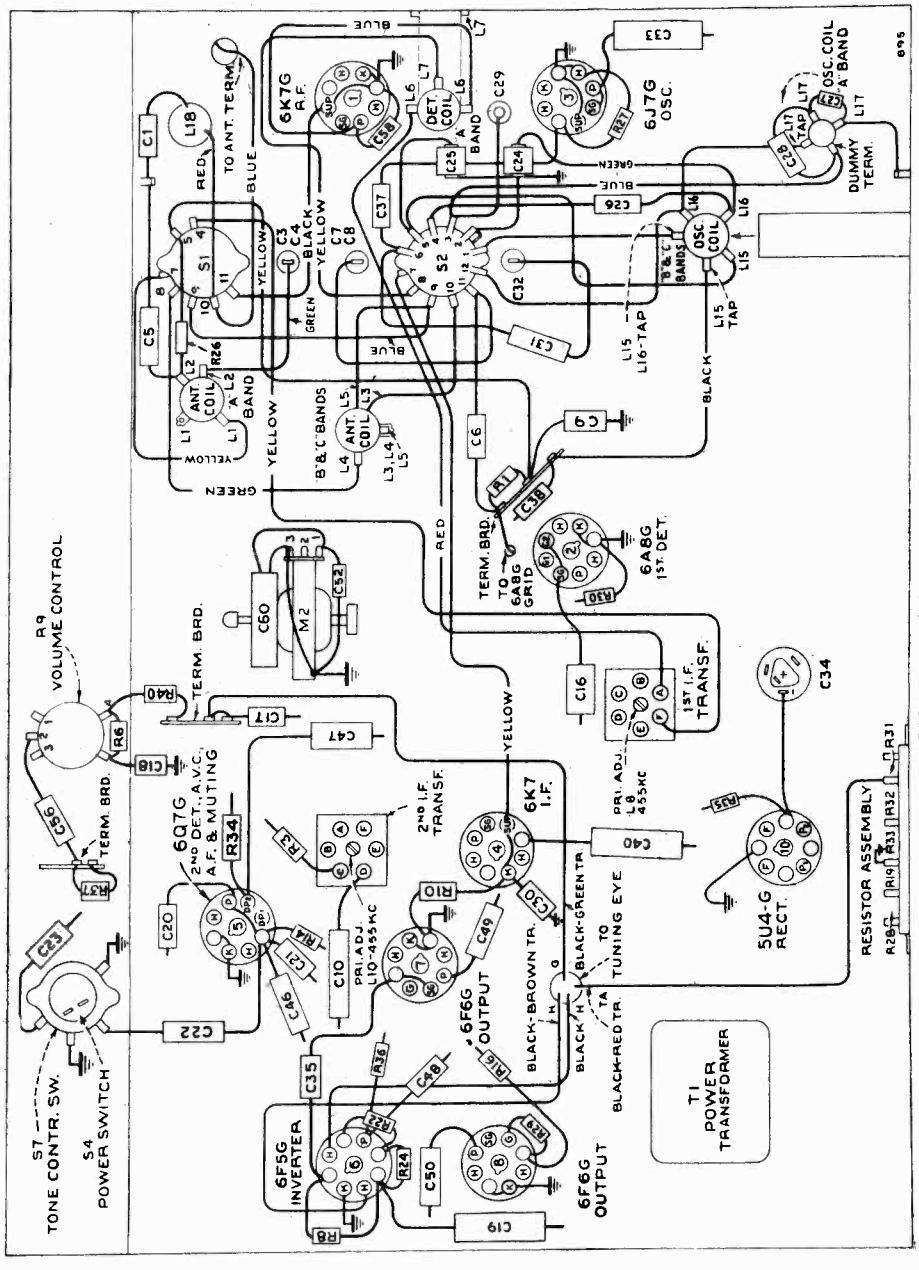
Motor bearings and **gear bearings**; use light machine oil.

Gear faces, dial-indicator pulleys and **rails**; use petroleum jelly.

Selector disc; apply **thin** film of petroleum jelly.

Tuning Motor Replacement:

Replacements for the tuning motor (No. 1264532434, 25 cycle, and No. 1264532093, 50-60 cycle) are supplied with a spiral thrust spring on the motor shaft. This spring should be removed (with a pair of long-nose pliers) before installing the motor in the chassis.



General Information and Service Hints

Eliminating Whistle at 910 KC:

A whistle due to a beat between the second harmonic (910 kc) of the 455 kc I-F, and a 910 kc signal may be experienced. In localities where the 910 kc station is one that is frequently listened to, it will be desirable to shift the whistle to some other point where it will not be objectionable. This can be done by shifting the I-F frequency of the receiver.

Determine at what point between 880 and 940 kc the whistle will be least objectionable. Dividing this frequency by two will give the new I-F frequency to which the receiver should be aligned. For example, if it is determined that a whistle at 930 kc would not be objectionable, the I-F should be re-aligned at 930/2 or 465 kc. Try to select the new I-F frequency as close as possible to 455 kc.

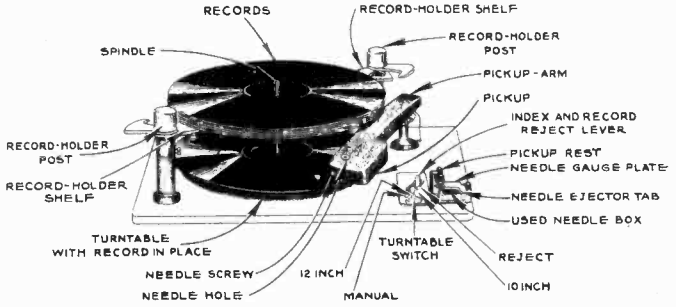
An interfering whistle may also be caused by two stations having a frequency difference equal to the I-F frequency (455 kc) of the receiver. This will be evidenced by a whistle appearing when the receiver is tuned to either of the stations. It may be further localized by tuning the receiver to each of these stations and then stopping the oscillator, in each case, by grounding the oscillator stator section of the variable tuning condenser C32 (rear section) to chassis. If the whistle, in each case, still persists, it is being caused by the beat between these two stations and may be corrected by shifting the I-F frequency of the receiver to a frequency other than the difference frequency of the two local or strong signals (stations).

The I-F amplifier should not be shifted to a frequency higher than 470 kc, nor lower than 440 kc, but should be as close to 455 kc as possible.

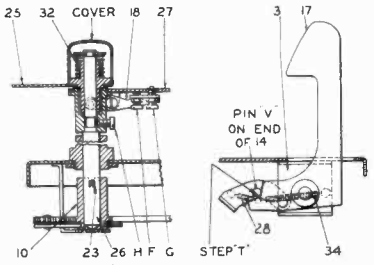
Align the I-F at the new frequency and then re-align the rest of the receiver as described under "ALIGNMENT PROCEDURE."

Unpacking:

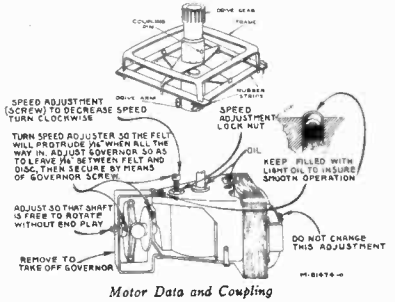
Remove bracket "A" securing the pickup and needle mechanism, by removing screw "B." Also remove the red bolts "C" and "D," the paper coverings on the record posts and pickup, and the cardboard strip in the rear of the chassis. The instruction booklet and call-letter markers and covers will be found in an envelope in the record well. The knobs are in an envelope in the rear of the chassis. The wooden skids which are bolted to the bottom of the cabinet should also be removed.



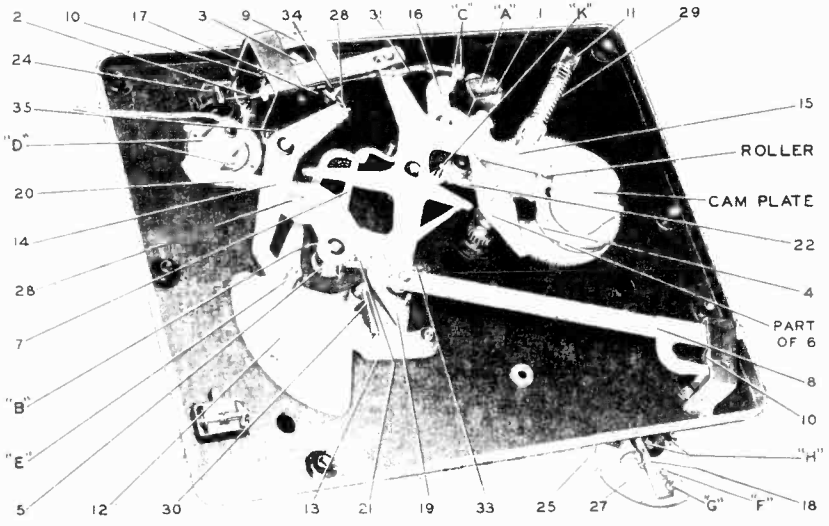
Top View of Automatic Record Changer



Details of Record Shelf Posts, and Locating Lever Assemblies



Motor Data and Coupling

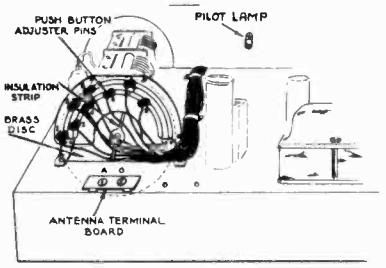


Bottom View of Automatic Record Changer

NOTE: Numbers refer to parts—letters refer to adjustments.

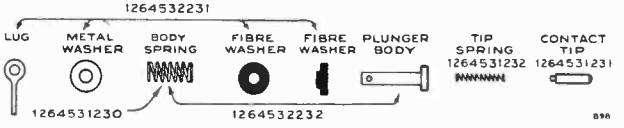
Adjustments for Electric Tuning

1. Make a list of the desired eight stations, arranged in order from low to high frequencies.
2. Turn band switch to "A" band, turn power on, and allow a few minutes for warming up.
3. Press down the "dial-tuning" (right-hand) button.
4. Manually tune in the first station on the list, using the "Tuning Eye" for accurate tuning.
5. Hold down the "dial-tuning" button, and press down station button No. 1 (second from left). Both buttons will stay down. Move adjusting pin No. 1 to the insulating line on the disc at rear of gang. When the pin is correctly centered on the insulating line, the central dial lamp will go out.
6. Press down any other button in order to release the dial-tuning button and station button No. 1. Then press down station button No. 1 again. The electric tuning mechanism will function to tune in the station, and the central dial lamp will stay on.
7. Repeat this process for the remaining stations.

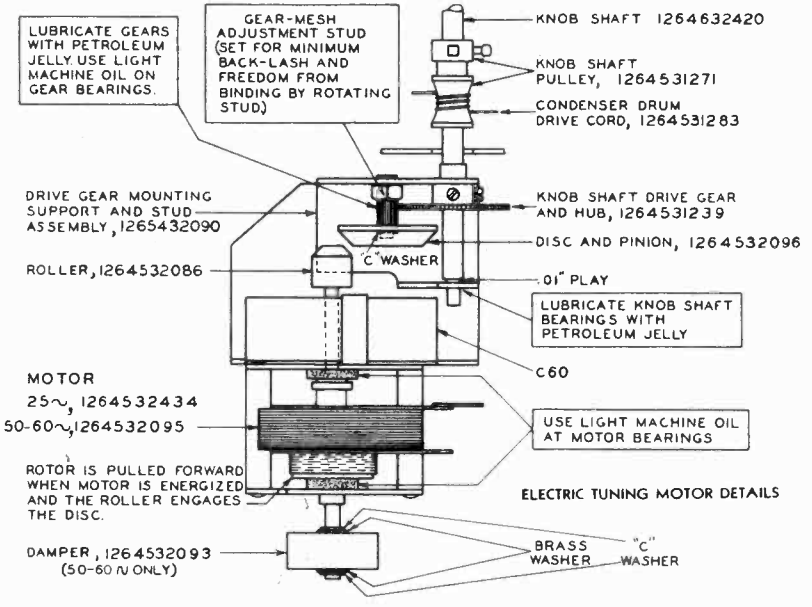


Station Button	Color of Lead To Station-Setting Contact
No. 1	Black
No. 2	Brown
No. 3	Blue
No. 4	Green
No. 5	Red
No. 6	Red-black
No. 7	Brown-black
No. 8	Red-yellow

STATION SETTING PINS



COMPONENT PARTS OF STATION SETTING CONTACT



MODEL 7230
Alignment, Socket Trimmers

SEARS, ROEBUCK & CO.

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections ..... Across speaker voice coil
Output meter reading to indicate 1.0 watt output ..... 1.5 volts
Approximate average sensitivity in microvolts for 1.0 watt output ..... See chart below
Dummy antenna value to be inserted in series with generator output ..... See chart below
Connection of generator output lead ..... See chart below
Connection of generator ground lead ..... To chassis
Generator modulation ..... 30%, 400 cycles
Position of Volume Control ..... Fully clockwise
Position of Tone Control ..... Fully clockwise
Position of Dial Pointer with variable tuning condenser fully closed ..... To fall on last calibration mark at 540 kc end of "Broadcast" band

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function	Approximate Microvolts
Broadcast	Low End	455 kc	0.001 mfd.	6K7-G I-F Grid	L12, L13	2nd I-F Transformer	3,600
Broadcast	Low End	455 kc	0.001 mfd.	6K8 Grid	L10, L11	1st I-F Transformer	55
Broadcast	Low End	455 kc	0.0002 mfd	Ant.	C1	Wave-Trap†	——
Short Wave	15.2 mc	15.2 mc	300 ohms	Ant.	C3	Osc.*	——
Short Wave	15.2 mc (Rock)	15.2 mc	300 ohms	Ant.	C34	Ant.**	20
Broadcast	1,500 kc	1,500 kc	0.0002 mfd.	Ant.	C6	Osc.	——
Broadcast	600 kc (Rock)	600 kc	0.0002 mfd.	Ant.	L9	Osc.	10
Broadcast	1,500 kc	1,500 kc	0.0002 mfd.	Ant.	C6	Osc.	15

IMPORTANT ALIGNMENT NOTES

† Adjust wave-trap for minimum output.

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

** Use maximum capacity peak if two peaks can be obtained.

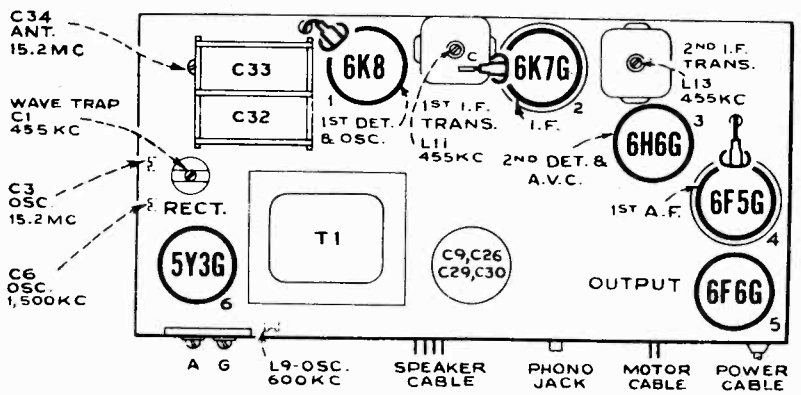
Where indicated by the word "Rock," the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.

Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output of the generator at its lowest possible value to prevent the AVC action of the set from interfering with accurate alignment.

Adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other hand. Grid cap leads should remain in place during alignment.

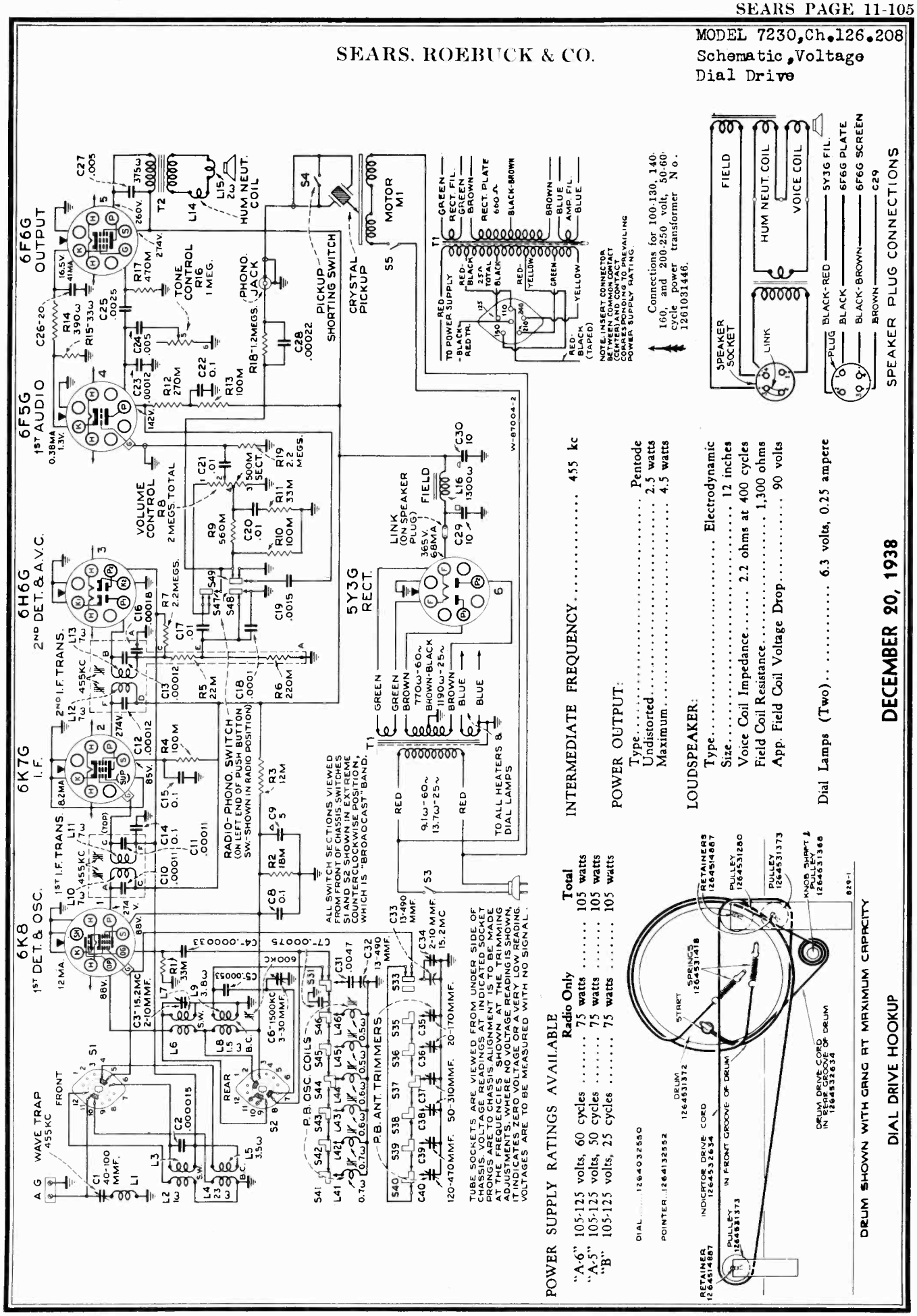
Values shown under "Microvolts" are only approximate.



LOCATION OF PARTS AND ALIGNMENT ADJUSTMENTS ON TOP OF CHASSIS

SEARS, ROEBUCK & CO.

MODEL 7230, Ch. 126.208
Schematic, Voltage
Dial Drive



POWER SUPPLY RATINGS AVAILABLE

	Radio Only	Total
"A-6" 105-125 volts, 60 cycles	75 watts	105 watts
"A-5" 105-125 volts, 50 cycles	75 watts	105 watts
"B" 105-125 volts, 25 cycles	75 watts	105 watts

INTERMEDIATE FREQUENCY..... 455 kc

POWER OUTPUT:
Type..... Pentode
Undistorted..... 2.5 watts
Maximum..... 4.5 watts

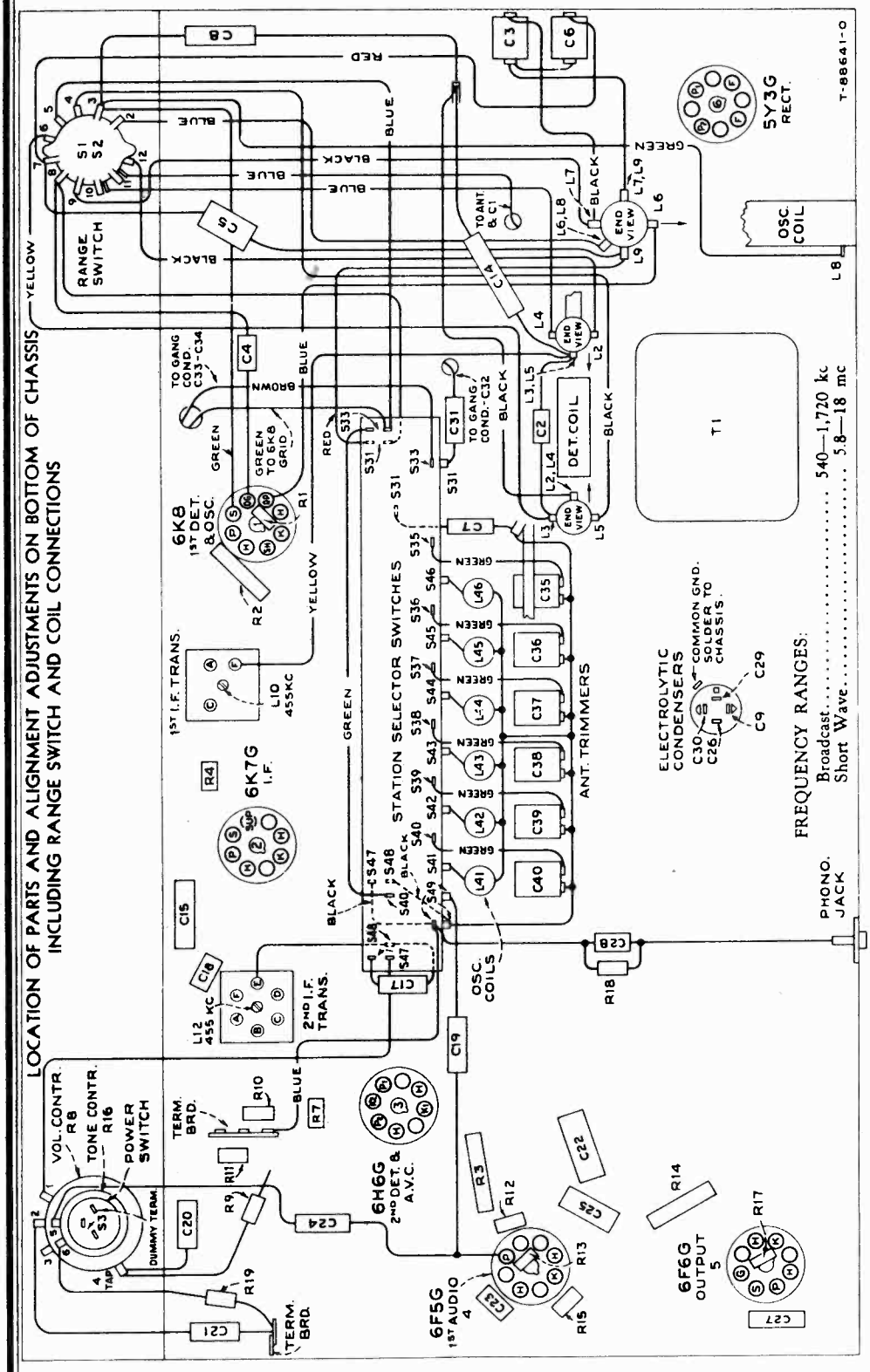
LOUDSPEAKER:
Type..... Electrodynamic
Size..... 12 inches
Voice Coil Impedance..... 2.2 ohms at 400 cycles
Field Coil Resistance..... 1,300 ohms
App. Field Coil Voltage Drop..... 90 volts

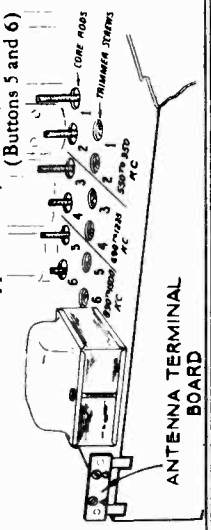
Dial Lamps (Two)..... 6.3 volts, 0.25 ampere

DECEMBER 20, 1938

MODEL 7230
Chassis Wiring
Tuner, Terminal Board

SEARS, ROEBUCK & CO.





Six Push-button Tuning Ranges..... 550—1,500 kc
Two stations between approximately 550— 950 kc (Buttons 1 and 2)
Two stations between approximately 690—1,225 kc (Buttons 3 and 4)
Two stations between approximately 890—1,500 kc (Buttons 5 and 6)

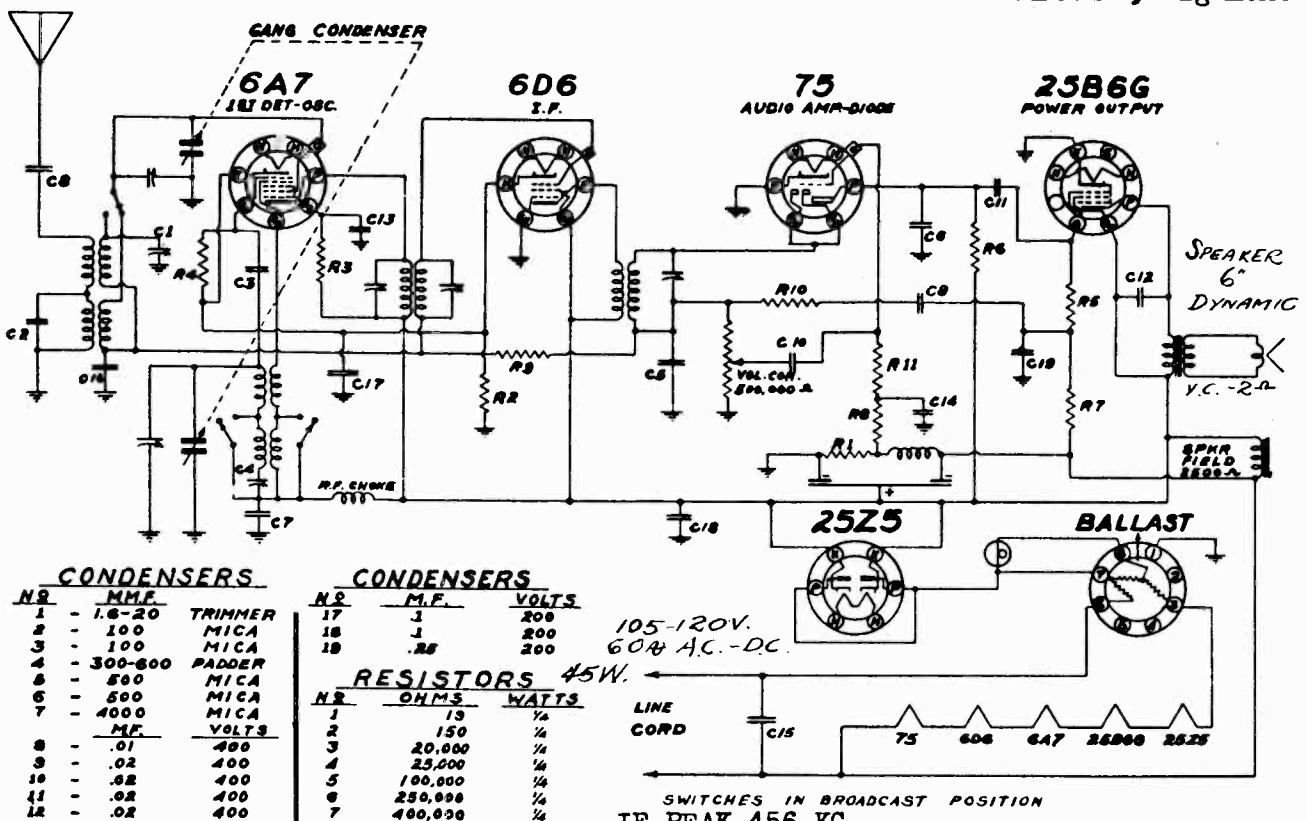
Adjustments for Push Button Tuning

Each of the six station push buttons connects to a separate magnetite-core oscillator coil and a separate antenna trimmer, both of which must be adjusted to select the desired station when this button is depressed. Use an insulated screw-driver or alignment tool, allowing at least five minutes warm-up period before making adjustments. The regular antenna should be used for the preliminary adjustments. Proceed as follows:

1. Make a list of the six desired stations, arranged in order from low to high frequencies.
2. Push in the dial-tuning (rear) push button, and manually tune in the first station on the list.
3. Push in station-button No. 1, and adjust No. 1 oscillator core (L41) to receive this station. Screw the core all the way in, to lowest frequency, and then unscrew slowly until the station is received.
4. Adjust No. 1 antenna trimmer (C40) for maximum output on this station.
5. Adjust for each of the remaining five stations in the same manner.
6. Make a final critical adjustment of the oscillator cores, using one or two feet of wire as an antenna to ensure sharp peaking.
(NOTE: Clockwise adjustment of the oscillator cores and antenna trimmers tunes the circuits to lower frequencies.)

MODEL 7231, Ch. 105.6H
Schematic, Socket
Trimmers, Alignment

SEARS. ROEBUCK & CO.



CONDENSERS

NO.		M.M.F.	
1	-	1.6-20	TRIMMER
2	-	100	MICA
3	-	100	MICA
4	-	300-600	PADDER
5	-	500	MICA
6	-	500	MICA
7	-	4000	MICA
		M.F.	VOLTS
8	-	.01	400
9	-	.02	400
10	-	.02	400
11	-	.02	400
12	-	.02	400
13	-	.05	200
14	-	.05	200
15	-	.05	400
16	-	.1	200

CONDENSERS

NO.	M.F.	VOLTS
17	.1	200
18	.1	200
19	.25	200

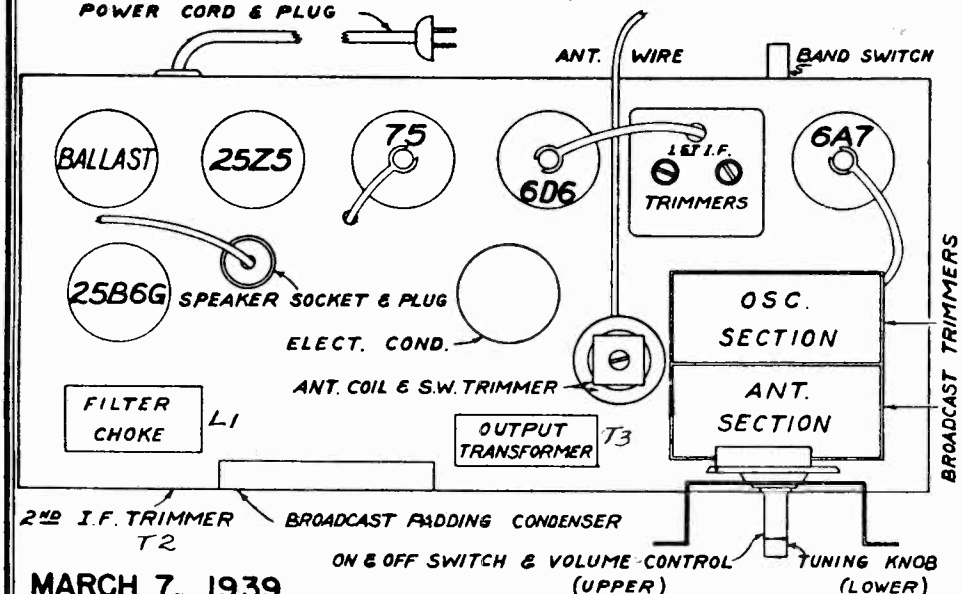
RESISTORS

NO.	OHMS	WATTS
1	13	½
2	150	½
3	20,000	½
4	25,000	½
5	100,000	½
6	250,000	½
7	400,000	½
8	500,000	½
9	1 MEG	½
10	1 MEG	½
11	1 MEG	½

POWER CORD & PLUG

IF PEAK 456 KC

POWER OUTPUT:
Type..... Pentode
Undistorted.....1 watt
Maximum.....1½ watts



FREQUENCY RANGES :
535 to 1750 KC
5600 to 18100 KC

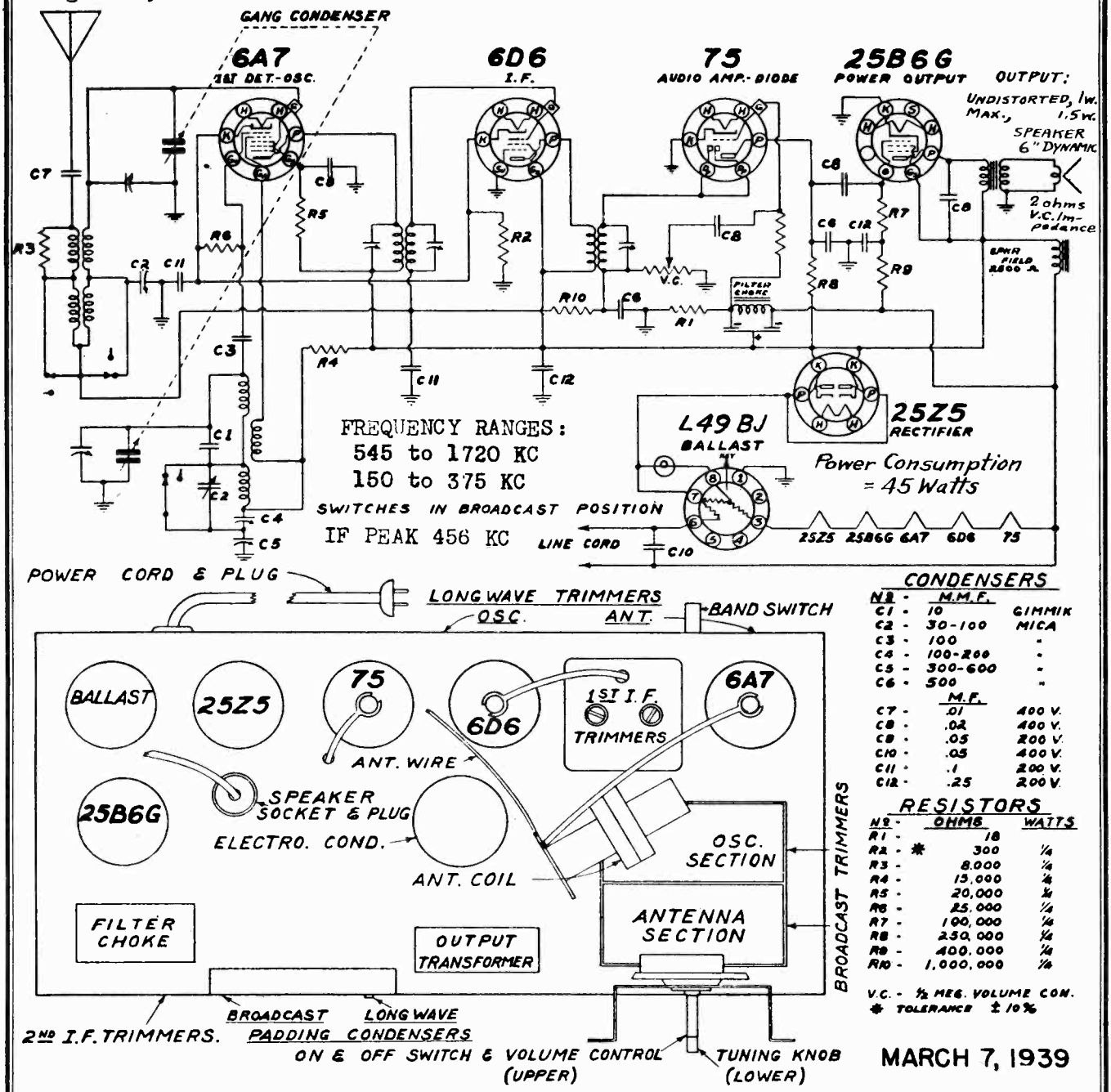
IF ALIGNMENT - Generator at 456 KC, connected to the control grid of the 6A7 tube, thru a .05 MFD condenser. Adjust IF trimmers to peak, they are located; two in transformer can above chassis, and other on front apron of chassis, is the left hand section.

MARCH 7, 1939

BROADCAST BAND ALIGNMENT - Generator at 1400 KC, connected to antenna lead of receiver thru 100 MMFD condenser. Dial at 1400 KC, adjust rear gang condenser trimmer (OSC) to peak, then front section of gang condenser to peak. Generator at 600 KC, receiver dial at approximately 600 KC, while rocking the variable condenser across signal adjust oscillator padder to maximum peak. SHORTWAVE BAND - Generator at 600 KC, rotate condenser from high frequency end until generator signal is heard, then peak trimmer on antenna coil. No other shortwave band adjustments required on this receiver. Repeat all adjustments.

MODEL 7232,Ch.105.6L
Schematic,Socket
Alignment,Trimmers

SEARS, ROEBUCK & CO.



CONDENSERS

NO.	M.M.F.	
C1	10	GIMMIK MICA
C2	30-100	"
C3	100	"
C4	100-200	"
C5	300-600	"
C6	500	"
	M.F.	
C7	.01	400 V.
C8	.02	400 V.
C9	.05	200 V.
C10	.05	400 V.
C11	.1	200 V.
C12	.25	200 V.

RESISTORS

NO.	OHMS	WATTS
R1	18	
R2 *	300	1/4
R3	8,000	1/4
R4	15,000	1/4
R5	20,000	1/4
R6	25,000	1/4
R7	100,000	1/4
R8	250,000	1/4
R9	400,000	1/4
R10	1,000,000	1/4

V.C. - 1/2 MEG. VOLUME CON.
* TOLERANCE ± 10%

MARCH 7, 1939

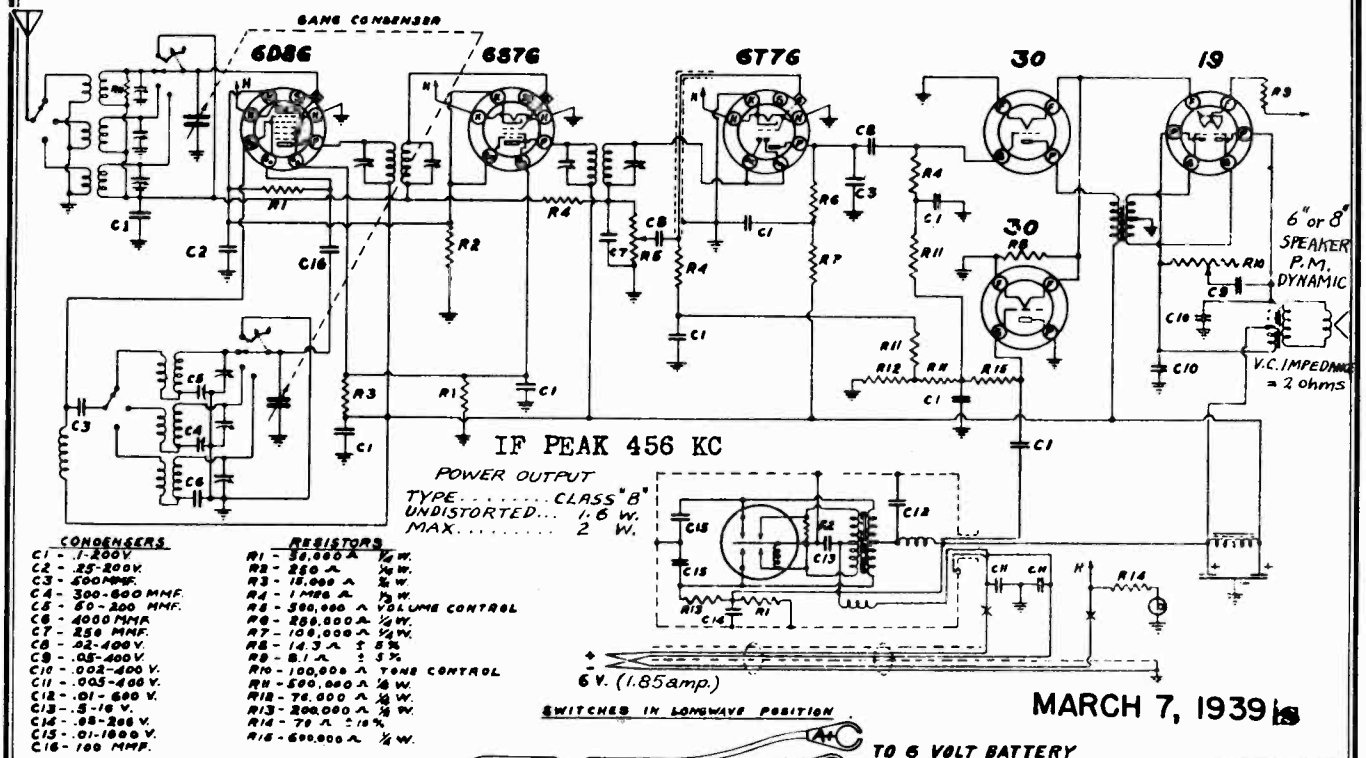
IF ALIGNMENT - Generator at 456 KC, and connected to the control grid of the 6A7 thru a .05 MFD condenser. Align the three IF trimmers to maximum peak. The three trimmers are located as follows : two are located in the IF can on the top of the chassis, the third is located on the front apron of the chassis and is the left hand section.

BROADCAST - Generator at 1400 KC, connected to the antenna thru a 100 MMFD condenser. Dial set at 1400 KC, peak rear trimmer of gang condenser (OSC), then peak front trimmer. Shift generator and dial to 600 KC, while rocking gang condenser peak the oscillator padding condenser for maximum resonance.

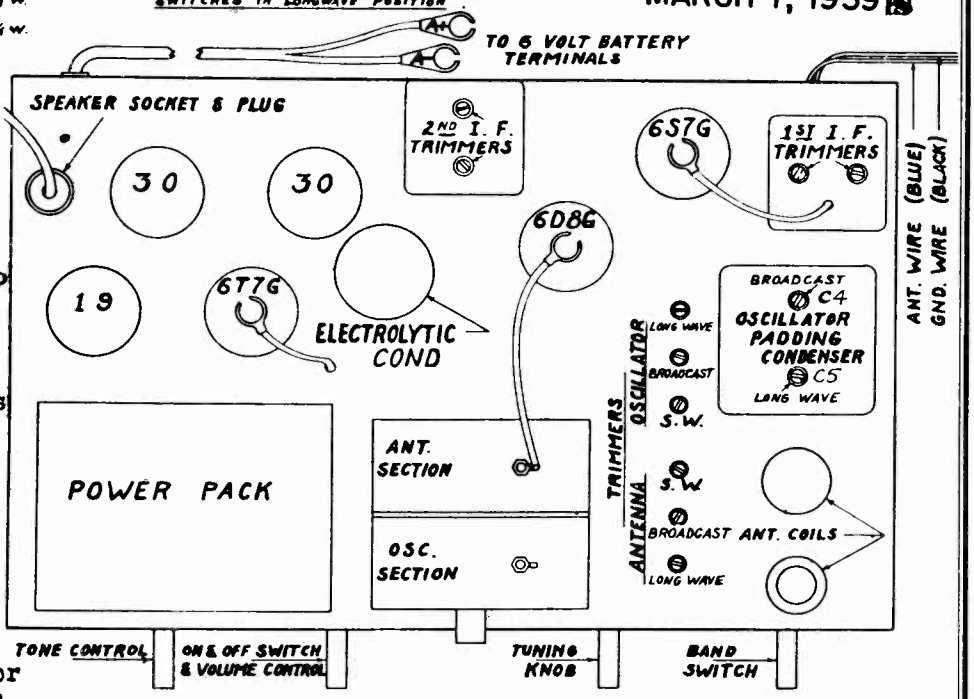
LONG WAVE - Generator at 375 KC, peak oscillator trimmer, gang condenser completely open. Generator at 325 KC, peak the antenna trimmer, mounted on longwave antenna coil, after signal has been found by rotation condenser from high freend of dial. Pad the oscillator condenser at 160 KC while rocking condenser.

SEARS. ROEBUCK & CO,

MODEL 7233, Ch. 105.6PU
Schematic, Socket
Alignment, Trimmers



MARCH 7, 1939



FREQUENCY RANGES :
535 to 1730 KC
150 to 380 KC
5.6 to 18.1 MC

IF ALIGNMENT-Generator at 456 KC, connected to control grid of 6D8G thru a .05 MFD condenser, then peak the IF transformer trimmers for maximum response.

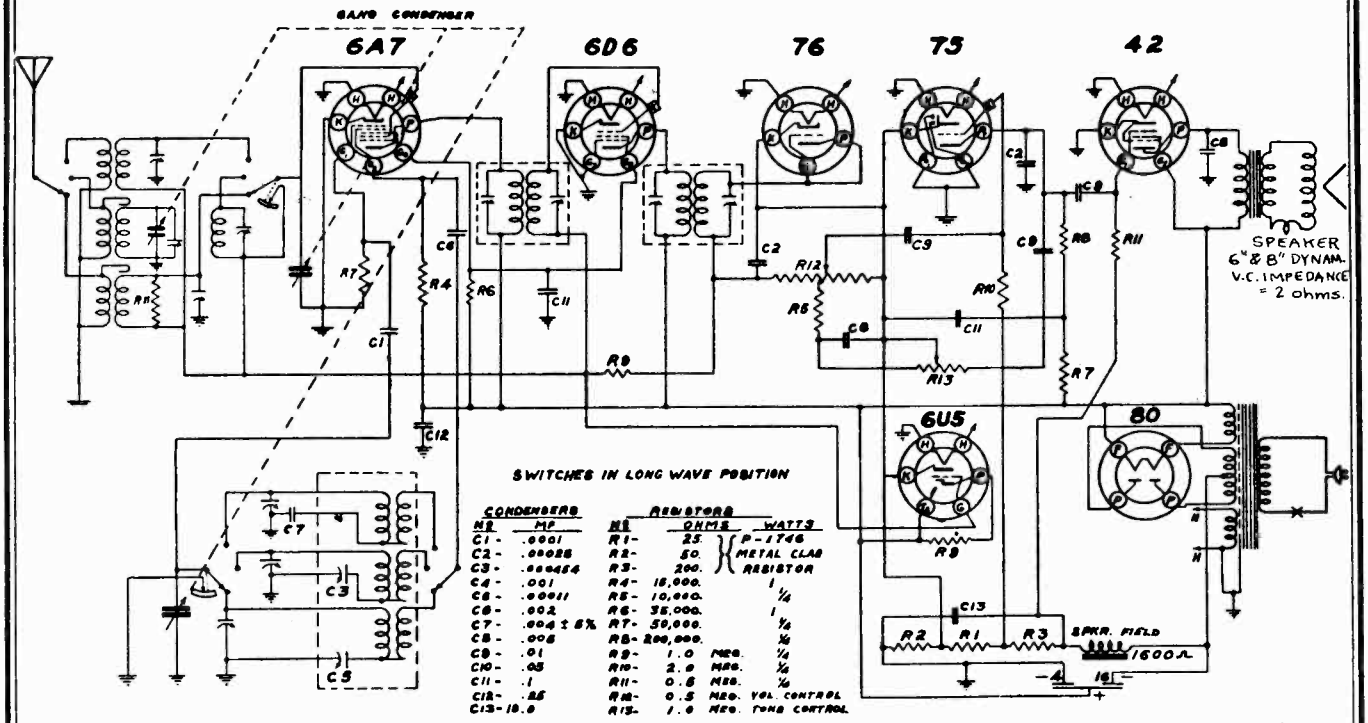
BROADCAST BAND - Generator at 1730 KC, the gang condenser out of mesh, peak oscillator trimmer. Dial and Generator at 1400 KC, peak antenna and pre-selector trimmers. Generator and dial at 600 KC, while rocking variable condenser across signal, peak the oscillator padder to maximum.

SHORTWAVE BAND - Generator to 18.1 MC, variable condenser at minimum, peak the S.W. oscillator trimmer. Generator and dial at 16 MC, peak antenna trimmer. No provisions for low frequency padding have been made in this band. Check response at 6 MC.

LONGWAVE BAND - Set gang condenser to minimum and generator to 380 KC, peak the longwave oscillator trimmer, then shift the generator signal to 325 KC, peak the antenna trimmer. Next set the generator to 160 KC, — then peak the longwave oscillator padding condenser to maximum response while rocking variable condenser.

MODEL 7234, Ch. 105. 7MU
Schematic, Socket
Alignment, Trimmers

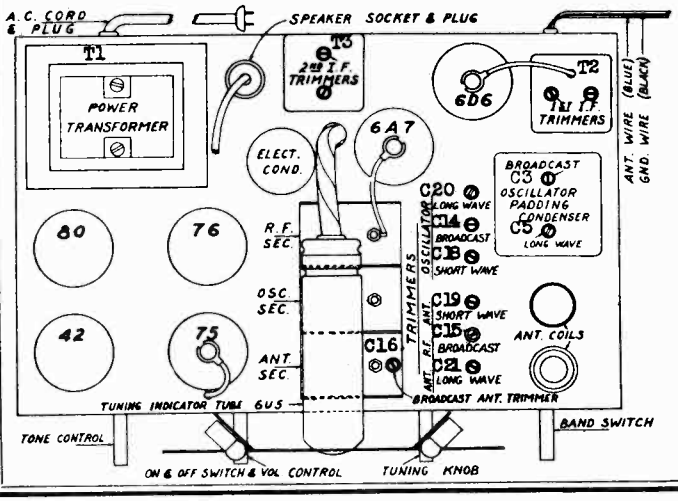
SEARS, ROEBUCK & CO.



INTERMEDIATE FREQUENCY: ..... 456 kc

SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Fully closed	456 kc	.1 mfd	6A7 Grid	T 3 T2	IF Output IF Input	45
"AM"	Fully open	1730 kc	.0002 mfd	Ant. Lead	C14	Oscillator	
"AM"	1400 kc	1400 kc	.0002 mfd	Ant. Lead	C15 C16	Preselector Antenna	10
"AM"	600 kc (rock)	600 kc	.0002 mfd	Ant. Lead	C3	Padder	8
"SW"	Fully open	18.1 mc	400 ohms	Ant. Lead	C18	Oscillator	
"SW"	16 mc	16 mc	400 ohms	Ant. Lead	C19	Antenna	16
"LW"	Fully open	380 kc	.0002 mfd	Ant. Lead	C20	Oscillator	
"LW"	920 meters	325 kc	.0002 mfd	Ant. Lead	C 21	Antenna	8
"LW"	1875 meters (rock)	160 kc	.0002 mfd	Ant. Lead	C5	Padder	15

POWER SUPPLY: ..... Tapped-105-125-150-230 volts, 60 cycles, 56 watts



FREQUENCY RANGES:
Band "AM" ..... 535 kc-1730 kc
Band "LW" ..... 150 kc-380 kc
Band "SW" ..... 5.6 mc-18.1 mc

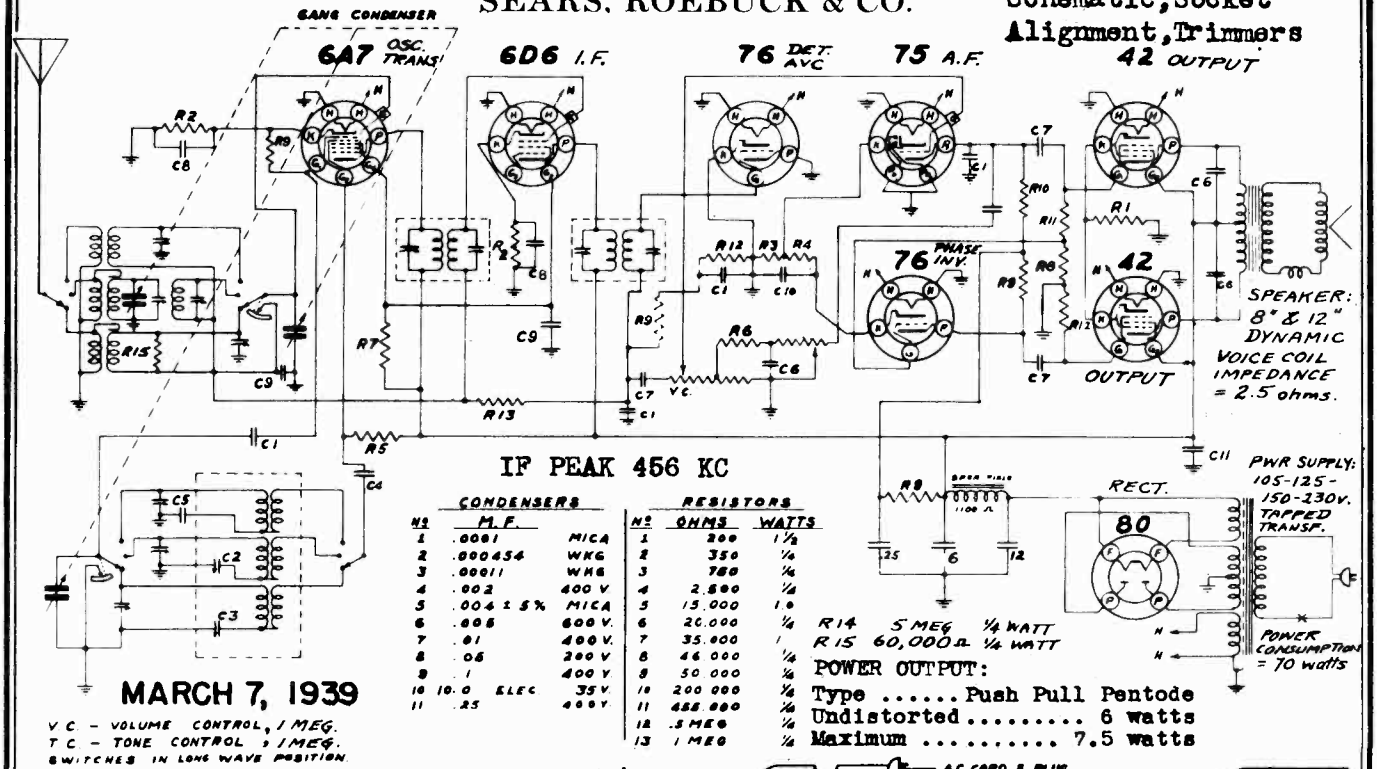
POWER OUTPUT:
Type ..... Pentode
Undistorted ..... 2.5 watts
Maximum ..... 3.5 watts

UNIVERSAL TRANSFORMER is used. Removing 2 screws and a shield on top of power transformer exposes terminal plate and pin connector. Inserting pin into clip marked with voltage at which set is to be used, permits operation on 105, 125, 150 or 230 volts. For use on AC ONLY.

MARCH 7, 1939

MODEL 7235, Ch. 105.8KU
Schematic, Socket
Alignment, Trimmers

SEARS, ROEBUCK & CO.



CONDENSERS

No	M.F.	
1	.0001	MICA
2	.000454	WKG
3	.00011	WKG
4	.002	400 V
5	.004 ± 5%	MICA
6	.005	600 V.
7	.01	400 V.
8	.05	200 V
9	.1	400 V
10	10-0-10 ELEC	35 V.
11	.25	400 V

RESISTORS

No	OHMS	WATTS
1	200	1½
2	350	⅛
3	750	⅛
4	2,500	¼
5	15,000	1
6	20,000	¼
7	35,000	1
8	46,000	¼
9	50,000	⅛
10	200,000	⅛
11	455,000	⅛
12	.5 MEG	¼
13	1 MEG	¼

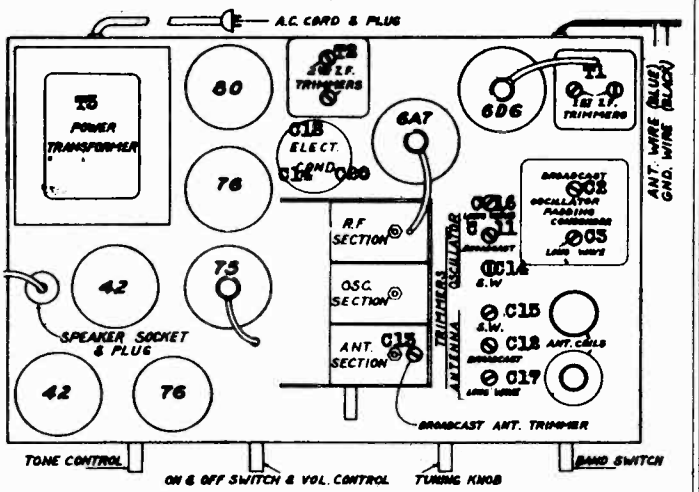
MARCH 7, 1939

V C - VOLUME CONTROL, 1 MEG.
T C - TONE CONTROL, 1 MEG.
SWITCHES IN LONG WAVE POSITION.

I.F. ALIGNMENT With the wave switch in the Broadcast Band and the gang condenser set at minimum. Adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A7) through a .05 or .1 mfd. condenser. The ground on the test oscillator can be connected to the chassis ground. Align all four I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT Connect the output of the signal generator to the antenna lead (blue) through a .0002 mfd. mica condenser. Set the gang condenser to minimum and the oscillator to 1730 KC and adjust the "oscillator trimmer" to receive this signal. Make no other adjustments at this frequency. Then set the generator to 1400 KC and tune in this signal by rotating the gang to 1400 on the dial. Adjust the "preselector" and "antenna" trimmer to maximum signal. Set the signal generator to 600 KC and tune in the signal on the receiver. **Note:** approximately the same sensitivity should be noted at this point as was at 1400 KC. The signal strength may sometimes be improved by padding the circuits. This is done by slowly increasing or decreasing the oscillator padding condenser and, at the same time, continuously tuning back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment may seem a little complicated but is the easiest way to adjust the oscillator to the preselector of the R.F. section. Return to 1400 KC and again go over the adjustments of this frequency to be certain that they were not put slightly out of alignment when adjustment was made at 600 K.C.

SHORT WAVE BAND ALIGNMENT The short wave band is adusted by setting the generator to 18,100 KC and with the gang at minimum, adjust the "short wave oscillator trimmer" to receive the signal. Set the generator at 16,000 KC, tune in the signal and adjust the "short wave antenna" trimmer to give maximum output. As there is no variable low frequency padding condenser on this band, the sensitivity of the receiver should be checked at 6000 KC to determine whether the circuits are in line at this frequency. Should the receiver lack sensitivity at 6000 KC, the antenna and oscillator coils, as well as the .004 mica padding condenser, should be tested for defects as sometimes these components become subject to mechanical or electrical injuries, despite their rugged construction and liberal ratings.



LONG WAVE BAND ALIGNMENT The long wave band is adjusted by connecting the output of the signal generator through a .0002 Mfd. mica condenser to the blue antenna lead. Then set the gang to minimum and the generator to 380 KC and adjust the long wave oscillator trimmer to receive this signal. Then set the generator to 325 KC and adjust the long wave antenna trimmer to give maximum output. Next set generator to 160 KC and pad the circuits to maximum output. Owing to the nature of tthe long wave band, the trimmer and padding condensers react upon each other to quite a degree; consequently, several re-adjustments at the trimming and padding positions are required before the circuits are adjusted properly.

MODEL 7235
MODEL 7236
MODEL 7425
Tuner Data

SEARS, ROEBUCK & CO.

MODEL 7235 (CHASSIS 105.8KU); MODEL 7236 (CHASSIS 105.8TU)

THE AUTOMATIC TUNING DIAL

CHOOSING THE STATIONS TO BE USED

The telephone dial has 10 buttons located in a ring within the dial scale. Make a list of 10 of your favorite stations which are tuned in regularly. Shown in Fig.1A is the approximate frequency range that each button will cover. NOTE: If 2 stations happen to fall within the range of one button, one station will necessarily have to be tuned in with the selector knob.

PROCEDURE FOR ADJUSTING THE TELEPHONE DIAL BUTTONS

(1) Choose one of the stations out of the list of stations selected and by means or the station selector very carefully tune in this station, noting at the same time the exact pointer location on the dial.

(2) Now select the proper button for the first station chosen by referring to Fig. 1A and noting the button into whose range the station falls. For example, station WGN with a frequency of 720 KC comes under the button whose frequency ranges from 670-755 KC. Usually the button nearest the tuning point or the bottom of the dial will be the proper button.

(3) Loosen the button by unscrewing it (not the dial) ¼ turn to the left. Now press the button in all the way and rock the dial back and forth a trifle until a click is heard Do not release the button now but set the pointer to its former location and with the dial in this position, being careful not to move it, proceed to tighten the button by turning it in the opposite direction (to the right). Make sure the button is very securely tightened as it may get out of adjustment.

(4) From the station call sheet supplied remove the proper station disc and insert into the push button so that the wording is horizontal when the button is at the bottom, and then insert a clear celluloid insert. Follow this same procedure for the remaining buttons.

(5) If for any reason it is necessary to remove a station call letter disc, the use of a pen knife or any sharp pointed instrument will facilitate the removal.

MODEL 7425 CHASSIS 107.375

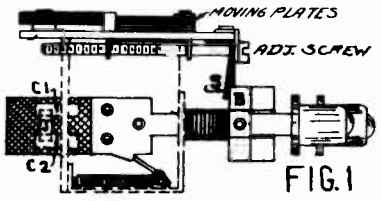


FIG.1

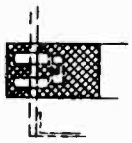


FIG.2

MECHANICAL ACTION OF THE PERM-A-MATIC TUNER

Fig. 1 shows one of the buttons depressed for a station. The trimmer panel assembly (for the antenna circuit) is designed with spring fingers "S" that make contact with cross bar "B" completing the ground circuit of the R.F. Trimmer.

When making the original set-up, the adjusting screw may indicate two positions for resonance. This is due to the possibility of the small amount of play in the screw thread and is of no concern as long as it is set to the exact resonance point.

The jumper contact "J" connects C1 contact to C2 contact with the button "IN". This completes the oscillator circuit for that particular button.

Fig. 2 shows the jumper position with the button "OUT".

Fig. 3 shows the manual OFF-ON button in the "OUT" position.

The "L" shaped sliding contact is the common cathode return circuit and alternates the bias on the 6K8 for manual tuning or on the 6A7 for push button tuning.

Fig. 4 shows the iron core movement within the oscillator coil. Its position is held stationary by the small spring wire across the coil form. The position of this spring must be such that no spring action is apparent from the end of the adjustment stud due to pressure with a screwdriver. Otherwise, when the screwdriver is removed, the core will shift out of position.

The button is held down by action of the latch bar and is released when another key raises the latch bar on its way down.

If it is necessary to replace a coil, mount it in line with the other coils and cement it in place.

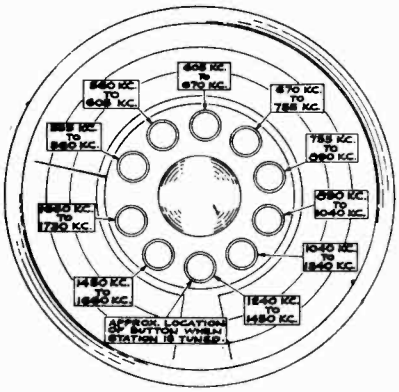


Fig. 1A

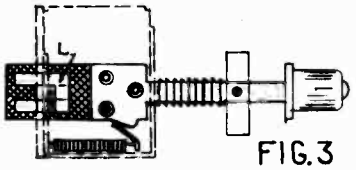


FIG.3

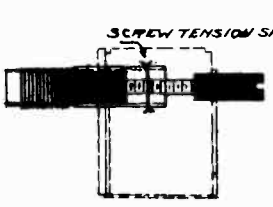
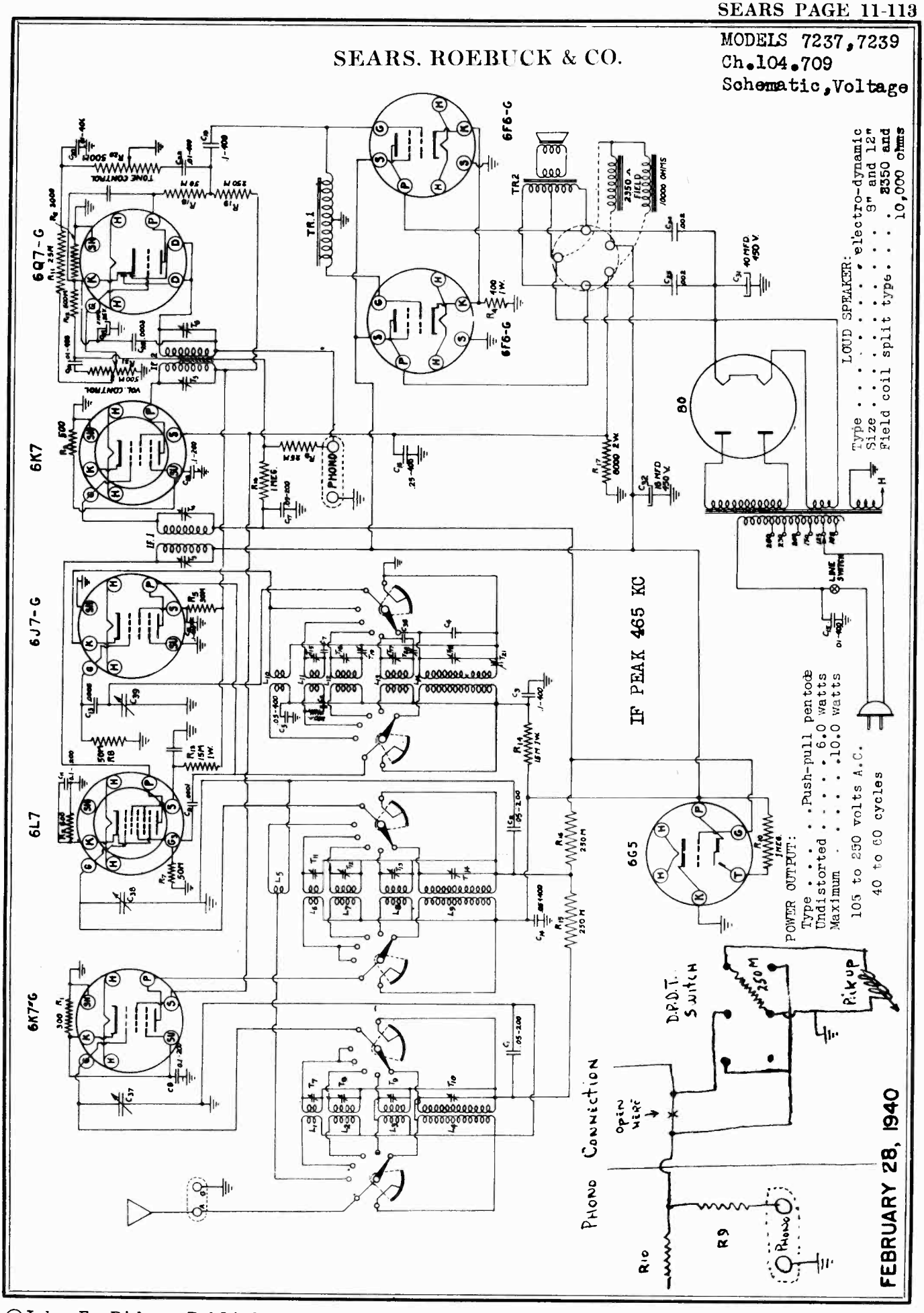


FIG.4

SEARS. ROEBUCK & CO.

MODELS 7237, 7239
Ch. 104.709
Schematic, Voltage



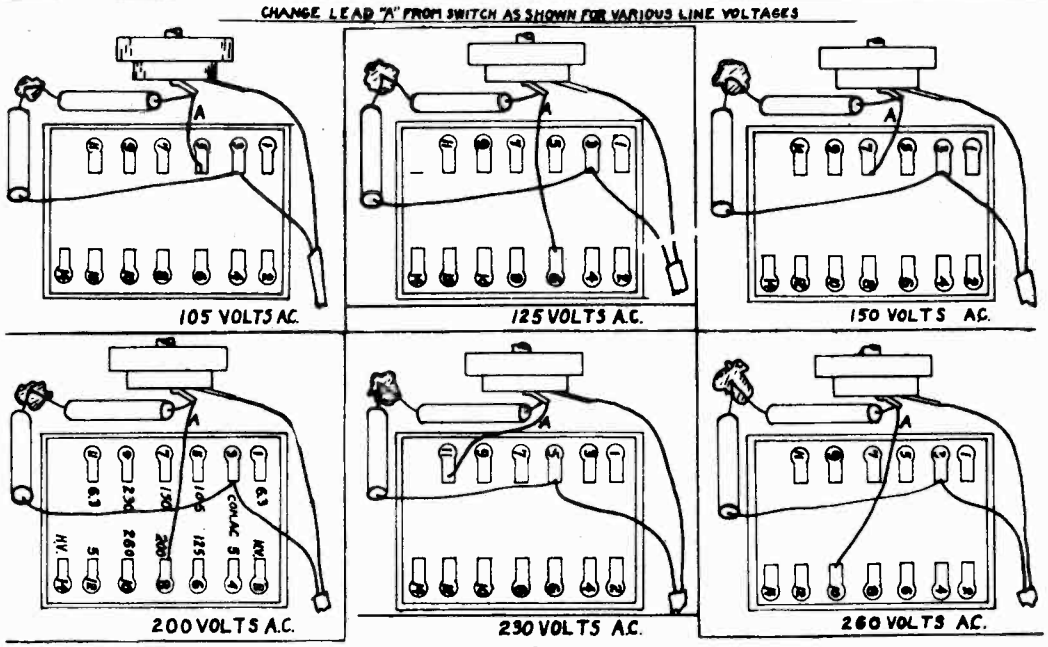


Fig. 1

All Voltages taken from ground with line voltage 115 volts.

TUBE	POSITION	PLATE	SCREEN GRID	CATHODE	FILAMENT
6K7-G	1st. R.F.	250 V.	115 V.	2 V.	6 V.
6L7	Mixer	245 V.	172 V.	5.5 V.	6 V.
6J7-G	Oscillator	135 V.	155 V.	-	6 V.
6K7	I.F.	245 V.	115 V.	3.5 V.	6 V.
6Q7-G	Diode Det.	60 V.	-	1 V.	6 V.
6F6-G 6F6-G	P.P. Audio P.P. Audio	325 V. 325 V.	250 V. 250 V.	19 V. 19 V.	6 V. 6 V.

IMPORTANT ALIGNMENT NOTES

It is assumed that if an alignment procedure becomes necessary that the serviceman has an oscillator capable of accurately covering the range of the receiver and that a meter output indicator is used.

The I.F. stages are aligned in the usual manner by feeding a 465 KC signal into the grid of the 6L7 tube.

Follow Fig. 2 and Fig. 3 showing trimmer locations and alignment frequency.

Always adjust the oscillator first in any particular band.

Use as low an output as possible from the test oscillator in making the various adjustments.

After trimming at the high frequency end of the dial and adjusting the padding condenser at the other end, always recheck the settings of the trimmer at the high frequency end of the dial.

BEFORE STARTING ALIGNMENT CHECK POSITION OF TUNING HAND AND MAKE CERTAIN THAT IT IS EXACTLY STRAIGHT ACROSS ON THE FIRST CALIBRATION LINE WHEN THE CONDENSERS ARE AT MAXIMUM CAPACITY ROTATION.

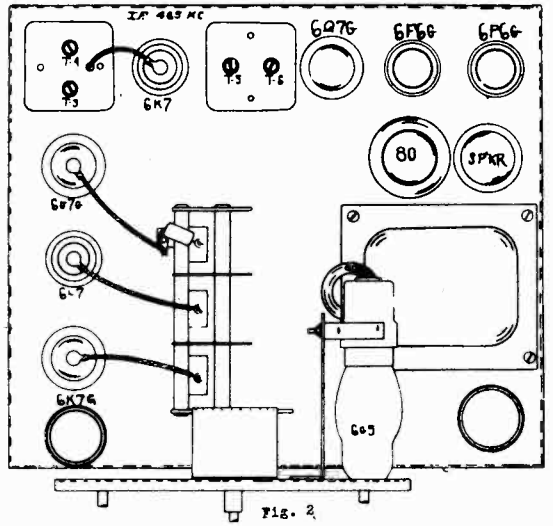


Fig. 2

ALIGNMENT FREQUENCIES:

Band 1	1600 KC & 600
Band 2	.6 MC
Band 3	18 MC
Band 4	no adjustment
Band 5	.375 KC

FREQUENCY RANGES:

Band 1	540-1750 KC
Band 2	1.75-6.0 MC
Band 3	6.0-18.0 MC
Band 4	15.0-40 MC
Band 5	750-2100 meters (longwave)

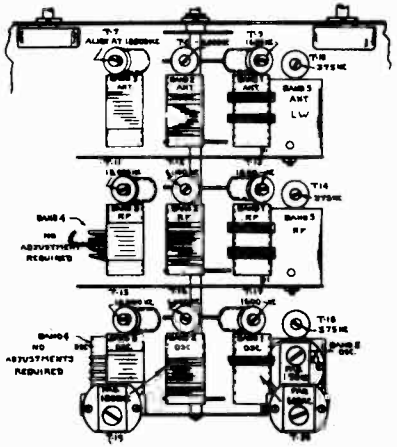
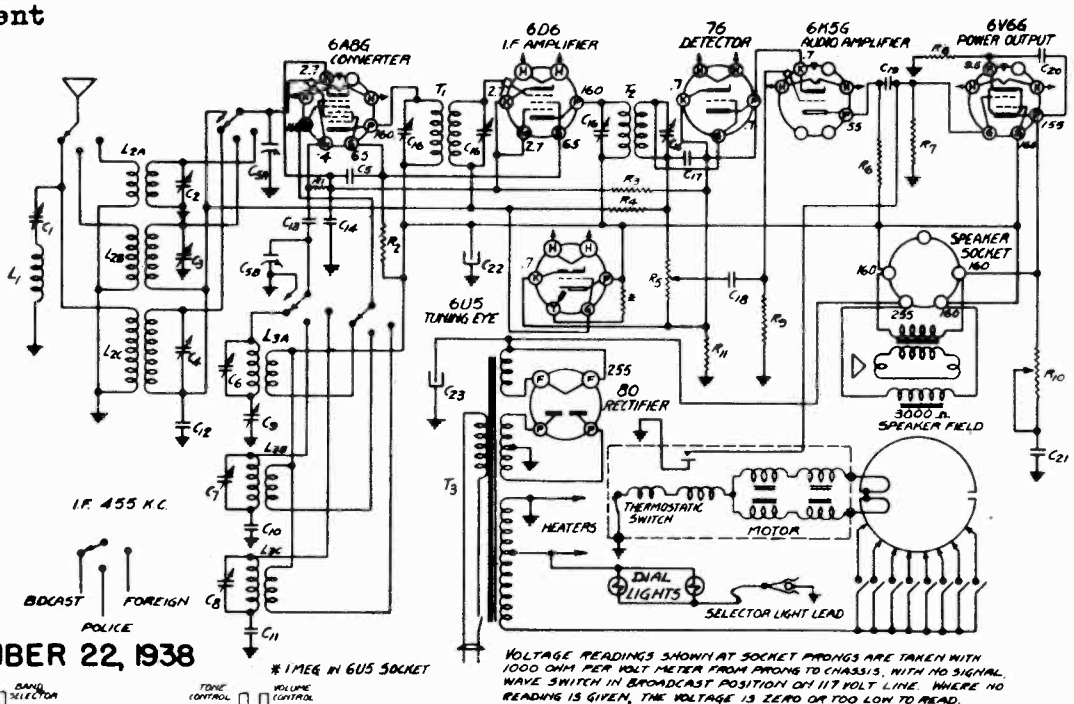


Fig. 3

Schematic, Voltage
Socket, Trimmers
Alignment

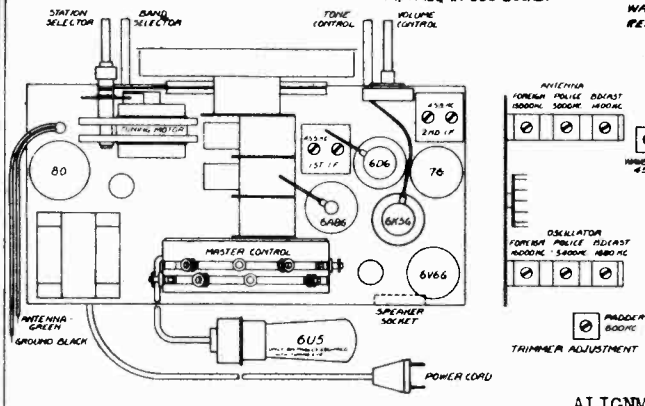
SEARS, ROEBUCK & CO.

MODELS 7241, 7241A
Ch. 109.246



NOVEMBER 22, 1938

VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TAKEN WITH 1000 OHM PER VOLT METER FROM PRONG TO CHASSIS, WITH NO SIGNAL, WAVE SWITCH IN BROADCAST POSITION ON 117 VOLT LINE. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.



POWER SUPPLY: 115 volts, 60 cycles, 45 watts

FREQUENCY RANGES: 540 to 1650 KC
1650 to 5400 KC
5250 to 16000 KC

POWER OUTPUT: Undistorted = 0.75 watts
Maximum = 1.4 watts

LOUD SPEAKER: Type, Dynamic
Size, 8-inch
Field Resistance = 3000 ohms

ALIGNMENT PROCEDURE

Connect an output meter across the speaker voice coil. The volume control should be set a few degrees back of the maximum volume position. Use a weak signal from the generator. Strong signals tend to cause improper adjustments.

IF. Connect the generator ground to the receiver chassis. Using a .1 mfd. condenser in series with the high side of the generator, apply a 455 KC signal to the grid of the 6D6 IF amplifier tube and aline the 2nd IF transformer. Repeat for the 1st IF transformer, applying the signal to the grid of the 6A8G tube. (See tube layout diagram for location of trimmers.).

RF. Using a 250 mmf. condenser as a "dummy" antenna, turn the wave switch all the way to the left, apply 455 KC signal to the antenna and adjust the wave trap trimmer for minimum response. Turn the tuning condenser to minimum capacity, set the generator at 1680 KC and adjust the Broadcast Oscillator trimmer for top frequency. Set the generator at 1400 KC and aline the Broadcast Antenna trimmer. Set the generator at 600 KC, tune the receiver to the signal and adjust the padder. The tuning condenser must be rocked back and forth through the signal while varying the padder in order to assure perfect alignment.

A 400 ohm resistor must be used as a "dummy" antenna for proper alignment of the two short wave bands. Set the wave switch in the center position, adjust the oscillator top frequency to 5400 KC, then aline the antenna trimmer at about 5000 KC.
Turn the Wave Switch to the extreme right hand position, adjust the oscillator top frequency to 16000 KC and aline the antenna at 15000KC. In order to be sure that the top end of the last band is set properly it is best to screw the oscillator trimmer down tight, then unscrew to the second peak. The antenna trimmer should be screwed down tight then unscrewed to the first peak. This procedure should be followed in order that the oscillator and antenna circuits will be set in the correct relation to each other. It is best to rock the tuning condenser back and forth through the signal while making these adjustments at high frequencies.

MODELS 7241,7241A
Ch.109.246
MODELS 7242,7242A
Ch.109.190
Automatic Tuner Data

SEARS, ROEBUCK & CO.

ELECTRIC AUTOMATIC TUNING INSTRUCTIONS

ELECTRIC AUTOMATIC TUNING

The tuning unit consists of three parts. (1) The MASTER SELECTOR. This includes the SELECTOR DRUM, and the SELECTOR PINS. These parts are located on the back of the variable condenser together with their associated brackets and wiring. (2) MOTOR and DRIVE. This assembly consists of an induction motor having a mechanical clutch with magnetic throw out, a train of gears operating directly onto the manual tuning shaft. (3) PUSH BUTTON ASSEMBLY. These buttons are located on the front of the chassis and extend through the escutcheon below the dial.

SETTING UP THE MASTER SELECTOR

List eight local or strong stations according to frequency. Setting up weak or distant stations is not recommended. Call the station nearest the left hand end of the dial(nearest 1600 KC.) the No. 1 Station. Number the other stations similarly going from left to right across the dial. On the back of the receiver will be found the SELECTOR DRUM and the eight CONTACT PINS which determine the point at which the tuner will stop when the buttons are pressed. Figure 1 shows the general layout and relation of the drum and contacts. Figure 2 shows one of the contact pins in detail. Figure 3 shows the arrangement of the contact pins, each pin being numbered according to the system suggested for numbering the stations.

On the SELECTOR DRUM are two pairs of CONTACT RIBBONS. Note that there is a paint dot on the edge of the drum directly opposite the break in the ribbons on the upper half of the drum. This is for locating the approximate position at which a given CONTACT PIN should be set in order to have the DRUM stop for a particular station.

IT IS IMPORTANT THAT THE FOLLOWING STEPS BE FOLLOWED EXACTLY AS OUTLINED:

(1) Turn the wave switch to the "Broadcast" position. Turn the receiver ON and let it run for at least ten minutes to allow the tubes to reach their final operating temperature.

(2) Using the MANUAL STATION SELECTOR, tune in the No. 1 station, that is the one nearest the 1600 KC. end of the dial. Watch the tuning tube closely, making certain that the station is tuned in perfectly.

(3) Attach the SELECTOR LIGHT lead to the No. 1 pin. This lead has a spring clip at the end and will be found clipped to a ground post at the top of the selector bracket. Unless the pin happens to be set exactly the DIAL LIGHTS will glow when the lead is touched to the pin.

(4) Observe the position of the paint dot on the edge of the DRUM. Grasp the No. 1 pin firmly and slide it toward the paint dot. When the PIN is directly opposite the paint dot the lights will go out indicating that the pin is properly set. To insure the greatest accuracy slide the pin back and forth across the break in the ribbons, leaving it set half way between the points where the lights go out.

(5) Using similar procedure set up the other seven stations, in each case using the pin bearing the same number as the station being set up.

(6) Locate the CALL LETTERS of your stations on the printed sheets supplied with the receiver and insert them in the proper pockets above the buttons.

(7) The only operations necessary to tune in any of the eight stations set up as outlined above are: Turn the receiver ON, allow an interval of time for the tubes to heat and press the button for the station desired HOLDING THE BUTTON DOWN UNTIL THE POINTER STOPS MOVING. Then adjust the tone and volume.

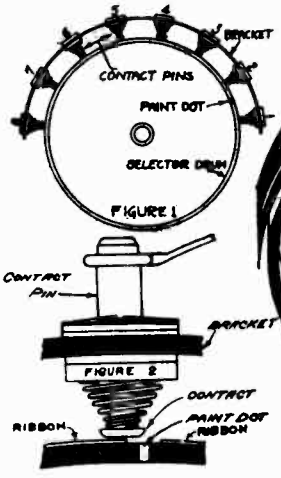


FIGURE 1

FIGURE 2

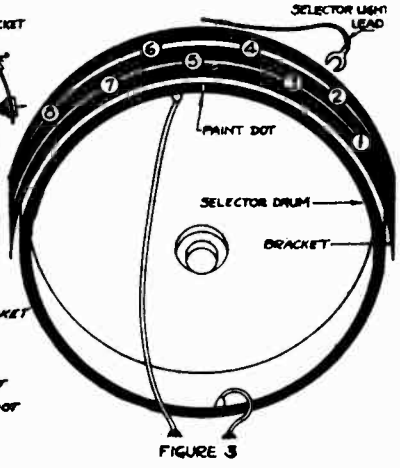
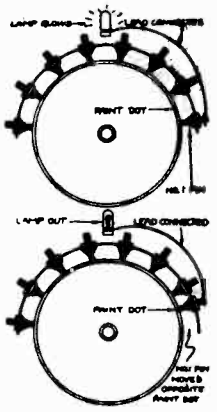
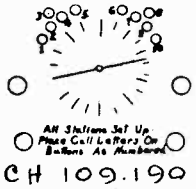
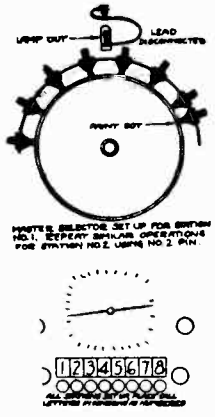


FIGURE 3





CH 109.190

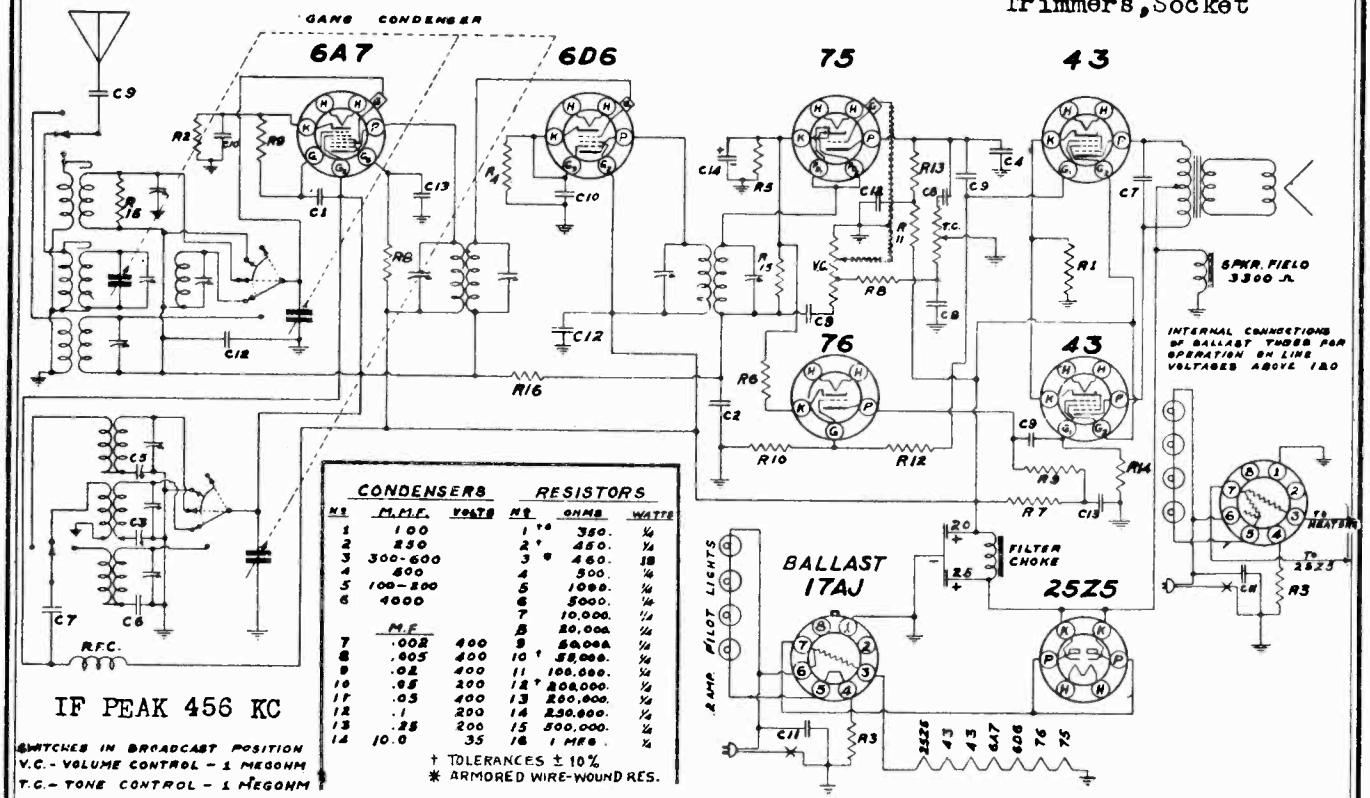


CH. 109.246

Note that in Chassis 109.190, ten contact pins are provided.

SEARS, ROEBUCK & CO.

MODEL 7236, Ch. 105.8TU
Schematic, Alignment
Trimmers, Socket



CONDENSERS			RESISTORS		
NO	M.M.F.	VOLTS	NO	OHMS	WATTS
1	100		1 †	350.	½
2	250		2 †	450.	½
3	300-600		3 *	460.	18
4	600		4	500.	½
5	100-200		5	1000.	½
6	4000		6	5000.	½
	M.F.		7	10,000.	½
7	.002	400	8	20,000.	½
8	.005	400	9 †	50,000.	½
9	.02	400	10 †	58,000.	½
10	.05	200	11	100,000.	½
11	.05	400	12 †	200,000.	½
12	.1	200	13	250,000.	½
13	.25	200	14	250,000.	½
14	10.0	35	15	500,000.	½
			16	1 MEG.	½

† TOLERANCES ± 10%
* ARMORED WIRE-WOUND RES.

POWER SUPPLY:.....105-125 volts, 60 cycles, AC or DC, 70 watts

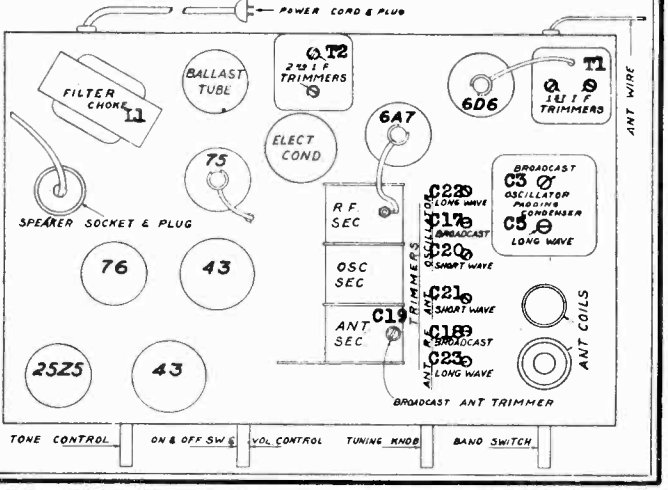
WAVE BAND SWITCH POSITION	POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMERS ADJUSTED	TRIMMER FUNCTION	APPROXIMATE MICROVOLTS
"AM"	Closed	456 kc	.1 mfd	6A7 Grid	T2	IF Output	
					T1	IF Input	45
"AM"	Fully open	1730 kc	.0002 mfd	Ant. Lead	C 17	Oscillator	
"AM"	1400 kc	1400 kc	.0002 mfd	Ant. Lead	C18	Preselector	
					C19	Antenna	10
"AM"	600 kc(rock)	600 kc	.0002 mfd	Ant. Lead	C3	Padder	8
"SW"	Fully open	18.1 mc	400 ohm	Ant. Lead	C20	Oscillator	
"SW"	16 mc	16 mc	400 ohm	Ant. Lead	C21	Antenna	16
"LW"	Fully open	380 kc	.0002 mfd	Ant. Lead	C22	Oscillator	
"LW"	920 meters	325 kc	.0002 mfd	Ant. Lead	C 23	Antenna	8
"LW"	1875 meters (rock)	160 kc	.0002 mfd	Ant. Lead	C5	Padder	15

For PUSH-BUTTON TUNER, see Index

FREQUENCY RANGES:
Band "AM"..... 535 kc-1750 kc
Band "LW".....150 kc-375 kc
Band "SW".....5.6 mc-18.1 mc

POWER OUTPUT:
Type..... Push Pull Pentode
Undistorted..... 1.8 watts
Maximum.....2.5 watts

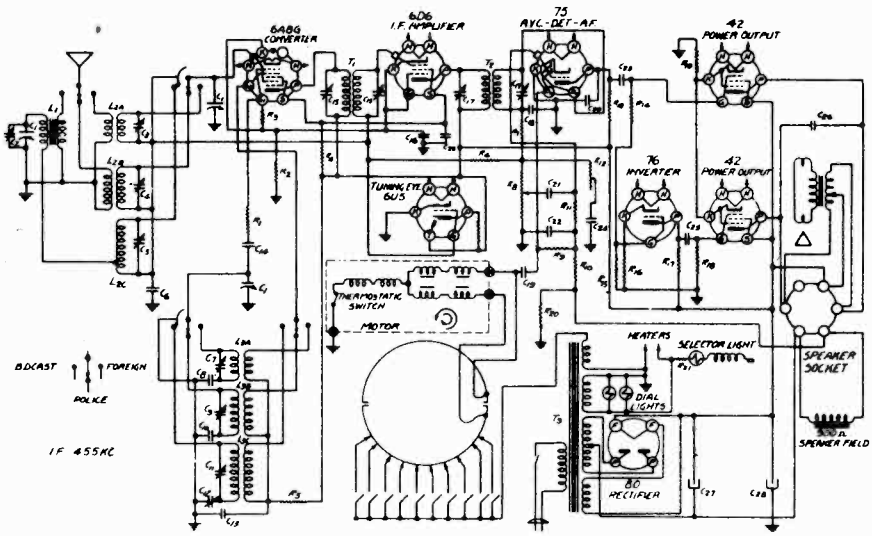
LOUD SPEAKER:
Type..... Dynamic
Size ..... 8 and 12 inch
Field coil resistance..... 3000 ohms
Voice coil impedance..... 2.5 ohms

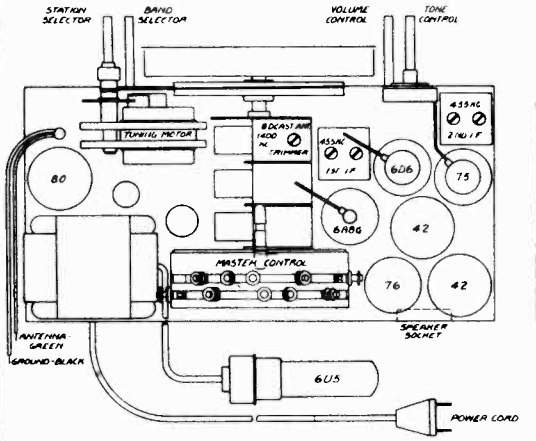


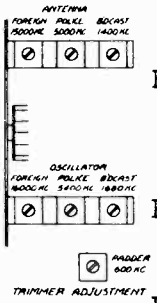
MARCH 7, 1939

MODELS 7242,7242A
Ch.109.190
Schematic,Socket
Alignment,Trimmers

SEARS, ROEBUCK & CO.







For ELECTRIC AUTOMATIC TUNING, see Index.

POWER SUPPLY: 105-125 volts, 60 cycles
80 watts

FREQUENCY RANGES: 540 to 1650 KC
1650 to 5400 KC
5250 to 16000 KC

POWER OUTPUT: Undistorted = 3 watts
Maximum = 5 watts

LOUD SPEAKER: Type, Dynamic
Size, 8-inch
Field Resistance=900 ohms

JAN. 5, 1939

ALIGNMENT PROCEDURE

Connect an output meter across the speaker voice coil. The volume control should be set a few degrees back of the maximun volume position. Use a weak signal from the generator. Strong signals tend to cause improper adjustments.

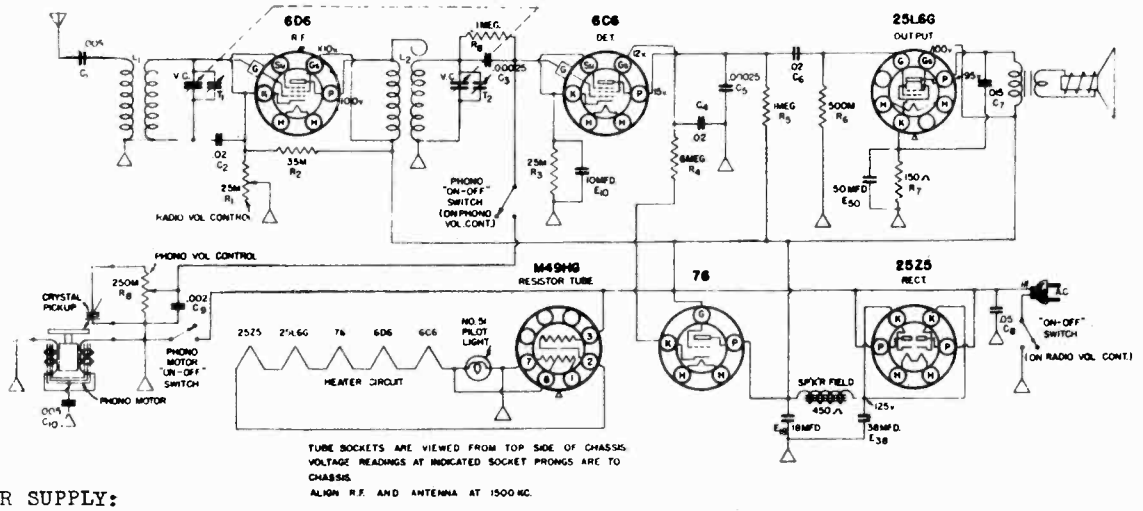
IF. Connect the generator ground to the receiver chassis. Using a .1 mfd. condenser in series with the high side of the generator, apply a 455 KC signal to the grid of the 6D6 IF amplifier tube and aline the 2nd IF transformer. Repeat for the 1st IF transformer, applying the signal to the grid of the 6A8G tube. (See tube layout diagram for location of trimmers.)

RF. Using a 200 mmf condenser as a "dummy" antenna, Turn the wave switch to the "Broadcast" position and the tuning condenser to minimum capacity. Feed a 1680 KC signal to the antenna and adjust the broadcast oscillator trimmer for top frequency. Set the generator at about 1400 KC and adjust the broadcast antenna and RF trimmers. Set the generator for 600 KC., tune the receiver to the signal and adjust the padder. The tuning condenser should be rocked back and forth through the signal while varying the padder to assure perfect alignment.

A 400 ohm resistor must be used as a dummy antenna for proper alignment of the short wave bands. Set the wave switch in the center position, adjust the oscillator top frequency to 5400 KC., Then align the antenna trimmer at about 5000 KC. With the wave switch in the extreme right hand position adjust the oscillator top frequency of the high frequency band to 16000 KC., and align the antenna at about 15000 KC. In order to be sure that the top end of the last band is set properly, it is best to screw the oscillator trimmer down tight, then unscrew to the second peak. The antenna trimmer should be screwed down tight then unscrewed to the first peak. This procedure should be followed in order that the oscillator and antenna circuits will be set in the correct relation to each other. It is best to rock the tuning condenser back and forth through the signal while making these adjustments at high frequencies.

MODEL 7244, Ch. 110.907

SEARS, ROEBUCK & CO. Schematic, Voltage Socket, Trimmers, Alignment



POWER SUPPLY:

All models available ..... 105-125 volts, 60 cycle A.C. ..... 40 watts

FREQUENCY RANGE:

Broadcast ..... 530-1730 KC

ALIGNMENT FREQUENCY

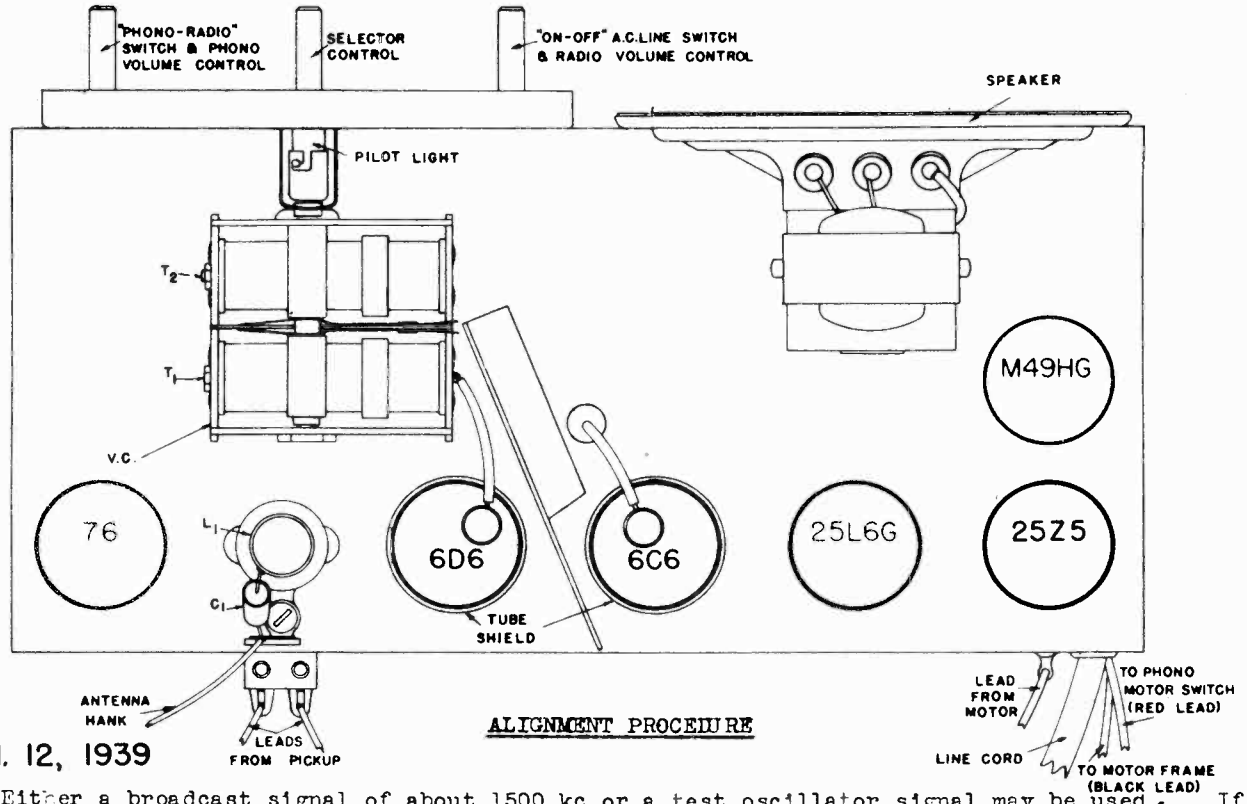
1500 KC

POWER OUTPUT:

Type	Beam Power
Undistorted	1.25 watts
Maximum	1.75 watts

LOUD SPEAKER:

Type	Dynamic
Size	5"
Field Resistance	450 Ohms



JAN. 12, 1939

ALIGNMENT PROCEDURE

Either a broadcast signal of about 1500 kc or a test oscillator signal may be used. If a broadcast signal is used, the antenna of the receiver should be extended as in a normal installation. If a test oscillator signal is used, a wire should be connected to the test oscillator output and run parallel to but insulated from the receiver's antenna wire. The generator ground connection should be connected to ground.

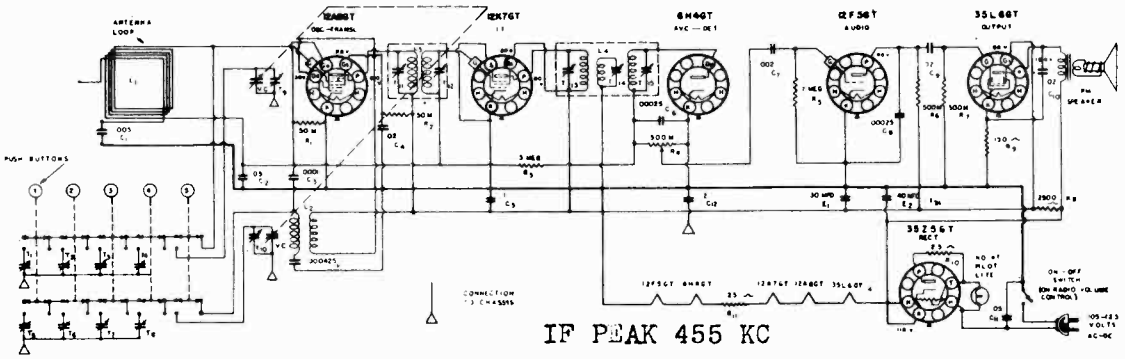
Tune in the 1500 kc signal and adjust the trimmers for maximum loud speaker response. This can be done most accurately if the Volume Control setting is reduced to give a low volume level. The location of this trimmer is shown in the tube socket location diagram.

MODELS 7251,Ch.110.988
7246,7251,Ch.110.988-1A,-2
Schematics,Socket,Trimmers

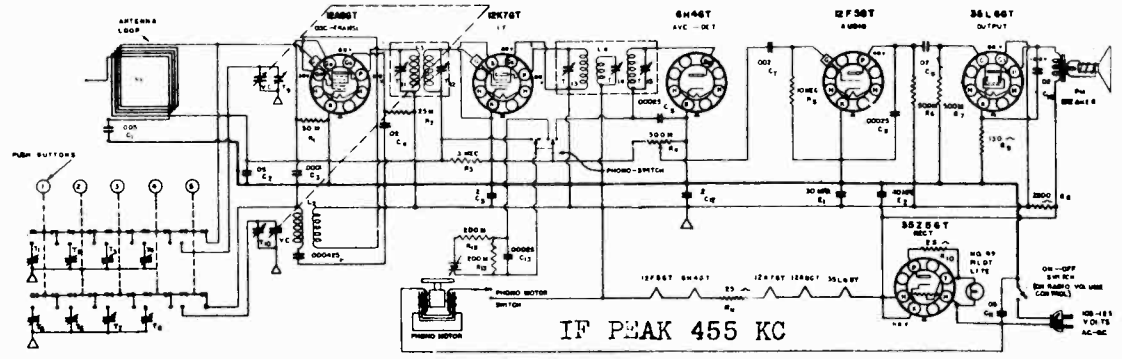
SEARS, ROEBUCK & CO.

FOR ALIGNMENT SEE INDEX

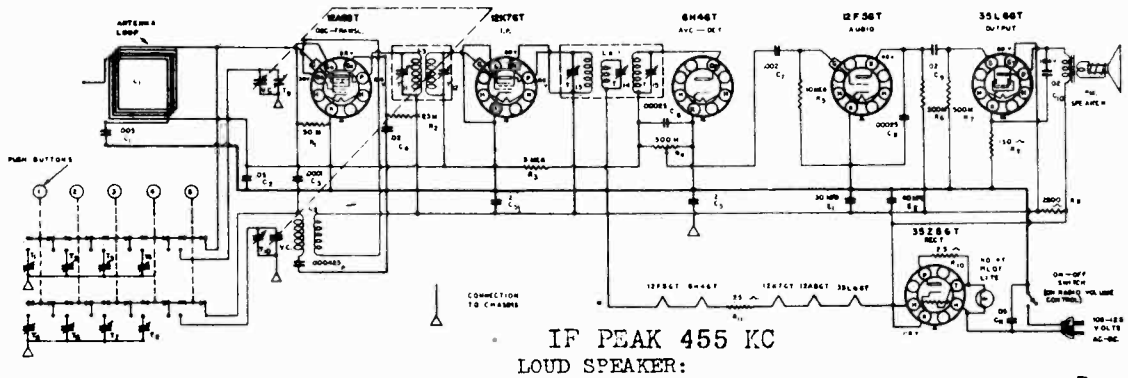
WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.988



WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.988-1A



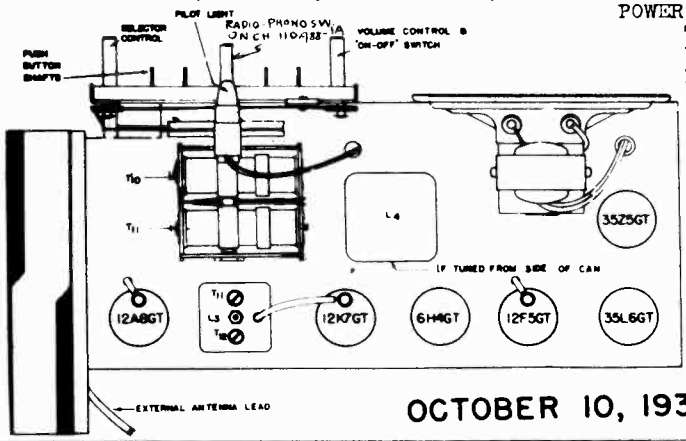
WIRING DIAGRAM FOR SILVERTONE CHASSIS 110.988-2

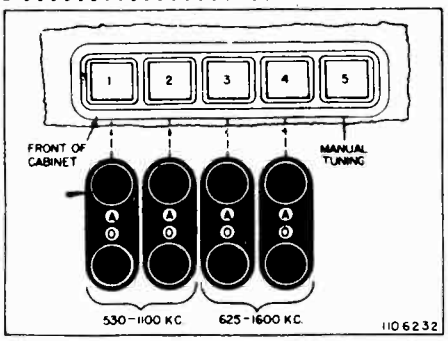


POWER SUPPLY:
All models available
110-125 volts, 25-60 cycle AC or DC, 30 watts

LOUD SPEAKER:
Type.....Dynamic
Size.....5"
Field.....P.M.

POWER OUTPUT:
Type.....Beam Power
Undistorted.....1.0
Maximum.....1.5





OCTOBER 10, 1939

SEARS, ROEBUCK & CO.

MODEL 7300 (Export)
Ch.126.216
Schematic, Voltage
Phono. Connections

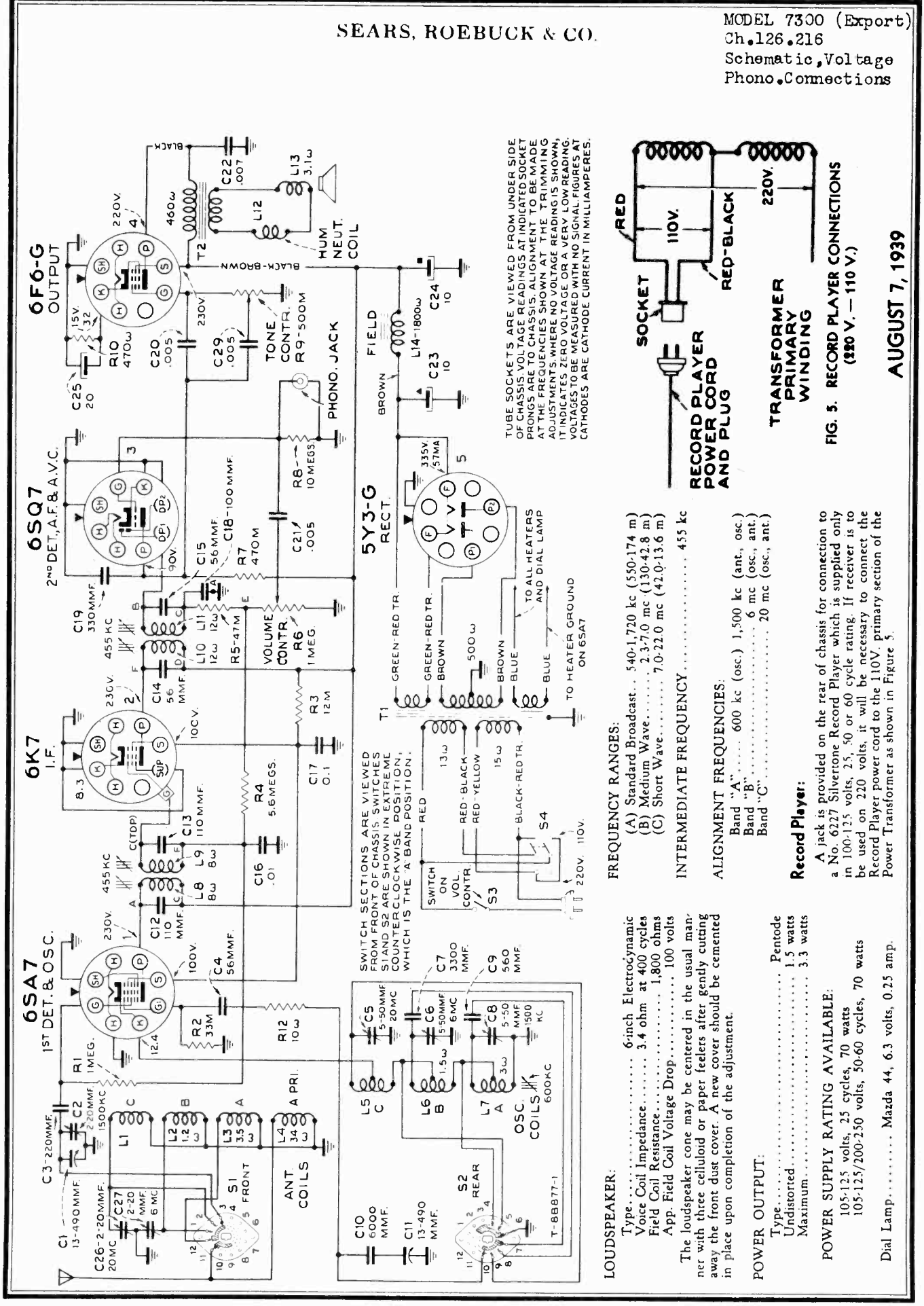


FIG. 5. RECORD PLAYER CONNECTIONS (220 V. — 110 V.)

AUGUST 7, 1939

LOUDSPEAKER:

Type..... 6-inch Electrodynamic
Voice Coil Impedance..... 3.4 ohm at 400 cycles
Field Coil Resistance..... 1,800 ohms
App. Field Coil Voltage Drop..... 100 volts

The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.

POWER OUTPUT:

Type..... Pentode
Undistorted..... 1.5 watts
Maximum..... 3.3 watts

POWER SUPPLY RATING AVAILABLE:

105-125 volts, 25 cycles, 70 watts
105-125/200-250 volts, 50-60 cycles, 70 watts

Dial Lamp..... Mazda 44, 6.3 volts, 0.25 amp.

FREQUENCY RANGES:

(A) Standard Broadcast.. 540-1,720 kc (550-174 m)
(B) Medium Wave..... 2.3-7.0 mc (130-42.8 m)
(C) Short Wave..... 7.0-22.0 mc (42.0-13.6 m)

INTERMEDIATE FREQUENCY..... 455 kc

ALIGNMENT FREQUENCIES:

Band "A"..... 600 kc (osc.) 1,500 kc (ant., osc.)
Band "B"..... 6 mc (osc., ant.)
Band "C"..... 20 mc (osc., ant.)

Record Player:

A jack is provided on the rear of chassis for connection to a No. 6227 Silvertone Record Player which is supplied only in 100-125 volts, 25, 50 or 60 cycle rating. If receiver is to be used on 220 volts, it will be necessary to connect the Record Player power cord to the 110V. primary section of the Power Transformer as shown in Figure 5.

MODEL 7300

Chassis Wiring, Socket Trimmers, Dial, Notes

SEARS, ROEBUCK & CO.

Calibration Scale on Variable Condenser Drive Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment when chassis is out of cabinet; therefore, a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 45° mark on the drum scale (see "Dial Drive Drawing") must be in a horizontal position when the plates are fully meshed. The distance from the edge of the chassis to the drum must not exceed ⅛-inch. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "0°" mark on the calibration scale when the plates are fully meshed.

Dial - Indicator Adjustment. — After fastening the chassis in the cabinet, attach the dial pointer to the drive cable with variable condenser fully closed and pointer on last calibration mark at 550 kc end of Broadcast "A" band. The dial pointer has a spring clip for attachment to the cable.

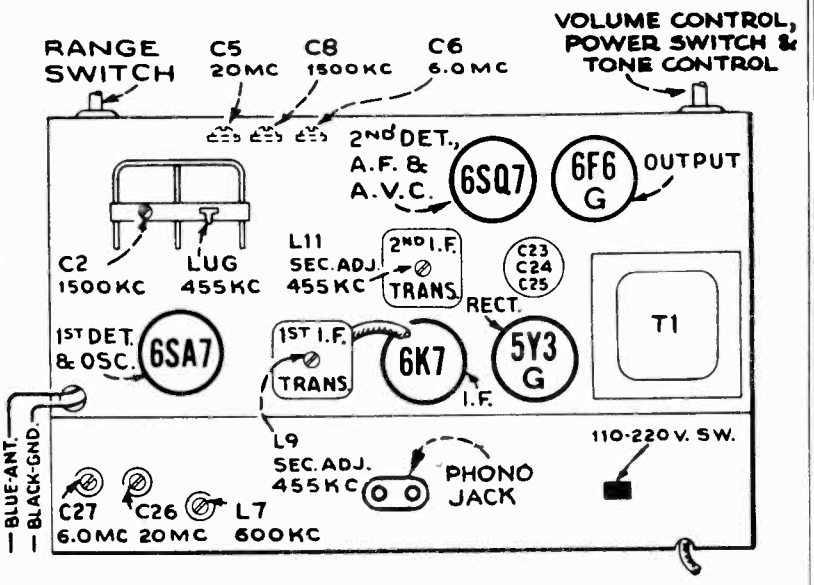


FIG. 1. TUBE, TRIMMER AND PARTS LOCATION

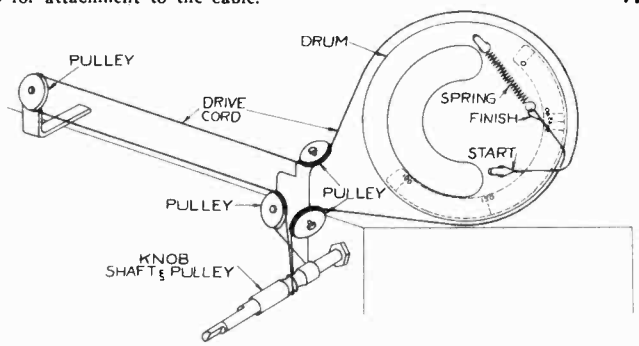


FIG. 2. CONDENSER AND INDICATOR DRIVE CORD

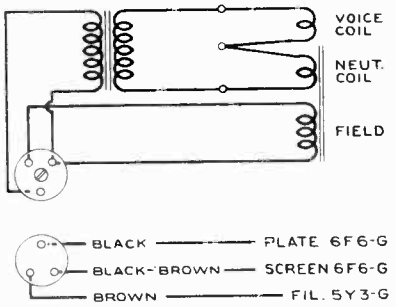


FIG. 3. SPEAKER AND CABLE CONNECTIONS

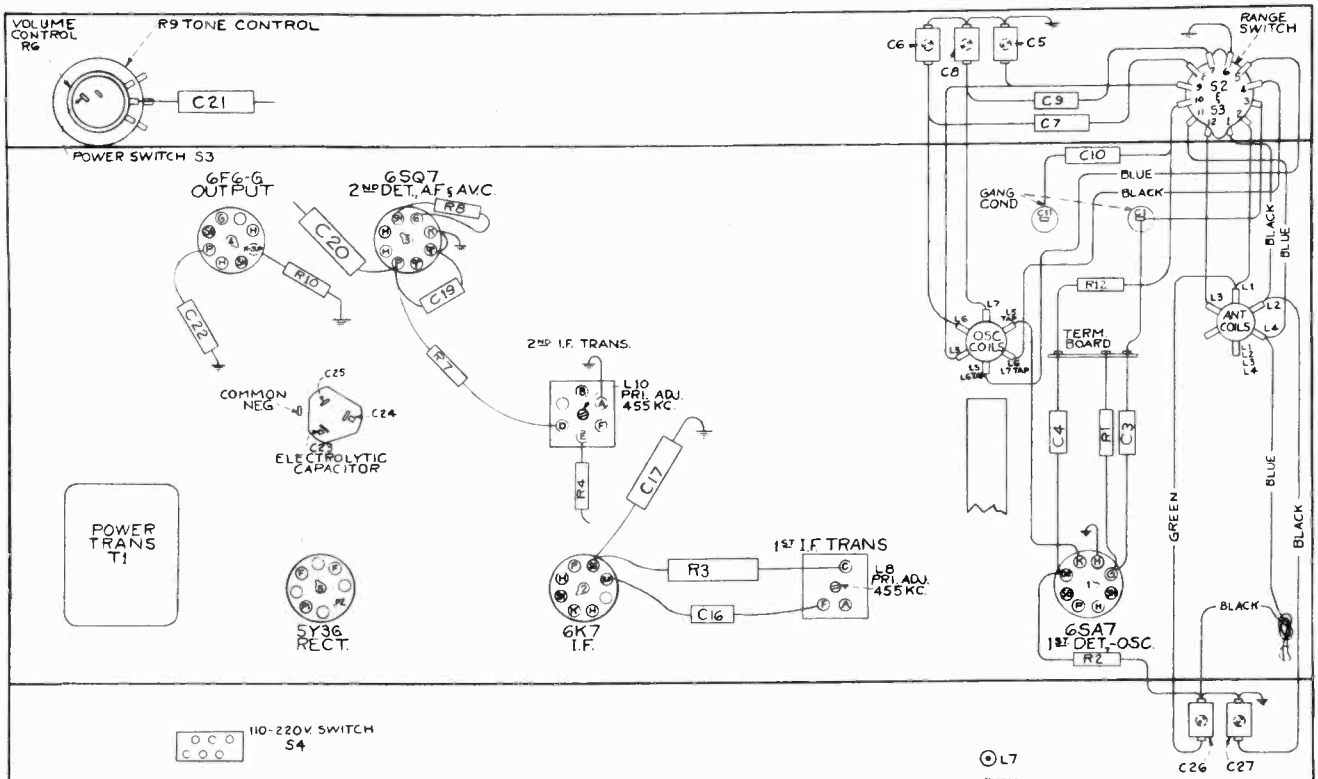


FIG. 4. TUBE, TRIMMER AND PARTS LOCATION—BOTTOM VIEW

SEARS, ROEBUCK & CO.

MODEL 7300
Alignment

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections ..... Across speaker voice coil
Output meter reading to indicate 1.0 watt output ..... 1.6 volts
Approximate average sensitivity in microvolts for 1.0 watt output ..... See chart below
Dummy antenna value to be inserted in series with generator output ..... See chart below
Connection of generator output lead ..... See chart below
Connection of generator ground lead ..... To chassis
Generator modulation ..... 30%, 400 cycles
Position of Volume Control ..... Fully Clockwise
Position of Tone Control ..... Fully Clockwise

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function	Approximate Microvolts
"A"	Low End	455 kc	.001 mfd.	6K7 I-F Grid	L10, L11	2nd I-F Trans.	3,500
"A"	Low End	455 kc	.001 mfd.	Tuning Condenser Stator (osc.)	L8, L9	1st I-F Trans.	85
"A"	600 kc (33°) (rock)	600 kc	.0002 mfd.	Ant.	L7	Osc.	15
"A"	1,500 kc (152.4°)	1,500 kc	.0002 mfd.	Ant.	C8, C2	Osc., Ant.	——
"C"	20 mc (155.4°)	20 mc	300 ohms	Ant.	C5	Osc.*	——
"C"	20 mc (155.4°) (rock)	20 mc	300 ohms	Ant.	C26	Ant.	95
"B"	6.0 mc (149°)	6.0 mc	300 ohms	Ant.	C6	Osc.*	15
"B"	6.0 mc (149°)	6.0 mc	300 ohms	Ant.	C27	Ant.	——
"A"	1,500 kc (150.5°)	1,500 kc	.0002 mfd.	Ant.	C29, C3	Osc., Ant.	15

IMPORTANT ALIGNMENT NOTES

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

Where indicated by the word "Rock," the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.

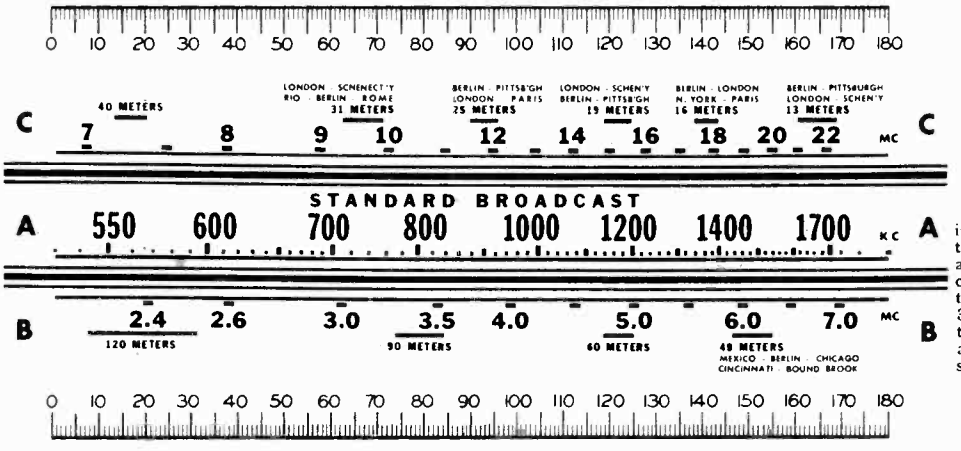
Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value to prevent the a-v-c action of the set interfering with accurate alignment.

Adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other band. Grid cap leads should remain in place during alignment.

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

Values shown under, "Microvolts," are only approximate.



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 33° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

MODEL 7306 (Export)
Ch. 126.218
Schematic, Voltage

SEARS, ROEBUCK & CO.

FOR ALIGNMENT
SEE INDEX

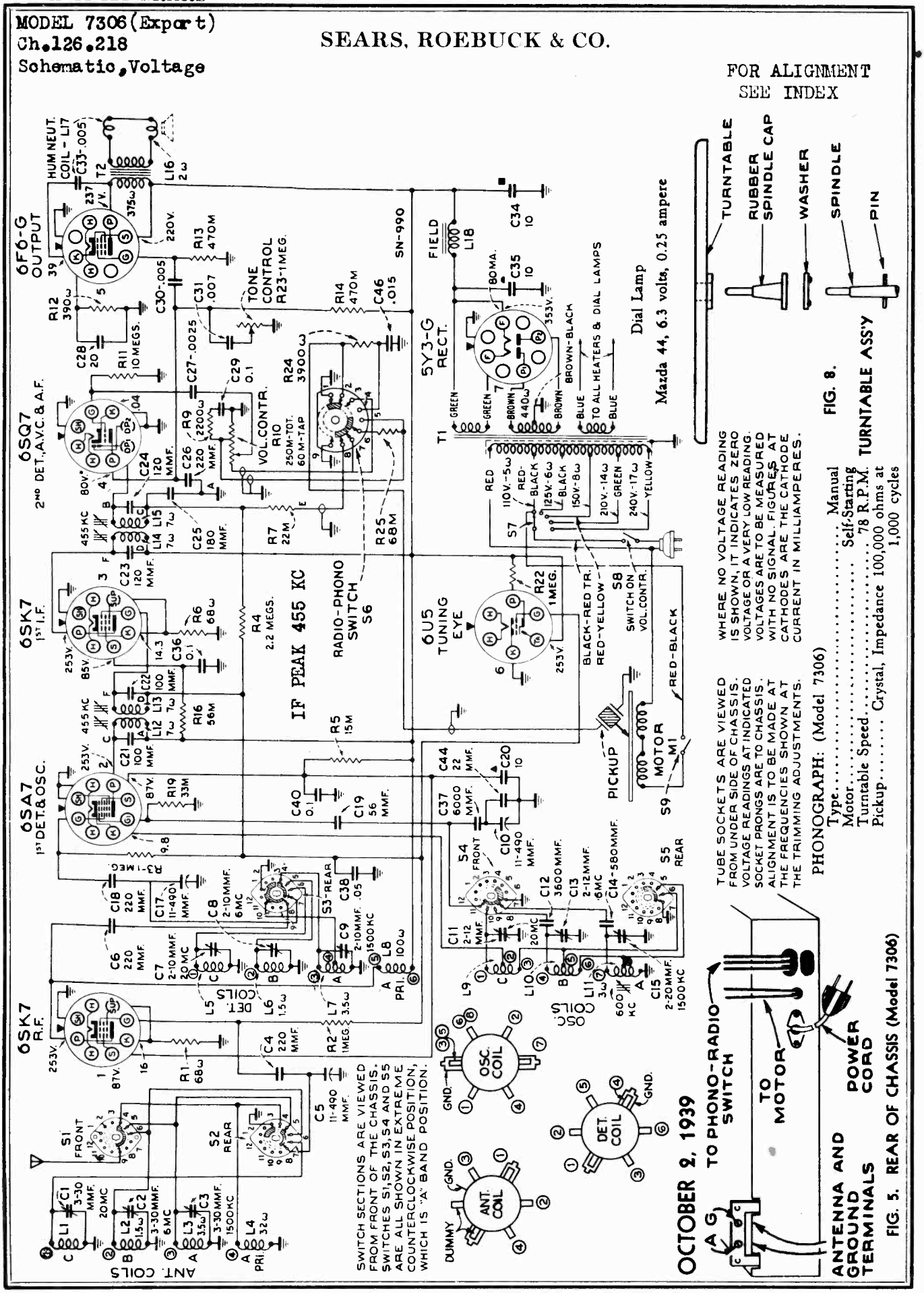


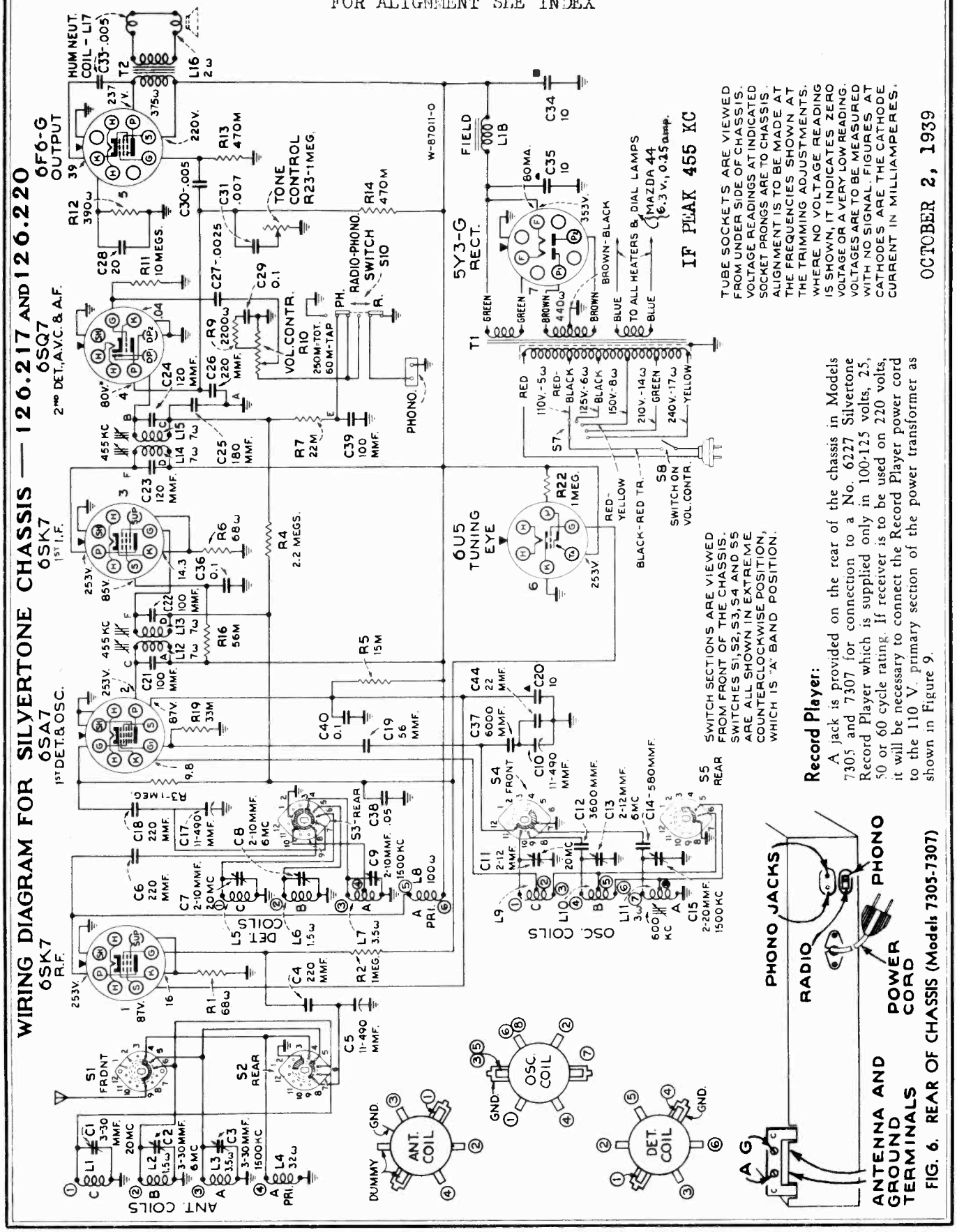
FIG. 5. REAR OF CHASSIS (Model 7306)

FIG. 8. TURNTABLE ASS'Y

SEARS, ROEBUCK & CO.

MODELS 7305, Ch. 126.217,
7307, Ch. 126.220 (Export)
Schematic, Voltage

FOR ALIGNMENT SEE INDEX



Record Player:

A jack is provided on the rear of the chassis in Models 7305 and 7307 for connection to a No. 6227 Silvertone Record Player which is supplied only in 100-125 volts, 25, 50 or 60 cycle rating. If receiver is to be used on 220 volts, it will be necessary to connect the Record Player power cord to the 110 V. primary section of the power transformer as shown in Figure 9.

FIG. 6. REAR OF CHASSIS (Models 7305-7307)

MODELS 7305, 7306, 7307
Chassis Wiring, Socket
Trimmers, Notes

SEARS, ROEBUCK & CO.

Loudspeaker:

The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.

Calibration Scale on Variable Condenser Drive Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment when chassis is out of cabinet; therefore, a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale (see "Dial Drive Drawing") must be in a vertical position when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment. — After fastening the chassis in the cabinet attach the dial pointer to the drive cable with variable condenser fully closed and pointer on last calibration mark at 550 kc end of Broadcast "A" band. The dial pointer has a spring clip for attachment to the cable.

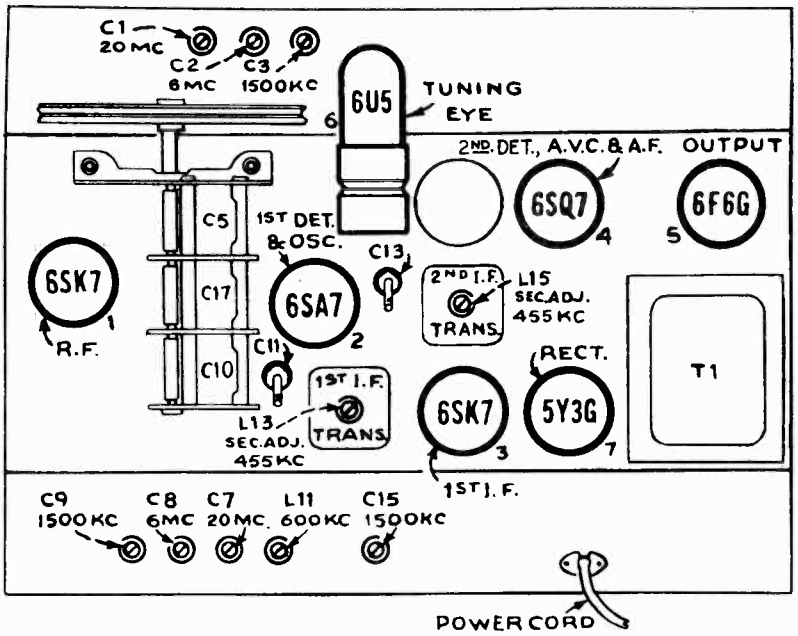


FIG. 1. TUBE, TRIMMER AND PARTS LOCATION

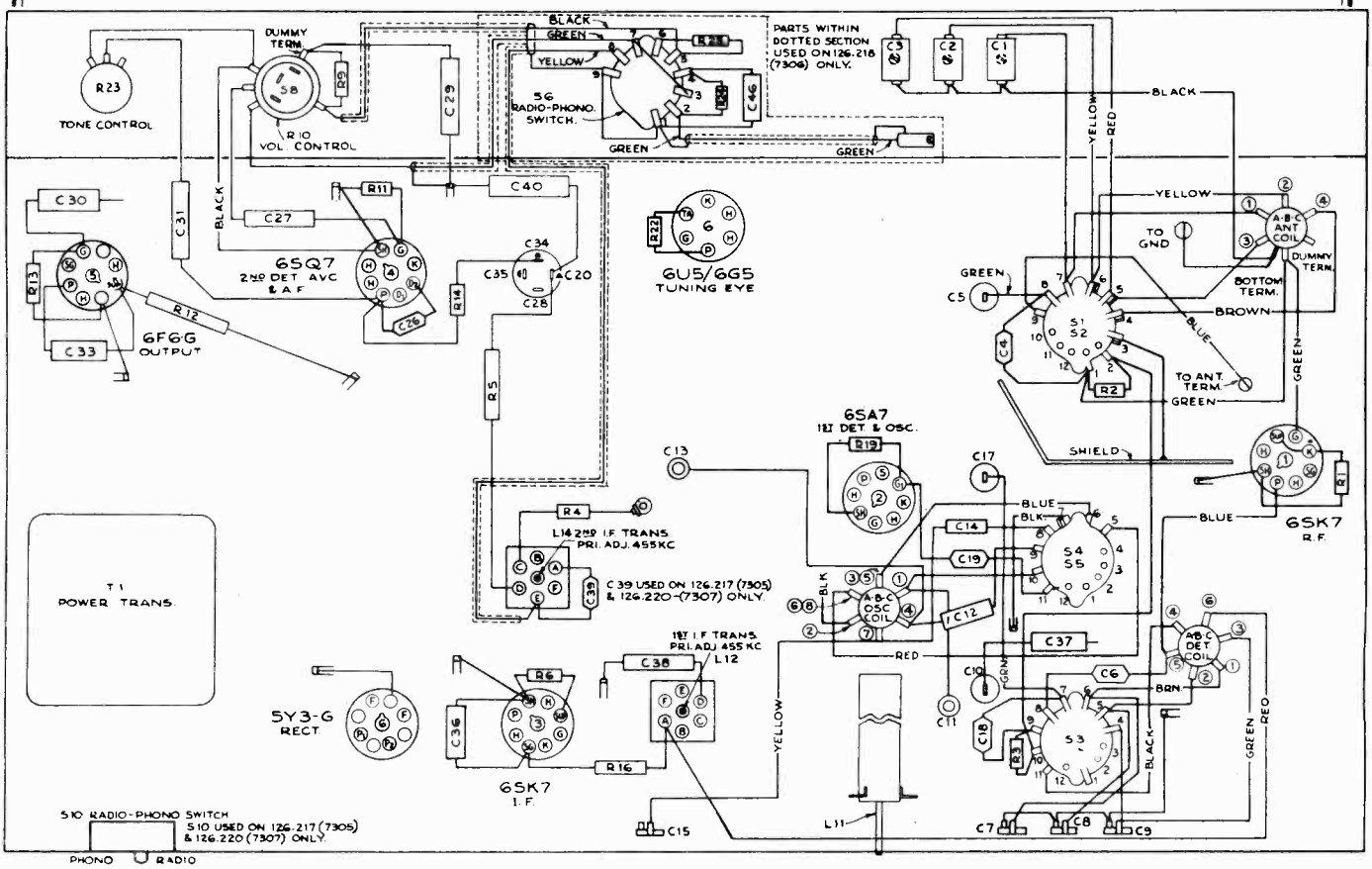


FIG. 2. TUBE, TRIMMER AND PARTS LOCATION—BOTTOM VIEW

SEARS, ROEBUCK & CO.

MODELS 7305, 7306, 7307
Alignment

Model 7305 (126.217) and Model 7307 (126.220) are the same except for the size of speaker. Model 7305 having a 6-inch and Model 7307 a 12-inch electrodynamic speaker.

Model 7306 (126.218) has an 8-inch electrodynamic speaker and is supplied as a radio-phonograph combination.

POWER SUPPLY RATING:
- Models 7305 and 7307 ..... 100-130, 140-160, 195-250 volts, 40 to 60 cycles, 75 watts
- Model 7306 ..... 100-130, 140-160, 195-250 volts, 40 to 60 cycles, 75 watts
- Phono Motor ..... 20 watts
- Total ..... 95 watts

CHASSIS FEATURES:
- No. R-F Stages (all bands) ..... One
- No. I-F Stages ..... One
- Tuning Eye
- Line Noise Electrostatic Transformer Shield
- Aural-Compensated Volume Control
- Magnetite-Core Adjusted I-F Transformers and Band "A" Low-Frequency Oscillator Tracking
- Jack and Switch for Phonograph Attachment on Models 7305 and 7307

FREQUENCY RANGES:
- (A) Standard Broadcast .. 540-1,720 kc (550-174 m)
- (B) Medium Wave ..... 2.3-7.0 mc (130-42.8 m)
- (C) Short Wave ..... 7.0-22.0 mc (42.0-13.6 m)

ALIGNMENT FREQUENCIES:
- Band "A" .. 600 kc (osc.) 1,500 kc (osc., det., ant.)
- Band "B" ..... 6 mc (osc., det., ant.)
- Band "C" ..... 20 mc (osc., det., ant.)

INTERMEDIATE FREQUENCY ..... 455 kc

POWER OUTPUT:
- Type ..... Pentode
- Undistorted ..... 2.5 watts
- Maximum ..... 4.5 watts

LOUDSPEAKER:	Model 7305	Model 7306	Model 7307
Type—Electrodynamic	6-inch	8-inch	12-inch
Voice Coil Impedance at 400 Cycles	3.4 ohms	2.2 ohms	2.2 ohms
Field Coil Resistance	1,800 ohms	1,060 ohms	1,060 ohms
Approx. Field Coil Voltage Drop	130 volts	130 volts	130 volts

ALIGNMENT PROCEDURE

PRELIMINARY:

- Output meter connections ..... Across speaker voice coil
- Output meter reading to indicate 1.0 watt output ..... 1.6 volts
- Approximate average sensitivity in microvolts for 1.0 watt output ..... See chart below
- Dummy antenna value to be inserted in series with generator output ..... See chart below
- Connection of generator output lead ..... See chart below
- Connection of generator ground lead ..... To chassis
- Generator modulation ..... 30%, 400 cycles
- Position of Volume Control ..... Fully clockwise
- Position of Tone Control ..... Fully clockwise

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function	Approximate Microvolts
"A"	Low End	455 kc	.001 mfd.	6SK7 I-F Grid	L14, L15	2nd I-F Trans.	4,600
"A"	Low End	455 kc	.001 mfd.	Tuning Condenser Stator (osc.)	L12, L13	1st I-F Trans.	85
"A"	600 kc (148°) (rock)	600 kc	.0002 mfd.	Ant.	L11	Osc.	2.8
"A"	1,500 kc (28°)	1,500 kc	.0002 mfd.	Ant.	C15, C9, C3	Osc., Det., Ant.	2.1
"B"	6.0 mc (31°)	6.0 mc	300 ohms	Ant.	C13*, C8, C2	Osc.,* Det., Ant.	2.1
"C"	20 mc (23°)	20 mc	300 ohms	Ant.	C11*, C7, C1	Osc.,* Det., Ant.	4.2

IMPORTANT ALIGNMENT NOTES

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

Where indicated by the word "Rock," the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.

Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value to prevent the a-v-c action of the set interfering with accurate alignment.

Adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other band.

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

Values shown under, "Microvolts," are only approximate.

MODELS 7305, 7306, 7307
MODELS 7310, 7312

SEARS, ROEBUCK & CO.

Phonograph Data, Dial

NOTE:-ILLUSTRATIONS MARKED WITH ✳ APPLY ALSO TO MODELS 7310, 7312.

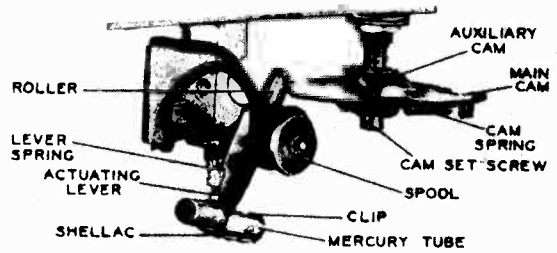


FIG. 4. MERCURY SWITCH MECHANISM
(Model 7306) Viewed from front—shown with pickup in rest position

The motor switch is automatic for both starting and stopping, and when properly adjusted, will turn the motor on as the pickup is moved from the pickup rest toward the turntable. The switch should be adjusted so that it will snap into the "off" position when the pickup needle is 1⅞ inches from the center line of the turntable shaft.

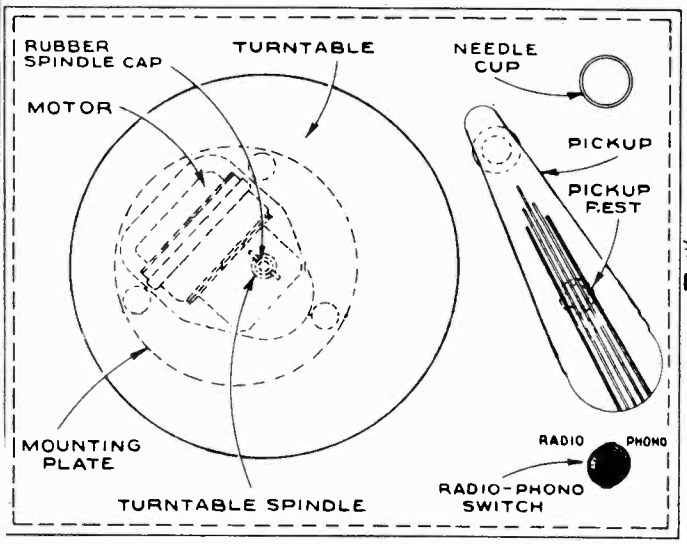
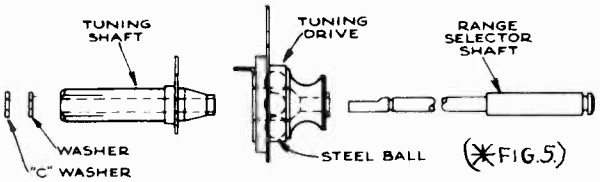
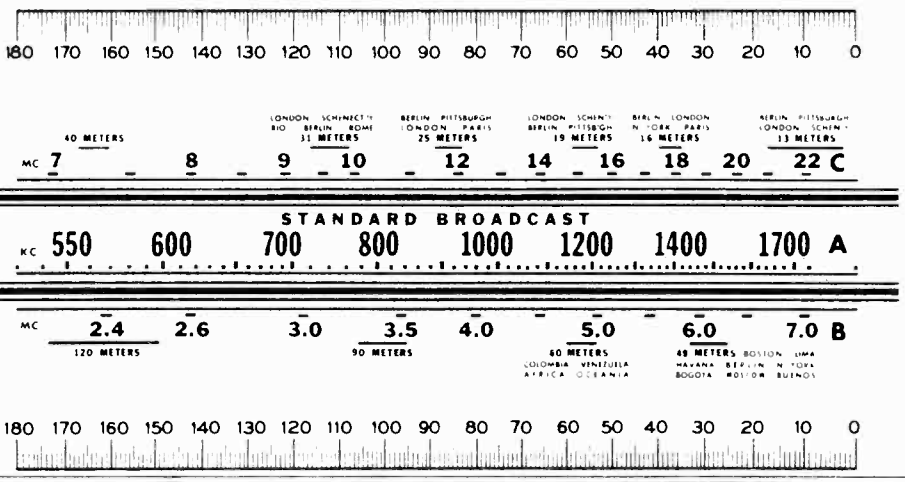
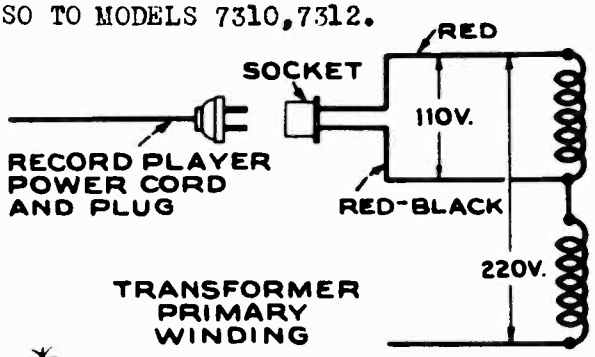


FIG. 3. PHONOGRAPH MOTOR BOARD AND OPERATING CONTROLS (Model 7306)

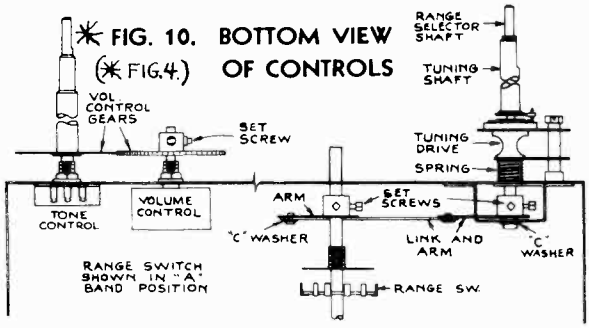


✳FIG. 7. PLANETARY TUNING DRIVE ASS'Y

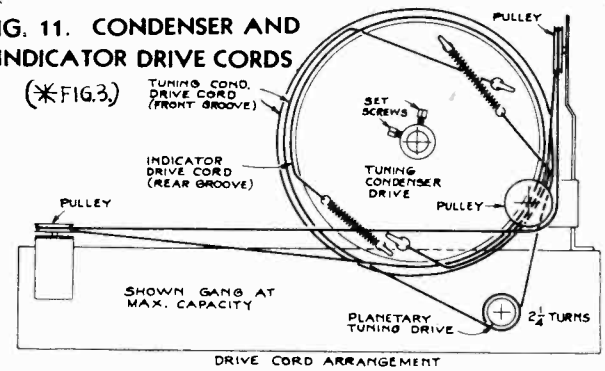




✳**FIG. 9. RECORD PLAYER CONNECTIONS**
(✳FIG.8) **(220V—110V)**

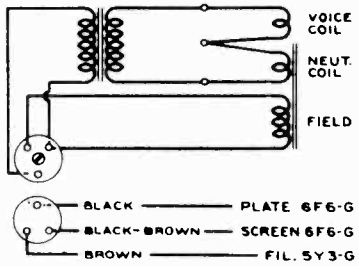


✳**FIG. 10. BOTTOM VIEW OF CONTROLS**
(✳FIG.4.)



✳**FIG. 11. CONDENSER AND INDICATOR DRIVE CORDS**
(✳FIG.3.)
DRIVE CORD ARRANGEMENT

FIG. 12. ➤➤➤
SPEAKER AND CABLE CONNECTIONS



✳ Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 32° on the calibration scale corresponds to approximately 7.9 mc on "C" band, and 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."

SEARS, ROEBUCK & CO.

MODELS 7310, Ch. 126.219
7312, Ch. 126.221 (Export)
Schematic, Voltage

NOVEMBER 10, 1939

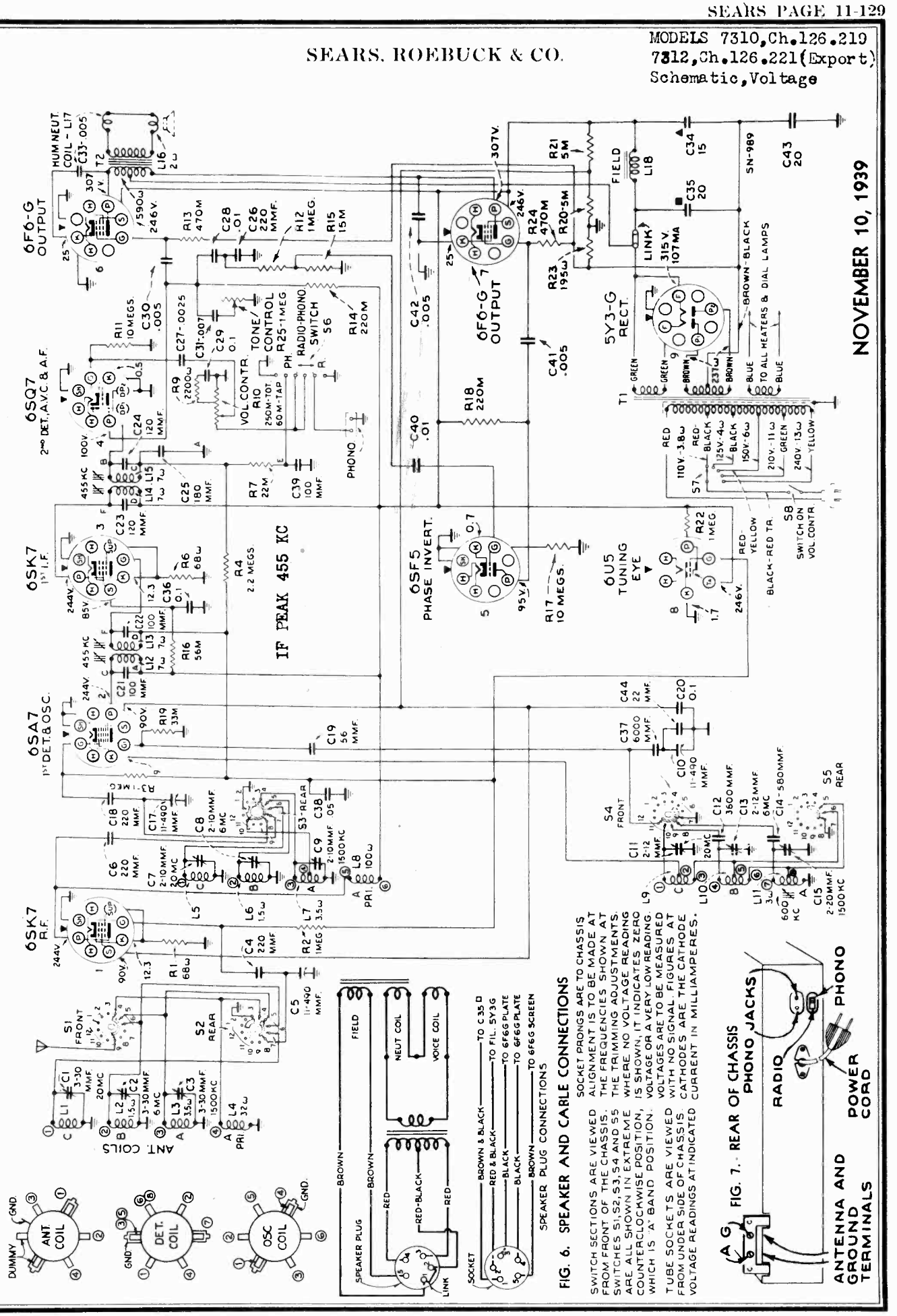


FIG. 6. SPEAKER AND CABLE CONNECTIONS

SOCKET PRONGS ARE TO CHASSIS

SWITCH SECTIONS ARE VIEWED FROM FRONT OF THE CHASSIS. SWITCHES S1, S2, S3, S4 AND S5 ARE ALL SHOWN IN EXTREME COUNTERCLOCKWISE POSITION, WHICH IS 'A' BAND POSITION.

ALIGNMENT IS TO BE MADE AT THE FREQUENCIES SHOWN AT THE TRIMMING ADJUSTMENTS. WHERE NO VOLTAGE READING IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING.

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS

VOLTAGES ARE TO BE MEASURED WITH NO SIGNAL. FIGURES AT CATHODES ARE THE CATHODE CURRENT IN MILLIAMPERES.

VOLTAGE READINGS AT INDICATED

FIG. 7. - REAR OF CHASSIS

MODELS 7310, 7312
Chassis Wiring, Socket Trimmers, Dial Data

SEARS, ROEBUCK & CO.

General Information and Service Hints

Loudspeaker:

The loudspeaker cone may be centered in the usual manner with three celluloid or paper feelers after gently cutting away the front dust cover. A new cover should be cemented in place upon completion of the adjustment.

Tuning Dial:

The tuning shaft is connected through a cord drive to a drum on the condenser shaft. This same cord drives the dial indicator by passing over a pulley on the chassis. Figure 3 shows the complete cord drive assembly and the correct number of turns which the cord should be wrapped around the drive shaft and condenser drum.

Record Player:

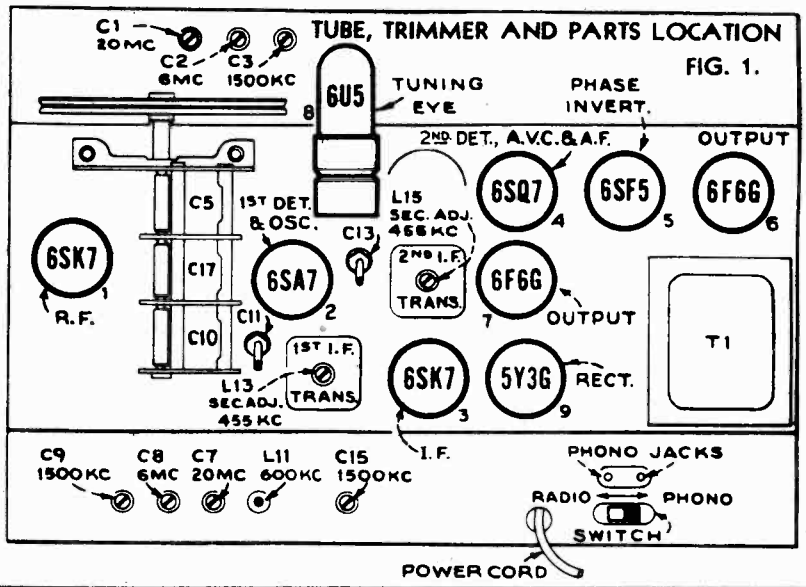
A jack is provided on the rear of the chassis for connection to a No. 6227 Silvertone Record Player which is supplied only in 100-125 volts, 25, 50 or 60 cycle rating. If receiver is to be used on 220 volts, it will be necessary to connect the Record Player power cord to the 110 V. primary section of the power transformer as shown in Figure 8.

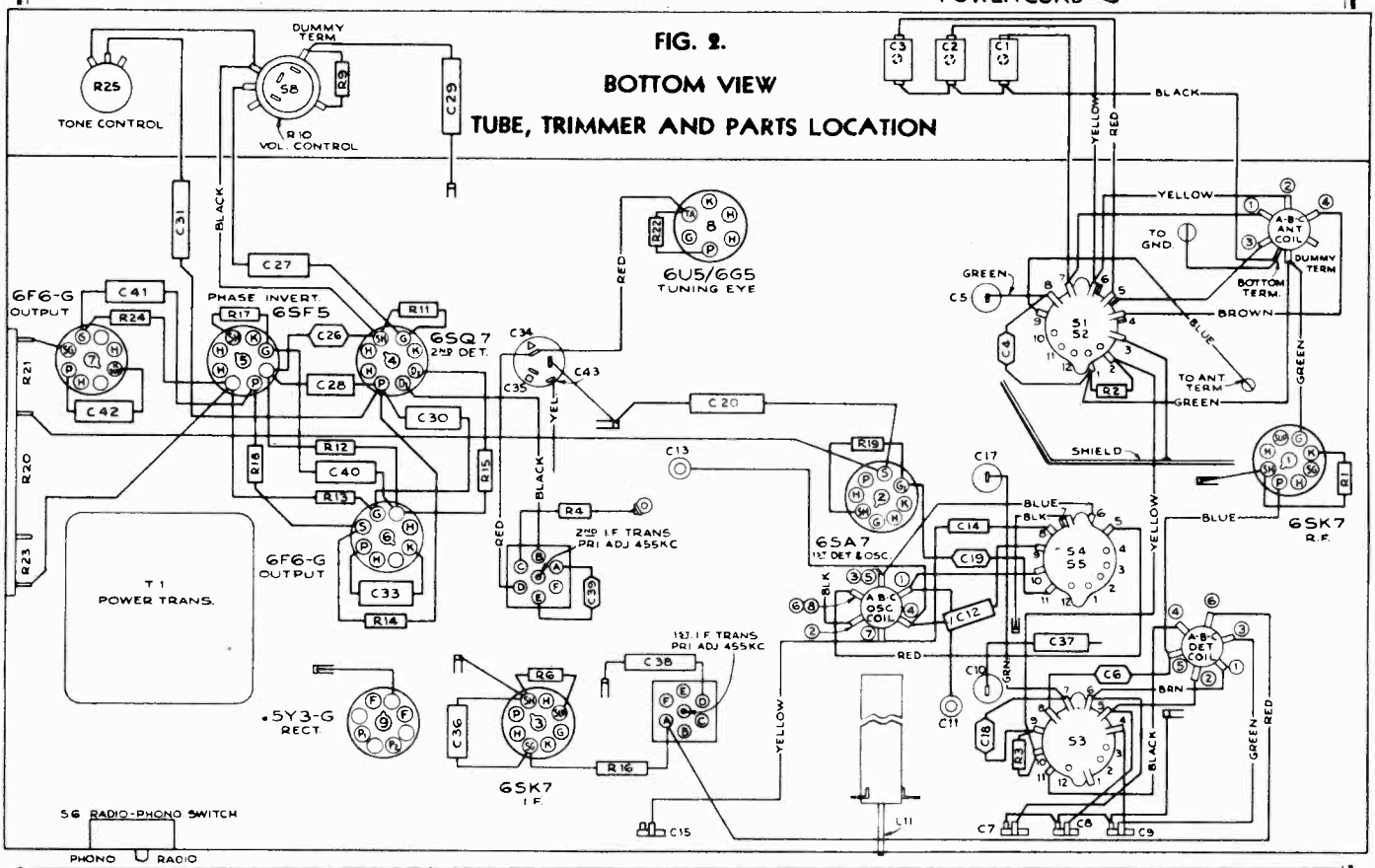
Calibration Scale on Variable Condenser Drive Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment when chassis is out of cabinet; therefore, a calibration scale is attached to the rear of the drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the drum. The 180° mark on the drum scale (see "Dial Drive Drawing") must be in a vertical position when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial - Indicator Adjustment. — After fastening the chassis in the cabinet attach the dial pointer to the drive cable with variable condenser fully closed and pointer on last calibration mark at 550 kc end of Broadcast "A" band. The dial pointer has a spring clip for attachment to the cable.





MODELS 7310, 7312
Alignment

SEARS ROEBUCK & CO.

LOUDSPEAKER:	Model 7310	Model 7312
Type—Electrodynamic	8-inch	12-inch
Voice Coil Impedance at 400 Cycles	2.2 ohms	2.2 ohms
Field Coil Resistance	1,060 ohms	1,060 ohms
Approximate Field Coil Voltage Drop	70 volts	70 volts

Note.—The above models are identical except for the size of speaker. Model 7310 has an 8-inch and Model 7312 a 12-inch electrodynamic speaker.

POWER OUTPUT:

Type	Push-Pull
Undistorted	10.5 watts
Maximum	11.5 watts

INTERMEDIATE FREQUENCY ..... 455 kc

POWER SUPPLY RATING:

100-130, 140-160, 195-250 volts, 40 to 60 cycles, 95 watts

FREQUENCY RANGES:

(A) Standard Broadcast	540-1,720 kc (550-174 m)
(B) Medium Wave	2.3-7.0 mc (130-42.8 m)
(C) Short Wave	7.0-22.0 mc (42.0-13.6 m)

ALIGNMENT FREQUENCIES:

Band "A"	600 kc (osc.) 1,500 kc (osc., det., ant.)
Band "B"	6 mc (osc., det., ant.)
Band "C"	20 mc (osc., det., ant.)

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connections	Across speaker voice coil
Output meter reading to indicate 1.0 watt output	1.48 volts
Approximate average sensitivity in microvolts for 1.0 watt output	See chart below
Dummy antenna value to be inserted in series with generator output	See chart below
Connection of generator output lead	See chart below
Connection of generator ground lead	To chassis
Generator modulation	30%, 400 cycles
Position of Volume Control	Fully clockwise
Position of Tone Control	Fully clockwise

LOCATION OF PARTS AND ALIGNMENT ADJUSTMENTS ON TOP OF CHASSIS

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function	Approximate Microvolts
"A"	Low End	455 kc	.001 mfd.	6SK7 I-F Grid	L14, L15	2nd I-F Trans.	5,000
"A"	Low End	455 kc	.001 mfd.	Tuning Condenser Stator (osc.)	L12, L13	1st I-F Trans.	100
"A"	1,500 kc (28°)	1,500 kc	.0002 mfd.	Ant.	C15, C9, C3	Osc., Det., Ant.	2
"A"	600 kc (148°) (rock)	600 kc	.0002 mfd.	Ant.	L11	Osc.	2
"B"	6.0 mc (31°)	6.0 mc	300 ohms	Ant.	C13,* C8, C2	Osc.,* Det., Ant.	2
"C"	20 mc (23°)	20 mc	300 ohms	Ant.	C11,* C7, C1	Osc.,* Det., Ant.	2.5

IMPORTANT ALIGNMENT NOTES

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

Where indicated by the word "Rock," the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.

Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value to prevent the a-v-c action of the set interfering with accurate alignment.

Adjustment locations are shown on the top and bottom parts location views of chassis.

Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other band.

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

Values shown under, "Microvolts," are only approximate.

MODEL 7807, Ch. 113, 414
Schematic, Voltage
Chassis, Socket
Trimmers

SEARS, ROEBUCK & CO.

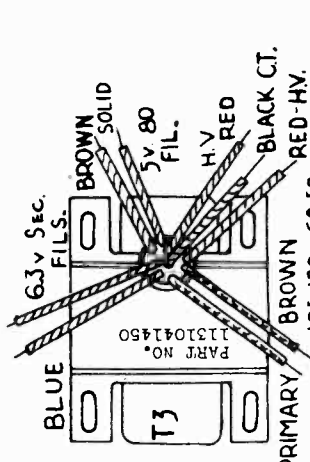
POWER SUPPLY:
105 - 120 Volts, 50-60 Cycle A.C. . . . . 55 Watts

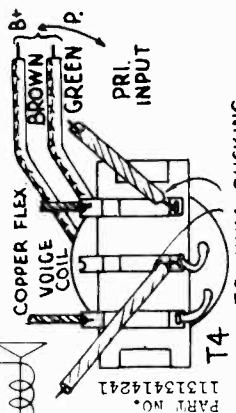
LOUD SPEAKER:
Type. . . . . Dynamic
Size. . . . . 6 inch
Field resistance. . . . . .1600 ohms

POWER OUTPUT:
Type . . . . . Single Pentode
Undistorted. . . . . 2.1 Watts
Maximum. . . . . 3.9 Watts

FREQUENCY RANGE:
Broadcast. . . . . 540-1750 KD

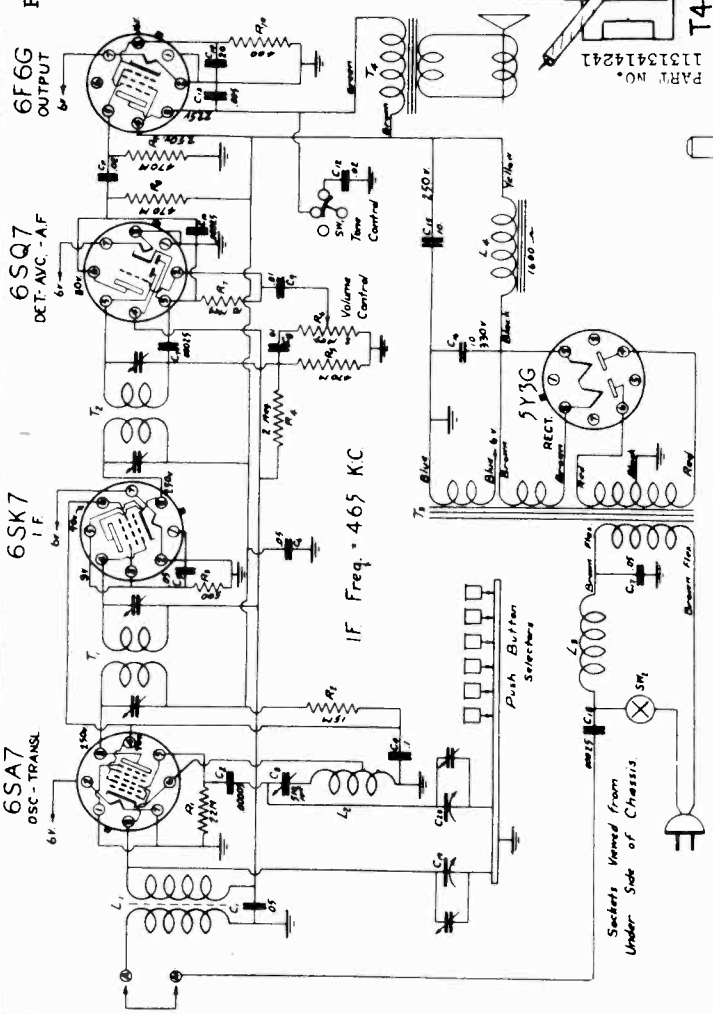
INTERMEDIATE FREQUENCY. . . . . 465 KC

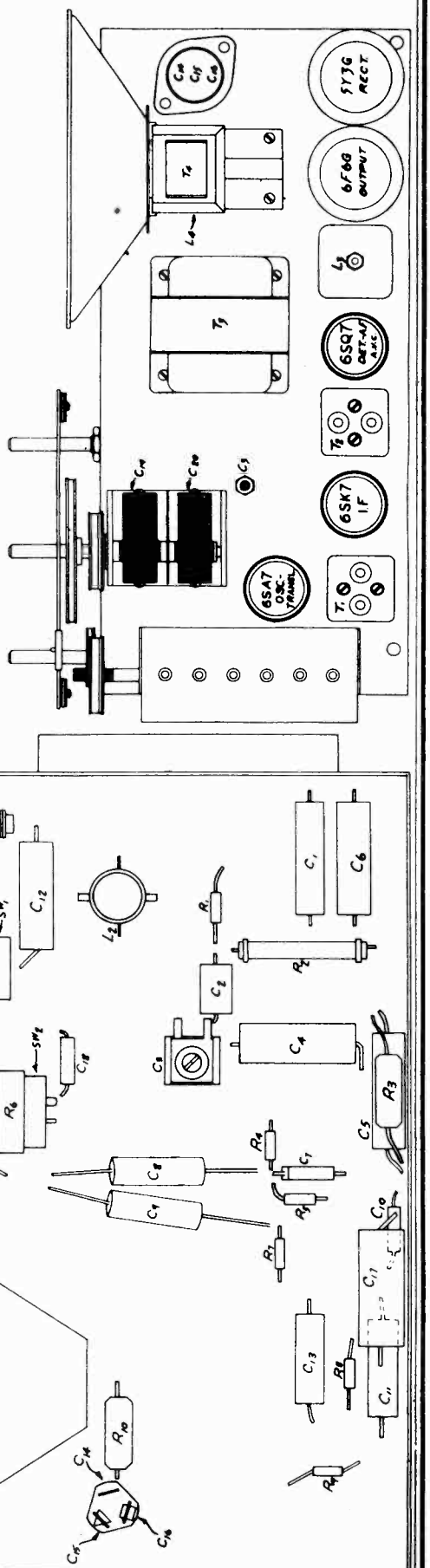




COLOR CODE OUTPUT TRANS. LEADS

COLOR CODE-POWER TRANS LEADS

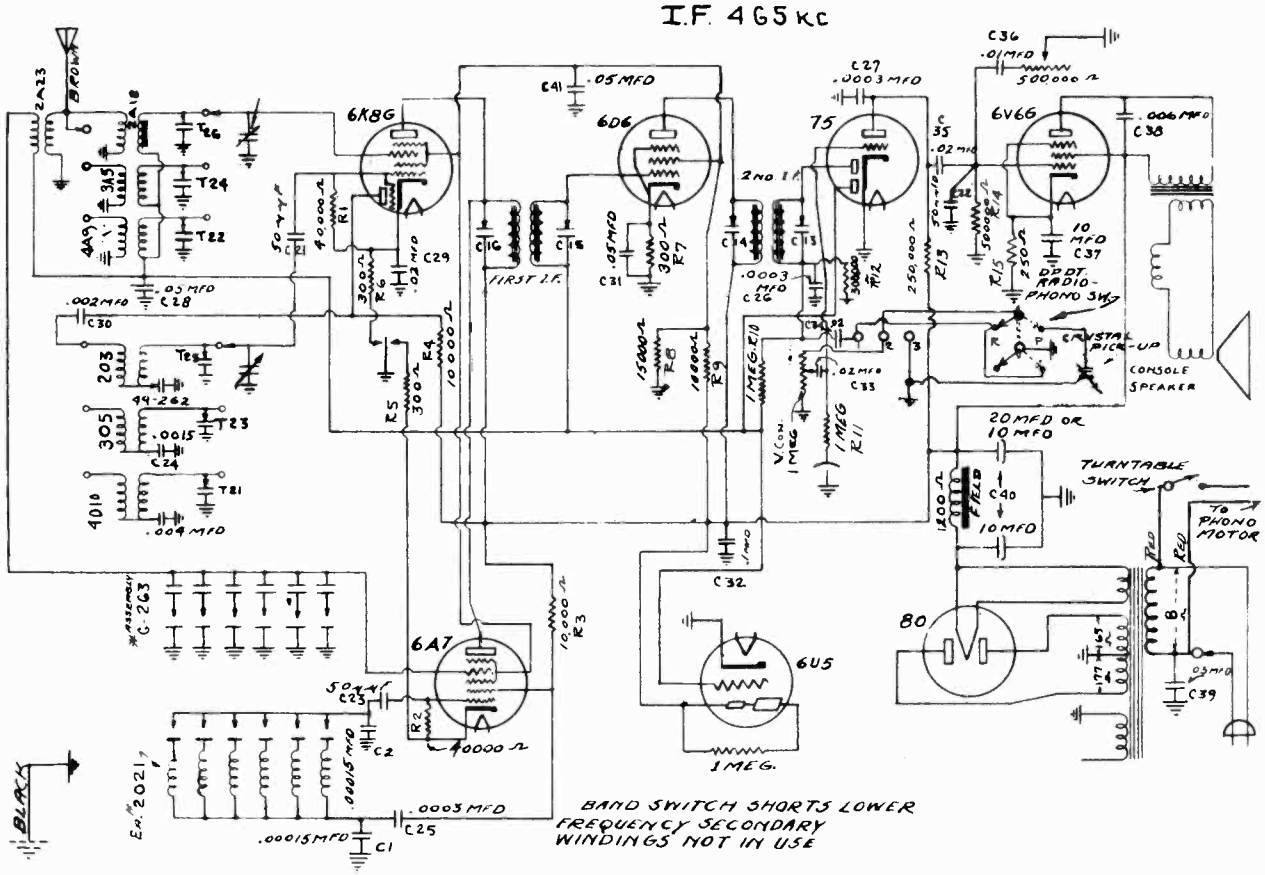




SEPTEMBER 18, 1939

SEARS, ROEBUCK & CO.

MODEL 7245
Ch.107.375
Schematic, Voltage
Socket, Trimmers



TUBES AND FUNCTIONS:

6K8G	Manual tuning 1st Detector
6A7	Automatic tuning 1st Detector
6D6	I-F Amplifier
75	2nd Detector, AVC, 1st AVC.
6U5	Tuning Eye
6V6G	Power Output
80	Rectifier
Dial Lamps (2)	6.3 Volts .15 Amps.

POWER SUPPLY RATINGS AVAILABLE AND CONSUMPTION:

	RADIO ONLY	TOTAL
105-125 Volts, 60 Cycles.	60 Watts	90 Watts
105-125 Volts, 50 Cycles.	60 Watts	90 Watts
105-125 Volts, 25 Cycles.	60 Watts	90 Watts

POWER OUTPUT:

Type	Single Pentode
Undistorted	4.5 Watts
Maximum	6.5 Watts

PHONOGRAPH:

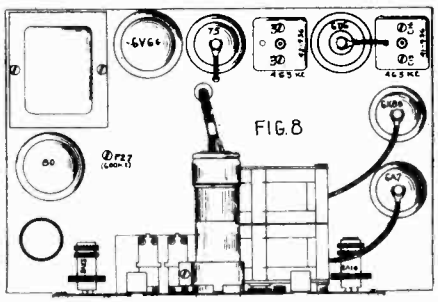
Type	Automatic-Manual
Record Capacity	Eight 10" or Seven 12"
Speed 78 R.P.M.	Constant
Type of Pickup	Crystal
Pickup Impedance	100,000 ohms at 1,000 Cy

LOUDSPEAKER:

Type	Electrodynamic
Size	12 inches
V.C. Impedance	4.5 at 400 cycles
Field Coil Resistance	1200 ohms
App. Field Coil Voltage Drop	90 volts

FREQUENCY RANGES:

Standard Broadcast	540-1720 kc.
Medium Wave	2.2- 7.5 mc.
Short Wave	7 - 22 mc.



SOCKET VOLTAGE READINGS

TUBE	FUNCTION	CATHODE	SCREEN GRID	PLATE	OSC. PLATE
6K8G	Mixer	3	95	225	135 V.
6D6	I.F.	3	95	225	-
75	Det AVC	-	-	45	-
6V6G	Output	12	235	225	-
6A7	Push B.	3	95	-	135 V.

Voltages taken from ground with line voltage at 117 V.A.C.
Drop across speaker field 90 V.

JULY 10, 1939

MODEL 7245
Alignment, Trimmers
Tuner Data

SEARS, ROEBUCK & CO.

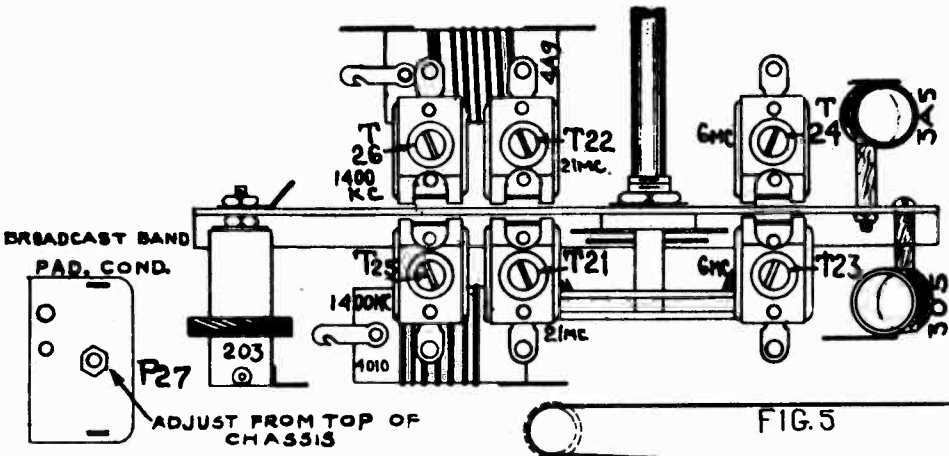


FIG. 9

FIG. 5

ALIGNMENT PROCEDURE

Wave-Band Switch Position	Position of Dial Pointer	Generator Frequency	Dummy Antenna	Generator Connection	Trimmers Adjusted (In order shown)	Trimmer Function
Broadcast	Low End	465 KC	.001 Mfd.	6D6 Grid	C13, C14	2nd IF
Broadcast	Low End	465 KC	.001 Mfd.	6K8G Grid	C15, C16	1st IF
Shortwave	21 MC	21 MC	300 Ohms	Ant.	T21, T22	Osc & Ant
Med. Wave	6 MC	6 MC	300 Ohms	Ant.	T23*, T24	Osc & Ant
Broadcast	1400 KC	1400 KC	.0002 Mfd.	Ant.	T25*, T26	Osc & Ant
Broadcast	600 KC (Rock)	600 KC	.0002 Mfd.	Ant.	P27	Osc & Pad
Broadcast	1400 KC	1400 KC	.0002 Mfd.	Ant.	T25, T26	Osc & Ant

IMPORTANT ALIGNMENT NOTES

*Use minimum capacity peak if two peaks can be obtained.
Where indicated by the word "Rock", the variable tuning condenser should be rocked back and forth a degree or two while making this adjustment.
Each step of the alignment should be repeated in its original order for greater accuracy. Always keep the output from the generator at its lowest possible value to prevent the a-v-c action of the set from interfering with accurate alignment.
Only the dummy antenna indicated in the chart for any particular band should be used. Remove the dummy used for alignment in any other band. Grid cap leads should remain in place during alignment.

DIAL DRIVE HOOKUP

SET-UP INSTRUCTIONS FOR PERMA-MATIC AUTOMATIC TUNER
NOTE: DO NOT ATTEMPT ANY ADJUSTMENTS UNTIL THE SET HAS BEEN TURNED ON AT LEAST 20 MINUTES

(1) Remove the push-button escutcheon by removing a screw at each end of the plate.

(2) Depress any one of the selector buttons. The correct adjustment screws are always to the RIGHT of the depressed button. Tune in the desired station by turning the black slotted stud (numbered 1 on the illustration below). This varies the iron core position within the oscillator coil.

(3) Adjust the screw with slotted head for maximum electric eye deflection. This adjustment is numbered 2 in illustration and always the one directly above the station selector adjustment mentioned in above paragraph. If electric eye overlaps on strong stations, adjust for maximum overlap. When making the two adjustments it is possible to obtain a strong deflection of the tuning eye apparently for a station and yet no station is present. THIS IS A NORMAL CONDITION and just means that the two adjustments are not close enough in relation to each other and can be corrected by varying the two adjustment screws.

THERE IS NO FREQUENCY DISCRIMINATION BETWEEN BUTTONS. ANY ONE OF SELECTORS WILL TUNE THE ENTIRE BROADCAST BAND (1600-540 KC).

NOTICE: DO NOT FORCE ANY ADJUSTMENTS if they tighten up in the course of adjustment, either the maximum or minimum has been reached and the adjustment should be made by opposite rotation.

It will be found easier to adjust if the low frequency stations are started on the right side and progress toward high frequency stations to left, IN THE SAME ORDER AS THE TUNING DIAL.

However, the above procedure is not absolutely necessary if there should be some preference for arranging stations otherwise.

AFTER ALL ADJUSTMENTS HAVE BEEN MADE -- GO OVER EACH ADJUSTMENT THE SECOND TIME TO MAKE CERTAIN THEY ARE CORRECT AND TO COMPENSATE FOR SUBSEQUENT ADJUSTMENTS.

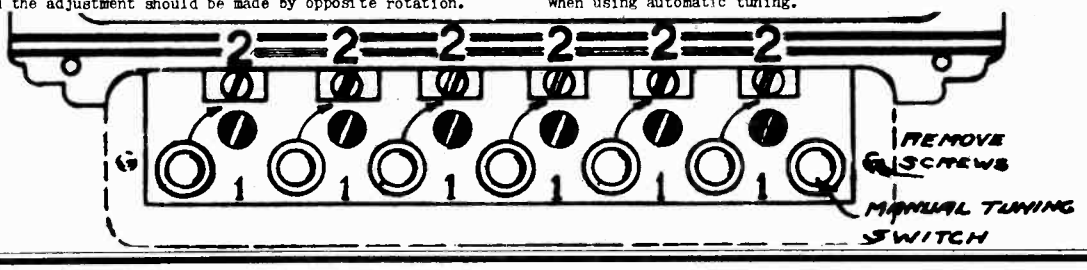
It is a big help to tune the desired station in on main dial while making adjustments, in order that the station can be quickly recognized by switching from manual back to button being adjusted.

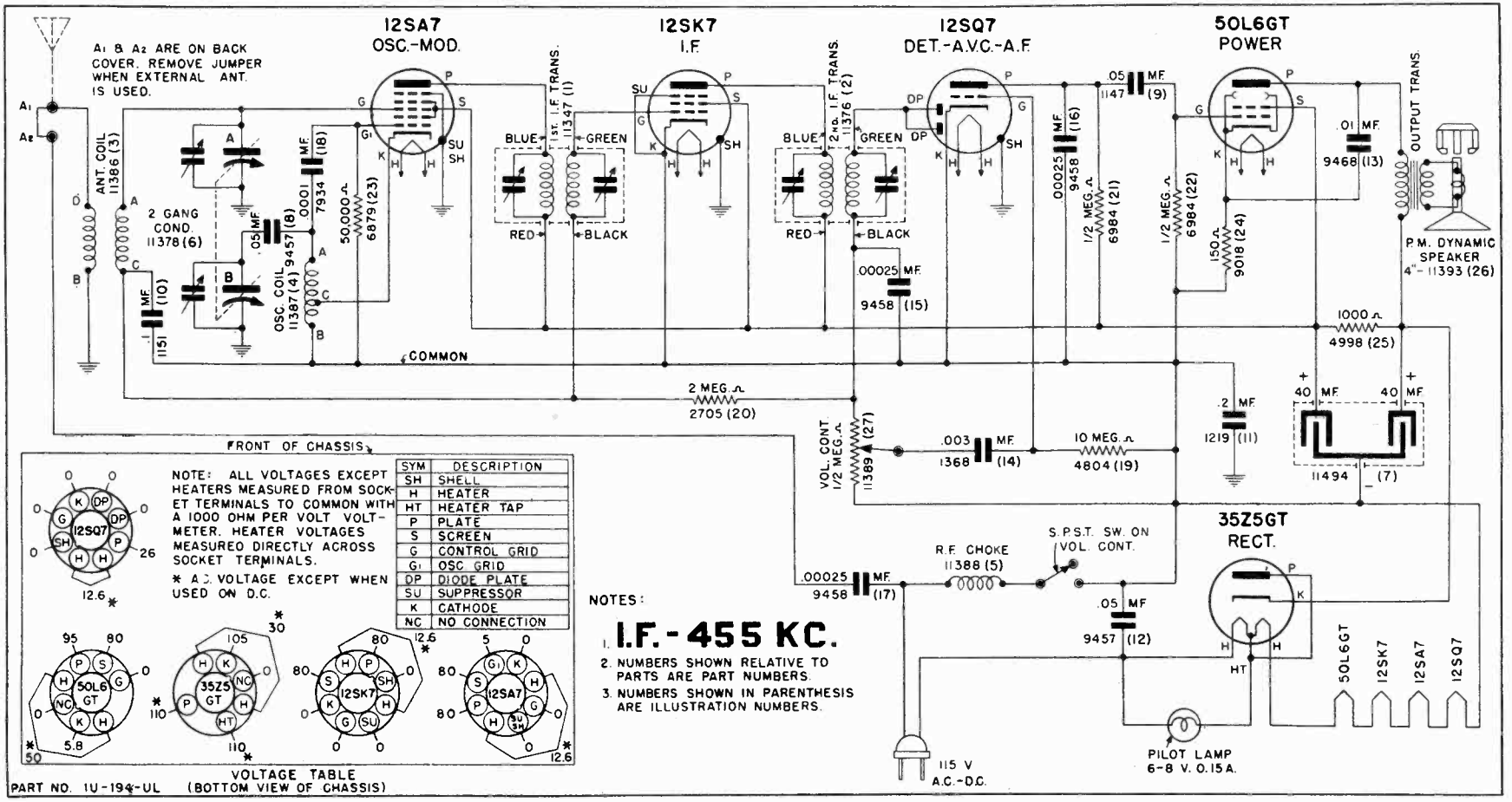
It is not necessary to lock any of the adjustments as they are automatically locked.

Push out necessary station letter indicator from tab sheet, moisten back, and press into place above the correct button.

NOTICE: Turning station selector screw clock-wise lowers the frequency.

Best results will be had when band switch is in broadcast position when using automatic tuning.





PART NO. 1U-194-UL

PARTS LIST

Part No.		Description	List Price
1	11347 Coil	1st I.F. Transformer	$0.90
2	11376 Coil	2nd I.F. Transformer	.80
3	11386 Coil	Antenna	.50
4	11387 Coil	Oscillator	.45
5	11388 Coil	Antenna Line Choke	.25
6	11378 Condenser	Tuning Two Gang	1.75
7	11494 Condenser	Tubular Dry Electrolytic 40-40 Mfd.	1.10
8	9457 Condenser	Tubular .05 Mfd. 400 Volt	.18
9	1147 Condenser	Tubular .05 Mfd. 200 Volt	.19
10	1151 Condenser	Tubular .1 Mfd. 200 Volt	.20
11	1219 Condenser	Tubular .2 Mfd. 400 Volt	.27
12	9457 Condenser	Tubular .05 Mfd. 400 Volt	.18
13	9468 Condenser	Tubular .01 Mfd. 400 Volt	.17
14	1368 Condenser	Tubular .003 Mfd. 400 Volt	.17
15	9458 Condenser	Mica .00025 Mfd.	.21
16	9458 Condenser	Mica .00025 Mfd.	.21
17	9458 Condenser	Mica .00025 Mfd.	.21
18	7934 Condenser	Mica .0001 Mfd.	.21
19	4804 Resistor	Carbon 10 Megohm 1/3 Watt	.19
20	2705 Resistor	Carbon 2 Megohm 1/3 Watt	.19
21	6984 Resistor	Carbon 500,000 Ohm 1/3 Watt	.19
22	6984 Resistor	Carbon 500,000 Ohm 1/3 Watt	.19
23	6879 Resistor	Carbon 50,000 Ohm 1/3 Watt	.19
24	9018 Resistor	Carbon 150 Ohm 1/3 Watt	.19
25	4998 Resistor	Carbon 1000 Ohm 1 Watt	.21
26	11393 Speaker	P.M. Dynamic 4 in.	2.50
27	11389 Volume Control	With Switch	.80

MISCELLANEOUS PARTS

11304	Bulb	6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
11381	Dial Scale	Calibrated Scale	.30
8184	Dial Cord	12 in. of 18 lb. Dial Drive Cord	.10
11379	Dial Shaft	Dial Drive Shaft	.12
11725	Dial Pointer	For Dial-Bronze	.15
11384	Dial Pointer	For Dial	.15
11391	Dial Crystal	For Dial	.22
10207	Knob	Ivory	.08
11733	Knob	Walnut	.10

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

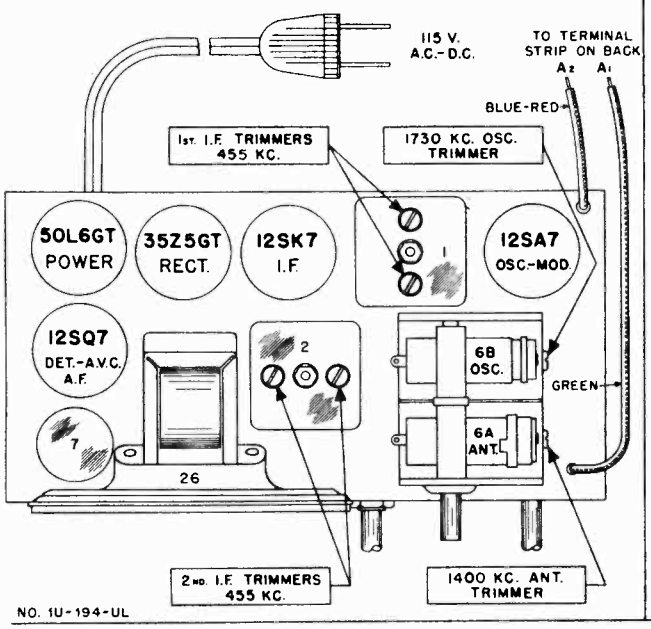
W. 3M 1-40 PART NO. 1U-194UL

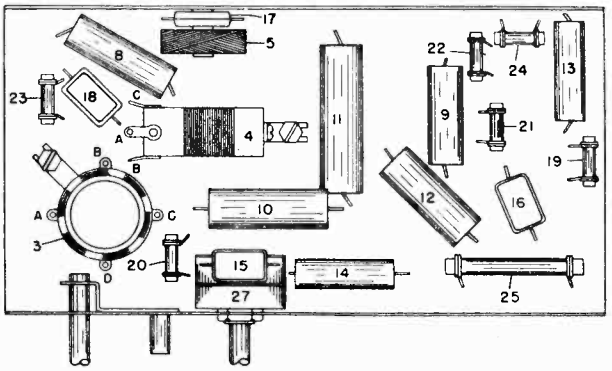
MODEL 1U-194UL
Socket, Trimmers
Chassis, Alignment

SENTINEL RADIO CORP.

SENTINEL MODEL 1U-194UL

5 tube A. C. - D. C. Operated Superheterodyne Receiver.





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

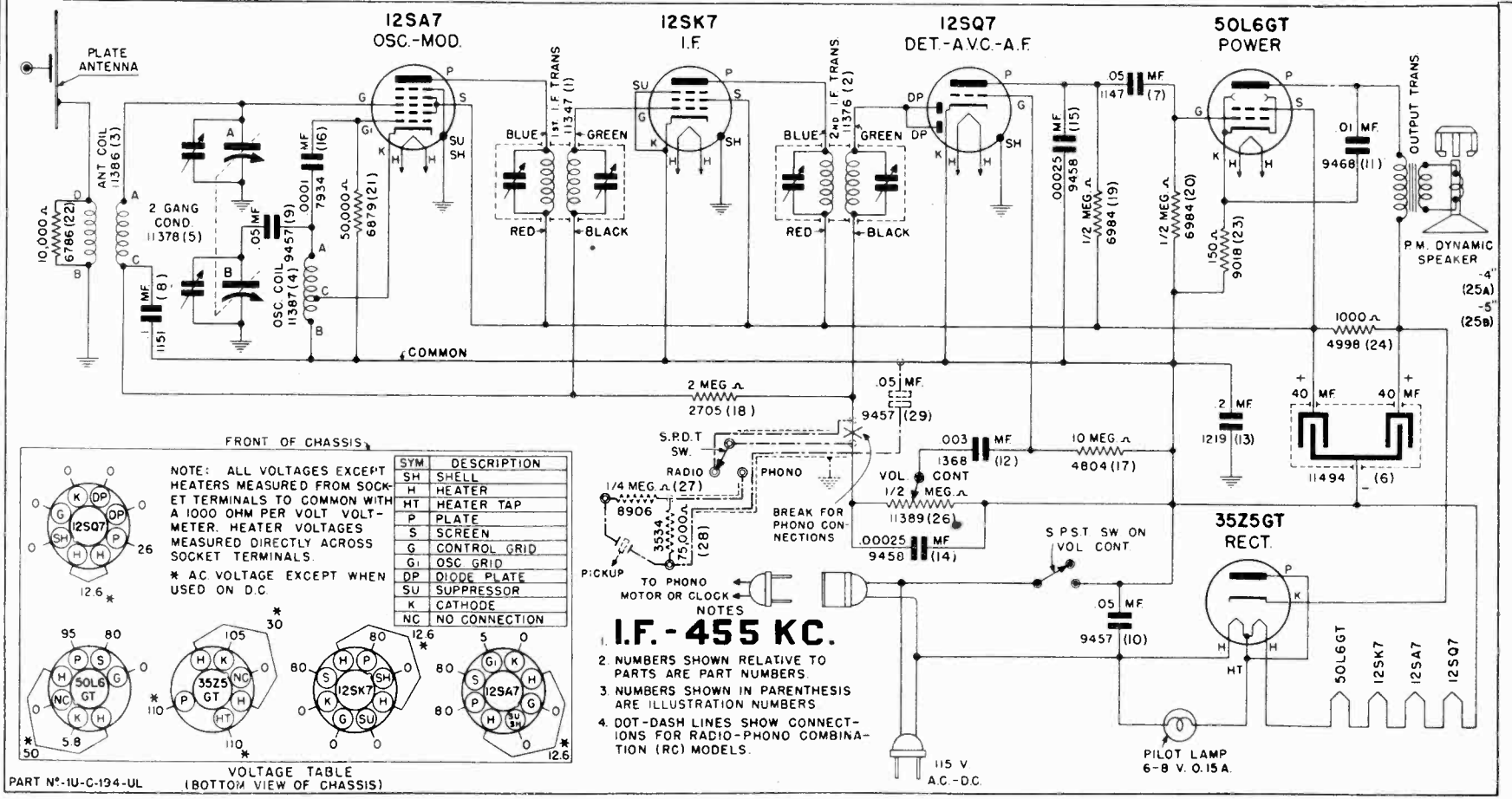
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis through .01 Mfd. condenser—if too much hum is encountered, leave unconnected.

		TEST OSCILLATOR		
Set receiver dial to:	**Adjust test oscillator frequency to:**	**Use dummy antenna in series with output of test oscillator consisting of:**	**Attach output of test oscillator to:**	**Refer to parts layout diagram for location of trimmers mentioned below:**
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 12SA7 tube	Adjust the second I. F. transformer trimmers for maximum output then adjust each of the first I. F. trimmers for maximum output
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD condenser	Receiver "A1" post	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Approx. 1400 K. C.	.00025 MFD condenser	Receiver "A1" post	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



PARTS LIST

Part No.		Description	List Price
1	11347	Coil — 1st I. F. Transformer	$ .90
2	11376	Coil — 2nd I. F. Transformer	.80
3	11386	Coil — Antenna	.50
4	11387	Coil — Oscillator	.45
5	11378	Condenser — Tuning Two Gang	1.75
6	11494	Condenser — Dry Electric 40-40 Mfd.	1.10
7	1147	Condenser — Tubular .05 Mfd. 200 Volt	.19
8	1151	Condenser — Tubular .1 Mfd. 200 Volt	.20
9	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
10	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
11	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
12	1368	Condenser — Tubular .003 Mfd. 400 Volt	.17
13	1219	Condenser — Tubular .2 Mfd. 400 Volt	.27
14	9458	Condenser — Mica .00025 Mfd.	.21
15	9458	Condenser — Mica .00025 Mfd.	.21
16	7934	Condenser — Mica .0001 Mfd.	.21
17	4804	Resistor — Carbon 10 Megohm ⅓ Watt	.19
18	2705	Resistor — Carbon 2 Megohm ⅓ Watt	.19
19	6984	Resistor — Carbon 500,000 Ohm ⅓ Watt	.19
20	6984	Resistor — Carbon 500,000 Ohm ⅓ Watt	.19
21	6879	Resistor — Carbon 50,000 Ohm ⅓ Watt	.19
22	6786	Resistor — Carbon 10,000 Ohm ⅓ Watt	.19
23	9018	Resistor — Carbon 150 Ohm ⅓ Watt	.19
24	4998	Resistor — Carbon 1000 Ohm 1 Watt	.21
25A	11393	Speaker — P. M. Dynamic 4 in.	2.50
25B	11394	Speaker — P. M. Dynamic 5 in.	2.90
26	11389	Volume Control — With S.P.S.T. Switch	.80
27	8906	Resistor — Carbon 250,000 Ohm ⅓ Watt	.19
28	3534	Resistor — Carbon 75,000 Ohm ⅓ Watt	.19
29	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
	10573	Switch — "Off-On" Motor Switch	.65
	2434	Switch — "Radio-Phono" Switch	.70

MISCELLANEOUS PARTS

Part No.		Description	List Price
	11843	Back — Metal Cabinet Back	.25
	11403	Bulb — 6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
	11846	Clock — 115 Volt 60 Cycle	3.75
	11847	Clock — 115 Volt 50 Cycle	4.00
	11851	Clock Face — Clock Face Only	.25
	11852	Clock Hand — Black Hour Hand	.20
	11853	Clock Hand — Black Minute Hand	.15
	11854	Clock Hand — Red Second Hand	.15
	11381	Dial Scale — Calibrated Scale	.30
	8184	Dial Cord — Dial Drive Cord	.10
	11379	Dial Shaft — Dial Drive Shaft	.12
	11725	Dial Pointer — For Dial-Bronze	.15
	11384	Dial Pointer — For Dial	.15
	11391	Dial Crystal — For Dial and Clock	.22
	11841	Knob — Tuning-Ivory for Clock Model	.10
	11733	Knob — For Phono-Radio Motor Switches	.10
	11371	Escutcheon — For Dial with Crystal Used wih Phono Model	.75
	11899	Receptacle — A.C. Receptacle and Plug for Phono Motor and Clock	.50
	11912	Phono Motor — 115 Volt 50 Cycle with 8 in. Turntable	4.50
	11913	Phono Motor — 115 Volt 60 Cycle with 8 in. Turntable	4.25
	11907	Pickup — Crystal Pickup and Arm	4.25

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

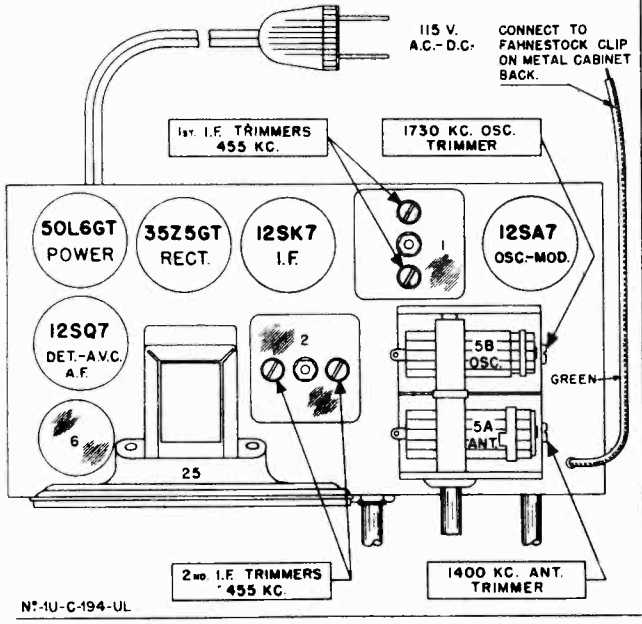
W. 3M 1-40 PART NO. 1U-C-194UL RC-1U-194UL

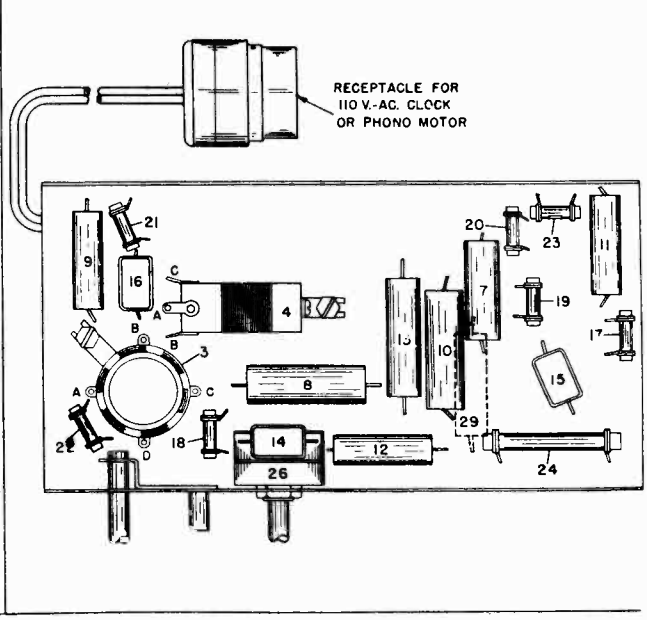
MODELS 1U-C-194UL
RC-1U-194UL
Socket, Trimmers, Chassis
Alignment

SENTINEL RADIO CORP.

SENTINEL MODEL 1U-C-194UL & RC-1U-194UL

5 tube A. C. - D. C. Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

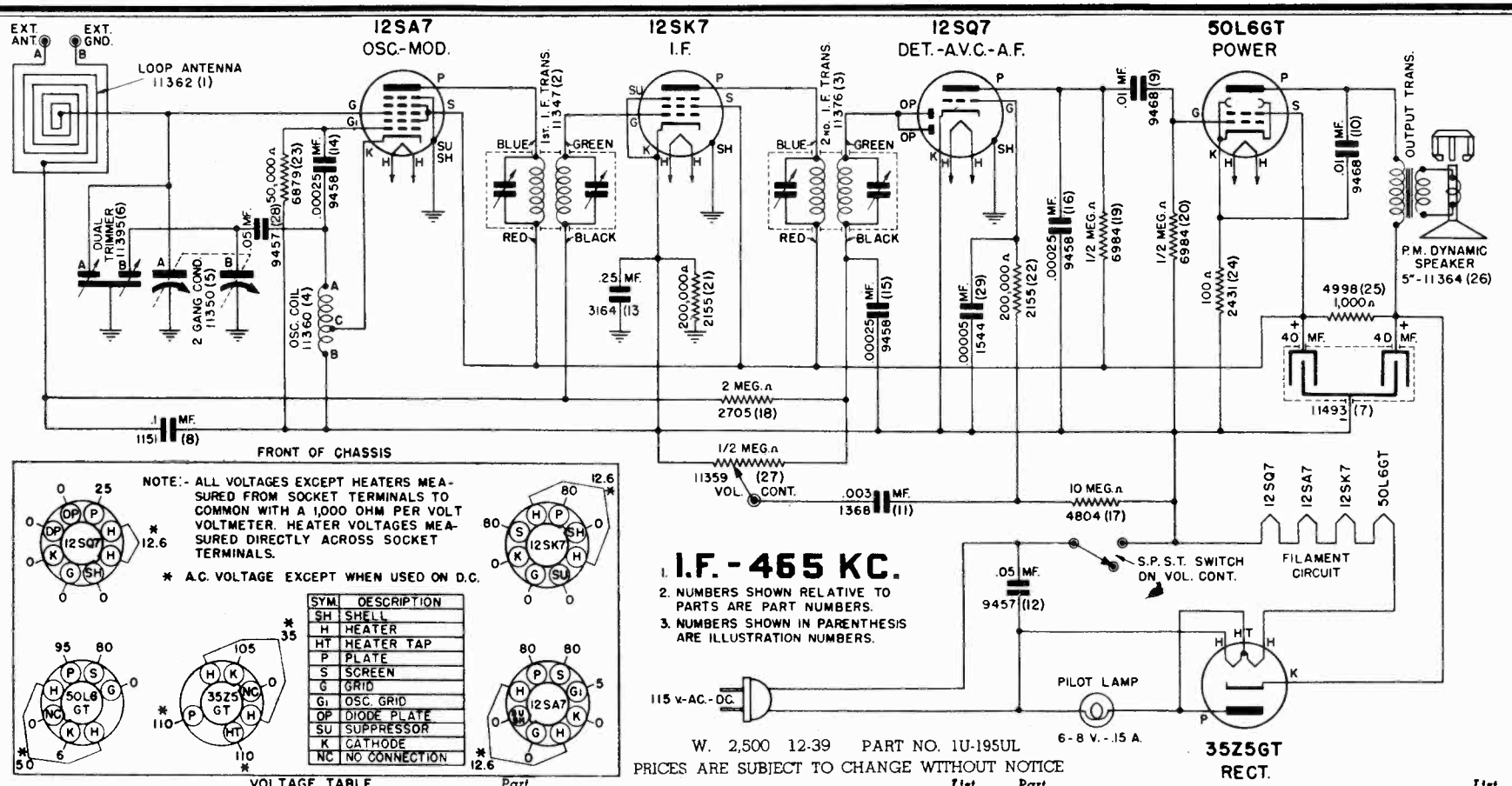
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis through .01 Mfd. condenser—if too much hum is encountered, leave unconnected.

Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 12SA7 tube	Adjust the second I. F. transformer trimmers for maximum output then adjust each of the first I. F. trimmers for maximum output
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD condenser	To Metal Cabinet Back	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Approx. 1400 K. C.	.00025 MFD condenser	To Metal Cabinet Back	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



NOTE:- ALL VOLTAGES EXCEPT HEATERS MEASURED FROM SOCKET TERMINALS TO COMMON WITH A 1,000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS.

* A.C. VOLTAGE EXCEPT WHEN USED ON D.C.

SYM.	DESCRIPTION
SH	SHELL
H	HEATER
HT	HEATER TAP
P	PLATE
S	SCREEN
G	GRID
G1	OSC. GRID
OP	DIODE PLATE
SU	SUPPRESSOR
K	CATHODE
NC	NO CONNECTION

1. **I.F. - 465 KC.**
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.

W. 2,500 12-39 PART NO. 1U-195UL

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

VOLTAGE TABLE (BOTTOM VIEW OF CHASSIS)

PART NO. 1U-195-UL

Part No.			Description	List Price
1	11362	Antenna	Loop	$ .65
2	11347	Coil	1st I. F. Transformer	.90
3	11376	Coil	2nd I. F. Transformer	.80
4	11360	Coil	Oscillator	.50
5	11350	Condenser	Tuning Two Gang (Pushbutton Mech. Tuner Unit)	3.75
6	11395	Condenser	Dual Trimmer 2-90 Mmf.	.30
7	11493	Condenser	Tubular Dry Electrolytic 40-40 Mfd. 150 Volts	1.00
8	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
9	9468	Condenser	Tubular .01 Mfd. 400 Volt	.17
10	9468	Condenser	Tubular .01 Mfd. 400 Volt	.17
11	1368	Condenser	Tubular .003 Mfd. 400 Volt	.17
12	9457	Condenser	Tubular .05 Mfd. 400 Volt	.18
13	3164	Condenser	Tubular .25 Mfd. 400 Volt	.26
14	9458	Condenser	Mica .00025 Mfd.	.21
15	9458	Condenser	Mica .00025 Mfd.	.21
16	9458	Condenser	Mica .00025 Mfd.	.21
17	4804	Resistor	Carbon 10 Megohm ⅓ Watt	.19
18	2705	Resistor	Carbon 2 Megohm ⅓ Watt	.19
19	6984	Resistor	Carbon 500,000 Ohm ⅓ Watt	.19
20	6984	Resistor	Carbon 500,000 Ohm ⅓ Watt	.19
21	2155	Resistor	Carbon 200,000 Ohm ⅓ Watt	.19
22	2155	Resistor	Carbon 200,000 Ohm ⅓ Watt	.19
23	6879	Resistor	Carbon 50,000 Ohm ⅓ Watt	.19
24	2431	Resistor	Carbon 100 Ohm ⅓ Watt	.19
25	4998	Resistor	Carbon 1,000 Ohm 1 Watt	.21
26	11364	Speaker	P. M. Dynamic 5 in.	3.00
27	11359	Volume Control	With S. P. S. T. Switch	.80
28	9457	Condenser	.05 Mfd. 400 Volt	.18
29	1544	Condenser	.00005 Mfd. Mica	.21

MISCELLANEOUS PARTS

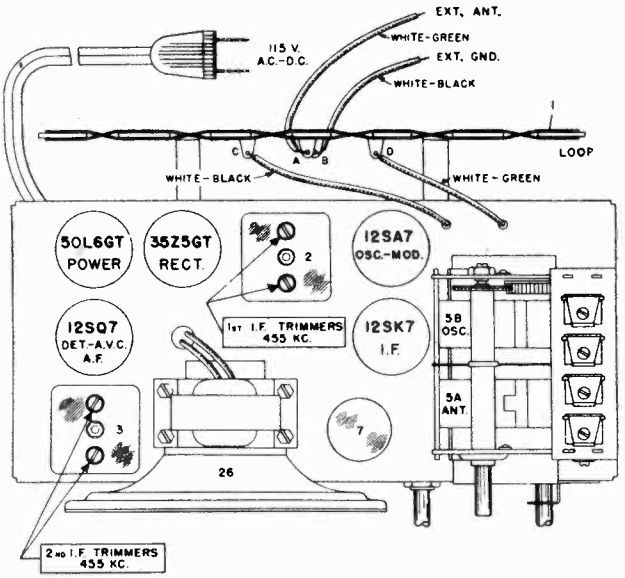
Part No.		Description	List Price
11304	Bulb	6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
11354	Dial Scale	Calibrated Scale	.30
8184	Dial Cord	Dial Drive Cord	.10
11352	Dial Shaft	Dial Drive Shaft	.12
11513	Dial Pointer	For Dial-Bronze	.15
10659	Dial Pointer	For Dial	.16
11357	Dial Crystal	For Dial Used with Bakelite Cabinet Only	.27
11371	Escutcheon	For Dial Used with Wood Cabinet Only	.75
11200	Escutcheon	For Pushbutton Used with Wood Cabinet Only	.35
11733	Knob	Bakelite Tuning for Wood Cabinet	.10
11734	Knob	Bakelite Pushbutton for Wood Cabinet	.10
11729	Knob	Walnut Bakelite Tuning for Walnut Plastic Cabinet	.10
11731	Knob	Walnut Bakelite Pushbutton for Walnut Plastic Cabinet	.10
11730	Knob	Onyx Bakelite Tuning for Onyx Cabinet	.12
11732	Knob	Onyx Bakelite Pushbutton for Onyx Cabinet	.12
	Cabinet	Walnut Plastic	2.00
	Cabinet	Onyx Plastic	4.25

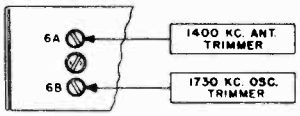
MODEL 1U-195UL
Socket, Trimmers
Chassis, Alignment

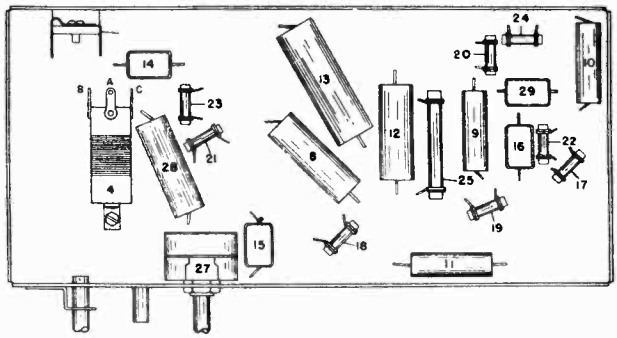
SENTINEL RADIO CORP

SENTINEL MODEL 1U-195UL

5 tube A. C. - D. C. Operated Superheterodyne Receiver







NO. 1U-195-UL

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME APPROXIMATE POSITION IN THE BACK OF CHASSIS IT WILL BE IN WHEN THE SET IS IN THE CABINET AND THE BACK ATTACHED.

When adjusting 1720 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

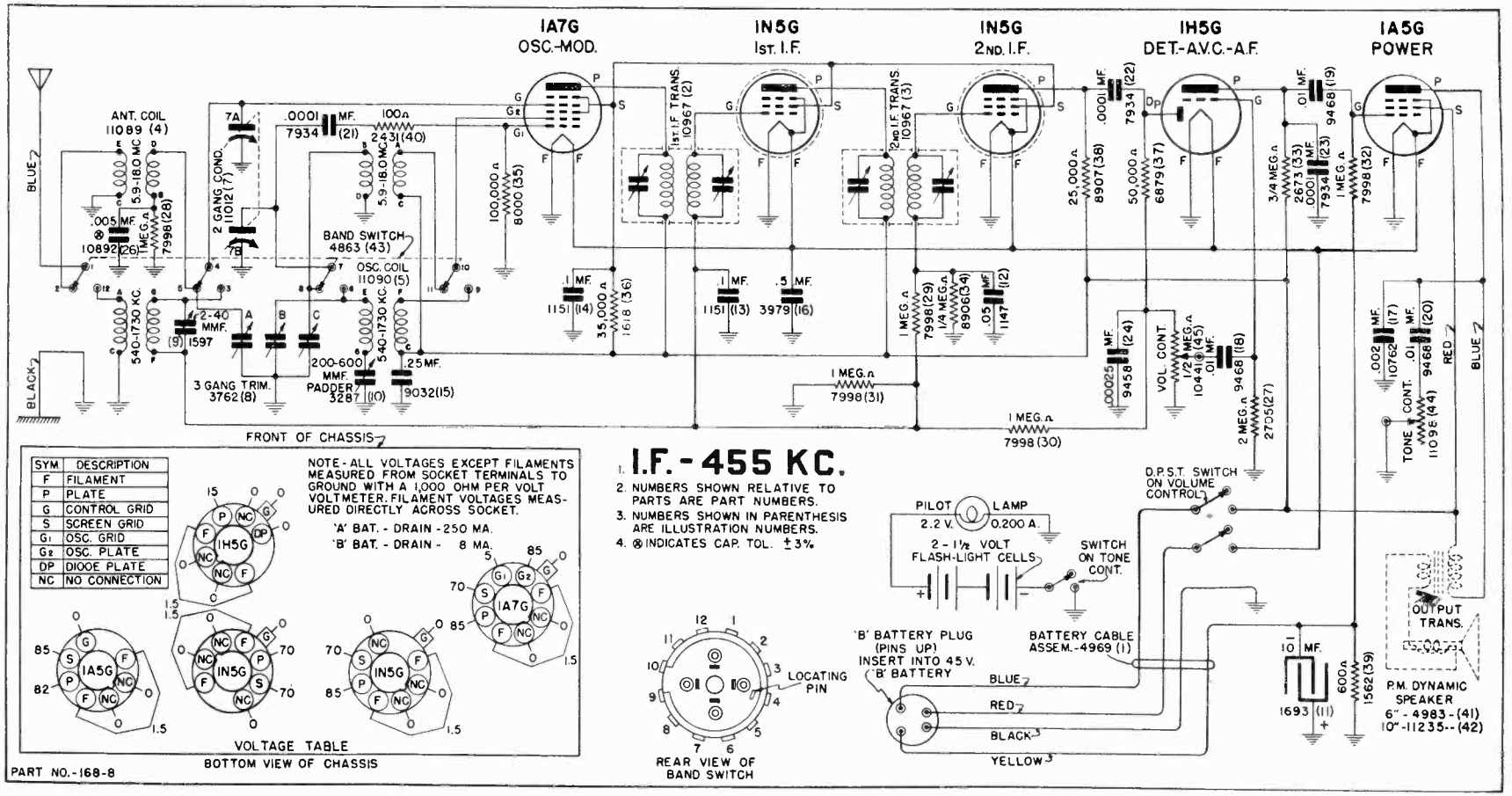
Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

DO NOT ATTACH LOW SIDE OF TEST OSCILLATOR TO RECEIVER—LEAVE UNCONNECTED.

Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below—and:
	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
I. F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 12SA7 tube DO NOT REMOVE CAP	Adjust the second I. F. transformer trimmers for maximum out put—then adjust each of the first I.F. trimmers for maximum output.
1 Exactly 1730 K. C.	Exactly 1730 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Exactly 1400 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1400 K. C. antenna trimmer for maximum output.



PARTS LIST

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

Illus. No.	Part No.	Description	List Price
1 (a)	4969	Cable Battery With 4 Prong Plug	$ .35
1 (b)	11159	Cable Battery with 2-3 Prong "B" and 1-2 Prong "A" Plugs	.55
2	10967	Coil 1st I. F. Transformer	1.10
3	10967	Coil 2nd I. F. Transformer	1.10
4	11089	Coil Antenna	.65
5	11090	Coil Oscillator	.60
7	11012	Condenser Tuning Two Gang	1.75
8	3762	Condenser Trimmer Three Gang 2-40 Mmf. Ea.	.47
9	1597	Condenser Trimmer (2-40 Mmf.)	.21
10	3287	Condenser Padder 200-600 Mmf.	.45
11	1693	Condenser Dry Electrolytic 10 Mfd. 25 Volt	.75
12	1147	Condenser Tubular .05 Mfd. 200 Volt	.19
13	1151	Condenser Tubular .1 Mfd. 200 Volt	.20
14	1151	Condenser Tubular .1 Mfd. 200 Volt	.20
15	9032	Condenser Tubular .25 Mfd. 200 Volt	.25
16	3979	Condenser Tubular .5 Mfd. 200 Volt	.40
17	10762	Condenser Tubular .002 Mfd. 400 Volt	.19
18	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
19	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
20	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
21	7934	Condenser Mica Moulded .0001 Mfd.	.21
22	7934	Condenser Mica Moulded .0001 Mfd.	.21
23	7934	Condenser Mica Moulded .0001 Mfd.	.21
24	9458	Condenser Mica Moulded .00025 Mfd.	.21
25	10892	Condenser Mica Moulded .005 Mfd. + 3%	.30
27	2705	Resistor Carbon 2 Megohm ⅓ Watt	.19
28	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
29	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
30	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
31	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
32	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
33	2673	Resistor Carbon 750,000 Ohm ⅓ Watt	.19
34	8906	Resistor Carbon 250,000 Ohm ⅓ Watt	.19
35	8000	Resistor Carbon 100,000 Ohm ⅓ Watt	.19
36	1618	Resistor Carbon 35,000 Ohm ⅓ Watt	.19
37	6879	Resistor Carbon 50,000 Ohm ⅓ Watt	.19
38	8907	Resistor Carbon 25,000 Ohm ⅓ Watt	.19
39	1562	Resistor Carbon 600 Ohm ½ Watt	.19
40	2431	Resistor Carbon 100 Ohm ⅓ Watt	.19
41	4983	Speaker P. M. Dynamic 6 in.	4.25
42	11235	Speaker P. M. Dynamic 10 in.	7.50
43	4863	Switch Wave Band	.60
44	11098	Tone Control With Dial Light Switch	.80
45	10441	Volume Control With Off-On Switch	.95

MISCELLANEOUS PARTS

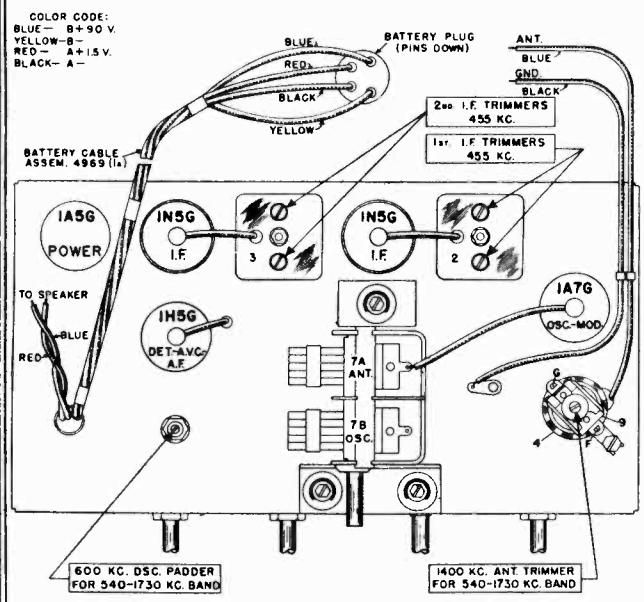
Part No.		Description	List Price
8184	Cord	Dial Drive Cord	.10
11094	Dial Scale	Calibrated Dial Scale Only	.45
11107	Dial Indicator	On-Off Indicator Assembly	.20
10777	Dial Pointer	For Dial	.16
11102	Escutcheon	For Dial-Uses Four Metal Clips for Mounting	1.00
11267	Escutcheon	For Dial-Uses Wood Screws for Mounting	1.00
4958	Knob	Marked "Tuning"	.12
4959	Knob	Marked "Off-Volume"	.12
4589	Spring	Cord Tension	.04
4960	Knob	Marked "Tone"	.12
4961	Knob	Marked "Band Switch"	.12
3487	Plug	3 Prong "B"	.10
10351	Plug	2 Prong "A"	.10
4978	Plug	4 Prong "AB"	.10

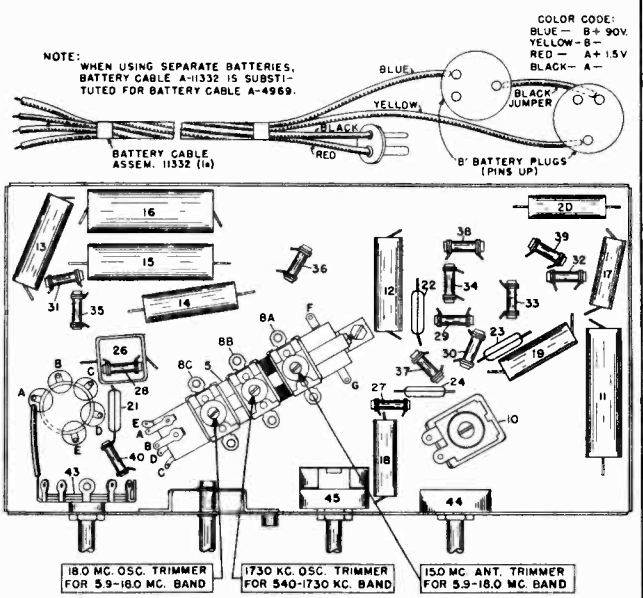
MODEL 168B
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

TWO BAND—FIVE TUBE

1½ Volt—Battery Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

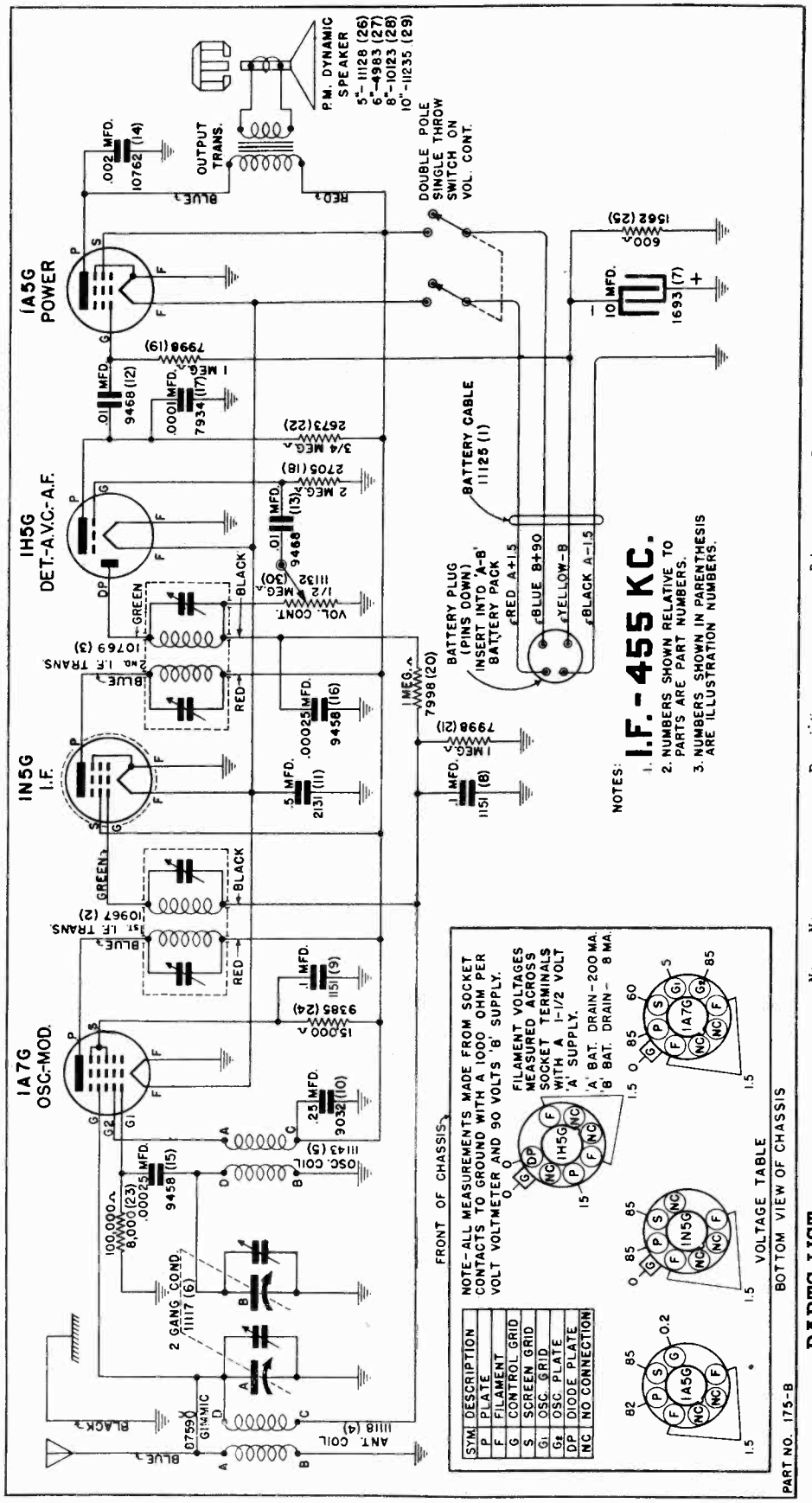
(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. Alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High Side to grid cap of 1A7G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K.C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	00025 Mfd. condenser	Receiver blue antenna lead	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.9 to 18 M.C. Band	1 Exactly 18 M.C.	Exactly 18 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	Adjust 18 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Exactly 15 M.C.	Exactly 15 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.

SENTINEL RADIO CORP.

MODEL 175B
Schematic, Voltage



PART NO. 175-B

PARTS LIST

Illus. No.	Part No.	Description	List Price	Illus. No.	Part No.	Description	List Price
1(a)	11125	Cable		13	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
1(b)	11332	Cable		14	10762	Condenser Tubular .002 Mfd. 400 Volt	.19
		Battery (With 4 Prong Plug)	$ .25	15	9458	Condenser Mica .00025 Mfd.	.21
		Battery (With 2-3 Prong and 1-2 Prong Plug)	.37	16	9458	Condenser Mica .00025 Mfd.	.21
				17	7934	Condenser Mica .0001 Mfd.	.21
2	10967	Coil 1st I. F. Transformer	1.10	18	2705	Resistor Carbon 2 Megohm ½ Watt	.19
3	10769	Coil 2nd I. F. Transformer	1.10	19	7998	Resistor Carbon 1 Megohm ½ Watt	.19
4	11118	Coil Antenna	.55	20	7998	Resistor Carbon 1 Megohm ½ Watt	.19
5	11143	Coil Oscillator	.45	21	7998	Resistor Carbon 1 Megohm ½ Watt	.19
6	11117	Condenser Tuning (2 Gang)	2.00	22	2673	Resistor Carbon 750,000 Ohm ½ Watt	.19
7	1693	Condenser Tubular Dry Elec. 10 Mfd. 25 V.D.C.	.75	23	8000	Resistor Carbon 100,000 Ohm ½ Watt	.19
8	1151	Condenser Tubular .1 Mfd. 200 Volt	.20	24	9385	Resistor Carbon 15,000 Ohm ½ Watt	.19
9	1151	Condenser Tubular .1 Mfd. 200 Volt	.20	25	1562	Resistor Carbon 600 Ohm ½ Watt	.19
10	9032	Condenser Tubular .25 Mfd. 200 Volt	.25	26	11128	Speaker P. M. Dynamic 5 in.	4.00
11	2131	Condenser Tubular .5 Mfd. 200 Volt	.55	27	4983	Speaker P. M. Dynamic 6 in.	4.25
12	9468	Condenser Tubular .01 Mfd. 400 Volt	.17	29	11235	Speaker P. M. Dynamic 10 in.	7.50
				30	11132	Volume Control with "off-on" Switch	.95

Part No.	Description	List Price
	MISCELLANEOUS PARTS	
11108	Bulb	2 Cell 2.2 Volt White Bead Type	.07
11121	Dial Scale	Calibrated Dial Scale	.40
8184	Dial Cord	24 in. of 18 lb. Cord	.10
11119	Dial Shaft		.15
11127	Dial Indicator	"Off-On" Switch	.15
11626	Dial Pointer		.30
11627	Dial Crystal	For Dial	.30
11140	Dial Escutcheon	For Cabinet	1.25
4978	Plug	4 Prong Battery Plug	.06
10207	Knob	Antique Ivory Tuning Control	.10
11145	Knob	Walnut Tuning Control	.10

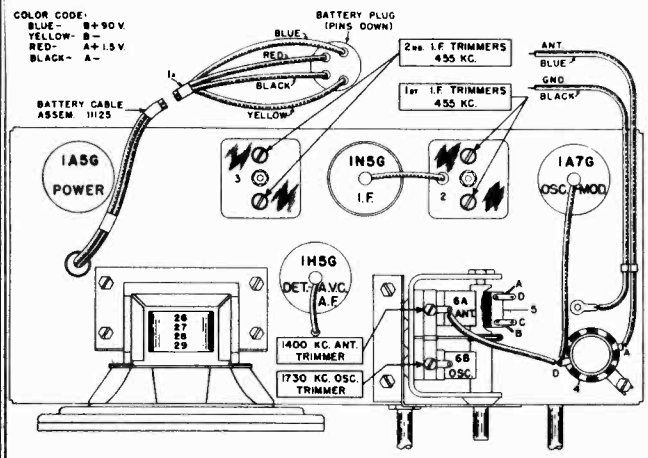
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

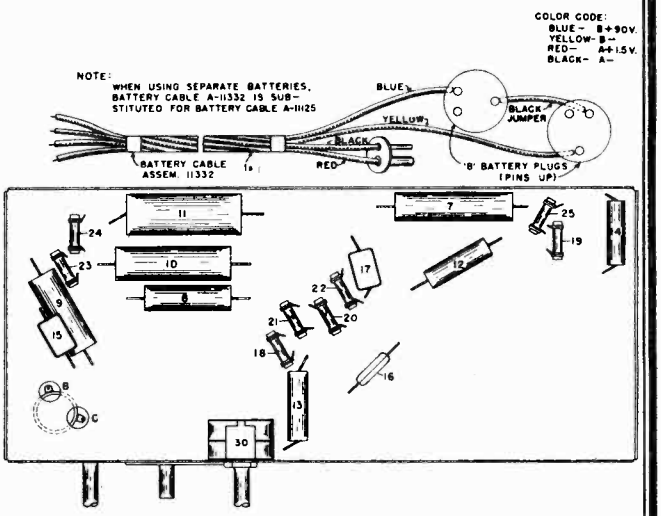
W. 4M 9-39 PART NO. 175B

MODEL 175B
Socket, Trimmers
Chassis, Alignment

SENTINEL RADIO CORP.

4 TUBE — 1½ VOLT BATTERY OPERATED
SUPERHETERODYNE RECEIVER





NO. 175-B

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

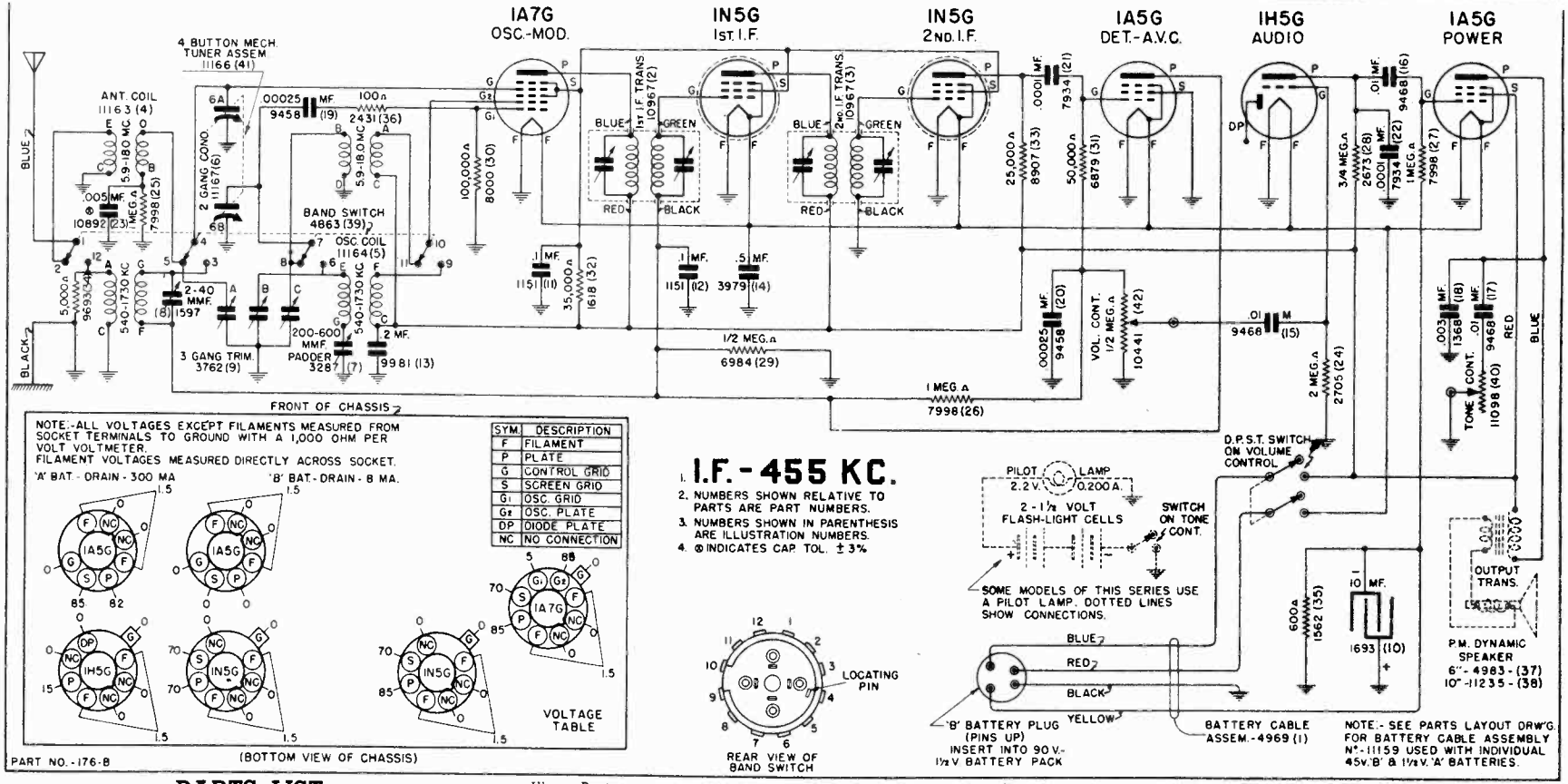
(a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD. condenser	High side to grid terminal of 1A7G tube DO NOT REMOVE CAP.	Adjust each of the second I. F. transformer trimmers for maximum output—then adjust each of the first I. F. trimmers for maximum output.
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD. condenser	Receiver blue antenna lead	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Exactly 1400 K. C.	.00025 MFD. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.

SENTINEL MODEL 175B



PARTS LIST

Illus. No.	Part No.		Description	List Price
1A	4969	Cable	Battery with Four Prong Plug	$ .35
1B	11159	Cable	Battery with 2-3 Prong "B" and 1-2 Prong "A" Plugs	.55
2	10967	Coil	1st I. F. Transformer	1.10
3	10967	Coil	2nd I. F. Transformer	1.10
4	11163	Coil	Antenna	.70
5	11164	Coil	Oscillator	.60
6	11167	Condenser	Two Gang with Four Button Mechanical Tuner Assembly	3.00
7	3287	Condenser	Padder 200-600 Mmf.	.45
8	1597	Condenser	Trimmer	.21
9	3762	Condenser	Trimmer Three Gang	.47
10	1693	Condenser	Tubular Dry Electrolytic 10 Mfd. 25 Volt D.C. Wkg.	.75
11	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
12	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
13	9981	Condenser	Tubular .2 Mfd. 200 Volt	.29
14	3979	Condenser	Tubular .5 Mfd. 200 Volt	.40
15	9468	Condenser	Tubular .01 Mfd. 400 Volt	.17
16	9468	Condenser	Tubular .01 Mfd. 400 Volt	.17
17	9468	Condenser	Tubular .01 Mfd. 400 Volt	.17
18	1368	Condenser	Tubular .003 Mfd. 400 Volt	.17
19	9458	Condenser	Mica .00025 Mfd.	.21
20	9458	Condenser	Mica .00025 Mfd.	.21
21	7934	Condenser	Mica .0001 Mfd.	.21
22	7934	Condenser	Mica .0001 Mfd.	.21
23	10892	Condenser	Mica .005 Mfd. ± 3%	.30
24	2705	Resistor	Carbon 2 Megohm ½ Watt	.19
25	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
26	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
27	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
28	2673	Resistor	Carbon 750,000 Ohm ½ Watt	.19
29	6984	Resistor	Carbon 500,000 Ohm ½ Watt	.19
30	8000	Resistor	Carbon 100,000 Ohm ½ Watt	.19
31	6879	Resistor	Carbon 50,000 Ohm ½ Watt	.19
32	1618	Resistor	Carbon 35,000 Ohm ½ Watt	.19
33	8907	Resistor	Carbon 25,000 Ohm ½ Watt	.19
34	9693	Resistor	Carbon 5,000 Ohm ½ Watt	.19
35	1562	Resistor	Carbon 600 Ohm ½ Watt	.19
36	2431	Resistor	Carbon 100 Ohm ½ Watt	.19
37	4983	Speaker	P. M. Dynamic 6"	4.25
38	11235	Speaker	P. M. Dynamic 10"	7.50
39	4863	Switch	Wave	.60
40	11098	Tone Control	With Dial Light Switch	.80
41	11166	Tuner Unit	Complete with Four Button Mech. Assem. Two Gang Condenser and Mechanical Drive Assembly	3.95
42	10441	Volume Control	With D. P. S. T. "On-Off" Switch	.95

MISCELLANEOUS PARTS

Illus. No.	Part No.	Description	List Price
8184	Cord	12" of 18 lb. Drive Cord	.10
11189	Dial Scale	Calibrated Scale Only	.55
11173	Dial Assembly	Complete Drive Mechanism Less Scale	.75
11193	Dial Pointer	For Dial	.16
11198	Escutcheon	For Dial with Mtg. Screw Holes in Corners	1.25
11199	Escutcheon	For Dial with Mtg. Screw Holes away from Corners	1.25
11200	Escutcheon	Pushbutton Used with 11198 Dial Escutcheon	.35
11201	Escutcheon	Pushbutton Used with 11199 Dial Escutcheon	.35
4958	Knob	Marked "Tuning"	.12
4959	Knob	Marked "Off-Volume"	.12
4960	Knob	Marked "Tone"	.12
4961	Knob	Marked "Band Switch"	.12
3487	Plug	3 Prong "B"	.10
10351	Plug	2 Prong "A"	.10
4978	Plug	4 Prong "AB"	.10
11197	Dial Spring	Gear Drive Shaft Tension	.16
4589	Dial Spring	Cord Tension	.04
11185	Dial Shaft	Gear Drive Shaft Assembly	.35

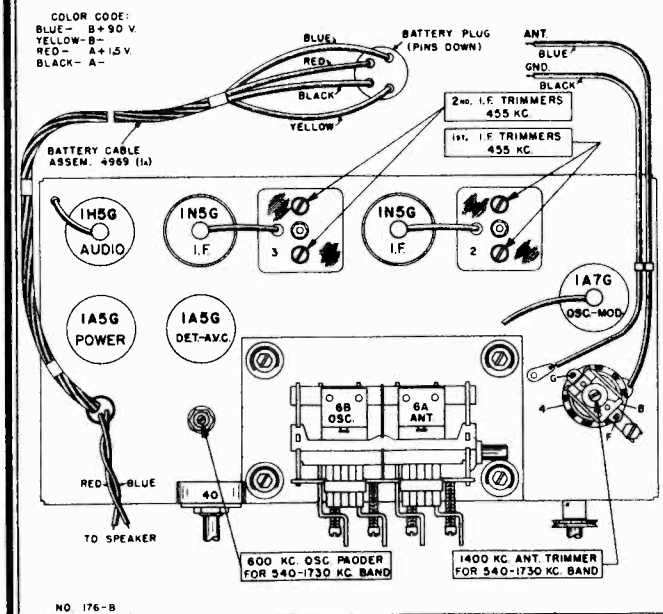
PRICES SUBJECT TO CHANGE WITHOUT NOTICE

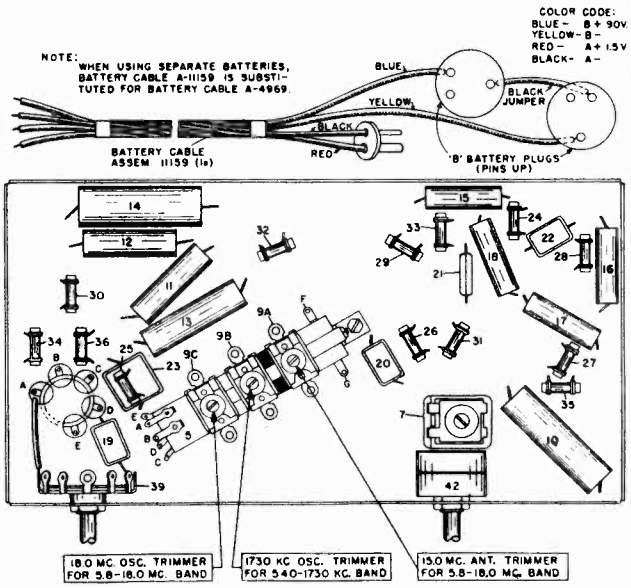
WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

MODEL 176B
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

SENTINEL MODEL 176B
TWO BAND—SIX TUBE
1½ Volt—Battery Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

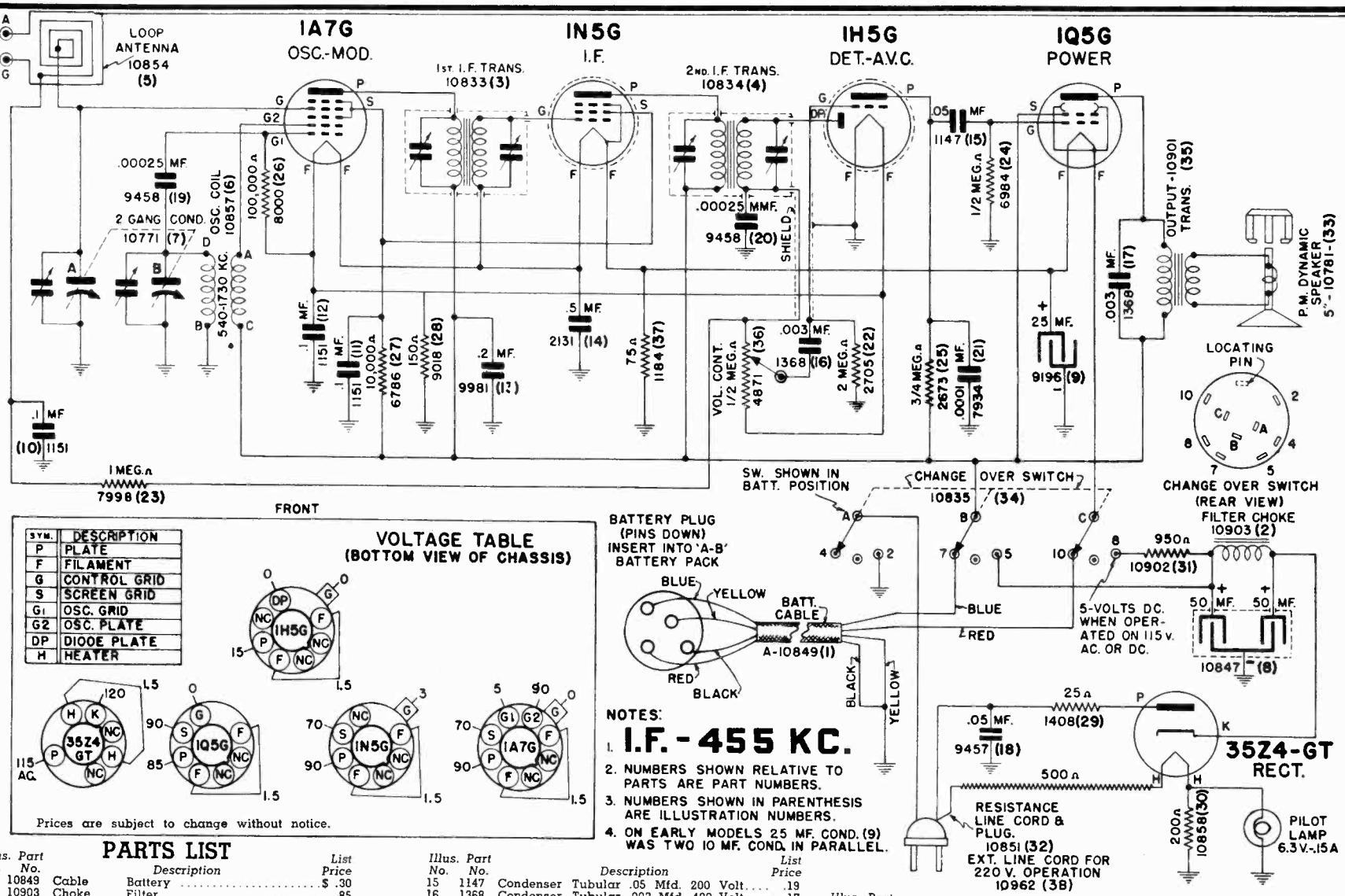
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. Alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High Side to grid cap of 1A7G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K.C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.8 to 18 M.C. Band	1 Exactly 18 M.C.	Exactly 18 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	Adjust 18 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Exactly 15 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.



NOTES:

1. I.F. - 455 KC.
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
4. ON EARLY MODELS 25 MF. COND. (9) WAS TWO 10 MF. COND. IN PARALLEL.

PARTS LIST

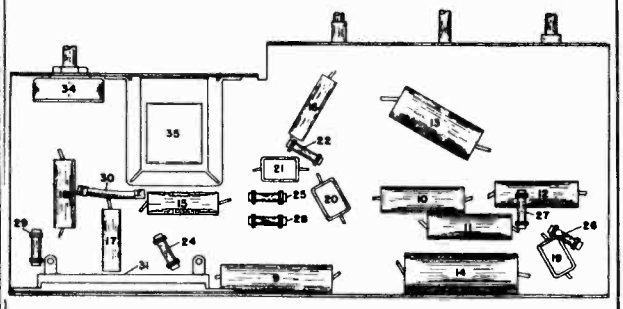
Illus. No.	Part No.		Description	List Price
1	10849	Cable	Battery	$ .30
2	10903	Choke	Filter	.85
3	10833	Coil	1st I.F. Transformer	1.45
4	10834	Coil	2nd I. F. Transformer	1.45
5	10854	Loop	Antenna Complete with Frame	1.75
6	10857	Coil	Oscillator	.60
7	10771	Condenser	Tuning Two Gang	1.65
8	10847	Condenser	Tubular Dry Electrolytic 50-50 Mfd. 150 Volts	1.10
9	9196	Condenser	Tubular Dry Electrolytic 25 Mfd. 25 Volt	.94
10	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
11	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
12	1151	Condenser	Tubular .1 Mfd. 200 Volt	.20
13	9981	Condenser	Tubular .2 Mfd. 200 Volt	.29
14	2131	Condenser	Tubular .5 Mfd. 200 Volt	.55
15	1147	Condenser	Tubular .05 Mfd. 200 Volt	.19
16	1368	Condenser	Tubular .003 Mfd. 400 Volt	.17
17	1368	Condenser	Tubular .003 Mfd. 400 Volt	.17
18	9457	Condenser	Tubular .05 Mfd. 400 Volt	.18
19	9458	Condenser	Mica Moulded .00025 Mfd.	.21
20	9458	Condenser	Mica Moulded .00025 Mfd.	.21
21	7934	Condenser	Mica Moulded .0001 Mfd.	.21
22	2705	Resistor	Carbon 2 Megohm 1/3 Watt	.19
23	7998	Resistor	Carbon 1 Megohm 1/3 Watt	.19
24	6984	Resistor	Carbon 500,000 Ohm 1/3 Watt	.19
25	2673	Resistor	Carbon 750,000 Ohm 1/3 Watt	.19
26	8000	Resistor	Carbon 100,000 Ohm 1/3 Watt	.19
27	6786	Resistor	Carbon 10,000 Ohm 1/3 Watt	.19
28	9018	Resistor	Carbon 150 Ohm 1/3 Watt	.19
29	1408	Resistor	Flexible 25 Ohm 1 Watt	.19
30	10858	Resistor	Wire Wound Flexible 200 Ohm 2 Watt	.22
31	10902	Resistor	Wire Wound Flexible 950 Ohm 9½ Watts	.65
32	10851	Resistor	Line Cord & Plug	.90
33	10781	Speaker	P.M. DYNAMIC 5" Less Transformer	3.25
34	10835	Switch	Voltage Selector	.60
35	10901	Transformer	Output	.90
36	4871	Volume Control		.80
37	1184	Resistor	Wire Wound Flexible 75 Ohm 1 Watt	.19
38	10962	Resistor	Extension Line Cord 220 Volt	1.50

MODEL 180XL
Socket, Trimmers
Alignment, Chassis

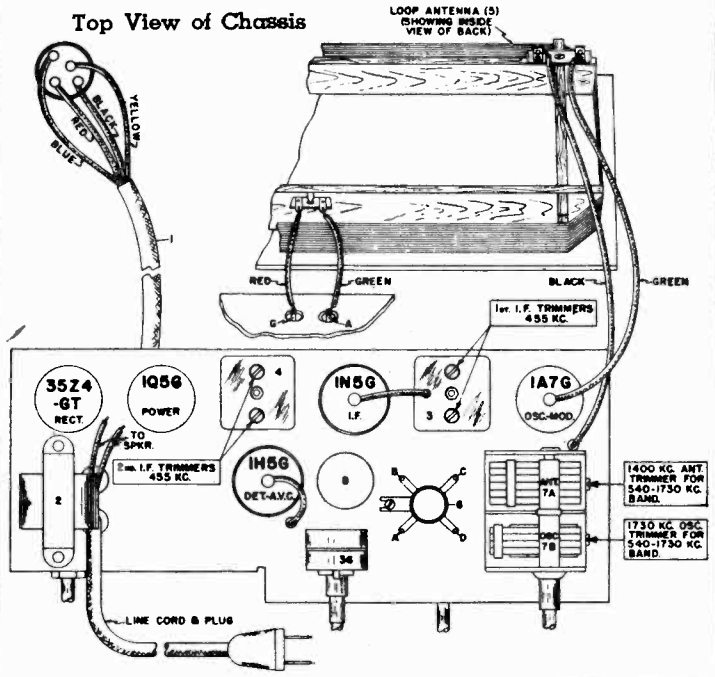
SENTINEL RADIO CORP.

PORTABLE – BATTERY OR 110 VOLTS, DC-AC 50-60 CYCLES

Bottom View of Chassis



Top View of Chassis



ALIGNMENT PROCEDURE

Follow procedure carefully and in the order given—read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment, check tuning dial adjustment by: turn gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial indicator must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

Use an accurately calibrated test oscillator with some type of output measuring device.

BEFORE ALIGNING, PLACE LOOP ANTENNA AND THE "A" AND "B" BATTERY-PACK IN THE SAME APPROXIMATE POSITION IN THE BACK OF CHASSIS THAT THEY WILL BE IN WHEN THE SET IS IN THE CABINET AND THE CABINET BACK CLOSED.

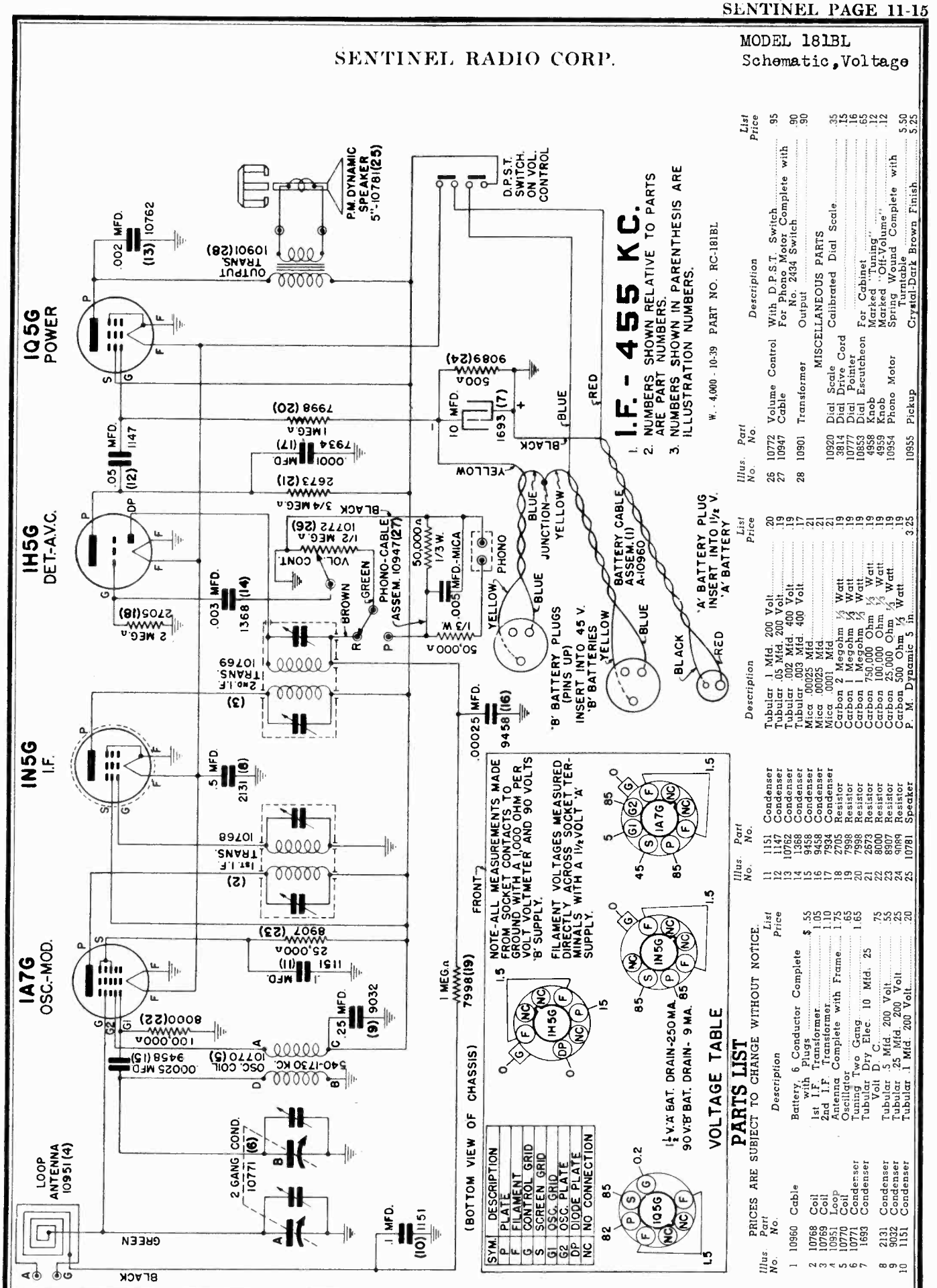
When adjusting 1730 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to terminals on bottom of cabinet back.

Couple test oscillator to receiver loop by:
a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.
b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below—and:
I. F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 1A7G tube Low side to chassis DO NOT REMOVE CAP	Adjust the second I. F. transformer trimmers for maximum output—then adjust each of the first I. F. trimmers for maximum output.
(1) Exactly 1730 K. C.	Exactly 1730 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1730 K. C. oscillator trimmer for maximum output.
(2) Approx. 1400 K. C.	Exactly 1400 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1400 K. C. antenna trimmer for maximum output.

SENTINEL RADIO CORP.

MODEL 181BL
Schematic, Voltage



SYM.	DESCRIPTION
P	PLATE
F	FILAMENT
G	CONTROL GRID
S	SCREEN GRID
G1	OSC. GRID
G2	OSC. PLATE
DP	DIODE PLATE
NC	NO CONNECTION

PARTS LIST

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

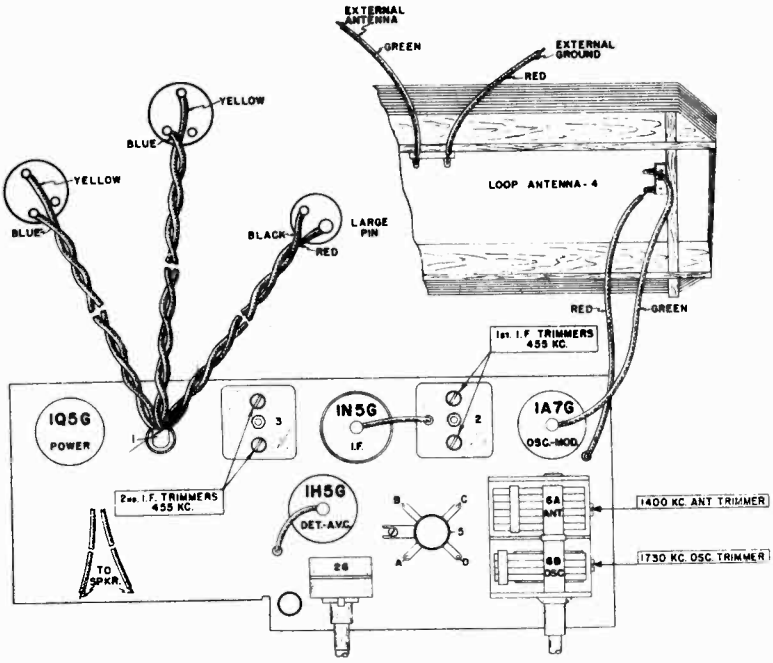
Illus. No.	Part No.	Description	List Price
1	10960	Cable Battery, 6 Conductor Complete with Plugs	$ .55
2	10768	Coil 1st I.F. Transformer	1.05
3	10769	Coil 2nd I.F. Transformer	1.10
4	10951	Loop Antenna Complete with Frame	1.75
5	10770	Coil Oscillator	.65
6	10771	Condenser Tuning Two Gang	1.65
7	1693	Condenser Tubular Dry Elec. 10 Mfd. 25 Volt D.C.	.75
8	2131	Condenser Tubular .5 Mfd. 200 Volt	.55
9	9032	Condenser Tubular .25 Mfd. 200 Volt	.25
10	1151	Condenser Tubular .1 Mfd. 200 Volt	.20
11	1151	Condenser Tubular .1 Mfd. 200 Volt	.19
12	1147	Condenser Tubular .05 Mfd. 200 Volt	.19
13	10762	Condenser Tubular .002 Mfd. 400 Volt	.19
14	1368	Condenser Tubular .003 Mfd. 400 Volt	.17
15	9458	Condenser Mica .00025 Mfd.	.21
16	9458	Condenser Mica .00025 Mfd.	.21
17	7934	Condenser Mica .0001 Mfd.	.21
18	2705	Resistor Carbon 2 Megohm ½ Watt	.19
19	7998	Resistor Carbon 1 Megohm ½ Watt	.19
20	7998	Resistor Carbon 1 Megohm ½ Watt	.19
21	2673	Resistor Carbon 750,000 Ohm ½ Watt	.19
22	8000	Resistor Carbon 100,000 Ohm ½ Watt	.19
23	8907	Resistor Carbon 25,000 Ohm ½ Watt	.19
24	9089	Resistor Carbon 500 Ohm ½ Watt	.19
25	10781	Speaker P. M. Dynamic 5 in.	3.25
26	10772	Volume Control With D.P.S.T. Switch	.95
27	10947	Cable For Phono Motor Complete with No. 2434 Switch	.90
28	10901	Transformer Output	.90

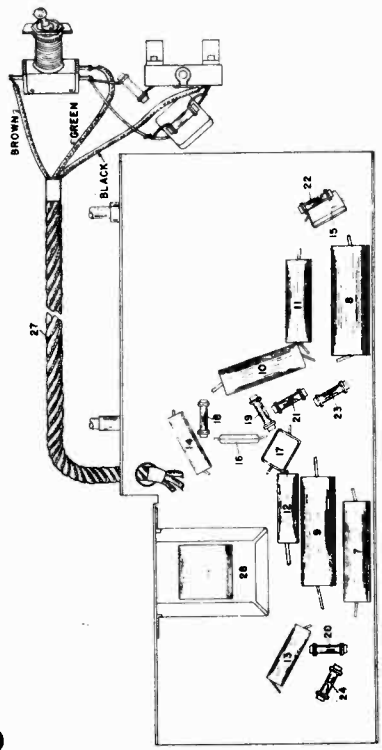
MISCELLANEOUS PARTS

Illus. No.	Part No.	Description	List Price
	10920	Dial Scale Calibrated Dial Scale	.35
	3814	Dial Drive Cord	.15
	10777	Dial Pointer	.16
	10853	Dial Escutcheon For Cabinet	.65
	4958	Knob Marked "Tuning"	.12
	4959	Knob Marked "Off-Volume"	.12
	10954	Phono Motor Spring Wound Complete with Turntable	5.50
	10955	Pickup Crystal-Dark Brown Finish	5.25

MODEL 181BL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.





SENTINEL MODEL 181BL

4 TUBE — 1½ VOLT BATTERY OPERATED

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

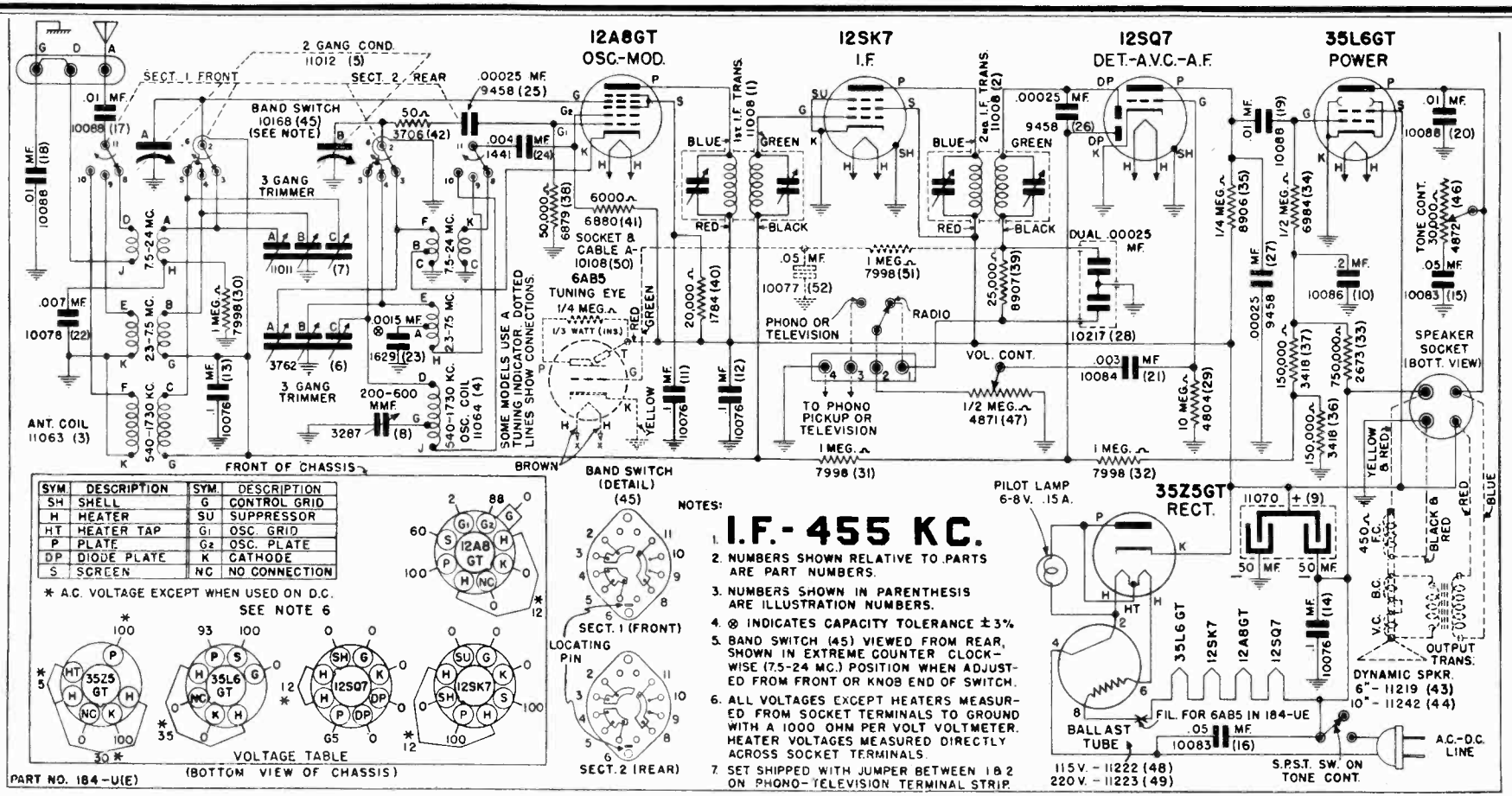
Before starting alignment:

(a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD. condenser	High side to grid terminal of 1A7G tube DO NOT REMOVE CAP.	Adjust each of the second I. F. transformer trimmers for maximum output—then adjust each of the first I. F. trimmers for maximum output.
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD. condenser	Receiver blue antenna lead	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Exactly 1400 K. C.	.00025 MFD. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



SYM.	DESCRIPTION	SYM.	DESCRIPTION
SH	SHELL	G	CONTROL GRID
H	HEATER	SU	SUPPRESSOR
HT	HEATER TAP	G1	OSC. GRID
P	PLATE	G2	OSC. PLATE
DP	DIODE PLATE	K	CATHODE
S	SCREEN	NC	NO CONNECTION

NOTES:

I.F. - 455 KC.

1. I.F. - 455 KC.
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
4. ⊗ INDICATES CAPACITY TOLERANCE ±3%
5. BAND SWITCH (45) VIEWED FROM REAR, SHOWN IN EXTREME COUNTER CLOCK-WISE (7.5-24 MC.) POSITION WHEN ADJUST-ED FROM FRONT OR KNOB END OF SWITCH.
6. ALL VOLTAGES EXCEPT HEATERS MEASUR-ED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS.
7. SET SHIPPED WITH JUMPER BETWEEN 1 & 2 ON PHONO-TELEVISION TERMINAL STRIP.

PARTS LIST

Illus. No.	Part No.	Description	List Price
1	11008	Coil — 1st I.F. Transformer	$1.25
2	11008	Coil — 2nd I.F. Transformer	1.25
3	11063	Coil — Antenna	.85
4	11064	Coil — Oscillator	.75
5	11012	Condenser — Tuning Two Gang	1.75
6	3762	Condenser — Trimmer Three Gang	.47
7	11011	Condenser — Trimmer Three Gang	.50
8	3287	Condenser — Padder 200-600 Mmf	.45
9	11070	Condenser — Dry Electrolytic Condenser 50-50 Mfd.	.75
10	10086	Condenser — Tubular .2 Mfd. 200 Volt	.20
11	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
12	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
13	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
14	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
15	10083	Condenser — Tubular .05 Mfd. 400 Volt	.19
16	10083	Condenser — Tubular .05 Mfd. 400 Volt	.19
17	10088	Condenser — Tubular .01 Mfd. 400 Volt	.19
18	10088	Condenser — Tubular .01 Mfd. 400 Volt	.19
19	10088	Condenser — Tubular .01 Mfd. 400 Volt	.19
20	10088	Condenser — Tubular .01 Mfd. 400 Volt	.19
21	10084	Condenser — Tubular .003 Mfd. 400 Volt	.17
22	10078	Condenser — Tubular .007 Mfd. 200 Volt	.19
23	1629	Condenser — Mica .015 Mfd. ± 3%	.21
24	1441	Condenser — Mica .004 Mfd.	.21
25	9458	Condenser — Mica .00025 Mfd.	.21
26	9458	Condenser — Mica .00025 Mfd.	.21
27	9458	Condenser — Mica .00025 Mfd.	.21
28	10217	Condenser — Mica .00025 Mfd.	.21
29	4804	Resistor — Carbon 10 Megohm ⅓ Watt	.19
30	7998	Resistor — Carbon 1 Megohm ⅓ Watt	.19
31	7998	Resistor — Carbon 1 Megohm ⅓ Watt	.19
32	7998	Resistor — Carbon 1 Megohm ⅓ Watt	.19
33	2673	Resistor — Carbon 750,000 Ohm ⅓ Watt	.19
34	6984	Resistor — Carbon 500,000 Ohm ⅓ Watt	.19
35	8906	Resistor — Carbon 250,000 Ohm ⅓ Watt	.19
36	3418	Resistor — Carbon 150,000 Ohm ⅓ Watt	.19
37	3418	Resistor — Carbon 150,000 Ohm ⅓ Watt	.19
38	6879	Resistor — Carbon 50,000 Ohm ⅓ Watt	.19
39	8907	Resistor — Carbon 25,000 Ohm ⅓ Watt	.19
40	1784	Resistor — Carbon 20,000 Ohm ⅓ Watt	.19
41	6880	Resistor — Carbon 6,000 Ohm ⅓ Watt	.19
42	3706	Resistor — Carbon 50 Ohm ⅓ Watt	.19
43	11219	Speaker — Electro-Dynamic 6 in.	4.00
44	11242	Speaker — Electro-Dynamic 10 in.	6.00
45	10168	Switch — Band Selector	1.30
46	4872	Tone Control — With On-Off Switch	.80
47	4871	Volume Control	.80
48	11222	Ballast Tube — 115 Volt	.60
49	11223	Ballast Tube — 220 Volt	1.00
50	10108	Socket & Cable 6AB5 Tuning Eye Cable & Socket Assembly	.65
51	7998	Resistor — Carbon 1 Megohm ⅓ Watt	.19
52	10077	Condenser — Tubular .05 Mfd. 200 Volt	.19

MISCELLANEOUS PARTS

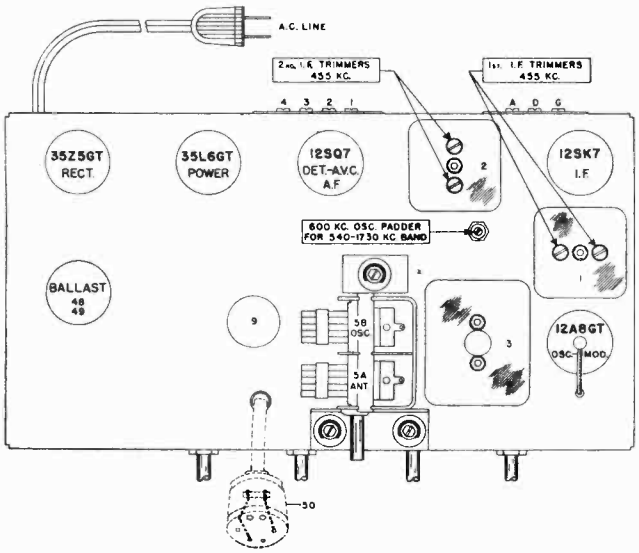
Part No.		Description	List Price
11304	Bulb	6-8 Volt .150 Amp. Type No. 47 Bayonet Base	.10
11246	Band Indicator	For Dial	.12
8184	Dial Cord	24 in. of 18 Lb. Drive Cord	.15
11021	Dial Scale	Calibrated Scale	.55
11017	Dial Shaft	Drive Shaft	.11
11025	Dial Pointer	Dial Indicator	.16
11693	Dial Spring	Cord Tension Spring	.04
11198	Escutcheon	For Dial with Mtg. Screw Holes in Corners	1.25
11199	Escutcheon	For Dial with Mtg. Screw Holes Away From Corners	1.25
10030	Knob	Marked "Tuning"	.12
10032	Knob	Marked "Volume"	.12
10068	Knob	Marked "Off-On-Tone"	.12
10069	Knob	Marked "Band Switch"	.12

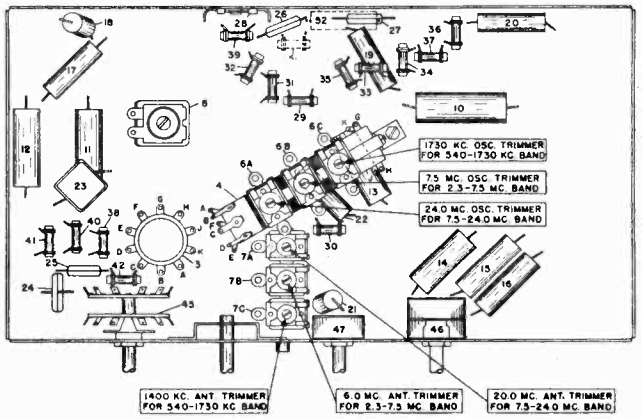
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

MODELS 184U, 184UE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

SENTINEL MODEL 184U and 184UE—THREE BAND—FIVE and SIX TUBE
A. C. Operated Superheterodyne Receiver





NO. 184-U(E).

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

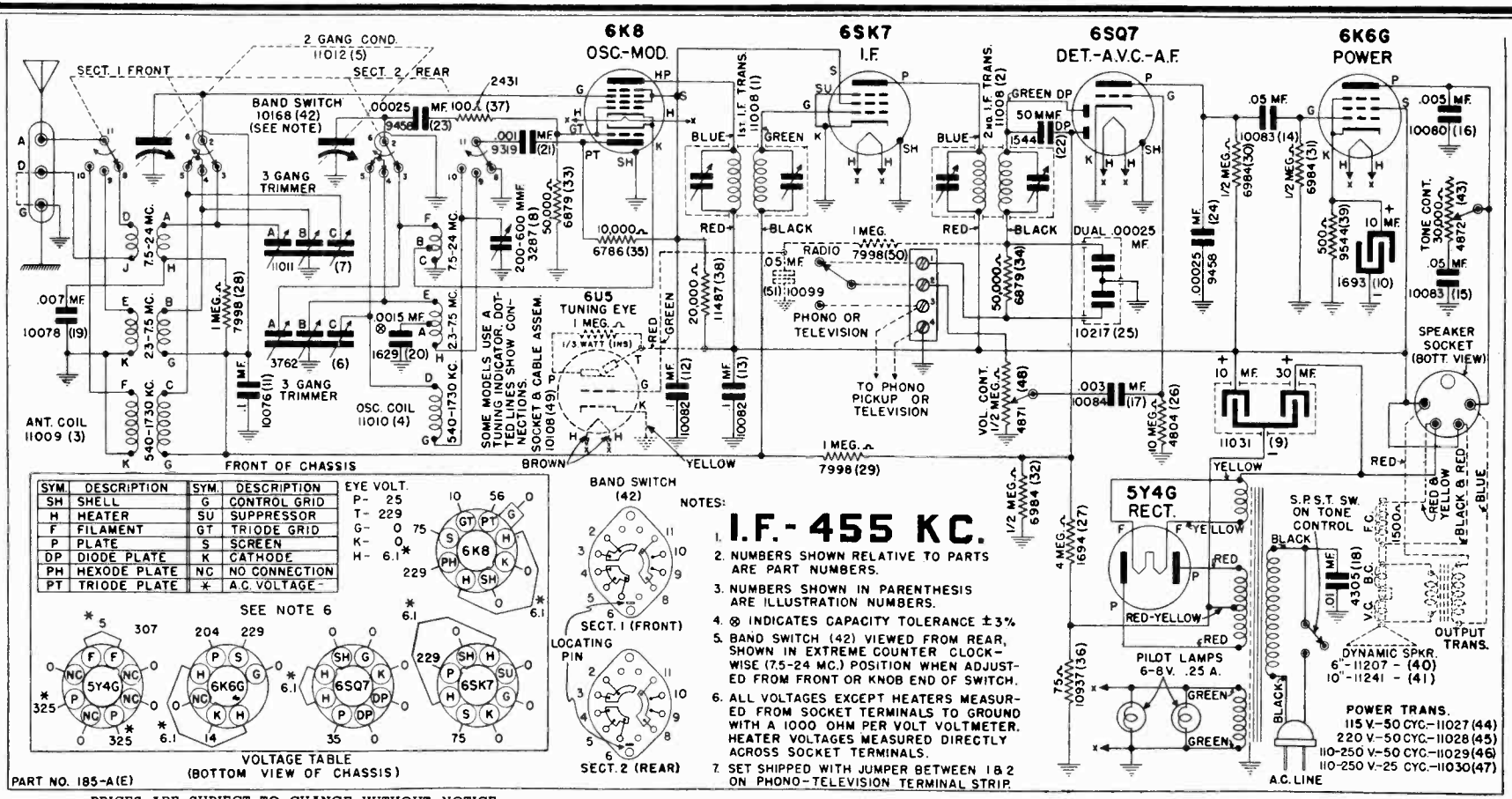
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator: consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. ALIGNMENT use any band position	Any point where no interfering signal is received.	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 12A8GT Do not remove cap	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 TO 540 K.C. BAND	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.3 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Exactly 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna trimmer for maximum output.
7.5 TO 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna trimmer for maximum output.



PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

W.-4,000 - 10-39 PART NO. 185A

PARTS LIST

Illus. No.	Part No.	Description	List Price
1	11008	Coil — 1st I.F. Transformer	$1.25
2	11008	Coil — 2nd I.F. Transformer	1.25
3	11009	Coil — Antenna	.85
4	11010	Coil — Oscillator	.75
5	11012	Condenser — Tuning Two Gang	1.75
6	3762	Condenser — Trimmer Three Gang	.47
7	11011	Condenser — Trimmer Three Gang	.50
8	3287	Condenser — Padder 200-600 Mmf.	.45
9	11031	Condenser — Dry Electrolytic 10-30 Mfd. 450 Volts	1.25
10	1693	Condenser — Tubular Dry Electrolytic 10 Mfd. 25 Volt D.C.	.75
11	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
12	10082	Condenser — Tubular .1 Mfd. 400 Volt	.20
13	10082	Condenser — Tubular .1 Mfd. 400 Volt	.20
14	10083	Condenser — Tubular .05 Mfd. 400 Volt	.19
15	10083	Condenser — Tubular .05 Mfd. 400 Volt	.19
16	10080	Condenser — Tubular .005 Mfd. 400 Volt	.17
17	10084	Condenser — Tubular .003 Mfd. 400 Volt	.17
18	4305	Condenser — Tubular .01 Mfd. 220 Volt	.30
19	10078	Condenser — Tubular .007 Mfd. 200 Volt	.19
20	1629	Condenser — Mica .0015 Mfd.	.21
21	9319	Condenser — Mica .001 Mfd.	.21
22	1544	Condenser — Mica .00005 Mfd.	.21
23	9458	Condenser — Mica .00025 Mfd.	.21
24	9458	Condenser — Mica .00025 Mfd.	.21
25	10217	Condenser — Mica Dual .00025 Mfd.	.21
26	4804	Resistor — Carbon 10 Megohm ½ Watt	.19
27	1694	Resistor — Carbon 4 Megohm ½ Watt	.19
28	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
29	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
30	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
31	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
32	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
33	6879	Resistor — Carbon 50,000 Ohm ½ Watt	.19
34	6879	Resistor — Carbon 50,000 Ohm ½ Watt	.19
35	6786	Resistor — Carbon 10,000 Ohm ½ Watt	.19
36	10937	Resistor — Carbon 75 Ohm ½ Watt	.19
37	2431	Resistor — Carbon 100 Ohm ½ Watt	.19
38	11487	Resistor — Carbon 20,000 Ohm 1½ Watt	.22
39	9544	Resistor — Carbon 500 Ohm 1 Watt	.22
40	11207	Speaker — Electro Dynamic 6 in.	4.25
41	11241	Speaker — Electro Dynamic 10 in.	6.00
42	10168	Switch — Wave	1.30
43	4872	Tone Control — With On-Off Switch	.80
44	11027	Transformer — Power 115 Volt 50 Cycle	3.25
45	11028	Transformer — Power 220 Volt 50 Cycle	4.10
46	11029	Transformer — Power 110-250 Volt 50 Cycle	6.50
48	4871	Volume Control	.80
49	10108	Socket & Cable — Tuning Eye Assembly (6U5 Tube)	.65
50	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
51	10077	Condenser — Tubular .05 Mfd. 200 Volt	.19

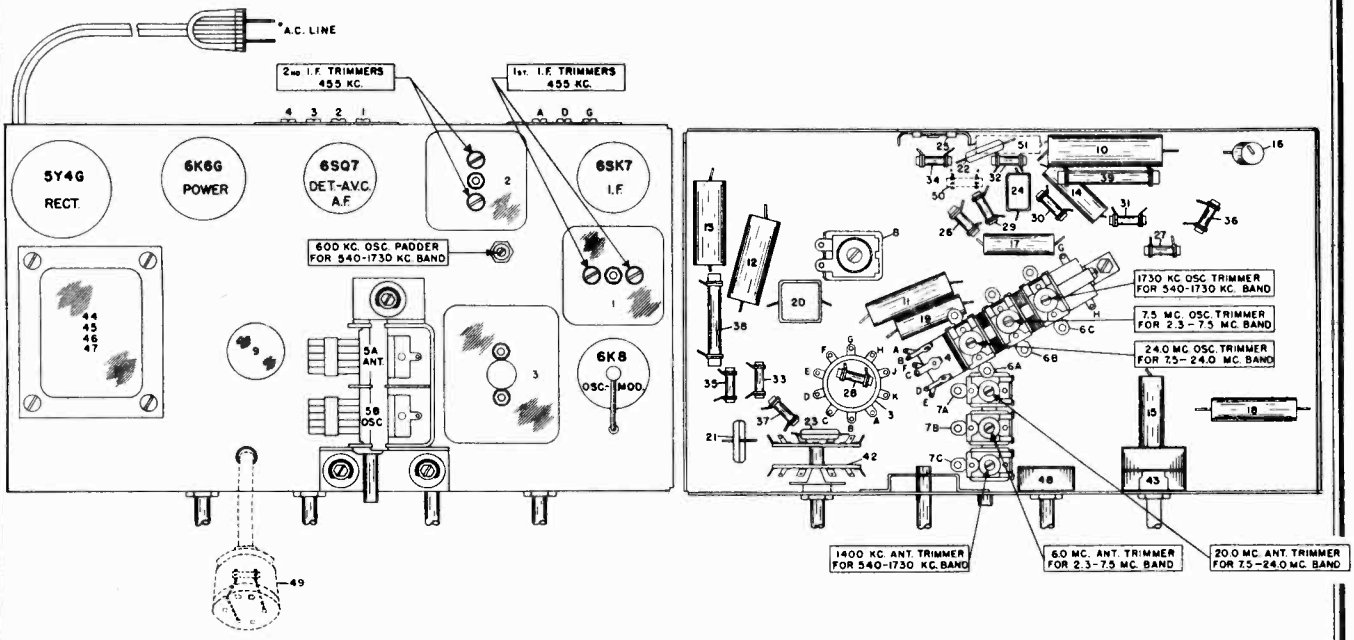
MISCELLANEOUS PARTS

Part No.		Description	List Price
10292	Bulb	6-8 Volt .250 Ampere Type C-3¼ No. 44	.10
11022	Dial Scale	Calibrated Scale	.60
11246	Dial Indicator	Band Indicator	.12
8184	Dial Cord	Dial Drive Cord 24 in. of 18 Lb.	.15
11017	Dial Shaft	Dial Drive Shaft	.11
11025	Dial Pointer	For Dial	.16
11198	Escutcheon	For Dial with Mtg. Screw Holes In Corners	1.25
11199	Escutcheon	For Dial with Mtg. Screw Holes Away From Corners	1.25
4958	Knob	Marked "Tuning"	.12
10906	Knob	Marked "Volume"	.12
11566	Knob	Marked "Off-Tone"	.12
4961	Knob	Marked "Band Switch"	.12
8117	Shaft Clamp	"C" Retainer Washer for Drive Shaft	.02
10578	Strip	Antenna and Ground Post	.15

MODELS 185A, 185AE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

SENTINEL MODEL 185A and 185AE—THREE BAND—FIVE and SIX TUBE
A. C. Operated Superheterodyne Receiver



ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

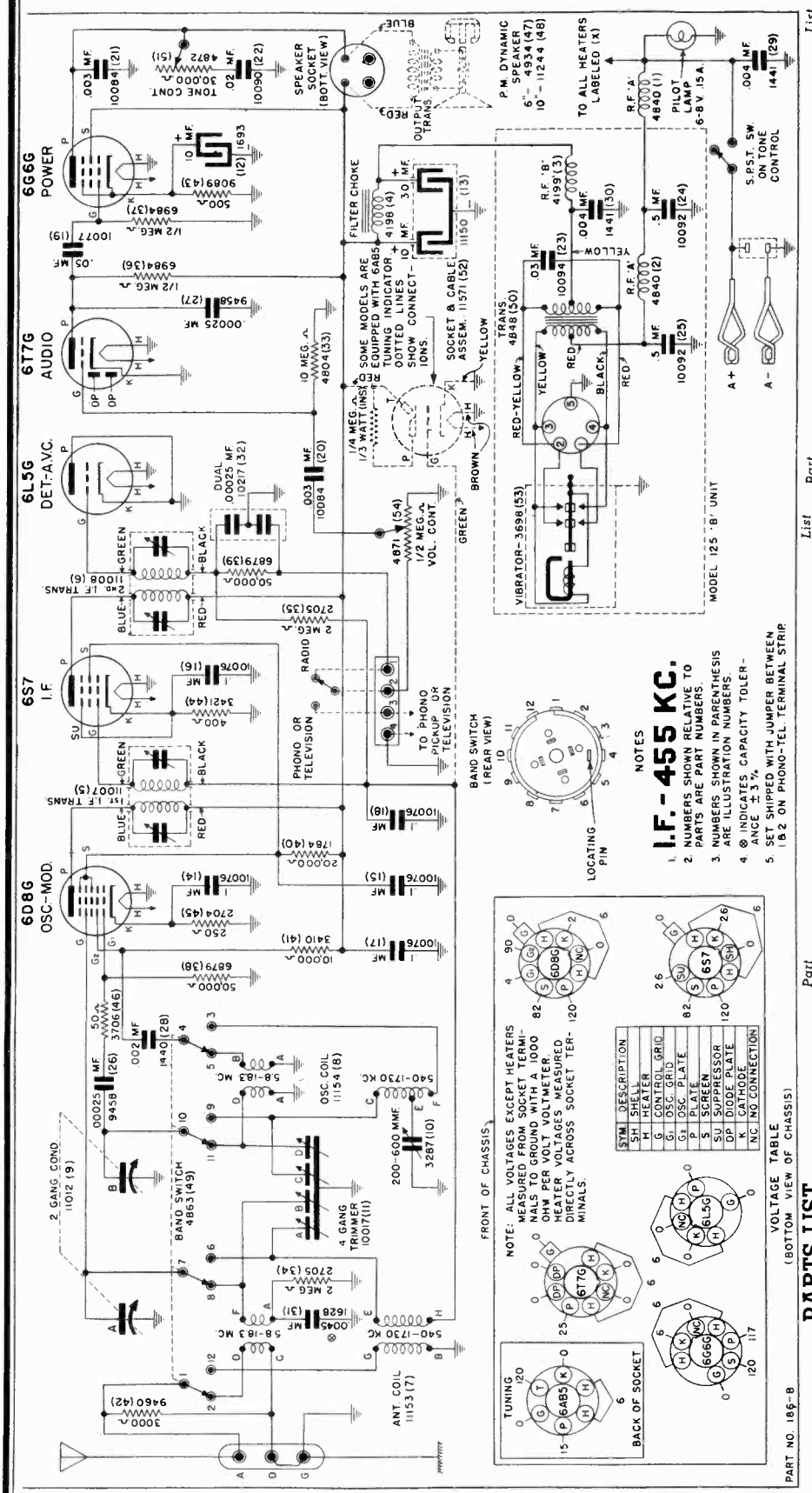
(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator: consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. ALIGNMENT use any band position	Any point where no interfering signal is received.	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6K8 tube. Do not remove cap	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 TO 540 K.C. BAND	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Exactly 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.3 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Exactly 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna trimmer for maximum output.
7.5 TO 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use—is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna trimmer for maximum output.

SENTINEL RADIO CORP.

MODELS 186B, 186BE
Schematic, Voltage



PARTS LIST

Part No.	Description	List Price
1	4840 Choke R. F. "A"	$ .18
2	4840 Choke R. F. "A"	.18
3	4199 Choke R. F. "B"	.40
4	4198 Choke Filter	.95
5	11007 Coil 1st I. F. Transformer	1.25
6	11008 Coil 2nd I. F. Transformer	1.25
7	11153 Coil Antenna	.70
8	11154 Coil Oscillator	.60
9	11012 Condenser Tuning (Two Gang)	1.75
10	3287 Condenser Padder 340-460 Mmf.	.45
11	10017 Condenser Trimmer Four Gang	.55
12	1693 Condenser Tubular Dry Electrolytic 10 Mfd. 25 Volt	.75
13	11150 Condenser Dry Electrolytic 1-10 & 30 Mfd	1.00
14	10076 Condenser Tubular .1 Mfd. 200 Volt	.19
15	10076 Condenser Tubular .1 Mfd. 200 Volt	.19
16	10076 Condenser Tubular .1 Mfd. 200 Volt	.19
17	10076 Condenser Tubular .1 Mfd. 200 Volt	.19
18	10076 Condenser Tubular .1 Mfd. 200 Volt	.19
19	10077 Condenser Tubular .05 Mfd. 200 Volt	.19
20	10084 Condenser Tubular .003 Mfd. 400 Volt	.17
21	10084 Condenser Tubular .003 Mfd. 400 Volt	.17
22	10090 Condenser Tubular .02 Mfd. 400 Volt	.19
23	10094 Condenser Tubular .03 Mfd. 800 Volt	.22
24	10092 Condenser Tubular .5 Mfd. 100 Volt	.25
25	10092 Condenser Tubular .5 Mfd. 100 Volt	.25
26	9458 Condenser Mica .00025 Mfd	.21
27	9458 Condenser Mica .00025 Mfd	.21
28	1440 Condenser Mica .002 Mfd	.21
29	1441 Condenser Mica .004 Mfd	.21
30	1441 Condenser Mica .004 Mfd	.21
31	1628 Condenser Mica .0045 Mfd. ± 3%	.24
32	10217 Condenser Dual Mica .00025 Mfd	.21
33	4804 Resistor Carbon 10 Megohm ½ Watt	.19
34	2705 Resistor Carbon 2 Megohm ½ Watt	.19
35	2705 Resistor* Carbon 2 Megohm ½ Watt	.19
36	6984 Resistor Carbon 500,000 Ohm ½ Watt	.19
37	6984 Resistor Carbon 500,000 Ohm ½ Watt	.19
38	6879 Resistor Carbon 50,000 Ohm ½ Watt	.19
39	6879 Resistor Carbon 50,000 Ohm ½ Watt	.19
40	1784 Resistor Carbon 20,000 Ohm ½ Watt	.19
41	3410 Resistor Carbon 10,000 Ohm ½ Watt	.19
42	9460 Resistor Carbon 3,000 Ohm ½ Watt	.19
43	9089 Resistor Carbon 500 Ohm ½ Watt	.19
44	3421 Resistor Carbon 400 Ohm ½ Watt	.19
45	2704 Resistor Carbon 250 Ohm ½ Watt	.19
46	3706 Resistor Carbon 50 Ohm ½ Watt	.19
47	4934 Speaker P. M. Dynamic 6 in.	5.00
48	11244 Speaker P. M. Dynamic 10 in.	6.50
49	4863 Switch Band	.60
50	4848 Transformer Power	2.25
51	4872 Tone Control With S. P. S. T. Switch	.80
52	11571 Teleye Socket Cable Assembly Used with 6AB5 Tube	.65
53	3698 Vibrator	3.50
54	4871 Volume Control	.80

MISCELLANEOUS PARTS

	Description	List Price
11304	Bulb 6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
8184	Cord Dial Drive Cord	.10
11156	Dial Scale Calibrated Scale Only	.60
11017	Dial Shaft Drive Shaft	.11
11025	Dial Pointer For Dial	.16
11198	Escutcheon For Dial—with Mounting Screw Holes in Corners	1.25
11199	Escutcheon For Dial—with Mounting Screw Holes away from Corners	1.25
4958	Knob Marked "Tuning"	.12
10906	Knob Marked "Volume"	.12
11566	Knob Marked "Off-On Tone"	.12
4961	Knob Marked "Band Switch"	.12
4589	Spring Cord Tension	.04
10578	Strip Antenna Marked "G. D. A."	.15

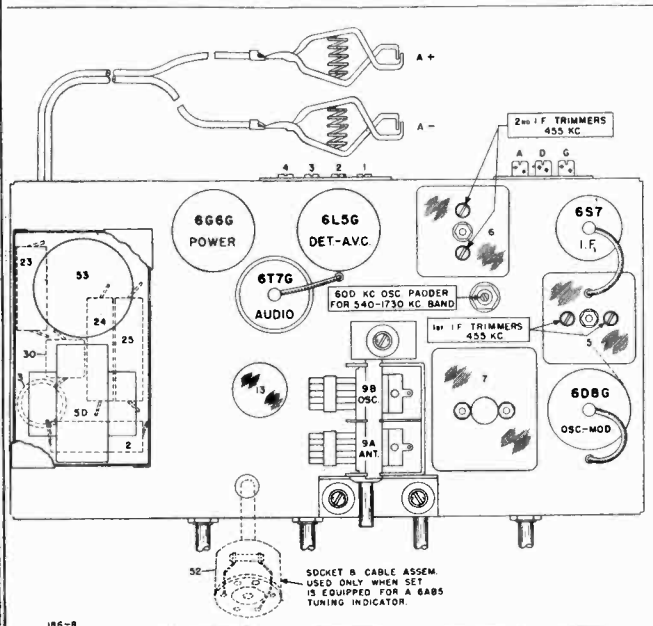
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE W. 5M 10-39

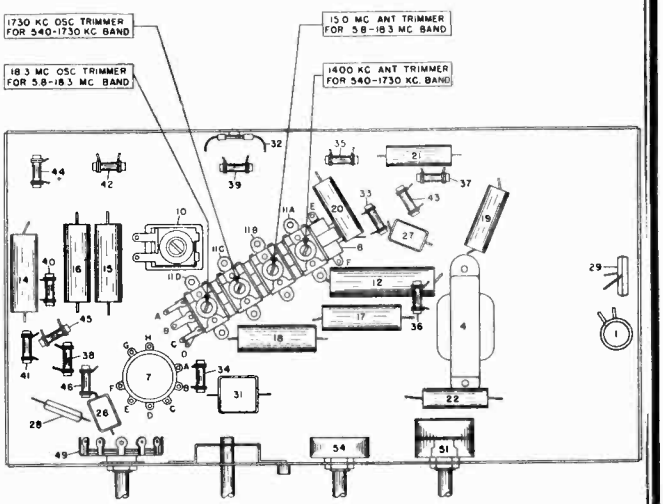
MODELS 186B, 186BE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

TWO BAND—FIVE and SIX TUBE

6 Volt Battery Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabluations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6D8G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K. C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	Adjust 1730 K. C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.8 to 18.3 M. C. Band	1 Exactly 18.3 M.C.	Exactly 18.3 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	Adjust 18.3 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.

Television Connections:—The audio amplifier and loud speaker of this receiver can be used to amplify the sound output of a television receiver not equipped with an audio amplifier and speaker—just connect the sound channel output of the television receiver (from the second detector) to the No. 3 and No. 4 terminals on back of receiver and attach a single pole double throw switch.

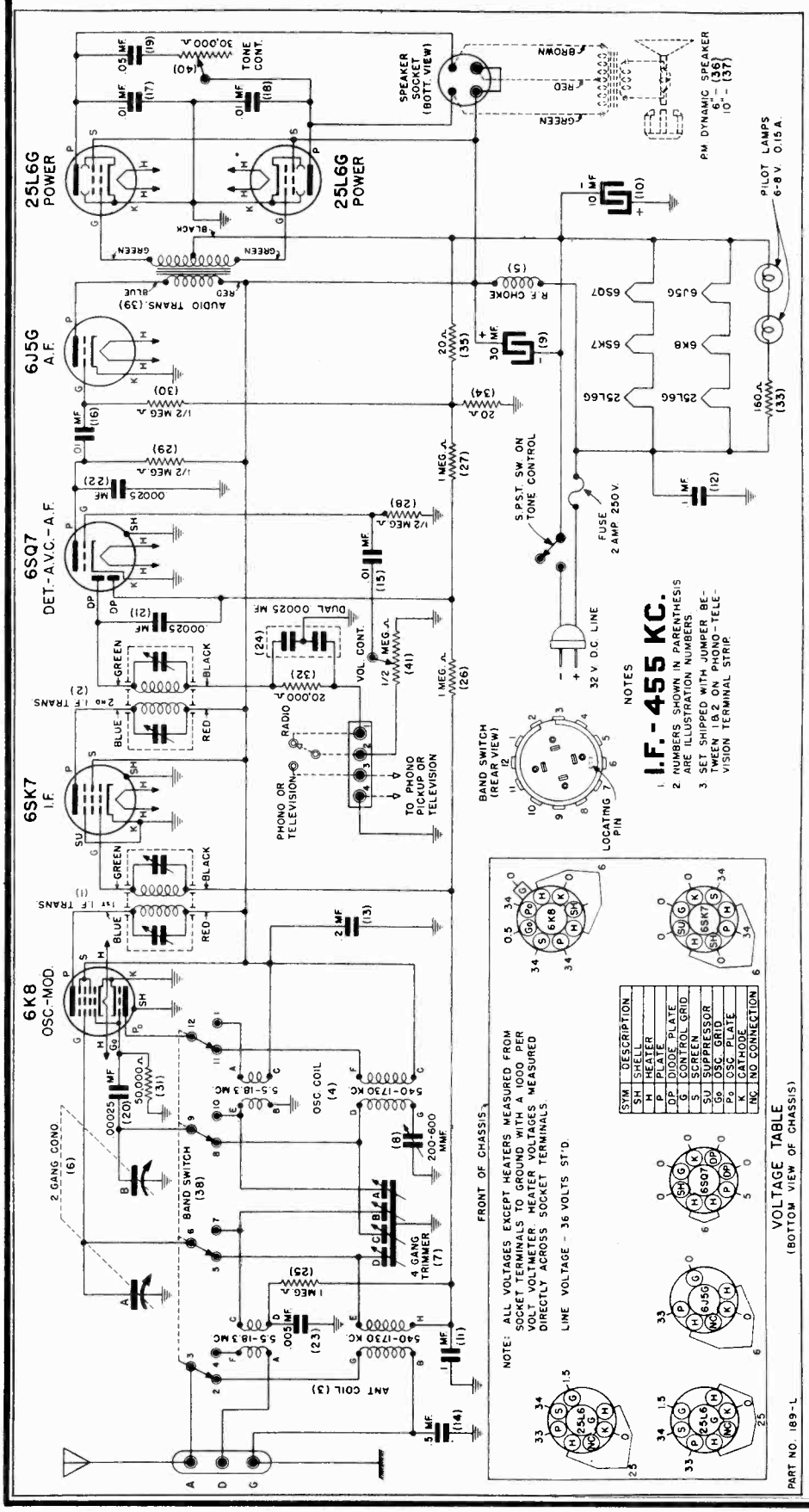
Phonograph Connections:—Phonograph records may be electrically reproduced through the receiver loud speaker by connecting the leads of the phonograph pickup to the No. 3 and No. 4 terminals and using either an electrical or hand wound spring operated phonograph motor. The pickup should be of the high impedance type and a single pole double throw switch must be connected as shown in diagram. To operate—place switch in phono position—set pickup needle on record and adjust radio volume control to desired amount of volume.

When shipped from factory a jumper wire is attached to terminals 1 and 2. If receiver is not to be used for phono or television operation, leave the jumper wire in this position. When receiver is used for either phono or television sound operation, remove jumper wire.

SENTINEL MODELS 186B and 186BE

SENTINEL RADIO CORP.

MODEL 189L
Schematic, Voltage



PARTS LIST

Part No.		Description	List Price
1	11008	Coil	1st I.F. Transformer	$1.25
2	11008	Coil	2nd I.F. Transformer	1.25
3	11072	Coil	Antenna	.75
4	11074	Coil	Oscillator	.60
5	4199	Coil	R.F. "B" Choke	.40
6	11012	Condenser	Tuning Two Gang	1.75
7	10017	Condenser	Trimmer Four Gang	.55
8	3287	Condenser	Padder 330-460 Mmf.	.45
9	11080	Condenser	Tubular Dry Electrolytic 30 Mfd. 50 Volt	.60
10	1693	Condenser	Tubular Dry Electrolytic 10 Mfd. 25 Volt	.75
11	10076	Condenser	Tubular .1 Mfd. 200 Volt	.19
12	10076	Condenser	Tubular .1 Mfd. 200 Volt	.19
13	10086	Condenser	Tubular .2 Mfd. 200 Volt	.20
14	10099	Condenser	Tubular .5 Mfd. 200 Volt	.25
15	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
16	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
17	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
18	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
19	10083	Condenser	Tubular .05 Mfd. 400 Volt	.19
20	9458	Condenser	Mica .00025 Mfd.	.21
21	9458	Condenser	Mica .00025 Mfd.	.21
22	9158	Condenser	Mica .00025 Mfd.	.21
23	10892	Condenser	Mica .005 Mfd. ± 3%	.20
24	10217	Condenser	Mica Dual .00025 Mfd.	.21
25	7938	Resistor	Carbon 1 Megohm ⅓ Watt	.19
26	7938	Resistor	Carbon 1 Megohm ⅓ Watt	.19
27	7938	Resistor	Carbon 1 Megohm ⅓ Watt	.19
28	6984	Resistor	Carbon 500,000 Ohm ⅓ Watt	.19
29	6984	Resistor	Carbon 500,000 Ohm ⅓ Watt	.19
30	6984	Resistor	Carbon 500,000 Ohm ⅓ Watt	.19
31	6879	Resistor	Carbon 50,000 Ohm ½ Watt	.19
32	1781	Resistor	Carbon 20,000 Ohm ½ Watt	.19
33	11081	Resistor	Wire Wound 150 Ohm 3.6 Watt	.55
34	11082	Resistor	Wire Wound Flexible 20 Ohm ½ Watt	.19
35	11082	Resistor	Wire Wound Flexible 20 Ohm ½ Watt	.19
36	11216	Speaker	Dynamic, P.M. 6 in.	5.50
37	11245	Speaker	Dynamic, P.M. 10 in.	7.50
38	4853	Switch	Wave	.60
39	10142	Transformer	Audio	2.00
40	4872	Tone Control	With S.P.S.T. A.C. Switch	.80
41	4871	Volume Control		.80

Part No.		Description	List Price
		MISCELLANEOUS PARTS	
3856	Block	Fuse Mtg. Block	.15
11304	Bulb	6-8 Volt .150 Ampere Light No. 47 Bayonet Base	.10
3857	Cover	For Fuse Block	.10
11017	Dial Shaft	Drive Shaft	.11
8181	Dial Cord	3 Ft. of 18 Lb. Drive Cord	.20
11693	Dial Spring	Cord Tension Spring	.04
11076	Dial Scale	Calibrated Scale	.60
11025	Dial Pointer		.16
11198	Escutcheon	For Dial with Mtg. Screw Holes in Corners	1.25
11199	Escutcheon	For Dial with Mtg. Screw Holes Away From Corners	1.25
8215	Fuse	2 Ampere	.10
10030	Knob	Marked "Tuning"	.12
10032	Knob	Marked "Volume"	.12
10068	Knob	Marked "Tone"-"On-Off"	.12
10069	Knob	Marked "Band Switch"	.12
10578	Strip	3 Post Antenna & Ground Strip	.15
11005	Strip	4 Post Phono & Television Strip	.10

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

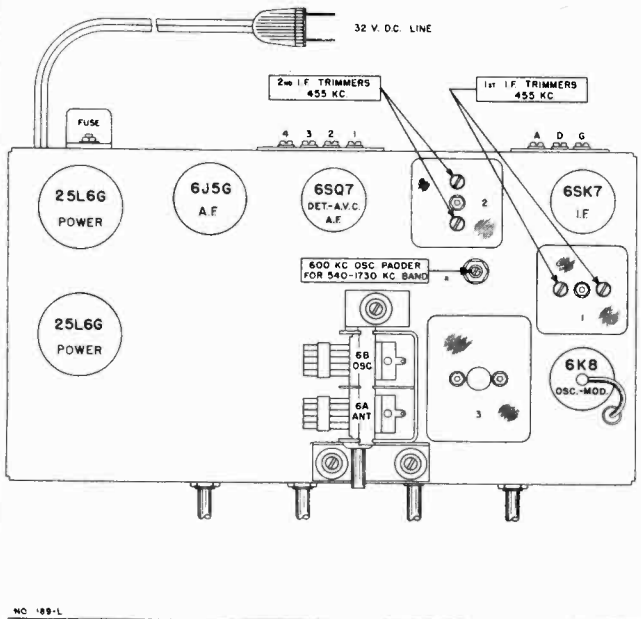
WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

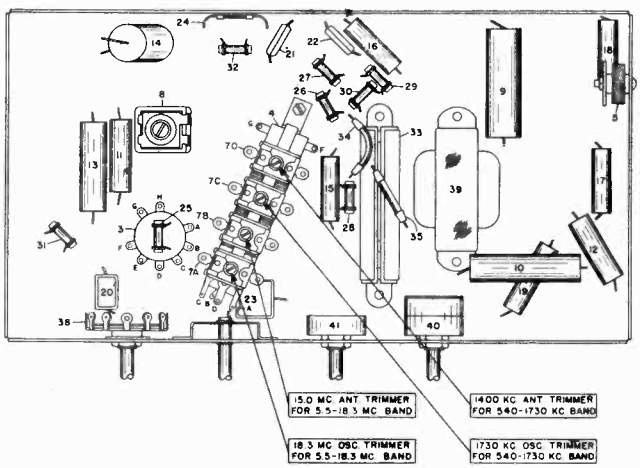
W. 4M 1-40 PART NO. 189L

MODEL 189L
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

SENTINEL MODEL 189L
TWO BAND—SIX TUBE
32 Volt Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabluations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to "G" Post.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6K8 tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K. C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	Adjust 1730 K. C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output
5.5 to 18.3 M. C. Band	1 Exactly 18.3 M.C.	Exactly 18.3 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	Adjust 18.3 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.

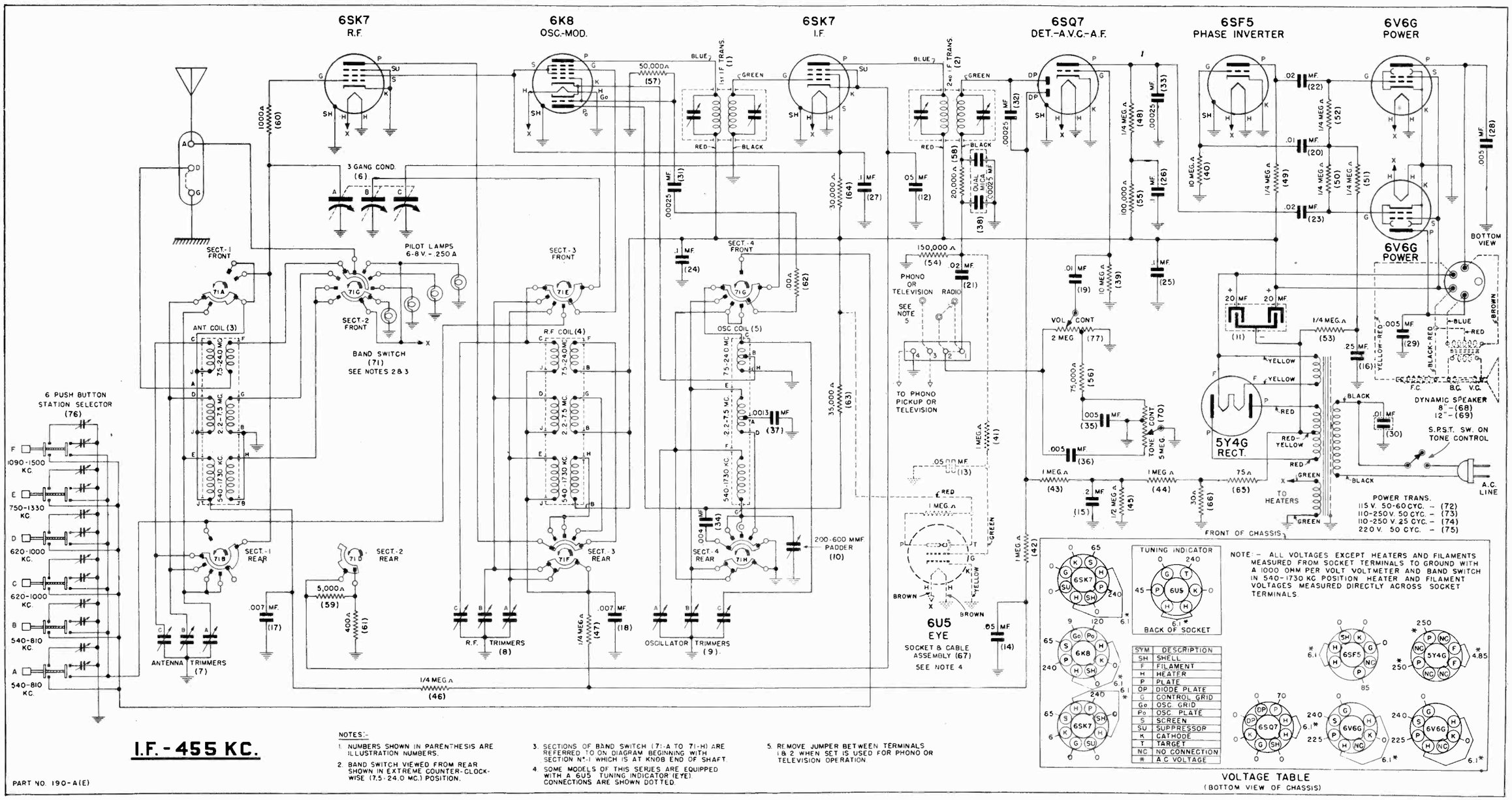
Television Connections:—The audio amplifier and loud speaker of this receiver can be used to amplify the sound output of a television receiver not equipped with an audio amplifier and speaker—just connect the sound channel output of the television receiver (from the second detector) to the No. 3 and No. 4 terminals on back of receiver and attach a single pole double throw switch.

Phonograph Connections:—Phonograph records may be electrically reproduced through the receiver loud speaker by connecting the leads of the phonograph pickup to the No. 3 and No. 4 terminals and using either an electrical or hand wound spring operated phonograph motor. The pickup should be of the high impedance type and a single pole double throw switch must be connected as shown in diagram. To operate—place switch in phono position—set pickup needle on record and adjust radio volume control to desired amount of volume.

When shipped from factory a jumper wire is attached to terminals 1 and 2. If receiver is not to be used for phono or television operation, leave the jumper wire in this position. When receiver is used for either phono or television sound operation, remove jumper wire.

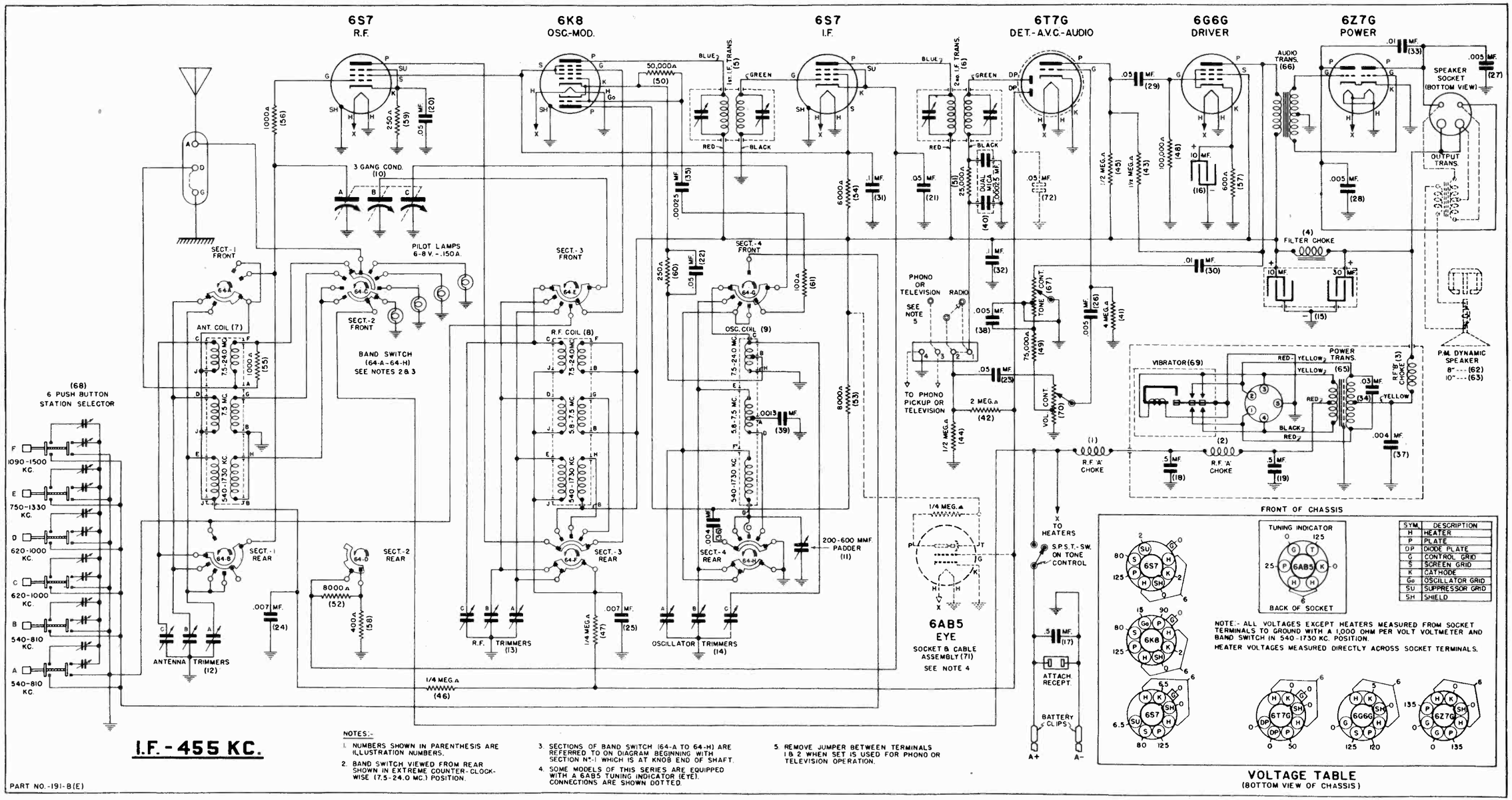
SENTINEL RADIO CORP.

MODELS 190A, 190AE
Schematic, Voltage



MODELS 191B, 191BE
Schematic, Voltage

SENTINEL RADIO CORP.



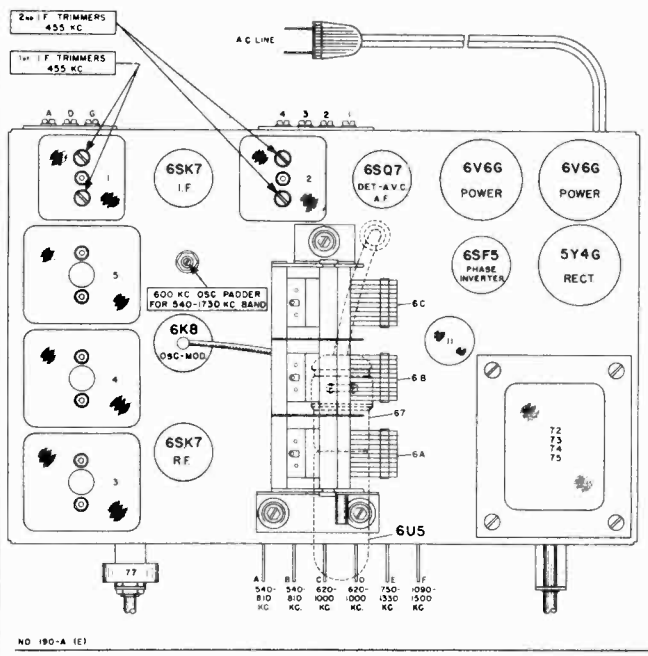
NOTES:-

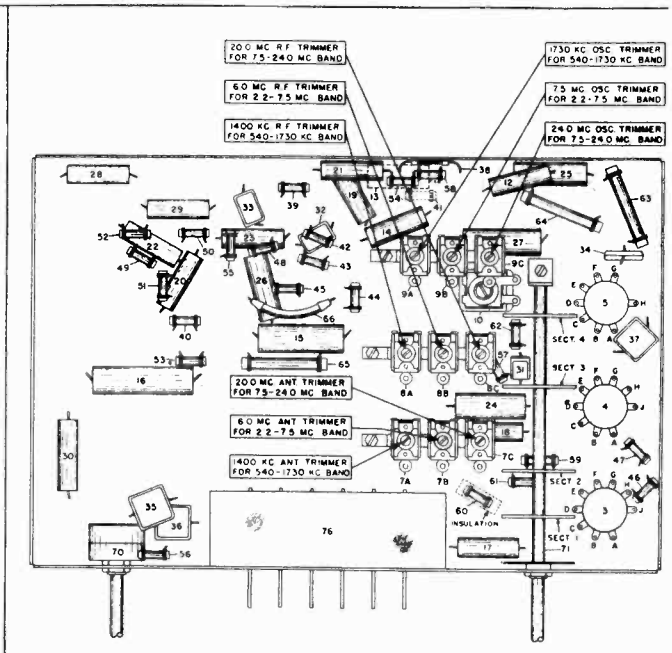
1. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
2. BAND SWITCH VIEWED FROM REAR SHOWN IN EXTREME COUNTER-CLOCK-WISE (7.5-24.0 MC.) POSITION.
3. SECTIONS OF BAND SWITCH (64-A TO 64-H) ARE REFERRED TO ON DIAGRAM BEGINNING WITH SECTION N°-1 WHICH IS AT KNOB END OF SHAFT.
4. SOME MODELS OF THIS SERIES ARE EQUIPPED WITH A 6AB5 TUNING INDICATOR (EYE). CONNECTIONS ARE SHOWN DOTTED.
5. REMOVE JUMPER BETWEEN TERMINALS 1 & 2 WHEN SET IS USED FOR PHONO OR TELEVISION OPERATION.

SENTINEL RADIO CORP.

MODELS 190A, 190AE
Socket, Trimmers
Alignment, Chassis

SENTINEL MODEL 190A and 190AE—THREE BAND—EIGHT and NINE TUBE
AC Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

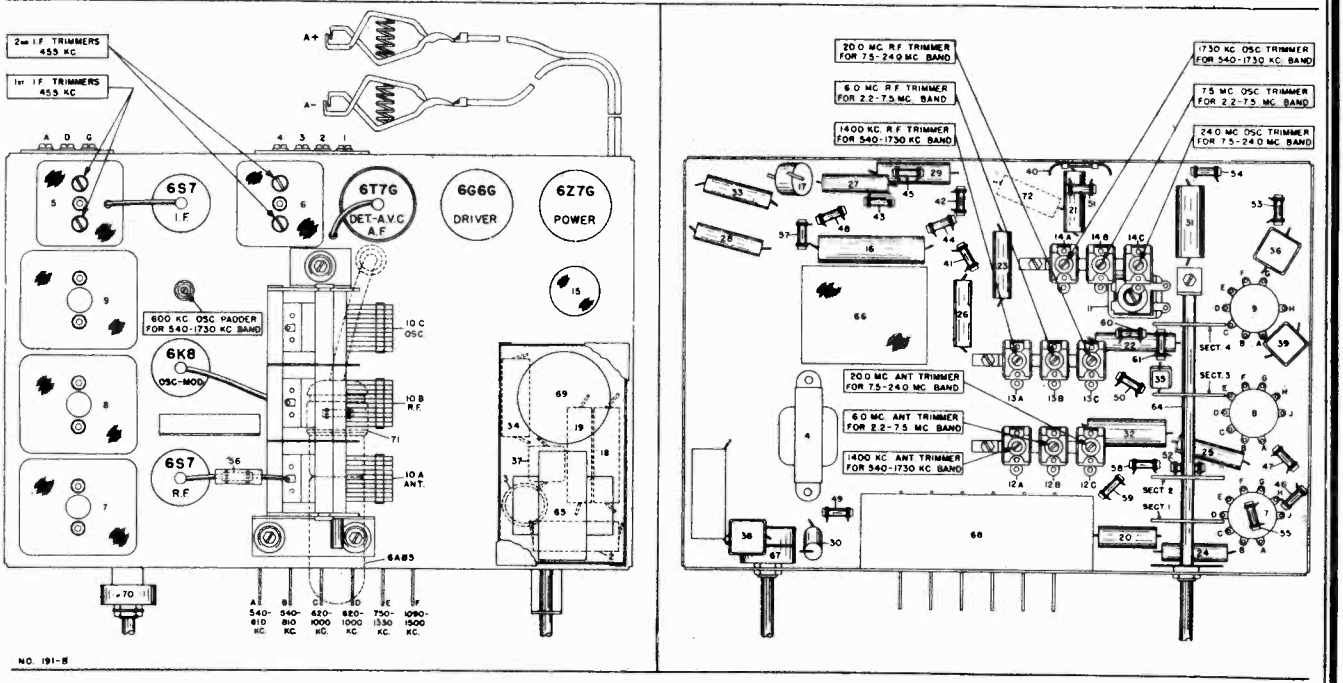
(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator: consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
1.F. ALIGNMENT use any band position	Any point where no interfering signal is received.	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6K8 tube. Do not remove cap	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 TO 540 K.C. BAND	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna and R.F. trimmers for maximum output
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.2 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Exactly 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna and R.F. trimmers for maximum output
7.5 TO 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna and R.F. trimmers for maximum output

MODELS 191B, 191BE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

SENTINEL MODEL 191B and 191BE—THREE BAND—SIX and SEVEN TUBE
6 Volt Battery Operated Superheterodyne Receiver



ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

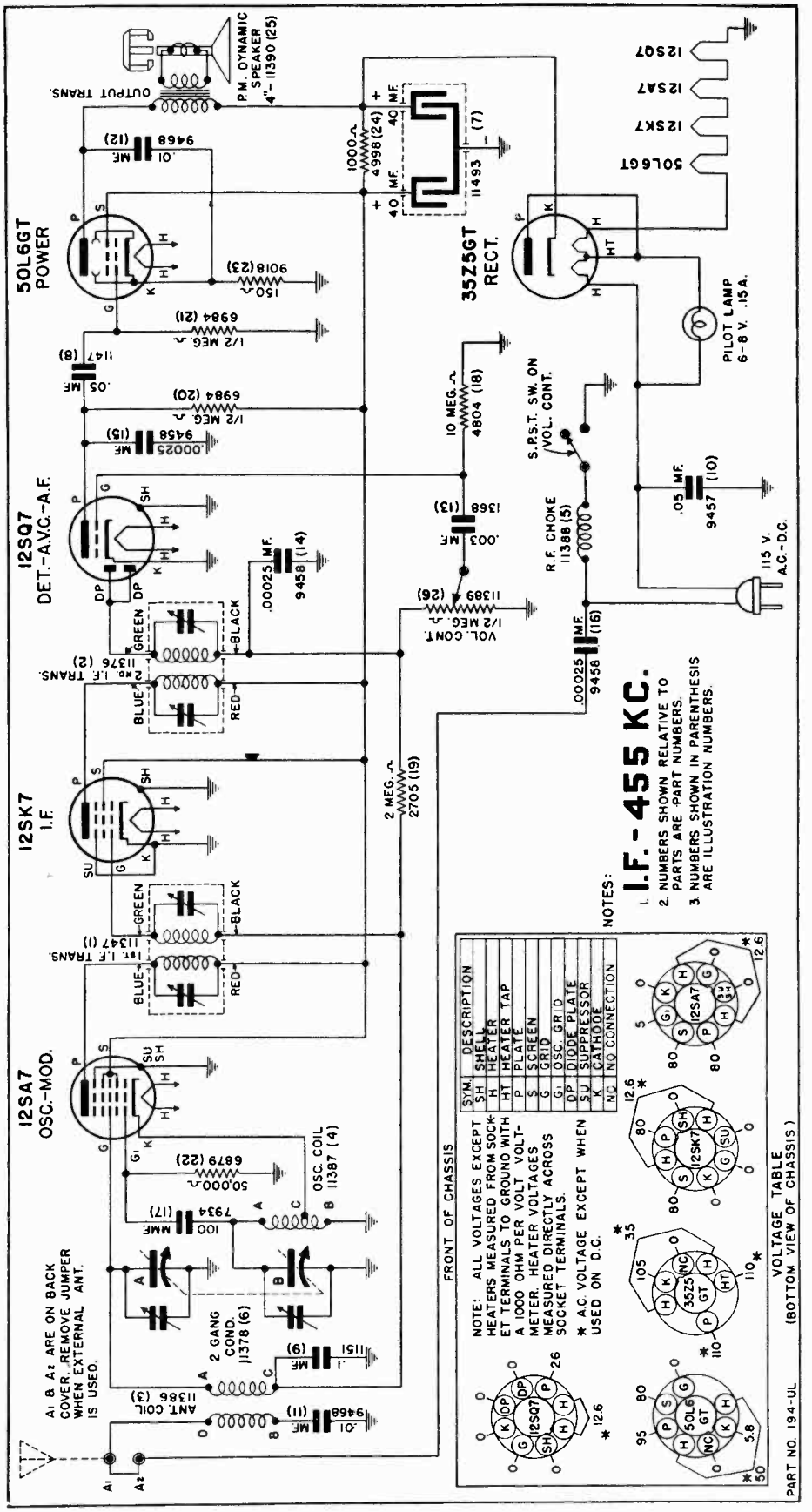
(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator: consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. ALIGNMENT use any band position	Any point where no interfering signal is received.	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6K8 tube. Do not remove cap	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 TO 540 K.C. BAND	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna and R.F. trimmers for maximum output
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.2 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Exactly 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna and R.F. trimmers for maximum output
7.5 TO 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna and R.F. trimmers for maximum output

SENTINEL RADIO CORP.

MODEL 194UL
Schematic, Voltage



PARTS LIST

Part No.	Description	List Price
1	11347 Coil — 1st I. F. Transformer	$ .90
2	11376 Coil — 2nd I. F. Transformer	.80
3	11386 Coil — Antenna	.50
4	11387 Coil — Oscillator	.45
5	11388 Coil — Antenna Line Choke	.25
6	11378 Condenser — Tuning Two Gang	1.75
7	11493 Condenser — Tubular Dry Elec. .40 Mfd. .40 Mfd.	1.00
8	1147 Condenser — Tubular .05 Mfd. 200 Volt	.19
9	1151 Condenser — Tubular .1 Mfd. 200 Volt	.20
10	9457 Condenser — Tubular .05 Mfd. 400 Volt	.18
11	9468 Condenser — Tubular .01 Mfd. 400 Volt	.17
12	9468 Condenser — Tubular .01 Mfd. 400 Volt	.17
13	1368 Condenser — Tubular .003 Mfd. 400 Volt	.17
14	9458 Condenser — Mica .00025 Mfd.	.21
15	9458 Condenser — Mica .00025 Mfd.	.21
16	9458 Condenser — Mica .00025 Mfd.	.21
17	7934 Condenser — Mica .0001 Mfd.	.21
18	4804 Resistor — Carbon 10 Megohm 1/2 Watt	.19
19	2705 Resistor — Carbon 2 Megohm 1/2 Watt	.19
20	6984 Resistor — Carbon 500,000 Ohm 1/2 Watt	.19
21	6984 Resistor — Carbon 500,000 Ohm 1/2 Watt	.19
22	6879 Resistor — Carbon 50,000 Ohm 1/2 Watt	.19
23	9018 Resistor — Carbon 150 Ohm 1/2 Watt	.19
24	4998 Resistor — Carbon 1000 Ohm 1 Watt	.21
25	11390 Speaker — P. M. Dynamic 4 in.	2.70
26	11389 Volume Control With S.P.S.T. Switch	.80

Part No.	Description	List Price
11304	Bulb — 6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
11381	Dial Scale — Calibrated Scale	.30
8184	Dial Cord — Dial Drive Cord	.10
11379	Dial Shaft — Dial Drive Shaft	.12
11725	Dial Pointer — For Dial-Bronze	.15
11384	Dial Pointer — For Dial	.15
11391	Dial Crystal — For Dial	.22
11563	Knob — Bakelite Tuning for Walnut Plastic Cabinet	.10
10207	Knob — Bakelite Push Button for Ivory Plastic Cabinet	.08
	Cabinet — Walnut Plastic	1.80
	Cabinet — Ivory Plastic	2.15

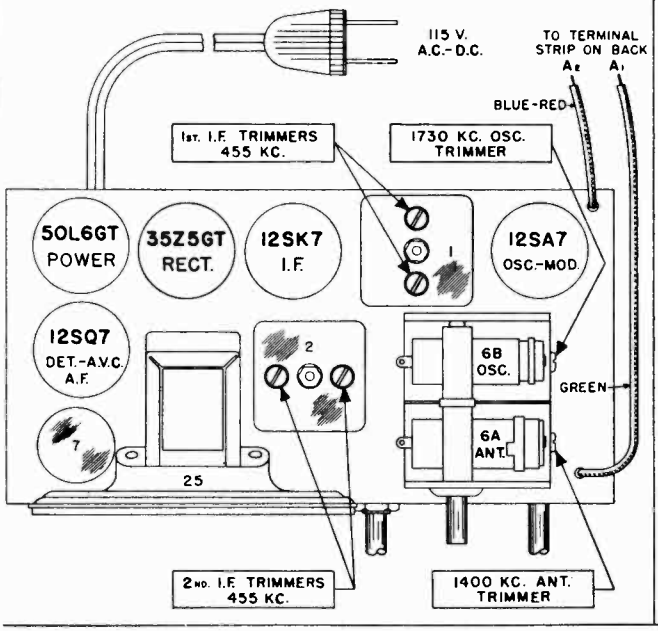
MISCELLANEOUS PARTS

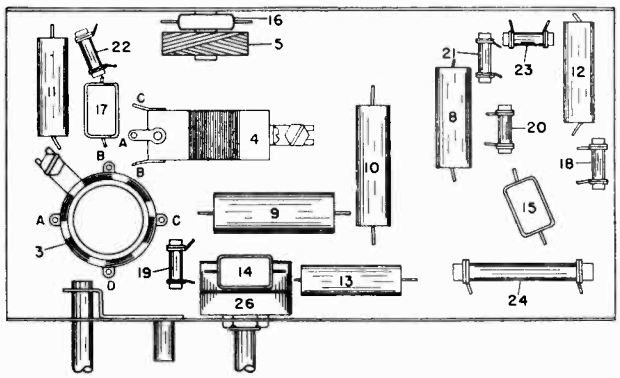
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. W. 4,000 10-39

MODEL 194UL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

5 tube A. C. - D. C. Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

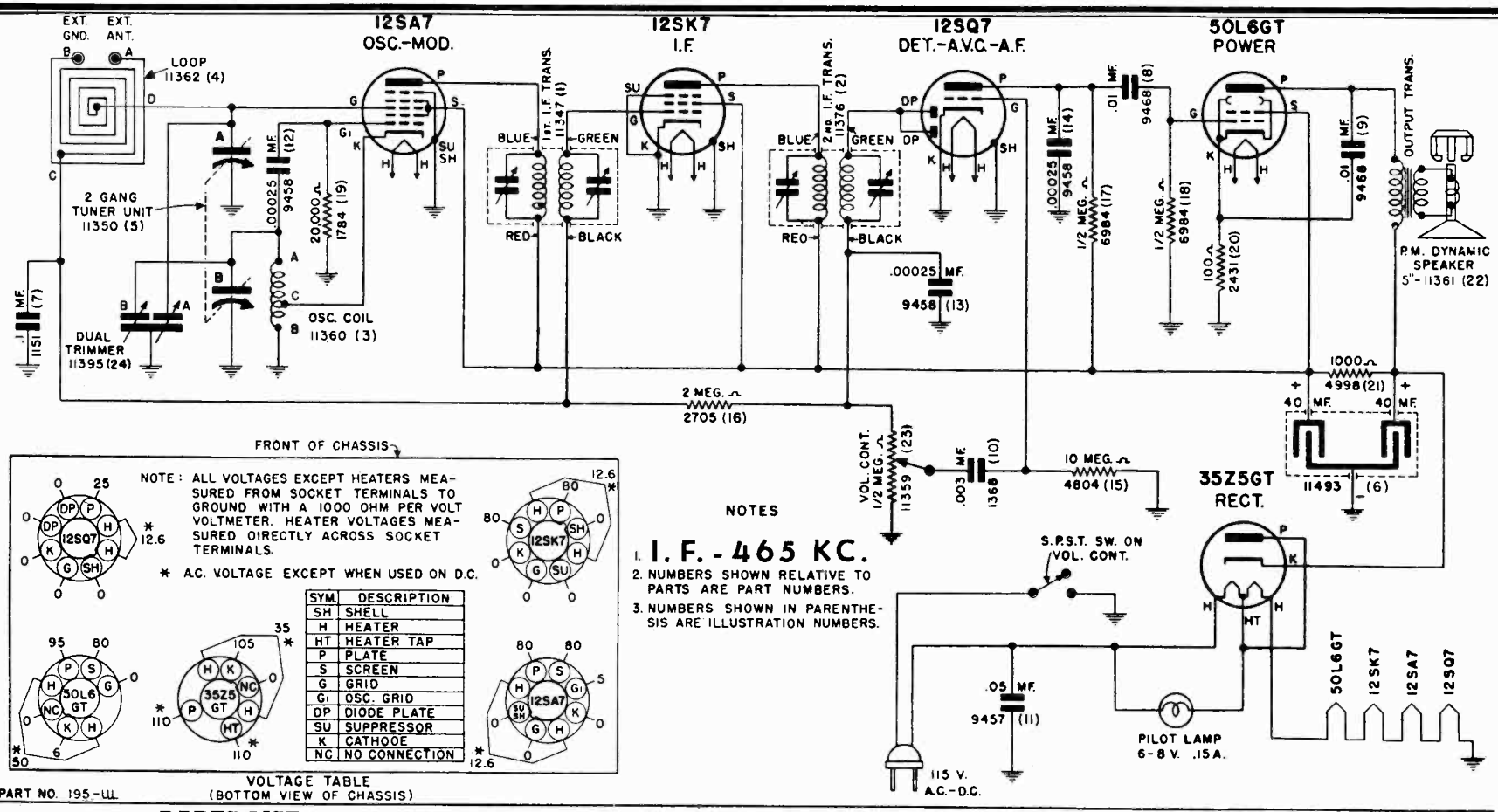
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to gang condenser frame.

Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:
	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 12SA7 tube DO NOT REMOVE CAP.	Adjust the second I. F. transformer trimmer for maximum output then adjust each of the first I. F. trimmers for maximum output
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD condenser	Receiver "A1" post	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Approx. 1400 K. C.	.00025 MFD condenser	Receiver "A1" post	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



FRONT OF CHASSIS

NOTE: ALL VOLTAGES EXCEPT HEATERS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS.

* A.C. VOLTAGE EXCEPT WHEN USED ON D.C.

SYM.	DESCRIPTION
SH	SHELL
H	HEATER
HT	HEATER TAP
P	PLATE
S	SCREEN
G	GRID
G1	OSC. GRID
DP	DIODE PLATE
SU	SUPPRESSOR
K	CATHODE
NC	NO CONNECTION

VOLTAGE TABLE (BOTTOM VIEW OF CHASSIS)

PART NO. 195-UL

NOTES

1. I. F. - 465 KC.
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.

PARTS LIST

Part No.		Description	List Price
1	11347	Coil — 1st I. F. Transformer	.90
2	11376	Coil — 2nd I. F. Transformer	.80
3	11360	Coil — Oscillator	.50
4	11362	Antenna — Loop	.65
5	11350	Condenser — Tuning (Two Gang) Push Button Mech. Tuner Unit	3.75
6	11493	Condenser — Tubular Dry Elec. 40-40 Mfd.	1.00
7	1151	Condenser — Tubular .1 Mfd. 200 Volt	.20
8	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
9	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
10	1368	Condenser — Tubular .003 Mfd. 400 Volt	.17
11	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
12	9458	Condenser — Mica .00025 Mfd	.21
13	9458	Condenser — Mica .00025 Mfd	.21
14	9458	Condenser — Mica .00025 Mfd	.21
15	4804	Resistor — Carbon 10 Megohm ⅓ Watt	.19
16	2705	Resistor — Carbon 2 Megohm ⅓ Watt	.19
17	6984	Resistor — Carbon 500,000 Ohm ⅓ Watt	.19
18	6984	Resistor — Carbon 500,000 Ohm ⅓ Watt	.19
19	1784	Resistor — Carbon 20,000 Ohm ⅓ Watt	.19
20	2431	Resistor — Carbon 100 Ohm ⅓ Watt	.19
21	4998	Resistor — Carbon 1,000 Ohm ⅓ Watt	.19
22	11361	Speaker — P. M. Dynamic 5 in.	2.70
23	11359	Volume Control — With S.P.S.T Switch	.80
24	11395	Condenser — Dual Trimmer 2-40 Mmf	.30
25	2155	Resistor — Carbon 200,000 Ohm ⅓ Watt	.19

MISCELLANEOUS PARTS

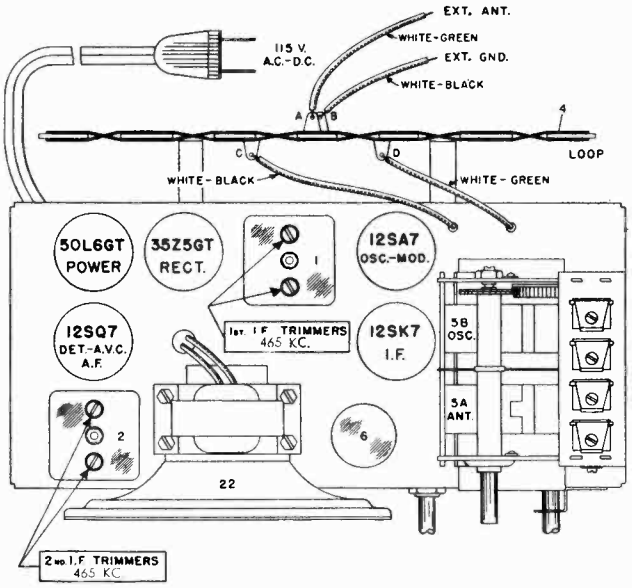
Part No.		Description	List Price
	11304	Bulb — 6-8 Volt .150 Ampere Dial Light No. 47 Bayonet Base	.10
	11354	Dial Scale — Calibrated Scale	.30
	8184	Dial Cord — Dial Drive Cord	.10
	11352	Dial Shaft — Dial Drive Shaft	.12
	11513	Dial Pointer — For Dial-Bronze	.15
	10659	Dial Pointer — For Dial	.16
	11357	Dial Crystal — For Dial Used With Bakelite Cabinet Only	.27
	11371	Escutcheon — For Dial Used With Wood Cabinet Only	.75
	11200	Escutcheon — For Pushbutton Used With Wood Cabt. Only	.35
	10208	Knob — Bakelite Tuning for Wood Cabinet	.12
	11372	Knob — Bakelite Push Button for Wood Cabinet	.10
	11563	Knob — Bakelite Tuning for Walnut Plastic Cabinet	.10
	11595	Knob — Bakelite Push Button for Plastic Cabinet	.10
	11564	Knob — Bakelite Tuning for Onyx Cabinet	.10
	11596	Knob — Bakelite Push Button for Onyx Cabinet	.10
		Cabinet — Walnut Plastic	2.00
		Cabinet — Onyx Plastic	4.25

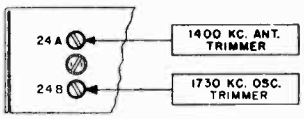
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. W4M 9-39

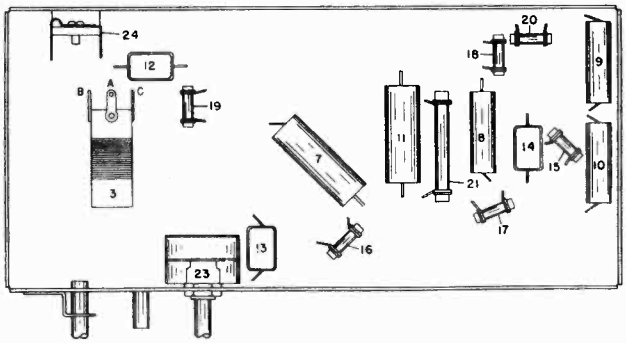
MODEL 195UL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

5 tube A. C. - D. C. Operated Superheterodyne Receiver







ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.
IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME APPROXIMATE POSITION IN THE BACK OF CHASSIS IT WILL BE IN WHEN THE SET IS IN THE CABINET AND THE BACK ATTACHED.

When adjusting 1730 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

Couple test oscillator to receiver loop by:

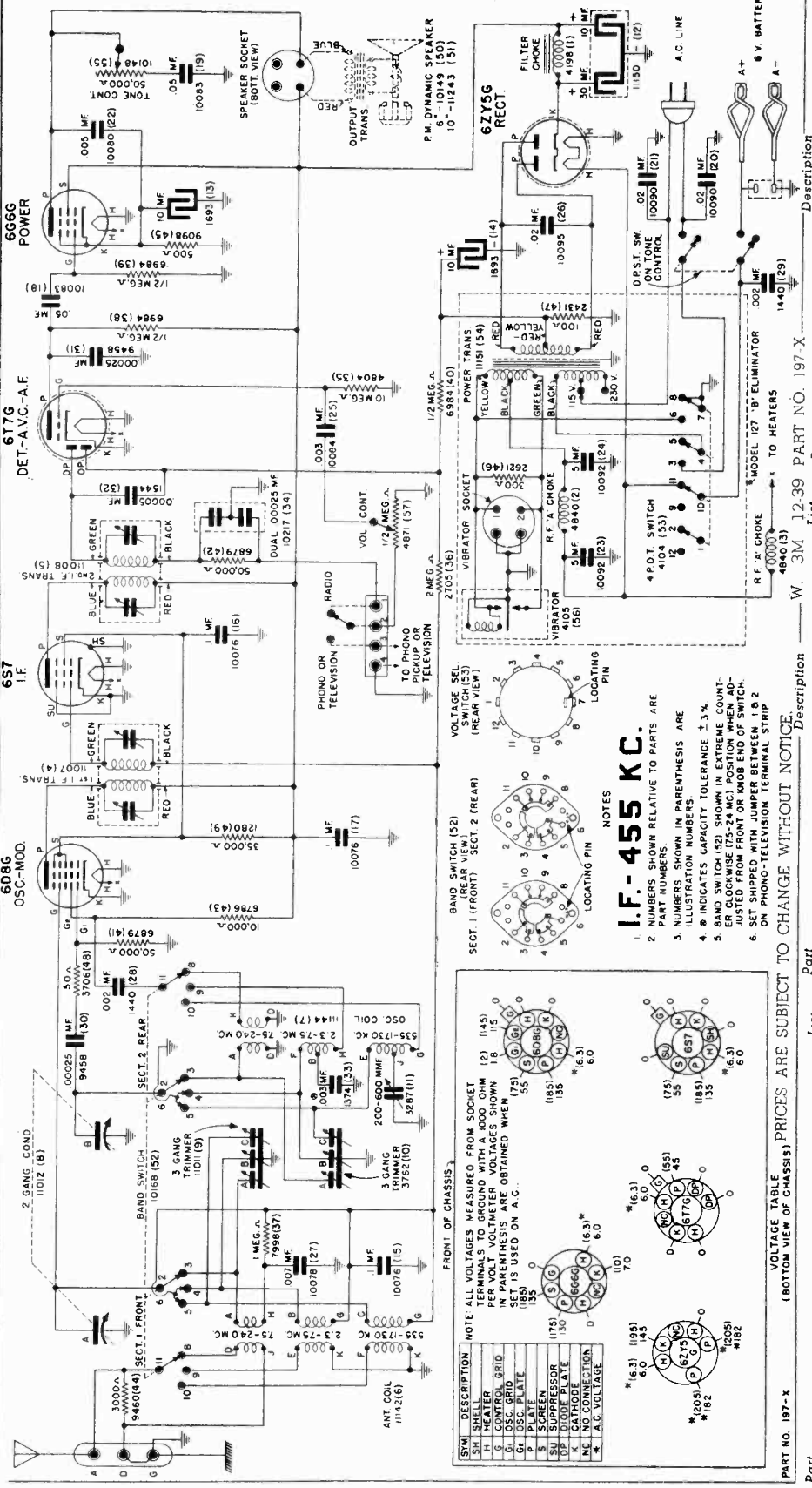
(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.
DO NOT ATTACH LOW SIDE OF TEST OSCILLATOR TO RECEIVER—LEAVE UNCONNECTED.

Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below—and:
	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
I. F. Any point where no interfering signal is received	465 K. C.	.02 MFD condenser	High side to grid terminal of 12SA7 tube DO NOT REMOVE CAP	Adjust the second I. F. transformer trimmers for maximum out put—then adjust each of the first I.F. trimmers for maximum output.
1 Exactly 1730 K. C.	Exactly 1730 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Exactly 1400 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1400 K. C. antenna trimmer for maximum output.

SENTINEL RADIO CORP.

MODEL 197X
Schematic, Voltage



2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
4. ⊕ INDICATES CAPACITY TOLERANCE ± 3%.
5. BAND SWITCH (52) SHOWN IN EXTREME COUNTER CLOCKWISE (175-24 MC.) POSITION WHEN ADJUSTED FROM FRONT OR KNOB END OF SWITCH.
6. SET SHIPPED WITH JUMPER BETWEEN 1 & 2 ON PHONO-TELEVISION TERMINAL STRIP.

NOTE: ALL VOLTAGES MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1,000 OHM PER VOLT VOLTMETER. VOLTAGES SHOWN IN PARENTHESIS ARE OBTAINED WHEN SET IS USED ON A.C.

PART NO. 197-X PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE — W. 3M 12-39 — PART NO. 197-X

Part No.		Description	List Price
1	4198	Choke	$ .95
2	4840	Choke	.18
3	4840	Choke	.18
4	11007	Coil	1.25
5	11008	Coil	1.25
6	11142	Coil	1.25
7	11144	Coil	.75
8	11012	Condenser	.65
9	11011	Condenser	1.75
10	3762	Condenser	.50
11	3287	Condenser	.47
12	11150	Condenser	.45
13	1693	Condenser	1.00
14	1693	Condenser	.75
15	10076	Condenser	.75
16	10076	Condenser	.19
17	10076	Condenser	.19
18	10083	Condenser	.19
19	10083	Condenser	.19
20	10090	Condenser	.19
21	10090	Condenser	.19
22	10080	Condenser	.19
23	10092	Condenser	.17
24	10092	Condenser	.25
25	10084	Condenser	.25
26	10095	Condenser	.17
27	10078	Condenser	.19
28	1440	Condenser	.19
29	1440	Condenser	.19
30	9458	Condenser	.19
31	9458	Condenser	.19
32	1544	Condenser	.19
33	1374	Condenser	.19
34	10217	Condenser	.19
35	4804	Resistor	.19
36	2705	Resistor	.19
37	7998	Resistor	.19
38	6984	Resistor	.19
39	6984	Resistor	.19
40	6984	Resistor	.19
41	6879	Resistor	.19
42	6879	Resistor	.19
43	6786	Resistor	.19
44	9460	Resistor	.19
45	9089	Resistor	.19
46	2621	Resistor	.19
47	2431	Resistor	.19
48	3706	Resistor	.19
49	1280	Resistor	.19
50	10149	Speaker	5.00
51	11243	Speaker	7.00
52	10168	Switch	1.30
53	4104	Switch	.75
54	11151	Transformer	3.00
55	10148	Tone Control	.90
56	4105	Vibrator	3.50
57	4871	Volume Control	.80

		Description	List
		Tubular .02 Mfd. 1000 Volt	.20
		Tubular .007 Mfd. 200 Volt	.19
		Mica .002 Mfd.	.21
		Mica .002 Mfd.	.21
		Mica .00025 Mfd.	.21
		Mica .00025 Mfd.	.21
		Mica .00005 Mfd.	.21
		Mica .003 Mfd. ± 3%	.24
		Mica Dual .00025 Mfd.	.21
		Carbon 10 Megohm ½ Watt	.19
		Carbon 2 Megohm ½ Watt	.19
		Carbon 1 Megohm ½ Watt	.19
		Carbon 500,000 Ohm ½ Watt	.19
		Carbon 500,000 Ohm ½ Watt	.19
		Carbon 500,000 Ohm ½ Watt	.19
		Carbon 50,000 Ohm ½ Watt	.19
		Carbon 50,000 Ohm ½ Watt	.19
		Carbon 10,000 Ohm ½ Watt	.19
		Carbon 3,000 Ohm ½ Watt	.19
		Carbon 500 Ohm ½ Watt	.19
		Carbon 300 Ohm ½ Watt	.19
		Carbon 100 Ohm ½ Watt	.19
		Carbon 50 Ohm ½ Watt	.19
		Carbon 35,000 Ohm ½ Watt	.19
		P. M. Dynamic 6 in.	5.00
		P. M. Dynamic 10 in.	7.00
		Wave Band	1.30

		Description	List
	11304	Bulb	.10
	2262	Clamp	.17
	11017	Dial Shaft	.11
	8184	Dial Cord	.15
	11693	Dial Spring	.04
	11022	Dial Scale	.60
	11025	Dial Pointer	.16
	11246	Dial Indicator	.12
	11198	Escutcheon For Dial with Crystal (Mtg. Screw Holes in Corners)	1.25
	11199	Escutcheon For Dial with Crystal (with Mtg. Holes Away from Corners)	1.25
	10030	Knob Marked "Tuning"	.12
	10032	Knob Marked "Volume"	.12
	10068	Knob Marked "Tone-On-Off"	.12
	10069	Knob Marked "Band Switch"	.12

MISCELLANEOUS PARTS

		Description	List
		Voltage Selector	.75
		Power, 6 Volt - 115-230 Volt 50-60 Cycle	3.00
		With On-Off Switch	.90
			3.50
			.80

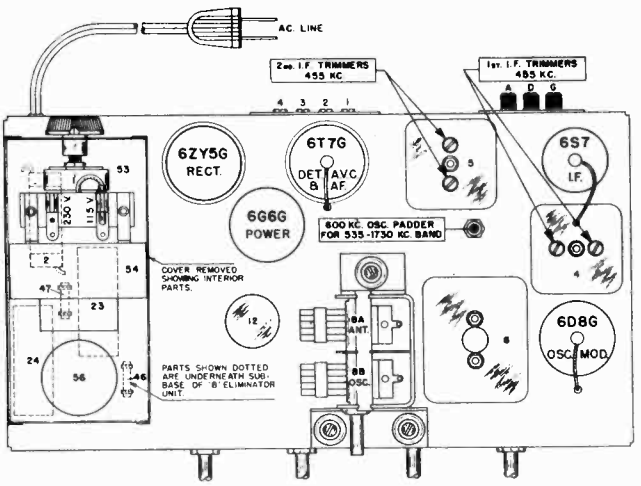
MODEL 197X
Socket, Trimmers
Alignment, Chassis

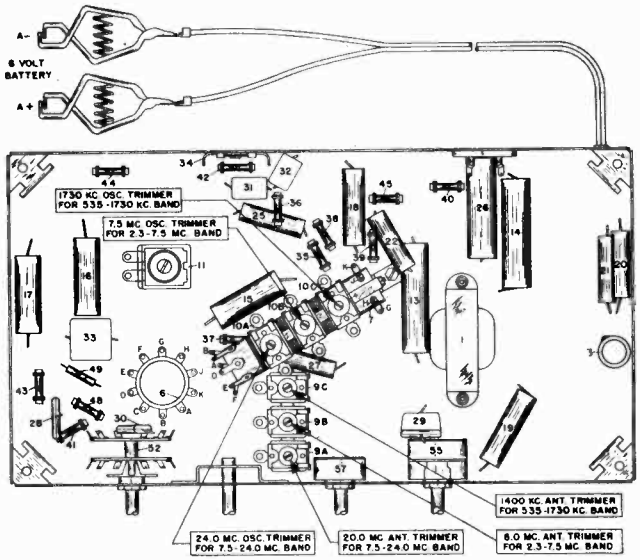
SENTINEL RADIO CORP.

SENTINEL MODEL 197X

TWO BAND—FIVE TUBE

115 Volt A.C. or 6 Volt Battery Operated Superheterodyne Receiver





NO-197-X

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.
(b) Use an accurately calibrated test oscillator with some type of output measuring device.
(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator: consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I.F. ALIGNMENT use any band position	Any point where no interfering signal is received.	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6D8G tube. Do not remove cap	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 TO 540 K.C. BAND	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.3 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Approx. 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna trimmer for maximum output
7.5 TO 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna trimmer for maximum output.

THIS RECEIVER CAN BE OPERATED WITH A SIX VOLT STORAGE BATTERY OF FROM 115 TO 230 VOLT 50 TO 60 CYCLE CURRENT.

FOR AC OPERATION obtain from the Electric Supply Company the voltage and current rating of the local Electric Service and — — — remove top cover from power unit and insert metal tipped lead into proper terminal socket that will be found underneath top cover of power unit. Place voltage selector switch knob in "115—230" positon and plug set power cord plug into house lighting outlet.

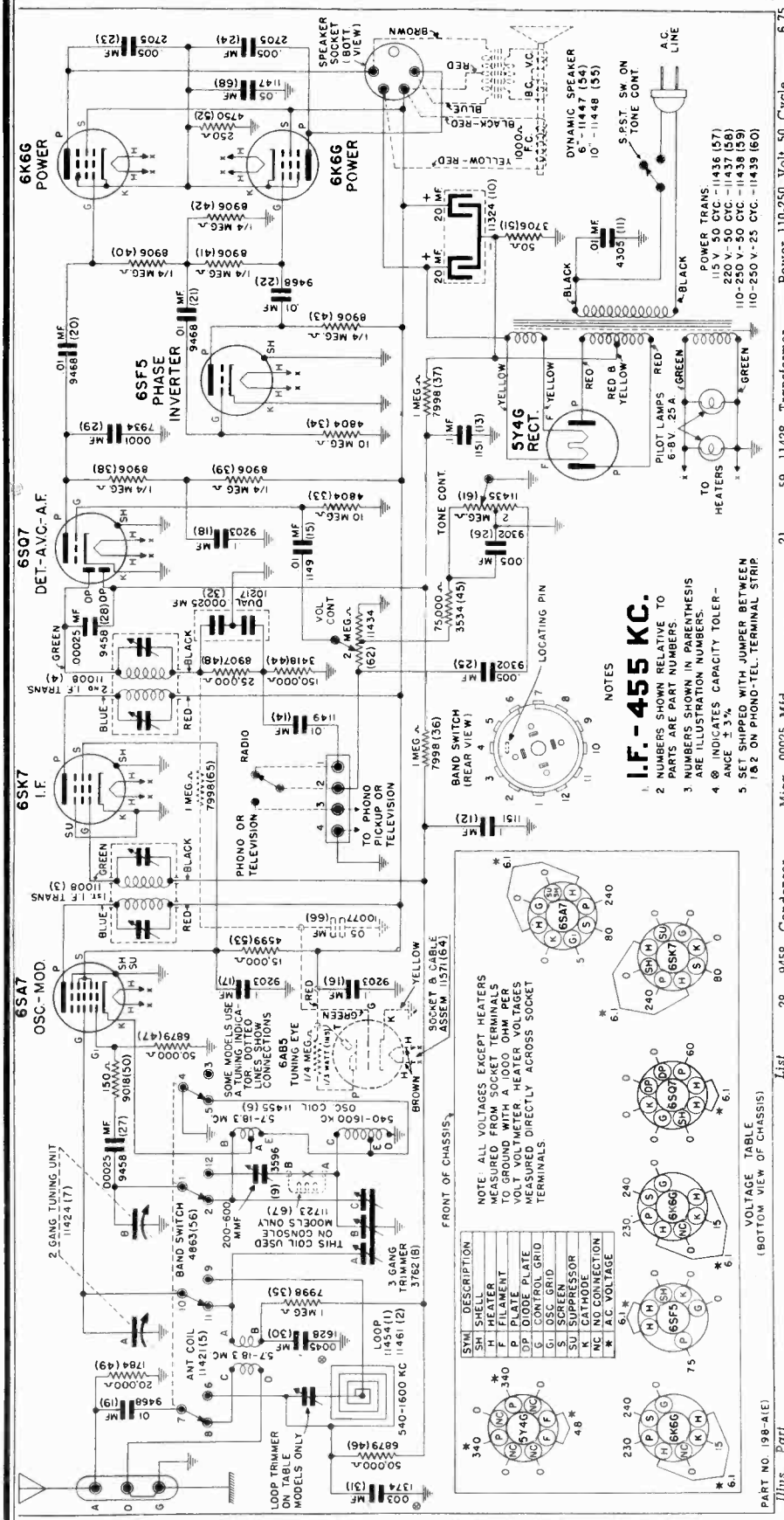
FOR SIX VOLT BATTERY OPERATION attach battery cable leads to six volt storage battery and place voltage selector switch knob to "6 V."

SENTINEL RADIO CORP

MODELS 198A, 198AE
Schematic, Voltage

W. 4M 11-39 PART NO. 198AL-E

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.



Illus. No.	Part No.	Description	List Price
1	11454	Antenna Loop (For Table Model)	$2.00
2	11461	Antenna Loop (For Console Model)	2.50
3	11008	Coil 1st I.F. Transformer	1.25
4	11008	Coil 2nd I.F. Transformer	1.25
5	11421	Coil Antenna—Short Wave	1.25
6	11455	Coil Oscillator Two Band	1.35
7	11424	Condenser Tuning—Two Gang—With Push Button Mech.	4.00
8	3762	Condenser Trimmer Three Gang	.47
9	3596	Condenser Padding 340-460 Mmf.	.44
10	11324	Condenser Dry Electrolytic 20 Mfd. - 20 Mfd. 450 Volt D.C. Wkg.	1.25
11	4305	Condenser Tubular (Shielded) .01 Mfd. 200 V.	.30
12	1151	Condenser Tubular .1 Mfd. 200 Volt	.20
13	1151	Condenser Tubular .1 Mfd. 200 Volt	.20
14	1149	Condenser Tubular .01 Mfd. 200 Volt	.17
15	1149	Condenser Tubular .01 Mfd. 200 Volt	.17
16	9203	Condenser Tubular .1 Mfd. 400 Volt	.20
17	9203	Condenser Tubular .1 Mfd. 400 Volt	.20
18	9203	Condenser Tubular .1 Mfd. 400 Volt	.20
19	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
20	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
21	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
22	9468	Condenser Tubular .01 Mfd. 400 Volt	.17
23	2075	Condenser Tubular .005 Mfd. 600 Volt	.18
24	2075	Condenser Tubular .005 Mfd. 600 Volt	.18
25	9302	Condenser Mica .005 Mfd.	.55
26	9302	Condenser Mica .005 Mfd.	.55
27	9458	Condenser Mica .00025 Mfd.	.21
28	9458	Condenser Mica .00025 Mfd.	.21
29	7934	Condenser Mica .0001	.21
30	1628	Condenser Mica .0045 Mfd. ± 3%	.24
31	1374	Condenser Mica .003 Mfd. ± 3%	.24
32	10217	Condenser Mica Dual .00025 Mfd.	.21
33	4804	Resistor Carbon 10 Megohm ½ Watt	.19
34	4804	Resistor Carbon 10 Megohm ½ Watt	.19
35	7998	Resistor Carbon 1 Megohm ½ Watt	.19
36	7998	Resistor Carbon 1 Megohm ½ Watt	.19
37	7998	Resistor Carbon 1 Megohm ½ Watt	.19
38	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
39	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
40	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
41	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
42	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
43	8906	Resistor Carbon 250,000 Ohm ½ Watt	.19
44	3418	Resistor Carbon 150,000 Ohm ½ Watt	.19
45	3534	Resistor Carbon 75,000 Ohm ½ Watt	.19
46	6879	Resistor Carbon 50,000 Ohm ½ Watt	.19
47	6879	Resistor Carbon 50,000 Ohm ½ Watt	.19
48	8907	Resistor Carbon 25,000 Ohm ½ Watt	.19
49	1784	Resistor Carbon 20,000 Ohm ½ Watt	.19
50	9018	Resistor Carbon 150 Ohm ½ Watt	.19
51	3706	Resistor Carbon 50 Ohm ½ Watt	.19
52	4750	Resistor Carbon 250 Ohm 1 Watt	.22
53	4599	Resistor Carbon 15,000 Ohm 1½ Watt	.22
54	11447	Speaker Electro-Dynamic 6 in.	4.50
55	11448	Speaker Electro-Dynamic 10 in.	7.00
56	4863	Switch Band Selector	.60
57	11436	Transformer Power 115 Volt 50 Cycle	3.50
58	11437	Transformer Power 220 Volt 50 Cycle	4.25
59	11438	Transformer Power 110-250 Volt 50 Cycle	6.75
60	11439	Transformer Power 110-250 Volt 25 Cycle	8.75
61	11435	Tone Control With S.P.S.T. Switch	.90
62	11434	Volume Control	.70
64	11571	Cable Assembly Tuning Eye Cable & Socket Assembly	.65
65	7998	Resistor Carbon 1 Megohm ½ Watt	.19
66	10077	Condenser Tubular .05 Mfd. 400 Volt	.19
67	11723	Coil Oscillator Series (Console Only)	.80
68	1147	Condenser Tubular .05 Mfd. 200 Volt	.19

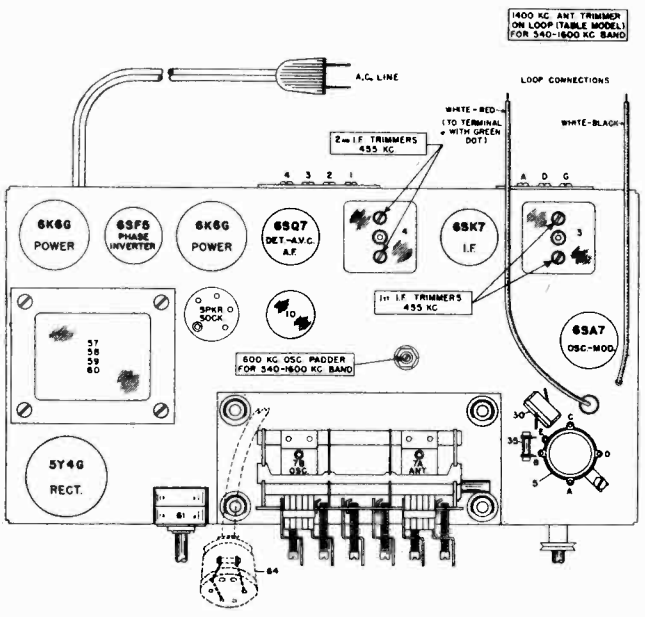
MISCELLANEOUS PARTS

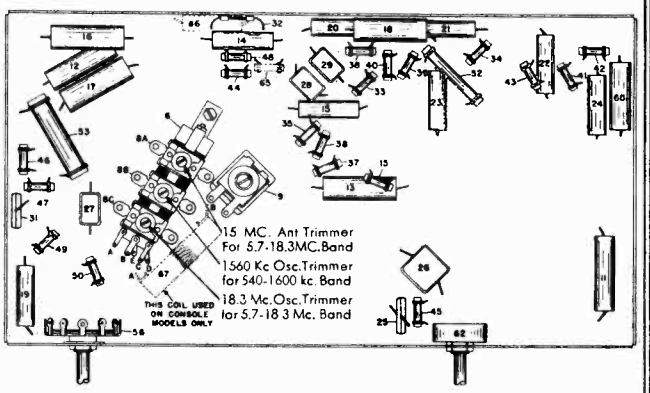
10292	Bulb	Pilot Lamp 6-8 Volt .25 Amp. Type No. 44	.10
11176	Dial Pointer	Drive Assembly Less Scale & Gear	2.00
11426	Dial Assembly	Drive Shaft with Rubber Sleeve	.35
11185	Dial Gear	12 in. of 18 Lb. Drive Cord	.10
8184	Dial Cord	Drive Shaft Tension Spring	.16
11197	Dial Spring	Calibrated Scale	.40
11430	Dial Scale	For Dial	1.25
11450	Escutcheon	For Dial	1.50
11449	Escutcheon	Push Button Used with No. 11450 Dial Escutcheon	.35
11452	Escutcheon	Push Button Used with No. 11449 Dial Escutcheon	.35
11451	Escutcheon	Marked "Tuning"	.12
10030	Knob	Marked "Off-On Tone"	.12
10068	Knob	Marked "Band Switch"	.12
10069	Knob	Marked "Volume"	.12
10032	Knob	Push Button	.08
11202	Knob		

MODELS 198A, 198AE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

TWO BAND—SEVEN and EIGHT TUBE
A. C. Operated Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.
IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

When adjusting 1600 or 1560 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

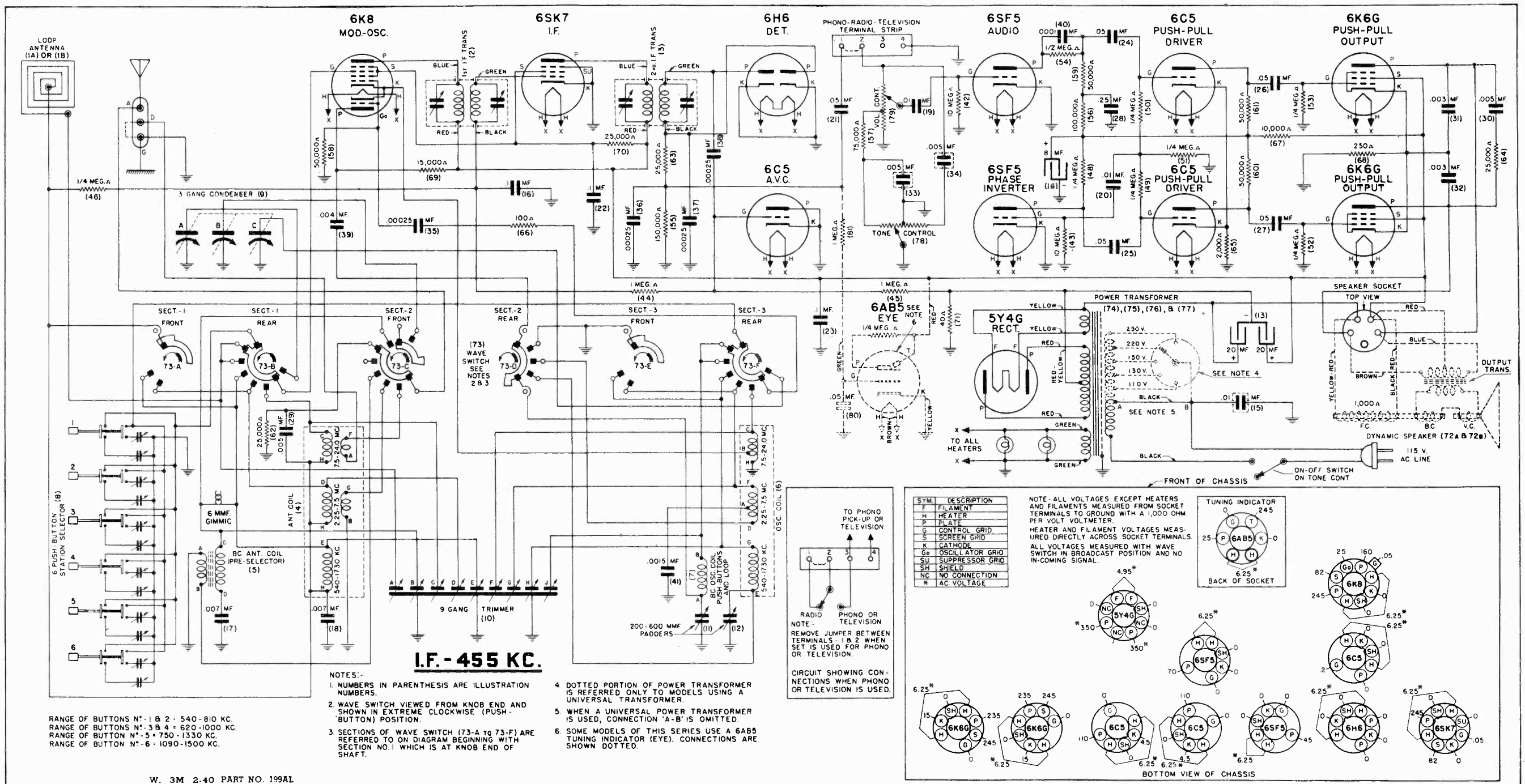
Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator frequency to'	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6SA7 tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1560 to 540 K.C. Band	1 Exactly 1500 K.C.	Exactly 1560 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 1530 K. C. oscillator trimmer for maximum output
	2 Approx. 1400 K.C. Table Model only.	Approx. 1400 K.C. Table Model Only	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.7 to 18.3 M. C. Band	1 Exactly 18.3 M.C.	Exactly 18.3 M.C.	400 Ohm carbon resistor	Use Small Loop to couple test oscillator to receiver loop	Adjust 18.3 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M. C.	400 Ohm	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output

SENTINEL RADIO CORP.



RANGE OF BUTTONS N°-1 & 2 = 540-810 KC.
RANGE OF BUTTONS N°-3 & 4 = 620-1000 KC.
RANGE OF BUTTON N°-5 = 750-1330 KC.
RANGE OF BUTTON N°-6 = 1090-1500 KC.

NOTES:-

1. NUMBERS IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
2. WAVE SWITCH VIEWED FROM KNOB END AND SHOWN IN EXTREME CLOCKWISE (PUSH-BUTTON) POSITION.
3. SECTIONS OF WAVE SWITCH (73-A TO 73-F) ARE REFERRED TO ON DIAGRAM BEGINNING WITH SECTION NO. 1 WHICH IS AT KNOB END OF SHAFT.
4. DOTTED PORTION OF POWER TRANSFORMER IS REFERRED ONLY TO MODELS USING A UNIVERSAL TRANSFORMER.
5. WHEN A UNIVERSAL POWER TRANSFORMER IS USED, CONNECTION 'A-B' IS OMITTED.
6. SOME MODELS OF THIS SERIES USE A 6AB5 TUNING INDICATOR (EYE). CONNECTIONS ARE SHOWN DOTTED.

NOTE:- REMOVE JUMPER BETWEEN TERMINALS 1 & 2 WHEN SET IS USED FOR PHONO OR TELEVISION.

CIRCUIT SHOWING CONNECTIONS WHEN PHONO OR TELEVISION IS USED.

SYM.	DESCRIPTION
F	FILAMENT
H	HEATER
P	PLATE
G	CONTROL GRID
S	SCREEN GRID
K	CATHODE
Go	OSCILLATOR GRID
SU	SUPPRESSOR GRID
SH	SHIELD
NC	NO CONNECTION
M	AC VOLTAGE

NOTE- ALL VOLTAGES EXCEPT HEATERS AND FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1,000 OHM PER VOLT VOLTMETER.

HEATER AND FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS.

ALL VOLTAGES MEASURED WITH WAVE SWITCH IN BROADCAST POSITION AND NO IN-COMING SIGNAL.

TUNING INDICATOR
BACK OF SOCKET

BOTTOM VIEW OF CHASSIS

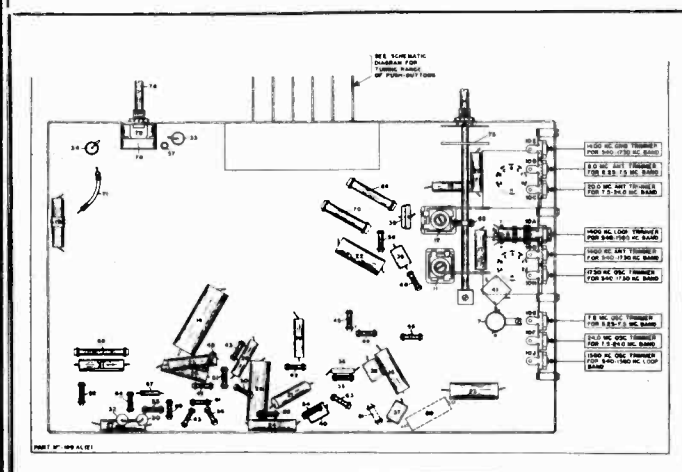
VOLTAGE TABLE

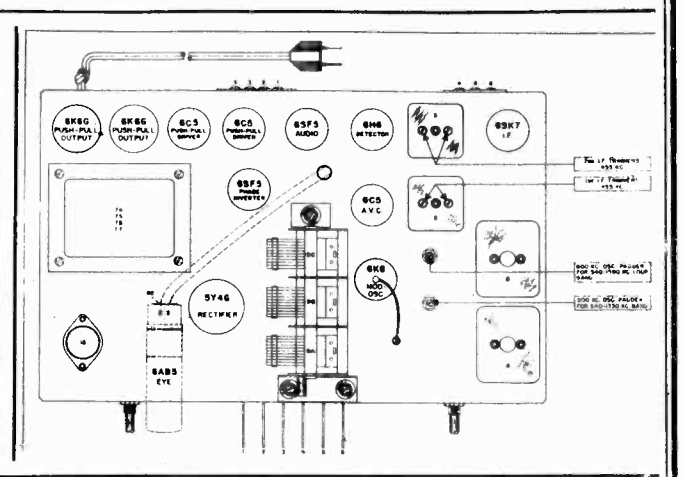
W. 3M 2-40 PART NO. 199AL

PART NO.-199-AL(E)

SENTINEL RADIO CORP.

MODELS 199A, 199AE
Socket, Trimmers
Alignment, Chassis





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

When adjusting 600 or 1580 kilocycle loop oscillator trimmers and 1400 kilocycle loop antenna trimmer, do not connect test oscillator to "A" post.

Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

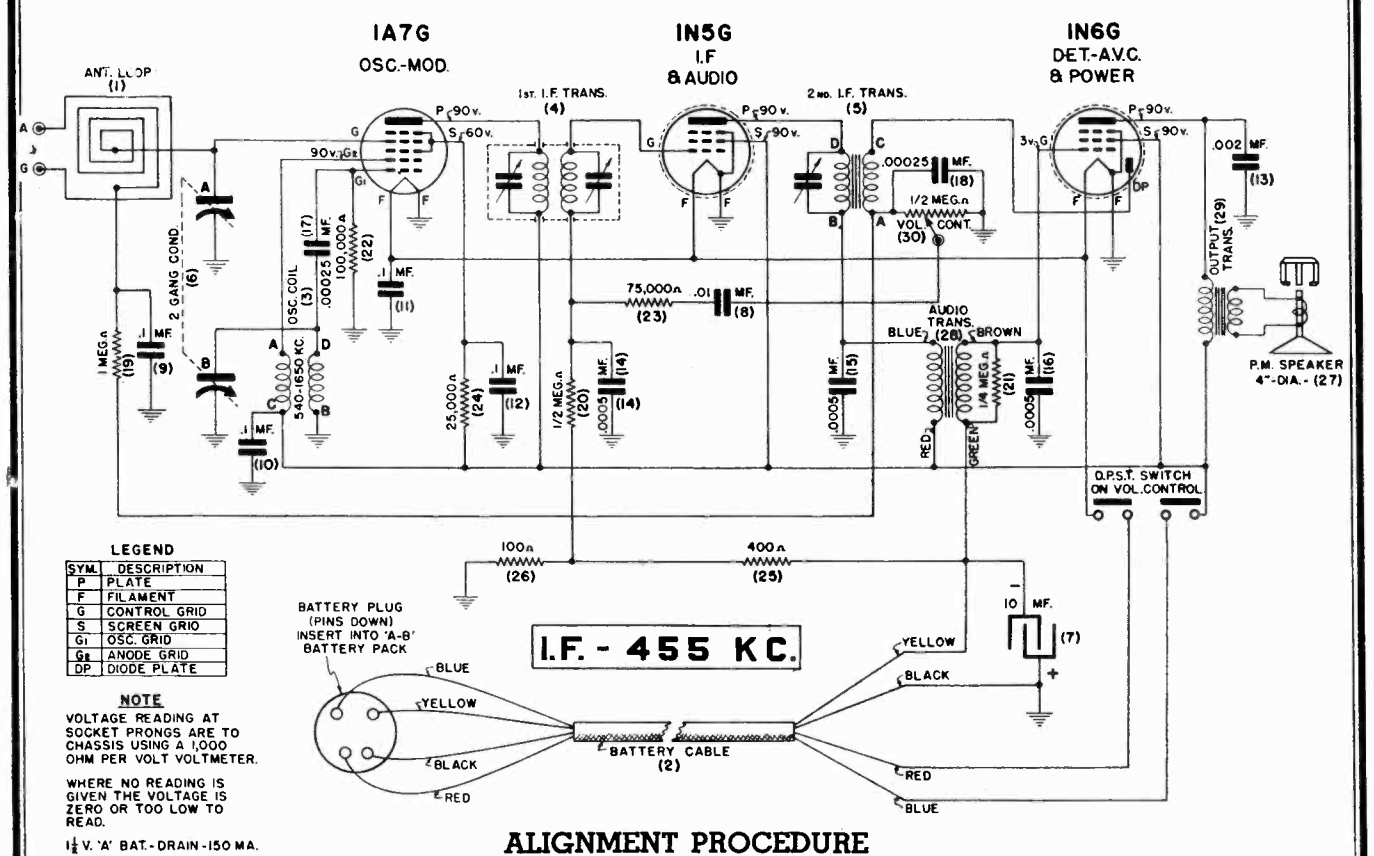
(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

(c) Place band switch in next to maximum right hand position.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator frequency to	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6K8 tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1580 to 540 K.C. Band Using Loop Aerial	1 Exactly 1580 K.C.	Exactly 1580 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 1580 K. C. oscillator trimmer for maximum output
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 1400 K.C. loop antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 600 K.C. loop oscillator padder for maximum output.
1730 TO 540 K.C. BAND USING REGULAR AERIAL	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 1400 K.C. antenna and grid trimmers for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver antenna "A" post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
2.25 TO 7.5 M.C. BAND	1 Exactly 7.5 M.C.	Exactly 7.5 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 7.5 M.C. oscillator trimmer for maximum output.
	2 Approx. 6. M.C.	Approx. 6. M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 6 M.C. antenna trimmer for maximum output.
7.5 24 M.C. BAND	1 Exactly 24 M.C.	Exactly 24 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	Adjust 24 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 20 M.C.	Approx. 20 M.C.	400 Ohm carbon resistor	Receiver antenna "A" post	While rocking gang condenser adjust 20 M.C. antenna trimmer for maximum output.

MODEL 160BL
Schematic, Voltage, Chassis
Alignment, Socket, Trimmers

SENTINEL RADIO CORP.



LEGEND

SYM.	DESCRIPTION
P	PLATE
F	FILAMENT
G	CONTROL GRID
S	SCREEN GRID
G1	OSC. GRID
G2	ANODE GRID
DP	DIODE PLATE

NOTE

VOLTAGE READING AT SOCKET PRONGS ARE TO CHASSIS USING A 1,000 OHM PER VOLT VOLTMETER.

WHERE NO READING IS GIVEN THE VOLTAGE IS ZERO OR TOO LOW TO READ.

1½ V. 'A' BAT.-DRAIN-150 MA.
90 V. 'B' BAT.-DRAIN-6.8 MA.

I.F. - 455 KC.

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment, check tuning dial adjustment by: turn gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial indicator must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

BEFORE ALIGNING, PLACE LOOP ANTENNA AND THE "A" AND "B" BATTERY-PACK IN THE SAME APPROXIMATE POSITION IN THE BACK OF CHASSIS THAT THEY WILL BE IN WHEN THE SET IS IN THE CABINET AND THE CABINET BACK CLOSED.

When adjusting 1650 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to terminals on bottom of cabinet back.

Couple test oscillator to receiver loop by:

a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

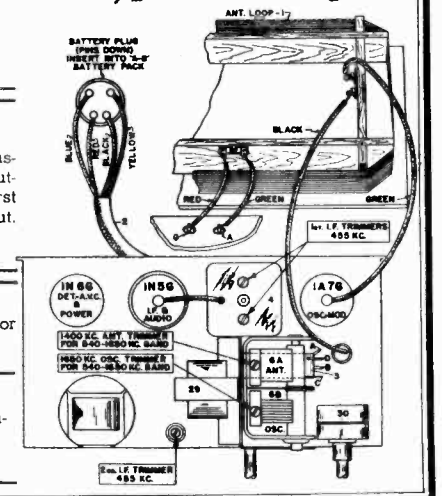
b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

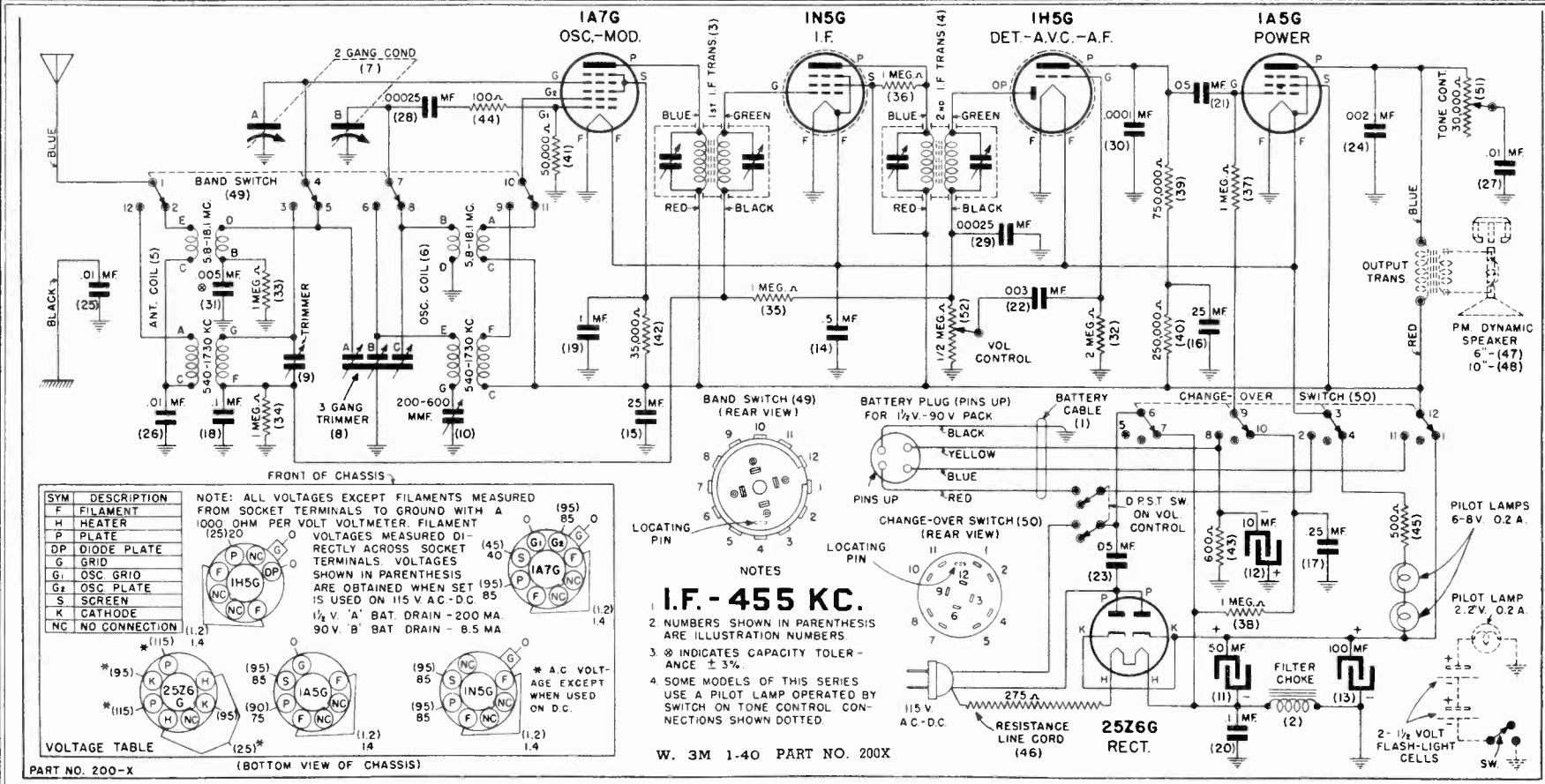
PART Nº-160-BL

Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below—and:
I. F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 1A7G tube Low side to chassis DO NOT REMOVE CAP.	Adjust the second I. F. transformer trimmer for maximum output—then adjust each of the first I. F. trimmers for maximum output.
(1) Exactly 1650 K. C.	Exactly 1650 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1650 K. C. oscillator trimmer for maximum output.
(2) Approx. 1400 K. C.	Exactly 1400 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1400 K. C. antenna trimmer for maximum output

3 TUBE PORTABLE

1½ Volt Battery





SYM	DESCRIPTION
F	FILAMENT
H	HEATER
P	PLATE
DP	DIODE PLATE
G	GRID
G1	OSC. GRID
G2	OSC. PLATE
S	SCREEN
K	CATHODE
NC	NO CONNECTION

NOTE: ALL VOLTAGES EXCEPT FILAMENTS MEASURED FROM SOCKET TERMINALS TO GROUND WITH A 1000 OHM PER VOLT VOLTMETER. FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS. VOLTAGES SHOWN IN PARENTHESIS ARE OBTAINED WHEN SET IS USED ON 115 V. A.C.-D.C.
1½ V. 'A' BAT. DRAIN - 200 MA.
90 V. 'B' BAT. DRAIN - 8.5 MA.

PARTS LIST

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Illus. No.	Part No.	Description	List Price
1	4969	Cable	Battery, Assembly with Four Prong Plug $0.35
2	11501	Choke	Filter 1.75
3	11539	Coil	1st I.F. Transformer 1.50
4	10834	Coil	2nd I.F. Transformer 1.45
5	11089	Coil	Antenna ..... .65
6	11090	Coil	Oscillator ..... .60
7	11012	Condenser	Tuning Two Gang 1.75
8	3762	Condenser	Trimmer Three Gang ..... .47
9	1597	Condenser	Trimmers 3-35 Mmf. ..... .21
10	3287	Condenser	Padder 340-460 Mmf. ..... .45
11	11502	Condenser	Tubular Dry Electrolytic 50 Mfd. 150 Volt D. C. 1.10
12	1693	Condenser	Tubular Dry Electrolytic 10 Mfd. 25 Volt D. C. ..... .75
13	11508	Condenser	Dry Electrolytic 100 Mfd. 150 Volt D. C. 1.10
14	2131	Condenser	Tubular .5 Mfd. 200 Volt ..... .55
15	9032	Condenser	Tubular .25 Mfd. 200 Volt ..... .25
16	9032	Condenser	Tubular .25 Mfd. 200 Volt ..... .25
17	9032	Condenser	Tubular .25 Mfd. 200 Volt ..... .25
18	1151	Condenser	Tubular .1 Mfd. 200 Volt ..... .20
19	1151	Condenser	Tubular .1 Mfd. 200 Volt ..... .20
20	1151	Condenser	Tubular .1 Mfd. 200 Volt ..... .20
21	1147	Condenser	Tubular .05 Mfd. 200 Volt ..... .19
22	1368	Condenser	Tubular .003 Mfd. 400 Volt ..... .17
23	9457	Condenser	Tubular .05 Mfd. 400 Volt ..... .18
24	10762	Condenser	Tubular .002 Mfd. 400 Volt ..... .19
25	9468	Condenser	Tubular .01 Mfd. 400 Volt ..... .17
26	9468	Condenser	Tubular .01 Mfd. 400 Volt ..... .17
27	9468	Condenser	Tubular .01 Mfd. 400 Volt ..... .17
28	9458	Condenser	Mica .00025 Mfd. ..... .21
29	9458	Condenser	Mica .00025 Mfd. ..... .21
30	7934	Condenser	Mica .0001 Mfd. ..... .21
31	10892	Condenser	Mica .005 Mfd. ± 3% ..... .30
32	2705	Resistor	Carbon 2 Megohm ½ Watt ..... .19
33	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
34	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
35	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
36	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
37	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
38	7998	Resistor	Carbon 1 Megohm ½ Watt ..... .19
39	2673	Resistor	Carbon 750,000 Ohm ½ Watt ..... .19
40	8906	Resistor	Carbon 250,000 Ohm ½ Watt ..... .19
41	6879	Resistor	Carbon 50,000 Ohm ½ Watt ..... .19
42	1618	Resistor	Carbon 35,000 Ohm ½ Watt ..... .19
43	1562	Resistor	Carbon 600 Ohm ½ Watt ..... .19
44	2431	Resistor	Carbon 100 Ohm ½ Watt ..... .19
45	11504	Resistor	Wire Wound (Vit. Enam.) 500 Ohm .30
46	11505	Resist. Cord	115 Volt Line Cord ..... .90
47	4983	Speaker	P. M. Dynamic 6 in. 4.25
48	11235	Speaker	P. M. Dynamic 10 in. 7.50
49	4863	Switch	Wave Band ..... .60
50	11500	Switch	Change-Over ..... .80
51	11098	Tone Control	With Dial Light Switch ..... .80
52	10441	Volume Control	With On-Off Switch ..... .95

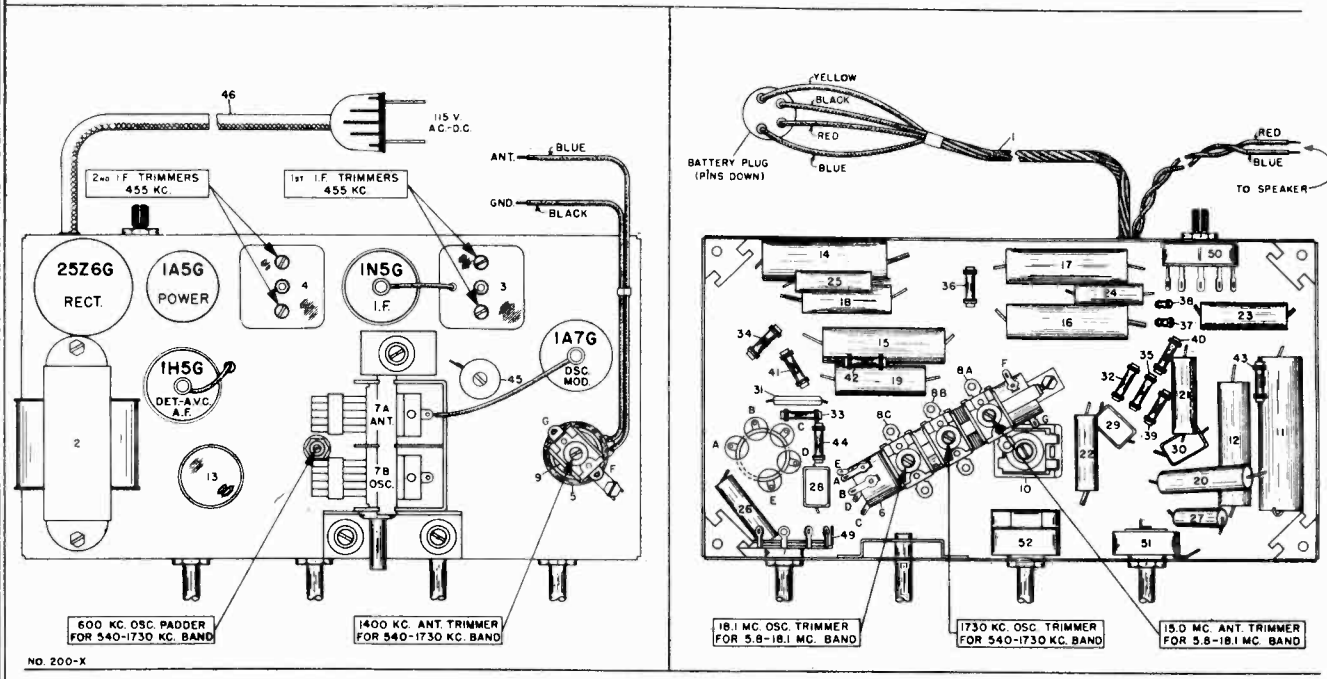
MISCELLANEOUS PARTS

	8184	Dial Cord	24 in. of 18 Lb. Drive Cord ..... .15
	11017	Dial Shaft	Drive Shaft ..... .11
	11094	Dial Scale	Calibrated Scale ..... .45
	11107	Dial Indicator	On-Off Dial Indicator ..... .20
	4832	Dial Spring	Cord Tension Spring ..... .06
	10777	Dial Pointer	..... .10
	11267	Escutcheon	With Crystal for Dial (Uses Wood Screws for Mtg.) 1.00
	11102	Escutcheon	With Crystal for Dial (Uses Four Metal Clips for Mtg.) 1.00
	10030	Knob	Marked "Tuning" ..... .12
	10069	Knob	Marked "Band Switch" ..... .12
	11871	Knob	Marked "Off-Volume" ..... .12
	10033	Knob	Marked "Tone" ..... .12
	11506	Knob	For Voltage Selector Switch ..... .12
	10884	Plate	AC-DC—"Off-Batt." Indicator ..... .10
	4978	Plug	Four Prong Battery Plug ..... .10

MODEL 200X
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

Five Tube - Two Band
Battery or 110 Volts, DC-AC 50-60 Cycles
Superheterodyne Receiver



ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

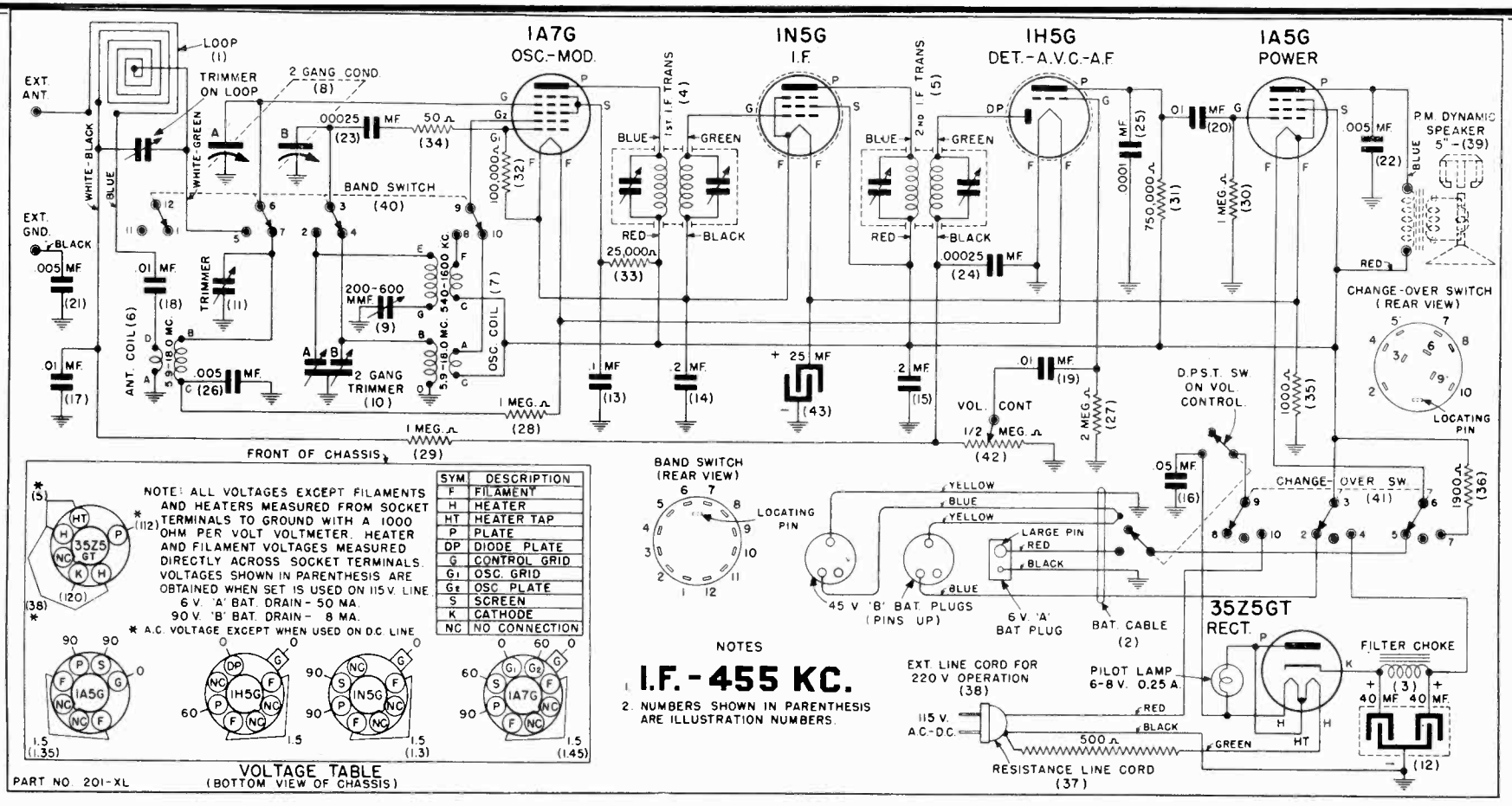
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. Alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High Side to grid cap of 1A7G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K.C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.8 to 18.1 M.C. Band	1 Exactly 18.1 M.C.	Exactly 18.1 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	Adjust 18.1 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Exactly 15 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.



PARTS LIST

Illus. No.	Part No.	Description	List Price
1	11677	Antenna Loop	$1.10
2	11673	Cable Battery With 2-3 Prong "B" Plugs and 1-2 Prong "A" Plug	.60
3	10832	Choke Filter	.85
4	4791	Coil 1st I.F. Transformer	1.15
5	4792	Coil 2nd I.F. Transformer	1.15
6	11664	Coil Antenna	.85
7	11665	Coil Oscillator	.65
8	11660	Condenser Tuning Two Gang	1.75
9	3287	Condenser Padder 340-460 Mmf.	.45
10	11395	Condenser Trimmer Dual 3-35 Mmf.	.30
11	1597	Condenser Trimmer 3-45 Mmf.	.21
12	11493	Condenser Dry Electrolytic 40-40 Mfd. 150 Volt D. C. Wkg.	1.00
13	10076	Condenser Tubular .1 Mfd. 200 Volt	.19
15	10086	Condenser Tubular .2 Mfd. 200 Volt	.20
16	10077	Condenser Tubular .05 Mfd. 200 Volt	.19
17	10088	Condenser Tubular .01 Mfd. 400 Volt	.19
18	10088	Condenser Tubular .01 Mfd. 400 Volt	.19
19	10088	Condenser Tubular .01 Mfd. 400 Volt	.19
20	10088	Condenser Tubular .01 Mfd. 400 Volt	.19
21	10080	Condenser Tubular .005 Mfd. 400 Volt	.17
22	10080	Condenser Tubular .005 Mfd. 400 Volt	.17
23	9458	Condenser Mica .00025 Mfd.	.21
24	9458	Condenser Mica .00025 Mfd.	.21
25	7934	Condenser Mica .0001 Mfd.	.21
26	9302	Condenser Mica .005 Mfd. ± 3%	.55
27	2705	Resistor Carbon 2 Megohm ⅓ Watt	.19
28	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
29	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
30	7998	Resistor Carbon 1 Megohm ⅓ Watt	.19
31	2673	Resistor Carbon 750,000 Ohm ⅓ Watt	.19
32	8000	Resistor Carbon 100,000 Ohm ⅓ Watt	.19
33	8907	Resistor Carbon 25,000 Ohm ⅓ Watt	.19
34	3706	Resistor Carbon 50 Ohm ⅓ Watt	.19
35	11694	Resistor Wire Wound 1000 Ohm 1½ Watt	.30
36	11672	Resistor Wire Wound 1900 Ohm	.75
37	10851	Resistor Resistance Line Cord	.90
38	10962	Resistor 220 Volt Extension Resistance Line Cord	1.50
39	11680	Speaker P. M. Dynamic 5 in.	3.75
40	11661	Switch Wave	.90
41	11666	Switch Change-Over	.80
42	10441	Volume Control With D.P.S.T. Switch	.95
43	9196	Condenser Dry Electrolytic 25 Mfd. 25 Volt	.50

MISCELLANEOUS PARTS

Part No.			List Price
10292	Bulb	6-8 Volt .250 Ampere Type No. 44	.10
11667	Dial Frame	Frame Mechanism Less Scale	.85
11669	Dial Scale		.50
11648	Dial Indicator	"On-Off" Indicator	.20
8184	Dial Cord	14 in. of 18 Lb. Drive Cord	.10
10777	Dial Pointer	Indicator	.16
11519	Escutcheon	For Dial With Crystal	.75
10853	Escutcheon	For Dial With Crystal	.65
4958	Knob	Marked "Tuning"	.12
4959	Knob	Marked "Off-Volume"	.12
4961	Knob	Marked "Band Switch"	.12
11642	Plug	3 Prong "B" Battery	.10
11046	Plug	2 Prong "A" Battery	.08
10884	Plate	Marked "AC-DC"—"Off"—"Batt."	.10

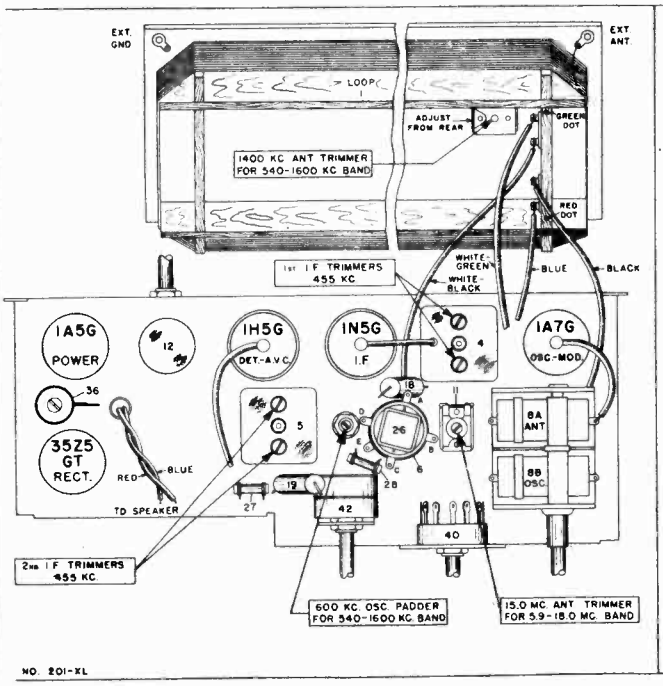
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

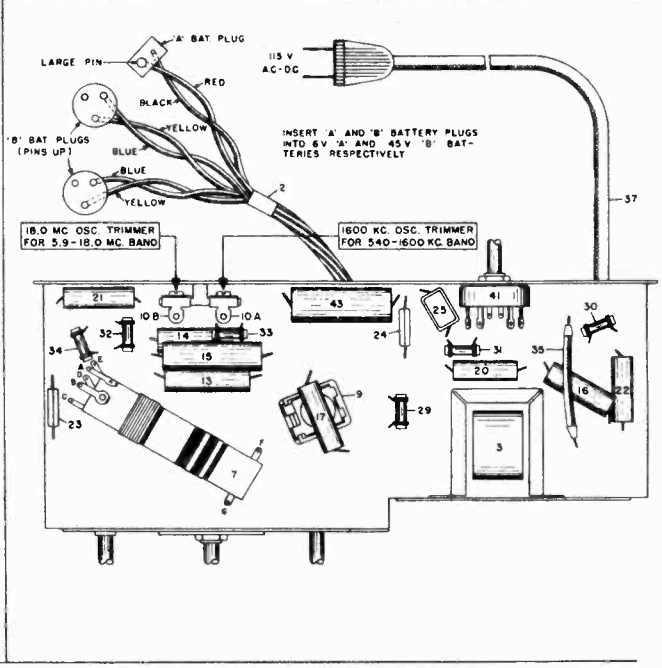
WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

MODEL 201XL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

Two Band
Battery or 110 Volts, DC-AC 50-60 Cycles
Superheterodyne Receiver





NO. 201-XL

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.
IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

When adjusting 1600 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

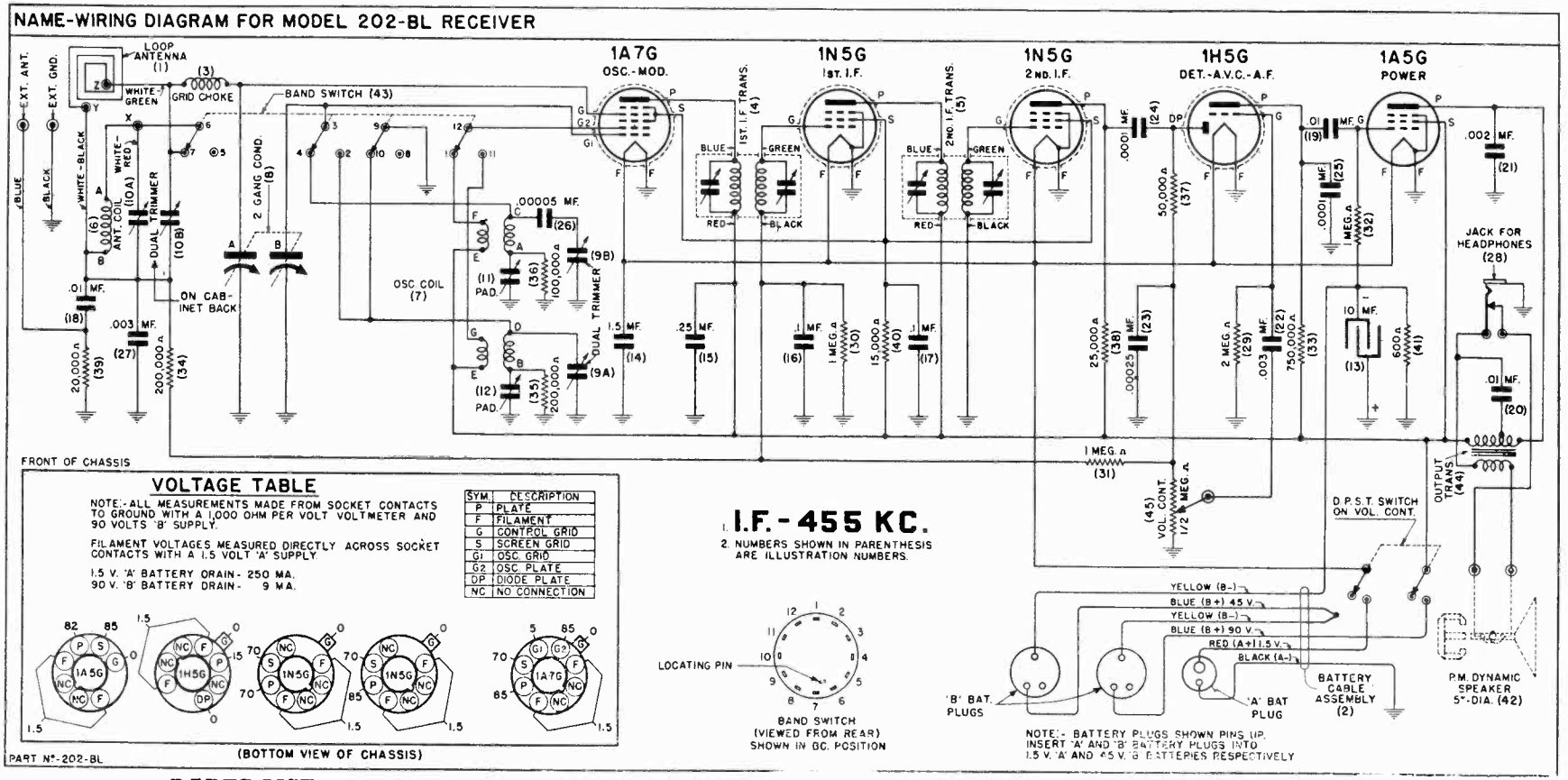
Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator frequency to	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 KC.	.02 Mfd. condenser	High side to grid cap of 1A7 G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1600 to 540 K.C. Band	1 Exactly 1600 K.C.	Exactly 1600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 1600 K. C. oscillator trimmer for maximum output
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.9 to 18 M.C. Band	1 Exactly 18 M. C.	Exactly 18 M. C.	400 Ohm carbon resistor	High side to "Ext. Ant." Lug. Low side to "Ext. GND" Lug	Adjust 18 M. C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M.C.	400 Ohm	High side to "Ext. Ant." Lug. Low side to "Ext. GND" Lug	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output

NAME-WIRING DIAGRAM FOR MODEL 202-BL RECEIVER



VOLTAGE TABLE

NOTE:- ALL MEASUREMENTS MADE FROM SOCKET CONTACTS TO GROUND WITH A 1,000 OHM PER VOLT VOLTMETER AND 90 VOLTS 'B' SUPPLY.

FILAMENT VOLTAGES MEASURED DIRECTLY ACROSS SOCKET CONTACTS WITH A 1.5 VOLT 'A' SUPPLY.

1.5 V. 'A' BATTERY DRAIN- 250 MA.
90 V. 'B' BATTERY DRAIN- 9 MA.

SYM.	DESCRIPTION
P	PLATE
F	FILAMENT
G	CONTROL GRID
S	SCREEN GRID
G1	OSC. GRID
G2	OSC. PLATE
DP	DIODE PLATE
NC	NO CONNECTION

1. **I.F. - 455 KC.**
2. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.

NOTE:- BATTERY PLUGS SHOWN PINS UP. INSERT 'A' AND 'B' BATTERY PLUGS INTO 1.5 V. 'A' AND 45 V. 'B' BATTERIES RESPECTIVELY

PART No.-202-BL

PARTS LIST

No.	Part	Description		Price List
1	11654	Antenna	Loop	$1.75
2	11644	Cable	For Battery with 2-3 prong "B" and 1-2 prong "A" plugs	.75
3	11606	Choke	Grid	.30
4	10967	Coil	1st I. F. Transformer	1.10
5	10967	Coil	2nd I. F. Transformer	1.10
6	11602	Coil	Antenna	.75
7	11603	Coil	Oscillator	.60
8	11252	Condenser	Tuning Two Gang	1.70
9A	11613	Condenser	Trimmer Dual 50-70 Mmf.	.33
9B	11613	Condenser	Trimmer Dual 50-70 Mmf.	.33
10A	11355	Condenser	Trimmer Dual	.30
10B	11655	Condenser	Trimmer Dual	.30
11	3287	Condenser	Padder 340-460 Mmf.	.45
12	4067	Condenser	Padder 160-200 Mmf.	.28
13	1693	Condenser	Dry Electrolytic 10 Mfd. 25 Volt	.75
14	11659	Condenser	Flat Type 1.5 Mfd. 100 Volt	.30
15	10089	Condenser	Tubular .25 Mfd. 200 Volt	.23
16	10076	Condenser	Tubular .1 Mfd. 200 Volt	.19
17	10076	Condenser	Tubular .1 Mfd. 200 Volt	.19
18	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
19	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
20	10088	Condenser	Tubular .01 Mfd. 400 Volt	.19
21	10079	Condenser	Tubular .002 Mfd. 400 Volt	.17
22	10084	Condenser	Tubular .003 Mfd. 400 Volt	.17
23	9458	Condenser	Mica .00025 Mfd.	.21
24	7934	Condenser	Mica .0001 Mfd.	.21
25	7934	Condenser	Mica .0001 Mfd.	.21
26	1544	Condenser	Mica .00005 Mfd.	.21
27	1374	Condenser	Mica .003 Mfd. ± 3%	.24
28	11646	Phono Jack		.50
29	2705	Resistor	Carbon 2 Megohm ½ Watt	.19
30	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
31	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
32	7998	Resistor	Carbon 1 Megohm ½ Watt	.19
33	2673	Resistor	Carbon 750,000 Ohm ½ Watt	.19
34	2155	Resistor	Carbon 200,000 Ohm ½ Watt	.19
35	2155	Resistor	Carbon 200,000 Ohm ½ Watt	.19
36	8000	Resistor	Carbon 100,000 Ohm ½ Watt	.19
37	6879	Resistor	Carbon 50,000 Ohm ½ Watt	.19
38	8907	Resistor	Carbon 25,000 Ohm ½ Watt	.19
39	1784	Resistor	Carbon 20,000 Ohm ½ Watt	.19
40	9385	Resistor	Carbon 15,000 Ohm ½ Watt	.19
41	1562	Resistor	Carbon 600 Ohm ½ Watt	.19
42	10781	Speaker	5" P.M. Dynamic Less Transformer	3.25
43	11632	Switch	Wave	.85
44	11601	Transformer	Output	.90
45	11631	Volume Control	With D.P.S.T. Switch	.80

MISCELLANEOUS PARTS

Part			Price List
11608	Dial Mechanism	Complete Dial Assembly	2.25
11610	Dial Scale	Calibrated Scale	.50
8184	Dial Cord	14" of 18 Lb. Drive Cord	.10
11693	Dial Spring	Cord Tension Spring	.04
10777	Dial Pointer	Dial Needle	.16
11648	Dial Indicator	On-Off Indicator	.20
10853	Escutcheon	For Dial with Crystal	.65
11519	Escutcheon	For Dial with Crystal	.75
4958	Knob	Marked "Tuning"	.12
4959	Knob	Marked "Off-Volume"	.12
4961	Knob	Marked "Band Switch"	.12
11642	Plug	3 Prong for "B" Battery	.10
10351	Plug	2 Prong for "A" Battery	.10

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

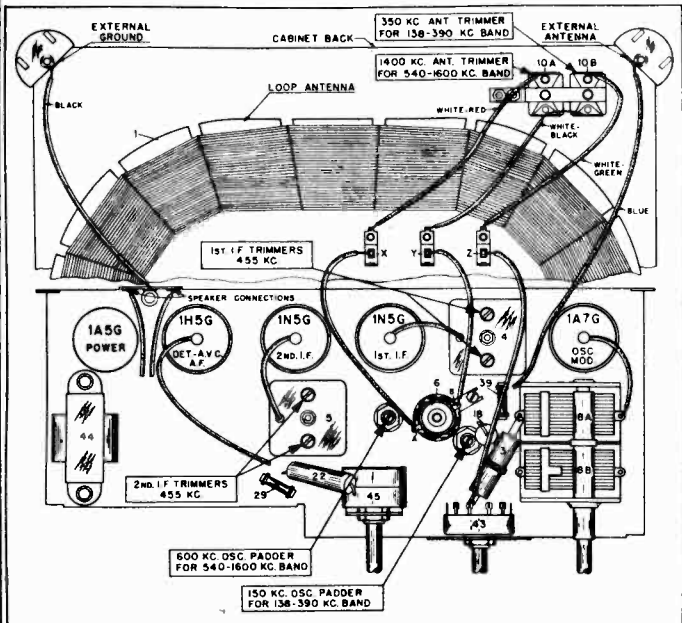
MODEL 202BL
Socket, Trimmers
Alignment, Chassis

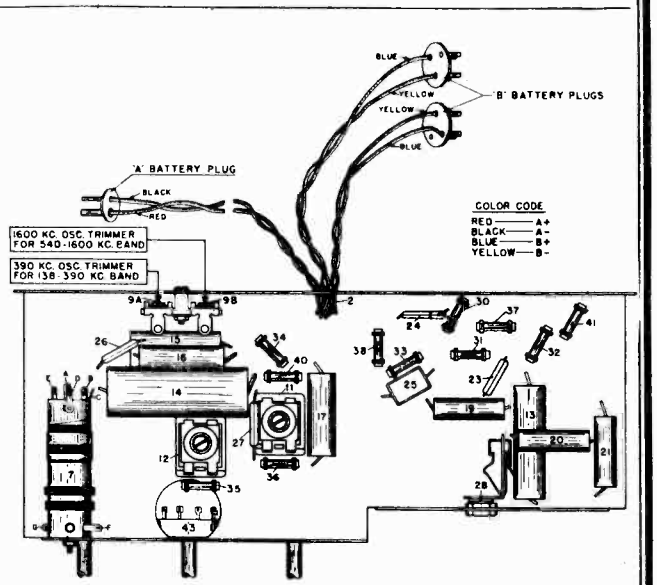
SENTINEL RADIO CORP.

SENTINEL MODEL 202BL

TWO BAND—FIVE TUBE

Battery Operated Superheterodyne Receiver





PART NO. 202-BL

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.
IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

When adjusting trimmers, do not connect test oscillator to loop.

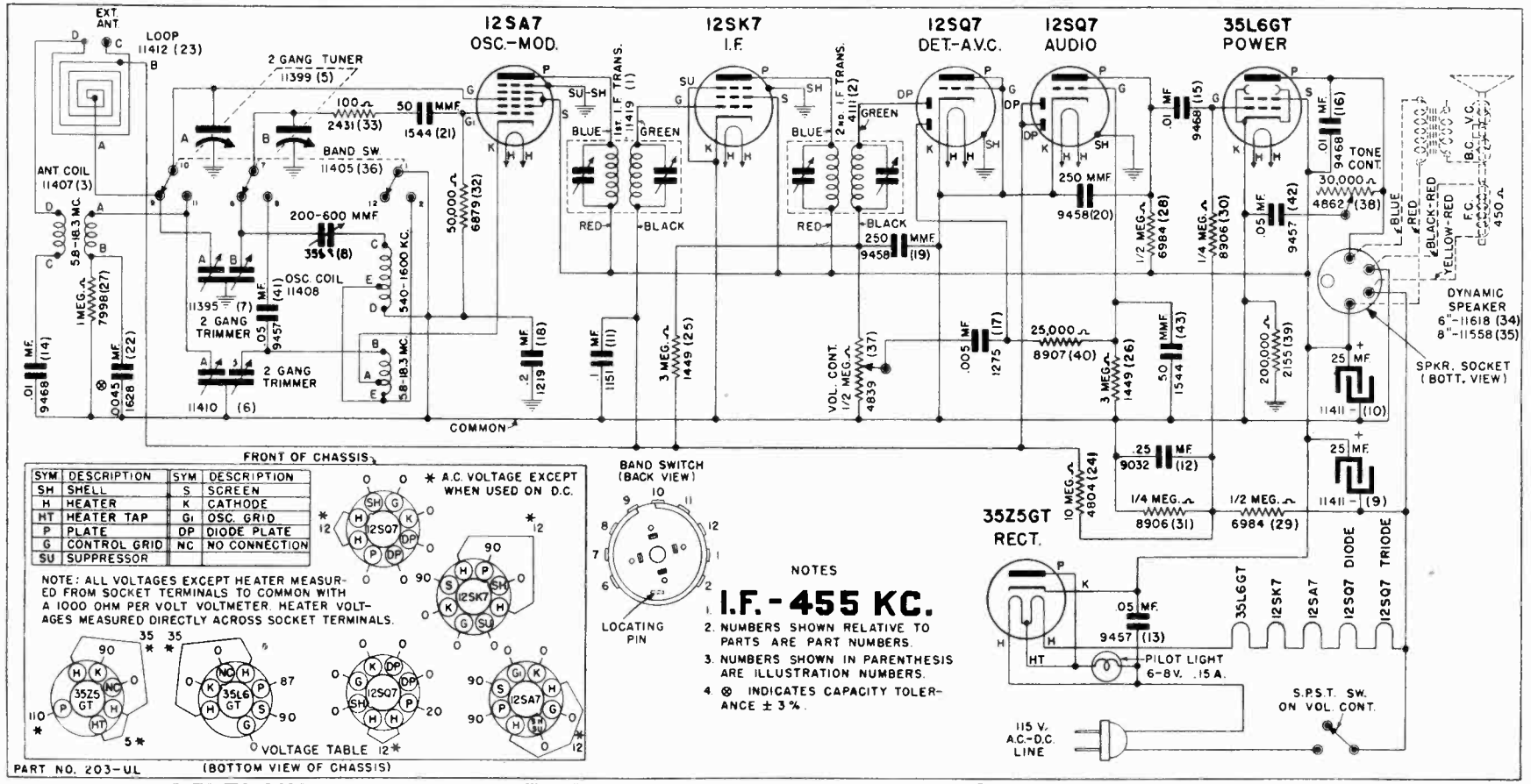
Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

BE SURE TO ALIGN 138-390 K.C. BAND FIRST—ALWAYS REALIGN 1600-540 K.C. BAND AFTERWARDS.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator frequency to	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 KC.	.02 Mfd. condenser	High side to grid of 1A7G Tube Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
138 to 390 K. C. Band	1 Exactly 390 K.C.	Exactly 390 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 390 K.C. oscillator trimmer for maximum output.
	2 Approx. 350 K.C.	Approx. 350 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 350 K.C. antenna trimmer for maximum output.
	3 Approx. 150 K.C.	Approx. 150 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 150 K.C. oscillator padder for maximum response.
1600 to 540 K.C. Band	1 Exactly 1600 K.C.	Exactly 1600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 1600 K. C. oscillator trimmer for maximum output
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.



SYM	DESCRIPTION	SYM	DESCRIPTION
SH	SHELL	S	SCREEN
H	HEATER	K	CATHODE
HT	HEATER TAP	G1	OSC. GRID
P	PLATE	DP	DIODE PLATE
G	CONTROL GRID	NC	NO CONNECTION
SU	SUPPRESSOR		

NOTE: ALL VOLTAGES EXCEPT HEATER MEASURED FROM SOCKET TERMINALS TO COMMON WITH A 1000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES MEASURED DIRECTLY ACROSS SOCKET TERMINALS.

* A.C. VOLTAGE EXCEPT WHEN USED ON D.C.

NOTES

I.F. - 455 KC.

1.
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3. NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
4. ⊗ INDICATES CAPACITY TOLERANCE ± 3%.

PARTS LIST

Illus. No.	Part No.	Description	List Price
1	11419	Coil — 1st I.F. Transformer	$1.25
2	4111	Coil — 2nd I.F. Transformer	1.25
3	11407	Coil — Antenna	.65
4	11408	Coil — Oscillator	.65
5	11399	Condenser — Two Gang Tuner Unit (4 Button Mechanical)	3.75
6	11410	Condenser — Trimmer Two Gang	.30
7	11395	Condenser — Trimmer Dual	.30
8	3596	Condenser — Padding 200-600 Mmf.	.44
9	11411	Condenser — Dry Electrolytic 25 Mfd. 200 Volt	.60
10	11411	Condenser — Dry Electrolytic 25 Mfd. 200 Volt	.60
11	1151	Condenser — Tubular .1 Mfd. 200 Volt	.20
12	9032	Condenser — Tubular .25 Mfd. 200 Volt	.25
13	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
14	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
15	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
16	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
17	1275	Condenser — Tubular .005 Mfd. 400 Volt	.18
18	1219	Condenser — Tubular .2 Mfd. 400 Volt	.27
19	9458	Condenser — Mica .00025 Mfd.	.21
20	9458	Condenser — Mica .00025 Mfd.	.21
21	1544	Condenser — Mica .00005 Mfd.	.21
22	1628	Condenser — Mica .0045 Mfd. ± 3%	.24
23	11412	Antenna — Loop	.80
24	4804	Resistor — Carbon 10 Megohm ½ Watt	.19
25	1449	Resistor — Carbon 3 Megohm ½ Watt	.19
26	1449	Resistor — Carbon 3 Megohm ½ Watt	.19
27	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
28	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
29	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
30	8906	Resistor — Carbon 250,000 Ohm ½ Watt	.19
31	8906	Resistor — Carbon 250,000 Ohm ½ Watt	.19
32	6879	Resistor — Carbon 50,000 Ohm ½ Watt	.19
33	2431	Resistor — Carbon 100 Ohm ½ Watt	.19
34	11618	Speaker — Electro-Dynamic 6 in.	4.25
35	11558	Speaker — Electro-Dynamic 8 in.	5.50
36	11405	Switch — Band	.65
37	4839	Volume Control — Withon-off Switch	.85
38	4862	Tone Control	.65
39	2155	Resistor — Carbon 200,000 Ohm ½ Watt	.19
40	8907	Resistor — Carbon 25,000 Ohm ½ Watt	.19
41	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
42	9457	Condenser — Tubular .05 Mfd. 400 Volt	.18
43	1544	Condenser — Mica .00005 Mfd.	.21

MISCELLANEOUS PARTS

11304	Bulb	6-8 Volt .150 Ampere Mazda Type No. 47 Bayonet Base	.10
4398	Call Letters	Set of ⅜ in. Call Letters	.25
11547	Dial Scale	Calibrated Scale	.50
4761	Dial Shaft	Drive Shaft	.15
8184	Dial Cord	Drive Cord 12 in. of 18 lb. Drive Cord	.10
11193	Dial Pointer	For Dial	.16
11140	Escutcheon	For Dial—With Crystal	1.00
11139	Escutcheon	For Dial—With Crystal	1.00
11556	Escutcheon	For Pushbuttons	.40
11557	Escutcheon	For Pushbuttons	.40
4958	Knob	Marked "Tuning"	.12
4959	Knob	Marked "Off-Volume"	.12
4960	Knob	Marked "Tone"	.12
4961	Knob	Marked "Band Switch"	.12
11559	Knob	Pushbutton	.10

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

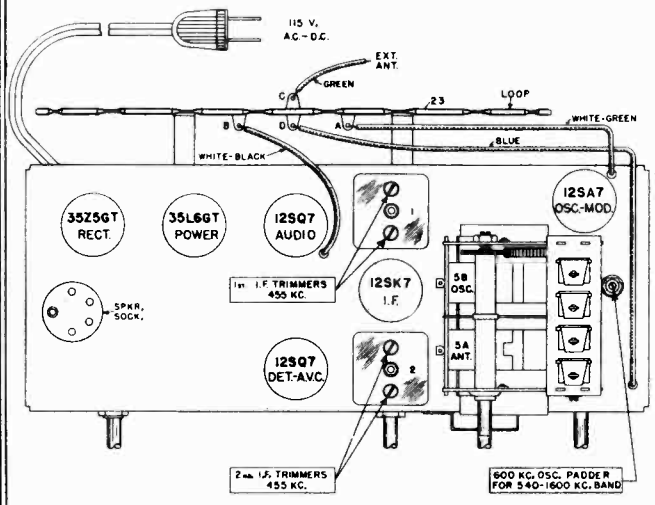
WHEN ORDERING PARTS BE SURE TO ORDER BY PART NUMBER

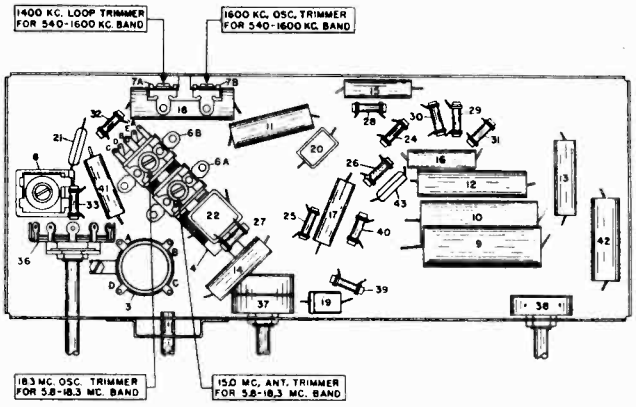
MODEL 203UL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

TWO BAND—SIX TUBE

A. C.—D. C. Operated Superheterodyne Receiver





NO. 203-UL

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.
IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

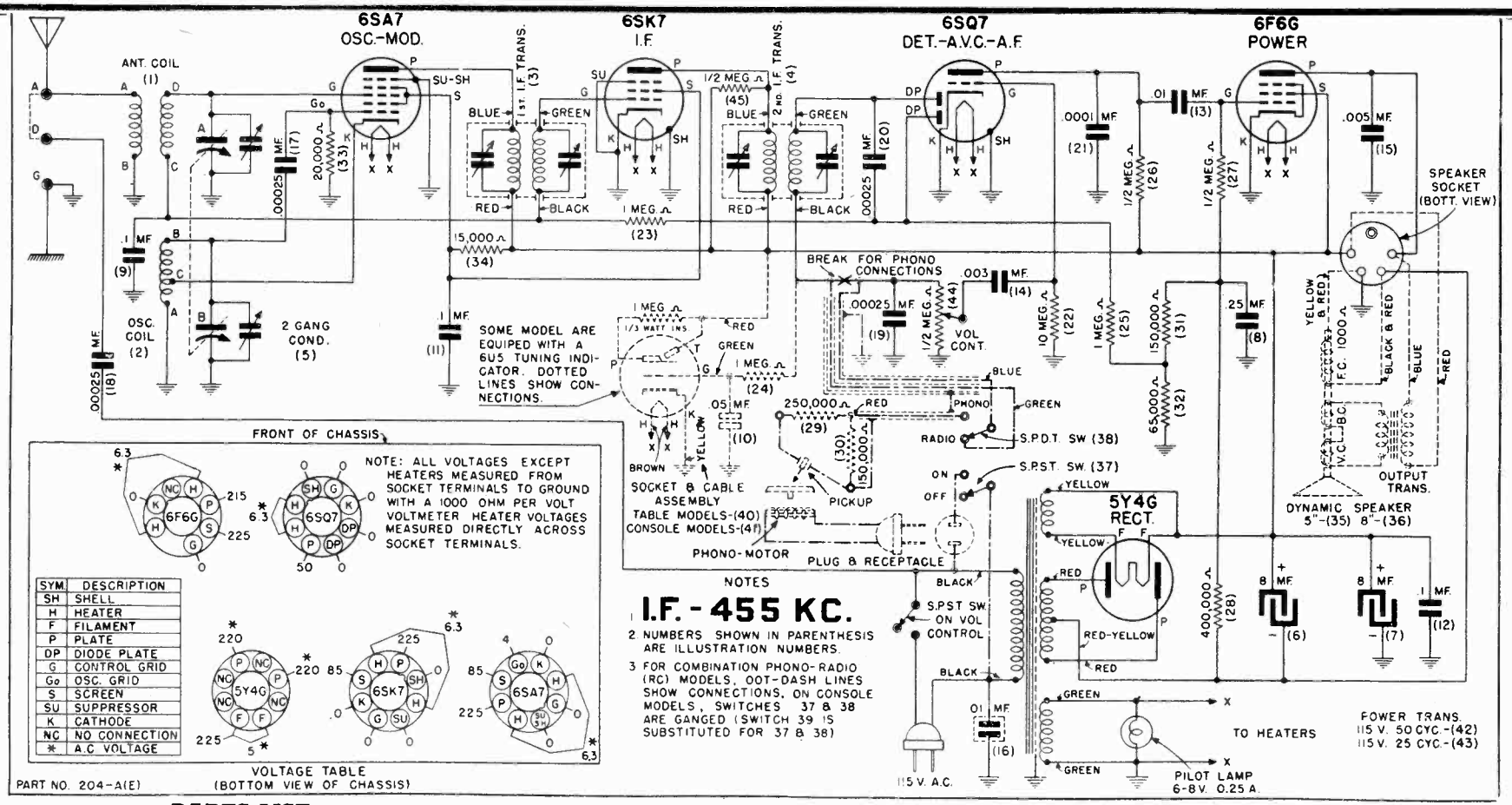
When adjusting 1600 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

Couple test oscillator to receiver loop by:

(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator frequency to	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 KC.	.02 Mfd. condenser	High side to grid cap of 12SA7 tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1600 to 540 K.C. Band	1 Exactly 1600 K.C.	Exactly 1600 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	Adjust 1600 K. C. oscillator trimmer for maximum output
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output
	3 Approx. 600 K.C.	Approx. 600 K.C	None	Use Small Loop to couple test oscillator to receiver loop	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.8 to 18.3 M.C. Band	1 Exactly 18.3 M.C.	Exactly 18.3 M.C.	400 Ohm carbon resistor	High side to Green Ant. Lead, Low side to frame of gang condenser	Adjust 18.3 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M.C.	400 Ohm	High side to Green Ant. Lead, Low side to frame of gang condenser	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output



PARTS LIST

Part No.		Description	List Price
1	11269	Coil — Antenna	$ .70
2	11271	Coil — Oscillator	.60
3	4404	Coil — 1st I. F. Transformer	1.20
4	4404	Coil — 2nd I. F. Transformer	1.20
5	11526	Condenser — Tuning (Two Gang)	2.00
6	10625	Condenser — Dry Electrolytic 8 Mfd.-350 Volt D. C. Wkg.	.55
7	10625	Condenser — Dry Electrolytic 8 Mfd.-350 Volt D. C. Wkg.	.55
8	9032	Condenser — Tubular .25 Mfd. 200 Volt	.25
9	1151	Condenser — Tubular .1 Mfd. 200 Volt	.20
10	1147	Condenser — Tubular .05 Mfd. 200 Volt	.19
11	9203	Condenser — Tubular .1 Mfd. 400 Volt	.20
12	9203	Condenser — Tubular .1 Mfd. 400 Volt	.20
13	9468	Condenser — Tubular .01 Mfd. 400 Volt	.17
14	1368	Condenser — Tubular .003 Mfd. 400 Volt	.17
15	2075	Condenser — Tubular .005 Mfd. 600 Volt	.18
16	4305	Condenser — Tubular .01 Mfd. 220 Volt (Shielded)	.30
17	9458	Condenser — .00025 Mfd. Mica	.21
18	9458	Condenser — .00025 Mfd. Mica	.21
19	9458	Condenser — .00025 Mfd. Mica	.21
20	9458	Condenser — .00025 Mfd. Mica	.21
21	7934	Condenser — .0001 Mfd. Mica	.21
22	4804	Resistor — Carbon 10 Megohm ½ Watt	.19
23	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
24	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
25	7998	Resistor — Carbon 1 Megohm ½ Watt	.19
26	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
27	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
28	3133	Resistor — Carbon 400,000 Ohm ½ Watt	.19
29	8906	Resistor — Carbon 250,000 Ohm ½ Watt	.19
30	3418	Resistor — Carbon 150,000 Ohm ½ Watt	.19
31	3418	Resistor — Carbon 150,000 Ohm ½ Watt	.19
32	11599	Resistor — Carbon 65,000 Ohm ½ Watt	.19
33	1784	Resistor — Carbon 20,000 Ohm ½ Watt	.19
34	4599	Resistor — Carbon 15,000 Ohm 1½ Watt	.22
35	11278	Speaker — Electro-Dynamic 5"	3.00
36	11537	Speaker — Electro-Dynamic 8"	5.00
37	10573	Switch — S.P.S.T. (On-Off) Used with Phono Model Having Tuning Eye	.65
38	2434	Switch — S.P.D.T. (Rad-Phono) Used with Phono Model Having Tuning Eye	.70
39	10472	Switch — Radio-Phono (Used with Phono Model without Tuning Eye	1.00
40	4516	Socket & Cable Assembly — For 6U5 Tuning Eye Incl. Socket and Resistor	.65
41	10108	Socket & Cable Assembly — For 6U5 Tuning Eye Incl. Socket and Resistor (Used with Phono Model)	.65
42	11272	Transformer — Power 115 Volt 50 Cycle	2.80
43	11273	Transformer — Power 115 Volt 25 Cycle	5.00
44	4839	Volume Control	.85
45	6984	Resistor — Carbon 500,000 Ohm—½ Watt	.19

MISCELLANEOUS PARTS

	10292	Bulb — 6-8 Volt .250 Amp. Type 3¼ No. 44	.10
	11529	Dial Scale	.35
	8184	Dial Cord — 12" of 18 lb. Drive Cord	.10
	11017	Dial Shaft — Dial Drive Shaft	.11
	11489	Dial Pointer — Indicator Needle	.15
	11140	Escutcheon — With Crystal for Dial	1.00
	11339	Escutcheon — With Crystal for Dial	1.00
	4519	Escutcheon — For Tuning Eye	.30
	11796	Knob	.10
	10473	Motor — Phono 110 Volt 60 Cycle less Turntable	7.00
	10546	Motor — Phono 110 Volt 50 Cycle Less Turntable	7.50
	10547	Motor — Phono 220 Volt 50 Cycle Less Turntable	8.00
	10955	Pickup — Crystal Pickup and Arm	5.25
	11797	Turntable — 10" Velveteen Covered	1.50
	11798	Turntable — 12" Velveteen Covered	1.75

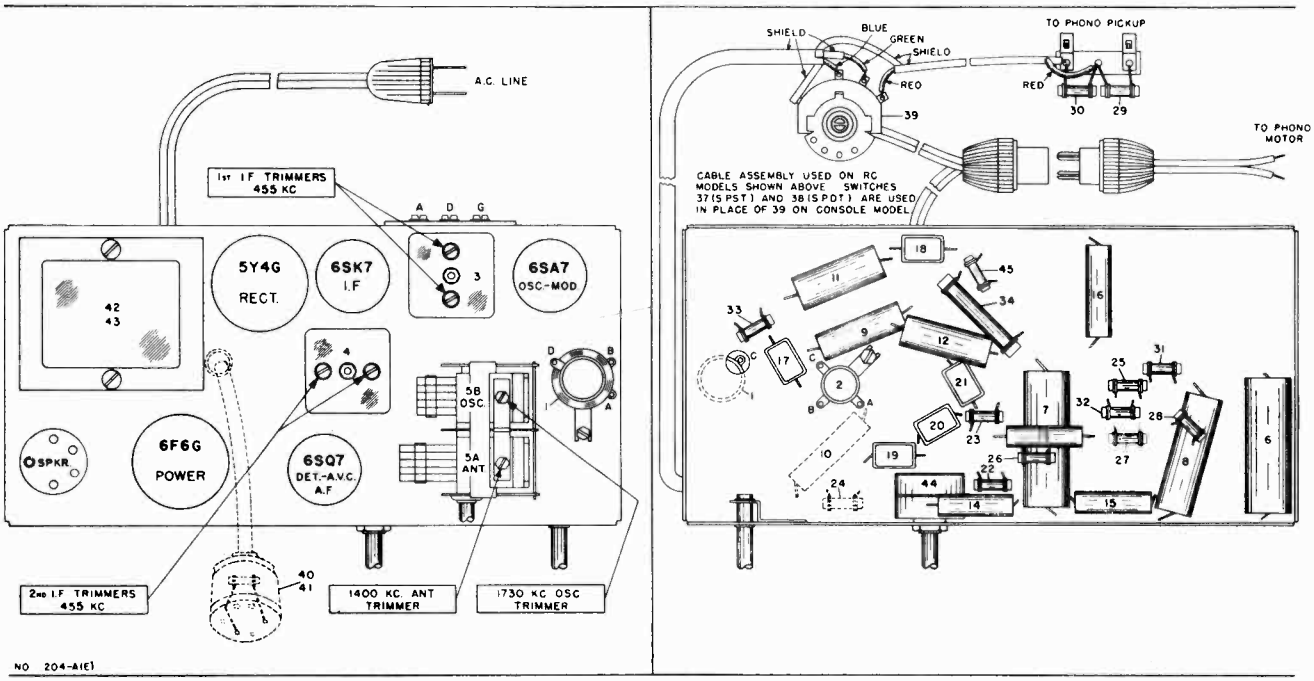
W. 4M PART NO. 204A

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

MODELS 204A, 204AE
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

5 and 6 tube A. C. Operated Superheterodyne Receiver



ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

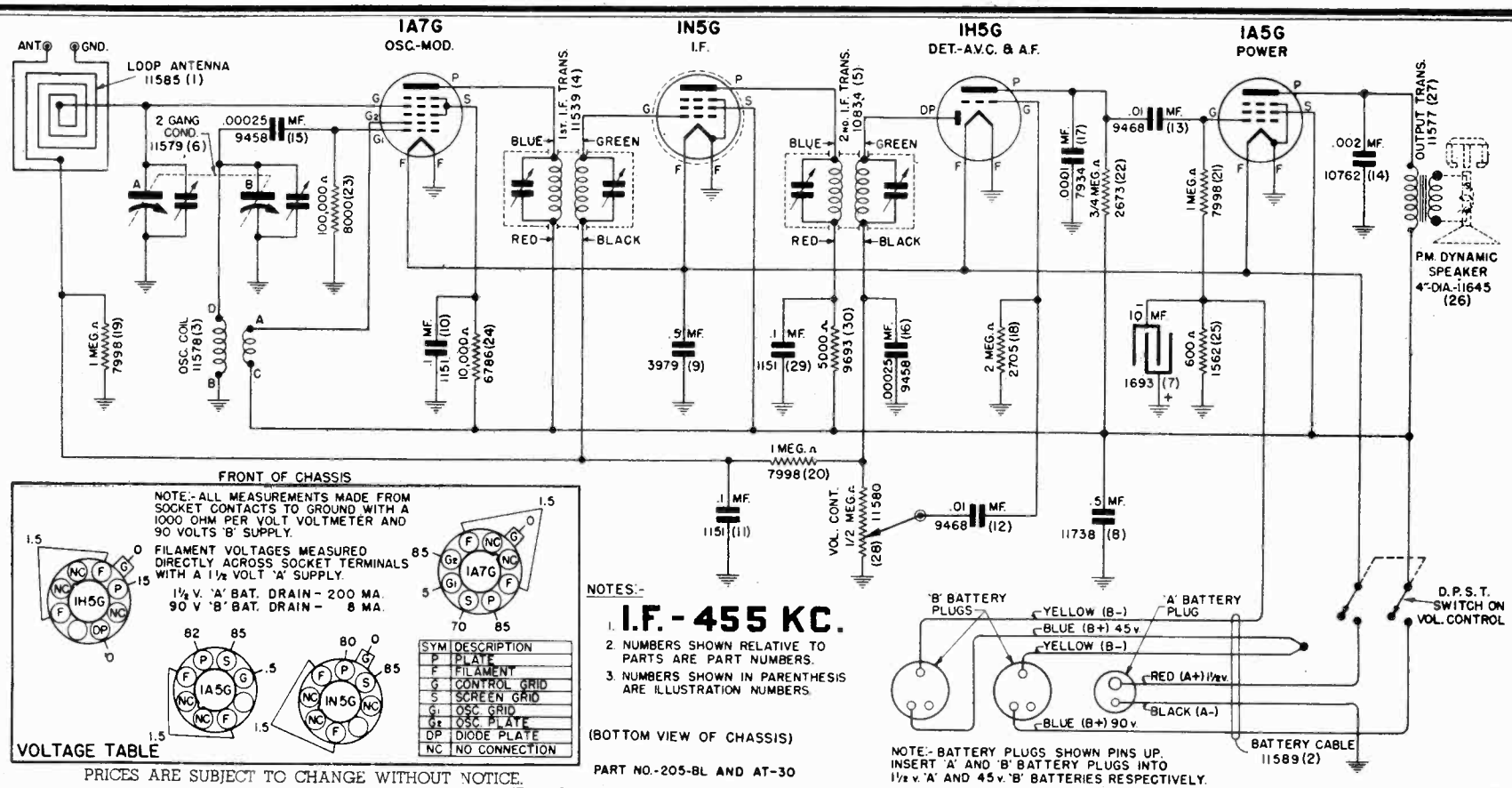
Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to gang condenser frame.

Set receiver dial to:	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:
	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	
I.F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 6SA7 tube DO NOT REMOVE CAP.	Adjust the second I. F. transformer trimmers for maximum output then adjust each of the first I. F. trimmers for maximum output
1 Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD condenser	Receiver "A" post	Adjust 1730 K. C. oscillator trimmer for maximum output.
2 Approx. 1400 K. C.	Approx. 1400 K. C.	.00025 MFD condenser	Receiver "A" post	While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

PARTS LIST

Illus. No.	Part No.	Description	List Price
1	11585	Antenna Loop	$ .90
2	11589	Cable Battery Complete with Plugs	.45
3	11578	Coil Oscillator	.60
4	11539	Coil 1st I. F. Transformer	1.50
5	10834	Coil 2nd I. F. Transformer	1.45
6	11579	Condenser Tuning Two Gang	1.95
7	1693	Condenser Tubular Dry Electrolytic 10 Mfd. 25 Volt	.75
8	11738	Condenser Tubular .5 Mfd. 100 Volt +40%, —10%	.35
9	3979	Condenser Tubular .5 Mfd. 200 Volt +40%, —10%	.40
10	1151	Condenser Tubular .1 Mfd. 200 Volt +40%, —10%	.20
11	1151	Condenser Tubular .1 Mfd. 200 Volt +40%, —10%	.20
12	9468	Condenser Tubular .01 Mfd. 400 Volt +40%, —10%	.17
13	9468	Condenser Tubular .01 Mfd. 400 Volt +40%, —10%	.17
14	10762	Condenser Tubular .002 Mfd. 400 Volt +40%, —10%	.19
15	9458	Condenser Mica .00025 Mfd. ±20%	.21
16	9458	Condenser Mica .00025 Mfd. ±20%	.21
17	7934	Condenser Mica .0001 Mfd. ±20%	.21
18	2705	Resistor Carbon 2 Megohm ⅓ Watt ±20%	.19
19	7998	Resistor Carbon 1 Megohm ⅓ Watt ±20%	.19
20	7998	Resistor Carbon 1 Megohm ⅓ Watt ±20%	.19
21	7998	Resistor Carbon 1 Megohm ⅓ Watt ±20%	.19
22	2673	Resistor Carbon 750,000 Ohm ⅓ Watt ±20%	.19
23	8000	Resistor Carbon 100,000 Ohm ⅓ Watt ±20%	.19
24	6786	Resistor Carbon 10,000 Ohm ⅓ Watt ±10%	.19
25	1562	Resistor Carbon 600 Ohm ⅓ Watt ±10%	.19
26	11645	Speaker P. M. Dynamic 4 in.	2.50
27	11577	Transformer Output	1.00
28	11580	Volume Control With S.T.D.P. Switch	.85
29	1151	Condenser Tubular .1 Mfd. 200 Volt ±40%	.20
30	9693	Resistor Carbon 5000 Ohm ⅓ Watt	.19

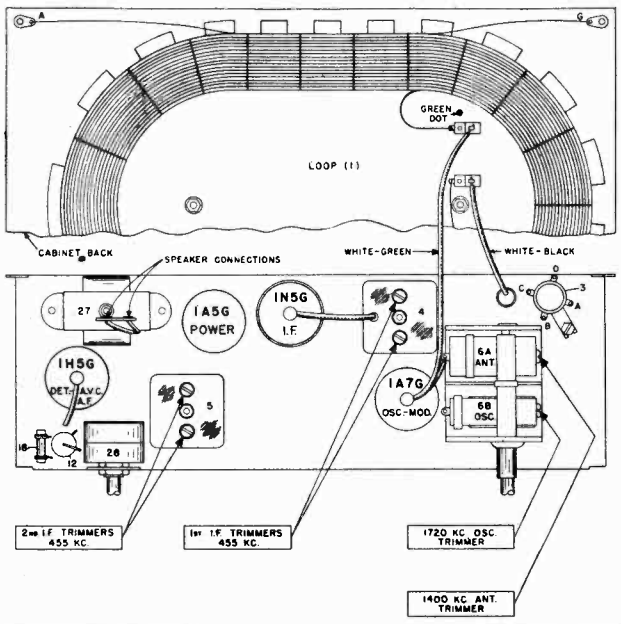
MISCELLANEOUS PARTS

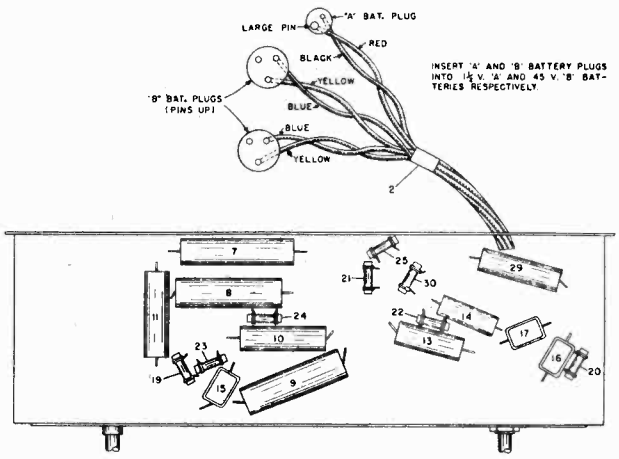
Part No.	Description		List Price
11642	Battery Plug	3 Prong "B"	.10
10351	Battery Plug	2 Prong "A"	.10
	Cabinet	Complete with No. 11622 Back and Loop	4.50
11622	Cabinet Back	Complete with Loop	1.50
3814	Dial Cord	18 in. of 30 lb. Cord	.15
11620	Dial Scale	Calibrated Scale	.35
11693	Dial Spring	Cord Tension Spring	.04
11696	Dial Pointer	White Lacquer Finish	.20
11583	Dial Crystal		.20
10787	Knob	Mottled Walnut Tenite	.08

MODEL 205BL
Socket, Trimmers
Alignment, Chassis

SENTINEL RADIO CORP.

4 tube 1½ Volt Portable Superheterodyne Receiver





ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

IMPORTANT: BEFORE ALIGNING, PLACE LOOP ANTENNA IN THE SAME POSITION IN THE BACK OF CHASSIS IT WILL BE IN WHEN THE SET IS IN THE CABINET.

When adjusting 1720 kilocycle oscillator trimmer and 1400 kilocycle antenna trimmer, do not connect test oscillator to loop.

Couple test oscillator to receiver loop by:

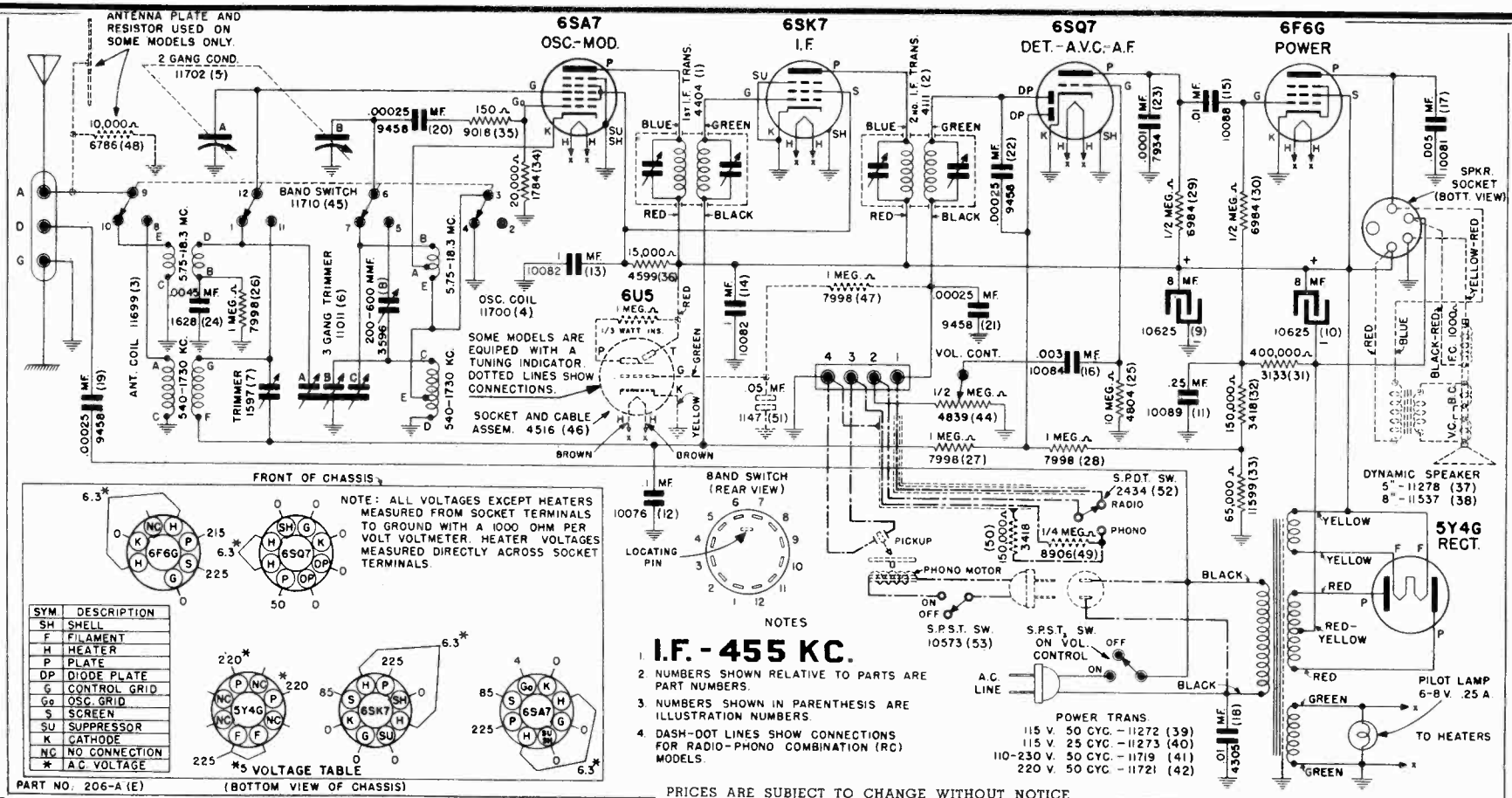
(a) Make a loop consisting of five to ten turns of No. 20 to 30 size wire wound on a three inch form and attach across output of test oscillator.

(b) Place test oscillator loop near set loop—BE SURE THAT NEITHER MOVES WHILE ALIGNING.

	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below—and:
	I. F. Any point where no interfering signal is received	455 K. C.	.02 MFD condenser	High side to grid terminal of 1A7G tube DO NOT REMOVE CAP	Adjust the second I. F. transformer trimmers for maximum out put—then adjust each of the first I.F. trimmers for maximum output.
1	Exactly 1720 K. C.	Exactly 1720 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1720 K. C. oscillator trimmer for maximum output.
2	Approx. 1400 K. C.	Exactly 1400 K. C.	None	Use small loop to couple test oscillator to receiver loop	Adjust 1400 K. C. antenna trimmer for maximum output.

SENTINEL RADIO CORP.

MODELS 206A, 206AE, RC206A
RC206AE
Schematic, Voltage



PART NO. 206-A (E)

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

Part No.		Description	List Price
1	4404	Coil — 1st I.F. Transformer	$1.20
2	4111	Coil — 2nd I.F. Transformer	1.25
3	11699	Coil — Antenna	.75
4	11700	Coil — Oscillator	.70
5	11702	Condenser — Tuning Two Gang	1.75
6	11011	Condenser — Trimmer Three Gang	.50
7	1597	Condenser — Trimmer 3-45 Mmf.	.21
8	3596	Condenser — Padder 340-460 Mmf.	.44
9	10625	Condenser — Dry Electrolytic 8 Mfd. 350 Volt	.55
10	10625	Condenser — Dry Electrolytic 8 Mfd. 350 Volt	.55
11	10089	Condenser — Tubular .25 Mfd. 200 Volt	.23
12	10076	Condenser — Tubular .1 Mfd. 200 Volt	.19
13	10082	Condenser — Tubular .1 Mfd. 400 Volt	.20
14	10082	Condenser — Tubular .1 Mfd. 400 Volt	.20
15	10088	Condenser — Tubular .01 Mfd. 400 Volt	.19
16	10084	Condenser — Tubular .003 Mfd. 400 Volt	.17
17	10081	Condenser — Tubular .005 Mfd. 600 Volt	.20
18	4305	Condenser — Tubular .01 Mfd. 220 Volt	.30
19	9458	Condenser — Mica .00025 Mfd.	.21
20	9458	Condenser — Mica .00025 Mfd.	.21
21	9458	Condenser — Mica .00025 Mfd.	.21
22	9458	Condenser — Mica .00025 Mfd.	.21
23	7934	Condenser — Mica .0001 Mfd.	.21
24	1628	Condenser — Mica .0045 Mfd. ± 3%	.24
25	4804	Resistor — Carbon 10 Megohm ½ Watt	.19
26	7998	Resistor — Carbon 10 Megohm ½ Watt	.19
27	7998	Resistor — Carbon 10 Megohm ½ Watt	.19
28	7998	Resistor — Carbon 10 Megohm ½ Watt	.19
29	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
30	6984	Resistor — Carbon 500,000 Ohm ½ Watt	.19
31	3133	Resistor — Carbon 400,000 Ohm ½ Watt	.19
32	3418	Resistor — Carbon 150,000 Ohm ½ Watt	.19
33	11599	Resistor — Carbon 65,000 Ohm ½ Watt	.19
34	1784	Resistor — Carbon 20,000 Ohm ½ Watt	.19
35	9018	Resistor — Carbon 150 Ohm ½ Watt	.19
36	4599	Resistor — Carbon 15,000 Ohm 1½ Watt	.22
37	11278	Speaker — 5 in. Electro-Dynamic	3.00
38	11537	Speaker — 8 in. Electro-Dynamic	5.00
39	11272	Transformer — Power 115 Volt 50 Cycle	2.80
40	11273	Transformer — Power 115 Volt 25 Cycle	5.00
41	11719	Transformer — Power 110 Volt—230 Volt 50 Cycle	5.50
42	11721	Transformer — Power 220 Volt 50 Cycle	4.75
44	4839	Volume Control — With S.P.S.T. Switch	.85
45	11710	Switch — Wave	.90
46	4516	Socket & Cable Assem. — For 6U5 Tuning Eye	.65
47	7998	Resistor — 1 Megohm ½ Watt	.19
48	6786	Resistor — 10,000 Ohm ½ Watt Used only on Console Model	.19
49	8906	Resistor — 250,000 Ohm ½ Watt	.19
50	3418	Resistor — Carbon 150,000 Ohm ½ Watt	.19
51	1147	Condenser — .05 Mfd. 200 Volt	.19
52	2434	Switch — Phono S.P.D.T.	.70
53	10573	Switch — S.T.S.T. "On-Off"	.65

MISCELLANEOUS PARTS

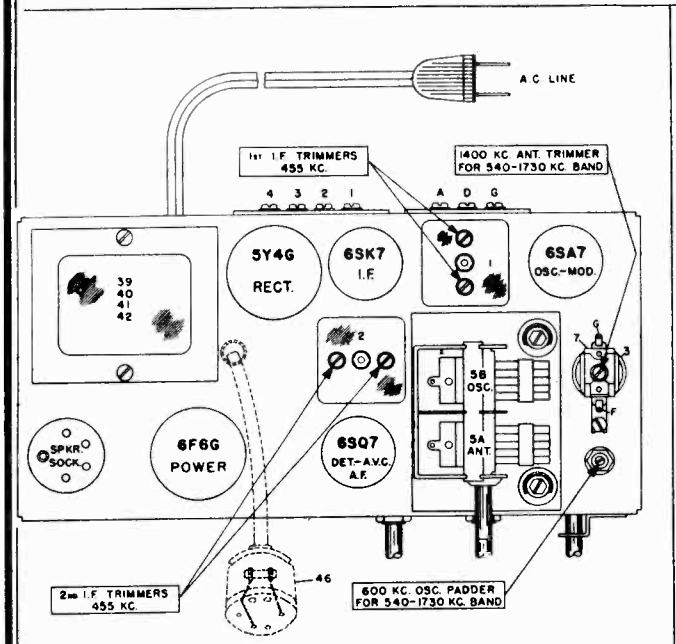
Part No.	Description	List Price
11926	Antenna Plate — Copper Plated—(Console Model Only)	1.00
10292	Bulb — 6-8 Volt .250 Amp. Type 3¼ No. 44	.10
11707	Dial Scale	.60
8184	Dial Cord — 12 in. of 18 lb. Drive Cord	.10
11017	Dial Shaft — Dial Drive Shaft	.11
11489	Dial Pointer — Indicator Needle	.15
11140	Escutcheon — With Crystal for Dial	1.00
11339	Escutcheon — With Crystal for Dial	1.00
4519	Escutcheon — For Tuning Eye	.30
11796	Knob	.10
11907	Pickup — Crystal Pickup and Arm	4.25
10030	Knob — Marked "Tuning" Used With Console Model	.12
10069	Knob — Marked "Band Switch" Used With Console Model	.12
11871	Knob — Marked "Off-Volume" Used With Console Model	.12
4958	Knob — Marked "Tuning" Used With Table Model	.12
4959	Knob — Marked "Off-Volume" Used With Table Model	.12
4961	Knob — Marked "Band Selector" Used With Table Model	.12

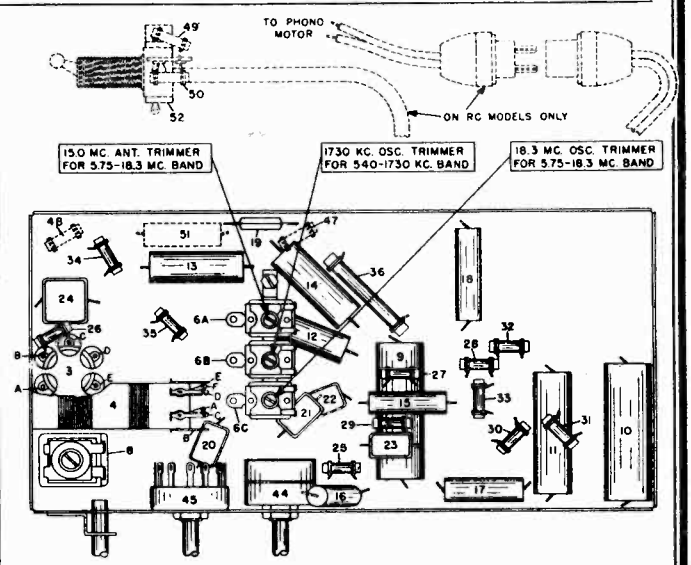
W. 3M 2-40 PART NO. 206A

MODELS 206A, 206AE, RC206A
RC206AE
Socket, Trimmers, Chassis
Alignment

SENTINEL RADIO CORP.

TWO BAND—FIVE and SIX TUBE
A. C. Operated Superheterodyne Receiver





NO. 206-A(E)

ALIGNMENT PROCEDURE

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabluations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move needle to correct position.

(b) Use an accurately calibrated test oscillator with some type of output measuring device.

(c) Have ground lead of test oscillator attached to chassis.

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
I. F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 6SA7 tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K. C. Band	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	Adjust 1730 K. C. oscillator trimmer for maximum output.
	2 Approx. 1400 K.C.	Approx. 1400 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approx. 600 K.C.	Approx. 600 K.C.	.00025 Mfd. condenser	Receiver "A" antenna post	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.75 to 18.3 M.C. Band	1 Exactly 18.3 M.C.	Exactly 18.3 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	Adjust 18.3 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Approx. 15 M.C.	Approx. 15 M.C.	400 Ohm carbon resistor	Receiver "A" antenna post	While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.

Television Connections:—The audio amplifier and loud speaker of this receiver can be used to amplify the sound output of a television receiver not equipped with an audio amplifier and speaker—just connect the sound channel output of the television receiver (from the second detector) to the No. 3 and No. 4 terminals on back of receiver and attach a single pole double throw switch.

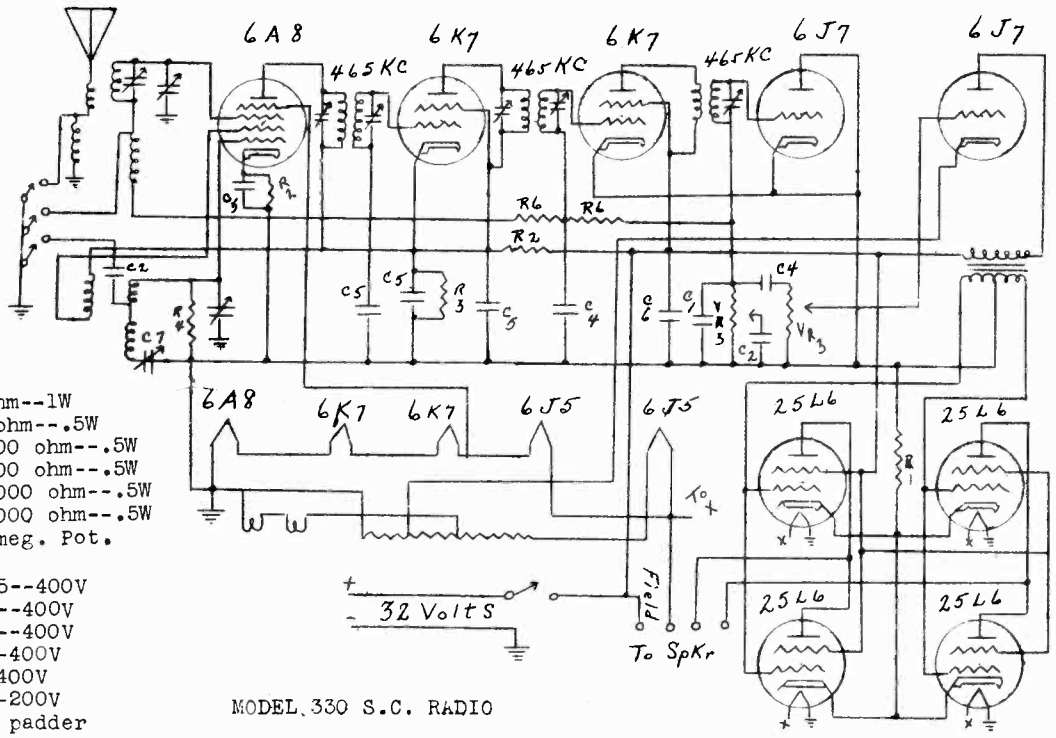
Phonograph Connections:—Phonograph records may be electrically reproduced through the receiver loud speaker by connecting the leads of the phonograph pickup to the No. 3 and No. 4 terminals and using either an electrical or hand wound spring operated phonograph motor. The pickup should be of the high impedance type and a single pole double throw switch must be connected as shown in diagram. To operate—place switch in phono position—set pickup needle on record and adjust radio volume control to desired amount of volume.

When shipped from factory a jumper wire is attached to terminals 1 and 2. If receiver is not to be used for phono or television operation, leave the jumper wire in this position. When receiver is used for either phono or television sound operation, remove jumper wire.

SENTINEL MODELS 206A, 206AE, RC206A, and RC206AE

SETCHELL CARLSON, INC.

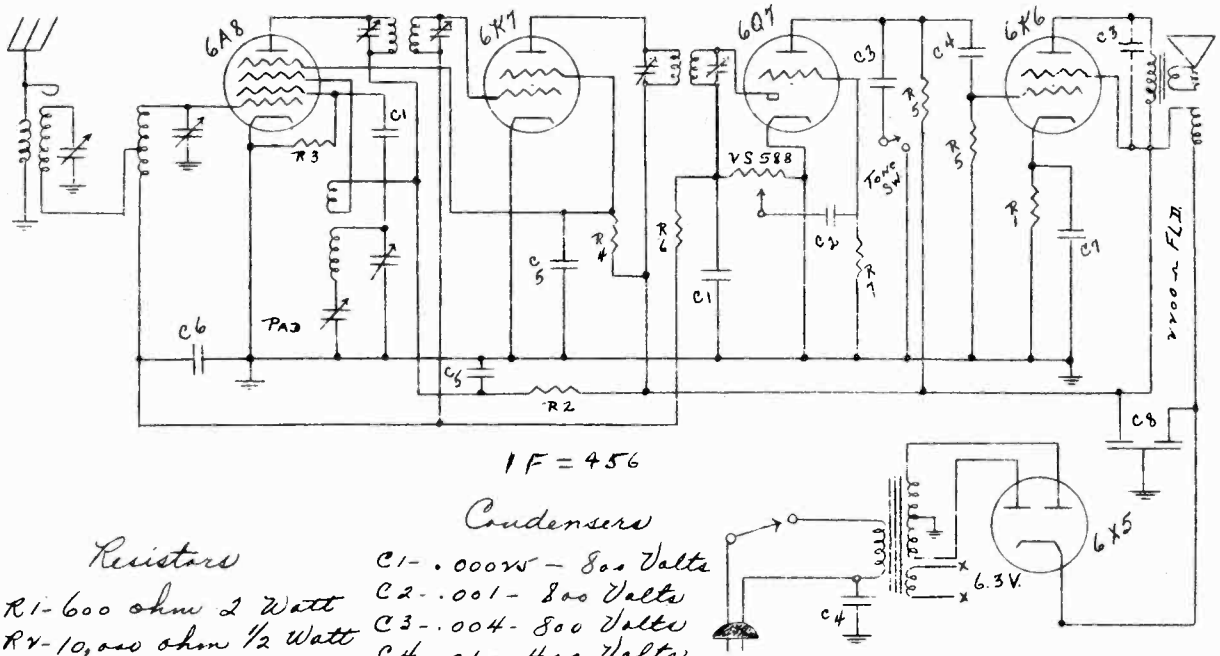
MODEL 330
MODEL 588
Schematics



R1--75 ohm--1W
R2--700 ohm--.5W
R3--25,000 ohm--.5W
R4--50,000 ohm--.5W
R5--200,000 ohm--.5W
R6--500,000 ohm--.5W
Vr3--.5 meg. Pot.

C1--.0005--400V
C2--.002--400V
C3--.005--400V
C4--.01--400V
C5--.1--400V
C6--.25--200V
C7--Adj. padder

MODEL 330 S.C. RADIO



I F = 456

Resistors

R1- 600 ohm 2 Watt
R2- 10,000 ohm 1/2 Watt
R3- 25,000 " " "
R4- 50,000 " " "
R5- 500,000 " " "
R6- 1 Meg " " "
R7- 15 Meg " " "
VS588- 1/2 Meg Control & Sw.

Condensers

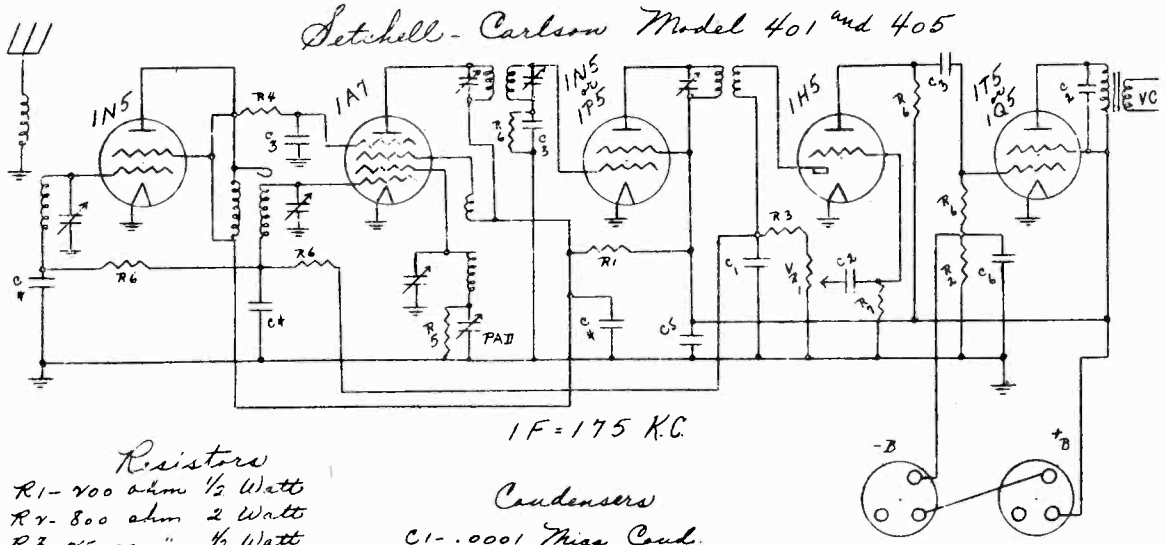
C1- .00025 - 800 Volts
C2- .001 - 800 Volts
C3- .004 - 800 Volts
C4- .01 - 400 Volts
C5- .05 - 400 Volts
C6- .1 - 200 Volts
C7- 10 - 25 Volts
C8- 8X8 - 450 Volts

Model #588

MODELS 401,405
MODELS 407,408,4017
Schematics

SETCHELL CARLSON. INC.

Setchell - Carlson Model 401 and 405



IF = 175 K.C.

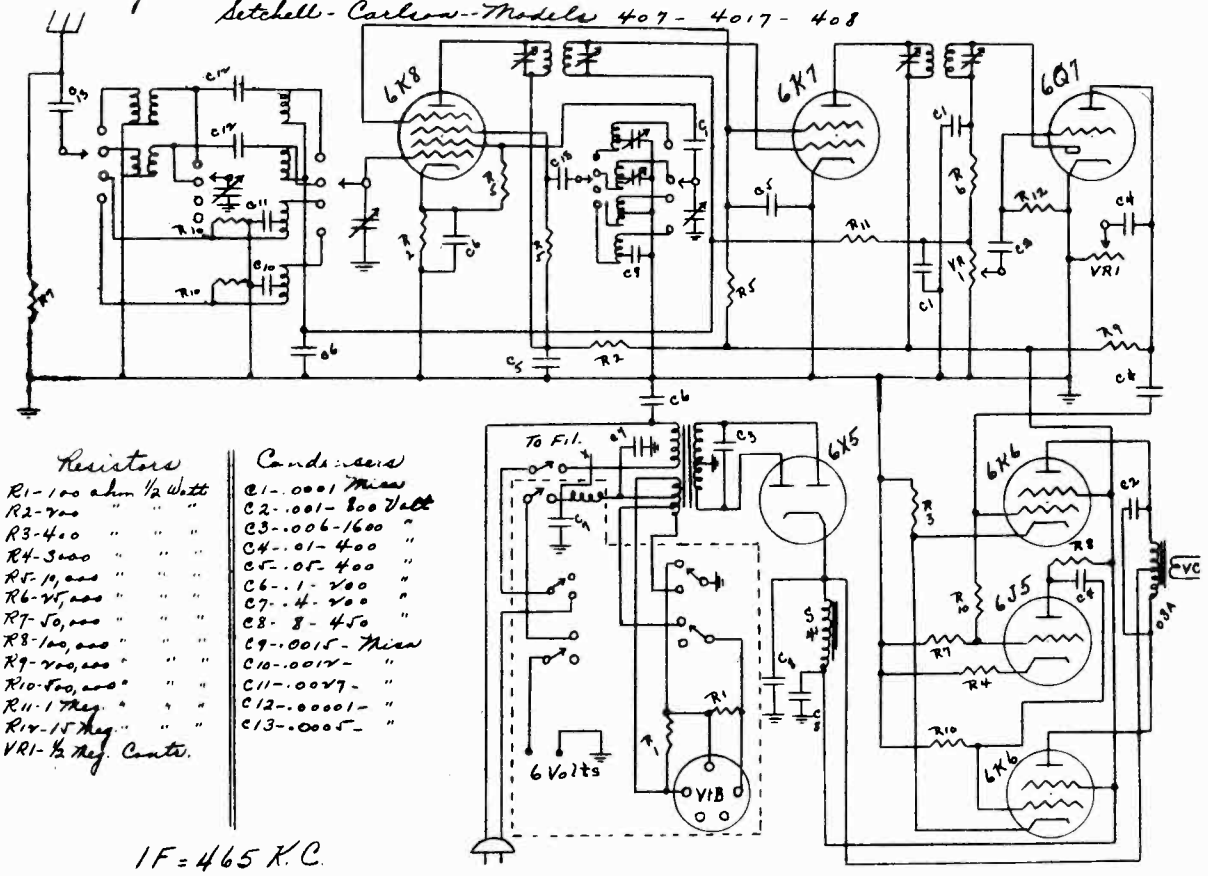
Resistors

R1 - 700 ohm ½ Watt
R2 - 800 ohm 2 Watt
R3 - 75,000 " ½ Watt
R4 - 50,000 " " "
R5 - 100,000 " " "
R6 - 1 Meg " " "
R7 - 15 Meg " " "
VR1 - ½ Meg. Vol. Control

Condensers

C1 - .0001 Mica Cond.
C2 - .001 - 800 Volt "
C3 - .01 - 400 " "
C4 - .1 - 700 " "
C5 - 1 Mfd. 700 " "
C6 - 10 " 75 " "

Setchell - Carlson - Models 407 - 4017 - 408



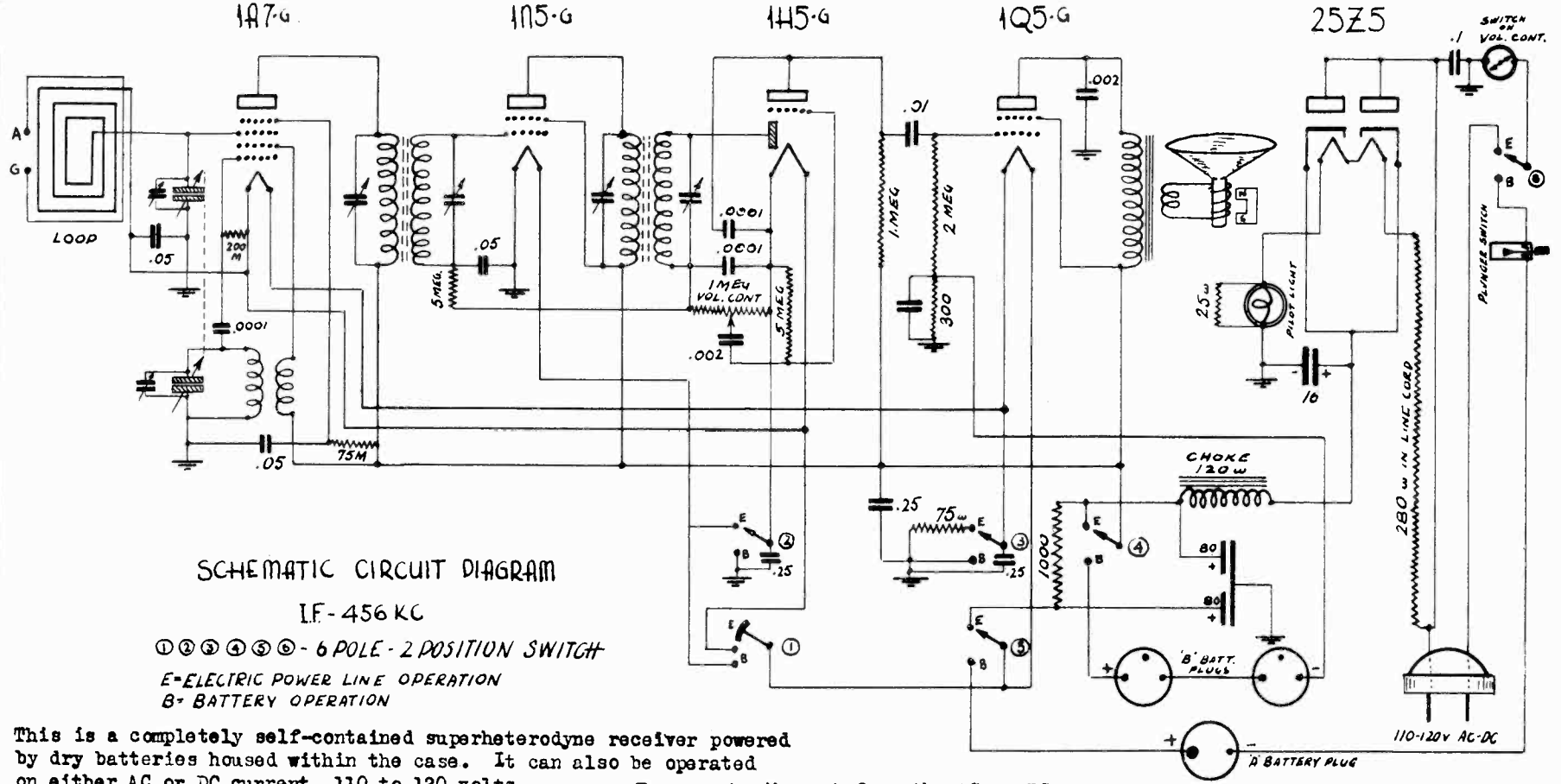
Resistors

R1 - 100 ohm ½ Watt
R2 - 700 " " "
R3 - 400 " " "
R4 - 3000 " " "
R5 - 10,000 " " "
R6 - 75,000 " " "
R7 - 50,000 " " "
R8 - 100,000 " " "
R9 - 700,000 " " "
R10 - 500,000 " " "
R11 - 1 Meg " " "
R12 - 15 Meg " " "
VR1 - ½ Meg. Contr.

Condensers

C1 - .0001 Mica
C2 - .001 - 800 Volt "
C3 - .006 - 1600 "
C4 - .01 - 400 "
C5 - .05 - 400 "
C6 - .1 - 700 "
C7 - .4 - 700 "
C8 - 8 - 450 "
C9 - .0015 - Mica "
C10 - .0017 - "
C11 - .0027 - "
C12 - .00001 - "
C13 - .0005 - "

IF = 465 K.C.



SCHEMATIC CIRCUIT DIAGRAM

I.F. - 456 KC

①②③④⑤⑥ - 6 POLE - 2 POSITION SWITCH

E - ELECTRIC POWER LINE OPERATION
B - BATTERY OPERATION

This is a completely self-contained superheterodyne receiver powered by dry batteries housed within the case. It can also be operated on either AC or DC current, 110 to 120 volts.

The batteries required are:

1- 1½ volt "A" battery (Eveready 742 or equivalent)
2- 45 " "B" batteries(Eveready 762 or equivalent)

These batteries are installed by opening the rear cover and inserting them horizontally in the lower compartment. The two plugs having three prongs are inserted into each of the receptacles on the "B" batteries and the two prong plug is inserted into the "A" battery receptacle.

To operate the set from the AC or DC power line, open the rear cover, turn the switch from battery position marked "B" to current position marked "C". Then remove the line cord from within and plug it into any convenient electric outlet. This cord should be extended to its full length. In operation it will become warm. This is natural and no danger will result. Under no circumstances should this cord be cut or shortened. If the receiver fails to operate when plugged into a DC line the plug should be rotated one half turn.

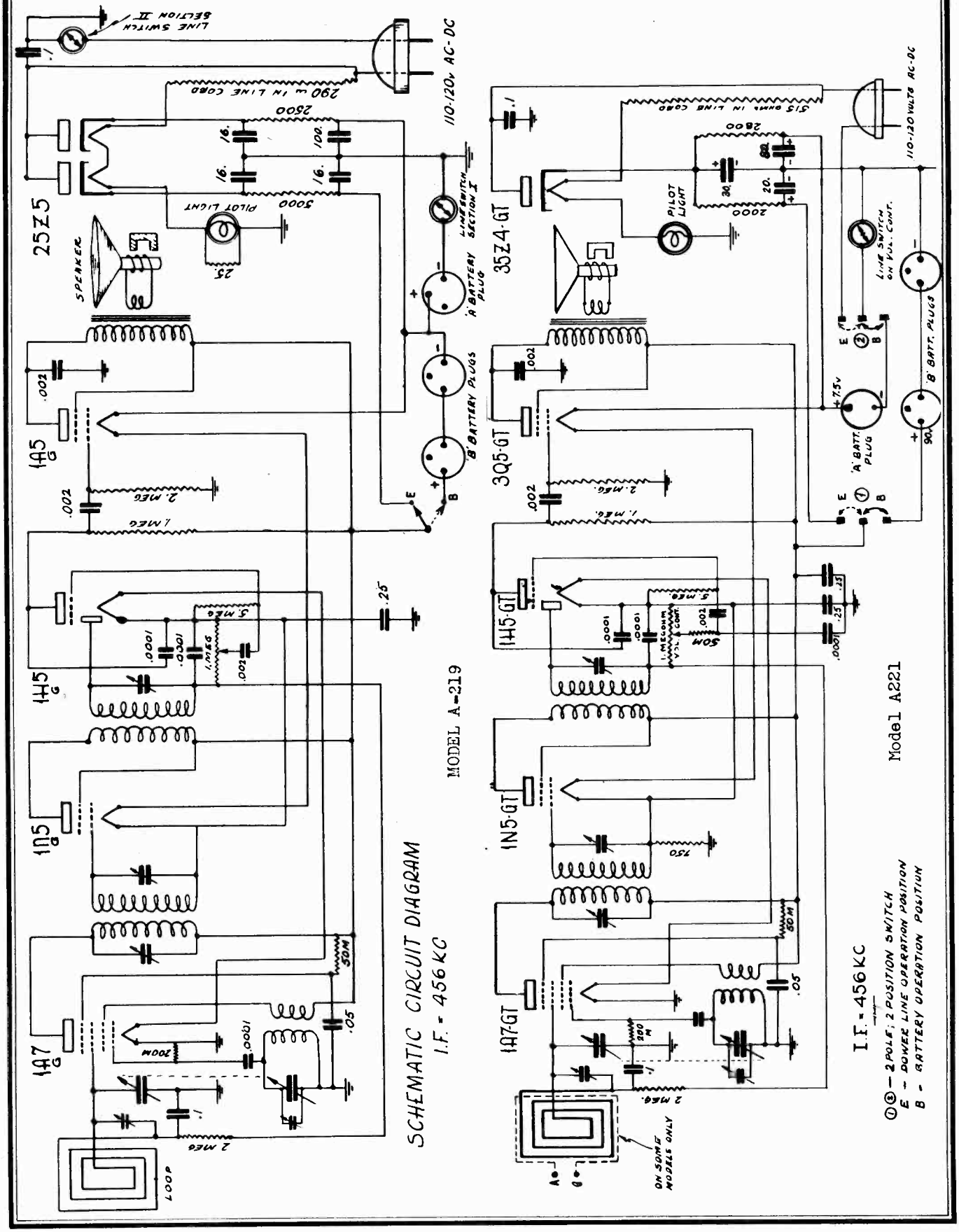
To change from power operation to battery operation, pull the line cord from the plug and turn the switch back to battery operation.

The following tubes are employed:

1- 1A7G; 1-1N5G; 1-1H5G; 1- 1Q5G; 1- 25Z5

MODEL A-219
MODEL A-221
Schematics

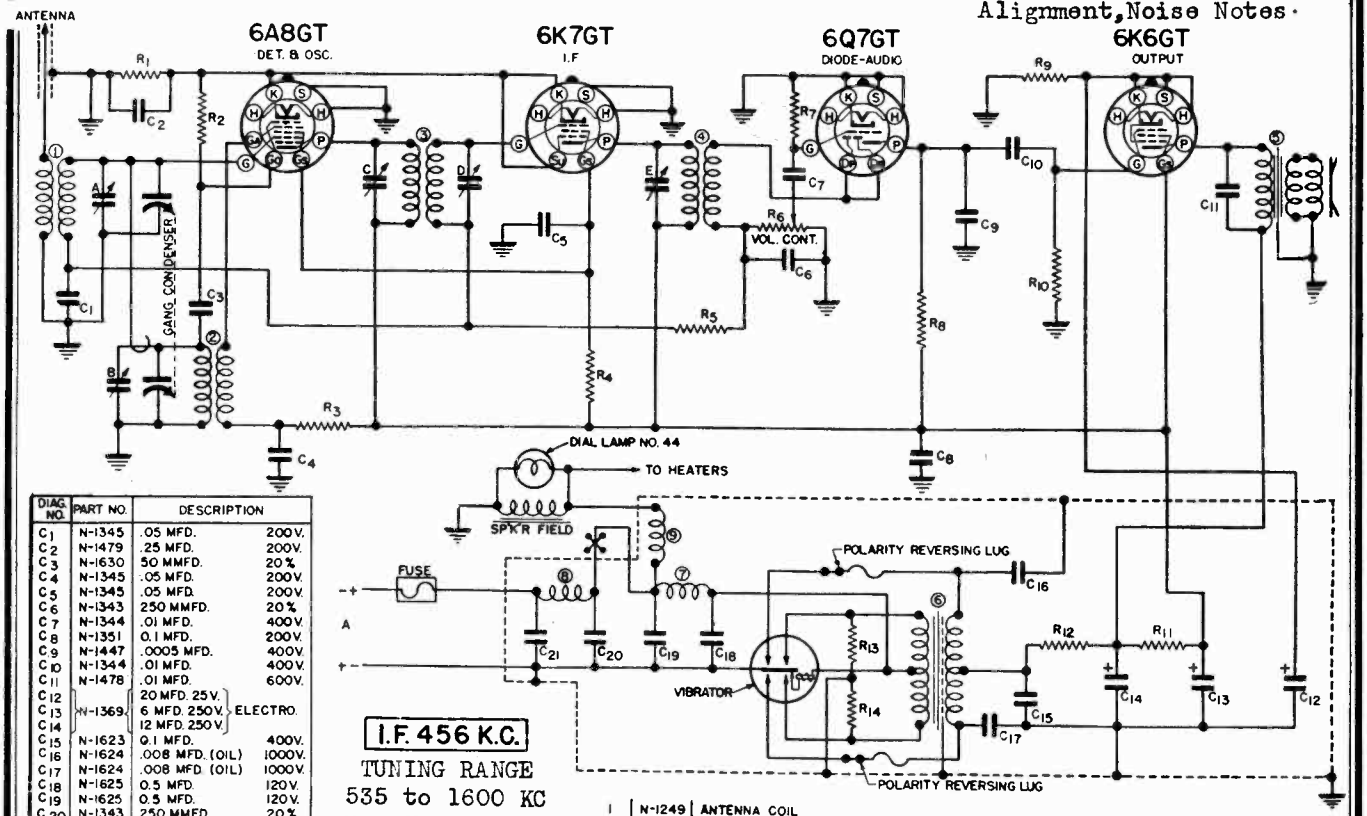
SKY-CHIEF RADIO CORP.



MODEL KU-9
Noise Notes

SONORA RADIO & TELEV., CORP.

MODEL AU-10
Chassis AU
Schematic, Socket, Trimmers
Alignment, Noise Notes.



DIAG. NO.	PART NO.	DESCRIPTION	
C1	N-1345	.05 MFD.	200V.
C2	N-1479	.25 MFD.	200V.
C3	N-1630	50 MMFD.	20%
C4	N-1345	.05 MFD.	200V.
C5	N-1345	.05 MFD.	200V.
C6	N-1343	250 MMFD.	20%
C7	N-1344	.01 MFD.	400V.
C8	N-1351	0.1 MFD.	200V.
C9	N-1447	.0005 MFD.	400V.
C10	N-1344	.01 MFD.	400V.
C11	N-1478	.01 MFD.	600V.
C12	N-1369	20 MFD. 25V.	ELECTRO.
C13		6 MFD. 250V.	
C14		12 MFD. 250V.	
C15	N-1623	0.1 MFD.	400V.
C16	N-1624	.008 MFD. (OIL)	1000V.
C17	N-1624	.008 MFD. (OIL)	1000V.
C18	N-1625	0.5 MFD.	120V.
C19	N-1625	0.5 MFD.	120V.
C 20	N-1343	250 MMFD.	20%
C 21	N-1343	250 MMFD.	20%
R1	N-1473	200 OHM	.5W. 10%
R2	N-1260	50,000 OHM	.5 W. 20%
R3	N-1627	20,000 OHM	.5 W. 20%
R4	N-1627	20,000 OHM	.5 W. 20%
R5	N-1262	1 MEGOHM	.5W 20%
R6	N-1238	0.5 MEGOHM	VOL. CONT.
R7	N-1419	6 MEGOHM	.5W. 20%
R8	N-1261	250,000 OHM	.5W. 20%
R9	N-1628	750 OHM	.5W. 10%
R10	N-1264	0.5 MEGOHM	.5W. 20%
R11	N-1256	500 OHM	.5W. 20%
R12	N-1482	250 OHM	.5W. 20%
R13	N-1629	100 OHM	1W. 20%
R14	N 1629	100 OHM	1W. 20%

I.F. 456 K.C.
TUNING RANGE
535 to 1600 KC

1	N-1249	ANTENNA COIL
2	N-1250	OSCILLATOR COIL
3	N-1248	1 ST. I.F. TRANS.
4	N-1596	2 ND. I.F. TRANS.
5	N-1235	4" SPEAKER & TRANS.
6	N-1540	VIBRATOR TRANS.
7	N-1477	HASH CHOKE
8	N-1632	MOTOR NOISE CHOKE
9	N-1631	HEATER CHOKE
	N-1236	VIBRATOR (SYNCHRONOUS)
	N-1237	GANG CONDENSER
	N-1241	TUNING DIAL
	N-1539	BATTERY LEADS
	N-1239	TOGGLE SWITCH

4 TUBE-6 VOLT
SUPERHETERODYNE
SINGLE BAND
AUTO SET

DRN. J.B. APP. 2-25-39 AU

MOTOR NOISE ELIMINATION

1. Ground the antenna lead-in shield at one or more points to the cowl or any other metal surface in contact with the lead-in.

2. Move the battery lead around to a point of least noise pick-up and fasten in place with tying cord or tape.

3. Bond together the throttle rod, choke rod and any metal tubing with a piece of copper braid and ground to the fire wall. This should be done on the engine side.

4. Bond steering post to firewall.

5. Bond hood, side panel and other protective covering for engine if it is not making a positive contact to the body.

In extreme cases, a distributor resistor and generator condenser will reduce noise interference to a minimum. These parts are available at your dealer.

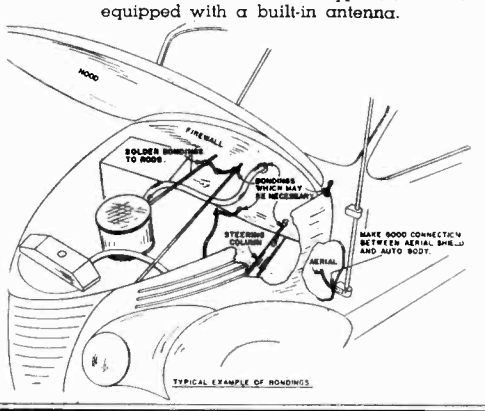
From the standpoint of motor noise, the whip type antenna recommended has been found to be the most satisfactory. It is advisable to use this type antenna even if the car is equipped with a built-in antenna.

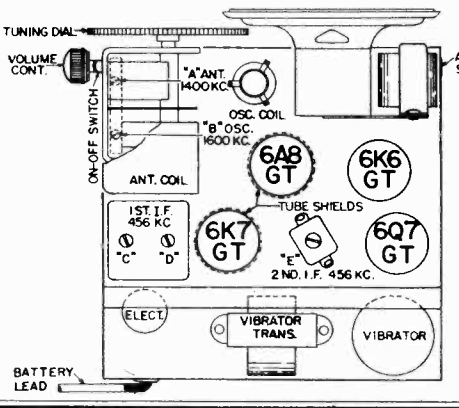
I. F. ALIGNMENT. With the gang condenser set at minimum, adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A8G) through a .05 or .1 mfd. condenser. The ground on the test oscillator should be connected to the chassis ground. Align all three trimmers to peak or maximum reading on the output meter.

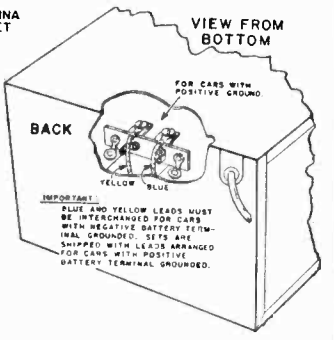
ANT. AND OSC. ALIGNMENT. Connect the antenna to the generator through a 65 MMF dummy* and set the dial and generator at 1600 KC (gang at minimum capacity). Align the BC oscillator trimmer for maximum output. Set the test oscillator at 1400 KC and tune in the signal with the dial and adjust the antenna trimmer for maximum output.

Next set the test oscillator at 600 KC and tune in the signal with the dial to check the sensitivity at this point.

*If the antenna is aligned using a whip antenna shielded lead use a 30 MMF dummy antenna.

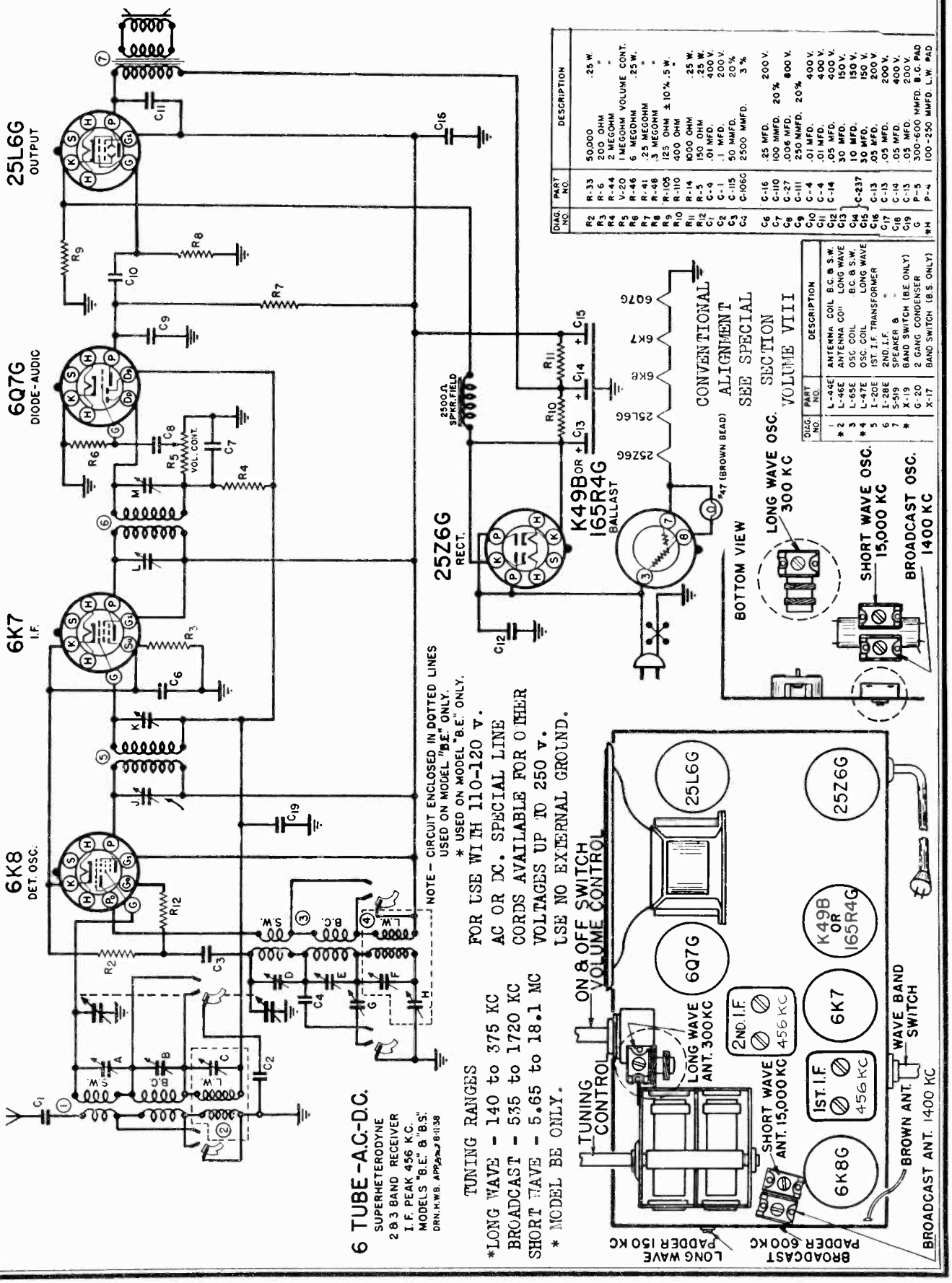






CHASSIS BE,BS
Schematic,Socket,Trimmers
Alignment

SONORA RADIO & TELEV.. CORP

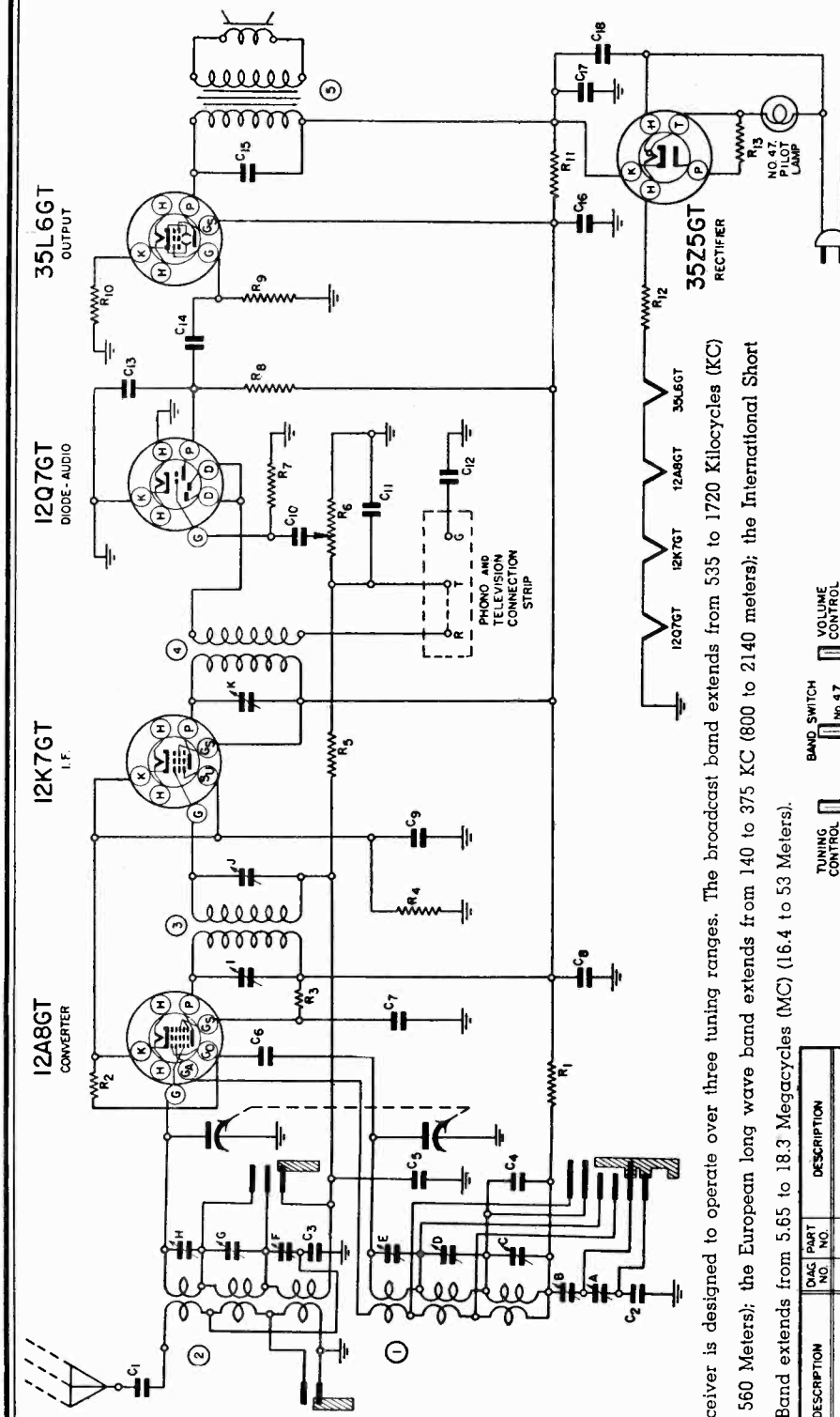


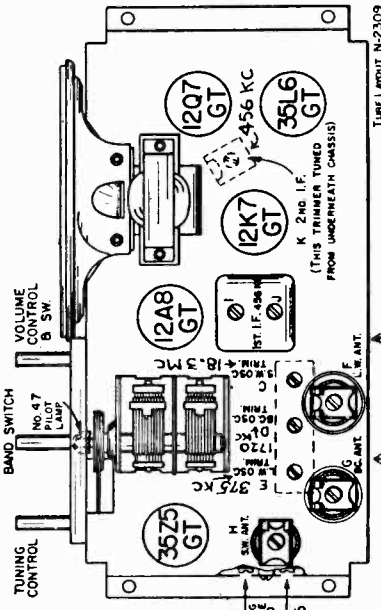
DIAG. NO.	PART NO.	DESCRIPTION
R_2	R-33	50,000 .25 W.
R_3	R-6	200 OHM "
R_4	R-44	2 MEGOHM "
R_5	V-20	1 MEGOHM VOLUME CONT.
R_6	R-46	6 MEGOHM .25 W.
R_7	R-41	.25 MEGOHM "
R_8	R-48	.3 MEGOHM "
R_9	R-105	125 OHM ±10% .5 W.
R_{10}	R-110	400 OHM "
R_{11}	R-14	1000 OHM .25 W.
R_{12}	R-5	150 OHM .25 W.
C_1	C-4	.01 MFD. 400 V.
C_2	C-1	.1 MFD. 200 V.
C_3	C-115	50 MMFD. 20%
C_4	C-106C	2500 MMFD. 3 %
C_6	C-16	.25 MFD. 200 V.
C_7	C-110	100 MMFD. 20 %
C_8	C-27	.006 MFD. 20 % 800 V.
C_9	C-111	250 MMFD. 20 %
C_{10}	C-4	.01 MFD. 400 V.
C_{11}	C-4	.01 MFD. 400 V.
C_{12}	C-14	.05 MFD. 400 V.
C_{13}		30 MFD. 150 V.
C_{14}	C-237	10 MFD. 150 V.
C_{15}		30 MFD. 150 V.
C_{16}	C-13	.05 MFD. 200 V.
C_{17}	C-13	.05 MFD. 200 V.
C_{18}	C-14	.05 MFD. 400 V.
C_{19}	C-13	.05 MFD. 200 V.
G	P-5	300-600 MMFD. B.C. PAD
*H	P-4	100-250 MMFD. L.W. PAD

DIAG. NO.	PART NO.	DESCRIPTION
1	L-44E	ANTENNA COIL B.C. & S.W.
* 2	L-46E	ANTENNA COIL LONG WAVE
3	L-65E	OSC. COIL B.C. & S.W.
* 4	L-47E	OSC. COIL LONG WAVE
5	I-20E	1ST. I.F. TRANSFORMER
6	I-28E	2ND. I.F. "
7	S-519	SPEAKER & "
*	X-19	BAND SWITCH (BE ONLY)
	G-20	2 GANG CONDENSER
	X-17	BAND SWITCH (BS. ONLY)

SONORA RADIO & TELEV., CORP.

CHASSIS BJE
Schematic, Socket
Trimmers, Alignment





I.F. 456 KC.
CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII
5 TUBE A.C.-D.C.
SUPERHETERODYNE
THREE BAND

Drwn. W.F. Appd. M.W.L. Aug. 3, '39
BJE-TJE

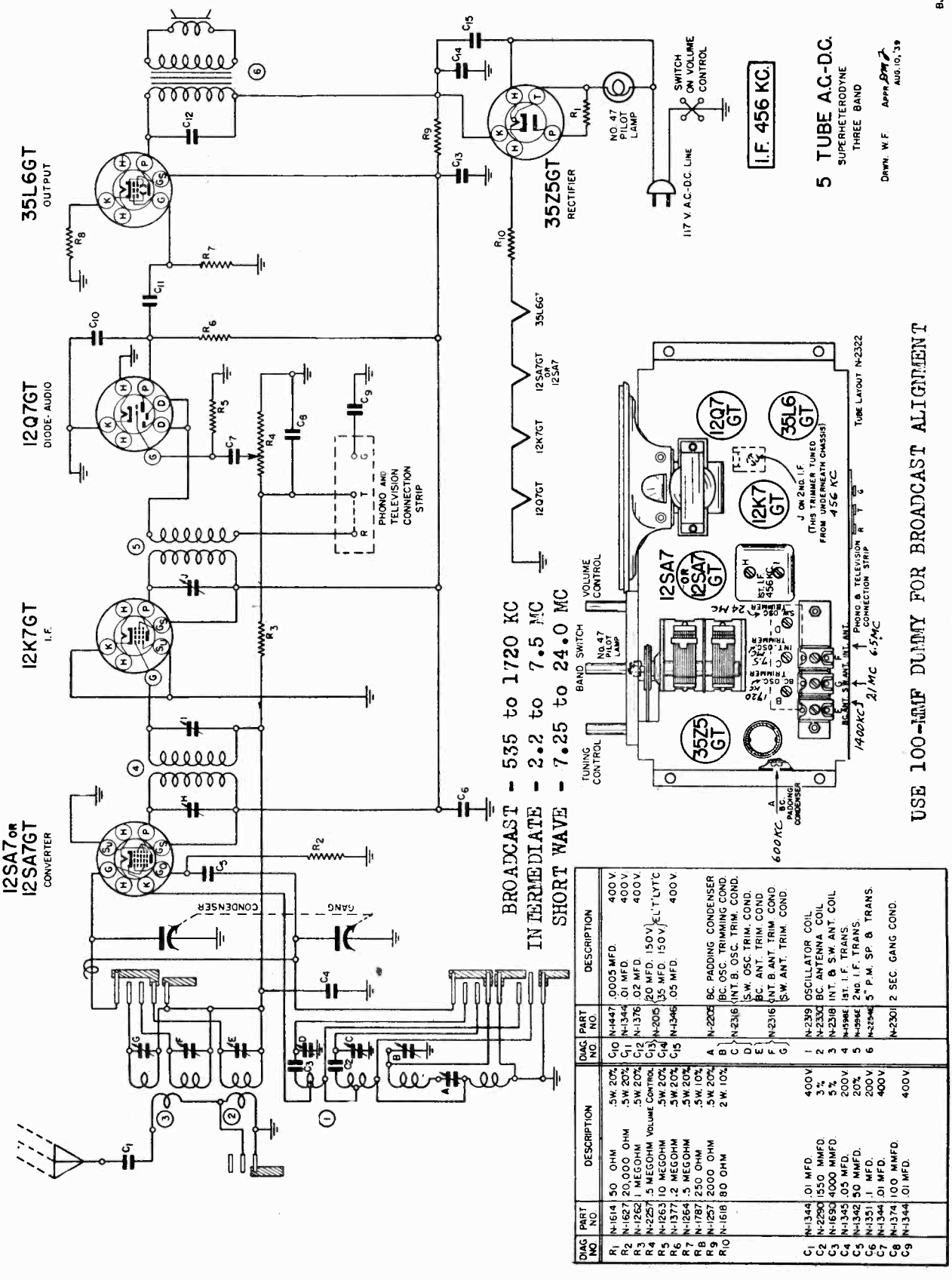
USE 100-MMF DUMMY FOR LONG-WAVE AND B.C. ALIGNMENT

This receiver is designed to operate over three tuning ranges. The broadcast band extends from 535 to 1720 Kilocycles (KC) (174 to 560 Meters); the European long wave band extends from 140 to 375 KC (800 to 2140 meters); the International Short Wave Band extends from 5.65 to 18.3 Megacycles (MC) (16.4 to 53 Meters).

DIAG. NO.	PART NO.	DESCRIPTION
R_1	N-258	10,000 OHMS .5W 20%
R_2	N-1260	50,000 OHMS .5W 20%
R_3	N-1627	20,000 OHMS .5W 20%
R_4	N-1742	25 OHMS .5W 20%
R_5	N-1262	1 MEGOHM .5W 20%
R_6	N-2257	.5 MEGOHM VOLUME CONTROL
R_7	N-1263	10 MEGOHM .5W 20%
R_8	N-1377	200,000 OHMS .5W 20%
R_9	N-1264	.3 MEGOHM .5W 20%
R_{10}	N-1787	250 OHMS .5W 10%
R_{11}	N-1617	2300 OHMS .5W 20%
R_{12}	N-1618	80 OHMS 2W 10%
R_{13}	N-1814	50 OHMS .5W 20%
C_1	N-1344	.01 MFD. 400V
C_2	N-1690	4000 MMFD. 5%
C_3	N-2306	200 MMFD. 20%
C_4	N-2311	100 MMFD. 10%
C_5	N-1345	.05 MFD. 200V
C_6	N-1342	50 MMFD 20%
C_7	N-1345	.05 MFD. 200V
C_8	N-1351	.1 MFD. 200V
C_9	N-1351	.1 MFD. 200V
C_{10}	N-1344	.01 MFD. 400V
C_{11}	N-1374	100 MMFD. 20%
C_{12}	N-1344	.01 MFD. 400V.
C_{13}	N-1447	.0005 MFD. 400V.
C_{14}	N-1344	.01 MFD. 400V.
C_{15}	N-1376	.02 MFD. 400V.
C_{16}	N-2105	20 MFD. 150 V. / 35 MFD. 150 V. ELECTROLYTIC
C_{17}		
C_{18}	N-1346	.05 MFD. 400 V.
A	N-2291	BC. PADDING COND.
B		L.W. PADDING COND.
C	N-2310	L.W. OSC. TRIM.
D		BC. OSC. TRIM.
E		S.W. OSC. TRIM.
F	N-2304	L.W. ANT. COIL & TRIM.
G	N-2302	BC. ANT. COIL & TRIM.
H	N-2303	S.W. ANT. COIL & TRIM.
3	N-1596E	1ST I.F. TRANS.
4	N-1596E	2ND I.F. TRANS.
5	M-2234E	5" PM SPEAKER & TRANS
K	N-1597	2ND I.F. TRIM. COND.
	N-2301	GANG CONDENSER

CHASSIS BJI
Schematic, Socket
Alignment, Trimmers

SONORA RADIO & TELEV., CORP.

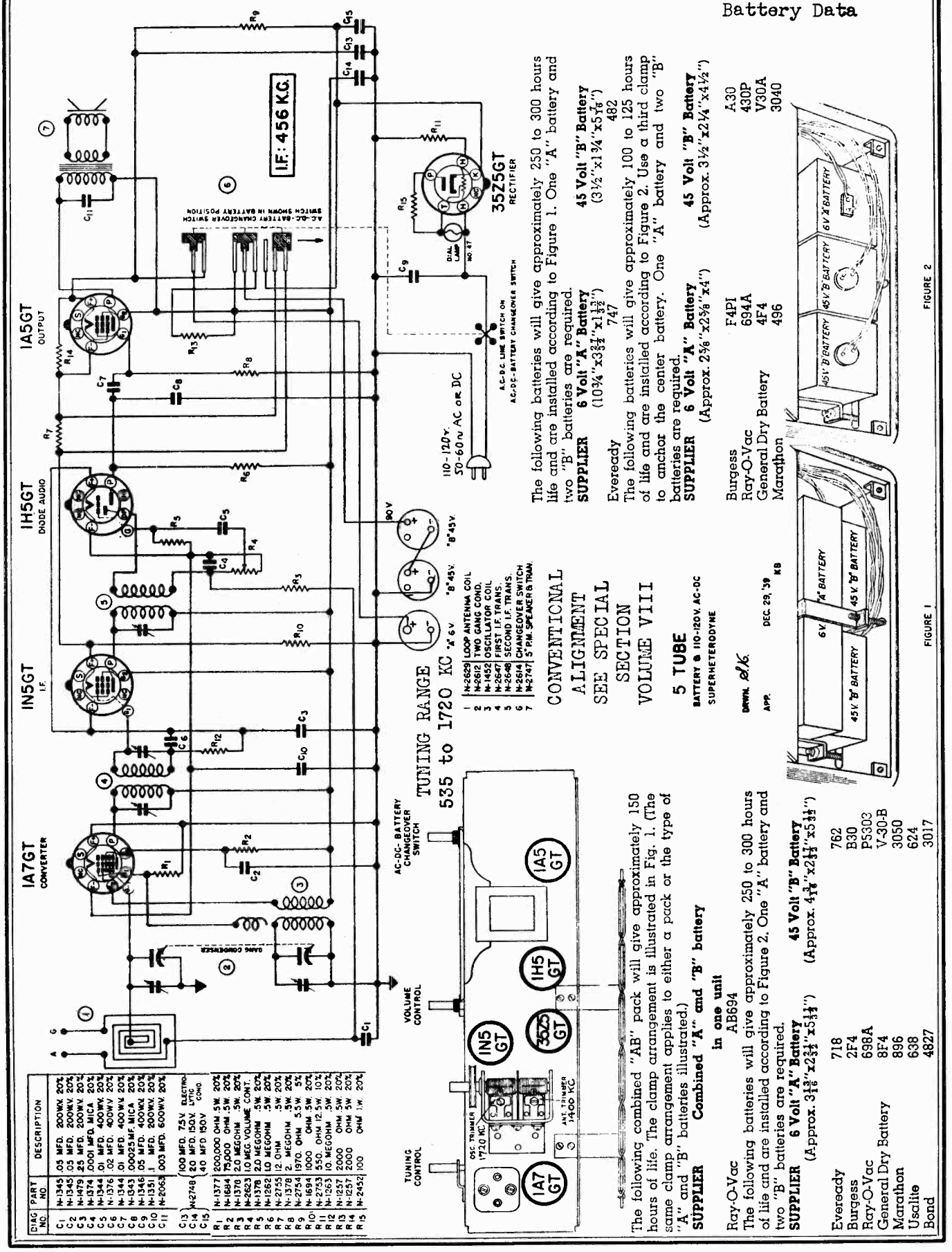


DIAG NO	PART NO	DESCRIPTION	DIAG NO	PART NO	DESCRIPTION
R_1	N-1614	50 OHM .5W 20%	C_{10}	N-1447	.0005 MFD. 400 V.
R_2	N-1627	20,000 OHM .5W 20%	C_{11}	N-1344	.01 MFD. 400 V.
R_3	N-1262	1 MEGOHM .5W 20%	C_{12}	N-1376	.02 MFD. 400 V.
R_4	N-1257	.5 MEGOHM VOLUME CONTROL	C_{13}	N-2057	20 MFD. 150 V. ELECTROLYTIC
R_5	N-1263	10 MEGOHM .5W 20%	C_{14}	N-2058	35 MFD. 150 V.
R_6	N-1377	.2 MEGOHM .5W 20%	C_{15}	N-1346	.05 MFD. 400 V.
R_7	N-1264	.5 MEGOHM .5W 20%			
R_8	N-1787	250 OHM .5W 10%	A	N-2205	BC. PADDING CONDENSER
R_9	N-1257	2000 OHM .5W 20%	B	N-2316	BC. OSC. TRIMMING COND.
R_{10}	N-1618	80 OHM 2 W. 10%	C		INT. B. OSC. TRIM. COND.
			D		S.W. OSC. TRIM. COND.
			E		BC. ANT. TRIM. COND.
			F	N-2316	INT. B. ANT. TRIM COND.
			G		S.W. ANT. TRIM. COND.
C_1	N-1344	.01 MFD. 400 V.	1	N-2391	OSCILLATOR COIL
C_2	N-2290	550 MMFD. 3%	2	N-2330	BC. ANTENNA COIL
C_3	N-1690	4000 MMFD. 5%	3	N-2318	INT. & S.W. ANT. COIL
C_4	N-1345	.05 MFD. 200 V.	4	N-1596E	1st. I.F. TRANS.
C_5	N-1342	50 MMFD. 20%	5	N-1596E	2nd. I.F. TRANS.
C_6	N-1351	.1 MFD. 200 V.	6	N-2254E	3rd P.M. SP & TRANS.
C_7	N-1344	.01 MFD. 400 V.			
C_8	N-1374	100 MMFD.		N-2301	2 SEC. GANG COND.
C_9	N-1344	.01 MFD. 400 V.			

CHASSIS KD
Battery Data

SONORA RADIO & TELEV., CORP.

MODEL KB-73, Ch. KB
Schematic, Socket
Trimmers, Alignment
Battery Data



DIAG NO.	PART NO.	DESCRIPTION
C1	N-1345	.05 MFD. 200 W.V. 20%
C2	N-1345	.05 MFD. 200 W.V. 20%
C3	N-1479	.25 MFD. 200 W.V. 20%
C4	N-1374	.0001 MFD. MICA 20%
C5	N-1344	.01 MFD. 400 W.V. 20%
C6	N-1376	.02 MFD. 400 W.V. 20%
C7	N-1344	.01 MFD. 400 W.V. 20%
C8	N-1343	.00025 MF. MICA 20%
C9	N-1346	.05 MFD. 400 W.V. 20%
C10	N-1351	.1 MFD. 200 W.V. 20%
C11	N-2063	.003 MFD. 600 W.V. 20%
C13	N-2748	100 MFD. 75 V. ELECTRO-LYTIC COND.
C14		20 MFD. 150 V.
C15		40 MFD 150 V.
R1	N-1377	200,000 OHM .5 W. 20%
R2	N-1684	75,000 OHM .5 W. 20%
R3	N-1378	2.0 MEGOHM .5 W. 20%
R4	N-2623	1.0 MEG. VOLUME CONT.
R5	N-1378	2.0 MEGOHM .5 W. 20%
R6	N-1262	1.0 MEGOHM .5 W. 20%
R7	N-2755	12 OHM .5 W. 20%
R8	N-1378	2. MEGOHM .5 W. 20%
R9	N-2754	1970. OHM .5 W. 5%
R10	N-1694	1000 OHM .5 W. 20%
R11	N-2753	550. OHM 12.5 W. 10%
R12	N-1263	10. MEGOHM .5 W. 20%
R13	N-1257	2000 OHM .5 W. 20%
R14	N-1257	2000 OHM .5 W. 20%
R15	N-2452	100 OHM 1 W. 20%

The following combined "AB" pack will give approximately 150 hours of life. The clamp arrangement is illustrated in Fig. 1. (The same clamp arrangement applies to either a pack or the type of "A" and "B" batteries illustrated.)

SUPPLIER **Combined "A" and "B" battery in one unit**

Ray-O-Vac AB694

The following batteries will give approximately 250 to 300 hours of life and are installed according to Figure 2. One "A" battery and two "B" batteries are required.

SUPPLIER	6 Volt "A" Battery (Approx. 3 1/16" x 2 3/4" x 5 1/4")	45 Volt "B" Battery (Approx. 4 1/16" x 2 1/2" x 5 1/4")
Eveready	718	762
Burgess	2F4	B30
Ray-O-Vac	698A	P5303
General Dry Battery	8F4	V-30-B
Marathon	896	3050
Usalite	638	624
Bond	4827	3017

The following batteries will give approximately 250 to 300 hours life and are installed according to Figure 1. One "A" battery and two "B" batteries are required.

SUPPLIER	6 Volt "A" Battery (10 3/4" x 3 3/4" x 1 13/16")	45 Volt "B" Battery (3 1/2" x 1 3/4" x 5 7/8")
Eveready	747	482

The following batteries will give approximately 100 to 125 hours of life and are installed according to Figure 2. Use a third clamp to anchor the center battery. One "A" battery and two "B" batteries are required.

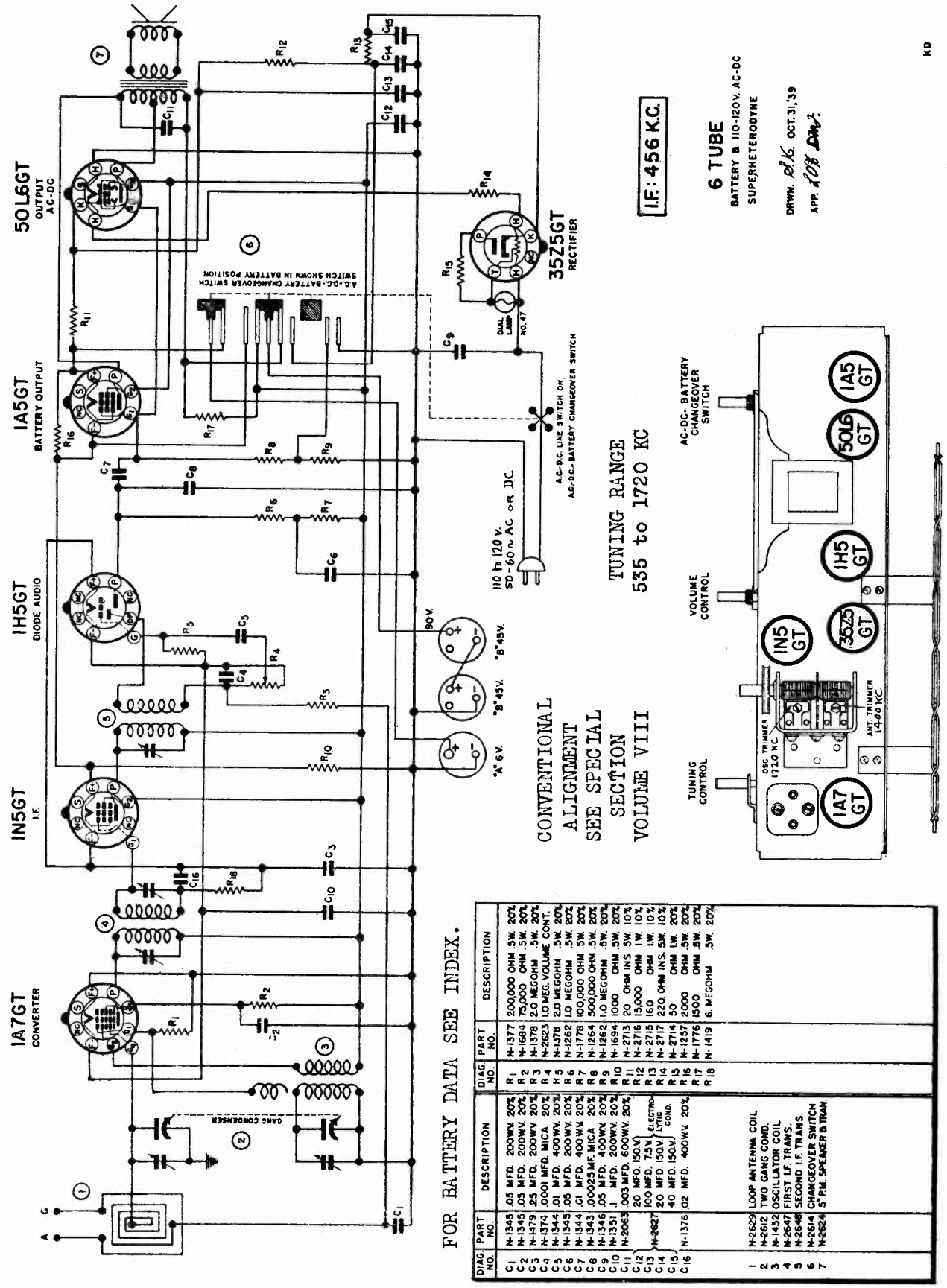
SUPPLIER	6 Volt "A" Battery (Approx. 2 5/8" x 2 5/8" x 4")	45 Volt "B" Battery (Approx. 3 1/2" x 2 1/4" x 4 1/2")
Burgess	F4PI	A30
Ray-O-Vac	694A	430P
General Dry Battery	4F4	V30A
Marathon	496	3040

FIGURE 1

FIGURE 2

MODEL KD-75, Ch. KD
Schematic, Socket
Trimmers, Alignment

SONORA RADIO & TELEV., CORP.



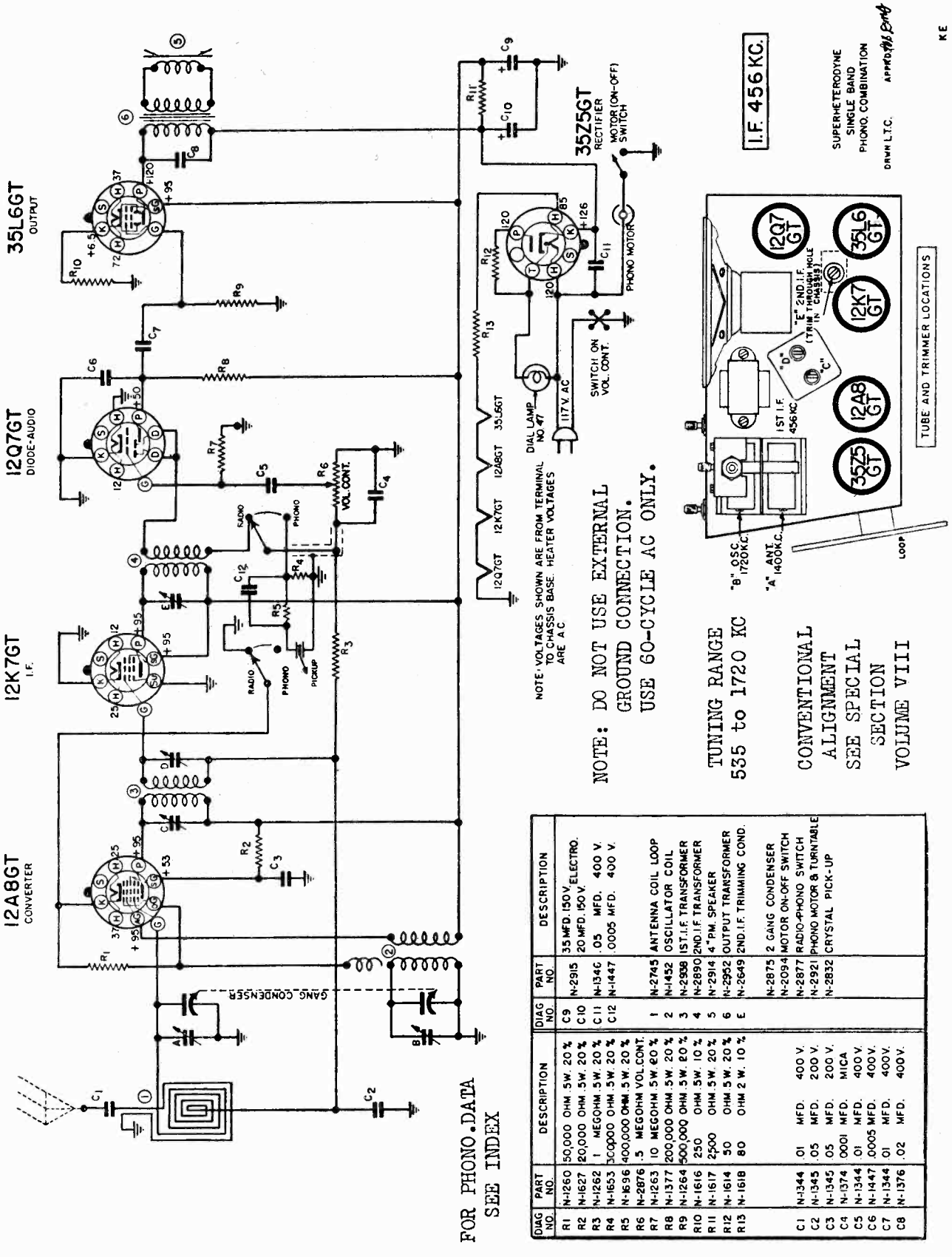
FOR BATTERY DATA SEE INDEX.

DIAG NO.	PART NO.	DESCRIPTION
C1	N-1345	.05 MFD. 200 W.V. 20%
C2	N-1345	.05 MFD. 200 W.V. 20%
C3	N-1479	.25 MFD. 200 W.V. 20%
C4	N-1374	.0001 MFD. MICA 20%
C5	N-1344	.01 MFD. 400 W.V. 20%
C6	N-1345	.05 MFD. 200 W.V. 20%
C7	N-1344	.01 MFD. 400 W.V. 20%
C8	N-1343	.00025 MF. MICA 20%
C9	N-1346	.05 MFD. 400 W.V. 20%
C10	N-1351	.1 MFD. 200 W.V. 20%
C11	N-2063	.003 MFD. 600 W.V. 20%
C12		20 MFD. 150 V.
C13	N-2627	100 MFD. 75 V. ELECTRO-LYTIC COND.
C14		20 MFD. 150 V.
C15		40 MFD. 150 V.
C16	N-1376	.02 MFD. 400 W.V. 20%
1	N-2629	LOOP ANTENNA COIL
2	N-2612	TWO GANG COND.
3	N-1432	OSCILLATOR COIL
4	N-2647	FIRST I.F. TRANS.
5	N-2648	SECOND I.F. TRANS.
6	N-2614	CHANGEOVER SWITCH
7	N-2624	5" P.M. SPEAKER & TRAN.

DIAG NO.	PART NO.	DESCRIPTION
R1	N-1377	200,000 OHM .5W. 20%
R2	N-1684	75,000 OHM .5W. 20%
R3	N-1378	2.0 MEGOHM .5W. 20%
R4	N-2623	1.0 MEG. VOLUME CONT.
R5	N-1378	2.0 MEGOHM .5W. 20%
R6	N-1262	1.0 MEGOHM .5W. 20%
R7	N-1778	100,000 OHM .5W. 20%
R8	N-1264	500,000 OHM .5W. 20%
R9	N-1262	1.0 MEGOHM .5W. 20%
R10	N-1694	1000 OHM .5W. 20%
R11	N-2713	20 OHM WW 5W. 10%
R12	N-2716	15,000 OHM 1W. 10%
R13	N-2715	160 OHM 1W. 10%
R14	N-2717	220 OHM WW 5W. 10%
R15	N-2714	50 OHM 1W. 20%
R16	N-1257	2000 OHM .5W. 20%
R17	N-1776	1500 OHM .5W. 20%
R18	N-1419	6. MEGOHM .5W. 20%

SONORA RADIO & TELEV.. CORP.

MODEL KE-78, Ch. KE
Schematic, Socket
Alignment, Trimmers



NOTE: DO NOT USE EXTERNAL GROUND CONNECTION. USE 60-CYCLE AC ONLY.

TUNING RANGE
535 to 1720 KC

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

FOR PHONO. DATA SEE INDEX

DIAG NO	PART NO.	DESCRIPTION		
R1	N-1260	50,000 OHM .5W. 20 %		
R2	N-1627	20,000 OHM .5W. 20 %		
R3	N-1262	1 MEGOHM .5W. 20 %		
R4	N-1653	300000 OHM .5W. 20 %		
R5	N-1636	400,000 OHM .5W. 20 %		
R6	N-2876	.5 MEGOHM VOL.CONT.		
R7	N-1263	10 MEGOHM .5W. 20 %		
R8	N-1377	200,000 OHM .5W. 20 %		
R9	N-1264	500,000 OHM .5W. 20 %		
R10	N-1616	250 OHM .5W. 10 %		
R11	N-1617	2500 OHM .5W. 20 %		
R12	N-1614	50 OHM .5W. 20 %		
R13	N-1618	80 OHM 2 W. 10 %		
C1	N-1344	.01 MFD.	400 V.	
C2	N-1345	.05 MFD.	200 V.	
C3	N-1345	.05 MFD.	200 V.	
C4	N-1374	.0001 MFD.	MICA	
C5	N-1344	.01 MFD.	400 V.	
C6	N-1447	.0005 MFD.	400 V.	
C7	N-1344	.01 MFD.	400 V.	
C8	N-1376	.02 MFD.	400 V.	

DIAG NO	PART NO	DESCRIPTION
C9	N-2915	35 MFD. 150 V.
C10		20 MFD. 150 V. ELECTRO.
C11	N-1346	.05 MFD. 400 V.
C12	N-1447	.0005 MFD. 400 V.
1	N-2745	ANTENNA COIL LOOP
2	N-1452	OSCILLATOR COIL
3	N-2938	IST I.F. TRANSFORMER
4	N-2890	2ND I.F. TRANSFORMER
5	N-2914	4" P.M. SPEAKER
6	N-2952	OUTPUT TRANSFORMER
E	N-2649	2ND I.F. TRIMMING COND.
	N-2875	2 GANG CONDENSER
	N-2094	MOTOR ON-OFF SWITCH
	N-2877	RADIO-PHONO SWITCH
	N-2921	PHONO MOTOR & TURNTABLE
	N-2832	CRYSTAL PICK-UP

PHONOGRAPH OPERATION

ALL TYPES

PICKUP — The pickup is the new crystal type. To insert a needle, raise the pickup arm to a vertical position, loosen the needle holder screw on the front, insert a needle to its full depth, tighten up the needle holder screw and lower pickup arm to its non-playing position outside the record and slip into the pick-up rest holder. When commencing to play, remove pickup from holder, lift and place gently the point of the needle on the smooth outer rim of the record and slide into the first groove of the record.

NOTE: In case a hum comes from the speaker when your hand is on the pick-up, reverse the power plug in the power outlet receptical.

PLAYING RECORDS

(a) Turn on the volume control and "on-off" switch on the receiver.

FOR (b),(c) SEE BELOW

(d) Lift pickup and lower the needle point gently to the smooth outer rim of the record and slide into the first groove of the record.

(e) Adjust volume to proper level by rotation of the volume control knob. Adjust tone control for best reproduction. If record and needle scratch noise is objectionable the tone control may be used to subdue or eliminate by adjustment of the tone to the left, the position that favors "Bass" response. After the selection is completed, lift the pickup, swing the arm to the right beyond the edge of the record and lower and affix to the arm rest bracket.

(f) When you have finished playing, lift pickup and place in its rest position and remove record from turntable. Never leave pickup with needle resting on record or on turntable.

KE, TB, TF ONLY

(b) Turn the "Radio-phono" switch to the phono position.

(c) Place the selected record upon the turntable and move the starting lever forward. This will place the record in motion.

TJF, TNF ONLY

(b) Slide the "Radio-phono" switch to the phono position.

(c) Place the selected record upon the turntable and press the motor starting switch.

This will place the record in motion.

TB ONLY

MOTOR STARTING SWITCH AND AUTOMATIC STOP—The motor starting switch is operated by the lever which comes from underneath the turntable at the right. Pressing the lever to the rear starts the motor. The arm projecting above the turntable to the rear and to the right of the turntable is the automatic stop switch. The automatic stop switch is adjustable and should be adjusted to stop the motor when the pick-up needle travels the last record groove (nearest the center). This can be done by moving the release arm to a position where it just touches the side of the pick-up arm when the needle is in the last groove and with the motor running.

TURNTABLE — Before attempting to operate the phonograph, loosen the three screws which hold the motor in place about two full turns to float the motor free in the rubber mountings. Place the turntable on the spindle and apply a slight pressure to the turntable and it will snap into the correct position. Be certain that the cabinet rests squarely on a flat surface so that the turntable is level and rotates in a true horizontal plane.

KE, TJF, TNF ONLY

MOTOR SWITCH. (Small Button located on top of cabinet underneath cover)—The radio set must first be turned on before this switch will operate. Push the switch once to turn on the motor. Push the switch again to turn off the motor.

TURNTABLE—Gently place the turntable on the motor spindle and carefully place the rubber tired drive wheel inside the turntable flange. **DO NOT FORCE TURNTABLE OVER DRIVE WHEEL.** Be certain that the cabinet rests squarely on a flat surface so that the turntable is level and rotates in a true horizontal plane.

TF ONLY

MOTOR. The motor is a strong mechanical type hand wound spring motor. Insert the crank in the hole at the right. When the motor is fully wound the phonograph will play two full ten-inch records before rewinding is required.

TURNTABLE. To start turntable move the brake lever forward. To stop turntable pull lever toward you. Speed may be regulated by the control arm. For correct pitch adjust this speed to 78 revolutions per minute.

WARNING: Do not forget to turn off radio set when through playing records or the battery will run down. Battery life is appreciably shortened by continuous operation over long periods of time.

RECORD HOLDER. Eight ten-inch records may be carried in the record holder in the cabinet lid. To remove record holding clamp turn it ninety degrees. Place records in lid, replace clamp, sliding it up tight against records before turning it.

SERVICE

KE, TB ONLY

As the phonograph motor is the only moving part it is the only part of your phono-attachment that will require any attention. The motor requires oiling once every six months. Remove the turntable and apply 3 or 4 drops of Number 10 S.A.E. Oil in each of the three oil wells on the top of the motor. These oil wells are below the mounting plate and are in a straight line about one inch apart.

TF ONLY

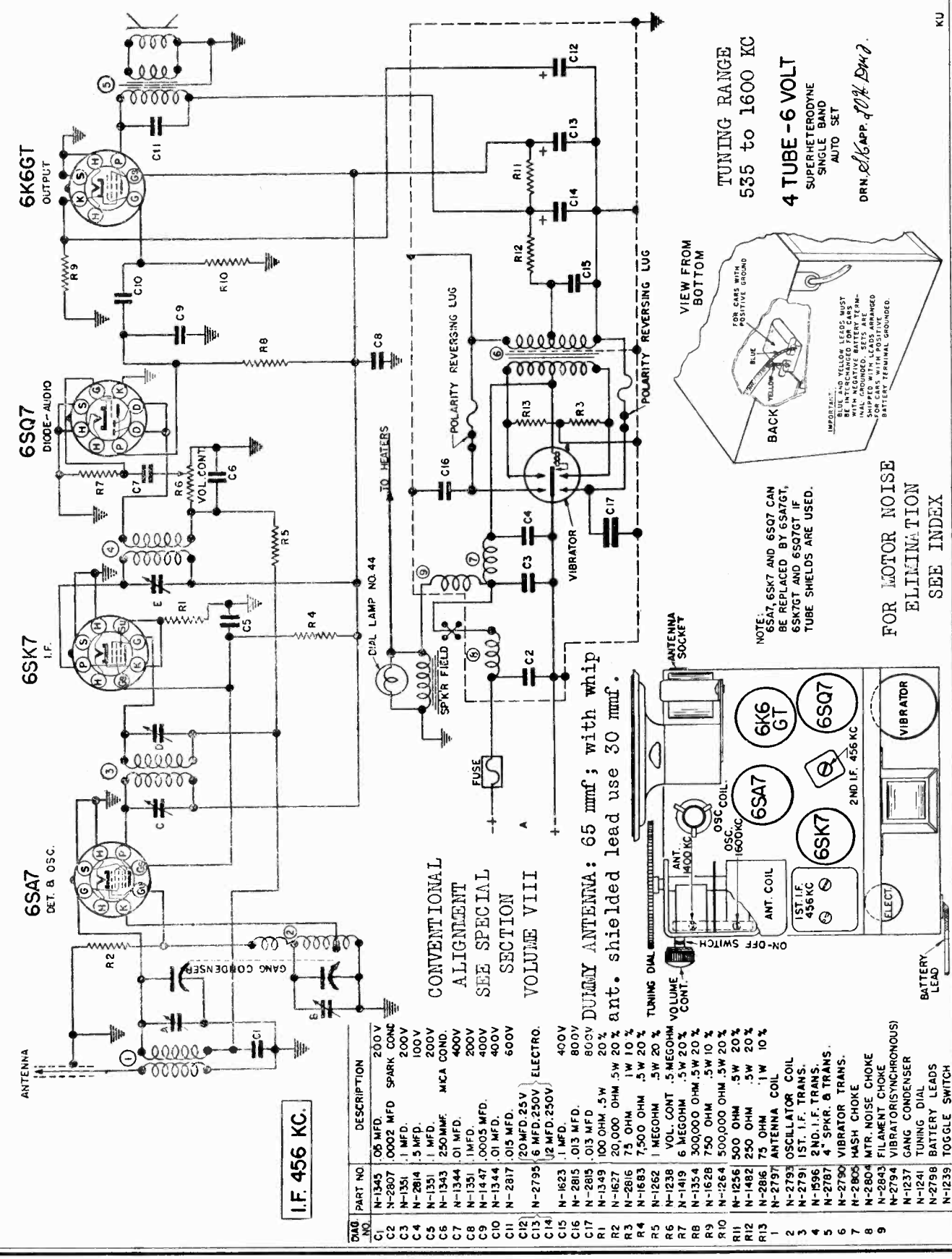
SERVICE. The phonograph motor will require oiling once every three months. Apply 3 or 4 drops of Number 10 S. A. E. oil to the turntable bearings, to the bearings at each end of the governor shaft, to the felt pad on the governor brake, and to the gears and bearings on the gear shafts.

TJF, TNF ONLY

The motor requires oiling once every year. Remove the turntable and detach the motor by removing the 3 wood screws. Apply 2 or 3 drops of Number 10 S.A.E. Oil in each of the felt wicks around the bearings.

SONORA RADIO & TELEV.. CORP.

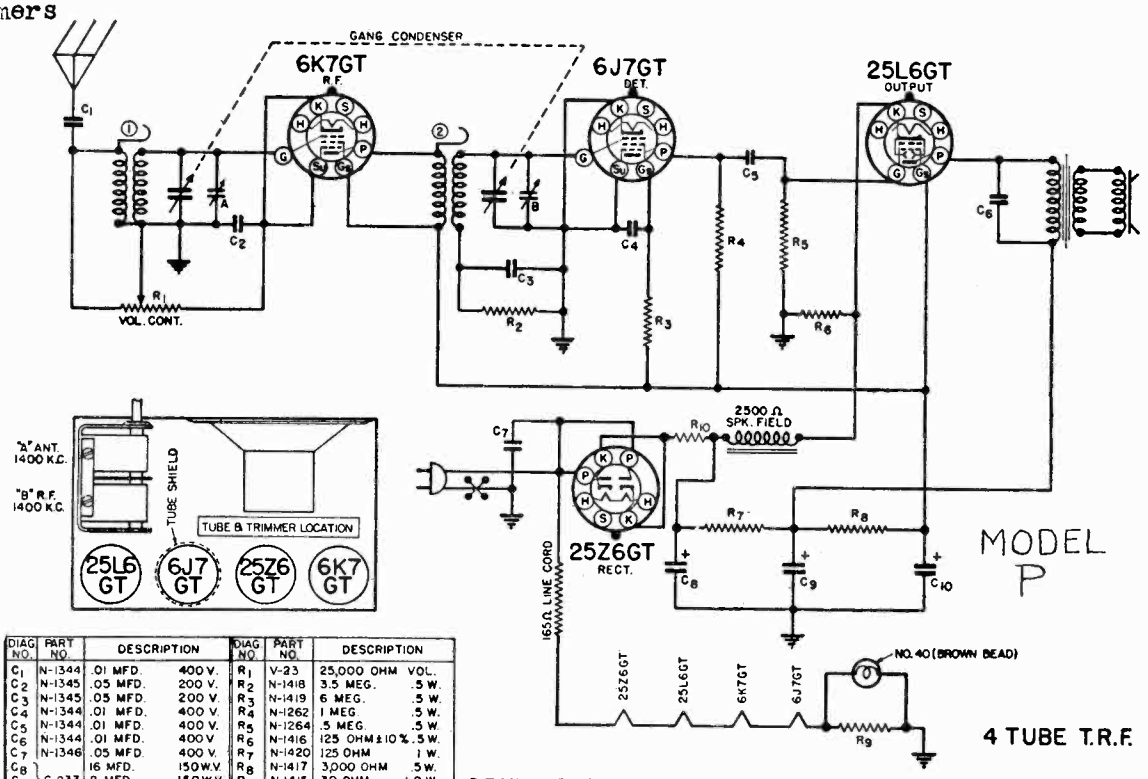
MODEL KU-9, Ch. KU
Schematic, Socket
Alignment, Trimmers



DIAG. NO.	PART NO.	DESCRIPTION	
C1	N-1345	.05 MFD.	200 V
C2	N-2807	.0002 MFD SPARK COND	
C3	N-1351	.1 MFD.	200 V
C4	N-2814	.5 MFD.	100 V
C5	N-1351	.1 MFD.	200 V
C6	N-1343	250 MMF. MICA COND.	
C7	N-1344	.01 MFD.	400 V
C8	N-1351	.1 MFD.	200 V
C9	N-1447	.0005 MFD.	400 V
C10	N-1344	.01 MFD.	400 V
C11	N-2817	.015 MFD.	600 V
C12	N-2795	20 MFD. 25 V } ELECTRO.	
C13		6 MFD. 250 V } ELECTRO.	
C14		2 MFD. 250 V } ELECTRO.	
C15	N-1623	.1 MFD.	400 V
C16	N-2815	.013 MFD.	800 V
C17	N-2815	.013 MFD.	800 V
R1	N-1349	100 OHM .5 W	20 %
R2	N-1627	20,000 OHM .5 W	20 %
R3	N-2816	75 OHM 1 W	10 %
R4	N-1683	7,500 OHM .5 W	20 %
R5	N-1262	1 MEGOHM .5 W	20 %
R6	N-1238	VOL. CONT .5 MEGOHM	
R7	N-1419	6 MEGOHM .5 W	20 %
R8	N-1354	300,000 OHM .5 W	20 %
R9	N-1628	750 OHM .5 W	10 %
R10	N-1264	500,000 OHM .5 W	20 %
R11	N-1256	500 OHM .5 W	20 %
R12	N-1482	250 OHM .5 W	20 %
R13	N-2816	75 OHM 1 W	10 %
1	N-2797	ANTENNA COIL	
2	N-2793	OSCILLATOR COIL	
3	N-2791	1ST. I.F. TRANS.	
4	N-1596	2ND. I.F. TRANS.	
5	N-2787	4" SPKR. & TRANS.	
6	N-2790	VIBRATOR TRANS.	
7	N-2805	HASH CHOKE	
8	N-2804	MTR. NOISE CHOKE	
9	N-2843	FILAMENT CHOKE	
	N-2794	VIBRATOR(SYNCHRONOUS)	
	N-1237	GANG CONDENSER	
	N-1241	TUNING DIAL	
	N-2798	BATTERY LEADS	
	N-1239	TOGGLE SWITCH	

CHASSIS P
MODEL TP-108,Ch.TP
Schematics,Socket
Trimmers

SONORA RADIO & TELEV., CORP.

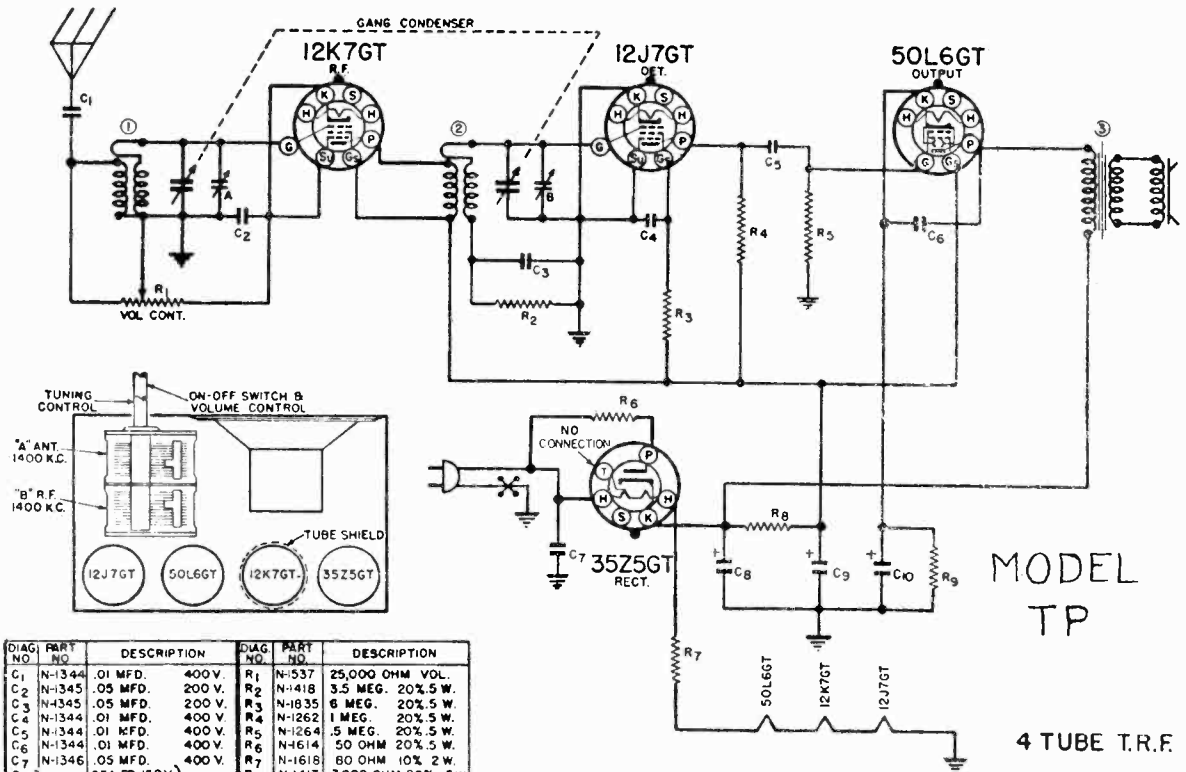


MODEL P

4 TUBE T.R.F.

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
C_1	N-1344	.01 MFD.	400 V.	R_1	V-23	25,000 OHM	VOL.
C_2	N-1345	.05 MFD.	200 V.	R_2	N-1418	3.5 MEG.	.5 W.
C_3	N-1345	.05 MFD.	200 V.	R_3	N-1419	6 MEG.	.5 W.
C_4	N-1344	.01 MFD.	400 V.	R_4	N-1262	1 MEG.	.5 W.
C_5	N-1344	.01 MFD.	400 V.	R_5	N-1264	.5 MEG.	.5 W.
C_6	N-1344	.01 MFD.	400 V.	R_6	N-1416	125 OHM ±10%	.5 W.
C_7	N-1346	.05 MFD.	400 V.	R_7	N-1420	125 OHM	1 W.
C_8	C-233	16 MFD.	150 W.V.	R_8	N-1417	3,000 OHM	.5 W.
C_9		8 MFD.	150 W.V.	R_9	N-1415	30 OHM	1.0 W.
C_{10}		6 MFD.	150 W.V.	R_{10}	N-1251	25 OHM	1 W.
	S-300	SPEAKER		1	L-110	ANTENNA COIL	
	G-25	GANG CONDENSER		2	L-111	R.F. COIL	

OPERATES ON 110-120 V., 50-60~ AC or DC
DO NOT CONNECT TO EXTERNAL GROUND.



MODEL TP

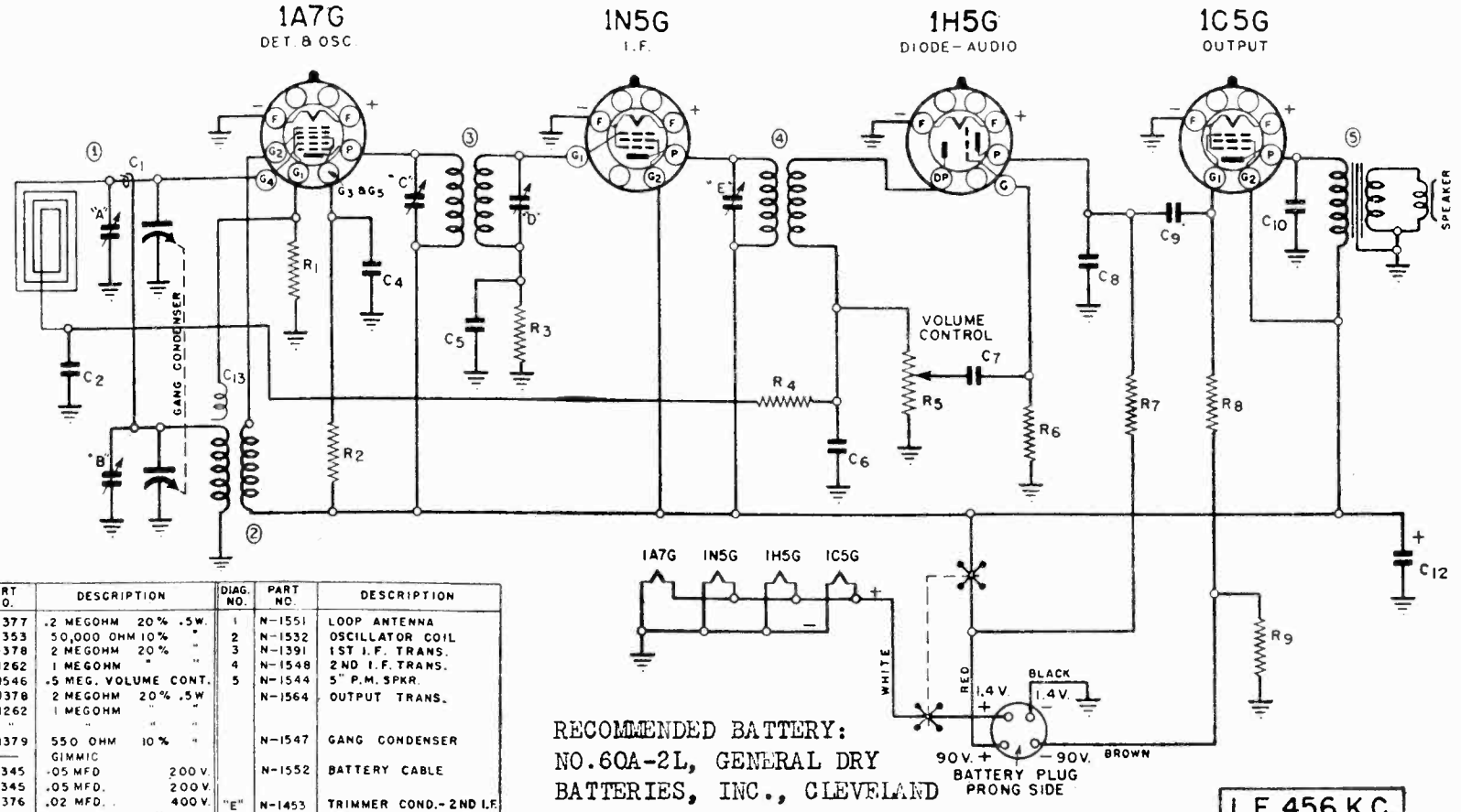
4 TUBE T.R.F.

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
C_1	N-1344	.01 MFD.	400 V.	R_1	N-1537	25,000 OHM	VOL.
C_2	N-1345	.05 MFD.	200 V.	R_2	N-1418	3.5 MEG.	20% .5 W.
C_3	N-1345	.05 MFD.	200 V.	R_3	N-1835	6 MEG.	20% .5 W.
C_4	N-1344	.01 MFD.	400 V.	R_4	N-1262	1 MEG.	20% .5 W.
C_5	N-1344	.01 MFD.	400 V.	R_5	N-1264	.5 MEG.	20% .5 W.
C_6	N-1344	.01 MFD.	400 V.	R_6	N-1614	50 OHM	20% .5 W.
C_7	N-1346	.05 MFD.	400 V.	R_7	N-1618	80 OHM	10% 2 W.
C_8	N-1850	25 MFD. 150 V.	ELECT.	R_8	N-1417	3,000 OHM	20% .5 W.
C_9		10 MFD. 150 V.		R_9	N-1718	250 OHM	10% .5 W.
C_{10}		20 MFD. 25 V.		1	N-1790	ANTENNA COIL	
	N-1401	GANG CONDENSER		2	N-1791	R.F. COIL	
	N-1847			3	N-2047	SPEAKER & TRANS.	

OPERATES ON 110-120V, 50-60~ AC or DC
DO NOT CONNECT TO EXTERNAL GROUND

SONORA RADIO & TELEV., CORP.

CHASSIS PL
Schematic, Socket
Trimmers, Alignment



DIAG. NO.	PART NO.	DESCRIPTION
R_1	N-1377	.2 MEGOHM 20% .5W.
R_2	N-1353	50,000 OHM 10% "
R_3	N-1378	2 MEGOHM 20% "
R_4	N-1262	1 MEGOHM " "
R_5	N-1546	.5 MEG. VOLUME CONT.
R_6	N-1378	2 MEGOHM 20% .5W
R_7	N-1262	1 MEGOHM " "
R_8	N- "	" "
R_9	N-1379	550 OHM 10% "
C_1	——	GIMMIC
C_2	N-1345	.05 MFD 200 V.
C_4	N-1345	.05 MFD. 200 V.
C_5	N-1376	.02 MFD. 400 V.
C_6	N-1343	250 MMFD. 20%
C_7	N-1344	.01 MFD. 400 V.
C_8	N-1374	100 MMFD. 20%
C_9	N-1344	.01 MFD 400 V.
C_{10}	N-1347	.006 MFD. 600 V.
C_{12}	N-1367	6 MFD. ELECTROLYTIC
C_{13}	-	CAPACITY INCLUDED IN OSCILLATOR COIL.

DIAG. NO.	PART NO.	DESCRIPTION
1	N-1551	LOOP ANTENNA
2	N-1532	OSCILLATOR COIL
3	N-1391	1ST I.F. TRANS.
4	N-1548	2ND I.F. TRANS.
5	N-1544	5" P.M. SPKR.
	N-1564	OUTPUT TRANS.
	N-1547	GANG CONDENSER
	N-1552	BATTERY CABLE
"E"	N-1453	TRIMMER COND.-2ND I.F.

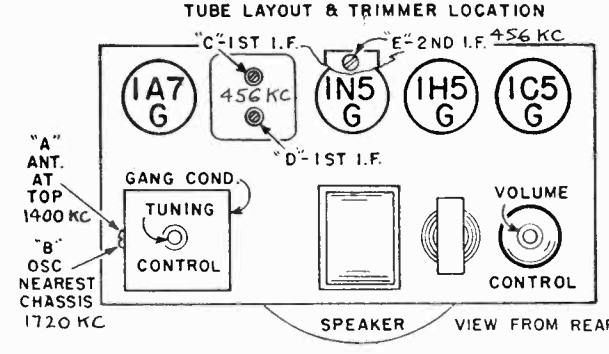
RECOMMENDED BATTERY:
NO. 60A-2L, GENERAL DRY BATTERIES, INC., CLEVELAND

I.F. 456 K.C.

NOTE: TUBE SOCKETS SHOWN FROM WIRING SIDE.

TUNING RANGE
535 to 1720 KC

TUBE LAYOUT & TRIMMER LOCATION



PORTABLE
4 TUBE - 1½ VOLT
SUPERHETERODYNE
SINGLE BAND

DRWN. F.L.C. APP. 2-1-39

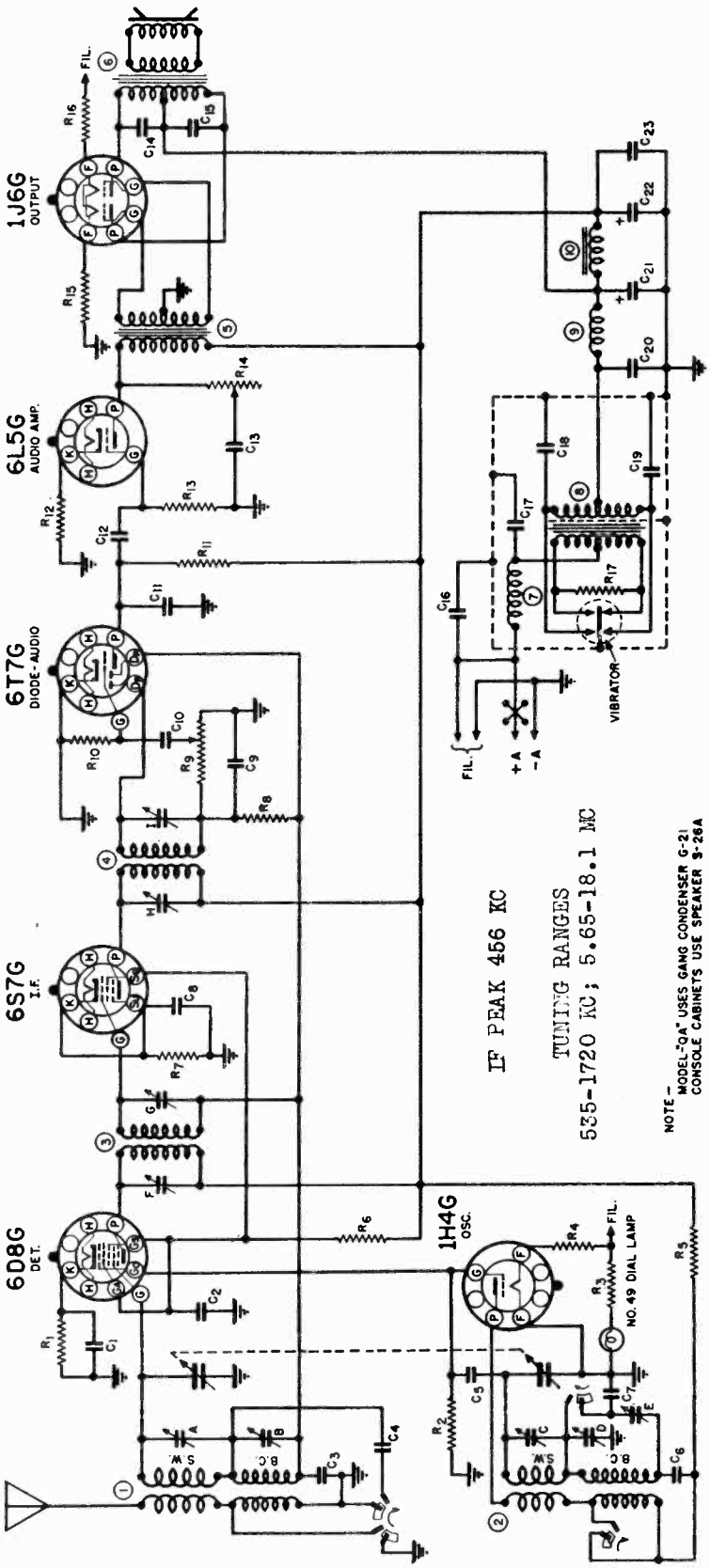
PL

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII

BROADCAST BAND ALIGNMENT. Remove chassis, battery pack, and loop antenna from 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. Make a loop consisting of two turns of wire approximately one foot in diameter and connect across the generator terminals. Place this loop parallel to the loop antenna and about six inches away from it.

CHASSIS Q,QA
Schematic,Socket
Alignment,Trimmers

SONORA RADIO & TELEV., CORP.



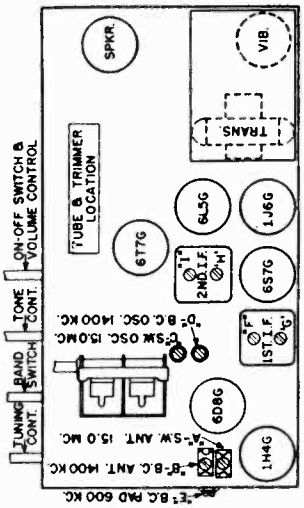
IF PEAK 456 KC

TUNING RANGES
535-1720 KC; 5.65-18.1 MC

NOTE—
MODEL "QA" USES GANG CONDENSER G-21
CONSOLE CABINETS USE SPEAKER S-26A

IMPORTANT NOTE: The battery must never be charged while set is in operation. If a windcharger is used, it should always be disconnected from the battery when the receiver is being used. An inexpensive double throw switch can be used for simultaneously connecting the battery to the receiver and disconnecting the windcharger. This will increase the life of the tubes and give additional economy to the use of the receiver.

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII



FOR AUTOMATIC TUNING
USED ON MODEL QA
SEE INDEX

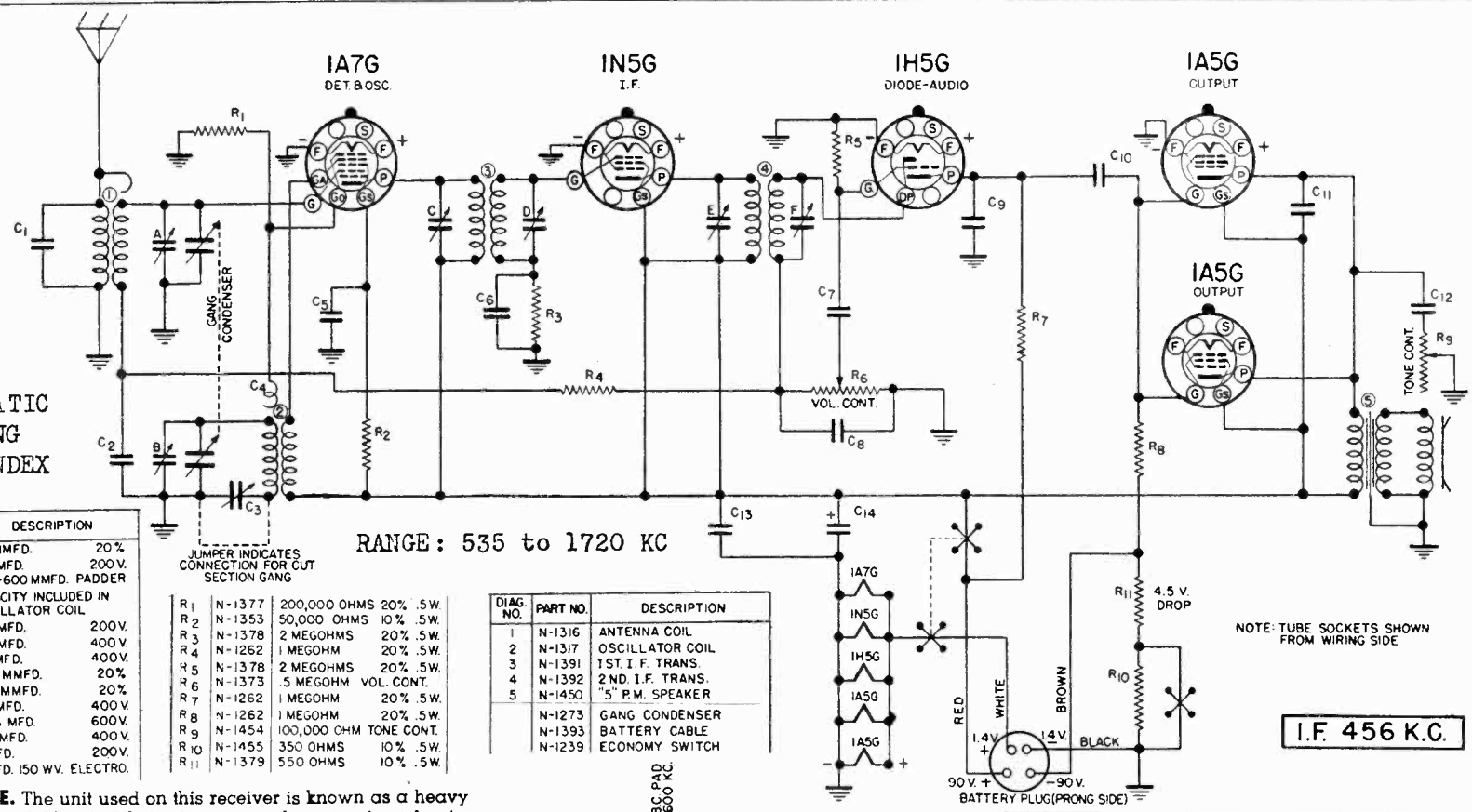
6 TUBE-6 VOLT
SUPERHETERODYNE
TWO BAND
I.F. PEAK 456 KC.
MODEL - "Q-QA"
DRN. N.W.A. APP. 8/14/38

DIAG. NO.	PART NO.	DESCRIPTION
C1	C-13	.05 MFD. 200 V.
C2	C-1	.1 MFD. 200 V.
C3	C-13	.05 MFD. 200 V.
C4	C-4	.01 MFD. 400 V.
C5	C-115	50 MMFD. 400 V.
C6	C-4	.01 MFD. 400 V.
C7	C-1094	4000 MMFD. 3 %
C8	C-13	.05 MFD. 200 V.
C9	C-110	100 MMFD.
C10	C-27	.006 MFD.
C11	C-111	250 MMFD
C12	C-4	.01 MFD.
C13	C-27	.006 MFD.
C14	C-5	.01 MFD.
C15	C-5	.01 MFD.
C16	C-22	.5 MFD.
C17	C-22	.5 MFD.
C18	C-74	.01 MFD.(OIL) 1000 V.
C19	C-71	.01 MFD.(OIL) 1000 V.
C20	C-5	.01 MFD. 600 V.
C21	C-242	10 MFD. 250 V.
C22	C-1	15 MFD. 250 V.
C23	C-1	.1 MFD. 200 V.
R1	R-12	500 OHM .25 W.
R2	R-33	50,000 OHM .25 W.
R3	R-511	67.0 OHM .5 W.
R4	R-511	67.0 OHM .5 W.
R5	R-25	10,000 OHM .25 W.
R6	R-26	15,000 OHM .25 W.
R7	R-13	750 OHM .25 W.
R8	R-44	2 MEGOHM .25 W.
R9	V-20	1 MEG. VOLUME CONT.
R10	R-55	10 MEGOHM .25 W.
R11	R-41	.25 MEGOHM .25 W.
R12	R-16	2,000 OHM .25 W.
R13	R-42	.5 MEGOHM .25 W.
R14	V-110	.1 MEG. TONE CONT.
R15	R-510	8.3 OHM 5 % .5 W.
R16	R-510	8.3 OHM 5 % .5 W.
R17	R-107	200 OHM .5 W.
X-17		BAND SWITCH
G-20		GANG CONDENSER
F-4		SYN. VIBRATOR
W-207		BATTERY CABLE

DIAG. NO.	PART NO.	DESCRIPTION
1	L-44	ANTENNA COIL
2	L-63	OSCILLATOR COIL
3	I-20	1ST. I.F. TRANS.
4	I-28	2ND I.F. "
5	T-103	AUDIO "
6	S-26	SPKR. "
7	H-208	"A" CHOKE
8	T-26	POWER TRANS.
9	H-207	R.F. CHOKE
10	H-9	AUDIO CHOKE
A		2-35 MMFD.
B		"
C		"
D		"
E	P-2	200-750 MMFD.

SONORA RADIO & TELEV., CORP.

CHASSIS SL
Schematic, Socket
Alignment, Trimmers



DIAG. NO.	PART NO.	DESCRIPTION
C_1	N-1342	50 MMFD. 20%
C_2	N-1345	.05 MFD. 200 V.
C_3	N-1323	300-600 MMFD. PADDER
C_4		CAPACITY INCLUDED IN OSCILLATOR COIL
C_5	N-1345	.05 MFD. 200 V.
C_6	N-1376	.02 MFD. 400 V.
C_7	N-1344	.01 MFD. 400 V.
C_8	N-1343	250 MMFD. 20%
C_9	N-1374	100 MMFD. 20%
C_{10}	N-1344	.01 MFD. 400 V.
C_{11}	N-1347	.006 MFD. 600 V.
C_{12}	N-1376	.02 MFD. 400 V.
C_{13}	N-1351	.1 MFD. 200 V.
C_{14}	N-1367	6 MFD. 150 WV. ELECTRO.

R_1	N-1377	200,000 OHMS	20% .5 W.
R_2	N-1353	50,000 OHMS	10% .5 W.
R_3	N-1378	2 MEGOHMS	20% .5 W.
R_4	N-1262	1 MEGOHM	20% .5 W.
R_5	N-1378	2 MEGOHMS	20% .5 W.
R_6	N-1373	.5 MEGOHM	VOL. CONT.
R_7	N-1262	1 MEGOHM	20% .5 W.
R_8	N-1262	1 MEGOHM	20% .5 W.
R_9	N-1454	100,000 OHM	TONE CONT.
R_{10}	N-1455	350 OHMS	10% .5 W.
R_{11}	N-1379	550 OHMS	10% .5 W.

DIAG. NO.	PART NO.	DESCRIPTION
1	N-1316	ANTENNA COIL
2	N-1317	OSCILLATOR COIL
3	N-1391	1ST. I.F. TRANS.
4	N-1392	2 ND. I.F. TRANS.
5	N-1450	"S" P.M. SPEAKER
	N-1273	GANG CONDENSER
	N-1393	BATTERY CABLE
	N-1239	ECONOMY SWITCH

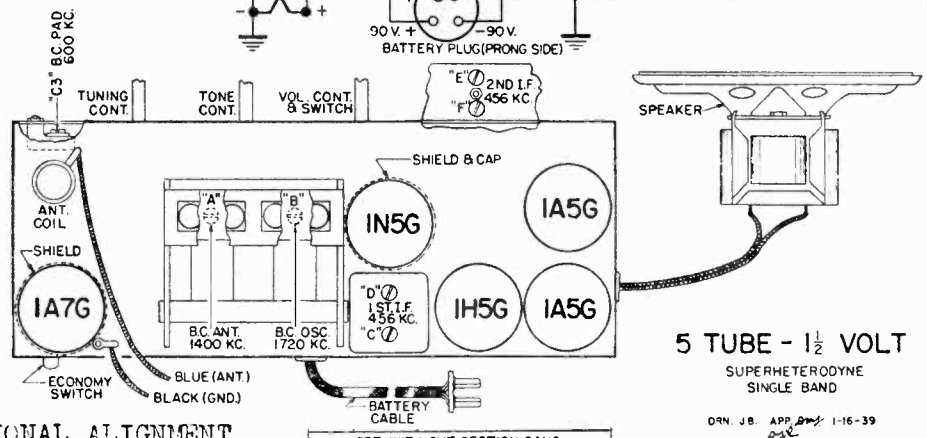
BATTERY LIFE. The unit used on this receiver is known as a heavy duty 1½ volt and 90 volt AB dry battery pack, approximately sixteen inches long, four and a half inches wide and six and a half inches high with a socket type connector. A battery of this type has a probable life of six to seven months with three hours daily use and a longer or shorter life as the daily usage is decreased or increased when the set is operated in the "power position"

REAR SWITCH. **(Two Position Economy Switch.)** The switch is provided to obtain the maximum of battery life without sacrificing the performance of the set.

The switch should be operated in the "Economy" (left hand) position until the performance of the radio receiver drops sufficiently to indicate the end of the batteries' **normal** life.

When the battery is new the set gives sufficient power output and sensitivity in the economy position and the life of the battery is materially increased.

When the battery becomes old the "Power" position (right hand) makes it possible to use the battery to the complete end of the batteries' useful life and still retain good reception.



CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

SET WITH CUT SECTION GANG		
C_3	N-1323	PADDER, ELIMINATED
	N-1338	GANG CONDENSER
2	N-1337	OSCILLATOR COIL

5 TUBE - 1½ VOLT

SUPERHETERODYNE
SINGLE BAND

DRN. J.B. APP. 1-16-39

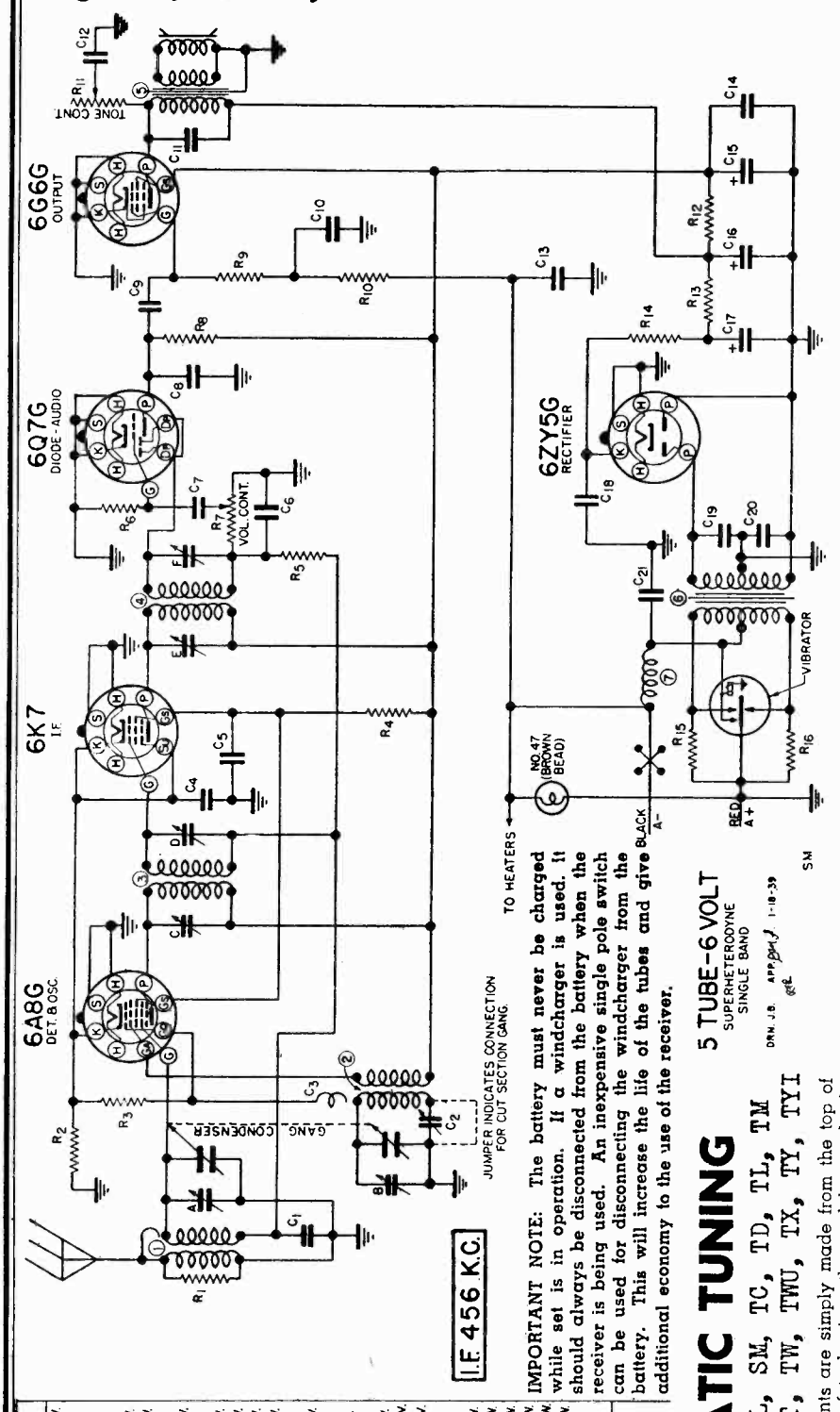
SL

Alignment, Trimmers

CHASSIS SM
Schematic, Socket
Alignment, Trimmers, Tuner

SONORA RADIO & TELEV.. CORP.

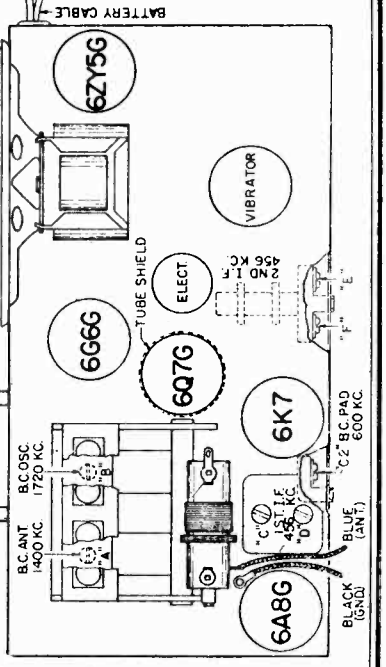
CHASSIS QA, SL, SM, TC, TD
TL, TM, TR, TT, TW, TWU, TX
TY, TYI
Automatic Tuner Data



DIAG NO	PART NO.	DESCRIPTION	
C 1	N-1345	.05 MFD.	200V.
C 2	N-1323	300-600 MMFD. PADDER	
C 3		CAPACITY INCLUDED IN OSCILLATOR COIL	
C 4	N-1479	.25 MFD.	200V.
C 5	N-1351	.1 MFD.	200V.
C 6	N-1374	100 MMFD.	20 %
C 7	N-1347	.006 MFD.	600V.
C 8	N-1343	250 MMFD.	20 %
C 9	N-1344	.01 MFD.	400V.
C 10	N-1345	.05 MFD.	200V.
C 11	N-1347	.006 MFD.	600V.
C 12	N-1376	.02 MFD.	400V.
C 13	N-1471	.5 MFD.	50 V.
C 14	N-1351	.1 MFD.	200V.
C 15	N-1468	20 MFD. 150 V. ELECTRO.	
C 16		20 MFD. 150 V. ELECTRO.	
C 17		10 MFD. 250 V. ELECTRO.	
C 18	N-1478	.01 MFD.	600V.
C 19	N-1480	.01 MFD. (OIL)	1000 V.
C 20	N-1480	.01 MFD. (OIL)	1000V.
C 21	N-1471	.5 MFD	50 V.
R 1	N-1259	15,000 OHMS	20 % .5W.
R 2	N-1473	200 OHMS	10 % .5W.
R 3	N-1260	50,000 OHMS	20 % .5W.
R 4	N-1474	25,000 OHMS	20 % .5W.
R 5	N-1378	2 MEGOHMS	20 % .5W.
R 6	N-1263	10 MEGOHMS	20 % .5W.
R 7	N-1320	1 MEGOHM VOL. CONT. SET WITH CUT SECTION GANG	
C 2	N-1323	PADDER, ELIMINATED	
2	N-1338	GANG CONDENSER	
2	N-1337	OSCILLATOR COIL	

DIAG NO	PART NO.	DESCRIPTION	
R 8	N-1261	250,000 OHMS	20 % .5W.
R 9	N-1264	.5 MEGOHMS	20 % .5W.
R 10	N-1260	50,000 OHMS	20 % .5W.
R 11	N-1454	100,000 OHM TONE CONT.	
R 12	N-1256	500 OHMS	20 % .5W.
R 13	N-1482	250 OHMS	20 % .5W.
R 14	N-1482	250 OHMS	20 % .5W.
R 15	N-1498	50 OHMS	20 % 1 W.
R 16	N-1498	50 OHMS	20 % 1 W.
1	N-1461	ANTENNA COIL	
2	N-1317	OSCILLATOR COIL	
3	N-1318	1 ST. I.F. TRANS.	
4	N-1319	2 ND. I.F. TRANS.	
5	N-1472	5" P.M. SPEAKER & TRANS.	
6	N-1476	POWER TRANS.	
7	N-1477	"A" CHOKE	
	N-1273	GANG CONDENSER	
	N-1485	BATTERY CABLE	
	N-1431	VIBRATOR (NON-SYNCHRO.)	

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII



IMPORTANT NOTE: The battery must never be charged while set is in operation. If a windcharger is used, it should always be disconnected from the battery when the receiver is being used. An inexpensive single pole switch can be used for disconnecting the windcharger from the battery. This will increase the life of the tubes and give additional economy to the use of the receiver.

5 TUBE-6 VOLT
SUPERHETERODYNE
SINGLE BAND

DRN. J.B. APP. 1-18-39

SM

AUTOMATIC TUNING

For Chassis QA, SL, SM, TC, TD, TL, TM TR, TT, TW, TWU, TX, TY, TYI

ADJUSTMENT. All adjustments are simply made from the top of the cabinet without the use of tools since the push-button knobs serve this purpose.

To make adjustments, turn each knob to the left about 1 complete turn. The knob is knurled to provide a positive grip for this purpose.

With the knob turned free, tune to any desired station with the manual tuning control. Depress the push button knob as far as possible and turn to the right to tighten adjustment. Meanwhile, hold the manual tuning control in position to the station tuned.

Be sure the push button knob is held down in position while being tightened.

After the stations are adjusted it is advisable to check each button to assure sufficient tightening.

To assure accurate adjustment, the volume control should be set at a moderate level and the station tuned in slowly to a point of maximum volume and clarity.

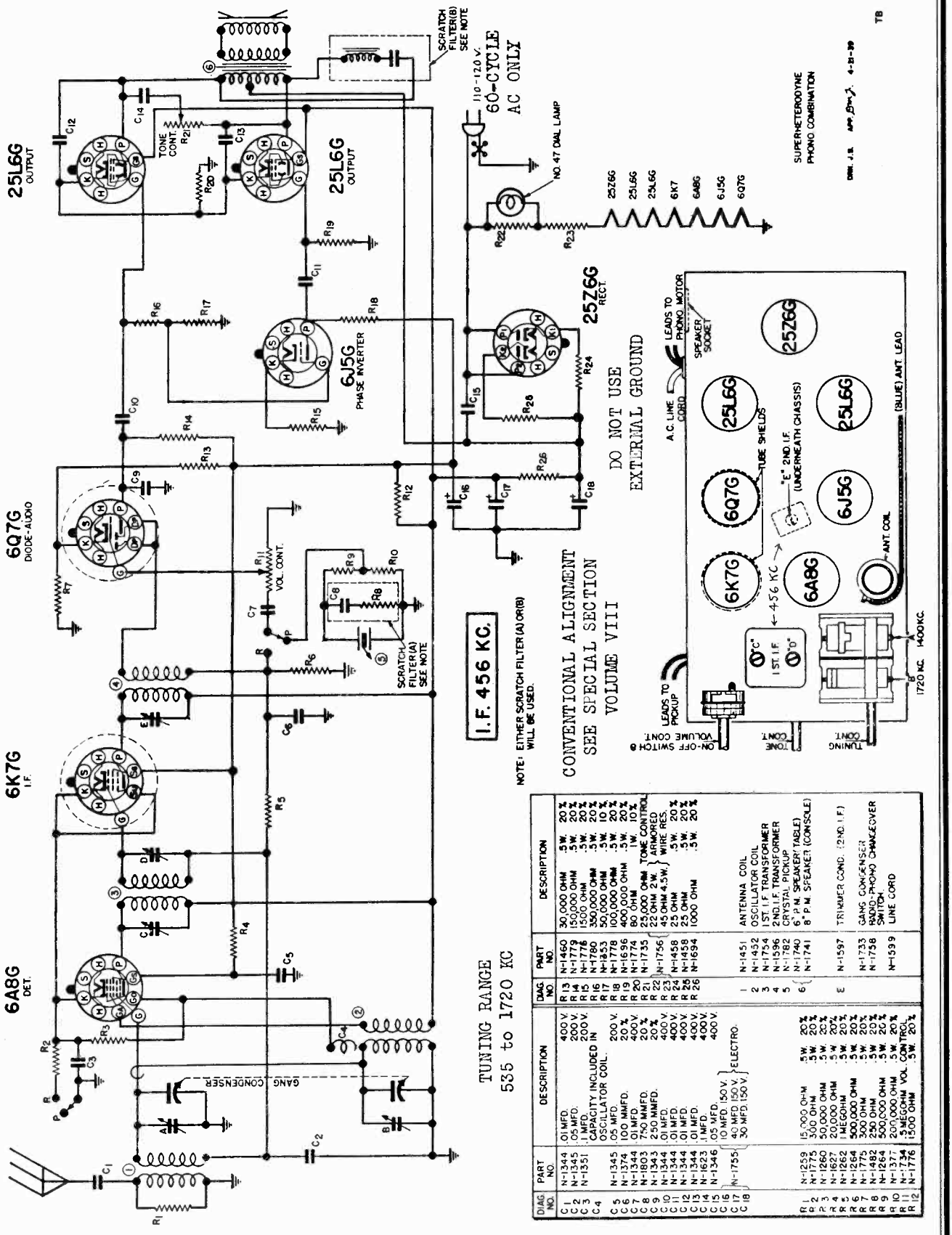
It is not necessary to follow any particular sequence of stations since each button is adjustable to any station.

With each button definitely set and securely tightened to the selected stations, the tuner is ready for operation.

SONORA RADIO & TELEV., CORP.

CHASSIS TB
Schematic, Socket, Trimmers
Alignment

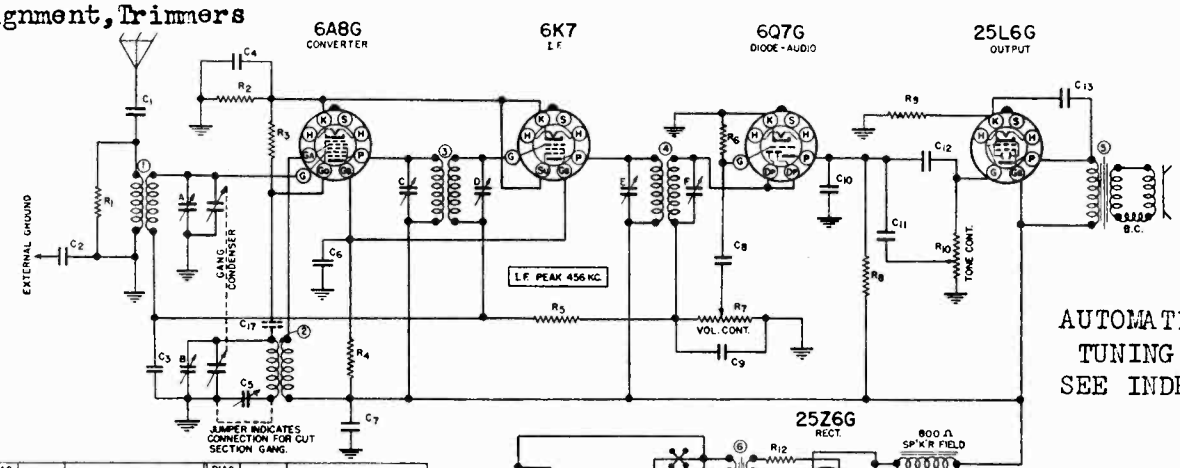
FOR PHONO. DATA
SEE INDEX



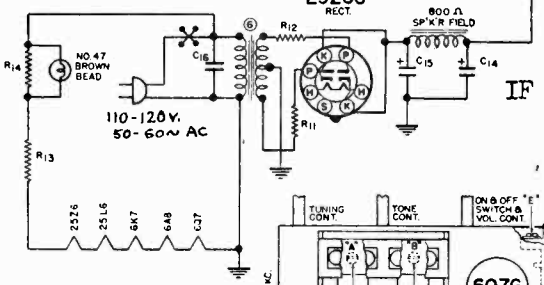
DIAG. NO.	PART NO.	DESCRIPTION		
C1	N-1344	.01 MFD.	400 V.	
C2	N-1345	.05 MFD.	200 V.	
C3	N-1351	365 MMFD. CAPACITY INCLUDED IN OSCILLATOR COIL.	200 V.	
C4				
C5	N-1345	.05 MFD.	200 V.	
C6	N-1374	100 MMFD.	20 %	
C7	N-1344	.01 MFD.	400 V.	
C8	N-1803	750 MMFD.	20 %	
C9	N-1343	250 MMFD.	20 %	
C10	N-1344	.01 MFD.	400 V.	
C11	N-1344	.01 MFD.	400 V.	
C12	N-1344	.01 MFD.	400 V.	
C13	N-1623	.1 MFD.	400 V.	
C14	N-1346	.05 MFD.	400 V.	
C15				
C16	N-1755	10 MFD. 150 V. } ELECTRO.		
C17		40 MFD. 150 V. } ELECTRO.		
C18		30 MFD. 150 V. } ELECTRO.		
R1	N-1259	15,000 OHM	.5W.	20 %
R2	N-1775	300 OHM	.5W.	20 %
R3	N-1260	50,000 OHM	.5W.	20 %
R4	N-1627	20,000 OHM	.5W.	20 %
R5	N-1262	1 MEGOHM	.5W.	20 %
R6	N-1264	500,000 OHM	.5W.	20 %
R7	N-1775	300 OHM	.5W.	20 %
R8	N-1482	250 OHM	.5W.	20 %
R9	N-1264	500,000 OHM	.5W.	20 %
R10	N-1377	200,000 OHM	.5W.	20 %
R11	N-1734	.5 MEGOHM VOL. CONTROL	.5W.	20 %
R12	N-1776	1500 OHM	.5W.	20 %
R13	N-1460	30,000 OHM	.5W.	20 %
R14	N-1779	150,000 OHM	.5W.	20 %
R15	N-1778	1500 OHM	.5W.	20 %
R16	N-1780	350,000 OHM	.5W.	20 %
R17	N-1853	50,000 OHM	.5W.	10 %
R18	N-1778	100,000 OHM	.5W.	20 %
R19	N-1696	400,000 OHM	.5W.	20 %
R20	N-1774	80 OHM	1W.	10 %
R21	N-1735	25,000 OHM TONE CONTROL		
R22	N-1756	22 OHM 2W. } ARMORED WIRE RES.		
R23		45 OHM 4.5W. }		
R24	N-1458	25 OHM	.5W.	20 %
R25	N-1458	25 OHM	.5W.	20 %
R26	N-1694	1000 OHM	.5W.	20 %
1	N-1451	ANTENNA COIL		
2	N-1452	OSCILLATOR COIL		
3	N-1754	1ST. I.F. TRANSFORMER		
4	N-1596	2ND I.F. TRANSFORMER		
5	N-1782	CRYSTAL PICKUP		
6	N-1740	6" P.M. SPEAKER(TABLE)		
	N-1741	8" P.M. SPEAKER (CONSOLE)		
E	N-1597	TRIMMER COND. (2ND I.F.)		
	N-1733	GANG CONDENSER		
	N-1738	RADIO-PHONO CHANGEOVER SWITCH		
	N-1599	LINE CORD		

CHASSIS TC
CHASSIS TS
Schematics, Socket
Alignment, Trimmers

SONORA RADIO & TELEV.. CORP.



AUTOMATIC TUNING
SEE INDEX



IF PEAK 456 KC

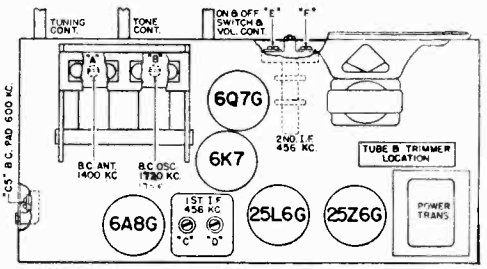
MODEL TC

DIAG NO	PART NO	DESCRIPTION	
C_1	N-1344	.01 MFD.	400 V.
C_2	N-1344	.01 MFD.	400 V.
C_3	N-1345	.05 MFD.	200 V.
C_4	N-1351	.1 MFD.	200 V.
C_5	N-1323	300-600 MMFD. PADDER	
C_6	N-1345	.05 MFD.	200 V.
C_7	N-1345	.05 MFD.	200 V.
C_8	N-1347	.006 MFD.	600 V.
C_9	N-1343	250 MMFD.	
C_{10}	N-1343	250 MMFD.	
C_{11}	N-1347	.006 MFD.	600 V.
C_{12}	N-1344	.01 MFD.	400 V.
C_{13}	N-1344	.01 MFD.	400 V.
C_{14}	N-1312	15 MFD.	150 V.
C_{15}		20 MFD.	200 V.
C_{16}	N-1346	.05 MFD.	400 V.
C_{17}		CAPACITY INCLUDED IN OSCILLATOR COIL.	
R_1	N-1352	15,000 OHMS	.5 W.
R_2	N-1360	150 OHMS	.5 W.
R_3	N-1353	50,000 OHMS	.5 W.
R_4	N-1352	15,000 OHMS	.5 W.
R_5	N-1355	1 MEGOHM	.5 W.
R_6	N-1356	15 MEGOHMS	.5 W.
R_7	N-1320	1 MEGOHM VOLUME CONT.	
R_8	N-1354	300,000 OHMS	.5 W.
R_9	N-1350	150 OHMS	.5 W. ±10%
R_{10}	N-1321	.5 MEGOHM TONE CONT.	

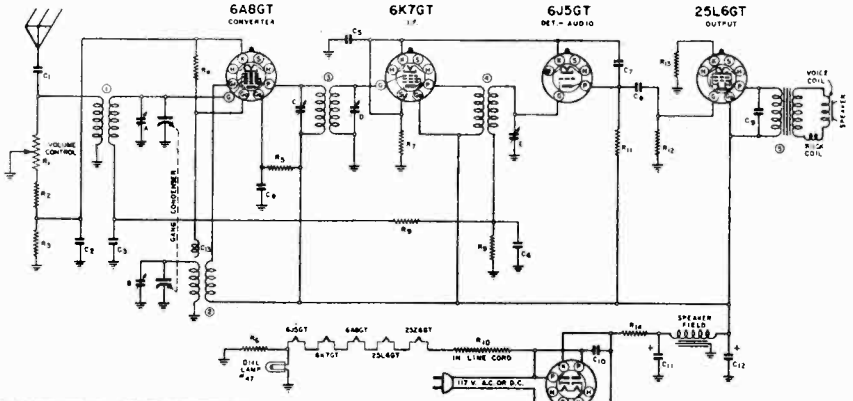
DIAG NO	PART NO	DESCRIPTION	
R_{11}	N-1349	100 OHMS	.5 W
R_{12}	N-1349	100 OHMS	.5 W.
R_{13}	N-1322	150 OHMS	ARMORED
R_{14}		30 OHMS	WIRE RES.
1	N-1316	ANTENNA COIL	
2	N-1317	OSCILLATOR COIL	
3	N-1318	1ST. I.F. TRANSFORMER	
4	N-1319	2ND I.F. TRANSFORMER	
5	N-1314	SPEAKER & TRANSFORMER	
6	N-1315	POWER TRANSFORMER	
	N-1273	GANG CONDENSER	
SET WITH CUT SECTION GANG			
	N-1337	OSCILLATOR COIL	
	N 1338	GANG CONDENSER	
C_5	N 1323	PADDER, ELIMINATED	

RANGE: 535-1720 KC

5 TUBE A.C.
SUPERHETERODYNE
SINGLE BAND
CHASSIS-TC

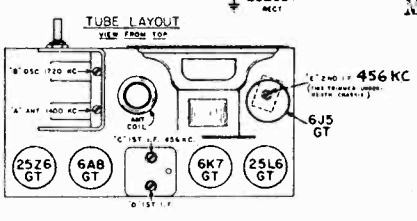


CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII



DIAG NO	PART NO	DESCRIPTION	
R_1	N-1349	10,000 OHM VOL. CONT.	
R_2	—	350 OHM STOP W.W.	
R_3	N-1358	10,000 OHM	.5 W.
R_4	N-1360	50,000 OHM	.5 W.
R_5	N-1353	50,000 OHM	"
R_6	N-1415	30 OHM	1.0 W.
R_7	N-1458	600 OHM	.5 W.
R_8	N-1262	1.0 MEGOHM	"
R_9	N-1378	2.0 MEGOHM	"
R_{10}	N-1438	150 OHM IN LINE CORD	
R_{11}	N-1437	300,000 OHM	.5 W.
R_{12}	N-1264	500,000 OHM	"
R_{13}	N-1457	125 OHM	"
R_{14}	N-1458	25 OHM	"
C_1	N-1344	.01 MFD.	400 V.
C_2	N-1345	.05 MFD.	200 V.
C_3	N-1345	.05 MFD.	"
C_4	N-1345	.05 MFD.	"
C_5	N-1351	.1 MFD.	"
C_6	N-1344	.01 MFD.	400 V.
C_7	N-1460	.0025 MFD.	"
C_8	N-1344	.01 MFD.	"
C_9	N-1344	.01 MFD.	"

DIAG NO	PART NO	DESCRIPTION	
C_{10}	N-1346	.05 MFD.	400 V.
C_{11}	N-1366	15 MFD.	"
C_{12}		CAPACITY INCLUDED IN OSCILLATOR COIL	
"E"	N-1483	2 ND. I.F. TRIMMER	
1	N-1495	ANTENNA COIL	
2	N-1432	OSCILLATOR COIL	
3	N-1433	1 ST. I.F. TRANS.	
4	N-1432	2 ND I.F. TRANS.	
5	N-1370	5" SPK. & TRANS.	
	N-1431	GANG CONDENSER	



MODEL TS

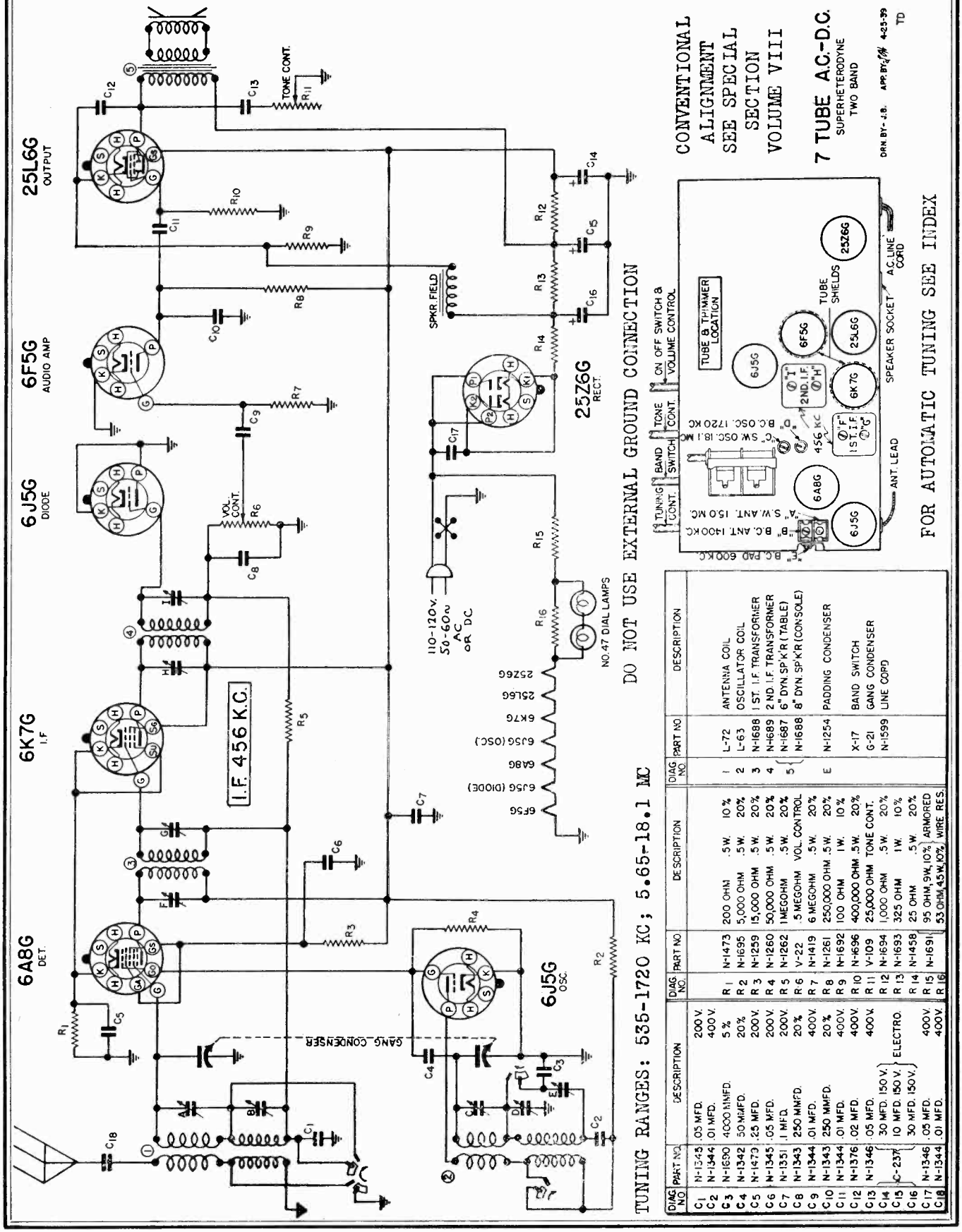
I.F. 456 KC.

5 TUBE A.C.-D.C.
SUPERHETERODYNE
SINGLE BAND

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII
DO NOT USE EXTERNAL GROUND

SONORA RADIO & TELEV., CORP.

CHASSIS TD
Schematic, Socket
Alignment, Trimmers



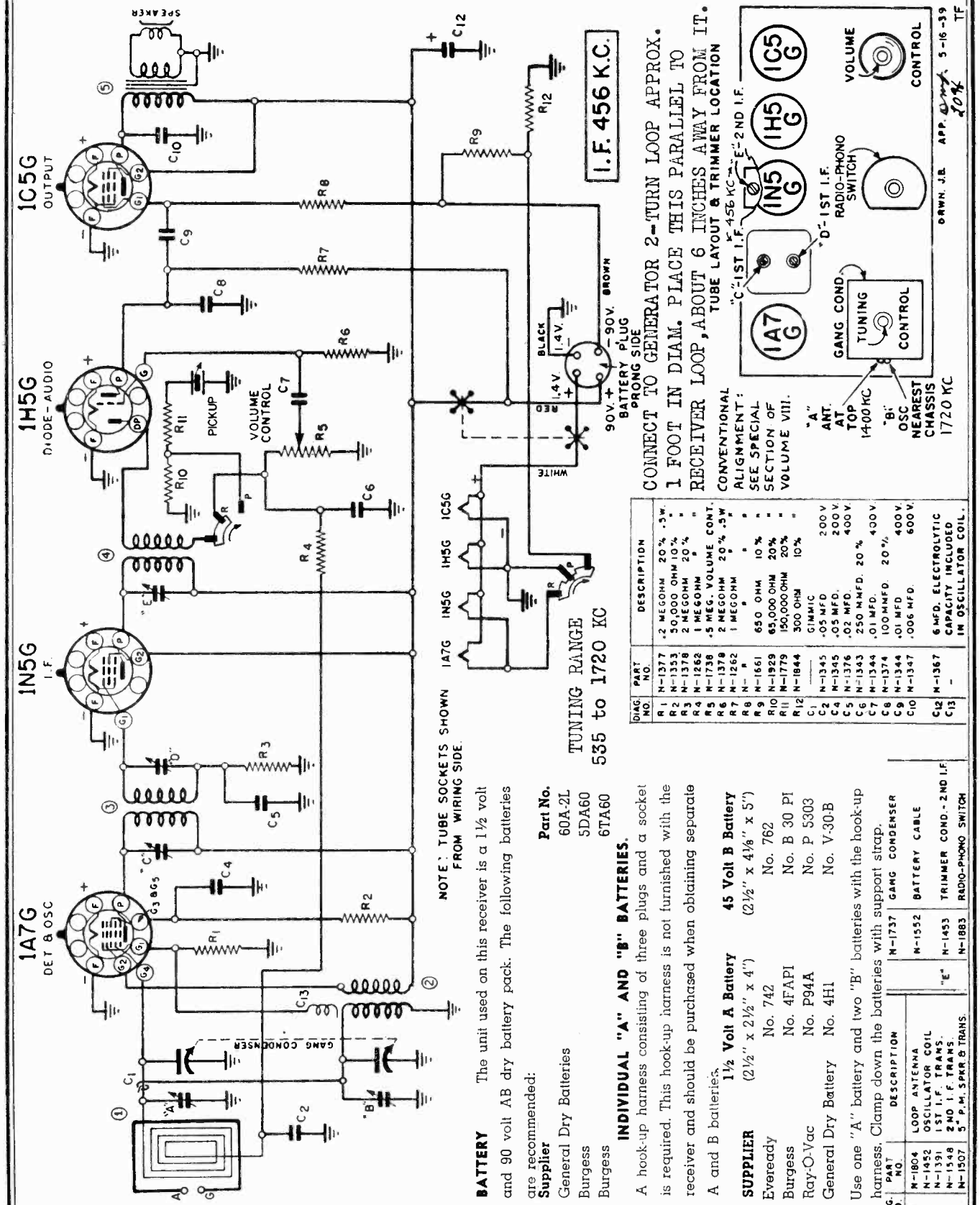
DIAG NO	PART NO	DESCRIPTION		DIAG NO	PART NO	DESCRIPTION
C1	N-1345	.05 MFD.	200 V.			
C2	N-1344	.01 MFD.	400 V.			
C3	N-1690	4000 MMFD.	5 %	R 1	N-1473	200 OHM .5 W. 10 %
C4	N-1342	50 MMFD.	20 %	R 2	N-1695	5,000 OHM .5 W. 20 %
C5	N-1473	.25 MFD.	200 V.	R 3	N-1259	15,000 OHM .5 W. 20 %
C6	N-1345	.05 MFD.	200 V.	R 4	N-1260	50,000 OHM .5 W. 20 %
C7	N-1351	.1 MFD.	200 V.	R 5	N-1262	1 MEGOHM .5 W. 20 %
C8	N-1343	250 MMFD.	20 %	R 6	V-22	.5 MEGOHM VOL. CONTROL
C9	N-1344	.01 MFD.	400 V.	R 7	N-1419	6 MEGOHM .5 W. 20 %
C10	N-1343	250 MMFD.	20 %	R 8	N-1261	250,000 OHM .5 W. 20 %
C11	N-1344	.01 MFD.	400 V.	R 9	N-1692	100 OHM 1 W. 10 %
C12	N-1376	.02 MFD.	400 V.	R 10	N-1696	400,000 OHM .5 W. 20 %
C13	N-1346	.05 MFD.	400 V.	R 11	V-109	25,000 OHM TONE CONT.
C14	C-237	30 MFD. 150 V. ELECTRO.		R 12	N-1694	1,000 OHM .5 W. 20 %
C15		10 MFD. 150 V.		R 13	N-1693	325 OHM 1 W. 10 %
C16		30 MFD. 150 V.		R 14	N-1458	25 OHM .5 W. 20 %
C17	N-1346	.05 MFD.	400 V.	R 15	N-1691	95 OHM, 9W, 10% ARMORED
C18	N-1344	.01 MFD.	400 V.	R 16		53 OHM, 4.5 W, 10% WIRE RES.

DIAG NO	PART NO	DESCRIPTION	
1	L-72	ANTENNA COIL	
2	L-63	OSCILLATOR COIL	
3	N-1688	1 ST. I.F. TRANSFORMER	
4	N-1689	2 ND. I.F. TRANSFORMER	
5	N-1687	6" DYN. SP'K'R (TABLE)	
	N-1688	8" DYN. SP'K'R (CONSOLE)	
E	N-1254	PADDING CONDENSER	
	X-17	BAND SWITCH	
	G-21	GANG CONDENSER	
	N-1599	LINE CORD	

MODEL TF-39, Ch. TF
Schematic, Socket
Trimmers, Alignment

SONORA RADIO & TELEV., CORP.

FOR PHONO. DATA
SEE INDEX



DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1377	.2 MEGOHM 20% .5W.
R2	N-1353	50,000 OHM 10% "
R3	N-1378	2 MEGOHM 20% "
R4	N-1262	1 MEGOHM " "
R5	N-1738	.5 MEG. VOLUME CONT.
R6	N-1378	2 MEGOHM 20% .5W
R7	N-1262	1 MEGOHM " "
R8	N- "	" "
R9	N-1661	650 OHM 10% "
R10	N-1929	65,000 OHM 20% "
R11	N-1779	150,000 OHM 20% "
R12	N-1844	300 OHM 10% "
C1	——	GIMMIC
C2	N-1345	.05 MFD. 200 V
C4	N-1345	.05 MFD. 200 V
C5	N-1376	.02 MFD. 400 V
C6	N-1343	250 MMFD. 20 %
C7	N-1344	.01 MFD. 400 V
C8	N-1374	100 MMFD. 20 %
C9	N-1344	.01 MFD 400 V.
C10	N-1347	.006 MFD. 600 V.
C12	N-1367	6 MFD. ELECTROLYTIC
C13	-	CAPACITY INCLUDED IN OSCILLATOR COIL.

BATTERY The unit used on this receiver is a 1½ volt and 90 volt AB dry battery pack. The following batteries are recommended:

Supplier	Part No.
General Dry Batteries	60A-2L
Burgess	5DA60
Burgess	6TA60

INDIVIDUAL "A" AND "B" BATTERIES.

A hook-up harness consisting of three plugs and a socket is required. This hook-up harness is not furnished with the receiver and should be purchased when obtaining separate A and B batteries.

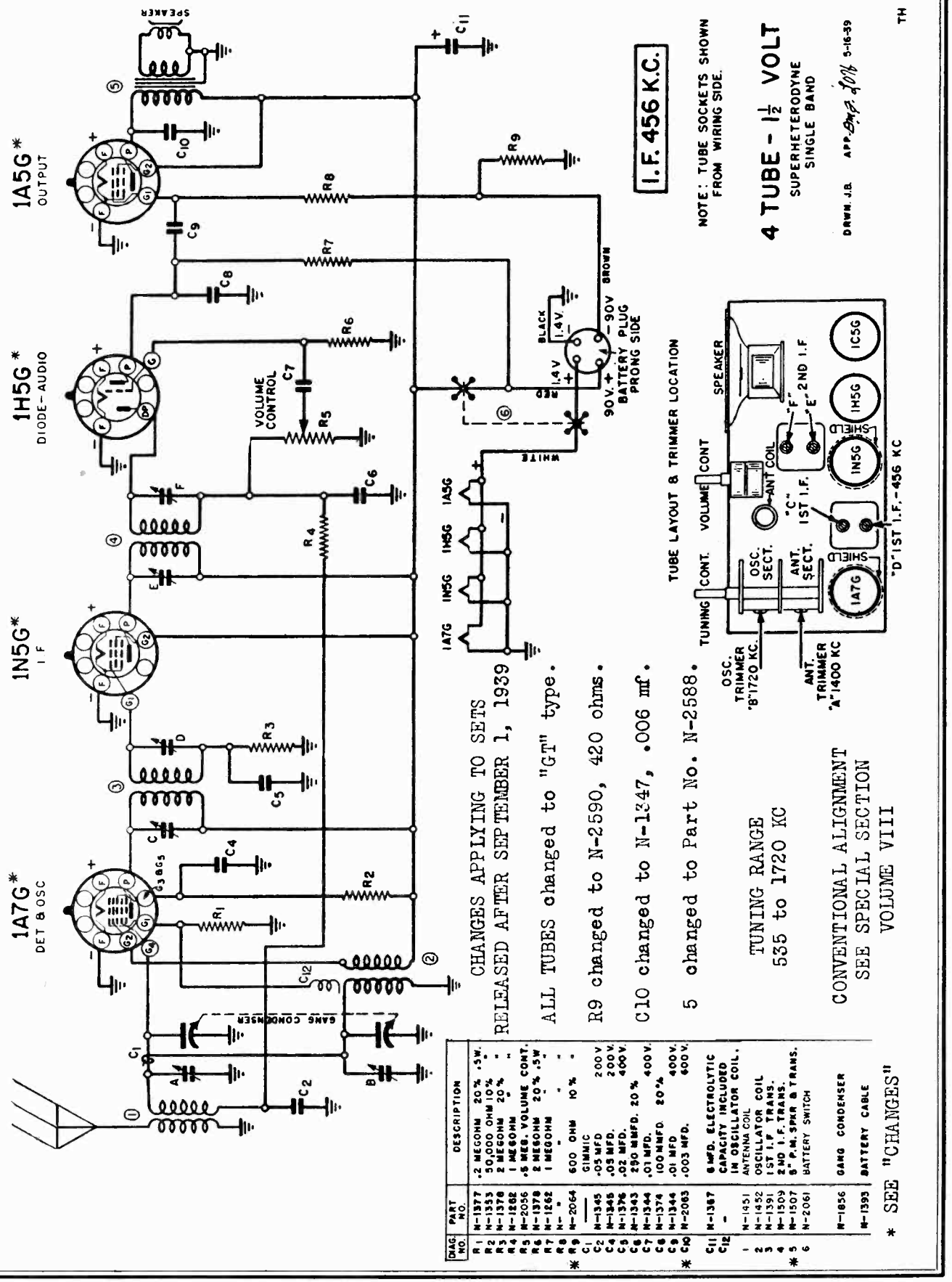
SUPPLIER	1½ Volt A Battery (2½" x 2½" x 4")	45 Volt B Battery (2½" x 4⅛" x 5")
Eveready	No. 742	No. 762
Burgess	No. 4FAPI	No. B 30 PI
Ray-O-Vac	No. P94A	No. P 5303
General Dry Battery	No. 4H1	No. V-30-B

Use one "A" battery and two "B" batteries with the hook-up harness. Clamp down the batteries with support strap.

DIAG. NO.	PART NO.	DESCRIPTION		PART NO.	DESCRIPTION
1	N-1804	LOOP ANTENNA		N-1737	GANG CONDENSER
2	N-1452	OSCILLATOR COIL		N-1552	BATTERY CABLE
3	N-1391	1ST I.F. TRANS.	"E"	N-1453	TRIMMER COND.-2ND I.F.
4	N-1548	2ND I.F. TRANS.		N-1883	RADIO-PHONO SWITCH
5	N-1507	5" P.M. SPKR & TRANS.			

SONORA RADIO & TELEV., CORP.

MODEL TH-46
Chassis TH, Early, Late
Schematic, Socket
Alignment, Trimmers

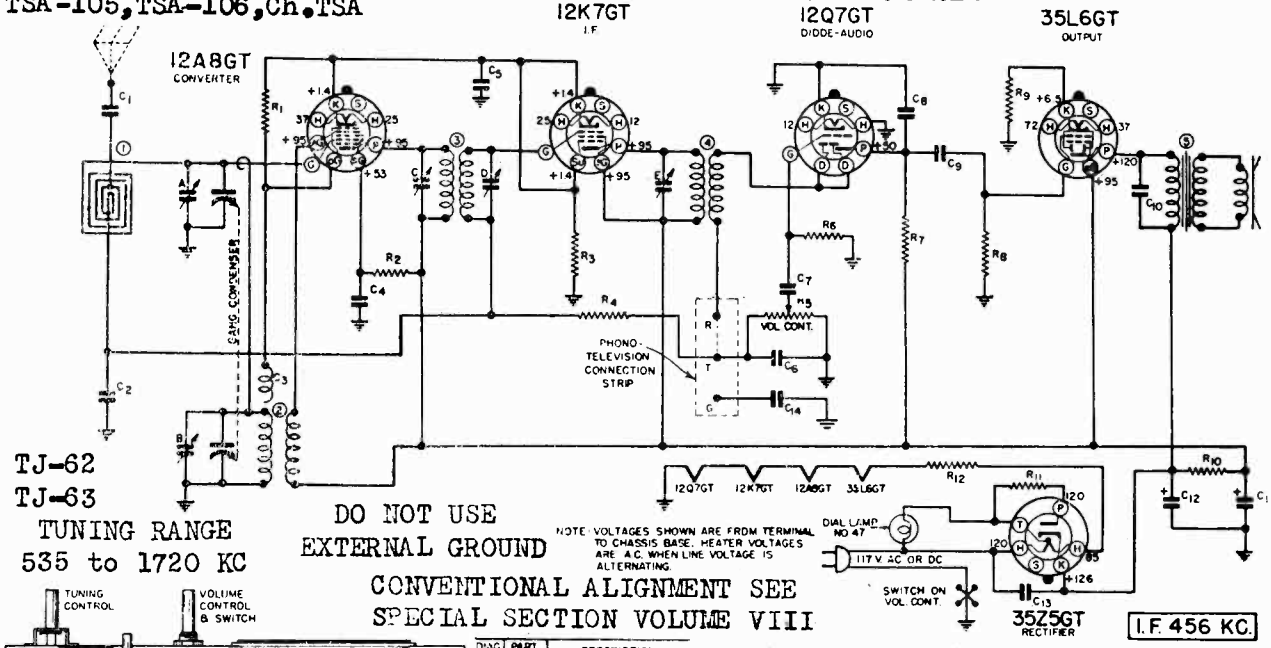


DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1377	.2 MEGOHM 20% .5W.
R2	N-1333	50,000 OHM 10% "
R3	N-1378	2 MEGOHM 20% "
R4	N-1262	1 MEGOHM " "
R5	N-2056	.5 MEG. VOLUME CONT.
R6	N-1378	2 MEGOHM 20% .5W
R7	N-1262	1 MEGOHM " "
R8	N- "	" "
R9	N-2064	600 OHM 10% "
C1	——	GIMMIC
C2	N-1345	.05 MFD 200 V
C4	N-1345	.05 MFD. 200 V.
C5	N-1376	.02 MFD. 400 V.
C6	N-1343	250 MMFD. 20%
C7	N-1344	.01 MFD. 400 V.
C8	N-1374	100 MMFD. 20%
C9	N-1344	.01 MFD 400 V.
C10	N-2083	.003 MFD. 600 V.
C11	N-1367	8 MFD. ELECTROLYTIC
C12	-	CAPACITY INCLUDED IN OSCILLATOR COIL.
-	N-1451	ANTENNA COIL
2	N-1452	OSCILLATOR COIL
3	N-1391	1ST I.F. TRANS.
4	N-1509	2ND I.F. TRANS.
* 5	N-1507	5" P.M. SPKR & TRANS.
* 6	N-2061	BATTERY SWITCH
	N-1856	GANG CONDENSER
	N-1393	BATTERY CABLE

MODELS TJ-62, TJ-63
Chassis TJ
MODELS TN-45, Ch. TN,
TSA-105, TSA-106, Ch. TSA

Schematics, Socket, Trimmers
Alignment

SONORA RADIO & TELEV. CORP.



TJ-62
TJ-63

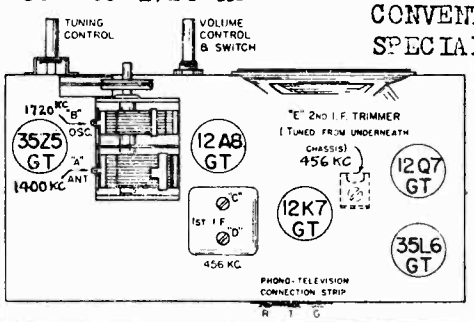
TUNING RANGE
535 to 1720 KC

DO NOT USE EXTERNAL GROUND

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

I.F. 456 KC.

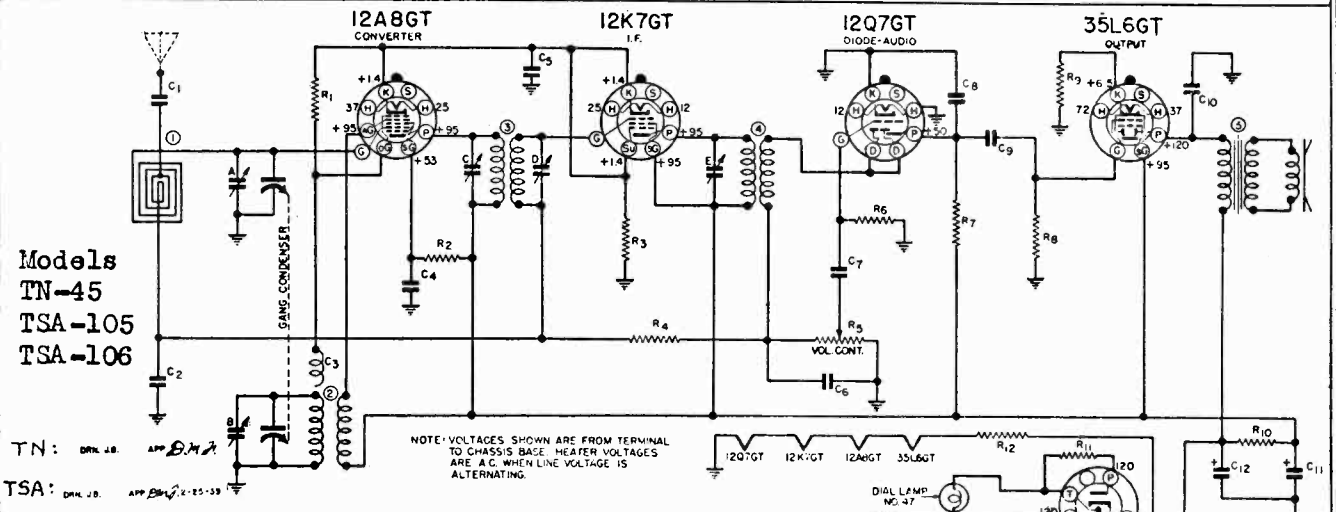
CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII



DIAG NO	PART NO	DESCRIPTION		
R 1	N-1260	50,000 OHM	.5W.	20%
R 2	N-1627	20,000 OHM	.5W.	20%
R 3	N-1742	25 OHM	.5W.	20%
R 4	N-1262	1 MEGOHM	.5W.	20%
R 5	N-2257	0.5 MEGOHM	VOL. CONT.	
R 6	N-1263	10 MEGOHM	.5W.	20%
R 7	N-1377	200,000 OHM	.5W.	20%
R 8	N-1264	500,000 OHM	.5W.	20%
R 9	N-1787	250 OHM	.5W.	10%
R 10	N-1617	2500 OHM	.5W.	20%
R 11	N-1614	50 OHM	.5W.	20%
R 12	N-1618	80 OHM	2W.	10%
C 1	N-1344	.01 MFD.	400V.	
C 2	N-1345	.05 MFD.	200V.	
C 3		CAPACITY INCLUDED IN OSCILLATOR COIL		
C 4	N-1345	.05 MFD.	200V.	
C 5	N-1351	.1 MFD.	200V.	
C 6	N-1374	100 MMFD.		
C 7	N-1344	.01 MFD.	400V.	
C 8	N-1447	.0005 MFD.	400V.	
C 9	N-1344	.01 MFD.	400V.	
C 10	N-1376	.02 MFD.	400V.	
C 11 C 12	N-2015	35 MFD. 150V. / 20 MFD. 150V.	ELECTRO	
C 13	N-1346	.05 MFD.	400V.	
C 14	N-1344	.01 MFD.	400V.	
1	N-2256	ANTENNA COIL LOOP		
2	N-1452	OSCILLATOR COIL		
3	N-1598	1ST I.F. TRANSFORMER		
4	N-1596	2ND I.F. TRANSFORMER		
5	N-2254	5" P.M. SPEAKER & TRANS.		
E	N-1597	2ND I.F. TRIMMING COND.		
	N-2255	GANG CONDENSER		

5 TUBE AC-DC
SUPERHETERODYNE
SINGLE BAND

FOR PHONO-TELEVISION CONNECTIONS SEE TR



Models
TN-45
TSA-105
TSA-106

TN: DRN. J.B. APP.

TSA: DRN. J.B. APP. 12-23-59

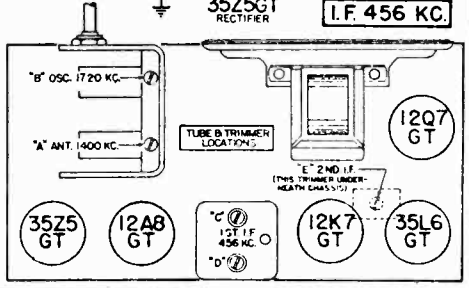
NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO CHASSIS BASE. HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS ALTERNATING.

I.F. 456 KC.

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII

DO NOT USE EXTERNAL GROUND

TUNING RANGE: 535 to 1720 KC



PARTS: TN and TSA

DIAG NO	PART NO	DESCRIPTION		
R 1	N-1260	50,000 OHM	.5W.	20%
R 4	N-1262	1 MEGOHM	.5W.	20%
R 6	N-1263	10 MEGOHM	.5W.	20%
R 7	N-1377	200,000 OHM	.5W.	20%
R 8	N-1264	500,000 OHM	.5W.	20%
R 9	N-1616	250 OHM	.5W.	10%
R 10	N-1617	2500 OHM	.5W.	20%
R 11	N-1614	50 OHM	.5W.	20%
R 12	N-1618	80 OHM	2W.	10%
C 1	N-1344	.01 MFD.	400V.	
C 2	N-1345	.05 MFD.	200V.	
C 3		CAPACITY INCLUDED IN OSCILLATOR COIL		
C 4	N-1345	.05 MFD.	200V.	
C 5	N-1351	.1 MFD.	200V.	
C 6	N-1374	100 MMFD.		
C 7	N-1344	.01 MFD.	400V.	
C 8	N-1447	.0005 MFD.	400V.	
C 9	N-1344	.01 MFD.	400V.	
C 10	N-1376	.02 MFD.	400V.	
C 11 C 12	N-1366	25 MFD. 150V. / 15 MFD. 150V.	ELECTRO.	
C 13	N-1346	.05 MFD.	400V.	
1	N-1594	ANTENNA COIL LOOP		
2	N-1452	OSCILLATOR COIL		
3	N-1598	1ST I.F. TRANSFORMER		
4	N-1596	2ND I.F. TRANSFORMER		
E	N-1597	2ND I.F. TRIMMING COND.		
	N-1431	GANG CONDENSER		

TSA ONLY

R 2	N-1460	30,000 OHM	.5W.	20%
R 3	N-1615	100 OHM	.5W.	10%
R 5	N-1595	0.5 MEGOHM	VOL. CONT.	
5	N-1585	4" P.M. SPEAKER & TRANS.		

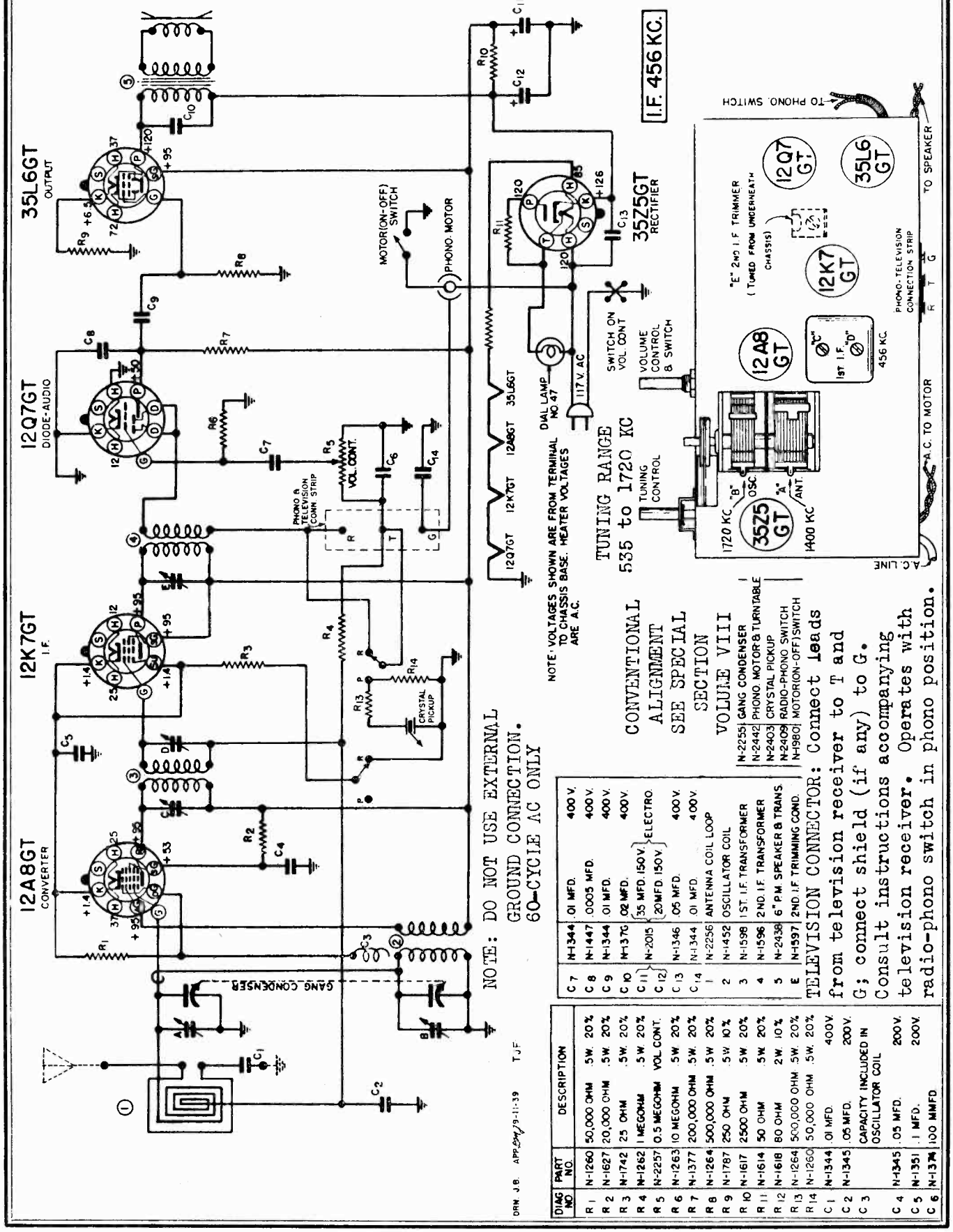
TN ONLY

R 2	N-1627	20,000 OHM	.5W.	20%
R 3	N-1742	25 OHM	.5W.	10%
R 5	N-2070	0.5 MEGOHM	VOL. CONT.	
5	N-2074	4" P.M. SPEAKER & TRANS.		

FOR PHONO. DATA SEE INDEX

SONORA RADIO & TELEV. CORP.

CHASSIS TJF
Schematic, Socket Alignment, Trimmers



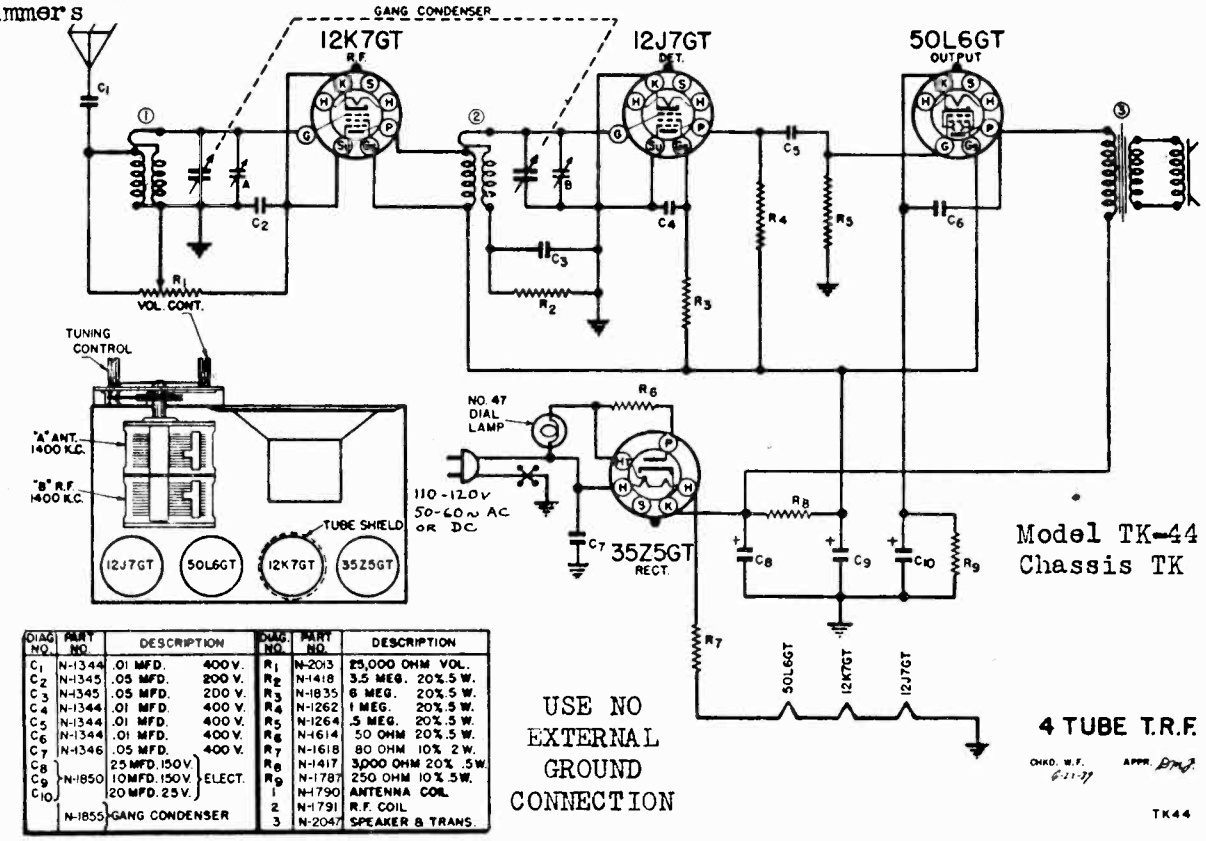
DIAG NO	PART NO.	DESCRIPTION			DIAG NO	PART NO.	DESCRIPTION	
R 1	N-1260	50,000 OHM	.5W.	20%	C 7	N-1344	.01 MFD.	400 V.
R 2	N-1627	20,000 OHM	.5W.	20%	C 8	N-1447	.0005 MFD.	400 V.
R 3	N-1742	25 OHM	.5W.	20%	C 9	N-1344	.01 MFD.	400 V.
R 4	N-1262	1 MEGOHM	.5W.	20%	C 10	N-1370	.02 MFD.	400 V.
R 5	N-2257	0.5 MEGOHM	VOL. CONT.		C 11	N-2015	35 MFD. 150 V.	ELECTRO
R 6	N-1263	10 MEGOHM	.5W	20%	C 12		20 MFD. 150 V.	
R 7	N-1377	200,000 OHM	.5W.	20%	C 13	N-1346	.05 MFD.	400 V.
R 8	N-1264	500,000 OHM	.5W	20%	C 14	N-1344	.01 MFD.	400 V.
R 9	N-1787	250 OHM	.5W	10%	1	N-2256	ANTENNA COIL LOOP	
R 10	N-1617	2500 OHM	.5W	20%	2	N-1452	OSCILLATOR COIL	
R 11	N-1614	50 OHM	.5W	20%	3	N-1598	1ST. I.F. TRANSFORMER	
R 12	N-1618	80 OHM	2W.	10%	4	N-1596	2ND. I.F. TRANSFORMER	
R 13	N-1264	500,000 OHM	.5W.	20%	5	N-2438	6" P.M. SPEAKER & TRANS.	
R 14	N-1260	50,000 OHM	.5W.	20%	E	N-1597	2ND. I.F. TRIMMING COND.	
C 1	N-1344	.01 MFD.		400V.		N-2255	GANG CONDENSER	
C 2	N-1345	.05 MFD.		200V.		N-2442	PHONO MOTOR & TURNTABLE	
C 3		CAPACITY INCLUDED IN OSCILLATOR COIL				N-2403	CRYSTAL PICKUP	
C 4	N-1345	.05 MFD.		200V.		N-2409	RADIO-PHONO SWITCH	
C 5	N-1351	.1 MFD.		200V.		N-1980	MOTOR(ON-OFF)SWITCH	
C 6	N-1374	100 MMFD						

DRW J.B. APP. 9-11-39 TJF

TELEVISION CONNECTOR: Connect leads from television receiver to T and G; connect shield (if any) to G. Consult instructions accompanying television receiver. Operates with radio-phono switch in phono position.

MODEL TK-44, Ch. TK
CHASSIS TKE, TPE
Schematics, Socket
Trimmers

SONORA RADIO & TELEV., CORP.



Model TK-44
Chassis TK

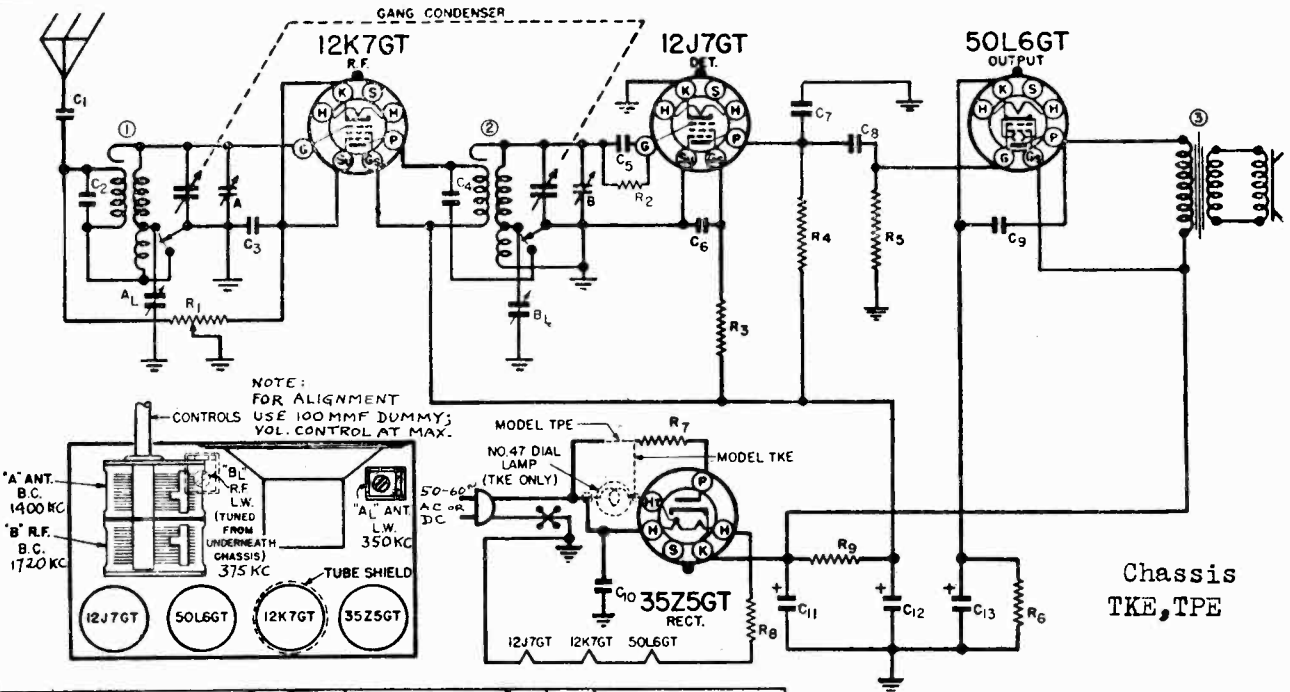
DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	N-1344	.01 MFD. 400 V.	R1	N-2013	25,000 OHM VOL.
C2	N-1345	.05 MFD. 200 V.	R2	N-1418	3.5 MEG. 20% .5 W.
C3	N-1345	.05 MFD. 200 V.	R3	N-1835	6 MEG. 20% .5 W.
C4	N-1344	.01 MFD. 400 V.	R4	N-1262	1 MEG. 20% .5 W.
C5	N-1344	.01 MFD. 400 V.	R5	N-1264	.5 MEG. 20% .5 W.
C6	N-1344	.01 MFD. 400 V.	R6	N-1614	50 OHM 20% .5 W.
C7	N-1346	.05 MFD. 400 V.	R7	N-1618	80 OHM 10% 2 W.
C8	N-1850	25 MFD. 150 V. ELECT.	R8	N-1417	3,000 OHM 20% .5 W.
C9		10 MFD. 150 V. ELECT.	R9	N-1787	250 OHM 10% .5 W.
C10		20 MFD. 25 V. ELECT.	1	N-1790	ANTENNA COIL
	N-1855	GANG CONDENSER	2	N-1791	R.F. COIL
			3	N-2047	SPEAKER & TRANS.

USE NO EXTERNAL GROUND CONNECTION

4 TUBE T.R.F.

CHKD. W.F. 6-21-39 APPR. DMJ

TK44



Chassis
TKE, TPE

DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION	DIAG. NO.	PART NO.	DESCRIPTION
C1	N-1344	.01 MFD. 400 V.	C11	N-2380	35 MFD. 150 V. ELYTIC	R6	N-1787	250 OHMS .5W. 10%
C2	N-2383	150 MMFD. 20%	C12		10 MFD. 150 V. ELYTIC	R7	N-1614	50 OHMS .5W 20%
C3	N-1345	.05 MFD. 200 V.	C13		20 MFD. 25 V.	R8	N-1618	80 OHMS .5W. 10%
C4	N-2383	150 MMFD. 20%				R9	N-1417	3000 OHMS .5W. 20%
C5	N-1344	.01 MFD. 400 V.					N-1401	GANG COND. MODEL TPE
C6	N-1376	.02 MFD. 400 V.					N-1855	" " TKE
C7	N-1343	250 MMFD. 20%	R1	N-2013	25,000 MODEL TPE	1	N-2378	ANTENNA COIL
C8	N-1344	.01 MFD. 400 V.		N-1537	OHM V.C. " TKE	2	N-2379	R.F. COIL
C9	N-1344	.01 MFD. 400 V.	R2	N-1418	3.5 MEGOHM .5W. 20%	3	N-2047E	SPEAKER & TRANS.
C10	N-1346	.05 MFD. 400 V.	R3	N-1835	6 MEGOHM .5W. 20%	AL	N-2315	ANT. LONG WAVE TRIMMER
			R4	N-1262	1 MEGOHM .5W. 20%	BL	N-2315	R.F. " " "
			R5	N-1264	.5 MEGOHM .5W. 20%			

USE NO EXTERNAL GROUND CONNECTION

4 TUBE T.R.F.
TWO BAND
BROADCAST & LONG WAVE

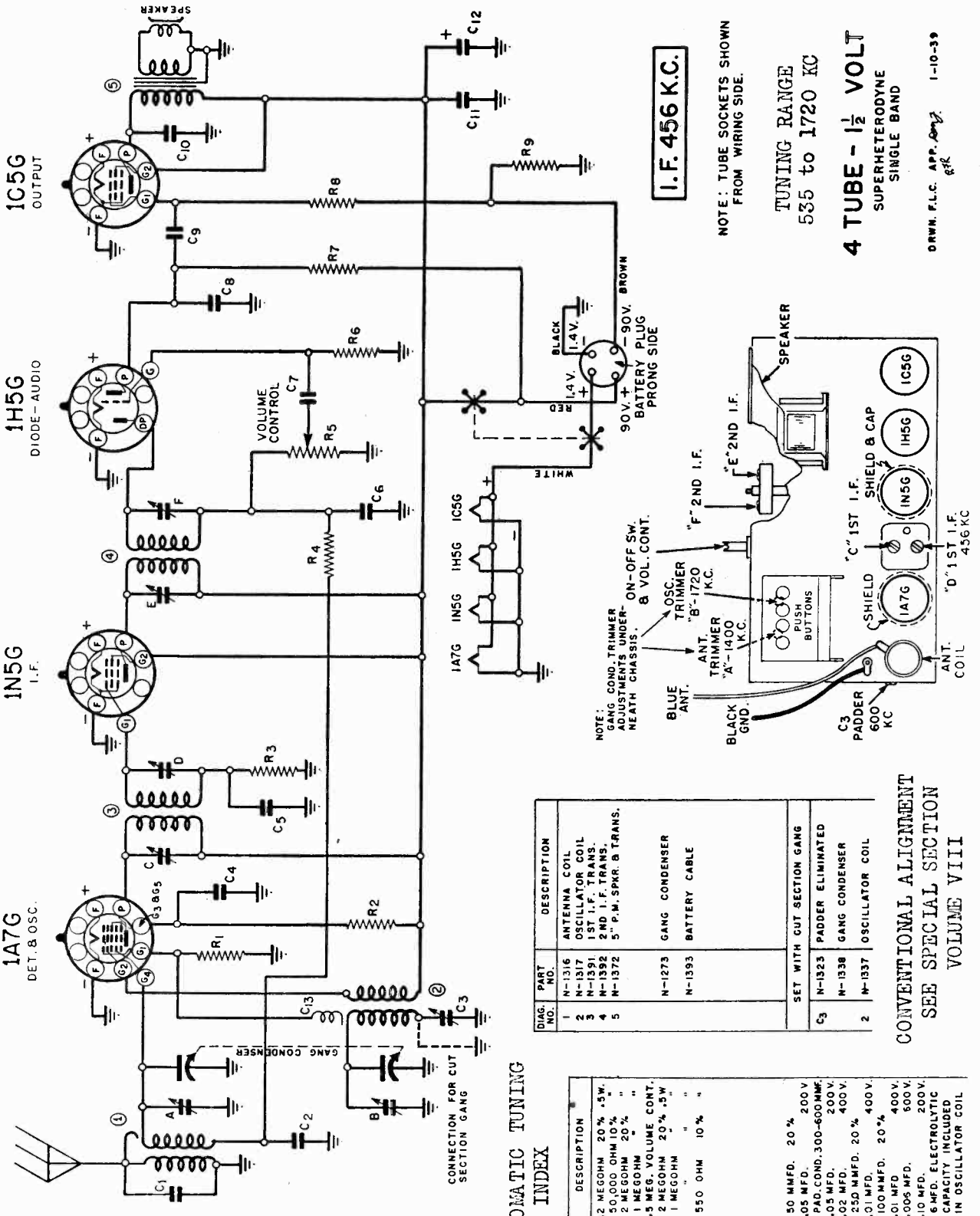
CHKD. W.F. APPR. 10% DMJ AUG. 19, '39

TUNING RANGES
535-1720 KC; 140-375 KC

TKE, TPE

SONORA RADIO & TELEV., CORP.

CHASSIS TL
Schematic, Socket
Trimmers, Alignment



DIAG. NO.	PART NO.	DESCRIPTION
1	N-1316	ANTENNA COIL
2	N-1317	OSCILLATOR COIL
3	N-1391	1ST I.F. TRANS.
4	N-1392	2ND I.F. TRANS.
5	N-1372	5" P.M. SPKR. & TRANS.
	N-1273	GANG CONDENSER
	N-1393	BATTERY CABLE
		SET WITH CUT SECTION GANG
C_3	N-1323	PADDER ELIMINATED
	N-1338	GANG CONDENSER
2	N-1337	OSCILLATOR COIL

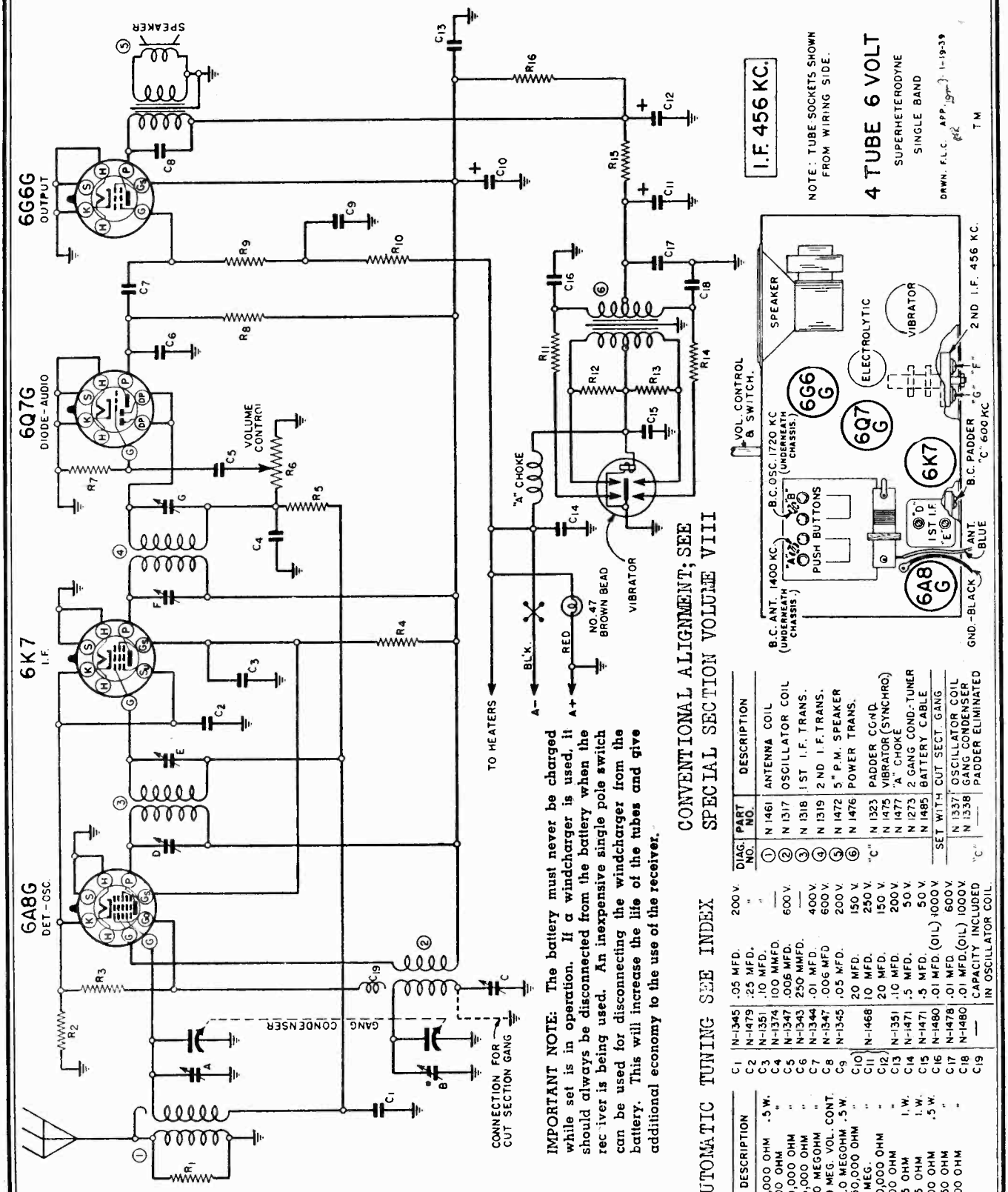
DIAG. NO.	PART NO.	DESCRIPTION	
R 1	N-1377	.2 MEGOHM 20 % .5W.	
R 2	N-1353	50,000 OHM 10 % "	
R 3	N-1378	2 MEGOHM 20 % "	
R 4	N-1262	1 MEGOHM " "	
R 5	N-1373	.5 MEG. VOLUME CONT.	
R 6	N-1378	2 MEGOHM 20 % .5W	
R 7	N-1262	1 MEGOHM " "	
R 8	N- "	" " "	
R 9	N-1379	550 OHM 10 % "	
C_1	N-1342	50 MMFD. 20 %	200 V
C_2	N-1345	.05 MFD.	200 V
C_3	N-1323	PAD. COND. 300-600 MMF	
C_4	N-1345	.05 MFD.	200 V.
C_5	N-1376	.02 MFD.	400 V.
C_6	N-1343	250 MMFD. 20 %	
C_7	N-1344	.01 MFD.	400 V.
C_8	N-1374	100 MMFD. 20 %	
C_9	N-1344	.01 MFD	400 V.
C_{10}	N-1347	.005 MFD.	600 V.
C_{11}	N-1351	.10 MFD.	200 V.
C_{12}	N-1367	6 MFD. ELECTROLYTIC	
C_{13}		CAPACITY INCLUDED IN OSCILLATOR COIL	

FOR AUTOMATIC TUNING
SEE INDEX

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

CHASSIS TM
Schematic, Socket Alignment, Trimmers

SONORA RADIO & TELEV., CORP.



I.F. 456 KC.

NOTE: TUBE SOCKETS SHOWN FROM WIRING SIDE.

4 TUBE 6 VOLT

SUPERHETERODYNE
SINGLE BAND

DRWN. F.L.C. APP. [illegible] 1-19-39

T M

IMPORTANT NOTE: The battery must never be charged while set is in operation. If a windcharger is used, it should always be disconnected from the battery when the receiver is being used. An inexpensive single pole switch can be used for disconnecting the windcharger from the battery. This will increase the life of the tubes and give additional economy to the use of the receiver.

CONVENTIONAL ALIGNMENT; SEE SPECIAL SECTION VOLUME VIII

FOR AUTOMATIC TUNING SEE INDEX

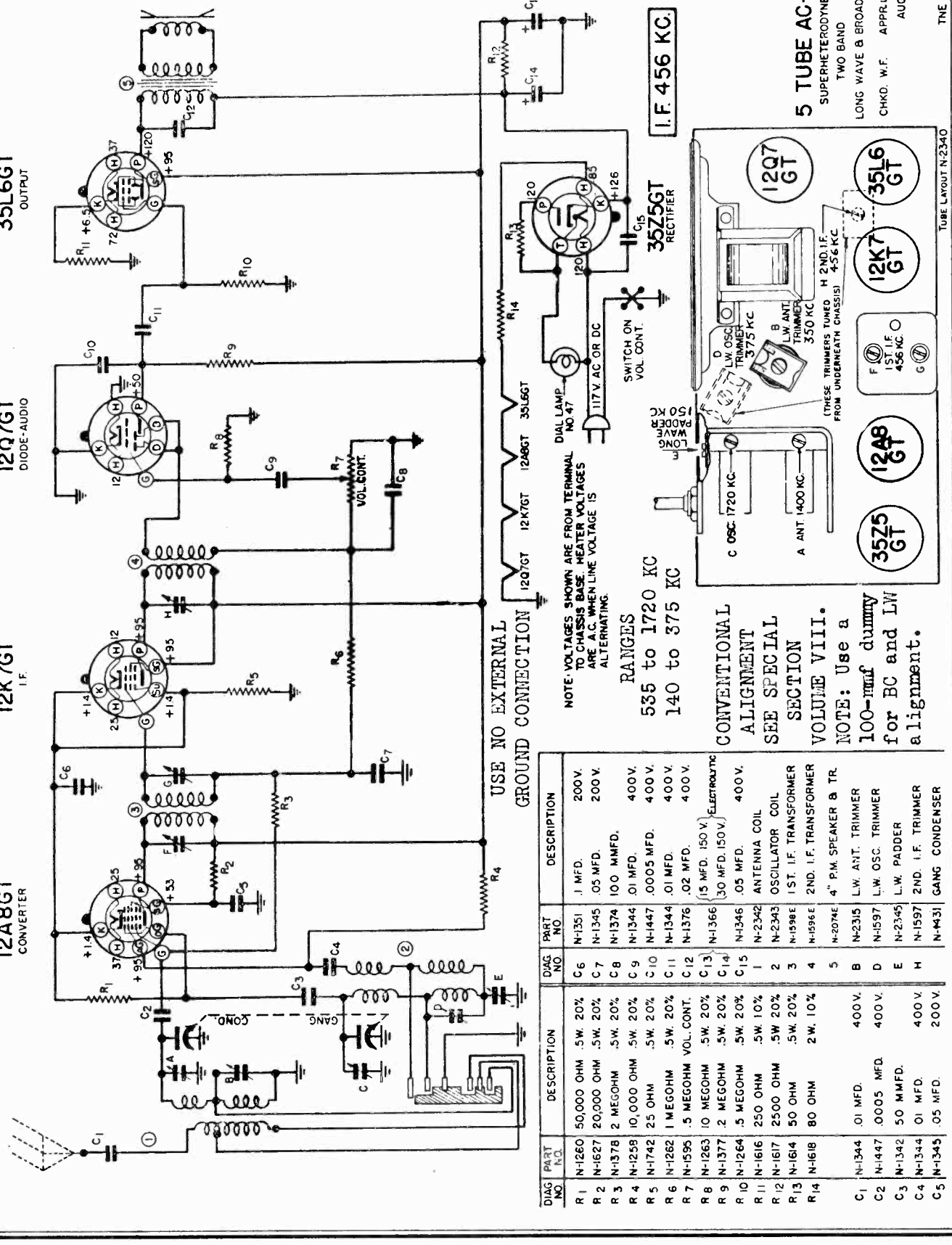
DIAG. NO.	PART NO.	DESCRIPTION
R1	N-1259	15,000 OHM .5 W.
R2	N-1473	200 OHM "
R3	N-1260	50,000 OHM "
R4	N-1474	25,000 OHM "
R5	N-1378	2.0 MEGOHM "
R6	N-1320	1.0 MEG. VOL. CONT.
R7	N-1263	10.0 MEGOHM .5 W.
R8	N-1261	250,000 OHM "
R9	N-1264	.5 MEG. "
R10	N-1260	50,000 OHM "
R11	N-1256	500 OHM "
R12	N-1506	75 OHM 1 W.
R13	N-1506	75 OHM 1 W.
R14	N-1256	500 OHM .5 W.
R15	N-1482	250 OHM "
R16	N-1256	500 OHM "

C1	N-1345	.05 MFD.	200 V.
C2	N-1479	.25 MFD.	"
C3	N-1351	.10 MFD.	"
C4	N-1374	100 MMFD.	—
C5	N-1347	.006 MFD.	600 V.
C6	N-1343	250 MMFD.	—
C7	N-1344	.01 MFD	400 V.
C8	N-1347	.006 MFD	600 V.
C9	N-1345	.05 MFD.	200 V.
C10		20 MFD.	150 V.
C11	N-1468	10 MFD.	250 V.
C12		20 MFD.	150 V.
C13	N-1351	.10 MFD.	200 V.
C14	N-1471	.5 MFD.	50 V.
C15	N-1471	.5 MFD.	50 V.
C16	N-1480	.01 MFD. (OIL)	1000 V.
C17	N-1478	.01 MFD.	600 V.
C18	N-1480	.01 MFD. (OIL)	1000 V.
C19	—	CAPACITY INCLUDED IN OSCILLATOR COIL.	

DIAG. NO.	PART NO.	DESCRIPTION
①	N 1461	ANTENNA COIL
②	N 1317	OSCILLATOR COIL
③	N 1318	1ST I.F. TRANS.
④	N 1319	2ND I.F. TRANS.
⑤	N 1472	5" P.M. SPEAKER
⑥	N 1476	POWER TRANS.
"C"	N 1323	PADDER COND.
	N 1475	VIBRATOR (SYNCHRO)
	N 1477	"A" CHOKE
	N 1273	2 GANG COND.-TUNER
	N 1485	BATTERY CABLE
SET WITH CUT SECT. GANG		
"C"	N 1337	OSCILLATOR COIL
	N 1338	GANG CONDENSER
	—	PADDER ELIMINATED

SONORA RADIO & TELEV., CORP.

CHASSIS TNE
Schematic, Socket
Alignment, Trimmers

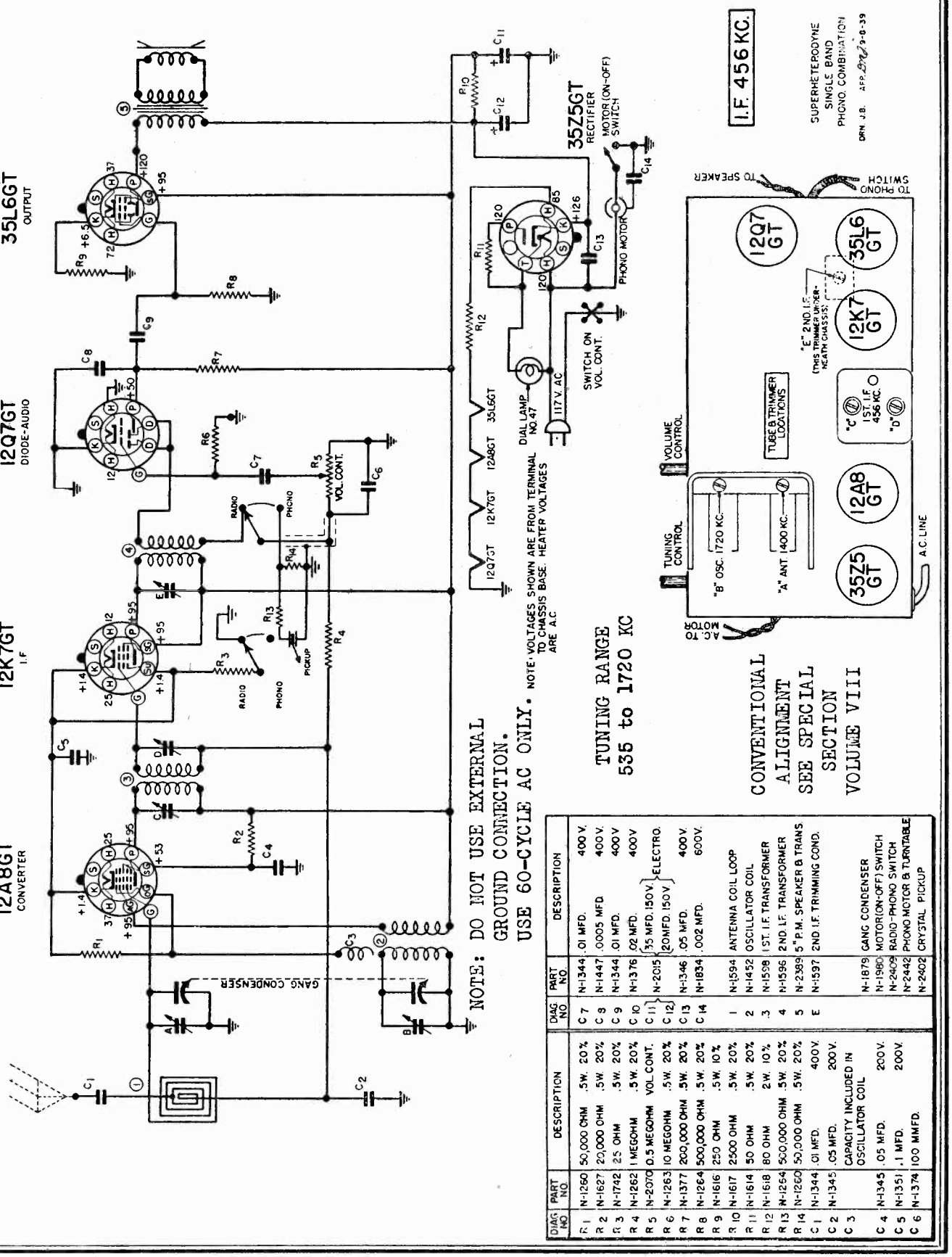


DIAG NO	PART NO.	DESCRIPTION
R 1	N-1260	50,000 OHM .5W. 20%
R 2	N-1627	20,000 OHM .5W. 20%
R 3	N-1378	2 MEGOHM .5W. 20%
R 4	N-1259	10,000 OHM .5W. 20%
R 5	N-1742	25 OHM .5W. 20%
R 6	N-1262	1 MEGOHM .5W. 20%
R 7	N-1595	.5 MEGOHM VOL. CONT.
R 8	N-1263	10 MEGOHM .5W. 20%
R 9	N-1377	.2 MEGOHM .5W. 20%
R 10	N-1264	.5 MEGOHM .5W. 20%
R 11	N-1616	250 OHM .5W. 10%
R 12	N-1617	2500 OHM .5W 20%
R 13	N-1614	50 OHM .5W. 20%
R 14	N-1618	80 OHM 2W. 10%
C 1	N-1344	.01 MFD. 400 V.
C 2	N-1447	.0005 MFD. 400 V.
C 3	N-1342	50 MMFD.
C 4	N-1344	.01 MFD. 400 V.
C 5	N-1345	.05 MFD. 200 V.

DIAG NO	PART NO	DESCRIPTION
C 6	N-1351	.1 MFD. 200 V.
C 7	N-1345	.05 MFD. 200 V.
C 8	N-1374	100 MMFD.
C 9	N-1344	.01 MFD. 400 V.
C 10	N-1447	.0005 MFD. 400 V.
C 11	N-1344	.01 MFD. 400 V.
C 12	N-1376	.02 MFD. 400 V.
C 13	N-1366	{.15 MFD. 150 V. / .30 MFD. 150 V.} ELECTROLYTIC
C 14		
C 15	N-1346	.05 MFD. 400 V.
1	N-2342	ANTENNA COIL
2	N-2343	OSCILLATOR COIL
3	N-1598E	1ST. I.F. TRANSFORMER
4	N-1596E	2ND. I.F. TRANSFORMER
5	N-2074E	4" P.M. SPEAKER & TR.
B	N-2315	L.W. ANT. TRIMMER
D	N-1597	L.W. OSC. TRIMMER
E	N-2345	L.W. PADDER
H	N-1597	2ND. I.F. TRIMMER
	N-1431	GANG CONDENSER

MODELS TNF-60, TNF-68
Chassis TNF
Schematic, Socket
Alignment, Trimmers

SONORA RADIO & TELEV. CORP.



NOTE: DO NOT USE EXTERNAL GROUND CONNECTION.
USE 60-CYCLE AC ONLY.

NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO CHASSIS BASE. HEATER VOLTAGES ARE A.C.

TUNING RANGE
535 to 1720 KC

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

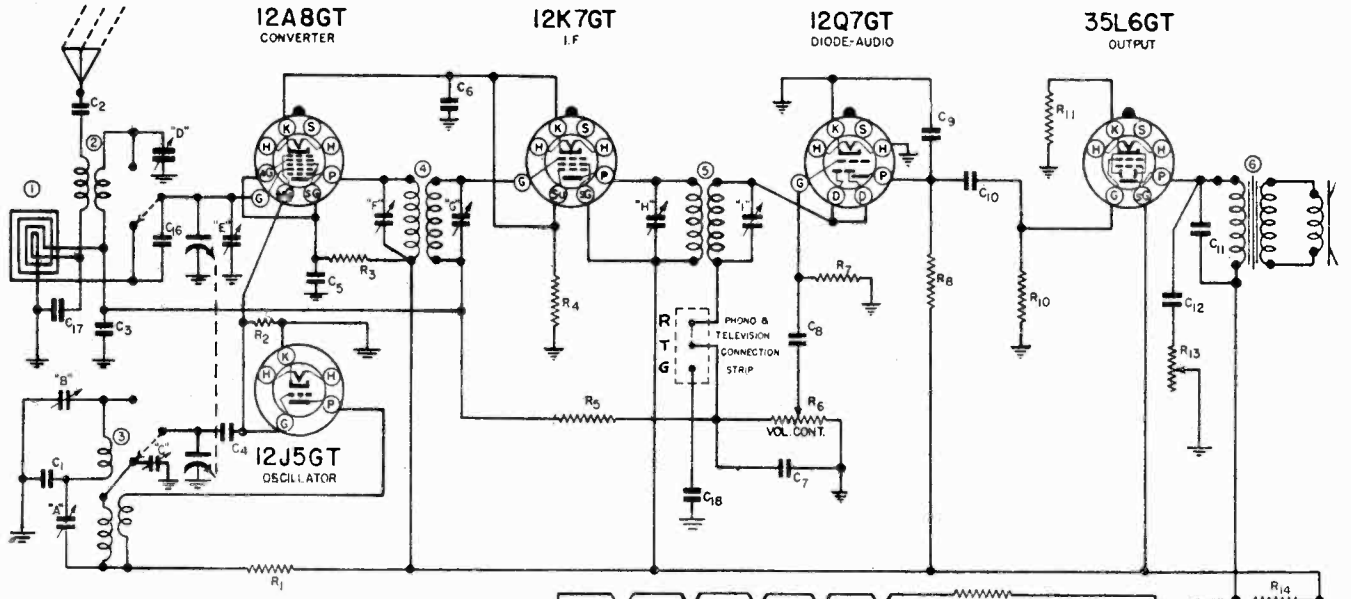
DIAG NO	PART NO	DESCRIPTION
R 1	N-1260	50,000 OHM .5W. 20%
R 2	N-1627	20,000 OHM .5W. 20%
R 3	N-1742	25 OHM .5W. 20%
R 4	N-1262	1 MEGOHM .5W. 20%
R 5	N-2070	0.5 MEGOHM VOL. CONT.
R 6	N-1263	10 MEGOHM .5W. 20%
R 7	N-1377	200,000 OHM .5W. 20%
R 8	N-1264	500,000 OHM .5W. 20%
R 9	N-1616	250 OHM .5W. 10%
R 10	N-1617	2500 OHM .5W. 20%
R 11	N-1614	50 OHM .5W. 20%
R 12	N-1618	80 OHM 2W. 10%
R 13	N-1254	500,000 OHM .5W. 20%
R 14	N-1260	50,000 OHM .5W. 20%
C 1	N-1344	.01 MFD. 400 V.
C 2	N-1345	.05 MFD. 200 V.
C 3		CAPACITY INCLUDED IN OSCILLATOR COIL
C 4	N-1345	.05 MFD. 200 V.
C 5	N-1351	.1 MFD. 200 V.
C 6	N-1374	100 MMFD.

DIAG NO	PART NO	DESCRIPTION
C 7	N-1344	.01 MFD. 400 V.
C 8	N-1447	.0005 MFD. 400 V.
C 9	N-1344	.01 MFD. 400 V
C 10	N-1376	.02 MFD. 400 V
C 11	N-2015	35 MFD. 150 V. ELECTRO.
C 12		20 MFD. 150 V.
C 13	N-1346	.05 MFD. 400 V.
C 14	N-1834	.002 MFD. 600 V.
1	N-1594	ANTENNA COIL LOOP
2	N-1452	OSCILLATOR COIL
3	N-1598	1ST. I.F. TRANSFORMER
4	N-1596	2ND. I.F. TRANSFORMER
5	N-2389	5" P.M. SPEAKER & TRANS
E	N-1597	2ND I.F. TRIMMING COND.
	N-1879	GANG CONDENSER
	N-1980	MOTOR (ON-OFF) SWITCH
	N-2409	RADIO-PHONO SWITCH
	N-2442	PHONO MOTOR & TURNTABLE
	N-2402	CRYSTAL PICKUP

SONORA RADIO & TELEV., CORP.

MODEL TR-53, Ch. TR
Schematic, Socket
Alignment, Trimmers

FOR AUTOMATIC TUNING SEE INDEX

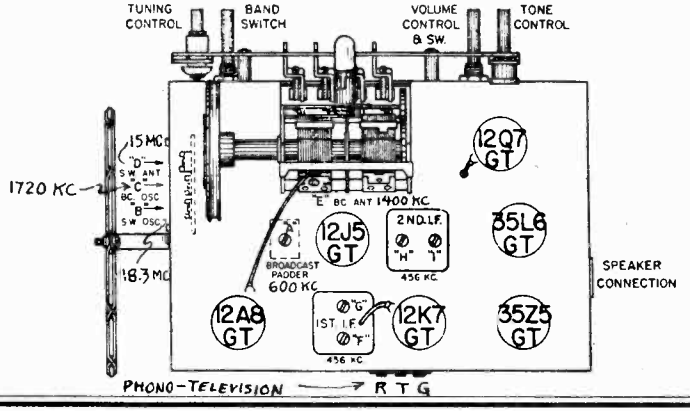


TELEVISION and PHONOGRAPH CONNECTOR: To use, remove link from terminals R and T. Connect leads from external source to T and G; connect shield (if any) to G. Consult instructions of manufacturer of television receiver or phonograph.

USE NO EXTERNAL GROUND CONNECTION

DIAG NO	PART NO	DESCRIPTION	DIAG NO	PART NO	DESCRIPTION
R_1	N-1258	10,000 OHM .5W. 20%	C_8	N-1344	.01 MFD. 400 V.
R_2	N-1260	50,000 OHM .5W. 20%	C_9	N-1447	.0005 MFD. 400 V.
R_3	N-1460	30,000 OHM .5W. 20%	C_{10}	N-1344	.01 MFD 400 V.
R_4	N-2209	25 OHM .5W 10%	C_{11}	N-1344	.01 MFD. 400 V.
R_5	N-1262	1 MEGOHM .5W. 20%	C_{12}	N-1346	.05 MFD. 400 V.
R_6	N-2163	.5 MEGOHM VOL. CONT.	C_{13}	N-2206	(20 MFD. 150 V.) (40 MFD. 150 V.) ELTLYT.
R_7	N-1263	10 MEGOHM .5W. 20%	C_{14}		
R_8	N-1377	.2 MEGOHM .5W. 20%	C_{15}	N-1346	.05 MFD. 400 V.
R_9	N-2195	40 OHM 1 W. 10%	C_{16}	N-1897	.25 MMFD.
R_{10}	N-1264	.5 MEGOHM .5W. 20%	C_{17}	N-1897	.25 MMFD.
R_{11}	N-1787	250 OHM .5W. 10%	C_{18}	N-1344	.01 MFD. 400 V.
R_{12}	N-1614	50 OHM .5W. 20%	1	N-2154	ANTENNA COIL LOOP
R_{13}	N-2157	25,000 OHM TONE CONT.	2	N-2010	BAND 2 ANTENNA COIL
R_{14}	N-1617	2500 OHM .5W. 20%	3	N-2008	OSC. COIL
C_1	N-1690	BAND 2 PAD .004 Mfd. 5%	4	N-2159	1ST. I.F. TRANSFORMER
C_2	N-1344	.01 MFD. 400 V.	5	N-2160	2nd. I.F. TRANSFORMER
C_3	N-1345	.05 MFD. 200 V.	6	N-2153	6" P.M. SPKR. & TRANS.
C_4	N-1342	50 MMFD.	"A"	N-2205	BROADCAST PADDER
C_5	N-1345	.05 MFD. 200 V.	"B"	N-2158	SHORT W. OSC. TRIMMER
C_6	N-2215	.15 MFD. 200 V.	"C"		BROADCAST OSC. TRIM.
C_7	N-1374	100 MMFD.	"D"		SHORT W ANT. TRIMMER

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII



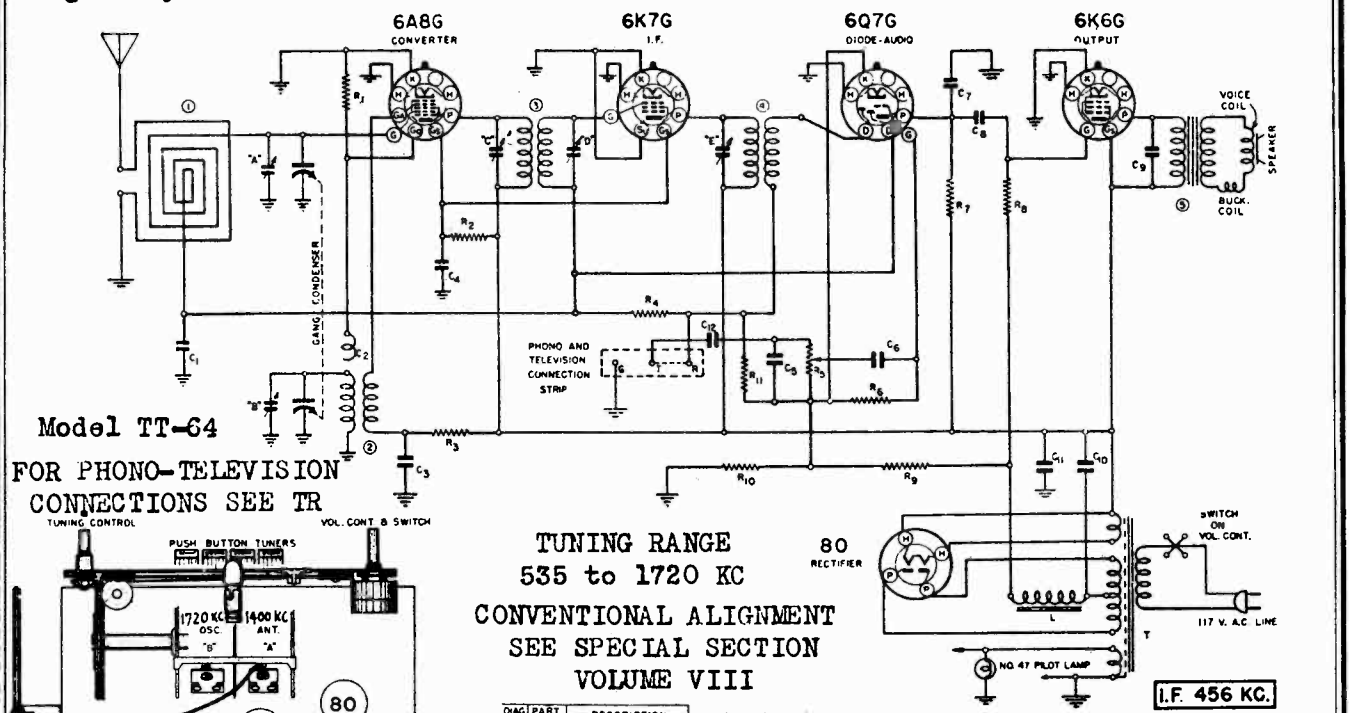
TUNING RANGES
535 to 1720 KC
5.65 to 18.3 MC

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

DRN. W.F. APP. Sm Dm

TR

MODEL TT-64, Ch. TT
MODEL TW-49, Ch. TW, TWU SONORA RADIO & TELEV., CORP.
Schematics, Socket
Alignment, Trimmers

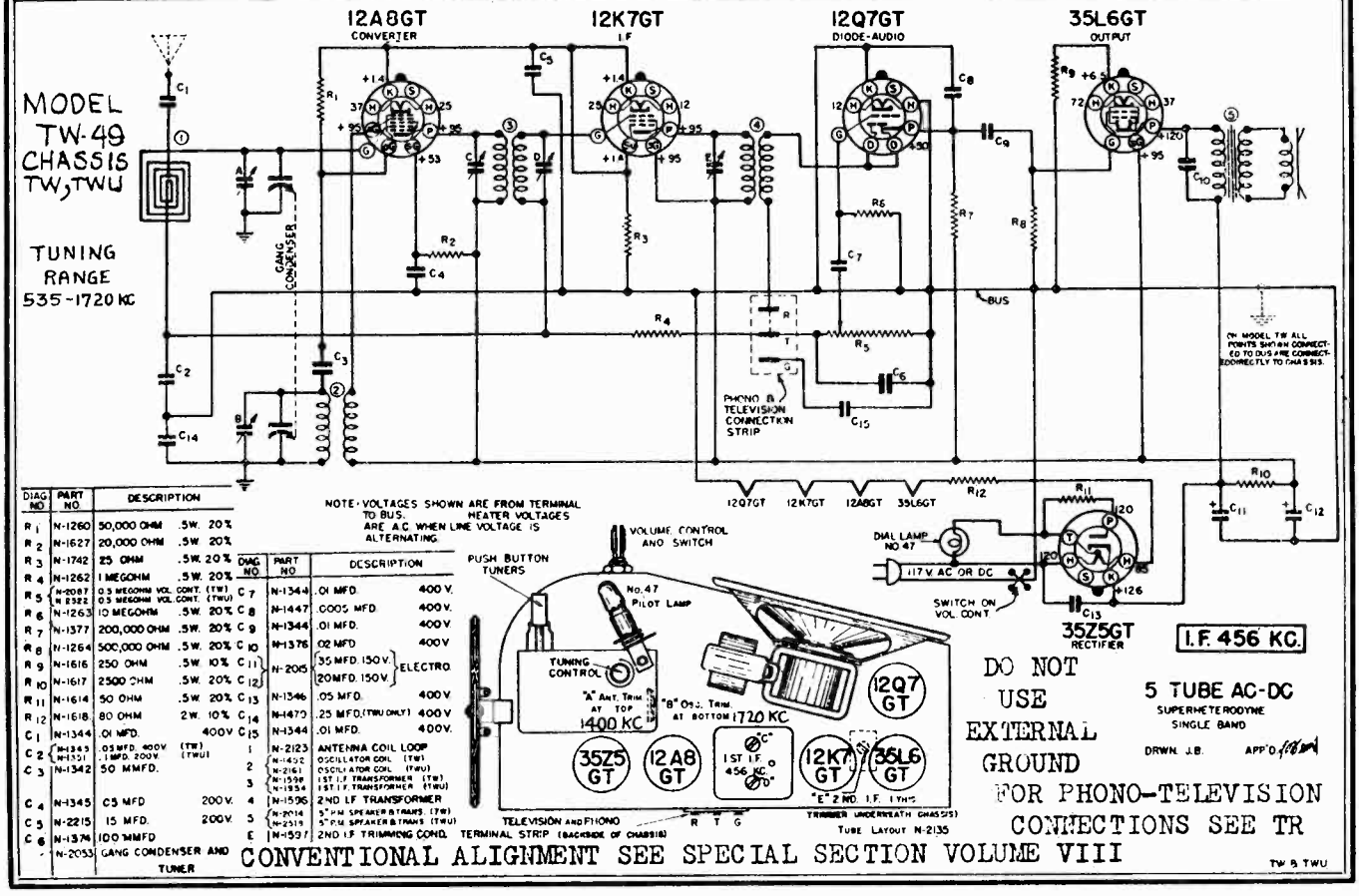


DIAG NO	PART NO	DESCRIPTION
SPEAKER CONNECTION		
R1	N-1260	50,000 OHMS .5W 20%
R2	N-1460	30,000 OHMS .5W 20%
R3	N-1460	30,000 OHMS .5W 20%
R4	N-1682	3 MEGOHMS .5W 20%
R5	N-2225	1 MEGOHM VOL. CONT.
R6	N-1419	6 MEGOHMS .5W 20%
R7	N-1377	200,000 OHMS .5W 20%
R8	N-1264	5 MEGOHM .5W 20%
R9	N-1693	325 OHMS .5W 10%
R10	N-1481	75 OHMS .5W 20%
R11	N-1264	5 MEGOHM .5W 20%

C1	N-1345	.05 MFD	200 V.
C2		CAPACITY BETWEEN COILS	
C3	N-1346	.05 MFD	400 V.
C4	N-1623	1 MFD.	400 V.
C5	N-1374	100 MMFD.	
C6	N-1347	.006 MFD	600 V.
C7	N-1343	250 MMFD.	
C8	N-1344	.01 MFD	400 V.
C9	N-1478	.01 MFD.	600 V.
C10	N-2224	(10 MFD. 350 V.) ELCTC	
C11		(16 MFD. 350 V.)	
C12	N-1344	.01 MFD.	400 V.

1	N-2222	ANTENNA LOOP
2	N-1452	OSCILLATOR COIL
3	N-2159	1ST I.F. TRANS.
4	N-1596	2 ND I.F. TRANS.
5	N-2225	5" SPK. & TRANS.
L		1800 OHM SPK FELD
T	N-2226	POWER TRANS.
	N-2000	GANG CONDENSER
"E"	N-1597	2ND. I.F. TRIMMING COND

TT



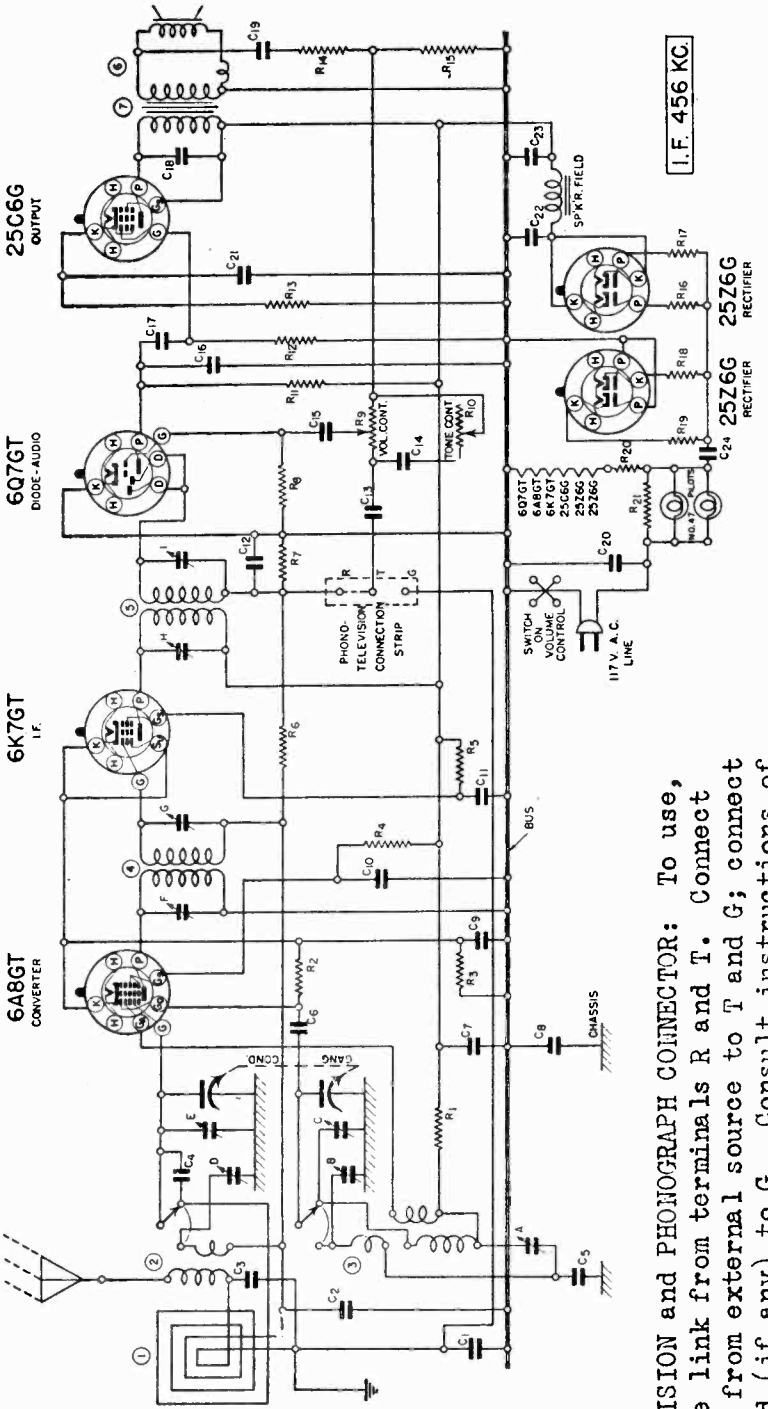
DIAG NO	PART NO	DESCRIPTION	
R1	N-1260	50,000 OHM	.5W 20%
R2	N-1627	20,000 OHM	.5W 20%
R3	N-1742	25 OHM	.5W 20%
R4	N-1262	1 MEGOHM	.5W 20%
R5	N-2087 (TW) N-2322 (TWU)	0.5 MEGOHM VOL. CONT. 0.5 MEGOHM VOL. CONT.	
R6	N-1263	10 MEGOHM	.5W 20%
R7	N-1377	200,000 OHM	.5W 20%
R8	N-1264	500,000 OHM	.5W 20%
R9	N-1616	250 OHM	.5W 10%
R10	N-1617	2500 OHM	.5W 20%
R11	N-1614	50 OHM	.5W 20%
R12	N-1618	80 OHM	2W 10%
C1	N-1344	.01 MFD.	400V
C2	N-1353 (TW) N-1351 (TWU)	.03 MFD. 200V (TW) .1 MFD. 200V (TWU)	
C3	N-1342	50 MMFD.	
C4	N-1345	.05 MFD	200V.
C5	N-2215	.15 MFD.	200V.
C6	N-1374	100 MMFD	
-	N-2053	GANG CONDENSER AND TUNER	

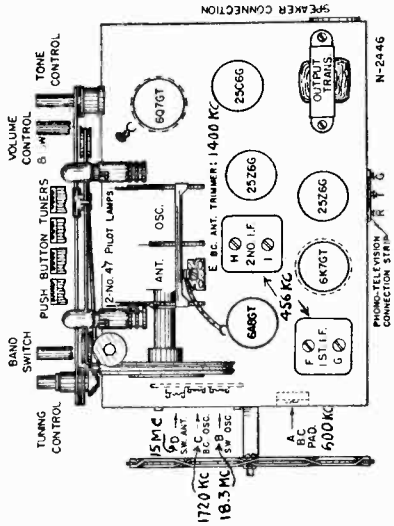
DIAG NO	PART NO	DESCRIPTION	
C7	N-1344	.01 MFD.	400 V.
C8	N-1447	.0005 MFD.	400 V.
C9	N-1344	.01 MFD.	400 V.
C10	N-1376	.02 MFD	400 V.
C11	N-2105	35 MFD. 150 V. 20 MFD. 150 V.	ELECTRO.
C12			
C13	N-1346	.05 MFD.	400 V.
C14	N-1470	.25 MFD. (TWU ONLY)	400 V.
C15	N-1344	.01 MFD.	400 V.
1	N-2123	ANTENNA COIL LOOP	
2	N-1452 N-2161	OSCILLATOR COIL (TW) OSCILLATOR COIL (TWU)	
3	N-1598 N-1956	1ST I.F. TRANSFORMER (TW) 1ST I.F. TRANSFORMER (TWU)	
4	N-1596	2ND I.F. TRANSFORMER	
5	N-2014 N-2519	5" PM SPEAKER & TRANS. (TW) 5" PM SPEAKER & TRANS. (TWU)	
E	N-1597	2ND I.F. TRIMMING COND.	

SONORA RADIO & TELEV., CORP.

MODELS TX-53, TX-58
Chassis TX
Schematic, Socket
Alignment, Trimmers

TX





6 TUBE A.C.
SUPERHETERODYNE
TWO BAND

Drawn W.F. Appr. Sept. 6, '39
Aug. 11, '39

TELEVISION and PHONOGRAPH CONNECTOR: To use, remove link from terminals R and T. Connect leads from external source to T and G; connect shield (if any) to G. Consult instructions of manufacturer of television receiver or phonograph.

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

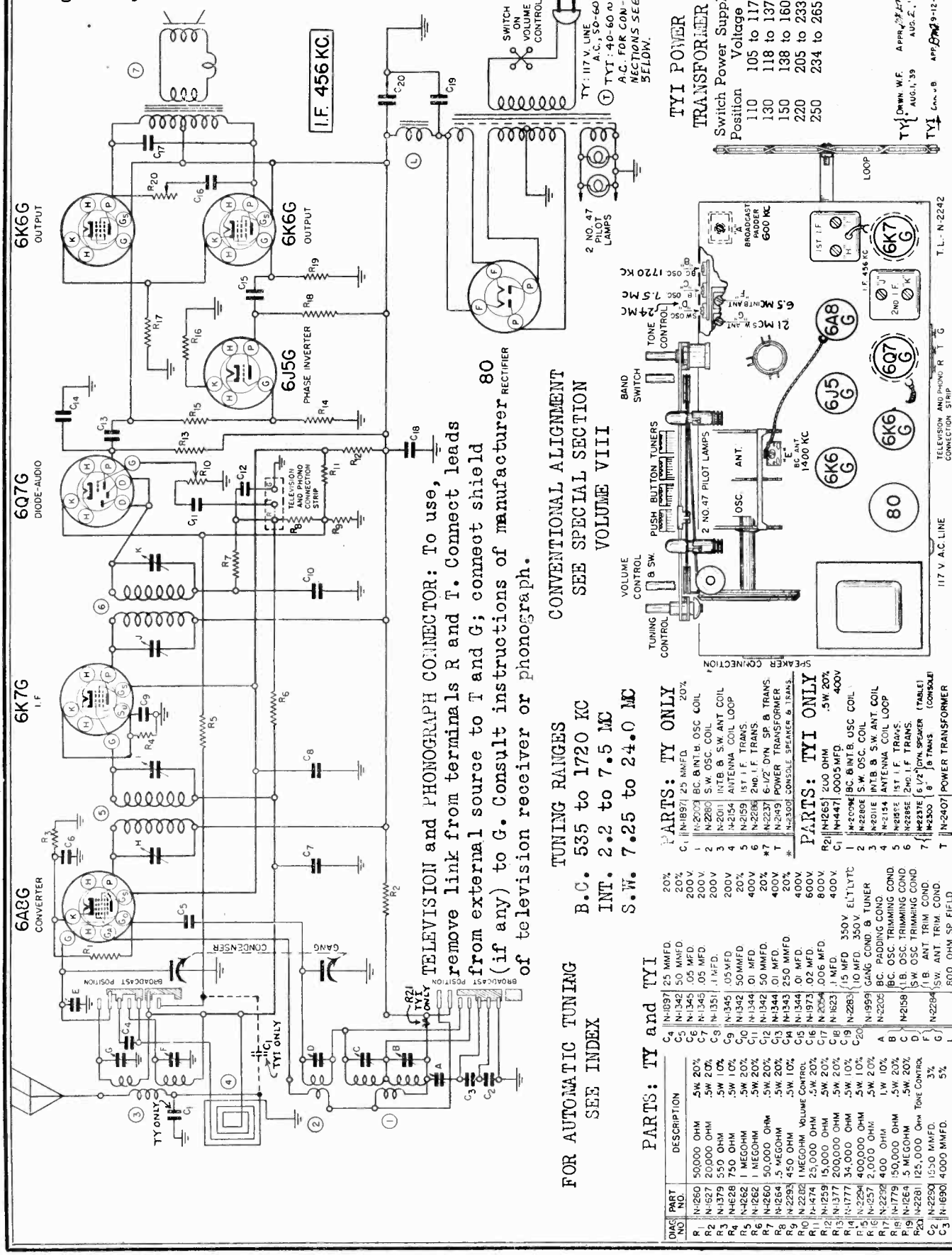
TUNING RANGES
535 to 1720 KC
5.65 to 18.3 MC

FOR TUNER
SEE INDEX

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
R1	N-1627	20,000 OHM	.5W 20%	C10	N-1345	.05 MFD.	200V 20%
R2	N-1260	50,000 OHM	.5W 20%	C11	N-1345	.05 MFD.	200V 20%
R3	N-1467	250 OHM	5W 10%	C12	N-1346	.05 MFD.	400V 20%
R4	N-2459	40,000 OHM	5W 20%	C13	N-1344	.01 MFD.	400V 20%
R5	N-1262	1 MEGOHM	.5W 20%	C14	N-2450	.002 MFD	400V 20%
R6	N-1264	0.5 MEGOHM	.5W 20%	C15	N-1344	.01 MFD.	400V 20%
R7	N-1419	6 MEGOHM	.5W 20%	C16	N-1343	250 MMFD	20%
R8	N-2411	0.5 MEGOHM	VOL CONT	C17	N-1376	.02 MFD	400V 20%
R9	N-2435	1 MEGOHM	TONE CONT.	C18	N-1344	.01 MFD.	400V 20%
R10	N-1261	.25 MEGOHM	.5W 20%	C19	N-1351	.1 MMFD.	200V 20%
R11	N-1264	0.5 MEGOHM	.5W 20%	C20	N-1346	.05 MFD	400V 20%
R12	N-2453	235 OHM	1 W. 10%	C21	N-2437	20 MFD 25V	ELECT.
R13	N-2454	5000 OHM	5W 10%	C22		30 MFD 250V	COND.
R14	N-1473	200 OHM	1W 20%	C23		30 MFD. 150V.	
R15	N-2452	100 OHM	1W 20%	C24	N-2436	30 MFD. 150V.	
R16	N-2452	100 OHM	1W 20%	1	N-2154	ANTENNA LOOP	
R17	N-2451	75 OHM	1W 20%	2	N-2010	S.W. ANTENNA COIL	
R18	N-2451	75 OHM	1W 20%	3	N-2008	OSC. COIL	
R19	N-2451	75 OHM	1W 20%	4	N-2466	1ST I.F. TRANS.	
R20	N-2298	62 OHM	ARMORED	5	N-2462	2ND I.F. TRANS.	
R21		17 OHM	WIRE RES.	6	N-2431	6" DYN SPKR(TABLE)	
C1	N-1344	.01 MFD.	400V 20%	6	N-2432	8" DYN SPKR(CONSOLE)	
C2	N-1345	.05 MFD.	200 V 20%	7	N-2444	OUTPUT TRANS.	
C3	N-1897	25 MMFD.	20%	A	N-2205	BC. PADDING COND.	
C4	N-1897	25 MMFD.	20%	B		S.W. OSC. TRIM COND.	
C5	N-1690	4000 MMFD	5%	C	N-2158	BC. OSC. TRIM COND.	
C6	N-1342	50 MMFD	20%			S.W. ANT. TRIM COND.	
C7	N-1351	.1 MFD.	200V. 20%	D	N-2218	GANG COND. & TUNER	
C8	N-1479	.25 MFD.	200V 20%		N-2164	BAND SWITCH	
C9	N-1479	.25 MFD.	200V 20%				

MODEL TY-54
Chassis TY, TYI
Schematic, Socket
Alignment, Trimmers

SONORA RADIO & TELEV., CORP.



TYI POWER TRANSFORMER

Switch Power Supply Position	Voltage
110	105 to 117
130	118 to 137
150	138 to 160
220	205 to 233
250	234 to 265

TYI { Drwn. W.F. AUG. 1, '39 Appr. AUG. 2, '39
TYI Chas. B Apr. 9-12-39

FOR AUTOMATIC TUNING
SEE INDEX

TUNING RANGES
B.C. 535 to 1720 KC
INT. 2.2 to 7.5 MC
S.W. 7.25 to 24.0 MC

CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME VIII

PARTS: TY and TYI

DIAG. NO.	PART NO.	DESCRIPTION		DIAG. NO.	PART NO.	DESCRIPTION	
R1	N-1260	50,000 OHM	.5W 20%	C4	N-1897	25 MMFD.	20%
R2	N-1627	20,000 OHM	.5W 20%	C5	N-1342	50 MMFD.	20%
R3	N-1379	550 OHM	.5W 10%	C6	N-1345	.05 MFD.	200 V
R4	N-1628	750 OHM	.5W 10%	C7	N-1345	.05 MFD.	200 V
R5	N-1262	1 MEGOHM	.5W 20%	C8	N-1351	.1 MFD.	200 V
R6	N-1262	1 MEGOHM	.5W 20%	C9	N-1345	.05 MFD.	200 V
R7	N-1260	50,000 OHM	.5W 20%	C10	N-1342	50 MMFD.	20%
R8	N-1264	.5 MEGOHM	.5W 20%	C11	N-1344	.01 MFD.	400 V
R9	N-2293	450 OHM	.5W 10%	C12	N-1342	50 MMFD.	20%
R10	N-2282	1 MEGOHM VOLUME CONTROL		C13	N-1343	250 MMFD.	400 V
R11	N-1474	25,000 OHM	.5W 20%	C14	N-1344	.01 MFD.	20%
R12	N-1259	15,000 OHM	.5W 20%	C15	N-1344	.01 MFD.	400 V
R13	N-1377	200,000 OHM	.5W 20%	C16	N-1973	.02 MFD.	600 V
R14	N-1777	34,000 OHM	.5W 10%	C17	N-2054	.006 MFD.	800 V
R15	N-2294	400,000 OHM	.5W 10%	C18	N-1623	.1 MFD.	400 V
R16	N-1257	2,000 OHM	.5W 20%	C19	N-2283	.15 MFD. 350 V.	
R17	N-2292	400 OHM	1 W 10%	C20		.10 MFD. 350 V. ELECTLYTIC	
R18	N-1779	150,000 OHM	.5W 20%		N-1999	GANG COND. & TUNER	
R19	N-1264	5 MEGOHM	.5W 20%		N-2205	BC. PADDING COND.	
R20	N-2281	125,000 OHM TONE CONTROL				BC. OSC. TRIMMING COND.	
C2	N-2290	1550 MMFD.	3%		N-2158	I.B. OSC. TRIMMING COND.	
C3	N-1690	4000 MMFD.	5%			S.W. OSC. TRIMMING COND.	
					N-2284	I.B. ANT. TRIM. COND.	
						S.W. ANT. TRIM. COND.	
						800 OHM SP. FIELD	

PARTS: TY ONLY

DIAG. NO.	PART NO.	DESCRIPTION	
C1	N-1897	25 MMFD.	20%
1	N-2009	BC. & INT. B. OSC. COIL	
2	N-2280	S.W. OSC. COIL	
3	N-2011	INT. B & S.W. ANT. COIL	
4	N-2154	ANTENNA COIL LOOP	
5	N-2159	1ST I.F. TRANS.	
6	N-2286	2ND I.F. TRANS.	
*7	N-2237	6-1/2" DYN. SP. & TRANS.	
T	N-2349	POWER TRANSFORMER	
*	N-2300	CONSOLE SPEAKER & TRANS.	

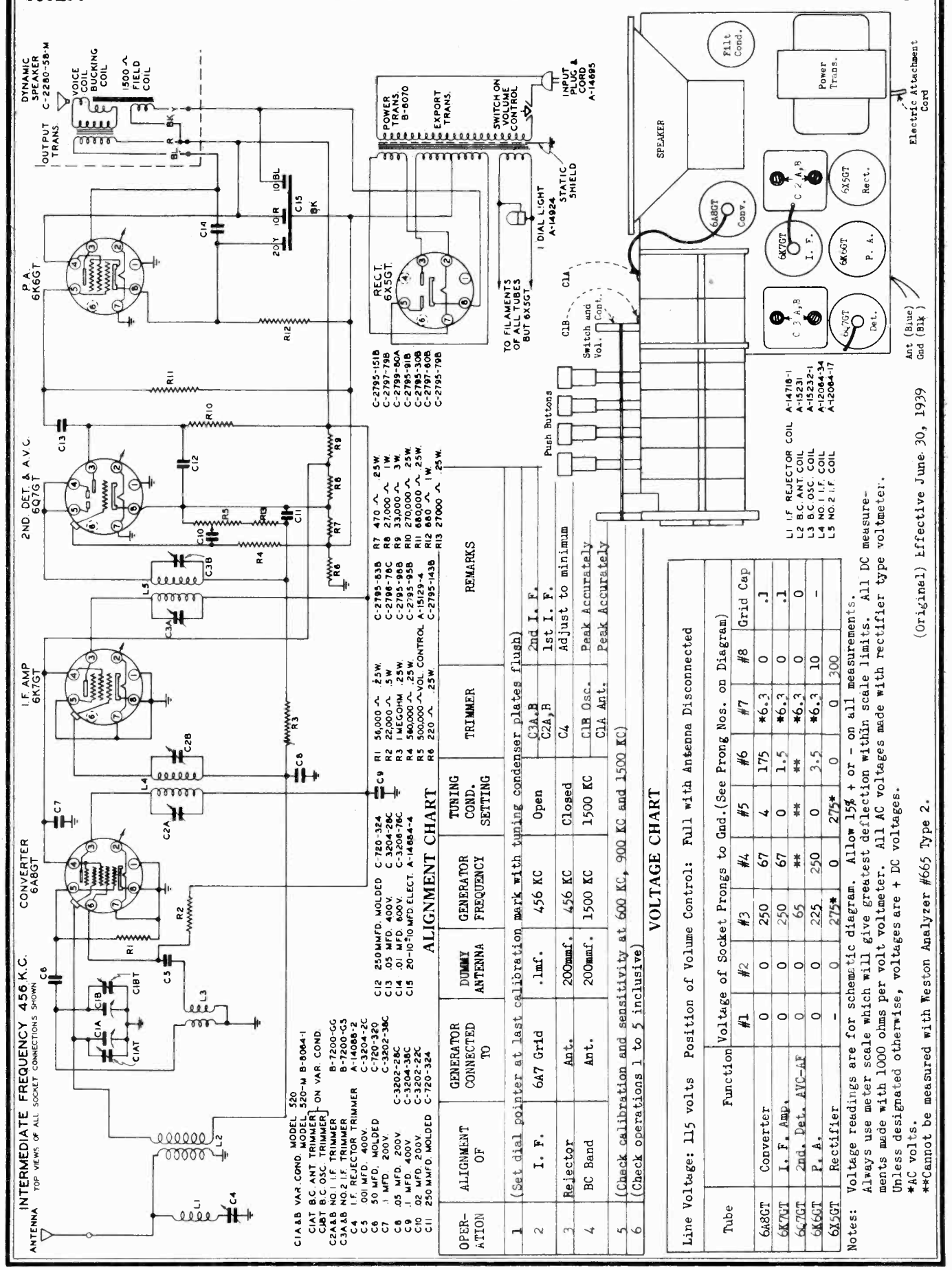
PARTS: TYI ONLY

DIAG. NO.	PART NO.	DESCRIPTION	
R2	N-1265	200 OHM	.5W 20%
C1	N-1447	.0005 MFD.	400V
1	N-2009E	BC. & INT. B. OSC. COIL	
2	N-2280E	S.W. OSC. COIL	
3	N-2011E	INT. B & S.W. ANT. COIL	
4	N-2154	ANTENNA COIL LOOP	
5	N-2285E	1ST I.F. TRANS.	
6	N-2286E	2ND I.F. TRANS.	
7	N-2237E	6-1/2" DYN. SPEAKER (TABLE)	
	N-2300	8" " & TRANS (CONSOLE)	
T	N-2407	POWER TRANSFORMER	

Alignment, Trimmers
Socket

SPARKS WITHINGTON CO.

MODELS 520, 520M
Schematic, Voltage



ALIGNMENT CHART

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer at last calibration mark with tuning condenser plates flush)						
2	I. F.	6A7 Grid	.1mf.	456 KC	Open	C3A,B	2nd I. F.
						C2A,B	1st I. F.
3	Rejector	Ant.	200mmf.	456 KC	Closed	C4	Adjust to minimum
4	BC Band	Ant.	200mmf.	1500 KC	1500 KC	C1B Osc.	Peak Accurately
						C1A Ant.	Peak Accurately
5	(Check calibration and sensitivity at 600 KC, 900 KC and 1500 KC)						
6	(Check operations 1 to 5 inclusive)						

VOLTAGE CHART

Line Voltage: 115 volts Position of Volume Control: Full with Antenna Disconnected

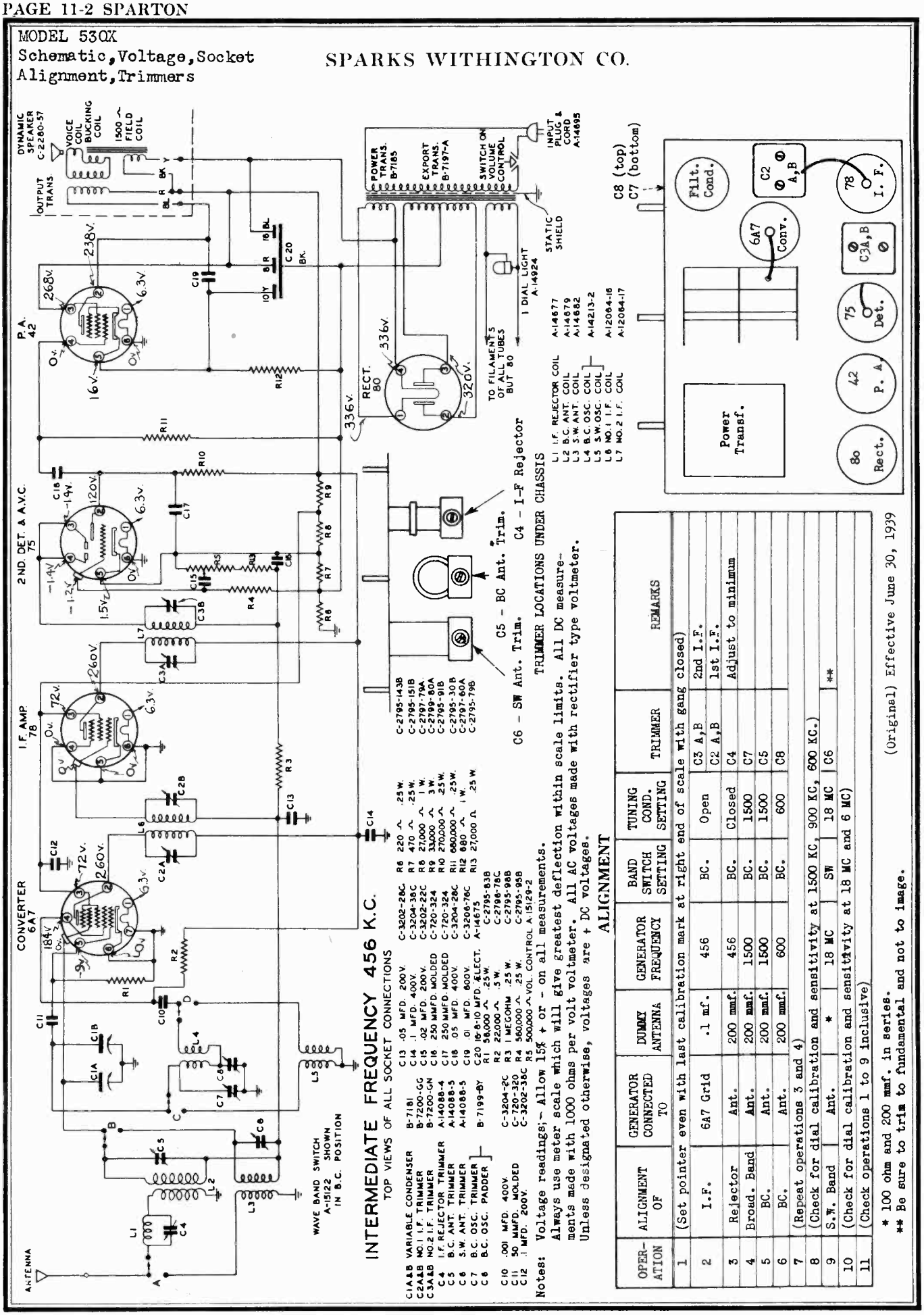
Tube	Function	Voltage of Socket Prongs to Gnd. (See Prong Nos. on Diagram)								
		#1	#2	#3	#4	#5	#6	#7	#8	Grid Cap
6A8GT	Converter	0	0	250	67	4	175	*6.3	0	.1
6K7GT	I. F. Amp.	0	0	250	67	0	1.5	*6.3	0	.1
6Q7GT	2nd. Det. AVC-AF	0	0	65	**	**	**	*6.3	0	0
6K6GT	P. A.	0	0	225	250	0	3.5	*6.3	10	-
6X5GT	Rectifier	-	0	275*	0	275*	0	0	300	

Notes: Voltage readings are for schematic diagram. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages are + DC voltages.
*AC volts.
**Cannot be measured with Weston Analyzer #665 Type 2.

(Original) Effective June 30, 1939

MODEL 530X
Schematic, Voltage, Socket Alignment, Trimmers

SPARKS WITHINGTON CO.



INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS

C1A&B VARIABLE CONDENSER B-7181
C2A&B NO.1 I.F. TRIMMER B-7200-GG
C3A&B NO.2 I.F. TRIMMER B-7200-GN
C4 I.F. REJECTOR TRIMMER A-14068-4
C5 B.C. ANT. TRIMMER A-14068-5
C6 S.W. ANT. TRIMMER A-14068-5
C7 B.C. OSC. TRIMMER } B-7199-BY
C8 B.C. OSC. PADDER }

C10 .001 MFD. 400V.
C11 50 MMFD. MOLDED
C12 .1 MFD. 200V.

C13 .05 MFD. 200V. C-3202-28C
C14 .1 MFD. 400V. C-3204-38C
C15 .02 MFD. 200V. C-3202-22C
C16 250 MMFD. MOLDED C-720-324
C17 250 MMFD. MOLDED C-720-324
C18 .05 MFD. 400V. C-3204-28C
C19 .01 MFD. 600V. C-3206-76C
C20 (8-8-10 MFD. ELECT. A-14675
R1 56,000 Ω .25 W. C-2795-83B
R2 22,000 Ω .5 W. C-2796-78C
R3 1 MEGOHM .25 W. C-2795-98B
R4 560,000 Ω .25 W. C-2795-95B
R5 500,000 Ω VOL. CONTROL A-15129-2

R6 220 Ω .25 W. C-2795-143B
R7 470 Ω .25 W. C-2795-151B
R8 27,000 Ω 1 W. C-2797-79A
R9 33,000 Ω 3 W. C-2799-80A
R10 270,000 Ω .25 W. C-2795-91B
R11 680,000 Ω .25 W. C-2795-30B
R12 680 Ω 1 W. C-2797-60A
R13 27,000 Ω .25 W C-2795-79B

L1 I.F. REJECTOR COIL A-14677
L2 B.C. ANT. COIL A-14679
L3 S.W. ANT. COIL A-14682
L4 B.C. OSC. COIL A-14213-2
L5 S.W. OSC. COIL
L6 NO. 1 I.F. COIL A-12084-16
L7 NO. 2 I.F. COIL A-12084-17

Notes: Voltage readings;- Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.

ALIGNMENT

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set pointer even with last calibration mark at right end of scale with gang closed)							
2	I.F.	6A7 Grid	.1 mf.	456	BC.	Open	C3 A,B	2nd I.F.
							C2 A,B	1st I.F.
3	Rejector	Ant.	200 mmf.	456	BC.	Closed	C4	Adjust to minimum
4	Broad. Band	Ant.	200 mmf.	1500	BC.	1500	C7	
5	BC.	Ant.	200 mmf.	1500	BC.	1500	C5	
6	BC.	Ant.	200 mmf.	600	BC.	600	C8	
7	(Repeat operations 3 and 4)							
8	(Check for dial calibration and sensitivity at 1500 KC, 900 KC, 600 KC.)							
9	S.W. Band	Ant.	*	18 MC	SW	18 MC	C6	**
10	(Check for dial calibration and sensitivity at 18 MC and 6 MC)							
11	(Check operations 1 to 9 inclusive)							

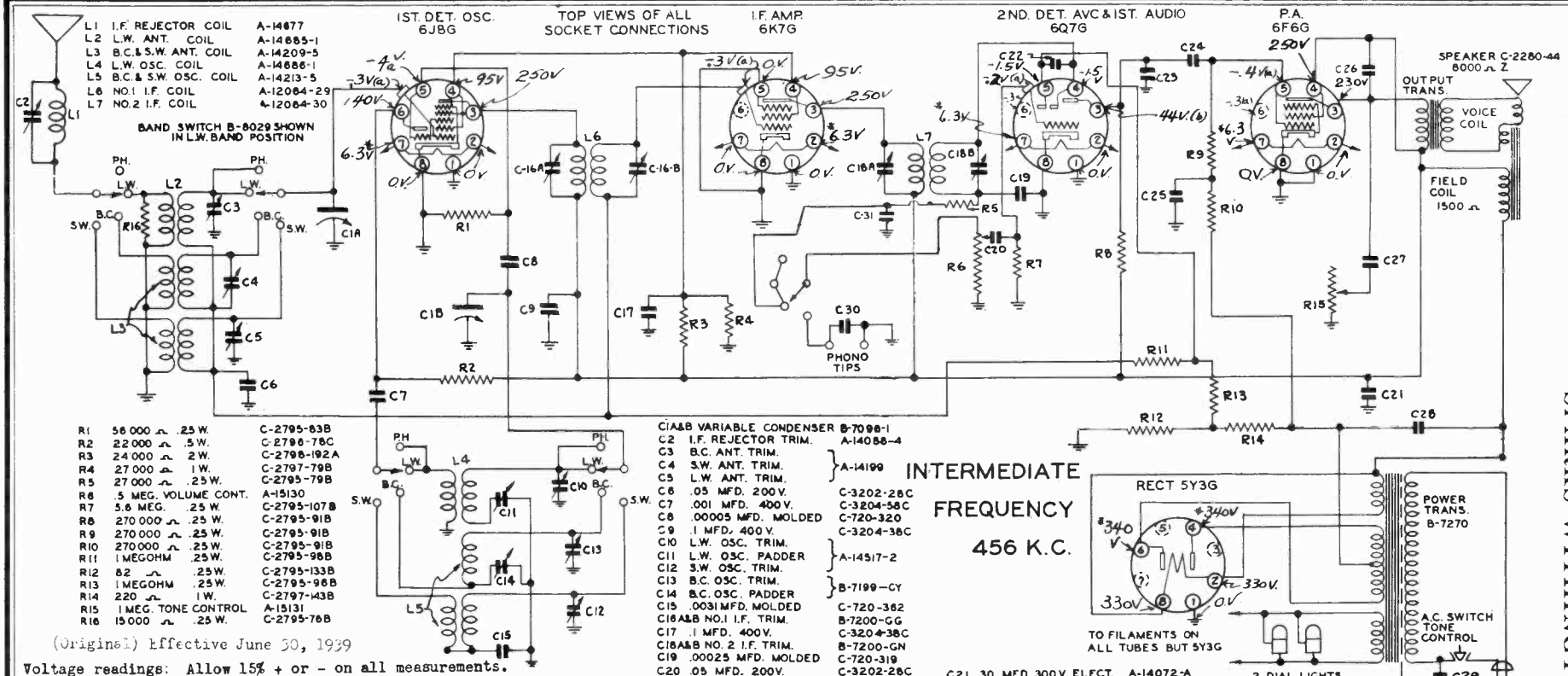
* 100 ohm and 200 mmf. in series.
** Be sure to trim to fundamental and not to image.

(Original) Effective June 30, 1939

SPARKS WITHINGTON CO.

MODEL 540LX

Schematic, Voltage, Socket Alignment, Trimmers

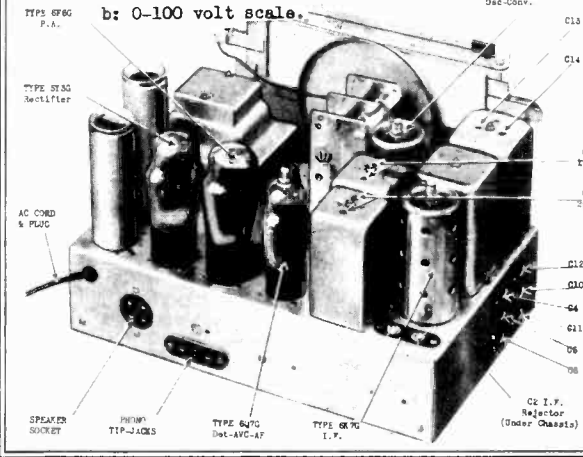


R1	56 000 Ω .25 W.	C-2795-83B
R2	22 000 Ω .5 W.	C-2796-78C
R3	24 000 Ω 2 W.	C-2798-192A
R4	27 000 Ω 1 W.	C-2797-79B
R5	27 000 Ω .25 W.	C-2795-79B
R6	.5 MEG. VOLUME CONT.	A-15130
R7	5.6 MEG. .25 W.	C-2795-107B
R8	270 000 Ω .25 W.	C-2795-91B
R9	270 000 Ω .25 W.	C-2795-91B
R10	270 000 Ω .25 W.	C-2795-91B
R11	1 MEGOHM .25 W.	C-2795-98B
R12	82 Ω .25 W.	C-2795-133B
R13	1 MEGOHM .25 W.	C-2795-98B
R14	220 Ω 1 W.	C-2797-143B
R15	1 MEG. TONE CONTROL	A-15131
R16	15 000 Ω .25 W.	C-2795-76B

C1A&B	VARIABLE CONDENSER	B-7098-1
C2	I.F. REJECTOR TRIM.	A-14088-4
C3	B.C. ANT. TRIM.	A-14199
C4	S.W. ANT. TRIM.	
C5	L.W. ANT. TRIM.	
C6	.05 MFD. 200 V.	C-3202-28C
C7	.001 MFD. 400 V.	C-3204-58C
C8	.00005 MFD. MOLDED	C-720-320
C9	.1 MFD. 400 V.	C-3204-38C
C10	L.W. OSC. TRIM.	A-14517-2
C11	L.W. OSC. PADDER	
C12	S.W. OSC. TRIM.	
C13	B.C. OSC. TRIM.	B-7199-CY
C14	B.C. OSC. PADDER	
C15	.0031 MFD. MOLDED	C-720-362
C16A&B	NO.1 I.F. TRIM.	B-7200-GG
C17	.1 MFD. 400 V.	C-3204-38C
C18A&B	NO. 2 I.F. TRIM.	B-7200-GN
C19	.00025 MFD. MOLDED	C-720-319
C20	.05 MFD. 200 V.	C-3202-28C
C21	30 MFD. 300 V. ELECT.	A-14072-A
C22	.0001 MFD. MOLDED	C-720-318
C23	.00025 MFD. MOLDED	C-720-319
C24	.05 MFD. 400 V.	C-3204-84C
C25	.1 MFD. 200 V.	C-3202-38C
C26	.006 MFD. 600 V.	C-3206-68C
C27	.03 MFD. 600 V.	G-3206-80C
C28	16 MFD. 450 V. ELECT	A-14073-A
C29	.006 MFD. 600 V.	C-3206-12C
C30	.003 MFD. 200 V.	C-3202-62C
C31	.0001 MFD. MICA	C-720-325

(Original) Effective June 30, 1939

Voltage readings: Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.
*AC volts. a: 0-5 volt scale.
b: 0-100 volt scale.



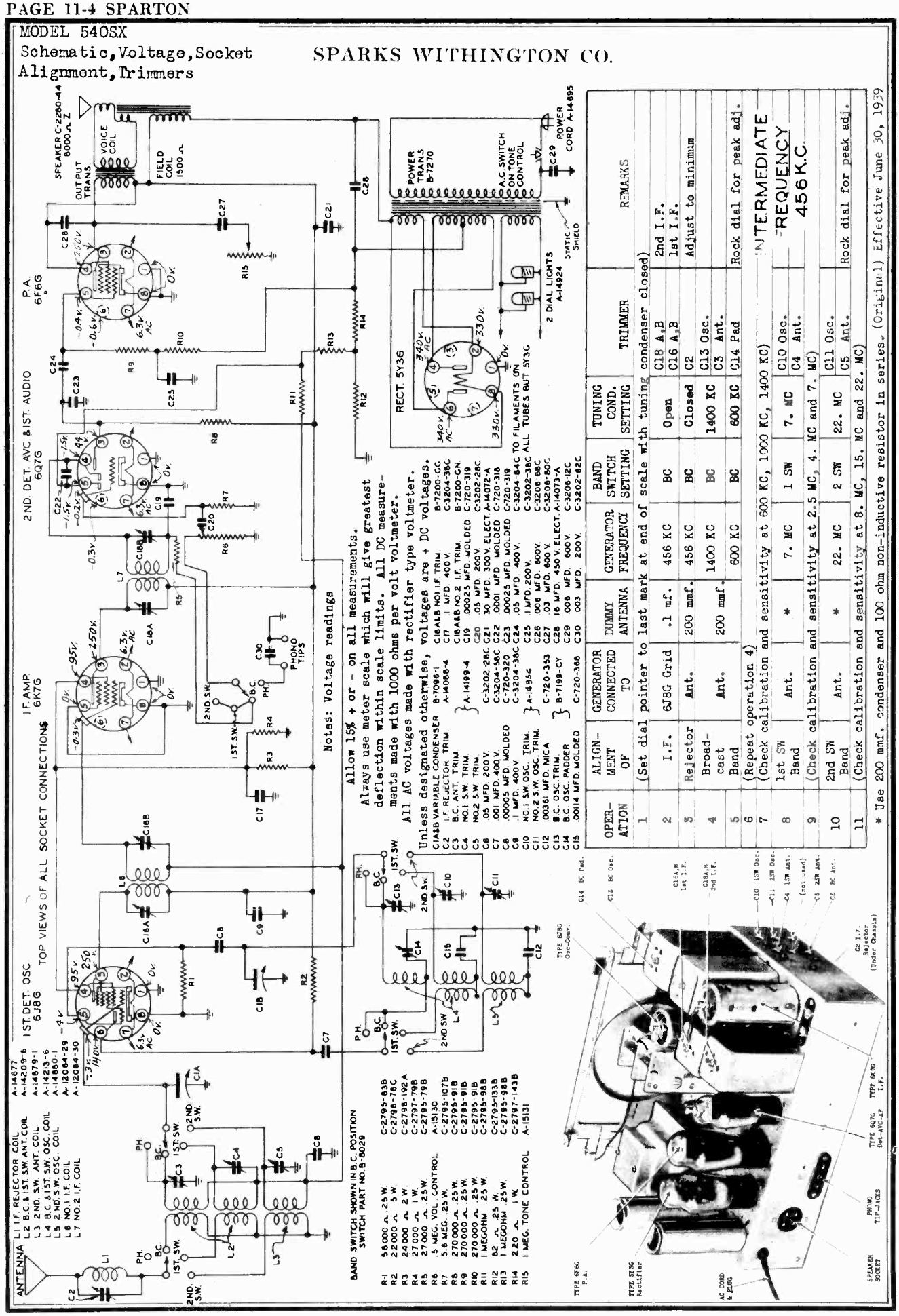
ALIGNMENT

(*) Use 200 mmf. condenser and 100 ohm non-inductive resistor in series.

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANT.	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER		REMARKS
1	(Set dial pointer to last mark below 540 KC (BC) with tuning condenser plates flush)								
2	I.F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C16A,B;C18A,B		
3	Rejector	Ant.	200 mmf.	456 KC	BC	Closed	C2		Adjust to minimum
4	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C13	Osc.	
							C3	Ant.	
5				600 KC	BC	600 KC	C14	Pad.	
6	(Repeat operation 4)								
7	(Check calibration and sensitivity at 600 KC, 1000 KC and 1500 KC)								
8	Long Wave Band	Ant.	200 mmf.	400 KC	LW	400 KC	C10	Osc.	
							C5	Ant.	
9				150 KC	LW	150 KC	C11	Pad.	
10	(Repeat operations 8 and 9 once or twice to insure perfect adjustment)								
11	(Check calibration and sensitivity at 150 KC, 260 KC and 400 KC)								
12	Shortwave Band	Ant.	(*)	18 MC	SW	18 MC	C12	Osc.	Rock dial for peak adjustment.
							C4	Ant.	
13	(Check calibration and sensitivity at 6.0 MC, 9.0 MC and 18 MC)								

MODEL 540SX
Schematic, Voltage, Socket Alignment, Trimmers

SPARKS WITHINGTON CO.



R-1	56000 Ω .25 W.	C-2795-63B
R2	22000 Ω .5 W.	C-2796-78C
R3	24000 Ω 2 W.	C-2798-192A
R4	27000 Ω 1 W.	C-2797-79B
R5	27000 Ω .25 W.	C-2795-79B
R6	.5 MEG. VOL. CONTROL	A-15130
R7	5.6 MEG. .25 W.	C-2795-107B
R8	270000 Ω .25 W.	C-2795-91B
R9	270000 Ω .25 W.	C-2795-91B
R10	270000 Ω .25 W.	C-2795-91B
R11	1 MEGOHM .25 W.	C-2795-98B
R12	82 Ω .25 W.	C-2795-133B
R13	1 MEGOHM .25 W.	C-2795-98B
R14	220 Ω 1 W.	C-2797-143B
R15	1 MEG. TONE CONTROL	A-15131

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last mark at end of scale with tuning condenser closed)							
2	I.F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C18 A,B C16 A,B	2nd I.F. 1st I.F.
3	Rejector	Ant.	200 mmf.	456 KC	BC	Closed	C2	Adjust to minimum
4	Broadcast Band	Ant.	200 mmf.	1400 KC	BC	1400 KC	C15 Osc. C3 Ant.	
5				600 KC	BC	600 KC	C14 Pad	Rock dial for peak adj.
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 1000 KC, 1400 KC)							
8	1st SW Band	Ant.	*	7. MC	1 SW	7. MC	C10 Osc. C4 Ant.	
9	(Check calibration and sensitivity at 2.5 MC, 4. MC and 7. MC)							
10	2nd SW Band	Ant.	*	22. MC	2 SW	22. MC	C11 Osc. C5 Ant.	Rock dial for peak adj.
11	(Check calibration and sensitivity at 8. MC, 15. MC and 22. MC)							

* Use 200 mmf. condenser and 100 ohm non-inductive resistor in series. (Original) Effective June 30, 1939

C-2795-63B	A-14677
C-2796-78C	A-14209-6
C-2798-192A	A-14679-1
C-2797-79B	A-14213-6
C-2795-79B	A-14680-1
A-15130	A-12084-29
C-2795-107B	A-12084-30
C-2795-91B	
C-2795-91B	
C-2795-91B	
C-2795-98B	
C-2795-133B	
C-2795-98B	
C-2797-143B	
A-15131	

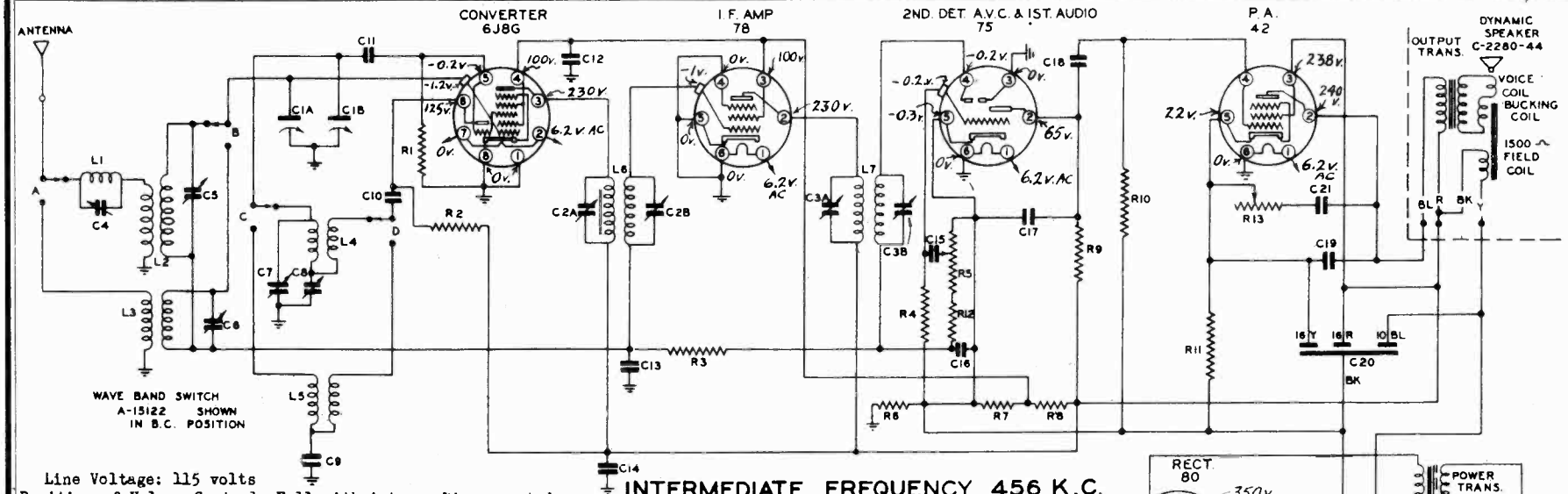
C1A&B VARIABLE CONDENSER	B-7096-1
C2 I.F. REJECTOR TRIM.	A-14088-4
C3 B.C. ANT. TRIM.	
C4 NO.1 S.W. TRIM.	A-14199-4
C5 NO.2 S.W. TRIM.	
C6 .05 MFD. 200 V.	C-3202-28C
C7 .001 MFD. 400 V.	C-3204-56C
C8 .00005 MFD. MOLDED	C-720-320
C9 .1 MFD. 400 V.	C-3204-38C
C10 NO.1 SW. OSC. TRIM.	A-14954
C11 NO.2 S.W. OSC. TRIM.	
C12 .0036 MFD. MICA	C-720-353
C13 B.C. OSC. TRIM.	B-7199-CY
C14 B.C. OSC. PADDER	
C15 .0014 MFD. MOLDED	C-720-366

C16A&B NO.1 I.F. TRIM.	B-7200-GC
C17 .1 MFD. 400 V.	C-3204-36C
C18A&B NO.2 I.F. TRIM.	B-7200-GN
C19 .00025 MFD. MOLDED	C-720-319
C20 .05 MFD. 200 V.	C-3202-28C
C21 .30 MFD. 300 V. ELECT.	A-14072-A
C22 .0001 MFD. MOLDED	C-720-316
C23 .00025 MFD. MOLDED	C-720-319
C24 .05 MFD. 400 V.	C-3204-84C
C25 .1 MFD. 200 V.	C-3202-38C
C26 .006 MFD. 600 V.	C-3206-68C
C27 .03 MFD. 600 V.	C-3206-80C
C28 16 MFD. 450 V. ELECT.	A-14073-A
C29 .006 MFD. 600 V.	C-3206-12C
C30 .003 MFD. 200 V.	C-3202-92C

TO FILAMENTS ON ALL TUBES BUT 5Y3G

SPARKS WITHINGTON CO.

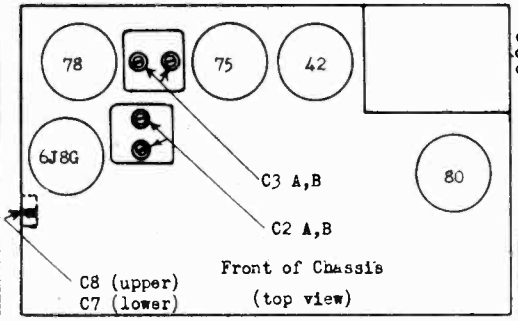
MODEL 550M
Schematic, Voltage, Socket
Alignment, Trimmers

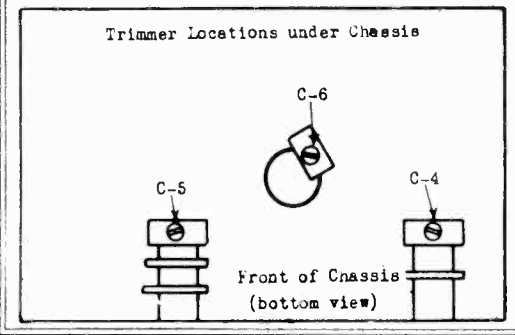


Line Voltage: 115 volts
Position of Volume Control: Full with Antenna Disconnected
Voltage readings:-Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.
*AC volts.

INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS





C1A&B	VARIABLE CONDENSER	B-8064	C13	.05 MFD. 200V.	C-3202-28C	R7	27,000 ~ 1W.	C-2797-79B
C2A&B	NO. 1 I.F. TRIMMER	B-7200-DD	C14	.1 MFD. 400V.	C-3204-38C	R8	15,000 ~ 2W	C-2798-76A
C3A&B	NO. 2 I.F. TRIMMER	B-7200-GN	C15	.02 MFD. 200V.	C-3202-22C	R9	270,000 ~ .25W.	C-2795-91B
C4	I.F. REJECTOR TRIMMER	A-14088-4	C16	250 MMFD. MOLDED	C-720-324	R10	680,000 ~ .25W.	C-2795-30B
C5	B.C. ANT. TRIMMER	A-14088-5	C17	250 MMFD. MOLDED	C-720-324	R11	680 ~ 1W.	C-2797-60B
C6	S.W. ANT. TRIMMER	A-14088-5	C18	.05 MFD. 400V.	C-3204-28C	R12	56,000 ~ .25W.	C-2795-83B
C7	B.C. OSC. TRIMMER	B-7199-BY	C19	.003 MFD. 600V.	C-3206-62C	R13	TONE CONT. & SW.	A-15128
C8	B.C. OSC. PADDER		C20	16-10-16 MFD. ELECT.	A-14780			
C9	3880 MMFD. MOLDED	C-720-346	C21	.03 MFD. 600V.	C-3206-80C			
C10	100 MMFD. MOLDED	C-720-339	R1	56,000 ~ .25W.	C-2795-83B			
C11	25 MMFD. MOLDED	C-720-342	R2	22,000 ~ .5W.	C-2796-78C			
C12	.1 MFD 200V.	C-3202-38C	R3	1 MEGOHM .25W.	C-2795-98B			
			R4	4.7 MEGOHM .25W.	C-2795-106B			
			R5	500,000 ~ VOL. CONTROL	A-15130-1			
			R6	200 ~ .25W	C-2795-142B			

L1	I.F. REJECTOR COIL	A-14677
L2	B.C. ANT. COIL	A-14679-1
L3	S.W. ANT. COIL	A-14682-4
L4	B.C. OSC. COIL	A-14213-2A
L5	S.W. OSC. COIL	
L6	NO. 1 I.F. COIL	A-15211
L7	NO. 2 I.F. COIL	A-12064-17

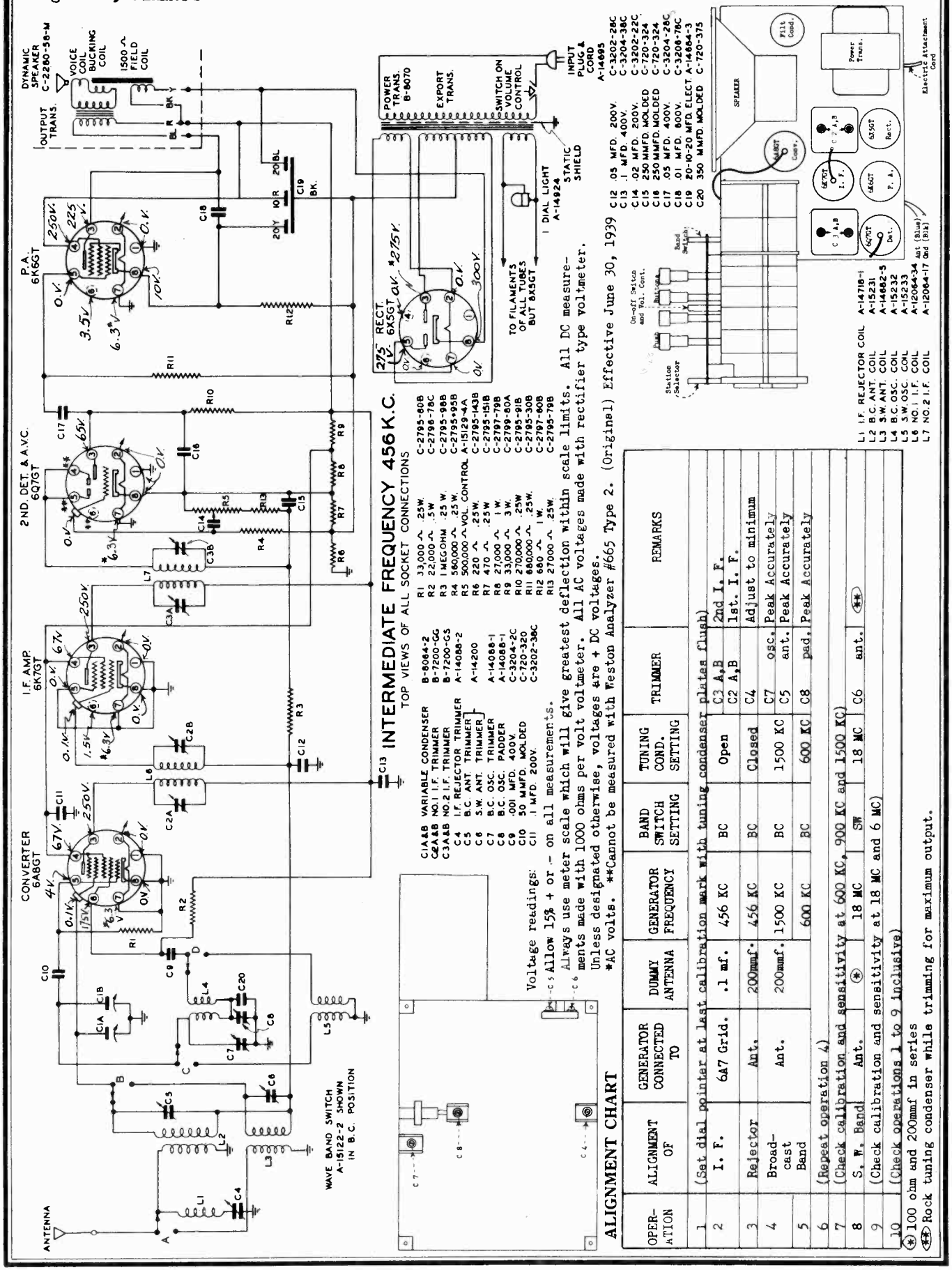
OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last mark on scale when condenser plates are flush)							
2	I.F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C3 A,B	2nd I-F transformer
3							C2 A,B	1st I-F transformer
4	Rejector	Ant.	200 mmf.	456 KC	BC	Closed	C4	Adjust to minimum
5	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C7 Osc trim	Peak accurately
6							C5 Ant trim	Peak accurately
7				600 KC	BC	600 KC	C8 Osc pad.	Peak accurately
8	(Repeat operations 5 and 6)							
9	(Check calibration and sensitivity at 600 KC, 1000 KC and 1500 KC)							
10	S.W. Band	Ant.	*	18 MC	SW	18 MC	C6 Ant. trim	**
11	(Check calibration and sensitivity at 6 MC and 18 MC)							
12	(Check operations 1 to 11 inclusive)							

*100 ohm and 200 mmf. in series.
**Rock variable condenser slightly while adjusting for maximum output.

(Original) Effective June 30, 1939

MODEL 570M
Schematic, Voltage, Socket Alignment, Trimmers

SPARKS WITHINGTON CO.



INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS

C1A&B VARIABLE CONDENSER B-8064-2
C2A&B NO.1 I.F. TRIMMER B-7200-GG
C3A&B NO.2 I.F. TRIMMER B-7200-G3
C4 I.F. REJECTOR TRIMMER A-14088-2
C5 B.C. ANT. TRIMMER A-14200
C6 S.W. ANT. TRIMMER
C7 B.C. OSC. TRIMMER A-14086-1
C8 B.C. OSC. PADDER A-14088-1
C9 .001 MFD. 400V. C-3204-2C
C10 50 MMFD. MOLDED C-720-320
C11 .1 MFD. 200V C-3202-36C

R1 33,000 Ω .25W. C-2795-80B
R2 22,000 Ω .5W C-2798-78C
R3 1 MEGOHM .25 W. C-2795-90B
R4 560,000 Ω .25 W. C-2795-95B
R5 500,000 Ω VOL. CONTROL A-15129-4A
R6 220 Ω .25W. C-2795-143B
R7 470 Ω .25W C-2795-151B
R8 47,000 Ω 1W. C-2797-79B
R9 33,000 Ω 3W. C-2799-80A
R10 270,000 Ω .25W C-2795-91B
R11 680,000 Ω .25W. C-2795-30B
R12 680 Ω 1 W. C-2797-80B
R13 27000 Ω .25W. C-2795-79B

Voltage readings: Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.
*AC volts. **Cannot be measured with Weston Analyzer #665 Type 2. (Original) Effective June 30, 1939

C12 .05 MFD. 200V. C-3202-28C
C13 .1 MFD. 400V. C-3204-38C
C14 .02 MFD. 200V. C-3202-22C
C15 250 MMFD. MOLDED C-720-324
C16 250 MMFD. MOLDED C-720-324
C17 .05 MFD. 400V. C-3204-28C
C18 .01 MFD. 600V. C-3208-78C
C19 20-10-20 MFD. ELECT. A-14684-3
C20 350 MMFD. MOLDED C-720-375

L1 I.F. REJECTOR COIL A-14718-1
L2 B.C. ANT. COIL A-15231
L3 S.W. ANT. COIL A-14682-5
L4 B.C. OSC. COIL A-15232
L5 S.W. OSC. COIL A-15233
L6 NO.1 I.F. COIL A-12064-34 Ant. (Blue)
L7 NO.2 I.F. COIL A-12064-17 Gnd (Red)

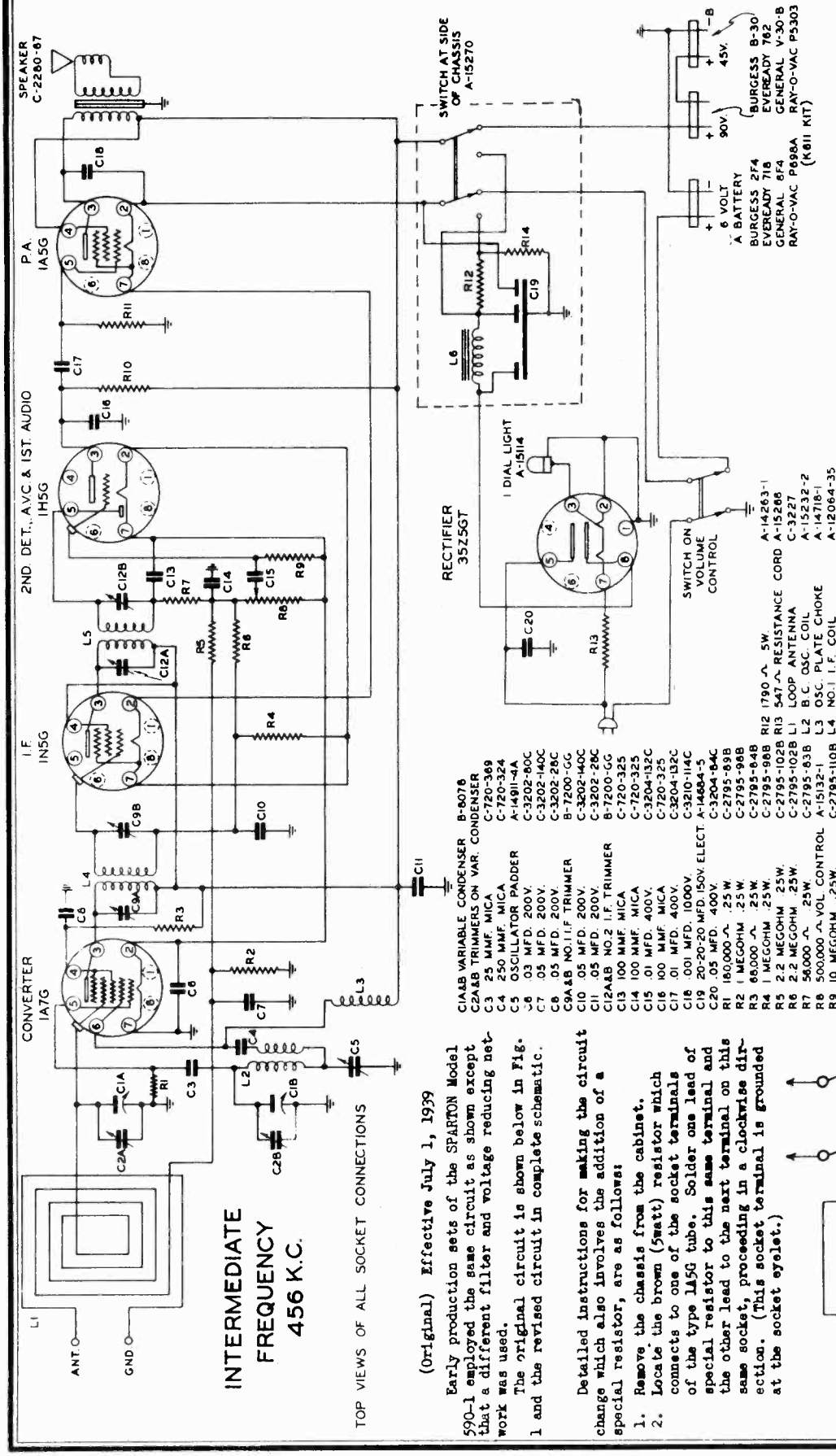
ALIGNMENT CHART

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer at last calibration mark with tuning condenser plates flush)							
2	I. F.	6A7 Grid.	.1 mf.	456 KC	BC	Open	C3 A,B C2 A,B	2nd I. F. 1st. I. F.
3	Rejector	Ant.	200mmf.	456 KC	BC	Closed	C4	Adjust to minimum
4	Broad-cast Band	Ant.	200mmf.	1500 KC	BC	1500 KC	C7 C5	osc. Peak Accurately ant. Peak Accurately
5				600 KC	BC	600 KC	C8	pad. Peak Accurately
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 900 KC and 1500 KC)							
8	S. W. Band	Ant.	(*)	18 MC	SW	18 MC	C6	ant. (**)
9	(Check calibration and sensitivity at 18 MC and 6 MC)							
10	(Check operations 1 to 9 inclusive)							

(*) 100 ohm and 200mmf in series
(**) Rock tuning condenser while trimming for maximum output.

SPARKS WITHINGTON CO.

MODEL 590-1
Schematic, Changes



C1AAB VARIABLE CONDENSER B-8076
C2AAB TRIMMERS ON VAR. CONDENSER
C3 25 MMF. MICA C-720-369
C4 250 MMF. MICA C-720-324
C5 OSCILLATOR PADDER A-14911-4A
C6 .03 MFD. 200V. C-3202-80C
C7 .05 MFD. 200V. C-3202-140C
C8 .05 MFD. 200V. C-3202-28C
C9AAB NO.1 I.F. TRIMMER B-7200-GG
C10 .05 MFD. 200V. C-3202-140C
C11 .05 MFD. 200V. C-3202-28C
C12AAB NO.2 I.F. TRIMMER B-7200-GG
C13 100 MMF. MICA C-720-325
C14 100 MMF. MICA C-720-325
C15 .01 MFD. 400V. C-3204-132C
C16 100 MMF. MICA C-720-325
C17 .01 MFD. 400V. C-3204-132C
C18 .001 MFD. 1000V. C-3210-114C
C19 20-20-20 MFD. 150V. ELECT. A-14684-5
C20 .05 MFD. 400V. C-3204-84C
R1 150,000 Ω .25 W. C-2795-89B
R2 1 MEGOHM .25 W. C-2795-98B
R3 68,000 Ω .25 W. C-2795-84B
R4 1 MEGOHM .25W. C-2795-98B R12 1790 Ω 5W A-14263-1
R5 2.2 MEGOHM .25W. C-2795-102B R13 547 Ω RESISTANCE CORD A-15266
R6 2.2 MEGOHM .25W. C-2795-102B L1 LOOP ANTENNA C-3227
R7 56,000 Ω .25W. C-2795-83B L2 B.C. OSC. COIL C-15232-2
R8 500,000 Ω VOL. CONTROL A-15132-1 L3 OSC. PLATE CHOKE A-14718-1
R9 10 MEGOHM .25W. C-2795-110B L4 NO.1 I.F. COIL A-12064-35
R10 1 MEGOHM .25W. C-2795-98B L5 NO.2 I.F. COIL A-12064-35 R14 2700 Ω 25 W C-2795-67B
R11 2.2 MEGOHM .25W. C-2795-102B L6 FILTER CHOKE A-15272

(Original) Effective July 1, 1939

Early production sets of the SPARTON Model 590-1 employed the same circuit as shown except that a different filter and voltage reducing network was used.

The original circuit is shown below in Fig. 1 and the revised circuit in complete schematic.

Detailed instructions for making the circuit change which also involves the addition of a special resistor, are as follows:

1. Remove the chassis from the cabinet.
2. Locate the brown (5watt) resistor which connects to one of the socket terminals of the type 1A5G tube. Solder one lead of special resistor to this same terminal and the other lead to the part terminal on this same socket, proceeding in a clockwise direction. (This socket terminal is grounded at the socket eyelet.)

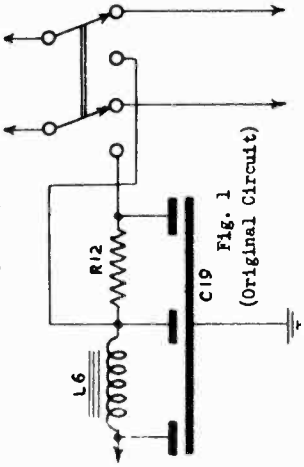


Fig. 1
(Original Circuit)

This circuit revision should be incorporated in any original Model 590-1 sets, as it will safeguard the life of the 1.4 volt tubes in case the change-over (transfer) switch is raised while the set is being operated on AC, or in case tubes are changed while the set is being operated on AC.

3. Clip off excess (unused) wire from resistor leads and be sure resistor (and resistor leads) do not touch other wires or parts of chassis.
4. Locate the yellow and black wire which connects to the electrolytic condenser (20-20-20 mf.)
5. Follow this wire to the point where it connects to the change-over (transfer) switch. Unsolder the yellow and black wire at this connection and connect it to the middle switch terminal. (The middle terminal already has another yellow and black wire as well as a condenser lead covered with black insulation connected to it. Do not disturb these connections.
6. All soldered connections should be made clearly and carefully.

(First Revision)

7. Install chassis in cabinet.

Effective July 19, 1939

MODEL 590-1
Alignment, Voltage
Trimmers, Socket

SPARKS WITHINGTON CO.

VOLTAGE CHART

Receiver Operated on: AC Supply
Line Voltage: 117 Volts

Volume Control on Full
Dial Tuned to Quiet Channel

TUBE	FUNCTION	Voltage of Socket Prongs to Gnd. (See Prong Nos. on Schematic Diagram)								
		No.1	No.2	No.3	No.4	No.5	No.6	No. 7	No.8	Grid Cap
1A7G	Converter	90	1.5	92	28	0	90	0	90	0
1N5G	I. F. Amplifier	0	4.4	92	92	0	6	2.8	0	0
1H5G	Det. AVC. Audio	0	2.8	0*	0	0	0	1.5	0	0
1A5G	P. A.	0	5.8	88	92	0	0	4.4	5.8	-
35Z5GT	Rectifier	0	0	1.8	0	120	0	28	152	-

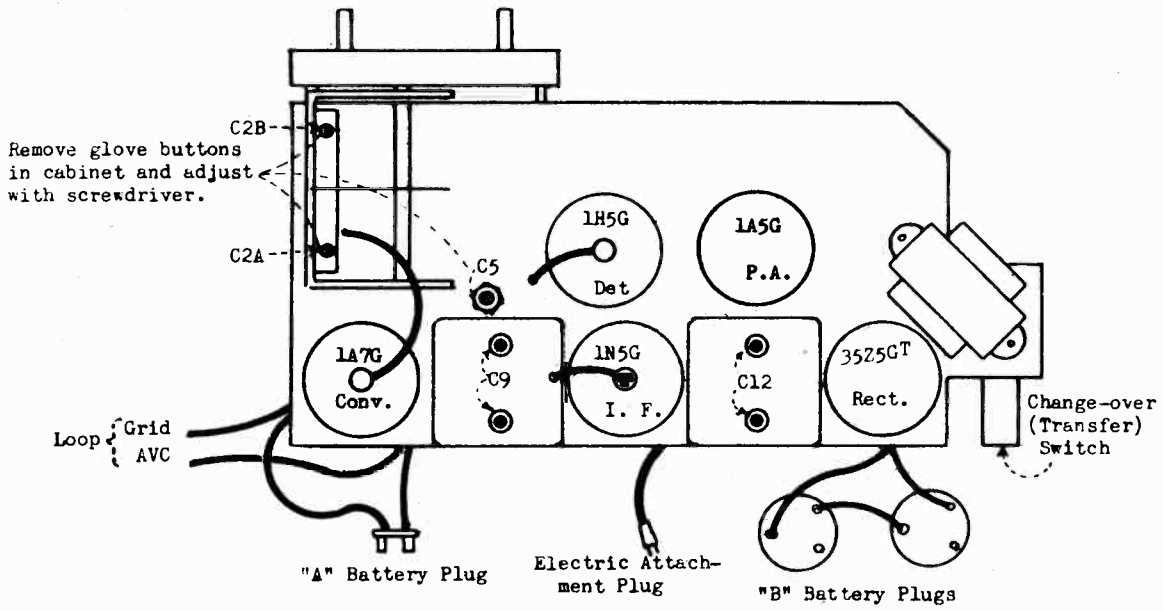
Notes: Voltage and resistance readings are for schematic diagram Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All measurements made with Weston Selective Analyzer No. 665, Type 2. (1000 ohms per volt)

*Cannot be measured with Weston Selective Analyzer No. 665, Type 2.

ALIGNMENT CHART

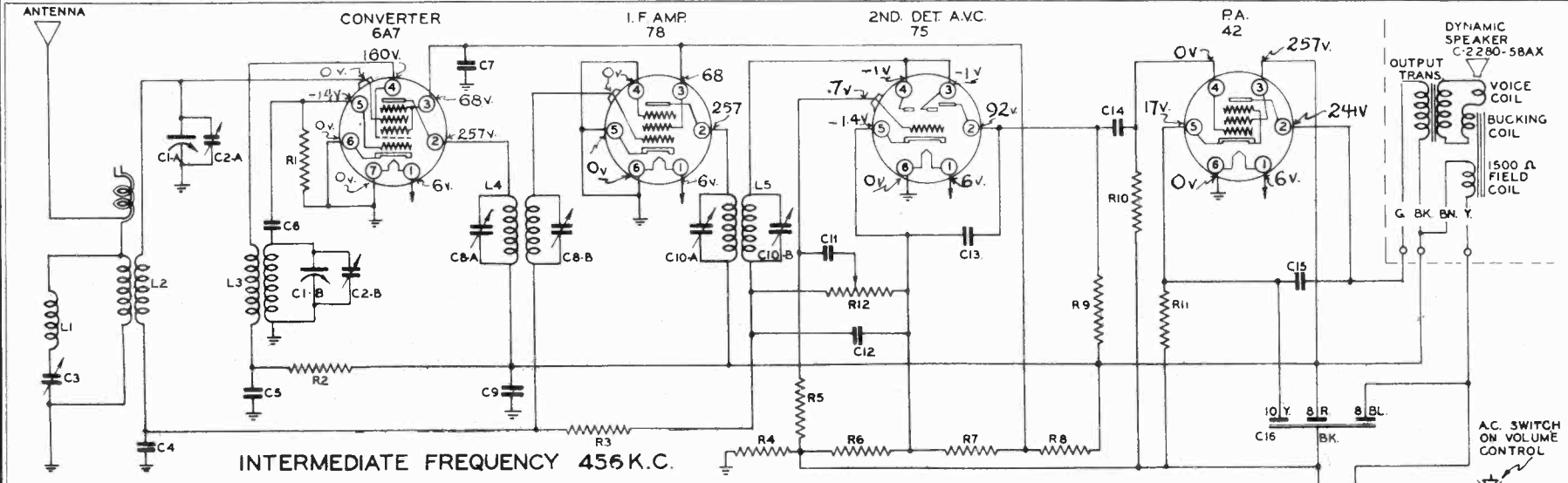
OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	TUNING CONDENSER SETTING	TRIMMER	REMARKS
1	(Set pointer parallel with horizontal lines when condenser plates are flush)						
2	I. F.	1A7G Grid	.1 mf.	456KC	Open	C 12 A & B	2nd I. F.
						C 9 A & B	1st I. F.
3	Broadcast Band	Separate Loop*	*	1500KC	1500KC	C 2B Osc.	Peak Accurately*
						C 2A Ant.	Peak Accurately*
4				600KC	600KC	C5 Pad.	Peak Accurately*
5	(Repeat operation 3)						
6	(Check calibration and sensitivity at 600 KC, 900 KC and 1500 KC)						
7	(Check operations 1 to 6 inclusive)						

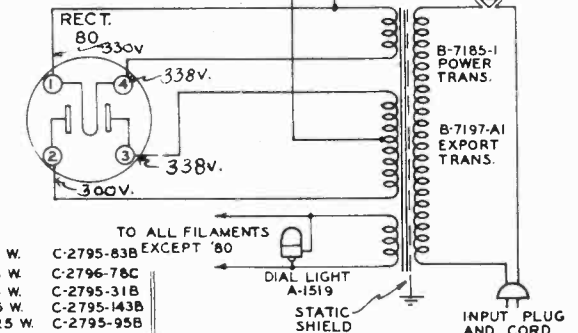
*Preliminary alignment af antenna and oscillator adjustments may be made with chassis out of cabinet. Final alignment must be made with chassis installed in cabinet and with back cover snapped shut.
For final alignment it is recommended that an extra Model 590-1 Loop Antenna (Part No. C-3327) be obtained. Connect generator "Ant" to loop terminal marked "Grid" and generator "Gnd" to loop terminal marked "AVC". With back cover of set snapped shut, place the extra loop directly in back of the Model 590-1 being aligned so that it will be parallel with the loop inside the set and from one to three feet distant.
The antenna trimmer, oscillator trimmer and oscillator padder can be reached by removing glove buttons in top of cabinet. (See chassis diagram.)



SPARKS WITHINGTON CO.

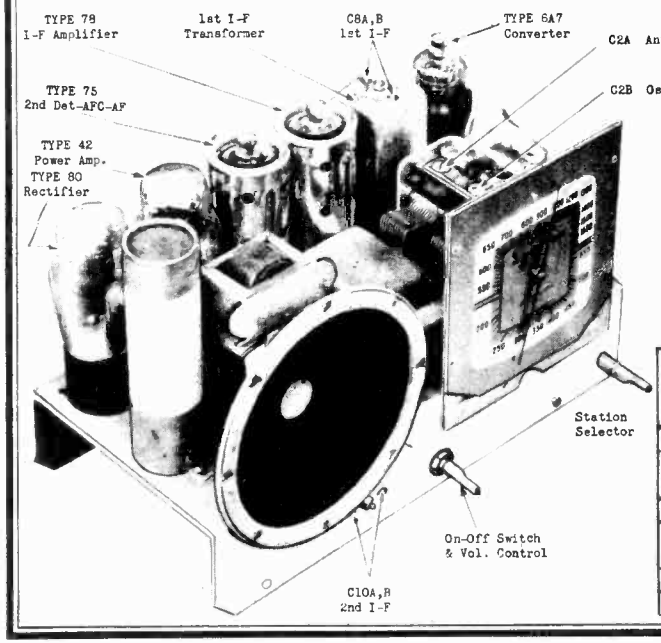
MODEL 58OX Schematic, Voltage, Socket Alignment, Trimmers





Notes: Voltage readings; Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages are + DC voltages.

Position of Volume Control: Full with Antenna Disconnected Line Voltage: 115 volts



C1-A&B	VARIABLE COND. (580X)	B-7198	
C1-A&B	VARIABLE COND. (5518-A)	B-7237-1	
C2	TRIMMERS ON VARIABLE CONDENSER		
C3	I.F. REJECTOR TRIM.(5518-A)	A-14398	
C3	I.F. REJECTOR TRIM.(5)	A-14720	
C4	.05 MFD. 200 V.	C-3202-28C	
C5	.006 MFD. 400 V.	C-3204-12C	
C6	50 MMF. MOLDED	C-720-320	
C7	.1 MFD. 200 V.	C-3202-38C	
C8-A&B	NO.1 I.F. TRIMMER	B-7200-GG	
C9	.1 MFD. 400 V.	C-3204-38C	
C10-A&B	NO. 2 I.F. TRIMMER	B-7200-GN	
C11	.02 MFD. 200 V.	C-3202-22C	
C12	250 MMF. MOLDED	C-720-324	
C13	250 MMF. MOLDED	C-720-324	
C14	.05 MFD. 400 V.	C-3204-28C	
C15	.01 MFD. 600 V.	C-3206-76C	
C16	10-8-8 MFD. ELECT. (580X)	A-14715	
C16	10-8-8 MFD. ELECT. (5518-A)	A-14785	

R1	56,000 Ω	.25 W.	C-2795-83B
R2	22,000 Ω	.5 W.	C-2796-78C
R3	1 MEGOHM	.25 W.	C-2795-31B
R4	220 Ω	.25 W.	C-2795-143B
R5	560,000 Ω	.25 W.	C-2795-95B
R6	470 Ω	.25 W.	C-2795-151B
R7	27,000 Ω	1 W.	C-2797-79B
R8	33,000 Ω	3 W.	C-2799-80A
R9	270,000 Ω	.25 W.	C-2795-91B
R10	680,000 Ω	.25 W.	C-2795-30B
R11	680 Ω	.5 W.	C-2798-60C
R12	.5 MEG. VOLUME CONT. & SWITCH		A-15129-3

L1	I.F. REJECTOR COIL	A-14718-1
L2	ANTENNA COIL	B-7094-1
L3	OSCILLATOR COIL	A-12052-4
L4	NO.1 I.F. TRANS.	A-12064-16
L5	NO. 2 I.F. TRANS.	A-12064-17

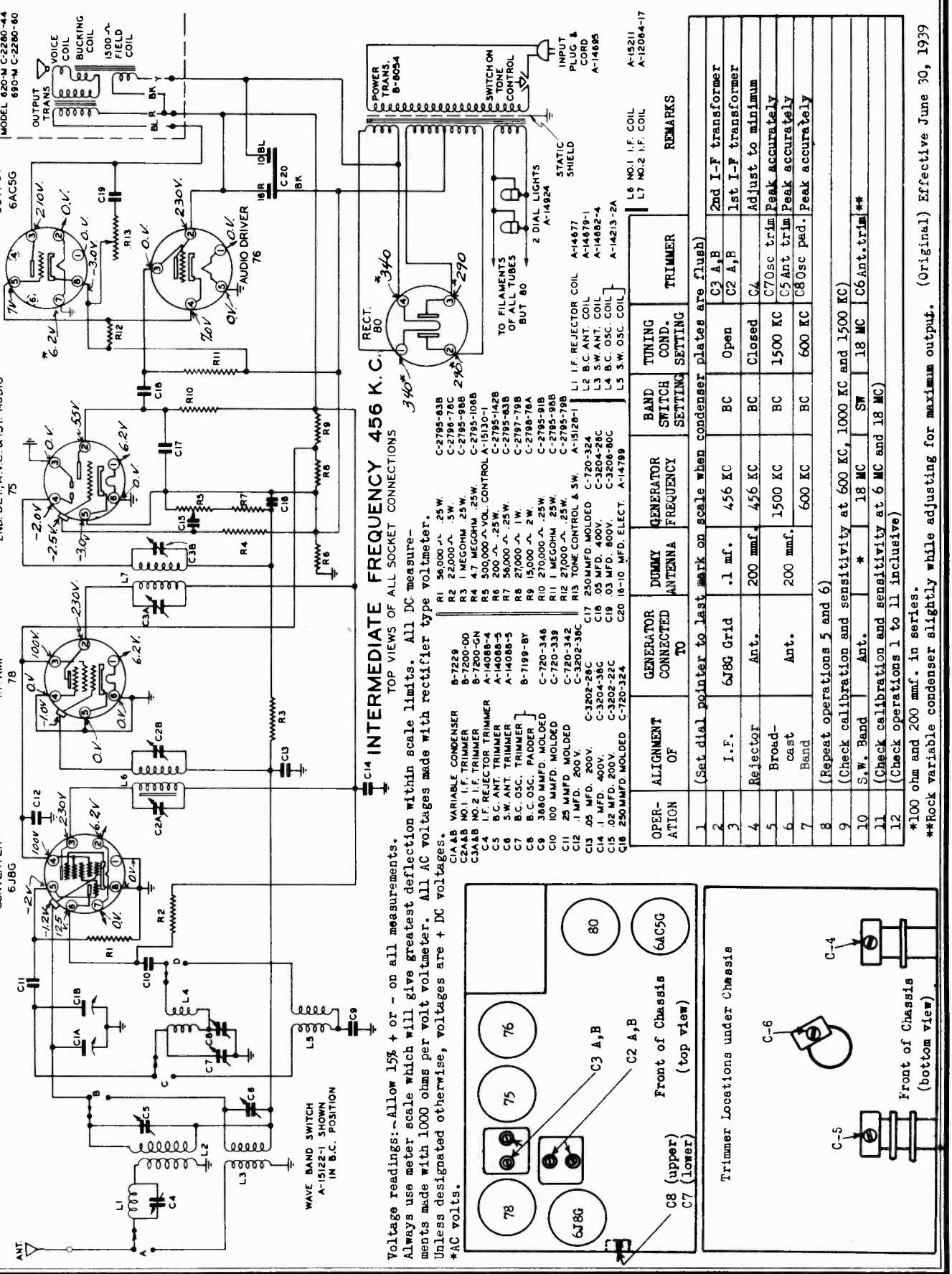
(Original) Effective June 30, 1939

ALIGNMENT

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to end of scale with condenser gang closed)						
2	I.F.	6A7 Grid	.1 mf.	456	Closed	C10 A,B	(2nd I.F.)
						C8 A,B	(1st I.F.)
3	Rejector	Ant.	150 mmf.	456	Closed	C3	Adjust to min.
4	Broadcast Band	Ant.	150 mmf.	1500	1500	C2 A Ant.	
						C2 B Osc.	
5	(Check for dial reading and sensitivity at 600 kc., 1000 kc.)						
6	(Check operations 1 to 5 inclusive)						

MODELS 620M, 690M
Schematic, Voltage, Socket
Alignment, Trimmers

SPARKS WITHINGTON CO.



Voltage readings:-Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.
*AC volts.

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last mark on scale when condenser plates are flush)							
2	I.F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C3 A,B C2 A,B	2nd I-F transformer 1st I-F transformer
3								
4	Rejector	Ant.	200 mmf.	456 KC	BC	Closed	C4	Adjust to minimum
5	Broad-cast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C7 Osc trim C5 Ant trim	Peak accurately Peak accurately
6				600 KC	BC	600 KC	C8 Osc pad.	Peak accurately
7								
8	(Repeat operations 5 and 6)							
9	(Check calibration and sensitivity at 600 KC, 1000 KC and 1500 KC)							
10	S.W. Band	Ant.	*	18 MC	SW	18 MC	C6 Ant. trim	**
11	(Check calibration and sensitivity at 6 MC and 18 MC)							
12	(Check operations 1 to 11 inclusive)							

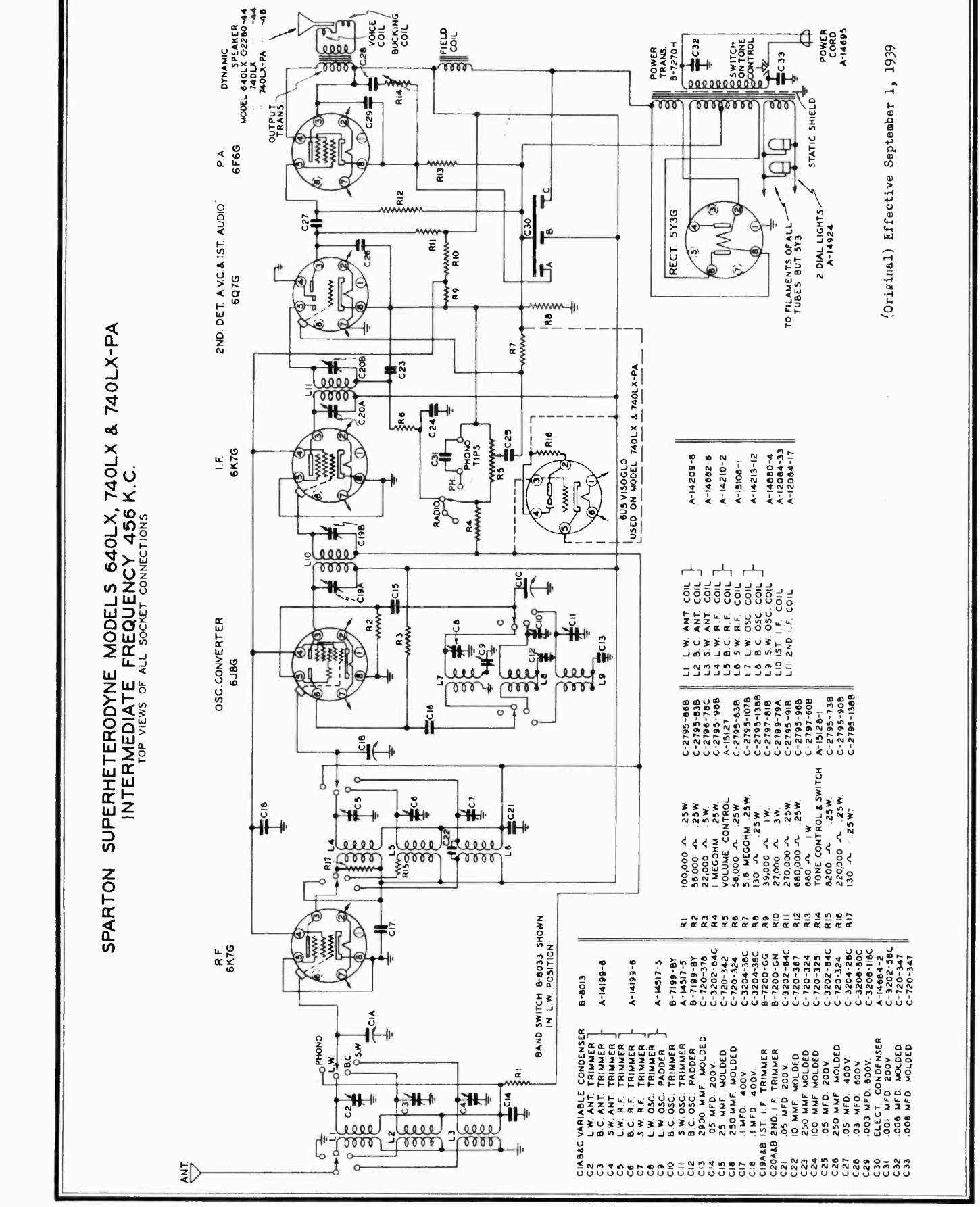
*100 ohm and 200 mmf. in series.
**Rock variable condenser slightly while adjusting for maximum output.

(Original) Effective June 30, 1939

MODELS 640LX, 740LX, 740LX-PA

SPARKS WITHINGTON CO. Schematic

SPARTON SUPERHETERODYNE MODELS 640LX, 740LX & 740LX-PA
INTERMEDIATE FREQUENCY 456 K.C.
TOP VIEWS OF ALL SOCKET CONNECTIONS



C1A&B	VARIABLE CONDENSER	B-8013
C2	L.W. ANT. TRIMMER	A-14199-6
C3	B.C. ANT. TRIMMER	
C4	S.W. ANT. TRIMMER	
C5	L.W. R.F. TRIMMER	A-14199-6
C6	B.C. R.F. TRIMMER	
C7	S.W. R.F. TRIMMER	
C8	L.W. OSC. TRIMMER	A-14517-5
C9	L.W. OSC. PADDER	
C10	B.C. OSC. TRIMMER	B-7199-BY
C11	S.W. OSC. TRIMMER	A-14517-5
C12	B.C. OSC. PADDER	B-7199-BY
C13	2900 MMF. MOLDED	C-720-378
C14	.05 MFD. 200V.	C-3202-84C
C15	25 MMF. MOLDED	C-720-342
C16	250 MMF. MOLDED	C-720-324
C17	.1 MFD. 400V.	C-3204-38C
C18	.1 MFD. 400V.	C-3204-38C
C19A&B	1ST. I.F. TRIMMER	B-7200-GG
C20A&B	2ND. I.F. TRIMMER	B-7200-GN
C21	.05 MFD. 200V.	C-3202-84C
C22	10 MMF. MOLDED	C-720-367
C23	250 MMF. MOLDED	C-720-324
C24	100 MMF. MOLDED	C-720-325
C25	.05 MFD. 200V.	C-3202-84C
C26	250 MMF. MOLDED	C-720-324
C27	.05 MFD. 400V.	C-3204-28C
C28	.03 MFD. 800V.	C-3206-80C
C29	.003 MFD. 800V.	C-3206-116C
C30	ELECT. CONDENSER	A-14684-2
C31	.001 MFD. 200V.	C-3202-56C
C32	.006 MFD. MOLDED	C-720-347
C33	.006 MFD. MOLDED	C-720-347

R1	100,000 Ω .25W	C-2795-86B
R2	56,000 Ω .25W	C-2795-83B
R3	22,000 Ω 5W.	C-2796-78C
R4	1 MEGOHM .25W.	C-2795-98B
R5	VOLUME CONTROL	A-15127
R6	56,000 Ω .25W	C-2795-83B
R7	5.6 MEGOHM .25W.	C-2795-107B
R8	130 Ω .25W.	C-2795-136B
R9	39,000 Ω 1W.	C-2797-81B
R10	27,000 Ω 3W.	C-2799-79A
R11	270,000 Ω .25W	C-2795-91B
R12	680,000 Ω .25W	C-2795-96B
R13	680 Ω 1W.	C-2797-60B
R14	TONE CONTROL & SWITCH	A-15128-1
R15	8200 Ω .25W.	C-2795-73B
R16	220,000 Ω .25W.	C-2795-90B
R17	130 Ω .25W.	C-2795-136B

L1	L.W. ANT. COIL	A-14209-6
L2	B.C. ANT. COIL	
L3	S.W. ANT. COIL	A-14682-6
L4	L.W. R.F. COIL	A-14210-2
L5	B.C. R.F. COIL	
L6	S.W. R.F. COIL	A-15108-1
L7	L.W. OSC. COIL	A-14213-12
L8	B.C. OSC. COIL	
L9	S.W. OSC. COIL	A-14880-4
L10	1ST. I.F. COIL	A-12064-33
L11	2ND I.F. COIL	A-12064-17

(Original) Effective September 1, 1939

MODELS 640LX, 740LX
740LX-PA

MODELS 640SX, 740SX
740SX-PA

SPARKS WITHINGTON CO.

VOLTAGE CHART

Voltage, Alignment, Trimmers

Line Voltage: 115 volts
Position of Band Switch: Broadcast
Position of Volume Control: Full with Antenna Disconnected
Position of Radio-Phono Switch: Radio

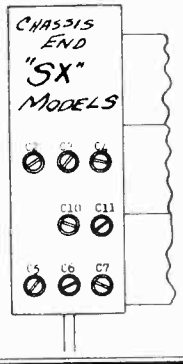
Tube	Function	Voltage of Socket Prongs to Gnd. See Prong Nos. on Schematic Diagram								
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	Grid Cap
6K7G	R-F Amp.	0	0	230	90	0	-	6.3*	0	.1
6J8G	Osc. Converter	0	0	275	90	.2	135	6.3*	0	1.25
6K7G	I. F. Amplifier	0	0	275	90	0	-	6.3*	0	1.25
6Q7G	2nd Det. AVC AF.	0	0	50	1.	0	3	6.3*	3.5	3
6F6G	Power Amplifier	0	0	255	275	**	3.5	6.3*	20	-
5Y3G	Rectifier	0	375	-	350*	-	350*	-	375	-
6U5	Viso-Glo	0	150	.5	300	4	6.3*	-	-	-

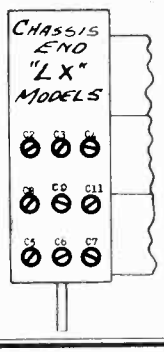
Notes: Voltage readings are for schematic diagram. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages.

*AC volts. **Cannot test with Weston Analyzer No. 665 Type 2.

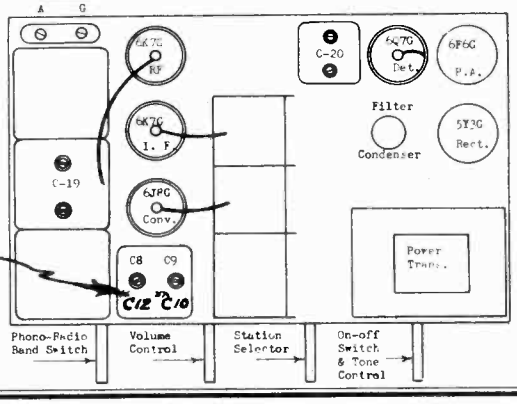
ALIGNMENT CHART

	OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	Adjust all Trimmers for Maximum Output	
	1	(Set pointer even with last calibration mark when condenser plates are flush.)								
	2	I. F.	6J8G	.1 mf	456 KC	BC	Open	C20 A,B C19, A,B	C20, A,B C19, A,B	2nd I. F. 1st I. F.
	3	Broadcast Band	Ant.	200 mmf	1400 KC	BC	1400KC	C8 (FOR "SX" MODELS) C5 (FOR "SX" MODELS) C2 (FOR "SX" MODELS)	C10 (FOR "LX" MODELS) C6 (FOR "LX" MODELS) C3 (FOR "LX" MODELS)	BC Oscillator BC R.F. BC Antenna
	4				600 KC	BC	600KC	C9	C12	BC Padder
	5	(Repeat operation 3)								
	6	(Check calibration and sensitivity at 600 KC, 900 KC and 1400 KC)								
"SX" MODELS	7	1st SW Band	Ant.	100 ohm 200 mmf series	6. MC	1 SW	6. MC	C10 C6 C3		1SW Oscillator 1SW R-F 1SW Antenna
"SX" MODELS	8	(Check calibration and sensitivity at 2.5MC and 6.MC.)								
"SX" MODELS	9	2nd SW Band	Ant.	100 ohm 200 mmf series	21 MC	2 SW	21. MC	C11 C7 C4		2SW Oscillator 2SW R-F 2SW Antenna
	10	(Check calibration and sensitivity at 7.5 MC, 18. MC and 21. MC)								
	11	(Check operation 1 to 10 inclusive.)								
"LX" MODELS	7	Long Wave Band	Ant.	200 mmf	400KC	LW	400KC	C8 C5 C2		LW Oscillator LW R-F LW Antenna
"LX" MODELS	8				150KC	LW	150KC	C9		LW Padder
"LX" MODELS	9	(Repeat operation 7)								
"LX" MODELS	10	(Check calibration and sensitivity at 400 KC, 300 KC and 150 KC)								
"LX" MODELS	11	Short Wave Band	Ant.	100 ohm 200 mmf series	18 MC	SW	18 MC	C11 C7 C4		SW Oscillator SW R-F SW Antenna
"LX" MODELS	12	(Check calibration and sensitivity at 6. MC, 9. MC and 18. MC)								
"LX" MODELS	13	(Check operation 1 to 12 inclusive.)								



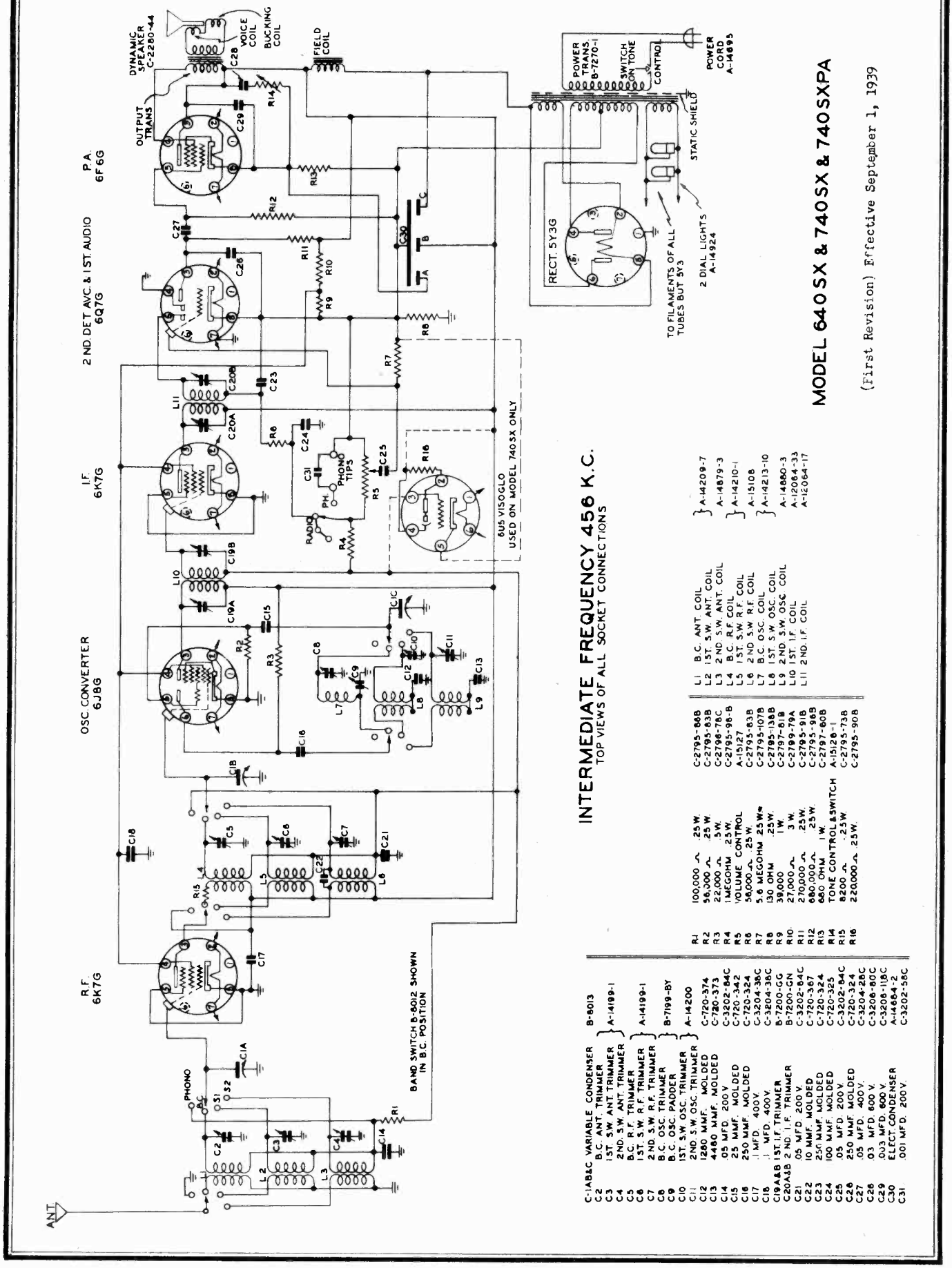


xx LOCATION OF TRIMMERS C10 AND C12 IN "LX" MODELS



MODELS 640SX, 740SX, 740SX-PA

SPARKS WITHINGTON CO. Schematic



MODEL 640 SX & 740 SX & 740 SXPA

(First Revision) Effective September 1, 1939

INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS

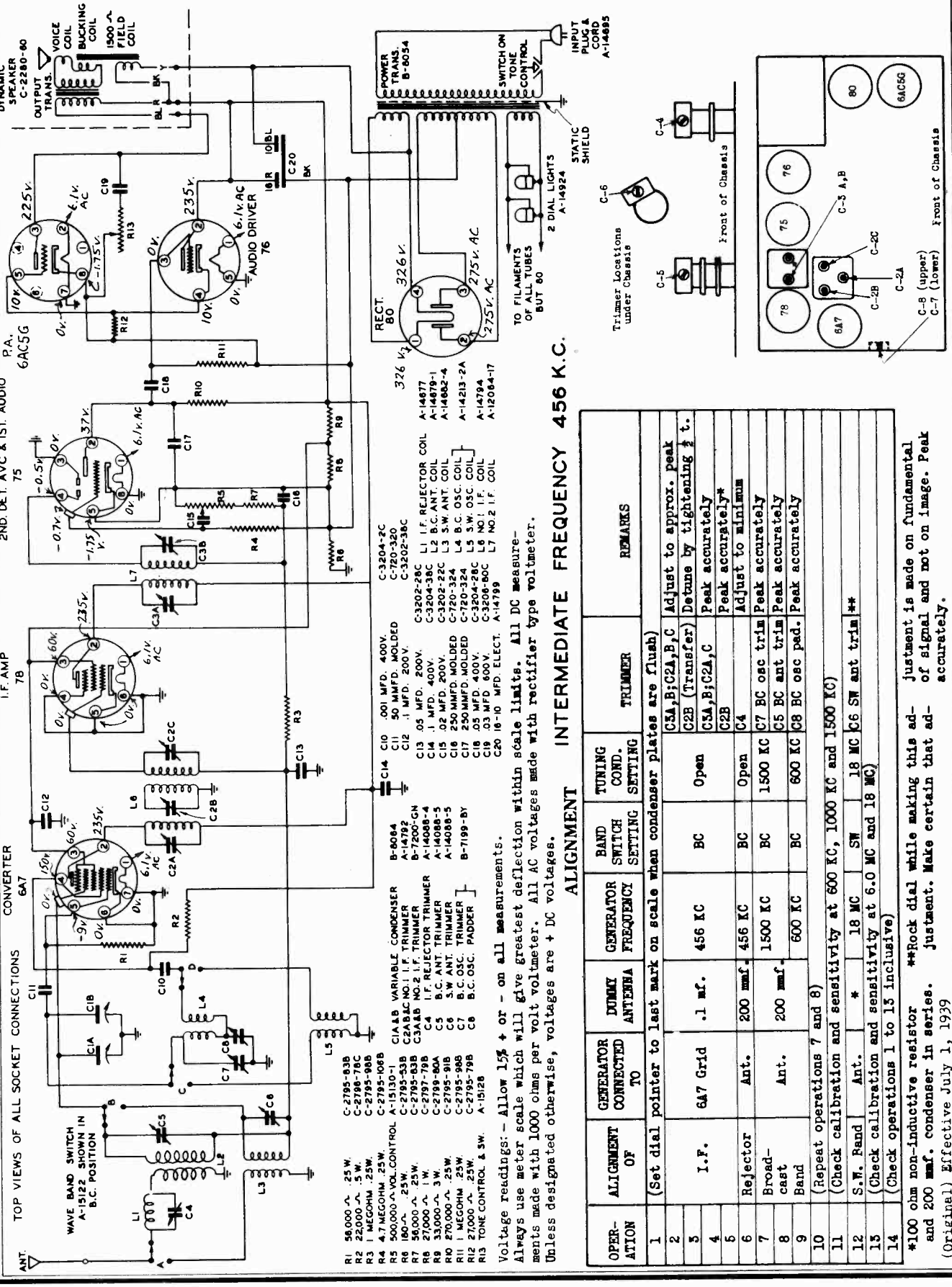
C-1	ABAC VARIABLE CONDENSER	B-8013
C2	B.C. ANT. TRIMMER	A-14199-1
C3	1ST. S.W. ANT TRIMMER	
C4	2ND. S.W. ANT. TRIMMER	
C5	B.C. R.F. TRIMMER	A-14199-1
C6	1ST. S.W. R.F. TRIMMER	
C7	2 ND. S.W. R.F. TRIMMER	
C8	B.C. OSC. TRIMMER	B-7199-BY
C9	B.C. OSC. PADDER	
C10	1ST. S.W. OSC. TRIMMER	A-14200
C11	2ND. S.W. OSC. TRIMMER	
C12	1280 MMF. MOLDED	C-720-374
C13	4480 MMF. MOLDED	C-720-373
C14	.05 MFD. 200 V.	C-3202-84C
C15	25 MMF. MOLDED	C-720-342
C16	250 MMF. MOLDED	C-720-324
C17	.1 MFD. 400 V.	C-3204-38C
C18	.1 MFD. 400 V.	C-3804-38C
C19A&B	1ST. I.F. TRIMMER	B-7200-GG
C20A&B	2 ND. I.F. TRIMMER	B-7200-GN
C21	.05 MFD. 200 V.	C-3202-84C
C22	10 MMF. MOLDED	C-720-367
C23	250 MMF. MOLDED	C-720-324
C24	100 MMF. MOLDED	C-720-325
C25	.05 MFD. 200 V.	C-3202-84C
C26	250 MMF. MOLDED	C-720-324
C27	.05 MFD. 400 V.	C-3204-28C
C28	.03 MFD. 600 V.	C-3206-80C
C29	.003 MFD. 600 V.	C-3206-118C
C30	ELECT. CONDENSER	A-14684-2
C31	.001 MFD. 200 V.	C-3202-58C

R1	100,000 Ω .25 W.	C-2795-88B
R2	56,000 Ω .25 W.	C-2795-83B
R3	22,000 Ω .5 W.	C-2796-78C
R4	1 MEGOHM .25 W.	C-2795-98-B
R5	VOLUME CONTROL	A-15127
R6	56,000 Ω .25 W.	C-2795-83B
R7	5.6 MEGOHM .25 W.	C-2795-107B
R8	130 OHM .25 W.	C-2795-138B
R9	39,000 1 W.	C-2797-61B
R10	27,000 Ω 3 W.	C-2799-79A
R11	270,000 Ω .25 W.	C-2795-91B
R12	680,000 Ω .25 W.	C-2795-96B
R13	660 OHM 1 W.	C-2797-60B
R14	TONE CONTROL & SWITCH	A-15128-1
R15	8200 Ω .25 W.	C-2795-73B
R16	220,000 Ω .25 W.	C-2795-90B

L1	B.C. ANT. COIL	A-14209-7
L2	1ST. S.W. ANT. COIL	
L3	2 ND. S.W. ANT. COIL	A-14879-3
L4	B.C. R.F. COIL	A-14210-1
L5	1ST. S.W. R.F. COIL	
L6	2 ND. S.W. R.F. COIL	A-15108
L7	B.C. OSC. COIL	A-14213-10
L8	1ST. S.W. OSC. COIL	
L9	2 ND. S.W. OSC. COIL	A-14880-3
L10	1ST. I.F. COIL	A-12064-33
L11	2 ND. I.F. COIL	A-12064-17

MODEL 660M
Schematic, Voltage, Socket Alignment, Trimmers

SPARKS WITHINGTON CO.



ALIGNMENT — INTERMEDIATE FREQUENCY 456 K.C.

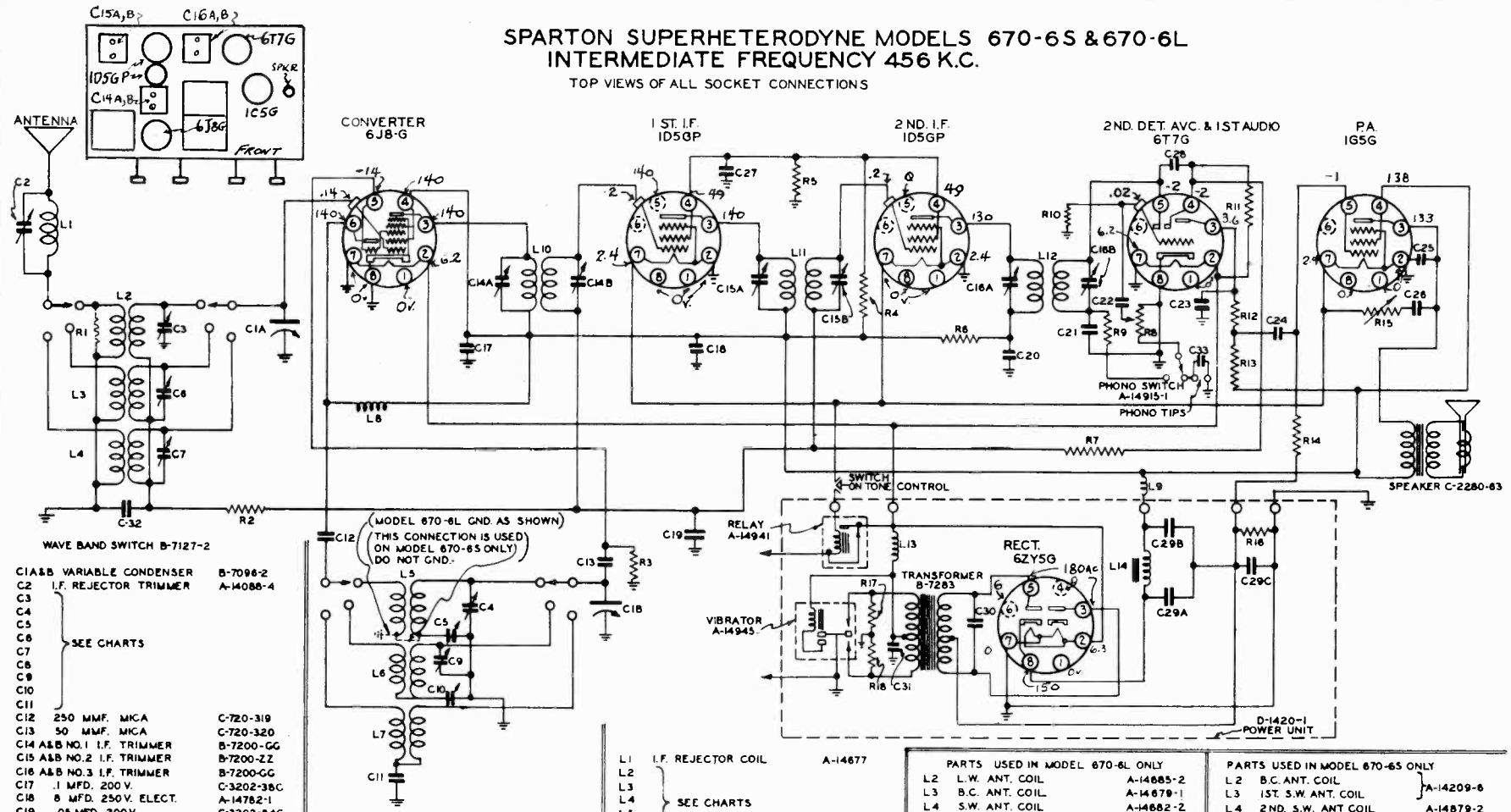
OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last mark on scale when condenser plates are flush)							
2	I.F.	6A7 Grid	.1 mf.	456 KC	BC	Open	C5A,B;C2A,B,C	Adjust to approx. peak
3							C2B (Transfer)	Detune by tightening ½ t.
4							C5A,B;C2A,C	Peak accurately
5							C2B	Peak accurately*
6	Rejector	Ant.	200 mmf.	456 KC	BC	Open	C4	Adjust to minimum
7	Broad-cast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C7 BC osc trim	Peak accurately
8							C5 BC ant trim	Peak accurately
9				600 KC	BC	600 KC	C8 BC osc pad.	Peak accurately
10	(Repeat operations 7 and 8)							
11	(Check calibration and sensitivity at 600 KC, 1000 KC and 1500 KC)							
12	S.W. Band	Ant.	*	18 MC	SW	18 MC	C6 SW ant trim	**
13	(Check calibration and sensitivity at 6.0 MC and 18 MC)							
14	(Check operations 1 to 13 inclusive)							

*100 ohm non-inductive resistor and 200 mmf. condenser in series.
**Rock dial while making this adjustment. Make certain that adjustment is made on fundamental of signal and not on image. Peak accurately.

(Original) Effective July 1, 1939

SPARTON SUPERHETERODYNE MODELS 670-6S & 670-6L
INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS



WAVE BAND SWITCH B-7127-2

C1A&B	VARIABLE CONDENSER	B-7096-2
C2	I.F. REJECTOR TRIMMER	A-14088-4
C3		
C4		
C5		
C6		
C7	SEE CHARTS	
C8		
C9		
C10		
C11		
C12	250 MMF. MICA	C-720-319
C13	50 MMF. MICA	C-720-320
C14 A&B NO.1	I.F. TRIMMER	B-7200-GG
C15 A&B NO.2	I.F. TRIMMER	B-7200-ZZ
C16 A&B NO.3	I.F. TRIMMER	B-7200-GG
C17	.1 MFD. 200 V.	C-3202-38C
C18	8 MFD. 250 V. ELECT.	A-14782-1
C19	.05 MFD. 200 V.	C-3202-84C
C20	.05 MFD. 200 V.	C-3202-28C
C21	250 MMF. MICA	C-720-319
C22	.05 MFD. 200 V.	C-3202-28C
C23	250 MMF MICA	C-720-319
C24	.05 MFD. 200 V.	C-3202-28C
C25	.003 MFD. 400 V.	C-3204-118C
C26	.03 MFD. 400 V.	C-3204-136C
C27	.1 MFD. 200 V.	C-3202-38C
C28	250 MMF. MICA	C-720-319
C29	16-10-20 ELECT.	A-14942
C30	.009 MFD. 800 V. BUFFER	C-3208-74C
C31	1 MFD. 120 V.	C-3203-56B
C32	.05 MFD. 200 V.	C-3202-84C
C33	.003 MFD. 200 V.	C-3202-62C

R1	SEE CHARTS		
R2	27 000 Ω	.25 W.	C-2795-79B
R3	56 000 Ω	.25 W.	C-2795-83B
R4	39 000 Ω	.5 W.	C-2796-197C
R5	56 000 Ω	.5 W.	C-2796-201C
R6	4700 Ω	.25 W.	C-2795-70B
R7	560 000 Ω	.25 W.	C-2795-95B
R8	250 000 Ω	VOL. CONTROL	A-14075-A1
R9	56 000 Ω	.25 W.	C-2795-83B
R10	5.6 MEGOHM	.25 W.	C-2795-107B
R11	1 MEGOHM	.25 W.	C-2795-98B
R12	180 000 Ω	.25 W.	C-2795-89B
R13	180 000 Ω	.25 W.	C-2795-89B
R14	560 000 Ω	.25 W.	C-2795-95B
R15	250 000 Ω	TONE CONTROL	A-14778
R16	510 Ω	.5 W.	C-2796-152C
R17	56 Ω	.5 W.	C-2796-47C
R18	56 Ω	.5 W.	C-2796-47C

L1	I.F. REJECTOR COIL	A-14677
L2		
L3		
L4	SEE CHARTS	
L5		
L6		
L7		
L8	OSC. PLATE CHOKE	A-14881-1
L9	B+ HASH CHOKE	A-14718-2
L10	NO.1 I.F. COIL	A-12064-14
L11	NO. 2 I.F. COIL	A-12064-2
L12	NO.3 I.F. COIL	A-12064-15
L13	A HASH CHOKE	A-14944
L14	FILTER CHOKE	A-12597

PARTS USED IN MODEL 670-6L ONLY

L2	L.W. ANT. COIL	A-14685-2
L3	B.C. ANT. COIL	A-14679-1
L4	S.W. ANT. COIL	A-14682-2
L5	L.W. OSC. COIL	A-14686-2
L6	B.C. OSC. COIL	A-14213-7
L7	S.W. OSC. COIL	
R-1	12 000 Ω .25 W.	C-2795-75B
C-3	L.W. ANT. TRIMMER	A-14517-5
C-4	L.W. OSC. TRIMMER	
C-5	L.W. OSC. PADDER	
C-6	B.C. ANT. TRIMMER	A-14088-5
C-7	S.W. ANT. TRIMMER	A-14088-5
C 9	B.C. OSC. TRIMMER	B-7199-CY
C10	B.C. OSC. PADDER	
C11	3100 MMF. MICA	C-720-362

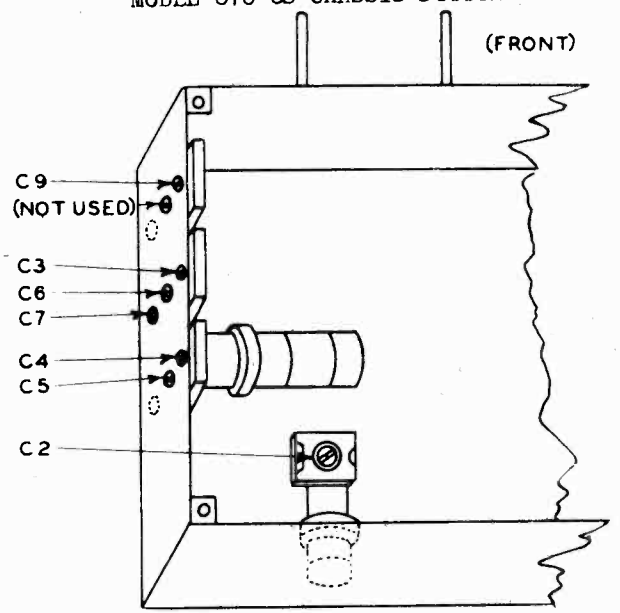
PARTS USED IN MODEL 670-6S ONLY

L 2	B.C. ANT. COIL	A-14209-6
L 3	1ST. S.W. ANT. COIL	
L 4	2ND. S.W. ANT COIL	A-14879-2
L 5	B.C. OSC. COIL	A-14213-8
L 6	1 ST. S.W. OSC. COIL	
L 7	2ND. S.W. OSC. COIL	A-14880-1
R1	NOT USED	
C-4	B.C. OSC. TRIMMER	B-7199-CY
C-5	B.C. OSC. PADDER	
C 9	1ST. S.W. TRIMMER	A-14200-5
C 3	B.C. ANT. TRIMMER	A-14199-4
C 6	1ST. S.W. ANT. TRIMMER	
C 7	2ND. S.W. ANT TRIMMER	
C10	1ST. S.W. PAD. .00114	MOLDED C-720-368
C11	2ND. S.W. PAD. .00361	MOLDED C-720-353

Notes:

Voltage readings. Allow 15% + or - on all measurements. (Original) Effective June 30, 1939
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages.

MODEL 670-6S CHASSIS BOTTOM

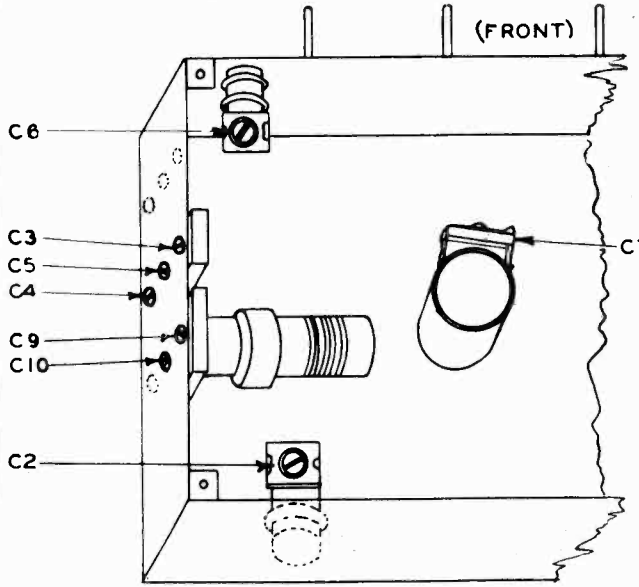


670-6S
ALIGNMENT

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last calibrated mark below 550 KC)							
2	I.F.	6J8G Grid Cap	.1 mf.	456 KC	BC	(Open)	C16 A&B C15 A&B C14 A&B	3rd I.F.T. 2nd I.F.T. 1st I.F.T.
3	Rejector	Ant.	200 mmf.	456 KC	BC	(Open)	C2	Adj. to minimum
4	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C4 Osc. C3 Ant.	
5				600 KC	B.C.	600 KC	C5 Pad.	
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 1000 KC, & 1500 KC)							
8	1st short wave Band	Ant.	*	7.0 MC	1 SW	7.0 MC	C9 Osc. C6 Ant.	
9	(Check calibration and sensitivity at 2.5 MC, 4.0 MC & 7.0 MC)							
10	2nd SWband	Ant.	*	21.0 MC	2 SW	21.0 MC	C7 Ant.	**
11	(Check calibration and sensitivity at 7.0 MC, 15 MC & 21 MC)							

* 200 mmf. condenser and 100 ohm non-inductive resistor in series.
** Rock dial while trimming.
If dial reading is off calibration, some adjustment may be made by moving the oscillator condenser lead toward or away from the chassis base plate.

MODEL 670-6L CHASSIS BOTTOM



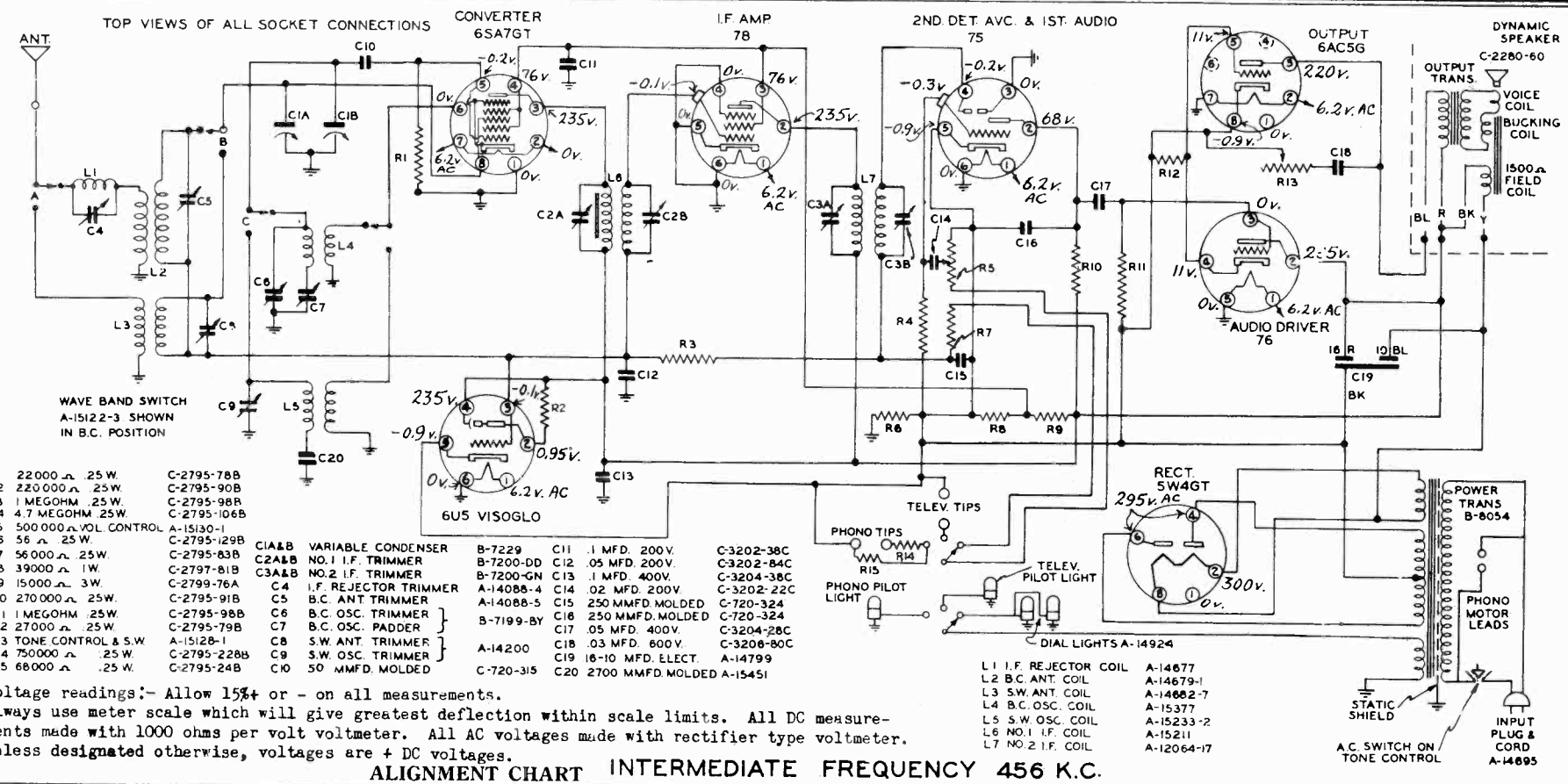
670-6L
ALIGNMENT

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set dial pointer to last calibrated mark below 550KC)							
2	I.F.	6J8G Grid Cap	.1 mf.	456 KC	BC	(Open)	C16 A&B C15 A&B C14 A&B	3rd I.F.T. 2nd I.F.T. 1st I.F.T.
3	Rejector	Ant.	200 mmf.	456 KC	BC	(Open)	C2	Adj. to minimum
4	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C9 Osc. C6 Ant.	
5				600 KC	BC	600 KC	C10 Pad.	
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 1000 KC and 1500 KC)							
8	Long-Wave Band	Ant.	200 mmf.	400 KC	LW	400 KC	C4 Osc. C3 Ant.	
9				150 KC	LW	150 KC	C5 Pad.	
10	(Repeat operation 8)							
11	(Repeat operations 8, 9 and 10 if necessary, to insure accurate alignment)							
12	(Check calibration and sensitivity at 150 KC, 260 KC and 400 KC)							
13	Short Wave Band	Ant.	*	18 MC	SW	18 MC	C8 Osc. C7 Ant.	Rock dial
14	(Check calibration and sensitivity at 6 MC, 15 MC and 18 MC)							

* 200 mmf. condenser and 100 ohm non-inductive resistor in series.

SPARKS WITHINGTON CO.

MODEL 760PS
Schematic, Voltage, Socket Alignment, Trimmers



R1	22000Ω .25W.	C-2795-78B	C1A&B	VARIABLE CONDENSER	B-7229	C11	.1 MFD. 200V.	C-3202-38C
R2	220000Ω .25W.	C-2795-90B	C2A&B	NO.1 I.F. TRIMMER	B-7200-DD	C12	.05 MFD. 200V.	C-3202-84C
R3	1 MEGOHM .25W.	C-2795-98B	C3A&B	NO.2 I.F. TRIMMER	B-7200-GN	C13	.1 MFD. 400V.	C-3204-38C
R4	4.7 MEGOHM .25W.	C-2795-106B	C4	I.F. REJECTOR TRIMMER	A-14088-4	C14	.02 MFD. 200V.	C-3202-22C
R5	500000Ω VOL. CONTROL	A-15130-1	C5	B.C. ANT. TRIMMER	A-14088-5	C15	250 MMFD. MOLDED	C-720-324
R6	56Ω .25W.	C-2795-129B	C6	B.C. OSC. TRIMMER	B-7199-BY	C16	250 MMFD. MOLDED	C-720-324
R7	56000Ω .25W.	C-2795-83B	C7	B.C. OSC. PADDER		C17	.05 MFD. 400V.	C-3204-28C
R8	39000Ω 1W.	C-2797-81B	C8	S.W. ANT. TRIMMER	A-14200	C18	.03 MFD. 600V.	C-3206-80C
R9	15000Ω 3W.	C-2799-76A	C9	S.W. OSC. TRIMMER	C-720-315	C19	16-10 MFD. ELECT.	A-14799
R10	270000Ω .25W.	C-2795-91B	C10	50 MMFD. MOLDED		C20	2700 MMFD. MOLDED	A-15451
R11	1 MEGOHM .25W.	C-2795-98B						
R12	27000Ω .25W.	C-2795-79B						
R13	TONE CONTROL & S.W.	A-15128-1						
R14	750000Ω .25W.	C-2795-228B						
R15	68000Ω .25W.	C-2795-24B						

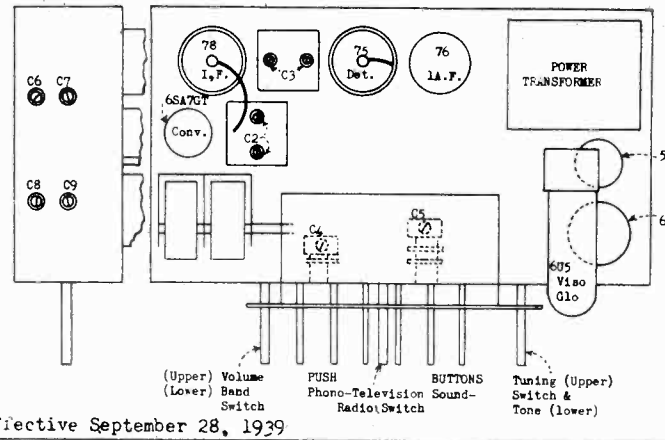
L1	I.F. REJECTOR COIL	A-14677						
L2	B.C. ANT. COIL	A-14679-1						
L3	S.W. ANT. COIL	A-14682-7						
L4	B.C. OSC. COIL	A-15377						
L5	S.W. OSC. COIL	A-15233-2						
L6	NO.1 I.F. COIL	A-15211						
L7	NO.2 I.F. COIL	A-12064-17						

Voltage readings:- Allow 15%+ or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages are + DC voltages.

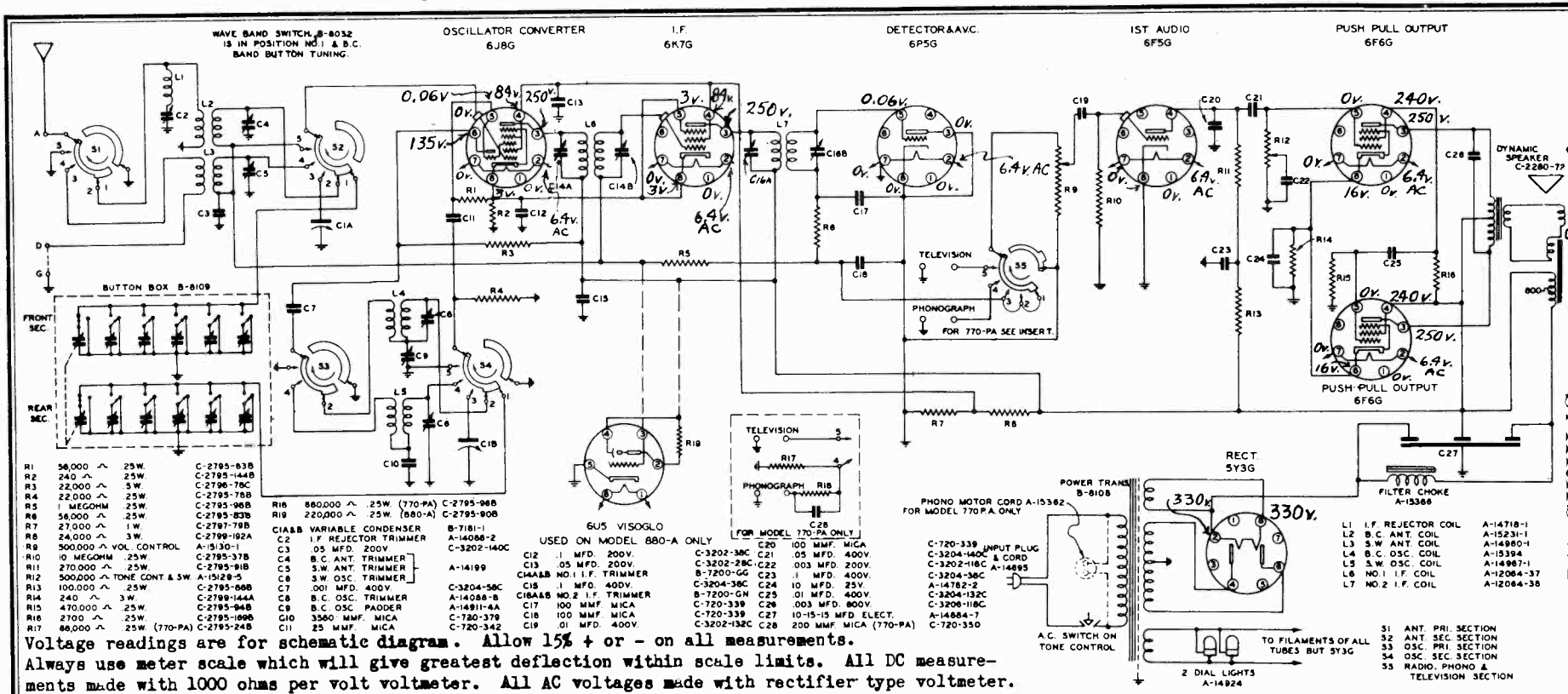
ALIGNMENT CHART INTERMEDIATE FREQUENCY 456 K.C.

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	REMARKS
1	(Set pointer even with last calibration mark with condenser plates flush)							
2	I.F.	6SA7GT Grid	.1 mf.	456 KC	BC	Open	C3 A & B	2nd I.F.
							C2 A & B	1st. I.F.
3	Rejector	Ant.	200 mmf.	456 KC	BC	Closed	C4	Adjust to minimum
4	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C6	BC Osc. Trim.
							C5	BC Ant. Trim.
5				600 KC	BC	600 KC	C7	BC Osc. Padder **
6	(Repeat operation 4)							
7	(Check calibration and sensitivity on 600 KC, 900 KC and 1500 KC)							
8	Short Wave	Ant.	*	18MC	SW	18MC	C9	SW Osc. Trim.
							C8	SW Ant. Trim **
9	(Check calibration and sensitivity at 6 MC, 9 MC, and 18 MC)							
10	(Check operations 1 to 9 inclusive)							

Notes: *100 ohms and 200 mmf. in series **Rock variable condenser for maximum output. (Original) Effective September 28, 1939



MODELS 770, 770PA, 880A
Schematic, Voltage
SPARKS WITHINGTON CO.
Socket, Alignment Trimmers



R1	56,000 Ω	.25W.	C-2795-83B	C2	I.F. REJECTOR TRIMMER	B-7181-1	C20	100 MMF. MICA	C-3202-38C	L1	I.F. REJECTOR COIL	A-14718-1
R2	240 Ω	.25W.	C-2795-144B	C3	.05 MFD. 200V.	C-3202-140C	C21	.05 MFD. 400V.	C-3202-28C	L2	B.C. ANT. COIL	A-15231-1
R3	22,000 Ω	.5W.	C-2796-78C	C4	B.C. ANT. TRIMMER	A-14199	C22	.003 MFD. 200V.	B-7200-GG	L3	S.W. ANT. COIL	A-14980-1
R4	22,000 Ω	.25W.	C-2795-78B	C5	S.W. ANT. TRIMMER		C23	.1 MFD. 400V.	C-3204-38C	L4	B.C. OSC. COIL	A-15394
R5	1 MEGOHM	.25W.	C-2795-98B	C6	S.W. OSC. TRIMMER		C24	10 MFD. 25V.	B-7200-GN	L5	S.W. OSC. COIL	A-14967-1
R6	56,000 Ω	.25W.	C-2795-83B	C7	.001 MFD. 400V.	C-3204-58C	C25	.01 MFD. 400V.	C-720-339	L6	NO.1 I.F. COIL	A-12084-37
R7	27,000 Ω	1 W.	C-2797-79B	C8	B.C. OSC. TRIMMER	A-14088-B	C26	.003 MFD. 600V.	C-720-339	L7	NO.2 I.F. COIL	A-12084-38
R8	24,000 Ω	3 W.	C-2799-192A	C9	B.C. OSC. PADDER	A-14911-4A	C27	10-15-15 MFD. ELECT.	C-3202-132C			
R9	500,000 Ω VOL. CONTROL		A-15130-1	C10	3560 MMF. MICA	C-720-379	C28	200 MMF. MICA (770-PA)	C-720-342			
R10	10 MEGOHM	.25W.	C-2795-37B	C11	.25 MMF. MICA	C-720-342						
R11	270,000 Ω	.25W.	C-2795-91B	C12	.1 MFD. 200V.	C-3204-140C						
R12	500,000 Ω TONE CONT. & SW.		A-15129-5	C13	.05 MFD. 200V.							
R13	100,000 Ω	.25W.	C-2795-86B	C14A&B	NO.1 I.F. TRIMMER	A-14199						
R14	240 Ω	3W.	C-2799-144A	C15	.1 MFD. 400V.	C-3204-58C						
R15	470,000 Ω	.25W.	C-2795-94B	C16A&B	NO.2 I.F. TRIMMER	A-14088-B						
R16	2700 Ω	.25W.	C-2795-169B	C17	100 MMF. MICA	A-14911-4A						
R17	68,000 Ω	.25W. (770-PA)	C-2795-24B	C18	100 MMF. MICA	C-720-379						
R16	660,000 Ω	.25W. (770-PA)	C-2795-98B	C19	.01 MFD. 400V.	C-720-342						
R19	220,000 Ω	.25W. (880-A)	C-2795-90B									

Voltage readings are for schematic diagram. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages.

C-720-339 INPUT PLUG
C-3204-140C & CORD A-14695
C-3202-116C
C-3204-38C
A-14782-2
C-3204-132C
C-3206-118C
A-14884-7
C-720-350

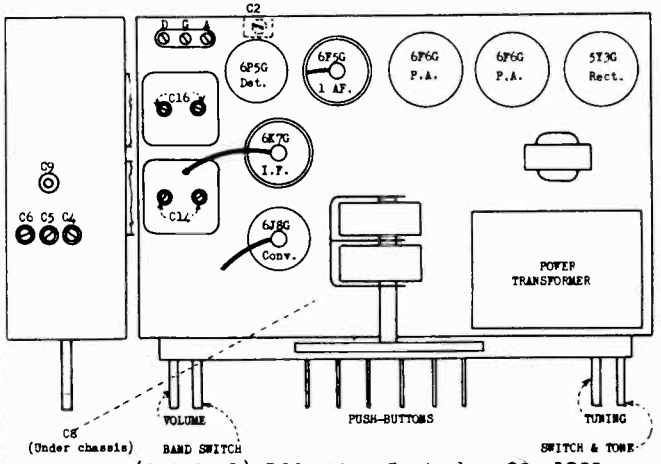
S1 ANT. PRI. SECTION
S2 ANT. SEC. SECTION
S3 OSC. PRI. SECTION
S4 OSC. SEC. SECTION
S5 RADIO, PHONO & TELEVISION SECTION

ALIGNMENT CHART

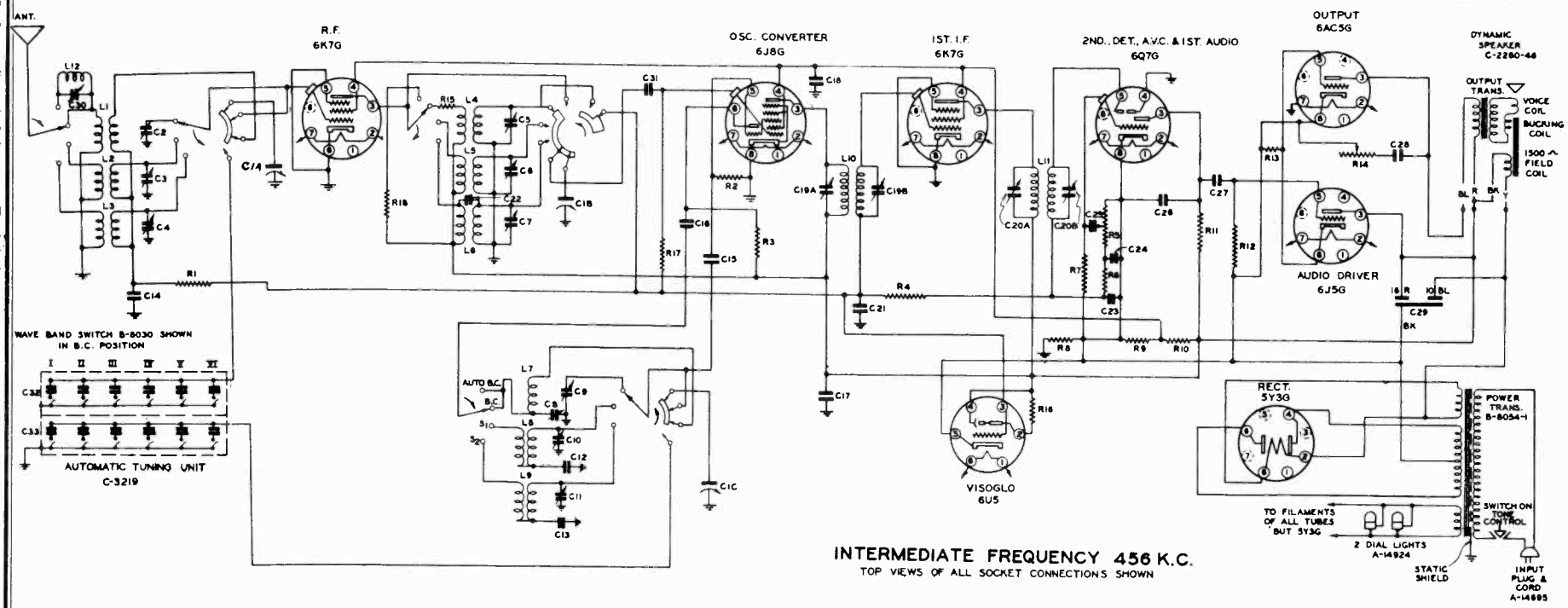
OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNE COND. SETTING	TRIMMER	REMARKS
1	(Set pointer even with last calibration mark when condenser plates are flush)							
2	I.F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C16 A&B	2nd I.F.
							C14 A&B	1st I.F.
3	Rejector	Ant.	200 mmf.	456KC	BC	Closed	C2	Adjust to minimum
4	Broad - cast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C4	BC Osc. Trim.
							C4	BC Ant. Trim.
5				600 KC	BC	600 KC	C9	BC Osc. Padder**
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 900 KC and 1500 KC)							
8	Short Wave	Ant.	*	18MC	SW	18MC	C6	SW Osc. Trim.
							C5	SW Ant. Trim **
9	(Check calibration and sensitivity at 6MC, 9MC, and 18MC)							
10	(Check operations 1 to 9 inclusive)							

* 100 ohms and 200 mmf. in series. **Rock variable condenser for maximum output.

INTERMEDIATE FREQUENCY 456 K.C.
TOP VIEWS OF ALL SOCKET CONNECTIONS



(Original) Effective September 28, 1939



INTERMEDIATE FREQUENCY 456 K.C.
TOP VIEWS OF ALL SOCKET CONNECTIONS SHOWN

VOLTAGE CHART

Line Voltage: 120 Volts
Band Switch: Broadcast Band (Manual)
Position of Volume Control: Full with Antenna Disconnected

Tube	Function	Voltage of Socket Prongs to Gnd. See Prong Nos. on Schematic Diagram								
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	Grid Cap
6K7G	R-F Amplifier	0	0	200	80	0	0	6.3*	0	-.2
6J8G	Osc - Converter	0	0	250	80	**	140	6.3*	0	-.5
6K7G	I-F Amplifier	0	0	250	80	0	-.5	6.3*	0	-.5
6Q7G	Det - AVC - AF	0	0	50	-1.25	0	-2.5	6.3*	0	-2.5
6J5G	Driver	0	0	250	--	**	--	6.3*	8	--
6AC5G	Power Amplifier	0	0	250	--	8	--	6.3*	-3	--
5Y3G	Rectifier	0	300	--	300*	--	300*	--	300	--
6U5	Viso-Glo	0	125	-.5	250	-3	6.3*	--	--	--

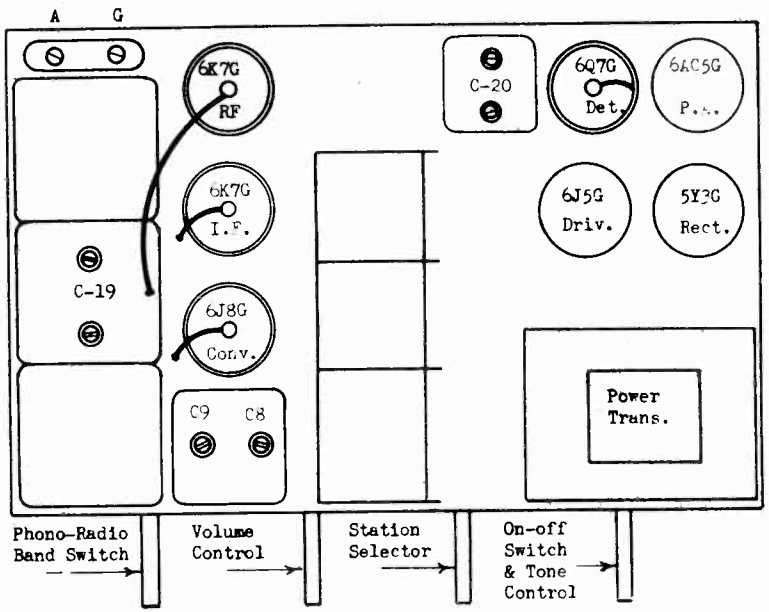
Notes: Voltage readings are for schematic diagram. Allow 15% + or - on all measurements.
Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 100 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter.
Unless designated otherwise, voltages in table are + DC voltages.
*AC volts.
**Cannot be accurately measured with Weston Analyzer No. 665, Type 2.

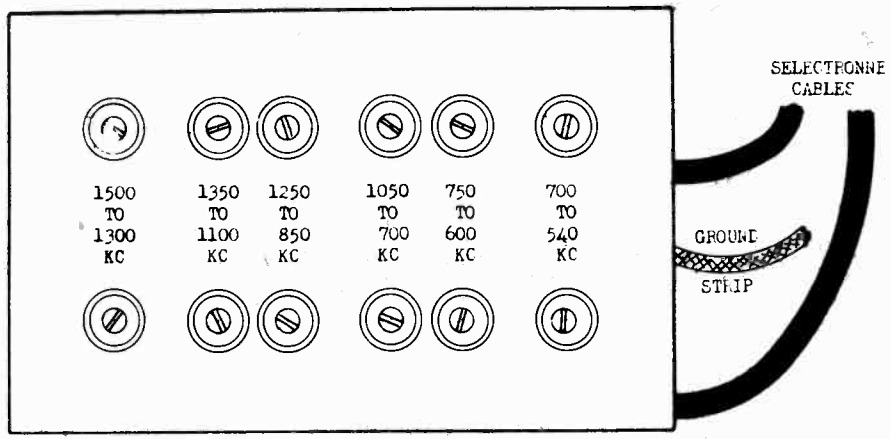
C1A&C	VARIABLE CONDENSER	B-8013
C2	B.C. ANT. TRIMMER	A-14199-1
C3	1ST. S.W. ANT. TRIMMER	
C4	2ND. S.W. ANT. TRIMMER	
C5	B.C. R.F. TRIMMER	A-14199-1
C6	1ST. S.W. R.F. TRIMMER	
C7	2ND. S.W. R.F. TRIMMER	
C8	B.C. OSC. TRIMMER	B-7199-BY
C9	B.C. OSC. PADDER	
C10	1ST. S.W. OSC. TRIMMER	A-14200
C11	2ND. S.W. OSC. TRIMMER	
C12	1280 MMF. MOLDED	C-720-374
C13	4480 MMF. MOLDED	C-720-373
C14	.05 MFD. 200V.	C-3202-84C
C15	25 MMF. MOLDED	C-720-342
C16	250 MMF. MOLDED	C-720-324
C17	.1 MFD. 400V.	C-3204-38C
C18	.1 MFD. 400V.	C-3204-38C
C19A&B	NO.1 I.F. TRIMMER	B-7200-GG
C20A&B	NO.2 I.F. TRIMMER	B-7200-GN
C21	.05 MFD. 200V.	C-3202-84C
C22	10 MMF. MOLDED	C-720-367
C23	250 MMF. MOLDED	C-720-324
C24	100 MMF. MOLDED	C-720-325
C25	.05 MFD. 200V.	C-3202-84C
C26	250 MMF. MOLDED	C-720-324
C27	.05 MFD. 400V.	C-3204-28C
C28	.03 MFD. 600V.	C-3206-80C
C29	16-10 MFD. ELECT.	A-14789-2
C30	I.F. REJECTOR TRIMMER	A-14088-4
C31	10 MMF. MOLDED	C-720-367
C32&C33	I-II 150-700 MMFD. TRIM.	A-15000-1
	III 75-300 MMFD. TRIM.	A-15000-2
	IV 30-175 MMFD. TRIM.	
	V 12-100 MMFD. TRIM.	A-15000-3
	VI 6-50 MMFD. TRIM.	

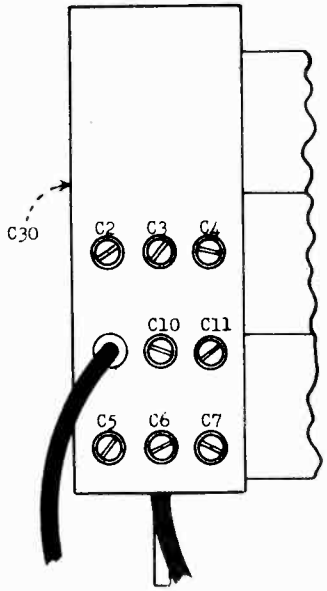
R1	100,000 Ω .25W.	C-2795-86B
R2	56,000 Ω .25W.	C-2795-63B
R3	22,000 Ω .5W.	C-2795-78C
R4	1 MEGOHM .25W.	C-2795-98B
R5	VOLUME CONTROL	A-15127
R6	56,000 Ω .25W.	C-2795-63B
R7	5.6 MEGOHM .25W.	C-2795-107B
R8	130 Ω .25W.	C-2795-136B
R9	27,000 Ω 1W.	C-2797-78B
R10	22,000 Ω 3W.	C-2799-191A
R11	270,000 Ω .25W.	C-2795-91B
R12	680,000 Ω .25W.	C-2795-98B
R13	27,000 Ω .5W.	C-2796-79C
R14	TONE CONTROL & SWITCH	A-15126-1
R15	8200 Ω .25W.	C-2795-73B
R16	220,000 Ω .25W.	C-2795-90B
R17	1 MEGOHM .25W.	C-2795-98B
R18	12 000 Ω .5W.	C-2796-75C

L1	B.C. ANT. COIL	A-14209-7
L2	1ST. S.W. ANT. COIL	
L3	2ND. S.W. ANT. COIL	A-14879-3
L4	B.C. R.F. COIL	A-14210-1
L5	1ST. S.W. R.F. COIL	
L6	2ND. S.W. R.F. COIL	A-15108
L7	B.C. OSC. COIL	A-14213-11
L8	1ST. S.W. OSC. COIL	
L9	2ND. S.W. OSC. COIL	A-14880-3
L10	NO.1 I.F. COIL	A-12064-33
L11	NO. 2 I.F. COIL	A-12064-17
L12	I.F. REJECTOR COIL	A-14677

(Original) Effective July 1, 1939







ALIGNMENT CHART

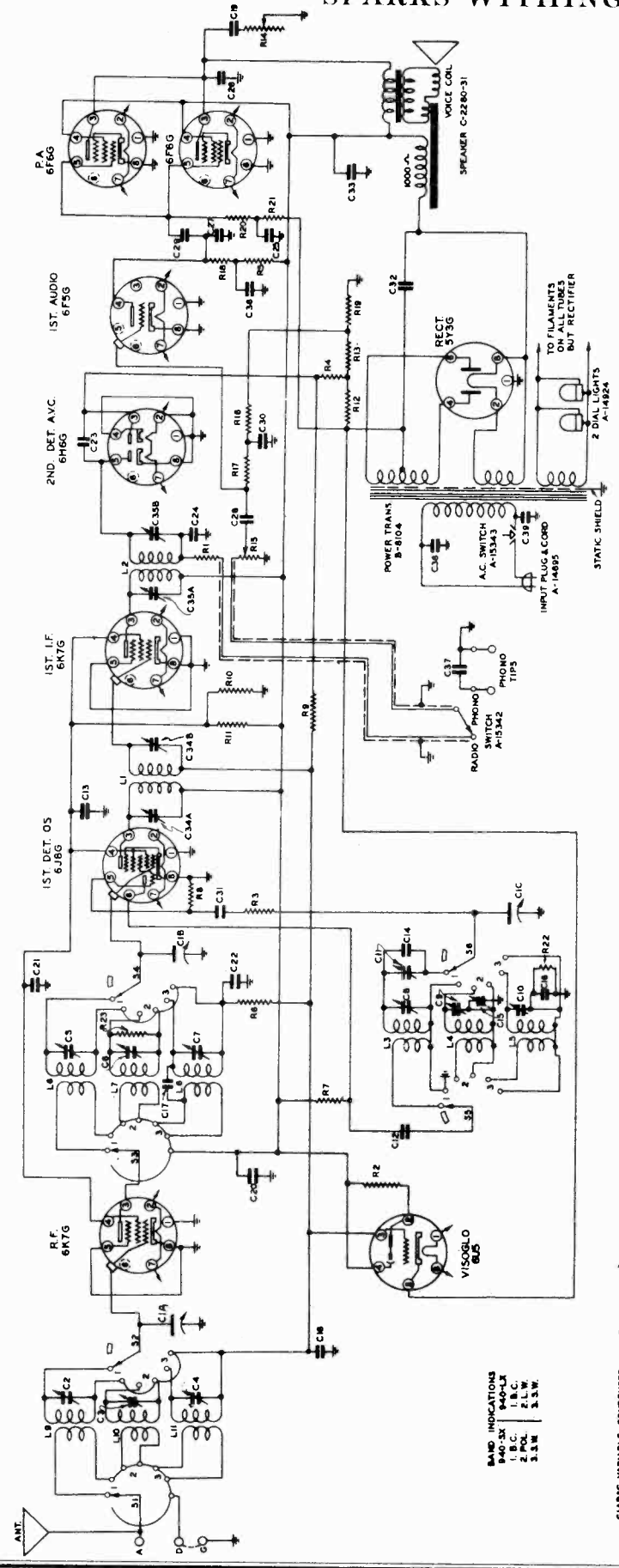
OPER-ATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER	ADJUST FOR MAX. OUTPUT
1	(Set dail pointer to dots at low frequency end of dial.)							
2	I.F.	6K7G	.1mf	456 KC	BC*	Open	C20 A & B	2nd I. F.
							C19 A & B	1st I. F.
3	I. F. Rej.	Ant.	200 mmf	456KC	BC**	Closed	C C30	Adjust for Minimum
4	Broad-Cast Band	Ant.	200 mmf	1500 KC	BC*	1500 KC	C8	Osc. Trimmer
							C5	RF Trimmer
							C2	Ant. Trimmer
5				600 KC	BC*	600 KC	C9	Osc. Padder
6	(Repeat operation 4)							
7	(Check calibration and sensitivity at 600 KC, 900 KC and 1500 KC)							
8	1st Short Wave Band	Ant.	200 mmf 100 ohm series	6.0 MC	1 SW	6.0 MC	C10	Osc. Trimmer
							C6	RF Timmer
							C3	Ant. Trimmer
9	(Check calibration and sensitivity at 6.0 MC, 4.0 MC and 2.5 MC)							
10	2nd Short Wave Band	Ant.	200 mmf 100 ohm series	21 MC	2 SW	21 MC	C11	Osc. Trimmer
							C7	RF Trimmer
							C4	Ant Trimmer
11	(Check calibration and sensitivity at 21.0 MC, 15.0 MC, 6.0 MC)							
12	(Check operations 1 to 11 inclusive)							

*Band switch must be turned for manual tuning of Broadcast Band.
**Band switch must be turned for automatic (Selectronne) tuning.

MODELS 940LX, 940SX
Schematic

SPARKS WITHINGTON CO.

SCHEMATIC DIAGRAM
SPARTON SUPERHETERODYNE MODEL 940-SX & 940-LX



INTERMEDIATE FREQUENCY 456 K.C.
TOP VIEW OF ALL SOCKET CONNECTIONS

940-SX COILS

L1	NO.1 I.F. COIL	C-2795-93B
L2	NO.2 I.F. COIL	C-2795-110B
L3	B.C. OSC. COIL	C-2795-88B
L4	POL. OSC. COIL	C-2795-25B
L5	S.W. OSC. COIL	C-2795-25B
L6	B.C. DET. COIL	C-2794-78C
L7	POL. DET. COIL	C-2795-93B
L8	S.W. DET. COIL	C-2795-93B
L9	B.C. ANT. COIL	C-2797-79B
L10	POL. ANT. COIL	C-2798-37A
L11	S.W. ANT. COIL	C-2798-142A

940-LX COILS

L1	NO.1 I.F. COIL	A-12064-12
L2	NO.2 I.F. COIL	A-12064-17
L3	B.C. OSC. COIL	A-14241-18
L4	L.W. OSC. COIL	A-14241-21
L5	S.W. OSC. COIL	A-14241-12
L6	B.C. DET. COIL	A-14242-8
L7	L.W. DET. COIL	A-14242-18
L8	S.W. DET. COIL	A-14242-3
L9	B.C. ANT. COIL	A-14243-1
L10	L.W. ANT. COIL	A-14243-15
L11	S.W. ANT. COIL	A-14243-3

PARTS USED IN MODEL 940-SX ONLY

C15	.00171 MFD. MOLDED	C-720-352
C16	.00381 MFD. MOLDED	C-720-333
R22	NOT USED	
R23	NOT USED	

PARTS USED IN MODEL 940-LX ONLY

C15	L.W. OSC. PADDER	A-14088-3
C16	.00386 MFD. MOLDED	C-720-344
R22	68000 Ω .25W.	C-2795-248
R23	100000 Ω .25W.	C-2795-848

C1A	VARIABLE CONDENSER	B-7279-2	R1	56000 Ω .25W.
C2	B.C. ANT. TRIMMER	A-14088-1	R2	220,000 Ω .25W.
C3	BAND 2 ANT. TRIMMER	A-14088-1	R3	10 Ω .25 W.
C4	S.W. ANT. TRIMMER	A-14088-1	R4	1 MEGOHM .25 W.
C5	B.C. DET. TRIMMER	A-14088-1	R5	100,000 Ω .25 W.
C6	BAND 2 DET. TRIMMER	A-14088-1	R6	100,000 Ω .25 W.
C7	S.W. DET. TRIMMER	A-14088-1	R7	22,000 Ω .5 W.
C8	B.C. OSC. TRIMMER	A-14088-1	R8	22,000 Ω .25W.
C9	BAND 2 OSC. TRIMMER	A-14088-1	R9	470,000 Ω .25W.
C10	S.W. OSC. TRIMMER	A-14088-1	R10	27,000 Ω 1 W.
C11	B.C. OSC. PADDER	A-14088-1	R11	18,000 Ω 2W.
C12	.0005 MFD. MOLDED	C-720-319	R12	200 Ω 2W.
C13	.05 MFD. 400V.	C-3204-28C	R13	6 Ω .25W.
C14	.0005 MFD. MOLDED	C-720-332	R14	1 MEGOHM VOLUME CONTROL
C15	SEE SEPARATE CHART		R15	250,000 Ω VOLUME CONTROL
C16	SEE SEPARATE CHART		R16	1 MEGOHM .25W.
C17	12 MFD. COUPLER		R17	560,000 Ω .25W.
C18	.05 MFD. 200 V.	C-3202-28C	R18	270,000 Ω .25W.
C19	.03 MFD. 600 V.	C-3206-60C	R19	27 Ω .25W.
C20	.05 MFD. 400 V.	C-3204-28C	R20	270,000 Ω .25W.
C21	.05 MFD. 200 V.	C-3202-28C	R21	270,000 Ω .25W.
C22	.03 MFD. 600 V.	C-3206-60C	R22	SEE SEPARATE CHART
C23	.0025 MFD. MOLDED	C-720-325	R23	SEE SEPARATE CHART
C24	.0001 MFD. MOLDED	C-720-323		
C25	.1 MFD. 100 V.	C-3201-38C		
C26	.003 MFD. 800V.	C-3208-118C		
C27	.0005 MFD. MOLDED	C-720-319		
C28	.05 MFD. 200V.	C-3202-28C		
C29	.05 MFD. 400V.	C-3204-28C		
C30	.1 MFD. 100 V.	C-3201-38C		
C31	.0001 MFD. MOLDED	C-720-339		
C32	10 MFD. 450V. ELECT.	A-14073-A		
C33	30 MFD. 300V. ELECT.	A-14072-A		
C34A	MOI.F. I.F. TRIMMER	B-7208-CG		
C34B	MOI.F. I.F. TRIMMER	B-7208-CG		
C35	.1 MFD. 400V.	C-3204-38C		
C36	.003 MFD. 2000V.	C-3202-88C		
C37	.006 MFD. MOLDED	C-720-347		
C38	.006 MFD. MOLDED	C-720-347		

(Original) Effective July 1, 1939

MODELS 940LX, 940SX
Alignment, Voltage
Socket, Trimmers

SPARKS WITHINGTON CO.

VOLTAGE CHART

Line Voltage: 125 Volts
Voltage Tap: 115-135

Position of Volume Control: Full with Antenna Disconnected
Band Switch - Broadcast

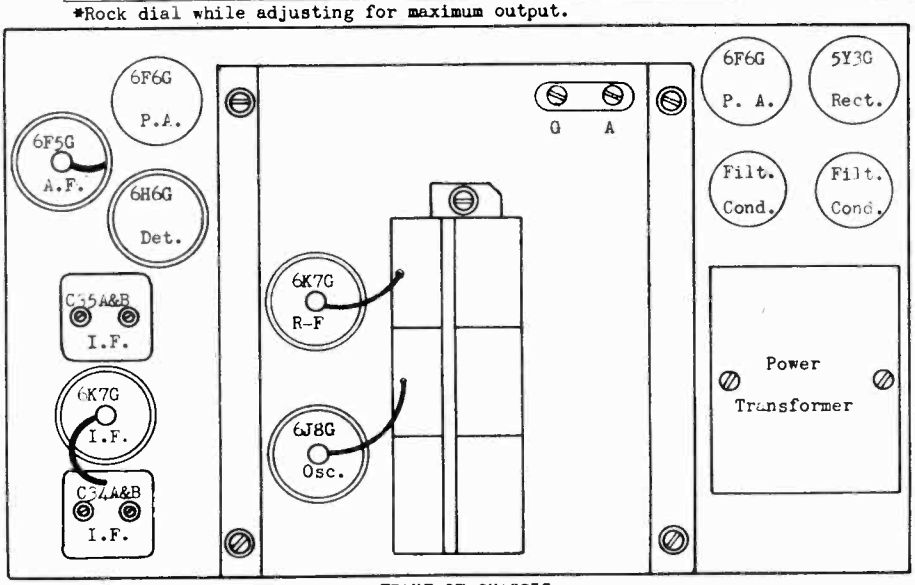
Tube	Function	Voltage of Socket Prongs to Gnd. (See Prong Nos. on Schematic Diagram)								
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	Grid Cap
6K7G	R.F.	-	-	240	94	-	-	*6	-	**
6J8G	Converter	-	-	240	94	**	137	*6	-	**
6K7G	I.F.	-	-	240	94	-	-	*6	-	**
6H6G	2nd. Det. A.V.C.	-	-	*	-	**	-	*6	-	
6F5G	1st A.F.	-	*6	-	**	-	-	-	-	**
6F6G	P.A.	-	*6	235	240	**	-	-	-	
6F6G	P.A.	-	*6	235	240	**	-	-	-	
5Y3G	Rect.	-	340	-	355	-	355	-	340	
6U5	Viso-Glo	*6	**	**	240	-3.1	-			

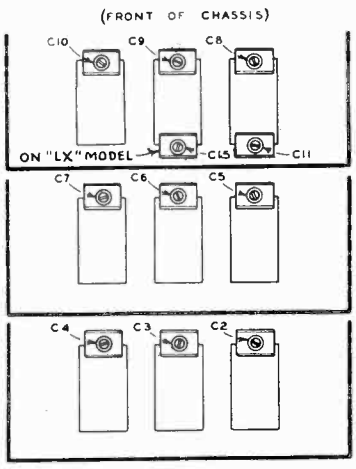
Notes: Voltage readings are for schematic diagram. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All DC measurements made with 1000 ohms per volt voltmeter. All AC voltages made with rectifier type voltmeter. Unless designated otherwise, voltages in table are + DC voltages. *AC volts.
**Cannot be measured with 1000 ohms per volt voltmeter. Bias for 6F6G can be measured from B- to Gnd.

ALIGNMENT CHART

	OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SECTION	TRIMMER	ADJUST FOR MAX. OUTPUT
	1	(Set pointer even with last calibration mark when condenser plates are flush.)							
	2	I. F.	6J8G Grid	.1 mf.	456 KC	BC	Open	C-35A&B	2nd I. F.
								C-34A&B	1st I. F.
	3	Broadcast Band	Ant.	200 mmf.	1500 KC	BC	1500 KC	C-8	Osc. Trimmer
								C-5	R. F. Trimmer
								C-2	Ant. Trimmer
	4				600 KC	BC	600KC	C11*	Osc. Padder
	5	(Repeat operation 3)							
LX MODEL ONLY	6	Long Wave Band	Ant.	200 mmf.	400 KC	LW	400 KC	C9	Osc. Trimmer
								C6	RF Trimmer
								C3	Ant. Trimmer
	7				150 KC	LW	150 KC	C15	Osc. Padder.
	8	(Repeat operation 6)							
	9	Short Wave Band	Ant.	100 ohms 200 mmf. series	18MC	SW	18 MC	C-10	Osc. Trimmer
								C-7	RF Trimmer
								C-4*	Ant. Trimmer
	10	(Check calibration and senstivity at 6. MC., 9 MC., and 18 Mc.)							
	11	(Check operations 1 to 10 inclusive)							
SX MODEL	6	1st Short Wave Band (Police)	Ant.	100 ohm 200 mmf series	7 MC	1st SW	7 MC	C9	Osc. Trimmer
								C6	RF Trimmer
								C3*	Ant. Trimmer
	7	(Check calibration and sensitivity at 7 MC and 2.5 MC.)							
	8	2nd Short Wave Band	Ant.	100 ohm 200 mmf series	21 MC	2nd SW	21 MC	C10	Osc. Trimmer
								C7	RF Timmer
								C4*	Ant. Trimmer
	9	(Check calibration and sensitivity at 8 MC. and 21 MC)							
	10	(Check operations 1 to 9 inclusive.)							

*Rock dial while adjusting for maximum output.





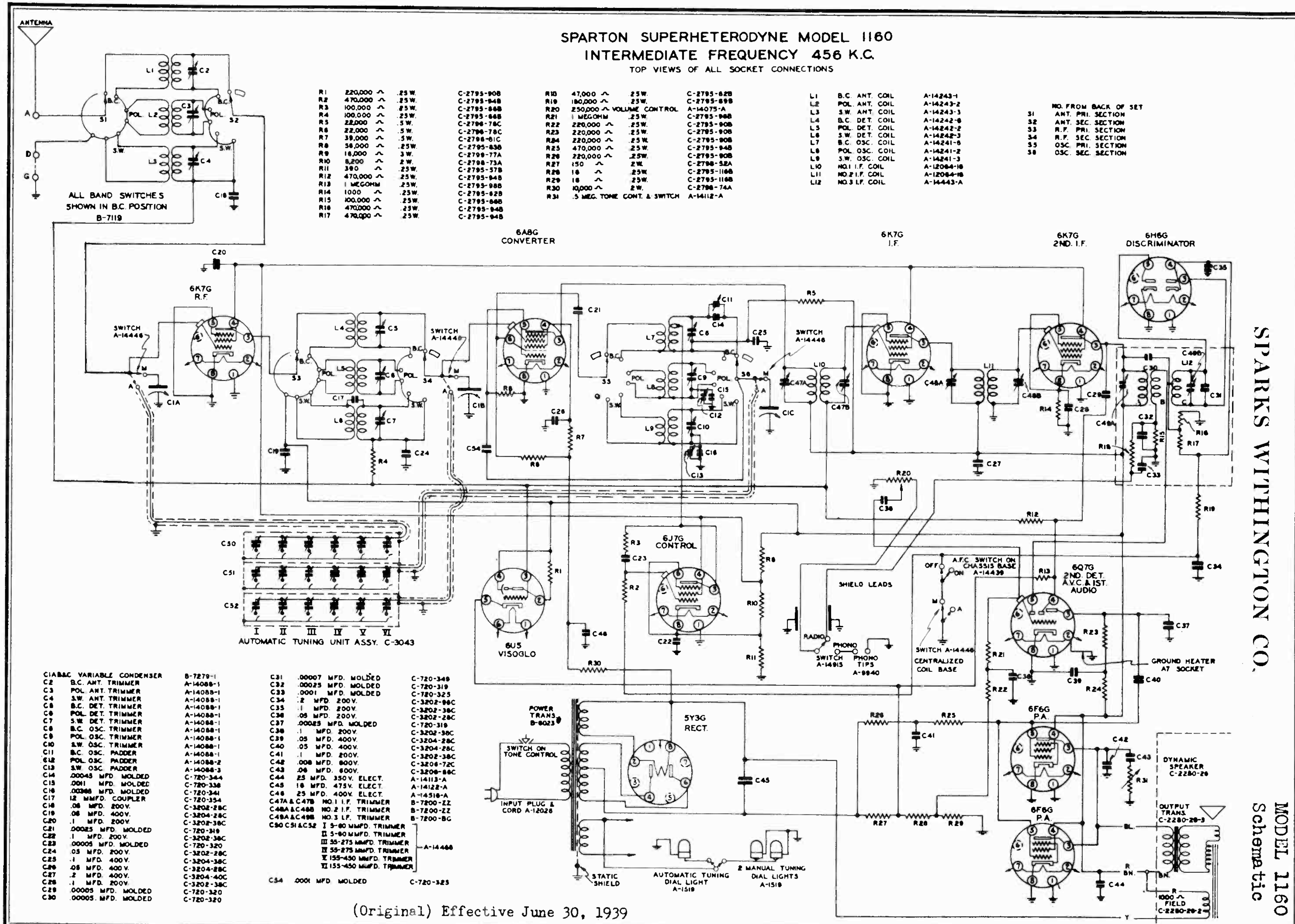
TRIMMER LOCATIONS
(under chassis)

SPARKS WITHINGTON CO.

MODEL 1160
Schematic

SPARTON SUPERHETERODYNE MODEL 1160
INTERMEDIATE FREQUENCY 456 K.C.

TOP VIEWS OF ALL SOCKET CONNECTIONS



R1	220,000 Ω	.25 W.	C-2795-90B
R2	470,000 Ω	.25 W.	C-2795-94B
R3	100,000 Ω	.25 W.	C-2795-86B
R4	100,000 Ω	.25 W.	C-2795-86B
R5	22,000 Ω	.5 W.	C-2796-78C
R6	22,000 Ω	.5 W.	C-2796-78C
R7	39,000 Ω	.5 W.	C-2796-81C
R8	56,000 Ω	.25 W.	C-2795-83B
R9	16,000 Ω	3 W.	C-2799-77A
R10	8,200 Ω	2 W.	C-2798-73A
R11	390 Ω	.25 W.	C-2795-57B
R12	470,000 Ω	.25 W.	C-2795-94B
R13	1 MEGOHM	.25 W.	C-2795-98B
R14	1000 Ω	.25 W.	C-2795-62B
R15	100,000 Ω	.25 W.	C-2795-86B
R16	470,000 Ω	.25 W.	C-2795-94B
R17	470,000 Ω	.25 W.	C-2795-94B

R18	47,000 Ω	.25 W.	C-2795-62B
R19	180,000 Ω	.25 W.	C-2795-89B
R20	250,000 Ω VOLUME CONTROL		A-14075-A
R21	1 MEGOHM	.25 W.	C-2795-98B
R22	220,000 Ω	.25 W.	C-2795-90B
R23	220,000 Ω	.25 W.	C-2795-90B
R24	220,000 Ω	.25 W.	C-2795-90B
R25	470,000 Ω	.25 W.	C-2795-94B
R26	220,000 Ω	.25 W.	C-2795-90B
R27	150 Ω	2 W.	C-2798-52A
R28	18 Ω	.25 W.	C-2795-110B
R29	18 Ω	.25 W.	C-2795-110B
R30	10,000 Ω	2 W.	C-2798-74A
R31	.5 MEG. TONE CONT. & SWITCH		A-14112-A

L1	B.C. ANT. COIL	A-14243-1
L2	POL. ANT. COIL	A-14243-2
L3	S.W. ANT. COIL	A-14243-3
L4	B.C. DET. COIL	A-14242-8
L5	POL. DET. COIL	A-14242-2
L6	S.W. DET. COIL	A-14242-3
L7	B.C. OSC. COIL	A-14241-8
L8	POL. OSC. COIL	A-14241-2
L9	S.W. OSC. COIL	A-14241-3
L10	NO.1 I.F. COIL	A-12064-18
L11	NO.2 I.F. COIL	A-12064-18
L12	NO.3 I.F. COIL	A-14443-A

	NO. FROM BACK OF SET
S1	ANT. PRI. SECTION
S2	ANT. SEC. SECTION
S3	R.F. PRI. SECTION
S4	R.F. SEC. SECTION
S5	OSC. PRI. SECTION
S6	OSC. SEC. SECTION

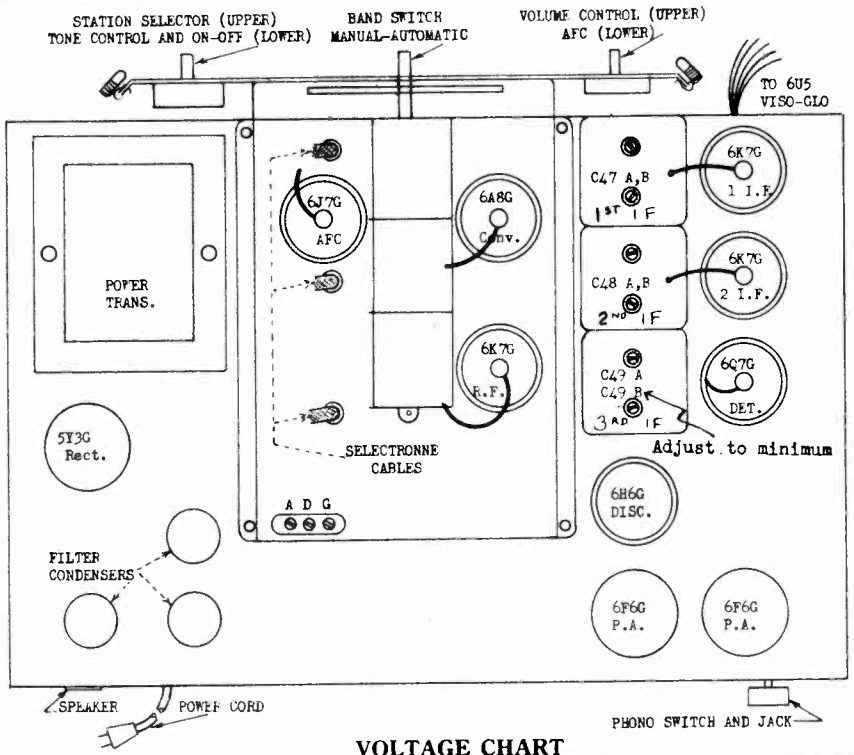
C1A,B&C	VARIABLE CONDENSER	B-7279-1
C2	B.C. ANT. TRIMMER	A-14088-1
C3	POL. ANT. TRIMMER	A-14088-1
C4	S.W. ANT. TRIMMER	A-14088-1
C5	B.C. DET. TRIMMER	A-14088-1
C6	POL. DET. TRIMMER	A-14088-1
C7	S.W. DET. TRIMMER	A-14088-1
C8	B.C. OSC. TRIMMER	A-14088-1
C9	POL. OSC. TRIMMER	A-14088-1
C10	S.W. OSC. TRIMMER	A-14088-1
C11	B.C. OSC. PADDER	A-14088-1
C12	POL. OSC. PADDER	A-14088-2
C13	S.W. OSC. PADDER	A-14088-3
C14	.00045 MFD. MOLDED	C-720-344
C15	.0011 MFD. MOLDED	C-720-338
C16	.00366 MFD. MOLDED	C-720-341
C17	12 MMFD. COUPLER	C-720-354
C18	.05 MFD. 200V.	C-3202-28C
C19	.05 MFD. 400V.	C-3204-28C
C20	.1 MFD. 200V.	C-3202-38C
C21	.00025 MFD. MOLDED	C-720-319
C22	.1 MFD. 200V.	C-3202-38C
C23	.00005 MFD. MOLDED	C-720-320
C24	.05 MFD. 200V.	C-3202-28C
C25	.1 MFD. 400V.	C-3204-38C
C26	.05 MFD. 400V.	C-3204-28C
C27	.2 MFD. 400V.	C-3204-40C
C28	.1 MFD. 200V.	C-3202-38C
C29	.00005 MFD. MOLDED	C-720-320
C30	.00005 MFD. MOLDED	C-720-320

C31	.00007 MFD. MOLDED	C-720-349
C32	.00025 MFD. MOLDED	C-720-319
C33	.0001 MFD. MOLDED	C-720-325
C34	.2 MFD. 200V.	C-3202-96C
C35	.1 MFD. 200V.	C-3202-38C
C36	.05 MFD. 200V.	C-3202-28C
C37	.00025 MFD. MOLDED	C-720-319
C38	.1 MFD. 200V.	C-3202-38C
C39	.05 MFD. 400V.	C-3204-28C
C40	.05 MFD. 400V.	C-3204-28C
C41	.1 MFD. 200V.	C-3202-38C
C42	.008 MFD. 600V.	C-3206-72C
C43	.06 MFD. 600V.	C-3206-86C
C44	25 MFD. 350V. ELECT.	A-14113-A
C45	16 MFD. 475V. ELECT.	A-14122-A
C46	25 MFD. 400V. ELECT.	A-14516-A
C47A & C47B	NO.1 I.F. TRIMMER	B-7200-ZZ
C48A & C48B	NO.2 I.F. TRIMMER	B-7200-ZZ
C49A & C49B	NO.3 I.F. TRIMMER	B-7200-BG
C50 C51 & C52	I 5-60 MMFD. TRIMMER	A-14466
	II 5-60 MMFD. TRIMMER	
	III 55-275 MMFD. TRIMMER	
	IV 55-275 MMFD. TRIMMER	
	V 155-450 MMFD. TRIMMER	
	VI 155-450 MMFD. TRIMMER	
C54	.0001 MFD. MOLDED	C-720-325

(Original) Effective June 30, 1939

MODEL 1160
Voltage, Alignment
Socket, Trimmers

SPARKS WITHINGTON CO.



ALIGNMENT CHART

Viso-Glo Tube in socket
AFC switch "OFF"

(see note)

OPERATION	ALIGNMENT OF	GENERATOR CONNECTED TO	DUMMY ANTENNA	GENERATOR FREQUENCY	BAND SWITCH SETTING	TUNING COND. SETTING	TRIMMER
1	I.F.	Conv. Grid	.1 mf.	456	BC	Open	C47 A,B C48 A,B C49 A
2	Discrim.	Conv. Grid	.1 mf.	456	BC	Open	C49 B
3	Broadcast Band	Ant.	200 mmf.	1500	BC	1500	C8 Osc. C5 RF C2 Ant.
4		Ant.	200 mmf.	600	BC	600	C11 Pad
5	(Repeat operation 3)						
6	(Check calibration and sensitivity 1500 KC, 900 KC and 600 KC) *						
7	1st Short Wave	Ant.	100 ohm 200 mmf. series	6 MC.	1st S.W.	6 MC.	C9 Osc. C6 RF C3 Ant.
8		Ant.	200 mmf.	1.95 MC.	1st S.W.	1.95 MC.	C12 Pad
9	(Repeat operation 7)						
10	(Check calibration and sensitivity at 6 MC. and 1.95 MC.)						
11	2nd Short-Wave Band	Ant.	100 ohm 200 mmf. series	18 MC.	2nd S.W.	18 MC.	C10 Osc. C7 R.F. C4 Ant.
12		Ant.		6 MC.	2nd S.W.	6 MC.	C13 Pad
13	(Repeat operation 11)						
14	(Check calibration and sensitivity at 18 MC. and 6 MC.)						
15	(Check operations 1 to 14 inclusive)						

VOLTAGE CHART

Line Voltage: 115 volts AC Position of Volume Control: Full with Antenna Disconnected
Band Selector Switch - BC Band - Manual Tuning AFC Switch - Off

Tube	Function	Voltage of Socket Prongs to Gnd. (See Prong Nos. on Schematic Diagram)								
		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	Grid Cap
6K7G	R-F Amp.	0	0	260	62	0	0	6.2*	0	-.2
6A8G	Converter	0	0	260	112	-.2	150	6.2*	0	-.1
6K7G	1st I-F Amp.	0	6.2*	260	60	0	0	0	0	**
6K7G	2nd I-F Amp.	0	6.2*	260	60	2.7	0	0	2.7	0
6H6G	Discriminator	0	6.2*	**	0	**	-	0	0	-
6J7G	AFC	0	0	240	60	3	0	6.2*	0	0
6Q7G	Det-AVC-1st Audio	0	6.2*	46	**	**	0	0	0	**
6F6G	Power Amp.	0	6.2*	240	260	-.8	0	0	0	-
6F6G	Power Amp.	0	6.2*	240	260	-.8	0	0	0	-
5Y3G	Rectifier	-	390*	-	370*	-	370*	-	390*	-
6E5	Viso-Glo	6.2	**	**	260	-3.4	0	-	-	-

Notes: Voltage and resistance readings are for schematic diagram. Allow 15% + or - on all measurements. Always use meter scale which will give greatest deflection within scale limits. All measurements made with Weston Selective Analyzer No. 665, Type 2.

* AC volts.

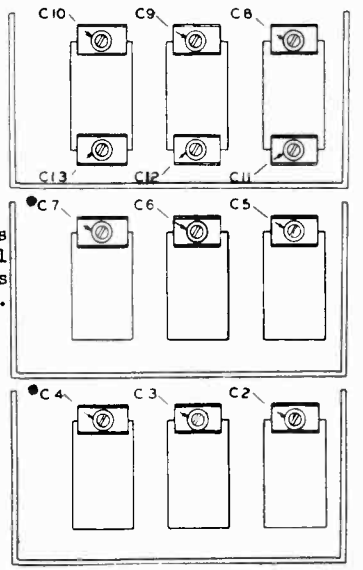
** Cannot be measured with Weston Selective Analyzer No. 665, Type 2.

(Original) Effective June 30, 1939

* Check AFC by connecting generator to converter grid cap and tuning generator and receiver to 1500 KC. Note output meter reading with AFC switch "off". Switch AFC "on" and if output changes appreciably, touch up discriminator trimmer until there is no change in sensitivity.

NOTE: Check to see that dial pointer is parallel to horizontal lines on dial when variable condenser rotor plates are fully meshed with stator plates.

(FRONT OF CHASSIS)

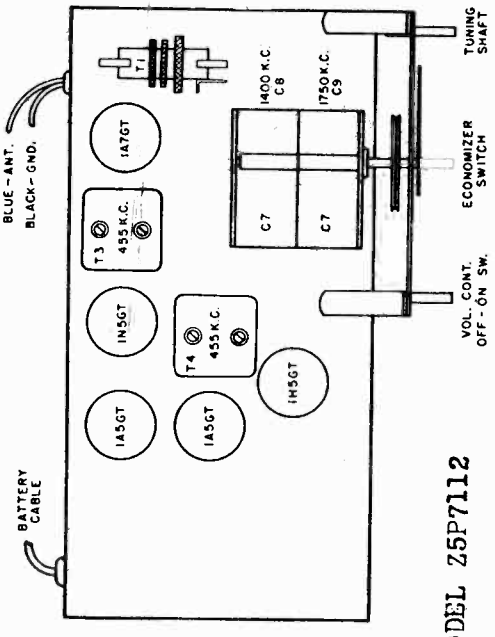


TRIMMER LOCATIONS (Under Chassis)

•Rock dial slightly while adjusting

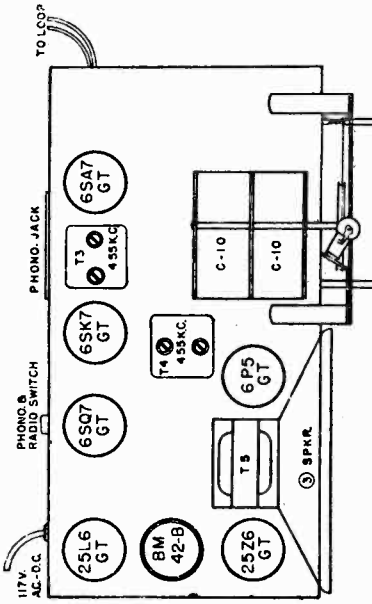
SPIEGEL INC.

MODEL Z5P7026
MODEL Z5P7112
Schematics, Socket Trimmers



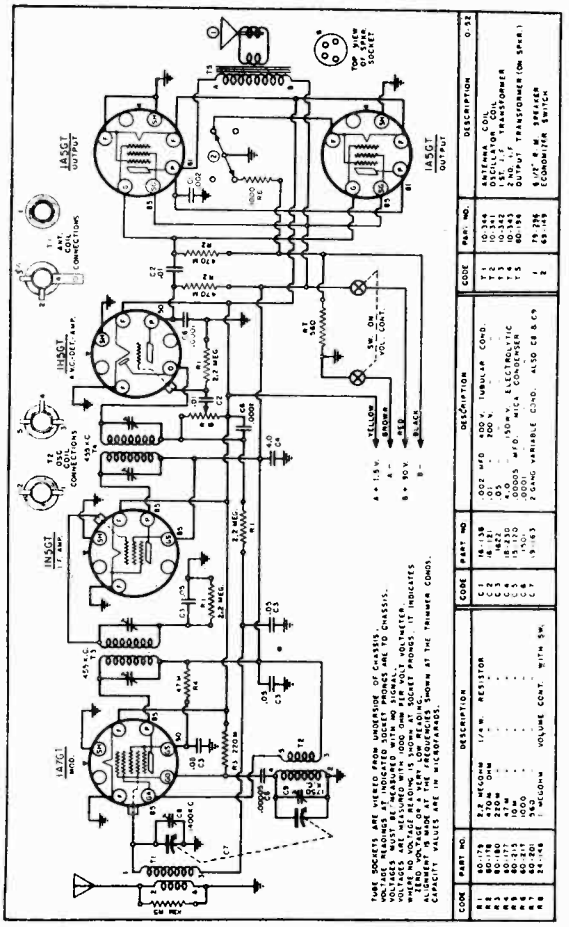
MODEL Z5P7112

FOR CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOLUME V111

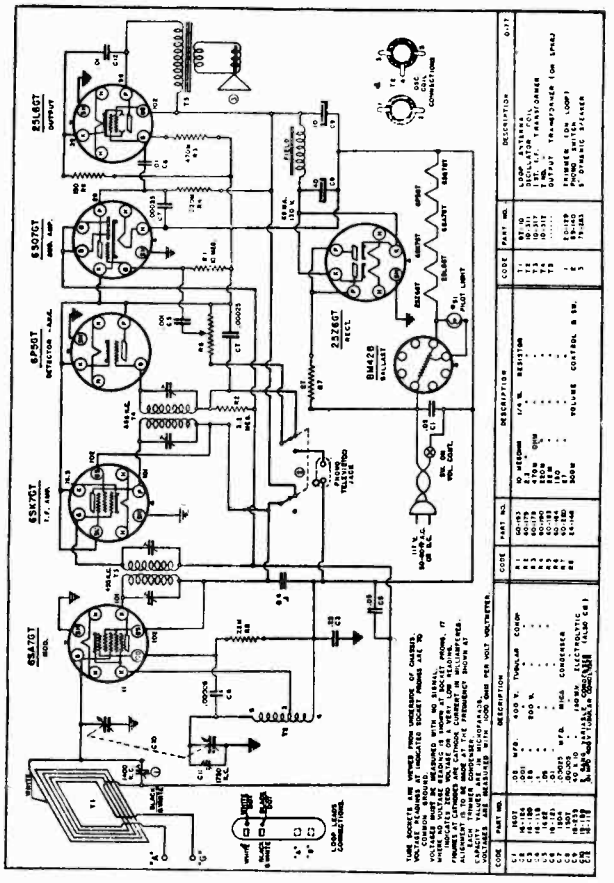


MODEL Z5P7026

LOCATION OF PARTS ON TOP OF CHASSIS BASE.



IF PEAK 455 KC



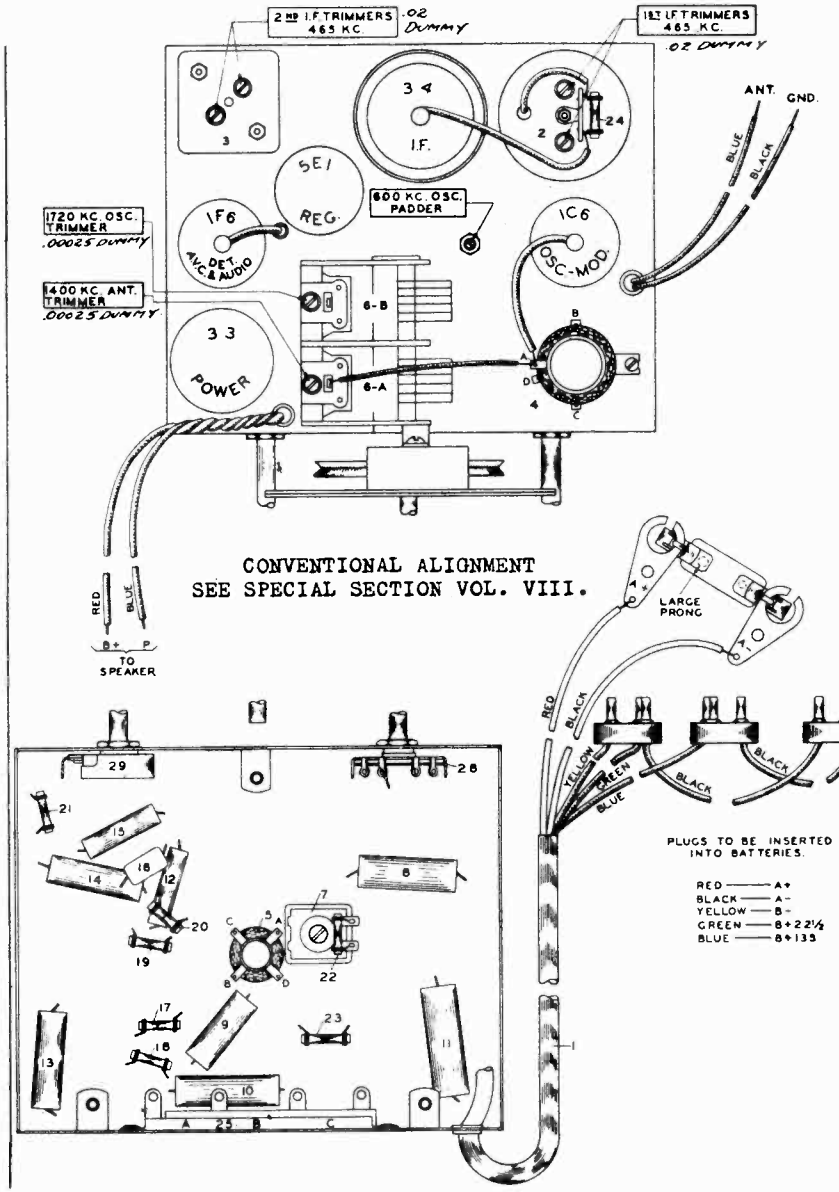
MODEL 128B
MODEL 6700
Alignment

SPIEGEL INC.

MODELS 1204 to 1207
Chassis, Socket, Trimmers

MODELS 1204, 1205, 1206 and 1207
Chassis 80B

Place band switch for operation on:	Set receiver dial to:	TEST OSCILLATOR: Adjust test oscillator frequency to:	TEST OSCILLATOR: Use dummy antenna in series with output of test oscillator consisting of:	TEST OSCILLATOR: Attach output of test oscillator to:	MODEL 128B — Refer to parts layout diagram for location of trimmers mentioned below and:
I.F. alignment use any band position	Any point where no interfering signal is received	Exactly 455 K.C.	.02 Mfd. condenser	High side to grid cap of 1C7G tube. Do not remove cap.	Adjust each of the second I.F. transformer trimmers for maximum output—then adjust each of the first I.F. transformer trimmers for maximum output.
1730 to 540 K.C.	1 Exactly 1730 K.C.	Exactly 1730 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	Adjust 1730 K.C. oscillator trimmer for maximum output.
	2 Exactly 1400 K.C.	Exactly 1400 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	Adjust 1400 K.C. antenna trimmer for maximum output.
	3 Approximately 600 K.C.	Approximately 600 K.C.	.00025 Mfd. condenser	Receiver blue antenna lead	While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
5.7 to 18.1 M.C. BAND	1 Exactly 18.1 M.C.	Exactly 18.1 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	Adjust 18.1 M.C. oscillator trimmer for maximum output—be sure to use proper peak. If more than one peak is noticed, back off trimmer to minimum capacity, then screw down trimmer (add capacity) until the second peak—which is the proper one to use is tuned in.
	2 Exactly 15 M.C.	Exactly 15 M.C.	400 Ohm carbon resistor	Receiver blue antenna lead	Adjust 15 M.C. antenna trimmer for maximum output.



ALIGNING I.F. STAGE AT 465 KILOCYCLES: MODEL 6700 - CHASSIS 68B

(a) Attach the ground lead of the test oscillator to the chassis. Connect the other lead to the grid cap of the 6A7 tube through a .02 Mfd. series condenser. DO NOT REMOVE GRID CLIP.
(b) Set test oscillator to EXACTLY 465 kilocycles and turn receiver volume control on full.
(c) Peak each of the second I.F. transformer trimmers.
(d) Peak each of the first I.F. transformer trimmers.

ALIGNING 1720-535 KILOCYCLE BAND:

(a) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh), at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If the dial needle does not point exactly to the last line move needle to correct position.
(b) Remove test oscillator lead from grid of 6A7 tube and connect to receiver antenna lead through a .00025 Mfd. series condenser.
(c) Adjust band selector switch for operation on the 1720-535 kilocycle band.
(d) Set test oscillator frequency and receiver dial to EXACTLY 1720 kilocycles, and BRING IN 1720 KILOCYCLE TEST OSCILLATOR SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 1720 KILOCYCLE OSCILLATOR TRIMMER.
(e) Tune receiver dial and set test oscillator frequency to EXACTLY 1400 kilocycles. Adjust 1400 K.C. preselector and antenna trimmers for maximum sensitivity.
(f) Set test oscillator frequency and receiver dial to approximately 600 kilocycles. Then while rocking gang condenser slightly to right and left, adjust 600 K.C. oscillator padder for maximum signal response.

ALIGNING 1.8-5.8 MEGACYCLE BAND:

(a) Replace .00025 Mfd. test oscillator antenna lead series condenser with a 400 ohm resistor.
(b) Adjust band selector switch to 1.8-5.8 megacycles, tune receiver dial and set test oscillator frequency to EXACTLY 5.8 megacycles. Bring in 5.8 megacycle test signal to maximum output by adjusting 5.8 M.C. oscillator trimmer.
(c) Tune receiver dial and test oscillator frequency to EXACTLY 5 megacycles, and adjust 5 M.C. antenna trimmer for maximum sensitivity.

ALIGNING 5.8-18.3 MEGACYCLE BAND:

(a) Leave 400 ohm resistor in series with test oscillator lead and place band selector switch for operation on 5.8-18.3 megacycle band, tune receiver dial and set test oscillator frequency to EXACTLY 18 megacycles.
(b) Adjust 18 M.C. oscillator trimmer to bring in 18 megacycle test signal to maximum output.

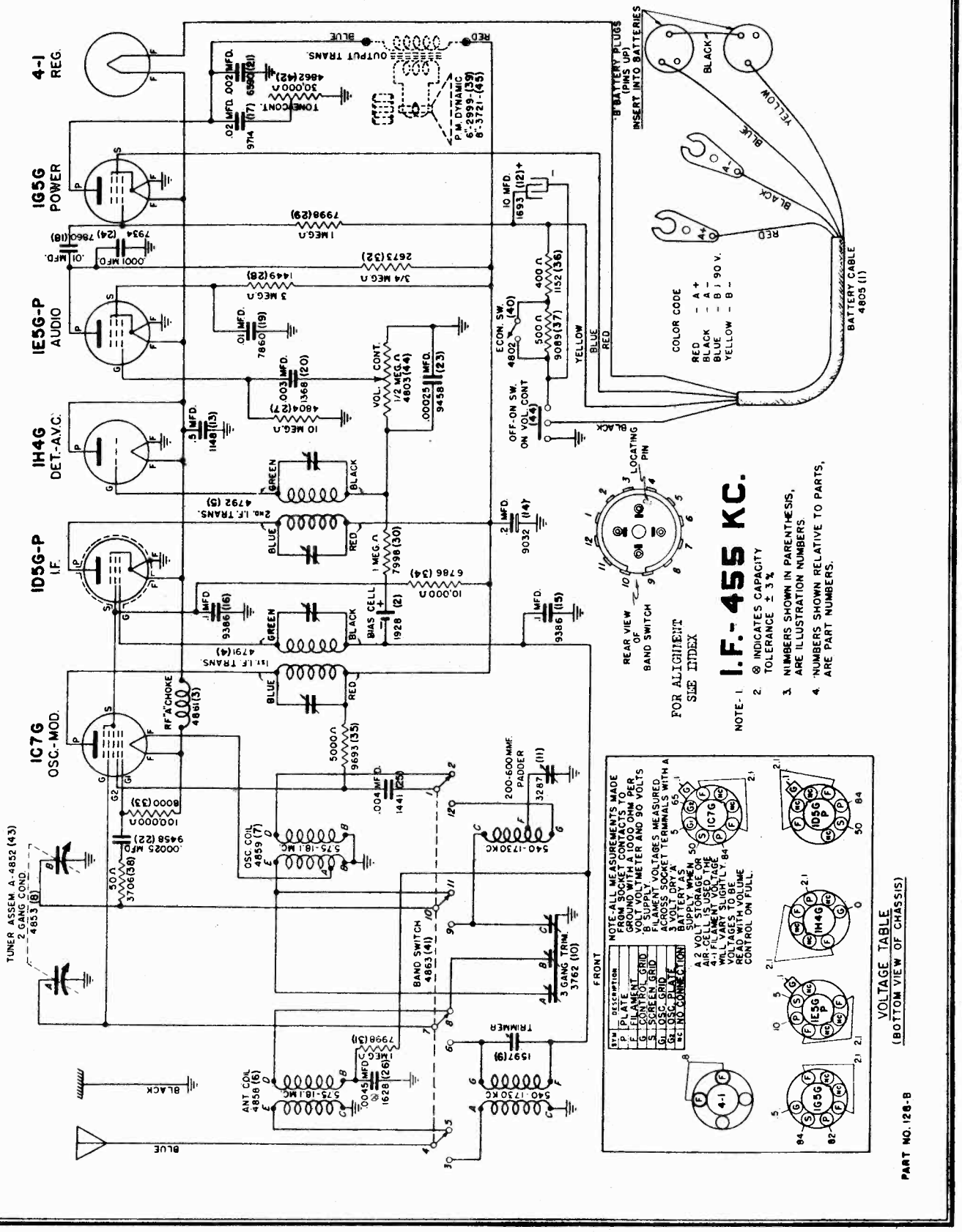
NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity, then screw down the trimmer (add capacity) until the FIRST PEAK which is the fundamental and the proper one to use is tuned in. If the trimmer is screwed down beyond the point where the first peak is received the incorrect image peak will be tuned in. After completing adjustment of the oscillator trimmer at 18 megacycles, always check to see if the proper peak has been used. To do this leave test oscillator frequency at 18 megacycles, increase the output of the test oscillator and tune receiver dial to approximately 17 megacycles. Then vary the receiver dial slightly to the right and left of 17 megacycles, and if the fundamental peak was used in aligning at 18 megacycles the test oscillator signal will be heard at approximately 17 megacycles on the receiver dial.

(c) Tune receiver dial and set test oscillator frequency to EXACTLY 15 megacycles.
(d) Rock gang condenser slightly to right and left and adjust 15 M.C. antenna trimmer for maximum 15 megacycle test signal response.

SPIEGEL INC.

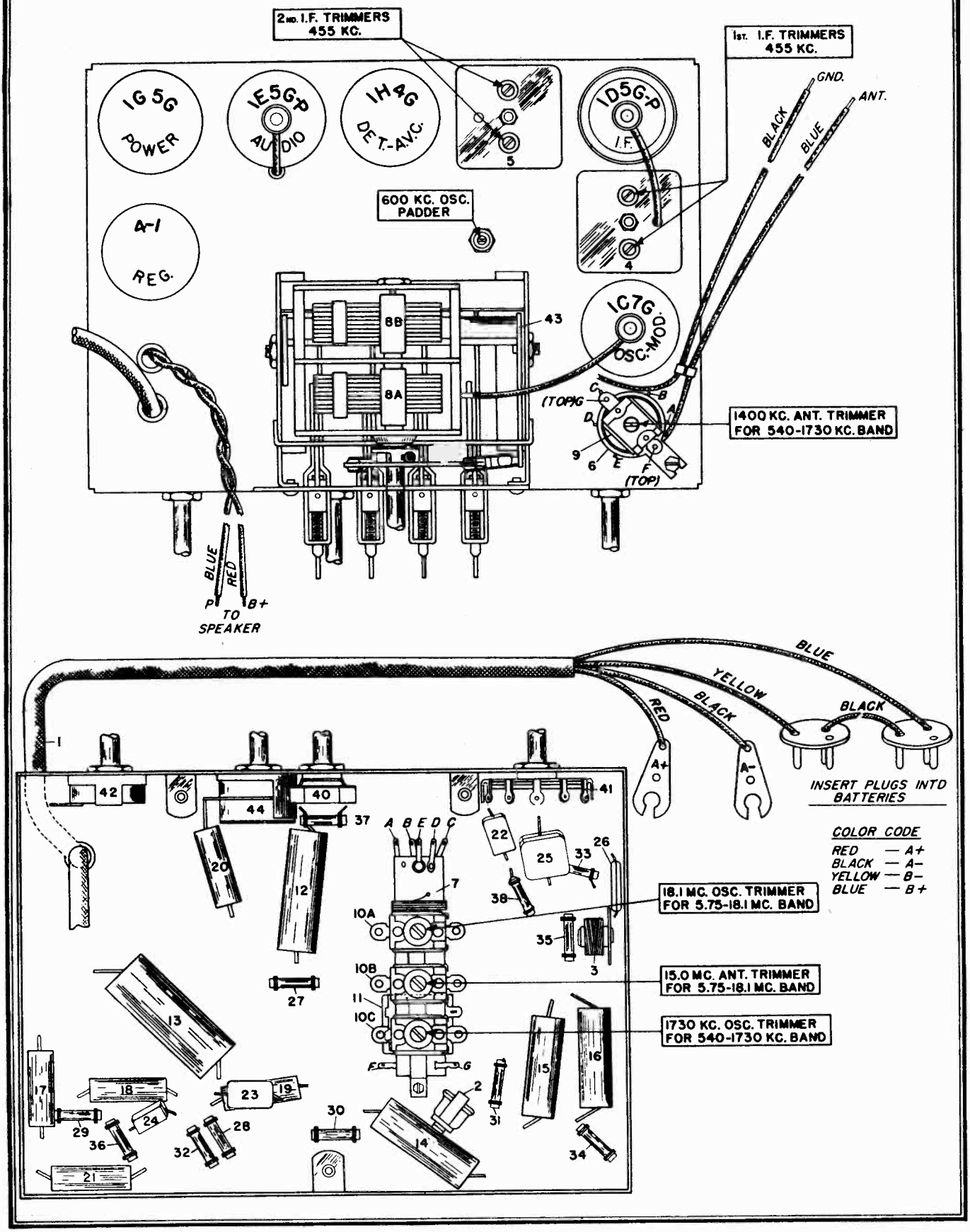
MODEL 128B
Schematic
Voltage, Socket

TWO BAND—SIX TUBE INCLUDING BALLAST TUBE
2 Volt Battery Operated Superheterodyne Receiver



MODEL 128B
Chassis, Socket
Trimmers

SPIEGEL INC.

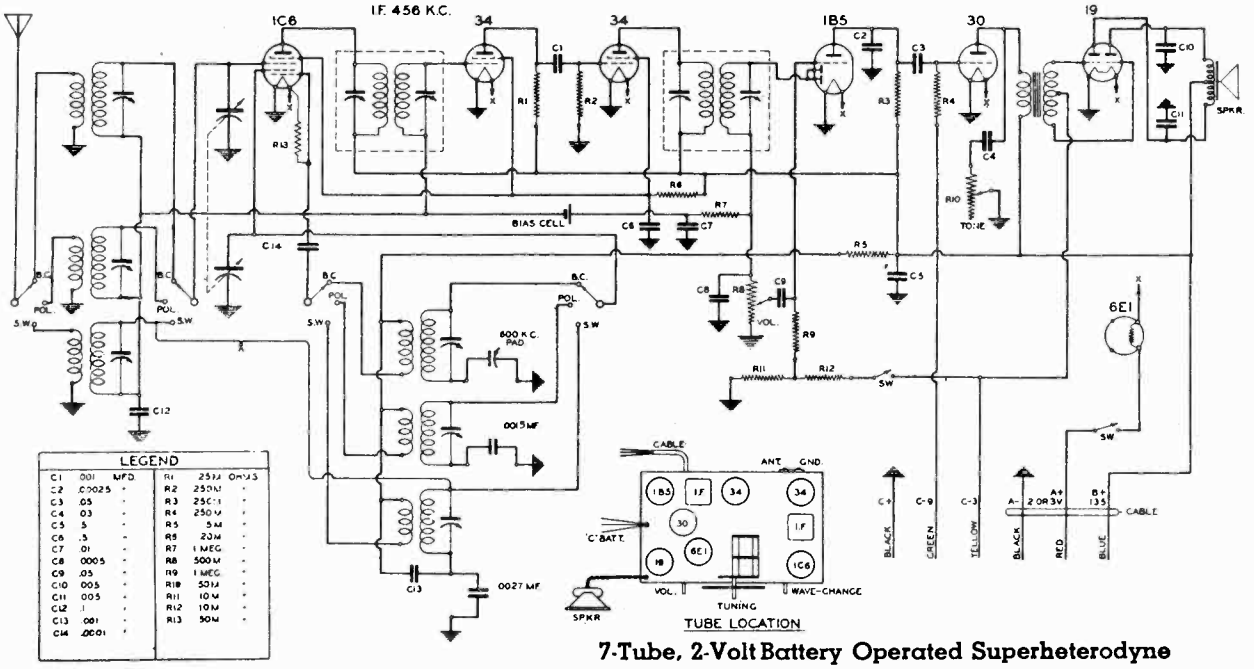


SPIEGEL INC.

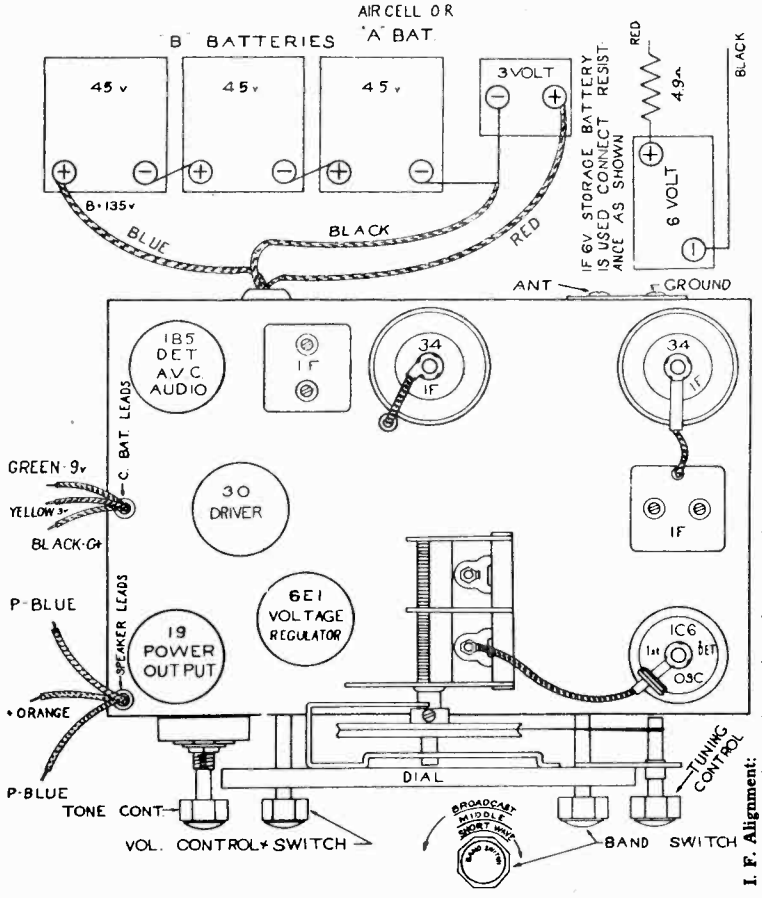
MODELS 142,154,6602,6650
Chassis 725
Schematic,Socket,Trimmers
Alignment

A good ground connection to a water pipe or other metallic conductor entering into the ground for some distance is ESSENTIAL.

IF PEAK 456 KC



7-Tube, 2-Volt Battery Operated Superheterodyne



I. F. Alignment: Connect the oscillator through a .1 condenser to the grid of the 1C6 tube and set the oscillator to 456 kilocycles. Peak each I. F. stage to resonance as indicated by maximum output on the output meter.

R. F. Alignment:

With the wave change switch in the broadcast position, set the oscillator to 1700 kilocycles and connect in series with a .00025 condenser to the antenna of the receiver. Rotate the variable condenser to the 1700 setting of the dial and adjust the trimmer condenser of the broadcast oscillator to resonance. This trimmer is located on the right side of the chassis, second position from the front. Reset the test oscillator to 1400 kilocycles and adjust antenna trimmer located under the chassis. Now set oscillator to 600 kilocycles and adjust padder located on top of the chassis. Check alignment at 1000 kilocycles.

For aligning the police band, set test oscillator to 5 megacycles and switch to the police band position on the set. With the condenser rotated to this frequency setting as indicated on the dial, adjust oscillator trimmer located on the right side of the chassis, first position from the front. Now adjust antenna trimmer located on the front of the chassis, left position, to resonance.

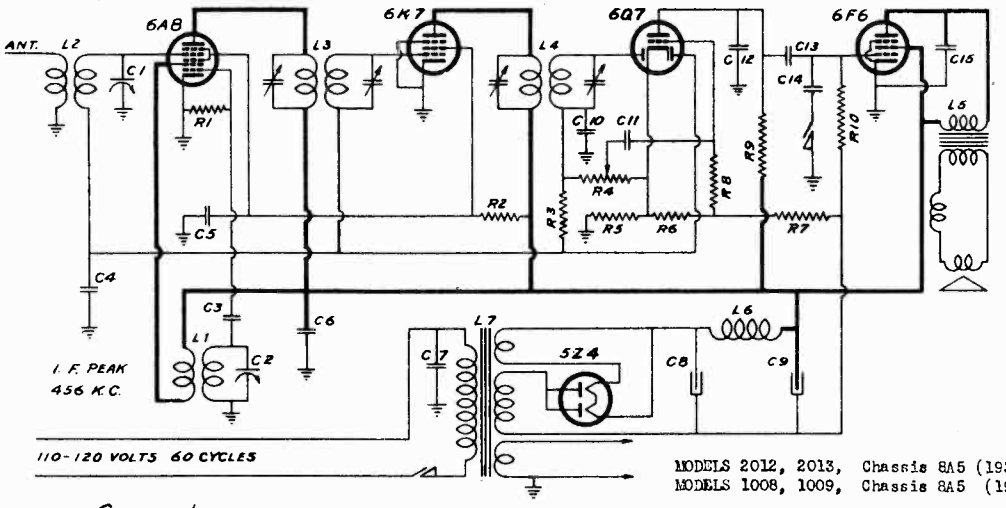
The short wave band is aligned by setting the condenser to 18 megacycles and adjust the oscillator trimmer located on the right side of the chassis, third position from the front to resonance with an 18 megacycle signal from the test oscillator. Turn dial to 16 M. C. Set test oscillator to 16 M. C. and adjust antenna trimmer through right hand hole in front of chassis, rocking variable condenser slightly back and forth to get maximum peak.

MODELS 1008,1009,Ch.8A5(1939)
2012,2013,Ch.8A5(1938)
MODELS 2006,2007,Ch.1T
Schematics,Alignment

SPIEGEL INC.

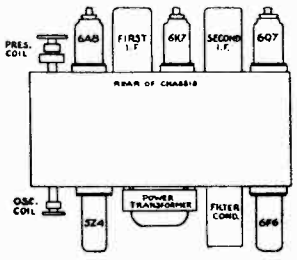
25-2149

SCHEMATIC DIAGRAM — CHASSIS MODEL 8A5



MODELS 2012, 2013, Chassis 8A5 (1938)
MODELS 1008, 1009, Chassis 8A5 (1939)

CHASSIS LAYOUT



CODE OF SCHEMATIC DIAGRAM

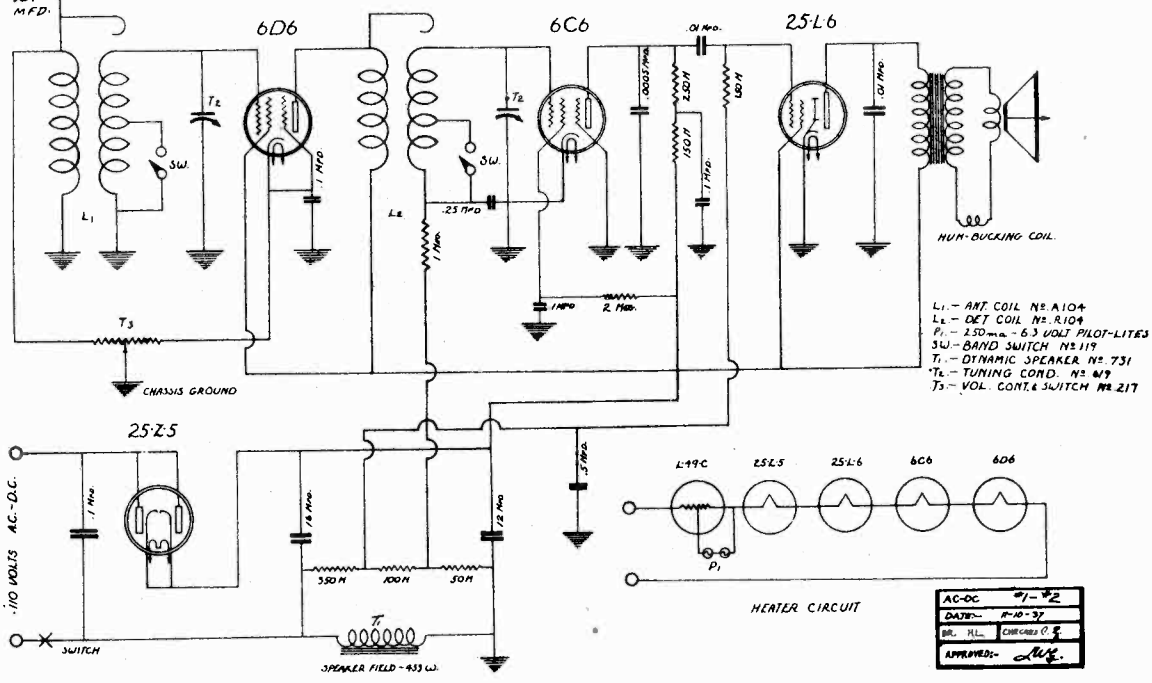
RESISTORS			
R1	53-998	50,000 Ohm 1/4 Watt Resistor	
R2	53-1042	25,000 Ohm 1/4 Watt Resistor	
R3	53-928	1 Meg Ohm 1/4 Watt Resistor	
R4	19-2007	500,000 Ohm Vol. Cont. & Switch	
R5	58-2019	40 Ohm 30 Ohm 240 Ohm	Candohm Resistor
R6	53-926	500,000 Ohm 1/4 Watt Resistor	
R9	53-924	250,000 Ohm 1/4 Watt Resistor	
R10	53-925	800,000 Ohm 1/4 Watt Resistor	
CONDENSERS			
C1,C2	77-2007	Two Gang Variable Condenser	
C3	75-2002	.000005 Mfd. Mica Condenser	
C4	75-2005	.1 Mfd. 200 V. Paper Cond.	
C5	75-2008	.1 Mfd. 200 V. Paper Cond.	
C6	75-2006	.1 Mfd. 200 V. Paper Cond.	
COND. (Cont.)			
C7	75-2003	.01 Mfd. 400 V. Paper Cond.	
C8	18-2008	6 Mfd. 350 W.V. Elect. Cond.	
C9	18-2008	6 Mfd. 250 W.V. Elect. Cond.	
C10	76-307	.0005 Mfd. Mica Condenser	
C11	75-2006	.1 Mfd. 200 V. Paper Cond.	
C12	75-2014	.001 Mfd. 600 V. Paper Cond.	
C13	75-2008	.1 Mfd. 200 V. Paper Cond.	
C14	75-2003	.01 Mfd. 400 V. Paper Cond.	
C15	75-2002	.004 Mfd. 600 V. Paper Cond.	

ALIGNMENT FREQUENCIES
1400 KC, 1000 KC and 600 KC
FOR CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION OF VOLUME VIII

MODELS 2006 and 2007 - Chassis 1T

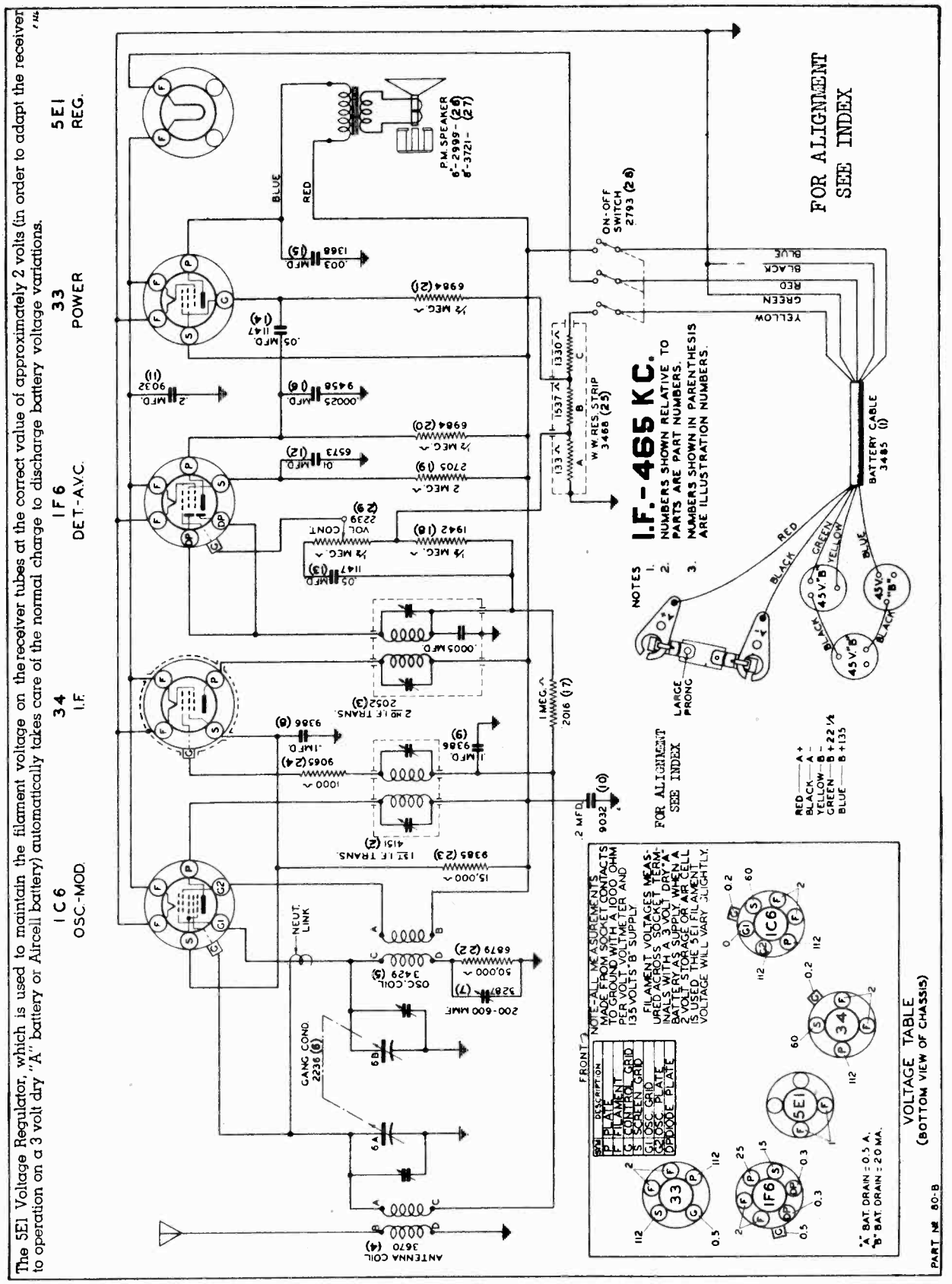
ALIGNMENT PROCEDURE: The alignment of this receiver requires the use of a test oscillator that covers a frequency range from 540 to 4000 KC. For exact alignment an output meter should be connected across the output transformer on the speaker. A dummy antenna of approximately 180 mmfd. should be used and connected to antenna with aerial coil left unwound.

Adjust oscillator to 1400 KC. Turn knob controlling dial to 1400 on the dial. Rotate adjustment screws on tuning condenser until maximum output is produced. (with Volume Control at maximum). Reset oscillator to 1000 KC and finally to 600 KC and check. The receiver should check OK at these points for alignment. It is only necessary to re-adjust at one point on the dial due to the original alignment at the factory.



SPIEGEL INC.

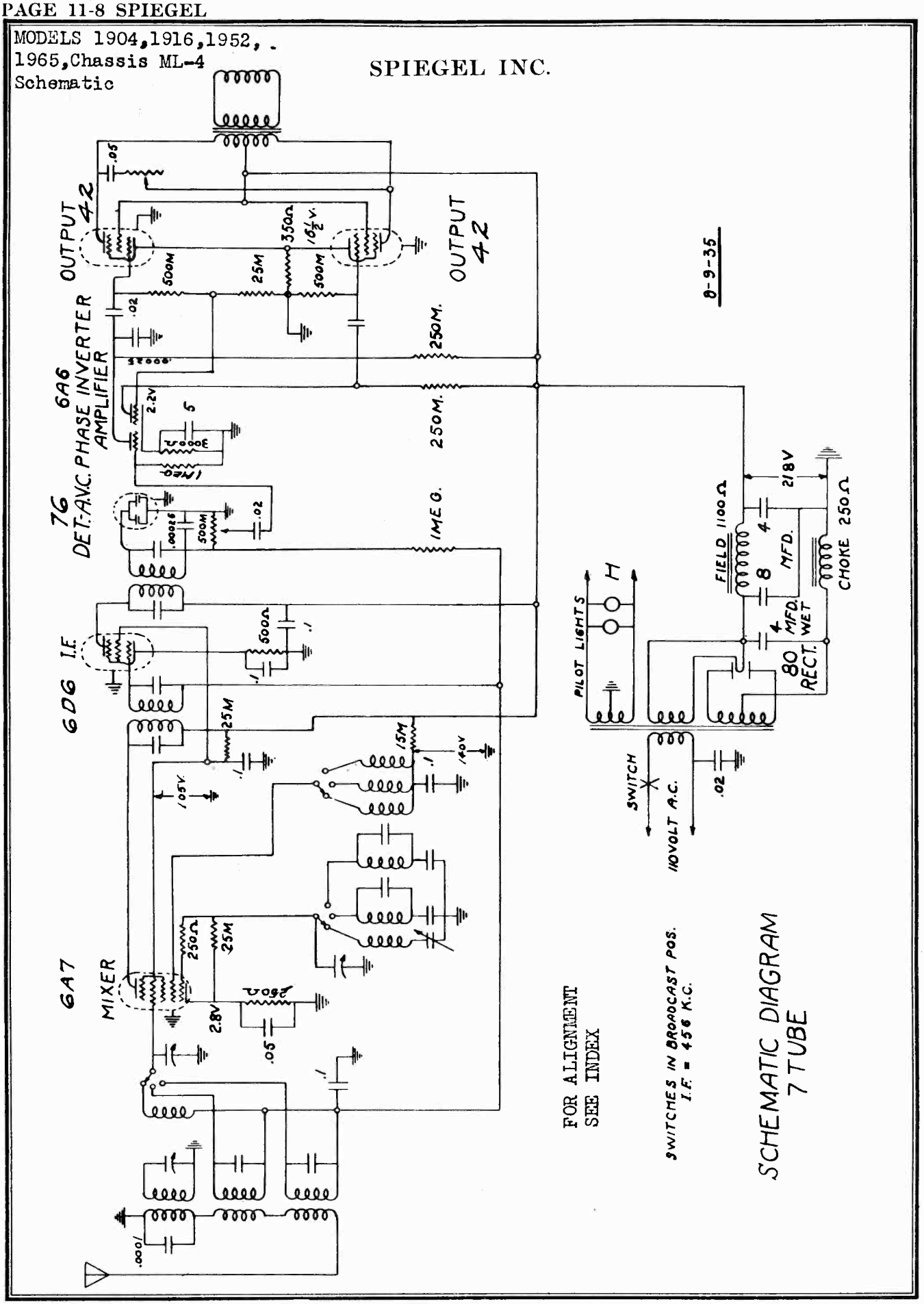
MODELS 1204 to 1207 incl.
Chassis 80B
Schematic, Voltage, Socket



The 5E1 Voltage Regulator, which is used to maintain the filament voltage on the receiver tubes at the correct value of approximately 2 volts (in order to adapt the receiver to operation on a 3 volt dry "A" battery or Aircell battery) automatically takes care of the normal charge to discharge battery voltage variations.

MODELS 1904,1916,1952, 1965,Chassis ML-4
Schematic

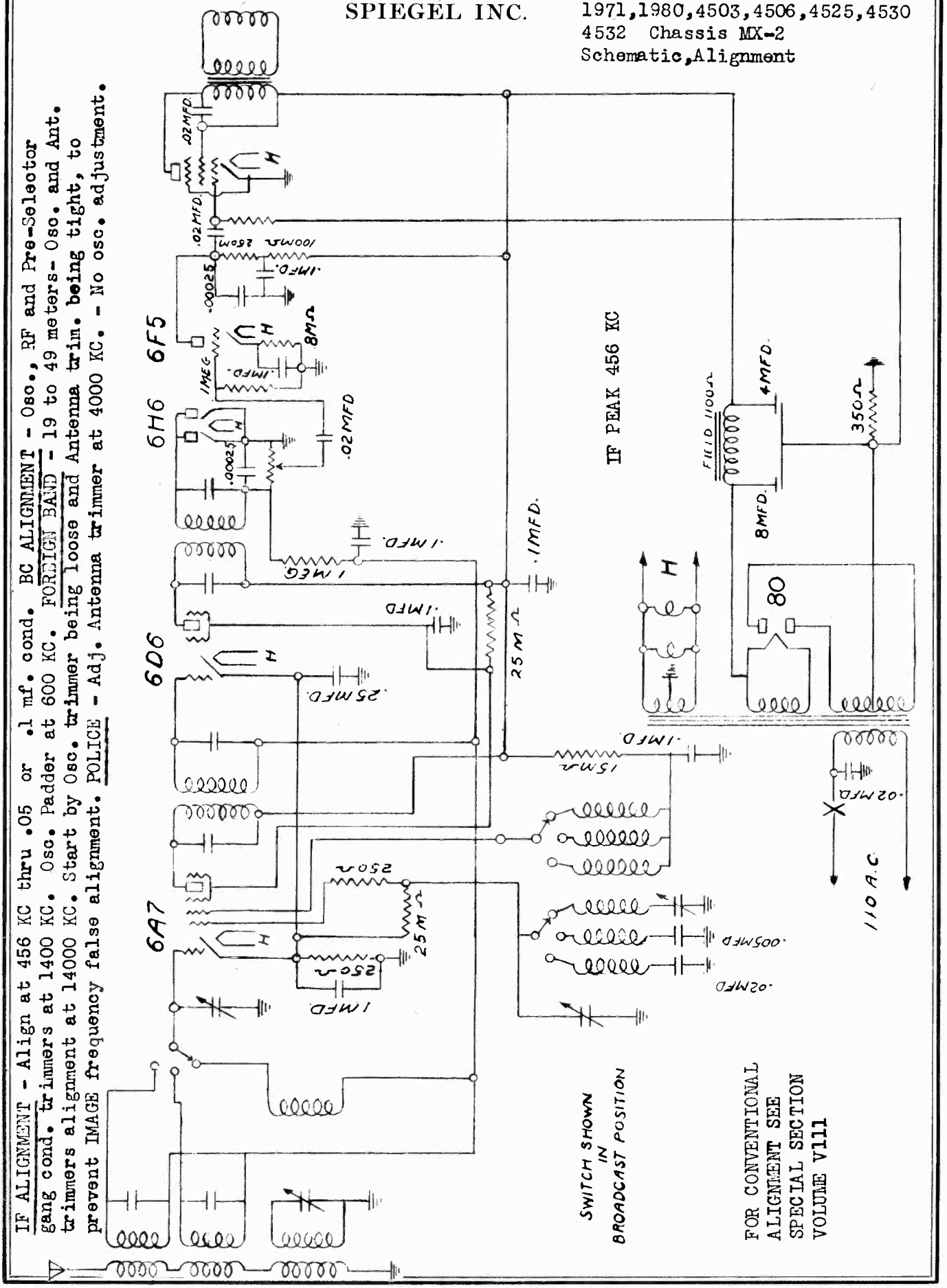
SPIEGEL INC.



SPIEGEL INC.

MODELS 1902,1917,1926,1936,1959
1971,1980,4503,4506,4525,4530
4532 Chassis MX-2
Schematic,Alignment

IF ALIGNMENT - Align at 456 KC thru .05 or .1 mf. cond. BC ALIGNMENT - Osc., RF and Pre-Selector gang cond. trimmers at 1400 KC. Osc. Padder at 600 KC. FOREIGN BAND - 19 to 49 meters- Osc. and Ant. trimmers alignment at 14000 KC. Start by Osc. trimmer being loose and Antenna trim. being tight, to prevent IMAGE frequency false alignment. POLICE - Adj. Antenna trimmer at 4000 KC. - No osc. adjustment.

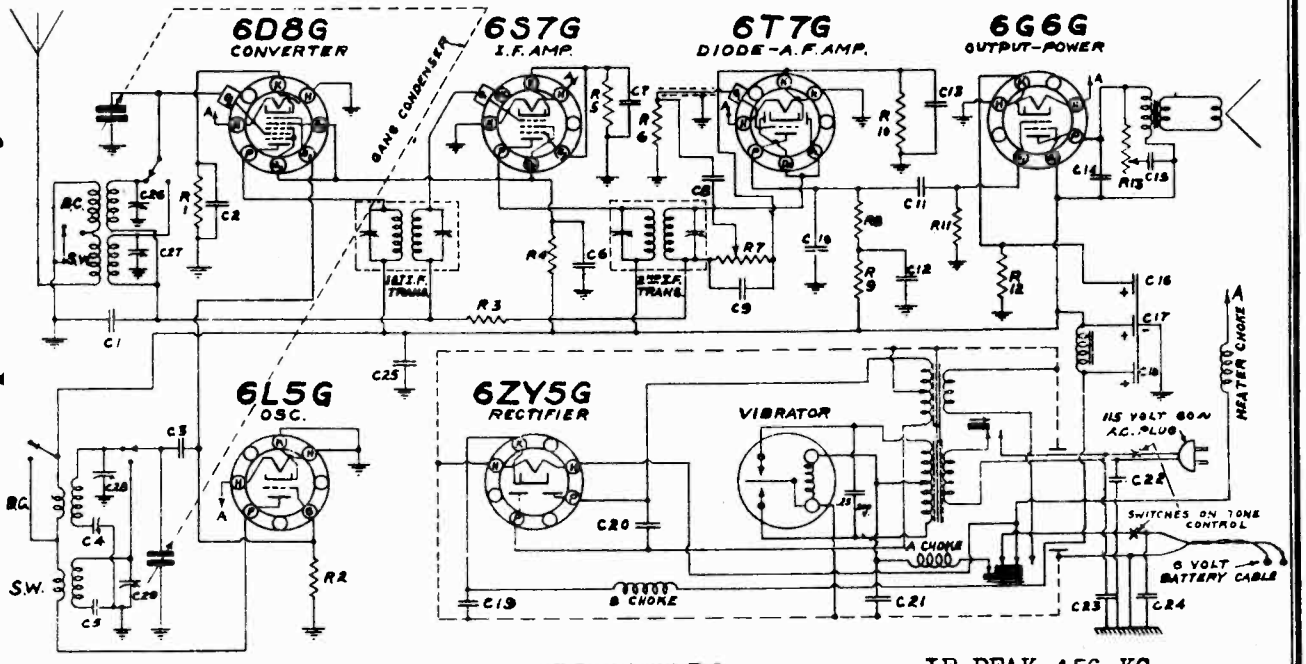


MODELS 2006, 2007, 4040
Chassis 6A

SPIEGEL INC.

Schematic, Socket
Trimmers, Alignment

Six Tube 6 Volt Battery 110-120 Volt AC Superheterodyne



IF PEAK 456 KC

CONDENSERS

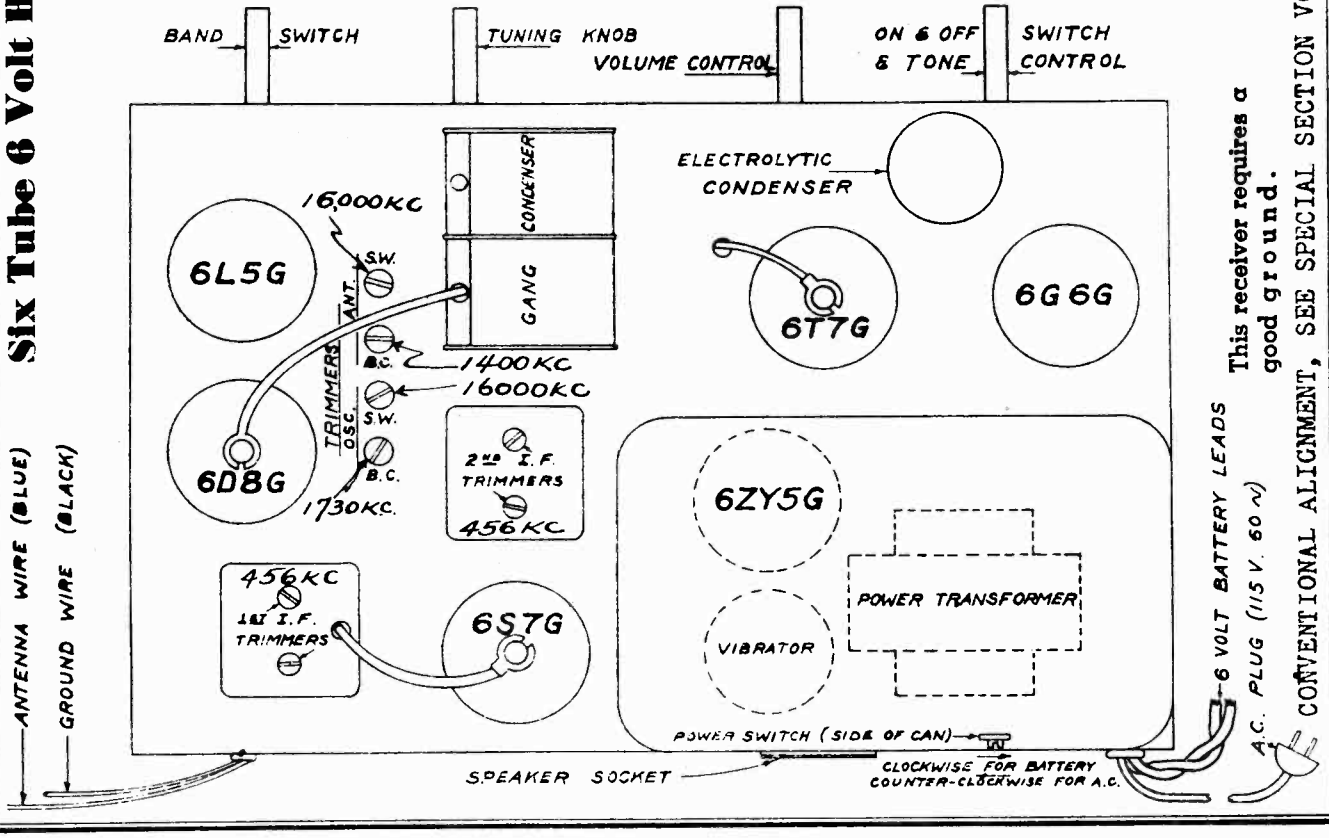
No	CAPACITY	TYPE	No	CAPACITY	TYPE
1	.05 Mfd.	200 V.	13	.6 Mfd.	200 V.
2	.05 Mfd.	200 V.	14	.005 "	600 V.
3	100 mmf.	MICA	15	.05 "	400 V.
4	300-500 mmf	"	16	8. "	25 V.
5	4000 mmf	M. ± 5%	17	8. "	200 V.
6	.1 Mfd	200 V.	18	8. "	200 V.
7	.05 "	200 V.	19	.01 "	600 V.
8	.01 "	400 V.	20	.015 "	600 V.
9	250 mmf.	MICA	21	.5 "	10 V.
10	250 "	"	22	.05 "	400 V.
11	.01 Mfd.	400 V.	23	.01 "	600 V.
12	.1 "	200 V.	24	.5 "	10 V.
			25	.1 "	200 V.

RESISTORS

No	OHMS	WATTS	SPL. TOL.
1	1500	1/2	± 10%
2	50,000	1/2	
3	1,000,000	1/2	
4	38,000	1/2	
5	1,000	1/2	± 10%
6	1,000,000	1/2	(VOL. CONT)
7	500,000	1/2	
8	500,000	1/2	
9	200,000	1/2	
10	10,000	1/2	± 10%
11	600,000	1/2	
12	450	1/2	± 10%
13	100,000	1/2	(TONE CONT.)

BAND SWITCH IN BROADCAST POSITION.
POWER SWITCH IN BATTERY POSITION.
I.F. — 456 K.C.
C26 TO C29 - 2 TO 20 mmf. TRIMMERS

SCHEMATIC DIAGRAM 6A

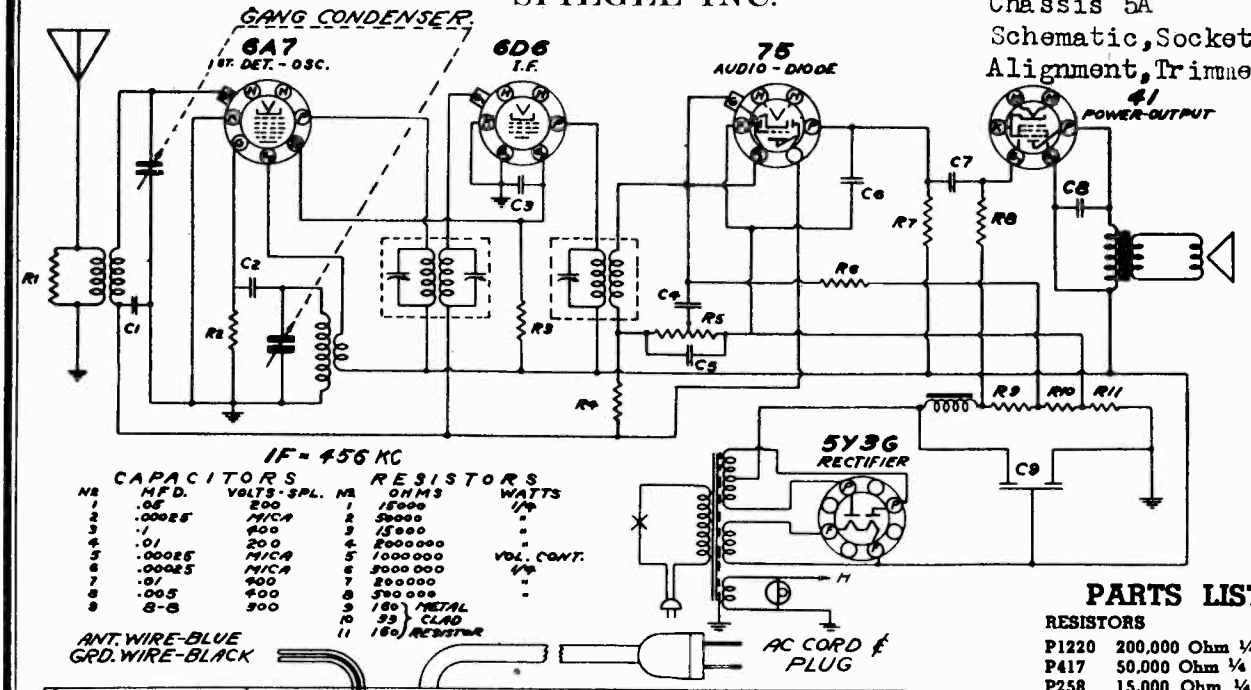


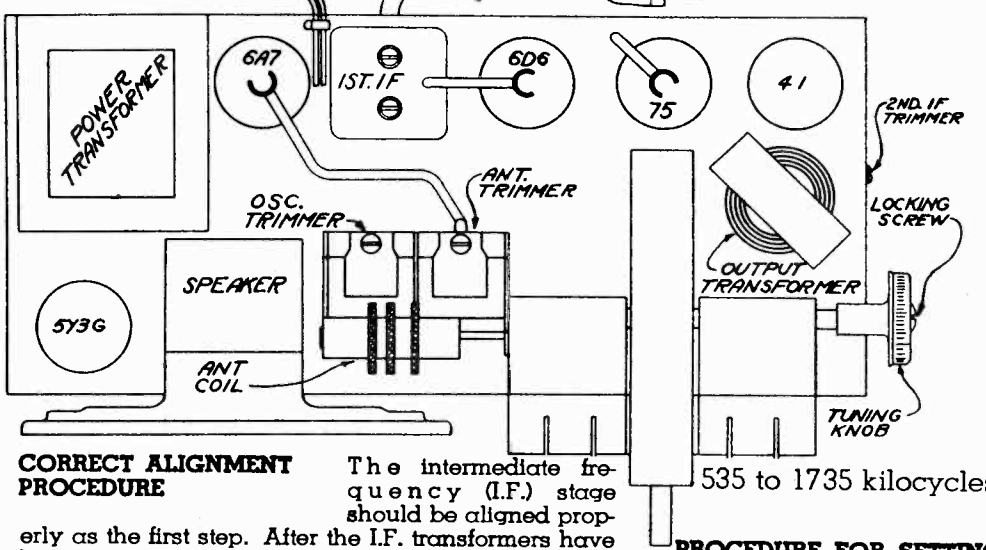
This receiver requires a good ground.

CONVENTIONAL ALIGNMENT, SEE SPECIAL SECTION VOL. VIII

SPIEGEL INC.

MODELS 2014, 2015, 2016
Chassis 5A
Schematic, Socket, Tuner
Alignment, Trimmers





PARTS LIST

RESISTORS

P1220	200,000 Ohm ¼ Watt
P417	50,000 Ohm ¼ Watt
P258	15,000 Ohm ¼ Watt
P137	500,000 Ohm ¼ Watt
P1114	2,000,000 Ohm ¼ Watt
P2438	Candohm Resistor

CONDENSERS

P164	.01 Mfd. 400 Volt
P1322	.005 Mfd. 600 Volt
P334	.05 Mfd. 400 Volt
P148	.05 Mfd. 200 Volt

MICA CONDENSERS

P817	.00025

ELECTROLYTIC CONDENSERS

P2397	Dual 8 Mfd. 300 W.V.

ADJUSTABLE CONDENSERS

P2411	Gang Condenser

TRANSFORMERS AND COILS

P2395	110 V. Power Transformer
P2396	125 V. Power Transformer
P2391	Output Transformer
P1506	1st I.F. Transformer
P2394	2nd I.F. Transformer
P2412	Oscillator Coil
P2393	Antenna Coil

CORRECT ALIGNMENT PROCEDURE

The intermediate frequency (I.F.) stage should be aligned properly as the first step. After the I.F. transformers have been properly adjusted and peaked, the Broadcast Band alignment should be the next procedure.

I.F. ALIGNMENT

Adjust the test oscillator to 456 KC and connect the output to the grid of the first detector tube (6A7) through a .05 or .1 mfd. condenser. The ground on the test oscillator can be connected to the chassis ground. Align all three I.F. trimmers to peak or maximum reading on the output meter.

BROADCAST BAND ALIGNMENT

Adjust the oscillator to 1730 KC and connect the output to the antenna lead (Blue) through a .0002 mfd. mica condenser. Set the gang condenser to minimum capacity and adjust the gang condenser trimmer (oscillator) to receive this signal. After this has been carefully done, the next step is to set the generator to 1400 KC and after tuning in the signal adjust the antenna trimmer to peak. This is all that is necessary for the alignment unless the plates of the gang condenser have been bent out of shape. In case of bent plates, set the test oscillator and the receiver to 600 KC and bend the plates into the position for maximum output.

PROCEDURE FOR SETTING UP AND OPERATING AUTOMATIC PUSH BUTTONS

Select four strong local stations tuned in regularly. Now loosen **Locking Screw** (see chassis layout) several turns with a coin or a screw driver and press in any one of the four push buttons. Holding the button down, tune in any one of four selected stations by rotating the tuning knob (side knob) slowly back and forth until the signal is cleared.

Release the push button and press in another button and hold down, tuning in another favorite station with tuning knob. Follow the same procedure for the remaining stations. Now hold tuning knob (side knob) securely and with coin or screw driver, tighten locking screw. This screw holds all stations in adjustment.

In order to change any station already set up, to another, hold tuning knob securely, loosen locking screw and select the new station as explained above. Tear the correct station call letter tabs from the set of sheets supplied and push them into rectangular windows above each push button.

The automatic push button dial is now set up for quick tuning.

MODELS 2056, 2057
Chassis 645
Schematic, Voltage

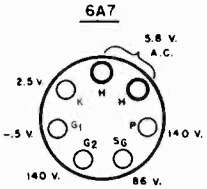
SPIEGEL INC.

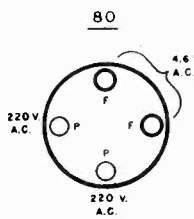
Socket, Trimmers
Alignment

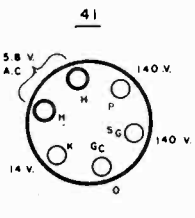
VOLTAGE DIAGRAM

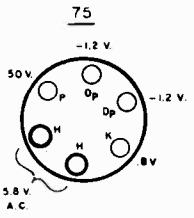
VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER
ALL VOLTAGES EXCEPT HEATERS MEASURED TO GROUND
(BOTTOM VIEW OF CHASSIS)

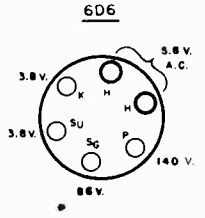
F -FILAMENT
H -HEATER
P -PLATE
K -CATHODE
G1 -OSC GRID
G2 -OSC. PLATE
Gc -CONTROL GRID
Dp -DIODE PLATE
Sg -SCREEN GRID
Su -SUPPRESSOR







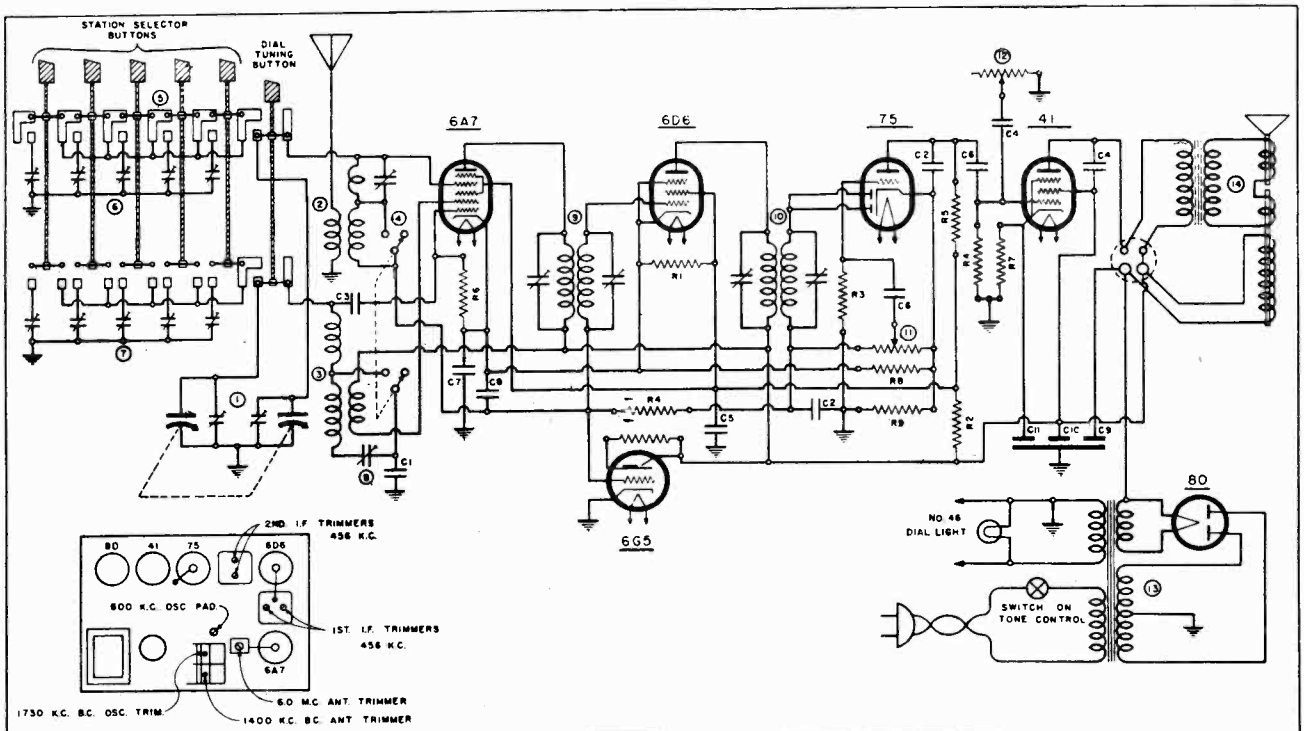




645

FOR CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION OF VOLUME V111

FOR TUNER DATA SEE VOLUME X PAGE 10-8



PART NO		DESCRIPTION				
R1	6117	25,000	OHM	1/2 W	CARBON	RES.
R2	6105	10,000	"	"	"	"
R3	6017	1 MEG.	"	1/3 W	"	"
R4	6018	500,000	"	"	"	"
R5	6056	200,000	"	"	"	"
R6	6028	40,000	"	"	"	"
R7	6052	800	"	"	"	"
R8	60-151	160	"	"	"	" 10%
R9	60-150	51	"	"	"	" 10%

PART NO		DESCRIPTION				
C1	15-101	.00148	MFD.	MICA CONDENSER		5%
C2	1504	.00025	"	"	"	"
C3	1501	.0001	"	"	"	"
C4	1651	.004	"	600 V.	TUBULAR	COND.
C5	1607	.05	"	400 V.	"	"
C6	1603	.01	"	"	"	"
C7	1614	.25	"	200 V.	"	"
C8	1622	.05	"	"	"	"
C9	18-102	8	"	250 V.	WET ELECTROLYTIC	
C10	"	4	"	"	"	"
C11	"	4	"	25 V.	"	"

PART NO		DESCRIPTION 645
1	19-113	2 GANG CONDENSER
2	10-196	ANTENNA COIL
3	10-147	OSCILLATOR COIL
4	69-108	WAVE SWITCH
5	69-115	6 BUTTON PUSH-BUTTON SWITCH
6	20-106	ANT. TRIMMER STRIP
7	20-107	OSC. " "
8	20-100	B.C. OSC. PADDING TRIMMER
9	10-194	IST. I.F. TRANSFORMER
10	10-195	2ND. I.F. "
11	24-105	VOLUME CONTROL
12	26-106	TONE CONTROL WITH SWITCH
13	80-104	POWER TRANSFORMER
14		SPEAKER

SPIEGEL INC.

MODELS 2104 to 2107
Chassis 1095B
MODELS 4510,4556
Chassis 1091B
Automatic Tuner
Assembly, Data

SERVICE NOTES for "AUTOMATIC-TUNE" WHEEL DIAL

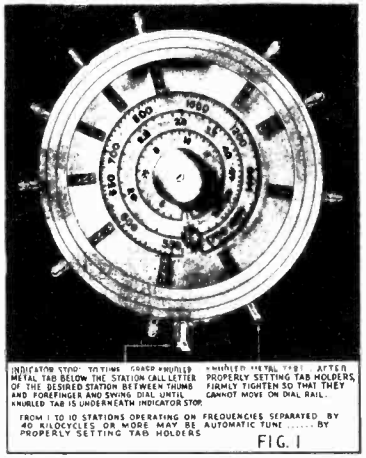


FIG. 1

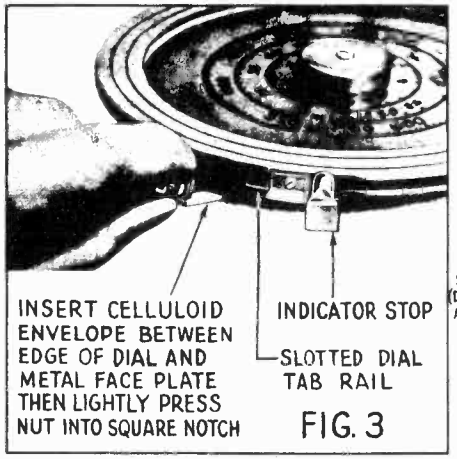


FIG. 3

While an "AUTOMATIC-TUNE" tab may be set for distant weak stations, better results will be obtained if the stations selected for "AUTOMATIC-TUNE" are strong nearby or local stations.

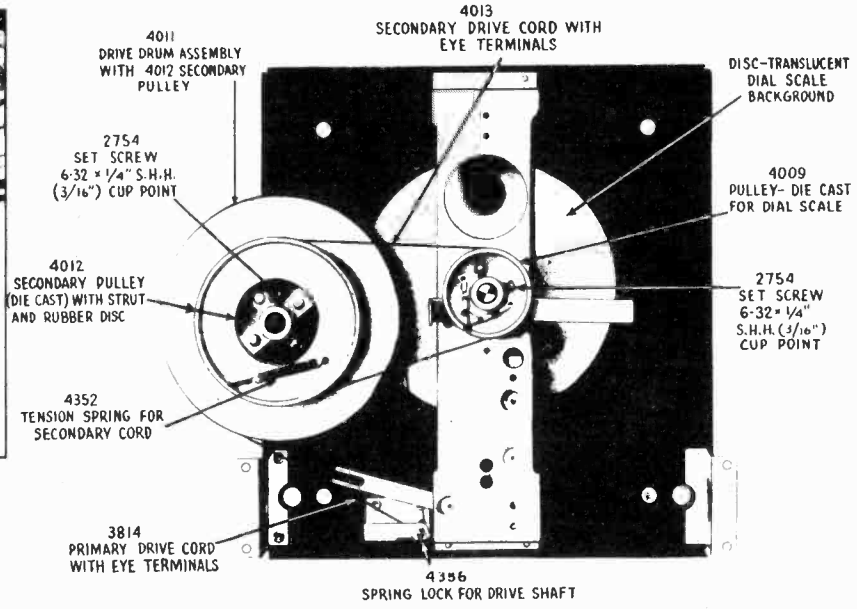
AFTER IT IS DETERMINED WHAT STATIONS YOU WISH TO "AUTOMATIC-TUNE", OBTAIN THE FREQUENCIES USED AND CALL LETTERS OF THESE STATIONS AND SET STATION TABS BY:

1. Lay station call letter tab sheet on flat surface and with a razor or sharp knife cut out desired station tab by cutting around black edges of each desired tab.
2. To illustrate the proper setting of station paper strip and metal tab holder the receiver is shipped from the factory with a station tab properly set for Station WGN 720 kilocycles.
   Carefully note that the station call letter tab appears directly below the 720 kilocycle calibration on the face of the dial and that the knurled tab is firmly screwed down on slotted tab rail. If Station WGN is not one of the selected stations or if a tab is to be set for a station which operates on a frequency less than 720 kilocycles, remove WGN celluloid envelope and station call letter paper strip by:
   (a) Loosen tab holder by grasping knurled end of metal tab with finger tips and turn one or two turns to the left.
   (b) Slide the metal holder tab to square notch in dial tab rail—adjacent to permanently attached tab stop—and pull outward on tab until it is pulled free from tab holder rail.
   (c) Slide the celluloid envelope out of the metal tab frame.
3. **PLACE EACH SELECTED STATION CALL LETTER PAPER STRIP INSIDE OF CELLULOID ENVELOPE BY:**
   (a) Hold celluloid envelope with curved end upward.
   (b) Place station call letter paper strip inside of celluloid envelope with printed call letters upward.
4. **INSERT CELLULOID ENVELOPE INTO A METAL TAB FRAME BY:**
   (a) Hold curved end of celluloid envelope towards metal knurled tab holder and insert celluloid into metal frame.
   (b) Gently push celluloid inward until curved end of envelope touches edge of celluloid envelope tab frame.
   (c) Arrange tabs in numerical order according to station frequency.
5. **SET THE METAL TAB HOLDERS ON DIAL BY:** (See Fig. 3)
   (a) Set the first metal tab holder for the station that broadcasts on the lowest frequency—least number of kilocycles—and then set the next station tab for the selected station operating on the next lowest frequency, continuing on in this way until a tab has been set for all of the selected stations.
   (b) Carefully tune in the station which broadcasts on the lowest frequency—least number of kilocycles.
   (c) Insert celluloid envelope between edge of dial and metal face plate—Lightly press nut on end of knurled tab into square notch in slotted dial rail—then slide tab holder along rail until the knurled tab is underneath the indicator stop on the dial at which point station call letter strip will appear directly below the indicator line on the face of the dial.
   (d) Tighten tab holders as much as possible without moving dial by turning knurled tab to the right—then swing dial so knurled tab is away from indicator stop on the dial and firmly tighten so that it cannot move on the dial rail. DO NOT USE PLIERS TO TIGHTEN.

REPLACING No. 4000 DIAL GLASS SCALE ASSEMBLY

As it requires special tools to properly set part No. 4005 shaft assembly on part No. 4000 glass scale—we will ship all orders for No. 4000 glass scales with the No. 4005 shaft assembled on the glass scale.

DIAL MECHANISM



WHEN INSTALLING PART No. 4000 GLASS ASSEMBLY WITH No. 4005 SHAFT ATTACHED carefully follow procedure in order given:

(a) Insert No. 4005 shaft into main bushing attached to the cadmium plated bracket on back of dial face.

b) Place steel spacer washer and brass tension spring in order named over end of No. 4005 shaft.

(c) Place the small die cast primary pulley No. 4009 on shaft—do not tighten No. 2754 set screws.

(d) Loosen the two set screws in brass spacer collar on the No. 4005 shaft.

(e) Adjust brass spacer collar—by sliding collar on shaft—so that there will be approximately 1/8" clearance between the bottom of metal tab holder and the face plate. Firmly retighten brass collar and No. 2754 die cast pulley set screws. Failure to provide proper clearance will result in scratches on dial face and the dial mechanism will not operate freely.

TO INSTALL No. 3814 PRIMARY DRIVE CORD:

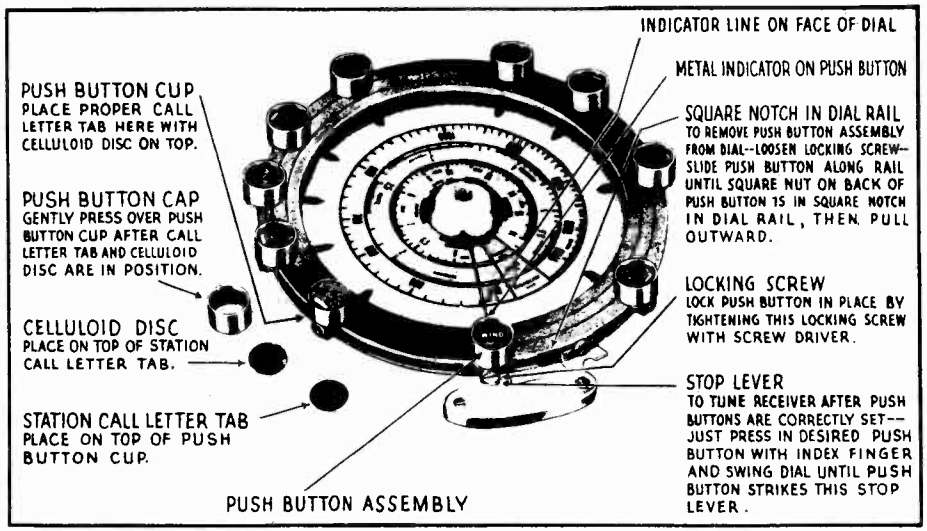
(a) Looking at back of dial, wrap dial cord twice around No. 4355 drive shaft in CLOCKWISE direction.

(b) Hook No. 3462 tension spring into loops at end of dial cord.

NEVER LOOSEN THE FOUR SCREWS THAT HOLD THE CADMIUM PLATED BRACKET TO DIAL FACE—OTHERWISE THE MAIN BUSHING WILL BE THROWN OUT OF CENTER.

SERVICE NOTES for PUSH BUTTON DIAL

FOR OTHER ASSEMBLIES SEE "AUTOMATIC TUNE" WHEEL DIAL ASSEMBLIES.



FROM ONE TO TEN STATIONS OPERATING ON FREQUENCIES SEPARATED BY FORTY KILOCYCLES OR MORE MAY BE AUTOMATICALLY TUNED BY PROPERLY SETTING PUSH BUTTONS.

IT IS A SIMPLE MATTER TO "AUTOMATIC TUNE" AFTER THE STATION PUSH BUTTONS HAVE BEEN PROPERLY SET—JUST PLACE INDEX FINGER INTO THE PUSH BUTTON HAVING CALL LETTERS OF THE DESIRED STATION PUSHING INWARD—THEN SWING DIAL UNTIL DIAL STOPS, AT WHICH POINT THE DESIRED STATION SHOULD BE PROPERLY TUNED IN AND THE METAL INDICATOR ATTACHED TO THE PUSH BUTTON SHOULD POINT TO THE INDICATOR LINE ON FACE OF DIAL. If reception is slightly distorted—which may be particularly noticeable when tuning weak stations—retune for maximum clarity by using conventional tuning knobs.

WHILE A PUSH BUTTON MAY BE SET FOR DISTANT WEAK STATIONS, BETTER RESULTS WILL BE OBTAINED IF THE STATIONS SELECTED FOR AUTOMATIC PUSH BUTTON TUNING ARE STRONG NEARBY OR LOCAL STATIONS.

AFTER IT IS DETERMINED WHAT STATIONS YOU WISH TO "AUTOMATIC PUSH BUTTON TUNE" OBTAIN THE FREQUENCY USED AND CALL LETTERS OF THESE STATIONS AND SET PUSH BUTTONS BY:

To illustrate the proper installation and setting of the Push Buttons, the receiver is shipped from the factory with a Push Button properly set for station WGN, Chicago, 720 kilocycles. If station WGN is not one of the selected stations, remove call letters by:

a. Grasp cap section of Push Button between fingers and gently pull outward until it is clear of dial.

b. Carefully remove the station call letter tab and celluloid disc.

SET STATION PUSH BUTTON BY:

a. Gently press desired round paper station call letter tabs out of station tab sets.

b. Always set the first push button for the desired station that broadcasts on the lowest frequency—the least number of kilocycles—and then set the next push button for the selected station operating on the next lowest frequency, continuing on in this manner until a Push Button has been set for all of the desired stations.

c. Loosen Push Button locking screw and remove cups on all Push Buttons by grasping cap between fingers and gently pulling outward—then remove celluloid discs.

d. Carefully tune in the station which broadcasts on the lowest frequency—least number of kilocycles.

e. Slide the Push Button nearest to the low frequency end of dial scale—without moving dial—until metal indicator attached to Push Button is exactly even with the indicator line on the face of the dial,—then with a small screw driver firmly lock Push Button in place by tightening Push Button locking screw.

f. Place printed paper station call letter tab, having call letters of station tuned in—on top of Push Button cup, then—place celluloid protective disc on top of this and gently press Push Button cap firmly down over Push Button cup.

g. Next set a Push Button for the desired station operating on the next lowest frequency in the same manner as above and continue on in this way until all the Push Buttons have been properly set.

AFTER THE TEN PUSH BUTTONS HAVE BEEN PROPERLY SET THEY WILL NOT REQUIRE FURTHER ATTENTION — EXCEPT WHEN MOVED FROM THEIR POSITION OR WHEN AN ADDITIONAL TAB IS INCLUDED WHICH WOULD DISTURB THE POSITION OF THE OTHER TABS.

PARTS LIST

COMPLETE PUSH BUTTON DIAL ASSEMBLY LESS ESCUTCHEON

Part No.	Part Name	Description	List Price
211	Dial Assembly	Used With Model 78B Complete Assembly Less Escutcheon	$12.75
212	Dial Assembly	Used With Model 78BE Complete Assembly Less Escutcheon	12.75
208	Dial Assembly	Used With Model 82A Complete Assembly Less Escutcheon	12.75
209	Dial Assembly	Used With Model 82AE & 86AE Complete Assembly Less Escutcheon	12.75
210	Dial Assembly	Used With Model 91B & 95B Complete Assembly Less Escutcheon	12.25

MISCELLANEOUS PARTS USED IN ABOVE ASSEMBLIES

4047	Cap	Push Button	.15
4046	Celluloid Disc	Station Call Letter Cover	.05
3814	Cord	Primary Drive Cord	.15
4013	Cord	Secondary Drive Cord	.15
4041	Cup Assembly	Push Button—With Clip and Compression Spring	.15
3995	Band Indicator Assem.	For Model 78BE-78B-91B-95B	.75
3992	Band Indicator Assem.	For Model 82AE-82A-86AE	.75
4011	Drive Drum Assem. with	4012 Secondary Pulley and Rubber Disc Coupler	1.25
4355	Drive Shaft		.12
4027	Disc	Translucent Dial Scale Background for Model 78BE	.50
3984	Disc	Translucent Dial Scale Background for Model 82AE & 86AE	.55
4024	Disc	Translucent Dial Scale Background for Model 82A	.55
4029	Disc	Translucent Dial Scale Background for Model 91B, 95B & 78B	.50
3771	Escutcheon	For Cabinet—All Models	1.00
4040	Hub Cap		.15
4009	Pulley	Dial Scale Drive (Die Cast)	.45
4039	Plate	Slide Stop	.10
4000	Scale	Calibrated Glass Scale With 4005 Shaft Assem.	2.75
8071	Screw	For Hub Cap 3-48 x ¼" O.H.I.M.	.005
2754	Screw	For Pulley 6-32 x ¼" S.H.H. Cup Point	.01
4037	Slide Stop	Push Button Stop	.10
4356	Spring Lock	For Drive Shaft	.01 net
4352	Spring Tension	For Secondary Cord	.07
3462	Spring Tension	For Primary Cord	.07

Prices are subject to change without notice.

When ordering parts be sure to mention part number and order all parts from:

Printed in U.S.A.

TO INSTALL No. 4013 SECONDARY DRIVE CORD:

The dial mechanism picture shows and refers to eye terminals on drive cord—these were used in early production. Loops made by knots in the cords are now used to attach cord to lugs in the No. 4009 die cast pulley and to the No. 4352 & 3462 tension springs.

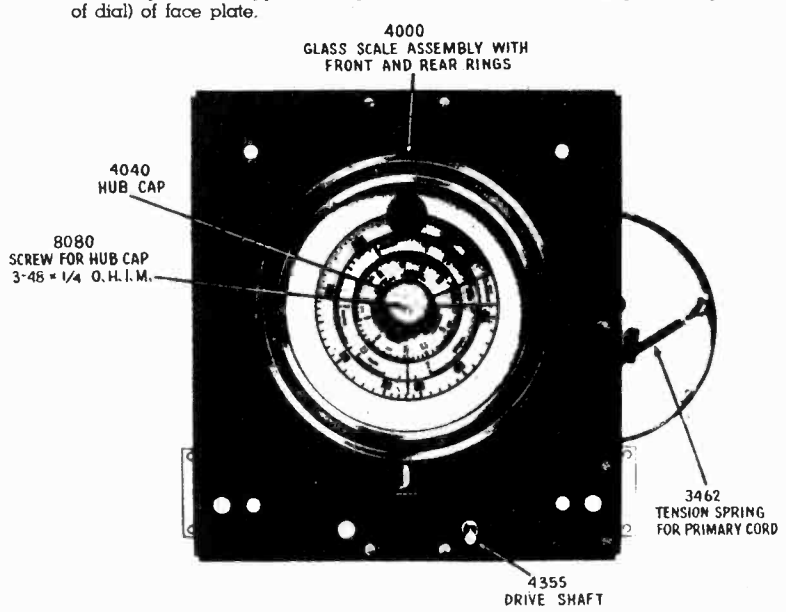
(a) Looking at the front of the dial rotate dial scale COUNTER-CLOCKWISE until dial stop is reached.

(b) Loosen the two No. 2754 set screws in small die cast pulley No. 4009.

(c) Looking at front of dial turn the small die cast pulley so that the cut out in pulley will be towards the left and approximately in line with the upper edge of the dial light bracket. This bracket which is only used in six volt battery and 110 volt AC models is shown mounted on the cadmium plated dial face plate bracket in dial mechanism picture.

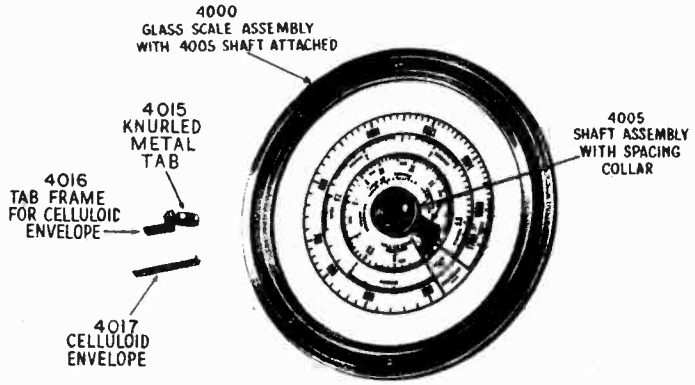
(d) Hook No. 4352 tension spring in dial cord loop.

(e) Turn No. 4011 drum so that the hole in the No. 4012 large die cast pulley—through which the secondary drive cord is pulled—is towards the top of face plate. This will bring the hole approximately in line with the left hand edge (looking at back of dial) of face plate.



(f) Take long end of No. 4013 secondary drive cord—measured from knot at spring to end of cord—then looking at the front of dial, wrap cord one complete turn CLOCK WISE around the No. 4009 small die cast pulley. The other end of the cord (short end) is placed on bottom half of secondary and primary die cast pulleys.

(g) Firmly tighten No. 2754 set screws in small die cast pulley.



COMPLETE WHEEL DIAL ASSEMBLY LESS ESCUTCHEON

Part No.	Part Name	Description	List Price
205	Dial Assembly	Used With Model 78B Complete Assembly Less Escutcheon	$12.75
206	Dial Assembly	Used With Model 78BE Complete Assembly Less Escutcheon	12.75
207	Dial Assembly	Used With Model 82A Complete Assembly Less Escutcheon	12.75
201	Dial Assembly	Used With Model 82AE & 86AE Complete Assembly Less Escutcheon	12.75
204	Dial Assembly	Used With Model 91B & 95B Complete Assembly Less Escutcheon	12.25

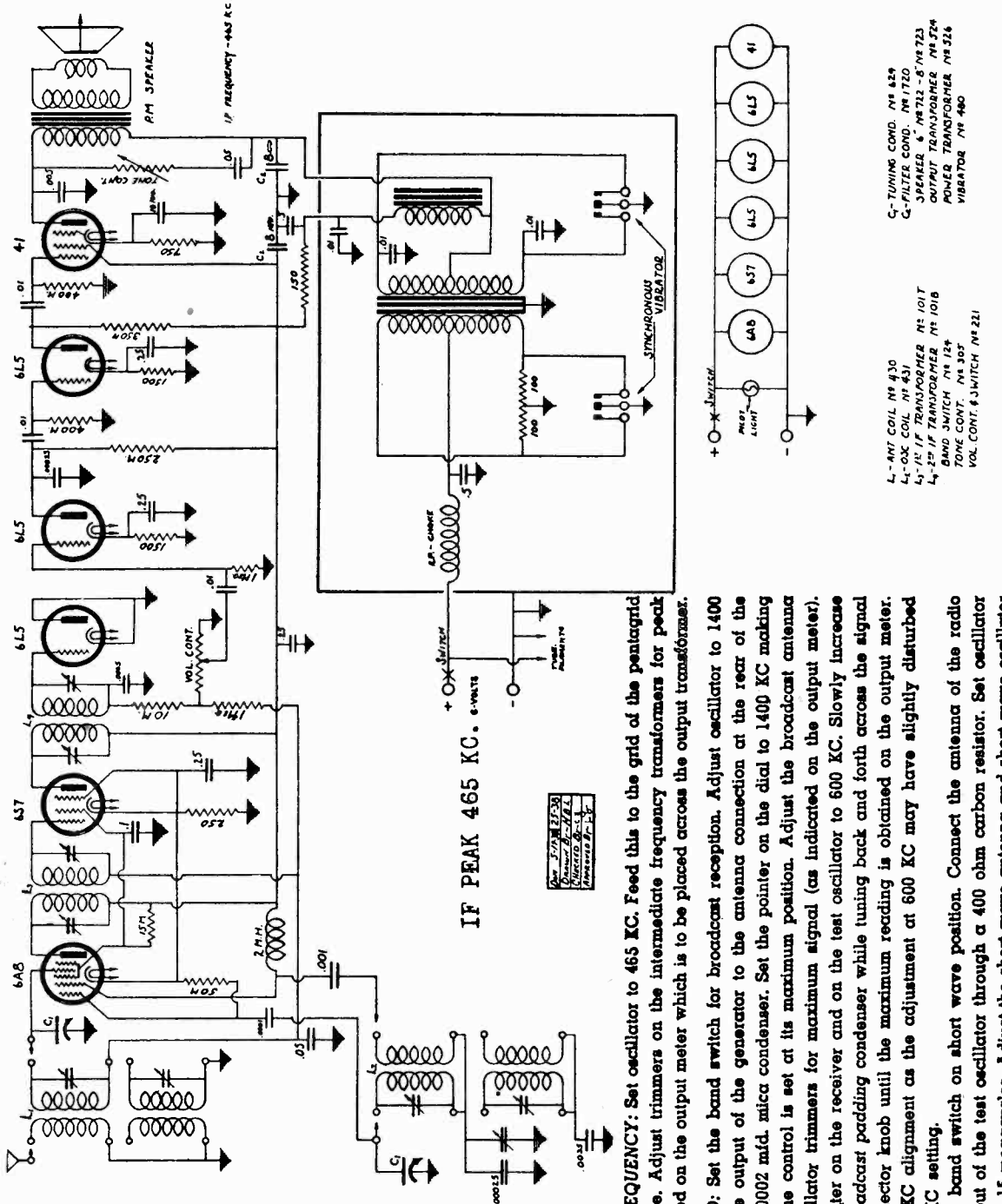
MISCELLANEOUS PARTS USED IN ABOVE ASSEMBLIES

4016	Celluloid Envelope	Station Call Letter Cover	.05
3814	Cord	Primary Drive Cord	.15
4013	Cord	Secondary Drive Cord	.15
3995	Band Indicator Assem.	For Model 78BE-78B-91B-95B	.75
3992	Band Indicator Assem.	For Model 82AE-82A-86AE	.75
4011	Drive Drum Assem. with	4012 Secondary Pulley and Rubber Disc Coupler	1.25
4355	Drive Shaft		.12
4027	Disc	Translucent Dial Scale Background for Model 78BE	.50
3984	Disc	Translucent Dial Scale Background for Model 82AE & 86AE	.55
4024	Disc	Translucent Dial Scale Background for Model 82A	.55
4029	Disc	Translucent Dial Scale Background for Model 91B, 95B & 78B	.50
3771	Escutcheon	For Cabinet—All Models	1.00
4017	Frame	Metal Holder for Celluloid Envelope	.05
4040	Hub Cap		.15
4015	Knurled Tab		.05
4009	Pulley	Dial Scale Drive (Die Cast)	.45
4000	Scale	Calibrated Glass Scale With 4005 Shaft Assem.	2.75
8071	Screw	For Hub Cap 3-48 x 1/4" O.H.I.M.	.005
2754	Screw	For Pulley 6-32 x 1/4" S.H.H. Cup Point	.01
4356	Spring Lock	For Drive Shaft	.01 net
4352	Spring Tension	For Secondary Cord	.07
3462	Spring Tension	For Primary Cord	.07

Prices are subject to change without notice.

MODELS 2222,2223,2224,2225
Chassis 25
Schematic,Alignment

SPIEGEL INC.



INTERMEDIATE FREQUENCY: Set oscillator to 465 KC. Feed this to the grid of the pentagrid (6A7) converter tube. Adjust trimmers on the intermediate frequency transformers for peak readings as indicated on the output meter which is to be placed across the output transformer.

BROADCAST BAND: Set the band switch for broadcast reception. Adjust oscillator to 1400 KC and connect the output of the generator to the antenna connection at the rear of the chassis through a .0002 mfd. mica condenser. Set the pointer on the dial to 1400 KC making sure that the volume control is set at its maximum position. Adjust the broadcast antenna and broadcast oscillator trimmers for maximum signal (as indicated on the output meter). Re-set the dial pointer on the receiver and on the test oscillator to 600 KC. Slowly increase or decrease the *broadcast padding* condenser while tuning back and forth across the signal with the station selector knob until the maximum reading is obtained on the output meter. Re-check the 1400 KC alignment as the adjustment at 600 KC may have slightly disturbed the original 1400 KC setting.

SHORT WAVE: Set band switch on short wave position. Connect the antenna of the radio receiver to the output of the test oscillator through a 400 ohm carbon resistor. Set oscillator and receiver dial at 15 megacycles. Adjust the short wave antenna and short wave oscillator trimming condensers for maximum output as indicated by readings on the output meter. No other adjustments are necessary for aligning this band.

It is advisable to check the sensitivity at 6000 KC to determine whether the circuits are properly aligned. Should the receiver lack sensitivity at this frequency check the .0035 mica condenser for short circuit.

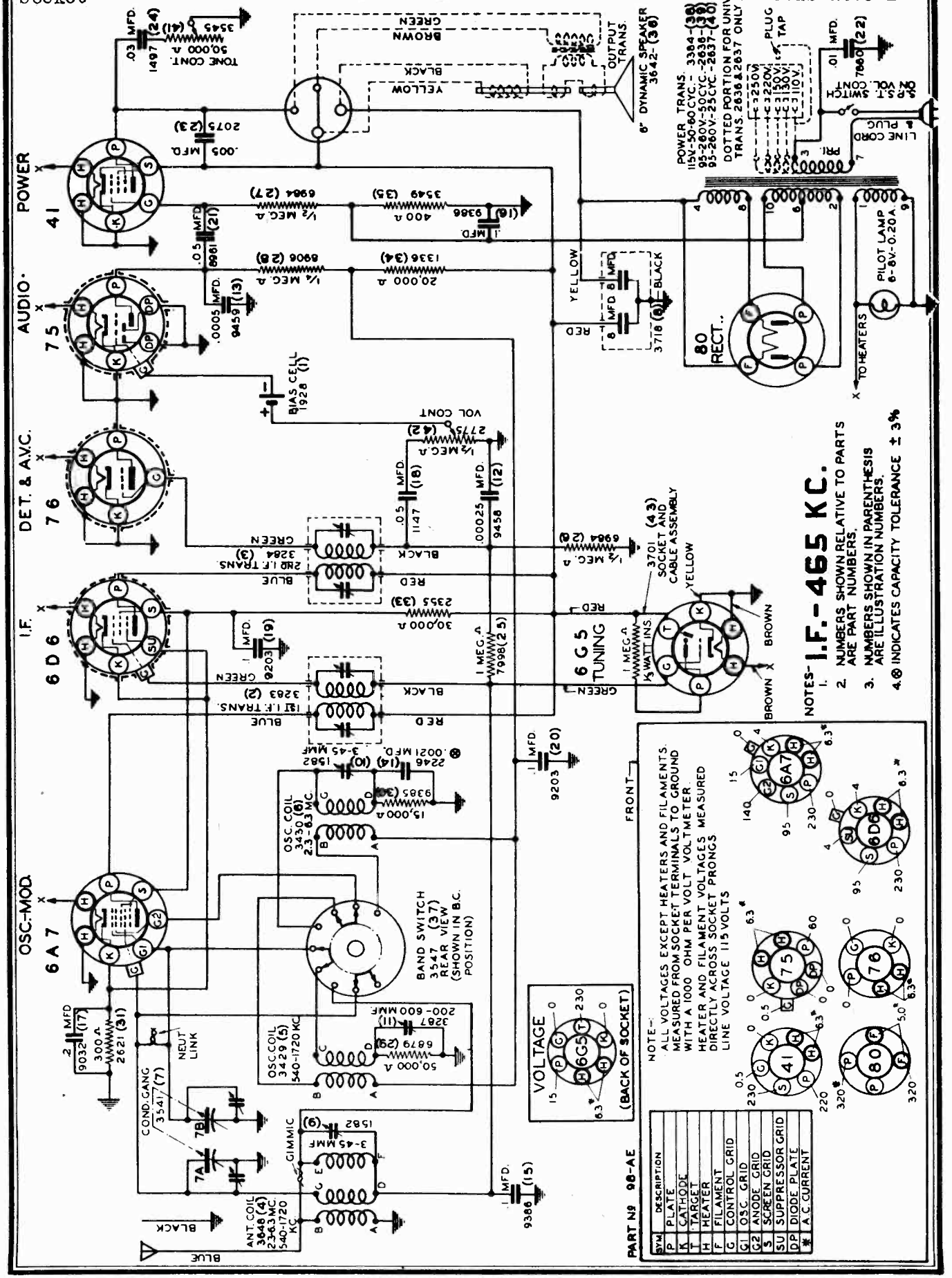
This receiver is designed to operate over two tuning ranges.

from 540 K.C. to 1730 and
from 5800 K.C. to 18000 K.C.

Schematic, Voltage Socket

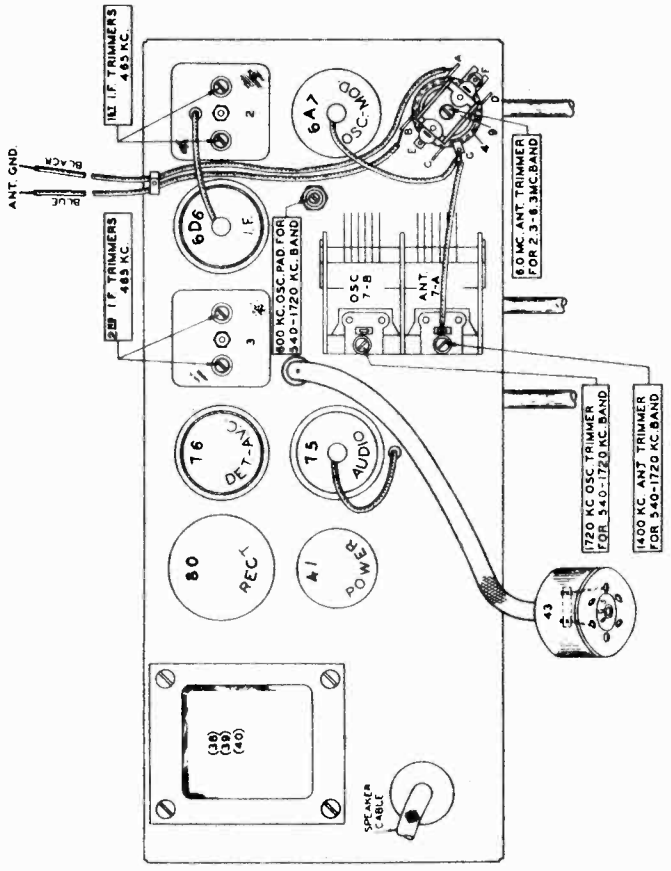
SPIEGEL INC.

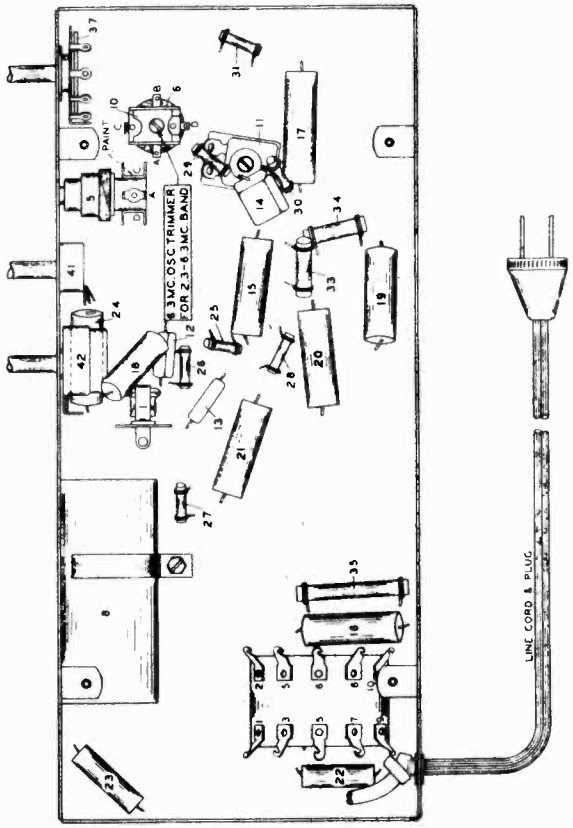
MODELS 4000, 4020
Chassis 1098AE



MODELS 4000,4020
Chassis 1098AE
Chassis,Socket
Alignment,Trimmers

SPIEGEL INC.





ALIGNMENT PROCEDURE:

Lack of sensitivity, selectivity or poor tone quality may be due to any one or a combination of causes such as weak or defective tubes or speaker, open or grounded bias resistor, bypass condenser, inadequate or excessively long antenna, etc. Never attempt to realign set until all other possible sources of trouble have been first thoroughly investigated and definitely proven not to be the cause.

NOTE: BE SURE TO FOLLOW PROCEDURE CAREFULLY WHEN ALIGNING, OTHERWISE THE RECEIVER WILL BE INSENSITIVE AND THE DIAL CALIBRATION WILL BE INCORRECT.

IT IS ABSOLUTELY NECESSARY THAT AN ACCURATELY CALIBRATED TEST OSCILLATOR WITH SOME TYPE OF OUTPUT MEASURING DEVICE BE USED WHEN ALIGNING THE RECEIVER.

ALIGNING I.F. STAGE AT 465 KILOCYCLES:

(a) Connect the ground lead of the test oscillator to the chassis or set ground lead. Connect the other lead of the test oscillator to the grid cap of the 6A7 tube through a .02 Mfd. series condenser. DO NOT REMOVE GRID CLIP.

(b) Set test oscillator to EXACTLY 465 kilocycles and turn receiver volume control on full.

(c) Peak each of the second I.F. transformer trimmers.

(d) Peak each of the first I.F. transformer trimmers.
To assure most accurate trimmer setting repeat above adjustment several times always using lowest possible test oscillator output consistent with readable output meter scale deflection.

ALIGNING 1720-540 KILOCYCLE BAND:

(a) Remove test oscillator lead from grid of the 6A7 tube and attach it to the receiver antenna lead through a .00025 Mfd. series condenser.

(b) Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh), at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If the dial needle does not point exactly to the last line move needle to correct position.

(c) Set receiver dial and test oscillator frequency to EXACTLY 1720 kilocycles.

(d) Bring in 1720 KC test oscillator signal to maximum output by adjusting the trimmer condenser mounted on top of the oscillator section of the gang condenser. Looking at the front of the receiver the rear section of the gang condenser is the oscillator section.

(e) Tune receiver dial and test oscillator frequency to EXACTLY 1400 kilocycles.

(f) Adjust trimmer on top of the front section gang condenser (antenna section) for maximum 1400 kilocycle test signal response.

(g) Tune receiver dial and set test oscillator frequency to approximately 600 kilocycles.

(h) While rocking the tuning condenser back and forth adjust 600 KC oscillator padder condenser which is accessible through the hole in the top of the chassis adjacent to the gang condenser for maximum 600 kilocycle signal response.

ALIGNING 2.3-6.3 MEGACYCLE BAND:

(a) Replace .00025 Mfd. Test oscillator antenna lead series condenser with a 400 ohm resistor.

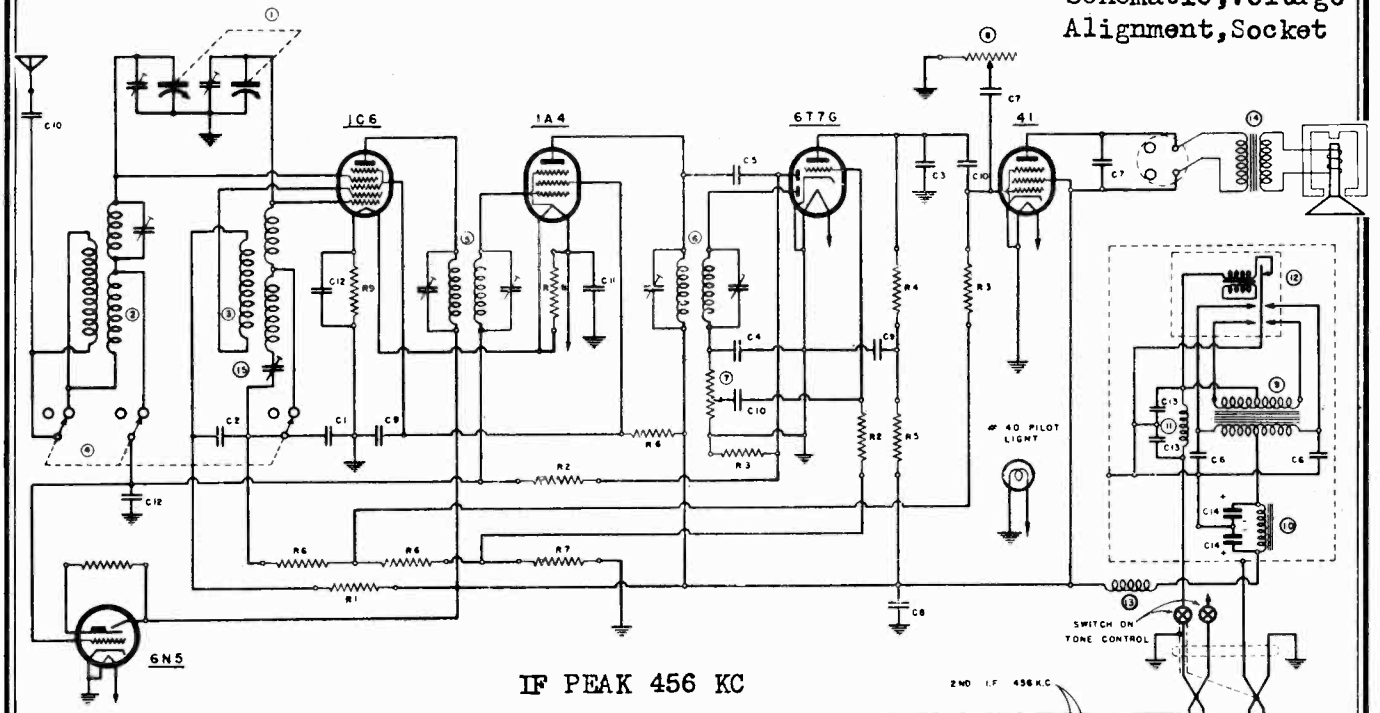
(b) Adjust band selector switch for 2.3-6.3 megacycles band operation, tune receiver dial and set test oscillator frequency to EXACTLY 6.3 megacycles.

(c) Bring in 6.3 megacycle test oscillator signal to maximum output by adjusting 6.3 M.C. oscillator trimmer on top of coil located underneath chassis.

(d) Tune receiver dial and test oscillator frequency to EXACTLY 6 megacycles, and adjust 6 M.C. antenna trimmer which is mounted on coil located on top of chassis for maximum sensitivity.

SPIEGEL INC.

MODELS 4402, 4410
Chassis 562
Schematic, Voltage
Alignment, Socket

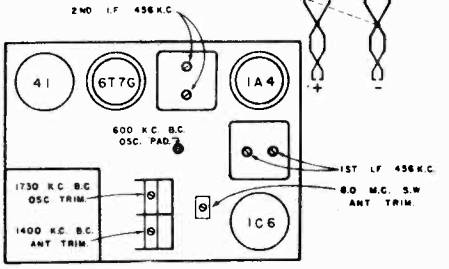


IF PEAK 456 KC

PART NO.		DESCRIPTION				
R1	6120	20,000 OHM	1/2	WATT	CARBON	RES.
R2	6017	1 MEG	-	1/3	-	-
R3	6015	500,000	-	-	-	-
R4	6024	250,000	-	-	-	-
R5	6026	100,000	-	-	-	-
R6	6027	25,000	-	-	-	-
R7	60-142	4,000	-	-	-	-
R8	60-102	33 1/3	-	1/2	-	WIRE WOUND
R9	60-121	16 2/3	-	-	-	-

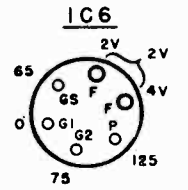
PART NO.		DESCRIPTION				
C1	1509C	.002	MFD.	MICA	± 5%	
C2	1500	.001	"	"		
C3	1504	.00025	"	"		
C4	1501	.0001	"	"		
C5	1505	.00005	"	"		
C6	1804	.01	"	600V	TUBULAR	COND.
C7	1811	.006	"	"	"	"
C8	1616	.25	"	400V	"	"
C9	1601	.1	"	"	"	"
C10	1603	.01	"	"	"	"
C11	1614	.25	"	200V	"	"
C12	1600	.1	"	"	"	"
C13	1655	3	"	150V	ELECTOLYTIC	"
C14	1845	DUAL 8	"	150V	ELECTOLYTIC	"

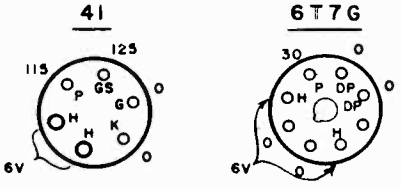
PART NO		DESCRIPTION	562
1	19-113	2-GANG VARIABLE CONDENSER	
2	10-123	ANTENNA COIL	
3	10-124	OSCILLATOR COIL	
4	69-111	WAVE SWITCH	
5	10-185	1ST I.F. TRANSFORMER	
6	10-186	2ND I.F.	
7	24-105	VOLUME CONTROL	
8	26-107	TONE CONTROL WITH SWITCH	
9	80-130	POWER TRANSFORMER	
10	3307	FILTER CHOKE	
11	33-200	R.F. "A" "	
12	3407	VIBRATOR	
13	33-204	R.F. "B" CHOKE	
14		SPEAKER	
15	20-100	B.C. OSC. PADDING CONDENSER	

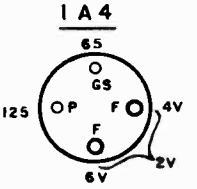


VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER
ALL VOLTAGES EXCEPT HEATERS MEASURED TO GROUND.

F - - - FILAMENT
H - - - HEATER
K - - - CATHODE
SU - - SUPPRESSOR
GS - - SCREEN GRID
G1 - - OSC. GRID
G2 - - OSC. PLATE
G - - - CONTROL GRID
DP - - DIODE PLATE
P - - - PLATE







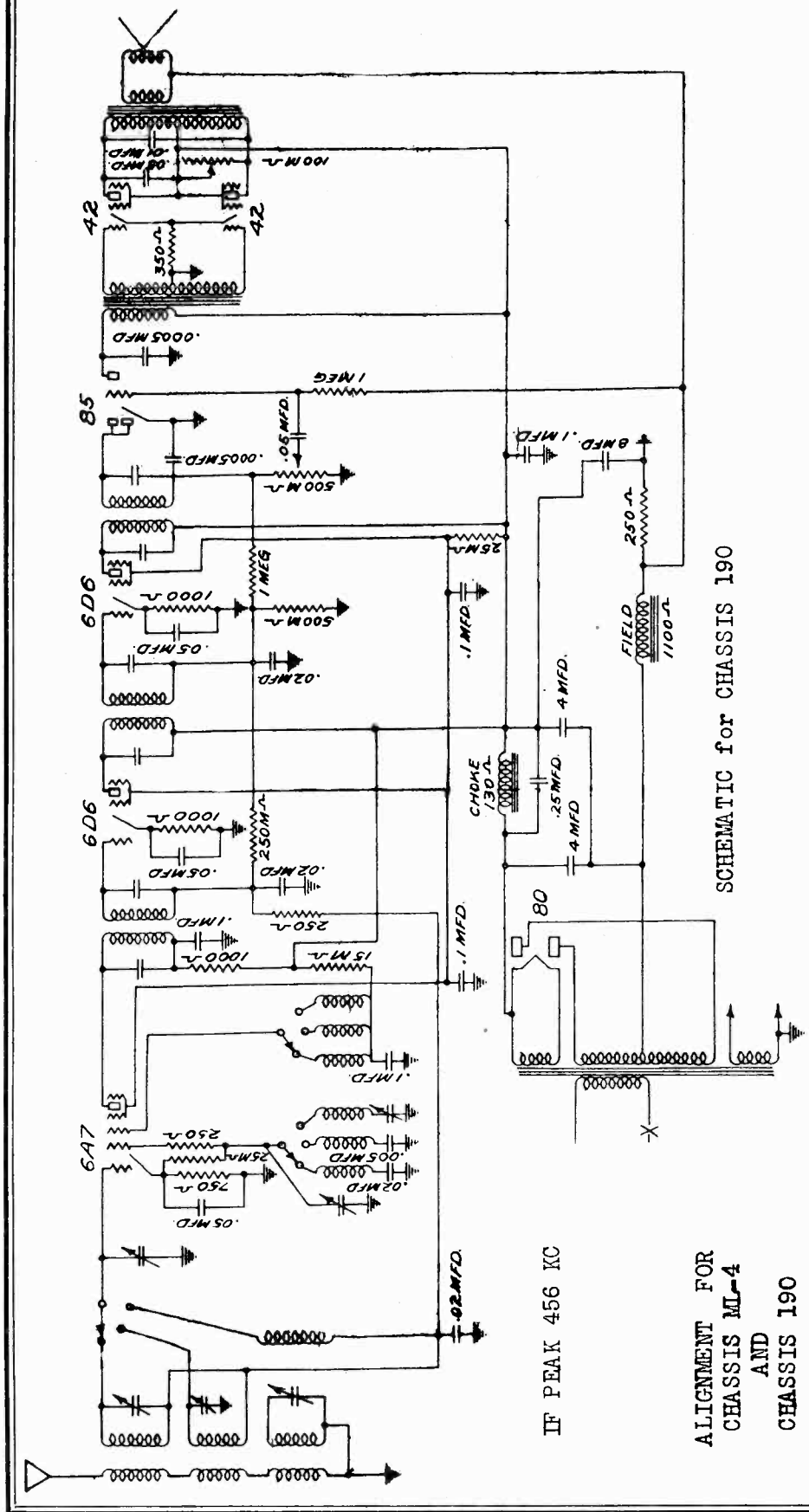
562

IF ALIGNMENT - Set test oscillator at 456 KC and adjust trimmers for maximum output. BROADCAST ALIGNMENT - At 1730 KC, adjust BC oscillator for maximum output. At 1400 KC adjust Antenna trimmer for maximum output. At 600 KC, adjust BC oscillator for maximum output. SHORT WAVE ALIGNMENT - Feed 6 MC signal to antenna thru .00025 MF and adjust SW trimmer at 6 MC. BC alignment is thru .00025 MF cond.

MODELS 4504,4507,4536
9936, Chassis 190
Schematic,Alignment

SPIEGEL INC.

MODELS 1904,1916,1952,1965
Chassis ML-4
Alignment



SCHEMATIC for CHASSIS 190

IF PEAK 456 KC

ALIGNMENT FOR CHASSIS ML-4 AND CHASSIS 190

ALIGNMENT OF IF STAGES - Align four IF trimmers to peak or max. reading at 456 KC, thru .05 or .1 mf condenser.

BROADCAST BAND - Set test osc. at 1400 KC and connect output to antenna post, thru a .0001 mf condenser. Set dial at 1400 KC and adjust Osc. trimmer to peak (located on rear gang condenser section). Then adjust center RF trimmer and front pre-selector trimmer to peak. Adjust Osc. padder at 600 KC to peak. Padder is located at left-hand end of chassis near 6D6 tube.

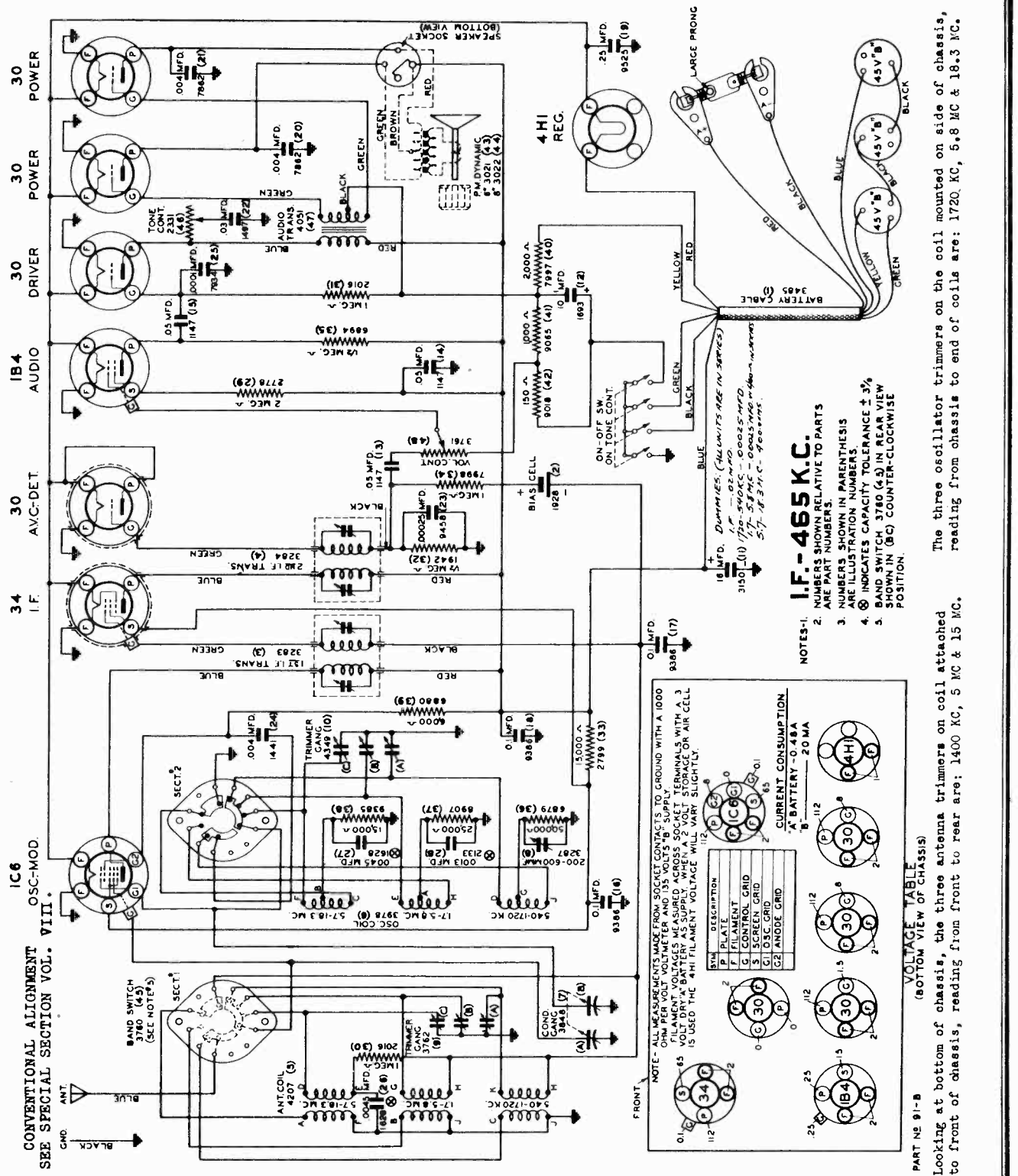
FOREIGN BAND - Band of 19 to 49 meters is adjusted by two trimmers on SW coil at top of chassis. Set Osc. at 14000 KC. Osc. is near 1st IF transformer and the antenna coil is in front of SW osc. coil. Adjust these two trimmers at 14000 KC for peak. NOTE: Always start by having the osc. coil trimmer loose and the antenna coil trimmer fairly tight (in all the way); other wise a false alignment of the IMAGE frequency is possible. Do not adjust gang condenser trimmers in aligning the Foreign or Police Bands, as this will throw the Broadcast Alignment out.

POLICE BAND - Dial and osc. at 4000 KC adjust antenna coil trimmer to resonance. No osc. adjustment necessary.

SPIEGEL INC.

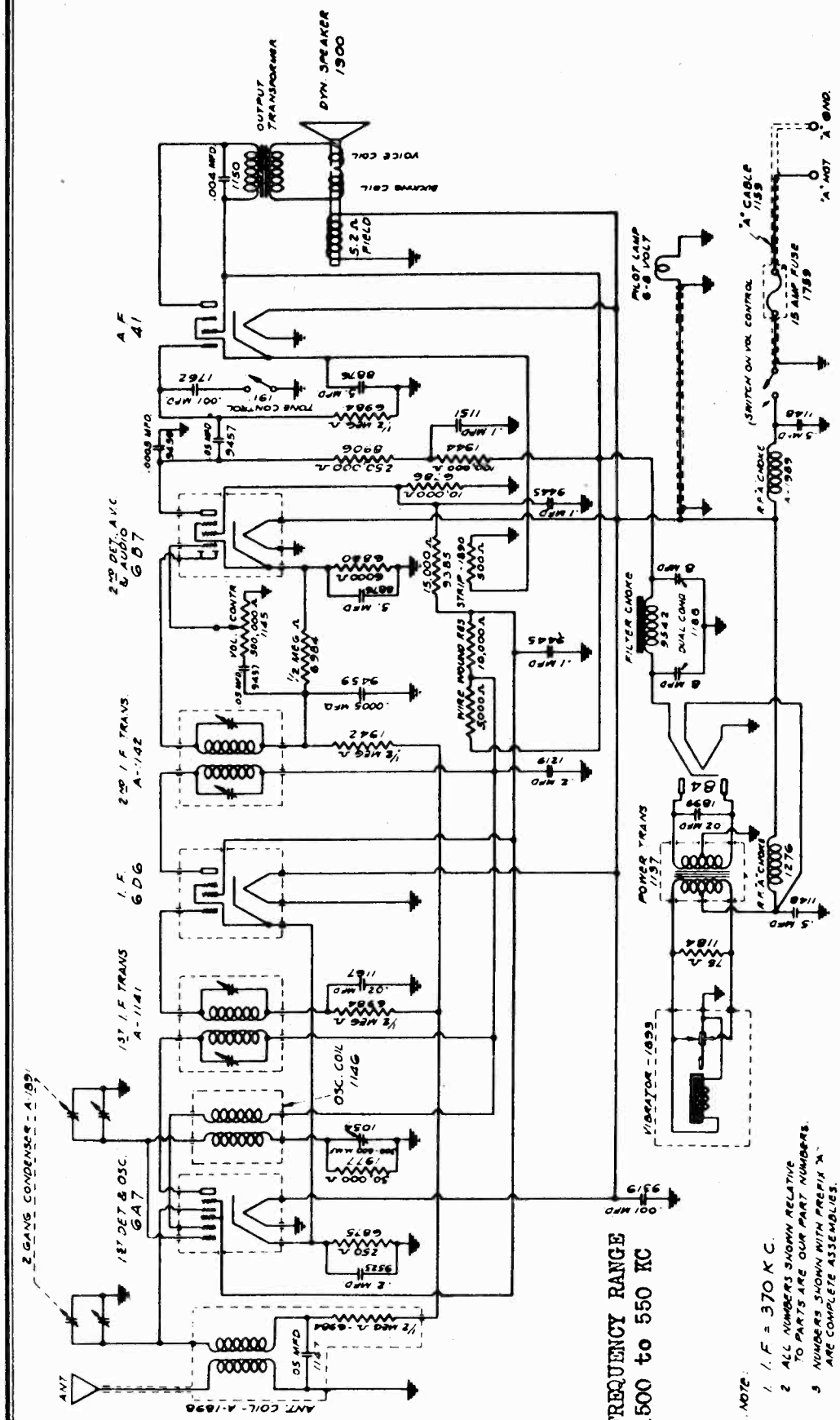
MODELS 4510,4556
Chassis 1091B
Schematic, Voltage
Alignment, Socket

FOR AUTOMATIC TUNE WHEEL SEE INDEX



MODEL 4534, Chassis 10M
Schematic, Voltage
Alignment

SPIEGEL INC.



NOTE:
1. I.F. = 370 K.C.
2. ALL NUMBERS SHOWN RELATIVE TO PARTS ARE OUR PART NUMBERS.
3. NUMBERS SHOWN WITH PREFIX "A" ARE COMPLETE ASSEMBLIES.

ALIGNMENT FREQUENCIES
IF 370 KC
Os. & Ant. 1400 KC
Padder 600 KC

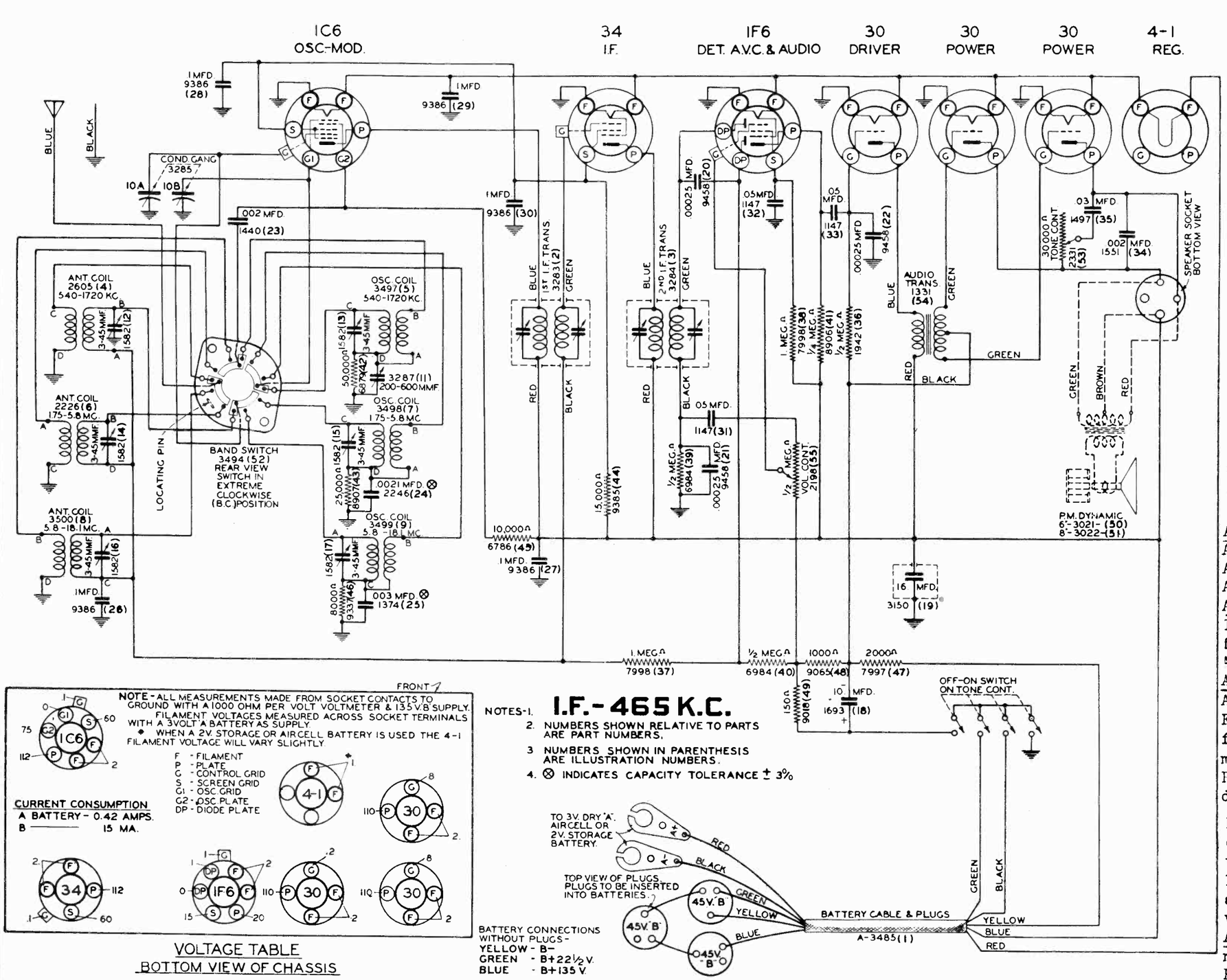
CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION
VOL. V111

TUBE TYPE	TUBE POSITION	FILAMENT VOLTS	PLATE VOLTS	CATHODE VOLTS	SCREEN GRID VOLTS	GRID No.1	GRIDS No. 3&5
6A7	- OSC. & MOD.	- 6	- 180	- 3.6	-	- 180	- 75
6D6	- I-F	- 6	- 180	- 3.6	- 75	-	-
6B7	- 2nd Det & AVC	- 6	- 32 *	- 1.9	- 30*	-	-
41	- OUTPUT	- 6	- 220	- 15	- 230	-	-
84	- RECTIFIER	- 6	-	- 230	-	-	-

* Comparative voltage only. TOTAL "A" VOLTAGE TOTAL "A" CURRENT 5.9 AMP

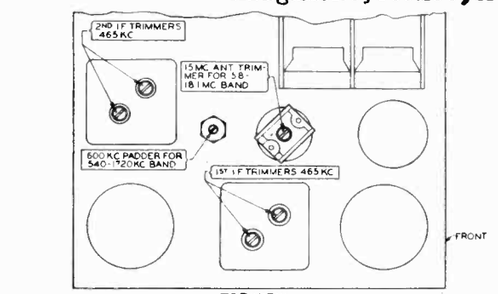
SPIEGEL INC.

MODELS 5104,5152
Chassis 1075B
Schematic,Voltage,Chassis
Alignment,Socket,Trimmers



VOLTAGE TABLE
BOTTOM VIEW OF CHASSIS

NOTES-1. **I.F.-465 K.C.**
2. NUMBERS SHOWN RELATIVE TO PARTS ARE PART NUMBERS.
3 NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
4. ⊗ INDICATES CAPACITY TOLERANCE ± 3%



SHOWING LOCATION OF PADDERS AND TRIMMERS

ALIGNMENT

IF ALIGNMENT :- Set test osc. at 465 KC and adjust IF stages, thru .02 Condenser.

AT 1720-540 KC BAND thru .00025 Cond. :-
At 1720 KC adjust Osc. trim. at maximum.
At 1400 KC adj. Ant. trim. for max. sig.
At 600 KC adj. Osc. padder for max. sig.
AT 1.75 - 5.8 MC BAND:-thru 400 OHM resistor
Test. osc. at 5.8 MC, adj. osc. trimmer for maximum response. At 5 MC adjust Ant. trimmer for maximum sensitivity.
AT 5.8 - 18.1 BAND THRU 400 OHM RESISTOR.
At 18 MC adjust. Osc. trim. max. output. Fundamental and not Image peak is used for 18 MC alignment. Back off trim, to minimum, then add capacity until FIRST PEAK (fundamental) is tuned in. Screwing down trim. too much brings in IMAGE.

For check:- Set test osc. at 18 MC, increasing output; set dial at 17 MC; vary dial to left and right of 17 Mc. If correct fundamental peak was used in alignment at 18 MC, then test osc. signal will be heard at 17 MC. of dial setting.
At 15 MC adjustment, Ant. trimmer for maximum signal.
Repeat all adjustments for final check.

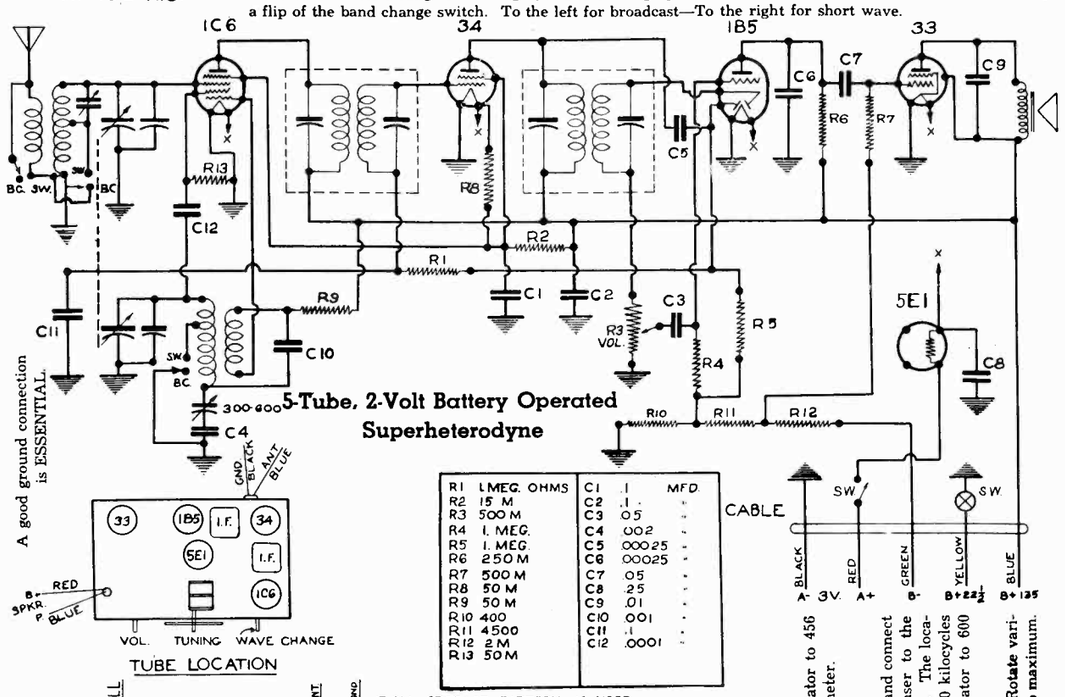
1936 - 1937

SPIEGEL INC.

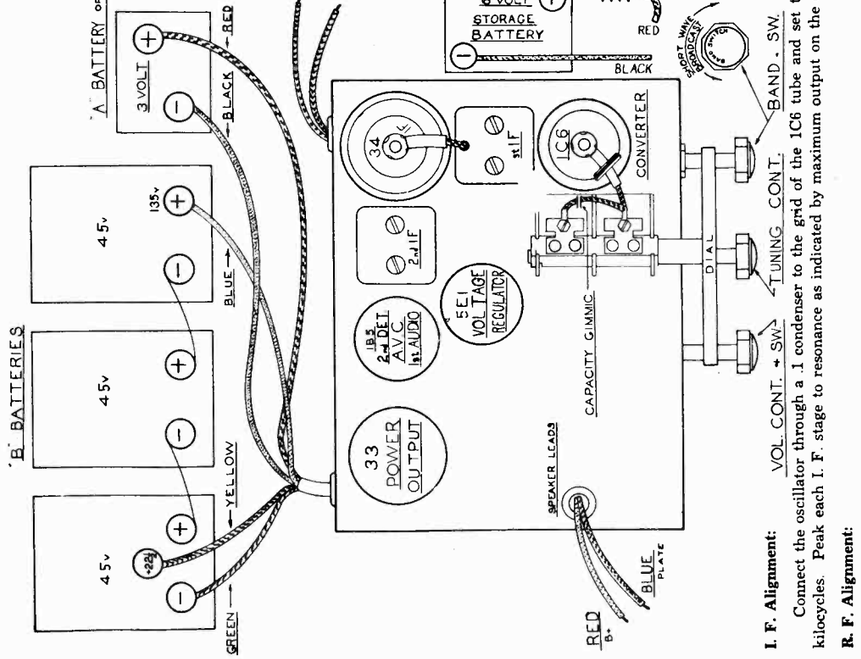
MODEL 6606, Chassis 525
Schematic, Socket, Trimmers
Alignment

IF 456 K.C.

The frequency range covered by this receiver is as follows: Broadcast band 537 KC to 1730 KC. The short wave band covers a range of 2.2 megacycles to 6.4 megacycles and either of these bands are selected at will by a flip of the band change switch. To the left for broadcast—To the right for short wave.



R1	1 MEG. OHMS	C1	.1 MFD.
R2	15 M	C2	.1 "
R3	500 M	C3	.05 "
R4	1. MEG.	C4	.002 "
R5	1. MEG.	C5	.00025 "
R6	250 M	C6	.00025 "
R7	500 M	C7	.05 "
R8	50 M	C8	.25 "
R9	50 M	C9	.01 "
R10	400	C10	.001 "
R11	4500	C11	.1 "
R12	2 M	C12	.0001 "
R13	50 M		



I. F. Alignment: VOL. CONT. + SW.

Connect the oscillator through a .1 condenser to the grid of the 1C6 tube and set the oscillator to 456 kilocycles. Peak each I. F. stage to resonance as indicated by maximum output on the output meter.

R. F. Alignment:

With the wave change switch in the broadcast position, set the oscillator to 1700 kilocycles and connect in series with a .00025 condenser to the antenna of the receiver. Rotate the variable condenser to the 1700 setting of the dial and adjust the trimmer condenser of the broadcast oscillator to resonance. The location of oscillator trimmer is on rear section of variable condenser. Reset the test oscillator to 1400 kilocycles and adjust antenna trimmer located corner front section of variable condenser. Now set oscillator to 600 kilocycles and adjust padder located on side of chassis. Check alignment at 1000 kilocycles.

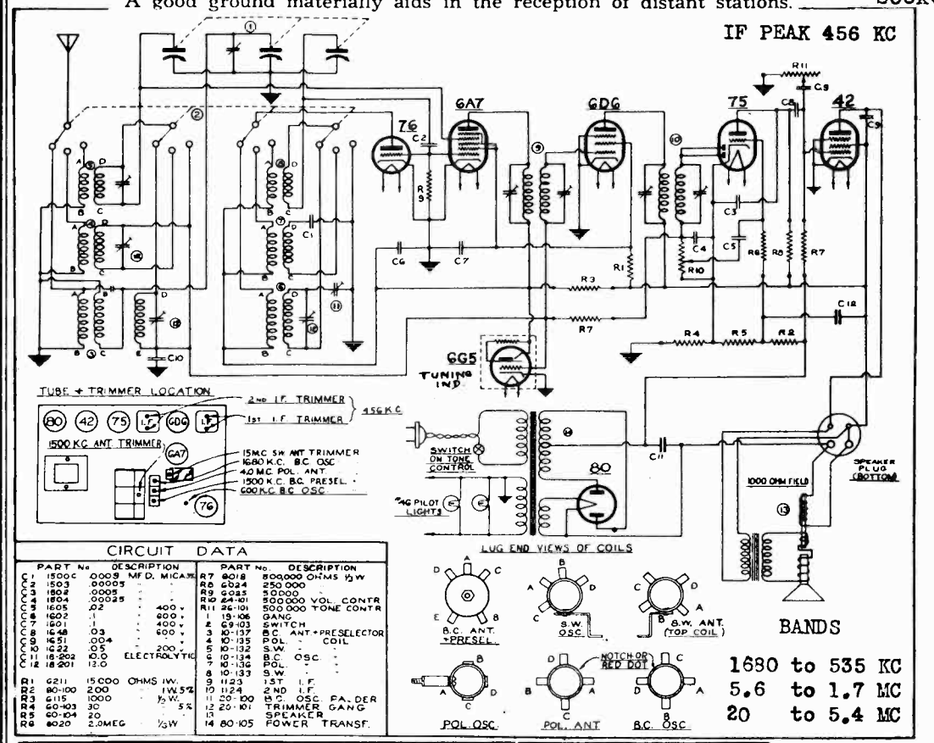
For aligning police band, set test oscillator to 6 megacycles. Turn band switch to short wave. **Rotate** variable condenser until signal is heard. Peak antenna trimmer (across antenna coil under chassis) **to maximum.** Rock variable condenser slightly backward and forward until maximum peak is reached.

MODELS 5004, 5005, 5056
Chassis 701

SPIEGEL INC.

Schematic, Voltage
Alignment, Trimmers
Socket

A good ground materially aids in the reception of distant stations.

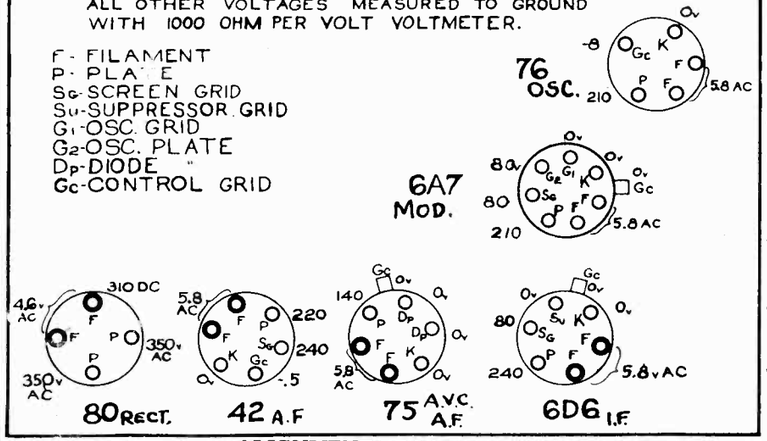


CIRCUIT DATA

PART No.	DESCRIPTION	PART No.	DESCRIPTION
C1 15006	.0009 MFD. MICA	R7 6018	500000 OHMS ½W
C2 15003	.000005 " "	R8 6024	250,000 "
C3 15002	.000025 " "	R9 6023	100000 "
C4 15004	.00025 " "	R10 6022	50000 VOL. CONTR
C5 16005	.02 " " 400 V	R11 26-101	500000 TONE CONTR
C6 15002	.1 " " 200 V	R12 15006	GANG
C7 15001	.1 " " 400 V	R13 6019	SWITCH
C8 15008	.03 " " 600 V	1 50-137	B.C. ANT.+PRESELECTOR COIL
C9 15007	.05 " " 200 V	2 50-135	POL. " "
C10 15009	.0001 " "	3 50-133	S.W. " "
C11 15010	.0004 " "	4 50-132	S.W. OSC. " "
C12 16002	.001 " "	5 50-134	POL. " "
R1 16201	12.0 OHMS ELECTROLYTIC	6 50-136	B.C. OSC. " "
R2 6211	15,000 OHMS 1W.	7 50-138	S.W. " "
R3 60-100	200 " 1W. 5%	8 1123	1ST I.F. "
R4 6215	1000 " ½W. "	9 1124	2ND I.F. "
R5 60-103	20 " 1W. "	10 20-100	OSC. PADDER
R6 6020	2.0 MEG ½W "	11 20-101	TRIMMER GANG
		12 15	SPEAKER
		13 80-104	POWER TRANSF.
		14 80-105	" "

FILAMENT VOLTAGES MEASURED ACROSS SOCKET.
ALL OTHER VOLTAGES MEASURED TO GROUND
WITH 1000 OHM PER VOLT VOLTMETER.

F - FILAMENT
P - PLATE
Sg - SCREEN GRID
Su - SUPPRESSOR GRID
G1 - OSC. GRID
G2 - OSC. PLATE
Dp - DIODE
Gc - CONTROL GRID



ALIGNMENT PROCEDURE

The equipment required for re-aligning this receiver is an output meter and a modulated source of radio frequency (a signal generator or microvolter). This source of radio frequency must be accurately calibrated in frequency and must have a method of varying the output.

All alignments must be made with the volume control turned full on and with the signal input from the generator reduced to as low a value as possible while still giving a sufficient output to be easily read on the output meter.

Connect the output meter, through a .5 M.F. condenser and a resistance of such a value as to make the total meter resistance approximately 7000 ohms, to the two small pins of the speaker plug. The output meter remains connected during the entire alignment procedure.

1. Connect the signal generator to the grid cap of the 6A7 tube through a 1 M.F. condenser. Connect the ground of the generator to the ground post of the receiver. With the wave switch on broadcast position and the dial set to about 1000 K.C., feed in a 456 K.C. signal. Adjust the trimmers on top of the first and second I.F. transformers until the maximum output is obtained. This aligns the I.F.

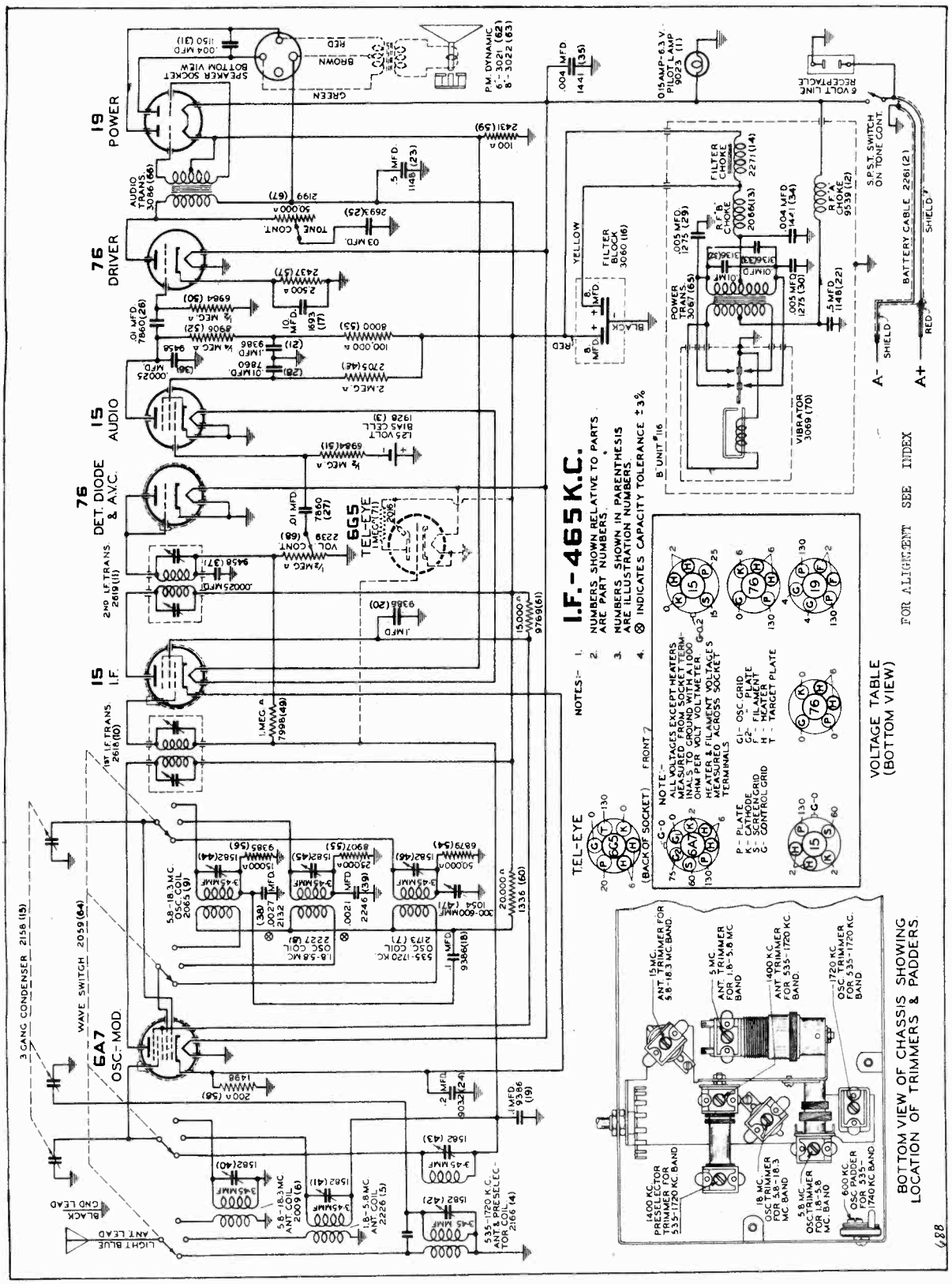
2. Leaving the wave switch on broadcast position turn the dial to the extreme high frequency end. Feed a 1680 K.C. signal to the receiver antenna post through a .00025 M.F. mica condenser. Adjust the 1680 K.C. broadcast oscillator trimmer for maximum output. Set the generator to 1500 K.C. and tune in this signal on the receiver. Then adjust the 1500 K.C. broadcast antenna trimmer and the 1500 K.C. broadcast preselector trimmer for maximum output. Set the generator to 600 K.C. and adjust the 600 K.C. broadcast oscillator pad to maximum output **while tuning the receiver back and forth across the signal** from the generator. This completes the alignment of the broadcast band.

3. The police band is aligned by feeding 4.0 M.C. signal to the receiver antenna lead through the .00025 condenser. Turn the wave switch to the center position and tune the receiver to this signal. Adjust the 4.0 M.C. police antenna trimmer for best output.

4. The short wave band is aligned in the same way using a 15 M.C. signal and adjusting the 15 M.C. short wave antenna trimmer after having turned the wave switch to the right hand position.

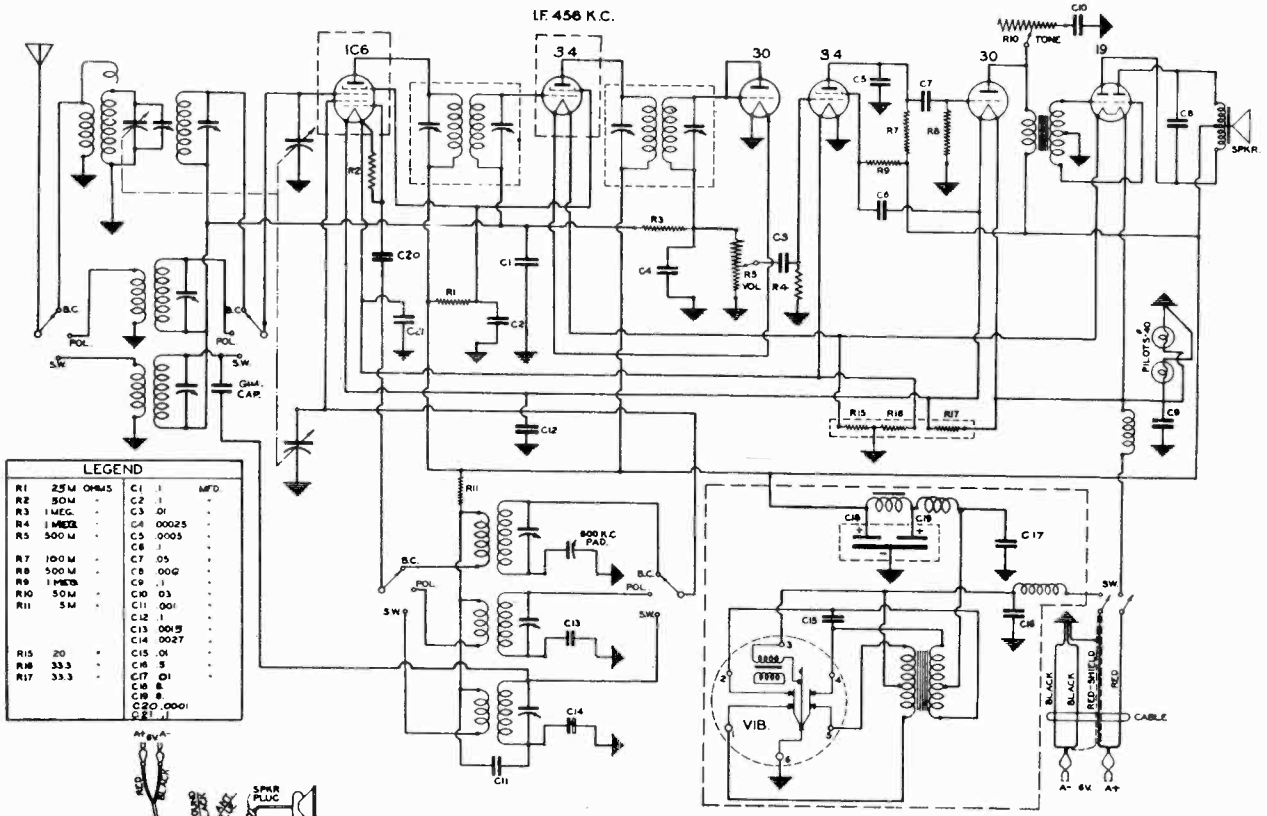
SPIEGEL INC.

MODEL 6700, Chassis 68B
Schematic, Voltage
Socket, Trimmers



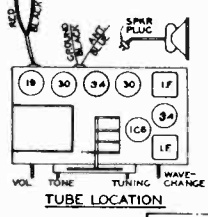
MODELS 6714, 6758
Chassis 600
Schematic, Alignment
Socket, Trimmers

SPIEGEL INC.

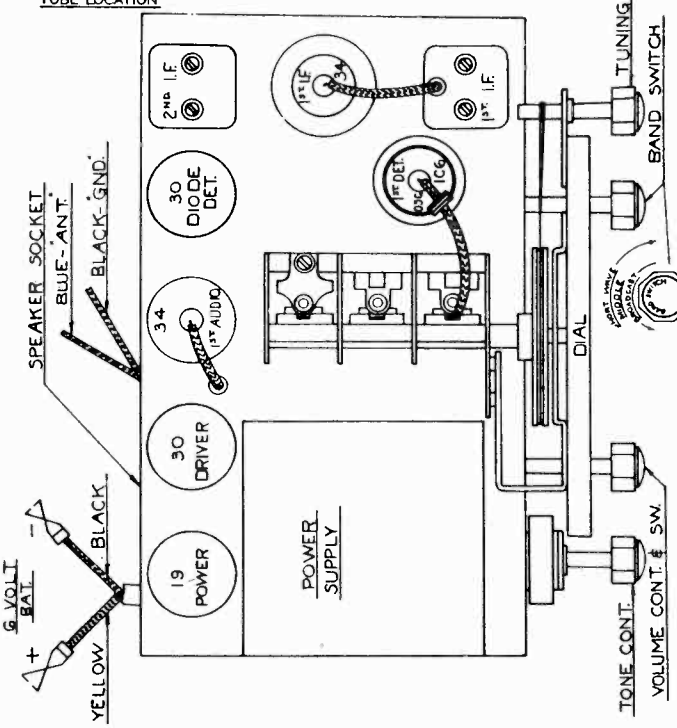


6-Tube, 6-Volt Superheterodyne Battery Receiver

BANDS	SWITCH
537 to 1730 KC	LEFT
1.8 to 5.7 MC	CENTER
5.7 to 18.3 MC	RIGHT



TUBE LOCATION



A good ground connection to a water pipe or other metallic conductor entering into the ground for some distance is ESSENTIAL.

WARNING: IF WINDCHARGER IS USED DO NOT OPERATE SET WITH CHARGER CONNECTED.

Warning: Place Storage Battery in such a position that clips on Battery Cable may be fastened directly to Battery Terminals. Do not add any additional wire length to cables as this will make the set hum.

I. F. Alignment:

Connect the oscillator through a .1 condenser to the grid of the 1C6 tube and set the oscillator to 456 kilocycles. Peak each I. F. stage to resonance as indicated by maximum output on the output meter.

R. F. Alignment:

With the wave change switch in the broadcast position, set oscillator to 1700 kilocycles and connect in series with a .00025 condenser to the antenna of the receiver. Rotate the variable condenser to the 1700 setting of the dial and adjust the trimmer condenser of the broadcast oscillator to resonance. This trimmer is located on the right side of the chassis, second position from the front. Reset the test oscillator to 1400 kilocycles and adjust antenna trimmer located on top of rear section of variable condenser. Peak detector trimmer located across proselector coil under chassis. Now set oscillator to 600 kilocycles and adjust padder located on top of the chassis. Check alignment at 1000 kilocycles.

For aligning the police band, set test oscillator to 5 megacycles and switch to the police band position on the set. With the condenser rotated to this frequency setting as indicated on the dial, adjust oscillator trimmer located on the right sid eof the chassis, first position from the front. Now adjust antenna trimmer located on the front of the chassis, left position, to resonance.

The short wave band is aligned by setting the condenser to 18 megacycles and adjust the oscillator trimmer located on the right side of the chassis, first position from the front to resonance with an 18 megacycle signal from the test oscillator. Turn dial to 16 M. C. Set test oscillator to 16 M. C. and adjust antenna trimmer through right hand hole in front of chassis, rocking variable condenser slightly back and forth to get maximum peak

STEWART-WARNER CORP. Chassis 01-5H1 to 01-5H9

MODELS 01-5H1 to 01-5H9

Schematic, Voltage

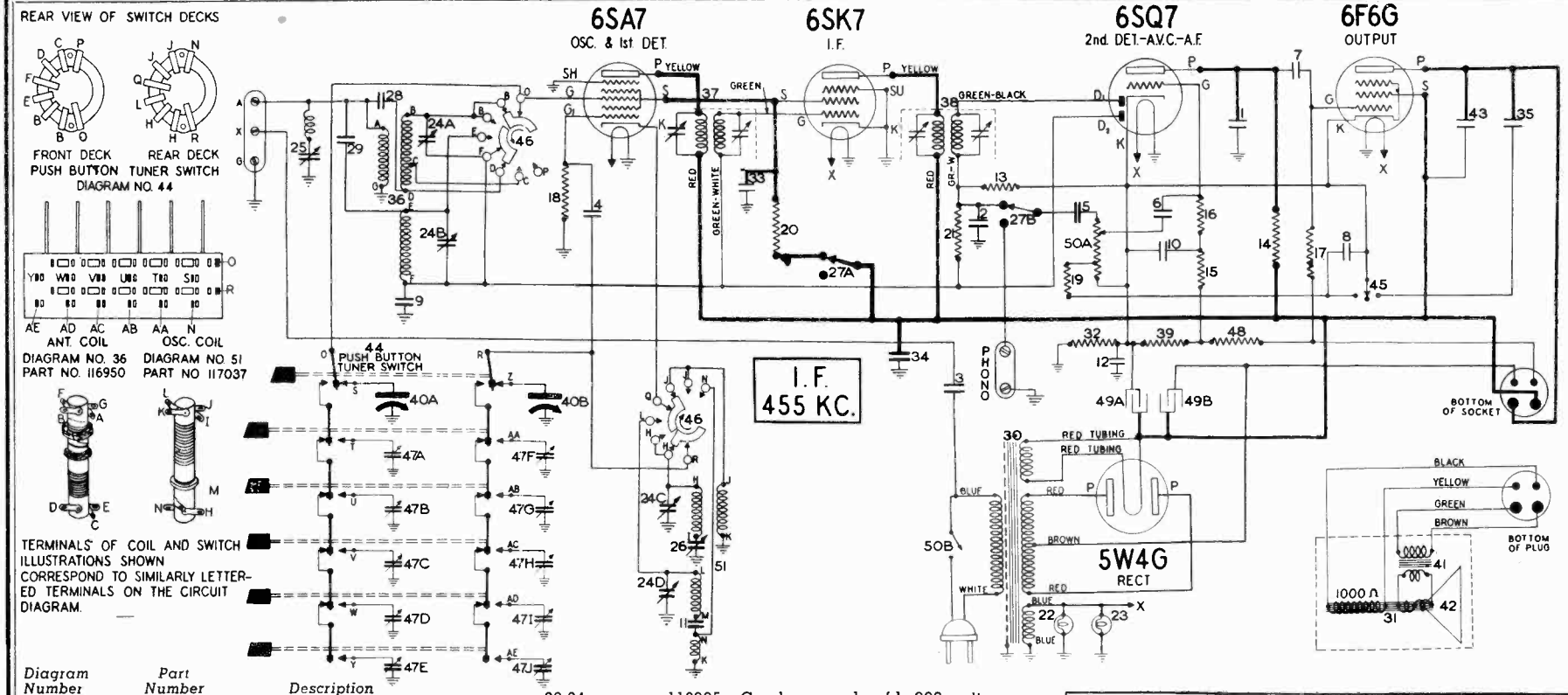
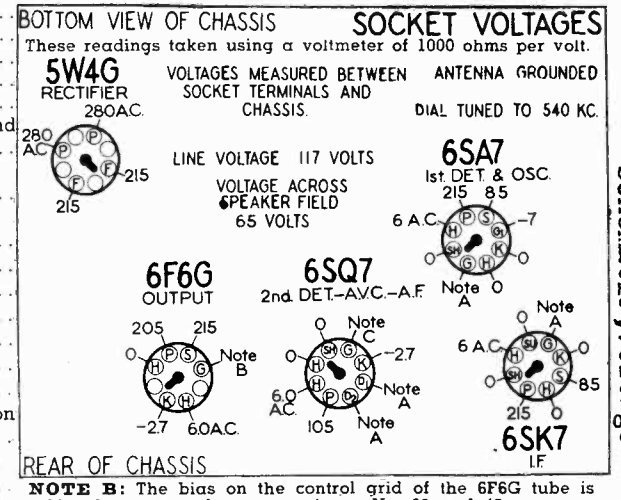


Diagram Number	Part Number	Description
1-2-3	83539	Condenser—mica 260 mmfd.
4	85061	Condenser—mica 51 mmfd.
5-6-7	88026	Condenser—paper .02 mfd. 400 volt
8	88030	Condenser—paper .01 mfd. 400 volt
9-10	88189	Condenser—paper .05 mfd. 200 volt
11	88587	Condenser—mica .0042 mfd.
12	89421	Condenser—paper .1 mfd. 200 volt
13-14	110553	Resistor—carbon 220,000 ohms ¼ watt
15-16	110554	Resistor—carbon 1 megohm ¼ watt
17	110559	Resistor—carbon 470,000 ohms ¼ watt
18-19	110566	Resistor—carbon 33,000 ohms ¼ watt
20	110568	Resistor—carbon 15,000 ohms 1 watt
21	110580	Resistor—carbon 3.3 meg. ¼ watt
22-23	110629	Lamp—6.3 volt—.25 amps.
24A to 24D	112792	Condenser—trimmer (4 section)
25	112796	Coil—wave trap (with trimmer)
26	112799	Condenser—padder (530 to 630 mmfd.)
27A-27B	114141	Switch—radio—phono (D.P.D.T.)
28-29	114969	Condenser—mica 15 mmfd.
30	114999	Transformer—power
31	M-115059	Speaker—8" electro-dynamic
32	116077	Resistor—150 ohms—¼ watt
33-34	116625	Condenser—.1 mfd. 600 volt
35	116893	Condenser—.02 mfd. 600 volt
36	116950	Coil—antenna
37	116954	Transformer—1st I.F.
38	116955	Transformer—2nd I.F.
39	116967	Resistor—25 ohms 1 watt wire wound
40A-40B	116996	Condenser—variable gang
41	M-117091	Transformer—output for M-115059 speaker
42	M-117092	Cone & Voice coil assembly for M-115059 speaker
43	117022	Condenser—.002 mfd. 600 volt
44	117024	Switch—push button
45	117025	Tone control
46	117026	Range switch
47A to 47J	117027	Trimmer condenser—gang
48	117032	Resistor—300 ohms 1 watt
49A-49B	117034	Condenser—dual electrolytic—Section A, 10 mfd.—Section B, 15 mfd.
50A-50B	117035	Volume control with on-off switch
51	117037	Coil—oscillator

NOTE A: The bias on the control grids of the 6SA7 and 6SK7 tubes and on the diode plates of the 6SQ7 tube is —2.7 volts measured across resistor No. 32.



NOTE B: The bias on the control grid of the 6F6G tube is —16 volts measured across resistors No. 39 and 48.

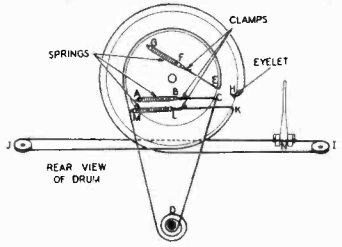
NOTE C: The bias on the control grid of the 6SQ7 tube is —4 volts measured across resistor No. 39.

ALIGNMENT PROCEDURE FOR 01-5H CHASSIS

1. Connect the output meter across the voice coil or between the plate of the 6F6G output tube and ground in series with a .1 mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the "G" terminal or the chassis. NOTE: Remove the connector from between the "A" and "X" terminals.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the entire alignment procedure.
4. With the gang condenser in full mesh, set the pointer at a point 1½" from the left flange of the brown dial plate. This point corresponds to the last mark on the low frequency end of the dial scale. If the pointer is incorrectly set, it is only necessary to loosen the set screws on the dial drive drum and push the gang condenser in full mesh, with the pointer properly set, then retighten the set screws.

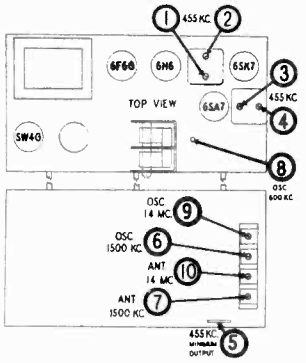
Dummy Ant. in Series with Sig Gen.	Connection of Sig. Generator Output To Receiver	Signal Generator Frequency	Band Switch Position	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD. Condenser	Front Lug of Gang Condenser	455 KC	Broadcast	Any Point Where It Does Not Affect The Signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
200 MMFD. Mica Condenser	"A" Terminal	455 KC	Broadcast	Any Point Where It Does Not Affect The Signal	5	Wave Trap	Adjust for minimum output using a strong generator signal.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	1500 KC (2⅜" from right Dial Plate end)	6	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	Tune To 1500 KC Generator Signal	7	Broadcast Antenna	Adjust for maximum output.
200 MMFD. Mica Condenser	"A" Terminal	600 KC	Broadcast	Tune To 600 KC Generator Signal	8	Broadcast Oscillator (Series Pad)	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	"A" Terminal	14 MC	Foreign	14 MC (2 7/16" from right Dial Plate end)	9	Foreign Oscillator (Shunt)	Adjust for maximum output. Check to see if proper peak was obtained by tuning in image at approx. 13.1 MC. If image does not appear realign at 14 MC. with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	"A" Terminal	14 MC	Foreign	14 MC	10	Foreign Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

REPLACING TUNING AND POINTER DRIVE CARDS



MISCELLANEOUS PARTS

Part Number	Description	List Price
117008	Call letter tabs and instruction sheets	$0.45
114955	Clamp for dial cord	.01
112745	Clip—coil mtg.	.01
112798	Clip—wave trap mtg.	.01
85321	Connector—for internal antenna	.01
118948	Cord—dial	.18
117057	Cord—drive	.15
117021	Dial scale and escutcheon	1.75
117029	Drive drum and bushing	.50
116988	Escutcheon for push buttons	.30
88348	Eyelet for dial cord Per Dz.	.05
116773	Knob—tuning or volume	.10
116952	Pin for push buttons	.02
110496	Plug—4 prong for speaker	.12
117036	Pointer assembly	.28
112762	Pulley—dial cord drive	.04
116999	Push button	.08
117019	Reflector—for pilot light	.04
81145	Retaining ring—for drive shaft Per C	.50
83552	Screw—chassis mtg.	.03
85040	Screw—No. 6 Hex. Hd. Per C	.35
83624	Screw—self tapping 8 x ¼	.01
114914	Screw—special head—for mtg. escutcheon Per Dz.	.15



Part Number	Description	List Price
114117	Socket—dial lamp	$0.18
110501	Socket—4 prong (for speaker)	.16
116690	Socket—octal base (small)	.12
111090	Spacer—steel	.02
116981	Spring—pointer cord tension	.06
113177	Spring—dial cord tension	.09
117458	Spring—push button	.05
116536	Terminal strip (G.X.A.)	.15
84407	Terminal strip—phono	.12
117033	Tuning shaft	.12
111456	Washer—spring washer Per C	.50
116530	Washer—(paper) for back of knobs	.005

ALIGNMENT EQUIPMENT & PROCEDURE

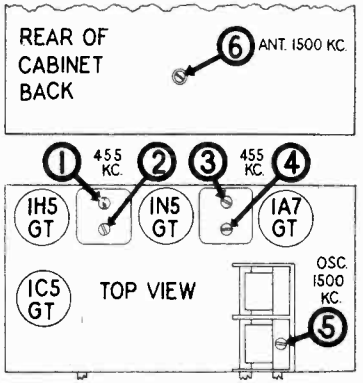
02-4A

FOR ALIGNMENT an output meter and an accurately calibrated signal generator are required.

1. Connect the output meter across the voice coil or between the plate of the 1C5GT output tube and ground through a 0.1 Mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the chassis.
3. Turn the volume control to the maximum volume position and keep it in this position while aligning. The loop antenna should always be connected.
4. With the gang condenser in full mesh, set the dial pointer in a horizontal position. If the pointer is incorrectly set, it is merely necessary to loosen the set screw on the dial drum, move the pointer to the horizontal position with the gang in full mesh, and tighten the set screw.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD. Condenser	Control Grid of 1A7GT	455 KC.	Any Point Where It Does Not Affect Signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
At this point place the chassis in the cabinet and turn the dial until the pointer indicates 1500, now remove the chassis and proceed with the alignment without disturbing this dial setting.						
400 Ohm Carbon Resistor	"Ant" Terminal	1500 KC.	1500 KC.	5	Broadcast Oscillator (Shunt)	Adjust trimmer for maximum output.
400 Ohm Carbon Resistor	"Ant" Terminof	1500 KC.	Tune To 1500 KC Generator Signal	6	Broadcast Antenna	Adjust for maximum output.

Now disconnect the output meter and signal generator leads and replace the chassis and batteries in the cabinet being sure to connect the loop. Bring the antenna lead of the signal generator near the loop until the 1500 KC. signal is heard weakly, and readjust trimmer No. 6 for maximum output by ear.



USING AN OUTSIDE ANTENNA

An outside antenna may be connected to this radio to provide better signal pick-up on weak stations. When this is done, a ground connection should also be used. The antenna and ground wires should be brought in through the hole provided in the bottom of the cabinet and connected to the terminals marked "ANT." and "GND." on the inside of the cabinet back.

When using an outside antenna, a weak signal near 1500 KC should be tuned in and trimmer No. 6 adjusted for maximum volume. If it is impossible to get a proper peak on this trimmer, check the connections of the white and green-white wires to see if they are reversed.

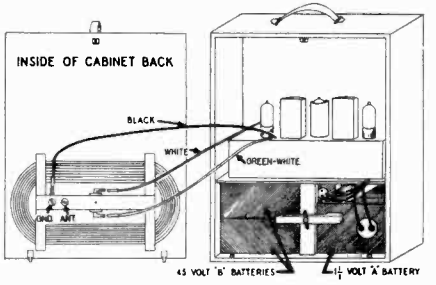
INSTALLATION OF BATTERIES

The following 1½ volt "A" batteries will fit the space provided: Eveready No. 743 or Ray-O-Vac No. P96A.

"B" batteries of the proper size are Eveready No. 727 or No. 482 or Ray-O-Vac No. BB30P. Where long life is desired, the Eveready No. 482 is especially recommended.

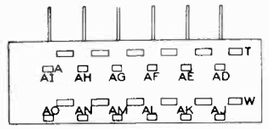
To install the batteries, first slide the "B" batteries into place as shown in the drawing below, and connect a three pronged plug to each one. Slide the "A" battery into place as shown and connect the two pronged plug to it. Fasten the battery supporting block as shown and secure it with a washer and wing nut.

CAUTION: Do not attempt to install or remove the "B" batteries unless the battery plugs are disconnected. When replacing the cabinet back be sure to connect the plugs to the proper receptacles on the loop as shown in the drawing, otherwise improper operation may result.



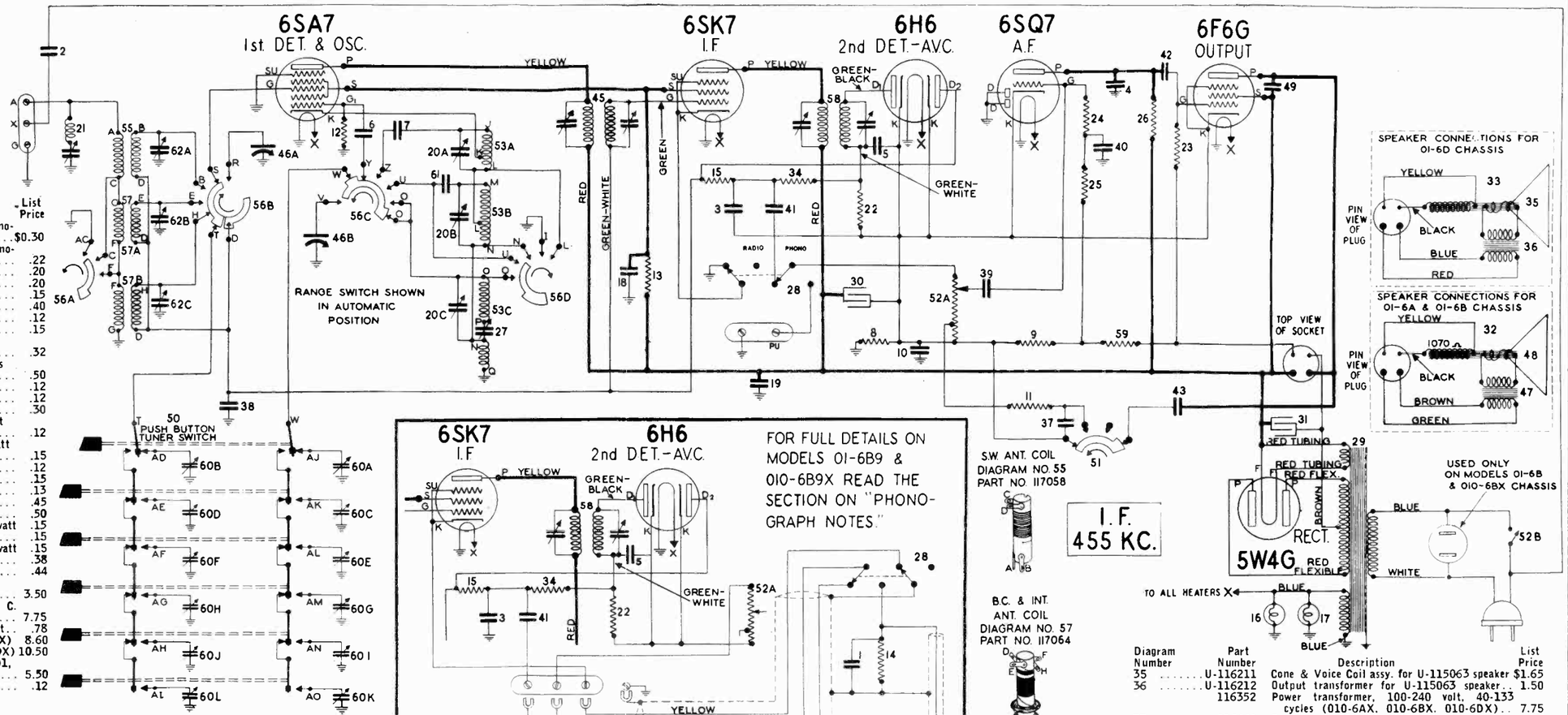
STEWART-WARNER CORP.

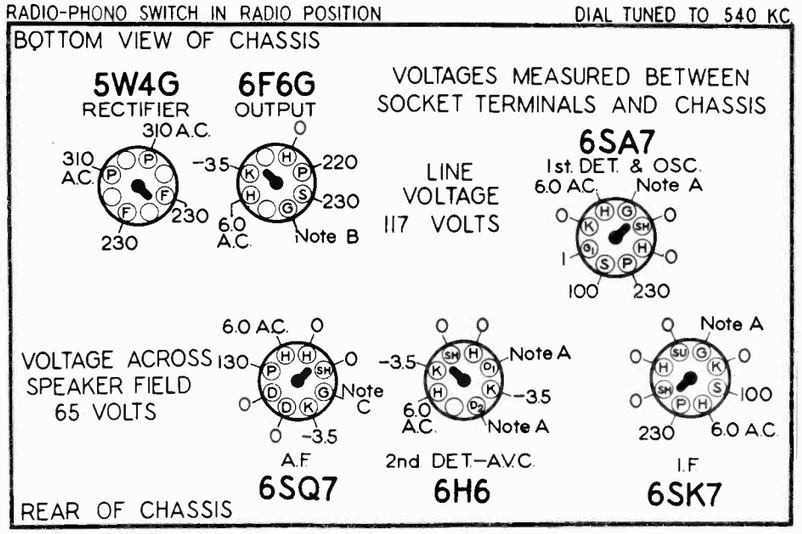
CHASSIS 01-6A, 010-6AX, 01-6B, 010-6BX, 01-6D, 010-6DX
Schematic, Voltage, Socket, Phono. Schematic



PUSH BUTTON TUNER SWITCH DIAGRAM NO. 50

Diagram Number	Part Number	Description	List Price
1	81156	Condenser—mica, .001 mfd. (see "Phonograph Notes")	$0.30
	111122	Condenser—mica, .003 mfd. (see "Phonograph Notes")	.22
2-3-4	83539	Condenser—mica, 260 mmfd.	.20
5	83783	Condenser—mica, 110 mmfd.	.20
6	85061	Condenser—mica, 51 mmfd.	.15
7	85440	Condenser—mica, 3510 mmfd.	.40
8	88460	Resistor—150 ohms, ½ watt, W.W.	.12
9	88465	Resistor—25 ohms, ½ watt, W.W.	.15
10	89532	Condenser—paper, .25 mfd., 200 volts (01-6A, 01-6B, 010-6AX, 010-6BX)	.32
	117356	Condenser—electrolytic, 10 mfd., 25 volts (01-6D, 010-6DX only)	.50
11	110552	Resistor—carbon, 47,000 ohms, ¼ watt	.12
12	110565	Resistor—carbon, 22,000 ohms, ¼ watt	.12
13	110575	Resistor—carbon, 12,000 ohms, 2 watts	.30
14	110578	Resistor—carbon, 68,000 ohms, ¼ watt (see "Phonograph Notes")	.12
	112971	Resistor—insulated 470,000 ohms ¼ watt (see "Phonograph Notes")	.15
15	110580	Resistor—carbon, 3.3 meg., ¼ watt	.12
16-17	110629	Lamp—6.3 volts—.25 amps.	.15
18-19	111252	Condenser—paper, .05 mfd., 400 volt	.13
20A-20B-20C	112072	Condenser—trimmer—3 sections	.45
21	112796	Coil—wave trap (with trimmer)	.50
22-23	112971	Resistor—insulated, 470,000 ohms, ¼ watt	.15
24-25	112972	Resistor—insulated, 1 meg., ¼ watt	.15
26	112987	Resistor—insulated, 220,000 ohms. ¼ watt	.15
27	113346	Condenser—padding	.38
28	114141	Switch—D.P.D.T.	.44
29	114530	Power transformer, 117 volt, 60 cycle (01-6A, 01-6B, 01-6D)	3.50
	116352	Power transformer, 110-240 V., 40-133 C. (010-6AX, 010-6BX, 010-6DX)	7.75
30-31	114972	Condenser—electrolytic, 16 mfd., 450 volt	.78
32	U-115060	Speaker—dynamic, 10", (01-6A7, 010-6A7X)	8.60
	U-115061	Speaker—dynamic, 12", (01-6B9, 010-6B9X)	10.50
33	U-115063	Speaker—dynamic, 6", (01-6D4, 01-6D1, 010-6DX)	5.50
34	116058	Resistor—carbon, 47,000 ohms, ¼ watt	.12

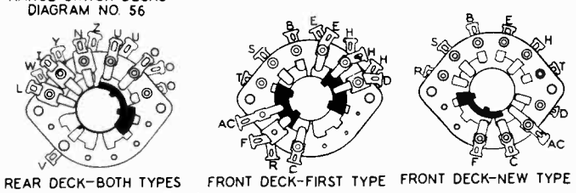




These readings were taken, using a high resistance voltmeter of 1000 ohms per volt.

NOTE A: The bias on the control grids of the 6SK7 and 6SA7 tubes and on the diode plates of the 6H6 tube is —2.7 volts measured across resistor No. 8.

FRONT VIEWS OF RANGE SWITCH DECKS DIAGRAM NO. 56



REAR DECK—BOTH TYPES | FRONT DECK—FIRST TYPE | FRONT DECK—NEW TYPE

TERMINALS OF THE ILLUSTRATIONS ABOVE CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM.

MISCELLANEOUS PARTS

Part Number	Description	List Price
117009	Call tabs and instruction sheets for 01-6A sets	$0.45
117010	Call tabs and instruction sheets for 01-6B sets	.50
117534	Call tabs and instruction sheets for 01-6D sets	.45
114955	Clamp—for dial cord	.01
112745	Clip—coil mounting	.01
112798	Clip—for mounting wave trap	.01
85321	Connector—for internal antenna	.01
116948	Cord—dial (6 ft. lengths)	.18
117057	Cord—drive (3 ft. lengths)	.15
111973	Cushion—rubber rest for back of chassis (01-6A7, 010-6A7X)	.06
117028	Dial plate & pulley assembly (01-6A, 01-6B)	1.00
117194	Dial plate & pulley assembly (01-6D)	.85
117042	Dial scale and escutcheon (01-6A, 01-6B)	1.50
117198	Dial scale and escutcheon (01-6D)	1.25
117029	Drive drum and bushing	.50
116998	Escutcheon for push buttons	.30
88348	Eyelet—for dial cord Per Doz.	.05
116773	Knob—tuning or volume	.10
116952	Pin for push buttons	.02
117036	Pointer assembly (01-6A, 01-6B)	.28
117195	Pointer assembly (01-6D)	.32
116999	Push buttons	.08
116165	Receptacle for 2 prong plug	.50
117019	Reflector—for pilot lights	.04
81145	Retaining ring—for drive shaft Per C	.50
114148	Rotor—for power transformer switch (010-6AX, 010-6BX, 010-6DX)	

NOTE B: The bias on the control grid of the 6F6G tube is —16 volts, measured across resistors No. 9 and 59.

NOTE C: The bias on the control grid of the 6SQ7 tube is —1.4 volts measured across resistor No. 9.

Diagram Number	Part Number	Description	List Price
35	U-116211	Cone & Voice Coil assy. for U-115063 speaker	$1.65
36	U-116212	Output transformer for U-115063 speaker	1.50
	116352	Power transformer, 100-240 volt, 40-133 cycles (010-6AX, 010-6BX, 010-6DX)	7.75
37	116640	Condenser—.01 mfd., 600 volts	.15
38-39-40	116819	Condenser—.05 mfd., 600 volts	.20
41-42-43	116893	Condenser—.02 mfd., 600 volts	.15
44	116942	On-Off Phono switch (01-6B9, 010-6B9X)	.25
45	116954	Transformer—1st I.F. (01-6A, 01-6B, 01-6D)	1.20
	117523	Transformer—1st I.F. (010-6AX, 010-6BX, 010-6DX)	1.35
46A-46B	116996	Condenser—variable gang	3.30
47	U-117004	Output transformer for U-115060 & U-115061 speakers	2.50
48	U-117005	Cone & Voice coil assy. for U-115060 speaker	2.50
	U-117071	Cone & Voice coil assy. for U-115061 speaker	2.30
49	117022	Condenser—.002 mfd., 600 volt	.15
50	117024	Switch—push button	2.80
51	117025	Tone control switch	.60
52A-52B	117035	Volume control with switch—1 meg.	1.00
53A-53B-53C	117039	Coil—oscillator (with trimmers)	2.15
54	117053	Phono pickup arm with arm rest and mtg. nut (01-6B9, 010-6B9X)	7.25
55	117058	Coil—antenna S.W.	.50
56A to 56D	117062	Range switch	1.90
57A-57B	117064	Coil—antenna, B.C. & Pol. or Int.	1.00
	117071	Coil & Voice coil assy. for U-115061 speaker	2.30
	117072	Transformer—2nd I.F. (01-6A, 01-6B, 01-6D)	1.20
58	117580	Transformer—2nd I.F. (010-6AX, 010-6BX, 010-6DX)	1.20
59	117075	Resistor—300 ohms 1 watt W.W.	.16
60A to 60L	117081	Push button trimmer gang condenser assy.	5.20
61	117113	Condenser—mica, 1760 mmfd.	.30
	117356	Condenser—electrolytic, 10 mfd., 25 volt (01-6D, 010-6DX only)	.50
62	117450	Condenser—trimmer—3 section	.40
	117523	Transformer—1st I.F. (010-6AX, 010-6BX, 010-6DX)	1.35
	117580	Transformer—2nd I.F. (010-6AX, 010-6BX, 010-6DX)	1.20
63		See Phonograph parts list.	

RANGE SWITCH

Two types of range switches were used in these receivers. Both switches are electrically identical, although the contacts are arranged differently on the front decks of the two types. The rear decks of both switches are identical. Illustrations of both types of switch decks adjacent to the circuit diagram show the connections to the various lugs, as they correspond to lettered terminals on the circuit diagram. Coil and push button tuner switch drawings give the same information regarding connections.

CHASSIS 01-6A,010-6AX,01-6B,010-6BX,01-6D,010-6DX
Alignment,Trimmers,Phono.Notes,Drive Cord Data

STEWART-WARNER CORP.

MODELS 01-6C9,010-6C9X
Alignment,Trimmers,Drive Cord,Tuner,Notes

ALIGNMENT EQUIPMENT & PROCEDURE

FOR ALIGNMENT: An output meter and an accurately calibrated signal generator are required.

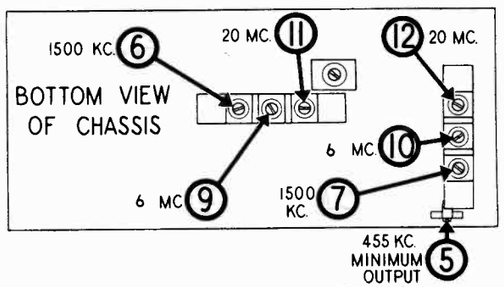
1. Connect the output meter across the voice coil or between the plate of the 6F6-G output tube and ground in series with a .1 mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the "G" terminal or the chassis.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the entire alignment procedure. Remove the connector from between the "A" and "X" terminals.
4. The pointer should be at the following distances with the gang condenser in full mesh:
   01-6D & 010-6DX CHASSIS: 2 $\frac{1}{16}$ inches from the LEFT end of the dial plate.
   01-6A, 010-6AX, 01-6B, & 010-6BX CHASSIS: 1⅜ inches from the LEFT end of the dial plate.

NOTE: When aligning models 01-6B9 and 010-6B9X, make the following connections at the phonograph terminal strip on the rear of the chassis near the center:
Ground the right hand terminal (the one nearest the push button trimmers).

Connect the center and left hand terminals together.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output To Receiver	Signal Generator Frequency	Band Switch Position	Pointer Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD Condenser	Front Lug on Gang Condenser	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.	
200 MMFD. Mica Condenser	Antenna Terminal "A"	455 KC	Broadcast	Any Point Where It Does Not Affect the Signal	5	Wave Trap	Adjust for Minimum Output, using a strong generator signal.
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC	Broadcast	*1500 KC	6	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	7	Broadcast Detector	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal "A"	600 KC	Broadcast	Tune to 600 KC Generator Signal	8	Broadcast Oscillator (Series)	Adjust for Maximum Output. Try to increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
400 OHM Carbon Resistor	Antenna Terminal "A"	6 MC	Intermediate	*6 MC	9	Intermediate Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 5.1 MC. If Image does not appear, Realign at 5 MC with Trimmer Screw farther Out. Recheck Image.
400 OHM Carbon Resistor	Antenna Terminal "A"	6 MC	Intermediate	Tune to 6 MC Generator Signal	10	Intermediate Antenna	Adjust for Maximum Output.
400 OHM Carbon Resistor	Antenna Terminal "A"	20 MC	Foreign	*20 MC	11	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was obtained by Tuning in Image at Approx. 19.1 MC. If Image does not appear Realign at 20 MC with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	Antenna Terminal "A"	20 MC	Foreign	Tune to 20 MC Generator Signal	12	Foreign Antenna	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is obtained.

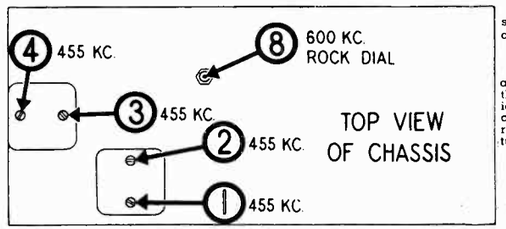
*For pointer settings at these frequencies, see "Alignment Points"



TONE CONTROL CIRCUIT CHANGES

The tone control circuit used in most receivers of this model is shown in the circuit diagram on the reverse side of this sheet. Chassis employing this type of tone control circuit are stamped with the letter "S" on the chassis.

To the right of the circuit diagram is shown a tone control circuit used in some early receivers. Note the important differences both in the set itself and in the push button circuit. A few receivers incorporate a tone control circuit differing from both circuits illustrated. In these cases, it is suggested that the serviceman revise these earlier circuits so as to convert them to the tone control circuit illustrated at the right of the receiver circuit diagram.



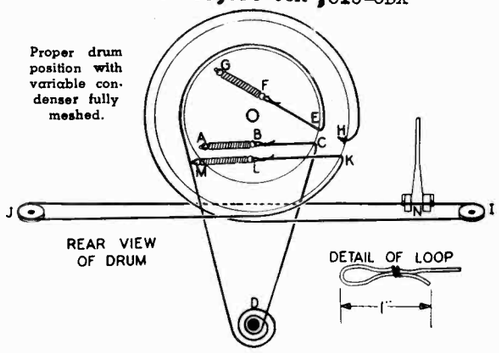
In some chassis, Resistor No. 31 was 22,000 ohms instead of 47,000 ohms. If this lower value resistor is replaced by the 47,000 ohm unit, an improvement in tone will result, especially noticeable on higher volume.

IMPORTANT: Servicemen are cautioned not to interchange radio chassis indiscriminately in these receivers. The tone control circuit of an early receiver will not operate with a chassis of the later type (Stamped "S") and vice versa. Should it be necessary to interchange chassis and tone control assemblies, change the connections of the switch or of the set to conform to the circuit diagram.

PHONOGRAPH PICK-UP CIRCUIT CHANGES

Some of the earlier chassis of this model did not include the 220,000 ohm resistor or the 0.001 mfd. condenser, which are shown connected across the pick-up. If either of these units are missing, or are of a value different from that specified, the insertion of the proper units will improve the tone when records are being played.

Chassis 01-6A,010-6AX,01-6B DIAL CORD REPLACEMENT
01-6C,010-6CX,010-6BX



TO REPLACE THE TUNING DRIVE CORD

1. 19¾ inches of dial drive cord (part No. 117057) are required. Make a one-inch loop in each end of this cord, using a dial cord clip, (part No. 114955) (See sketch above for detail of loop). A knot may be tied if a slightly smaller loop is made.
2. Fasten one end of a tension spring (part No. 113177) to the loop at point B and the other end of the spring to tab A.
3. Pass the other end of the dial cord through hole C in the inner drum and
4. Make two and a half turns of the cord about tuning shaft D.
5. Continue the cord clockwise (rear view) about the inner drum and pass it through hole E.
6. Fasten a tension spring, (part No. 113177) to the other loop of the cord at point F and fasten the spring to the tab G.

TO REPLACE THE POINTER DRIVE CORD

1. 37 inches of pointer drive cord, (part No. 116948) are required. Fasten an eyelet (part No. 88348) at a point one-half inch from one end of this cord.
2. Pass the other end of the cord outward through hole H in the larger drum.
3. Fashion a one-inch loop at outer end of the pointer cord, (See detail of loop in illustration), using a dial cord clip (part No. 114955), or tie a knot using a smaller loop.
4. Continue the cord counter-clockwise (rear view) around the larger drum and around the rear of pulley I from the rear to the front.
5. Go from pulley I around the front of pulley J and counter-clockwise (rear view) around the larger drum to hole K.
6. Pass the loop through hole K and fasten it to one end of a tension spring (part No. 113177) at point L, the other end of the spring being fastened to point M.
7. Clip the dial pointer to the cord. With the drum in the position shown, and with the gang condenser in full mesh, fasten the pointer so that it is at a point 1⅜ inches from the left end of the brown dial plate (front view).

PHONOGRAPH NOTES

On early releases of model 01-6B9, a 220,000 ohm resistor was connected across the phonograph pickup at the "PHONO-RADIO" switch.

In order to eliminate needle scratch on these sets, a 68,000 ohm resistor and a .003 mfd. condenser were substituted for the 220,000 ohm resistor. These were connected as shown in the circuit diagram and are included on the parts list under diagram numbers 1 and 14.

On all late releases a pickup with different cushioning was used, and the values of the resistor and condenser were changed to 470,000 ohms and .001 mfd. These values are also included under diagram numbers 1 and 14.

If "growling" is encountered during phonograph operation, the chassis mounting bolts should be checked to see that they are loose enough to allow the chassis to float on its rubber cushions.

If the set is of the early type using the 220,000 ohm resistor, the substitution of the 68,000 ohm resistor and .003 mfd. condenser described above may help to reduce "growling."

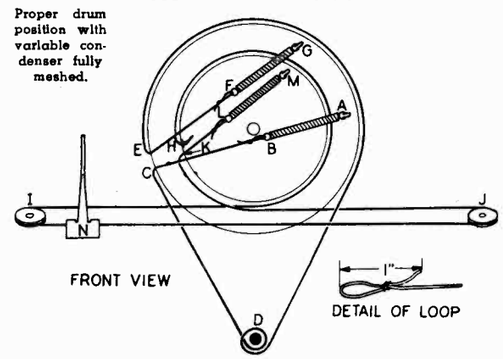
RANGE SWITCH

Two types of range switches were used in this receiver. Both switches are electrically identical, although the contacts are arranged differently on the front decks of the two types. The rear decks of both switches are identical. Illustrations of both types of switch decks adjacent to the circuit diagram show the connections to the various lugs, as they correspond to lettered terminals on the circuit diagram. Coil and push button tuner switch drawings give the same information regarding connections.

SETTING UP PUSH BUTTONS

1. Always allow set to warm up thoroughly before attempting to set up the push buttons. Fifteen minutes will suffice.
2. Set must be connected to a good antenna system, preferably the antenna on which it is to operate.
3. On the bottom of the chassis, as viewed from rear of cabinet will be seen six pairs of adjusting screws, which are used to adjust the push button trimmers to the selected stations. The larger of the two screws in each case adjusts BOTH the oscillator and antenna trimmers, while the smaller screw is a vernier adjustment on the antenna trimmer.
4. The frequency range of the trimmers is indicated on the sticker adjacent to the trimmer adjusting screws. Select six local stations whose frequencies fall within the tuning range of the individual trimmers.

MODELS 01-6D & 010-6DX



TO REPLACE THE TUNING DRIVE CORD

1. 25½ inches of dial drive cord (part No. 117057) are required. Make a one-inch loop in each end of this cord, using a dial cord clip, (part No. 114955) (See sketch above for detail of loop). A knot may be tied if a slightly smaller loop is made.
2. Fasten one end of a tension spring (part No. 113177) to the loop at point B and the other end of the spring to tab A.
3. Pass the other end of the dial cord through hole C in the outer drum.
4. Make one and a half turns of the cord about tuning shaft D.
5. Continue the cord counter-clockwise about the outer drum and pass it through hole E.
6. Fasten a tension spring, (part No. 113177) to the other loop of the cord at point F and fasten the spring to the tab G.

TO REPLACE THE POINTER DRIVE CORD

1. 34⅛ inches of pointer drive cord, (part No. 116948) are required. Fasten an eyelet (part No. 88348) at a point one-half inch from one end of this cord.
2. Pass the other end of the cord outward through hole H in the smaller drum.
3. Fashion a one-inch loop at outer end of the pointer cord, (See detail of loop in illustration), using a dial cord clip (part No. 114955), or tie a knot using a smaller loop.
4. Continue the cord clockwise around the smaller drum and around pulley I from the rear to the front.
5. Go from pulley I around the front of Pulley J and clockwise around the smaller drum to hole K.
6. Pass the loop through hole K and fasten it to one end of a tension spring (part No. 113177) at point L, the other end of the spring then being fastened to point M.
7. Clip the dial pointer to the cord. With the drum in the position shown, and with the gang condenser in full mesh, fasten the pointer so that it is at a point 2 $\frac{1}{16}$" from the left end of the brown dial plate.

ALIGNMENT POINTS

Frequency	Pointer Distance in inches from Right End of Brown Dial Plate	
	Models 01-6A, 010-6AX, 01-6B, 010-6BX	Models 01-6D & 010-6DX
1500 KC	2-5/16"	3"
6 MC.	2-3/8"	2-15/16"
20 MC.	2-3/16"	2-7/8"

5. Label the push buttons with the call letters of the selected stations, assigning the lowest frequency station to the extreme left hand button and the highest frequency station to the extreme right hand button.
6. Turn the range switch to "B" and manually tune in the station you wish to set up on the extreme left hand button.
7. Turn the range switch to "A" and push in the left hand button. Using a small screwdriver, adjust the large screw of the No. 1 trimmer until the station you had previously tuned in manually is again heard. Adjust this screw to the point where the program is heard with the deepest tone.
8. Insert the screwdriver in the small screw of this trimmer and turn it until the station is heard with deepest tone. Now again check the setting of the larger adjusting screw, making sure it is adjusted to the point of deepest tone.
9. The set-up for this button is now complete. Set up the remaining buttons in a similar manner.
10. In some instances it may be necessary to reset the trimmer after several months, as they may drift due to heat, humidity, etc.

Do not adjust trimmers too tightly or too loosely. Wherever possible, select stations that will fall well within the frequency ranges specified on the trimmers.

SETTING THE DIAL POINTER

Since the dial scale is printed on the escutcheon glass, the serviceman will not know whether the pointer is set correctly unless the set is in place in the cabinet. With the gang condenser in full mesh, the dial pointer should be at a point 1⅜ inches from the left end of the brown dial plate. If the pointer is not set correctly, loosen the two set screws holding the dial drum to the condenser shaft. Then hold the condenser in full mesh and move the dial drum until the pointer reaches the proper point, then tighten the set screws.

When replacing the chassis in the cabinet, be sure it is in the position giving most accurate dial calibration.

FOR OTHER DATA SEE INDEX

STEWART-WARNER CORP.

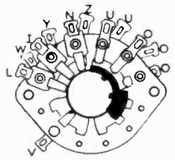
MODELS 01-6C9, Ch. 01-6C; 010-6C9X, Ch. 010-6CX
Schematic, Voltage, Socket, Changes

SW ANT. COIL
DIAGRAM NO. 45
PART NO. 117058

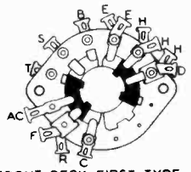
B.C. & INT. ANT. COIL
DIAGRAM NO. 46
PART NO. 117064

OSC. COIL
DIAGRAM NO. 44
PART NO. 117039

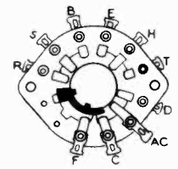
FRONT VIEWS OF RANGE SWITCH DECKS DIAGRAM NO. 50



REAR DECK-BOTH TYPES

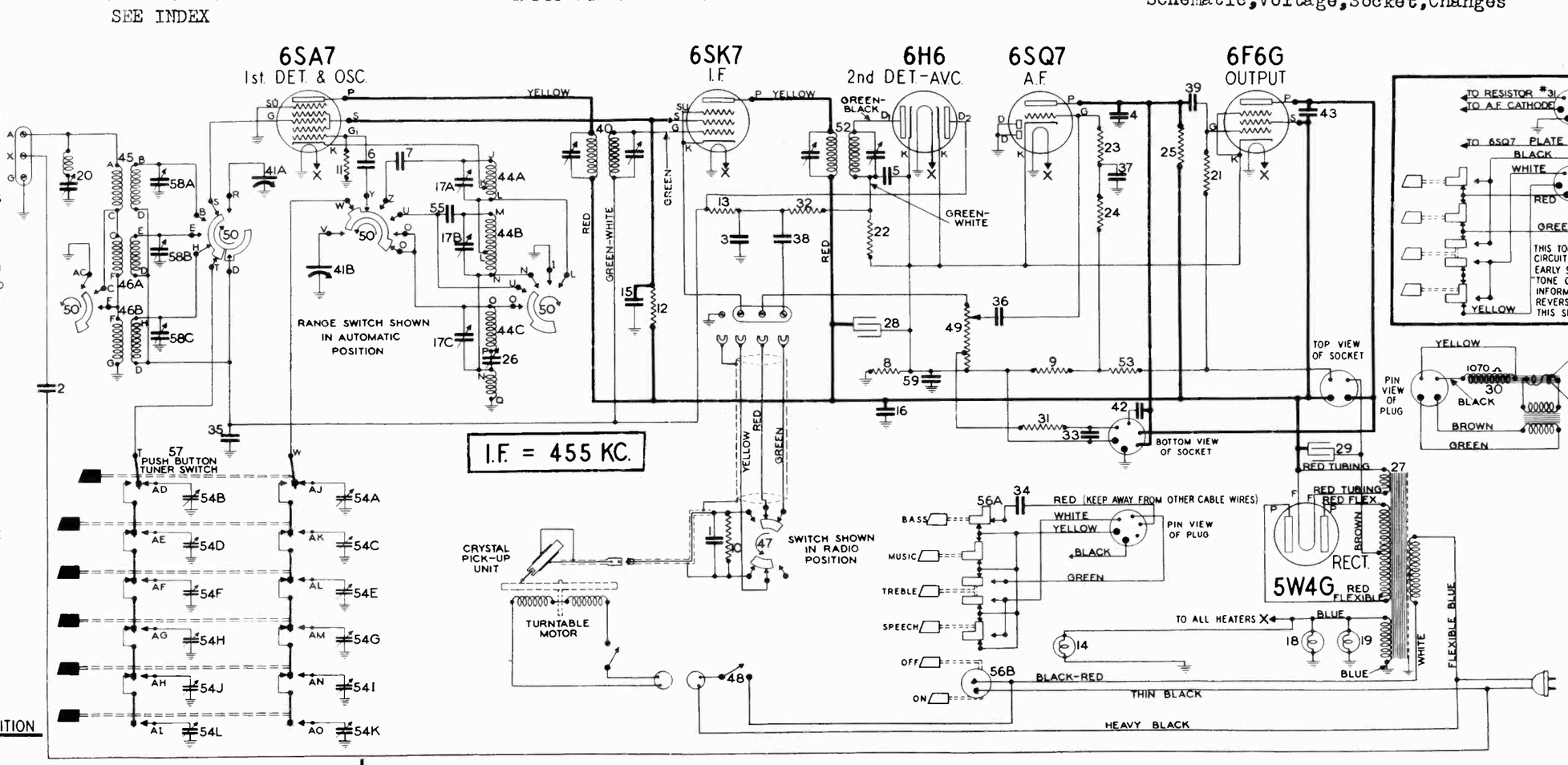


FRONT DECK-FIRST TYPE



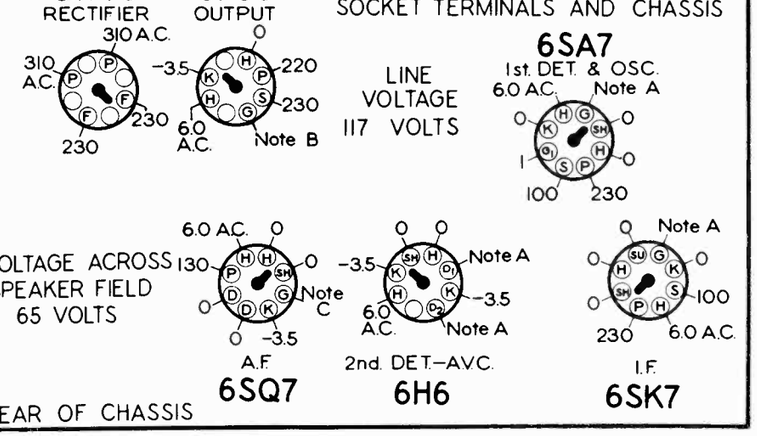
FRONT DECK-NEW TYPE

TERMINALS OF THE ILLUSTRATIONS ABOVE CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM.



DIAL TUNED TO 540 KC.
RADIO-PHONO SWITCH IN RADIO POSITION

BOTTOM VIEW OF CHASSIS



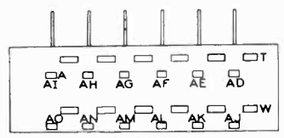
These readings were taken, using a high resistance voltmeter of 1000 ohms per volt.

NOTE A: The bias on the control grids of the 6SK7 and 6SA7 tubes and on the diode plates of the 6H6 tube is —2.7 volts measured across resistor No. 8.

NOTE B: The bias on the control grid of the 6F6G tube is —16 volts, measured across resistors No. 9 and 53.

NOTE C: The bias on the control grid of the 6SQ7 tube is —1.4 volts measured across resistor No. 9.

Diagram Number	Part Number	Description	List Price
1	81156	Condenser—mica 1000 mmfd.	$ 0.30
2-3-4	83539	Condenser—mica 260 mmfd.	.20
5	83783	Condenser—mica 110 mmfd.	.20
6	85061	Condenser—mica 51 mmfd.	.15
7	85440	Condenser—mica .00351 mfd. 3%	.40
8	88460	Resistor—wire wound 150 ohms ½ watt	.12
9	88465	Resistor—wire wound 25 ohms ½ watt	.15
10	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
11	110565	Resistor—carbon 22,000 ohms ¼ watt	.12
12	110575	Resistor—carbon 12,000 ohms 2 watts	.30
13	110580	Resistor—carbon 3.3 megohm ¼ watt	.12
14	110629	Lamp—6.3 volt—.25 amps.	.15
15-16	111252	Condenser—paper .05 mfd. 400 volt	.13
17A-17B-17C	112072	Condenser—trimmer—3 section	.45
18-19	112636	Lamp—dial (frosted) 6-8 volt—.25 amps.	.25
20	112796	Coil—wave trap (with trimmer)	.50
21-22	112971	Resistor—insulated 470,000 ohms ¼ watt	.15
23-24	112972	Resistor—insulated 1 megohm ¼ watt	.15
25	112987	Resistor—insulated 220,000 ohms ¼ watt	.15
26	113346	Condenser—padding	.38
27	114530 / 116352	Power Transformer 117 volt—60 cycle / Power Transformer 100-240 volt; 40-133 cycles	3.50 / 7.75
28-29	114972	Condenser—electrolytic 16 mfd. 450 volt	.78
30	U-115061	Speaker—electro-dynamic 12"	10.50
31-32	116058 / 116352	Resistor—carbon 47,000 ohms ¼ watt / Power Transformer 100-240 volt: 40-133 cycles	.12 / 7.75
33-34	116640	Condenser—.01 mfd. 600 volt	.15
35-36-37	116819	Condenser—.05 mfd. 600 volt	.20
38-39	116893	Condenser—.02 mfd. 600 volt	.15
40	116954 / 117598	Transformer—1st I.F. (010-6CX) / Transformer—1st I.F. (010-6CX)	1.20 / 1.20
41A-41B	116996	Condenser—variable gang	3.30
42-43	117022	Condenser—.002 mfd. 600 volt	.15
44A-44B-44C	117039	Coil—oscillator (with trimmers)	2.15
45	117058	Coil—antenna (short wave)	.50
46A-46B	117064	Coil—antenna	1.00
47	117067	Switch (Radio Phono)	.55
48	117068	Switch for Phono motor	$ 0.60
49	117069	Volume control	.85
50	117070	Range switch	1.70
51	U-117071	Diaphragm assembly for U-115061 speaker	2.30
52	117072 / 117580	Transformer—2nd I.F. / Transformer—2nd I.F. (010-6CX only)	1.20 / 1.20
53	117075	Resistor—300 ohms 1 watt wire wound	.16
54A to 54L	117081	Push button trimmer gang assembly	5.20
55	117113	Condenser—mica .001/6 mfd. 3%	.30
56A-56B	117115	Switch—push button for tone control and on-off switch	2.30
57	117126	Push button switch	2.40
58A-58B-58C	117450 / 117580 / 117598	Trimmer condenser strip—3 gang / Transformer—2nd I.F. (010-6CX only) / Transformer—1st I.F. (010-6CX only)	.40 / 1.20 / 1.20
59	118206	Condenser—.25 mfd. 600 volt	.35



PUSH BUTTON TUNER SWITCH DIAGRAM NO 57

DIAL AND MISCELLANEOUS PARTS

Part Number	Description	List Price
117127	Cable (Phono Pick Up)	$0.40
84572	Cable—shielded for phono pick up (24")	.60
114955	Clamp for dial cord	.01
112745	Clip—coil mounting	.01
112798	Clip—for mtg. wave trap	.01
85321	Connector—for internal antenna	.01
116948	Cord—dial	.18
117057	Cord—drive	$0.15
117028	Dial plate & pulley assembly	1.00
117029	Drive drum & bushing	.50
117042	Escutcheon & Dial Scale	1.50
116998	Escutcheon for push buttons	.30
88348	Eyelet—for dial cord	Dz. .05
117131	Indicator button (bulls eye)	.12
116773	Knob—tuning or volume	.10
84571	Needle cup for phono	.10
116952	Pin for push buttons	.02
117118	Plug (female for motor cable)	.10
117114	Plug (male for motor cable)	.15
110496	Plug—speaker (4 prong)	.12
117036	Pointer Assembly	.28
116999	Push Button	.08
117019	Reflector—for pilot lights	.04
81145	Retaining ring—for drive shaft	Per C .50
114148	Rotor Voltage Switch	.50
113463	Rubber bushing—chassis mtg.	.03
83624	Screw—self tapping 8 x ¼	.01
85827	Screw—No. 8-32 Sq. Head Set Screw	.02
85040	Screw—No. 6 Hex. Hd.	Per C .35
114914	Screw—special head—for mtg. escutcheons	Per Dz. .15
81834	Socket—6 prong	.10
110501	Socket—4 prong (for spkr.)	.16
114117	Socket—dial lamp	.18
117123	Socket—for pilot light	.26
116690	Socket—(octal base) (small)	.12
117078	Socket—octal with special grounding lug	.12
111090	Spacer—steel, mechanism mtg. to chassis	.02
113177	Spring—dial cord tension	.09
117458	Spring—push button	.05
116981	Spring—for pointer	.02
117011	Station tabs & instruction sheets	.40
84412	Terminal strip—phono	.03
116536	Terminal strip (G.X.A.)	.15
117103	Tuning shaft	.06
117102	Tuning shaft extension	.10
111456	Washer—spring washer	Per C .50
116530	Washer (paper) for back of knobs	.005

Servicing the Automatic Record Changer

Before servicing the automatic record changer, inspect the assembly to see that all levers, parts, gears, springs, etc., are in good order and are correctly assembled.

A bind or jam in the mechanism can usually be relieved by rotating the turntable in the reverse direction.

The changer can be conveniently rotated through its change cycle by pushing the index lever to "Reject" and revolving the turntable by hand. Six turntable revolutions are required for one change cycle.

If the record changer or cabinet is not perfectly level, normal operation is likely to be affected.

The 10 and 12 inch records must be absolutely flat for smooth operation when using a mixture of the two sizes.

Refer to photograph and illustrations for references in following text.

ADJUSTMENTS

A. Main Lever.—This lever is basically important in that it interlinks the various individual mechanisms which control needle landing, tripping, record separation, etc. One adjustment is provided for the main lever. Rotate the turntable until the changer is out-of-cycle; and adjust rubber bumper bracket (A) so that the roller clears the nose of the cam plate by 1/16 inch.

B. Friction Clutch.—The motion of the tone arm toward the center of the record is transmitted to the trip pawl "22" by the trip lever "7" through a friction clutch "5." If the motion of the pickup is abruptly accelerated or becomes irregular due to swinging in the eccentric groove, the trip finger "7" moves the trip pawl "22" into engagement with the pawl on the main gear, and the change cycle is started. Proper adjustment of the friction clutch "5" occurs when movement of the tone arm causes positive movement of the trip pawl "22" without tendency of the clutch to slip. The friction should be just enough to prevent slippage, and is adjustable by means of screw "B." If adjustment is too tight, the needle will repeat grooves; if too loose, tripping will not occur at the end of the record.

C. Pickup Lift Cable Screw.—During the record change cycle, lever "16" is actuated by the main lever "15" so as to raise the tone arm clear of the record by means of the pickup lift cable. To adjust pickup for proper elevation, stop the changer "in-cycle" at the point where pickup is raised to the maximum height above turntable plate, and has not moved outward; at this point adjust locknuts "C" to obtain 1 inch spacing between needle point and turntable top surface.

D. & E. Needle Landing on Record.—The relation of coupling between the tone arm vertical shaft and lever "20" determines the landing position of the needle on a 10 inch record. Position of eccentric stud "E" governs the landing of the needle on a 12 inch record; this, however, is dependent on the proper 10 inch adjustment.

To adjust for needle landing, place 10 inch record on turntable; push index lever to reject position and return to the 10 inch position; see that pickup locating lever "17" is tilted fully toward turntable; rotate mechanism through cycle until needle is just ready to land on the record; then see that pin "V" on lever "14" is in contact with "Step T" on lever "17." The correct point of landing is 4-11/16 inches from the nearest side of the turntable spindle; loosen the two screws "D" and adjust horizontal position of tone arm to proper dimension, being careful not to disturb levers "14" and "17." Leave approximately 1/32 inch end play between hub of lever "20" and pickup base bearing, and tighten the blunt nose screw "D"; run mechanism through several cycles as a check, then tighten cone pointed screw "D."

After adjusting for needle landing on a 10 inch record, place 12 inch record on turntable; push index lever to reject and return to 12 inch position; rotate mechanism through cycle until needle is just ready to land on the record; the correct point of landing is 5-11/16 inches from nearest side of spindle. If the landing is incorrect, turn stud "E" until the eccentric end adjusts lever "14" to give correct needle landing. The eccentric end of the stud must always be toward the rear of the motor board, otherwise incorrect landing may occur with 10 inch records.

F. & G. Record Separating Knife.—The upper plate (knife) "25" on each of the record posts serves to separate the lower record from the stack and to support the remaining records during the change cycle. It is essential that the spacing between the knife and the rotating record shelf "27" be accurately maintained. The spacing for the 10 inch record is nominally .058 inch, and for the 12 inch record is .075 inch.

To adjust, rotate the knife to the point of minimum vertical separation from the record shelf and turn screw and locknut "F" to give .055—.061 inch separation. Screw "G" must not be depressed during this adjustment. After setting screw "F" adjust screw "G" so that when its tip is depressed flush with top of record shelf, the vertical spacing between the knife, in its lowest rotational position, and the shelf, is .072—.078 inch.

H. Record Support Shelf.—The record shelf revolves during the change cycle to allow the lower record to drop onto the turntable. Both posts are rotated simultaneously by a gear and rack coupled to the main lever "15," and it is necessary that adjustment be such that the record is released from both shelves at the same instant. To adjust, place a 12 inch record on the turntable, rotate mechanism into cycle to the point where tone arm is at maximum distance outward from turntable; lift record upward until it is in contact with both separating knives, then loosen screws "H" and shift record shelves so that the curved inner edges of the shelves are uniformly spaced at least 1/16 inch from record edge. Tighten the blunt nose screw "H," run mechanism through cycle several times to check action, then tighten cone pointed screw "H."

If record shelves or knives are bent, or not perfectly horizontal, improper operation and jamming of mechanism will occur.

J. Tone Arm Rest Support (not shown).—When the changer is out-of-cycle, the front lower edge of the pickup head should be 5/16 inch above surface of motor board. This may be adjusted by bending the tone arm support bracket, which is associated with the tone arm mounting base, in the required direction.

K. Trip Pawl Stop Pin.—The position of the trip pawl stop pin "K" in relation to the main lever "15" governs the point at which the roller enters the cam. By bending the pin support either toward or away from trip pawl bearing stud, the roller can be made to enter the cam later or earlier, respectively. This adjustment should be made so that the roller definitely clears the cam outer guide as well as the nose of the cam plate.

Lubrication.—Petrolatum or petroleum jelly should be applied to cam, main gear, spindle pinion gear, and gears of record posts.

Light machine oil should be used in the tone arm vertical bearing, record post bearings, and all other bearings of various levers on underside of motor board.

Apply a few drops of light machine oil to the motor spindle bearing and oil hole adjacent to the spindle bearing. The oil hole has a screw plug.

Do not allow oil or grease to come in contact with rubber mounting of tone arm base, rubber bumper, or rubber spindle cap.

MISCELLANEOUS SERVICE HINTS

Incorrect adjustment of a particular mechanism of the changer is generally exhibited in a specific mode of improper operation. The following relations between effects on operation and the usual misadjustments will enable ready adjustment in most cases.

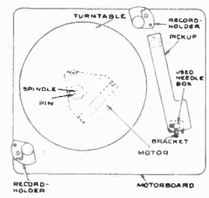
1. For any irregularity of operation, the adjustment of the main lever "15" should be checked first as in "A."
2. Needle does not land properly on both 10 and 12 inch records —Make complete adjustments "D" and "E."
3. Needle does not land properly on 12 inch record but correct on 10 inch—Effect adjustment "E."
4. Failure to trip at end of record—Increase clutch "5" friction by means of screw "B." Also, see that levers "7" and "12" are free to move without touching each other.
5. Pickup strikes lower record of stack or drags across top record on turntable—Adjust lift cable per adjustment "C."
6. Needle does not track after landing—Friction clutch "5" adjustment "B" may be too tight; bind in tone arm vertical bearing, levers "7" and "12" fouled; or pickup output cable twisted.
7. Cycle commences before record is complete—Record is defective, or adjustment "B" of friction clutch "5" is too tight.
8. Wow in record reproduction—Record is defective; or instrument is not being operated at normal room temperature (65° F).
9. Record knives strike edge of records—Records warped; record edges are rough; or knife adjustments "F" and "G" are incorrect.
10. Record not released properly—Adjust record shelf assemblies in respect to shaft by means of adjustment "H."
11. Needle lands in 10 inch position on 12 inch record or misses record when playing both types mixed — Increase tension of pickup locating lever spring "34."

Leveling

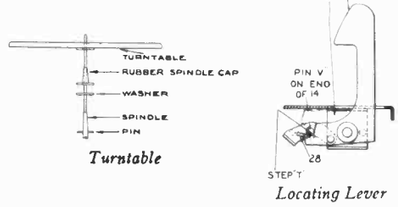
When a record has been played the pickup moves out, another record is dropped down, and the needle is fed automatically into the starting groove of this record. If the needle fails to enter the starting groove, raise the right-hand side of the cabinet by inserting thin spacers under the base on that side. If the needle slides over a few grooves, raise the left-hand side of the cabinet in a similar manner.

Lubrication

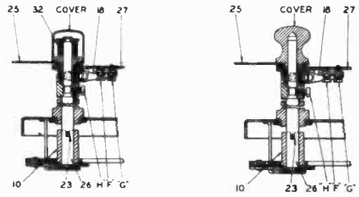
A few drops of good quality light machine oil should be applied about once every six months at the base of the spindle below the metal washer under the turntable.



Motorboard



Turntable *Locating Lever*

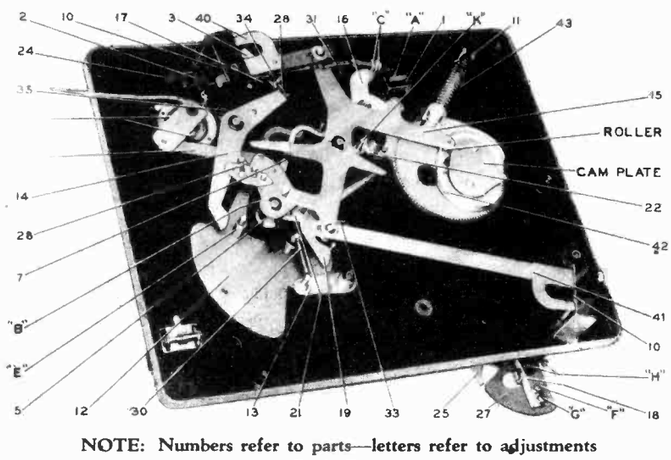


Early Type Shelf Posts *New Type Shelf Posts*

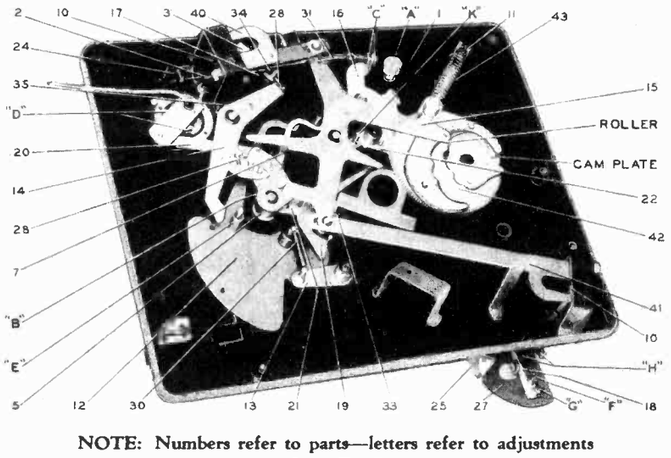
Automatic Record Changer

Two slightly different Record Changers are being used in the Stewart-Warner Model 01-6C9 Radio Phonograph Combination. The early type is shown in Figure 1a and the later one in Figure 1b. The two types are easily identified by the shape of the top covers of the record holder posts. The early type has plain cylindrical covers while the later type has knob shaped covers so they can be grasped easily.

The two types are practically identical in both operation and service. All the information contained in this Service Manual applies to both types unless otherwise indicated.



NOTE: Numbers refer to parts—letters refer to adjustments
Early Type

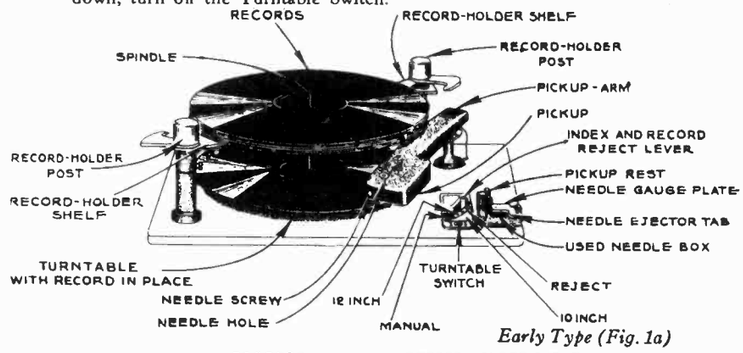


NOTE: Numbers refer to parts—letters refer to adjustments
Late Type

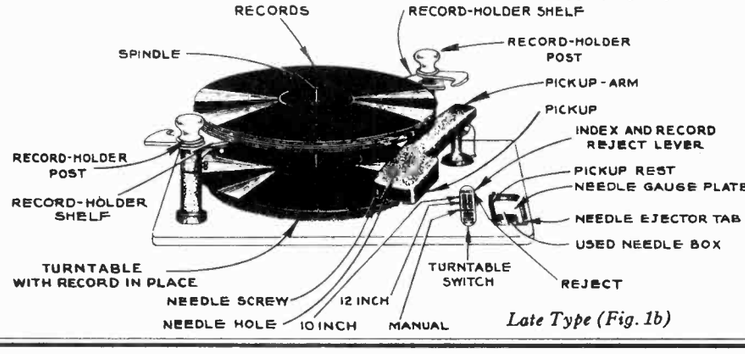
OPERATING INSTRUCTIONS

This Record Changer will automatically play a series of eight 10- or seven 12-inch records of the 78 revolutions-per-minute type or, if you so desire, you may play records, of any size up to 12 inches, manually. Records of the last few years with the standard eccentric or spiral stopping groove will operate the automatic mechanism and change your records for you. The Record Changer is for operation on 110 volts, 60 cycles.

Before operating the phonograph, either automatically or manually, be sure that the pickup is down and can be moved by hand. If not, a "cycle" must be completed to bring it down. To do this, throw Motor Switch "on." The turntable will start to revolve and the cycle of motion on the pickup arm will be resumed. When the pickup arm comes down, turn off the Turntable Switch.



Early Type (Fig. 1a)



Late Type (Fig. 1b)

Cautions

1. Never use force to start or stop the motor or any part of the record-changing mechanism or pickup 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. In addition, records which have become warped will slide on one another when playing, resulting in unsatisfactory reproduction.

3. This instrument is NOT RECOMMENDED for playing 10-inch and 12-inch records in mixed sequence. If the user desires this service he must be positive that all records are perfectly flat and free from warp. The Index and Record Reject Lever must be set at "10" and after playing the last selection the pickup will come down in position for a 10-inch record and repeat the playing of the record on a 10-inch diameter unless the Turntable Switch is turned off. Any jamming of the mechanism under these conditions indicates that the records used are not perfectly flat or that their edges are not sufficiently smooth to permit normal operation of the separators in dropping each record in sequence onto the turntable.

Controls and Moving Mechanism

Index and Record Reject Lever.—This lever is located near the right front corner of the motorboard with its index plate marked for four positions—"MANUAL," "12," "10," and "REJECT." When you desire to change record selections manually, this lever should be set in the "MANUAL" position. With the lever in the "12" position, the mechanism is set to play a series of 12-inch records automatically. To play either a series of 10-inch records, or 10- and 12-inch records mixed, the lever should be set at the "10" position.

To reject a record being played, or to start the record-changing cycle in case the record just played does not have the standard eccentric or spiral stopping groove, simply push the lever to the "REJECT" position and let go. The pickup will raise up and swing outwards and the next record will drop down. Upon releasing the lever, it will automatically return to the "10" position. If you are playing a series of 12-inch records, the lever should be returned to the "12" position after rejecting a record. Keep the lever in its "MANUAL" position when not actually playing records automatically.

Turntable Switch.—The switch located just in front of the Index and Record Reject Lever controls the current to the turntable motor. LEAVE THIS SWITCH IN THE "ON" POSITION AT ALL TIMES.

Pickup and Top-Loading Needle Socket.—The pickup is the new crystal type, with a hole in the top for insertion of needles. When not playing records, the pickup arm should be moved out to the right beyond the turntable and placed at rest on the support with the pickup over the needle gauge plate. The edge of the pickup in the early type record player must be in the groove provided, while in the later type, it should be just beyond the vertical lug on the corner of the used needle box. The pickup must be in this position to change needles.

To insert a needle initially, loosen the needle screw on the front of the pickup, place needle in hole at top so that it drops down against the needle gauge plate and then tighten up the needle screw.

Needle Ejector.—The extending tab on the needle gauge plate of the needle box operates the needle ejector. To change a needle, place pickup in rest position, loosen needle screw and press the extending tab on the needle gauge plate to drop the used needle into the box below. Release tab, allowing the needle gauge plate to swing back, and then insert a new needle in the pickup as described above.

The used needle box may be taken out and emptied by first lifting the pickup off its rest and allowing it to float between the rest and the turntable. Then tilt the box upwards at the front and lift out. To replace the box, tilt it upwards at front and lower it into the hole with the lug on the back of the box in the slot in the motorboard. Slide the lug under the motorboard and push the box in place. Replace the pickup on its rest.

Record Holder Shelves.—To place a record on the turntable or to remove records, raise the record holder shelves and swing clear of outer edge of record. Also push back vertical lever adjacent to the rear record holder post. You now have clear access to the turntable. Before loading the magazine for Automatic Operation swing the record holder shelves back into position.

Automatic Operation

1. Push the button marked "ON" and turn RADIO-PHONO switch to PHONO.
2. See that pickup is over needle gauge plate with needle properly in place. If not, complete a "cycle" as explained in the second paragraph under "OPERATING INSTRUCTIONS."
3. With Index and Record Reject Lever at "MANUAL" swing the record holder shelves out of the way and place the first of the series of records on the turntable. Swing the record holder shelves back into the position where they drop down slightly and snap into place. Then put the remainder of the records (up to seven 10-inch or six 12-inch records) on the record holder posts (as shown in Figure 1). The records should be arranged in the desired order with the desired selection face up and the last selection on top.
4. Set the Index and Record Reject Lever to the proper position. (See INDEX AND RECORD REJECT LEVER)

Manual Operation

To play records manually:

1. Proceed as in steps 1 and 2, under "AUTOMATIC OPERATION."
2. Place record on turntable with desired selection upwards.
3. Set Index and Record Reject Lever to "MANUAL" position.
4. Proceed as in steps 5, 6 and 7 under "AUTOMATIC OPERATION."

When you have finished playing, be sure that the turntable has stopped and the pickup is in the rest position over needle gauge plate. Never leave pickup with needle resting on a record or on the turntable.

5. Throw the Motor switch to "ON." This is the left hand knob on the front of the cabinet. The turntable should commence to revolve.
6. When turntable has attained speed, lift pickup and lower gently on to the record so that the needle point enters the outside groove.
7. Close the lid of the cabinet to eliminate mechanical reproduction of sound by the needle. Adjust the radio volume control knob to the desired volume and push in the tone control button giving the most pleasing tone.

The whole series of records will now play without further attention, and the last record will repeat until the Phono Motor Switch is turned off. **Allow the record-changing mechanism to complete its cycle before the turntable is stopped.** Then lift the pickup, swing the arm to the right beyond the edge of the record and lower it onto the pickup rest with pickup over needle gauge plate. The record player is then ready for reloading, or for manual operation.

NOTE.—A bind or a jam in the mechanism can usually be relieved by rotating the turntable by hand in the reverse direction.

PARTS LIST

OPERATING MECHANISM

Diagram No.	Part No.	DESCRIPTION
1	S-14209	Bumper—Main lever rubber bumper (early type only)
2	S-31151	Guide—Pickup lift cable guide (coil spring 80T 2-in. large)
3	S-31134	Bracket—Pickup locating lever mounting bracket
5	S-4808	Clutch—Trip lever friction clutch assembly
7	S-31116	Finger—Trip lever friction finger assembly
10	S-31121	Gear—Record post gear
11	S-31123	Guide—Main lever spring guide
12	S-31114	Lever—Index lever assembly (early type)
	S-33992	Lever—Index lever assembly (late type)
13	S-31137	Lever—Index lever tension spring lever
14	S-31138	Lever—Locating lever and pawl assembly
15	S-31113	Lever—Main lever assembly (early type)
	S-33985	Lever—Main lever assembly (late type)
16	S-31140	Lever—Pickup lift cable lever and spring assembly
17	S-31135	Lever—Pickup locating lever assembly (early type)
	S-34002	Lever—Pickup locating lever assembly (late type)
18	S-31130	Lever—Record separator elevating lever complete with adjusting screws
19	S-31132	Lever—Trip detaining lever
20	S-31115	Lever—Trip lever assembly
21	S-31131	Lever—Trip regulator lever
22	S-31133	Pawl—Trip pawl assembly
23	S-31124	Pin—Record post drive pin
24	S-14207	Roller—Pickup lift cable roller and bracket assembly
25	S-31126	Separator—Record separator knife (early type)
	S-34775	Separator—Record separator knife and cap (late type)
26	S-31122	Shaft—Record separator post shaft (early type)
	S-33988	Shaft—Record separator post shaft (late type)
27	S-31125	Shelf—Record post shelf assembly (early type)
	S-33989	Shelf—Record post shelf assembly (late type)
28	S-14190	Spring—Pickup locating lever short spring or locating lever pawl tension spring (16 turns, .180-in. O.D., 19/32-in. lg.)
30	S-31136	Spring—Index lever tension spring (25 turns, .190-in. O.D., 15/16-in. lg.)
31	S-3666	Spring—Pickup lift cable tension spring (20 turns, .195-in. O.D., 1-in. lg.)
32	S-31127	Spring—Record separator pressure spring (8 turns, ¾-in. O.D., ¾-in. lg.) (early type only)
33	S-14191	Spring—Trip detaining lever tension spring (15 turns, .190-in. O.D., ¾-in. lg.)
34	S-31875	Spring—Pickup locating lever tension spring (14 turns, .220-in. O.D., 27/32-in. lg.)
35	S-32436	Spring—Locating lever tension spring (16 turns, .182-in. O.D., 21/32-in. lg.)
40	S-32880	Gear—Rack gear for rear right-hand record post
41	S-32879	Gear—Rack gear for front left-hand record post
42	S-32878	Cam—Cam and drive gear (early type)
	S-33987	Cam—Cam and drive gear (late type)
43	S-32882	Spring—Main lever tension spring (16 turns, .8-in. O.D., 3-in. lg.)
B	S-3117	Screw—Special screw to adjust friction clutch tension
S1	S-32875	Switch—Motor control switch

Note.—Most parts in the new type and old type record changers are identical. Parts which are not identical are marked "OLD TYPE" or "NEW TYPE." Refer to the first paragraph.

PICKUP AND ARM ASSEMBLIES

S-33096	Arm—Pickup arm—less crystal cartridge, needle screw, pivot arm and cable (early type)
S-34776	Arm—Pickup arm—less crystal cartridge, needle screw, pivot arm and cable (late type)
S-32635	Cable—Pickup arm lift cable and clips
S-31156	Crystal—Pickup crystal cartridge and needle screw (early type)
S-34710	Crystal—Pickup crystal cartridge and needle screw (late type)
S-33114	Damper—Viscoloid damper for crystal armature (early type)
S-33123	Damper—Viscoloid damper for crystal armature (late type)
S-31160	Screw—Pickup needle screw
S-31161	Shaft—Pickup pivot arm and shaft assembly

MOTORBOARD ASSEMBLIES

S-31149	Base—Tone arm mounting base
S-9848	Cup—Used needle cup, rest, and lid complete (early type)
S-33909	Cup—Used needle cup, rest, and lid complete (late type)
S-32877	Escutcheon—Index escutcheon (early type)
S-33979	Escutcheon—Index escutcheon (late type)
S-31150	Mounting—Pickup arm base rubber mounting complete
S-31155	Spring—Needle cup lid tension spring

MISCELLANEOUS ASSEMBLIES

S-31129	Cover—Cap for top of record post (early type only)
S-32883	Damper—Motor spindle rubber drive sleeve and metal damper plate
S-3676	Spring—Cam pawl tension spring on main gear (12 turns, .190-in. O.D., 4-3/64-in. lg.)
S-31470	Springs—Motorboard mounting springs, screw and washers (4 required)
S-32881	Turntable—Complete (early type)
S-33991	Turntable—Complete (late type)
S-31128	Washer—"C" washer for top of record post

MOTOR ASSEMBLIES

S-32955	Coil—Field coil and laminations for 50-cycle motor
S-32954	Coil—Field coil and laminations for 60-cycle motor
S-32960	Gear—Motor spindle gear and pin
S-32872	Motor—Motor complete, 50-cycle, 110 volts AC
S-32871	Motor—Motor complete, 60-cycle, 110 volts AC
S-32958	Spindle—Turntable spindle complete with fibre gear for 50-cycle motor
S-32957	Spindle—Turntable spindle complete with fibre gear for 60-cycle motor

MODELS 05-511 to 05-519
Chassis 05-51
Schematic, Voltage, Socket

STEWART-WARNER CORP.

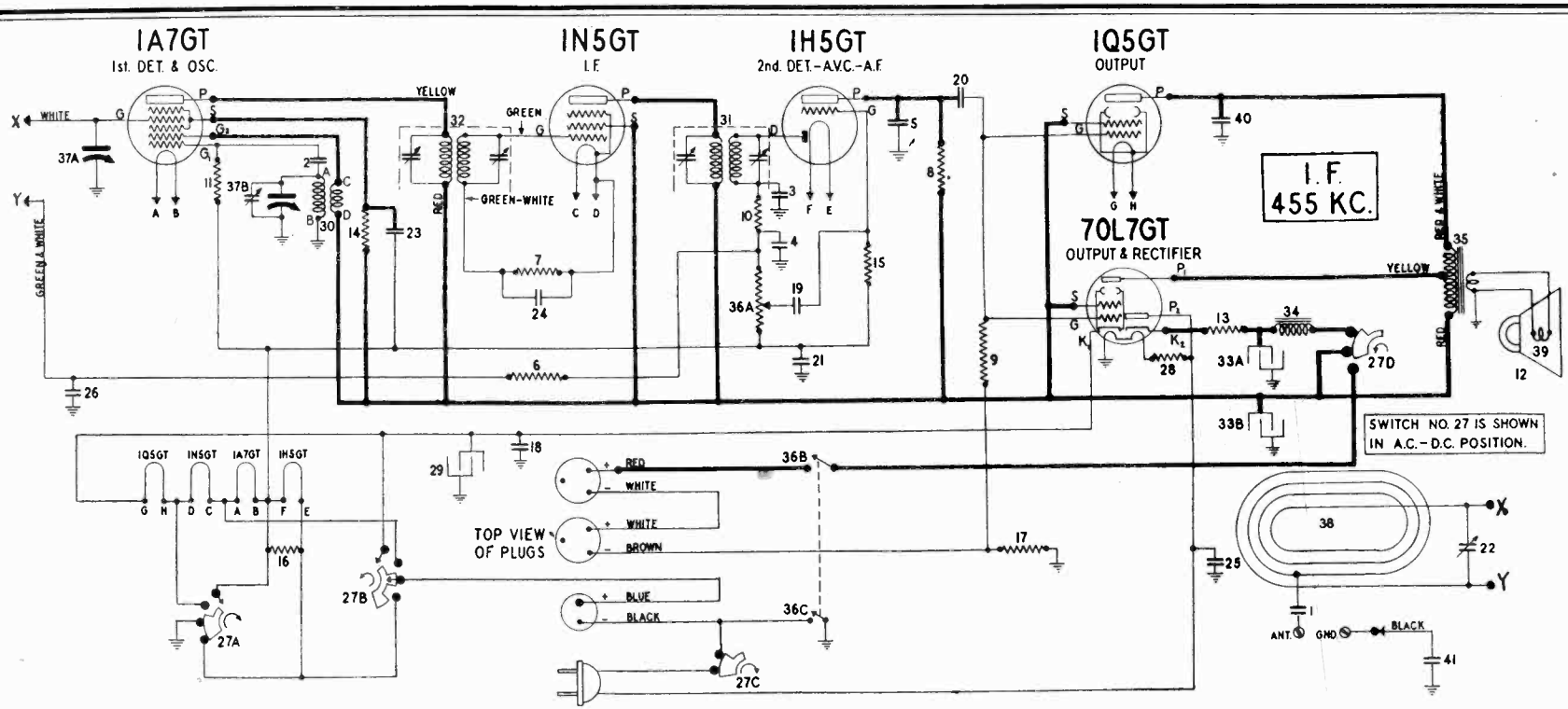
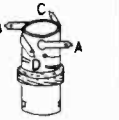


Diagram Number	Part Number	Description
1	83539	Condenser—mica, 260 mmfd.
2-3-4	83783	Condenser—mica, 110 mmfd.
5	85394	Condenser—mica, 510 mmfd.
6-7	110570	Resistor—carbon, 2.2 meg., ¼ watt
8-9	112971	Resistor—470,000 ohms, ¼ watt
10	112986	Resistor—100,000 ohms, ¼ watt
11	112987	Resistor—insulated, 220,000 ohms, ¼ watt
12	R-115069	Speaker—P.M. dynamic (5 in.)
13	116013	Resistor—50 ohms, 1 watt, W.W.
14	116058	Resistor—Insulated, 47,000 ohms, ¼ watt
15	116071	Resistor—3.3 meg., 1/10 watt
16	116095	Resistor—220 ohms, ¼ watt
17	116097	Resistor—Insulated, 400 ohms, ¼ watt
18	116625	Condenser—.1 mfd., 600 volts
19-20	116640	Condenser—.01 mfd., 600 volts
21	116706	Condenser—.2 mfd., 600 volts
22	116781	Condenser—trimmer
23-24-25-26	116819	Condenser—.05 mfd., 600 volts
27A TO 27D	117719	Switch—(A.C.-D.C.-Battery)
28	117729	Resistor—360 ohms, 7.26 watts
29	117730	Condenser—100 mfd. 10 volt electrolytic
30	117741	Coil—oscillator
31	117742	Transformer—2nd I.F.
32	117743	Transformer—1st I.F.
33A-33B	117759	Condenser—dual 20 mfd., 150 volt
34	117888	Filter—choke
35	117891	Transformer—output
36A-36B-36C	117897	Volume control—1 megohm (with switch)
37A-37B	117902	Condenser—tuning
38	117914	Loop antenna
39	R-118003	Cone & voice coil for R-115069 speaker
40-41	118194	Condenser—.006 mfd., 600 volts

Par. Number	Description
117708	Battery cable
117795	Battery retaining block
117837	Cabinet and back
112745	Clip—coil mounting
113019	Clip—dial scale retaining
113178	Cord—dial (supplied in 4 ft. lengths)
117802	Dial scale
117772	Knob (A.C.-D.C.-Battery)
117894	Knob—volume
117895	Knob—tuning
118732	Loop terminal strip with trimmer and contacts
116488	Nut—8-32 wing nut
117769	Plate—"Stewart-Warner"
117778	Plate—"A.C.-D.C. & BATT."
117779	Plate—"OFF—VOLUME"
117780	Plate—"TUNING"
116398	Plug—3 prong male
116397	Plug—2 prong male
116916	Pointer assembly
81145	Retaining ring—for drive shaft
83624	Screw—self tapping 8x¼
113191	Screw—special No. 8-32x1⅛
117716	Shield—tube
116690	Socket (octal base) (small)
111981	Spring—for dial cord tension
117896	Tuning shaft
84015	Washer—paper for back of knobs
116414	Window, dial

OSCILLATOR COIL DIAGRAM NO. 30 PART NO 117741

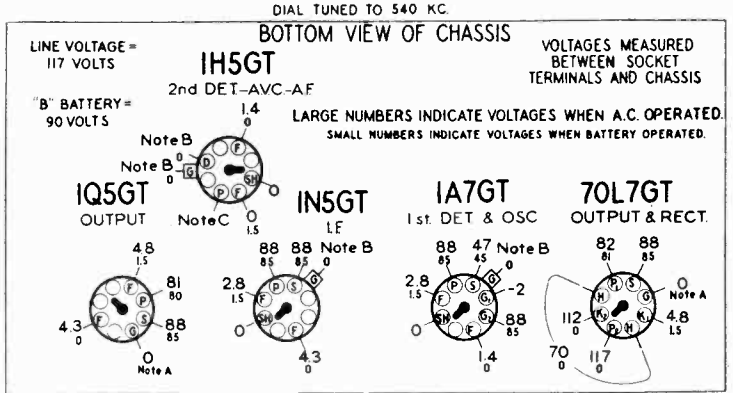


NOTE

TERMINALS OF COIL SHOWN IN ILLUSTRATION ARE LETTERED TO CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM.

SOCKET VOLTAGES

DIAL TUNED TO 540 KC.

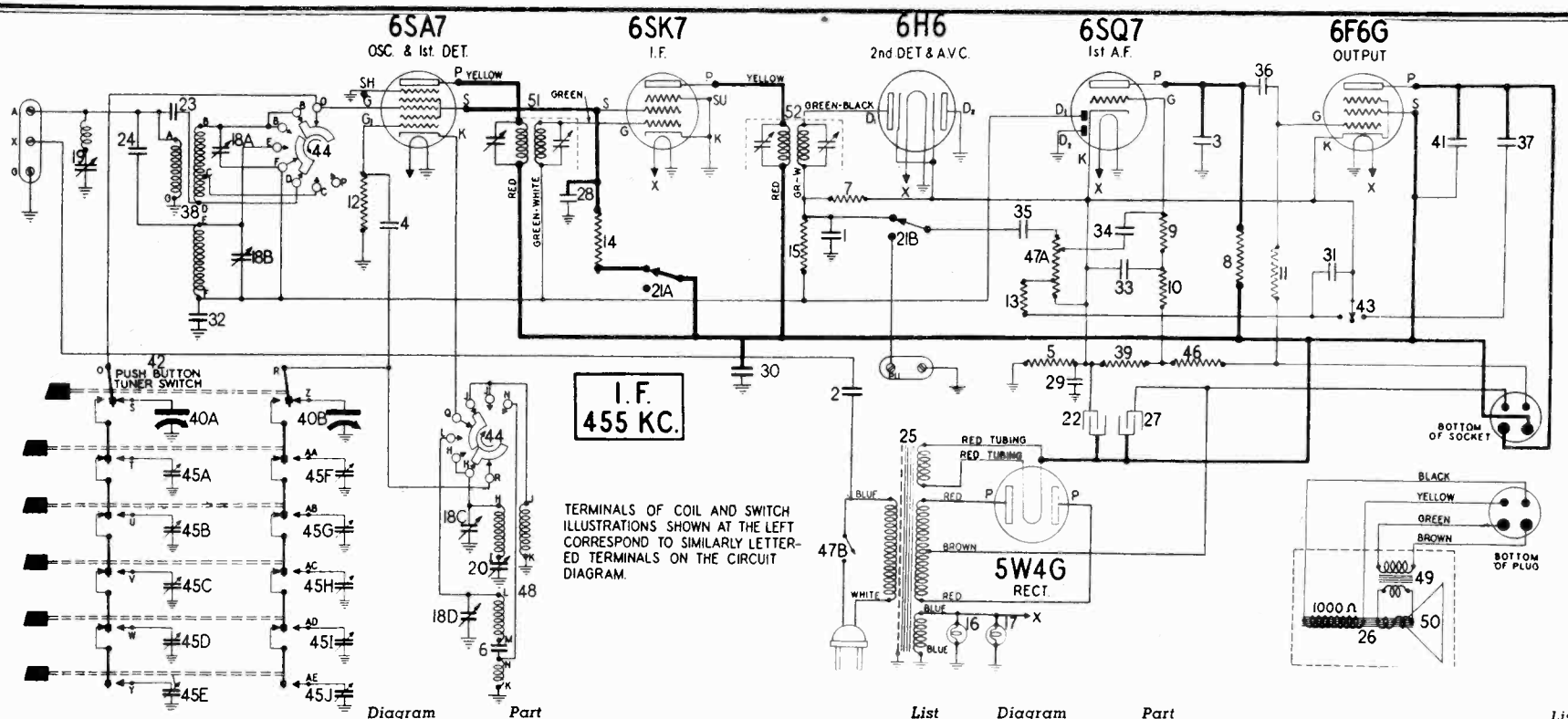


NOTE A: The 1Q5GT grid bias during battery operation is —5 volts measured across resistor 17.

NOTE B: During A.C.-D.C. operation these elements are slightly positive with respect to chassis. This voltage cannot be measured properly on ordinary meters.

NOTE C: Due to the high resistance of resistor 8, only a small voltage will be read on a meter having a resistance of 1000 ohms per volt.

STEWART-WARNER CORP. MODELS 01-6E1 to 01-6E9 Chassis 01-6E Schematic



TERMINALS OF COIL AND SWITCH ILLUSTRATIONS SHOWN AT THE LEFT CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM.

REAR VIEW OF SWITCH DECKS

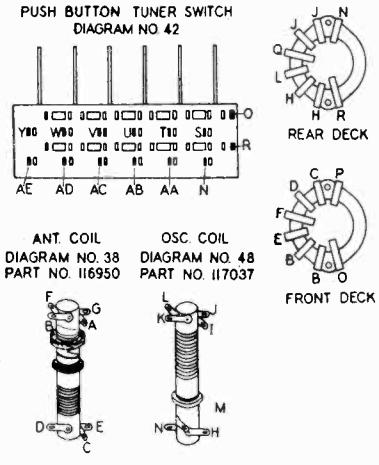


Diagram Number	Part Number	Description	List Price
1-2-3	83539	Condenser—mica 260 mmfd.	$0.20
4	85061	Condenser—mica 51 mmfd.	.15
5	88461	Resistor—carbon 150 ohms ¼ watt.	.12
6	88587	Condenser—mica .0042 mfd.	.35
7-8	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
9-10	110554	Resistor—carbon 1 megohm ¼ watt	.12
11	110559	Resistor—carbon 470,000 ohms ¼ watt	.12
12-13	110566	Resistor—carbon 33,000 ohms ¼ watt	.12
14	110568	Resistor—carbon 15,000 ohms 1 watt	.15
15	110580	Resistor—carbon 3.3 meg. ¼ watt.	.12
16-17	110629	Lamp—6.3 volt—.25 amps.	.15
18A to 18D	112792	Condenser—trimmer 4 section	.60
19	112796	Coil—wave trap (with trimmer)	.50
20	112799	Condenser—padder (530 to 630 mmfd.)	.36
21A-21B	114141	Switch—D.P.D.T.	.44
22	114258	Condenser—electrolytic 8 mfd. 450 volt	.98
23-24	114969	Condenser—mica 15 mmfd.	.12
25	114999	Transformer—power 117 volt 60 cycle	3.50
26	M-115059	Speaker—10" electro-dynamic	7.60

Diagram Number	Part Number	Description	List Price
27	116262	Condenser—electrolytic 16 mfd. 450 volt	$0.78
28-29-30	116625	Condenser—.1 mfd. 600 volt.	.25
31	116640	Condenser—.01 mfd. 600 volt.	.15
32-33	116819	Condenser—.05 mfd. 600 volt.	.20
34-35-36-37	116893	Condenser—.02 mfd. 600 volt.	.15
38	116950	Coil—antenna	1.00
39	116967	Resistor—25 ohm 1 watt 10% wire wound	.16
40A-40B	116996	Condenser—variable gang	3.30
41	117022	Condenser—.002 mfd. 600 volt.	.15
42	117024	Switch—push button	2.80
43	117025	Tone control	.60
44	117026	Range switch	1.30
45A to 45J	117027	Trimmer condenser gang	4.00
46	117032	Resistor—300 ohms 1 watt.	.15
47A-47B	117035	Volume control with switch—1 meg.	1.00
48	117037	Coil—oscillator	.86
49	M-117091	Transformer—output for M-115059 speaker	1.50
50	M-117092	Cone and Voice coil assembly for M-115059 speaker	2.20
51	117885	Transformer—1st I.F.	1.10
52	117886	Transformer—2nd I.F.	1.10

MODELS 01-6E1 to 01-6E9
Alignment, Voltage
Trimmers, Socket

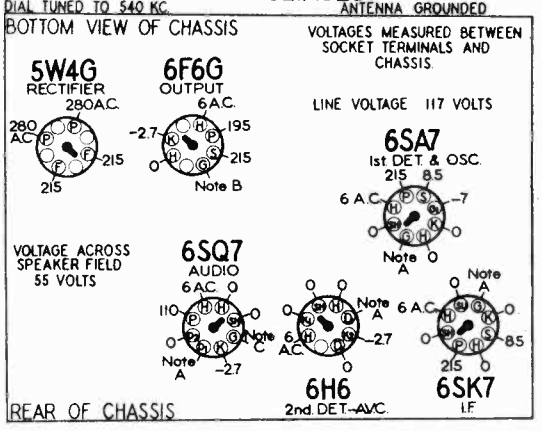
STEWART-WARNER CORP.

1. Connect the output meter across the voice coil or between the plate of the 6F6G output tube and ground in series with a .1 mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the "G" terminal or the chassis. NOTE: Remove the connector from between the "A" and "X" terminals.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the entire alignment procedure.
4. With the gang condenser in full mesh, set the pointer at a point 1⅜" from the left flange of the brown dial plate. This point corresponds to the last mark on the low frequency end of the dial scale. If the pointer is incorrectly set, it is only necessary to loosen the set screws on the dial drive drum and push the gang condenser in full mesh, with the pointer properly set, then retighten the set screws.

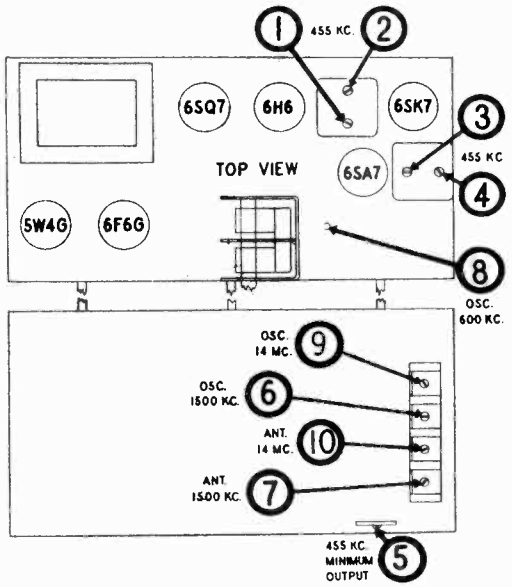
Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output To Receiver	Signal Generator Frequency	Band Switch Position	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD. Condenser	Front Lug of Gang Condenser	455 KC	Broadcast	Any Point Where It Does Not Affect The Signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I. F.	
200 MMFD. Mica Condenser	"A" Terminal	455 KC	Broadcast	Any Point Where It Does Not Affect The Signal	5	Wave Trap	Adjust for minimum output using a strong generator signal.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	1500 KC (2⅜" from right Dial Plate end)	6	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	Tune To 1500 KC Generator Signal	7	Broadcast Antenna	Adjust for maximum output.
200 MMFD. Mica Condenser	"A" Terminal	600 KC	Broadcast	Tune to 600 KC Generator Signal	8	Broadcast Oscillator (Series Pad)	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	"A" Terminal	14 MC	Foreign	14 MC (2-7/16" from right Dial Plate end)	9	Foreign Oscillator (Shunt)	Adjust for maximum output. Check to see if proper peak was obtained by tuning in image at approx. 13.1 MC. If image does not appear realign at 14 MC. with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	"A" Terminal	14 MC	Foreign	14 MC	10	Foreign Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

SOCKET VOLTAGES

DIAL TUNED TO 540 KC. ANTENNA GROUNDED



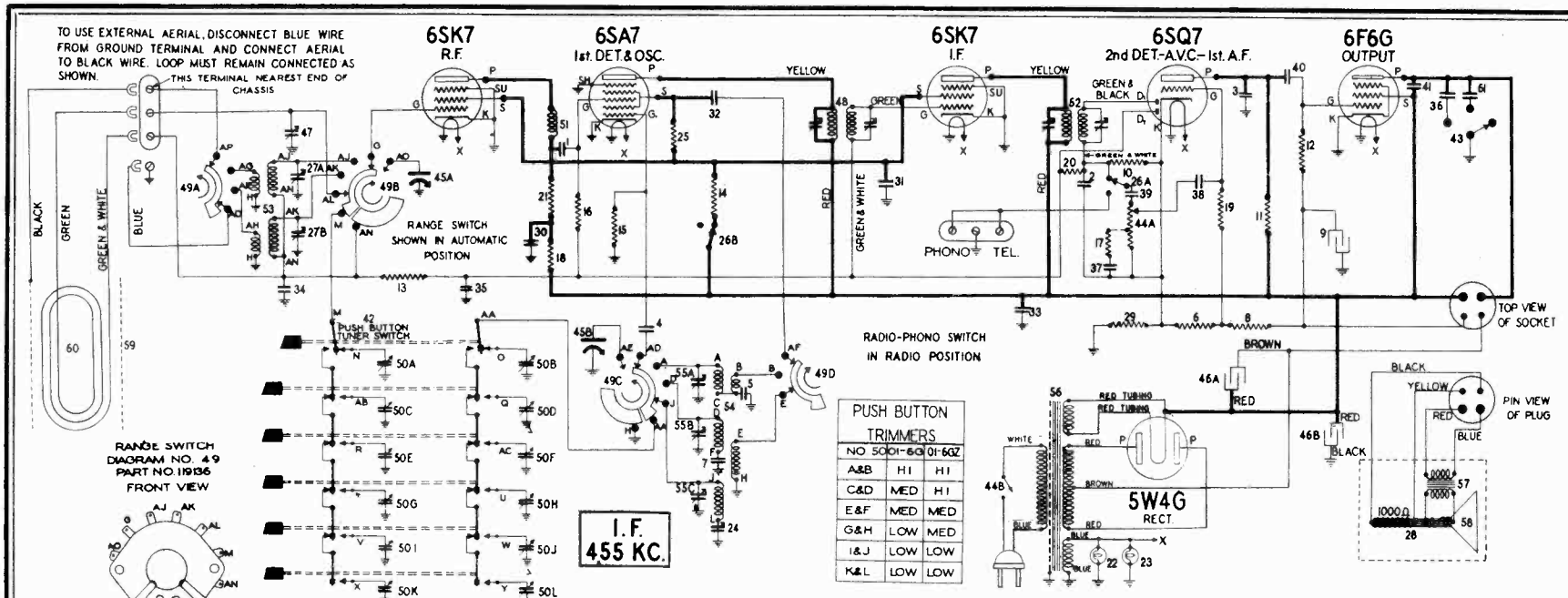
These readings taken using a voltmeter of 1000 ohms per volt.
NOTE A: The bias on the control grids of the 6SA7 and 6SK7 tubes and on diode plate D_1 of the 6H6 and 6SQ7 tubes is -2.7 volts, measured across resistor No. 5.
NOTE B: The bias on the control grid of the 6F6G tube is -17 volts measured across resistors No. 39 and 46.
NOTE C: The bias on the control grid of the 6SQ7 tube is -4 volts, measured across resistor No. 39.



STEWART-WARNER CORP. to 01-6G4-5 inc. Ch. 01-6G
01-6G1-Z, 01-6G4-1-Z to
01-6G4-5-Z inc. Ch. 01-6G-Z

Schematic

MODELS 01-6G1, 01-6G4-1



PUSH BUTTON TRIMMERS		
NO. 50	01-6G	01-6GZ
A&B	HI	HI
C&D	MED	HI
E&F	MED	MED
G&H	LOW	MED
I&J	LOW	LOW
K&L	LOW	LOW

ELECTRICAL PARTS

Diagram Number	Part Number	Description	List Price
1-2-3	83539	Condenser—mica 260 mmfd.	$0.20
4	85061	Condenser—mica 51 mmfd.	.15
5	85440	Condenser—mica .00351 mfd. 3%	.40
6	88465	Resistor—wire wound 25 ohms ½ watt	.15
7	89275	Condenser—mica .002 mfd.	.40
8	89762	Resistor—wire wound 220 ohms 1 watt	.16
9	110377	Condenser—electrolytic 10 mfd.—35 volts	.24
10-11-12	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
13	110559	Resistor—carbon 470,000 ohms ¼ watt	.12
14	110561	Resistor—carbon 15,000 ohms 2 watts	.30
15-16	110564	Resistor—carbon 100,000 ohms ¼ watt	.12
17	110565	Resistor—carbon 22,000 ohms ¼ watt	.12
18	118805	Resistor—carbon 10,000 ohms 1 watt	.12
19	110570	Resistor—carbon 2.2 meg. ¼ watt	.12
20	110580	Resistor—carbon 3.3 meg. ¼ watt	.12
21	110586	Resistor—carbon 2,200 ohms ¼ watt	.12
22-23	110629	Lamp—6.3 volt .25 amps.	.15
24	112799	Condenser—padder (530 to 630 mmfd.)	.36
25	112978	Resistor—insulated, 470 ohms ¼ watt	.12
	113035	Condenser—.006 mfd. 600 volt	.14
26A-26B	114141	Switch—D.P.D.T. (Radio-Phono)	.44
27A-27B	114937	Condenser—2 section trimmer	.40
28	U-115086	Speaker—dynamic 6 in.	4.95
29	116275	Resistor—wire wound 50 ohms ½ watt (10%)	.15
30-31	116625	Condenser—.1 mfd. 600 volt	.25
32	116640	Condenser—.01 mfd. 600 volt	.15
33	116706	Condenser—.2 mfd. 600 volt	.35
34-35	116819	Condenser—.05 mfd. 600 volt	.20
36-37-38-39-40	116893	Condenser—.02 mfd. 600 volt	.15
41	117022	Condenser—.002 mfd. 600 volt	.15
42	117024	Switch—push button	2.80
43	117025	Tone control switch	.60
44A-44B	117035	Volume control with switch—1 meg.	1.00
45A-45B	117527	Condenser—gang	3.25
46A-46B	118421	Condenser—electrolytic 10-15 mfd. 450 volts	1.50
47	118431	Condenser—trimmer	.22
	119024	Transformer—2nd I.F.	1.10
48	119042	Transformer—1st I.F.	1.10
49A to 49C	119136	Range switch	1.45
50A to 50L	119662	Condenser—push button trimmer (Low) 540 to 1000 KC	.24
	119663	Condenser—push button trimmer (Med.) 750 to 1375 KC	.24
	119664	Condenser—push button trimmer (Hi) 980 to 1550 KC	.24
51	119138	Coil—compensating	.25
52	119024	Transformer—2nd I.F.	1.10
53	119147	Coil—antenna	1.10
54	119149	Coil—oscillator	1.10
55A-55B-55C	119174	Condenser—trimmer 3 section	.45
56	119205	Transformer—power	4.20
57	U-119226	Transformer—output for U-115086 speaker	1.10
58	U-119227	Cone & Voice coil for U-115086 speaker	1.65
59	119246	Shield for loop antenna	.45
60	119331	Cabinet back and loop antenna complete 01-6G1 & 01-6G1-Z	2.00
	119349	Cabinet back and loop antenna complete 01-6G4-1 & 01-6G4-1-Z	2.00
	119347	Cabinet back and loop antenna complete 01-6G4-2 & 01-6G4-2-Z; 01-6G4-3 & 01-6G4-3-Z; 01-6G4-5 & 01-6G4-5-Z	2.00
	119352	Cabinet back and loop antenna complete 01-6G4-4 & 01-6G4-4-Z	2.00
61	113035	Condenser—.006 mfd. 600 volt	.14

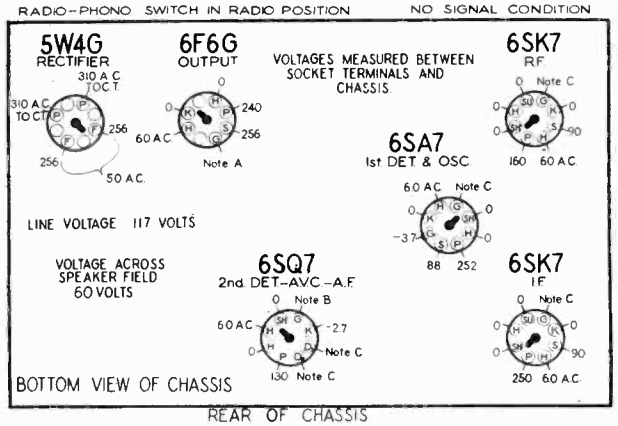
CHASSIS 01-6G, 01-6G-Z
Alignment, Voltage, Socket
Trimmers

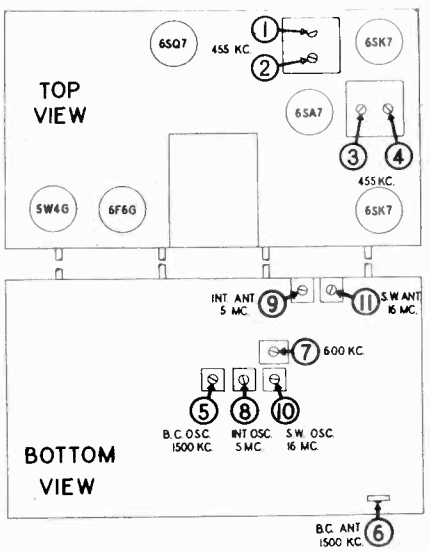
STEWART-WARNER CORP.

1. Connect the output meter across the voice coil or from the plate of the 6F6G output tube to ground through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis AND REMOVE THE BLUE WIRE FROM THE CHASSIS TERMINAL.
3. Turn the volume control to the maximum position and keep it in this position throughout the alignment procedure.
4. Set the pointer 2⅛" from left end of brown dial plate with condenser gang in full mesh.
5. The loop must be connected as indicated in circuit diagram at all times, and must be in the same relative position it occupies when the set is in the cabinet.

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 Front 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.	
200 MMFD. Mica Condenser	Black Loop Wire	1500 KC	Broadcast	1500 KC 2⅞" from right end of dial plate	5	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD Mica Condenser	Black Loop Wire	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	6*	Broadcast Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Black Loop Wire	600 KC	Broadcast	Tune to 600 KC Generator Signal	7	Broadcast Oscillator (Series Pad)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
400 OHM Carbon Resistor	Black Loop Wire	5 MC	Intermediate	5 MC 2-13/16" from right end of dial plate	8	Intermediate Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 4.1 MC. If Image does not appear, Realign at 5 MC, with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	Black Loop Wire	5 MC	Intermediate	Tune to 5 MC Generator Signal	9	Intermediate Antenna	Adjust for Maximum Output.
400 OHM Carbon Resistor	Black Loop Wire	16 MC	Foreign	16 MC 2-15/16" from right end of dial plate	10	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained 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	Black Loop Wire	16 MC	Foreign	Tune to 16 MC Generator Signal	11	Foreign Antenna	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

*NOTE: Realign trimmer No. 6 after set is in cabinet by connecting blue wire to ground terminal, placing range switch in broadcast position, and adjusting for maximum output on a weak signal at approximately 1500 KC.





NOTE A: Bias on 6F6G output tube is —18 volts measured across resistors 29, 6 and 8.

NOTE B: Bias on 6SQ7 grid is —1.5 volts measured across resistor 6.

NOTE C: Bias on diode plates, 6SK7 I.F., 6SA7 DET., and 6SK7 R.F. is —3 volts measured across resistor 29.

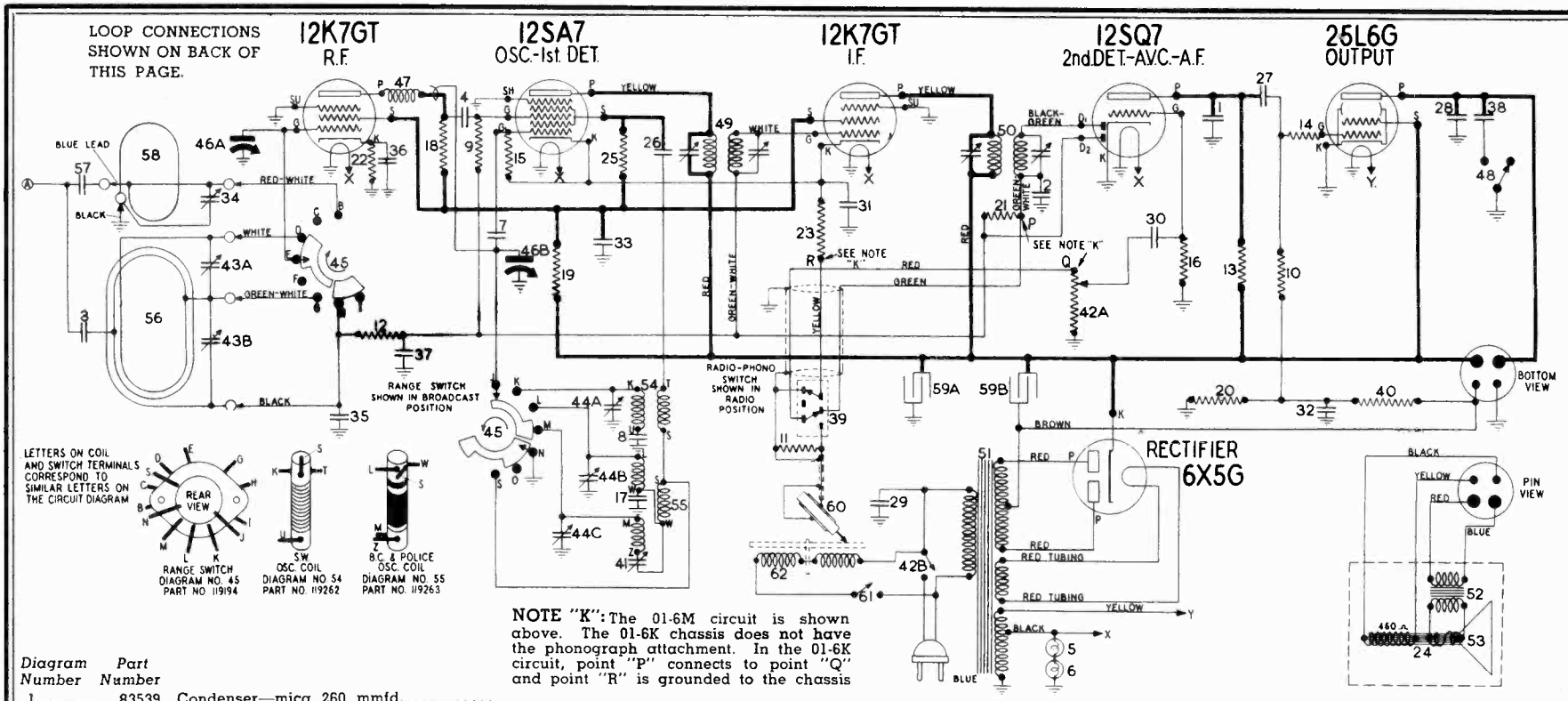
Part Number	Description	List Price
119317	Call letter tabs and instruction sheets	$0.45
114955	Clamp—for dial cord	.01
112745	Clip—coil mounting	.01
117057	Cord—dial drive (supplied in 2 foot lengths)	.15
116948	Cord—pointer drive (supplied in 6 ft. lengths)	.18
117029	Drive drum and bushing	.50
88348	Eyelet—for dial cord Per Dz.	.05
119202	Escutcheon and dial (01-6G1 & 01-6G1-Z)	.90
119373	Escutcheon and dial 01-6G4 & 01-6G4-Z)	.90
119209	Escutcheon and P. B. Assembly (01-6G1 & 01-6G1-Z)	1.15
116953	Escutcheon and P. B. Assembly (01-6G4 & 01-6G4-Z)	.90
119210	Escutcheon for push buttons (01-6G1 & 01-6G1-Z)	.30
116998	Escutcheon for push buttons (01-6G4 & 01-6G4-Z)	.30
119167	Knob (01-6G1 & 01-6G1-Z)	.10
116773	Knob (01-6G4 & 01-6G4-Z)	.10

CABINET BACKS

119332	Cabinet Back only (01-6G1 & 01-6G1-Z)	$1.80
119351	Cabinet Back only (01-6G4-1 & 01-6G4-1-Z)	.15
119348	Cabinet Back only (01-6G4-2 & 01-6G4-2-Z) (01-6G4-3 & 01-6G4-3-Z) (01-6G4-5 & 01-6G4-5-Z)	.15
119353	Cabinet Back only (01-6G4-4 & 01-6G4-4-Z)	.20
116952	Pin for push buttons	.02
117195	Pointer	.32
119211	Push button (01-6G1 & 01-6G1-Z)	.10
116999	Push button (01-6G4 & 01-6G4-Z)	.08
117019	Reflector—for pilot light	.04
81145	Retaining ring—for drive shaft Per C	.50

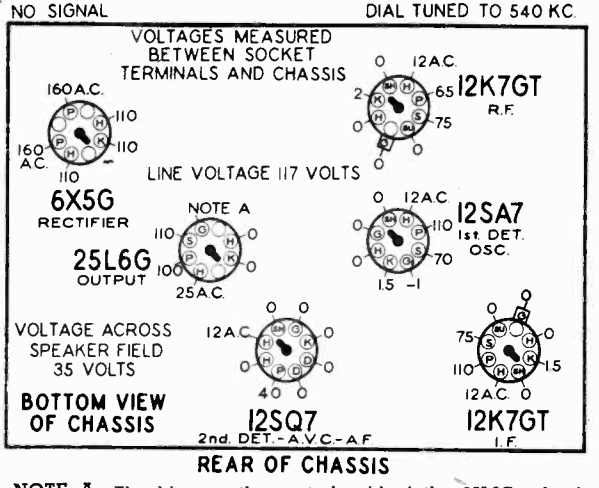
STEWART-WARNER CORP.

MODELS 01-6K1, Ch. 01-6K
01-6M9, Ch. 01-6M
Schematic, Voltage



NOTE "K": The 01-6M circuit is shown above. The 01-6K chassis does not have the phonograph attachment. In the 01-6K circuit, point "P" connects to point "Q" and point "R" is grounded to the chassis

Diagram Number	Part Number		Diagram Number	Part Number	
1	83539	Condenser—mica 260 mmfd.	40	118809	Resistor—carbon 680,000 ohms ¼ watt
2	83539	Condenser—mica 260 mmfd. (Model 01-6K only)	41	118919	Condenser—padding
	85061	Condenser—mica 50 mmfd. (Model 01-6M only)	42A-42B	119086	Volume control—1 meg. (with switch)
3-4	83783	Condenser—mica 110 mmfd.	43A-43B	119126	Trimmer condenser—2 section
5-6	85296	Lamp—6-8 volt Mazda No. 51	44A to 44C	119174	Condenser—trimmer 3 section
7	88173	Condenser—mica 50 mmfd.	45	119194	Switch—range
8	88587	Condenser—mica .0042 mfd.	46A-46B	119212	Condenser—gang (with drum)
9	110552	Resistor—carbon 47,000 ohms ¼ watt	47	119213	Coil—compensating
10	110553	Resistor—carbon 220,000 ohms ¼ watt	48	119214	Switch—tone control
11	110553	Resistor—carbon 220,000 ohms ¼ watt (Model 01-6M only)	49	119220	Transformer—1st I.F.
12-13	110559	Resistor—carbon 470,000 ohms ¼ watt	50	119221	Transformer—2nd I.F.
14	110560	Resistor—carbon 100 ohms ¼ watt	51	119223	Transformer—power
15	110564	Resistor—carbon 100,000 ohms ¼ watt	52	U-119228	Transformer—output—for U-115088 speaker
16	110580	Resistor—carbon 3.3 meg. ¼ watt	53	U-119229	Cone & Voice coil assembly for U-115088 speaker
17	112426	Condenser—mica 1650 mmfd. (3%)	54	119262	Coil—short wave oscillator
18-19	112952	Resistor—carbon 3,300 ohms ¼ watt	55	119263	Coil—B.C. & Pol. Oscillator
20	112956	Resistor—carbon 220,000 ohms ¼ watt	56	119302	Loop antenna (BC & POL) with cabinet back (01-6K only)
21	112973	Resistor—carbon 1.5 meg. ¼ watt		119620	Loop antenna (BC & POL) with cabinet back (01-6M only)
22	112978	Resistor—insulated 470 ohms ¼ watt	57	119314	Condenser—mica 5 mmfd.
23	116062	Resistor—150 ohms ¼ watt	58	119329	Short wave loop antenna assembly complete (01-6K only)
24	U-115088	Speaker—dynamic 6"		119622	Short wave loop antenna assembly complete (01-6M only)
25	118803	Resistor—680 ohms ¼ watt	59A-59B	119343	Condenser—electrolytic 20-40 mfd. 200 volt
26-27-28	119193	Condenser—.01 mfd. 600 volt	60	119864	Crystal Cartridge (01-6M9)
29	119757	Condenser—.01 mfd. 600 volt (shielded)	61	119619	Automatic stop for motor (Model 01-6M only)
30	116647	Condenser—.004 mfd. 600 volt	62	119728	Motor (Model 01-6M only)
31-32-33	116706	Condenser—.2 mfd. 600 volt			
34	116781	Condenser—trimmer			
35-36-37	116819	Condenser—.05 mfd. 600 volt			
38	116984	Condenser—.04 mfd. 600 volt			
39	117054	Switch—"Radio-Phono" with escutcheon (Model 01-6M only)			



NOTE A: The bias on the control grid of the 25L6G tube is —9 volts, measured across resistor No. 20. Due to the high resistances involved the voltage measured will be less than this value.

CHASSIS 01-6K,01-6M
Alignment,Trimmers,Socket

STEWART-WARNER CORP.

ALIGNMENT PROCEDURE FOR 01-6K AND 01-6M CHASSIS

1. Connect the output meter across the voice coil or between the plate of the 25L6G output tube and ground in series with a .1 mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)

2. If a dummy antenna is used, connect the ground lead of the signal generator to the chassis. The information in the table below assumes a dummy antenna will be used when aligning this receiver.

   If no dummy is to be used omit the connection from generator ground to the chassis. Then connect an unshielded lead to the output terminal of the signal generator and place the lead near the loops of the receiver, and make no connection to the antenna terminal on the rear of the cabinet.

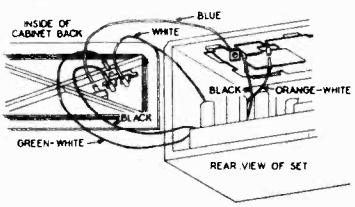
3. Turn the volume control to the maximum clockwise position and keep it in this position throughout the entire alignment procedure.

4. With the gang condenser in full mesh, set the pointer so that its position is horizontal.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output To Receiver	Signal Generator Frequency	Band Switch Position	Receiver Dial Position	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD. Condenser	Grid of 12K7GT R.F. Tube	455 KC	Broadcast	Any Point Where It Does Not Affect Signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
200 MMFD. Mica Condenser	Antenna Terminal	1500 KC	Broadcast	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	Antenna Terminal	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	10	Broadcast Antenna	Place broadcast loop antenna in same position relative to chassis as it occupies when in cabinet. Adjust for maximum output.
200 MMFD. Mica Condenser	Antenna Terminal	600 KC	Broadcast	Tune to 600 KC Generator Signal	6	Broadcast Oscillator (Series)	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	Antenna Terminal	5 MC	Intermediate	5 MC	7	Intermediate Oscillator (Shunt)	Adjust for maximum output. Check to see if proper peak is obtained by tuning in image at approx. 4.1 MC. If image does not appear realign at 5 MC with trimmer screw farther out. Recheck image.
400 OHM Carbon Resistor	Antenna Terminal	16 MC	Foreign	16 MC	8	Foreign Oscillator (Shunt)	Adjust for maximum output. Check to see if proper peak is obtained 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.
Before making the following adjustments, install the chassis and both loops in the cabinet							
400 OHM Carbon Resistor	Antenna Terminal	5 MC	Intermediate	Tune to 5 MC Generator Signal	9	Intermediate Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
200 MMFD. Mica Condenser	Antenna Terminal	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	10	Broadcast Antenna	Adjust for maximum output Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.
400 OHM Carbon Resistor	Antenna Terminal	16 MC	Foreign	Tune to 16 MC Generator Signal	11	Foreign Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

DIAL AND MISCELLANEOUS PARTS

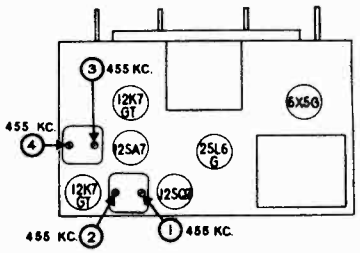
Part No.	Description	List Price
119304	Cabinet back (back only) Model 01-6K	$0.20
119621	Cabinet back (back only) Model 01-6M	.22
117117	Cable—for connecting motor (01-6M only)	.38
114955	Clamp—for dial cord	.01
113019	Clip—dial scale retaining	.01
112745	Clip—coil mounting	.01
116948	Cord—dial drive (supplied in 6 ft. lengths)	.18
119618	Phono Pick-up arm (Model 01-6M only)	5.85
119274	Dial scale	.26
119208	Escutcheon—dial	.80
117806	Idler wheel with rubber rim (01-6M9)	.60
119167	Knob	.10
84571	Needle cup (Model 01-6M)	.10
110496	Plug—4 prong—for speaker	.12
116883	Pointer	.16
81145	Retaining ring—for drive shaft Per C	.50
117807	Rubber rim for idler wheel (01-6M9)	.12
83624	Screw—self tapping 8 x ¼	.01
112874	Screw—No. 10 x 1⅛ chassis mtg.	.01
119218	Screw for mounting escutcheon	.02
119204	Shaft-tuning	.10
85427	Socket—octal base (standard)	.15
110501	Socket—4 prong (for speaker)	.16
111008	Socket—dial lamp (grounded side)	.12
113122	Socket—dial lamp (ungrounded side)	.12
111090	Spacer—steel	.02
114968	Spring—dial cord tension	.03
119729	Turntable (Model 01-6M)	1.50
117816	Turntable shaft (01-6M9)	.35
110829	Washer—flat steel, for mtg. chassis	.01
116530	Washer (paper) for back of knobs	.005

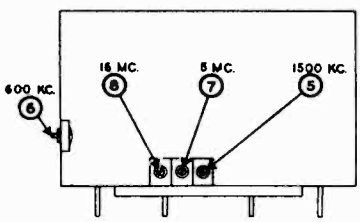


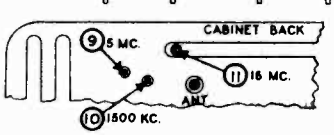
NOTE

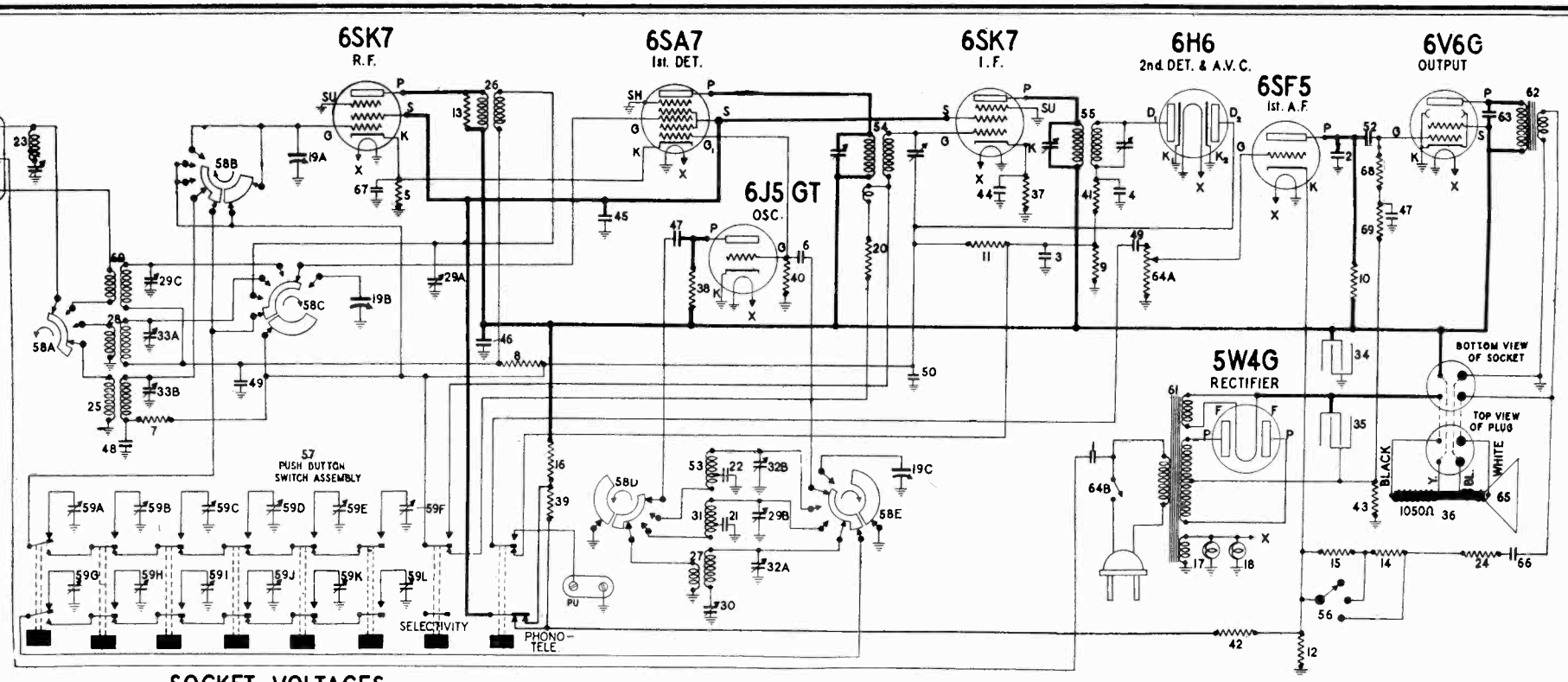
If this receiver is to be used with an outside aerial, it is recommended when aligning the receiver that the signal generator be connected to the antenna terminal through the dummy antenna shown in the table above. If the set is to be used without an external aerial, it is preferable to make adjustments on Trimmers No. 6, 9, 10 and 11 with no connection to the antenna terminal, and with an unshielded wire from the signal generator output placed near the receiver loop.

When making the initial adjustment of Trimmers No. 10 and No. 6 the loops should be placed in their approximately correct position with respect to the chassis. Otherwise the adjustment of Trimmer No. 6 may be incorrect.



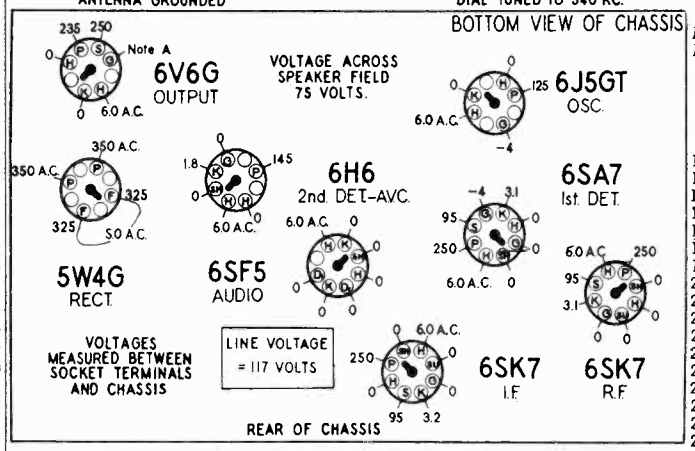






SOCKET VOLTAGES

ANTENNA GROUNDED — DIAL TUNED TO 540 KC.



All voltages measured in radio position.

Use a high resistance voltmeter of at least 1000 ohms per volt.

NOTE A: The bias for the control grid of the 6V6G is 15 volts measured across resistor 43.

Diagram Number	Part Number	Description
1-2	83539	Condenser—mica 260 mmfd.
3-4	83783	Condenser—mica 110 mmfd.
5	84979	Resistor—250 ohms ½ watt Wire Wound
6	85061	Condenser—mica 51 mmfd.
7-8-9-10	110553	Resistor—carbon 220,000 ohms ¼ watt
11	110554	Resistor—carbon 1 megohm ¼ watt
12	110556	Resistor—330 ohms ¼ watt
13-14	110573	Resistor—carbon 2,200 ohms ¼ watt
15	110587	Resistor—3,900 ohms ¼ watt
16	110595	Resistor—carbon 12,000 ohms 3 watts
17-18	110629	Lamp—6.3 volt—.25 amps
19A-19B-19C	110936	Condenser—variable gang
20	110975	Resistor—wire wound 33 ohms ½ watt
21	112426	Condenser—mica 1650 mmfd.
22	112427	Condenser—mica 4050 mmfd.
23	112796	Coil—wave trap with trimmer
24	112978	Resistor—470 ohms ¼ watt
25	113295	Coil—antenna (B.C.)
26	113296	Coil—R.F. (B.C.)
27	113297	Coil—Oscillator (B.C.)
28	113298	Coil—Antenna (Police)
29A-29B-29C	113320	Condenser—trimmer—3 section
30	113346	Condenser—padding
31	113412	Coil—oscillator (Police)
32A-32B 33A-33B	114937	Condenser—trimmer—2 section
34-35	114972	Condenser—electrolytic—16 mfd. 450 volt
36	U-115071	Speaker—12" electro dynamic
37	116015	Resistor—400 ohms ½ watt wire wound
38-39	116055	Resistor—carbon 22,000 ohms ½ watt
40-41	116058	Resistor—47,000 ohms ¼ watt insulated
42	116086	Resistor—18,000 ohms 1 watt
43	116094	Resistor—220 ohms 2 watts wire wound
44-45-46	116625	Condenser—.1 mfd. 600 volt
47	116640	Condenser—.01 mfd. 600 volt
48-49-50	116819	Condenser—.05 mfd. 600 volt
51-52	116893	Condenser—.02 mfd. 600 volt
53	117530	Coil—short wave oscillator
54	117616	Transformer—1st I.F.
55	117618	Transformer—2nd I.F.
56	117678	Switch—tone control
57	117694	Push button switch
58A to 58E	117787	Range switch
59A to 59L	117788	Condenser—trimmer gang
60	117819	Coil—short wave antenna
61	117830	Transformer—power
62	118144	Transformer—output
63	118194	Condenser—.006 mfd. 600 volt
64A-64B	118198	Volume control 1 meg. (with switch)
65	U-118202	Cone & Voice coil for U-115071 speaker
66-67	118206	Condenser—.25 mfd. 600 volt
68-69	110553	Resistor—carbon 220,000 ohms ¼ watt

CHASSIS 01-8A
CHASSIS 01-8B
Alignment, Socket
Trimmers

STEWART-WARNER CORP.

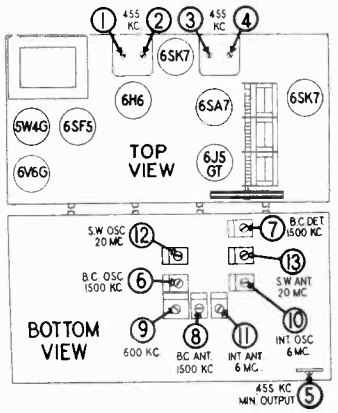
ALIGNMENT PROCEDURE FOR 01-8A CHASSIS

1. Connect the output meter across the voice coil or from the plate of the 6V6G output tube to ground through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis and remove the connector from between the "A" and "X" terminals.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the alignment procedure.
4. Push in the "Selectivity" button and keep it pushed in. Check the pointer to see that it is correctly set.

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 Middle 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.	
200 MMFD. Mica Condenser	"A" Terminal	455 KC	Broadcast	Any Point Where It Does Not Affect the Signal	5	Wave Trap	Adjust for Minimum Output. Using a Strong Generator Signal.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	1500 KC	6	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	7	Broadcast Detector	Adjust for Maximum Output.
					8	Broadcast Antenna	
200 MMFD. Mica Condenser	"A" Terminal	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.
400 OHM Carbon Resistor	"A" Terminal	6 MC	Intermediate	6 MC	10	Intermediate Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 19.1 MC. If Image does not appear, Realign at 6 MC. with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	"A" Terminal	6 MC	Intermediate	Tune to 6 MC Generator Signal	11	Intermediate Antenna	Adjust for Maximum Output.
400 OHM Carbon Resistor	"A" Terminal	20 MC	Foreign	20 MC	12	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 39.1 MC. If Image does not appear, Realign at 20 MC. with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	"A" Terminal	20 MC	Foreign	Tune to 20 MC Generator Signal	13	Foreign Antenna	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	List Price
114032	Bracket & Pulley Assembly—right hand	$0.34
114034	Bracket & Pulley Assembly—left hand	.34
117012	Call tabs and instructions	.44
114042	Clamp—for dial scale	.10
114955	Clamp—for dial cord	.01
112745	Clip—coil mounting	.01
112798	Clip for mtg. wave trap coil	.01
85321	Connector for internal antenna	.01
116948	Cord—dial drive (supplied in 6 ft. lengths)	.18
117057	Cord—drive (supplied in 3 ft. lengths)	.15
114921	Dial background—brown suede paper	.10
114915	Dial mounting plate	.38
117840	Dial scale	.80
113338	Drum—dial drive	.54
114052	Escutcheon—dial	2.00
117757	Escutcheon—for push buttons	.40
116773	Knob tuning, etc.	.10
117758	Pin—for push buttons	.02
117662	Pointer assembly	.32
112762	Pulley—dial cord drive	.04
116999	Push button	.08
113463	Rubber bushing—chassis mtg.	.03
83624	Screw self tapping 8x1/4	.01
85040	Screw—No. 6 Hex. Hd. Per C	.35
112874	Screw—No. 10x11/16 chassis mtg.	.01
113191	Screw special No. 8/32x11/8	.01
114914	Screw—No. 2x3/8 Phillips head Per Doz.	.15
85827	Set Screw 8/32 square head	.02
118463	Screw—large adjusting for top deck P.B. trimmers	.03
118464	Screw—small adjusting for top deck P.B. trimmers	.03
118465	Screw—large adjusting for bottom deck P.B. trimmers	.03
85427	Socket—octal base (standard)	.15
110501	Socket—4 prong (for speaker)	.16
113025	Socket—octal base (with special ground)	.15
114117	Socket—dial lamp	.18
113177	Spring—dial cord tension	.09
117458	Spring—push button	.05
116536	Terminal strip (G.K.A.)	.15
84407	Terminal strip—phono	.12
117664	Tuning shaft	.32
116530	Washer—paper for back of knobs	.005



ALIGNMENT PROCEDURE FOR 01-8B CHASSIS

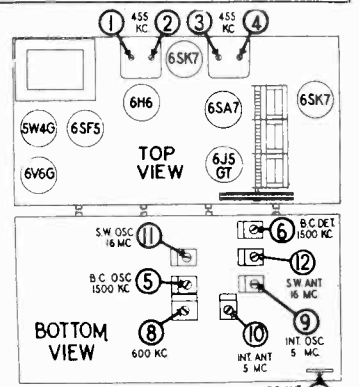
1. Connect the output meter across the voice coil or from the plate of the 6V6G output tube to ground through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis and remove the connector from between the "G" and "X" terminals.
3. Turn the volume control to the maximum position and keep it in this position throughout the alignment procedure.
4. Push in the "Selectivity" button and keep it pushed in. Check the pointer to see that it is correctly set.
5. The loop must be connected as indicated in circuit diagram at all times.

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 Middle 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.	
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	"A" Terminal	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	6	Broadcast Detector	Adjust for Maximum Output.
					7	Broadcast Antenna	
200 MMFD. Mica Condenser	"A" Terminal	600 KC	Broadcast	Tune to 600 KC Generator Signal	8	Broadcast Oscillator (Series)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
400 OHM Carbon Resistor	"A" Terminal	5 MC	Intermediate	5 MC	9	Intermediate Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 4.1 MC. If Image does not appear, Realign at 5 MC. with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	"A" Terminal	5 MC	Intermediate	Tune to 5 MC Generator Signal	10	Intermediate Antenna	Adjust for Maximum Output.
400 OHM Carbon Resistor	"A" Terminal	16 MC	Foreign	16 MC	11	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained 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	"A" Terminal	16 MC	Foreign	Tune to 16 MC Generator Signal	12	Foreign Antenna	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

NOTE: Realign trimmer No. 7 after set is in cabinet by connecting "X" and "G" together, placing range switch in broadcast position, and adjusting for maximum output on a weak signal at approximately 1500 KC.

MISCELLANEOUS PARTS

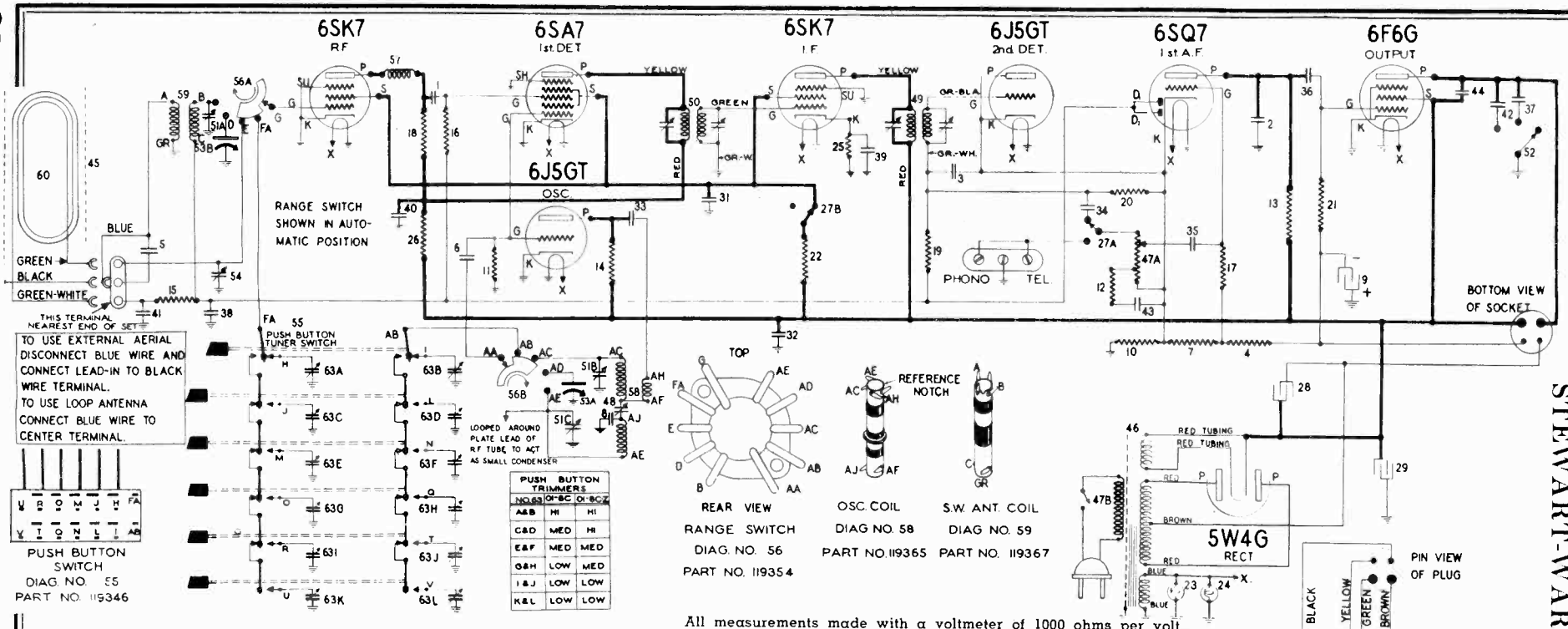
Part Number	Description	List Price
114032	Bracket & Pulley Assembly—right hand	$0.34
114034	Bracket & Pulley Assembly—left hand	.34
118704	Call tabs and instructions	.45
114955	Clamp—for dial cord	.01
114042	Clamp for dial scale	.10
112745	Clip—coil mounting	.01
85321	Connector—for internal antenna	.01
116948	Cord—dial drive (supplied in 6 ft. lengths)	.18
117057	Cord—drive (supplied in 2 ft. lengths)	.15
110075	Cup washer for gang condenser mounting	.02
111973	Cushion—rubber rest for back of chassis	.06
114921	Dial back ground—brown suede paper	.10
114915	Dial mounting plate	.38
116699	Dial scale	.85
118480	Disc—for end of loop antenna	.05
113338	Drum—dial drive	.54
114052	Escutcheon—dial	2.00
117757	Escutcheon—for push buttons	.40
88348	Eyelet—pointer rope Per Doz.	.05
116773	Knob—tuning or volume	.10
117758	Pin—for push buttons	.02
117662	Pointer assembly	.32
116999	Push buttons	.08
113463	Rubber bushing—chassis mtg.	.03
83722	Rubber grommet for gang condenser mounting	.03
93624	Screw—self tapping 8x1/4	.01
85040	Screw—No. 6 Hex. Hd. Per C	.35
112874	Screw—No. 10x11/16 Chassis mtg.	.01
113191	Screw—special No. 8/32x11/8	.01
114914	Screw—special head—for mounting escutcheon Per Doz.	.15
118463	Screw—large adjusting for top deck P.B. trimmers	.03
118464	Screw small adjusting for top deck P.B. trimmers	.03
118465	Screw—large adjusting for bottom deck P.B. trimmers	.03
85827	Set Screw 8-32 Square Head (Drive drum)	.02
85427	Socket—octal base (standard)	.15
110501	Socket—4 prong (for speaker)	.16
113025	Socket—octal base (with special ground)	.15
114117	Socket—dial lamp	.18
113177	Spring—dial cord tension	.09
117458	Spring for push buttons	.05



116536	Terminal strip (G.K.A.)	.15
118691	Terminal strip (1-2-3)	.12
84407	Terminal strip (phono)	.12
113205	Thrust Plate—for tuning shaft	.08
117664	Tuning shaft	.32
116530	Washer (paper) for back of knobs	.005

STEWART-WARNER CORP.

MODELS 01-8C7, Ch. 01-8C
01-8C7-Z, Ch. 01-8C-Z
Schematic, Voltage



All measurements made with a voltmeter of 1000 ohms per volt.

NOTE A: Bias for the 6F6G output tube is 23.5 volts measured across resistors No. 10, 7 & 4.

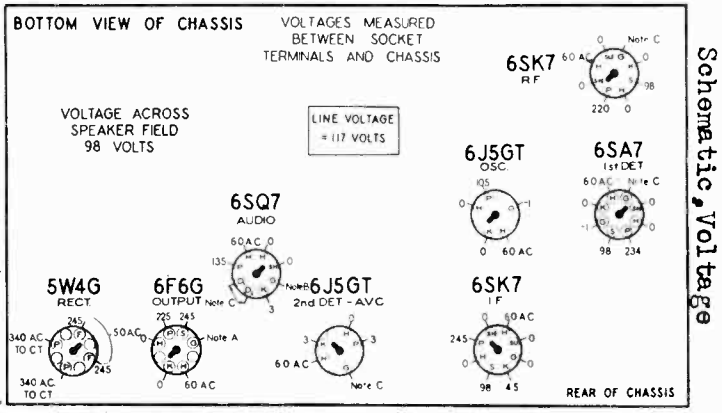
NOTE B: Voltage on the triode grid of the 6SQ7 audio tube is —2 volts measured across resistor No. 7.

NOTE C: Bias for the 6SK7 R.F and 6SA7 1st det. grids and voltage on the 6J5GT 2nd det. grid and diode plates on 6SQ7 is —3 volts measured across resistor No. 10.

Diagram Number	Part Number	Description
1-2	83539	Condenser—mica 260 mmfd.
3	83783	Condenser—mica 110 mmfd.
4	88460	Resistor—wire wound 150 ohms ½ watt
5-6	85061	Condenser—mica 51 mmfd.
7	88465	Resistor—25 ohms ½ watt W.W.
8	88587	Condenser—mica .0042 mfd.
9	110377	Condenser—electrolytic 10 mfd. 35 volt
10	110534	Resistor—wire wound 40 ohms ½ watt
11-12	110552	Resistor—carbon 47,000 ohms ¼ watt
13	110553	Resistor—carbon 220,000 ohms ¼ watt
14	110558	Resistor—carbon 33,000 ohms ½ watt
15	110559	Resistor—carbon 470,000 ohms ¼ watt
16	110564	Resistor—carbon 100,000 ohms ¼ watt
17	110570	Resistor—carbon 2.2 meg. ¼ watt
18	110573	Resistor—carbon 2,200 ohms ¼ watt
19	110580	Resistor—carbon 3.3 meg. ¼ watt
20-21	110584	Resistor—carbon 330,000 ohms ¼ watt
22	110595	Resistor—carbon 12,000 ohms 3 watts
23-24	110629	Lamp—6.3 volt—.25 amps.
25	112978	Resistor—insulated 470 ohms ¼ watt
26	112980	Resistor—carbon 1000 ohms ¼ watt
27A-27B	114141	Switch—D.P.D.T.
28-29	114972	Condenser—electrolytic 16 mfd. 450 volt
30	U-115091	Speaker—dynamic 10"
31-32	116625	Condenser—.1 mfd. 600 volt
33 to 37	116640	Condenser—.01 mfd. 600 volt
38 to 41	116819	Condenser—.05 mfd. 600 volt
42-43	116893	Condenser—.02 mfd. 600 volt
44	117022	Condenser—.002 mfd. 600 volt
45	118475	Shield for loop antenna
46	118665	Transformer—power
47A-47B	118669	Volume control with switch 1 meg.
48	118919	Condenser—padding
49	119024	Transformer—2nd I.F.
50	119042	Transformer—1st I.F.
51A-51B-51C	119174	Condenser—trimmer 3 section
52	119289	Switch—tone
53A-53B	119291	Condenser—variable tuning
54	119345	Condenser—trimmer
55	119346	Switch—push button
56A-56B	119354	Switch—range
57	119362	Coil—compensating
58	119365	Coil—oscillator
59	119367	Coil—S. W. antenna
60	119390	Loop antenna (complete
61	U-119464	Transformer—output for U-115091 speaker
62	U-119465	Cone & Voice coil for U-115091 speaker
63A to 63L	119662	Condenser—push button trimmer (Low) 540 to 1000 KC
	119663	Condenser—push button trimmer (Med.) 750 to 1375 KC
	119664	Condenser—push button trimmer (Hi) 980 to 1550 KC

SOCKET VOLTAGES

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



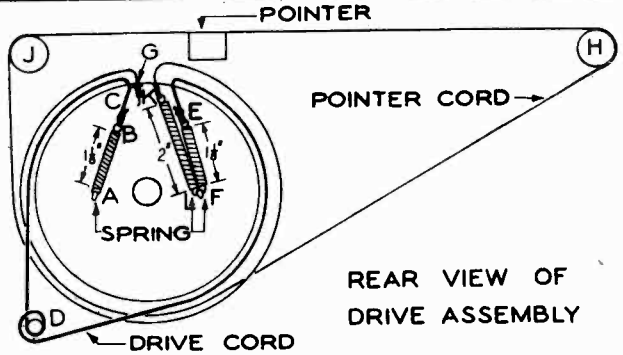
MODELS 01-8C7, 01-8C7-Z
Alignment, Socket, Trimmers
Drive Cord Data

STEWART-WARNER CORP.

1. Connect the output meter across the voice coil or from the plate of the 6F6G output tube to ground through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis and REMOVE THE BLUE WIRE FROM THE CENTER SCREW ON ANTENNA TERMINAL STRIP.
3. Turn the volume control to the maximum position and keep it in this position throughout the alignment procedure.
4. Check the pointer to see that it is correctly set to 540 KC with gang in full mesh.
5. The loop must be connected as indicated in circuit diagram at all times.
6. With some signal generators it may be found that reducing the input to a useable value is impossible using the dummy antennas recommended below. In such cases the signal generator may be disconnected entirely from the set and the R. F. lead of the signal generator placed in the vicinity of the loop. On the S. W. position the shield wire (black) may be disconnected from set and input fed to center terminal.

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.	
200 MMFD. Mica Condenser	Center Screw on Antenna Terminal Strip	1500 KC	Broadcast	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Center Screw on Antenna Terminal Strip	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	6*	Broadcast Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Center Screw on Antenna Terminal Strip	600 KC	Broadcast	Tune to 600 KC Generator Signal	7	Broadcast Oscillator (Series)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
400 OHM Carbon Resistor	Center Screw on Antenna Terminal Strip	16 MC	Foreign	16 MC	8	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained 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	Center Screw on Antenna Terminal Strip	16 MC	Foreign	Tune to 16 MC Generator Signal	9	Foreign Antenna	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

*NOTE: Realign trimmer No. 6 after set is in cabinet by connecting blue wire to center screw on antenna terminal strip, placing range switch in broadcast position, and adjusting for maximum output on a weak signal at approximately 1500 KC.



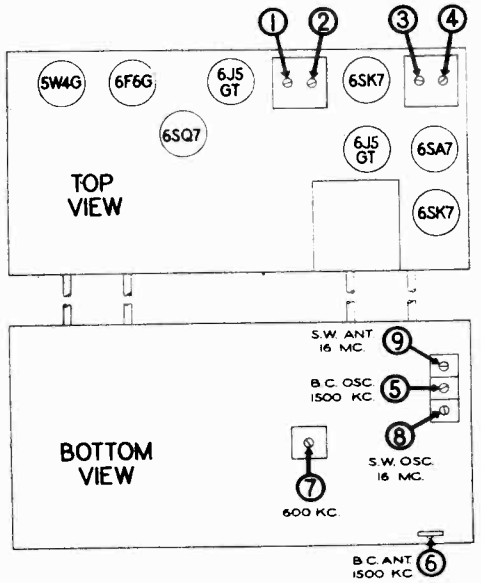
REAR VIEW OF DRIVE ASSEMBLY

TO REPLACE THE TUNING DRIVE CORD

1. Make a loop in one end of the dial drive cord (Part No. 117057 and fasten a spring (Part No. 113177) to this loop.
2. Fasten the spring to tab A and pass the cord through hole C in the rear of the drum.
3. Make one and one half turns of the cord about tuning shaft D.
4. Continue the cord around the drum through the other hole in the rear of the drum and form a loop at E. Fasten a spring (Part No. 113177) to the loop and adjust the loop to give the approximate dimension indicated.
5. Fasten the spring to tab F.

TO REPLACE THE POINTER DRIVE CORD

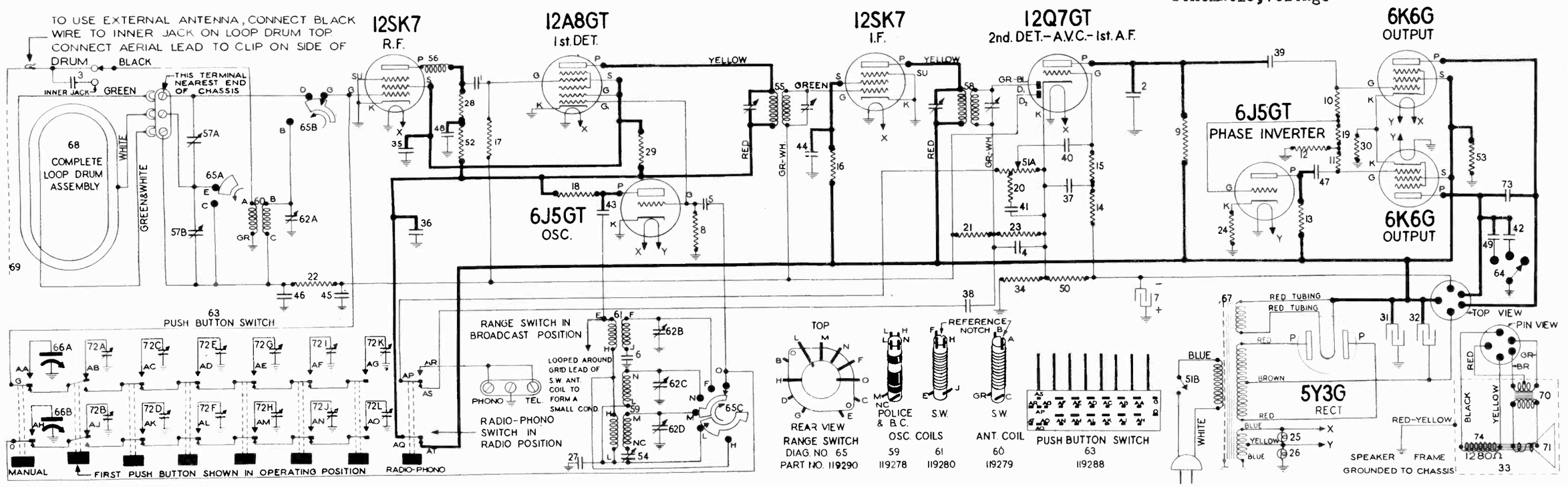
1. Fasten an eyelet (Part No. 88348) at a point one-half inch from one end of the cord (Part No. 116948) and pass the cord through hole G in the front of the drum.
2. Continue the cord around the drum and around pulley H.
3. Go from pulley H to pulley J and around the drum through hole K in the front of the drum.
4. Fasten a spring (Part No. 113177) at this point by forming a loop in the cord.
5. Adjust the loop so that the spring is extended to 2 inches.
6. Fasten the spring to tab L.



7. The condenser should be one quarter meshed (or at an angle of 45°) when the drum is in the indicated position.
8. Cement the pointer to the pointer drive cord so that it reads 540 KC with the gang in full mesh.

STEWART-WARNER CORP.

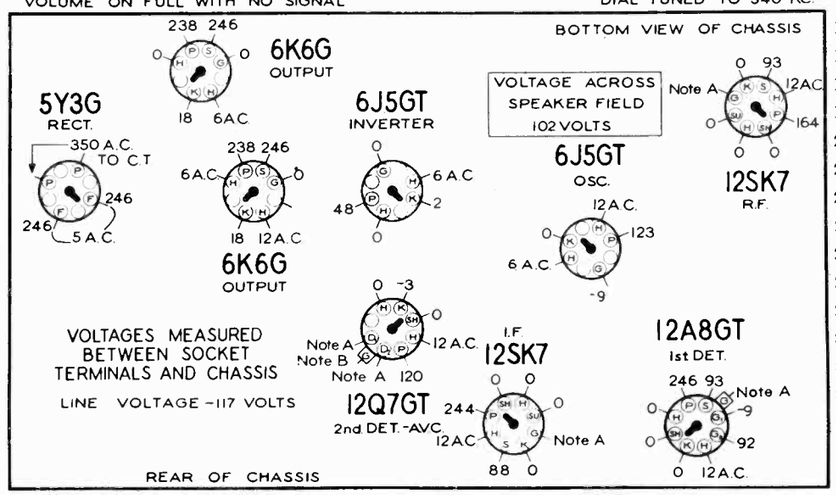
MODELS 01-9A7, Ch. 01-9A; 01-9A7-Z, Ch. 01-9A-Z
Schematic, Voltage



PUSH BUTTON TRIMMER RANGES

TRIMMER CONDENSERS	01-9A RANGE	01-9A-Z RANGE
72L & 72K	540 KC. to 1000 KC.	540 KC. to 1000 KC.
72J & 72I	540 KC. to 1000 KC.	540 KC. to 1000 KC.
72H & 72G	540 KC. to 1000 KC.	750 KC. to 1375 KC.
72F & 72E	750 KC. to 1375 KC.	750 KC. to 1375 KC.
72D & 72C	750 KC. to 1375 KC.	980 KC. to 1550 KC.
72B & 72A	980 KC. to 1550 KC.	980 KC. to 1550 KC.

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



USE A HIGH RESISTANCE VOLTMETER OF AT LEAST 1000 OHMS PER VOLT.

NOTE A: The bias on the 12SK7 R.F., 12A8GT 1st Det., 12SK7 I.F., and the diode plates of the 12Q7GT 2nd Det. is —3 volts measured across resistor No. 34.

NOTE B: Bias on the grid of the 12Q7GT 1st Audio is —1.8 volts measured across resistor No. 50.

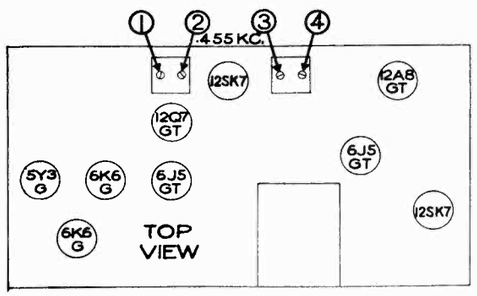
Diagram Number	Part Number	Description	List Price
1-2	83539	Condenser—mica 260 mmfd.	$0.20
3-4	83783	Condenser—mica 110 mmfd.	.20
5	85061	Condenser—mica 51 mmfd.	.15
6	88587	Condenser—mica .0042 mfd.	.35
7	110377	Condenser—electrolytic 10 mfd. 35 volt	.80
8	110552	Resistor—carbon 47,000 ohms ¼ watt	.12
9 to 13	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
14-15	110554	Resistor—carbon 1 megohm ¼ watt	.12
16-17	110564	Resistor—carbon 100,000 ohms ¼ watt	.12
18	110565	Resistor—carbon 22,000 ohms ¼ watt	.12
19-20	110566	Resistor—carbon 33,000 ohms ¼ watt	.12
21	110580	Resistor—carbon 3.3 meg. ¼ watt	.12
22-23	110584	Resistor—carbon 330,000 ohms ¼ watt	.12
24	110573	Resistor—carbon 2,200 ohms ¼ watt	.12
25-26	110629	Lamp—6.3 volt .25 amps.	.15
27	112426	Condenser—mica 1650 mmfd. (3%)	.30
28	112952	Resistor—carbon 3,300 ohms ¼ watt	.10
29	112998	Resistor—insulated 22,000 ohms 2 watts	.20
30	114334	Resistor—wire wound 360 ohms 2 watts (10%)	.20
31-32	114972	Condenser—electrolytic 16 mfd. 450 volt	.78
33	R-115089	Speaker—dynamic (12")	10.00
34	116479	Resistor—wire wound 33 ohms 3 watts	.20
35 to 37	116625	Condenser—.1 mfd. 600 volt	.25
38 to 43	116640	Condenser—.01 mfd. 600 volt	15
44 to 48	116819	Condenser—.05 mfd. 600 volt	.20
49	116984	Condenser—.04 mfd. 600 volt	.20
	117022	Condenser—.002 mfd. 600 volt	.15
50	117395	Resistor—20 ohms 1 watt	.16
51A-51B	118669	Volume control—1 meg. (with switch)	1.40
52	118805	Resistor—carbon 10,000 ohms 1 watt	.12
53	118808	Resistor—27,000 ohms 3 watts	.22
54	118919	Condenser—padding	.40
55	119042	Transformer—1st I.F.	1.10
56	119138	Coil—compensating	.25
57A-57B	119275	Condenser—trimmer (for loop) 2 section	.30
58	119277	Transformer—2nd I.F.	1.10
59	119278	Coil—B.C. & Police Oscillator	.60
60	119279	Coil—short wave antenna	.62
61	119280	Coil—short wave oscillator	.62
62A to 62D	119283	Condenser—trimmer (4 section)	.60
63	119288	Switch—push button	2.50
64	119289	Switch—tone	.60
65A to 65C	119290	Switch—range	1.00
66A-66B	119291	Condenser—variable tuning	2.90
67	119381	Transformer—power	5.40
68	119391	Loop Antenna—complete	3.20
69	119392	Loop Antenna—shield	1.00
70	R-119512	Transformer—output for R-115089 speaker	1.55
71	R-119513	Cone & voice coil for R-115089 speaker	2.20
72A to 72L	119662	Condenser—P. B. Trimmer (Low) 540 to 1000 KC.	.24
	119663	Condenser—P. B. Trimmer (Med.) 750 to 1375 KC.	.24
	119664	Condenser—P. B. Trimmer (Hi) 980 to 1550 KC.	.24
73	117022	Condenser—.002 mfd. 600 volt	.15
74	R-119767	Field Coil—for R-115089 speaker	2.50

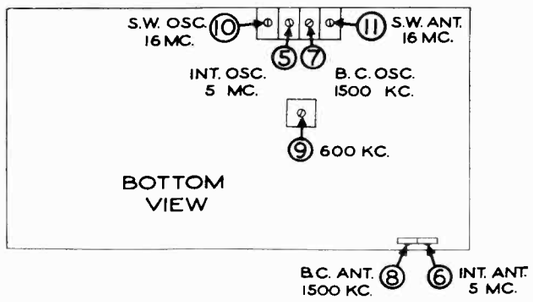
ALIGNMENT PROCEDURE FOR 01-9A & 01-9A-Z CHASSIS

1. Connect the output meter across the voice coil or from plate to plate of the 6K6G output tubes through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis and change the black wire from the outer to the inner clip on top of the loop drum.
3. Turn the volume control to the maximum position and keep it in this position throughout the alignment procedure.
4. Push in the Manual button and keep it pushed in.
5. The loop must be connected as indicated in circuit diagram at all times.
6. With some signal generators, it may be found that the signal cannot be reduced to a useable value using the dummy antennas recommended below. In such cases the signal generator may be disconnected entirely from the set and the R. F. lead of the signal generator placed in the vicinity of the loop. On the Short Wave position the shield wire (black) may be disconnected from its jack and the output of the signal generator connected to the black wire through a 400 ohm resistor.

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 Front 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	Clip on Side of Loop Drum	5 MC	Intermediate	5 MC	5	Intermediate Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 4.1 MC. If Image does not appear, Realign at 5 MC, with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	Clip on Side of Loop Drum	5 MC	Intermediate	Tune to 5 MC Generator Signal	6*	Intermediate Antenna	*Adjust for Maximum Output.
200 MMFD. Mica Condenser	Clip on Side of Loop Drum	1500 KC	Broadcast	1500 KC	7	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Clip on Side of Loop Drum	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	8*	Broadcast Antenna	*Adjust for Maximum Output.
200 MMFD. Mica Condenser	Clip on Side of Loop Drum	600 KC	Broadcast	Tune to 600 KC Generator Signal	9	Broadcast Oscillator (Series Padder)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.
400 OHM Carbon Resistor	Clip on Side of Loop Drum	16 MC	Foreign	16 MC	10	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained 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	Clip on Side of Loop Drum	16 MC	Foreign	Tune to 16 MC Generator Signal	11	Foreign Antenna	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

*Realign trimmer No. 6 on 5 MC, then trimmer No. 8 on 1500 KC, after set is in cabinet.





NOTES FOR 01-9A and 01-9A-Z CHASSIS

AUDIO HOWLS

For proper operation this chassis must be allowed to float on the rubber cushions on which it is mounted. If this is not done the set may howl when receiving strong signals. Loosen the four bolts holding down the chassis and remove the two wood strips which support the chassis during shipment. Make sure that neither the control knobs, their shafts nor any part of the dial mechanism touches the front panel or the set may still howl.

The speaker frame must be grounded to the chassis by the red and yellow wire provided. Reaction between the speaker and loop may otherwise result.

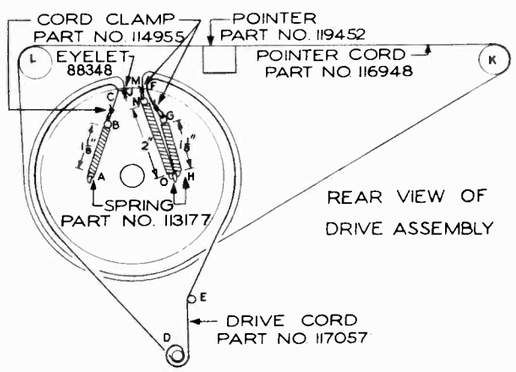
TO SET POINTER

The pointer should be set to 540 K.C. on the dial scale when the tuning condenser is in full mesh. Cement pointer to cord at this point and allow to dry before moving.

TO SET DRUM ON CONDENSER SHAFT.

With the tuning condenser plates in the horizontal (half mesh) position, the holes in the drum should be at the top. To change position of drum, loosen set screws.

REPLACING THE DRIVE CORDS



TO REPLACE DIAL DRIVE CORD

1. Make a one inch loop in end of cord (Part No. 117057) using a dial cord clip (Part No. 114955).
2. Fasten a tension spring (Part No. 113177) to tab A and one end of the cord to the spring at point B.
3. Pass the other end of the dial cord through hole C on the rear of the drum.
4. Make one and one half turns of the cord about tuning shaft D.
5. Continue the cord clockwise by E to hole F in the rear of the drum.
6. The cord length should be adjusted so that the springs will be stretched to approximately the dimension indicated. Fasten a tension spring (Part No. 113177) to the cord by forming a new loop at G and then fastening spring to tab H.

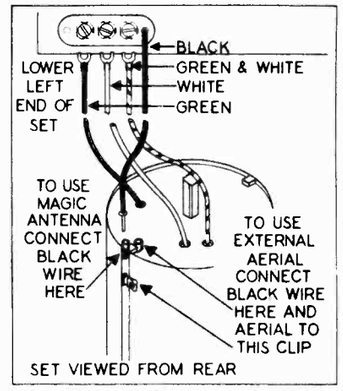
TO REPLACE THE POINTER DRIVE CORD

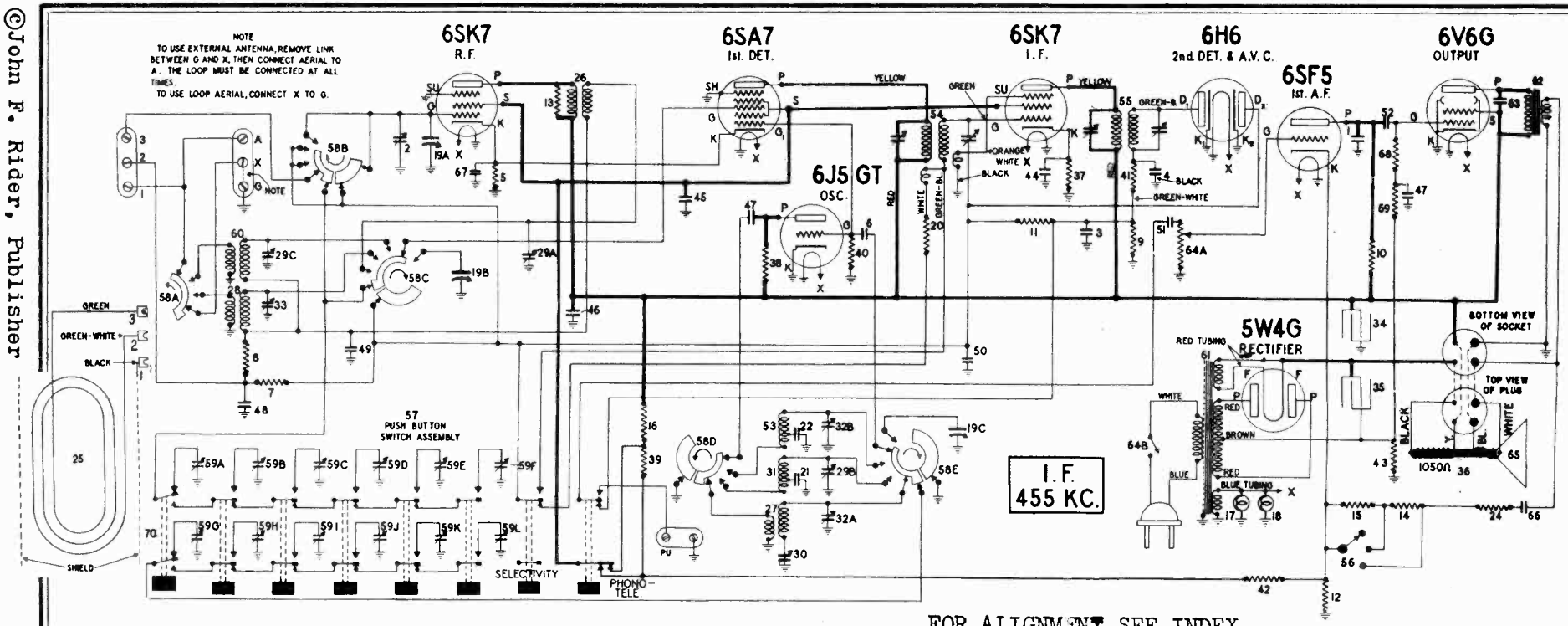
1. Fasten an eyelet (Part No. 88348) at a point one-half inch from one end of the cord (Part No. 116948).
2. Pass cord through hole J at the front of the drum.
3. Continue cord counter-clockwise around drum and around pulley K.
4. From pulley K go over pulley L and around front of drum through hole M.
5. The length of cord should be adjusted until the spring is stretched to approximately the length indicated. Fasten a spring with a loop and clip as indicated, to the cord.
6. Fasten spring to tab O.

MISCELLANEOUS PARTS

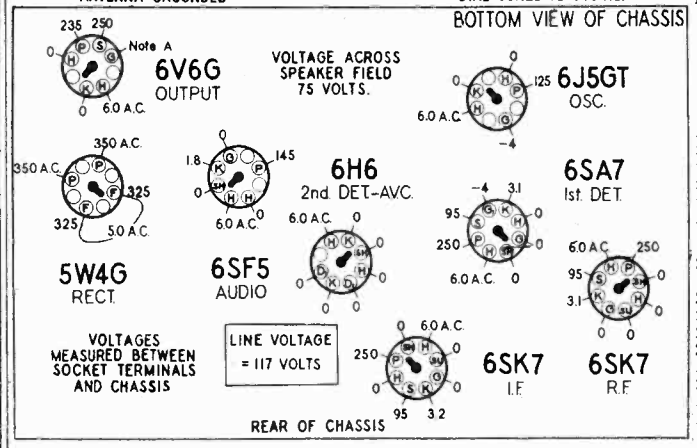
Part Number	Description	List Price
119376	Call Tabs and Instructions	$0.38
114955	Clamp for dial cord	.01
110140	Clip—grid	.01
112745	Clip—coil mounting	.01
116948	Cord—pointer drive (supplied in 6 ft. lengths)	.18
117057	Cord—drive (supplied in 2 ft. lengths)	.15
111973	Cushion—rubber rest for back of chassis	.06
119330	Dial scale	.35
113402	Drum—dial cord drive	.56
119215	Escutcheon—dial	1.30
119216	Escutcheon & P. B. Assembly	1.25
119217	Escutcheon for push buttons	.40
88348	Eyelet—for dial cord Per Dz.	.05
119167	Knob	.10
119323	Pilot Light assembly (single wire)	.18
119325	Pilot Light assembly (double wire)	.20
117758	Pin—for push button	.02
119452	Pointer	.14
119211	Push button	.10
81145	Retaining ring—for drive shaft Per C	.50
113463	Rubber bushing—chassis Mtg.	.03
83624	Screw—self tapping 8 x ¼	.01
85040	Screw—No. 6 Hex. Hd. Per C	.35
119218	Screw—Escutcheon Mtg.	.02
85827	Set Screw—8-32 Square Head	.02
85427	Socket—octal base (standard)	.15
114876	Socket—octal base (special)	.15
117704	Socket—for speaker 5 prong	.13
111090	Spacer—steel	.02
112874	Screw—No. 10 x 1⅛ chassis Mtg.	.01
113177	Spring—dial cord tension	.09
117458	Spring for push button	.05
84412	Terminal strip—phono	.03
118606	Tuning shaft	.18
110829	Washer—flat steel, for mtg. chassis	.01
111456	Washer—spring washer for tuning shaft Per C	.50
116530	Washer (paper) for back of knobs	.005

LOOP CONNECTIONS





SOCKET VOLTAGES



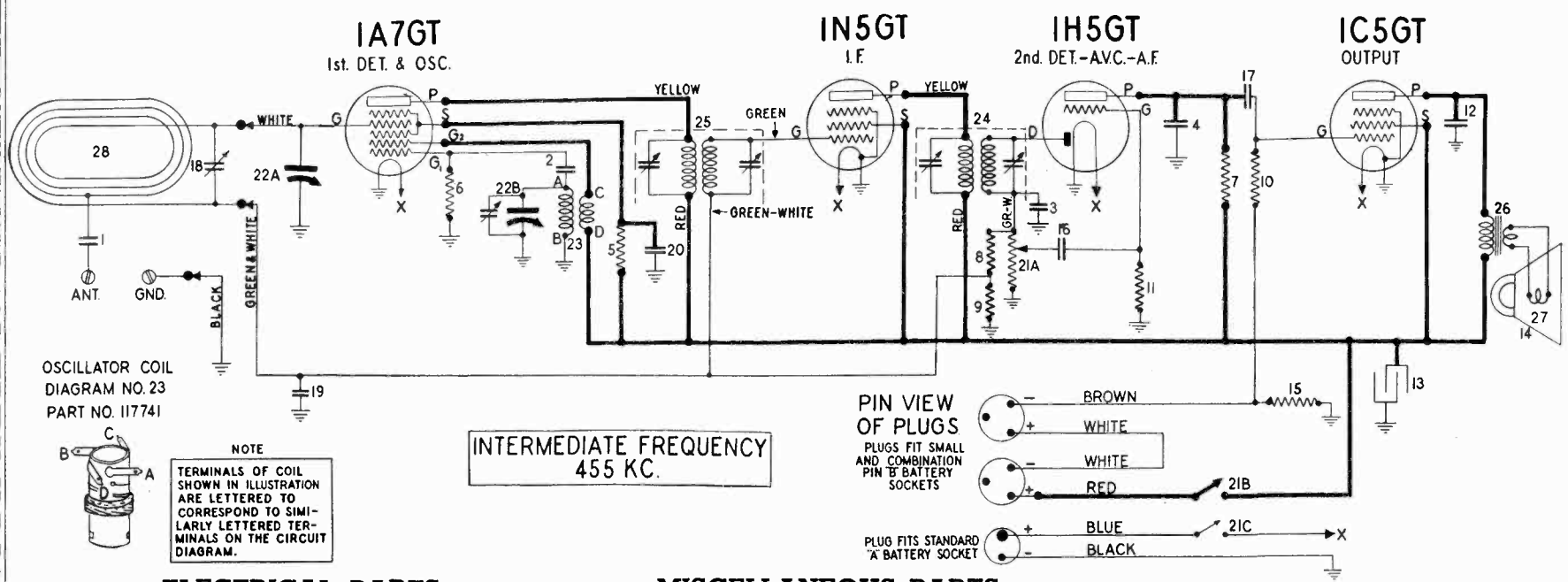
All voltages measured in radio position.
Use a high resistance voltmeter of at least 1000 ohms per volt.

NOTE A: The bias for the control grid of the 6V6G is 15 volts measured across resistor 43.

FOR ALIGNMENT SEE INDEX

Diagram Number	Part Number	Description
1	83539	Condenser—mica 260 mmfd.
2	111043	Condenser—trimmer (single section)
3-4	83783	Condenser—mica 110 mmfd.
5	84979	Resistor—250 ohms ½ watt W.W.
6	85061	Condenser—mica 51 mmfd.
7-8-9-10	110553	Resistor—carbon 220,000 ohms ¼ watt
11	110554	Resistor—carbon 1 megohm ¼ watt
12	110556	Resistor—carbon 330 ohms ¼ watt
13	110557	Resistor—carbon 4,700 ohms ¼ watt
14	110586	Resistor—carbon 2,200 ohms ¼ watt
15	110587	Resistor—carbon 3,900 ohms ¼ watt
16	110595	Resistor—carbon 12,000 ohms 3 watts
17-18	110629	Lamp—6.3 volt—.25 amps
19A-19B-19C	110743	Condenser—variable gang
20	110975	Resistor—wire wound 33 ohms ½ watt
	111043	Trimmer condenser (single section)
21	118679	Condenser—mica .00113 mfd.
22	112427	Condenser—mica 4050 mmfd. (3%)
24	112978	Resistor—insulated 470 ohms ¼ watt
25	118696	Loop antenna complete
26	118706	Coil—broadcast R.F.
27	118686	Coil—broadcast oscillator
28	118689	Coil—police antenna
29A-29B-29C	113320	Condenser—trimmer—3 section
30	113346	Condenser—padding
31	118687	Coil—police oscillator
32A-32B	114937	Condenser—2 section trimmer
33	111043	Trimmer condenser (single section)
34-35	114972	Condenser—electrolytic 16 mfd. 450 volt
36	U-115071	Speaker—12" dynamic
37	116015	Resistor—wire wound—400 ohms ½ watt
38-39	116055	Resistor—carbon 22,000 ohms ½ watt
40-41	116058	Resistor—insulated 47,000 ohms ¼ watt
42	116086	Resistor—carbon 18,000 ohms 3 watts
43	116094	Resistor—220 ohms 2 watts W.W.
44-45-46	116625	Condenser—.1 mfd. 600 volt
47	116640	Condenser—.01 mfd. 600 volt
48-49-50	116819	Condenser—.05 mfd. 600 volt
51-52	116893	Condenser—.02 mfd. 600 volt
53	118688	Coil—short wave oscillator
54	118682	Transformer—1st I.F.
55	118684	Transformer—2nd I.F.
56	117678	Switch—tone control
57	117694	Push button switch
58A to 58E	117787	Range switch
59A to 59L	117788	Condenser—trimmer gang
60	118690	Coil—short wave antenna
61	117830	Transformer—power
62	118144	Transformer—output
63	118194	Condenser—.006 mfd. 600 volts
64A-64B	118198	Volume control with switch
65	U-118202	Cone & Voice coil for U-115071 speaker
66-67	118206	Condenser—.25 mfd. 600 volts
68-69	110553	Resistor—220,000 ohms ¼ watt
70	118475	Shield for loop antenna (also see No. 118696)
	118682	Transformer—1st I.F.
	118684	Transformer—2nd I.F.
	118696	Loop antenna complete (with shield)

MODELS 02-4A1 to 02-4A9 inc. STEWART-WARNER CORP.
Chassis 02-4A
Schematic, Voltage



ELECTRICAL PARTS

Diagram Number	Part Number	Description
1	83539	Condenser—mica, 260 mmfd.
2-3-4	85061	Condenser—mica, 51 mmfd.
5	110552	Resistor—carbon, 47,000 ohms, ¼ watt
6	110553	Resistor—carbon, 220,000 ohms, ¼ watt
7	110554	Resistor—carbon, 1 megohm, ¼ watt
8-9-10	110570	Resistor—carbon, 2.2 meg., ¼ watt
11	110580	Resistor—carbon, 3.3 meg., ¼ watt
12	113035	Condenser—Ceramic Tube, .006 mfd., 600 volt
13	113118	Condenser—Electrolytic—8 mfd., 150 volt
14	U-115068	Speaker—P.M. Dynamic (4 in.)
15	116061	Resistor—800 ohm, ¼ watt
16-17	116640	Condenser—.01 mfd., 600 volt
18	116781	Trimmer Condenser
19-20	116819	Condenser—.05 mfd., 600 volt
21A-21B-21C	117706	Volume Control—1 meg., with switch
22A-22B	117707	Condenser—Tuning
23	117741	Coil—Oscillator
24	117742	Transformer—2nd I.F.
25	117743	Transformer—1st I.F.
26	117782	Transformer—Output
27	U-118280	Cone & Voice Coil Assembly for U-115068 Speaker
28	117914	Loop Antenna

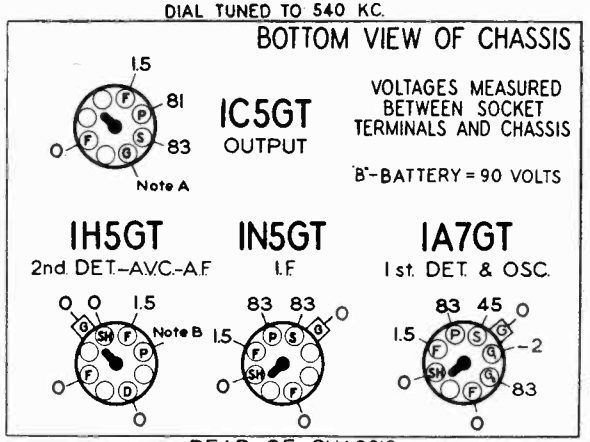
MISCELLANEOUS PARTS

Part Number	Description
117770	Battery retaining Block
117927	Button—"Off" Marker
116399	Cable—for Batteries
117836	Cabinet & Back
112745	Clip—Coil Mounting
113178	Cord—Dial (Supplied in 4 ft. lengths)
117715	Drive Drum and pointer assembly
117800	Dial scale
117894	Knob—volume
117895	Knob—tuning
118732	Loop terminal strip with trimmer & contacts
116397	Plug—2 prong Male
116398	Plug—3 prong Male
116488	Nut—8-32 Wing Nut
81145	Retaining Ring—for drive shaft
85040	Screw—No. 6 Hex. Hd.
113191	Screw—Special No. 8-32 x 1⅛
117716	Shield—Tube
116690	Socket (octal base) small
111981	Spring—for dial cord tension
117709	Tuning Shaft

SOCKET VOLTAGES

DIAL TUNED TO 540 KC.

BOTTOM VIEW OF CHASSIS



REAR OF CHASSIS

NOTE A: The bias for the control grid of the 1C5GT tube is —7 volts measured across resistor 15.

NOTE B: Due to the high resistance of resistor 7, only a slight deflection will be obtained when using a meter having a resistance of 1000 ohms per volt.

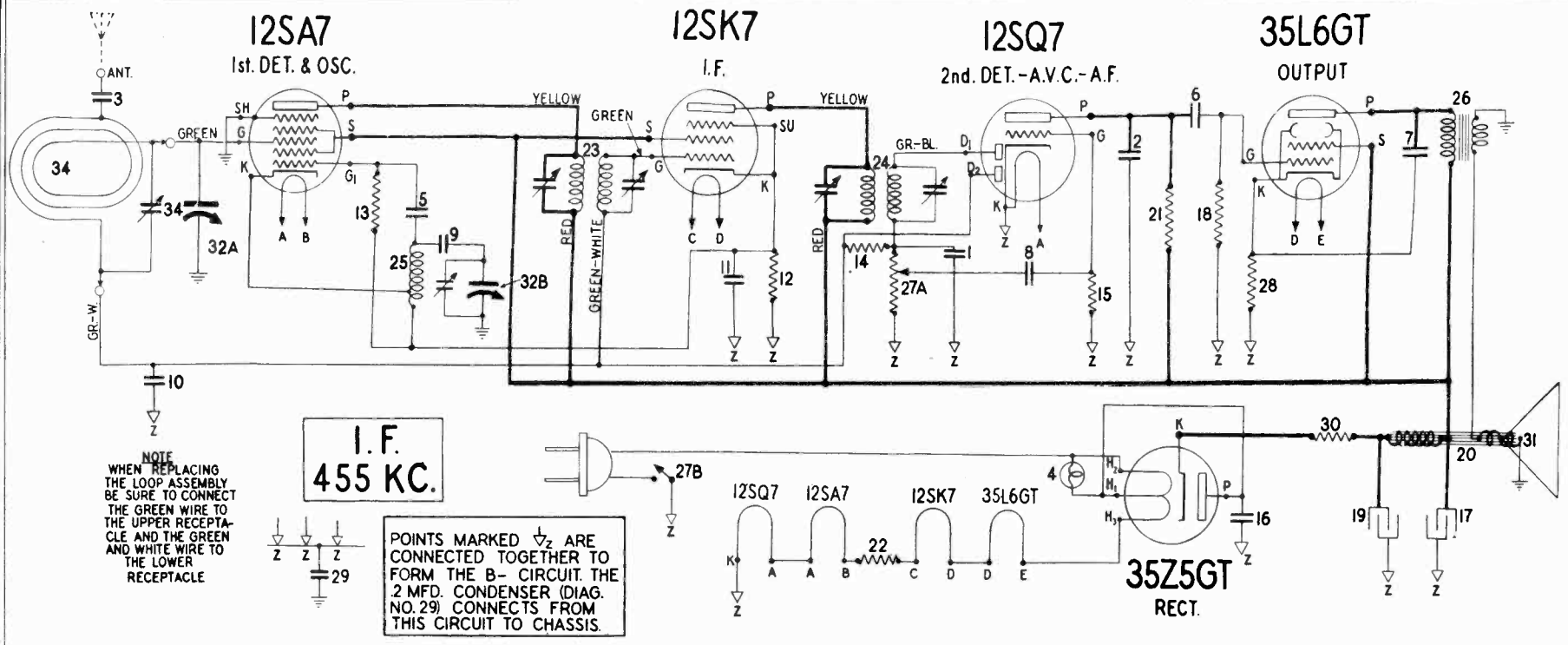


Diagram Number	Part Number	Description
1-2	83539	Condenser—mica, 260 mmfd.
3	83783	Condenser—mica, 110 mmfd.
4	85296	Lamp—dial, 6 to 8 volt (mazda #51)
5	85394	Condenser—mica, 510 mmfd.
6-7	88026	Condenser—paper, .02 mfd., 400 volt
8-9	88030	Condenser—paper, .01 mfd., 400 volt
10	88189	Condenser—paper, .05 mfd., 200 volt
11	88193	Condenser—paper, .25 mfd., 150 volt
12	110560	Resistor—carbon, 100 ohms, ¼ watt
13	110565	Resistor—22,000 ohms, ¼ watt
14-15	110580	Resistor—carbon, 3.3 meg., ¼ watt
16	111252	Condenser—paper, .05 mfd., 400 volt
17	112898	Condenser—electrolytic, 16 mfd., 150 volt
18	112971	Resistor—insulated 470,000 ohms, ¼ watt
19	113472	Condenser — electrolytic 40 mfd., 150 volt
20	U-115055	Speaker—electro dynamic
21	116067	680,000 ohm, ¼ watt—20% insulated
22	116527	Resistor—100 ohms—10% 3 watt W.W.
23	116667	Transformer—1st I.F.
24	116672	Transformer—2nd I.F.
25	116674	Coil—oscillator
26	U-116676	Transformer—output for U-115055 speaker
27A-27B	116691	Volume control with switch
28	116702	Resistor—140 ohms—10% ½ watt W.W.
29	116706	Condenser—0.2 mfd., 600 volt
30	116752	Resistor—33 ohms, 1 watt W.W.
31	U-116727	Cone & Voice Coil Assem. for U-115055 speaker
32A-32B	116755	Condenser—2 gang
33	116775	Loop antenna
34	116781	Condenser—trimmer for loop ant. assembly

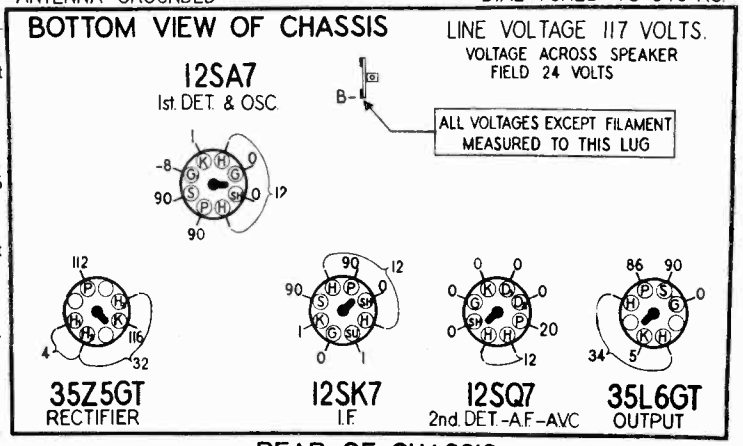
SOCKET VOLTAGES

ANTENNA GROUNDED — DIAL TUNED TO 540 KC.

BOTTOM VIEW OF CHASSIS

LINE VOLTAGE 117 VOLTS.
VOLTAGE ACROSS SPEAKER FIELD 24 VOLTS

ALL VOLTAGES EXCEPT FILAMENT MEASURED TO THIS LUG



REAR OF CHASSIS

Use a high resistance voltmeter of at least 1000 ohms per volt.

SERVICE DATA for MODEL 03-5A CHASSIS

ALIGNMENT PROCEDURE

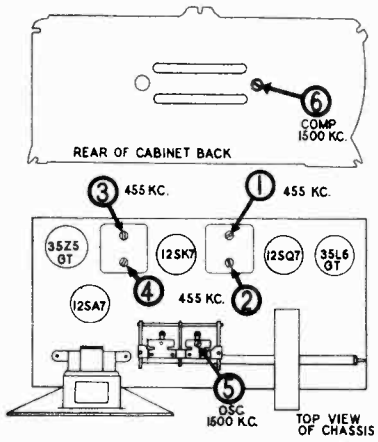
FOR ALIGNMENT: An output meter and an accurately calibrated signal generator are required.

1. Connect the output meter across the voice coil; or, using a condenser in series, connect between the plate of the 35L6GT output tube and B- as shown on the voltage chart. The more sensitive type should be connected across the voice coil.
2. Connect the ground lead of the signal generator to the B- lug (shown on the voltage chart) through a .25 mfd. condenser and keep it connected in this manner throughout the entire alignment procedure. Failure to do this may have serious results, as one side of the power line may be grounded in the signal generator, or hum may be encountered.
3. Turn the volume control to the maximum volume position and leave it in this position throughout the entire alignment procedure.
4. TO CALIBRATE THE DIAL—Remove the chassis from the cabinet and set it on a flat surface (insulated from ground). With the gang in full mesh, the last dial division (just below 55) on the low frequency end, should be exactly 4 3/8 inches above the table surface. If this is not the case, release the set screw in the collar which connects the gang condenser shaft with the tuning unit, and holding the gang in full mesh, turn the dial until the last division is exactly 4 3/8 inches above the table surface. Now re-tighten the set screw in the collar. The 4 3/8 inch division on the ruler (when measured vertically from table surface), is to be used as the dial indicator for all calibration and alignment.

Dummy Ant. in Series with Signal Generator	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 MFD. Condenser	Green wire of Loop (loop must be connected)	455 KC	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.	
200 MMFD. Mica Condenser	"Ant." Terminal	1500 KC	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	"Ant." Terminal	1500 KC	Tune to 1500 KC Generator Signal	6	Broadcast Antenna (Shunt)	Adjust for maximum output. Then re-adjust as explained below.

Now remove the output meter and signal generator connections and replace the set in the cabinet. Replace the cabinet back and MAKE SURE THAT THE GREEN WIRE GOES TO THE UPPER RECEPTACLE OF THE LOOP AND THE GREEN-WHITE WIRE TO THE LOWER RECEPTACLE. Place the antenna lead from the signal generator near the back of the cabinet and turn the output up until the 1500 KC signal is weakly heard. Adjust trimmer No. 6 for maximum output by ear.

IMPORTANT: In order to get maximum sensitivity, trimmer condenser No. 6 (marked COMP. on back of cabinet) should be adjusted for maximum volume on a weak signal near 1400 KC. This should be done every time an external antenna is connected or disconnected.



MISCELLANEOUS PARTS

Part Number	Description	List Price
112745	Clip—coil mounting	$0.01
113504	Collar—coupling (between tuner unit and gang condenser shaft)	.08
113558	Clutch spring—for tuner (on cam shaft)	.04
113560	Dial Scale—celluloid strip	.22
113582	Dial Window—celluloid	.12
113557	Key—for push button tuner (left hand)	.24
113572	Key—for push button (right hand)	.24
116556	Insulator—pilot light	.10
113500	Mechanical tuner unit—less ferrite tips for push buttons	3.90
116689	Pad—for push button levers	.02
85827	Set Screw—8-32 square head	.02
63624	Screw—self tapping 8 x 1/4	.01
113636	Screw—No. 8 x 3/4", Chassis mtg.	.01
113537	Screw—for tuning knob (antique bronze)	.18
113538	Screw—for tuning knob (chrome head)	.14
85040	Screw—No. 6 Hex. Head	Per C .35
113699	Screw—No. 8 x 1" for chassis mtg.	.01
113542	Socket—dial lamp—insulated	.10
116630	Socket—(Octal base) (small)	.12
113550	Tabs—station call letters	.28
113559	Spring—for key return	.02
	CABINETS	
116699	Cabinet (walnut)	3.75
116731	Cabinet—ivory sprayed	4.50
	CABINET BACKS	
116795	Back—cabinet (ivory)	.15
116780	Back—cabinet (walnut)	.15
	FELT PADS (Cabinet feet)	
113589	Felt Pad (cabinet feet—walnut and colors)	.06
113592	Felt Pad (cabinet feet—ivory) 3/16"	.06
	FELT STRIP (behind push buttons)	
113548	Felt Strip (brown) behind push button levers	.02
113549	Felt Strip (white) behind push button levers	.03
	PUSH BUTTON TIPS	
113529	Tip—for push button (ivory)	.05
114710	Tip—for push button (walnut)	.05
	TUNING KNOBS	
113531	Knob—tuning (ivory)	.30
114711	Knob—tuning (walnut)	.26
	VOLUME KNOBS	
113574	Knob—volume (ivory)	.18
114712	Knob—volume (walnut)	.18

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

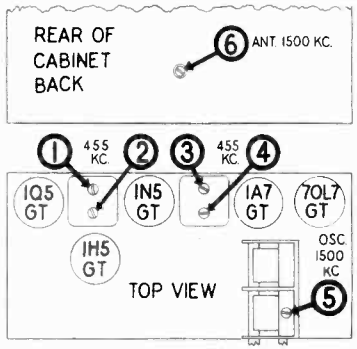
SERVICE DATA for MODEL 05-5L CHASSIS

ALIGNMENT PROCEDURE

1. Connect the output meter across the voice coil of the speaker or between the plate of the 1Q5GT output tube and chassis through a .1 mfd. condenser, depending on the type of meter. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the chassis through a .25 mfd. condenser.
3. Turn the "A.C.-D.C.-Battery" switch to "A.C.-D.C." or "Battery" depending upon the source of power being used.
4. Turn the volume control to the maximum volume position and keep it in this position while aligning. The loop antenna must be connected.
5. With the gang condenser in full mesh, the dial pointer should be in the horizontal position. If the pointer is incorrectly set, hold the gang in full mesh and move the pointer to the correct position by hand.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Condenser	Control Grid of 1A7GT	455 KC.	Any Point Where It Does Not Affect Signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
200 MMFD. Condenser	"Ant" Terminal	1500 KC.	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust trimmer for maximum output.
200 MMFD. Condenser	"Ant" Terminal	1500 KC.	Tune To 1500 KC Generator Signal	6	Broadcast Antenna	Adjust for maximum output.

Now disconnect the output meter and signal generator leads and replace the chassis and batteries in the cabinet being sure to connect the loop. Bring the antenna lead of the signal generator near the loop until the 1500 KC. signal is heard weakly and re-adjust trimmer No. 6 for maximum output by ear.



USING AN EXTERNAL ANTENNA

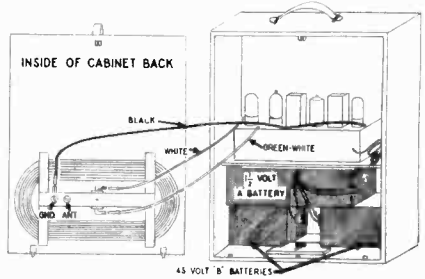
An external antenna may be connected to this radio to provide better signal pickup on weak stations. If the radio is being operated on A.C. or D.C. power lines, do not use a ground. If hum is encountered when operating from A.C. lines, the power cord plug should be reversed at the wall outlet. When the radio is operated from batteries and an external antenna is used, a ground must be used to obtain satisfactory pickup.

After an external antenna has been connected, a weak signal near 1500 KC should be tuned in, and trimmer No. 6 adjusted for maximum volume. If it is impossible to get a proper peak on this trimmer, check the connections of the white and green-white wires to see that they are connected exactly as shown in the drawing to the right. Please note that this drawing is slightly different from the one on the back cover of the receiver.

INSTALLATION OF BATTERIES

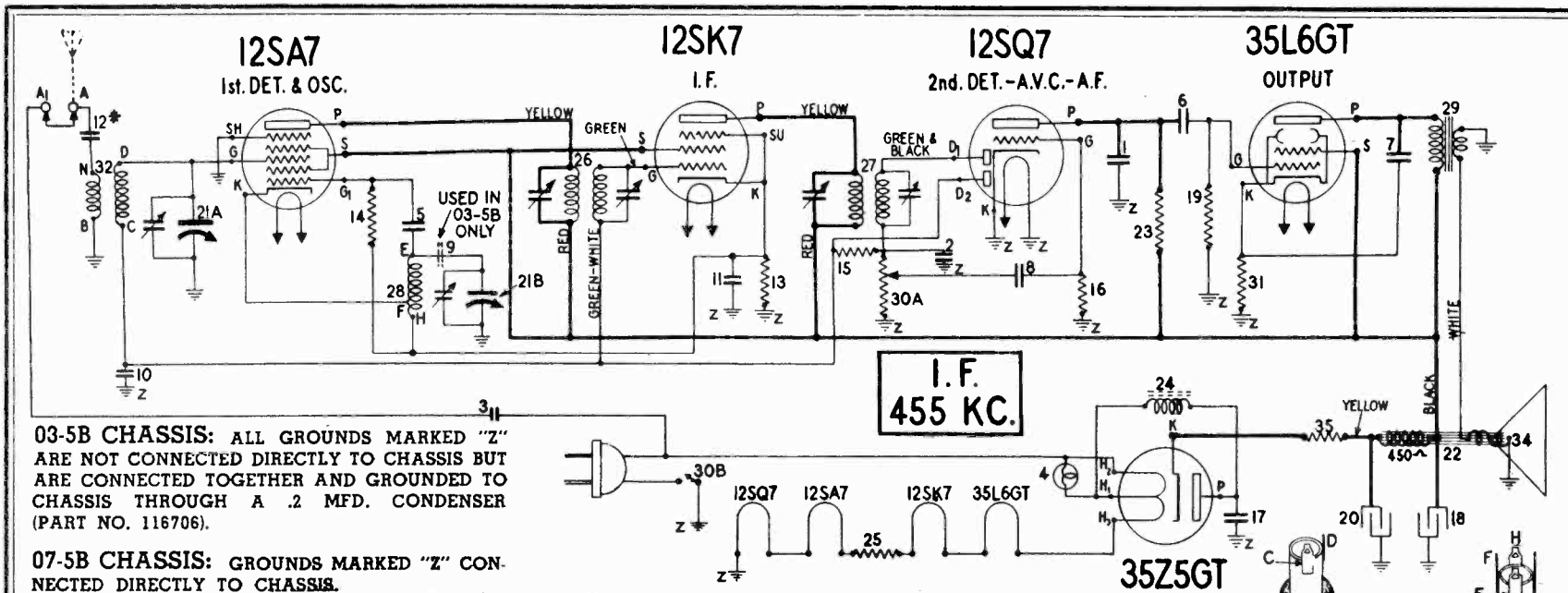
Two Eveready No. 482 "B" Batteries and one Eveready No. 745 "A" Battery are required for battery operation. To install the batteries proceed as follows:

1. If the power cord plug is connected to a power outlet disconnect it.
2. Remove the cabinet back.
3. Remove the three wires from the clips on the inside of the cabinet back.
4. Place the "A" battery in the bottom of the case and connect the two pronged plug to it.
5. Connect the three pronged plugs to the "B" batteries and slide them UNDER the "A" battery into the positions shown in the figure below.
6. Fasten the battery retaining block as shown, slide it against the batteries until REASONABLY tight, and tighten the wing nut.
7. Replace the cabinet back, being sure to connect the three wires to the proper clips as shown in the figure below. Improper operation will result if this is not done.



STEWART-WARNER CORP.

MODEL Senior Varsity
CHASSIS 03-5B, 07-5B
Schematic, Voltage



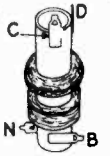
03-5B CHASSIS: ALL GROUNDS MARKED "Z" ARE NOT CONNECTED DIRECTLY TO CHASSIS BUT ARE CONNECTED TOGETHER AND GROUNDED TO CHASSIS THROUGH A .2 MFD. CONDENSER (PART NO. 116706).

07-5B CHASSIS: GROUNDS MARKED "Z" CONNECTED DIRECTLY TO CHASSIS.

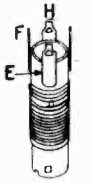
* Not used on some sets. May be added to reduce hum when line buffer condenser is used in case several receivers use same antenna.

Diagram Number	Part Number	Description
1-2-3	83539	Condenser—Mica 260 mmfd.
4	85296	Lamp—dial 6 to 8 volt .25 amps.
5	85394	Condenser—mica 510 mmf.
6-7	88026	Condenser—paper .02 mfd. 400 volt
8	88030	Condenser—paper .01 mfd. 400 volt
9	88030	Condenser—paper .01 mfd. 400 volt (03-5B only)
10	88189	Condenser—paper .05 mfd. 200 volt
11	88193	Condenser 0.25 mfd. 150 volt
12	89826	Condenser—paper .004 mfd. 400 volt
13	110560	Resistor—carbon 100 ohms 1/4 watt
14	110565	Resistor—carbon 22,000 ohms 1/4 watt
15-16	110580	Resistor—carbon 3.3 meg. 1/4 watt
17	111252	Condenser—paper .05 mfd. 400 volt
18	112898	Condenser—electrolytic 16 mfd. 150 volt
19	112971	Resistor—insulated 470,000 ohms 1/4 watt
20	113472	Condenser—electrolytic 40 mfd. 150 volt
21A & 21B	113478	Condenser—variable gang
22	U-115055	Speaker—electro dynamic
23	116067	680,000 ohms 1/4 watt insulated
24	116232	R. F. Choke
25	116527	Resistor 100 ohms 3 watt W.W.
26	116667	Transformer—1st I.F.
27	116672	Transformer—2nd I.F.
28	116674	Coil—oscillator
29	U-116676	Transformer—output for U-115055 speaker
30A-30B	116691	Volume control with switch
31	116702	Resistor—140 ohms 1/2 watt W.W.
32	116704	Coil—antenna
	116706	Condenser—0.2—600 volts (03-5B only)
34	U-116727	Cone & voice coil for U-115055 speaker
35	116752	Resistor—33 ohms 1 watt W.W.
	112745	Clip—coil mounting
	113504	Collar—coupling (between tuner unit & gang condenser shaft)
	113558	Clutch spring—for tuner (on cam shaft)
	113560	Dial scale—celluloid strip
	113582	Dial Window—celluloid
	116556	Insulator Pilot Light (03-5B only)
	113572	Key—for push button (right hand)
	113557	Key—for push button tuner (left hand)
	113500	Mechanical tuner unit—less tenite tips for push buttons
	116689	Pad—for push button levers
	83624	Screw—self tapping 8x1/4
	85040	Screw—No. 6 Hex. Hd.
	85827	Set Screw—8-32 Square Head
	113537	Screw—for tuning knob (antique bronze)
	113538	Screw—for tuning knob (chrome head)
	113636	Screw—No. 8x3/4" chassis mtg.
	113638	Screw—back cover retaining
	113699	Screw—No. 8x1" for chassis mtg.
	113542	Socket—dial lamp—insulated
	116690	Socket—Octal Base (small)
	113559	Spring—for key return
	113550	Tabs—station call letters
	116223	Terminal strip—for antenna (A-A_1)
	113548	Felt Strip (Brown) behind push buttons
	113549	Felt Strip (White) behind push buttons
	113837	Felt Strip (Gray) behind push buttons

NOTE
TERMINALS OF COILS SHOWN IN PICTORIAL VIEWS ARE LETTERED TO CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM.



ANTENNA COIL
DIAGRAM NO. 32
PART NO. 116704



OSCILLATOR COIL
DIAGRAM NO. 28
PART NO. 116674

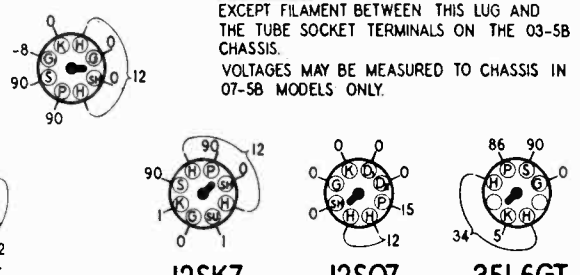
SOCKET VOLTAGES

ANTENNA GROUNDED — DIAL TUNED TO 540 KC.

BOTTOM VIEW OF CHASSIS

LINE VOLTAGE 117 VOLTS
VOLTAGE ACROSS SPEAKER FIELD 24 VOLTS

IMPORTANT: ALWAYS MEASURE ALL VOLTAGES EXCEPT FILAMENT BETWEEN THIS LUG AND THE TUBE SOCKET TERMINALS ON THE 03-5B CHASSIS.
VOLTAGES MAY BE MEASURED TO CHASSIS IN 07-5B MODELS ONLY.



REAR OF CHASSIS

Use a High Resistance Voltmeter of at Least 1000 Ohms per Volt.

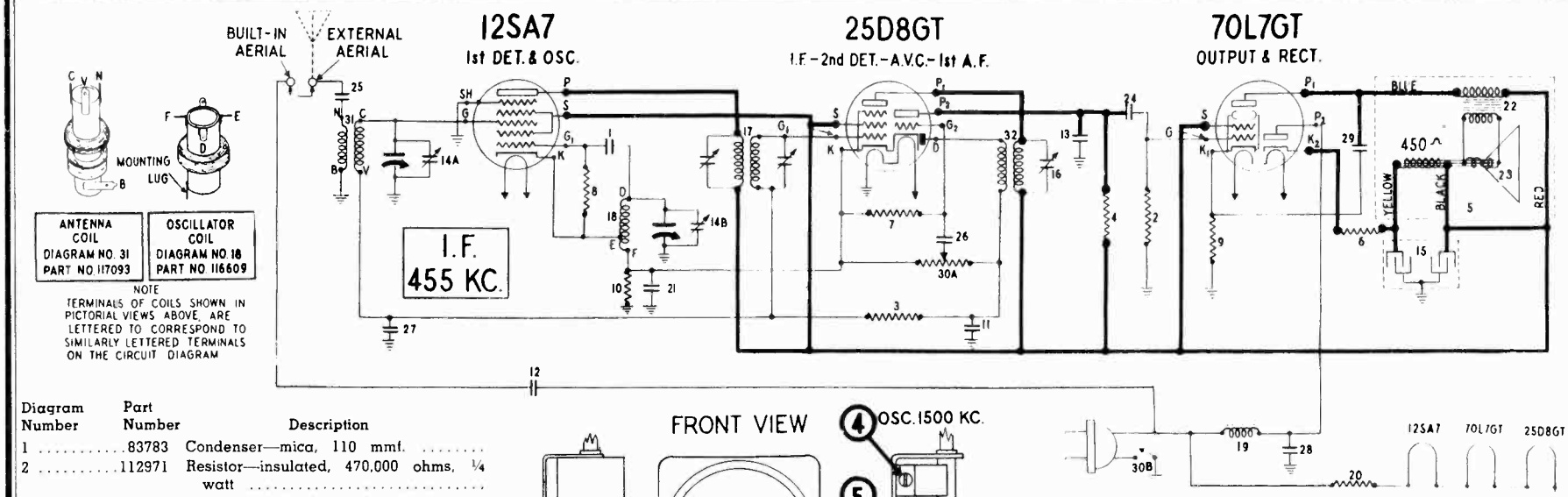
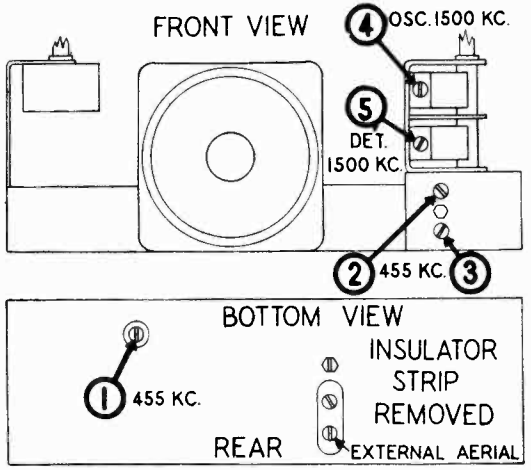


Diagram Number	Part Number	Description
1	83783	Condenser—mica, 110 mmf.
2	112971	Resistor—insulated, 470,000 ohms, ¼ watt
3	112972	Resistor—insulated, 1 megohm, ¼ watt
4	112987	Resistor—insulated, 220,000 ohms, ¼ watt
5	R-115053	Speaker—dynamic 3"
6	116013	Resistor—50 ohm, 1 watt
7	116050	Resistor—insulated, 10 megohm, ¼ watt
8	116059	Resistor—insulated, 22,000 ohm, ¼ watt
9	116064	Resistor—insulated, 100 ohm ½ watt
10	116069	Resistor—insulated, 100 ohm, ¼ watt
11-12-13	116224	Condenser—mica, 260 mmfd.
14A-14B	116578	Condenser—2 gang tuning
15	116587	Condenser—electrolytic, Dual 20 mfd. 150 volt
16	116599	Condenser—trimmer for 2nd I.F.
17	116605	Transformer—1st I.F.
18	116609	Coil—oscillator
19	116616	Coil—R. F. Choke
20	116618	Resistor—65 ohms, 2 watts, Wire Wound
21	116625	Condenser—.1 mfd., 600 volt
22	R-116633	Transformer — output for R-115053 speaker
23	R-116635	Cone & Voice coil assembly for R-115053 speaker
24	116640	Condenser—.01 mfd., 600 volt
25-26	116647	Condenser—.004 mfd., 600 volt
27	116819	Condenser—.05 mfd., 600 volt
28-29	116893	Condenser—.02 mfd., 600 volt
30A-30B	117088	Volume control (500,000 ohms—with switch)
31	117093	Coil—antenna
32	117097	Transformer—2nd I.F.



116637	Cabinet—(walnut)
116657	Cabinet—(sprayed ivory)
112745	Clip—coil mounting
85321	Connector—for internal antenna
116576	Insulator—fibre for base (inside)
117101	Insulator—fibre for base (outside)
116532	Knob—volume control (red)
116533	Knob—tuning (red)
116886	Knob—volume control (ivory)
116887	Knob—tuning (ivory)
116584	Rubber foot for bottom of cabinet
116629	Screw—No. 8-32 x 1⅛ Bind H.M.S.
116630	Screw—No. 8-32 x 1½ Bind H.M.S.
116615	Socket—small octal
116583	Terminal Strip—(for antenna)
116592	Tube Shield

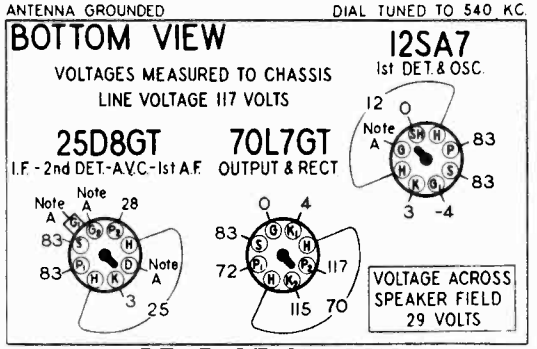
For ALIGNMENT
See Stewart-Warner Page 10-2

GANG CONDENSER TRIMMER

There are three trimmers located on the gang condenser used in this receiver. Two of these trimmers are shown in the trimmer location diagram which is shown on this page, and are marked No. 4 and No. 5. The third trimmer is located on the back of the gang condenser and has been adjusted at the factory so that further adjustment should be unnecessary. If this trimmer has been tampered with, however, it may be necessary to adjust it so that a satisfactory peak can be secured on trimmer No. 4.

SOCKET VOLTAGES

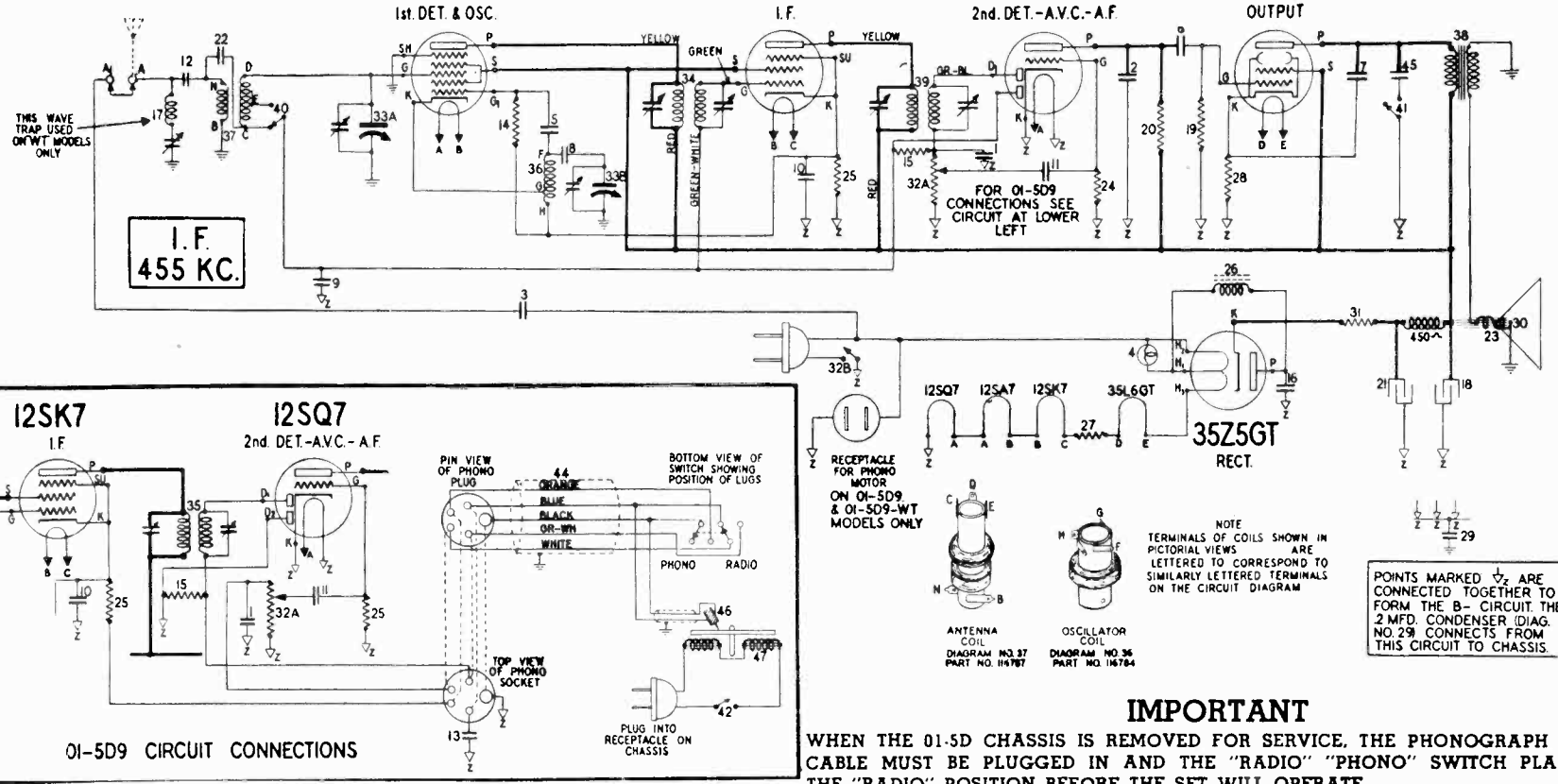
VOLUME CONTROL SET AT MAXIMUM VOLUME POSITION
ANTENNA GROUNDED — DIAL TUNED TO 540 KC.



REAR OF CHASSIS

NOTE A: Due to the high resistance of resistors No. 3, No. 7, and No. 30A, only a very slight deflection will be obtained on a meter having a resistance of 1000 ohms per volt.

STEWART-WARNER CORP. MODELS 03-5C1, Ch. 03-5C, 01-5D9, 01-5D9-WT, Ch. 01-5D Schematic, Voltage, Socket Phono Connections



NOTE
TERMINALS OF COILS SHOWN IN PICTORIAL VIEWS ARE LETTERED TO CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM

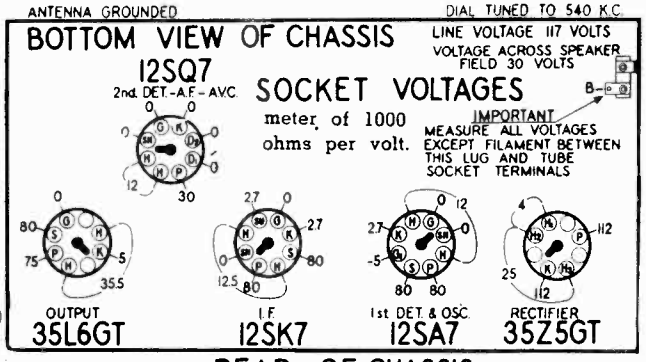
POINTS MARKED ▽z ARE CONNECTED TOGETHER TO FORM THE B- CIRCUIT. THE 2 MFD. CONDENSER (DIAG. NO. 29) CONNECTS FROM THIS CIRCUIT TO CHASSIS.

IMPORTANT

WHEN THE 01-5D CHASSIS IS REMOVED FOR SERVICE, THE PHONOGRAPH PICKUP CABLE MUST BE PLUGGED IN AND THE "RADIO" "PHONO" SWITCH PLACED IN THE "RADIO" POSITION BEFORE THE SET WILL OPERATE.

THE 01-5D9 PHONOGRAPH MOTOR MUST BE OPERATED ON A.C. ONLY.

Diagram Number	Part Number	Description
1-2-3	83539	Condenser—mica 260 mmfd.
4	85296	Lamp—dial 6 to 8 volt .25 amps.
5	85394	Condenser—mica 510 mmfd.
6-7	88026	Condenser—paper .02 mfd. 400 volt
8	88030	Condenser—paper .01 mfd. 400 volt
9	88189	Condenser—paper .05 mfd. 200 volt
10	88193	Condenser—paper .25 mfd. 150 volt
11-12-13	89826	Condenser—paper .004 mfd. 750 volt (2 used on 03-5C & 03-5C-WT)
14	110565	Resistor—22,000 ohms
15	110580	Resistor—carbon 3.3 meg. ¼ watt
16	111252	Condenser—paper .05 mfd. 400 volt
17	112796	Coil—wave trap with trimmer (WT models only)
18	112898	Condenser—electrolytic 16 mfd. 150 volt
19	112971	Resistor—insulated 470,000 ohms ¼ watt
20	112987	Resistor—insulated 220,000 ohms ¼ watt
21	113472	Condenser—electrolytic 40 mfd. 150 volt
22	114969	Condenser—mica 15 mmfd.
23	U-115055	Speaker—dynamic 5"
24	116050	Resistor—insulated 10 meg. ¼ watt
25	116062	Resistor—150 ohms ¼ watt
26	116232	R. F. Choke
27	116527	Resistor 100 ohms 3 watt wire wound
28	116702	Resistor—140 ohms ½ watt wire wound
29	116706	Condenser—.2 mfd. 600 volt
30	U-116727	Cone & voice coil assembly for U-115055 speaker
31	116752	Resistor—33 ohms 1 watt wire wound
32A-32B	116762	Volume control—1 meg. with switch
33A-33B	116763	Condenser—variable gang
34	116782	Transformer—1st I.F.
35	116783	Transformer—2nd I.F. (01-5D & 01-5D-WT)
36	116784	Coil—oscillator
37	116787	Coil—antenna
38	116788	Transformer—output
39	116809	Transformer—2nd I.F. (03-5C & 03-5C-WT)
40-41	116896	Switch—S.P.D.T.
42	116942	Switch—(On-Off) for phono motor (01-5D & 01-5D-WT)
43	116945	Switch—(Radio-phono) (01-5D & 01-5D-WT)
44	116966	Pickup cable and plug (01-5D & 01-5D-WT)
45	116984	Condenser—.04 mfd. 600 volt
46	117053	Phono pickup unit (01-5D & 01-5D-WT)
47		Phono motor unit (see phonograph parts list)



CHASSIS MODELS 03-5C AND 01-5D

ALIGNMENT PROCEDURE

FOR ALIGNMENT: An output meter and an accurately calibrated signal generator are required.

1. Connect the output meter across the voice coil, or using a .1 mfd. condenser in series connect between the 35L6GT tube plate and B— as shown on the voltage chart.
2. Connect the ground lead of the signal generator through a .25 mfd. condenser to B— as shown on the voltage chart.
3. Remove the connector between terminals A and A_1, turn the volume control to maximum position and place the band switch in the broadcast position. On the 01-5D chassis the "Phono" cable must also be plugged in and the "Radio" "Phono" switch placed in the "Radio" position.
4. With the gang condenser in full mesh, the pointer should be in a horizontal position. If it is not, it should be moved to this position before alignment.

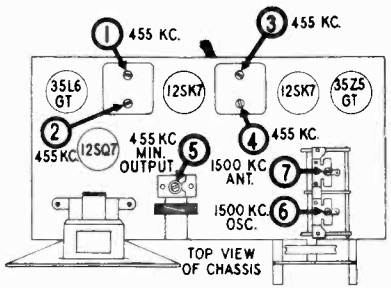
Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
.1 Mfd. Condenser	Trimmer Lug On Large Section Of Variable Condenser	455 KC.	Any Point Where it Does Not Affect the Signal	1-2	2nd I.F.	Adjust for Maximum Output. Then Repeat Adjustment.
				3-4	1st I.F.	
200 Mmfd. Mica Condenser	"A" Terminal	455 KC.	Any Point Where it Does Not Affect the Signal	5 Used Only On Chassis Marked "WT"	Wave Trap "WT" Models Only	Adjust for Minimum Output Using a Strong Generator Signal.
200 Mmfd. Mica Condenser	"A" Terminal	1500 KC.	1500 KC.	6	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 Mmfd. Mica Condenser	"A" Terminal	1500 KC.	Tune to 1500 KC. Generator Signal	7	Broadcast Antenna (Shunt)	Adjust for Maximum Output.

DIAL AND MISCELLANEOUS PARTS

Part Number	Description	List Price
112745	Clip—coil mounting	$0.01
113019	Clip—dial scale retaining	.01
112798	Clip—for mtg. wave trap coil (used on WT model)	.01
85321	Connector for built-in antenna	.01
113178	Cord—dial	.30
116800	Dial scale	.10
116773	Knob—tuning or volume	.10
116916	Pointer assembly	.04
116165	Receptacle—2 prong for Phono motor (01-5D & 01-5D-WT)	.50
81145	Retaining ring—for drive shaft Per C	.50
83624	Screw—self tapping 8x¼	.01
85040	Screw—No. 8 Hex. Head Per C	.35
116758	Shaft—tuning	.12
116690	Socket—octal base	.12
116793	Socket—for pilot light	.25
114271	Socket—5 prong for Phono motor (01-5D & 01-5D-WT)	.17
111981	Spring—for dial cord tension	.03
116223	Terminal strip—for antenna (A-A_1)	.12
116530	Washer—(paper) for back of knobs	.005
111456	Washer—spring washer Per C	.50
116414	Window, dial	.25

PHONOGRAPH PARTS (01-5D9 & 01-5D9-WT)

Part Number	Description	List Price
117884	Crystal Cartridge only (with leads)	$4.00
117053	Crystal Pickup unit complete	7.25
117810	Idler wheel mounting stud and plate	.22
117806	Idler wheel with rubber rim	.60
117818	Motor drive pulley with set screw	.26
117817	Motor mounting plate	.75
84571	Needle cup	.10
117085	Needle screw	.18
117812	Nut—large to retain idler assembly	.01
117813	Nut—small to lock idler retaining nut	.01
117168	Phono motor unit for 60 cycles (less turntable)	7.40
117815	Retaining clip for turntable shaft	.02
117808	Retaining clip for idler wheel	.02
117807	Rubber rim for idler wheel	.12
117814	Spacer for motor mounting	.04
117809	Spring for idler assembly	.10
117083	Turntable	1.00
117816	Turntable shaft	.35
117811	Washer—brass to retain idler plate	.02



RADIO AND PHONOGRAPH OPERATION

These radios are equipped with a police band covering frequencies from about 2320 KC. to 2500 KC. at one end of the dial scale as indicated by the word POLICE. To use this band, push the switch located on the back of the chassis to the position marked POLICE.

A Built-in Line Antenna is incorporated in all models and will generally give satisfactory results in localities where powerful broadcast stations are located. To use this built-in antenna, terminals A and A_1 on the back of the chassis must be connected together. When aligning the set the connector between these two terminals should be removed. This will prevent pickup of signals which may interfere with the alignment procedure.

The Model 01-5D9 receiver is equipped with a phonograph turntable and crystal pickup unit. This receiver can be operated on A.C. only when the phonograph unit is used. Attempts to operate the phonograph unit on D.C. will damage it. The 03-5C chassis however may be operated on either A.C. or D.C. of the proper voltage.

SERVICE DATA FOR MODEL 07-5B and 03-5B CHASSIS

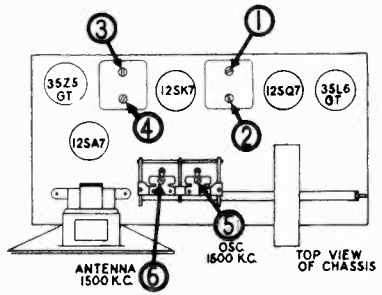
ALIGNMENT PROCEDURE

FOR ALIGNMENT: An output meter and an accurately calibrated signal generator with a tuning range from 455 KC to 1500 KC are required.

1. Connect the output meter across the voice coil or, using a .1 mfd. condenser in series, connect as follows:
   MODEL 03-5B: Between the 35L6GT plate and B— terminal shown on voltage chart.
   MODEL 07-5B: Between the 35L6GT plate and chassis.
2. Connect the ground lead of the signal generator to the chassis of the receiver through a .25 mfd. condenser and keep it connected in this manner throughout the entire alignment procedure. Failure to do this may have serious results as one side of the power line may be grounded in the signal generator. If oscillation or hum occurs in the model 03-5B, connect the ground lead of the signal generator through a .25 mfd. condenser to B— as shown on the Voltage Chart.
3. Remove the connector between terminals A and A_1, also turn the volume control to the maximum volume position and keep it in this position throughout the entire alignment procedure.
4. TO CALIBRATE THE DIAL: Remove the chassis from the cabinet and set it on a flat surface (insulated from ground). With the gang condenser in full mesh, the last dial division (just below 55) on the low frequency end should be exactly 4⅜ inches above the table surface. If the dial is not in this position with the gang in full mesh, it is necessary to re-set the dial. Loosen the set screw in the collar which connects the gang condenser shaft with the tuning unit, adjust to the correct position and tighten the screw.

   The 4⅜ inch division on the ruler (when measured vertically from the table surface) is to be used as the dial indicator for all calibrations and alignment.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Mica Condenser	Trimmer lug on large section of variable condenser	455 KC	Any point where it does not affect the signal	1-2	1st I.F. 2nd I.F.	Adjust for Maximum Output. Then repeat adjustment.
				3-4		
200 MMFD. Mica Condenser	Antenna Terminal A	1500 KC	1500 KC	5	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal A	1500 KC	Tune to 1500 KC Generator Signal	6	Broadcast Antenna (Shunt)	Adjust for Maximum Output.



BUILT-IN ANTENNA SYSTEM

The Built-In Antenna incorporated in this receiver will generally give very satisfactory results in localities where Powerful broadcast stations exist. This Built-In Antenna will function when terminals A and A_1 on the back of the chassis are connected together. In cases where noises are excessive or greater sensitivity is desired, remove the jumper connecting terminals A and A_1 and connect an external antenna to terminal A.

When aligning this receiver, the jumper connecting terminals A and A_1 should be removed. This will prevent picking up signals which might interfere with the alignment procedure. When the I.F. channel is being aligned, the gang condenser should be set at a point where no interfering signal will be received.

HOW TO SET UP PUSH BUTTON TUNER

1. Connect the set to a good antenna system and allow it to operate for at least 15 minutes before setting up buttons.
2. Select four nearby powerful stations to which you wish to set up the buttons. Any button may be set to any desired station.
3. Hold the tuning knob firmly and loosen the screw in its center not more than two whole turns.
4. Hold the button, you wish to set, down firmly and tune in the station to be set to that button. Be sure to tune in the station accurately. Release the push button. The rest of the buttons may be set up in the same manner.
5. After all buttons have been set, re-tighten the screw in the tuning knob. Hold the knob firmly while tightening this screw.
6. The push buttons should now be labeled with their proper call letters in the spaces provided above the push buttons. Call letter sheets are provided with your receiver.
7. In using the push button tuner, be sure to push the button all the way down, otherwise the desired station will not be tuned in.

MISCELLANEOUS PARTS

CABINETS

Part No.	Description	List Price
116699	Walnut	$3.75
116731	Ivory (Sprayed)	4.50

CABINET BACKS

116719	Walnut	.14
116723	Ivory	.14

FELT PADS (Cabinet feet)

113589	Walnut and colors—3/16"	.06
113592	Ivory—3/16"	.06

KNOBS — TUNING

113531	Ivory	.30
114711	Walnut	.26

KNOBS — VOLUME

113574	Ivory	.18
114712	Walnut	.18

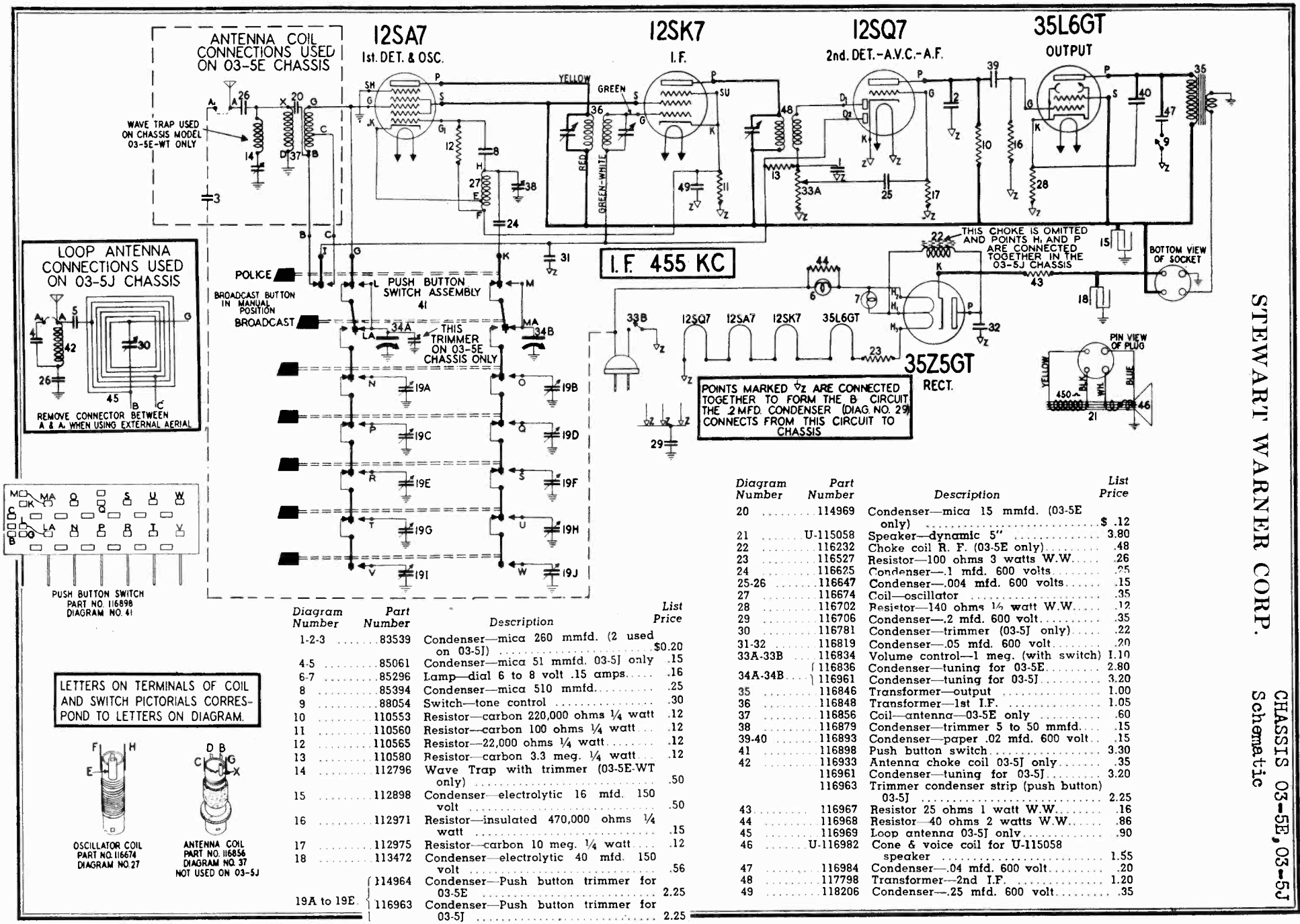
PUSH BUTTON TIPS

113529	Ivory	.05
114710	Walnut	.05

STEWART WARNER CORP.

CHASSIS 03-5E, 03-5J

Schematic



LETTERS ON TERMINALS OF COIL AND SWITCH PICTORIALS CORRESPOND TO LETTERS ON DIAGRAM.

OSCILLATOR COIL
PART NO. 116674
DIAGRAM NO. 27

ANTENNA COIL
PART NO. 116856
DIAGRAM NO. 37
NOT USED ON 03-5J

Diagram Number	Part Number	Description	List Price
1-2-3	83539	Condenser—mica 260 mmfd. (2 used on 03-5J)	$0.20
4-5	85061	Condenser—mica 51 mmfd. 03-5J only	.15
6-7	85296	Lamp—dial 6 to 8 volt .15 amps.	.16
8	85394	Condenser—mica 510 mmfd.	.25
9	88054	Switch—tone control	.30
10	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
11	110560	Resistor—carbon 100 ohms ¼ watt	.12
12	110565	Resistor—22,000 ohms ¼ watt	.12
13	110580	Resistor—carbon 3.3 meg. ¼ watt	.12
14	112796	Wave Trap with trimmer (03-5E-WT only)	.50
15	112898	Condenser—electrolytic 16 mfd. 150 volt	.50
16	112971	Resistor—insulated 470,000 ohms ¼ watt	.15
17	112975	Resistor—carbon 10 meg. ¼ watt	.12
18	113472	Condenser—electrolytic 40 mfd. 150 volt	.56
19A to 19E	114964	Condenser—Push button trimmer for 03-5E	2.25
	116963	Condenser—Push button trimmer for 03-5J	2.25

Diagram Number	Part Number	Description	List Price
20	114969	Condenser—mica 15 mmfd. (03-5E only)	$ .12
21	U-115058	Speaker—dynamic 5"	3.80
22	116232	Choke coil R. F. (03-5E only)	.48
23	116527	Resistor—100 ohms 3 watts W.W.	.26
24	116625	Condenser—.1 mfd. 600 volts	.25
25-26	116647	Condenser—.004 mfd. 600 volts	.15
27	116674	Coil—oscillator	.35
28	116702	Resistor—140 ohms ½ watt W.W.	.12
29	116706	Condenser—.2 mfd. 600 volt	.35
30	116781	Condenser—trimmer (03-5J only)	.22
31-32	116819	Condenser—.05 mfd. 600 volt	.20
33A-33B	116834	Volume control—1 meg. (with switch)	1.10
34A-34B	116836	Condenser—tuning for 03-5E	2.80
	116961	Condenser—tuning for 03-5J	3.20
35	116846	Transformer—output	1.00
36	116848	Transformer—1st I.F.	1.05
37	116856	Coil—antenna—03-5E only	.60
38	116879	Condenser—trimmer 5 to 50 mmfd.	.15
39-40	116893	Condenser—paper .02 mfd. 600 volt	.15
41	116898	Push button switch	3.30
42	116933	Antenna choke coil 03-5J only	.35
	116961	Condenser—tuning for 03-5J	3.20
	116963	Trimmer condenser strip (push button) 03-5J	2.25
43	116967	Resistor 25 ohms 1 watt W.W.	.16
44	116968	Resistor—40 ohms 2 watts W.W.	.86
45	116969	Loop antenna 03-5J only	.90
46	U-116982	Cone & voice coil for U-115058 speaker	1.55
47	116984	Condenser—.04 mfd. 600 volt	.20
48	117798	Transformer—2nd I.F.	1.20
49	118206	Condenser—.25 mfd. 600 volt	.35

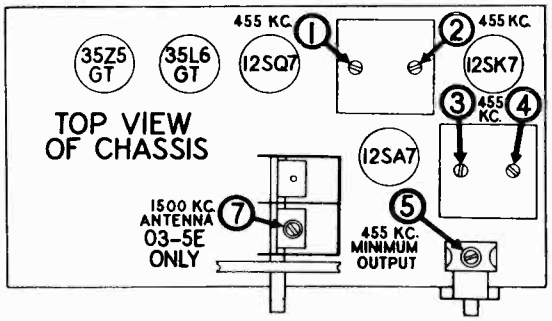
CHASSIS 03-5E, 03-5J
Alignment, Voltage
Trimmers, Socket

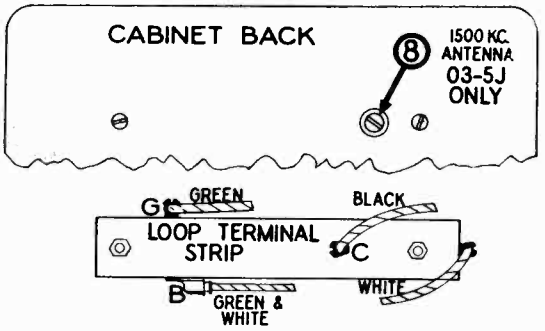
STEWART WARNER CORP.

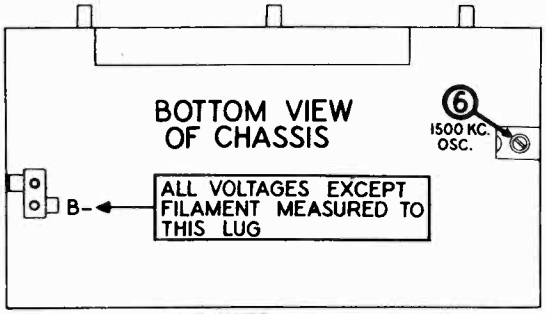
ALIGNMENT PROCEDURE

1. Connect the output meter across the voice coil or using a .1 mfd. condenser in series, connect from the 35L6GT output tube plate to B— as shown on bottom view of chassis.
2. Connect the ground lead of the signal generator through a .25 MFD condenser to the B— lug as shown on bottom view of chassis.
3. Turn the volume control to maximum position and push the "Broadcast" button in.
4. The pointer should be in a horizontal position when the gang condenser is in full mesh. If it is not, it will be necessary to remove the dial window by pushing out the clips holding it in place and setting the pointer to the correct position. Be sure that the dial face is in the correct position when this is done.
5. On the 03-5E chassis, remove connector between A and A_1.
6. On the 03-5J chassis, connect the loop making sure the wires are connected to their proper clips on the loop terminal strip and make sure A is connected to A_1.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Mica Condenser	Stator lug on large section of variable condenser	455 KC	Any point where it does not affect signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
200 MMFD. Mica Condenser	Antenna Terminal "A"	455 KC	Any point where it does not affect signal	5 Used on 03-5E-WT only	Wave Trap	Adjust for minimum output using a strong generator signal.
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC	1500 KC	6	Broadcast Oscillator (Shunt)	Adjust for maximum output.
On the 03-5E and 03-5E-WT Chassis only, proceed with this step:						
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC	Tune to 1500 KC Generator Signal	7 03-5E and 03-5E-WT only	Broadcast Antenna (Shunt)	Adjust for maximum output.
On the 03-5J chassis, remove the output meter leads, replace the chassis in the cabinet and replace the cabinet back and loop assembly being sure to connect the loop properly as shown below. Replace connector between terminal A and A_1. Then make the following adjustment.						
Place lead from Sig. Generator close to the loop.		1500 KC	Tune to 1500 KC Generator Signal	8 03-5J only	Broadcast Antenna (Shunt)	Adjust for maximum output by ear.





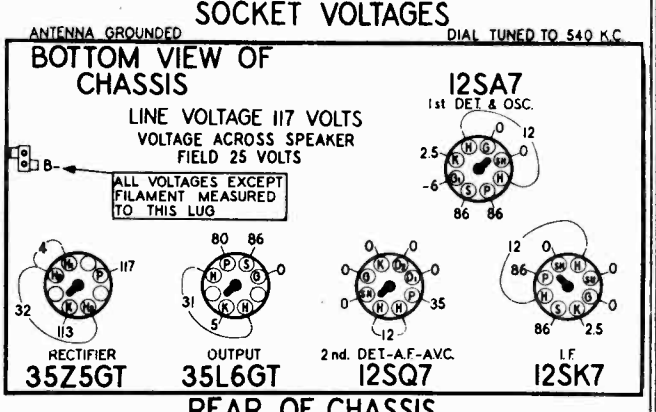


ANTENNA SYSTEM

A built-in line antenna is incorporated in the 03-5E chassis models. The 03-5J uses a loop antenna. Both sets have terminals so that an external antenna may be used. To connect an external antenna to either of these sets, remove the connector between A and A_1 and connect the antenna to the terminal marked A. Do not make any connection to the terminal marked A_1.

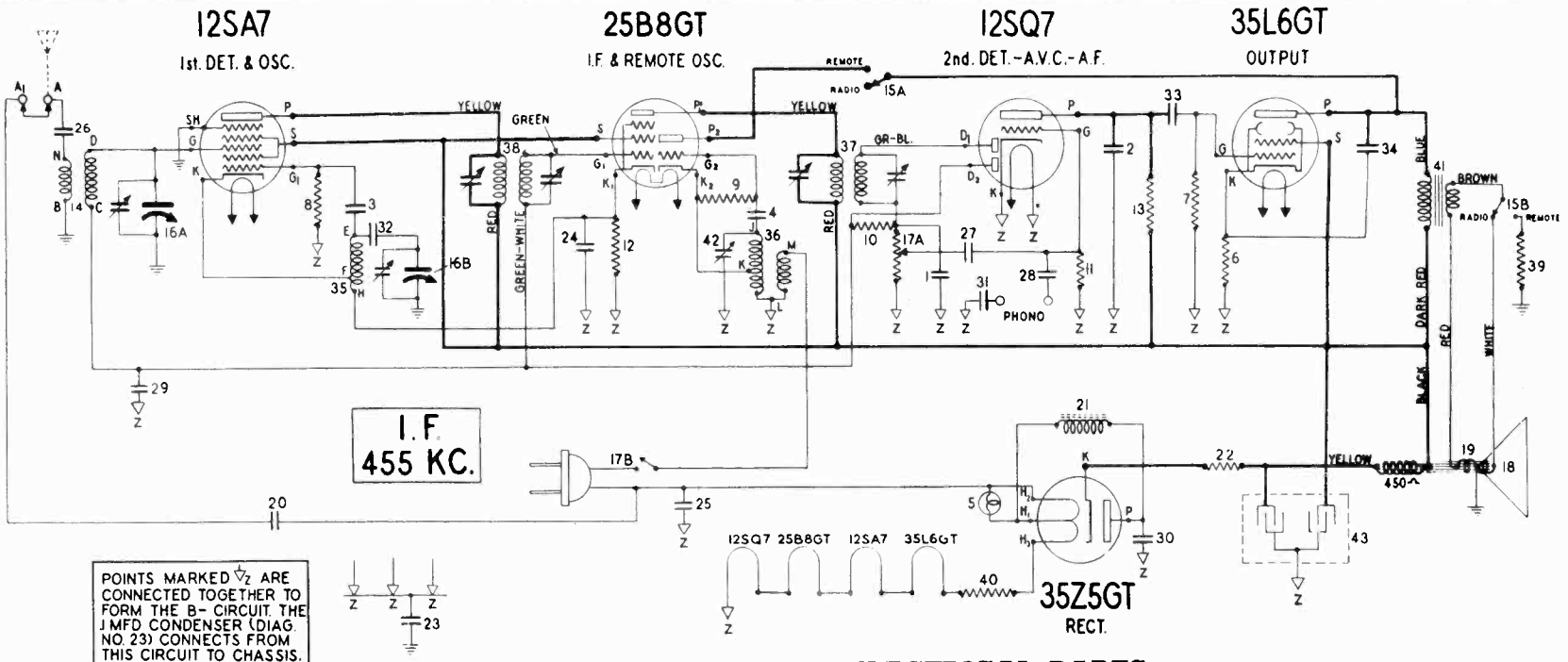
It should not be necessary to change the setting of the trimmer on the 03-5J cabinet back when connecting or removing an external antenna if the set has been properly aligned.

SOCKET VOLTAGES

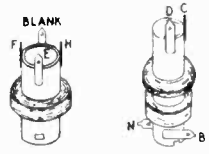


Use a high resistance Voltmeter of at least 1000 ohms per volt.

STEWART-WARNER CORP. MODELS 03-5K1 to 03-5K9
Magician, Ch. 03-5K
Schematic



POINTS MARKED ▽2 ARE CONNECTED TOGETHER TO FORM THE B- CIRCUIT. THE .1 MFD. CONDENSER (DIAG. NO. 23) CONNECTS FROM THIS CIRCUIT TO CHASSIS.



NOTE
TERMINALS OF COILS SHOWN IN PICTORIAL VIEWS ABOVE, ARE LETTERED TO CORRESPOND TO SIMILARLY LETTERED TERMINALS ON THE CIRCUIT DIAGRAM

ELECTRICAL PARTS

Diagram Number	Part Number	Description	List Price
1-2	83539	Condenser—mica, 260 mmfd.	$0.20
3-4	83783	Condenser—mica, 110 mmfd.	.20
5	85296	Lamp—dial, 6 to 8 volt, .15 amps.	.16
6	88460	Resistor—wire wound, 150 ohms, ½ watt	.12
7	110559	Resistor—carbon, 470,000 ohms, ¼ watt	.12
8	110565	Resistor—carbon, 22,000 ohms, ¼ watt	.12
9	110566	Resistor—carbon, 33,000 ohms, ¼ watt	.12
10-11	110580	Resistor—carbon, 3.3 meg., ¼ watt	.12
12	110590	Resistor—carbon, 180 ohms, ¼ watt	.12
13	110591	Resistor—carbon, 680,000 ohms, ¼ watt	.12
14	113449	Coil—antenna	.78
15A-15B	114141	Switch D.P.D.T.	.44
16A-16B	114870	Condenser—variable gang	2.85
17A-17B	114879	Volume control—1 megohm; with switch	.96
18	R-114886	Cone and voice coil for R-115066 speaker	1.00
19	R-115066	Speaker—dynamic, 4 inch (with output trans.)	$4.30
20	116224	Condenser—mica, 260 mmfd., 500 volt	.15
21	116232	R. F. Choke	.48
22	116479	Resistor—wire wound, 33 ohms, 3 watts	.20
23-24	116625	Condenser—.1 mfd., 600 volt	.25
25	116640	Condenser—.01 mfd., 600 volt	.15
26-27-28	116647	Condenser—.004 mfd., 600 volt	.15
29-30-31	116819	Condenser—.05 mfd., 600 volt	.20
32-33-34	116893	Condenser—.02 mfd., 600 volt	.15
35	117352	Coil—oscillator	.38
36	117359	Coil—for remote control oscillator	.60
37	117384	Transformer—2nd I.F.	1.10
38	117385	Transformer—1st I.F.	1.25
39	117394	Resistor—5 ohm, 1 watt, W.W.	.16
40	117395	Resistor—20 ohm, 1 watt, W.W.	.16
41	R-117484	Transformer — output for R-115066 speaker	1.50
42	117558	Condenser—trimmer, 50 mmfd. max. cap.	.25
43	117559	Condenser—electrolytic, 30-30 mfd., 150 volt	1.20

MODELS 03-5K1 to 03-5K9
Alignment, Voltage, Socket
Trimmers, Notes

STEWART-WARNER CORP.

ALIGNMENT PROCEDURE

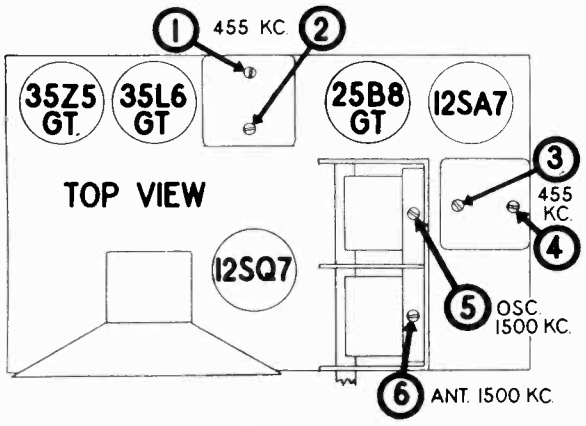
1. Connect the output meter across the voice coil or, using a .1 mfd. condenser in series, connect between the 35L6GT plate and B— terminal shown on voltage chart.

2. Connect the ground lead of the signal generator to the chassis of the receiver through a .25 mfd. condenser and keep it connected in this manner throughout the entire alignment procedure. Failure to do this may have serious results as one side of the power line may be grounded in the signal generator. If oscillation or hum occurs, connect the ground lead of the signal generator through a .25 mfd. condenser to B— as shown on the Voltage Chart.

3. Remove the connector between terminals A and A_1, also turn the volume control to the maximum volume position and keep it in this position throughout the entire alignment procedure.

4. Push the black sliding button on the rear of the chassis to the left (viewed from the rear). This is the position labeled "RADIO."

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Mica Condenser	Trimmer lug on front section of variable condenser	455 KC.	Any point where it does not affect the signal	1-2 3-4	2nd I.F. 1st I.F.	Adjust for Maximum Output. Then repeat adjustment.
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC.	1500 KC.	5	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal "A"	1500 KC.	Tune to 1500 KC. Generator Signal	6	Broadcast Antenna (Shunt)	Adjust for Maximum Output.



FOR ADJUSTMENT OF TRIMMER ON BACK OF CHASSIS, REFER TO FOURTH PARAGRAPH, UNDER HEADING "REMOTE OPERATION."

REMOTE OPERATION

The Stewart-Warner "Magician," in addition to being a high grade radio receiver, can be used to control one or more radios in the home. This is accomplished by using the triode section of the 25B8GT tube as a radio frequency oscillator and modulating the output of this oscillator with the audio frequency output of the 35L6GT tube. The D. P. D. T. switch (diagram No. 15) located on the rear of the chassis, switches the output of the 35L6GT to the speaker in the "RADIO" position, and to the remote oscillator in the "REMOTE" position.

The modulated radio frequency signal of the remote oscillator, is coupled to the power line by means of the coil, diagram No. 36. Any radio receiver in the home with a line antenna can tune in this signal. Any station tuned in with the "Magician" will be heard on the controlled receiver. The volume may be controlled with the volume control on the "Magician."

The volume control on the controlled receiver should be set to between one half and three quarters of the maximum volume position. Usually it should be turned up as far as possible without encountering excessive hum. Frequently operation can be improved or hum and noise reduced by reversing the power line plugs of the "Magician" or the controlled receiver.

The frequency of the remote oscillator can be varied from approximately 540 to 800 KC. by means of the trimmer on the back of the chassis. The frequency is set to 540 KC. at the factory, but sometimes it may be desirable to change this slightly by adjusting the slotted screw located on the back of the chassis. This adjustment must be changed if the controlled receiver does not tune to 540 KC., or if there is a station you wish to hear near 540 or 1080 KC. It is also useful for reducing whistles, although it is perfectly normal for the controlled receiver to whistle when the "Magician" is tuned to its own control frequency or to a harmonic of that frequency.

Phonograph operation may be had on either direct or remote operation by connecting the leads from a record playing to the "PHONO" terminals, turning the volume control to minimum volume position with current on, and controlling the volume by means of the volume control on the record player.

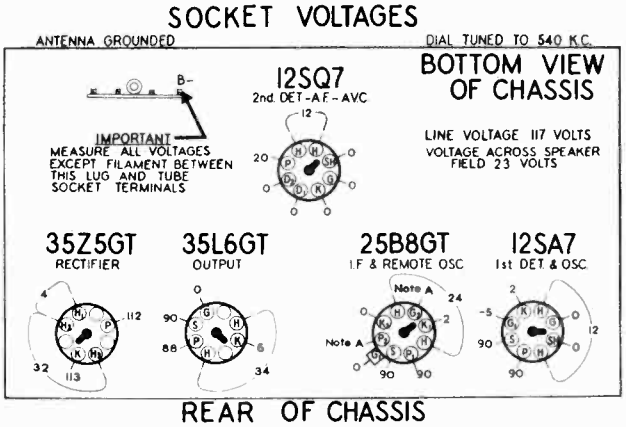
LINE ANTENNA ADAPTER

Any type of radio may be controlled by the "Magician," but if it does not have a line antenna, a Stewart-Warner Line Antenna Attachment Unit (Part No. 117643) should be used. The Line Antenna Attachment Unit allows any standard receiver to operate either with or without an external antenna. The Line Antenna Attachment Unit is also useful in isolating other radios which have a large buffer condenser and thus effectively short circuit the remote control signal on the power line. A Line Antenna Attachment Unit connected to each radio in the home will improve remote operation to a great extent.

MISCELLANEOUS PARTS

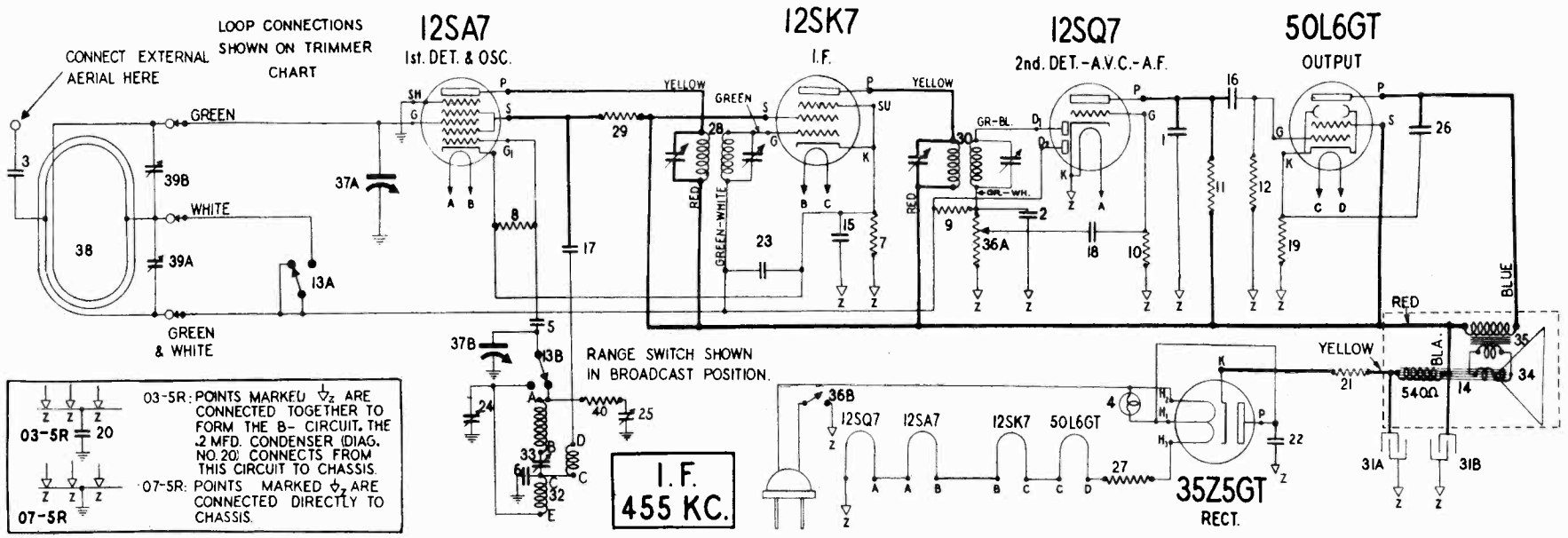
Part Number	Description	List Price
117405	Back—cabinet for 03-5K3	$0.08
117412	Back—cabinet for 03-5K1	.08
114950	Cabinet for 03-5K1 (Walnut)	2.00
116338	Cabinet for 03-5K3 (Ivory)	2.75
112745	Clip—coil mounting	.01
85321	Connector—for internal antenna	.01
113565	Decal. (Stewart-Warner)	.02
117414	Decal. (Magician)	.06
116556	Insulator—pilot light	.10
114867	Knob—volume for 03-5K3 (Red)	.08
114973	Knob—tuning for 03-5K3 (Red)	.45
114933	Knob—volume for 03-5K1 (Walnut)	.12
114975	Knob—tuning for 03-5K1 (Walnut)	.45
116485	Pad—asbestos	.03
85040	Screw—No. 6 Hex. Hd.	Per C .35
83624	Screw—No. 8 Hex. Hd.	.01
116592	Shield—tube	.10
114876	Socket—octal base	.15
114982	Socket—for dial lamp	.20
117383	Terminal Strip (A-A_1, and Phono)	.26
117411	Trimount Stud	.01

SOCKET VOLTAGES



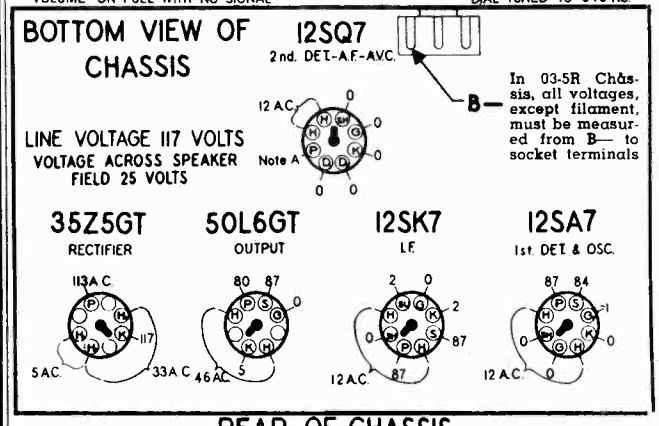
NOTE A: With switch No. 15 in "REMOTE" position, there will be a small negative voltage on G_2 and a positive reading of 88 volts on P_2.

Use a High Resistance Voltmeter of at Least 1000 Ohms per Volt



SOCKET VOLTAGES

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



Use a High Resistance Voltmeter of at Least 1000 Ohms per Volt.

NOTE A: Only a small voltage will be indicated on this plate when using a meter of 1000 ohms per volt.

ELECTRICAL PARTS

Diagram Number	Part Number	Description	List Price
1-2	83539	Condenser—mica 260 mmfd.	$0.20
3	83783	Condenser—mica 110 mmfd.	.20
4	85296	Lamp bulb—dial (Mazda 51)	.16
5	85563	Condenser—mica 26 mmfd.	.15
6	89275	Condenser—mica .002 mfd.	.40
	110556	Resistor—330 ohms ¼ watt	.12
7	110560	Resistor—carbon 100 ohms ¼ watt	.12
8	110564	Resistor—carbon 100,000 ohms ¼ watt	.12
9-10	110580	Resistor—carbon 3.3 meg. ¼ watt	.12
11	110591	Resistor—carbon 680,000 ohms ¼ watt	.12
12	112993	Resistor—carbon 470,000 ohms 1/10 watt	.12
13A-13B	114141	Switch—D.P.D.T.	.44
14	R-115081	Speaker—dynamic (4")	4.25
15	116625	Condenser—.1 mfd. 600 volt	.25
16-17	116640	Condenser—.01 mfd. 600 volt	.15
18	116647	Condenser—.004 mfd. 600 volt	.15
19	116702	Resistor—140 ohms ½ watt Wire Wound	.12
20	116706	Condenser—.2 mfd. 600 volt (Omitted on 07-5R)	.35
21	116752	Resistor—33 ohms 1 watt Wire Wound	.15
22-23	116819	Condenser—.05 mfd. 600 volt	.20
24-25	116879	Condenser—trimmer 5 to 50 mmfd.	.15
26	116883	Condenser—.02 mfd. 600 volt	.15
27	117395	Resistor—20 ohms 1 watt	.16
28	118614	Transformer—1st I.F.	1.10
29	118803	Resistor—(insulated)—680 ohms ¼ watt	.12
30	118903	Transformer—2nd I.F.	1.10
31A-31B	118911	Condenser—Electrolytic—20—20 mfd., 150 Volts	.75
32A-32B-32C	119653	Coil—oscillator (chassis not stamped with letter on back)	$0.52
	119784	Coil—oscillator (chassis stamped with "S" on back)	.52
33	118919	Condenser—padding	.40
34	R-118959	Cone & Voice coil for R-115081 speaker	1.50
35	R-118960	Transformer—output for R-115081 speaker	1.00
36A-36B	119413	Volume control—1 meg. (with switch)	1.10
37A-37B	119005	Condenser—variable tuning (with drum)	2.70
38	119119	Loop antenna assembly, without trimmers (03-5R4 to 03-5R6) (07-5R4 to 07-5R6) only (chassis not stamped with letter on back)	.75
	119786	Loop antenna assembly, without trimmers (03-5R4 to 03-5R6) (07-5R4 to 07-5R6) (chassis stamped "S" on back)	.75
	119309	Loop antenna (03-5R1 & 07-5R1) (03-5R3 07-5R3) chassis not stamped with letter	.80
	119769	Loop antenna (03-5R1 & 07-5R1) (03-5R3 & 07-5R3) (chassis stamped "S" on back)	.80
39A-39B	119122	Loop trimmers complete with antenna terminal (03-5R4 to 03-5R6) (07-5R4 to 07-5R6) only	.65
	119126	Trimmer condenser assembly (03-5R1 to 03-5R3) (07-5R1 to 07-5R3) only	.35
40	110556	Resistor—330 ohms ¼ watt	.12
	119653	Oscillator coil (for chassis not stamped with letter on back)	.52
	119784	Oscillator coil (for chassis stamped "S" on back)	.52

MODELS 03-5R1, 03-5R3 to 03-5R6
07-5R1, 07-5R3 to 07-5R6
Alignment, Trimmers, Socket

STEWART-WARNER CORP.

ALIGNMENT PROCEDURE FOR 03-5R and 07-5R CHASSIS

FOR ALIGNMENT: An output meter and an accurately calibrated signal generator with a tuning range from 455 KC to 7 MC are required.

1. Connect the output meter across the voice coil or, using a .1 mfd. condenser in series, connect as follows:
   MODEL 03-5R: Between the 50L6GT plate and B— terminal shown on voltage chart.
   MODEL 07-5R: Between the 50L6GT plate and chassis.
2. Connect the ground lead of the signal generator to the chassis of the receiver through a .25 mfd. condenser and keep it connected in this manner throughout the entire alignment procedure. Failure to do this may have serious results as one side of the power line may be grounded in the signal generator. If oscillation or hum occurs in the model 03-5R, connect the ground lead of the signal generator through a .25 mfd. condenser to B— as shown on the Voltage Chart.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the alignment procedure.
4. Be sure the loop is connected as shown below and that IT IS IN THE SAME RELATIVE POSITION IT OCCUPIES WHEN IN THE CABINET.
5. The pointer should be set to 540 KC with gang in full mesh.

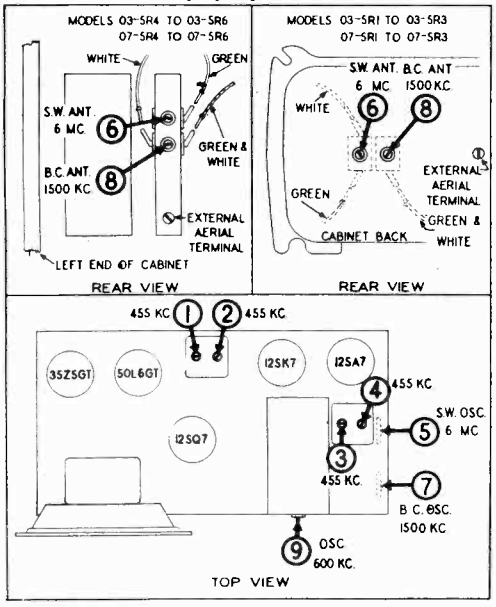
Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Band Switch Position	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Condenser	Lug on Rear Section of Gang Cond.	455 KC	Broadcast	Any Point Where It Does 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	External Aerial Terminal	6 MC	Foreign	6 MC	5	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 5.1 MC. If Image does not appear, Realign at 6 MC, with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	External Aerial Terminal	6 MC	Foreign	Tune to 6 MC Generator Signal	6*	Foreign Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	1500 KC	Broadcast	1500 KC	7	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	8*	Broadcast Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	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.

*NOTE: After chassis and loop are in cabinet, realign trimmer No. 6 at 6 MC. then trimmer No. 8 at 1500 KC. The generator lead placed near the loop will usually give sufficient signal.

FASTENING DIAL WINDOW

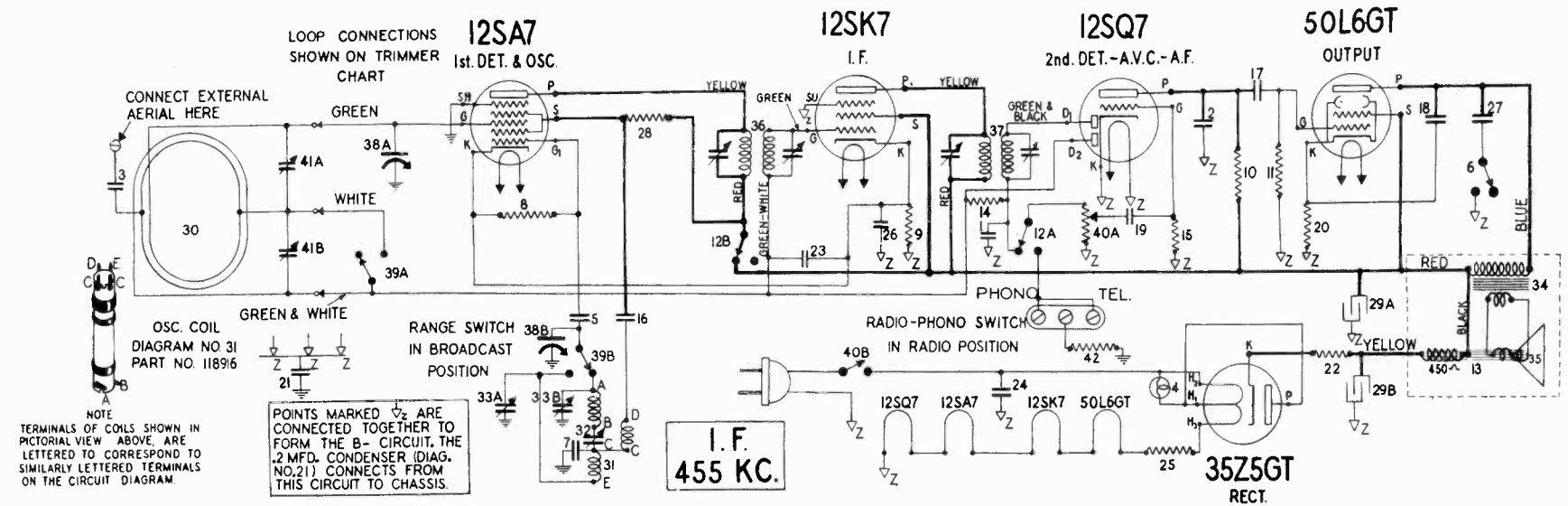
If the dial window on a plastic cabinet comes loose, it can easily be fastened in place with speaker cement after removing the chassis from cabinet.

Before fastening the window, it is advisable to roughen the surface of the cabinet with a file or rough sandpaper so that the cement will adhere properly.



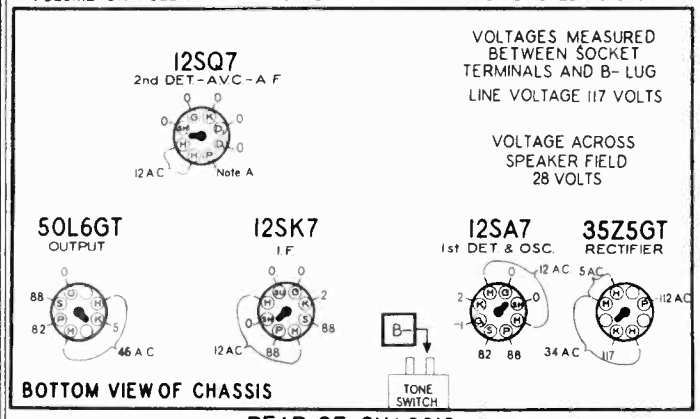
MISCELLANEOUS PARTS LIST

Part No.	Description	List Price
112745	Clip—coil mounting	$0.01
116948	Cord—dial (supplied in 6 ft. lengths)	.18
118990	Dial scale (Chassis not stamped with letter on back)	.07
119771	Dial scale (Chassis stamped "S" on back)	.07
119047	Dial window	.15
119011	Pointer	.06
83624	Screw—self tapping 8x¼	.01
85040	Screw—No. 6 Hex. Hd.	Per C .35
118953	Shaft—tuning	.15
116690	Socket—small octal base	.12
119008	Socket—pilot light	.22
111981	Spring—for dial cord tension	.03
	CABINETS	
119036	Cabinet (walnut) complete with dial window (03-5R1, 07-5R1)	2.25
119038	Cabinet (ivory) complete with dial window (03-5R3, 07-5R3)	3.00
119150	Cabinet (03-5R4, 07-5R4)	7.20
119151	Cabinet (03-5R5, 07-5R5)	9.60
119152	Cabinet (03-5R6, 07-5R6)	9.60
	CABINET BACKS	
119384	Cabinet back (walnut) with ant. term. and trimmers (03-5R1, 07-5R1)	.90
119385	Cabinet back (ivory) with ant. term. and trimmer (03-5R3, 07-5R3)	.90
119172	Cabinet back only (03-5R4, 07-5R4)	1.30
119173	Cabinet back only (03-5R5, 07-5R5)	1.30
	KNOBS	
119013	Knob (walnut) (03-5R1, 07-5R1)	.10
119058	Knob (red) (03-5R3, 07-5R3)	.10
119175	Knob (tan) (03-5R4, 07-5R4) (03-5R5, 07-5R5) (03-5R6, 07-5R6)	.10



SOCKET VOLTAGES

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



REAR OF CHASSIS

Use a High Resistance Voltmeter of at Least 1000 Ohms per Volt.

NOTE A: The reading on this plate will be small because of the high resistance of resistor No. 10.

ELECTRICAL PARTS

Diagram Number	Part Number	Description	List Price
1-2	83539	Condenser—mica 260 mmfd.	$0.20
3	83783	Condenser—mica 110 mmfd.	.20
4	85296	Lamp—dial 6 to 8 volt (Mazda 51)	.16
5	85563	Condenser—mica 26 mmfd.	.15
6	88054	Switch—tone control	.30
7	89275	Condenser—mica .002 mfd.	.40
8	110552	Resistor—carbon 47,000 ohms ¼ watt	.12
9	110560	Resistor—carbon 100 ohms ¼ watt	.12
10	110591	Resistor—carbon 680,000 ohms ¼ watt	.12
11	112993	Resistor—carbon 470,000 ohms 1/10 watt	.12
12A-12B	114141	Switch—D.P.D.T. (Radio-Phono)	.44
13	R-115085	Speaker—dynamic (5")	4.00
14-15	116090	Resistor—insulated 3.3 megohms ¼ watt	.15
16-17-18	116640	Condenser—.01 mfd. 600 volt	.15
19	116647	Condenser—.004 mfd. 600 volt	.15
20	116702	Resistor—140 ohms ½ watt wire wound	.12
21	116706	Condenser—.2 mfd. 600 volt	.35
22	116752	Resistor—33 ohms 1 watt wire wound	.15
23-24	116819	Condenser—.05 mfd. 600 volt	.20
25	117395	Resistor—20 ohms 1 watt	.16
26	118206	Condenser—.25 mfd. 600 volts	.35
27	118487	Condenser—.07 mfd. 600 volts	.25
28	118803	Resis or—insulated 680 ohms ¼ watt	.12
29A-29B	118911	Condenser—electrolytic—20-20 mfd. 150 volt	.75
30	118915	Cabinet back and loop antenna complete (03-5S1)	1.65
	119145	Cabinet back and loop antenna complete (03-5S2)	1.65
31	118916	Coil—oscillator	.52
32	118919	Condenser—padding	.40
33A-33B	118920	Trimmer strip (2 sect.)	.30
34	R-118995	Transformer—output for R-115085 speaker	1.00
35	R-118999	Cone & Voice coil for R-115085 speaker	1.70
36	119042	Transformer—1st I.F.	1.10
37	119081	Transformer—2nd I.F.	1.00
38A-38B	119084	Gang condenser & push button unit	3.80
39A-39B	119085	Range switch	.50
40A-40B	119086	Volume control—1 meg. (with switch)	1.00
41A-41B	119126	Condenser—trimmer for loop antenna	.35
42	110553	Resistor—220,000 ohms ¼ watt (on underwriters' approved sets only)	.12

MODELS 03-5S1, 03-5S2
Alignment, Socket, Trimmers

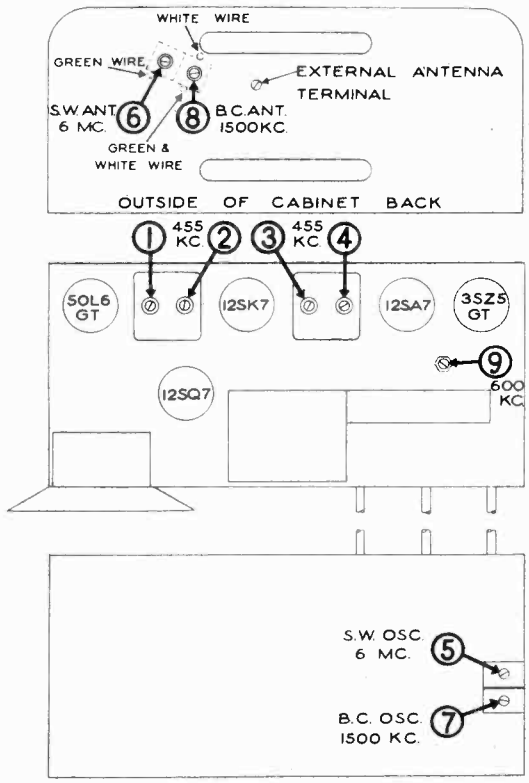
STEWART-WARNER CORP.

ALIGNMENT PROCEDURE FOR 03-5S CHASSIS

1. Connect the output meter across the voice coil or from the plate of the 50L6GT output tube to B— through a .1 mfd. condenser. (The more sensitive type should be connected across the voice coil.)
2. Connect the ground lead of the signal generator to the receiver chassis through a .25 mfd. condenser.
3. Turn the volume control to the maximum volume position and keep it in this position throughout the alignment procedure.
4. Be sure the loop is properly connected at all times, AND THAT IT IS IN THE SAME RELATIVE POSITION TO THE CHASSIS AS WHEN IN THE CABINET.
5. Set the dial pointer to read 540 KC. with the gang in full mesh.

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	Green Wire Lead to Loop	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	Antenna Terminal on Cabinet Back	6 MC	Foreign	6MC	5	Foreign Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 5.1 MC. If Image does not appear, Realign at 6 MC, with Trimmer Screw farther out. Recheck Image.
400 OHM Carbon Resistor	Antenna Terminal on Cabinet Back	6 MC	Foreign	Tune to 6MC 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.
200 MMFD. Mica Condenser	Antenna Terminal on Cabinet Back	1500 KC	Broadcast	1500 KC	7	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal on Cabinet Back	1500 KC	Broadcast	Tune to 1500 KC Generator Signal	8*	Broadcast Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	Antenna Terminal on Cabinet Back	600 KC	Broadcast	Tune to 600 KC Generator Signal	9	Broadcast Oscillator (Series Pad)	Adjust for Maximum Output. Try to Increase Output by Detuning Trimmer and Retuning Receiver Dial until Maximum Output is Obtained.

*After chassis and loop are in cabinet, realign trimmer No. 6 at 6 MC. then trimmer No. 8 at 1500 KC., using a weak signal. The signal generator lead placed near the loop will usually give sufficient signal.

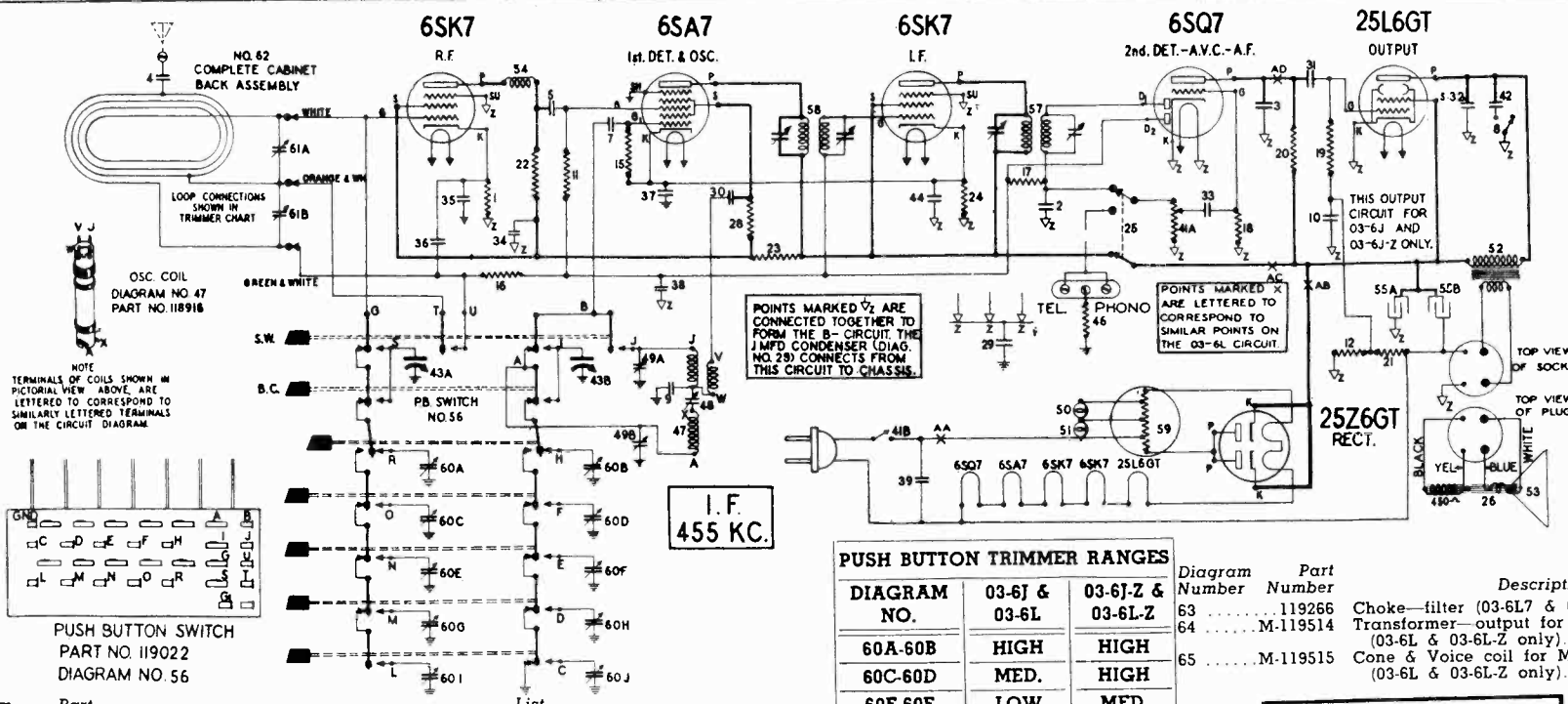


MISCELLANEOUS PARTS

Part Number	Description	List Price
118915	Cabinet Back assembly complete (03-5S1)	$1.65
119145	Cabinet Back assembly complete (03-5S2)	1.65
119129	Call tabs & instruction sheets	.40
112745	Clip—coil mounting	.01
112764	Clip—dial scale retaining	.01
113178	Cord—dial—(supplied in 4 ft. lgths)	.30
119090	Dial scale	.12
119044	Escutcheon—push button	.38
118913	Knob—Range switch, tuning, or volume	.10
118929	Pointer shaft & pulley	.12
119088	Pointer	.12
119089	Push button	.12
84214	Retaining ring for shafts or dial drum	.02
81145	Retaining ring for drive shaft	Per C .50
113672	Rubber grommet (on tuning shaft)	.02
83624	Screw—self tapping 8x¼	.01
85040	Screw—No. 6 Hex. Hd.	Per C .35
114914	Screw for mounting escutcheon	Per Dz. .15
116690	Socket—small octal base	.12
116793	Socket—for pilot light	.40
113177	Spring—dial cord tension	.09
119187	Spring for push button tuner	.05
119186	Strap (fabric), including rivets, and washers for push button tuner	.08
84412	Terminal strip—(Phono-Tele.)	.03
118931	Tuning shaft	.15
111456	Washer—spring washer	Per C .50
116530	Washer for back of knobs	.005
116414	Window for dial	.25

STEWART-WARNER CORP.

MODELS 03-6J1, Ch. 03-6J; 03-6J1-Z, Ch. 03-6J-Z
03-6L7, Ch. 03-6L
03-6L7-Z, Ch. 03-6L-Z
Schematic



PUSH BUTTON SWITCH
PART NO. 119022
DIAGRAM NO. 56

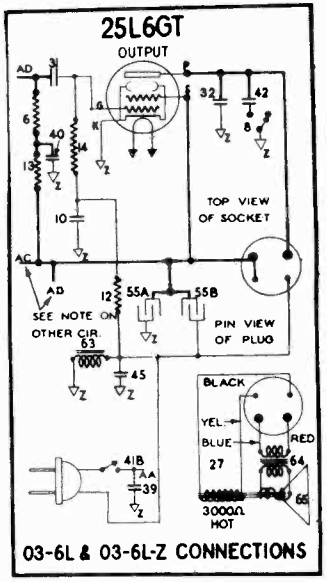
PUSH BUTTON TRIMMER RANGES

DIAGRAM NO.	03-6J & 03-6L	03-6J-Z & 03-6L-Z
60A-60B	HIGH	HIGH
60C-60D	MED.	HIGH
60E-60F	LOW	MED.
60G-60H	LOW	MED.
60I-60J	LOW	LOW

SEE PARTS LIST BELOW FOR RANGES IN KILOCYCLES

Diagram Number	Part Number	Description	List Price
1	67981	Resistor—carbon 400 ohms ¼ watt	$0.25
2-3	83539	Condenser—mica 260 mmfd.	.20
4-5	83783	Condenser—mica 110 mmfd.	.20
6	110559	Resistor—carbon 470,000 ohms ¼ watt	.12
7	85061	Condenser—mica 51 mmfd.	.15
8	88054	Switch—tone	.30
9	89275	Condenser—mica .002 mfd.	.40
10	110377	Condenser—10 mfd. 35 volt (03-6L & 03-6L-Z only)	.80
	116625	Condenser—.1 mfd. 600 volt (03-6J & 03-6J-Z only)	.25
11	110552	Resistor—carbon 47,000 ohms ¼ watt	.12
12	110553	Resistor—carbon 220,000 ohms ¼ watt	.12
13-14	110553	Resistor—carbon 220,000 ohms ¼ watt (03-6L & 03-6L-Z only)	.12
15	110564	Resistor—carbon 100,000 ohms ¼ watt	.12
16	110559	Resistor—carbon 470,000 ohms ¼ watt	.12
17-18	110580	Resistor—carbon 3.3 meg. ¼ watt	.12
19	110584	Resistor—carbon 330,000 ohms ¼ watt (03-6J & 03-6J-Z only)	.12
20-21	110591	Resistor—carbon 680,000 ohms ¼ watt (03-6J & 03-6J-Z only)	.12
22	112952	Resistor—carbon 3,300 ohms ¼ watt	.10
23	112964	Resistor—carbon 1,500 ohms ¼ watt	.15
24	112994	Resistor—carbon 220 ohms ¼ watt	.12
25	114141	Switch—D.P.D.T.	.44
26	R-115083	Speaker—dynamic (5") (03-6J & 03-6J-Z only)	4.00
27	M-115087	Speaker—dynamic (8") (03-6L7 & 03-6L7-Z)	7.50
28	116068	Resistor—carbon 680 ohms ¼ watt	.12
29	116625	Condenser—.1 mfd. 600 volt	.25
30-31-32	116640	Condenser—.01 mfd. 600 volt	.15
33	116647	Condenser—.004 mfd. 600 volt	.15
34	116706	Condenser—.2 mfd. 600 volt	.35
35 to 39	116819	Condenser—.05 mfd. 600 volt	.20
40	116819	Condenser—.05 mfd. 600 volt (03-6L & 03-6L-Z only)	$0.20
41A-41B	116834	Volume control—1 megohm (with switch)	1.10
42	116984	Condenser—.04 mfd. 600 volts	.20
43A-43B	117625	Condenser—tuning (with drum)	3.00
44	118206	Condenser—.25 mfd. 600 volts	.35
45	118290	Condenser—.5 mfd. 150 volts (03-6L & 03-6L-Z only)	.50
46	110553	Resistor—220,000 ohms ¼ watt (on Underwriters' approved sets)	.12
47	118916	Coil—oscillator	.52
48	118919	Condenser—padding	.40
49A-49B	118920	Trimmer strip (2 section)	.30
50-51	110629	Lamp—dial 6.3 volts .25 amps.	.15
52	118996	Transformer—output (03-6J & 03-6J-Z only)	1.00
53	R-118999	Cone & Voice coil for R-115083 speaker	1.70
54	119001	Coil—R. F.	.28
55A-55B	119021	Condenser—electrolytic—20-40 mfd. 150 volt	1.00
56	119022	Switch—push button	3.00
57	119024	Transformer—2nd I.F.	1.15
58	119042	Transformer—1st I.F.	1.10
59	119109	Ballast tube	.75
60A-60J	119662	Push button trimmer (Low 540 to 1000 KC)	.24
	119663	Push button trimmer (Med. 750 to 1375 KC)	.24
	119664	Push button trimmer (High 980 to 1550 KC)	.24
61A-61B	119126	Trimmer condenser—2 section	.35
62	119143	Cabinet back & loop antenna assembly (03-6J1 & 03-6J1-Z)	1.95
	119145	Loop antenna & trimmer assembly (03-6L7 & 03-6L7-Z)	1.65

Diagram Number	Part Number	Description
63	119266	Choke—filter (03-6L7 & 03-6L7-Z only)
64	M-119514	Transformer—output for M-115087 speak (03-6L & 03-6L-Z only)
65	M-119515	Cone & Voice coil for M-115087 speaker (03-6L & 03-6L-Z only)



03-6L & 03-6L-Z CONNECTIONS

MODELS 03-6J1, 03-6J1-Z, 03-6L7, 03-6L7-Z
Alignment, Voltage, Trimmers
Socket

STEWART-WARNER CORP.

03-6J, 03-6J-Z, 03-6L, and 03-6L-Z CHASSIS

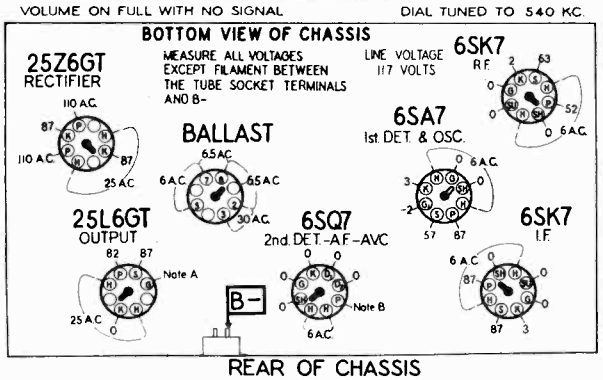
ALIGNMENT PROCEDURE

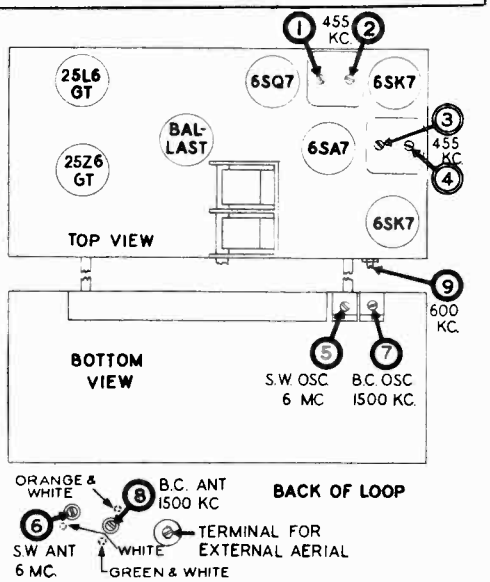
FOR ALIGNMENT: An output meter and an accurately calibrated signal generator are required.

1. Connect the output meter across the voice coil, or using a .1 mfd. condenser in series connect between the 25L6GT tube plate and B— as shown on the voltage chart.
2. Connect the ground lead of the signal generator through a .25 mfd. condenser to B— as shown on the voltage chart.
3. Connect the loop antenna to the radio, being sure to connect the wires to the proper receptacles on the loop antenna as shown in drawing below.
4. With the gang condenser in full mesh, the pointer should be in a horizontal position. If it is not, it should be moved to this position before alignment.

Dummy Ant. in Series with Sig. Gen.	Connection of Sig. Generator Output to Receiver	Signal Generator Frequency	Push Button Position	Receiver Dial Setting	Trimmer Number	Trimmer Description	Type of Adjustment
200 MMFD. Mica Condenser	Lug on Rear Section of Variable Condenser	455 KC	"Broadcast" Button Pushed In	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.	
200 MMFD. Mica Condenser	External Aerial Terminal	6 MC	"Short Wave" Button Pushed In	6 MC	5	Short Wave Oscillator	Adjust for Maximum Output. Check to see if Proper Peak was Obtained by Tuning in Image at Approx. 5.1 MC. If Image does not appear, Realign at 6 MC, with Trimmer Screw farther out. Recheck Image.
200 MMFD. Mica Condenser	External Aerial Terminal	6 MC	"Short Wave" Button Pushed In	Tune to 6 MC Generator Signal	6*	Short Wave Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	1500 KC	"Broadcast" Button Pushed In	1500 KC	7*	Broadcast Oscillator (Shunt)	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	1500 KC	"Broadcast" Button Pushed In	Tune to 1500 KC Generator Signal	8	Broadcast Antenna	Adjust for Maximum Output.
200 MMFD. Mica Condenser	External Aerial Terminal	600 KC	"Broadcast" Button Pushed In	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.

*NOTE: When making these adjustments, the loop should be in the same relative position to the chassis as when mounted in the cabinet. Adjustments 6 & 8 should be repeated after the set and loop have been replaced in the cabinet.





These readings taken using a voltmeter of 1000 ohms per volt.

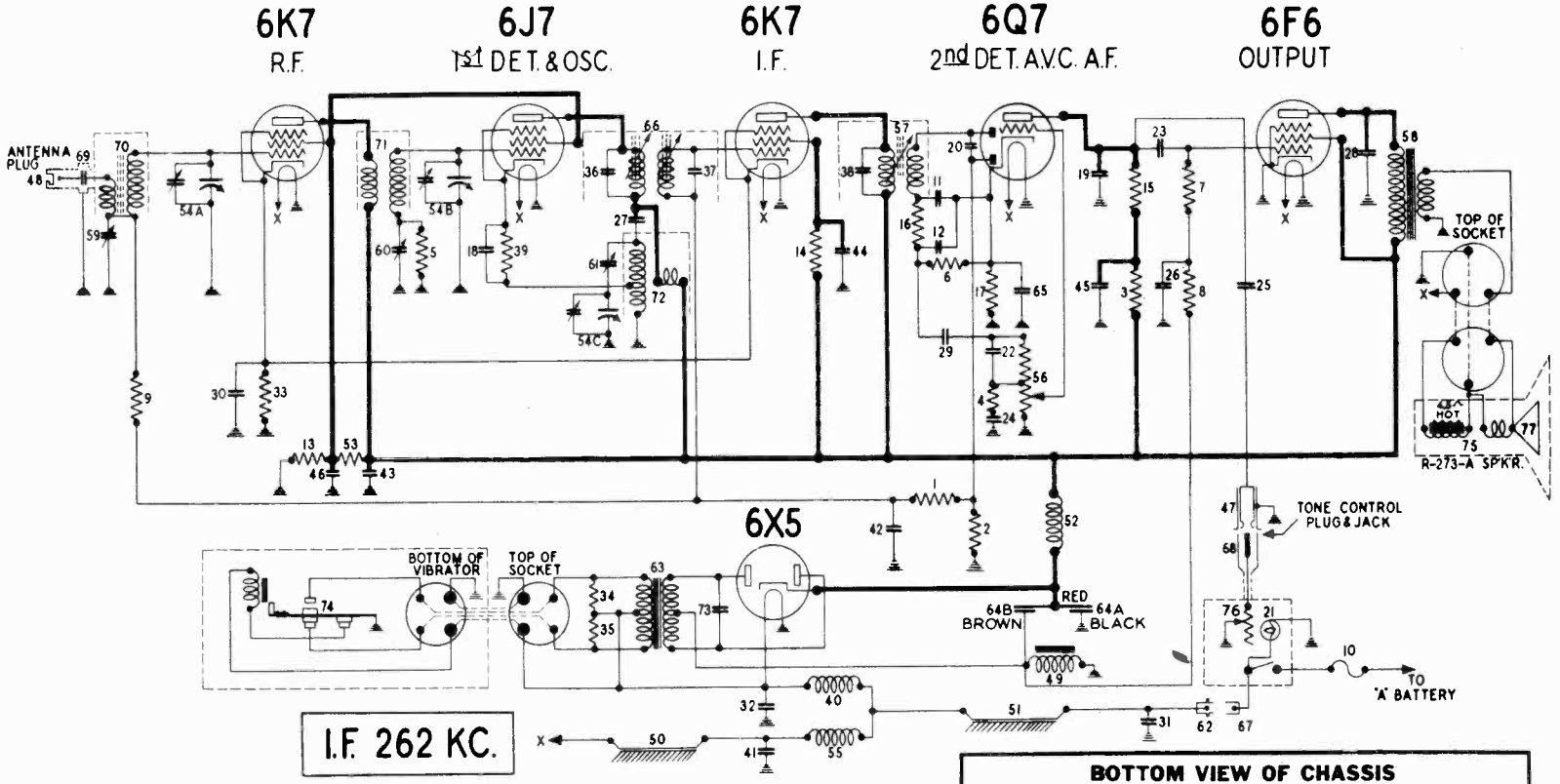
NOTE A: The bias on the 25L6GT grid is: on 03-6J chassis: —4 volts measured across resistor No. 12; on 03-6L chassis: —5 volts measured across choke No. 63.

NOTE B: Due to the high resistance of resistors No. 20, 6, and 13, only a small voltage will be read at the plate of the 6SQ7 when using a voltmeter having a resistance of 1000 ohms per volt.

Part Number	Description	List Price
119168	Cabinet—plastic for 03-6J1 & 03-6J1-Z	$7.20
119143	Cabinet back & loop assembly (03-6J1 & 03-6J1-Z)	1.95
119145	Cabinet back & loop assembly (03-6L7 & 03-6L7-Z)	1.65
119171	Call tabs & instructions	.35
114955	Clamp—for dial cord	.01
112745	Clip—coil mounting	.01
112784	Clip—dial scale retaining	.01
116948	Cord—dial drive (supplied in 6 ft. lengths)	.18
119261	Cover plate for trimmer hole (03-6L7 & 03-6L7-Z)	.15
119120	Dial scale	.25
116810	Dial window (03-6J1 & 03-6J1-Z)	.35
119208	Dial escutcheon (03-6L7 & 03-6L7-Z)	.80
119166	Knob—push button	.08
119167	Knob—tuning or volume	.08
116902	Plate for trimmer hole (03-6J1 & 03-6J1-Z)	.12
116883	Pointer	.16
81145	Retaining ring—for drive shaft	Per C .50

STEWART-WARNER CORP.

MODEL R-1781
Schematic, Voltage



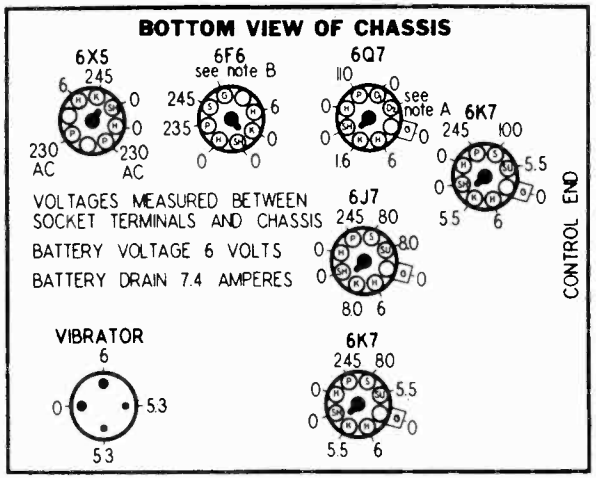


Diagram Number	Part Number	Description
1-2	83072	Carbon resistor, 510,000 ohm 1/4 watt
3-4	83080	Carbon resistor, 51,000 ohm 1/4 watt
5-6-7 8-9	83082	Carbon resistor, 260.000 ohm 1/4 watt
10	83207	Fuse, 15 ampere 25 volt
11-12	83539	Mica condenser, 280 mmfd.
13-14-15	84198	Carbon resistor, 110,000 ohm 1/4 watt
16	84238	Carbon resistor, 11,000 ohm 1/4 watt
17	84240	Carbon resistor, 4,000 ohm 1/4 watt
18	84282	Mica condenser, .001 mfd.
19-20	84370	Mica condenser, 110 mmfd.
21	85296	Dial light bulb (bayonet type)
22	85394	Mica condenser, 510 mmfd.
23	88026	Paper condenser, .02 mfd. 400 volt
24	88029	Paper condenser, .004 mfd. 400 volt
25	88030	Paper condenser, .01 mfd. 400 volt
26	88046	Paper condenser, .1 mfd. 150 volt
27	88173	Mica condenser, 50 mmfd.
28	88185	Paper condenser, .006 mfd. 600 volt
29	88189	Paper condenser, .05 mfd. 200 volt
30	88193	Paper condenser, .25 mfd. 150 volt
31-32	88195	Paper condenser, .5 mfd. 150 volt
33	88203	Carbon resistor, 600 ohm 1/4 watt
34-35	88204	Wire wound resistor, 210 ohm 1/2 watt
36-37-38	88233	Mica condenser, 110 mmfd.
39	88257	Carbon resistor, 9,500 ohm 1/4 watt
40	88289	"A" choke (in vibrator supply)
41	88298	Condenser .25 mfd. 150 volt (low loss)
42	88534	Condenser .05 mfd. 150 volt (low loss)
43-44-45	88682	Paper condenser, .1 mfd. 400 volt
46	89421	Paper condenser, .1 mfd. 200 volt
47	110078	Tone control socket
48	110087	Antenna lead receptacle
49	110149	Filter choke (iron core)
50-51	110161	Interference elimination capacitor
52	110174	Radio frequency choke
53	110186	Carbon resistor, 110,000 ohm 1/2 watt
54A to C	110300	Three gang variable condenser
55	110306	"A" choke (in filament supply)
56	110311	Volume control, 500,000 ohm
57	110312	2nd I.F. transformer
58	110313	Output transformer
59	110331	Antenna compensating condenser
60	110332	R.F. padding condenser
61	110333	Oscillator padding condenser
62	110371	"A" contact and lead assem.
63	110375	Power transformer
64A 64B	110376	Electrolytic condenser {8 mfd. sect. 4 mfd. sect.}
65	110377	Electrolytic condenser, 10 mfd. 25 volt
66	110378	1st I.F. transformer
67	110404	32 inch "A" lead (standard)(from set to control hd.)
	110444	42 inch "A" lead (special)(from set to control hd.)
68	110405	29 inch tone control cable (standard)
	110443	36 inch tone control cable (special)
69	110414	Paper condenser, .02 mfd. 200 volt
70	110415	Antenna coil and shield
71	110416	R.F. coil and shield
72	110417	Oscillator coil and shield
73	110431	Paper condenser, .01 mfd. 1,700 volt
74	110432	Vibrator
75	R273A	Speaker 8 inch dynamic
76	110310	Tone control (250,000 ohm)
77	110460	Speaker cone

IMPORTANT: Use a high resistance voltmeter of 1,000 ohms per volt. Make allowances for battery voltage variation.

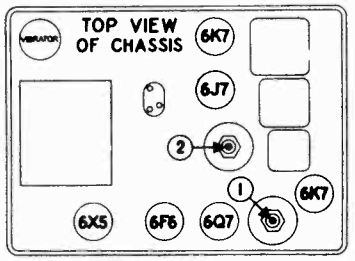
NOTE A: This voltage is 1.6 volts measured across resistor No. 17.

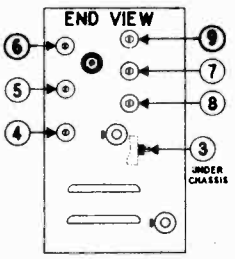
NOTE B: The grid bias of the 6F6 output tube is -14 volts measured between chassis and ungrounded filter choke terminal.

MODEL R-1781
Alignment, Trimmers, Socket

STEWART-WARNER CORP.

CHASSIS 01-6G, 01-6G-Z
Drive Cord Data





TRIMMER LOCATIONS

Trimmer Number		Alignment Frequency
1	1st I.F. transformer trimmer (top)	262 KC.
2	2nd I.F. transformer trimmer	262 KC.
3	1st I.F. transformer trimmer (bottom)	262 KC.
4	Oscillator series padder	600 KC.
5	R.F. series padder	600 KC.
6	Antenna compensator (padder)	600 KC.
7	Oscillator shunt trimmer	1400 KC.
8	R.F. Shunt trimmer	1400 KC.
9	Antenna shunt trimmer	1400 KC.

ALIGNMENT

The equipment necessary for proper alignment of this receiver consists of a good modulated oscillator, a sensitive output meter and an insulated screw driver.

The test oscillator must be accurately calibrated and its output must be adjustable to give a very weak signal which will not actuate the A.V.C. of the receiver. The insulated screw driver should be made of fibre or bakelite although a small metal blade inserted at the tip is permissible. A long blade in an insulated handle is not suitable and will prevent accurate adjustment.

An output meter with a full scale reading of four volts or less is desirable so that it can be connected directly across the voice coil terminals of the speaker. Any A.C. voltmeter with such a range will be satisfactory. If your output meter is not equipped with such a low scale, it should be connected from the plate of the output tube to chassis.

During alignment, the volume control should be turned full on and the receiver case should be in place. The front cover can be removed to permit the connection of the output meter. Keep rear cover in place.

I.F. ALIGNMENT

1- (a) Set the test oscillator to exactly 262 KC.

(b) Connect the output terminal of the oscillator to the grid of the 6J7 tube through a .1 to .5 mfd. condenser. Do not remove the grid lead from the tube.

(c) Connect the grounded output lead of the oscillator to the receiver case.

(d) Turn the gang condenser of the receiver to any point where it has no tuning effect on the 262 KC. signal.

(e) Adjust trimmers 1, 2 and 3 for maximum output. Trimmer No. 3 is located under the chassis but can be reached through a hole in the rear cover.

(f) Repeat the adjust of trimmers 1, 2 and 3.

R.F. CALIBRATION AND ALIGNMENT

This receiver employs an unusual circuit which allows the antenna, the R.F. and the oscillator circuits to be adjusted near the low frequency end of the dial in addition to the high frequency end. To get maximum sensitivity and accurate dial calibration, the following procedure must be followed exactly.

2- Low Frequency Alignment.

(a) Connect the output of the test oscillator to the antenna socket of the receiver through a 200 mmfd. (.0002 mfd.) mica condenser. This condenser must not be omitted or alignment will be incorrect.

(b) Connect the control head to the receiver, then turn the tuning knob until the variable condenser plates are in full mesh.

Adjust the dial calibration so that the dial pointer is on the last dial calibration mark below 550 KC. The relative position of the control head, the control shaft, and the receiver must remain unchanged until the alignment is completed.

(c) Turn the tuning knob until the dial pointer indicates that the set is tuned to 600 KC.

(d) Set the test oscillator at exactly 600 KC.

(e) Adjust trimmer No. 4 for maximum output. The adjustment of this trimmer must be made with an insulated screw driver having no more than a small metal tip.

(f) Retune the receiver to the oscillator signal.

(g) Adjust trimmers 5 and 6 for maximum output.

3- High Frequency Alignment.

(a) Tune the receiver to exactly 1400 KC. on the tuning dial.

(b) Adjust the test oscillator to exactly 1400 KC.

(c) Adjust trimmer No. 7 for maximum output.

(d) Carefully tune the receiver to the 1400 KC. oscillator signal.

(e) Adjust trimmers 8 and 9 for maximum output.

4- Final Adjustment.

(a) Repeat operations 2 (c) to (g) and 3 (a) to (e) in the same order until no further improvement in output can be made. Adjustments must be repeated at least once and if the set is badly out of alignment, a second repetition is necessary.

ANTENNA COMPENSATOR AJUSTMENT

The antenna compensator must be adjusted after the installation of the receiver has been completed in order to match the receiver to the antenna. If this adjustment is made for an old under-car aerial, care must be taken that the aerial and its insulators are clean and free from mud or slush which would alter the capacity and resistance. More accurate adjustment is possible if the aerial and its insulators are washed and allowed to dry before attempting adjustment.

The adjustment is to be made as follows:

(a) Carefully tune the receiver to some fairly weak signal between 550 and 650 KC.

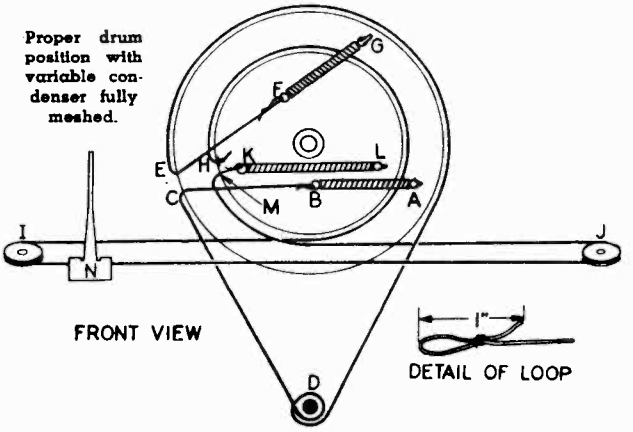
(b) Remove the chrome plated button adjacent to the antenna jack. (Covering trimmer No. 6).

(c) Adjust the antenna compensator, trimmer No. 6 for maximum volume. Carefully retune the receiver to the signal, then again adjust the compensator.

Do not attempt to adjust any of the other trimmers on stations at this time or the entire alignment will be upset since an oscillator must be used for all adjustments except the antenna compensator.

Note: If you do not get a peak when adjusting this trimmer and if the car has a built-in antenna of unusually high capacity such as an insulated running board or insulated metal roof, it will be necessary to insert a special plug-in adapter in series with the antenna lead. These adapters are made in two types and can be obtained from United Motors Service Stations. For aerials having a capacity between 400 and 900 micro-microfarads (insulated running boards), the adapter United Motors Part No. 7231410 (marked with red band) should be used. For aerials between 900 and 2,000 micro-microfarads (metal roof tops) their Part No. 1210915 should be used.

REPLACING DIAL CORDS 01-6G & 01-6G-Z



TO REPLACE THE TUNING DRIVE CORD

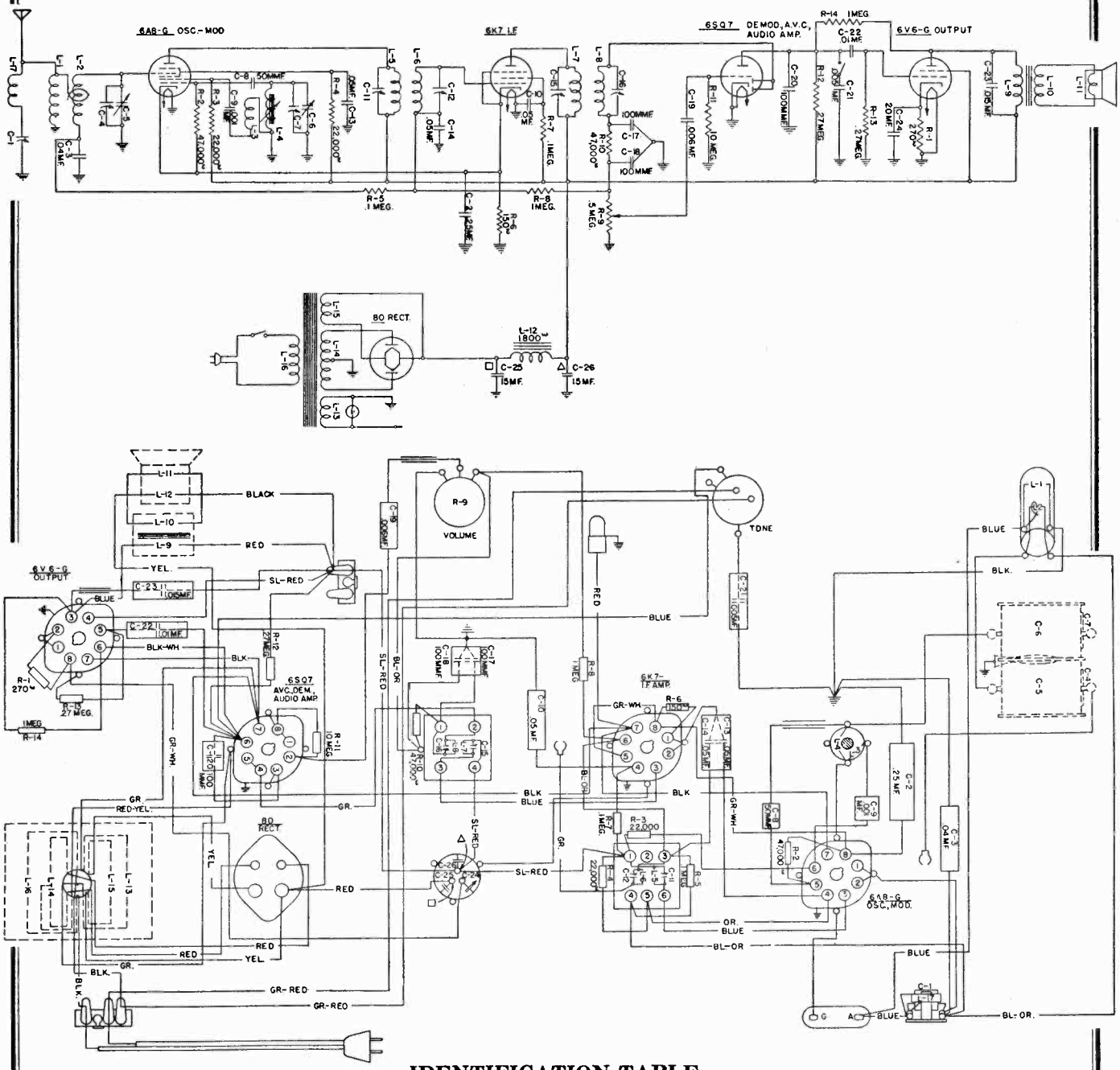
1. 25½ inches of dial drive cord (part No. 117057) are required. Make a one-inch loop in each end of this cord, using a dial cord clip, (part No. 114955) (See sketch above for detail of loop). A knot may be tied if a slightly smaller loop is made.
2. Fasten one end of a tension spring (part No. 113177) to the loop at point B and the other end of the spring to tab A.
3. Pass the other end of the dial cord through hole C in the outer drum.
4. Make one and a half turns of the cord about tuning shaft D.
5. Continue the cord counter-clockwise about the outer drum and pass it through hole E.
6. Fasten a tension spring ,(part No. 113177) to the other loop of the cord at point F and fasten the spring to the tab G.

TO REPLACE THE POINTER DRIVE CORD

1. 34⅛ inches of pointer drive cord, (part No. 116948) are required. Fasten an eyelet (part No. 88348) at a point one-half inch from one end of this cord.
2. Pass the other end of the cord outward through hole H in the smaller drum.
3. Fashion a one-inch loop at outer end of the pointer cord ,(See detail of loop in illustration), using a dial cord clip (part No. 114955), or tie a knot using a smaller loop.
4. Continue the cord clockwise around the smaller drum and around pulley I from the rear to the front.
5. Go from pulley I around the front of pulley J and clockwise around the smaller drum to hole M.
6. Pass the loop through hole M and fasten it to one end of a tension spring (part No. 113177) at point K, the other end of the spring then being fastened to point L.
7. Clip the dial pointer to the cord. With the drum in the position shown, and with the gang condenser in full mesh, fasten the pointer so that it is at a point 2⅛" from the left end of the brown dial plate.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 400H, 400HB
400N, 400NB, 400S,
400SB
Schematic, Chassis
Wiring



IDENTIFICATION TABLE

Model	Input Power Frequency	Chassis	Cabinet	Speaker
400-H	50-60 Cycles	30107	30109	30137
400-HB	25-60 Cycles	30108	30109	30137
400-N	50-60 Cycles	30107	30547	30137
400-NB	25-60 Cycles	30108	30547	30137
400-S	50-60 Cycles	30107	30548	30137
400-SB	25-60 Cycles	30108	30548	30137

Input Power Rating ..... 37 Watts
Intermediate Frequency ..... 455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles ..... Approximately 5 Ohms
Speaker Field Coil Resistance ..... 1800 Ohms

Take all D. C. voltage readings on the 500 volt scale except where an asterisk appears.

Take all readings with chassis operating and tuned to 1000 Kc.—no signal.

Use a line voltage of 120 volts or make allowance for the variation.

Read from indicated socket terminals to chassis base.

A. C. Voltages are indicated by italics.

			Terminals of Sockets								Heater Voltages Between Heater Terminals	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6A8G	Mod.—Osc.	0	0	0	+175	+82	—	+100	*6.3*	+2*	2-7	*6.3*
6K7	I. F. Amp.	0	0	0	+175	+65	+2*	—	*6.3*	+2*	2-7	*6.3*
6SQ7	Dem.—A. V. C. —Audio	—	0	0	0	0	0	+75	*6.3*	0	7-8	*6.3*
6V6G	Output	—	0	0	+160	+175	0	+75	*6.3*	+8*	2-7	*6.3*
80	Rectifier	—	+265	*255*	*255*	+265	—	—	*5*	—	1-4	*5*

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.

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 except when an asterisk appears.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8G	Mod.—Osc.	1.5M	S	S	*1800¶	*24000¶	47000¶	24000¶	S	150¶
6K7	I. F. Amp.	1.5M	S	S	*1800¶	*100000¶	150¶	1.5M	S	150¶
6SQ7	Dem.—A. V. C. —Audio	—	S	10M	S	500000¶	500000¶	*250000¶	S	S
6V6G	Output	—	S	S	*2200¶	*1800¶	300000¶	*250000¶	S	270¶
80	Rectifier	—	1M or Greater	270¶	270¶	1M or Greater	—	—	—	—

Symbols used are as follows: ¶—ohms; M—megohms; S—short; O—open.
*These readings should be made from indicated terminals to terminal No. 1 of the rectifier socket (type 80 tube).

Other Tests Not Shown on Chart

Antenna terminal to chassis base; 70 ohms.

Ground terminal to chassis base; "short".

Between terminals of A. C. plug; "open" with A. C. switch open; 17 ohms with A. C. switch closed.

R. F. coil tests, measured directly across R. F. coil terminals (see wiring diagram on Page 5 for location of R. F. coil terminals): L1—70 ohms; L2—4 ohms; L3—3 ohms; L4—4 ohms; L17—70 ohms.

ALIGNING INFORMATION

NEVER REALIGN UNLESS ABSOLUTELY NECESSARY.

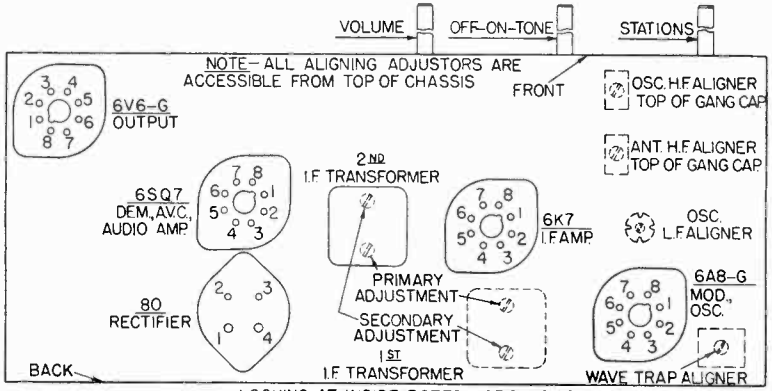
Use a good modulated signal generator (test oscillator) with variable output voltage and a sensitive output meter across the voice coil of the speaker.

Always align using the smallest possible input from the signal generator (except when wave trap adjustments are made). A strong signal makes adjustments inaccurate.

Always have receiver volume control "full on".

Never align with tone control in bass position.

See Location Chart above for location of all the aligning adjustment screws.



Location Chart

Aligning Procedure (follow this order exactly)

I. Dial Pointer Adjustment.

With the plates of the gang tuning capacitor fully engaged, set the dial pointer directly on the upper black line at the low frequency end of the dial.

II. Intermediate Frequency Adjustments.

1. Tune set to extreme low frequency position. (.54 megacycles on dial scale).
2. Connect the ground terminal of the signal generator to the ground binding post of the receiver.
3. Introduce a modulated signal of 455 kilocycles, using a 0.1 microfarad capacitor in series with the lead from the signal generator to the grid cap of the 6A8G tube. (Do not remove the grid clip from this tube.)
4. Adjust the I. F. Aligners for maximum output in the following order:

a. Secondary of Second I. F. Transformer.
b. Primary of Second I. F. Transformer.
c. Secondary of First I. F. Transformer.
d. Primary of First I. F. Transformer.

III. Wave Trap Adjustment.

1. Tune set to 1,000 kilocycles.
2. Leave the ground terminal of the signal generator connected to the ground binding post of the receiver.
3. Introduce a fairly strong modulated signal of 455 kilocycles to the antenna binding post using a 200 mmf. capacitor in series with the lead from the signal generator.
4. Adjust the wave trap aligner for minimum signal.

IV. Radio Frequency Adjustments.

(Leave the signal generator connected in the same way as for the wave trap alignment.)

1. Set the signal generator's frequency and the receiver's tuning dial to 0.6 megacycles.
2. Adjust the iron core in the oscillator coil for maximum signal.
3. Set the signal generator's frequency and the receiver's tuning dial to 1.5 megacycles.
4. Adjust the two aligning capacitors on the variable capacitor for maximum signal.
5. Reset both the signal generator's frequency and the receiver's tuning dial to 0.6 megacycles and repeat operation 2.
6. Reset both the signal generator's frequency and the receiver's tuning dial to 1.5 megacycles and repeat operation 4.

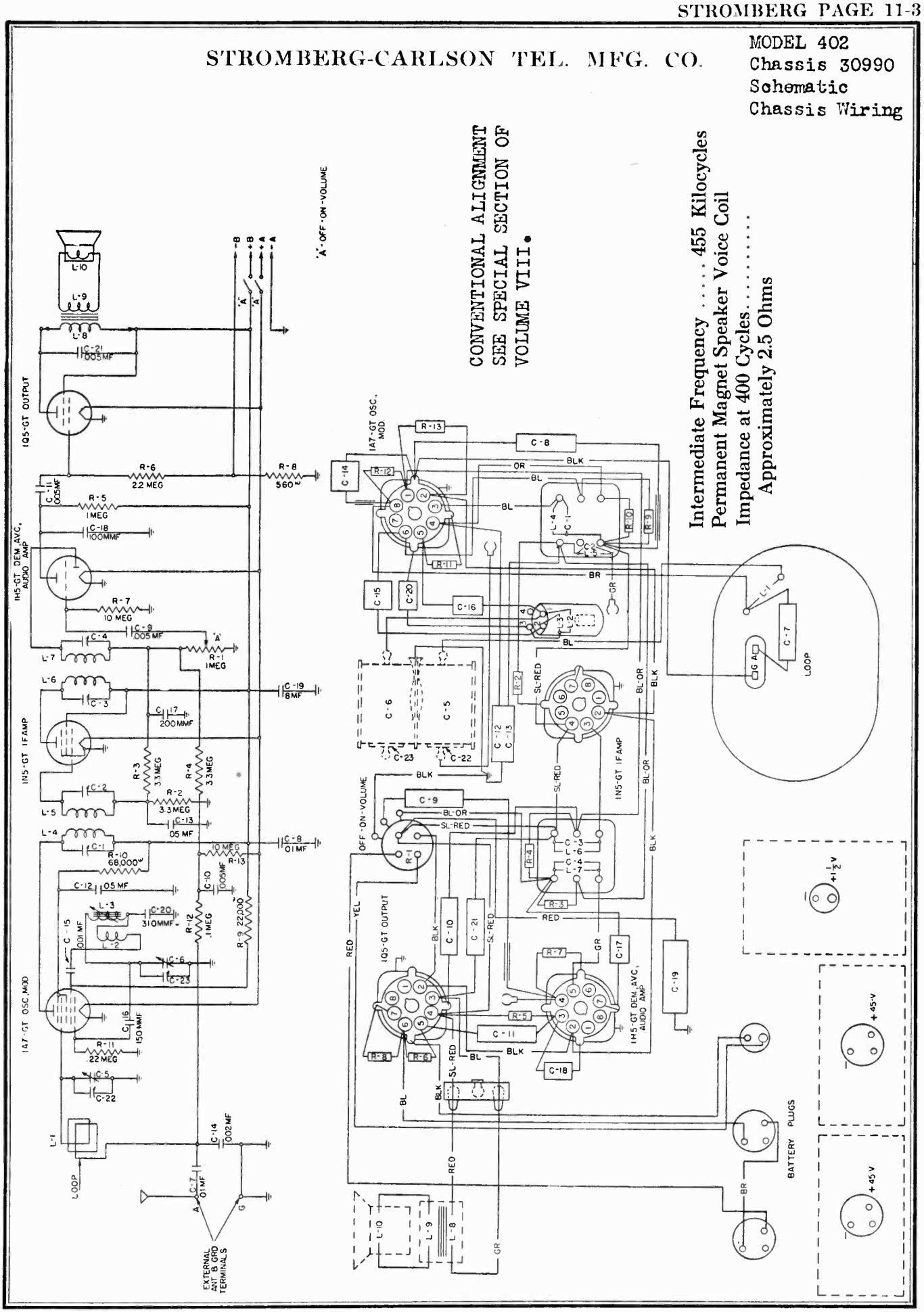
NOTE. Operation 5 and 6 may be repeated as often as necessary to obtain maximum sensitivity.

STROMBERG-CARLSON TEL. MFG. CO.

MODEL 402
Chassis 30990
Schematic
Chassis Wiring

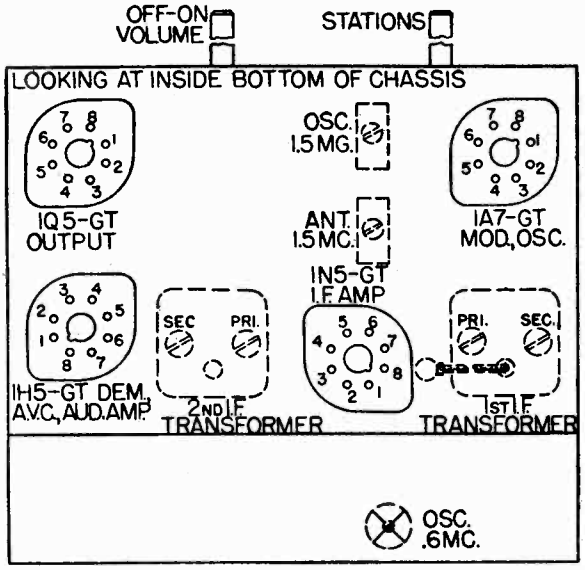
CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION OF
VOLUME VIII.

Intermediate Frequency ..... 455 Kilocycles
Permanent Magnet Speaker Voice Coil
Impedance at 400 Cycles.....
Approximately 2.5 Ohms

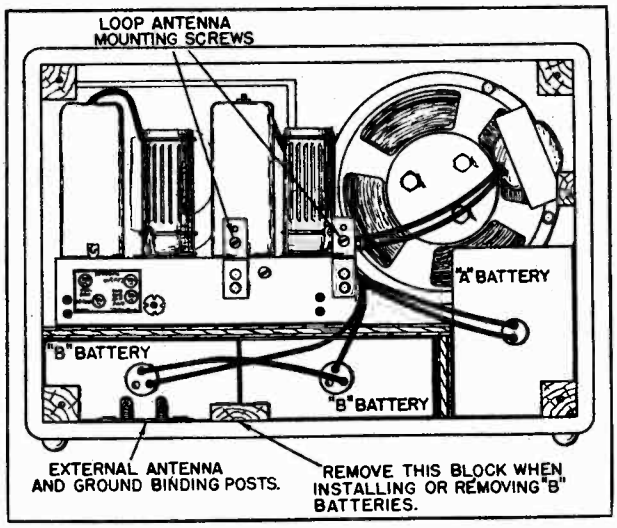


MODEL 402
Voltage, Socket
Trimmers, Chassis
Resistance

STROMBERG-CARLSON TEL. MFG. CO.



Location Chart



View Showing Installation of Batteries (With Back of Cabinet and Loop Antenna Removed)

Tube	Circuit	Cap	Terminals of Sockets 1	2	3	4	5	6	7	8	Heater Voltages Between Heater Terminals: Socket Terminal Numbers	Volts
1A7GT	Mod.—Osc.	0	0	+1.4*	+84	+35	−3*	+58	0	0	2–7	+1.4*
1N5GT	I. F. Amp.	0	0	+1.4*	+84	+84	0	0	0	0	2–7	+1.4*
1H5GT	Dem.—A. V. C. —Audio	0	0	+1.4*	+30	0	0	0	0	0	2–7	+1.4*
1Q5GT	Output	—	0	+1.4*	+82	+84	0	+5.5*	0	0	2–7	+1.4*

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the batteries before making continuity test.

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 except when an asterisk appears.

Tube	Circuit	Cap	TERMINALS OF SOCKETS 1	2	3	4	5	6	7	8
1A7GT	Mod.—Osc.	4M	4M	10M	1M	1M	22000¶	1M	S	4M
1N5GT	I. F. Amp.	1.5M	O	10M	1M	1M	O	O	S	O
1H5GT	Dem.—A. V. C. —Audio	10M	O	10M	3M	10M	800000¶	O	S	O
1Q5GT	Output	—	O	10M	1M	1M	2.2M	500¶	S	O

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

Other Tests Not Shown on Chart

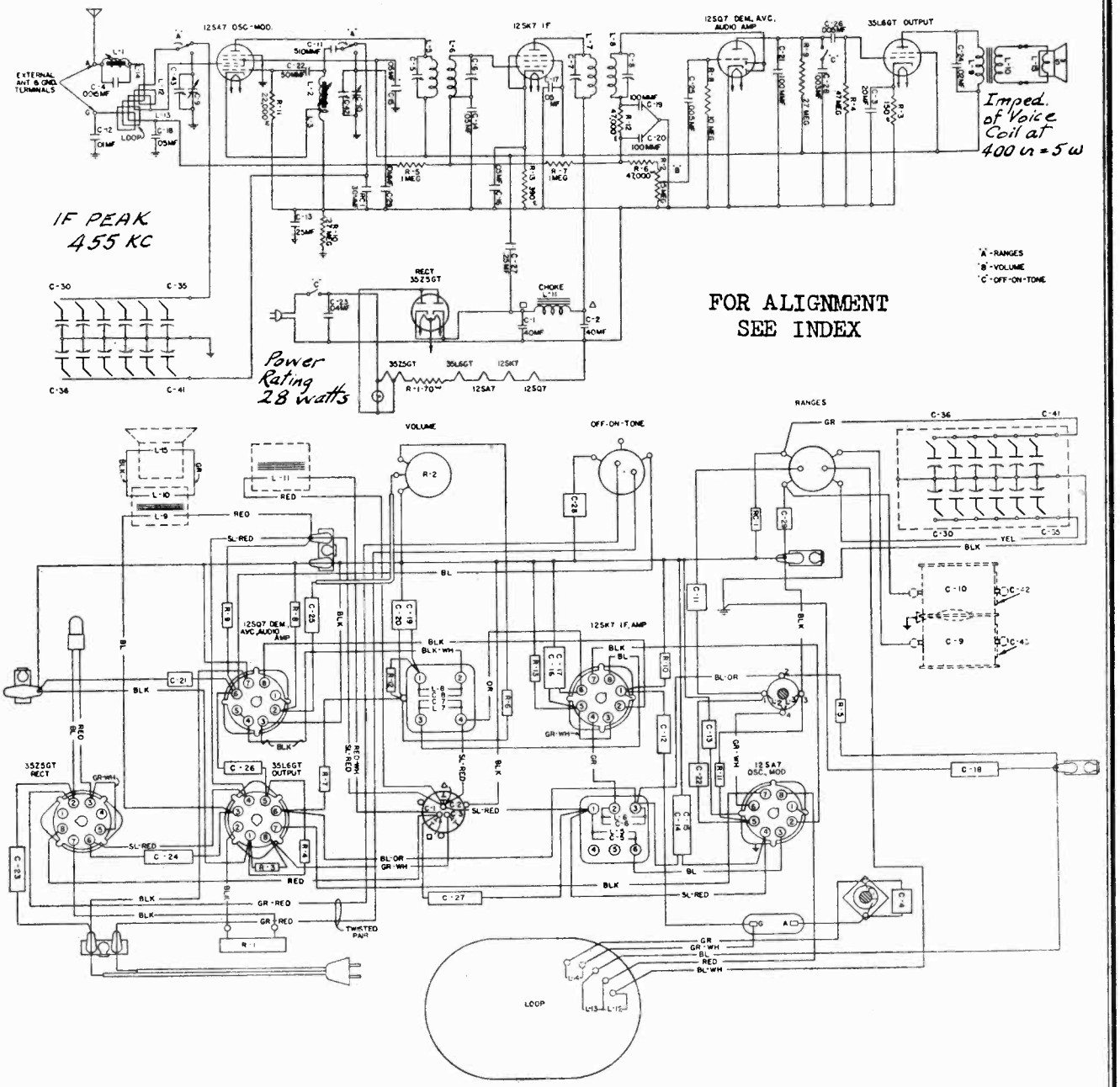
Antenna terminal to chassis base; "open".

Ground terminal to chassis base; "short".

R. F. coil tests, measured directly across R. F. coil terminals (see wiring diagram for location of R. F. coil terminals): L1—.8 ohm; L2—7 ohms; L3—3 ohms.

STROMBERG-CARLSON TEL. MFG. CO.

MODEL 405H
Schematic
Chassis Wiring



SPECIAL INSTRUCTIONS

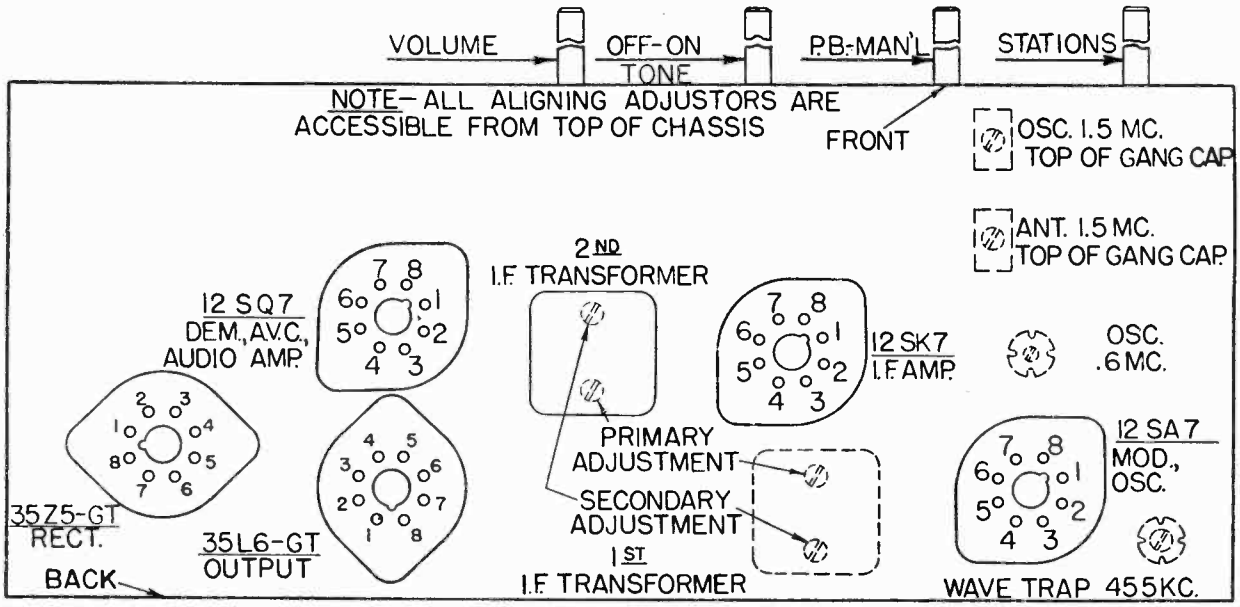
To connect an external antenna and ground or to examine or replace tubes, it is necessary to unscrew the thumb screw located at the right hand side of the loop antenna, and the loop can then be swung outward on its hinge.

Always screw the loop antenna in its proper position when operating the receiver.

For Tuner Data, see that of Model 420 which is the same with the exception of item 2. In the case of Model 405-H, this should read "The stations should be arranged according to frequency with the highest frequency at the top and the lowest frequency at the bottom.

MODEL 405H
Voltage, Socket
Trimmers, Resistance

STROMBERG-CARLSON TEL. MFG. CO.



LOOKING AT INSIDE BOTTOM OF CHASSIS

A. C. Voltages are indicated by italics; when the receiver is operated from a D. C. power supply, D. C. voltages will be obtained in place of A. C. voltages shown.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
12SA7	Mod.—Osc.	—	0	*25*	+110	+110	−30	0	*38*	0	2–7	12
12SK7	I. F. Amp.	—	0	*12*	+3*	0	+3*	+110	*25*	+110	2–7	12
12SQ7	Dem.—A. V. C. —Audio	—	0	0	0	0	0	+40	0	*12*	7–8	12
35L6GT	Output	—	0	*75*	+100	+110	0	—	*38*	+7*	2–7	35
35Z5GT	Rectifier	—	—	*120*	+115	—	+115	—	+85	+118	2–7	35

CONTINUITY TEST

CAUTION: Remove all tubes, disconnect the receiver from the power supply and short the high side of the C-1 Capacitor (Red, Red-white wires) and the heavy bus wire to the chassis base before making continuity test.

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 except when an asterisk appears.

R. F. coil tests, measured directly across R. F. coil terminals (see wiring diagram for location of R. F. coil terminals): L1—1.5 ohms; L2—4 ohms; L3—3 ohms; L12—.2 ohm; L13—.3 ohm; L14—"short".

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
12SA7	Mod.—Osc.	—	S	O	130¶	130¶	22000¶	S	O	1.5M
12SK7	I. F. Amp.	—	S	O	390¶	1.5M	390¶	390¶	O	150¶
12SQ7	Dem.—A. V. C. —Audio	—	S	10M	S	600000¶	600000¶	270000¶	S	O
35L6GT	Output	—	S	O	200¶	130¶	550000¶	1.5M	O	150¶
35Z5GT	Rectifier	—	O	O	O	O	O	130¶	O	S

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

Schematics

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 410H, 410HB
410J, 410JB, 410T,
410TB, 411PF, 411PFB
411PT, 411PTB

Model	Input Power Frequency	Chassis	Cabinet	Speaker
410-H	50-60 Cycles	30302	30361	30304
410-HB	25-60 Cycles	30303	30361	30304
410-J	50-60 Cycles	30302	30478	30304
410-JB	25-60 Cycles	30303	30478	30304
410-T	50-60 Cycles	30302	30459	30304
410-TB	25-60 Cycles	30303	30459	30304
411-PF	60 Cycles	30629	30603	30304
411-PFB	25 Cycles	30630	30603	30304
411-PT	60 Cycles	30629	30604	30304
411-PTB	25 Cycles	30630	30604	30304

Input Power Rating . . . . . 52 Watts
Intermediate Frequency . . . . . 455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles. Approximately 5 Ohms
Speaker Field Coil Resistance . . . . . 1000 Ohms

NOTE: Model 411 is the same as Model 410 up to the input of the 6K7 at points A, B, C and D.

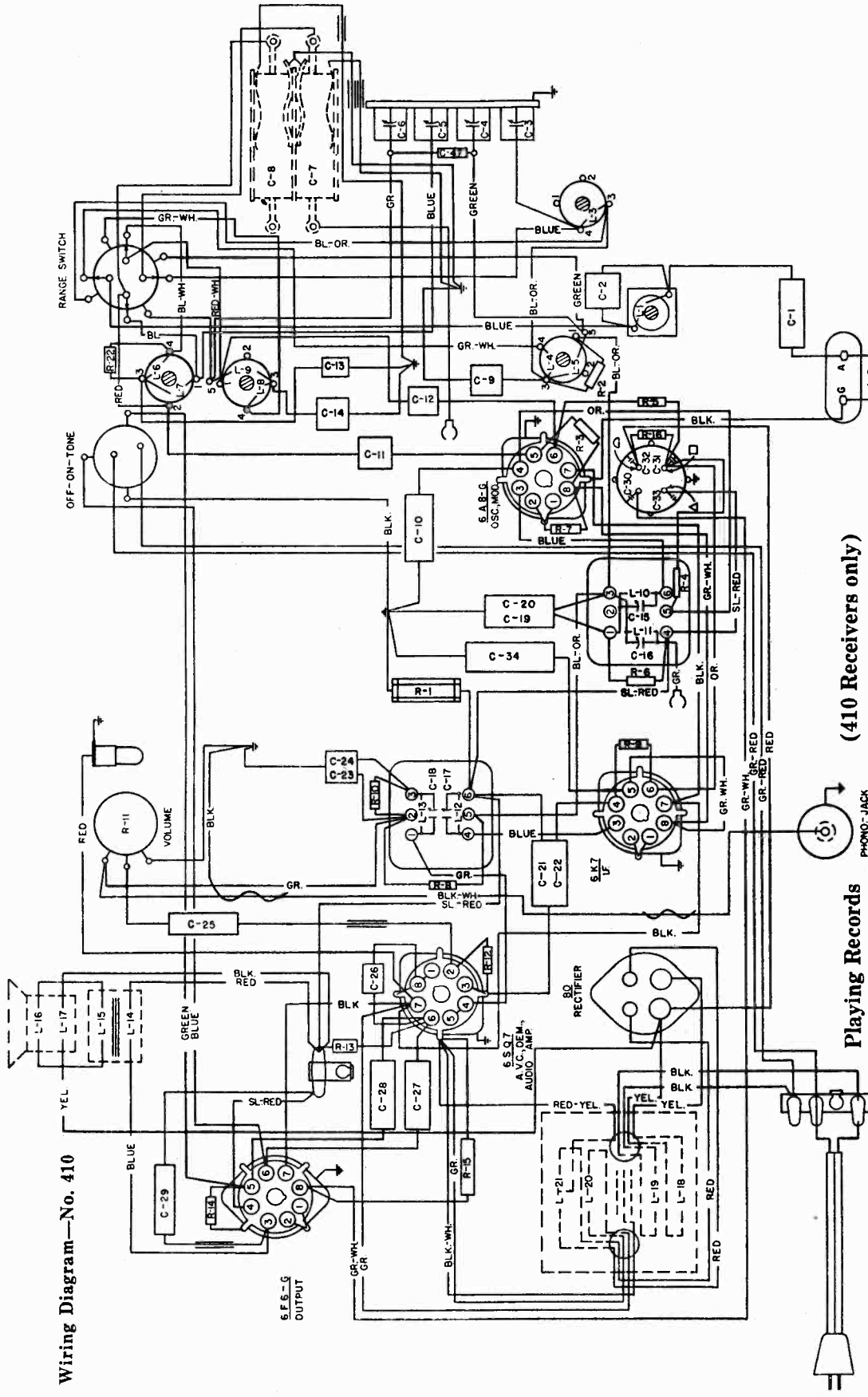
Schematic Circuit—No. 410

Schematic Circuit—No. 411

MODELS 410H,410HB
410J,410JB.410T
410TB

STROMBERG-CARLSON TEL. MFG. CO.

Chassis Wiring
Phono.Data



Wiring Diagram—No. 410

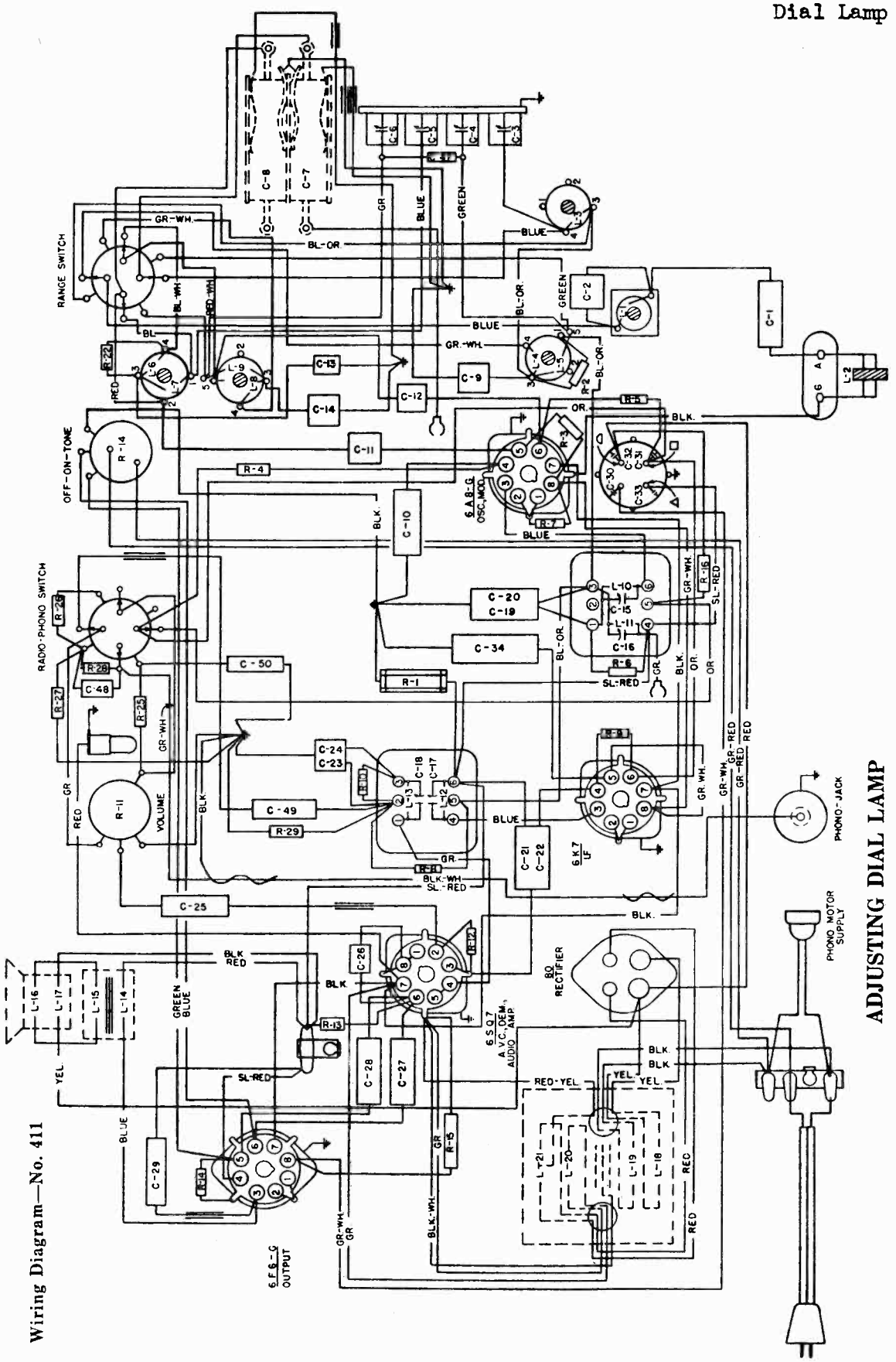
Playing Records (410 Receivers only)

To obtain the best quality of phonograph reproduction a Stromberg-Carlson record player is recommended. They are designed for use with this receiver, and all that is necessary is to connect the record player to the single prong socket provided in the chassis, tune the receiver to a quiet place on the dial scale and proceed to operate. The volume may be controlled with the volume control at the receiver, or (if such is provided) with the volume control on the record player.

A low impedance pick-up may also be used, but a matching transformer must be placed between the phonograph pick-up and the chassis.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 411PF, 411PFB
411PT, 411PTB
Chassis Wiring
Dial Lamp Note



Wiring Diagram—No. 411

ADJUSTING DIAL LAMP

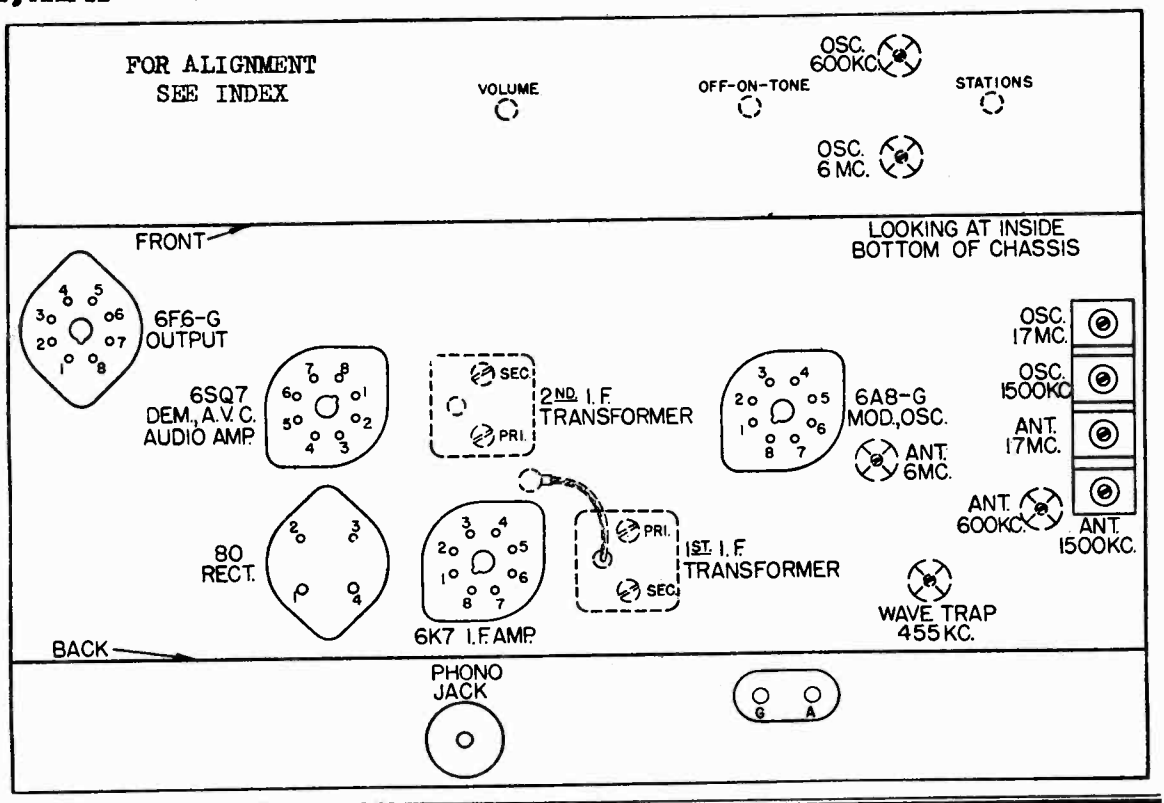
The dial on this receiver is edge lighted, and for proper illumination it is **very important** that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket until maximum illumination is obtained.

MODELS 410H,410HB
410J,410JB,410T
410TB,411PF,411PFB
411PT,411PTB

STROMBERG-CARLSON TEL. MFG. CO.

Voltage, Socket
Trimmers
Resistance



Tube	Circuit	Cap	Terminals of Sockets 1	2	3	4	5	6	7	8	Heater Voltages Between Heater Terminals: Terminal Numbers	Volts A.C.
6A8G	Mod.—Osc.	0	0	0	+260	+100	—	+180	6.5	+3*	2–7	6.5
6K7	I. F. Amp.	0	0	0	+260	+100	+3*	+270	6.5	+3*	2–7	6.5
6SQ7	Dem.—A. V. C. —Audio	—	0	—	0	—	—	+100	6.5	0	7–8	6.5
6F6G	Output	—	0	0	+240	+260	—	—	6.5	+15	2–7	6.5
80	Rectifier	—	+330	315	315	+330	—	—	—	—	1–4	5

*Read on lowest possible scale of voltmeter.

Tube	Circuit	Cap	TERMINALS OF SOCKETS 1	2	3	4	5	6	7	8
6A8G	Mod.—Osc.	1.5M	S	S	26,000¶	85,000¶	50,000¶	60,000¶	S	150¶
6K7	I. F. Amp	1.5M	S	S	25,000¶	110,000¶	150¶	35,000¶	S	150¶
6SQ7	Dem.—A. V. C. —Audio	—	S	10M	S	550,000¶	550,000¶	300,000¶	S	S
6F6G	Output	—	S	S	25,000¶	25,000¶	1M	*	S	400¶
80	Rectifier	—	26,000¶	250¶	250¶	26,000¶	—	—	—	—

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

* Tone control in "Treble" position—1 megohm.
Tone control in "Bass" position—"short".

Other Tests Not Shown on Chart

Antenna terminal to chassis base—70 ohms.
Ground terminal to chassis base—"short".
Phono terminal to chassis base—500,000 ohms.

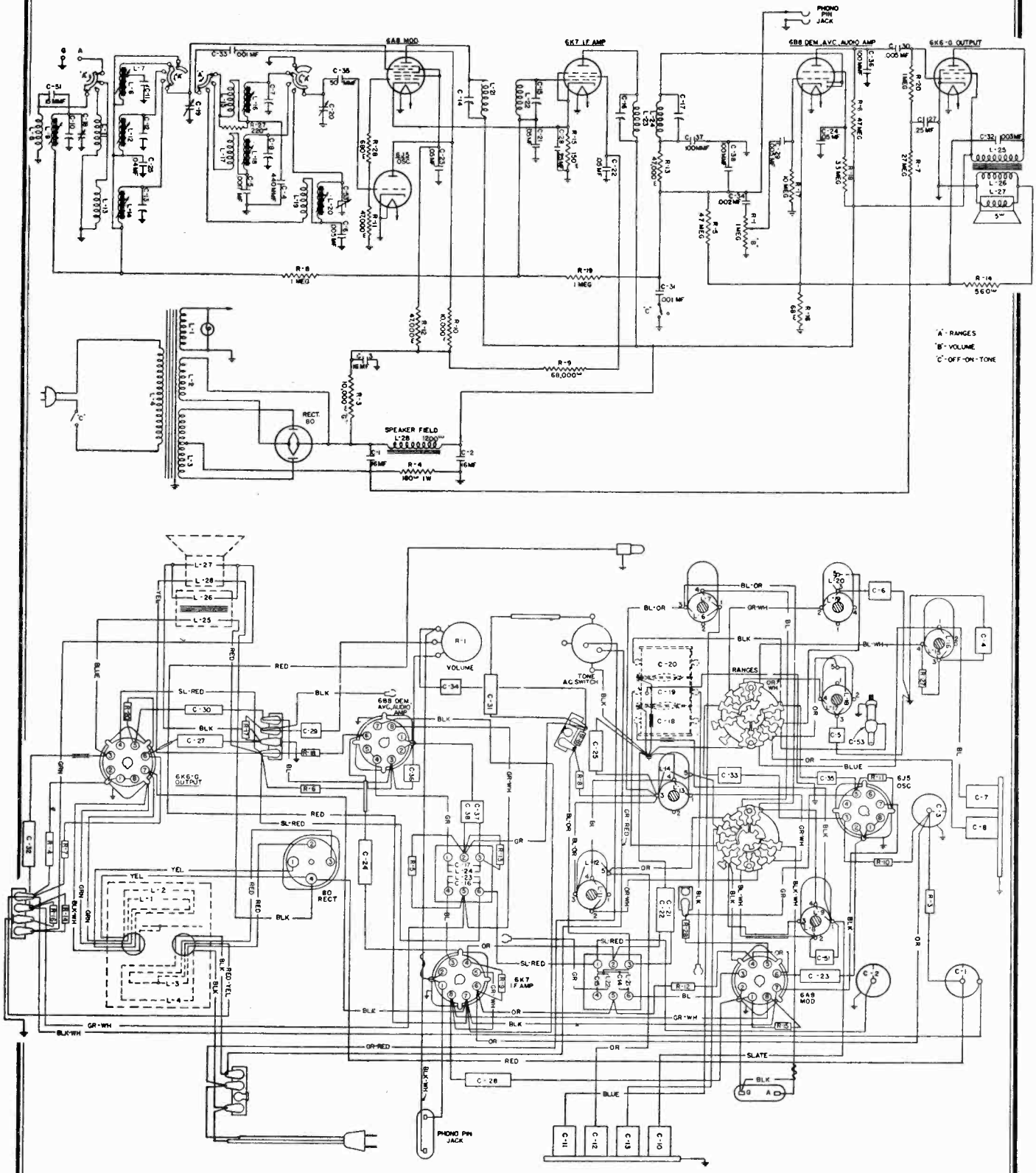
Between terminals of AC plug:
AC switch open—"open".
AC switch closed—8 ohms.
Terminals of AC plug to chassis base—"open".

R. F. coil tests measured directly across R. F. coil terminals with range switch set in Standard Broadcast Position (A Range).
L3—3 ohms; L4—"short"; L5—"short"; L6—.5 ohm; L7—4 ohms; L8—.1 ohm; L9—"short".

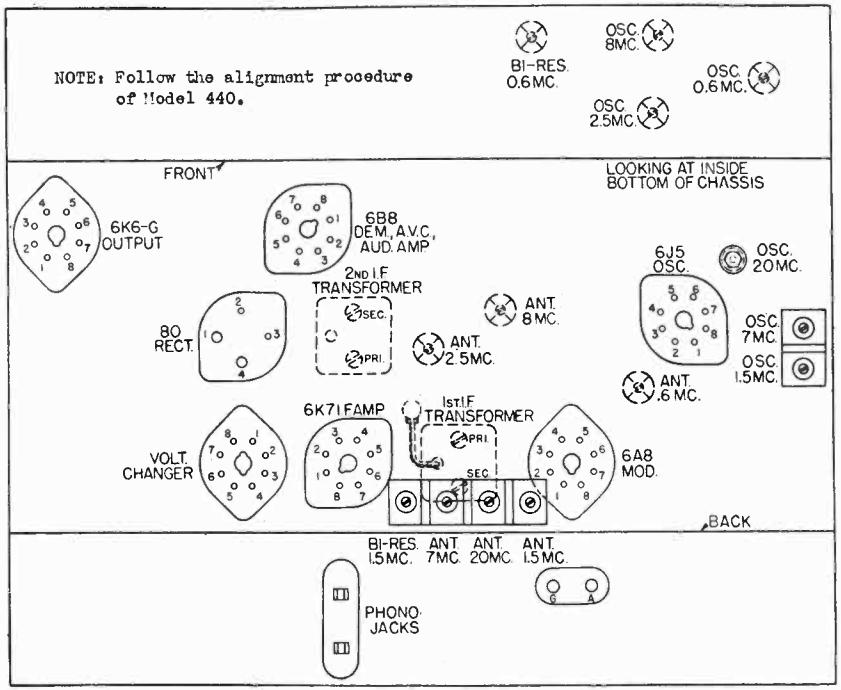
STROMBERG-CARLSON TEL. MFG. CO.

MODELS 412H, 412HB
Schematic
Chassis Wiring

FOR ALIGNMENT SEE INDEX



Input Power Rating	65 Watts
Intermediate Frequency	455 Kilocycles
Speaker Voice Coil Impedance at 400 cycles	Approximately 5 Ohms
Speaker Field Coil Resistance	Approximately 1200 Ohms



Location Chart

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned to approximately 1000 Kc.—no signal.
Use a line voltage of 120 volts, or make allowance for any slight variation.
Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.
Take all D. C. readings on the 500 volt scale except when an asterisk appears.
A. C. voltages are indicated by italics.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6A8	Modulator	0	0	0	+255	+90	−10	+90	*6.3*	+2*	2–7	*6.3*
6J5	Oscillator	—	0	0	+150	—	−10	—	*6.3*	0	2–7	*6.3*
6K7	I. F. Amp.	0	0	0	+255	+100	+2*	—	*6.3*	+2*	2–7	*6.3*
6B8	Dem.—A. V. C. Audio	0	0	0	+60	0	0	+15	*6.3*	0	2–7	*6.3*
6K6G	Output	—	0	0	+235	+255	−1	—	*6.3*	—		
80	Rectifier	—	+345	*350*	*350*	+345	—	—	—	—	1–4	*5*

*Read on lowest possible scale of voltmeter.

IDENTIFICATION TABLE

Model	Input Power Frequency	Chassis	Cabinet	Speaker
412-H	50-60 Cycles	30346	30589	30602
412-HB	25-60 Cycles	30347	30589	30602

SPECIFICATIONS

Voltage Rating ..... Standard 50-60 Cycles; also available 25-60 Cycles
Type of Circuit ..... Superheterodyne
Tuning Ranges ..... 0.54 to 1.7 Mc.; 2.3 to 7.6 Mc.; 7.6 to 23 Mc.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply and short C2 (16 mf. capacitor) to chassis base before making continuity test. Be sure to remove the "short" after continuity tests have been completed.

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 the indicated terminals to chassis base unless otherwise specified.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8	Modulator	1.6M	S	S	10¶	60000¶	47000¶	60000¶	S	150¶
6J5	Oscillator	—	S	S	20000¶	O	47000¶	O	S	S
6K7	I.F. Amp.	1.5M	S	S	10¶	80000¶	150¶	10000¶	S	150¶
6B8	Dem.—A. V. C. Audio	10M	S	S	500000¶	500000¶	500000¶	3M	S	60¶
6K6G	Output	—	S	S	340¶	S	1.3M	260000¶	S	S
80	Rectifier	—	1200¶	420¶	420¶	1200¶	—	—	—	—

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

Other Tests Not Shown on Chart

Antenna terminal to chassis base:
- Range switch set to standard broadcast position ..... 50 ohms
- Range switch set to medium wave position ..... "short"
- Range switch set to short wave position ..... "short"

Ground terminal to chassis base ..... "short"

Between terminals of A. C. plug:
- A. C. switch open ..... "open"
- A. C. switch closed ..... 8 ohms

Terminals of A. C. plug to chassis base ..... "open"

Phono terminals to chassis base:
- Terminal nearest to the top of the chassis ..... "short"
- Terminal nearest to the bottom of the chassis ..... 1 megohm

R. F. coil tests measured directly across R. F. coil terminals with range switch set in standard broadcast position. (See wiring diagram on Page 6 for location of coil terminals.)

L6—1.5 ohms; L7—1 ohm; L8—50 ohms; L9—3 ohms; L11—.2 ohm; L12—.2 ohm; L13—.1 ohm; L14—short; L15—.6 ohm; L16—4 ohms; L17—.2 ohm; L18—.2 ohm; L19—.2 ohm; L20—short.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 420H,420HB, 420L,420LB,420PL, 420PLB,420PR,420PRB Schematics

Model	Input Power Frequency	Chassis	Cabinet	Speaker
420-H	50-60 Cycles	30313	30366	27557
420-HB	25-60 Cycles	30314	30366	27557
420-L	50-60 Cycles	30313	30367	27605
420-LB	25-60 Cycles	30314	30367	27605
420-PL	50-60 Cycles	30870	30872	27605
420-PLB	25 Cycles only	30871	30872	27605
420-PR	50-60 Cycles	30870	30869	30873
420-PRB	25 Cycles only	30871	30869	30873

Input Power Rating .....57 Watts
Intermediate Frequency .....455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles.....Approximately 1.5 Ohms
Speaker Field Coil Resistance.....1650 Ohms

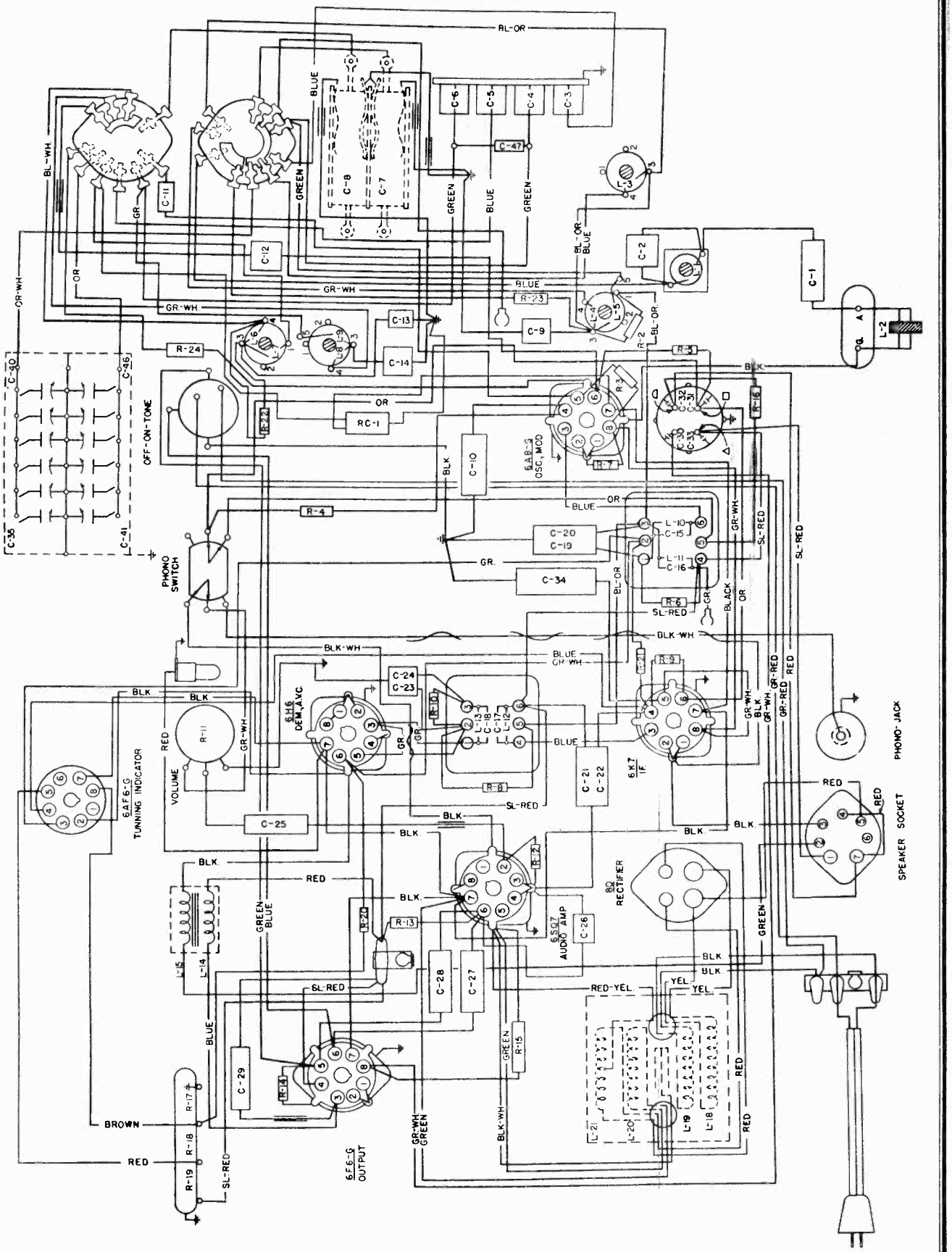
Models 420-H,420-HB
420-L,420-LB

Models 420-PL,420-PLB
420-PR,420-PRB

NOTE:
The circuits of both chassis are alike up to the 6K7 at the points A, B, C, D, and E.

MODELS 420H, 420HB
420L, 420LB
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.

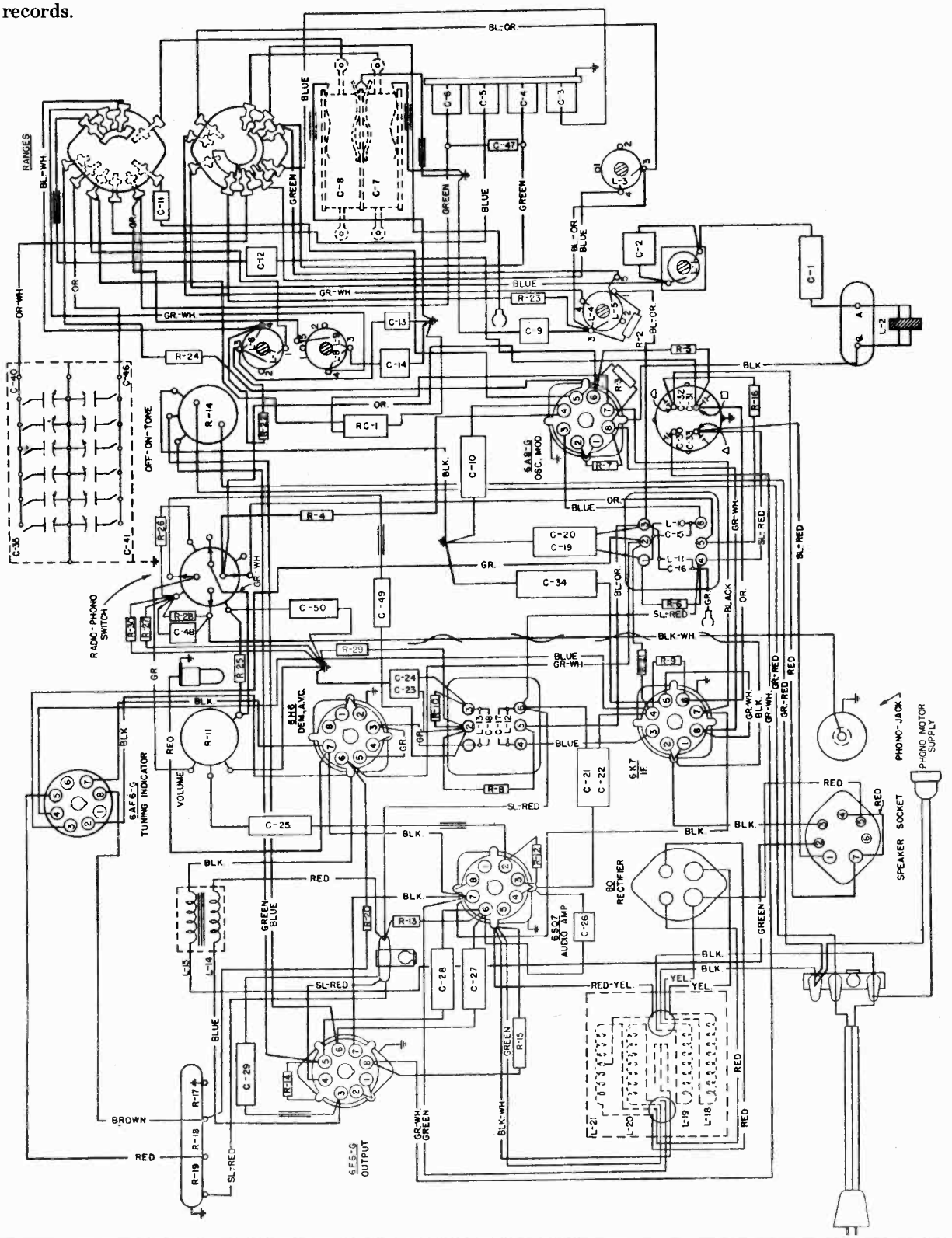


STROMBERG-CARLSON TEL. MFG. CO.

MODELS 420PL, 420PLB
420PR, 420PRB
Chassis Wiring

The No. 420-PR Receivers are equipped with a single record phonograph unit using a crystal pick-up in conjunction with a specially equalized circuit. The phonograph unit is designed to play the standard 10 or 12 inch 78 R.P.M. records.

The No. 420-PL Receivers are equipped with an automatic record changer using a crystal pick-up in conjunction with a specially equalized circuit. This record player shifts and plays 10 or 12 inch records.



NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 Kc.—no signal.

Use a line voltage of 120 volts, or make allowance for the variation.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.

Take all D. C. readings on the 500 volt scale except when an asterisk appears.

Read from indicated terminals to chassis base.

See location chart on Page 4 for position of terminals.

A. C. voltages are indicated by italics.

To measure voltages of 6AF6G tube remove the metal cover on the tuning indicator socket and read from indicated terminals.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6A8G	Mod.—Osc.	0	0	0	+255	+99	—	+175	*6.3*	+2.5*	2-7	*6.3*
6K7	I. F. Amp.	0	0	0	+257	+85	+2.5*	+255	*6.3*	+2.5*	2-7	*6.3*
6H6	Dem.—A. V. C.	—	0	0	—	0	—	+60	*6.3*	0	2-7	*6.3*
6SQ7	Audio Amp.	—	0	—	0	0	0	+95	*6.3*	0	7-8	*6.3*
6F6G	Output	—	0	0	+245	+257	—	—	*6.3*	+16	2-7	*6.3*
6AF6G	Tuning Ind.	—	—	0	+80	+115	+230	—	*6.3*	+100	2-7	*6.3*
80	Rectifier	—	+365	*350*	*350*	+365	—	—	—	—	1-4	*5*

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.

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.

See location Chart on Page 4 for position and numbering of terminals.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8G	Mod.—Osc.	A	S	S	20000¶	B	50000¶	C	S	150¶
6K7	I. F. Amp.	D	S	S	18000¶	E	150¶	F	S	150¶
6H6	Dem.—A. V. C.	—	S	S	G	S	H	280000¶	S	S
6SQ7	Audio Amp.	—	S	10M	S	S	S	280000¶	S	S
6F6G	Output	—	S	S	19000¶	19000¶	1M	1M	S	400¶
6AF6G	Tuning Ind.	—	O	S	250000¶	100000¶	15000¶	O	S	6000¶
80	Rectifier	—	19000¶	150¶	150¶	19000¶	—	—	—	—
—	Speaker Socket	—	19000¶	S	S	800000¶	O	O	800000¶	—

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

OTHER TESTS NOT SHOWN ON CHART

Radio-Phono Switch Set To			
Note	Radio Position	Phono Position	
A	1.8M	O	Phonograph jack terminal to chassis base.
B	80,000¶	1M	Radio Phonograph switch in Radio position "open". Radio Phonograph switch in Phonograph position 500,000 ohms.
C	50,000¶	1M	Antenna terminal to chassis base 70 ohms.
D	1.5M	O	Ground terminal to chassis base "short".
E	100,000¶	1M	Between terminals of A. C. plug "open" with A. C. switch open, 7 ohms with A. C. switch closed. Terminals of A. C. plug to chassis base "open".
F	25,000¶	1M	Front terminal of Push Button Unit (orange-white wire) to chassis base. Radio Phonograph switch in Radio position 1.8M. Radio Phonograph switch in Phono position "open".
G	550,000¶	O	Rear terminal of Push Button Unit (orange wire) to chassis base Range switch in Push Button position "open". Range switch in Standard Broadcast position (A Band) 120 ohms.
H	550,000¶	O	Range switch in Short Wave position (C Band) 120 ohms.

R. F. coil tests measured directly across R. F. coil terminals with Range switch set in standard broadcast position (A Band): L3—3 ohms, L4—.2 ohms, L-5—"short", L6—.2 ohms, L7—4 ohms, L8—.2 ohms, L9—"short".

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

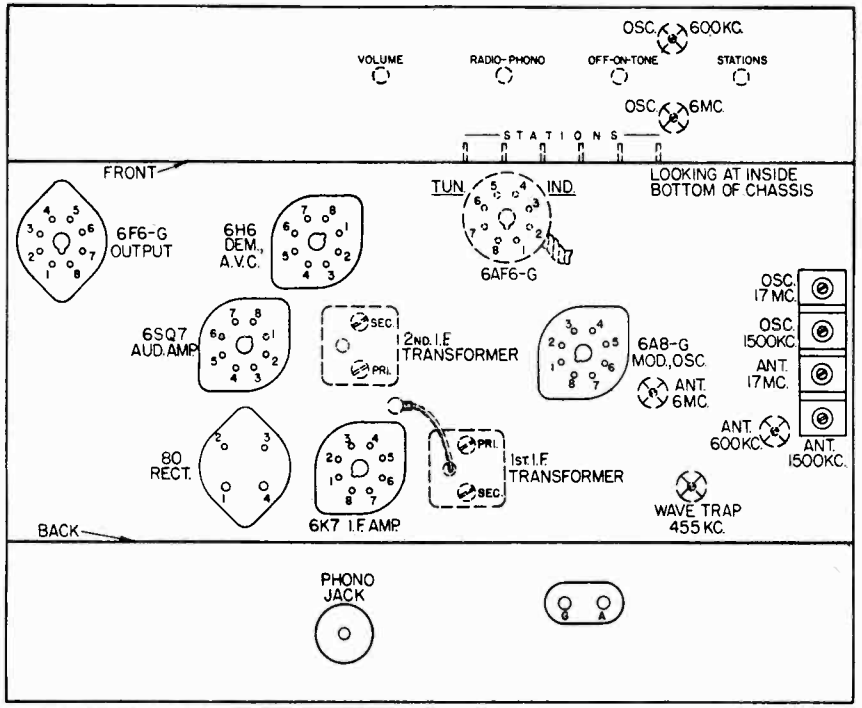
IMPORTANT: The stations selected should be the local or favorite stations which give good reception at all times.

Set up stations in the daytime to avoid unnecessary interference.

Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations in order to determine when the station is exactly in tune.

1. Remove the push button escutcheon by removing the screws and pulling downward and outward.
2. Put the call letters of the selected stations in place above the push buttons. **The stations should be arranged according to frequency with the highest frequency at the right and the lowest frequency at the left, just as on the dial.** (The call letters will be found inside the envelope stapled inside or underneath the cabinet.)
3. Tune in manually the highest frequency station to be set up and note carefully the program being transmitted.
4. Turn the range switch to the push button position and push the highest frequency button, then adjust the large screw over this button until the desired program is heard. (If the proper adjusting screw cannot be reached it will be necessary to turn the station selector control until the screw is accessible through one of the holes in the pulley.)
5. After the large screw is carefully adjusted, adjust the small vernier screw for maximum closing of the tuning indicator. (Be sure the large adjusting screw does not move while turning the vernier screw.)
6. Set up the other five stations in the same manner.
7. Recheck the adjustment of each adjusting screw.



Location Chart

ALIGNING INFORMATION

Always have receiver volume control full on.

Never align with tone control in "Bass" position.

See location chart above for location of all the aligning adjustment screws.

Aligning Procedure (follow this order exactly)

I. Dial pointer adjustment.

With the plates of the gang tuning capacitor fully engaged, set the dial pointer directly on the vertical line located at the extreme low frequency end of the short wave band.

II. Intermediate frequency adjustments.

1. Set the range switch to Standard Broadcast position.
2. Tune set to extreme low frequency end of the dial.
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce a modulated signal of 455 Kilocycles to the grid cap of the 6A8G Tube, using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Do not remove the grid clip from this tube.)
5. Adjust the I. F. Aligners for maximum output in the following order:
   - A. Secondary of second I. F. transformer.
   - B. Primary of second I. F. transformer.
   - C. Secondary of first I. F. transformer.
   - D. Primary of first I. F. transformer.

III. Radio frequency adjustments.

Short Wave Range (C Band)

1. Replace the 0.1 microfarad capacitor in series with the output lead of the signal generator with a 400 ohm carbon type resistor, and connect it to the antenna terminal of the chassis.
2. Set the range switch to the short-wave range position (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 6 megacycles.
4. Adjust the 6 megacycles oscillator and antenna (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 17 megacycles.
6. Adjust the 17 megacycles oscillator and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.

Standard Broadcast Range (A Band)

1. Replace the 400 ohm carbon type resistor in series with the output lead from the signal generator with a 200 micro-microfarad capacitor.
2. Set the range switch to the Standard Broadcast Range (A Band).
3. Set the signal generator frequency and the receiver tuning dial to 600 Kc.
4. Adjust the 600 Kc. oscillator and antenna (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 Kc.
6. Adjust the 1500 Kc. oscillator and antenna aligning capacitors for maximum signal.
7. Repeat operation three and four.
8. Repeat operation five and six.

IV. **Wave Trap Adjustment.**

(Leave the receiver connected in the same manner as when adjusting the Standard Broadcast Range ("A" Band)).

1. Tune set to 1000 Kc.
2. Set the signal generator frequency to 455 Kc. and introduce a fairly strong modulated signal to the receiver.
3. Adjust the wave trap aligner for minimum signal.

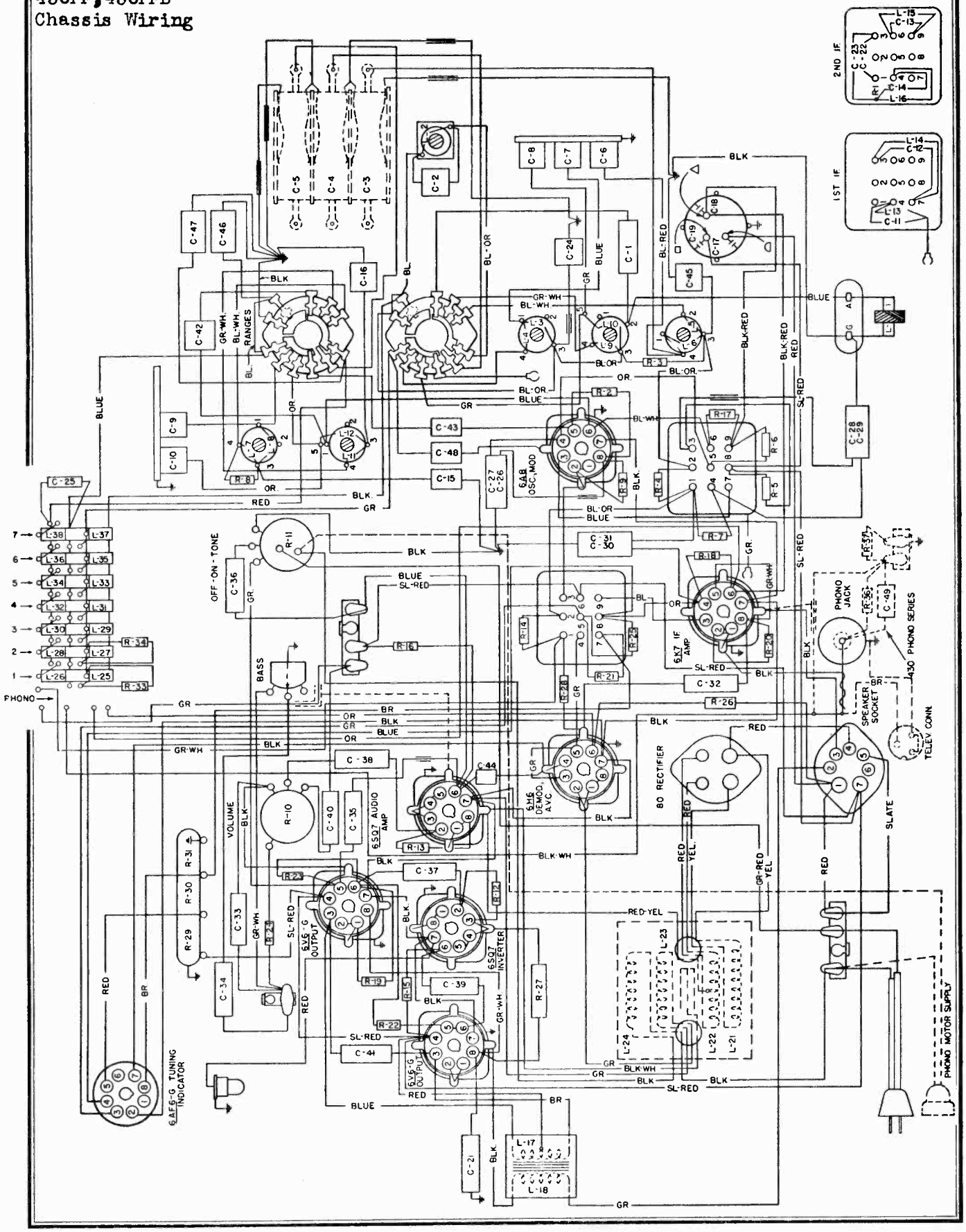
ADJUSTING DIAL LAMP

The dial on this receiver is edge lighted, and for proper illumination it is very important that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket until maximum illumination is obtained.

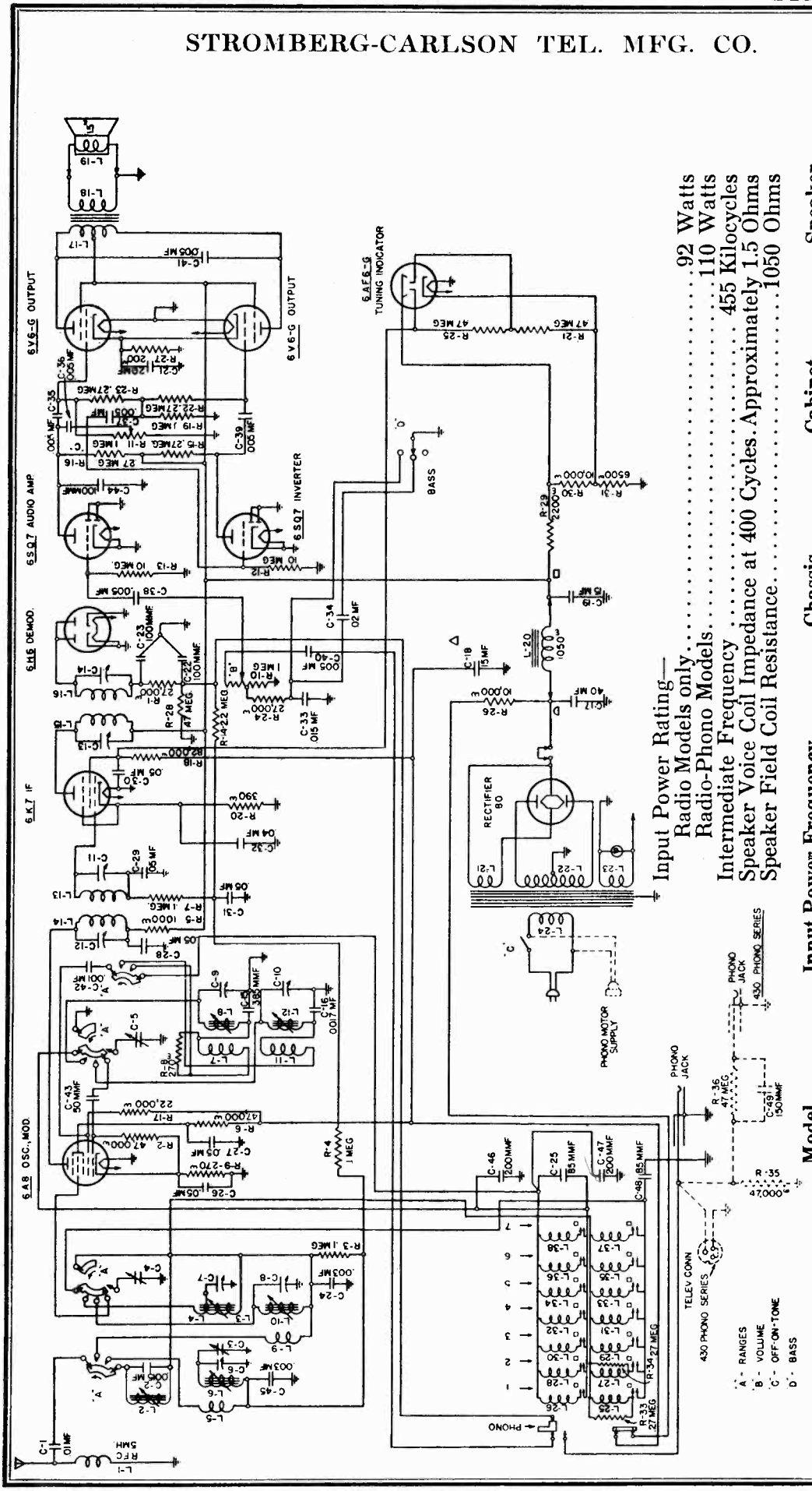
MODELS 430H,430HB
430L,430LB,430M
430MB,430PL,430PLB
430PF,430PFB
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.



STROMBERG-CARLSON TEL. MFG. CO.

MODELS 430H, 430HB
430L, 430LB, 430M
430MB, 430PL, 430PLB
430PF, 430PFB
Schematic



Input Power Rating—
Radio Models only.....92 Watts
Radio-Phono Models.....110 Watts
Intermediate Frequency.....455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles. Approximately 1.5 Ohms
Speaker Field Coil Resistance.....1050 Ohms

Model	Input Power Frequency	Chassis	Cabinet	Speaker
430-H	50-60 Cycles	30317	30457	30358
430-HB	25-60 Cycles	30318	30457	30358
430-L	50-60 Cycles	30317	30104	27834
430-LB	25-60 Cycles	30318	30104	27834
430-M	50-60 Cycles	30317	30105	30359
430-MB	25-60 Cycles	30318	30105	30359
430-PL	50-60 Cycles	30867	30993	26170
430-PLB	25 Cycles only	30868	30993	26170
430-PF	50-60 Cycles	30867	30866	26171
430-PFB	25 Cycles only	30868	30866	26171

FOR ALIGNMENT AND TUNER DATA, SEE INDEX

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 Kc.—no signal.
Use a line voltage of 120 volts, or make allowance for the variation.
Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.
Take all D. C. readings on the 500 volt scale except when an asterisk appears.
Read from indicated terminals to chassis base.
See location chart for position of terminals.
A. C. voltages are indicated by italics.
To measure voltages of 6AF6G tube remove the metal cover on the tuning indicator socket and read from indicated terminals.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6A8	Mod.—Osc.	0	0	0	+250	+110	−8*	+173	*6.5*	+3*	2–7	*6.5*
6K7	I. F. Amp.	0	0	0	+253	+108	+3.5*	—	*6.5*	+3.5*	2–7	*6.5*
6H6	Dem.—A. V. C.	—	0	0	0	0	0	0	*6.5*	0	2–7	*6.5*
6SQ7	Audio Amp.	—	0	0	0	0	0	+108	*6.5*	0	2–7	*6.5*
6SQ7	Audio Inv.	—	0	0	0	0	0	+108	*6.5*	0	2–7	*6.5*
6V6G	Output	—	0	0	+250	+254	0	—	*6.5*	+14.5	2–7	*6.5*
6V6G	Output	—	0	0	+250	+254	0	—	*6.5*	+14.5	2–7	*6.5*
6AF6G	Tuning Ind.	—	+90	—	—	+220	+110	+52	*6.5*	0	2–7	*6.5*
80	Rectifier	—	+382	*375*	*375*	+382	—	—	—	—	1–4	*5*
—	Speaker Socket	—	—	+382	0	0	+382	+382	—	—	—	—

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.
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.
See location Chart for position and numbering of terminals.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8	Mod.—Osc.	A	S	S	20000¶	B	48000¶	C	S	270¶
6K7	I. F. Amp.	3M	S	S	19000¶	D	390¶	29000¶	S	390¶
6H6	Dem.—A. V. C.	—	S	S	50000¶	S	50000¶	20000¶	S	S
6SQ7	Audio Amp.	—	S	10M	S	S	S	300000¶	S	S
6SQ7	Audio Inv.	—	S	10M	S	S	S	300000¶	S	S
6V6	Output (E)	—	S	S	16000¶	16000¶	270000¶	100000¶	S	200¶
6V6	Output	—	S	S	16000¶	16000¶	400000¶	O	S	200¶
80	Rectifier	—	19000¶	100¶	120¶	19000¶	—	—	—	—
6AF6G	Tun. Ind.	—	O	S	270000¶	100000¶	16000¶	O	S	6500¶
—	Speaker Socket	—	100000¶ or Greater	S	S	O	100000¶ or Greater	O	16000¶	—

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

A. Push in any pre-set station button;
- Set range switch to Push Button position ..... 2.8 megohms
- Set range switch to "A" range position ..... 2.8 megohms
- Set range switch to "C" range position ..... 2.8 megohms

Push buttons in normal position (all buttons out);
- Set range switch to Push Button position ..... "open"
- Set range switch to "A" range position ..... 2.8 megohms
- Set range switch to "C" range position ..... 2.8 megohms

B. Push in "Phono" button ..... 200,000 ohms
Push in any pre-set station button ..... 70,000 ohms

C. Push in "Phono" button ..... 200,000 ohms
Push in any pre-set station button ..... 50,000 ohms

D. Push in "Phono" button ..... 200,000 ohms
Push in any pre-set station button ..... 100,000 ohms

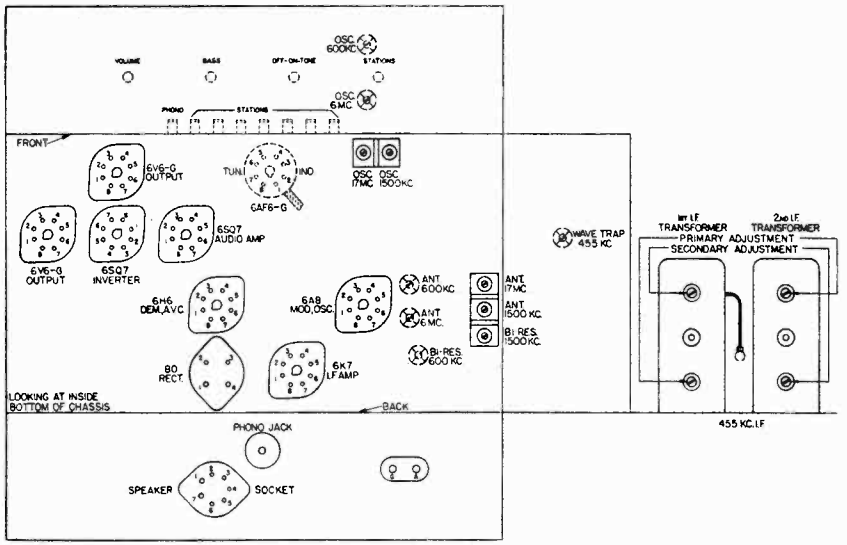
E. 6V6 Tube Socket nearest to the front of the chassis

Other Tests Not Shown on Chart

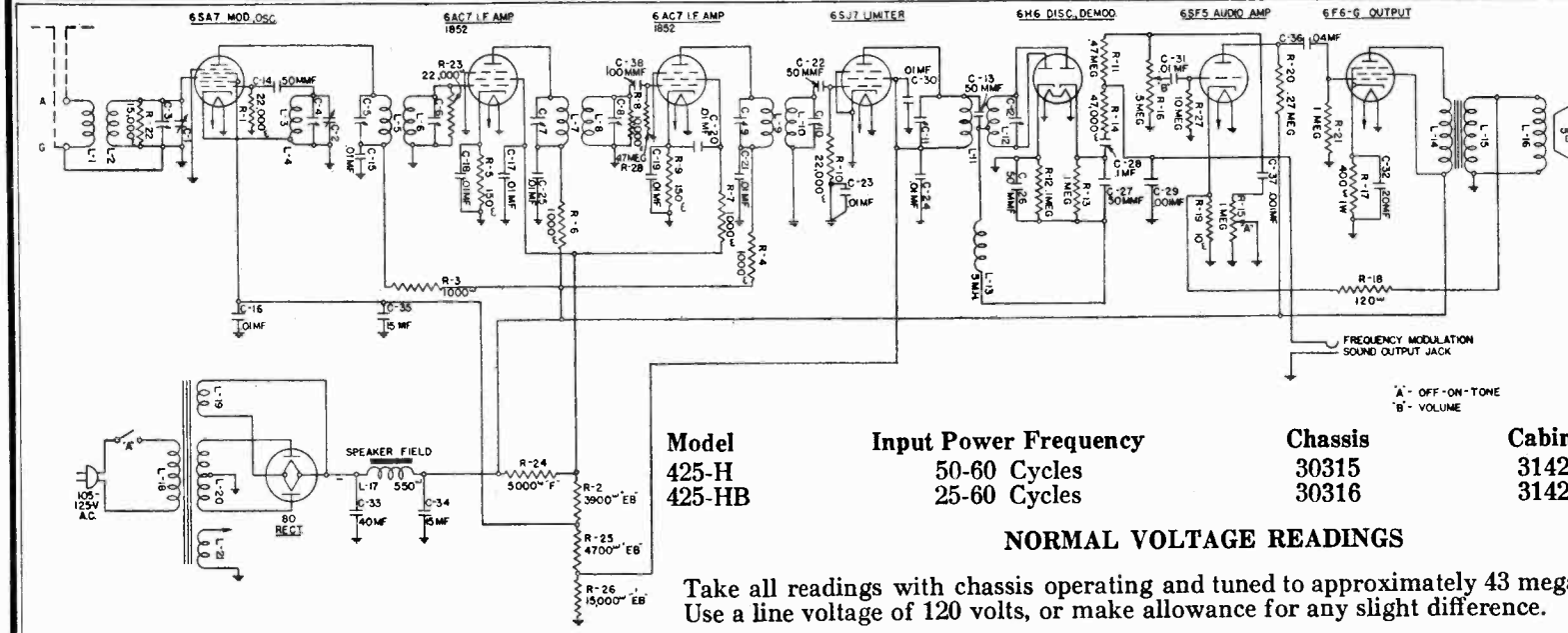
Antenna terminal to chassis base ..... 75 ohms
Ground terminal to chassis base ..... "short"
Phono terminal to chassis base ..... "open"
Test between terminals of A.C. plug;
- A.C. switch open ..... "open"
- A.C. switch closed ..... 5 ohms

Terminals of A.C. plug to chassis base ..... "open"

R. F. coil tests measure directly across R. F. coil terminals with range switch in broadcast position ("A" range): L3—.8 ohm; L4—.8 ohm; L5—.1 ohm; L6—3 ohms; L7—.3 ohm; L8—4 ohms; L9—.1 ohm; L10—"short"; L11—.1 ohm; L12—"short".



Location Chart



Model	Input Power Frequency	Chassis	Cabinet	Speaker
425-H	50-60 Cycles	30315	31422	31451
425-HB	25-60 Cycles	30316	31422	31451

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned to approximately 43 megacycles—no signal. Use a line voltage of 120 volts, or make allowance for any slight difference.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt. Take all D. C. readings on the 500 volt scale except when an asterisk appears. Read from indicated terminals to chassis base. See location chart for position of terminals.

A. C. voltages are indicated by italics.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6SA7	Osc. and Mod.	—	0	0	+240	+90	0	0	*6.3*	0	2–7	*6.3*
6AC7 (1852)	1st I. F. Amp.	—	0	0	0	0	+2*	+148	*6.3*	+230	2–7	*6.3*
6AC7 (1852)	2nd I. F. Amp.	—	0	0	0	0	+2*	+145	*6.3*	+230	2–7	*6.3*
6SJ7	Limiter	—	0	0	0	0	0	+50	*6.3*	+57	2–7	*6.3*
6H6	Demod. (Discr.)	—	0	0	0	0	−10*	0	*6.3*	0	2–7	*6.3*
6SF5	Audio Amp.	—	0	0	0	0	+90	+245	*6.3*	0	2–7	*6.3*
6F6G	Output	—	0	0	+230	+245	0	0	*6.3*	+15*	2–7	*6.3*
80	Rectifier	—	+300	*310*	*310*	+300	—	—	—	—	1–4	*5*

*Read on lowest possible scale of voltmeter.

SPECIFICATIONS

Voltage Rating
.....105 to 125 Volts

Type of Circuit
.....Frequency Modulation—Superheterodyne

Tuning Range
40 to 44 Megacycles (40,000 to 44,000 Kilocycles)

Input Power Rating (120 Volt line)
.....79 Watts

Intermediate Frequency
.....2.1 Megacycles (2100 Kilocycles)

Speaker Voice Coil Impedance at 400 Cycles
.....Approximately 5 Ohms

Speaker Field Coil Resistance
.....Approximately 550 Ohms

MODELS 425H, 425HB
Chassis Wiring

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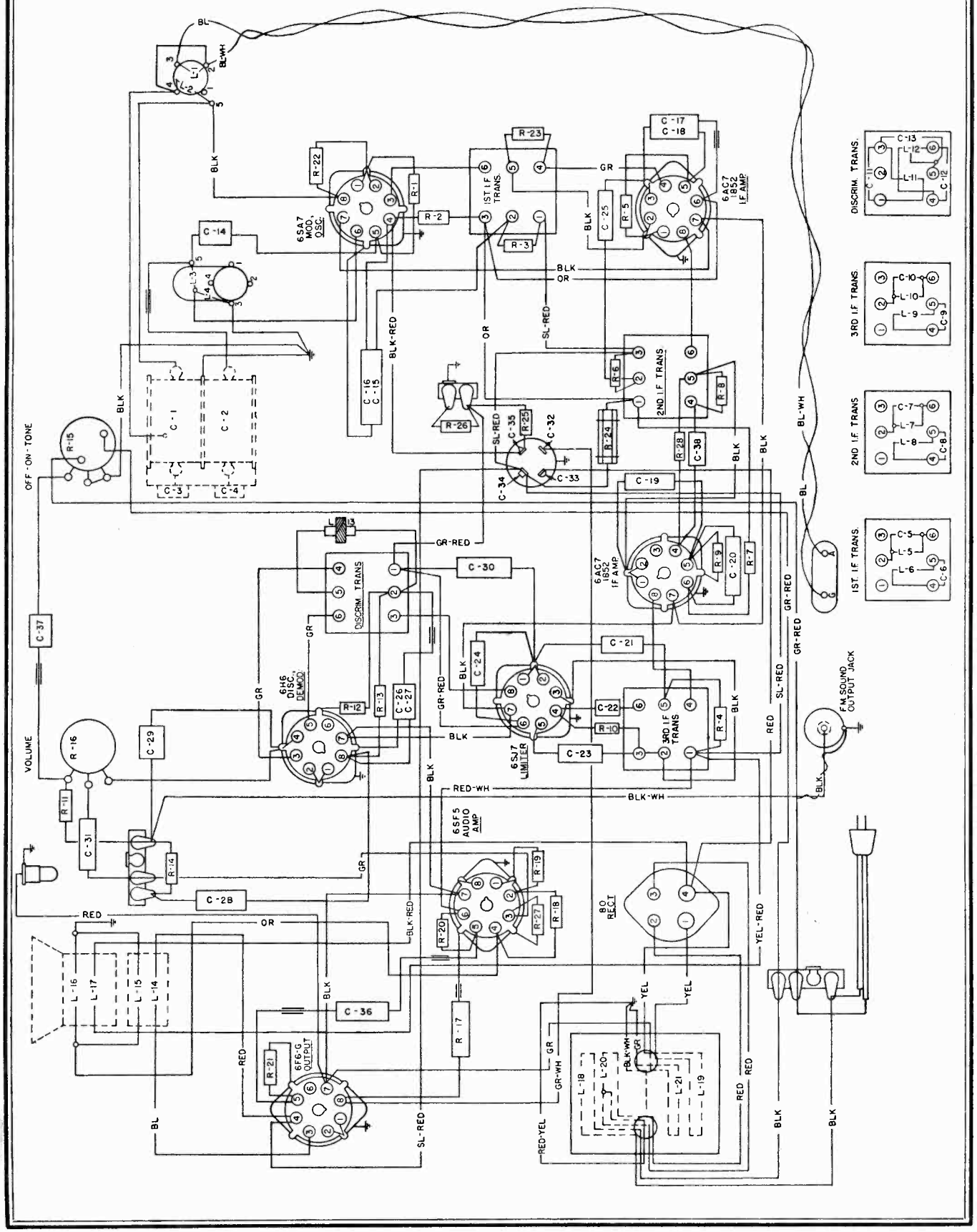


STROMBERG-CARLSON TEL. MFG. CO.

MODELS 425H, 425HB
Socket, Trimmers
Resistance

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.

Use a good ohmmeter 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.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6SA7	Osc. and Mod.	—	S	S	30000¶	20000¶	20000¶	S	S	S
6AC7 (1852)	1st I. F. Amp.	—	S	S	S	2¶	150¶	27000¶	S	30000¶
6AC7 (1852)	2nd I. F. Amp.	—	S	S	S	500000¶	150¶	30000¶	S	30000¶
6SJ7	Limiter	—	S	S	S	20000¶	S	18000¶	S	18000¶
6H6	Demod. (Discr.)	—	S	S	90000¶	S	90000¶	O	S	180000¶
6SF5	Audio Amp.	—	S	10¶	10M	S	300000¶	30000¶	S	S
6F6G	Output	—	S	S	30000¶	30000¶	1M	O	S	400¶
80	Rectifier	—	100¶	30000¶	30000¶	100¶	—	—	—	—

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

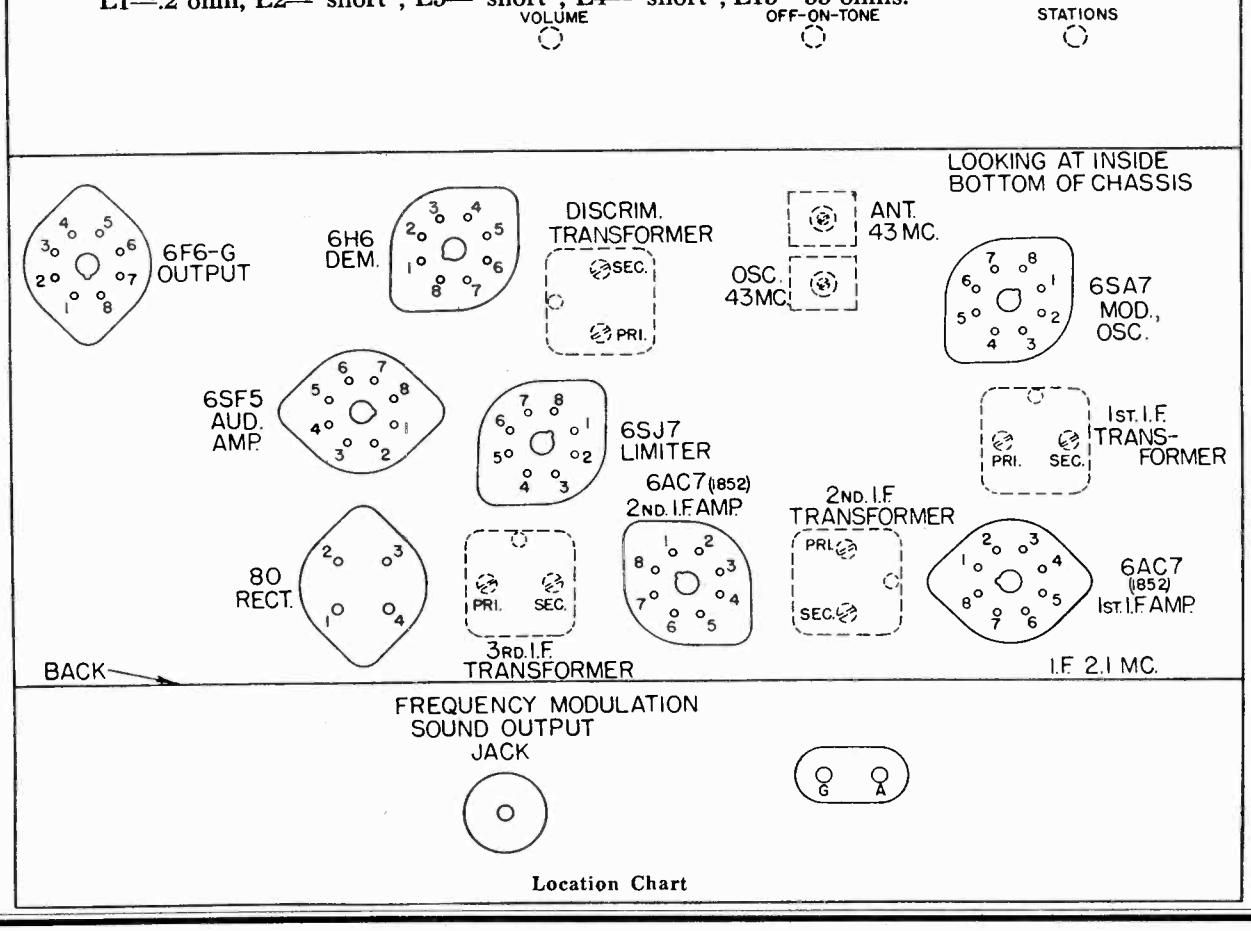
Other Tests Not Shown on Chart

Antenna terminal to chassis base..... "short"
Ground terminal to chassis base..... "short"
F. M. Sound Output Jack to chassis base 1 megohm

Terminals of A. C. plug to chassis base.. "open"
Between terminals of A. C. plug:
A. C. switch open..... "open"
A. C. switch closed..... 6 ohms

R. F. coil tests measured directly across R. F. coil terminals. (See wiring diagram for location of R. F. coil terminals.)

L1—.2 ohm, L2—"short", L3—"short", L4—"short", L13—55 ohms.



Location Chart

Using the 425 Receiver as a Converter

This receiver may be used as a converter so that the audio system of a good high fidelity receiver of the ordinary amplitude modulation type may be utilized to provide the type of high fidelity reception only possible with frequency modulation.

It is only necessary to connect the single pin jack on the back of the chassis (labeled Frequency Modulation Sound Output Jack) to the Phono Input of any other receiver or sound system by means of the cord provided.
In this way, the speaker of the 425 Receiver will act as a "tweeter" or treble speaker and the speaker system of the amplitude modulation receiver will serve as the bass speaker. The balance between the two speakers can be controlled by operating the two volume controls.

ACCESSORIES

Antenna

The proper antenna for frequency modulation reception will depend upon the distance from the stations which it is desired to receive. In some locations, a simple single wire antenna will be suitable but for best results, the Stromberg-Carlson No. 5-A Antenna Adapter used in conjunction with the No. 5 Antenna to which the amplitude modulation receiver is connected is recommended.

It may also be necessary to utilize a horizontal dipole type of antenna in some locations.

Playing Records

To obtain the best quality of phonograph reproduction, a Stromberg-Carlson record player is recommended. If this set is used as a converter, the phonograph should be attached to the amplitude modulation receiver in the regular way. (The installation of a simple switch will eliminate plugging and unplugging).

If this set is used as a receiver, the sound output jack may be readily converted to a phonograph in put jack by removing the black-white wire which comes from this jack from the terminal block to which it is connected and connecting it to the high side of the volume control (this is the terminal on the volume control to which resistor R-11 is attached).
After this has been done, it is only necessary to plug in a record player, tune to a quiet place on the dial and proceed to operate.

Adjusting Dial Lamp

One dial lamp is used to illuminate the dial on the No. 425 Receiver. To adjust the dial lamp for proper illumination of the dial, slide the lamp socket back and forth on its mounting bracket until maximum illumination is obtained.

ALIGNING INFORMATION

General

Never Realign Unless Absolutely Necessary.

All aligning adjustments are carefully made at the factory with special equipment which is designed for aligning frequency modulation receivers. The limitations of commercial oscillographs and other ordinary test equipment are such that alignment should not be attempted in the field unless absolutely necessary.

If alignment is attempted, it will not be successful unless the instructions which follow are adhered to exactly.

The following equipment will be required:

1. A good signal generator with variable output voltage. (All adjustments are made using an unmodulated signal.)
2. A good center "O" microammeter with 100 divisions on each side of "O".

Always have receiver volume control full on.

See location chart for location of aligning adjustment screws.

I. Discriminator Adjustment.

1. Tune the set to the extreme high frequency end of the dial (44.5 megacycles).
2. Connect the center "O" microammeter with a one megohm resistor in series across one half of the discriminator load (from ground to the junction of the two 100,000 ohm resistors R-12 and R-13).
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce an unmodulated signal of 2100 kilocycles to the grid (terminal No. 4) of the 6SJ7 limiter tube using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Approximately one volt signal is necessary.)
5. Adjust the primary of the discriminator transformer for maximum reading of the microammeter.
6. Remove the microammeter and the one megohm resistor from the junction of R-12 and R-13 resistors and connect them across the whole discriminator load (from the high side of the R-13 to ground.)
7. Adjust the secondary of the discriminator transformer for "O" reading of the microammeter.

II. Intermediate Frequency Adjustments.

Important: All intermediate frequency adjustments are made using the same unmodulated signal of 2100 kilocycles. Each I. F. stage must be adjusted independently and in the order given. **Do not make any overall adjustments after the previous stage is aligned.**

1. Disconnect the jumper wire from the low side of the limiter grid resistor (R-10) and connect the microammeter directly to this wire without using the one megohm resistor.
2. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 second I. F. tube (Terminal No. 4).
3. Adjust the secondary of the third I. F. transformer for maximum reading of the microammeter.
4. Adjust the primary of the third I. F. transformer for maximum reading of the microammeter.
5. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 first I. F. tube (Terminal No. 4).
6. Adjust the secondary of the second I. F. transformer for maximum reading of the microammeter.
7. Adjust the primary of the second I. F. transformer for maximum reading of the microammeter.
8. Disconnect the black wire to the antenna coil from the grid terminal of the 6SA7 modulator tube (terminal No. 8) and connect the output lead from the signal with the 0.1 microfarad capacitor in series to this terminal.
9. Adjust the secondary of the first I. F. transformer for maximum reading of the microammeter.
10. Adjust the primary of the first I. F. transformer for maximum reading of the microammeter.

III. Radio Frequency Adjustments.

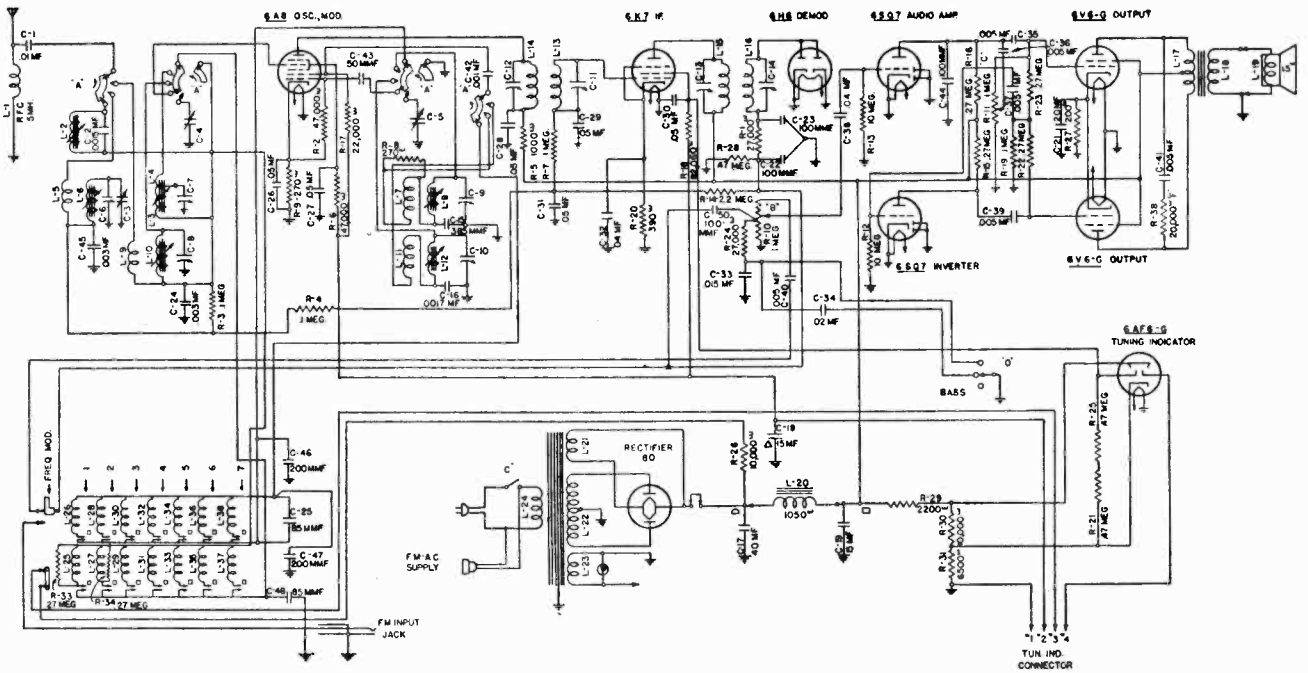
(Leave the signal generator connected to the grid of the 6SA7 tube in the same manner as when adjusting the first I. F. transformer.)

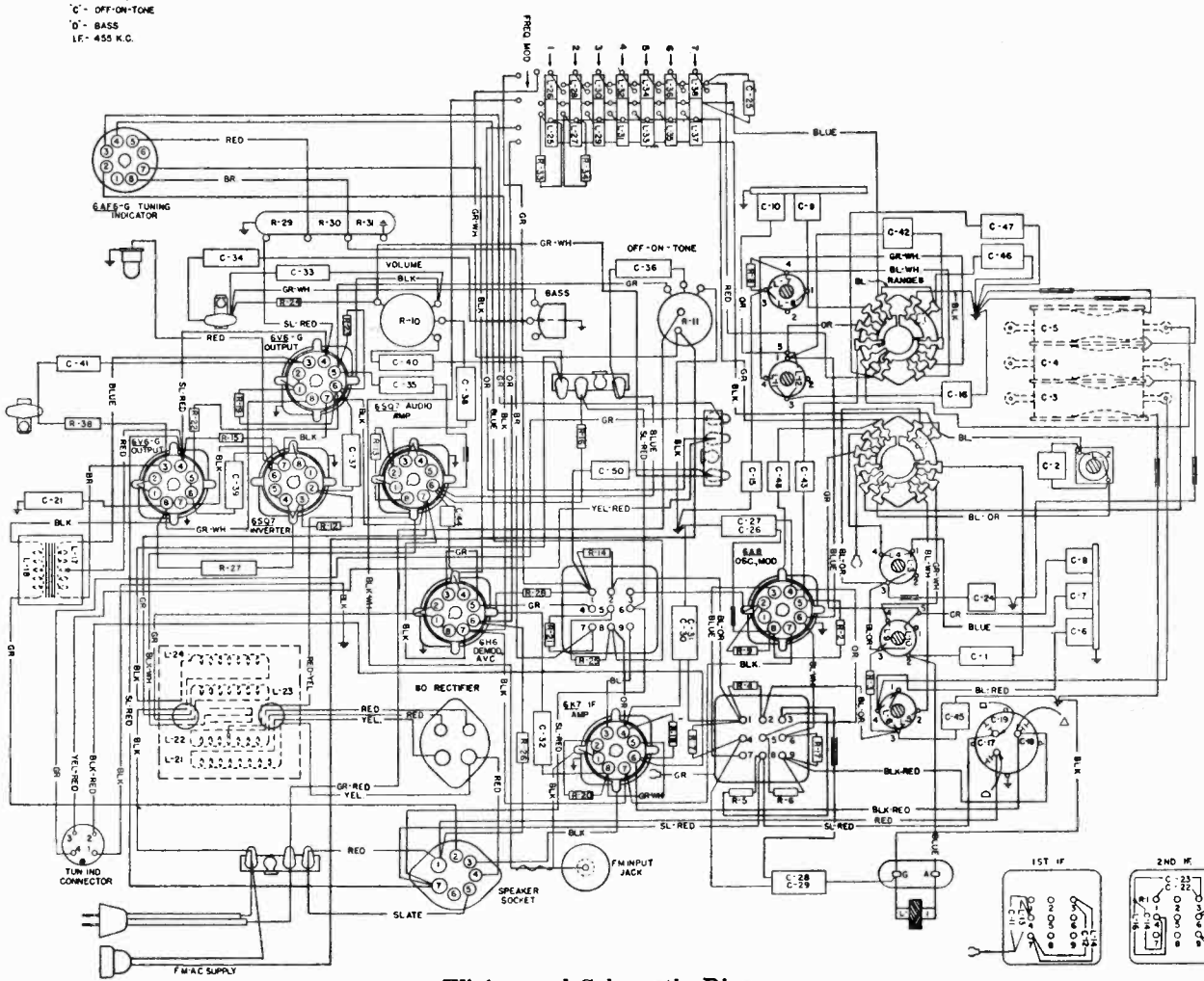
1. Set the signal generator frequency and the receiver tuning dial to 43 megacycles.
2. Adjust the oscillator aligning capacitor located on top of the gang capacitor unit for maximum reading of the microammeter.
3. Remove the output lead and the 0.1 microfarad capacitor in series with it from the grid of the 6SA7 tube and resolder in its original position the black wire which was removed from this terminal.
4. Replace the 0.1 microfarad capacitor in series with the output lead from the signal generator with a 100 ohm carbon type resistor and connect it to the antenna terminal of the receiver.
5. Adjust the antenna aligning capacitor located on top of the gang capacitor unit for maximum reading of the microammeter and, at the same time, rotate the gang tuning capacitor back and forth through resonance to obtain maximum reading on the microammeter.

   IMPORTANT: Do not go back and touch up any adjustments previously made. If the receiver is not in proper alignment after completing the adjustments outlined above, go back and start over again and follow the instructions through to the finish.
6. Re-solder the jumper wire to the low side of the limiter grid resistor (R-10).

STROMBERG-CARLSON TEL. MFG. CO.

MODEL 435M
Schematic (A.M.)
Chassis Wiring

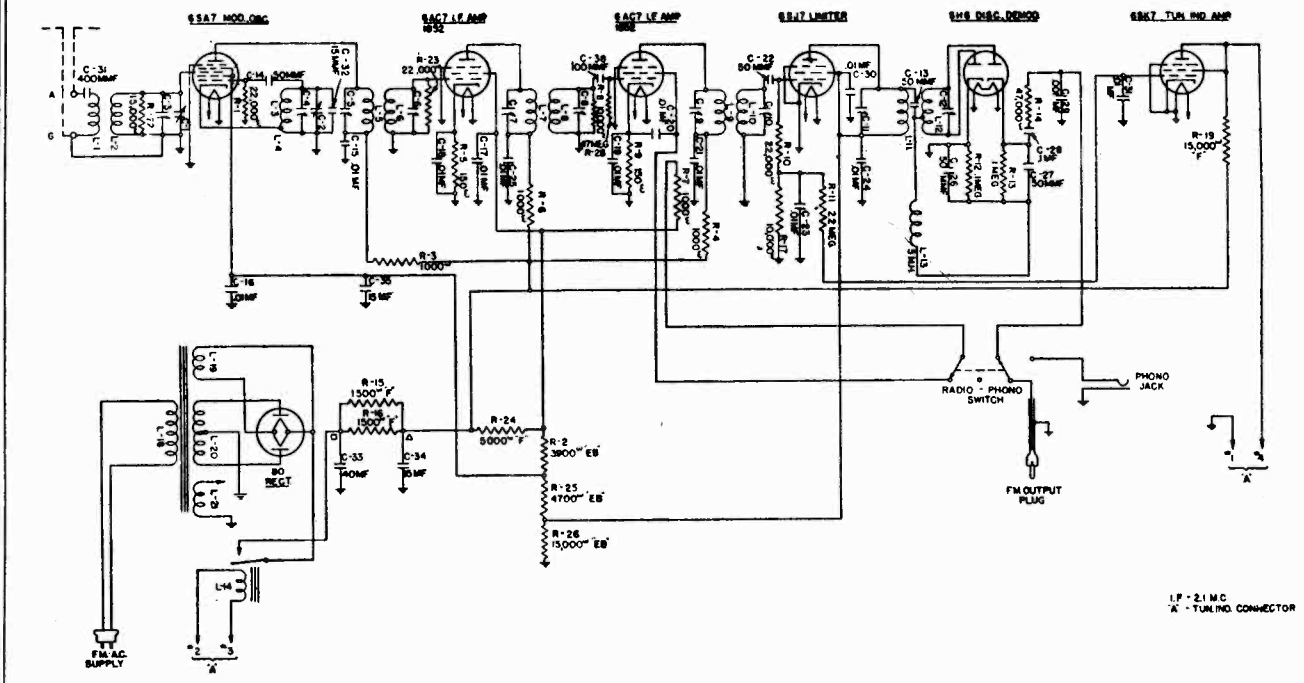


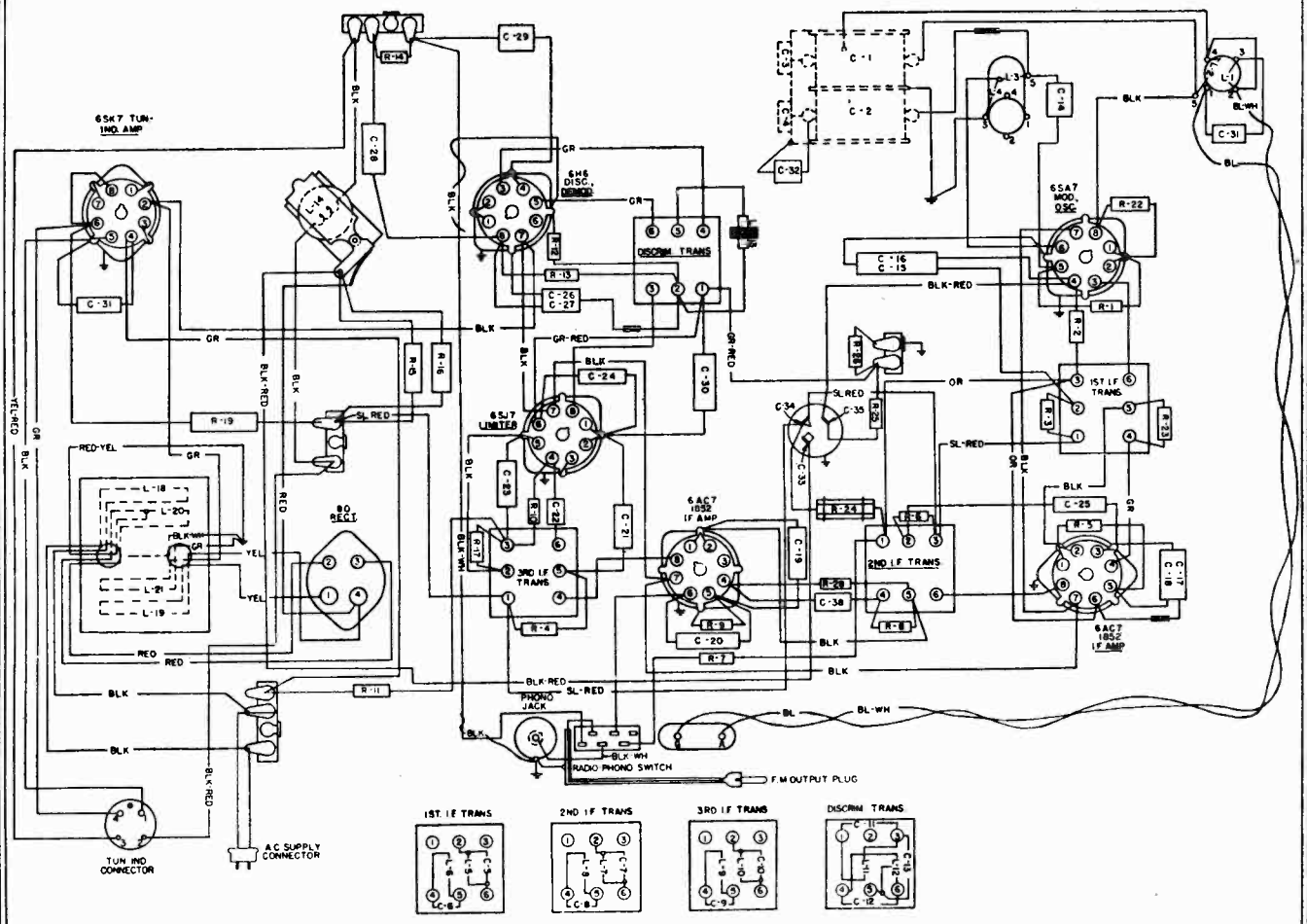


Wiring and Schematic Diagram
Amplitude Modulation

MODEL 435M
Schematic (F.M.)
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.





Wiring and Schematic Diagram
Frequency Modulation

IDENTIFICATION TABLE

Model	Input Power Frequency	Chassis	Cabinet	Speaker
435-M	50-60 Cycles	31481 Amp. Mod. 31482 Freq. Mod.	31840	30359

SPECIFICATIONS

Tuning Ranges	Frequency Modulation 40 to 44 Mc. (40,000 to 44,000 Kc.) Short Wave 5.8 to 18 Mc. (5,800 to 18,000 Kc.) Standard Broadcast .54 to 1.7 Mc. (540 to 1,700 Kc.)
Voltage Rating	105 to 125 Volts
Type of Circuit	Superheterodyne with Electric Tuning
Input Power Rating	140 Watts
Intermediate Frequency	455 Kilocycles (Amplitude Modulation) 2.1 Megacycles (Frequency Modulation)
Speaker Voice Coil Impedance at 400 Cycles	Approximately 1.5 Ohms
Speaker Field Coil Resistance	Approximately 1050 Ohms

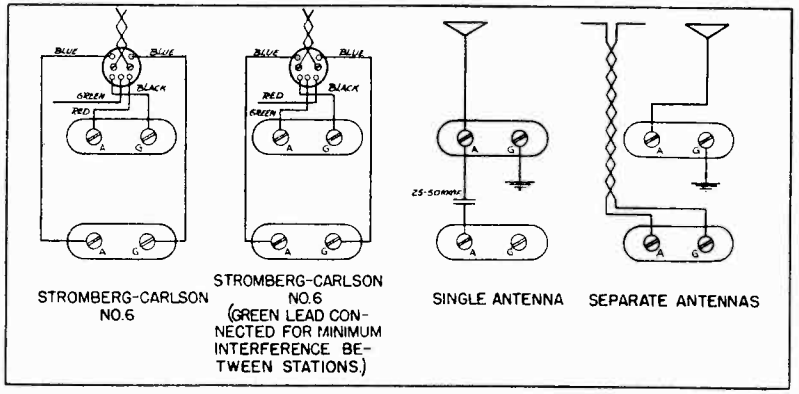
ACCESSORIES

ANTENNA. For best results use a Stromberg-Carlson No. 6 Antenna. This antenna is designed to provide improved pick-up on both the amplitude and frequency modulation bands.

If it is desired, two ordinary antennas may be used, one for amplitude modulation, which should be a straight wire "L" type antenna about 75 feet long, and one for frequency modulation. This latter antenna may be a straight wire about 40 feet in length or of the dipole type with two arms approximately 5½ feet in length. The dipole antenna will exhibit a marked directional effect and should be erected as high as possible above the ground and adjusted so as to receive the desired frequency modulated stations with best results.

For average reception, a single straight wire antenna may be used for both amplitude and frequency modulation.

The various types of antennas should be connected to the No. 435 Receiver as follows:



PLAYING RECORDS. To obtain the best quality of phonograph reproduction, a Stromberg-Carlson record player is recommended. They are designed for use with this receiver and all that is necessary is to connect the record player to the single prong socket provided in the chassis, operate the "Radio-Phono" switch located on the back of the chassis to "Phono" position, push in the frequency modulation button on the front of the receiver and proceed to operate. The volume and tone may be controlled with the controls at the receiver or (if such is provided), the volume control on the record player may be used.

A low impedance pick-up may be used, but a matching transformer must be placed between the phonograph pick-up and the chassis.

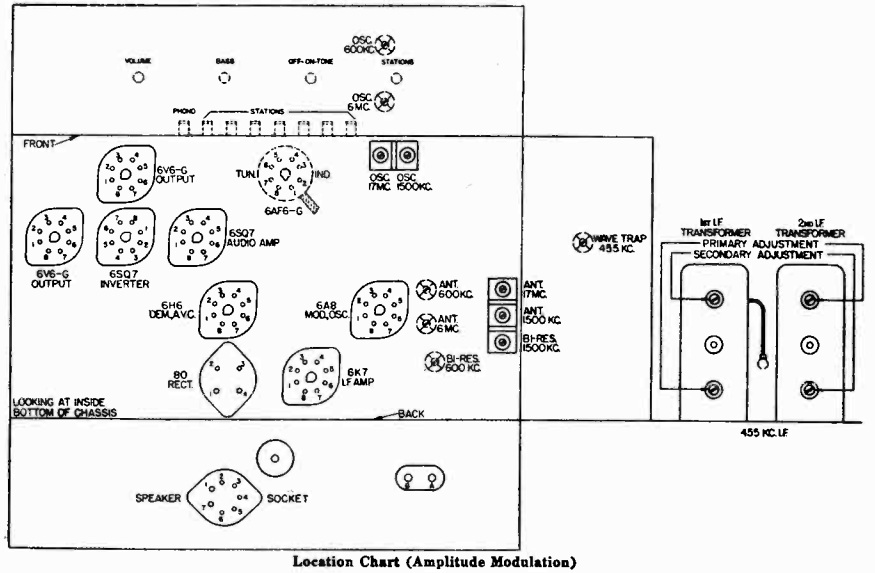
HEADSET ATTACHMENT. Headphones can be very simply attached to this receiver. Ask for Pc. No. 28303 Headset Package Assembly, which comes complete with headphones and installation instructions.

CARE OF CABINET. The finish of Stromberg-Carlson Cabinets should be protected by using Stromberg-Carlson Cabinet Polish regularly. It is available in pint cans, designated as Pc. No. 28601.

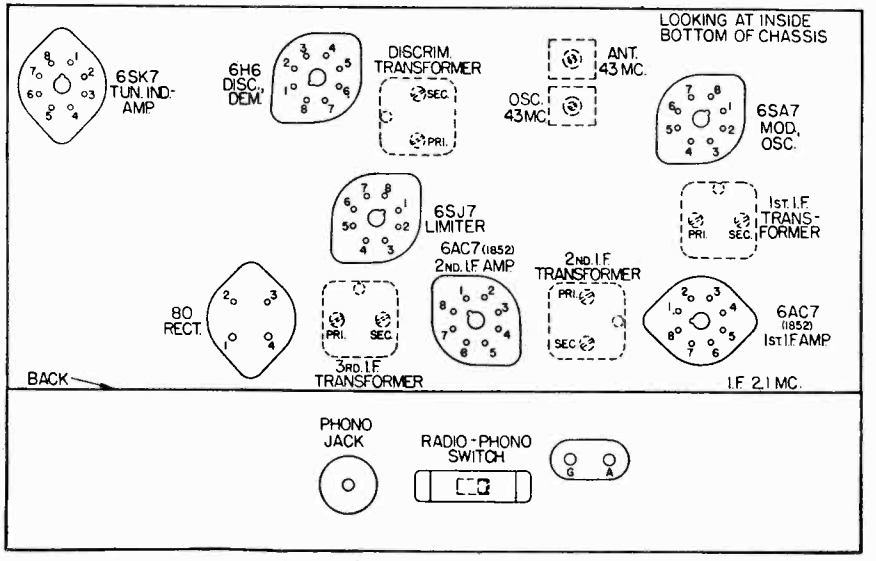
Nicks and scratches of most kinds can be repaired quickly and easily by proper use of the Pc. No. 26962 Touch-Up Kit. Complete instructions are provided with each kit.

TOOLS. Stromberg-Carlson can supply all the tools required for working on these sets. For example:

SD-29 Phillips Head Screwdriver
No. 24608 Aligning Tool
Also pliers, cutters, screwdrivers, etc.



Location Chart (Amplitude Modulation)



Location Chart—(Frequency Modulation)

MODEL 435M
Alignment

STROMBERG-CARLSON TEL. MFG. CO.

ALIGNING INFORMATION

NEVER REALIGN UNLESS ABSOLUTELY NECESSARY

GENERAL. All aligning adjustments are carefully made at the factory with special equipment which is designed for aligning frequency modulation receivers. The limitations of commercial oscillographs and other ordinary test equipment are such that alignment should not be attempted in the field unless absolutely necessary.

If alignment is attempted, it will not be successful unless the instructions which follow are adhered to exactly.

The following equipment will be required:

1. A good signal generator with variable output voltage. (All adjustments of the frequency modulation range are made using an unmodulated signal.)
2. A good center "O" microammeter with 100 divisions on each side of "O".

Always have receiver volume control full on.

See location chart on Page 5 for location of aligning adjustment screws.

Important. Before proceeding to align the frequency modulation chassis of this receiver tune the receiver to 43 megacycles and mark this point with a pencil on the large pulley of the frequency modulation chassis. Carefully remove the drive cord from this pulley noting the relation of the point marked with the setting of the variable capacitor.

I. **Discriminator Adjustment.** (Frequency Modulation)

1. Tune the set to the extreme high frequency plates of variable capacitor all the way in.
2. Connect the center "O" microammeter with a one megohm resistor in series across one half of the discriminator load (from ground to the junction of the two 100,000 ohm resistors R-12 and R-13).
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce an unmodulated signal of 2100 kilocycles to the grid (terminal No. 4) of the 6SJ7 limiter tube using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Approximately one volt signal is necessary.)
5. Adjust the primary of the discriminator transformer for maximum reading of the microammeter.
6. Remove the microammeter and the one megohm resistor from the junction of R-12 and R-13 resistors and connect them across the whole discriminator load (from the high side of the R-13 to ground).
7. Adjust the secondary of the discriminator transformer for "O" reading of the microammeter.

II. **Intermediate Frequency Adjustments.** (Frequency Modulation)

Important: All intermediate frequency adjustments are made using the same unmodulated signal of 2100 kilocycles. Each I. F. stage must be adjusted independently and in the order given. **Do not make any overall adjustments after the previous stage is aligned.**

1. Disconnect the jumper wire from the low side of the limiter grid resistor (R-10) and connect the microammeter directly to this wire without using the one megohm resistor.
2. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 second I. F. tube (Terminal No. 4).
3. Adjust the secondary of the third I. F. transformer for maximum reading of the microammeter.
4. Adjust the primary of the third I. F. transformer for maximum reading of the microammeter.
5. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 first I. F. tube (Terminal No. 4).
6. Adjust the secondary of the second I. F. transformer for maximum reading of the microammeter.
7. Adjust the primary of the second I. F. transformer for maximum reading of the microammeter.
8. Disconnect the black wire to the antenna coil from the grid terminal of the 6SA7 modulator tube (terminal No. 8) and connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to this terminal.
9. Adjust the secondary of the first I. F. transformer for maximum reading of the microammeter.
10. Adjust the primary of the first I. F. transformer for maximum reading of the microammeter.

III. **Radio Frequency Adjustments.** (Frequency Modulation)

(Leave the signal generator connected to the grid of the 6SA7 tube in the same manner as when adjusting the first I. F. transformer.)

1. Set the signal generator frequency and the receiver tuning dial to 43 megacycles.
2. Adjust the oscillator aligning capacitor located on top of the gang capacitor unit for maximum reading of the microammeter.
3. Remove the output lead and the 0.1 microfarad capacitor in series with it from the grid of the 6SA7 tube and resolder in its original position the black wire which was removed from this terminal.
4. Replace the 0.1 microfarad capacitor in series with the output lead from the signal generator with a 100 ohm carbon type resistor and connect it to the antenna terminal of the receiver.
5. Adjust the antenna aligning capacitor located on top of the gang capacitor unit for maximum reading of the microammeter and, at the same time, rotate the gang tuning capacitor back and forth through resonance to obtain maximum reading on the microammeter.

IMPORTANT: Do not go back and touch up any adjustments previously made. If the receiver is not in proper alignment after completing the adjustments outlined above, go back and start over again and follow the instructions through to the finish.

6. Re-solder the jumper wire to the low side of the limiter grid resistor (R-10).

IV. **Intermediate Frequency Adjustments.** (Amplitude Modulation)

1. Set the range switch to Standard Broadcast position.
2. Tune set to extreme low frequency end of the dial.
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce a modulated signal of 455 Kilocycles to the grid cap of the 6A8 Tube, using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Do not remove the grid clip from this tube.)
5. Adjust the I. F. Aligners for maximum output in the following order:

   A. Secondary of second I. F. transformer.
   B. Primary of second I. F. transformer.
   C. Secondary of first I. F. transformer.
   D. Primary of first I. F. transformer.

V. **Radio Frequency Adjustments.** (Amplitude Modulation)

Short Wave Range (C Band)

1. Replace the 0.1 microfarad capacitor in series with the output lead of the signal generator with a 400 ohm carbon type resistor, and connect it to the antenna terminal of the chassis.
2. Set the range switch to the short-wave range (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 6 megacycles.
4. Adjust the 6 megacycles oscillator and antenna (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 17 megacycles.
6. Adjust the 17 megacycles oscillator and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.

Standard Broadcast Range (A Band)

1. Replace the 400 ohm carbon type resistor in series with the output lead from the signal generator with a 200 micro-microfarad capacitor.
2. Set the range switch to the Standard Broadcast Range (A Band).
3. Set the signal generator frequency and the receiver tuning dial to 600 Kc.
4. Adjust the 600 Kc. oscillator, Bi-Resonator and antenna (iron cores) for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 Kc.
6. Adjust the 1500 Kc. oscillator, Bi-Resonator and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.

VI. **Wave Trap Adjustment.**

(Leave the receiver connected in the same manner as when adjusting the Standard Broadcast Range (A Band)).

1. Tune set to 1000 Kc.
2. Set the signal generator frequency to 455 Kc. and introduce a fairly strong modulated signal to the receiver.
3. Adjust the wave trap aligner for minimum signal.

FEATURES

SPECIAL CIRCUITS. A tuning indicator having two apertures is used in this receiver. One aperture will operate when tuning stations in the standard broadcast and short-wave ranges and the other aperture will operate when tuning stations in the frequency modulation range. Stations should be tuned for maximum closing of the tuning indicator.

Iron core coils are used in the standard broadcast and short-wave ranges to provide greater accuracy of alignment. In addition a thermal drift compensator is included in the circuit. The audio system employs a special inverter push-pull circuit designed to provide excellent fidelity. The power transformer has an electro-static shield to reduce line noises to a minimum and the chassis is thoroughly shielded throughout.

AUTOMATIC TUNING. An adjustable iron core coil type of automatic tuning is employed and the stations may be easily located by properly utilizing the concentric adjusting screws provided. A special tool identified as SD-70 Screwdriver will help materially in setting up the automatic tuning.

MANUAL TUNING. Important. When tuning stations manually in the Standard Broadcast or Short Wave ranges be sure that the push button designated "Freq. Mod." is not pushed in.

PHONOGRAPH OPERATION. A jack is provided on the back of the chassis into which a record player may be plugged and a switch is provided next to it for switching from "Radio" to "Phonograph".

TELEVISION. Switching to phonograph also makes the audio amplifier and loud speaker available for use with television receivers designed for this type of sound reproduction.

REMOVING THE CHASSIS FROM CABINET

Do not remove the chassis from the shelves; instead, remove the chassis and shelf assembly by taking out the six wood screws from the top shelf and the four wood screws from the bottom shelf, thus removing chassis and shelves as a unit.

ADJUSTING DIAL LAMP

The dial on this receiver is edge lighted, and for proper illumination it is very **important** that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket **until** maximum illumination is obtained.

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

IMPORTANT: The stations selected should be the local or favorite stations which give good reception at all times.

Set up stations in the daytime to avoid unnecessary interference.

Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations in order to determine when the station is exactly in tune.

1. Remove the dial escutcheon by removing the screws and pulling downward and outward.
2. Put the call letters of the selected stations in place above the push buttons. **The stations should be arranged according to frequency with the highest frequency at the right and the lowest frequency at the left, just as on the dial.** (The call letters will be found inside the envelope stapled inside or underneath the cabinet.)
3. Tune in manually the highest frequency station to be set up and note carefully the program being transmitted.
4. Turn the range switch to the push button position and push the highest frequency button.
5. Using a very small screwdriver adjust the slot in the inner screw until it coincides with the slot in the outer screw.
6. Using a larger screwdriver, adjust both screws at the same time until the desired station is tuned in as well as possible.
7. Using the small screwdriver again, adjust the small inner screw for maximum closing of the tuning indicator. (Be sure the outer screw does not move while adjusting the inner screw.) **Operations 5, 6 and 7 can be greatly simplified by using Stromberg-Carlson SD-70 Adjusting Tool which is a double screwdriver designed to fit both of these screws at the same time.**
8. Set up the other stations in the same manner.
9. Recheck the adjustment of each adjusting screw.

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 Kc. or 43 Mc.—no signal.

Use a line voltage of 120 volts, or make allowance for the variation.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.

Take all D. C. readings on the 500 volt scale except when an asterisk appears.

Read from indicated terminals to chassis base.

See location chart on Page 5 for position of terminals.

A. C. voltages are indicated by italics.

To measure voltages of 6AF6G tube remove the metal cover on the tuning indicator socket and read from indicated terminals.

AMPLITUDE MODULATION CHASSIS

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8	Mod. and Osc.	0	0	0	+250	+110	−8*	+173	*6.3*	+3*
6K7	I. F. Amp.	0	0	0	+253	+108	+4*	—	*6.3*	+4*
6H6	Dem. and A. V. C.	—	0	0	0	0	0	0	*6.3*	0
6SQ7	Audio Amp.	—	0	0	0	0	0	+108	*6.3*	0
6SQ7	Audio Inv.	—	0	0	0	0	0	+108	*6.3*	0
6V6G	Output	—	0	0	+250	+254	0	—	*6.3*	+14
6V6G	Output	—	0	0	+250	+254	0	—	*6.3*	+14
6AF6G	Tuning Indicator	—	—	0	+52	+110	+220	—	*6.3*	+90
80	Rectifier	—	+382	*375*	*375*	+382	—	—	—	—
—	Speaker Socket	—	—	+382	0	0	+382	+382	—	—

FREQUENCY MODULATION CHASSIS

6SA7	Mod. and Osc.	—	0	0	+240	+90	0	0	*6.3*	0
6AC7	1st I. F. Amp.	—	0	0	0	0	+2*	+148	*6.3*	+230
6AC7	2nd I. F. Amp.	—	0	0	0	0	+2*	+145	*6.3*	+230
6SJ7	Limiter	—	0	0	0	0	0	+50	*6.3*	+57
6H6	Demod. (Discr.)	—	0	0	0	0	−10*	0	*6.3*	0
6SK7	Tun. Ind. Amp.	—	0	0	0	0	0	+275	*6.3*	+275
80	Rectifier	—	+300	*310*	*310*	+300	—	—	—	—

***Read on lowest possible scale of voltmeter**
5 volts AC between terminals 1 and 4 of rectifier sockets (No. 80 tube)

CONTINUITY TEST

Remove all tubes and disconnect the receiver from the power supply before making continuity test.

Test speaker socket with speaker left out.

Leave speaker plug in socket for all other tests of the amplitude modulation chassis.

Use a good meter capable of measuring 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.

See location chart for position and numbering of terminals.

AMPLITUDE MODULATION CHASSIS

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8	Mod. and Osc.	3M	S	S	20000¶	200000¶	48000¶	200000¶	S	270¶
6K7	I. F. Amp.	3M	S	S	19000¶	200000¶	390¶	200000¶	S	390¶
6H6	Dem.—A. V. C.	—	S	S	5000000¶	S	5000000¶	20000¶	S	S
6SQ7	Audio Amp.	—	S	10M	S	S	S	300000¶	S	S
6SQ7	Audio Inv.	—	S	10M	S	S	S	300000¶	S	S
6V6G	Output (A)	—	S	S	16000¶	16000¶	270000¶	100000¶	S	200¶
6V6G	Output	—	S	S	16000¶	16000¶	400000¶	O	S	200¶
6AF6G	Tun. Ind.	—	O	S	O	200000¶	16000¶	O	S	6500¶
80	Rectifier	—	19000¶	100¶	120¶	19000¶	—	—	—	—
—	Speaker Socket	—	100000¶ or Greater	S	S	O	100000¶ or Greater	O	16000¶	—

FREQUENCY MODULATION CHASSIS

6SA7	Osc. and Mod.	—	S	S	30000¶	20000¶	20000¶	S	S	S
6AC7	1st. I. F. Amp.	—	S	S	S	3¶	150¶	24000¶	S	30000¶
6AC7	2nd I. F. Amp.	—	S	S	S	500000¶	150¶	B	S	30000¶
6SJ7	Limiter	—	S	S	S	32000¶	S	15000¶	S	15000¶
6H6	Demod. (Discr.)	—	S	S	100000¶	S	100000¶	O	S	200000¶
6SK7	Tun. Ind. Amp.	—	S	S	S	2.2M	S	40000¶	S	40000¶
80	Rectifier	—	29000¶	250¶	250¶	29000¶	—	—	—	—

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

A. 6V6G tube socket nearest to the front of the chassis

B. Radio-Phono switch in "Radio" position — 24,000 ohms
Radio-Phono switch in "Phono" position — "open"

Other Tests Not Shown on Chart
(Amplitude Modulation Chassis)

- Antenna terminal to chassis base — 75 ohms
- Ground terminal to chassis base — "short"
- Audio connector socket to chassis base — "open"
- Between terminals of A. C. plug:
  - A. C. switch open — "open"
  - A. C. switch closed — 5 ohms
- Terminals of A. C. plug to chassis base — "open"
- R. F. coil tests measured directly across R. F. coil terminals with range switch in standard broadcast position. ("A" Range)

L3—.8 ohm; L4—.8 ohm; L5—.1 ohm; L6—3 ohms; L7—.3 ohm; L8—4 ohms; L9—.1 ohm; L10—"short"; L11—.1 ohm; L12—"short".

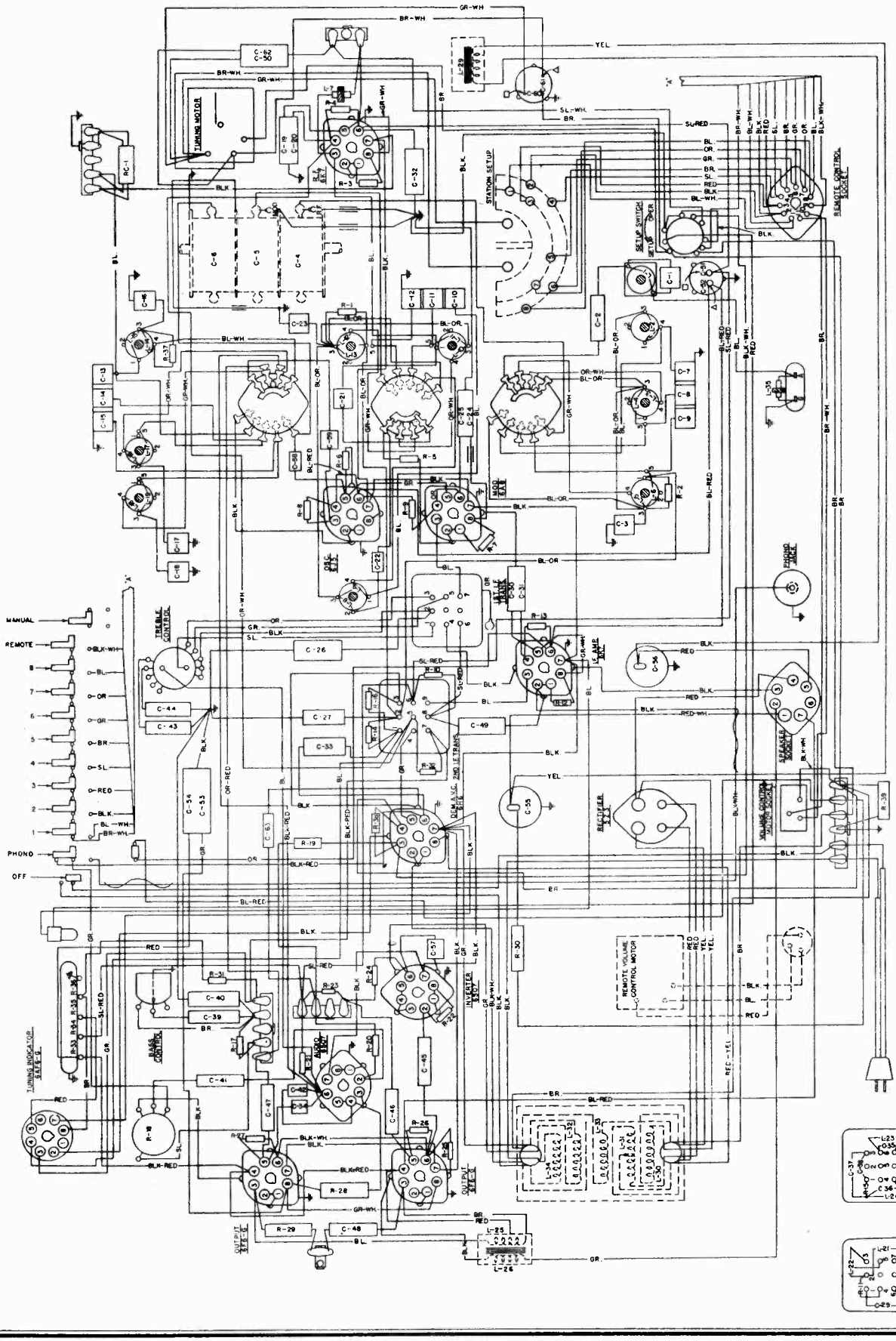
Other Tests Not Shown on Chart
(Frequency Modulation Chassis)

- Antenna terminal to chassis base — "open"
- Ground terminal to chassis base — "short"
- Phono jack to chassis base — "open"
- Terminals of A. C. plug to chassis base — "open"
- Between terminals of A. C. plug — 9 ohms
- Relay socket to chassis base:
  - Terminal No. 1 — 40,000 ohms
  - Terminal Nos. 2 and 3 — "open"
  - Terminal No. 4 — "short"
- Audio connector plug to chassis base:
  - Prong of plug — "open"
  - Shield of plug — "short"
- Between prong of audio connector plug and contact of phono jack:
  - Radio-Phono switch in "Phono" position — "short"
  - Radio-Phono switch in "Radio" position — "open"
- R. F. coil tests measured directly across R. F. coil terminals.

L1 — .2 ohm; L2 — "short"; L3 — "short"; L4—"short"; L13—55 ohms.

MODELS 450M,450MB
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.



Model	Input Power Frequency	Chassis	Cabinet	Speaker
450-M	50-60 Cycles	30162	30164	27504
450-MB	25-60 Cycles	30163	30164	27504

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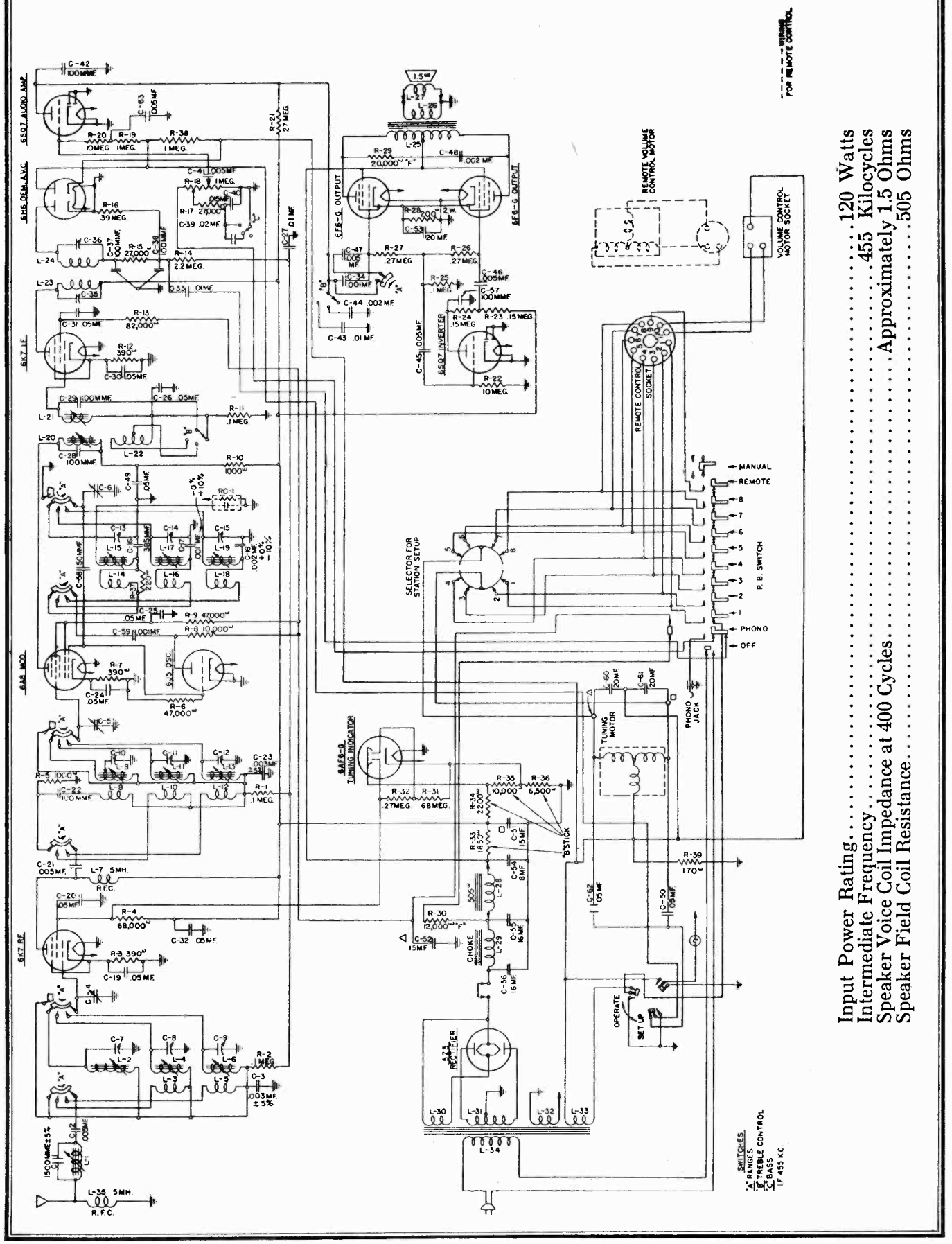
MODELS 450M, 450MB
Schematic



Input Power Rating.....120 Watts
Intermediate Frequency.....455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles.....Approximately 1.5 Ohms
Speaker Field Coil Resistance.....505 Ohms

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 Kc.—no signal.
Use a line voltage of 120 volts, or make allowance for the variation.
Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.
Take all D. C. readings on the 500 volt scale except when an asterisk appears.
Read from indicated terminals to chassis base.
A. C. voltages are indicated by italics.
To measure voltages of 6AF6G tube remove the metal cover on the tuning indicator socket and read from indicated terminals.

			Terminals of Sockets								Heater Voltages Between Heater Terminals	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6K7	R. F. Amp.	0	0	0	+250	+106	+3*	—	6.5	+3*	2-7	*6.5*
6A8	Modulator		0	0	+250	+96	−20*	+96	6.5	+2*	2-7	*6.5*
6J5	Oscillator	0	0	0	+156	—	−20*	—	6.5	0	2-7	*6.5*
6K7	I. F. Amp.	0	0	0	+250	+100	+3*	—	6.5	+3*	2-7	*6.5*
6H6	Demodulator	—	0	0	0	0	0	—	6.5	0	2-7	*6.5*
6F5	Audio Inv.	0	0	0	—	+136	—	—	6.5	0	2-7	*6.5*
6F5	Audio Amp.	0	0	0	—	+159	—	—	6.5	0	2-7	*6.5*
6F6	Output	—	0	0	+316	+322	0	—	6.5	+21*	2-7	*6.5*
6F6	Output	—	0	0	+316	+322	0	—	6.5	+21*	2-7	*6.5*
6AF6G	Tun. Ind.	—	0	0	+100	+106	+225	—	6.5	+90	2-7	*6.5*
5Z3	Rectifier	—	+410	*400*	*400*	+410	—	—	—	—	1-4	*5*
Speaker Socket		—	+400	0	+410	+410	+410	—	*310*	—		

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.

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 the indicated terminals to chassis base unless otherwise specified.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6K7	R. F. Amp.	2.7M	S	S	20,000¶	80,000¶	390¶	20,000¶	S	390¶
6A8	Modulator	2.7M	S	S	20,000¶	80,000¶	47,000¶	80,000¶	S	390¶
6J5	Osc.	—	S	S	42,000¶	32,000¶	47,000¶	32,000¶	S	S
6K7	I. F. Amp.	100,000¶	S	S	20,000¶	*	390¶	**	S	390¶
6H6	Demodulator	—	S	S	1M	190¶	470,000¶	1M	S	S
6SQ7	Audio Amp.	—	S	10M	S	S	S	280,000¶	S	S
6SQ7	Audio Inv.	—	S	10M	S	S	S	320,000¶	S	S
6F6G	Output	—	S	S	20,000¶	20,000¶	390,000¶	100,000¶	S	190¶
6F6G	Output	—	S	S	20,000¶	20,000¶	390,000¶	100,000¶	S	190¶
5Z3	Rectifier	—	22,000¶	500¶	500¶	22,000¶	—	—	—	—
6AF6G	Tun. Ind.	—	O	S	250,000¶	80,000¶	17,000¶	O	S	7,000¶
Speaker Socket	—	—	.5M or Greater	S	S	O	.5M or Greater	O	17,000¶	—

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

* Push "Phono" button in—"open".
Push "Manual" button in—100,000 ohms.

** Push "Phono" button in—"open".
Push "Manual" button in—32,000 ohms.

Other tests not shown on chart

Test from phono jack on back of chassis base;

Push "Phono" button in—1 megohm.
Push "Manual" button in—"open".

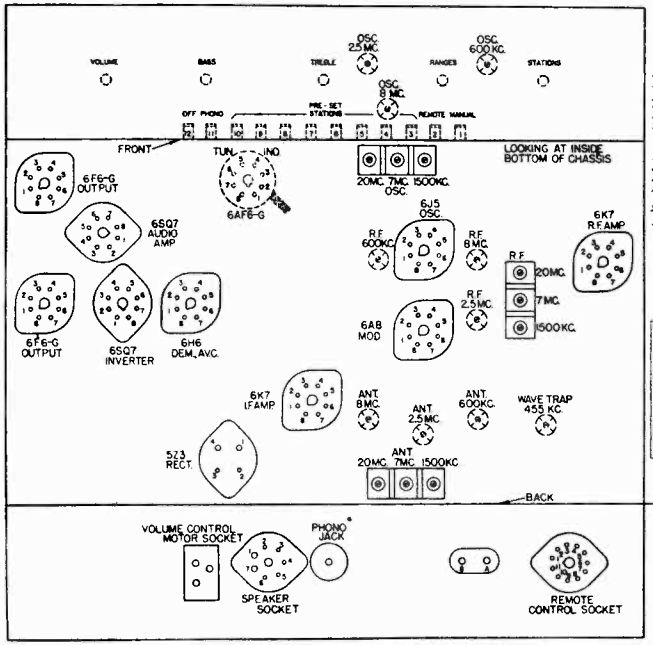
Antenna terminal to chassis base—70 ohms.

Ground terminal to chassis base—"short".

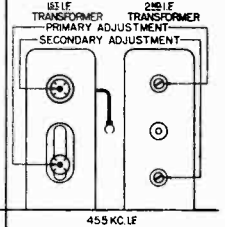
Test between terminals of A. C. plug;
Push "Off" button in—"open".
Push "Manual" button in—3 ohms.
Terminals of A. C. plug to chassis base—"open".

R. F. coil tests measured directly across R. F. coil terminals with range switch set in standard position (A Band).

L1—1 ohm, L2—3 ohms, L3—.2 ohm, L4—.2 ohm, L5—.2 ohm, L6—"short", L7—70 ohms, L8—"short", L9—1 ohm, L10—.2 ohm, L11—.3 ohm, L12—.5 ohm, L13—.1 ohm, L14—.5 ohm, L15—4 ohms, L16—.2 ohm, L17—.3 ohm, L18—.2 ohm, L19—.2 ohm.

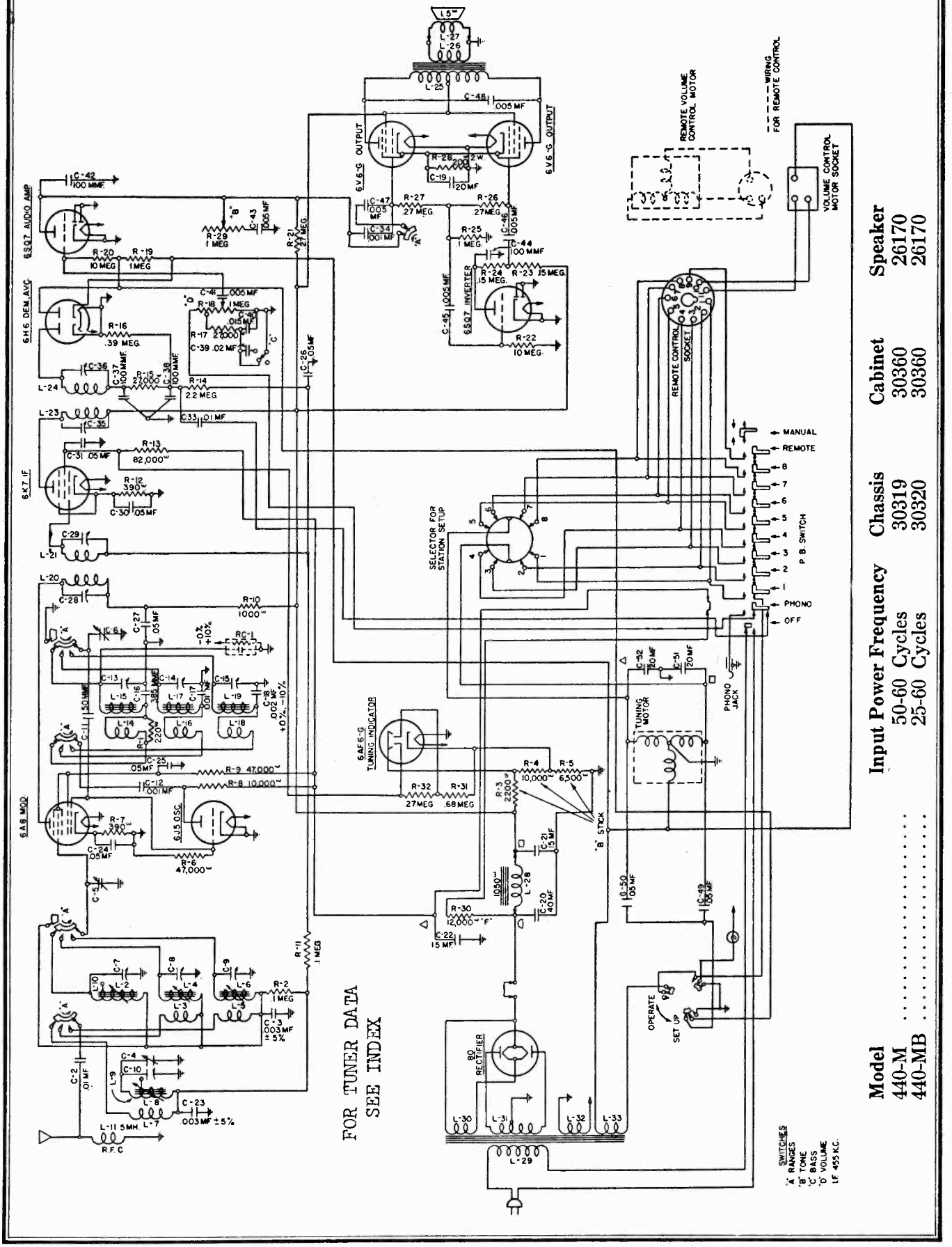


NOTE: Follow alignment procedure for Model 440, noting the addition of the R-F trimmers in the Model 450. Adjust wave-trap trimmer for minimum output.



STROMBERG-CARLSON TEL. MFG. CO.

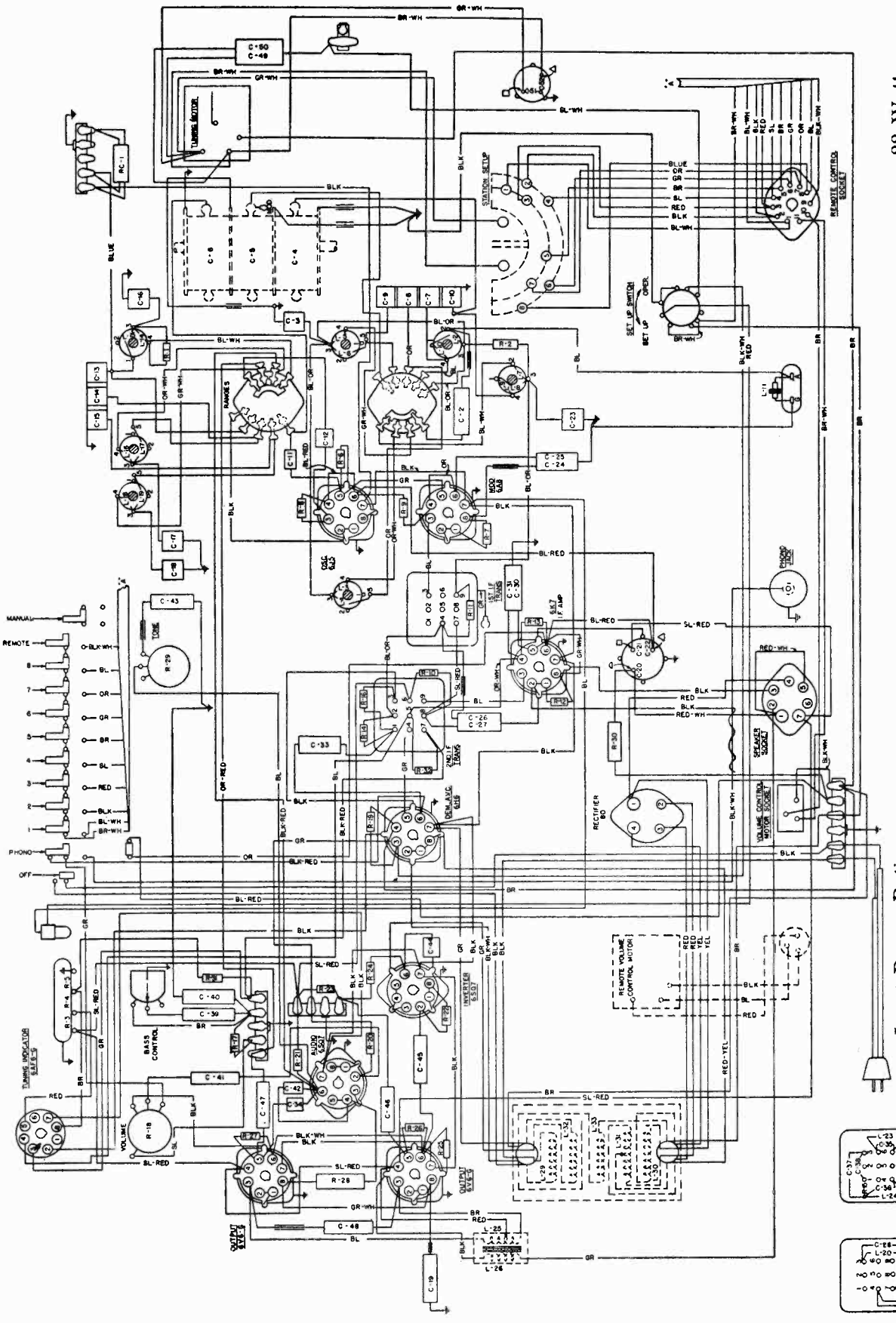
MODELS 440M, 440MB
Schematic



Model	Input Power Frequency	Chassis	Cabinet	Speaker
440-M	50-60 Cycles	30319	30360	26170
440-MB	25-60 Cycles	30320	30360	26170

MODELS 440M, 440MB
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.



Input Power Rating.....88 Watts
Intermediate Frequency.....455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles.....Approximately 1.5 Ohms
Speaker Field Coil Resistance.....1050 Ohms

NORMAL VOLTAGE READINGS

Take all readings with chassis operating and tuned manually to 1000 Kc.—no signal.
Use a line voltage of 120 volts, or make allowance for the variation.
Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt.
Take all D. C. readings on the 500 volt scale except when an asterisk appears.
A. C. voltages are indicated by italics.
To measure voltages of 6AF6G tube remove the metal cover on the tuning indicator socket and read from indicated terminals.

			Terminals of Sockets								*Heater Voltages Between Heater Terminals*	
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8	*Socket Terminal Numbers*	*Volts A.C.*
6A8	Modulator	0	0	0	+260	+95	—	+95	*6.5*	+2*	2-7	*6.5*
6J5	Oscillator	—	0	0	+160	—	—	+230	*6.5*	0	2-7	*6.5*
6K7	I. F. Amp.	0	0	0	+260	+95	+3*	+230	*6.5*	+3*	2-7	*6.5*
6H6	Dem.—A. V. C.	—	0	0	—	—	—	—	*6.5*	0	2-7	*6.5*
6SQ7	Audio Amp.	—	0	0	0	0	0	+100	*6.5*	0	7-8	*6.5*
6SQ7	Audio Inv.	—	0	0	0	0	0	+95	*6.5*	0	7-8	*6.5*
6V6	Output	—	0	0	+255	+260	—	—	*6.5*	+14*	2-7	*6.5*
6V6	Output	—	0	0	+255	+260	—	—	*6.5*	+14*	2-7	*6.5*
6AF6G	Tun. Ind.	—	—	0	+70	+100	+230	—	*6.3*	+100	2-7	*6.3*
80	Rectifier	—	+380	*385*	*385*	+380	—	—	—	—	1-4	*5*
—	Speaker											
	Socket	—	+390	0	0	+390	+390	—	+265	—	—	—

*Read on lowest possible scale of voltmeter.

CONTINUITY TEST

CAUTION: Remove all tubes and disconnect the receiver from the power supply before making continuity test.

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.

			TERMINALS OF SOCKETS							
Tube	*Circuit*	*Cap*	1	2	3	4	5	6	7	8
6A8	Modulator	2.7 M.	S	S	20,000¶	80,000¶	47,000¶	80,000¶	S	390¶
6J5	Oscillator	—	S	S	41,000¶	31,000¶	47,000¶	31,000¶	S	S
6K7	I. F. Amp.	2.5 M.	S	S	19,000¶	A	390¶	B	S	390¶
6H6	Dem.—A. V. C.	—	S	S	C	3¶	410,000¶	1 M.	S	S
6SQ7	Audio Amp.	—	S	10 M.	S	S	S	290,000¶	S	S
6SQ7	Audio Inv.	—	S	10 M.	S	S	S	320,000¶	S	S
6V6G	Output	—	S	S	17,000¶	17,000¶	370,000¶	100,000¶	S	200¶
6V6G	Output	—	S	S	17,000¶	17,000¶	370,000¶	100,000¶	S	200¶
6AF6G	Tun. Ind.	—	O	S	250,000¶	150,000¶	16,000¶	O	S	6,500¶
80	Rectifier	—	17,000¶	110¶	120¶	17,000¶	—	—	—	—
—	Speaker Socket	—	8,000¶	S	S	O	8,000¶	O	20,000¶	—

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

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

IMPORTANT: The stations selected should be the local or favorite stations which give good reception at all times.

Set up stations in the daytime to avoid unnecessary interference.

Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations in order to determine when the station is exactly in tune.

1. Put the call letters of the selected stations in place above the push buttons. **The stations should be arranged according to frequency with the highest frequency at the right and the lowest frequency at the left, just as on the dial.** (The call letters will be found inside the envelope stapled inside or underneath the cabinet).
2. Set the "Treble" control in normal position.
3. Turn the set-up switch (located on the base just back of the brush and commutator assembly) to the set-up position. (The slot in the screw should point toward "set-up").
4. Push the button of the highest frequency station to be set up (button No. 3) and then tune in that station manually. **Be sure the station is exactly "in tune" by tuning carefully and watching the cathode ray indicator.**
5. Slide the brush to which the blue wire is connected until it is over the slot in the commutator. Then adjust it very carefully until the pilot light goes out. This indicates exact adjustment.
6. Repeat operations 4 and 5 for each station. Work from right to left or from the higher to the lower frequencies in accordance with the table below:

Push Button No.	Purpose	Color of wire on brush
1	Manual	—
2	Remote	—
3	Highest frequency station	Blue
4	Next lower frequency station	Orange
5	Next lower frequency station	Green
6	Next lower frequency station	Brown
7	Next lower frequency station	Slate
8	Next lower frequency station	Red
9	Next lower frequency station	Black
10	Lowest frequency station	Blue White
11	Phonograph	
12	Off	

(Color of wire on brush: See diagram)

7. Turn the set-up switch back to the "Operate" position.
8. Check the operation of all the push buttons to be sure that each has been accurately set up. If it is necessary to readjust any of the buttons, follow the procedure given above.

A. Push "Phono" button in—380,000 ohms.
Push "Manual" button in—100,000 ohms.

B. Push "Phono" button in—380,000 ohms.
Push "Manual" button in—32,000 ohms.

C. Set up switch to "Set-Up" position—Short.
Set up switch to "Operate" position—110,000 ohms.

Other tests not shown on chart

Test from phono jack on back of chassis base;
Push "Phono" button in—1 megohm.
Push "Manual" button in—"open".

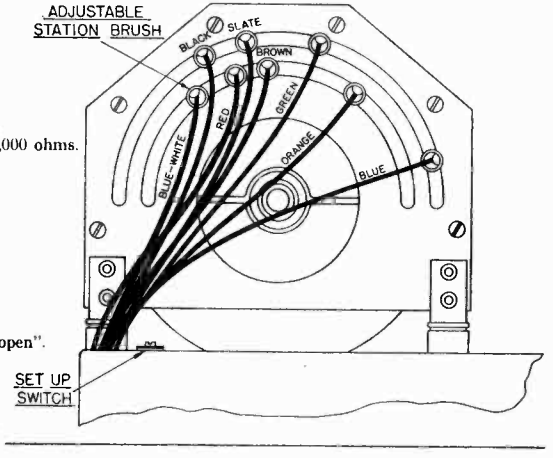
Antenna terminal to chassis base—70 ohms.

Ground terminal to chassis base—"short".

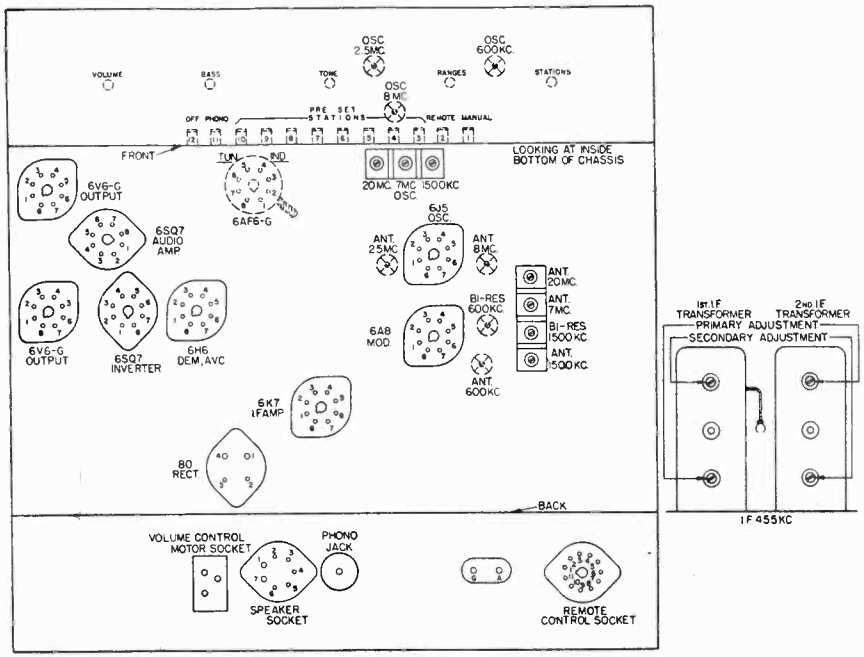
Test between terminals of A. C. plug;
Push "Off" button in—"open".
Push "Manual" button in—3 ohms.
Terminals of A. C. plug to chassis base—"open".

R. F. coil tests measured directly across R. F. coil terminals with range switch set in standard position (A Band).

L1—1 ohm, L2—1.5 ohms, L3—.2 ohm, L4—2 ohms, L5—.1 ohm, L6—"short", L7—.1 ohm, L8—2 ohms, L9—1.5 ohms, L10—.2 ohm, L14—.5 ohm, L15—4 ohms, L16—.2 ohm, L17—.3 ohm, L18—.2 ohm, L19—"short".



Showing Adjustable Station Brushes and Set Up Switch.



Location Chart

ALIGNING INFORMATION

NEVER ALIGN UNLESS ABSOLUTELY NECESSARY.

Use a good modulated signal generator (test oscillator) with variable output voltage and a sensitive output meter across the voice coil of the speaker.

Always align using the smallest possible input from the signal generator. A strong signal makes adjustments inaccurate.

Always have receiver volume control full on.

Never align with tone control in "Bass" position.

See location chart above for location of all the aligning adjustment screws.

Aligning Procedure (follow this order exactly)

I. Dial pointer adjustment.
With the plates of the gang tuning capacitor fully engaged, set the dial pointer directly on the vertical line located at the extreme low frequency end of the short-wave band.

II. Intermediate frequency adjustments.
1. Push in the "Manual" push button.
2. Set the range switch to Standard Broadcast position.
3. Tune set to extreme low frequency end of the dial.
4. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
5. Introduce a modulated signal of 455 Kilocycles to the grid cap of the 6A8G Tube, using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Do not remove the grid clip from this tube.)
6. Adjust the I. F. Aligners for maximum output in the following order:
   A. Secondary of second I. F. transformer.
   B. Primary of second I. F. transformer.
   C. Secondary of first I. F. transformer.
   D. Primary of first I. F. transformer.

III. Radio frequency adjustments.

Short Wave Range (C Band)

1. Replace the 0.1 microfarad capacitor in series with the output lead of the signal generator with a 400 ohm carbon type resistor, and connect it to the antenna terminal of the chassis.
2. Set the range switch to the short-wave range position (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 8 megacycles.
4. Adjust the 8 megacycle oscillator and antenna iron cores for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 20 megacycles.
6. Adjust the 20 megacycle oscillator and antenna aligning capacitors for maximum signal.
7. Repeat operations three and four.
8. Repeat operations five and six.

Medium Wave Range (B Band)

1. Leave the receiver connected in the same manner as when adjusting the Short-Wave Range (C Band).
2. Set the range switch to the medium wave range position (B Band).
3. Set the signal generator frequency and the receiver tuning dial to 2.5 megacycles.
4. Adjust the 2.5 megacycle oscillator and antenna iron cores for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 7.0 megacycles.
6. Adjust the 7 megacycle oscillator and antenna aligning capacitors for maximum signal.
7. Repeat operation three and four.
8. Repeat operation five and six.

Standard Broadcast Range (A Band)

1. Replace the 400 ohm carbon type resistor in series with the output lead from the signal generator with a 200 micro-microfarad capacitor.
2. Set the range switch to the Standard Broadcast Range (A Band).
3. Set the signal generator frequency and the receiver tuning dial to 600 Kc.
4. Adjust the 600 Kc. oscillator, bi-resonator and antenna iron cores for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 Kc.
6. Adjust the 1500 Kc. oscillator, bi-resonator and antenna aligning capacitors for maximum signal.
7. Repeat operation three and four.
8. Repeat operation five and six.

ADJUSTING DIAL LAMP

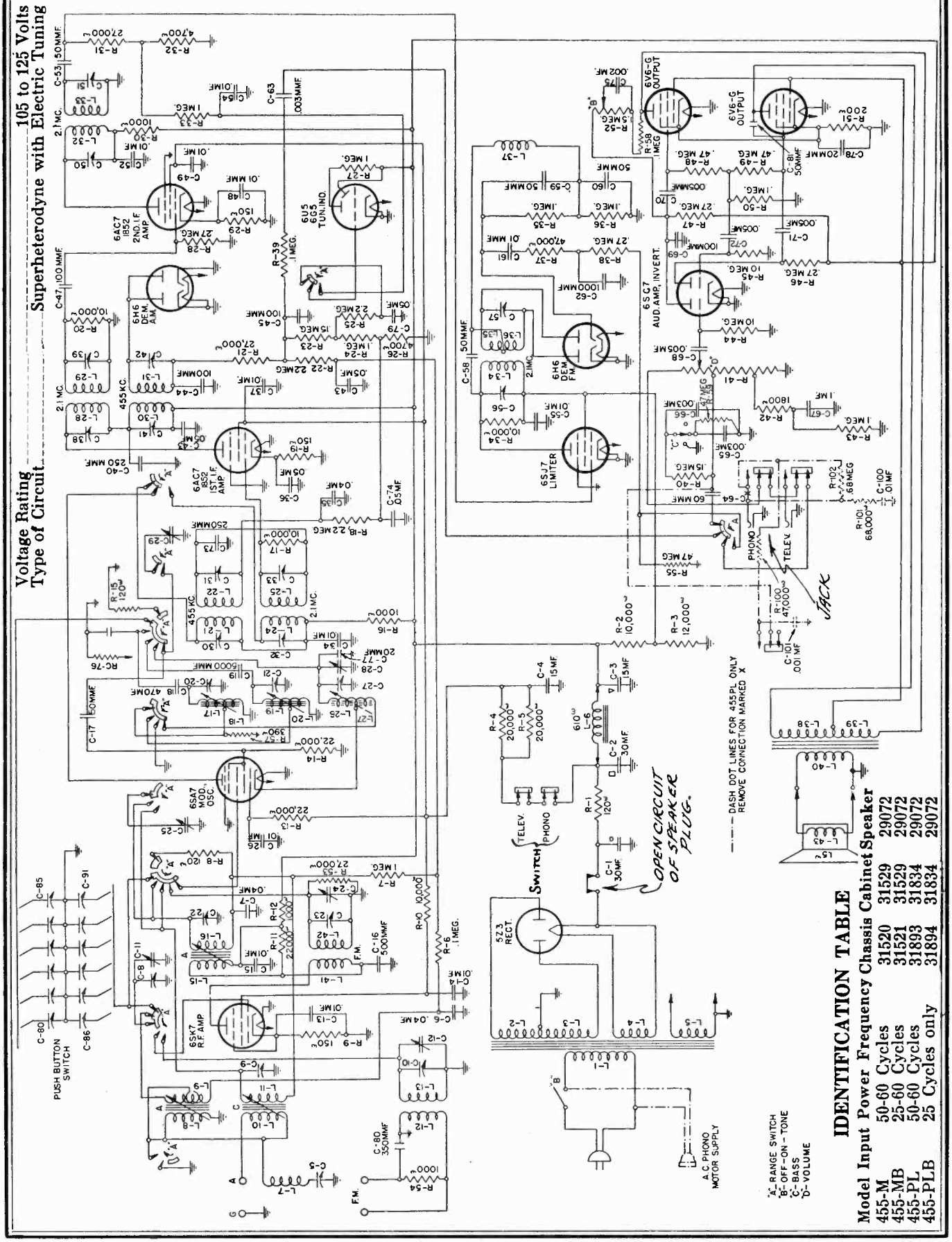
The dial on this receiver is edge lighted, and for proper illumination it is very important that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket until maximum illumination is obtained.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 455M, 455MB
455PL, 455PLB
Schematic

105 to 125 Volts
Superheterodyne with Electric Tuning
Voltage Rating
Type of Circuit

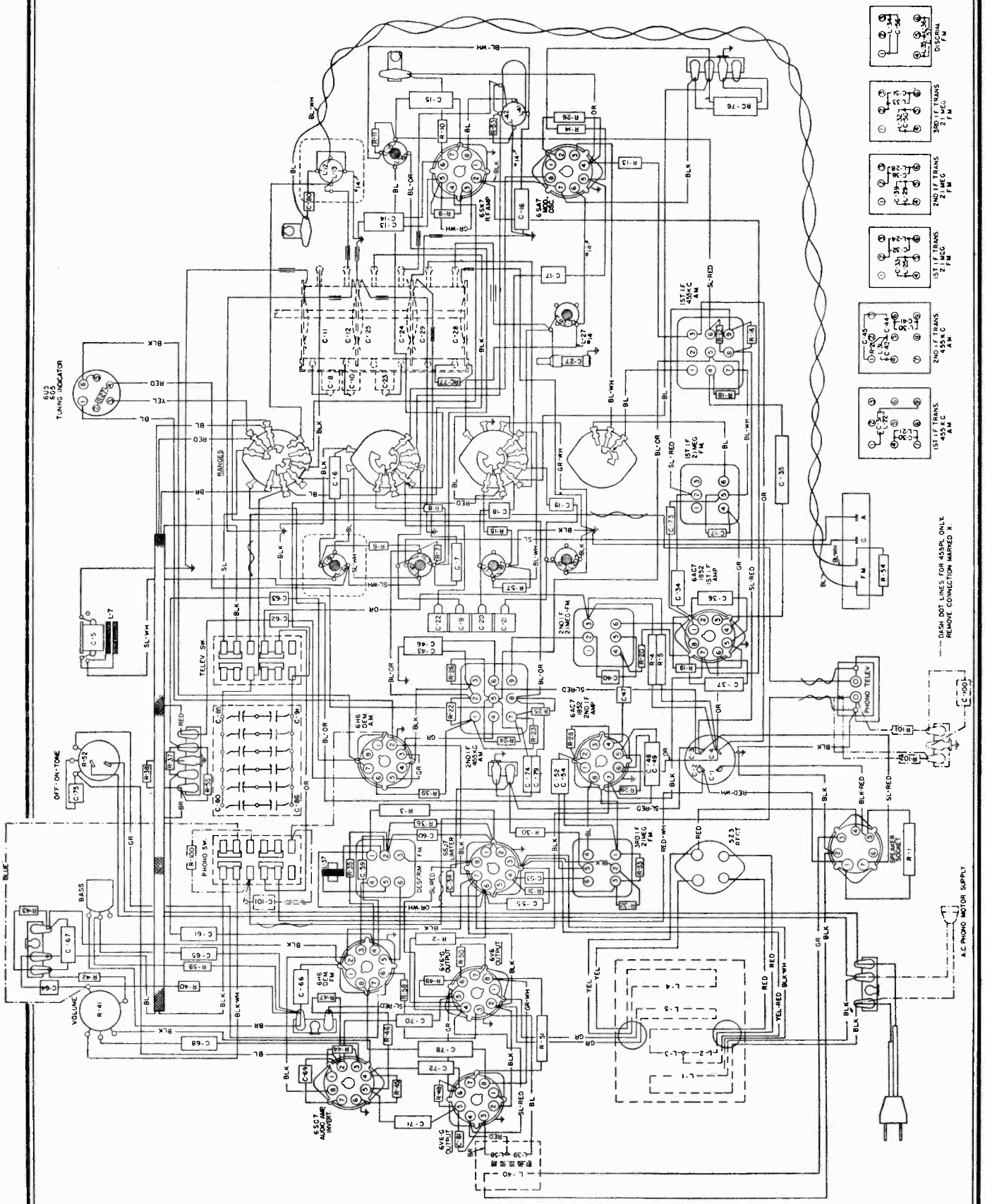


IDENTIFICATION TABLE

Model	Input	Power	Frequency	Chassis	Cabinet	Speaker
455-M	50-60 Cycles	31520		31529		29072
455-MB	25-60 Cycles	31521		31529		29072
455-PL	50-60 Cycles	31893		31834		29072
455-PLB	25 Cycles only	31894		31834		29072

MODELS 455M, 455MB
455PL, 455PLB
Chassis Wiring

STROMBERG-CARLSON TEL. MFG. CO.



ALIGNING INFORMATION

NEVER ALIGN UNLESS ABSOLUTELY NECESSARY

All aligning adjustments are carefully made at the factory with special equipment which is designed for aligning frequency modulation receivers. The limitations of commercial oscillographs and other ordinary test equipment are such that alignment should not be attempted in the field unless absolutely necessary. If alignment is attempted it will not be successful unless the instructions which follow are adhered to exactly.

The following equipment will be required:

1. Standard signal generator and output meter.
2. Microammeter "0" to 200 microamps.
3. Center "0" Microammeter with 100 divisions on each side of "0". See location chart on page — for location of all aligners.

ALIGNING PROCEDURE (follow this order exactly).

I. Discriminator adjustment (Frequency Modulation)

1. Tune the set to the extreme high frequency end of the dial (44.5 megacycles).
2. Connect the center "0" microammeter with a one megohm resistor in series across one half of the discriminator load (from ground to the junction of the two 100,000 ohm resistors R-35 and R-36).
3. Connect the ground terminal of the signal generator to the ground terminal of the chassis.
4. Introduce an unmodulated signal of 2100 kilocycles to the grid (terminal No. 4) of the 6SJ7 limiter tube using a 0.1 microfarad capacitor in series with the output lead of the signal generator. (Approximately one volt signal is necessary.)
5. Adjust the primary of the discriminator transformer for maximum reading of the microammeter.
6. Remove the microammeter and the one megohm resistor from the junction of R-35 and R-36 resistors and connect them across the whole discriminator load (from the high side of the R-35 to ground).
7. Adjust the secondary of the discriminator transformer for "0" reading of the microammeter.

II. Intermediate frequency adjustments (Frequency Modulation)

Important: All intermediate frequency adjustments are made using the same unmodulated signal of 2100 kilocycles. Each I. F. stage must be adjusted independently and in the order given. **Do not make any overall adjustments after the previous stage is aligned.**

1. Disconnect the ground side of the limiter grid resistor (R-32) and connect the "0" to 200 microammeter in series with it and ground.
2. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 second I. F. tube (Terminal No. 4).
3. Adjust the secondary of the third I. F. transformer for maximum reading of the microammeter.
4. Adjust the primary of the third I. F. transformer for maximum reading of the microammeter.
5. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6AC7 first I. F. tube (Terminal No. 4).
6. Adjust the secondary of the second I. F. transformer for maximum reading of the microammeter.
7. Adjust the primary of the second I. F. transformer for maximum reading of the microammeter.
8. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series to the grid of the 6SA7 modulator tube (Terminal No. 8).
9. Adjust the secondary of the first I. F. transformer for maximum reading of the microammeter.
10. Adjust the primary of the first I. F. transformer for maximum reading of the microammeter.

III. Radio frequency adjustments (Frequency Modulation)

1. Set the signal generator frequency and the receiver tuning dial to 40 megacycles.
2. Replace the 0.1 microfarad capacitor in series with the output lead from the signal generator with a 100 ohm resistor and connect it to the F. M. antenna terminal farthest from the end of the antenna and ground terminal strip.
3. Connect the ground lead to the other F. M. terminal on the antenna and ground terminal strip.
4. Adjust the oscillator 40 megacycles core aligner for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 43 megacycles.
6. Adjust the oscillator shunt aligner for maximum signal.
7. Adjust the R. F. and antenna aligners for maximum signal on the "0" to 200 microammeter **maintaining the center "0" microammeter at "0" at all times by rotating the receiver dial slightly back and forth.**
8. Remove both meters from the circuits and resolder the 4700 ohm resistor R-32 in its original position to terminal No. 2 on the third I. F. transformer.

IV. Intermediate frequency adjustments (Amplitude Modulation)

Adjustment of second I. F. transformer.

1. Set the range switch to standard broadcast position.
2. Turn the volume control "full on".
3. Replace the 100 ohm resistor in series with the output lead from the signal generator with a 0.1 microfarad capacitor and connect it to the grid of the 6AC7 first I. F. tube (Terminal No. 4).
4. Connect the ground terminal of the signal generator to the ground terminal of the receiver.
5. Introduce a modulated signal of 455 kilocycles to the grid of the 6AC7 first I. F. tube.
6. Adjust the second I. F. transformer aligners for maximum signal in the following order:
   a. Secondary of second I. F. transformer.
   b. Primary of second I. F. transformer.

Adjustment of first I. F. transformer.

1. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series with it to the grid of the 6SA7 Modulator Tube (Terminal No. 8).
2. Adjust the first I. F. transformer aligners for maximum signal in the following order:
   a. Secondary of first I. F. transformer.
   b. Primary of first I. F. transformer.

V. Radio Frequency adjustments (Amplitude Modulation)

Short Wave Range (C Band)

1. Replace the 0.1 microfarad capacitor in series with the output lead of the signal generator with a 400 ohm resistor and connect it to the Amplitude Modulation antenna terminal on the back of the chassis.
2. Set the range switch to the short-wave range position (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 6 megacycles.
4. Adjust the 6 megacycle "oscillator" and "antenna" iron cores for maximum signal.
5. Set the signal generator and the receiver tuning dial to 17 megacycles.
6. Adjust the 17 megacycles "oscillator" and "antenna" aligning capacitors for maximum signal.
7. Repeat operations 3 and 4.
8. Repeat operations 5 and 6.

Standard Broadcast Range (A Band)

1. Replace the 400 ohm resistor in series with the output lead of the signal generator with a 200 micro-microfarad capacitor.
2. Set the range switch to the standard broadcast range (A Band).
3. Set the signal generator frequency and the receiver tuning dial to 600 kilocycles.
4. Adjust the 600 kilocycle "oscillator", "R. F." and "Antenna" iron cores for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 kilocycles.
6. Adjust the 1500 kilocycle "oscillator", "R. F." and "Antenna" aligning capacitors for maximum signal.
7. Repeat operations 3 and 4.
8. Repeat operations 5 and 6.

VI. Wave trap adjustment. (Leave the receiver connected in the same manner as when adjusting the standard broadcast range) (A Band).

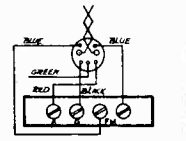
1. Set the receiver's tuning dial to 1000 kilocycles.
2. Set the signal generator frequency to 455 kilocycles and introduce a fairly strong modulated signal to the receiver.
3. Adjust the wave trap aligner for minimum signal.

IMPORTANT: Do not go back and touch up any adjustments previously made. If the receiver is not in proper alignment after completing the adjustments outlined above, go back and start over again and follow the instructions through to the finish.

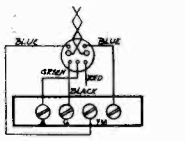
ACCESSORIES

ANTENNA. For best results use a Stromberg-Carlson No. 6 Antenna. This antenna is designed to provide improved pick-up on both the amplitude and frequency modulation bands.

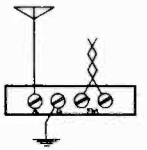
If it is desired, two ordinary antennas may be used, one for amplitude modulation, which should be a straight wire "L" type antenna about 75 feet long, and one for frequency modulation. This latter antenna may be a straight wire about 40 feet in length or of the dipole type with two arms approximately



STROMBERG-CARLSON NO. 6



STROMBERG-CARLSON NO. 6 UTILIZING TAP TO REDUCE INTERFERENCE ON BROADCAST RANGE.

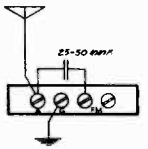


SEPARATE ANTENNAS

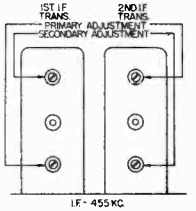
ADJUSTING DIAL LAMP

The dial on this receiver is edge-lighted, and for proper illumination it is **very important** that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket until maximum illumination is obtained.



SINGLE ANTENNA



Location Chart.

PLAYING RECORDS. To obtain the best quality of phonograph reproduction a Stromberg-Carlson record player is recommended. They are designed for use with this receiver, and all that is necessary is to connect the record player to the single prong socket provided in the chassis and proceed to operate. The volume and tone may be controlled with the controls at the receiver, or (if such is provided) the volume control on the record player may be used.

A low impedance pick-up may also be used, but a matching transformer must be placed between the phonograph pick-up and the chassis.

HEADSET ATTACHMENT. Headphones can be very simply attached to this receiver. Ask for Pc. No. 5½ feet in length. The dipole antenna will exhibit a marked directional effect and should be erected as high as possible above the ground and adjusted so as to receive the desired frequency modulated stations with best results.

For average reception, a single straight wire antenna may be used for both amplitude and frequency modulation.

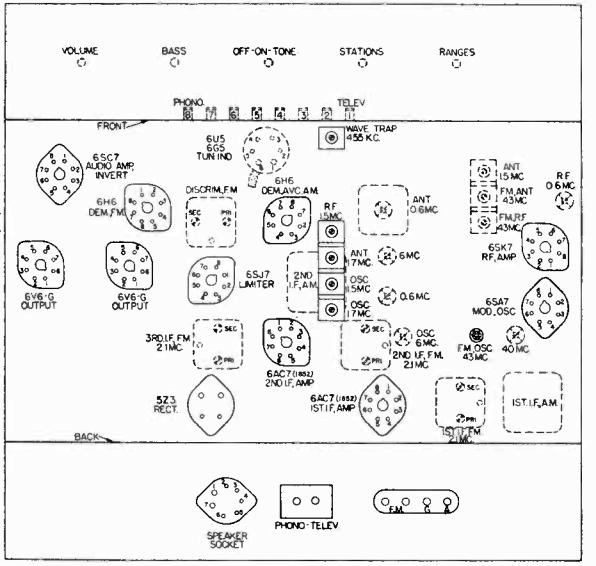
The various types of antennas should be connected to the No. 455 Receiver as follows:

28303 Headset Package Assembly, which comes complete with headphones and installation instructions.

CARE OF CABINET. The finish of Stromberg-Carlson Cabinets should be protected by using Stromberg-Carlson Cabinet Polish regularly. It is available in pint cans, designated as Pc. No. 28601.

Nicks and scratches of most kinds can be repaired quickly and easily by proper use of the Pc. No. 26962 Touch-Up Kit. Complete instructions are provided with each kit.

TOOLS. Stromberg-Carlson can supply all the tools required for working on these sets. For example:
SD-29 Phillips Head Screwdriver
No. 24608 Aligning Tool
Also pliers, cutters, screwdrivers, etc.



SPECIFICATIONS

Tuning Ranges	Frequency Modulation 40 to 44 Mc. (40,000 to 44,000 Kc.) Short-wave 5.8 to 18 Mc. (5800 to 18,000 Kc.) Standard Broadcast .54 to 1.7 Mc. (540 to 1700 Kc.)
Input Power Rating—	
Radio Models only	125 Watts
Radio-Phono Models	145 Watts
Intermediate Frequency	455 Kilocycles (Amplitude Modulation) 2.1 Megacycles (Frequency Modulation)
Speaker Field Coil Resistance—Approximately	610 Ohms
Speaker Voice Coil Impedance at 400 Cycles—Approximately	1.5 Ohms

NORMAL VOLTAGE READINGS

Take all voltage readings with chassis operating and tuned manually to 1000 kilocycles—no signal).

Use a line voltage of 125 volts or make allowance for any slight variation.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt. Take all D. C. readings on the 500 volt scale except when an asterisk appears. Read from indicated terminals to chassis base. See location chart for position of terminals.

A. C. voltages are indicated by italics.

		TERMINALS OF SOCKETS							
Tube	*Circuit*	1	2	3	4	5	6	7	8
6K7	R. F. Amp.	0	*6.3*	+0.6*	0	+0.6	+95	0	+125
6SA7	Modulator and Oscillator	0	0	+125	+115	−8	0	*6.3*	0
6AC7 (1852)	1st I. F. Amp. (A. M.—F. M.)	0	0	0	0	+3*	+140	*6.3*	+240
6AC7 (1852)	2nd I. F. Amp. (F. M.)	0	0	0	0	+2*	+140	*6.3*	+240
6SJ7	Limiter (F. M.)	0	0	0	0	0	+100	*6.3*	+100
6H6	Demodulator (A. M.)	0	*6.3*	0	0	0	—	0	0
6H6	Demodulator (F. M.)	0	*6.3*	0	0	0	—	0	0
6SC7	Audio Amp. and Audio Inv.	0	+60	0	0	+75	0	0	*6.3*
6V6G	Output	0	*6.3*	+240	+240	0	—	0	0
6V6G	Output	0	*6.3*	+240	+240	0	—	0	—
6U5	Tuning Indicator	0	0	+240	+20	0	*6.3*	—	—
5Z3	Rectifier	+360	*355*	*355*	+360	—	—	—	—
—	Speaker Socket	+340	0	0	+360	+360	—	+240	—

***Read on lowest possible scale of voltmeter**

FEATURES

GENERAL. This is a twelve-tube, three-gang, three-range receiver, designed for the reception of both amplitude and frequency modulated stations.

The chassis is of the fortified type, with bails provided for ease in handling and servicing. Eight button capacitor type automatic tuning is provided, and six favorite stations may be set up on the automatic tuning unit. The other two buttons are for switching to phonograph or television. Tone is adjusted by a variable tone control and the dial is of the slide rule type edge-lighted to provide clear visibility without glare.

Provision is made for a record player to be used with all models not already equipped with phonograph mechanism without additional wiring. The No. 455 Phonograph Models are equipped with an automatic record changer, using a crystal pick-up in conjunction with a specially equalized circuit. This record player shifts and plays either 10 or 12 inch records.

The chassis is designed to provide excellent sensitivity and fidelity and the power output is exceptionally good.

FREQUENCY MODULATION: The "Armstrong Wide-Swing Frequency Modulation System" used in this receiver is an outstanding development in radio.

The Federal Communications Commission has established five channels between 40 and 44 megacycles for frequency modulated transmitting stations. Since this is a comparatively high frequency, the distance over which reception is possible is limited.

SPECIAL CIRCUITS. A tuning indicator having two apertures, one for strong signals and one for weak signals, is used with this receiver. One aperture will close with a signal of approximately 100,000 microvolts, and the other will not close even with a two-volt signal.

Iron core coils are used in the broadcast and short-wave ranges to provide greater accuracy of alignment.

The audio system employs a special push-pull inverter system, designed to provide very good fidelity. The power transformer has an electrostatic shield to reduce line noise to a minimum, and the chassis is thoroughly shielded throughout.

AUTOMATIC TUNING. A substitution capacitor type of tuning is employed, and stations may be easily located using only one adjusting screw. Furthermore, each adjusting screw is provided with a vernier to make accurate adjustments possible.

PHONOGRAPH OPERATION. A jack is provided on the back of the chassis of all receivers not already equipped with phonograph mechanism, into which a record player may be plugged and a push button is provided on the front of the receiver for switching from "Radio" to "Phonograph".

TELEVISION. A jack is provided on the back of the chassis and a push button is provided on the front of the receiver for television operation. This makes the audio amplifier and loud-speaker system available for use with television receivers designed for this type of sound reproduction.

CONTINUITY TEST

Remove all tubes and disconnect the receiver from the power supply before making continuity test.

Test speaker socket with speaker left out.

Leave speaker plug in socket for all other tests.

Use a good meter capable of measuring 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.

See location chart on Page 3 for position and numbering of terminals.

A. Range switch in push button position — "Open"
Range switch in standard broadcast position — 3 Megohms

		TERMINALS OF SOCKETS							
Tube	*Circuit*	1	2	3	4	5	6	7	8
6SK7	R. F. Amp.	S	S	150¶	A	150¶	B	S	25000¶
6SA7	Mod. and Osc.	S	S	25000¶	B	20000¶	S	S	C
6AC7 (1852)	1st I. F. Amp. (A. M.—F. M.)	S	S	S	2M	150¶	B	S	20000¶
6AC7 (1852)	2nd I. F. Amp. (F. M.)	S	S	S	270000¶	150¶	B	S	25000¶
6H6	Demodulator (A. M.)	S	S	280000¶	S	280000¶	300000¶	S	S
6H6	Demodulator (F. M.)	S	S	100000¶	200000¶	100000¶	100000¶	S	S
6SJ7	Limiter	S	S	S	30000¶	S	12000¶	S	12000¶
6SC7	Audio Amp. and Audio Inv.	S	270000¶	10M	10M	270000¶	S	S	S
6V6G	Output	S	S	20000¶	20000¶	570000¶	100000¶	S	200¶
6V6G	Output	S	S	20000¶	20000¶	570000¶	100000¶	S	200¶
6U5	Tuning Indicator	S	1M	D	20000¶	S	S	—	—
5Z3	Rectifier	25000¶	50¶	50¶	25000¶	—	—	—	—
—	Speaker Socket	200000¶ or Greater	S	S	O	200000¶ or Greater	O	25000¶	—

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

Range switch in short-wave position — "Open"
Range switch in frequency modulation position — "Short"

B. Push in phono button — 1 Megohm or greater
Push in television button — 1 Megohm or greater

C. Range switch in push button position — 2 Megohms
Range switch in standard broadcast position — 2 Megohms
Range switch in short-wave position — 2 Megohms
Range switch in frequency modulation position — "Short"

D. Range switch in push button position — 2 Megohms
Range switch in standard broadcast position — 2 Megohms
Range switch in short-wave position — 2 Megohms
Range switch in frequency modulation position — 1 Megohm

Other tests not shown on chart
Phono jack to chassis base:
Push in phono button — 1.5 Megohms
Push in any pre-set station button — "Open"
Television jack to chassis base:
Push in television button — 1.5 Megohms
Push in any pre-set station button — "Open"
Antenna terminal to chassis base:
Range switch in push button position — 75 Ohms
Range switch in standard broadcast position — 75 Ohms
Range switch in short-wave position — "Short"
Range switch in frequency modulation position — 75 Ohms
Ground terminal to chassis base — "Short"
Frequency modulation antenna and ground tests:
Between F. M. terminals — 1,000 Ohms
F. M. terminal nearest the end of the terminal strip to chassis base — 1,000 Ohms
F. M. terminal farthest from the end of the terminal strip to chassis base — "Short"
Terminals of A. C. plug to chassis base — "Open"
Between terminals of A. C. plug:
A. C. switch in "On" position — 2 Ohms
A. C. switch in "Off" position — "Open"

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

IMPORTANT: The stations selected should be the local or favorite stations which give good reception at all times.

Set up stations in the daytime to avoid unnecessary interference.

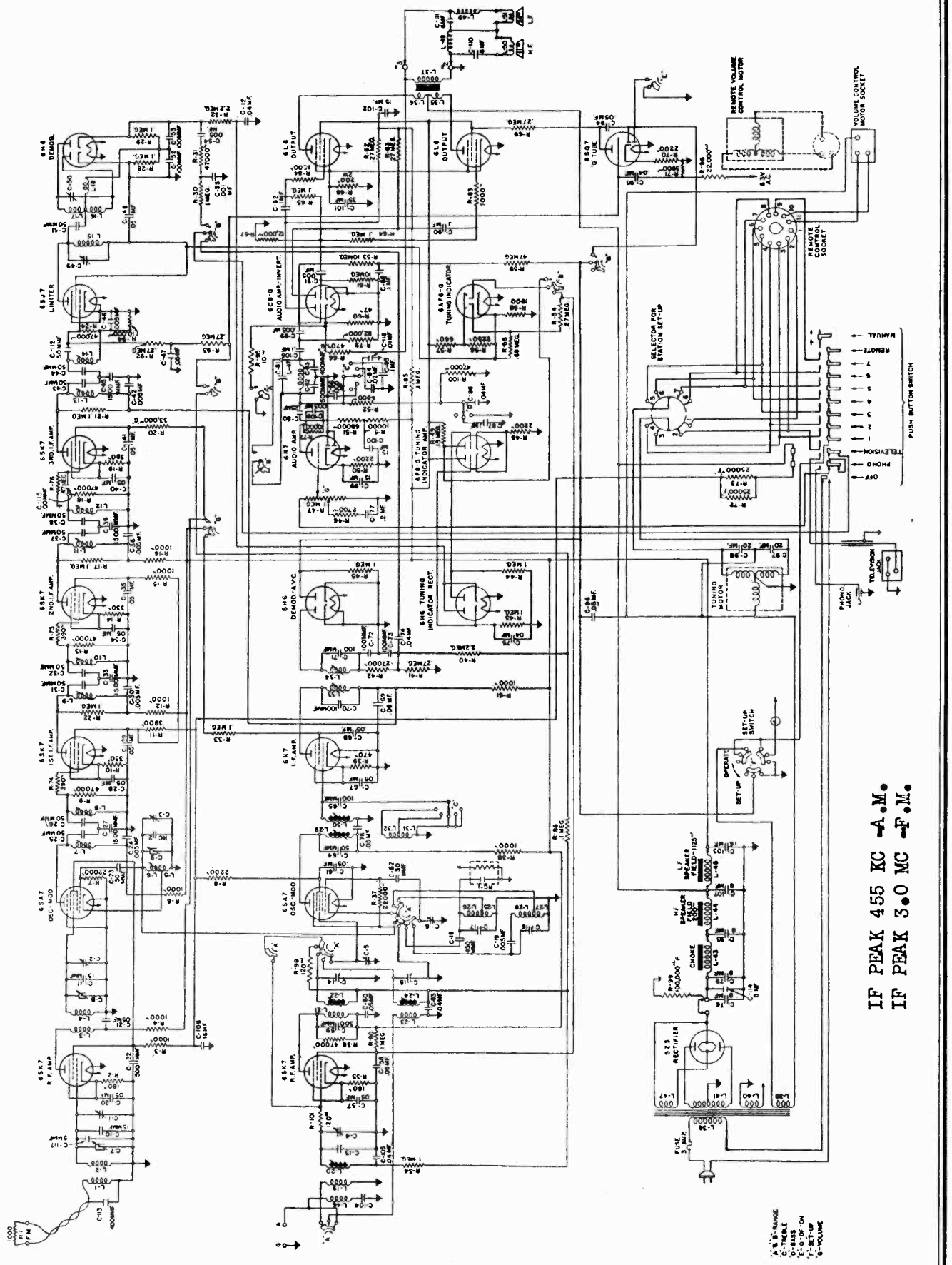
Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations in order to determine when the station is exactly in tune.

1. Remove the dial escutcheon by removing the screws and pulling downward and outward.
2. Put the call letters of the selected stations in place above the push buttons. The stations should be arranged according to frequency with the highest frequency at the right and the lowest frequency at the left, just as on the dial. (The call letters will be found inside the envelope stapled inside or underneath the cabinet.)
3. Tune in manually the highest frequency station to be set up and note carefully the program being transmitted.
4. Turn the range switch to the push button position and push the highest frequency button, then adjust the large screw over this button until the desired program is heard.
5. After the large screw is carefully adjusted, adjust the small vernier screw for maximum closing of the tuning indicator. (Be sure the large adjusting screw does not move while turning the vernier screw.)
6. Set up the other five stations in the same manner.
7. Recheck the adjustment of each adjusting screw.

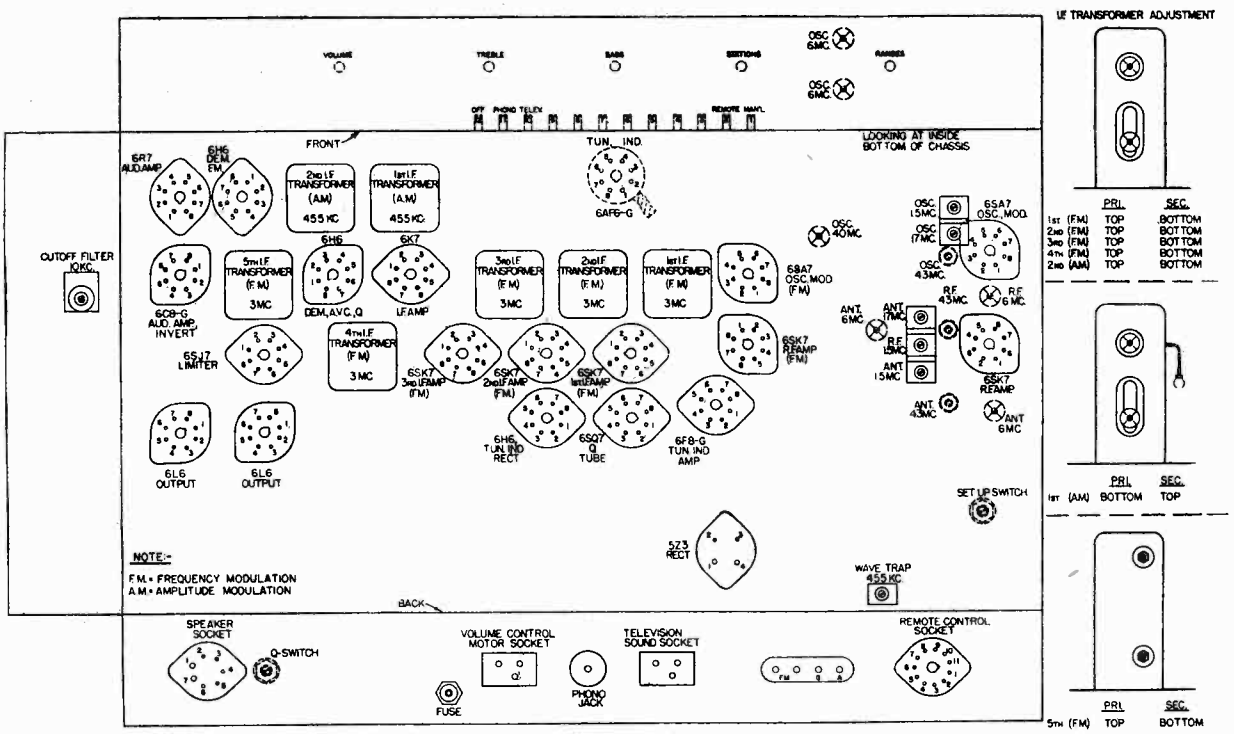
STROMBERG-CARLSON TEL. MFG. CO.

MODELS 480M, 480MB
Schematic



MODELS 480M, 480MB
Socket, Trimmers
Notes

STROMBERG-CARLSON TEL. MFG. CO.



Location Chart

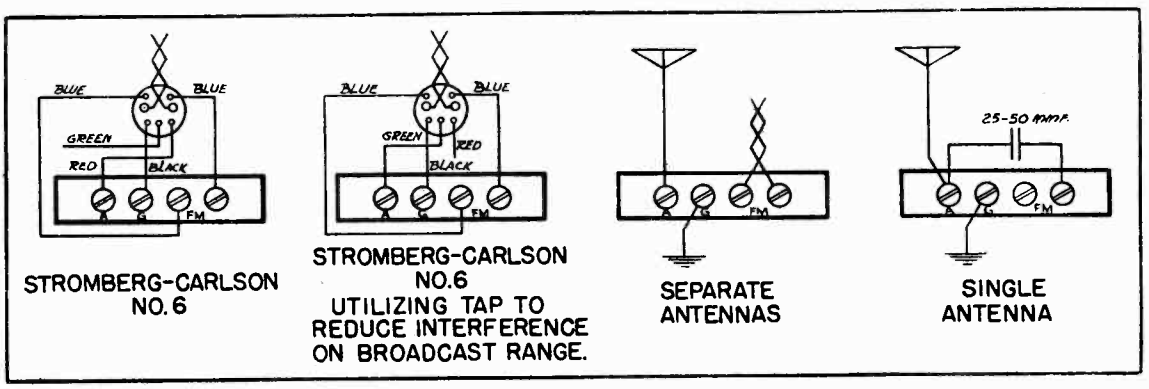
ACCESSORIES

ANTENNA. For best results use a Stromberg-Carlson No. 6 Antenna. This antenna is designed to provide improved pick-up on both the amplitude and frequency modulation bands.

If it is desired, two ordinary antennas may be used, one for amplitude modulation, which should be a straight wire "L" type antenna about 75 feet long, and one for frequency modulation. This latter antenna may be a straight wire about 40 feet in length or of the dipole type with two arms approximately 5½ feet in length. The dipole antenna will exhibit a marked directional effect and should be erected as high as possible above the ground and adjusted so as to receive the desired frequency modulated stations with best results.

For average reception, a single straight wire antenna may be used for both amplitude and frequency modulation.

The various types of antennas should be connected to the No. 480 Receiver as follows:



PLAYING RECORDS. To obtain the best quality of phonograph reproduction a Stromberg-Carlson record player is recommended. They are designed for use with this receiver, and all that is necessary is to connect the record player to the single prong socket provided in the chassis and proceed to operate. The volume and tone may be controlled with the controls at the receiver, or (if such is provided) the volume control on the record player may be used.

A low impedance pick-up may also be used, but a matching transformer must be placed between the phonograph pick-up and the chassis.

HEADSET ATTACHMENT. Headphones can be very simply attached to this receiver. Ask for Pc. No. 28303 Headset Package Assembly, which comes complete with headphones and installation instructions.

CARE OF CABINET. The finish of Stromberg-Carlson Cabinets should be protected by using Stromberg-Carlson Cabinet Polish regularly. It is available in pint cans, designated as Pc. No. 28601.

Nicks and scratches of most kinds can be repaired quickly and easily by proper use of the Pc. No. 26962 Touch-Up Kit. Complete instructions are provided with each kit.

TOOLS. Stromberg-Carlson can supply all the tools required for working on these sets. For example:

SD-29 Phillips Head Screwdriver
No. 24608 Aligning Tool
Also pliers, cutters, screwdrivers, etc.

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 480M, 480MB
Chassis Wiring, Notes

FEATURES

GENERAL. This is a twenty-tube, three gang, three range receiver designed for the reception of both amplitude and frequency modulated stations and is equipped with a dual coaxial speaker system. It is capable of reproducing without distortion an audio frequency range of at least 10,000 cycles.

The chassis is of the fortified type with bails provided for ease in handling and servicing. Automatic tuning is accomplished by means of a motor drive controlled by a commutator and brush assembly and the dial is of the slide rule type, edge-lighted for clear visibility without glare. Separate treble and bass controls are provided to make accurate adjustment of the tone possible.

REMOTE CONTROL. Remote selection of stations is accomplished by simply plugging the remote control unit into the socket provided on the back of the chassis. This unit enables the user to select any one of eight favorite stations which have been previously set up on the electric tuning system of the receiver.

FREQUENCY MODULATION: The "Armstrong Wide-Swing Frequency Modulation System" used in this receiver is an outstanding development in radio.

The Federal Communications Commission has established five channels between 40 and 44 megacycles for frequency modulated transmitting stations. Since this is a comparatively high frequency, the distance over which reception is possible is limited.

SPEAKER SYSTEM. A coaxial dual speaker system is used in this receiver. The low frequency speaker owes much of its effectiveness to the unusually large field structure with a subsequently increased magnetic flux in the air gap. The treble speaker with its back completely enclosed is mounted directly in front of the bass speaker; both speakers are connected by means of a frequency dividing network to the receiver at an impedance of 24 ohms. The Acoustical Labyrinth is used in conjunction with this speaker system and the complete system is capable of providing a relatively even response to all tones from 65 to more than 10,000 cycles per second.

SPECIAL CIRCUITS. A tuning indicator having two apertures is used with this receiver. For tuning stations on the standard broadcast and short-wave range, one aperture is for strong signals and the other for weak signals. One aperture will close with a signal of approximately 100,000 microvolts and the other will not close even with a two volt signal. Stations on the frequency modulation range should be tuned for maximum closing of both apertures.

Iron core coils are used in the broadcast and short-wave ranges to provide greater accuracy of alignment. The audio system employs a special inverter push-pull circuit designed to provide excellent fidelity, and the chassis is thoroughly shielded throughout with an electro-statically shielded power transformer.

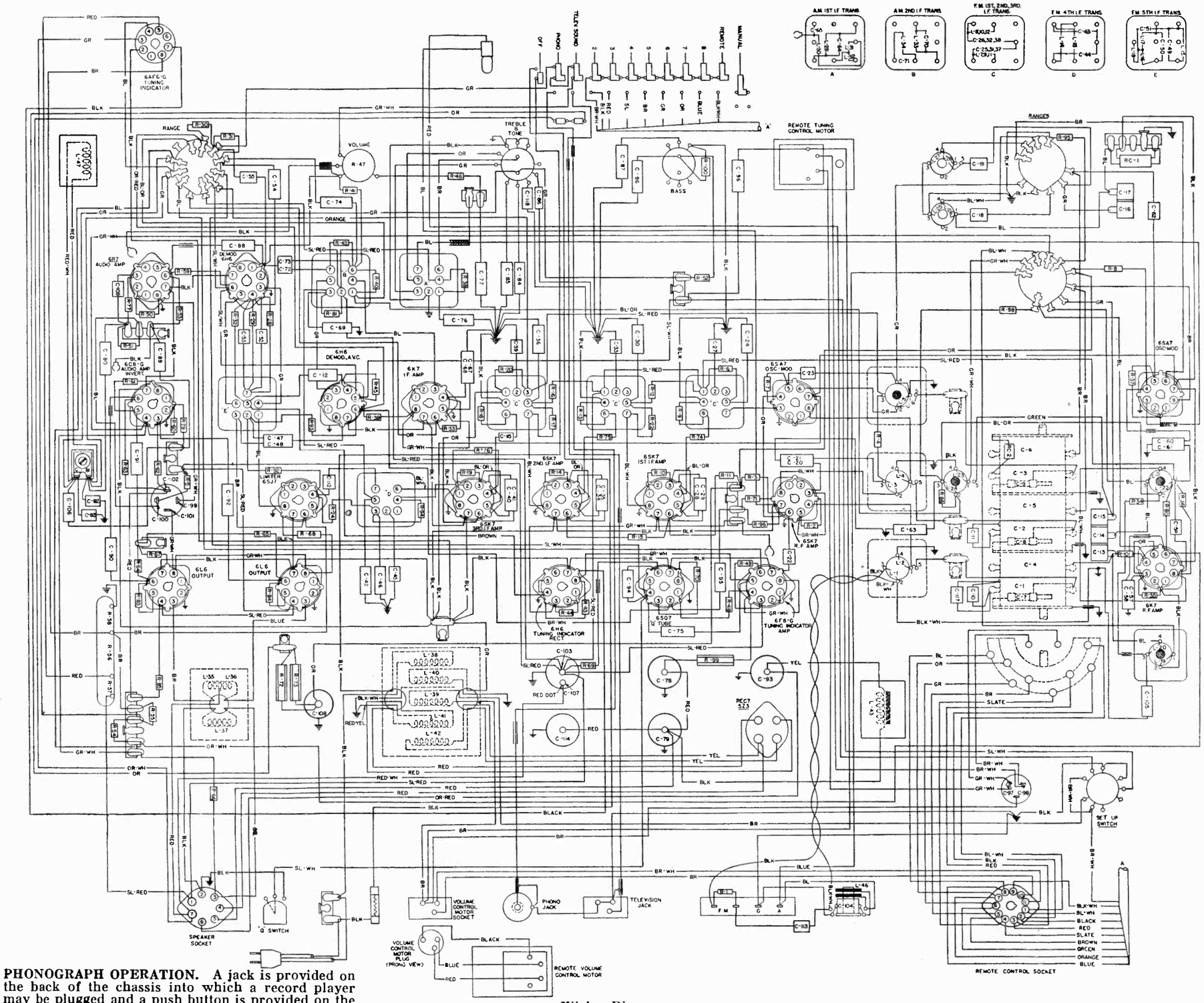
AUTOMATIC TUNING. Twelve push buttons are provided from right to left; their operation is as follows:

1. Manual Control
2. Remote Control
3-9. Pre-set Stations (7)
10. Television Sound
11. Phonograph
12. "Off" Switch

Pushing any button (except the "off" button) turns the set on and tuning is accomplished by means of an electric motor, driving the regular variable capacitor to a pre-set point.

Set up is very easily accomplished by means of a switch which causes the pilot light to go out when the brush is properly located.

TELEVISION. A socket is provided on the back of the chassis into which a television receiver may be plugged and a push button is provided on the front of the chassis for switching to television so that the audio amplifier and speaker system employed in this receiver are available for use with television receivers designed for this type of sound reproduction.



PHONOGRAPH OPERATION. A jack is provided on the back of the chassis into which a record player may be plugged and a push button is provided on the front of the chassis for switching from "Radio" to "Phonograph".

Wiring Diagram

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 480M, 480MB
Alignment

IDENTIFICATION TABLE

Model	Input Power Frequency	Chassis	Cabinet	Speaker
480-M	50-60 Cycles	31085	31088	31087 (Bass) 31126 (Treble)
480-MB	25-60 Cycles	31086	31088	31087 (Bass) 31126 (Treble)

SPECIFICATIONS

Tuning Ranges	Frequency Modulation 40 to 44 Mc. (40,000 to 44,000 Kc.) Shortwave 5.8 to 18 Mc. (5800 to 18,000 Kc.) Standard Broadcast .54 to 1.7 Mc. (540 to 1700 Kc.)
Voltage Rating	105 to 125 Volts
Type of Circuit	Superheterodyne with Electric Tuning
Input Power Rating	225 Watts
Intermediate Frequency	455 Kilocycles (Amplitude Modulation) 3.0 Megacycles (Frequency Modulation)
Speaker Field Coil Resistance—Approximately	1125 Ohms (Bass) 200 Ohms (Treble)
Speaker Voice Coil Impedance at 400 Cycles—Approximately	24 Ohms (Bass) 11 Ohms (Treble)

ALIGNING INFORMATION

NEVER REALIGN UNLESS ABSOLUTELY NECESSARY

GENERAL. All aligning adjustments are carefully made at the factory with special equipment which is designed for aligning frequency modulation receivers. The limitations of commercial oscillographs and other ordinary test equipment are such that alignment should not be attempted in the field unless absolutely necessary.

If alignment is attempted, it will not be successful unless the instructions which follow are adhered to exactly.

The following equipment will be required:

1. Standard signal generator with sweep circuit.
2. Wide band sweep signal generator.
3. Oscillograph.
4. Microammeter "0" to 200 Microamps.
5. Center "0" Microammeter with 100 divisions each side of "0".

See location chart above for location of all aligning screws.

ALIGNING PROCEDURE (follow this order exactly)

I. **Dial pointer adjustment.** With the plates of the gang tuning capacitor fully engaged, set the dial pointer directly on the two vertical lines located at the extreme low frequency end of the dial scale.

II. **Intermediate frequency adjustments** (Frequency Modulation)

1. Set the range switch to Frequency Modulation position and the volume control to "off" position.
2. Tune the set to the extreme high frequency end of the dial (44.5 megacycles).
3. Disconnect the ground side of the 10000 ohm resistor R94 and connect the "0" to 200 microammeter in series with it and ground. (This resistor is connected between terminals No. 3 and 4 of the fourth I. F. transformer.)
4. Connect the oscillograph between high side of R94 resistor and ground.
5. Connect the ground terminal of the wide band sweep signal generator to the ground terminal of the 6SK7 third I. F. tube socket.
6. Introduce a signal of 3 megacycles to the grid of the 6SK7 third I. F. tube (Terminal No. 4), using a 0.1 microfarad capacitor in series with the output lead of the signal generator. Keep the "0" to 200 microammeter at approximately 100 microamps.
7. Align the secondary and primary of the fourth I. F. transformer for maximum reading on the "0" to 200 microammeter.
8. Slight adjustments of the aligners may be made if necessary to obtain a symmetrical curve on the oscillograph. Try for a good curve rather than the very last bit of output.
9. Connect the output lead and the 0.1 microfarad capacitor in series with it to the grid of the 6SK7 second I. F. tube (Terminal No. 4).
10. Align the third I. F. transformer in the same manner.
11. Connect the output lead and the 0.1 microfarad capacitor in series with it to the grid of the 6SK7 first I. F. tube (Terminal No. 4).
12. Connect the ground lead to the ground terminal of the 6SK7 first I. F. tube socket.
13. Align the second I. F. transformer in the same manner.
14. Connect the output lead and the 0.1 microfarad capacitor in series with it to the grid of the 6SA7 modulator tube (Terminal No. 8).
15. Connect the ground lead to the ground terminal of the 6SA7 modulator tube socket.
16. Align the first I. F. transformer in the same manner.
17. Remove the wide band sweep signal generator.

III. **Discriminator adjustment** (Frequency Modulation)

Note: Be sure the frequency of both signal generators are the same.

1. Connect the ground terminal of the standard signal generator to the ground terminal of the 6SK7 second I. F. tube socket.
2. Introduce an unmodulated signal of 3 megacycles to the grid of the 6SK7 second I. F. tube (Terminal No. 4) using a 0.1 microfarad capacitor in series with the output lead of the standard signal generator.
3. Connect the center "0" microammeter with a .5 megohm resistor in series across one-half of the discriminator load. (From ground to the junction of the two .1 megohm resistors R28 and R29).
4. Set the attenuator on the standard signal generator for maximum output.
5. Adjust the primary of the discriminator transformer for maximum reading on the center "0" microammeter.
6. Connect the center "0" microammeter and the .5 megohm resistor in series with it across the whole discriminator load. (Terminal No. 4 of the 6H6 Demodulator tube and ground).
7. Adjust the secondary of the discriminator transformer for center "0" reading of the microammeter.
8. Vary the frequency of the standard signal generator slightly and be sure that the center "0" microammeter reads the same on each side of resonance. If not, go back and realign both primary and secondary.

IV. **Radio frequency adjustments** (Frequency Modulation)

1. Set the signal generator frequency and the receiver tuning dial to 40 megacycles.
2. Replace the 0.1 microfarad capacitor in series with the output lead from the signal generator with a 100 ohm resistor and connect it to the F. M. antenna terminal nearest to the end of the antenna and ground terminal strip.
3. Connect the ground lead to the other F. M. terminal on the antenna and ground terminal strip.
4. Adjust the oscillator 40 megacycles core aligner for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 43 megacycles.
6. Adjust the oscillator shunt aligner for maximum signal.
7. Adjust the R. F. and antenna aligners for maximum signal on the "0" to 200 microammeter **maintaining the center "0" microammeter at "0" at all times by rotating the receiver dial slightly back and forth.**
8. Remove both meters from the circuits and resolder the 10000 ohm resistor R94 in its original position to terminal No. 4 on the fourth I. F. transformer.

V. **Intermediate frequency adjustments** (Amplitude Modulation)

Adjustment of second I. F. transformer.

1. Set the range switch to standard broadcast position.
2. Set the fidelity control in the center or "sharp" position and turn the volume control "full on".
3. Connect the oscillograph to the high side of the volume control R47.
4. Replace the 100 ohm resistor in series with the output lead from the signal generator with a 0.1 microfarad capacitor and connect it to the grid cap of the 6K7 I. F. tube. (Do not remove the grid cap from this tube.)
5. Connect the ground terminal of the signal generator to the ground terminal of the receiver.
6. Introduce a modulated signal of 455 kilocycles to the grid of the 6K7 I. F. tube.
7. Adjust the second I. F. transformer aligners for a symmetrical curve on the oscillograph in the following order:
   a. Secondary of second I. F. transformer.
   b. Primary of second I. F. transformer.
8. Set the fidelity control to the high fidelity (expanded) position and readjust the primary of the second I. F. transformer for symmetrical curve.
9. Set the fidelity control back to the center or "sharp" position.

Adjustment of first I. F. transformer.

1. Connect the output lead from the signal generator with the 0.1 microfarad capacitor in series with it to the grid of the 6SA7 Modulator Tube. (Terminal No. 4.)
2. Adjust the first I. F. transformer aligners for a symmetrical curve on the oscillograph in the following order:
   a. Secondary of first I. F. transformer.
   b. Primary of first I. F. transformer.
3. After the Amplitude Modulation I. F. adjustments have been completed, the fidelity control should be turned to the high fidelity position and a check made on the shape of the curve which should show a slight double peak.
4. Turn the fidelity control back to middle or "sharp" position.
5. Remove the oscillograph from the circuit.

VI. **Radio frequency adjustments** (Amplitude Modulation)

Short Wave Range (C Band)

1. Replace the 0.1 microfarad capacitor in series with the output lead of the signal generator with a 400 ohm resistor and connect it to the Amplitude Modulation antenna terminal on the back of the chassis.
2. Set the range switch to the short wave range position (C Band).
3. Set the signal generator frequency and the receiver tuning dial to 6 megacycles.
4. Adjust the 6 megacycle "oscillator" and "antenna" iron cores for maximum signal.
5. Set the signal generator and the receiver tuning dial to 17 megacycles.
6. Adjust the 17 megacycles "oscillator" and "antenna" aligning capacitors for maximum signal.
7. Repeat operations 3 and 4.
8. Repeat operations 5 and 6.

Standard Broadcast Range (A Band)

1. Replace the 400 ohm resistor in series with the output lead of the signal generator with a 200 micro-microfarad capacitor.
2. Set the range switch to the standard broadcast range (A Band).
3. Set the signal generator frequency and the receiver tuning dial to 600 kilocycles.
4. Adjust the 600 kilocycle "oscillator", "R. F." and "Antenna" iron cores for maximum signal.
5. Set the signal generator frequency and the receiver tuning dial to 1500 kilocycles.
6. Adjust the 1500 kilocycle "oscillator", "R. F." and "Antenna" aligning capacitors for maximum signal.
7. Repeat operations 3 and 4.
8. Repeat operations 5 and 6.

VII. **Wave trap adjustment.** (Leave the receiver connected in the same manner as when adjusting the standard broadcast range) (A Band).

1. Set the receiver's tuning dial to 1000 kilocycles.
2. Set the signal generator frequency to 455 kilocycles and introduce a fairly strong modulated signal to the receiver.
3. Adjust the wave trap aligner for minimum signal.

IMPORTANT: Do not go back and touch up any adjustments previously made. If the receiver is not in proper alignment after completing the adjustments outlined above, go back and start over again and follow the instructions through to the finish.

MODELS 480M, 480MB
Voltage, Resistance

STROMBERG-CARLSON TEL. MFG. CO.

ADJUSTING DIAL LAMP

The dial on this receiver is edge-lighted, and for proper illumination it is very important that the dial light be adjusted so that the filament is exactly opposite the edge of the glass.

To make this adjustment simply slide the pilot light socket back and forth on its mounting bracket until maximum illumination is obtained.

NORMAL VOLTAGE READINGS

Take all voltage readings with chassis operating and tuned manually to 1000 kilocycles or 43 megacycles—no signal.

The upper figures shown in the table are with the range switch set to the standard broadcast range and tuned to approximately 1000 kilocycles—no signal.

The lower figures shown in the table are with the range switch set to the frequency modulation position and tuned to approximately 43 megacycles—no signal.

Use a line voltage of 125 volts or make allowance for any slight variation.

Use a good high resistance voltmeter having a resistance of at least 1000 ohms per volt. Take all D. C. readings on the 500 volt scale except when an asterisk appears. Read from indicated terminals to chassis base. See location chart for position of terminals.

A. C. voltages are indicated by italics.

Tube	Circuit	Range Switch Set To	Cap	1	2	3	4	5	6	7	8
				TERMINALS OF SOCKETS							
6SK7	R. F. Amp. (F. M.)	A. M.	—	0	0	+1*	—	+1*	+68	*6.5*	0
		F. M.	—	0	0	+3*	—	+3*	+135	*6.5*	+265
6SA7	Mod. and Osc. (F. M.)	A. M.	—	0	0	+290	+70	—	0	*6.5*	0
		F. M.	—	0	0	+280	+120	—	0	*6.5*	0
6SK7	1st I. F. Amp. (F. M.)	A. M.	—	0	0	+2*	—	+2*	+70	*6.5*	+290
		F. M.	—	0	0	+4*	—	+4*	+110	*6.5*	+265
6SK7	2nd I. F. Amp. (F. M.)	A. M.	—	0	0	+2*	—	+2*	+55	*6.5*	+290
		F. M.	—	0	0	+3*	—	+3*	+90	*6.5*	+270
6SK7	3rd I. F. Amp. (F. M.)	A. M.	—	0	0	0	—	0	0	*6.5*	+285
		F. M.	—	0	0	+6*	—	+6*	+150	*6.5*	+260
6SJ7	Limiter (F. M.)	A. M.	—	0	0	0	—	0	+95	*6.5*	+95
		F. M.	—	0	0	0	—	0	+90	*6.5*	+95
6H6	Demod. (F. M.)	A. M.	—	0	0	—	—	—	—	*6.5*	0
		F. M.	—	0	0	—	—	—	—	*6.5*	0
6SQ7	"Q" (F. M.)	A. M.	—	0	0	+2*	—	—	+130	*6.5*	0
		F. M.	—	0	0	+2*	—	—	+120	*6.5*	0
6H6	Tun. Ind. Rect. (F. M.)	A. M.	—	0	0	—	—	—	—	*6.5*	—
		F. M.	—	0	0	—	—	—	—	*6.5*	—
6F8G	Tun. Ind. Amp. (F. M.)	A. M.	0	0	0	+295	+11**	—	+200	*6.5*	+11**
		F. M.	0	0	0	+275	+10**	—	+185	*6.5*	+10**
6SK7	R. F. Amp. (A. M.)	A. M.	—	0	0	+2*	—	+2*	+90	*6.5*	+290
		F. M.	—	0	0	+2*	—	+2*	+80	*6.5*	+275
6SA7	Mod. and Osc. (A. M.)	A. M.	—	0	0	+290	+70	—	0	*6.5*	0
		F. M.	—	0	0	+275	+135	—	+100	*6.5*	0
6K7	I. F. Amp. (A. M.)	A. M.	0	0	0	+285	+115	+4*	+290	*6.5*	+4*
		F. M.	0	0	0	+260	0	0	0	*6.5*	0
6H6	Demod., A. V. C., "Q" (A. M.)	A. M.	—	0	0	—	0	—	—	*6.5*	0
		F. M.	—	0	0	—	0	—	—	*6.5*	0
6B7	Audio Amp.	A. M.	0	0	0	+90	0	0	—	*6.5*	+3*
		F. M.	0	0	0	+85	0	0	—	*6.5*	+3*
6C8G	Audio Inv.	A. M.	0	0	0	+35	—	—	+35	*6.5*	0
		F. M.	0	0	0	+35	—	—	+35	*6.5*	0
6L6G	Output	A. M.	—	0	0	+415	+290	—	—	*6.5*	+20**
		F. M.	—	0	0	+410	+275	—	—	*6.5*	+20**
6L6G	Output	A. M.	—	0	0	+415	+290	—	—	*6.5*	+20**
		F. M.	—	0	0	+410	+275	—	—	*6.5*	+20**
5Z3	Rectifier	A. M.	—	+495	*480*	*480*	+495	—	—	*5*	—
		F. M.	—	+495	*480*	*480*	+495	—	—	*5*	—
6AF6G	Tun. Ind.	A. M.	—	—	0	+65	+90	+250	—	*6.5*	+95
		F. M.	—	—	0	+60	+185	+235	—	*6.5*	+90
	Speaker Socket	A. M.	—	+290	0	0	+495	+495	+486	+425	—
		F. M.	—	+275	0	0	+495	+495	+486	+420	—

*Read on lowest possible scale of voltmeter.
**Read on 100 volt scale of voltmeter.

CONTINUITY TEST

Remove all tubes and disconnect the receiver from the power supply before making continuity test.

Test speaker socket with speaker left out.

Leave speaker plug in socket for all other tests. (If a speaker is not available when checking continuity the speaker socket may be shorted by using two pieces of bus wire and shorting together terminals 1, 6 and 7 and terminals 4 and 5 of the speaker socket. (See location chart for position and numbering of terminals.) **Caution: Be sure to remove the two shorting wires when the continuity test is completed.**

Tube	Circuit	Cap	1	2	3	4	5	6	7	8
			TERMINALS OF SOCKETS							
6SK7	R. F. Amp. (F. M.)	—	S	S	180¶	S	180¶	A	S	O
6SA7	Osc. and Mod. (F. M.)	—	S	S	6000¶	A	22000¶	S-	S	S
6SK7	1st I. F. Amp. (F. M.)	—	S	S	330¶	390¶	330¶	B	S	6000¶
6SK7	2nd I. F. Amp. (F. M.)	—	S	S	330¶	390¶	330¶	C	S	6000¶
6SK7	3rd I. F. Amp. (F. M.)	—	S	S	390¶	470000¶	390¶	D	S	5000¶
6SJ7	Limiter (F. M.)	—	S	S	S	57000¶	S	1900¶	S	1900¶
6H6	Demod. (F. M.)	—	S	S	100000¶	200000¶	100000¶	1M	S	S
6SQ7	"Q" Tube (F. M.)	—	S	600000¶	2200¶	E	E	280000¶	S	S
6H6	Tun. Ind. Rect. (F. M.)	—	S	S	1M	2.4M	2.4M	O	S	1M
6F8G	Tun. Ind. Amp. (F. M.)	1M	S	S	5000¶	2000¶	1M	150000¶	S	2200¶
6SK7	R. F. Amp. (A. M.)	—	S	S	180¶	F	180¶	90000¶	S	5000¶
6SA7	Osc. and Mod. (A. M.)	—	S	S	6000¶	G	22000¶	H	S	I
6K7	I. F. Amp. (A. M.)	7¶	S	S	5000¶	J	470¶	K	S	470¶
6H6	Demod., A. V. C., "Q" (A. M.)	—	S	S	300000¶	S	900000¶	500000¶	S	S
6B7	Audio Amp.	1M	S	S	100000¶	S	S	1.5M	S	2200¶
6C8G	Audio Inv.	1M	S	S	350000¶	47¶	10M	350000¶	S	S
6L6	Output	—	S	S	5000¶	5000¶	150000¶	150000¶	S	200¶
6L6	Output	—	S	S	5000¶	5000¶	150000¶	150000¶	S	200¶
5Z3	Rectifier	—	5000¶	30¶	30¶	5000¶	—	—	—	—
6AF6G	Tun. Ind.	—	O	S	200000¶	L	4200¶	O	S	1900¶
—	Speaker Socket	—	5000¶	S	S	O	90000¶	90000¶	300000¶	—

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

Use a good meter capable of measuring 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.

See location chart for position and numbering of terminals.

A.	Push in any "Pre-set Station" Button	18,000 Ohms
	Push in "Phono" Button	300,000 Ohms
	Push in "Television" Button	300,000 Ohms
B.	Push in any "Pre-set Station" Button	20,000 Ohms
	Push in "Phono" Button	400,000 Ohms
	Push in "Television" Button	400,000 Ohms
C.	Push in any "Pre-set Station" Button	30,000 Ohms
	Push in "Phono" Button	400,000 Ohms
	Push in "Television" Button	400,000 Ohms
D.	Range switch in standard broadcast position	"Open"
	Range switch in short-wave position	"Open"
	Range Switch in frequency modulation position	38,000 Ohms
E.	"Q" Switch "On"	
	Range switch in standard broadcast position	"Open"
	Range switch in short-wave position	"Open"
	Range Switch in frequency modulation position	1 Megohm
	"Q" Switch "Off"	
	Range switch in standard broadcast, short-wave and frequency modulation positions	"Short"
	Set up switch in "Set up" position	"Short"
	Set up switch in "Operate" position	1 Megohm
F.	Range switch in standard broadcast position	3 Megohms
	Range switch in short-wave position	3 Megohms
	Range switch in frequency modulation position	550,000 Ohms
G.	Push in any "Pre-set Station" Button	20,000 Ohms
	Push in "Phono" Button	400,000 Ohms
	Push in "Television" Button	400,000 Ohms
H.	Range switch in standard broadcast position	"Short"
	Range switch in short-wave position	"Short"
	Range switch in frequency modulation position	"Open"
I.	Range switch in standard broadcast position	3.5 Megohms
	Range switch in short-wave position	3.5 Megohms
	Range switch in frequency modulation position	"Open"
J.	Range switch in standard broadcast position	100,000 Ohms
	Range switch in short-wave position	100,000 Ohms
	Range switch in frequency modulation position	"Open"
K.	Range switch in standard broadcast position	5,000 Ohms
	Range switch in short-wave position	5,000 Ohms
	Range switch in frequency modulation position	"Open"
L.	Range switch in standard broadcast position	900,000 Ohms
	Range switch in short-wave position	900,000 Ohms
	Range switch in frequency modulation position	1.5 Megohms

Other tests not shown on chart—

Phono jack to chassis base	
Push in "Phono" button	1 Megohm
Push in any "Pre-set" Station button	"Open"
Television jack to chassis base	
Terminal No. 1 (this is the terminal located nearest to the bottom of the chassis) Push in "Television" button	1 Megohm
Terminal Nos. 2 and 3	"Short"
Amplitude Modulation Antenna Terminal to chassis base	"Short"
Amplitude Modulation Ground Terminal to chassis base	"Short"
Frequency Modulation Terminals to chassis base	"Open"
Between Frequency Modulation Terminals	1,000 Ohms
Terminals of A. C. Plug to chassis base	"Open"
Between terminals of A. C. Plug—	
Push in "Off" button	"Open"
Push in any other button	1.5 Ohms

STROMBERG-CARLSON TEL. MFG. CO.

MODELS 480M, 480MB
Tuner Data

INSTRUCTIONS FOR SETTING UP PUSH BUTTONS

IMPORTANT: The stations selected should be local or favorite stations which give good reception at all times. Frequency Modulated Stations, as well as Amplitude Modulation Stations, may be set up on the push buttons by simply using the appropriate button determined by the position of the Frequency Modulated Station on the dial.

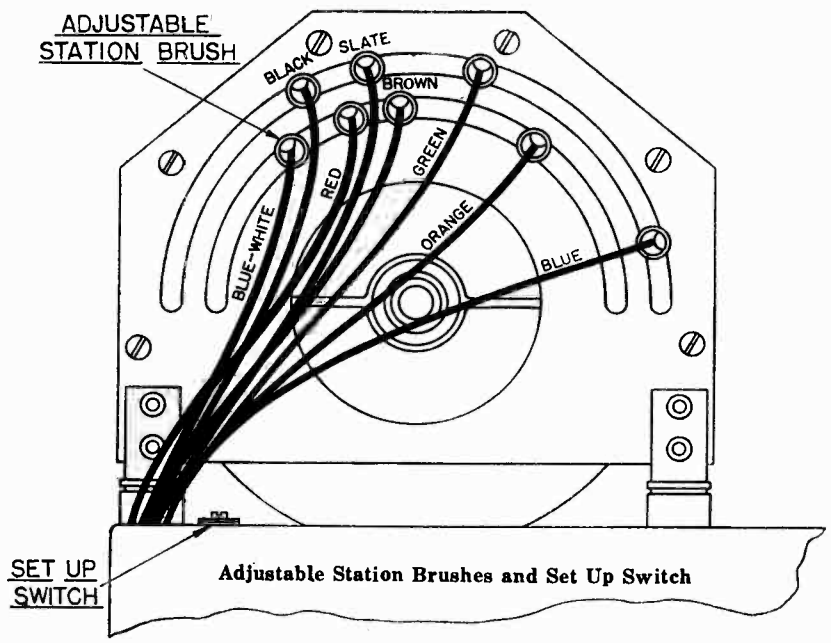
Set up stations in the daytime to avoid unnecessary interference.

Allow the set to run for about twenty minutes before setting up stations.

Always use the tuning indicator unit when setting up stations in order to determine when the station is exactly in tune.

Seven stations may be set up for push buttons located on the front of the receiver and eight stations may be set up on the remote control unit. The same seven stations which were set up for the buttons on the front of the receiver must also be used on the remote control unit and the eighth station which is chosen for the remote control unit must be of a lower frequency than any of the other stations which have been set up.

1. Put the call letters of the selected stations in place above the push buttons. **The stations should be arranged according to frequency with the highest frequency at the right and the lowest frequency at the left, just as on the dial.** (The call letters will be found inside the envelope stapled inside or underneath the cabinet).
2. Remove the metal escutcheon and transparent strip from the remote control unit. Put the station call letters in place so that the station having the highest frequency is nearest to the volume control buttons and then in successive order according to frequency. Replace the metal escutcheon, transparent strip and three screws. (The call letters for the remote control unit are included in the P-31424 Remote Control Package Assembly.)
3. Set the "Treble" control in normal position.
4. Turn the set-up switch (located on the base just back of the brush and commutator assembly) to the set-up position. (The slot in the screw should point toward "set-up").
5. Push the button of the highest frequency station to be set up (button No. 3) and then tune in that station manually. **Be sure the station is exactly "in tune" by tuning carefully and watching the cathode ray indicator.**
6. Slide the brush to which the blue wire is connected until it is over the slot in the commutator. Then adjust it very carefully until the pilot light goes out. This indicates exact adjustment.
7. Repeat operations 4 and 5 for each station. Work from right to left or from the higher to the lower frequencies in accordance with the table below:
8. Turn the set-up switch back to the "Operate" position.
9. Check the operation of all the push buttons to be sure that each has been accurately set up. If it is necessary to readjust any of the buttons, follow the procedure given above.



Adjustable Station Brushes and Set Up Switch

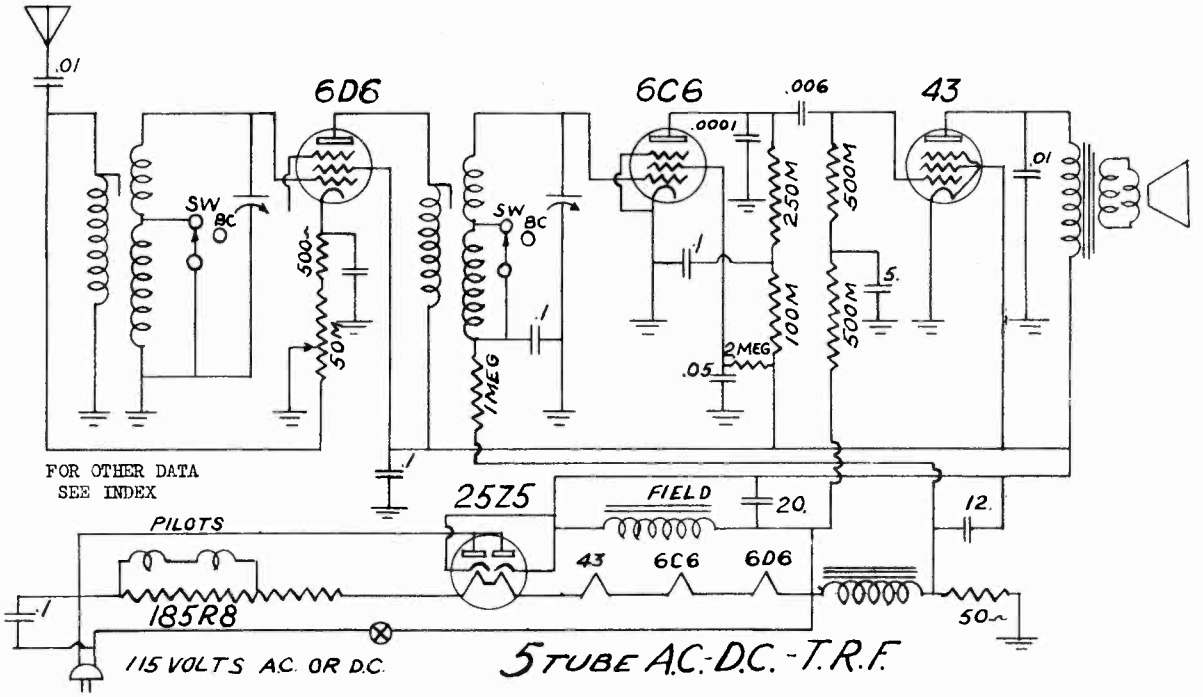
Push Button No.	Purpose	Color of wire on brush
1	Manual	—
2	Remote	—
3	Highest frequency station	Blue
4	Next lower frequency station	Orange
5	Next lower frequency station	Green
6	Next lower frequency station	Brown
7	Next lower frequency station	Slate
8	Next lower frequency station	Red
9	Lowest frequency station on receiver	Black
10	Telev. button on receiver Lowest frequency button on remote control unit	Blue White
11	Phonograph	
12	Off	

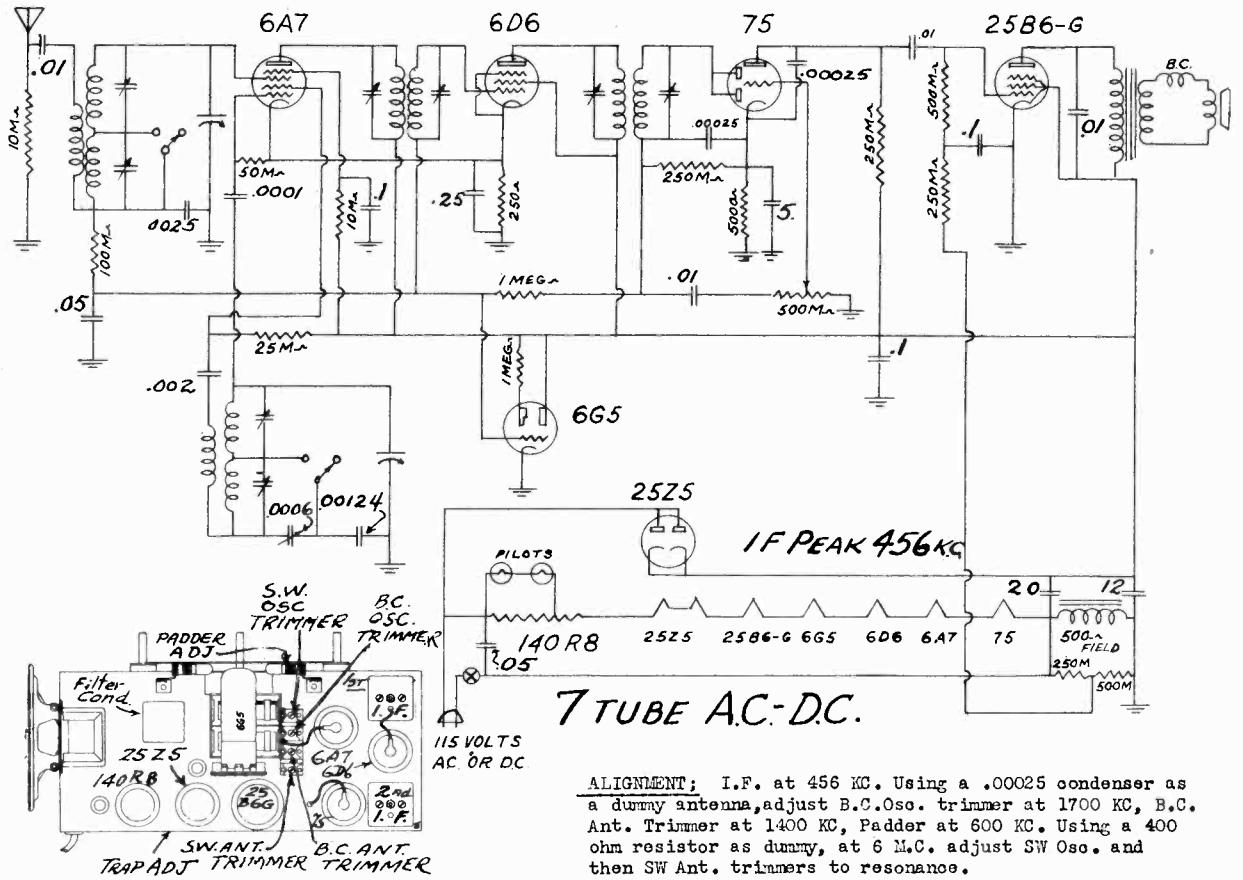
See diagram of adjustable brushes and set-up switch.

MODEL 7-Tube AC-DC Superhet.
Schematic, Socket
Alignment, Trimmers

TRAV-LER RADIO & TELEVISION CORP.

MODEL 5-Tube TRF
Schematic





ALIGNMENT; I.F. at 456 KC. Using a .00025 condenser as a dummy antenna, adjust B.C. Osc. trimmer at 1700 KC, B.C. Ant. Trimmer at 1400 KC, Padder at 600 KC. Using a 400 ohm resistor as dummy, at 6 M.C. adjust SW Osc. and then SW Ant. trimmers to resonance.

MODEL 7-Tube Auto
Schematic, Socket
Trimmers, Alignment
Voltage

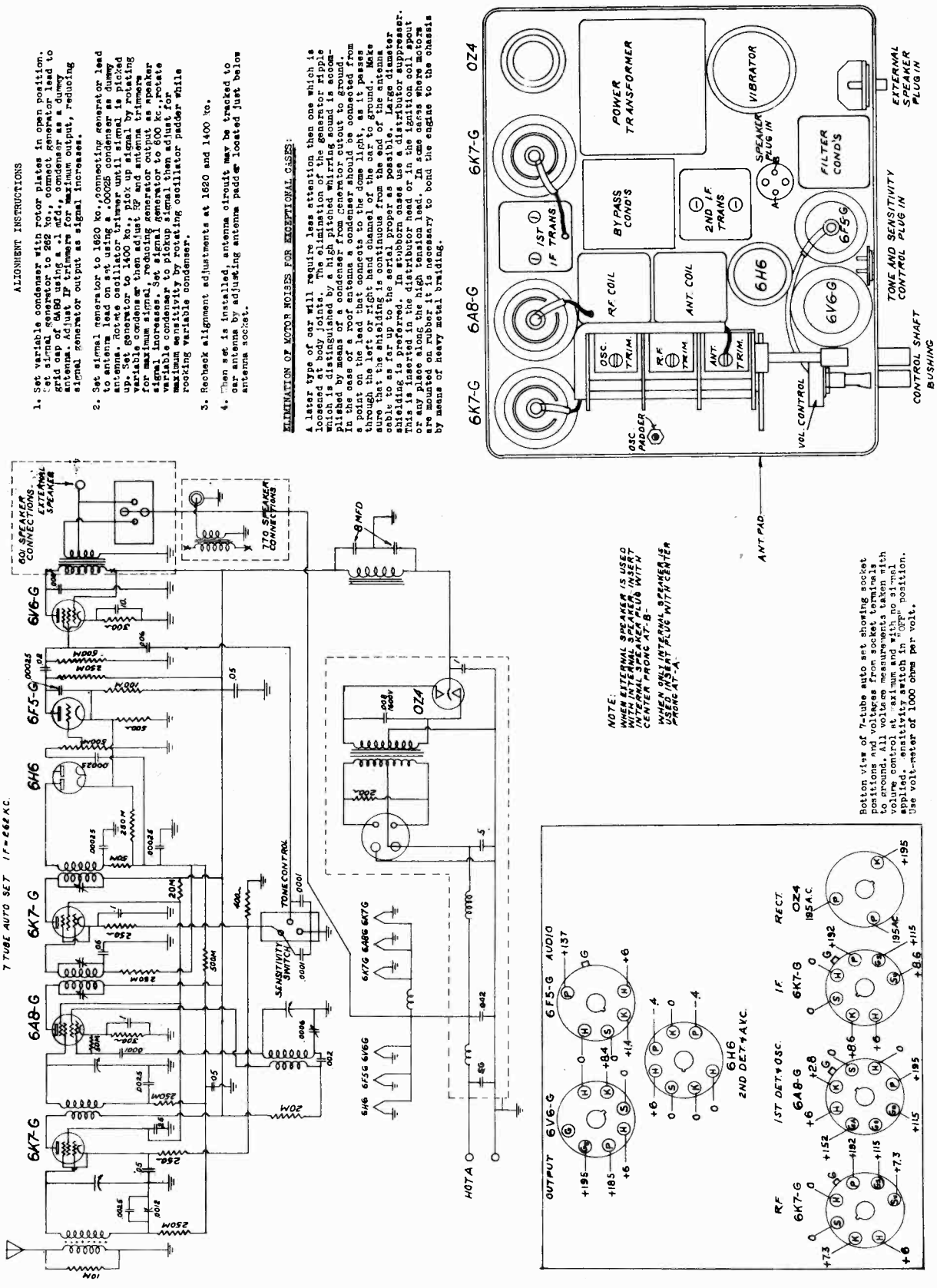
TRAV-LER RADIO & TELEVISION CORP.

ALIGNMENT INSTRUCTIONS

1. Set variable condenser with rotor plates in open position. Set signal generator to 262 Kc., connect generator lead to grid cap of 6A8 using a .1 mfd. condenser as a dummy antenna. Adjust IF trimmers for maximum output, reducing signal generator output as signal increases.
2. Set signal generator to 1620 Kc., connecting generator lead to antenna lead on set using a .00025 condenser as dummy antenna. Rotate oscillator trimmer until signal is picked up. Set generator to 1400 Kc., pick up signal by rotating variable condenser then adjust RF and antenna trimmers for maximum signal, reducing generator output as speaker signal increases. Set signal generator to 600 Kc., rotate variable condenser to pickup signal then adjust for maximum sensitivity by rotating oscillator padder while rocking variable condenser.
3. Recheck alignment adjustments at 1620 and 1400 Kc.
4. When set is installed, antenna circuit may be tracked to car antenna by adjusting antenna padder located just below antenna socket.

ELIMINATION OF MOTOR NOISES FOR EXCEPTIONAL CASES:

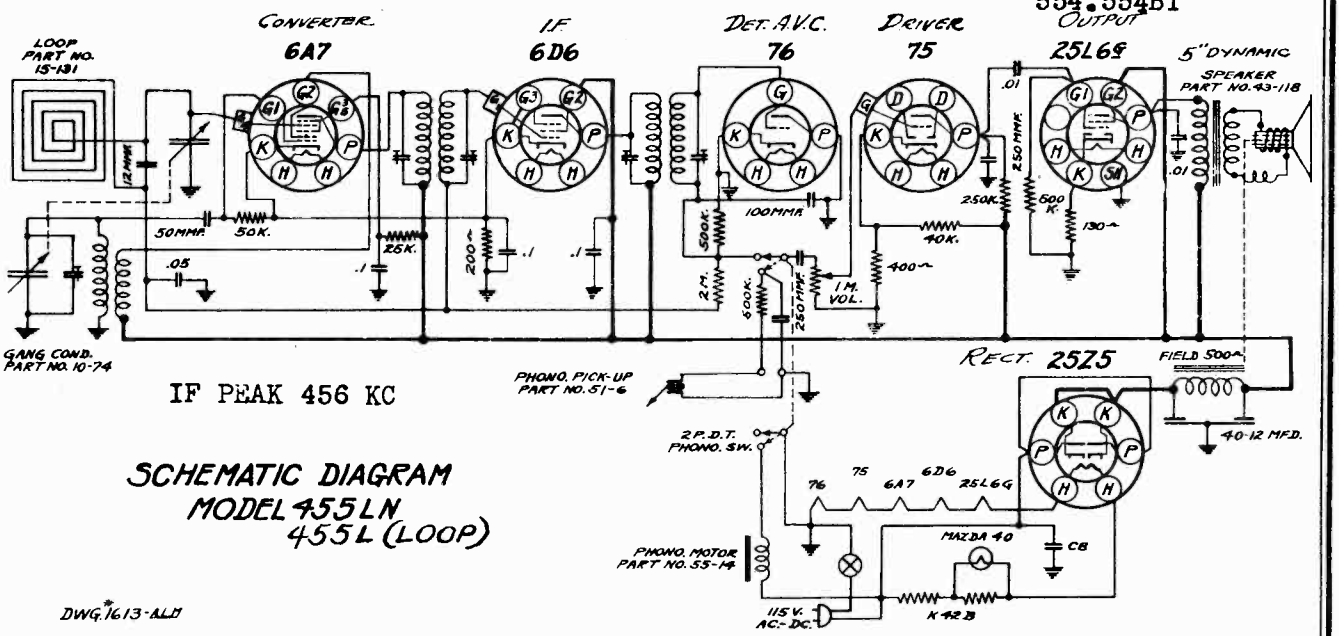
A later type of car will require less attention than one which is loosened at body joints. The elimination of the generator ripple which is distinguished by a high pitched whirring sound is accomplished by means of a condenser from generator cutout to ground. In the case of a roof antenna a condenser should be connected from a point on the lead that connects to the dome light, as it passes through the left or right hand channel of the car to ground. Make sure that the shielding is continuous from the end of the antenna cable to the set. This is provided in stubborn cases with a distributor suppressor. This is inserted in the distributor head or in the ignition coil spout or any place along the high tension lead. In some cases where motors are mounted on rubber it is necessary to bond the engine to the chassis by means of heavy metal braiding.



Schematics, Alignment

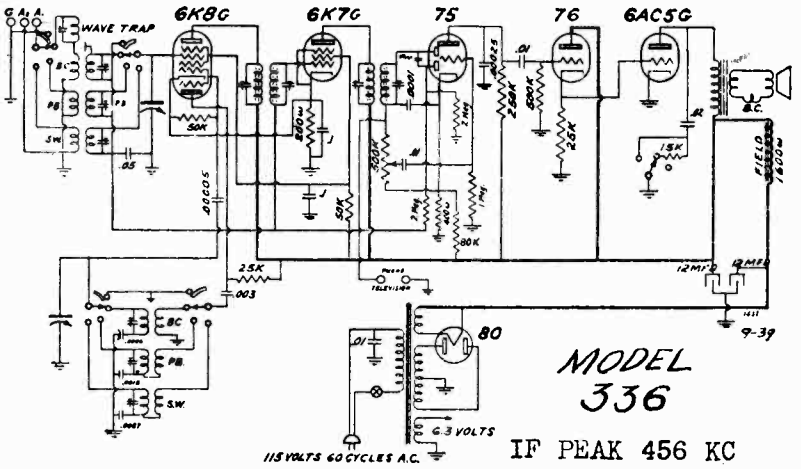
TRAV-LER RADIO & TELEV. CORP.

MODEL 336
MODELS 455L, 455LN
MODELS 553, 553BT,
554, 554BT



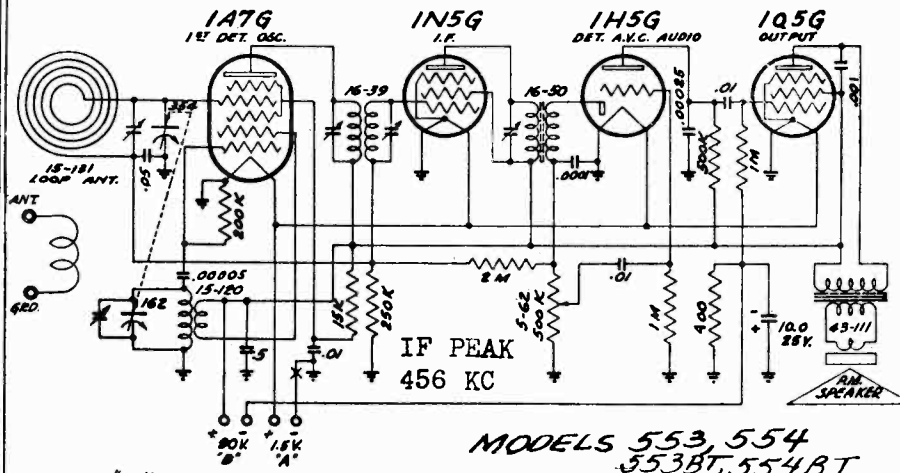
SCHEMATIC DIAGRAM
MODEL 455LN
455L (LOOP)

DWG. #613-ALD



MODEL 336

IF PEAK 456 KC



MODELS 553, 554
553BT, 554BT

"A" — USE EVER-READY 742 OR EQUIVALENT.
"B" — " (2) " " 762 " "

MODELS 455L (Loop), 455 LN ALIGNMENT

IF 456 KC. RF (Use single loop of wire 5 or 6 inches in diameter about 8 inches from receiver loop) Adjust Osc. and Ant. trimmers at 1400 KC for Max. Output.

MODEL 336 ALIGNMENT

IF - 456 KC. Adjust B.C. Osc. at 1720 KC; B.C. R.F. and Ant. Trimmers at 1400 KC, Pad at 600 KC; Check at 1400 KC. INT. Adjust P.B. Osc. at 6700; P.B. Ant. and R.F. trimmers at 6000 KC; Check at 2200 KC. S.W. Adjust S.W. Osc. at 24.5 MC, S.W. Ant. and R.F. trimmers at 22 MC.; Check at 8 MC. (Use a standard all wave dummy antenna if available)

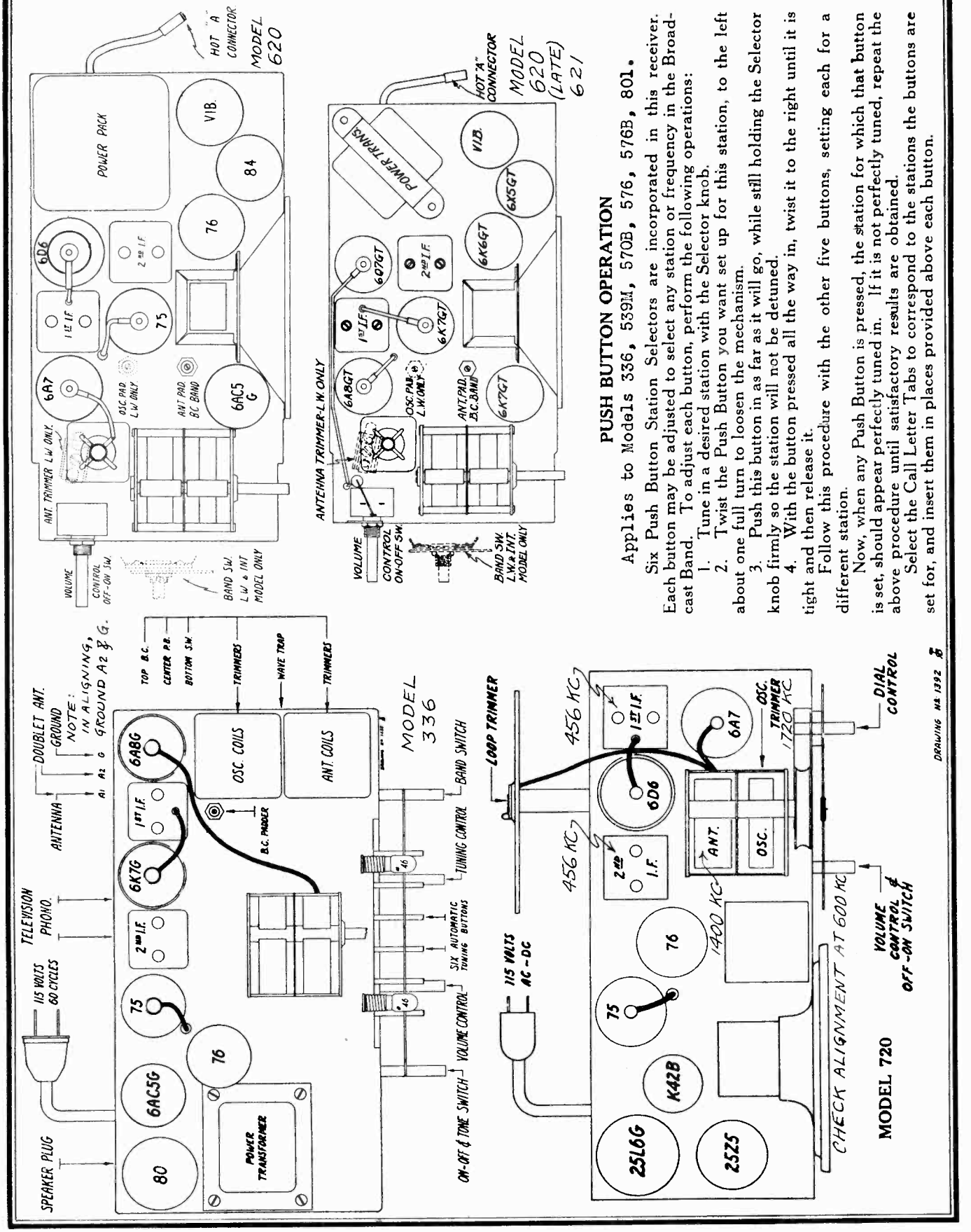
MODELS 553, 554. ALIGNMENT

IF - 456 KC. R.F. (Use a signal loop near and parallel to receiver loop. Receiver loop should be close to installed position) Adjust Osc. at 1720 KC, Ant at 1400 KC and check at 600 KC.

MODEL 336 MODEL 620
MODEL 621 MODEL 720
Socket, Trimmers

TRAV-LER RADIO & TELEV. CORP

MODEL 336 MODEL 539M
MODEL 570B MODEL 576
MODEL 801 Tuner Data



MODEL 720

PUSH BUTTON OPERATION

Applies to Models 336, 539M, 570B, 576, 576B, 801.

Six Push Button Station Selectors are incorporated in this receiver. Each button may be adjusted to select any station or frequency in the Broadcast Band. To adjust each button, perform the following operations:

1. Tune in a desired station with the Selector knob.
2. Twist the Push Button you want set up for this station, to the left about one full turn to loosen the mechanism.
3. Push this button in as far as it will go, while still holding the Selector knob firmly so the station will not be detuned.
4. With the button pressed all the way in, twist it to the right until it is tight and then release it.

Follow this procedure with the other five buttons, setting each for a different station.

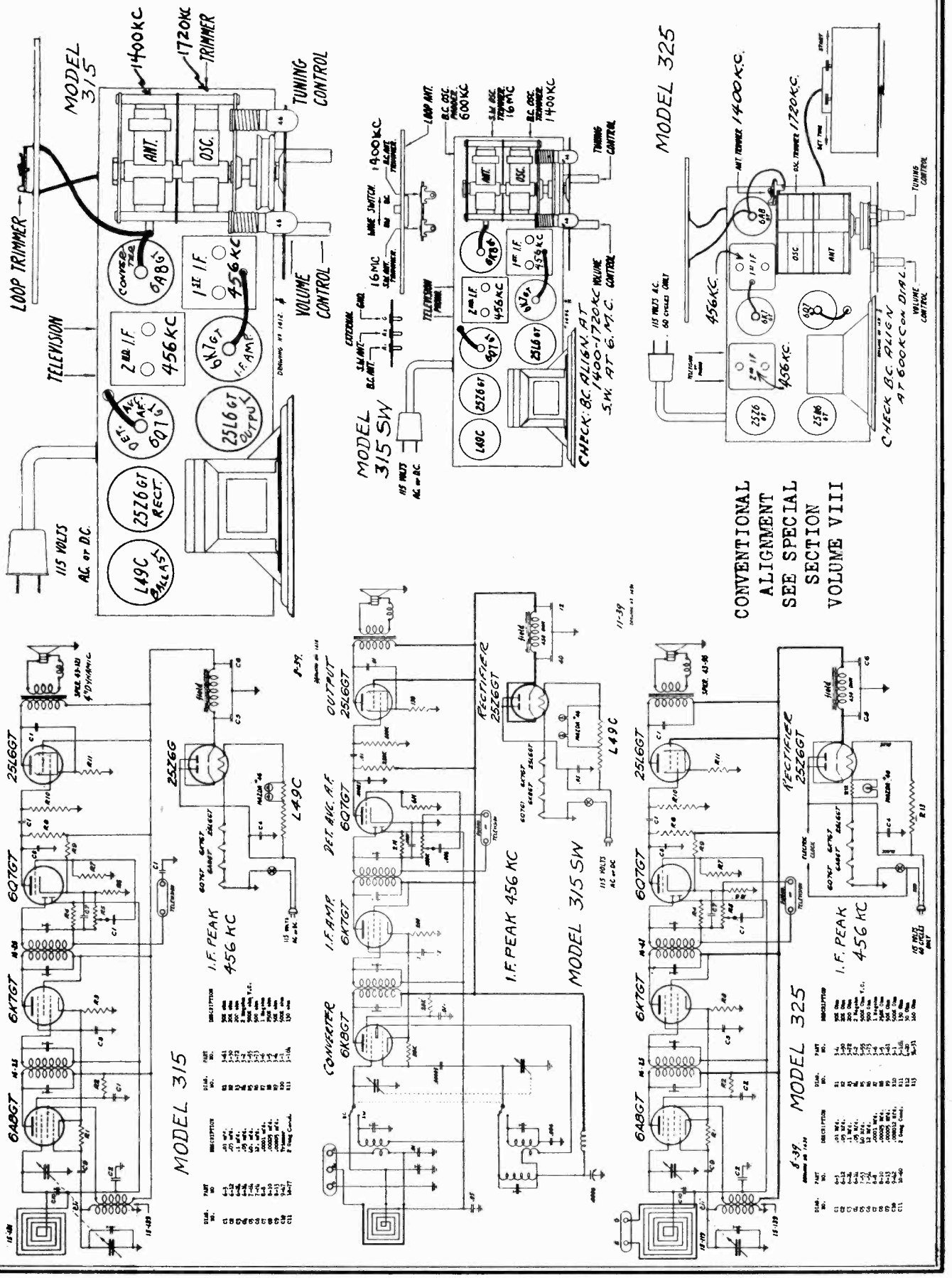
Now, when any Push Button is pressed, the station for which that button is set, should appear perfectly tuned in. If it is not perfectly tuned, repeat the above procedure until satisfactory results are obtained.

Select the Call Letter Tabs to correspond to the stations the buttons are set for, and insert them in places provided above each button.

Schematics, Sooket
Trimmers, Aligment

TRAV-LER RADIO & TELEV. CORP.

MODEL 315
MODEL 315SW
MODEL 325

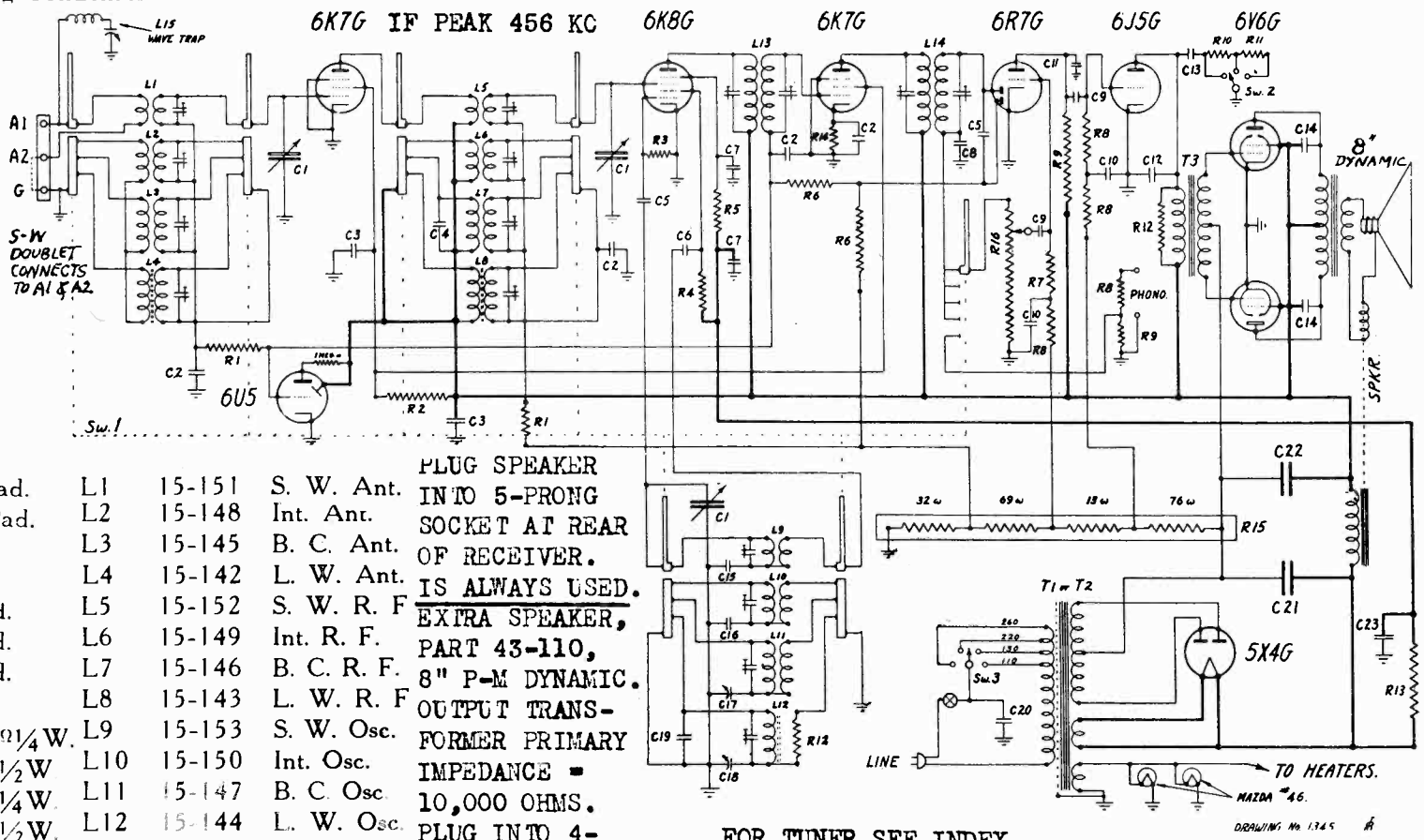


C1	10-62	Tuning Condenser
C2	6-12	.05
C3	6-26	.1
C4	8-19	.00003
C5	8-13	.00005
C6	6-36	.003
C7	6-14	.05
C8	8-8	.0001
C9	6-3	.01
C10	6-24	.1
C11	8-10	.00025
C12	8-1	.001
C13	6-11	.03
C14	6-53	.003
C15	8-47	.0087
C16	8-7	.0018
C17	9-27	B.C. Pad.
C18	9-14	L.W. Pad.
C19	8-33	.00005
C20	6-4	.01
C21	7-49	25 mfd.
C22	7-51	20 mfd.
C23	7-66	16 mfd.

R1	3-5	250KΩ 1/4 W.
R2	3-169	75KΩ 1/2 W
R3	3-4	50KΩ 1/4 W.
R4	3-8	25KΩ 1/2 W.
R5	3-170	30KΩ 1 W.
R6	3-2	2KΩ 1/4 W.
R7	3-6	1KΩ 1/4 W.
R8	3-1	500KΩ 1/4 W.
R9	3-17	100KΩ 1/4 W.
R10	3-3	5KΩ 1/4 W.
R11	3-14	10KΩ 1/4 W.
R12	3-29	25KΩ 1/4 W.
R13	3-168	12KΩ 1 W.
R14	3-13	300Ω 1/4 W.
R15	4-15	Resistor Strip
R16	5-54	500KΩ Volume Control

L1	15-151	S. W. Ant.
L2	15-148	Int. Ant.
L3	15-145	B. C. Ant.
L4	15-142	L. W. Ant.
L5	15-152	S. W. R. F
L6	15-149	Int. R. F.
L7	15-146	B. C. R. F.
L8	15-143	L. W. R. F
L9	15-153	S. W. Osc.
L10	15-150	Int. Osc.
L11	15-147	B. C. Osc
L12	15-144	L. W. Osc.
L13	16-39	I. F. Input
L14	16-40	I. F. Output
L15	16-53	Wave Trap.
T1	11-53	Power Trans. 50-60 Cy. 110 to 260 V.
T2	11-52	Power Trans. 115 V. 60 Cy.
T3	12-18	A. F. Tran. P. P. Input
Sw1	14-53	Wave Switch.
Sw2	14-48	Tone Switch.
Sw3	14-56	Line Voltage Switch
Spkr	43-93	Speaker 850Ω Field.

6-'39



PLUG SPEAKER INTO 5-PRONG SOCKET AT REAR OF RECEIVER. IS ALWAYS USED. EXTRA SPEAKER, PART 43-110, 8" P-M DYNAMIC. OUTPUT TRANSFORMER PRIMARY IMPEDANCE = 10,000 OHMS. PLUG INTO 4-PRONG SOCKET AT REAR.

FOR TUNER SEE INDEX

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII.

I.F. signal on 6K8G grid thru 0.1 mf.

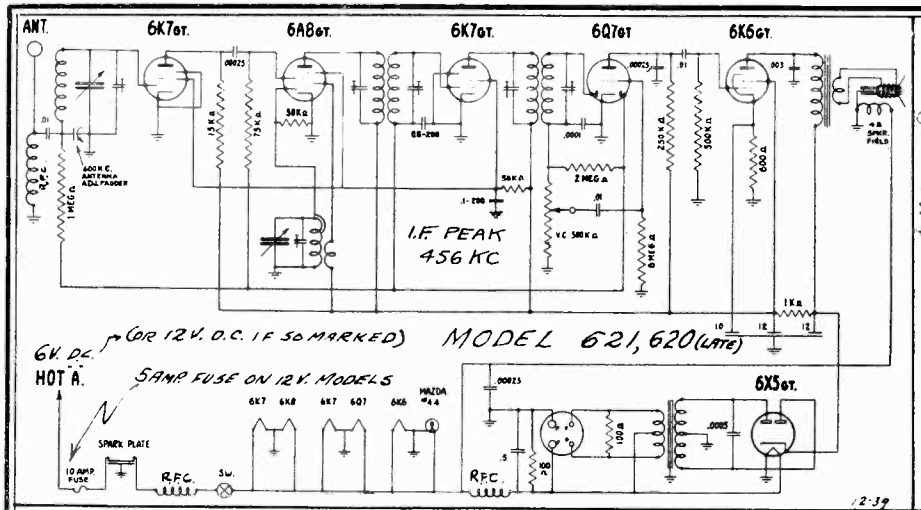
Dial at 1720 KC. Peak at 456 KC.

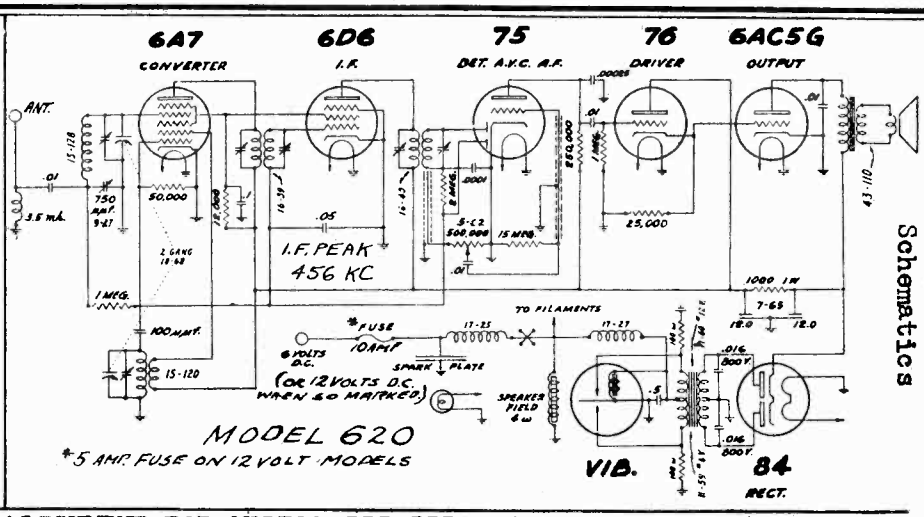
	DUMMY *	TRIM ANT.,RF	TRIM OSC.**	PAD OSC.	CHECK
LONG WAVE	200 MMF	320 KC	365 KC	200 KC	320 KC
BROADCAST	200 MMF	1400 KC	1750 KC	600 KC	1400 KC
SHORT WAVE	400 OHMS	22 MC	24.5 MC	---	8 MC

* Use Standard All Wave Dummy if available.

** With variable condenser fully open.

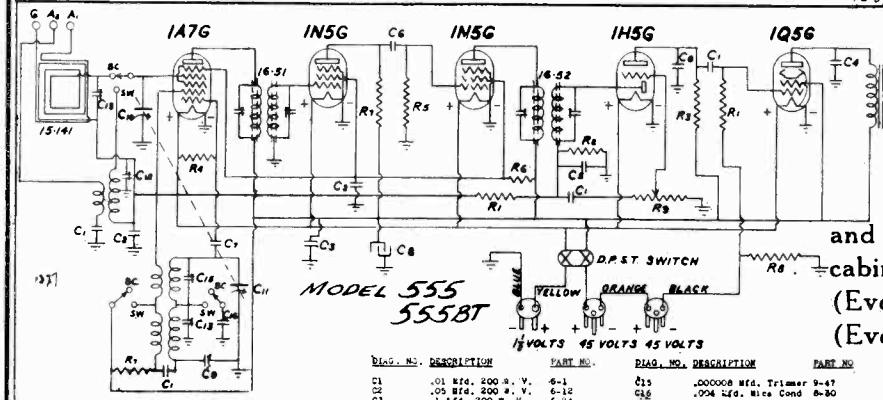
MODEL 620 Early
MODELS 620 Late, 621 TRAV-LER RADIO & TELEV. CORP Schematics, Alignment
MODELS See Below



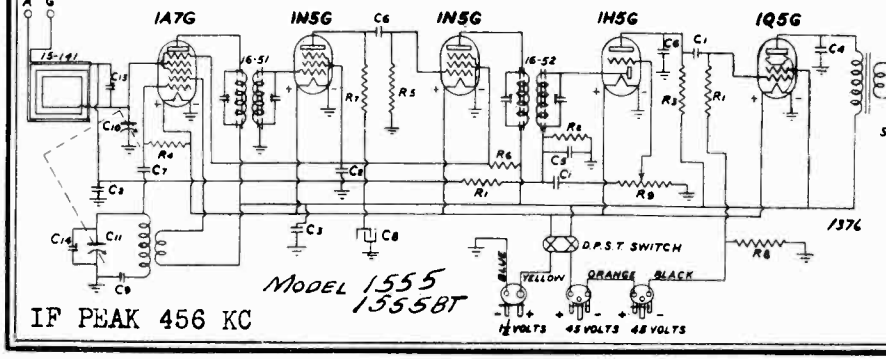


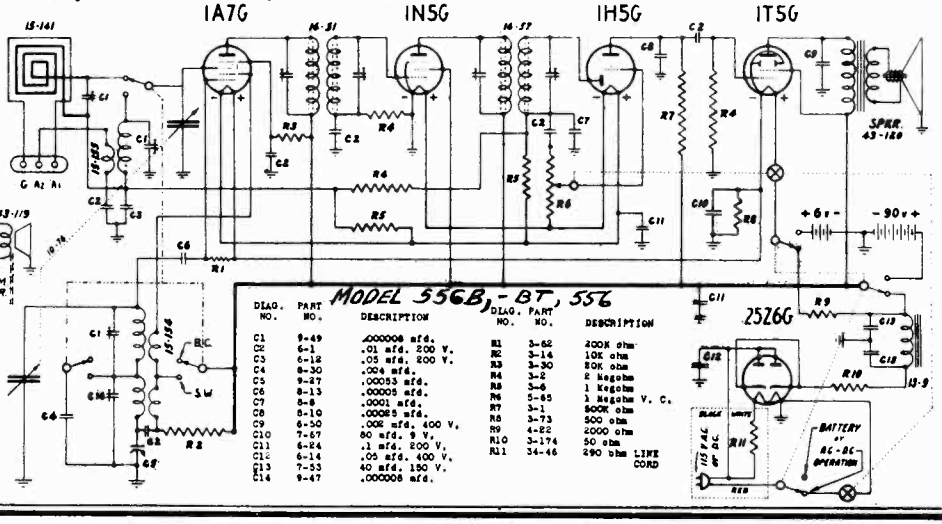
ALIGNMENT FOR MODELS 555, 555BT, 556, 556BT, 1555, 1555BT. Peak IF trimmers at 456 KC. B.C. Shunt Osc.-1400 KC, B.C. Pad-600 KC. Check at 1400 KC, then with back cover in place, B.C. Loop Ant. at 1400 KC, B.C. Pad at 600KC. Check at 1400 K.C. (2BAND SETS- SW Trimmers at 16MC.

The batteries are installed in the compartment below the radio chassis and are accessible by removing the four screws which hold the back of the cabinet in place. The batteries include one 1.5 volt "A" plug-in type, (Ever-Ready No. 742 or equivalent) and two 45 volt "B" plug-in type. (Ever-Ready No. 762 or equivalent).



DIAG. NO.	DESCRIPTION	PART NO.
C1	.01 Mfd. 200 W. V.	6-1
C2	.05 Mfd. 200 W. V.	6-12
C3	.1 Mfd. 200 W. V.	6-44
C4	.002 Mfd. 400 V. V.	6-50
C5	.0001 Mfd.	8-8
C6	.00085 Mfd.	8-10
C7	.00005 mfd.	8-13
C8	8. Mfd. 150 W. V.	7-56
C9	.000553 Mfd. Padder	9-27
C10	.00035 Mfd. Var. Cond.)	10-76
C11	.00035 Mfd. Var. Cond.)	10-76
C12,C13	.000008 Mfd. Trimmer	9-49
C15	.000008 Mfd. Trimmer	9-47
C16	.006 Mfd. Mica Cond	8-30
C14	.000012 Mfd. Trimmer	9-45
R1	2 Megohm	3-42
R2	1 Megohm	3-4
R3	500K Ohm	3-3
R4	800K Ohm	3-60
R5	75K Ohm	3-51
R6	30K Ohm	3-26
R7	10K Ohm	3-16
R8	350 Ohm	3-175
R9	1 Megohm Volume Control	5-65





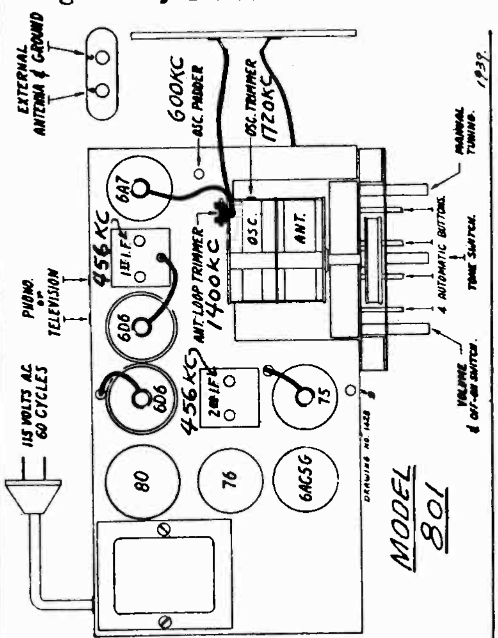
DIAG. NO.	PART NO.	DESCRIPTION
C1	9-49	.000008 mfd.
C2	6-1	.01 mfd. 200 V.
C3	6-12	.05 mfd. 200 V.
C4	8-30	.006 mfd.
C5	9-27	.00053 mfd.
C6	8-13	.00005 mfd.
C7	8-1	.0001 mfd.
C8	8-10	.00085 mfd.
C9	6-50	.002 mfd. 400 V.
C10	7-57	80 mfd. 9 V.
C11	6-24	.1 mfd. 200 V.
C12	6-14	.05 mfd. 400 V.
C13	7-53	40 mfd. 150 V.
C14	9-47	.000008 mfd.
R1	3-62	200K ohm
R2	3-14	10K ohm
R3	3-30	50K ohm
R4	3-2	2 Megohm
R5	3-4	1 Megohm
R6	5-65	1 Megohm V. C.
R7	3-1	500K ohm
R8	3-73	500 ohm
R9	3-82	2000 ohm
R10	3-174	50 ohm
R11	34-46	290 ohm LINE CORD

MODELS 576,576B Schematic,Socket Alignment,Trimmers

TRAV-LER RADIO & TELEV. CORP.

MODEL 720 Schematic

MODEL 801 Schematic Chassis, Alignment

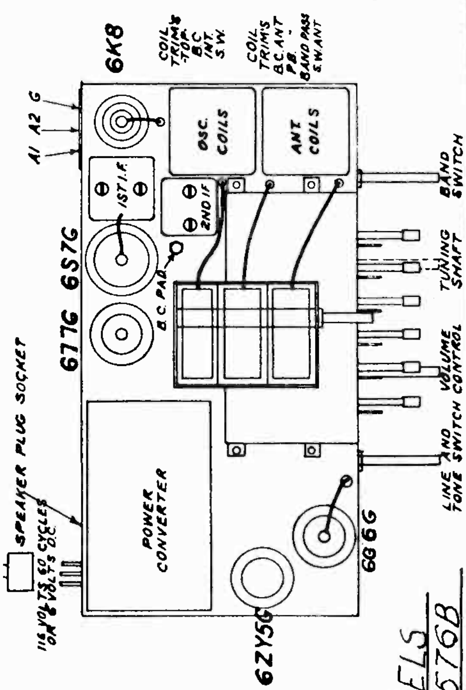


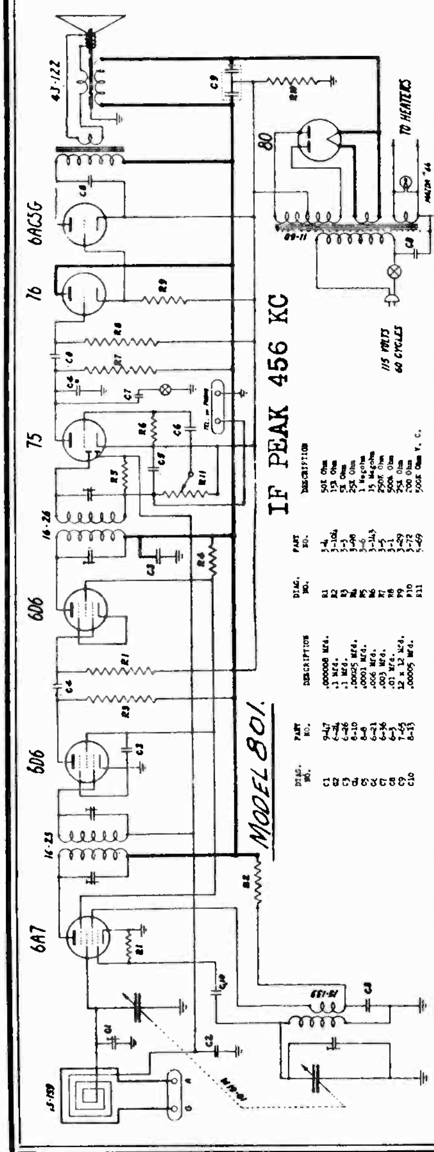
ALIGNMENT FREQUENCIES

(Use standard all wave dummy antenna if available)

IF - 456 KC. B.C. Osc.-1720 KC, B.C. Band Pass - 1400 KC., B.C. Ant.-1400KC, B.C.Pad-600 KC. Check band at 1400 KC. INT.-Osc.-6.6MC, Ant.- 6.0 MC; Check Band at 2.2 MC. S.W. Osc.-24.5 MC; Ant.-22 MC. Check Band at 8 MC.

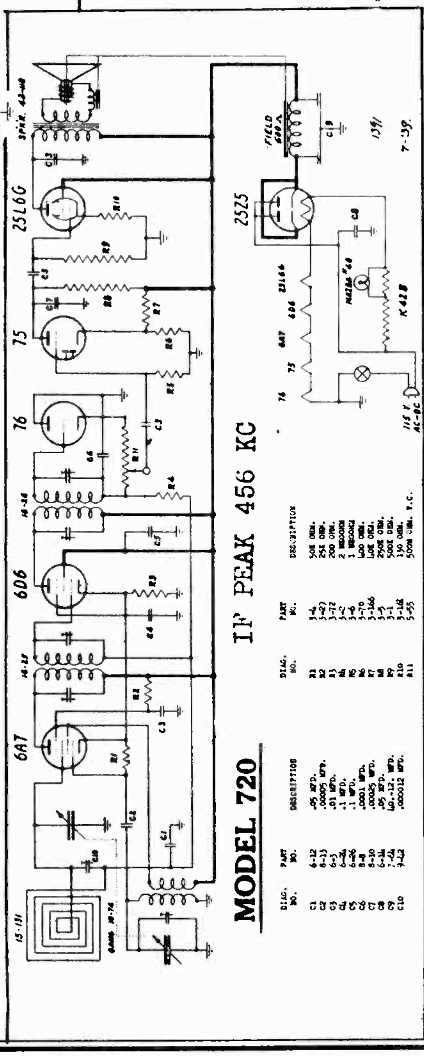
MODELS 576,576B. S.W. Doublet Antenna:- Connect to A1 and A2; Connect G to Ground.





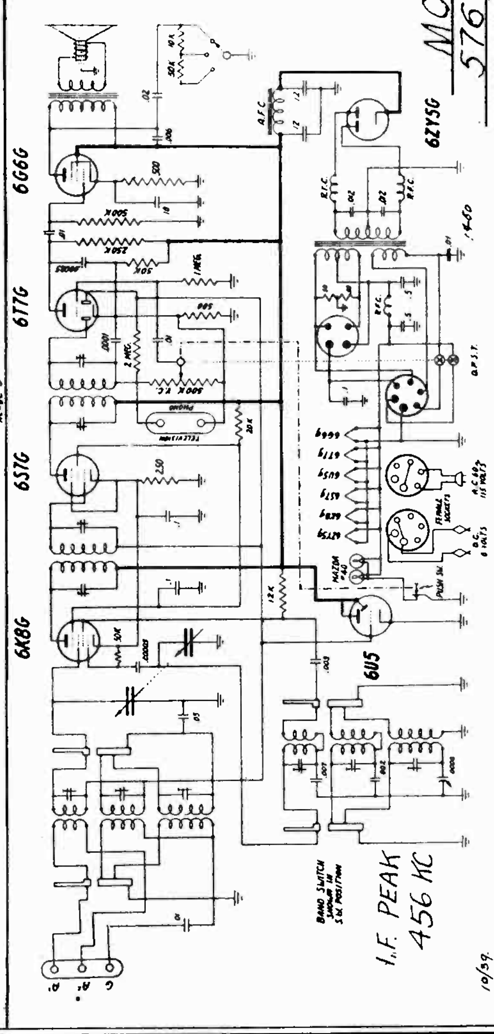
DIAG. NO.	PART NO.	DESCRIPTION
R1	3-4	50K Ohm
R2	3-104	15 Ohm
R3	3-3	5K Ohm
R4	3-98	25K Ohm
R5	3-6	1 Megohm
R6	3-143	15 Megohm
R7	3-5	250K Ohm
R8	3-1	500K Ohm
R9	3-29	75K Ohm
R10	3-72	200 Ohm
R11	5-69	500K Ohm V.C.

DIAG. NO.	PART NO.	DESCRIPTION
C1	9-17	.000068 Mfd.
C2	6-24	.1 Mfd.
C3	6-26	.1 Mfd.
C4	6-10	.00025 Mfd.
C5	8-8	.0001 Mfd.
C6	6-21	.006 Mfd.
C7	6-36	.003 Mfd.
C8	6-3	.01 Mfd.
C9	7-65	12 x 12 Mfd.
C10	8-13	.00005 Mfd.



DIAG. NO.	PART NO.	DESCRIPTION
R1	3-4	50K Ohm.
R2	3-27	25K Ohm.
R3	3-72	200 Ohm.
R4	3-2	2 Megohm
R5	3-6	1 Megohm
R6	3-70	400 Ohm.
R7	3-166	40K Ohm.
R8	3-5	250K Ohm.
R9	3-1	500K Ohm.
R10	3-18	130 Ohm.
R11	5-55	500K Ohm. V.C.

DIAG. NO.	PART NO.	DESCRIPTION
C1	6-12	.05 Mfd.
C2	8-13	.00005 Mfd.
C3	6-3	.01 Mfd.
C4	6-24	.1 Mfd.
C5	6-26	.1 Mfd.
C6	8-18	.0001 Mfd.
C7	8-30	.00025 Mfd.
C8	6-31	.05 Mfd.
C9	7-64	40-12 Mfd.
C10	9-12	.000012 Mfd.



Schematics, Socket Alignment, Trimmers

TRAV-LER RADIO & TELEV. CORP.

MODEL 570B
MODELS 1556, 1556B
1556BT

FOR TUNER DATA SEE INDEX

I.F. signal on 6K8 grid thru 0.1 mf. Dial at 1720 KC. Peak at 456 KC.

① Use Standard All Wave Dummy if available.

② With variable condenser fully open.

ALIGNMENT

I.F.-Dial at 1500 KC. Generator leads thru 0.1 mf to 1A7G grid and to chassis. Peak at 456 KC.

R.F.-Generator leads as above. Trim osc. at 1400 KC. Fasten back cover; Generator loosely coupled, trim loop for max. at 1400.

11-39

CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOLUME VIII

BAND	DUMMY①	ANT., RF	②TRIM OSC.	PAD	OSC. CHECK
LONG WAVE	200 MMF	320 KC	362 KC	200 KC	320 KC
BROADCAST	200 MMF	1400 KC	1720 KC	600 KC	1400 KC
INTERMEDIATE	400 OHMS	6 MC	6.7 MC	---	2.2 MC
SHORT WAVE	400 OHMS	22 MC	24.5 MC	---	8 MC

MODELS 620, 621

ANTENNA CONNECTION

The shielded antenna lead supplied with the radio is plugged into the receptacle provided in the underside of the radio. The other end is connected to the lead from the antenna and taped so the connection cannot touch the cable shield or any metal part of the car. If the automobile has a built-in antenna, the lead should be found behind the dash, extending from the right or left-hand corner post. It is important that this lead be cut and connected to the shielded set lead as close to the corner post as possible, to eliminate antenna pickup of motor noise.

On cars where it is necessary to install an antenna, a "fish-pole" type, an "over-the-roof" type, or a "under-the-running board" type, may be used. Two antennas, one mounted under each running board, are recommended for the best reception, as the noise on the radio will increase as the size of the antenna decreases.

The lead from the antenna should be shielded, direct, and as short as is practical. It should not be twisted around any part of the car, and should not lead thru the motor compartment. All connections should be clean, tight, soldered, and insulated with tape. The antenna must never touch any part of the car.

ANTENNA MATCHING ADJUSTMENT

As the sizes and types of antennas vary considerably, it is necessary to adjust the radio to "match" the antenna used. To do this, tune in a station, accurately, at roughly 600 kilocycles, reduce the volume of the set, pry out the plug on the underside of the set, insert a screw driver, and turn for maximum output. Replace the plug when this has been accomplished, and the radio is ready to operate efficiently on any station.

MOTOR NOISE ELIMINATION

To eliminate motor noise, a condenser and a suppressor are supplied with the radio. The condenser is mounted on the generator with its lead connected to the terminal of the generator output on the generator side rather than on the battery side. The heavy insulated lead in the center of the distributor cap is pulled out, the suppressor inserted in its place, and the heavy lead inserted in the end of the suppressor.

This, with the antenna installed properly will eliminate motor noise in most cars. In some of the older cars it may be necessary to install a condenser similar to the generator condenser, bolted to the dash or a good ground, with the lead connected to the ammeter with the set battery lead. When a built-in roof antenna is used, a condenser should be connected to the dome light lead where it passes through the right or left hand post to the roof. The condenser should be bolted to grounded metal.

PUSH BUTTON ADJUSTMENT

Six push button station selectors are incorporated in this receiver, and each may be set to select any frequency or station within the range of the set.

To adjust each button, follow these instructions.

1. With the set in operation, tune in any station the push button is to be set for, with the right hand tuning knob.

2. Keep a firm grip on the tuning knob so the station will not be detuned, and turn the push button about one turn to the left to loosen the mechanism. Press the button all the way in and turn it to the right until it is tight.

Repeat these operations with the other five buttons, setting each for a different station. Insert the correct call letter tab into the space provided in the panel just above the push buttons.

TECHNICAL INSTRUCTIONS

A good output meter should be used in all alignment adjustments. This meter should be of the high resistance A.C. type, with a low range scale of 2.5 or 3 volts. The leads are connected across the voice coil terminals of the speaker.

I. F. ALIGNMENT

Set the variable condenser at minimum capacity, (dial pointer at ①1560 K.C.). Connect the two leads from a good, modulated signal generator, the ground lead to the radio chassis and the other lead through a .1 mfd. condenser, to the grid cap of the ②A7, with the tube's grid lead still in place.

Connect the leads from a fully charged 6 volt storage battery to the receiver chassis and battery lead, the polarity being reversible.

With the set in operation and the volume control full on, set the signal generator to 456 K.C. and increase its output until the signal is heard in the set's speaker. Starting with the second I. F., adjust the I. F. trimmers for maximum output, decreasing the signal generator output as the receiver output increases.

The generator output in all the alignment adjustments should be adjusted so the meter will read approximately .4 volts continually.

R. F. ALIGNMENT

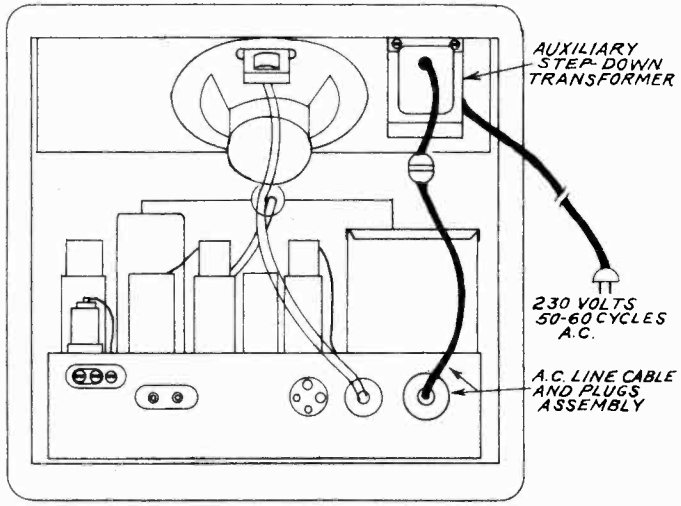
With the variable condenser still full open, set the generator to ①1560 K.C. Connect the generator lead to the antenna lead through a .0001 mfd. condenser as dummy antenna. Adjust the oscillator trimmer for maximum output. Set the receiver dial and the generator to 1400 K.C. so the signal comes through, and adjust the antenna trimmer for maximum output.

Set the receiver dial and generator to 600 K.C. and adjust the oscillator padder for maximum output by rocking the variable condenser (with the tuning knob) as the padder is adjusted.

Return the dial and generator setting to 1400 K.C. and check for alignment.

①1550 for 620 (1940),621.
②6A8GT in .. ..

INSTRUCTIONS FOR POWER LINE CONVERSION OF BATTERY MODELS 570B 576, 576B



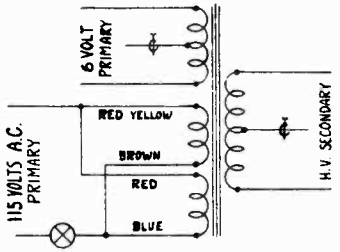
The standard battery model radios, are equipped with a special type power transformer so that these radios may be operated from either a 6 volt storage battery, or a 115 volt, 50 or 60 cycles A.C. power line.

To adapt these radios to operate from a 230 volt, 50 or 60 cycles A.C. power line, a special auxiliary step-down transformer has been developed. This transformer, Part Number 11-62, is used to reduce 230 volts to 115 volts, for normal operation. Under no circumstances may either of these models be used to operate from 230 volts A.C. without this step-down transformer.

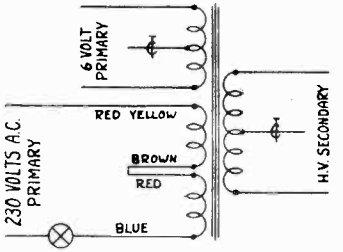
The auxiliary transformer is mounted inside the radio cabinet on the speaker board with 1/2 inch wood screws. The cable and plugs assembly supplied with the radio for 115 volts A.C. line operation, is connected to the power plug at the rear of the radio, and the other end plugged into the female receptacle provided on the auxiliary transformer. The male plug on the long transformer cable is then plugged into a 230 volts A.C. outlet.

WARNING

These radios must never be used on a D.C. power line at either 115 or 230 volts, or on any A.C. power line frequency, except 50 or 60 cycles. Any attempt to do so will result in a burned out transformer.



115 VOLT PRIMARY CONNECTIONS

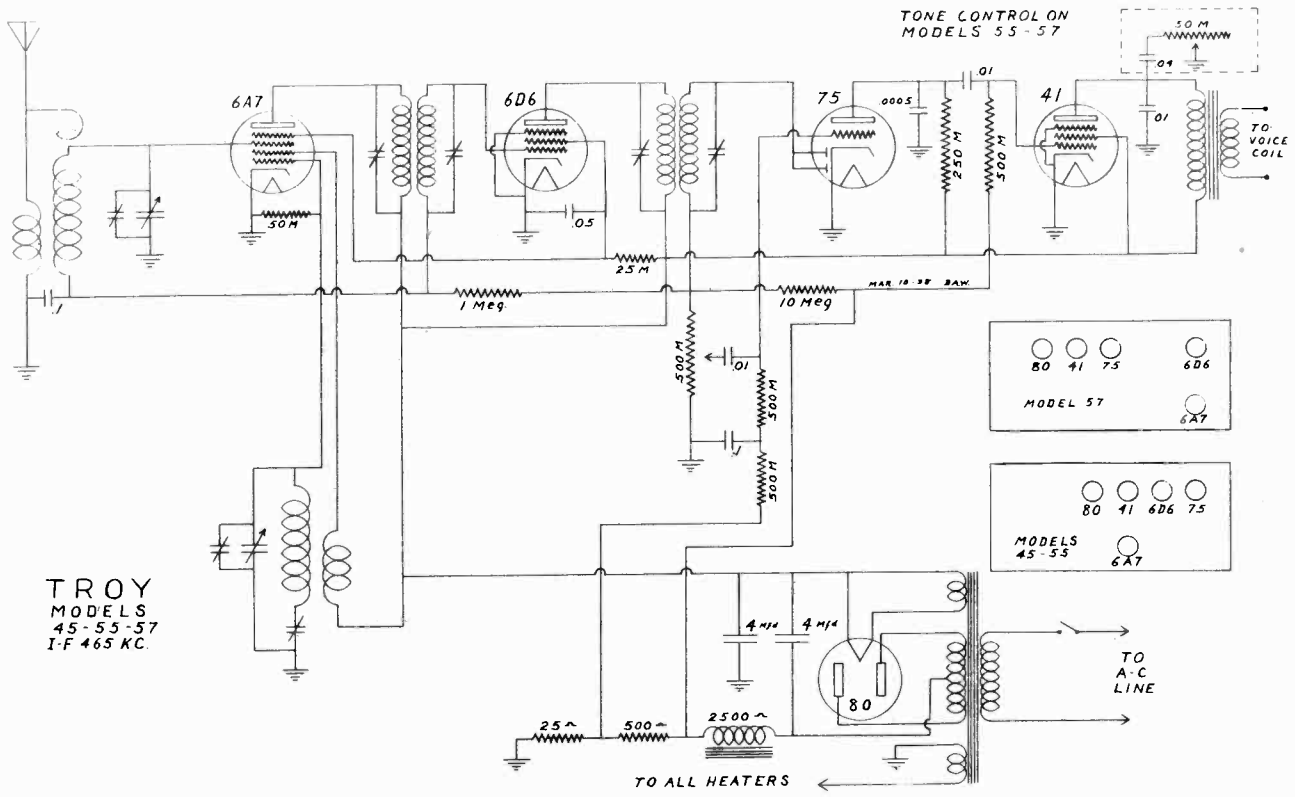


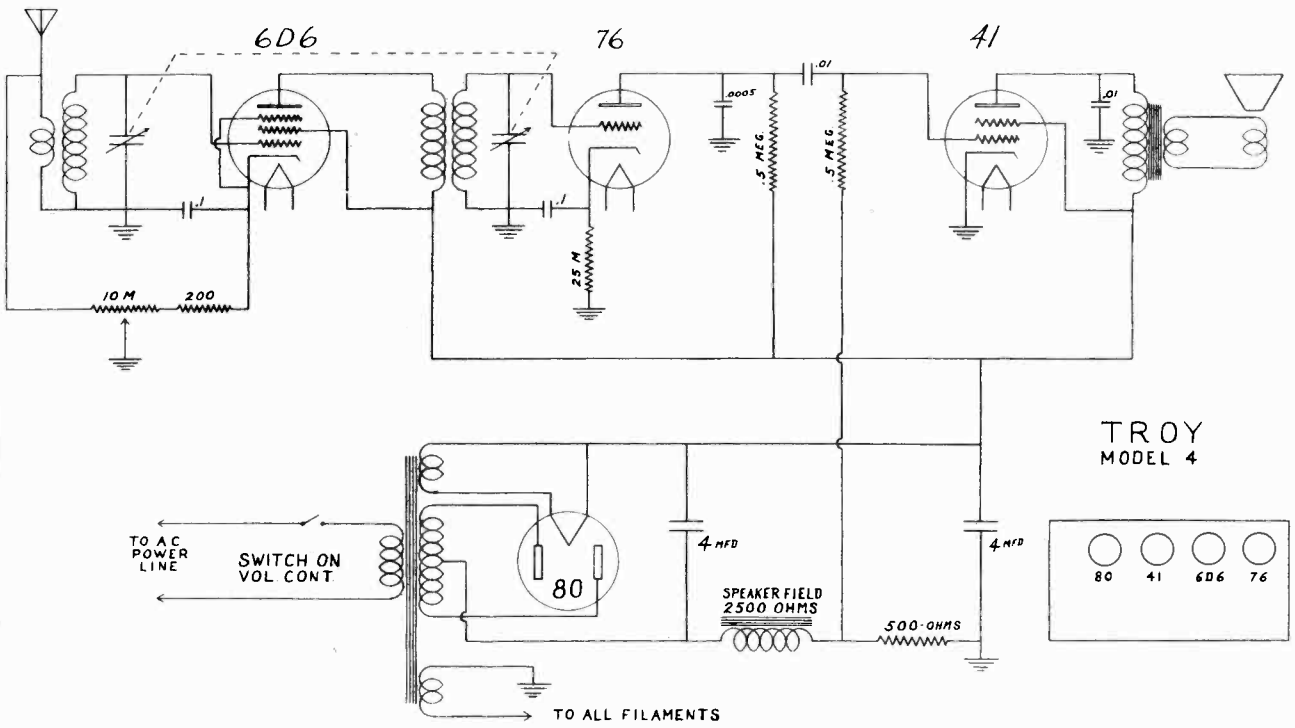
230 VOLT PRIMARY CONNECTIONS

'TRAV-LER RADIO & TELEV. CORP.

TROY RADIO & TELEV. CO.

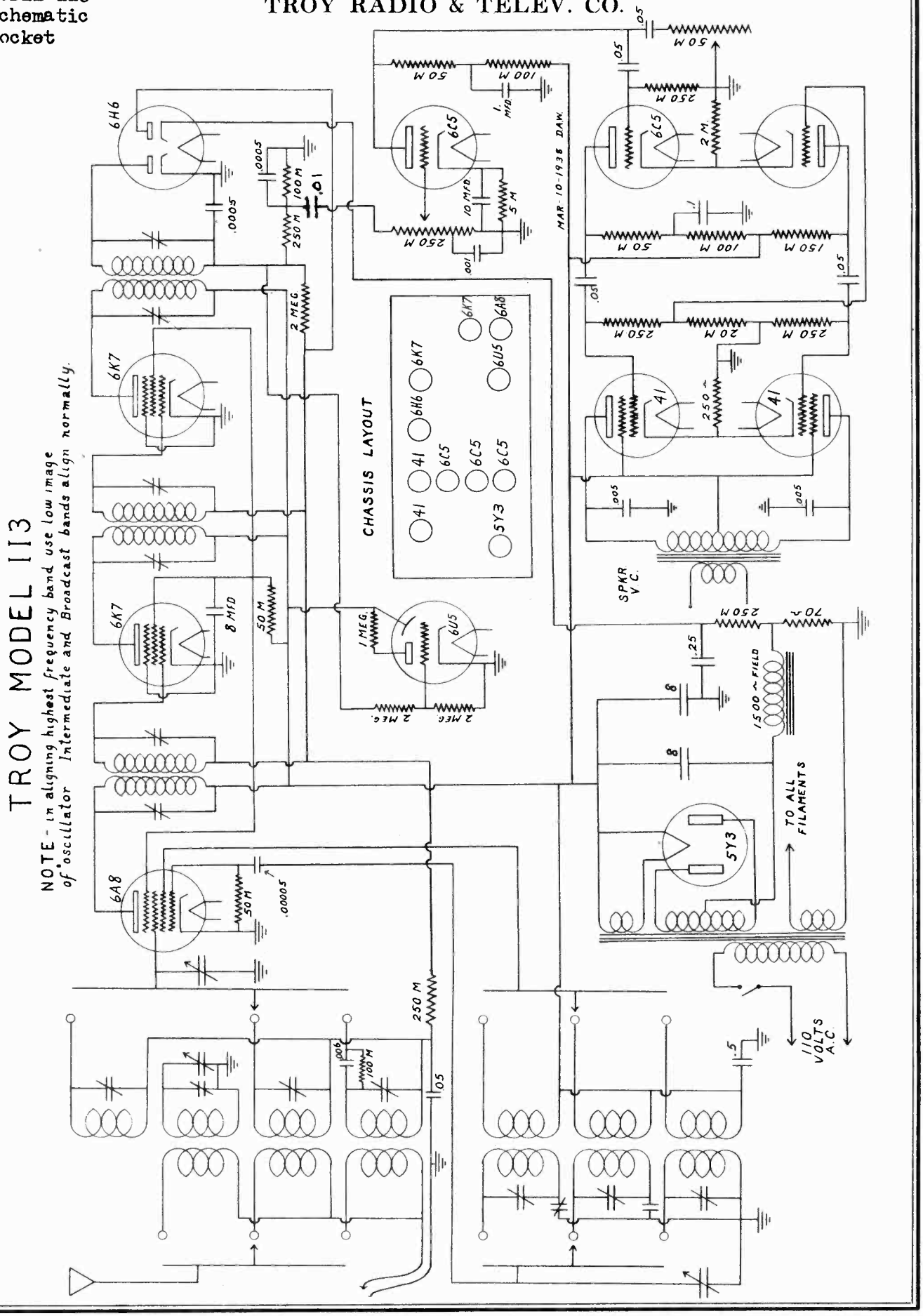
MODEL 4 Revised
MODELS 45,55,57
Revised
Schematics, Socket





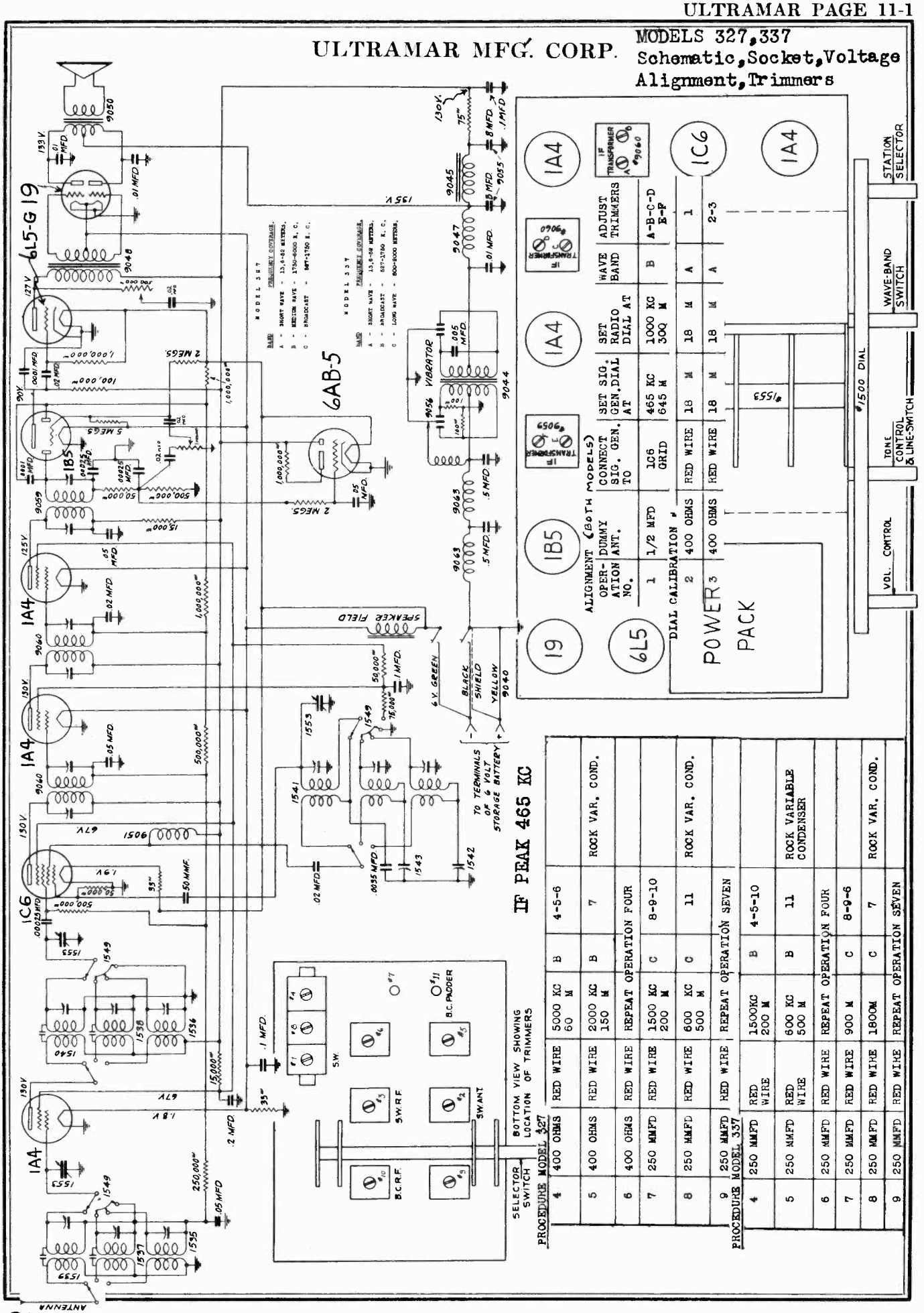
MODEL 113
Schematic
Socket

TROY RADIO & TELEV. CO.



ULTRAMAR MFG. CORP.

MODELS 327,337
Schematic, Socket, Voltage Alignment, Trimmers

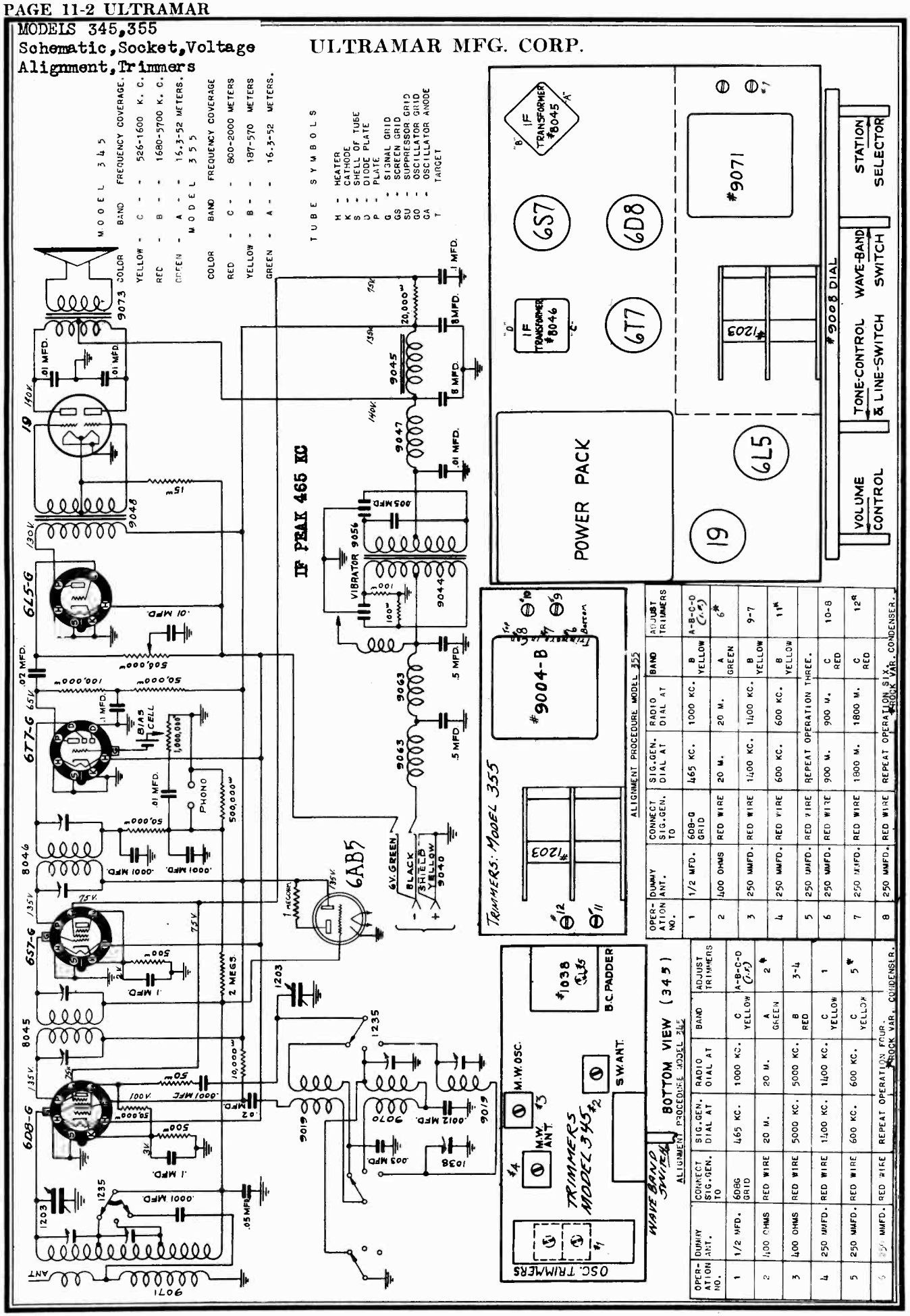


PROCEDURE MODEL 327							
4	400 OHMS	RED WIRE	5000 KC 60 M	B	4-5-6		
5	400 OHMS	RED WIRE	2000 KC 150 M	B	7	ROCK VAR. COND.	
6	400 OHMS	RED WIRE	REPEAT OPERATION FOUR				
7	250 MMFD	RED WIRE	1500 KC 200 M	C	8-9-10		
8	250 MMFD	RED WIRE	600 KC 500 M	C	11	ROCK VAR. COND.	
9	250 MMFD	RED WIRE	REPEAT OPERATION SEVEN				

PROCEDURE MODEL 337							
4	250 MMFD	RED WIRE	1500KC 200 M	B	4-5-10		
5	250 MMFD	RED WIRE	600 KC 500 M	B	11	ROCK VARIABLE CONDENSER	
6	250 MMFD	RED WIRE	REPEAT OPERATION FOUR				
7	250 MMFD	RED WIRE	900 M	C	8-9-6		
8	250 MMFD	RED WIRE	1800M	C	7	ROCK VAR. COND.	
9	250 MMFD	RED WIRE	REPEAT OPERATION SEVEN				

MODELS 345,355
Schematic,Socket,Voltage
Alignment,Trimmers

ULTRAMAR MFG. CORP.

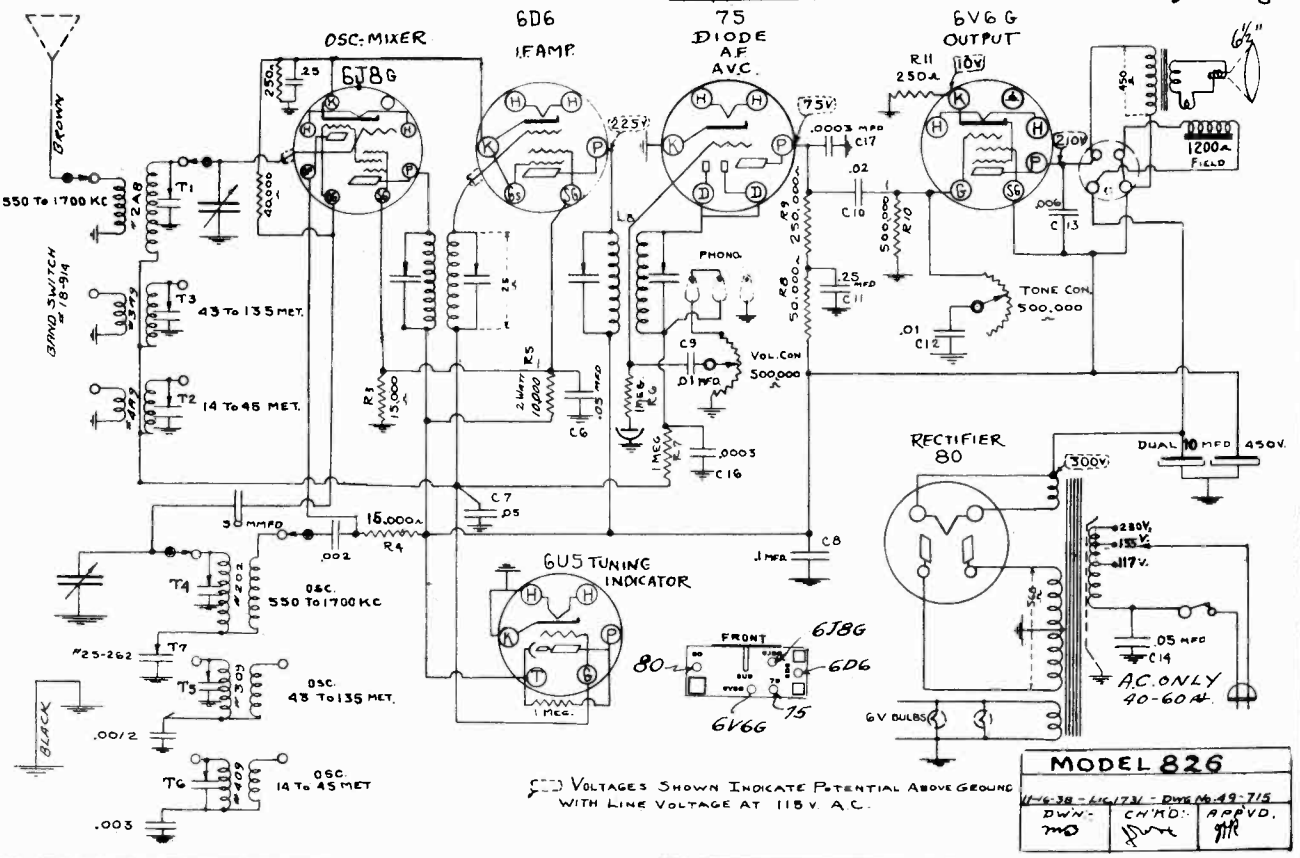


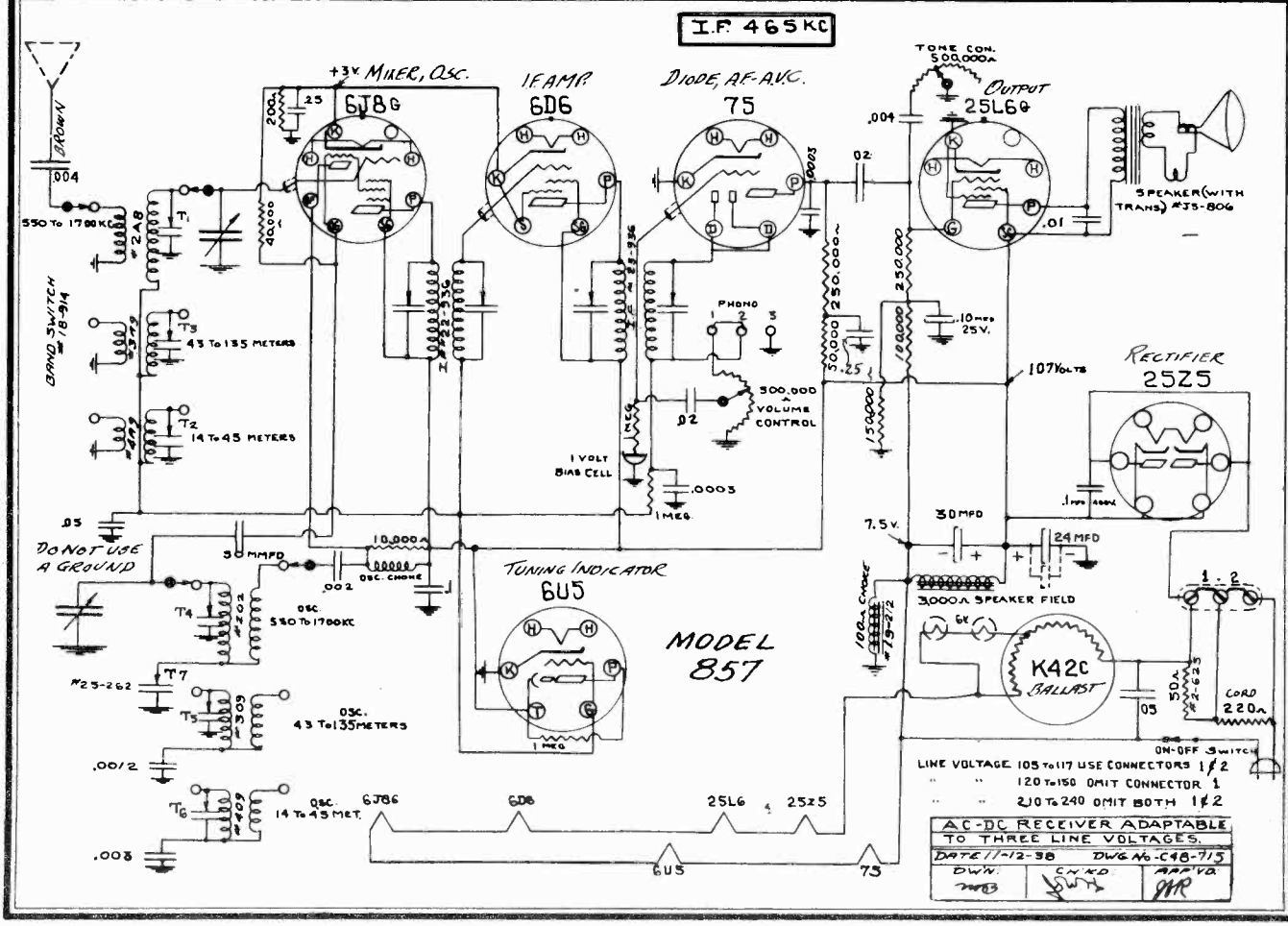
OPERATION NO.	DUMMY ANT.	CONNECT SIG.GEN. TO	SIG.GEN. DIAL AT	RADIO DIAL AT	BAND	ADJUST TRIMMERS
1	1/2 MFD.	6D8G GRID	465 KC.	1000 KC.	C YELLOW	A-B-C-D (Cap)
2	400 OHMS	RED WIRE	20 M.	20 M.	A GREEN	2*
3	400 OHMS	RED WIRE	5000 KC.	5000 KC.	B RED	3-4
4	250 MMFD.	RED WIRE	1400 KC.	1400 KC.	C YELLOW	1
5	250 MMFD.	RED WIRE	600 KC.	600 KC.	C YELLOW	5*
6	250 MMFD.	RED WIRE	REPEAT OPERATION FOUR. *ROCK VAR. CONDENSER.			

OPERATION NO.	DUMMY ANT.	CONNECT SIG.GEN. TO	SIG.GEN. DIAL AT	RADIO DIAL AT	BAND	ADJUST TRIMMERS
1	1/2 MFD.	6D8-G GRID	465 KC.	1000 KC.	B YELLOW	A-B-C-D (Cap)
2	400 OHMS	RED WIRE	20 M.	20 M.	A GREEN	6*
3	250 MMFD.	RED WIRE	1400 KC.	1400 KC.	B YELLOW	9-7
4	250 MMFD.	RED WIRE	600 KC.	600 KC.	B YELLOW	11*
5	250 MMFD.	RED WIRE	REPEAT OPERATION THREE.			
6	250 MMFD.	RED WIRE	900 M.	900 M.	C RED	10-8
7	250 MMFD.	RED WIRE	1800 M.	1800 M.	C RED	12*
8	250 MMFD.	RED WIRE	REPEAT OPERATION SIX. *ROCK VAR. CONDENSER.			

ULTRAMAR MFG. CORP.

MODEL 826
MODEL 857
Schematics, Voltage





MODEL 826

The intermediate frequency stages are tuned to 465 KC and have a sensitivity of about 27 microvolts. (for 50 milliwatt output)

The maximum output is rated at about 5 watts, and 3.5 watts undistorted.

MODEL 857

The intermediate frequency stages are tuned to 465 KC and have a sensitivity of about 27 microvolts. (for 50 milliwatt output)

The maximum output is rated at about 4-1/2 watts, and 2.4 watts undistorted.

The three line voltage ranges are obtained by use of the resistance cord, an extra resistor within the chassis, and the Ballast tube. See schematic diagram. The Ballast tube also provides necessary voltage for the two pilot lights connected in series.

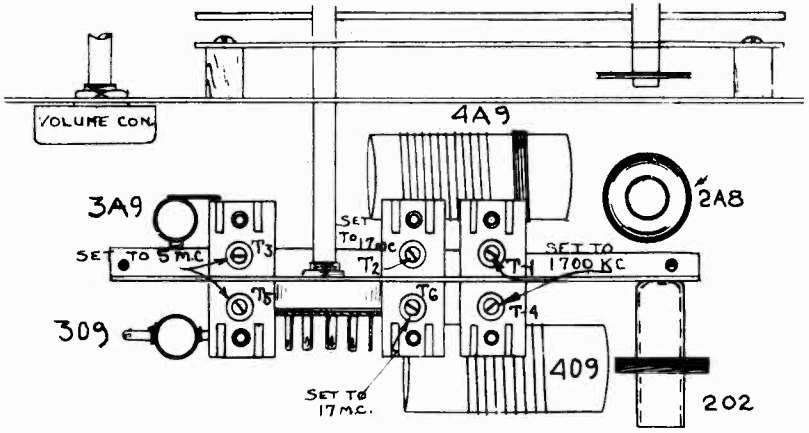
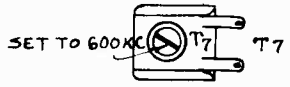


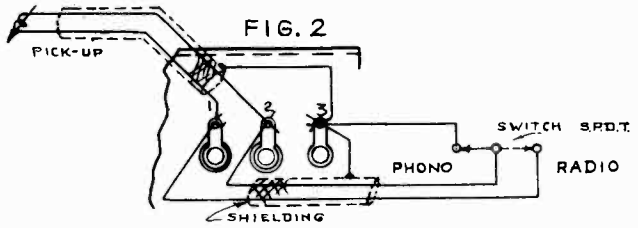
FIG. 3.
BOTTOM VIEW

MODELS 826,857.



THE ADAPTATION OF THE SET FOR USE WITH PHONOGRAPH
MODELS 826, 857.

Out of the back of the chassis there extends three lugs labeled "Phono" 1-2-3. For phonograph use, the jumper is removed and the pick-up leads from the pick-up are connected to Nos. 1 and 2 terminals, with the overall wire shield grounded to No. 3 terminal. A single pole double throw switch may be used to change from Radio to "Phono". See Fig. 2.



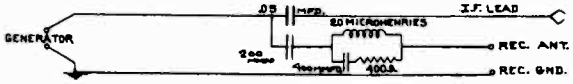
NOTE:

With certain models, the chassis is floated on cushion rubber. In shipment the chassis is tightened on corner wood strips. To release, loosen the four bottom screws, remove strips and let chassis float free.

ALIGNMENT MODELS 826, 857.

No change should be made with the I.F. or R.F. adjustments unless it is certain that such adjustments are necessary.

The following instructions are given with the assumption that the service station has the proper generator, means of measuring the output and proper input connections. The following circuit is recommended for the input from the signal generator.



See that the dial hand is straight across when the condenser is at full capacity.

After aligning the four trimmers of the IF system to 465 KC, refer to Fig. 3 showing the position of the R.F. trimmer and the frequency to which they are to be adjusted. Although the dial is calibrated in meters, there will be found on the dial extra points representing the frequency in kilocycles corresponding to the trimmer adjustments as shown in Fig. 3.

NOTES:

Always peak the oscillator circuit first and recheck after the antenna circuit is adjusted.

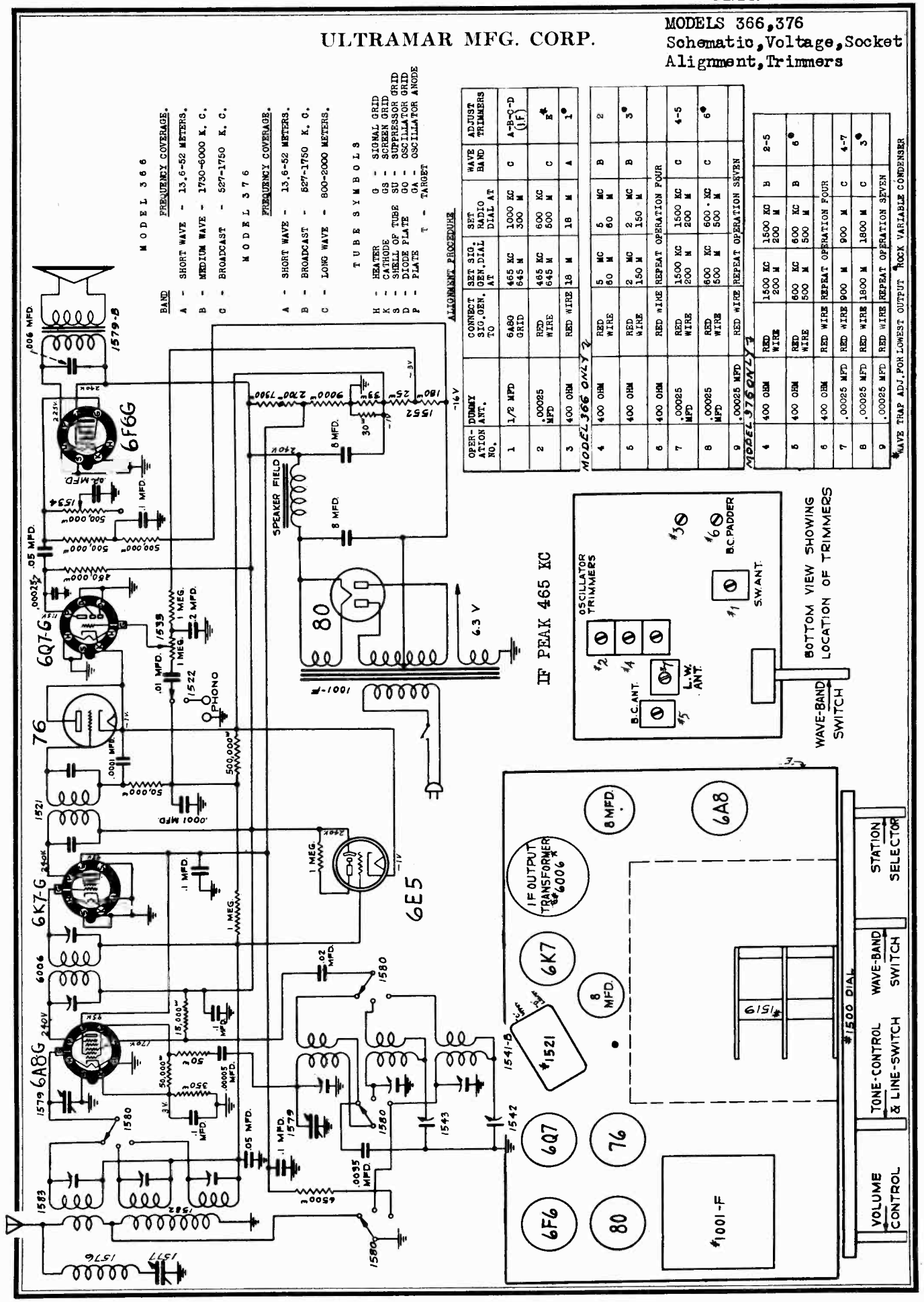
Be certain the alignment is not made at an image frequency.

Seal trimmers after final adjustment.

The normal voltages are shown on the schematic circuit taken from the various points to ground.

ULTRAMAR MFG. CORP.

MODELS 366,376
Schematic, Voltage, Socket
Alignment, Trimmers



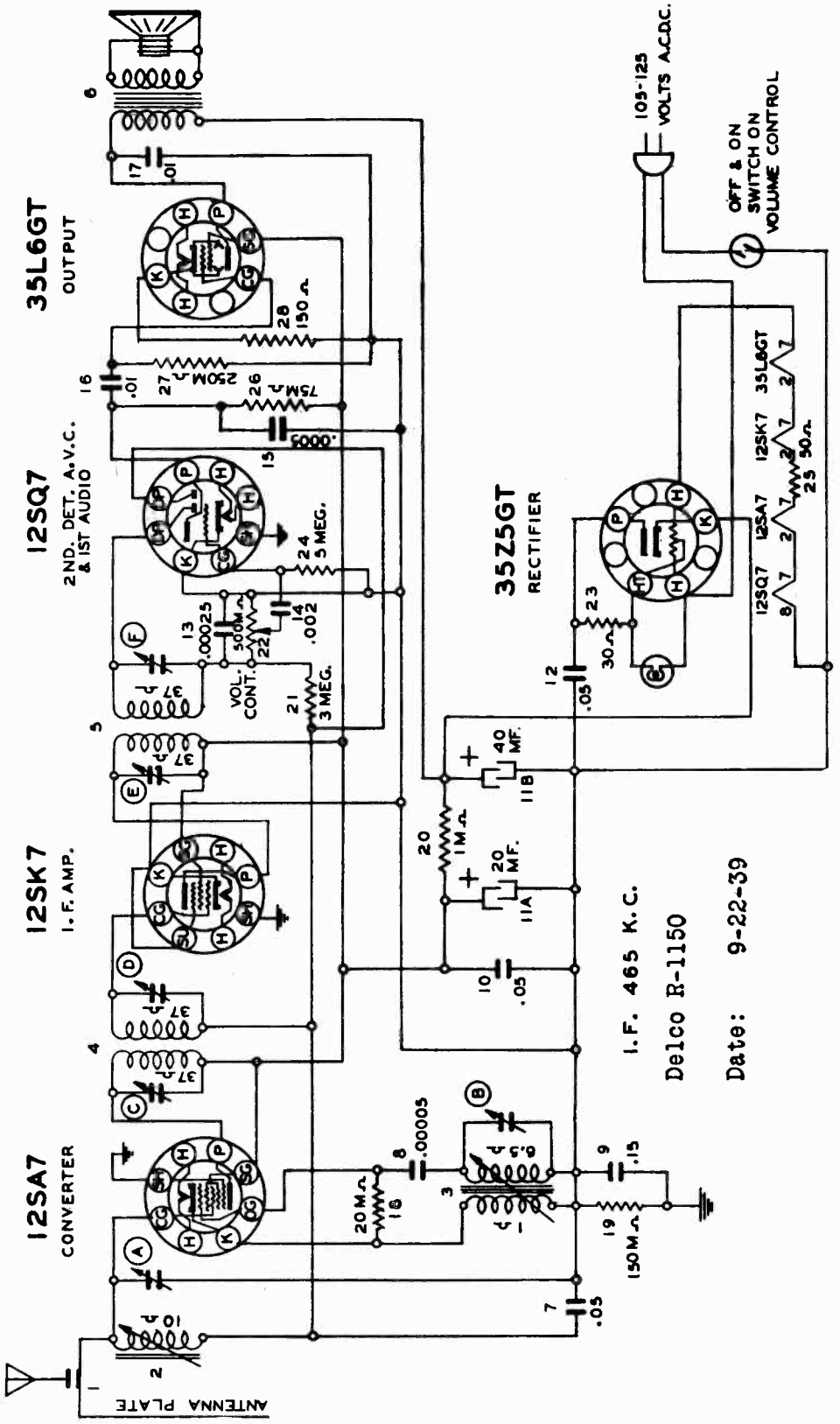
OPERATION NO.	DUMMY ANT.	CONNECT SIG.GEN. TO	SET SIG. GEN. DIAL AT	SET RADIO DIAL AT	WAVE BAND	ADJUST TRIMMERS
1	1/2 MFD	6A8G GRID	465 KC 645 M	1000 KC 300 M	C	4-B-C-D (I.F.)
2	.00025 MFD	RED WIRE	465 KC 645 M	600 KC 500 M	C	E*
3	400 OHM	RED WIRE	18 M	18 M	A	1*
4	400 OHM	RED WIRE	5 MC 60 M	5 MC 60 M	B	2
5	400 OHM	RED WIRE	2 MC 150 M	2 MC 150 M	B	3*
6	400 OHM	RED WIRE	REPEAT OPERATION FOUR			
7	.00025 MFD	RED WIRE	1500 KC 200 M	1500 KC 200 M	C	4-5
8	.00025 MFD	RED WIRE	600 KC 500 M	600 KC 500 M	C	6*
9	.00025 MFD	RED WIRE	REPEAT OPERATION SEVEN			

4	400 OHM	RED WIRE	1500 KC 200 M	1500 KC 200 M	B	2-5
5	400 OHM	RED WIRE	600 KC 500 M	600 KC 500 M	B	6*
6	400 OHM	RED WIRE	REPEAT OPERATION FOUR			
7	.00025 MFD	RED WIRE	900 M	900 M	C	4-7
8	.00025 MFD	RED WIRE	1800 M	1800 M	C	3*
9	.00025 MFD	RED WIRE	REPEAT OPERATION SEVEN			

*WAVE TRAP ADJ. FOR LOWEST OUTPUT *ROCK VARIABLE CONDENSER

MODEL R1150
Schematic

UNITED MOTORS SERVICE INC.



GENERAL: The Delco Model R-1150 is a five tube table model AC-DC Superheterodyne receiver with permeability tuning and a 4" P.M. speaker.

ANTENNA: A capacity type plate antenna is used on this radio, which also serves as the back cover plate for the radio. For reception of local or powerful nearby stations no other antenna is usually required. This antenna is not directional, however, noise or weak reception will result if the back of the radio is placed against metal objects. A clip is provided for capacitively coupling an outside antenna to the receiver.

MODEL R1150
Voltage, Socket
Chassis, Trimmers

UNITED MOTORS SERVICE INC.

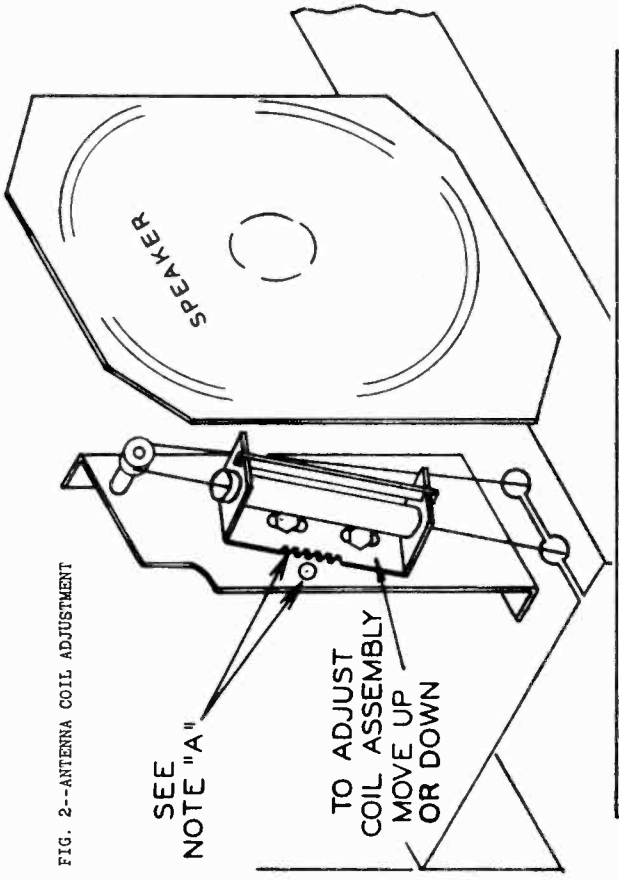
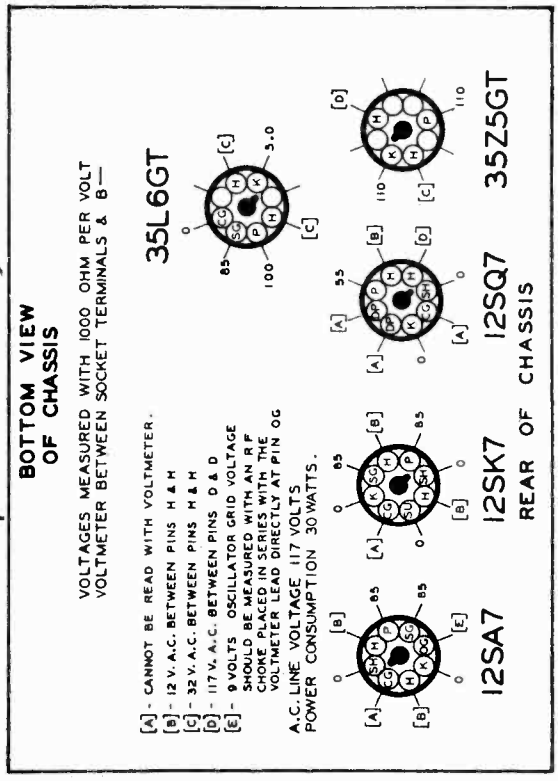


FIG. 2--ANTENNA COIL ADJUSTMENT



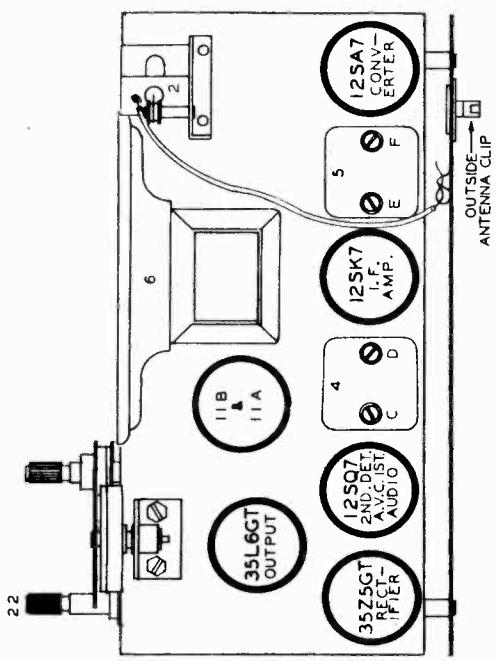


FIG. 4--PARTS LAYOUT--Top View

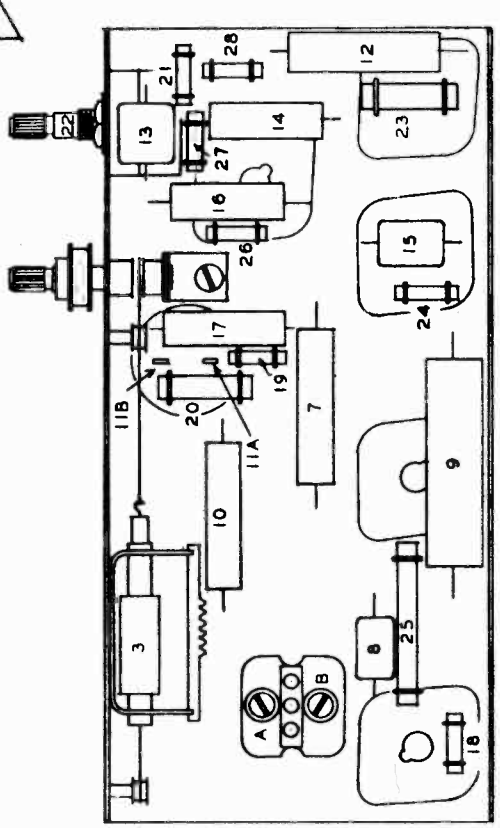


FIG. 5--PARTS LAYOUT--Bottom View

CIRCUIT ALIGNMENT MODEL R1150

If realignment is found necessary, the circuits can be properly adjusted only by using a calibrated test oscillator or a signal generator and an output meter. The chassis should be removed from the cabinet for alignment.

1. Aligning I-F Stages at 465 Kilocycles

   (a) Connect the ground lead of the signal generator to B-.

   (b) Connect the signal lead of the signal generator to the antenna plate of the receiver through a .1 mfd. condenser.

   (c) Connect the output meter from plate to screen grid of the 35L6GT output tube.

   (d) Adjust the trimmers on the 2nd I-F coil and then the 1st I-F coil (Illus. C-D-E-F, Fig. 4) for maximum output.

2. Aligning at 1720 Kilocycles

   (a) Leave the signal generator leads connected as before.

   (b) Rotate the tuning control knob to the high frequency end of the dial. (Iron cores should extend 1 9/32" from edge of windings.)

   (c) Set the signal generator to exactly 1720 K.C.

   (d) Adjust the oscillator trimmer (Illus. B, Fig. 5) for maximum output.

   (e) Disconnect the signal lead of the signal generator from the back plate and connect to the antenna terminal of the receiver through a .0002 mfd. condenser.

   (f) Adjust the antenna trimmer (Illus. A, Fig. 5) for maximum output.

3. Aligning at 1400 Kilocycles

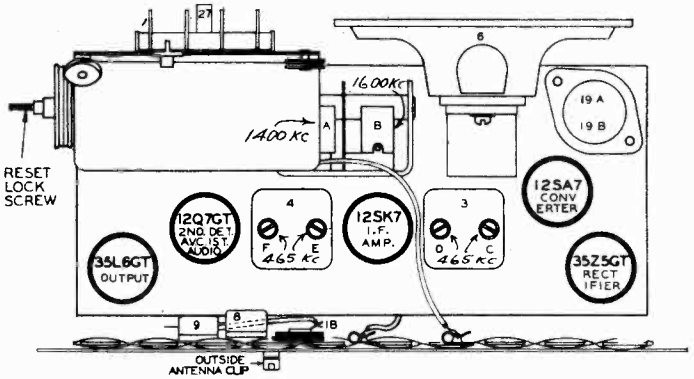
   (a) Set the signal generator to 1400 K.C.

   (b) Rotate the tuning control knob until this signal is tuned in with maximum output.

   (c) Adjust the position of the antenna coil (Fig. 2) until maximum output is obtained.

NOTE: (A.) To adjust the position of the antenna or oscillator coils, insert one edge of the blade of a screwdriver in the hole in the chassis plate and engage the blade in the gear teeth of the coil form (Fig. 2).

   (d) Repeat the adjustment of the antenna trimmer at 1720 K.C. and the antenna coil at 1400 K.C. until no further increase in output can be obtained.



CONVENTIONAL ALIGNMENT SEE SPECIAL SECTION VOL.VIII

FIG. 3--PARTS LAYOUT--Top View

MODELS R1151,R1152

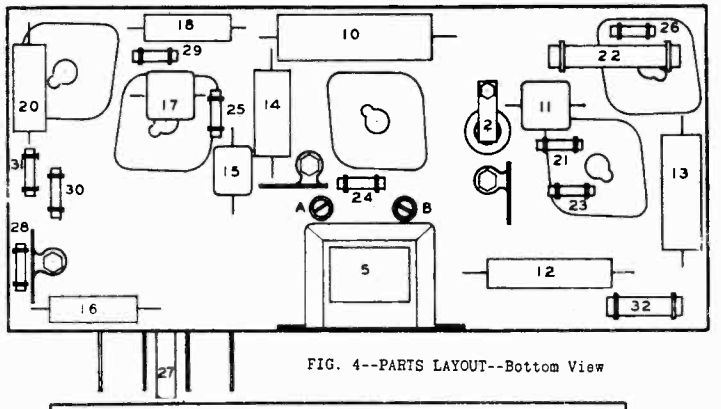
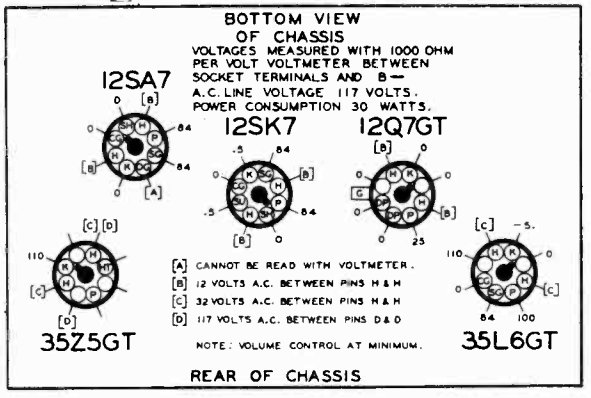
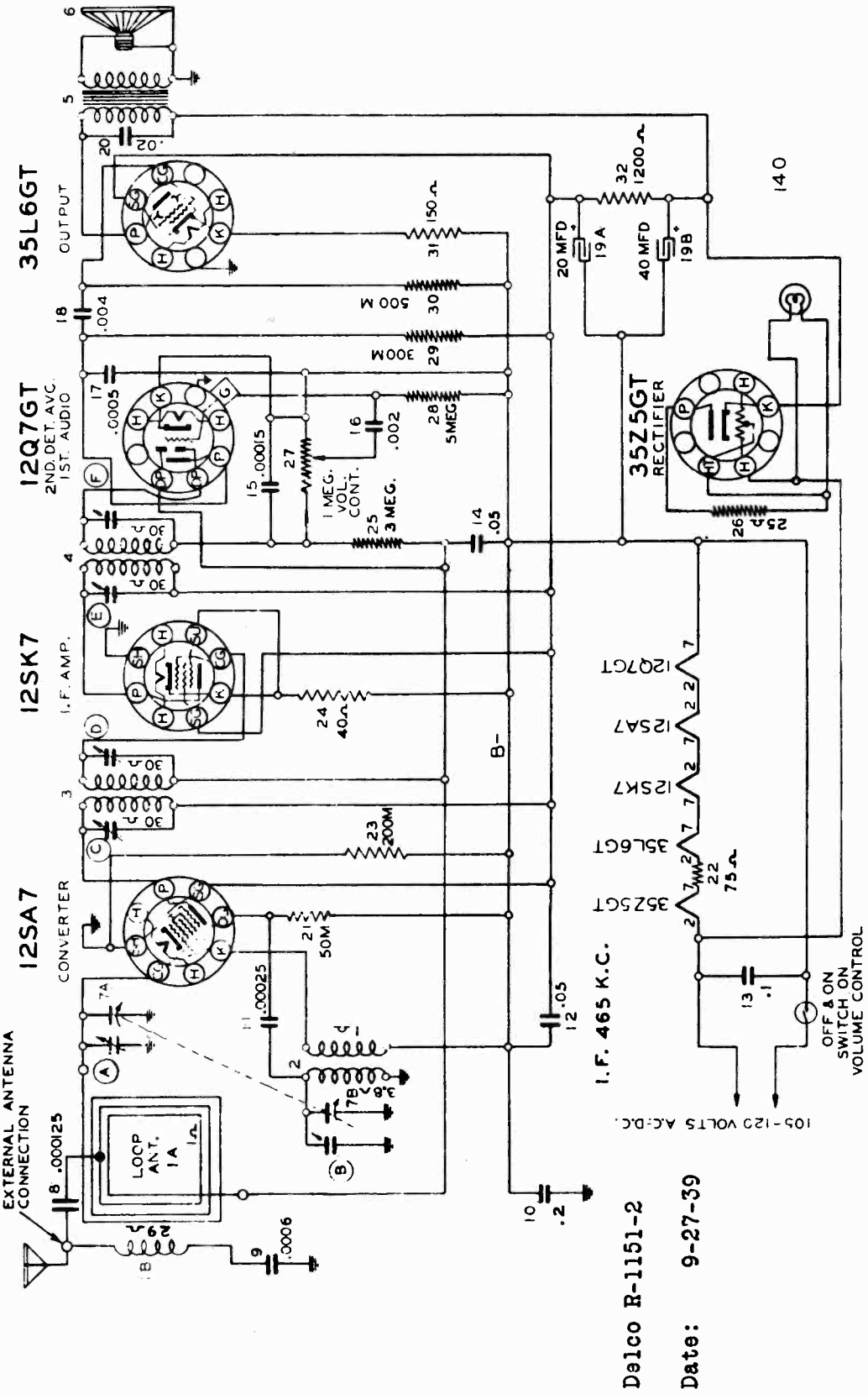


FIG. 4--PARTS LAYOUT--Bottom View



MODELS R1151,1152
Schematic

UNITED MOTORS SERVICE INC.



Delco R-1151-2

Date: 9-27-39

GENERAL: The Delco Models R-1151 and R-1152 are five-tube, AC-DC superheterodyne receivers with mechanical push-button tuning and 5" P.M. speakers.

ANTENNA: A loop antenna is built inside the back cover of these radios. This type of antenna is somewhat directional, therefore, the radio should be tried in different positions to determine the position which will produce the best reception.

UNITED MOTORS SERVICE INC.

MODEL R1153
Schematic

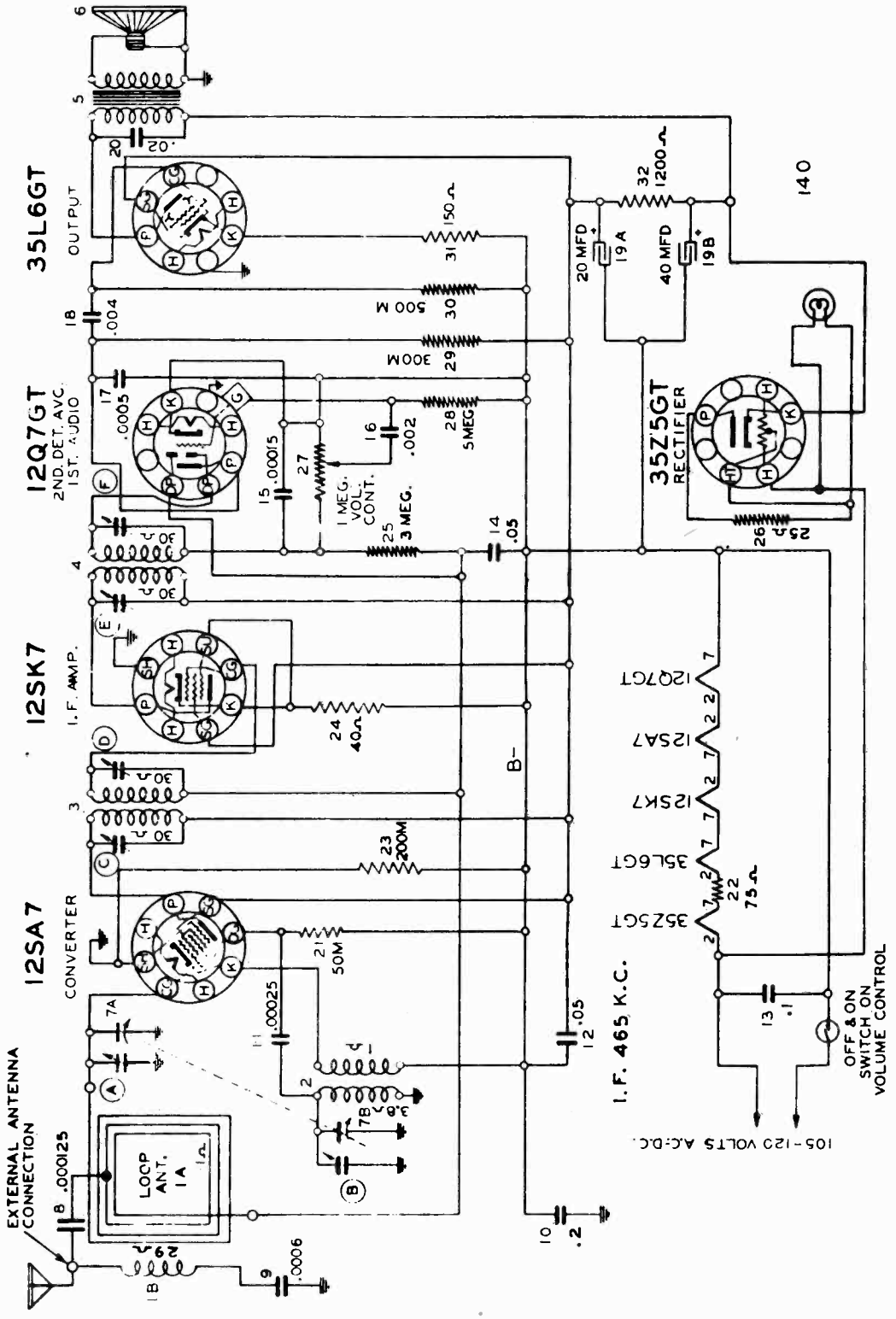


Fig. 2--DELCO MODEL R-1153 CIRCUIT DIAGRAM

Delco R-1153

Date: 9-27-39

MODEL R1153
Voltage, Chassis
Socket, Trimmers
Alignment

UNITED MOTORS SERVICE INC.

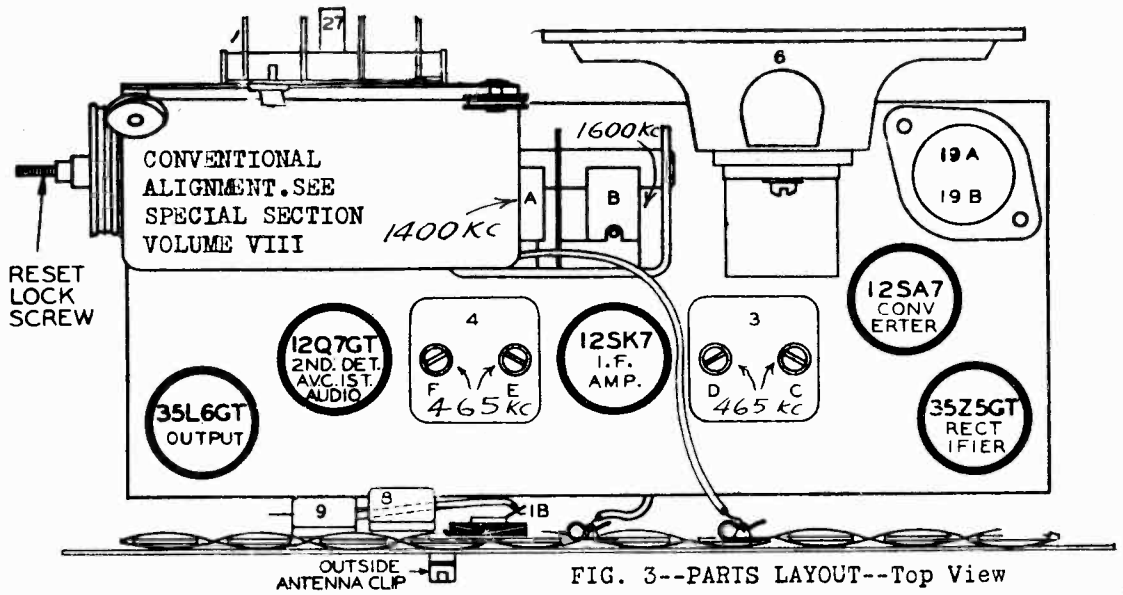


FIG. 3--PARTS LAYOUT--Top View

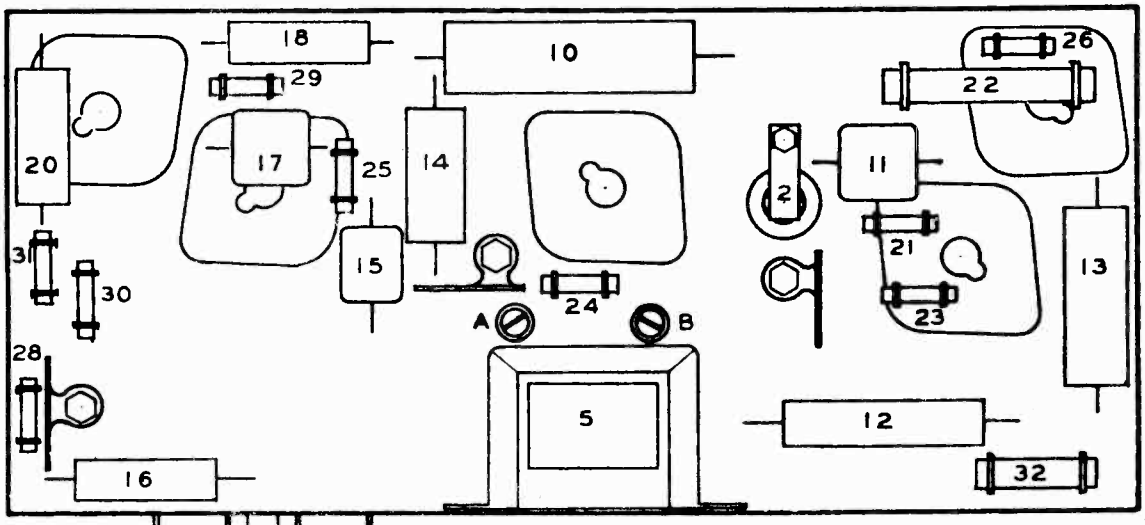
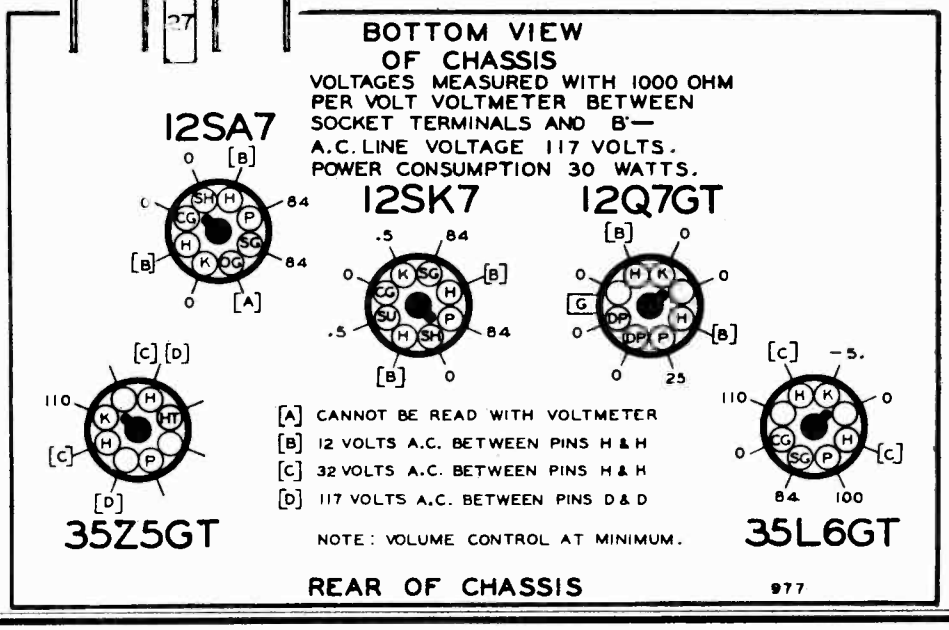


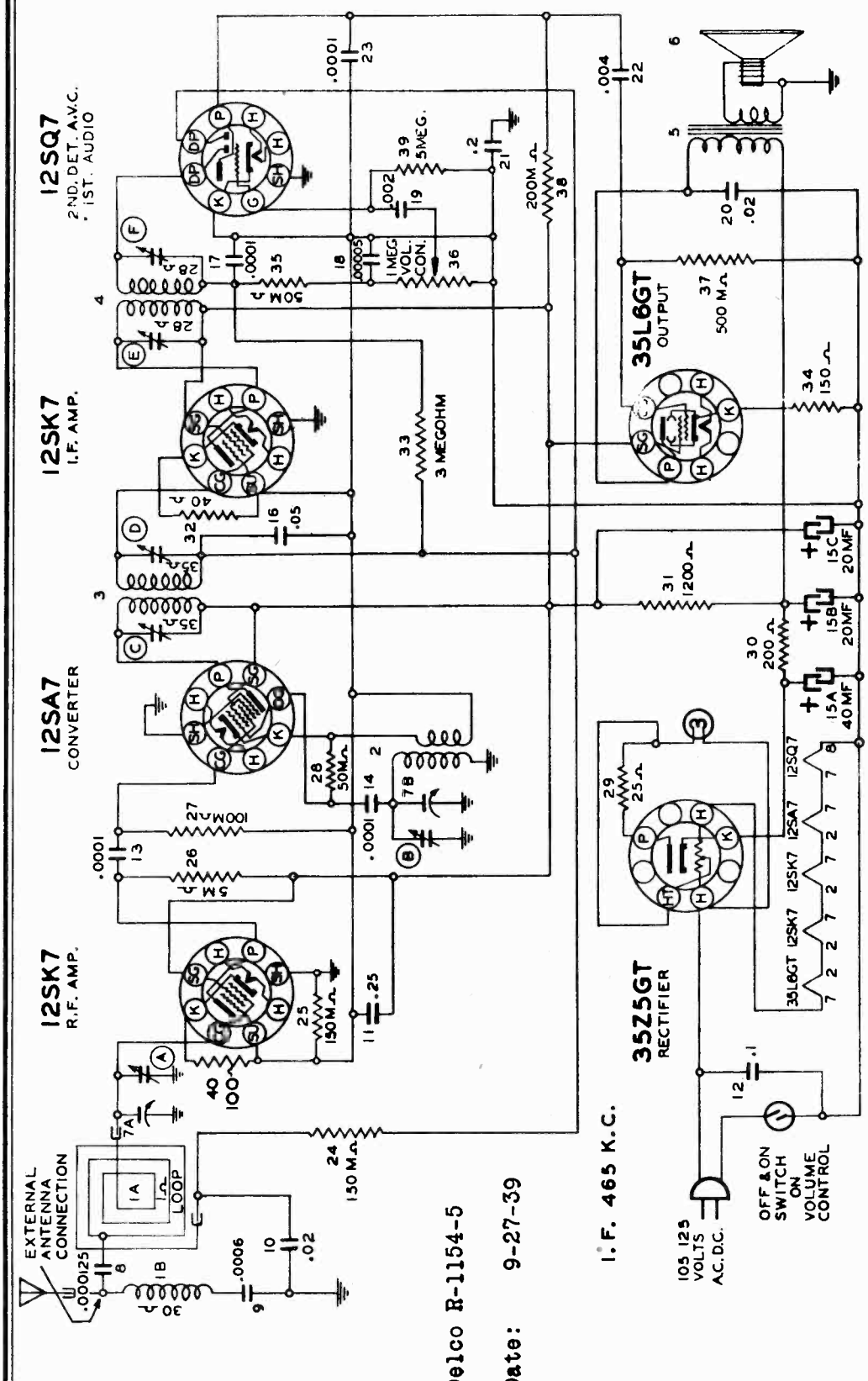
FIG. 4--PARTS LAYOUT--Bottom View



CONVENTIONAL ALIGNMENT SEE SPEC. SECTION VOLUME VIII.

UNITED MOTORS SERVICE INC.

MODELS R1154, R1155
Schematic



GENERAL: The Delco Models R-1154 and R-1155 are six-tube table models, AC-DC superheterodyne receivers with mechanical push-button tuning built-in loop antennas, and 5" P.M. speakers.

ANTENNA: A loop antenna is built inside the back cover of these radios. This type of antenna is somewhat directional, therefore, the radio should be tried in different positions to determine the position which will produce the best reception.

MODELS R1154,R1155
Voltage,Chassis
Socket,Trimmers
Alignment

UNITED MOTORS SERVICE INC.

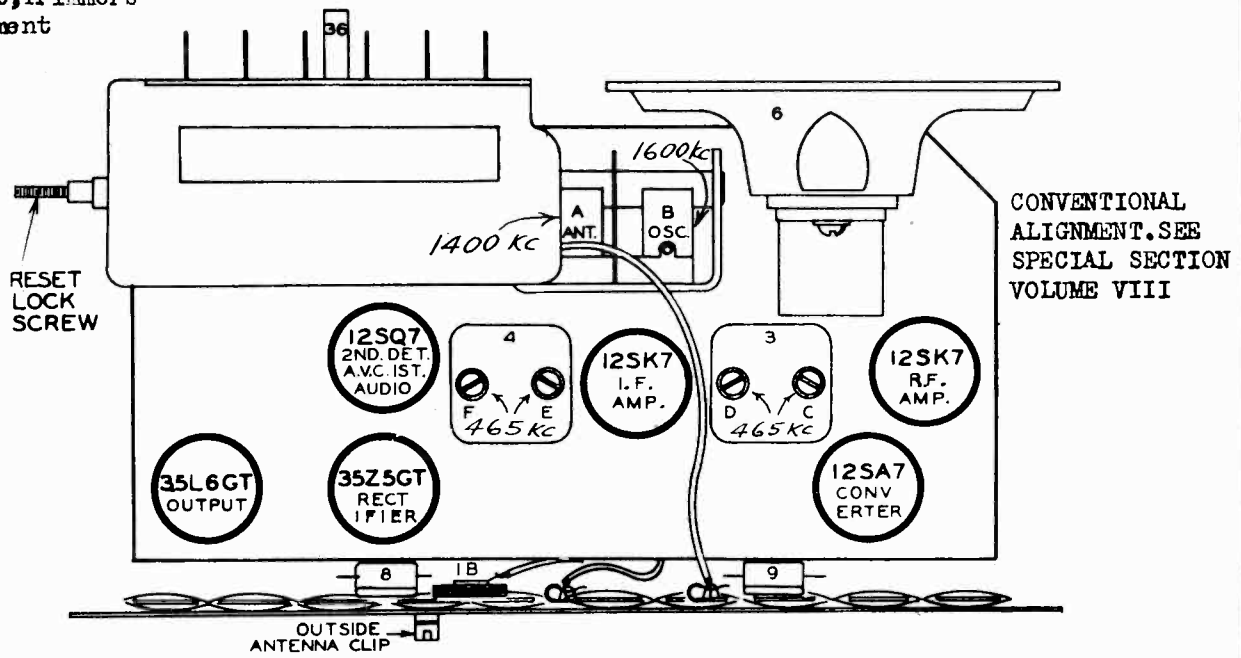


FIG. 3--PARTS LAYOUT--Top View

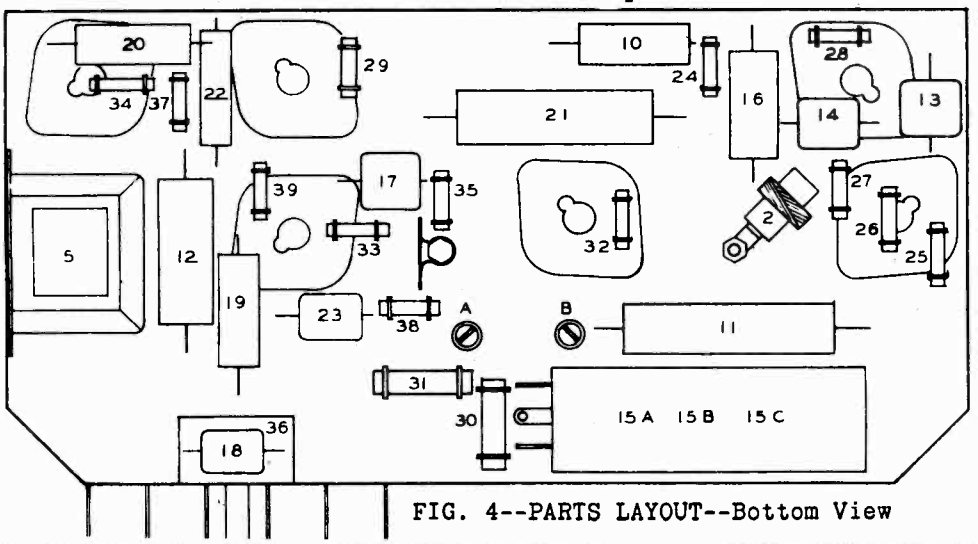


FIG. 4--PARTS LAYOUT--Bottom View

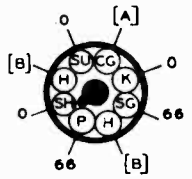
BOTTOM VIEW OF CHASSIS

A.C. LINE VOLTAGE. 117 VOLTS.
POWER CONSUMPTION 30 WATTS.

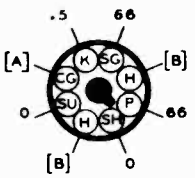
VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND B—

*OSCILLATOR VOLTAGE SHOULD BE MEASURED WITH AN R.F. CHOKE IN SERIES WITH LEAD.

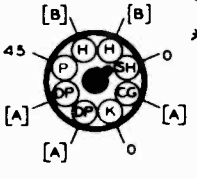
12SK7



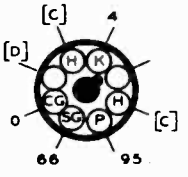
12SK7

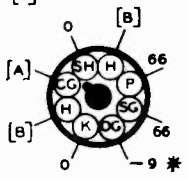


12SQ7



35L6GT

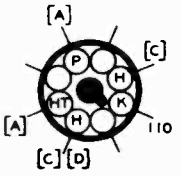




12SA7

[A] CANNOT BE READ WITH VOLTMETER.
[B] 12 V. A.C. BETWEEN PINS H & H.
[C] 32 V. A.C. BETWEEN PINS H & H.
[D] 117 V. A.C. BETWEEN PINS D & D.

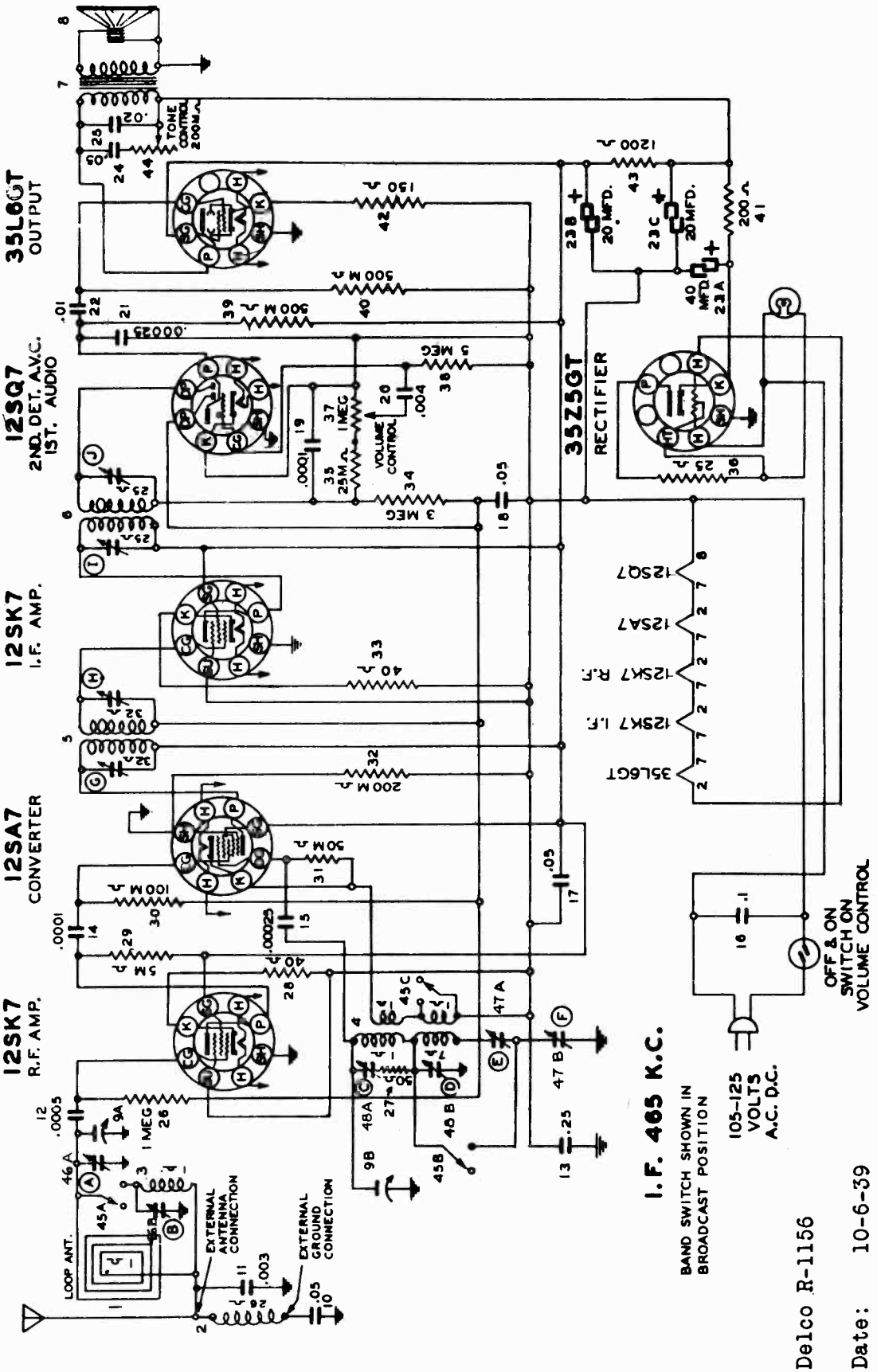
REAR VIEW OF CHASSIS



35Z5GT

MODEL R1156
Schematic

UNITED MOTORS SERVICE INC.



Delco R-1156

Date: 10-6-39

1. Aligning I-F Stages at 465 Kilocycles

(a) Connect the ground lead of the signal generator to the B- terminal of the receiver. (Pin #6, 35L6GT tube)

(b) Connect the signal lead of the signal generator to the grid of the 12SK7 I-F tube through a 1. mfd. condenser.

(c) Connect the output meter across the primary of the output transformer.

(d) Leave the loop connected to the radio and held in back of the chassis in the same position and distance from the chassis as when both units are mounted in the cabinet.

(e) Set the signal generator to exactly 465 K.C.

(f) With the band switch in the Broadcast position, the volume control on full and the rotor plates of the condenser gang completely out of mesh, adjust the trimmers on the second I-F coil (Illus. I & J, Fig. 3) for maximum output.

(g) Connect the signal lead of the signal generator to the grid of the 12SA7 tube.

(h) Adjust the trimmers on the first IF coil (Illus. G & H, Fig. 3) for maximum output.

2. Aligning at 4050 Killocycles

(a) Connect the signal lead of the signal generator to the antenna clip of the receiver through a .002 mfd. condenser.

(b) Connect the ground lead of the signal generator to the ground clip of the receiver.

(c) Set the signal generator to exactly 4050 K.C.

(d) With the band switch in the short wave position and the rotor plates of the condenser gang completely out of mesh, adjust the short wave oscillator trimmer (Illus. C, Fig. 5) for maximum output.

3. Aligning at 3500 Kilocycles

(a) Leave the signal generator connected the same as before.

(b) Set the signal generator to 2500 K.C.

(c) Rotate the shaft of the tuning condenser gang until this signal is tuned in with maximum output.

(d) Adjust the short wave antenna trimmer (Illus. B, Fig. 5) for maximum output.

4. Aligning at 1650 Kilocycles

(a) Set the signal generator to 1650 K.C.

(b) Rotate the shaft of the tuning condenser gang until this signal is tuned in with maximum output.

(c) Adjust the short wave oscillator series pad (Illus. F, Fig. 5) while rocking the rotor plates of the condenser gang back and forth through the signal until maximum output is obtained.

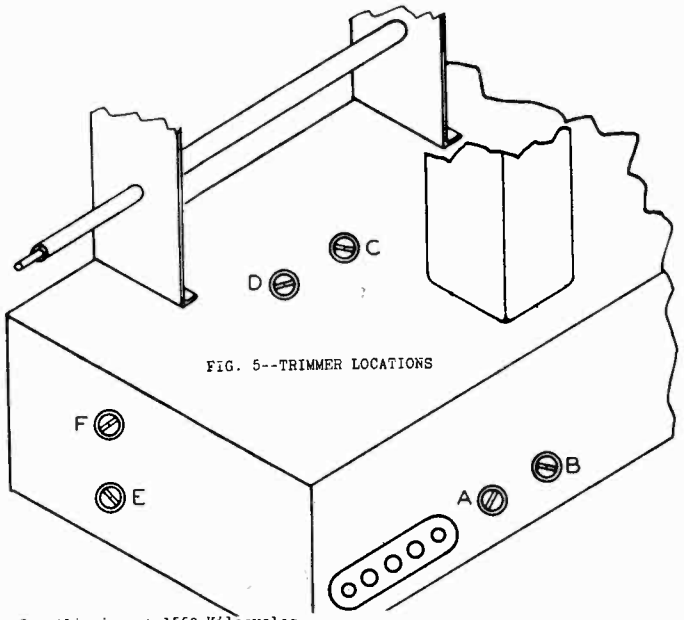


FIG. 5--TRIMMER LOCATIONS

5. Aligning at 1550 Kilocycles

(a) Change the band switch to Broadcast position.

(b) Set the signal generator to exactly 1550 K.C.

(c) With the rotor plates of the condenser gang completely out of mesh, adjust the broadcast oscillator trimmer (Illus. D, Fig. 5) for maximum output.

6. Aligning at 1400 Kilocycles

(a) Set the signal generator to 1400 K.C.

(b) Rotate the rotor plates of the condenser gang until this signal is tuned in with maximum output.

(c) Adjust the Broadcast antenna trimmer (Illus. A, Fig. 5) for maximum output.

7. Aligning at 600 Kilocycles

(a) Set the signal generator to 600 K.C.

(b) Rotate the rotor plates of the condenser gang until this signal is tuned in with maximum output.

(c) Adjust the Broadcast oscillator series pad (Illus. E, Fig. 5) while rocking the rotor plates of the condenser gang back and forth through the signal until maximum output is obtained.

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

UNITED MOTORS SERVICE INC.

MODEL R1156
Voltage, Chassis
Socket, Trimmers

FIG. 3--PARTS LAYOUT--Top View

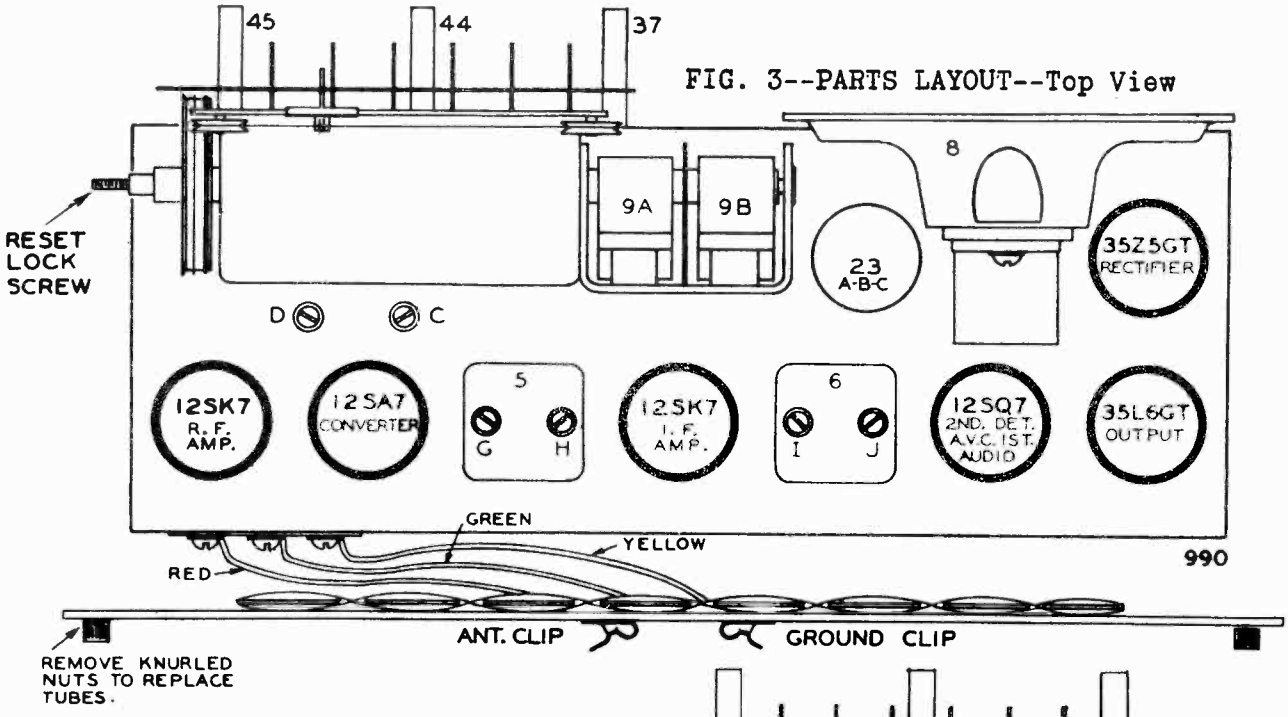
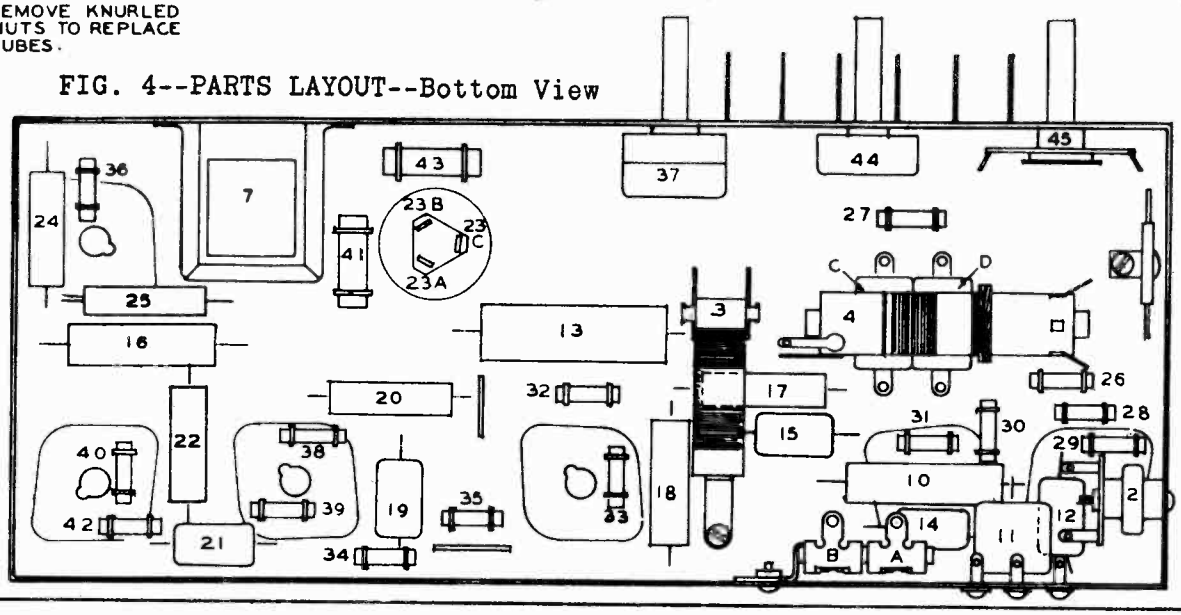
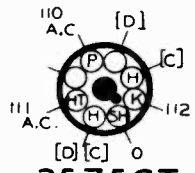


FIG. 4--PARTS LAYOUT--Bottom View



BOTTOM VIEW OF CHASSIS



35Z5GT

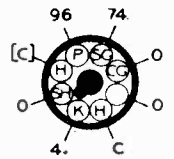
VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND B—

A.C. LINE VOLTAGE 117 VOLTS.

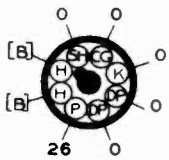
POWER CONSUMPTION 30 WATTS.

VOLUME CONTROL AT MINIMUM VOLUME.

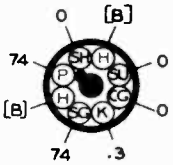
[A] CANNOT BE READ WITH VOLTMETER.
[B] 12 VOLTS A.C. MEASURED ACROSS PINS H & H.
[C] 30 VOLTS A.C. MEASURED ACROSS PINS H & H.
[D] 117 VOLTS MEASURED ACROSS PINS D & D.



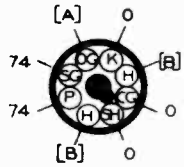
35L6GT



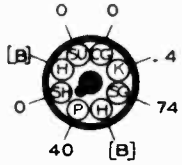
12SQ7



12SK7



12SA7



12SK7

REAR OF CHASSIS

MODEL R1160
Chassis, Socket
Trimmers

UNITED MOTORS SERVICE INC.

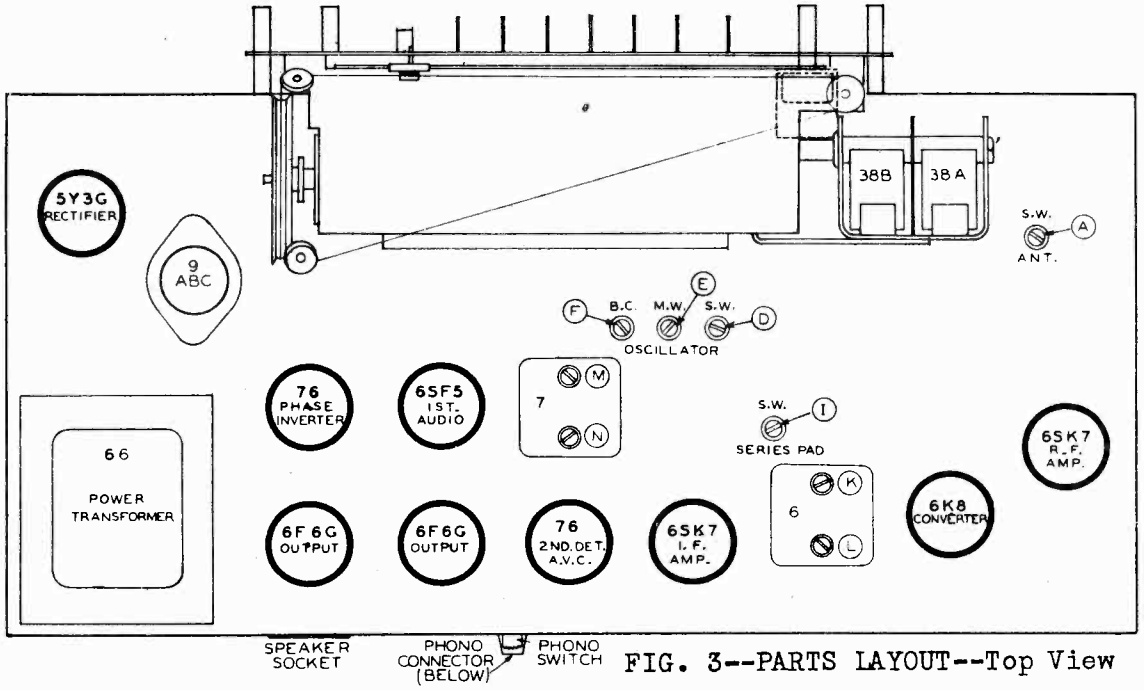


FIG. 3--PARTS LAYOUT--Top View

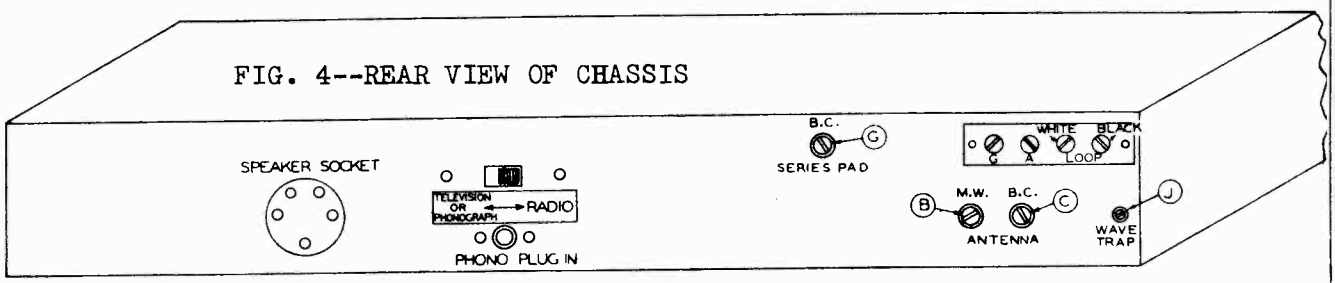


FIG. 4--REAR VIEW OF CHASSIS

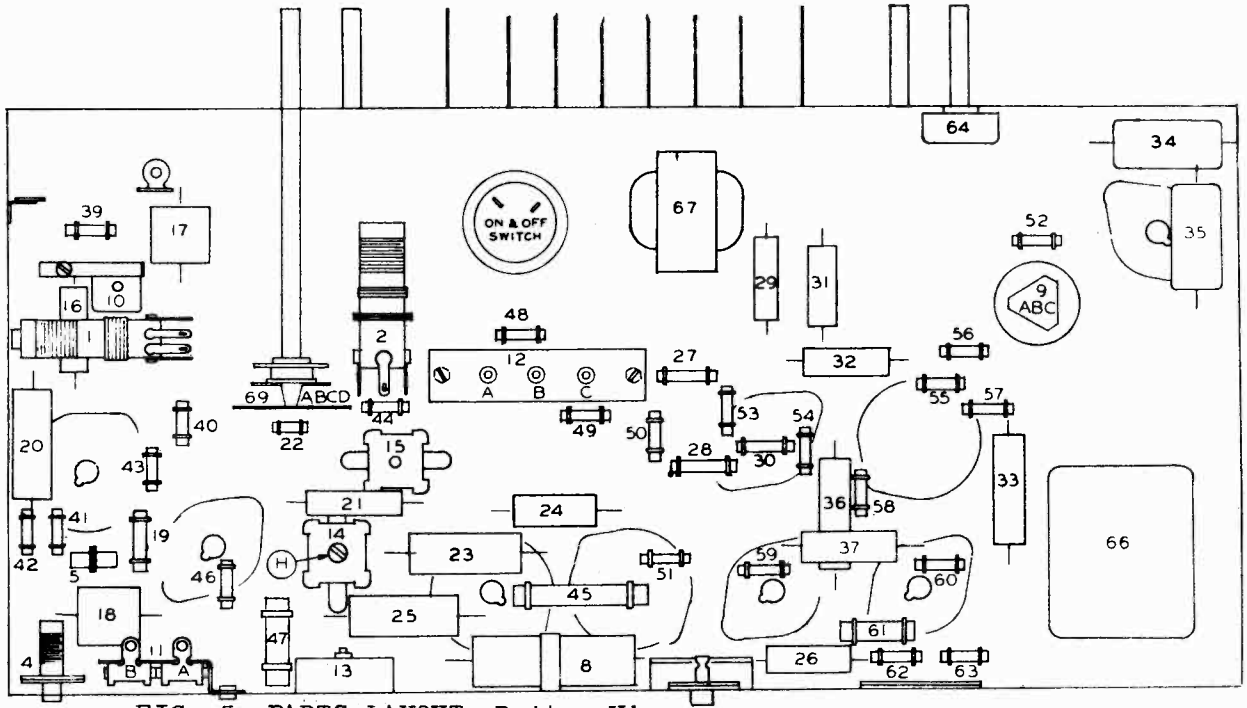
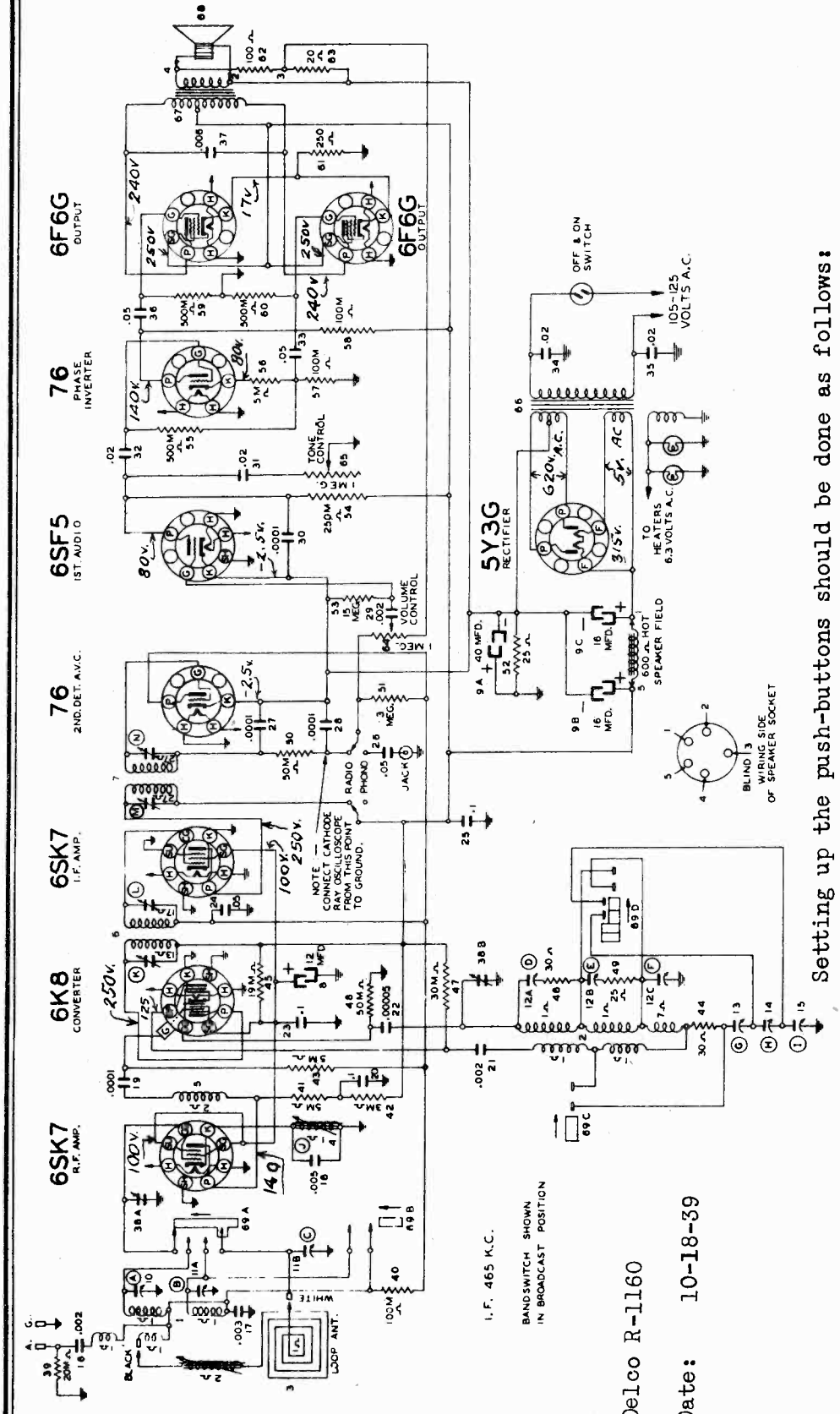


FIG. 5--PARTS LAYOUT--Bottom View

UNITED MOTORS SERVICE INC.

MODEL R1160
Schematic, Voltage
Tuner



Delco R-1160

Date: 10-18-39

Setting up the push-buttons should be done as follows:

1. Pull the "reset" knob all the way out and rotate counter-clockwise until it cannot be turned any further, releasing the cams.
2. Push in on the button to be set and the manual tuning knob so that both stay latched in.
3. With knob and button held in, tune in the desired station carefully. Repeat with other buttons.
4. Pull out reset knob and turn clockwise to lock cams firmly.

CHASSIS ELECTRICAL PARTS

Illus. No.	Part No.	Part Name	Description
1	1214203	Coil	S.W., M.W. Antenna
2	1214234	Coil	S.W., M.W., B.C. Oscillator
3	1214204	Antenna	Loop
4	1214235	Coil	I-F Wave Trap
5	1214205	Coil	R-F
6	1214236	Coil Assy.	1st I-F
7	1214206	Coil Assy.	2nd I-F
8	1213013	Condenser	Electrolytic 12 mfd. 300 V.
9	1214207	Condenser	Electrolytic
		Section A	40 mfd. 25 V.
		Section B	16 mfd. 400 V.
		Section C	16 mfd. 450 V.
10	1214237	Condenser	Trimmer S.W. Antenna
11	1214208	Condenser	Trimmer M.W., B.C. Antenna
12	1214238	Condenser	Trimmer S.W., M.W., B.C. Oscillator
13	1214209	Condenser	Trimmer B.C. Pad
14	1214211	Condenser	Trimmer M.W. Pad
15	1214210	Condenser	Trimmer S.W. Pad
16	1209148	Condenser	Tubular .002 mfd. 800 V.
17	1210859	Condenser	Molded .003 mfd.
18	1213290	Condenser	Molded .005 mfd.
19	1210275	Condenser	Molded .0001 mfd.
20	1207908	Condenser	Tubular .1 mfd. 400 V.
21	1209148	Condenser	Tubular .002 mfd. 800 V.
22	1207625	Condenser	Molded .00005 mfd.
23	1207908	Condenser	Tubular .1 mfd. 400 V.
24	7230592	Condenser	Tubular .05 mfd. 600 V.
25	1207908	Condenser	Tubular .1 mfd. 400 V.
26	7230592	Condenser	Tubular .05 mfd. 600 V.
27-28	1210275	Condenser	Molded .0001 mfd.
29	1209148	Condenser	Tubular .002 mfd. 800 V.
30	1210275	Condenser	Molded .0001 mfd.
31-32	1212099	Condenser	Tubular .02 mfd. 600 V.
33	7230592	Condenser	Tubular .05 mfd. 600 V.
34-35	1212281	Condenser	Molded .02 mfd. 600 V.
36	7230592	Condenser	Tubular .05 mfd. 600 V.
37	7230593	Condenser	Tubular .006 mfd. 600 V.
38	1213986	Condenser	Variable 2 gang tuning
39	1210882	Resistor	Insulated 20,000 ohm 1/2 watt
40	1209883	Resistor	Insulated 100,000 ohm 1/2 watt
41	1211066	Resistor	Insulated 5,000 ohm 1/2 watt
42	1210882	Resistor	Insulated 3,000 ohm 1/2 watt
43	1211066	Resistor	Insulated 5,000 ohm 1/2 watt
44	1213031	Resistor	Carbon 30 ohm 1/2 watt
45	7239157	Resistor	Insulated 18,000 ohm 2 watt
46	1210116	Resistor	Insulated 50,000 ohm 1/2 watt
47	1211102	Resistor	Insulated 30,000 ohm 1 watt
48-49	1213031	Resistor	Carbon 30 ohm 1/2 watt
50	1210116	Resistor	Insulated 50,000 ohm 1/2 watt
51	1211149	Resistor	Insulated 3 megohm 1/2 watt

	DUMMY ANTEN	SIG.GEN. CONNECT.	SIG.GEN. FREQ.	BAND SW. POSIT.	RECE'VER DIAL SET.	TRIMMER	TRIMMER DESCRIP.	ADJUST AT
	0.1 mf	6K8 Cont. grid	465 kc	B.C.		K,L,M,N	I-F.	Max.
	.0002 mf	Term."A"	17 mc	S.W.	17 mc	D	S-W Osc.	Max.
						A	S-W Ant.	Max.
	"	"	6 mc	"	6 mc	I	S-W Osc.Pad.	Max.
	"	"	1550 kc	B.C.	Note 1	F	B-C Osc.	Max.
	"	"	1500 kc	"	1500 kc	C	B-C Ant.	Max.
	"	"	600 kc	"	600 kc	G	B-C Osc.Pad.	Max.
	"	"	465 kc	"		J	I-F Wavetrap	MIN.
	"	"	3.5 mc	Mid.Wave	3.5 mc	E	Mid.Wave Osc.	Max.
						B	" " Ant.	Max.
	"	"	1550 kc	"	1550 kc	H	" " Ser.Pad.	Max.

Recheck middle wave adjustment at 3.5 mc
Recheck B-C band alignment

Note 1. Rotate tuning condenser to bring rotor plates of gang all the way out of mesh and against the high-frequency stop.

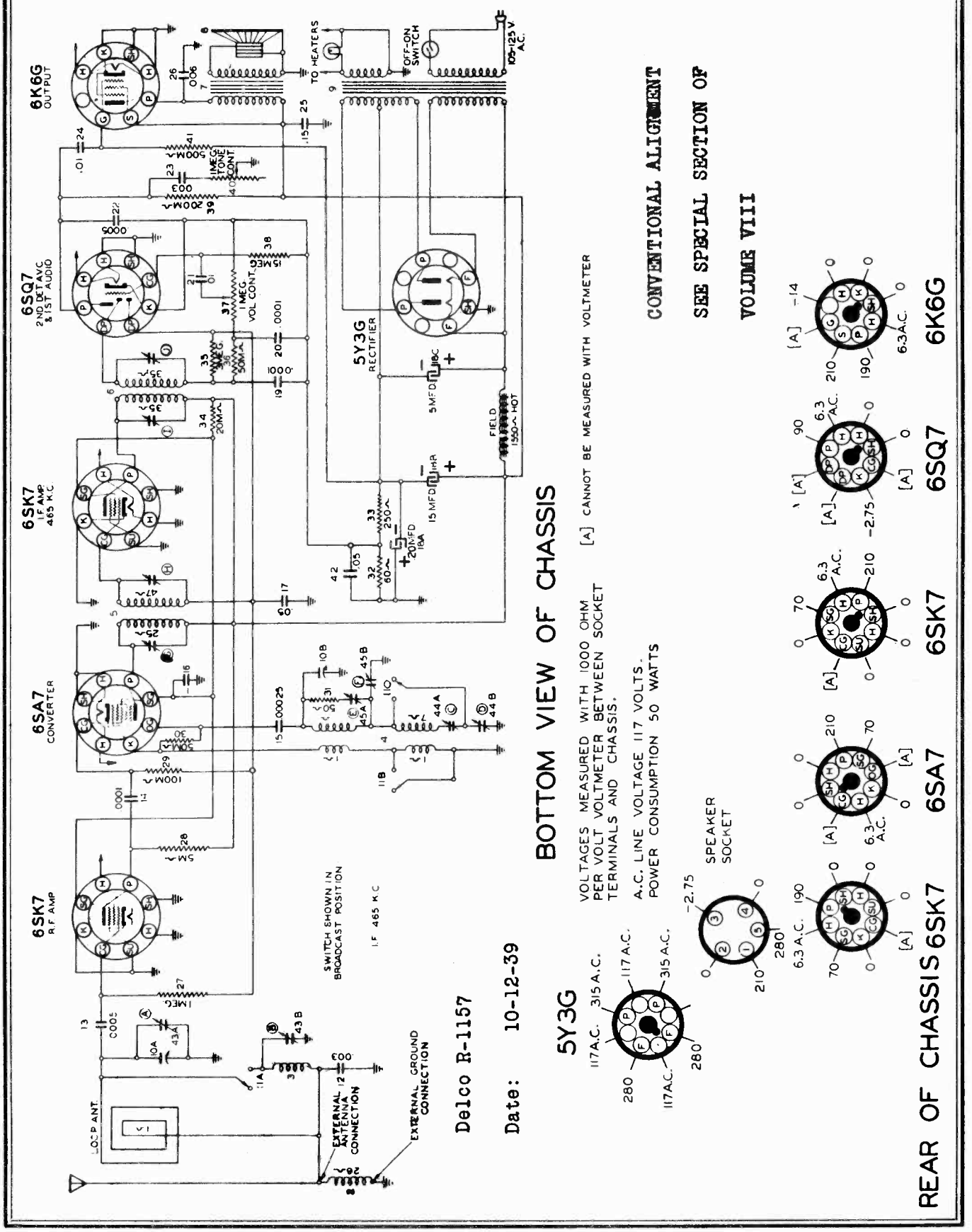
52	1213031	Resistor	Insulated 30 ohm 1/2 watt
53	1213343	Resistor	Insulated 15 megohm 1/2 watt
54	1210117	Resistor	Insulated 250,000 ohm 1/2 watt
55	1210470	Resistor	Insulated 500,000 ohm 1/2 watt
56	1211066	Resistor	Insulated 5,000 ohm 1/2 watt
57-58	1209883	Resistor	Insulated 100,000 ohm 1/2 watt
59-60	1210470	Resistor	Insulated 500,000 ohm 1/2 watt
61	1211011	Resistor	Insulated 250 ohm 1 watt
62	1211000	Resistor	Insulated 100 ohm 1/2 watt
63	1213030	Resistor	Insulated 20 ohm 1/2 watt
64	1213540	Control	Volume - 1 megohm
65	1214212	Control	Tone - 1 megohm
66	1214239	Transformer	Power - 60 cycles
66	1214258	Transformer	Power - 25 cycles
67	1214240	Transformer	Output Speaker
68	1213871	Speaker	12" Dynamic (600 ohm field)
69	1214241	Switch	Band Change

TUNER ASSEMBLY PARTS

1214245	Diffuser	Dial Light
1212301	Button	Diffuser Snap
1214219	Pointer	Station Indicator
1213041	Carriage	Pointer
1212233	Cord	Dial String
1214123	Spring	Dial String Tension
1214220	Drum Assy.	Dial Pointer Drive
1214221	Stud	Drum and Gear

UNITED MOTORS SERVICE INC.

MODEL R1157
Schematic
Voltage



MODEL R1157
Chassis, Socket
Alignment, Trimmers

UNITED MOTORS SERVICE INC.

FIG. 3--PARTS LAYOUT--Top View

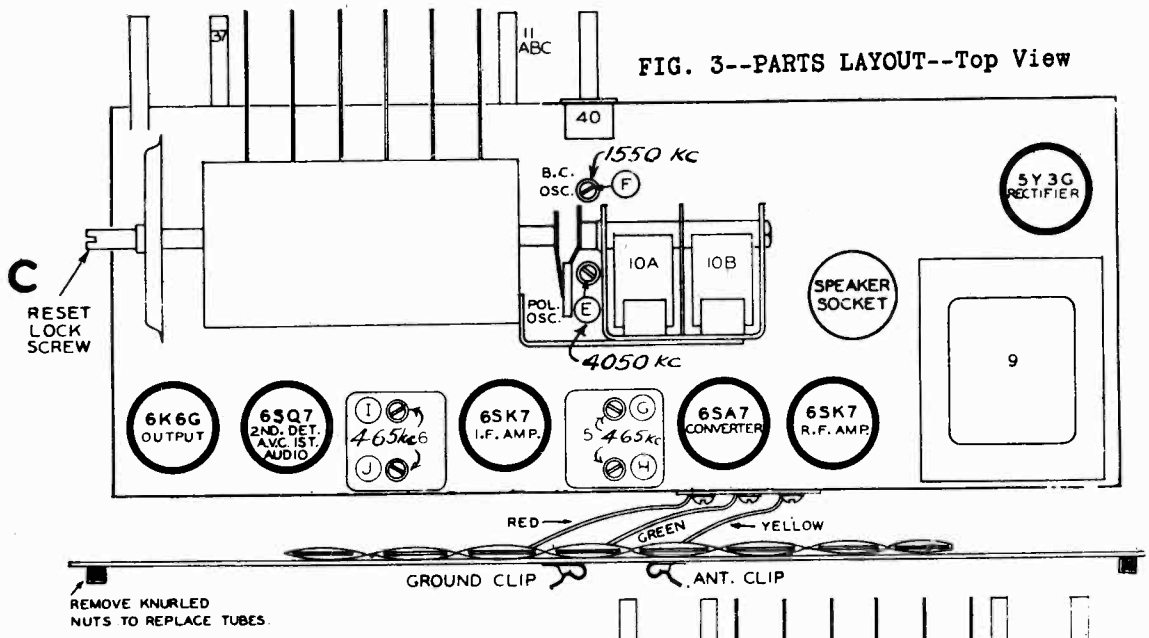
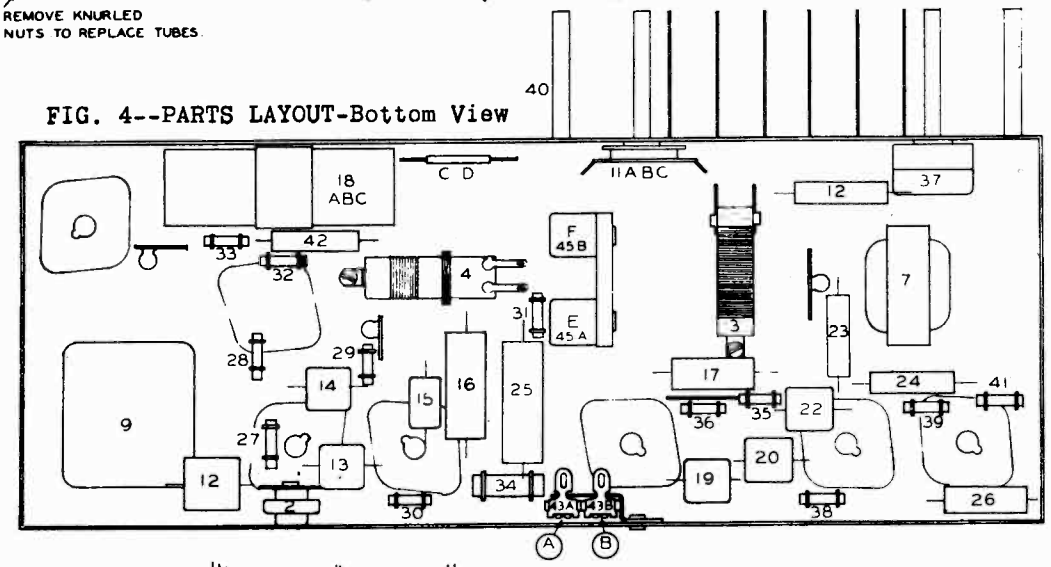


FIG. 4--PARTS LAYOUT-Bottom View



CONVENTIONAL ALIGNMENT
SEE SPECIAL SECTION OF
VOLUME VIII

FIG. 5--TRIMMER LOCATIONS

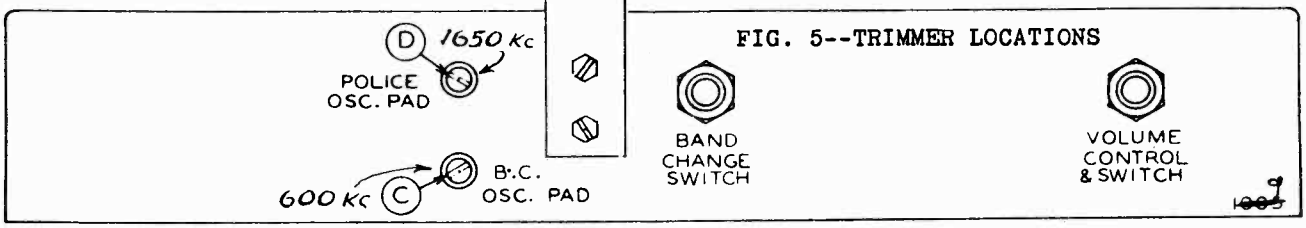
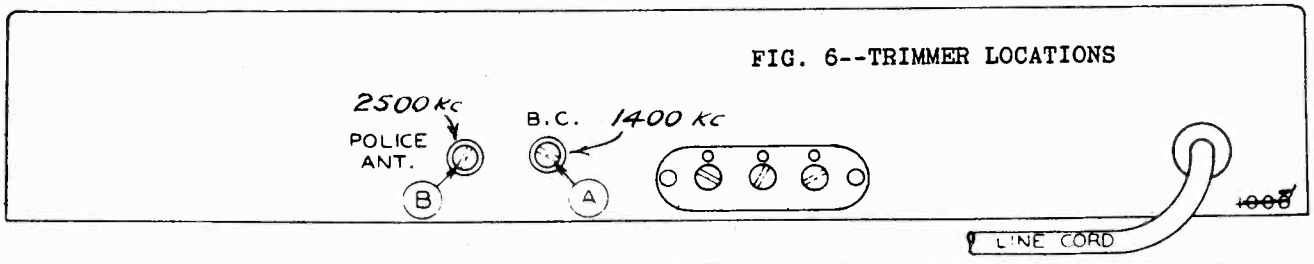
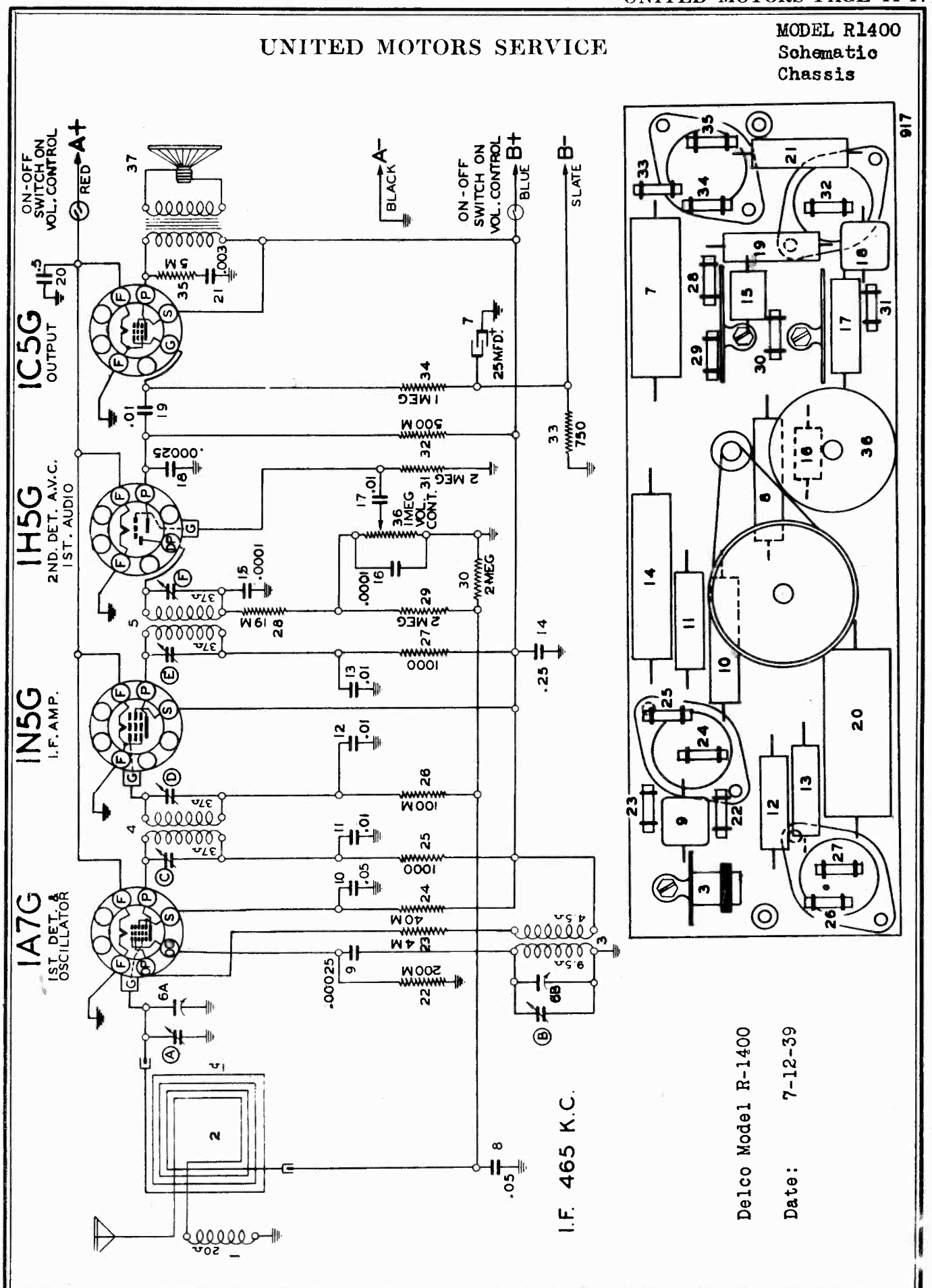


FIG. 6--TRIMMER LOCATIONS



UNITED MOTORS SERVICE

MODEL R1400
Schematic
Chassis



Delco Model R-1400

Date: 7-12-39

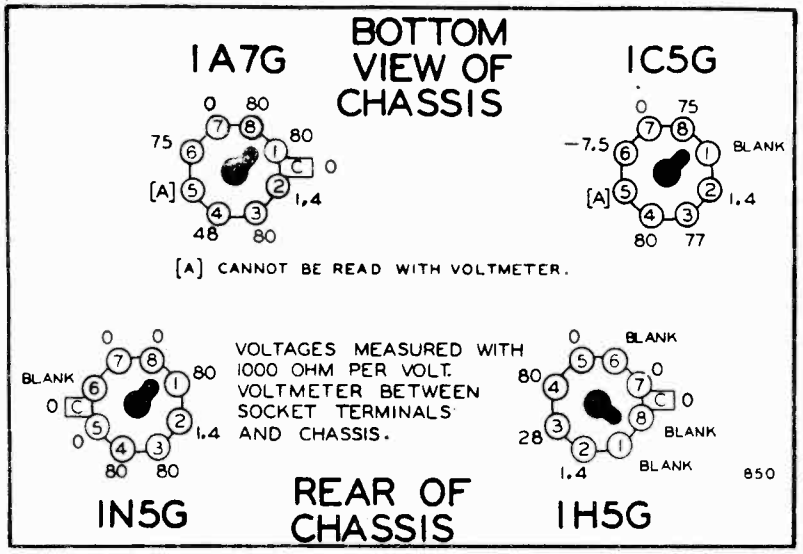


FIG. 1--TUBE SOCKET VOLTAGES

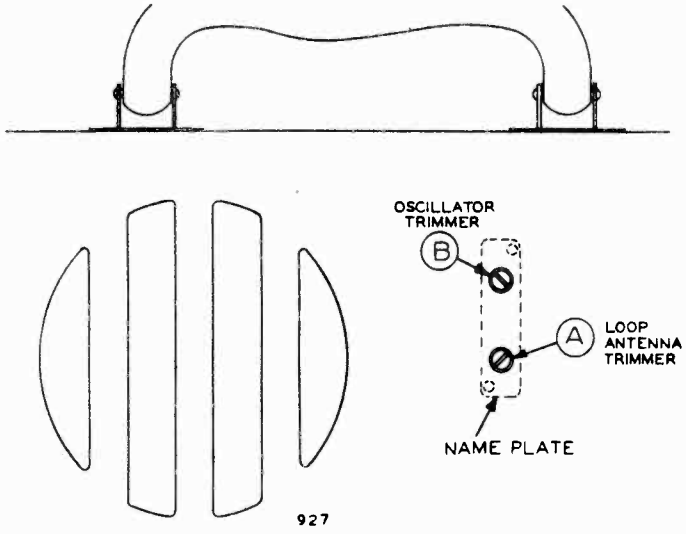


FIG 2--TRIMMER LOCATIONS

1. Aligning I-F Stages at 465 Kilocycles-

Set the signal generator to exactly 465 K.C.

Adjust the I-F trimmers C-D-E-F (Illus. 4 and 5, Fig. 4) for maximum output, using the lowest output from the signal generator whioh will give a readable indication on the output meter, not to exceed 50 milliwatts.

2. Aligning at 1650 Kilocycles

(a) Leave all connections the same as for I-F alignment.

(b) Set the signal generator to exactly 1650 K.C.

(c) Adjust the oscillator trimmer condenser (Illus. B, Fig. 2), for maximum output.

3. Aligning at 1400 Kilocycles

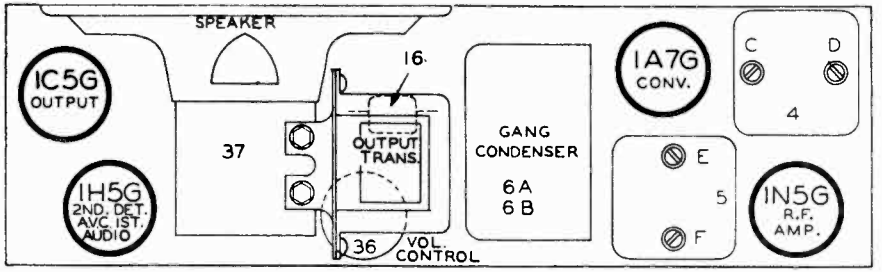
NOTE: This adjustment MUST be made with set and loop mounted and firmly attached in cabinet.

(a) Remove the 1 megohm resistor and connect loop leads to the loop antenna. (Check these clips to make sure that contacts are clean and tight.)

(b) Remove signal lead of the signal generator from the grid of the 1A7G tube and place in a position where the signal can be picked up by the loop antenna. (The signal lead of the signal generator may be connected to the metal carrier pins of the case handle and the ground lead connected to the chassis mounting screw.)

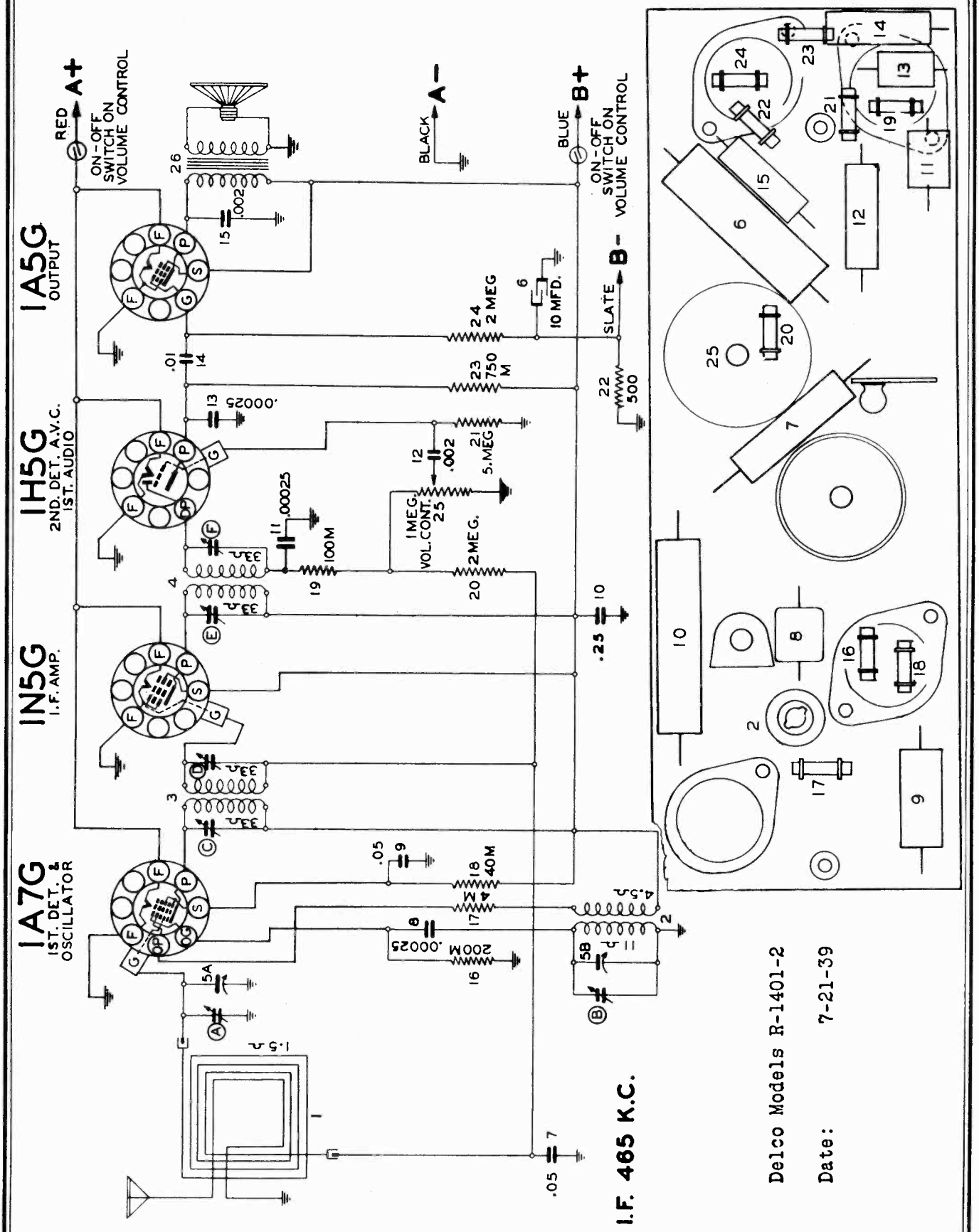
(c) Set the signal generator to 1400 K.C.

(d) Adjust the loop trimmer (Illus. "A", Fig. 2) for maximum output.



UNITED MOTORS SERVICE INC.

MODELS R1401,R1402
Schematic,Chassis



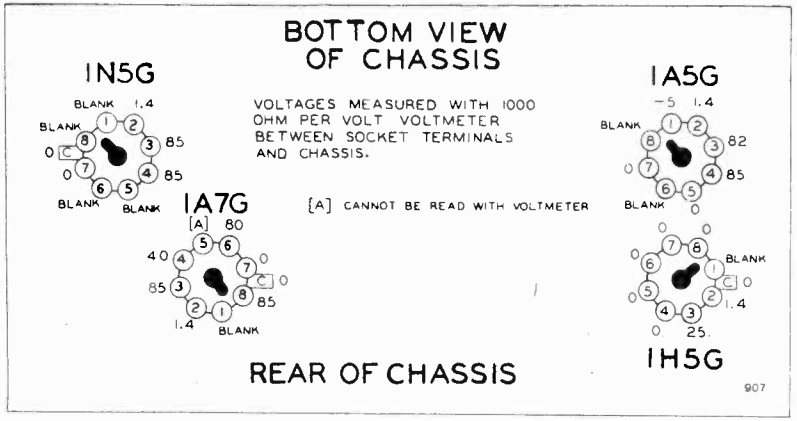


FIG. 1--TUBE SOCKET VOLTAGES

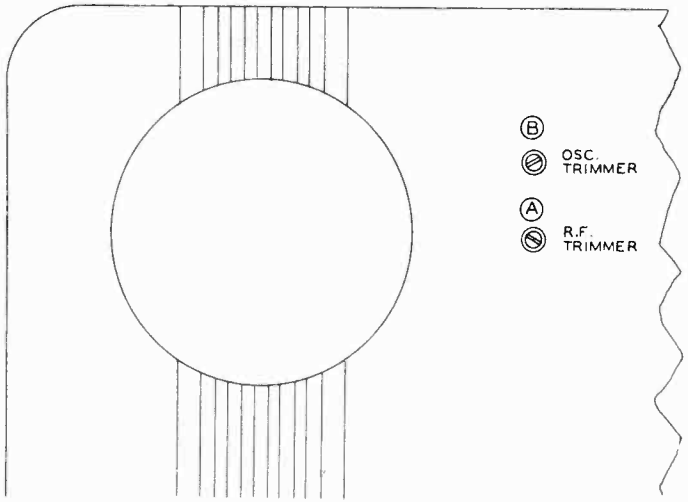
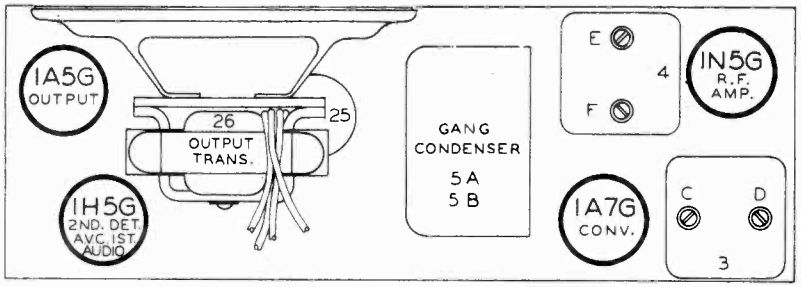


FIG 2--TRIMMER LOCATIONS



1. Aligning I-F Stages at 465 Kilocycles-

   Set the signal generator to exactly 465 K.C.

   Adjust the I-F trimmers C-D-E-F (Illus. 3 and 4, Fig. 4) for maximum output, using the lowest output from the signal generator which will give a readable indication on the output meter, not to exceed 50 milliwatts.

2. Aligning at 1650 Kilocycles

   (a) Leave all connections the same as for I-F alignment.

   (b) Set the signal generator to exactly 1650 K.C.

   (c) Adjust the oscillator trimmer condenser (Illus. "B", Fig. 2), for maximum output.

3. Aligning at 1400 Kilocycles

   NOTE: This adjustment MUST be made with set and loop mounted and firmly attached in cabinet.

   (a) Remove the 1 megohm resistor and connect loop leads to the loop antenna. (Check these clips to make sure that contacts are clean and tight.)

   (b) Remove signal lead of the signal generator from the grid of the 1A7G tube and place in a position where the signal can be picked up by the loop antenna. (The signal lead of the signal generator may be connected to the metal carrier pins of the case handle and the ground lead connected to the chassis mounting screw.)

   (c) Set the signal generator to 1400 K.C.

   (d) Adjust the loop trimmer (Illus. "A", Fig. 2) for maximum output.